Bat Survey Report - Final

Proposed repair and renovation of St. Dubricius Church, Porlock

Prepared for:

PCC of St Dubricius Church in Porlock

Date: 25 July 2025

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HELIXECOLOGY

DOCUMENT SUMMARY			
Title	Bat survey report: proposed repair and renovation of St Dubricius Church, Porlock		
Project ref	2334		
Prepared for	Parochial Church Council of St Dubricius Church in Porlock		
Prepared by	Elizabeth Bradshaw BSc(Hons) DPhil MCIEEM		
Documents reviewed	jh ecology (2021) Summary report: bat surveys of east and north elevation roofs, St Dubricius, High Street, Porlock, Minehead, Somerset TA24 8LB. Unpublished letter report, 4th September 2021. jh ecology (2022) Bat survey: proposed repairs and renovation of the spire of St Dubricius, High Street, Porlock, Minehead, Somerset, TA24 8LB. Unpublished report, February 2022.		
Version history	Date	Version	Status
	2 May 2025	1	Interim report
	9 July 2025	1 & 2	Final report
	24 July 2025	3	Final report
Description of changes	• Inclusion of results of 2025 dusk emergence surveys and revision of recommendations (Final v.1) • Amendment of wording relating to the recommendations for external lighting, specifically that impacting the tower and spire (Final v2) • Amendment of wording relating to the recommendations for external lighting, specifically that impacting the tower and spire (Final v3)		
Drawings and plans supplied	1398.002 EXISTING GF FLOOR PLAN; 1398.003-EXISTING ROOF PLAN; 1398_003-EXISTING GROUND & FIRST FLOOR PLAN; 1398_004-EXISTING ROOF PLAN; 1398_005-EXISTING NORTH ELEVATION; 1398_006-EXISTING WEST ELEVATION; 1398_007-EXISTING SOUTH ELEVATION; 1398_008-EXISTING EAST ELEVATION; 1398_010-EXISTING SECTION A-A.		
Statement	Surveys and reporting have been undertaken following industry standards good practice guidelines (BSI 2013, CIEEM 2017, Collins 2023). This report provides an assessment of the likely presence or absence of bats (and other relevant protected species, such as nesting birds). Potential impacts of the proposed development are based on survey findings at the time Helix Ecology undertook the survey/s. Every effort has been made to provide an accurate assessment of the condition of the site at the time of survey. No liability can be assumed for omissions or changes after this time. Helix Ecology Ltd has exercised due care in preparing this document. Unless specifically stated, information provided by others has not been independently verified. No other warranty, express or implied, is made in relation to the content of this document and Helix Ecology Ltd assumes no liability for any loss resulting from errors, omissions or misrepresentation made by others. Nothing in this document constitutes legal opinion. If legal opinion is required, the advice of a qualified legal professional should be secured.		
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EXECUTIVE SUMMARY

Purpose	Helix Ecology was commissioned to conduct a bat (and nesting bird) survey of St Dubricius church in Porlock to inform proposed repair and renovations. This report identifies wildlife constraints associated with the proposed development, details required protected species licensing and makes recommendations for the following: avoiding, mitigating or compensating for negative impacts; providing biodiversity benefits (enhancement).
Scheme description	The proposed repairs include re-roofing of the south pitch of the nave and the parvise chamber above the north porch, and replacement of oak shingles and potentially some of the underlying sarking boards of the spire, with any necessary repairs to structural timbers. It is also proposed to install glass doors on the external opening of the porch and solar panels on the south pitch of the nave.
Site context	St Dubricius is a 12th C grade-I-listed church, located in the centre of Porlock on the north coast of Exmoor National Park, with good connectivity to extensive deciduous and plantation woodland to the south. Previous surveys of the church by jh ecology had confirmed the presence of long-eared bats, which roost in the spire, and activity by common pipistrelle and *Myotis* species in the vicinity of the church. Jackdaws and grey squirrels nested in the spire interior.
Survey methods	A preliminary roost assessment of the entire church and tower was undertaken in November 2024, an automated bat detector survey of the tower (spire) interior between December 2024 and January 2025, and emergence surveys in May and June 2025. Bat droppings were collected for DNA analysis to confirm species identification.
Key results	Bats: Brown long-eared bats and common pipistrelle bats were confirmed present during the preliminary roost assessment, both species roosting in interior crevices in the north porch and in the spire. A single dropping inside the main body of the church indicated brown long-eared bats also use roof crevices. A winter hibernation survey confirmed use of the spire by both species as a hibernation roost. Numbers of brown long-eared bat droppings in the spire interior also indicated the potential presence of a maternity roost. However, this was not borne out by the emergence surveys, which recorded only small numbers of bats using scattered roost locations (south roof pitch of aisle, an oak shingle and louvered window of the spire and an external wall cavity in the tower). This may reflect the negative impact of lighting the external elevations of the tower and spire at night. The site is of district-level importance for bats due to the presence of hibernation roosts of two common and widespread species. Nesting birds and other species: Jackdaws and grey squirrels formerly used the spire as nest sites but were excluded from the interior prior to the 2025 dusk emergence surveys. Other potential bird nesting sites are present but limited and no evidence of nesting was seen during emergence surveys, although in June 2025 continual flypasts by swifts were recorded.
Further survey recommendations (post-planning consent)	Bats: A dusk emergence or dawn re-entry survey to precede any works starting on the tower or spire in the main breeding season (May to August). Reason: potential for future uptake by breeding bats. Birds: Works commencing in the main nesting season (mid-Feb to mid-August for species liable to be on site) to be preceded by a nesting bird survey. Reason: potential for future uptake by nesting birds.

Key impacts	Bats: Covered scaffold would restrict or prevent access to roosts. Re-roofing slate roofs would temporarily destroy any bat roosts present and put bats at risk of injury of harm. Replacing oak shingles on the spire would cause disturbance by noise and vibration and replacing sarking boards in the spire would cause temporary damage to tower roosts – both a significant negative impact if works started during the hibernation period (or if a maternity colony had taken up residence). Fitting glass doors to the front opening of the north porch would block access to roost locations in the porch interior. Solar panels on the south pitch of the nave roof would shade any roosts present in the roof covering. The impact on this depends on the location of the roost and access points – were bats prevented from accessing roost entrances the impact would be negative. Conversely, if access was not impeded and bats could move along batten cavities between shaded and unshaded areas the impact could be neutral or positive due to increased roost heterogeneity. Installation of inappropriate materials in roofs (e.g. breather membranes) or use of inappropriate timber treatments would risk harm to bats. Nesting birds: None anticipated, unless there is uptake of the (limited) potential nesting sites.
Licensing	A bat licence (an individual derogation licence i.e. European Protected Species Mitigation licence, or site registration under a Bat Earned Recognition Class licence) must be in place ahead of any works starting, including the erection of covered scaffold.
Impact avoidance, mitigation and compensation	Bats: The start of works to the tower/spire will be timed to avoid November to March (hibernation period). Were uptake by a maternity colony to occur in the future, the start of works on the tower/spire would be timed to avoid the main maternity period (May to August). An Ecological Clerk of Works will give a toolbox talk or talks and monitor licensed works, including provision of a watching brief during soft demolition of roofs/spire. Bat boxes (2 no.) will be erected on or adjacent to site (with landowner consent) to accommodate any bats uncovered during works. Bat access to cavities beneath ridge tiles (4 no. tiles in total) will be created in the porch and nave ridges. Existing bat access to the tower will be improved, with suitable access on all elevations via the four spire windows (4 no. access points in total). Other roost sites and access points discovered during works will be recreated on a like-for-like basis. Bat-appropriate roofing felt and timber treatments will be used. Birds: A nesting bird survey/s is/are required ahead of works starting in the main nesting period (Mid February to mid-August at this site).
Biodiversity enhancement	Bats: further modification if necessary to existing external flood-lighting to ensure maintenance of a dark flight corridor to the tower (specifically, no direct lighting or light trespass to impact the south and east elevations of the tower and spire), and appropriate measures to prevent light ingress into the spire interior. Birds: eight swift boxes to be installed behind louvres in the spire windows. Invertebrates: a bee hotel erected in a sheltered south-facing position. Habitat: appropriate management of the churchyard to maintain/improve native plant biodiversity.

1 INTRODUCTION

1.1 Background

Purpose of report	Helix Ecology was commissioned by Jonathan Rhind Architects on behalf of the Parochial Church Council of St Dubricius Church in Porlock to conduct a bat (and nesting bird) survey of the church (hereafter referred to as 'the site') to inform proposed repairs and renovations. This report has been prepared to accompany an application for planning consent and listed building consent to Exmoor National Park Authority, following completion of all surveys.
Site location	St Dubricius Church, High Street, Porlock, Minehead, Somerset, TA24 8LB
OS grid ref.	The site is centred on ordnance survey grid reference SS 88638 46664.
Proposed development	The proposed development comprises repairs and renovations to the church, understood to include: • Roof replacement (on a like-for-like basis) of the roof of the parvise chamber (Chapel of High Cross) over the north porch, and the south roof pitch of the nave. • Installation of photovoltaic panels on the south roof pitch of the nave. • Installation of glass doors in the front opening of the north porch. • Replacement, on a like-for-like basis, of the oak shingles of the spire, which will likely require replacement of at least some of the sarking timbers to which the shingles are fixed and repairs/replacement of other structural timbers. • Covered scaffold.
Pre-existing reports/data	A preliminary roost assessment of the tower and spire was undertaken in April 2021 and an automated bat detector survey in late April to early May 2021 (jh ecology 2022). This confirmed the presence of multiple potential roost features, including crevices under lifted shingles, and the use of the tower interior as a roost by a long-eared bat species (based on presence of droppings, genus-specific social calls and capture of a bat in flight on a trail camera deployed during the automated survey). The church spire was considered to have both hibernation and maternity roost potential for long-eared bats, and roost potential for other species. A preliminary roost assessment and dusk emergence and dawn-re-entry survey of single-storey additions on the north and east elevations were undertaken in August and September 2021, respectively, to inform localised roof repairs (jh ecology 2021). No bats were recorded using potential roost features in these locations, which were considered to have low potential due to light spill from adjacent streetlights. However, long-eared, *Myotis* and common pipistrelle bat activity was recorded during the emergence/re-entry surveys.
Objectives	The objectives of this latest bat survey were a preliminary roost assessment of the entire church to identify potential roost features throughout and provide updated evidence of use by bats and nesting birds; to obtain samples of bat droppings for DNA analysis to confirm the species of long-eared bat present (and any other species); a hibernation survey to investigate use of the spire interior during winter; dusk emergence surveys to establish numbers and species using the church, and to confirm the presence/absence of a maternity roost. Survey findings informed: (a) an assessment of potential impacts of the development on bats and nesting birds; (b) wildlife licensing requirements; (c) recommendations for avoiding, mitigating and/or compensating for negative impacts; (d) recommendations for biodiversity enhancement.

1.2 Planning policy & legislation

Legal considerations	Bats (and their resting places) are afforded legal protection under national and European legislation. It is an offence to kill, injure or disturb a bat and to damage or destroy or prevent access to any place used for rest or shelter by a bat (irrespective of whether a bat is present at the time). Wild birds, their young, eggs and nests are also protected under national and European legislation. It is an offence to kill, injure or take any wild bird; take, damage or destroy a nest whilst in use or being built. Some species are also legally protected from disturbance whilst nesting. See Appendix 1 for further information.
Planning considerations	The National Planning Policy Framework (NPPF) (2023) and the Natural Environment and Rural Communities (NERC) Act 2006, seek to avoid and (where necessary) mitigate or compensate for any unavoidable impacts associated with development proposals. Section 41 of the NERC Act 2006 requires all planning authorities to take due regard of biodiversity within their statutory roles and identifies Species of Principal Importance, which includes a number of bat species (refer to Appendix 1). A key principle of NPPF is a requirement for the local planning authority, in determining planning applications, to seek ways to minimise impacts on biodiversity and to incorporate net gains in biodiversity where possible. This is reinforced through the guiding principles set out in the Exmoor National Park Local Plan 2011 – 2031 adopted in July 2017.
Biodiversity Net Gain	Under the Environment Act 2021 it is now mandatory for most planning consents in England to achieve at least 10% biodiversity net gain (BNG), with certain exemptions (see below). BNG is additional to the mitigation and compensation required for unavoidable impacts on protected species or priority habitats. Small sites are defined as: (1) residential - the number of proposed dwellings is between one and nine inclusive on a site having an area of less than one hectare or, where the number of dwellings is not known, a site area of less than 0.5 hectares; (2) non-residential - the floor space to be created is less than 1,000 square metres or the site area is less than one hectare. Exemptions for BNG apply to householder applications, permitted development, biodiversity gain sites (where habitats are being enhanced for wildlife), development impacting an area below a 'de minimis' threshold of 25 m^2 or 5 m for linear habitats, and small-scale self- and custom-built developments that meet specific criteria. Biodiversity Net Gain is not relevant for this site as proposed works are limited to the church structure.

2 METHODS

2.1 Desk study

Sites of conservation interest	The MAGIC website was examined (most recently on 01/05/2025) for information on designated sites within a 1 km radius, and for sites designated for their bat interest (i.e. Special Areas of Conservation).
Protected species	The MAGIC website was examined (most recently on 01/05/2025) for protected species licences for bats issued for developments within a 2km radius of the site.
Further contextual information	Web-based tools such as MAGIC and Google maps (https://www.google.co.uk/maps/) and Google Earth Pro were examined for information on priority habitats and for aerial photographs of habitats, respectively,

	and information in UK Biodiversity Action Plan and local Biodiversity Action Plans considered.

2.2 Bat survey

Surveyors

EB: Elizabeth Bradshaw BSc(Hons) DPhil MCIEEM. Principal consultant ecologist at Helix Ecology with over 17 years of professional consultancy experience. Survey licences (bats): Level 3 (2016-24943-CLS-CLS) and 4 (2016-24944-CLS-CLS). Registered Consultant (Bat Mitigation Class Licence). Earned Recognition Consultant (Bat Earned Recognition Class Licence): Accreditation Level 3 (Annexes H2 & H3). Member of Somerset Bat Group.

SC: Sophie Cooper BA (Ed) MSc. Assistant ecologist at Helix Ecology. Member of Somerset Bat Group.

KT: Kerrie Thorne BSc. Seasonal bat surveyor (2015-). Member of Somerset Bat Group.

Survey summary

Survey type	Date	Start/end time (sunset / sunrise)	Surveyor initials	Weather (start/end)			
				Temp (°C)	Wind (Beaufort)	Cloud cover (%)	Rain
Preliminary bat roost and nesting bird assessment	21/11/2024	N/A	EB	3	1	100	Occasional light sleet
Automated bat detector survey*	09/12/2024 – 12/01/2025	15:36 – 08:37 (16:06 – 08:07)	EB	-	-	-	-
Dusk emergence	19/05/2025	20:49-22:34 (21:04)	EB, SC, KT	13/10	1/1	0/0	0/0
Dusk emergence	16/06/2025	21:15-23:00 (21:32)	EB, SC, KT	16/14	1/2	20/20	0/0
*Start/end times are given for the first night only. See Appendix 8.4 for further details							

Survey methodologies

Survey type	Equipment used and to hand	Methods
Preliminary bat roost and nesting bird assessment	Clulite half million CP torch, head torch, LED Lenser hand torch, Ridgid endoscope, Teslong NTS500 inspection camera, Nikon 8x42 binoculars, Olympus TG-4 digital camera, 3.8m telescopic ladder, compass, Garmin eTrex GPS, DNA-sampling kit (see below).	• The church and tower/spire interiors and exteriors were inspected for potential roosting sites and points of egress for bats, and for bats and signs of bats such as droppings, wear marks, staining and feeding remains. Accessible crevices were examined by torch and/or endoscope. Samples of bat droppings were collected into plastic vials and stored for future species identification from DNA sequencing. • Similarly, building interiors and exteriors were inspected for bird access, and for evidence of use by birds namely, sightings, nests, pellets and/or droppings.

Automated bat detector survey	Automated bat recorder: Titley Scientific Chorus Sound analysis software: Anabat Insight	The bat recorder was placed inside spire on the east elevation at the level of the louvred openings, fixed to a structural timber and facing into the spire. The recorder was programmed to operate from 30 minutes prior to sunset to 30 minutes after sunrise, recording both ultrasound registrations and temperature.
Dusk emergence survey	Handheld bat recorders: Elekon Batlogger M, Peersonic RPA3 Automated bat recorders: Peersonic RPA3 Thermal Imagers: Guide TK612 with Feelworld T7 Plus 7 inch screen; FLIR A700. Infrared (IR) cameras and lights: Canon XA10 camcorder, Canon XA60 camcorder, Nightfox Whisker NV camera, Ward Optical System Ltd Black Sun 2B20 850nm IR torch, Ward Optical System Ltd Black Sun 2B672 67 mm 850nm IR torch, Nitefox 140° IR Illuminators. Sound and videos analysis software: SonoBat 4.5.0, Elekon BatExplorer. Camera footage was reviewed using the VLC video editing programme and Windows Media Player.	• Surveyors were positioned to ensure all exterior elevations were covered, with bat activity monitored visually and using ultrasound detectors with headphones. Calls were recorded for later analysis with sound analysis software to aid species identification. • Infrared and thermal imaging cameras were used as night vison aids (NVAs) and standalone units with video recorded throughout the survey for later playback. • Floodlights and external lights were switched off for the duration of the survey.
DNA analysis	Non-sterile plastic vials, tweezers, surgical gloves.	To aid identification of bats to species level, bat droppings were collected during site visits for subsequent DNA analysis as required. Droppings were collected into non-sterile 2 ml plastic vials without direct handling to avoid cross contamination, and stored at room temperature (air-drying on paper beforehand if necessary) prior to posting to the laboratory. Analysis methods entailed a species-specific qPCR test as standard in the first instance, or DNA sequencing if this initial approach was unsuccessful (https://ecotypegenetics.co.uk/bat-species-identification/). Some samples were combined for analysis and tested for multiple species.

3 RESULTS

3.1 Contextual research

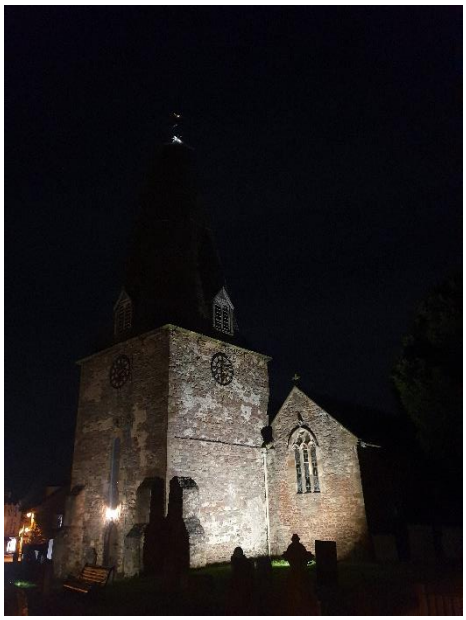
St Dubricius does not lie within or adjacent to any designated sites although four sites occur within 1 km of the Church (Table 6). These provide potential foraging habitat for bats, and one of these (Exmoor and Quantock Oak Woodlands) is a SAC designated for barbastelle bats, with St Dubricius falling within consultation zone A of the SAC.

3.2 Site description & assessment of surrounding habitats

St Dubricius

St Dubricius was a grade I listed 12th C parish church located in the centre of Porlock (Figs. 1-2). The main body of the church comprised a nave/chancel and south aisle/lady chapel, with a porch, organ tower and servery on the north elevation, and a clergy vestry and a storeroom on the east elevation linked to the servery by a corridor. A boiler room under the servery was accessed by stairs on the east elevation. Walls were of random rubble stone and over 1 m thick on the main church and tower. The pitched roofs of the nave/chancel, south aisle/lady chapel, north porch, corridor and clergy vestry were of natural slate. Buttress on the north and south elevation were also topped by natural slate. The organ tower had a flat lead roof and the store had a flat felted roof. The c. 5m x 5m stone-built tower on the west elevation housed the choir vestry, clock mechanism and bell chamber. The roof of the octagonal spire was close boarded with horizontal sarking timbers to which oak shingles were directly fixed.

The church had at least four external lights fixed to the exterior walls and a light inside the north porch. Ground-level floodlights were used to light the north and west exterior elevations of the tower and spire. At the time of the 2021 surveys there was also a working floodlight on the south elevation (see photos below, taken in summer 2021). At the time of the 2025 surveys, the south elevation of the tower was not lit at night as the south floodlight wasn't working, and this floodlight has now been entirely removed. Three streetlights were spaced along the west boundary road.



West and south elevations at night (24/08/2021)

North elevation at night (24/08/2021)

Surrounding habitat	The church was in the centre of Porlock, a large village on the north coast of Exmoor National Park. Although there were dwellings and commercial properties immediately adjacent to the church on all elevations, the site was considered semi-rural due to its proximity to extensive open and wooded countryside, with good connectivity to the south to extensive deciduous and plantation woodland via mature gardens and a recreation ground (Fig.1).
Assessment of bat potential	Based on the above description, the church was considered to have high potential for bats (i.e. to be capable of supporting significant roosts e.g. hibernation or breeding), and the immediate habitat to have moderate potential for foraging and dispersal (Table 4). Sixteen of the UK's 18 resident bat species have been recorded in the local area, with Horner Wood supporting maternity roosts of barbastelle bats in addition to other species.
3.3 Bats	
Desk study	MAGIC had records for European Protected Species Licences issued for developments at five locations within a 2 km radius of the site between 2011 and 2020 (Table 7). These provide evidence of at least seven species: greater horseshoe *Rhinolophus ferrumequinum*, lesser horseshoe *R. hipposideros*, common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *P. pygmaeus*, brown long-eared *Plecotus auritus*, serotine *Eptesicus serotinus*, whiskered *Myotis mystacinus* (confirmed) and possibly Brandt's *M. brandtii.* Previous developments at the site (minor roof repairs) are described in jh ecology's 2021 report.
Preliminary bat roost assessment	Evidence was found of two species: brown long-eared and common pipistrelle (both confirmed by DNA sequencing of droppings) (Figs.3-4). A single brown long-eared dropping was found in the main church interior, which can be accessed via gaps in the roof timbers and between roof timbers and end walls in some locations. A small number of brown long-eared droppings were found within the north porch (below crevices between the ceiling timbers and the stone walls), and extensive collections within the bell chamber, which opens into the spire above, with a single dropping also found inside a wall cavity. In addition to a limited number of stone wall cavities, the structural timbers of the spire provide numerous cracks and crevices, and bats could also rest on top of cross timbers. Common pipistrelle droppings were also found in the north porch below a crevice also used by long-eared bats. Other potential roost features and access points are detailed in Figure 3. Other bat species may roost in the church without necessarily leaving evidence of their presence. As noted in the report by jh ecology (2022) the lifted oak shingles of the spire may provide crevices similar to lifted bark, a roost feature favoured by barbastelle bats *Barbastelle barbastellus.*
Automated monitoring survey	Registrations (mainly social calls) of long-eared bats were recorded throughout the 35-night period of the survey, on 13 nights in total (Table 8). Common pipistrelle calls were recorded on 7 nights. Activity was more intermittent from late December 2024 into January 2025.
Dusk emergence surveys	19th May 2025 No bats were seen to emerge from the church or spire, but a bat (likely a long-eared bat – see Discussion) entered a crevice under a roof slate on the south pitch of the aisle 61 minutes after sunset (Figure 5). Activity around the church was low overall, with more activity recorded in the second half of the survey. Species recorded during the survey were common pipistrelles (first registration 21 minutes after sunset), *Myotis* (first registration 27 minutes after sunset),

	serotine (89 minutes after sunset) and a *Nyctalus* species (likely noctule; 82 minutes after sunset). 16th June 2025 Three bats emerged from the south elevation of the spire and tower (Fig.6), none of which could be reliably identified due to the absence of detectable calls. Emergences occurred from a gap under an oak shingle (10 minutes before sunset, so likely a pipistrelle),the apex of the south elevation spire window (31 minutes after sunset – pipistrelle or long-eared both possible) and a wall cavity (32 minutes after sunset – pipistrelle or long-eared both possible). Activity was low overall, although continuous foraging by a common pipistrelle around the trees on the south elevation was recorded from 3 minutes before sunset to 28 minutes after sunset, and repeated registrations of a *Myotis* species were recorded 54 minutes after sunset in the same area. Species recorded during the survey were common pipistrelle (first registration 17 minutes after sunset), *Myotis* (first registration 34 minutes after sunset), noctule (first registration 71 minutes after sunset), serotine and lesser horseshoe (first registrations of both species 85 minutes after sunset).
3.4 Nesting birds	
Field survey	Jackdaws *Corvus monedula* (and grey squirrels *Sciurus carolinensis*) had been excluded from the tower interior, where they formerly nested on the interior wall tops and structural timbers, respectively. External crevices in walls, at eaves and where the spire joins the stone tower provide a limited number of potential nest sites for smaller species (see Fig. 3). Numerous flypasts by swifts occurred around sunset during the June emergence survey, although no nesting activity was recorded. Potential nest sites and access points (e.g. ledges on the wall plate where the timber had decayed; the louvred windows) were blocked using wire mesh.

Figure 1. Site location and site plan

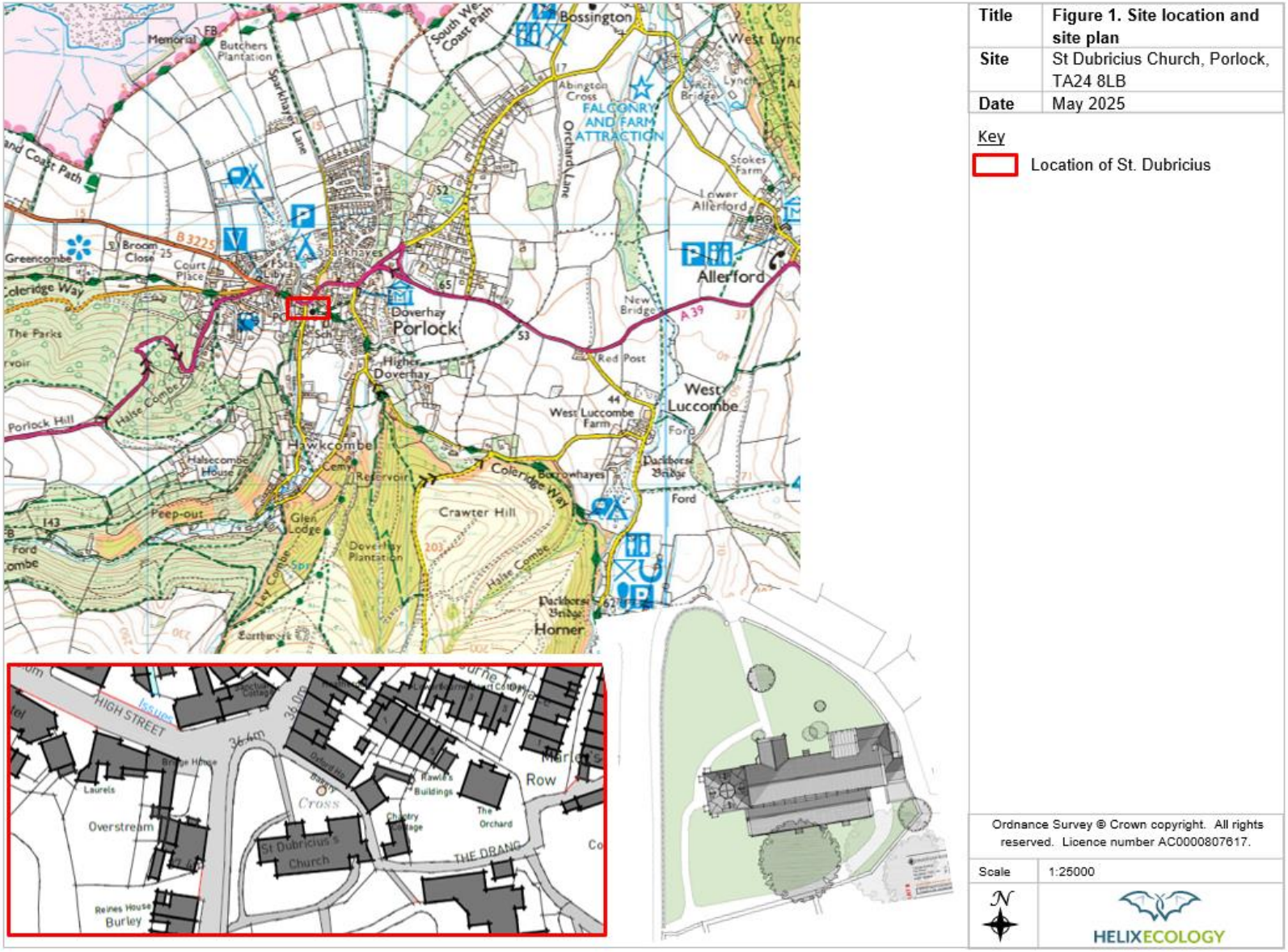
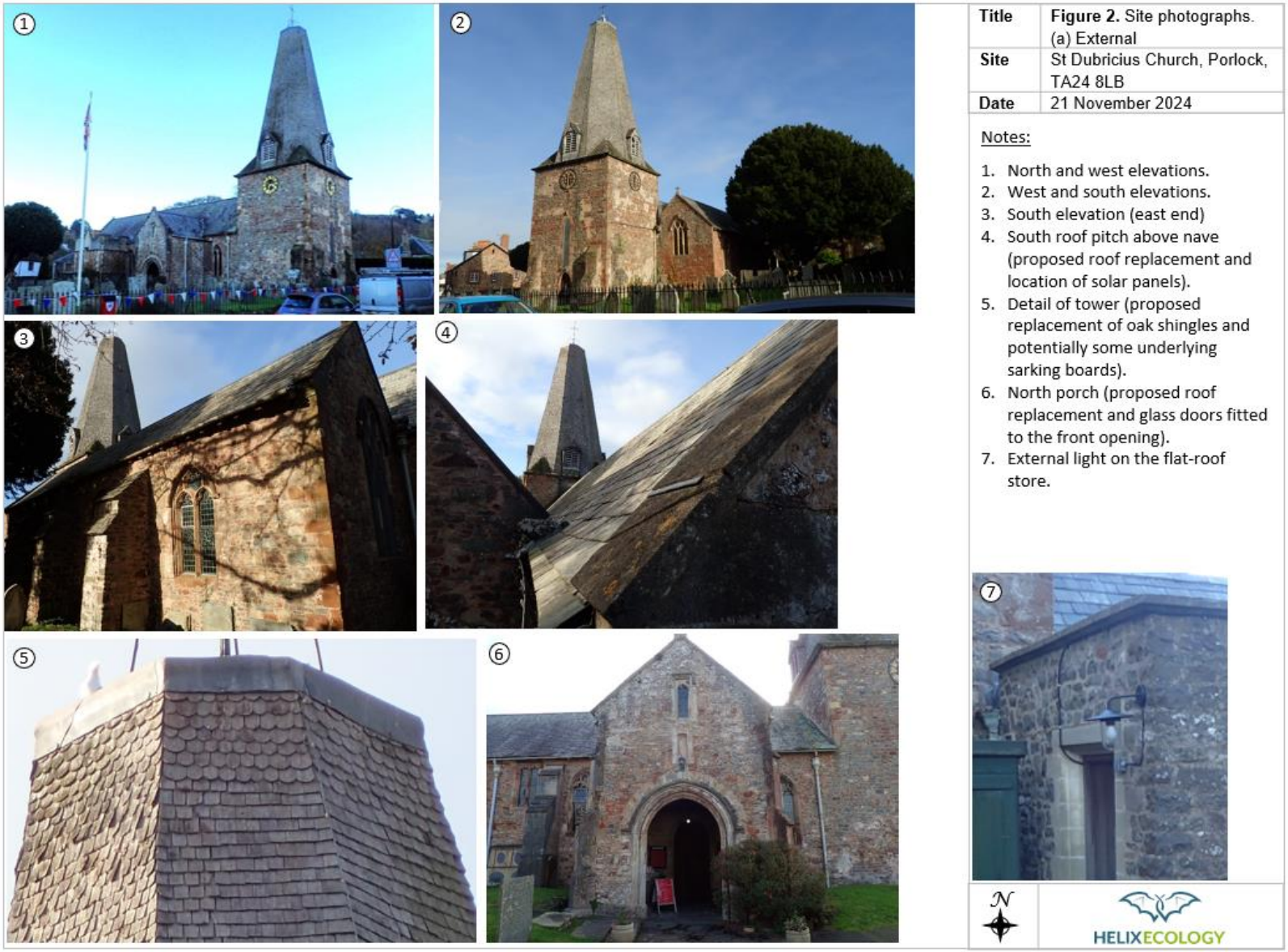


Figure 2. Site photographs.

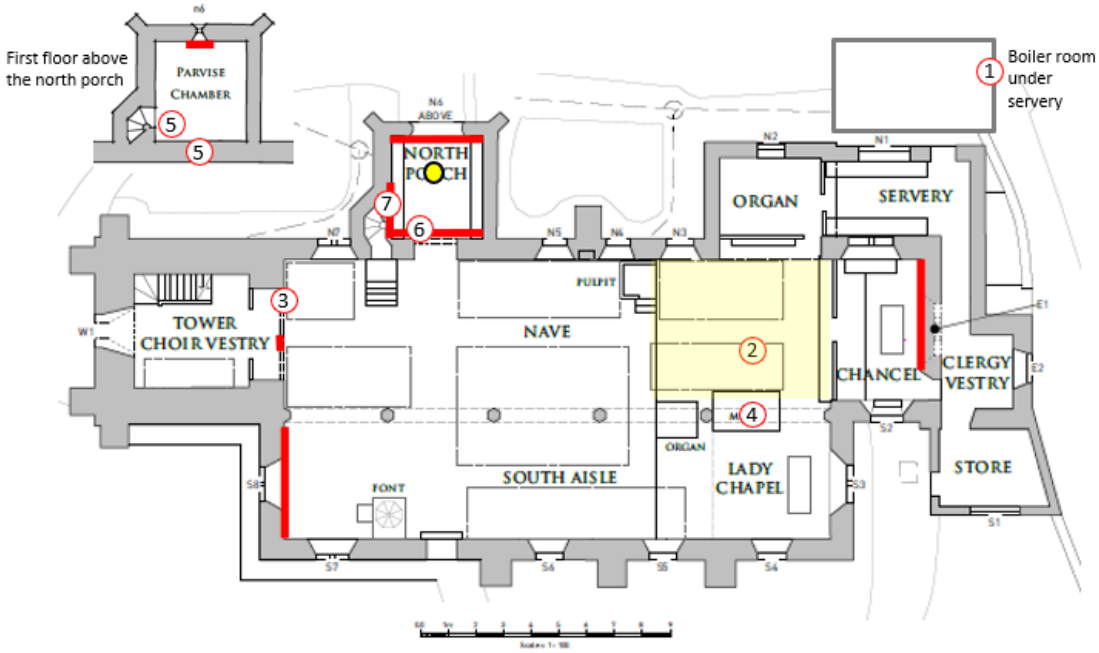


Title	**Figure 2.** Site photographs. (a) Internal
Site	St Dubricius Church, Porlock, TA24 8LB
Date	21 November 2024

Notes:

1. Interior of nave (with aisle to left) looking towards the tower.
2. Timber ceiling where it abuts the stone wall – gaps between the two would allow bat access into the church interior from the void above.
3. Conjunction between stone tower and spire timbers, with light ingress (circled).
4. Structural timbers of the spire.
5. Looking from the spire into the bell chamber.

Figure 3. Results of the preliminary roost assessment



Title	**Figure 3. Results of the preliminary roost assessment** (a) Internal features
Site	St Dubricius Church, Porlock, TA24 8LB
Date	21 November 2024

Key

- (1) Target note
- Porch light
- Gaps between timber ceilings and stone walls: potential access to roof voids or ceiling cavities above

Target notes:

1. Gap under boiler room door bur no evidence of bats in the interior.
2. Split in timbers of barrel-vaulted ceiling (shaded yellow) with potential for access to church interior from void above.
3. Gaps either side of doorway between timber & stone – potential for access to tower choir vestry (but no evidence in vestry).
4. **Single brown long-eared bat dropping on knee of Harington Monument (Lab ref: EG-1912-1).**
5. Missing ceiling plaster – slates visible.
6. **One brown long-eared bat dropping on the floor and six stuck to the wall above (all recent, and below a gap between the timber ceiling and stone wall) (Lab ref: EG-1912-4).**

Target notes (contd):

7. **Thirty mixed-age mixed-species bat droppings (brown long-eared and common pipistrelle) on top of a noticeboard below a gap between the timber ceiling and stone wall) (Lab ref: EG-1912-4).** Crevices behind the noticeboard have roost potential.

Scale	In metres

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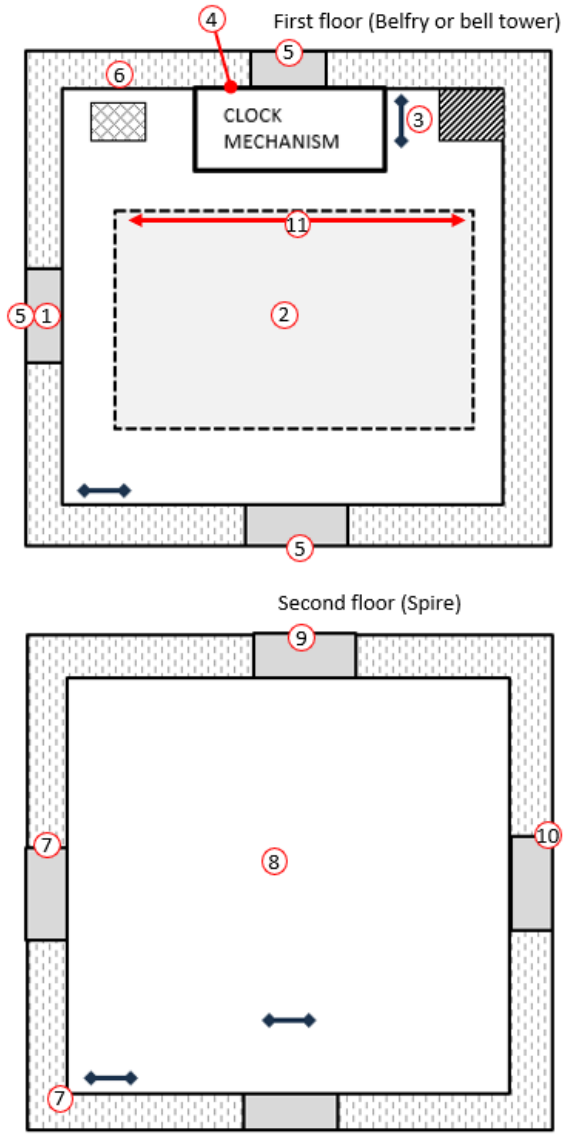


Target notes (contd):

5. Potential access where the clock mechanism passes through the glass of belfry windows.
6. Stone wall cavities in this area with hibernation potential.
7. Potential access to the exterior at the base of the timber spire.
8. Crevices in mortice joints and other cavities formed by structural timbers.
9. Potential access at the top of the north elevation gable (light ingress).
10. Large gap between stone wall and tower timber below the window (previously noted) providing potential access for bats and large birds (e.g. jackdaws) now blocked with scrunched chicken wire.
11. Crevice between timber beams – potential roost feature

Other previously noted potential roost features:

- All upper floor window lintels
- The long-drop for counter-weights – c. 80cm x 80cm and extends to ground level – hibernation potential.

Jackdaw nests recorded in the previous survey (jh ecology 2021) had been removed and gappy mesh covering the second-floor window louvres had been replaced or fixed. Openings (20 mm x 50 mm) were left for bats midpoint but in unsupported mesh.

Title	**Figure 3. Results of the preliminary roost assessment** (b) Internal tower and spire
Site	St Dubricius Church, Porlock, TA24 8LB
Date	21 November 2024

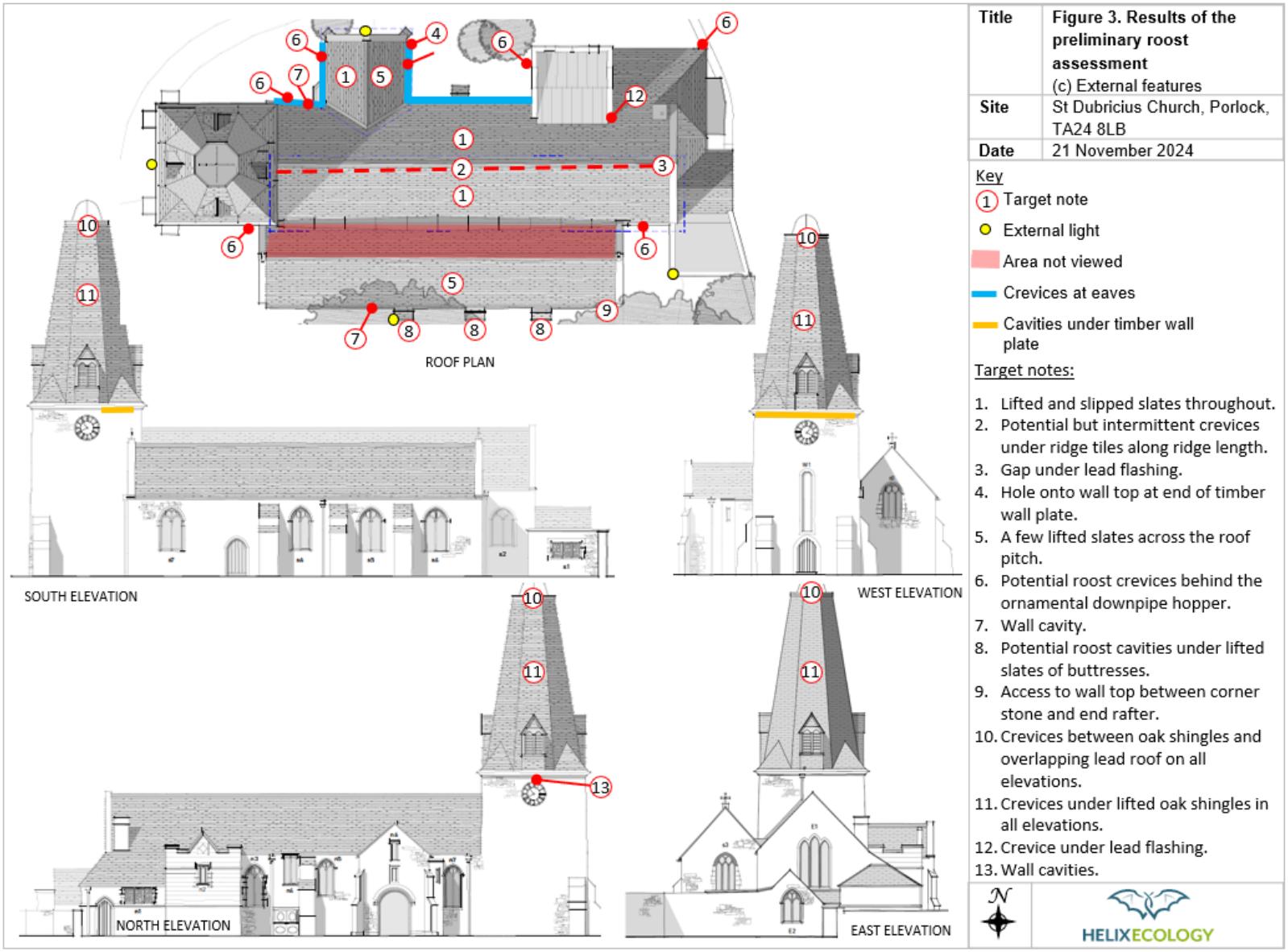
Key

- (1) Target note
- Access hatch
- Long-drop for counter-weights
- Ladder
- Location of bells

Target notes:

1. Approx. 30 intact but old brown long-eared bat droppings over disintegrated remains on a window ledge (Lab ref. EG-1912-3).
2. Scattered mixed-age brown long-eared bat droppings across the entire bell floor at a density of c. 30-50 droppings per 30 cm2, having fallen through from the spire above (Lab ref. EG-1912-3).
3. Approx. 50 mixed-age brown long-eared bat dropping on floor, having fallen through from the spire above (Lab ref. EG-1912-3).
4. Brown long-eared bat dropping in a wall cavity in the clock mechanism enclosure. Gaps present between the timber frame and stone wall (Lab ref. EG-1912-2).

Scale	Schematic
N	HELIXECOLOGY



Title	**Figure 3. Results of the preliminary roost assessment** (c) External features
Site	St Dubricius Church, Porlock, TA24 8LB
Date	21 November 2024

Key

(1) Target note

External light

Area not viewed

Crevices at eaves

Cavities under timber wall plate

Target notes:

1. Lifted and slipped slates throughout.
2. Potential but intermittent crevices under ridge tiles along ridge length.
3. Gap under lead flashing.
4. Hole onto wall top at end of timber wall plate.
5. A few lifted slates across the roof pitch.
6. Potential roost crevices behind the ornamental downpipe hopper.
7. Wall cavity.
8. Potential roost cavities under lifted slates of buttresses.
9. Access to wall top between corner stone and end rafter.
10. Crevices between oak shingles and overlapping lead roof on all elevations.
11. Crevices under lifted oak shingles in all elevations.
12. Crevice under lead flashing.
13. Wall cavities.

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HELIXECOLOGY

Figure 4. Photographic evidence of bats and potential/confirmed roost sites

Title	**Figure 4. Photographic evidence of bats and potential/confirmed roost sites**
Site	St Dubricius Church, Porlock, TA24 8LB
Date	21 November 2024

Notes:

1. Brown long-eared bat dropping on the knee of Harington Monument (Fig. 3a, TN4).
2. Brown long-eared bat droppings scattered on the floor below a bell (Fig. 3b, TN2).
3. Brown long-eared bat droppings scattered over a window ledge in the belfry (Fig. 3b, TN1).
4. Potential access where the clock mechanism passes through the glass of belfry windows (Fig. 3b, TN5).
5. Bat access created through bird mesh covering the spire windows. Note bat droppings on the pipe below. It's noted these access points require imrpovement, which will be addressed during the repair work.
6. Brown long-eared bat droppings on top of a notice board in the north porch (Fig. 3a, TN7).

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HELIXECOLOGY

Figure 5. Results of the May 2025 emergence survey

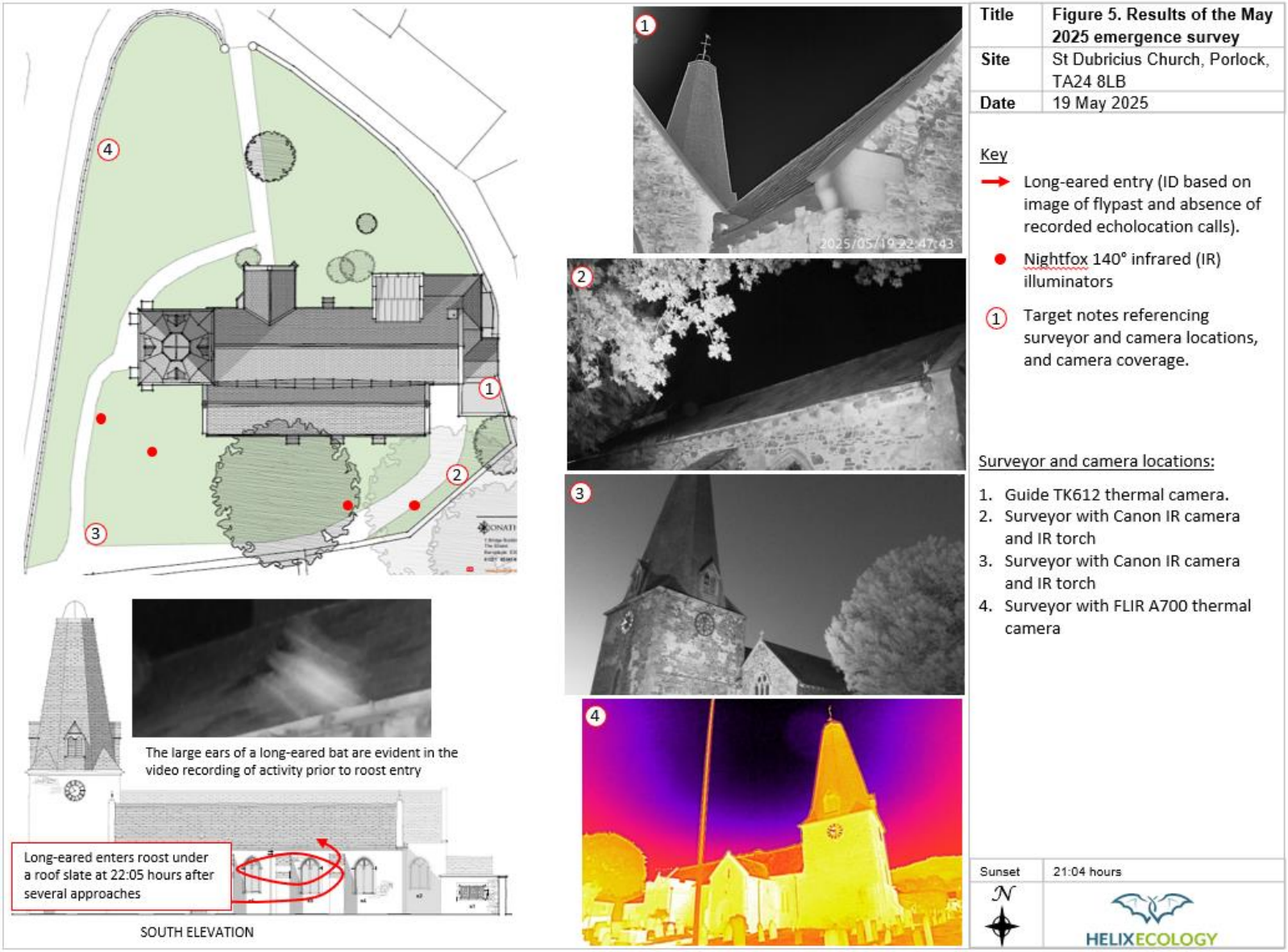
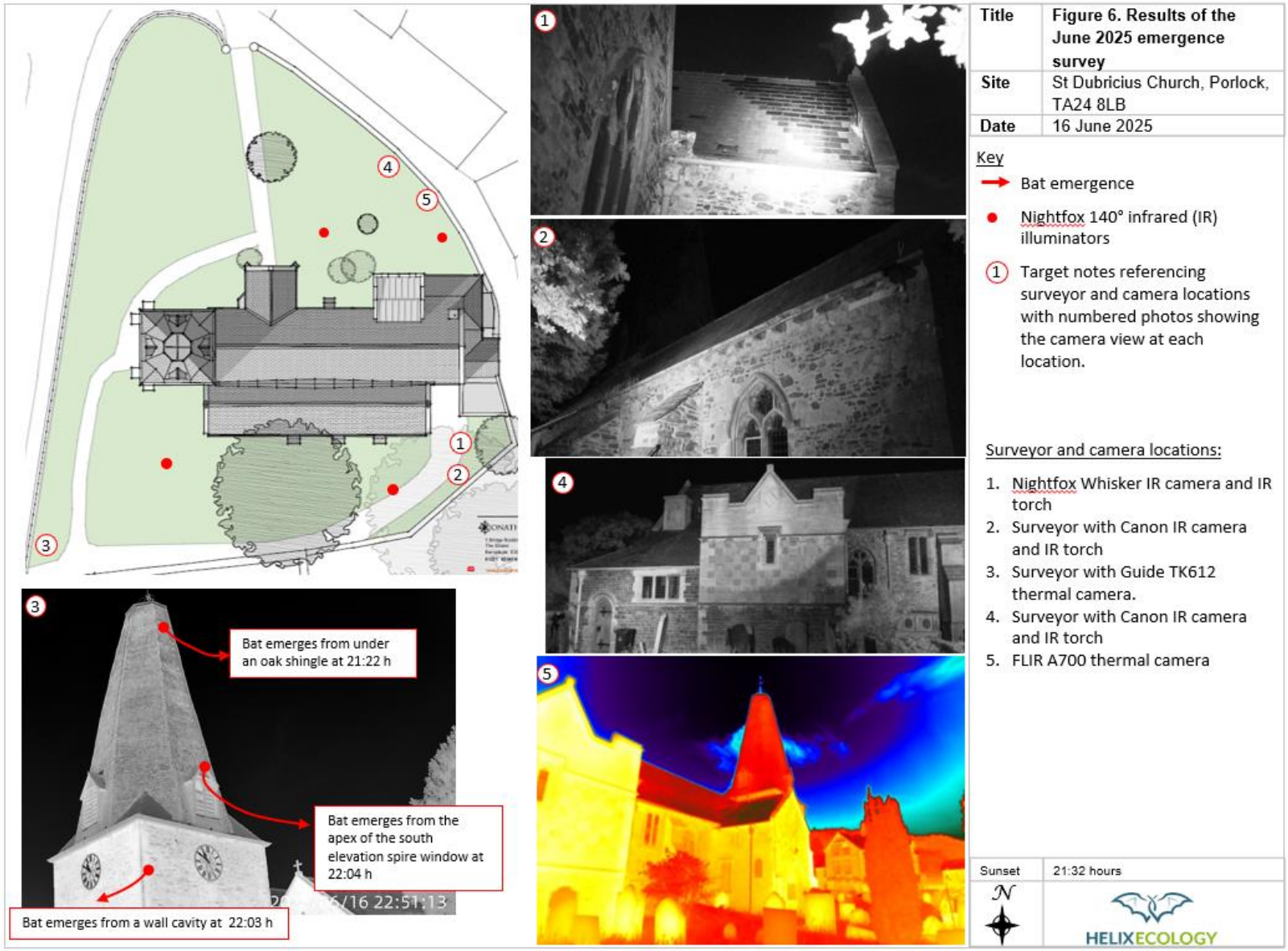


Figure 6. Results of the June 2025 emergence survey



4 DISCUSSION & CONCLUSIONS

4.1 Limitations & deviations from best practice

Limitations	• Regular church cleaning would have resulted in any droppings deposited during the main 2025 active season for bats being cleared ahead of the preliminary roost assessment in late November. However, high sills and ledges below potential access points (which are not easily accessible and so not regularly cleaned) did not have bat droppings on them, indicating that these access points at least were not in frequent use by bats. Further, bat droppings have not been reported as a nuisance by the church. • The preliminary roost assessment was undertaken outside the bird nesting season. However, subsequent bat emergence surveys, which entailed monitoring the building pre-sunset, did not find evidence of nesting birds.
Deviation from guidelines	• A full data search involving consultation with the local environmental records centre was not considered necessary at this stage, since it was likely to be of limited value in terms of additional contextual information. • Good practice guidelines recommend that automated surveys of potential winter hibernation roosts are undertaken two weeks every month from November to March (Collins 2023). At this site the hibernation survey was undertaken for a continuous month covering the last two weeks of December and the first two weeks of January. As evidence of presence of two species was found, further automated surveys in February and March were considered disproportionate, since the impacts of planned works to the spire can be predicted as follows: disturbance from noise and vibration when shingles are replaced, temporary damage of roosts if some of the sarking boards also require replacement, and obstruction of access to roosts (from covered scaffold).

4.2 Bats

Evaluation of survey results	St Dubricius Church is a confirmed roost site for small numbers of two species of bat: brown long-eared and common pipistrelle (Table 1). Confirmed roost sites are: • crevices in the north porch interior (likely used as a day and/or night roost by both species); • the spire interior (used as a hibernation roost by both species and as a day roost by brown long-eared bats), where wall cavities, mortise joints and other crevices associated with structural timbers, and crevices associated with the spire windows; • roof cavities under slates (south pitch of aisle confirmed but use assumed on the south pitch of the nave where access permits), either in batten cavities and/or cavities between the roof covering and underlying timber ceilings, with the latter evidenced by a bat dropping found in the nave although the interior of the main body of the church does not appear to be in frequent use; • crevices under spire shingles, which may also provide access into the spire. There are a number of potential access routes into the church spire, although only one definite location was identified (the apex of the louvred spire window on the south elevation). Although the emergence surveys did not find evidence of a maternity colony, the number of brown long-eared bat droppings present on the floor and timbers of the tower spire indicates either past presence of a small maternity roost or that the

	tower is a long-term roost in frequent or continual use throughout the year by smaller numbers of non-breeding individuals. It is understood that north and west elevations (and formerly also the south elevation) of the church tower and spire are floodlit until 10 pm every night. Wall-mounted external lights are turned on for the duration of church events only, to aid safe passage to and from the church. For the roost surveys the external lights, including the floodlights, were switched off for the duration of the survey. Using floodlights to light up the church at night is of concern. Artificial lighting at night can negatively impact the use of roosts and flight corridors by bats. Brown long-eared bats, a particularly light-sensitive species, have been shown to abandon traditional maternity sites in churches when these are constantly lit (Rydell et al 2017). In current circumstances a bat licence will require a lighting plan to demonstrate how retention of roosts will be attained, which will require that roost entrances and flight paths to and from roosts are not lit. The church lies within barbastelle bat consultation zone A of the Exmoor and Quantock Oakwoods SAC. However, the proposed development will not affect the SAC as it will not further impinge on barbastelle foraging or commuting habitat or cause net loss of such.
Conservation significance of site	Brown long-eared bats and common pipistrelle bats are common and widespread species, although there is some indication of a recent decline in populations of the former (Table 2). Based on current information, the site overall is of District-level conservation importance due to is use as a hibernation roost (Table 3).
Impacts of development (in absence of mitigation)	Pre-construction: • Covered scaffolding will restrict and/or deter access to roosts During construction: • Replacing the slate roofs of the north porch and south pitch of the nave would temporarily destroy any bat roosts present and put bats at risk of injury or harm. • Replacing oak shingles on the spire would cause disturbance by noise and vibration, a significant negative impact if works started during the hibernation period. • Replacing sarking boards in the spire will open the spire interior, causing temporary damage to internal roosts by unfavourably modifying interior conditions. • Fitting glass doors to the front opening of the north porch would block access to roost locations in the porch interior. • Solar panels on the south pitch of the nave roof will shade any roosts present in the roof covering, altering the environmental conditions of the roost. However, providing bats could move between shaded and unshaded areas the outcome is likely to be neutral or positive if it increases roost heterogeneity. Post-development: ○ Installation of inappropriate materials in roofs (e.g. breather membranes) or use of inappropriate timber treatments risks harm to bats.
Licensing	A **bat licence** must be obtained from Natural England to permit development activities that would negatively impact bats and their roosts, i.e., that would otherwise be illegal under the Acts and Regulations protecting bats (see Appendix A for details). At this site, licensed work would include (but is not restricted to) any that cannot be timed to avoid potentially harmful levels of disturbance, work requiring bats to be captured and transported to avoid being harmed, work requiring roosts to be temporarily or permanently excluded (to prevent bats being present during works), and modification, damage or destruction of roosts.
Longevity of survey results	In general, to support a planning or bat licence application for a site of low conservation significance (e.g. non-breeding day roosts of small numbers of

	common species), data from the current or most recent optimal survey season (May to August) immediately before submitting a planning/licence application is preferred. Data older than this (but no more than two years old) may be acceptable, but a site visit may be required to demonstrate no significant change to the roost structure or site. (For a bat licence application, this must be undertaken within the 3-month period prior to submission.) Data more than two years old will need updating with new roost surveys. Resurvey requirements will generally be more stringent for more important roosts e.g. maternity roosts or those supporting rarer species, and here data from the current or most recent optimal season (May to August) is likely to be required.

4.3 Nesting birds

Evaluation of survey results	Although the presence of nesting birds was not confirmed, there are potential nesting sites present, although limited in number, and the possible presence of nesting birds should be taken into consideration.
Impacts of development (in absence of mitigation)	Works taking place in the nesting season has the potential to damage or destroy nests in use or being built, disturb nesting birds and block access to nesting sites.

Table 1 Summary of confirmed bat-roost locations

Feature	Bat species and location of roost	Access
Tower and spire	The interior of the spire is used by brown long-eared bats and common pipistrelle as a day and hibernation roost, Use of internal wall cavities by brown long-eared bats is confirmed, and by common pipistrelle is assumed. Both species are also assumed to make use of cavities and crevices associated with structural timbers and could also rest on top of timbers. Crevices under oak shingles and in the roof covering of the dormer windows are used by one or both species. Use of of at least one external wall crevice is confirmed.	Access to the tower interior via the apex of the south window is confirmed. Other potential access points are gaps where the spire joins the tower, under shingles where gaps in sarking occur, gaps in glazed windows around clock mechanisms, louvered windows via gaps in wire netting.
North porch	Brown long-eared and common pipistrelles use interior crevices between the ceilling timbers and the stone walls – potentially they could also use the ceiling cavity.	Flight access via the open entrance
Roof	Brown long-eared use batten cavities and cavities between the slates and underlying timber ceiling in the main body of the church (south pitch of aisle confirmed, other areas likely including the porch roof).	Via lifted, slipped, broken and missing roof slates.

Table 2. UK Conservation status, population & distribution of the bat species roosting on site

Species	UK rarity category (Reason & Wray 2023)	GB popn. estimate (Mathews et al 2018)	GB, regional, county & local distribution	Habitats Directive Annex II	UK & County Priority Species	Red List	
						GB (England)	IUCN
Brown long-eared *Plecotus auritus*	Widespread in all geographies	979,000	Throughout the UK. Population in England estimated as 607,000 (Matthews et al 2018) and trend is stable (JNCC 2019). Population in England and Great Britain is considered to have been stable since 1999, although there is now some evidence of recent decline (BCT 2024).		UK	LC (LC)	LC
Common pipistrelle *Pipistrellus pipistrellus*	Widespread in all geographies	3,040,000 (991,000–7,510,000)	Throughout the UK. Common and widespread in Somerset. Population for England estimated at 1,870,000 (609,000 –4,620,000) (Mathews et al 2018). The population in England and Great Britain is considered to have increased since 1999, although recent trends indicate this growth has slowed or stopped (BCT 2024).			LC (LC)	LC

Red list definitions: LC least concern; NT near threatened; VU vulnerable; EN endangered; DD data deficient

Table 3: Summary of roost types present and their conservation significance

Species	Evidence	Numbers of bats counted*	Estimated numbers**	Roost type	Importance of roost (Reason & Wray 2023 and references therein)
Brown long-eared	Single long-eared bat in flight recorded on a trail camera; social calls recorded during hibernation survey; bat droppings present, with species confirmed by DNA analysis of samples; seen entering a roost; potentially recorded during emergence surveys	1	1-2	Day and/or night Hibernation	Day roost of site value as a common and widespread species; hibernation roost of district value.
Common pipistrelle	Species-specific echolocation calls recorded during hibernation survey; bat droppings present with species confirmed by DNA analysis of samples; potentially recorded during emergence surveys.	1	1-3	Day and/or night Hibernation	Day roost of site value as a common and widespread species; hibernation roost of district value.

*Maximum numbers seen/recorded during any one survey to date, but not likely to represent the actual population.

**Based on maximum numbers of bats (confirmed or unidentified species) emerging during any one survey.

5 RECOMMENDATIONS

5.1 General

Bats	Recommendations are based on good practice guidelines (BSI 2013, Collins 2023, Reason & Wray 2023, Mitchell-Jones & McLeish 2004) and other sources as indicated. Final mitigation, compensation and enhancement measures (particularly the provision of roosting sites) will be subject to agreement by the relevant local planning authority, and to agreement by Natural England on application for a bat licence.

5.2 Further survey

Bats	Due to historic evidence of a potential maternity roost, it is recommended that an update emergence survey precedes a licence application where works will commence between May-August 2026 or thereafter. If evidence of uptake by a maternity colony is found, the start of spire works will be deferred until the autumn (September/October)
Birds	A nesting bird survey must be undertaken by a suitably qualified ecologist 24-48 hours ahead of the start of works in the following circumstances: o Where works on buildings known or likely to contain nesting birds will start in the nesting season. The main breeding season for species at this site is liable to be mid-February through to mid-August.

5.3 Licensing

Bats	Licensing options are: • Registration of the site under the Bat Earned Recognition Class Licence (BERCL). Covers all licensing scenarios providing the Earned Recognition Consultant has an accreditation certificate of the appropriate level. • European Protected Species Mitigation licence - a site-specific derogation licence that provides an alternative to the BERCL, where number of species and/or roosts, and/or the conservation status of species, do not meet the criteria for a low impact licence. The costs of an ecologist's input into preparing a licence application and associated documents, Natural England's fee for processing the application, and costs of the monitoring work and other mitigation/compensation measures required under a licence will be met by the householder, landowner or developer, as appropriate.

5.4 Mitigation & compensation (bats)

Timing and monitoring requirements	
Timings	• Planning and other consents must be in place before applying for a bat licence.

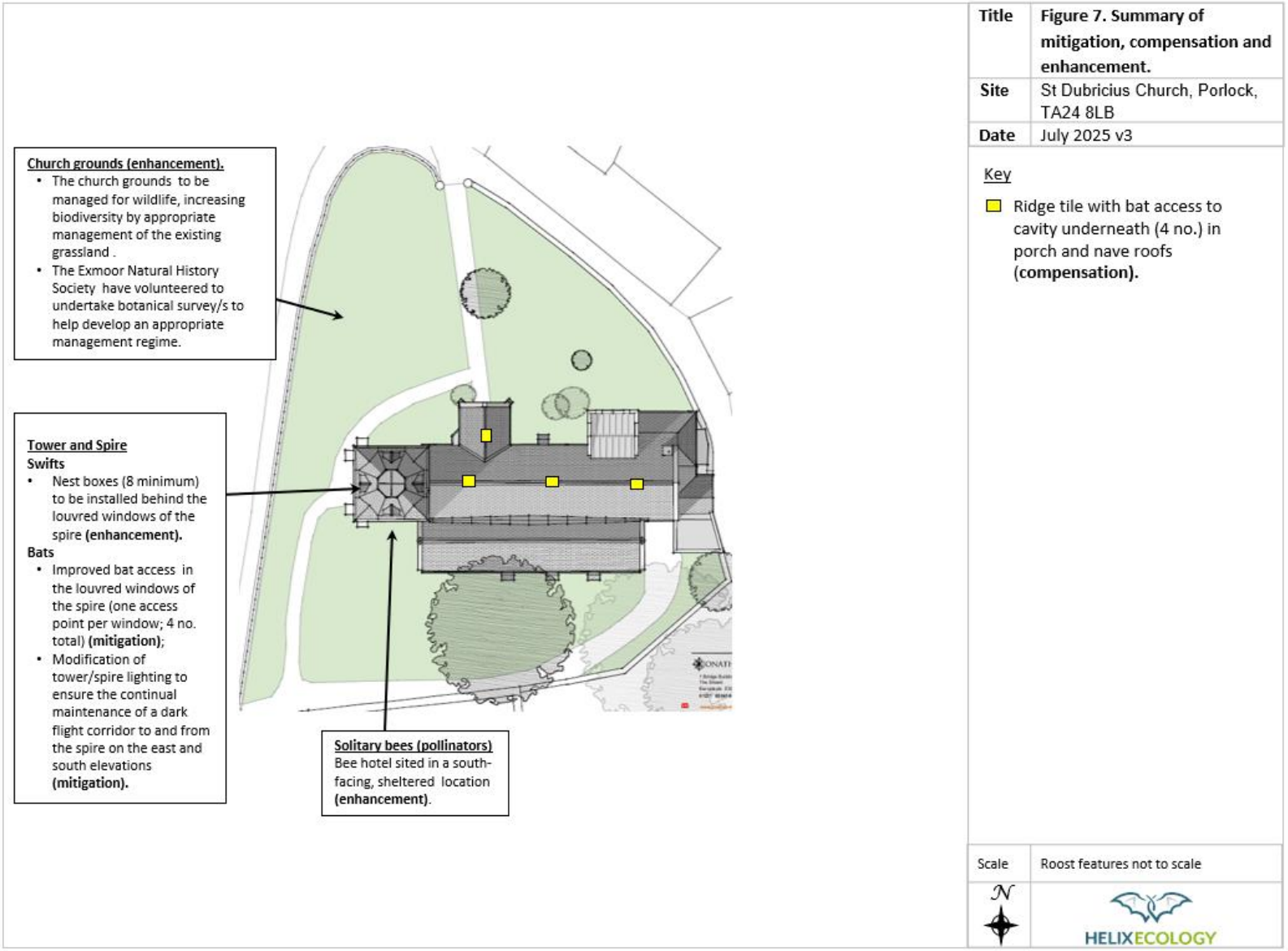
	• Licensed works (those aspects of the development that will negatively impact on bats) must not start until the licence has been issued (or the site registered in the case of a Bat Earned Recognition Class Licence). • Works to the tower and spire will not ***start*** during the months May to August unless preceded by a dusk emergence or dawn re-entry survey to provide evidence that a maternity colony has not taken up residence. Additionally, as hibernation roosts are confirmed present, works to the tower and spire must not ***start*** between November to March.
Monitoring during development	*Ecological clerk of works:* The named ecologist or their accredited agent/Registered Consultant are required to undertake the following: • Toolbox talk to contractors at the start of works. • Pre-works inspection of building/s for the presence of bats. • Watching brief during licensed works (e.g. any stage of the work where roost sites are uncovered or dismantled. • Capture and removal of any bats uncovered during works to a suitable alternative roost site.
Monitoring post-development	*Mitigation-compliance site visit/s to sign-off licensed work* • A site visit will take place immediately all bat roost provision is completed (and when any scaffolding is still in place) to ensure mitigation meets standards. • More than one site visit may be required where work is completed in stages (especially if this necessitates relocating scaffolding), or where mitigation is not satisfactory and one or more return visits are required to view remedial works. *Post-development population monitoring surveys:* Some monitoring will be required under licence: here, a winter hibernation survey would likely be required.
Roost provision	
General	• Bat boxes (2 no.) erected on or adjacent to the site (within 50 m of the church, and with prior permission of the landowner) to accommodate any bats uncovered during works. • Provision of four ridge tile access points (3 on the nave roof, one on the porch roof). • Bat-appropriate access points to be inserted in the louvered windows of the spire, one per window (4 total). These are likely to entail gaps under the wire netting, to measure a minimum of 20 mm x 50 mm (H x L).
Other considerations	
Roofing membrane	**Only 'bat-safe' roofing membranes/underfelts will be used in roofs to which bats have access. These comprise:** • Traditional hessian-reinforced bitumen 1F felt. • Non-bitumen-coated roofing membranes that are accompanied by a certificate proving the membrane has passed a snagging propensity test. Note:

	○ A snagging propensity test checks that the membrane can stand the repeated snagging actions of roosting bats. To pass, a membrane must show no change in the average number of loops per cm^2 as rotations are increased from 0 to 1000. ○ Testing must be conducted by independent organisations capable of robustly following the testing methodology set out in Essah et al (2020). Note that non-bitumen-coated roofing membranes that have not passed a snagging test are not suitable for use in bat roosts. Many modern membranes contain layers made from spun-bond polypropylene/polyethylene filaments. Wear and tear by roosting bats will eventually expose these filaments, which then pose an entanglement risk (Waring et al 2013). Note that non-bitumen-coated roofing membranes are not obligatory under Building Regulations since adequate ventilation is required regardless of the roofing underlay used (see British Standard BS 5250:2011).
Remedial timber treatment	Only use Tanalised timber, or timber pre-treated off-site, or wood treatment chemicals approved for use in bat roosts by Natural England. General advice and a list of approved active ingredients is provided on the gov.uk website: https://www.gov.uk/guidance/bat-roosts-use-of-chemical-pest-control-products-and-timber-treatments-in-or-near-them. A non-exclusive list of products suitable for use in or near bat roosts can be found here: https://www.gov.uk/government/publications/bat-roosts-insecticides-and-timber-treatments/timber-treatment-products-suitable-for-use-in-or-near-bat-roosts The following precautions should also be taken: • Do not apply chemicals if bats are present or will come into direct contact with wet timbers. • If bats are present in parts of the building at the time of treatment it will be necessary to screen off treatment areas to prevent bats coming in contact with wet timber or defer treatment until bats are not present. • Prior to treatment the contractor should inspect by torch any remaining crevices associated with roof timbers and chimneys etc to ensure no bats are present. The timbers should be brushed down before treatment to clear away debris such as cobwebs and dust. This should help to identify any bats hidden in crevices. • Where possible chemicals should be painted onto the timbers, and if any spraying is to be undertaken overspray should be kept to a minimum by using a close spray action. • The minimum amount of pesticide will be used. • All new timber (if required) should be pre-treated off-site. Do not use pre-treatment chemicals on-site because the active ingredients will be more concentrated on the timber surface and may be harmful to bats.
Lighting	• The Parochial Church Council have expressed their wish that some flood lighting of the tower can continue along the present lines (i.e. from dusk to 22:00 hours each night). To ensure this is compatible with the maintenance of a continual dark flight corridor to and from the spire, the south and east elevations of the tower and spire will not be lit (the removed south elevation floodlight will not be reinstated), and light trespass onto these elevations and into the tower and spire interior will be prevented. Where necessary, the services of a specialist lighting engineer with experience of bats will be employed to ensure that these conditions are achieved. • Exception can be made for targeted lighting of the cross on top of the spire (which currently employs a light source at the top of the tower).

	• No augmentation of the external wall-mounted lighting is proposed. Existing external lighting on the building will be modified or replaced to prevent light spill or trespass above the horizontal plane. • Lights will be fitted with warm white 2700K (or less) LED lights and with no UV content to reduce impacts on insects and other invertebrates. Further details can be found in Appendix 7.6. Useful sources include: https://darksky.org/what-we-do/darksky-approved/ and www.southdowns.gov.uk/wp-content/uploads/2021/08/Towards-A-Dark-Sky-Standard-V1.1.pdf with examples of good lighting design on p.24 of the latter.
5.5 Mitigation & compensation (birds)	
Timings	Any work starting in the main nesting period (mid-February through to mid-August) should be preceded by a nesting bird survey no more than 24-48 hours ahead of works starting. • If nesting birds are present, leave undisturbed until the young have fledged and left the nesting area. Exclusion zones may be required. In the event nesting birds are unexpectedly discovered during works, works must pause immediately in that area and a suitably qualified ecologist contacted for further advice.
5.6 Enhancement	
In accordance with National Planning Policy Framework (NPPF), positive enhancement measures should be provided.	
Swifts	Common swift *Apus apus* populations are at risk in the UK from building techniques that inadvertently remove their traditional nesting sites. It is estimated the UK population has declined by 66% between 1995 and 2022, and the swift is currently red-listed in the UK as a bird of conservation concern. Swifts leave little mess in the way of droppings or nest material and can be easily and cheaply accommodated in self-contained nest boxes behind the louvres of church tower windows, which leaves no visible external presence and prevents access to the rest of the spire interior. The methodology for installing swift boxes behind louvres of tower windows is well-established. The installation of swift boxes offers potential for community involvement, for example by the manufacturing and servicing of boxes and monitoring of nests (via in-nest cameras or external counts). A minimum of eight swift boxes will be installed in the spire windows. Further details of construction and installation and a downloadable pdf file are available at: https://www.caringforgodsacre.org.uk/guidelines-for-installing-swift-nest-boxes-in-church-belfries/
Solitary bees	Provide a bee hotel for solitary bees in a sheltered south-facing area (Fig. 6). The provision of a bee hotel provides potential for community involvement (for example, construction or maintenance of the hotel or hotels by the local school).
Grassland habitat	Grassland within the church grounds will be managed to favour a diversity of grasses and wildflowers, with the aim of supporting a range of wildlife (e.g. by providing food for insect larvae, and nectaring resource for pollinators such as hoverflies, bees, butterflies and moths, in

	turn supporting insectivorous birds and bats). Management to enhance or maintain a biodiverse sward will be informed by a detailed botanical survey. Exmoor Natural History Society have kindly volunteered to undertake this and to advise on management accordingly. An appropriate regime may comprise not mowing designated area/s between May and late July, for example, or cutting/raking in late July and again in October (with an early spring cut in the event of excessive growth). Irrespective, arisings will be removed and taken off site or added to a compost heap in a hidden or out of the way corner to provide an additional resource for invertebrates. It is recommended that signage is provided to inform the public of the purpose of the management regime and to engage the community in future monitoring.

Figure 7. Summary of mitigation, compensation and enhancement features.



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7 APPENDICES

7.1 Legislation & Planning Policy

Legislation

The **Conservation of Habitats and Species Regulations 2017 (as amended)** enacts the Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora, and Council Directive 79/409/EEC on the Conservation of Wild Birds, into UK law. The Regulations allow for the designation of Statutory Nature Conservation sites (SACs and SPAs) and European Protected Species ('EPS' including all UK bat species, great crested newt, hazel dormouse and otter) which are assigned a greater level of protection than under national legislation.

The **Wildlife and Countryside Act 1981** (as amended) forms the primary piece of UK legislation relating to the protection of habitats and species (including nesting birds, reptiles and water vole).

Section 40(1) of the **Natural Environment and Rural Communities (NERC) Act 2006** states that each public authority "must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity". This legislation makes it clear that planning authorities should consider impacts to biodiversity when determining planning applications, with particular regard to the Section 41 (S41) list of 56 habitats and 943 species of principal importance, irrespective of whether they are covered by other legislation. The S41 list was taken forward for action under the UK Biodiversity Action Plan (BAP) (first published in 1994). The UK BAP has now been superseded by the Biodiversity 2020 Strategy[1], which continues to prioritise the S41 list, setting national targets for the period to 2020, and the UK Post-2010 Biodiversity Framework[2], which shows how these contribute to targets at the European level. Whilst BAPs are therefore no longer formally recognised, many of the tools and resources originally developed for the BAP remain in use, such as the background information which still forms the basis of work at national level.

Bats

All bat species are afforded full protection under UK and European legislation, including the Wildlife and Countryside Act (WCA) 1981 (as amended) and The Conservation of Habitats and Species Regulations 2017 (as amended). It is an offence to: deliberately capture (or take), injure or kill a bat; intentionally, recklessly or deliberately disturb bats (under WCA the offence applies whilst a bat is occupying a roost; under the Habitats Regulations it applies to bats anywhere); damage or destroy a bat roost; 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.

A bat roost is defined in the legislation as "any structure or place which a bat uses for shelter or protection". Roosts are protected whether or not bats are present at the time. If a development activity is likely to result in disturbance or killing of a bat, damage to its habitat or any of the other activities listed above, then a licence will usually be required from Natural England.

In addition, bats are also listed on Appendix II of the Bonn Convention and on Appendix II of the Bern Convention. Four bat species (lesser and greater horseshoe bats, Bechstein and barbastelle bats) are also cited in Annex II of the EC Habitats and Species Directive, which includes animals and plant whose conservation requires the designation of Special Areas of Conservation (SACs).

Six bat species are listed as Species of Principal Importance in the NERC Act 2006 and are also identified in the UK BAP as Priority Species. These are: greater horseshoe and lesser horseshoe bats, and barbastelle, noctule, Bechstein's bat, soprano pipistrelle and brown long-eared bats. In addition, three Priority Habitats are identified as being of particular importance to bats in the UK BAP. These are: ancient and/or species-rich hedgerows, all woodlands and all wetland habitats.

Birds

All wild birds are protected under the WCA 1981 (as amended), whilst they are actively nesting or roosting. Section 1 of this Act, makes it an offence to kill, injure or take any wild bird, and to intentionally take, damage

[1] DEFRA, 2011. Biodiversity 2020: A strategy for England's wildlife and ecosystem services. DEFRA, London

[2] JNCC and DEFRA, 2012. *UK Post-2010 Biodiversity Framework* (on behalf of the Four Countries' Biodiversity Group). July 2012

or destroy the nest of any wild bird while that nest is in use or being built. It is also an offence to take or destroy any wild bird eggs.

In addition, bird species listed under Schedule 1 of the Act (includes barn owl) receive extra protection. The Act states that '*it is an offence to intentionally or recklessly disturb any wild bird listed in Schedule 1 while it is nest building, or at (or near) a nest containing eggs or young, or disturb the dependent young of such a bird*'.

In addition to this legal protection, the leading governmental and non-governmental conservation organisations in the UK periodically review the population status of the birds regularly found here and produce a list of birds of conservation concern:

- Red List species are those that are Globally Threatened according to IUCN criteria; those whose population or range has declined rapidly in recent years; and those that have declined historically and not shown a substantial recent recovery.
- Amber List species are those with an unfavourable conservation status in Europe; those whose population or range has declined moderately in recent years; and those with internationally important or localised populations.
- Green List species are of least conservation concern.

A number of birds are identified as Species of Principal Importance in the NERC Act 2006 and are also Priority Species in the UK BAP.

7.2 Suitability of habitat & roost features in relation to use by bats

The following tables are taken from Collins 2023.

Table 4. Assessing the potential suitability of the local habitat for bats

Suitability	Roosting habitats in structures	Potential flight-paths & foraging habitats
None	No habitat features on site likely to be used by any roosting bats at any time of year (i.e. complete absence of crevices/suitable shelter at all ground/underground levels).	No habitat features on site likely to be used by any commuting or foraging bat at any time of year (i.e. no habitats that provide continuous lines of shade/protection for flight-lines, or generate/shelter insect populations available to foraging bats.
Negligible [a]	No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.	No obvious habitat features on site likely to be used as flight paths or by foraging bats; however, a small element of uncertainty remains in order to account for non-standard bat behaviour.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically at any time of year. However, these roost sites do not provide enough space, shelter, protection, appropriate conditions[b] and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be used for maternity and not a classic cool/stable hibernation site, but could be used by individual hibernating bats[c]).	Habitat that could be used by small numbers of bats as flight paths, such as a gappy hedgerow or unvegetated stream, but isolated i.e. not very well connected to the surrounding landscape by other habitat. Suitable but isolated habitat that could be used by small numbers of foraging bats, such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure with one or more potential roost sites that could be used by bats due to their shelter, protection, conditions[b] and surrounding habitat, but unlikely to support a roost of high conservation status (with respect to roost type only, such as maternity and hibernation – the categorisation described in this table is made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for flight paths, such as lines of trees and scrub or linked back-gardens. Habitat that is connected to the wider landscape that could be used for foraging, such as trees, scrub, grassland or water.
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[b] and surrounding habitat. These structures have the potential to support high conservation status roosts, e.g. maternity or classic cool/stable hibernation site.	Continuous, high-quality habitat that is well-connected to the wider landscape and is likely to be used regularly by bats for flight paths, such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality landscape that is well-connected to the wider landscape and is likely to be used regularly by foraging bats, such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

[a] 'Negligible' is defined as 'so small or unimportant as to be not worth considering, insignificant'. This category may be used where there are places in which a bat could roost or forage (due to one attribute) but it is unlikely that they actually would (due to another attribute).

[b] For example, temperature, humidity, height above ground level, light levels or levels of disturbance.

[c] Note the potential for larger numbers of common pipistrelle bats to be present during the autumn and winter in prominent buildings, including in urban environments, as evidenced from research in the Netherlands and indications of similar behaviour in the UK (referenced in Collins 2023)

7.3 Types of bat roost

The following definitions of different roost types are those presented in good practice guidelines (Collins 2023) and used by Natural England in the Earned Recognition Project. Note that the term 'roost' is not used in the legislation, which instead refers to 'breeding sites' and 'resting places'. The term 'roost' is widely understood in bat literature not only to refer to places of shelter/protection, but also structures (natural or man-made) used for a variety of behavioural purposes such as display and mating (e.g. Dietz & Kiefer 2016). A single roost can have multiple functions.

Table 5. Definitions of bat roosts

Roost type	Natural England definition
Day roost	A place where individual bats or small groups rest or shelter in the day during the summer.
Night roost	A place where bats rest or shelter in the night but are not found in the day. May be used by a single individual on occasion or it could be used regularly by the whole colony.
Feeding roost	A place where individual bats or a few individuals rest or feed for short periods during the night but are not present by day.
Transitional roost	Used by a few individuals or occasionally small groups for generally short periods of time on waking from hibernation or in the period prior to hibernation.
Maternity roost	Where female bats give birth and raise their young to independence. In some species males may also be present.
Hibernation roost	Where bats may be found individually or together during winter. These sites have a constant cool temperature and high humidity.
Satellite roost	An alternative roost found near the main nursery colony, and used by a few individuals to small groups of breeding females throughout the breeding season.

Other sites used by bats but not included in Table 6 are:

- Swarming site: a place where large numbers of males and females gather, typically during late summer to autumn. These sites appear to be important mating sites. Roosting may occur alongside the swarming activity, and it is the structures used for rest and shelter within the swarming site that are the roost.
- Mating site: where mating takes place from late summer and can continue through winter. Can include sites where bats call for mates on the wing: these are also associated with a place where the mating actually takes place (the mating or harem roost)

7.4 Designated sites

Table 6: Statutory designated sites within 1 km

Site name	*Designation*	*Primary reason for designation*	*Distance & direction*
Exmoor Heaths	SAC	European dry heaths and Northern Atlantic wet heaths with *Erica tetralix* (Annex I habitats). Also important as the largest stronghold for the heath fritillary butterfly (*Mellicta athalia*). The site holds a small breeding population of merlin (*Falco columbarius*) that is the most southerly in the western Palearctic.	475m SSW
Exmoor and Quantocks Oak Woodlands	SAC	Old sessile oak woods with *Ilex* and *Blechnum* (Annex I habitat) and a maternity colony of barbastelle (*Barbastella barbastellus*) bats (an Annex II species) which use a range of tree roosts within the woods. Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Annex I habitat), and Bechstein's (*Myotis bechsteinii*) bat and otter (*Lutra lutra*) (Annex II species) are also present as qualifying features.	475m SSW
North Exmoor	SSSI	Nationally important for its south-western lowland heath communities and for transitions from ancient semi-natural woodland through upland heath to blanket mire. Also of importance for its breeding bird communities, its large population of the nationally rare heath fritillary butterfly, an exceptional woodland lichen flora and its palynological interest of deep peat on the Chains.	770m SE
Dunkery and Horner Wood	NNR	One of the largest NNRs in England, Dunkery and Horner Wood has a variety of habitats: high moorland with internationally important wet and dry heathland; steeply sloping combe sides with grassland and bracken and ancient woodland (including Atlantic rainforest). Designated in part for its important assemblages of lichens, fungi and birds, and veteran trees.	475m SSW

SACs (Special Areas of Conservation) are designated under the EC Habitats Directive as areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive.

SSSI (Site of Special Scientific Interest) comprise the country's best wildlife and geological sites and are afforded a high level of protection under the Wildlife and Countryside Act (WCA) 1981 (as amended) to protect their conservation value.

NNR (National Nature Reserve) - nationally important sites for wildlife and/or geology. In England declared by Natural England under the National Parks and Access to the Countryside Act 1949 and the Wildlife and Countryside Act 1981.

7.5 Raw data

Table 7: Granted European Protected Species Licences within 2km radius of site

NE case reference	Species	Start date	End date	Impact
2014-1067-EPS-MIT	BLE C-PIP	02/07/2014	31/12/2014	Damage to resting place
2017-31246-EPS-MIT	C-PIP G-HORSE L-HORSE SER S-PIP WHISK	13/10/2017	13/10/2022	Damage to resting place
EPSM2011-3527	C-PIP;S-PIP;BLE;WHISK;BRAN	12/10/2011	30/09/2013	Destroy resting place
2018-36828-EPS-MIT	BLE C-PIP SER S-PIP WHISK	19/09/2018	14/09/2023	Destroy breeding roost and resting place
2020-50407-EPS-MIT	C-PIP G-HORSE L-HORSE S-PIP	19/01/2021	18/01/2031	Destroy resting place

Table 8 Results of the automated survey of St Dubricius church tower between Dec 2024 and Jan 2025

Night	Sunset to sunrise*	Overnight temp (max/min)°C**	Species	Time period	No. registrations
09/12/2024	16:06 to 08:07	9.81/ 7.38	Long-eared	18:52 – 19:04	23
10/12/2024	16:06 to 08:08	7.44 / 6.19	-	-	-
11/12/2024	16:06 to 08:09	6.69/ 6.06	Long-eared	00:00 – 04:22	3
12/12/2024	16:06 to 08:10	7.44/ 6.56	-	-	-
13/12/2024	16:06 to 08:11	7.62/ 7.00	Long-eared	18:44 – 20:31	4
14/12/2024	16:06 to 08:12	11.19/ 7.62	-	-	-
15/12/2024	16:06 to 08:13	12.00/ 10.19	Long-eared	16:59 – 05:00	8
			Common Pipistrelle	18:47- 18:48	1
16/12/2024	16:07 to 08:13	11.00/ 9.12	Long-eared	05:52 – 06:58	11
17/12/2024	16:07 to 08:14	13.94/ 10.38	Long-eared	0:22 – 06:59	303
18/12/2024	16:07 to 08:15	13.12/ 7.31	Long-eared	17:17 – 20:11	3
			Common Pipistrelle	17:13 – 17:15	17
19/12/2024	16:08 to 08:15	7.69/ 6.94	-	-	-
20/12/2024	16:08 to 08:16	10.38/ 8.81	-	-	-
21/12/2024	16:09 to 08:16	11.94/ 7.06	-	-	-
22/12/2024	16:09 to 08:17	9.5/ 7.38	Common Pipistrelle	07:14 – 07:15	3
23/12/2024	16:10 to 08:17	12.25/ 9.38	Long-eared	20:00 – 08:43	71
24/12/2024	16:10 to 08:17	12.00/ 9.62	Long-eared	16:33 – 22:05	60
			Common Pipistrelle	17:22 – 19:04	12
			Pipistrelle species	18:15 – 18:29	2
25/12/2024	16:11 to 08:18	11.00/ 7.69	Long-eared	17:05 – 20:31	6
26/12/2024	16:12 to 08:18	8.62/ 4.81	-	-	-
27/12/2024	16:13 to 08:18	6.62/ 5.50	-	-	-
28/12/2024	16:13 to 08:18	8.75/ 7.38	-	-	-
29/12/2024	16:14 to 08:18	9.81/ 7.81	-	-	-
30/12/2024	16:15 to 08:18	9.19/ 8.31	-	-	-
31/12/2024	16:16 to 08:18	12.0/ 11.0	Long-eared	20:27 – 21:15	4
01/01/2025	16:17 to 08:18	8.00/ 5.44	-	-	-
02/01/2025	16:18 to 08:18	4.56/ 1.25	-	-	-
03/01/2025	16:20 to 08:17	4.38/ 1.75	-	-	-
04/01/2025	16:21 to 08:17	7.62/ 2.00	-	-	-
05/01/2025	16:22 to 08:17	13.00/ 5.94	Long-eared	18:53 – 22:55	8
			Common Pipistrelle	02:32 – 02:34	3
06/01/2025	16:23 to 08:16	5.56/ 4.19	-	-	-
07/01/2025	16:24 to 08:16	5.38/ 2.75	-	-	-
08/01/2025	16:26 to 08:15	3.38/ 1.56	-	-	-
09/01/2025	16:27 to 08:15	4.75/ 1.56	-	-	-
10/01/2025	16:28 to 08:14	3.50/ 1.62	-	-	-
11/01/2025	16:30 to 08:14	7.50/ 5.69	Long-eared	01:06 – 01:07	1
12/01/2025	16:31 to 08:13	8.12/ 6.00	Common Pipistrelle	17:02 – 17:35	12

*The recorder started 30 min before sunset and stopped 30 min after sunrise.

**Temperature recorded inside the spire

Figure 8: DNA analysis – laboratory test results

Sample ID: EG-1912-1

Sample information:

Sample type: Faecal
Species group: Bats
Suspected species: Pipistrelle
Site Location: St Dubricius TA24 8LB
Comments: DC-1 Church nave

Laboratory information:

DNA Extraction Code: EG-2024-2531
Identification method: qPCR
Analysis Procedure Notes:

Laboratory Comments:
None

Species Identified:

Species 1: Plecotus auritus (Brown long-eared bat)
qPCR Ct Value: 18

Sample ID: EG-1912-2

Sample information:

Sample type: Faecal
Species group: Small mammals
Suspected species: Shrew
Site Location: St Dubricius TA24 8LB
Comments: DC-5 Church tower wall cavity. Could be bat (long-eared or pipistrelle) but think likely shrew

Laboratory information:

DNA Extraction Code: EG-2024-2532
Identification method: qPCR
Analysis Procedure Notes:

Laboratory Comments:
None

Species Identified:

Species 1: Plecotus auritus (Brown long-eared bat)
qPCR Ct Value: 23

Sample ID: EG-1912-3

Sample information:

Sample type: Faecal
Species group: Bats
Suspected species: Long-eared and pipistrelle
Site Location: St Dubricius TA24 8LB
Comments: DC 2-4 Church tower

Laboratory information:

DNA Extraction Code: EG-2024-2533
Identification method: qPCR
Analysis Procedure Notes:
All UK bat species tested for - only a single species detected in this sample.
Laboratory Comments:
None

Species Identified:

Species 1: Plecotus auritus (Brown long-eared bat)
qPCR Ct Value: 20

Sample ID: EG-1912-4

Sample information:

Sample type: Faecal
Species group: Bats
Suspected species: Long-eared and pipistrelle
Site Location: St Dubricius TA24 8LB
Comments: DC-6 Church porch

Laboratory information:

DNA Extraction Code: EG-2024-2534
Identification method: qPCR
Analysis Procedure Notes:
Laboratory Comments:
None

Species Identified:

Species 1: Pipistrellus pipistrellus (Common pipistrelle bat)
qPCR Ct Value: 24
Species 2: Plecotus auritus (Brown long-eared bat)
qPCR Ct Value: 29

7.6 Guidance on site lighting

Table 9. General lighting recommendations

Background

The increase in artificial lighting associated with human activity adversely affects both fauna and flora, including bats and their insect prey. Lighting of roost exit points can delay emergence. This reduces foraging time, as the main peak of nocturnal insect abundance occurs at and shortly after dusk and may even lead to roost abandonment. Lighting maternity roosts will have a negative impact regardless of species (Stone 2013, and references therein). Some bat species will feed on insects attracted to lights, but the concomitant decrease in insect numbers in adjacent habitats may negatively impact those species that actively avoid lit areas (e.g. horseshoe bats, long-eared bats, *Myotis* species). Lighting important commuting and foraging habitats, such as river corridors, is also considered harmful.

Lighting that affects access to bat roosts or disturbs commuting routes could constitute an offence under the Wildlife and Countryside Act (WCA) 1981 (as amended) and the Conservations of Habitats and Species Regulations 2017 (as amended). To avoid this, the following general guidelines based on current understanding (ILP 2023) are recommended.

Method	Details
Avoidance	In all cases, the best approach is to avoid installing external lighting unless it is essential.
Minimising impact	• Avoid illuminating commuting routes such as linear waterways, hedgerows, tree-lines and woodland edge. • Do not directly illuminate bat roost entrances, or allow light spill to encroach on these. • Use planting, fencing/walling or careful positioning of other man-made features within the development to provide a barrier. Where planting alone is used, temporary close-boarded fencing should be installed until the vegetation matures.
Reduce light spill	• Use downlighters. • Shield lights with accessories such as hoods, cowls, louvres and light-directing shields. • Reduce the height of the light and/or direct downwards at as sharp and angle as possible.
Use lights with lowest negative impact	• Narrow spectrum lights with no UV content. • Low pressure sodium and warm white LED (these latter have low relative attractiveness to insects compared to white light and therefore minimal impact on bat insect prey). • Directional downlights – illuminating below the horizontal plane to avoid light trespass into the environment.
Lights to be avoided	Medium negative impact: • Broad spectrum lights with low/no UV, white LED and high pressure sodium. High negative impact: • Broad-spectrum lights (particularly blue-white light) with high UV, metal halide and mercury, and uplights (which light above the horizontal plane, illuminating roost entrances, trees and foraging habitats.
Security lighting	• Use low intensity lights, with bulbs no greater than 60 watts or equivalent. • Must not be on continuously. Movement sensors should be used (PIR or passive infrared), ideally as separate units from the light, and properly targeted to reduce the amount of lit-time. Timers should also be used and set to the minimum on-time (i.e. 1 minute). Aim to illuminate only the immediate area required by using a sharp downward angle. The lit area must be below eaves height, and not aimed at hedges, tree-lines, water-courses or woodland edge.