

# THE CHURCH OF ST BARTHOLOMEW, BRISLEY, NORFOLK



## BAT MANAGEMENT PLAN

**FINAL**

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## THE CHURCH OF ST BARTHOLOMEW – BRISLEY, NORFOLK

### BAT MANAGEMENT PLAN

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DOCUMENT HISTORY				
Project reference: 2021-21		Document title: Ecological Assessment		
Revision	Status	Originated	Reviewed	Date
Rev. 1	First Draft	Naomi Parker	Philip Parker	20.09.21
Rev. 2	Final	Naomi Parker	Philip Parker	30.10.21

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## THE CHURCH OF ST BARTHOLOMEW – BRISLEY, NORFOLK BAT MANAGEMENT PLAN

### 1.0 EXECUTIVE SUMMARY

- 1.1 Philip Parker Associates Ltd have been instructed to undertake bat surveys and provide advice for mitigation/management options at the Church of St Bartholomew, Brisley, Norfolk as part of the Heritage Lottery project (HLF). This report provides a summary of the surveys undertaken and mitigation/ management options to be considered.
- 1.2 Previous surveys to influence repair works and as part of a Bat Night (organised by the Norfolk Bats in Churches Project) were undertaken in July 2017 when 70 common pipistrelles, a serotine and a possible brown long-eared were recorded roosting.
- 1.3 Surveys at the church in 2021 were undertaken as follows:
- 28<sup>th</sup> April 2021 (physical)
  - 15<sup>th</sup> May 2021 (emergence)
  - 28<sup>th</sup> June 2021 (emergence)
  - 29<sup>th</sup> June 2021 (re-entry)
  - 9<sup>th</sup> August 2021 (emergence)
- 1.4 The 2021 surveys confirmed the presence of the following internal roost locations:

#### **Common pipistrelle**

A peak of 21 bats roosting in the nave ridge near to the chancel arch on the 28<sup>th</sup> June 2021, accessing via the west door (main access), the north-west corner of the nave and the north side of the chancel (minor access). Numbers during the May and August surveys were considerably less. A dead juvenile in August confirmed this as a maternity roost.

#### **Soprano pipistrelle**

A peak of 6 were recorded roosting internally on the first survey accessing over the west door, none were recorded roosting in June and a single bat in August.

#### **Brown-long eared**

2 recorded roosting in the south aisle on the August survey, no evidence on other surveys albeit scatterings of droppings were recorded.

#### **Serotine**

A single roosting in the chancel during the June and August surveys from accessing via the south side of the chancel.

1.5 Mitigation options for consideration are as follows:

- a) Manage the bat impacts by protecting vulnerable items by creating no-fly zones. In particular, blocking of gaps over wall paintings where bats have been shown not to be roosting, deterring bats from flying in the aisles through the use of ultrasound and protecting the rood screen with a deflector board
- b) Create new bat roosting at the points of entry (west door, south-east side of the south aisle and south side of the chancel) plus excluding the bats from the church.
- c) Bat pole in the churchyard and incorporation of maternity boxes
- d) Bat nights and interpretation –

1.6 The Bats in Churches Project have limited funds to be able to advise with this mitigation but will provide links to external funders who may be able to assist further. Philip Parker, through the Norfolk Bats in Churches Project will be able to provide further assistance into the future.

## **2.0 INTRODUCTION**

### **2.1 GENERAL**

Philip Parker Associates Ltd (via Wildwings Ecology) have been instructed to undertake bat surveys and provide advice as to bat management/mitigation options at the Church of St Bartholomew, Brisley, Norfolk as part of the Heritage Lottery project (HLF) Bats in Churches Project. This report provides details of the surveys undertaken and mitigation/management options to be considered.

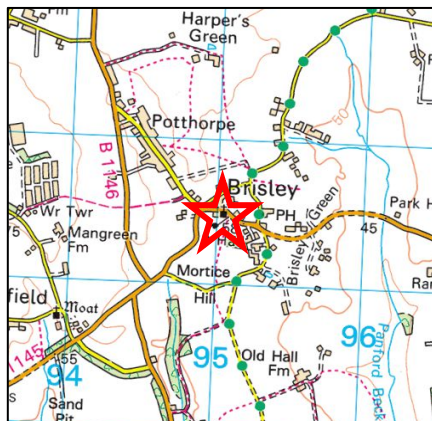
2.2 The brief for the project states that the BMP should include the following:

- Full ecological report with a summary of bat survey data and a complete picture of how bats are utilising the church.
- Floor plans of the church, internal and external photographs, roost locations, and entry/exit points identified for each species.
- Assessment of the heritage impacts caused by bats. Please reference the Statement of Significance and any associated reports on the impact of bats on church heritage.
- Presentation of all bat management options considered and the reasons why non-favoured options were rejected. Favoured option to be presented in detail and, as far as possible, fully costed (including all works and monitoring).
- A record of meetings, consultations and responses presented to the PCC, Diocesan Advisory Committee or Churches Conservation Trust, Historic England, architect, heritage organisations etc.
- Details of licensing requirements and justifications under the BICCL.

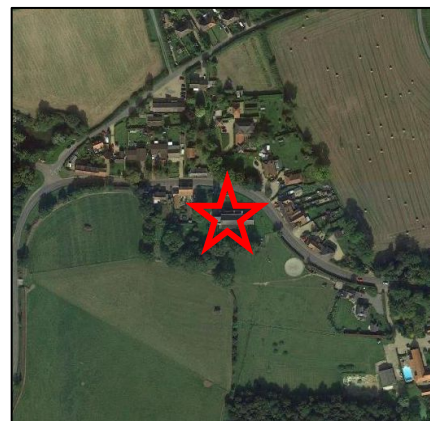
2.3 This report provides the information as required by the Bat Mitigation Plan.

### 3.0 SUMMARY OF EXISTING INFORMATION RELATING TO BATS AT THE CHURCH

- 3.1 The Church of St Bartholomew, is located at OS Map grid reference TF 9077 21490.



**Figure 1** – Ordnance Survey location plan  
Crown copyright and database right 2021



**Figure 2** – Aerial photograph location plan  
Imagery C 2021 DigitalGlobe, Getmapping plc,  
Intorfera Ltd & Bluesky.

#### 3.2 HISTORY OF BAT USE AT THE CHURCH OF ST BARTHOLOMEW, BRISLEY

In July 2016, Philip Parker undertook a survey as a Volunteer Bat Roost Visitor (VBRV). The assessment concluded there is likely an upper moderate to high level of use by bats, with concentrations of droppings located principally around the wall elevations of the chancel, west of the nave and within the south-western corner of the north aisle. Further to this, the west tower door and the chancel arch supported high concentrations of droppings indicating a likely access point and roost site.

- 3.3 A subsequent bat night was undertaken at the church in July 2017 by Philip Parker (as part of the Norfolk Bats in Churches Project) where at least 70 common pipistrelles were recorded roosting in the nave and leaving the church via the west door (this was the count over the door). A serotine and a possible brown long-eared bat were also recorded within the church.

#### 3.4 LIGHT TOUCH SURVEY

In 2017, the church was put forward as one of the additional churches for the Light Touch Survey and was accepted. The Light Touch Survey was undertaken at the church on the 29<sup>th</sup> September 2017 by Insight Ecology to determine the overall impact of bats on the significance of the church, determined through the identification of species, evidence i.e. droppings and utilisation of the building by bats from identifying likely access points and roost sites. It was concluded that

*'much of the church interior shows signs of the impact of bats, but it is worse on the south side and on the access route from the top of the west door over the west gallery. Although the medieval seat boards of the nave pews show droppings, it is the dark horizontal surfaces of some ledgers that show most damage from urine e.g. Catherine King in the north aisle. However, the north aisle St Christopher wall painting is covered with droppings and urine streaks cover the west gallery front and the organ pipes and case. A few faeces can be seen on the Royal Arms and around the pulpit'.*

### 3.5 **PREVIOUS BAT MITIGATION WORKS AT THE CHURCH**

No known bat mitigation works have previously been carried out at the church.

## 4.0 2021 SURVEY METHODOLOGY

### 4.1 General

Surveys during 2021 have been carried out at the church by a team of experienced surveyors, on each occasion led by Philip Parker. Surveys were carried out as far as possible following the guidelines given in the Bats in Churches Class Licence (BiCCL).

4.2 This sets out the minimum number and timing of surveys required, as follows:

4.3 At least one dusk survey should be carried out in each of the survey periods identified below with each survey completed at least two weeks apart. In addition, one dawn survey should be carried out in the first period – this can be carried out immediately after the emergence survey as from experience this tends to be the optimum time to do it.

- Survey 1 May to mid-June
- Survey 2 Mid-June to end July
- Survey 3 August to mid-September

4.4 The exception to the above methodology was that the dawn survey was undertaken immediately after the second dusk survey as from recent experience, this generally proves to be the most productive time for dawn surveys.

### 4.5 Survey Equipment

Surveys have been carried out through the use of the following equipment:

**Table 1 Survey methodology for the 2021 surveys**

Equipment Type	Equipment specifics	Notes	Analysis
Infrared cameras	Canon XF-400 Canon XA-10 Canon XA-11 Canon XA-30 GuideTrack Pro19 Thermal Imaging Camera	Attached to a rigid tripod for stability (various makes)	Files processed and saved in Photos for MAC programme and saved on 4TB external Western Digital Drives  Videos analysed using Quick Time Player
Infrared lights	A minimum of 2no infrared lights were used per camera (140 led)	Set on brackets attached to a rigid tripod (various makes)	
Additional lighting	Clulite CB2 (million candle power) with additional red filter	Used to provide additional illumination on the preliminary survey and on activity surveys where it is certain it would be an impact on the bats	
Hetrodyne detectors	Batbox Duet detector x 4	Each surveyor has been equipped with	



Equipment Type	Equipment specifics	Notes	Analysis
	Batbox Griffin x 1 Echo Meter Touch 1 on an iPad Mini	one or other of these detectors to enable audible monitoring of the bats during the course of the survey	
Static detectors	Anabat Express detector	Each surveyor was equipped with an Anabat Express detector to enable later checking of any recorded data	Calls analysed using Analook or Insight
Camera	Iphone 12 Pro Max	Used to record images on the preliminary survey	
Binoculars	Leica 8 x 40mm	Used to inspect for evidence and roosting sites on both the preliminary and activity surveys	
Thermometer	ETI- Hygro - Thermo Pocket sized hygrometer	Used to provide accurate temperature and humidity readings during the surveys	
Bat dropping DNA testing	ADAS	Bat genotyping is a method used for reliable identification of bat species from guano (droppings) where e.g. identification from morphology is not possible or where bats cannot be seen and avoids the need to capture or trap these animals. Speciation is made possible by molecular analysis of the DNA found in droppings that have been collected from areas where bats are found	Bat droppings collected and packaged/sent to ADAs for DAN analysis

4.6 The 2021 season included a cold and wet spring which delayed the formation of maternity roosts. In addition, the use of back to back dusk/dawn surveys (as allowed under the Bats in Churches survey guidelines) has proven useful in establishing any difference in the use between exit and entry points.

#### 4.7 Survey team

Surveys have been undertaken on the following dates using the following surveyors. Where the surveyors are licenced, their licence numbers are given.

- Philip Parker (2015-14467-CLS-CLS)
- Karl Charters (2015-13353-CLS-CLS)
- Naomi Parker (2018-34600-CLS-CLS)
- Polly Godfrey
- Kate Garner
- Lisa Gabriel
- Rebecca Easter
- Emily Parker

4.8 No volunteers assisted with the surveys.

**Table 2 2021 Bat activity survey dates**

Date	Survey Type	Surveyor	Start and finish time	Weather
17 <sup>th</sup> May 2021	Emergence	Philip Parker Karl Charters Lisa Gabriel Emily Parker Polly Godfrey Rebecca Easter	20:35 – 22:35	<b>Weather –</b> Heavy rain for first 15 minutes. BF1, 100% cc,  <b>Start</b> Ex - Temp – 9.6C Ex - Humidity – 54%  <b>Finish</b> Ex - Temp – 8.1C Ex - Humidity – 70%
28 <sup>th</sup> June 2021	Emergence	Philip Parker Karl Charters Naomi Parker Kate Garner Rebecca Easter	21:06 – 23:10	<b>Weather –</b> Dry, 100% cc, BF1  <b>Start</b> Ex - Temp – 17.5C Ex - Humidity – 56%  <b>Finish</b> Ex - Temp – 15C Ex - Humidity – 80%
29 <sup>th</sup> June 2021	Re-entry	Philip Parker Karl Charters Naomi Parker Kate Garner Rebecca Easter	02:45 – 04:30	<b>Weather –</b> Dry, 100% cc, BF1  <b>Start</b> Ex - Temp – 14C Ex - Humidity – 80%  <b>Finish</b> Ex - Temp – 12C Ex - Humidity – 80%
9 <sup>th</sup> August 2021	Emergence	Philip Parker Karl Charters Naomi Parker Kate Garner Emily Parker	20:20 – 23:20	<b>Weather –</b> Light rain, 100% cc, BF1  <b>Start</b> Ex - Temp – 17C Ex - Humidity – 100%  <b>Finish</b> Ex - Temp – 15C Ex - Humidity – 100%

4.9 During the surveys, surveyors were typically located as follows (as shown on Drawing D2):

**Internal**

- One surveyor internally utilising two infrared cameras, one facing the western tower door and to monitor bats leaving the church, one looking east covering the chancel and the two aisles. Additionally, a thermal imaging camera was used internally. An Anabat Express detector was left internally in the church and also the silence chamber for each of the surveys.

**External**

- One surveyor on the north-eastern corner covering the north side of the chancel;
- One surveyor on the north-western corner covering the north porch, north aisle and north side of the nave;
- One surveyor on the south-western corner covering the south aisle, and south side of the nave;
- One surveyor on the south-east corner covering the south side of the chancel;
- On the 17<sup>th</sup> May 2021, one surveyor was positioned to the west of the tower covering the west door. On subsequent surveys, they were however replaced by an internal infrared camera, which was later analysed.

4.10 The north, south and east side of the tower were not directly covered on the surveys but were covered by an internal Anabat (within the silence chamber).

4.11 The positions of infrared cameras on the outside of the church varied slightly between the surveys but four external cameras were always utilised.

**4.12 Survey constraints**

The survey on the 17<sup>th</sup> May 2021 was subject to heavy rain during the first 15 minutes of the survey, however, as this ceased prior to typical bat emergence time, it was not considered a constraint to the survey and did not impact on the emergence of bats from the building.

4.13 The final emergence survey on the 9<sup>th</sup> August 2021 was subject to light rain throughout the entire survey (despite the fact that the forecast suggested the weather would be fine). Whilst this likely had some impact on the early re-entry of bats into the building, it did not appear to impact on the emergence of bats.

4.14 Weather conditions were fine for the remaining 2021 activity surveys.

4.15 The surveys did not concentrate on the upper levels of the tower and as such, any bat emergence from the louvres would not have been recorded. As detailed above, the use of the

silence chamber was however monitored through the use of a static detector. The previous physical survey had however identified little use of the internal part of the tower by bats.

## 5.0 2021 SURVEY RESULTS

5.1 The results of the 2021 surveys are summarised in the following table and illustrated on Drawing D1 (physical survey), D3 (activity survey summary) and D4 (summary of roosting and access locations).

**Table 3 Survey results**

Date	Emergence/re-entry	Species	Number and location
28 <sup>th</sup> April 2021	Physical	Pipistrelle spp Brown long-eared Serotine	General light scatter of droppings throughout aisle, chancel and porch with moderate concentration throughout the nave and base of tower. Several moderate concentrations of droppings within eastern end of north and south aisle and various areas within the chancel along the walls. High scatter of droppings at western and eastern end of the nave associated with the likely access and roost site. An occasional dropping was noted in the crypt with access via the door in the chancel.  Scattered droppings within the south aisle. Occasional droppings in the silence chamber.  4 areas of moderate concentration of serotine droppings in chancel.
17 <sup>th</sup> May 2021	Emergence	Common pipistrelle Soprano pipistrelle	<b>Common pipistrelle</b> 3 roosting at the ridge beside chancel arch (nave side) internally (R1), accessing out of west tower door.  1 external roost site at eaves level, west of the central buttress on north aisle (R6).  <b>Soprano pipistrelle</b> 6 roosting inside the nave (exact location not confirmed), accessing over the west tower door.
28 <sup>th</sup> June 2021	Emergence	Common pipistrelle Serotine	<b>Common pipistrelle</b> 21 roosting at the ridge beside chancel arch (nave side) internally, accessing over west tower door (R1).  2 roosting within external eaves of the south side of the chancel (centrally) (R8).  <b>Serotine</b> 1 roosting within a hammerbeam mortise joint within the south-eastern corner of the chancel (R4). Emerged out of eaves of the north aisle between 1 <sup>st</sup> and 2 <sup>nd</sup> window from east (A4).
29 <sup>th</sup> June 2021	Re-entry	Common pipistrelle Serotine	<b>Common pipistrelle</b> 21 roosting at the ridge beside chancel arch (nave side) internally (R1). 7 accessed church through south side of chancel eaves (A3). 2 accessed through the south side of the eaves at the junction of nave/chancel (A2).  12 accessed over west tower door (A1).

Date	Emergence/re-entry	Species	Number and location
			<p>1 roosting at external eaves on south side of chancel (centrally) (R8).</p> <p><b>Serotine</b> 1 roosting within a hammerbeam mortise joint within the south-eastern corner of the chancel (R4). Entered church through eaves of the north aisle between 1<sup>st</sup> and 2<sup>nd</sup> window from east (A4).</p>
9 <sup>th</sup> August 2021	Physical	Brown long-eared Common pipistrelle	<p>Changes in bat evidence within the church since the original survey comprised the following;</p> <p><b>Brown long-eared</b> 2 high concentrations of brown long-eared droppings including some lepidoptera remains were located within the south-eastern corner of the south aisle under two purlins.</p> <p><b>Common pipistrelle</b> 1 dead juvenile common pipistrelle under the chancel arch (location of main roost) confirming the roost as a maternity roost.</p>
9 <sup>th</sup> August 2021	Emergence	Common pipistrelle Soprano pipistrelle Brown long-eared Serotine	<p><b>Common pipistrelle</b> 20 roosting at the ridge beside chancel arch (nave side) internally (R1). 7 accessed the church through south side of chancel eaves (A3). 1 accessed through the south side of the eaves at the junction of nave/chancel (A2). 12 accessed over west tower door (A1).</p> <p>2 roosting at north aisle eaves above western wall of porch (R5). 1 roosting at eaves on north aisle, between 2<sup>nd</sup> and 3<sup>rd</sup> window from east (R6). 1 roosting at chancel eaves between 1<sup>st</sup> and 2<sup>nd</sup> window from east (R8).</p> <p><b>Soprano pipistrelle</b> 1 roosting internally (exact location unknown) having emerged over west tower door (A1).</p> <p><b>Serotine</b> 1 roosting within a hammerbeam mortise joint within the south-eastern corner of the chancel (R1). Emerged out of eaves of the north aisle between 1<sup>st</sup> and 2<sup>nd</sup> window from east (A4).</p> <p><b>Brown long-eared</b> 2 emerged from the north-eastern end of the south aisle roof and went to roost centrally within the roof of the south aisle (central southern elevation) (R3).</p>
1 <sup>st</sup> October 2021	Physical	Pipistrelle spp Serotine	<p><b>Pipistrelle species</b> A light to moderate scatter of pipistrelle type droppings throughout the church.</p> <p>Areas of moderate scatter of pipistrelle droppings noted in western end of the north aisle and in the north-west corner. A moderate scatter was noted throughout the nave and tower base, on the eastern window ledge of the</p>

Date	Emergence/re-entry	Species	Number and location
			<p>south aisle and around the wall posts in the chancel.</p> <p>High concentration of pipistrelle droppings west of the chancel arch below gap and towards the western end of the nave.</p> <p><b>Serotine</b> Moderate scatter of serotine type droppings below the wall posts in the chancel.</p>

## 5.2 SUMMARY OF THE BAT SURVEYS

Across the surveys four species of bats were identified: soprano pipistrelle, common pipistrelle, serotine and brown long-eared. In terms of roost types, this is detailed below.

**Table 5 Summary of activity**

Species	Date	No	Roost locations	Access points
Common pipistrelle	17 <sup>th</sup> May 2021	4	Within the nave beside the chancel arch with 1 roosting externally	A1 3 (100%) A2 0 (0%) A3 0 (0%)
	28 <sup>th</sup> June 2021	23	Within the nave beside the chancel arch with 2 roosting externally	A1 21 (100%) A2 0 (0%) A3 0 (0%)
	29 <sup>th</sup> June 2021	22	Within the nave beside the chancel arch with 1 roosting externally	A1 12 (57%) A2 2 (10%) A3 7 (33%)
	9 <sup>th</sup> August 2021	24	Within the nave beside the chancel arch with 4 roosting externally	A1 12 (60%) A2 1 (5%) A3 7 (35%)
Soprano pipistrelle	17 <sup>th</sup> May 2021	6	Within the nave (exact location unknown)	A1 6 (100%) A2 0 (0%) A3 0 (0%)
	28 <sup>th</sup> June 2021	-	-	-
	29 <sup>th</sup> June 2021	-	-	-
	9 <sup>th</sup> August 2021	1	Within the nave (exact location unknown)	A1 1 (100%) A2 0 (0%) A3 0 (0%)

Species	Date	No	Roost locations	Access points
Brown long-eared	17 <sup>th</sup> May 2021	-	-	-
	28 <sup>th</sup> June 2021	-	-	-
	29 <sup>th</sup> June 2021	-	-	-
	9 <sup>th</sup> August 2021	2	South aisle	Unknown
Serotine	17 <sup>th</sup> May 2021	-	-	-
	28 <sup>th</sup> June 2021	1	Chancel	1 north aisle eaves (100%)
	29 <sup>th</sup> June 2021	1	Chancel	1 north aisle eaves (100%)
	9 <sup>th</sup> August 2021	1	Chancel	1 north aisle eaves (100%)

- 5.3 In summary, evidence of the common pipistrelle maternity roost first appeared on the second dusk emergence survey (21 bats recorded on 28<sup>th</sup> June 2021), with only 3 bats recorded at the main roost site on the 17<sup>th</sup> May 2021. The common pipistrelle maternity roost was located at the nave ridge, immediately west of the chancel arch (Roost R1). **Confirmed maternity roost of local value.**
- 5.4 Furthermore, internally, soprano pipistrelles (6 bats) were principally recorded on the first survey, however their numbers significantly dropped off throughout the remaining surveys, with only a single bat recorded on the 9<sup>th</sup> August 2021. These were recorded roosting in the nave (exact location unknown). **Day roost of low local value.**
- 5.5 A single serotine was observed on 3 occasions roosting within a hammerbeam mortise joint within the south-eastern corner of the chancel. **Day roost of local value.**
- 5.6 An update physical survey undertaken immediately prior to the commencement of the last activity survey (09/08/2021) indicated 2 high concentrations of brown long-eared droppings including some *lepidoptera* remains within the south-eastern corner of the south aisle under two purlins. This suggests that this species uses the church in low numbers, and 2 bats were noted roosting in the south aisle although they were not seen to access. **Day roost of local value.**
- 5.7 Whilst the majority of roosting locations (as detailed above) were recorded inside the church, a few roost locations were also recorded externally. The overall number of roosting bats were significantly down compared to previous years (2016) when 70 common pipistrelles were recorded. This is likely a result of the cold late spring. Therefore numbers and use of the church by bats may not be entirely representative of normal years. This is a pattern that has been seen at many other well recorded sites during summer 2021.

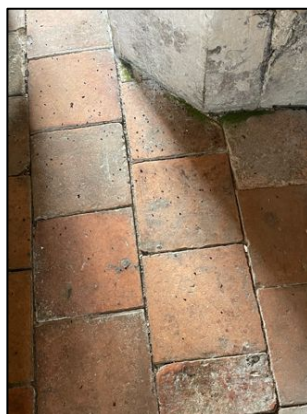




**Figure 3** – Primary roost R1 at the eastern end of the nave, above the chancel arch. The metal tie bar below this image has rust spots caused by the bat urine



**Figure 4** – Bat droppings beneath the primary roost R1



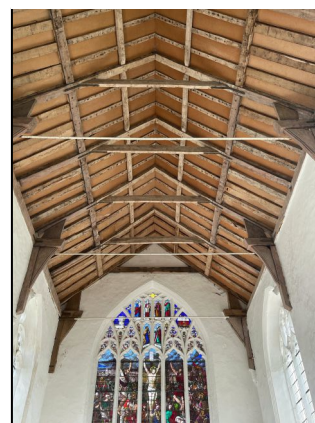
**Figure 5** – Droppings beneath the secondary roost at the eastern end of the nave R2



**Figure 6** – Pews in the north aisle which had scattered groupings of droppings (mostly brown long eared and pipistrelle type). 2 brown long eared were recorded roosting on the August survey (R4)



**Figure 7** – Hole in the chancel roof was recorded as a secondary access – however – some roosting in this feature cannot be discounted



**Figure 8** – Secondary roost (serotine) in the south-east corner of the chancel R4). Other roosting areas occur behind all the wall posts (mostly appear to be serotine droppings). The bats emerged to the north of the chancel



**Figure 9** - collected droppings on the gallery where it is not cleaned



**Figure 10** – The crypt underneath the chancel had bat hibernation potential. Some limited bat evidence was found, bat access is possible over the door from the chancel



**Figure 11** – Floor of the silence chamber. There was little evidence of bat use. No bats were recorded using the silence chamber on the static detectors during the survey



**Figure 12** – Main access into the church via the western tower door. The bats have worn the staining off the door. Copious amounts of droppings are present at the base of the door



**Figure 13** – Secondary access at eaves level in the south-east corner of the nave (A2)



**Figure 14** – Secondary access at eaves level on the southern elevation of the chancel (A3)

## 6.0 IMPACTS OF THE BATS ON THE HERITAGE OF THE CHURCH

- 6.1 The survey of the church has highlighted the bats roosting at the church, their roosting sites and their access locations.
- 6.2 The Bats in Churches Project commissioned a Statement of Significance prepared by Richard Halsey (visit date 8<sup>th</sup> January 2018). This report highlights the heritage of the church and considers the impact that the bats are having upon it. The findings of the statement is shown below and is illustrated by photographs of the features and where appropriate the impact the bats are having.
- 6.3 The report summarises that  
*“Brisley is a substantially medieval church with fine architectural details (like the window tracery and sedilia) which has had limited post-medieval changes. It also retains quite a lot of its medieval nave seating, octagonal pulpit (buried in later additions) and font as well as some wall paintings of good quality (and the prospect of many more being discovered under the limewashed walls and arcades). There are also a few indents and brasses and a particularly interesting priest brass of 1531”.*
- 6.4 The following information is taken from the table at the end of the report which grades the importance of the features within the church and the overall impact that the bats are having on these – 1 is the lowest and 5 is the highest.

**High Significance.**

- Rood strcture (1)
- Painted and decorated wall surfaces (1),
- Rood screen (2)
- Pulpit (2)
- Font (1)



**Figure 15** – Wall painting in the south aisle



**Figure 16** – Pulpit – This is close to the main roost and is impacted by droppings





**Figure 17** – Rood screen. The Statement of Significance grades the bat impact on the screen as 2 (moderate) but it was noted that the top of the screen is covered with droppings (due to the proximity of the main bat roost R1) and this was one of the features that the PCC were most concerned about



**Figure 18** – Font is under the area where the bats fly towards the main access

**Moderate-high significance;**

- The west gallery (3)
- Box pews (2)
- Royal Arms (2)
- Organ (3)
- Reredos (2)
- King family ledgers (3)



**Figure 19** – Organ pipes showing urine staining



**Figure 20** – Royal arms in the south aisle



**Figure 21** – Ledger stones in the south aisle – evidence of current and historic urine damage

### **Low-moderate significance;**

Font cover

- 6.5 The church is at the middle of the village and seen by many on the B1145 road that runs around the north side of the churchyard. It is of **high townscape significance**.

- 6.6 In relation to bats, The Statement of Significance concluded:

*The Light Touch Survey only recommends more monitoring. However, the text suggests a heated bat box could be fitted on the back west over the main access point. Any restriction on the number of bats flying around would generally benefit the interior heritage. As it is a modern door and the base of the tower is currently used for storage, this does not impact on the heritage significance. The PCC might need to consider whether they wish to install a toilet or kitchen in the foreseeable future, as the base of the tower is the obvious (and perhaps only) place to accommodate such facilities within the church. A bat box could be accommodated in such a structure, but not retro-fitted.*

*It needs to be established whether there is any access or roost in the north aisle near the St Christopher painting, as this feature of high significance is being heavily impacted by bats. At the least, a deflector should be considered. The other St Christopher and features like the Royal Arms are lightly affected, but some ledgers e.g. Catherine King, are beginning to show a high level of urine staining. Cleaning and any appropriate protective measures should be considered.*

### **6.7 WALL PAINTING REPORT**

A report on the wall paintings was commissioned by the Bats in Churches Project and was undertaken by Andrea Kerkham in June 2020 and the results presented in a report dated November 2020. Evidence noted in June 2020 is likely to have been greater than would normally be present as the church was being cleaned less frequently due to Covid. This report concludes the following in respect of the currently exposed wall paintings:

**6.8 North aisle St Christopher**

The painting is extremely badly affected by bat excreta. Microbiological growth (MBG) associated with that urine occurs notably at the upper west side with many bat droppings evident on the adjacent limewash to the west but more seriously, droppings are evident on the exposed areas of painting.



**Figure 22** - North aisle St Christopher is suffering from droppings and urine damage

- 6.9 Reference is made to bat damage to some of the other exposed paintings but not to the same degree as the north aisle St Christopher.
- 6.10 Many photographs are included showing the level of bat droppings and urine within the church. This is greater than seen during the surveys in 2021 but the survey and report was undertaken in 2020, in a period of lockdown where it is assumed that the church was being cleaned less frequently.
- 6.11 The report concludes that although the 2017 Statement of Significance stated a desired outcome was to contain the bats into certain parts of the church, the wall painting report concludes that these attitudes have changed and the PCC would prefer that the bats were excluded completely.

## **7.0 MITIGATION/ MANAGEMENT OPTIONS FOR CONSIDERATION**

- 7.1 Following consideration of the survey results set out in Section 4 and an assessment of the impacts from the bats on the heritage of the church, the following mitigation options have been developed for consideration. These were discussed at a meeting with three members of the PCC and Ruth Blackman (the architect) on the 4<sup>th</sup> October 2021. Copies of the proposed mitigation slides were presented along with cost estimates were subsequently sent to the PCC for further consideration. A meeting was held between the PCC and Ruth Blackman on the 25<sup>th</sup> October 2021 and the results of these discussions are still awaited.
- 7.2 Estimated costs of the various mitigation proposals can be found in Section 8
- 7.3 The way that bats use a building such as a church can fall into 2 broad categories
- Crevice dwelling bats such as pipistrelles and serotine;
  - Void dwelling bats such as brown long-eared bat.
- 7.4 The impacts of crevice dwelling bats are often easier to mitigate as they generally do not have any necessity to fly around the church and individuals often leave soon after emerging. They take to using bat boxes more readily.
- 7.5 The majority of bats recorded at St Bartholomew's Church are pipistrelles (mainly common with a smaller number of sopranoes) with individuals/small numbers also of serotine and brown long-eared. The use of open internal flying spaces, although advantageous, are not generally critical for the species.

**A Manage the bat impacts to prevent damage to items of historical value – This could be achieved by covering up particularly important elements or the use of acoustic deterrents to create no-fly zones within the church**

### **7.6 Wall paintings**

The main features of historical value within the church include the wall paintings. The PCC are particularly concerned about the impact on these and as identified in Section 6.7, the Bats in Churches project commissioned a report by Andrea Kerkham to look at the impact that the bats were having on these paintings. It seems certain that there are more paintings to be discovered and the PCC report that further work in relationship to these is difficult to find funders for where bats are having an impact.

- 7.7 The most obvious (and simplest form of mitigation) would be to prevent bat droppings and urine from falling on these key features (namely the wall paintings and the rood screen). Works are currently taking place at the church to repair leaks to the south aisle (this is being undertaken with guidance from Philip Parker in relation to the bats).
- 7.8 In the first instance, it is recommended that any gaps over the top of the paintings are inspected from scaffolding tower/ladders with the assistance of the contractor. As long as it can be certain there is no evidence of bat roosting (none were seen during the surveys) the gaps can be blocked. This would be a relatively cost-effective exercise. Such measures would not require any bat licence (licence would be required if a roost or access was blocked). An inspection was made of the principal rafter between the south aisle wall painting and the Commandment board on the 27<sup>th</sup> October 2021 as part of the essential repair works to this rafter. Although there was a lot of debris on the top of the wall beneath this rafter, this seemed to be associated with the rotting timber and death-watch beetle activity. Instructions were therefore confirmed that this work could be carried out without impact on bats. This in itself should remove one area with the potential for bats to roost close to the painting in the future. The Wall Painting report advises against any coverings or deflector boards over the wall painting.

*“Neither curtains or deflector boards are in any way acceptable options at Brisley or any church. Curtains, for example, create a microclimate and physical damage to the wall painting will occur as they are open and shut. Nor is it acceptable to fix either a curtain or a deflector board to the historic fabric which is also high value.*

*Wall paintings should be seen and many visitors come to the church to see the wall paintings, the furnishings and fabric and not to view an interior scarred by ugly deflector boards and curtains”.*



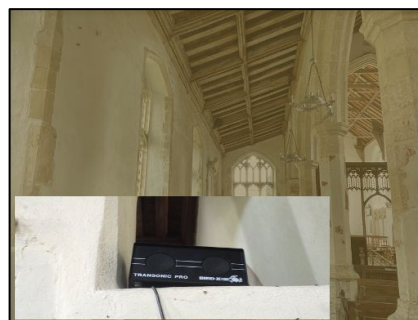


**Figure 23** – Prevent bats from roosting above the wall paintings in the north aisle by blocking the gaps (as long as no evidence of use as a roost)



**Figure 24** – Gap beside principal rafter in the south aisle to be repaired. There was no evidence of bat roosting in this area and the works to this should remove future potential

- 7.9 Consideration could also be given to trying to prevent bats from flying within the aisles where the majority of the wall paintings are, but also where the floor tombs are located. This could be achieved through the use of acoustic deterrents. One cost effective make is Transonic Pro (see Figure 25). This can be purchased quite cheaply from Amazon (cost c£70) but previous trials (Zeale et al 2016) have shown that the range is relatively limited and therefore a minimum of 2 will be required for each of the aisles (subject to trials of their effectiveness). It should be noted that the sound generated by these is extremely loud and could not therefore be left on during the day as they would disturb visitors. They would therefore require a timer switch. The use of such devices to deter bats would be illegal without approval under BiCCL and they can only be used at certain times of the year. Their use would also require monitoring as part of the licence.

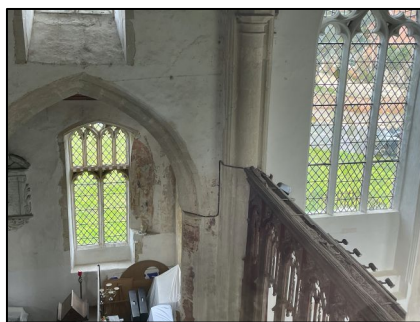


**Figure 25** – Deter bats from using the aisles using acoustics

- 7.10 As the majority of the bat activity is in the nave and the chancel, it would not be practical to deter bats from flying within these areas without impacting on the roosts in general. Therefore, the use of acoustics is not recommended in the nave and chancel.

#### 7.11 Rood screen

The rood screen is particularly vulnerable to bat droppings given its location virtually under the main common pipistrelle roost. A photograph taken through the clerestory window shows droppings on the top of the screen. Consideration should be given to the use of a deflector board over the rood screen to protect from droppings and urine from the roost above. This would require discussion with a contractor and the architect as to how this could be attached but it is considered that this could be done in such away so as not to adversely visually impact on the architecture. The use of a deflector board close to the top of the rood screen would not impact on the bats use of the church and would not therefore require registration under BiCCL. It may however need a faculty.



**Figure 26** – The top of the rood screen viewed from the clerestory window showing the accumulated droppings on top



**Figure 27** – Location of potential deflector board close to the top of the rood screen

#### 7.12 Cover

The Bats in Churches Project can provide advice and funding for covers that could be used for some items within the church.

### **B Enhance bat roosting externally and obstruct access into the church**

7.13 The pipistrelles access the church via three principal locations (the west door, the south-east corner of the nave and the south side of the chancel). If bats are to be excluded from the church, it is recommended that new bat roosting is provided at all three of these locations.

7.14 Consideration should be given to installing a heated bat box on the inside of the west door. This would need to go in place for a minimum of 12-24 months whilst still allowing bats to access the inside of the church (effectively flying through the box) whilst giving them the opportunity of investigating (and hopefully roosting) within the box during this period. Being on the western elevation, the roosting area would not benefit from solar radiation and therefore it would need to be heated. The easiest method would be to purchase a heated box on the inside of the door

and enclose it into an enclosure to match the structure of the door or otherwise design a bespoke construction.



**Figure 28** – Large colony heated bat Box

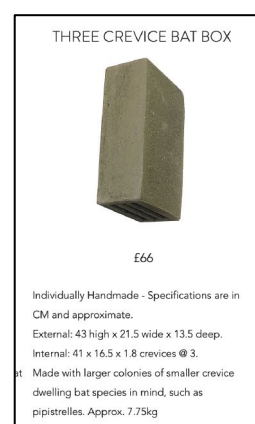


**Figure 29** – Location of heated bat box over western tower door

- 7.15 The PCC did raise some concern that the provision of a bat box over the door would obstruct any future use of that door and perhaps prevent the installation of a toilet (which could be part of their future plans) in this area. This needs to be balanced however against the potential to provide a satisfactory mitigation solution. The use of the box would be monitored by installed cameras.
- 7.16 The boxes proposed for the south nave and south chancel could be Greenwood Ecohabitats large slot boxes as these would benefit from solar heating and would therefore not need to be heated. In themselves they may not be large enough to support a large maternity roost. An alternative would be a larger Kent multi slot box coloured to match the walls. These have been approved for use on other churches.



**Figure 30** – Proposed Location of Greenwoods (or wooden Kent Boxes) on the walls close to the secondary access points



**Figure 31** – Example of a three crevice Greenwoods bat box



**Figure 32** – Example of a three-slot bat box. This can be coloured to match the walls of the church

- 7.17 Ruth Blackman also raised the possibility of erecting bat boxes away from the church building as has been proposed at some other churches. These should be seen as a supplementary technique rather than the only technique to be used as bats are unlikely to adopt these boxes over the existing roosts unless they could be erected on direct flight paths. There are no suitable trees within the churchyard on which boxes could be erected and therefore the only option would be a pole. A pole mounted maternity box has been used successfully at Mintlyn Crematorium near King's Lynn (following exclusion under licence).



**Figure 33** – Bat boxes erected on a pole if no suitable trees are present on site

#### **7.18 Exclusion of the bats from the church**

After installing the proposed mitigation as set out above, and hopefully demonstrating some level of use in years 1-2, the next step would be to exclude the bats from the church. This would not be an easy task as there are potential access points within both elevations of the nave, the chancel and the aisles. This would need to be done from the inside of the church top to avoid blocking any external roosting locations (either recorded or unrecorded). After discussion with the existing contractor working at the church, the works to the nave would best be undertaken from a cherry picker. Works to the aisles would be best from a ladder or a scaffolding platform (keeping clear of the wall paintings). Works to exclude the chancel may be more difficult as it will not be possible to get a cherry picker through the rood screen and therefore this will have to be undertaken from a scaffolding tower or possibly full scaffolding.

#### **7.19 Bats in Churches Class Licence (BiCCL)**

The blocking of gaps in the aisles over the wall paintings (as long as they are not being used for bat roosting or access) should not require approval under the Bats in Churches Class licence, neither would the erection of a deflector board over the rood screen or covers to brasses and tombs.

7.20 The installation of the bat boxes on the south aisle would not require registration under the Bats in Churches Class licence (as long as they do not directly obstruct the bat access) and neither would any bat boxes on a pole as these would not interfere with bat use. However, the bat box over the west door would need to be covered by the licence as would the use of any acoustic deterrents (as previously advised in Section 7.9).

#### **7.21 Monitoring**

All mitigation works will require monitoring of some nature to ensure that they are working satisfactorily. Registration of a church under BiCCL requires minimum monitoring twice a year for a period of five years but in this instance additional monitoring is recommended through the use of cameras and recording devices to confirm the use of the Bat Boxes and to assess how effective the acoustic deterrents have been (thus ensuring they are not adversely impacting on the rest of the church).

#### **7.22 Faculty**

The installation of bat boxes as part of a bat management plan should be List A and therefore not require any faculty approval. However, in certain instances (where they may be particularly visible or include the use of electrics for heaters or cameras) List B approval will be required. The DAC secretary has been particularly helpful in this respect. The provision of a deflector board over the rood screen will likely require faculty. The provision of a bat pole in the church yard will require both faculty and planning consent.



### 7.23 Interpretation

Whatever option is chosen it is recommended that a bespoke display board is installed in the church informing visitors about the bats, the impacts and what mitigation/management measures are planned.

- 7.24 The Norfolk Bats in Churches Project (who have already run successful bat events at the church) would be pleased to continue to assist the church in the coming years. Consideration could be given incorporating a viewing screen in the church so visitors would be able to view the bats in the box over the door (if that option was chosen and found to be successful).



**Figure 34** – Bat Bight at Brisley in August 2021

## 8.0 WORK SCHEDULE

- 8.1 The timescales, responsibility and costings for the various mitigation options set out in Section 7 above are set out below. This assumes that the works would commence in the next season (2022). The costs for monitoring are based on 2021 costs. It might be that significant cost savings could be made on the monitoring if volunteers from the local bat group were able to assist in the surveys.

**Table 6 Draft Work and cost Schedule**

Mitigation Option	Year	Period	Description	Who	Capital works costs (plus VAT)	Monitoring works costs (plus VAT)	Faculty	BiCCL	Planning
A1	2021/22	Autumn	Check the gaps at the eaves in the aisle and block any areas which show no signs of bat presence or use	Contractor Ecologist	£1000			? Depends if roost	
A2	2022		Acoustic deterrents	Ecologist	£1000 including installation	Priced in Option C		Y	
A3	2022		Deflector board over the rood screen	Ecologist Contractor	£2000		Y?		
B1	2022	January	BiCCL registration	Ecologist		£600			
B2	2022	Spring	Heated bat box over the door	Contractor Ecologist Electrician	£3000		List B		No
B3	2022	Spring	Boxes on south nave and chancel	Contractor Ecologist	£1200		List B?		
B4	2022	Summer	Bat Pole and boxes	Contractor Ecologist	£1200		Y		Y

Mitigation Option	Year	Period	Description	Who	Capital works costs (plus VAT)	Monitoring works costs (plus VAT)	Faculty	BiCCL	Planning
	2022	June July	Monitoring survey	Ecologist		£2400			
	2022	Monthly (May – Sep)	Camera survey	Ecologist		£600			
	2022	Dec	Licence return	Ecologist		£450			
	2023	Monthly (May – Sep)	Camera survey	Ecologist		£600			
	2023	June July	Monitoring survey	Ecologist		£2400			
	2023	Dec	Licence return	Ecologist		£450			
B5	2024	April	Exclusion of bats from the church	Contractor Ecologist	£3000 Assuming cherry picker and scaffold tower. Could be earlier depending on the success of the box				
	2024	Monthly (May – Sep)	Camera survey	Ecologist		£600			
	2024	June July	Monitoring survey	Ecologist		£1000			
	2024	Dec	Licence return	Ecologist		£450			
B6	2025	Apr	Extra exclusion	Contractor Ecologist	£1500				
	2025	Monthly (May – Sep)	Camera survey	Ecologist		£600			
	2025	June July	Monitoring survey	Ecologist		£1000			

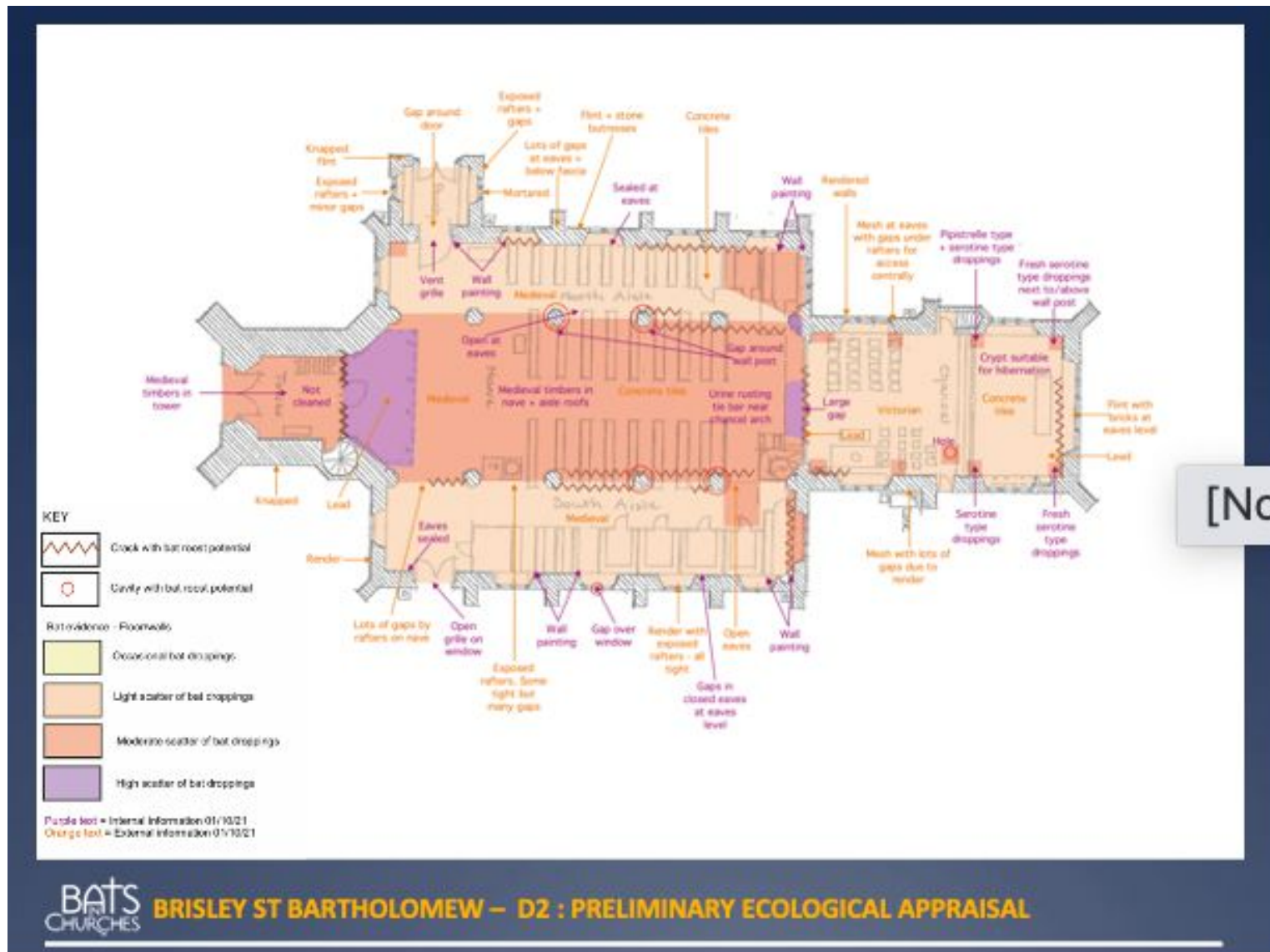


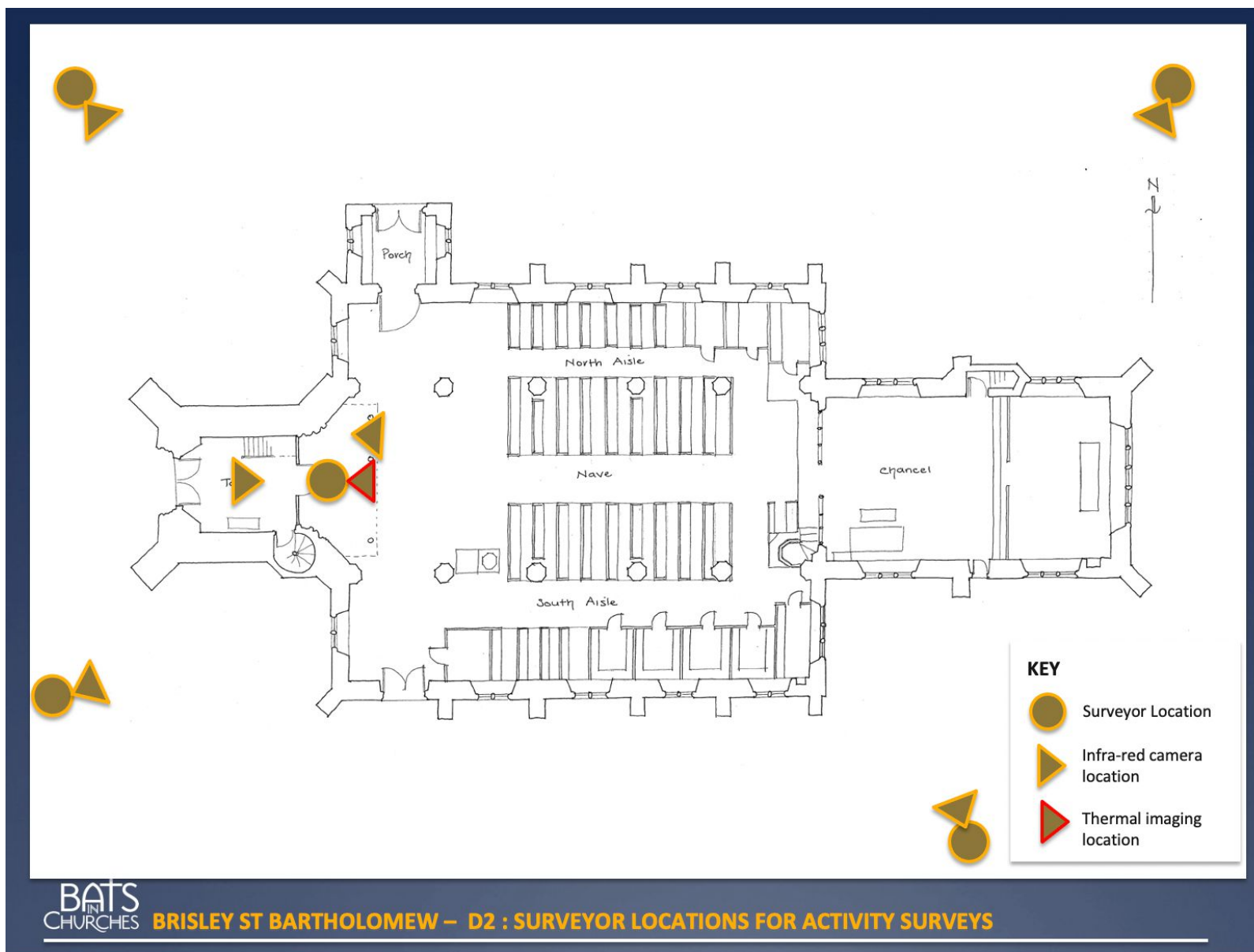
Mitigation Option	Year	Period	Description	Who	Capital works costs (plus VAT)	Monitoring works costs (plus VAT)	Faculty	BiCCL	Planning
	2025	Dec	Licence return	Ecologist		£450			
	2026	Monthly (May – Sep)	Camera survey	Ecologist		£600			
	2026	June July	Monitoring survey	Ecologist		£1000			
	2026	Dec	Licence return and final report	Ecologist		£2000			
<b>Total</b>					<b>£13,900</b>	<b>£15,200</b>			

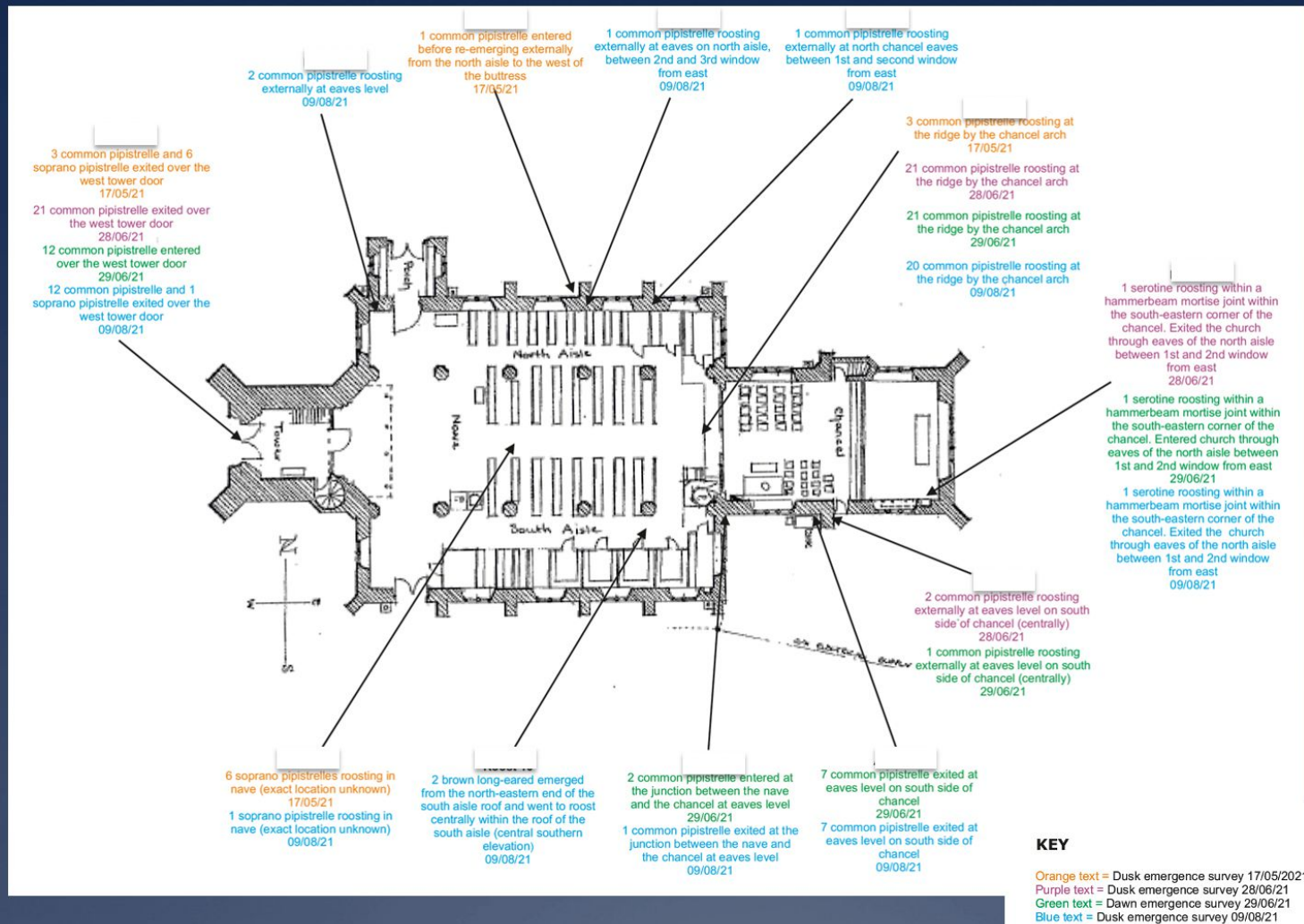
## 9.0 REFERENCES

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- **BAT CONSERVATION TRUST**, 2016, BCT Bat Survey Guidelines 3<sup>rd</sup> edition
- **DR CHARLOTTE PACKMAN, DR MATT ZEALE, PROFESSOR STEPHEN HARRIS & PROFESSOR GARETH JONES** January 2015 Management of Bats in Churches – a pilot - Project
- **HALSEY R**, (Report date unknown – Visit 8<sup>th</sup> January 2018), St Bartholomew, Brisley, Norfolk, Statement of Significance
- **INSIGHT ECOLOGY**, 2017, Bats in Churches, Bat Roost Visit Report Form, Light Touch Survey
- **MITCHELL-JONES A J**, 2004, *Bat Mitigation guidelines*, English Nature.
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- **NATURAL ENGLAND**; 2008, *Bats in Churches – A Management Guide, Technical Information Note: TIN 043 First Edition*

## DRAWINGS











**Font**

**Wall paintings north aisle**

**Reredos**

**Pews**

**Sedilia and piscina**

**Royal Arms**

**St Christopher wall painting**

**Pulpit**

**Ledger stones and brasses**

**Rood Screen**

**Organ**

**FLOOR PLAN**

**KEY**  
Grading from the Statement of Significance  
Red = 5  
Orange = 3/4  
Green = 1/2

**BRISLEY PARISH CHURCH - NORFOLK**  
Floor Plan.  
Not to Scale.  
Date - 01/01/2021  
Drawn by Ruth Blackman for and on behalf of Brisley, Sharnell and Blackman Ltd.

**BATS IN CHURCHES**

**BRISLEY ST BARTHOLOMEW – D5 : FEATURES OF SIGNIFICANCE**





A. Prevent bats roosting over the wall paintings



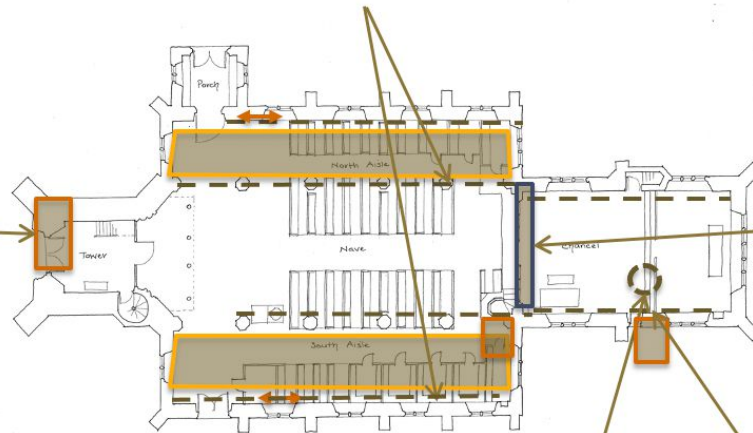
B. Deter bats from the aisles using acoustics



D. Public engagement



C. Bat boxes on building



FLOOR PLAN

KEY

- A. Exclusion over wall paintings
- A. Deflector boards
- B. Deter bats from areas with acoustics
- C. Bat boxes
- C. Areas of exclusion



A. Deflector boards



C. Bat boxes in churchyard



C. Bat boxes

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