

# THE CHURCH OF ST MARY, GAYTON THORPE, NORFOLK



## BAT SURVEY AND MITIGATION PROPOSALS IN RESPECT OF THE HLF BATS IN CHURCHES PROJECT

**2<sup>nd</sup> DRAFT**

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## THE CHURCH OF ST MARY – GAYTON THORPE, NORFOLK BAT SURVEY AND MITIGATION PROPOSALS IN RESPECT OF THE HLF BATS IN CHURCHS PROJECT

### 1.0 INTRODUCTION

#### 1.1 GENERAL

Philip Parker Associates have been instructed to undertake bat surveys and provide advice as to mitigation/management options at the Church of St Mary, Gayton Thorpe, Norfolk as part of the Heritage Lottery project (HLF). This report provides details of the surveys undertaken and mitigation/management options to be considered.

1.2 The church of St Mary, Gayton Thorpe, is located at OS Map grid reference; TF 74504 18526.



**Figure 1 – Location plan**  
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Ordnance Survey



**Figure 2 - Aerial photograph**  
Imagery © 2019 GeoEye, Getmapping plc,  
Infoterra Ltd & Bluesky

#### 1.3 HISTORY OF BAT USE AT GAYTON THORPE

Philip Parker was initially asked by the Bat Conservation trust to visit the church as a Volunteer Bat Roost Visitor (VBRV) in respect to proposals to undertake repair works to both the tower and the nave roof. This initial visit was undertaken on the 14<sup>th</sup> Jun 2011. Subsequent works were later undertaken on either a consultancy basis or as a volunteer. The results of the various surveys are shown in Table 1 below (details have been extracted from the Norfolk Bats in Churches Project data base).

**Table 1 A summary of previous surveys undertaken at the Church of St Mary, Gayton Thorpe**

Date	Emergence/ re-entry	Coverage	Species	Number and location
14 <sup>th</sup> June 2011	Emergence	South-west corner only	Common pipistrelle	18 emerged from the south-west corner of the nave access
			Pipistrelle spp	22 emerged from 2 locations on the chancel roof (20 near to the chancel ridge and 2 near to the tower by the nave ridge).
19 <sup>th</sup> July 2011	Emergence	Whole church	Common pipistrelle	At least 20 emerged internally from timber joint in the nave, 2 dead pups found; 3 emerged from the tower, 4 from the nave roof 2 from the south side of the chancel.
20 <sup>th</sup> July 2011	Re-entry	Whole church	Common pipistrelle	17 internally (15 into the main roost and 2 separately in the nave), 4 externally under tile on the nave roof, 10 under tile on the north side of the chancel, 7 into a hole into the north-west corner of the chancel 17 into the north- east corner of the chancel.
23 <sup>rd</sup> August 2011	Emergence	Whole church	Common pipistrelle	7 Emerged from 3 locations on the south side of the nave.
28 <sup>th</sup> September 2011	Re-entry	Whole church	Common pipistrelle	10 returned to roost in different places on the nave roof, 2 under slates on the porch, 1 under slates on the chancel roof, 4 under the copings on the east side of the tower 1 under lead flashing on the south side of the tower.
			Brown long eared	2 returned to roost under slates on the

Date	Emergence/ re-entry	Coverage	Species	Number and location
				south side of the chancel
12 <sup>th</sup> July 2012	Emergence	Whole church	Common pipistrelle	36 emerged from internal roost via the SW corner access, 9 from the ridge of the nave in 2 locations, 1 from the chancel arch 3 from the eaves on the north side of the chancel
			Soprano pipistrelle	1 emerged from eaves on the north side of the porch.
29 <sup>th</sup> June 2014	Emergence		Common pipistrelle	75 emerged from internal roost via the SW corner access, 2 from over the apex of the porch roof
3 <sup>rd</sup> July 2016	Emergence		Common pipistrelle	50 emerged from the south-west slot
3 <sup>rd</sup> July 2016	Emergence		Soprano pipistrelle	150 emerged from the south-west slot
30 <sup>th</sup> June 2017	Emergence	South-west corner	Common pipistrelle	45 emerged from the south-west slot
			Soprano pipistrelle	200 emerged from the south-west slot
13 <sup>th</sup> September 2017	Emergence	South-west corner	Common pipistrelle	3 emerged from the tower (south side belfry window)
			Soprano pipistrelle	155 emerged from the south-west slot
15 <sup>th</sup> May 2018	Emergence	South-west corner	Common pipistrelle	9 emerged from the south-west slot
			Soprano pipistrelle	140 emerged from the south-west slot
10 <sup>th</sup> August 2018	Emergence	South-west corner	Common pipistrelle	2 emerged from the south-west slot
			Soprano pipistrelle	162 emerged from the south-west slot

#### 1.4 Previous mitigation works carried out at the church

As part of the repair works that were carried out in 2013, 2 bat boxes were installed into the nave roof structure. One box was also installed on the wall top behind the newly created bat access point (see Roost A on Drawing 3 and also illustrated in Figure 16) and the second (a bat slot) was created under a ridge tile at the eastern end of the nave (Roost B) and also illustrated in Figure 6.

## 1.5 STATEMENT OF SIGNIFICANCE

The Statement of Significance for the church was prepared by Richard Halsey following a site visit on the 17<sup>th</sup> September 2019.

1.6 The church is described as being of eleventh century construction and is of **high archaeological and historical significance**. Whilst a modest medieval church, it has not been over restored and has a Seven Sacrament font (one of 25 in Norfolk), so it can also be considered of **high architectural and artistic significance**. It sits above the green at the centre of this small settlement and has **high townscape significance** too.

1.7 The medieval **font** is clearly of **high significance** and the later eighteenth **reredos**, despite being without its painted Decalogue etc. boards is of **moderate significance** as a relatively rare feature and the **1681 Wall ledger stone**, an early example with delicate lettering, is similarly of **moderate significance**. The other **ledger stones, Coulcher memorial** and the late nineteenth century furnishings (**stalls, altar rail, pulpit, pews and roof structure**) are of **low-moderate significance**, as is the 1865 organ by James Scott of West Tofts, transferred to the church from Gayton in 1940.

## 2.0 2019 SURVEY METHODOLOGY

### 2.1 GENERAL

Surveys were carried out as far as possible following the guidelines given in the Bats in Churches Class Licence. More surveys have been undertaken than the minimum required.

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

2.3 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.

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

### 2.4 Survey equipment

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

**Table 2 Survey methodology for the 2019 surveys**

Equipment Type	Equipment specifics	Notes	Analysis
Infra-red cameras	Canon XF-400 Canon XA-10 Canon XA-11 Canon XA-30	Attached to a rigid tripod for stability (various makes)	Files processed and saved in Photos for MAC and saved on 4TB external Western Digital Drives  Videos analysed using Quick Time Player
Infra-red lights	A minimum of 2no infra-red lights per camera (140 led)	Set as 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	
Hetrodyne detectors	Batbox Duet detector (mainly) Batbox griffin Elekon Bat Scanner	Each surveyor has been equipped with one or other of these detectors to enable audible monitoring of the bats during the course of the survey	
Static detectors	Anabat Express detector Anabat Scout	Each surveyor was equipped within one or other of these devices to enable later call assessment	Calls analysed using Analook or Insight

**2.5 Survey Methodology**

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

2.6 Where surveys are in addition to those costed as part of the HLF project, this is identified with an \*.

2.7 On each survey, 4 surveyors were positioned around the church, one in each corner (south-east, south-west, north-east and north-west) and one internally. On the first full survey 5 surveyors were used with the additional surveyor on the north-west corner. Three of the external surveyors were supported by infra-red cameras as listed above, other surveyors utilised Clulite maps to provide additional lighting. The internal surveyor was also supported by an infra-red camera.

2.8 Surveyors used during the surveys (and licences where appropriate) are given below:

- Philip Parker (2015-14467-CLS-CLS)
- Karl Charters (2015-13353-CLS-CLS)
- Naomi Parker (2018-34117-CLS-CLS)
- Lisa Gabriel
- Kate Garner

On the bat night of 3<sup>rd</sup> August, surveyors were assisted by 4 volunteers as part of the bat night.

- 2.9 Anabat Express static detectors were left in the church overnight on each of the designated HLF surveys plus on the southern and northern elevations of the church to confirm the identification of bats recorded.
- 2.10 Prior to each survey commencing, any concentrations of droppings noted within the church have been recorded.

**Table 3 Survey methodology.**

Date	Survey Type	Surveyor (and licence)	Start and finish time	Weather
30 <sup>th</sup> April 2019 - *	Emergence (south-west corner only – general monitoring)	Philip Parker	20:03 - 22:03	<b>Weather</b> – Clear, Dry, BF = 2  <b>Start</b> - External temp = 7 C <b>Finish</b> - External temp = 6 C
20 <sup>th</sup> May 2019 – HLF	Emergence	Philip Parker Karl Charters Lisa Gabriel Kate Garner Rebecca Easter	20:45 - 22:45	<b>Weather</b> - Clear and dry, BF = 2  <b>Start</b> -External temp = 15.8 C External humidity = 88% <b>Finish</b> - External temp = 10.1 C External humidity = 82%
5 <sup>th</sup> June 2019 HLF	Re-entry	Philip Parker Karl Charters Lisa Gabriel Kate Garner	02:45 – 04:26	<b>Weather</b> – Light rain at commence BF = 4  <b>Start</b> -External temp = 11.6 C External humidity = 92% <b>Finish</b> - External temp = 12 C External humidity = 94%
24 <sup>th</sup> June 2019 HLF	Emergence	Philip Parker Karl Charters Naomi Parker Lisa Gabriel Kate Garner	21:10 – 23:10	<b>Weather</b> – light rain and full cloud cover BF = 2 (rain stated at 22:22 and between 22:45 – 23:00 there was light consistent rain)  <b>Start</b> -External temp = 23.1 C External humidity = 82% <b>Finish</b> - External temp = 20.6 C External humidity = 97%



3 <sup>rd</sup> August 2019 - *	Emergence (additional survey as part of bat night)	Philip Parker Kate Garner  4 volunteers who attended the bat night		<b>Weather</b> – Dry, clear, BF = 3  <b>Start</b> – External temp= 19 C <b>Finish</b> – External temp = 17C
31 <sup>st</sup> August 2019 - *	Emergence (south-west corner south-nave, south chancel, north chancel) using cameras the video from which was then analysed	Philip Parker	19:40 – 21:00	<b>Weather</b> – Light cloud, light breeze BF = 2  <b>Start</b> -External temp =17.7 C External humidity = 55% <b>Finish</b> - External temp = 15.8 C External humidity = 59%
14 <sup>th</sup> September 2019 HLF	Emergence	Philip Parker Karl Charters Kate Garner	19:00 – 21:00	<b>Weather</b> – Dry, still, light cloud cover BF = 3  <b>Start</b> -External temp =14.1 C External humidity = 57% <b>Finish</b> - External temp = 9.1 C External humidity = 83%

### 3.0 SURVEY RESULTS

3.1 The results of the 2019 surveys are summarised in the following table. Access locations and numbers are illustrated on Drawing D2.

3.2 A key to the species roosting in the church is as follows:

CP Common pipistrelle                      SP Soprano pipistrelle  
 BLE Brown long eared

**Table 4 Summary of 2019 survey results**

Date	Emergence/re-entry	Species	Number and location
30 <sup>th</sup> April 2019	Emergence	Soprano pipistrelle	<b>EXTERNAL</b>  <b>Soprano pipistrelle</b> 43 SP emerged from the south-west slot (A).
20 <sup>th</sup> May 2019	Physical	Pipistrelle spp	Occasional/light scatter of pipistrelle droppings were noted throughout the church with no obvious concentrations other than beneath the access point in the south-west corner.

Date	Emergence/re-entry	Species	Number and location
			<p>Otherwise, dropping deposition on the walls and in the tower was noted as for 2017.</p>
<p>20<sup>th</sup> May 2019</p>	<p>Emergence</p>	<p>Common pipistrelle Soprano pipistrelle Brown long-eared</p>	<p><b>INTERNAL</b></p> <p><b>Common pipistrelle</b> 4 CP were noted to emerge into the church from near to the ridge (west end). First emerged at 21:29 and the last at 21:41 (A). The bats left the church via the access slot.</p> <p><b>EXTERNAL</b></p> <p><b>Common pipistrelle</b> 3 CP emerged from the roost in the south-west corner of the nave First emerged between 21:00-21:15 and the last between 21:45-22:00. (A)</p> <p>37 CP emerged from behind the downpipe on the south-east corner of the chancel. First emerged 21:25 and last emerged between 21:30-21:45 (C)</p> <p><b>Soprano pipistrelle</b> 236 SP emerged from the roost in the south-west corner of the nave. First emerged between 21:00-21:15 and the last between 21:45-22:00. (A)</p> <p><b>Pipistrelle spp</b> 1 pipistrelle species emerged from the top of the southern chancel window between 21:45-22:00. (D)</p> <p><b>Brown long eared</b> 1 brown long-eared emerged from the north-east of the chancel at eaves level at 21:41 (E)</p> <p><b>RE-ENTRY</b></p> <p><b>Soprano pipistrelle</b> 1 SP re-entered the roost south-west corner of the nave between 22:15 and 22:30 (A)</p>
<p>5<sup>th</sup> June 2019</p>	<p>Re-entry</p>	<p>Common pipistrelle Soprano pipistrelle Pipistrelle spp</p>	<p><b>INTERNAL –</b></p> <p><b>Common Pipistrelle</b> 2 CP at the west end of the nave centrally from the roost towards the left rafter.</p> <p>A single CP dropped out of the third rafter from the end of the nave (centrally).</p> <p>A single CP roosted behind the 4<sup>th</sup> rafter from the end of the nave (centrally).</p>

Date	Emergence/re-entry	Species	Number and location
			<p><b>EXTERNAL –</b></p> <p>Common Pipistrelle                      2 CP re-entered the church in the south-west corner of the nave between 03:15-03:30. (A)</p> <p>42 CP were seen to re-enter on the south side nave under the fascia board (C). Other bats around the access tile in the nave (B) but none seen to enter.</p> <p>Soprano pipistrelle                      221 SP re-entered the roost in the south-west corner of the nave by 03:03 the last bat re-entered. (A). None of these were observed to enter the church.</p> <p>Pipistrelle                      2 PIP sp (no positive identity's) were seen to re-enter at the nave at eaves level under the guttering between two windows where there is a joint between the 5<sup>th</sup> and 6<sup>th</sup> guttering brackets. First re-entered at 03:08 and the last at 03:23. (F)</p>
24 <sup>th</sup> June 2019	Emergence	Common pipistrelle Soprano pipistrelle	<p><b>INTERNAL</b></p> <p><b>Common Pipistrelle</b>                      2 CP emerged from the nave at the western end of the church</p> <p><b>EXTERNAL</b></p> <p><b>Common Pipistrelle</b>                      1 common pipistrelle emerged from the nave roof, close to the tower on the north-west elevation (from under an edge slate) at 21:51 (G)</p> <p>57 common pipistrelle emerged from the bat slate on the southern elevation of the nave. The first between 21:15-21:30 (B)</p> <p><b>Soprano pipistrelle</b>                      338 SP emerged from the roost in the south-west corner of the nave First emerged 21:16 and last between 22:00-22:15 (A)</p> <p>1 SP emerged from a slate just above eaves level on the southern elevation of the chancel at 22:09 (H)</p> <p>1 SP emerged from behind the downpipe on the eastern end of the southern elevation of the chancel at 22:00 (C)</p> <p><b>RE-ENTRY</b></p> <p><b>Common Pipistrelle</b></p>

Date	Emergence/re-entry	Species	Number and location
			<p>In total 2 CP were seen to re-enter the chancel at eaves level (1.5-2m from the east gable) on the northern elevation. The first at 21:49 and the last at 22:14 (E)</p> <p>6 CP were seen to re-enter access point (B) between 22:45-23:00.</p>
3 <sup>rd</sup> August 2019	Emergence	Common pipistrelle Soprano pipistrelle	<p><b>INTERNAL</b> No bats noted internally.</p> <p><b>EXTERNAL</b></p> <p><b>Common pipistrelle</b> 56 common pipistrelles emerged from the bat slot (B) on the nave roof.</p> <p><b>Soprano pipistrelle</b> 508 SP emerged from access point. (A)</p>
31 <sup>st</sup> August 2019	Emergence	Common pipistrelle Soprano pipistrelle	<p><b>INTERNAL</b></p> <p><b>Common pipistrelle</b> 2 CP internally, emerged from the west end of the nave and left via the access slot.</p> <p><b>Soprano pipistrelle</b> 2 entered the church for a short time from the bat access slot.</p> <p><b>EXTERNAL</b></p> <p><b>Common pipistrelle</b> 5 common pipistrelle emerged from the bat slate on the southern elevation of the nave. The first emerged at 20:42 and the last at 20:43 (B)</p> <p>5 common pipistrelle emerged from access point (C). The first bat emerged at 19:24 and the last 21:10.</p> <p>1 common pipistrelle emerged from the wall towards the left-hand side of the downpipe above the bracket (O) at 21:13.</p> <p>1 common pipistrelle emerged from between 4th and 5th row of tiles, above the 3rd bracket (M) at 21:15.</p> <p><b>Soprano pipistrelle</b> 86 soprano pipistrelle emerged from access point (A) First emerged 20:04</p> <p><b>RE-ENTRY</b></p> <p><b>Soprano pipistrelle</b> 1 SP re-entered access point (A)</p>
14 <sup>th</sup> September 2019	Emergence	Common pipistrelle Soprano pipistrelle	<p><b>INTERNAL</b> No bats noted internally during the survey</p>

Date	Emergence/re-entry	Species	Number and location
			<p><b>EXTERNAL</b></p> <p><b>Common pipistrelle</b>                      1 CP emerged from the bat slate on the southern elevation of the nave at 19:26 (B)</p> <p>5 CP emerged from access point (C). The first bat emerged at 19:24 and the last 19:37.</p> <p>1 CP emerged from the wall towards the left-hand side of the downpipe above the bracket (O) at 19:30.</p> <p>1 CP emerged from access point (N) at 19:37</p> <p>2 CP emerged from access point (K). The first at 19:48 and the second at 20:58.</p> <p>1 CP emerged from access point (L) At 20:45.</p> <p><b>Soprano pipistrelle</b>                      93 SP emerged from the roost in the south-west corner of the nave. First emerged at 19:19 and the last at 20:56 (A)</p> <p>2 SP emerged from the south-west window of the tower at 20:27 (I)</p> <p><b>RE-ENTRY -</b></p> <p><b>Common Pipistrelle</b>                      2 CP re-entered the silence chamber window on the western elevation of the tower. The first re-entered at 20:10 and the last 20:31(I)</p> <p>1 CP re-entered a hole in the wall below the window on the western elevation of the tower at 20:48 (J)</p> <p>2 common pipistrelle emerged from access point (K). The first at 19:48 and the second at 20:58.</p> <p>1 common pipistrelle emerged from access point (L) At 20:45.</p> <p>1 common pipistrelle emerged from access point (N) at 19:37</p> <p>1 common pipistrelle emerged from the wall towards the left-hand side of the downpipe above the bracket (O) at 19:30.</p> <p><b>Soprano pipistrelle</b></p>

Date	Emergence/re-entry	Species	Number and location
			5 SP re-entered the roost in the south-west corner of the nave. The first re-entered at 20:43 and the last at 20:57 (A)

3.3 The various counts have been assessed against each identified roost site. All counts are emergence unless otherwise stated.

**Table 5 Summary of counts between various roost sites**

Location	Common pipistrelle	Soprano pipistrelle	Brown long-eared	Pipistrelle species
Internal	20/5/19 4 5/6/19 4 24/6/19 2 31/8/19 2	31/8/19 2		
A	20/5/19 3 5/6/19 2 (all re-entered) 31/8/19 (also 1 re-entered) 14/9/19 4 (all re-entry)	30/4/19 43 20/5/19 236 (plus 1 re-entered) 5/6/19 221 (all re-entered) 24/6/19 338 3/8/19 508 31/8/19 86 (plus 1 re-entered) 14/9/19 98		
B	24/6/19 57 (6 re-entered) 3/8/19 56 31/8/19 5 14/9/19 1			
C	20/5/19 37 5/6/19 42 (all re-entered) 31/8/19 5 14/9/19 5	24/6/19 1		
D				20/5/19 1
E	24/6/19 2 (all re-entry)		20/5/19 1	
F				5/6/19 2 (all re-entered)
G	24/6/19 1			
H		24/6/19 1		
I	31/8/19 1 14/9/19 2 (all re-entered)	14/9/19 2		
J	14/9/19 1 (re-entered)	14/9/19 2		
K	14/9/19 2 (1 re-entered)			
L	14/9/19 1 (1 re-entered)			
M	31/8/19 1 14/9/19 2 Both re-entered			
N	14/9/19 1			
O	31/8/19 1 14/9/19 1			

3.4 The location of the various roosting sites can be found on Figure 3 below the table.



**Figure 3** – Location of identified roosting areas –  
Imagery © 2019 GeoEye, Getmapping plc, Infoterra Ltd & Bluesky

3.5 The surveys across the principal roost sites (A, B and C) are shown in the following graph. This illustrates how the number of bats have varied across the course of the 2019 survey season. It clearly illustrates that the numbers of soprano pipistrelle in roost A increased from 338 on 24<sup>th</sup> June 2019 (when it would be expected they would be all adults) increasing to 508 on the 3<sup>rd</sup> August 2019 (which would include juveniles emerging). The graph also clearly illustrates that the main common pipistrelle roost moved between roost site B and C during the course of the summer. The fact that the common pipistrelles had largely left the church by the end of August whilst good numbers of soprano pipistrelles were still present is not entirely unexpected as common pipistrelles typically leave their roosts much earlier in the summer than soprano pipistrelles (Pers obsv).

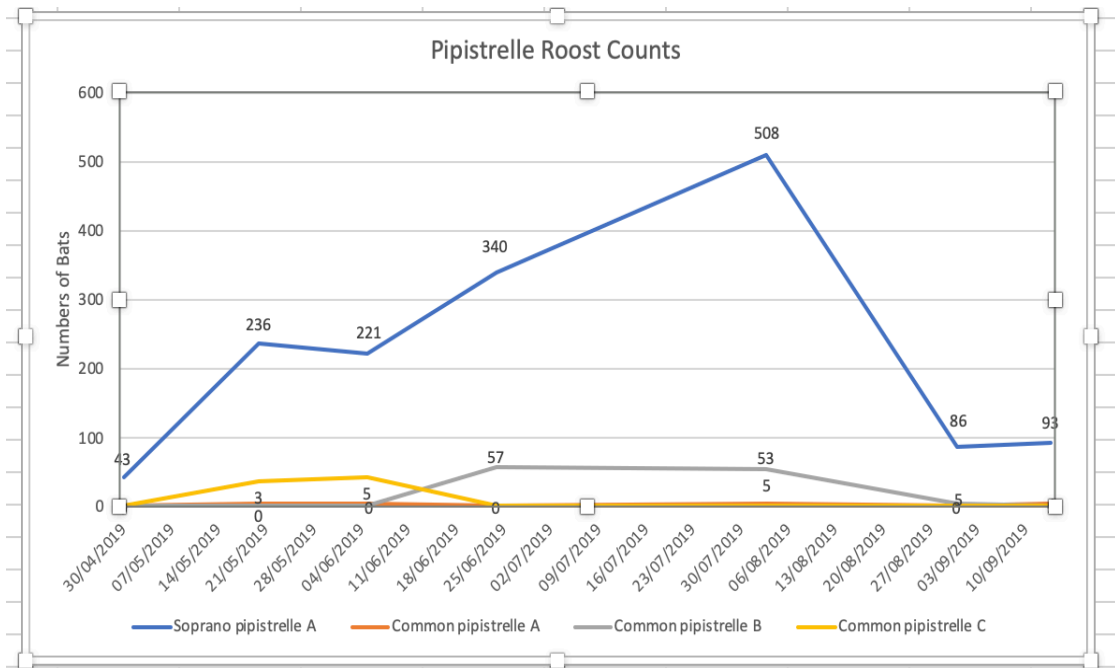


Figure 4 – Bat roost numbers in locations (see Figure 3)

3.6 Although the numbers of bats being recorded in the provided roosting features have increased over the years, the numbers of bats roosting internally has decreased significantly. The maximum number of common pipistrelles recorded internally on any of the surveys was 4. These appeared to be roosting near to the font of the chancel area but it is clear that the common pipistrelles no longer use the inside of the church as a maternity roost site. One reason for this maybe is that access into the church has gradually become more difficult due to the numbers of droppings collecting close to the soprano pipistrelle maternity roost (refer to Figure 5). Small numbers of soprano pipistrelles were also noted to enter the church later in the season and usually in the middle of the night. These could potentially have been juveniles.





**Figure 5** – View of the back of the current bat box from inside the church(2019). There is a significant collection of pipistrelle droppings beneath the access point which may have deterred pipistrelle access into the church

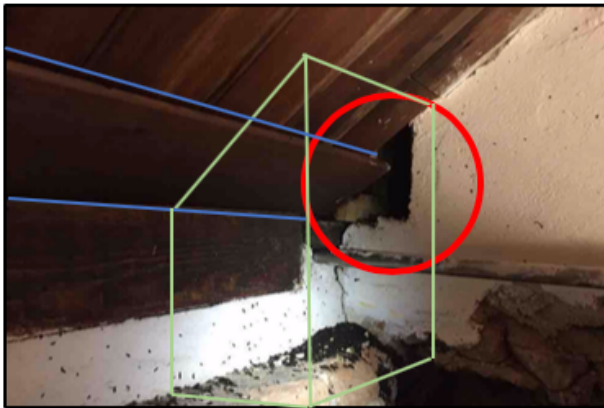
### 3.7 Evaluation of the roosts

As far as it is known from data held by the Norfolk Bats in Churches Project. Gayton Thorpe currently supports the second largest soprano pipistrelle roost at any church in Norfolk (the largest roost being at the Church of St Peter, Spixworth). The data also suggests that this could be the second largest known common pipistrelle roost (the largest with a peak count of a 131 was recorded at South Creake church in June 2010). The current status of this roost is not known. Data is still awaited from the Norfolk Biodiversity Information Service NBIS to ascertain how these roosts relate on a non-church county basis. Both roosts could potentially be of county importance.

## 4.0 MITIGATIONS / MANAGEMENT RECOMMENDATIONS

- 4.1 Since the repair works were undertaken in 2013 and bat roosting locations added into the south-west nave eaves (Location A) and eastern nave ridge (B), the numbers of bats using the church have been steadily increasing reaching a peak of 508 soprano pipistrelle in the south-west roost and 56 common pipistrelles moving between the south-west chancel location (C) and nave ridge location (B). However, the level of bat use within the church now appears limited to the occasional roosting common pipistrelle and soprano pipistrelle accessing from the bat box by location A.

- 4.2 The mitigation proposals are therefore to block off the access from the back of the box in location A to prevent the bats from entering the church. This will require registration under Bats in Churches Class Licence as this will be obstructing a proven bat access point. All of the alternative roosting locations (externally on the nave, chancel and the tower - 15 roosting sites in total will remain intact).
- 4.3 The exact location of the blocking needs to be considered. The opportunity exists to further enhance roosting provision on the wall top by extending the bat box by including more enclosed baffles and then blocking the inside. This proposal is illustrated in Figure 6. It is unlikely that this box will be visible from inside the church.



**Figure 6** – Bat access and bat box in the south-west corner of the nave. The access point into the church is marked in red, the proposed board removal to allow box to be cleaned out is shown in blue, the green line shows the proposed extension to the bat box. This should not be visible from inside the church.

- 4.4 The bats currently roost between the boards and the slate/felt as far as the first principal rafter. Overtime, the roosting area could become blocked with droppings so a method of clearing these out would be beneficial. This could be achieved by cutting the bottom section of boards (see blue line) along the wall top and then re-screwing to make them removable on a permanent basis.
- 4.5 At the time this work is done, the majority of the existing droppings will be removed (but not all so that the smell and integrity of the roost remains).
- 4.6 The box will also need an exclusion device to allow any bats within the church to be able to leave but not return. Surveys on the evenings following installation of the exclusion device will confirm this.

4.7 The opportunity will also be taken to install 2 bird box cameras, one into the roost access and one into the roost itself (see Figure 7). These would be connected to a hard drive unit that could be left locked in the base of the tower. This may need an extension to the current electrical circuit. This will enable the use of the roost to be monitored on camera. The camera would need to be installed by a qualified electrician to ensure it is done to the correct standard.



Figure 7 – Bird box camera

4.8 This mitigation was discussed with David Lemon of Spire Property Consultants (the Norwich DAC Architects) and Sarah Kerkham of the PCC (plus the engagement HLF project engagement officer Diana Spencer) at a meeting on the 17<sup>th</sup> October 2019. All were in agreement with the proposed approach.

4.9 Sarah Kerkham discussed the idea of bringing school visits into the church to be able to observe the bats in the roosts. The Church were also encouraged to find that they had the second largest church roost in the county and were keen to do what was necessary to establish the largest (as long as the bats did not come into the church).

4.10 The idea of an engagement poster was discussed informing people more about the bats in the church. It is known that the National Bats in Churches Project are looking at their own interpretation material but an example of a poster currently in place at Thornham Church is attached in Appendix B to show what could be achieved.

#### 4.11 **FACULTY**

It is understood that the provision of bat boxes does not require a faculty (being List A). This issue does need confirmation from the DAC secretary. Provision of cameras, whilst in themselves may not require a faculty, permanent wiring might. Again, this needs further discussion.

## 5.0 **WORK SCHEDULE**

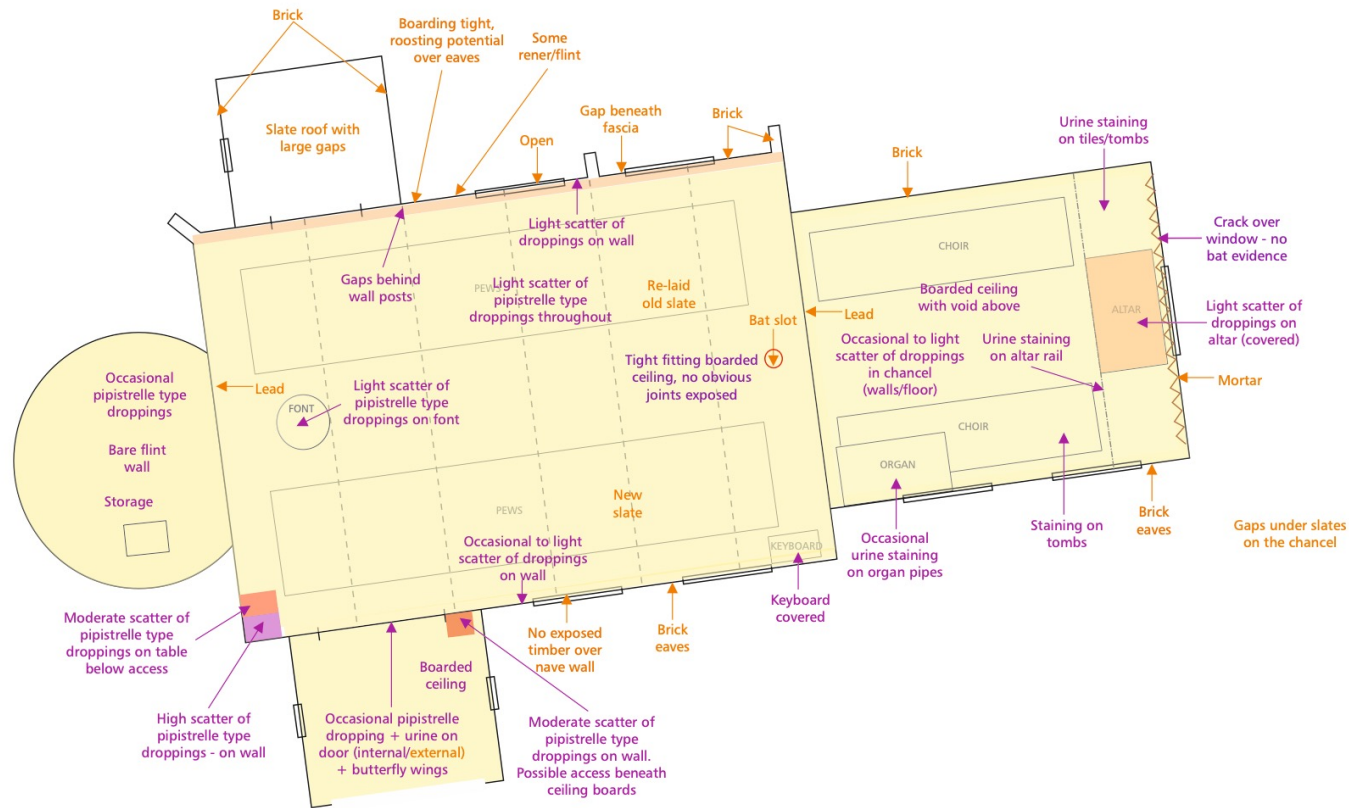
5.1 The following timescales for the various operations, staffing and approximate costings are shown in the following table. This is for the purpose of discussion to finalise the preferred options. Costs are approximate and need confirmation from architects/ contractors. This also excludes long term monitoring costs provided as part of the original tender. It is possible there

could be a cost saving (scaffolding etc) if some elements were undertaken at the same time as others.







5.2 Details of the works required, costs, timescales are given in the following table:

**Table 6 Timescales and cost estimates for mitigation works (all costs plus VAT)**

Mitigation Option	Description	Who	When	Cost (plus VAT)	Faculty	Planning permission	Long term maintenance requirements
General	Architect fees	Devid Lemon	?	?	-	-	-
	Bats in Churches Class Licence	PPA	January 2019	Included in tender?	-	-	-
	Monitoring	PPA	2020 - 2024	Included in tender?	-	-	-
Bat Box Roost A	Enhance bat box and install cleaning slot	PPA	Mar 2020	2 @ £400 + £200 materials	No?	No	Moderate
		Contractor	Mar 2020	2 @ £500			
	Cleaning	PPA	Long term	FOC			
	Camera	Electrical contractor	Mar 2020	£500			



**KEY**

-  Cavity with potential for bat roost
-  Crack with potential for bat roost
-  Occasional scatter of bat droppings
-  Light scatter of bat droppings
-  Moderate scatter of bat droppings
-  Heavy concentration of bat droppings

Purple text = Update internal physical survey information 21/05/19  
 Orange text = Update internal physical survey information 21/05/19

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HLF BATS IN CHURCHES PROJECT

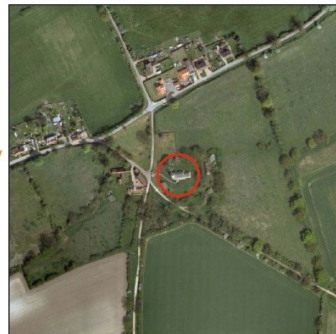
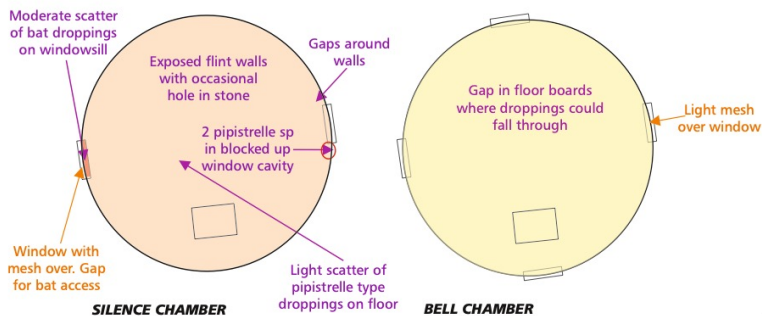
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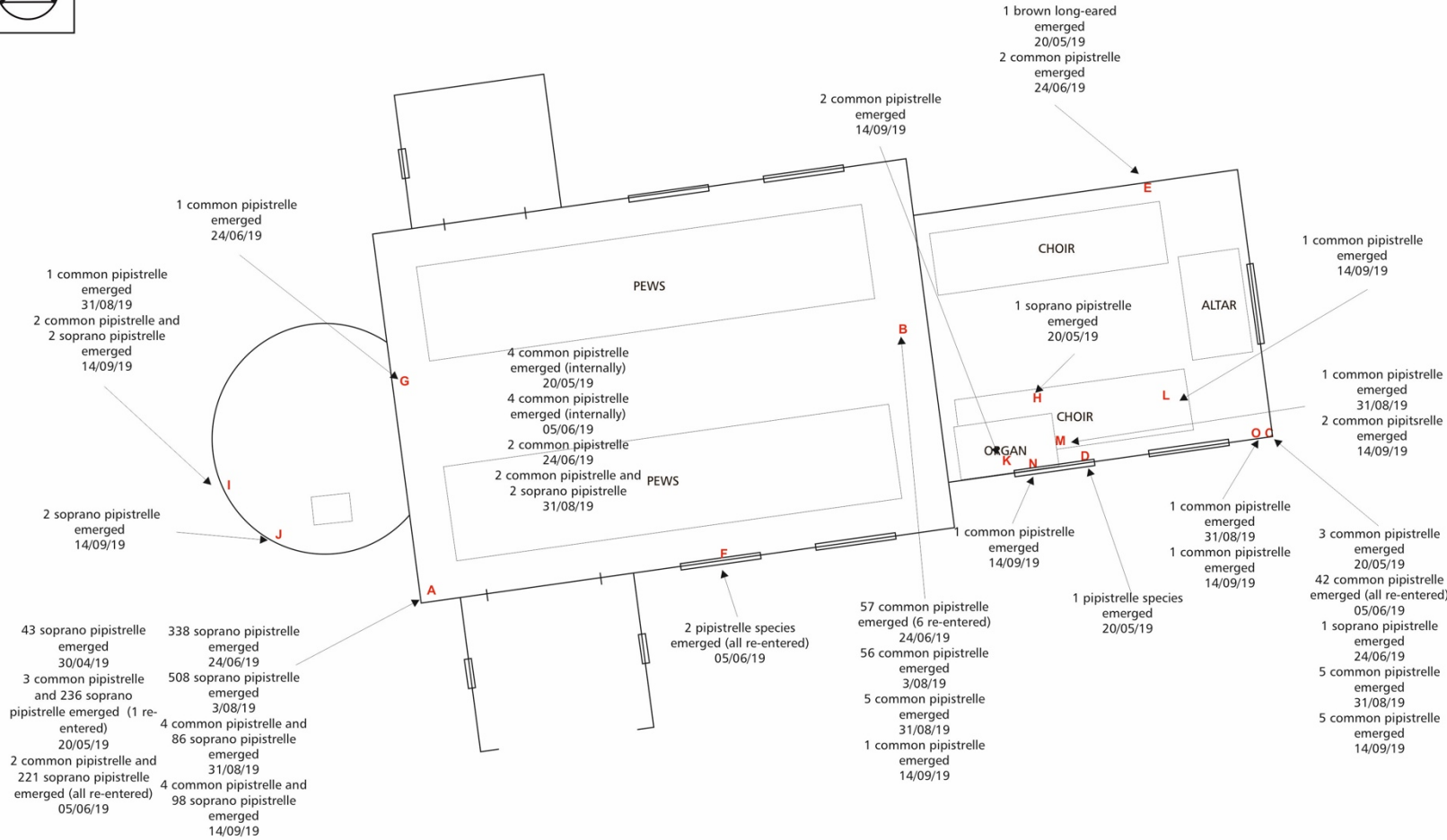
ST MARY'S CHURCH, GAYTON THORPE,  
 NORFOLK

**DRAWING TITLE**

BAT SURVEY - 2019 PHYSICAL UPDATE

SCALE NTS	DATE DEC 2019	DWG NO P2019 - 31 D1	REV
REV	DATE	DETAILS	





KEY



Red text = access/roost location

Black text = emergence/re-entry data  
Refer to tables 4 and 5 for full details



LOCATION PLAN  
© 2010 DigitalGlobe, Infoterra Ltd & Bluesky, GeoEye, Getmapping plc



SITE PLAN

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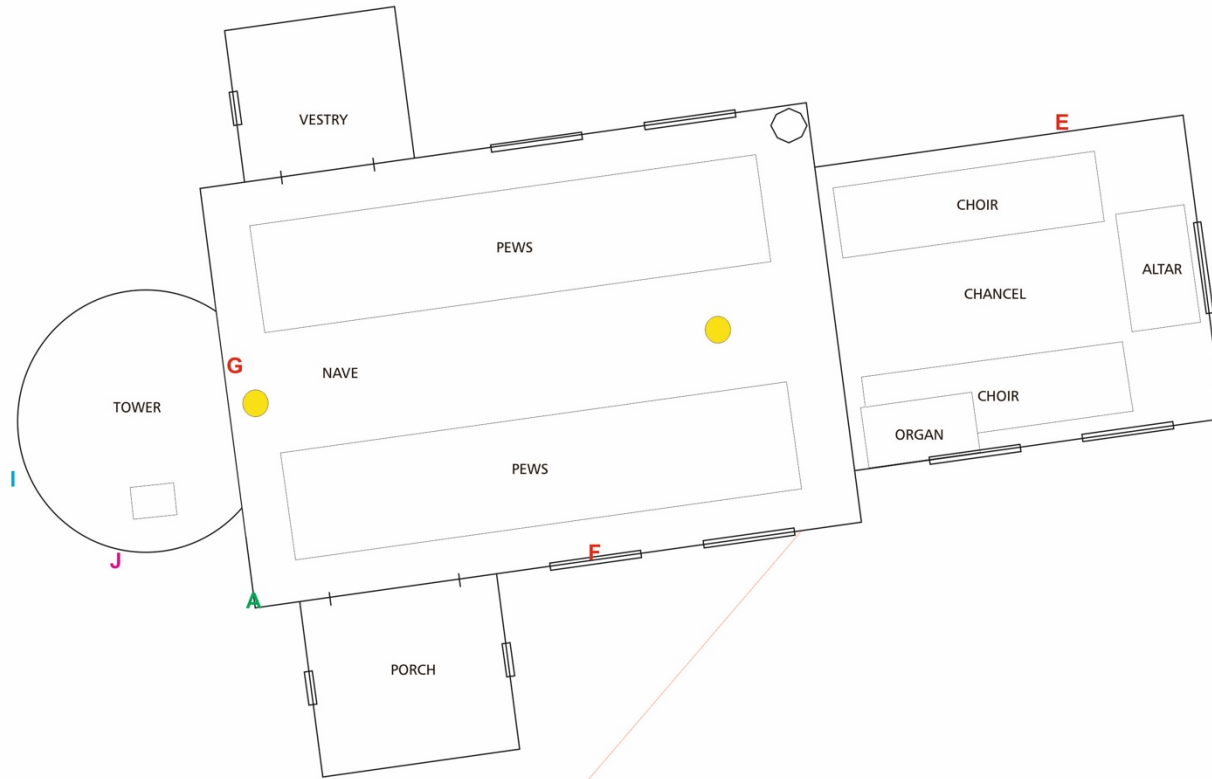
CLIENT  
HLF BATS IN CHURCHES PROJECT

PROJECT  
ST MARY'S CHURCH, GAYTON THORPE, NORFOLK

DRAWING TITLE  
BAT SURVEY - ACTIVITY 2019

SCALE NTS	DATE Dec 2019	DWG NO P2019 - 31 D2	REV
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REV	DATE	DETAILS
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**KEY**

- A Principle roosting sites
- D External roost sites
- I Access into silence chamber
- J Access into bell chamber
- Internal common pipistrelle roost



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HLF BATS IN CHURCHES PROJECT

PROJECT

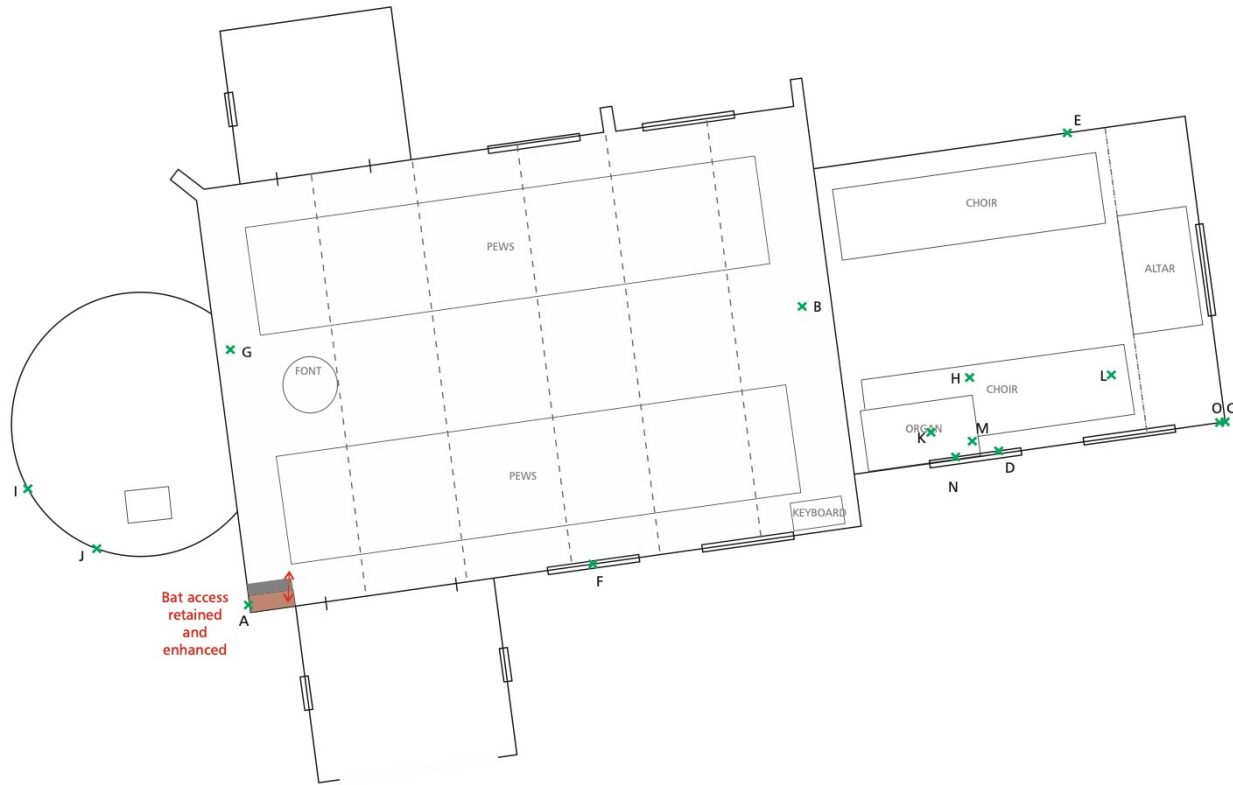
ST MARY'S CHURCH, GAYTON THORPE CHURCH

DRAWING TITLE

BAT ROOSTING SITES/ACCESS POINTS

SCALE	DATE	DWG NO	REV
NTS	DEC 2019	P2019-31 D3	

REV	DATE	DETAILS



**KEY**

- Existing bat box to be enhanced
- Proposed bat box extension
- Bat access to be excluded
- X Bat access/roosts to be retained

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HLF BATS IN CHURCHES PROJECT

PROJECT

ST MARY'S CHURCH, GAYTON THORPE,  
NORFOLK

DRAWING TITLE

BAT MITIGATION PLAN

SCALE NTS	DATE NOV 2017	DWG NO P2019 - 31 D4	REV
REV	DATE	DETAILS	



## APPENDIX A – ILLUSTRATIVE PHOTOGRAPHS



**Figure 8** – General view of the church from the south-east



**Figure 9** – Nave ridge showing bat slot B installed as part of the re-roofing works in 2012/13 to replace lost roosting areas in the roof structure. A peak number of 57 common pipistrelles emerged from this location in June 2019



**Figure 10** – West end of the nave by the tower showing the bat access slot A, installed as part of the 2012/13 works. The bat box in figure 3 is immediately behind this slot. A peak of 508 soprano pipistrelles emerged from this slot on the bat night in August 2019



**Figure 11** – Eaves detail and brick buttresses on the north side of the nave



**Figure 12** – Gaps under slates on the chancel providing potential bat roosting areas for individual bats (only the nave was re-roofed in 2012)



**Figure 13** – General internal view of the nave looking towards the chancel – the chancel ceiling enclosing a roof void (to which there is no access) is visible.



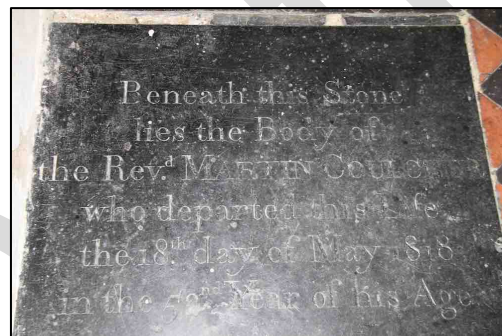
**Figure 14** – General view of the nave roof



**Figure 15** – Detail of the principal rafter above which the common pipistrelle maternity roost previously roosted. However, this location is now only used by the occasional bat



**Figure 16** – Bat access location viewed from ground level in the south-west corner of the nave



**Figure 17** – Urine staining on floor tombs although few fresh were noted in 2019



**Figure 18** – Modern organ covered with plastic sheeting to protect it from bat droppings and their urine



**Figure 19** – Bat access and bat box in the south-west corner of the nave – the common pipistrelles access the church in this location. The soprano pipistrelles use the box for roosting but also access between the boarding and the roofing felt as far as the principal rafter. Occasional soprano pipistrelles access the main body of the church for flying. It would be useful to be able to make the board (highlighted blue) removable to clear out droppings from the roosting area. A possible extension to the box is shown in green



**Figure 20** – Droppings on the windowsill within the silence chamber. Bats are able to access around the mesh



**Figure 21** – Good number of pipistrelle type droppings mixed with debris on the floor, still present in 2019



**Figure 22** – Sealed window into the nave



**Figure 23** – 2 pipistrelles in gap of sealed window in 2017, not present when inspected in 2019 but still considered likely to use



**Figure 24** – Base of tower – limited bat evidence



**Figure 25** – External view of the churchyard. The rural setting of the church provides good bat foraging potential and links to the surrounding countryside



**Figure 26** – Bat roosting locations on the southern elevation of the chancel and west end of the nave

# THE BATS OF THORNHAM CHURCH

Prepared by the Norfolk Bats in Churches Project October 2016



There are 4 species of bats living in Thornham Church



Soprano pipistrelle  
© Gemma Russell www.bats.org.uk



Common pipistrelle  
© Rosie Corner www.bats.org.uk



Brown long-eared  
© Hugh Clark www.bats.org.uk



Serotine  
© Hugh Clark www.bats.org.uk



Roosting area in the nave roof

## How many bats are present in the church?

During surveys in 2015, peak numbers of bats in the church were:

- Soprano pipistrelle: 217
- Common pipistrelle: 23
- Brown long-eared: 6
- Serotine: 1

This makes it an important site for bats in the county.



Access via the clerestory window

## Where do the bats roost in the church?

The pipistrelles largely roost near to the ridge in the nave timbers with the serotine and brown long-eared in the chancel.

During the summer, when the bats are most active, the church covers the pews with plastic sheets to protect them from the droppings.



Thornham bat night 2016

## How do the bats access the church?

The majority of the bats access the church via the north-west clerestory window. Look carefully and you can see the droppings on the window, beneath the access point.

Some of the bats also access at eaves level on the south aisle, west of the door. Again, look for droppings on the wall beneath.

## Benefits of bats

- Bats are excellent pest controllers - a single pipistrelle can eat 3000 midges a night; The colony of bats at Thornham church could therefore eat over 700,000 midges a night, making them better than insect repellent!
- Bats are good indicators on the health of the environment.

## Problems the bats can cause in a church

- Urine is acidic and can cause damage to pews, brasses and stonework;
- Bat droppings spread over pews can be unsightly and can cause health and safety concerns;
- Bats flying around the church during services and concerts.

## Potential solutions

- The Norfolk Bats in Churches Group are working with Thornham church to help publicise the issue of bats in churches e.g. Bat Nights in 2016 ([www.batsandchurches.org.uk](http://www.batsandchurches.org.uk));
- Alternative roosting features have been created on the outside of the church;
- A group of partners including Natural England and Historic England have applied for a Heritage Lottery Grant to further explore methods to manage bat populations in churches

To find out more about bats and how you can help these amazing but vulnerable animals, visit the Bat Conservation Trust's website where you can become a member and discover the many ways in which you can get involved to do your bit for bats - [www.bats.org.uk](http://www.bats.org.uk) or 0345 1300 228



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