

Stainborough Castle, Wentworth Castle Gardens

Bat Survey Report

1st September 2020



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Document ref: MBE/BAT/2020/12/3				
Purpose and Description	Originated	Checked	Reviewed	Date
For Planning	R Bell MCIEEM <i>R Bell</i>	P Middleton MCIEEM <i>P Middleton</i>	R Bell MCIEEM <i>R Bell</i>	01/09/20

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1. Summary

- 1.1.1 A bat survey of Stainborough Castle, located in the grounds of Wentworth Castle, was commissioned by Sarah Dennett of the National Trust on 17th February 2020. A programme of further nocturnal surveys was commissioned by Rose Pearce of the National Trust on 6th March 2020.
- 1.1.2 The survey was undertaken to inform a proposed program of repair to this Grade II* listed gothic folly. Repair works are to include re-building and repointing of walls, together with the replacement of window lintels, vegetation removal and the replacement of sections of balustrade.
- 1.1.3 The bat survey works carried out comprise a preliminary roost assessment, undertaken on 19th February 2020 and four nocturnal surveys undertaken between 17th June and 19th August 2020.
- 1.1.4 Stainborough Castle supports a total of eight current and four historic bat roosts, used by at least four bat species including maternity, hibernation, day and transitional roost types. Given the structure and surrounding habitat have remained largely unchanged over recent decades, it is prudent to assume that all roosts recorded from Stainborough Castle over the last 20 years are still likely to be used on occasion.
- 1.1.5 Large elements of the proposed repair works will require an EPS mitigation licence in order to proceed. Key elements of works, notably including lintel replacement, are subject to a number of timing constraints and careful supervision of most elements of works will be required to avoid or reduce impacts upon roosting bats and nesting birds. There is however scope to retain most, if not all bat roosts. In the medium to long-term the proposed repair works are unlikely to impact the status of local bat populations.
- 1.1.6 It should be noted that Natural England take up to 30 working days to determine EPS licence applications and at least 15 working days should be allowed for the production of the licence application. Natural England also request that some of the supporting nocturnal survey data is gathered during the most recent bat activity season. For this reason, if the licence application is to be submitted after May 2021 then further pre-application nocturnal survey information will likely be required.
- 1.1.7 It is strongly recommended that a meeting is held at any early stage to discuss timing requirements and to develop an appropriate programme for implementation of works.

2. Introduction

- 2.1.1 A bat survey of Stainborough Castle, located in the grounds of Wentworth Castle near the village of Hood Green, was commissioned by Sarah Dennett of the National Trust on 17th February 2020. A programme of further nocturnal surveys was commissioned by Rose Pearce of the National Trust on 6th March 2020.
- 2.1.2 The survey was undertaken to inform a proposed programme of repair to this Grade II* listed structure. Repair works are to include re-building and repointing of walls, together with the replacement of window lintels, vegetation removal and the replacement of sections of balustrade.
- 2.1.3 The bat survey works carried out comprise a preliminary roost assessment, undertaken on 19th February 2020 and four nocturnal surveys undertaken between 17th June and 19th August 2020.

3. Habitat Assessment

- 3.1.1 Stainborough Castle is situated in mixed woodland, within an area of Wentworth Castle Gardens known as The Wilderness. This wooded area is part of a large connected network of woodlands, which includes Lowe Wood, an area of semi-natural ancient woodland situated 60m northwest of the site.
- 3.1.2 The parkland of Wentworth Castle also includes a number of ponds, with the closest pond to site 190m southeast of the castle.
- 3.1.3 The local area supports extensive coverage of prime bat foraging habitats and the area is known to support a high density of bats belonging to a wide range of species.

Table 1. Location and habitat table

Name and address: Stainborough Castle, Wentworth Castle, Hood Green, Barnsley S75 3EZ			
OS Grid Ref. SE 31549 03063		Altitude. 195m	
Local Planning Authority: Barnsley Metropolitan Borough Council			
Features on site and adjacent to site			
Feature	On site	Adjacent	Comments
Buildings	✓		Stainborough Castle is located in the gardens of Wentworth Castle
River			
Standing water			Various ponds in grounds of Wentworth Castle, with closest pond 190m southeast
Bridges tunnels and culverts			Rockley Tramway Tunnel is 1.6km southeast
Trees	✓	✓	Stainborough Castle is situated in mixed woodland
Woodland	✓	✓	
Grassland	✓	✓	Grassland within perimeter wall of castle structure

Figure 1. Site location, as indicated by red circle



Figure 2. Aerial image of Wentworth Castle Gardens with Stainborough Castle circled. Taken by Ben Hopkins



3.2 Aims

3.2.1 The survey was conducted to help determine the following:

- The presence/absence of roosting bats.
- Bat roosting areas and access/egress points into the structure.
- The level of bat roost potential associated with the structure.
- The number and species of bat roosting within the structure.
- Identify further survey work or mitigation requirements.

4. Methodology

4.1 Data Consultation

- 4.1.1 Bat records for locations within 2km of the site were obtained from South Yorkshire Bat Group (SYBG).
- 4.1.2 A search of the Multi-Agency Geographical Information for the Countryside (MAGIC) website was also undertaken to identify historic European Protected Species (EPS) licences obtained for locations within 2km of the site.
- 4.1.3 The bat record search highlighted the undertaking of a historic bat survey of Stainborough Castle in 2004 (EBC, 2004). The related bat survey report was obtained, and observations are summarised in the data consultation section of this report.

4.2 Field Survey

Preliminary Roost Assessment

- 4.2.1 The following personnel conducted the preliminary roost assessment on 19th February 2020:
 - Robert Bell (MCIEEM; Class license WML-A34-Level 4, 2016-25236-CLS)
- 4.2.2 The following activities were carried out during the surveys in compliance with relevant Bat Survey Guidelines (Collins 2016):
 - A brief inspection and assessment of the site and habitats within 300m.
 - An extensive examination of all parts of the buildings both inside and out to record structural features and condition and to record features that may be suitable for roosting bats. All signs indicative of bat roost presence was recorded.
 - An assessment of the building's bat roost potential.

- 4.2.3 The following equipment was used or at hand during the survey:

- Clulight
- Binoculars
- Endoscope
- Ladders
- Camera

Nocturnal Surveys

- 4.2.4 The following personnel conducted the nocturnal surveys:
 - Robert Bell, Peter Middleton (MCIEEM; Class license WML-A34-Level 4, 2017-27977-CLS), Amanda Murphy (QualCIEEM; Class license WML-A34-Level 2, 2020-47913-CLS), Greg Slack (MCIEEM; Class license WML-A34-Level 4, 2017-28068-CLS) and Carl Dixon.
- 4.2.5 The following activities were carried out in compliance with relevant Bat Survey Guidelines (Collins 2016). The two dawn return surveys encompassed the whole

castle. The two dusk emergence surveys targeted a specific tower or turret only:

- Dawn return survey - 17th June 2020 – five surveyors – full coverage
- Dusk emergence survey - 17th June 2020 – two surveyors – T1 only
- Dusk emergence survey – 7th July 2020 – one surveyor – GT2 only
- Dawn return survey – 19th August 2020 – five surveyors – full coverage

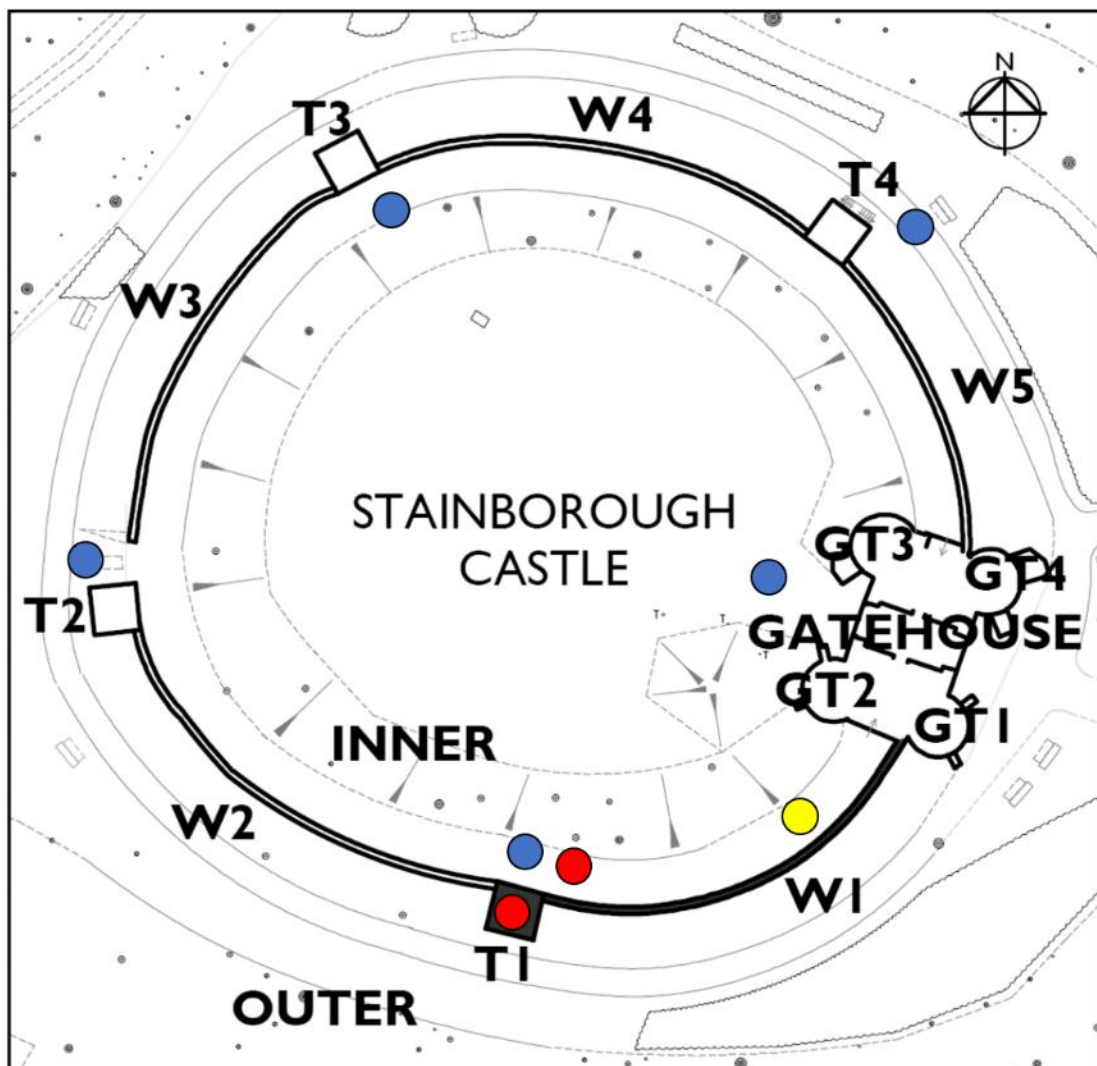
4.2.6 The dusk emergence surveys continued from 15 minutes prior to sunset until 1.5 hours after this time, whilst the dawn return survey commenced 1.5 hours before sunrise and continued until at least 15 minutes afterwards.

4.2.7 The following equipment was used during the surveys:

- Wildlife Acoustics EM Touch bat detectors and iPad/iPod recorders
- Canon XA10 & XA20 video cameras and infra-red lights

4.2.8 Surveyor positions during nocturnal surveys are shown in Figure 3.

Figure 3. Nocturnal survey positions. Blue dots denote surveyor positions on dawn surveys, red dots show surveyor positions during first dusk survey (17th June), the yellow dot shows the surveyor position during the second dusk survey (7th July)



4.3 Survey Limitations

- 4.3.1 During the hibernation survey/visual inspection a 5m ladder was used to access external walls up to this height, the two gatehouse turrets are approximately 18m tall. As a result, it was not possible to directly inspect the majority of these structures.
- 4.3.2 During the hibernation survey/visual inspection an endoscope was used to inspect accessible crevices and openings in masonry. It should however be noted that many crevices and voids continued into the wall interior and the presence of further roosting bats in these areas could not confidently be ruled out.
- 4.3.3 The castle is quite a large and complex structure. Continual visual coverage of all sections of the exterior and interior walls during nocturnal surveys would require a very large number of surveyors. As a result, it was decided to cover the entirety of the castle during dawn return surveys only, with targeted dusk emergence surveys carried out to address specific questions. Roosting bats are typically easier to observe at dawn given they can be observed flying onto site and that they typically 'false return' behaviour prior to entry. For this reason and to ensure full coverage, surveyors were encouraged to move around their survey positions at times when bats were not actively roosting. Dawn survey nights were selected which offered optimal weather conditions, increasing the chance that bats roosting in the castle would remain active rather than returning to roost early, before the surveys had commenced.

5. Results

5.1 Data Consultation

- 5.1.1 South Yorkshire Bat Group provided 511 bat records for locations within 2km of Stainborough Castle. Species positively identified comprise brown long-eared bat *Plecotus auritus*, common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, Natterer's bat *Myotis nattereri*, whiskered bat *Myotis mystacinus*, Daubenton's bat *Myotis daubentonii*, noctule *Nyctalus noctule* and Leisler's bat *Nyctalus leisleri*. Other bat records related to either an unidentified *Myotis* species, an unidentified *Pipistrellus* species, an unidentified *Nyctalus* species or an unidentified bat species.
- 5.1.2 Of the bat records received, five related to confirmed roost locations in Stainborough Castle, with Natterer's bat, soprano pipistrelle and brown long-eared bat recorded roosting in the structure. Four of these roost locations were made during a programme of bat survey works of the site completed in 2004 (EBC, 2004), with the fifth roost recorded in 2015. These roost observations are summarised in Figures 4 and 5.
- 5.1.3 Other notable bat roosts present in the local area, include a Natterer's bat transitional roost of approximately 40 bats, recorded from Rockley Tunnel which is located 1.6km southeast of the site. A Natterer's bat maternity roost of approximately the same size is also known from Rockley Engine House, which is located approximately 2.4km southeast of the site. In addition, Rockley Tunnel comprises one of South Yorkshire's largest bat hibernation roosts, used by Natterer's bat, Daubenton's bat and brown long-eared bat. These roosts were all last recorded in either 2019 or 2020.

Figure 4. Historic bat roost records from Stainborough Castle

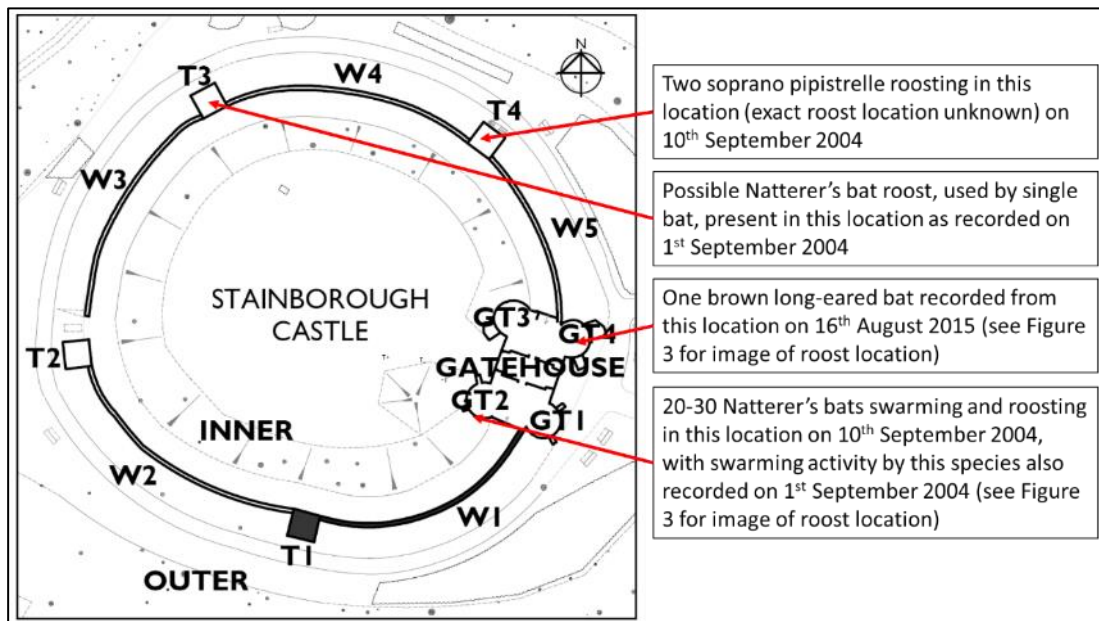
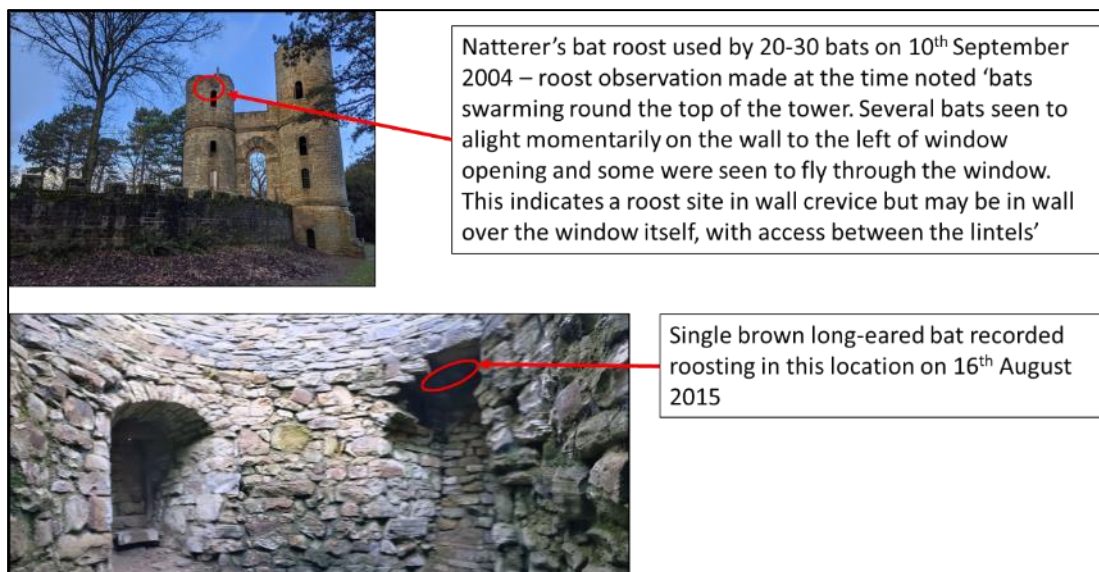


Figure 5. Images of the two historic roost locations, for which detailed descriptions are known



- 5.1.4 The wider Wentworth Castle site has a well-documented early history of bat studies, with surveys undertaken by Arthur Whitaker in the early 1900s, during which time at least seven bat species were confirmed as present on site (Whitely, 1987). Most of the roost locations recorded from trees by Mr Whitaker are untraceable, however, others such as Rockley Tunnel still support roosting bats (Middleton & Bell, 2017).
- 5.1.5 No European Protected Species (EPS) mitigation licences have been issued for locations within 2km of the site.

5.2 Field Survey

Preliminary Roost Assessment

- 5.2.1 The numbering system shown in Figure 3 has been used when describing the structure. During the visual inspection, two new bat hibernation roosts were recorded during the February 2020 visit, both from Tower 1. These roosts comprised a noctule roost used by a single bat and a brown long-eared bat roost, used by two bats. Stainborough Castle is considered to display a high level of bat roost potential and is suitable for use throughout the year.
- 5.2.2 Stainborough Castle comprises a Grade II* listed gothic folly, constructed between 1728-1730 from coursed dressed sandstone with ashlar dressings. The castle comprises a roughly circular curtain wall, with four square guard towers, and a large gatehouse on the east side which includes an archway, originally located beneath four circular turrets. Two of these turrets remain either at, or close to, their original height (GT1 & GT2, Figure 3; Plates 1 & 2).

Plate 1. Gatehouse viewed from east, with the southeast turret (GT1) in the foreground



Gatehouse

- 5.2.3 Turrets GT1 and GT2 are linked by a wall, which includes a tall round-arched doorway. The southeast turret (GT1, Figure 3) had a spiral metal staircase fitted c.2005, which allows visitors to reach a viewing platform just below parapet height. Turrets GT1 and GT2 both have numerous window openings present in the outer walls. The embattled parapet present on GT1 is missing from GT2. Turrets GT1 and GT2 are connected by an arched stone passageway, with a second arch forming the roof of the main vault. The vault comprises the main entry point into the folly for visitors. On the north side of the vault, a stone passageway connects the vault to turret GT4, which comprises the single storey remains of a tower, with two arched roofed former window openings built into the wall (Figure 5). Little remains of turret GT3, with the outer wall now largely collapsed.

- 5.2.4 The exterior of the turrets GT1 and GT2 includes mostly superficial gaps in masonry joints, with occasional deeper holes present. Deeper crevices were noted on the south side of GT2, within the area where the Natterer' bat roost was recorded in 2004 (Figure 4). Joints in this area were difficult to inspect from the ground due to their height. Numerous shallow crevices are present between masonry in the areas where a former wall has collapsed, or been removed, on the north side of turrets GT1 and GT2 (Plate 2). Bats may also roost within deeper crevices and voids between stone blocks on the turret exteriors.
- 5.2.5 The arched roof of the vault, and also passageways leading to the base of the turrets were mainly well pointed with few deeper crevices present. These areas also experience frequent disturbance from visitors. However, the roofs of the recessed window openings in GT4 includes numerous deeper crevices and voids, with the 2015 brown long-eared bat roost record, collected from this area. Although also disturbed by visitor presence it is possible a bat or bats still roost in this area, although no evidence of bats was recorded at the time of survey.

Plate 2. North side of turrets GT1 and GT2



Towers in the curtain wall

- 5.2.6 Four square towers are present in the curtain wall (Plate 3). These are mainly two stories in height, with T4 (Figure 6) also supporting a basement room. None of the towers have roofs and all have two door or window openings in each elevation. Pairs of wooden lintels are present above upper window openings and above door openings. Door openings connect the tower interiors to the open space enclosed by the curtain wall. A fire opening and associated flue is built into the wall on the north side of T4, with the basement room beneath this tower accessed from the outside of the curtain wall.

- 5.2.7 The tower exteriors are generally reasonably well pointed; however, some deeper crevices were recorded, for example, the open joint between parapet masonry on the north side of T1, from which a hibernating noctule bat was noted (Plate 4). On the interior of the towers, all lintels above upper windows and lower doors display good potential to support roosting bats, both between lintels and within voids in masonry either side of the lintel ends. A pair of brown long-eared bats were recorded roosting within the wall, beside a lintel beam in the west wall of T1 (Plate 5). Deep crevices were also noted in the north wall of T4, above the doorway into the basement room.

Plate 3. View from top of GT1, GT2 in foreground plus T2, T3 and curtain wall



Plate 4. Noctule roost in north elevation of T1



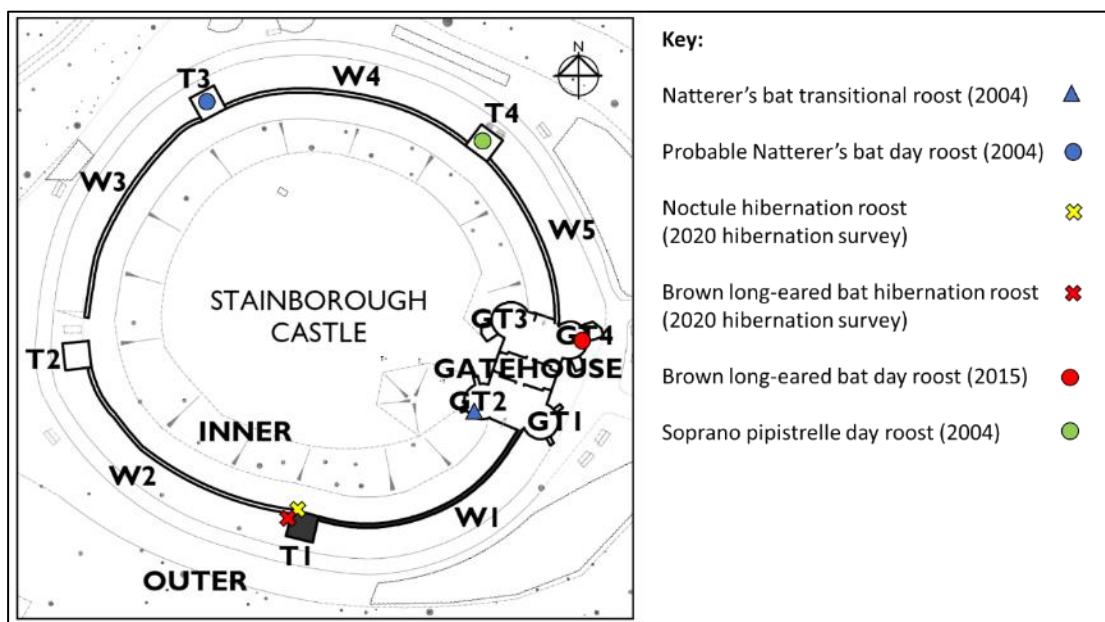
Plate 5. Brown long-eared bat roost in west wall of T1



Curtain wall

A curtain wall capped with coping stones is constructed in a roughly circular shape connecting the gatehouse to the towers. These walls are higher on their external side but do not exceed a height of 2m. Occasional crevices were present in the walls, however, these could all be inspected, and the curtain wall displays low potential to be used by roosting bats.

Figure 6. Bat roost locations recorded from Stainborough Castle during the 2020 hibernation survey and historic bat survey works

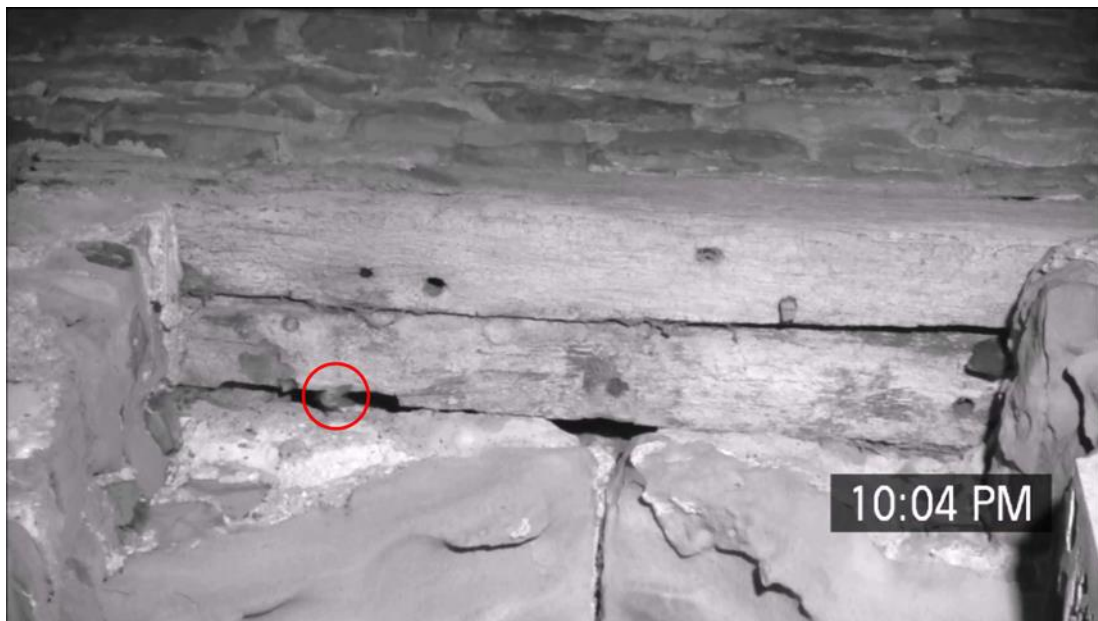


Nocturnal Surveys

Dawn return survey - 17th June 2020

- 5.2.8 Sunrise was at 04:36. The temperature at the beginning of monitoring was 14°C, with a very light westerly breeze (Beaufort Scale Force 1) and 100% cloud. The weather was dry initially with light drizzle towards the end of the survey. The temperature dropped to 12°C and there was no wind by the end of the survey.
- 5.2.9 Between 03:59 (37 minutes before sunrise) and 04:18 (18 minutes before sunrise) a total of 11 brown long-eared bats were recorded roosting between the top window lintel and masonry on the west side of T1 (Plate 5; Figure 7). Following completion of the survey a re-inspection of the exterior of T1 recorded a single soprano pipistrelle roosting in the open joint between parapet masonry, from which a noctule had been recorded previously (Plate 4).
- 5.2.10 Prior to roosting in T1, brown long-eared bats were recorded regularly from all survey locations, with bats of this species seen flying in T2 and T4. A brown long-eared bat also briefly rested in the basement of T4 before flying away. The last brown long-eared bat activity comprised the roosting in T1. Common and soprano pipistrelle were also heard regularly throughout the survey with the last soprano pipistrelle activity heard at 05:00 (>15 minutes after sunrise) in woodland to the south of T1. It is assumed this last bat roosted off-site, with a local maternity roost suspected. At 03:20 a Natterer's bat was recorded in T1 with a noctule heard at 04:11.

Plate 6. Brown long-eared bat observed emerging from roost associated with T1 lintel, on 17.06.20

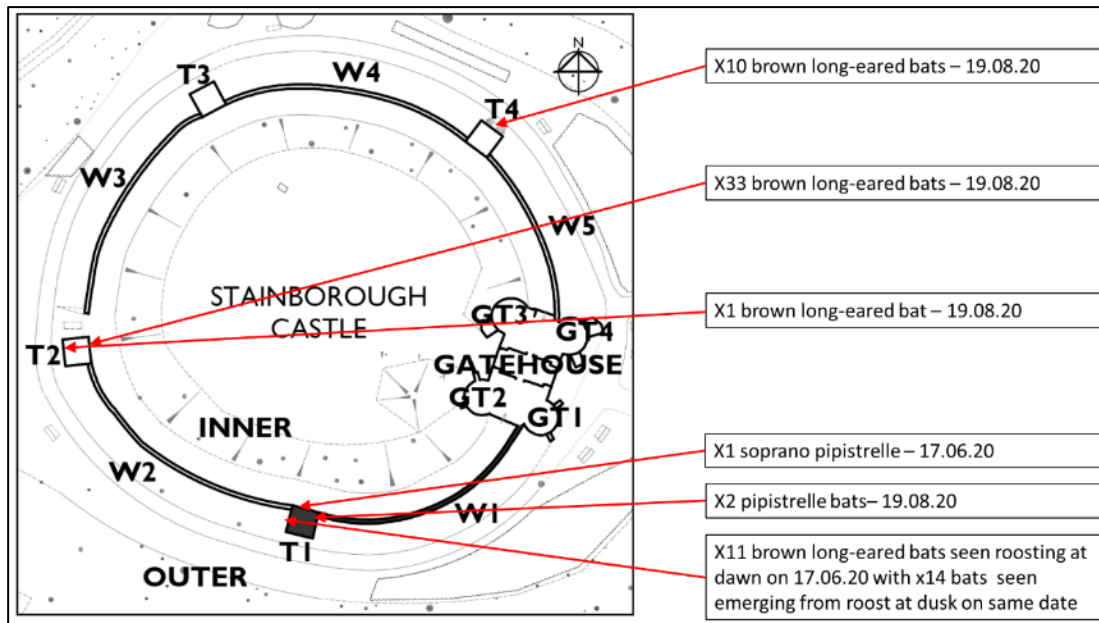


Dusk emergence survey - 17th June 2020

- 5.2.11 Sunset was at 21:38. The temperature at the beginning of monitoring was 17°C, with a very light westerly breeze (Beaufort Scale Force 1) and 60% cloud. The temperature dropped to 13°C during the survey whilst cloud cover increased to 100%. The weather was dry throughout.

5.2.12 The survey was undertaken to obtain an accurate count of the brown long-eared bat roost in T1. A total of 14 brown long-eared bats were recorded emerging from the lintel roost in the west elevation of T1 between 22:04 (26 minutes after sunset) and 22:24 (46 minutes after sunset)(Plate 6). No other roosting activity was recorded, however, regular foraging activity be common and soprano pipistrelle was noted.

Figure 7. Roost observations recorded during 2020 nocturnal surveys



Dusk emergence survey - 7th July 2020

5.2.13 The temperature at the beginning of monitoring was 13°C, with no wind and 100% cloud. Continuous fine drizzle was experienced throughout the survey and the temperature dropped to 12°C. Sunset was at 21:34.

5.2.14 Prior to the survey commencing a visual inspection of the castle recorded a soprano pipistrelle roosting in the T1 parapet roost (Plate 4) and at least one bat in the brown long-eared lintel roost in the west elevation of T1 (Plates 5 & 6).

5.2.15 The survey was targeted towards recording any bat roosts present in the turret GT2, within which a large Natterer's bat roost was recorded in 2004. No bats roosting activity was recorded from GT2 during this survey.

5.2.16 The first bat recorded comprised a common pipistrelle, which was heard at 21:45. In addition, soprano pipistrelle, noctule and probable whiskered bats were also heard during the survey.

Dawn return survey - 19th August 2020

5.2.17 The temperature at the beginning of monitoring was 14°C, with a very light southerly breeze (Force 1) and 20% cloud. The temperature dropped to 13°C during the survey, with the wind remaining the same and cloud levels increasing to 70% cover. Sunrise was at 05:52.

5.2.18 A total of 44 brown long-eared bats were recorded roosting across three roost locations

during this survey (Figure 7). Between 05:03 (49 minutes before sunset) and 05:27 (25 minutes before sunset) a total of 33 brown long-eared bats returned to roost in association with the door lintel in the east elevation of T2 (Plate 7). A further single brown long-eared bat roosted in association with the upper window in the west elevation of T2 at 05:30 (22 minutes before sunrise)(Plate 8). Between 05:15 (37 minutes before sunrise) and 05:37 (15 minutes before sunrise), a total of ten brown long-eared bats were recorded roosting in association with the upper window in the northeast elevation of T4 (Plate 9). The final roost observation comprised a pair of roosting pipistrelle (species unconfirmed) recorded from an open joint between parapet masonry on the east elevation of T1 (Plate 10). The pipistrelle bats were not seen returning to roost but were recorded during a visual inspection at the end of the survey.

- 5.2.19 The last bat recorded during the survey comprised a soprano pipistrelle, heard to the north of T3 at 05:54 (two minutes after sunrise). The last brown long-eared bat activity comprised the roosting in T4, with brown long-eared bat recorded swarming in all towers before this time. Regular common and soprano pipistrelle activity was heard throughout the majority of the survey, together with occasional *Myotis* bat passes and a noctule pass at 04:16.

Plate 7. Roost location of 33 brown long-eared bats in lintel above door on east elevation of T2, recorded on 19th August 2020



Plate 8. Roost location of one brown long-eared bat in association with lintel of upper window on west side of T2, recorded on 19th August 2020



Plate 9. Roost location of 10 brown long-eared bats in association with upper lintel on northeast side of T4, recorded on 19th August 2020



Plate 10. Pipistrelle roost recorded from east elevation of T1 on 19th August 2020



Incidental tree roost observation

- 5.2.20 Prior to the dusk emergence survey on 17th June, a visual inspection of Stainborough Castle and a number of nearby trees was carried out. During this inspection a single soprano pipistrelle bat was recorded roosting behind flaking bark at 4m on the south side of a dead beech *Fagus sylvatica* monolith at OS Grid Ref.: SE 31622 03082 (Plate 11).

Plate 11. Soprano pipistrelle in beech tree roost



6. Assessment

6.1 Summary and Evaluation of Findings

- 6.1.1 Bat survey works undertaken on Stainborough Castle in 2020 recorded a total of eight bat roosts, with four additional bat roosts recorded during either 2004 or 2015 (Table 2; Figure 8). Given the structure and surrounding habitat have remained largely unchanged since 2004 it is prudent to assume that all roosts recorded from Stainborough Castle are still likely to be used.
- 6.1.2 Survey works have shown Stainborough Castle is used year-round by brown long-eared bats, with a maternity colony of at least 43 bats (including pups) using at least three roost locations across three of the four towers (T1, T2 & T4). All brown long-eared bat maternity roost locations were present in association with lintels and bats clearly move regularly between a number of roost sites. There remains potential for all lintels in the towers and potentially also the turrets to be used by roosting bats at some time of year. Surveys show at least one of the lintel roost sites is used by hibernating brown long-eared bat, whilst a day roost was recorded in masonry in the northeast turret (GT4).
- 6.1.3 No Natterer's bat roosts were confirmed from the castle in 2020, however, a large transitional roost was recorded in the southwest elevation of the turret (GT2) in September 2004. In addition, a Natterer's bat day roost was recorded from an unknown location (likely in association with a lintel) in T3 in 2004. It appears unlikely the Natterer's bat transitional roost in GT3 is in current use, however, this cannot be confidently ruled out and it is highly likely some Natterer's bats still roost in Stainborough Castle on occasions.
- 6.1.4 A single hibernating noctule was recorded from an open joint between parapet masonry on the north elevation of T1, with the same roost location used as a day roost by soprano pipistrelle bats. Pipistrelle bats also day roost in a second open joint on the

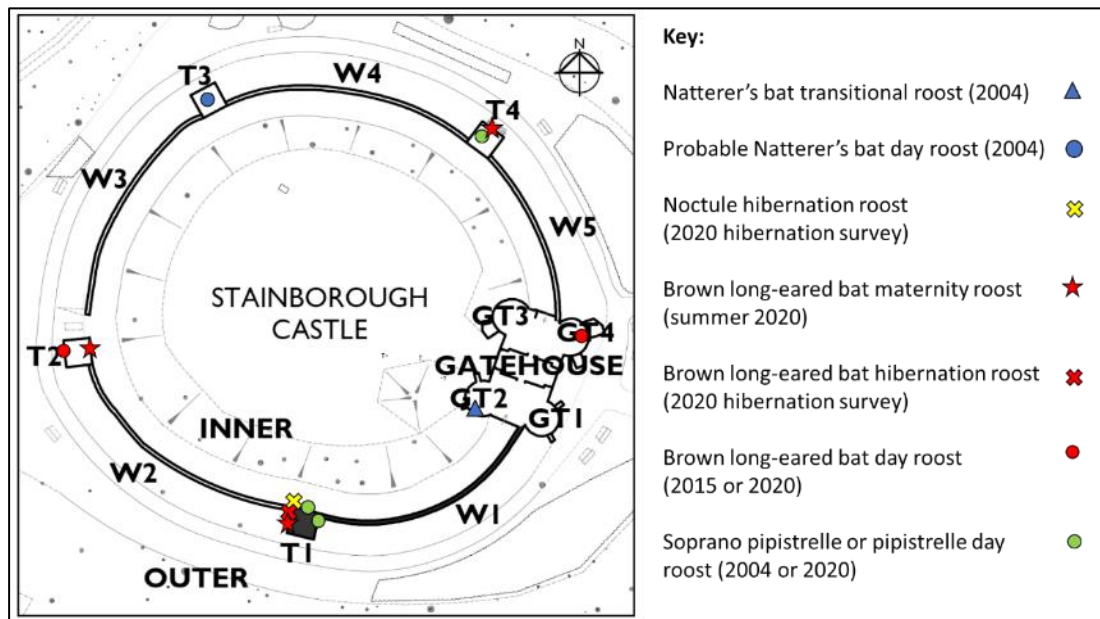
east elevation of T1, with a further historic (2004) soprano roost recorded from an unknown location on T4.

- 6.1.5 Common pipistrelle bats are considered to be common in South Yorkshire according to South Yorkshire Bat Group, with soprano pipistrelle classed as fairly common, brown long-eared bats and Natterer's bats as locally distributed and noctule as uncommon but widespread (Slack, 2019).
- 6.1.6 Taken in combination, the bat roosts recorded from Stainborough Castle are considered to be of importance at the District (Barnsley) level. The brown long-eared bat maternity roosts and Natterer's bat transitional roost (if present) are the most ecologically valuable roosts on site and are considered to be of medium conservation significance (Mitchell-Jones, 2004). The hibernation roosts recorded are considered to be of low-moderate conservation significance and the day roosts of low conservation significance.

Table 2. Roosts present in Stainborough Castle

Species	Roost type	Location	Max. count	Evidence	Current/historic
Brown long-eared bat	Maternity roost	T1 – upper window lintel on W	14	Count - 17.06.20	Current
Brown long-eared bat	Maternity roost	T2 – door lintel on E	33	Count 19.08.20	Current
Brown long-eared bat	Maternity roost	T4 – upper window lintel on NE	10	Count 19.08.20	Current
Brown long-eared bat	Day roost	T2 – upper window lintel on W	1	Count 19.08.20	Current
Brown long-eared bat	Hibernation roost	T1 – upper window lintel on W	2	Count 19.02.20	Current
Brown long-eared bat	Day roost	GT4 – roof of E recess	1	Count 16.08.15	Historic
Noctule	Hibernation roost	T1 - joint in parapet masonry on N	1	Count 19.02.20	Current
Soprano pipistrelle	Day roost	T1 - joint in parapet masonry on N	1	Count 17.06.20 & 07.07.20	Current
Unidentified pipistrelle	Day roost	T1 - joint in parapet masonry on E	2	Count 19.08.20	Current
Soprano pipistrelle	Day roost	Unknown location on T4	2	Count 10.09.04	Historic
Natterer's bat	Transitional roost	In association with wall above upper window on southwest side GT2	20-30	Count 10.09.04	Historic
Natterer's bat	Day roost	Unknown location on T3	1	Count 01.09.04	Historic

Figure 8. All 2020 and historic bat roosts recorded from Stainborough Castle



6.2 Legislation and Policy Guidance

Bats

6.2.1 Bats receive protection under the Conservation of Habitats and Species Regulations 2017 and the Wildlife and Countryside Act 1981 (as amended).

6.2.2 It is an offence to:

- Deliberately capture (or take), injure or kill a bat.
- Intentionally or recklessly disturb bats whilst they are occupying a structure or place used for shelter or protection or obstruct access to any such place.
- Damage or destroy the breeding or resting place (roost) of a bat.
- Possess a bat (live 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 (dead or alive), or parts of parts.

6.2.3 The Convention on Biological Diversity, signed in Rio de Janeiro, Brazil in 1992, requires member states to develop national strategies and to undertake a range of actions aimed at maintaining or restoring biodiversity. The UK Biodiversity Strategy was produced in response to the Convention.

6.2.4 In England & Wales, the Natural Environment and Rural Communities (NERC) Act, 2006 imposes a duty on all public bodies, including local authorities and statutory bodies, in exercising their functions, "to have due regard, as far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity". It notes that "conserving biodiversity includes restoring or enhancing a population or habitat". Barbastelle *Barbastella barbastellus*, Bechstein's *Myotis bechsteinii*, brown long-eared, greater horseshoe *Rhinolophus ferrumequinum*, lesser horseshoe *Rhinolophus hipposideros*, noctule and soprano pipistrelle bats are included as priority species within Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. At a more local level there are Local Biodiversity Action Plans for smaller

geographical areas which may cover a greater or lesser range of bat species.

- 6.2.5 Where it is proposed to carry out works which will have an adverse impact on roosting bats, the site must either be registered on the Bat Mitigation Class Licence (BMCL) or a European Protected Species (EPS) license must first be obtained from Natural England. This requirement applies even if no bats are expected to be present when the work is carried out.
- 6.2.6 The National Planning Policy Framework for England was revised in 2019. This document states that plans should 'promote the conservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity'.

Birds

- 6.2.7 All wild birds are protected under the Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000), which makes it illegal (subject to exceptions) to:
- Intentionally kill, injure or take any wild bird.
 - Take, damage or destroy the nest (whilst being built or in use) or eggs of any wild bird.

6.3 Further Survey, Recommendations and Enhancements

Licence requirement

- 6.3.1 An EPS mitigation licence is required to permit certain elements of the repair works. Given the extent of bat roost usage recorded from the four towers and their similarity of construction, it is strongly recommended that a bat licence is obtained before repair works commence on any of these structures. In particular four different lintels have been recorded as associated with use by roosting bats and it is considered that roosting bats may use any of the additional lintels present in any of the towers or turrets. Whilst some elements of the repair works to the towers will not directly impact roosting bats, they may nevertheless result in scaffold blocking flight lines or indirect disturbance from construction workers.
- 6.3.2 In addition, it is recommended that works items G26 (Partial rebuilding and repointing of GT4) and G39 (Repointing of open joints on upper level of GT2) on the gatehouse would best be covered by a bat licence. Other works items on the gatehouse may commence outside a bat licence, provided appropriate precautionary working methods are in place. The bat survey works have not recorded any constraints in relation to repair works on the curtain wall.
- 6.3.3 It should be noted that Natural England take up to 30 working days to determine EPS licence applications and at least 15 working days should be allowed for the production of the licence application. Natural England also request that some of the supporting nocturnal survey data is gathered during the most recent bat activity season. For this reason, if the application is to be submitted after May 2021 then further pre-application nocturnal survey information will likely be required.

Timing of works

- 6.3.4 In order to ensure bats always have roost locations available it is recommended that repairs are undertaken on a maximum of two towers at one time. It would be preferable if there was flexibility regarding the order in which towers are repaired. This would allow any larger bat roosts, in occupation at the time works are to commence, to be avoided whilst works take place on another part of the structure.
- 6.3.5 Timing of the works proposals needs to take account of a number of wildlife considerations. The most constrained elements of the works relate to lintel replacement in the towers. Typically Natural England will not permit works on bat maternity roost or hibernation roosts during the periods of occupation. Therefore lintel replacement works and tower scaffolding during the following two periods would be constrained:
- Bat maternity period – May to mid-September inclusive
 - Bat hibernation period – mid-November to mid-March inclusive
- 6.3.6 In addition active bird nests are legally protected from damage or destruction (see 6.2.7) and nesting birds make use of lintel voids. Nesting birds are potentially present between March and August (inclusive), although the risk of nest presence is highest from April to July.
- 6.3.7 There are a number of possible partial solutions to the bat and bird timing constraints imposed on the towers, potentially including some element of exclusion in early spring prior to works commencing in early summer. These options are however dependant on the proposed working methods, schedule and the phased undertaking of repair works on the towers. It is recommended that a meeting is held at an early stage of project planning to discuss timings for the implementation of works.
- 6.3.8 The Natterer's bat transitional roost in the top of GT2 was not recorded in 2020 and may no longer be present. It is however recommended that the potential return of this roost be considered when scheduling the works.
- 6.3.9 Another measure that may be taken in order to reduce the likelihood of active bird nests in Stainborough Castle constraining the works, may be to install low cost wooden bird boxes close to the towers in winter 2020/2021.

Avoiding killing or injuring bats during works

- 6.3.10 Precautionary working practices should include the following. A Toolbox Talk should be delivered to all operatives by a licensed bat worker, prior to works commencing. Where works are to impact any turret or tower, a pre-works nocturnal survey of that structure should be undertaken, not more than 48 hours prior to scaffold erection or other enabling works. If an active maternity roost, or roosts not covered on the bat licence are recorded during the pre-commencement survey, then a decision will need to be made regarding whether works can proceed at that time (dependent on the type of roost present).

- 6.3.11 Following scaffold erection and prior to any re-pointing works commencing, a licenced bat worker should inspect the structure with an endoscope to check for signs of roosting bats. If evidence of current or historic bat roosting (i.e. droppings) is recorded, then the associated roost feature should be retained unaltered. Prior to re-pointing works commencing on the curtain wall, this feature should be re-inspected by a licensed bat worker.
- 6.3.12 Any bats which need to be moved as part of the licence should either be excluded using a one-way exclusion device or captured by hand by a licensed bat worker and moved to one of three tree mounted bat boxes to be installed on site.

Long-term roost provision

- 6.3.13 Open joints and voids in masonry, which support roosting bats, will be retained. In particular crevices alongside door and window lintels in the towers together with any masonry joints known or suspected to be used by bats. In particular open joints in parapet masonry on the north and east elevations of T1 should be retained.
- 6.3.14 New timber lintels should be brushed clean prior to installation, to remove any crystallised residues of wood preservation products. If any *in-situ* treatment of timbers is required, then only those products approved for use in or near bat roosts should be applied. A list of such products can be provided by Middleton Bell Ecology on request.

Monitoring

- 6.3.15 Where bat maternity roosts or hibernation roosts are impacted by works Natural England require monitoring during two years following completion of the licensable works. In this instance, it is recommended that monitoring comprise the following survey elements:
- Single five-person dawn return surveys in the second and fifth summer (June or July) following completion
 - Single ladder-enabled visual inspections during the second and fifth winter (January or February), following completion

6.4 Conclusions

- 6.4.1 Stainborough Castle supports a total of eight current and four historic bat roosts, used by at least four bat species including maternity, hibernation, day and transitional roost types. Given the structure and surrounding habitat have remained largely unchanged over recent decades it is prudent to assume that all roosts recorded from Stainborough Castle are still likely to be used.
- 6.4.2 Large elements of the proposed repair works will require an EPS mitigation licence in order to proceed. Key elements of works, notably including lintel replacement, are subject to a number of timings constraints and careful supervision of most elements of works will be required to avoid or reduce impacts upon roosting bats and nesting birds. There is however scope to retain most, if not all, bat roosts and in the medium to long-term the proposed repair works should not impact the status of local bat populations.

7. References

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EBC (2004) Wentworth Castle and Stainborough Park, Barnsley – Report of Bat Survey. Eric Bennett Consultancy Ltd, Barnsley.

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Mitchell – Jones, A.J (2004) Bat Mitigation Guidelines, English Nature

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Whitely, D (1987) Arthur Whitaker's Bats, originally published in The Naturalist (1905–1913), Sheffield Bat Group.

Appendix 1. Bat Records

In accordance with best practice and the requirements of bat licensing, bat records collected during surveys are supplied to the relevant biological record centres and bat groups. The records to be supplied in accordance with this survey are shown below. House names/numbers are not given out by record holding organisations except under very particular circumstances. Please let us know if you object to the distribution of these records.

Date	Species	Site Address	OS Grid Reference	Notes
19.02.20	Noctule	Stainborough Castle – T1	SE 31551 03027	Hibernation roost - 1 bat
19.02.20	Brown long-eared bat	Stainborough Castle – T1	SE 31551 03027	Hibernation roost – 2 bats
17.06.20	Brown long-eared bat	Stainborough Castle – T1	SE 31551 03027	Maternity roost – 14 bats
17.06.20	Soprano pipistrelle	Stainborough Castle – T1	SE 31551 03027	Day roost – 1 bat
19.08.20	Brown long-eared bat	Stainborough Castle – T2	SE 31521 03048	Maternity roost – 33 bats
19.08.20	Brown long-eared bat	Stainborough Castle – T2	SE 31521 03048	Day roost – 1 bat
19.08.20	Brown long-eared bat	Stainborough Castle – T4	SE 31575 03075	Maternity roost – 10 bats
17.06.20	Soprano pipistrelle	Wentworth Castle Gardens – Beech Monolith	SE 31622 03082	Day roost – 1 bat