Buildings 485 & 488, Heyford Park

Preliminary Bat Survey

On Behalf of:
The Dorchester Group

Issue No.	2
Issue Date	20/3/2016
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4 Acre Ecology Limited

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1. Executive Summary

1.1 Heyford Park is a former military base with the first buildings built in 1926 (Central Grid Reference SP 51432577), with various additions since then, especially when it was used as an American Air Base. This was decommissioned in 1994 and many of the buildings have been unoccupied since.

1.2 Previous bat surveys by EPR in 2001, 2002, 2006 and 2007, plus more recent surveys by Thomson Ecology in 2010 and 2011 identified nine transitory bat roosts within the areas where buildings are to be demolished, plus a further 21 in buildings to be retained, including one maternity roost.

1.3 In 2012, 55 buildings or structures remained to be assessed and/or subject to emergence surveys (Thomson, 2011). In spring/summer 2012, 33 buildings were subject to daytime assessments and Area 1 had a set of back-tracking activity surveys carried out to target emergence surveys on buildings where bats were active. A total of 22 buildings across the demolition area were then subject to emergence surveys, including updates for the buildings identified as having roosts in them prior to 2011.

1.4 A European Protected Species Licence for bats (EPSM 2012-5157C) was then obtained from Natural England to undertake the demolition works and construct 641 new housing units on the site. However, Buildings 488 and 485 within this development area were not included within the licence as they were to be retained and refurbished, although bats were present in building 485 in earlier surveys. These buildings are now to be demolished, so a bat survey is required to determine if bats are present, likely present or likely absent.

1.5 This Preliminary Bat Survey aims to provide an assessment of the buildings and their roof spaces in order to identify the presence or absence of bats and whether further surveys are required. The survey has been requested to inform the planning decision on the application to demolish the buildings.

1.6 The field survey was undertaken on 20th January 2016 by an experienced Ecologist with a Natural England roost visitors bat licence (Class Licence Registration Number 2015-13769-CLS-CLS). The buildings were assessed for roost potential and evidence of bats.

1.7 No signs of bats were found in or around Building 488 and this is regarded as having a negligible potential for roosting bats, but as air bricks are present within one courtyard a precautionary soft strip is recommended for this section. Building 485 has been confirmed as having a bat roost for a low number of Brown Long-eared bats.

1.8 No further surveys are required for Building 488, however further emergence surveys are recommended for Building 485 to identify the type and size of the roost in the building, if any other species are present and inform the licence amendment.

2. Introduction

Background

2.1 Heyford Park is the former RAF Base of Upper Heyford, Oxfordshire (Central Grid Reference SP 51432577). The base was originally built in 1926 and has had many additional buildings constructed up until the 1980s. The base was decommissioned in 1994 and many of the buildings have been empty since. However, the park has been increasingly used as a light industrial area around the former flying field, with occupied housing centrally to the south of Camp Road.

2.2 Since 2003 there have been plans to redevelop the site into mixed business and residential uses, divided roughly north and south of Camp Road, the majority of the housing to the south and most of the business areas to the north.

2.3 There have been previous surveys of the site for bats since 2001, including daytime surveys of hangers, the occupied housing and the empty office and barrack buildings. This has been followed up with transect surveys of the demolition area and emergence surveys of many of the buildings, the last being carried out in summer 2012 to inform a European Protected Species Licence (EPSL) for the main development site.

2.4 Buildings 488 and 485 now need to be demolished, but were not included in the EPSL, although a minor bat roost was identified in building 485 in 2007. As almost ten years have passed both buildings require updated surveys to determine their use, if any, by bats.

2.5 Dorchester Living commissioned 4 Acre Ecology Limited on 21st January 2016 to undertake a Preliminary Bat Survey of the buildings.

Aims and Objectives

2.6 The aim of the survey was to determine whether bats used or were likely to use the buildings to roost in, suggesting any further surveys or mitigation required. The objective was to support a successful planning application to demolish these buildings, whilst maintaining the conservation status of bats within the local area.

3. Methodology

Desk Study

3.1 The Multi-Agency Geographical Information for the Countryside (MAGIC) website was consulted to determine if there were any sites designated for bats within 5 km of the site. The Thames Valley Environmental Records Centre (TVERC) was consulted for bat records within 2km of the site. Past survey reports were consulted to provide detailed records for the site.

Field Survey

3.2 An external and internal inspection of the buildings was made by a Natural England Licensed bat surveyor (Class Licence Registration 2015-13769-CLS-CLS). The exterior of the buildings were searched for evidence of bats, looking for grease stains in external crevices and searching for droppings on windows sills, windows, walls and ledges and on the ground below potential entrance/exit areas to the roof or walls.

3.3 The interior of the buildings, and in particular the loft or roof spaces, were searched using high powered torches for evidence of bats. This evidence includes sightings, dead bats, feeding remains, smell, droppings and grease marks at entry/exit points. The potential of the buildings as bat roosts was judged and any signs of bats or features offering roost potential were noted.

4. Legislation and Planning Policy

4.1 All species of bats found in this country are European Protected Species (EPS), which gain their protection from the Conservation of Habitats and Species Regulations (Habitat Regulations) 2010, whereby under section 41 it is an offence to

- deliberately capture, injure or kill a bat
- damage or destroy a breeding site or resting place of a bat

4.2 They are also protected under the Wildlife and Countryside Act (WCA) 1981 and amendments, including the Countryside and Rights of Way Act (CRoW) 2000. Under the WCA it is an offence to:

- intentionally or recklessly kill, injure or take from the wild or possess all or any part of a bat;
- intentionally or recklessly damage or destroy any structure or place which a bat uses for shelter or protection, or disturb a bat while it is occupying such a place; or
- obstruct access to any structure or place which a bat uses for shelter or protection.

4.3 The National Planning Policy Framework (NPPF) published in March 2012 states that "in assessing and determining development proposals, local planning authorities should apply the presumption in favour of sustainable development" and "opportunities to incorporate biodiversity in and around developments should be encouraged".

4.4 In general terms the NPPF states that the planning system should contribute to and enhance the natural and local environment by:

- protecting and enhancing valued landscapes, geological conservation interests and soils;
- recognising the wider benefits of ecosystem services;
- minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.

4.5 However, the "presumption in favour of sustainable development does not apply where development requiring appropriate assessment under the Birds or Habitats Directives is being considered, planned or determined", but "development proposals where the primary objective is to conserve or enhance biodiversity should be permitted".

5. Results

Desk Study

5.1 No protected sites designated for bats were identified within 5 km of the site (MAGIC, 2013).

5.2 TVERC held two records of bats within 2km of the site, one Common Pipistrelle and one Brown Long-eared bat.

5.3 Previous surveys by EPR in 2001, 2002, 2006 and 2007, plus more recent surveys by Thomson Ecology in 2010 and 2011 and 4 Acre Ecology in 2012 identified 32 minor roosts and one maternity roost on the overall site. Additional surveys of Building 74 (The Officer's Mess) found maternity roosts for Common Pipistrelles and Brown Long-eared bats, with a number of summer and transitional roosts. Conversion works to create a Free School for the site are being carried out under a European Protected Species Mitigation Licence (EPSM2013-6341A)

5.4 120 buildings have been demolished on the site to make way for new housing. There were roosts in 12 of these, for which a European Protected Species Licence has been gained to carry out the works legally (EPSM2012-5157B). During the demolition twelve bats were removed to bat boxes erected as mitigation, both during the destructive search and during later works.

Field Survey

5.5 The survey was undertaken on 20th January 2016. This was a dry day with 100% cloud cover, a light wind and a temperature of 6.0 degrees centigrade.

Local Context

5.6 The site is situated on the former RAF Upper Heyford Airbase, with many old hangers and former military buildings on all sides, separated by amenity grassland and standard trees. Since demolition this has been replaced with an extensive building site, with new homes already built to the east and far north of the two buildings that are subject to this report.

5.7 Beyond this immediate area there are the main air-fields to the north, occupied housing to the west and arable fields with species poor hedges dominating to the east and south.

5.8 To the east and south east there is a large area of woodland, less than a kilometre away, while beyond the village of Upper Heyford to the west lies the River Cherwell and the Oxford Canal.

Building 485

5.9 This is a 1920's-1930's two storey brick building with one long twin pitched slate roof. There is a shorter twin pitched roof perpendicular to the main building. All three ends of the building created by this stumpy 'T' shape are hipped. The building has a small wall cavity, but this has been filled with insulation. There are wooden soffits which extend out from the building by 300mm. These are generally in moderate condition, but there are a number of gaps up to 20mm wide between the wall and the soffits.

5.10 External access features include gaps at the soffits, holes in the brick-work that extend into the interior, smashed and open windows, slipped tiles and raised ridge tiles. The guttering has fallen on the southern gable end of the smaller roof providing potential access under the tiles. Also the main roof has air vents in the hipped ends that contain three openings with the lower two covered in but and the upper one of each is open.

5.11 Internally the building has false ceilings with a large open roof space above. The entrance to the roof was through one of these missing tiles. Several further tiles are missing and the room (toilet block) can be seen below. The roof is king post with a ridge board present. The lining is felt and wooden boarding below. There is 100mm fibreglass insulation on the ceiling. The main roof is 2.5m high, approximately 35m long and 9m wide. The perpendicular roof that joins at the centre of the main roof is has a ridge level 1.3m below the main roof, but the ceiling level drops down 1m from the main space, leaving a ceiling to ridge height of 2.2m. This is 8m long and 7m wide.

5.12 Around 300 bat droppings (2.0-2.5mm in diameter and 8-10mm long) were found within the roof space. There were two main concentrations approximately 4-5m in from either air vent, but with small concentrations under the vents themselves (Figure 1 and 3). There was also a scattering of droppings throughout the roof length between, under the entire ridge board. Feeding remains were observed, in the form of butterfly wings.

Building 488

5.13 This is a multi-roofed building with no true roof space, as all the roofs are flat (either concrete or felt covered). The single storey areas have felt roofs and the two storey part is a sealed concrete slab. The building is brick with a small 25-30mm cavity between the two skins, which has been insulated. There are two roof sheds on the top of the building, but these have a similar construction with single skin brick walls and concrete slab roof.

5.14 Access features are limited as the building is relatively well-sealed. Drain pipes cover the concrete eaves on the two and single storey buildings. However there are two courtyards, one of which has 5 large and 9 smaller air bricks. A bird's nest was observed in one of the air bricks, with others covered in cobwebs. Two holes in the brickwork were also noted and a cavity was present (See Figure 3).

5.15 Internally the two storey building has suspended ceilings, with many missing tiles, so the flat concrete roof can be seen from below.

5.16 There was no evidence of bats in or around the building (Figure 2).

6. Discussion

6.1 There are no sites designated for bats within 5km of the site and only two records are held by the Thames Valley Environmental Records Centre within 2km of the site. There is a lack of recording in this general area, except for the roost monitoring within the 1km square, so there is likely to be a better species number and population of bats in the area than this indicates.

6.2 The site surveys carried out over the past 12 years indicate that there are resident Common and Soprano Pipistrelle, Brown Long-eared, Whiskered, Natterer's and Noctule bats in the area, with three maternity roosts identified in the wider site and 20 plus summer/transitory roosts there.

6.3 The structure of the surrounding land on site offers moderate commuting and foraging potential, with the main of the building site consisting of hard standing or bare ground, which was mud at the time of survey. The new buildings to the east and north have a large number of integrated bat boxes built into them, three new roosts in roof voids above double garages and 29 bat boxes placed in retained mature trees, offering very good alternative roosting sites for bats.

6.4 Surrounding Buildings 485 and 488 are newly built houses many of which contain bat bricks as mitigation for the EPS Licence (EPSM 2012-5157C). To the north of Building 485 there is a large open grass space with some retained trees. However the area is currently best described as an ongoing development area.

6.5 The wider area is less limited, although there are mainly arable fields to the south and the airfield to the north. Over a kilometre to the west the land drops into the Cherwell Valley, also containing the Oxford Canal, with the village of Upper Heyford.

6.6 There was no evidence of roosting bats within Building 488 and the building is generally well-sealed with no roosting areas identified in the sealed concrete roof slabs. As there are many more suitable roosting sites in the area created as mitigation for the works, the building is regarded as having low to negligible potential for roosting bats.

6.7 The air bricks in the courtyard provide some crevices with very limited potential for crevice-dwelling bats, so a supervised soft strip of these during the demolition is recommended as a precautionary approach to the work. If, in the unlikely event a bat is found then the ecologist will ensure it remains unharmed and ensure the work can proceed within the law.

6.8 Therefore this building will not require further surveys or an EPSL to carry out the demolition works.

6.9 For Building 485 there is a large single roof space with a high ridge height, an open structure and many access points into it at the hip ends, eaves and beneath ridge tiles and slates.

6.10 A light scattering and three main concentrations of bat droppings were found in the main roof area. These were 8-10mm long and had a diameter of 2.0-2.5mm, indicating that they are likely to be Long-eared bats, most likely Brown Long-eared bats, as Grey Long-eared bats are not found this far north (Entwistle & Swift, 2008).

6.11 The concentration of droppings indicate either roosting points or entry/exit points. As the survey was undertaken towards the end of winter the age of the droppings was difficult to work out, but none were fresh. This means they could have been from the previous season, or be up to a few years old. This is evidence of roosting bats, but the low number of droppings found indicates that it is a minor roost of this commonly occurring bat species.

6.12 As there are a number of access places beneath the slates and into the soffits, crevice dwelling bats could also be present, such as Pipistrelles or some Myotis species. The roof is lined, so that bat droppings would be trapped between the tiles and the lining and therefore not be visible internally (Jones & Racey, 2008) and the soffits could not be viewed internally either, so again could have evidence within them that is not visible.

6.13 Therefore, further emergence surveys during the active season of May to September, with the main surveys in the peak period of mid-May to mid-August should be undertaken to determine the nature of the Brown Long-eared roost identified and whether other bats roost in the building.

6.14 As the plan is to demolish the building, an EPS licence will be required. Following the emergence surveys the current licence for the site will be amended to include this building.

7. Further Surveys Recommendations and Enhancements

Further Surveys

7.1 No further surveys are deemed necessary for Building 488, as roosting bats are likely absent.

7.2 A dusk and dawn survey plus a further dusk or dawn survey will be carried out on Building 485 to determine the size and nature of the Brown Long-eared bat roost and whether any other species of bats are present.

Recommendations

7.3 Building 488 has a negligible potential for roosting bats, but soft-stripping the air bricks and the cavities behind these prior to any demolition will ensure that, if present, bats will remain unharmed and the work will be carried out within the law. This will be carried out during the active season for bats, from April to September.

7.4 For Building 485 the precise details of the licence amendment will be informed by the emergence surveys, but the method statement and mitigation will be as follows;

Method Statement

7.5 A tool-box talk will be carried out by a qualified ecologist named on the licence. This will inform the contractors of the method statement, the protection afforded bats, how to recognise bats and what course of action they will need to follow if a bat is found during the demolition.

7.6 Lights will be placed in the roof space of Building 485 a week before demolition begins, which will be timed to be in September/October to avoid the maternity season, but whilst bats are still active before the hibernation season begins.

7.7 An ecologist licensed to disturb bats will oversee the initial strip of features likely to contain bats (slates, barge boards, ridge tiles etc.) on building 485. All features will be removed by hand and lifted from the roof, not slid off, to avoid injury to bats if they are present beneath.

7.8 In the unlikely event that a bat is found the bat ecologist named on the licence will take it by hand and transport it in a cloth bag to one of the bat boxes already erected, the type of box depending on the species found.

7.9 Injured bats will be immediately taken into care (as directed by BWM, s.7.3, pp. 64-66; 3rd ed, 2004). Details of a local well experienced bat carer are known.

7.10 If a bat is found by contractors after the initial strip is completed, they will inform the licenced ecologist so that the ecologist can attend the site and ensure that no harm comes to the bat and work continues within the law.

Enhancements/Mitigation

7.11 The provisions in the two mitigation licences and the management plan for the site provide plenty of enhancements on the site for bats, so further enhancements for the demolition of these buildings are deemed unnecessary beyond a similar approach (installation of an integrated bat box in housing blocks and, if there is a double garage within the replacement buildings, to create a bat loft above it). The precise details are subject to the results of the emergence surveys.

8. Figures

Figure 1: Building 485

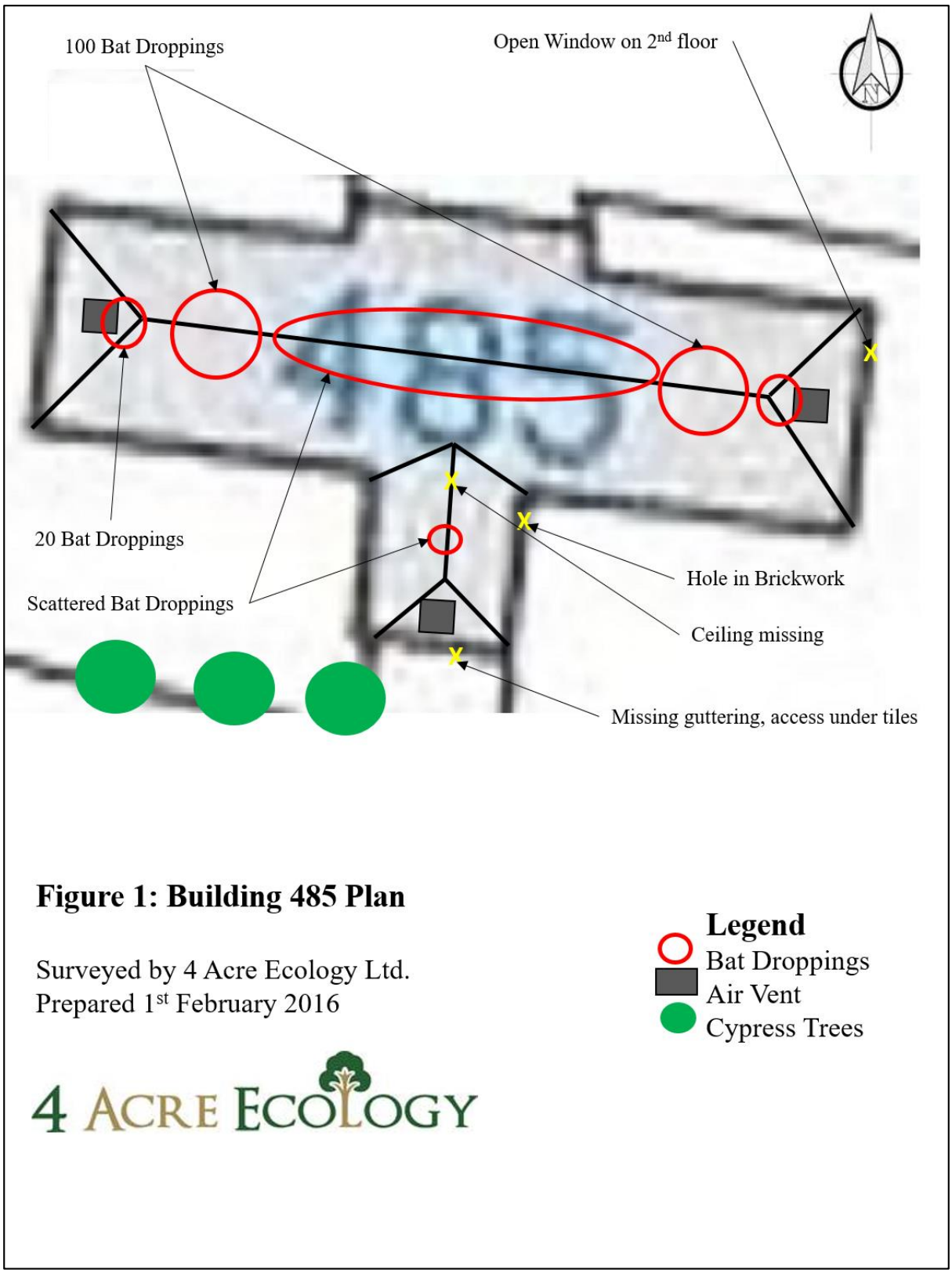

Figure 2: Building 488

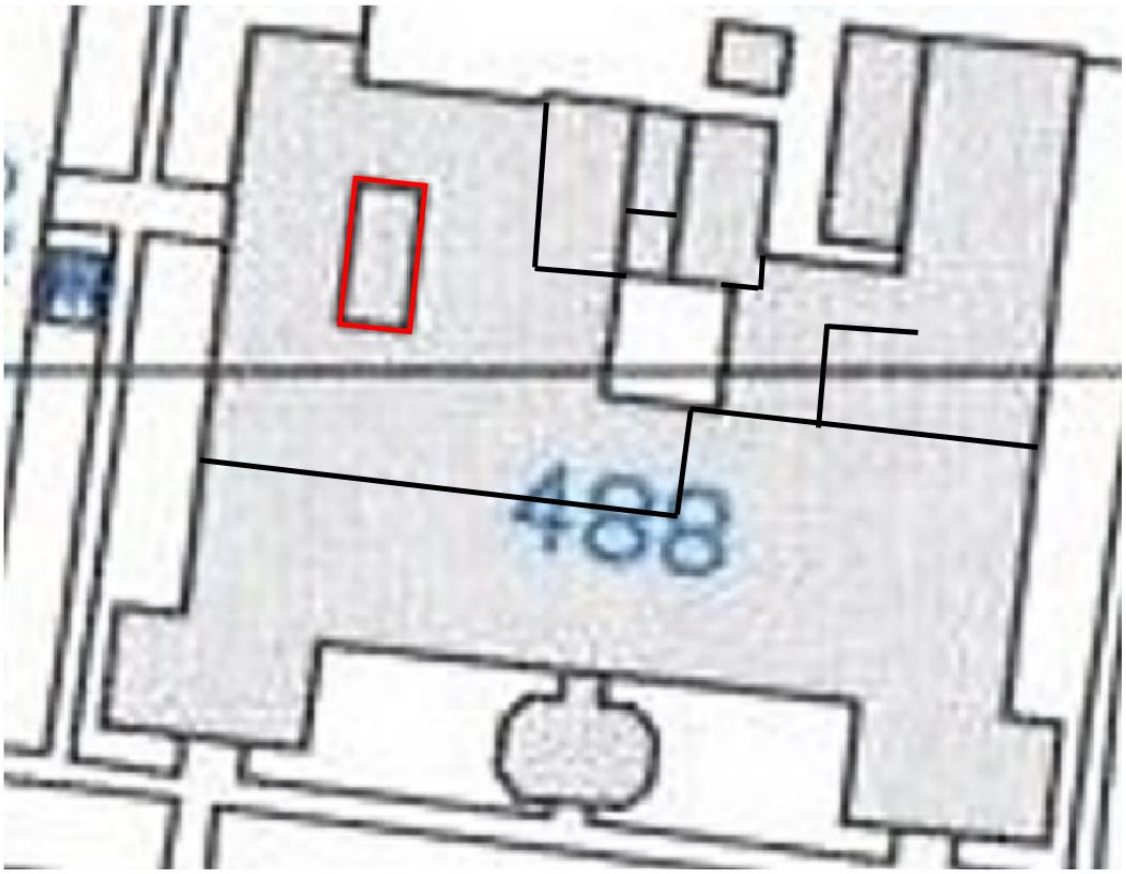

Figure 1: Building 488 Plan

Surveyed by 4 Acre Ecology Ltd.
Prepared 1st February 2016

Legend
- Bat Droppings
- No Roof Space
- Courtyard with Air Bricks

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Figure 3: Images

1. Building 485 from the north

2. Building 485 from south-east

3. Slipped and missing tiles on Building 485

4. Air Vent on Building 485

5. Loft space of 485

6. Concentration of bat droppings

7. Roosting feature above droppings

8. Close-up of droppings in Building 485

9. Air vent internally

10. Building 488 from the north

11. Felt flat roof on Building 488

12. Felt flat roof looking east

13. Space above false ceiling in two storey section

14. Two types of air brick in courtyard of 488

15. Close-up of large air brick type

16. Concrete eaves and smaller air brick type

9. References

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Appendix 1: Information on British Bats

There are 18 species of bat in the UK (17 of which are known to be breeding here). They range from the tiny **Pipistrelle**, weighing in at around 5g (less than a £1 coin), to our biggest bat, the **Noctule**, which is still smaller than the palm of your hand.

All British bats eat insects exclusively, a **Pipistrelle** bat eating as many as 3,000 midges in one night, while **Long-eared** bats eat moths and **Noctule** or **Greater Horseshoes** also eat larger beetles.

The **Alcothoe** bat is the latest addition to the UK bat family, only being confirmed as a resident species in 2010 due to its similarity to the **Whiskered** and **Brandt's** bat species.

The **Daubenton's** bat is known as the 'water bat', as they fish insects from the water's surface with their large feet or tail. In England and Wales the majority of known summer colonies are in humid, more or less underground sites near water. These may be tunnels or bridges over canals and rivers, or in caves, mines and cellars. They are only occasionally found in buildings, usually old stone structures such as moated castles and waterworks.

Bats do not build nests, but use small spaces to shelter and rest in during the day, or hibernate in during winter. These places are known as roosts. There are a variety of different types of roost, from winter hibernation roosts, spring and Autumn transitory roosts to summer maternity roosts. However, not all bats will roost within buildings, with the following being those most likely to:

Pipistrelle bats (both Common and Soprano species) are the most common bats in this country. They prefer to roost in very confined spaces around the outside of buildings, typically behind hanging tiles, soffits and barge boards, under roofing felt or in cavity walls. They do not usually enter roof spaces, although well-established large colonies in older buildings may do so.

Brown Long-eared bats are the third most commonly occurring species, after the two **Pipistrelle** species. They roost singly or in small groups among the roof timbers at the apex, particularly around ridge ends and chimneys, and in crevices in ridge tiles. These medium sized bats spend more time inside the roof space than many other bats, and are generally very quiet inside the roost, not leaving until after dark.

The **Serotine** bat, one of the largest bat species in the UK, is almost exclusively found roosting in houses across southern England and Wales. Rarer than **Pipistrelles** and **Brown Long-eared** bats, **Serotines** usually roost in crevices around chimneys and in cavity walls. Their favoured prey is large beetles, which they find over farmland and grassland.

Horseshoe bats, probably the most unusual looking of the UK's bats, are sometimes found roosting in houses in south-western England and Wales. **Greater** and **Lesser Horseshoe** bats hang free in the roost from their feet.

(Find further details from the Bat Conservation Trust Website at: www.bats.org.uk)