CONTENTS

1. INTRODUCTION

1.1 This report presents the results of a bat survey of London Street Mill in Leek, Staffordshire undertaken by Apex Ecology Limited. The report is based on a field survey that was undertaken in March 2008, which comprised a visual inspection of the building for evidence of roosting bats.

1.2 The project was commissioned by Grindco Limited. Planning permission is being sought from Staffordshire Moorlands District Council to re-develop the mill for residential use.

1.3 Bats and their roosts are legally protected under both European and domestic legislation and they are, therefore, a material consideration when determining the planning application. A summary of the key legislation protecting bats and their roosts is provided in Appendix I at the end of the report.

1.4 The mill is a substantial, largely rectangular brick building fronting London Street. It was built in the 1870s and was one of a number of mills in the town that weaved silk. Its most recent use was for clothing manufacture but was vacated in the 1990s and is now disused. The mill is has six storeys and many of the roofs are pitched and clad in tiles.

1.5 The mill lies close to the town centre of Leek and is bounded by London Street to the east, Brook Street to the north and Duke Street to the south. The central grid reference for the mill is SJ 985 564. The area surrounding the mill comprises residential and commercial areas of the town. The area known as Lady Dale is located approximately 200m to the south and comprises a mixture of grassland, woodland and wetland habitats. Ballington Wood lies approximately 600m to the south of the mill.

1.6 The report describes the methods used for the survey and any constraints encountered, along with the results of the survey, including a description of the mill building and any associated evidence of bats found. It then provides an assessment of the suitability of the building for roosting bats and makes recommendations.

2. METHODOLOGY

Search of Existing Bat Records

2.1 Staffordshire Ecological Record (SER) was contacted for existing records of bats within a 2km radius of the mill. Such information is valuable as it can help put the site and survey findings into the context of the surroundings.

Survey Methods

2.2 The survey was undertaken on the 7th March 2008 by Helen Ball and Max Robinson, both licensed bat ecologists (Natural England licence numbers 20072095 and 20072911).

2.3 An assessment of the mill was made in terms of its suitability to support roosting bats. A number of factors were considered including internal conditions, presence of features suitable for use by crevice dwelling and free hanging bats, proximity to foraging habitats/cover and potential for disturbance. A description of the mill building was made and it was assigned to high, medium or low grade according to its assessed potential to support bats.

2.4 A visual inspection of the interior (where accessible) and exterior of the mill for evidence of bat use was undertaken. This followed standard methodologies set out in the *Bat Mitigation Guidelines* (Mitchell-Jones, 2004), the *Bat Workers' Manual* (JNCC, 2004) and *Bat Surveys – Good Practice Guidelines* (BCT, 2007).

2.5 Externally, the mill was walked around and a visual inspection of features such as windows and window ledges and gaps in the brickwork was made for evidence of bat use. Evidence searched for included droppings and staining from fur-oil and urine. The survey was undertaken from the ground and aided by the use of close-focusing binoculars, ladders, an endo-scope and high-powered torches where necessary.

2.6 The internal survey of the mill followed a similar approach, with a search made for bat droppings, prey residues (such as fly or moth wings) and urine stains, as well as actual bats. The surveyors paid particular attention to dark, sheltered locations and gaps in the brickwork.

2.7 Notes were also taken where evidence of use by other protected species such as breeding birds was found.

Constraints to the Survey

2.8 Much of the mill was in good condition and internally was generally clean and dry thus any evidence of bat use in the form of droppings would likely be preserved for some time.

2.9 Parts of the mill could not be accessed for survey. For instance, the roof voids above sections 5c, 5d, 5e and 5f could not be viewed due to the absence of loft hatches or because they had been sealed. Doors to the offices on levels 5d level 3c were locked, again preventing access.

3. SURVEY FINDINGS AND INTERPRETATION

Review of Existing Bat Records

3.1 The information from Staffordshire Ecological Record shows no records of bats at London Street Mill itself; however there are a total of 38 records within a 2km radius. These include at least five species of bats - pipistrelle, *Pipistrelle*, soprano pipistrelle, *Pipistellus pygmaeus*, whiskered, *Myotis mysacinus*, Natterer's, *Myotis nattereri*, and brown long-eared, *Plecotus auritus*. Other records include a *Myotis* bat and some bats that were not identified.

3.2 Pipistrelles have been most numerously recorded and were found on 18 different occasions, between 1986 and 2006 at 13 different localities. This includes a single soprano pipistrelle roost supporting up to 365 individuals and lying just over 1km northeast of the mill. A nursery colony of soprano pipistrelle numbering between 200-300 individuals is known from a site close to the soprano pipistrelle roost described above. Pipistrelles have also been recorded less than 500m to the southwest.

3.3 A single female whiskered bat was found roosting in 1994 approximately 2km from mill. Natterer's have been found on three separate occasions between 1988 and 1993, including 2 dead juveniles from the same location and a single juvenile male from another location indicating the possibility of nearby roosts.

3.4 Of the 10 records of unidentified bats, an individual bat was seen approximately 100m from site, which is the closest recording to the mill. The records are of bats in flight, plus two possible roosts lying over 1km away.

3.5 Brown long-eared have been recorded on five occasions, including a maternity roost lying less than 2km to the northwest of the mill.

Survey Findings

3.6 The mill is a substantial, largely rectangular brick building fronting London Street. The mill is built on ground that grades upwards from north to south and consequently the space on each floor varies in size. For the purposes of the report, the mill has been divided into levels and sections and referred to using codes that reflect this, for instance section 5f is the southern-most room on the fifth floor. Figure 1 and Plates I - VI illustrate the layout and interiors of the mill. Table 1 provides descriptions of each section of the mill and any associated evidence of bats, and a summary of the key findings is given below.

3.7 Evidence of bat use was found on levels 4, 5 and 6 of the mill. The majority of the evidence was located in 5d and comprised a large number of bat dropping on the walls, floor and a window. Single bat droppings were found in 4d, 5e and 5f, and level 6d. A dead pipistrelle was also found in this latter section.

3.8 Over 30 Pipistrelle droppings were discovered in section 5d stuck to the inside and outside of the window on the western side adjacent to the staircase. In addition, hundreds of droppings were also found stuck on the walls and floor of the corridor in section 5d where bats have been flying around the interior.

3.9 A dead pipistrelle was found on the floor of section 6d. It is likely this bat became trapped inside and died due to desiccation from lack of water. Furthermore, a single bat dropping was found in one of the smaller office rooms within this section.

3.10 A single bat dropping was recorded on the exterior of a window on the south wall in section 4d (below the area exhibiting evidence of use by bats on level 5 above). Single bat droppings were also found on the exterior of north facing windows in sections 5e and 5f.

3.11 No evidence of bats was found in any section on levels 1 to 3 of the mill.

Interpretation of Field Survey Results

3.12 The survey has established that the mill is used by bats for roosting. The evidence indicates use by pipistrelle (although from the droppings and carcass it is not possible to distinguish whether common or soprano pipistrelle).

3.13 It appears a roost is present in section 5d in a gap in the window lintel. There is also a gap in the external brickwork above the window that bats may be using for roosting. The droppings within the corridor of section 5d indicate bats are accessing the interior of the building and flying around, possibly socializing. Bats may also be roosting elsewhere in the building. There is good potential for roosting associated with gaps in the wall brickwork and around windows in some sections of the buildings. There is also potential for roosting below roof tiles.

3.14 From the quantity and distribution of droppings, it appears the mill is used by a number of pipistrelle bats for roosting. The location identified above the window on the western wall in section 5d may be a maternity roost (where female bats gather together in the summer months to each give birth to a single young).

Evidence of Other Species

3.15 Limited evidence of birds was found, although a dead male house sparrow *Passer domesticus* was found on a windowsill in section 5g.

4. RECOMMENDATIONS

4.1 In view of the legal protection afforded to bats (see Appendix I), a statutory licence may need to be sought from Natural England (NE) to undertake any works to the mill that could affect bats or their roost sites. In order to issue a licence, NE would require further detailed information about the status of bat roosts and bat use of the mill and a commitment to mitigation measures. In addition, full planning permission will have to have been granted for the development. The appropriate mitigation measures would need to be designed to ensure that, overall, there were no detrimental effects on bats.

4.2 In order to obtain a licence from NE, the following three tests need to be satisfied:

- there is no satisfactory alternative;
- the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range; and
- the action authorised preserved public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment.

4.3 Further survey would be needed to establish the extent and nature of bat use, to confirm the presence and status of any roosts and identify the species of pipistrelle using the mill. The recommendation for further assessment follows the advice on assessment of buildings contained within English Nature's *Bat Mitigation Guidelines* (Mitchell-Jones, 2004) and *Bat Surveys – Good Practice Guidelines* (BCT, 2007).

4.4 The further survey would need to consist of three evening emergence or early morning (dawn swarming) surveys, with surveyors present externally and internally watching for bat emergence from, and activity associated with, the mill. The surveys would need to be undertaken during a time of year when bats are most active and coincide with the maternity roosting season (late May to early August).

4.5 Given the size of the mill building, it should be possible to incorporate compensation and mitigation measures to off-set impacts to roosting bats into the proposed development. Any mitigation and compensation would require the input of a bat ecologist at the design and implementation stage. Mitigation options would need to be planned and discussed with the client(s) in regard to the design of the buildings and the timing of works well in advance.

4.6 The following provides a summary of recommendations for mitigation/ compensation measures. Detailed designs for mitigation and compensation would be drawn up and agreed with NE as part of the licensing process.

- Any works affecting the roosts may need to avoid sensitive times of the year such as the maternity and hibernation roosting periods.

- Crevices and gaps in the brickwork would need to be retained or created. If the current roost points could not be retained *in situ,* replacement roosts and access points suitable for use by pipistrelles

would need to be re-created elsewhere in the new development. These would need to be as close to existing roost sites as possible and have similar conditions (such as height, aspect etc) to the roosts being lost.

- Should any stripping of roofing tiles and dismantling of other critical roosting areas (such as gaps in brickwork and within lintels) be necessary then this would need to be undertaken by hand. Tiles would need to be lifted vertically and the back of the tile and exposed area of roof examined for bats/signs of presence.

5. REFERENCES

Bat Conservation Trust (2007). *Bat Surveys – Good Practice Guidelines.* Bat Conservation Trust, London.

JNCC. (2004). *The Bat Workers' Manual* (3rd edition). NCC, Peterborough.

Mitchell-Jones, A. J. (2004). *The Bat Mitigation Guidelines*. English Nature, Peterborough.