Kettering Buccleuch Academy

Bat Survey & Mitigation Plan

November 2010
Willmott Dixon Construction Ltd
Kettering Buccleuch Academy

Bat Survey & Mitigation Plan

November 2010

Willmott Dixon Construction Ltd
## Issue and revision record

<table>
<thead>
<tr>
<th>Revision</th>
<th>Date</th>
<th>Originator</th>
<th>Checker</th>
<th>Approver</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Oct 2010</td>
<td>Simon Allen</td>
<td>Sarah-Jayne Collins</td>
<td>Mark Johnston</td>
<td>First Issue for comment</td>
</tr>
<tr>
<td>B</td>
<td>29 Nov 2010</td>
<td>Simon Allen</td>
<td>Sarah-Jayne Collins</td>
<td>Mihai Coroi</td>
<td>Second Issue</td>
</tr>
</tbody>
</table>

This document is issued for the party which commissioned it and for specific purposes connected with the above-captioned project only. It should not be relied upon by any other party or used for any other purpose.

We accept no responsibility for the consequences of this document being relied upon by any other party, or being used for any other purpose, or containing any error or omission which is due to an error or omission in data supplied to us by other parties.

This document contains confidential information and proprietary intellectual property. It should not be shown to other parties without consent from us and from the party which commissioned it.
# Content

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Executive Summary</td>
<td>i</td>
</tr>
<tr>
<td>1.</td>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>1.1</td>
<td>Background</td>
<td>1</td>
</tr>
<tr>
<td>1.2</td>
<td>Legislative Framework</td>
<td>1</td>
</tr>
<tr>
<td>1.3</td>
<td>Consultation</td>
<td>1</td>
</tr>
<tr>
<td>1.4</td>
<td>Scope of this Report</td>
<td>1</td>
</tr>
<tr>
<td>2.</td>
<td>Methodology</td>
<td>2</td>
</tr>
<tr>
<td>2.1</td>
<td>Approach</td>
<td>2</td>
</tr>
<tr>
<td>2.2</td>
<td>Previous Surveys</td>
<td>2</td>
</tr>
<tr>
<td>2.3</td>
<td>Building Inspections</td>
<td>2</td>
</tr>
<tr>
<td>2.4</td>
<td>Initial Tree Assessment</td>
<td>2</td>
</tr>
<tr>
<td>2.5</td>
<td>Dusk (Emergence) and Dawn (Re-entry) Surveys</td>
<td>2</td>
</tr>
<tr>
<td>3.</td>
<td>Results</td>
<td>4</td>
</tr>
<tr>
<td>3.1</td>
<td>Desk Study</td>
<td>4</td>
</tr>
<tr>
<td>3.2</td>
<td>Previous Surveys – May to August 2010</td>
<td>4</td>
</tr>
<tr>
<td>3.3</td>
<td>Survey 1: Building Inspections and Tree Assessments</td>
<td>4</td>
</tr>
<tr>
<td>3.4</td>
<td>Survey 2: Dusk and Dawn Survey</td>
<td>5</td>
</tr>
<tr>
<td>3.5</td>
<td>Survey 3: Dusk and Dawn Survey</td>
<td>5</td>
</tr>
<tr>
<td>3.6</td>
<td>Survey 4: Dusk and Dawn Survey</td>
<td>6</td>
</tr>
<tr>
<td>4.</td>
<td>Impacts and Mitigations</td>
<td>7</td>
</tr>
<tr>
<td>4.1</td>
<td>Potential Impacts</td>
<td>7</td>
</tr>
<tr>
<td>4.2</td>
<td>Avoidance Measures</td>
<td>7</td>
</tr>
<tr>
<td>4.3</td>
<td>Mitigation Measures</td>
<td>7</td>
</tr>
<tr>
<td>4.4</td>
<td>Enhancement Measures</td>
<td>8</td>
</tr>
<tr>
<td>4.5</td>
<td>Information for BREEAM Assessment</td>
<td>8</td>
</tr>
<tr>
<td>5.</td>
<td>Conclusions</td>
<td>9</td>
</tr>
<tr>
<td>6.</td>
<td>References</td>
<td>10</td>
</tr>
</tbody>
</table>
Executive Summary

Mott MacDonald has been commissioned by Willmott Dixon to carry out a series of bat surveys at Kettering Buccleuch Academy, to support the planning application to construct a new school complex, and subsequently demolish the existing facilities.

Internal and external building inspections established that the potential for bats to roost in the fabric of the building were minimal; those areas with the best suitability were targeted in three sets of dusk (emergence) and dawn (re-entry) surveys.

No bats were seen emerging from, or entering into, any of the school buildings during the surveys. Low-level activity of common pipistrelle was identified, with most activity concentrated around the strip of deciduous tree planting that separates the sites of the existing and proposed schools. The bats here were foraging readily, and social calling, especially during the final survey, towards the end of the season. The occasional noctule was heard faintly during the surveys, presumably flying high over the site.

The impacts of the proposed development on local bat populations are likely to be negligible. The recommended mitigation measures, including the erection of bat boxes around the site, and the establishment of new habitat corridors around the site boundaries, connecting into existing habitats, should offset any potential negative effects.
1. Introduction

1.1 Background

Mott MacDonald has been commissioned by Willmott Dixon Construction Ltd. to undertake a suite of bat surveys for the proposed development at the Buccleuch Academy, Kettering (KBA). The need for bat surveys was highlighted during a previously completed Extended Phase One Habitat Survey (Mott MacDonald, 2009).

The scheme, under the Building Schools for the Future initiative, involves the construction of a new school complex on the playing fields adjacent to the existing school plot, the subsequent demolition of many of the existing school buildings, and the conversion of this area to playing fields and sports pitches.

1.2 Legislative Framework

In England, Scotland and Wales, all bats are strictly protected by Schedule 5 of the Wildlife and Countryside Act 1981 (and as amended); in England and Wales this legislation has been amended and strengthened by the Countryside and Rights of Way (CRoW) Act 2000.

Bats are also protected by European legislation; the EC Habitats Directive is transposed into UK law by The Conservation of Habitats and Species Regulations 2010. The collective legislation therefore makes it an offence to:

- Deliberately capture (or take), injure or kill a bat;
- Intentionally or recklessly disturb a group of bats where the disturbance is likely to significantly affect the ability of the animals to survive, breed, or nurture their young or likely to significantly affect the local distribution or abundance of the species whether in a roost or not;
- Damage or destroy the breeding or resting place of a bat;
- Possess a bat (alive or dead) or any part of a bat;
- Intentionally or recklessly obstruct access to a bat roost; and
- Sell (or offer for sale) or exchange bats (alive or dead) or parts of bats.

A roost is defined as 'any structure or place that is used for shelter or protection'. It retains legislative protection whether or not bats are present at the time of survey as bats regularly move roost site throughout the year. The disturbance of bats is a criminal offence and in order for certain activities to proceed in a lawful manner, derogation from the legislation is possible under a European Protected Species (EPS) licence.

1.3 Consultation

Natural England will be consulted as part of the discharge of reserved matters for Outline Planning Permission ref. 10/00003/CCD.

1.4 Scope of this Report

The scope of this report is to provide information on bat presence and activity across the site and to assess potential impacts of the redevelopment of the site on any bat species/roosts present. In addition, a bat mitigation plan is also included to ensure that the proposed works will not result in negative effects to bats that may be currently using the site. The proposals are also assessed for their compliance with BREEAM requirements.

275367/WEM/EVT/01/A 22 November 2010
2. Methodology

2.1 Approach

A desk study was carried out prior to the field surveys taking place. This exercise included a review of the species records within 1km of the site, by searching available publications, reports and online databases from Nature on the Map and National Biodiversity Network Gateway.

A range of survey techniques were used to assess bat activity levels across the site; these included an initial activity survey, external and internal building inspections, and three sets of dusk (emergence) and dawn (re-entry) surveys. These were carried out by Mott MacDonald between May and September 2010 in accordance with Bat Conservation Trust guidance.

Equipment used to detect bats during the surveys varied slightly with individual visits. Batbox duet detectors were used on each visit, while a Petterson time expansion detector was used on two of the emergence/dawn surveys (by the licensed bat worker). All recordings were analysed using Batscan.

All times presented in this report are British Summer Time (BST).

2.2 Previous Surveys

A series of activity surveys was carried out between May and July 2010, as detailed in the previous report entitled Northamptonshire BSF Bat Survey Report, Ref. no. 275367/BA/01/01/A 21 May 2010.

2.3 Building Inspections

External and internal building surveys were carried out in accordance with Bat Conservation Trust (BCT) Good Practice Guidelines (2007). All external parts of the building were searched for holes, cracks, niches and gaps suitable for bats, paying close attention to features such as soffits, roof tiles and window sills. Signs of previous occupation were sought, including the smell of bats, the absence of cobwebs, and the presence of droppings, fur and urine staining, scratch marks or surfaces worn smooth by the presence or passage of bats.

A subsequent internal inspection was undertaken, in order to assess the availability of potential roost sites within the roof voids, within suspended ceilings etc.

2.4 Initial Tree Assessment

All individual trees within the ‘L’ shaped strip of deciduous tree planting between the existing school campus and playing fields were assessed for their suitability for roosts. Features such as cracks, crevices, woodpecker holes and splits were sought, as all of these offer potential roost sites for bats.

2.5 Dusk (Emergence) and Dawn (Re-entry) Surveys

All surveys were carried out in accordance with the BCT Good Practice Guidelines (2007).

Following on from the above building inspections, three sets of dusk and dawn surveys were carried out. Due to the size of the buildings and nature of the site, a combined emergence and transect survey methodology was adopted. Each dusk survey consisted of an initial emergence period commencing 15
minutes before sunset and continuing for between 40 to 60 minutes after sunset. The transect survey followed on immediately after the emergence period, continuing for approximately 1.5 hours and including a number of 5 minute stopping points at locations of interest.

On each visit the surveyors selected a different part of the school buildings with potential features, on which to concentrate during the emergence period. Each transect period then encompassed the remaining buildings and surrounding areas, including the strip of deciduous tree planting to the edge of the playing fields, a large proportion of which is due for removal.

Each dawn survey consisted of a re-entry survey only (no transect), where single features of interest were selected for monitoring on each visit.
3. Results

3.1 Desk Study

No records of bats were found in the vicinity of the school.

3.2 Previous Surveys – May to August 2010

The previous surveys that were carried out by Mott MacDonald between May and July 2010 (see Northamptonshire BSF Bat Survey Report, Ref. no. 275367/BA/01/01/A 21 May 2010) concluded that no roosts were present within the school complex. During the surveys common pipistrelles were heard occasionally around the edge of the school grounds. Overall bat activity was limited.

3.3 Survey 1: Building Inspections and Tree Assessments

The building and tree inspections took place on 13 September 2010.

The school is comprised of one main building, with several adjacent smaller buildings; the majority of the main block is a one-storey construction, however the central portion is a two-storey block, the upper floor of which is clad with concrete tiles, many of which were damaged or missing. The roofs of this main building are all flat. All surrounding buildings are single-storey, with pitched roofs.

Several potential features providing opportunities for roosts were identified within the fabric of the building. These were mostly associated with the soffits/barge boards to the edges of the flat roof, especially where these had become damaged or were not well fitted, beneath lead flashing around windows, and in expansion joints in the walls where the filler was beginning to fail. No evidence was found around any of these features.

There were several external rooms/cupboards around the perimeter of the main block with white louvred doors that could allow access for bats; however no signs of use were identified on any of these.

The internal inspection highlighted that the majority of the roof voids are between suspended ceilings and the metal flat roof above, offering a space approximately 50 cm high across the area of the ceilings. There are regular beams, joists etc associated with the structure of the building. However, gaps in the ceiling/missing tiles were noted in the majority of classrooms, allowing access into the main body of the school. It is likely that if a roost were present in the ceiling void bats would have been recorded in rooms below. There is no anecdotal evidence of bats being found within the school buildings.

The bulk of the trees within the strip of planting adjacent to the playing fields are still fairly young, having been planted as screening when the playing fields were first created. Their relatively young age means that they are still in good health, with very few features in which bats might roost.

One tree was identified with splits in, having fallen over and snapped/split in several places along the trunk. As it was easily accessed at ground level, an inspection was carried out, looking for signs of roosting bats, including droppings, urine staining, evidence of fur rubbing when accessing the roost etc. No evidence of use by bats was found.
3.4 Survey 2: Dusk and Dawn Survey

The first set of dusk and dawn surveys took place overnight between 13 and 14 September 2010. The dusk survey began at 19:10, fifteen minutes before sunset at 19:25, with two surveyors concentrating on the two-storey sports hall, between the main school block and the adjacent community sports facility. The temperature at the start of the survey was 16.1 °C, wind scored four on a scale of one to eight, and cloud cover scored eight (also on a scale of one to eight). The survey was rain-free.

No bats were seen emerging from the sports hall during the survey.

A low level of activity was picked up in this area during the emergence phase of the survey, mostly of commuting common pipistrelle (*Pipistrellus pipistrellus*), with one noctule (*Nyctalus noctula*) also identified. The subsequent transect around the school campus picked up occasional foraging and social calling by common pipistrelles, with a clear concentration of activity along the strip of deciduous tree planting between the school campus and the playing fields.

The dusk survey finished at 21.25, at which time the temperature was 14.4 °C.

The dawn survey began at 04:45, one hour and 35 minutes before sunrise at 06:25. The temperature at the start was 16.5 °C, wind scored four, and cloud eight, both on a scale of one to eight. No rain fell during the survey.

No bats were seen or heard re-entering the sports block during the survey, which finished at 06:35, 10 minutes after sunrise, at which time the temperature was 16.7 °C.

3.5 Survey 3: Dusk and Dawn Survey

The second set of dusk and dawn surveys took place overnight between 23 and 24 September 2010. The dusk survey began at 18:52, ten minutes before sunset at 19:02. The temperature at the start of the survey was 16 °C, wind scored two on a scale of one to eight, and cloud cover scored one (also on a scale of one to eight). Light drizzle fell for a short time during the emergence period.

The survey concentrated on the eastern end of the two-storey block, including a metal fire escape from the first floor, around which there were many slipped or broken tiles, holes, apertures etc that bats could roost in. No bats were seen emerging from the building during the survey.

A moderate amount of bat activity was picked up both during the emergence phase and the subsequent transect around the campus, particularly along the strip of deciduous tree planting. Common pipistrelles were identified commuting, and occasionally foraging and social calling here; no other species were identified during the survey.

The survey finished at 21.08.

The dawn survey began at 05:15, one hour and 35 minutes before sunrise at 06:50. The temperature at the start was 12 °C, wind scored one, and cloud one, both on a scale of one to eight. No rain fell during the survey.

No bats were seen or heard at any time during the survey, which finished at 07:00, 10 minutes after sunrise, at which time the temperature was still 12 °C.
3.6 Survey 4: Dusk and Dawn Survey

The third dusk survey took place on 7 October 2010. It began at 19:00, eleven minutes before sunset at 19:11. The temperature at the start of the survey was 15 °C, the wind scored one and the cloud cover scored eight, both on a scale of one to eight. No rain fell during the survey.

The survey concentrated on the western end of the two-storey building, providing full coverage of the building over the series of surveys undertaken.

No bats were seen emerging from the building.

The survey picked up both common pipistrelles and noctules, although the first call of the survey was not heard until at least forty minutes after sunset, suggesting that no roosts were located in the immediate vicinity. Most bat activity was concentrated around the strip of deciduous tree planting between the existing school campus and playing fields, particularly along the track between the strip and the hedge/fence line. Foraging and frequent social calling was identified in this location.

No dawn survey was attempted as the early morning temperatures at this time were below the recommended minimum of 10°C.
4. Impacts and Mitigations

4.1 Potential Impacts

Due to the physical nature of the site at KBA, consisting primarily of buildings, hard standing with amenity grassland and occasional rows of planted trees, the land within the construction zone can be regarded as 'land of low ecological value' under BREEAM credit LE3: Ecological Value of Site and Protection of Ecological Features. The habitat features immediately surrounding the buildings provide limited commuting and foraging opportunities for bats.

The surveys undertaken to inform this report indicate that the school buildings do not currently provide significant roosting opportunities for bats. However, there are features suitable for use by individual or low numbers of bats as night perches and/or feeding roosts, but these are likely to be transient at most, as the general level of activity around the campus was limited. It is therefore felt that any impacts caused by the demolition of the buildings are likely to be negligible.

The elevated bat activity (in relative terms) along the strip of deciduous tree planting between the existing school campus and the playing field means that the loss of most of this feature, may have a minor impact on bats utilising this linear feature for commuting and/or foraging. However, the proposed landscaping scheme described in Section 4.4 below should open up alternative areas for commuting and foraging, meaning that the overall impact on bats locally should be negligible.

4.2 Avoidance Measures

The demolition of the existing buildings should be carried out at an appropriate time of year to minimise disturbance to bats, when the potential for bats using the buildings for roosting is at its lowest (September/October and late March to early May).

4.3 Mitigation Measures

The following mitigation measures should be adopted to ensure that impacts on bats are minimised as far as possible, in line with BREEAM credit LE4: Mitigating Ecological Impact.

Pre-development

- It is recommended that ten bat boxes (of a variety of designs) should be erected in suitable positions on site prior to any demolition work. Any bats found on site during the works can then immediately be moved to the bat boxes by the licensed ecologist.
- Provision should be made for replacement commuting/foraging routes, to retain the connectivity of the severed parts of the wooded belt. See Section 4.4 below.

During development

- All construction staff should be made aware of the potential for bats to be using trees and/or buildings on site, by carrying out a toolbox talk before work commences.

Post-development

- Monitoring of the bat boxes should be carried out once a year for at least 5 years post-development to assess the success of the mitigation. Maintenance of the boxes may also be required during the annual checks. All bat box checks must be carried out by a licensed bat worker.
4.4 Enhancement Measures

In accordance with PPS9 Biodiversity and Planning guidance and BREEAM criteria LE5: Enhancing Site Ecology, the proposed landscaping/habitat creation scheme should act to improve the overall ecological value of the site.

Wooded habitat is proposed for the northern, eastern and southern edges of the proposed school site, connecting the remaining fragments of the strip of deciduous tree planting to both the existing crescent-shaped wooded areas and proposed wetland/pond habitat to the east of the proposed scheme. This increase in habitat connectivity will ensure that existing and new foraging and commuting habitats are still available to bats, particularly as the planting matures and becomes well established.

The existing hedgerows outside the site northern boundary of the existing school campus, which dogleg past the existing allotments, could also be improved with further habitat creation to further enhance the connectivity of habitats within the site to those in the wider landscape. Any additional habitat creation within the sites, to further enhance the overall ecological value of the site, and provide increased habitat areas and connectivity, would be to the benefit of the local bat population.

New habitats should use appropriate native species of trees and shrubs to ensure that shelter and suitable food sources are provided for bats locally. Trees and shrubs of a suitable size should be used, to ensure that the newly planted areas are viable as habitats and commuting routes as early as possible. The planting should be at sufficient density/frequency to allow commuting to occur unimpeded.

A sensitive (bat friendly) lighting design for the site should be employed, which ensures that newly created habitat is suitably dark, with as little light spill as possible. Particular care should be paid to the specification of the floodlighting of the new all weather pitch, which will be constructed where the main school buildings are currently located, after their demolition. Although bat activity is very low in this part of the site, best practice should be adhered to, and floodlights of a type that minimise light spill as far as possible should be installed.

4.5 Information for BREEAM Assessment

When considering local bat populations, it can be concluded that the existing school complex is of ‘low value’ under BREEAM LE3 criteria. As such it is considered that the proposed development will have a negligible adverse impact on local bat populations.

Proposed mitigation and enhancement measures for the site will improve the ecological value of the site, in compliance with BREEAM credits LE4 and LE5. Although the proposed enhancements will improve the sites ecological value it is deemed unlikely to result in significant changes on local bat populations in the long-term, as the habitat network in the wider area will remain largely unchanged, in compliance with BREEAM criteria LE6: Long Term Impacts on Biodiversity.
5. Conclusions

The results of the suite of surveys (dusk and dawn surveys, external and internal building inspections, and analysis of previous reports) show that two species of bats (common pipistrelle and noctule) are using the site. However, no bats were identified emerging from, or entering, the school buildings during any of the dusk and dawn surveys.

Intermittent activity during transects around the school campus, including foraging and social calling, was recorded, with most frequent activity along the ‘L’ shaped strip of deciduous tree planting between the existing school campus and the adjacent playing fields.

The proposed landscaping scheme should effectively mitigate for the loss of this habitat, opening up alternative commuting routes and foraging areas. Further mitigation measures should include the installation of bat boxes around the school campus at suitable locations, and the careful programming of the demolition of the school buildings to avoid potential impacts on roosting bats.
6. References


Extended Phase One Habitat Survey, Mott MacDonald, 2009.

UK Biodiversity Action Plan www.ukbap.org.uk