



**Cambrian Ecology Ltd  
Anwyllfan  
Croesor  
Penrhyndeudraeth  
Gwynedd  
LL48 6SS**

[sam@cambrianecology.com](mailto:sam@cambrianecology.com)

**07929 781466 (Sam Dyer)**

## **Ysgol Dolgarrog, Dolgarrog**

### **Addendum to Preliminary Protected Species Survey**

**20<sup>th</sup> April 2017**

**Report by:** Sam Dyer, Cambrian Ecology Ltd

**Client:** David Wilkinson. Technical Manager, K&C Group. Pure Residential and Commercial Limited, New Vision House, New Vision Business Park, Glascoed Road, St Asaph, Denbighshire. LL17 OLP.

**Planning Authority:** Conwy County Borough Council

**Grid Reference:** SH 76960 67992

#### **Contents:**

- 1 Introduction**
- 2 Timetable of Works**
- 3 Outline Mitigation Strategy**
- 4 Impact Assessment**
- 5 Report Review**

## 1 Introduction

Cambrian Ecology Ltd was commissioned by Mr David Wilkinson, Technical Manager, K&C Group to produce an addendum to the preliminary protected species report. This separate document will provide a likely time line for the project, outline the approach to be taken regarding mitigation for the loss of the previously identified brown long-eared bat roost within Ysgol Dolgarrog, and demonstrate that the Favourable Conservation Status Test will be satisfied.

This document is based entirely on the conclusions made from the results of a preliminary bat survey only. Conclusions are that the main school building supports a significantly sized maternity roost of brown long-eared bats, occasional low numbers of male or non-breeding female crevice dwelling bats and that the entire school must be demolished. Two emergence surveys are scheduled to be undertaken on the 25<sup>th</sup> May and 27<sup>th</sup> June 2017. These are essential to confirm the conclusions of the preliminary survey and will provide further information to support a derogation licence application.

## 2 Timetable of Works

	<b>Description of Works</b>	<b>Timing</b>
1	Preliminary bat survey undertaken	21 <sup>st</sup> February 2017
2	Additional internal roof void inspections undertaken	10 <sup>th</sup> April 2017
3	Planning application to be submitted	24 <sup>th</sup> April 2017
4	Emergence surveys to be completed	25 <sup>th</sup> May and 27 <sup>th</sup> June 2017
5	Full bat survey report submitted	30 <sup>th</sup> June 2017
6	Full planning permission granted	June / July 2017
7	Discharge of any pre-commencement conditions	July 2017
8	Submission of NRW Derogation Licence Application	July 2017
9	Construction of new bat house	July / August 2017
10	Issue of NRW Derogation Licence	August / September 2017
11	Licensed bat worker to collect bat droppings from the roof voids to 'seed' the new bat house with.	August / September 2017
12	Ecologists audit of bat house to confirm compliance and suitability for purpose, addressing of any snags identified	August / September 2017
13	Erection of two Schwegler 1FF and two 2FN bat boxes as receptor sites and interim mitigation for bats	August / September 2017
14	Internal checks of the roof voids to be completed by licensed bat worker. Providing the majority of the maternity roost has broken up and are not remaining within the building, works may continue accordingly. The licensed bat worker will catch and relocate any bats located within the school to the new bat house.	15 <sup>th</sup> September - 30 <sup>th</sup> October 2017
15	All site personnel to be given an ecological induction on the risk and implications of bat presence.	15 <sup>th</sup> September - 30 <sup>th</sup> October 2017
16	Hand stripping of all slate roofs and hand	October 2017

	dismantling of all possible bat roost features to remove all bat roosting potential from the building under the direct supervision of a licensed bat worker.	
17	Remaining building to be demolished	15 <sup>th</sup> September - 30 <sup>th</sup> October 2017
18	Interim license reporting	30 <sup>th</sup> October 2017
19	Construction of new school, to include bat mitigation within the roof void above the new kitchen area.	2017/2018
20	Habitat works including hedgerow planting to ensure dark corridors and connectivity between the bat house, new school roost void and the adjacent connecting habitat.	2017/2018
	Audit of the bat roost provision within the new school building and planting works	
	Final license return	
21	Monitoring	July / August 2018, 2019
22	Review of all mitigation should mitigation have not been successful. Implementation of recommendations.	July / August 2019
23	Monitoring	July / August 2020, 2021, 2022

### 3 Outline Mitigation Strategy

This outline mitigation strategy is based on the assumed presence of a brown long-eared maternity roost and occasional low numbers of male or non-breeding female crevice dwelling bats. Should the results of the planned emergence surveys in May and June 2017 reveal the presence of any other species or significant roosts, there may be a need to amend this strategy.

The mitigation will centre around the provision of a stand alone, purpose built bat house, the erection of four bat boxes to give temporary bat refuges, and the provision of a bat roost void in the newly constructed school.

#### 3.1 Reasonable avoidance measures

- a) Prior to any work being undertaken on the building a licensed bat ecologist will search the interior of the buildings to locate and assess the numbers of bats within the roof void. Providing the majority of the maternity roost has already broken up then any remaining bats located will be captured and placed within the newly constructed bat roost.
- b) Bat droppings will be collected by the ecologist to 'seed' the new roosts with.
- c) The hand removal of all roof slates and potential roosting locations will be directly supervised by the site ecologist (or accredited agents), who must hold a current license to handle bats.
- d) All contractors will be made aware of the potential presence of bats and the legal issues involved during a site induction carried out by the site ecologist prior to the commencement of works.
- e) Demolition will only start once the provided mitigation has been satisfactorily audited by the licensed bat ecologist confirming compliance and suitability of the roost. Any adjustments required must be completed before demolition commences.

- f) Demolition works will commence after 15<sup>th</sup> September, providing the maternity roost has already broken up, and before 30<sup>th</sup> October to ensure the works are not initiated when bats may be hibernating within the building.

### 3.2 Works to be undertaken by the developer/contractor

#### *Roost creation/retention*

#### 3.2.1 **New Purpose Built Bat House**

*The bat house specification given below is generic and the right to adjust recommendations based on the planned emergence survey results must be reserved to ensure it is fit for purpose. Measurements are approximate.*

The bat house roof space floor will internally measure 4m wide by 6m long. The height of the roof void will be 2.8m to the apex from the roost void floor. The ground floor may be designed to allow bats the opportunity to hibernate within the building unless it is to be utilised as an area for human usage. If it is used for a hibernation area, it will be a bare earth floor with roof guttering piped to allow water to spill onto the internal floor raising humidity.

The roof will be a 'four sided', hipped design allowing the solar gain onto flat slates from all angles. It will be clad with slate and walls will be rendered block work.

The internal roof space will be designed to maintain open flight space, and allow roosting niches. A 'hot box' area will be provided by utilising baffles at strategic locations.

The floor of the roof void will be load bearing and boarded to allow assessment of usage and facilitate periodic cleaning if required. The floor between the roost void and the ground floor must be insulated for sound and heat should a human usage option for the ground floor be selected.

A permanent human access hatch will be provided into the roof roosting area, as the success of the mitigation will need to be monitored. This will also allow internal bat movement between the roof void and ground floor if it is to be a hibernation area.

Roofing felt will be traditional bitumen felt, NOT modern breathable roofing membrane.

An electric supply to the building will be required to power a heater should future monitoring determine the building is too cold for maternity usage.

Entrance points will be formed in the slating via fashioned lead flashing replacing a maximum of 2 slates and locations will be directed by the site ecologist during slating. Other bat access points may be included as a result of future surveys.

If the ground floor of the bat house is to be used for a hibernation chamber then a 'cool tunnel' will be constructed, which will be in the form of a 1m wide x 1m high tunnel to loop round the ground floor of the building with a 2m x 2m x 2m 'Avon chamber' at the end. Construction will be breeze block, with block work inside the tunnel left un-pointed to have 1" gaps in between all blocks on the same row i.e. forming many vertical crevices. These crevices can be capped from the outside by the rendering of the external surface of the tunnel. The roof can be made of concrete block beams, again with 1" open gaps between each. The external top of the beams should be covered with hessian then covered with cement/mortar to block the tops of the crevices. The alternative building method for this tunnel is a combination of block and prefabricated concrete square ducting. This option may be selected

to give greater structural integrity. Should it be selected, a combination of gaps as previously described and roost boarding will be applied to create roosting crevices.

The walls of the hibernation chamber will also have rough sawn boarding applied as directed by the ecologist on all four walls to offer roosting opportunities for bats behind the board.

A single entrance point may be installed into the ground floor through the external wall in the form of a 'letter box slot' measuring 30cm wide by 15cm high. The exact location will be agreed on site as the building walls are constructed to ensure the best location possible.

Any timber treatment in areas accessible to bats will need to be carried out using chemicals from the list approved by NRW. Natural England Advice Note TIN092 Ed.2, available for download at: <http://publications.naturalengland.org.uk/publication/31005?category=31008>

Two data loggers will be installed within the bat house, one in the roof and one in the hibernation chamber. The loggers will be EL-USB2 loggers and will be downloaded and analysed annually.

The external walls of the bat barn will have three Schwegler 1FR bat tubes built into the block work on each of the four walls, totalling 12 Schwegler 1FR bat tubes externally. Bat tubes may be rendered over providing the entrances are left open and accessible.

A single external human access door will be installed to allow monitoring of the roost success by licenced bat workers. This door will be designed to be vandal and break-in resistant. A dummy security camera will be installed on the building to discourage antisocial behaviour.

### 3.2.2 **Bat Boxes**

Two Schwegler 1FF and two Schwegler 2FN bat boxes will be erected on surrounding trees prior to any demolition works being undertaken to give alternative roosting locations, particularly for any individual crevice dwelling bats located during the works.

### 3.2.3 **New School Building Bat Roost**

A second long term roost void option will be provided within the roof void of the new school, above the new kitchen area.

The bat roost roof space floor will internally measure a minimum 4m wide by 6m long. The height of the roof void will be 2.8m to the apex from the roost void floor. The roof will be clad with slate. Roofing felt will be traditional bitumen felt, NOT modern breathable roofing membrane in any areas where bats can access the felt.

The internal roof space will be designed to maintain open flight space, and allow roosting niches. A 'hot box' area will be provided by utilising baffles at strategic locations.

The floor of the roof void will be load bearing and boarded to allow assessment of usage and facilitate periodic cleaning if required. The floor between the roost void and the ground floor must be insulated for sound and heat. A securely locked, permanent human access hatch will be provided into the roof roosting area, as the success of the mitigation will need to be monitored.

An electric supply to the roof void will be required to power a heater should future monitoring determine the building is too cold for maternity usage.

Entrance points will be formed in the slating via fashioned lead flashing replacing a maximum of 2 slates and locations will be directed by the site ecologist during slating. Other bat access points may be included as a result of future surveys.

Any timber treatment in areas accessible to bats will need to be carried out using chemicals from the list approved by NRW. Natural England Advice Note TIN092 Ed.2, available for download at: <http://publications.naturalengland.org.uk/publication/31005?category=31008>

A data logger will be installed within the bat roost void. The logger will be an EL-USB2 loggers and will be downloaded and analysed annually.

### 3.3 Lighting

There will be no additional exterior lighting on the buildings which could spill on to the new roosting locations or into the immediate surrounding/connecting habitat.

### 3.4 Flight lines

Habitat enhancement works, including planting of trees and shrubs around the bat house will be required. Connectivity between the bat house, new school roost void and the adjacent connecting habitat must be created by hedgerow planting. This will also ensure dark corridors are created.

### 3.5 Population monitoring, roost usage etc.

Future monitoring of the use of the roosting provision created will be carried out by licensed bat workers, who will be appointed by the licensee. This monitoring will be required by NRW to continue for a minimum of five years from the completion of the project. The monitoring will take the form of internal inspections and emergence surveys during the recognised bat survey period in Year 1 following completion, Year 2, Year 3, Year 4 and Year 5. After the Year 2 monitoring visit, if usage of the bat mitigation has not been recorded then a full review of the mitigation strategy will be completed and resultant recommendations must be implemented.

## 4 Impact Assessment

### 4.1 Status of species

#### Brown Long-eared Bat (*Plecotus auritus*)

Very little information is available on the status of the brown long-eared bat on a local or county level. On a UK level, the BCT's National Bat Monitoring Programme (NBMP) 2015 report states that hibernation survey results show the index has fluctuated since 1997 and is currently -7.3% below the 1999 base year value. This is equivalent to an annual decrease of -0.5% and these figures are considered statistically robust. NBMP 2015 Colony survey results show the index has fluctuated since 2001 and is currently 28.2% above the base year value, equivalent to an annual increase of 1.8% however these figures are considered less statistically robust than the hibernation count data. Overall there is no significant trend from either survey for this species and it is currently considered to be stable. This species is a 'Priority Biodiversity Action Plan Species' which carries certain obligations for local authorities under the NERC Act (2006).

### 4.2 Impact assessment

#### 4.2.1 Short term: Disturbance

In the absence of mitigation the demolition of the building would cause a significant impact on the identified bat roost. This would be likely to have a significant negative impact on 'Favourable Conservation Status' (FCS) and 'Continuous Ecological Functionality' (CEF). Proposed 'Reasonable Avoidance Measures' (RAMs) will reduce the potential impact of disturbance, including the timing of the works.

#### 4.2.2 Long term: Roost loss

In the absence of mitigation all roosting locations will be lost through the demolition. Due to the presence of a significant maternity roost of brown long-eared bats, the demolition of the building would be likely to have a significant negative impact on FCS and CEF.

#### 4.2.3 Long term: Fragmentation/isolation

No wider habitat fragmentation or isolation will occur as a result of the proposed works. Mitigation roosts will require new planting to ensure connectivity between the roosts and the Core Sustainance Zone (CSZ).

#### 4.2.4 Post development interference

The mitigation roost will be in secure, locked structures with no unauthorized access permitted. A low impact is anticipated due to post development interference.

#### 4.2.5 Predicted scale of impact on Favourable Conservation Status

In the absence of mitigation a significant negative impact could be anticipated on the FCS of the brown long-eared bat population on the local level, however no impact would be expected on the regional or national level.

If mitigation is successfully implemented and connectivity with the CSZ is maintained, no impact on the FCS of the brown long-eared bat population on the local, regional or national level is anticipated.

## 5 Report Review

<b>Report Written</b>	Sam Dyer	20 <sup>th</sup> April 2017
<b>Report Review</b>	Kate Williamson	21 <sup>st</sup> April 2017