

**CAMPION HOUSE, HOUNSLOW,
GREATER LONDON**

ECOLOGICAL ASSESSMENT

Final Document

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Invertebrate, Bird, Mammal, Reptile, Amphibian and Botanical Surveys
Management Plans • Habitat Appraisal • Marine • NVC • EcIA

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Map 1 **Location of Features of Ecological Interest**

Appendix 1 **Protected Species and the Law**

1.0 INTRODUCTION

1.1 Background

In December 2005, Ecological Survey and Assessment Limited (ECOSA) was contracted by Try Homes to carry out a Phase I protected species survey of the buildings and grounds of Campion House, Thornbury Road, Isleworth, Hounslow, Greater London, located at National Grid Reference (NGR) TQ: 149 768.

ECOSA surveyed the Campion House site on 14th December 2005. The timing of the survey was such that it was outside of the main survey season for many protected species. However, in many cases a reliable assessment of the potential for the site to support protected species was possible.

Following the acquisition of the site by Linden Homes, ECOSA were contracted to carry out a Phase II protected species surveys during the summer of 2007.

1.2 Site Setting

The Campion House site consists of a variety of buildings ranging from glass houses and garden sheds to a locally listed building. The grounds comprise of ornamental trees, shrubs and former lawns that have been left unmanaged and have developed into semi-improved grassland stands. Two areas of water are present in the form of concrete sided man-made ponds.

It is proposed to demolish the majority of buildings on site and construct replacement residential properties.

This report details the results of the initial December 2005 Phase I protected species survey and the 2007 Phase II surveys.

2.0 METHODS

2.1 Introduction

This section outlines the methodology used during the Phase I protected species surveys carried out on 14th December 2005 and during 2007 at Campion House.

2.2 Bats

The bat surveys involved an assessment of the suitability of buildings on site to support bats, and the identification of trees with bat roost potential.

The Phase I building survey carried out in December 2006 and in May 2007 involved an inspection of all accessible roof voids for evidence of bats (e.g. the presence of the animals, droppings or staining left by the animals fur). This was followed by a thorough examination of the external elevations of the building looking for evidence that bats enter the buildings, and to identify potential bat access points. During the course of the internal roof void surveys a one million-candle power lamp was used. External areas of the building, which could not be accessed directly from the outside, were examined using a pair of 8x close focus binoculars from ground level.

The tree survey involved the identification of trees on the site with the potential to support bat roosts. The assessment was based on the presence of holes, cracks, splits, loose bark and covering of ivy.

The timing of the initial December 2005 building and tree survey was such that bats will have been in hibernation and usually not visible to the surveyor, as a result the assessment relied heavily on the presence of droppings and the suitability of the buildings to provide roosting opportunities.

A total of three Phase II emergence surveys were carried out using two surveyors during the summer of 2007. These were carried out on 14th June, 3rd August and 3rd October. Emergence surveys were carried out on buildings identified as having high bat roost potential. During the emergence surveys the southern wing of building C, the western elevation of building A and the southern elevation of building H were surveyed. During the emergence surveys the surveyors were in position approximately 30 minutes before sunset until approximately 1.5 hours after sunset.

The emergence surveys were followed by bat activity surveys which involved the surveyors walking a random transect across the site to assess the level of bat commuting and foraging activity.

Each surveyor was equipped with a Pettersson D-240x ultrasound detector. These modern time-expansion bat detectors slow down the echolocation made by bats (usually by 10x), recordings of these time-expanded echolocations can then be made using an external recorder. Bat registrations were recorded using Sony mini-disc and Edirol R-09 solid state recorders for later analysis using the latest version of Batsound[®] (v3.31) or Sonobat[®] (v2.5.8). The analysis of these calls, in most cases, enables bats to be identified to species level.

2.3 Great Crested Newt

The initial December 2005 great crested newt (GCN) *Triturus cristatus* survey was carried out at a time of year when it is not possible to survey for the presence of GCN. The survey therefore assessed the potential for any water bodies on site to provide suitable GCN habitat. The assessment was based on the structure and species of vegetation present within the pond, the presence of fish and surrounding vegetation.

On 9th May 2007 a single survey was carried out by two surveyors during the peak GCN breeding season. A single intensive netting and egg search survey of both ponds was carried out during daylight hours. Netting is particularly suited to ponds with dense vegetation or murky water which reduces the effectiveness of torch surveys. Egg searches involve the inspection of submerged vegetation and any other suitable substrate for the presence of GCN eggs.

2.4 Reptiles

The initial Phase I survey highlighted the potential for the site to support reptiles. At the time of the initial Phase I survey reptiles would have been in hibernation and as a result the survey was based on the identification and assessment of suitable habitat.

On 9th May 2007 approximately 100 reptile refugia were distributed throughout the site in areas of unmanaged grassland. Reptile refugia warm faster than the surrounding environment and reptiles, being 'cold' blooded habitually use them to warm their bodies. The refugia are then inspected to record species and number of reptiles. These reptile refugia were subsequently inspected on 13th, 22nd and 29th May, 2nd and 10th and 15th and 24th July 2007.

2.5 Badger

The badger *Meles meles* surveys involved an investigation of the site for evidence of badger residence, trails, latrines and footprints. The initial Phase I survey was carried out near to the peak of the survey season when evidence of badger is readily visible due to the reduced growth of vegetation during the winter months. During subsequent visits to the site the surveyors remained aware of the potential for badger to occur on the site and remained vigilant to the presence of badger field signs.

2.6 Vegetation

The Phase I vegetation survey involved a walkover of the site, on both survey occasions, with records made of the communities present. No quadrat data was collected and no complete species list was compiled.

2.7 Birds

During the initial December 2005 and subsequent 2007 surveys attention was paid to birds present on the site, in particular those that may be resident, likely to breed or breeding. Zeiss West 10 x 32 FL binoculars were used to identify bird species present. No detailed breeding bird surveys have been carried out.

2.8 Limitations

The limitations in respect to the bat survey are as follows:

- Access was not possible to a number of the roof voids and the lack of an asbestos report prevented access to all building areas.
- The summer bat emergence surveys have not been comprehensive to date and only a sample of the highest value bat buildings have been surveyed.
- The height and design of many of the buildings prevented a detailed examination of all potential bat roost features.
- The weather conditions experienced during the summer of 2007 were particularly wet and windy and as a result the bat surveys were carried out in conditions that would normally be considered suboptimal e.g. showers with moderate to strong wind.

The GCN survey was limited to only one survey carried out on 9th May 2007. Natural England survey guidelines recommend a minimum of four surveys to confirm presence/absence. However, the survey was carried out during the peak in the survey season and it is considered that should GCN have been present they would have been located. Additionally, the small size of these ponds would have increased the likelihood of locating the species.

3.0 RESULTS

3.1 Introduction

The grounds largely comprise of improved grassland, which has been un-managed for approximately three and a half years, with ornament tree and shrub species consistent with a private garden. A number of the mature trees on site provide landscape value.

3.2 Bats

For the purpose of presenting the results of the bat survey, the 12 surveyed buildings are referenced A - L, the location of the buildings is shown in Map 1. Each building is described below and assessed for its suitability to support bats.

3.2.1 *Building A*

Building A was built during the 1800's and although it will not be demolished as part of the proposed development it was assessed for the presence of bats. The main three storey building has a hipped roof with two dormer type windows facing west and east. To the north, the building is two storeys with a flat roof and a circular wooden slatted bell tower with a conical slate roof. Attached to the north of this is a single storey flat roofed building (Figures 1-4).

Internally the main three storey building has a roof void that is of king post construction with a felt lining beneath the tiles. During the surveys no evidence of bat activity was recorded within the roof void of the building. The roof void of the bell tower was also investigated, and again no evidence of the presence of bats was recorded. Externally the building appeared to be in a good state of repair, providing few opportunities for bat access. However, it was difficult to assess the roof due to the height of the building.



Figure 1 Western Elevation of Building A



Figure 2 Eastern Elevation of Building A



Figure 3 Bell Tower on Building A



Figure 4 Roof Void in Building A

3.2.2 Building B

This is a large 'L' shaped, brick built building with a pitched roof of gable end design and a single storey flat roofed building that projects in a westerly direction (Figure 5). There is no accessible roof void in this building; however the interior of the roof is semi-circular suggesting that there is a small space between the ceiling and roof. An external examination of the building failed to find any evidence of bats or any potential bat access points. The brickwork and roof tiles appear to be in a good state of repair. However, the height of the building made it difficult to assess fully. It is considered unlikely that this building supports a population of bats.



Figure 5 Building B

3.2.3 Building C

This extensive 'L' shaped building consists of a brick built pitched roof design (Figure 6). On the eastern elevation of the building there is a flat roofed section facing in a northerly direction. The northern elevation of the building has a second flat roofed section facing in a westerly direction. The roof void is 'L' shaped and largely free of cobweb infestation, an infestation of cobwebs would normally discourage bats from using a void. The underside of the roof is lined with loft insulation that would prevent droppings from any bats roosting within the roofing materials from falling to the floor where they would be visible to the surveyor. A thorough investigation of the roof void failed to record any evidence of bats. However, a dead common swift *Apus apus* was recorded within a water tank during the May

2007 survey. This indicates that this species is probably breeding within the building, and that suitable gaps are present for bats to enter the roof void.

Externally, the roof and ridge tiles are in a good state of repair and offer no obvious bat access potential. However, the soffit boxes along the northern and southern elevations of the building had many gaps providing ample opportunities for bat access. Two bat droppings were recorded beneath a gap where the soffit box meets the main wall on the southern elevation (see Map 1). These droppings were considered to be from a pipistrelle¹ *Pipistrellus* sp. bat species. The location of these droppings would indicate the possible presence of a pipistrelle roost in the soffit box.

On the southern elevation an air brick has been pushed into the wall cavity which could provide an access point for bats. However, it appears that bird nesting material is currently present, thereby preventing bat access. On the western elevation of the building a hole is present in the wall where overflow pipes emerge (see Figures 7 and 8). This would allow bat access into the wall cavity. Both of the flat roofed sections appear to be in a good state of repair offering no bat access.

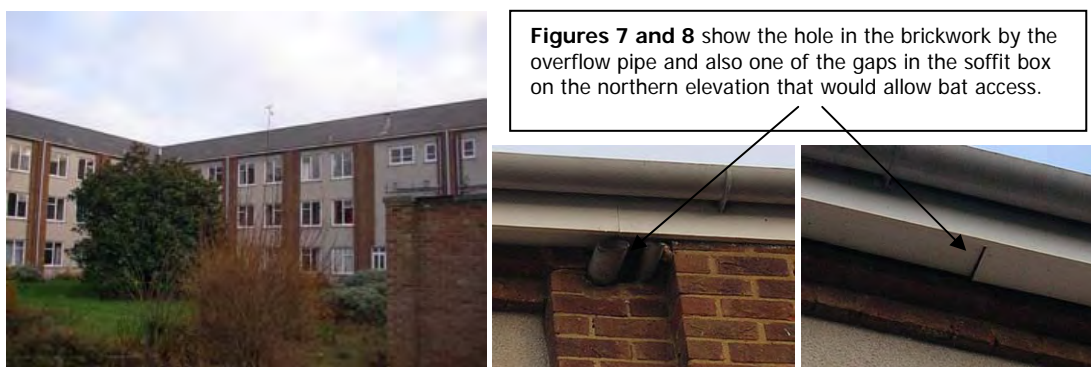


Figure 6 Building C

3.2.4 Building D

This is a long brick built building with a pitched, gable ended roof. Soffit boxes run along the length of the northern and southern elevation of the building (Figures 9 and 10). Internally there is no roof void as the room extends into the roof space and the underside of the roof is clad with wood. Where the soffit box meets the main building wall on the northern elevation a large gap has formed offering ample access for bats. At the south-eastern corner of the building the end of the soffit box is open offering potential access to bats.

¹ There are two species of pipistrelle bat, the common pipistrelle *Pipistrellus pipistrellus* and the soprano pipistrelle *Pipistrellus pygmaeus*. Both species are relatively common but can only be separated by their echolocations and by examination of physical characteristics and unless confirmation of identification has been made by visual identification the two species shall be referred to in this report as pipistrelle bat. Both species will roost in similar locations within buildings. The soprano pipistrelle has a tendency to form larger roosts numbering 100's of bats and is associated with wetland habitat.



Figure 9 Building D



Figure 10 Gap in Soffit at South-Eastern Corner

3.2.5 Building E

This building is a brick built design with a pitched felt roof. The western elevation of the building consists of windows surrounded by wood cladding, interspersed with brick supporting posts. The eastern elevation is brick and heavily shaded by shrubs. The gable ends located to the north and south are mainly brick built (Figure 11). This building is in a good state of repair with no potential bat access points. There was no accessible roof void in the building.



Figure 11 Building E

3.2.6 Building F

Building F comprises a lean-to with a corrugated asbestos roof. The building is heavily shaded on its western elevation by shrubs. The building was generally in a good state of repair with no potential bat access points.

3.2.7 Building G

This building is brick built with a tiled pitched roof with gable parapets on the eastern and western elevations (Figures 12 and 13). The tiles and brickwork are in a good state of repair

with no obvious bat access points. The windows are sealed with no bat access points. On the south-eastern corner of the building there is a hole in the soffit box, no evidence of bat use was recorded, however this hole could potentially provide suitable bat access.

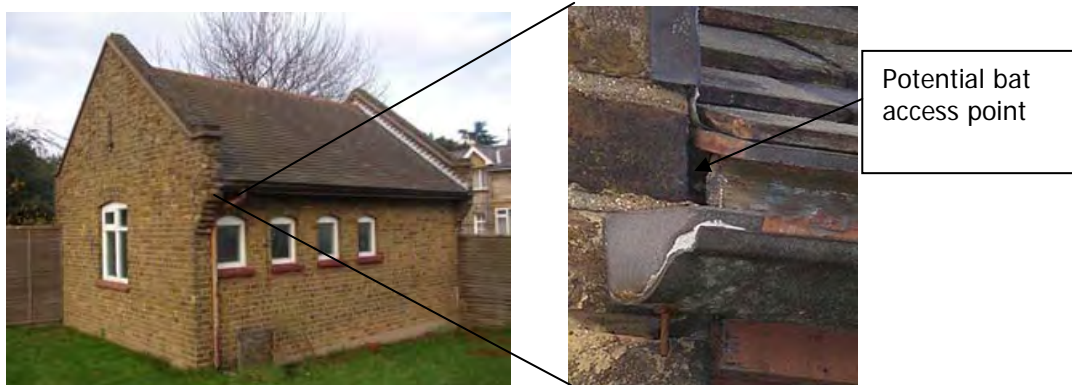


Figure 12 Building G

Figure 13 Close Up of Potential bat Access Point

3.2.8 Building H

This is an 'L' shaped building consisting of a pitched roof design with gable ends to the northern, southern and western elevations (Figures 14, 15 and 16). The roof is clad with slates with a combination of pitched and flat roofed dormer windows. On the southern elevation there is a parapet at the gable end. Soffit boxes run along the length of the building on both elevations. Access to the roof void was not possible; however potential bat access points are plentiful with large gaps between the soffit boxes and the main wall of the building. A ceramic emblem on the southern elevation was broken, offering the potential for bat access behind the plaque.

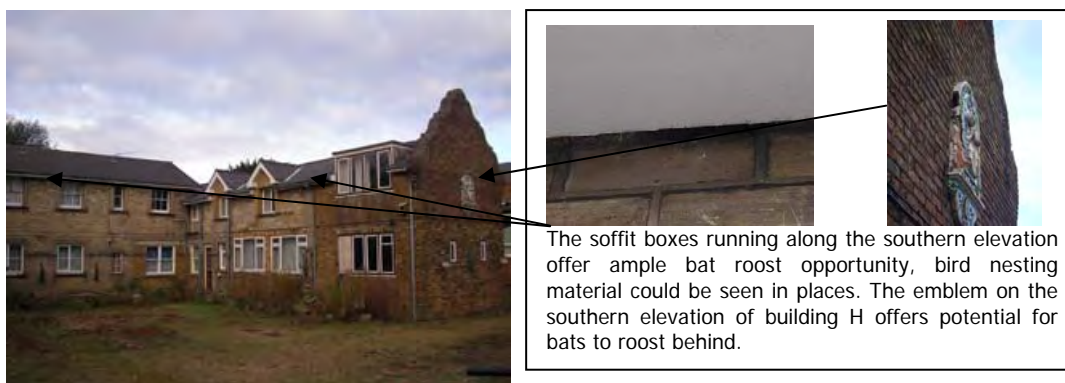


Figure 14 Building H

Inset Figures 15 & 16 Potential Roost Sites

During the May 2007 survey a single bat dropping considered to be from a pipistrelle bat was recorded beneath a gap where the soffit box meets the main wall on the eastern elevation.

3.2.9 Building I

This building is of brick built pitched roof design with gable ends to the western and eastern elevation. The main roof is internally lined leaving a small roof space that was not accessible to the surveyor. Midway along the eastern elevation lies an entrance porch with a pitched roof which forms a junction with the main roof, this area has a roof void within it. The northern elevation of the building has a brick built lean-to which houses the boiler room, and allows access to the basement area of the building (Figures 17, 18, 19 and 20).

The roof void, basement and external elevations of the building were investigated, and although no evidence of bat activity was recorded there are numerous roosting opportunities for bats. Gaps allowing bat access are located along the ridge tiles where mortar is missing and along the southern elevation where the soffit box meets the main wall. A small gap in the boiler room extension could allow access to the basement for bats to hibernate. However, no evidence of bats was recorded within the basement.



Figure 17 Building I Showing Eastern Entrance Porch



Figure 18 Roof Void of Building I



Figure 19 Basement Area



Figure 20 Boiler House with Potential Bat Access Gap

3.2.10 Building J

Building J is an open fronted brick built lean-to with a flat felt covered roof (Figure 21). The building was thoroughly investigated, however no evidence of bats was found and the

building provides few features which could provide roosting opportunities for bats. There was no accessible roof void within the building.



Buildings J and K. Building J is the white building in the fore ground, building K is the pitched roof building in the background.

Figure 21 Buildings J and K

3.2.11 Building K

Building K comprises a brick built garage with a pitched slate roof (Figure 21). There are no soffit boxes; however fascia boards are present which appear to be in a good state of repair. The southern elevation is covered by a vigorous growth of ivy. Internally the building is open plan with no roof void. The roof area is heavily infested with cobwebs. A few pieces of farm machinery are parked within the garage. The entire building was thoroughly surveyed and no evidence of bat activity was recorded.

3.2.12 Buildings L

These temporary buildings comprise a green house, an open fronted porch area and shed (Figure 22). The only building considered to be of a suitable design to offer bat roost potential is the shed. However the shed is in a poor state of repair with broken windows and as a result it was drafty and generally unsuitable for roosting bats.



Figure 22 Buildings L

3.2.13 Trees

A number of trees are present on the site that provide potential for bats to roost due to the presence of holes, cracks, splits within the bark, loose bark etc. These trees include two cherry *Prunus* sp. and two ash *Fraxinus excelsior* that have a number of holes and cracks (Figures 23 and 24). A line of lime *Tilia platyphyllos x cordata* trees in the north-west of the site appear to provide suitable bat roost potential, although on closer inspection these trees lacked features that would be suitable. Two large cedar trees located adjacent to the site entrance gates have a number of cracks and crevices that may be utilised by roosting bats, however, a full investigation was not possible due to the height of these trees. The locations of trees with bat interest are shown on Map 1.



Figures 23 and 24 Trees with Bat Roost Potential

3.2.14 Emergence Survey

During the emergence surveys carried out in the summer of 2007 the southern wing of building C, the western elevation of building A and the southern elevation of building H were surveyed. During these surveys a single common pipistrelle *Pipistrellus pipistrellus* was recorded emerging from its roost on the western end of the southern wing of building C, see Map 1. This bat flew north across the site following its emergence. No other bats were confirmed as emerging from the buildings, however, since a relatively small area of the site has been covered during the emergence surveys it is possible that other roosts may exist.

Bat activity across the site was considered to be low with a peak of six common pipistrelle recorded on 3rd August 2007. The majority of bats were recorded foraging within the more densely wooded northern area of the site, however, a single bat was regularly recorded foraging along the south-west boundary hedgerow. The only other species of bat recorded from the site was a single noctule *Nyctalus noctula* which flew high to the north over the site on 14th June 2007.

3.3 Great Crested Newt

There are two ponds present on site, one is a very small ornamental pond, which is concrete sided and considered unlikely to support a population of GCN. The second pond is larger (Figure 23) with emergent vegetation in the form of white water lily *Nymphaea alba* and yellow flag iris *Iris pseudacorus*. Canadian pond-weed *Elodea canadensis* is the dominant submerged vegetation. The depth of the water prevented an examination of the centre of the pond. However, all of the vegetation around the edge of the pond was investigated for newt eggs. Following completion of the egg search the pond was netted in an attempt to capture any amphibians present. No newt eggs of any species were recorded and no newts were recorded during the netting session. However, it should be noted that only one survey was carried out.



Figure 23 Ornamental Pond in Grounds

3.4 Reptiles

Areas of grassland throughout the site have been left un-managed for approximately three and a half years, and are considered to offer suitable habitat for the common reptile species such as common lizard *Lacerta vivipara*, slow-worm *Anguis fragilis* and grass snake *Natrix natrix*. Two compost heaps were identified as providing potentially suitable sites for breeding and hibernating reptiles (Figure 24 and 25).



Figure 24 and 25 Compost Heaps at the Western End of Grounds Providing Suitable Reptile Habitat

During the Phase II survey there were no records of reptiles and it is concluded that reptiles are absent from the site. It is considered that despite the presence of suitable habitat the isolation of the site from other areas of suitable habitat would have prevented reptiles from colonising the site. Furthermore, it would appear that previous management of the site has been one of regular mowing of grass a form of management that would not have favoured the persistence of reptile populations at the site.

3.5 Badger

A number of mammal holes and a few well worn animal tracks were present in the grassland on the site. The holes and tracks were considered to be made by fox *Vulpes vulpes* due to their dimensions. During the surveys no evidence of badger activity was recorded on site. The holes were re-investigated during the May survey and appear to be dormant; however mammal trails are still present throughout the site.

3.6 Vegetation

The grounds of the site predominantly consist of improved grassland that has been left unmown for approximately three and a half years. The largest area of grassland is located in the south-western corner of the site. The species present include common bent *Agrostis capillaris*, Yorkshire fog *Holcus lanatus*, red fescue *Festuca rubra* and isolated tussocks of cock's-foot *Dactylis glomerata*. The herbaceous species present include daisy *Bellis perennis*, cut-leaved cranesbill *Geranium dissectum*, ribwort plantain *Plantago lanceolata*, yarrow *Achillea millefolium*, cleavers *Galium aparine*, dandelion *Taraxacum officinale* aggregate, wood avens *Geum urbanum*, white dead-nettle *Lamium album*, common mouse-ear *Cerastium fontanum*, black knapweed *Centaurea nigra*, common vetch *Vicia sativa* and creeping thistle *Cirsium arvense*. Isolated lime trees are present in this area and a defunct hedgerow comprising of hawthorn *Crataegus monogyna* and hazel *Corylus avellana* is located in the central southern area. Several previously felled, and now rotten, trees are located

along the southern site boundary. These rotten trees exhibit evidence of larval workings, which appear consistent with the larval workings of stag beetle *Cervus lucanus*.

The northern half of the site comprises of previously managed grassland, which is now unmanaged and becoming increasingly species diverse and can be classified as semi-improved. The dominant species include field wood-rush *Luzula campestris*, red fescue, meadow foxtail *Alopecurus pratensis*, Yorkshire fog and bird's-foot-trefoil *Lotus corniculatus*. Other species present include cuckoo flower *Cardamine pratensis*, foxglove *Digitalis purpurea*, bluebell *Hyacinthoides non-scripta*, wood avens, ivy *Hedera helix*, cleavers, common mouse-ear, ribwort plantain, creeping buttercup *Ranunculus repens*, black knapweed and common vetch. A line of mature trees in the north-west of the site predominantly comprise of lime *Tilia platyphyllos x cordata*, with two horse chestnut *Aesculus hippocastanum*. Many of the shrubs present are ornamental growing in formerly tended garden beds. Species present include cherry, holly *Ilex aquifolium*, yew *Taxus baccata*, ash and several ornamental species. The northern section of the hedgerow bordering the western boundary comprises of hawthorn *Crataegus monogyna*, hazel *Corylus avellana*, beech *Fagus sylvatica*, ash, alder *Alnus glutinosa* and horse chestnut. The southern section comprises of a conifer hedgerow. The east of the site borders Thornbury Road and is largely developed.

The frontage gardens between the road and the eastern elevation of the buildings are mainly laid to lawn with a line of fruit trees and two large Scot's pine. Previously managed flower beds have several ornamental shrub species present. The previously managed grassland comprises of meadow foxtail, common bent, Yorkshire fog and field wood-rush. The herbaceous species include yarrow, yellow corydalis *Pseudofumaria lutea*, creeping buttercup, ribwort plantain, daisy, ragwort *Senecio jacobaea*, creeping cinquefoil *Potentilla reptans*, wood avens and crossword *Galium cruciata*.

3.7 Breeding Birds

Species recorded on site during the surveys include common starling *Sturnus vulgaris*, grey wagtail *Motacilla cinerea*, ring-necked parakeet *Psittacula krameri*, mistle thrush *Turdus viscivorus*, blackbird *Turdus merula*, pied wagtail *Motacilla alba*, house sparrow *Passer domesticus*, green woodpecker *Picus viridus*, great spotted woodpecker *Dendrocopos major*, song thrush *Turdus philimelos*, green finch *Carduelis chloris*, barn swallow *Hirundo rustica*, goldfinch *Carduelis carduelis*, dunnoek *Prunella modularis*, wren *Troglodytes troglodytes* and common swift. Common starling, mistle thrush, blackbird, house sparrow and green woodpecker breed on the site. The presence of a dead common swift within roof void of building C is an indication of breeding by this species, however, this was not confirmed during the 2007 surveys. House sparrow, song thrush and common starling are currently listed on

the British Trust for Ornithology (BTO) Red List as species of high conservation concern, dunnock, green woodpecker barn swallow and mistle thrush are currently listed on the Amber List of species of medium conservation concern.

3.8 Stag Beetle

The presence of dead wood on site with evidence of larval workings by a large grub, indicate the possibility of stag beetle at the site. The stag beetle is a Biodiversity Action Plan species (Appendix 1), it will therefore be important to establish presence/absence of the species.

4.0 DISCUSSION

4.1 Introduction

This section discusses the findings of the ecology surveys carried out to date and provides recommendations for further ecological work required. In addition, the section provides an outline of recommended ecological management and enhancement that should be instigated at the site to increase its ecological value. Details of the relevant protected species legislation is provided in Appendix 1.

4.2 Bats

Evidence of bat activity, in the form of droppings was recorded on the southern elevation of building C and the eastern elevation of building H. In addition, during emergence surveys carried out in 2007 a single common pipistrelle was confirmed as roosting within the western elevation of the southern wing of building C. Potential roost sites were identified in several other buildings, however it was not possible to ascertain whether these buildings are, or have been used by bats due to the height of the buildings and difficulties in gaining access. The buildings that could potentially provide suitable bat roost sites include buildings A, C, D, G, H and I.

It is recommended that all buildings and trees with bat potential on site are subjected to detailed emergence surveys to confirm presence/absence of roosting bats through the 2008 survey season. Such surveys would need to be carried out between late May and late September.

Since a common pipistrelle has been confirmed as roosting within building C a Natural England European Protected Species Licence (EPSL) will be required for any activity likely to disturb this roost. Since this building is to be demolished and lost as a bat roosting location mitigation will need to be implemented to replace this lost roost site. Since the full status of the bat population present at the site and since the impact on this bat population is not known the full level of bat mitigation required at the site is has not yet been determined. However, based on the surveys carried out to date it would appear that the population present is small and the following would appear to be suitable mitigation:

- A total of 20 Schwegler boxes or similar should be erected on the south elevations of buildings and trees around the site. The 1FF box (Figure 26) has been shown to be successful, however it may be advantageous to include a number of 2F boxes, and to vary the elevation of the boxes to provide a variety of roosting opportunities. The

boxes would be sited as high in trees and on buildings as possible so as to minimise disturbance, yet still be accessible for inspection and monitoring.

- Roost units, such as the Schwegler N27 and number 750/6, should be incorporated into the structure of the buildings (Figure 27). Roost units are built into the brick work, concrete, or cladding of the building and should be incorporated into the southern elevation. Depending on the number of bats present it may be appropriate to install 20-30 of these units so as to provide a wide range of roosting opportunities.



Figure 27 Schwegler N27 and number 750/6 Roost Units

- Gaps should be created in soffit boxes, and access should be provided into areas of hanging tiles, voids beneath ridge tiles and roof voids (this will be essential if long-eared bats are present).



Figure 26 Schwegler 1FF and 2F Bat Boxes

4.3 Great Crested Newt

Although it appears unlikely that GCN would breed in either of the two ponds present on site, it is recommended that presence/absence surveys are carried out to prove this beyond

reasonable doubt. This survey has been commissioned by Linden Homes to be carried out between March and June 2008, on completion the results will be provided as an appendix to the ecology report. The survey to be carried out will consist of four surveys to determine presence/absence of the species with at least two visits carried out between mid-April and mid-May, should the species be confirmed then an additional two survey visits will be carried out to determine the population status of the species at the site. These survey methods would comply with standard Natural England survey requirements.

Should GCN be found to be present then it would be necessary to construct a new pond to replace the ponds to be lost. That proposed within Paragraph 4.10 within the northern area of garden would provide suitable mitigation.

4.4 Badger

No evidence of badger activity was recorded during the course of the surveys and therefore no licencing and mitigation issues apply. However, since badgers will readily colonise suitable habitat then an updating survey should be carried out prior to commencement of development on the site.

4.5 Reptiles

Reptiles are absent from the site, however, management of habitat at the site should aim at creating areas of long grassland that would be suitable to allow future colonisation of the site.

4.6 Vegetation

Overall the habitat within the grounds of Campion House is dominated by typical low grade improved grassland and is considered to be of low ecological value. However, the conservation value of the grassland in the north of the site is higher and can be classified as semi-improved grassland. Where possible this grassland should be retained and managed in a sympathetic manner, see Paragraph 4.10.

In order to provide additional points within the 'Code for Sustainable Homes' it will be a requirement to assess the change in ecological value of the site using the 'Code Change in Ecological Value Calculator'. In order to carry out this calculation an inventory of the native species of plants present within each habitat on the site should be prepared. To date this work has not been carried out and should be carried out between May and June 2008. This element of the Code for Sustainable Homes assessment may enable between 1.2 and 4.8 points to be attained providing the change in species diversity is no greater than minor negative i.e. a reduction of between 3 and 9 species across the site.

4.7 Breeding Birds

The site has the potential to support breeding birds and as a result the clearance of vegetation on site should be undertaken outside of the breeding bird season which extends from March to August, inclusive.

4.8 Stag Beetle

The presence of dead wood with potential stag beetle workings on site will require that further survey work is undertaken to establish presence/absence of the species. Stag beetle surveys should be carried out between June and August, inclusive. If present, survey work will be required to assess the size of the population in order to determine potential impacts.

4.9 Other Issues

A fox earth was recorded on site, if this is likely to be damaged during site works or lost to the proposed development it is recommended that the earth is closed humanely by a suitably qualified ecologist.

The redevelopment of the site should include the incorporation of bird nest boxes including swift, house martin and house sparrow boxes. Bat boxes and bat access bricks should be incorporated within the design of the buildings. Further enhancements should include the retention and sympathetic management of areas of grassland of higher diversity in the north of the site, the creation of a conservation pond and planting of native species trees and shrubs during the landscaping of the site.

4.10 Ecological Enhancements

There are many areas within the site where ecological enhancements could be provided, however, the northern area would provide the best opportunities to provide an improved ecological resource due to the presence of mature trees and semi-improved grassland and due to the greater distance from the on-site buildings.

Within this northern area, grassland should be protected during the construction phase and allowed to develop following completion of the works. These areas could be plug-planted with species such as black knapweed *Centaurea nigra*, perforated St. John's-wort *Hypericum perforatum*, yellow rattle *Rhinanthus minor* and ox-eye daisy *Leucanthemum vulgare* so as to diversify the site and provide invertebrate nectaring habitat. These grassland areas should not be fertilised and should be subject to mowing in early spring and late summer, all clippings should be cleared and placed around the margins of the site in compost heaps to decompose.

Areas of native shrubs could be increased, this could include the planting of nectar rich species such as willow, wayfaring-tree *Viburnum lantana*, dogwood *Cornus sanguinea*, honeysuckle and hawthorn *Crataegus monogyna* so as to attract a wide range of invertebrates. These areas of planted shrubs could also be provided with wood piles that are allowed to rot so as to provide habitat for invertebrates.

A wildlife pond could be provided, this should be as large as possible, although not so large that flock forming bird species are attracted, with a shallow, saucer-like profile dropping to a maximum depth of 75 centimetres (cm). Native species of plants should be planted within the pond; ideal species include fringed water-lily *Nymphoides peltata*, water forget-me-not *Myosotis scorpioides*, brook lime *Veronica beccabunga*, hornwort *Ceratophyllum demersum* and ragged robin *Lychnis flos-cuculi*. It is important that no fish should be introduced to the pond, as fish prey on a wide variety of pond invertebrates and larvae. The most suitable location for a pond would be in an area where the water would receive a maximum amount of sunlight, for example within the north-eastern area of the site.

These features should not be provided in isolation from one another and an area should be set-aside for wildlife with all these features included. The area should be created so that a transition of habitats is provided, for example, a bank of native species shrubs occurring adjacent to grassland, the grassland would contain log piles placed within the grassland, with a transition from dry grassland through to wet grassland located at the pond edge leading to the open water of the pond.

Clearly such an area would need to be fenced from children and members of the public for health and safety reasons, a simple chestnut fence with a gate and a formal wood chip walkway through the grassland would be ideal.

A range of bird and bat boxes should be provided on the buildings and trees across the sites. Details of bat boxes are provided in Paragraph 4.2 Bird boxes should include a range of tree boxes for species such as blue tit *Parus caeruleus*, great tit *Parus major* and robin *Erithacus rubecula* to utilise. In addition, the buildings should be fitted with a total of 20 house martin *Delichon urbica* boxes and 20 swift boxes, former to be erected at the eaves on various elevations of the building and the latter to be located within walls, eaves and roof spaces of the new buildings.

An ecological management plan should be prepared for this wildlife area so as to ensure that management is carried out in a correct manner so as to enhance the ecological resource.

Map 1 Location of Features of Ecological Interest

Appendix 1 – Protected Species and the Law

In England, all bat species are fully protected under the Wildlife and Countryside Act 1981 through inclusion in Schedule 5. In addition, bats are protected under the Conservation (Natural Habitats, &c.) Regulations 1994 which implements the EC Habitats Directive 92/43/EEC in the United Kingdom.

Taken together, these legislative instruments make it illegal to carry out the following activities:

1. deliberately or recklessly capture or kill a bat;
2. deliberately or recklessly disturb a bat;
3. damage or destroy a bat breeding site or resting place; and
4. keep, transport, sell or exchange, or offer for sale or exchange, any live or dead bat, or any part of, or anything derived from a bat.

Any activity that would result in a contravention of the above legislation would require a licence to avoid committing an offence. Natural England has powers to grant a licence for the following purposes:

- preserving 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; or
- preventing the spread of disease; or
- preventing serious damage to livestock, foodstuffs for livestock, crops, vegetables, fruit, growing timber or any other form of property or to fisheries.

In addition, Natural England can only issue a licence if it is satisfied that the activity meets one of the above purposes and is also satisfied of the following:

- that there is no satisfactory alternative; and
- that 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.

In order to determine whether an activity requires a licence, Natural England advises that the guidance of a consultant ecologist is sought. However, Natural England offer the following advice as a guide:

- A licence is needed if the consultant ecologist, on the basis of survey information and specialist knowledge of the species concerned, considers that on balance the proposed activity is reasonably likely to result in an offence under regulation 39; or
- If the consultant ecologist, on the basis of survey information and specialist knowledge of the species concerned, considers that on balance the proposed activity is reasonably unlikely to result in an offence under regulation 39 then no licence is required. However, in these circumstances Natural England would urge that reasonable precautions be taken to minimise the effect on European protected species should they be found during the course of the activity. If they are found then work should cease and an application be made to the Wildlife Licensing Unit at Natural England, Bristol.

Common Reptiles

All common reptile species (grass snakes, adders, common lizards and slow worms) native to Britain are protected by the Wildlife & Countryside Act, 1981 (as amended). This legislation makes it illegal to intentionally kill or injure a common reptile. As a result, reptiles must be removed from areas of development and relocated onto suitable release sites before any site works can commence.

Badger¹

Badgers and their setts are protected under the Protection of Badgers Act 1992, which makes it illegal to kill, injure or take badgers or to interfere with a badger sett. Interference with a sett includes blocking tunnels or damaging the sett in any way. The Act defines a badger sett as '*Any structure or place, which displays signs indicating the current use by a badger*' and Natural England take this definition to include seasonally used setts. The legislation does not directly protect badger habitat or foraging grounds.

Where works are likely to disturb a badger sett, it is necessary to obtain a licence from the relevant Statutory Nature Conservation Agency, in compliance with the 1992 Protection of Badgers Act. In England this would be obtained from Natural England.

Licences cannot be issued retrospectively so an application should be made at least one month in advance of the proposed work. Work that disturbs badgers without a licence is illegal.

Natural England currently administers licence applications for the following purposes:

- the purpose of preventing serious damage to land, crops, poultry or any other form of property, to kill or take badgers, or to interfere with a badger sett;
- the purpose of any agricultural or forestry operation, to interfere with a badger sett; and
- the purpose of any operation (whether by virtue of the Land Drainage Act 1991 or otherwise) to maintain or improve any existing watercourse or drainage works, or to construct new works required for the drainage of any land, including works for the purpose of defence against sea water or tidal water, to interfere with a badger sett.

In terms of development which will result in interference with a badger sett, the following activities are considered licensable by Natural England when carried out within certain distances of sett entrances:

- Use of very heavy machinery within 30 metres of any entrance to an active sett, e.g. earth scrapers.
- Use of lighter machinery (particularly for any digging operation) within 20 metres, e.g. operation of a JCB.
- Light work, such as hand digging, within 10 metres.

Wild Birds²

The Wildlife & Countryside Act 1981 (as amended) is domestic legislation for Great Britain that repeals existing wildlife legislation such as:

- Protection of Birds Acts 1954 to 1967; and
- Conservation of Wild Creatures and Wild Plants Act 1975.

The Act covers the provisions made in these previous acts and provides additional provision for species and countryside protection. The Act is the primary legislation in Great Britain for the protection of flora, fauna and the countryside. The Act includes the UK's domestic

² www.naturenet.net

implementation of the species protection of the European Directive on the Conservation of Wild Birds (79/409).

Under the Wildlife and Countryside Act 1981 all birds, their nests and eggs are protected by law and it is thus an offence, with certain exceptions to intentionally:

- Kill, injure or take any wild bird.
- Take, damage or destroy the nest of any wild bird while it is in use or being built.
- Take or destroy the egg of any wild bird.
- Have in one's possession or control any wild bird (dead or alive) or any part of a wild bird which has been taken in contravention of the Act or the Protection of Birds Act 1954.
- Have in one's possession or control any egg or part of an egg which has been taken in contravention to the Act. This includes items taken or killed before the passing of the Act.
- Have in one's possession or control any live bird of prey of any species in the world (with the exception of vultures and condors) unless it is registered and ringed in accordance with the Secretary of State's regulations.
- Have in one's possession or control any bird of a species occurring on Schedule 4 of the Act unless registered (and in some cases ringed) in accordance with the Secretary of State's regulations.
- Disturb any wild bird listed on Schedule 1 while it is nest building, or at a nest containing eggs or young, or disturb the dependent young of such a bird.

Stag Beetles

The stag beetle is a 'protected species', which is listed on Schedule 5 of the Wildlife and Countryside Act 1981. The major threat to stag beetles in the UK is the removal of larval habitat, i.e. dead wood. The removal of hedges and trees (both of which will have dead portions underground), as well as stumps, causes the greatest habitat loss.

The stag beetle is also a priority biodiversity action plan species in the UK, and it is required that sympathetic measures are taken to accommodate their needs wherever possible. If a planning proposal is likely to threaten a known site where stag beetles are found, it is recommended the following actions are taken:

Action 1: Before development starts, a survey of the application site should be carried out to establish whether any beetles are present, or if they are using the site in any way. For adult stag beetle this should be undertaken between mid-May and early August. Data searches

should also be carried out to establish whether there are any previous environmental records for the site.

Action 2: Should the survey results indicate that stag beetles are present within the planned development site, then details of the following should be submitted to and approved in writing by the local planning authority prior to the commencement of work:

- a) a scheme of mitigation or enhancement works to minimise the adverse effects of the development on beetle population.

- b) a programme of timings for the works referred to in (1) above.