St Edmunds Terrace

Ecology Report

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CONTENTS

1. INTRODUCTION

1.1. Background

The proposed development area is located at 40-49 St Edmund's Terrace towards the western edge of Primrose Hill, London Borough of Camden. The rectangular plot of land, hereafter referred to as 'the Site', comprises a multi-storey residential block; a group of two semi-detached terrace houses; a group of small buildings associated with Thames Water; and overgrown amenity planting. The Site is bounded by fencing along St Edmund's Terrace to the south and Primrose Hill to the east.

The Site was proposed for redevelopment in 2008 by Camden Regeneration Ltd. In light of these works URS Corporation Limited (URS) was instructed to undertake the ecological works required in order to gain planning permission for the proposed scheme. An extended Phase 1 habitat survey and bat survey of the Site were undertaken and reported within a stand alone ecology report. However, this scheme was never progressed past planning.

In 2010, URS was approached by Regents Park (GP) Estates Ltd who proposed to develop the same Site. The surveys undertaken in 2008 have been updated and fed into this report, which provides a review of the current legislation and planning policy of relevance to any development proposals at the Site.

The purpose of this work is to outline current national, regional, county and local planning policy and nature conservation legislation; to fully describe the ecology of the Site; and to ensure that any development proposals do not contravene nature conservation legislation. In order to do this, an extended Phase 1 habitat survey and desktop review of the Site have been undertaken with the findings summarised in this report.

2. LEGISLATION AND PLANNING POLICY REVIEW

2.1. Legislation

This section reviews the planning policy requirements and legislative context that is relevant to the protection of sites, habitats and species. In addition, the local ecological planning policy requirements within the London Borough of Camden are addressed in order to understand the ecology related policy affecting the Site and the surrounding area. The major pieces of legislation relating specifically to the protection of wildlife and nature conservation are as follows:

- The Wildlife and Countryside Act 1981 (WCA) (as amended) (Ref. 1);
- The Countryside and Rights of Way (CRoW) Act 2000 (as amended) (Ref. 2);
- Natural Environment and Rural Communities (NERC) Act 2006 (Ref. 3); and
- The Conservation of Habitats and Species Regulations 2010 (Ref. 4).

The following legislation is also considered potentially relavent to this scheme:

- Wild Mammals (Protection) Act 1996 (Ref. 5).

2.1.1. The Wildlife and Countryside Act 1981 (WCA) (as amended)

The WCA (as amended) is the major legal instrument for wildlife protection in the UK. This legislation is the means by which the Convention on the Conservation of European Wildlife and Natural Habitats (the 'Bern Convention') (Ref. 6) and the European Union Directive on the Conservation of Wild Birds (79/409/EEC) (EU Birds Directive) (Ref. 7) are implemented in the UK. The WCA protects the most important habitats as sites of Special Scientific Interest (SSSI). It also requires that the Secretary of State takes special measures to protect certain rare or vulnerable bird species, as defined in Annex I of the EC Birds Directive, through the designation and protection of Special Protection Areas (SPAs).

Wild animals listed on Schedule 5 of the Act are subject to specific protection under Section 9. The WCA also prohibits the intentional killing, injuring or taking of any wild bird (with certain exceptions) and the taking, damaging or destroying of a wild bird's nest or eggs. Special penalties are given for offences related to birds listed on Schedule 1. In addition, it provides a level of protection to plants listed on Schedule 8 and makes it an offence to plant or otherwise cause to grow in the wild any plant that is included in Schedule 9 of the Act, which includes Japanese knotweed (*Fallopia japonica*).

2.1.2. The Countryside and Rights of Way (CRoW) Act 2000

Part III of the CRoW Act deals specifically with wildlife protection and nature conservation. It requires that Government Departments have regard for the conservation of biodiversity, in accordance with the Convention on Biological Diversity in 1992. In

addition, it demands that The Secretary of State publishes a list of living organisms and habitat types that are considered to be of principal importance in conserving biodiversity. These species and habitats are listed under Section 74 of the CRoW Act, as amended by Section 41 of the NERC, and form the Priority Species listed within the UK Biodiversity Action Plan (UK BAP) (Ref. 8).

The CRoW Act amends the WCA, by strengthening the protection of designated SSSIs as well as increasing the legal protection of threatened species, by also making it an offence to "recklessly" destroy, damage or obstruct access to a sheltering place used by an animal listed in Schedule 5 of the Act or "recklessly" disturb an animal occupying such a structure or place.

2.1.3. Natural Environment and Rural Communities (NERC) Act 2006

The NERC Act amends the CRoW Act, by further extending the requirement to have regard for biodiversity to all 'public authorities', which includes local authorities and local planning authorities. It also requires that the Secretary of State consults the relevant National Government Organisation in the publication of the list of living organisms and habitat types deemed to be of principal importance in conserving biodiversity.

2.1.4. The Conservation of Habitats and Species Regulations 2010

On 1 April 2010 the Conservation of Habitats and Species Regulations 2010 (Ref. 4) replaced the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) (Ref. 9), in England and Wales. These Regulations are the principal means by which the European Union Directive on the Natural Habitats and Wild Fauna and Flora (92/43/EEC) (EC Habitats Directive) (Ref. 10) is transposed in England and Wales. They update the legislation and consolidate all the amendments which have been made to the Regulations since they were first made in 1994.

The Regulations place a duty on The Secretary of State to compile a list of sites considered to be important for habitats or species listed in Annexes I and II of the EC Habitats Directive. Appropriate sites are identified as Sites of Community Importance (SCIs), which are then designated as Special Areas of Conservation (SAC). Any proposed development that may have an adverse effect on an SAC or SPA, collectively known as Natura 2000 sites, should be assessed in relation to the site's conservation objectives.

The Regulations assign a European level of protection to a variety of native species of plants and animals listed in Annex IV(a) of the EC Habitats Directive, which are known as European Protected Species (EPS). The Regulations make it an offence to deliberately pick, collect, cut, uproot or destroy a wild plant of an EPS. In addition, wild animals, which are listed in Schedule 2 of the Regulations, are subject to the provisions in Regulation 39, which make it an offence to deliberately capture, injure or kill, disturb or destroy the eggs of such an animal or destroy a breeding site or resting place of such an animal.

2.1.5. Wild Mammals (Protection) Act 1996

Under the Wild Mammals (Protection) Act 1996, it is an offence to intentionally cause all wild mammals unnecessary suffering by certain methods, including crushing and asphyxiation.

2.2. National Planning Policy

2.2.1. Planning Policy Statement (PPS) 9: Biodiversity and Geological Conservation

Planning Policy Statement 9 (PPS9) (Ref. 11) details the Government's policies for the conservation of England's natural heritage, which embodies the Government's commitment to sustainable development and the conservation of wildlife. The guidance advocates the protection of statutory designated sites and sites of particular nature conservation importance (e.g. SSSI's).

The guidance also expresses the importance of compliance with the relevant nature conservation and wildlife legislation and other key international obligations (e.g. the WCA, CRoW Act and Habitats and Species Regulations).

In the context of PPS9, biodiversity is the variety of life in all its forms as discussed in the UK BAP. Geological conservation relates to sites that are designated for their geology and/or geomorphological importance. PPS9 presents the key principles that regional and local planning bodies should follow when considering biodiversity and geodiversity. PPS9 lays down a number of provisions that Proposed Developments need to consider with regard to designated sites, non-designated sites and species protection. The document also stresses the importance of 'building in beneficial biodiversity' to new developments and protecting networks of natural habitats. PPS9 should be read in conjunction with the Government Circular: Biodiversity and Geological Conservation, ODPM Circular 06/2005 (Ref. 12).

2.3. Regional Planning Policy

2.3.1. London Plan

The London Plan has consolidated with the former Early Alternations to the London Plan (Ref. 13) and the Draft Further Alterations to the London Plan (Ref. 14). In October 2009 the Mayor of London published the draft replacement London Plan (Ref. 15) which will be open for public comment until the 12 January 2010 and during this time will be a material consideration taken into account in deciding planning applications.

The London Plan endorses the protection of land of strategic importance for biodiversity and stresses the requirement for development proposals to include new or enhanced natural habitats, or design and landscaping that promotes biodiversity, the greening of the built environment and associated provision for its management.

2.3.2. Mayor's Biodiversity Strategy, 2002

The Mayor's Biodiversity Strategy (Ref. 16) details the Mayor's vision for protecting and conserving London's natural open spaces. The strategy aims to:

- Ensure that people have access to nature by creating new green spaces, improving existing ones and encouraging people to visit less well-known places;
- Protect wildlife habitats, stating that sites which are important for nature conservation should not be built on;
- Encourage businesses to incorporate green design into their development proposals; and
- Protect London's most vulnerable wildlife, for example, bats and birds.

2.4. Local Planning Policy

2.4.1. London Borough of Camden Core Strategy

The Unitary Development Plan (UDP) 2006 (Ref. 17) has been replaced by the Core Strategy (Ref. 18) and Development Policies LDF documents as of 8 November 2010. Policy CS15 *Protecting and improving our parks and open spaces and encouraging biodiversity* within the Core Strategy states that '*The Council will protect and improve Camden's parks and open spaces…. The Council will protect and improve sites of nature conservation and biodiversity, in particular habitats and biodiversity identified in the Camden and London Biodiversity Plans in the borough by:*

…

d) designating existing nature conservation sites;

e) protecting other green areas with nature conservation value, including gardens, where possible;

g) expecting the provision of new or enhanced habitat, where possible, including through biodiverse green or brown roofs and green walls;

i) working with The Royal Parks, the London Wildlife Trust, friends of parks groups and local nature conservation groups to protect and improve open spaces and nature conservation in Camden;

j) protecting trees and promoting the provision of new trees and vegetation, including additional street trees.'

In addition to the Core Strategy, The London Borough of Camden has produced a number of Supplementary Planning Guidance documents, including one on biodiversity (Ref. 19). The purpose of this guidance is to '*support replacement UDP policies to prevent the loss of valuable biodiversity due to inappropriate development and to improve biodiversity through the enhancement of existing habitat on development sites and the provision of new habitat within developments*'. This document states the importance of

understanding the baseline ecology, highlights protected species relevant to the borough and emphases '*the management and maintenance of areas of nature conservation value that are to be retained, enhanced or created on a development site is essential to ensure these areas of nature conservation attain their full potential*.'

2.5. Biodiversity Action Plans

2.5.1. UK Biodiversity Action Plan (UK BAP)

A key outcome of the Convention on Biological Diversity in 1992 is a requirement by the UK government to halt, and if possible reverse, the steady decline of species and natural habitats. To this aim, Biodiversity Action Plans (BAPs) are produced at national, regional and local levels. They contain plans to protect and enhance species and natural habitats, with targets against which progress can be measured; and reviews of the status of species and habitats on a national scale. It sets out targets for a number of Priority Species and Habitats as well as for Broad Habitat Types. Priority Species and Habitats are made a material consideration in planning decisions by Section 74 of the CRoW Act 2000 as amended by Section 41 of NERC.

Priority Species of potential relevance to the Site that are listed in the UK BAP include stag beetle (*Lucanus cervus*) and soprano pipistrelle (*Pipistrellus pygmaeus*). The UK BAP is also relevant in the context of Section 74 of the CRoW Act, 2000 (as amended), meaning that Priority Species and Habitats are material considerations in planning.

2.5.2. London Biodiversity Action Plan

The London Biodiversity Partnership was established in 1996 in response to the UKBAP. The Partnership aims to protect and enhance the Capital's habitats and species and has produced 31 Action Plans. Priority Species of potential relevance to the Site include black redstart (*Phoenicurus ochruros*), peregrine falcon (*Falco peregrinus*) and all species of bat occurring in London (Ref. 20).

2.5.3. Camden Biodiversity Action Plan (BAP)

The Camden BAP (Ref. 21) includes the following priority species and habitats which are considered to be relevant to the scheme:

- Parks, gardens and open spaces;
- Woodland, hedgerows and trees;
- The built environment; and
- All bat species.

3. METHODS

Update baseline ecological data for the study area was obtained via a desktop review and extended Phase 1 habitat survey. This is the standard method for obtaining baseline ecological data for areas of land, including those for which development is proposed. The data is used to determine the potential of the Site and wider study area to support protected and notable species; identify legal and planning policy constraints; and identify any requirements for further survey work and mitigation.

3.1. Desktop Review

Information on statutory designated sites of nature conservation value, such as Sites of Special Scientific Interest (SSSI), within 2km of the Site was obtained using the interactive web-based MAGIC (Multi-Agency Geographic Information for the Countryside, Ref. 22). Information relating to pre-existing records of protected and notable species within 2km of the Site was obtained using the interactive web-based NBN (National Biodiversity Network) Gateway (Ref. 23). The area of search was determined by a central grid reference with a 2km radius of search being undertaken in order to ensure adequate coverage of the likely zone of influence of the proposed development.

The area of search falls within the county boundaries of Greater London, therefore Greenspace Information for Greater London (GIGL) was contacted for information relating to locally designated sites of nature conservation importance and for records of protected and notable species. The search undertaken for the 2008 proposals was still considered relevant for this development and was therefore not updated. Protected species are those listed on Schedule 2 of the Conservation of Habitats and Species Regulations 2010; Schedule 5 of the WCA; Schedule 12 of the CRoW Act; Annexes II and IV of the EC Habitats Directive; Appendix II of the Bern Convention; and Schedule 5 of the NERC Act 2006. Notable species include those listed in Annex C of Government Circular 06/05; the UK BAP Priority list; and various other Red Data Books and publications of rare, scarce and occasional species.

3.2. Extended Phase 1 Habitat Survey

3.2.1. Vegetation and Habitats

URS carried out an update extended Phase 1 habitat survey of the Site on 26th July 2010. The survey was carried out within the optimal period for habitat surveys (May to September). The weather during the survey was dry with approximately 20% cloud cover and an air temperature of approximately 21ºC for the entire length of the survey.

A note was made of the dominant vegetation present within the Site (as shown in Figure 1) and the habitats were mapped in accordance with the published Phase 1 methodology (Joint Nature Conservation Committee, Ref. 24). However, an additional habitat has been included, namely hardstanding, in order to provide definition between buildings and concreted areas. During the habitat survey, higher plant species identified within each

habitat type were recorded and their relative abundance was assessed on the DAFOR scale:

- D Dominant;
- A Abundant;
- F Frequent;
- O Occasional; and
- R Rare.

A species list of vegetation within the site is included at Appendix A. The purpose of this survey was to confirm any material changes in the habitats present since the 2008 survey was undertaken by URS for the previous scheme.

3.2.2. Protected and Notable Species

The extended Phase 1 survey of the Site not only mapped the vegetation and habitats present within and immediately adjacent to the Site but also noted any evidence of or the potential for protected/notable species, as defined at 3.1.

3.2.2.1. Bats

The buildings and trees within the Site were assessed to determine their potential to support roosting bats, in accordance with guidelines published by the Bat Conservation Trust (Ref. 25). A variety of factors were considered, for example, the presence of natural holes, woodpecker holes, dense ivy and cracks in major limbs are considered to increase the potential of trees to support roosting bats. The suitability of the surrounding area for bat foraging was also taken into consideration, as detailed below.

The following criteria were adopted to assign bat potential:

- High – Numerous potentially suitable summer roosting sites, including at least one feature that may potentially be used as a hibernaculum or maternity roost, with good connectivity to high quality foraging habitat;
- Medium – Some potentially suitable summer roosting sites with at least moderate connectivity to foraging habitat;
- Low – Very few potentially suitable summer roosting sites with at least some connectivity to foraging habitat; and
- Negligible/None – Feature has no apparently suitable roosting sites or is entirely isolated from foraging habitat.

3.2.2.2. Other Protected/Notable Species

The Site and immediately adjacent land were also appraised for their suitability to support other protected/notable species, such as reptiles; breeding birds; and invertebrates, in

accordance with the published 'Guidelines for Baseline Ecological Assessment' (Ref. 26). Any incidental observations of current and historic presence of such species were also recorded, though a thorough search did not form part of the extended Phase 1 survey.

3.2.2.3. Invasive/Alien Plant Species

A search of the Site was undertaken to record the presence of any invasive/alien plant species, particularly Japanese knotweed. It is an offence under the WCA to allow certain invasive species to spread onto adjacent land.

4. RESULTS

4.1. Designated Sites

The Site does not fall within any statutory or non statutory designations and there are no Special Protection Areas (SPAs), Ramsar sites, Special Areas of Conservation (SACs) or Sites of Special Scientific Interest (SSSIs) within 2km of the Site. There is one Local Nature Reserve (LNR) approximately 1km southwest of the Site, namely St John's Wood Church Ground (WeBI03 on Figure 2). This small park contains a mixture of meadow and woodland habitats providing an important habitat for birds.

There is also one Local Wildlife Site (LWS), namely Greville Place LWS, as well as 21 Sites of Importance for Nature Conservation (SINCs) (see Figure 2) within 2km of the Site.

Greville Place (CaL02 on Figure 2) is approximately 1.9km from the Site and consists of trees, shrubs and a pond, which supports uncommon fat duckweed (*Lemna gibba*) and greater spearwort (*Ranunculus lingua*).

The closest SINC is Primrose Hill Site of Borough Importance for Nature Conservation Grade II (SBINC2) (CaB1105 on Figure 2) located adjacent to the eastern boundary of the Site. The park, which consists of amenity grassland with scattered trees, "*attracts a variety of bird species*". Other SINCs nearby include Regent's Park (M097 on Figure 2), which is located approximately 0.2km southeast of the Site. This park is particularly important for breeding birds with mature trees and an ornamental lake supporting a nationally significant breeding population of pochard (*Aythya farina*); and London Zoo (WeB105 on Figure 2), which is located around 0.2km southeast of the Site. This is an important refuge for native birds and mammals such as bats, foxes, and hedgehogs.

4.2. Vegetation and Habitats

The Phase 1 habitat types that were recorded during the survey are as follows.

- Scattered trees;
- Amenity grassland;
- Dense scrub;
- Species-poor hedge with trees;
- Buildings;
- Hard standing; and
- Bare ground.

These habitats are described in detail and their distribution mapped in Figure 1 below. A list of plant species recorded, in addition to their relative abundance according to the DAFOR scale, is given in Appendix A.

4.2.1. Scattered trees

Numerous scattered broad-leaved and occasional coniferous trees occur within the Site. The majority of the broad-leaved trees are saplings or young trees, dominated by ash (*Fraxinus excelsior*) and sycamore (*Acer pseudoplatanus*) and presumably self-seeded. A number of trees have been removed from the Site since the Phase 1 survey undertaken in 2008, the stumps are now located within areas of dense scrub. Other scattered trees comprise individual planted specimens within amenity grassland / dense, hedge shrub areas. Species present include, ash, sycamore, elder (*Sambucus nigra*), hybrid black poplar (*Populus nigra* subsp.), tree of heaven (*Ailanthus altissima*), lime (*Tilia* sp.), hawthorn (*Crataegus monogyna*), London plane (*Platanus x hispanica*), willow (*Salix* sp.) and alder (*Alnus glutinosa*). A full schedule of trees can be found in the St Edmunds Terrace Aboricultrual Report Tree Report as included in the submission.

4.2.2. Amenity grassland

Amenity grassland is the dominant semi-natural habitat within the Site and occurs in the form of several lawn areas, particularly as lawn surrounding the block of flats; within the front and rear gardens of the semi-detached property; and surrounding the covered reservoir infrastructure.

These lawn areas were more overgrown than observed during the survey undertaken in 2008, and dominated by red fescue (*Festuca rubra*). Other grass species including smooth meadow-grass (*Poa pratensis*), perennial rye-grass (*Lolium perenne* L.), Yorkshire-fog (*Holcus lanatus*), creeping bent (*Agrostis stolonifera* L) and Cock's-foot (*Dactylis glomerata* L) were also present. Moss species were locally frequent, as were various forb species including creeping cinquefoil (*Potentilla reptans*), ribwort plantain (*Plantago lanceolata*), dandelion (*Taraxacum officinale* agg.), common mouse-ear (*Cerastium fontanum*), creeping buttercup (*Ranunculus repens* L), daisy (*Bellis perennis*) and cow parsley (*Anthriscus sylvestris*).

4.2.3. Dense Scrub

Dense scrub is found across the Site, dominated by common, widely planted, non-native ornamental species. Species present include green alkanet (*Pentaglottis sempervirens*), St John's wort (*Hypericum perforatum*), cultivated rose species (*Rose* sp.), barberry (*Berberis vulgaris*), cherry laurel (*Prunus laurocerasus*), Portugal laurel (*Prunus lusitanica*), cotoneaster (*Cotoneaster horizontalis)*, honeysuckle (*Lonicera periclymenum)*, guelder rose (*Viburnum opulus*), euonymus (*Euonymus sp*.), yew (*Taxus baccata*) and oleaster (*Elaegnus* sp.). Ivy (*Hedera helix*) typically forms a continuous covering on the ground at the edge of numerous shrub borders and also along fence lines and around mature trees. Many of these beds and borders were also noted to include sapling, self-seeded trees (particularly sycamore and ash) as well as occasional bramble (*Rubus fruticosus* agg.) and nettle (*Urtica dioica*) which have inhabited less managed

areas. Many of the dense scrub areas also have scattered, mature, broadleaf trees present.

4.2.4. Species-poor hedge with trees

One hedgerow occurs within the Site, comprising garden privet (*Ligustrum vulgare*) with occasional broad-leaved trees. These trees comprise frequent sapling ash and sycamore and occasional ivy-clad young to mature ash trees. This hedge extends along part of the Site's frontage onto St Edmund's Terrace along the southern boundary.

4.2.5. Buildings

Several buildings occur on-Site, listed as follows:

- B1 – the four-storey block of flats, with brick walls, hanging tiles and a flat roof;
- B2 – a single-storey concrete walled and flat-roofed block of garages;
- B3 and B4 – two-storey, 1950-style semi-detached residential property with brick walls, hanging tiles and pitched, tiled roof;
- B5 – single-storey, flat-roofed, brick walled electricity sub-station; and
- B6 and B7 – wooden panelled garden sheds each with a pitched felt roof.

The Site also includes infrastructure owned by Thames Water, comprising several rectangular structures and a section of piping.

4.2.6. Hard standing

Hard standing and landscaping within the Site comprises driveways, pavements, access roads, patios and yard / storage areas.

4.2.7. Bare ground

Bare ground within the Site is minimal and found in two small areas in the garden of residential property B3.

4.3. Protected and Notable Species

4.3.1. Bats

Of the 17 species of bat found in the UK, five species have been recorded within a 2km radius of the proposed development Site in the last 20 years. The majority of these records are from Regents Park approximately 0.2km southeast. Species recorded in the locality are Daubenton's bat (*Myotis daubentoni*), Leisler's bat (*Nyctalus leisleri*), noctule (*Nyctalus noctula*), common pipistrelle (*Pipistrellus pipistrellus*) and soprano pipistrelle (*Pipistrellus pygmaeus*). The extended Phase 1 survey assessed that a number of trees have low to medium potential to support roosting bats and two of the buildings have low potential to support roosting bats. Further bat survey work, reported in the URS Bat

Survey Report at Appendix B, confirmed that two of the buildings within the site are being used as bat roosts.

4.3.2. Other Mammals

There are records of hedgehog (*Erinaceus europaeus*) within the search area, the closest record being 0.6km east of the site. There have been a further ten records between 0.7km and 1.9km from the proposed development in various directions from from the site.

In relation to other wild mammals, no evidence of fox (*Vulpes vulpes*) or hedgehog activity was noted during the extended Phase 1 habitat survey. However the Site, together with adjoining semi-natural habitats, would be expected to offer potential opportunities for these species. Notably, the dense shrub borders and the accumulated dead leaves at the base of some of these borders provide a potentially suitable habitat for hedgehogs to hibernate.

4.3.3. Birds

A number of records of protected and/or notable species of bird have been recorded for the 2km radius surrounding and including the Site. Species records received include common tern (*Sterna hirundo*), cormorant (*Phalacrocorax carbo*), common starling (*Sturnus vugaris*), greylag goose (*Anser anser*), little gull (*Larus minutus*), redwing (*Turdus iliacus*), reed bunting (*Turdus iliacus*), house sparrow (Passer domesticus), starling (Sturnus vulgaris), dunnock (*Prunella modularis*) and song thrush (*Turdus philomelos*). The majority of these records are from locations within the confines of Regents Park.

There is one record of black redstart (*Phoenicurus ochruros*) within 2km of the Site, located 1km to the east. In addition, the Site lies within the black redstart “Likely Key Area” (Ref. 27). The Site does not currently support habitats that are potentially suitable to support either foraging or nesting black redstarts; however suitable nesting habitat may be created during the demolition and construction period.

Blackbird (*Turdus merula*), feral pigeon (*Columba livia*) and magpie (*Pica pica*) were recorded using the Site during the extended Phase 1 survey. It is considered likely that the vegetation within the Site, particularly the scrub and scattered trees, is used by a number of common and widespread bird species.

4.3.4. Invertebrates

There are a number of notable invertebrate species recorded within the search area. The majority of these are from Regents Park. There are 12 records of stag beetle within 2km of the Site the closest of which located approximately 0.7km to the southeast of the Site (likely to be Regents Park). It is considered that the dense shrub, hedge and scattered trees present within the Site have some, albeit limited, potential to provide suitable dead wood habitat for stag beetle and other invertebrates.

4.3.5. Herptofauna

There have been two notable amphibian species recorded within the search area. Common toad (*Bufo bufo*) and common frog (*Rana temporaria*); the closet of which was a record of common toad approximately 0.4km to the northeast of the Site. The Site does not currently support any potentially suitable habitat for these species.

There are no records of reptiles within the search area. It has also been confirmed that the adjacent Regents Park and Primrose Hill do not support a population of reptiles (Ref. 28). Due to the lack of reptiles in the surrounding area, the Site is considered unlikely to support reptiles. Therefore no further survey for reptiles was deemed necessary

4.3.6. Flora

The plant species observed and recorded during the survey are either common, widespread, native species or ornamental, planted species. No notable or invasive plant species have been identified on-Site.

4.3.7. Other Protected/Notable Species

No evidence of any other protected/notable species was noted. This Site is considered unlikely to support any other protected or notable species other than those stated above.

5. ECOLOGICAL IMPACT ASSESSMENT

5.1. Assessment Methodology

The methodology used to assess the significance of impacts on ecological receptors is based on the Institute for Ecology and Environmental Management (IEEM) Ecological Impact Assessment (EcIA) guidelines published in July 2006 (Ref. 29). This guidance follows a 'biodiversity' approach to impact assessment, i.e. rather than solely relying on the legal protection of a habitat or species to characterise geological extent, other factors such as local abundance and rarity are also considered.

The assessment method uses a process of assigning values to the identified ecological features and resources, predicting and characterising ecological impacts and, through this process, determining significance of potential impacts on ecological receptors.

The guidelines suggest that the value or importance of an ecological resource or feature should be defined in terms of a geographic scale. Therefore the value (or potential value) of ecological receptors on, and in the immediate vicinity of, the Site has been considered at the following scale:

- International;
- National (i.e. England/Northern Ireland/Scotland/Wales);
- Regional;
- County;
- Borough;
- Local; and/or
- Within immediate zone of influence only.

Once the ecological receptor (designated site, habitat, assemblage or species) has been identified, a judgment is made as to whether the development is likely to result in impacts upon each receptor and the nature of those impacts. Each potential ecological impact has a number of characteristics that need to be adequately described before significance can be assessed. A number of factors have been considered when describing and assessing ecological impact, including:

- Extent (area or distance);
- Magnitude (amount or level of impact);
- Duration (in time or related to species' life-cycles);
- Timing and frequency (e.g. related to breeding seasons); and
- Reversibility (whether the impact is permanent or temporary).

Once each of these factors has been considered, a judgment on the significance of the impact on a particular receptor is made. This will depend on both the characteristics of the impact and the value of the receptor. IEEM states, '*an ecologically significant impact is defined as an impact (negative or positive) on the integrity of a defined site or ecosystem and/or the conservation status of habitats or species within a given geographical area'*. Once an impact is identified, the geographic scale at which that impact will take affect is also established. For example, an impact may not be significant at a national scale but may be significant at a county or local scale. All of these judgements are based, wherever possible, on quantitative evidence; however in some cases the professional judgement of an experienced ecologist may also be required.

The scale and significance of the impact will help to determine the correct level of mitigation or compensation required. Mitigation measures will be identified through the mitigation hierarchy (Ref. 30), namely to:

- Avoid impacts at the source;
- Reduce impacts at the source;
- Abate impacts on site;
- Abate impacts at receptor;
- Repair impacts;
- Compensate in kind;
- Compensate by other means; and
- Enhance.

Enhancement measures may also be identified and may result in a beneficial residual impact. For the purposes of this assessment, any impact on an ecological feature is assessed without mitigation and then with mitigation to determine the residual impact.

Where possible, levels of certainty are given to indicate the likelihood that both the predicted activity/impact and the associated ecological effect will occur. The IEEM guidance suggests using the following four-point scale to identify the levels of confidence arrived at by professional judgment:

- Certain/high;
- Probable/moderate;
- Unlikely/low; and
- Extremely unlikely/negligible.

5.2. Ecological Evaluation

A small number of statutory and non-statutory designated sites are located within 2km of the development Site. Primrose Hill SBINC2 is located adjacent to the Site and is therefore most likely to be adversely impacted by the proposals for the site. It is considered unlikely that any of the other sites will be significantly impacted by the proposed development owing to their spatial separation from the Site coupled with the small scale of the proposed development. Therefore only Primrose Hill SBINC is considered further.

The Site itself has few ecological receptors that could be adversely impacted by the proposed development. The habitats within the Site have limited ecological value, however, their loss may have an impact on a number of species groups. These include breeding birds, invertebrates and mammals, such as bats and hedgehogs. In addition to the vegetation, two of the buildings within the site have been identified as bat roosts and a further building has been identified as having low potential to support bats; therefore the removal of the buildings may also have an impact on this species.

The following receptors will be considered in the ecological impact assessment:

- Primrose Hill SBINC2;
- Vegetation;
- Breeding Birds;
- Invertebrates;
- Bats; and
- Wild Mammals.

5.3. Ecological Impact Assessment and Mitigation Measures

5.3.1. Primrose Hill SBINC2

Demolition and construction at the Site has the potential to adversely impact the ecology of the Primrose Hill SBINC2, which is adjacent to the eastern boundary of the Site. It is considered likely that impacts will arise though additional noise, lighting and pollution associated with demolition and construction works. The Primrose Hill SBINC2 is considered to be of Borough importance.

The majority of likely impacts on Primrose Hill SBINC2 are expected to be temporary in nature and directly related to the demolition and construction phases. The Site has been used for residential purposes in the past, as is the surrounding area, therefore the noise level associated with the new residential proposals is considered unlikely to increase to a level that will have a significant adverse impact. Any additional lighting may, however, result in an adverse impact during demolition, construction and operation phases.

Care will also need to be taken to avoid and prevent any pollution impacts that could impact Primrose Hill, such as oil spills from machinery present on Site.

During construction a number of measures can be put in place to ensure that disturbance and pollution impacts do not affect the SBINC2. The risk of pollution from spills and contamination will be reduced by following the Pollution Prevention Guidance (PPG) (Ref. 31) produced by the Environment Agency. Any potential lighting impacts, from demolition and construction activities either affecting off-site habitats or on-site sensitive receptors, will be mitigated by the construction contractor following the guidance listed as follows:

- All lighting will be required to have luminaries that provide an asymmetric beam that allow luminaries to be mounted horizontally, thereby limiting any light spill;
- Only areas that are being worked on or are required for safe access will be subject to additional lighting; and
- Any construction lights will be switched off at the end of the working day.

During operation, the following measures will be implemented to minimise impacts upon both off-site habitats and on-site sensitive receptors:

- The use of low pressure sodium lamps instead of high pressure sodium or mercury lamps;
- Mercury lamps used should be fitted with UV filters;
- The times during which the lighting can be used should be limited to provide some dark periods;
- The lighting should be directed to where it is needed to avoid light spillage; and
- Any upward lighting should be minimal to avoid light pollution.

It is believed unlikely that the proposed development will affect the adjacent SBINC, predominantly due to the vegetation proposed for planting along the eastern boundary of the Site, which will act as a buffer between the development and the SBINC. In addition to this correspondence with Royal Parks in relation to the adjacent SBINC is ongoing and will be consulted with through the implementation of this mitigation.

In the event that the above mitigation measures are implemented, any impacts that could affect the Primrose Hill SBINC are considered to be negligible.

5.3.2. Vegetation and Habitats

The proposed development will involve the removal of a number of trees in the south of the Site to make way for the new access road. All other mature trees around the periphery will be retained. All other vegetation within the Site will be removed. The loss of this habitat is considered a moderate adverse impact in the context of the local area, as the receptor is valued as of Local importance.

The St Edmunds Terrace Landscape Design Statement, as included in the submission, details the landscaping of the proposed development and includes a full planting list. The landscaping will include at ground level; native trees, hedgerows, shrubs, wildflowers and a green roof on the top of blocks 1, 2 and 3.

The area between the internal driveway and St Edmunds Terrace will be planted with ornamental ground cover, shade tolerant shrubs and hedges, and several native tree species. There will be a managed yew (*Taxus baccata*) hedge along St Edmunds Terrace with native, shade tolerant planting, such as lady-fern (*Athyrium filix-femina*) and English ivy (*Hedera helix*) to the north of the hedge. Tree species planted will include ash, pyramid oak (*Quercus robur 'Fastigiata'*), silver birch (*Betula pendula*) and small leaved lime (*Tilia cordata*).

The courtyards will be planted with lines of small multi stemmed silver birch, have a formal grove of silver birch and potted Japanese maple (*Acer japonicum*) and shrub planting. The courtyards will be formally landscaped areas, so not of high ecological value, however shrubs and groundcovers will be seasonal, providing foraging habitat for birds, butterflies and other insects. Species planted will include wych hazel (*Fothergilla major)* English lavender (*Lavandula angustifolia)* white lavender (*Lavandula angustifolia)* and blue lily turf (*Liriope muscari*).

To the southwest corner there will be low level hedges surrounding native grasses, herbs and flowering species in a framework of ornamental planting to help attract wildlife and increase biodiversity. Species planted will include kidney vetch (*Anthyllis vulneraria*), common knapweed (*Centaurea nigra*), English ivy, oxeye daisy (*Leucanthemum vulgare*), salad burnet (*Sanguisorba minor*), common toadflax (*Linaria vulgaris*) common polypody (*Polypodium vulgare 'Cornubiense'*), cowslip (*Primula veris*), selfheal (*Prunella vulgaris*), common dog-violet (*Viola riviniana*), wood false brome (*Brachypodium sylvaticum*), sweet woodruff (*Galium odoratum*) and lady's bedstraw (*Galium vernum*).

Along the western access road low hedges will be planted tin large stone clad planters on one side of the access road and a native hedge will also be planted and left unmanaged. This hedgerow planting will create a green corridor along the western boundary, linking the mature trees along St Edmunds Terrace with the greenspace associated with the Thames Water area in the north, providing a foraging and commuting corridor for bats. The unmanaged native hedge will be planted with the following species; field maple (*Acer campestre*), common hazel (*Corylus avellana*), common hawthorn (*Crataegus monogyna),* cherry plum (*Prunus cerasifera),* blackthorn (*Prunus spinosa)* and yew.

The green roof on block 1 and block 3 will provide a foraging habitat for native birds, insects and bats. The green roof substrate will be of sufficient depth to support an extensive green roof system, allowing for suitable drainage. It will be planted with an acid grassland seed mix on nutrient poor shallow soil to complement the acid grassland known to be present in the adjacent Primrose Hill (Ref. 32). Some of the species planted will include yellow rattle (*Rhianthus minor*), yarrow (*Achillea millefolium*), sneezewort (*Achillea ptarmica*), fragrant agrimony (*Agrimonia procera*), sweet vernal-grass (*Anthoxanthum odoratum*), harebell (*Campanula rotundifolia*), crested dog's-tail

(*Cynosurus cristatus),* wavy hair-grass (*Deschampsia flexuosa*), common knapweed (*Digitalis purpurea*) sheep's fescue (*Festuca ovina*) and red fescue (*Galium verum*).

It is also proposed that amenity grass will be planed on the roof of block 2 between and below the PV cells.

In addition to the above soft landscaped areas, a number of bird and bat boxes will be incorporated into the proposed development. Ten bird boxes of varying type will be incorporated into the scheme, installed at a density of 2/3 per mature tree and at a height of approximately 4m from ground level. Ten bat boxes will be installed at a density of 2/3 per mature tree and at a height of approximately 4m from ground level. These can be placed on the same trees as the bird boxes. It has also been recommended that ten bat bricks will be incorporated into the new building located in closest proximity to Primrose Hill SBINC2. With five bat bricks will be installed in the northern façade and five on the southern façade at approximately second storey height.

A full management strategy will be prepared in consultation with the facility management to manage the landscaped areas and ensure the correct areas of left unmanaged to maximize the biodiversity value of the site. The management strategy will also include the cleaning out of bird and bat boxes annually.

The new planting and bird/bat boxes will provide a different habitat to the one that is being lost but will still include a number of elements that will be utilized by the local ecology. The proposals will help replace and enhance the overall biodiversity value of the Site, and may in time provide a number of nesting and roosting opportunities for birds and bats, respectively. It can therefore be concluded that whilst the ecological structure of the Site is likely to change, the proposed landscaping will provide a good foraging resource for invertebrates, birds and mammals, therefore the loss of the existing habitat will be mitigated by the new proposals.

Removing the vegetation is considered likely to be a short term adverse impact which will only occur once. Once the new landscaping has been installed, it is considered highly likely that there will be an overall long term beneficial impact on the vegetation and habitats present at a Local level.

5.3.3. Bats

All bat species are protected under the WCA 1981 (as amended), the CRoW Act 2000 (as amended) and Habitat Regulations 2010. Several species of bat are also listed as UK BAP Priority Species and Species of Principal Importance for the Conservation of Biodiversity in England, including relatively frequently encountered species, e.g. brown long-eared bat (*Plecotus auritus*) and soprano pipistrelle (*Pipistrellus pygmaeus*). In addition, all bats are local priority species within Camden BAP as well as within the London BAP.

The potential impacts of the proposed development on bats and necessary mitigation are detailed within the Bat Survey Report, see Appendix B, but are summarised below.

During bat surveys undertaken at dusk on 26th July and 31st August 2010 and at dawn on 1st September, three common pipistrelles were seen to emerge from building B3 with up to two soprano pipistrelles seen to emerge from building B4, confirming both of these buildings as bat roosts. Both building B1 and building B2 are considered to have low potential to support bats but roosting has not been confirmed within these buildings. No bats were recorded emerging from any of the trees within the site during any of the bat surveys; however none of the surveys specifically focused on any of the trees, which will be subject to detailed survey immediately prior to felling. The roosting and foraging habitat present at the Site is considered to be of Local importance.

Prior to the commencement of demolition of the buildings identified as bat roosts, ten Schwegler bat boxes will be installed on mature trees scheduled for retention as part of the proposals. The bat boxes will be installed at a minimum height of 4m above ground level and will remain in place in perpetuity. This will ensure there is no temporary loss of potential roost sites.

In order to demolish the buildings confirmed as bat roosts, a Natural England European Protected Species (EPS) Licence will be gained. The purpose of the Natural England Licence is to allow otherwise illegal destruction and disturbance works to be undertaken within the site.

The licence will consist of a method statement within which the methods for the sensitive demolition of these buildings will be set out. Broadly, the methods will involve the capture and exclusion of bats from B3 and B4 followed by the removal of all potentially suitable roosting features, such as roofing tiles, hanging tiles, soffits and barge boards. In addition, a check of any cavity walls present will also be undertaken. Once the potential roosting features have been removed under the supervision of a Natural England licensed bat worker, the demolition can continue without the requirement for further supervision.

The removal of potentially suitable roosting features from other buildings within the site will be undertaken by hand under the supervision of a Natural England licensed bat worker. The features considered to be suitable for roosting bats are the soffits and fascia boards on both buildings B1 and B2; and the hanging tiles present on building B1. Once these features have been removed, the demolition can continue without the need for supervision. These building will be included within the EPS licence, so that works will not be halted if bats are found during the supervised strip.

All soffits, boarding and tiles will be turned over once removed to ensure that no bats are attached to the under side.

In the unlikely event that any bats are encountered during the works, the Natural England licensed bat worker will capture the bat with hand net or gloved hands and place it in a drawstring bag for transfer to one of the bat boxes installed nearby. Any injured bats will be immediately taken into care. Details of a local bat carer will be available at the site.

The site will be enhanced to support both foraging and roosting bats once operational. The existing foraging corridors (the mature trees around the periphery) will be retained, in

addition to a new native hedgerow being planted along the western boundary linking the southern corridor to the greenspace associated with the Thames Water area in the north. The existing usage by roosting bats is believed to be under hanging tiles, which will be replaced through the installation of a number of inter-connected bat bricks within the new building in closest proximity to Primrose Hill SBINC2. In addition, the Site will be enhanced through the provision of tree-mounted bat boxes.

The provision of roosting space within the fabric of one of the new buildings; the tree-mounted bat boxes; and the creation of new foraging corridors will have the overall result of a long-term beneficial effect at a Local level.

5.3.4. Invertebrates

The stag beetle is protected under the WCA 1981 (as amended) and listed as a Priority Species on both the UK and the London BAPs. Tree stumps and dense scrub containing dead wood present within the Site may provide suitable habitat for stag beetles, which are known to be present in the surrounding area.

The removal of these areas of dead wood will be unavoidable, it is therefore recommended that a precautionary approach to grubbing them out is adopted. Such an approach should involve a destructive search of the stump and root system. Any stag beetle larvae present should be relocated and re-buried within a loggery or loggeries outside of the affected area of the Site.

Provided that any grubs found are relocated to a suitable loggery that will not be affected by the Proposed Development, any impact associated with the stag beetles as a result of the Proposed Development is considered negligible.

5.3.5. Birds

All birds, their eggs, nests and nestlings are protected under the WCA 1981 (as amended), with the exception of species considered as pests. The birds that may use the Site are considered to be of value within the immediate zone of influence only.

The removal of the vegetation within the Site will result in the loss of a foraging and nesting habitat for the local populations of breeding birds. In ecological terms, this loss is likely to result in a minor adverse impact on breeding birds in the context of the immediate zone of influence only. However the loss of a nest that contains eggs or young could result in a contravention of the WCA.

It is therefore recommended that any necessary clearance of bird nesting habitat be undertaken outside of the bird breeding season, i.e. vegetation clearance / building demolition should be undertaken during the period September to February inclusive. Should it prove necessary to clear potential bird nesting habitat during the bird-breeding season, these works should be preceded by a nest check. If any active nests are found clearance should cease and an appropriate buffer zone be established and left intact until it has been confirmed that all young have fledged and the nest is no longer in use. It is also recommended that if the Site is left dormant for longer than two weeks during the construction/demolition period, within the bird breeding season, that a survey is

undertaken on the Site by a suitably experienced ecologist to ensure birds have not started to breed on the Site.

The post development landscaping includes areas of scrub and tree planting, bird boxes and a green roof. The provisions of these new habitats mean that the breeding habitat present at Site is likely to be enhanced as a result of the development. An overall beneficial impact on breeding birds is highly likley, in the context of the immediate zone of influence only.

5.3.6. Wild Mammals

All wild mammals are protected under the Wild Mammals (Protection) Act 1996, making it an offence to intentionally cause any unnecessary suffering by certain methods, including crushing and asphyxiation. In addition to this, hedgehog is listed on the UK BAP. The wild mammals that may use the Site are considered to be of value within the immediate zone of influence only.

As aforementioned, the garden beds and shrub borders are considered to provide suitable habitat (including refugia) features for hedgehog. This vegetation will be removed as a result of the development, given the limited legal protection afforded to wild mammals; a precautionary approach should be adopted.

Specifically, any clearance of dense shrub borders, dense ivy at the bases of fences walls and tree lines, hedging and/or dismantling of the sheds and piles of logs, etc., should be carried out sensitively (i.e. destructive search by hand) such that, should any hedgehogs be identified they can be removed from the footprint of the works. Hedgehogs would be most vulnerable both during hibernation (i.e. in winter months) and during the breeding season (i.e. April to September) when they would have dependent young in the nest.

It is believed that enough habitat will remain within the area to support hedgehogs. Following the recommendations of removing the scrub sensitively, it is considered any impacts on hedgehogs likely to be caused by the proposed development are considered negligible.

The vegetation within the Site also has the potential to support common mammals such as foxes. As well as excavating sensitively any animal holes or burrows encountered, it is also recommended that measures be employed during the demolition and construction phase to mitigate any adverse impacts on mammals that may venture onto the Site. This would include the covering of all deep holes and trenches overnight and/or the provision of planked escape routes for any trapped wildlife. In addition, any liquids held on-site should be stored in a secure lock-up.

The Site has the potential to support various common species of mammal but providing these measures are taken, there is negligible risk that mammal species will be affected by the proposals.

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FIGURES

Figure 1. Phase 1 Habitat Map

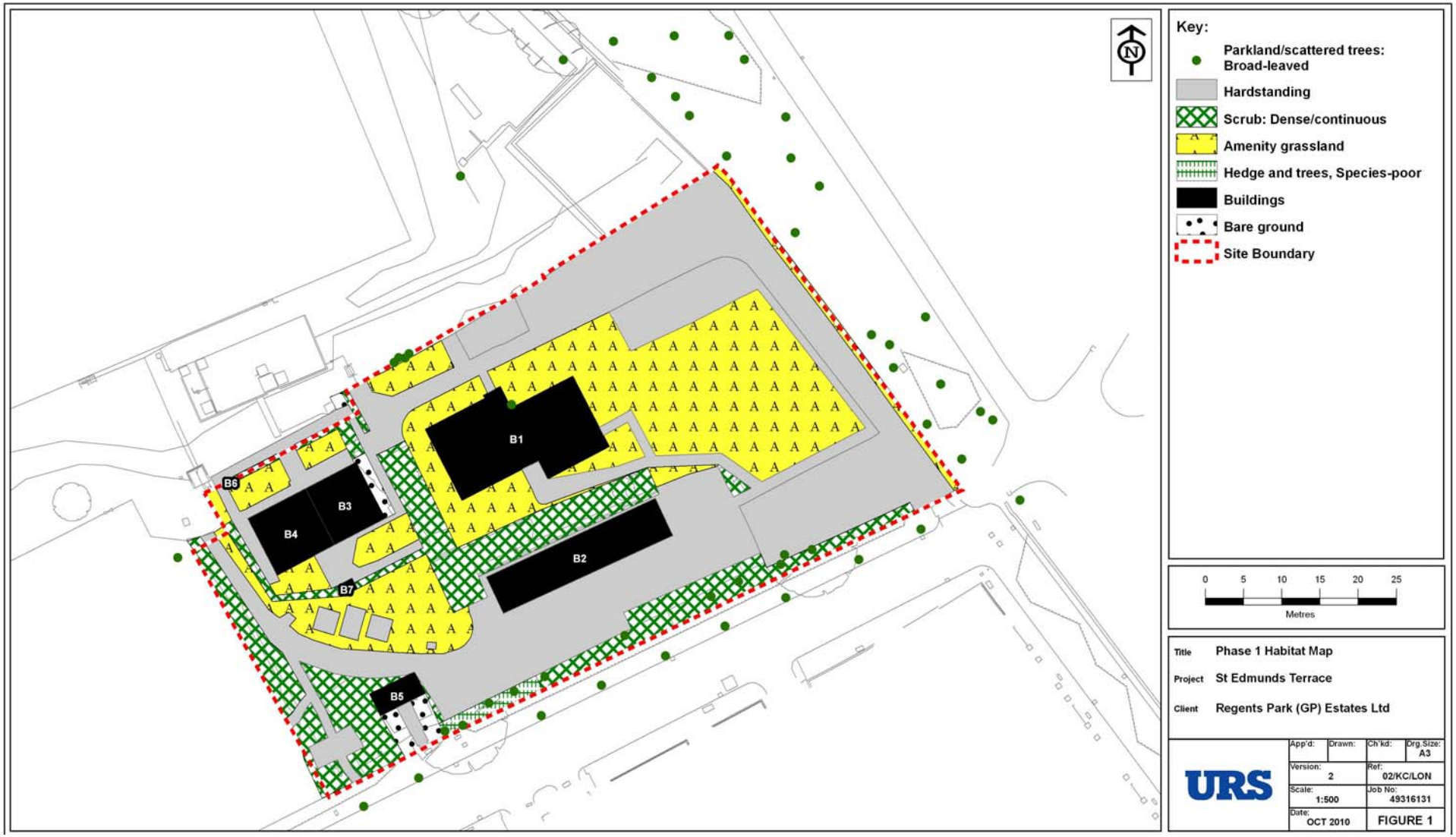
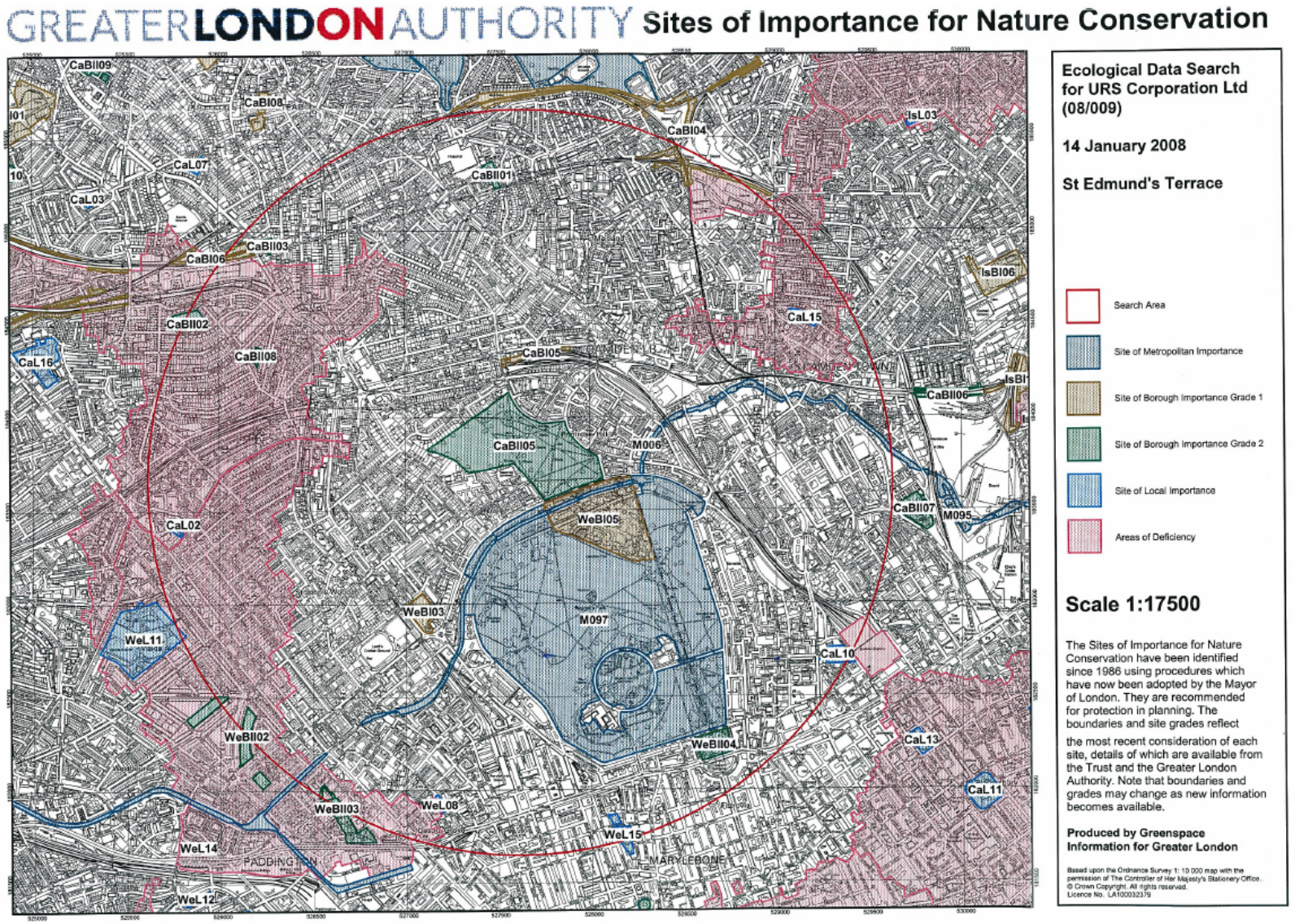


Figure 2. Non-Statutory Sites within 2km Radius of Site



APPENDIX A – PLANT SPECIES LIST

Appendix A – Plant Species List

Common name	Species name	ST	AM	ESP	DS	PHT
Alder						
Ash	*Fraxinus excelsior*	D			F	F
Barberry	*Berberis vulgaris*				O - R	
Bramble	*Rubus fruticosus L. agg.*				O	
Bristly oxtongue	*Picris echioides*		O - R			
Cherry laurel	*Prunus laurocerasus*				A	
Cherry sp.	*Prunus sp.*	O - R				
Cock's-foot	*Dactylis glomerata*		O - R			
Common cat's-ear	*Hypochaeris radicata*		O			
Common couch	*Elymus repens*		O - R			
Common mallow	*Malva sylvestris*				R	
Common mouse-ear	*Cerastium fontanum*		O			
Common nettle	*Urtica dioica*		O - R		O	
Conifer	*n/a*	O - R				
Cotoneaster	*Cotoneaster horizontalis*				LF	
Cow parsley	*Anthriscus sylvestris*		O - LF			
Creeping bent	*Agrostis stolonifera*		O			
Creeping buttercup	*Ranunculus repens*		O - LA			
Creeping cinquefoil	*Potentilla reptans*		O-LF			
Cultivated apple	*Malus domestica*	R				
Cultivated rose	*Rosa sp.*				O	
Daisy	*Bellis perennis*		O - LF			
Dandelions	*Taraxacum officinale*		O			
Dove's-foot crane's-bill	*Geranium molle*		O - R			
Elder	*Sambucus nigra*	R				
Euonymus	*Euonymus sp.*				O - R	
Everlasting-pea	*Lathyrus sp.*				O - R	
Field maple	*Acer campestre*	R				
Forsythia	*Forsythia sp.*				O - R	
Garden privet	*Ligustrum ovalifolium*				O	D
Green alkanet	*Pentaglottis sempervirens*				O - R	
Groundsel	*Senecio vulgaris*		O - R			
Guelder-rose	*Viburnum opulus*				O - R	
Guernsey fleabane	*Conyza sumatrensis*		R	LD	O	
Hawkweed sp.	*Hieracium sp.*		R			
Hawthorn						
Herb-Robert	*Geranium robertianum*			LD		
Honeysuckle	*Lonicera sp.*				O - R	
Holly						
Hybrid black poplar	*Populus x canadensis*	R				
Lime	*Tilia sp*					
Moss sp.	*n/a*		LF			
Oleaster	*Elaeagnus sp.*				LA	

Common name	Species name	ST	AM	ESP	DS	PHT
Perennial rye-grass	*Lolium perenne*		LF- O			
Petty spurge	*Euphorbia peplus*		R			
Portugal laurel	*Prunus lusitanica*					
Red fescue	*Festuca rubra*		A-D			
Ribwort plantain	*Plantago lanceolata*		O - LF			
Rough sow-thistle	*Sonchus asper*		R			
Rowan	*Robinia sp*					
Self-heal	*Prunella vulgaris*		R			
Silver birch	*Betula pendula*					
Smooth meadow-grass	*Poa pratensis*		LF			
Smooth sow-thistle	*Sonchus oleraceus*		R			
Spear thistle	*Spear thistle*		O - R			
St John's-wort	*Hypericum sp.*				O	
Summer jasmine	*Jasminum officinale*				O	
Sycamore	*Acer pseudoplatanus*	F			O	F
Trefoil sp.	*Trifolium sp.*		R			
White clover	*Trifolium repens*		R			
Willow						
Wood avens	*Geum urbanum*				O	
Yarrow	*Achillea millefolium*		LF			
Yew	*Txus baccata*				O	
Yorkshire-fog	*Holcus lanatus*		O			

ST	Scattered trees
AM	Amenity grassland
ESP	Ephemeral / short perennial
DS	Dense scrub
PHT	Species-poor hedge with trees

APPENDIX B – BAT SURVEY REPORT

St Edmunds Terrace

Bat Survey Report

29th October 2010
Final

Issue No 1

Project Title:	St Edmunds Terrace
Report Title:	Bat Survey Report
Project No:	49316133
Status:	Final
Client Company Name:	Regents Park (GP) Estates Ltd
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Document Production / Approval Record

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Document Revision Record

Issue No	Date	Details of Revisions
1	29/10/2010	Original issue

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URS Corporation Limited (URS) has prepared this Report for the sole use of Camden Regeneration (St Edmunds) Ltd. in accordance with the Agreement under which our services were performed. No other warranty, expressed or implied, is made as to the professional advice included in this Report or any other services provided by us. This Report may not be relied upon by any other party without the prior and express written agreement of URS. Unless otherwise stated in this Report, the assessments made assume that the sites and facilities will continue to be used for their current purpose without significant change. The conclusions and recommendations contained in this Report are based upon information provided by others and upon the assumption that all relevant information has been provided by those parties from whom it has been requested. Information obtained from third parties has not been independently verified by URS, unless otherwise stated in the Report.

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CONTENTS

1. INTRODUCTION

1.1. Brief

URS Corporation Ltd. was commissioned by Regents Park (GP) Estates Ltd. to undertake a bat survey of three buildings within the boundaries of a site known as St Edmunds Terrace, St Johns Wood, London. Previously, bat survey work was undertaken at the site by Environmental Resources Management Limited on behalf of URS Corporation Ltd in September 2008. The results of this survey work are reported within the St Edmunds Terrace Bat Survey report (included as Appendix A). An update extended Phase 1 survey and internal bat inspection was undertaken in June 2010 by URS Corporation in order to inform a planning application for the demolition of the existing buildings within the site and its redevelopment for residential use.

The update survey of the site identified that the three buildings surveyed still had the potential to support roosting bats and therefore, a recommendation was made for detailed surveys to be undertaken between May and August 2010, prior to the application for planning permission. The surveys were required in order to ascertain whether the proposed demolition and redevelopment might result in any infringement to wildlife law and what mitigation measures may be required to avoid this possibility.

This report details the methods and results of bat surveys undertaken at the site on 26th July and 31st August 2010.

1.2. Location

The area subject to detailed bat survey comprises three buildings, as identified on Figure 1. The site is located in the urban setting within Camden, London. The site is adjacent to Primrose Hill on its eastern boundary; and has residential properties to the south and west.

1.3. Scope of Works

As part of the 2010 update site survey, two of the buildings were assessed as having low potential and the third as having moderate potential to support roosting bats. The bat survey was intended to build upon this result and be used to inform the planning application associated with the demolition of the existing buildings on site and the redevelopment of the area for residential use.

2. METHODS

In line with the works reported within the St Edmunds Terrace Bat Survey Report in 2008 (Appendix A), an update daytime assessment of the buildings was undertaken by a Natural England licensed bat worker and an assistant on 28th June 2010. It consisted of a thorough internal examination of all buildings, including upper storey windows and roof voids, wherever present. These were searched for signs of occupancy by bats, such as the presence of bat droppings, urine staining, grease marks and scratches at likely access points or roosting locations, areas devoid of cobwebs, dead bat specimens or live roosting bats. Following completion of the daytime assessment of the buildings, their potential for supporting roosting bats was assessed in line with the following criteria:

- **Negligible Potential** - No features that could be used by bats (for roosting, foraging or commuting).
- **Low Potential** - Small number of potential roosting features, isolated habitat that could be used by foraging bats, e.g. a lone tree or patch of scrub but not parkland, isolated site not connected by prominent linear features (but if suitable foraging habitat is adjacent it may be valuable if it is all that is available).
- **Moderate Potential** - Several potential roosting features in the buildings, trees or other structures, habitat could be used by foraging bats, e.g. trees, shrub, grassland or water, site is connected with the wider landscape by linear features that could be used by commuting bats, e.g. lines of trees and scrub or linked back gardens.
- **High Potential** - Buildings, trees or other structures (such as mines, caves, tunnels, ice houses and cellars) with features of particular significance for roosting bats, habitat of high quality for foraging bats, e.g. broadleaved woodland, tree-lined watercourses and grazed parkland, site is connected with the wider landscape by strong linear features that would be used by commuting bats e.g. river/stream valleys or hedgerows, site is close to known roosts.
- **Confirmed Roosting** - Evidence indicates a building, tree or other structure is used by bats, e.g. bats seen roosting or observed flying from a roost or freely in the habitat; droppings, carcasses, feeding remains, etc. found; and/or bats heard 'chattering' inside on a warm day or at dusk, bats recorded/observed using an area for foraging or commuting.

In addition to the daytime assessment, update emergence/return surveys were undertaken at the site. The first survey consisted of an evening emergence survey, undertaken on 26th July 2010; and an evening emergence/dawn re-entry survey, undertaken on 31st August 2010.

Emergence and emergence/re-entry surveys were undertaken by four surveyors, including a Natural England licensed bat worker on both occasions. The surveys were undertaken using Anabat detectors or Batbox Duet detectors connected to Edirol R-09 digital recorders. The data recorded was then analysed using BatScan and Analook

software. Computer analysis of ultrasound in this way can assist in determining the identity of bat species.

The survey on 26th July 2010 was undertaken between 20.43 (approximately 15 minutes before sunset) and 22.58 (approximately two hours after sunset). The weather conditions during the emergence survey started with light rain but became dry and clear with a cool breeze after a humid day. Approximate air temperature at the start of the survey was 22°C falling to approximately 19°C at the end of the survey.

The second emergence survey, on 31st August 2010, was undertaken between 19.34 (approximately 15 minutes before sunset) and 21.49 (approximately two hours after sunset). The weather conditions during the emergence survey were clear and still for the entire survey. Approximate air temperature at the start of the survey was 17°C falling to approximately 10°C at the end of the survey.

The dawn re-entry survey, undertaken on 1st September 2010, was carried out between 04.34 (approximately one and three quarter hours prior to sunrise) and sunrise at 06.13. The weather conditions during this survey remained clear and still with approximate air temperatures between 12°C and 5°C.

It is considered that all surveys were undertaken at an optimal time and during suitable weather conditions for bat activity.

3. RESULTS

3.1. Buildings and Other Site Features

The buildings within the site were subject to daytime assessment and are briefly described within Table 1, below, with an assessment of their potential to support bats also given.

Table 1: Building Descriptions

Building Type	Building Description	Evidence of Bats?	Bat Potential
B1	Four-storey, brick-built block of flats with a flat roof and hanging tiles present. The building is only partially occupied - by site security staff.	None	Negligible to Low
B2	Single-storey concrete garage block with flat roof. The majority of windows have holes or gaps and there are gaps beneath/above most doorways. This building is not used.	None	Negligible to Low
B3 and B4	Row of three brick-built, two-storey semi-detached residential dwellings with pitched tiled roofs. There are hanging tiles present around the upper storey. All of these properties are unoccupied.	None	Low to Moderate
B5	Single-storey, brick-built electricity sub-station with flat roof.	None	Negligible

In addition to the buildings within the site, there are a number of mature trees present around the site boundaries that may offer some potential as roosting habitats for bats.

3.2. Survey Findings

During the 26th July emergence survey, the earliest recording, of a soprano pipistrelle, was made at 21.12 close to the northern edge of the site, more specifically to the north of B1. The timing of this first recording (approximately 14 minutes after sunset) indicates that the bat is likely to have been roosting within or immediately adjacent to the site. Following this, a small number of common pipistrelle and soprano pipistrelle bats were recorded foraging around the site, particularly along the northern boundary to the rear of B1 and to the south of B3.

The 31st August emergence survey recorded similar levels of activity within the site. The first recording, of a pipistrelle bat (unknown species due to poor quality of recording), was made at approximately 20.11 to the north of B1. The timing of this recording (approximately 22 minutes after sunset) indicates that the bat is likely to have emerged from very close by. Following the first recording, up to three common pipistrelle bats were seen to emerge (between 20.15 and 20.18) from the southern elevation of B3 and up to two soprano pipistrelle bats were seen to emerge (between 20.17 and 20.19) from the northern elevation of B4. For the rest of the survey period, a small number of both common and soprano pipistrelles were recorded foraging around the site.

The 1st September re-entry survey recorded low levels of activity around the site. The last recording, of a soprano pipistrelle, was made at approximately 05.52 to the north of B1. The timing of this recording (approximately 15 minutes before sunrise) indicates that the bat is likely to have returned to a roost within or immediately adjacent to the site.

3.2.1. Summary

Up to three common pipistrelles were seen to emerge from B3 with up to two soprano pipistrelles seen to emerge from B4, confirming both of these buildings as bat roosts. Bats were recorded near to building B1 but no bats were seen to emerge or return to this building. Both building B1 and building B2 are considered to have potential to support bats but roosting has not been confirmed within these buildings. Building B5 is not considered to have any potential to support bats.

4. ASSESSMENT AND RECOMMENDATIONS

4.1. Legislation and Policy

Bats are protected under the Wildlife and Countryside Act 1981 (as amended) and under the Conservation of Habitats and Species Regulations 2010. Taken together, these make it an offence to:

a) Deliberately capture or intentionally take a bat;

b) Deliberately or intentionally kill or injure a bat;

c) Be in possession or control of any live or dead wild bat, or any part of, or anything derived from a wild bat;

d) Damage or destroy a breeding site or resting place of a bat;

e) Intentionally or recklessly obstruct access to any place that a bat uses for shelter or protection;

f) Intentionally or recklessly disturb a bat while it is occupying a structure or place that it uses for shelter or protection; and

g) Deliberately disturb bats, in particular any disturbance which is likely to (i) impair their ability to survive, breed, reproduce or to rear or nurture their young; or in the case of hibernating or migratory species, to hibernate or migrate; or (ii) to affect significantly the local distribution or abundance of the species to which they belong.

In addition, seven bat species are listed on the UK Biodiversity Action Plan as well as being listed as Species of Principal Importance under the provisions of the Natural Environment and Rural Communities (NERC) Act 2006. Planning Policy Statement 9 gives guidance on the treatment of Species of Principal Importance and states that local authorities should ensure that they are protected from the adverse effects of development, where appropriate, by using planning conditions or obligations.

4.2. Potential Impacts

The results of the emergence survey indicate that the terraced houses in the western part of the site are being used by roosting bats (B3 and B4). The results also indicate that the shrub and hedgerow habitats on the site boundaries form part of a foraging and commuting network for bats roosting in the locality.

Given the presence of roosting within buildings B3 and B4, any renovation or demolition works likely to affect the roost or disturb bats will need to be undertaken under licence obtained from Natural England. Despite no evidence of roosting within buildings B1 and B2 at the site, it is considered that there are some features present that could support roosting bats, although the risk is considered to be low. It is therefore considered that a precautionary approach to their demolition should be undertaken.

Some of the trees around the site boundaries may also have some potential to support roosting bats, therefore any tree removal or surgery required as part of the proposals for the site may result in an impact to bats.

A mitigation strategy to cover the demolition of all three of the buildings as well as any tree surgery/removal works that may be required is included as Section 5, below.

5. MITIGATION STRATEGY

5.1. Enabling Works

Prior to the commencement of demolition of the buildings identified on Figure 1, ten Schwegler bat boxes will be installed on mature trees scheduled for retention as part of the proposals. The bat boxes will be installed at a minimum height of 4m above ground level and will remain in place in perpetuity.

5.2. Buildings with Confirmed Bat Roosts (Buildings B3 and B4)

Where the presence of bat roosts has been confirmed, these buildings cannot be subject to any demolition, renovation or refurbishment works without first obtaining a Natural England European Protected Species (EPS) Licence, which in turn cannot be applied for until planning permission for the proposals has been gained. The purpose of the Natural England Licence is to allow otherwise illegal destruction and disturbance works to be undertaken within the site.

The licence will consist of a method statement within which the methods for the sensitive demolition of these buildings will be set out. Broadly, the methods will involve the capture and exclusion of bats using B3 and B4 and then the removal of all potentially suitable roosting sites. Potentially suitable roosting sites include roofing tiles, hanging tiles, soffits, barge boards and cavity walls, if present. Once the potentially suitable features have been removed under the supervision of a Natural England licensed bat worker, the demolition can continue without the requirement for further supervision.

5.3. Other Buildings within the Site (Buildings B1 and B2)

The removal of features considered to be suitable for roosting bats will be undertaken by hand under the supervision of a Natural England licensed bat worker and will utilise a cherry picker or similar, where necessary. The features considered to be suitable for roosting bats are the soffits and fascia boards on both buildings B1 and B2; and the hanging tiles present on building B1. All soffits, boarding and tiles will be turned over once removed to ensure that no bats are attached to the under side. Once these features have been removed, the demolition can continue without the need for supervision.

These building should be included within the EPS licence, so that works will not be halted if bats are found during the supervised strip.

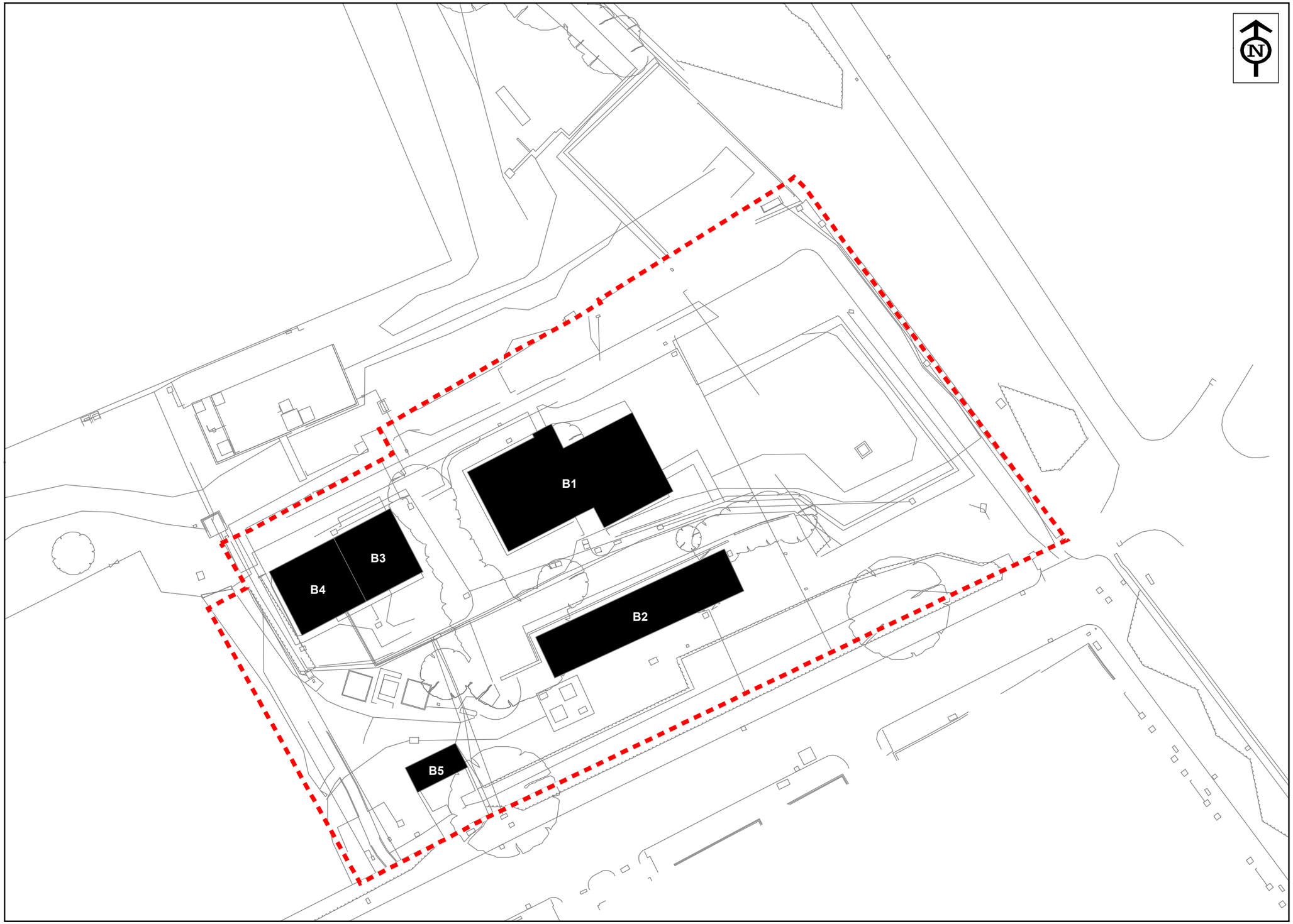
In the unlikely event that any bats are encountered during the works, the Natural England licensed bat worker will capture the bat with hand net or gloved hands and place it in a drawstring bag for transfer to one of the bat boxes installed nearby. Any injured bats will be immediately taken into care (as directed within the Bat Workers Manual, 3rd Ed., 2004). Details of a local bat carer are known.

5.4. Mature Trees

It is recommended that any mature tree to be removed from the site or requiring tree surgery is subject to detailed daylight bat survey by a suitably qualified and licensed ecologist prior to any works commencing. A plan of all proposed tree works should be provided to a suitably qualified and licensed ecologist prior to the start of all demolition/construction works at the site. This survey should be undertaken prior to the application for a Natural England EPS licence for the buildings within the site, so that trees identified as bat roosts can be captured within the same licence method statement.

Of the trees surveyed, should any of the trees be confirmed to have medium or high potential to support roosting bats but not identified as a roost, these will need to be soft-felled/worked under the supervision of a licensed bat worker. Other trees can be removed from the site as per normal working practices following the initial checks.

Figure



Key:

Buildings

Site Boundary

0 5 10 15 20 25

Metres

Title Bat Survey Map

Project St Edmunds Terrace

Client Regents Park (GP) Estates Ltd

URS

App'd:	Drawn:	Ch'kd:	Drg.Size: A3
Version: 2			Ref: 02/KC/LON
Scale: 1:500			Job No: 49316133
Date: OCT 2010			**FIGURE 1**

Appendix A - St Edmunds Terrace Bat Survey (Sept 2008)

Camden Regeneration (St Edmunds) Ltd

St Edmunds Terrace Bat Survey

December 2008

0089031

Prepared by: Beth Seldon

For and on behalf of
Environmental Resources Management

Approved by: Bruce Davidson

Signed: 

Position: Partner

Date: 15 December 2008

CONTENTS

1 INTRODUCTION

A new residential development is proposed at a site off St Edmund's Terrace, St John's Wood, London. Existing derelict buildings within the 0.45 ha site are to be demolished and the ground levelled and prepared for construction.

The building structures within the site were identified as being suitable for bat roosts. Bats and their roosts are protected under European legislation, enacted in the UK through the Conservation Regulations [(1)].

The Regulations give bats, their breeding sites and resting places a high level of protection, in summary, it is a criminal offence to:

- capture or kill a bat;
- disturb a bat whilst in a place of shelter or rest (roost); or
- damage or destroy a bat's breeding site or resting place.

If the proposed development is expected to cause disturbance to bats, therefore resulting in contravention of the legislation, a licence will need to be sought from Natural England. In order to establish where bats are present, emergence surveys have been undertaken across the site to identify any bat roosts within buildings and trees and to inform any necessary mitigation.

The remainder of this report is structured as follows:

- *Section 2* describes the current site baseline in relation to bats;
- *Section 3* describes the habitats identified as having potential to support bat roosts;
- *Section 4* describes the demolition and site preparation methodology;
- *Section 5* describes the survey methodology and results summary;
- *Section 6* describes the mitigation measures which will be undertaken to remove and reduce impacts to bats;
- *Section 7* conclusion.

(1) Protected under the Wildlife and Countryside Act 1981 and amendments and the Conservation (Natural Habitats, & c) (Amendment) Regulations 2007.

URS produced an Ecological Assessment report on behalf of Mace Group for the St Edmund's Terrace site dated March 2008 [1]. The site is approximately 0.45 ha and comprises the following habitats:

- derelict and partially occupied buildings;
- hard standing and bare ground;
- scattered broadleaved trees;
- overgrown tree scrub and ornamental planting;
- species poor hedgerow with trees;
- ephemeral / short perennial vegetation; and
- improved grassland.

As part to their ecological assessment in March 2008, URS commissioned a data search for local biological data records from the Greenspace Information for Greater London (GIGL). Records provided within the URS report relating to bats are summarised below:

There are records of four species of bats roosting within 2 km of the site (see *Table 2.1*) [2].

Table 2.1 Notable Bat Species Recorded Roosting Within the Search Area

Common Name	Latin Name	Distance (m)	Bearing	Year
Bats	*Vespertilionidae*	628	Northwest	1999
Pipistrellus	*Pipistrellus*	1525	West	1994
45 KHz Pipistrelle	*Pipistrellus pipistrellus 45 KHz*	1710	East	2005

Various species have been sighted within 2 km of the site (see *Table 2.2*) [3].

(1) URS. St Edmund's Terrace Ecology Report. December 2008.
(2) Taken from URS report St Edmund's Terrace Ecology Report. December 2008.
(3) Taken from URS report St Edmund's Terrace Ecology Report. December 2008.

Table 2.2 Notable Bat Species Sighted Within the Search Area

Common Name	Latin Name	Distance from Site (m)	Bearing	Year
Bats	*Vespertilionidae*	349-1419	Various	1985-1999
Unidentified Bat	*Myotis*	1151	South	2005
Daubenton's Bat	*Myotis daubentoni*	1009	Southeast	2005
Nyctalus	*Nyctalus*	455-1261	South	1998
Noctule	*Nyctalus noctula*	357-1761	Various	1985-2006
Pipistrelle	*Pipistrellus pipistrellus*	873-1761	Various	2005-2006
Pipistrellus	*Pipistrellus*	276-1924	Various	1985-2005
45 KHz Pipistrelle	*Pipistrellus pipistrellus 45 KHz*	349-1710	Various	1998-2005
55 KHz Pipistrelle	*Pipistrellus Pipistrellus 55KHz*	349-1559	Various	1996-2006

The Phase 1 ecological survey by URS recorded the buildings on site as having between negligible and medium potential for bats (see *Table 2.3*).

Table 2.3 URS Assessment of Bat Potential of Buildings on Site

Building	Features Indicating Potential for Roosting Bats	Bat Potential
B1	A small number of features noted comprising: holes within the wire mesh of approximately three of the ventilation panels on the ground-floors: open 3rd floor window; and raised lead flashing and missing hanging tile beneath 3rd floor window.	Low to Negligible
B2	Several features noted including a crack within the walling on the north-western side of the building, gaps between windows and wooden boarding and gaps beneath raised lead flashing.	Low to Negligible
B3	Several gaps were noted at eave level, including possible gap between mortar and brickwork at gable end, narrow gap between brick wall and soffit box at northern side of the building and two missing tiles on the southern wall.	Medium
B4	Several gaps at eave level, including approximately four broken hanging tiles with bird's droppings on northern wall and one missing hanging tile on the southern wall.	Medium
B5	No features noted. Building integral.	None

Building	Features Indicating Potential for Roosting Bats	Bat Potential
B6	Shed integral other than narrow gap between top of door and door frame.	Negligible to none
B7	Sheds integral other than narrow gap between top of door and door frame.	Negligible to none

The trees on the southern boundary of the site site were also assessed for their potential as roosts, none of them were considered greater than of low value (see Table 2.4) (see URS report for precise locations).

Table 2.4 Bat Potential of Trees on Site

Tree Number	Species	Features Indicating Potential for Roosting Bats	Bat Potential
T4	False acacia	Densely ivy clad	Low
T5	Sycamore	Moderately ivy-clad	Negligible to none
T6	Sycamore	Modestly ivy-clad and rot hole	Negligible to none
T7	Ash	Densely ivy clad, modest-sized trunk	Negligible to none
T8	Ash	Modestly / moderately ivy-clad	Negligible to none
T9	Ash	Moderately to densely ivy-clad	Low
T10	Undetermined stumps	Flaking bark, ivy cladding	Low
T13	Willow sp	Moderately ivy-clad, dead limb	Low

Site preparation works are proposed at the residential development site off St Edmund's Terrace. All structures within the site are to be demolished to prepare the site for new construction. The locations and works for which this application is being made are listed in *Table 3.1.*

Table 3.1 Structures Affected by Site Preparation Works

Building/Structure	Description	Proposed works
B1	Four-storey block of flats with brickwork walls, hanging tiles and a flat roof. Partially occupied by site security.	Demolition.
B2	Single storey concrete walled garage block with flat roof. Some windows are sealed. Unoccupied.	Demolition.
B3 & B4	Two storey circa 1950's semi-detached row of three residential houses with brick walls, hanging tiles and pitched, tiled roofs. Derelict.	Demolition.
B5	Single storey brick built electricity sub-station with flat roof.	Demolition
B6&B7	Wooden garden sheds. Not used.	Removal.

Figure 3.1 Building B1

Figure 3.2 Building B2

Figure 3.3 Building B3&B4

Figure 3.4 Building B5

Figure 3.5 Building B6& B7

4 SUMMARY OF BAT EMERGENCE SURVEYS

4.1 INTRODUCTION

The Phase 1 survey findings of building suitability for use by bats recorded by URS were discussed with Camden Borough Council ecologist Kevin Fisher [(1)]. It was agreed that a bat emergence survey was required to confirm whether any bat roosts are present on the site and to record the likely status of any roosts and general use of the site by bats.

4.2 METHODOLOGY

The survey method used for the emergence survey followed the Bat Conservation Trust Guidelines, 2007 [(2)] as far as possible; any deviations from the recommended methods are explained. The survey focused on buildings B3 and B4 previously recorded by URS as having medium potential for bats and buildings B1 and B2, previously recorded as having low to negligible potential for bats (see *Table 2.3*). The surveys also covered trees with low potential (see *Table 2.4*).

Two dusk and one dawn survey were undertaken at the site between 16 and 18 September 2008. The optimum survey period for identification of survey roosts is between June and August inclusive [(3)]. It is should however be noted that the weather conditions towards the end of August and the beginning of September 2008 were very wet and that conditions during the surveys, though late in the season were fine and dry and between 8 to 14^0C.

Buildings B1, B2, B3 and B4 were surveyed on three occasions, at dusk on 16th September, dusk on 17th September and dawn on 18th September 2008. The dusk surveys were carried out from ¼ hour before sunset to 2 hours after. The dawn survey took place from 2 hours before sunrise to ¼ hour after sunrise. Surveys were carried out by two surveyors using Batbox © Duet hand held bat detectors at four vantage points within the site to allow full coverage of the buildings, a good view of likely access points and including the trees with low potential across the site.

4.3 RESULTS

This section presents a summary of the findings of the bat emergence surveys. Detailed results tables are provided in *Appendix 1*. Bat surveyor locations are provided on *Figure 1.*

4.3.1 Dusk Survey - 16th September (19.15-21.30)

Weather Cloudy, calm and dry, 14^0C falling to 10^0C

No bats were recorded emerging from buildings or trees within the site. A small number of foraging 45 KHz common pipistrelle bats were recorded, likely just one or two individuals. Bats were recorded emerging from the area of mature broadleaved trees beyond the western site boundary and circling the southern garden of flats B3 and B4 and flying between buildings B3 and B1. A smaller number of bats were

(1) Email from Kevin Fisher dated 2 September 2008.
(2) Bat Conservation Trust. 2007: Bat Survey Guidelines. Final, July 2007.
(3) Bat Conservation Trust. 2007: Bat Survey Guidelines. Final, July 2007.

recorded foraging within the northern garden of buildings B3 and B4. A small number of bats were recorded flying along the mature treeline beyond the north-eastern site boundary.

4.3.2 Dusk survey – 17th September 2008 (19.15-21.30)

Weather Clear, calm and dry, 13^{0}C falling to 11^{0}C

No bats were recorded emerging from buildings or trees within the site. The survey showed similar levels of bat activity to the dusk survey on 16th September including a small number of foraging common pipistrelle bats. No more than two individuals were recorded foraging across the gardens of buildings B3 and B4 and commuting in the direction of the mature broadleaved trees beyond the western site boundary.

4.3.3 Dawn Survey - 18th September 2008 (04.30-06.45)

Weather Clear, calm and dry, 7^{0}C rising to 10^{0}C

No bats were recorded emerging from trees within the site. The survey recorded very little bat activity. One common pipistrelle bat recorded emerging from the southern side of building B3, circling over southern garden of buildings B3 and B4, landing on and crawling up the brickwork on the south facing wall of building B3 and squeezing into a gap between the brickwork and the window frame of the upstairs window to roost.

4.3.4 Roosts Identified

One likely individual roost in between the window frame and a gap in the brickwork on the exterior wall on the south eastern side of building B3.

4.4 SUMMARY

One bat species, common pipistrelle was recorded during the evening surveys, the maximum number of bats recorded at any time being two.

One bat was recorded emerging from and entering building B3 at the same location during the dawn survey. No bats were recorded emerging from any of the remaining buildings.

No bats were recorded emerging from any of the trees within the site.

5 IMPACT ASSESSMENT

5.1 HABITAT LOSS

All existing buildings, structures and vegetation within the site are to be removed during site clearance for the new development. Building demolition and site preparation works are expected to commence on site in 2009, once planning permission is granted. The following habitat areas are expected to be lost:

- scattered trees (six trees of negligible to low bat potential) and scrub understory;
- amenity grassland (1500 m^2);
- ephemeral / short perennial /introduced shrubs (375 m^2);
- species-poor hedge with trees (10 $m^{2)}$;
- buildings (550 m^2);
- hard standing (2000 m^2); and
- bare ground (60 m^2)

Total Site Area = 0.45 ha

The loss of buildings B3 and B4 is expected to have a low local impact on bats given the building is considered to be of medium value and a single bat has been recorded roosting within the exterior wall.

The loss of the other buildings is not expected to have any adverse impacts on bats given they are considered to be of low to negligible value as roosts and no bat activity was recorded from these buildings during the surveys.

The loss of scattered trees of low bat potential will have a localised low impact on bats currently using the site as they provide a commuting route however no roosts or emergence activity was recorded and they are considered to be of low to negligible potential for bats.

The loss of amenity grassland and ephemeral / short perennial habitat is expected to have a localised low impact on bats as a small number of bats were recorded foraging over these habitats.

Overall, the loss of habitats from this site is expected to have a localised, temporary low adverse impact on bats. It is considered that with the provision of appropriate replacement tree and grassland planting together with the installation of bat boxes, the site will in the medium term regain its value for bats and encourage the species to continue to use the site.

It is considered that the surrounding habitats including mature trees to the northwest of the site and Primrose Hill park to the east provide higher value foraging and roosting habitat and will provide alternative habitat during the site preparation and construction phases and during the period of establishment for new habitat planting.

6 COMMITTED MITIGATION MEASURES

6.1 INTRODUCTION

The demolition and site preparation works mean that without protection measures in place bats may be disturbed and possibly harmed. Because bats are highly protected these works will need to be undertaken under licence from Natural England with appropriate mitigation measures in place to minimise impacts to bats as far as possible.

This section describes the committed mitigation measures that Camden Regeneration (St Edmund's) Limited will ensure are implemented when undertaking works to those buildings on the site with low to medium potential for bat roosts. Further mitigation to provide replacement habitat and features of benefit for bats are also detailed.

6.2 BUILDING DEMOLITION

6.2.1 Buildings with Low to Medium Bat Potential

BuildingsB1, B2, B3 and B4, with low to medium potential to support bat roosts will be subject to soft demolition method and under a disturbance licence from Natural England where appropriate (1). The soft demolition methodology will only be required for suitable features recorded under supervision of a licensed bat worker. Proposed mitigation measures to address the loss of bat foraging and commuting habitat together with alternative new roost site provisions are discussed below.

The following precautionary measures will be implemented for the soft demolition works:

- Contractors will be made aware of the potential for bats and the range of cavities in which they may be present. All personnel who are to carry out any investigative works on the structures will be made aware of the potential presence of bats and provided with information on bats, their habitats and their legal protection. They will also be advised on what to do if they encounter any bats.

Buildings B1, B2, B3 and B4 with potential as bat roosts will be removed in March/April or September/October, to avoid the key maternity period (May-August) and hibernation period (November – February).

- A 10 m buffer zone of no disturbance will be marked off around the buildings with roost potential and no machinery or site personnel will be permitted to enter this area prior to commencement of the licensed demolition..

- Prior to any potentially disturbing works being carried out on any part of the buildings identified with low to medium potential for bats including B1, B2, B3 and B4, structures, cracks or gaps will be checked for bats by a licensed bat surveyor using a powerful torch and endoscope if required, once the appropriate safety measures *ie* scaffolding *etc* are in place.

- A licensed bat worker will be present to supervise the soft demolition works. Supervised work would largely be confined to checking cavities (if health and safety considerations allow), and only where access points for bats have been recorded (*Table 2.3*).

(1) Which buildings can be covered under a disturbance licence will be confirmed with Natural England.

- If a bat is found during the survey or construction works the bat will be allowed to fly out of the roost if possible or, if it remains in the cavity a licensed bat surveyor will be immediately summoned and all works will be suspended until the bat can be safely translocated.

- Should any single bats be found in the area then the bat will be removed by the licensed surveyor to a bat box which will have been pre-erected on a suitable tree by the licensed bat surveyor prior to work commencing. Suitable trees have been identified beyond the northwestern corner of the site (see for example T044, Aboricultural Consultants drawing 1271.D). Each bat box will be left in-situ and will be checked during and after the works.

6.2.2 Buildings with Negligible Bat Potential

Buildings B5, B6 and B7 are considered to have a negligible bat potential and no roosts were recorded within these structures. They can therefore be removed with no further precautions.

6.3 TREE AND VEGETATION REMOVAL

All trees and vegetation within the site boundary are to be removed. These works will be completed outside the bird breeding season (March to August inclusive). Where this is not possible a suitably qualified ecologist will carry out a check of the areas to be removed prior to works commencing. Should an active nest be recorded, works will have to avoid this area plus a 5 m buffer until the ecologist can declare the nest inactive.

Ideally the clearance will also avoid the key bat breeding and hibernation periods. Trees, T9 and T10 are considered to be of low potential for bats. Therefore a check survey will be carried out by a licensed bat surveyor prior to removal. Removal of these trees will be carried out using hand tools and checks will be made during the process. In the event that hibernating bats are discovered during this process, all works will cease and advice will be sought from Natural England as to how to proceed. It may then be necessary to apply for a licence to continue.

6.4 SITE WIDE MITIGATION MEASURES

The possibility of demolition works having an impact on bat populations will be mitigated through the following general measures. These should be read in conjunction with the Landscape Report (BBUK 2008):

- Demolition of buildings will be phased to allow bats in buildings B3 & B4 to leave following commencement of the disturbance works.

- New bat roosts will be provided in the form of bat boxes to be installed at the direction of a licensed bat worker on appropriate mature trees beyond the northwestern corner of the site.

- Bat boxes will be installed within the retaining wall to the north of the site. The retaining wall will be planted with fast growing climbers including *Hedera helix* (ivy). This will provide cover and further roost sites for bats.

- Permanent mitigation measures for bats using the site will be provided through inclusion of new native tree and shrub planting in strategic locations at the site

periphery, designed to integrate with trees beyond the site boundary and complement the mature broadleaved setting of the local area (see Landscape Report, BBUK 2008). A summary of proposed native species is provided in This will serve to provide replacement foraging habitat and link habitats within the site into existing habitat beyond the site boundary thereby encouraging bat populations in the area.

- Green roofs will be installed on the new buildings and will be planted with native wild flowering plants and grasses which will provide some replacement habitat for invertebrates and a foraging source for bats.

- Tall grassland planting including native species will be created at the eastern site boundary to integrate with Primrose Hill park and on the green roof. This will encourage invertebrate populations and provide replacement foraging habitat for bats.

Table 6.1 Examples of Species to be Included within the Landscape Planting

Latin Name	Common Name	Locations
Festuca glauca	Blue fescue	Grassland areas, green roof
Deschampsia flexuosa	Wavy hair grass	Grassland areas, green roof
Sanguisorba officinalis	Grey burnet	Grassland areas, green roof
Filipendula palmata	Siberian Meadowsweet	Grassland areas, green roof
Fragaria vesca	Wild strawberry	Grassland areas, green roof
Kalmia angustifolia	Sheep laural	Grassland areas, green roof
Helleborous argutifolius	Corsican hellebore	Grassland areas, green roof

7 CONCLUSION

A small number of common pipistrelle were recorded foraging and commuting across the site and at the periphery of the site during the emergence surveys. The focus of activity within the site was in the north western corner where foraging focused on the gardens of buildings B3 and B4.

An active roost with a single common pipistrelle emerging was recorded on the southern wall of building B3. The roost is a suspected temporary summer roost. No further bats were recording within the remaining buildings or trees across the site.

The buildings are considered to be of negligible to medium value for bat roosts and loss of this roost site is expected to comprise a low localised impact for the local bat populations within the local setting.

Mitigation is considered necessary to provide replacement foraging and commuting habitat within the periphery of the new development and to maintain and enhance links to existing habitats beyond the site.

Bat mitigation measures will be discussed and agreed following submission of this report with Natural England and the ecologists at Camden Borough Council. A licence will be obtained from Natural England by a licensed bat surveyor and work will be carried out in accordance with the conditions of the licence.

Table 8.1 Survey 1 - Conditions

Date	Rain	Temp (max/min)	Beaufort (start/end)	Cloud Cover (% start/end)
16.09.08	None	14/10 ºC	1/2	40/20

Table 8.2 Survey 1 - Results

Surveyor Location	Time	Species	Number of Bats	Comments (foraging/commuting etc)
1	19.29	Common Pipistrelle	1	Heard over covered reservoir to the north, commuting west
1	19.33	Common Pipistrelle	1	Faint call, probably over gardens to the north of buildings B3 & B4
1	19.48	Common Pipistrelle	1	Commuted from west. Foraged for 30 seconds over gardens to the south of buildings B3 & B4 then headed north inbetween buildings B3 & B1
2	19.55	Common Pipistrelle	1	Brief pass, not seen.
1	20.08	Common Pipistrelle	2	Commuted from west then headed north in between buildings B3 and B1
1	20.25	Common Pipistrelle	1	Commuted from west. Foraged for 1 minute over gardens to the south of buildings B3 & B4 then headed north in between buildings B3 & B1
3	20.35	Common Pipistrelle	1	Heard over covered reservoir to the north, commuting west
3	20.42	Common Pipistrelle	1	Heard over covered reservoir to the north, commuting west
3	20.46	Common Pipistrelle	1	Brief pass, not seen.
3	21.05	Common Pipistrelle	1	Brief pass, not seen.

Table 8.3 Survey 2 - Conditions

Date	Rain	Temp (max/min)	Beaufort (start/end)	Cloud Cover (% start/end)
17.09.08	None	13/11 ºC	1/2	60/50

Table 8.4 Survey 2 - Results

Surveyor Location	Time	Species	Number of Bats	Comments (foraging/commuting etc)

Surveyor Location	Time	Species	Number of Bats	Comments (foraging/commuting etc)
1	19.35	Common Pipistrelle	1	Commuted from west then headed north in between buildings B3 and B1
1	19.58	Common Pipistrelle	1	Commuted from west then headed north in between buildings B3 and B1
1	20.13	Common Pipistrelle	1	Commuted from west. Foraged for 30 seconds over gardens to the south of buildings B3 & B4 then headed west
2	20.18	Common Pipistrelle	1	Brief pass, not seen.
2	20.55	Common Pipistrelle	1	Faint call

Table 8.5 ***Survey 3 - Conditions***

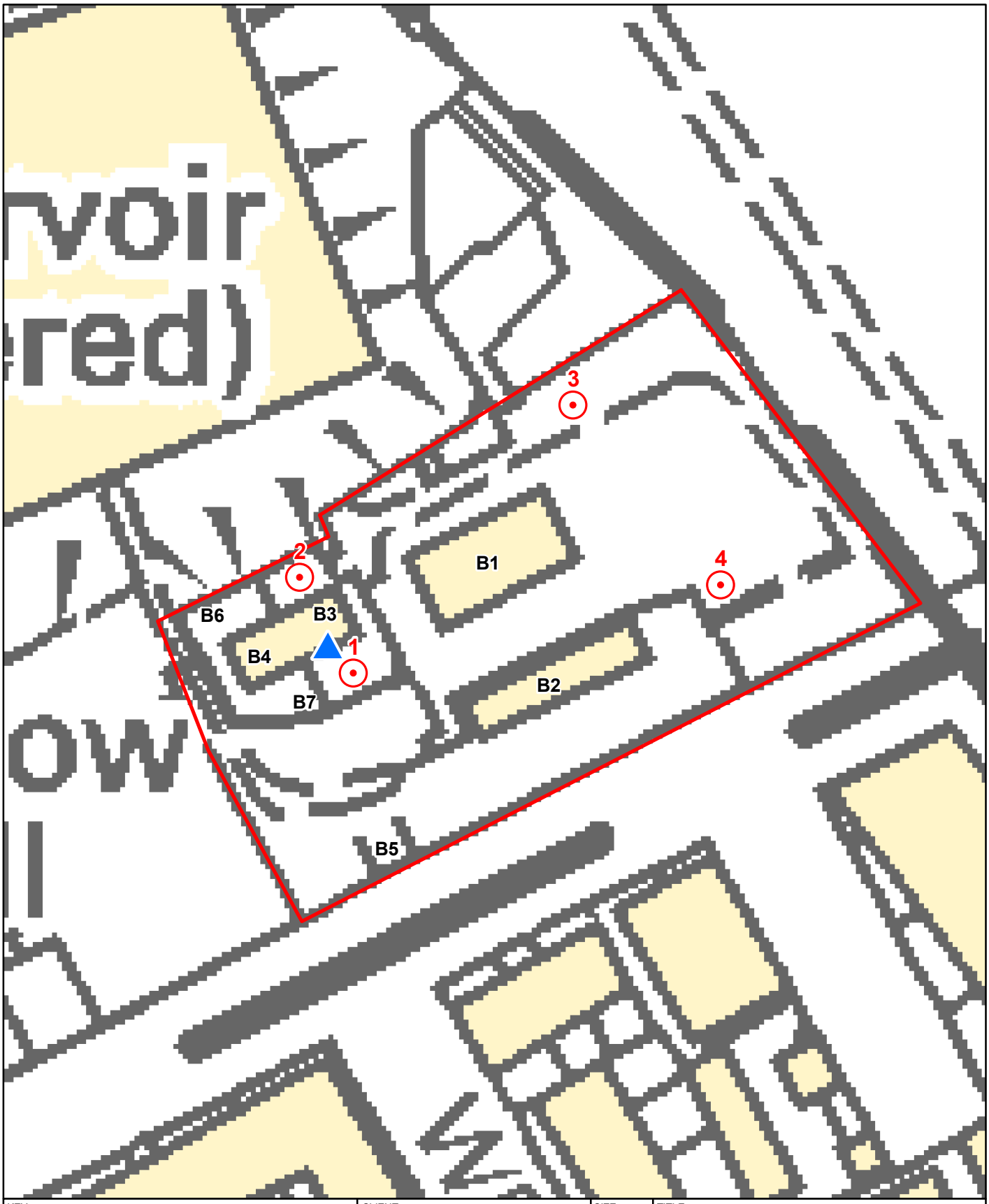
Date	Rain	Temp (max/min)	Beaufort (start/end)	Cloud Cover (% start/end)
18.09.80	None	7/10 ºC	1/2	40/20

Table 8.6 ***Survey 3 - Results***

Surveyor Location	Time	Species	Number of Bats	Comments (foraging/commuting etc)
1	4.55	Common Pipistrelle	1	Heard over covered reservoir to the north, commuting west
4	5.28	Common Pipistrelle	1	Faint call, probably over gardens to the north of buildings B3 & B4
1	6.05	Common Pipistrelle	1	Commuted from west. Foraged for 30 seconds over gardens to the south of buildings B3 & B4 before landing and entering roost by gap between window frame and brickwork on southern side of building B3

Appendix A

Bat Survey Map



KEY:

- Site Boundary
- Roost Location
- Surveyor Location

N W E S

0 10

Metres

CLIENT: Camden Regeneration (St Edmunds) Ltd

SIZE: A4

TITLE: Figure 1 Bat Survey Map

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ERM

DATE: 26/09/2008	CHECKED: BS	PROJECT: 0090954
DRAWN: IG	APPROVED:	SCALE: As Scale Bar

SOURCE: Reproduced from Ordnance Survey digital map data. © Crown copyright, All rights reserved. 2008 License number 0100031673.
PROJECTION: British National Grid

DRAWING: Bats.mxd

REV: 0

File: 0090954StEdmundsLondonGIS_IG_AB\Maps\Bats.mxd

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