

**Land at Palmer Park  
Reading  
Berkshire  
RG6 1LF**

# **Preliminary Ecological Appraisal**

Ref: R2298/b

**August 2019**



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## **1 SUMMARY**

- 1.1.1** John Wenman Ecological Consultancy LLP was commissioned to undertake a Preliminary Ecological Appraisal of a section of land and buildings surrounding the Sports Stadium at Palmer Park in Reading, Berkshire. The survey was commissioned in connection with the proposed construction of a new swimming pool onsite and associated landscaping works.
- 1.1.2** The walkover survey completed on the 27<sup>th</sup> June 2019 showed the survey site to comprise predominantly of amenity grassland with scattered parkland trees and a large car park by the sports stadium and leisure centre. A couple of species poor hedgerows were present around the park and car parking areas. A line of mature trees grew on the south eastern and south western boundaries, and a small patch of broadleaved woodland was present to the east of the site. A small patch of semi-improved grassland was situated to the north east of the site, which continued around an athletics track that was offsite. Four buildings were on site including: a large sports centre, a metal storage container, a flat roofed club house and a pitched roofed brick building.
- 1.1.3** A search of data held by the Thames Valley Environmental Records Centre shows the survey site is not designated statutorily or non-statutorily for its conservation interest. No UK Priority Habitats (as defined under the NERC Act 2006) are shown in records on site. The Records Centre's database includes one record of a protected or notable species specifically for the site – mistle thrush (*Turdus viscivorus*), a widespread bird that is usually associated with woodlands and parklands. A strip of broadleaved and deciduous woodland - UK Priority Habitats – was present off-site around the boundary of the whole of Palmer Park, situated from distances between 150 to 350 metres from the survey site, towards the west, north and east.
- 1.1.4** The habitats on site that would be affected by the proposals comprised predominantly of amenity grassland and hard standing and small sections of poor species hedgerows – habitats of little-to-no ecological value supporting a range of commonly occurring plant species typical of grassland sites widespread throughout lowland Britain and unlikely to be used by protected or notable fauna such as reptiles, great crested newts and mammals. The managed intact species poor

hedges on site offered potential to provide nesting opportunities for birds but lacked structural and species diversity, and therefore were of limited ecological value.

- 1.1.5** The uncut semi-improved grassland around the athletics track, scattered parkland trees and line of trees on the south eastern and south western boundaries are more structurally diverse and offer habitats of value to notable and protected species, including reptiles, amphibians and mammals. However these habitats will in the long-term will be unaffected by the works.
- 1.1.6** Precautions to avoid nesting birds should be adopted for the removal of any shrubs and trees. Tree and shrub removal should take place outside of the bird nesting season (March to August) or after a check for nesting birds by an ecologist.
- 1.1.7** Lighting schemes should be designed to keep lighting to a minimum, making use of directional and shielded lights with low UV output such as warm white LED lamps, and particularly avoid lighting the tree lined margins.
- 1.1.8** The development presents opportunities to protect and enhance the ecological value of the site e.g. through the planting of native trees and hedgerows.

## **2 INTRODUCTION**

### **2.1 Background**

**2.1.1** John Wenman Ecological Consultancy LLP was commissioned by Reading Borough Council to undertake Preliminary Ecological Appraisal of the land and buildings at Palmer Park in Reading, Berkshire.

**2.1.2** The survey was commissioned in connection with plans to construct a new swimming pool on site and associated landscaping work.

### **2.2 Site Location and Context**

**2.2.1** The site comprises a few buildings and land at the Palmer Park Sports Stadium. The site was accessed via Wokingham Road (A329) with access also from Palmer Park Road, St Bartholomew's Road and London Road situated in Reading, Berkshire (OS grid reference: SU 73839 73019).

**2.2.2** The site is within the grounds of Palmer Park on the eastern outskirts of Reading town centre. The further open space of Palmer Park is situated to the north and east, and includes areas of recreational grassland with strips of woodland around the boundaries and an athletics track to the east. Residential properties are situated to the south and west. Reading Cemetery with open grassland and patches of woodland is situated just over 200 metres to the east, otherwise, the area is built up and surrounded by residential properties. To the south approximately 530 metres lies Reading University Whiteknights Campus consisting of parkland, mixed deciduous woodland and Whiteknights Lake. The River Thames is just over 1.15 kilometres away.

**2.2.3** Although the setting is urbanised, the small pockets of woodland and open grassland directly surrounding the site, are likely to be of ecological value to a diversity of birds, mammals, reptiles, amphibians and invertebrates.

### **2.3 Report Format**

**2.3.1** There follows: an overview of the protected species legislation in **Section 3** and of the national and local wildlife policy background in **Section 4**; details of the survey methods in **Section 5**; Preliminary Ecological Appraisal findings in **Section 6**; a discussion of the survey findings in **Section 7**; with recommendations being

presented in **Section 8**. The appendices present: the site photographs (**Appendix 1**); a Preliminary Ecological Appraisal plan with associated target notes (**Appendix 2**); and a plant species list recorded during the survey (**Appendix 3**).

### **3 LEGISLATIVE BACKGROUND – PROTECTED SPECIES**

#### **3.1 Amphibians**

**3.1.1** The seven native species of amphibian receive protection under the Wildlife & Countryside Act 1981 (as amended). The four widespread and common amphibians (common frog, toad, smooth and palmate newts) receive limited protection – making their sale illegal.

**3.1.2** Great crested newts – a relatively widespread species - receives full protection under the Wildlife & Countryside Act 1981 (as amended) and under the Conservation (Natural Habitats &c.) Regulations 2017 ('Habitat Regulations') (as amended). These make it illegal to:

- Intentionally or recklessly kill, injure or take a great crested newt;
- Possess or control any live or dead specimen or anything derived from a great crested newt;
- Intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection by a great crested newt;
- Intentionally or recklessly disturb great crested newts; in particular any disturbance which is likely to impair their ability to survive, breed or reproduce or nurture their young; or in the case of hibernating or migrating animals, to hibernate or migrate.

**3.1.3** The great crested newt is listed as being of principal importance for the conservation of biodiversity in England, under Section 41 of the Natural Environment and Rural Communities Act 2006, (commonly referred to as a UKBAP Priority species).

#### **3.2 Reptiles**

**3.2.1** The four widespread reptiles most likely to be encountered (Adder, grass snake, slow worm and viviparous lizard) are protected under the Wildlife & Countryside Act 1981 (as amended). The Act makes it an offence to intentionally kill, injure, possess or sell any of the species.

**3.2.2** The four reptile species are listed as being of principal importance for the conservation of biodiversity in England, under Section 41 of the Natural

Environment and Rural Communities Act 2006, (commonly referred to as a UKBAP Priority species).

### **3.3 Birds**

- 3.3.1** All wild birds are protected under the Wildlife & Countryside Act 1981 (as amended). The Act makes it an offence to kill, injure or take a wild bird or to damage or destroy the nest of a wild bird whilst in use or being built.
- 3.3.2** Less common bird species of conservation concern, such as the barn owl and kingfisher, are listed on Schedule 1 of the Act, which makes it an offence to disturb the birds whilst nesting also.

### **3.4 Bats**

- 3.4.1** All British bat species are fully protected by the Wildlife & Countryside Act 1981 (as amended) and by the Conservation of Habitats and Species Regulations 2017 ('Habitat Regulations'). In summary, the legislation combined makes it an offence to:
- Damage or destroy a breeding site or resting place or intentionally or recklessly obstruct access to a structure or place used for shelter by a bat;
  - Deliberately, intentionally or recklessly disturb bats; in particular any disturbance which is likely to impair the ability of bats to survive, breed or reproduce or nurture their young; or in the case of hibernating or migrating bats, to hibernate or migrate; or to affect significantly the local distribution or abundance of the species;
  - Deliberately kill, injure or take any bat.

### **3.5 Badgers**

- 3.5.1** Badgers are protected by the Protection of Badgers Act 1992. The Act makes activities such as development that would harm or disturb badgers or damage, obstruct or destroy their setts illegal. If badgers are to be affected by the proposed development, activities can be undertaken only under a licence issued by Natural England.



### **3.6 Otters**

**3.6.1** Otters are fully protected by the Wildlife & Countryside Act 1981 (as amended) and by the Conservation of Habitats and Species Regulations 2017 ('Habitat Regulations'). In summary, the legislation combined makes it an offence to:

- Damage or destroy a breeding site or resting place or intentionally or recklessly obstruct access to a structure or place used for shelter by an otter;
- Deliberately, intentionally or recklessly disturb otters; in particular any disturbance which is likely to impair the ability of otters to survive, breed or reproduce or nurture their young; or to affect significantly the local distribution or abundance of the species;
- Deliberately kill, injure or take any otter.

### **3.7 Hazel Dormice**

**3.7.1** Hazel dormice receive full protection under the Wildlife & Countryside Act 1981 (as amended) and under the Conservation (Natural Habitats &c.) Regulations 2017 ('Habitat Regulations') (as amended). These make it illegal to

- Intentionally or recklessly kill, injure or take a dormouse;
- Possess or control any live or dead specimen or anything derived from a dormouse;
- Damage or destroy a breeding site or resting place or intentionally or recklessly obstruct access to a structure or place used for shelter by a dormouse;
- Intentionally or recklessly disturb dormice; in particular any disturbance which is likely to impair their ability to survive, breed or reproduce or nurture their young; or in the case of hibernating or migrating animals, to hibernate or migrate.

**3.7.2** The government's statutory conservation advisory organisation, Natural England, is responsible for issuing European Protected Species licences that would permit activities that would otherwise lead to an infringement of the Habitat Regulations. A licence can be issued if the following three tests have been met:

- **Regulation 55(9)(a)** - there is "no satisfactory alternative" to the derogation, and;

- **Regulation 55(9)(b)** - the derogation “will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range” and;
- **Regulation 55(2)(e)** - the derogation is for the purposes of “preserving public health or public safety or other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment”.

**3.7.3** Local authorities have a statutory duty under Regulation 7(3) of the Habitat Regulations to have regard to requirements of the Habitats Directive in the exercise of their functions. The Council must therefore consider and determine whether these three tests are likely to be satisfied by an application affecting European protected species before granting planning permission. **N.B. the requirements set out in 3.7.2 and 3.7.3 apply to development that would affect bats, great crested newts and otters, which are European Protected Species also.**

### **3.8 Water Voles**

**3.8.1** Since April 2008, water voles have received full protection under Section 9 of the Wildlife & Countryside Act 1981 (as amended). This makes it an offence to intentionally kill, injure or take water voles or to possess or control live or dead water voles or derivatives. It is an offence to intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection or intentionally or recklessly disturb water voles whilst occupying a structure or place used for that purpose.

**3.8.2** The water vole is listed as being of principal importance for the conservation of biodiversity in England, under Section 41 of the Natural Environment and Rural Communities Act 2006, (commonly referred to as a UK Priority species).

### **3.9 Invasive Non-Native Plants**

**3.9.1** The Wildlife and Countryside Act 1981 (as amended) provides the primary controls on the release of non-native species into the wild in Great Britain. It is an offence under section 14(2) of the Act to ‘plant or otherwise cause to grow in the wild’ any plant listed in Schedule 9, Part II. The species listed in the Act includes Japanese knotweed (*Fallopia japonica*), giant hogweed (*Heracleum mantegazzianum*) and himalayan balsam (*Impatiens glandulifera*).

### **3.10 Injurious Weeds**

- 3.10.1** Five native plants are listed as injurious weeds under the Weeds Act 1959: common ragwort (*Senecio jacobaea*), spear thistle (*Cirsium vulgare*), creeping or field thistle (*Cirsium arvense*), broad-leaved dock (*Rumex obtusifolius*) and curled dock (*Rumex Crispus*). The Act means it is not an offence to have these weeds growing on your land and species such as ragwort have significant conservation benefits. However they must not be allowed to spread to agricultural land, particularly grazing areas or land which is used to produce conserved forage. Enforcement notices can be issued following complaints requiring landowners to take action to prevent the spread of these weeds.

### **3.11 Wild Mammals**

- 3.11.1** Under the Wild Mammals (Protection) Act 1996 it is an offence to intentionally inflict unnecessary suffering, as specified by the Act, on any wild mammal.

## **4 POLICY BACKGROUND**

### **4.1 National Planning Policy**

**4.1.1** The ODPM Circular 06/2005 provides guidance on the application of the law relating to planning and nature conservation stating that *'the presence of a protected species is a material consideration when a planning authority is considering a development proposal that, if carried out, would be likely to result in harm to the species or its habitat.'*

**4.1.2** The revised National Planning Policy Framework (NPPF), published in July 2018, sets out the Government's planning policies for England and how they should be applied. Section 15 of the NPPF sets out the approach local authorities should adopt to conserve and enhancing the natural environment when preparing planning policy and when considering planning applications. Paragraph 175 sets out the principles local authorities should apply when determining planning applications as follows:

*175. When determining planning applications, local planning authorities should apply the following principles:*

- a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
- b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;*
- c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and*

- d) *development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.*

## **4.2 Local Planning Policy**

**4.2.1** Reading Borough Council makes planning decisions based on the policies within the Core Strategy (adopted January 2008) which sets out their overall planning strategy and important principles for development in Reading.

**4.2.2** Policy CS36 within the Strategy sets out the Council's approach to biodiversity and geology when considering planning applications as follows:

*a) Development should retain, protect and incorporate features of biodiversity or geological interest (including protected species and their habitats) found within the application site into their schemes.*

*On sites with recognised biodiversity or geological value, development will not be permitted where there would be a direct or indirect adverse impact on the site, unless it can be clearly demonstrated that: -*

*i. The need for development clearly outweighs the need to protect the value of the site; and*

*ii. Appropriate compensation, impact minimization, mitigation and compensation are provided.*

*b) Local Nature Reserves and Wildlife Heritage Sites will be safeguarded and where possible, enhanced. Permission will not be granted for any development that would adversely affect a designated nature reserve or Wildlife Heritage Site.*

*c) Any development that would sever or threaten the integrity of an established wildlife link, as indicated on an adopted proposals map, will not be permitted. Where applicable, developments should be designed to protect, consolidate, extend and enhance the network of wildlife links and corridors in and adjoining the Borough, working with neighbouring authorities where appropriate.*

## **5 SURVEY METHODS**

### **5.1 Walkover Survey and Building Inspection**

**5.1.1** A walkover survey was undertaken on the 27<sup>th</sup> June 2019 by a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM) supported by an assistant ecologist. During the survey the habitats present were noted and plotted on a site plan (**Appendix 2**) using definitions based on the standard phase 1 ecological survey definitions (JNCC 2010). Key features of the site were photographed (**Appendix 1**) and plotted on the site plan using target notes (**Appendix 2**).

**5.1.2** Any features of ecological importance were recorded, and plant species observed during the survey noted (**Appendix 3**). Particular attention was given to any evidence of the presence of protected species and the site's potential to support such species and those of principal importance for conservation (as defined under Section 41 of the NERC Act 2006).

**5.1.3** The buildings in the site were inspected and assessed for their bat roost potential. The inspection was completed by an ecologist registered to disturb and handle bats for survey purposes under Natural England Class Licence CL18 supported by an assistant ecologist.

### **5.2 Background Data Search**

**5.2.1** The Thames Valley Environmental Records Centre (TVERC) was commissioned to undertake a search of pre-existing biological records (notable or protected species and statutorily or non-statutorily designated sites) held by the Centre for the survey site and land within a one kilometre radius.

**5.2.2** The Multi-Agency Geographic Information for the Countryside (MAGIC) website was referred to for pre-existing data on UK Priority Habitats (as defined under Section 41 of the NERC Act 2006) and to understand the nature of surrounding habitats.

### **5.3 Survey Constraints**

**5.3.1** The ecological survey had no significant access constraints with full access being available to the site during the survey; however, ecological surveys are subject to

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seasonal constraints because not all plant and animal species are visible throughout the year and therefore the report represents a snapshot of the site at the time of the survey only. The plant species list presented should not be considered a comprehensive list of species present.

## **6 PHASE 1 HABITAT SURVEY FINDINGS**

### **6.1 Site Overview**

- 6.1.1** The survey site comprised predominantly of amenity grassland with scattered parkland trees and a large car park at Palmer Park Sports Stadium. A couple of species poor hedgerows were present around the park and car parking areas. A line of mature trees grew on the southern and western boundaries, and a small patch of broadleaved woodland was present to the east of the site. A small patch of semi-improved grassland was situated to the north east, which continued around an athletics track that was off site. Four buildings were present on site including: a large sports centre, a metal storage container, a flat roofed club house and a pitched roofed brick building.
- 6.1.2** The following Phase 1 habitat types were observed within the survey site boundary during the survey: amenity grassland, poor semi-improved grassland, scattered broadleaved trees, broadleaved woodland, species poor hedgerows, other habitats and buildings.
- 6.1.3** The habitat types are described below in detail; their distribution is shown on the site plan in **Appendix 2**, photographs of the site are shown in **Appendix 1**.

### **6.2 Amenity Grassland (A1; TN1 & TN2)**

- 6.2.1** The majority of the site comprised of closely cut amenity grassland, which was regularly cut, apart from a strip of grassland around the southernmost and south western side of the site, which had been left uncut under the trees (**Photographs 1 – 2; Target note 1**).
- 6.2.2** The grassland had a number of grasses present including wall barley (*Hordeum murinum*), perennial rye grass (*Lolium perenne*), cocks foot (*Dactylis glomerata*), a meadow grass species (*Poa* sp.), soft brome (*Bromus mollis*) and smaller cat's tail (*Phleum bertolonii*). Herbaceous species were present within the sward and included: yarrow (*Achillea millefolium*), daisy (*Bellis perennis*), white clover (*Trifolium repens*), dove's foot cranesbill (*Geranium molle*), ragwort (*Senecio jacobaea*), dandelion (*Taraxacum officinale* agg.), ribwort plantain (*Plantago lanceolata*), betony (*Stachys officinalis*), creeping buttercup (*Ranunculus repens*), and common mallow (*Malva sylvestris*).



- 6.2.3** A number of scattered parkland trees were also growing amongst the grassland throughout the site. Species present included London plane (*Platanus x hispanica*), a malpe (*Acer* sp.), a poplar species (*Populus* sp.), oak (*Quercus robur*), *Acacia* sp., a birch species (*Betula* sp.), lime (*Tilia x europaea*), walnut (*Juglans regia*), cherry (*Prunus* sp.), hornbeam (*Carpinus betulus*), sycamore (*Acer pseudoplatanus*), blue Atlas cedar (*Cedrus atlantica*), and a spruce (*Picea* sp.).
- 6.2.4** A small flowerbed, which had become overgrown with scrub, was situated towards the centre of the site and was dominated by bramble (*Rubus fruticosus* agg.); other species present included rose (*Rosa* sp.), red campion (*Silene dioica*), hawkweed (*Hieracium* agg.), burdock (*Arctium* sp.), herb Robert (*Geranium robertianum*), and a few trees including plum (*Prunus* sp.), willow (*Salix* sp.), cherry (*Prunus* sp.) (**Photograph 3; Target note 2**).

### **6.3 Poor Semi-improved Grassland (SI1)**

- 6.3.1** A patch of uncut grassland was present to the north east of the site around the athletics track. The grassland was relatively species rich and a number of invertebrates including damselflies, dragonflies, beetles and bees were observed.
- 6.3.2** The grassland had a number of grass species present including: cock'sfoot (*Dactylis glomerata*), Yorkshire fog (*Holcus lanatus*), red fescue (*Festuca rubra*), creeping bent (*Agrostis stolonifera*), yellow oat grass (*Trisetum flavescens*), false oat grass (*Arrhenatherum elatius*), barren brome (*Bromus strerilis*), and perennial rye grass (*Lolium perenne*). A number of herbaceous dominated the sward and included: yarrow (*Achillea millefolium*), shepherds purse (*Capsella bursa-pastoris*), field bindweed (*Convolvulus arvensis*), fat hen (*Chenopodium album*), red dead nettle (*Lamium purpureum*), bristly ox-tongue (*Picris echioides*), dock (*Rumex* sp.), spear thistle (*Cirsium vulgare*), creeping thistle (*Cirsium arvense*), hawkweed (*Hieracium* agg.), a willowherb species (*Epilobium* sp.), common nettle (*Urtica dioica*), ragwort (*Senecio jacobaea*), common mallow (*Malva sylvestris*), hedge bedstraw (*Galium mollugo*), white campion (*Silene latifolia*), ribwort plantain (*Plantago lanceolata*), mugwort (*Artemisia vulgaris*), green alkanet (*Pentaglottis sempervirens*), a crucifer species, dogwood (*Cornus sanguinea*), red campion (*Silene dioica*), evergreen honey suckle (*Lonicera* sp.), bramble (*Rubus fruticosus* agg.), and Italian alder (*Alnus cordata*) (**Photograph 4; SI1**).

#### **6.4 Scattered Broadleaved Trees (SBW1 – SBW3)**

**6.4.1** A line of mature lime (*Tilia x europaea*) trees were growing along the footpaths towards the south eastern and south western boundaries. The trees had occasional features such as dead branches, which could provide opportunities for roosting bats (**Photographs 5 & 6; SBW1**).

**6.4.2** A mature poplar (*Populus* sp.) tree was present by the footpath around the sports stadium. The tree had dead branches and peeling bark visible that could provide features suitable for bats (**Photograph 7; SBW2**). A streetlight was visible right next to the tree which would reduce the likelihood of bats using the tree as a roost.

**6.4.3** A mature London plane (*Platanus x hispanica*) tree was present towards the northern side of the grassland. The tree had knot holes, visible which offered potential features suitable for roosting bats (**Photograph 8; SBW3**).

#### **6.5 Broadleaved Woodland (BW1)**

**6.5.1** A small patch of woodland was present on the western boundary of the site (**Photograph 9; BW1**). The trees and shrubs included: field maple (*Acer campestre*), willow (*salix* sp.), cherry (*Prunus* sp.), crab apple (*Malus sylvestris*), hazel (*Corylus avellana*), snowberry (*Symphoricarpos alba*), privet (*Ligustrum ovalifolium*) and a laurel (*Laurus* sp.). There were also bramble (*Rubus fruticosus* agg.), violet (*Viola* sp.), green alkanet (*Pentaglottis sempervirens*), and dogwood (*Cornus sanguinea*) present occasionally.

#### **6.6 Species Poor Hedgerows (PH1 – PH3)**

**6.6.1** A species poor hedge was growing alongside a metal fence that went around the front of sports stadium building (**Photographs 10 & 11; PH1**). The hedge was dominated by hornbeam (*Carpinus betulus*). The hedge was thin with sparse vegetation and limited cover for protected species such as nesting birds. A small bed of introduced shrubs was also present in the corner by the hedge and poplar tree (**Photograph 12; SBW1**)

**6.6.2** A managed laurel (*Prunus* sp.) hedge with rose (*Rosa* sp.) present rarely was present around the amenity grassland and southern side of the car park (**Photograph 13; PH2**).

**6.6.3** A species poor hedge was present around a patch of amenity grassland and playground towards the centre of the site (**Photograph 14; PH3**). The hedge was dominated by hornbeam (*Carpinus betulus*) and beech (*Fagus sylvatica*).

## **6.7 Other Habitats (OH1 – OH4; TN3)**

**6.7.1** A car park was situated towards the eastern side of the site by the sports stadium and athletics track, and a paved area was present around the front of the stadium (**Photograph 15; OH1**). A pile of rubble was visible to the northern end of the site (**Photograph 16; TN3**)

**6.7.2** A footpath leading onto athletics track had some patches of short ephemeral vegetation growing around the edges (**Photograph 17; OH2**).

**6.7.3** A road leading to the car park passed through the centre of the site; this had a number of footpaths leading from it, as well as around the site (**Photographs 18 & 19; OH3**).

**6.7.4** Multisport Astroturf courts were present towards the northern end of the site (**OH4**).

## **6.8 Buildings (B1 – B4)**

**6.8.1** The Palmer Park Sports Stadium building was positioned towards the eastern side of the site. The roof consisted of a number of corrugated plastic arches, which opened out onto the athletics track at the eastern side of the building (**Photograph 19; B1**). The walls were of brick construction with large windows covering the top half of the building (**Photograph 20**). Metal soffit boxes were tightly fitted around the eaves (**Photograph 21**). A single storey flat roof extension was present on the front (western) entrance into the building. The roof was tightly covered with a rubber coating (**Photograph 22**). A small section of the roof was accessible above the gym at the southern end of the building. The roof space was metal framed and opened up to the corrugated plastic sheets (**Photographs 23 & 24**). The floor was boarded in places or false ceiling panels were visible. The walls were of blockwork construction, which had fibreglass filling the gaps between the walls and the roof (**Photograph 25**).

**6.8.2** A small flat roofed brick storage building was situated to the north of the sports stadium. The building was of simple construction with no features suitable for roosting bats (**Photograph 26; B2**). The base of the building was of brick

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construction and the rest of the walls were covered with corrugated metal and rolling garage doors. The roof was also covered with corrugated metal.

**6.8.3** A flat roofed club house was positioned to the side of the athletics track. The building was of simple construction with no features suitable for roosting bats (**Photograph 27; B3**). The building was of brickwork construction with tightly fitted uPVC barge boards (**Photograph 28**).

**6.8.4** A brick built pitched roofed building was present within the park (**Photograph 29; B4**). The roof was covered with flat roof tiles, which were mostly moss covered. The tiles were occasionally curved or lifted and a large section was missing, offering potential access and roosting opportunities for bats (**Photographs 30 & 31**). The brick walls of the gable ends were covered with pebbledash and had timbers present, with potential access and roosting opportunities around the edges (**Photograph 32**). The doors were boarded over and the windows were covered with blockwork which gaps around the edges, providing access opportunities for bats (**Photographs 33 & 34**).

## **6.9 Background Data Search Findings**

**6.9.1** The search of data held by Thames Valley Environmental Records Centre (TVERC) shows that the survey site is not statutorily or non-statutorily designated for its wildlife interest.

**6.9.2** The land within the site is not classified as a UK Priority Habitat (as defined under Section 41 of the NERC Act 2006). The Records Centre's database includes one record of a protected or notable species specifically for the site – Mistle Thrush (*Turdus viscivorus*), a widespread bird that is usually associated with woodlands and parklands. A strip of broadleaved and deciduous woodland - UK Priority Habitat – was present off-site around the boundary of the whole of Palmer Park, situated from distances between 150 to 350 metres from the survey site; towards the west, north and east.

**6.9.3** There are no sites of national and international importance within 1km of the site. The closest statutorily designated site of national conservation importance is Lodge Wood and Sandford Mill - a Site of Special Scientific Interest (SSSI) - which is situated approximately 3.9 kilometres to the east. The site comprises areas of wet

woodlands bordering the River Loddon. The Loddon lily occupies significant areas of the site.

- 6.9.4** Three non-statutorily designated Local Wildlife Sites (LWS) - designated for their conservation importance within Berkshire - are present within the search area. Reading Cemetery is the closest LWS situated just over 200 metres to the east of the site. The site comprises a large old cemetery with areas of semi-improved grassland with some flower-rich areas, and several mature and immature trees and shrubs. To the south, approximately 530 metres away, lies Whiteknights Park LWS consisting of parkland, mixed deciduous woodland and Whiteknights Lake. Approximately 2 kilometres to the east lies High Wood, Bulmershe a LWS and Local Nature Reserve (LNR). The site comprises semi-natural woodland dominated by oak with birch and ash.
- 6.9.5** A search on the Multi-Agency Geographic Information for the Countryside (MAGIC) website shows that the site falls within the SSSI Impact Risk Zone; however the proposed development is not considered to be an impact.
- 6.9.6** The search of data held by TVERC revealed several protected and notable species within the one kilometre grid square that the site is situated within. There are records of two species of reptile species breeding within the search radius: common lizard (*Zootoca vivipara*), which has been recorded in 2006 at Mays Road - a site just over 780 metres to the southeast of the site; and slow worm (*Anguis fragilis*), which has been recorded in 1980 within the Redlands Road area, which is just within the 1 kilometre search. Three amphibian species have been recorded in the search radius: smooth newt (*Lissotriton vulgaris*), common toad (*Bufo bufo*) and common frog (*Rana temporaria*), which were all recorded at the University of Reading Campus (Whiteknights Park) that is within 530 metres to the south. Records included one for two females and one male smooth newt, and one adult common frog in 2007. The common toad has been recorded in 2003, 2007, 20-08 and 2014 with the highest records being for three adults in 2007.
- 6.9.7** The majority of the bird records are from University of Reading Campus – Whiteknights Park. Species include red kite (*Milvus milvus*), greenshank (*Tringa nebularia*), kingfisher (*Alcedo atthis*), and redwing (*Turdus iliacus*), a brambling (*Fringilla montifringilla*) was recorded at a site along Fairview Avenue, situated

approximately 630 metres to the southeast - all species which are protected under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended).

- 6.9.8** Other protected species recorded within the last ten years in the search radius include a number of notable and protected invertebrates including: stag beetle (*Lucanus cervus*), which is listed under Annex 2 the Habitat directives and Schedule 4 of the Habitat Regulations Section 41 of the Natural Environment and Rural Communities (NERC) Act; and cinnabar moth (*Tyria jacobaeae*) and meadow ant (*Formica pratensis*) – both UK Priority Species listed under Section 41 of the Natural Environment and Rural Communities (NERC) Act. Other notable species include a common club-tail (*Gomphus vulgatissimus*), a beetle (*Phytoecia cylindrica*) and adonis' ladybird (*Hippodamia (Adonia) variegata*).
- 6.9.9** Plant species recorded within the last ten years in the search radius include: cornflower (*Centaurea cyanus*) - a UK Priority Species listed under Section 41 of the Natural Environment and Rural Communities (NERC) Act.
- 6.9.10** Common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*), an unidentified pipistrelle (*Pipistrellus* sp.), Daubenton's bat (*Myotis daubentonii*), Natterers bat (*Myotis nattereri*), noctule (*Nyctalus noctula*), serotine (*Eptesicus serotinus*), an unidentified long-eared bat (*Plecotus* sp.), and brown long-eared bat (*Plecotus auritus*) are bat species that have all been recorded within the search area. The closest records are for land within the same kilometre grid square as the site and include records for noctule, common pipistrelle and soprano pipistrelle. Common pipistrelle and soprano pipistrelle bats have been recorded at a property along Palmerstone Road in Earley, situated approximately 450 metres to the east of the site.
- 6.9.11** West European Hedgehog (*Erinaceus europaeus*) has been recorded in 2006 at a site in Earley, within the 1 kilometre search radius.

## **7 DISCUSSION**

### **7.1 Assessment of Ecological Value**

#### Habitats

- 7.1.1** The survey site - which during a search of pre-existing data has been shown not to be statutorily or non-statutorily designated for its wildlife interest and therefore not recognised as being of international, national or county level conservation importance - comprised of amenity grassland with scattered trees, lines of scattered trees around the boundaries, hard standing, species poor hedgerows, semi-improved grassland and broadleaved woodland.
- 7.1.2** The amenity grassland supported a relatively low diversity of commonly occurring and widespread species typical of suburban habitats throughout lowland England and is considered to be of no conservation importance beyond the site level. The strip of semi-improved grassland around the athletics track was of higher species diversity and was considered to be of higher conservation importance at a local level with potential to support protected and notable species.
- 7.1.3** The established line of scattered trees forming the site's south eastern and south western boundary, and the scattered parkland trees, were of conservation importance at a local level with potential to support protected and notable species. The small patch of woodland towards the eastern boundary supported a range of native woody and ground flora species and was of local ecological importance also.
- 7.1.4** The managed intact species poor hedges on site offered potential to provide nesting opportunities for birds but lacked structural and species diversity, and therefore were of limited ecological value.

#### Reptiles

- 7.1.5** The amenity grassland and hard standing covering the majority of the site provide limited potential sheltering opportunities for reptiles such as slow worm (*Anguis fragilis*), grass snake (*Natrix natrix*) and common lizard (*Zootoca vivipara*), which are UK Priority Species and legally protected. There are no pre-existing reptile records for the site and the only records for the grass snake are for a site situated 780 metres away; slow worm has been recorded approximately one kilometre

away. Therefore the likelihood of reptiles utilising these areas is low. The short grassland covering the majority of the site provides very poor habitat for reptiles currently. The uncut semi-improved grassland around the athletics track and overgrown flowerbed was more structurally diverse and offered habitats of value for sheltering and foraging reptiles; however, they were isolated being surrounded by closely cut grass or hard standing.

#### Amphibians

- 7.1.6** Mapping shows that there are no water bodies within a 500 metre radius of the site: the nearest being approximately 530 metres to the south at the University of Reading Campus – Whiteknights Park. Three amphibian species have been recorded at Whiteknights Park including the smooth newt, common toad and common frog. There are no records for great crested newt (*Triturus cristatus*) - an amphibian receiving full legal protection under UK and European Protected Species legislation. Great crested newts will typically use terrestrial habitats primarily within 250 metres of a breeding pond and are therefore considered unlikely to be found on the site. The lack of large waterbodies nearby means that it is unlikely that common toad – a notable species, would be found on site. Common and widespread amphibians typical of gardens e.g. common frog could make use of the areas of semi-improved grassland if there are garden ponds in nearby residential properties.

#### Breeding Birds

- 7.1.7** The scattered trees, line of trees on the south eastern and south western boundaries, patch of broadleaved woodland, and species poor hedgerows are considered to be of ecological value at the site level with potential to support commonly occurring nesting bird species, which may include notable species of conservation importance typical of such habitats like the mistle thrush (*Turdus viscivorus*) which has been recorded on site.

#### Bats

- 7.1.8** The line of trees on the site's south eastern and south western boundaries were part of a line of mature trees extending beyond the site around Palmer Park and the athletics track. The tree line, small woodland patch, and un-cut semi-improved grassland offered commuting and foraging habitat for bats adapted to suburban

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environments such as the pipistrelle and brown long eared bats recorded locally. A number of the scattered trees amongst the park and along the sites boundaries offered potential features for roosting bats and therefore were of a local level importance (**SBW1, SBW2, & SBW3**).

- 7.1.9** Three buildings (**B1, B2 & B3**) on site were of simple construction and lacked suitable features for roosting bats, and are therefore of negligible bat roost potential.
- 7.1.10** An old disused park building (**B4**) offered potential features for roosting bats with numerous gaps where roof tiles were missing or lifted, at the timbers by the gable end and around boarded up windows. The building was of moderate potential for bats.

#### Hazel Dormice

- 7.1.11** The site offers very limited opportunities for hazel dormice because it lacks dense habitat connected to woodland that allows animals to move easily through habitats without coming to the ground (English Nature 2006). Furthermore, there are no known records within the local area, therefore, it is considered extremely unlikely that this species would be found on site.

#### Invertebrates

- 7.1.12** The majority of the site is unlikely to provide the structural and botanical diversity required to support a diverse invertebrate fauna. The tree lines and small areas of uncut-semi improved grassland provide habitats of greater value to invertebrates.

#### Badgers

- 7.1.13** There are no records of the badger (*Meles meles*) within a 1km radius of the site and during the survey there were no signs of activity by this species on site, such as latrines or sett entrances, and therefore it is considered unlikely that badgers are found on site currently.

## Other mammals

- 7.1.14** The uncut-semi improved grassland on site is suitable for a range of small mammal species - including species of principal importance for conservation such as the hedgehog (*Erinaceus europaeus*) - to commute, forage and take refuge.

## **7.2 Impact of Proposals**

- 7.2.1** The proposals are for the construction of a new swimming pool and associated landscaping.

### Statutorily Designated Sites

- 7.2.2** The site is not designated for its wildlife interest and therefore the proposals will have no direct impact on designated wildlife sites. The site falls within the SSSI Impact Zone for the Lodge Wood and Sandford Mill SSSI situated about 3.9 km to the east; however, the proposals do not fall into the categories of development that could affect the SSSI.

### Habitats

- 7.2.3** The proposals to construct a new swimming pool will lead to loss primarily of amenity grassland, hard standing and potentially a section of species poor hedgerow of negligible ecological value in its current condition.
- 7.2.4** The proposals include retaining the mature tree line along the south eastern and south western boundary and the mature scattered trees amongst the park; however some tree, hedge, and shrub, removal may be required. The semi-improved grassland along the side of the athletics track and woodland patch to the east will also be retained.
- 7.2.5** None of the habitats to be impacted are of ecological value in a local, national or international scale. These areas may provide some limited opportunities for protected species and therefore precautions should be adopted during clearance (refer to recommendations in Section 8).

## Bats

- 7.2.6** As insects are attracted to artificial lighting, several species of bats, including species such as the pipistrelles, noctule, Leisler's bat and serotine, have been shown to be attracted to lighting to forage (Stone *et. al.* 2015b). Several species of bats, particularly the slower flying species, such as the long-eared bats and *Myotis* species, have on the other hand been shown to avoid lighting, possibly as a consequence of the risk of increased predation from diurnal raptors (Stone *et. al.* 2015a), although several species may be sensitive to increased lighting particularly UV light, and lighting may disrupt visual foraging behaviour in groups such as long-eared bats (Fure 2006). Furthermore, the artificial attraction of insects to lighting may have an adverse impact on the availability of insects in nearby habitats and therefore an impact on the foraging success of bats that avoid lighting.
- 7.2.7** The proposals are likely to lead to an increase of artificial light on the site; however, the proposed layout means that the swimming pool towards the centre of the site would be set away from the mature tree lines and woodland to the east, and as such, impacts from lighting are likely to be minimal, particularly if sensitive lighting is installed (refer to recommendations in Section 8).
- 7.2.8** There are no current plans to remove any of the mature trees or to renovate and/or demolish the park building (B4); however, if in the future there are plans to remove the trees highlighted (SBW1, SBW2 & SBW3) or do any work to the building this could lead to loss of bat roosts and could harm bats in the absence of appropriate mitigation and therefore a survey to establish if roosting bats use the trees or building, and if present, the status of any roost should be undertaken.

## Hazel Dormice

- 7.2.9** Dormice are highly unlikely to be present on site and therefore adverse impacts on dormice are highly unlikely also.

## Amphibians

- 7.2.10** No waterbodies are to be affected by the proposals and therefore there will be loss of breeding opportunities for amphibians. It is considered unlikely that protected

and notable amphibians i.e. great crested newt and common toad would make use of the terrestrial habitats on site to be impacted by the works.

#### Reptiles

- 7.2.11** Due to the lack of sheltering, foraging and basking habitats vital for reptiles, the proposed work is considered highly unlikely to have an adverse impact on reptiles.

#### Badgers (and Other Mammals)

- 7.2.12** There are no active or inactive badger sett entrances or other mammal entrances on site at the time of the survey and no signs of foraging badgers and as such adverse impacts on badgers are considered to be highly unlikely. Small mammals, including the notable species: hedgehog, may be found on site, particularly using the small areas of semi-improved grassland is not to be impacted as part of the work.

#### Nesting birds

- 7.2.13** The line of trees on the boundaries, scattered trees, broadleaved woodland and species poor hedgerow (PH2 & PH3) provide nesting opportunities for common and widespread bird species and any removal of trees or clearance of vegetation may lead to the disturbance of nesting birds and as such necessary precautions must be adopted to ensure the work goes ahead lawfully (refer to recommendations in Section 8). The hedgerow (PH1) along the front western side of the sports stadium building was very thin and offered limited cover for nesting birds.

#### Invertebrates

- 7.2.14** The development site is highly unlikely to support important assemblages of invertebrates of conservation importance and therefore the proposals are not considered likely to significantly affect invertebrate populations. The semi-improved grassland to the northeast of the site offered structural diversity to be of greater importance for invertebrates but will be retained.

## **8 RECOMMENDATIONS**

### **8.1 Site Clearance/Management**

**8.1.1** Any proposed removal of hedges and trees on site to allow for the construction of the new swimming pool and associated landscaping should be undertaken taking precautions as follows:

- The work should be completed outside of the peak bird nesting season (March to August inclusive), or if carried out within this period, should take place only once a survey confirming nesting birds are not present has taken place. If birds are found to be nesting, to allow the work to take place lawfully, it should be undertaken only once it can be confirmed that the young have fledged and left the nest.
- Before construction begins, the amenity grassland should continue to be kept closely mown to prevent it from becoming favorable habitat for reptiles or small mammals in the future.

### **8.2 Habitats**

**8.2.1** Retained trees and shrubs should be protected during construction using appropriate tree protection measures.

### **8.3 Bats**

**8.3.1** The line of mature lime (SBW1), mature poplar (SBW2) and mature London plane (SBW3) are considered to be of low - moderate potential for roosting bats. If any of the mature trees highlighted are to be removed, detailed inspections of the trees will be required in order to confirm the presence/absence of roosting bats and so determine fully their ecological importance and assess the impact that their proposed removal would have. The surveys should comprise a detailed, high level inspection for evidence of roosting bats e.g. from a mobile work platform or by a climbing survey, and/or evening emergence and/or dawn re-entry surveys. If emergence surveys are carried out these should be undertaken in the period between May and September. A European Protected Species Licence would be required from Natural England in order to permit the felling of the tree(s) if surveys reveal that roosting bats are present. This licence allows derogation of the

legislation protecting bats and their roosts; mitigation measures during felling and compensation for roost loss would be required as a condition of the licence.

**8.3.2** If any work is planned to the park building (B4) further survey should be carried out to establish if roosting bats are present, and if present, the status and location of the roosts and inform an appropriate mitigation and compensation strategy. The survey should comprise at least two evening emergence surveys and/or dawn re-entry surveys. The surveys should be carried out in the period between May and September inclusive, with at least two of the visits in the period between May and August. The visits should be separated by at least two weeks (Collins 2016). If the surveys show that bats will be affected unavoidably by the planned work, a European Protected Species mitigation licence or confirmation of the site's registration under the Bat Mitigation Class Licence (if applicable) should be obtained, following the grant of necessary planning consents, before the licensable work (e.g. stripping of roof coverings) commences. An appropriate mitigation and compensation strategy will be confirmed dependent on the findings of the further surveys.

**8.3.3** If external artificial lighting is to be installed on site as part of the new swimming pool scheme, the lighting period should be restricted or controlled by passive infra-red sensors so that lighting operates only when necessary, and the light fittings should be either low-level or be directed downwards and shielded above to prevent upward light spill that may illuminate trees and vegetation. The lighting should use the lowest intensity lights possible and should seek to use bulbs that emit very low levels of UV light e.g. warm white LED lamps (Stone 2015a).

## **8.4 Ecological Enhancement Opportunities**

**8.4.1** The development proposals would provide opportunities for the protection and enhancement of the site's biodiversity value. The inclusion of the following recommendations would be of ecological benefit and be in line with the National Planning Policy Framework (NPPF):

- The landscaping plans should seek to enhance the ecological value of the site by making use of native plant species of local provenance. The aim of the landscaping should be to increase the structural diversity and species diversity of the site by planting native woody species and for example, by

using native species in any new hedges to be created. Species such as the snowberry found on site should be avoided as it can become invasive.

- The flowerbeds within the park could include features that provide foraging opportunities and cover for small mammals, amphibians and reptiles such as rockeries and partially buried log piles.
- The new building could include features suitable wildlife associated with suburban areas such as nesting birds and roosting bats by including purpose built boxes within the walls for example.

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## APPENDIX 1 - SITE PHOTOGRAPHS



1. Closely cut amenity grassland covering the majority of the park (AM1)



2. Section of grass left uncut under the trees towards the southeast (TN1)



3. A flowerbed that had become overgrown towards the centre of the site (TN2)



4. Strip of semi-improved grassland around the athletics track to the northeast (SI1)



5. Line of mature lime trees towards the southeast (SBW1)



6. Dead branches within one of the mature lime trees (SBW1)





**7. A mature poplar tree by the footpath around the sports stadium with dead branches and peeling branches (SBW2)**



**8. Mature London plane tree with knot holes visible (SBW3)**



**9. Small patch of woodland on the western boundary of the site (BW1).**



**10. Species poor hedge dominated by hornbeam around the fence by the side of the sports stadium (PH1)**



**11. Species poor hedge around the fence by the side of the sports stadium (PH1)**



**12. Small bed of introduced shrubs in the corner by the hedge and poplar tree (PH1 & SBW1)**





**13. Laurel hedge around the amenity grassland and southern side of the car park (PH2)**



**14. Hornbeam and beech hedge around a patch of amenity grassland and playground towards the centre of the site (PH3)**



**15. Car park to the north east of the site (OH1)**



**16. Pile of rubble to the north of the site (TN3)**



**17. Patches of short ephemeral vegetation growing around the edges of the footpath by the access onto the athletics track (OH2)**



**18. Footpaths around the park (OH3)**



**19. Palmer Park Sports Stadium with a corrugated arched roof (B1)**



**20. Windows covering the top half of the sports stadium (B1)**



**21. Metal soffits around the eaves of the sports stadium (B1)**



**22. Flat roof extension to the front of the sports stadium (B1)**



**23. Internal view of the roof space (B1)**



**24. Internal view of the roof space (B1)**





**25. Block work walls of the roof space and fibreglass between the walls and roof (B1)**



**26. Storage building of metal and brick construction (B2)**



**27. Club house of brickwork construction (B3)**



**28. uPVC barge boards tightly fitted on the club house (B3)**



**29. Pitched roof building in the park (B4)**



**30. Roof tiles moss covered and lifted in places (B4)**



**31. Section of tiles missing on the building (B4)**



**32. Pebbledash and timbers present at the gable end (B4)**



**33. Doors boarded up (B4)**



**34. Windows covered up with block work**

## APPENDIX 2 - PRELIMINARY ECOLOGICAL APPRAISAL PLAN AND TARGET NOTES



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Habitat code	Comments
AM1	<b>Amenity grassland</b> –closely cut amenity grassland which was regularly cut, apart from a strip of grassland around the southernmost and south western side of the site under the trees. The grassland had a number of grasses present including wall barley ( <i>Hordeum murinum</i> ), perennial rye grass ( <i>Lolium perenne</i> ), cocks foot ( <i>Dactylis glomerata</i> ), a meadow grass species ( <i>Poa</i> sp.), soft brome ( <i>Bromus mollis</i> ) and smaller cat's tail ( <i>Phleum bertolonii</i> ). Herbaceous species were present within the sward and included: yarrow ( <i>Achillea millefolium</i> ), daisy ( <i>Bellis perennis</i> ), white clover ( <i>Trifolium repens</i> ), dove's foot cranesbill ( <i>Geranium molle</i> ), ragwort ( <i>Senecio jacobaea</i> ), dandelion ( <i>Taraxacum officinale</i> agg.), ribwort plantain ( <i>Plantago lanceolata</i> ), betony ( <i>Stachys officinalis</i> ), creeping buttercup ( <i>Ranunculus repens</i> ), and common mallow ( <i>Malva sylvestris</i> ). A number of scattered parkland trees were also present amongst the grassland throughout the site. Species present included London plane ( <i>Platanus x hispanica</i> ), an acer species, a poplar species ( <i>Populus</i> sp.), oak ( <i>Quercus robur</i> ), acacia, a birch species ( <i>Betula</i> sp.), lime ( <i>Tilia x europaea</i> ), walnut ( <i>Juglans regia</i> ), cherry ( <i>Prunus</i> sp.), hornbeam ( <i>Carpinus betulus</i> ), sycamore ( <i>Acer pseudoplatanus</i> ), blue Atlas cedar ( <i>Cedrus atlantica</i> ), and a spruce ( <i>Picea</i> sp.). ( <b>Photographs 1 – 2</b> ).
SI1	<b>Poor Semi-improved grassland</b> - A patch of uncut grassland around the athletics track. The grassland was restively species rich and a number of invertebrates including damselflies, dragonflies, beetles and bees were observed using the grassland. The grassland had a number of grass species present including: cocks foot ( <i>Dactylis glomerata</i> ), Yorkshire fog ( <i>Holcus lanatus</i> ), red fescue ( <i>Festuca rubra</i> ), creeping bent ( <i>Agrostis stolonifera</i> ), yellow oat grass ( <i>Trisetum flavescens</i> ), false oat grass ( <i>Arrhenatherum elatius</i> ), barren brome ( <i>Bromus sterrilis</i> ), and perennial rye grass ( <i>Lolium perenne</i> ). A number of herbaceous dominated the sward and included: yarrow ( <i>Achillea millefolium</i> ), shepherds purse ( <i>Capsella bursa-pastoris</i> ), field bindweed ( <i>Convolvulus arvensis</i> ), fat hen ( <i>Chenopodium album</i> ), red deadnettle ( <i>Lamium purpureum</i> ), bristly ox-tongue ( <i>Picris echinoides</i> ), dock ( <i>Rumex</i> sp.), spear thistle ( <i>Cirsium vulgare</i> ), creeping thistle ( <i>Cirsium arvense</i> ), hawkweed ( <i>Hieracium</i> agg.), a willowherb species ( <i>Epilobium</i> sp.), common nettle ( <i>Urtica dioica</i> ), ragwort ( <i>Senecio jacobaea</i> ), common mallow ( <i>Malva sylvestris</i> ), hedge bedstraw ( <i>Galium mollugo</i> ), white campion ( <i>Silene latifolia</i> ), ribwort plantain ( <i>Plantago lanceolata</i> ), mugwort ( <i>Artemisia vulgaris</i> ), green alkanet ( <i>Pentaglottis sempervirens</i> ), a crucifer species, dogwood ( <i>Cornus sanguinea</i> ), red campion ( <i>Silene dioica</i> ), evergreen honey suckle ( <i>Lonicera</i> sp.), bramble ( <i>Rubus fruticosus</i> agg.), and Italian alder ( <i>Alnus cordata</i> ) ( <b>Photograph 4</b> ).
SBW1	<b>Scattered Broadleaved Trees</b> - A line of mature lime ( <i>Tilia x europaea</i> ) trees. The trees had occasional features such as dead branches which could provide opportunities for roosting bats ( <b>Photographs 5 &amp; 6</b> ).
SBW2	<b>Scattered Broadleaved Trees</b> - A mature poplar ( <i>Populus</i> sp.) tree by the footpath around the sports stadium. The tree had dead branches and peeling bark visible which could provide features suitable for bats ( <b>Photograph 7</b> ). A streetlight was visible right next to the tree which could reduce the likelihood of light sensitive bats using the tree as a roost.
SBW3	<b>Scattered Broadleaved Trees</b> - A mature London plane ( <i>Platanus x hispanica</i> ) tree. The tree had knot holes visible which offered potential features suitable for roosting bats ( <b>Photograph 8</b> ).
BW1	<b>Broadleaved Woodland</b> - A small patch of woodland ( <b>Photograph 9</b> ). The trees and shrubs present included: field maple ( <i>Acer campestre</i> ), willow ( <i>salix</i> sp.), cherry ( <i>Prunus</i> sp.), crab apple ( <i>Malus sylvestris</i> ), hazel ( <i>Corylus avellana</i> ), snowberry ( <i>Symphoricarpos alba</i> ), privet ( <i>Ligustrum ovalifolium</i> ) and a cherry laurel ( <i>Prunus laurocerasus</i> sp.). There were also bramble ( <i>Rubus fruticosus</i> agg.), violet ( <i>Viola</i> sp.), green alkanet ( <i>Pentaglottis sempervirens</i> ), and dogwood ( <i>Cornus sanguinea</i> ) present occasionally.
PH1	<b>Species Poor Hedgerow</b> - A species poor hedge ( <b>Photographs 10 &amp; 11</b> ). The hedge was dominated by hornbeam ( <i>Carpinus betulus</i> ). The hedge was thin with sparse vegetation and limited cover for protected species such as nesting birds. A small bed of introduced shrubs was also present in the corner by the hedge and poplar tree ( <b>Photograph 12; SBW1</b> )



PH2	<b>Species Poor Hedgerow</b> - A managed laurel ( <i>Prunus</i> spp.) hedge with rose ( <i>Rosa</i> sp.) present rarely was present around the amenity grassland and southern side of the car park ( <b>Photograph 13</b> ).
PH3	<b>Species Poor Hedgerow</b> - A species poor hedge ( <b>Photograph 14</b> ). The hedge was dominated by hornbeam ( <i>Carpinus betulus</i> ) and beech ( <i>Fagus sylvatica</i> ).
OH1	<b>Other habitat</b> - A car park by the sports stadium and athletics track, and a paved area around the front of the stadium ( <b>Photograph 15</b> ).
OH2	<b>Other habitat</b> - A footpath leading onto athletics track had some patches of short ephemeral vegetation growing around the edges ( <b>Photograph 17</b> ).
OH3	<b>Other habitat</b> - A road leading to the car park though the centre of the site, which had a number of footpaths leading from it as well as around the site ( <b>Photographs 18 &amp; 19</b> ).
OH4	<b>Other habitat</b> - Multisport AstroTurf courts
B1	<b>Building</b> - The Palmer Park Sports Stadium building. The roof consisted of a number of corrugated plastic arches which opened out onto the athletics track at the eastern side of the building ( <b>Photograph 19</b> ). The walls were of brick construction with large windows covering the top half of the building ( <b>Photograph 20</b> ). Metal soffit boxes were tightly fitted around the eaves ( <b>Photograph 21</b> ). A single storey flat roof extension was present on the front western entrance into the building. The roof was tightly covered with a rubber coating ( <b>Photograph 22</b> ). A small section of the roof was access above the gym at the southern end of the building. The roof space was metal framed and opened up to the corrugated plastic sheets ( <b>Photograph 23</b> ). The floor was boarded in places or false ceiling panels were visible ( <b>Photograph 24</b> ). The walls were of blockwork construction which had fibreglass filling the gaps between the walls and the roof ( <b>Photograph 25</b> ).
B2	<b>Building</b> - A small flat roofed brick storage building of simple construction with no suitable features for roosting bats ( <b>Photograph 23</b> ). The base of the building was of brick construction and the rest of the walls were covered with corrugated metal and rolling garage doors. The roof was also covered with corrugated metal.
B3	<b>Building</b> - A flat roofed club house of simple construction with no suitable features for roosting bats ( <b>Photograph 24</b> ). The building was of brickwork construction with tightly fitted uPVC barge boards ( <b>Photograph 25</b> ).
B4	<b>Building</b> - A brick built pitched roofed building within the park ( <b>Photograph 26</b> ). The roof was covered with flat roof tiles which were mostly moss covered. The tiles were occasionally curved or lifted and a large section was missing, offering potential access and roosting opportunities for bats ( <b>Photographs 27 &amp; 28</b> ). The brick walls of the gable ends were covered with pebbledash and had timbers present ( <b>Photograph 29</b> ). The doors were boarded over and the windows were covered with blockwork which gaps around the edges, providing access opportunities for bats ( <b>Photographs 30 &amp; 31</b> ).
TN1	<b>Target note 1</b> - Strip of uncut grassland
TN2	<b>Target note 2</b> - A small flowerbed, which had become overgrown with scrub. Dominated by bramble ( <i>Rubus fruticosus</i> agg.), other species present included rose ( <i>Rosa</i> sp.), red campion ( <i>Silene dioica</i> ), hawkweed ( <i>Hieracium</i> agg.), burdock ( <i>Arctium</i> sp.), herb Robert ( <i>Geranium robertianum</i> ), and a few trees including plum ( <i>Prunus</i> sp.), willow ( <i>Salix</i> sp.), cherry ( <i>Prunus</i> sp.) ( <b>Photograph 3</b> ).
TN3	<b>Target note 3</b> - A pile of rubble ( <b>Photograph 16</b> ).

### APPENDIX 3 - PLANT SPECIES RECORDED DURING THE SURVEY

Plant common name	Scientific name
Acacia	<i>Acacia</i> sp.
Maple	<i>Acer</i> sp.
Barren brome	<i>Bromus sterilis</i>
Beech	<i>Fagus sylvatica</i>
Betony	<i>Stachys officinalis</i>
Birch species	<i>Betula</i> sp.
Blue Atlas cedar	<i>Cedrus atlantica</i>
Bramble	<i>Rubus fruticosus</i> agg.
Bristly ox-tongue	<i>Picris echioides</i>
Burdock	<i>Arctium</i> sp.
Cherry	<i>Prunus</i> sp.
Cocks foot	<i>Dactylis glomerata</i>
Common mallow	<i>Malva sylvestris</i> .
Common nettle	<i>Urtica dioica</i>
Crab apple	<i>Malus sylvestris</i>
Creeping bent	<i>Agrostis stolonifera</i>
Creeping buttercup	<i>Ranunculus repens</i>
Creeping thistle	<i>Cirsium arvense</i>
Daisy	<i>Bellis perennis</i>
Dandelion	<i>Taraxacum officinale</i> agg.
Dock	<i>Rumex</i> sp.
Dogwood	<i>Cornus sanguinea</i>
Dove's foot cranesbill	<i>Geranium molle</i>
Evergreen honey suckle	<i>Lonicera</i> sp.
False oat grass	<i>Arrhenatherum elatius</i>
Fat hen	<i>Chenopodium album</i>
Field bindweed	<i>Convolvulus arvensis</i>
Field maple	<i>Acer campestre</i>
Green alkanet	<i>Pentaglottis sempervirens</i>
Hawkweed	<i>Hieracium</i> agg.
Hazel	<i>Corylus avellana</i>
Hedge bedstraw	<i>Galium mollugo</i>
Herb Robert	<i>Geranium robertianum</i>
Hornbeam	<i>Carpinus betulus</i>
Italian alder	<i>Alnus cordata</i>
Laurel	<i>Prunus</i> sp.
Lime	<i>Tilia x europaea</i>
London plane	<i>Platanus x hispanica</i>
Meadow grass species	<i>Poa</i> sp.
Mugwort	<i>Artemisia vulgaris</i>
Oak	<i>Quercus robur</i>
Perennial rye grass	<i>Lolium perenne</i>
Plum	<i>Prunus</i> sp.

Poplar	<i>Populus</i> sp.
Privet	<i>Ligustrum ovalifolium</i>
Ragwort	<i>Senecio jacobaea</i>
Red campion	<i>Silene dioica</i>
Red deadnettle	<i>Lamium purpureum</i>
Red fescue	<i>Festuca rubra</i>
Ribwort plantain	<i>Plantago lanceolata</i>
Rose	<i>Rosa</i> sp.
Shepherds purse	<i>Capsella bursa-pastoris</i>
Smaller cat's tail	<i>Phleum bertolonii</i>
Snowberry	<i>Symphoricarpus alba</i>
Soft brome	<i>Bromus mollis</i>
Spear thistle	<i>Cirsium vulgare</i>
Spruce	<i>Picea</i> sp.
Sycamore	<i>Acer pseudoplatanus</i>
Violet	<i>Viola</i> sp.
Wall barley	<i>Hordeum murinum</i>
Walnut	<i>Juglans regia</i>
White campion	<i>Silene latifolia</i>
White clover	<i>Trifolium repens</i>
Willow	<i>Salix</i> sp.
Willowherb species	<i>Epilobium</i> sp.
Yarrow	<i>Achillea millefolium</i>
Yellow oat grass	<i>Trisetum flavescens</i>
Yorkshire fog	<i>Holcus lanatus</i>