



Phase 1 Habitat Survey of Land at Mansfield Bowling Club, London

on behalf of
Iceni Projects Ltd

**ECO01
January 2015**

Revision C

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Service, value and innovation

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Disclaimer

JBA Consultancy Services Ltd. have made every effort to meet the client's brief. However, no survey ensures complete and absolute assessment of the changeable natural environment. The findings in this report were based on evidence from thorough survey: It is important to remember that evidence can be limited, hard to detect or concealed by site use and disturbance. When it is stated that no evidence was found or was evident at that point in time, it does not mean that species are not present or could not be present at a later date: The survey was required because habitats are suitable for a given protected species, and such species could colonise areas following completion of the survey.

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Non-technical Summary

Site:	Mansfield Bowling Club, London
Grid Reference (from the centre of the site)	TQ 28759 86261
Report Commissioned by:	Iceni Projects Ltd
Date of Survey:	23 rd October 2014

Considerations	Description	Timings and potential impacts
Statutory and non-statutory sites within 2km:	Three statutory (one SSSI and two LNRs) and twenty two non-statutory sites (all SINCs)	No impacts are predicted
SPA, SAC and Ramsar sites within 7km:	Lee Valley SPA and Ramsar	No impacts are predicted
Phase 2 surveys:	Reptiles Survey of buildings with bat roost potential prior to demolition	April to September Activity surveys – May to September
Phase 2 survey which may be needed (dependent on final layout):	Surveys of trees with bat roost potential if these will be impacted	Activity surveys – May to September Or climb and inspect survey at any time
Precautionary measures:	Precautionary soft demolition of main building	During active bat season (May to September)
	Precautionary survey for badgers	Immediately prior to the start of works
	Removal of hedgerows and trees	Outside of the nesting bird season (March to September) or following a nesting bird survey
	Hand removal of debris and brash piles	Outside hedgehog hibernation period (November - April)
Habitat types:	Hard-standing, buildings, scrub, tall ruderal, planted shrubs, redundant amenity grassland, semi-improved grassland and scattered trees	

1 Introduction

Background

- 1.1 JBA Consultancy Services Ltd were commissioned by Icen Projects Ltd to undertake a Phase 1 Habitat Survey and Protected Species Scoping Survey of Mansfield Bowling Club, London (grid ref TQ 28759 86261, taken from the centre of the site).
- 1.2 The assessment was required to accompany a planning application to develop the site: Creation of a new publicly accessible open space; enhanced tennis facilities including the reconfiguration and extension of the courts to provide an additional court and increased playing area to accord with LTA requirements; the provision of a new ancillary pavilion (Class D2) to replace existing ancillary buildings; a new community garden; and the demolition and replacement of the existing bowling club building with a new part three storey, part 2 storey building providing 21 residential dwellings (Class C3) with associated access, parking and landscaping
- 1.3 For the purposes of this report, protected species are taken to be those which are protected under European Legislation (Conservation of Habitats and Species Regulations 2010, as amended) and UK legislation (Wildlife and Countryside Act 1981; Protection of Badgers Act 1992); and species and habitats of principle importance which are listed in Section 41 of the NERC Act (2006).
- 1.4 There is a general biodiversity duty in the National Planning Policy Framework (NPPF) 2012, placing responsibility on Local Planning Authorities to aim to conserve, enhance and encourage biodiversity in and around developments. Section 40 of the NERC Act requires every public body in the exercising of its functions to 'have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity'. Biodiversity, as covered by the Section 40 duty, includes all biodiversity, not just the habitats and species of principal importance. However, there is an expectation that public bodies would refer to the S41 list when complying with the Section 40 duty.

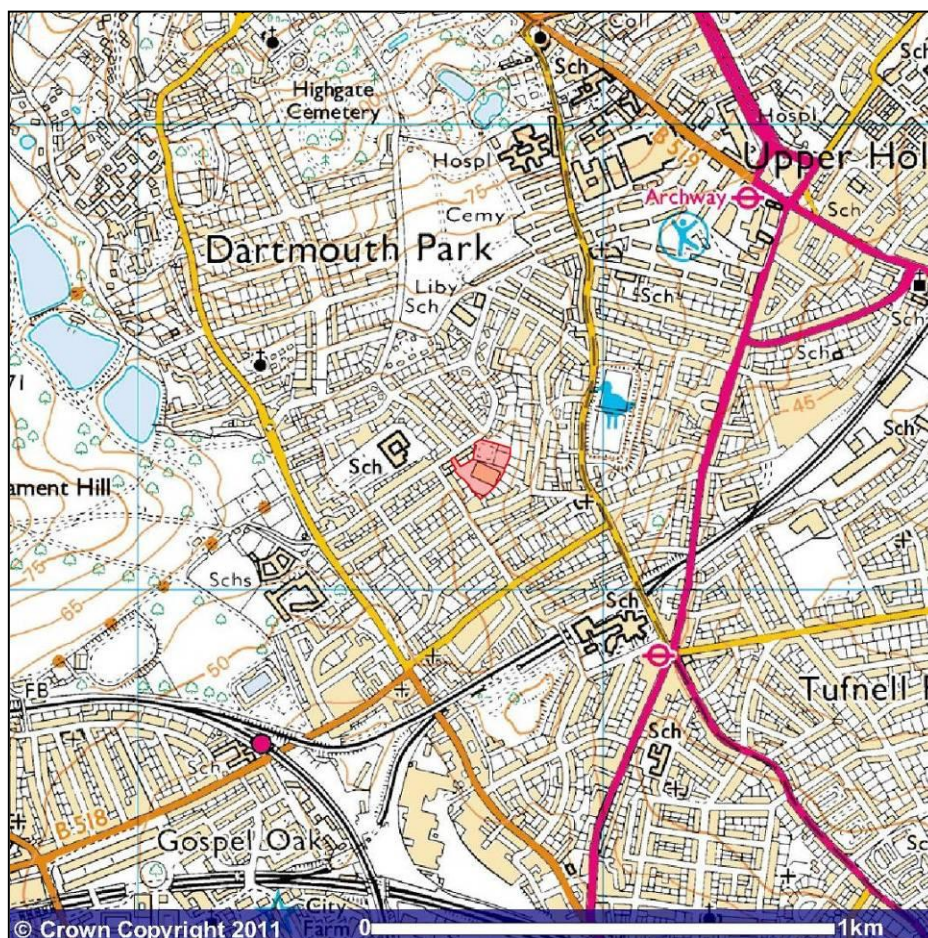
Site Description

- 1.5 The site was located to the south of Croftdown Road, in the London Borough of Camden. The site is bounded on all sides by existing residential properties and gardens. The wider urban landscape is characterised by residential and commercial development and associated infrastructure. Hampstead Heath, with its areas of

grassland, woodland, heaths and wetlands, is located approximately 0.5km west of the site (see Figure 1).

- 1.6 The majority of the site comprised hard standing and amenity grassland. There was a small area of rough grassland in the southern corner of the site and a small vegetable garden in the north-east corner. The main building on the site was of partial brick construction with corrugated sheet cladding and a flat roof. A number of timber sheds with felt roofs were also present.

Figure 1: Site location:



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Aims and objectives

- 1.7 The aim of the survey was to:
- Identify the presence, or potential presence, of any protected or notable species or habitats on, or adjacent to, the site;

- assess the potential impact of the proposed works on any protected or notable species and/or habitats present including nature conservation sites on, or adjacent to, the site;
- make recommendations for further surveys and/or mitigation following the survey (if necessary) and provide suggestions to enhance the wildlife value of the site post-development.

2 Methods

Desk study

- 2.1 A 2km radius search for statutory designated sites, excluding Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites, either on the proposed development site or in the surrounding area, was conducted using “MAGIC”, the Multi-Agency Geographic Information system for the Countryside.
- 2.2 A 7km search for SACs, SPAs and Ramsar sites was also conducted using MAGIC.
- 2.3 The Greenspace Information for Greater London (GiGL) was consulted for records of non-statutory sites and protected and rare species within a 2km search radius (GiGL data provided on the 27th October 2014).
- 2.4 The site is covered by the Local Biodiversity Action Plan (BAP) for London (<http://www.lbp.org.uk>).

Phase 1 Habitat Survey

- 2.5 The survey was undertaken by Ellie Rickman BSc (Hons) MSc ACIEEM (dormouse class licence WML-CL10A; great crested newt class licence WML-CL08) and Ali Killingsworth BSc (Hons) MSc (great crested newt licence class licence WML-CL08) on the 23rd of October 2014. During the survey, the temperature was 16°C, there was light air (Beaufort scale 1), 50% cloud cover and good visibility.
- 2.6 The survey methodology followed JNCC (Joint Nature Conservation Committee) Guidelines (JNCC, 2010) and included mapping habitat types and identifying all plant species observed on the site, including Wildlife and Countryside Act Schedule 9 invasive plant species such as Japanese knotweed (*Fallopia japonica*) and giant hogweed (*Heracleum mantegazzianum*).
- 2.7 The site was also assessed for signs and evidence of protected, priority and rare species in accordance with approved guidelines, as follows:
- 2.8 **Bats:** Mature trees within the site boundary, and adjacent to the site boundary, were

surveyed externally, from the ground, for their potential to support roosting bats, under the following criteria.

Table 1: Bat survey protocol for trees: (potential bat roosting features were identified in order to categorise trees, as below):

Bat Roost Potential	Field signs
Roost Confirmed	Confirmed bat roost in tree: field evidence of the past or current presence of bats, e.g. droppings, staining.
High roost potential	Splits or cracks in major limbs which develop upwards, smooth surface around entry point, dense ivy-covering, woodpecker/rot holes, significant lifting bark, artificial bird or bat boxes. Ancient or over mature trees where the canopy cannot be fully inspected from the ground.
Medium roost potential	Splits in branches, dense ivy-covering, small cavities, dense epicormic growth, flies around entry point.
Low roost potential	Splits in minor branches, sparse ivy, limited loose bark. Young, healthy tree with good visibility to the top of the canopy.
No roost potential	Trees with a negligible potential to support bat roosts (not supporting any of the above features).

Bat Survey Protocol for buildings

The main building and wooden sheds within the site were externally assessed for signs or evidence of past or present usage by roosting bats. A check was undertaken for entry points such as cracks or holes, plus evidence of bat activity such as staining, droppings or feeding remains (such as butterfly or moth wings) that could indicate past presence of bats.

- 2.9 **Dormice:** A visual survey for the presence of suitable habitat (woodland/suitable hedges with good under-storey/shrub layer and a range of food plant species, such as hazel, bramble and honeysuckle) was carried out, to assess if dormice were likely to be present.
- 2.10 **Reptiles:** A visual survey for the presence of suitable habitat was carried out according to the criteria given in the Herpetofauna Workers' Manual (Gent and Gibson, 1998).

- 2.11 **Invertebrates:** The site was scoped for significant rotting deadwood, and high quality aquatic or other habitats which could be used by significant assemblages of invertebrates, or by any of the invertebrates highlighted in the data search.
- 2.12 **Flora and habitats:** All habitats and plant species which were identifiable at the time of the survey were recorded.
- 2.13 **Badgers:** A visual survey for setts, hair, latrines, prints, snuffle marks or other signs of badgers was undertaken within the site boundary.
- 2.14 **Birds:** A visual survey of bird activity and suitable nesting habitat was carried out, to determine if any areas would be suitable for WCA Schedule 1 birds, Birds of Conservation Concern or other common and widespread nesting birds.
- 2.15 **Adjacent Habitat:** Habitats close to the site were identified, using aerial maps and field observation, so that the ecological impact of the proposed works on the wider landscape could be assessed.
- 2.16 There were no water courses marked on OS maps within 50m or observed during the site visit, so no assessment for protected species associated with aquatic habitats (great crested newts, water vole, otter, white-clawed crayfish) was necessary.

3 Results

Desk Study

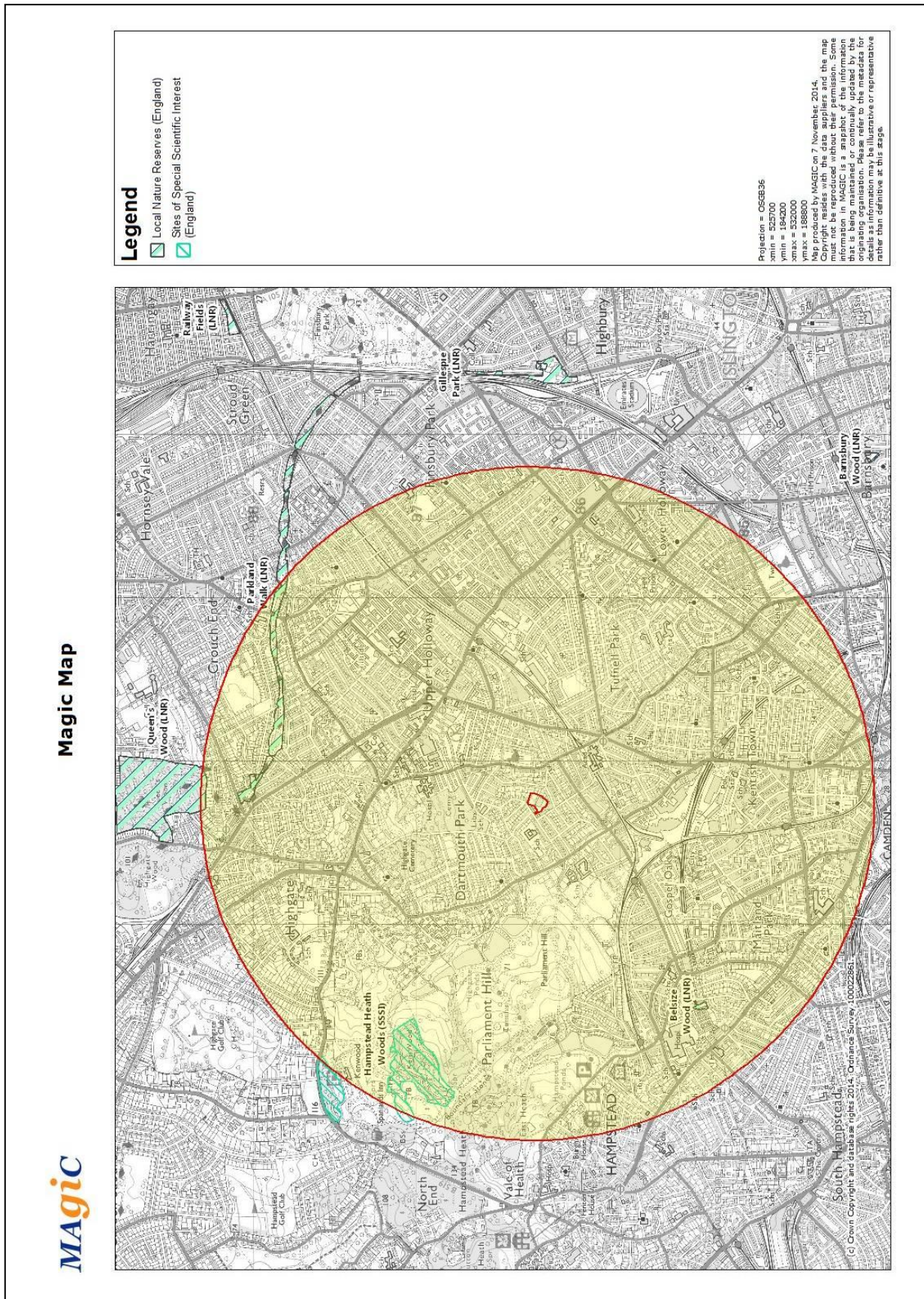
Statutory Nature Conservation Sites within 2km of the site, excluding Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites

- 3.1 There were four statutory designated sites within 2km of the site: Hampstead Heath Woods Site of Special Scientific Interest (SSSI), Belsize Wood Local Nature Reserve (LNR), Parkland Walk LNR and Queen's Wood LNR. These are detailed in Table 2 and shown in Figure 2.

Table 2: Statutory conservation sites within 2km

Site Name	Designation	Distance from Site	Description
Hampstead Heath Woods	SSSI	1.4km north-west	The woods are examples of long-established high forest woodlands with an exceptional structure comprising an abundance of old and over-mature trees providing dead wood habitat for a range of invertebrate species. The site also includes an adjacent valley containing an acidic flush with developing bog-moss communities.
Belsize Wood	LNR	1.5km south-west	A small woodland nature reserve on land owned by the London Borough of Camden. The wood supports a broad diversity of insect species, likely as a result of the floral diversity within the LNR. The reserve contains further features to enhance biodiversity including a pond, bird boxes and beetle logeries.
Parkland Walk	LNR	1.5km north	The predominant habitat within Parkland Walk is secondary woodland, with a large area of naturalised wild plum and occasional English elm. The Islington stretch is important for a range of wildlife and includes the borough's only area of acidic grassland which is home to several rare plants and insects.
Queen's Wood	LNR	1.9km north	The wood is ancient oak-hornbeam woodland. English oak and occasional beech stand over a wide range of species including hornbeam and midland hawthorn. The ground flora is rich and contains a large population of wood anemone, native bluebells and wood goldilocks. Over one hundred species have been recorded and a nationally rare jewel beetle is widespread.

Figure 2: Statutory conservation sites within 2km of the site



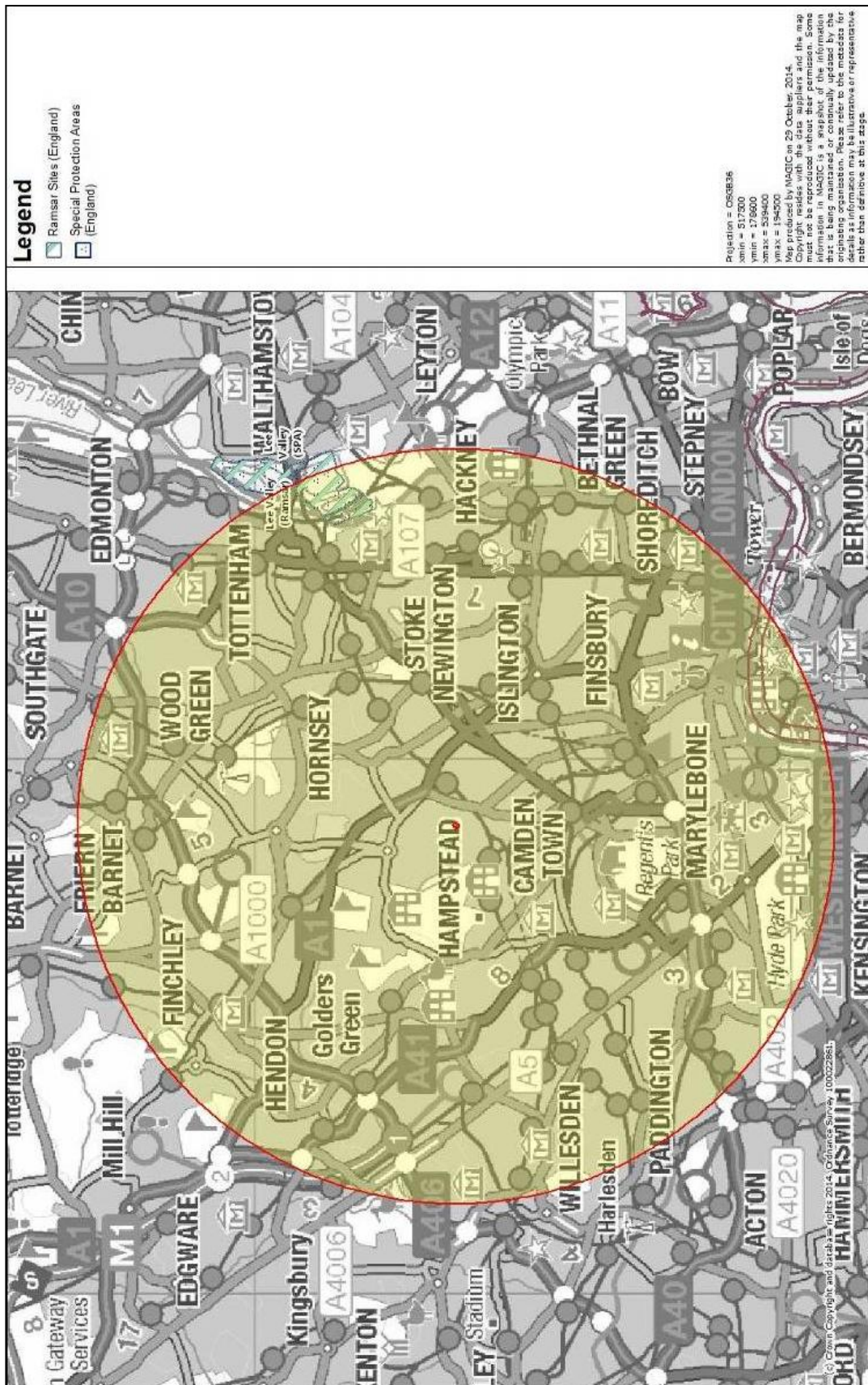
Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites within 7km of the site.

- 3.2 A 7km radius search carried out for SPAs, SACs and Ramsar sites one further site, the Lee Valley SPA and Ramsar site. This is detailed in Table 3 and shown in Figure 3.

Table 3: SACs, SPAs and Ramsar sites within 7km of the site

Site Name	Designation	Distance from Site	Description
Lee Valley	SPA & Ramsar	6km east	<p>Designated as an SPA as wetland habitats support wintering wildfowl, in particular Gadwall (<i>Anas strepera</i>) and Shoveler (<i>Anas clypeata</i>), which occur in numbers of European importance. Areas of reedbed within the site also support significant numbers of wintering Bittern (<i>Botaurus stellaris</i>).</p> <p>Designated as a Ramsar site for supporting the nationally scarce plant species whorled water-milfoil and the rare/vulnerable invertebrate <i>Micronecta minutissima</i> (a water-boatman).</p> <p>Also designated for supporting bird species/populations occurring at levels of international importance.</p>

Figure 3: SACs, SPAs and Ramsar sites within 7km of the site



Non-Statutory Nature Conservation Sites

3.3 There were twenty two non-statutory conservation sites within 2km of the site: all of which are Sites of Importance for Nature Conservation (SINCs). These are listed in Table 4 and shown in Figure 4.

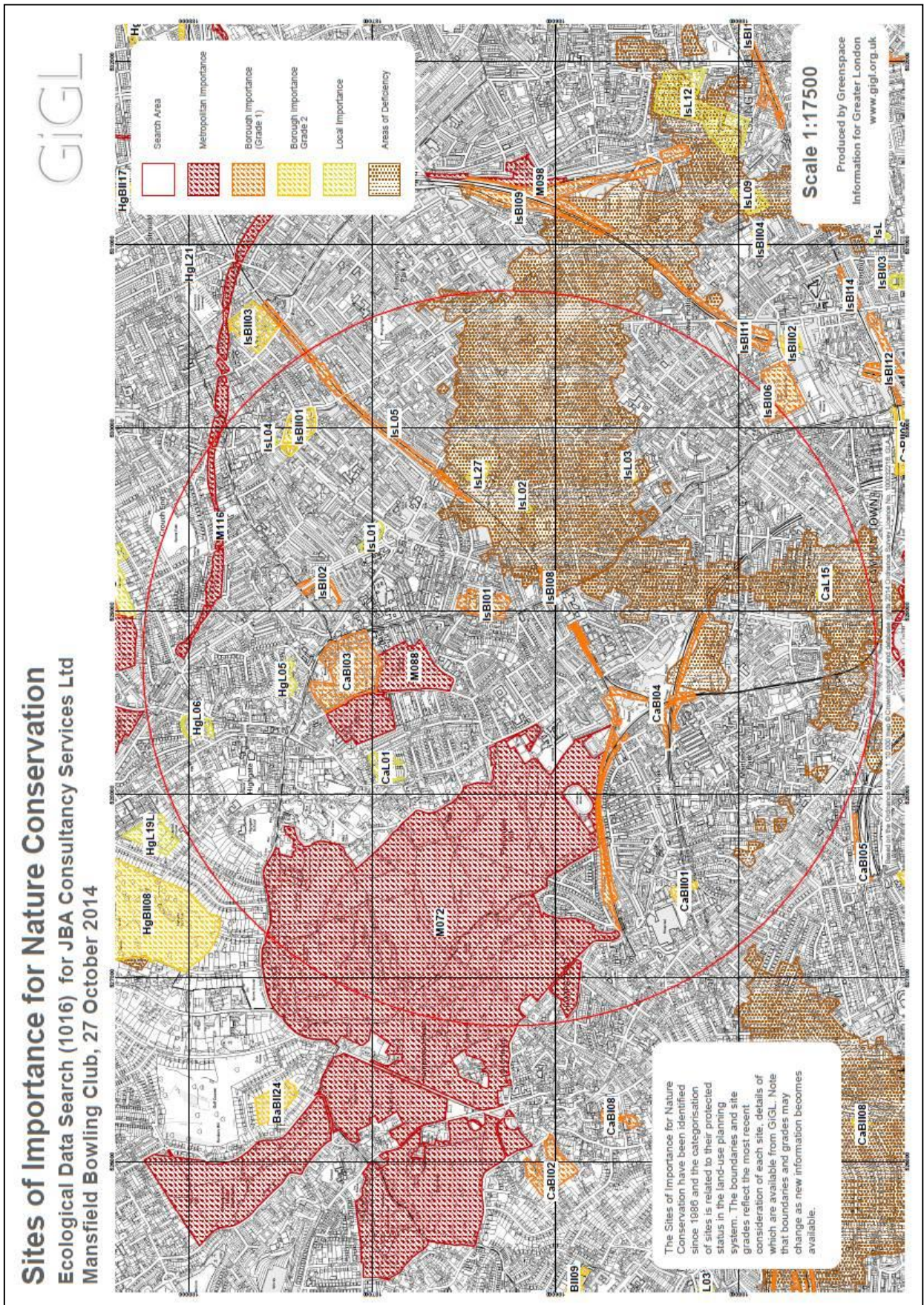
Table 4: Non-statutory conservation sites within 2km of the site

Site Name	Designation	Distance from Site	Description
Hampstead Heath (M072)	SINC	350m west	The heath has a remarkable range of habitats close to central London including one of the capital's few bogs, as well as wide expanses of grassland and ancient woodland.
Highgate Cemetery (M088)	SINC	260m north	One of London's great Victorian cemeteries, with a blend of historic, cultural and wildlife attractions. A rich assemblage of plants, invertebrates and birds occurs in the woodlands and glades including many unusual species for this central location.
Parkland Walk, Queen's Wood and Highgate Wood (M116)	SINC	1.6km north	Extensive ancient woodland in suburban north London, together with a disused railway line reclaimed as open space and supporting a variety of wildlife habitats.
Waterlow Park (CaBI03)	SINC	620m north	The largest park Camden Council runs, with good wildlife habitats and a visitor centre. The park has a good variety of habitats, with three spring-fed ponds, damp grassland and specimen trees.
Kentish Town City Farm, Gospel Oak Railsides and Mortimer Terrace Nature Reserve (CaBI04)	SINC	520m south	A large area of green railside land, with an adjacent city farm and a tranquil woodland nature reserve.
Dartmouth Park Hill and Reservoir (IsBI01)	SINC	150m east	A covered reservoir and adjacent park supporting a variety of grassland wildflowers. The grasslands range from neutral to acidic types.
Archway Road Cutting (IsBI02)	SINC	1km north-east	The A1 leaves Islington in a steep-sided cutting, bordered on both sides by secondary woodland, shrubs and ground flora, including large quantities of planted bulb species. An area of rough grassland and trees is also included in the side.
Caledonian Park (IsBI06)	SINC	1.9km south-east	Caledonian Park is one of Islington's largest open spaces and has been steadily transformed into a haven for wildlife. The perimeter includes mainly native species and amenity grassland is left to encourage wildflowers and invertebrates.
Upper Holloway Railway Cutting	SINC	Location not shown on map	A long railway cutting that provides an important habitat for wildlife, as the cuttings

(IsBI07)			and embankments support a significant proportion of the borough's undeveloped land. The network supports an extensive mosaic of open and wooded habitats valued by birds, mammals and insects.
Junction Road, Railway Cutting (IsBI08)	SINC	400m south	An isolated but well vegetated section of the Crouch Hill line, between Dartmouth Park Hill and Junction Road in Tufnell Park.
Belsize Wood Local Nature Reserve (CaBI01)	SINC	1.5km south-west	Description found in Section 3.1, Table 2.
Elthorne Park and Sunnyside Gardens (IsBI01)	SINC	1.6km north-east	Elthorne Park is a landscaped public park with a children's play area, games pitch and numerous features of value to a range of common plants and animals. Sunnyside Garden has also been designed to support common urban wildlife, including a small pond.
Holly Lodge Gardens (CaL01)	SINC	750m north-west	Consisting of two formally managed parkland areas separated by a wide wooded avenue of mature common lime and other tree species. The site is edged with dense scattered trees, particularly holly with a ground cover of ivy attracting a number of small birds including wren, robins and blue tits.
Rochester Terrace Gardens (CaL15)	SINC	1.7km south	A small public garden with a good number of trees, native shrubs, and amenity grassland which is infrequently cut to allow wild flowers to set seed.
Harrington Site (HgL05)	SINC	1.1km north-west	A community horticulture project and adjacent sycamore wood. Greater burdock, which is uncommon in London, grows on the edge of the site. Beyond the Harrington site is a small developing woodland.
Southwood Lane Wood (HgL06)	SINC	1.6km north	A narrow strip of woodland surrounding a housing estate. The canopy is dominated by sycamore with pedunculate oak and horse chestnut also frequent.
Archway Park (IsL01)	SINC	900m north-east	Archway Park is an important resource for recreation in the local area.
Foxham Gardens (IsL02)	SINC	750m east	A small but imaginatively landscaped park with an abundance of native trees and shrubs. The densely-planted border along the southern edge provides food and shelter for common birds and insects.
Tufnell Park Primary School Gardens (IsL03)	SINC	1.1km south-east	The primary school has a small but well cared-for nature area, created during the mid-1980s. The centrepiece is a well-established circular pond about ten metres in diameter.
Margaret McMillan Nursery School Nature Garden (IsL04)	SINC	1.6km north-east	Behind the nursery school is a small nature garden that includes a pond, lawns borders and several mature trees.

Hatchard Road Wildlife Garden (IsL05)	SINC	900m east	A tiny wooded site that adds to the wildlife habitats of the adjacent railway cutting.
Whittington Park (IsL27)	SINC	900m east	An attractive park with wildflower meadows, native hedgerows and a small plot of woodland.

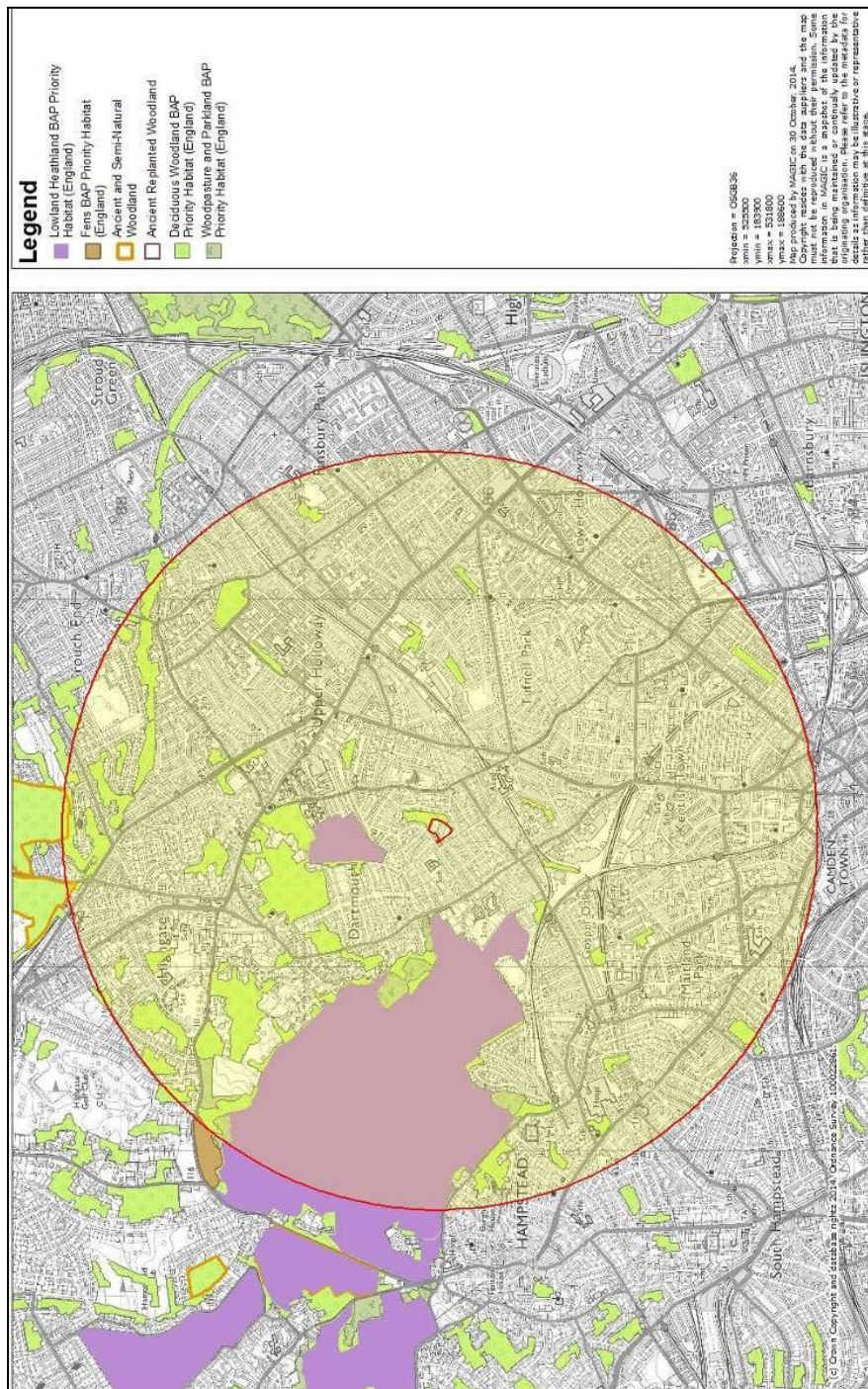
Figure 4: Non-statutory sites within 2km



Habitat Types within 2km

3.4 Habitat types within the area included: areas of ancient woodland and fens, the nearest of which was associated with Ken Wood 1.5km north-west of the site; lowland heathland, 300m north at Dartmouth Park and Highgate Cemetery; and woodpasture and parkland 400m west of the site at Parliament Hill. Deciduous woodland was scattered throughout the local area.

Figure 5: Habitat types within 2km



Protected, priority and rare species

- 3.5 The Birds of Conservation Concern (BoCC) are split into three criteria. The red list is the highest conservation priority (species needing urgent action). The amber list is the next most critical group, followed by green. Red listed species are those that are globally threatened according to IUCN criteria, species with populations or ranges that have declined rapidly in recent years, and those that have declined historically and have not shown a substantial recent recovery.
- 3.6 Full lists of UK Priority and protected amphibians, reptiles and mammals are shown below. A reduced list of UK priority and protected birds, flora and invertebrates is shown; these have been selected based on their likelihood of being recorded at the site given the habitats types present.

Birds	Protection	Approximate distance from site	Year of Record
Herring gull	BoCC red list; LBAP	1.6km south west	2010
House sparrow	BoCC red list; LBAP; NERC	350m north 1.6km north	2002 2011
Turtle dove	BoCC red list; LBAP; NERC	1.5km west	2000
Cuckoo	BoCC red list; LBAP; NERC	1.5km west	2005
Dunnoek	BoCC amber list; LBAP; NERC	380m north 1.3km north west	1989 2010
Black redstart	BoCC red list; LBAP; WCA Schedule 1	1.5km west	2007
Lesser spotted woodpecker	BoCC red list; LBAP; NERC	700m north west 1.5km west	1994 2007
Ring ouzel	BoCC red list; NERC	1.5km west	2005
Fieldfare	BoCC red list; WCA Schedule 1	700m west 1.5km west	1976 2004
Song thrush	BoCC red list; LBAP; NERC	430m north 900m north	1989 2011
Redwing	BoCC red list; WCA Schedule 1	570m north 1.6km south west	1994 2011
Spotted flycatcher	BoCC red list; LBAP; NERC	960m north 1.5km west	1994 2005
Firecrest	BoCC amber list; WCA Schedule 1	1.5km west	2003
Starling	BoCC red list; LBAP; NERC	360m north 1.7km north	2008 2010
Linnet	BoCC red list; LBAP; NERC	570m north 1.3km north west	1994 2010
Brambling	WCA Schedule 1	1.5km west	2005
Bullfinch	BoCC red list; LBAP; NERC	1.3km north west	2010

Plants	Protection & Red Data Book Category	Approximate distance from site	Year of Record
Cornflower (<i>Centaurea cyanus</i>)	NERC; least concern	940m north 1.9km west	2003 2011
Round-headed leek (<i>Allium sphaerocephalon</i>)	WCA Schedule 8; vulnerable	1.6km west	1998
Bluebell (<i>Hyacinthoides non-scripta</i>)	WCA Schedule 8	1.6km north west	2003
Black poplar (<i>Populus nigra</i>)	LBAP	1.9km north west	2002
Spreading bellflower (<i>Campanula patula</i>)	NERC; endangered	450m north	1988

Mammals	Protection	Approximate distance from site	Year of Record
Hedgehog	LBAP; NERC	160m south west 850m north	1999 2010
Daubenton's bat	European protected	750m west 1.8km west	1993 2009
Natterer's bat	European protected	1.1km west 1.9km north	2001 2008
Noctule bat	European protected; NERC	450m north	2009
Leisler's bat	European protected	570m south west	2002
Common pipistrelle bat	European protected	250m west 450m north	2004 2009
Soprano pipistrelle bat	European protected; NERC	570m south west 1.9km west	2002 2009
Brown long-eared bat	European protected; NERC	1.5km north west 1.9km west	2007 2009

Invertebrates	Protection	Approximate distance from site	Year of Record
Small heath butterfly	NERC & LBAP	1.5km west	2008
Small blue butterfly	NERC & LBAP	1.6km north	2008
Stag beetle	NERC & LBAP	500m south west 1.5km west	1998 2008
25 species of moth – all NERC Section 41			

Amphibians	Protection	Approximate distance from site	Year of Record
Common toad	NERC & LBAP	75m north 1.4km north	1999 2011

Reptiles	Protection	Approximate distance from site	Year of Record
Common lizard	Partially protected under the WCA Schedule 5	1.3km north west	2002
Grass snake		1.2km north	2008

WCA = Wildlife and Countryside Act 1981 as amended; NERC = NERC Section 41 Species of Principle Importance in England; LBAP = Local Biodiversity Action Plan; BoCC = Birds of Conservation Concern

Phase 1 Habitat Survey



- 3.7 Appendix A shows a Phase 1 habitat map of the site, with Target Notes. A list of plant species identified on the site is included in Appendix B.





Limitations and Assumptions




- 3.8 The baseline conditions reported and assessed in this document represent those identified at the time of the survey on the 23rd October 2014. Although a reasonable assessment of habitats present can be made during a single walkover survey, seasonal variations are not observed. The full plant species list (Appendix B) was based on the current site visit. The survey was conducted in October, which is outside the optimal season for Phase 1 habitat surveys. All areas of the site were accessible on the day of the survey.



The desk study used available records and historical data from the local area. However, this does not provide a reliable indication of species present since records depend entirely on survey effort in the area, which is highly variable. The data are useful as a general guide to supplement the site visit, but absence of records does not reflect absence of species.



Target Notes

Target Note	Habitat description	Photo
1	<p>Area of ruderal vegetation at the north-east corner of the site. Dominant species included old man's beard (<i>Clematis vitalba</i>), Virginia creeper (<i>Parthenocissus quinquefolia</i>) and hedge bindweed (<i>Calystegia sepium</i>). A small area of grassland was also present, dominant grass species were cock's foot (<i>Dactylis glomerata</i>) and false oat grass (<i>Arrhenatherum elatius</i>) with frequent forbs including bristly ox-tongue (<i>Helminthotheca echioides</i>), creeping buttercup (<i>Ranunculus repens</i>) and common knapweed (<i>Centaurea nigra</i>).</p>	
2	<p>An area of hard-standing currently used as a car park. Vegetation surrounding the car park consisted of bramble (<i>Rubus fruticosus</i>) scrub and climber/ruderal vegetation including rosebay willowherb (<i>Chamerion angustifolium</i>), Canadian fleabane (<i>Conyza canadensis</i>) and common mallow (<i>Malva sylvestris</i>). A number of immature trees were also present at the boundaries.</p>	

<p>3</p>	<p>Building 1 - Large one storey building of brick construction with fluted asbestos roof. Gaps beneath a wooden bargeboard and within brickwork offered roosting opportunities for crevice roosting bats.</p>	 
<p>4</p>	<p>Building 2 - The western section of the main building had a brick base and metal corrugated fascia above with metal framed windows. The majority of the building was well sealed with a few gaps at the side of windows and a small hole beneath a balcony on the northern side of the building.</p>	 

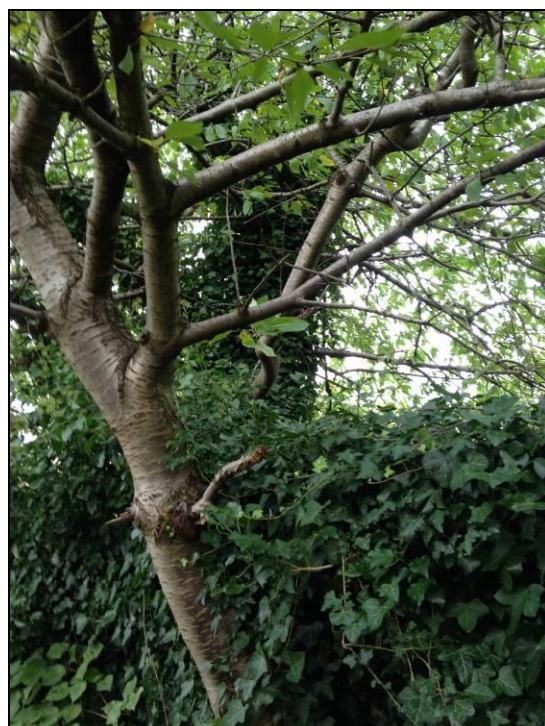
<p>5</p>	<p>A wooden shed with a felt roof which had negligible bat roost potential.</p>	
<p>6</p>	<p>A strip of semi-improved grassland to the north of the buildings. Grass species included perennial rye grass (<i>Lolium perenne</i>), cock's foot and couch grass (<i>Elytrigia repens</i>). Forbs included common ragwort (<i>Senecio jacobea</i>), ribwort plantain (<i>Plantago lanceolata</i>) and dandelion (<i>Taraxacum officinale agg</i>). Behind the grassland was a stone wall with privet (<i>Ligustrum sp.</i>) hedge above. Dog rose (<i>Rosa canina</i>), ivy (<i>Hedera helix</i>) and ash (<i>Fraxinus excelsior</i>) were also present within the hedge.</p>	
<p>7</p>	<p>Elder (<i>Sambucus nigra</i>) scrub at the eastern boundary of the site. Numerous brash and rubble piles were recorded within the scrub. A number of holes, large enough to be used by badgers were noted beneath a dense area of scrub, however it is thought they were currently used by foxes.</p>	

8	<p>Tennis clubhouse which was of wooden construction with a felt roof. There were no loft voids within the building and therefore considered to have negligible bat roost potential.</p>	
9	<p>An old bowling green at the north of the site which is now unmanaged. The sward consisted primarily of red fescue (<i>Festuca rubra</i>) and other amenity grass species. Forbs within the sward included goat's-beard (<i>Tragopogon pratensis</i> agg) and common ragwort (<i>Senecio jacobea</i>).</p>	

<p>10</p>	<p>The surrounds of the old bowling green were approximately 0.5m above the grassland and comprised a brick hard-standing pathway which had become vegetated by ruderal vegetation, moss, buddleia (<i>Buddleja davidii</i>) and birch (<i>Betula pendula</i>) saplings. To the north and east the green was bordered by a fence and ornamental shrubs.</p>	 <p>The top photograph shows a narrow, brick-paved path cutting through a dense thicket of green and brown vegetation. In the background, a multi-story brick building is visible. The bottom photograph shows a large, disorganized pile of red and yellow bricks on a concrete slab, surrounded by grass and weeds.</p>
<p>11</p>	<p>Small garden area with semi-improved grassland to the west. Three wooden sheds with felt roofs had negligible bat roost potential. Two compost bins were located at the eastern end.</p>	 <p>The photograph shows a garden area with several wooden sheds and compost bins. The ground is covered in grass and weeds. In the background, a tennis court with a red surface and a black fence is visible, along with a brick building.</p>

12

Trees with bat roost potential at the boundaries of the site. Features included dense ivy cover, on the cherry (*Prunus* sp.) tree at the north of the site, and rot holes at previous pollarding points on an ash at the southern boundary.



4 Protected Species – Results and Evaluation

Flora and habitats

- 4.1 The majority of the site was comprised of buildings and hard-standing used as a car park and tennis courts. To the north of the site was an area of rough grassland previously used as a bowling green and areas of tall ruderal and scrub were recorded at the eastern and south eastern boundaries. It was considered unlikely that any of the rare arable species listed in the data search would be present within the site.
- 4.2 The hedgerow within the site was species poor and predominantly consisted of one species. The hedgerow was limited in length and was not linked to other hedgerows in the wider landscape so therefore unlikely to be classified as ‘important’ under the Hedgerow Regulations 1997.
- 4.3 No rare, LBAP or protected plant species were recorded at the site during the survey.
- 4.4 Virginia creeper (*Parthenocissus quinquefolia*) was recorded in ruderal vegetation to the south of the site and Japanese knotweed (*Fallopia japonica*) was recorded during the previous phase 1 survey (JBA 2012). These are both categorised as invasive species listed on Schedule 9 of the Wildlife and Countryside Act 1981, as amended. It is an offence to plant or otherwise cause Schedule 9 species to grow in the wild, and as such, these plant species are classed as ‘controlled waste’ and must be disposed of appropriately at a licensed landfill site according to the Environmental Protection Act (Duty of Care) Regulations 1991.
- 4.5 The desk study highlighted records of five protected plant species. Although the survey was conducted just outside the optimal period to record the majority of these species, it was thought unlikely they would be found on the site as they are typically found in woodland and arable habitats.
- 4.6 No further survey is considered necessary.

Bats

- 4.7 The main building of the site had low bat roost potential as there were no internal roof voids. However, gaps beneath the wooden barge board and spaces within brickwork of Building 1 offered roosting opportunities for crevice roosting bats (Target Note 3). Gaps were also noted surrounding windows of Building 2 and a hole within

concrete on the northern side of the building gave opportunity for bats to access a cavity beneath the balcony (Target Note 4).

- 4.8 A number of mature trees at the boundaries of the site were considered to have low or moderate bat roost potential due to dense ivy cover and rot holes. Locations of these trees are shown on the Phase 1 Habitat Map in Appendix A. Other trees within, and surrounding the site, had negligible potential for supporting roosting bats.
- 4.9 The site was dominated by hard-standing and buildings, which provides poor quality foraging habitat for bats. The rough grassland to the north and hedgerow running through the centre of the site provided better quality foraging habitat.
- 4.10 The desk study highlighted records of a number of bat species within 2km of the site. This included species which could use the potential roosting features noted during the survey, such as common and soprano pipistrelles.
- 4.11 As the features noted on the main building had low bat roost potential, it is considered that the buildings could be demolished during the active bat season using precautionary soft demolition methods under the supervision of a suitably qualified ecologist. A method statement will be required to detail this process and is likely to include removal of key areas including the balcony and barge boards by hand.
- 4.12 Further surveys of the buildings would identify whether the buildings are being used by bats and may negate the need for soft demolition should no bats be found to be using the building. These surveys should follow BCT Best Practice Guidelines (2012), and can be carried out between May and September.
- 4.13 Should the trees with bat roost potential be impacted then these should also be surveyed during the active season. Outside this season, it may be possible for a bat-licensed tree-climber to assess the roost status of the trees.
- 4.14 It is recommended that to minimise risk of disturbance to foraging and commuting bats on the site, that the development should follow lighting minimisation precautions, including the following:
- No works on site should be conducted after sunset and if security lighting is required then this should be kept to the minimal level (as necessary for safety and security)
 - Post development lighting should be directed away from boundary vegetation;
 - Installation of lighting columns at the lowest practical height level with box shield fittings will minimise glare and light spillage

- Lux level of lamps should be as low possible and be high pressure sodium (rather than metal halide, or other) with covers made from glass rather than plastic as this minimising UV light, reducing the attraction effects of lights on insects
- Security lights should be set on short timers, and be sensitive to large moving objects only.

Reptiles

- 4.15 Much of the site (buildings and hard standing) provided poor quality habitat for reptiles. The grassland on the redundant bowling green, garden area and ruderal vegetation offered more suitable habitat for foraging and sheltering reptiles. Rubble and brash piles and low stone walls provided potential hibernacula. Compost bins at the eastern end of the small garden area provided suitable habitat for breeding and sheltering reptiles, in particular grass snakes which have been recorded in the local area.
- 4.16 The desk study highlighted records of common lizards and grass snakes within 1.5km of the site from 2002 and 2008 respectively.
- 4.17 As the development will involve clearance of grassland, scrub, tall ruderal and potential refugia, it is recommended that reptile surveys are undertaken to assess the presence or likely absence of these species.
- 4.18 A previous Phase 1 Habitat Survey (JBA, 2012) indicated that the site was suitable for supporting reptiles. Subsequent surveys in July 2012 found no reptiles to be using the site; however it was recommended that the surveys be updated should two years pass before development works started.
- 4.19 As the site remains suitable for reptiles and grassland habitat is available for foraging and sheltering it is recommended that reptile surveys be repeated to ensure that no colonisation has occurred since the previous survey. Reptile surveys can be undertaken between April and September, and involve seven visits to the site to survey previously laid artificial refuges. Surveys should follow current best practice guidelines (Froglife 1999).

Birds

- 4.20 Trees and hedgerows throughout the site provided potential nesting and foraging opportunities for birds. Habitats within the site such as mature trees and hedgerows are abundant locally. Therefore, it was considered unlikely that protected, BAP or rare birds would be significantly impacted by the proposed development.
- 4.21 Only one bird species was observed during the survey (blackbird).
- 4.22 Species of principle importance and red-listed species such as house sparrow, starling and song thrush which were identified in the desk study, could use habitats such as those within the site boundary
- 4.23 Any trees/ hedgerows proposed for retention should be suitably protected from harm during the construction works following British Standard: BS5837 (2012).
- 4.24 Site clearance and works proposed to any buildings, trees or hedges should be conducted outside the main bird breeding season (which is March until September). If vegetation removal is necessary between these dates, an ecologist should survey the site for active bird nests immediately prior to works. If nests are identified, there may be a delay in the clearance of some vegetation until all young birds have fledged.

Amphibians

- 4.25 There were no ponds or water-bodies within 500m of the site boundary.
- 4.26 The site itself generally comprised poor quality habitat for amphibians, such as toads and great crested newts, during their terrestrial phase. Small areas of grassland, tall ruderal and scrub provided better quality habitat for these species.
- 4.27 There were no records of great crested newts within the 2km of the site. Records of protected amphibians consisted of common toads which have been observed frequently in the local area.
- 4.28 Although habitats within the site provided some suitable terrestrial habitat, the lack of water-bodies in the surrounding area made it unlikely that amphibians would be present within the site, or would be impacted by the development. Therefore, further survey is not considered necessary.

Invertebrates

- 4.29 The site was unlikely to support a large number of invertebrates due to the lack of habitat structure. However, the hedgerows and small areas of grassland and tall ruderal vegetation provided potential habitat for common invertebrates. These habitats were of limited extent and therefore unlikely to support a significant assemblage of NERC Section 41, local BAP or rare invertebrates.
- 4.30 Invertebrates recorded during the survey were: comma butterfly (*Polygonia c-album*).
- 4.31 The data search highlighted records of the small blue and small heath butterflies (both NERC species) approximately 1.6km away the site. Nectaring opportunities were present for both species, as were larval food plants for the small heath butterfly. However, due to the small size of the site and abundance of more suitable habitats within the surrounding area, particularly at Hampstead Heath, it was not considered that the local conservation status of these butterflies would be significantly affected by the proposed development. There was a lack of old, and rotting, deadwood necessary to support stag beetles which were also recorded within the desk study.
- 4.32 Habitats within the site were not considered of suitable structure or diversity to support a significant assemblage of BAP, rare or protected invertebrates. Landscaping within the new development is likely to increase nectaring opportunities for common invertebrates. No further survey is necessary.

Hedgehogs

- 4.33 Grassland, ruderal vegetation and garden areas provided suitable habitat for foraging hedgehogs, though no evidence indicating the presence of this species was recorded during the site visit.
- 4.34 Rubble and brash piles throughout the site provided hibernacula for hedgehogs in the area.
- 4.35 There are records of hedgehogs within the surrounding area highlighted by the desk study. The presence of large gardens and nearby Hampstead Heath provided potential hedgehog habitat in the local landscape.
- 4.36 It is recommended that brash and rubble piles are removed by hand under ecological supervision, outside of the hedgehog hibernation period (November to April) to prevent harm to individual hedgehogs that may be using the site.

Badgers

- 4.37 Large holes were recorded to the east of the site. It is likely that these are currently being used by foxes which were observed near to the holes. However, the size of the holes and volume of spoil located at entrances indicated it was possible they had been created by badgers. Further inspection of the holes was not possible due to dense scrub in the area which restricted surveyor access.
- 4.38 Grassland, ruderal vegetation and areas used as a vegetable garden provided suitable foraging habitat, however no signs of such use (snuffle marks) was recorded.
- 4.39 There were no records of badgers highlighted by the desk study.
- 4.40 A precautionary check for badgers is recommended, immediately before works begin on site.

Dormice

- 4.41 The site was not considered to be suitable for dormice. Hedgerows within the site were of limited extent and lacked a well developed shrub layer and therefore lacked suitable foraging and nesting opportunities for dormice. Furthermore the hedgerows were not linked to suitable off site habitat.
- 4.42 There were no records of dormice in the surrounding area highlighted within the desk study.
- 4.43 Further survey is not recommended.

Other Protected, BAP or Rare Species

- 4.44 There were no water courses within the site or within 50m of the site boundary. It was considered unlikely that species such as otter and/or water vole would be impacted by the proposed development.
- 4.45 The site was not considered suitable to support any other protected, BAP or rare species.

Potential Impacts to Conservation Sites

- 4.46 European protected sites within 7km of the proposed development were the Lee Valley SPA and Ramsar site and Hampstead Heath SSSI. It is not considered likely that the bird and invertebrate species for which the SPA/Ramsar has been designated (predominantly waders and waterfowl and aquatic invertebrates) would be using the development site in significant numbers due to a lack of suitable habitat.

In addition the proposed development does not contain the habitats for which the SSSI is designated. Due to the small scale of the development and the large area over which both these designated areas extend, it is considered unlikely that there would be significant increases in disturbance due to a small increase in visitor numbers.

- 4.47 The site falls within the impact risk zone for Hampstead Heath Woods SSSI. The proposed development can potentially be listed under one of the categories (residential) which would require further investigation. However, as the development will include the construction of fewer than 100 dwellings it is unlikely to cause any impact to the SSSI.

European Protected Site	Qualifying features	Distance from the site	Will there be an impact on the interest features?	Will there be indirect impacts from increased visitor numbers?
Hampstead Heath Woods SSSI	Long-established high forest woodlands with an exceptional structure comprising an abundance of old and over-mature trees providing dead wood habitat for a range of invertebrate species. The site also includes an adjacent valley containing an acidic flush with developing bog-moss communities.	1.4km north-west	No The proposed development site is not linked to the protected sites and does not contain the habitats that the sites are designated for (long-established woodland) or the potential to support designated species (wetland birds and a water boatman).	The SSSI is approximately 1.4km from the proposed development site and the SPA/Ramsar site approximately 6km away. The proposals include a small number of residential buildings which is unlikely to significantly increase visitor numbers to protected sites. The development itself will provide areas of green space and recreation and will therefore contribute to the number of local 'green' areas for local residents to use, which will relieve pressure on conservation sites.
Lee Valley SPA & Ramsar	Gadwall, shoveler, bittern and <i>Micronecta minutissima</i> (a water boatman)	6km east		

5 Key Recommendations and Precautionary Methods

- 5.1. Further surveys for reptiles as detailed in Section 4 are recommended.
- 5.2. Precautionary soft demolition of the main building should be undertaken under a method statement and ecological supervision due to low bat roost potential. Demolition should occur during the active bat season (May to September). Bat surveys prior to demolition are recommended as these may remove the need for soft demolition should no bats be found to be present.
- 5.3. A precautionary check for badgers is recommended prior to works beginning on site.
- 5.4. Precautionary clearance of the site, buildings and trees will be necessary, as detailed in Section 4, to avoid infringing legislation which protects all nesting birds and prevent harm to hibernating hedgehogs.
- 5.5. Invasive species, such as Japanese knotweed (*Fallopia japonica*) and Virginia creeper (*Parthenocissus quinquefolia*), listed on Schedule 9 of the Wildlife and Countryside Act 1981, as amended should be removed and disposed of appropriately.

- 5.6. Should further surveys and precautionary measures be carried out it was considered that impacts on local flora and fauna would be negligible and the site could be enhanced for wildlife if some of the following recommendations are implemented:

6 Additional Recommendations

- 6.1 The following are suggestions that will enhance the value of the site for wildlife. However, it should be noted that these suggestions are not legally required for compensation of habitats or mitigation, but may be revised depending on the outcome of the further surveys for reptiles and bats. At least a third of these additional recommendations will need to be implemented to maximize credits under Eco2 of the Code for Sustainable Homes.
- 6.2 The addition of bat boxes or tubes on the proposed buildings or retained trees within the site would provide additional roosting opportunities in the area. Bat boxes/tubes should ideally be located south facing (between south east and south west) and above 5m. Exact numbers and specifications should be confirmed following further surveys for bats.
- 6.3 Green roofs could be included on buildings within the site. Green roofs could be planted with sedum plus a mix of suitable wild flower and grasses which would provide a useful foraging resource for invertebrates and birds in the local area.
- 6.4 The addition of two house sparrow boxes on the new buildings on site will provide additional nesting opportunities for this BoCC red listed and local BAP species that has been recorded in the local area. Another two standard bird boxes with a variety of shaped and different sized entrance holes will attract a greater diversity of birds to nest. Boxes should be located out of direct sunlight and close to, but not restricted by, vegetation.
- 6.5 Connectivity in a landscape context should be considered at all stages of the design process. Native tree and/or hedgerow planting around the site should be considered, to create/retain dispersal corridors and biodiversity linkages.
- 6.6 The inclusion of hedgehog shelters at boundaries of the site, in particular within grassland areas at the south and north-west of the site, would provide valuable shelter and hibernation opportunities for this local BAP species. Gaps could be left under boundary fences to ensure connectivity is retained with the wider landscape.
- 6.7 The inclusion of wildflower rich swards in areas of shared greenspace could enhance the area for invertebrates including butterflies and bumble bees. These areas could also enhance the site for birds and bats post development.

7 Conclusion

- 7.1 The site predominantly consisted of hard-standing and buildings associated with Mansfield Bowling Club. Areas of grassland, hedgerows, scrub, tall ruderal and scattered mature trees were present on the site, which could provide suitable habitat for reptiles, bats, badgers, hedgehogs and birds.
- 7.2 Due to the low risk of the main building being used by bats, precautionary soft demolition of the main building on site should be undertaken, according to a method statement, during the active bat season (May to September) and should be supervised by a suitably qualified ecologist. Bat surveys prior to demolition are recommended as they may remove the need for precautionary demolition methods should no bats be found to be using the building.
- 7.3 Further survey is also recommended to determine if reptiles are using the site. If any mitigation or compensation recommended following these further surveys is carried out, and if the precautionary measures for bats, birds, badgers and hedgehogs detailed in this report are followed, it was considered that the development could proceed with minimal impact on the local conservation status of any protected, BAP or rare species within the area.
- 7.4 It is also considered that with a sensitive landscape scheme, and by including some, or all, of the additional recommendations, the site could be enhanced for local wildlife post development.

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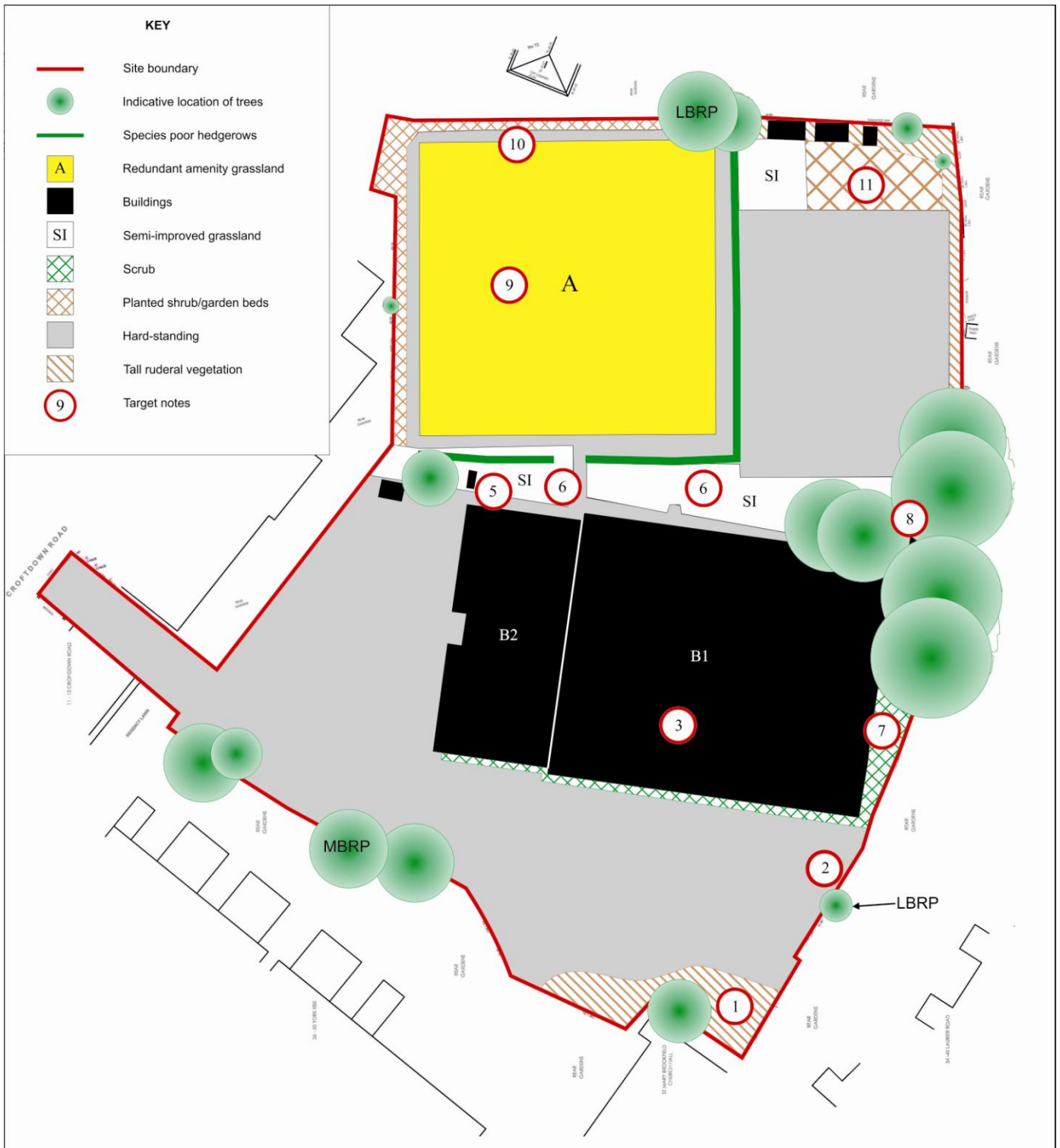
MAGIC: Designated area data downloaded from URL <http://www.magic.gov.uk.html>

UK BAP <http://jncc.defra.gov.uk/ukbap>

London Local BAP <http://www.lbp.org.uk>

9 Appendices

Appendix A: Phase 1 habitat map



Appendix B: Plant species list**Forbs**

Common Name	Scientific Name	Semi-improved grassland	Tall ruderal	Planted shrub	Redundant amenity grassland
Cow parsley	<i>Anthriscus sylvestris</i>	✓			
Goat's-beard	<i>Aruncus dioicus</i>				✓
Michaelmas daisy	<i>Aster</i> sp.		✓		✓
Hedge bindweed	<i>Calystegia sepium</i>		✓		
Shepherd's-purse	<i>Capsella bursa-pastoris</i>			✓	
Black knapweed	<i>Centaurea nigra</i>	✓	✓		
Rosebay willowherb	<i>Chamerion angustifolium</i>		✓		
Canadian fleabane	<i>Conyza canadensis</i>		✓		✓
Yellow corydalis	<i>Corydalis lutea</i>	✓			
Sun spurge	<i>Euphorbia helioscopia</i>	✓		✓	
Wood avens	<i>Geum urbanum</i>		✓		
Hebe	<i>Hebe</i> sp.			✓	
Bristly ox-tongue	<i>Helminthotheca echioides</i>	✓			
Cats-ear	<i>Hypochaeris radicata</i>				✓
Nipplewort	<i>Lapsana communis</i>		✓		
Hawkbit	<i>Leontodon</i> sp.				✓
Common mallow	<i>Malva sylvestris</i>		✓		
Green alkanet	<i>Pentaglottis sempervirens</i>		✓	✓	
Ribwort plantain	<i>Plantago lanceolata</i>	✓			✓
Creeping cinquefoil	<i>Potentilla reptans</i>	✓			
Creeping buttercup	<i>Ranunculus repens</i>	✓			
Common ragwort	<i>Senecio jacobaea</i>	✓	✓		✓
Dandelion	<i>Taraxacum officinale</i> agg	✓			
Nettle	<i>Urtica dioica</i>		✓		
Great mullein	<i>Verbascum thapsus</i>				✓
Common vetch	<i>Vicia sativa</i>				✓

Trees and shrubs

Common Name	Scientific Name	Hedgerow	Tall ruderal	Scattered trees	Planted shrub	Scrub
Sycamore	<i>Acer pseudoplatanus</i>			✓		
Silver wattle	<i>Acacia dealbata</i>			✓		
Silver birch	<i>Betula pendula</i>			✓		
Buddleia	<i>Buddleja davidii</i>					✓
Old man's beard	<i>Clematis vitalba</i>		✓			
Beech	<i>Fagus sylvatica</i>			✓		
Ash	<i>Fraxinus excelsior</i>	✓		✓		
Ivy	<i>Hedera helix</i>	✓				✓
Holly	<i>Ilex aquifolium</i>				✓	
Privet	<i>Ligustrum sp.</i>	✓				
Apple	<i>Malus sp.</i>			✓		
Virginia creeper	<i>Parthenocissus quinquefolia</i>		✓			
Cherry	<i>Prunus sp.</i>			✓		
Holm oak	<i>Quercus ilex</i>			✓		
Dog rose	<i>Rosa canina</i>	✓				
Rose	<i>Rosa sp.</i>				✓	
Bramble	<i>Rubus fruticosus</i>	✓				✓
Willow	<i>Salix sp.</i>			✓		
Elder	<i>Sambucus nigra</i>					✓
Snowberry	<i>Symphoricarpos sp.</i>				✓	
Lime	<i>Tilia x europaeus</i>			✓		

Grasses, sedges, rushes and ferns

Common Name	Scientific Name	Semi-improved grassland	Redundant amenity grassland
False oat grass	<i>Arrhenatherum elatius</i>	✓	
Hart's-tongue fern	<i>Asplenium scolopendrium</i>	✓	
Cock's-foot	<i>Dactylus glomerata</i>	✓	
Male fern	<i>Dryopteris filix-mas</i>	✓	
Couch grass	<i>Elytrigia repens</i>	✓	
Red fescue	<i>Festuca rubra</i>		✓
Perennial rye grass	<i>Lolium perenne</i>	✓	✓
Annual meadow grass	<i>Poa annua</i>	✓	

Appendix C: Relevant protected species legislation

Species	Relevant Legislation	Level of Protection
Badgers	<ul style="list-style-type: none"> ○ Protection of Badgers Act 1992 ○ Badgers are also protected by the Wild Mammals (Protection) Act 1996 	<p>The Protection of Badgers Act (1992) makes it an offence to intentionally or recklessly:</p> <ul style="list-style-type: none"> ● Damage a badger sett or any part of it ● Destroy a badger sett ● Obstruct access to, or any entrance of a badger sett ● Disturb a badger whilst it is occupying a badger sett
Bats	<ul style="list-style-type: none"> ○ Full protection under the Wildlife and Countryside Act (WCA) (1981) (Listed on Schedule 5) - as amended ○ Classified as European protected species under Conservation of Habitats and Species Regulations 2010, as amended ○ Also protected by the Wild Mammals (Protection) Act 1996 	<p>Under the WCA (1981), it is an offence to:</p> <ul style="list-style-type: none"> ● intentionally kill, injure, or take any species of bat ● intentionally or recklessly disturb bats ● intentionally or recklessly damage destroy or obstruct access to bat roosts
Birds	<ul style="list-style-type: none"> ○ Protection under the Wildlife and Countryside Act (1981) as amended 	<p>Under the WCA (1981), it is an offence to: (with exceptions for certain species):</p> <ul style="list-style-type: none"> ● Intentionally kill, injure or take any wild bird ● Intentionally take, damage or destroy nests in use or being built (including ground nesting birds) ● Intentionally take, damage or destroy eggs <p>Species listed on Schedule 1 of the WCA or their dependant young are afforded additional protection from disturbance whilst nesting</p>
Widespread reptiles	<ul style="list-style-type: none"> ○ Partially protected under Schedule 5 of the Wildlife and Countryside Act (1981) as amended. 	<p>Under the WCA (1981), it is an offence to:</p> <ul style="list-style-type: none"> ● intentionally kill or injure these animals ● sell, offer for sale, advertise for sale, possess or transport for the purposes of selling any live or dead animals or part of these animals