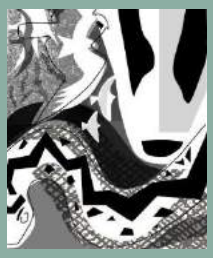

MKA
ECOLOGY

Preliminary Ecological Appraisal

The Water House, Highgate

Site	*The Water House, Highgate*
Project number	*54615*
Client name / Address	*UK and European Investments Ltd, Woodstock Studios, 13 Woodstock Street, London*

Date of issue	*27/06/17*
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Revisions	*Addition of Japanese Knotweed*

Author(s)	*Gabrielle Horne GradCIEEM*	
Surveyor(s)	*Will O'Connor MCIEEM* *Gabrielle Horne GradCIEEM*	
Reviewed by	*Will O'Connor MCIEEM*	
Contact	*MKA Ecology Limited* *01763 262211* *info@mkaecology.co.uk*	

Declaration of compliance

This Preliminary Ecological Appraisal has been undertaken in accordance with British Standard 42020:2013 "Biodiversity, Code of practice for planning and development".

The information which we have provided is true, and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's (CIEEM) Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions.

Validity of data

For sites that require a European Protected Species Licence in respect of bats, the licensing authority in England (Natural England) will expect data from the most recent survey season. The other information provided within this report is valid for a maximum period of 24 months from the date of

survey. If works at the site have not progressed by this time an updated site visit may be required in order to determine any changes in site composition and ecological constraints.

CONTENTS

1. EXECUTIVE SUMMARY

In June 2017 MKA Ecology Limited was commissioned to undertake a Preliminary Ecological Appraisal and bat inspection of the Water House, Highgate. The appraisal included a Phase 1 habitat survey, protected species scoping survey and desktop study of protected and notable sites and species in the area. The daytime bat inspection survey included analysis of bat records from the data search and an inspection of buildings and trees at the Site to assess suitability of these for bats. A site visit was undertaken on 06 June 2017.

The site comprised amenity grassland, introduced shrub, scattered trees and a pond, as well as areas of hardstanding, fences and buildings. The proposed development involves the demolition of the existing building and construction of a new building.

The following ecological constraints were identified at the Site with recommendations made as follows;

- Habitat: Pond - Section 41 Habitat of Principal Importance. It is recommended that is retained within the design scheme;
- Plants: Presence of Virginia Creeper and Japanese Knotweed – Schedule 9 plant species. Recommended that this species should be dealt with appropriately so that they do not spread into the wild;
- Potential presence of nesting birds: Complete any building and/or vegetation clearance outside of the breeding bird season (complete clearance within the months of September to February inclusive) to avoid impacts on breeding birds; and
- Potential presence of bat roosts in Building 1 and Trees 1 and 2. Nocturnal bat surveys have been recommended at these buildings and trees to assess usage of bats and detail mitigation if required.

There is opportunity for biodiversity gains by the planting of native British species and incorporating bird boxes. A bat box scheme will be recommended following the nocturnal bat surveys.

2. INTRODUCTION

2.1. Aims and scope of Preliminary Ecological Appraisal and daytime bat inspection

In June 2017 MKA Ecology Limited was commissioned to undertake a Preliminary Ecological Appraisal and daytime bat inspection at The Water House, Highgate by UK and European Investments Ltd in order to support a planning application for demolition of the existing building and construction of a new building.

The aims of the Preliminary Ecological Appraisal were to:

- Undertake a desktop study to identify the extent of protected and notable species and habitats within close proximity of the Site;
- Prepare a Phase 1 habitat map for the Site;
- Identify evidence of protected species/species of conservation concern at the Site;
- Assess the potential impacts of the proposed development;
- Detail recommendations for further survey effort where required; and
- Detail recommendations for biodiversity enhancements.

The aims of the daytime bat inspection survey were to:

- Undertake a desktop study to identify the locations of known bat roosts and activity records within 2km of the Site;
- Undertake a daytime inspection survey to establish the suitability of the buildings and trees at the Site for roosting bats, and record any evidence of bat presence;
- Identify likely impacts on bats relating to the proposed development;
- Assess the need for further survey effort, a European Protected Species Licence or mitigation, if required; and
- Propose any suitable habitat enhancements for bat species, if required.

2.2. Site description and context

The survey area is shown on the map in Figure 1. Within this report this area is referred to as the Site or Water House.

The site is located off Millfield Lane in the London Borough of Camden (site centred on OS grid reference TQ 27737 86994). The site comprises naturalised areas of amenity grassland, introduced shrub, scattered trees and a pond, as well as areas of hardstanding, fences and buildings.

The site itself is situated between Hampstead Heath, Highgate cemetery and Waterlow Park. Both Hampstead Heath and Waterlow Park are large, greenspace areas containing woodland, amenity grassland, scattered trees and lakes. Fitzroy Park Allotments are also located nearby to the north. The Hampstead Ponds, which are used for bathing, are situated from just 75m west of the site.

The wider landscape consists of a high density of residential buildings to the south, east and west, and to the north there are large areas of open, green space. To the east there are several reservoirs.

2.3. Proposed development

The proposed development concerns the demolition of the existing dwelling at the site for the creation of a new property with basements in two sections of the building. This demolition will require the removal of Ivy covering some of the walls on the existing building, as well as the likely removal of a tree at the north-west corner of the main building. The other areas this extension will impact are limited to introduced shrub, amenity grassland and hardstanding. It is also likely that there will be noise disturbance associated with the development.

2.4. Legislation and planning policy

This Preliminary Ecological Appraisal has been undertaken with reference to relevant wildlife legislation and planning policy.

Relevant legislation considered within the scope of this document includes the following:

- The Wildlife and Countryside Act 1981 (as amended);
- The Conservation of Habitats and Species Regulations 2010 (as amended);
- Natural Environment and Rural Communities (NERC) Act 2006;
- The Countryside and Rights of Way (CRoW) Act 2000;
- Protection of Badgers Act 1992; and
- Wild Mammals (Protection) Act 1996.

Further information is provided in Appendix 1, including levels of protection granted to the species considered in Section 3.3.

In addition to obligations under wildlife legislation, the National Planning Policy Framework (NPPF) issued in 2012 requires planning decisions to contribute to conserving and enhancing the local environment. Further details are provided in Appendix 1.

The Camden Borough Council has produced a proposed Local Plan which covers a number of policies relating to biodiversity and habitat conservation. Policy A3 states that all development should not result

in the loss or harm of priority habitat and species and that development will incorporate biodiversity enhance measures. Further, all enhancement measures should contribute to the delivery of the Camden Biodiversity Action Plan and green infrastructure strategies. Where relevant these are discussed in further detail in Section 5.

3. METHODOLOGIES

This Preliminary Ecological Appraisal has been undertaken in accordance with the Chartered Institute for Ecology and Environmental Management (CIEEM) Guidelines for Preliminary Ecological Appraisal (CIEEM, 2013).

The internal and external inspection of buildings and trees at the Site was undertaken following guidance set out in Bat Surveys for Professional Ecologists – Good Practice Guidelines (3rd edition) (Collins, 2016) and Bat Workers' Manual (3rd edition) (Mitchell-Jones and McLeish, 2004).

3.1. Desktop study

A data search was conducted for the Site and the surrounding area within 2km of the site centroid. The organisations listed in Table 1 were contacted with regard to biodiversity data.

Table 1: Organisations providing biodiversity data

Organisation	Data collected	Date collected
Multi-agency Geographic Information for the Countryside (MAGIC) www.magic.gov.uk	Information on local, national and international statutory protected areas.	14/06/17
Greenspace Information for Greater London (GiGL)	Information on protected and notable sites and species within 2km of the Site (TQ 27737 86992).	13/06/17

MKA Ecology Ltd undertook a Preliminary Ecological Appraisal in 2015 (MKA Ecology Ltd, 2015a), followed by a daytime bat inspection (MKA Ecology Ltd, 2015b) and nocturnal bat surveys (MKA Ecology Ltd, 2015c).

3.2. Phase 1 habitat survey

The habitat at the Site was surveyed using the standardised Joint Nature Conservation Committee (JNCC) Phase 1 classification and mapping methodology (JNCC, 2010). Data were recorded onto field maps and then transferred onto a Geographic Information System (GIS) following the JNCC Colour Mapping Pallet for ArcGIS. Dominant plant species were observed and recorded within each habitat type. The plant species nomenclature follows that of Stace (2010).

The DAFOR scale is used to describe the relative abundance of species. The scale is shown in Table 2. It is important to note that where a species is described as rare this description refers to its relative abundance within the Site and is not a description of its abundance within the wider landscape.

Therefore a species with a rare relative abundance within the Site may be common within the wider landscape.

Table 2: DAFOR scale

DAFOR code	Relative abundance
D	Dominant
A	Abundant
F	Frequent
O	Occasional
R	Rare

3.3. Protected species scoping survey

As part of the Preliminary Ecological Appraisal of the Site, an assessment of the potential for the habitats on site to support protected or notable species was made. This assessment was based on the quality, extent and interconnectivity of suitable habitats, along with the results of the desktop study detailed in Section 3.1.

Protected species frequently encountered on development sites include the following:

- Amphibians: Great Crested Newt *Triturus cristatus.*
- Reptiles: Adder *Vipera berus*, Common Lizard *Zootoca vivipara*, Slow-worm *Anguis fragilis*, Grass Snake *Natrix natrix*.
- Birds: All species, with special reference to species listed under Schedule 1 of The Wildlife and Countryside Act 1981 (as amended).
- Mammals: Badger *Meles meles*, bats (all species), European Water Vole *Arvicola amphibius*, Otter *Lutra lutra* and Hazel Dormouse *Muscardinus avellanarius*.
- Invertebrates: White-clawed Crayfish *Austropotamobius pallipes.*

In each case the likelihood of presence of these protected species at the Site was classified as being either high, moderate, low or negligible.

In addition to the species listed above, the potential for the Site to support other rare or notable species (or habitats) is also considered. This includes Species and Habitats of Principal Importance as listed on Section 41 of the Natural Environment and Rural Communities (NERC) Act (2006), and Red and Amber listed Birds of Conservation Concern (BoCC) as per Eaton *et al*., 2015 (see Appendix 1).

This protected species scoping survey is designed to assess the *potential* for presence or absence of a particular species or species group, and does not constitute a full survey for these species.

3.4. Daytime bat inspection survey

The site contained two buildings and several trees. Inspected buildings and trees were named/numbered and these are provided in the bat inspection survey section 4.4

The following features were recorded for buildings:

- Location;
- Type;
- Dimensions;
- Age where obvious;
- Construction materials; and
- Current use.

Descriptions of potential and actual access points and roosting places were recorded (including height above ground level and aspect), as well as descriptions of evidence of bats found. The following types of evidence of use by bats were recorded:

- Location and number of any live bats;
- Location and number of any bat corpses or skeletons;
- Locations and number of bat droppings;
- Notes on relative freshness, shape and size of bat droppings;
- Location and quantity of any bat feeding remains;
- Location of clean, cobweb-free timbers, crevices and holes;
- Location of characteristic staining from urine and/or grease marks;
- Location and quantity of bat-fly (*Nycteribiidae*) pupal cases;
- Location of known and potential access points to the roost; and
- Location of the characteristic smell of bats

All trees were checked for their suitability to support roosting bats with the features listed below, however no trees were described in detail in the bat inspection survey section due to the negligible suitability of trees on site to support bat roosts.

Descriptions of suitable and actual roost features for trees were recorded (including height above ground level and aspect), as well as descriptions of evidence of bats found. Potential roost features recorded were:

- Woodpecker holes;

- Rot holes;
- Hazard beams;
- Other vertical or horizontal cracks and splits (such as frost-cracks) in stems or branches;
- Partially detached plately bark;
- Knot holes arising from naturally shed branches, or branches previously pruned back to the branch collar;
- Man-made holes (e.g. cavities that have development from flush cuts) or cavities created by branches tearing out from parent stems;
- Cankers (caused by localised bark death) in which cavities have developed;
- Other hollows or cavities, including butt-rots;
- Double-leaders forming compression forks with included bark and potential cavities;
- Gaps between overlapping stems or branches;
- Partially detached ivy with stem diameters in excess of 50mm; and
- Bat, bird or dormouse boxes.

The following types of evidence of use by bats were recorded for trees:

- Presence of bats;
- Bat droppings in, around or below a potential roost feature;
- Odour emanating from a potential roost feature;
- Audible squeaking at dusk or in warm weather; and
- Staining below the potential roost feature.

Buildings and trees were assessed for their bat roost suitability according to the scheme presented in Collins (2016). These categories are shown in Table 3.

Table 3: Categories to assess roost suitability in buildings and trees (adapted from Collins, 2016)

Roost suitability	Description
Negligible	Negligible habitat features on site likely to be used by roosting bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions* and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation). A tree of sufficient size and age to contain potential roost features but with none seen from the ground or features seen with only very limited roosting potential.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but

Roost suitability	Description
	unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potential for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.

*For example, in terms of temperature, humidity, height above ground level, light levels or levels of disturbance.

3.5. Equipment

The bat inspection was conducted using a variety of equipment including ladders, digital video endoscope, inspection mirrors, high-powered torch and a digital camera.

3.6. Surveyors

The survey was undertaken by Will O'Connor MCIEEM, Director and Principal Ecologist at MKA Ecology Limited (Natural England Bat Licence WML-CL18), and Gabrielle Horne GradCIEEM, Ecologist at MKA Ecology Ltd. Will has over ten years' experience in undertaking Preliminary Ecological Appraisals and Bat Inspection surveys. Gabrielle has three years' experience in completing Preliminary Ecological Appraisals and over one years' experience in assisting with bat inspection surveys.

3.7. Date, time and weather conditions

See Table 4 below for details of the date, time and prevailing weather conditions recording during the site visit for the Preliminary Ecological Appraisal and daytime bat inspection.

Table 4: Date, time and weather conditions of survey visit

Date	Time of survey	Weather conditions*
06/06/17	16:00	Wind: 4 Cloud: 8 Temp: 15° Rain: light at times

*Wind as per Beaufort Scale / Cloud cover given in Oktas.

3.8. Constraints

It should be noted that a single visit cannot categorically ascertain the presence or absence of any protected species. However, an assessment is made of the likelihood for protected species to occur

based on habitat characteristics and the ecology of each species. Where there is potential for protected species, additional survey work may be required to ascertain their presence or absence.

No other significant constraints were encountered during the survey.

4. RESULTS

4.1. Desktop study

An ecological desktop study was completed for the Site and the surrounding 2km. The data, provided by Greenspace Information for Greater London (GiGL), identified numerous UK and European protected species, species and habitats of principal importance (as listed under Section 41 of the NERC Act 2006), and species of conservation concern within 2km of the Site. It should be noted that this is not a comprehensive list of the distribution or extent of the local flora and fauna of conservation importance. These species records are discussed in greater detail in the protected species scoping survey section (Section 0 below).

Details of statutorily designated sites identified as part of the desktop study are displayed in Table 5 below. Four statutorily designated sites were identified within 2km of the site, one of which was a Site of Special Scientific Interest (SSSI) and three which were Local Nature Reserves (LNR).

Table 5: Statutorily designated sites within 2km of Water House, Highgate

Site name	Area (ha)	Distance and direction	Reasons for selection
Hampstead Heath Woods (SSSI)	16.6	0.64 km W	• Established woodland with mature trees • Provides deadwood for invertebrates including nationally rare Jewel Beetle *Agrilus pannonicus* • Supports areas of acid flush habitat with associated vegetation
Belsize Wood (LNR)	1.03	1.81 km S	• Supports high floral diversity • Supports a broad diversity of insect species,
Parkland Walk (LNR)	14.31	1.39 km NE	• Supports a variety of habitats including naturally regenerated woodland, scrub and rough grassland
Queens Wood (LNR)	21.07	1.84 km NE	• Ancient semi-natural woodland • Supports herbaceous species including Bluebell *Hyacinthoides non-scripta*, Remote Sedge *Carex remota* , Wood Sedge *Carex sylvatica* and Giant *Fescue Festuca gigantea*

Details of non-statutorily designated sites identified as part of the desktop study are displayed in Table below. A total of 25 non-statutorily designated sites were present within 2km of the site. 23 of these

were Sites of Importance for Nature Conservation (SINCs) and two of which were potential Regionally Important Geological/Geomorphological sites (RIGS) (which are not of significance to this report so have not been included below).

Table 6: Non-statutorily designated sites within 2km of the Water House, Highgate

Site name	Area (ha)	Distance and direction	Reasons for selection
Hampstead Heath (SINC - Site of Metropolitan Importance)	317.63	0.59km SW	• Supports ancient woodland • Provides deadwood for a range of specialist invertebrates • Supports wet flush habitat which contains species of bog-mosses *Sphagnum* spp. and Water Horsetail *Equisetum fluviatile* which are rare in London • Supports acid grassland, restored heath habitats and numerous waterbodies • Several rare plants including Creeping Willow *Salix repens*, Lemon-scented Fern *Oreopteris limbosperma* and Hard Fern *Blechnum spicant*
Highgate Cemetery (SINC – Site of Metropolitan Importance)	14.81	1.01 km E	• Supports woodland and semi-improved neutral grassland • Supports nationally scarce Ivy Broomrape *Orobanche hederae* and Luisier's tufa-moss *Gymnostomum viridulum*
Parkland Walk, Queen's Wood and Highgate Wood (SINC – Site of Metropolitan Importance)	66.71	1.67km N	• Supports ancient woodland, acid grassland, ponds, secondary woodland and semi-improved neutral grassland • Supports rare species, including Thin-spiked Wood-sedge *Carex strigosa*, Hard-fern *Blechnum spicant* and Broad-leaved Helleborine *Epipactis helleborine* Small Toadflax *Chaenorhinum minus,* Black Spleenwort *Asplenium adiantum-nigrum* and Common Broomrape *Orobanche minor* • Supports bat species
Branch Hill (SINC – Borough Grade 1)	3.72	2km W	• Supports a variety of habitats including secondary woodland, scrub and semi-improved neutral grassland

Site name	Area (ha)	Distance and direction	Reasons for selection
Waterlow Park (SINC – Borough Grade 1)	10.16	0.87km E	• Supports a variety of habitats including spring-fed ponds, hedgerows, scrub, semi-improved neutral grassland and wet grassland
Kentish Town City Farm, Gospel Oak Railsides and Mortimer Terrace Nature Reserce (SINC – Borough Grade 1)	6.72	1.90km S	• Supports secondary woodland, hedgerows, scrub, semi-improved grassland and ponds • Bog-garden supports insectivorous plants, including all three native species of sundew *Drosera. sp.*
Hampstead Parish Churchyard (SINC – Borough Grade 1)	0.9	1.90km SW	• Supports acid grassland • Tombstones support a variety of mosses and lichens
Crouch End Playing Fields Complex (SINC – Borough Grade 1)	14.59	1.90km NE	• Supports veteran trees, secondary woodland, semi-improved neutral grassland and scrub • Supports Shining Crane's-bill *Geranium lucidum*, which is rare in London. • Supports a range of birds and invertebrates
Dartmouth Park Hill and Reservoir (SINC – Borough Grade 1)	3.14	1.44km SE	• Neutral and acidic grassland • Locally uncommon plants include Burnet Saxifrage *Pimpinella saxifraga*, Grey Sedge *Carex divulsa*, Sheep's and Common sorrels *Rumex acetosella, R. acetosa* and Field Woodrush *Luzula campestris* • Supports Small Copper Butterfly
Archway Road Cutting (SINC – Borough Grade 1)	0.73	1.38km E	• Secondary woodland • Supports Coltsfoot *Tussilago farfara* and Hop Trefoil *Trifolium campestre*
Upper Holloway Railway Cutting (SINC – Borough Grade 1)	4.71	1.90km E	• Mosaic of open and wooded habitats

Site name	Area (ha)	Distance and direction	Reasons for selection
Junction Road Railway Cutting (SINC – Borough Grade 1)	0.5	1.69km SE	• Mosaic of open and wooded habitats
Turner's Wood (SINC – Borough Grade 2)	2.98	1.52km W	• Ancient woodland • Supports Midland Hawthorn *Crataegus laevigata,* Rowan *Sorbus aucuparia* and Wild service-tree *Sorbus torminalis.*
Belsize Wood Local Nature Reserve (SINC – Borough Grade 2)	0.7	1.73km S	• Secondary woodland and scrub • Well-established ground flora including Butcher's-broom *Ruscus aculeatus* and Enchanter's-nightshade *Circaea lutetiana*
Highgate Golf Course (SINC – Borough Grade 2)	33.38	1.28km N	• Supports a few species which are indicators of acid or wet grassland
St Joseph's Social Centre	0.49	1km E	• Supports rare orchard habitat
Cherry Tree Wood (SINC – local importance)	5.33	1.95km N	• Ancient woodland which had been coppiced
Holly Lodge Gardens (SINC – local importance)	1.39	0.37km E	• Parkland, mature trees • Supports non-native specimens including Holm Oak *Quercus ilex* and Cedar of Lebanon *Cedrus libani* • The uncommon Mouse's-ear Hawkweed *Pilosella officinarum* has been recorded here.
Harrington Site (SINC – local importance)	1.32	1.00km E	• Community horticulture project with ornamental planting and specimen trees • Developing woodland
Southwood Lane Wood (SINC – local importance)	0.6	1.12km NE	• Supports secondary woodland
Yeatman Road Allotments (SINC – local importance)	3.26	1.21km N	• Supports important populations of reptiles, including Slow Worm and Grass Snake, as well as birds, mammals and invertebrates.

Site name	Area (ha)	Distance and direction	Reasons for selection
Shepherds Hill Allotments (SINC – local importance)	3.82	1.95km NE	• Several mature trees along the southern boundary, and a belt of scrub along the western edge
Archway Park (SINC – local importance)	0.83	1.66km E	• Bank at the northern end contains a fair diversity of wild flowers, including Parsley-piert *Aphanes arvensis* which is characteristic of dry, sandy grassland and which is quite uncommon in London.
Foxham Gardens (SINC – local importance)	0.61	1.95km SE	• Variety of habitats including scrub, parkland and mature trees

4.2. Phase 1 habitat survey

The Site was found to comprise amenity grassland, introduced shrub, scattered trees, and a pond, along with man-made habitats of low ecological value such as hardstanding, fences and buildings. More detailed species lists, along with their relative abundance, can be found in Appendix 2. The Phase 1 habitat survey map is provided in Figure 1, at the end of this section. Descriptions of the habitat types present along with dominant species compositions are provided below.

Amenity Grassland

Areas of amenity grassland (Photograph 1, Appendix 3) were present on site. These were dominated by Perennial Ryegrass *Lolium perenne*, with abundant Daisy *Bellis perennis* and White Clover *Trifolium repens*, and frequent Dandelion *Taraxacum officinale*, Self-heal *Prunella vulgaris* and Smooth Meadow Grass *Poa pratensis*. Other occasionally and rarely occurring species are listed in Appendix 2.

Introduced shrub

The site contained several areas of introduced shrub (see Photograph 2, Appendix 3), particularly along the south-eastern and south-western edges of the site. The areas of introduced shrub contained Bamboo *Bambuseae,* Garden Privet *Ligustrum ovalifolium,* Boston Ivy *Parthenocissus tricuspidata,* Lavender *Lavandula sp.* Wilson's Honeysuckle *Lonicera nitida,* Spotted Laurel *Aucuba japonica,* Holm Oak *Quercus ilex*, Virginia Creeper *Parthenocissus quinquefolia,* Japanese Knotweed *Fallopia japonica* and Rhododendron *Rhododendron ponticum.* These areas also included Bramble *Rubus Fruticosus* agg. and Ivy *Hedera Helix*.

Scattered Trees

There were several scattered trees throughout the site (Photograph 3, Appendix 3), primarily located in introduced shrub and amenity grassland. These were a mixture of mature and immature specimens and species included Ash *Fraxinus excelsior*, Birch *Betula sp*., Sycamore *Acer pseudoplatanus,* Pedunculate Oak *Quercus robur* (Photograph 13, Appendix 3), Holm Oak *Quercus ilex,* Apple *Malus sp*.(Photograph 11, Appendix 3) and Mulberry Tree *Morus sp.*

Hardstanding and gravel

There were several areas of hardstanding and gravel on site. An example of this is shown in Photograph 4, Appendix 3). This included a wooden walkway through the amenity grassland at the north.

Pond

A small, oval pond, of approximately 3m width (see Photograph 5, Appendix 3) was located at the south-east corner of the site. The pond's marginal vegetation included *Iris sp.*

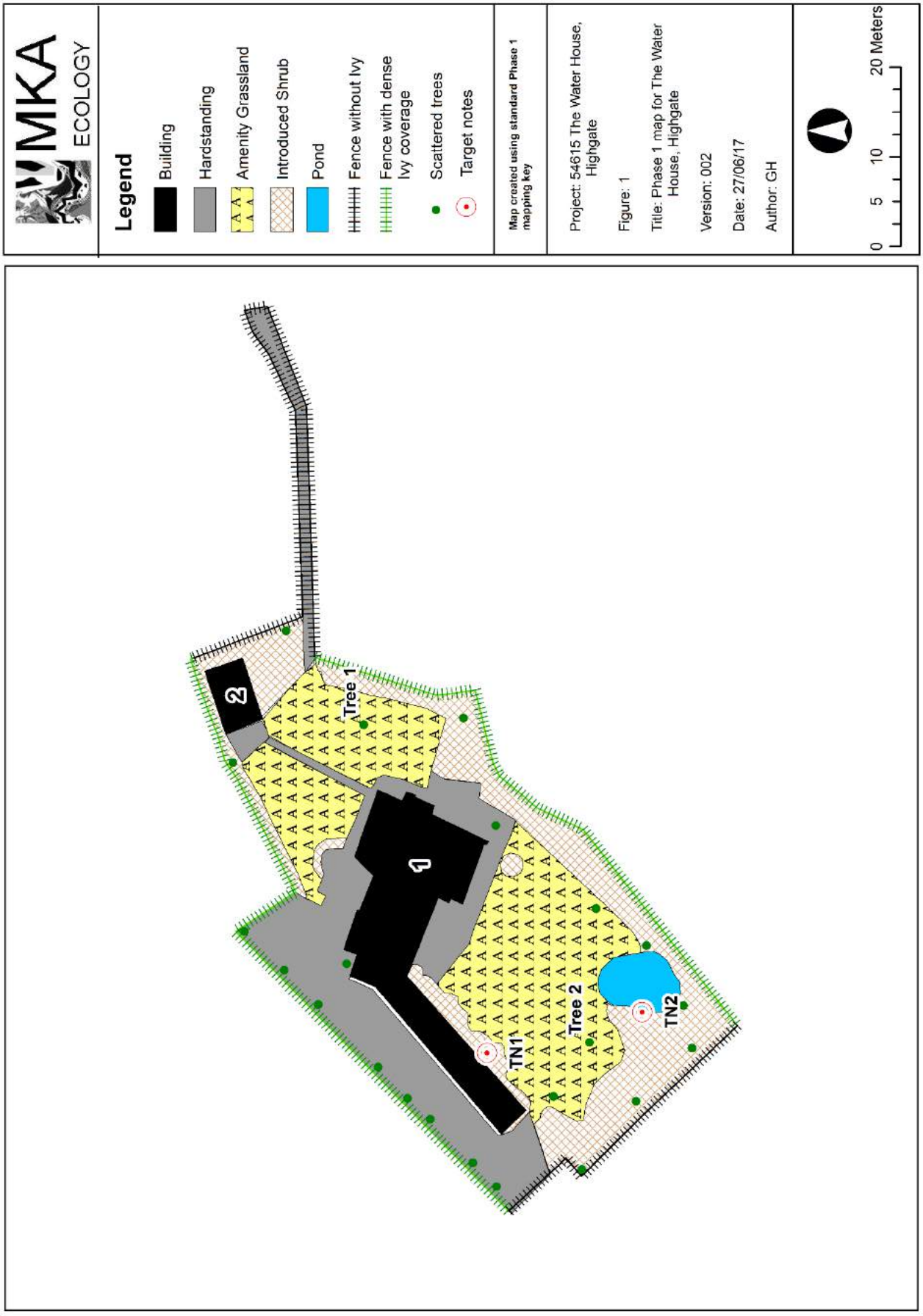
Fence

The site was surrounded by fences, some of which, such as those on the western and eastern edges of the site, were densely covered in Ivy (see Photograph 6, Appendix 3).

Buildings

There were two buildings on site. One was a large, two storey house, with a narrow single storey section to its south (see Photograph 7, Appendix 3). Several aspects of the house were covered in Boston Ivy *Parthenocissus tricuspidata*. A small outhouse at the north of the site (see Photograph 8, Appendix 3) was also covered in Ivy, particularly on its eastern aspect. These are described in more detail in the bat inspection survey Section 4.4 below.

Figure 1: Phase 1 habitat map of The Water House, Highgate



Target notes

TN1: Location of Virginia Creeper *Parthenocissus quinquefolia* (Photograph 15, Appendix 3).
TN2: Location of Japanese Knotweed

4.3. Protected species scoping survey

Plants

The data search returned records of numerous protected or notable plant species within the search area, including those listed on Schedule 8 and Schedule 9 of the Wildlife and Countryside Act (1981) (as amended), Section 41 of the Natural Environment and Rural Communities (NERC) Act (2006), the UK Biodiversity Action Plan and London Biodiversity Action Plan, and species listed as Nationally Rare and Nationally Scarce. It also included plants listed as Endangered, Vulnerable and Near Threatened on the Vascular Plant Red List of Great Britain and Species of Conservation Concern in London.

No species listed in the data search were identified on site, and the site consisted of typical garden habitats with a mixture of native and non-native plant species. The risk of the site to support protected or notable plant species is considered to be **Negligible**.

Virginia Creeper and Japanese Knotweed were found on site (Target Notes 1 and 2). These species are listed as invasive under Section 9 of the Wildlife and Countryside Act 1981.

Invertebrates

The data search returned numerous records of protected or notable invertebrates within 2km of the Site. These included species is listed under Section 41 of the NERC Act (2006) and UK Biodiversity Action Plan, as well as species of conservation concern in London. These are likely associated with the numerous designed sites within close vicinity. The likelihood of the Site to support protected invertebrates is considered to be **Negligible** and this species group is not considered further within this report.

Amphibians

The desktop study returned records of Palmate Newt *Lissotriton helveticus*, Common Toad *Bufo bufo*, and Common Frog *Rana temporaria* within 2km of the site. No records of Great Crested Newt were returned.

One pond was located on site (see Photograph 5, Appendix 3). Additionally, ten other waterbodies were present within 500m of the site, one of which was a large pond located on land adjacent to the site. Locations of the ponds on site and within the surrounding area are shown in Figure 2.

A habitat suitability index (HSI) assessment was completed for the pond on site, and the ten other waterbodies within 500m of the site, following the methodology developed by Oldham *et al*. (2000) to assess the likelihood of the presence of Great Crested Newt in these ponds. This methodology requires the surveyor to record specific habitat factors including shading, presence of fish or waterfowl and size of pond. These factors are then combined to assess whether the pond would be likely to support Great Crested Newt based upon their habitat preferences. The suitability of ponds for Great Crested Newt based on different HSI scores are shown in Table 7 (NARRS, 2007).

Table 7: HSI and pond suitability for Great Crested Newt HSI Score Pond Suitability

HSI Score	Pond Suitability
< 0.5	Poor
0.5 – 0.59	Below average
0.6 – 0.69	Average
0.7 – 0.79	Good
> 0.8	Excellent

It should be noted that this index is only a guide to the likely presence or absence of Great Crested Newt and should be interpreted with in conjunction with background information on known populations in the area and knowledge of Great Crested Newt ecology.

The results of the HSI assessment are shown in Table 8 below. These HSI scores combined with the absence of historical records of Great Crested Newt in the desk study indicate that the species is unlikely to be breeding in these ponds. Additionally, the urbanised environment is likely to significantly restrict the movement of this species through the landscape.

Table 8: HSI assessment results for waterbodies on site and within 500m

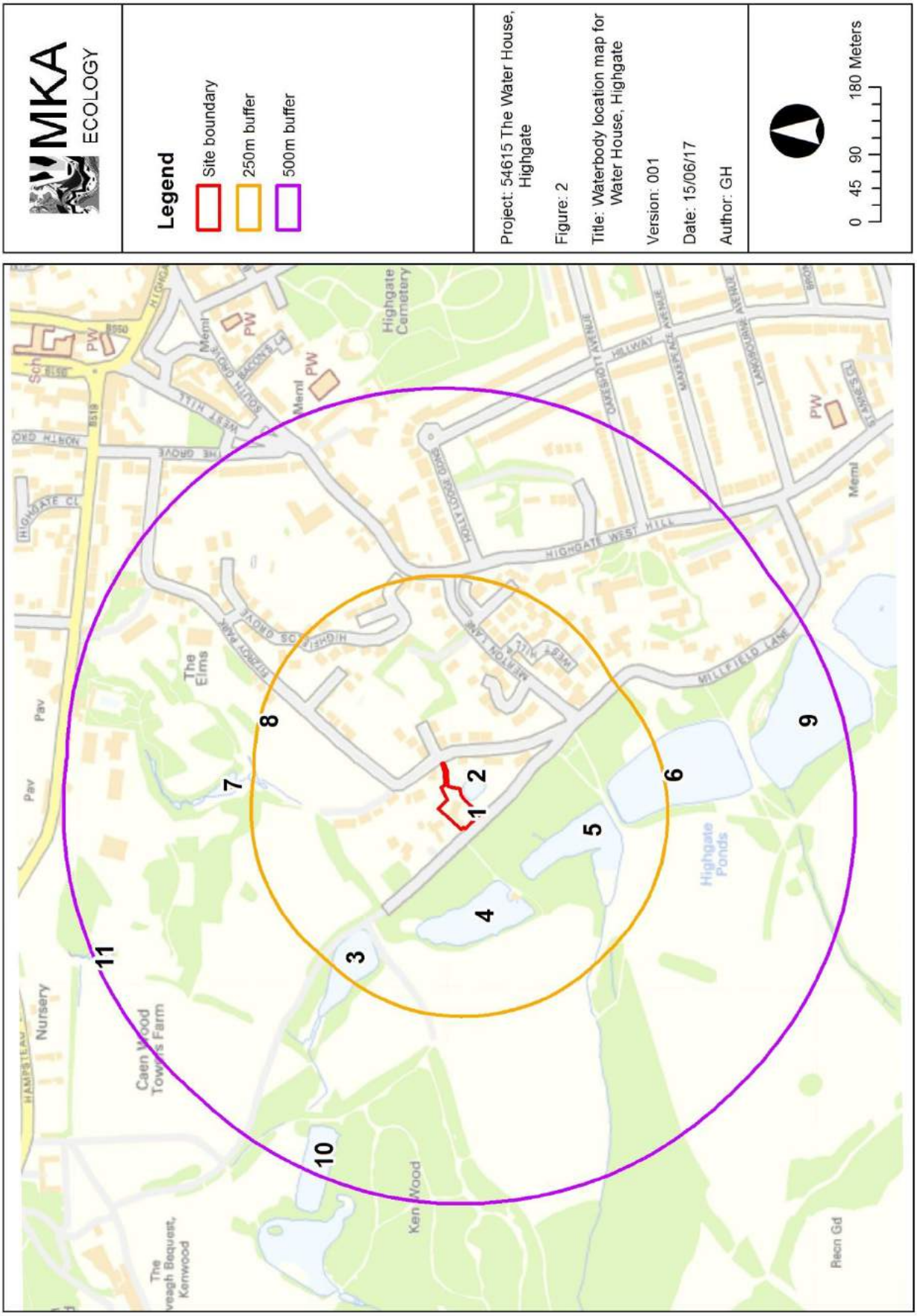
Waterbody	HSI score	Distance from proposed development
Pond 1 (on site)	0.58 (below average)	On site
Pond 2	0.85 (excellent)	16m
Pond 3	0.31 (poor)	212m
Pond 4	0.31 (poor)	95m
Pond 5	0.31 (poor)	92m

Pond 6	0.27 (poor)	185m
Pond 7	0.58 (below average)	233m
Pond 8	0.51 (below average)	249m
Pond 9	0.29 (poor)	389m
Pond 10	0.31 (poor)	436m
Pond 11	0.67 (average)	483m

As shown in Table 8, the pond on site (Pond 1) had a below average suitability for Great Crested Newt. The waterbody adjacent on land adjacent to the site was considered to have excellent suitability for Great Crested Newt. Ponds 7 and 8 were 233m and 249m away from the proposed development and had below average suitability for Great Crested Newt. Pond 11 had average suitability for Great Crested Newt and was 483m away from the site. The remaining six waterbodies had poor suitability for Great Crested Newt.

The lack of Great Crested Newt records in the surrounding 2km and the highly urbanised location, means that they are unlikely to be present on site, despite the aquatic habitat on site and a good connectivity of waterbodies in the surrounding area. Furthermore the pond on site is not anticipated to be cleared by the works, and the terrestrial habitat on site was largely unsuitable for Great Crested Newt. The likelihood of protected amphibians on site is considered to be **low**.

Figure 2: location of waterbodies within 500m of the site



Reptiles

The desktop study returned records of one Common Lizard and one Adder within the search area. Several of the citations for the designated sites also identified populations of Slow-worm and Grass Snake. However, no suitable habitat for reptiles was available on site. The likelihood of protected or notable reptiles being present on site is considered to be **Negligible** and this species group is not considered further within this report.

Birds

A total of seven species were recorded during the site visit. These species are shown in Table 9 together with their conservation status. It is important to note that this is not a full inventory of species for the site.

Table 9: Bird species recorded during site visit at the Water House, Highgate

Common name	Systematic name	S1 W&CA[1]	BoCC[2] Status	S41 SPI[3]	Local PrSp[4]
Kestrel	*Falco tinnunculus*	No	Green	No	No
Woodpigeon	*Columba palumbus*	No	Green	No	No
Ring-necked Parakeet	*Psittacula krameri*	No	Green	No	No
Magpie	*Pica pica*	No	Green	No	No
Wren	*Troglodytes troglodytes*	No	Green	No	No
Song Thrush	*Turdus philomelos*	No	Red	Yes	Yes
Goldfinch	*Carduelis carduelis*	No	Green	No	No

[1] Schedule 1 of The Wildlife and Countryside Act 1981 (see Appendix 1)
[2] Birds of Conservation Concern (see Appendix 1)
[3] Section 41 (NERC Act 2006) 'Species of Principal Importance' (see Appendix 1)
[4] Local Priority Species

The desktop study returned records of several protected and notable bird species from within 2km of the site. These included species listed on Annex 1 of the Birds Directive, Schedule 1 of the Wildlife and Countryside Act 1981, Section 41 of the NERC Act, UK Biodiversity Action Plan and birds listed as Amber or Red on the IUCN Red list.

Several of these species, including Montagu's Harrier *Circus pygargus*, Osprey *Pandion haliaetus,* Wryneck *Jynx torquilla* and Black Redstart *Phoenicurus ochruros* would be unlikely to utilise the Site for breeding or overwintering, due to lack of suitable habitats. However, some passerine birds listed on the data search including Spotted Flycatcher *Muscicapa striata,* Goldcrest *Regulus regulus* and Willow

Warbler *Phylloscopus trochilus,* and those recorded during the site visit, have the potential to utilise the Site for breeding and overwintering.

The Site contains suitable breeding bird habitats including scattered trees, introduced shrub and buildings. The likelihood of birds to utilise the Site for breeding is considered to be **High**. However, the likelihood of the Site to support important assemblages of bird species, or protected bird species, is considered to be **Negligible**.

Badgers

No records of badger were returned within the search area. No direct evidence of Badger presence was identified during the survey and the habitats on site were largely unsuitable for Badger. The likelihood of Badger being present on site is considered to be **Negligible** and this species is not considered further within this report.

Other mammals

The data search returned records of Hedgehog *Erinaceus europaeus* and Common Shrew *Sorex araneus* within the search area.

Hedgehog is listed on Section 41 of the NERC Act, UK BAP, London BAP and is a Local Species of Conservation Concern. Hedgehog is known to frequent garden habitats and parkland within towns and cities and the likelihood of this species being present on site is considered to be **Moderate.** Common Shrew is a Local Species of Conservation Concern but is usually associated with grassland habitats, and the amenity grassland sward on site is not long enough to support this species.

4.4. Bat inspection survey

Data search and background

The desktop study returned records of Common Pipistrelle *Pipistrellus pipistrellus,* Soprano Pipistrelle *Pipistrellus pygmaeus*, Nathusius's Pipistrelle *Pipistrellus nathusii,* Brown Long-eared Bat *Plecotus auritus*, Noctule *Nyctalus noctula*, Leisler's Bat *Nyctalus leisleri*, Serotine *Eptesicus serotinus,* Natterer's Bat *Myotis nattereri*, Daubenton's Bat *Myotis daubentonii*, Pipistrelle *Pipistrellus sp.,* unidentified *Nyctalus sp*., unidentified *Myotis sp*, unidentified *Plecotus sp.,* and unidentified Bat *Chiroptera sp.* within 2km of the site. The Preliminary Ecological Appraisal identified the main building, the mature Pedunculate Oak tree and the Apple tree as having potential to support roosting bats.

Bat inspection results

The two buildings on site were inspected externally and internally for bats and evidence of bats. The results of this building inspection is shown in Table 10 below. The location of the two buildings within the site are shown in Figure 1.

Table 10: Building Inspection results

Building	Roost suitability	Description	Bat roost evidence and potential
1 (Main House)	High	• Two storey residential building with a roof void and comprised three sections. The exterior walls were rendered. Two sections of this building had single ridge double pitched tiled roofs. The third section extended south and had a flat roof.	• Holes in soffit boxes on north and east aspects • Gaps under the tiles at the edge of the roof in multiple locations • Lifted tile adjacent to the roof apex on the south aspect gable end of the building • Gap beneath the upper sliding door bracket on the south aspect ground floor • Gaps between the chimney and the tiles above the chimney and within cavities in the Ivy that covered the western gable end of the building
2 (Outbuilding)	Negligible	• One story outhouse, with rendered walls and a flat roof. The walls were covered by Ivy.	• The building did not contain any potential access points or roosting features • The ivy coverage was not thick enough to form cavities.

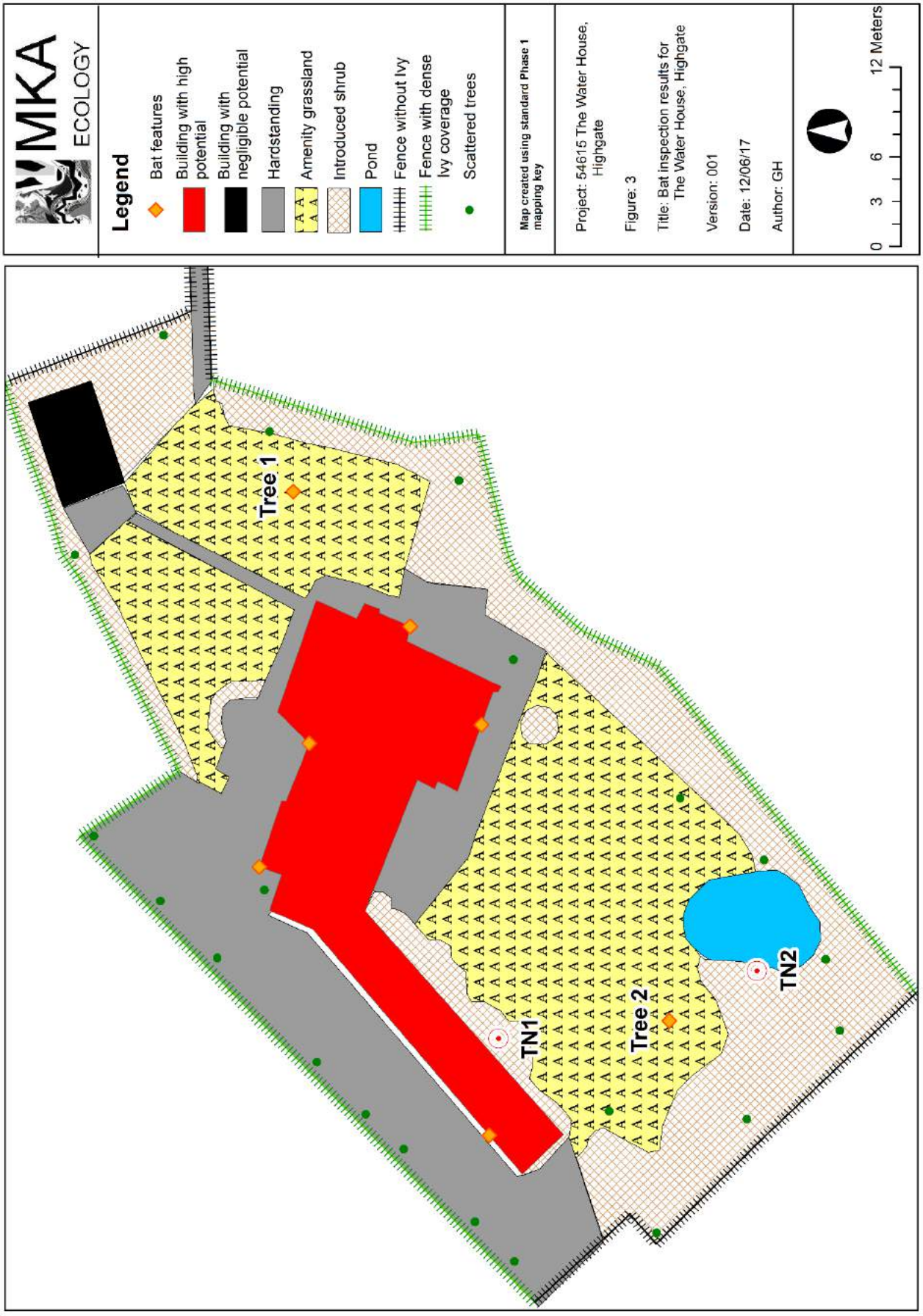
Two of the trees on site were inspected for bats and evidence of bats. The results of this tree inspection is shown in Table 11 below. The majority of trees at the site were considered to be Category 3 with negligible roosting potential. This included the tree at the north-west corner of the existing building which is likely to be removed. However, two trees were recorded at the site that contained features that could support roosting bats. The location of these trees with potential to support roosting bats within the site

are shown in Figure 3 and details of the features suitable to support roosting bats are shown in Table 11 below.

Table 11: Tree inspection results

Tree	Species	Roost suitability	Bat roost evidence and potential
1	Apple *Malus domestica*	Moderate	• Hole at 2m leading into large internal cavity (see Photograph 12, Appendix 3).
2	Pedunculate Oak *Quercus robur*	Moderate	• Two holes, one at 1m one at 3m linked together by an internal cavity (see Photograph 14, Appendix 3). This tree also featured a knot hole at around 7m.

Figure 3: Bat inspection survey results



5. ECOLOGICAL CONSTRAINTS, OPPORTUNTIES AND RECOMMENDATIONS

This section outlines key ecological issues for consideration, recommendations for further work and ecological enhancements where appropriate.

Off-site habitats

The proposed development is not predicted to have a detrimental effect on any statutorily or non-statutorily designated sites due to distances involved, the likely scale of the proposed development and the low value of habitats on site.

On-site habitats

All habitat types present on site are common and widespread throughout the landscape. Consequently the site is considered to be of low ecological value. Furthermore the habitats within proposed development will not differ significantly from existing site conditions and therefore no significant changes in biodiversity value will occur.

Ponds are classified as a Habitat of Principal Importance under Section 41 of the NERC Act (2006). Ponds can provide suitable habitat for a wide range of species including invertebrates and amphibians as well as providing water management features on site. The pond is currently of moderate ecological value and is a key biodiversity feature on the Site.

Recommendation 1
Retain the pond on site.

Plants

Virginia Creeper and Japanese Knotweed are listed on Schedule 9 of the Wildlife and Countryside Act 1981. It is illegal to plant or otherwise cause to grow in the wild any plant listed in Schedule 9.

It is recommended that these species are disposed of appropriately and these species should not be allow to spread in the wild.

Recommendation 2
Dispose of Virginia Creeper and Japanese Knotweed appropriately with the assistance of an invasive species specialist if required.

Birds

The main building, scattered trees, introduced scrub and ivy clad fences and outhouse have potential to support nesting birds during the bird breeding season.

All wild birds, their active nests and eggs are protected under The Wildlife and Countryside Act 1981 (as amended), which makes it an offence deliberately, or recklessly, to kill or injure any wild bird or damage or destroy any active birds' nest or eggs.

Scheduling vegetation and building removal works between the months of September and February inclusive (i.e. outside of the bird season) would avoid impacts on breeding birds.

Where vegetation and building clearance works are required during the breeding bird season (between the months of March and August inclusive), such works can only proceed following the completion of a nesting bird check undertaken by an experienced ornithologist. Any active birds' nest identified during this check must be protected from harm until the nesting attempt is complete. This will require a buffer to be left around the nest, the size of which will depend upon the species involved (as a general rule, this will be 10m in all directions around the nest). Any buffers established as a result of the initial nesting bird check must be subjected to a second check after the original nesting attempt is completed, before such areas can be removed during the breeding bird season.

Recommendation 3
Complete any building and/or vegetation clearance that is required outside of the breeding bird season (i.e. complete clearance within the months of September to February inclusive).

It is strongly recommended that any potential nesting bird habitat is cleared outside the breeding bird season in order to avoid potentially lengthy delays if nests are found during nesting bird checks.

The loss of bird nesting habitat at the site will be mitigated for by the provision of bird boxes as part of the biodiversity enhancements proposed for the site. The provision of bird boxes is discussed in greater detail in the relevant section below.

Bats

The main building and two trees on site were found to support several potential access points and roosting features.

In the absence of mitigation, bat roosts could be destroyed and bats could be killed or injured with the demolition of buildings. Therefore further nocturnal surveys are required to identify and characterise

any roosts which may be present to inform appropriate mitigation. Bats and their roosts are protected by law (see legislation in Appendix 1.)

Building and tree numbers, their level of suitability to support roosting bats and the number of nocturnal bat surveys required at each of these is shown in Table 12 below.

Table 12: Number of nocturnal bat surveys required at each building or tree

Building/tree number	Suitability to support roosting bats	Number of nocturnal bat surveys required
1 (Main House)	High	3
2 (Outbuilding)	Negligible	0
Tree 1 (Apple)	Moderate	2
Tree 2 (Peduncluate Oak)	Moderate	2

For three two nocturnal surveys required on buildings with High suitability these will comprise a total of two dusk emergence surveys and one dawn re-entry survey, and these should be separated by a minimum of two weeks. For the nocturnal surveys required on the trees, these will comprise a total of one dusk emergence and one dawn re-entry survey, and these should be separated by a minimum of two weeks. These surveys will be completed in accordance with good practice guidelines of the Bat Conservation Trust between May to August inclusive (Collins, 2016).

The nocturnal bat roost surveys will identify roosts if present and inform the need for further mitigation or licencing if required.

Recommendation 4

Complete nocturnal bat surveys at Building 1 and trees 1 and 2. The extent of these surveys will follow Table 9 and they should be completed in accordance with good practice guidelines (Collins, 2016).

Bat roosting behaviour, commuting and foraging activity can additionally be dramatically affected by artificial lighting (BCT, 2009). It is strongly recommended that any proposed exterior lighting is managed appropriately to ensure that the area remains suitable for foraging bats. A sensitive lighting scheme should be developed to allow suitable roosting and foraging areas for bats.

Recommendation 5

Light pollution from any lighting should be minimised both during and after the construction phase. A sensitive lighting scheme should be developed to allow for suitable roosting and foraging areas for bats within the site with maximum use of down lighting and hoods where necessary.

Opportunities for biodiversity enhancement

Following the issue of the National Planning Policy Framework (NPPF; see Appendix 1), all planning decisions should aim to maintain and enhance, restore or add to biodiversity and geological conservation interests. Ecological enhancements should aim to deliver biodiversity gains for the proposed development site.

Planting of native species or those with a known attraction or benefit to local wildlife is recommended in landscape proposals to enhance foraging opportunities for birds and bats by increasing the invertebrate diversity on site. It is recommended that if introduced shrubs are removed during the development, these are replaced with native shrub species.

Recommendation 6

It is recommended that native British species are incorporated within the planting scheme for the final landscaping design in order to enhance the overall value of the site for biodiversity, in line with the requirements of the NPPF.

Enhanced opportunities for breeding birds should be incorporated into the design scheme. Bird boxes should be mounted on trees, fences and built structures at the site. It is recommended that there is focus on Starling and House Sparrow, together with the provision of generalist bird boxes. Examples of suitable boxes are shown in Appendix 4 together with information concerning the correct siting of these enhancement features.

Recommendation 7

A minimum of five bird boxes should be installed at the site, to include two House Sparrow terraces and two Starling boxes.

The wider landscape has the potential for use by foraging bats. With this in mind, enhanced opportunities for roosting bats should also be provided at the site through the provision of bat boxes. Further nocturnal bat surveys have been recommended at the Site and therefore the provision of bat boxes will be considered following these bat surveys.

Further opportunities for ecological enhancements could be made at the site post-development to encourage native wildlife and create rich and ecologically valuable habitats at the site. Enhancements to consider could include provision of Hedgehog hibernation boxes.

Summary of recommendations

Table 13 below summarises the recommendations made within this report, and specifies the stage of the development at which action is required. Colour coding of cells within the table is as follows:

Key:

No action required for this species group at this stage

Action required (see notes for details)

Level of action required will be determined following the further survey work

Table 13: Summary of recommendations at the Water House, Highgate

Species	Pre-planning action required?	Pre-construction action required?	Construction phase mitigation required?	Enhancements proposed?
Habitats	No	No	Yes – retain Pond as Habitat of Principal Importance	No
Plants	No	No	Yes – dispose of Virginia Creeper and Japanese Knotweed appropriately	No
Bats	Yes – further survey work	TBC	TBC	TBC
Birds	No	No	Yes – timing of works for vegetation removal OR further survey work	Yes – bird boxes and native planting

6. CONCLUSIONS

Habitats at the Water House, Highgate are common and widespread throughout the wider landscape, with areas of amenity grassland, introduced shrubs, scattered trees, a pond, buildings and hardstanding. Although the site had relatively low ecological value, there was potential to support several protected species including roosting bats and breeding birds.

The pond on site should be retained within the development because this is a Habitat of Principal Importance. Virginia Creeper and Japanese Knotweed are listed as invasive species under Schedule 9 and it is necessary to ensure that these do not spread off site into the wild to avoid committing an offence under UK legislation.

Nocturnal bat roost surveys are required at Building 1 and Trees 1 and 2, to identify and characterise any roosts which are present and establish mitigation if required.

Suitable nesting bird habitat was present in the vegetation and buildings on site. Therefore clearance of vegetation and buildings should be completed outside the breeding bird season to avoid impacts on nesting birds.

Although much of the vegetated habitats are to be retained within the development, there is scope to increase the biodiversity of the site post-development through provision of bird boxes and hedgehog hibernation boxes. Bat box recommendations will be made following the nocturnal bat survey effort.

7. REFERENCES

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8. APPENDICES

Appendix 1: Relevant wildlife legislation and planning policy

Please note that the following is not an exhaustive list, and is solely intended to cover the most relevant legislation pertaining to species commonly associated with development sites.

Subject	Legislation (England)	Relevant prohibited actions
Amphibians		
Great Crested Newt *Triturus cristatus* Natterjack Toad *Epidalea calamita*	Schedule 2 of Conservation of Habitats and Species Regulations 2010 (as amended) Schedule 5 of The Wildlife and Countryside Act 1981 (as amended)	• Intentionally or deliberately capture or kill, or intentionally injure; • Deliberately disturb or intentionally or recklessly disturb them in a place used for shelter or protection; • Damage or destroy a breeding site or resting place; • Intentionally or recklessly damage, destroy or obstruct access to a place used for shelter or protection; and • Possess an individual, or any part of it, unless acquired lawfully.
Reptiles		
Common Lizard *Zootoca vivipara* Adder *Vipera berus* Slow-worm *Anguis fragilis* Grass Snake *Natrix natrix*	Part of Sub-section 9(1) of Schedule 5 of The Wildlife and Countryside Act 1981 (as amended)	• Intentionally kill or injure individuals of these species (Section 9(1)).

Subject	Legislation (England)	Relevant prohibited actions
Sand Lizard *Lacerta agilis* Smooth Snake *Coronella austriaca*	Full protection under Section 9 of Schedule 5 of The Wildlife and Countryside Act 1981 (as amended)	• Deliberately or intentionally kill, capture (take) or intentionally injure; • Deliberately disturb; • Deliberately take or destroy eggs; • Damage or destroy a breeding site or resting place or intentionally damage a place used for shelter; or • Intentionally obstruct access to a place used for shelter.
Birds		
All wild birds	Wildlife and Countryside Act 1981 (as amended)	• Intentionally kill, injure, or take any wild bird or their eggs or nests.
'Schedule 1' Birds	Schedule 1 of the Wildlife and Countryside Act 1981 (as amended)	• Disturb any wild bird listed on Schedule 1 whilst it is building a nest or is in, on, or near a nest containing eggs or young; or • Disturb the dependent young of any wild bird listed on Schedule 1.
Mammals		
Bats (all UK species)	Schedule 2 of Conservation of Habitats and Species Regulations 2010 (as amended)	• Deliberately capture, injure or kill a bat; • Deliberately disturb a bat (disturbance is defined as an action which is likely to: (i) Impair their ability to survive, to breed or reproduce, or to rear or nurture their young; (ii) Impair their ability to hibernate or migrate; or (iii) Affect significantly the local

Subject	Legislation (England)	Relevant prohibited actions
	Schedule 5 of Wildlife and Countryside Act 1981 (as amended)	distribution or abundance of the species); • Damage or destroy a bat roost; • Intentionally or recklessly disturb a bat at a roost; or • Intentionally or recklessly obstruct access to a roost. In this interpretation, a bat roost is "*any structure or place which any wild [bat]...uses for shelter or protection*". Legal opinion is that the roost is protected whether or not the bats are present at the time.
Badger *Meles meles*	Protection of Badgers Act 1992	Under Section 3 of the Act: • Damage a sett or any part of it; • Destroy a sett; • Obstruct access to, or any entrance of, a sett; or • Disturb a Badger when it is occupying a sett. A sett is defined legally as any structure or place which displays signs indicating current use by a Badger (Natural England 2007).
Hazel Dormouse *Corylus avellana*	Schedule 2 of Conservation of Habitats and Species Regulations 2010 (as amended)	• Intentionally or deliberately capture or kill, or intentionally injure; • Deliberately disturb or intentionally or recklessly disturb them in a place used for shelter or protection;

Subject	Legislation (England)	Relevant prohibited actions
	Schedule 5 of Wildlife and Countryside Act 1981 (as amended)	• Damage or destroy a breeding site or resting place; • Intentionally or recklessly damage, destroy or obstruct access to a place used for shelter or protection; and • Possess an individual, or any part of it, unless acquired lawfully.
Otter *Lutra lutra*	Schedule 2 of Conservation of Habitats and Species Regulations 2010 (as amended) Section 9(4)(b) and (c) of Schedule 5 of Wildlife and Countryside Act 1981 (as amended)	• Deliberately capture, injure or kill an Otter; • Deliberately disturb an Otter in such a way as to be likely to significantly affect the local distribution or abundance of otters or the ability of any significant group of otters to survive, breed, rear or nurture their young; • Intentionally or recklessly disturb any Otter whilst it is occupying a holt; • Damage or destroy or intentionally or recklessly obstruct access to an Otter holt.
Water Vole *Arvicola amphibius*	Section 9 of Schedule 5 of Wildlife and Countryside Act 1981 (as amended)	• Intentionally kill, injure or take Water Voles; • Possess or control live or dead Water Voles or derivatives; • 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.
Crustaceans		

Subject	Legislation (England)	Relevant prohibited actions
White-clawed Crayfish *Austropotamobius pallipes*	Section 9(1) of Schedule 5 of Wildlife and Countryside Act 1981 (as amended)	• Intentionally kill, injure or take White-clawed Crayfish by any method.

Conservation of Habitats and Species Regulations 2010 (as amended)

Full legislation text available at: http://www.legislation.gov.uk/uksi/2010/490/regulation/61/made

The Wildlife and Countryside Act 1981 (as amended)

Full legislation text available at: http://www.legislation .gov.uk/ukpga/1981/69

Countryside and Rights of Way Act 2000

Full legislation text available at: http://www.legislation.gov.uk/ukpga/2000/37/contents

Protection of Badgers Act 1992

Full legislation text available at: http://www.legislation.gov.uk/ukpga/1992/51/contents

Section 41 of Natural Environments and Rural Communities (NERC) Act 2006

Full legislation text available at: http://www.legislation .gov.uk/ukpga/2006/16/contents

Many of the species above, along with a host of others not afforded additional protection, are listed on Section 41 of the NERC Act 2006.

Section 41 (S41) of the Natural Environment and Rural Communities (NERC Act 2006) requires the Secretary of State to publish a list of habitats and species that are of principal importance for the conservation of biodiversity in England. The list (including 56 habitats and 943 species) has been drawn up in consultation with Natural England and draws upon the UK Biodiversity Action Plan (BAP) List of Priority Species and Habitats.

The S41 list should be used to guide decision-makers such as local and regional authorities to have regard to the conservation of biodiversity in the exercise of their normal functions – as required under Section 40 of the NERC Act 2006. The duty applies to all local authorities and extends beyond just conserving what is already there, to carrying out, supporting and requiring actions that may also restore or enhance biodiversity.

Schedule 9 of Wildlife and Countryside Act 1981 (as amended)

In addition to affording protection to some species, The Wildlife and Countryside Act 1981 (as amended) also names species which are considered invasive and require control. Section 14 of the Act prohibits the introduction into the wild of any animal of a kind which is not ordinarily resident in, and is not a regular visitor to, Great Britain in a wild state, or any species of animal or plant listed in Schedule 9 to the Act. In the main, Schedule 9 lists non-native species that are already established in the wild, but which continue to pose a conservation threat to native biodiversity and habitats, such that further releases should be regulated.

Wild Mammals (Protection) Act 1996

Full legislation text is available at: http://www.legislation.gov.uk/ukpga/1996/3/contents

Under this legislation it is an offence to cause unnecessary suffering to wild mammals, including by crushing and asphyxiation. It largely deals with issues of animal welfare, and covers all non-domestic mammals including commonly encountered mammals on development sites such as rabbits, foxes and field voles.

Birds of Conservation Concern (BoCC)

This is a quantitative assessment of the status of populations of bird species which regularly occur in the UK, undertaken by the UK's leading bird conservation organisations. It assesses a total of 246 species against a set of objective criteria to place each on one of three lists – Green, Amber and Red – indicating an increasing level of conservation concern. There are currently 52 species on the Red list, 126 on the Amber list and 68 on the Green list. The classifications described have no statutory implications, and are used merely as a tool for assessing scarcity and conservation value of a given species.

National Planning Policy Framework (NPPF)

Full text is available at: http://www.communities.gov.uk/planningandbuilding/planningsystem/planningpolicy/planningpolicyframework/

The NPPF was published in late March 2012 setting out the Government's planning policies for England and the process by which these should be applied. The policies within the NPPF are a material consideration in the planning process. The key principle of the NPPF is a presumption in favour of sustainable development, with sustainable development defined as a balance between economic, social and environmental needs.

Policies 109 to 125 of the NPPF address conserving and enhancing the natural environment, stating that the planning system should:

- Contribute to and enhance the natural and local environment by protecting and enhancing valued landscapes;
- Recognise the wider benefits of ecosystem services; and
- Minimise impacts on biodiversity and provide net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity.

Furthermore there is a focus on re-use of existing brownfield sites or sites of low environmental value as a priority, and discouraging development in National Parks, Sites of Specific Scientific Interest, the Broads or Areas of Outstanding Natural Beauty other than in exceptional circumstances.

Where possible, planning policies should also "promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations, linked to national and local targets, and identify suitable indicators for monitoring biodiversity in the plan".

Appendix 2: Phase 1 Habitat species list

Please note that these lists are intended to be incidental records and do not constitute a full botanical survey of the site. Relative abundance is given using the DAFOR scale. Please see Table 2 for details.

Amenity Grassland

Common Name	Systematic Name	Relative abundance
Perennial Ryegrass	*Lolium perenne*	Dominant
Daisy	*Bellis perennis*	Abundant
White Clover	*Trifolium repens*	Abundant
Dandelion	*Taraxacum officinale*	Frequent
Selfheal	*Prunella vulgaris*	Frequent
Smooth meadow-grass	*Poa pratensis*	Frequent
Cat's-ear	*Hypochaeris radicata*	Occasional
Common Sorrel	*Rumex acetosa*	Occasional
Creeping Buttercup	*Ranunculus repens*	Occasional
Creeping Cinquefoil	*Potentilla reptans*	Occasional
Crested Dog's-tail	*Cynosurus cristatus*	Occasional
Greater Plantain	*Plantago Major*	Occasional
Herb-Robert	*Geranium robertianum*	Occasional
Lesser Trefoil	*Trifolium dubium*	Occasional
Mouse-ear	*Cerastium fontanum*	Occasional
Nipplewort	*Lapsana communis*	Occasional
Red Fescue	*Festuca rubra*	Occasional
Ribwort Plantain	*Plantago lanceolata*	Occasional
Willowherb	*Epilobium sp.*	Occasional
Wood Avens	*Geum urbanum*	Occasional
Yorkshire Fog	*Holcus lanatus*	Occasional
Forget-me-not	*Myosotis*	Rare
Oxeye Daisy	*Leucanthemum vulgare*	Rare
Parsley-piert	*Aphanes arvensis*	Rare

Ragwort	*Senecio jacobaea*	Rare
Smooth Sow-thistle	*Sonchus oleraceus*	Rare
Wild Strawberry	*Fragaria vesca*	Rare

Introduced Shrub

Common Name	Systematic Name	Relative abundance
Bamboo	*Bambuseae*	n/a
Boston Ivy	*Parthenocissus tricuspidata*	n/a
Holm Oak	*Quercus ilex*	n/a
Lavender	*Lavandula sp.*	n/a
Smoke-Bush	*Cotinus sp.*	n/a
Virginia Creeper	*Parthenocissus quinquefolia*	n/a
Japanese Knotweed	*Fallopia japonica*	n/a

Scattered Trees

Common Name	Systematic Name	Relative abundance
Ash	*Fraxinus excelsior*	n/a
Copper Beech	*Fagus sylvatica f. purpurea*	n/a
Eucalyptus	*Eucalyptus sp.*	n/a
Holm Oak	*Quercus ilex*	n/a
Mulberry Tree	*Morus sp.*	n/a
Pedunculate Oak	*Quercus robur*	n/a
Silver Birch	*Betula pendula*	n/a
Sycamore	*Acer pseudoplatanus*	n/a

Appendix 3: Site photographs

Photograph 1: Amenity grassland

Photograph 2: Introduced shrub (near outbuilding)

Photograph 3: Scattered tree

Photograph 4: Hardstanding/gravel

Photograph 5: Pond

Photograph 6: Ivy-covered fence

Photograph 7: Main House (Building 1)

Photograph 8: Outhouse (Building 2)

Photograph 9: example of bat feature on Building 1

Photograph 10: Example of bat feature on Building 1

Photograph 11: Tree 1 - Apple

Photograph 12: bat feature on Tree 1

Photograph 13: Tree 2 – Pedunculate Oak

Photograph 14: cavity in Oak

Photograph 15: Target Note 1 – Virginia Creeper

Appendix 4: Bird box recommendations

Bird box recommendations

A large number of bird boxes are available, designed for the specific needs of individual species. These are normally either designed to be mounted onto trees, external walls or integrated into a building. In general, bird boxes should be mounted out of direct sunlight and prevailing winds, out of reach of predators, with suitable foraging habitat for the subject species close by. Bird boxes should also be left up over winter as they can provide useful roosting sites for birds in bad weather.

Nest boxes should be cleaned at the end of each bird breeding season. All nesting material and other debris should be removed from the box. It should then be scrubbed clean with boiling water to kill any parasites (avoid using any chemicals). Once the box is clean, it should be left to dry out thoroughly. Under the Wildlife and Countryside Act 1981 it is an offence to disturb breeding birds and therefore annual cleaning is best undertaken from October to January when there is no risk of disturbing breeding birds.

Generalist boxes

Boxes to attract garden birds and woodland breeding species such as tits, nuthatch, redstart and pied flycatcher can be placed in gardens, orchards, woodlands and a wide variety of other habitats. The species of birds attracted to the box will depend upon the size of the entrance hole (see table below).

Boxes should be fixed two to five metres up a tree or wall, out of the reach of predators such as domestic cats. Unless there are trees or buildings, which give permanent shelter, it is best facing between north and east.

General		
Example	**Description**	**Picture**
Schwegler No. 1B General Purpose Nest box	www.schwegler-nature.com Suitable for various garden and woodland birds, created with different sized entrance holes to avoid competition between species. Other variations (e.g. 2M) can be free hanging, to deter predators.	

Entrance Hole	Species
26 mm	Blue-, Marsh-, Coal- and Crested Tit, possibly Wren. All other species are prevented from using the nest box due to this smaller entrance hole
32 mm	Great-, Blue-, Marsh-, Coal- and Crested Tit, Redstart, Nuthatch, Pied Flycatcher, Tree and House Sparrows.
Oval	Redstart; also used by species that nest in the diameter 32 mm boxes. However, because more light enters the brood chamber, it is preferred by Redstarts.

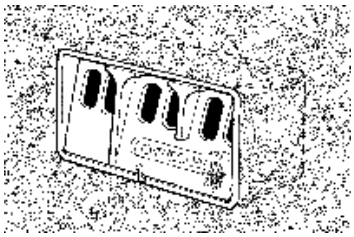
House Sparrow boxes

House Sparrow typically nest in loose colonies of around 10-20 pairs and, as they do not defend a territory, boxes can be placed as close as 20-30cm apart. Several individual boxes can be placed together or a terrace (see below) can be installed. House Sparrow's typical range is less than 2km; however, during breeding season adult birds will forage within just 60–70 m metres of their nest site with residential gardens, with native deciduous shrubbery, trees and grassland being favourable foraging habitat

The brick design box can be incorporated into the building or attached the outside of the building. Ideally the box will be placed at soffit/eaves level or at least 2m high.

The ideal nest box for this species will be approximately 350mm (h) x 150mm (w) x 150mm (d) with a hole approximately 32mm in diameter.

House Sparrow		
Example	**Description**	**Picture**
Schwegler Brick Box Type 24	(www.schwegler-nature.com) This brick design can be built into the wall of the new development and the external surface, excluding the hole, can be rendered to match the surrounding wall.	

House Sparrow		
Example	**Description**	**Picture**
Schwegler Sparrow Terrace 1SP	www.schwegler-nature.com A multiple nest site for this species which can be mounted into or on the external surface of the wall.	 

Starling boxes

Starlings are often found in areas where there are established pasture fields close to their roosting site, with further foraging provided by hedges close by.

The nest box should be placed at soffit/eaves level, or at a similar height on a tree, and should not be situated closer than 3m to the ground. Although Starlings do not defend a territory, boxes should be spaced at least several metres apart.

The ideal nest box for Starlings is approximately 400mm (h) x 180mm (w) x 180mm (d) with a hole approximately 45mm in diameter.

Starling		
Example	**Example**	**Example**
Schwegler Starling box 3S	www.schwegler-nature.com Can be mounted on buildings or trees, ideally out of direct sunlight.	

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MKA Ecology Limited, 29 Station Road, Shepreth, Hertfordshire, SG8 G6B | 01763 262 211 | info@mkaecology.co.uk | www.mkaecology.co.uk