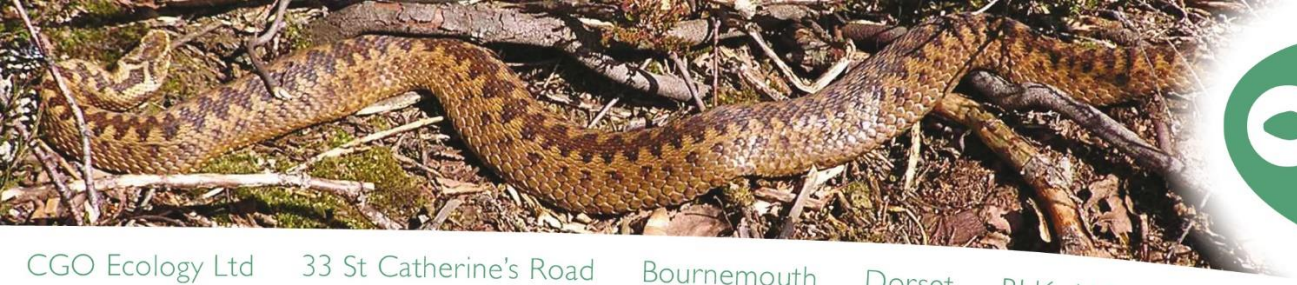

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Extended Phase 1 habitat and ecology survey of land off Hatfield Avenue, Hatfield, Hertfordshire

CGO Ecology Limited

Bournemouth

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Executive summary

- Overview – CGO Ecology Ltd was instructed by ADG Architects Ltd, on behalf of Maxbase Ltd, to conduct a Preliminary Ecological Appraisal (Phase 1 habitat and ecology survey) of 0.48ha of land off Hatfield Avenue, Hatfield, Herts (TL 218 095). The client proposes to build a residential care hospital facility on the site, adjacent to a larger area under construction as Hatfield Business Park. The site is 150m from the A1(M) motorway, and surrounded by residential, commercial office and amenity grass land uses.
- Tree protection – There are no trees on site, and no known TPOs affecting the site.
- Phase 1 habitats, plants – The site is mainly Bare Ground, with peripheral Native species-poor hedge and trees, Native species-poor hedge, small areas of Amenity grassland, Hardstanding, Buildings (temporary cabins and containers) and Fence (Heras construction site boundary). The site is under construction, but online aerial photography shows it was a carp park and amenity grass until recently. A marginal strip of land along the northern edge of the site is proposed as a Mitigation Area, to be managed as seminatural grassland, with native shrub planting and wildflower seeding. The grass should be mown only in spring and late summer, to allow flowering and seeding. Native shrubs should be planted in gaps in the northern hedge.
- Bats – The site could be used by foraging or commuting bats along its hedge-lines. The development should only have a temporary negative effect in this respect. As an enhancement, five bat-boxes should be installed in suitable trees.
- Other mammals – Badger and hazel dormouse are unlikely in this urban location, and there is no watercourse for riparian mammals. Hedgehog is recorded locally, and operations should avoid harm to hedgehogs sheltering beneath stored materials.
- Birds – Common bird species are likely to nest in hedges and trees outside the development area, but there is no nesting habitat remains within the site. Sympathetic native shrub and tree planting should be incorporated into the eastern Mitigation Area, and as an enhancement, five bird-boxes should be installed on suitable trees and buildings.
- Amphibians – Great crested newt is unlikely in this urban setting. No amphibian surveys or mitigation are necessary.
- Reptiles – Grass snake and slow-worm could be present in perimeter hedges, but no further survey or mitigation is needed.
- Invertebrates – Creation of a deadwood pile in a hedge-bottom is recommended, to benefit stag beetle and other invertebrates. A ‘bug hotel’ should also be installed in the Mitigation Area.
- Invasive species – Japanese knotweed is present locally, and vigilance should be exercised to avoid accidental import or spread of this highly-damaging invasive species. A biosecurity protocol should be implemented, with toolbox talks to ensure all contractors and visitors are fully briefed.

Contents

1. Background and rationale

1.1. Brief and site overview

CGO Ecology Ltd was instructed by John Bell of ADG Architects Ltd, on behalf of Maxbase Ltd, to conduct a Preliminary Ecological Appraisal (Phase 1 habitat and ecology survey) of 0.48ha of land off Hatfield Avenue, Hatfield, Herts (TL 218 095). The developer proposes to build a residential care hospital facility on the site.

A similar but larger area is under construction immediately to the west of this site, under the name Hatfield Business Park. To the east of the site is a Porsche dealership; to the north is Manor Road, a residential area; to the south are commercial offices and open grass fields. The site is very close to the A1(M) motorway, which lies 150m to the east.

The Local Planning Authority (LPA) is Welwyn Hatfield Borough Council, for which this ecology report is required, to demonstrate no negative impacts on biodiversity or protected species. The site is not in a Mitigation Area, and there is no Tree Preservation Order (TPO) affecting it.

Figure 1 – Proposed development of land off Hatfield Avenue, Hatfield (off-plan to the south). The residential street running along its northern boundary is Manor Road. Hatfield Porsche Centre is directly southeast of the site. Plan provided by ADG Architects Ltd.

1.2. Development site description

The development site is a roughly triangular plot of land, with a Heras fence surrounding it, and various heavy plant on site. Most of the site is bare ground at present, except for an area at its eastern end that is part grass, part tarmac, and a small wedge of grass at its southern end.

Judging by aerial photography freely available on the internet (e.g. Google Maps, Bing, MAGIC), the site was until recently a car park and mowed amenity grassland.

Figure 2 – a) site entrance, looking north; b) small area of amenity grass with ruderals adjacent to entrance (taken through fence).

Figure 3 – a) northern boundary of site, looking southeast; b) northern boundary hedge and trees.

Figure 4 – a) remnant amenity grass and hardstanding at east end of site; b) site viewed from east end.

Figure 5 – a) raspberry patch at east corner of site; b) east end of site with hornbeam hedge.

Figure 6 – a-b) remnant of amenity grassland at east end of site, proposed as Mitigation Area.

Figure 7 – a) neighbouring development site to the west, with woodland and hedge surrounding it.

1.3. Ecological Impact Assessment

The potential wildlife impacts of all developments must be considered prior to submission of a planning application. All Local Planning Authorities (LPAs) are obliged to minimise the impacts of development on biodiversity and the natural environment.

It is a legal duty under the Natural Environment and Rural Communities (NERC) Act 2006 for LPAs to insist that planning applications include evidence of appropriate consideration of any impacts, and if necessary, to advise on mitigation and/or compensation measures. In this respect, all species listed on Section 41 of that Act (including many familiar and widespread animals) are protected via the duties set out in Section 40.

Also, the National Planning Policy Framework (NPPF) 2012 introduced the concept of 'sustainable development', and requires all LPAs to "minimis[e] impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures."

The standard approach is for the developer to commission some form of EcIA prior to a development, performed by a suitably-qualified ecologist. This will gather baseline data, and examine the protected species and biodiversity issues that must be considered and accounted for in a development proposal. If protected species are present within the area, the ecologist will typically advise further surveys, and/or recommendations for mitigating impacts.

The first stage of the EcIA process is PEA (Preliminary Ecological Appraisal), which typically takes the form of an Extended Phase 1 Habitat and Ecology Survey. This provides an assessment of the likely biodiversity value of a site, flags up important habitats, and highlights potential protected or notable species issues, as well as any formal site designations nearby.

LPAs often expect an ecological report of this nature to accompany a planning application, particularly if it is rural or above a certain size threshold.

1.4. Legal protection of wildlife

Wildlife law exists to protect species and habitats that are threatened in some way. Without legal protection, they may be subject to damaging activities, wholesale destruction, or other factors causing declines. Some species and habitats are at risk simply by being rare.

Many species of wildlife and their habitats in Britain are protected by laws which criminalise the killing and injury of animals, destruction of habitat features, and various other activities such as trade. Species and habitats deemed in most need of protection across Europe receive the strictest protection, making it illegal to capture, kill or disturb them, or to damage or destroy breeding sites or resting places.

Offences carry heavy fines and possible jail sentences. Whilst certain exceptions are provided for, ignorance is never an acceptable defence.

- All species listed on Schedule 5 of the Wildlife and Countryside Act (WCA) 1981 (as amended) are protected under some or all parts of Section 9: otter (*Lutra lutra*), hazel dormouse (*Muscardinius avellanarius*), water vole (*Arvicola amphibius*), great crested newt (*Triturus cristatus*), natterjack toad (*Epidalea calamita*) all bat species, all six native reptile species, white-clawed crayfish (*Austropotamobius pallipes*) and three other crustaceans, 25 butterflies, eight moths, eight beetles, one bug, three crickets, one dragonfly, one damselfly, one sea-mat, eight molluscs, three worms and four coelenterates.
- Badgers (*Meles meles*) and their setts are protected by the Protection of Badgers Act 1992.
- All breeding birds and their nests are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations (the 'Habitats Regulations') 2010, which implement the 'Birds Directive' (EC Directive 79/409/EEC) and the 'Habitats Directive' (EC Directive 92/43/EEC).
- Great crested newt (GCN), sand lizard (*Lacerta agilis*), smooth snake (*Coronella austriaca*), otter, dormouse, water vole, all bat species and their habitats are also protected under Schedule 2 of the Habitats Regulations 2010. Collectively they are termed 'European Protected Species' (EPS).
- Some invertebrates have protection, including the stag beetle (*Lucanus cervus*) which is listed on Annex II of the Habitats Directive and Schedule 5 of the WCA 1981.
- Many species and habitats, have some protection through a duty of care imposed upon LPAs by Section 40 of the NERC Act 2006. These are listed in Section 41 of the Act, and are essentially the same as the former UK Biodiversity Action Plan lists. They include familiar suburban species such as hedgehog (*Erinaceus europaeus*), grass snake (*Natrix natrix*), slow-worm (*Anguis fragilis*), and common toad (*Bufo bufo*).
- The Hedgerow Regulations 1997 protect 'important' hedgerows, i.e. those with many native tree species, some threatened/protected animal and plant species, good connectivity, and/or other important features.
- LPAs can protect trees using a Tree Preservation Order (TPO), which may apply to a single tree or all of the trees in a particular area. Written permission is necessary from the LPA before carrying out any lopping, felling or other work affecting TPO trees.
- The Forestry Commission also applies limits to the volume of timber that can be legally felled each calendar quarter (five cubic metres), above which a felling licence is necessary. The application process involves public consultation.

There are the most relevant laws protecting wildlife and countryside, but not the only ones. Nearly all developments have the potential to damage wildlife interests, and most have the potential to break the law. It is therefore essential that proper survey and mitigation procedures are carried out prior to a development.

As a developer or developer's agent, it is wise to pre-empt potentially-criminal liabilities by careful planning and sound advice from an ecological consultant. Note that it is also possible to break wildlife law through land management practices that do not constitute development or require planning permission, if they harm protected wildlife.

2. Desktop study

2.1. MAGIC land designations search

A search of the area was made using the government MAGIC interactive mapper website (http://www.magic.gov.uk/MagicMap.aspx) to highlight any statutory site designations: Site of Special Scientific Interest (SSSI), National Nature Reserve (NNR), Special Area of Conservation (SAC), Special Protection Area (SPA), Ramsar site, and Local Nature Reserve (LNR).

MAGIC shows whether a development lies within an 'Impact Risk Zone' (IRZ) for nearby protected sites, according to the type of designation and development.

MAGIC shows other land designations of significance, such as Nitrate Vulnerable Zones (NVZ), Green Belt, and Areas of Outstanding Natural Beauty. It can also be used to show areas of mapped Priority Habitat, notable bird or mammal species or assemblages, and locations of previous European Protected Species Mitigation (EPSM) licences granted by statutory agencies.

If a proposed development lies in the impact zone for a protected site, the LPA may be required consult Natural England for advice on assessing the impacts. The developer may face greater constraints, or be required to compensate impacts identified by Natural England. MAGIC's interactive mapper gives information on the types of constraints posed by IRZs for each statutory site mapped.

In certain cases, such as housing developments near to sensitive protected sites, developers have to mitigate the increased visitor pressure that is likely. One way is to purchase additional land to provide Suitable Alternative Natural Green Spaces (SANGS), or pay commuted payments to support existing SANGS, as a means of reducing visitor impacts on statutory sites.

The nearest protected sites to Hatfield Avenue, Hatfield are: Stanborough Reedmarsh LNR 1.5km northeast; Howe Dell LNR 2km southeast; Oxleys Wood LNR 2.5m south-southeast; Colney Heath LNR 4km southwest; Sherrardspark Wood SSSI and LNR 4km north-northeast; The Commons LNR 4km east-northeast.

The site lies on NVZs for surface water and groundwater, which may constrain the type and volume of water discharges permissible.

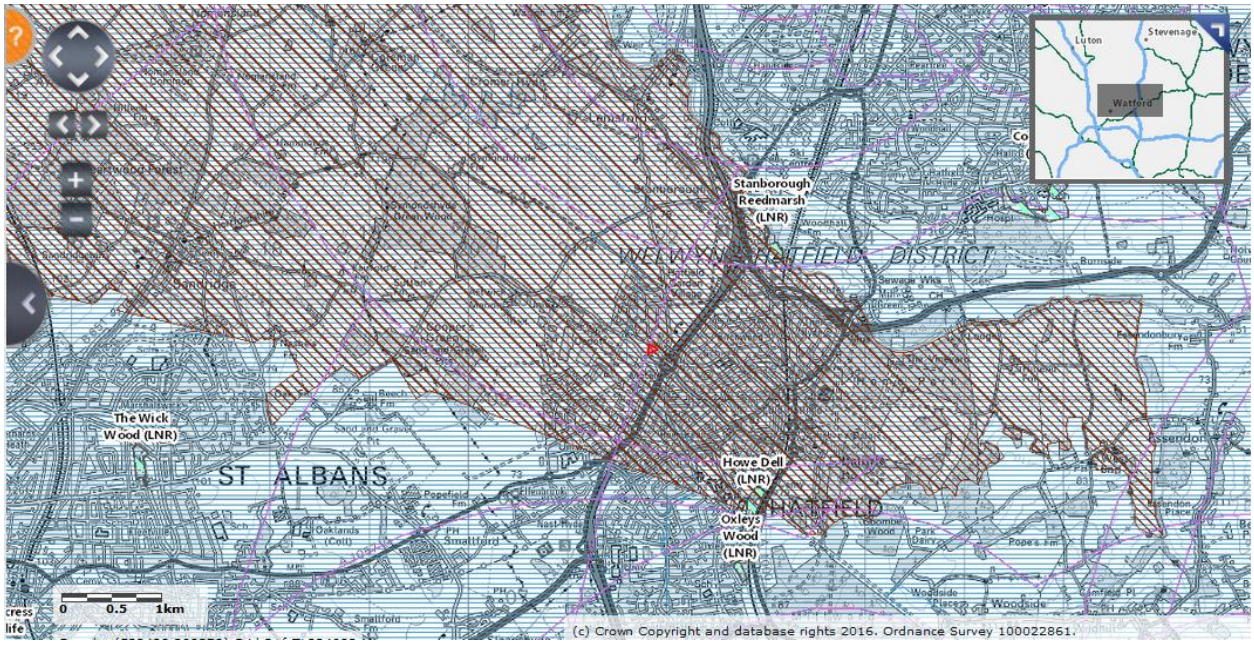

Figure 8 - MAGIC map showing statutory sites (labelled) near Hatfield Avenue, Hatfield (small central red triangle). The site lies on Nitrate Vulnerable Zones for groundwater (brown hatching) and surface water (blue hatching).

Given the setting, MAGIC indicates that the site lies within IRZs for local SSSIs, which would require the LPA to consult Natural England regarding the following planning application types:

- "Infrastructure - Airports, helipads and other aviation proposals.

- Minerals, Oil & Gas - Oil & gas exploration/extraction.
- Air Pollution - Pig & poultry units, slurry lagoons > 750m³ & manure stores > 3500t.
- Combustion - General combustion processes >50MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion."

The proposed development does not fall into any of these categories, and the application is not likely to trigger a Natural England consultation. The LPA may consult Hertfordshire & Middlesex Wildlife Trust and/or other local wildlife groups though.

No priority habitats are recorded near to the site.

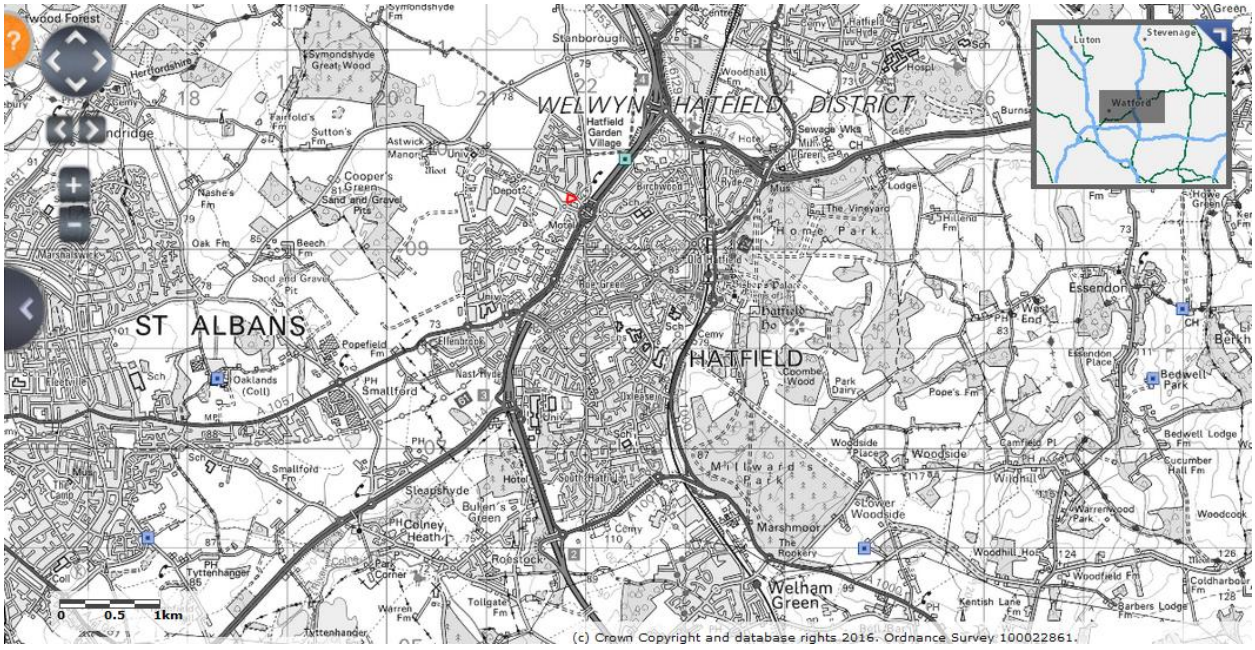

Figure 9 – MAGIC map showing previous Natural England EPSM licences (small blue squares) granted near Hatfield avenue, Hatfield (small red triangle).

MAGIC shows that previous EPSM licences have been granted by Natural England in the Hatfield area. The nearest was for GCN in 2013, only 600m northeast of the site, in the A1(M) corridor. Others within 5km of the site were for: soprano pipistrelle bat (*Pipistrellus pygmaeus*) 4km west-southwest; common pipistrelle bat (*Pipistrellus pipistrellus*) and brown long-eared bat (*Plecotus auritus*) 4km southeast.

There are records of rare or strictly-protected (Annex I/Schedule 1/Red List) bird species in the area, including five species recorded within 2km of the site: grey partridge (*Perdix perdix*), lapwing (*Vanellus vanellus*), snipe (*Gallinago gallinago*), tree sparrow (*Passer domesticus*), yellow wagtail (*Motacilla flava*).

The soil is a slightly acid to neutral freely-draining loam, with low natural fertility. The National Character Area is Northern Thames Basin.

2.2. Species data search

The local repository and provider of biodiversity data is Hertfordshire Environmental Records Centre (HERC) hosted by Herts & Middlesex Wildlife Trust. HERC charges for development-related data searches, to cover staff time and running costs. A formal HERC data search was not carried out as part of this survey. Local biodiversity data searches are not a statutory requirement, but may be required by the LPA, or recommended by consultees.

Instead, an informal desktop data search was carried out using the free species data search facility of the NBN Gateway (data.nbn.org.uk/imt). Data on the NBN Gateway is from many sources, but not exhaustive. There are significant gaps due to recording bias, and sharing constraints, but it has the benefit of showing distribution across the wider countryside.

The terms and conditions of the NBN Gateway prevent reproduction of data without prior consent, so only a general summary is presented here. Together with local knowledge of species distribution, and information gleaned from the client, the following assessment of potential protected or invasive species in the area is possible:

Bats – Nearest records within 2km northeast and east. A scattering of others within 5km.

Other rare or notable mammals – Nearest badger 3-4km south, other records to the south, but none in Hatfield area. Nearest hazel dormouse around 5km north, otherwise scarce. Nearest water vole around 7km northeast; no water vole or otter within 5km. Numerous hedgehog records, virtually ubiquitous in the Hatfield area.

Birds – A range of common birds should be expected.

Great crested newt, amphibians – Nearest GCN 2-3km southwest, with others 4-5km southwest and 4-5km north. None within the Hatfield urban area. Common toad has a similar distribution, and even common frog (*Rana temporaria*) appears scarcely distributed.

Reptiles – Nearest grass snake 3km southwest and 5km southeast; nearest common lizard (*Zootoca vivipara*) 4km south-southwest; nearest slow-worm 5km northeast. Reptile records are scarce in the area.

Invertebrates – Nearest stag beetle record is 5km west. A range of common invertebrates is likely.

Plants, fungi, lichens – Typical species of a neutral to slightly acid soil are likely.

Invasive species – Japanese knotweed (*Fallopia japonica*) is known 1km east, and there are other records within 5km. Himalayan balsam (*Impatiens glandulifera*) is recorded 2km northwest, with other records over 5km away in all directions. Owing to the well-drained unshaded nature of the site, Japanese knotweed is the most likely of the damaging invasive species to be present.

3. Extended Phase 1 Ecology Survey

3.1. Scope

An ‘Extended Phase 1 Habitat and Ecology Survey’, or ‘Phase 1 Ecology Survey’ for short, is a preliminary assessment of a site’s biodiversity value, usually with a view to informing the potential impacts of a proposed development or other activity. The habitat element refers to the standard British methodology (JNCC, 2010) employed for mapping habitats; the ‘extended’ refers to the assessment of protected species and other wildlife present.

A Phase 1 Ecology Survey does not constitute a presence-absence survey of any particular species or taxonomic group (although it can prove presence), nor a definite conclusion of the biodiversity value or otherwise of a site. It is the minimum level of investigation that can be used to assess the biodiversity impact of a proposed development.

The chief purpose of a Phase 1 Ecology Survey is to inform the client of the most likely ecological issues they will face, and to flag up any issues that will require further attention, such as Phase 2 surveys for particular protected species if suitable habitats are identified.

To read more about what to expect from a Phase 1 Ecology Survey, read our advice note “Why do I need an ecology survey, and what will it involve?” (CGO Ecology, 2016).

If the biodiversity issues are not properly addressed at the planning stage, and incorporated into a project design, an LPA or other stakeholder can easily challenge an application. If a developer is then forced to address biodiversity issues at a late stage, it can cause significant delays to a project; including postponement until the following year to allow springtime wildlife surveys.

3.2. Methodology

The habitat survey element of an Extended Phase 1 Habitat and Ecology Survey follows a standard set of procedures developed by the Nature Conservancy Council (NCC) in 1990, and revised incrementally by its successor, the Joint Nature Conservation Committee (JNCC). The manual for habitat survey is the *Handbook for Phase 1 habitat survey - A technique for environmental audit* (JNCC, 2010).

The standard JNCC (2010) methodology is tailored for landscape-scale habitat mapping, rather than subdivision of smaller sites. As such, it recommends in most cases that the smallest mapping unit area should be 0.1ha. However, it is sometimes useful to attempt to map at a finer scale on small development sites, to give a better picture of the habitats present.

Therefore, our approach is a slightly-modified JNCC methodology. Note also that a mapped unit may be coded to a certain habitat, yet may contain smaller areas of other habitats within it. It is not possible to depict all habitats present at a fine level.

Other aspects of biodiversity are also given consideration in an Extended Phase 1 Ecology Survey, such as the site's potential for supporting protected animal species. These aspects are not standardised via a manual, but rely on the surveyor's experience and value judgement. The actual or potential presence of protected species is recognised through the recognition of certain habitats, habitat features, sightings of the animals themselves, or signs of their presence. It is standard practice to record a preliminary list of plant species present (including trees).

The gathering of survey evidence includes:

- Identifying tree and plant species;
- Looking and listening for birds;
- Identifying water-courses that could be used by water voles or otters;
- Looking for latrines, holts, spraints, feeding stations and other evidence;
- Looking for badger setts, snuffle holes, footprints, droppings, hairs;
- Recognising habitats and sightings of reptiles, sloughed skins;
- Identifying ponds and terrestrial habitats that could support amphibians;
- Recognising woodland, scrub and hedgerows that could support hazel dormice;
- Habitats for foraging bats, and linear features that could be commuting routes for bats;
- Recording opportunities for nesting birds in trees, shrubs/scrub, buildings and structures;
- Looking for potential entry points into buildings, rock faces and trees, and evidence of bat roosts such as staining;
- Recognising buildings, structures and foraging habitat that could be used by barn owls;
- Looking for bird or mammal tracks, droppings, feeding remains, or other evidence;
- Active searching for reptiles, amphibians, mammals and invertebrates in leaf litter, beneath objects, and other likely places;
- Recognising and recording any invasive non-native plant and animal species.

3.3. Field survey visit

A field survey was conducted on Tuesday 6th September 2016, between 1700-1800, by the author of this report, Chris Gleed-Owen. The air temperature was 23°C, with 100% cloud cover, bright overcast conditions, high humidity, and a slight southwesterly breeze. Previous weather had been similar, with overnight rain. The client was not present initially, and the Heras fence was locked. However, the fence does not encircle the eastern end grass area or the hedges.

A thorough walkover was carried out to record Phase 1 habitats in accordance with the JNCC (2010) guidelines, and to record species, evidence and features of interest. Habitat and access opportunities were assessed for bats and other mammals, reptiles, great crested newts and other amphibians, birds and invertebrates; particularly species of conservation concern.

A preliminary list of plants and trees was recorded. Bryophytes, lichen and fungi and 'difficult' invertebrate groups were not surveyed. Field notes were taken as appropriate.

3.4. Surveyor qualifications and experience

Chris Gleed-Owen BSc (Hons) PhD MCIEEM

Ecologist with over 20 years' experience, including eight years as a consultant ecologist. Particular expertise in reptiles, amphibians and molluscs, FISC level 3 proficiency in botanical identification, and knowledge of a wide range of vertebrates and invertebrates. Professional consultancy experience across the British Isles, spanning all sectors, including industrial and residential developments, minerals/landfill, rail/road infrastructure, telecoms, forestry, solar/wind renewables, policy and research.

3.5. Constraints

Seasonal position and weather conditions were good for survey of most taxonomic groups. There were no significant constraints.

4. Results and recommendations

4.1. Overview

The survey site is about 0.48ha in area, roughly triangular in shape, and currently mostly bare ground prepared for development. There are two large linear soil storage mounds along the northern edge. An area at the east end remains as tarmac and amenity grass, and there is a very small wedge of grass at the southern access point. The site is surrounded by Heras fencing, there are cabins and containers at the southeast edge, and various heavy plant on site.

The southeastern boundary is bordered by a 2m hedge, with a Porsche dealership beyond. The northern boundary is a hedge and trees, with the residential street Manor Road running alongside it. the western boundary meets another bare-ground site under construction as Hatfield Business Park, beyond which is a peripheral area of planted woodland and hedges.

The A1(M) motorway lies 150m to the east. The primary surrounding land uses are residential to the north, and commercial offices and open grass fields to the south. An existing roundabout lies to the south of the site, providing ready access to the road network. The setting is urban.

A Phase 1 habitat map and plant species list is provided below, and consideration is given in each of the following sections to all of the other taxonomic groups that may be affected by the development proposals.

4.2. Tree protection

There are no trees on site, and the trees bordering the north of the site are not known to be registered under any Welwyn Hatfield Borough Council TPO. The site is not within a Mitigation Area.

4.3. Habitats, trees, plants

The Phase 1 habitats (JNCC, 2010) on site are: Bare ground, Amenity grassland, Intact species-poor hedge and trees, Intact species-poor hedge, Buildings, Fence. A preliminary floral list (54 species) was gathered by walking the site perimeter, but also around the peripheral woodland of the adjacent construction site. This gives a fuller picture of the typical flora in this area.

There are relatively few plants on site, as only small areas of Amenity grassland exist. Having not been mowed recently, it has a sward of 20-30cm containing yarrow (*Achillea millefolium*), bristly oxtongue (*Picris echioides*), invasive ruderal Canadian fleabane (*Conyza canadensis*), and a fringe of colt's-foot (*Tussilago farfara*). The boundary hedges add some diversity. The northern hedge comprises wild cherry (*Prunus avium*), dogwood (*Cornus sanguinea*), sycamore (*Acer pseudoplatanus*), common whitebeam (*Sorbus aria*) and Lombardy (black) poplar (*Populus nigra*). The understory and ground flora contains a mix of low and climbing herbs, and there is a large patch of raspberry (*Rubus idaeus*) at the eastern corner. Occasional examples of other shrubs include guelder-rose (*Viburnum opulus*). The southeast hedge is well-trimmed hornbeam (*Carpinus betulus*) with occasional pear (*Pyris communis*).

Common name	Species
Ash	*Fraxinus excelsior*
Bay	*Laurus nobilis*
Bittersweet	*Solanum dulcamara*
Blackthorn	*Prunus spinosa*
Box-leaved honeysuckle	*Lonicera pileata*
Bristly oxtongue	*Picris echioides*
Broad-leaved dock	*Rumex obtusifolius*
Canadian fleabane	*Conyza canadensis*
Cherry laurel	*Prunus laurocerasus*
Cock's-foot	*Dactylis glomerata*
Colt's-foot	*Tussilago farfara*
Common ivy	*Hedera helix*
Common mallow	*Malva sylvestris*
Common nettle	*Urtica dioica*
Common ragwort	*Senecio jacobaea*
Common whitebeam	*Sorbus aria*
Corsican pine	*Pinus nigra* subsp. *laricio*
Cotoneaster	*Cotoneaster* sp
Creeping buttercup	*Ranunculus repens*
Creeping cinquefoil	*Potentilla reptans*
Creeping thistle	*Cirsium arvense*
Curled dock	*Rumex crispus*
Daisy	*Bellis perennis*
Dandelion	*Taraxacum officinale* agg.
Dog-rose	*Rosa canina*
Dogwood	*Cornus sanguinea*
Elder	*Sambucus nigra*
False oat-grass	*Arrhenatherum elatius*
Germander speedwell	*Veronica chamaedrys*
Goat willow	*Salix caprea*
Guelder rose	*Viburnum opulus*
Hawthorn	*Crataegus monogyna*
Hazel	*Corylus avellana*
Holly	*Ilex aquifolium*
Hornbeam	*Carpinus betulus*
Lombardy (black) poplar	*Populus nigra*
Mugwort	*Artemisia vulgaris*
Norway maple	*Acer platanoides*
Paper birch	*Betula papyrifera*
Pear	*Pyrus communis*
Perennial rye-grass	*Lolium perenne*
Portugal laurel	*Prunus lusitanica*
Raspberry	*Rubus idaeus*
Red dead-nettle	*Lamium purpureum*
Red fescue	*Festuca rubra*
Ribwort plantain	*Plantago lanceolata*
Scots pine	*Pinus sylvestris*
St John's-wort	*Hypericum* sp
Sycamore	*Acer pseudoplatanus*
Turkey oak	*Quercus cerris*
White clover	*Trifolium repens*
Wild cherry	*Prunus avium*
Yarrow	*Achillea millefolium*
Yorkshire-fog	*Holcus lanatus*

Table 1 - Preliminary botanical list (54 species) from land off Hatfield Avenue, Hatfield, Hertfordshire.

Figure 10 – Phase 1 habitats (JNCC 2010 categories) at Hatfield Avenue, Hatfield: Bare ground (black dots on white), Amenity grassland (yellow, labelled 'A'), Hardstanding (grey), Intact species-poor hedge and trees (green hatched line), Intact species-poor hedge (simple green line), Buildings (black), Fence (black hatched line). Two soil storage mounds are marked (black dashed line), and a proposed Mitigation Area is shown (red dashed line).

The loss of Amenity grassland and Hardstanding for the development does not constitute an important habitat loss, and can easily be mitigated by retention and enhancement of an area of seminatural habitat at the east end of the site, with addition of grass margins along the northern and northwest boundary. The remnant of tarmac at the east end of the site should be ripped up, and together with the remaining grass, should be improved by additional planting and a favourable mowing regime.

The 'Mitigation Area' should be mowed only once or twice each year, in spring and/or later summer, to allow herbs and grasses to flower and set seed. Arisings should be removed. Native shrub planting should be made around the peripheries, including shrubs such as ash (*Fraxinus excelsior*), hawthorn (*Crataegus monogyna*), hazel (*Corylus avellana*), dogwood, English oak (*Quercus robur*), and whitebeam. (All of these are present in hedges and woodland adjoining this and the neighbouring development site). The northern and northwest parts of the Mitigation Area should be sown with a neutral-soil wildflower seed-mix, to add invertebrate food sources. A colourful show of wildflowers would have amenity value for residents and staff of the care facility.

The northern boundary hedge is also rather gappy, and would benefit from planting of native shrubs to fill gaps between non-native species such as Lombardy poplar.

4.4. Bats

Bats are present in the surrounding area, and may commute or forage over the site, particularly along the hedge-lines. The development is unlikely to cause a significant impact on them, so no specific mitigation is necessary. However, as an enhancement, five bat-boxes suitable for the typical urban crevice-dwelling species, should be fitted to retained trees.

4.5. Other mammals

Badger and hazel dormouse are unlikely in this urban setting, and riparian mammals can be ruled out as there is no watercourse nearby.

Hedgehog is recorded locally, and should be anticipated on site. Development and site operations should avoid harm to hedgehogs sheltering beneath stored materials. Any solid fences should have 15cm x 15cm holes cut at ground-level, to allow passage of hedgehogs, and avoid creating ecological barriers.

4.6. Birds

Very few birds were recorded during the Phase 1 survey, only carrion crow (*Corvus corone*) and wood pigeon (*Columba palumbus*). A range of common passerines is likely to forage and nest in the peripheral hedges and grass areas though.

As an enhancement, five bird-boxes should be installed on new buildings and retained trees. Sympathetic shrub planting, mowing regime and wildflower sowing would also benefit birds by providing direct (e.g. seed) and indirect (e.g. invertebrate) food sources.

4.7. Great crested newts, amphibians

GCN is unlikely in this urban location, and there are no suitable breeding ponds nearby. Other common amphibians may be present in garden ponds, but no further survey or mitigation is necessary.

4.8. Reptiles

Slow-worm and grass snake could potentially exist in peripheral grassy hedges bottoms, but no further survey or mitigation is warranted.

4.9. Invertebrates

Virtually no invertebrates were recorded; only common wasp (*Vespula vulgaris*). As an enhancement, a new area of deadwood should be created in the retained Mitigation Area hedge-bottom, to encourage breeding stag beetles and other invertebrates. (This protected and declining species is present around St Albans to the west, and may be present here). Nectar-feeding invertebrates will benefit from wildflower seeding in the Mitigation Area. A ‘bug hotel’ invertebrate refuge should also be installed in the Mitigation Area.

4.10. Invasive non-native species

Japanese knotweed and Himalayan balsam are present in the local area. Japanese knotweed is present within 1km, and given the well-drained soil, should be anticipated on site. Vigilance should be exercised to avoid accidental import or spread of this highly-damaging invasive species and other non-natives. Special care should be taken when importing or exporting soil or plant matter from the site. A biosecurity protocol should be implemented, with toolbox talks to ensure all contractors and visitors are fully briefed in the implications and precautions.

5. References

CGO Ecology (2016) *Why do I need an ecology survey, and what will it involve?* CGO Ecology Ltd, Bournemouth.

Joint Nature Conservation Committee (JNCC) (2010) *Handbook for Phase 1 habitat survey - A technique for environmental audit*. JNCC, Peterborough.