

ECOLOGICAL ASSESSMENT

STATUS PARK, HEATHROW BATH ROAD HEATHROW UB3 5EY

Client: Savills

Our reference: Eco3528

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1.0 Introduction

Survey and reporting

- 1.1 This report details the results of a Ecological Assessment (comprising an Extended Phase 1 Habitat and Protected Species Scoping Survey) of a proposed development at Status Park, Heathrow, Bath Road, Heathrow, UB3 5EY.
- 1.2 The survey to inform the assessment was undertaken on 17 June 2024.

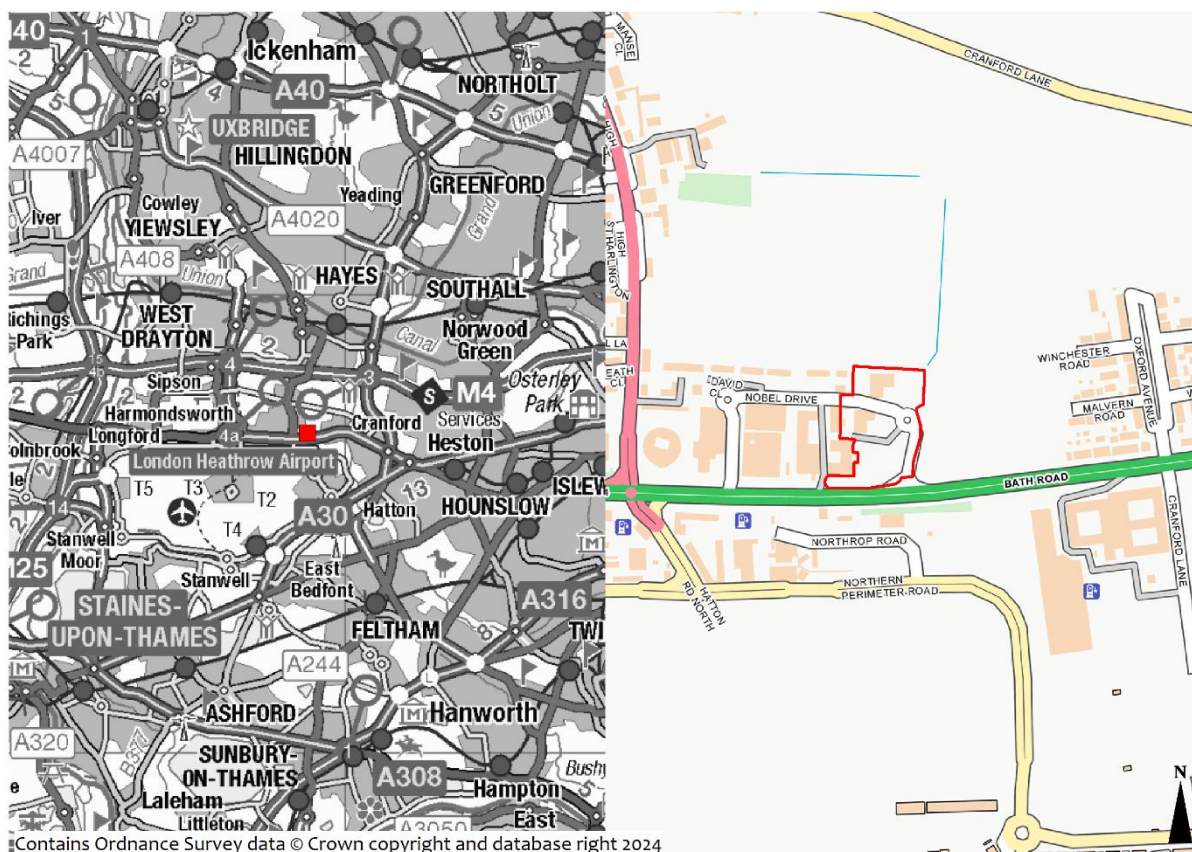
The application site

- 1.3 The application site comprises two apartment complex buildings and their associated car parking areas and amenity grasslands.
- 1.4 The total area of the application site is approximately 1.6ha.

The proposed scheme

- 1.5 It is proposed to erect a residential apartment complex building on the existing car park and to re-purpose part of the car park into a landscaped amenity space (with play area).

Figure 1 – Site location plan



Tree Constraints Plan
Status: Final

| Tree ID | Tree Species | Tree Size | Tree Health | Tree Location | Tree Status |
|---------|--------------|-----------|-------------|-------------------|-------------|
| T001 | Oak | Large | Good | North of building | Preserve |
| T002 | Maple | Medium | Fair | East of building | Preserve |
| T003 | Pine | Small | Good | South of building | Preserve |
| T004 | Birch | Medium | Poor | West of building | Remove |
| T005 | Oak | Large | Good | North of building | Preserve |
| T006 | Maple | Medium | Fair | East of building | Preserve |
| T007 | Pine | Small | Good | South of building | Preserve |
| T008 | Birch | Medium | Poor | West of building | Remove |
| T009 | Oak | Large | Good | North of building | Preserve |
| T010 | Maple | Medium | Fair | East of building | Preserve |
| T011 | Pine | Small | Good | South of building | Preserve |
| T012 | Birch | Medium | Poor | West of building | Remove |
| T013 | Oak | Large | Good | North of building | Preserve |
| T014 | Maple | Medium | Fair | East of building | Preserve |
| T015 | Pine | Small | Good | South of building | Preserve |
| T016 | Birch | Medium | Poor | West of building | Remove |
| T017 | Oak | Large | Good | North of building | Preserve |
| T018 | Maple | Medium | Fair | East of building | Preserve |
| T019 | Pine | Small | Good | South of building | Preserve |
| T020 | Birch | Medium | Poor | West of building | Remove |

Figure 3 – Proposed site layout



2.0 Methodology

Desk study

- 2.1 A desk study data search was undertaken. This involved reviewing publicly available datasets and citations of statutory designated sites of importance for nature conservation, Natural England's Priority Habitat Inventory GIS dataset for England, and Natural England's Ancient Woodland Inventory for sites within the zone of influence of the survey area (considered to be a maximum of 1km in this case).
- 2.2 In addition, species records (on Natural England's MAGIC website¹) were accessed, and aerial photographs and Ordnance Survey maps were studied for features of interest.

Extended Phase 1 Habitat and Protected Species Scoping Survey

- 2.3 An Extended Phase 1 Habitat and Protected Species Scoping Survey was undertaken. This comprised a walkover survey of the application site and the classification of habitats following the descriptions provided within the Joint Nature Conservancy Council 'Handbook for Phase 1 Habitat Survey' (NCC 1990, JNCC 1993). An assessment of the site in terms of its suitability for notable or protected species was carried out and any features of note were described.

Bat survey

- 2.4 A bat survey was undertaken. This comprised:

Daytime Bat Walkover (DBW)

- 2.5 A survey to assess the suitability of habitats for bats to roost, commute and forage within and adjacent to the site (where accessible). Habitat suitability was assessed as per Table 1 below.

Ground Level Tree Assessment (GLTA)

- 2.6 This survey was carried out from ground level, using binoculars, a high-powered torch and an endoscope (where features were accessible), looking for potential roost features (PRFs).
- 2.7 Trees were categorised as per the Bat Conservation Trust's Bat Survey Guidelines (See Table 2 below).
- 2.8 Where features were observed and could be inspected, they were categorised as described in Table 3.

¹ <https://magic.defra.gov.uk/>

Table 1 – Habitat suitability scale for potential flight-paths and foraging bats

| | Potential Suitability | Description |
|--|-------------------------------|---|
| Potential Suitability of potential flight-paths and foraging habitats | High | Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by bats for flight-paths such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts. |
| | Moderate | Continuous habitat connected to the wider landscape that could be used by bats for flight-paths such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water. |
| | Low | Habitat that could be used by small numbers of bats as flight-paths such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub. |
| | Negligible² | No obvious habitat features on site likely to be used as flight-paths or by foraging bats; however, a small element of uncertainty remains in order to account for non-standard bat behaviour. |
| | None [Not suitable] | No habitat features on site likely to be used by any commuting or foraging bats at any time of the year (i.e. no habitats that provide continuous lines of shade/protection for flight-lines, or generate/shelter insect populations available to foraging bats). |

²Negligible is defined as 'so small or unimportant as to be not worth considering, insignificant.' This category may be used where are places that a bat could roost or forage (due to one attribute) but it is unlikely that they actually would (due to another attribute)

Table 2 – Categorisation of the bat roost potential of trees

| <i>Suitability</i> | <i>Description</i> |
|--------------------|--|
| NONE | Either no PRFs in the tree or highly unlikely to be any |
| FAR | Further assessment required to establish if PRFs are present in the tree |
| PRFA | Tree with at least one PRF present |

Table 3 - Categorisation of the potential roost features on trees

| <i>Suitability</i> | <i>Description</i> |
|--------------------|---|
| PRF-I | PRF is only suitable for individual bats or very small numbers of bats either due to size or lack of suitable surrounding habitats. |
| PRF-M | PRF is suitable for multiple bats and may therefore be used by a maternity colony. |

Surveyor details

- 2.9 The survey was undertaken by Ryan Davies ACIEEM (senior ecologist) and Cherry Leung (assistant ecologist) of GS Ecology Ltd. Ryan is an associate member of the Chartered Institute of Ecology and Environmental Management and holds a Natural England great crested newt survey licence (WML-CLo8) and a Natural England WML A34 Level 2 bat survey licence.

Constraints

- 2.10 There were no constraints to the survey.

3.0 Results

Weather conditions

- 3.1 Weather conditions during the survey were 21°C, 2/8ths cloud cover, wind at Beaufort Scale 2 and no rain.

Desk study

Statutory sites of importance for nature conservation and ancient woodland

- 3.2 There are no statutory sites of importance of nature conservation or areas of woodland listed on Natural England's Ancient Woodland Inventory within 1km of the application site. The nearest of such are Cranebank Local Nature Reserve (LNR) – situated approximately 1.1km southeast, and Gutteridge Wood – situated approximately 7km north.

Nearby ponds

- 3.3 There are no ponds shown on ordnance survey maps (1:25,000 scale) within 500m of the application site.

Watercourses

- 3.4 The River Crane runs north-south approximately 820m of the application site.

Surrounding land use

- 3.5 The application site is located midway along Bath Road, a busy A Road road adjacent to Heathrow Airport to the south of Harlington.
- 3.6 Directly adjacent to the application site to the north and east are large grassland fields bound by hedgerows along their peripheries – these extends approximately 1.2km further north. To the west are airport hotels interspersed with residential houses and their associated gardens with trees. Heathrow Airport is on the opposite side of the A4.
- 3.7 Beyond the field to the east are residential area. Further to the east and northeast are public parks with large grassland fields and scattered areas of woodland, which are located approximately 800m east, 950m north and 1.2km northeast.

Habitats within the application site

- 3.8 The application site comprises two apartment buildings and their associated car parking areas and outbuildings, tarmac roads, several beds of introduced shrub and areas of amenity grassland with scattered trees on top.
- 3.9 A Phase 1 habitat map and associated target notes are provided in Appendix 1, and photographs provided in Appendix 2.
- 3.10 A brief description of each habitat is given below.
- 3.11 **Buildings** – There are two multi-storey brick-walled buildings, four bike storage shelters, three bin storage areas and two utility blocks. These will be unaffected by the proposals.
- 3.12 **Hardstanding** – The tarmac roads and carparking areas, and hardstanding footpaths surrounding the buildings and along the roads.
- 3.13 **Amenity grassland** – There are several areas of grass lawns scattered throughout the application site. The lawn at the south of the application site along the Bath Road where it had been left uncut at the time of the survey.

- 3.14 **Broadleaved and coniferous trees** - There are a total of 41 trees scattered throughout the application site.
- 3.15 At the south of the application site are 16 trees – of which 13 of them are ‘small’ trees (with diameters at breast height (DBH) of less than 30cm) and three ‘medium’ trees (with DBH greater than 30cm but less than 60cm). These are predominantly Norway maple trees.
- 3.16 In the centre of the application site are six small trees, including three Norway maple, two apple and one box elder.
- 3.17 At the north of the application site are 19 trees – fourteen of which are ‘small’ and the remainder ‘medium’ trees. Tree species present include ash, oak, hawthorn, cherry, field maple, beech, pine and apple.
- 3.18 **Scattered scrub**- Along the eastern boundary is some scattered elder scrub.
- 3.19 **Bare ground** – To the north of the application site is a small patch of bare ground.
- 3.20 **Introduced shrub** – There are a number of areas of introduced shrub planting throughout the application site. Species present include Cotoneaster and laurel.

Bat survey – Daytime Bat Walkover

- 3.21 The habitats within the application site are of “low” suitability for commuting and foraging bats (see Table 1).

Bat survey – Ground level tree assessment

- 3.22 All trees within the application site are in good condition and have no significant defects. They have no features suitable for use by roosting bats and all are assessed as having ‘NONE’ suitability to host a bat roost (see Table 2).

4.0 Assessment and recommendations

Statutory sites of importance for nature conservation and ancient woodland

- 4.1 The proposals will not have any adverse impact on statutory sites of importance for nature conservation or ancient woodland.

Priority Habitats

- 4.2 The Secretary of State periodically publishes a list of habitats that are of principal importance for the conservation of biodiversity in England under Section 41 (S41) of the 2006 Natural Environment and Rural Communities (NERC) Act. The list currently comprises 56 habitats, referred to as “priority habitats” in the National Planning Policy Framework (NPPF).

- 4.3 Paragraph 185 of the NPPF reads:

“To protect and enhance biodiversity and geodiversity, plans should [...] promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity”

- 4.4 As such where priority habitats are found they should be protected from the adverse impacts of development.
- 4.5 The habitats within the application site – buildings (unaffected by the proposals), hardstanding, amenity grassland, scattered trees, garden planting and scattered scrub – are not ‘Priority Habitats’.

Bats

- 4.6 All species of bats receive special protection under UK law and it is a criminal offence under the Wildlife and Countryside Act 1981 (as amended) and The Conservation of Habitats and Species Regulations 2017 (The Habitat Regulations), deliberately or recklessly to destroy or damage their roosts, or to disturb, kill or injure them without first having obtained the relevant licence for derogation from the regulations from the Statutory Nature Conservation Organisation (the SNCO - Natural England in England).
- 4.7 In addition, many bat species are “priority species” as defined in the NPPF (see Paragraph 185 of the NPPF above). As such where priority species are found they should be protected from the adverse impacts of development

Site status

- 4.8 The habitats within the application site are of “low” suitability for commuting and foraging bats.
- 4.9 In addition, none of the trees within the application site are suitable for use by roosting bats and can be removed with minimal risk of harming bats.
- 4.10 As such it is unlikely that bats will be affected by the proposals.

Nesting birds

- 4.11 All wild birds are protected under the Wildlife and Countryside Act 1981 (as amended). Section 1 of this Act makes it an offence to kill, injure or take any wild bird, or intentionally to take, damage or destroy the nest of any wild bird while that nest is in use or being built.

- 4.12 Common bird species may nest in the, trees, denser vegetation. As vegetation removal and felling of trees should be undertaken outside of the bird nesting season (March – August inclusive depending on weather conditions).
- 4.13 If this is not practicable then areas to be cleared will first need to be checked for nesting birds by a suitably qualified ecologist and, if any nests are found, works that would disturb the nest could not continue all young have fledged the nest and it is no longer in use.

Other protected species

- 4.14 It is considered unlikely that the proposals will have any adverse effect upon other protected species such as great crested newts, badgers, reptiles or dormouse as the habitats to be affected by the proposals are unsuitable or sub-optimal for use by these species.
- 4.15 In addition, in the case of badgers, no signs of badgers (setts, latrines, dung pits, etc.) were observed on or adjacent to the site.

Landscaping and ecological enhancements

- 4.16 Paragraph 186 of the NPPF reads:
- “[...] opportunities to improve biodiversity in and around developments should be integrated as part of their design [...]”
- 4.17 It is therefore recommended that any new planting comprises predominantly native and wildlife-friendly species and that ecological enhancements such as bird and bat boxes, bricks or tiles are built into the new building.

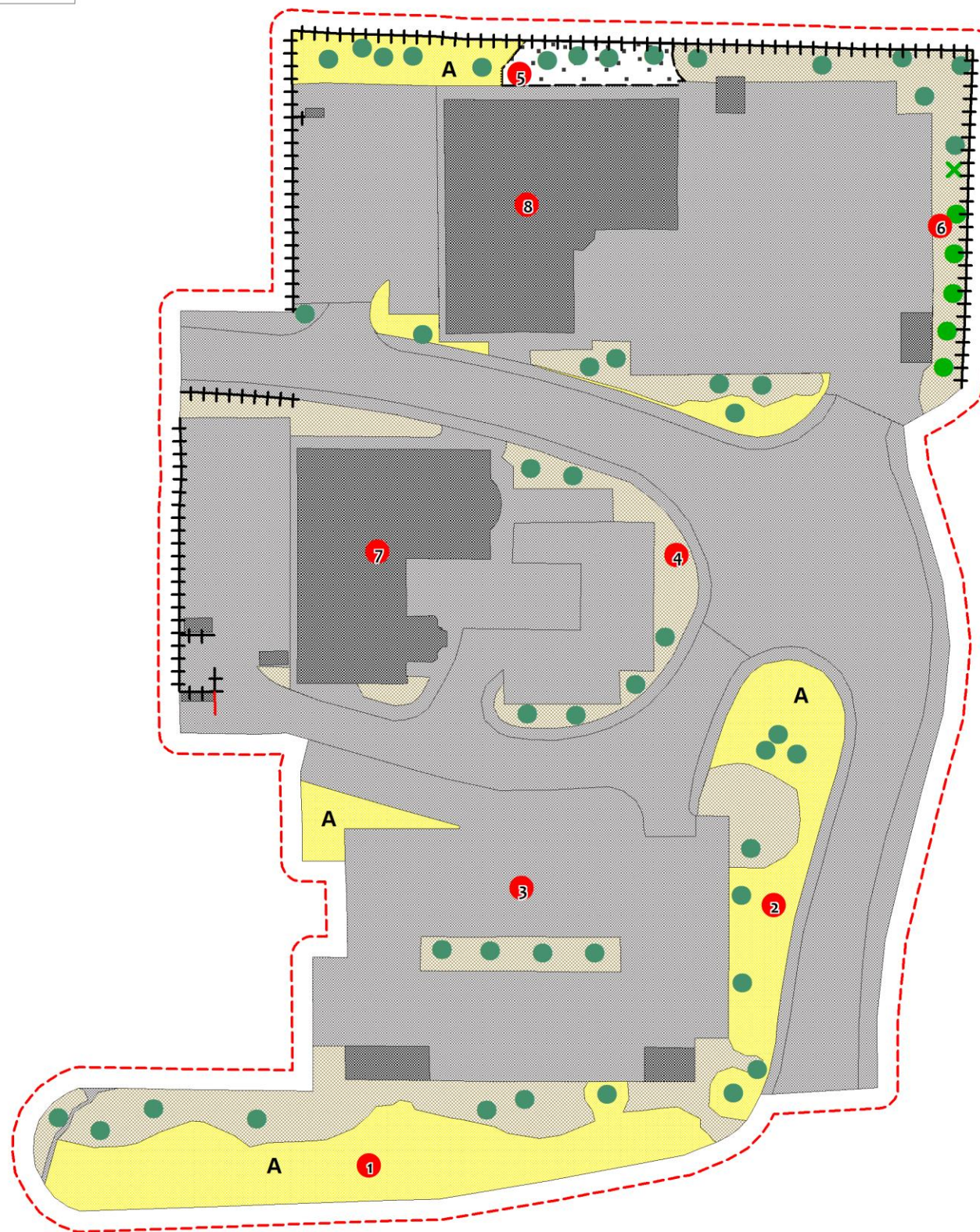
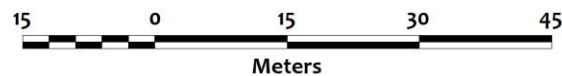
5.0 Summary

- 5.1 The application site comprises two apartment complex buildings and their associated car parking areas and outbuildings, tarmac roads, several beds of introduced shrub and areas of amenity grassland with scattered trees. None of these are Priority Habitats.
- 5.2 It is highly unlikely that the proposed development will affect protected species such as bats, great crested newts, badgers or dormouse.
- 5.3 If the recommendations given in this report to protect nesting birds are adhered to there should be no ecological constraints to the proposals.
- 5.4 In accordance with paragraph 186 of the NPPF it is recommended that any new planting comprises predominantly native and wildlife-friendly species, and, that ecological enhancements such as bird and bat boxes, bricks or tiles are built into the new building.

Appendix 1 - Extended Phase 1 Habitat Map and Target Notes

Target Notes

- (1) Species-poor amenity grassland with longer sward and occasional wildflower species. Grass species present include perennial ryegrass (*Lolium perennis*), false oat grass (*Arrhenatherum elatius*). Forb species present include yarrow (*Achillea millefolium*), hawkweed oxtongue (*Picris hieracioides*), ribwort plantain (*Plantago lanceolata*), dandelion (*Taraxacum* sp.), thistle (*Cirsium* sp.), cinquefoil (*Potentilla* sp.), red dead nettle (*Lamium purpureum*), ragwort (*Jacobaea vulgaris*), green alkanet (*Pentaglottis sempervirens*), common vetch (*Vicia sativa*) and cut-leaved cranesbill (*Geranium dissectum*). There are beds of introduced shrub planting, including *Pyracantha* sp. and *Cotoneaster* sp. at its peripheries.
- (2) Shorter cut amenity grassland with introduced shrub planting and Norway maple (*Acer platanoides*) above.
- (3) Tarmac carparking area with a bed of introduced shrub planting and four non native box elder trees (*Acer negundo*) on top.
- (4) An area of introduced shrub planting at the frontage of one of the apartments complex building. Species present include *Lonicera* sp., Portuguese laurel (*Prunus lusitanica*) and *Cotoneaster* sp.
- (5) An area of sparse amenity grassland with the eastern section becoming an area of bare ground with scattered hazel (*Corylus avellana*) and cherry (*Prunus* sp.) above. Forb species present include black medick (*Medicago lupulina*), broom (*Thysanolaena* sp.), *Geranium* sp., spurge (*Euphorbia* sp.) and dock (*Rumex* sp.).
- (6) Scattered trees along the introduced shrub border to the east of the application site. Tree and shrub species include ash (*Fraxinus excelsior*), oak (*Quercus* sp.), hawthorn (*Crataegus monogyna*), beech (*Fagus sylvatica*), elder (*Sambucus nigra*), cherry and pine (*Pinus* sp.).
- (7) Multi-storey apartment complex building. Unaffected by the proposals.
- (8) Multi-storey apartment complex building. Unaffected by the proposals.



Key

- Application site boundary
- Target Note
- Amenity grassland
- Buildings
- Hardstanding
- Bare ground
- Introduced shrub
- Fence
- Wall
- Scattered scrub
- Broadleaved trees
- Coniferous trees



Produced using BosqMap Software
www.bosqmap.co.uk

ECO3528

Status Park, Heathrow

Phase 1 Habitat Survey

Contains Ordnance Survey data © Crown copyright and database right 2024

Appendix 2 – Photographs

Photos 1 and 2 – Proposed location of the new building on the existing car park viewed from the west and north



Photos 3 and 4 – Amenity grassland, left uncut at the south of the application site along the frontage of Bath Road



Photos 5 and 6 – Areas of Introduced shrub planting with trees above



Photos 7 and 8- Amenity grassland to the north of the application site



Photo 9 – Car park to the north of the application site, and Photo 10 – Introduced shrub planting and trees along the northeastern boundary



Appendix 3 – Legislation and planning policy

Planning Authorities have a legal duty to consider biodiversity when assessing planning applications. Where there is a reasonable likelihood that a planning application might affect important protected sites, species or habitats, information on the species, habitat or site likely to be affected, together with an assessment of the impacts of the proposals, will almost certainly be required.

The legal duty for Planning Authorities to have regard to the conservation of biodiversity was introduced in the 2006 Natural Environment and Rural Communities Act (The NERC Act). This act clarified existing commitments with regard to biodiversity, raised the profile of biodiversity and aimed to make the consideration of biodiversity a natural and integral part of policy and decision making.

In addition to the NERC Act there is also national and international biodiversity legislation. This includes legislation in relation to protected species and sites which operates outside of the planning system. Local Authorities and developers have a duty to comply with this legislation.

National planning policy

Paragraph 99 of the Government Circular 06/05: Biodiversity and Geological Conservation - Statutory Obligations and Their Impact Within the Planning System (this document has not been revoked by the recently published National Planning Policy Framework) states that:

‘It is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before the planning permission is granted, otherwise all relevant material considerations may not have been addressed in making the decision.’

As such, in line with national planning policy, most planning authorities will ask for this information to be provided before a planning decision is made and in many cases before it is registered.

Local planning policy

In addition to national planning policy, most councils have planning policies to protect biodiversity, and to enhance it where practicable within and adjacent to development sites.

European protected species

The United Kingdom hosts a number of European Protected Species (EPS) of animals (table 1) and plants (table 2). These species receive special protection under UK law and it is an offence under the Wildlife and Countryside Act 1981 (as amended) and the European Habitats and Species Directive (92/43/EC), enacted in the UK through The Conservation of Habitats and Species Regulations 2017, to deliberately or recklessly destroy or damage their habitat, or to disturb, kill or injure the species without first having obtained the relevant licence from Natural England.

Planning Authorities have a statutory duty under these regulations to have regard to the requirements of the Habitats Directive and need to be satisfied that the development is likely to receive a licence from Natural England, and therefore comply with the Habitats Directive, before granting planning permission.

Table 2 – European Protected Species of Animal found in the UK

| Common name | Scientific name |
|--|---------------------------------|
| Bats, Horseshoe (all species) | <i>Rhinolophidae</i> |
| Bats, Typical (all species) | <i>Vespertilionidae</i> |
| Butterfly, Large Blue | <i>Maculinea arion</i> |
| Cat, Wild | <i>Felis silvestris</i> |
| Dolphins, porpoises and whales (all species) | <i>Cetacea</i> |
| Dormouse | <i>Muscardinus avellanarius</i> |
| Frog, Pool | <i>Rana lessonae</i> |
| Lizard, Sand | <i>Lacerta agilis</i> |
| Moth, Fisher's Estuarine | <i>Gortyna borelii lunata</i> |
| Newt, Great Crested (or Warty) | <i>Triturus cristatus</i> |
| Otter, Common | <i>Lutra lutra</i> |
| Snail, Lesser Whirlpool Ram's-horn | <i>Anisus vorticulus</i> |
| Snake, Smooth | <i>Coronella austriaca</i> |
| Sturgeon | <i>Acipenser sturio</i> |
| Toad, Natterjack | <i>Bufo calamita</i> |
| Turtles, Marine | <i>Caretta caretta</i> |
| | <i>Chelonia mydas</i> |
| | <i>Lepidochelys kempii</i> |
| | <i>Eretmochelys imbricata</i> |
| | <i>Dermochelys coriacea</i> |

Table 3 – European Protected Species of Plant found in the UK

| Common name | Scientific name |
|---------------------------------|------------------------------|
| Dock, Shore | <i>Rumex rupestris</i> |
| Fern, Killarney | <i>Trichomanes speciosum</i> |
| Gentian, Early | <i>Gentianella anglica</i> |
| Lady's-slipper | <i>Cypripedium calceolus</i> |
| Marshwort, Creeping | <i>Apium repens</i> |
| Naiad, Slender | <i>Najas flexilis</i> |
| Orchid, Fen | <i>Liparis loeselii</i> |
| Plantain, Floating-leaved water | <i>Luronium natans</i> |
| Saxifrage, Yellow Marsh | <i>Saxifraga hirculus</i> |

Nationally protected species

Many species of animal are protected under the 1981 Wildlife and Countryside Act (as amended). 'Full protection' applies to EPS and some non EPS species such as the water vole. This prohibits the intentional killing, injuring or taking (capture. etc); possession; intentional disturbance whilst occupying a 'place used for shelter or protection' and destruction of these places; sale, barter, exchange, transporting for sale and advertising to sell or to buy. Many species, such as common species of reptile and amphibian, are protected from intentional killing and injuring and trading.

Birds

All wild birds are protected under the Wildlife and Countryside Act 1981 (as amended), whilst they are actively nesting or roosting. Section 1 of this Act makes it an offence to kill, injure or take any wild bird,

and to intentionally take, damage or destroy the nest of any wild bird while that nest is in use or being built. It is also an offence to take or destroy any wild bird eggs.

In addition, bird species listed under Schedule 1 of the Act receive extra protection. The Act states that 'it is an offence to intentionally or recklessly disturb any wild bird listed in Schedule 1 while it is nest building, or at (or near) a nest containing eggs or young, or disturb the dependent young of such a bird'.

In practice this means that in areas where birds are likely to be nesting works should not be undertaken during the nesting season, which is generally considered to be March to September, although this very much depends on weather conditions, habitats and the species involved. If works cannot be avoided then areas should first be checked for nesting birds. Habitats likely to host nesting birds include trees, hedgerows and dense scrub, buildings, reedbeds and riverine habitats and open areas with tussocky vegetation.

Appendix 4 – Bat ecology and conservation status

Background

Bats are the only true flying mammals and belong to their own taxonomic group, the *Chiroptera*. Worldwide there are almost 1,000 species, with 16 in the UK. All species in the UK are insectivorous. They have a highly sophisticated echolocation system that allows them to avoid obstacles and catch invertebrates, either in flight or by picking them off water, the ground or foliage.

Bat species in the UK

There are 16 species of bat that are known to exist in the UK mainland, with a further two - the greater mouse eared bat *Myotis myotis*, and the parti-coloured bat *Vespertilio murinus* - that are thought to occur as rare migrants or to have small populations in the UK. Bats in the UK belong to one of two taxonomic families, the Rhinolophidae (horseshoe bats) and the Vespertilionidae (all other UK bats).

Bat Conservation Status

Bat populations have undergone a significant decline in the past sixty years. For example, estimates from the National Bat Colony Survey suggest that the UK pipistrelle population (one of our commonest bat species), declined by approximately 70% between 1978 and 1993. Factors contributing to this decline include:

- Loss of, and damage to, roosting sites, including buildings, trees, and underground structures (mines, tunnels, ice-houses, cellars, etc).
- Loss and fragmentation of suitable insect-rich feeding habitats such as wetlands and deciduous woodland.
- Reduction in the abundance and diversity of insect prey due to intensive agriculture, particularly over-grazing and the use of pesticides.
- Loss of linear features such as tree-lines and hedgerows, depriving bats of commuting routes between roosts and feeding areas.
- Loss of winter roosting sites in buildings and old trees.
- Disturbance and destruction of roosts, including the loss of maternity roosts due to the use of toxic timber treatment chemicals.

Roosts

Bats use a variety of roosts of different types including trees, buildings, caves, mines and other structures. Most species are colonial and roost in groups. This can make populations particularly vulnerable to loss of roosts as the loss of a single roost may affect the whole population. Some species hang in obvious locations, such as the timbers near to the apex of a roof, others roost in cracks and crevices, such as the gaps under tiles, and as such can be very difficult to locate.

During the winter (November to February), when there is a reduction in insect numbers, bats hibernate to conserve energy. They prefer sites with a constant low temperature and a high relative humidity. On mild winter's nights, bats may wake up and feed. However, bats are particularly vulnerable to disturbance at this time of year, as flying in winter uses up large quantities of energy that cannot easily be replaced.

In the spring, after emerging from hibernation, bats often move from site to site and may congregate in small groups. Female bats gather together in the summer (approximately May to August dependant on

species) in maternity roosts. Once the young have stopped suckling, and the baby is independent, bats tend to disperse and use other roosts. Maternity roosts are particularly vulnerable to disturbance, as bats may have come from a wide geographical area, and have a strong tradition of returning to the same roost year after year.

During the late summer and early autumn males occupy mating roosts which are visited by several females. After mating some species gather together at swarming sites to fatten up prior to hibernation.

Habitat associations

In addition to roosts, bats also need foraging habitats to find suitable food resources, and commuting routes to get to these areas. As would be expected, the highest numbers of bats are found in areas with abundant invertebrates. Some species specialise in catching small invertebrates in flight, whilst others specialise in catching larger invertebrates such as moths and beetles. The distances that bats travel to foraging areas varies between species; records have shown some greater horseshoe bats travel up to 22km to forage, although many species will typically feed within 1km of a roost.

Bats, especially the smaller species, tend to follow linear features (such as hedgerows and tree lines) to their foraging habitats and will often not cross open spaces. A gap of 10m in a linear feature will often not be crossed by bats, and it is important that developments do not create such gaps if linear features are used by bats.

Appendix 5 – About GS Ecology

Established in 2009, GS Ecology is an independent. We carry-out surveys and ecological consultancy services for public and private sector clients including in Berkshire, Oxfordshire and Hampshire, London and the south of England. We can advise you on cost effective sustainable solutions for your project, whether it be a bat survey to inform a planning application, the ecology chapter of an Environmental Statement or a Woodland Management Plan.

Our work is undertaken by experienced and qualified ecologists, who are members of the Chartered Institute of Ecology and Environmental Managers. Our services include:

- Ecology surveying and reporting to inform planning applications, e.g.
 - Preliminary Ecological Appraisal
 - Extended Phase 1 Habitat Survey
 - Protected species surveys, e.g. badgers, dormouse, great crested newts
 - Bat surveys in Oxfordshire, Berkshire, Hampshire, London and Southern England
- BREEAM ecology assessments – to demonstrate the sustainability of a new building
- Protected species licensing such as bat and great crested newt licences for development sites after planning permission has been obtained
- Providing advice to land managers and writing ecological management plans, such as woodland management plans and farm environmental plans for England woodland Grant Scheme and Environmental Stewardship applications
- Providing ecology advice to Local Authorities and Local Planning Authorities