The Ecology Co-op
ENVIRONMENTAL CONSULTANTS
Unit 4, Langham Stables, Langham Lane, Lodsworth, Petworth, West Sussex, GU28 9BU
Tel: 01798 861 800 - E-Mail: info@ecologyco-op.co.uk - www.ecologyco-op.co.uk

Ecological Assessment

Harrods Wharf, Richmond

Author: Kate Lewis MSc Grad CIEEM
Reviewed by: Paul Whitby BSc (Hons), MCIEEM, CEcol

15th January 2020

Project No: P4011

The Ecology Co-operation Ltd
Registered Office: Greens Court, West Street, Midhurst, West Sussex, GU29 9NQ
Company number: 8905527

Issue No	Issue Date	Additions/Alterations	Initials	Notes
1.1	18/12/20	Original	KL	
1.2	14/01/20	Update	KL	

Report Summary

1. The Ecology Co-op has been commissioned by Temple Group Ltd to undertake an Ecological Assessment at Harrods Wharf, Richmond. A site walkover survey visit was carried out on the 14th December to evaluate the site for notable habitats and their potential to support EU and UK protected/notable species. The purpose of this report is to provide the findings of the survey and identify potential ecological constraints to the proposed development of a new ferry terminal for a ferry service that will be put in place to support local residents whilst pedestrian use of Hammersmith Bridge is not possible.

2. This survey was undertaken by Paul Whitby, a Full member of the Chartered Institute for Ecology and Environmental Management (CIEEM) and a Chartered Ecologist (CEcol), and Kate Lewis MSc, Grad CIEEM.

3. The existing wharf comprises a paved area which measures approximately 92m in length and between 7-8m wide, giving an existing wharf area of 690 sqm. The wharf is surrounded by 2m high traditional metal railings and is currently not accessible to the public. The existing Thames footpath, which will provide access to the site, measures approximately 3.5m wide, is formed of hardcore and is bordered by mature trees.

4. Although the wharf contains no natural habitats, a scattering of ephemeral and ruderal plants have managed to establish, including Jersey cudweed which is a Schedule 8 species. If the development is to proceed legally, a licence will need to be applied for from Natural England, requesting the transplantation of all Jersey cudweed specimens at the site to a suitable receptor site. Galinsoga (Gallant soldier or Shaggy soldier) was also found at the site. As these are invasive species they will need to be removed and disposed of carefully, ensuring they are not allowed to spread further.

5. The site is bordered to the east by the River Thames and to the west by the Thames footpath. There is potential for the proposed development to result in pollution of the river and disturbance of foraging bats in the absence of mitigation. To avoid impacts from artificial lights, it is imperative that the development adopts a sensitive lighting scheme, and to avoid impact from pollution, the development must adhere to strict construction measures to avoid any potential dust pollution and runoff. The development must also include adequate refuse bins with clear signs to the public that littering will result in a fine.

6. The development will include two green roofs and it is recommended that these are installed and maintained by a specialist so as to ensure they establish successfully and continue to provide a benefit for biodiversity year on year. Provided all the mitigation measures are followed in full and the newly created habitats are maintained to a high standard, the development will have a neutral impact on biodiversity at the site.

This report has been prepared by The Ecology Co-operation Ltd, with all reasonable skill, care and diligence within the terms of the Contract with the client. This report only becomes the property of the client once payment for it has been received in full.

We disclaim responsibility to the client and others in respect of any matters outside the scope of the above.

This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.

CONTENTS PAGE

1 INTRODUCTION

1.1 Purpose of the Report

The Ecology Co-op has been commissioned to undertake an Ecological Assessment of Harrods Wharf by Temple Group Ltd. This report presents the findings of a walkover survey undertaken by Paul Whitby, a Full member of the Chartered Institute for Ecology and Environmental Management (CIEEM) and a Chartered Ecologist (CEcol), and Kate Lewis MSc Grad CIEEM, on 14th December 2020. It provides details on the potential for any protected species and/or habitats to be present at the site and an assessment of the potential ecological constraints and opportunities to the proposed development of a ferry terminal for a ferry service that will be put in place to support local residents whilst Hammersmith Bridge is closed. Recommendations for further surveys that are likely to be required to inform a planning application and Ecological Impact Assessment (EcIA) of the proposal are provided where necessary, and measures to avoid, mitigate and/or compensate for adverse impacts and effects are outlined.

1.2 Background

The site is located in Barnes, Greater London, 0.3km south-east of Hammersmith Bridge. The central grid reference for the site is TQ23147768.

The existing wharf comprises a paved area which measures approximately 92m in length and between 7-8m wide, giving an existing wharf area of 690 sqm. The wharf is surrounded by 2m high metal railings and is currently not accessible to the public. The existing Thames footpath, which will provide access to the site, measures approximately 3.5m wide, is formed of hardcore and is bordered by mature trees. Figure 1 provides an aerial view of the site, along with the approximate site boundary.

Due to the closure of the Grade II listed Hammersmith Bridge, the site has been identified as a potential location from which to run a ferry service to allow people to cross the river north/south to travel to work or school. The proposed plan suggests two single-storey pavilions connected by a covered area to be used for queuing and cycle storage. One pavilion will house a ticket office for ferry passengers as well as staff back of house and storage area. The other pavilion will house a cafe and WC's. Infrastructure improvements such as lighting, will also be required to the footpaths along the access to the site for security. A jetty will form part of a separate application.

Figure 1. An aerial image showing the location of the site. The approximate site boundary is outlined in red and the potential ferry path is outlined in white. Hammersmith bridge can be seen at the top of the image. Image produced courtesy of Google maps (map data ©2020 Google).

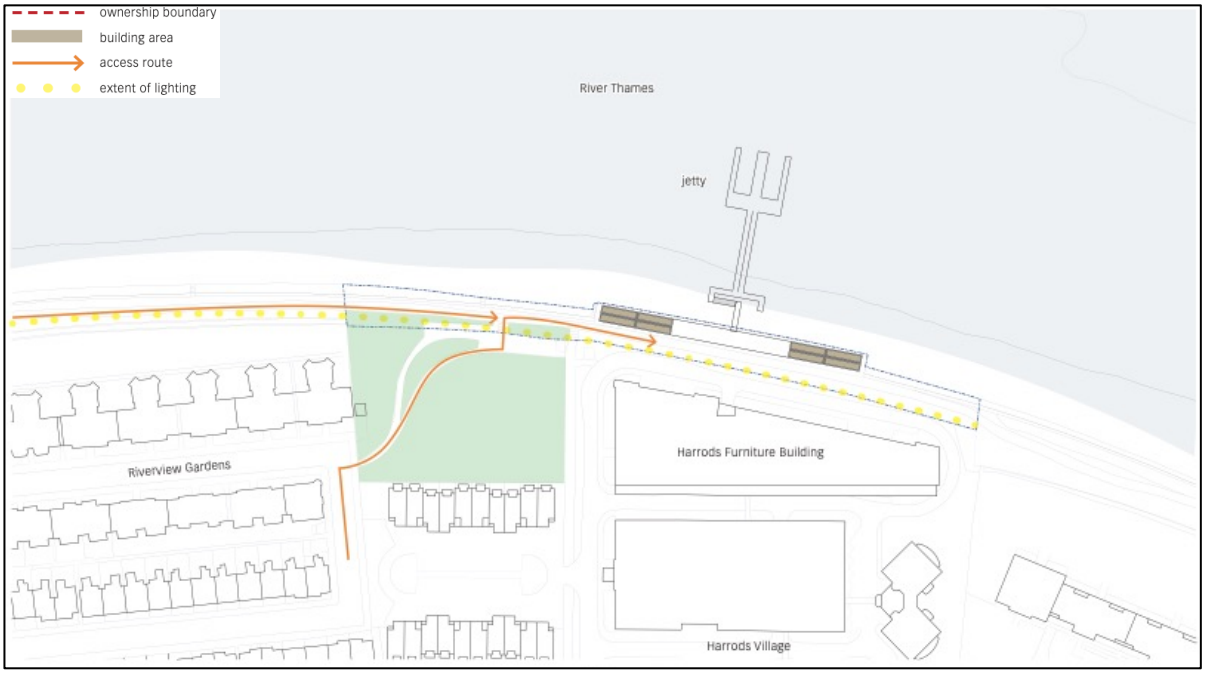

Figure 2. Site plan. Image provided by Lifschutz Davidson Sandilands Ltd.

1.3 Policy and Legislation

Legal protection applying to relevant bird, mammal, herpetofauna and invertebrate species and current nature conservation planning policy is outlined in Appendix 1 of this report.

Where possible this report has provided guidance on how the proposal can be designed to meet the

requirements of both local planning policy and the National Planning Policy Framework (NPPF). Details of the NPPF can be found in Appendix 1 and relevant local planning policy for the London Borough of Richmond is provided in Appendix 3.

2 METHODOLOGY

The methodologies used for this survey are in accordance with the Guidelines for Preliminary Ecological Appraisal[1], but also considers the Guidelines for Ecological Report Writing, Second Edition[2] and the Guidelines for Ecological Impact Assessment in the UK and Ireland[3].

2.1 Desk Study

A search for existing records of protected species, species of conservation concern and invasive non-native species was requested from Greenspace Information for Greater London (GiGL) within a radius of 2km of the site.

A search of on-line mapping resources was undertaken to identify the location of any features of potential ecological interest including ponds within 500m (relevant to great crested newts *Triturus cristatus*), watercourses (relevant to riparian mammals and crayfish) and connectivity to woodland, scrub, and hedgerow networks (relevant to bats, dormice *Muscardinus avellanrius*) in the wider landscape around the site. The connectivity of the site to these features, buildings, and other semi-natural habitats such as grassland and heathland are also relevant to bats, great crested newts and reptiles.

The MAGIC website resource (www.magic.gov.uk) was used to identify the location of designated sites for nature conservation and European Protected Species (EPS) licences granted in relation to the survey site.

2.2 Field Survey

A site walkover survey was undertaken on 14th December 2020, during which the habitats contained within the site were described and evaluated. Since this site is relatively small scale and contains limited semi-natural habitat diversity, it was not considered necessary to undertake comprehensive Phase 1 Habitat Mapping of the site. All habitat types contained within the site, together with the dominant botanical species and indicators of important habitat types such as ancient woodland or unimproved grasslands, have simply been listed and described where identified.

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[1] CIEEM (2017). *Guidelines for Preliminary Ecological Appraisal, 2nd edition.* Chartered Institute of Ecology and Environmental Management, Winchester.

[2] CIEEM (2017). *Guidelines for Ecological Report Writing, 2nd edition.* Chartered Institute of Ecology and Environmental Management, Winchester.

[3] CIEEM (2018). *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*. Chartered Institute of Ecology and Environmental Management, Winchester.

Habitats and features at the site were evaluated for their potential to support legally protected species and/or species of conservation interest. In addition, observations of any important plant communities, bird assemblages or other potentially valuable ecological features were recorded.

Details of the preliminary survey methods for each legally protected species are given below. Any site specific limitations to the survey, e.g. access constraints or seasonal constraints are set out in section 3.11.

2.3 Badgers

Badgers *Meles meles* exploit a range of habitats, including gardens, coniferous woodland, deciduous woodland, mixed woodland and arable land. They live in an underground system of tunnels and nesting chambers, known as a sett, with territories ranging from 30ha to 150ha or more.

Habitats within the site and surrounding areas were broadly assessed for their potential to support badgers. Any signs of badger activity, for example setts, footprints, latrines, well-worn paths and foraging marks, were recorded.

2.4 Bats

Bats can use a wide range of features for roosting purposes, including loft spaces, cavity walls, loose tiles, mortice joints and cracks/gaps in a variety of built structures. They can also be found in trees with holes, splits, cracks, cavities, ivy, and loose bark.

The trees bordering the site were broadly assessed for their potential to support roosting bats. The potential for roosting bats for each feature, or group of features was assessed as either negligible, low, moderate, or high, in accordance with the Bat Conservation Trust Survey Guidelines[4]. Any evidence confirming the presence of bats that was found was clearly recorded including photos and samples (e.g. droppings) where appropriate.

The site was also assessed for its potential to support foraging and/or commuting bats and further surveys recommended where necessary.

2.5 Breeding Birds

Birds can use a wide range of natural and artificial habitats when breeding, including trees, hedgerows, fields, houses and garden sheds. The habitats contained within the site and adjacent areas were broadly assessed for their potential to support important bird species/assemblages, and breeding birds.

Any birds identified during the site visit were recorded. Special attention was paid to notable species

[4] Collins, J.(ed.) (2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edn). The Bat Conservation Trust, London.

such as red-listed Birds of Conservation Concern[5] and those species afforded special protection on Schedule 1 of the Wildlife and Countryside Act (1981). Further surveys are recommended as appropriate.

2.6 Dormice

Dormice are found in deciduous woodland and hedgerows, feeding on flowers, pollen, fruits, insects and nuts, favouring hazel *Corylus avellana* and honeysuckle *Lonicera periclymenum* for food and as bedding.

The site was broadly assessed for its potential to support dormouse. This included use of on-line mapping resources to assess the surrounding area for connectivity to large blocks of woodland, scrub and extensive hedgerow networks. Further surveys are recommended as appropriate in accordance with best practice guidance)[6].

2.7 Great Crested Newt

Great crested newts breed in ponds during the spring and spend the rest of the year feeding on invertebrates in woodland, hedgerows, marshes and tussocky grassland.

A desk study was undertaken to identify ponds and wet ditches within 500m of the site that might support breeding great crested newts. Where access permission was granted, or ponds could be viewed from public roads or footpaths, the ponds were assessed for their potential to support great crested newts using the Habitat Suitability Index (HSI)[7]. The value of the site for terrestrially foraging great crested newts and any features that might be used by hibernating newts has also been assessed. Further surveys are recommended as appropriate, in accordance with best practice guidance[8].

2.8 Reptiles

The common lizard *Zootoca vivipara*, slow-worm *Anguis fragilis* grass snake *Natrix helvetica* and adder *Vipera berus* are widespread species that can be found in any of these habitats, whereas smooth snake *Coronella austriaca* and sand lizard *Lacerta agilis* have much more restricted and isolated populations on lowland heathland and sand dunes.

Habitats on the site were broadly assessed for their potential to support reptiles. Particular attention was paid to those features that provide suitable basking areas (e.g. south-facing slopes), hibernation

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[5] Eaton, M., Aebischer, N., Brown, A., Hearn, R., Lock, Leigh., Musgrove, A., Noble, D., Stroud, D., Gregory, R. (2015*) Birds of Conservation Concern 4: the population status of birds in the UK, Channel Islands and Isle of Man*. British Birds 108, pp 708-746.

[6] Bright, P., Morris, P. and Mitchell-Jones, T. (2006). *The dormouse conservation handbook 2nd Ed.* English Nature, Peterborough.

[7] Oldham, R.S., Keeble, J., Swan, M.J.S. and Jeffcote, M. (2000). Evaluating the suitability of habitat for the great crested newt (*Triturus cristatus*). *Herpetological Journal* 10, 143-155.

[8] English Nature (2001). *Great Crested Newt Mitigation Guidelines*. English Nature, Peterborough.

sites (e.g. banks, walls, piles of rotting vegetation) and opportunities for foraging (rough grassland and scrub).

2.9 Riparian Wildlife

Any watercourses identified during the desk study or field survey were assessed for their suitability to support otter *Lutra lutra*, water vole *Arvicola amphibius* and American mink *Neovison vison*. Suitable habitat includes grassy banks along slow-moving rivers, ditches, streams, lakes, ponds, canals, as well as marshland and upland. Signs to look out for include faeces, latrines, feeding stations, burrows, footprints and runs or pathways.

3 BASELINE CONDITIONS

3.1 Designated Sites and Granted EPS Licences

There is one Site of Special Scientific Interest (SSSI), three Local Nature Reserves (LNR) and 21 Sites of Importance for Nature Conservation (SINCs) within 2km of Harrods Wharf.

There are no granted EPS licences for mitigation projects within 2km of the site boundary.

Table 1. Statutory Designated sites within a 2km radius of Harrods Wharf

Site name	Designation	Features listed on citation	Proximity
Barn Elms Wetland Centre	SSSI	A mosaic of wetland habitats supporting nationally important wintering populations of shoveler *Anas clypeata* and an assemblage of breeding birds associated with lowland waters and their margins. Mammals recorded on the site include: water vole *Arvicola terrestris* and serotine bat *Eptesicus serotinus*, noctule bat *Nyctalus noctula*, Daubenton's bat *Myotis daubentonii* and pipistrelle *Pipistrellus pygmaeus*.	0.3km south
Barnes Common	LNR & SINC	Barnes Common contains acid grassland, acid scrub, woodland and neutral grassland.	1.5km southwest
Leg of Mutton Reservoir	LNR	A former reservoir where ducks and other water birds breed. In winter, there are teal *Anas crecca*, tufted duck *Aythya fuligula*, widgeon *Mareca penelope* and shoveller *Spatula clypeata*.	1.1km west
Chiswick Eyot	LNR	Chiswick Eyot is one of several islands in the River Thames, but it is unique in that it is the only one which still features traditional osier bed management.	1.2km northwest

Table 2. SINCs within a 2km radius of Harrods Wharf

SINC's	Habitats
River Thames and tidal tributaries	Intertidal, marsh/swamp, pond/lake, reed bed, running water, saltmarsh, secondary woodland, vegetated wall/tombstones, wet

	ditches, wet grassland, wet woodland/carr.
London Wetland Centre	Marsh/swamp, pond/lake, reed bed, scrub, wet ditches, wet grassland, wet woodland/carr.
Fulham Palace, Bishop's Park and All Saints Churchyard	Amenity grassland, planted shrubbery, pond/lake, scattered trees, secondary woodland, semi-improved neutral grassland, vegetated wall/tombstones.
Disused trackbed west of Hammersmith station	Dominated by ornamental shrubs, such as butterfly-bush *Buddleja davidii* and Spanish broom *Spartium junceum*, which are occasionally cut back for operational reasons.
West London line south of Earl's Court	Chalk grassland, scattered trees, scrub, semi-improved neutral grassland, wet ditches.
Chiswick House Grounds	Amenity grassland, pond/lake, scattered trees, scrub, secondary woodland free public access (all/most of site)
West London Line in Brompton	Roughland, scrub, secondary woodland, semi-improved neutral grassland, vegetated wall/tombstones, wet ditches
Leg o'Mutton	Marsh/swamp, pond/lake, reed bed, secondary woodland
Putney Lower Common	Scattered trees, scrub, semi-improved neutral grassland
Beverley Brook in Wandsworth	Running water, scrub, secondary woodland
Ravenscourt Park	Amenity grassland, planted shrubbery, pond/lake, scattered trees, scrub, semi- improved neutral grassland
Barn Elms Playing Fields	Marsh/swamp, pond/lake, scrub, secondary woodland, semi-improved neutral grassland
Beverley Brook from Richmond Park to the River Thames	Marsh/swamp, running water, scattered trees, scrub
Cathnor Park	Amenity grassland, flower beds, planted shrubbery, scattered trees, semi-improved neutral grassland
St Paul's Green	Amenity grassland, flower beds, hedge, planted shrubbery, scattered trees, semi- improved neutral grassland, vegetated wall/tombstones
Hammersmith or Margravine Cemetery	Amenity grassland, flower beds, hedge, scattered trees, semi-improved neutral grassland, vegetated wall/tombstones
Fulham Cemetery	Amenity grassland, flower beds, hedge, planted shrubbery, scattered trees, semi- improved neutral grassland
Normand Park	Amenity grassland, planted shrubbery, scattered trees
Loris Road Community Garden	Amenity grassland, planted shrubbery, pond/lake, scattered trees, scrub, semi- improved neutral grassland, tall herbs
Barnes Green Pond	Marsh/swamp, pond/lake, secondary woodland

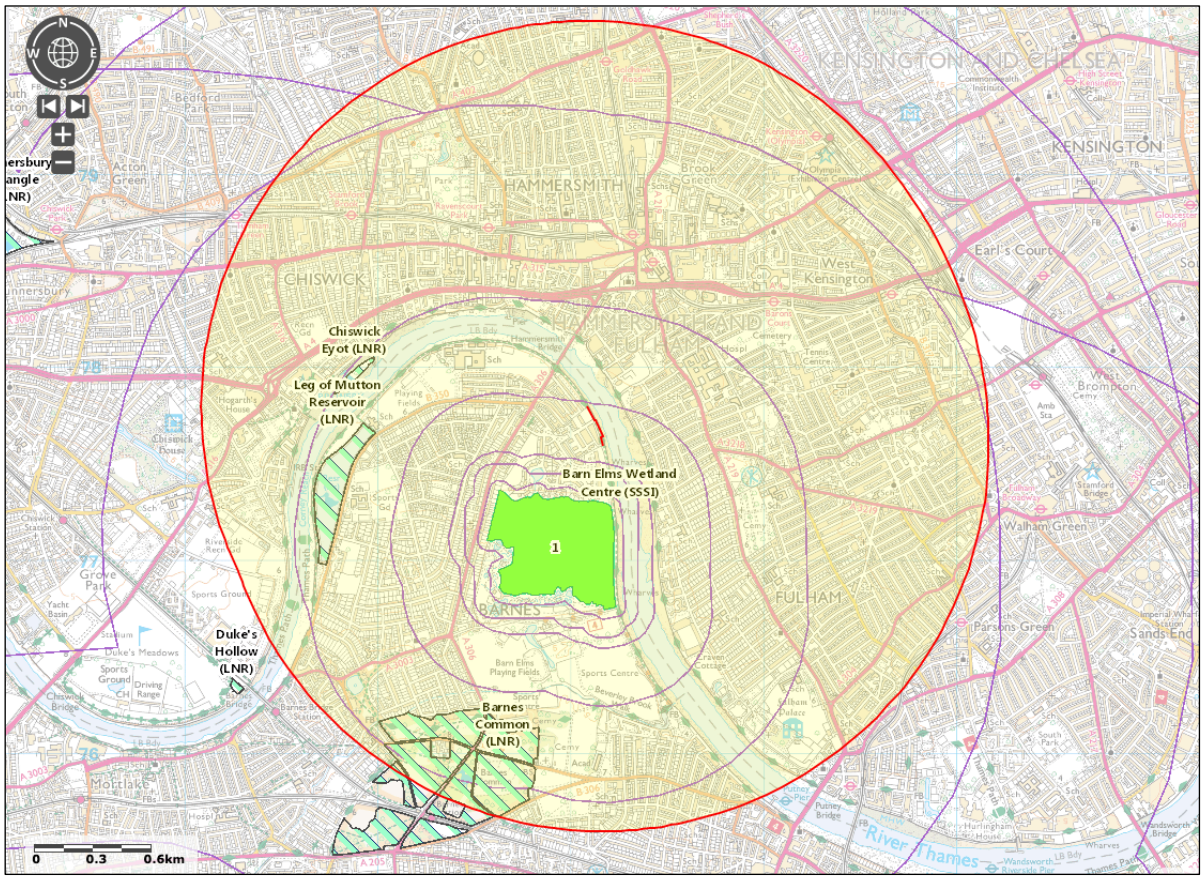

Figure 3. Designated sites within a radius of 2km of the application site. Image produced courtesy of Magic maps (http://www.magic.gov.uk/, contains public sector information licensed under the Open Government Licence v3.0).

3.2 Habitats

The wharf itself contains very little vegetation, comprising brick-paved ground, which is bordered by metal rail fencing. However, some ephemeral and ruderal species have been able to establish, including Jersey cudweed *Helichrysum luteoalbum* (Photograph 6), which is a Schedule 8 species under the Wildlife and Countryside Act (see Appendix 1). Other species present within the paved wharf include, common mallow *Malva sylvestris*, greater plantain *Plantago major*, common fleabane *Pulicaria dysenterica*, creeping thistle *Cirsium arvense*, willowherb *Epilobium* sp., soldier *Galinsoga* sp. (considered invasive within London), pellitory of the wall *Parietaria judaica*, black nightshade *Solanum nigrum*, black horehound *Ballota nigra* and burdock *Arctium minus*.

Bordering the wharf to the east, there is a thin strip of vegetation, comprising dove's-foot cranesbill *Geranium molle*, cock's-foot grass *Dactylis glomerata*, Canadian fleabane *Erigeron canadensis*, shepherd's purse *Capsella bursa-pastoris*, mugwort *Artemisia vulgaris*, dandelion *Taraxacum* sp., caper spurge *Euphorbia lathyrism* and petty spurge *Euphorbia peplus*.

The Thames footpath, to the north and south of the wharf, is bordered by mature poplar (Lombardy *Populus nigra 'Italica'* and white *Populus alba*), crack willow *Salix fragilis*, black locust *Robinia pseudoacacia*, elder *Sambucus nigra*, London plane *Platanus* × *acerifolia*, sycamore *Acer psuedoplatinus*, staghorn sumack *Rhus typhina* and buddleia *Buddleia davidii*. Ground flora comprises common ivy *Hedera helix*, ivy *Hedera* sp., common nettle *Urtica dioica*, bramble *Rubus fruticosus* agg.,

cleavers *Galium aparine*, hedge garlic *Alliaria petiolata*, rose *Rosa sp*., roast beef plant *Iris foetidissima*, broadleaved dock *Rumex obtusifolius*, fool's parsley *Aethusa cynapium* and herb Robert *Geranium robertianum*. There are also a number of log piles within this vegetated area.

Photograph 1. A view of the Thames footpath at the southern end of the site, looking north towards the wharf.

Photograph 2. A view of the wharf, taken from the south.

Photograph 3. A view of the wharf and the adjacent footpath, taken from the north.

Photograph 4. A view of the Thames footpath at the northern end of the site, looking north.

Photograph 5a & b. A view of the existing access ramp and steps, north of the wharf.

Photograph 6. Jersey cudweed, present within the wharf.

3.3 Badgers

No signs of any badger activity was seen during the survey assessment and, due to the urban nature

of the surrounding landscape and the high levels of disturbance, it is highly unlikely that this species would be present on site.

GIGL returned two records for badger within the search area. However, due to the confidential nature of these records, a grid reference was not provided.

3.4 Bats

The mature trees bordering the Thames footpath were inspected for potential roost features and no features such as rot holes, splits or cracks were identified.

The trees bordering the Thames footpath and the Thames River itself, both provide foraging and commuting habitat for bats, with the Thames in particular likely to support a large number of daubenton's *Myotis daubentonii* and soprano pipistrelle *Pipistrellus pygmaeus* bats, which commonly forage over water.

GIGL provided 4767 bat records in the search area comprising eight identified species, detailed in Table 2 below.

Table 3. Bat records returned within a 1km radius of the site.

Species	No. of records
Soprano pipistrelle *Pipistrelle pygmaeus*	1528
Pipistrelle species	917
Noctule *Nyctalus noctule*	864
Daubenton's *Myotis daubentonii*	787
Common pipistrelle *Pipistrellus pipistrellus*	321
Lesser noctule *Nyctalus leisleri*	86
Unidentified bat species	71
Serotine *Eptesicus serotinus*	65
Nathusius's pipistrelle *Pipistrellus nathusii*	63
Nyctalus species	43
Myotis species	18
Brown long-eared *Plecotus auritus*	4

3.5 Breeding Birds

There are no habitats of value for breeding birds within the wharf. However, the trees bordering the Thames footpath provide nesting habitat for common species and the Thames River provides habitat for a wide variety of water birds. The following species were recorded on the Thames, immediately north of the wharf, during the site visit on 14th December 2020: black headed gull *Chroicocephalus ridibundus*, mallard *Anas platyrhynchos* and cormorant *Phalacrocorax carbo*.

GIGL provided numerous bird records for the search area concerning a total of 140 species, a large number of which are wetland birds. The list includes 22 species of principle importance for conservation (S41 NERC Act 2007), and 49 species listed on Schedule 1 of the Wildlife and Countryside Act. In

addition, 51 species are red listed on the Birds of Conservation Concern.

3.6 Dormice

There are no habitats within the wharf which are suitable for dormice and the vegetation bordering the footpath is too scattered and disturbed, as well as comprising a large number of non-native species which are of negligible value for dormice.

GIGL provided no records for this species and it is considered extremely unlikely that dormice are present within the site. They are therefore not considered further within this report.

3.7 Great Crested Newts and other Amphibians

The London Wetland Centre lies 350m south-west of Harrods Wharf. The waterbodies within the centre are densely populated with fish, waterfowl and other wetland birds, which can predate on great crested newts and the isolation of this site from wider suitable habitats for this species ensure suggests it is unlikely that they will be present.

GIGL returned no records for great crested newts, although they are reported to be present at Leg o'Mutton, 1.1km west of Harrods Wharf.

GIGL provided records for other amphibians within the search area, including 92 records for common frog *Rana temporaria* and 12 records for common toad *Bufo bufo*. The closest of these was for common frog, 313m east from the boundary of the site.

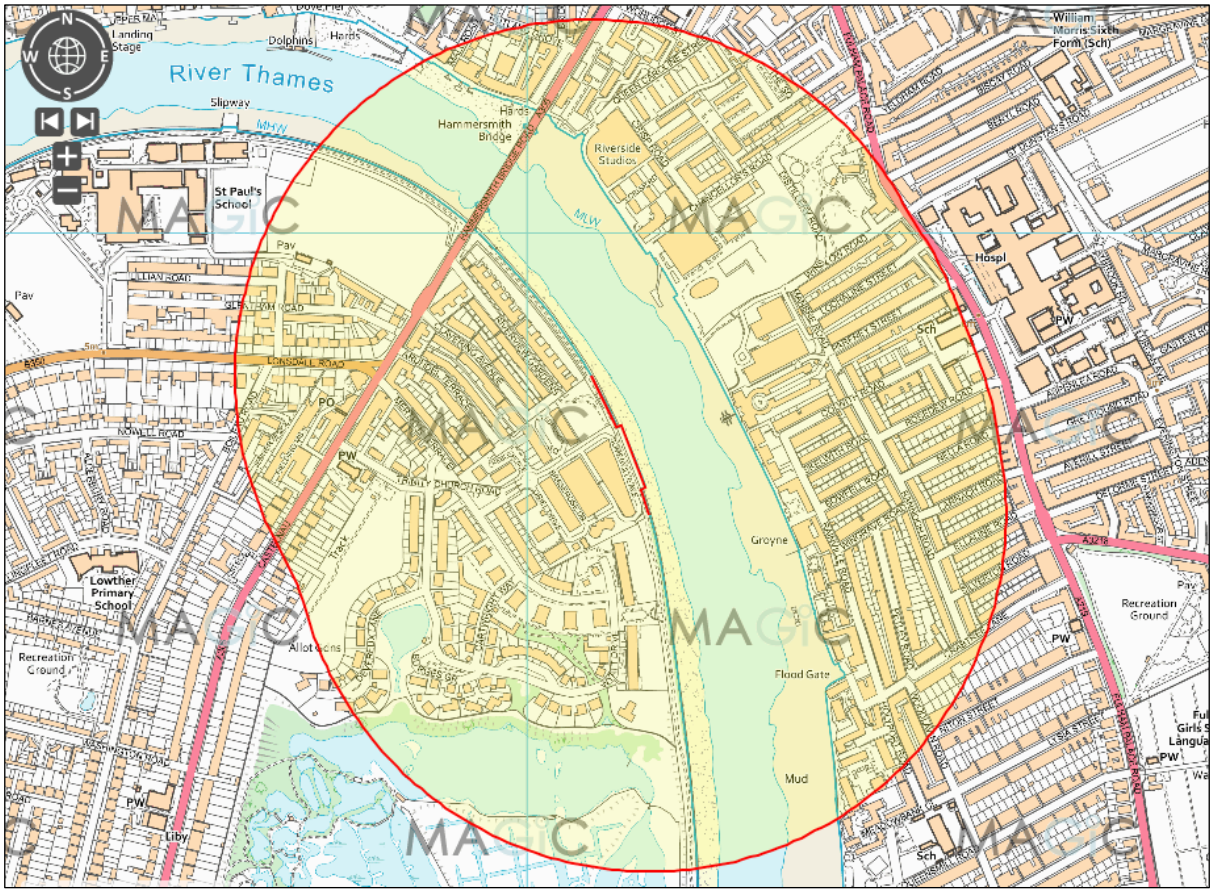

Figure 4. Ponds within 500m of Harrods Wharf.

3.8 Reptiles

The site contains no suitable habitat for reptiles, comprising almost exclusively hard standing. However, the Thames footpath is bordered by vegetation and log piles which could potentially provide commuting and hibernation habitat for reptiles.

GIGL provided 37 reptile records in the search area: 8 for slow worm, 5 for grass snake and 27 for common lizard. The closest of these was for common lizard, 510m west from the boundary of the site.

3.9 Riparian Wildlife

The River Thames at Harrods Wharf is wide, deep, and at times can be fast flowing. It is frequently disturbed by both commercial and recreational boats and supports little in the way of vegetation. It is therefore highly unlikely that water vole or otter would be present within close proximity to the wharf.

GIGL provided 540 records for water vole within the search area, the nearest of which was 540m south of Harrods Wharf, presumably recorded at the London Wetland Centre. GIGL provided no records for otter.

3.10 Invasive Non-native Species

The following invasive species were recorded at the site: soldier *Galinsoga* sp and buddleia, both of which are classed as LISI 3 in London, meaning 'species of high impact or concern which are widespread in London and require concerted, coordinated and extensive action to control/eradicate. These species are species currently causing large scale impacts across London and LISI supports area or catchment wide partnerships working to ensure this.' False acacia was also recorded along the footpath, which is considered LISI 4, meaning 'species which are widespread for which eradication is not feasible but where avoiding spread to other sites may be required. Appropriate biosecurity is required for sites where these species are found.'

In addition to all three aforementioned species, GIGL returned records for a further 45 invasive species.

3.11 Survey Limitations

An initial site assessment such as this is only able to act like a 'snapshot' to record any flora or fauna that is present at the time of the survey. It is therefore possible that some species may not have been present during the survey but may be evident at other times of the year. For this reason, habitats are assessed for their potential to support some species, even where no direct evidence (such as droppings) has been found.

4 IMPACT APPRAISAL

4.1 Sustainability

It is proposed to construct the single storey pavilions from shipping containers, which are modules that can be easily transported to site and subsequently re-used elsewhere. Recycled materials will be used where possible, such as recycled composite decking, and photovoltaic panels will be installed on one of the pavilions to generate part of the energy requirement of the development. Further, two green roofs will be installed on top of the pavilions, which will help increase biodiversity at a key location along the river front as well as lessen the visual impact from the nearby Harrods Village residential properties.

4.2 Designated Sites

There are four statutory designated sites and 21 non-statutory designated sites within a 2km radius of Harrods Wharf. However, due to the small scale of the proposed development and the minimal construction work it entails, the site is outside the zone of influence from all but one of these designated sites and there are no identified mechanisms of impact.

The only designated site which is within the zone of impact is the River Thames SINC, for which there is potential for pollution of the water due to installation of railings and ground lighting during the construction phase and the possibility of an increase in littering during the operational phase.

Therefore, in the absence of mitigation, the impact of the proposed development on designated sites is

considered to be **significant at local level**.

4.3 Habitats

The development does not require any vegetation removal, other than the scattered ephemeral and ruderal vegetation within the paved area of the wharf.

The development will result in the loss of Jersey cudweed at the site, which has self-seeded within the cracks in paving which lines the wharf. As this is a Schedule 8 species, and is therefore protected from intentional picking, uprooting or destruction, the development would result in an offence should it proceed in the absence of mitigation. Given the very low botanical diversity and abundance present at the site however, on balance, given the local abundance of jersey cudweed along the Thames, the impact upon habitats is considered significant at a local level only.

4.4 Badgers

No signs of badger activity were identified during the assessment and no badger setts are situated on or near the proposed construction zone. No further mitigation for badgers is advised, however if any signs of digging by large animals is identified on or near to the site prior to construction, then an ecologist should be contacted for advice.

Based on the survey findings, the proposed development is considered to be **'negligible'** for badgers.

4.5 Bats

There are no trees or buildings within the wharf and all the trees along the Thames footpath (within the red-line boundary) were identified to be unsuitable for roosting bats.

However, the site is likely used by foraging and commuting bats and it is important that the potential for disturbance from artificial lights is considered.

In the absence of mitigation the development could result in a **significant negative impact** on bats.

4.6 Breeding Birds

There is no habitat of value for breeding birds within the wharf and the trees bordering the footpath will not be impacted by the development.

Therefore, the impact of the development on breeding birds is assessed as **'negligible'**.

4.7 Great Crested Newts

As there are no ponds within 250m of Harrods Wharf, which is the typical distance great crested newts

will travel from their breeding ponds, and as no habitats of value for this species will be impacted by the development, the impact on great crested newts is assessed as **'negligible'**.

4.8 Reptiles

As the wharf contains no suitable habitat for reptiles, and as the vegetation bordering the footpath will not be impacted by the development, the impact of the development on reptiles is assessed as **'negligible'**.

4.9 Invasive Non-native Species

A *Galinsoga* species was recorded within the wharf. Both gallant soldier and shaggy soldier are considered invasive within London and should be eradicated. It is therefore recommended that all specimens of *Galinsoga* present within the wharf are removed prior to commencement of works and disposed of appropriately, to ensure there is no further spread of this species.

Provided this work is carried out in full, taking care not to allow further spread of the invasive species, the development should result in a **positive impact** in relation to invasive species at the site.

5 MITIGATION AND ENHANCEMENT

5.1 Designated Sites

To avoid impacts of potential pollution of the River Thames it will be essential that the development adheres to industry standard construction methods. Specifically, any ground works, including installation of barriers and lighting, must include measures to avoid dust pollution and runoff. This may require temporary impermeable fencing and machinery, such as sweepers or suction tools, to remove pollutants immediately.

During the operational phase, littering must be prohibited and appropriately managed. Adequate refuse bins should be provided, to include recycling facilities, and these must be covered to avoid dispersal of litter by wind. Additionally, signs could be erected advise the public of fines that can be imposed should anyone be caught littering.

Provided all the above measures are carried out in full, the impact of the development on designated sites is assessed as **'neutral'**.

5.2 Habitats

To mitigate the loss of Jersey cudweed at the site, it is recommended that all the Jersey cudweed specimens are transplanted to a suitable alternative location. This translocation will require a license to be obtained from Natural England and a Method Statement will need to be produced that demonstrates how the conservation status of this plant will be protected through the development and into the future.

A suitable location that could be specified within this Method Statement is the green roof which is to be created on pavilion 1. However, if this is the chosen location, the specimens will need to be transplanted into an interim receptor site (possibly pots) prior to final planting upon the roof.

The plants should be transplanted under the supervision of a specialist ecologist into suitable habitat, such as bare, sandy substrate, where there is minimal competition from other plants. The plants should be monitored at first to ensure successful establishment and then should be monitored annually to ensure the habitat is appropriately maintained according to a suitable management plan.

To ensure the success of the green roofs, it is recommended that they are installed and maintained by a specialist. All species planted should be native and in keeping with the local ecology.

Provided these measures are carried out in full, the development should have a **positive impact** on habitats at a **site level**.

5.3 Bats

As the site may be used by foraging and commuting bats, it is important that the potential for disturbance from artificial lights is considered. The proposed development should include an 'ecologically sensitive lighting scheme' in accordance with guidance produced by the Bat Conservation Trust (summarised in Appendix 2).

The preliminary strategy[9] includes:

- recessed spot lighting within the raised wharf decking;
- low level bollard lighting along the Thames footpath to minimise impact on wildlife;
- back lit cladding panels to the facades of the pavilions;
- an illuminated canopy above the waiting area;
- low level bollard lighting to illuminate access ramps and stairs within the site boundary.

The strategy is supported by a report produced by EQ2Light[10], which illustrates that all of the lighting proposed within the scheme will not exceed 2700Kelvin, placing it within a warm spectrum of light that has been demonstrated to have a significantly reduced impact upon bats (see Figure 5). The EQ2LIGHT document further references a previous study commissioned by Transport For London which determined that bat activity along the Harrods Wharf Riverside was found to be low and dominated by more light tolerant pipistrelle bat species.

[9] Lifschutz Davidson Sandilands (06.11.20) *Design and Access Statement, Harrods Wharf*
[10] EQ2LIGHT (January 2021) *Design and Access Statement, Design Book 01A*

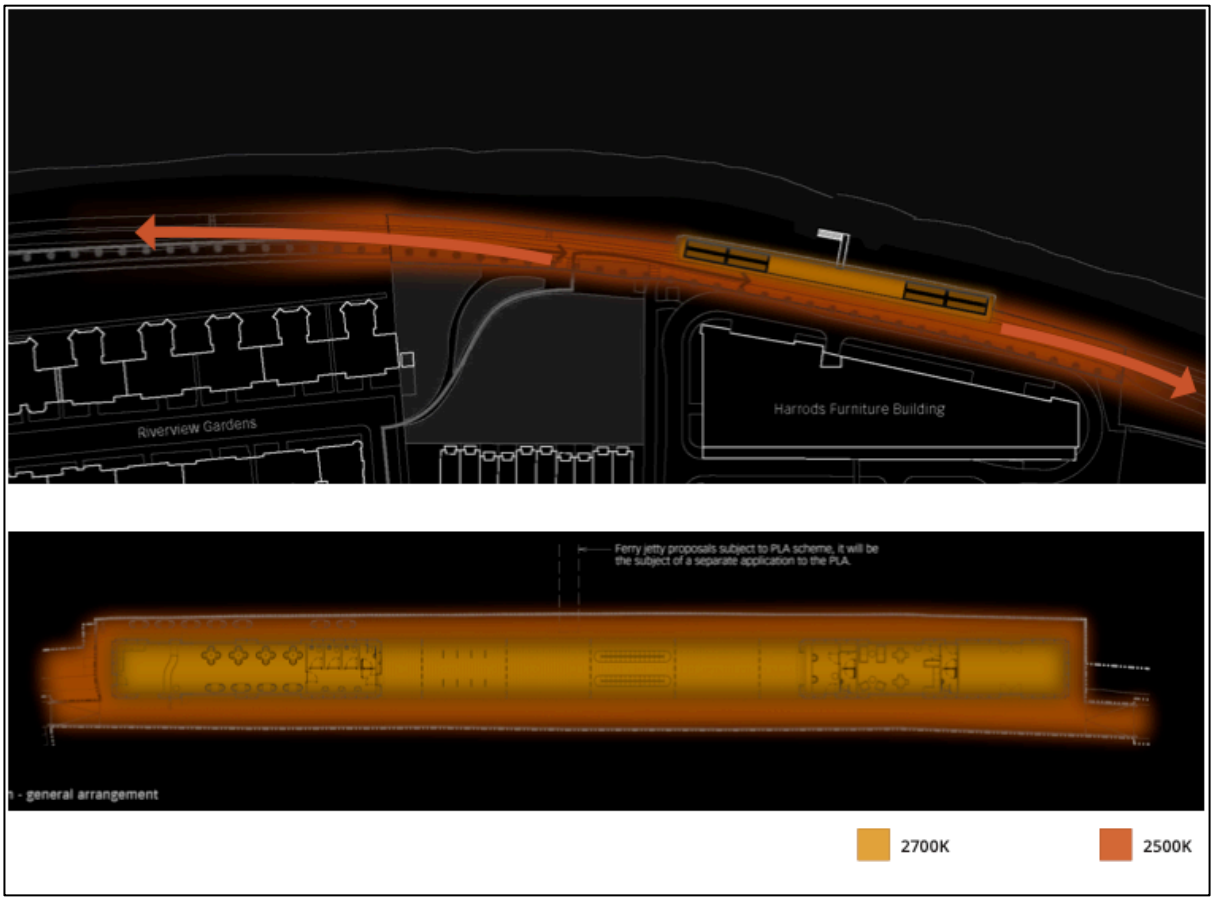

Figure 5. An illustration of light splash from Harrods Wharf within the 2700 and 1500Kelvin range. Figure produced courtesy of EQ2LIGHT.

The strategy is considered acceptable provided the following measure are adhered to:

1. All lighting will not exceed 3 lux;
2. No 'upward pointing' or bare bulb lights will be installed anywhere on the development;
3. All external lights upon lamp-posts will not be more than 4 metres in height and will be appropriately shielded to focus light towards the footpath only (See Figure 6). No light will be allowed to emit light past horizontal (90 degrees from the ground);
4. No external lights will be installed on new buildings above a height of 2 metres and all external lights will have shields to prevent light splash beyond horizontal;
5. No light will be directed towards the Thames or the tree canopy bordering the Thames footpath.

Figure 6. An example of suitable downward shielded street lighting

6 CONCLUSIONS

The land at Harrods Wharf comprises almost entirely of paved ground, with scattered ruderal and ephemeral vegetation. The Thames footpath is formed of hardcore, with bordering trees and ground vegetation.

The site is bordered to the east by the River Thames and there is potential for the proposed development to result in very small scale and localised pollution of the river and disturbance of foraging bats in the absence of mitigation. The proposed plan suggests two single-storey pavilions connected by a covered area to be used for queuing and cycle storage. As the pavilions will be constructed from shipping containers, there will be little in the way of construction impacts but the railing around the wharf will need to be replaced and lighting will need to be installed.

To avoid impacts from artificial lights, it is imperative that the development adopts a sensitive lighting scheme, and to avoid impact from pollution, the development must adhere to strict construction best practice measures to avoid any potential dust pollution and runoff. The development must also include adequate refuse bins with clear signs to the public that littering will result in a fine.

Jersey cudweed, a schedule 8 plant, was found growing between cracks in the paved area of the wharf. If the development is to proceed legally, a licence will need to be applied for from Natural England, requesting the transplantation of all Jersey cudweed specimens at the site to a suitable receptor site. A method Statement will nned to be produced as part of this license application that demonstrates how the conservation status of the plant is preserved though the development process and into the future.

Galinsoga (Gallant soldier or Shaggy soldier) was also found at the site. As these are invasive species they will need to be removed and disposed of carefully, ensuring they are not allowed to spread further.

The development will include two green roofs and it is recommended that these are installed and

maintained by a specialist so as to ensure they establish successfully and continue to provide a benefit for biodiversity year on year.

Provided all the mitigation measures are followed in full and the newly created habitats are maintained to a high standard, the development will have a neutral impact on biodiversity at the site.

If any protected species are found during the proposed work, work should be stopped immediately and an ecologist must be contacted immediately for advice.

Should you need any further advice on the information provided above, please do not hesitate to contact The Ecology Co-op, info@ecologyco-op.co.uk, www.ecologyco-op.co.uk, Office: 01798 861800.

APPENDIX 1 – WILDLIFE LEGISLATION AND NATIONAL PLANNING POLICY

Introduction

The following text is intended for general guidance only and does not constitute comprehensive professional legal advice. It provides a summary of the current legal protection afforded to wildlife in general and certain species. It includes current national planning policy relevant to nature conservation.

The 'Birds Directive', 'Habitats Directive' and 'Natura 2000 Sites'.

The Council Directive 79/409/EEC on the Conservation of Wild Birds ("the Birds Directive") sets a framework for the protection of wild birds. Under the directive, several provisions are made including the designation and protection of 'Special Protection Areas' (SPAs) – areas which support important bird populations, and the legal protection of rare or vulnerable species.

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the "Habitats Directive") directs member states of the EU to take measures to maintain favourable conservation status of important habitats and species. This requires the designation of a series of sites which contain important populations of species listed on Annex II of the directive (for example Bechstein's bat *Myotis bechsteinii*, Barbastelle bat *Barbastella barbastellus* and white-clawed crayfish *Austropotamobius pallipes*. Together with 'Special Areas of Conservation' (SPAs), designated under the Birds Directive, SACs form a network across Europe of protected areas known as the 'Natura 2000 sites'.

Annex IV lists species in need of more strict protection, these are known as "European Protected Species (EPS)". All bat species, common dormice *Muscardinus avellana*, otter *Lutra lutra* and great crested newts *Triturus cristatus* are examples of EPS that are regularly encountered during development projects.

The 'Habitats Regulations'

The Conservation of Habitats and Species Regulations 2017 (the "Habitats Regulations") is the principle means of transposing the Habitats Directive and the Birds Directive, and updates the Conservation (Natural Habitats, &c.) Regulations 1994 ("the 1994 regulations") in England and Wales.

'Natura 2000' sites receive the highest level of protection under this regulation which requires that any activity within the zone of influence of these sites would be subject to a Habitats Regulations Assessment (HRA) by the competent authority (e.g. planning authority), leading to an Appropriate Assessment (AA) in cases where 'likely significant effects on the integrity of the site are identified.

For European Protected Species, Regulation 41 makes it a criminal offence to;

- Deliberately capture, injure or kill any such animal;
- Deliberately disturb wild animals of such species;
- Deliberately take or destroy their eggs (where relevant);
- Damage or destroy a *breeding or resting place* of such an animal;
- Possess, control, sell or exchange any live or dead animal or plant, of such species;
- Deliberately pick, collect, cut, uproot or destroy a wild plant of such species.

The Habitats Directive and Habitats Regulations provide for the derogation from these prohibitions for

specific reasons provided certain conditions are met. An EPS licensing regime allows operations that would otherwise be unlawful acts to be carried out lawfully. Natural England is the licensing Authority and, in order to grant a license, ensures that three statutory conditions (sometimes referred to as the 'three derogation tests') are met:

- A licence can be granted for the purposes of "preserving public health or safety or for other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment" (Regulation 53 (2) (e).
- A licence can be granted if "there are no satisfactory alternatives" to the proposed action.
- A licence shall not be granted unless the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

Wildlife and Countryside Act (1981) as amended.

This remains one of the most important pieces of wildlife legislation in the UK. There are various schedules to the Act protecting birds (Schedule 1), other animals including insects (Schedule 5), plants (Schedule 8), and control of invasive non-native species (Schedule 9).

Under the Wildlife and Countryside Act (WCA) 1981, all wild birds (with the exception of those listed on Schedule 2), their eggs and nests are protected by law and it is an offence to:

- Take, damage or destroy the nest of any wild bird while it is in use or being built.
- Take or destroy the egg of any wild bird.
- Disturb any bird listed on Schedule 1, while it is nest building, or at a nest with eggs or young, or disturb the dependant young of any such bird.

Schedule 5 lists all non-avian animals receiving protection to a varied degree. At its strongest, the Act makes it an offence to intentionally kill, injure or take any wild animal listed on Schedule 5, and prohibits interference with places used for shelter or protection, or intentionally disturb animals while occupying such places. Examples of species with *full protection* include all EPS, common reptile species, water vole *Arvicola amphibius*, white-clawed crayfish *Austropotamobius pallipes* and Roman snail *Helix pomatia*. Other species are protected from sale, barter or exchange only, such as white letter hairstreak *Satyrium w-album*.

The Act makes it an offence to intentionally pick, uproot or destroy any plant or seed, and sell or possess any plant listed on Schedule 8. It is also an offence to intentionally uproot any wild plant not listed on Schedule 8 unless authorised [by the land owner]. Species on Schedules 5 and 8 are reviewed every 5 years when species can be added or removed.

Measures for the prevention of spreading non-native species which may be detrimental to native wildlife is included in the Act, which prohibits the release of animals or planting of plants into the wild of species listed on Schedule 9 (for example Japanese knotweed *Fallopia japonica*, Himalayan balsam *Impatiens glandifera*, New Zealand Pygmyweed *Crassula helmsii*).

The Wildlife and Countryside Act 1981 (as amended) also prohibits certain inhumane methods of traps and devices for the capture or killing of wild animals and certain additional methods such as fixed trap, poisoning with gas or smoke, or spot-lighting with vehicles for killing species listed on Schedule 6 of the Act (this includes all bat species, badger, otter, polecat, dormice, hedgehog and red squirrel).

Natural Environment and Rural Communities (NERC) Act (2006)

The NERC Act (2006) created the statutory nature conservation body Natural England, and places a

statutory duty on all public bodies, including planning authorities, under Section 40, to take, or promote the taking by others, steps to further the conservation of *habitats and species of principal importance for the conservation of biodiversity* in England (commonly referred to as the 'Biodiversity Duty'). This duty extends to all public bodies the biodiversity duty of Section 74 of the Countryside and Rights of Way (CROW) Act 2000, which placed a duty only on Government and Ministers. Section 41 of the NERC Act lists the habitats and species of principle importance. This includes a wide range of species from mosses, vascular plants, invertebrates through to mammals and birds. It originates from the priority species listed under the UK Biodiversity Action Plan (UK BAP) with some omissions and additions.

Protection of Badgers Act (1992)

The Badger *Meles meles* is afforded specific legal protection in Britain under the Protection of Badgers Act (1992), and Schedule 6 of the Wildlife and Countryside Act 1981 (as amended) (see above).

Under this legislation, it is a criminal offence to:

- intentionally kill, injure, take, possess, or cruelly ill-treat, a Badger, or to attempt to do so;
- interfere with a sett, by damaging or destroying it;
- to obstruct access to, or any entrance of, a Badger sett; or
- to disturb a Badger when it is occupying a sett.

A licence may be obtained from Natural England to permit certain prohibited actions for a number of defined reasons including interference of a sett for the purpose of development, provided that a certain number of conditions are met. Note that licenses are not normally granted for works affecting badgers between the end of November and the start of July.

National Planning Policy Framework

The National Planning Policy Framework (NPPF 2019)[11] sets out the Government's view on how planners should balance nature conservation with development and helps ensure that Government meets its biodiversity commitments with regard to the operation of the planning system.

Paragraph 174b, which states that council policies 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*." The Office of the Deputy Prime Minister (ODPM) Circular 06/2005, 2005) [12]. In accordance with the NPPF, it is important that developments should contribute to and enhance the natural and local environment by:

- Minimising impacts on existing biodiversity and habitats,
- Providing net gains in biodiversity and habitats, wherever possible,

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[11] [11] HM Government (2019). National Planning Policy Framework. Department for Communities and Local Government. Available online at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/728643/Revised_NPPF_2018.pdf.

[12] HM Government (2005) ODPM Circular 06/05 Government Circular: *Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System*. Available online at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/7692/147570.pdf.

- establishing coherent ecological networks that are more resilient to current and future pressures.

UK Post-2010 Biodiversity Framework

The UK Biodiversity Action Plan (UK BAP), first published in 1994, was the UK's response to the commitments of the Rio Convention on Biological Diversity (1992) until 2010, when the UK BAP was replaced by the UK Post-2010 Biodiversity Framework. This framework covers the period 2011 to 2020 and forms the UK government's response to the new strategic plan of the United Nations Convention on Biodiversity (CBD) published in 2010. This promotes a focus on individual countries delivering target for protection for biodiversity through their own strategies.
The most recent biodiversity strategy for England, 'Biodiversity 2020: A strategy for England's wildlife and ecosystem services' was published by Defra (2011), and a progress update was provided in July 2013 (Defra 2013).

'Biodiversity 2020' builds on the Natural Environment White Paper for England – 'The Natural Choice', published on 7 June 2011, and sets out the strategic direction for biodiversity policy for the next decade. Biodiversity 2020 deliberately avoids setting specific targets and actions for local areas and species because the Government believes that local people and organisations are best placed to decide how to implement the strategy in the most appropriate way for their local area or situation.

Birds of Conservation Concern (BoCC)

In 1996, the UK's leading non -governmental bird conservation organisations listed the conservation status of all bird species in the UK against a series of criteria relating to their population size, trends and relative importance to global conservation. The lists, known as the 'Red', 'Amber' and 'Green' lists (in order of decreasing concern) are used to inform key conservation policy and decisions. The lists are reviewed every 5 years and are a useful reference for determining the current importance of a particular site for birds. The most recent review was undertaken in 2015 (Eaton et al, 2015), which provides an up to date assessment of the conservation status of birds in the UK.

References

Protection of Badgers Act (1992). HMSO London. Available at: http://www.legislation.gov.uk/ukpga/1992/51/contents

Circular 06/2005 (2005). Government Circular: Biodiversity and geological conservation – statutory obligations and their impact within the planning system. Office of the Deputy Prime Minister, London. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/7692/147570.pdf

Council Directive 79/409/EEC on the Conservation of Wild Birds ("the Birds Directive"). Available at: http://jncc.defra.gov.uk/page-1373

Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the "Habitats Directive"). Available at: http://jncc.defra.gov.uk/page-1374

The Conservation of Habitats and Species Regulations 2017 (the Habitats Regulations"). Available at: http://jncc.defra.gov.uk/page-1379

Countryside and Rights of Way (CRoW) Act (2000). HMSO London. Available at: http://www.legislation.gov.uk/ukpga/2000/37/contents

Defra (2011) Biodiversity 2020: A strategy for England's wildlife and ecosystem services. Available at: www.gov.uk/government/publications/biodiversity-2020-a-strategy-for-england-s-wildlife-and-ecosystem-services.

Defra (2013) Progress Update. Available at: www.gov.uk/government/publications/biodiversity-2020-simple-guide-and-progress-update-july-2013.

Eaton, M., Aebischer, N., Brown, A., Hearn, R., Lock, L., Musgrove, A., Noble, D., Stroud, D. and Gregory, R. (2015) Birds of Conservation Concern 4: the population status of birds in the UK, Channel Islands and Isle of Man. Available at: British Birds 108 • December 2015 • 708–746 https://britishbirds.co.uk/wp-content/uploads/2014/07/BoCC4.pdf

Natural Environment and Rural Communities (NERC) Act (2006). HMSO London. Available at: http://www.legislation.gov.uk/ukpga/2006/16/pdfs/ukpga_20060016_en.pdf

National Planning Policy Framework (NPPF) (2018) Department for Communities and Local Government. Available at: www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf

Wildlife and Countryside Act (WCA) (1981). HMSO London. Available at: http://www.legislation.gov.uk/ukpga/1981/69/contents

APPENDIX 2 – REDUCING IMPACTS OF ARTIFICIAL LIGHT

Bright external lighting can have a detrimental impact upon foraging and commuting bat flight paths, but more importantly can also cause bats to remain in their roosts for longer. Artificial lighting can also cause significant impacts on other nocturnal species, most notably moths and other nocturnal insects. It can also result in disruption of the circadian rhythms of birds, reducing their fitness. Guidelines issued by the Bat Conservation Trust[13] should be considered while designing the lighting scheme. A simple process which should be followed where the impact on bats is being considered as part of a proposed lighting scheme. It contains techniques which can be used on all sites, whether a small domestic project or larger mixed-use, commercial or infrastructure development. This includes the following measures:

Avoid lighting on key habitats and features altogether
there is no legal duty requiring any place to be lit. British Standards and other policy documents allow for deviation from their own guidance where there are significant ecological/environmental reasons for doing so. It is acknowledged that in certain situations lighting is critical in maintaining safety, such as some industrial sites with 24-hour operation. However, in the public realm, while lighting can increase the perception of safety and security, measurable benefits can be subjective. Consequently, lighting design should be flexible and be able to fully consider the presence of protected species

Apply mitigation methods to reduce lighting to agreed limits in other sensitive locations – lighting design considerations

Where bat habitats and features are considered to be of lower importance or sensitivity to illumination, the need to provide lighting may outweigh the needs of bats. Consequently, a balance between a reduced lighting level appropriate to the ecological importance of each feature and species, and the lighting objectives for that area will need to be achieved. The following are techniques which have been successfully used on projects and are often used in combination for best results;

- Dark buffers, illuminance limits and zonation
- Sensitive site configuration, whereby the location, orientation and height of newly built structures and hard standing can have a considerable impact on light spill
- Consider the design of the light and fittings, whereby the spread of light is minimised ensuring that only the task area is lit. Flat cut-off lanterns or accessories should be used to shield or direct light to where it is required. Consider the height of lighting columns. It should be noted that a lower mounting height is not always better. A lower mounting height can create more light-spill or require more columns. Column height should be carefully considered to balance task and mitigation measures. Consider no lighting solutions where possible such as white lining, good signage, and LED cats eyes. For example, light only high-risk stretches of roads, such as crossings and junctions, allowing headlights to provide any necessary illumination at other times.
- Screening, whereby light spill can be successfully screened through soft landscaping and the installation of walls, fences and bunding
- Glazing treatments, whereby glazing should be restricted or redesigned wherever the ecologist and lighting professional determine there is a likely significant effect upon key bat habitat and features.
- Creation of alternative valuable bat habitat on site, whereby additional or alternative bat flightpaths, commuting habitat or foraging habitat could result in appropriate compensation for

[13] Bat Conservation Trust and Institute for Lighting Professionals (2018) Guidance note 8. Bats and Artificial Lighting. https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/

any such habitat being lost to the development.

- Dimming and part-night lighting. Depending on the pattern of bat activity across the key features identified on site it may be appropriate for an element of on-site lighting to be controlled either diurnally, seasonally or according to human activity. A control management system can be used to dim (typically to 25% or less) or turn off groups of lights when not in use.

Demonstrate compliance with illuminance limits and buffers

- *Design and pre-planning phase*; It may be necessary to demonstrate that the proposed lighting will comply with any agreed light-limitation or screening measures set as a result of your ecologist's recommendations and evaluation. This is especially likely to be requested if planning permission is required.
- *Baseline and post-completion light monitoring surveys*; baseline, pre-development lighting surveys may be useful where existing on or off-site lighting is suspected to be acting on key habitats and features and so may prevent the agreed or modelled illuminance limits being achieved.
- *Post-construction/operational phase compliance-checking;* as a condition of planning, post-completion lighting surveys by a suitably qualified person should be undertaken and a report produced for the local planning authority to confirm compliance. Any form of non-compliance must be clearly reported, and remedial measures outlined. Ongoing monitoring may be necessary, especially for systems with automated lighting/dimming or physical screening solutions.

Further reading:

Buglife (2011) *A review of the impact of artificial light on invertebrates.*

Royal Commission on Environmental Pollution (2009) *Artificial light in the environment.* HMSO, London. Available at: https://www.gov.uk/government/publications/artificial-light-in-the-environment

Rich, C., Longcore, T., Eds. (2005) Ecological Consequences of Artificial Night Lighting. Island Press. ISBN 9781559631297.

CPRE (2014) *Shedding Light: A survey of local authority approaches to lighting in England.* Available at: http://www.cpre.org.uk/resources/countryside/dark-skies/item/3608-shedding-light

Planning Practice Guidance guidance (2014) When is light pollution relevant to planning? Available at: https://www.gov.uk/guidance/light-pollution

Institution of Lighting Professionals (2011) Guidance Notes for the Reduction of Obtrusive Light GN01:2011. Available at: https://www.theilp.org.uk/resources/free-resources/

APPENDIX 3 – LONDON BOROUGH OF RICHMOND LOCAL PLAN (overview)

Protecting Local Character	• Maintain and enhance the borough's attractive villages, including the unique, distinctive and recognisable local characters of the different village areas and their sub-areas. • Protect and, where possible, enhance the environment including the heritage assets, retain and improve the character and appearance of established residential areas, and ensure new development and public spaces are of high-quality design. • Protect and improve the borough's parks and open spaces to provide a high-quality environment for local communities and provide a balance between areas for quiet enjoyment and wildlife and areas to be used for sports, games and recreation. • Protect and enhance the borough's network of green infrastructure that performs a wide range of functions for residents, visitors, biodiversity and the economy. • Protect and enhance the borough's biodiversity, including trees and landscape, both within open spaces but also within the built environment and along wildlife corridors. • Protect and improve the unique environment of the borough's rivers, especially the River Thames and its tributaries as wildlife corridors, as opportunities for recreation and river transport where possible, increasing access to and alongside the rivers where appropriate, and gain wider local community benefits when sites are redeveloped.
A sustainable future	• Minimise and mitigate the effects of climate change by requiring high levels of sustainable design and construction including reductions in carbon dioxide emissions by minimising energy consumption, promoting decentralised energy and the use of renewable energy as well as requiring high standards of water efficiency. • Promote and encourage development to be fully resilient to the future impacts of climate change in order to minimise vulnerability of people and property; this includes by risk of flooding, water shortages, subsidence and the effects of overheating. • Optimise the use of land and resources by ensuring new development takes place on previously developed land, reusing existing buildings and encouraging remediation and reuse of contaminated land. • Reduce or mitigate environmental impacts and pollution levels (such as air, noise, light, odour, fumes water and soil) and encourage improvements in air quality, particularly along major roads and areas that already exceed acceptable air quality standards. • Ensure local environmental impacts of development are not detrimental to the health, safety and the amenity of existing and new users or occupiers of a development or the surrounding area. • Promote safe and sustainable transport choices, including public transport, cycling and walking, for all people, including those with disabilities. • Encourage improvements to public transport, including quality and connectivity of transport interchanges, and support the use of Smart City technology and practices. • Promote sustainable waste management through minimising waste and providing

	sufficient land for the reuse, recycling and treatment of waste, and minimise the amount of waste going to landfill in line with the West London Waste Plan. • Support sustainable growth of the visitor economy for the benefit of local communities and promote the borough as an attractive and inviting place to visit and enjoy. • Conserve and enhance the borough's unique historic and cultural assets that are connected by the River Thames. • Create attractive and pleasant environments and spaces that promote active and healthy lifestyles, including recognising their benefits to residents' social life and their economic benefits to the borough's centres.
Meeting People's Needs	• Ensure there is adequate provision of facilities for community and social infrastructure that are important for the quality of life of residents and which support the growing population, by protecting existing and, where required, securing new facilities and services that meet people's needs.