# Preliminary Ecological Appraisal

## Willow Marina, Reading

**Survey Date: 18th March 2025**

Issued By:
Eco 360 Ltd
Hollinscroft House
Uttoxeter Road
Stoke-on-Trent
ST10 4LJ

Tel: 0330 133 8294
Email: info@eco-360.co.uk
www.eco-360.co.uk

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# 1. Introduction

## 1.1 Report rationale

This report has been prepared at the request of Val Wyatt Marine Ltd. Eco 360 were commissioned to undertake a Preliminary Ecological Appraisal at Willow Marina, Willow Lane, Wargrave, Reading, RG10 8LH (Central OS Grid Reference: SU 78504 79319). The survey effort involved both a desktop study and field survey. The site was attended by Matthew Kirby BSc, an ecologist with over 9 years of experience

The main purpose of this assessment was to identify the broad habitats (as stated in the JNCC Phase 1 Handbook) and the flora species present within the survey area, with any further evidence of protected species usage and/or features of potential ecological interest also included. The field survey was carried out on the 18th March 2025.

## 1.2 Site description and works

The site is located in the village of Wargrave in Berkshire and is situated in a semi-rural setting adjacent to the River Thames. The surveyed area comprises developed land including sealed surfaces such as hardstanding and pathways, as well as areas of modified grassland maintained as amenity lawn. The marina itself features moorings and associated infrastructure, with the grassland forming narrow verges and embankments along internal access routes. Scattered ornamental trees and shrubs are present across parts of the site, contributing limited ecological value.

In the wider landscape, the site is bordered to the west by the River Thames and associated riparian habitat, with wet woodland, reedbeds and open water nearby. The surrounding area includes a mosaic of pasture fields, hedgerows, scattered trees, residential dwellings and gardens. The river corridor provides a high-quality commuting and foraging route for bats and birds, and the wider habitat network supports connectivity for a variety of local wildlife species. Photographs of the site are found within **Appendix D**.

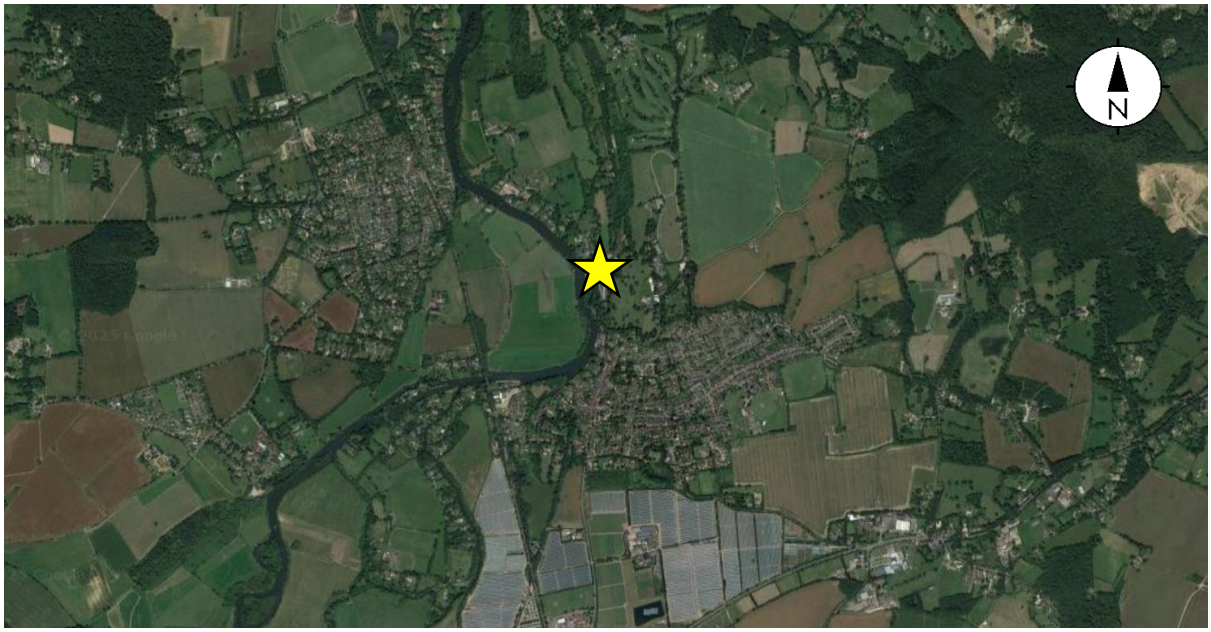
## 1.3 Proposals

The proposal is resurfacing the area between B1 and B2 and the interior of Shed 1 with new tarmac. Also the installation of a new sewage treatment plant. There will be extensive external refurbishment of the buildings on site, along with solar panels installed on B1 and B2. Additionally, a filtration system for washing boats will be installed.

## 1.4 Survey Limitations

There were no constraints to carrying out the survey.

**Figure 1:** An aerial map showing the location of the land proposed for re-development (yellow star) in relation to some of the local landscape.



## 2. Survey Methodology

### 2.1 Desktop Survey

A variety of resources were independently consulted to assess the known local records within the nearby area and the importance of the site within the local landscape from an ecological perspective. The resources used were the Local Records Centre, www.naturalengland.org.uk, www.ordnancesurvey.co.uk, Google Maps, Google Earth and Bing Maps. A search of other relevant nature conservation information was made through the use of the Multi-Agency Geographic Information for the Countryside (MAGIC) database.

The local records centre was contacted to provide data on all protected species and designated sites within a 2km radius of the proposed development site.

### 2.2 Field Survey

A Preliminary Ecological Appraisal (previously referred to as an Extended Phase 1 Habitat Survey) was carried out using the method outlined in the JNCC Handbook for *Phase 1 Habitat Survey: a technique for environmental audit (2010)*. This method aims to map and describe the broad habitat types and notable features present on the surveyed site.

As part of the field survey, the floral species will be identified and noted down. This will consider the dominant, abundant, frequent, occasional and rare (DAFOR) species within each habitat on the survey site. The impacts of the proposed development scheme will be assessed by this report.

Each habitat will be assessed for the presence and/or the potential presence of protected species. The impacts of the proposed scheme of works on all potential protected species on site will be assessed. From this, either remedial action or recommended phase 2 presence/absence surveys will be devised.

Some of the classification codes and colours listed within the JNCC handbook may have been slightly modified for this project.

Habitat Surveys can be carried out at any time of the year, with the optimal time period falling between the months of April through until September. Eco 360 feels confident that the majority of the floral species located on the site were competently identified during the survey effort. In addition to this, Eco 360 feels confident that this report reflects an accurate representation of the sites suitability for protected species to be present.

All sites surveyed by Eco 360 will be run against the relevant Local Wildlife Site Criteria to assess whether or not they meet the required standards.

# 3. Desktop Survey Results

## 3.1 Species Records

### 3.1.1 Amphibians

Within the ecological data search, two amphibian species have been identified within 1km from the survey site. These are the common frog (*Rana temporaria*) and smooth newt (*Lissotriton vulgaris*), with multiple records present. The nearest record is of *Rana temporaria*, located approximately 477m from the site.

### 3.1.2 Birds

Within the ecological data search, three protected bird species have been identified within 1km of the site centroid. These include house sparrow (*Passer domesticus*), starling (*Sturnus vulgaris*), and song thrush (*Turdus philomelos*).

### 3.1.3 Crustacean

Within the ecological data search, no crustacean species have been revealed within 1km of the site.

### 3.1.4 Fish

Within the ecological data search, no fish species have been revealed within 1km of the site.

### 3.1.5 Flora

Within the ecological data search, multiple floral species have been identified in the search radius. Notably, the nationally rare ground pine (*Ajuga chamaepitys*) was recorded approximately 10km from the survey site.

### 3.1.6 Fungi

Within the ecological data search, no fungal species have been revealed within 1km of the site.

### 3.1.7 Invertebrates

Within the ecological data search, one invertebrate species has been identified within the 1km search radius. This is the stag beetle (*Lucanus cervus*), with the nearest record located approximately 433m from the site.

### 3.1.8 Mammals

Within the ecological data search, multiple mammal species were recorded within 1km of the site. These include *Pipistrellus* sp., with the nearest record located approximately 33m from the site. Additional records of *Chiroptera* sp. and *Vespertilionidae* were also present.

### 3.1.9 Molluscs

Within the ecological data search, no mollusc species have been revealed within 1km of the site.

### 3.1.10 Reptiles

Within the ecological data search, one reptile species has been identified within 1km of the site. This is the slow-worm (*Anguis fragilis*), with the nearest record approximately 477m from the survey site.

# 4. Field Survey

## 4.1 Habitats

The preliminary ecological appraisal revealed multiple habitats on site. The phase 1 habitat map, habitat codes and target notes for the site are located within **Appendix C**. The following habitats were recorded on site (in habitat code order):

### 4.1.1 U1a – Developed land; sealed surface (Bare ground and buildings)

A large proportion of the site consists of hard standing and man-made surfaces associated with the built environment. This includes areas of concrete and tarmac surrounding the existing buildings, as well as paved access paths and parking space. These surfaces offer no ecological value for flora and very limited value for fauna. Additionally, there are buildings on site which were assessed for evidence of bats and birds.

**Building 1 (B1)**

*External description*

Building 1 is a large structure of steel frame construction with corrugated sheet metal roofing and cladding. The roof has a pitched design and is supported by regularly spaced steel posts. The external walls consist of sheet metal, with some sections left open to provide access for vehicles. The structure is in frequent use for storage and general boatyard activity. On one of the side elevations, there is a small, single-storey brick-built adjoining section with a flat roof. No PRFs such as cracks or crevices in the external walls were identified here. Gaps are present where the metal cladding meets the steel framework, particularly around the roofline and where panels overlap, however, these are not suitable for roosting bats. There are no traditional roof tiles, soffit boxes or bargeboards present. The building does not have eaves or fascia boards, and there is no roof void. No signs of staining, droppings, or feeding remains were noted around any external features.

*Internal description*

Internally, the building is a large open-plan space used for the storage of boats and materials and for ongoing maintenance work. The roof interior is entirely exposed, with no internal linings, insulation, or ceilings. The metal roofing sheets and supporting framework are visible from the inside. The structure is well lit during the day due to the open sides. No crevices, voids, or sheltered areas suitable for roosting were recorded internally. No signs of bat presence such as droppings, staining or feeding remains were identified during the internal inspection. Due to the building's construction, condition and internal layout, it is considered to provide negligible roosting opportunities for bats.

**Building 2 (B2)**

*External description*

Building 2 is a large, open-sided, single-storey storage unit constructed from a steel frame with metal sheet cladding and a pitched corrugated roof. The building is located directly opposite Building 1 and is used primarily for boat storage. The front elevation is entirely open, allowing vehicle and boat access along the full length of the structure. The gable ends and rear elevation are fully enclosed with corrugated sheet metal. There are no traditional eaves, bargeboards or soffits. Externally, the structure appears in sound condition with no obvious gaps or defects in the metal sheeting. The walls and roof do not support features such as lifted tiles or crevices that would normally provide suitable Potential Roost Features (PRFs). No evidence of bats, such as droppings or staining, was observed during the external inspection.

*Internal description*

The interior of Building 2 is completely open-plan, with a bare concrete floor and exposed steel support framework. The corrugated metal roof and wall panels are visible throughout. The space is in constant use for boat storage and workshop activity, and the internal environment is brightly lit during the day due to the open frontage. There are no ridge beams, voids or concealed cavities present. The open and disturbed nature of the space reduces its suitability for bat use. During the internal inspection, no droppings, staining, feeding remains or other indicators of bat presence were recorded. Based on the building's materials, layout and usage, it is considered to have negligible potential for bats.

**Building 3 (B3)**

**External description**

The surveyed structure is a single-storey industrial-style building constructed with a steel frame. The roof is a curved design, clad with corrugated asbestos sheeting. The building does not have any features that would be suitable for crevice-dwelling bats. No external evidence of bats (such as droppings or staining) was observed, and there were no signs of bird nesting activity on the external elevations at the time of the survey.

**Internal description**

No evidence of bat presence such as droppings, staining, scratch marks, feeding remains or urine spotting was recorded during the internal inspection. Additionally, no bird nesting material or old nests were located within the loft space.

#### 4.1.2 **G4 – Modified grassland**

To the rear and sides of the surveyed building is an area of modified grassland. This grassland is regularly managed and is composed primarily of perennial ryegrass (Lolium perenne) and other common sward species associated with maintained lawns. The grassland is low in botanical diversity due to frequent mowing. The presence of this grassland also adds to the permeability of the site for commuting mammals, including hedgehogs (Erinaceus europaeus), and may support occasional foraging by bats.

## 4.2 Species

The preliminary ecological appraisal survey revealed that the habitats that have been outlined for the proposed development area do contain protected species potential. The following assessment has also taken into account the adjacent habitats and connectivity to the wider landscape for all protected and rare species.

### 4.2.1 Amphibians (including Great Crested Newts)

Although the marina forms part of the surrounding landscape, it does not offer suitable breeding conditions for amphibians due to regular disturbance, boat activity, and the likely presence of fish. The proposed works will be confined to hardstanding, which is unsuitable terrestrial habitat for amphibians. No ponds or refuges will be disturbed. Therefore, the proposed development poses no risk to amphibian species, including great crested newts.

[redacted]

### 4.2.3 Bats

The buildings onsite have been assessed as having negligible potential for roosting bats, with no evidence of bat activity recorded. The proposed works involve resurfacing hardstanding areas and refurbishing existing structures that are unsuitable for roosting, and no vegetation or foraging habitat will be affected. As such, the proposed development is not expected to impact roosting, commuting, or foraging bats. To avoid unnecessary disturbance, any new external lighting should be downward-facing, low-level, and motion-sensored where possible.

#### 4.2.4 Birds

The proposed works do not involve the removal or alteration of any features that would serve as suitable breeding habitats for birds. No bird nests were identified in relation to any of the buildings on site. Additionally, no bird nests were found along the banks of the marina and their potential is reduced by the high levels of human disturbance. Consequently, there is a minimal risk of disturbing nesting birds or active nests during the construction period, and no additional action is required for this species group.

#### 4.2.5 Hazel Dormouse

The habitats on site are not suitable for supporting any hazel dormouse (*Muscardinius avellanarius*) specimens. The site's limited vegetation further reduce the likelihood of dormouse presence or movement. Thus, no further survey effort or mitigation measures for dormice are warranted.

#### 4.2.6 Invertebrates

The site has minimal habitat diversity and limited floral resources, making it of low value for invertebrates. The site is not deemed to be of high value to invertebrates. Therefore, no further assessment is required.

#### 4.2.7 Reptiles

The modified grassland is short-mown and the surrounding hardstanding offers limited structural diversity or cover. These habitats are suboptimal for reptiles and unlikely to support any significant populations. Additionally, the potential for reptiles to be present is reduced by the high levels of human disturbance. Therefore, the proposed works are not considered to pose a risk to reptiles.

#### 4.2.8 Water Voles

The proposed works are restricted to the resurfacing of hardstanding and the refurbishment of existing buildings, all of which are set back from the water's edge. No works will directly impact the bankside habitat or involve excavation near the watercourse, and as such, the risk of disturbance, displacement, or habitat degradation to water voles is considered negligible. Additionally, no evidence of water voles was detected during the survey.

#### 4.2.9 White-clawed crayfish

As all building and resurfacing activities are confined to terrestrial areas, the likelihood of impact on this species is negligible.

### 4.3 Potential impacts of the works

Based upon the results from the desktop survey, field survey and using a degree of academic supposition, the uncompensated development impacts have been summarised as follows:

- Amphibians – **Negligible**
- [redacted]
- Bats – **Negligible**
- Birds – **Negligible**
- Flora – **Negligible**
- Hazel Dormouse – **Negligible**
- Invertebrates – **Negligible**
- Reptiles – **Negligible**
- Water Voles - **Negligible**
- White-clawed crayfish - **Negligible**

# 5. Recommendations

## 5.1 Designated Sites

No designated sites that were revealed by the ecological data search provided fell on the proposed development site itself. Therefore, the proposed development will have no impact upon any local designated sites as the works are due to remain within the site boundary.

## 5.2 Habitats

No habitats of conservation concern were located on the site itself. Therefore, the proposed scheme of works will not impact upon any rare or valuable habitats.

## 5.3 Species

The site was found to contain some potential to support protected and/or rare species. However, the proposed works will not impact on any protected species. Therefore, no further survey effort is required for the site. However, some site enhancements could be incorporated into the proposed scheme.

## 5.4 Biodiversity Net Gain

This proposal is exempt from BNG requirements as less than 25m$^2$ of habitat, with a biodiversity value of more than zero, is impacted. Also, no priority habitats are impacted.

## 5.5 Optional site Enhancements

For the proposed development works, the following site enhancement measures **could** be incorporated into the site post-development. These measures are optional but are bespoke to the site surveyed for the enhancement of biodiversity.

### 5.5.1 Flora

At present, the site is not considered to have a diverse range of flora. Therefore, it is recommended that a small section of the site is converted into a 'wild meadow' that uses native wildflower seed mixes. A variety of these can be found on the Meadowmania or Wildflower Turf webpages.

### 5.5.2 Invertebrates

At present, the site is not considered to be of any importance to local invertebrate populations. In conjunction with the wildflower planting, it is recommended that one Bumblebee Box are incorporated into the scheme, along with one Bug Hotel. This will enhance the site for the local invertebrate populations, which will thus attract species further up in the trophic level.

### 5.5.3 Hedgehogs

The site could be enhanced for the local Hedgehog (*Erinaceus europaeus*) population by installing Eco Hedgehog Nest Boxes around this area. This will create more opportunities for hedgehogs within the local landscape.

### 5.5.4 Reptiles

Optional site enhancements for any potential Reptile populations could also be achieved on site. This could be done by creating/allowing rough grassland and scrubland sections included around the area. These should have interfaces between the scrubland and grassland as these transitional zones create a range of microhabitats and microclimates that are favoured by reptile species.

This habitat section would need to have the natural succession ceased to ensure that the habitats remain suitable to the local reptile populations. On this site, this could come in the form of mowing/strimming the habitats on site. This would be done over the winter months when reptiles will be hibernating. Mowing of the grassland would be undertaken every twelve months in November and February of every year. The cuttings from this mowing regime would be left on site in the least disturbed locations to act as potential grass snake (*Natrix natrix*) egg-laying features. If this optional measure was taken, these should measure at least $1m^3$ (the larger the better) and be situated in a sunny location.

Half of the scrubland habitat (and any natural regeneration of trees) would ideally be cut back between mid-September and February once every two years, with the remaining half of this habitat being cut back the intersecting two years (cutting should continue on a rotational basis between these sections). If any reptiles are found during this management process, then Eco 360 should be contacted immediately to deal with the impacts. This cutting regime should be adhered to, as any deviation from the months may result in the direct killing of reptiles.

In this section of habitat, it is recommended that log piles and brash piles are left in scattered locations. These create cover, add structure to the habitats and enhance the availability of food to the reptiles. For this project, a minimum of two of these would be necessary.

Hibernacula should also be scattered though the aforementioned habitats. The hibernacula can be made of cut timber, brash, inert hardcore, bricks, rubble, rocks, tree roots and building rubble.

The key design features include:

- A sunny location.
- A well-drained section of the site.
- One of the long sides faces south.
- Access for reptiles through openings.
- Location within suitable habitat (rough grassland and scrubland in this scenario).
- Minimal anthropogenic disturbance.
- Measure at least 4m length x 2m width x 1m height, but the larger the better.

Incorporating the above site enhancement features would benefit the local herptile populations and improve their conservation status within the area.

## 6. References

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## 7. Appendices

**Appendix A:** Site Plans

**Appendix B:** Ecological Data Search Species Map

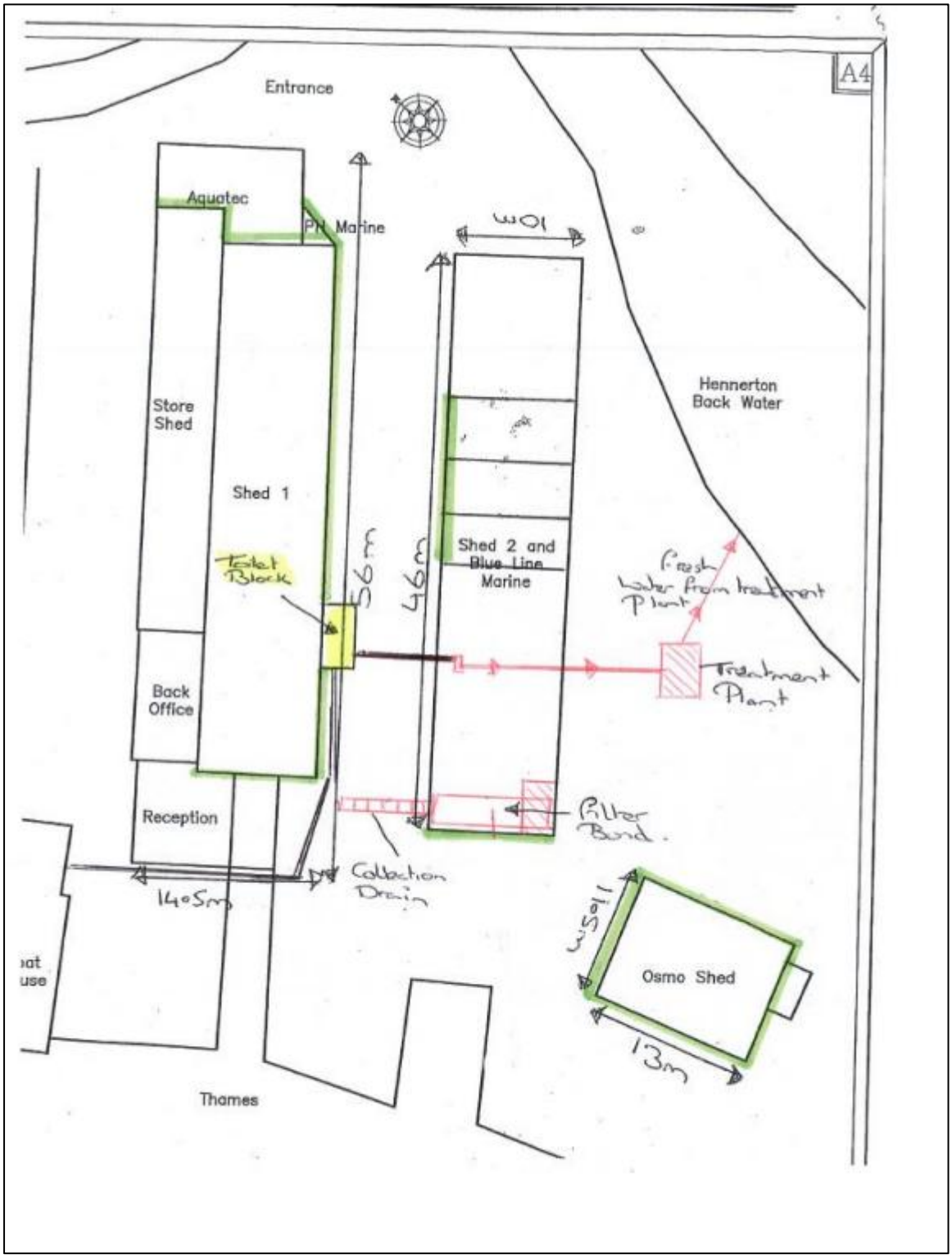
**Appendix C:** Phase 1 Habitat Map

**Appendix D:** Site Photographs

**Appendix E:** Biodiversity Legislation and Policy

**Appendix F**: Bats and Artificial Light

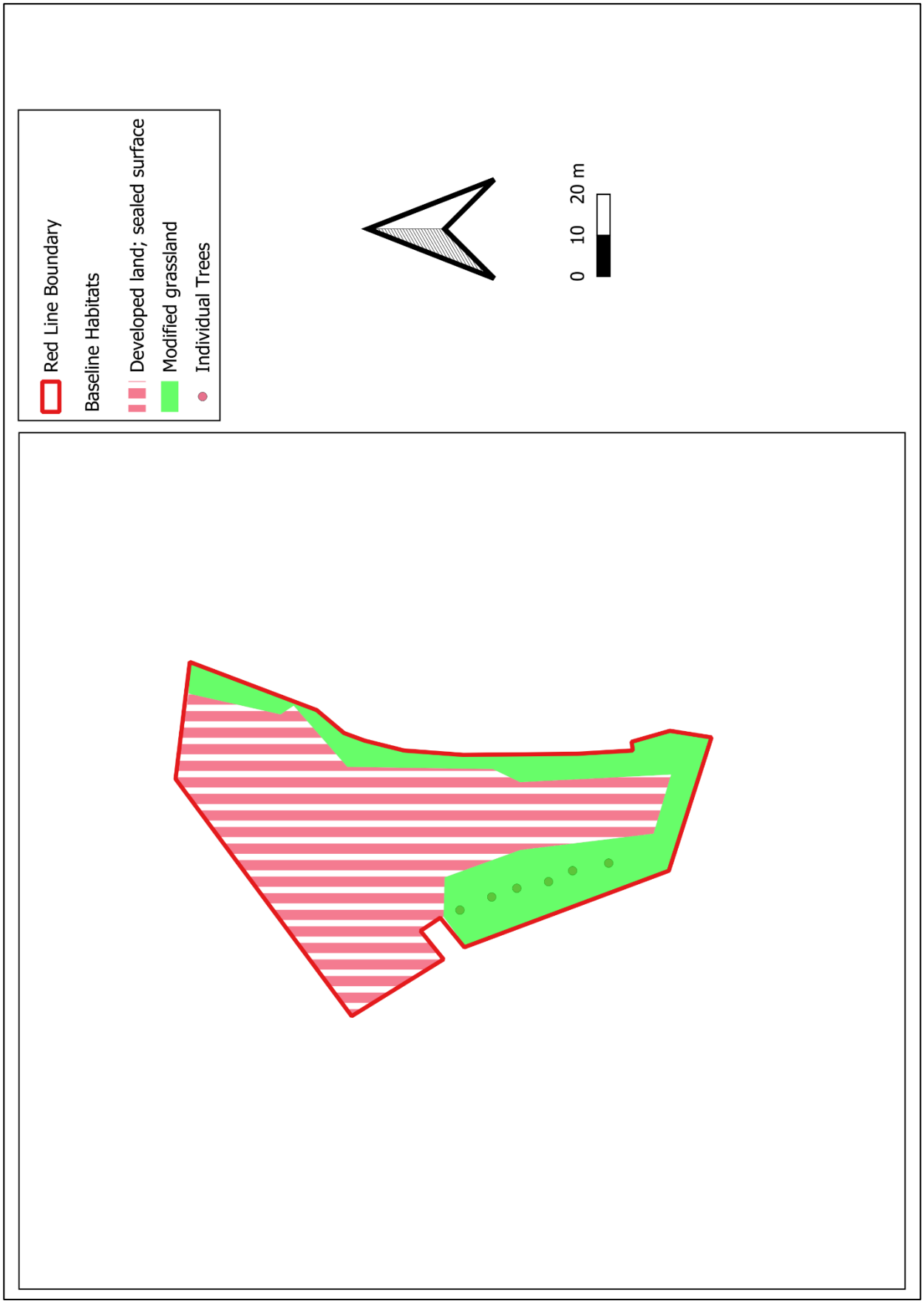
**Appendix A:** Site Plans



**Appendix B:** Ecological Data Search Maps

No data search maps have been provided at the production of this report.

**Appendix C:** Phase 1 Habitat Map



## **Appendix D:** Site Photographs

Photo 1: Side elevation of the building B1.

Photo 2: Side elevation of B2 which is open.

Photo 3: Photos showing the end of B2 which is next to B1.

Photo 4: Close-up of the bank next to the marina.

Photo 5: The grass bank with decking.

Photo 6: Photo of the decking along the grass bank.

Photo 7: Photos of amenity grassland which is mown regularly.

Photo 8: External view of B1.

Photo 9: Interior roof of B2.

Photo 10: Interior of B2.

Photo 11: Internal view of main storage unit (B1) showing exposed beams and boats.

## **Appendix E:** Biodiversity Legislation and Policy

**General Legislation and Policy:**

The framework of legislation and policy which underpins nature conservation in England. This is a material consideration in the planning process in England.

Conservation of Habitats and Species Regulations 2017 (Habitats Regulations 2010 as amended)

The Conservation of Habitats and Species Regulations 2017 consolidate and update the Conservation Regulations 1994 and the conservation of habitats and species regulations 2010 (and all their amendments). The Conservation of Habitats and Species Regulations 2017 are the principal means by which the EEC Council Directive 92/43 (The Habitats Directive) as amended is transposed into English and Welsh law.

The Conservation of Habitats and Species Regulations 2017 place duty upon the relevant authority of government to identify sites which are of importance to the habitats and species listed in Annexes I and II of the Habitats Directive. Those sites which meet the criteria are, in conjunction with the European Commission, designated as Sites of Community Importance, which are subsequently identified as Special Areas of Conservation (SAC) by the European Union member states. The regulations also place a duty upon the government to maintain a register of European protected sites designated as a result of EC Directive 79/409/EEC on the Conservation of Wild Birds (The Birds Directive). These sites are termed Special Protection Areas (SPA) and, in conjunction with SACs, form a network of sites known as Natura 2000. The Habitats Directive introduces for the first time for protected areas, the precautionary principle; that is that projects can only be permitted having ascertained no adverse effect on the integrity of the site. Projects may still be permitted if there are no alternatives, and there are imperative reasons of overriding public interest.

The Conservation of Habitats and Species Regulations 2017 also provide for the protection of individual species of fauna and flora of European conservation concern listed in Schedules 2 and 5 respectively. Schedule 2 includes species such as otter and great crested newt for which the UK population represents a significant proportion of the total European population. It is an offence to deliberately kill, injure, disturb or trade these species. Schedule 5 plant species are protected from unlawful destruction, uprooting or trade under the regulations.

**The Wildlife and Countryside Act (WCA) 1981 (As amended)**

The WCA, as amended, consolidates and amends pre-existing national wildlife legislation in order to implement the Bern Convention and the Birds Directive. It complements the Conservation (Natural Habitats. & c.) Regulations 1994 (as amended), offering protection to a wider range of species. The Act also provides for the designation and protection of national conservation sites of value for their floral, faunal or geological features, termed Sites of Special Scientific Interest (SSSIs).

Schedules of the act provide lists of protected species, both flora and fauna, and detail the possible offences that apply to these species.

**The Countryside and Rights of Way (CRoW) Act 2000**

The CROW Act, introduced in England and Wales in 2000, amends and strengthens existing wildlife legislation detailed in the WCA. It places a duty on government departments and the National Assembly for Wales to have regard for biodiversity, and provides increased powers for the protection and maintenance of SSSIs.

The Act also contains lists of habitats and species (Section 74) for which conservation measures should be promoted, in accordance with the recommendations of the Convention on Biological Diversity (Rio Earth Summit) 1992.

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

Section 40 of the NERC Act places a duty upon all local authorities and public bodies in England and Wales to promote and enhance biodiversity in all of their functions. Sections 41 (England) and 42 (Wales) list habitats and species of principal importance to the conservation of biodiversity. These lists supersede Section 74 of the CRoW Act 2000. These species and habitats are a material consideration in the planning process.

**The Hedgerow Regulations 1997**

The Hedgerow Regulations make provision for the identification of important hedgerows which may not be removed without permission from the Local Planning Authority.

**UK Biodiversity Action Plan**

The United Kingdom Biodiversity Action Plan (UKBAP), first published in 1994 and updated in 2007, is a government initiative designed to implement the requirements of the Convention of Biological Diversity to conserve and enhance species and habitats. The UKBAP contains a list of priority habitats and species of conservation concern in the UK, and outlines biodiversity initiatives designed to enhance their conservation status. Lists of Broad and Local habitats are also included. The priority habitats and species correlate with those listed on Section 41 and 42 of the NERC Act.

The UKBAP requires that conservation of biodiversity is addressed at a County level through the production of Local BAPs. These are complementary to the UKBAP, however are targeted towards species of conservation concern characteristic of each area. In addition, a number of local authorities and large organisations have produced their own BAPs. UKBAP and Local BAP targets with regard to species and habitats are a material consideration in the planning process.

**Planning Policy (England) and National Planning Policy Framework**

In early 2012, the National Planning Policy Framework (NPPF) replaced much previous planning policy guidance, including Planning Policy Statement 9: Biological and Geological Conservation. The government circular 06/05: Biodiversity and Geological Conservation - Statutory Obligations and Their Impact within the Planning System, which accompanied PPS9, still remains valid. A presumption towards sustainable development is at the heart of the NPPF. This presumption does not apply however where developments require appropriate assessment under the Birds or Habitats Directives. The latest National Planning Policy Framework was updated in February 2019, with the section in relation to conserving the natural environment being located within section 15.

Section 15, on conserving and enhancing the natural environment, sets out how the planning system should contribute to and enhance the natural and local environment by minimising impacts on biodiversity and, where possible, provide net gains in biodiversity. Opportunities to incorporate biodiversity gains into a development should be encouraged.

If a proposed development would result in significant harm to the natural environment which cannot be avoided (through the use of an alternative site with less harmful impacts), mitigated or compensated for (as a last resort) then planning permission should be refused.

**Species Specific Legislation**

This section contains a summary of legislation with relation to the species present or potentially present in the survey area. The reader should refer to the original legislation for definitive interpretation.

**Nesting and Nest Building Birds**

Nesting and nest building birds are protected under the Wildlife and Countryside Act WCA 1981 (as amended). Some species (listed in Schedule 1 of the WCA) are protected by special penalties.

Subject to the provisions of the act, if any person intentionally:

- kills, injures or takes any wild bird;
- takes, damages or destroys the nest of any wild bird while that nest is in use or being built; or
- takes or destroys an egg of any wild bird, he shall be guilty of an offence.

'Reckless' offences with regard to the disturbance of nesting wild birds included in Schedule 1 of the Wildlife and Countryside Act were added by the Countryside and Rights of Way Act 2000.

The Natural Environment and Rural Communities (NERC) Act 2006 places a duty on Government Departments to have regard for the conservation of biodiversity and maintains lists of species and habitats which are of principal importance for the purposes of conserving biodiversity in England and Wales. These lists include a number of bird species.

The reader is referred to the original legislation for the definitive interpretation.

**Bats**

All species of bat are fully protected under a variety of domestic, European and international legislation and conventions. These include:

- Bern Convention (Appendix II)
- Bonn Convention (Appendix II)
- Conservation Regulations (Northern Ireland) 1995
- Conservation of Habitats and Species Regulations 2010
- Countryside Rights of Way Act 2000
- Eurobats Agreement
- Habitats Directive (Annexes IV and II)
- Habitats Regulations 1994 (as amended) Scotland
- NERC Act 2006
- Wildlife and Countryside Act 1981 (as amended)
- Wild Mammals Protection Act

In addition to this, some species have additional protection by being listed on the UK Biodiversity Action Plan (UKBAP).

The legislation afforded to bats makes it illegal to possess or control any live or dead specimens, to damage, destroy or obstruct access to any structure or place used for shelter, protection or breeding, and to intentionally disturb a bat while it is occupying a structure or place which it uses for that purpose.

All nesting birds are protected under the Wildlife and Countryside Act 1981 (as amended), which protects birds, nests, eggs and nestlings from harm. In addition to this, some rarer species, such as barn owls are afforded extra protection.

National Planning Policy Framework, Section 15:

The published framework in 2018 replaces the previous Planning Policy Statement 9 and National Planning Policy (dated 2012).

Section 15: Conserving and enhancing the natural environment reaffirms the government's commitment to maintaining green belt protections and preventing urban sprawl, retains the protection of designated sites and preserves wildlife. It also aims to improve the quality of the natural environment and halt declines in species and habitats, protects and enhances biodiversity and promotes wildlife corridors.

Biodiversity 2020:

This sets out to halt overall biodiversity loss and support healthy well-functioning ecosystems by establishing coherent ecological networks, with more and better places for nature, to the benefit of wildlife and people. The government's policy is aimed at individuals, communities, local authorities, charities, business and government, which all have a role to play in delivering Biodiversity 2020.

**Freshwater White-clawed Crayfish**

The white-clawed crayfish is partially protected under Wildlife and Countryside Act 1981 (as amended). It is listed on schedule 5 and therefore afforded protection under Section 9 (1 and 5). Therefore, it is an offence to take white-clawed crayfish and to sell, or attempt to sell, any part of the species, alive or dead, or intend to buy or sell.

**Great Crested Newt**

The great crested newt (*Triturus cristatus*) is fully protected under a variety of legislation and conventions. These include:

- Bern Convention (Appendix II)
- Conservation (Natural Habitats, &c.) Regulations 1994 (as amended)
- Conservation of Habitats and Species Regulations 2010
- EU Habitats Directive (Annex II and IV)
- Nature Conservation (Scotland) Act 2004
- NERC Act 2006 (Section 41 England; Section 42 Wales)
- Wildlife and Countryside Act 1981 (as amended)

In addition to this, the great crested newt has been listed as a priority species on the UK Biodiversity Action Plan (UKBAP).

This legislation covers all aspects of newt life stages (eggs, efts and adult newts) and makes it illegal to damage, destroy or obstruct access to any structure or place used for shelter, protection or breeding, and to intentionally disturb a great crested newt while it is occupying a structure or place which it uses for that purpose.

Licenses can be obtained from Natural England (DEFRA) under the Conservation (Natural Habitats etc.) Regulations 1994, to permit activities for the purposes of:

- Regulation 44(2)(e): Preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment, or
- Regulation 44(2)(f): Preventing the spread of disease
- Regulation 44(2)(g): Preventing serious damage to any form of property or fisheries

Or

- If there is no satisfactory alternative.

The above regulations allow people to carry out activities which would otherwise be illegal.

**Hazel Dormouse**

Hazel Dormouse and their habitats are protected by:

- Wildlife and Countryside Act 1981 (as amended)
- Countryside Rights of Way (CROW) 2000
- The Natural Environment and Rural Communities Act 2006
- Conservation of Habitat and Species Regulations 2010

These make it an offence to:

- Capture, injure or kill a Hazel Dormouse
- Disturb a Hazel Dormouse
- Damage or destroy breeding or nesting sites in use by Hazel Dormice
- Disturb a Dormouse whilst it is occupying a structure or place that they use for shelter or protection
- Obstruct access to any structure or place that the Dormouse uses for shelter and protection.
- To possess or control any live or dead specimens.

**Otter**

Otters are fully protected by the European Habitats Directive (92/43/EEC) by being incorporated in annex II of the legislation. In addition to this, otters are listed on schedule 5 of the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to:

- To intentionally kill, injure or take an otter.
- To possess or control any live or dead specimens.
- To intentionally or recklessly damage, destroy or obstruct access to any structure, feature or place of shelter in use by otters.
- To intentionally or recklessly disturb an otter whilst it is in occupation of a feature or structure.
- To sell, possess or transport for the purpose of sale or publicly declare the desire to buy or sell otters.

**Reptiles**

All six native reptiles within Great Britain are legally protected, with the extent of protection varying dependent upon their rarity and conservation importance.

Those that receive full protection under the Wildlife and Countryside Act 1981 (as amended) are the rare sand lizard and smooth snake. These species also receive protection under the Conservation (Natural Habitats &c.) Regulations 1994 (also referred to as the Habitats Directive). This means that they are protected from deliberate disturbance, killing, injury or capture and the habitat in which they live is also fully protected against damage or destruction. Any activity involving disturbance or damage to habitats utilised by sand lizards or smooth snakes would require a licence issued by the Department of the Environment, Food and Rural Affairs (DEFRA) following consultation with the statutory nature conservation organisation (Natural England).

The remaining four reptile species are 'partially protected' under the Wildlife and Countryside Act 1981 (as amended), with these species being slow-worm, common lizard, grass snake and adder. This means that these species are protected against intentional killing, injuring and against sale, but their habitat is not protected. In planning terms this means that the presence of these species is a material consideration and there is a requirement to ensure that any reptile interest is safeguarded. If a proposed development is likely to have an impact on these reptiles, then the statutory nature conservation organisation must be notified, particularly if capture and translocation is being proposed. In some parts of the UK, sites that support common reptile species such as common lizards and slow-worms can qualify as County Wildlife Sites. Sites of this designation may receive protection in planning policy.

**Water Voles**

Water Voles are fully protected under the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to:

- To intentionally kill, injure or take a water vole.
- To possess or control any live or dead specimens.
- To intentionally or recklessly damage, destroy or obstruct access to any structure, feature or place of shelter in use by water voles.
- To intentionally or recklessly disturb a water vole whilst it is in occupation of a feature or structure.
- To sell, possess or transport for the purpose of sale or publicly declare the desire to buy or sell water voles.

**Non-Native Floral Species**

It is an offence under schedule 9 of the Wildlife and Countryside Act 1981 (as amended) to plant or otherwise cause non-native flora to grow in the wild. This includes the transportation of earth that has previously had non-native species growing and includes the spread of the species.

All stands of non-native floral species need to be disposed of safely at a licenced landfill site according to the Environmental Protection Act (Duty of Care) Regulations 1991.

## **Appendix F:** Bats and Artificial Light

Artificial lighting is known to affect bat's roosting and foraging behaviour, with lighting resulting in a range of impacts that includes roost desertion (BCT, 2009), delayed emergence of roosting bats (Downs et al., 2003), increased activity of some bat species and decreased activity by others (Stone et al., 2012).

An experimental approach using LED units, demonstrated that relatively fast-flying bat species, including the common pipistrelle, showed no significant impacts as a result of new artificial lighting, even when lighting was set at relatively high levels close to 50 lux.

In contrast, slow flying bats such as the myotid bats (Myotis spp.) showed sharp reductions in presence, even at low light levels of 3.6 lux (Stone et al., 2012).

**Current recommendations for all bat species specifies that no bat roost should be directly illuminated.**

Due to the impacts of lighting, mitigation and sensitive lighting design schemes are required for projects where bats are present. These should include bat friendly lighting plans that should aim to avoid lighting wherever possible. If this is not possible, then the minimisation of any lighting impacts is required by adopting the following measures:

- To introduce lighting curfews or use of PIR sensors.

  Lighting curfews can be an effective way of avoiding impacts on bats. These curfews may involve either turning off lighting or dimming light units at specific times of the night, dimming units at key times of the year, providing the luminaire allows for this option via a control unit. Lighting to be triggered by PIR sensors can be expected to be illuminated only when required and for a low proportion of time.

- To consider no lighting solutions where possible.

  Options such as white lining, good signage and LED cats eyes should be considered as preferable. Reflective fittings may help make use of headlights to provide any necessary illumination in some areas.

- To use only high pressure sodium or warm white LED lamps where possible.

  High pressure sodium and warm white LED lamps emit lower proportions of insect attracting UV light than mercury, metal halide lamps and white LED lighting. Generally, lamps should have a lower proportion of white or blue wavelengths, with a colour temperature <4200 kelvin recommended (BCT, 2014).

- To minimise the spread of light.

  The light spread should be kept at or near horizontal to ensure 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. Baffles, hoods, louvres and shields should be used where necessary to reduce light spill.

- To consider the height of the lighting column.

  While downward facing bollard lighting is often preferable, it should be noted that a lower mounting height does not automatically reduce impacts to bats as bollard lighting can often be designed to provide up-lighting. Where bollard lighting is considered to be the most appropriate system, bollard spacing or unit density should be kept to a minimum and units should be fitted with the appropriate hoods/deflectors to reduce any up-lighting.

- To avoid reflective surfaces below lights.

  The polarisation of light by shiny surfaces attracts insects increasing bat activity (BCT, 2012). Consequently, surface materials around lighting require consideration.

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No reliance should be made on any such comments in relation to the structural integrity of the features located on the surveyed site. All information within the report is based solely on evidence that has been found on site during the service provided. No individual opinion or inference will be made other than that of the suitably qualified ecologist appointed to the project.