Elite Ecology

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Dower House,

Harlington

Preliminary Ecological Appraisal

April 2023

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0. Executive Summary

This report has been prepared at the request of Mr. Michael Edwards (Komfort Services). It relates to the proposed re-development works at Dower House, High Street, Harlington, Bedfordshire, UB3 5DH (OS Grid Reference: TQ 08846 77323). This survey effort involved both a desktop study and field survey being undertaken.

Under the current proposals, the plans are to rebuild the listed building and create thirteen residential dwellings with new access.

Greenspace Information for Greater London (GiGL) was commissioned to carry out an ecological data search of all protected species and sites recorded within a 1km radius of the site. No records lay on the proposed re-development site itself, although a number of records are present in close proximity. Please see **Section 3** for a review of the records revealed.

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

- **A1.1.1** – Broadleaved Woodland
- **A2.2** – Scattered Scrub
- **A3.1** – Broadleaved Scattered Trees
- **A3.2** – Coniferous Scattered Trees
- **A4.1** – Recently Felled Trees
- **C3.1** – Tall Ruderal
- **J1.3** – Short Ephemeral
- **J2.4** – Fence
- **J2.5** – Wall
- **J3.6** – Building
- **J4** – Hard Standing Ground
- **J5** – Other (Waste Piles)

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

Habitats:
Priority 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.

Trees: The root protection areas for trees retained during the development need to be identified and adhered to. This is to protect the trees and ensure that their growth is not inhibited.

Wildlife Corridors: It is recommended that designated wildlife corridors are incorporated into the design scheme of the site. This will be identified within a soft landscaping plan that will also offer a management strategy that is required to be adhered to. Linear features that enhance the site for a number of species should also be maintained during and after the scheme of works.

Species:

Badgers (*Meles meles*): Although no badger setts were observed on or immediately offsite at the time of the survey, activity patterns of this species can change over a short time. It is therefore recommended that an update badger survey is undertaken if works do not commence within six months of the survey date (6th of March 2023). Additionally, during construction works, excavations should be left closed overnight, or a mammal ladder installed. The ladder needs to be of a size suitable for badgers and can be constructed out of a piece of wood/timber.

Bats: As **B1** has a **moderate** bat roosting potential, a minimum of two further activity surveys are required. These surveys are required to be undertaken during the bat survey season of May to September, with at least one survey done within the optimal survey months of mid-May to August. The buildings referred to as **B2** and **B3** have both been identified as having **low** bat roosting potential. Therefore, a minimum of one further activity survey is required on these structures during the optimal survey months of mid-May to August. It has been deemed that six surveyors will be sufficient to cover every aspect of the buildings. For the trees on site, an in-depth Ground Level Assessment (GLA) of the trees will be required to assess their bat roosting potentials. On the site itself, no artificial lighting is to be shone on any scattered trees, shrubs, linear features, woodland, or waterways. An artificial lighting plan is required. All lighting must avoid the features of interest for the local bat populations. This is required due to the suitable habitats within the local landscape meaning there is likely to be foraging and commuting bats present in the area.

Birds: The building referred to as **B1** was found to contain a blackbird (*Turdus merula*) nest, with buildings **B2** and **B3** also having features that birds could use for nesting purposes. In addition to this, a number of habitats on site are of potential to support breeding birds. Therefore, any building works and vegetation removal are recommended to be undertaken outside of the bird breeding season (March to August, inclusive). If the works are completed during the bird breeding season, then a further inspection by a suitably qualified ecologist is required no more than twenty-four hours before this process commences. This is to ensure that no active nest site is illegally destroyed, due to the protection afforded to all active bird nests under the Wildlife and Countryside Act 1981. If an active nest is found by a site inspection, an exclusion zone around the nest will be necessary to preserve this feature until the chicks have fledged the nest. To compensate for the loss of the blackbird nest, one Blackbird FSC Nest Box is required to be installed at the completion of the works.

Hedgehogs (*Erinaceus europaeus*): If trees or dense vegetation is cleared between the 1st of November and the 31st of March, then an inspection by a suitably qualified ecologist is required to ensure no hibernating hedgehogs are present on site. It is recommended that precautionary measures are incorporated if construction is undertaken at other times of the year. This will be to create provisions for hedgehogs to escape from all trenches dug into the ground, by creating slopes or providing ramps at the end of each working day. Additionally, any pipework left on site that is greater than 150mm in diameter will need to be planked off. Should this information be strictly adhered to, then the development works will not negatively impact on the local mammal populations.

Reptiles: The habitats on site have the potential to support a number of common reptile species, with areas of cover and basking spaces apparent. No specimens were revealed from the desktop study, although this could be due to a lack of survey effort. Therefore, to ensure that habitats remain post-development, a Reptile Mitigation Statement is required for the site.

Site Enhancements:

For the proposed site enhancements, please see **Section 5.4** of this report.

Biodiversity Net Gain:

Biodiversity Net Gain needs to be ensured within the scheme of works and this will be devised utilising the latest DEFRA metric.

Contents

1. Introduction

1.1 Report Rationale

This report has been prepared at the request of Mr. Michael Edwards (Komfort Services). It relates to the proposed re-development works at Dower House, High Street, Harlington, Bedfordshire, UB3 5DH (OS Grid Reference: TQ 08846 77323). This survey effort involved both a desktop study and field survey being undertaken.

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 6th of March 2023 by **Ms. Lucy Talbot:** BSc (Hons), Ecologist.

1.2 Site Description and Works

The site is located within in an urban setting in the village of Harlington, found within the London Borough of Hillingdon.

The site measures approximately 0.7ha and contains a number of habitats. These include broadleaved scattered trees, buildings, coniferous scattered trees, fence, hard standing ground, scattered scrub, tall ruderal, wall, recently felled broadleaved trees, short ephemeral and other habitat (waste piles). The habitats on site could have the potential to support a number of protected species. The photographs of the site are found within **Appendix E**.

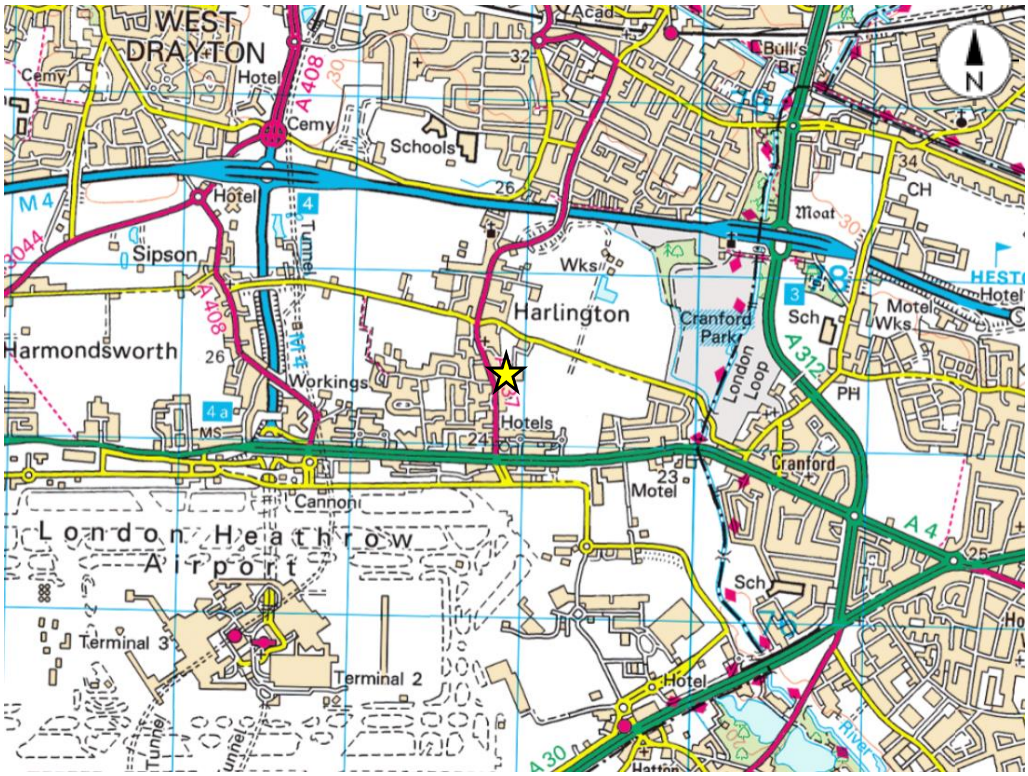
Within the wider landscape, further habitats are present. These come in the form of amenity grassland, arable land, buildings (and their associated gardens/yards), hard standing ground, hedgerows, scattered trees, standing water and woodland. The habitats that surround the site also have the potential to be utilized by a variety of protected species.

Under the current proposals, the plans are to rebuild the listed building, and create thirteen additional residential dwellings with new access and community woodland. This will result in both the permanent and temporary loss and/or alteration of some of the habitats located on the proposed re-development site.

Figure 1: An aerial map showing the boundary of the site at Dower House, Harlington (as shown by the red outline)

Figure 2: An aerial map showing the boundary of the site at Dower House, Harlington (as shown by the yellow star) in relation to some of the local landscape.

Figure 3: An OS map obtained from Bing showing the location of Dower House, Harlington (yellow star).



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 sites within 1km of the proposed development site. Greenspace Information for Greater London (GiGL) was the relevant local record centre for this project.

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. This survey was carried out in March 2023, which is outside the optimal time period for flora surveys. However, Elite Ecology feels confident that this report reflects an accurate representation of the site's suitability for protected species to be present.

All sites surveyed by Elite Ecology 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 Statutory Sites

The ecological data received from GiGL revealed no statutory protected sites (e.g. LNR, SSSI, SPA, SAC or Ramsar) within the 1km radius of the site.

3.2 Non-statutory Sites

The ecological data received from GiGL confirmed the presence of three non-statutory protected site within 1km of the site. These were in the form Sites of Importance for Nature Conservation (SINCs). They are as follows:

Site Name	Designation	Approx. Distance (m)	Heading
Cranford Countryside Park and Open Space	Site of Importance for Nature Conservation (SINC)	960	NE
Cranford Lane Gravel Workings	SINC	750	NE
Field Close Open Space Roughs	SINC	650	W

3.3 Woodland Sites

The information provided by GiGL revealed no Ancient and Semi-natural Woodland (ASNW) site within the 1km search radius.

3.4 Regionally Important Geological Sites (RIGS)

The information provided by GiGL revealed one RIGS within the 1km search radius. This is as follows:

Site Name	Designation	Approx. Distance (m)	Heading
Sipson Lane Complex	Recommended RIGS	1,400	NW

3.5 Species Records

3.5.1 Amphibians

Within the ecological data search provided by GiGL, no amphibian species have been identified within 1km of the survey site.

3.5.2 Birds

Within the ecological data set received by GiGL, twenty bird species were revealed within 1km of the survey site. The closest record to the proposed works site is of fieldfare (*Turdus pilaris*), mistle thrush (*Turdus viscivorus*), red kite (*Milvus milvus*), redwing (*Turdus iliacus*) and starling (*Sturnus vulgaris*), which were all located approximately 175m to the south-west of the site centroid. A table with the collated bird species recorded can be found within **Appendix B**.

3.5.3 Crustacean

Within the ecological data search provided by GiGL, no records of crustacean species were revealed within the 1km search radius of the site centroid.

3.5.4 Flora

Within the ecological data search provided by GiGL, sixty floral species have been revealed within 1km of the site, eight of which are invasive. The closest of the higher plants was large-leaved lime (*Tilia platyphyllos*) which was located approximately 615m to the north of the site centroid. A table with the collated floral species recorded can be found within **Appendix B**.

3.5.5 Fungi

Within the ecological data search provided by GiGL, no fungi species have been revealed within 1km of the site.

3.5.6 Invertebrates

Within the ecological data search provided by GiGL, twelve records have been identified within a 1km radius of the site. The closest record was of stag beetle (*Lucanus cervus*) which was recorded approximately 293m to the south of the site centroid. A table with the collated invertebrate species recorded can be found within **Appendix B**.

3.5.7 Mammals

Bats

Within the ecological data search provided by GiGL, one species of bat was revealed within the 1km search radius. This was of an unidentified bat (*Chiroptera* sp.). An accurate location of this record could not be given due to the four-figure grid reference provided by GiGL.

Other Mammals

Within the ecological data search provided by GiGL, two other mammals were revealed within the 1km search radius. These come in the form of European otter (*Lutra lutra*) and west European hedgehog (*Erinaceus europaeus*). The closest record to the proposed site is of west European hedgehog located approximately 306m to the north of the site centroid.

3.5.8 **Mollusc**

Within the ecological data search provided by GiGL, no mollusc species were identified within 1km of the survey site.

3.5.9 **Reptiles**

Within the ecological data search provided by GiGL, no reptile species have been identified within 1km of the survey site.

4. Field Survey

4.1 Habitats

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

On Site:

4.1.1 A1.1.1 – Broadleaved Woodland

Broadleaved woodland makes up an area of the south-eastern part of the site. Species found within this habitat include elm (*Ulmus sp.*), which was found abundantly, as well as blackthorn (*Prunus spinosa*) and English oak (*Quercus robur*), which were found frequently. Holly (*Ilex aquifolium*) was found occasionally and elder (*Sambucus nigra*), eucalyptus (*Eucalyptus sp.*) and sycamore (*Acer pseudoplatanus*) were found rarely.

Several species were also found within the understorey of this habitat, including common ivy (*Hedera helix*) and common nettle (*Urtica dioica*), which were found frequently, and foxglove (*Digitalis purpurea*), Italian arum (*Arum italicum*) and spear thistle (*Cirsium vulgare*), which were found occasionally.

This habitat has the potential to support a range of protected species including nesting birds and hedgehogs (*Erinaceus europaeus*). No trees with roosting bat potential were identified during the site visit. A number of these trees have ivy (*Hedera helix*) on, thus providing potential roosting features for bats.

4.1.2 A2.2 – Scattered Scrub

Patches of scattered scrub can be found throughout the site. Species found in this habitat include bramble (*Rubus fruiticosus*), which was found dominantly throughout, common ivy (*Hedera helix*) and foxglove (*Digitalis purpurea*) which were found occasionally, and cherry laurel (*Prunus laurocerasus*) which was found rarely. This habitat has the potential to support a number of protected species, providing cover and some connectivity.

4.1.3 A3.1 – Broadleaved Scattered Trees

Several scattered trees can be found throughout the site. English oak (*Quercus robur*) was found frequently, and holly (*Ilex aquifolium*) occurs occasionally. Staghorn sumac (*Rhus typhina*) and sycamore (*Acer pseudoplatanus*) were found rarely. Although no bird nests were identified during the site visit, these trees still have potential to support nesting birds. A number of these trees have ivy (*Hedera helix*) on, thus providing potential roosting features for bats.

4.1.4 **A3.2 – Coniferous Scattered Trees**

Several coniferous scattered trees can be found to the south and east of the house. Species identified on site include cypress (*Cupressus sp.*) and yew (*Taxus baccata*), which were both found frequently. These conifer trees do not have any potential roosting features for bats. These trees have the potential to be used by nesting birds, although no active bird nests were identified during the site visit.

4.1.5 **A4.1 – Recently Felled Trees**

A section of the site has been identified as recently felled trees. These trees show up in aerial imagery of the site, but were not present at the time of the survey. This is located adjacent to the broad-leaved woodland habitat to the east of the site. The species composition is unknown, but is expected to have been the same as the broad-leaved woodland and broad-leaved scattered trees on site.

In addition to this, between April 2020 and March 2021, a portion of trees were also felled. The species of these trees are unknown, and this area is now short ephemeral land, with waste piles present.

4.1.6 **C3.1 – Tall Ruderal**

Patches of tall ruderal habitat can be found growing throughout the site. This habitat was species-poor with spear thistle (*Cirsium vulgare*) being the only species present. This habitat is of limited potential to protected species.

4.1.7 **J1.3 – Short Ephemeral**

The majority of the rear garden of the site has been identified as short ephemeral. The vegetation is extremely short, and comprises of a similar species composition as the woodland understorey. This included common ivy (*Hedera helix*) and common nettle (*Urtica dioica*), which were found frequently, and foxglove (*Digitalis purpurea*), Italian arum (*Arum italicum*) and spear thistle (*Cirsium vulgare*), which were found occasionally.

4.1.8 **J2.4 – Fence**

The majority of the site is surrounded by post and wire and post and mesh fencing. This habitat is of no ecological significance and pose no barriers to prevent protected species commuting through the site.

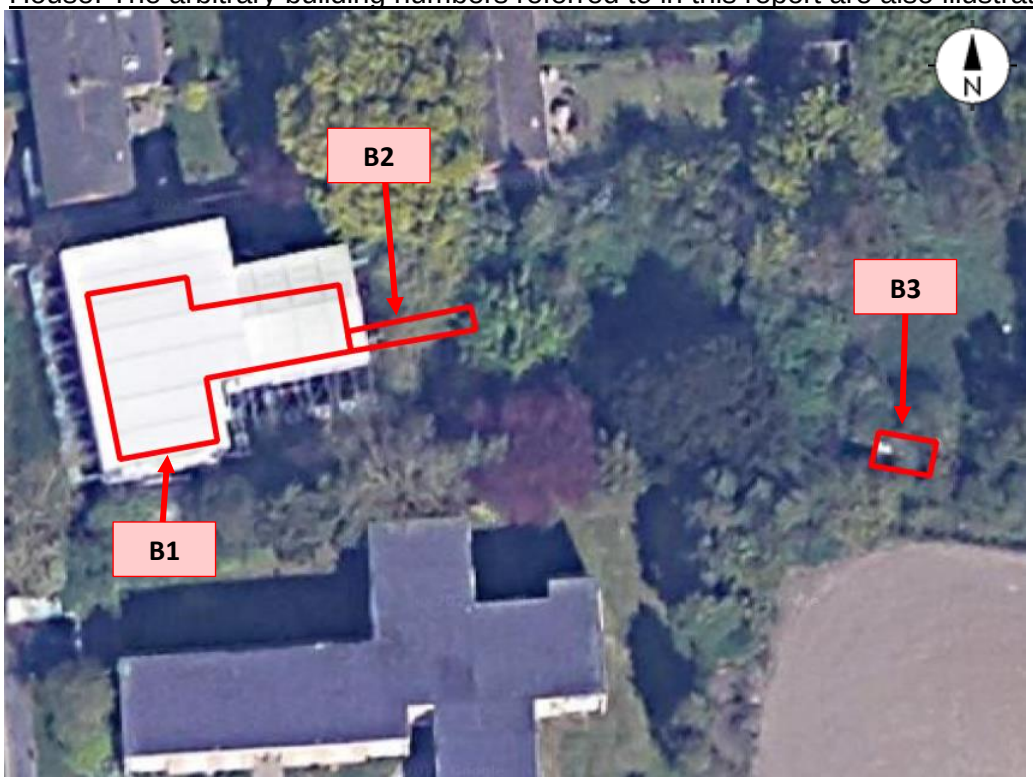
4.1.9 **J2.5 – Wall**

Brick walls can be found to the north and south of Dower House (**B1**). This habitat is of no ecological significance. The walls would not pose as a significant barrier to commuting organisms as they could be bypassed. The walls were also in good condition, with no cracks or crevices for species to utilise.

4.1.10 **J3.6 – Building**

A Preliminary Roost Assessment (PRA) was conducted on three buildings on the surveyed site. This involved both an external and internal inspection. The surveyed buildings were Dower house (**B1**), the lean-to shed (**B2**) and the wooden shed in the garden (**B3**). A map of these buildings can be found in **Figure 4** below.

Figure 4: A map showing the locations of the buildings on the survey site at Dower House. The arbitrary building numbers referred to in this report are also illustrated.



Dower House (B1):

External Inspection

B1 is a detached residential building. Its walls are constructed of solid brick, with some parts of the southern and eastern elevations being rendered. There is currently no roof on the majority of this building, as it was damaged by fire. However, there is a small section of clay tile roof remaining in the eastern section of the building. The building is covered by temporary roof scaffolding to protect the interior of the building from further deterioration from the weather. The doors of the building are wooden and the windows are also wooden framed, although at the time of the survey visit the doors were smashed. A brick chimney is present on the northern elevation on the eastern wing of the building. A large crack running up the brickwork can be found on the southern elevation of the building. Several gaps under the tiles on the eastern side of the roof of the eastern wing were identified. No external bird nests were identified during the survey visit.

Internal Inspection

Internally, the walls of the building are brick. Some wattle and daub walls are also visible. The interior of the building is filled with temporary supports that are holding up the remaining timber beams of the roof. Due to the lack of roof, natural light fills the interior. The easternmost section of the east wing is largely untouched by fire damage, and within this loft space timber beams can be seen, with a bitumen felt underlay also visible. Due to the current condition of the building, the loft space was unable to be fully assessed. Within this void a blackbird (*Turdus merula*) nest was identified, although this was not active at the time of the survey. No anecdotal signs of bat activity was identified throughout the interior of the property.

Lean-to Shed (B2):

External Inspection

This building adjoins to the eastern elevation of **B1**. The southern elevation of this building is made of solid brick walls, with the eastern section is made of wooden cladding. The sloped roof of this structure falls northwards, and is made of clay pan tiles. No windows or doors are present within this structure. Ivy (*Hedera helix*) is present on the southern elevation, but it is not thick enough to support roosting bats. The roof is damaged, and several broken and slipped tiles are present, providing potential roosting opportunities for bats. No external bird nests were identified during the survey visit

Internal Inspection

The roof of the building is supported by timber beams. No roof membrane is present, and the bottoms of the tiles are exposed. Natural light enters through gaps between the tiles and through the elevations of this building that are without walls. Spider webs are present on the rafters. No evidence of roosting bats or nesting birds was identified within the interior.

Garden Shed (B3):

External Inspection

The building is an A-frame shed with plastic walls that meet to form an apex. It has a plastic window in the gable end that is smashed. No other features such as guttering, or drainpipes are present. The structure is covered in ivy (*Hedera helix*), although this would not be dense enough to support roosting bats.

Internal Inspection

Internally the plastic of the roof of supported by timber beams. Natural light enters the building as there is an absence of plastic roofing boards towards the apex of the roof. No signs of bats or nesting birds were present on the interior.

Summary of the Building Inspection:

Due to the amount of potential ingress/egress points and suitable roosting features, the structures at Dower House, Harlington were deemed as having the following bat and bird potential:

Building	Nesting Bird Potential	Bat Roost Potential	Number of bat activity surveys required	Number of surveyors required for bat activity survey
B1	**High**	**Moderate**	2	4
B2	**Low**	**Low**	1	
B3	**Low**	**Low**	1	2

Therefore, a minimum of two further bat activity surveys are required for **B1**, with a minimum of one further bat activity survey undertaken on **B2** and **B3**.

Table 1: Low/moderate/high potential building(s) survey recommendations. The full guidance can be found in the Bat Conservation Trust Good Practice Survey Guidelines. These guidelines are what all local authorities abide by.

Bat Conservation Trust

Table 7.3 Recommended minimum number of survey visits for presence/absence surveys to give confidence in a negative result for structures (also recommended for trees but unlikely to give confidence in a negative result).

Low roost suitability	Moderate roost suitability	High roost suitability
One survey visit. One dusk emergence or dawn re-entry survey[a] (structures). No further surveys required (trees).	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey.[b]	Three separate survey visits. At least one dusk emergence and a separate dawn re-entry survey. The third visit could be either dusk or dawn.[b]

[a] Structures that have been categorised as low potential can be problematic and the number of surveys required should be judged on a case-by-case basis (see Section 5.2.9). If there is a possibility that quiet calling, late-emerging species are present then a dawn survey may be more appropriate, providing weather conditions are suitable. In some cases, more than one survey may be needed, particularly where there are several buildings in this category.
[b] Multiple survey visits should be spread out to sample as much of the recommended survey period (see Table 7.1) as possible; it is recommended that surveys are spaced at least two weeks apart, preferably more. A dawn survey immediately after a dusk one is considered only one visit.

4.1.9 J4 – Hard Standing Ground

Hard standing ground is present as a gravel driveway around the house. This habitat is of no ecological significance.

4.1.10 J5 – Other Habitat

Waste Piles

Several large waste piles can be found on site. These are of no ecological significance.

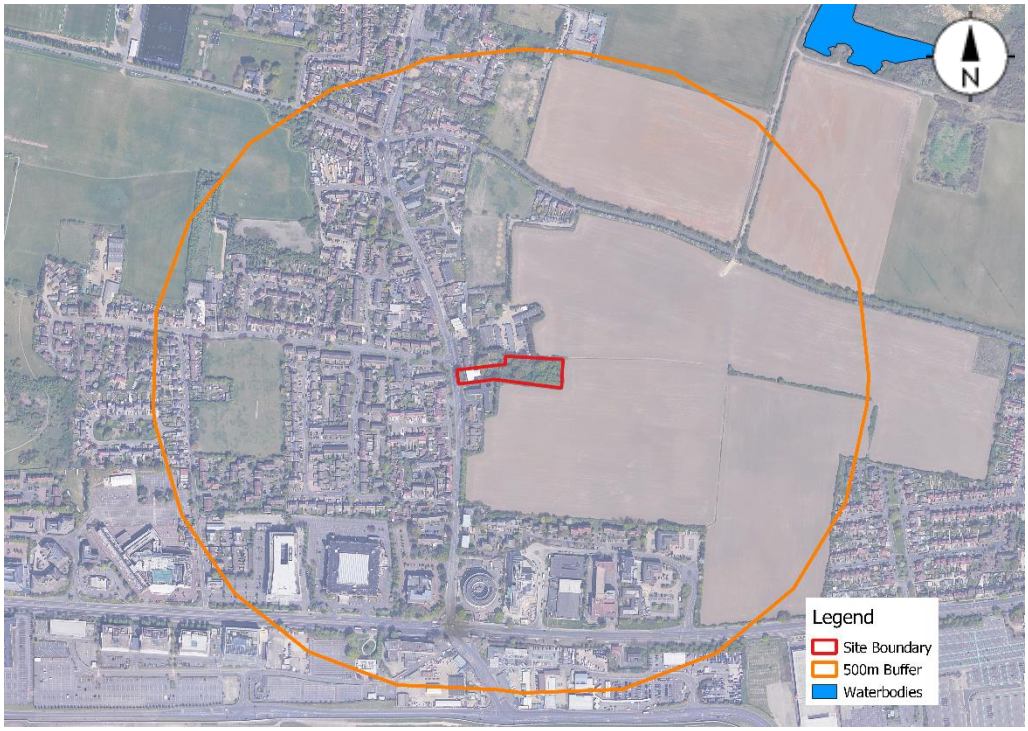
4.2 Species

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 considered the adjacent habitats and connectivity to the wider landscape for all protected and rare species.

4.2.1 Amphibians (including great crested newts)

The survey uncovered terrestrial habitats suitable to great crested newts (*Triturus cristatus*), such as tall ruderal and woodland. However, there are no ponds or ditches present on site and no ponds are known to be present within 500m of the survey site (see **Figure 6**). No amphibians, including great crested newts, were identified within the ecological data. Therefore, no further action is required.

Figure 6: A map showing a 500m radius around the site and an absence of waterbodies.



4.2.2 Badgers (*Meles meles*)

Several mammal tracks and snuffle holes were found on site. Badgers are likely to forage and commute through the site. No setts have been identified on or within 50m of the surveyed site. As such, precautionary measures are required for the survey site (please see **Section 5.3**).

4.2.3 **Bats**

The assessment of the buildings for bats has found that **B1** has **moderate** bat roosting potential, **B2** is of **low** bat roosting potential, and **B3** is also of **low** bat roosting potential.
The site is also likely to support a number of common bat species for foraging and commuting purposes.

The trees on site were found to have potential roosting features, and further action is required.

Further action is required, and the recommendations are given in **Section 5.3**.

4.2.4 **Birds**

B1 has been given **high** potential for nesting birds due to a blackbird (*Turdus merula*) nest being found during the survey. Both **B2** and **B3** have **low** bird nesting potential. In addition to this, a number of habitats on site have the potential to support nesting birds. Further recommendations are detailed in **Section 5.3**.

4.2.5 **Flora**

The site contains no protected floral species. The habitats are not considered likely to support any protected floral species, with no additional survey work required to ascertain the impacts of the works to flora.

4.2.6 **Hedgehogs (*Erinaceus europaeus*)**

The site has suitable habitats for hedgehogs to be present on site, and it is highly likely that they will be within the local area. Therefore, further precautionary measures are required for the survey site (please see **Section 5.3**).

4.2.7 **Invertebrates**

The habitats on site are likely to support a range of common invertebrate species. No further invertebrate surveys are required.

4.2.8 **Molluscs**

Due to the habitats on site, molluscs are likely to be common species, meaning no further survey effort is required.

4.2.9 **Reptiles**

There are habitats on site that would support reptiles such as woodland and scrub. The site is also well connected to other nearby suitable habitats, and their absence on site cannot be confirmed. Due to this, further measures are recommended to ensure no reptiles are harmed by the works (please see **Section 5.3**).

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**
- Badgers – **Low**
- Bats – **Unknown**
- Birds – **High**
- Flora – **Negligible**
- Hedgehogs – **Moderate**
- Invertebrates – **Low**
- Molluscs – **Negligible**
- Reptiles – **Low**

5. Recommendations

5.1 Designated Sites

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

5.2 Habitats

5.2.1 Priority 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.

5.2.2 Trees

The root protection areas for trees retained during the development need to be identified and adhered to. This is to protect the trees and ensure that their growth is not inhibited.

5.2.3 Wildlife Corridors

It is recommended that designated wildlife corridors are incorporated into the design scheme of the site. This will be identified within a soft landscaping plan that will also offer a management strategy that is required to be adhered to. Linear features that enhance the site for a number of species should also be maintained during and after the scheme of works.

5.3 Species

The site was found to contain the potential to support protected and/or rare species. Therefore, the following recommendations are required for the site:

5.3.1 Badgers (*Meles meles*)

Although no badger setts were observed on or immediately offsite at the time of the survey, activity patterns of this species can change over a short time. It is therefore recommended that an update badger survey is undertaken if works do not commence within six months of the survey date (6th of March 2023).

Badger surveys can be undertaken at any time of year and to allow sufficient time to obtain a Natural England badger mitigation licence (should a sett be discovered on or immediately offsite) the survey should be scheduled three months prior to the commencement of works.

Additionally, during construction works, excavations should be left closed overnight, or a mammal ladder installed. The ladder needs to be of a size suitable for badgers and can be constructed out of a piece of wood/timber.

5.3.2 **Bats**

As **B1** has a **moderate** bat roosting potential, a minimum of two further activity surveys are required. These surveys are required to be undertaken during the bat survey season of May to September, with at least one survey done within the optimal survey months of mid-May to August.

The buildings referred to as **B2** and **B3** have both been identified as having **low** bat roosting potential. Therefore, a minimum of one further activity survey is required on these structures during the optimal survey months of mid-May to August.

It has been deemed that six surveyors will be sufficient to cover every aspect of the buildings.

For the trees on site, an in-depth Ground Level Assessment (GLA) of the trees will be required to assess their bat roosting potentials.

Further mitigation, compensation and enhancement recommendations will be provided following the additional survey effort.

On the site itself, no artificial lighting is to be shone on any scattered trees, shrubs, linear features, woodland, or waterways. An artificial lighting plan is required. All lighting must avoid the features of interest for the local bat populations. This is required due to the suitable habitats within the local landscape meaning there is likely to be foraging and commuting bats present in the area.

5.3.3 **Birds**

The building referred to as **B1** was found to contain a blackbird (*Turdus merula*) nest, with buildings **B2** and **B3** also having features that birds could use for nesting purposes. In addition to this, a number of habitats on site are of potential to support breeding birds.

Therefore, any building works and vegetation removal are recommended to be undertaken outside of the bird breeding season (March to August, inclusive). If the works are completed during the bird breeding season, then a further inspection by a suitably qualified ecologist is required no more than twenty-four hours before this process commences. This is to ensure that no active nest site is illegally destroyed, due to the protection afforded to all active bird nests under the Wildlife and Countryside Act 1981. If an active nest is found by a site inspection, an exclusion zone around the nest will be necessary to preserve this feature until the chicks have fledged the nest.

To compensate for the loss of the blackbird nest, one Blackbird FSC Nest Box is required to be installed at the completion of the works.

5.3.4 **Hedgehogs (*Erinaceus europaeus*)**

If trees or dense vegetation is cleared between the 1st of November and the 31st of March, then an inspection by a suitably qualified ecologist is required to ensure no hibernating hedgehogs are present on site.

It is recommended that precautionary measures are incorporated if construction is undertaken at other times of the year. This will be to create provisions for hedgehogs to escape from all trenches dug into the ground, by creating slopes or providing ramps at the end of each working day.

Additionally, any pipework left on site that is greater than 150mm in diameter will need to be planked off. Should this information be strictly adhered to, then the development works will not negatively impact on the local mammal populations.

5.3.5 **Reptiles**

The habitats on site have the potential to support a number of common reptile species, with areas of cover and basking spaces apparent. No specimens were revealed from the desktop study, although this could be due to a lack of survey effort. Therefore, to ensure that habitats remain post-development, a Reptile Mitigation Statement is required for the site.

5.4 **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. Once the options have been finalised, the locations of these features should be placed on a master plan.

5.4.1 **Bats**

The site can be enhanced by introducing a bat friendly planting scheme in the soft landscaping plan. The table below outlines species recommended by the Bat Conservation Trust, all of which could be incorporated into the site post development.

Additional compensation, enhancement and mitigation measures will be devised following the additional survey effort.

Flowers for borders	Trees, shrubs & climbers
Aubretia	Bramble
Candytuft	Common alder
Cherry pie	Dogrose
Corncockle	Elder
Corn marigold	English oak
Corn poppy	Gorse
Echniacea	Guelder rose
English bluebell	Hawthorn
Evening primrose	Hazel
Field poppies	Honeysuckle (native)
Honesty	Hornbeam
Ice plant 'pink lady'	Ivy
Knapweed	Jasmine
Mallow	Pussy willow
Mexican aster	Rowan
Michaelmas daisy	Silver birch
Night-scented stock	**Herbs**
Ox-eye daisy	Angelica
Phacelia	Bergamot
Poached egg plant	Borage
Primrose	Coriander
Red campion	English marigolds
Red valerian	Fennel
Scabious	Feverfew
St. John's Wort	Hyssop
Sweet William	Lavenders
Tobacco plant	Lemon balm
Verbena	Marjoram
Wallflowers	Rosemary
Wood forget-me-not	Sweet Cicely
Yarrow	Thyme

5.4.2 Birds

The site could be enhanced for birds by installing a variety of bird boxes on site, such as an Apex Bird Box and an Apex Robin Box. Additional compensation, enhancement, and mitigation measures will be devised following the additional survey effort. Bird boxes can be ordered by contacting admin@eliteecology.co.uk.

5.4.3 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.

To enhance the site for the local bat and bird populations several native shrubs and herbs could be included within the 'wild meadow' which will provide excellent foraging habitat. More information on shrubs for bats can be found on the Wildlife Trust website and more information on shrubs for birds can be found on the RSPB website. There are several different shrubs to choose from but it is important to avoid invasive species such as buddleia, more information on invasive flora can be found on the RSPB website.

5.4.4 Hedgehogs (*Erinaceus europaeus*)

The site could be enhanced for the local hedgehog population by installing at least two Eco Hedgehog Nest Boxes around the site. This will create more opportunities for hedgehogs within the local landscape. Hedgehog boxes can be ordered by contacting admin@eliteecology.

5.4.5 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 at least one Bumblebee Box is incorporated into the scheme, along with at least one Bug Hotel. This will enhance the site for the local invertebrate populations, which will thus attract species further up in the trophic level. The site would benefit from plants rich in a pollen source throughout the year to enhance the area for the potential of bees. In order to ensure a nectar source year-round it is important to use plants that are relevant to the season. The table below includes just a few examples of which plants thrive through the different seasons to ensure a bee friendly area.

SPRING	SUMMER	AUTUMN	WINTER
• Flowering Cherry • Crab Apple • Hawthorn • Bugle • Daffodils • Pulmonaria • Sea Thrift • Alliums • Grape Hyacinth	• Lavender • Agastache • *Erysimum* 'Bowles' Mauve' • Scabious • Comfrey • Foxgloves • Cardoon • Echinops	• Sedums • Single-flowered Dahlias • *Verbena bonariensis* • Japanese Anemones • Autumn Asters • *Actaea simplex*	• Snowdrops, • Winter Aconites, • Ivy, • Crocuses, • Winter Honeysuckle, • Hellebores, • Mahonia, • *Clematis cirrhosa*

5.5 Biodiversity Net Gain

Biodiversity Net Gain needs to be ensured within the scheme of works and this will be devised utilising the latest DEFRA metric.

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7. Appendices

Appendix A: Site Plans

Appendix B: Desktop Study Table

Appendix C: Desktop Study Maps

Appendix D: Phase 1 Habitat Map

Appendix E: Site Photographs

Appendix F: Biodiversity Legislation and Policy

Appendix G: Bat and Artificial Light

Appendix A: Site Plans

Appendix B: Desktop Study Tables

The results within the following table are a collation of the species identified within the desktop search, undertaken by Greenspace information for Greater London (GiGL).

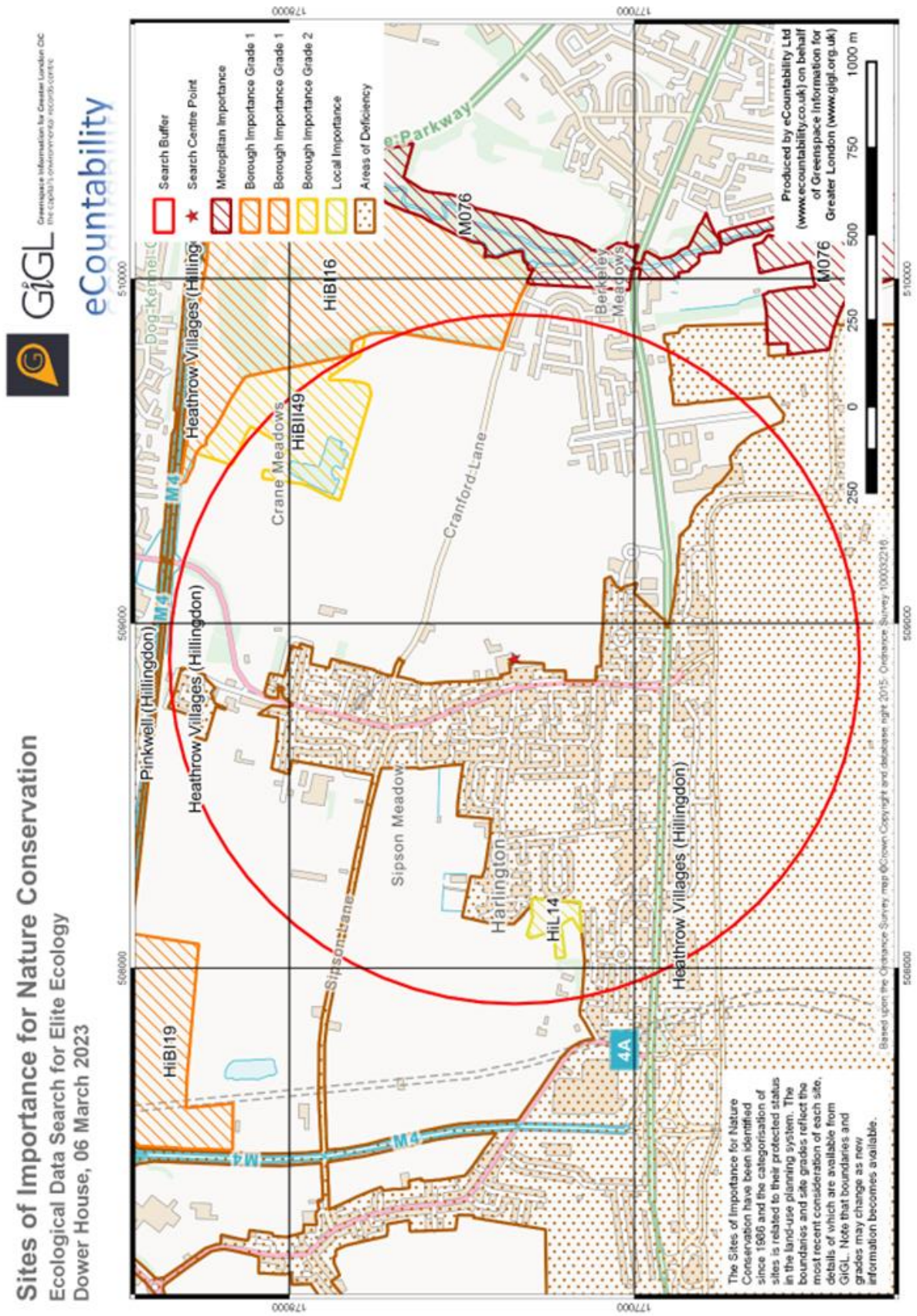
Birds	
Common Name	**Latin Name**
Brambling	*Fringilla montifringilla*
Dunnock	*Prunella modularis*
Fieldfare	*Turdus pilaris*
Grey Wagtail	*Motacilla cinerea*
Hen Harrier	*Circus cyaneus*
House Martin	*Delichon urbicum*
House Sparrow	*Passer domesticus*
Lapwing	*Vanellus vanellus*
Linnet	*Linaria cannabina*
Mistle Thrush	*Turdus viscivorus*
Red Kite	*Milvus milvus*
Redwing	*Turdus iliacus*
Reed Bunting	*Emberiza schoeniclus*
Ring-necked Parakeet	*Psittacula krameri*
Short-eared Owl	*Asio flammeus*
Skylark	*Alauda arvensis*
Starling	*Sturnus vulgaris*
Swift	*Apus apus*
Whinchat	*Saxicola rubetra*
Yellow Wagtail	*Motacilla flava*
Flora	
Common Name	**Latin Name**
A Flowering Plant	*Cotoneaster*
A Flowering Plant	*Eleocharis palustris subsp. palustris*
Annual Knawel	*Scleranthus annuus*
Blue Pimpernel	*Anagallis arvensis subsp. foemina*
Bluebell	*Hyacinthoides non-scripta*
Broad-leaved Cudweed	*Filago pyramidata*
Butterfly-bush	*Buddleja davidii*
Chaffweed	*Centunculus minimus*
Chamomile	*Chamaemelum nobile*
Common Cudweed	*Filago vulgaris*
Corn Buttercup	*Ranunculus arvensis*
Corn Marigold	*Glebionis segetum*

Corn Spurrey	*Spergula arvensis*
Cornflower	*Centaurea cyanus*
Cowbane	*Cicuta virosa*
Darnel	*Lolium temulentum*
Dwarf Spurge	*Euphorbia exigua*
False-acacia	*Robinia pseudoacacia*
Field Woundwort	*Stachys arvensis*
Frogbit	*Hydrocharis morsus-ranae*
Giant Hogweed	*Heracleum mantegazzianum*
Goat's-rue	*Galega officinalis*
Gold-of-pleasure	*Camelina sativa*
Good-King-Henry	*Chenopodium bonus-henricus*
Greater Dodder	*Cuscuta europaea*
Greater Water-parsnip	*Sium latifolium*
Green-winged Orchid	*Anacamptis morio*
Heath Dog-violet	*Viola canina*
Henbane	*Hyoscyamus niger*
Hoary Cinquefoil	*Potentilla argentea*
Japanese Knotweed	*Fallopia japonica*
Large-leaved Lime	*Tilia platyphyllos*
Loose Silky-bent	*Apera spica-venti*
Marsh Stitchwort	*Stellaria palustris*
Medlar	*Mespilus germanica*
Nettle-leaved Goosefoot	*Chenopodium murale*
Opposite-leaved Pondweed	*Groenlandia densa*
Prickly Poppy	*Papaver argemone*
Rootless Duckweed	*Wolffia arrhiza*
Round-fruited Rush	*Juncus compressus*
Rye Brome	*Bromus secalinus*
Sharp-leaved Pondweed	*Potamogeton acutifolius*
Shepherd's-needle	*Scandix pecten-veneris*
Small Fleabane	*Pulicaria vulgaris*
Spreading Hedge-parsley	*Torilis arvensis*
Starfruit	*Damasonium alisma*
Stinking Chamomile	*Anthemis cotula*
Strawberry Clover	*Trifolium fragiferum*
Toothed Medick	*Medicago polymorpha*
Tower Mustard	*Arabis glabra*
Tree-of-heaven	*Ailanthus altissima*
Tubular Water-dropwort	*Oenanthe fistulosa*
Turkey Oak	*Quercus cerris*
Water-soldier	*Stratiotes aloides*
Water-violet	*Hottonia palustris*
Weasel's-snout	*Misopates orontium*

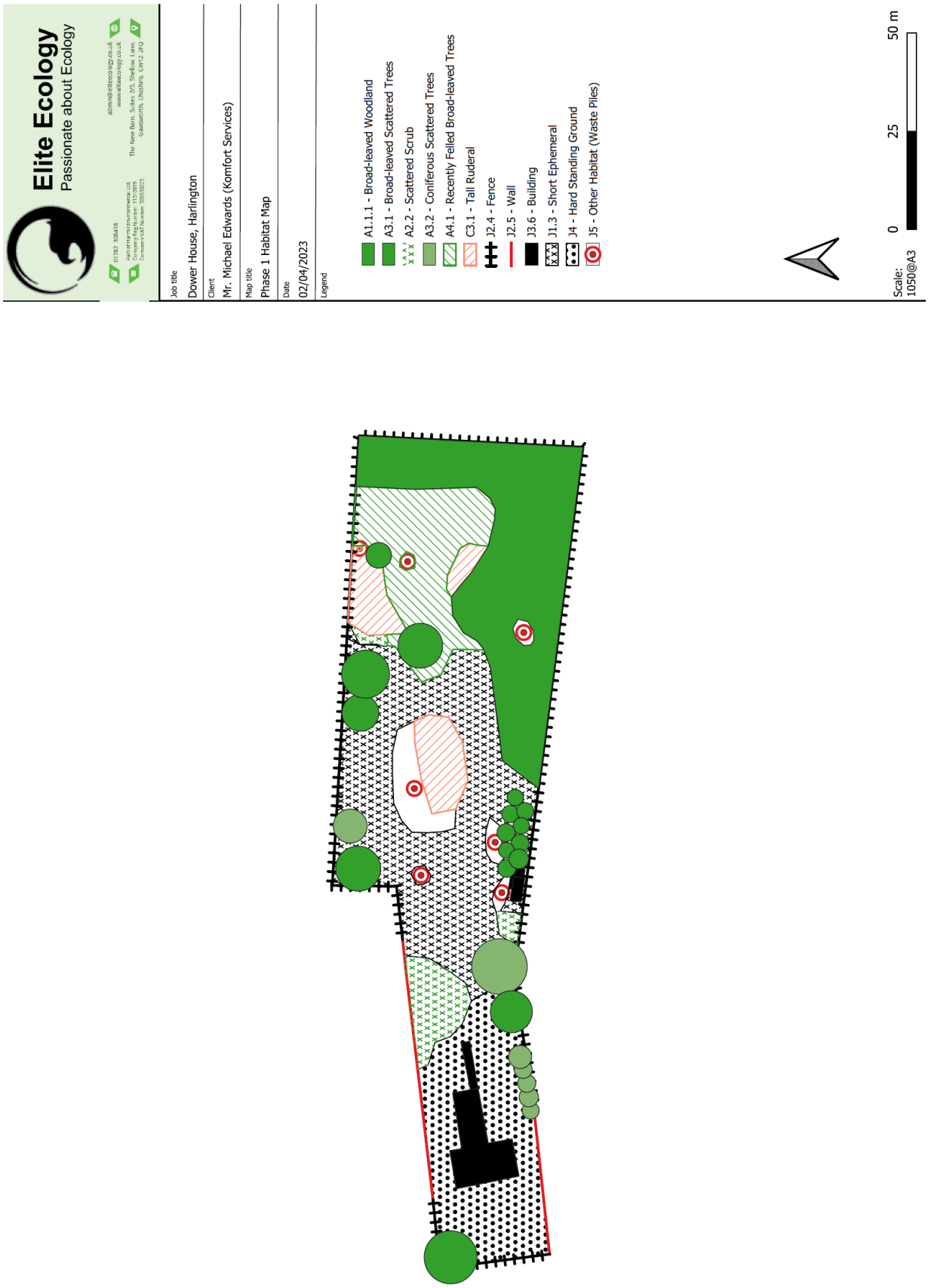
White Horehound	*Marrubium vulgare*
Whorled Water-milfoil	*Myriophyllum verticillatum*
Wild Cabbage	*Brassica oleracea*
Wild Candytuft	*Iberis amara*
Invertebrates	
Common Name	**Latin Name**
A Butterfly	*Lycaena phlaeas eleus*
Essex Skipper	*Thymelicus lineola*
Goat Moth	*Cossus cossus*
Large Skipper	*Ochlodes sylvanus*
Necklace Ground Beetle	*Carabus monilis*
Shoulder-striped Wainscot	*Leucania comma*
Small Heath	*Coenonympha pamphilus*
Small Heath	*Coenonympha pamphilus pamphilus*
Small Skipper	*Thymelicus sylvestris*
Stag Beetle	*Lucanus cervus*
Wall	*Lasiommata megera*
White-letter Hairstreak	*Satyrium w-album*
Mammals	
Common Name	**Latin Name**
Bats	*Chiroptera*
Eurasian Otter	Lutra lutra
West European Hedgehog	Erinaceus europaeus

Appendix C: Desktop Study Maps

These maps have been produced by GiGL. All rights regarding the maps belong to them.



Appendix D: Phase 1 Habitat Map



Appendix E: Site Photographs

Plate 1: Image showing the hard standing ground at the west of the site and the western elevation of **B1**.

Plate 2: Image showing scattered tree and fence in the north-western corner of the site.

Plate 3: Image looking eastward along the southern edge of the site.

Plate 4: Image showing the waste piles in the centre of the site.

Plate 5: Image of scattered scrub found on the northern boundary, north-west of **B1**.

Plate 6: Image looking west showing tall ruderal in the foreground and broadleaved woodland in the background.

Plate 7: Photograph taken inside the broadleaved woodland.

Plate 8: Photograph showing the eastern elevation of **B1**.

Plate 9: Image showing the state of the roof of **B1**.

Plate 10: Image showing the loft area of the eastern wing.

Plate 11: Image of the bird nest found within **B1**.

Plate 12: Image showing a crack in the wall of the southern elevation of **B1**.

Plate 13: Image showing **B2**.

Plate 14: Image showing the exterior of **B3**.

Plate 15: Image showing the interior of **B3**.

Appendix F: 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.

Badger

The main legislation protecting badgers in England and Wales is the Protection of Badgers Act 1992 (the 1992 Act). Under the 1992 Act it is an offence to:

- wilfully kill, injure, take or attempt to kill, injure or take a badger;
- possess a dead badger or any part of a badger;
- cruelly ill-treat a badger;
- use badger tongs in the course of killing, taking or attempting to kill a badger;
- dig for a badger;
- sell or offer for sale or control any live badger;
- mark, tag or ring a badger; and
- interfere with a badger sett by:
- damaging a sett or any part thereof;
- destroying a sett;
- obstructing access to a sett;
- causing a dog to enter a sett; and
- disturbing a badger while occupying a sett.

The 1992 Act defines a badger sett as: "any structure or place which displays signs indicating current use by a badger".

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 2017
- 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 2017
- 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 2017

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 G: 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 specify 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.