



Landscape, Arboriculture and Ecology

Surveys – Plans – Assessments - Mitigation – Solutions – Methodology

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Preliminary Ecological Appraisal

Land to the rear of 63

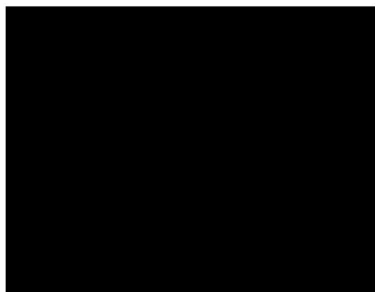
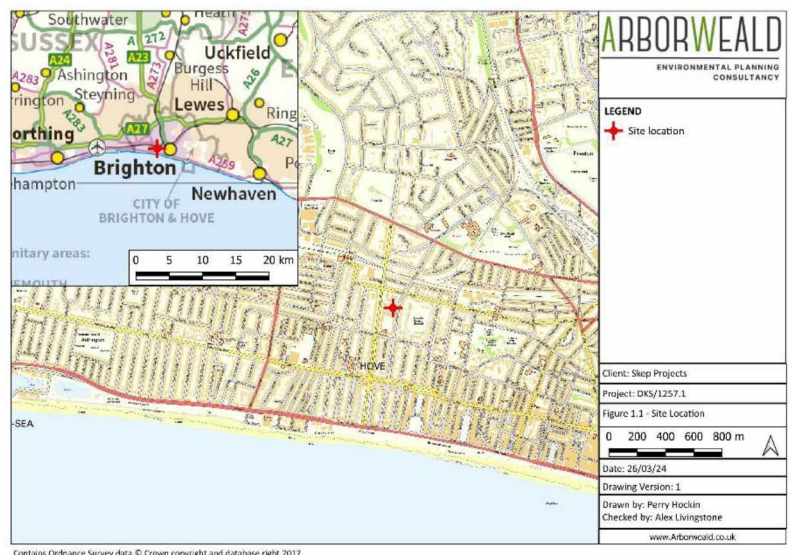
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<p>Declaration: The information which I have prepared and provided for this report is true and has been prepared and provided in accordance with the CIEEM's Code of Professional Conduct; I confirm that the opinions expressed are my true and professional bona fide opinions.</p> <p>Printed: [REDACTED]</p> <p>Signed: [REDACTED]</p>	

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No investigative method can completely eliminate the possibility of obtaining partially imprecise or incomplete information. Thus, we cannot guarantee that the investigations completely defined the degree or extent of species abundances or habitat management efficacy described in the report.

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This report and all survey work have been prepared to British Standard 42020 and rely on information and methodology from the Joint Nature Conservation Committee and the Chartered Institute of Ecological and Environmental Management.

Additionally, this report relies on information from other third parties, some of which may include, but not be limited to; DEFRA's MAGIC database, local record centres, local wildlife spotter groups such as badger groups, and the NBN atlas.

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EXECUTIVE SUMMARY

- 0.1 Arborweald Environmental Planning Consultancy (AEPC) were commissioned by Mr Tom Walker to undertake a Preliminary Ecological Appraisal (PEA) at Land to the rear of 63, Wilbury Road, Hove, Brighton and Hove, BN3 3PB, TQ 29247 05199 to help inform the proposed application for the construction of up to three residential dwellings.
- 0.2 Through a proportionally comprehensive desk study and site visit the habitats within the redline boundary of the proposed development were assessed for their potential to support protected species. This report evaluates the constraints that the presence of any protected species or species of conservation concern may place on the proposed re-development of the site.
- 0.3 The habitats present within the proposed development footprint comprise hardstanding and buildings with overhanging shrubs.
- 0.4 Development plans on site comprise the construction of up to three residential dwellings with hardstanding and amenity areas.
- 0.5 The habitats present on site have the potential to provide suitable habitat for the following protected species: bats, badgers, birds, dormice, and reptiles; this suitability was accordingly assessed and discounted as appropriate.
- 0.6 Biodiversity enhancements should be incorporated into the development and section 6 of this report provides detail on potential enhancements.
- 0.7 No further surveys are deemed necessary at this stage, and the works can proceed without hindrance subject to the mitigation measures contained within this report.

1 INTRODUCTION

- 1.1 Arborweald Environmental Planning Consultancy (AEPCC) were commissioned by Mr Tom Walker to undertake a Preliminary Ecological Appraisal (PEA) at Land to the rear of 63, Wilbury Road, Hove, Brighton and Hove, BN3 3PB, TQ 29247 05199 to help inform the proposed application for the construction of up to three residential dwellings.
- 1.2 The objectives of the PEA were to assess the potential of the site to support protected species and/or species of conservation importance by identifying potential habitat for protected species and/or species of conservation concern and by evaluating the constraints that the presence of any protected species or species of conservation concern may place on the proposed re-development of the site.

Legislation and Policy

- 1.3 Certain habitats and species including nesting birds, bats, dormice, and great crested newts, are afforded protection under the Conservation of Habitats and Species Regulations 2017 and the Wildlife & Countryside Act 1981 (as amended). Further information on the legislation is included in Appendix A.
- 1.4 In general, the above legislation makes it an offence to:
 - Deliberately/intentionally or recklessly kill, injure, or take a protected species;
 - Intentionally or recklessly damage, destroy or obstruct access to any place that a protected species uses for shelter or protection whether the species is present or not;
 - Intentionally or recklessly disturb a protected species while it is occupying a structure or place that it uses for shelter or protection;
 - Deliberately take or destroy the eggs of species protected by this legislation (such as nesting birds).
- 1.5 Section 41 of the Natural Environment and Rural Communities Act (2006) lists the species and habitats of principal importance for the conservation of biodiversity in England and acts as a guide to local authorities in implementing their duties under Section 40, to have regard to the conservation of biodiversity in England.
- 1.6 The Protection of Badgers Act (1992) prohibits reckless and/or intentional cruelty, injury or killing of badgers and the interference with badger setts.
- 1.7 Under The National Planning Policy Framework (NPPF, 2018) protected sites and species are a material consideration in determining planning applications in terms of minimising impacts on biodiversity.
- 1.8 National Planning Policy guidance uses a mitigation hierarchy, whereby potential impacts are first avoided through changes to design plans; then unavoidable impacts are mitigated against to reduce the negative effect of the impact; finally, residual impacts

that remain after avoidance and mitigation measures are applied are compensated for (BS 42020, 2013, Section 5.2). Further to this, it is a requirement under National Planning Policy for developers to actively enhance the biodiversity value of development projects.

- 1.9 Schedule 14 of the Environment Act 2021 mandates the need for a minimum 10% net gain in biodiversity value for development sites.

Site Description

- 1.10 The site is located in central Hove, Brighton and Hove, BN3 3PB (Ordnance Survey Grid Reference for the centre of the site: TQ 29247 05199). The development site is approximately 0.06ha in area and comprises buildings, hardstanding and overhanging shrubs.
- 1.11 The location of the site is shown in Figure 1.1 with the extent of the site boundary shown in Figure 1.2.

Development Proposals

- 1.12 Development plans on site comprise the construction of up to three residential dwellings with associated driveways, gardens and other amenities.
- 1.13 Biodiversity enhancements should be incorporated into any development and section 6 of this report provides detail on potential enhancements to be included in the landscape plan.

2 METHODS

Desk Study

- 2.1 The Multi Agency Geographic Information for the Countryside (MAGIC) website provided by the Department for Environment, Food and Rural Affairs (DEFRA) was consulted for information with regard to protected habitats and species within 2 km of the proposed development (red line) boundary.
- 2.2 Aerial photos of the site (Google, 2020) were examined to determine habitats surrounding the site and hence species likely to be present in order to make appropriate recommendations in the wider landscape context.
- 2.3 Following guidance contained within sections 5.5 and 6.2.1 of BS 42020:2013, records from the local biodiversity record centre may be deemed necessary, in which case the results are screened for relevance. This involves an analysis (in conjunction with DEFRA's MAGIC map software) of connectivity between recorded instances and the site boundary. Records are also screened for age; records are prioritised from the last 10 years, with records from the past 20 and 40 years deemed as less accurate, but still included where possible.

Field Survey

- 2.4 The survey was conducted in accordance with The Handbook for Phase 1 Habitat Survey (JNCC, 2016), and included searches for signs of protected species, as described in the Guidelines for Preliminary Ecological Appraisal (CIEEM, 2017).
- 2.5 A Preliminary Ecological Appraisal survey of the site was carried out by suitably qualified ecologist Perry Hockin on the 18th March 2024 in order to evaluate any habitat on the site with the potential to support protected species and/or other species of conservation concern that could be relevant in respect of planning policies.
- 2.6 In addition, the habitats within the survey area were assessed for their potential to support legally protected or otherwise notable flora and fauna. Where suitable habitat was identified on site, a search was conducted for signs indicating the presence of protected species such as droppings, burrows, tracks and evidence of feeding. Where species are not specifically evaluated, this indicates that no habitat of potential value for these species was identified during the survey.
- 2.7 Consideration was also given to habitats outside the site boundary, in order to evaluate the ecological context of the site within the wider landscape. Adjacent habitats were also considered with respect to their own ecological value and their potential to enhance the ecological value of habitats within the site.
- 2.8 Searches were made for invasive non-native plant species focussing on those species currently listed in the revised Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). Species were listed split into non-natives and invasive non-natives with different advice for each.
- 2.9 The plant species nomenclature follows that of Stace (2019). Plant species observed within each habitat type were recorded using the DAFOR system which stands for Dominant, Abundant, Frequent, Occasional or Rare.

2.10 All references to relevant literature required to maintain industry best practice and compliance with legislation is listed in the References section of this report.

Survey Constraints

2.11 Due to seasonal behaviour of animals and the seasonal growth patterns of plants, ecological surveys may be limited by the time of year in which they are undertaken.

2.12 The information gathered for this ecological survey has facilitated an evaluation of the habitats on site and the likely use of the site by legally protected and notable species. This survey has also given appropriate baseline data for the determination of the requirement for further surveys and/or mitigation and enhancement works.

Recommendation categorisation

2.13 So as to ensure biodiversity net gain for all development projects, the enhancement recommendations outlined in Section 6 of this report are categorised as Red, Amber or Green:

Red recommendations should be designated as conditions attached to a planning consent, and the development must not proceed without these enhancements / compensation measures being put in place, as they form a crucial role in achieving biodiversity net gain targets.

These recommendations are designed to be as effective and swift as possible, whilst taking into account cost and ease of implementation / future management in context with the scale of the development site.

Amber recommendations should be included within the development, however it is not necessary for them to be designated as conditions, as the author believes that their implementation is not key to achieving biodiversity net gain targets. The client / developer should seriously consider including these measures to improve the biodiversity value of the site and to reduce their carbon footprint.

These recommendations are designed to be a good balance between efficacy and cost efficiency.

Green recommendations are additional enhancements which would improve the biodiversity value of the site; however, they are not key to achieving biodiversity net gain targets. These recommendations are aimed at clients wishing to 'go the extra mile' with their site so as to improve visual impact, public engagement, and property value

These recommendations are often more costly, either financially or in terms of time input in context with the size of the site, however they can also deliver longer term benefits for a greater original outlay.

2.14 Recommendations are prioritised into the above categories taking into account multiple factors, including, but not limited to:

Measurable impact on biodiversity net gain using the methodology of Biodiversity Metric

Habitat classification factors utilised by the Natural England Biodiversity Metric; for instance, how valuable would the enhancements be from a habitat creation / modification perspective?

Likelihood of the client to undertake or follow through with recommendations, and to maintain recommendations post-development [as appropriate]

Ease and cost of implementation, such that high impact and swiftly effective recommendations are prioritised over slower or less easily maintained enhancements on smaller development sites

Surveyor and author experience of effectiveness of enhancement features in areas similar to the site, such as on other sites nearby, or enhancements already implemented as a part of local designated-site management plans (such as AONB strategies)

2.15 An example of recommendations for two imaginary sites are outlined below – these recommendations do not apply specifically to the subject site of this report:

Large Example – 50ha industrial site; recommendations designed to be most effective and easily implemented at the post-development stage without reducing amenity value	Small Example – 0.2ha residential garden; recommendations designed to be less expensive, and to involve less labour with implementation and management
Red: Dedicated wildlife area with multiple fruit trees, grassland management, wildlife pond and hedgerows in undeveloped area of site	Red: Planting of three fruit trees at the rear of the property
Amber: Additional fruit trees planted within curtilage of all new houses	Amber: Replacement of non-native laurel hedging with native species mixture
Green: Community orchard in the centre of the site with wildflower planting throughout	Green: Construction of a wildlife pond at the rear of the property

3 RESULTS

Desk Study

- 3.1 Records of designated sites and European sites within 2 km of the site boundary were obtained from Multi Agency Geographic Information for the Countryside (MAGIC) website provided by the Department for Environment, Food and Rural Affairs (Defra).

Designated sites

- 3.2 There are no international / European designated sites within 3km of the proposed site.
- 3.3 There are no statutory designated sites within 2km of the proposed site.

Designated habitats

- 3.4 The habitats in the wider landscape comprise arable, semi-improved grassland, deciduous woodland, and urban residential. Further to this, the wider landscape contains one Habitat of Principal Importance (HPIs) covered under Section 41 of the Natural Environment and Rural Communities Act, consisting of deciduous woodland including ancient woodland.

Biological Records

- 3.5 Following guidance contained within sections 5.5 and 6.2.1 of BS 42020:2013, it was deemed not necessary to obtain biological records from the local Biological Records Centre, as the development can be contained within areas of lowest quality habitat.

Field Study

Phase 1 Habitat Survey

- 3.6 The habitats present on site are shown in Figure 3.2 and are described in detail below.
- 3.7 The site comprises a row of 14 single storey flat roofed garages with adjacent hardstanding to the rear of Wilbury Road. The site is immediately surrounded by other areas of urban residential and has a brick wall all the way around the boundary a minimum of 100cm high up to 200cm in places.
- 3.8 Habitats on site comprise buildings, hardstanding, and elements of encroaching shrubs from neighbouring properties that hangs down or over the boundary walls.

Buildings

- 3.9 Buildings on site comprise a block of 14 attached garages. They are constructed of brick with flat bitumen felt roofing and typical metal up-and-over doors. There is security lighting at the front illuminating the hardstanding. The buildings have negligible suitability

to support roosting bats, and as such were not subject to a full Preliminary Roost Assessment (PRA).

Hardstanding

- 3.10 The hardstanding is constructed of pre-cast concrete pads and is in overall average condition for its age. There is no vegetation on the hardstanding, however some vegetation is creeping in or hangs over from the adjacent properties, including ivy leaved toadflax *Cymbalaria muralis*, *Magnolia sp.*, honeysuckle *Lonicera periclymenum*, and *Clematis sp.*
- 3.11 There is minimal vegetation between the hardstanding concrete pads comprising cleavers *Galium aparine* and dandelion *Taraxacum officinale*, however this vegetation is insignificant due to its sparse coverage and urban surroundings.
- 3.12 The ecological value of the site area is de minimis and is only more than negligible due to its surroundings. As such, development will provide an excellent opportunity for enhancement.

Protected Species

- 3.13 The habitats present on site provide suitable potential to support a range of protected species including badgers, bats, breeding birds, dormice, great crested newts and reptiles. These species are considered in greater detail below, along with protected species for which the habitats on site are suboptimal or unsuitable.

Bats

- 3.14 The habitats within the site boundary provide very limited foraging and commuting opportunities for bats with no green habitats. There are no mature trees on site, and the buildings on site lack any form of roof void. As such, there are no roosting opportunities on site.
- 3.15 The areas of woodland and older buildings in the wider landscape may provide roosting opportunities for bats, however the site is within a predominantly urban setting.

Badgers

- 3.16 The site provides no habitat for badgers, as sett building opportunities are limited by the areas of hardstanding and buildings. There are no foraging opportunities on site.
- 3.17 No signs of badger activity were recorded on site.

Breeding birds

- 3.18 An abundance of songbirds was recorded during the survey, with species being both heard and seen. Species recorded included blackbird *Turdus merula*, blue tit *Cyanistes caeruleus*, great tit *Parus major*, wren *Troglodytes troglodytes*, jackdaw *Corvus monedula*, house sparrow *Passer domestica*, and starling *Sturnus vulgaris*.

3.19 All of the habitats on site provide foraging and nesting opportunities for breeding birds, with further opportunities found within the wider landscape.

Dormice

3.20 No signs of dormice were recorded during the survey.

3.21 The site provides no habitat suitable to support dormice, as it lacks features key for their survival. These features include:

- Hazel coppice with dense canopy for arboreal activity, and of a mature enough stock to produce nuts;
- Good connectivity with areas of higher quality habitat

The site does not provide native fruit bearing species such as bramble, and the centre of the site lacks an appropriate level of cover for dormice.

3.22 Connectivity within the development site is poor, and the site is open with no trees.

3.23 There are no hedgerows on site, and hedgerows within the wider landscape broadly comprise short sections of mixed native and non-native species and vary in their continuity with the wider landscape due to the presence of numerous highways and areas of urban residential with little significant canopy connectivity.

3.24 Connectivity with higher quality dormouse habitat in the wider landscape is poor, as the site is set within an entirely urban landscape.

Great crested newts

3.25 No signs of great crested newts were recorded during the survey.

3.26 There are no vegetated habitats on site, and therefore the site provides no foraging or commuting opportunities for great crested newts.

3.27 There are no waterbodies within 500m of the development boundary, and the entire site is walled to between 100 and 200cm height.

3.28 There is little on site to attract newts with no potential hibernation habitat and no breeding habitat.

Reptiles

3.29 As with newts the lack of vegetated habitat means that the site provides only suboptimal basking opportunities for reptiles. No signs of reptiles were recorded during the survey.

3.30 The site has poor connectivity with areas of higher quality reptile habitat.

4 EVALUATION

Habitats

- 4.1 The habitats present on site are of average ecological quality and comprise locally abundant species typical of the wider landscape.

Protected species legislation

- 4.2 Protected species legislation, its importance, and the penalties that would be incurred if an offence were committed are summarised in Appendix A of this report. This section provides information on which species could be affected by any proposed development of the site.

Species

This section discusses two separate issues;

- Potential species constraints whereby a protected species has the potential to pose a constraint on a development therefore requiring a phase 2 species specific survey to further analyse such a threat, and whether added mitigation is required to reduce the risk of an offence being committed.
- Habitat suitability to support protected species, i.e. whether prudent habitat management can be targeted towards a species to improve the biodiversity value of the development site, and contribute towards Biodiversity Net Gain (BNG) targets.

Bats

- 4.3 All species of bat present in the UK receive full protection under The Conservation of Habitats and Species Regulations 2017, and the Wildlife and Countryside Act 1981 (as amended).
- 4.4 The site is considered overall to be unsuitable to support roosting bats, as there are no trees on site, and the existing buildings are completely unsuitable having no bat access features, no roof void, and being of a construction that is inherently exposed.
- 4.5 The site provides limited commuting and foraging habitat as a part of a wider territory; however, it has no standalone value to bats.
- 4.6 As the site has potential to support bats, they are considered further in Section 6 of this report as enhancements for bats will be required to ensure biodiversity net gain due to the fact habitat will be lost.

Badgers

- 4.7 Badgers receive full protection under the Protection of Badgers Act 1992.

- 4.8 Connectivity with areas of higher quality habitat is poor for badgers as the site is set within a large urban area. There is little on site to attract badgers due to a lack of fruit trees and other foraging opportunities, and sett building opportunities are limited due to the extent of hardstanding and buildings and lack of green habitats.
- 4.9 Badger presence on site is therefore unlikely.
- 4.10 No badger activity was recorded on site during the survey, therefore subject to effective mitigation measures badgers are not considered to pose a constraint to development on site.
- 4.11 The site has no potential to support badgers in future, therefore, they are not considered further in this report.

Breeding birds

- 4.12 Breeding birds are protected by the Wildlife and Countryside Act 1981 (as amended). Under this legislation it is an offence to intentionally kill, injure or take birds or their eggs, or to intentionally destroy or disturb a nest, when it is in use or being built.
- 4.13 All of the habitats on site provides foraging opportunities for breeding birds, however no active nests were discovered during the Preliminary Ecological Appraisal.
- 4.14 The proposed works will affect buildings. Therefore, in the absence of mitigation measures birds have the potential to be affected by the development. Failure to observe mitigation measures leading to birds being disturbed whilst nesting would constitute a criminal offence.
- 4.15 Birds were also recorded on site, therefore the loss of habitat for birds will need to be compensated for, and habitats remaining post-development must be enhanced to ensure biodiversity net gain is achieved.
- 4.16 Therefore, breeding birds are considered further in Section 6 of this report.

Dormice

- 4.17 Hazel dormice are protected by the Wildlife and Countryside Act 1981 (as amended). Under this legislation it is a criminal offence to intentionally or accidentally harm, capture, or destroy dormice, or to disturb a breeding area.
- 4.18 Dormice generally require large areas of connected ancient woodland with healthy, stratified vegetative layers providing a heterogeneous habitat (Bright et al., 2006). They also utilise hedgerows to a lesser extent, particularly for foraging and commuting and less so for nesting. This heterogeneous habitat is not provided by the site.
- 4.19 There are no hedgerows on site and the adjacent properties comprise exclusively urban developed habitats.
- 4.20 The site generally lacks species key for dormouse success as all the habitats within the development boundary are sparse and homogenous in composition.
- 4.21 Given the lack of high-quality habitat within the development area, dormouse presence within the site can be effectively ruled out.

4.22 Therefore, subject to a precautionary approach, dormice are not considered to pose a constraint to development.

4.23 Dormouse presence in the immediate wider landscape is unlikely, and enhancement of the site as a part of this development will not improve connectivity with areas of higher quality habitat in the wider landscape as the site is an isolated island within a larger urban landscape. As such, dormice are not considered further in this report.

Great crested newts

4.24 Great crested newts are protected by the Wildlife and Countryside Act 1981 (as amended). Under this legislation it is a criminal offence to intentionally or accidentally harm, injure or destroy great crested newts or their eggs.

4.25 No signs of great crested newts were recorded during the survey; the grassland on site is of a too short a height to support commuting and foraging great crested newts, as newts generally require a taller sward height to evade predation.

4.26 The likelihood of a meta-population being present within the wider landscape is considered to be negligible as there are no waterbodies within 500m of the site boundary.

4.27 Furthermore, the site is undesirable for newts due to the lack of breeding, foraging, commuting or hibernation habitat on site.

4.28 The proposed development is of a small scale affecting only habitats of lowest quality; therefore, newts will not be affected by the proposed development and can easily be mitigated. Additional surveys for newts will not be necessary at this stage as newts are not considered to pose a constraint to the proposed development.

4.29 The site has no potential to support newts in future, and as such they are not considered further in this report.

Reptiles

4.30 All species of reptile are protected by the Wildlife and Countryside Act 1981 (as amended). Under this legislation it is a criminal offence to intentionally or accidentally harm, injure or destroy reptile species or their eggs.

4.31 No signs of reptiles were recorded during the survey, and none of the habitats are suitable to support reptiles due to the lack of connectivity with higher quality habitats, and lack of vegetation.

4.32 The site has no potential to support reptiles in future, and as such they are not considered further in this report.

Other Items

4.33 There are no other items of note.

5 CONCLUSION

- 5.1 The proposed development site is currently considered to have low ecological value within a local context as it comprises locally common habitats supporting locally abundant species typical of the wider landscape.
- 5.2 The biodiversity value of the total site area is largely attributed to the following factors:
- The lack of vegetated habitats or trees on site.
 - The poor vegetative structure and connectivity within the development boundary; and
 - The ease with which biodiversity enhancement measures can be implemented within the overall site boundary without compromising amenity value.
- 5.3 Development plans on site comprise the construction of up to three residential dwellings with associated amenity areas and hardstanding driveways and accessways.
- 5.4 The habitats on site have the potential to be constrained by breeding birds. Therefore, compensation and enhancement measures would have to focus on these species specifically.
- 5.5 In the absence of mitigation, the current development proposals have the potential to affect protected species. To reduce the risk of an offence being committed, recommendations are outlined in Section 6 of this report. These should be followed to ensure that any potential impacts to protected species are adequately addressed during the planning stage, development and post-development stage.

6 RECOMMENDATIONS

- 6.1 Due to the presence of habitats on site that have the potential to support protected species recommendations to further consider these species in line with the legislation protecting them are given below.
- 6.2 Proposed development of the site is likely to be of small scale in planning terms and of small scale in an ecological context; however, the quality of the habitats that could be affected and their potential to support protected and notable species is such that without mitigation, the development has the potential to harm, injure, kill or disturb protected or notable species.
- 6.3 These recommendations are therefore mitigative and are designed to work on a worst-case scenario basis, and to offer biodiversity enhancements to benefit the local area by attracting species in.

Species specific mitigation measures

6.4 **Bats:**

All of the habitats on site have the potential to support foraging and commuting bats.

If bats are discovered at any time during the works, all works must cease, and a licenced bat ecologist contacted. Works cannot then resume without the appropriate survey effort and European Protected Species Mitigation licence as necessary.

Failure to do so would constitute a criminal offence.

Lighting

- 6.5 While different species of bat react differently to night-time lighting, research has found that bats overall are sensitive to artificial lighting. Excessive and/or poorly directed lighting may delay bats in emerging from their roosts; shortening the time available for foraging, as well as causing bats to move away from suitable foraging grounds, movement corridors or roosting sites, to alternative dark areas (Jones, 2000).
- 6.6 To minimise indirect impacts from lighting associated with the proposed development, it is recommended that artificial lighting is only directed where necessary for health and safety reasons. Lighting should not illuminate any trees, hedgerows or mitigation and compensation features, such as hanging tiles and integrated bat boxes, or suspected or confirmed bat roosting sites. Lighting should only be used for the period of time for which it is required (Jones, 2000). This can be achieved by following accepted best practice (Fure, 2006; Institute of Lighting Engineers 2009; Bat Conservation Trust 2011):

The level of artificial lighting including flood lighting should be kept to an absolute minimum;

Where this does not conflict with health and safety and/or security requirements, the site should be kept dark during peak bat activity periods (0 to 1.5 hours after sunset and 1.5 hours before sunrise);

Lighting required for security or safety reasons should use a lamp of no greater than 2000 lumens (150 Watts) and should comprise sensor-activated lamps;

Lights utilising LED technology are the preferred option as these lights do not emit on the UV spectrum, are easily controllable in terms of direction/spill and can be turned on and off instantly;

Avoid the use of sodium or metal halide lamps, these gas lamps require a lengthy period in which to turn off and the diffuse nature of the light emitted makes light spillage a significant problem.

Lights required for night time deliveries or security patrols could be set to activate with pressure activated sensors set into the ground;

Lighting should be directed to where it is needed to minimise light spillage. This can be achieved by limiting the height of the lighting columns and by using as steep a downward angle as possible and/or a shield/hood/cowl/ that directs the light below the horizontal plane and restricts the lit area;

Artificial lighting should not directly illuminate any confirmed or suitable bat roosting features or habitats of value to commuting/foraging bats. Similarly, any newly planted linear features or compensatory bat roosting features should not be directly lit; and

Lighting design computer programs can be used to predict the potential impacts of light spillage.

6.7 **Badgers:**

Although the site is unsuitable to support badgers, badger presence is widespread throughout the south-east and as such their presence on site is not impossible.

If badger activity is suspected on site (evidence may include feeding remains, sett digging, paw prints, droppings, hair, or active sightings) all works must cease and a licenced badger ecologist notified. Works cannot then restart until the appropriate survey effort and [as necessary] licencing has occurred. Failure to do so would constitute a criminal offence.

6.8 **Breeding birds:**

The buildings on site have the potential to support breeding birds.

All vegetation cutting works as well as any potential clearing or roof stripping works should be confined to outside of the bird breeding season (February – October inclusive) or should be undertaken under ecological supervision where works are undertaken within nesting season. If an active nest is found it should be left protected by a 5m radius buffer of habitat until the chicks have fledged (approximately 1 month).

No further surveys for breeding birds are deemed necessary at this stage.

6.9 Great crested newts and reptiles:

Should reptiles be discovered at any time during the development, they should be captured and translocated to an adjacent receptor site. If there is any doubt as to the species present, works must cease and an appropriately trained and licenced ecologist contacted, as capturing a great crested newt would constitute an offence, *unless rescuing the newt was an emergency measure that would otherwise negate the risk of a more serious offence being committed.*

Due to the negligible likelihood of newts being present, no further mitigation is necessary.

6.10 Additional recommendations

Information on creating reptile habitat features can be found in section 9 of the Reptile Habitat Management Handbook 2010.

Bonfires should not be lit during hibernation season of October to March to reduce the likelihood of affecting hibernating reptiles, amphibians and small mammals such as hedgehog *Erinaceus europaeus*.

Construction waste should be stored in skips, with all new building materials kept on pallets until immediate use to avoid the possibility of protected species utilising piles as habitat.

Biodiversity enhancement and compensation

Scale of enhancement and compensation

It is the author's professional opinion that due to the scale of the proposed development, a dedicated area for wildlife compensation and enhancement measures is not necessary.

Necessity for planning conditions – note to the LPA

Sometimes it can be deemed necessary for biodiversity enhancements and compensation measures to be recommended to be designated as conditions attached to a planning consent. The following symbols will be utilised below, with categorisation methodology explained in Section 2:

Red recommendations should be designated as conditions attached to a planning consent, and the development must not proceed without these enhancements / compensation measures being put in place, as they form a crucial role in achieving biodiversity net gain targets

Amber recommendations should be included within the development, however it is not necessary for them to be designated as conditions, as the author believes that their implementation is not key to achieving biodiversity net gain targets. The client / developer should seriously consider including these measures to improve the biodiversity value of the site and to reduce their carbon footprint

Green recommendations are additional enhancements which would improve the biodiversity value of the site; however, they are not key to achieving biodiversity net gain targets. These recommendations are aimed at clients wishing to 'go the extra mile' with their site so as to improve visual impact, public engagement, and property value

Enhancement and compensation measures

Construction Exclusion Zone (CEZ): a construction exclusion zone should be established to cover the areas of habitat that will not be affected by the proposed development. These areas should be fenced off with Heras fencing to limit damage to these areas during development; this accords with section 10.9 of BS:42020 (2013). Refer to section 10.9.3 of BS:42020 (2013) for additional information on required timings for fencing.

The CEZ will remain in place for the entire time that heavy machinery (including but not limited to excavators, graders, dumpers, lorries, and other vehicles over 2,000kg kerb weight) is on site.

Bird and bat boxes should be placed on the eastern sides of the new buildings. These should also include dedicated swift boxes on the north-eastern aspect of the building. Bird boxes should be placed at a minimum height of 4.5 metres i.e. first floor / eaves height away from doors and windows and areas of high disturbance (footpaths, lighting etc.).

As bats prefer more sheltered and less disturbed areas to roost, it is recommended that bat boxes are placed at a height of 4 metres on the southern sides of suitably sized trees within the wider site boundary.

It is recommended that bat boxes are of the Schwegler 2F universal usage type, or alternative built in designs, and that bird boxes are constructed of woodcrete / woodstone similar to such boxes as the Schwegler 1B nest box. The swift box should be similar to the Vivara Pro WoodStone swift nest box.

Care should be taken when erecting bat boxes to ensure they remain sheltered, but accessible with clear flight paths.

As a minimum, two bat bricks per building should be included in the design. As a minimum, a single bird box should be provided along with a single swift box / brick on the north-eastern aspect of each new building.

Bee bricks should be incorporated into the design of the new buildings to be in line with Brighton and Hove City Council policy. Bee bricks should be placed on the southern aspect of buildings to aid in heat soaking.

Hedge planting: the development should include new hedge planting along linear boundaries using a native species-rich hedgerow mix to include a minimum of 7 species from the following list: hazel, hawthorn *Crataegus monogyna*, blackthorn *Prunus spinosa*, spindle *Euonymus europaea*, wayfaring tree *Viburnum lantana*, crab apple *Malus sylvestris*, hornbeam *Carpinus betulus*, dog rose, field maple *Acer campestre* and wych elm *Ulmus glabra*. Furthermore, any existing hedgerows in the wider site boundary should be gap planted and bolstered with species from the list above.

These species are hardy allowing them to be managed in multiple ways and provide excellent privacy once full grown. If further privacy is required in specific areas, then yew *Taxus baccata* and beech *Fagus sylvatica* should be considered. Non-native species should be avoided.

Scattered mature standards comprising hornbeam *Carpinus betulus*, field maple, or lime *Tilia cordata* var. 'Green Spire' should be planted across the site to increase woody coverage and connectivity. These species are hardy, low maintenance and also do not risk dominating the landscape in later life as they can be coppiced or pollarded effectively.

Additionally, honeysuckle *Lonicera periclymenum* should be included in hedgerow mixes.

New hedgerows should be planted at a density of 10 plants per metre in two rows of 5 plants each, with rows 30cm apart and plants 20cm apart. Bolster planting should be undertaken at the same density taking into account existing mature individuals as contributing to this density;

e.g. existing hedgerow has density of 3 plants per metre, bolster planting would comprise 7 additional plants.

As a minimum, 30m of native hedgerow should be planted along the eastern boundary.

New trees; the development should include new trees to ensure an appropriate level of cover for bats and to provide a micro-climate between trees to support insect species. Fruit trees also work well within linear boundaries such as hedgerows.

These should be scattered throughout the site boundary, and comprise robust native woody species such as hornbeam, field maple, or lime *Tilia cordata*, or fruiting species such as pear *Pyrus spp.*, apple *Malus spp.*, or mountain ash *Sorbus aucuparia*. These could include historically important varieties rare in Sussex. These species provide foraging opportunities for badgers, birds and small mammals.

Sward management around planted trees should be careful to avoid damage to trees and should be as varied as the rest of the amenity grassland within the wider site boundary.

Effort should mainly be concentrated on planting native species where possible, and attached with this report is our 'alternative planting list'.

As a minimum, all trees that are removed to facilitate development should be replaced, as well as 2 new trees should be planted across the wider ownership boundary.

Hedge cutting; Existing and new hedgerows on site should be cut biannually (every 2 years) except around gateways (annually). Hedgerows gradually lose their shape and density at the cost of amenity and functionality as they mature; therefore, hedge laying in the traditional Kent or Sussex style should occur every 10 years on rotation to maintain hedge structure.

Pond construction: Wildlife ponds should be included in the development.

New ponds should cover a minimum area of 20m² and be constructed at multiple depths with several 'steps' varying in depth from 60cm at the centre to 15cm at the edges. Alternatively, the existing pond on site should be bolster planted with plants from the list below.

Ponds should be planted with a variety of plants from the following list (species in bold are particularly important for their wildlife value):

Submerged (>40cm)	Emergent (15 – 40cm)	Marginal (<15cm)	Moisture loving
Spiked water-milfoil (<i>Myriophyllum spicatum</i>)	Yellow iris (<i>Iris pseudacorus</i>)	Bogbean (<i>Menyanthes trifoliata</i>)	Marsh marigold (<i>Caltha palustris</i>)
Whorled water-milfoil (<i>M. verticillatum</i>)	Meadowsweet (<i>Filipendula ulmaria</i>)	Watermint (<i>Mentha aquatica</i>)	Globeflower (<i>Trollius europaeus</i>)
Curled pondweed (<i>Potamogeton crispus</i>)	Purple loosestrife (<i>Lythrum salicaria</i>)	Lesser Spearwort (<i>Ranunculus flammula</i>)	Pillwort (<i>Pilularia globulifera</i>)
Hornwort (<i>Ceratophyllum demersum</i>)	Rushes (<i>Juncus spp</i>)	Creeping jenny (<i>Lysimachia nummularia</i>)	Brooklime (<i>Veronica beccabunga</i>)

Water starwort (<i>Allitriche stagnalis</i>)	Sedges (<i>Carex spp</i>)		
Common spike-rush (<i>Eleocharis palustris</i>)	Greater spearwort (<i>Ranunculus lingua</i>)		
Willow moss (<i>Fontinalis antipyretica</i>)	Water forget-me-not (<i>Myosotis scorpioides</i>)		
Marestail (<i>Hippuris vulgaris</i>)			
Water violet (<i>Hottonia palustris</i>)			
Water crowfoot (<i>Ranunculus aquatilis</i>)			

A wildlife pond should be approximately 50% exposed to light / covered with vegetation and comprise native species. A variety of depths and light levels will ensure a heterogeneous habitat to support a plethora of invertebrate and amphibian life.

Planting of a wildflower meadow; an increase in invertebrate habitat should be a key part of the plan, to include wildflower planting for bees and other pollinators within the site boundary to the east and south of the development to help increase the number of foraging opportunities available for bats.

Wildflower meadow mixes are available online, and should preferably focus on native bee-friendly mixtures to include the following species:

Common agrimony	Cornflower	Wild marjoram
Borage	Ox-eye daisy	Meadow cranesbill
Wild clary	Wild foxglove	Musk mallow
Red clover	Common knapweed	Common poppy
White clover	Greater knapweed	Ragged robin
Corn cockle	Purple loosestrife	Sainfoin
Field scabious	Bird's-foot trefoil	Yarrow

Wildflower mixes should focus on supporting invertebrates (such as bees, ants, wasps, butterflies and flies) and birds, and should ideally not contain non-native species as these can out-compete native plants for pollination.

Climbing plants should be trained up the walls of the new buildings using trellis. Species could include; passion flower, honeysuckle, hops, ivy, star jasmine, wisteria, climbing roses, or clematis. These species all provide feeding opportunities for invertebrates and small mammals, and nesting opportunities for birds once they reach maturity.

Butterfly planting should focus on species rare in Sussex and Kent such as the silver-spotted skipper *Hesperia comma*, dingy skipper *Erynnis tages*, grizzled skipper *Pyrgus malvae*, Adonis blue *Polyommatus bellargus*, chalk hill blue *Polyommatus coridon*, small heath *Coenonympha pamphilus*, and fiery clear wing *Pyropteron chrysidiformus*. Plant species to encourage these butterflies should include the following in a large planter or area of ornamental planting (species that support more than one of these butterfly species are in bold):

Common sorrel	Tormentil	Birds foot trefoil
Curled dock	Salad burnet	Horseshoe vetch
Sheep's fescue	Agrimony	Wild strawberry

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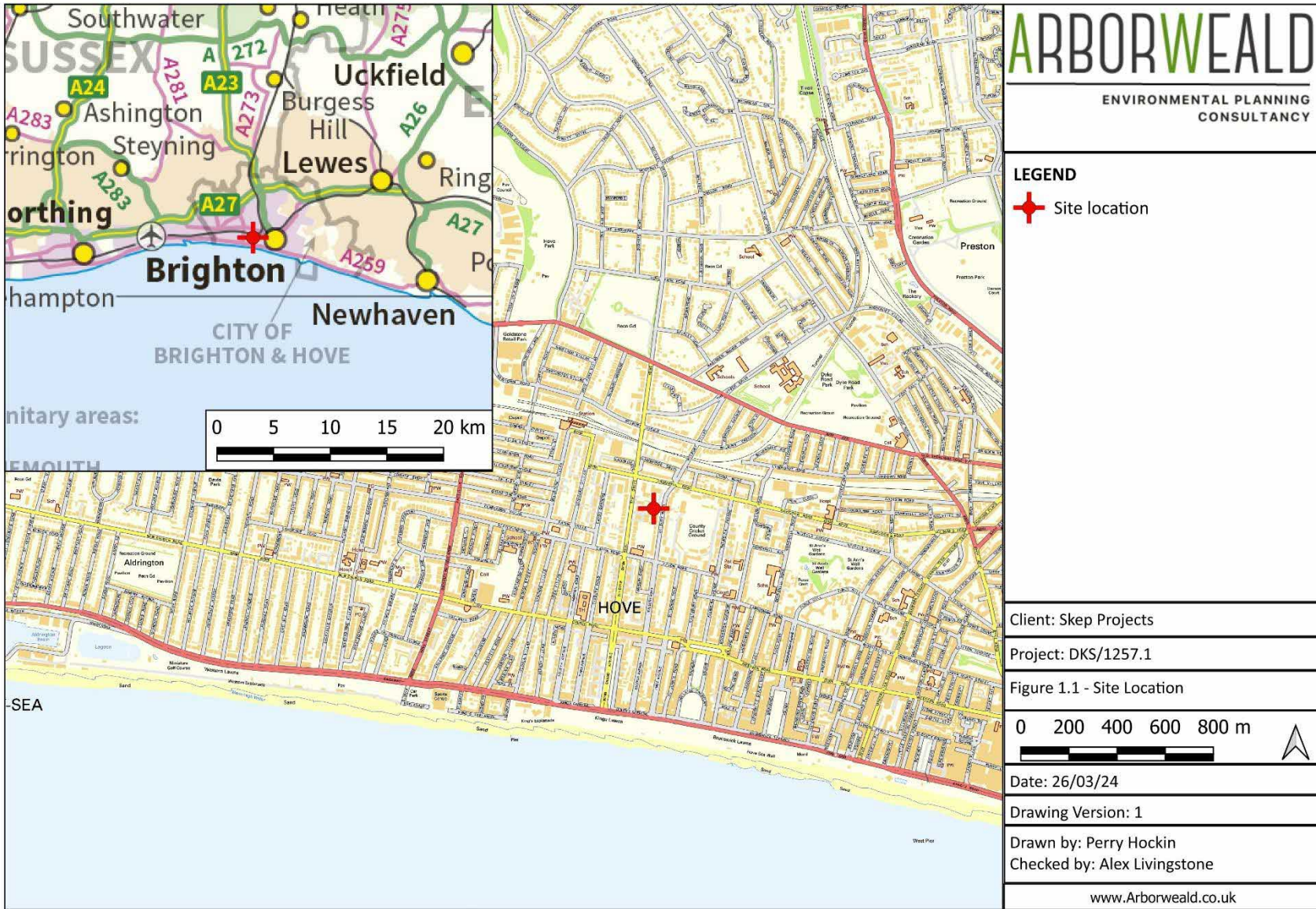
FIGURES

Figure 1.1 Location of site

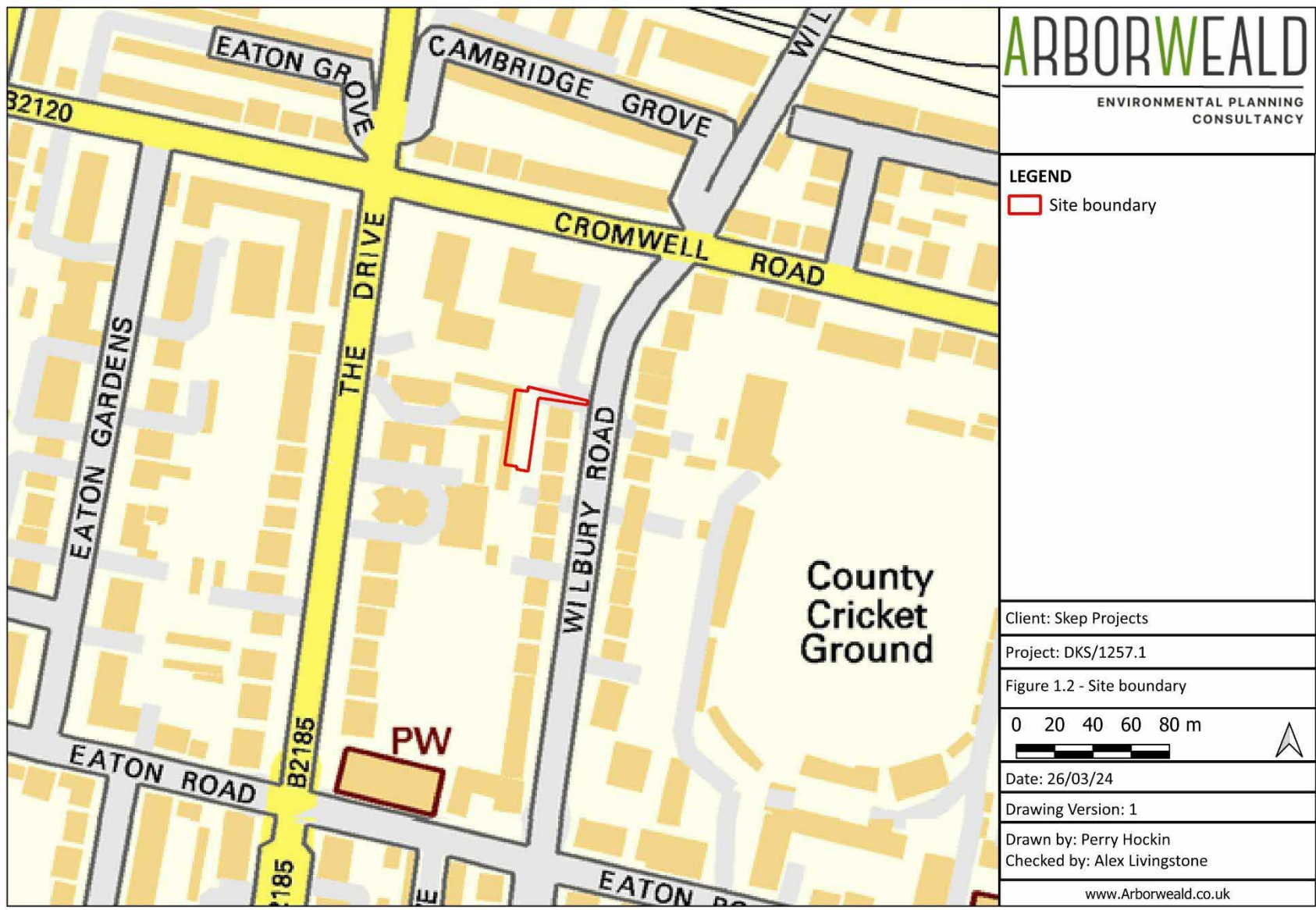
Figure 1.2 Extent of site boundary

Figure 3.1 Waterbodies within 500 m of site boundary

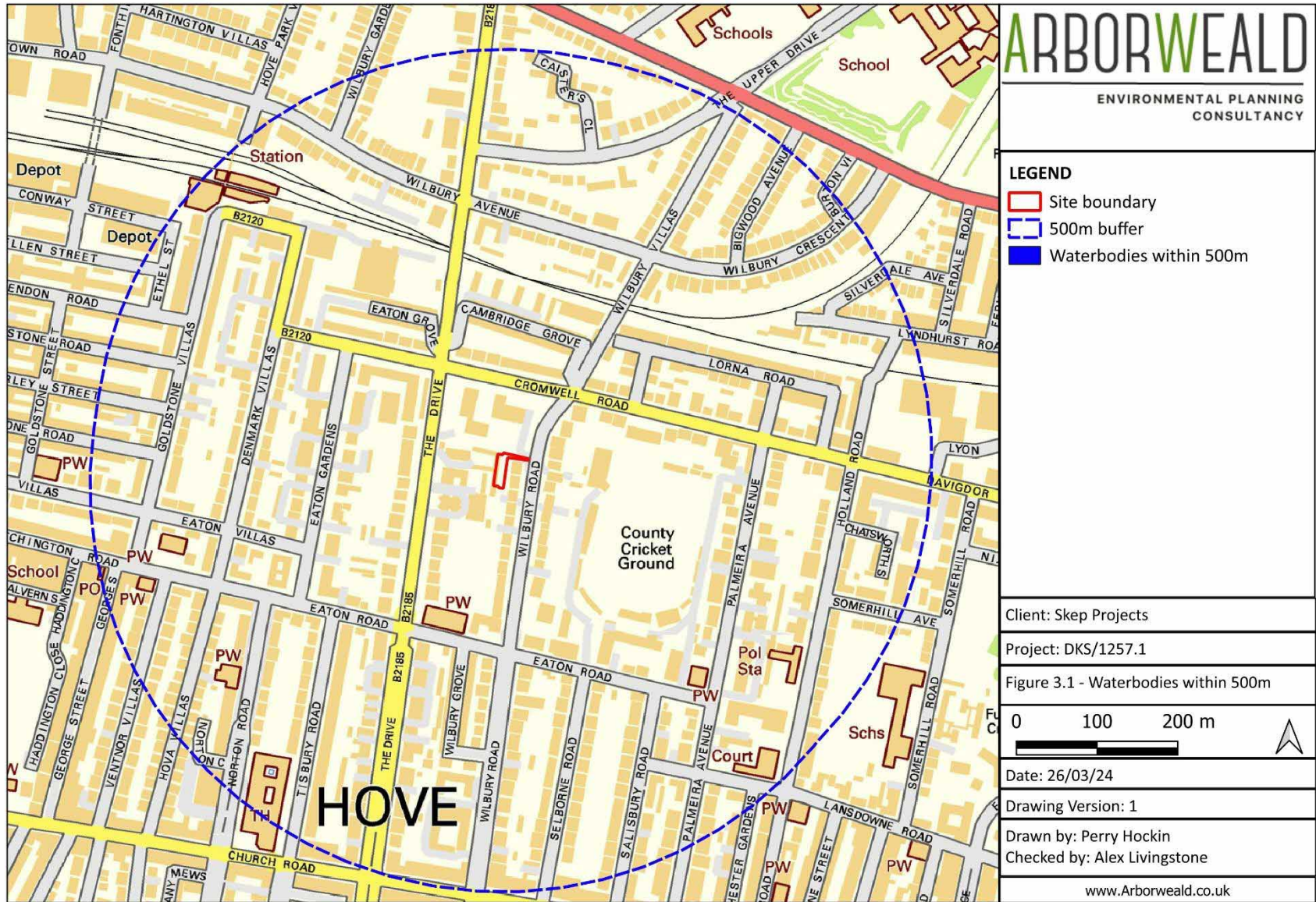
Figure 3.2 Preliminary Ecological Appraisal results

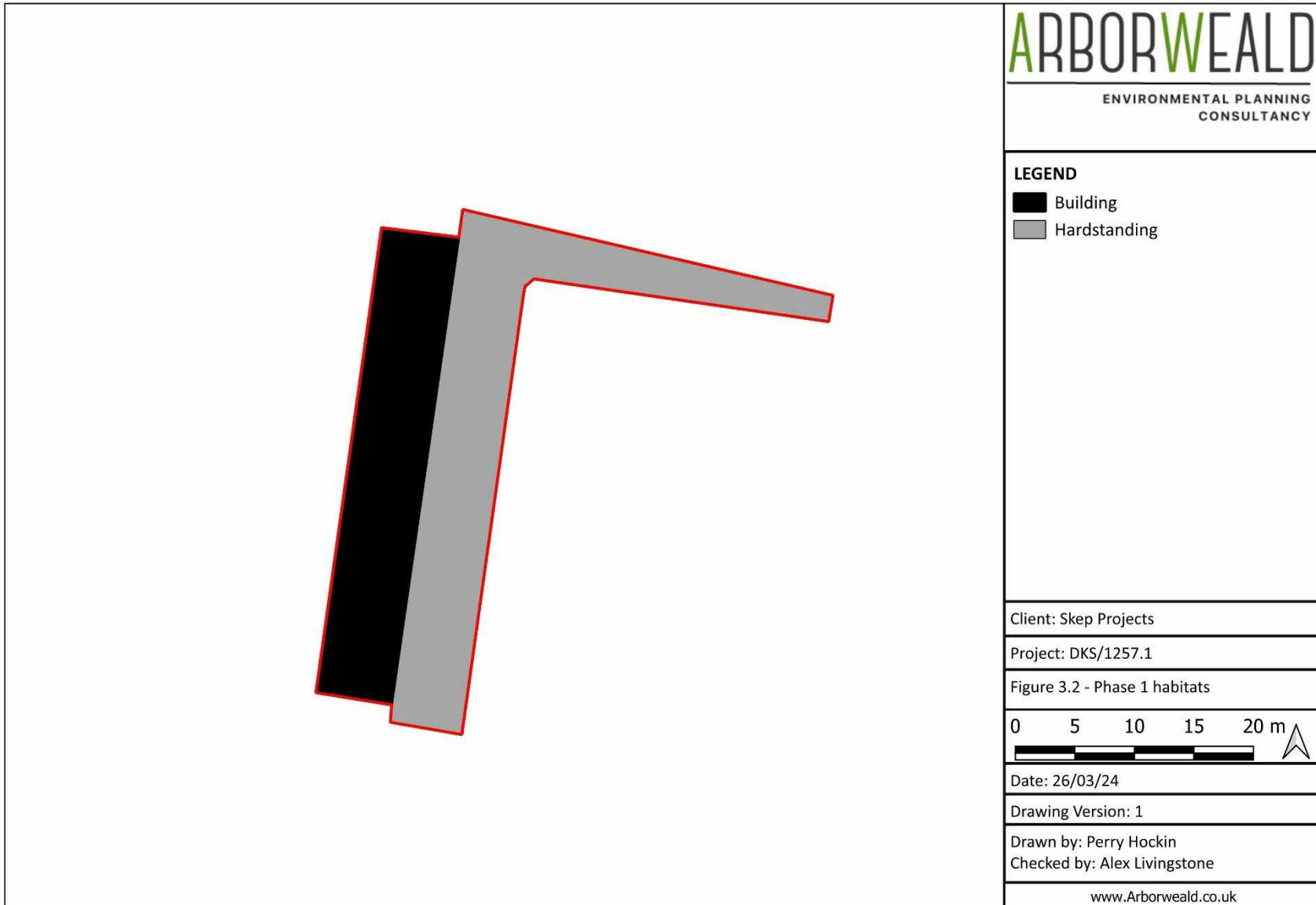


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APPENDIX A Wildlife Legislation

The Wildlife and Countryside Act 1981 (as amended)

Schedule 1

Applies to all wild birds where it is an offence:

- to take, damage or destroy a nest whilst it is being built or in use
- to kill, injure or take any wild bird (subject to certain exceptions and / or licencing)
- to take or destroy the egg of any wild bird.

It is also an offence to disturb any wild bird listed on Schedule 1 of the Wildlife & Countryside Act 1981 (as amended):

- while it is nest building
- at a nest containing eggs or young
- to disturb the dependant young of any such bird.

Schedule 5

Other protected animals are listed in Schedule 5; a full list of protected species can be found on the Legislation.gov.uk website. Schedule 5 contains several advancing levels of protection outlined below:

Protected under section 9(5) of Schedule 5, it is an offence:

- to sell or advertise for sale, or participate in the sale of these species; many species of invertebrate are listed under this section including butterflies, moths and beetles as well as common frog, palmate and smooth newts

Protected under section 9(1) of Schedule 5, it is an offence:

- to intentionally kill or injure or take these species – this applies to adder, grass snake, common lizard and slow worm

For animals fully protected under Schedule 5 - which includes, the hazel dormouse, otter, water vole, pine marten, shrews, hedgehog, great crested newt, natterjack toad, sand lizard, smooth snake, red squirrel and all bats – all of the above apply, however it is also an offence:

- to intentionally or recklessly damage or destroy or obstruct access to any structure or place which a species uses for shelter or protection, at any time even if the animal is not present.
- to intentionally or recklessly disturb whilst it is occupying a place which it uses for shelter or protection.

Schedule 8

Specific species of plants listed in Schedule 8 are protected. It is an offence: to intentionally pick, uproot or destroy a wild plant listed in Schedule 8.

Schedule 9

Invasive non-native species are listed under Schedule 9. It is an offence:

- to plant or otherwise cause to grow in the wild.

If soils are contaminated by invasive non-native plant species it becomes classified as '*controlled waste*' under the Environmental Protection Act 1990 (England, Wales & Scotland), and must be disposed of accordingly.

The Conservation of Habitat and Species Regulations 2017

Schedule 2 applies to all European Protected Species (EPS) which includes all bat species, great crested newts, otter and dormice. The protection afforded is overlapping but separate from the Wildlife and Countryside Act 1981 (as amended)

The Protection of Badgers Act 1992

Under this Act it is an offence:

To intentionally or recklessly interfere by damaging, destroying, obstructing access to, or disturbing a badger whilst in a sett either directly or through causing a dog to enter a badger sett

To wilfully kill, injure or take a badger, or to attempt to do so; in a case of attempt, if there is reasonable evidence to suggest an offence may have been committed, evidence would be required to prove innocence

To possess or be under control of a dead badger, or part of, or anything derived from a dead badger which may have been killed in contravention of the above

To sell, possess or attempt / offer to sell a live badger

Where interference with a badger sett cannot be avoided during development, a licence from Natural England must be applied for.