The Ecology Co-op
ENVIRONMENTAL CONSULTANTS
Building B, Lords Wood Barns, Petworth, GU28 9BS

Preliminary Ecological Appraisal

Land at Toddington Lane, Wick

Author: Rozel Hopkins, MSci (Hons)
Reviewed by: Kate Priestman, CEnv, MCIEEM & Dan Bennett BSc, MCIEEM

25th March 2024

Project No: P2238

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

Issue No	Author	Reviewer	Issue Date	Additions/alterations	Notes
Original	RH	KP & DB	06/05/22	N/A	
Revision 1	RH	KP	26/07/22	Detailing access attempt for Pond 2	
Revision 2	RH	-	25/03/24	Update with new site plans	Plan number 21-097-LTL-MHA-00-DR-A-SK01-P02§

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

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

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

Report Summary

1. The Ecology Co-op has been commissioned by Worthing Homes to undertake a Preliminary Ecological Appraisal at land at Toddington Lane. A site walkover survey visit was carried out by Rozel Hopkins, MSci (Hons), on 5th April 2022, to evaluate the habitat value of the site and its potential to support EU and UK protected/notable species. The purpose of this report is to record the findings of the survey and identify potential ecological constraints and opportunities in relation to a proposal, which will include the construction of ten dwellings.

2. A previous initial assessment of the site was carried out by The Ecology Co-op in February 2017 for a prior application, and reptile presence/absence surveys were further carried out in relation to this. A low population of slow worms was identified and, after planning permission was granted for the prior scheme, 20 slow worms were translocated out of the site in 2020 to a receptor site in Littlehampton Golf Course. A single common lizard was also seen but not caught. It is understood that the land has been unmanaged since this reptile translocation, with the reptile fencing left in-situ during this time. The present report now concerns a new planning application for this site.

3. This site measures approximately 0.35ha and is situated on the north-eastern outskirts of Wick, West Sussex. It comprises a dilapidated industrial building within an area of hardstanding and bare ground. The site has a history of supporting light industrial works and appears to have been subject to frequent changes of the management of the site between 2017 and 2022. At present, ruderal vegetation and scrub has begun to re-establish after clearance in 2020, forming suitable reptile habitat. Large piles of rubble and building materials are scattered around the centre of the site. Access into the site is possible from a gravel and tarmacked access road at the south of the site. These habitats could be interpreted as 'early establishing open mosaic habitat on previously developed land'. Open mosaic habitat is recognised as a priority for conservation due to it's potential to support important terrestrial invertebrate assemblages. However, the application site does not fully meet the definitions for priority habitat in terms of botanical indicators and habitat continuity.

4. Residential housing dominates in the wider landscape, with an operational train line situated apprxoiamtely 25m south of the site. Two ponds were also identified within the wider landscape – a dried-up SUDs pond located 140m south (Pond 1) and a garden pond 110m east (Pond 2). Pond 2 could not be accessed at the time of assessment, to determine if it was in the same condition as to when it was assessed in 2017.

5. The proposal is small in scale and situated outside the zone of influence of all designated sites. As a result, there are no identified mechanisms of impact on designated sites from this development.

6. The redevelopment of the site will result in the loss of early-establishing open mosaic habitat. To compensate for this loss , it is recommended that new habitat features are created within the development site, including species-rich meadow planting, scrub planting and the creation of a bee bank. In addition, a semi-mature hornbeam tree should be retained and protected from root compaction through the installation of barrier fencing outside of its Root Protection Area (RPA).

7. Reptile presence/absence surveys are recommended due to the re-establishment of reptile habitat and lack of functional reptile exclusion fencing now around the site. These surveys will inform species-specific impact assessments and will be used to develop mitigation strategies as appropriate.

8. Precautionary mitigation will be required for:

- **commuting and foraging bats when installing any artificial lighting on the site**
- **common nesting birds when clearing any scrub and ruderal vegetation, semi-mature trees and when demolishing buildings**
- **hedgehogs when clearing any hedgerow, tree lines, scattered trees and scrub vegetation**
- **great crested newts during vegetation clearance**

9. The enhancement opportunities identified in section 5 of this document will result in new opportunities for birds, bats and insects and likely beneficial effects for biodiversity at the site should they all be implemented in full.

10. In line with the National Planning Policy Framework, it is recommended that the site's ecological value should be enhanced. This could be achieved through the planting of native species-rich hedgerows and native shrubs as well as the provision of bat and bird boxes, as outlined in section 5 of this report.

CONTENTS PAGE

1 INTRODUCTION

1.1 Purpose of the Report

The Ecology Co-op has been commissioned to undertake a Preliminary Ecological Appraisal (PEA) of land at Toddington Lane by Worthing Homes. This report presents the findings of a walkover survey undertaken by Rozel Hopkins, MSci (Hons), a Qualifying member of the Chartered Institute of Ecology and Environmental Management on 5th April 2022. It provides details on the potential for any protected/notable species and/or habitats to be present at the site and a simple assessment of the potential ecological constraints and opportunities in relation to the construction of ten dwellings. Recommendations for further surveys that are likely to be required to inform a planning application and Ecological Impact Assessment (EcIA) of the proposal are provided where necessary, and possible measures to avoid, mitigate and/or compensate for significant adverse effects are summarised. The potential to incorporate ecological enhancement measures as part of the scheme is discussed, in addition to any requirement to achieve biodiversity net gain.

This PEA report is designed to inform the client and their team (as appropriate) about the initial findings of the site walkover and desk study research in relation to the site proposals, highlighting the key ecological constraints and opportunities, and any further survey requirements. It is not intended for submission in support of a planning application but can be used to inform a future Ecological Impact Assessment (EcIA).

1.2 Background

The site is located along Toddington Lane, Wick, Littlehampton BN17 7FU. The central grid reference for the site is TQ 03403 03856.

This site measures approximately 0.35ha and is situated on the north-eastern outskirts of Wick, West Sussex. The site is situated in a suburban location, with residential housing extending in all directions. An operational train line is situated approximately 25m south of the site. Figure 1 shows the boundary of the site.

The proposed project includes the redevelopment of the site to support ten new residential units with associated hard and soft landscaping (Figure 2).

A previous assessment of the site was carried out by The Ecology Co-op in February 2017[1] for a prior planning application of ten residential properties. The site was found to support ruderal vegetation, scrub, bare ground and hard standing tarmac, with a large industrial shed located close to the site centre and some open sided metal storage structures. The Ecology Co-op was then commissioned to undertake reptile presence/absence surveys between 24th March and 18th April 2017, during which a low population of slow worms was recorded, with a peak count of one individual recorded [2]. A reptile

[1] The Ecology Co-op (2017). Preliminary Ecological Appraisal and Phase 1 Habitat Assessment – Land at Toddington Lane, Wick

[2] The Ecology Co-op (2017) Reptile Presence/Absence Survey Report - Land at Toddington Lane

translation was then conducted during 2020 after planning permission was obtained, where 20 slow worms were translocated to a receptor site in Littlehampton Golf Course, with a single common lizard also seen but not caught[3]. It is understood that the land has been unmanaged since this reptile translocation, with the reptile fencing left in-situ during this time. The present report now concerns a new planning application for this site.

Figure 1. An aerial image showing the location of the site and its' appearance in January 2019. The approximate site boundary is outlined in red. Image produced courtesy of Google maps (map data ©2022 Google).

[3] The Ecology Co-op (2020) Reptile Translocation at Toddington Lane, Littlehampton

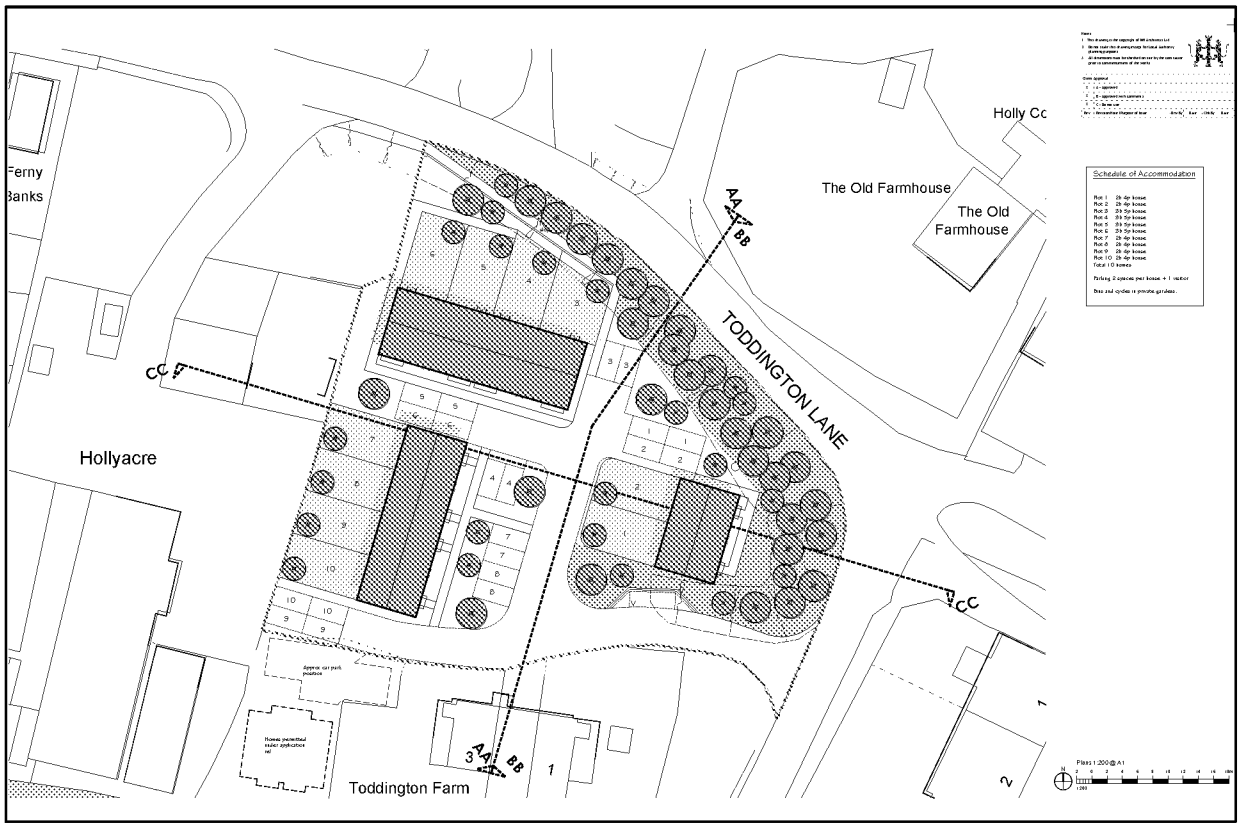


Figure 2. The proposed development layout plan for ten new dwellings at Land at Toddington Lane. Plan courtesy of MH Architects dated 27th January 2022 (drawing no. 21-097-LTL-MHA-00-DR-A-SK01-P02).

1.3 Policy and Legislation

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

Where possible, this report provides guidance on how the proposal can be designed to meet the requirements of both local planning policy and the National Planning Policy Framework (NPPF). Details of the NPPF can be found in Appendix 1 and relevant local planning policy by Arun District Council is provided in Appendix 2.

2 METHODOLOGY

The methodologies used for this survey are in accordance with the Guidelines for Preliminary Ecological Appraisal[4], but also consider the Guidelines for Ecological Report Writing, Second Edition[5].

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

2.1 Desk Study

A search for existing records of protected species, species of conservation concern and invasive non-native species was requested from the Sussex records centre within a radius of 2km of the site.

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

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

2.2 Field Survey

A site walkover survey was undertaken on 5th April 2022 during which the habitats contained within the site were described and evaluated. Since this site is relatively small in scale and contains limited semi-natural habitat diversity, it was not considered necessary to undertake comprehensive Habitat Mapping of the site using UKHab methodology. All habitat types contained within the site, together with the dominant botanical species and indicators of important habitat types, such as ancient woodland or unimproved grassland, have simply been listed and described where identified.

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

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

2.3 Badgers

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

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

2.4 Bats

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

Trees, buildings and other structures were broadly assessed for their potential to support roosting bats and further surveys are recommended as appropriate.

The potential for roosting bats for each feature, or group of features was assessed as negligible, low, moderate, or high, in accordance with best practice. Any evidence confirming the presence of bats was clearly recorded including photos and samples taken (e.g. droppings), where appropriate.

The habitats surrounding the site and wider landscape were broadly assessed for their potential to support foraging and commuting bats.

2.5 Breeding Birds

Birds can use a wide range of natural and artificial habitats when breeding, including trees, hedgerows, fields, houses and garden sheds. The habitats contained within the site and adjacent areas were broadly assessed for their potential to support important bird species/assemblages, and breeding birds. Any birds identified during the site visit were recorded. Special attention was paid to notable species such as red-listed Birds of Conservation Concern[6] and those species afforded special protection on Schedule 1 of the Wildlife and Countryside Act (1981).

2.6 Dormice

Dormice are found in deciduous woodland and hedgerows, feeding on flowers, pollen, fruits, insects and nuts, favouring hazel *Corylus avellana* and honeysuckle *Lonicera periclymenum* for food and as bedding. The site was broadly assessed for its potential to support dormice. This included use of on-line mapping resources to assess the surrounding area for connectivity to large blocks of woodland, scrub and extensive hedgerow networks.

2.7 Great Crested Newt

Great crested newts breed in ponds during the spring and spend the rest of the year feeding on invertebrates primarily in semi-natural habitats including woodland, hedgerows, marshes and tussocky grassland. A desk study was undertaken to identify ponds and wet ditches within 500m of the site that might support breeding great crested newts. Where access permission was granted, or ponds could be viewed from public roads or footpaths, the ponds were assessed for their potential to support great

[6] Stanbury, A., Eaton, M., Aebischer, N., Balmer, N., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. (2021). Birds of Conservation Concern 5: the status of bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man. British Birds 114, pp 723-747.

crested newts using the Habitat Suitability Index (HSI) (Oldham et al 2000)[7]. The value of the site for terrestrially foraging great crested newts and any features that might be used by hibernating newts has also been assessed.

Further surveys are recommended as appropriate, in accordance with best practice guidance (English Nature 2001)[8].

2.8 Reptiles

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

Habitats on the site were broadly assessed for their potential to support reptiles. Particular attention was paid to those features that provide suitable basking areas (e.g. south-facing slopes), hibernation sites (e.g. banks, walls, piles of rotting vegetation) and opportunities for foraging (rough grassland and scrub). Further surveys are recommended as appropriate.

2.9 Other Notable Species

The site's habitats were broadly assessed for their potential to support species of principal importance for nature conservation (Section 41 NERC Act 2006) and other notable species. This includes mammals such as harvest mouse *Micromys minutus*, hedgehog *Erinaceus europaeus*, brown hare *Lepus europaeus*, and many bird species. The site was broadly assessed for its potential to support important invertebrate assemblages with particular attention paid to features such as standing dead-wood, wet flushes, bare earth banks and botanically rich areas.

3 BASELINE CONDITIONS

3.1 Designated Sites and Granted EPS Licences

There are no designated sites within the zone of influence of the site and therefore sites designated for nature conservation are unlikely to be a consideration for the proposed development.

There are three granted EPS licences for mitigation projects within 1km of the site boundary, all of which relate to bats (Figure 3). The closest EPS licence is 245m south of the site and concerns the destruction of a common pipistrelle *Pipistrellus pipistrellus*, brown long-eared *Plecotus auritus* and Natterer's bat *Myotis nattereri* resting place, dated 5th November 2012 (EPSM2012-4965).

---

[7] Oldham, R.S., Keeble, J., Swan, M.J.S. and Jeffcote, M. (2000). Evaluating the suitability of habitat for the great crested newt (*Triturus cristatus*). *Herpetological Journal* 10, 143-155.
[8] English Nature (2001). *Great Crested Newt Mitigation Guidelines*. English Nature, Peterborough.

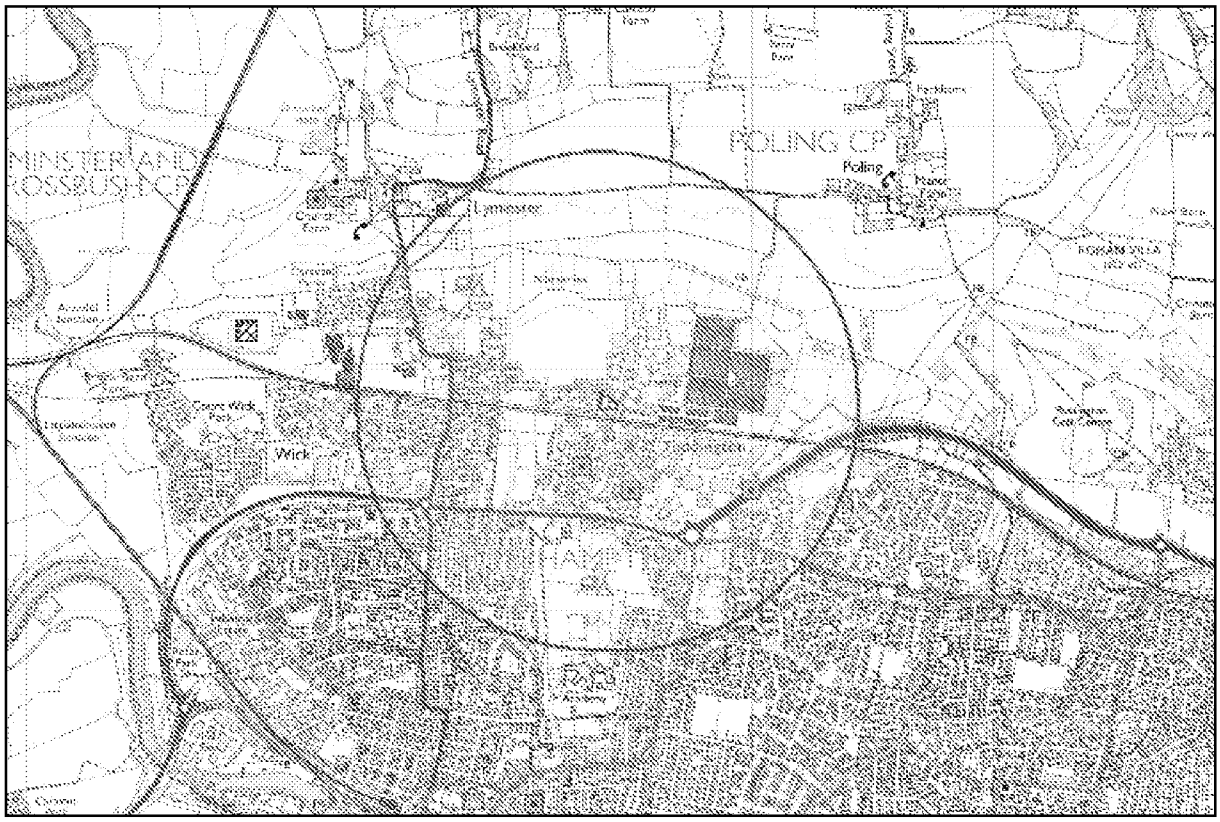


Figure 3. Granted bat EPS licences within 1km of the application site (shown in blue). Image produced courtesy of Magic maps (http://www.magic.gov.uk/, contains public sector information licensed under the Open Government Licence v3.0).

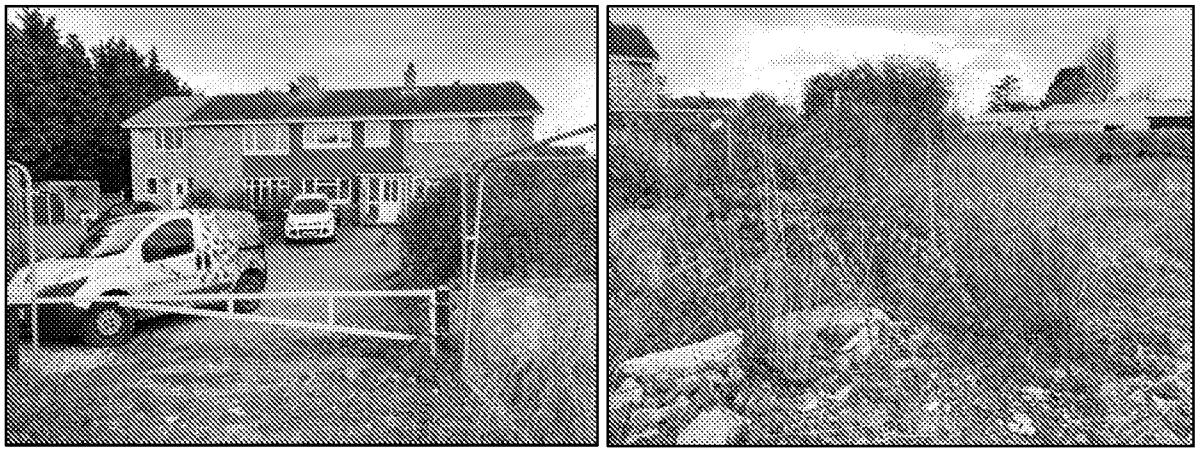
3.2 Habitats

The site comprises a dilapidated industrial building within an area of hardstanding and bare ground. The hardstanding has not been managed recently and, therefore, ruderal vegetation and scrub has begun to establish. Large piles of rubble and building materials are scattered around the centre of the site. Access into the site is possible from a gravel and tarmacked access road at the south of the site. The site boundaries are delineated by a mixture of wooden post fence, Heras fencing, a brick wall and concrete blocks in various states of disrepair, as well as a large bank along the northern and western boundaries. Reptile exclusion fencing also lines the south-western and western boundaries, likely leftover from the reptile translocation in 2020; however, this has now fallen over in areas of the southern boundary, allowing access to further scrub and ruderal habitat south of the site as well as vegetation corridors along the rail line in the wider landscape. A semi-mature hornbeam *Carpinus betulus* tree is present next to the site's southern boundary. The condition of the site and habitats present indicate an establishing open mosaic habitat is beginning to form, but this has only recently arisen due to frequent changes to the management of the site, which was originally used for light industrial works and has appeared to be frequently cleared of vegetation between 2017 and 2022 (as demonstrated in the 2019 aerial image in Figure 1).

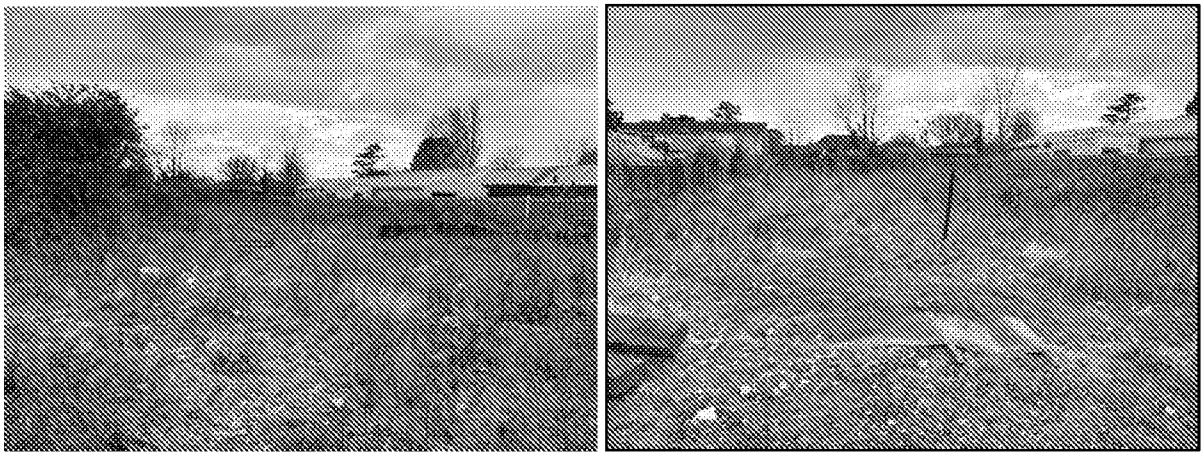
Ruderal vegetation dominates the site, comprising mostly of teasel *Dipsacus fullonum*, common nettle *Urtica dioica*, broad-leaved dock *Rumex obtusifolius*, bristly oxtongue *Picris echioides* and white clover

Trifolium repens. Other species recorded include ribwort plantain *Plantago lanceolata*, Yorkshire fog *Holcus lanatus*, red dead nettle *Lamium purpureum*, cleavers *Galium aparine*, common hogweed *Heracleum sphondylium*, dandelion *Taraxacum officinale*, forget-me-not *Myosotis* sp., spurge *Euphorbia*, white dead nettle *Lamium album*, creeping buttercup *Ranununculus repens*, red clover *Trifolium pratense*, Canadian fleabane *Conyza canadensis*, spear thistle *Cirsium vulgare* and doves-foot cranesbill *Geranium molle*. A large area of common nettle and white dead nettle is located within the eastern section of the site and a dense area of Canadian fleabane lines the western boundary. Small areas of dense bramble scrub are present along the southern, north-western and eastern boundaries. Other species were recorded within the scrub include elder *Sambucus nigra* shrubs, ivy *Hedera helix*, common nettle and an unidentifiable umbellifer species.

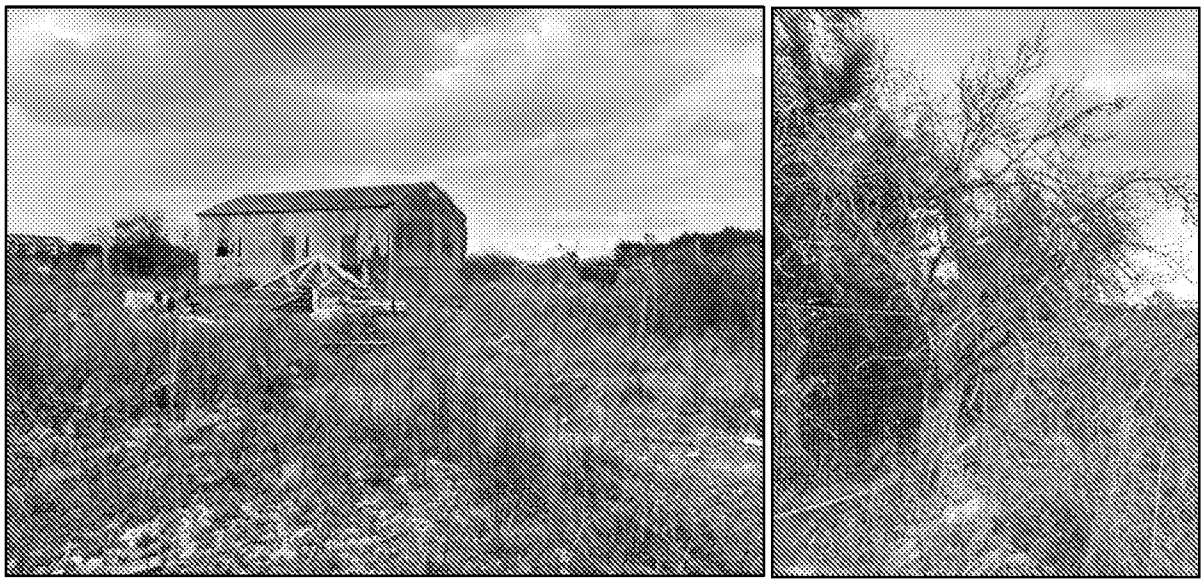
No habitats of principal importance were identified in or within close proximity to the site.



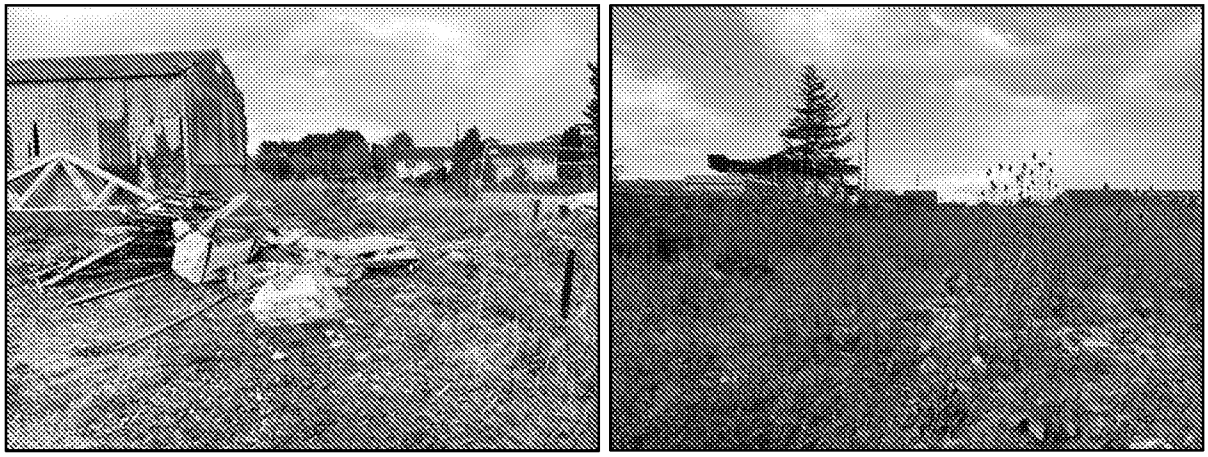
Photograph 1a (left) & b (right). Left – The access gate and road into the site, looking south. Right – An area of dense bramble scrub along the southern boundary, with rubble piles seen in the foreground.



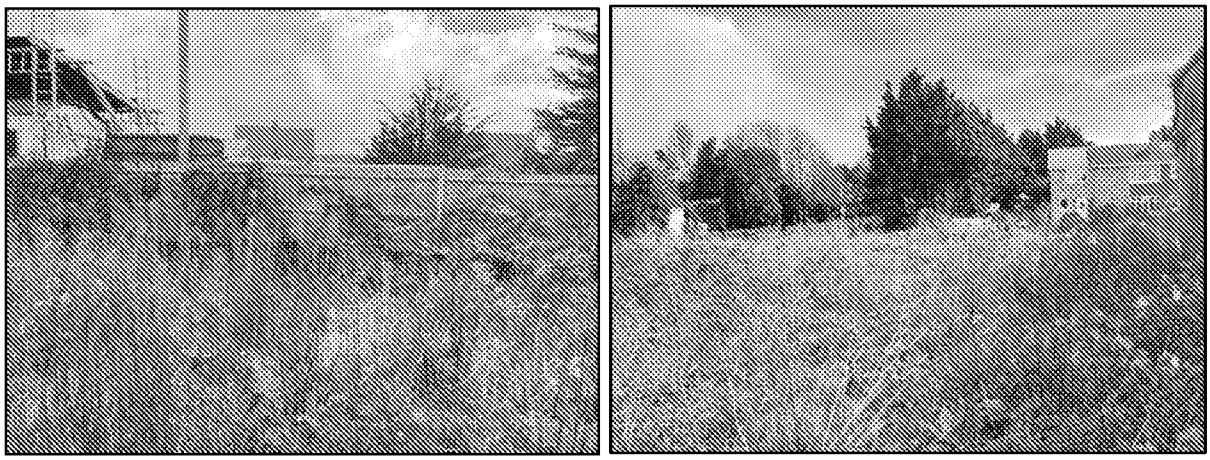
Photograph 2a (left) & b (right). Left – View of the southern sections of the site, with old reptile fencing delineating the southern boundary. Right – Evidence of reptile fencing having fallen down along the southern boundary, with further suitable ruderal vegetation and scrub habitat beyond the site boundary.



Photograph 3a (left) & b (right). Left – View north-east of the site, showing areas of ruderal vegetation and bare ground with an industrial building seen in the background. Right – The semi-mature hornbeam tree along the southern boundary.



Photograph 4a (left) & b (right). Left – View east of the piles of building materials atop bare ground. Right – View north of the western section of the site, showing ruderal vegetation dominated by teasel with patches of bare ground.



Photograph 5a (left) & b (right). Left – The western boundary fence, with ruderal vegetation and scattered scrub. Right – Bramble scrub and ruderal vegetation in the eastern section of the site, looking south.

Photograph 6a (left) & b (right). Left – Rubble piles, bare ground and ruderal vegetation within the south-eastern section of the site. Right – View of the south-eastern section of the site from Toddington Road.

3.3 Badgers

No signs of any badger activity were seen during the survey assessment, though there are habitats of value for this species within the site and surrounding landscape. It is likely that if any setts were situated within 30m of the site boundary, then evidence of badger activity would have been observed.

Records of badgers are not provided by the records centre, due to the sensitive nature of this information.

3.4 Bats

There is an industrial shed located within the centre of the site, which is currently unused and becoming dilapidated (Photograph 7). The lower walls of the shed are brick with an upper of single skinned corrugated chrysotile, with the roof also constructed of corrugated chrysotile with some clear plastic skylights. Externally the building does not support any potentially suitable crevices to support roosting bats with the corrugated chrysotile sheets sitting flush to each other. In addition, this material is typically unsuitable for roosting bats due to its thermoregulatory properties. Internally the building is brightly light from the plastic roof skylights, open doors and a broken chrysotile on the walls (Photograph 8). Consequently, this space is unsuitable for void dwelling species such as long-eared bats *Plecotus* sp. Therefore, this building is considered to have 'negligible' potential to support roosting bats.

Photograph 7a (left) & b (right). Left – The southern and eastern elevations of the industrial building. Right – The northern and western elevations of the industrial building.

Photograph 8a (left) & b (right). Left – An internal view of the industrial building, looking north. Right – An internal view of the industrial building, looking south.

There are no trees within the site and its boundaries that support suitable bat roosting features, and therefore tree roosting bats are not a constraint to development.

Most of the site comprises ruderal and scrub habitat, which offers moderate foraging value for the more common species of bat such as the common pipistrelle *Pipistrellus pipistrellus* and soprano pipistrelle *Pipistrellus pygmaeus*. There are no hedgerows upon the site with the potential to be used by commuting bats.

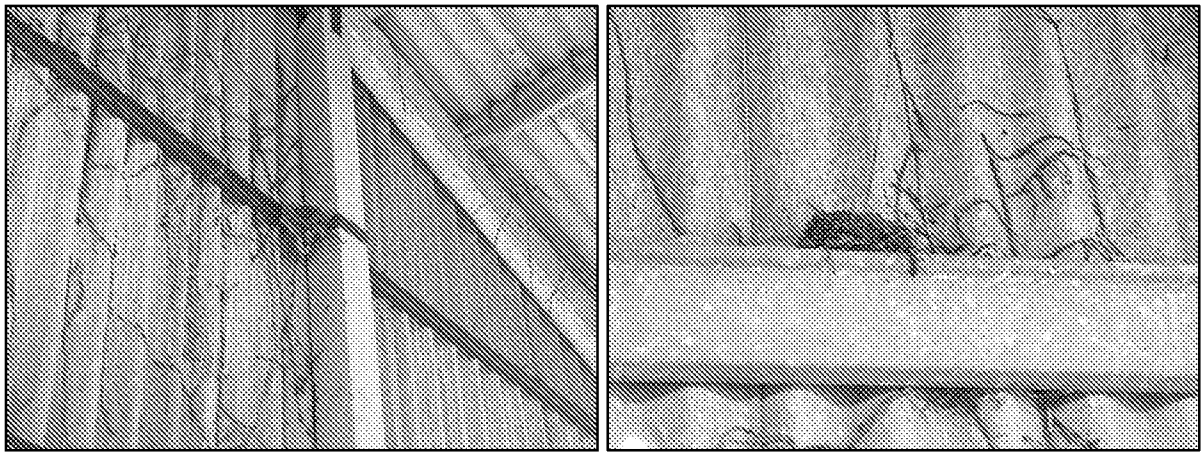
The Sussex record centre provided 45 bat records in the search area comprising nine identified species, which are detailed in Table 1. The closest of these was a common pipistrelle bat record seen feeding over a waterbody approximately 250m from the site, dated July 2012.

Table 1. Bat records returned within a 2km radius of the site.

Species	No. of records	Max. abundance
Serotine *Eptesicus serotinus*	8	19
Alcathoe bat *Myotis alcathoe*	1	1
Daubenton's Bat *Myotis daubentonii*	5	3
Whiskered/Brandt's *Myotis mystacinus/brandtii*	1	1
Natterer's Bat *Myotis nattereri*	1	1
Noctule Bat *Nyctalus noctula*	1	1
Nathusius's Pipistrelle *Pipistrellus nathusii*	1	1
Common Pipistrelle *Pipistrellus pipistrellus*	20	71
Soprano Pipistrelle *Pipistrellus pygmaeus*	6	2

3.5 Breeding Birds

All of the scrub and ruderal vegetation have the potential to support a variety of common nesting birds. These habitats could also support rarer ground nesting birds, but this is less likely due to regular disturbance from noise and dust in the surrounding landscape. In addition, the industrial building supported multiple inactive bird nests, most likely belonging to blackbirds (Photograph 9).



Photograph 9a (left) & b (right). Examples of bird nests seen within the industrial building, likely belonging to blackbirds.

SxBRC provided numerous bird records for the search area concerning over 250 species. Most of these species are relatively common and widespread, but the list includes 37 species of principal importance for conservation (S41 NERC Act 2007), and 60 species listed on Schedule 1 of the Wildlife and Countryside Act. In addition, 6 species are red listed on the Birds of Conservation Concern.

The most relevant records to the habitats contained by the application site concern ground nesting birds in ruderal or scrub habitats. Records of the following ground nesting birds have been provided by SxBRC and as such have the potential to occasionally breed on site if undisturbed: skylark *Alauda arvensis*, yellowhammer *Emberiza citrinella* and stonechat *Saxicola rubicola*.

3.6 Dormice

This species favours mixed broadleaved woodland and hedgerows, where there are clear sources of food for as long of their active season as possible (March to October). Although bramble scrub can be suitable for dormice, the available habitat within this site is small in size and lacks connectivity to any continuous areas of hedgerow and woodland in the wider landscape.

While no records of this species were provided by Sussex Biodiversity Records Centre, this species is known to be under-recorded and could occur in any suitable habitat in West Sussex.

3.7 Great Crested Newts and other Amphibians

The ruderal vegetation and scrub habitats on the site could act as a suitable refuge for amphibians. Furthermore, the piles of rubble and building materials situated in the centre of the site could offer refuge and hibernation opportunities.

There are no ponds contained within the proposed development site. A search of aerial imagery and mapping identified two ponds within close proximity to the site: one 140m south (Pond 1) and one 110m east (Pond 2) of the site (see Figure 4). All other ponds are located beyond 250m, which is the most utilised area of habitat by a great crested newt population from a breeding pond[9].

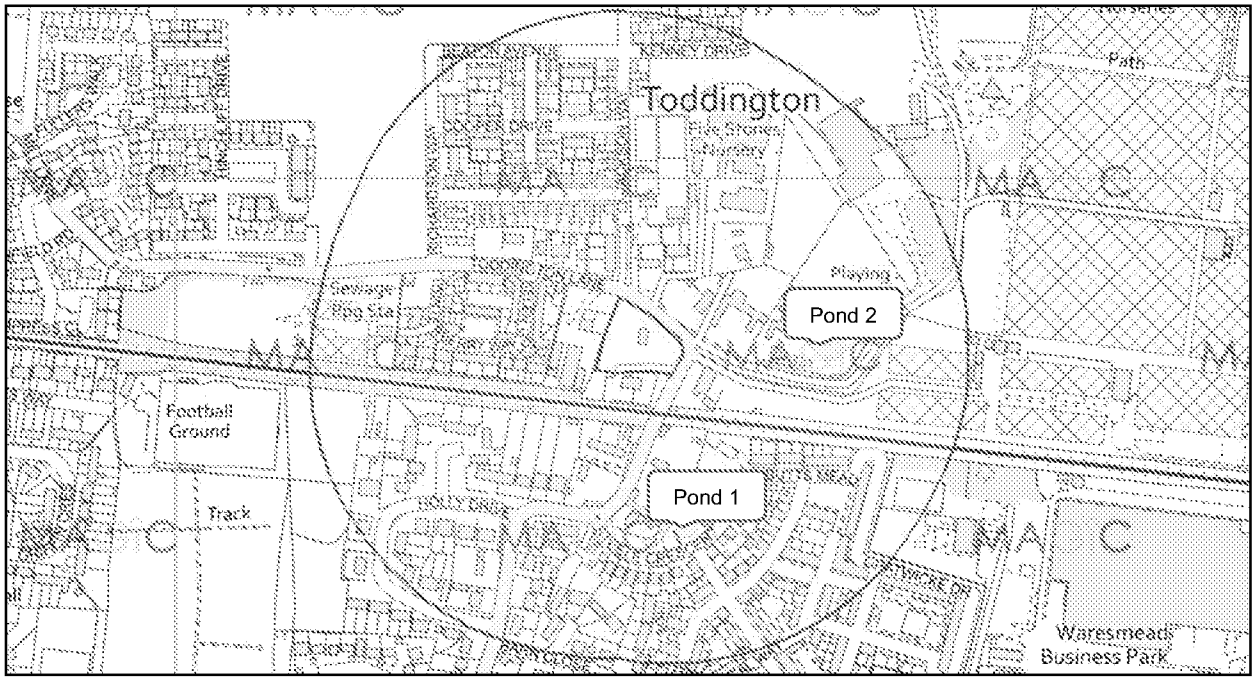
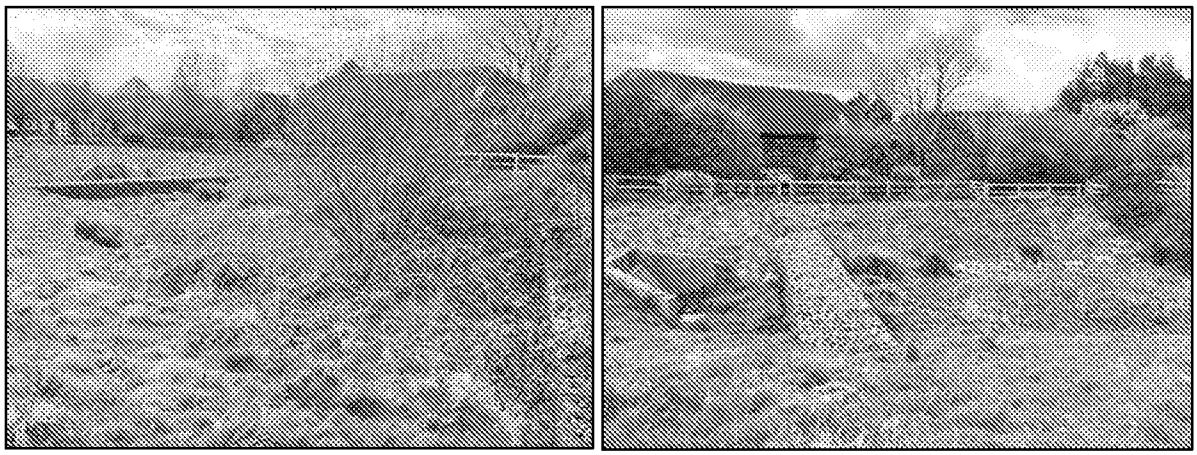


Figure 4. Ponds within 250m of the site. Image produced courtesy of Magic maps (http://www.magic.gov.uk/, contains public sector information licensed under the Open Government Licence v3.0).

[9] Froglife (2001) *Great Crested Newt Conservation Handbook*, page 10 - https://www.froglife.org/wp-content/uploads/2013/06/GCN-Conservation-Handbook_compressed.pdf

Only Pond 1 was assessed during the initial site visit, which is a sustainable drainage system (SuDS) pond located within a residential area (Photograph 10). The pond was fully dry during the time of the site visit, despite the recent rainfall, and was colonised by grass and bramble scrub. Therefore, this pond is classed as not suitable for great crested newts. In addition, a road intercepted with a railway line is located between the pond and the site and, in combination, this is considered a significant barrier to movement for amphibians.



Photograph 10a (left) & b (right). Views of Pond 1.

Pond 2 is located within the garden space of a residential property and was not accessed during the site visit. In 2017 this pond was assessed as unsuitable for great crested newts due to a major impact of water fowl, but it was not possible to determine whether this was still the case during the 2022 survey. Two letters were sent out to the property's address in May 2022, but the homeowner did not respond. Therefore, it was not possible to access this pond to determine its suitability for great crested newts.

A third pond identified during the 2017 survey has appeared to have been infilled during a recent housing development scheme.

The Sussex biodiversity records search indicates the presence of common frog *Rana temporaria*, common toad *Bufo bufo* and smooth newt *Lissotriton vulgaris* within 2km of the site, with the closest records 510m south-west of the site, concerning a common frog and common toad. No great crested newt records were recorded

Considering the site's location, close to a pond with unknown suitability for great crested newts, and the presence of suitable habitats in the area, it is not possible to rule out their presence on the proposed development site without further surveys.

3.8 Reptiles

There are multiple habitats on site that are suitability for common reptile species such as common lizard and slow worm. This includes the scrub and ruderal vegetation throughout the site, which comprise habitat of value for foraging and refuge purposes. Furthermore, these habitats extend from the southern site boundary to meet a train line, which can be good wildlife corridors for reptiles. In addition, the rubble could create suitable basking spots for lizards.

The Sussex biodiversity records search indicates the presence of slow worm, common lizard and grass snake within 2km of the site. The closest records concern prior reptile surveys within the site in 2017, which found the presence of slow worm and common lizard.

3.9 Invasive Non-native Species

No evidence of invasive non-native species was found during the walkover survey.

The Sussex biodiversity records search indicates the presence of three-cornered garlic *Allium triquetrum,* multiple cotoneaster *Cotoneaster* species, montbretia *Crocosmia pottsi x aurea = C. x crocosmiiflora,* Himalayan balsam *Impatiens glandulifera* and Japanese knotweed *Fallopia japonica* within 2km of the site.

3.10 Other Notable Species

No evidence of any other notable species was found during the walkover survey.

The majority of the habitat within the site boundaries including the scrub and ruderal vegetation, is suitable habitat for hedgehogs to shelter and forage. Sussex Biodiversity records centre provided 50 records for hedgehog, the closest located approximately 450m south-west of the site.

The site supports establishing open mosaic habitat of scrub, ruderal vegetation, rubble piles and bare ground, a habitat matrix which can support a rich assemblage of invertebrates, including rare and scarce invertebrates when well-established. However, this habitat has only recently formed within the last 2 years, and therefore it is unlikely that substantial populations of any notable invertebrates have colonised within this time.

3.11 Survey Limitations

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

4 IMPACT APPRAISAL

4.1 Designated Sites

The site is outside the zone of influence of all designated sites and, based on this, there are no identified mechanisms of impact on designated sites as a result of the proposed development.

4.2 Habitats

Much of the site comprises of hard standing, ruderal vegetation and bare ground, habitats that are common and widespread and considered to have lower ecological value. However, these habitats together indicate that an open mosaic habitat is beginning to establish, which is a priority habitat listed under Section 41 of the NERC Act 2007. As these habitats have only recently formed within the past two years, the botanical and habitat diversity of the site is not sufficient to yet reach the criteria for this habitat type and therefore there is no loss of priority habitat. Nonetheless, to compensate for the loss of this early-establishing mosaic habitat, it is recommended that new features are created within the development to replicate the diversity of habitats included within the current site, including species-rich meadow planting, scrub planting and the creation of a bee bank.

The semi-mature hornbeam tree should be retained, where possible, and protected from physical damage during the construction phase. This would involve the installation of barrier fencing outside of its' Root Protection Area (RPA), in accordance with specialist arboricultural advice.

4.2.1 Scrub Creation

It is particularly recommended that the areas of scrub are retained where possible, and areas of native species-rich scrub are created around the site to compensate for any loss of this habitat type. Recommended species for planting include:

- bramble;
- blackthorn *Prunus spinosa*;
- hawthorn *Crataegus monogyna*;
- hazel;
- guelder rose *Viburnum opulus*;
- goat willow *Salix caprea*;
- crack willow *Salix fragilis*;

All native species should be sourced from certified nurseries in the UK, to avoid the spread of disease or pests. Given the arrival of Ash dieback *Hymenoscyphus fraxineus*, it is strongly recommended that current advice from DEFRA, Forestry Commission and Woodlands Trust is followed regarding the planting of this species[10].

4.2.2 Native Wildflower Meadow

The planting of native wildflower meadow habitat within the development site would provide a diversity of nectar-producing flowers for a range of invertebrate species as well as improve foraging for bats, birds and small mammals. As the soil is likely of a loamy composition a suitable seed mixture such as EH5 – Meadow Mixture for Loamy Soils from Emorsgate Seeds could be used, available from Emorsgate seeds (www.wildseed.co.uk). Table 2 details the composition of this mixture. Please note,

[10] Defra, 2013. *Chalara Management Plan*. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/221051/pb13936-chalara-management-plan-201303.pdf

other commercial seed mixes are available.

Table 2. Composition of 'EH5 – 'Meadow Mixture for Loamy Soils'

%	Latin name	Common name
Wildflowers		
4	*Prunella vulgaris*	Selfheal
4	*Centaurea nigra*	Common Knapweed
3	*Leucanthemum vulgare*	Oxeye Daisy - (Moon Daisy)
2.5	*Poterium sanguisorba - (Sanguisorba minor)*	Salad Burnet
1.5	*Daucus carota*	Wild Carrot
1	*Knautia arvensis*	Field Scabious
1	*Ranunculus acris*	Meadow Buttercup
1	*Medicago lupulina*	Black Medick
0.5	*Agrimonia eupatoria*	Agrimony
0.5	*Centaurea scabiosa*	Greater Knapweed
0.5	*Agrimonia eupatoria*	Agrimony
0.5	*Rumex acetosa*	Common Sorrel
0.3	*Achillea millefolium*	Yarrow
0.2	*Betonica officinalis - (Stachys officinalis)*	Betony
Grasses		
28	*Festuca rubra*	Slender-creeping Red-fescue
20	*Cynosurus cristatus*	Crested Dogstail
12	*Poa nemoralis*	Wood Meadow-grass
10	*Agrostis capillaris*	Common Bent
7	*Brachypodium sylvaticum*	False Brome
2	*Anthoxanthum odoratum*	Sweet Vernal-grass
1	*Deschampsia cespitosa*	Tufted Hair-grass

Good ground preparation is essential to the success of establishing the border. This should be followed by surface sowing of the seed mix between late August and the end of September, during mild and wet weather, or during mid-March to mid-May, when the ground has sufficient moisture and there is very little risk of frosts. This ensures the best conditions for seedling establishment.

The sward should be cut and gathered to a height of approximately 40-60mm at least three times in its first year of establishment to control the flush of annual weeds which initially establish. After this first year the meadow habitat should be mechanically cut to a height of approximately 50mm once a year. This should be carefully timed after all flowering species have set their seeds, typically in late July. A second cut can be undertaken in the late Autumn or early spring to reduce competition between the faster growing grass and developing seedlings of herbaceous species.

4.2.3 Bee Bank Creation

The creation of a bee bank would provide areas of bare ground to compensate for the loss of this habitat type, particularly benefiting burrowing mining bees by providing shelter. The creation of a bee bank would involve piling a mound of loose, sandy soil (at least 60cm in height) in an open, south-facing aspect of the site to create a warm environment. Once established, the bank should be monitored and any weeds that appear on the bank removed. A suitable wildflower mix can be planted on any sandy soil adjacent to the bee bank, such as EM7 – Meadow Mixture for Sandy Soils from Emorsgate seeds (www.wildseed.co.uk) or another suitable commercial seed mix.

4.3 Badgers

No signs of badger activity were identified during the assessment and no badger setts are situated on or near to the proposed construction zone. No further surveys or mitigation for badgers is advised, however, if any signs of digging by large animals is identified on or near to the site in the future, prior to development or the submission of a planning application, further surveys would likely be required.

4.4 Bats

In accordance with the Bat Conservation Trust guidelines, the overall potential for the industrial building to support bats is rated as 'negligible', and therefore no further surveys are required in respect to this species.

As the site may be used by foraging and commuting bats, it is important that the potential for disturbance from artificial lights is considered. The proposed development is likely to require an 'ecologically sensitive lighting scheme' in accordance with guidance produced by the Bat Conservation Trust (summarised in Appendix 3).

4.5 Breeding Birds

The demolition of the industrial building will result in the loss of multiple bird nests, likely belonging to blackbirds. Therefore, it is recommended that at least four nest boxes suitable for blackbirds are installed upon the new dwellings as a compensation and enhancement measure. Examples are shown in Figure 5, although other options are commercially available. These should be positioned at the eaves or overhangs of a building between 2m and 3m from the ground. The most suitable elevation would be in a sheltered north-east to south-east spot, ensuring the box is not in the sun all day nor faces the prevailing wind.

In addition, the dense scrub, ruderal vegetation and hornbeam tree within the site have high potential to support a variety of common nesting birds. It will be essential for any future development to consider the nesting bird season and any building demolition and vegetation removal must be timed to avoid the nesting bird season between 1st March to 31st August inclusive, unless features are first searched by a suitably qualified ecologist and no active nests are found. If an active nest is identified, a minimum exclusion zone for all works within a 5m radius of the nest must be established to protect it from disturbance until the young have fledged.

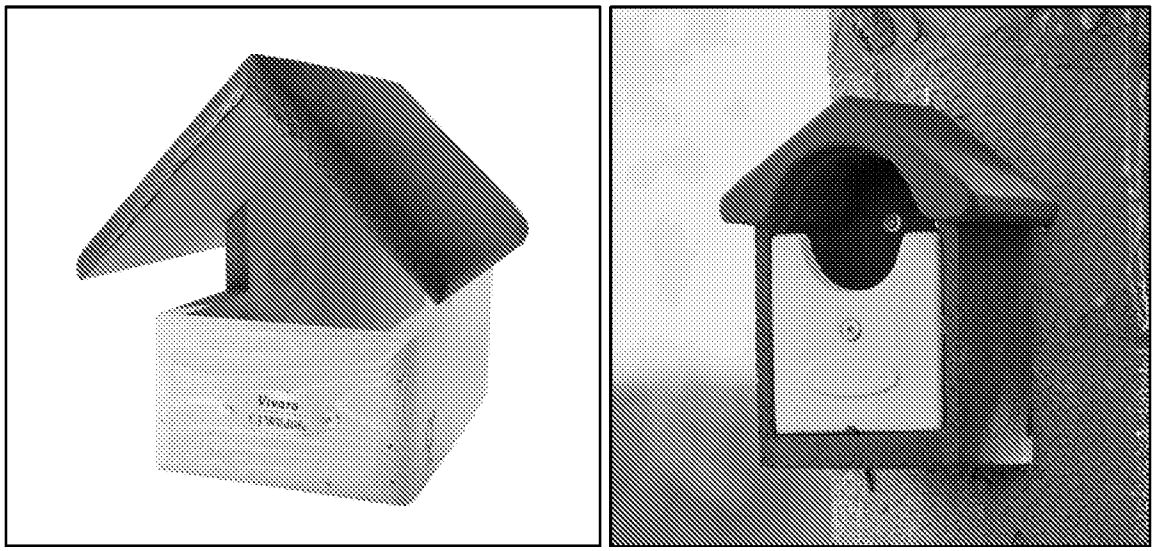


Figure 5a (left) & b (right). Left – Blackbird FSC Nest Box. Right – Barcelona Open Nest Box.

4.6 Dormice

The proposed development is highly unlikely to impact dormice given the absence of suitable habitats for this species and no further surveys are recommended.

4.7 Great Crested Newts

There are multiple suitable habitats for great crested newts within the site, including ruderal vegetation, dense scrub and rubble piles. A pond is present 110m east of the site, which could not be accessed as the landowner did not respond to two letter requests from The Ecology Co-op. As a result, it is not possible to determine this pond's suitability for great crested newts and precautionary measures are therefore recommended which involve the clearance of the site using a two-phased strim approach. The first strim would reduce the vegetation to 15cm in height to encourage any amphibians to move out of the area. A second pass should reduce the vegetation height to 5cm which would render the habitat unsuitable for these species. All cuttings should be collected and removed from the area to prevent suitable habitat build up. Strimming should take place when the air temperature is above 9°C, so that amphibians are active and able to move away, and the vegetation should be hand searched prior to the second strim. In addition, any brush, compost and rubble piles on site should be dismantled by hand, when the air temperature is above 9°C. If any great crested newts are found, works should stop immediately and a consultation made with Natural England to determine the requirement for an EPS licence.

4.8 Reptiles

The proposed development would result in the loss of suitable reptile habitat at the site. As previously erected reptile fencing has fallen down and reptiles may have re-colonised the site, it is possible that the development will impact on reptiles and further surveys are therefore recommended. The standard approach to reptile presence/absence surveys requires a minimum of eight site visits, first to set out artificial refuges ('reptile mats'), followed by seven survey visits. The optimal months for survey are

April, May and September but they can be undertaken at any time from April to October, provided weather conditions are suitable.

If presence of reptile re-colonisation is confirmed through such a survey, a reptile mitigation strategy is likely to be required by the planning authority. This would probably involve the capture and translocation of reptiles to a suitable receptor site nearby.

4.9 Other Notable Species

The hedgehog has suffered dramatic declines in population in recent decades[11] although it remains fairly widespread. The ruderal vegetation and dense scrub have the potential to be used by this species for foraging, commuting and shelter and these habitats will be lost during the proposal. No further surveys are recommended as at present there are no set survey guidelines for hedgehogs. However, where any suitable habitats for hedgehogs are removed, site preparation must be preceded by a hand search completed by a suitably qualified ecologist to ensure that if the event a hedgehog is present it can be identified and moved safely out of the way unharmed.

5 OPPORTUNITIES FOR ENHANCEMENT

The proposed development represents an opportunity for habitat enhancement to benefit insects, birds, and bats. Any planting scheme should include native shrub species and flowering species known to encourage insect diversity. Such enhancement measures are in line with the recommendations of the NPPF and as such would be considered favourably when determining the planning application.

In particular, the developer is encouraged to consider planting a native species-rich mixture for any hedgerows within the site. This would provide increased foraging and commuting habitat for a variety of species including birds, bats and hedgehogs. Hedgerows should include at least five hedge trees per linear metre and comprise of at least 50% hawthorn or blackthorn. In addition to the hawthorn or blackthorn, a mixture of least five or more native woody species selected from the following should be included:

- field maple *Acer campestre;*
- wild privet *Ligustrum vulgare;*
- common dogwood *Cornus sanguinea;*
- purging buckthorn *Rhamnus cathartica;*
- guelder rose*;*
- dog rose *Rosa canina;*

[11] British Wildlife (December 2016) Britain's Hedgehogs: research and the conservation effort in the face of serious decline. British wildlife Vol. 28, pp78-86)

- and hazel.

Alternatively, if shrubberies and treelines are to be used within the landscaping, native species should also be used. For trees, this could include fruiting varieties such as wild cherry *Prunus avium*, crab apple *Malus sylvestris* and plum *Prunus domestica* or, alternatively, a species such as beech *Fagus sylvatica*. Native shrub species beneficial for wildlife include:

- alder buckthorn *Frangula alnus*;
- wayfaring tree *Viburnum lantana*;
- spindle *Euonymus europaeus*;
- purging buckthorn
- common dogwood;
- hazel;
- and guelder rose.

Implementing at least one of the above options into the project's landscaping will provide a number of fruiting and flowering species, beneficial for birds, small mammals and invertebrates. All native species should be sourced from certified nurseries in the UK, to avoid the spread of disease or pests. Cherry laurel *Prunus laurocerasus* and buddleia *Buddleia davidii* must not be included within the planting scheme as these are invasive.

The developer is also encouraged to include integral bat roosting and bird nesting opportunities into the building fabric of each new dwelling. For example, one Schwegler 2FR bat tube could be placed on either the south or east face elevation of each building and two purpose-designed bat tiles placed onto the southern or eastern-facing pitched roofs. Alternatively, one 2FE Schwegler Wall-Mounted bat shelter could be installed upon the external faces of each building, close to the eaves on a south or eastern face. These bat roosting features are shown in Figure 6, although other options are also commercially available. As best practice, the lighting scheme should be designed to minimize light spill (see Appendix 3) around these roosting features and potential commuting routes.

To enhance the development for nesting birds, two swift bricks (example in Figure 7a) should be installed into the walls of each new dwelling in a location that does not frequently experience direct sunlight during the day. Ideally these bricks should be placed at a height of 5m or more and will provide nesting opportunities for swifts *Apus apus* in addition to also house sparrows, house martins *Delichhon urbica* and starlings *Sturnus vulgaris*. In addition, a woodcrete bird box should be installed upon the retained hornbeam tree along the southern boundary. Example boxes include 1B and 3S Schwegler nest boxes which are shown in Figure 7b & c.

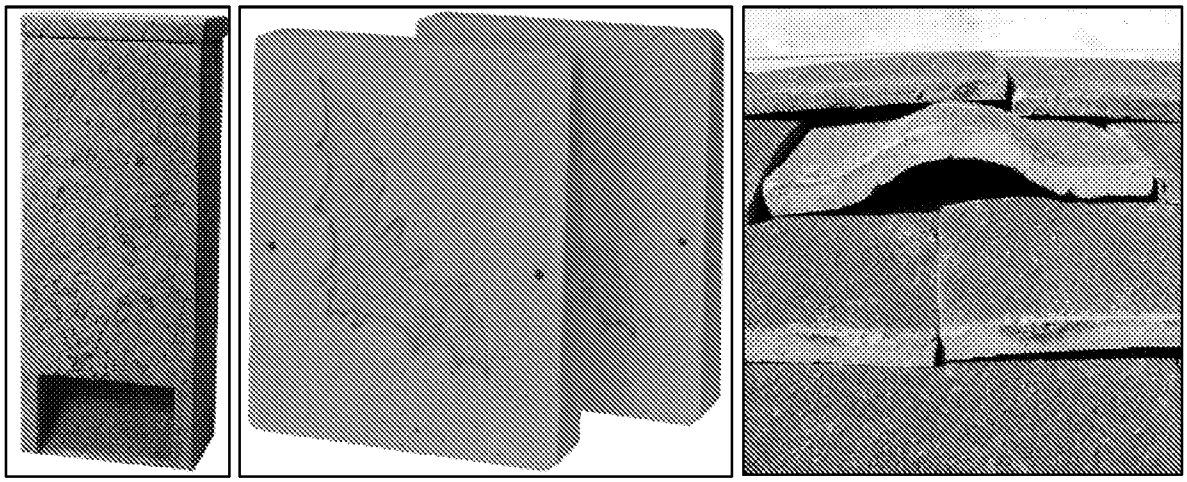


Figure 6a (left), b (middle) & c (right). Left – Schwegler 2FR bat tube. Middle – 2FE Schwegler Wall-Mounted bat shelter. Right – example of a bat access tile

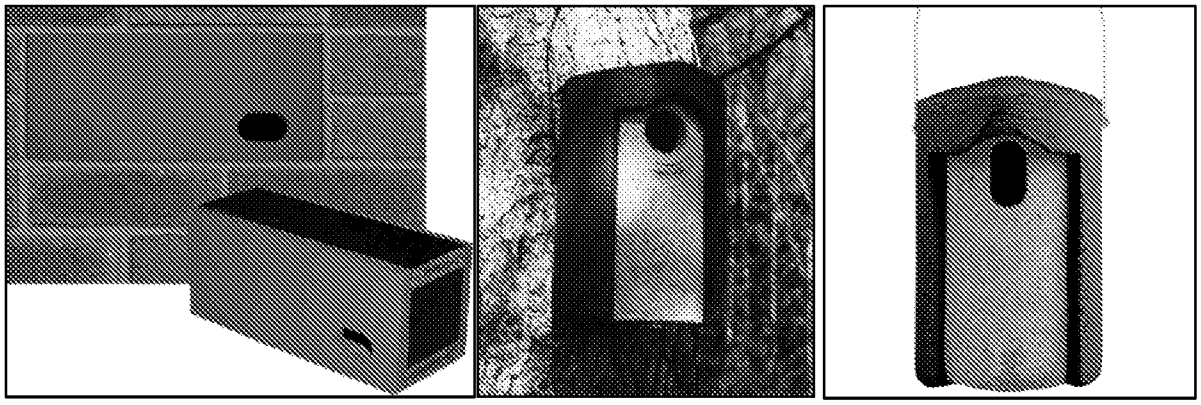


Figure 7a (left), b (middle) & c (right). Left – example of a swift brick (Ibstock Eco-Habitat for Swifts). Middle – 3S Schwegler Starling Nest Box. Right – 1B Schwegler Nest Box

6 CONCLUSIONS

Habitats identified within the land at Toddington Lane includes bare ground and hardstanding with establishing ruderal vegetation and dense scrub atop. These habitats together indicate that an open mosaic habitat is beginning to establish, which can be of particular benefit to scarce and notable invertebrates, but as they have only recently formed are not yet at the stage of fulling the criteria for a priority habitat. To compensate for the loss of this early-establishing mosaic habitat, it is recommended that new habitat features are created within the development, including species-rich meadow planting, scrub planting and the creation of a bee bank.

Further surveys for the following species are recommended:

- reptiles (presence/absence surveys)

These further surveys will inform species-specific impact assessments and will be used to develop mitigation strategies as appropriate.

Precautionary mitigation will be required for:

- commuting and foraging bats when installing any artificial lighting on the site (section 4.4)
- common nesting birds when clearing any scrub and ruderal vegetation, semi-mature trees and

when demolishing buildings (section 4.5)

- hedgehogs when clearing any hedgerow, tree lines, scattered trees and scrub vegetation (section 4.9)

The enhancement opportunities identified in section 5 of this document will result in new opportunities for birds, bats and insects and likely beneficial effects for biodiversity at the site should they all be implemented in full.

It is important that no habitat clearance or other site preparation work should be undertaken until planning permission has been granted and all relevant protections for habitats of importance and protected species have been detailed and implemented. Please be advised that any work to remove or modify habitats outside of typical management may undermine a future planning application.

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

APPENDIX 1 – Wildlife Legislation and National Planning Policy

Introduction

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

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

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

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

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

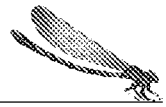
The 'Habitats Regulations'

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

'Natura 2000' sites, now known as National Site Network sites under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, receive the highest level of protection under the Regulations which requires that any activity within the zone of influence of these sites would be subject to a Habitats Regulations Assessment (HRA) by the competent authority (e.g. planning authority), leading to an Appropriate Assessment (AA) in cases where 'likely significant effects' to the conservation objectives are identified.

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

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



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

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

Wildlife and Countryside Act (1981) as amended.

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

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

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

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

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

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

The Wildlife and Countryside Act 1981 (as amended) also prohibits certain inhumane methods of traps and devices for the capture or killing of wild animals and certain additional methods such as fixed trap, poisoning with gas or smoke, or spot-lighting with vehicles for killing species listed on Schedule 6 of the

Act (this includes all bat species, badger, otter, polecat, dormice, hedgehog and red squirrel).

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

The NERC Act (2006) created the statutory nature conservation body Natural England, and places a statutory duty on all public bodies, including planning authorities, under Section 40, to take, or promote the taking by others, steps to further the conservation of *habitats and species of principal importance for the conservation of biodiversity* in England (commonly referred to as the 'Biodiversity Duty'). This duty extends to all public bodies the biodiversity duty of Section 74 of the Countryside and Rights of Way (CROW) Act 2000, which placed a duty only on Government and Ministers. Section 41 of the NERC Act lists the habitats and species of principle importance. This includes a wide range of species from mosses, vascular plants, invertebrates through to mammals and birds. It originates from the priority species listed under the UK Biodiversity Action Plan (UK BAP) with some omissions and additions.

Environment Act (2021)

The Environment Act sets a target of halting the decline in species through the inclusion of a legally binding 2030 species abundance target. Aiming to restore natural habitats and enhance biodiversity, the Act requires new developments to improve or create habitats for nature (through mechanisms such as mandatory Biodiversity Net Gain), and tackle deforestation. Going forwards, UK businesses will need to look closely at their supply chains as amongst other measures they will be prohibited from using commodities associated with wide-scale deforestation. Woodland protection measures are also strengthened through the Act.

The Act enables the reform of the Habitats Regulations and further improves protection for nature through the establishment of Local Nature Recovery Strategies that support national Nature Recovery Networks. In addition, the Act provides for the production of Protected Site Strategies and Species Conservation Strategies, aimed at supporting the design and delivery of strategic approaches to deliver better outcomes for nature.

Protection of Badgers Act (1992)

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

Under this legislation, it is a criminal offence to:

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

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

National Planning Policy Framework

The National Planning Policy Framework (NPPF 2021)[12] sets out the Government's view on how planners

[12] HM Government (2021). National Planning Policy Framework. Department for Communities and Local

should balance nature conservation with development and helps ensure that Government meets its biodiversity commitments with regard to the operation of the planning system.

Paragraph 179b, which states that council policies should "*promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.*" The Office of the Deputy Prime Minister (ODPM) Circular 06/2005, 2005) [13]. In accordance with the NPPF, it is important that developments should contribute to and enhance the natural and local environment by:

- minimising impacts on existing biodiversity and habitats;
- providing net gains in biodiversity and habitats, wherever possible;
- establishing coherent ecological networks that are more resilient to current and future pressures.

UK Post-2010 Biodiversity Framework

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

The most recent biodiversity strategy for England, 'Biodiversity 2020: A strategy for England's wildlife and ecosystem services' was published by Defra (2011), and a progress update was provided in July 2013 (Defra 2013).

'Biodiversity 2020' builds on the Natural Environment White Paper for England – 'The Natural Choice', published on 7 June 2011, and sets out the strategic direction for biodiversity policy for the next decade.

Biodiversity 2020 deliberately avoids setting specific targets and actions for local areas and species because the Government believes that local people and organisations are best placed to decide how to implement the strategy in the most appropriate way for their local area or situation.

Birds of Conservation Concern (BoCC)

In 1996, the UK's leading non-governmental bird conservation organisations listed the conservation status of all bird species in the UK against a series of criteria relating to their population size, trends and relative importance to global conservation. The lists, known as the 'Red', 'Amber' and 'Green' lists (in order of decreasing concern) are used to inform key conservation policy and decisions. The lists are reviewed every five years and are a useful reference for determining the current importance of a particular site for birds. The most recent review was undertaken in 2021 (Stanbury et al, 2021), which provides an up to date assessment of the conservation status of birds in the UK.

Government. Available online at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf

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

References

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

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

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

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

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

The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. Available at: https://www.legislation.gov.uk/ukdsi/2019/9780111176573

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

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

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

Stanbury, A., Eaton, M., Aebischer, N., Balmer, N., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. (2021). Birds of Conservation Concern 5: the status of bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man. British Birds 114, pp 723-747.

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

National Planning Policy Framework (NPPF) (2021) Ministry of Housing Communities & Local Government. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf

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

APPENDIX 2 – Arun District Council Planning Policy

Table 3. Summary of Arun District Council Local Plan 2011–2031

Policy number/title	Policy summary
ENV SP1 - Natural Environment	Arun District Council will encourage and promote the preservation, restoration and enhancement of biodiversity and the natural environment through the development process and particularly through policies for the protection of both designated and non-designated sites. Where possible it shall also promote the creation of new areas for habitats and species. In relation to designated sites, development will be permitted where it protects sites listed in Tables 17.1-17.7 that are recognised for the species and habitats contained within them.
ENV DM1 - Designated Sites of Biodiversity or Geological Importance	Proposed development likely to have an adverse effect on land with the designated features of any Site of Biodiversity or Geological Importance as listed in Tables 17.1 - 17.7 or any subsequently designated sites (either individually or in combination with other developments), will not normally be permitted. Consideration will be given to the exact designated features present on the site, their scarcity/rarity and recognition of the protection offered by their existing status. Development on wildlife sites with the highest value will only be permitted exceptionally where the following can be demonstrated: i. There is no alternative solution (which shall be adequately demonstrated by the developer). ii. There are reasons of public health or public safety or iii. There are benefits of primary importance to the environment or iv. There are imperative reasons of overriding public interest. Notwithstanding the above however, the presumption in favour of sustainable development does not apply where development requiring appropriate assessment under the Birds or Habitats Directives is being considered, planned or determined. In determining any planning application affecting Sites of Biodiversity or Geological Importance the Council will ensure that the intrinsic natural features of particular interest are safeguarded or enhanced having regard to; i. The European, National or Local status and designation of the site; ii. The nature and quality of the site's features, including its rarity value; iii. The extent of any adverse impacts on the notified features of interest; iv. The need for compensatory measures in order to re-create remaining features of habitats on or off the site. Where appropriate the Council will ensure the effective management of designated sites through the imposition of planning conditions or Section 106 agreements as appropriate.
ENV DM3 - Biodiversity Opportunity Areas	Development shall: a) Retain and sympathetically incorporate locally valued and important habitats, including wildlife corridors and stepping stones b) Be designed in order to minimise disturbance to habitats Development proposals that do not reasonably address opportunities for enhancing these through their design, layout and landscaping or access/management shall not be permitted. Where a development scheme would result in a habitat loss, mitigation measures will be proposed as part of the proposed scheme and such measures agreed with the Local Planning Authority prior to the determination of any planning application. Within Biodiversity Opportunity Areas (BOAs) identified on the Policies Maps or where likely to have an impact on species or habitats within the BOAs, any application for planning permission shall include

Policy number/title	Policy summary
	a properly conducted survey of the presence must be proposed within the planning permission.
ENV DM4 - Protection of Trees	Development will be permitted where it can be demonstrated that trees protected by a Tree Preservation Order(s), (TPO) identified as Ancient Woodland, in a Conservation Area or contributing to local amenity, will not be damaged or destroyed now and as they reach maturity, unless development: a) Would result in the removal of one or more trees in the interests of good arboricultural practice. This shall be demonstrated by the developer following the advice of a suitably qualified person which shall be guided by BS 5837 (2012). Details of any advice received having regard to BS 5837 (2012) shall be submitted, in writing, as part of a planning application; or b) Would enhance the survival and growth prospects of other protected trees; c) The benefits of the proposed development in a particular location outweigh the loss of trees or woodland, especially ancient woodland. Where planning permission is granted in any of the above instances, conditions shall be used to ensure that, for any trees which are removed as part of a development, at least an equivalent number of a similar species and age (where practical) are planted on the proposed development site. Sufficient space for replacement trees to mature without causing future nuisance or damage shall be provided. The planting of new trees shall form an integral part of the design of any development scheme. Proper provision must be made for the protection and management of trees or areas of woodland on-site when undertaking development. A management plan shall be provided as part of a planning application in accordance with BS 5837 (2012) in order to ensure that trees are adequately protected during development and appropriately maintained in the future. Conditions for the continued protection of trees on sites shall be included in any planning permission given.
ENV DM5 - Development and Biodiversity	Development schemes shall, in the first instance, seek to achieve a net gain in biodiversity and protect existing habitats on site. They shall also however incorporate elements of biodiversity including green walls, roofs, bat and bird boxes as well as landscape features minimising adverse impacts on existing habitats (whether designated or not). Development schemes shall also be appropriately designed to facilitate the emergence of new habitats through the creation of links between habitat areas and open spaces. Together, these provide a network of green spaces which serve to reconnect isolated sites and facilitate species movement. Where there is evidence of a protected species on a proposed development site, planning applications shall include a detailed survey of the subject species, with details of measures to be incorporated into the development scheme to avoid loss of the species. This involves consideration of any impacts that will affect the species directly or indirectly, whether within the application site or in an area outside of the site, which may be indirectly affected by the proposals. All surveys shall be carried out at an appropriate time of year and shall be undertaken by a qualified and, where appropriate, suitably licensed person. All developments shall have regard to Natural England's standing advice for protected species.
W SP1 - Water	Arun District Council will encourage water efficiency measures in order to protect the District's water resources and enhance the quality of the water environment which supports a range of habitats and ecosystems. Development will be encouraged to make active use of surface water as a design feature and permitted where it identifies measures to improve and enhance waterbodies, coastal habitats or provides additional flood relief.

APPENDIX 3 – Reducing Impacts of Artificial Light

Bright external lighting can have a detrimental impact upon foraging and commuting bat flight paths, but more importantly can also cause bats to remain in their roosts for longer. Artificial lighting can also cause significant impacts to other nocturnal species, most notably moths and other nocturnal insects. It can also result in disruption of the circadian rhythms of birds, reducing their fitness.

Guidelines issued by the Bat Conservation Trust[14] should be referred to when designing the lighting scheme. Note that lighting designs in very sensitive areas should be created with consultation from an ecologist and using up-to-date bat activity data where possible. The guidance contains techniques that can be used on all sites, whether a small domestic project or larger mixed-use, commercial or infrastructure development. This includes the following measures:

Avoid lighting key habitats and features altogether

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

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

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

- dark buffers, illuminance limits and zonation;
- sensitive site configuration, whereby the location, orientation and height of newly built structures and hard standing can have a considerable impact on light spill;
- consideration of the design of the light and fittings, whereby the spread of light is minimised ensuring that only the task area is lit. Flat cut-off lanterns or accessories should be used to shield or direct light to where it is required. Consideration should be given to the height of lighting columns. It should be noted that a lower mounting height is not always better. A lower mounting height can create more light-spill or require more columns. Column height should be carefully considered to balance task and mitigation measures. Consider no lighting solutions where possible such as white lining, good signage, and LED cats eyes. For example, light only high-risk stretches of roads, such as crossings and junctions, allowing headlights to provide any necessary illumination at other times;
- screening, whereby light spill can be successfully screened through soft landscaping and the

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

installation of walls, fences and bunding;

- glazing treatments, whereby glazing should be restricted or redesigned wherever the ecologist and lighting professional determine there is a likely significant effect upon key bat habitat and features;
- creation of alternative valuable bat habitat on site, whereby additional or alternative bat flightpaths, commuting habitat or foraging habitat could result in appropriate compensation for any such habitat being lost to the development;
- dimming and part-night lighting. Depending on the pattern of bat activity across the key features identified on site it may be appropriate for an element of on-site lighting to be controlled either diurnally, seasonally or according to human activity. A control management system can be used to dim (typically to 25% or less) or turn off groups of lights when not in use.

Demonstrate compliance with illuminance limits and buffers

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

Lighting Fixture Specifications

The Bat Conservation Trust recommends the following specifications for lighting on developments to prevent disturbance:

- Lighting spectra: peak wavelength >550nm
- Colour temperature: <2700K (warm)
- Reduction in light intensity
- Minimal UV emitted
- Upward light ratio of 0% and good optical control

Further reading:

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

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

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

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

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

Institution of Lighting Professionals (2021) Guidance Notes for the Reduction of Obtrusive Light GN01:2011. Available at: https://www.theilp.org.uk/resources/free-resources/

Voigt, C.C., Azam, C., Dekker, J., Ferguson, J., Fritze, M., Gazaryan, S., Hölker, F., Jones, G., Leader, N., Lewanzik, D. and Limpens, H., 2018. *Guidelines for consideration of bats in lighting projects*. Unep/Eurobats. Available at: https://cdn.bats.org.uk/uploads/pdf/Resources/EUROBATSguidelines8_lightpollution.pdf?v=1542109376

End.