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Preliminary Ecological Appraisal

Site Name

North Hall Cottage, Staplefield

Client

Chris Mellish

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About the Author

This report has been prepared by James Whitby, a Consultant Ecologist at The Ecology Co-op, with 3 years' experience. He has a Level 1 great crested newt survey license. As a Qualifying member of the Chartered Institute for Ecology and Environmental Management (CIEEM) and as Chartered Ecologist through this body, he is bound by their code of professional conduct.

About the Reviewer

This report has been reviewed by Kate Priestman, who is a Principal Ecologist with over twenty years' experience. Kate has undertaken survey work and reporting, and prepared European Protected Species licences for numerous schemes. As a Full member of the Chartered Institute of Ecology and Environmental Management (CIEEM) and a Chartered Environmentalist (CEnv), she is bound by CIEEM's code of professional conduct.



Report Summary

Purpose	The Ecology Co-op was commissioned by Mr and Mrs Mellish to undertake a Preliminary Ecological Appraisal at North Hall Cottage further to a proposal to build a culvert over a small stream to provide parking access to the property.
Context	The site contains a residential dwelling and gardens, consisting off tightly mown modified grassland, ornamental planting, bare ground and a stream to the west and north; the site is bordered by woodland at all sides. In a wider context, the site is surrounded by woodland and mixed farmland.
Key findings	There are no designated sites within a 2km radius of the site. The direct construction zone is small and is mostly limited to the stream, with a small amount of terrestrial habitat and trees being affected by the development.
Recommendations	No further surveys are considered necessary in this instance; however, sitespecific mitigation is required to ensure that the watercourse is protected. As a small amount of trees and shrubs are to be removed, it is necessary that the site be subject to a walkover prior to the works starting, and all vegetation clearance is to be supervised by a suitably qualified ecologist.
Are further surveys required?	No further surveys are necessary, but the site should be subject to a pre-commencement check.



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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 North Hall Cottage Mr and Mr Mellish. This report presents the findings of a walkover survey undertaken by James Whitby, a qualifying member of the Chartered Institute of Ecology and Environmental Management, on 20th June 2023. 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 proposed development to construct a culvert to provide access to the property for vehicles. Recommendations for further surveys that are likely to be required to inform a planning application and Ecological Impact Assessment (EclA) 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.

1.2 Background

This site measures 0.2ha and is situated on the southern outskirts of Staplefield, West Sussex. The site is currently occupied by a residential dwelling. The site is situated in a rural location, with mixed woodland and mixed farmland surrounding the site, as well as a small stream that flows along the western boundary. Grid reference for the site is TQ 27169 26894. Figure 1 shows the boundary of the site.

The proposed project includes the construction of a culvert and bridge to allow vehicles access to the property over a small running stream on the western boundary of the site. The project also involves the demolition of existing modern annex and modern conservatory. Construction of new extension, internal alterations and associated landscaping.

This report pertains to the construction of the culvert and associated works. Surveys that focused on the annex and conservatory have been undertaken by Babec Ecological Consultants Ltd, and full information can be found in their report¹.

¹ Babec Ecological Consultants Ltd (2024) *Bat survey and assessment*



Figure 1. An aerial image showing the location of the site. The approximate site boundary is outlined in red. Image produced courtesy of Google maps (map data ©2023 Google)

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 Crawley Borough Council is provided in Appendix 2.

2 METHODOLOGY

The methodologies used for this survey are in accordance with the Guidelines for Preliminary Ecological Appraisal², but also consider the Guidelines for Ecological Report Writing, Second Edition³.

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 Biodiversity Records Centre within a radius of 1km of the site.

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

³ CIEEM (2017). *Guidelines for Ecological Report Writing, 2nd edition*. Chartered Institute of Ecology and Environmental Management, Winchester.



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 avellanarius*) 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 20th June 2023, 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 UKHab mapping of the site. All habitat types contained within the site, together with the dominant botanical species and indicators of important habitat types, such as ancient woodland or unimproved 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. Further surveys are recommended as appropriate.

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.



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 Concern⁴ and those species afforded special protection on Schedule 1 of the Wildlife and Countryside Act (1981). Further surveys have been recommended as appropriate.

2.6 Dormice

Dormice are found in deciduous woodland and hedgerows, feeding on flowers, pollen, fruits, insects and nuts, favouring hazel *Corylus avellana* and honeysuckle *Lonicera periclymenum* for food and as bedding. The site was broadly assessed for its potential to support 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.

Further surveys are recommended as appropriate in accordance with best practice guidance⁵.

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 crested newts using the Habitat Suitability Index (HSI) (Oldham et al 2000)⁶. 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)⁷.

⁴ 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.

⁵ Bright, P., Morris, P. and Mitchell-Jones, T. (2006). *The dormouse conservation handbook 2nd Ed.* English Nature, Peterborough.

⁶ 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.

⁷ English Nature (2001). *Great Crested Newt Mitigation Guidelines*. English Nature, Peterborough.



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 Riparian Wildlife

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

2.10 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.

The site is within 2km of deciduous and semi natural ancient woodland. Deciduous woodland is located on the southern and eastern boundaries of the site.

There are two granted EPS licences for mitigation projects within 1km of the site boundary. The closest EPS licence to the site concerns the destruction of a resting place used by brown long eared bats *Plecotus auratus*.

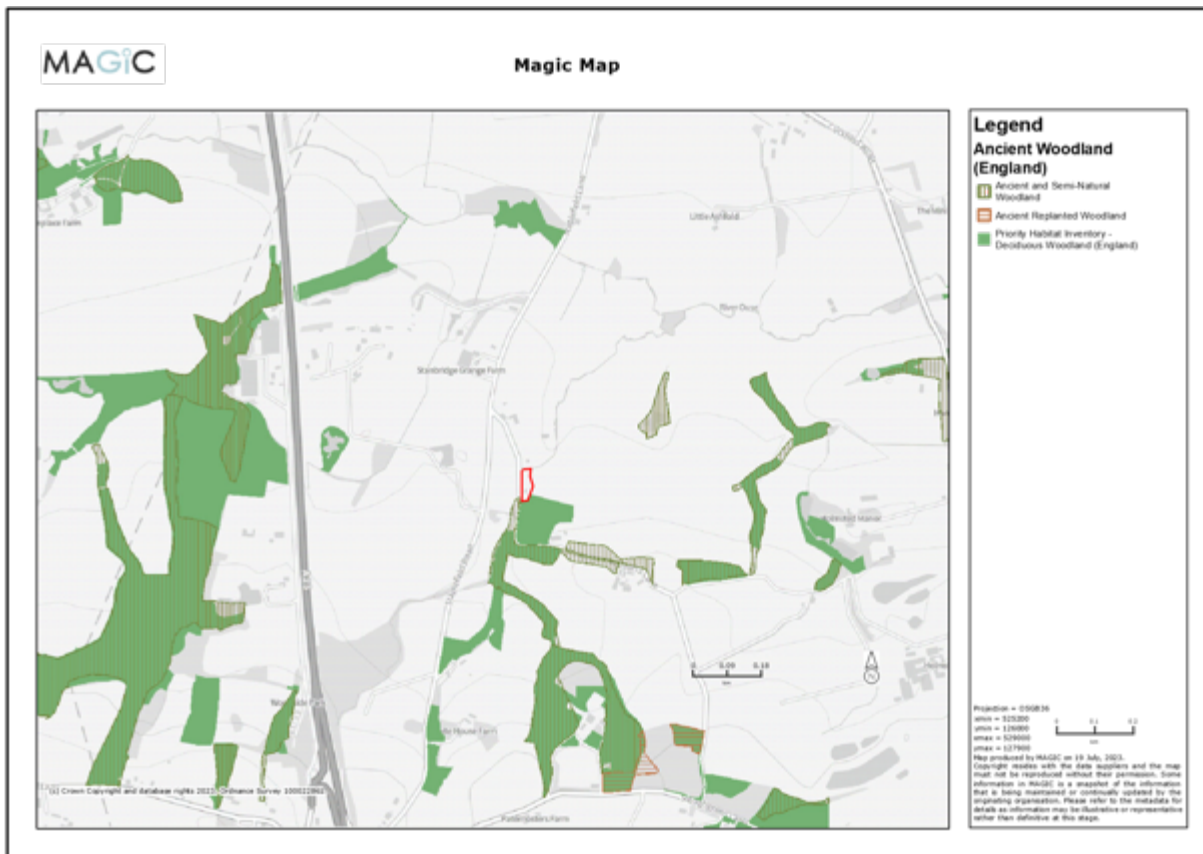


Figure 2. Habitats of importance for nature conservation. Image produced courtesy of Magic maps (<http://www.magic.gov.uk/>), contains public sector information licensed under the Open Government Licence v3.00).

3.2 Habitats

The site mostly consists of tightly mowed modified grassland, bare ground, occasional trees, ornamental planting, and a stream that is located along the western and northern boundaries. Tree species that run along the stream include laurel *Prunus* sp., English oak *Quercus robur*, hawthorn *Crataegus monogyna*, field maple *Acer campestre* and holly *Ilex aquifolium*. Plants on the stream edge in-between the stream and the road include wood dock *Rumex sanguineus*, ground ivy *Glechoma hederacea*, common nettle *Urtica dioica*, bramble *Rubus* sp., red campion *Salvia dioica*, meadow buttercup *Ranunculus acris*, and pendulous sedge *Carax pendula*.



Photograph 1a and 1b. Both photos illustrate the northern section of the garden and the areas of bare ground to the east of the proposed development zone.



Photograph 2a and 2b. Both photos illustrate the tree line that runs along the western boundary and the stream. Note the presence of laurel species taking up a large amount of vegetation.



Photograph 3a and 3b. Both photos illustrate the likely location of the culvert. There is a clearing in the vegetation. Note the unusually high water level (left) following heavy rain.



Photograph 4a and 4b. Left – a dead ash tree covered in ivy on the north-western corner of the site. Right – the small strip of terrestrial plants between the road and the stream.



Photograph 5. Photo illustrates the flow of the stream. Note that this photo was taken after heavy rain.



Photograph 6a and 6b. Photos illustrate the young field maple (0863) to be felled.

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

The surrounding habitats include mixed farmland and woodland, both providing high value habitat within the area for foraging and commuting bats. The tree line that runs along the stream on the eastern boundary could be used by foraging and commuting bats. There is a dead ash tree on the site's north-eastern corner, covered in ivy. This tree is rated as having low bat roosting suitability.

The records search provided by the Sussex Biodiversity Records Centre returned results for brown long eared bats, soprano pipistrelle *Pipistrellus pygmaus*, common pipistrelle *Pipistrellus pipistrellus*, *Myotis* sp. and serotine *Eptesicus serotinus* within 2km of the site.



3.5 Breeding Birds

All of the saplings, semi-mature and occasional large mature trees within the site's boundary and along the treeline, have the potential to support a variety of common nesting birds.

The biodiversity records search indicates the presence of skylark *Alauda arvensis*, yellowhammer *Emberiza citrinella*, bullfinch *Pyrrhula pyrrhula* and kingfisher *Alcedo atthis* within 2km of the site.

3.6 Dormice

The woodland and scrub habitats bordering the site have potential to support common dormouse. These habitats are ecologically well connected to an extensive network of similar habitats across the local landscape. The eastern boundary consists of a mix of non-native and native species, lowering the quality of habitat in the area to be effected by the development.

The biological record centre identified dormouse records in the search area. The closest of these was at 450m west from the boundary of the site.

3.7 Great Crested Newts and other Amphibians

The immediate surrounds of the proposed location of the development is surrounded by bare ground and a small amount of marginal terrestrial habitat. It is not thought that great crested newts would use the stream, but surrounding woodland would provide suitable habitat for this species and other species of amphibians such as common toad *Bufo bufo*.

The biodiversity records search identified 46 great crested newt records. The most recent record is from 2017 and is located 575m north-west of the site.

3.8 Reptiles

The work zone is restricted to the immediate surroundings of the stream, which is dominated by bare ground, a small strip of terrestrial habitat to the east, followed by a road. The stream is also heavily shaded by the tree canopy that runs along the stream. It is unlikely that reptiles are to be routinely present within this part of the site, given the higher value reptile habitat in the surrounding landscape. It is possible that grass snakes occasionally use the stream.

The biodiversity records search did not return any results for reptiles.

3.9 Riparian Wildlife

The stream is approximately 0.5m in width for the majority of its length in this area, with a widening of about 1.5m at the northern part and at the time of the survey was 50cm average depth. However, it should be noted



that the site visit was undertaken following four days of heavy, consistent rainfall. It is likely that the depth of the stream prior to this rainfall did not exceed an average depth of 10cm. No evidence of otters was found within 20m upstream and downstream during the site visit. Given its small size, it is a sub-optimal habitat for otters *Lutra lutra* and is unlikely to serve as a corridor between catchments. Otters are known to have extensive home ranges and are very slowly returning to Sussex rivers in small numbers, therefore the presence of otters at this site is considered highly unlikely but not impossible. The watercourse is unsuitable habitat for water vole *Arvicola amphibius* through the presence of mink and lack of aquatic marginal vegetation. No evidence of water vole or burrows were found within 20m of the site.

Given the naturally low level of the stream, it is unlikely that fish are routinely present in this section.

3.10 Invasive Non-native Species

The treeline following the stream was largely made up of laurel. Otherwise, no evidence of non-native species were recorded.

The biodiversity records search indicates the presence of Japanese knotweed *Fallopia japonica* and cherry laurel *Prunus laurocerasus* within 2km of the site.

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 and the small scale of the proposed development, there are no identified mechanisms of impact on designated sites as a result of the proposals.

Therefore, in relation to designated sites, the proposed development is considered to pose a 'negligible' impact risk.

4.2 Habitats

The woodland habitats surrounding the site of the proposed works and the Foxhole Gill Stream itself are of high ecological value. However, it is understood that one tree will be felled for the works to proceed, and although the woodland will be subject to minor localized disturbance for a short duration, it is not likely to lead to significant effects.



The proposed works will temporarily impact upon the watercourse. There is potential for localized damage and disturbance to the stream bed during the construction work, which could lead to impacts on invertebrates.

In the absence of mitigation, there is potential for impacts on the aquatic ecology for some distance downstream through risk of pollution and release of fine silts which smother the substrate. However, these works are small in scale, temporary and the risk is relatively small, and these impacts are unlikely to be significant beyond the local area.

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.

4.4 Bats

One tree was located along the tree line with potential bat roost suitability. The dead ash, rated as low bat roost suitability and located on the south-eastern corner, should be avoided in the placement of the culvert. If this is not possible, this tree should be soft felled under a method statement and watching brief of a suitably qualified ecologist.

A licenced bat ecologist should be present during the removal of the tree to oversee the works and ensure that in the unlikely event a bat is present the risk of injury/killing or destruction of a roost is avoided. In the event a bat was to be discovered, the feature should be replaced where possible and works would need to cease immediately. Work would likely not be able to continue until an EPS mitigation licence has been obtained. It is likely that any licence application would need to be supported by further surveys to classify the nature of the roost (day/maternity/transitional).

The young field maple to be felled as part of the development has negligible bat roosting potential based on its size and lack of features (**Photograph 6a and 6b**).

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 and Wintering Birds

All the woodland habitat around the immediate site of work has a high potential to support a variety of common nesting birds. The existing culvert and any vegetation that needs to be removed as part of the development should ideally be timed to take place outside the bird nesting season (avoiding 1 st March– 31st August); where this is not possible the suitably qualified ecologist should complete a bird nesting check prior to the commencement of work.



4.6 Dormice

The site is surrounded by large blocks of woodland with good connectivity between features. The removal of a small amount of sub-optimal habitat on the western boundary of the site is unlikely to significantly reduce the connectivity to the wider landscape. A large strip of woodland that runs to the east of the site will provide connectivity to the wider landscape.

A small amount of severance to sub optimal habitat is unlikely to cause disruption to dormice when higher value habitat is present within the same woodland. The proximity of the habitat to be removed to the road may also limit the value of this habitat.

In this instance, no further surveys are considered necessary. Prior to the commencement of tree felling, the area should be subject to a check by a suitably qualified ecologist.

4.7 Great Crested Newts

As the work is restricted to the flowing stream, it is considered highly unlikely that the development will affect great crested newts. In this instance, no further surveys are required for great crested newts.

4.8 Reptiles

The proposed construction work to the culvert will not result in the loss of suitable habitat at the site but may temporarily cause disturbance in the nearby vicinity during the works. Further surveys are not recommended given the restricted area that will be impacted and the limited habitat of value being affected by the works.

4.9 Riparian Wildlife

Even though it is considered unlikely the section of the stream to be affected contains fish, it is not impossible to rule out their presence in times of higher water levels after heavy rainfall. However, since the works are restricted to a localised section and most fish are highly mobile, it is reasonable to assume that most fish will be able to move away quickly and avoid the works site. A pollution event or mobilisation of silt could severely impact on fish populations downstream from the site. All precautions must be taken during construction to avoid discharges and spills to the ground and potential pollution to the stream. This includes preventing large disturbance to the river base causing heavy siltation within the stream reducing oxygen levels in the water.

Pollution prevention guidelines produced by the Environment Agency provide detailed mitigation for works and maintenance near or in water⁸. This document has since been redacted; however, no document has since been released to supersede it. While the document cannot be considered industry guidelines on how to manage pollution in water courses, it can still provide advice on how to prevent pollution and comply with environmental law when planning works near, in or over ponds, lakes, ditches, streams, rivers and other watercourses.

⁸ Environment Agency. 2015. Pollution Prevention Guidelines Works and maintenance in or near water: PPG5



5 REASONABLE AVOIDANCE - PRECAUTIONARY MITIGATION MEASURES

Prior to demolition of the existing culvert the site should be inspected by a suitability qualified ecologist. It is important that the close surrounding vegetation is checked for nesting birds.

If the stream needs to be dammed, prior to damming the stream, the ecologist should enter upstream of the culvert and disturb the surface water in the unlikely event fish are present, that this pushes any within the development downstream and out of the construction zone/area being dammed.

During the draining down of the construction area and once all water has been removed an appropriately qualified ecologist should complete a walkover of the dammed construction area checking for any species found and re-locating them further upstream of the culvert.

Consideration will need to be made during works to prevent increased sediment levels within the stream. It is recommended that immediately downstream of the site Sedimats (or similar) should be used in the waterway during in-stream construction to trap disturbed sediment that may pollute aquatic habitats downstream. The work will need to minimise the pollution risk and control measures will need to be put in place to avoid discharges into the stream. The work should look to minimise excavation, mobilisation of silt and any fuel stored on site will need to be stored in a suitable way. It is also important that the work is not carried out after any periods of heavy rain, to ensure water levels are low and the stream is slower flowing.

6 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.

There is a large amount of bare ground located within the sites garden to the north. It is recommended that some of this area be used as wildflower creation. As the area is heavily shaded, a suitable mixture for this area would be Emorsgate Seeds' 'EW1 Woodland Mixture'.

7 CONCLUSIONS

The stream at North Hall Cottage is surrounded by deciduous woodland and mixed farmland with a stream running down the western boundary. The works to replace the culvert will involve temporarily damming the stream to complete the works and has the potential to cause some impact to aquatic wildlife and may result in the removal of some potentially suitable habitat for roosting bats. Given the context of the work no further surveys have been recommended but precautionary mitigation has been suggested, as outlined in section 5, to minimise any risk to aquatic wildlife during the works.

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 *Satyrrium 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)⁹ sets out the Government's view on how planners should balance nature conservation with development and helps ensure that Government meets its biodiversity commitments with regard to the operation of the planning system.

Paragraph 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)¹⁰. 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 Post2010 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

⁹ HM Government (2021). National Planning Policy Framework. Department for Communities and Local Government. Available online at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf

¹⁰ 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.



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.

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-ecosystemservices.

Defra (2013) Progress Update. Available at: www.gov.uk/government/publications/biodiversity-2020-simpleguide-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 – Crawley Borough Council Planning Policy

Policy number/title	Policy summary
GI2: Biodiversity Sites	Up-to-date habitat and species surveys and associated reports will be required to accompany planning applications which may affect the areas listed below or sites showing likely ecological value based on past ecological surveys. If significant harm to biodiversity resulting from development cannot be avoided, adequately mitigated or as last resort compensated then planning permission should be refused. Hierarchy of Biodiversity Sites To ensure a net gain in biodiversity, the following areas and their supporting and connecting habitat will be conserved and enhanced and the council will support their designation and management through Management Plans: 1. Nationally designated sites: Sites of Special Scientific Interest (SSSI). SSSI will receive the highest level of protection for habitat conservation value in line with national legislation, policy and guidance. 2. National Planning Policy Framework Sites: Ancient Woodland, and aged or veteran trees Development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists. A buffer zone between development and ancient woodland will be required in line with Natural England Standing Advice 3. Locally designated sites, and habitats and species outside designated sites: • Local Nature Reserves (LNR) • Local Wildlife Sites (LWS) • Nature Improvement Areas, Habitats of Principle Importance identified in S41 of the Natural Environment and Rural Communities Act 2006 or Biodiversity Action Plans • Biodiversity Opportunity Areas • Where Protected Species are present • Where Species of Principal Importance are present, as identified in S41 of the Natural Environment and Rural Communities Act 2006.



GI3- Biodiversity Net Gain	All development proposals will be expected to incorporate features to encourage biodiversity and enhance existing features of nature conservation value within and around the development. Development proposals will be required to demonstrate how the scheme will meet the government's requirement for securing a 'net gain' in biodiversity, including information calculating the current biodiversity value of the site. As a minimum, all development proposals will need to achieve a net gain for biodiversity in accordance with government expectations, currently a 10% increase in habitat value for wildlife compared with the pre-development baseline. Applications should include consideration to securing benefits for the purposes of pollination and biodiversity as part of their on-site landscaping schemes. This can include consideration for green roofs and green walls, where soft landscaping at ground level is limited. Discussions with Gatwick Airport Limited in relation to planting and management to minimise the risk of bird strike should be held at an early stage of landscape design.
ENV6 - Sustainable design and construction	Proposals for new non-domestic buildings should achieve BREEAM. Excellent where technically and economically possible.



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 Trust¹¹ 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 cat's eyes. For example, light only high-risk stretches of roads, such as crossings and junctions, allowing headlights to provide any necessary illumination at other times;
- screening, whereby light spill can be successfully screened through soft landscaping and the installation of walls, fences and bunding;

¹¹ 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/>



- 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/EUROBATGuidelines8_lightpollution.pdf?v=1542109376

End.
