



ENVIRONMENTAL CONSULTANTS

Unit 4, Langham Stables, Langham Lane, Lodsworth, Petworth, West Sussex, GU28 9BU

www.ecologyco-op.co.uk

Preliminary Ecological Appraisal

Land north of Sunnyside Cottages, Barnham

Author: Emma Baker BSc (Hons) MSc

Reviewed by: Paul Whitby BSc (Hons) MCIEEM CEcol

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



Report Summary

1. The Ecology Co-op has been commissioned by Manorwood to undertake a Preliminary Ecological Appraisal on land north of Sunnyside Cottages. A site walkover survey visit was carried out on the 12th November 2018 to evaluate the site for habitats potentially suitable to support EU and UK protected species. The purpose of this report is to record the findings of the survey and identify potential ecological constraints for a proposal to construct two residential dwellings on the site.
2. This survey was undertaken by Emma Baker BSc (Hons) MSc, a qualifying member of CIEEM.
3. The site is located off a private road north of Yapton Road, in the village of Barnham, West Sussex. It currently houses a large greenhouse, surrounded by ruderal habitat with small amounts of scrub, long grassland, and an area of disturbed ground with establishing vegetation. Bordering the site is a defunct cypress hedgerow, dry ditch, fence line and the private road. There is one pond located 160m south of the site. The site is surrounded by fields of pasture, deciduous woodland, a small camping and caravan park and residential properties. There are no designated sites within 2km of the site and no Natura 2000 sites within 5km of the site.
4. Following the initial assessment of the site a pond (Pond 1) identified within 250 metres of the site underwent a HSI assessment on the 21st of November and was rated as having a 'below average' suitability for great crested newts (0.55).
5. For the development to proceed, a presence/absence survey for reptiles will be necessary. The optimal months for the survey are April, May and September but this can be undertaken at any time from April to October, provided weather conditions are suitable.
6. The ecological value of the site can be enhanced using the recommendations detailed within section 4.11 of this report.

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.



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1 INTRODUCTION

1.1 Purpose of the Report

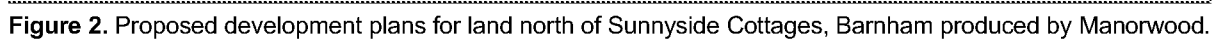
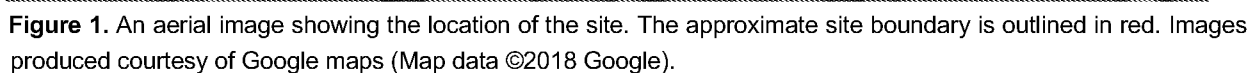
The Ecology Co-op has been commissioned to undertake a Preliminary Ecological Appraisal of Land North of Sunnyside Cottages, Yapton Road, Barnham, Bognor Regis, West Sussex PO22 0AZ by Manorwood. This report presents the findings of a walkover survey undertaken by Emma Baker a qualifying member of the Chartered Institute for Ecology and Environmental Management (CIEEM) on the 12th of November 2018. It provides details on the potential for any protected species and/or habitats to be present at the site and provides an assessment of the potential ecological constraints for a proposal to construct two residential dwellings on the site, on roughly the same footprint as the greenhouse, with parking and associated soft landscaping. Recommendations for further surveys that are likely to be required to inform a planning application and Ecological Impact Assessment (EclIA) of the proposal are provided. Where appropriate, measures to avoid, mitigate and/or compensate for impacts are outlined.

1.2 Background

The site is located to the north of Yapton Road towards the southern end of Barnham, a small semi-rural village 5km east of Chichester in West Sussex. The central grid reference for the site is SU 96497 04139.

This site measures 0.2 hectares (ha) and is currently unused. It is accessed via a private road running from Yapton Road to the south. At the centre of the site is a greenhouse, currently used for storage and surrounding this to the north and east is ruderal habitat. To the south of the greenhouse is an area of long grassland which also forms the southern boundary, and to the north is an area of disturbed grassland with establishing vegetation. Bordering the site to the east is a dry ditch and a length of defunct cypress hedgerow with ruderal understory. Forming the western boundary is the private road and a short length of wooden post and rail fence with further ruderal habitat in front. At the north-western corner of the greenhouse is a smaller greenhouse and brash pile. Directly west of the greenhouse is a small area of hardstanding, currently used for parking. Figure 1 shows the boundary of the site.

The proposed development includes the construction of two new residential dwellings on approximately the same footprint as the existing greenhouse, with associated parking and soft landscaping. Figure 2 details the proposed layout for the site.





1.3 Policy and Legislation

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

Local planning policy for Arun District Council is detailed within Appendix 2 of this report.

2 METHODOLOGY

The methodology used for this survey are in accordance with the Guidelines for Preliminary Ecological Assessment (CIEEM 2017)¹.

2.1 Desk Study

A search for existing records of protected species, species of conservation concern and invasive non-native species was requested from Sussex Biodiversity Records Centre (SxBRC) within a radius of 1km 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 white-clawed crayfish *Austropotamobius pallipes*) and connectivity to woodland, scrub, and hedgerow networks (relevant to bats *Chiroptera* spp. and dormice *Muscardinis avellenarius*) 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 bats, great crested newts and reptiles.

The Multi-agency Geographic Information Centre (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 the 12th November 2018 during which the habitats contained within the site were described and evaluated. Since this site is relatively small scale and contains limited semi-natural habitat diversity, it was not considered necessary to undertake comprehensive Phase 1 Habitat 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 grasslands, were simply listed and described.

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

¹ CIEEM (2017) *Guidelines for Preliminary Ecological Appraisal, 2nd edition*. Chartered Institute of Ecology and Environmental Management, Winchester.



Details of the preliminary survey methods for each legally protected species are given below. Any site-specific limitations to the survey are set out in Section 3.12.

2.3 Badgers

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

2.4 Bats

Bats can use a wide range of features 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 either negligible, low, moderate, or high, in accordance with the Bat Conservation Trust Survey Guidelines (Collins, J.(ed.) (2016)². Any evidence confirming the presence of bats that was found was clearly recorded including photos and samples (e.g. droppings) where appropriate. Further surveys are recommended where necessary.

2.5 Breeding Birds

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 (Eaton *et al.* 2015)³ and those species afforded special protection on Schedule 1 of the Wildlife and Countryside Act (1981). Further surveys are recommended as appropriate.

2.6 Dormice

The site was broadly assessed for its potential to support hazel dormouse *Muscardinus avellanarius*. 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

² Collins, J.(ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edn). The Bat Conservation Trust, London.

³ Eaton, M., Aebischer, N., Brown, A., Hearn, R., Lock, Leigh., Musgrove, A., Noble, D., Stroud, D., Gregory, R. (2015) *Birds of Conservation Concern 4: the population status of birds in the UK, Channel Islands and Isle of Man*. British Birds 108, pp 708-746.



appropriate in accordance with best practice guidance (Bright et al 2006)⁴.

2.7 Great Crested Newt

A desk study was undertaken to identify ponds within 500m of the site. 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 *Triturus cristatus* using the Habitat Suitability Index (H.S.I.) (Oldham et al 2000)⁵.

Further surveys are recommended as appropriate, in accordance with best practice guidance (English Nature 2001)⁶.

Any survey or access limitations are clearly set out in Section 3.12.

2.8 Reptiles

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). The common lizard *Zootoca vivipara*, slow-worm *Anguis fragilis* grass snake *Natrix natrix* 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.

2.9 Riparian wildlife

Any watercourses identified during the desk study or field survey were assessed for their suitability to support otter, water vole and American mink.

2.10 Other notable species

The site habitats were broadly assessed for their potential to support species of principle importance for nature conservation (Section 41 NERC Act 2006) and other notable species. This includes mammals such as harvest mouse *Micromys minutus*, hedgehog *Erinaceus europeus*, brown hare *Lepus europeus*, 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.

⁴ Bright, P., Morris, P. and Mitchell-Jones, T. (2006) *The dormouse conservation handbook 2nd Ed.* English Nature, Peterborough.

⁵ 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.

⁶ English Nature (2001) *Great Crested Newt Mitigation Guidelines*. English Nature, Peterborough.



3 BASELINE CONDITIONS

3.1 Designated Sites

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

There are no granted EPS licenses for mitigation projects within 1km of the site boundaries.

3.2 Habitats

At the centre of the site is a large greenhouse, which is currently used as storage space (see Figure 3). Bordering this to the south was long grassland (see Figure 4) with an abundance of cocks-foot *Dactylis glomerata* and meadow grass species *Poa sp*, a frequent presence of dandelion, white clover *Trifolium repens* and dove's-foot cranesbill *Geranium molle*, an occasional presence of giant fescue grass *Festuca gigantea*, bristly oxtongue *Helminthotheca echinoides*, red dead nettle *Lamium purpureum* and yarrow *Achillea millefolium* and a rare presence of daisy *Bellis perennis*. Along the southern side of the greenhouse was some developing ruderal habitat including broad-leaved dock *Rumex obtusifolius*, common groundsel *Senecio vulgaris*, rosebay willowherb *Chamaenerion angustifolium*, small mallow *Malva parviflora*, cleavers *Galium aparine* and common burdock *Articum minus*.

Bordering the greenhouse to the east was an area of ruderal habitat (see Figure 5), some of which had been strimmed. This was dominated by common nettle *Urtica dioica*, with an occasional presence of bramble *Rubus fruticosus*, and a rare presence of cleavers and common burdock.

Also running along the eastern site boundary was a dry ditch (see Figure 6), which was approximately 3m wide and 1m in depth. This was covered with ivy on the eastern bank, as well as strimmed bramble and nettle. Within the banks were a number of mammal holes which are discussed in detail within section 3.3. On the eastern bank was a semi-mature elder *Sambucus nigra* tree. This ditch also ran further along the eastern boundary but was approximately 50cm in width and 30cm in height. Above this was a defunct cypress *Cupressus sp.* hedgerow (see Figure 7), with a ruderal understory (see Figure 8), which covered the dry ditch. This habitat included an abundance of bramble and common nettle, with a frequent presence of spear thistle *Cirsium vulgare* and common winter-cress *Barbarea vulgaris*, and a rare presence of black nightshade *Solanum nigrum*, bristly oxtongue, cleavers, red dead nettle, small mallow and common burdock.

Running along the northern wall of the greenhouse was further ruderal habitat (see Figure 9) and small amounts of scrub dominated by common nettle and bramble, with a frequent presence of rough hawk's-beard *Creppis biennis* and a rare presence of common winter-cress, pendulous sedge *Carex pendula* and spear thistle, with one sycamore *Acer pseudoplatnus* sapling.

Further north of the greenhouse is an area of disturbed ground, with establishing vegetation (see Figure 10) and some areas of bare ground, which stretched further north of the site boundaries. This was dominated by rough hawk's-beard, with an abundance of meadow grass species, and sun spurge *Euphorbia helioscopia*, with an occasional presence of white clover and a rare presence of doves-foot



cranesbill, bristly oxtongue, spear thistle, red dead nettle, daisy, common fleabane *Pulicaria dysenterica*, germander speedwell *Veronica chamaedrys*, ribwort plantain *Plantago lanceolata* and bramble.

Directly north-west of the greenhouse is a smaller greenhouse and a brash pile (see Figure 11). Running the western boundary was a wooden post and rail fence with further ruderal habitat in front (see Figure 12) which contained an abundance of bramble and common nettle, a frequent presence of sun spurge and a rare presence of small mallow, fleabane and broad-leaved dock.

South of the site are residential properties and associated garden spaces, to the north and east is the caravan park and fields of pasture and west are fields of pasture and a large parcel of deciduous woodland.

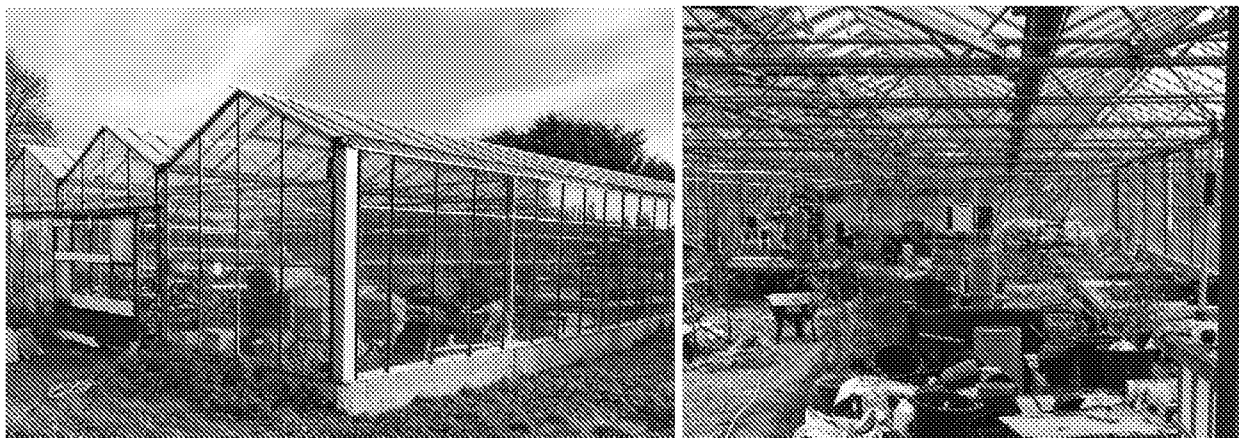


Figure 3. Greenhouse at the centre of the site, currently used for storage.



Figure 4. Long grassland running along the southern boundary.



Figure 5. Ruderal habitat running the eastern boundary.



Figure 6. Dry ditch running the southernmost section of the eastern boundary.



Figure 7. Defunct cypress hedgerow running the northernmost section of the western boundary.



Figure 8. Ruderal understory of the cypress hedgerow.



Figure 9. Ruderal habitat running the northern wall of the greenhouse.



Figure 10. Disturbed ground with establishing vegetation.



Figure 11. Brash pile and small greenhouse just north-west of the large greenhouse.



Figure 12. Wooden post and rail fence with ruderal habitat in front.

3.3 *Badgers*

A number of mammal holes are present within the banks of the dry ditch (see Figure 13). However, these were narrow and short, suggesting they were formed by a small mammal such as a rabbit. There was further evidence of rabbits using the site, such as digging and droppings. Therefore, it is highly unlikely that these holes had been dug by badgers. No other 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 some evidence of badger activity would have been observed.

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

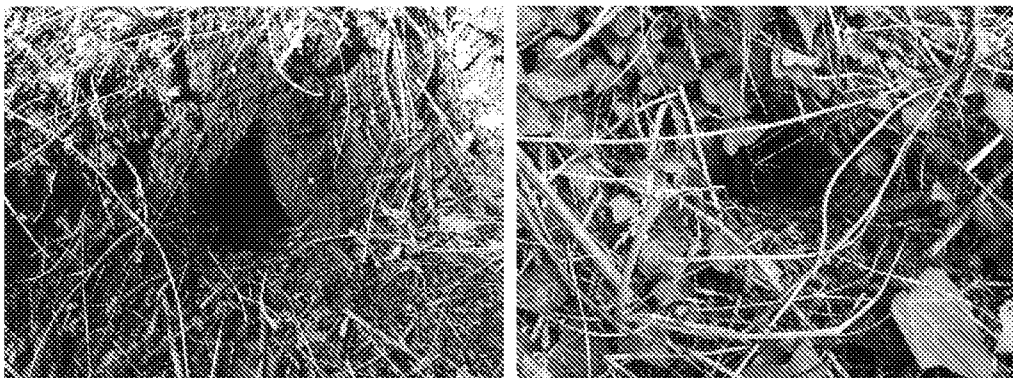


Figure 14. Holes within the western (left image) and eastern (right image) bank of the dry ditch.



3.4 Bats

There were no mature trees on the site. The greenhouse was open to the elements and was formed entirely from a metal frame and thin glass panels, offering no opportunities for roosting bats. It was therefore rated as having a negligible potential to support roosting bats.

Bats may commute along the cypress hedgerow, though this is less likely as it is somewhat isolated and lacks connectivity to further hedgerows, tree lines and woodland parcels within the wider landscape. The areas of ruderal habitat at the site offer good foraging potential for bats and is in close proximity to a parcel of deciduous woodland to the west which offers excellent foraging habitat.

SxBRC provided 17 bat records in the search area comprising seven identified species within the search area which included: serotine *Eptesicus serotinus* – one record, common pipistrelle *Pipistrellus pipistrellus* – four records, soprano pipistrelle *Pipistrellus pygmaeus* –x one record, brown long-eared bat *Plecotus auritus* – one record, nathusius's pipistrelle *Pipistrellus nathusii* – one record, noctule *Nyctalus noctula* – one record, barbastelle *Barbastella barbastellus* and unspecified bat records - three records . The closest of these was a record located 180m south-west of the site for a brown long-eared dated 1/6/2017, and a soprano pipistrelle dated 3/10/2015. The exact location of the barbastelle records was not provided by the records centre, but they were situated within the parish of Barnham.

3.5 Breeding Birds

The cypress hedgerow running a section of the western boundary may support common UK nesting birds.

SxBRC provided numerous bird records for the search area concerning a total of 107 species. Most of these species are relatively common and widespread, but the list includes 26 species of principle importance for conservation (S41 NERC Act 2007), and 23 species listed on Schedule 1 of the Wildlife and Countryside Act. In addition, 27 species are red listed on the Birds of Conservation Concern.

The majority of the records returned were waterfowl and are not relevant to the proposed development site. However, the following S41 species could potentially breed within the hedgerow on the site: dunnoek *Prunella modularis*, song thrush *Turdus philomelos*.

3.6 Dormice

The hedgerow at the site offers extremely limited habitat for dormice and contains no species which would provide a food source for this species. This also has no connectivity to suitable habitat in the wider landscape.

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

However, overall, it is highly unlikely that hazel dormouse will be found on the site at any time.



3.7 Great Crested Newts and other amphibians

There are no ponds contained by the site but there is one pond located 160m south of the site boundaries (Pond 1), the location of which is indicated in Figure 14. The longer grassland and ruderal habitat present on the site provides suitable habitat for great crested newts. The brash pile north-west of the greenhouse may also be used as a hibernaculum.

Pond 1 underwent a HSI assessment on a separate visit on the 21st of November 2018. This pond, which is shown in Figure 15 was located within a nursery south of the site and was surrounded by grass, gravel pathways, a disused greenhouse, a hedgerow, scattered trees and a small area of scrub. The pond is lined with butyl and is used to collect rainwater that pools off the greenhouse roof. Immediately surrounding the pond was a mesh wire fence and dense bramble. On the banks was common nettle *Urtica doica*, rosebay willowherb *Chamaenerion angustifolium* and young ornamental species trees. Within the water was mare's-tail *Hippuris-vulgaris*. There was also some rubbish and leaf litter within the water, and it was of a poor quality. Overall the pond was rated as having a 'below average' suitability for great crested newts with a score of 0.55. The full results of the HSI assessment are displayed in Appendix 3 of this report.

Yapton Road which runs in-between the identified pond and the site is busy and curbed, decreasing the likelihood this species will be found on the site further.

SxBRC provided 14 amphibian records in the search area. This included two records for great crested newt *Triturus cristatus*, two records for smooth newts *Lissotriton vulgaris*, six records for common frog *Rana temporaria* and four records for common toad *Bufo bufo*. The closest of these was a record for a great crested newt male 500m north from the boundary of the site, dated 14/5/2012.

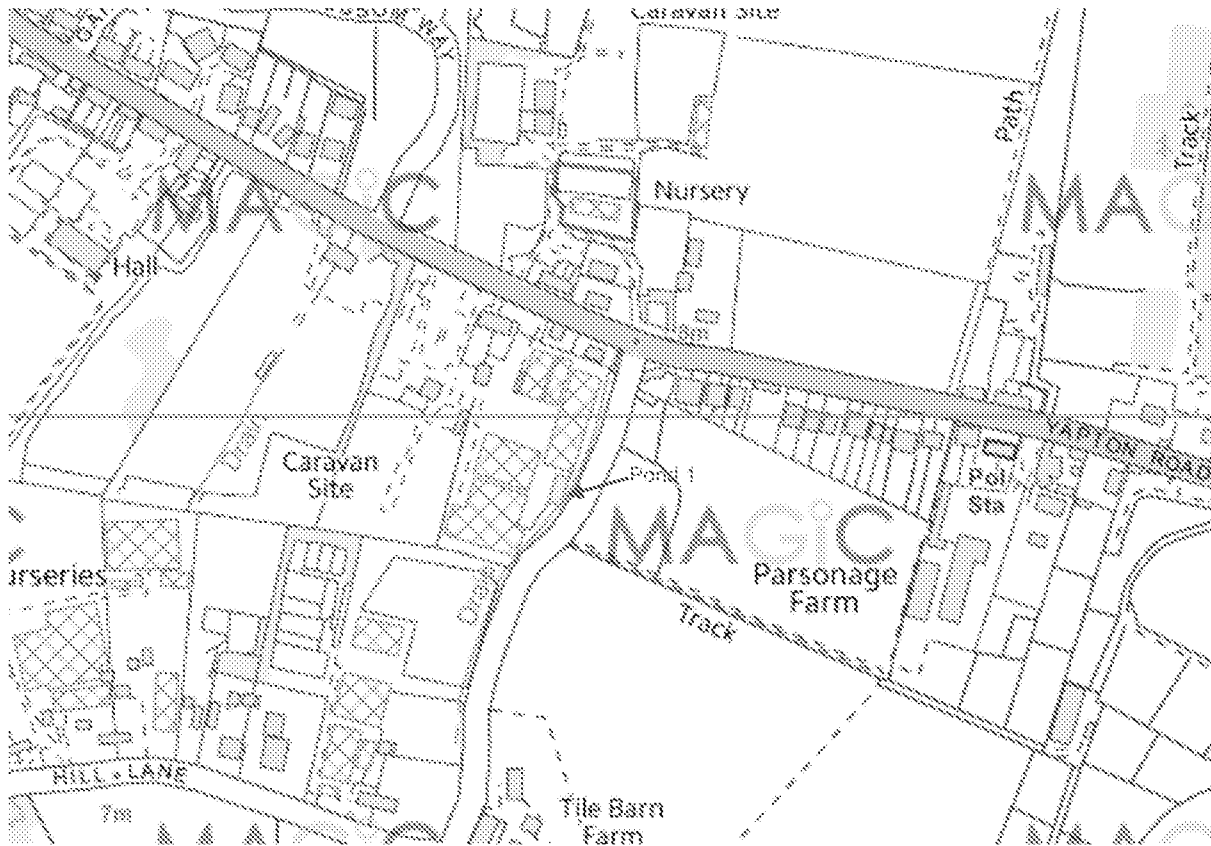


Figure 14. Map indicating the location of Pond 1, shown by the red arrow. The site boundaries are outlined in red.



Figure 15. View north across Pond 1.



3.8 Reptiles

The longer grassland and ruderal habitat at the site provides excellent habitat for common UK reptiles, especially slow worms and common lizards. Tall vegetation such as this provides both cover from predators and a foraging resource. The brash pile north-west of the green house may also be used as a hibernaculum.

SxBRC provided 86 reptile records in the search area including records for slow worm, grass snake and common lizard. The closest of these records was located 320m north-west from the boundary of the site and included the presence of common lizard, grass snake and slow worm, dated April 2011.

3.9 Riparian wildlife

Forming the eastern site boundary is a dry ditch, which at the southern end was approximately 3m in width and 1m in height, transitioning into 50cm in width and 30cm in height further north under the cypress hedgerow. This contained little vegetation on the banks and no aquatic plants were present within the ditch or on the banks. This feature was not directly connected to further dry ditches.

SxBRC provided five records of water vole in the search area. The closest of these was situated 550m north-west from the boundary of the site, dated 22/07/2014.

3.10 Invasive non-native species

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

3.11 Other notable species

The brash pile north-west of the greenhouse may support west European hedgehog. Multiple records were returned for this species, with one record returned just 71m south-west of the site boundaries, though this dated back to 2003. A more recent record was returned 550m south-west of the site, dated June 2017.

3.12 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.

During the HSI assessment of Pond 1 on the 21st of November 2018, the overgrown bramble immediately surrounding the waterbody made it challenging to get a full view of the pond. However, enough of the pond could be assessed to generate an accurate HSI score.



4 ECOLOGICAL CONSTRAINTS AND OPPORTUNITIES

4.1 Designated Sites

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

4.2 Habitats

The proposed development will result in the removal of the main greenhouse and smaller greenhouse. It is also likely that the ruderal habitat and a portion of the long grassland will be removed, as well as the brash pile north-west of the greenhouse, which has the potential to impact upon both great crested newts and reptiles. The dry ditch and cypress hedgerow will remain unaffected by the development.

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 mitigation for badgers is advised, however if any signs of digging by large animals is identified on or near to the site prior to construction, then an ecologist should be contacted for advice.

4.4 Bats

Overall, the site has a moderate value to foraging bats and a low value to commuting bats. Given the proximity to the deciduous woodland parcel west of the site, it is likely that bats may occasionally commute or forage across the site.

Therefore, 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 should include an 'ecologically sensitive lighting scheme' in accordance with guidance produced by the Bat Conservation Trust (summarised in Appendix 4).

4.5 Breeding Birds

The cypress hedgerow running along the eastern boundary of the site has the 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 vegetation removal should be timed outside of this time (typically 1st March to 31st August), unless features are first searched by a suitably qualified ecologist and no active nests are found.

4.6 Dormice

No records for this species were returned by the records centre, and while they are under-recorded the



cypress hedgerow bordering the site is isolated and lacks suitable habitat for hazel dormice. This feature also lacks connectivity to any suitable habitat within the wider landscape.

Therefore, overall, this species is highly unlikely to be found on the site at any time and the proposed development will thus not impact on this species.

4.7 Great Crested Newts

The long grassland, ruderal habitat and brash pile hibernaculum provide valuable habitat for great crested newts, though there are no ponds contained by the site.

Pond 1 is an artificial waterbody with a butyl liner located 160m south of the site, which is within the 500m accepted natural range for great crested newts from their breeding pond. The HSI indicated that the pond had a 'below average' suitability for this species, and as such it is considered highly unlikely they will be present on the site and thus impacted by the development proposal. Therefore, no further surveys with respect to this species is considered necessary.

4.8 Reptiles

The proposed development would result in the loss of all the ruderal habitat and a proportion of the long grassland at the site, as well as the removal of the brash pile hibernaculum. This is highly likely to impact on reptiles and a survey is therefore recommended for this site. The standard approach to reptile presence/absence surveys require 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 reptiles is confirmed through such a survey, this can be mitigated for. This would likely involve a reptile translocation strategy, which is explained in detail in Appendix 5.

4.9 Riparian wildlife

While records for water vole were returned by the records centre, the dry ditch bordering the site to the east lacks vegetation on the banks and within the ditch itself, and is very shallow at the northernmost end. It also appears to be an isolated feature with no connectivity to further watercourses. There is no further suitable habitat for this species on the site.

It is therefore unlikely that water voles will be found within the dry ditch.

4.10 Other notable species

West European hedgehog may be present in the brash pile north-west of the greenhouse. It is likely that this may have to be removed as part of the development and as such, to avoid impacting upon this species, this feature should be removed by hand, under the supervision of a suitability qualified ecologist.



4.11 Enhancement opportunities

The proposed development plans indicate that hedgerows will be created as part of the soft landscaping for the development. It is recommended that these hedgerows are planted to include only native species, with a composition of 50% hawthorn and the remaining tree mixture to include blackthorn *Prunus spinose*, wild privet *Ligustrum vulgare*, dogwood *Cornus sanguinea*, guelder rose *Viburnum opulus*, field maple *Acer campestre* and spindle *Euonymus europaeus*. This mixture will provide a significant benefit for a range of birds, bats and invertebrates.

As areas of greenspace will be created within the landscaping for the development, to enhance these areas, a section could be used for creating a wildflower meadow. A Meadow Mixture for Loamy Soils EM5 (see Table 1) is recommended for the site. The process for wildflower meadow creation is detailed in full in Appendix 6 of this report.

Table 1. EM5 meadow mixture for loamy soils from Emorsgate Seeds.

Wild Flowers		
%	Latin name	Common name
0.5	<i>Achillea millefolium</i>	Yarrow
3	<i>Centaurea nigra</i>	Common Knapweed
1	<i>Daucus carota</i>	Wild Carrot
2.5	<i>Galium verum</i>	Lady's Bedstraw
0.3	<i>Geranium pratense</i>	Meadow Cranesbill
1.2	<i>Knautia arvensis</i>	Field Scabious
0.5	<i>Lathyrus pratensis</i>	Meadow Vetchling
0.4	<i>Leontodon hispidus</i>	Rough Hawkbit
0.5	<i>Leucanthemum vulgare</i>	Oxeye Daisy
0.5	<i>Lotus corniculatus</i>	Birdsfoot Trefoil
1	<i>Malva moschata</i>	Musk Mallow
0.5	<i>Plantago lanceolata</i>	Ribwort Plantain
0.5	<i>Plantago media</i>	Hoary Plantain
1	<i>Primula veris</i>	Cowslip
1	<i>Prunella vulgaris</i>	Selfheal
2	<i>Ranunculus acris</i>	Meadow Buttercup
1	<i>Ranunculus bulbosus</i>	Bulbous Buttercup
1.5	<i>Rhinanthus minor</i>	Yellow Rattle
1	<i>Rumex acetosa</i>	Common Sorrel
0.1	<i>Trifolium pratense</i>	Wild Red Clover
Grasses		
8	<i>Agrostis capillaris</i>	Common Bent
3	<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass (w)
3	<i>Briza media</i>	Quaking Grass (w)
32	<i>Cynosurus cristatus</i>	Crested Dogstail
10	<i>Festuca ovina</i>	Sheep's Fescue
20	<i>Festuca rubra</i>	Slender-creeping Red-fescue
3	<i>Phleum bertolonii</i>	Smaller Cat's-tail
1	<i>Trisetum flavescens</i>	Yellow Oat-grass (w)

The cypress hedgerow will be retained as part of the development and may be used by common nesting



birds. While there are no mature trees within the site to which bird boxes can be affixed to, to enhance the site further for birds, bird boxes can be installed on the new buildings. Records for house sparrow *Passer domesticus* (S41 species) were returned by SxBRC, and two 1SP Schwegler Sparrow Terraces (see Figure 16) could be installed on the faces of the buildings to create new nesting opportunities for this species. These boxes should ideally be placed 2.5m or more above the ground.

As bats may commute or forage at the site, it would be beneficial to create new opportunities for roosting bats. Therefore, a Schwegler 1FF box (see Figure 16) could be placed on the south, west or east facing elevation of the building. As best practice, the lighting scheme should be designed to minimize light spill (see Bat Conservation Trust website), around these roosting features and potential commuting routes.

All of the enhancement measures outlined above are in line with the recommendations of the NPPF (2018) and as such would be considered favourably when determining the planning application.

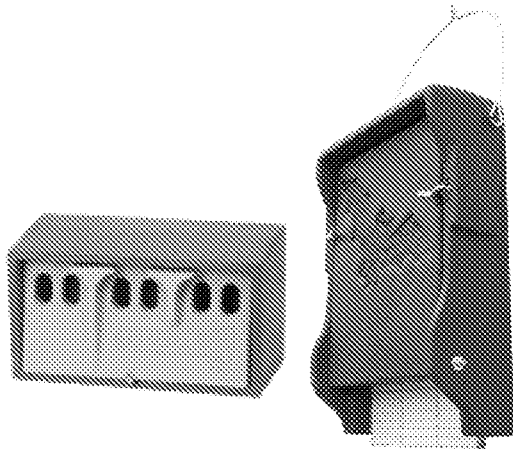


Figure 16. Clockwise from left: 1SP Schwegler Sparrow Terrace and Schwegler 1FF box.

4.12 Conclusions.

It is likely that the development will impact upon all the ruderal habitat at the site, a portion of the long grassland and the brash pile. The cypress hedgerow and dry ditch are to be retained.

For the development to proceed a reptile presence/absence survey will be necessary, which is detailed in section 4.8.

As the brash pile north-west of the greenhouse may support West European hedgehog, if this is to be removed, it should first be hand searched by a suitably qualified ecologist.

The site can be enhanced for biodiversity following the recommendations outlined in section 4.11.

If any protected species are found during the proposed work, work should be stopped immediately, and an ecologist must be contacted immediately for advice.

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 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’ (SPAs), designated under the Birds Directive, SACs 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 2010 (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 receive the highest level of protection under this regulation 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 on the integrity of the site 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.

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 2012) 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.

The NPPF states that the wider benefits of an ecosystem should be recognised, and the presence of a protected species is a material consideration for a development proposal (Circular 06/2005, 2005).

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 5 years and are a useful reference for determining the current importance of a particular site for birds. The most recent review was undertaken in 2015 (Eaton et al, 2015), which provides an up to date assessment of the conservation status of birds in the UK.

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APPENDIX 2 Local Planning Policy

Arun District Council – Adoption Arun Local Plan 2011-2031 (July 2018)

Policy Number/Title	Policy Summary
Policy C SP1 Countryside	Outside the Built-Up Area Boundaries (as identified on the Policies Maps) land will be defined as countryside and will be recognised for its intrinsic character and beauty. Development will be permitted in the countryside where it is: a. for the operational needs of agriculture, horticulture, forestry, the extraction of minerals or the management of waste as part of a waste site allocation within the West Sussex Waste Local Plan; or b. for quiet, informal recreation; or c. for green infrastructure; or d. for the diversification of the rural economy; or e. for road and/or cycle schemes; or f. in accordance with other policies in the Plan which refer to a specific use or type of development. 7 Settlement Structure & Green Infrastructure The Council will take into account cumulative impact of development in the consideration of planning applications. To ensure better management of the rural-urban fringe in those areas where significant new development is proposed, early consideration will need to be given to landscape and biodiversity enhancement, woodland management, recreation provision and access routes.
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)	a. 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. b. 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. c. Where appropriate the Council will ensure the effective management of designated sites through the imposition of planning conditions or Section 106 agreements as appropriate.
Policy 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 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. Where there are existing trees on or adjacent to a development site, developers shall be required to provide: d. Land and tree surveys e. A tree constraints plan f. An arboricultural impact assessment to include a tree protection plan and arboricultural method statement These will ensure that development is planned to take a comprehensive view of tree issues at an early stage in the design process and that development works do not have a negative impact on existing trees.
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. The Council will also support development that: a. is appropriately located, taking account of flood risk and promotes the incorporation of appropriate mitigation measures into new development, particularly Sustainable Drainage Systems that reduces the creation and flow of surface water and improves water quality; 63 Water stressed areas - final classification (July 2013) b. reduces the risk to homes and places of work from flooding whilst increasing biodiversity; c. delivers a range of community benefits including enhancing the quality of life and providing greater resistance to the impact of climate change.



APPENDIX 3 Great crested newt 'Habitat Suitability Index' values

Table 2. HSI calculation for pond assessed during the survey.

	Pond 1	
NGR	SU 96472 03954	
SI attribute	SI value	Notes
Location	1.00	SE England
Pond area	0.10	384m ²
Pond drying	0.50	Rarely
Water quality	0.33	Poor
Shade cover	0.80	100
Water-fowl	1.00	Minor
Fish presence	1.00	Absent
No. ponds	1.00	7
Terrestrial habitat	0.67	Good
Macrophytes	0.31	0%
H.S.I. value	0.55	'Below Average' suitability



APPENDIX 4 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 on 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 Trust⁷ should be considered while designing the lighting scheme. This includes the following measures:

Do not:

- provide excessive lighting. Use only the minimum amount of light needed for the task.
- directly illuminate bat roosts or important areas for nesting birds

Avoid:

- installing lighting in ecologically sensitive areas such as: near ponds, lakes, rivers, areas of high conservation value; sites supporting particularly light-sensitive species of conservation significance (e.g. glow worms, rare moths, slow-flying bats) and habitat used by protected species.
- using reflective surfaces under lights.

Do:

- consider employing a competent lighting designer who will apply the principals of providing the right light, in the right place, at the right time and controlled by the right system.
- minimise the spread of light to at, or near horizontal and ensure that only the task area is lit. Flat cut-off lanterns or accessories should be used to shield or direct light to where it is required.
- consider 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.
- use temporary close-boarded fencing until vegetation matures, to shield sensitive areas from lighting.
- limit the times that lights are on to provide some dark periods. The task being lit often varies, for example roads are less used after 23.00hrs and car parks are empty. A lighting designer can vary the lighting levels as the use of the area changes reducing lighting levels or perhaps even switching installations off after certain times. This use of adaptive lighting can tailor the installation to suit human health and safety as well as wildlife needs.

⁷ Bat Conservation Trust (2014) Artificial Lighting and Wildlife - Interim Guidance: Recommendations to help minimise the impact artificial lighting. Available at: http://www.bats.org.uk/pages/bats_and_lighting.html



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APPENDIX 5 Reptile Translocation Strategy

In line with current guidelines outlined by the Amphibian and Reptile Group UK (ARGUK), a target total of 60 translocation visits will be made between mid-March and October, with 'tins' (which can be bitumen and or corrugated metal sheets) placed at a density of not less than 100 per hectare of suitable habitat in line with ARGUK guidelines. Translocation visits will be undertaken every working day where possible as long as the air temperature is between 9 degrees and 18 degrees in the morning or mid-afternoon in the absence of wet or very windy weather. All captured reptiles will be placed into a large smooth-sided bucket with some green hay at the bottom and released immediately into the receptor area, the southern section of the site which will remain undeveloped. All translocation details would be recorded into a table such as the example below and submitted to the council upon request as evidence of the work undertaken.

Table 1. The table format that should be used to document the translocation process.

Date	Start Time/finish of Survey	Air Temperature & refugia temperature °C	Weather Notes	Species Total	Notes
31/05/2017	10:15/11:15	15/25	100% high and light cloud cover, 5-10 mph wind	2M 3F 1 Juv Slow Worm 1M Common Lizard	

Although the target no of trapping checks is 60 visits, this should be used as a guide, with the total number of visits cut shorter if there is an early drop in captured numbers and at least 10 visits in suitable weather conditions are made without identifying any reptile presence within the construction zone. Although the construction zone will be declared free of reptiles following 5 clear visits after the target of 60 trapping visits has been achieved.



APPENDIX 6 Wildflower Meadow Management

A wildflower meadow should be established across the southern area of the site which will remain undeveloped. This will increase the value of this area as foraging habitat for bats, birds, reptiles and amphibians as well as pollinating insects. To establish this as a wildflower area a process of light rotavating and seeding should be employed with good ground preparation essential to the success of the wildflower meadow. The sowing process is best undertaken between late August and the end of September during mild and wet weather best suited to seedling establishment or during mid-March to mid-May when the ground has sufficient moisture and there is very little risk of frosts. The rotavating process is to create an area of largely bare ground to allow the wildflower seed mix to establish. Immediately following rotavating, a suitable seed mixture containing not less than 20 wildflower and grass species should be sown across the ground at a density of four grams per square metre. The species included must all be of native British origin. A recommended seed mixture is EM5 meadow mixture for loamy soils, which is available from Emorsgate seeds (www.wildseed.co.uk). Table 1 in section 4.11 details the composition of this mixture.

As part of on-going management, the sward should be cut and gathered to a height of approximately 5cm at least three times in its first year of establishment to control the flush of annual weeds which will grow during the first growing season. Thereafter the sward should be cut (with all cuttings removed and composted) between mid-August and late September every year. Cutting in the spring (March/April) should be included if the sward grows too vigorously. Cutting the grass sward very short prior to rotavating the ground will also help to prepare a more suitable growing base.

End.
