



BERICOTE PROPERTIES LIMITED

OLDLAND FARMS,
SHRIPNEY ROAD,
BOGNOR REGIS,
WEST SUSSEX

**Ecological Enhancement Scheme
Pursuant to
Condition 8 of BE/73/14/PL**

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PLANS

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1. INTRODUCTION

1.1 Quod on behalf of Bericote Properties Limited contacted and commissioned Ecology Solutions in August 2014 to draft a report to seek the discharge of Condition 18 of BE/61/13 for the element of the hybrid application that forms the access to their development site. Along with the discharge of all other pre-commencement conditions this allowed BE/61/13 to be implemented which was confirmed to Arun District Council on 25 September.

1.2 Ecology Solutions was subsequently commissioned to draft an Ecological Enhancement Scheme (EES) to discharge Condition 8 of consent BE/73/14/PL which was implemented following the commencement of the enabling works.

1.3 Condition 8 states:

Prior to Commencement of Development or any phase of development an ecological enhancement scheme shall be submitted to the Local Planning Authority for approval and will be based on the recommendations within the supporting ecological report June 2014. All approved details shall then be implemented in full and in accordance with the agreed timings and details.

1.4 This EES has been prepared by Ecology Solutions on behalf of Bericote Properties Limited, and their successor in title. It sets out the management of features of ecological interest due to be retained and created within and adjacent to the site, and describes the wildlife enhancements strategies to be implemented.

1.5 This EES has been written with reference to published guidance from the Chartered Institute of Ecology and Environmental Management (CIEEM) and in accordance with Natural England guidelines for protected species.

1.6 The landscape design strategy that has been developed has been ecologically driven and is focused on maintaining and creating habitats to increase the biodiversity value of the site whilst incorporating wildlife features to encourage wildlife use of the site. The reports completed by Aluco Ecology; *Ecological Appraisal* (June 2013) and *Additional Protected Species Surveys* (November 2013) shall be used to inform the current status of the site, together with the surveys completed by Tim Moya Associates, and finally by the walk-over and targeted Water Vole *Arvicola amphibius* surveys completed by Ecology Solutions in 2014.

1.7 This document is set out as follows:

- Ecological baseline and evaluation of important features within the site;
- Objectives of the EES in order to maximise the ecological potential of features due to be created within the site;
- Details of the ecological enhancement and mitigation strategies to be employed;

- Management prescriptions in order to achieve objectives. These include any monitoring requirements; and
- The work programme.

2. ECOLOGICAL BASELINE AND EVALUATION

- 2.1 Habitat surveys completed by both Aluco Ecology and Tim Moya Associates were based upon an extended Phase 1 survey technique. The habitats and dominant plant species were recorded, together with conspicuous faunal activity and evidence of the presence, or potential presence, of protected species.
- 2.2 During the surveys undertaken, all obvious faunal activity such as birds or mammals observed visually or by call, was also recorded. Specific attention was paid to any potential use of the site by protected species, Biodiversity Action Plan (BAP) species, or other notable species.
- 2.3 Specific surveys for the presence of Badger *Meles meles*, bats, Water Vole, Great Crested Newts *Triturus cristatus*, common reptiles, and birds have also been undertaken to establish the existing ecological intrinsic value of the site and wider survey area, and enable suitable and appropriate mitigation and enhancement strategies to be formed.

Results

Ecological Features

- 2.4 The main habitat associated within the proposed development within the site is arable.
- 2.5 The habitats present are described in detail within the Aluco Ecology Ecological Appraisal (dated June 2013), submitted as part of the planning application (planning reference BE/61/13), and also within Tim Moya Associates Extended Phase 1 Habitat Assessment (dated June 2014) submitted as part of the planning application (planning reference BE/73/14/PL).
- 2.6 A list of the species occurring in each of the recorded habitats types present within the site is given within the submitted reports.
- 2.7 The main habitat type within the site; arable, is of limited nature conservation interest being subject to regular intensive management. In the context of the site the arable field margins are the feature of a more elevated value, although this habitat is typically species-poor, with species present being both common and widespread in both the local and national context. The ditches associated with the boundaries of the site are also considered to be of some ecology interest, and provide green corridors within the local landscape.

Wildlife Use of the Site

- 2.8 The following protected species were assessed within the submitted information to support the planning applications:
 - Bats;
 - Badgers;
 - Water Voles;
 - Birds;

- Common Reptiles; and
- Great Crested Newts.

Bats

- 2.9 The site supports no suitable roosting opportunities whilst the habitats present in respect of foraging opportunities are severely limited. The target bat activity surveys conducted recorded no activity within the site.
- 2.10 Nonetheless the targeted surveys did record the presence of six bat species within the wider study area. Species recorded across the wider study area include Common Pipistrelle *Pipistrellus pipistrellus*, Soprano Pipistrelle *Pipistrellus pygmaeus*, Nathusius's Pipistrelle *Pipistrellus nathusii*, Serotine *Eptesicus serotinus*, Natterer's *Myotis nattereri* and Noctule *Nyctalus noctula* bat.

Badgers

- 2.11 No evidence of Badger was recorded within the site during the specific surveys undertaken, although Badger activity was recorded in the wider survey area.
- 2.12 Given the small area of suitable Badger habitat within the site and the lack of field signs, it is clear that any local Badger social group does not heavily rely on the site for shelter, foraging or dispersal.

Water Voles

- 2.13 As detailed within Ecology Solutions' Water Vole Survey Report dated November 2014 and which is submitted alongside this EEP, ditch D2 was subject to targeted surveys and systematic removal of the sub-optimal habitats, with this ditch then in-filled. All works were completed under the direct supervision of a supervising and experienced ecologist.
- 2.14 It is considered that in the context of the site the ditches D1 and D3, along the northern and eastern site boundaries respectively, are of most interest to Water Voles. Specific surveys completed by Ecology Solutions in 2014 recorded the presence of the species along ditches D1 and D3, and limited dated evidence along ditch D2 which was largely dry at the time of survey.
- 2.15 It is concluded that a low populations of Water Vole is present at the site, with the population seen to utilise the sub-optimal habitats present as these become seasonally suitable. The lack of latrines at the site together with infrequent burrows encountered would suggest that a low population density is present.

Birds

- 2.16 The site is considered to offer very limited opportunities for nesting birds, being dominated by arable land and subject to an intensive management regime. None of the species recorded as part of the previous breeding bird or winter bird surveys would be wholly reliant on the habitats within site, which are limited in their extent and diversity.

- 2.17 Nonetheless some interest is present and restricted to the ditches and associated vegetation together with the field margins.

Common Reptiles

- 2.18 The site supports habitats which are of negligible interest to common reptiles. It is acknowledged that the wet ditches on the site's margins may offer some foraging and seasonal opportunities for Grass Snake *Natrix natrix*.

Great Crested Newts

- 2.19 No Great Crested Newts were recorded from the target surveys completed across the aquatic habitats present in proximity to the site. It is considered that the site offers negligible opportunities for this species.

3. ECOLOGICAL ENHANCEMENT OBJECTIVES

- 3.1 The aims and objectives of the EES are to maintain and enhance features of ecological interest within the development, in addition to conserving populations of protected species on site, whilst providing for biodiversity enhancements within the proposed development.
- 3.2 Management represents an important component in these areas.
- 3.3 The following objectives have been identified:
- Objective 1: Maintain and enhance retained and newly created habitats within the site;
 - Objective 2: Maintain populations of protected species identified within the site area at a favourable conservation status; and
 - Objective 3: Increase biodiversity by maximising opportunities for flora and fauna.

4. ENHANCEMENT MEASURES

- 4.1 Enhancement prescriptions and monitoring requirements have been described below, in relation to each of the three objectives.

Objective 1: Maintain and Enhance Retained and Created Habitats within the Site

- 4.2 The vast majority of the existing habitats within the site are of negligible nature conservation interest and this loss to the proposed development is of limited concern. Through habitat creation utilising a diverse range of native species it is expected that the proposals shall provide biodiversity gains over the current situation.

Car Park Planting

- 4.3 A number of areas associated with car park area shall be planted with Common Dogwood *Cornus sanguinea*, whilst the margins shall be sown with a native wildflower grassland seed mix (see below).

Wildflower Grassland

- 4.4 It is proposed to create wildflower grassland at the edge of the proposed access road and at the margins of the car park areas. In addition, the areas of the future expansion at the site shall also be subject to sowing of wildflower grassland to provide nature conservation gains over the current situation.
- 4.5 This wildflower grassland will be sown with a species-rich wildflower seed mix (Germinal Seed Mix WFG4 or similar).
- 4.6 The provision of species-rich native grassland shall enhance the floristic diversity within the site over the current situation, and provide biodiversity gains through additional opportunities for invertebrates.
- 4.7 It is considered that the loss of the arable field margins shall be more than off-set through the provision of species-rich native wildflower grassland.
- 4.8 The areas of wildflower grassland will be allowed to grow freely until flowering and seeding in July / August. There should be variation over the timing of the cuts to ensure that late flowering species have a chance to set seed. A second cut in late September / October will be undertaken dependent on the vigour of growth. All arisings are to be removed from site to prevent nutrient enrichment which could encourage undesired species.
- 4.9 To safeguard the future expansion areas against the establishment of any ecological constraints the grassland at these locations shall be subject to more frequent grassland cuts (if required). This measure is to ensure that although nature conservation gains shall be realised, the management shall prevent potential naturalisation of the grassland, and establishment rank / tussocky grassland.

Native Hedgerow, Scrub and Trees

- 4.10 New native hedgerow, scrub and tree planting shall increase the floristic diversity of the site over the existing situation, and provide additional foraging and nesting opportunities for birds (see below) and enhanced foraging opportunities for local bats.
- 4.11 The hedgerow and native scrub mix shall include the following species Field Maple *Acer campestre*, Dogwood *Cornus sanguinea*, Hazel *Corylus avellana*, Hawthorn *Crataegus monogyna*, Blackthorn *Prunus spinosa*, Dog Rose *Rosa canina*, Guelder Rose *Viburnum opulus*, Yew *Taxus baccata*, Wayfaring Tree *Viburnum lantana* and Holly *Ilex aquifolium*. Whilst tree planting shall include Field Maple *Acer campestre*, Sycamore *Acer pseudoplatanus*, Hornbeam *Carpinus betulus*, and Lime *Tilia cordata*.
- 4.12 Planting of new trees and areas of scrub will be undertaken during the autumn, winter or spring, with subsequent monitoring required in order to identify any potential gaps where plants have not survived. Any failed trees or sections of scrub planting will be replaced with native species of local provenance.
- 4.13 A weed-free ring (500 mm) will be maintained around each tree planted for the first five years to reduce competition from weed-species for light and nutrients. This can be achieved with appropriate weed-killers or, preferably, by maintaining a layer of mulch around the base of each tree. Regular health checks of the trees will also be undertaken during periods of dry weather, to ensure that the trees are not affected by drought.
- 4.14 Crown thinning of trees within the site shall be undertaken as required to remove inward growing, crossing, rubbing, dead or damaged branches or thinning to remove secondary and small live branch growth evenly throughout the crown.
- 4.15 Hedgerows to be cut mechanically to a minimum height of 2 metres to ensure that the structure is not significantly altered to compromise their value for associated wildlife.
- 4.16 Only those hedgerows backing on to development to be cut annually whilst all other hedgerows shall be cut on a bi-annual basis (once every two years) on a rotational basis to ensure sufficient habitat for birds and availability of winter foraging.
- 4.17 Trees in hedgerows shall be allowed to develop which shall increase song posts within the hedgerow, and also improve the foraging opportunities along this new linear feature.
- 4.18 The field layer at the base of hedgerows and a margin of 1 metre either side is to be left unmaintained to provide habitat for small mammals. No cutting or herbicide applications are to take place within these margins, except if required to control noxious weeds.
- 4.19 Future arboricultural management will be carried out outside the bird nesting season (March to July inclusive) to avoid any potential offence,

or after a suitably qualified ecologist has undertaken checks to ensure no nesting birds are present.

- 4.20 The areas of native scrub shall be managed to maximise their biodiversity, as such periodic checks will be completed for any dominant Bramble and addressed as required. Should any gaps or weak structure of the scrub be identified these shall be planted with a mixture of native species during the next suitable planting season.

Aquatic Planting

- 4.21 It is proposed to create areas of aquatic planting within the SUDS attenuation pond to the southeast of the site.
- 4.22 The aquatic plant mix is to include the following species Sweet Flag *Acorus calamus*, Flowering Rush *Butomus umbellatus*, Hairs Tail Cottongrass *Eriophorum vaginatum*, Yellow Flag *Iris pseudacorus*, Pickerel Weed *Pontederia cordata*, Bulrush *Typha latifolia*, Dwarf Bulrush *Typha minima*.
- 4.23 The new aquatic planting together with the design of the attenuation lagoon shall provide increased opportunities for aquatic invertebrate as well as providing suitable foraging resources for Water Voles. Aquatic plant species, such as Bulrush, can also offer additional opportunities for birds that favour this habitat, such as Reed Bunting *Emberiza schoeniclus*.

Objective 2: Maintain Populations of Protected Species at a Favourable Conservation Status

- 4.24 As part of the proposed site, habitat creation and the introduction of a management regime will provide for a net ecological enhancement in the quality of habitat present on site. This will be of benefit to key species, such as bats and birds.

Bats

- 4.25 The site is currently of negligible value to foraging or commuting bats as shown from the completed activity surveys, whilst being absent of any roosting opportunities.
- 4.26 The proposed new tree planting, associated with wildflower grassland and new areas of native scrub planting shall diversify existing habitats at the site and encourage an increase in the invertebrate food source for foraging bats over the existing situation. The proposed flood compensation area and SUDS attenuation lagoon, with areas of standing water and wet grassland is likely to offer a rich foraging resource for local bat populations.
- 4.27 As the new trees reach maturity it is likely that new roosting opportunities shall develop across the site. Although it is acknowledged that arboriculture shall be required to accord with public health and safety requirements, where possible dead wood shall be left to allow natural rot and decay to occur.

- 4.28 The scheme offers limited opportunities to increase the availability of roosting opportunities within the scheme over the planting of tree specimens that in time should be expected to develop suitable opportunities. However, to provide immediate opportunities five bat boxes shall be positioned on the exterior of the proposed units to offer suitable roosting opportunities for a range of bat species. It is recommended that 1FF Schwegler bat boxes are utilised, as these are low maintenance models, and provide suitable roosting opportunities for a number of bat species likely to be present in the local area.
- 4.29 The provision of new foraging opportunities and roosting opportunities within the site for bats shall provide net gains for any locally present population.

Badgers

- 4.30 No Badger setts or other field signs attributed to Badger are present within or immediately adjacent to the site. As such it is clear the local Badger social group do not rely upon the habitats present within the site.
- 4.31 The provision of new grassland habitats of high nature conservation value within the site, together with the strengthening of the ditch D1 corridor (through the provision of a species-rich native hedgerow) shall provide continued dispersal and foraging opportunities for any locally present social group.

Water Voles

- 4.32 Target surveys have established the presence of a low density Water Vole population associated with the wet ditch on the northern (D1) and eastern (D3) boundary of the site. These ditches shall be fully protected and retained as part of the proposed development.
- 4.33 The creation of the flood attenuation area together with the SUDS attenuation lagoon shall provide new suitable habitat for locally present Water Vole population.
- 4.34 The protective measures shall seek to ensure that the ditches and associated banks together with a 2 metre buffer for the top of banks are retained and protected. Heras fencing, or similar, shall be used to delineate the extent of the buffer and prevent accidental encroachment.
- 4.35 The provision of a species-rich native hedgerow adjacent to a known Water Vole ditch should offer further seasonal foraging opportunities for this species.

Birds

- 4.36 The creation of new areas of wildflower meadow, aquatic planting, native scrub, native hedgerow and native tree planting (including berry-bearing species) will provide suitable foraging opportunities for birds, while the new trees, hedgerow and scrub will provide new nesting opportunities for birds over the existing situation.

- 4.37 Management of habitats will be undertaken with due consideration for potential use by birds. Any necessary management of vegetation, such as trees, and scrub, which will provide nesting habitats, will be undertaken outside of the bird breeding season (March to July inclusive), or after a suitably qualified ecologist has undertaken checks to ensure no nesting birds are present. The management of the more open areas of grassland (specifically the areas allocated for further expansion and general grassland habitats to be provided in the east of the scheme) shall also be completed with due care and consideration to the potential presence of ground nesting species.
- 4.38 The establishment of new aquatic habitats and fringing vegetation is also likely to provide new opportunities for species such as Reed Bunting, Reed Warbler *Acrocephalus scirpaceus* and Cetti's Warbler *Cettia cetti*. The creation of the areas of wildflower grassland is likely to offer suitable nesting habitat for ground nesting species such as Skylark *Alauda arvensis* which have been previously recorded at the site.
- 4.39 Whilst the creation of the wildflower grassland areas could increase the foraging opportunities within the site for Barn Owl *Tyto alba*, a species known to be present in the local area.

Invertebrates

- 4.40 The provision of species-rich habitat types across the site, specifically the swathes of wildflower grassland to be managed for nature conservation together with the native scrub and hedgerow habitat, wet grassland and attenuation features, shall encourage a significant greater assemblage of invertebrates to frequent and inhabit the site over the current situation.
- 4.41 It is expected that through the implementation of the scheme and drafted landscape proposals there shall be net gains in entomological terms across the site.

Objective 3: Increase Biodiversity by Maximising Opportunities for Flora and Fauna

- 4.42 The creation of new areas of wildflower grassland, aquatic planting, native scrub, hedgerow and planting of new trees, centred on native species of local provenance, will diversify existing habitats at the site and encourage a range of wildlife over the existing situation.
- 4.43 The species-rich habitats shall be subject to a tailored management regime to maximise the biodiversity interest providing increased opportunities for a variety of species and improve the biodiversity value of the site in the long-term.
- 4.44 Areas of grassland will be sown with wildflower seed mixes and managed appropriately to increase their biodiversity interest (see above).
- 4.45 Additional native tree, hedgerow, and scrub habitat will focus on native species, or those of benefit to wildlife (berry / nut bearing varieties of shrubs and trees). The provision of a new native hedgerows associated

with ditch D1 along the northern boundary shall strengthen the green corridor and provide biodiversity gains.

5. SCHEDULE OF WORKS

Objective	Receptor	Management Prescription	Timing of Works
1. MAINTAIN AND ENHANCE RETAINED AND CREATED HABITATS WITHIN THE SITE	Wildflower Grassland	New areas native wildflower grassland shall be across the site. These areas shall be sown with a seed mixture suitable for the ground / soil conditions present.	Autumn, following completion of development.
		The areas of wildflower meadow will be cut annually in late spring, early summer and early autumn to allow the grasses and flowers to seed, with some marginal areas left uncut. All cuttings should be removed following a few days for the cut vegetation to drop seed.	Annually in late spring / early summer and late summer / early autumn
	Wet Grassland / Marshland	The attenuation features where not permanently wet shall be sown with a diverse wet grassland seed mix to increase the existing floristic diversity.	Autumn, following completion of development.
		The areas of wet grassland / marshland will be cut annually in late summer early autumn to allow the grasses and flowers to seed, with some marginal areas left uncut. All cuttings should be removed following a few days for the cut vegetation to drop seed. The management of vegetation within any wet areas of the flood attenuation area shall be completed in early winter to limit effect on any amphibians that may inhabit the attenuation features.	Annually early autumn – winter
	Native Trees	Planting of new trees along the access road margins.	During autumn, winter or spring, following completion of development.
		Regular health checks of the trees will be undertaken.	Annually for first five years after planting.

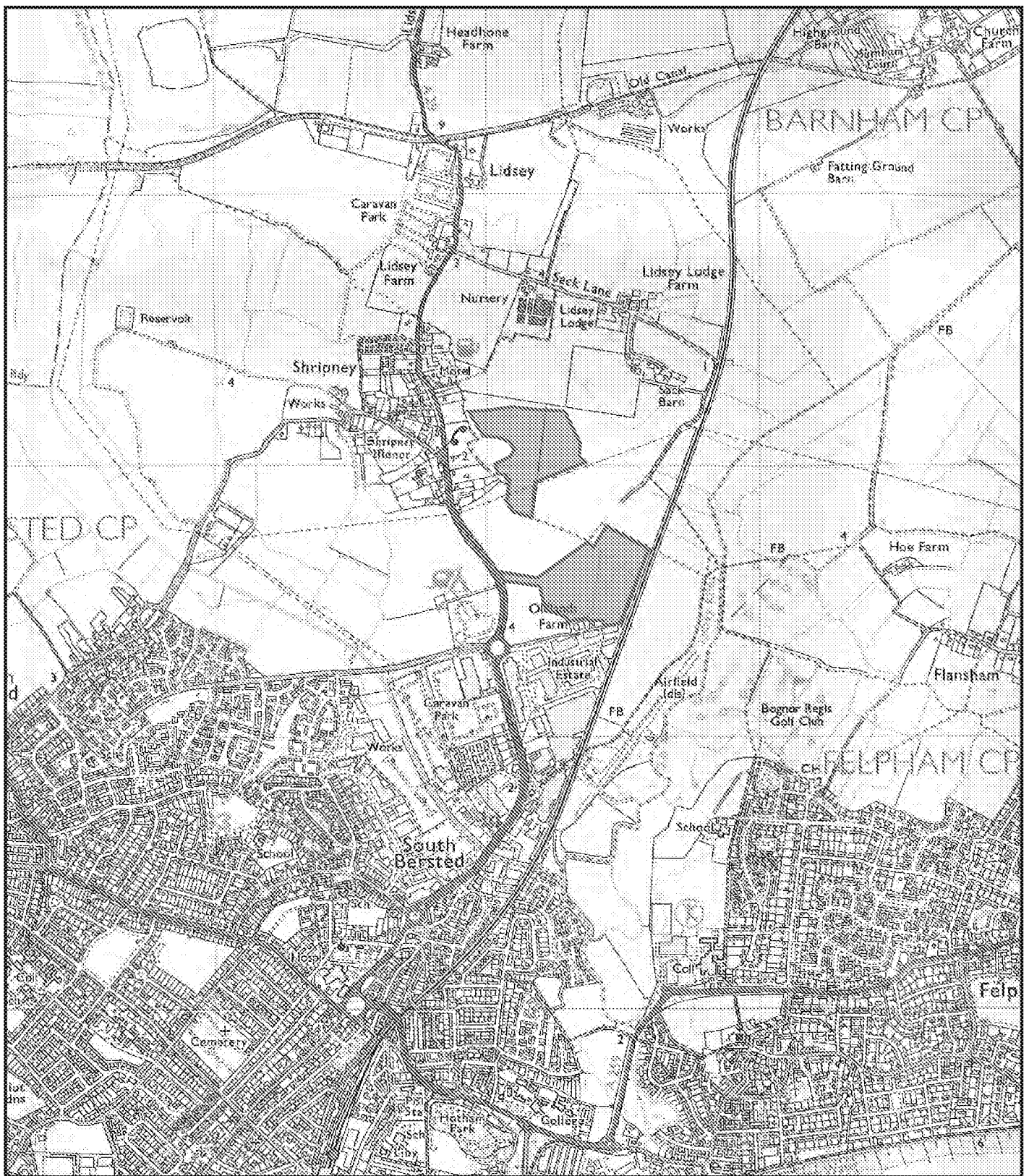
	Native Scrub	Provision of new native scrub planting, utilising a range of fruit bearing species.	Prior to completion of development or in first planting season thereafter.
		For the first five years after planting, regular health checks of the hedgerows will be undertaken especially during periods of dry weather, to ensure that the hedgerows are not affected by drought.	Annually for first five years after planting.
		All scrub cutting is to be undertaken outside of the main bird breeding season (March – July inclusive).	Annually
2. MAINTAIN POPULATIONS OF PROTECTED SPECIES AT A FAVOURABLE CONSERVATION STATUS	Bats	New tree and scrub planting will provide additional foraging, as well as creating potential roosting opportunities in the future once trees reach maturity. The flood compensation area and additional attenuation features shall offer further foraging resources for local bat populations. Bat boxes to be provided to provide new roosting opportunities within the site.	Prior to completion of development or first planting season thereafter. On completion of development.
	Badger	Planting of native species of local provenance to encourage food sources and provide new foraging opportunities.	See habitats above.
	Birds	New tree, wildflower meadow, and native scrub planting will provide additional nesting/foraging opportunities.	Avoid undertaking management work on suitable bird nesting habitat from 1 st March to 31 st July annually.
3. INCREASE BIODIVERSITY BY MAXIMISING OPPORTUNITIES FOR FLORA AND FAUNA	Wet and Wildflower grassland	Wet and wildflower grassland created at the margins of the access road, margins of the car park and within the attenuation features across the site and sown with a diverse mix of native species which will increase the floristic diversity of the site over the existing situation. Areas of wet grassland and wildflower margins will provide additional foraging resources for small mammals, bats, birds and invertebrates.	By / within the first planting season on completion of development, or first planting season thereafter.

	Native Scrub	New areas of scrub will increase the floristic diversity of the site over the existing situation.	Prior to completion of development or first planting season thereafter.
		New sections of scrub will provide additional opportunities for nesting and foraging birds and foraging bats.	Prior to completion of development or first planting season thereafter.
	Trees	New, native trees to be planted to increase the floristic diversity of the site.	Prior to completion of development or first planting season thereafter.
		New tree planting (including berry / nut bearing species) will provide additional opportunities for nesting and foraging birds, and foraging bats.	Prior to completion of development or first planting season thereafter.

PLANS

PLAN ECO1

Site Location



KEY:



SITE LOCATION



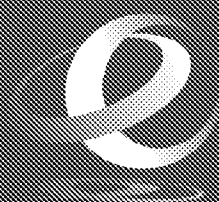
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6447: OLDLANDS FARM,
SHRIPNEY ROAD,
BOGNOR REGIS, WEST SUSSEX

PLAN ECO1: SITE LOCATION

PLAN ECO2

Ecological Protection & Management Plan



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