

**LAND AT SUMMER LANE,
PAGHAM**

**UPDATE ECOLOGICAL APPRAISAL
AND DRAFT
ECOLOGICAL MITIGATION
TIMETABLES**

JULY 2018

CONTENTS

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1.0	INTRODUCTION	1
1.1	Background	1
1.2	Outline of the Scheme and Site Location	1
1.3	Relevant Legislation and Policy	2
2.0	ASSESSMENT METHODOLOGY	3
2.1	Introduction	3
2.2	Site Survey Methodology	3
3.0	BIOPHYSICAL CHANGES AND THE ZONE OF INFLUENCE	3
3.1	Introduction	3
3.2	Biophysical changes Associated with the Scheme – Determination of the zone of influence	4
3.3	Site Preparation / Construction Activities and Biophysical Changes	4
3.4	Predicted Operational Activities, During Use Phase and Biophysical Changes	4
4.0	BASELINE CONDITIONS WITHIN THE ZONE OF INFLUENCE	7
4.1	Introduction	7
4.2	Statutory & Non-Statutory Designated Sites	7
4.3	Habitats and Vegetation	7
4.4	Protected Species	18
5.0	MITIGATION	28
5.1	Introduction	28
5.2	Habitats	28
5.3	Breeding Birds	29
5.4	Bats	29
5.5	Badgers	30
5.6	Water Vole	30
5.7	Reptiles	31
5.8	Further Survey	32
5.9	Summary	32
6.0	REFERENCES	35

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1.0 INTRODUCTION

1.1 Background

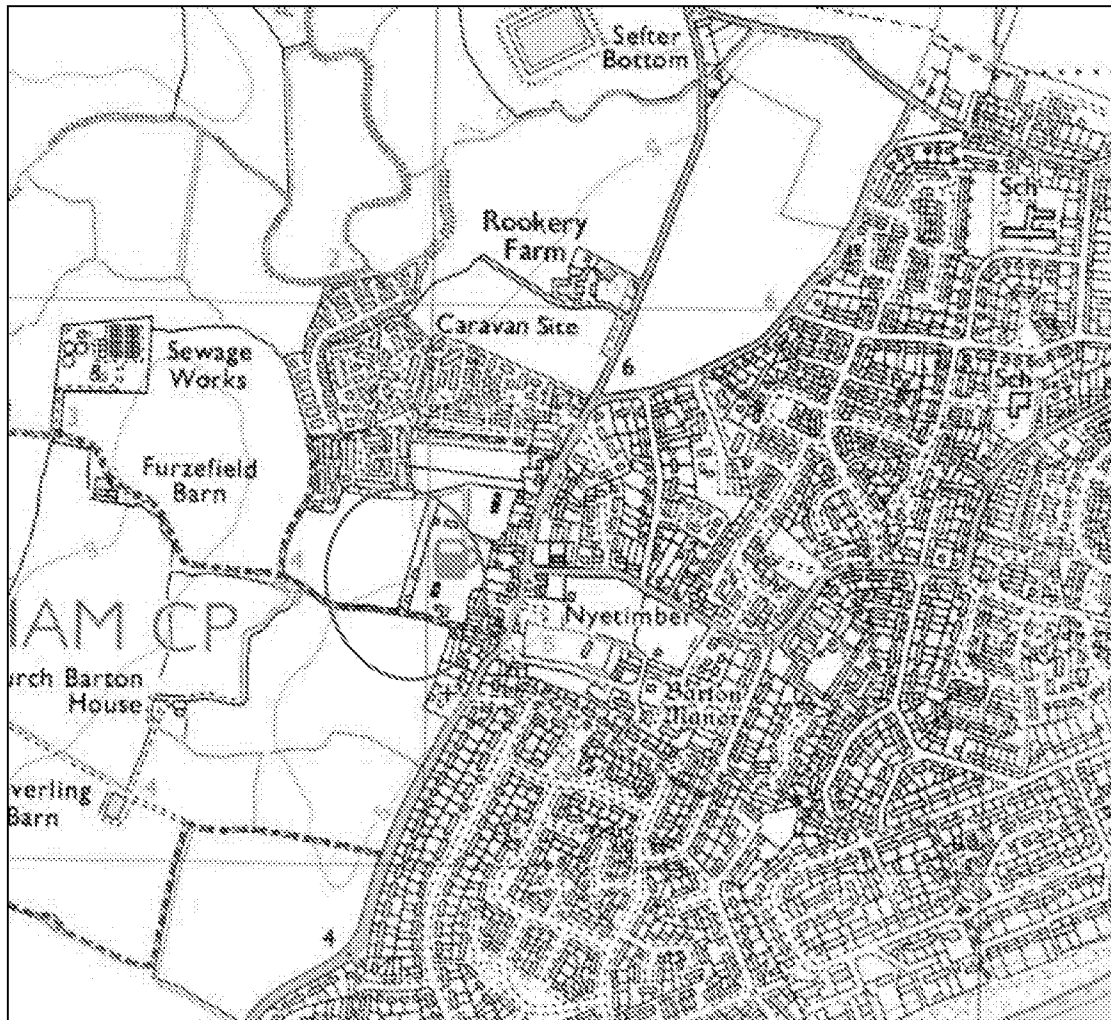
- 1.1.1 Aluco Ecology Ltd was commissioned to carry out an updated ecological walkover survey and appraisal of land at Summer Lane, Pagham, West Sussex, by Drew Smith. The site has Outline Planning Permission ‘with some matters reserved for the erection of 90 No. dwellings and associated access & open space’. A detailed ecological assessment was provided with the Outline Application (see Aluco Ecology, 2015).
- 1.1.2 The planning permission contains a condition directly related to the site’s ecology (as well as other areas which may affect ecology indirectly):

8	Prior to the commencement of any site clearance or preparation works, a detailed ecological mitigation and enhancement scheme, including timing for implementation, shall be submitted to the Local Planning Authority for approval. The scheme shall be based on the mitigation and enhancement details set out in section 9 of the submitted Ecological Assessment dated April 2015. The scheme shall include provision for further badger survey work and sensitive hedgerow and vegetation removal. The development shall be carried out in accordance with the approved scheme and timetable. Reason: To ensure adequate protection and enhancement of biodiversity interests in accordance with the provisions of the NPPF and policies GEN23 and GEN29 of the Arun District Local Plan (2003).
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- 1.1.3 This report sets out the updated Appraisal and considers the next steps for ecological mitigation with re-appraisal of mitigation measures and draft construction timetables.

1.2 Outline of the Scheme and Site Location

- 1.2.1 The land consists of low intensity use permanent pasture and arable farmland north of Summer Lane at the north west edge of Pagham. The location of the site is shown at **Figure 1** below.
- 1.2.2 The location of the site is shown at **Figure 1**, and the Approved Outline Development plans are shown at **Figures 2 & 3**.



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Figure 1 Site Location

1.3 Relevant Legislation and Policy

- 1.3.1 The outcomes of this Ecological Appraisal will be tested against relevant legislation and policy; namely the Conservation of Habitats & Species Regulations 2017 in relation to the protection of European sites (Special Protection Areas SPA, and Special Areas of Conservation SAC) and European protected species (eg bats, dormouse, great crested newts) (see **Technical Appendix 1**) and the Wildlife & Countryside Act 1981 (as amended) and Countryside & Rights of Way Act (CRoW) 2000 for protected species and the designation and protection of SSSIs (see **Technical Appendix 1**). The Protection of Badgers Act 1992 gives protection to Badgers *Meles meles*.
- 1.3.2 In addition to the legislation outlined above, the strategic and local planning policies are the principal policies to be considered in relation to the outcomes of this ecological appraisal; the Arun District Council Local Plan Core Strategy contains policies relating to nature conservation (see **Technical Appendix 2**).

- 1.3.3 Under the Governments duty to conserve Biodiversity, through Section 41 of the Natural Environment and Rural Communities Act 2006 (NERC, 2006) a number of Biodiversity Action Plans have been prepared for habitats and species of conservation concern, including national & local BAPs are considered in the general ecological site appraisal.
- 1.3.4 The Government sets out its objectives for conserving and enhancing biodiversity in the National Planning Policy Framework. The Government's objectives for planning and biodiversity are that '...the planning system should seek not just to protect, but where possible to enhance biodiversity – making sure we don't just have isolated pockets of wildlife, but rich and connected green spaces for all kinds of species to thrive.'
- 1.3.5 The Framework goes on to state that at the heart of the planning system is a presumption in favour of sustainable development. Planning Practice Guidance on the Natural Environment provides information on taking biodiversity into account in planning (see Para. 007- onwards).

2.0 ASSESSMENT METHODOLOGY

2.1 Introduction

- 2.1.1 The methodology for this appraisal is based on the Guidelines for Ecological Impact Assessment (EcIA) in the United Kingdom published by the Chartered Institute of Ecology and Environmental Management (IEEM, 2006; CIEEM, 2016). Regardless of whether a statutory Environmental Impact Assessment is required, these guidelines provide a robust framework for ecological assessment.

2.2 Site Survey Methodology

- 2.2.1 The aims of the updated walkover field survey are to re-record land-use and broad vegetation types present on the site and in the surrounding areas, and to re-evaluate the ecological value of the habitats and vegetation communities, along with their potential to support protected species, species of principal importance, and any other notable species. This is done on the basis of informing the next stages for ecology mitigation as outlined in the ecology report that accompanied the Outline Planning Application (see Aluco Ecology, 2015). Further details of the methodology used can be found in **Technical Appendix 3**.

3.0 BIOPHYSICAL CHANGES AND THE ZONE OF INFLUENCE

3.1 Introduction

- 3.1.1 In order to be able to target relevant ecological survey and assess the impacts of a development, it is necessary to identify the activities that may result in biophysical changes from the development and the area these cover (i.e. the zone of influence). There are three stages of this development scheme that include activities that may have an impact on features of ecological value; namely site preparation, construction and operation / use.

3.2 Biophysical Changes associated with the Development Scheme – Determination of the Zone of Influence

- 3.2.1 The potential zone of influence of the proposal is determined from the predicted biophysical changes brought about by activities associated with construction and post-construction phases. Therefore the zone is predicted to extend across the development footprint and locally within the site. The only potential influence off site is the potential for pollution derived from on-site construction.
- 3.2.2 Consequently, desk surveys have been carried out within this zone and backed up by field survey where required.

3.3 Site Preparation / Construction Activities and Biophysical Changes

- 3.3.1 During the construction phase, it is predicted that site preparation activities will include localised vegetation clearance, removal of wooden/built structures and topsoil stripping, before the construction of the houses. This phase may affect habitat suitable for wildlife, including protected and/or notable species.

3.4 Predicted Operational Activities during Use Phase and Biophysical Changes

- 3.4.1 During the use phase it can be expected that the scheme will result in changes from current site use due to residential use and a potential impact on features of ecological value on important sites within the area.



Figure 2: Approved Outline Sketch Layout Plan of Development



Figure 3: Approved Outline Block Plan of Development

4.0 BASELINE CONDITIONS WITHIN THE ZONE OF INFLUENCE

4.1 Introduction

- 4.1.1 This ecological baseline describes the site in the context of the characteristic habitats of the area, and includes descriptions of designated sites and ecological features present within the potential zone of influence of any proposed development. A walkover survey of the site was undertaken on 27 & 29 June 2018.

4.2 Statutory & Non-Statutory Designated Sites

Statutory Designated Sites

- 4.2.1 There is one biological Site of Special Scientific Interest within 2km of the site, Pagham Harbour SSSI which at its closest point is about 1km from the site to the south west and south. A sheet for the SSSI is provided at **Technical Appendix 5**. A second SSSI, Bognor Reef SSSI, designated for geological reasons, is present along the foreshore south of the site (also a Local Geological Site).
- 4.2.2 The SSSI is also a European and Internationally designated site. This is Pagham Harbour Special Protection Area (SPA); designated under the Wild Birds Directive 79/409/EEC and under the Ramsar Convention 1971. It is designated for its migratory, breeding and non-breeding wetland bird species. The SPA citation for this site is reproduced in **Technical Appendix 5**.

Local Nature Reserves

- 4.2.3 Parts of Pagham Harbour are also designated as a Local Nature Reserve. The location is shown at **Technical Appendix 5**.

4.3 Habitats and Vegetation

Introduction

- 4.3.1 The site is made up of two fields and a small yard between the two. The eastern field is dominated by permanent pasture (horse paddock) with scrubby boundaries dominated by Bramble *Rubus fruticosus* and Thorn scrub. The western field is an arable unit with some hedge boundaries and watercourses around the western and southern boundary along Summer Lane. **Figure 4** below shows the main habitats present on site.

Arable Land

- 4.3.2 Arable land on site is historically intensively managed with chemical input. In 2018 neither of the arable fields on site were cropped, and the fields were dominated by a dominant growth of Scented Mayweed *Matricaria recutita*, with a small number of additional common arable plants as occasional (eg Wild Oat *Avena fatua* & Scentless Mayweed *Tripleurospermum inodorum*) to rare. An example of the arable land is shown at **Photo 1** below.



Photo 1: Arable Land on site – field north of Summer Lane not cropped in 2018

Arable Margins

- 4.3.3 The majority of boundaries of the arable land on site generally still maintain a c1-2m wide strip of uncultivated land. This is dominated by coarse grasses and tall herbs. False Oat Grass *Arrhenatherum elatius*, is generally dominant, with some occasional to locally frequent Cocks Foot *Dactylis glomerata*, Common Couch *Elytigia repens*, Soft Brome *Bromus hordeaceus*, Rough Meadow Grass *Poa trivialis*, and Common Reed *Phragmites australis* encroaching from the edge of the watercourses where present. Herbs present include common tall herbs of arable edge including Cleavers, Creeping & Spear Thistle *Crisium arvense* & *C. vulgare*, Common Ragwort *Senecio vulgare*, Nettle *Urtica dioica*, Cow Parsley *Anthriscus sylvestris*, Hogweed *Heracleum sphondylium*, Broad Leaved & Clustered Dock *Rumex obtusifolius* & *R. conglomeratus*, Bristly Oxtongue *Picris echioides*, Sowthistles *Sonchus sp.* and Hedge Woundwort *Stachys sylvatica*. This habitat is shown at **Photo 2** below.



Photo 2: Arable Margin, here the northern edge of the field south of Summer Lane, 2018

Permanent Pasture

- 4.3.4 The majority of the eastern field on site is made up of farmland that has been agriculturally improved and has in recent years been grazed by horses. The main pasture is improved reverting to semi-improved pasture with abundant Yorkshire Fog *Holcus lanatus*, and occasional to frequent Bent Grasses *Agrostis sp*, False Oat Grass *Arrhenatherum elatius*, Meadow Grasses *Poa trivialis*, Meadow Foxtail *Allopecurus pratensis* and Soft Brome *Bromus hordeaceus*. Herbs are moderately distributed through the sward, but with low species diversity. Species noted include frequent to locally abundant White Clover *Trifolium repens* and Creeping Buttercup *Ranunculus repens*, and occasional Red Clover *T. pratense*, Lesser Stitchwort *Stellaria graminea*.
- 4.3.5 Historical heavy grazing by herbivores (Horses and Rabbits) has seen an increase in ruderal weeds such as Thistles *Cirsium vulgare* and Common Ragwort *Senecio jacobaea* in 2018, along with larger areas dominated by Bramble *Rubus fruticosus* scrub Nettles *Urtica dioica*. The main grasslands are shown at **Photos 3 & 4**.
- 4.3.6 An area of hardstanding is present along the northern boundary, representing the base of former agricultural buildings. This area has been enclosed mostly by Bramble and nettle scrub and is now closing off the northern corner of the pasture from the main field. Some Bee Hives are present in this area. A small wooden shed on the southern boundary is used as a Horse Stable. These areas had not changed much in 2018.
- 4.3.7 Other areas of Bramble scrub are present within the pasture indicating a current low grazing regime, and a feel of semi abandonment of the agricultural unit. See **Figure 3** and example in **Photo 4** for extent of scrub on site. At the northern end of the site part of the grassland has

become heavily invaded by scrub, mostly dominated by Blackthorn *Prunus spinosa*, but with some Hawthorn *Crataegus monogyna*, Elder *Sambucus nigra*, Willow *Salix sp.* and Oak.



Photo 3: Horse Paddock, looking south, June 2018



Photo 4: semi-isolated patch of grassland being encroached by Blackthorn dominated scrub at the northern end of the site

Amenity Grassland

- 4.3.8 The site access off Summer Lane is a regularly mown strip of amenity grassland (**Photo 5**) with a few herbs noted as above. A single patch of Birds Foot Trefoil *Lotus corniculatus* was noted by the road edge. A small spur along the eastern boundary is also amenity grassland lawn of a dwelling in Sylvia Close separated from the main field by a fence line and was only viewed from the main field.



Photo 5: Mown Grassland entrance to Site

Horticultural

- 4.3.9 Along the southern edge of the eastern field is an area of relatively recently created allotments backing onto the dwellings on Summer Lane. These allotments were mostly not cultivated in 2018 (**Photo 6**) with non-cultivated areas dominated by stands of Nettles, ruderals and annual weeds. No scarcer arable weeds were noted from the allotments.



Photo 6: Small Area of now mostly un-cultivated Allotments along Southern edge of the site 2018

Builder's Yard & Hardstanding

- 4.3.10 A small yard is present between the eastern Horse paddock and the western arable field. This comprises hardstanding with a number of common ruderal weeds associated with disturbance, and encroaching Blackthorn dominated scrub with Elder, Hawthorn and young Oak *Quercus sp.* at its northern end, with the encroachment greater in 2018 than in previous years. There is also much Bramble and Nettle and some Fleabane and Docks around the boundaries. This area is shown at **Photo 7** below.

Scrub

- 4.3.11 Parts of the boundaries on the northern edge of the Horse paddock and in the builders yard are unmanaged and have developed mature Blackthorn scrub, with some Hawthorn, Elder, rarely young Oak, and extensive Bramble domes and Nettles.



Photo 7: Yard showing ruderal vegetation extensive Brambles and Nettle banks in 2018

Site Boundaries (including Ruderal and Scrub)

4.3.12 The boundaries are numbered on **Figure 4** and described below.

Boundary 1

4.3.13 The northern boundary of the site is a ‘dog leg’ made up of a ditch line that was dry in the areas that could be examined during the majority of the survey, mostly scrubbed up and lacking aquatic vegetation. During early spring 2014 and late winter 2015 there was c20cm of standing water after the wet late winter period in ponds along the eastern end of the ditch. The ditch line appears to be unconnected to any watercourses in the surrounding landscape. This boundary dominated by Bramble scrub scrambling over an outgrown thorn hedge dominated in parts by Blackthorn *Prunus spinosa*, but with frequent Hawthorn and Elder *Sambucus nigra* also present. A few non-native and/or planted woody species are present along the northern edge of the ditch line (including mature Oak and Conifers) and a patch of Goat Willow *Salix capraea* along its eastern end. In 2018 a number of mature trees off site to the north have been removed as part of the development of the field north of the site. This has opened up the ditch in part, which was dry during June 2018. The Bramble edge includes frequent Nettles, Ragwort and Broad Leaved Dock *Rumex obtusifolius*. **Photos 8 & 9** shows the northern boundary.



Photo 8: Ditch along northern boundary looking west. Ditch was dry during summer 2018 but is now more open due to removal of mature trees north of the ditch.



Photo 9: Northern Boundary showing extensive Bramble scrub encroaching into the ditch line.

Boundaries 2,3 & 4

- 4.3.14 The eastern, southern and western boundaries of the Horse paddock are all fenced. Along the western boundary are patches of Hawthorn with dominant Bramble and Nettle scrub and some abundant patches of Fleabane. At its northern end it is lost into an area of Blackthorn dominated scrub that takes up parts of the Horse paddock and builders yard to the west (see Photo 10). The southern and eastern boundaries of the paddock comprise fences with back gardens of dwellings off site. Again there are some extensive areas of Bramble, Nettle and occasional Hawthorn, Blackthorn and Elder scrub. The entrance to the field contains a garden hedge maintained along its eastern length. Here a small and isolated ditch line also scrubbed up and dry in areas inspected is present.



Photo 10: The northern edge of the site with extensive Blackthorn scrub.

Boundary 5

- 4.3.15 The eastern boundary of the arable field. This has a young planted hedge along its southern half with Hawthorn, Elder and Field Maple *Acer campestre*, gaps with Nettles and Brambles along a fence line, and then the edge of the Blackthorn dominated scrub at the northern third of the builders yard. The boundary is shown at **Photo 11**. There are only limited grassy margins along this boundary, mostly towards its southern end.

Boundary 6

- 4.3.16 This boundary comprises a dog leg around the southern edge of Mill Farm Park Home estate. At its eastern end is a small length of Blackthorn dominated scrub edge, with some Bramble and Elder. The remainder of the boundary is a strip of uncultivated coarse grasslands as described above, dominated by False Oat Grass, with Nettles in places (See **Photo 12**).



Photo 11: Boundary 5 in June 2018.



Photo 12: Boundary 6 with Blackthorn scrub edge from scrub off site to the north, with rough grassland, and in the distance open rough grassland edge.

Boundary 7

- 4.3.17 The western boundary of the arable land (off-site) comprises a small watercourse that is c2-3m wide by 1.5m deep engineered ditch, that contained water through to summer 2014,

although only upto 30cm along about half of its length. At the northern end a small concrete sluice traps a deeper section of water, especially during the early spring. The ditch comprises coarse grasses on its bank as described above, with dominant Common Reed and Hemlock Water Dropwort *Oenanthe crocata* in the channel (see **Photo 13**).



Photo 13: Boundary 7 with banks of ditch dominated by a strip of coarse grassland, and the ditch shown with the darker green broader leaves of Common Reed. The Hemlock Water Dropwort has died back by this time of the year and the watercourse is heavily choked by reed and with no surface water.

Boundary 8

- 4.3.18 This represents a continuation of the watercourse along boundary 7, although generally drier along its length. It was only damp during late summer 2014, but contained c20cm of water during early spring along its length. The ditch is again engineered and c2-3m x 1.5m deep. It is dominated by Hemlock Water Dropwort in places, but with abundant tall herbs including Nettles, Hogweed, Cleavers and some Large Willowherb *Epilobium hirsutum*. Water Figwort *Scrophularia auriculata* and Common Watercress *Nasturtium officinale* are rare along the ditch see **Photo 14**).

Summer Lane

- 4.3.19 Summer Lane comprises Boundary 8 along the northern stretch of its western end, and a number of dwellings along the western end. The south verge of summer Lane rises on a small bank and is again dominated by a strip of uncultivated coarse grasses and tall herbs as described above. The boundary is fenced.



Photo14: Boundary 8 showing edge of Summer Lane and ditch (right-hand side) that was dry in June 2018.

Flora

- 4.3.20 No rare or scarce species were recorded on the update site visit during June 2018.

Evaluation of Vegetation and Habitats

- 4.3.21 Habitats over the site are considered to generally be of **value within the zone of influence** being relatively species poor but semi natural habitats with currently low intensity use. The ditch line along Boundary 1 and watercourse within Boundaries 7 & 8 are of **value within the zone of influence to local value**. Although heavily neglected and with little diversity of species, Boundary 1 represents a semi-natural boundary feature surviving in the landscape. The ditch along Boundaries 7 & 8 is engineered and of low diversity, but again represent a linear wildlife feature within the local landscape.

4.4 Protected Species

Breeding Birds

- 4.4.1 Nesting birds are protected under the Wildlife & Countryside Act, with certain species given additional protection (see **Technical Appendix 1**). The total number of species recorded during survey work for the Outline Application was 40 species (see Aluco Ecology, 2015). Only a proportion of these species are breeding or likely to be breeding within the study area, with others recorded as flying over or only recorded during the non-breeding period or as a passage migrant. The breeding bird map for the Outline Application is reproduced at **Figure 5**.
- 4.4.2 The breeding bird survey recorded three main bird habitats, hedgerow and scrub with some ditches, open agricultural (arable) and permanent pasture. As described in section 4.3 above,

these habitats remain broadly as reported in 2014 (but with no crop planted in the arable areas in 2018) and it is likely that the populations of breeding birds and the evaluation remain valid with scrub and grassland features within the study area considered to be of **Local Value** for bird populations and arable land is considered to be of **value within the zone of influence to local value**.

Bats

- 4.4.3 Bats are protected under the Wildlife & Countryside Act and the Habitat Regulations (see **Technical Appendix 1**). Survey work for the Outline Application (see Aluco Ecology, 2015) recorded no evidence of roosting bats on site, and limited potential for a bat roost on trees and buildings on site. Detailed survey work recorded small Pipistrelle roosts off site to the south and east, and a total of six to seven bat species using the site (Common, Soprano & Nathusius's Pipistrelle, Noctule, Serotine and Myotis Bats, including Whiskered Bat). The habitats on site have not altered significantly since this survey work, so the existing evaluation is likely to remain valid. The foraging and commuting bat map from the Outline Application assessment is reproduced as **Figure 6**.
- 4.4.4 The evaluation states that habitats on site along the more wooded boundaries (Boundary 1, parts of 4 and 5 where they intersect) are considered to be of **Local Value** to bat populations. The wider arable land is considered to be of **value within the zone of influence** for bats. Foraging and commuting is recorded around all boundary features, with details of main foraging locations recorded. A total of seven species of bat have been recorded. The assemblage of bats is considered to be of **Local Value**.

Badgers

- 4.4.5 Badgers *Meles meles* are protected under the Protection of Badgers Act 1992. The site was re-assessed for potential Badger *Meles meles* presence. Habitats on site are suitable for foraging Badgers and there is potential along the dense scrub boundaries for Setts creation. Parts of the site again could not be fully examined due to the impenetrable nature of the Thorn, Bramble and Nettle scrub. No evidence of Badgers was noted during site visits. Evidence of Fox *Vulpes vulpes* was noted from the western boundary area, and a dead adult Fox was noted in the northern arable field.

Water Vole

- 4.4.6 Water Vole *Arvicola amphibious* are protected under the Wildlife & Countryside Act (see **Technical Appendix 1**). Survey work for the Outline Application recorded evidence of Water Vole off site in the ditch at Boundary 7.
- 4.4.7 The update Water Vole survey and assessment of Ditches on site and to the south and west off site in June 2018 found that all ditches were lacking water, although the bottom of the ditch remained damp in places with very occasional shallow puddles of a few cm. Ditch 1 (photo 8 & 9) was very dry and contained no aquatic or marginal vegetation. Some recent scrub cutting had opened up the ditch from shading and may as a result colonise with vegetation. The ditch along boundary 8 (see **Photo 15**) is dominated by Hemlock Water Dropwort which is dying back by this time of the year with no surface water present.

- 4.4.8 The ditch along boundary 7 (see **Photo 16**) with banks dominated by Common Reed, but also areas of Hemlock Water Dropwort, had no surface water present. A few feeding remains of Water Vole were recorded (see **Photo 17**). These appeared to be a month or more old, confirming continuing presence in this area. Further signs may be present given the watercourse is heavily choked by reed. A summary of results from 2018 and previous survey work is provided at **Figure 7**.



Photo 15: Boundary 8 ditch 8 that was dry in June 2018. The banks of this ditch are dominated by Hemlock Water Dropwort with no surface water present



Photo 16: Boundary 7 with banks of ditch dominated Common Reed. The Hemlock Water Dropwort dying back by this time of the year and the watercourse is heavily choked by reed and no surface water present



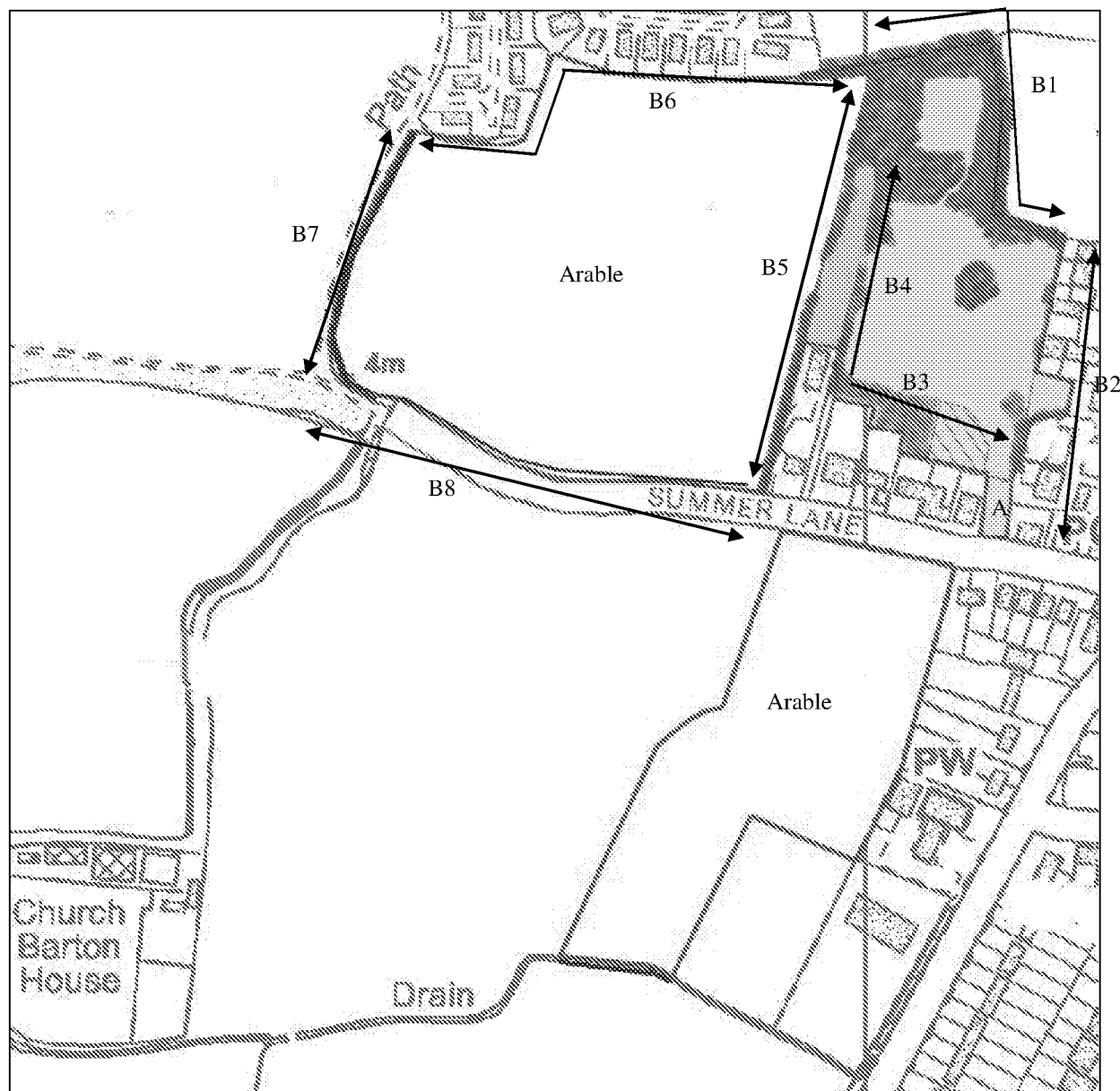
Photo 17: Boundary 7 with banks of ditch dominated Common Reed. Probable feeding remains of Water Vole were recorded in main area of use recorded in by previous survey work.

Reptiles

- 4.4.9 Commoner reptile species are protected from harm under the Wildlife & Countryside Act (see **Technical Appendix 1**). Detailed survey work for the Outline Application recorded three species of reptile, Slow Worm *Anguis fragilis*, Grass Snake *Natrix (n) helvetica*, and Common Lizard *Zootoca vivipara*. The distribution of reptiles from this survey is reproduced at **Figure 8**. A moderate population of Reptiles are concentrated around the horse paddock and builder's yard, with much lower numbers around the edges of the arable field where rough grassland strip is present.
- 4.4.10 The habitats remain broadly similar to previous and the areas around the horse paddock, builders yard particularly are considered to be of **Local Value** to populations of reptiles.

Potential for Other Protected Species

- 4.4.11 The detailed survey work for the Outline Application did not record any other protected species presence and the update walkover Appraisal has not recorded any significant alterations to habitats on site or in the Zone of Influence to suggest any additional protected species are likely to be present.



Key:

Boundary numbers refers to boundaries within the text

 Permanent Pasture

A Amentity Grassland

 Scrub/woody vegetation

Ditch line (along whole northern boundary of horse paddock and small area of SE boundary, both under scrub)

 Allotments

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Figure 4: Habitats on Site



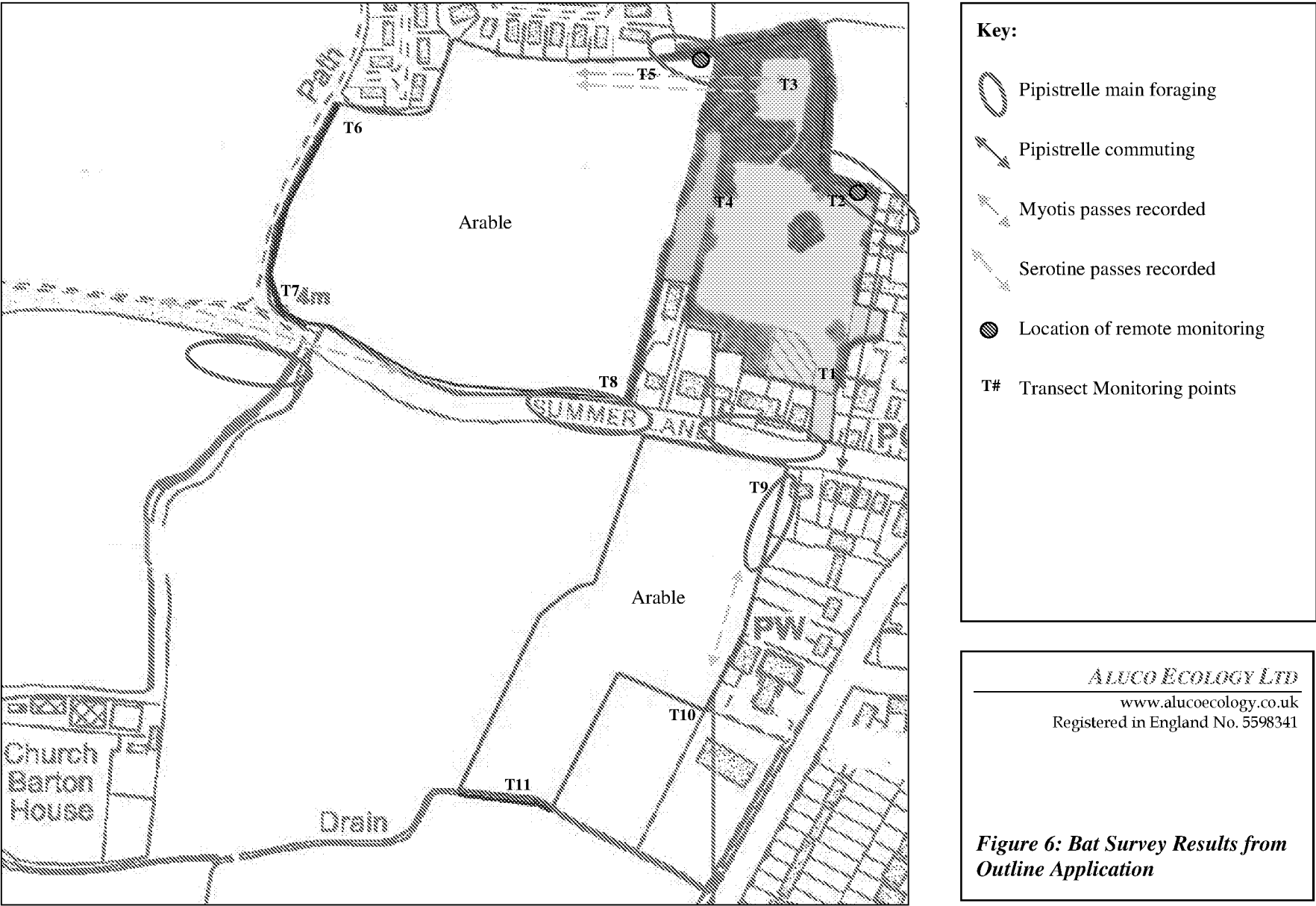
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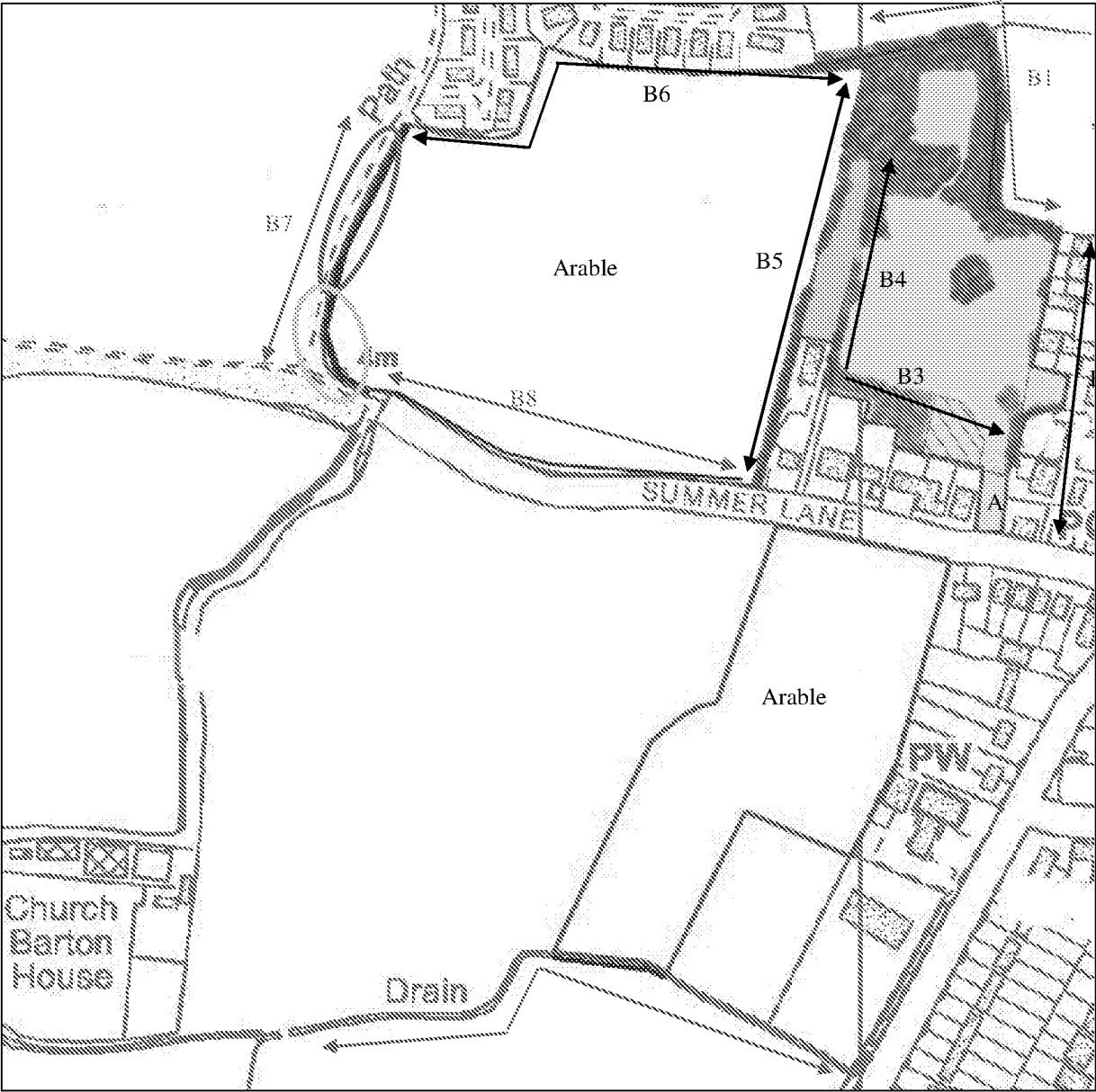
- Dunnock
- Song Thrush
- ⊗ Green Woodpecker
- Blackcap
- ▨ Whitethroat
- ▨ House Sparrow
- ▨ Starling

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Figure 5: Breeding Bird Survey
from Outline Application





Key:

Boundary numbers refers to boundaries within the text

-  Water Vole – main area of occupied habitat
-  Water Vole - no evidence but occasional use expected
-  On-going monitoring required

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Figure 7: Water Vole Summary including June 2018



Key:

- Slow Worm (1-2 ind. per dot)
- Common Lizard (1-2 ind. per dot)
- ⊗ Grass Snake (ind. record)

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**Figure 8: Reptile Survey Results
from Outline Application**

5.0 MITIGATION

5.1 Introduction

5.1.1 The construction of the development has the potential to affect a number of species that are afforded protection under the legislation and policy outlined in Section 2 above. This section reviews the mitigation proposals provided for the Outline Application and provides an indication of draft timetables for when ecological mitigation can take place to ensure that construction follows best practice and protected species are taken into account.

5.1.2 The construction of the site through Reserved Matters Application(s) will require supporting documentation that has relevance to ecology. A detailed ecological mitigation strategy (referred to in the condition as a ‘mitigation and enhancement scheme’), which outlines mitigation method statements for protected species during construction, as well as ecological mitigation and enhancements for all features, will be required. This report will have reference to other elements of the scheme, but particularly the following:

- A detailed habitat and management plan (Landscape & Ecology) for the Open Space SANG area. This may be produced by the relevant Landscape Architect, but will need to include relevant ecology prescriptions for creation of new habitats, retention and management of habitats left in situ in the scheme. These will include habitats for protected species recorded and discussed further below;
- Detailed design of surface water run off and hydrological mitigation;
- A Construction Environmental Management Plan (CEMP) for the construction of the development to ensure that measures are taken to ensure that pollution from run off, noise, dust etc is not significant on receptors (including ecological receptors such as retained/created habitats, off site habitats).

5.2 Habitats

5.2.1 The mitigation strategy for the Outline Application recommends that retained habitat is protected from the construction and protected in situ. This should be through site fencing and contractor awareness. This ties in with protected species mitigation detailed below, as retained habitat around the scheme will provide habitat for the protected species features recorded in the Zone of Influence.

5.2.2 Habitat Creation is also proposed, and a draft open space strategy plan has been prepared as part of the Outline Application, which provides an illustration of the habitats to be provided on site.

- 5.2.3 A detailed Landscape and Reserved Matters Masterplan will be required for each part of the scheme, including the SANG/open space areas, which will need to detail habitat creation and planting as per a detailed management plan. This plan should also make reference to retained habitat that is left in situ. Relevant measures are provided in Section 9.2.1-9.2.2 of the ecology report (see Aluco Ecology, 2015).
- 5.2.4 The implementation of the above measures will need to be undertaken as early as possible in the construction timetable. Retained habitat should be protected from the start of construction and through the construction period. Habitat creation, for example within the SANG area should be undertaken within the first available window for planting and establishing of habitats. This will be also benefit strategies that require translocation of protected species from the construction zone.

5.3 Breeding Birds

- 5.3.1 All birds and their active nests are protected from harm under Section 1 of the Wildlife and Countryside Act 1981 (as amended) (see **Technical Appendix 1**). The detailed strategy for removal of woody vegetation within the construction zone will need to have regard to timings for nesting birds. The main habitats to consider are:
- Woody scrub, Brambles and Nettles within the Horse Paddock and Builders Yard, which in places is extensive;
 - Any sheds, which may contain bird nests;
 - Arable land – although no farmland breeding birds were recorded during the survey work, there is potential for the arable land to be used by ground nesting birds, so the construction method statement for birds will need to consider this potential.
- 5.3.2 Nest Boxes for birds are recommended and the number and location of their placement on site should be provided as part of the Reserved Matters Mitigation Report.

5.4 Bats

- 5.4.1 All bats and their roosts are protected under the Wildlife & Countryside Act and the Habitat Regulations (see **Technical Appendix 1**). The development will see the loss of woody corridors around parts of the site, and new green corridors and habitat in open space retained and created. No bat roosts have been recorded on site.
- 5.4.2 Retained trees and woody vegetation should be protected by tree protection fencing. Should there be any changes in scheme plans or layout, which affects the mature trees on the site boundaries, these should be further assessed for bat roost potential.

5.4.3 The Reserved Matters Masterplanning will need to consider the location of any street lighting to ensure that the green corridors through the site are kept unlit, using downward facing and directional lighting, and considering light pollution and bat mitigation measures. A detailed lighting scheme will be required.

5.4.4 Bat boxes are also recommended and the number and location of their placement on site should be provided as part of the Reserved Matters Mitigation Report.

5.5 Badgers

5.5.1 Badgers and their Setts are protected from harm under the Protection of Badgers Act 1992. Ongoing site survey work by an ecologist will determine whether there is any Badger Sett within proximity to the works area that has the potential to be affected by the scheme. There has been no evidence to date of Badgers using the site, but if a Sett is found to be present then further mitigation measures will need to be undertaken prior to any construction works commencing.

5.5.2 The condition also recommends further survey work to inform the ecological mitigation and enhancement scheme reporting.

5.6 Water Vole

5.6.1 Water Vole and their habitat are protected from harm under the Wildlife & Countryside Act (see **Technical Appendix 1**). Water Vole are present in the local area, and have been recorded in a ditch off site to the west of the northern arable field. This ditch is connected to the ditch along Summer Lane that is to be removed as part of the scheme.

5.6.2 Updated survey work monitoring is required prior to the scheme commencing. Monitoring should be undertaken having regard to the latest Water Vole guidelines (Dean *et al*, 2016). This survey work is necessary in order to inform the amount of mitigation and methods required during construction, where it affects ditches where Water Vole are potentially present. **Figure 7** shows current use of the ditches and areas where ongoing monitoring is required.

5.6.3 The ecological mitigation and enhancement strategy can provide scenarios for ditch works where Water Vole are present, and where they have not been recently recorded. Given their presence in the nearby area, the latter option will still include some preparation works and mitigation, even where update survey work has not recorded presence.

5.6.4 Where Water Vole are present in ditches to be affected by construction, such works will need to be undertaken through a Water Vole Development Licence, and this will require

translocation of Water Voles to suitably created new habitat (that has had time to develop structure) where more than 50m length of ditch/habitat is affected.

- 5.6.5 The details of both mitigation methods will need to be set out in the Reserved Matters Mitigation Report.
- 5.6.6 The surface water run off mitigation strategy provides new wetland habitat along the north west edge of the scheme. This new habitat is also required to provide mitigation for loss of the ditch along Summer Lane, so will need to be designed to provide habitats for Water Vole. Early implementation of this habitat creation will be of benefit to the Water Vole mitigation strategy, and suitably created mature habitat may be required prior to a translocation of Water Vole from the ditch (if the updated survey work determines use by Water Vole of the ditches to be removed by the scheme, and a translocation is required under Licence).

5.7 Reptiles

- 5.7.1 Common Reptile species are protected from harm under the Wildlife & Countryside Act (see **Technical Appendix 1**). The reptile strategy involves the following, and will be required in all potentially suitable habitat areas (ie most of the horse pasture and builders yard, and any edges of the arable fields):
- Retention of some edge habitat on site to allow translocation of reptiles from the construction zone into the retained habitat. This is likely to include (a) a buffer strip along the northern site boundary where open space is provided, (b) retention and protection of the edge habitats around the arable fields, (c) retention of edge tall grassland buffer to retained hedgerows within the scheme. This retained habitat will need to be kept as rough/tall grassland and edge habitat, with suitable enhancements and management as required. The detailed translocation strategy will need to consider amount of suitable habitat required for reptiles;
 - Translocation of the populations of reptiles within the construction zones will be required. **Figure 8** shows the general locations of where reptiles were recorded, but any suitable (tall grassland/scrub edge) connected habitat may contain reptiles and would be considered in a mitigation strategy. Given populations recorded (of three species) this may take upto 30-60 days according to best practice guidelines. Localised vegetation manipulation may be able to reduce the number of days required for translocation, and phasing of works areas may be able to allow some earlier clearance of areas to allow destructive search;
 - Destructive search will be required following translocation (using a machine to strip back the top layer of habitat), at a suitable time of year prior to construction commencing;

- Creation of new habitats within the open space. Reptile habitat will need to be created by providing tall grasslands around the edge of woody features. This can be done through reducing mowing to provide tussocky tall grassland and scrub/hedgerow edge habitat. The habitats will need to be described and management provided in the habitat creation and management plan for open spaces/SANG. Early implementation of habitat creation will benefit the reptile strategy;
- The strategy will need to be detailed in the Reserved Matters mitigation report.

5.8 Further Survey

5.8.1 Further survey work is required for Badger and Water Vole.

5.8.2 It should be noted that the other protected species surveys are now over three years old. The planning condition has not requested a full set of updated survey work, and the updated ecological appraisal has shown that site conditions remain similar to the previous survey work. It is therefore considered likely that the previous protected species survey work is still likely to be representative. It should however be noted that there is potential through the Reserved Matters process for a request for updated phase 2 protected species survey (for example as per Government Standing Advice guidelines), and this may then have timetable implications.

5.9 Summary

5.9.1 A timetable of the construction mitigation works for ecology is provided below at **Table 1**.

5.9.2 An annotated Masterplan at **Figure 9** provides a summary of some relevant mitigation points detailed above.

Table 1: Summary of Anticipated Protected Species & Habitats Mitigation

	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	
Vegetation																									
Protect retained vegetation with fencing																									
Creation of new habitats in SANG/open space																									
Nesting Birds																									
Principal Cutting of woody vegetation period																									
Bats																									
Safe Tree Felling (any trees with bat roost features)																									
Badger																									
Update Survey																									
Sett Closure under Licence																									
Water Vole																									
Survey for Water Vole signs (main survey period)																									
Creation of new wetland habitat (early in process)																									
Mitigation destructive search (if required) (or)	?	?							?												?				
Works under Licence (if required)									?												?				
<i>(nb Water Vole strategy will need to be updated following results of re-survey, timings above are based on guidelines, but a detailed strategy will refer to local situation/results)</i>																									
Reptiles																									
Mitigation and translocation																									
Destructive Search																									

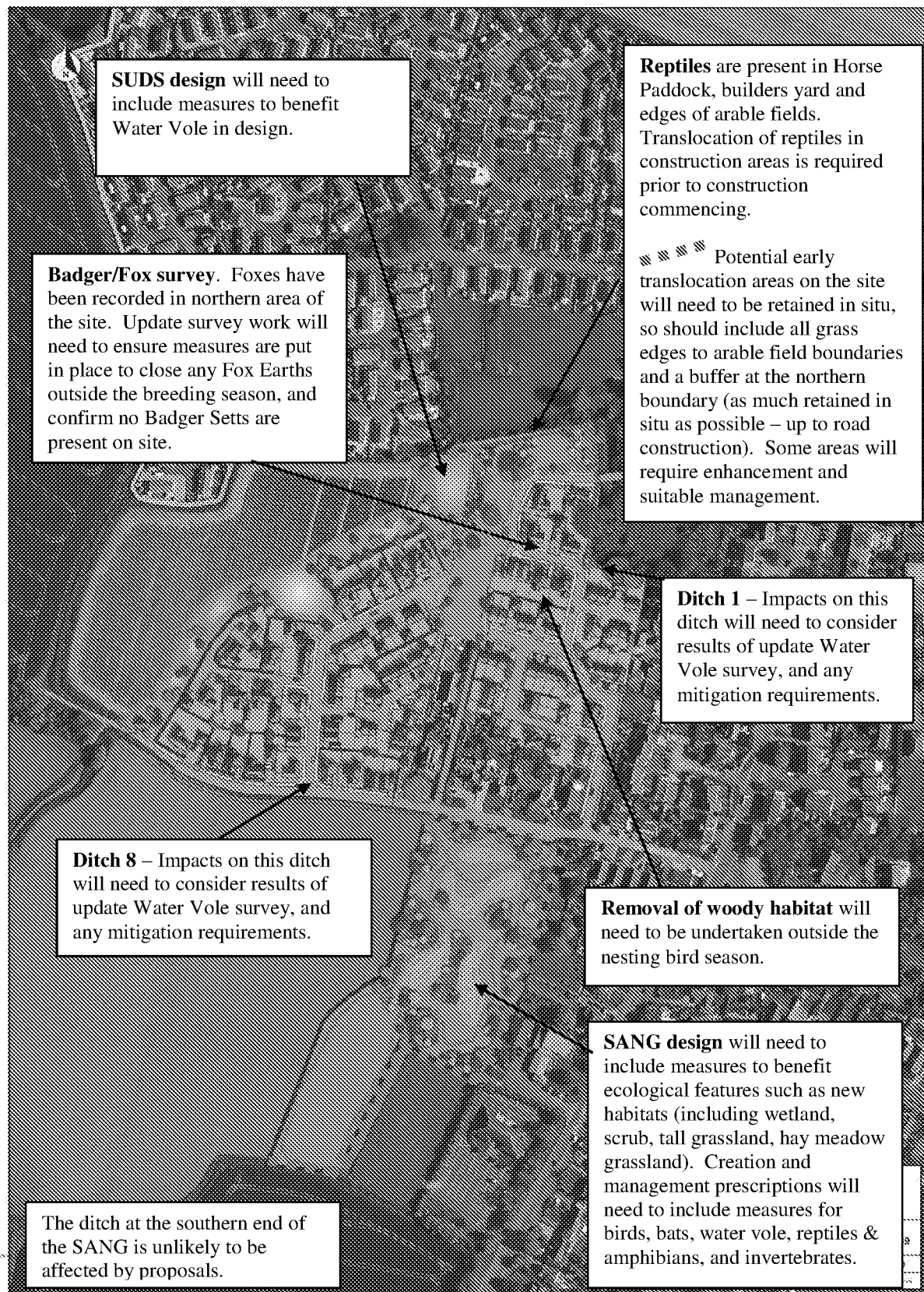


Figure 9: Mitigation Measures

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Technical Appendix 1
Wildlife & Countryside Act
Habitats Regulations and Schedule 2 Species
Natural Environment & Rural Communities Act 2006

WILDLIFE & COUNTRYSIDE ACT 1981 (AS AMENDED)

The Wildlife and Countryside Act 1981 (as amended) (WCA) is the principle legislation in Britain for the protection and conservation of our wildlife and its habitats of national importance. The legislation adopts a habitat and species based approach to nature conservation. Habitats and some species are protected in designated Sites of Special Scientific Interest (SSSI). Other species are afforded some protection from harm or disturbance by way of inclusion in either Section 1 (birds), Schedule 1 (specially protected birds), Schedule 5 (specially protected animals) or Schedule 8 (specially protected plants).

Protection Afforded to SSSIs

The presence of an SSSI on or near to a development is a material consideration, and this is discussed further in planning policy (see National Planning Policy Framework)

Law Relating to Protected Species

The WCA provides protection to such species in Part 1 of the Act. These sections provide protection from intentionally:

- killing, injuring or taking any wild bird or taking, damaging or destroying the nest or eggs of a wild bird
- disturbing any wild bird in Schedule 1 whilst building, on or near a nest, or disturbing dependant young of such birds
- damaging, destroying or obstructing access to any structure or place of shelter or protection of a schedule 5 animal, or disturbs any such animal whilst it is occupying a structure or place it uses for that purpose
- killing, injuring or taking any animal listed in Schedule 5
- Having in possession or control any live or dead wild bird or egg, or any wild animal in Schedule 5, or trading in any animal under Schedule 5.
- Damage to plants listed in Schedule 8 or uprooting of wild plants unless an authorised person.

Exemption and licences for development can be obtained in certain circumstances. Protected species are also a material consideration in planning applications.

Disturbance & Recklessness

The Countryside and Rights of Way Act 2000 (CRoW Act 2000) adds to protected species legislation in the WCA. The lesser test of 'Recklessness' is added to the protection from disturbance in three circumstances. These are:

- disturbance to Schedule 1 birds and their nests, eggs and dependant young,
- disturbance to Schedule 5 animals in their place of shelter/protection, and
- disturbance to the places of shelter/protection of Schedule 5 animals.

This addition means that any person who deliberately takes an unacceptable risk or fails to notice an obvious risk is falls under the Section irrespective of intention. The CRoW Act also provides greater protection to SSSIs from operations (and non operations) of owners, occupiers and third party users of the SSSI.

For further information see: <https://www.legislation.gov.uk/ukpga/1981/69>

HABITAT REGULATIONS 2017

General

The Conservation of Habitats and Species Regulations 2017 ('The Habitat Regulations') consolidate the Conservation of Habitats and Species Regulations 2010 with subsequent amendments. The Regulations transpose Council Directive 92/43/EEC, on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive), into national law. They also transpose elements of the EU Wild Birds Directive in England and Wales. The Regulations provide for the designation and protection of 'European sites', the protection of 'European protected species', and the adaptation of planning and other controls for the protection of European Sites.

European Protected Species

Species listed under Schedule 2 of the Habitats Directive were formally afforded protection by the Habitat Regulations. European protected species include the great crested newt, dormice and all species of bats. The provision relating to wild animal offences is reproduced below:

Protection of certain wild animals: offences

43.—(1) A person who—

- (a) deliberately captures, injures or kills any wild animal of a European protected species,
 - (b) deliberately disturbs wild animals of any such species,
 - (c) deliberately takes or destroys the eggs of such an animal, or
 - (d) damages or destroys a breeding site or resting place of such an animal,
- is guilty of an offence.

(2) For the purposes of paragraph (1)(b), disturbance of animals includes in particular any disturbance which is likely—

- (a) to impair their ability—
- (i) to survive, to breed or reproduce, or to rear or nurture their young; or
- (ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate;
- or
- (b) to affect significantly the local distribution or abundance of the species to which they belong.
- (3) It is an offence for any person—
- (a) to be in possession of, or to control,
- (b) to transport,
- (c) to sell or exchange, or
- (d) to offer for sale or exchange,
- anything to which this paragraph applies.
- (4) Paragraph (3) applies to—
- (a) any live or dead animal or part of an animal—
- (i) which has been taken from the wild, and
- (ii) which is of a species or subspecies listed in Annex IV(a) to the Habitats Directive;
- and
- (b) anything derived from such an animal or any part of such an animal.
- (5) Paragraphs (1) and (3) apply regardless of the stage of the life of the animal in question.
- (6) Unless the contrary is shown, in any proceedings for an offence under paragraph (1) the animal in question is presumed to have been a wild animal.
- (7) In any proceedings for an offence under paragraph (3), where it is alleged that an animal or a part of an animal was taken from the wild, it is presumed, unless the contrary is shown, that that animal or part of an animal was taken from the wild.
- (8) A person guilty of an offence under this regulation is liable on summary conviction to imprisonment for a term not exceeding six months or to a fine, or to both.
- (9) Guidance as to the application of the offences in paragraph (1)(b) or (d) in relation to particular species of animals or particular activities may be published by—
- (a) the appropriate authority; or
- (b) the appropriate nature conservation body, with the approval of the appropriate authority.
- (10) In proceedings for an offence under paragraph (1)(b) or (d), a court must take into account any relevant guidance published under paragraph (9).
- (11) In deciding upon the sentence for a person convicted of an offence under paragraph (1)(d), the court must in particular have regard to whether that person could reasonably have avoided the damage to or destruction of the breeding site or resting place concerned.

Section 44 provides certain defences to the above.

The granting of a licence under Part 5 Section 55 of the Habitat Regulations

In order to carry out a lawful operation (e.g. development work which has full planning permission) that may result in any of the offences above, it is necessary to obtain a licence from Natural England to allow the operation to proceed.

However, in accordance with the requirements of the Habitats Regulations, a licence can only be issued after the following conditions have been satisfied:

- *that there is no satisfactory alternative, and*
- *that the action authorized will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.*
- *that the action is required in preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment;*

Full planning permission is required to apply for a Natural England licence (where such a consent is necessary for the work to be carried out). In addition, a method statement which details the survey results, methodology of work to be undertaken, mitigation and compensation measures, must be submitted to Natural England with the licence application.

Plans and Projects & Designated Sites

The Regulations provide procedure whereby designated SAC or SPA and other European Protected Sites are afforded protection from plans and projects that may be likely to have a significant effect on the Features for which these sites are designated. Where a significant effect is considered likely in combination with other projects an appropriate assessment is required to be undertaken. Details of this procedure can be found at Part 6 of the Act onwards, see link below.

For Full details of the 2017 Habitat Regulations see:

http://www.legislation.gov.uk/ukxi/2017/1012/pdfs/ukxi_20171012_en.pdf

NATURAL ENVIRONMENT AND RURAL COMMUNITIES ACT 2006

This Act places a specific duty to conserve biodiversity on all public bodies, including Local Planning Authorities. In order to aid with this process Section 41 of the Act requires the Secretary of State to publish lists of living organisms and habitats which are of principal importance for the purpose of conserving biodiversity. These are the national Biodiversity Action Plan (BAP) lists, and BAP projects are also undertaken at a County, Borough or District level.

For further information see: <https://www.legislation.gov.uk/ukpga/2006/16/part/3>

Technical Appendix 2

Local Planning Policy

Modified – Arun Local Plan - January 2018 Consultation

Policy 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 17.1-17.6 that are recognised for the species and habitats contained within them.

Policy 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. Exceptions will only be made for those with the highest value 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 DM2**Pagham Harbour**

- a. Within Zone A (0-400m from the boundary) as identified on the Policies Maps, development will only be permitted in exceptional circumstances where the developer is able to demonstrate there will be no detrimental effects on Pagham Harbour, including non-native species and the water environment. Regard shall also be had to tests 1-4 as set out in Policy DM1 (Designated Sites of Biodiversity or Geological Importance).
- b. Within Zone B (0-5km) for all new residential development and development which is likely to have an impact on Pagham Harbour will be required to:
 - i. Make developer contributions towards the agreed strategic approach to access management at Pagham Harbour.
 - ii. create easily accessible new green spaces for recreation within or adjacent to the development site, or to make developer contributions towards the provision of such green spaces to serve the area. These shall be capable of accommodating the predicted increases in demand for local walking, including dog walking. Good pedestrian links shall be provided between housing areas and new and existing green space in order to discourage car use.
- c. ~~Large-scale~~Major developments (as defined in the GDPO 1995 as amended) taking place outside Zone B and close to its boundary will be considered on a case by case basis to determine any potential effects on Pagham Harbour, and the need for any avoidance or mitigation measures.

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 of that species and habitat and impact(s) that development may have on the BOA.

Policy 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.

Policy 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.

ARUN LOCAL PLAN POLICIES

Policies Relevant to Ecology saved from the Local Plan 2011 (Adopted 2003)

POLICY GEN3 Protection of the Countryside

Outside the Built-Up Area, as defined on the Proposals Map, the countryside will be safeguarded for its own sake. Development will not be permitted unless:

- (i) it meets the operational needs of agriculture, forestry, the extraction of minerals or the deposit of waste; or
- (ii) for quiet, informal recreation; or
- (iii) for the diversification of the rural economy; or
- (iv) for essential road schemes; or
- (v) it is in accordance with a policy in Sections 2 and 3 of the plan referring to a specific use or type of development.

Permission will not be given for the extension of isolated groups of buildings or the consolidation of linear or sporadic development unless the proposal accords with criteria (i) to (iii) or (v).

POLICY GEN23 The Water Environment

Development will not be permitted if it would have a direct or indirect unacceptable adverse impact on the water environment, notably in relation to rivers, ponds, wetlands, public access in river corridors and water related recreation.

Where appropriate, the Council will support initiatives which seek to restore or enhance the water environment.

POLICY GEN25 Water Resources

Development will only be permitted where the Local Planning Authority is satisfied that adequate water resources are available or will be provided in time to serve the development, and that provision is not considered detrimental to existing abstractions, river flows, water quality, fisheries, amenity or nature conservation.

POLICY GEN26 Water Quality

Development will only be permitted where the Local Planning Authority is satisfied that it would not lead to a deterioration in the quality or potential yield of surface and ground water resources.

POLICY GEN28 Trees and Woodlands

Development will not be permitted if it would damage or destroy one or more trees protected by a tree preservation order, identified as ancient woodland or in a conservation area unless:

- the removal of one or more trees would be in the interests of good arboricultural practice; or
- the benefits of the proposed development outweigh the amenity value of the protected trees.

Conditions may be used to ensure that, for any trees which are removed as part of a development, an equivalent number are planted on the site.

POLICY GEN29 Nature Conservation Across the District

Development will only be permitted on sites which contain semi-natural habitats, features of nature conservation interest, or within wildlife corridors, where these can be largely retained and sympathetically incorporated into the scheme. Legal agreements may be used to offset the loss of, or impact on, any nature conservation resource present on the site prior to development.

POLICY AREA13 Sites of International Importance for Nature Conservation

Proposals for development in, or likely to affect (directly or indirectly) a site of international importance for nature conservation will be subject to the most rigorous examination. Development not directly connected with or necessary to the management of the site which is likely to have an adverse effect on the site, will not be permitted unless: there is no alternative solution, there are reasons of public health or public safety, or there are benefits of primary importance to the environment.

Where such sites do not host a priority habitat or species, development will not be permitted unless there are imperative reasons of overriding public interest.

Where development is permitted, the use of conditions or planning obligations will be considered in order to avoid and minimise harm to the site, to enhance the site's nature conservation interest, and to secure any compensatory or mitigation measures and appropriate management that may be required.

POLICY AREA14 Sites of National Importance for Nature Conservation

Proposals for development in, or likely to affect (directly or indirectly) Sites of Special Scientific Interest will be subject to special scrutiny. Where such development is likely to have an adverse effect, it will not be permitted unless the reasons for the development clearly outweigh the nature conservation value of the site itself and the national policy to safeguard the national network of such sites.

Where the site concerned is a National Nature Reserve, a site identified by the Nature Conservation Review or Geological Conservation Review, particular regard will be paid to the national importance of that site.

Where development is permitted, harm to the nature conservation interest must be minimised. The use of conditions or planning agreements will be considered to ensure the protection and enhancement of the nature conservation interest, and to provide appropriate compensatory or mitigation measures and site management.

POLICY AREA15 Sites of Local Importance for Nature Conservation

Proposals for development in, or likely to have an adverse effect (directly or indirectly) on a Local Nature Reserve, Site of Nature Conservation Importance (including ancient woodlands or wildlife corridors) or Regionally Important Geological/Geomorphological Site will not be permitted unless it can be demonstrated that reasons for the proposal outweigh the need to safeguard the nature conservation value of the site/feature. Where development is permitted which would damage the nature conservation value of the site/feature, such damage should be kept to a minimum.

Conditions or planning obligations will be used to secure necessary compensatory or mitigation measures, enhancement and site management.

Where appropriate, the Authority will consider the use of legal agreements to provide appropriate compensatory measures, enhancement and site management.

Retained Ecology Policies of the West Sussex Structure Plan 2001-2016

Nature conservation

Policy ERA2

(a) Development should not be permitted unless the wide range of habitats, species and geological features of the County will be protected, conserved and, where possible, enhanced particularly through long-term management mechanisms and habitat creation schemes. A particularly high level of protection should be afforded to sites and features of national and international importance. Proposals for the extension or creation of new habitats should be permitted provided that they are consistent with wider environmental objectives.

(b) Local plans will include policies to:

(1) ensure that site evaluation is undertaken to establish the nature conservation importance of proposed development sites;

(2) protect sites or features of nature conservation importance, including those protected under legislation and prevent development unless there are no alternative solutions and there are overriding reasons which outweigh the need to safeguard the value of sites or features;

- (3) ensure that where development would result in the loss of an important nature conservation resource, a new resource is provided which is of at least equivalent value, where possible;
- (4) where appropriate, secure the restoration, creation and management of habitats through development proposals; and
- (5) where necessary, ensure the investigation and recording of sites and features of nature conservation importance, and, where appropriate, the preservation of any finds.

Pagham Neighbourhood Plan 2014-2029 Submission Plan (2015)

Published by Pagham Parish Council for Consultation under the Neighbourhood Planning (General) Regulations 2012

Policy 2: Housing Site Allocations

The Neighbourhood Plan allocates the following sites for low density housing development, as shown on the Proposals Map, subject to the development principles outlined:

- i. up to 90 dwellings on Land off Summer Lane, comprising a mix of 2,3 and 4 bed bungalows and houses, to be delivered in the period 2014 – 2019, provided the scheme:*
 - a. makes provision for contributions towards the agreed Strategic Approach to Access Management at Pagham Harbour to mitigate recreational disturbance to the features of the Pagham Harbour SPA.*
 - b. makes an appropriate financial contribution to Pagham's Accessible Natural Open Green Space (ANOGS) shown on Inset Map 2 as the hashed area south of Summer Lane and provides open space or green infrastructure with recognised qualities within the development area that links to the ANOGS.*
 - c. demonstrates that locally valued and important habitats, including wildlife corridors and stepping stones will be retained and sympathetically incorporated into that part of the ANOGS or other public open space scheme that lies within a Biodiversity Opportunity Area (as defined on the Arun Local Plan Proposals Map) and that any disturbance to habitats of the adjoining development scheme will be minimised;*
 - d. layout allows for road, footpath and cycle connectivity to the adjoining Land south of Inglenook Hotel site to the satisfaction of the local highway authority;*
 - e. implements improvements to Summer Lane and to its junction with Pagham Road to the satisfaction of the local highway authority.*

Technical Appendix 3

Ecological Appraisal Method

Introduction

The methodology for this appraisal is based on the Guidelines for Ecological Impact Assessment (EcIA) in the United Kingdom published by the Chartered Institute of Ecology and Environmental Management (IEEM June 2006, CIEEM 2016). Regardless of whether a statutory Environmental Impact Assessment is required, these guidelines provide a robust framework for ecological assessment at any scale.

Desk Study

The first stage of the appraisal is a desk study of the proposed development site and associated Zone of Influence. This provides background information on the site and local environment so as to more effectively target field survey and further desk research.

The Multi Agency Geographical Information for the Countryside (MAGIC) database is searched for information regarding nationally or internationally designated sites within proximity of the development site.

The National Biodiversity Network (NBN) data base is searched to provide background information on local protected species records. The NBN provides access to a substantial volume of biodiversity data for the UK. Although rarely site specific, it does provide valuable background information on the local occurrence of protected species.

Where appropriate, the local environmental/biological records centre is consulted to provide information regarding locally identified sites and records of protected and/or notable species within the zone of influence of the proposed development.

Site Survey Methodology

The aims of the survey are to record land-use and broad vegetation types present on the site and in the surrounding areas, and to evaluate the habitats and vegetation communities ecological value along with the potential to support protected species, species of principal importance, and any other notable species.

Where relevant, habitat immediately adjacent to the site is also assessed as this can have a bearing on the possible presence of protected species on the site and the ecology of adjacent areas can be affected by development nearby.

Habitats and Vegetation

Habitats and vegetation communities are recorded on a broad scale by visually noting contrasting land uses, vegetation zones and landscape features, such as hedgerows and trees. Dominant plant species are recorded in each of the areas identified, as are any notable plant species, such as protected species and habitats or notifiable weeds.

Protected Species

Many plant and animal species are legally protected in the UK. Some, such as bats, badger, water vole and great crested-newt are commonly encountered on development sites.

Case law has established (Regina vs. The Cornwall County Council ex parte Hardy 2001) that “It is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before the planning permission is granted.

For the most regularly encountered protected species, a brief summary of methods follows:

Bats

Bats use buildings and trees for roosting and breeding, and so the potential for any of these features on site to support bats was considered, as was the sites potential for providing bat foraging habitat. An Appraisal survey will consider potential features that could support a Bat roost, and this may include external inspections of the trees and buildings on site. The Appraisal survey will also consider bat habitats in relation to foraging and commuting potential, with semi-natural vegetation features considered and evaluated.

Where an inspection is undertaken this will look for the presence of bats as well as signs of their presence such as Bat droppings, e.g. within cavities and buildings; Staining at potential roost access points; Lack of bat evidence cannot be taken to mean the lack of use by bats because of a number of potential limitations:

- Signs of bats can be easily washed off by wind or rain;
- Droppings are hard to see where rubble and other floor debris may obscure them;
- Low numbers of droppings can easily be missed especially where they may become damp and deteriorate;
- Evidence of bats may not be apparent where bats roost out of view, such as in tree cavities etc.

Badgers

An initial inspection is undertaken during the Appraisal survey for evidence of the presence of Badgers *Meles meles*, in particular Badger setts, on or near to the site. The Appraisal will search for presence of Badger foraging activity and territorial behaviour. Such signs include foraging trails, foraging scrapes in short grass, which are commonly known as 'snuffle holes' (shallow scrapes in soft ground or even turf rolling created by foraging for ground-dwelling invertebrates such as worms and grubs), footprints, hairs caught under fences, sett entrances, and latrine sites.

Dormice

The Appraisal survey will consider the potential for presence of Dormouse on or near the site, principally through habitat suitability, combined with data on occurrence within the area from the data search. Where suitable habitat occurs, further survey for feeding signs on hazel nuts where Hazel occurs, and searches for arboreal nests. If it a site is considered suitable, further Phase 2 survey work may be required.

Other Mammals

Consideration is also given in an Appraisal survey to the potential for habitats to support other legally protected mammals, and those of nature conservation significance. Where waterbodies and watercourses occur on or near to the site, the potential presence of species including Water Vole *Arvicola amphibious* and Otter *Lutra lutra* are considered. Depending upon the geographic location consideration is also given to species such as Red Squirrel.

Breeding Birds

Any notable bird species seen during the Appraisal survey are recorded. The type and quality of breeding, foraging and roosting habitats available for birds is also considered and interpreted with particular reference to protected or notable bird species, and birds of conservation concern.

Consideration is given to any features which could support nesting birds, including buildings and other structures, and areas of vegetation that may be affected by a development.

Reptiles

Any areas of habitat considered suitable for supporting reptiles are noted (for example, areas of rough grassland and scrub, banks, burrows, and rubble piles, compost heaps). If a site is considered suitable, further Phase 2 survey is usually required if an impact from the development or project is considered likely.

Great Crested Newt

An Appraisal Survey considers habitat suitability, through the occurrence of suitable ponds and/or terrestrial habitat, and this will be combined with knowledge on their distribution from biological records for the area. If a site is considered suitable, further Phase 2 survey is usually required if an impact from the development or project is considered likely.

Invertebrates

A very small proportion of invertebrates are afforded legal protection under the Wildlife and Countryside Act 1981 (as amended), although a relatively high number of invertebrates are included within the UK and local BAPs, and many more species are identified as being Nationally Scarce. Most invertebrates require specialist knowledge in order to identify them, although some groups, including butterflies and dragonflies, can be readily identified by generalists. Therefore, apart from recording any species of these readily identifiable groups, an Appraisal Survey concentrates on recording the presence of any key habitats of nature conservation importance considered suitable for supporting more scarce and restricted invertebrates, for example bare ground, dead wood and botanically rich habitats.

Survey Constraints and Limitations

An Appraisal survey is carried out during a brief window of time. Therefore the survey can only provide a snapshot of the range of plants and animals that might be present. However, professional judgement is used to interpret the habitat features recorded, and their likely value for supporting protected and notable species, including species of principal importance. Survey was restricted through land access as it is unusual to have a landowner owning land surrounding that which is being surveyed.

Assessment Guidelines

Introduction

The IEEM guidelines (2006) and updated in 2016 (CIEEM, 2016) provide three principal reasons for an ecological feature being valued and therefore included: biodiversity value, social/community value, and economic value.

The evaluation and assessment undertaken assigns one of a number of value labels based on a geographic scale as follows:

- International
- National
- Regional
- County
- District
- Local (Parish)
- Within the zone of influence

Value is determined with reference to the following factors:

- level of designation (sites) or biodiversity-based protection (legal and policy);
- biodiversity value (e.g. inclusion in Biodiversity Action Plans, rarity, position in ecosystem, assemblages and communities, size and diversity);
- social and economic value;
- legal issues (eg protected sites).

All impacts of the scheme on features of local importance or greater are assessed in the impact assessment stage

Assessment of Likely Impacts

The ecological impact assessment methodology used is based on the following considerations.

Characterisation of Likely Impacts

The potential impacts identified as a result of the proposals are characterised according to the following parameters:

- Positive or negative
- Magnitude (and extent if not synonymous)
- Duration
- Reversibility
- Timing and frequency

Significance of Impact

A significant impact on a valued ecological feature (whether negative or positive) is defined in CIEEM's guidelines as an impact on the integrity of a defined site or ecosystem, and/or the

conservation status of habitats or species within a given geographical area. These terms are defined below.

Integrity

Integrity is defined as follows. ‘*The integrity of a site is the coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified.*’ A site or ecosystem that achieves this is considered to be at favourable conservation status.

Conservation Status

For habitats, conservation status is determined by the sum of the influences acting on the habitat and its typical species, which may affect its long-term distribution, structure and functions as well as the long-term survival of its typical species within a given geographical area.

For species, conservation status is determined by the sum of the influences acting on the species, which may affect the long-term distribution and abundance of its populations within a given geographical area.

Impact Prediction

For guidance as to whether an impact is likely to result in an adverse effect on the integrity or conservation status of a feature, reference has been made to the conservation objectives for that feature where they are available, for example in habitat and species action plans. Otherwise professional judgement has been made based on available information.

The confidence in the prediction that an activity will give rise to a significant adverse impact on a valued ecological feature is given based on a four point scale:

- Certain (or near-certain);
- Probable;
- Unlikely; and
- Extremely unlikely

Drawing Assessment Together

The above factors – value, integrity and conservations status of the feature, prediction and characterisation of the impact and overall significance of the impact is brought together in the final assessment. This is done without additional mitigation measures that may be proposed. An impact is then summarised as significant or not.

Mitigation, Compensation and Enhancement

Where impacts are characterised as significant mitigation or compensation may be offered to prevent, reduce or offset such impacts. In addition enhancement measures may be built into a scheme to ensure that the scheme is compliant with the proactive measures outlined in the latest Government policy on nature conservation (National Planning Policy Framework).