



Shoreham Airport, Shoreham, West Sussex

Preliminary Ecological Appraisal

Report for Sheils Flynn

on behalf of Adur District Council

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Executive Summary

The Ecology Consultancy was commissioned by Sheils Flynn on behalf of Adur District Council to carry out a Preliminary Ecological Appraisal (PEA) of the eastern extent of Shoreham Airport in West Sussex. This assessment is part of the landscape and ecological survey of potential strategic allocations within Adur District being carried out by Sheils Flynn for the Council's emerging Local Plan.

A PEA, including protected species risk assessment, was carried out on the 31st July 2012 and the main findings are as follows:

- This potential strategic allocation site forms part of Shoreham Airport and is situated along its eastern edge. It is dominated by improved grassland that is regularly mown as part of the runway maintenance.
- The site is not subject to any statutory or non-statutory nature conservation designations. The nearest non-statutory designated nature conservation site is Widerwater Lagoon Local Nature Reserve and Site of Nature Conservation Importance located 0.85km to the south. The nearest statutory designated site for nature conservation is Adur Estuary Site of Special Scientific Interest (SSSI) located 27m to the east.
- Adur Estuary SSSI is designated for its estuarine plant communities and intertidal mudflats that support nationally significant populations of wading birds. As a statutory site it receives legal protection under the Wildlife and Countryside Act 1981 (as amended) and any direct or indirect impact, as a result of development, should therefore be avoided.
- The proximity of development to the SSSI is also likely to trigger the requirement for an Environmental Impact Assessment and a screening opinion should be sought from the Local Planning Authority.
- Overall, and on the basis of the PEA the site is considered to be of ecological value within a local context, due to the presence of an extensive area (10ha) of improved grassland with edge habitats of value to widespread species of reptile and foraging bird species.
- It is considered likely that the site also performs a buffering and supporting role to Adur Estuary SSSI by extending the foraging and roosting habitat for wading/over-wintering bird species associated with the SSSI. Any assemblage or population of wading birds using site is likely to be of at least district value, but this can only be accurately

determined through further survey. Further survey will also help to determine the level of importance this supporting role has in terms of maintaining the integrity of the SSSI.

- The following UK Biodiversity Action Plan (BAP) species are present or have potential to be present within the site:
 - Reptiles, including slow-worm and common lizard;
 - Birds such as house sparrow, starling, dunnock and lapwing;
 - Small mammals such as hedgehog; and
 - Foraging bats, such as soprano, noctule bat and brown long eared.
- BAP habitats/species are not necessarily rare but under NPPF (2012) and the Natural Environment and Rural Communities (NERC) Act 2006 are all of principal importance for the conservation of biodiversity and are of material consideration in the planning process. None of the BAP habitats or populations of BAP species currently known to be present on-site are considered as notable or exceptional examples of their type.
- Further surveys are recommended for wintering birds. Detail on this further survey, along with mitigation measures to minimise any adverse impacts on reptiles and water courses and through the use of artificial lighting are presented in Section 5 of this report.
- The potential development of the site presents opportunities to improve it for wildlife; ecological considerations should be an integral part of masterplanning. Proposals for compensation and enhancement measures are provided in Section 5 of this report. These include, amongst other things, the use of landscape planting of recognised wildlife value, hedgerow planting, Sustainable Drainage Systems including ponds and biodiverse green roofs, and artificial nesting/roosting opportunities for birds and bats.

1 Introduction

BACKGROUND

- 1.1 The Ecology Consultancy was commissioned by Sheils Flynn on behalf of Adur District Council (ADC) to prepare a Preliminary Ecological Appraisal (PEA) of Shoreham Airport in West Sussex. This report forms part of the landscape and ecological survey of potential strategic allocations within Adur District being carried out by Sheils Flynn for the Council's emerging Local Plan.
- 1.2 The draft version of the Local Plan proposes two alternative housing targets, a number of different spatial options for new greenfield housing, identifies key employment sites, and a 'broad location' for mixed use development at Shoreham Harbour. There are a number of place based policies and development management policies. Consultation on the Local Plan will be undertaken 2012-2013 with adoption in 2014.
- 1.3 The six sites being considered for potential strategic allocations are as follows:
- Shoreham Airport
 - Sompting North
 - Sompting Fringe
 - New Monk's Farm
 - Land North-west of Hasler Estate
 - Land North-east of Hasler Estate
- 1.4 All six sites are located within 'Strategic Gaps'¹ and have been assessed in regards to potential development impacts on landscape features, landscape character and ecological value. A stand-alone PEA for each of these sites has been produced by The Ecology Consultancy, with Landscape Assessments for each site produced by Sheils Flynn.

¹ Strategic Gaps are identified by Local Planning Authorities (LPAs) in their development documents as strategic areas of green field land which define and maintain the separate identity of a Borough/District's settlements. Both Sompting and Lancing Strategic Gaps are protected under the Strategic Gap policy (AC4) of Adur's adopted Local Plan (2006). They have been referred to as Local Green Gaps in the emerging Local Plan. Due to the scale of government development targets it is highly likely that these areas will need to be redefined. This presents an opportunity to create new urban edges where masterplanning encourages a well designed built form and the provision of green infrastructure such as wildlife habitats, buffer zones and improved access to natural green space.

- 1.5 The ecology and landscape assessments have been combined to produce the *Landscape and Ecological Surveys of Key Sites within the Adur District Report* (Sheils Flynn, 2012), which should be read in conjunction with this PEA. This combined report uses the findings of both assessments to put forward indicative development principles for each of the potential allocations sites, including ecological opportunity and constraints mapping.

SCOPE OF REPORT

- 1.6 This report is based on a desk-top study and field survey using standard Phase 1 survey methodology (JNCC, 2010). This approach is designed to identify the broad habitat types present, to assess the potential of habitats to support protected species and to assist in providing an overview of the ecological interest at a site. It is generally the most widely used and professionally recognised method for initial ecological site appraisal.

SITE CONTEXT AND STATUS

- 1.7 This potential strategic allocation site forms part of Shoreham Airport and is situated along its eastern edge. It is dominated by improved grassland that is regularly mown as part of the runway maintenance. Fence lines running parallel with Almond Avenue and Cecil Pashley Way mark the north and east boundary respectively. The southern boundary is contiguous with hardstanding in front of light industrial buildings within the airport. The west boundary is continuous with the main area of grassland within the airport.
- 1.8 Shoreham airport is located within the parcel of land between the main south coast railway line, Old Shoreham Road (A27), the River Adur, and New Monks Farm. The National Grid Reference for the centre of the site is TQ 205 056 and includes an area of 10.5ha.
- 1.9 The site is located 27m to the west of Adur Estuary Site of Special Scientific Interest (SSSI) which is a statutorily designated nature conservation site including a Royal Society for the Protection of Birds (RSPB) reserve. The summary citation for this designated site is below:

Table 1: Adur Estuary SSSI

Citation Summary
<p>The Adur Estuary, together with Rye Harbour further to the east, represent the only significant areas of salt marsh between Chichester and Pagham Harbours (West Sussex) and Sandwich Bay (Kent). The estuarine plant communities are unusual due to the relative scarcity of cord-grass <i>Spartina</i> spp. The large area of intertidal mudflats are important for a variety of wading birds.</p> <p>Salt marsh plants fringe most of the estuary and in places have colonised large areas of mudflats. Sea purslane <i>Halimione portaculoides</i> dominates most of the areas above mean high water mark and annual seablite <i>Suaeda maritima</i> is also frequent in these areas. Towards the mean low water mark, glasswort <i>Salicornia</i> sp. is dominant and sea aster <i>Aster tripolium</i> abundant. Other species are scattered throughout the salt marsh community, including common sea lavender <i>Limonium vulgare</i>, thrift <i>Armeria maritima</i>, sea plantain <i>Plantago maritima</i> and sea poa grass <i>Puccinella maritima</i>. Cord grass <i>Spartina</i> spp. is noticeably absent from most of the estuary, but a small stand is present south-east of Old Shoreham Bridge. At the landward margin of the salt marsh a variety of herbs and shrubs are frequent, including mugwort <i>Artemisia vulgaris</i>, orache <i>Atriplex</i> spp., teasel <i>Dipsacus fullonum</i>, yarrow <i>Achillea millefolium</i> and elm <i>Ulmus procera</i>.</p> <p>The intertidal mudflats support a number of wading birds, particularly redshank, dunlin and ringed plover <i>Charadrius hiaticula</i>. The number of ringed plover regularly exceed 1% of the total British population, making the estuary of national importance for this species. A variety of species breed within the reed bed adjacent to the estuary north of the A27, including moorhen, reed warbler and sedge warbler. The estuary embankment near the car park supports a large colony of common lizard <i>Zootoca vivipara</i>.</p>

Biodiversity Opportunity Areas

- 1.10 The distribution of BAP habitats present across the South-East has been used to identify Biodiversity Opportunity Areas (The South East Biodiversity Forum, 2009). BOAs represent a targeted landscape-scale approach to biodiversity conservation in the county, form the basis for an ecological network and opportunity for restoration and creation of BAP habitats². There are 75 BOAs across Sussex and 6 within Adur District.
- 1.11 The site does not fall within a BOA, but is adjacent to Shoreham Estuary and Beach BOA. The BOA covers approximately 136ha and is dominated by salt marsh, grazing marsh and mudflats and their associated brackish communities. Included within the BOA are Shoreham Beach Site of Nature Conservation Importance (SNCI) and Local Nature reserve (LNR) that has some of the best vegetated shingle in the county

² BOAs do not include opportunities for all BAP habitats present in the region or identify all areas where these could be applied. Work is still needed to develop opportunity areas in urban and marine environments in particular.

despite high visitor pressure, and a saline lagoon and estuary (SSSI and RSPB Reserve) important for wading birds. Shoreham Airport dominates the western side of this site and the area is bounded by the A27 to the north and the urban areas of Shoreham to the east and Lancing on the west.

- 1.12 Opportunities identified for the BOA that are potentially relevant to the site include access improvements and creation of reedbed.

DESCRIPTION OF THE PROPOSALS

- 1.13 The emerging Adur Local Plan is likely to include Shoreham Airport as a strategic allocation providing up to 30,000m² of new aviation and non-aviation related employment floor space on the east side of the airport. New development at the airport and New Monks Farm will require significant new road infrastructure within the Strategic Gap.

2 Methodology

DESK TOP STUDY

- 2.1 Information regarding protected and notable species, habitat and areas within a 2km radius of the site was supplied by the Sussex Biodiversity Record Centre (SxBRC). In addition, a search was completed using an on-line mapping service for statutory designated sites and landscape features (MAGIC, 2012).

HABITAT SURVEY

- 2.2 The habitat survey following standard Phase 1 survey methodology (JNCC, 2010) was carried out on 31st July 2012 and covered all accessible parts of the site, including boundary features. Habitats were described and mapped. A list of plant species was compiled (Appendix 3), together with an estimate of abundance made according to the DAFOR³ scale. A Habitat Plan of the site is included in Appendix 1 together with photographs in Appendix 2. Incidental records of birds and other fauna noted during the course of the habitat survey were also compiled.
- 2.3 In this report of these surveys, scientific names are given after the first mention of a species, thereafter, common names only are used. Nomenclature follows Stace (2010) for vascular plant species.

PROTECTED SPECIES ASSESSMENT

- 2.4 The potential of the site to provide habitat for protected species was assessed from field observations carried out at the same time as the habitat survey and the results of the desk top study. The site was inspected for evidence of the presence of protected species as follows:
- The presence of nesting habitat for breeding birds, such as mature trees, dense scrub, hedgerows and buildings and/or field margins suitable for ground nesting

³ The DAFOR scale has been used to measure the frequency and cover of the different plant species as follows: Dominant (D) - >75% cover Abundant (A) – 51-75% cover Frequent (F) – 26-50% cover Occasional (O) – 11-25% cover Rare (R) – 1-10% cover. Locally Frequent (LF) is used where the frequency and distribution is irregular.

birds; and evidence of bird nesting including bird song, old nests, faecal marks etc;

- Scrub/grassland mosaic and potential hibernation sites for widespread species of reptile;
- Cover and topography suitable for badger sett construction, as well as evidence of badger including runs, push-throughs, setts, hair and latrines.
- Assessment of any on-site water bodies as to their potential to support breeding amphibians specifically great crested newts *Triturus cristatus*, and suitable terrestrial habitats including rough grassland, scrub, hedgerows, woodland and refuges (logs and rubble piles).

2.5 The likelihood of occurrence is ranked as follows and relies on the findings of the current survey and an evaluation of existing data.

- **Negligible** – while presence cannot be absolutely discounted, the site includes very limited or poor quality habitat for a particular species or species group. No local records from a data search, surrounding habitat considered unlikely to support wider populations of a species/species group. The site may also be outside or peripheral to known national range for a species.
- **Low** – on-site habitat of poor to moderate quality for a given species/species group. Few or no records from data search, but presence cannot be discounted on the basis of national distribution, nature of surrounding habitats, habitat fragmentation, recent on-site disturbance etc.
- **Medium** – on-site habitat of moderate quality, providing all of the known key requirements of given species/species group. Local records from the data search, within national distribution, suitable surrounding habitat. Factors limiting the likelihood of occurrence may include small habitat area, habitat severance, and disturbance.
- **High** – on-site habitat of high quality for given a species/species group. Local records provided by desk-top study. The site is within/peripheral to a national or regional stronghold. Good quality surrounding habitat and good connectivity.
- **Present** – presence confirmed from the current survey or by recent, confirmed records.

2.6 The purpose of this assessment is to identify whether more comprehensive Phase 2 surveys for protected species or mitigation should be recommended (see Section 5).

2.7 The potential presence of invasive species including those listed in Section 14 and Part 2 of Schedule 9 of the Wildlife and Countryside Act (1981) has also been considered.

SITE EVALUATION

2.8 The site has also been evaluated following guidance issued by the Institute of Ecology and Environmental Management (2006) which evaluates sites according to a geographic scale (significance at the international level down to the local level) and uses a range of criteria for assigning ecological value, as follows:

- Presence of sites or features designated for their nature conservation interest. Examples include internationally or nationally designated sites such as Special Areas of Conservation (SACs) and SSSIs, locally designated sites such as Local Nature Reserves (LNRs) and Sites of Nature Conservation Interest (SNCl)s);
- Biodiversity value, for example, habitats or species which are rare or uncommon, species rich assemblages, species which are endemic or on the edge of their range, large populations or concentrations of uncommon or threatened species, and/or plant communities that are typical of valued natural/semi-natural vegetation types;
- Secondary and supporting value, for example, habitats or features which provide a green infrastructure role such as buffering to valued features or links between otherwise isolated features;
- Social value in regard to the extent to which a site and its wildlife provide a resource that people use or enjoy;
- Economic value for example those relating to impacts on ecological features and resources that are financially viable such as paying for visits to bird hides or a shell fishery in an estuary;
- Presence of legally protected sites or species; and
- Presence of UKBAP, and/or Sussex BAP habitats and species.

GREEN INFRASTRUCTURE APPRAISAL

2.9 A Green Infrastructure (GI) appraisal was carried out, by reviewing the following features, present either on-site or in the adjacent landscape:

- Core Areas that are defined as zones within the site with either high quality habitat, a diversity of habitats, potential to support a diversity of species groups and/or protected species;
- Water bodies and the local hydrological catchment;

- Existing green and blue corridors including hedgerows, lines of scattered trees/scrub, woodland belts, road verges, running water and associated riparian habitat etc., and;
- Public Rights of Way (PROW) including footpaths, cycle routes and bridleways.

2.10 This information has been used to produce Opportunities and Constraints Maps in the *Landscape and Ecological Surveys of Key Sites within the Adur District* report (see Section 5). These maps show priorities for the conservation and enhancement of on-site ecological features and wider ecological networks and assist in forming indicative GI and development principles for the site.

LIMITATIONS

2.11 It should be noted that whilst every effort has been made to provide a comprehensive description of the site, no investigation can ensure the complete characterisation and prediction of the natural environment.

Data Search

2.12 It is important to note that, even where data is held, a lack of records for a defined geographical area does not necessarily mean that there is a lack of ecological interest the area may simply be under-recorded.

2.13 Where only six figure grid references are provided for protected species by recorders submitting data to SxBRC, their precise location can be difficult to determine and they could potentially be present anywhere within the given 1km x 1km square.

2.14 Locations for badger, otter and breeding Schedule 1 bird species were not provided by SxBRC due to the sensitivity of these records.

Habitat Survey

2.15 The Phase 1 habitat survey does not constitute a full botanical survey, or a Phase 2 pre-construction survey that would include accurate GIS mapping for invasive or protected plant species.

Protected Species Assessment

2.16 The protected species assessment provides a preliminary view of the likelihood of protected species occurring on the site. This is based on the suitability of the habitat, known distribution of the species in the local area provided in response to our

enquiries and any direct evidence on the site. It should not be taken as providing a full and definitive survey of any protected species group. It is only valid at the time the survey was carried out. Additional surveys may be recommended if on the basis of the preliminary assessment or during subsequent surveys it is considered reasonably likely that protected species may be present.

3 Results

DESK STUDY

3.1 The following information regarding the present and historical ecological interest of Shoreham Airport, covering a 2km radius search area, was supplied by Sussex Biodiversity Records Centre (SxBRC) and on-line mapping services.

Designated Nature Conservation Sites

3.2 The site does not receive any statutory⁴ or non-statutory⁵ nature conservation designations. The nearest statutory designated site is Adur Estuary SSSI, located 27m to the east of the site (see citation summary Table 1). In total there are seven non-statutory designated sites within a 2km radius of the site (see Table 2 below). The nearest SNCI is Widerwater Lagoon SNCI and LNR located 0.85km to the south.

Table 2: SNCIs within a 2km radius of the site

Site Name	Reason for designation	Area (ha)	Distance from Site (km)
Widerwater Lagoon (also LNR)	A classic example of an isolated spit lagoon, lying between South Lancing and the well vegetated, broad shingle bank of Lancing Beach. It has no direct connection with the sea, but is apparently tidal. Areas of salt marsh and vegetated shingle (which are rare habitats in West Sussex) occur along its southern edge with species such as glasswort, rock samphire and sea couch. 16th Century maps depict the area as salt marsh.	8.2	0.85
Shoreham Beach (also LNR)	Includes all of the landward side of Shoreham Beach, from Widerwater Lagoon in the west to the old fort by the entrance to Shoreham Harbour. Its main interest is its highly specialised shingle flora. Largely due to habitat destruction, this community is very rare in West Sussex. The plant starry clover <i>Trifolium stellatum</i> is of particular note.	11.2	0.9

⁴ Principally sites receiving protection under the Wildlife and Countryside Act, 1981 (as amended) and including Local Nature Reserves (LNR), Sites of Special Scientific Interest (SSSI), Special Areas of Conservation (SAC), Special Protected Areas (SPA), amongst others.

⁵ They typically comprise a series of sites designated a county level that are recognised to be of local conservation importance and are often included in Local Planning Authority (LPA) development plans. In other areas of the country they are sometimes called SINC (Sites of Importance for Nature Conservation), CWSs (County Wildlife Sites) or SBIs (Sites of Biological Importance). All are described generally as Local Wildlife sites by the UK Government.

Table 2: SNCIs within a 2km radius of the site

Site Name	Reason for designation	Area (ha)	Distance from Site (km)
Lancing Ring (also LNR)	This site encompasses a range of habitats including unmanaged rank grassland, horse-grazed pasture, disused chalk pit, scrub and developing ash <i>Fraxinus excelsior</i> woodland. Although most of the grassland has become heavily scrub invaded it supports an interesting herbaceous flora. Lancing Ring is also important for insects, notably butterflies.	24.3	1.6
River Adur Meadows	The site consists of two relatively herb-rich meadows, located on the eastern bank of the River Adur. The meadows are crossed by ditches, which contain an interesting variety of species including common reed <i>Phragmites australis</i> and spike-rush <i>Eleocharis</i> sp.	13.9	0.78
Mill Hill (also LNR)	A fine example of unimproved herb-rich downland on a steep west-facing slope. The site consists of a mosaic of open grassland, scattered scrub and dense scrub. In addition to an interesting herb and moss flora, the site is of high butterfly importance. Following extensive scrub removal and fencing, sheep-grazing was re-introduced to part of the hill in 1991.	35	0.61
Applesham Farm Bank	A curved, north-east facing slope with partial terraces in places on the upper slopes. The bank supports areas of excellent unimproved chalk grassland with a typically species-rich sward. The quality of the sward varies somewhat across the slope and the central section is the most herb-rich with locally frequent horseshoe vetch <i>Hippocrepis comosa</i> , kidney vetch <i>Anthyllis vulneraria</i> , greater knapweed <i>Centaurea scabiosa</i> and round-headed rampion <i>Phyteuma orbiculare</i> . Cowslip <i>Primula veris</i> is abundant on parts of the slope.	21.1	1.8
Old Erringham Farm Valley and Road Cutting	The site includes a shallow valley, running east to west, which has rich grassland on its sides, an area of storm-damaged woodland on a steep slope, and a road cutting, which supports an extremely diverse chalk grassland community. There are also three derelict ponds and a disused quarry within the boundary.	14.8	1.6

Landscape and Habitat Designations/Classifications

National Parks

- 3.3 The South Downs National Park is located 320m north-west of the site on the opposite side of the Old Shoreham Road (A27).

Ancient Woodland

- 3.4 The landscape surrounding the site is very open in character and there are no areas of Ancient Semi-Natural Woodland (ASNW) within a 2km radius. The nearest ASNW is Munnery's Copse ASNW located approximately 9km to the north-west of the site.

Water bodies

- 3.5 There are no on-site areas of running or standing water. The nearest standing water marked on a 1:50,000 OS map is a large pond at College Farm located approximately 0.66km north-west of the site on the opposite side of the Old Shoreham Road (A27).
- 3.6 The River Adur (mean high water mark) is located approximately 40m to the east of the site. A drainage ditch is present on the east side of Cecil Pashley Way, running parallel to the site's east boundary. One sluice is present between the drainage ditch and the River Adur. The drainage ditch flows south and under the main south coast railway line, converging with other ditches and streams before connecting with the Adur Estuary SSSI, north of the Brighton Road (A259).
- 3.7 A larger network of drainage ditches is present between 0.4-0.6km west of Shoreham Airport at New Monk's Farm. These also flow south and under the main south coast railway line before converging into one stream at The Fairway (East Lancing) that becomes subterranean before outfall into the channel.

Records of Protected and BAP Species

- 3.8 SxBRC have supplied records from within a 2km radius for protected and rare species, those covered by the UK BAP (that are also Species of Principal Importance for Biodiversity under the NERC⁶ Act (2006), invasive species and otherwise notable species such as Birds of Conservation Concern⁷ (BoCC).

⁶ Section 41 (S41) of the NERC Act (2006) includes a published list of habitats and species which are of principal importance for the conservation of biodiversity in England. It is used to guide decision-makers such as LPAs in implementing their duty under section 40 of the NERC Act (2006), to have regard to the conservation of biodiversity in England, when carrying out their normal functions. Further details of the NERC Act can be found at: www.opsi.gov.uk/acts/acts2006/ukpga_20060016_en_1 (see Chapters 16 and 17).

⁷ Birds of Conservation Concern status is prioritised into high concern (Red), medium concern (Amber) and low concern (Green) (Eaton et al, 2009). Red-list species are those that are globally threatened according to the IUCN criteria; those whose population or range has declined rapidly in recent years; and those that have declined historically and have not shown a substantial recent recovery. Amber-list species are those with an unfavourable conservation status in Europe; those whose population or range has declined moderately in recent years; those whose population has declined historically but made a substantial recent recovery; rare breeders; and those with internationally important or localised populations. Green-list species are those that fulfill none of the criteria.

Plants

- 3.9 The data search returned records of 37 plant species, the majority being either associated with habitats not present at the site and/or are not nationally rare or scarce plants. Instead they are uncommon/rare in the county and included on the Sussex Rare Species Inventory Species.

Invertebrates

- 3.10 More than 700 invertebrate species records were returned, most being species of butterfly and moth. A large percentage of these are species associated with habitats not present within the site and/or are not nationally rare or scarce. Instead they are uncommon/rare at a county level and included on the Sussex Rare Species Inventory Species.

Birds

- 3.11 There were a large number of bird records returned for the search area. Species recorded on-site, over-head or in adjacent areas at Shoreham Airport and the Adur estuary included; bar-tailed godwit *Limosa lapponica*, corn bunting *Emberiza calandra*, fieldfare *Turdus pilaris*, black-tailed godwit *Limosa limosa*, lapwing *Vanellus vanellus*, ruff *Philomachus pugnax*, whimbrel *Numenius phaeopus*, brent goose *Branta bernicla*, kingfisher *Alcedo atthis*, golden plover *Pluvialis apricaria*, curlew *Numenius arquata*, grey heron *Ardea cinerea*, tree sparrow *Passer montanus*, hobby *Falco subbuteo*, little egret *Egretta garzetta*, Cetti's warbler *Cettia cetti*, Mediterranean gull *Larus melanocephalus*, reed bunting *Emberiza schoeniclus*, peregrine falcon *Falco peregrinus*, barn owl *Tyto alba*, redshank *Tringa totanus*, mute swan *Cygnus olor*, wheatear *Oenanthe oenanthe*, sparrow hawk *Accipiter nisus*, stonechat *Saxicola torquata* and water pipit *Anthus spinoletta*.
- 3.12 BoCC Red List species include corn bunting, linnet, tree sparrow, fieldfare, lapwing, ruff, black-tailed godwit and whimbrel. Brent goose, bar-tailed godwit, kingfisher, golden plover, little egret, wheatear, curlew, redshank, Mediterranean gull, reed bunting, barn owl and water pipit are all BoCC Amber List species.
- 3.13 Of these species, corn bunting, linnet, reed bunting, black-tailed godwit, lapwing, curlew and tree sparrow are UK BAP species (JNCC, 2010) and listed in the NERC Act (2006) as Species of Principal Importance for the Conservation of Biodiversity.

3.14 Many of these birds are farmland species requiring habitats not present at the site. However, gull and wader species may potentially use the large area of grassland present on-site for foraging, loafing and roosting during periods of high tide in the Adur estuary.

Bats

3.15 No bat records were returned for the site. There are records of three different bat species within the search area including; serotine *Eptesicus serotinus*, soprano pipistrelle *Pipistrellus pipistrellus* and grey long-eared *Plecotus austriacus*, as well as unidentified pipistrelle *Pipistrellus* species. The record closest to the site is a pipistrelle species foraging 550m west of the central section of Shoreham Airport.

Reptiles

3.16 Two records of common lizard were returned from the site, from 1991 and 1992 in the eastern section. In addition, the following reptile species were recorded within the 2km search area:

- Seventy slow-worm *Anguis fragilis* records, the closest being a 2001 record 300m to the west of the site;
- Sixteen records of grass snake *Natrix natrix*, the closest being a 2001 record 300m to the west of the site; and
- Nine adder *Vipera berus* records, the closest being a 2001 record 300m west of the site.

Amphibians

3.17 No records of amphibians were returned from the site itself. Six records of great crested newt were returned from The Meads, Victoria Road, Shoreham, 645m east of the site.

3.18 There were thirteen records of common toad *Bufo bufo* returned from within the search area, the closest being a 1993 record at Church Street, Shoreham 370m south-east of the site.

Water vole

3.19 There were two records of water vole *Arvicola amphibius* returned from within the search area, the closest being a 1988-1990 record at Shoreham Backwater, 455m to the south of the site.

Invasive species

- 3.20 The data search returned a number of records for invasive plant species that may potentially be present within the site. Invasive plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) that are most likely to be present within on-site habitats are three-cornered garlic *Allium triquetrum*, red valerian *Centranthus ruber* and Japanese knotweed *Fallopia japonica*.

HABITAT SURVEY

Overview

- 3.21 The site is dominated by regularly cut improved grassland with a narrow strip of poor semi-improved grassland and tall ruderal vegetation alongside the fence marking the east and north boundary. A service road and area of hard-standing are present in the south.

Improved grassland

- 3.22 Grass species included abundant perennial rye-grass *Lolium perenne*, cock's-foot *Dactylis glomerata* and creeping bent *Agrostis capillaris*, and frequent to occasional red fescue *Festuca rubra*, Timothy *Phleum pratense*, meadow barley *Hordeum secalinum* and false oat-grass *Arrhenatherum elatius*. Wildflowers included abundant white clover *Trifolium repens* and frequent to occasional field bindweed *Convolvulus arvensis*, dandelion *Taraxacum* agg., ribwort plantain *Plantago lanceolata* and red clover *Trifolium pratense*.
- 3.23 Grassland around an entrance gate on the north boundary was disturbed and compacted. Common bent, annual meadow grass *Poa annua*, pineapple mayweed *Matricaria discoidea*, procumbent pearlwort *Sagina procumbens* and greater plantain *Plantago major* were locally frequent.
- 3.24 Drier areas of the grassland and edges alongside hardstanding had locally frequent yarrow *Achillea millefolium*, bird's-foot trefoil *Lotus corniculatus* and knotted hedge parsley *Torilis nodosa*. Field madder *Sherardia arvensis* and strawberry clover *Trifolium fragiferum* were also present in a few locations.

Poor semi-improved grassland and tall ruderal vegetation

- 3.25 Grasses included dominant false oat-grass, abundant cock's-foot and occasional to locally frequent creeping bent, meadow barley, Timothy and Yorkshire fog *Holcus*

lanatus. Wildflowers included locally abundant to frequent field bindweed, ribwort plantain, yarrow, bristly ox-tongue *Helminthotheca echioides*, creeping thistle *Cirsium arvense* and spear thistle *Cirsium vulgare*.

Target Notes

Target Note 1

3.26 Mole *Talpa europaeus* hills showing evidence of digging/scrapping by foxes *Vulpes vulpes*.

Target Note 2

3.27 Mammal push through under fence, highly likely to be fox.

Target Note 3

3.28 Rabbit droppings *Oryctolagus cuniculus* on hardstanding

Fauna

3.29 The following bird species were recorded within and around the site during the Phase 1 survey; magpie *Pica pica*, carrion crow *Corvus corone*, herring gull *Larus argentatus*, pied wagtail and meadow pipit *Anthus pratensis*.

3.30 The site also provided suitable habitat for large and small mammals: signs of the presence of rabbit, fox and mole all recorded during the survey.

PROTECTED AND INVASIVE SPECIES ASSESSMENT

3.31 The habitats at the site were evaluated as to their likelihood to provide sheltering, roosting, nesting and foraging habitat for the following species/species groups:

- Breeding birds;
- Reptiles;
- Badgers; and,
- Great crested newt.

3.32 These species were selected for further consideration because the results of the desk study revealed that they occur in the vicinity of the Shoreham Airport and potentially suitable habitat is present within the site. The results of the field survey, combined with information from the desk study, are presented in Table 3 below. The relevant legislation and policies relating to protected species is presented within Appendix 4.

Table 3: Assessment of potential presence of invasive, protected and/or BAP priority and notable species at the proposed development site

Species	Main legislation and policy (see Appendix 4)	Reason for consideration	Likelihood of occurrence
Breeding birds	Wildlife and Countryside Act 1981 (as amended) – selected species Schedule 1 and 8	Site adjacent to Adur Estuary SSSI which supports a number of wading birds, particularly redshank, dunlin and nationally important populations of ringed plover. Grassland provides potential foraging habitat and potential breeding habitat for ground nesting birds. Four bird species were recorded during the PEA. Data search confirms a range of species present either on-site or using adjacent habitat, but many of these are farmland species requiring habitat not present on-site	NEGLIGIBLE (breeding) MEDIUM (foraging/roosting). No suitable breeding habitat is present on-site for widespread species requiring trees/scrub cover for nest building. Sward is regularly cut and site disturbed by planes therefore highly unlikely to support ground nesting birds. Grassland provides extensive area of foraging habitat for species such as starling <i>Sturnus vulgaris</i> , corvids and gull species Grassland may provide a supporting role to species over-wintering on the Adur Estuary in the form of foraging, loafing and roosting habitat during high tide, in particular lapwing (<i>pers. comm.</i> Paul James).
Widespread reptile species	Wildlife and Countryside Act, 1981 (as amended) - Schedule 5 (partial protection)	Field boundaries and areas of long grassland provide suitable hibernation sites and foraging habitat for widespread reptiles such as slow worm, common lizard and grass snake. There are records for common lizard on-site and slow-worm, grass snake and adder from the data search area.	PRESENT. The site has poor connectivity to suitable areas of off-site habitat. The only suitable on-site habitat is located along the east and north boundary where a strip of poor semi-improved grassland and tall ruderal vegetation is present. Common lizards have been recorded on-site and slow worms may also be present. Due to the limited extent and quality of on-site habitat any populations present are highly likely to be low and comprised of widespread species such as common lizard and slow-worm.
Badger	Protection of Badgers Act 1992.	A widespread species in the UK, ranging over large distances. The site is located on the urban edge in close proximity to farmland which is a preferred location for badger populations. Hedgerows, grassland, scrub and woodland provide suitable foraging and breeding habitat.	NEGLIGIBLE (breeding) LOW (foraging). No sett building habitat is present on-site. Grassland provides a large area of suitable foraging habitat. No evidence of badgers in the form of setts, push throughs, latrines, feeding scrapes or snuffle holes were found on-site.
Great crested newt	Wildlife and Countryside Act 1981 (as amended) - Schedule 5. The Conservation of Habitats and Species Regulations 2010 (as amended) -	Lakes, pond and seasonally wet areas provide suitable breeding habitat for great crested newt. Woodland, hedgerows, scrub and tall grass provide suitable terrestrial habitat for foraging and hibernating amphibians. There are 6 records for great crested newt from the	NEGLIGIBLE. There is no on-site breeding habitat present and 1:50,000 OS maps show that there are no ponds that potentially provide suitable breeding habitat for great crested newt within a distance of 500m of the site boundaries. The Old Shoreham Road (A27) is a major barrier to dispersal between the nearest pond and the site.

Table 3: Assessment of potential presence of invasive, protected and/or BAP priority and notable species at the proposed development site

Species	Main legislation and policy (see Appendix 4)	Reason for consideration	Likelihood of occurrence
	Schedule 2.	data search area, the closest being 0.65km east of the site.	
Invasive plant species	Section 14 and Part II of Schedule 9 of the Wildlife and Countryside Act 1981 (as amended)	Invasive species are widespread in many habitats and commonly found on disturbed sites, old gardens and herb/grassland/scrub mosaics around woodland and stream/ditch edges. A number of commonly planted ornamental species are also on the revised Schedule 9 list.	LOW - No Schedule 9 species were recorded during the survey, however this does not preclude the possibility of their presence.

4 Evaluation

- 4.1 On the basis of the information available from the PEA, data search and review of national and regional BAPs, the site has been evaluated in terms of its potential for biodiversity, support of protected species and habitats, and the contribution the area makes as part of the wider landscape. The nature conservation value of the site has been assessed following standard criteria developed by IEEM (2006) and is provided in Table 4 below.
- 4.2 The biodiversity value of protected and BAP species within the site is a preliminary evaluation based upon the desk study records, habitat suitability and the conservation status of the species in question. It should be noted that where European Protected Species or BAP species are present on-site they may be valued at a lower level/scale where it is considered likely that populations would not be of sufficient importance to justify designation at a higher level. However, regardless of their biodiversity value, such species are still subject to national and/or European legislation.
- 4.3 Key aspects of relevant planning policy regarding conservation, including an explanation of species referred to as being of ‘Principal Importance for Conservation of Biodiversity’, European Protected Species and BAP species and habitats, are provided in Appendix 4.

Table 4: IEEM Evaluation

Criteria	Remarks
Features of International Importance	<ul style="list-style-type: none"> The site is not subject to any international statutory nature conservation designations. The closest site of International Importance is Castle Hill SAC, located approximately 15.8km to the east. Castle Hill is important for its mosaic of calcareous grassland types and rare orchid species. No calcareous grassland habitat or any supporting habitats that maintain the integrity of this designated area are present within the site.
Features of National Importance	<ul style="list-style-type: none"> The site is not subject to any national statutory nature conservation designations and it is not considered that any habitats or populations or assemblages of species within the site would meet the criteria for the designation of SSSIs at an appropriate geographic level⁸.

⁸ JNCC Guidelines for selection of biological SSSIs (see <http://jncc.defra.gov.uk/page-2303#download>).

Table 4: IEEM Evaluation

Criteria	Remarks
Features of Regional (Sussex) Value	<ul style="list-style-type: none"> The site is not subject to any non-statutory nature conservation designations such as SNCI and does not contain any features that would meet the criteria for designation as a Local Wildlife Site following Defra (2006) guidance.
Features of District (Adur) Importance	<ul style="list-style-type: none"> Improved grassland (10ha) provides potential bird roosting and foraging opportunities over-winter and during high tide periods, for wading species associated with Adur Estuary SSSI, such as lapwing (<i>pers. comm.</i> Paul James). Any assemblage or population is likely to be of at least district value⁹, but this should be determined through further survey. Further survey will also help to determine the degree of support the site provides to Adur Estuary SSSI.
Features of Local (Shoreham-Lancing-Sompting) Importance	<ul style="list-style-type: none"> A number of protected and UK BAP species are present or may occur at the site, as follows: <ul style="list-style-type: none"> - Reptiles, including slow-worm and common lizard (present); - Birds such as house sparrow, starling, dunnock and lapwing; - Small mammals such as hedgehog; and, - Foraging bats, such as soprano, noctule bat and brown long eared. Based on the quality and extent of habitat present, it is considered that populations of these species would be significant at the local level.
Features of Value within the immediate vicinity of the site	<ul style="list-style-type: none"> The remaining habitats at the site comprising hard-standing, poor semi-improved grassland and tall ruderal vegetation are likely to be of some value as foraging, cover and breeding sites for a range of common species and are therefore of value in maintaining the ecology of the area. However they are common and widespread habitats that do not generally support rare species or diverse assemblages of species and are therefore only of value in the immediate vicinity of the site.
Features of Secondary and Supporting Value	<ul style="list-style-type: none"> The site is located 27m to the west of Adur Estuary SSSI. It functions as a buffer along the western edge of the SSSI and may provide a supporting role in terms of providing extended foraging and roosting habitat for birds using the SSSI (see above). The site functions as a buffer to the urban edge of Shoreham and provides wildlife corridors for species moving across the Shoreham urban-rural fringe and along Adur Estuary.
Social Value	<ul style="list-style-type: none"> This site is privately owned. It provides amenity and aesthetic value to residents whose properties are situated along the River Adur by affording them views across the countryside and into Lancing Strategic Gap. The airport has high historic value and has a listed Art Deco terminal building.
Economic Value	<ul style="list-style-type: none"> The site forms part of Shoreham Airport which utilises the expanse of improved grassland habitat present on-site. All remaining habitats (and species) do not currently provide a resource that could be exploited for their economic value.

⁹ The total number of lapwing records in Sussex during 2011 was 19,000. A site may be considered to be of Regional (Sussex) importance if it supports >1% of the county total. The monthly WeBS count in 2011 for the Lower Adur Estuary had a peak count of 830 (December). In the same month the county total derived from the 8 principal WeBS sites surveyed was 8686. The Lower Adur Estuary therefore represented 9.6% of the county total in Dec 2011 (*pers. comm.* Paul James).

LOCAL PLANNING POLICY

- 4.4 On the basis of the completed surveys it is considered that the statutory South East Plan (2009) and Adur District Local Plan (1996) contain the following nature conservation and green infrastructure policies relevant to the site. A summary of these policies is detailed in Table 5 over page. The full text of the relevant policies is contained in Appendix 4 and this should be referred to. It should be noted however that policies in the 1996 Local Plan will be superseded by policies in the emerging Local Plan once it is adopted.

Table 5: Regional and local planning policies relevant to the site.

Policy	Relevance to the site
South East Plan (2009)	
<p>CC1: Sustainable Development Conserve and enhance the natural environment and prepare for the impacts of climate change.</p>	<ul style="list-style-type: none"> • Through appropriate mitigation, compensation and enhancement, development proposals should seek to protect and increase the biodiversity value of the site and provide climate change adaptation (see policies below for further detail).
<p>CC2: Climate Change Mitigate and adapt to the effects of climate change by guiding development to locations which offer protection from flooding impacts, incorporating SuDs, increasing flood storage capacity and promoting opportunities for sustainable flood management and the migration of habitats and species.</p>	<ul style="list-style-type: none"> • The adjacent River Adur and Coastal Link route form local wildlife corridors. Where possible proposals should buffer and enhance these linear habitats to facilitate the movement of mobile species. • Sustainable Drainage Systems (SuDS) should be an integral part of the scheme and designed in collaboration with ecologists to maximise their value to wildlife. • The installation of green roofs as part of the SuDS for the site will provide climate change adaptation through the amelioration of storm water and urban heat island effects, amongst others.
<p>CC4: Sustainable Design and Construction Proposals must adopt and incorporate sustainable construction standards and techniques including considering how a development can contribute to biodiversity gain.</p>	<ul style="list-style-type: none"> • Under NPPF (2012) and the NERC Act (2006) there is a requirement to build biodiversity into design proposals, including hard landscaped areas and the fabric of buildings. The following measures should be considered: green roofs, green walls, artificial bat and bird boxes, vegetated swales, attenuation ponds etc. • Details on the protection of any retained ecological features and mitigation required during the construction phase should form part of the wider Construction Environmental Management Plan (CEMP) for the site.
<p>CC6: Sustainable Communities and Character of the Environment Proposals should be environmentally sensitive and respect and enhance the character and distinctiveness of settlements and landscapes.</p>	<ul style="list-style-type: none"> • Landscape proposals should include species typical of the local landscape and/or Natural Area and published plant species lists should be consulted.
<p>CC8: Green Infrastructure Proposals should seek to provide and contribute to networks of multi-functional green space to deliver environmental and social benefits including conserving and enhancing biodiversity, landscape, recreation and water management.</p>	<ul style="list-style-type: none"> • Any proposals should buffer and enhance the linear habitats present along the Adur Estuary SSSI. Planting should be positioned so as to enhance existing green corridors and provide connections between new on-site habitats including both terrestrial and aquatic.

<p>NRM1: Sustainable Water Resources and Groundwater Quality To set out circumstances where sustainable drainage solutions should be incorporated.</p>	<ul style="list-style-type: none"> • SuDS should be an integral part of the scheme and designed in collaboration with ecologists to maximise their value to wildlife. Interventions such as green roofs, green walls, rain gardens, vegetated swales, permeable paving, and attenuation ponds etc. should be considered at the masterplanning stage.
<p>NRM4: Sustainable Flood Risk Management Requirement incorporation and management of Sustainable Drainage Systems (SuDs) and other water retention and flood storage measures to minimise direct surface run-off.</p>	<ul style="list-style-type: none"> • See Policy NRM1 above.
<p>NRM5: Conservation and Improvement of Biodiversity. Local planning authorities and other bodies shall avoid damage to nationally important SSSIs a net loss of biodiversity, and actively pursue opportunities to achieve a net gain across the region. Access to areas of wildlife importance will be supported. GI is required to be identified, developed and implemented with new development.</p>	<ul style="list-style-type: none"> • The site is adjacent to Adur Estuary SSSI which should receive protection from the potential impacts (direct and indirect) of development. The sites supporting role to the SSSI in terms of winter birds should be determined through further survey. • The site has potential to support widespread species of reptile. Potential impacts to protected species should be avoided through appropriate mitigation, compensation and enhancement which may include further surveys (see Section 5). • There is an opportunity to conserve and potentially increase local biodiversity through habitat creation (see Section 5).
<p>Policy C4: Landscape and Countryside Management Outside National Parks and AONBs, proposals should respect, protect and enhance the diversity and local distinctiveness of the District's landscape. Appropriate mitigation should be implemented where damage to the landscape cannot be avoided.</p>	<ul style="list-style-type: none"> • See Policy CC6 above.
<p>C5: Managing The Rural-Urban Fringe Positive management should be considered as part of any urban extension development proposal. Consideration should be given to landscape, biodiversity enhancement, woodland management, recreation provision and access routes.</p>	<ul style="list-style-type: none"> • The existing GI links (Coastal Link route and ecological network) along the Adur Estuary should be retained and integrated into development proposals through masterplanning.
<p>C6: Countryside Access And Rights Of Way Management Access to the countryside should be encouraged through maintaining, enhancing and promoting the Public Rights of Way system, identify opportunities for routes within and between settlements, creating multi-functional routes for multiple users and promoting appropriate access and management measures for Natura 2000/Ramsar sites.</p>	<ul style="list-style-type: none"> • See Policy C5 above.

Adur District Local Plan (1996)

AB25-27: Trees and Landscaping

Trees should be retained where possible and sufficient space shall be left around them to avoid threatening their survival. Tree planting should be appropriate to the scale of the development. Any landscaping should form an integral part of the proposal and be appropriate to the coastal environment of Adur District, including the planting of predominantly native trees.

- The planting of native trees and shrubs should be central to any landscape scheme for the river edge. Native and non-native plants of known wildlife value should be considered for other landscaped areas.
- Any retained trees should be protected following *BS 5837 Trees in Relation to Design, Demolition and Construction – Recommendations* (2012).

Evaluation Summary

- 4.5 Overall, on the basis of the above criteria (IEEM, 2006) the site is considered to be of ecological value at a local level. It is dominated by improved grassland which is typically a habitat of limited ecological value.
- 4.6 The site has potential to support a limited range of protected and BAP species, including bird species and widespread species of reptile such as common lizard and slow-worm. Common lizards have been recorded on-site and are potentially using edge habitats along the east boundary. Due to the limited extent and quality of this habitat any population of common lizard is highly likely to be low. No suitable breeding bird habitat is present on-site, but improved grassland provides potential foraging habitat for species such as starlings, corvids and gull species.
- 4.7 The site assumes its greatest ecological value by providing a secondary and supporting role to the adjacent Adur Estuary SSSI. This is because it functions as a buffer along the western edge of the SSSI and is likely to provide a supporting role in terms of providing extended foraging and roosting habitat for wading birds associated with the SSSI, such as lapwing. Any assemblage or population of wading birds is likely to be of at least district value, but this should be determined through further survey. Further survey will also help to determine the level of importance this supporting role has in terms of the integrity of Adur Estuary SSSI.

5 Conclusions and Recommendations

CONCLUSIONS

- 5.1 The site is not subject to any statutory or non-statutory nature conservation designations. The nearest non-statutory designated nature conservation site is Widerwater Lagoon SNCI and LNR located 0.85km to the south. The nearest statutory designated site for nature conservation is Adur Estuary SSSI located 27m to the east.
- 5.2 Adur Estuary SSSI is designated for its estuarine plant communities and intertidal mudflats that support nationally significant populations of wading birds. It receives legal protection under the Wildlife and Countryside Act 1981 (as amended) and any direct or indirect impact on this SSSI, as a result of development should therefore be avoided as Natural England are likely to object to any scheme which adversely affects the SSSI or the species for which it is designated. The most likely constraints are disturbance to wading birds during construction and operation, although contamination of the River should also be addressed, where relevant.
- 5.3 The proximity of the development to the SSSI it is also likely to trigger the requirement for an Environmental Impact Assessment (EIA) and a screening opinion should be sought from the Local Planning Authority (LPA).
- 5.4 Overall, and on the basis of the Preliminary Ecological Appraisal the site is considered to be of ecological value within a local context, due to the presence of an extensive area (10ha) of improved grassland with edge habitats of value to widespread species of reptile (common lizard previously recorded on-site) and foraging bird species.
- 5.5 On the basis of information available at the time of report production, it is considered likely that the site performs a supporting role to Adur Estuary SSSI in terms of functioning as a buffer and extending the foraging and roosting habitat for wading bird species associated with the SSSI, during periods of high-tide and through winter.
- 5.6 Any assemblage or population of wading birds using the grassland is likely to be of at least district value, but this can only be accurately determined through further survey. Further survey will also help to determine the level of importance this supporting role has in terms of the integrity of Adur Estuary SSSI.
- 5.7 The following UK BAP species are present or have potential to be present within the site:
 - Reptiles, including slow-worm and common lizard (present);

- Birds such as house sparrow, starling, dunnock and lapwing;
- Small mammals such as hedgehog; and,
- Foraging bats, such as soprano, noctule bat and brown long eared.

5.8 BAP habitats/species are not necessarily rare but under NPPF (2012) and the Natural Environment and Rural Communities (NERC) Act 2006 are all of principal importance for the conservation of biodiversity and are of material consideration in the planning process. None of the BAP habitats or populations of BAP species currently known to be present on-site are considered as notable or exceptional examples of their type.

RECOMMENDED FURTHER SURVEYS

Overview

5.9 The surveys recommended below assume the loss or degradation of suitable habitat. There is potential to avoid and/or limit impacts through habitat retention and protection (see below). The final approach to surveys will have to be based on consideration of detailed proposals for the redevelopment of the site, though in all cases published best practice should be followed with regard to survey methodology etc.

5.10 To provide a sufficient baseline of data and mitigate against any potential impact on declining, BAP and protected species/habitats at the site, further survey for wintering birds is recommended.

Wintering Birds

5.11 The Sub-area supports an extensive area of improved grassland (10ha) that may be of foraging and roosting value to flocks of wintering birds for which, in part, the Adur Estuary SSSI is designated. Bird surveys should be carried out to assess the value of the site to wintering birds and to determine the level of importance this supporting role has in terms of the integrity of Adur Estuary SSSI. These should follow standard methodology including vantage point watches and comprise several visits spread over the winter, from November through to March.

MITIGATION

Reptiles/ Amphibians

5.12 Common lizards have been previously recorded on-site. The only suitable on-site habitat is located along the east and north boundary where a strip of poor semi-improved grassland and tall ruderal vegetation is present. Due to the limited extent and quality of on-site habitat any populations present are highly likely to be low and comprised of widespread species such as common lizard and slow-worm.

- 5.13 Long grassland along the east and north boundary should be managed to prevent unlawful killing or injury to reptiles which could occur through the proposed works. This precautionary approach involves cutting long grassland within the works area in two phases in order to deter reptiles from the area by removing cover opportunities.
- 5.14 This would involve cutting all grassland and tall-herbaceous vegetation within the works area down to approximately 15cm using strimmers and/or brush cutters, followed one week later by the cutting of vegetation down to ground level. These should be carried out during the period when reptiles are most active i.e. April-September inclusive. All arisings should be removed from the works area to avoid the possibility of reptiles remaining under the cut vegetation.

Water Courses

- 5.15 All works near to Adur Estuary SSSI and other adjacent wetland features should adhere to best practice guidance to avoid adverse effects upon water quality, such as *Pollution Prevention Guidance 5: Works and maintenance in or near water* (Environment Agency, 2007). Any development proposals should also ensure that they are buffered by planting (without increasing shading) to provide adjacent habitat and reduce risk of runoff from hard surfaces.

Bats and lighting

- 5.16 While different species of bat react differently to night time lighting, research has found that bats are sensitive to artificial lighting. Excessive lighting can delay bats from emerging, thus shortening the time available for foraging, as well as causing bats to move away from suitable foraging grounds or roost sites, to alternative dark areas (Jones, 2000).
- 5.17 Currently the whole site remains dark at night. In order to retain as many dark areas as possible, light spillage and glare associated with any development should be minimised. This can be achieved by following accepted best practice (Institute of Ecology and Environmental Management, 2006: Institute of Lighting Engineers, 2007):
- The level of artificial lighting including flood lighting should be kept to a minimum;
 - Where this does not conflict with health and safety and or security requirements, the site should be kept dark during peak bat activity periods (0 to 1.5 hours after sunset and 1.5 hours before sunrise);
 - Lighting that is required for security or safety reasons should use a lamp of no greater than 2000 lumens (150 Watts) and should comprise sensor activated lamps;

- Low pressure sodium lights are a preferred option to high pressure sodium or mercury lamps;
- Lighting should be directed to where it is needed with minimal light spillage. This can be achieved by limiting the height of the lighting columns and by using as steep a downward angle as possible and/or a shield or hood that directs the light below the horizontal plane; and
- Artificial lighting should not directly illuminate any potential bat roosting features or habitats of value to foraging bats. In particular light spillage onto the Adur Estuary corridor that may be used as a commuting route should be avoided. Similarly, any newly planted linear features should not be directly lit.

COMPENSATION AND ENHANCEMENT

Management plan

- 5.18 A site wide landscape and ecological management plan should be drawn up to cover the long-term maintenance of retained and newly created on-site habitats. This should form part of the contractual agreement for the future management of the site.

Sustainable Drainage Systems (SuDS)

- 5.19 Where proposed development comprises large areas of buildings and hardstanding the use of SuDS schemes and green roofs (see below) are recommended.

A linked system comprising ponds, vegetated swales, below ground drainage and porous surfacing utilising materials such as grasscrete¹⁰ should be considered as part of the masterplanning for the site. Such systems will increase biodiversity and reduce surface water run-off at the site. The creation of ponds (see below) and/or swales would also contribute to the UK Standing Water/Ponds BAP and provide a habitat for a range of wetland wildlife. Once established such features could be used as an educational resource, for example, by local schools.

Green roofs

- 5.20 Any proposals for green roofs should include a specification of proven ecological value for foraging birds and invertebrates as pioneered by the Green Roof Consultancy¹¹. Such roofs are typified by substrates of varying type and depth,

¹⁰ Grasscrete comprises a range of cellular grassed pavement systems made from concrete or plastic and back-filled with recycled materials from the construction process and/or top-soil. The surface can be left to colonise naturally or can be planted with grass and low growing herbs.

¹¹ Green Roof Consultancy website <http://greenroofconsultancy.com>

include dead wood habitat and open areas of vegetation, require low levels of maintenance, and are attractive to people as well as wildlife. They also provide opportunities for natural colonisation by plants and invertebrates. Such roofs are preferable to standard stonecrop *Sedum spp.* dominated roofs that deliver little in the way of biodiversity value as they are typically less species-rich and have a shallower substrate depth¹².

Ponds

- 5.21 Subject to the findings of further surveys and/or hydrological investigations, the creation of new ponds could improve conditions for amphibians potentially breeding in the locality and strengthen links between any breeding populations associated with nearby ponds. Ponds would also provide an important resource for invertebrates, reptiles such as grass snake, and foraging bats. Information on locating, designing, constructing and managing ponds should follow the advice provided by the Pond Creation Toolkit on the Pond Conservation website¹³.

Hedgerows

- 5.22 Native hedgerows provide an important habitat for a wide range of species and contribute to green infrastructure. Therefore, it is recommended that native hedgerows be planted as linear features around the site and are used to link other ecological features, such as retained hedgerows, woodland, lines of scattered trees/scrub.
- 5.23 Trimming of hedgerows should be carried out on a 2-3 year rotation to give a variety of heights and side growth and to ensure plenty of flowers, berries and fruit. To achieve this, sections of hedge could be cut in different years or opposite sides cut in alternate years.
- 5.24 Trimming should ideally be carried out in the late winter (although not in severe frost), to avoid the bird nesting season and ensure that the autumn berry crop remains available for as long as possible. Wherever feasible a 0.5 to 2m wide strip of grassland and/or tall-herb should be allowed to develop along either side of the hedge and be managed by cutting 1-2 times per year or preferably biennially.

¹² Please note that the UK's *Green Roof Code of Best Practice* (GRO, 2011) advocates a minimum depth of 80mm for extensive green roofs.

¹³ Pond Conservation website <http://www.pondconservation.org.uk/millionponds/pondcreationtoolkit>

5.25 Tree regeneration should also be encouraged to provide young hedgerow trees that will fulfil an ecological and landscape role in the future.

Landscape Planting

5.26 The use of native and non-native planting in landscape schemes is recommended to both compensate for any loss of habitat and to provide enhancements for wildlife. Where possible the following guidelines should be followed:

- Replacement planting to compensate for the loss of any woodland, tree, scrub and hedgerow habitat should use only native species;
- Native tree and shrub species should be typical of the local landscape and/or Natural Area and published plant species lists should be consulted;
- It is best practice to use British native stock for tree, shrub and hedgerow planting and woodland schemes should follow guidance given in Forestry Commission Practice Note 8a (Herbert, Samuel & Patterson, 1999). A list of reputable suppliers is available from the Flora Locale website¹⁴.
- The use of invasive species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) as part of landscape planting, for example cotoneaster species and rhododendron, should be avoided;
- Non-Schedule 9 plant species that are potentially invasive or aggressive should also be avoided in areas adjacent to semi-natural habitats e.g. the planting of cherry laurel, shallon and snowberry in areas adjacent to native woodland;
- Planting should be positioned so as to enhance existing green corridors (especially those identified on Ecological Constraints and Opportunities Map) and in particular buffer and enhance the Adur estuary corridor;
- New tree planting should not shade mature trees that have been retained and where this is a risk, adequate space should be provided or only smaller shrub species planted;
- Any non-native planting schemes should comprise a high percentage of species of known wildlife value; and
- Double flowering forms of both native and non-native species, such as '*Flore Pleno*', should be avoided.

¹⁴ Flora Locale website <http://www.floralocale.org>

Birds

5.27 Recommendations to both compensate for the loss of trees and shrubs of potential value to birds and to enhance sites for this species group include the use of artificial bird boxes. Boxes should include a combination of models suitable for colonial, semi-colonial and territorial species. Where possible the following guidelines should be followed:

- With exception to orientating the box due south, the direction that it faces makes little difference provided that it is sheltered from prevailing wind, rain and strong sunlight. The sector from north through east to south-east is possibly the most favourable.
- Boxes should not be positioned on the wet side of a tree trunk where the rain water flows down heavily. It is usually possible to see where the rain water runs down the trunk from the growth of green algae.
- Small boxes should be angled forwards to give additional shelter to the entrance. Larger open boxes should be mounted tilted slightly upwards so that the nest rests naturally in the rearmost part of the box.
- For many common songbird species the height of the box is not important and may range from 1m upwards.
- It is preferable to site nest boxes in locations that are accessible for maintenance, away from bird feeders, a discrete distance away from other nest boxes (unless targeting a colonial species) and so that they provide some protection from predators and vandalism.
- Standard hole and open fronted boxes can be attached at varying heights using either standard hanging devices or bespoke attachments to suitable structures.

5.28 In addition, any on-site buildings could include specially designed features within their structure, for example to attract house sparrows (a UK BAP species) or swift. House sparrow boxes are usually erected on buildings in locations such as under eaves. Swift boxes are located in similar open locations on building facades, but require an uninterrupted drop of at least 3-5m below them.

Bats

5.29 Consideration could be given to the installation of bat boxes in suitable locations in mature trees and also to include integrated bat 'boxes' or 'bricks' in any new buildings. These will provide warm and favourable conditions for crevice roosting species such as pipistrelles (soprano pipistrelle is a UK BAP species). Ideally they should be south or south-west facing with a clear flight entry path and away from artificial lighting (see *Bats and lighting* above). Information from any further bat

surveys, regarding bat flight-lines to commuting and foraging habitat should be used to inform the positioning of these new roosts.

- 5.30 Building designs should consider using hanging tiles or weather boarding made from natural timber since these will provide suitable crevices for bats. Soffits or fascia boards should be made from natural timber in preference to PVC, and where possible, traditional bitumen and hessian roofing felt should be used in preference to breathable membranes such as Tyvec™. Any timbers including soffits should be treated with substances that are non-toxic to bats such as those that comprise a copper, zinc or boron compound in emulsion or aqueous solution. A list of approved treatments can be obtained from Natural England.
- 5.31 Any new building with a pitched or hipped roof could also include a dedicated open loft space with bat access points located at the gable ends and along the soffits. Ideally suitable bat access slots (20 x 100 slots) should be located along the ridge at approximately three metre intervals at the gable ends and along the soffits.
- 5.32 Where possible, any roof voids created for bats should ideally have restricted access to avoid future disturbances and to ensure an unobstructed flight space by limiting the use of the loft to only low level storage. This can be achieved by restricting the loft hatch size (i.e. 500 x 500mm).

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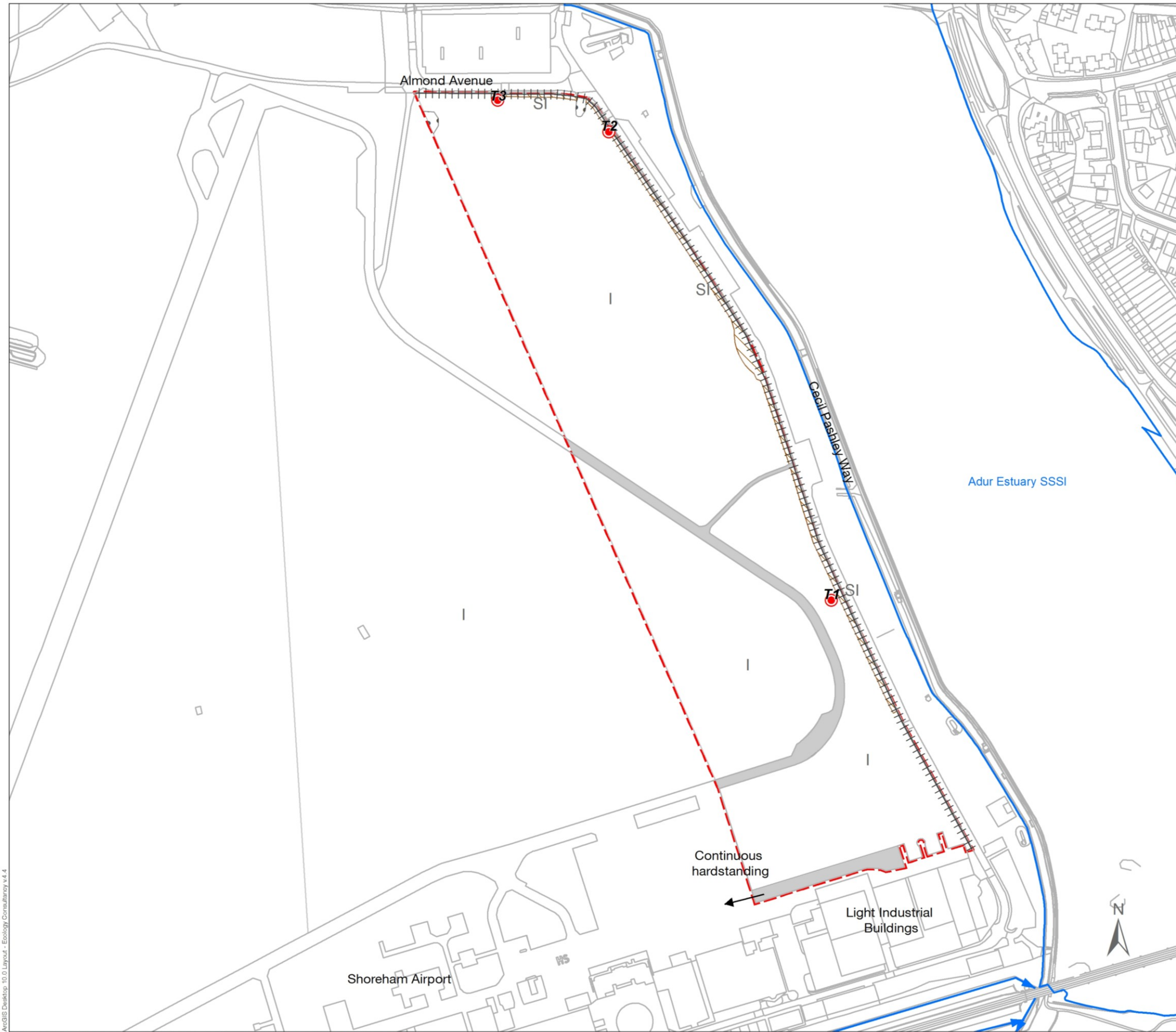
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Appendix 1: Habitat Map

Job title	Adur District Council ECL Job no. 120618		
Client	Sheils Flynn		
Drawing title	HABITAT SURVEY MAP		
Site (Sectors)	Shoreham Airport (1 of 1)		
Date of survey	July 2012	Surveyor	BK
		Scale (at A3)	1:3,000
Drawn/Checked/Approved	CAJ/GS/CC/BK	Date	28/08/2012



KEY	
[Red dashed line]	Site boundary
[Black box]	Buildings
[Grey box]	Hardstanding
[Green box]	Broad-leaved semi-natural woodland
[Green box with diagonal lines]	Plantation woodland (native)
[Green box with dots]	Mixed woodland
[Brown box with diagonal lines]	Tall ruderal vegetation
[Green box with cross-hatch]	Continuous scrub
[Green box with 'x']	Scattered scrub
[Green box with dots]	Scattered trees
[Yellow box]	Amenity grassland
[White box with 'SI']	Poor semi-improved grassland
[White box with 'A']	Arable
[White box with 'I']	Improved grassland
[Brown box with cross-hatch]	Introduced shrubbery
[White box with 'x']	Short perennial/ephemeral
[Black box]	Bare ground
[Blue box with diagonal lines]	Marginal vegetation
[Light blue box]	Swamp
[Blue box]	Standing water-Pond
[Green box]	Vegetable plot
[Red box with 'S']	Spoil
[Pink box]	Roughland
[Blue box]	SSSI boundary
[Purple box]	SNCI boundary
[White box with 'NA']	Private Garden (not accessed)
[Green box with dots]	Native species-poor hedge and trees
[Yellow box with '+']	Non-native species-poor hedge
[Green box with '+']	Native species-poor hedge
[Blue arrow]	Running water
[Brown line]	Stone wall
[Black line]	Fence
[Green dot]	Tree (indicative)
[Red circle]	Target note

ArcGIS Desktop 10.0 Layout - Ecology Consultancy v4.4

This plan is provided solely for the purpose of supporting the description of the ecological features of the site as contained in the accompanying report

Appendix 2: Photographs

Photograph 1

View south from the northern boundary across the improved grassland. Line of light industrial and airport buildings present on the horizon (mid-picture). Short sward (5-10cm) maintained through regular mowing.



Photograph 2

View north-west from the south-east corner of the site where hardstanding marks the southern boundary of the site.



Photograph 3

View south from the north-east corner of the site. East boundary fence present to left of picture showing narrow border of poor semi-improved grassland that is left uncut during airport maintenance



Appendix 3: Plant Species List

**Plant Species List for Shoreham Airport, West Sussex compiled from the Preliminary
Ecological Appraisal carried out on 31st July 2012.**

Scientific nomenclature follows Stace (2010) for vascular plant species. Vascular plant common names follow the Botanical Society of the British Isles 2003 list, published on its web site, www.bsbi.org.uk. Please note that this plant species list was generated as part of a PEA, does not constitute a full botanical survey and should be read in conjunction with the associated PEA report.

Abundance was estimated using the DAFOR scale as follows:

D = dominant, A = abundant, F = frequent, O = occasional, R = rare, L = locally
c=clumped, e=edge only, g=garden origin, p=planted, y = young, s=seedling or sucker,
t=tree, h=hedge, w=water, d=dry, ?=identification uncertain.

Scientific Name	Common Name	Abundance	Qualifier
<i>Achillea millefolium</i>	Yarrow	LA	
<i>Agrostis capillaris</i>	Common bent	A	
<i>Agrostis stolonifera</i>	Creeping bent	A	
<i>Anisantha sterilis</i>	Barren brome	R/LF	e
<i>Anthriscus sylvestris</i>	Cow parsley	R/LF	e
<i>Arrhenatherum elatius</i>	False oat-grass	O/LA	e
<i>Bellis perennis</i>	Daisy	O/R	
<i>Bromus hordeaceus</i>	Soft-brome	O	
<i>Cerastium fontanum</i>	Common mouse-ear	O	
<i>Cirsium arvense</i>	Creeping thistle	R/LF	
<i>Cirsium vulgare</i>	Spear thistle	R/O	e
<i>Convolvulus arvensis</i>	Field bindweed	R/LF	
<i>Crepis capillaris</i>	Smooth hawk's-beard	LF	
<i>Dactylis glomerata</i>	Cock's-foot	A	e
<i>Elytrigia repens</i>	Common couch	R	e
<i>Festuca rubra</i>	Red fescue	A	
<i>Geranium dissectum</i>	Cut-leaved crane's-bill	A	e
<i>Heracleum sphondylium</i>	Hogweed	O	s, e
<i>Holcus lanatus</i>	Yorkshire-fog	O/LF	
<i>Hordeum murinum</i>	Wall barley	O	e
<i>Hordeum secalinum</i>	Meadow barley	O	
<i>Leontodon autumnalis</i>	Autumn hawkbit	O	
<i>Lolium perenne</i>	Perennial rye-grass	A	
<i>Lotus corniculatus</i>	Common bird's-foot-trefoil	R/LF	d, e
<i>Malva sylvestris</i>	Common mallow	R/LF	e

<i>Matricaria discoidea</i>	Pineappleweed	R/LF	s, d
<i>Medicago lupulina</i>	Black medick	R/LF	d, e
<i>Phleum pratense</i>	Timothy	O/LF	
<i>Picris echioides</i>	Bristly ox-tongue	R/LA	
<i>Helminthotheca echioides</i>	Hawkweed ox-tongue	O/LA	e
<i>Pimpinella saxifraga</i>	Burnet-saxifrage	R/LA	e
<i>Plantago lanceolata</i>	Ribwort plantain	O	
<i>Plantago major</i>	Greater plantain	O	
<i>Poa annua</i>	Annual meadow-grass	O	
<i>Potentilla reptans</i>	Creeping cinquefoil	R/LA	e
<i>Prunella vulgaris</i>	Selfheal	A	e
<i>Ranunculus repens</i>	Creeping buttercup	O	
<i>Rumex obtusifolius</i>	Broad-leaved dock	R	
<i>Sagina procumbens</i>	Procumbent pearlwort	R	d
<i>Sambucus nigra</i>	Elder	R	s, e
<i>Senecio jacobaea</i>	Common ragwort	R	
<i>Sherardia arvensis</i>	Field madder	R	d, e
<i>Sisymbrium officinale</i>	Hedge mustard	R	
<i>Sonchus arvensis</i>	Perennial sow-thistle	A	e
<i>Sonchus asper</i>	Prickly sow-thistle	R	e
<i>Taraxacum sp.</i>	Dandelion	O	
<i>Torilis japonica</i>	Upright hedge-parsley	R	e
<i>Torilis nodosa</i>	Knotted hedge-parsley	R/LF	d, e
<i>Tragopogon pratensis</i>	Goat's-beard	R	e
<i>Trifolium fragiferum</i>	Strawberry clover	R/O	d, e
<i>Trifolium repens</i>	White clover	F	
<i>Veronica arvensis</i>	Wall speedwell	R	e
<i>Vicia sativa</i>	Common vetch	R	e

Appendix 4: Legislation and Policy

Important Notice: This section contains details of legislation and planning policy applicable in Britain only (i.e. not including the Isle of Man, Northern Ireland, the Republic of Ireland or the Channel Islands) and is provided for general guidance only. While every effort has been made to ensure accuracy, this section should not be relied upon as a definitive statement of the law.

A NATIONAL LEGISLATION AFFORDED TO SPECIES

The objective of the EC Habitats Directive¹⁵ is to conserve the various species of plant and animal which are considered rare across Europe. The Directive is transposed into UK law by The Conservation of Habitats and Species Regulations 2010 (as amended) (formerly The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) and The Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 (as amended).

The Wildlife and Countryside Act 1981 (as amended) is a key piece of national legislation which implements the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and implements the species protection obligations of Council Directive 2009/147/EC (formerly 79/409/EEC) on the Conservation of Wild Birds (EC Birds Directive) in Great Britain.

Since the passing of the Wildlife & Countryside Act 1981, various amendments have been made, details of which can be found on www.opsi.gov.uk. Key amendments have been made through the Countryside and Rights of Way (CRoW) Act (2000) and Nature Conservation (Scotland) Act 2004.

Other legislative Acts affording protection to wildlife and their habitats include:

- Deer Act 1991
- Countryside and Rights of Way (CRoW) Act 2000
- Natural Environment & Rural Communities (NERC) Act 2006
- Protection of Badgers Act 1992
- Wild Mammals (Protection) Act 1996

Species and species groups that are protected or otherwise regulated under the aforementioned domestic and European legislation, and that are most likely to be affected by development activities, include herpetofauna (amphibians and reptiles), badger, bats, birds, dormouse, invasive plant species, otter, plants, red squirrel, water vole and white clawed crayfish.

Explanatory notes relating to species protected under The Conservation of Habitats and Species Regulations 2010 (as amended) (which includes smooth snake, sand lizard, great crested newt and natterjack toad), all bat species, otter, dormouse and some plant species) are given below. **These should be read in conjunction with the relevant species sections that follow.**

- In the Directive, the term 'deliberate' is interpreted as being somewhat wider than intentional and may be thought of as including an element of recklessness.

¹⁵ Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora

- The Conservation of Habitats and Species Regulations 2010 (as amended) does not define the act of ‘migration’ and therefore, as a precaution, it is recommended that short distance movement of animals for e.g. foraging, breeding or dispersal purposes are also considered.
- In order to obtain a European Protected Species Mitigation (EPSM) licence, the application must demonstrate that it meets all of the following three ‘tests’: i) the action(s) are necessary for the purpose of preserving public health or safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequence of primary importance for the environment; ii) that there is no satisfactory alternative and iii) that the action authorised will not be detrimental to the maintenance of the species concerned at a favourable conservation status in their natural range.

Herpetofauna (Amphibians and Reptiles)

The sand lizard *Lacerta agilis*, smooth snake *Coronella austriaca*, natterjack toad *Epidalea calamita* and great crested newt *Triturus cristatus* receive full protection under The Conservation of Habitats and Species Regulations 2010 (as amended) through their inclusion on Schedule 2. The pool frog *Pelophylax lessonae* is also afforded full protection under the same legislation. Regulation 41 prohibits:

- Deliberate killing, injuring or capturing of species listed on Schedule 2
- Deliberate disturbance of any Schedule 2 species as:
 - a) to impair their ability:
 - (i) to survive, breed, or reproduce, or to rear or nurture young;
 - (ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate
 - b) to affect significantly the local distribution or abundance of the species
- Deliberate taking or destroying of the eggs of a Schedule 2 species
- Damage or destruction of a breeding site or resting place
- Keeping, transporting, selling, exchanging or offering for sale whether live or dead or of any part thereof.

With the exception of the pool frog, these species are also currently listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Under this Act, they are additionally protected from:

- Intentional or reckless disturbance (at any level)
- Intentional or reckless obstruction of access to any place of shelter or protection
- Selling, offering or exposing for sale, possession or transporting for purpose of sale.

Other native species of herpetofauna are protected solely under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended). Species such as the adder *Vipera berus*, grass snake *Natrix natrix*, common lizard *Zootoca vivipara* and slow-worm *Anguis fragilis* are listed in respect to Section 9(1) & (5). For these species, it is prohibited to:

- Intentionally (or recklessly in Scotland) kill or injure these species
- Sell, offer or expose for sale, possess or transport for purpose of sale these species, or any part thereof.

Common frog *Rana temporaria*, common toad *Bufo bufo*, smooth newt *Lissotriton vulgaris* and palmate newt *L. helveticus* are listed in respect to Section 9(5) only which affords them

protection against sale, offering or exposing for sale, possession or transport for the purpose of sale.

How is the legislation pertaining to herpetofauna liable to affect development works?

A European Protected Species (EPS) Licence issued by the relevant countryside agency (e.g. Natural England) will be required for works liable to affect the breeding sites or resting places of those amphibian and reptile species protected under The Conservation Habitats and Species Regulations 2010. A licence will also be required for operations liable to result in a level of disturbance which might impair their ability to undertake those activities mentioned above (e.g. survive, breed, rear young and hibernate). The licences are to allow derogation from the relevant legislation but also to enable appropriate mitigation measures to be put in place and their efficacy to be monitored.

Although not licensable, appropriate mitigation measures may also be required to prevent the intentional killing or injury of adder, grass snake, common lizard and slow worm, thus avoiding contravention of the Wildlife and Countryside Act 1981 (as amended).

Badger

Badgers *Meles meles* receive protection under The Protection of Badgers Act 1992 which consolidates the previous Badger Acts of 1973 and 1991. The Act makes it an offence to:

- Wilfully kill, injure, take, or attempt to kill, injure or take a badger
- Cruelly ill-treat a badger, including use of tongs and digging
- Possess or control a dead badger or any part thereof
- Intentionally or recklessly damage, destroy or obstruct access to a badger sett¹⁶ or any part thereof
- Intentionally or recklessly disturb¹⁷ a badger when it is occupying a badger sett
- Intentionally or recklessly cause a dog to enter a badger sett
- Sell or offers for sale, possesses or has under his control, a live badger

How is the legislation pertaining to badgers liable to affect development works?

A Development Licence¹⁸ will be required from the relevant countryside agency (e.g. Natural England) for any development works liable to affect an active badger sett, or to disturb

¹⁶ A badger sett is defined in the legislation as "any structure or place which displays signs indicating current use by a badger". This includes seasonally used setts. Natural England (2009) have issued guidance on what is likely to constitute current use of a badger sett: www.naturalengland.org.uk/Images/WMLG17_tcm6-11815.pdf

¹⁷ For guidance on what constitutes disturbance and other licensing queries, see Natural England (2007) Badgers & Development: A Guide to Best Practice and Licensing. www.naturalengland.org.uk/Images/badgers-dev-guidance_tcm6-4057.pdf, Natural England (2009) Interpretation of 'Disturbance' in relation to badgers occupying a sett www.naturalengland.org.uk/Images/WMLG16_tcm6-11814.pdf, Scottish Natural Heritage (2002) Badgers & Development. www.snh.org.uk/publications/online/wildlife/badgersanddevelopment/default.asp and Countryside Council for Wales (undated) Badgers: A Guide for Developers. www.ccw.gov.uk.

¹⁸ Natural England will only consider issuing a licence where detailed planning permission (if applicable to operation) has already been granted

badgers whilst in the sett. Depending on the nature of the works and the specifics of the sett and its environs, badgers could be disturbed by work near the sett even if there is no direct interference or damage to the sett itself. The countryside agencies have issued guidelines on what constitutes a licensable activity. N.B. there is no provision in law for the capture of badgers for development purposes and therefore it is not possible to obtain a licence to translocate badgers from one area to another.

Bats

All species of bat are fully protected under The Conservation of Habitats and Species Regulations 2010 (as amended) through their inclusion on Schedule 2. Regulation 41 prohibits:

- Deliberate killing, injuring or capturing of Schedule 2 species (e.g. all bats)
- Deliberate disturbance of bat species as:
 - a) to impair their ability:
 - (i) to survive, breed, or reproduce, or to rear or nurture young;
 - (ii) to hibernate or migrate³
 - b) to affect significantly the local distribution or abundance of the species
- Damage or destruction of a breeding site or resting place
- Keeping, transporting, selling, exchanging or offering for sale whether live or dead or of any part thereof.

Bats are also currently protected under the Wildlife and Countryside Act 1981 (as amended) through their inclusion on Schedule 5. Under this Act, they are additionally protected from:

- Intentional or reckless disturbance (at any level)
- Intentional or reckless obstruction of access to any place of shelter or protection
- Selling, offering or exposing for sale, possession or transporting for purpose of sale.

How is the legislation pertaining to bats liable to affect development works?

A European Protected Species (EPS) Licence issued by the relevant countryside agency (e.g. Natural England) will be required for works liable to affect a bat roost or for operations likely to result in a level of disturbance which might impair their ability to undertake those activities mentioned above (e.g. survive, breed, rear young and hibernate). The licence is to allow derogation from the relevant legislation but also to enable appropriate mitigation measures to be put in place and their efficacy to be monitored.

Though there is no case law to date, the legislation may also be interpreted such that, in certain circumstances, important foraging areas and/or commuting routes can be regarded as being afforded *de facto* protection, for example, where it can be proven that the continued usage of such areas is crucial to maintaining the integrity and long-term viability of a bat roost¹⁹.

¹⁹ Garland & Markham (2008) Is important bat foraging and commuting habitat legally protected? Mammal News, No. 150. The Mammal Society, Southampton.

Birds

With certain exceptions, all birds, their nests and eggs are protected under Sections 1-8 of the Wildlife and Countryside Act 1981 (as amended). Among other things, this makes it an offence to:

- Intentionally (or recklessly in Scotland) kill, injure or take any wild bird
- Intentionally (or recklessly in Scotland) take, damage or destroy (or, in Scotland, otherwise interfere with) the nest of any wild bird while it is in use or being built
- Intentionally take or destroy an egg of any wild bird
- Sell, offer or expose for sale, have in his possession or transport for the purpose of sale any wild bird (dead or alive) or bird egg or part thereof.
- In Scotland only, intentionally or recklessly obstruct or prevent any wild bird from using its nest

Certain species of bird, for example the barn owl, black redstart, hobby, bittern and kingfisher receive additional special protection under Schedule 1 of the Act and Annex 1 of the European Community Directive on the Conservation of Wild Birds (2009/147/EC). This affords them protection against:

- Intentional or reckless disturbance while it is building a nest or is in, on or near a nest containing eggs or young
- Intentional or reckless disturbance of dependent young of such a bird
- In Scotland only, intentional or reckless disturbance whilst lekking
- In Scotland only, intentional or reckless harassment

How is the legislation pertaining to birds liable to affect development works?

To avoid contravention of the Wildlife and Countryside Act 1981 (as amended), works should be planned to avoid the possibility of killing or injuring any wild bird, or damaging or destroying their nests. The most effective way to reduce the likelihood of nest destruction in particular is to undertake work outside the main bird nesting season which typically runs from March to August²⁰. Where this is not feasible, it will be necessary to have any areas of suitable habitat thoroughly checked for nests prior to vegetation clearance.

Those species of bird listed on Schedule 1 are additionally protected against disturbance during the nesting season. Thus, it will be necessary to ensure that no potentially disturbing works are undertaken in the vicinity of the nest. The most effective way to avoid disturbance is to postpone works until the young have fledged. If this is not feasible, it may be possible to maintain an appropriate buffer zone or standoff around the nest.

²⁰ It should be noted that this is the main breeding period. Breeding activity may occur outside this period (depending on the particular species and geographical location of the site) and thus due care and attention should be given when undertaking potentially disturbing works at any time of year.

Wild Mammals (Protection) Act 1996

All wild mammals are protected against intentional acts of cruelty under the above legislation. This makes it an offence to:

- Mutilate, kick, beat, nail or otherwise impale, stab, burn, stone, crush, drown, drag or asphyxiate any wild mammal with intent to inflict unnecessary suffering.

To avoid possible contravention, due care and attention should be taken when carrying out works (for example operations near burrows or nests) with the potential to affect any wild mammal in this way, regardless of whether they are legally protected through other conservation legislation or not.

Plants

With certain exceptions, all wild plants are protected under the Wildlife and Countryside Act 1981 (as amended). This makes it an offence for an 'unauthorised' person to intentionally (or recklessly in Scotland) uproot wild plants. An authorised person can be the owner of the land on which the action is taken, or anybody authorised by them.

Certain rare species of plant, for example some species of orchid, are also fully protected under Schedule 8 of the Wildlife and Countryside Act 1981 (as amended). This prohibits *any* person:

- Intentionally (or recklessly in Scotland) picking, uprooting or destruction of any wild Schedule 8 species (or seed or spore attached to any such wild plant in Scotland only)
- Selling, offering or exposing for sale, or possessing or transporting for the purpose of sale, any wild live or dead Schedule 8 plant species or part thereof
- In addition to the UK legislation outlined above, several plant species are fully protected under Schedule 5 of The Conservation of Habitats and Species Regulations 2010. These are species of European importance. Regulation 45 makes it an offence to:
- Deliberately pick, collect, cut, uproot or destroy a wild Schedule 5 species
- Be in possession of, or control, transport, sell or exchange, or offer for sale or exchange any wild live or dead Schedule 5 species or anything derived from such a plant.

How is the legislation pertaining to protected plants liable to affect development works?

A European Protected Species (EPS) Licence issued by the relevant countryside agency (e.g. Natural England) will be required for works liable to affect species of plant listed under The Conservation of Habitat and Species Regulations 2010. The licence is to allow derogation from the relevant legislation but also to enable appropriate mitigation measures to be put in place and their efficacy to be monitored.

Invasive Plant Species

Certain species of plant, including Japanese knotweed *Fallopia japonica*, giant hogweed *Heracleum mantegazzianum* and Himalayan balsam *Impatiens glandulifera* are listed on Part II of Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) in respect to Section 14(2). Such species are generally non-natives whose establishment or spread in the wild may be detrimental to native wildlife. Inclusion on Part II of Schedule 9 therefore makes it an offence to plant or otherwise cause these species to grow in the wild.

How is the legislation pertaining to invasive plants liable to affect development works?

Although it is not an offence to have these plants on your land *per se*, it is an offence to *cause* these species to grow in the wild. Therefore, if they are present on site and development activities (for example movement of spoil, disposal of cut waste or vehicular movements) have the potential to cause the further spread of these species to new areas, it will be necessary to ensure appropriate measures are in place to prevent this happening prior to the commencement of works.

Plants: Injurious Weeds

Under the Weeds Act 1959 any land owner or occupier may be required prevent the spread of certain 'injurious weeds' such as spear thistle *Cirsium vulgare*, creeping thistle *Cirsium arvense*, curled dock *Rumex crispus*, broad-leaved dock *Rumex obtusifolius*, and common ragwort *Senecio jacobaea*. It is a criminal offence to fail to comply with a notice requiring such action to be taken. The Ragwort Control Act 2003 establishes a ragwort control code of practice as common ragwort is poisonous to horses and other livestock. This code provides best practice guidelines and is not legally binding.

B NATIONAL AND EUROPEAN LEGISLATION AFFORDED TO HABITATS

Statutory Designations: National

Nationally important areas of special scientific interest, by reason of their flora, fauna, or geological or physiographical features, are notified by the countryside agencies as statutory **Sites of Special Scientific Interest** (SSSIs) under the National Parks and Access to the Countryside Act 1949 and latterly the Wildlife & Countryside Act 1981 (as amended). As well as underpinning other national designations (such as **National Nature Reserves** which are declared by the countryside agencies under the same legislation), the system also provides statutory protection for terrestrial and coastal sites which are important within a European context (Natura 2000 network) and globally (such as Wetlands of International Importance). See subsequent sections for details of these designations. Improved provisions for the protection and management of SSSIs have been introduced by the Countryside and Rights of Way Act 2000 (in England and Wales) and the Nature Conservation (Scotland) Act 2004.

The Wildlife & Countryside Act 1981 (as amended) also provides for the making of **Limestone Pavement Orders**, which prohibit the disturbance and removal of limestone from such designated areas, and the designation of **Marine Nature Reserves**, for which byelaws must be made to protect them.

Statutory Designations: International

Special Protection Areas (SPAs), together with **Special Areas of Conservation** (SACs) form the **Natura 2000** network. The Government is obliged to identify and classify SPAs under the EC Birds Directive (Council Directive 2009/147/EC (formerly 79/409/EEC)) on the Conservation of Wild Birds). SPAs are areas of the most important habitat for rare (listed on Annex I of the Directive) and migratory birds within the European Union. Protection afforded SPAs in terrestrial areas and territorial marine waters out to 12 nautical miles (nm) is given by The Conservation of Habitats & Species Regulations 2010. The Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 (as amended) provide a mechanism for the designation and protection of SPAs in UK offshore waters (from 12-200 nm).

The Government is obliged to identify and designate SACs under the EC Habitats Directive (Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna

and Flora). These are areas which have been identified as best representing the range and variety of habitats and (non-bird) species listed on Annexes I and II to the Directive within the European Union. SACs in terrestrial areas and territorial marine waters out to 12 nautical miles are protected under The Conservation of Habitats & Species Regulations 2010. The Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 (as amended) provide a mechanism for the designation and protection of SACs in UK offshore waters (from 12-200 nm).

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. The Convention covers all aspects of wetland conservation and wise use, in particular recognizing wetlands as ecosystems that are globally important for biodiversity conservation. Wetlands can include areas of marsh, fen, peatland or water and may be natural or artificial, permanent or temporary. Wetlands may also incorporate riparian and coastal zones adjacent to the wetlands. Ramsar sites are underpinned through prior notification as Sites of Special Scientific Interest (SSSIs) and as such receive statutory protection under the Wildlife & Countryside Act 1981 (as amended) with further protection provided by the Countryside and Rights of Way (CROW) Act 2000. Policy statements have been issued by the Government in England and Wales highlighting the special status of Ramsar sites. This effectively extends the level of protection to that afforded to sites which have been designated under the EC Birds and Habitats Directives as part of the Natura 2000 network (e.g. SACs & SPAs).

Statutory Designations: Local

Under the National Parks and Access to the Countryside Act 1949 **Local Nature Reserves** (LNRs) may be declared by local authorities after consultation with the relevant countryside agency. LNRs are declared for sites holding special wildlife or geological interest at a local level and are managed for nature conservation, and provide opportunities for research and education and enjoyment of nature.

Non-Statutory Designations

Areas considered to be of local conservation interest may be designated by local authorities as a **Wildlife Site**, under a variety of names such as **County Wildlife Sites** (CWS), **Listed Wildlife Sites** (LWS), **Local Nature Conservation Sites** (LNCS), **Sites of Biological Importance** (SBIs), **Sites of Importance for Nature Conservation** (SINCs), or **Sites of Nature Conservation Importance** (SNCIs). The criteria for designation may vary between counties.

Together with the statutory designations, these are defined in local and structure plans under the Town and Country Planning system and are a material consideration when planning applications are being determined. The level of protection afforded to these sites through local planning policies and development frameworks may vary between counties.

Regionally Important Geological and Geomorphological Sites (RIGS) are the most important places for geology and geomorphology outside land holding statutory designations such as SSSIs. Locally-developed criteria are used to select these sites, according to their value for education, scientific study, historical significance or aesthetic qualities. As with local Wildlife Sites, RIGS are a material consideration when planning applications are being determined.

The Hedgerow Regulations 1997

The Hedgerow Regulations 1997 are intended to protect 'important' countryside hedgerows from destruction or damage. A hedgerow is considered important if (a) has existed for 30

years or more; and (b) satisfies at least one of the criteria listed in Part II of Schedule 1 of the Regulations.

Under the Regulations, it is against the law to remove or destroy certain hedgerows without permission from the local planning authority. Hedgerows on or adjacent to common land, village greens, SSSIs (including all terrestrial SACs, NNRs and SPAs), LNRs, land used for agriculture or forestry and land used for the keeping or breeding of horses, ponies or donkeys are covered by these regulations. Hedgerows *'within or marking the boundary of the curtilage of a dwelling-house'* are not.

C NATIONAL PLANNING POLICY

National Planning Policy Framework 2012

The National Planning Policy Framework replaces PPS9 (from April 2012) and emphasises the need for sustainable development. The Framework specifies the need for protection of designated sites and priority habitats and priority species. An emphasis is also made for the need for ecological networks via preservation, restoration and re-creation. The protection and recovery of priority species – presumably those listed as UK Biodiversity Action Plan priority species – is also listed as a requirement of planning policy. In determining planning application, planning authorities should aim to conserve and enhance biodiversity by ensuring that: designated sites are protected from adverse harm; there is appropriate mitigation or compensation where significant harm cannot be avoided; opportunities to incorporate biodiversity in and around developments are encouraged; planning permission is refused for development resulting in the loss or deterioration of irreplaceable habitats including aged or veteran trees and also ancient woodland.

The Natural Environment and Rural Communities Act 2006 and The Biodiversity Duty

The Natural Environment and Rural Communities (NERC) Act came into force on 1st October 2006. Section 40 of the Act requires all public bodies to have regard to biodiversity conservation when carrying out their functions. This is commonly referred to as the 'biodiversity duty'. Section 41 of the Act (Section 42 in Wales) requires the Secretary of State to publish a list of habitats and species which are of 'principal importance for the conservation of biodiversity.' This list is intended to assist decision makers such as public bodies in implementing their duty under Section 40 of the Act. Under the Act these habitats and species are regarded as a material consideration in determining planning applications. A developer must show that their protection has been adequately addressed within a development proposal.

D REGIONAL AND LOCAL PLANNING POLICY

The South East Plan (also known as the Regional Spatial Strategy for the South East) sets out the overall vision for the South East Region up to 2026 (Communities and Local Government, 2009). It outlines challenges facing the region, such as housing, economy, transport and environmental protection. More specifically it provides direction for Local Development Frameworks (LDFs) and includes the following Core Regional Policies that are relevant to the site.

Policy NRM5: Conservation and Improvement of Biodiversity

“Local planning authorities and other bodies shall avoid a net loss of biodiversity, and actively pursue opportunities to achieve a net gain across the region.

- (i) They shall ensure appropriate access to areas of wildlife importance, identifying areas of opportunity for biodiversity improvement and setting targets reflecting those in the table headed 'Regional Biodiversity Targets - Summary for 2010 and 2026' below. Opportunities for biodiversity improvement, including connection of sites, large-scale habitat restoration, enhancement and re-creation in the areas of strategic opportunity for biodiversity improvement (Diagram NRM3) should be pursued*
- (ii) They shall influence and applying agri-environment schemes, forestry, flood defence, restoration of mineral extraction sites and other land management practices to:*
 - deliver biodiversity targets
 - increase the wildlife value of land
 - reduce diffuse pollution
 - protect soil resources.
- (iii) They shall promote policies that integrate the need to accommodate the changes taking place in agriculture with the potential implications of resultant development in the countryside.*
- (iv) They shall require green infrastructure to be identified, developed and implemented in conjunction with new development”.*

Policy C4: Landscape and Countryside management

“Outside nationally designated landscapes, positive and high quality management of the region’s open countryside will be encouraged and supported by local authorities and other organisations, agencies, land managers, the private sector and local communities, through a combination of planning policies, grant aid and other measures.

In particular, planning authorities and other agencies in their plans and programmes should recognise, and aim to protect and enhance, the diversity and local distinctiveness of the region’s landscape, informed by landscape character assessment.

Positive land management is particularly needed around the edge of London and in other areas subject to most growth and change. In such areas long-term goals for landscape conservation and renewal and habitat improvement should be set, and full advantage taken of agri-environmental funding and other management tools.

Local authorities should develop criteria-based policies to ensure that all development respects and enhances local landscape character, securing appropriate mitigation where damage to local landscape character cannot be avoided.”

Policy CC1: Sustainable Development

“The principal objective of the Plan is to achieve and to maintain sustainable development in the region. Sustainable development priorities for the South East are identified as:

- (i) achieving sustainable levels of resource use*
- (ii) ensuring the physical and natural environment of the South East is conserved and enhanced*
- (iii) reducing greenhouse gas emissions associated with the region*
- (iv) ensuring that the South East is prepared for the inevitable impacts of climate change*
- (v) achieving safe, secure and socially inclusive communities across the region, and ensuring that the most deprived people also have an equal opportunity to benefit from and contribute to a better quality of life.*

Policy CC4: Sustainable Design and Construction

“The design and construction of all new development, and the redevelopment and refurbishment of existing building stock will be expected to adopt and incorporate sustainable construction standards and techniques. This will include:

consideration of how all aspects of development form can contribute to securing high standards of sustainable development including aspects such as energy, water efficiency and biodiversity gain”,,,,,

Policy CC6: Sustainable Communities and Character of the Environment

“Actions and decisions associated with the development and use of land will actively promote the creation of sustainable and distinctive communities. This will be achieved by developing and implementing a local shared vision which:

- (i) respects, and where appropriate enhances, the character and distinctiveness of settlements and landscapes throughout the region.*
- (ii) uses innovative design processes to create a high quality built environment which promotes a sense of place. This will include consideration of accessibility, social inclusion, the need for environmentally sensitive development and crime reduction”*

The Adur District Local Plan (1996) was adopted in 1996, but is to be replaced by suite of documents as part of the Local Development Framework, which will eventually replace the Local Plan. Nature conservation policies An1-An5 in Chapter 6 of the Local Plan have not been saved. The following policies relating to trees and landscaping have been saved:

Policy AB25

Planning permission for development which would adversely affect existing trees will only be granted where:-

- (a) the trees are in poor health;
- (b) the trees are of poor appearance and of little public amenity value.

Sufficient space shall be left around trees to be retained to avoid threatening their survival. Applications for development (including outline applications) shall include where appropriate an accurate site survey showing the precise location and canopy spread of all existing trees.

Policy AB26

Planning permission for new development which could appropriately accommodate tree planting will normally only be granted where such provision is made on a significant scale as an integral part of the overall design of the development. Conditions will be imposed accordingly and consideration will be given to making Tree Preservation Orders for the future protection of the trees to be planted. Proposals incorporating insufficient tree planting relative to the scale of development proposed (or not providing adequate space for the growth of the trees) will be refused unless there are exceptional reasons.

Policy AB27

Planning permission for new development which could appropriately accommodate landscaping will only be granted subject to a scheme forming an integral part of the proposal and the scheme being appropriate to the coastal environment of Adur District, including the planting of predominantly native trees.

E BIODIVERSITY ACTION PLANS (BAPs)

The UK BAP was published in 1994 to comply with obligations under the Convention on Biological Diversity (The Biodiversity Treaty, 1992). It describes the UK’s biological resources and commits to developing detailed plans to conserve these resources. The UK BAP comprises Habitat Action Plans (HAPs) and Species Action Plans (SAPs). In addition, local authorities promote habitat and species conservation at a regional level through development of Local BAPs (LBAPs).

UK Priority BAP species and habitats, that are potentially relevant to the site include:

- Birds such as house sparrow, dunnock, linnets, starling, skylark, lapwing, reed bunting and song thrush;
- Reptiles such as slow worm, common lizard and grass snake;
- Amphibians such as great crested newt and common toad;
- Small mammals such as hedgehog, water vole, dormouse and brown hare;
- Invertebrates such as grizzled skipper and stag beetle;
- Bats such as soprano pipistrelle, noctule and brown long eared bat;
- Plants such as true fox sedge and divided sedge; and,
- Habitats such as hedgerow, lowland meadows, lowland mixed deciduous woodland, wet woodland, arable field margins, reed beds, ponds/standing water, coastal and floodplain grazing marsh and rivers/streams.

The most up to date targets and actions, including latest progress reports, for UK HAPs and SAPs can be viewed on the DEFRA website²¹.

In addition to the UK BAP, BAPs are also produced at the regional/county level. **The Sussex BAP** is managed by the Sussex Biodiversity Partnership. The aims and objectives of the Sussex BAP (2010) are to reflect UK targets for habitats and species of conservation concern and translate them at a local level and to integrate the needs of species and habitats within landscape-scale delivery. Currently, no county specific targets have been set, but the old Sussex BAP has been archived and can be viewed on the Sussex Biodiversity Partnership website²².

The distribution of BAP habitats present across the South-East has been used to identify Biodiversity Opportunity Areas (The South East Biodiversity Forum, 2009). BOAs represent a targeted landscape-scale approach to biodiversity conservation in the county and form the basis for an ecological network and opportunity for restoration and creation of BAP habitats. Where possible, BAP targets should be linked to BOAs, increasing effectiveness of work and making reporting easier. There are 75 BOAs across Sussex and 6 within Adur District.

²¹ DEFRA website

<http://ukbars.defra.gov.uk/plans/national.asp?S=&L=1&O=&SAP=&HAP=&submitted=1&flipLang=&txtLogout>

²² Sussex Biodiversity Partnership <http://www.biodiversitysussex.org/>



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