

**LAND AT LOWER ROAD,
BEDHAMPTON**

ECOLOGICAL ASSESSMENT

APRIL 2019

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LAND AT LOWER ROAD, BEDHAMPTON

ECOLOGICAL ASSESSMENT

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ECOLOGICAL ASSESSMENT

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1.0 INTRODUCTION

1.1 Background

1.1.1 Aluco Ecology Ltd was commissioned to carry out an Ecological Assessment of Land at Lower Road, Bedhampton for Bargate Homes.

1.1.2 The aim of the Ecological Assessment is to survey and document baseline ecology data on the site and study area, and then evaluate and assess the impacts of the proposals for Planning Permission against this baseline. The assessment therefore:

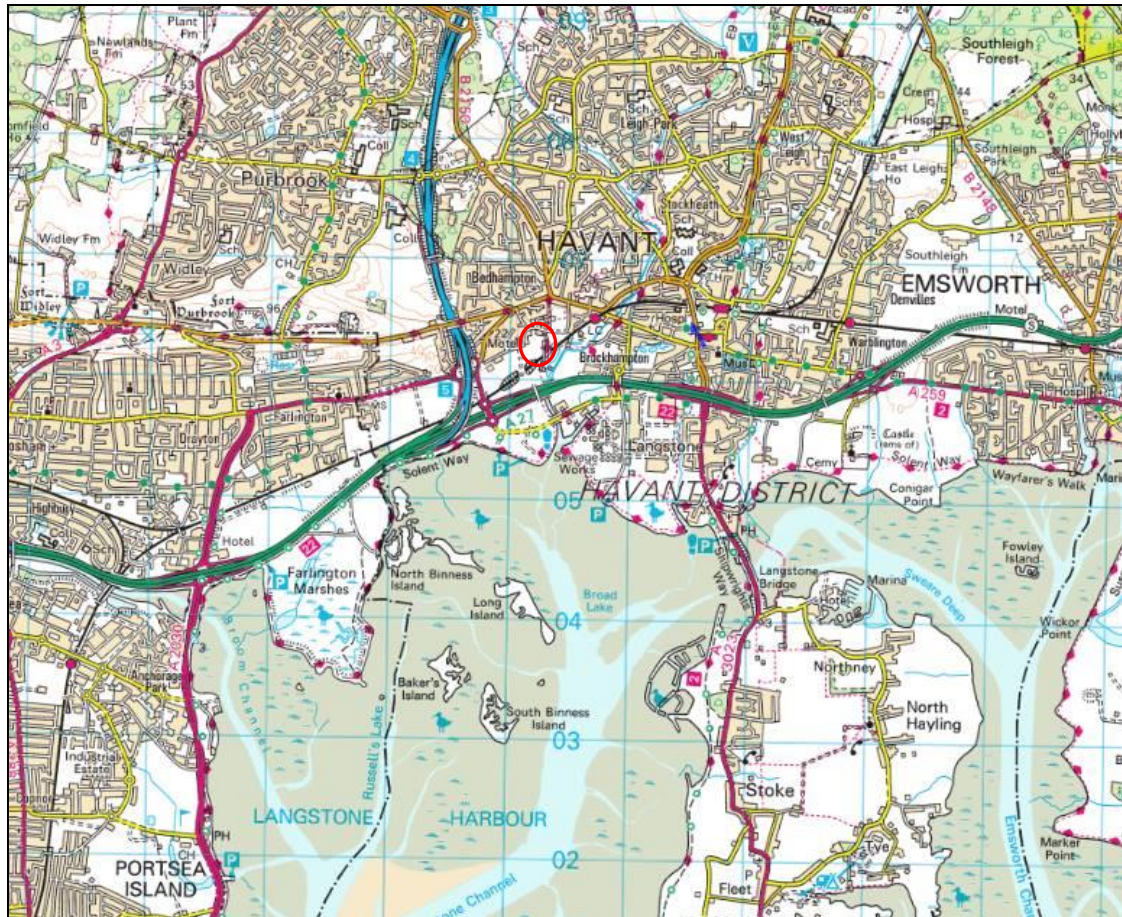
- highlights any features of particular ecological value;
- identifies potential impacts to ecology as a result of the proposed works;
- identifies any ecological issues that may have legal or planning implications such as the presence of protected species; and
- recommends potential for mitigation and/or compensation that can be undertaken to avoid, reduce or offset the potential for impacts.

1.1.3 The Government sets out its objectives for conserving and enhancing biodiversity in the National Planning Policy Framework (Revised NPPF, 2019). The Government's objectives for planning include an environmental objective 'to contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.'

1.1.4 The Framework goes on to state that at the heart of the planning system is a presumption in favour of sustainable development. Planning Practice Guidance on the Natural Environment provides information on taking biodiversity into account in planning (see Section 15 of the revised NPPF, 2019).

1.2 Outline of the Scheme and Site Location

- 1.2.1 The site is located in Bedhampton, Havant. The location is shown at **Figure 1** below. It comprises an arable field.



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Figure 1: Location of the site

- 1.2.2 A development scheme for 50 dwellings is proposed on site. **Figure 2** below shows the red line boundary of the site and proposed development.

1.3 Relevant Legislation and Policy

- 1.3.1 The outcomes of this Ecological Appraisal will be tested against relevant legislation and policy; namely the Habitat Regulations 2017 in relation to the protection of European sites (Special Protection Areas SPA, and Special Areas of Conservation SAC) and European protected species (eg bats, dormouse, great crested newts) (**Technical Appendix 1**) and the Wildlife & Countryside Act 1981 (as amended) and Countryside & Rights of Way Act (CRoW) 2000 for protected species and the designation and protection of SSSIs (**Technical Appendix 1**). The Protection of Badgers Act 1992 gives protection to Badgers *Meles meles*.
- 1.3.2 In addition to the National Planning Policy Framework and the legislation outlined above, the strategic and local planning policies are also considered; Havant Borough Council Local Development Framework contains policies relating to ecology, these are outlined at **Technical Appendix 2**.
- 1.3.3 Under the Governments duty to conserve Biodiversity, a number of Biodiversity Action Plans have been prepared for habitats and species of conservation concern, including national BAPs and a Biodiversity Action Plan for Hampshire, and this is considered in the general ecological site appraisal. The Council has also recently published its updated Biodiversity Strategy (HBC, 2019), which has been considered in the assessment.



Figure 2: Proposed Development (HGP, 2019)

2.0 ASSESSMENT METHODOLOGY

2.1 Introduction

- 2.1.1 The methodology for this Appraisal has regard to the Guidelines for Ecological Impact Assessment (EcIA) in the United Kingdom published by the Chartered Institute of Ecology and Environmental Management (IEEM, 2006 & CIEEM 2016 & 2018), and on the guidelines for ecological appraisal (IEEM, 2012), and report writing guidelines (CIEEM, 2015).

2.2 Site Survey Methodology

Ecology Appraisal

- 2.2.1 The first stage is a desk study of the site and associated Zone of Influence. This provides background information on the site and local environment in order to effectively target field survey and further desk research. This includes a data search from the Hampshire Biological Records Centre. The aims of the field survey are to record land-use and broad vegetation types present on the site and in the surrounding areas, and to evaluate the habitats and vegetation communities' potential ecological value along with their potential to support protected species, species of principal importance, and any other notable species. Further details of the methodology used can be found in **Technical Appendix 3**.
- 2.2.2 The initial Appraisal of the site detailed requirements for Phase 2 ecology survey work, which was undertaken during 2016 & 2017. Update site visits have also been undertaken in June and October 2018. Methodologies for these surveys are provided in the relevant sections below and corresponding Technical Appendices.

3.0 BIOPHYSICAL CHANGES AND THE ZONE OF INFLUENCE

3.1 Introduction

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

3.1.2 **Figure 2** shows the extent of the site and proposed development.

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

3.2.1 It is anticipated that change of use of the site would result in the physical structure of the present site being altered. The potential zone of influence of the proposal is determined from the predicted biophysical changes brought about by activities associated with construction and post-construction phases. Therefore the zone is predicted to extend across the development footprint and locally along the edge of the site, and immediately adjacent to the site. Consequently, survey has been carried out within this zone.

3.3 Site Preparation / Construction Activities and Biophysical Changes

3.3.1 During the construction phase, it is predicted that site preparation activities will include some earthworks and earth stripping associated with the building and road footprints. This phase may affect habitat suitable for wildlife. Without appropriate mitigation, site clearance work may result in death or injury to protected species (if they are present), or damage to other features of ecological value. Construction could result in the loss of features of ecological value and/or the loss of habitat of protected species resulting in a net decrease in biodiversity.

3.3.2 The construction of the site has the potential to affect adjacent habitats, where present, through noise, air and run off pollution.

3.4 Predicted Operational Activities during Use Phase and Biophysical Changes

3.4.1 The operational phase will need to consider how protected species and species of conservation concern may use the site and zone of influence, and what effect the proposals may have on their conservation status locally.

4.0 BASELINE CONDITIONS WITHIN THE ZONE OF INFLUENCE

4.1 Introduction

- 4.1.1 The ecological baseline describes the site in the context of the characteristic habitats of the area, and includes descriptions of designated sites and ecological features present within the potential zone of influence of any proposed development.

4.2 Designated Sites

Statutory Designated Sites

- 4.2.1 There is one Site of Special Scientific Interest (SSSI) designated of regional to national importance present within 2km of the site. This is Langstone Harbour SSSI, which at its closest point is about 570m from the site, and is designated for coastal habitats and associated species including waterfowl. SSSIs are afforded protection under the Wildlife & Countryside Act 1981 (as amended)
- 4.2.2 A number of International and European designated sites are present within 7km of the site. These sites are afforded protection under the Habitat Regulations (2010). These include Chichester & Langstone Harbours Special Protection Area (SPA) and Ramsar Site (c570m from the site); Portsmouth Harbour SPA and Ramsar Site (c4.9km from the site); Solent Maritime Special Area of Conservation (SAC) (c570m from the site); Solent & Isle of Wight Lagoons SAC (c2.5km from the site) and the Solent & Dorset Coast pSPA (c7km from the site). The citations for the European Solent designated sites are provided in **Technical Appendix 4**, which detail the interest features of each site.
- 4.2.3 No Local Nature Reserves (LNRs) are present within 1km of the site. The closest, Farlington Marshes LNR, is approximately 1.1km from the site at its closest point. LNRs are afforded protection under the National Parks and Access to the Countryside Act 1949 (as amended by the Natural Environment and Rural Communities Act 2006).

Non Statutory Designated Sites

- 4.2.4 Sites of Importance for Nature Conservation (SINCs) are afforded protection under the Havant Borough Council Local Plan. There are four SINCs present within 1km of the site (See map at **Technical Appendix 4**). A further three sites were also a one stage designated as SINCs for their inclusion in the Solent Brent Goose Strategy (HWT, 2010) as being of value for Waders and/or Brent Geese *Branta bernicula*, or of uncertain value, including the site (which is SINC HV0043 – Manor Farm A). However the latest Biodiversity Strategy (HBC, 2019) does not include such sites in the list of SINCs in Havant Borough, as they are considered under the Solent Waders & Brent Goose Strategy (SWBGS, 2018).
- 4.2.5 The site is at its closest point about 170m from the Mean High Water mark, as it comes up the Hermitage Stream channel at Bedhampton, south east of the site.

- 4.2.6 The site and surrounding fields are classed as ‘Uncertain’ value to Waders in the Solent Brent Goose Strategy (HWT, 2010). A field south of the A27 and railway corridor about 250m from the site is classed as ‘Important’ for Brent Geese (SWBGS, 2018). These are shown in a Figure in **Technical Appendix 5**. In emerging guidance from the Brent Goose Strategy the site is classified as a ‘Secondary Support Area.’

4.3 Habitats and Vegetation

Introduction

- 4.3.1 The following description is based on a survey visit on 05 August 2016 with updated site visits during the period Sept. 2016- October 2018. The site consists of arable production with fence, hedge and tree lined boundaries over part of the site. Broad habitats types are illustrated on **Figure 3** below.

Arable

- 4.3.2 The site consists of part of an arable field unit and a second small strip of a second unit to the east. Arable flora recorded, mostly within the field edge margins and a farm tack, included Field Horsetail *Equisetum arvense*, Field Madder *Sherardia arvensis*, Scentless Mayweed *Tripleurospermum inodorum*, Scented Mayweed *Matricaria recutita*, Redshank *Persicaria maculosa*, Shepherd’s Purse *Capsella bursa-pastoris*, Common Knotweed *Polygonum arenastrum*, Scarlet Pimpernel *Anagallis arvensis*, Cut-leaved Cranesbill *G. dissectum*, Sun Spurge *Euphorbia helioscopia*, Petty Spurge *Euphorbia peplus*, Annual Mercury *Mercurialis annua*, Fat Hen *Chenopodium album*, Many-seeded Goosefoot *Chenopodium polyspermum*, Wall Speedwell *Veronica arvensis*, Common Field Speedwell *Veronica persica*, Groundsel *Senecio vulgaris*, Greater Plantain *Plantago major*, Pinappleweed *Matricaria discoidea*, Cleavers *Galium aparine*, Wild Radish *Raphanus raphanistrum*, Black Nightshade *Solanum nigrum*, Field Forget-me-not *Myosotis arvensis*, Field Bindweed *C. arvensis*, Nipplewort *Lapsana communis*, and Hoary Willowherb *Epilobium parviflorum*.
- 4.3.3 Arable grasses were also present including Annual Meadow Grass *Poa annua*, Wild Oat *Avena fatua*, Soft Brome *Bromus hordeaceus*, Barren Brome *Bromus sterilis* and the neophyte Cockspur *Echinochloa crus-gallii*, which is sometimes introduced as part of game seed mixes. No scarce species were noted, and a single local species of arable/disturbed ground, Sharp-leaved Fluellin *Kickxia spuria*, was present in small quantities along the southern boundary. The arable habitats are shown at **Photos 1-2** below.



Photo 1: Marginal Arable Habitats on Site



Photo 2: Farm track

Grasslands

- 4.3.4 There is only limited grassland habitats on site, restricted to a small 1m strip the northern boundary, and roadside boundary; developing grasslands on the farm track, and off site to the south along a railway bridge. The northern boundary roadside strip is dominated by False Oat Grass *Arrhenatherum elatius*. The strip along the northern boundary hedge is c1-2m wide and

contains locally abundant to dominant False Oat Grass, and some Wood False Brome *Brachypodium sylvaticum*, and Creeping Bent *Agrostis stolonifera*. Other grasses present included Common Couch *Elymus (Elytrigia) repens*, Soft Brome, Barren Brome, and Cocksfoot *Dactylis glomerata*. Herbs present included locally abundant to dominant Creeping Thistle *Cirsium arvense*, and Nettles *Urtica dioica*, as well as occasional Mugwort *Artemisia vulgaris*, Common Mallow *Malva sylvestris*, Fleabane *Pulicaria dysenterica*, Stone Parsley *Sison amomum*, Field Horsetail, Curled Dock *Rumex crispus*, Spear Thistle *Cirsium vulgare*, Great Willowherb *Epilobium hirsutum*, Bristly Ox-tongue *Helminthotheca echioides*, and Common Ragwort *Senecio vulgaris*. A single plant of Hoary Ragwort *Senecio erucifolius* was also noted.

- 4.3.5 A small strip of grassland has developed on the ramp up to the railway bridge at the southern boundary of the site, and on the railway bridge itself, both of which are just off site. The ramp contains species poor grasslands under tree lined banks with False Oat Grass and Wood False Brome, and abundant Ivy, as well as some Hedge Bedstraw *Galium album (mollugo)*, Hedge Woundwort *Stachys sylvatica* and Stinking Iris *Iris foetidissima*.
- 4.3.6 The bridge, which is off site, is an old brick built structure with herb rich grassland that has developed along its length. The grassland contains False Oat Grass, Wood False Brome, Red Fescue *Festuca rubra*, Yorkshire Fog *Holcus lanatus*, Rye Grass *Lolium perenne*, Small Timothy *Phleum cf. bertolonii*, and Cocksfoot. A patch of Grey Sedge *Carex divulsa* was also present. Herbs included abundant Red Clover *Trifolium pratense*, as well as frequent to occasional Common Knapweed *Centaurea nigra*, Perforate St John's Wort *Hypericum perforatum*, Fleabane, Common Mouse-ear *Cerastium fontanum*, Ribwort Plantain *Plantago lanceolata*, Yarrow *Achillea millefolium*, Red Bartsia *Odontites vernus*, Daisy *Bellis perennis*, Stone Parsley, Hoary & Common Ragwort, Hedge Woundwort, Hemp Agrimony *Eupatorium cannabinum*, Perennial Sow-thistle *Sonchus arvensis*, Wild Clematis *Clematis vitalba*, Nettles, Ivy, Mugwort and in 2017 a single spike of Common Broomrape *Orobanche minor*. The walls of the bridge contain an interesting flora, with a couple of plants of the locally scarce Common Calamint *Clinopodium ascendens*, frequent Wall Rue *Asplenium ruta-muraria*, Thyme-leaved Sandwort *Arenaria serpyllifolia ssp. serpyllifolia*, and Fern Grass *Catapodium rigidum*.
- 4.3.7 The farm track through the site is starting to develop a species poor grassland, with Soft Brome, Creeping Bent and Barren Brome (see **Photo 2** above).
- 4.3.8 The grasslands are shown at **Photos 3-6** below.



Photo 3: Roadside boundary (far side of road showing managed False Oat Grass verge)



Photo 4: Northern boundary Grassland strip



Photo 3: Grassland on railway bridge ramp, southern boundary



Photo 6: Railway Bridge

Boundaries

4.3.9 The boundaries are labelled on **Figure 3** and detailed below.

Boundary 1 – Lower Road Boundary

4.3.10 The boundary is a moderately diverse, managed hedgerow (1.5m x 2m) that is mostly dominated by Blackthorn *Prunus spinosa* and Hawthorn *Crataegus monogyna*, with abundant Brambles *Rubus fruticosus* agg. Dogwood *Cornus* sp. is locally abundant, and Field Maple *Acer campestre*, Elm *Ulmus procera*, Elder *Sambucus nigra*, Hazel *Corylus avellana* and Sycamore *Acer pseudoplatanus* (including a couple of trees) are occasional to rare. The ground flora is dominated by Nettles *Urtica dioica*, Ivy *Hedera helix*, Ground Ivy *Glechoma hederacea*, and Field Horsetail *Equisetum arvense* and merges into the grasslands described above. A small bank is present along the roadside. The boundary is shown at **Photo 7** below.

Boundary 2 – Old Manor Farm Boundary

4.3.11 The western boundary strip is a Hawthorn dominated hedge with abundant Bramble and Nettles. It is 1.5m x 2m. The southern boundary is an area of ruderal vegetation with Nettles, Stone Parsley and Common Mallow, Mugwort and Bramble scrub. A number of ornamental shrubs and bushes are planted along boundary, as part of the dwellings offsite. The boundary is relatively recent. It is shown at **Photo 8 & 9** below.

Boundary 3 – Western Boundary

4.3.12 This boundary is not present on the ground, and is part of the arable field. It is shown at **Photos 10** below.



Photo 7: Lower Road Boundary, Site Side



Photo 8: Old Manor Farm Eastern Boundary



Photo 9: Old Manor Farm Southern Boundary



Photo 10: Western Boundary – Arable Field, looking back onto site.

Boundary 4 – Railway Boundary

- 4.3.13 This boundary is a chain-link fence along the railway line, that is overgrown with Nettles, Brambles and Wild Clematis. The railway bank off-site, is dominated by Nettles with patches of Bramble and Wild Clematis. A couple of young Oak trees and mature Hawthorns are present along the boundary. Off-site a number of other occasional shrubs/trees are present along the railway bank. The base of the fence line contains some ruderal vegetation with abundant Nettles in places, Ivy, and Perennial Sow-thistle. The ramp up to the railway bridge off site has a number of planted and non-native species including Poplars and Birch. Dog Rose *Rosa canina agg.* is also present. The boundary is shown at **Photo 11-13** below.

Boundary 5 – Eastern Field Boundary

- 4.3.14 This boundary is a tall non-native fir hedge, that has had some management. It also includes a small amount of Elder. The ground flora is ruderal with Nettles, Cleavers Thistles, Bittersweet *Solanum dulcamara*, and some Stinking Iris. Just to the east of this is the second arable unit, a small strip of which along the boundary is within the site red line. The boundary is shown at **Photo 14 & 15**.



Photo 11: Southern Boundary – showing extensive Bramble along the fence, and occasional Hawthorn and Oak trees



Photo 12: Mature Trees on Railway Bridge Ramp.



Photo 13: Railway Banks off-site showing Nettles dominating the banks.



Photo 14: Main field eastern boundary with Fir Boundary Planting



Photo 15: Eastern site boundary open arable within in second arable unit

Flora

- 4.3.15 No rare or legally protected species were recorded during the survey. Common Calamint has not been assessed by the Hampshire Rare Plants Register (Rand & Mundell, 2011), but is locally scarce in Hampshire.

Evaluation

- 4.3.16 The arable habitats and farm track on site are relatively intensely managed, and only a single local species was recorded in the arable flora, it is therefore considered to be of **value within the zone of influence** as a pasture. The grasslands along the northern boundary and the adjacent hedge along Lower Road is considered to be of **local value**. The remaining site boundaries contain either non-native species or low species diversity and ruderal habitats and are considered to be of **value within the Zone of Influence**. Just off site, the railway bridge and its habitats is considered to be of **local value**.

4.4 Protected Species and Species of Conservation Concern

Breeding Birds

- 4.4.1 Nesting birds are protected under the Wildlife & Countryside Act, with certain species given additional protection (see **Technical Appendix 1**).
- 4.4.2 A breeding bird survey was undertaken during five dates in Spring 2017, with an update site appraisal visit in June & October 2018. The bird survey was undertaken according to the methodology set out in **Technical Appendix 5**, which involved post dawn visits to the site and the site walked methodically recording bird species present and territorial and nesting behaviour. The results of the survey are provided in **Table 1** below, detailing species of

conservation concern recorded in the zone of influence, with a full species list from the breeding bird survey and winter bird survey work (see below).

- 4.4.3 During the breeding bird survey work a small number of widespread species of conservation concern were noted on or around site, including the Red Listed: House Sparrow *Passer domesticus*; Starling *Sturnus vulgaris*, Song Thrush *Turdus philomelos*; as well as the Amber listed Dunnock *Prunella modularis* and House Martin *Delichon urbicum* over the site. These are Red listed for a greater than 50% decline in populations and/or range in 25 years and Amber listed as a result of national population declines of 25-50% (see Eaton *et al*, 2015). Other species recorded included Green Woodpecker *Picus viridis*, Chiff-chaff *Phylloscopus collybita* and Blackcap *Sylvia atricapilla*. The Schedule 1 species Hobby *Falco subbuteo* and Mediterranean Gull *Ichthyaeetus melanocephalus* were both noted overflying the site, but were not considered to be regularly using the site.
- 4.4.4 No typical farmland bird species were recorded on site during the breeding bird survey. The farmland is relatively isolated in suburban Havant.
- 4.4.5 The data search has returned records of a number of protected species (see **Technical Appendix 4**). There are records of the Schedule 1 species Barn Owl *Tyto alba* from the wider landscape, and they may occasionally hunt along the edges of the site, although there is only limited grassland habitat for their favoured prey and none were recorded during survey work, including evening and pre-dawn bat survey work.
- 4.4.6 The site is considered to be **value within the zone of influence to local value** for the breeding bird populations.

Wintering Birds

- 4.4.7 The value of the site to Waders was listed as 'Uncertain' in the current Solent Brent Goose Strategy (HWT, 2010). The emerging Local Plan policy on support sites for waterfowl to the SPA follows updated assessments from the interim Brent Goose Strategy (SWBGS, 2018) which assesses the site (H05A) as a 'Secondary Support Area' under the new draft guidelines for determining the value of non-SPA sites.
- 4.4.8 There is potential for waterfowl to use the site during the winter period as it is c560m from the Solent designated sites, and arable farmland can be used by waterfowl. A winter waterfowl survey was undertaken in winters 2013-2014 and in 2016/2017 (see Aluco Ecology, 2014, 2017). No waterfowl were recorded on site during 17 survey visits during 2013/14 and 25 visits during 2016/17, over the period October to March.
- 4.4.9 Data is also held for use of the site by waterfowl with HBIC. Data provided as part of the data search is set out in **Technical Appendix 4** below. This includes positive records from the 2002 Brent Goose Strategy survey work for H05A; a single record of 150 Brent Geese recorded at Manor farm in 2003; and a single record of 50 Lapwing using H05A in 2013, and a record of a single Little Egret using the adjacent count area H05B in 2012 (See **Technical Appendix 4** for details). For H05A a total of 7 visits are on record during the winter 2012/13;

and 5 visits during the winter 2013/14. For H05B the totals for each winter is 5 and 4 visits respectively (see tables in **Technical Appendix 4**).

- 4.4.10 The site is maintained as intensive arable farmland and as such is of lower value to wintering waterfowl being generally stubble or ploughed land or young crops during winter periods. The site is bordered to the south by the Railway (and further south the A27 dual carriageway), and to the east by tall fir trees, and to the north by residential development. This gives it an enclosed site feeling for waterfowl.

Table 1: Birds of Conservation Concern Rerecorded During Winter 2013/14 & 2016/17 and Breeding Bird Survey 2017

Species (BOU vernacular name - IOC International name - scientific name - category)	List	Sch1 WCA	BAP Priority Species	BoCC Red	BoCC Amber	BoCC Green	
Black-headed Gull Chroicocephalus ridibundus A	1				1		Recorded overflying the site and on a few occasions during winter periods
Mediterranean Gull Larus melanocephalus A	1	1			1		Recorded overflying the site in Spring 2017
Common Gull ‡ Mew Gull Larus canus A	1				1		Recorded on site in winter on one occasion
Herring Gull European Herring Gull Larus argentatus A	1		1	1			Recorded on site in winter on a couple of occasions
Swift Common Swift Apus apus A	1				1		Overflying site
Hobby Eurasian Hobby Falco subbuteo A	1	1				1	Recorded on one date in Spring 2017
Skylark Eurasian Skylark Alauda arvensis A	1		1	1			Two recorded on single winter visit in Oct 2016, with no other records over either winter survey season or spring 2017
House Martin Common House Martin Delichon urbicum A	1				1		Recorded overflying the site in spring 2017
Starling Common Starling Sturnus vulgaris A	1		1	1			A number of territories in dwellings north of the site. Post breeding flock uses site
Song Thrush Turdus philomelos A	1		1	1			Two territories around the site boundaries in 2017
Redwing Turdus iliacus A	1	1		1			Recorded overflying site in winter bird survey work
Duncock Prunella modularis A	1		1		1		Two-three territories on site boundaries in 2017
House Sparrow Passer domesticus A	1		1	1			A number of territories in dwellings north of the site. Uses northern hedgerow regularly.
Grey Wagtail Motacilla cinerea A	1			1			Recorded overflying the site in winter
Total =	14	3	6	7	6	1	

Key: BOU = British Ornithological Union; IOC = International Ornithological Congress; Sch 1 WCA = Schedule 1 of Wildlife & Countryside Act 1981 (as amended); BAP = National Biodiversity Action Plan; BoCC = Birds of Conservation Concern (Red, Amber, Green rankings see Eaton et al, 2015).

Bats

- 4.4.11 Bats are protected under the Wildlife & Countryside Act and the Habitat Regulations (see **Technical Appendices 1**). A detailed bat survey of the site was undertaken during September 2016-August 2017, with an update site appraisal in June & October 2018. Survey work was undertaken according to the methodology set out in **Technical Appendix 6**. This included an assessment of bat roost potential on site, emergence/transect surveys, and remote monitoring of the site by static detectors. The results of this survey work are set out in **Tables 2 & 3** below, and **Figure 3**.
- 4.4.12 The data search and desk top review provides records for seven species of bats within 2km of the site, Common & Soprano Pipistrelle *Pipistrellus pipistrellus* & *P. pygmaeus*, Serotine *Eptesicus serotinus*, Myotis Bats *Myotis sp* including *M. mystacinus*, and Noctule Bat *Nyctalus noctula*. The revised consultation draft Local Plan (Havant BC, 2019 – See **Technical Appendix 2**) provides a map showing potential Bechstein's Bat *Myotis bechsteinii* areas in the District, which covers the majority of open spaces that are connected to wider countryside, including the current site. This rare species has known roosts in ancient woodland areas towards the northern end of the District.
- 4.4.13 The site contains a number of mature trees around some of the site boundaries. These trees are generally young and lacking in potential bat roost features and are considered to be of low potential for roosting bats. No buildings or other such structures are present on site. Off site, local dwellings on Lower Road such as the buildings associated with the Old Manor Farm complex (which includes a new dwelling and three additional dwellings along Lower Road) and adjacent farm buildings provide some potential for bat roosts. These buildings are however, all off site to the north.
- 4.4.14 The site provides suitable foraging and commuting habitats, which are of highest value around the site boundaries, especially the woodier boundaries where trees are present. Away from these boundaries, the site is open with limited foraging and commuting habitat potential for local bat populations.
- 4.4.15 The emergence and transect survey work showed only lower use of the site by small numbers of Common & Soprano Pipistrelle, particularly around the northern, north eastern and south eastern boundaries, where native woody vegetation habitat features are present. Noctule bat was also recorded infrequently overflying the site.
- 4.4.16 Twenty nights of continuous monitoring were completed at three recording locations around the site. Analysis of overnight monitoring recorded over 3706 passes of 6 species. (passes = a trigger of the detector resulting in identifiable sonogram). 3535 passes of which were comprised of Common Pipistrelle (95%), the remaining 5% passes comprising 5 species Soprano Pipistrelle (4%) and Noctule (1%) with a very few passes of Serotine and Myotis species (<1%), considered likely to be Whiskered type and Daubenton's Bat *Myotis daubentoni*. In general the site has a low species diversity and relatively low numbers of foraging bats beyond regular use by small numbers of foraging Common Pipistrelle. Recording averages over the recording period where 185 passes a night. This ranged from 2 passes per night at Location 1 Southern Boundary in September, to 390 per night on the NE

Boundary in August. Low numbers of passes were recorded along the NW boundary in July (a peak activity period).

- 4.4.17 The site lacks substantial good quality woody habitat for bats, with survey results showing a relatively low species diversity and bat activity, with the majority of activity coming from Common Pipistrelle. The woody boundary habitats on site considered to be of **value in the zone of influence** to **local value** as a habitat for these bat populations. Bat survey work has not recorded presence of regular *Myotis* use of the site, or the presence of Bechstein's Bat use of the site to date. Given results and lack of woodland habitats present any regular use of the site is considered very unlikely.

Table 2: Results of Bat Emergence & Remote Monitoring Survey 2016-17

Date	Survey	Weather	Results Summary												
04/09/2016	Emergence/transect	Cloud 100 Wind sw0 Temp 19 Precip 0	Nil emergence. First bat from north of the site over Lower Road and along site boundary at 20:04. Northern boundary PP foraging on and off by ind. PP. Southern boundary PP foraging along railway edge infrequently, first bat at 20:03. Only PP recorded during transect - 1-2 bats over site, very low activity.												
22/09/2016 - 26/09/2016	Remote Detector southern boundary	Some showers during period, but otherwise dry with lows to 11c	Site	Sept Date	Total Passes	Species PP							1st	Lst	Notes
			S Boundary	22/09/2016	2	2							19:54		
			S Boundary	23/09/2016	1	1							19:42		
			S Boundary	24/09/2016	4	4							19:34	00:48	
			AVG		2	2									
24/09/2016	Emergence/transect	Cloud 70 Wind sw2-3 Temp 21.5-20 Precip 0	Nil emergence. First bat on site NN high over at 20:26. First bat on southern boundary PS at 19:37, and then only low use of boundary for foraging by ind. bat. PP recorded on northern boundary, again only ind. bat. Very low activity across the site.												
28/05/2017	Dawn/transect	Cloud 100 Wind N1 Temp 13.5c Precip 0	Nil return. PP foraging along eastern boundary 1-3 bats in total. Final PP at 04:31 headed NE off site. 1 x PS pass on northern boundary also recorded.												
28/05/2017 - 31/05/2017	Remote Detector North eastern boundary	Weather settled and warm lows to 13c light to mod SW	Site	May Date	Total Passes	Species PP									
			NE Boundary	28/05/2017	71	71							21:48	04:01	
			NE Boundary	29/05/2017	24	24							22:36	04:12	
			NE Boundary	30/05/2017	351	351							21:28	04:11	most activity 12-03
			AVG		149	149									
19/06/2017- 26/06/2017	Remote Detector southern boundary	Weather settled and hot lows to 16c light to mod SW	Site	June Date	Total Passes	Species PP	PS	My	ES	NN					Notes
			S Boundary	19/06/2017	245	235	7	2	1	11			21:36	04:13	MyD?
			S Boundary	20/06/2017	466	437	22	5	2	13			21:37	03:58	
			S Boundary	21/06/2017	337	301	34	1	1	4			21:41	04:13	
			S Boundary	22/06/2017	398	359	39	0	0	2			21:35	04:00	
			S Boundary	23/06/2017	148	131	17	0	0	0			21:43	03:58	
			AVG		319	293	24	2	1	6					

19/06/2017	Dusk Emergence/transect	Cloud 0 Wind SW1 Temp 22 Precip 0	Nil emergence. First bat on southern boundary PP at 21:44 from east of site along railway. Occ. PP and PS foraging. NN recorded over site at 21:45.																																																																																																																												
23/07/2017	Dusk Emergence/transect	Cloud 80 Wind SW2 Temp 14 Precip 0	Nil emergence. First bat on northern boundary PP at 21:42, then occ. PP foraging along northern and NE boundary 2-3 bats. PS at 22:04 along eastern boundary. Transect recorded PP activity at northern end of site, and low PP & PS activity to the south.																																																																																																																												
22/07/2017- 27/07/2017	Remote Detector north western boundary	Showers overnight during 22nd and during day heavy rain on 26th, otherwise dry. Lows to 14c. Wind light northerly early then mod. SW last 2 nights	<table><tr><td></td><td>July</td><td>Total</td><td colspan="2">Species</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Site</td><td>Date</td><td>Passes</td><td>PP</td><td>PS</td><td></td><td></td><td></td><td></td><td></td><td></td><td>1st</td><td>Lst</td><td>Notes</td></tr><tr><td>NW Boundary</td><td>22/07/2017</td><td>1</td><td>0</td><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td><td>21:39</td><td></td><td></td></tr><tr><td>NW Boundary</td><td>23/07/2017</td><td>6</td><td>6</td><td>0</td><td></td><td></td><td></td><td></td><td></td><td></td><td>21:33</td><td>21:51</td><td></td></tr><tr><td>NW Boundary</td><td>24/07/2017</td><td>42</td><td>42</td><td>0</td><td></td><td></td><td></td><td></td><td></td><td></td><td>21:35</td><td>04:18</td><td></td></tr><tr><td>NW Boundary</td><td>25/07/2017</td><td>28</td><td>26</td><td>2</td><td></td><td></td><td></td><td></td><td></td><td></td><td>21:31</td><td>04:21</td><td></td></tr><tr><td>NW Boundary</td><td>26/07/2017</td><td>22</td><td>22</td><td>0</td><td></td><td></td><td></td><td></td><td></td><td></td><td>21:27</td><td>04:34</td><td></td></tr><tr><td></td><td>AVG</td><td>20</td><td>19</td><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>														July	Total	Species											Site	Date	Passes	PP	PS							1st	Lst	Notes	NW Boundary	22/07/2017	1	0	1							21:39			NW Boundary	23/07/2017	6	6	0							21:33	21:51		NW Boundary	24/07/2017	42	42	0							21:35	04:18		NW Boundary	25/07/2017	28	26	2							21:31	04:21		NW Boundary	26/07/2017	22	22	0							21:27	04:34			AVG	20	19	1									
				July	Total	Species																																																																																																																									
			Site	Date	Passes	PP	PS							1st	Lst	Notes																																																																																																															
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			NW Boundary	23/07/2017	6	6	0							21:33	21:51																																																																																																																
			NW Boundary	24/07/2017	42	42	0							21:35	04:18																																																																																																																
			NW Boundary	25/07/2017	28	26	2							21:31	04:21																																																																																																																
			NW Boundary	26/07/2017	22	22	0							21:27	04:34																																																																																																																
	AVG	20	19	1																																																																																																																											
21/08/2017	Dusk Emergence/transect	Cloud 100 Wind SW1 Temp 18.5c Precip 0	Nil emergence. First bat PP by bridge trees at 20:48. Occ PP foraging along boundary after this 1-2bats. NN at 21:05. Low bat activity during transect survey with just PP recorded.																																																																																																																												
	Remote Detector North eastern boundary		<table><tr><td></td><td>August</td><td>Total</td><td colspan="3">Species</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Site</td><td>Date</td><td>Passes</td><td>PP</td><td>PS</td><td>My</td><td></td><td></td><td>NN</td><td></td><td>1st</td><td>Lst</td><td></td></tr><tr><td>NE Boundary</td><td>21/08/2017</td><td>465</td><td>444</td><td>21</td><td>0</td><td></td><td></td><td>1</td><td></td><td>20:26</td><td>05:33</td><td></td></tr><tr><td>NE Boundary</td><td>22/08/2017</td><td>494</td><td>488</td><td>5</td><td>1</td><td></td><td></td><td>0</td><td></td><td>20:56</td><td>05:29</td><td></td></tr><tr><td>NE Boundary</td><td>23/08/2017</td><td>463</td><td>457</td><td>6</td><td>0</td><td></td><td></td><td>0</td><td></td><td>21:09</td><td>04:47</td><td></td></tr><tr><td>NE Boundary</td><td>24/08/2017</td><td>138</td><td>134</td><td>4</td><td>0</td><td></td><td></td><td>0</td><td></td><td>20:44</td><td>05:10</td><td></td></tr><tr><td></td><td>AVG</td><td>390</td><td>381</td><td>9</td><td>0</td><td></td><td></td><td>0</td><td></td><td></td><td></td><td></td></tr></table>														August	Total	Species											Site	Date	Passes	PP	PS	My			NN		1st	Lst		NE Boundary	21/08/2017	465	444	21	0			1		20:26	05:33		NE Boundary	22/08/2017	494	488	5	1			0		20:56	05:29		NE Boundary	23/08/2017	463	457	6	0			0		21:09	04:47		NE Boundary	24/08/2017	138	134	4	0			0		20:44	05:10			AVG	390	381	9	0			0																								
				August	Total	Species																																																																																																																									
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			NE Boundary	21/08/2017	465	444	21	0			1		20:26	05:33																																																																																																																	
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	AVG	390	381	9	0			0																																																																																																																							

Key: PP = Common Pipistrelle, PS = Soprano Pipistrelle, NN = Noctule, ES = Serotine, PN = Nathusis's Pipistrelle, My = Myotis sp.

Table 3: Summary of Transect Monitoring Points

Transect	Date	PP	PS	NN	Total
1	04/09/2016				0
	24/09/2016				0
	28/05/2017				0
	19/06/2017	1			1
	23/07/2017	2			2
	21/08/2017				0
2	04/09/2016				0
	24/09/2016				0
	28/05/2017				0
	19/06/2017	2			2
	23/07/2017	3			3
	21/08/2017				0
3	04/09/2016	2			2
	24/09/2016				0
	28/05/2017				0
	19/06/2017	2			2
	23/07/2017	9			9
	21/08/2017				0
4	04/09/2016	3			3
	24/09/2016	3			3
	28/05/2017	14			14
	19/06/2017	5			5
	23/07/2017	4			4
	21/08/2017				0
5	04/09/2016				0
	24/09/2016				0
	28/05/2017	12			12

Transect	Date	PP	PS	NN	Total
	19/06/2017		2	1	3
	23/07/2017	2			2
	21/08/2017	2			2
6	04/09/2016				0
	24/09/2016				0
	28/05/2017	17			17
	19/06/2017		1		1
	23/07/2017	3	2		5
	21/08/2017	1			1
7	04/09/2016	2			2
	24/09/2016		1		1
	28/05/2017	1			1
	19/06/2017	7			7
	23/07/2017		4		4
	21/08/2017	18			18
8	04/09/2016				0
	24/09/2016				0
	28/05/2017				0
	19/06/2017				0
	23/07/2017		1		1
	21/08/2017	1			1
9	04/09/2016				0
	24/09/2016				0
	28/05/2017				0
	19/06/2017				0
	23/07/2017				0
	21/08/2017				0

Badgers

- 4.4.18 Badgers *Meles meles* are protected under the Protection of Badgers Act 1992. Signs of use of the site by Badger were searched for during the site survey work between 2016-2018. No evidence of Badgers Setts was noted on site. Mammal tracks are present along the southern boundary, but no direct evidence of use of these tracks was noted during the walkover survey.
- 4.4.19 The data search has not returned any records of Badgers from within 1km of the site.

Dormice

- 4.4.20 Dormouse *Muscardinus avellanarius* and their habitat are afforded protection under the Wildlife & Countryside Act and the Habitat Regulations (See **Technical Appendix 1**). The woody habitats on site are mostly restricted to the northern and eastern boundaries, with limited woody habitat also along the railway boundary, which is a mix of ruderal Nettles with some Bramble scrub. Woody habitats on site are considered to be of lower quality as potential Dormice habitat on account of a relatively low species diversity, regular management on the northern boundary hedgerow, which is also fragmented on a landscape scale. The site is considered to be isolated from larger blocks of woodland to the north and along the A3(m), and there is no continuous woody hedge or strip linking the hedges on site to the wider habitats. The railway boundary off site has some Bramble scrub and isolated bushes but does not contain a good continuous woody corridor.
- 4.4.21 The data search has returned records for Dormice just over 1km to the north of the site at Littlepark Wood – Johnston's Coppice – Neville's Park wooded complex by the A3(m).
- 4.4.22 Given the limited size and value of the habitats on site, and the limited connectivity to habitats in the wider local area, Dormice are not considered likely to be present on site.

Other Protected Mammals

- 4.4.23 No other legally protected mammal species are likely to occur on site. There are records locally for Hedgehog *Erinaceus europaeus*, and there is some limited habitat on site for this species around the site hedge boundaries.

Reptiles

- 4.4.24 Commoner reptile species are protected from harm under the Wildlife & Countryside Act (see **Technical Appendices 1**). The data search has returned records of Slow Worm *Anguis fragilis* from the A27 road corridor south of the site. Small amount of suitable habitat for reptiles exists along the woody boundaries and grassland edges of the site. The most suitable habitats for reptiles are along the northern boundary. A detailed reptile survey was undertaken on site during autumn 2016, with update site appraisal during visits in June & October 2018. The survey was undertaken according to the methodology set out in **Technical Appendix 7**. The results of the survey are provided at **Table 4** and **Figure 5** below.

Table 4: Reptile Survey Results

Date	Time	results
02/09/2016	pm	Reptile Set Up
13/09/2016	pm	AF = 1M, 1sub
17/09/2016	pm	AF = 1M
20/09/2016	am	AF = 3F 1sub
22/09/2016	pm	AF = 2F
24/09/2016	am	AF = 1F, 3sub
25/09/2016	pm	AF = 2F
26/09/2016	am	AF = 2F, 2sub

Key: AF = Slow Worm; M = Male, F = Female; Sub = Sub Adult

- 4.4.25 A small population of Slow Worm was recorded during the survey work, on the northern site boundary with Lower Road. The boundary habitats on site, but particularly the Lower Road boundary are considered likely to be of **local value** for reptile populations.

Amphibians

- 4.4.26 No waterbodies suitable for the legally protected Great Crested Newt *Triturus cristatus* to breed exist on site. A single small (c1m x c2m) lined pond with formal paved edges was noted just off the northern boundary of the site in the garden of the dwelling at Old Manor Farm. It has some ornamental lilies and non-native aquatic vegetation, a water fountain, and given its ornamental nature, it is likely to contain fish (eg Goldfish). Historical aerial photography suggests it was created within the last c12 years or less. A habitat suitability assessment (HSI) score for the pond is poor (See **Technical Appendix 8**).
- 4.4.27 Ordnance Survey mapping and aerial photography was examined for potentially suitable waterbodies within 500m of the site. No additional waterbodies were recorded. The data search has not returned any records of Great Crested Newt from within 1km of the site.
- 4.4.28 The majority of the site (arable habitats) is of limited value to amphibians, with potentially suitable amphibian terrestrial habitat present along the woody boundaries and associated grassland strips. The small and relatively isolated nature of the garden pond off site, its relatively recent, ornamental and formal nature, and lack of additional potentially suitable waterbodies nearby, suggests it is unlikely to be of value for Great Crested Newt; and the species is not considered likely to be present on site.

Invertebrates

- 4.4.29 The grassland and hedgerow habitats on site are considered of **value within the zone of influence** for invertebrates being generally species poor, but containing some rough grassland and hedgerow edge habitats for commoner invertebrates. The boundaries contained a standard wayside orthopteran fauna with Meadow and Field Grasshopper *Chorthippus parallelus* & *C. brunneus*, Roesel's & Dark Bush Cricket *Metrioptera roeselii* & *Pholidoptera griseoaptera* noted during the survey. There is limited dead wood present on site, suggesting limited potential habitat for the legally protected Stag Beetle *Lucanus cervus*, which is known from the wider local area.



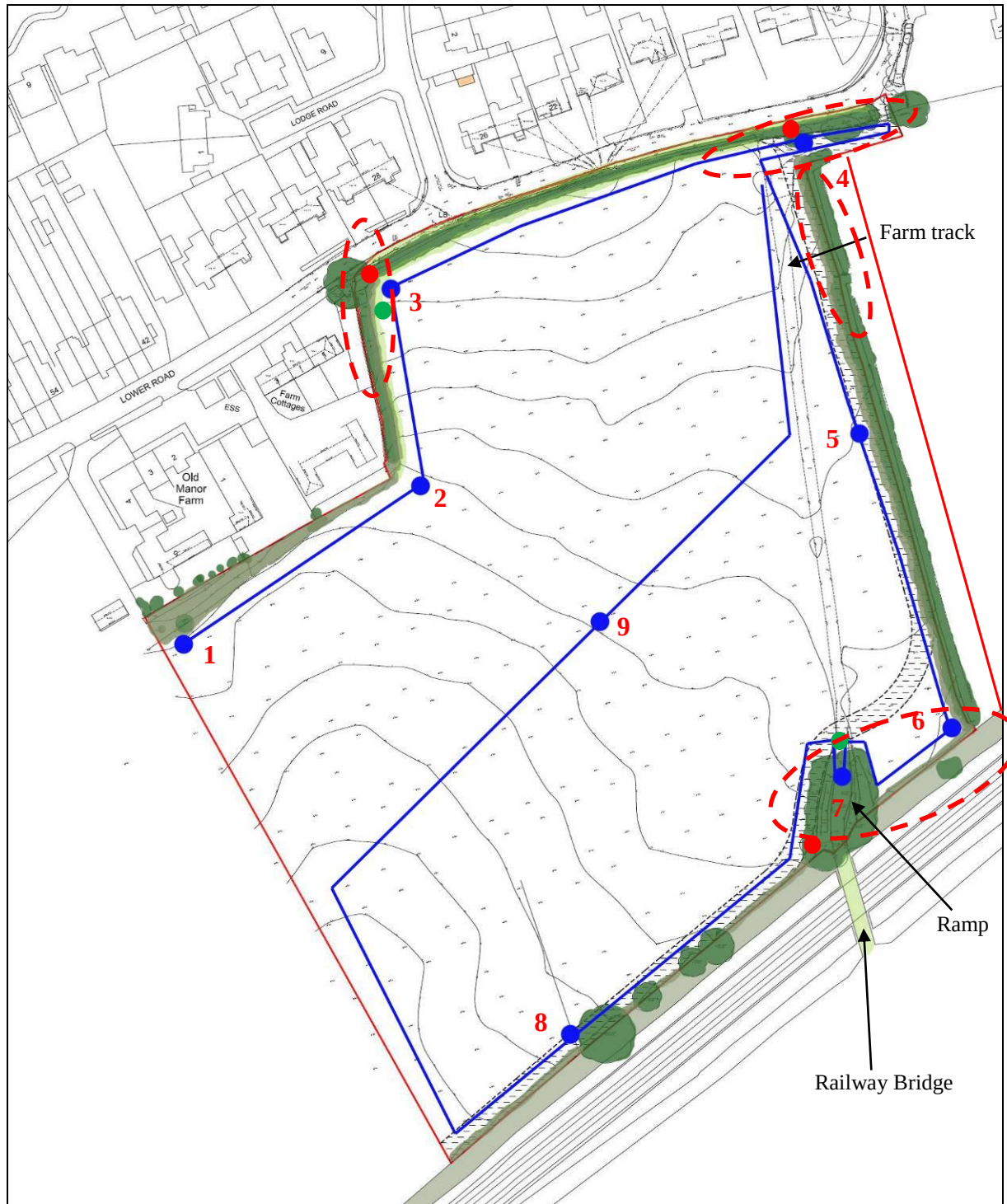
Key:

	Arable		Woody vegetation/hedgerow		Grasslands
	Ruderal/Nettle/bramble vegetation	#	Boundary Number		

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Figure 3: Habitats on Site



Key:

Transect Monitoring point

● Emergence Survey Locations

- - - Main Pipistrelle foraging locations

● Remote Monitoring station

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Figure 4: Bat Survey Results



Key:

- Slow Worm Locations (1-2 individual records)

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Figure 5: Reptile Survey Results

5.0 ASSESSMENT OF LIKELY IMPACTS

5.1 Introduction

- 5.1.1 In view of the predicted activities and the resultant biophysical changes associated with the proposal, as described in Section 3, this section identifies potential ecological impacts within the predicted zone of influence.

5.2 Protected Sites

Solent Designated Sites

- 5.2.1 The site is within 600m - 4.9km of a number of Solent designated Sites (see Section 4.2 and **Technical Appendix 4**). The adopted Local Plan and revised consultation draft Local Plan provides development policies relating to development within proximity to the designated sites (in this case at their closest 570m) and potential for significant effects on these designated sites (relevant development policies are set out in **Technical Appendix 2**). In summary, the proximity of the site and proposed development to the designated sites is likely to have a significant effect, caused by recreational disturbance through the in-combination effect of net additional dwellings. Mitigation options should be considered via the policies outlined in the Core Strategy Habitat Regulations Assessment & Appropriate Assessment (UE Associates, 2010 & Lepus Consulting, 2013) and policy CS11/DM24 of the Local Plan, plus any updated Development Plan Appropriate Assessment. Avoidance/mitigation measures include financial contribution towards the Solent Mitigation Project and/or a developer provided package of measures associated with the proposed development designed to avoid or mitigate any significant effect on the SPAs subject to meeting the tests of the Habitat Regulations (as stated in Local Plan policy – see **Technical Appendix 2**).
- 5.2.2 The site and adjacent farmland is also listed under the Brent Goose Strategy (HWT, 2010), and the Core Strategy allocations Plan as ‘Uncertain’ for use by Waders, and is within c250m of a site listed as ‘Important’ for Brent Geese (the latter is south of the main railway and A27). A Habitat Regulations Assessment Draft Screening Statement has been produced by Havant Borough Council (HBC, 2017), to update the local plan housing allocations. The latest update to the Waders & Brent Goose Strategy lists the site as a ‘secondary support area’ for waders & Brent Geese (SWBGS, 2018), and this is transferred into draft policy in the latest consultation draft Local Plan (see **Technical Appendix 2**). This SWBG strategy provides updated guidance to Local Authorities in development planning, with criteria for mitigation where allocated sites are listed as ‘secondary support areas.’
- 5.2.3 The site is also within the coastal zone as defined by the Local Plan Proposals Map produced as part of the Core Strategy (2012). Policy DM9 states that development within the coastal zone should not have a harmful effect on the Solent designated sites (SSSIs, SPA, SAC, Ramsar and any SINC or LNR). See **Technical Appendix 2** for further detail.
- 5.2.4 On the basis of the above, there is the potential, without avoidance and mitigation measures for the development to have a significant effect on the features of the Solent designated sites

(SSSI, SPA, Ramsar, SAC, SINC and LNR) particularly in relation to recreational disturbance created by the additional net dwelling increase in proximity to these sites; and from development on/adjacent to land recorded as a 'secondary support area' to Brent Geese and/or Waders. Other impacts may include run off and noise impacts during construction.

5.3 Habitats & Species on Site

Potential Impacts on Habitats and Vegetation

- 5.3.1 The arable land on the whole is considered to be of lower intrinsic value, and loss of habitats would not be considered significant in terms of vegetation and flora.
- 5.3.2 The woody boundaries include a hedge with moderate species diversity (along the Lower Road boundary) with a few trees. This and other boundary features, including the associated small linear grassland strip are to be mostly retained in situ, but with two breaks for access. This is considered an adverse impact on a feature of Local value. The Fir hedge along the eastern boundary is of low intrinsic value and very species poor, it is proposed to be gradually replaced with a native species tree belt with understorey as part of the proposals (Terra Firma Landscape Architects, 2019: drawing 1860-SK-20180801-001).
- 5.3.3 The railway bridge and associated habitats are off site and should not be affected by a development scheme.

Potential Impacts on Breeding Birds

- 5.3.4 If vegetation is removed during the breeding season there is potential to destroy bird nests unless assessed prior to works, which would be contrary to Section 1 of the Wildlife and Countryside Act 1981 (as amended).

Potential Impacts on Bats

- 5.3.5 No bat roosts have been recorded on site. Bat foraging habitat is present along the boundaries of the site, and six bat species have been recorded. The development scheme will retain the majority of this habitat, with some impacts on the northern hedgerow with Lower Road to create a new road and footway access.
- 5.3.6 No street lighting is proposed on site, so no impacts are predicted from external lighting.
- 5.3.7 Although not recorded during the survey effort, the site is part of a landscape wide potential Bechstein's Bat *Myotis bechsteinii* foraging habitat area (see **Technical Appendix 2**). The development is retaining the majority of woody boundary habitats and the masterplan provides potential higher quality boundary habitats and new grassland and woody habitats along the southern third of the site. On this basis there is not likely to be an adverse impact on Bechstein's Bats, and the proposals within the green space parts of the site are likely to enhance existing habitat for foraging and commuting.

Potential Impacts on Reptiles

- 5.3.8 A small population of Slow Worm has been recorded on the site's northern boundary. Impacts are predicted where the new access road and footway are provided. The majority of this habitat can however be retained within a development scheme as shown by the Masterplan. Where these features are affected by a proposed development there is potential, without mitigation, for impacts on this protected species, particularly during construction.

Potential Impacts on Invertebrates

- 5.3.9 Habitats for invertebrates are mostly restricted to the boundaries. Retention of this habitat and enhancement or creation of new semi-natural open space habitats will provide opportunities for enhancing the value of the site for invertebrates.

6.0 MITIGATION MEASURES

6.1 Introduction

- 6.1.1 Section 5 above considered ecological features present that may be impacted by a development without mitigation. This section proposes mitigation measures for each ecological feature to ensure that residual impacts are not significant and that the development has regard to best practice principles and provides biodiversity gain.

6.2 Waterfowl & SPA Avoidance & Mitigation Measures

- 6.2.1 Pre-Application advice from Natural England is that impacts on the European Designated sites (including Chichester & Langstone Harbour SPA & Ramsar Site, Solent Maritime SAC, Solent & Isle of Wight Lagoon SAC, Portsmouth Harbour SPA & Ramsar), can be avoided and offset using the Solent Mitigation Project, whereby development within proximity to the coastal designated sites pays a levy to projects within the District and coastal zone to help reduce and avoid impacts of disturbance from urbanisation impacts. This levy is set out in Havant Council Local Planning Policy (eg latest updates in HBC, 2019), which has been subject to Appropriate Assessment (Lepus Consulting, 2013). With appropriate contributions to this scheme, the development is considered unlikely to have an adverse effect on the integrity of the European Sites.
- 6.2.2 Survey work on site and adjacent areas has not recorded use by waterfowl in recent winters, however the site is listed as ‘uncertain’ for waders in the Brent Goose Strategy, and updated guidance ranks the site as a ‘secondary support area’ and functionally linked land to the SPA for Waterfowl (SWBGS, 2018). As part of the pre-Application process, Natural England’s Discretionary Advice Service has been consulted to agree mitigation to ensure that the development does not have an adverse impact on resources in the local area that waterfowl may use. This package considers the guidance from the Solent Wader & Brent Goose Strategy (SWBGS, 2018), which is being incorporated into the emerging Local Plan policy (see eg HBC, 2019 and emerging Local Plan).
- 6.2.3 The guidance provides for a number of options for mitigation and compensation for impacts on secondary support areas. This includes a biodiversity compensation framework funding calculation for projects in the Borough/Solent area. This calculation is likely to follow that proposed in the guidance (see SWBGS, 2018), allowing for a monetary payment under the policy to avoid/mitigate impacts from the development. On this basis, as recommended by Natural England, the following calculations on area of the development are provided below to allow the scheme to contribute appropriate avoidance measures through a Section 106 type agreement, and for a Habitat Regulations Assessment Appropriate Assessment by the Competent Authority:
- Total area within the Red Line of Development = 38575.1m²;
 - Built Development:
 - Area of proposed roads/paths/parking = 6775.1m²;
 - Area of proposed buildings = 3653.1 m²;

- Private Garden Space = 6468.4 m²;
- Open & Green Space and Retained Farm Areas:
 - Central Public Open Space = 6738.7m²;
 - Retained but moved Farm track = 2026.2 m²;
 - Southern Public Open Space = 10543.4 m²;
 - Other edge retained or buffer habitat = 2216m²

6.2.4 Construction of the site should have regard to pollution prevention measures, to avoid run off and dust pollution into surrounding habitats off site. This should be delivered through a Construction Environmental Management Plan, and should consider impacts such as run off, noise and dust pollution. Given the separation of the site by Railway line and A27, both generating noise thought to be in excess of the usual residential construction methods (for example no pilling etc) winter construction works are not thought to impact on SPA or SPA support sites.

6.2.5 With appropriate measures and contributions to the emerging updated policy on support sites, the development is unlikely to have an adverse effect on the integrity of the European Sites.

6.3 Habitats & Vegetation

6.3.1 Public open space is provided on site in the central area and along the southern boundary. In addition, the majority of woody boundary features are to be retained or replaced at a scale greater than 1:1. The northern boundary contains retained hedgerow habitats. These are to be enhanced with additional planting, but also retaining existing habitats, including the grassland strip at the base of the hedge. A phased plan is proposed to replace the existing eastern boundary Fir planting in favour of a more diverse native species tree belt (Terra Firma Landscape Architects, 2019: drawing 1860-SK-20180801-001). A Landscape Plan is reproduced at **Figure 6** below, which has had regard to ecological features described in this report, and mitigation described below in its development. This will provide a biodiversity enhancement in the longer term.

6.3.2 Loss of woody habitats on site are proposed to be mitigated for by provision of new woody planting in new open space on site (see **Figure 6**). It is recommended that the new planting is of native locally sourced species. **Technical Appendix 9** provides a suggested species mix and these have been consulted by the Landscape Architect Terra Firma Landscape Consulting in preparation of the detailed landscaping plans of the open spaces on site. Tall grassland edges to the woody vegetation should also be retained in situ, and allowed to develop through long term management. This should be to at least existing extent (1m along base of hedge), but can be greater where space allows. This will continue to provide habitats for reptiles (see also below).

6.3.3 The western and southern boundary of the site is currently open. The Masterplan provides a new hedgerow along these boundaries (the southern boundary of the proposed new housing). It is recommended that these hedges comprise a native species mix based on species in **Technical Appendix 9**. Recommendation for new hedge planting:

- To be staggered double line with a native species mix (see **Technical Appendix 9** below). To be planted naturally with diversity through the hedge line.
- Management to allow for natural style hedge with cutting on a two-three year rotation. This will allow the hedge to grow out wider, where space allows such as fronting onto shared open space areas;
- Base of hedges in shared open space areas should be allowed to grow a tall grassland strip in long term management of no less than 0.5m. This should be managed to retain the rough grassland edge with cutting of woody material in this line only.

6.3.4 The southern open space areas of the site contain substantial areas of informal open space. These are currently arable land, so a mosaic of newly created habitats is recommended including semi-natural grasslands, scrub/woody features. Appropriate seed mixes for habitats are provided in **Technical Appendix 9**. The habitats are developed according to the landscape plan (see reproduced summary of Terra Firma Drawings 1860-TF-00-00-DR-L-1002 to 1005 at **Figure 6**) and management prescriptions (Terra Firma Landscape Architects, 2019: Drawing 1860-TF-00-00DR-L-1006). The following ecology prescriptions for creation and management of these areas is recommended to be incorporated in to these habitats:

- Woody Scrub/Hedgerow Habitats – Woody habitats should be planted using native species as suggested at **Technical Appendix 9**. Once established management should be undertaken on a two-three year interval with cutting undertaken in the late winter, with hedges cut to an ‘A’ or topped ‘A’ shape. Cutting of either side of the hedge should be in alternate years where possible, leaving a side uncut in any one year. Winter cutting is required, with late winter (Jan/Feb) preferred. Management of scrub should be to maintain extent in a relevant management compartment, and late winter cutting (Jan-Feb) preferred. Care in cutting should be taken having regard to protected species such as reptiles at the bases and tall grassland edges of the woody vegetation. In this regard tracking of vehicles should not be permitted in tall grassland edges and cutting of woody vegetation should not be lower than 10-15cm from the ground, leaving the ground undisturbed;
- New shelterbelt planting – The new native species planting is shown in Terra Firma Landscape Architects drawing 1860-SK-20180801-001. The ongoing management will be to allow for natural establishment and development into a thick wooded strip that will have minimal intervention. Allowing tall grassland to develop along the edges of this strip will provide new habitats for wildlife (including reptiles) over the medium to longer term;
- Hay Meadow Grassland habitats. Wildflower hay meadow seed mixes are recommended (see **Technical Appendix 9**). Creation of grassland habitats will require the ground to be prepared during the autumn period with tilling and seed sowing during the best period for wildflower uptake. The grasslands will take a number of years to establish but should be monitored annually, with problem weeds such as extensive thistle and dock encroachment spot treated or pulled as necessary. Where wildflower uptake is low, additional scarifying of the ground should take place in the second or third autumn period and additional wildflower seeding, including Yellow Rattle to be sown to try to reduce grass vigour. Management should include annual cutting in the late summer/autumn of the extent of the meadow with cuttings

removed and bailed for hay, or composted at a suitable location on site. The edges of the meadow with eg boundary woody habitat will be graded into rough less managed grassland as per rough grassland prescription. Where grasses are becoming more vigorous than wildflowers, an early spring cut can be carried out in dry weather to reduce grass vigour (given that grazing of the site is unsuitable at this location).

- Tall Grassland habitats. Tall grassland habitats can be created by cessation of cutting of existing grasslands, or by non-management of newly created grasslands. Management will include creation of habitat from either non-cutting of previously cut retained grasslands, or grassland creation. Annual or two year cutting of encroaching woody vegetation to maintain an area of grasslands that are left uncut themselves to form tussocky grassland edges. This will allow existing rough grassland habitats to develop into more complete habitats around the site. This habitat type is good for wildlife, to provide a diversity of habitats and for reptiles and invertebrates particularly. The community orchard could also include this type of habitat;
- Wetland/SUDS habitats. The surface water basin is to be sown with a native species mix suitable for damp grasslands and will be managed as per hay meadow grassland habitat recommendations above.

6.3.5 The habitats on the railway bridge are off site, and it is recommended that this habitat is excluded from public access open spaces on site.

6.4 Protected Species

Birds

6.4.1 Mitigation measures for birds include carrying out works on any woody vegetation at an appropriate time of year, usually considered to be between September to February. It may be possible to remove small amounts of vegetation at other times of year, where it can be checked that no nesting birds are present by a suitably qualified ecologist beforehand.

6.4.2 New woody habitat is to be provided on site. Native species would provide additional benefit for wildlife. New nesting opportunities will also be incorporated within a scheme design, by placing bird boxes on retained mature trees or on new dwellings (eg Sparrow terrace boxes/Swift & House Martin bricks/boxes). A total of 6 bird nest boxes are proposed, with designs shown in **Technical Appendix 11**.

6.4.3 New woody planting will provide new nesting opportunities and foraging resources for local populations of birds.

Bats

6.4.4 Foraging and commuting routes recorded through the site will be retained through retention of the majority of woody vegetation on the site boundaries. There will be no lighting impacts on the boundary hedges. The eastern boundary fir tree line will be gradually replaced by a new native species tree line adjacent to it, so that there is no short term impact from loss of linear woody boundary features. In addition new hedgerow planting along the western boundary and in the southern third of the site, which is to become informal open space with new hay

meadow, tall grassland and woody habitats. This will enhance connectivity in the local landscape and provide new foraging opportunities for bats.

- 6.4.5 Biodiversity gain/mitigation will be further provided through the provision of bat boxes in retained boundary habitat, and/or as part of new buildings, suitably located by an ecologist. A total of 6 bat boxes are proposed, with designs shown in **Technical Appendix 11**. The mature tree group along the railway boundary would provide an appropriate location for bat boxes.

Reptiles

- 6.4.6 The development is likely to result in loss of a section of reptile edge habitat present on site's northern boundary for two new accesses (one road, one foot). A low population of a single species, Slow Worm was recorded during the survey work. A mitigation strategy has been devised to ensure that reptiles are not harmed as a result of the development. This includes a localised habitat manipulation works within the construction zone, and creation of enhanced habitats along the boundary of the site, as well as new habitats along the southern open areas of the site.
- 6.4.7 In order to ensure that reptiles are not harmed as a result of the scheme construction the following mitigation measures should be put in place. This should include a translocation of any reptiles from the construction zone to retained habitats at the edges of the site fenced out of the construction zone. This translocation will require the following measures:
- The areas of reptile habitat within the construction zone of the site will be sensitively trimmed to c10cm using hand tools, careful not to harm reptiles potentially present; Where trees and bushes are also to be removed, due regard will be given to the mitigation strategy for nesting birds. The areas of affected habitat include very restricted and localised areas in relation to the access road;
 - Reptile protective fencing may be needed along retained boundary areas if reptiles move into the working areas after habitat / vegetation manipulation. This will be confirmed by monitoring as required. Fencing will be to standard guidelines for reptile fencing;
 - Refugia will be placed along the construction works area and a relocation of reptiles will be made based on the strategy outlined in **Technical Appendix 12** to the retained habitat;
 - Following 3-5 negative visits in suitable conditions a destructive search will be undertaken of the works area by a suitably qualified ecologist;
 - Site fencing will continue to provide protection of the retained habitat from construction intrusion;
 - Following construction, the area on the retained side of the fencing will be reconnected with the new open space areas along the buffers and reptile populations will be allowed to colonise the new habitats over time;
 - the reptile strategy will be undertaken during the period end March-Sept/October, with regard to weather conditions. Where potential reptile habitat is contained within the works area outside this period, no construction works will be undertaken in this habitat during this period;

- The reptile strategy will conform to any mitigation requirements for other protected species.

Invertebrates

6.4.8 The development of new woody habitats and edge habitat will provide opportunities for populations of invertebrates in the zone of influence.



7.0 CONCLUSIONS

- 7.1 An Ecological Assessment has been undertaken on Land at Lower Road, Bedhampton during 2013-2018. The survey work has recorded arable, grassland and woody boundary habitats on site. Potential habitat for protected species was recorded on site, or known adjacent to the site. These include potential for and records of birds, bats, reptiles and invertebrates. The Solent designated sites, and associated feeding/loafing sites for Waders and Waterfowl are also present within the Zone of Influence of the site.
- 7.2 A proposed development scheme has the potential, without mitigation, to affect some or all of these features. As such details of ecology avoidance and mitigation measures, as well as opportunities for biodiversity gain have been provided above to address potential for adverse impacts on ecology features recorded. These include creation of new habitats on the site's open space areas, mitigation method statements for protected species during construction phases of the development, and payment provisions to local offsetting and avoidance projects on the adjacent protected coastal designated wildlife sites, supporting sites and features of those sites. Where mitigation measures are taken into account, the development will not have an adverse impact on ecological features recorded by the Assessment.

8.0 REFERENCES

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Technical Appendix 1

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

WILDLIFE & COUNTRYSIDE ACT 1981 (AS AMENDED)

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

Protection Afforded to SSSIs

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

Law Relating to Protected Species

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

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

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

Disturbance & Recklessness

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

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

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

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

HABITAT REGULATIONS 2017***General***

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

European Protected Species

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

Protection of certain wild animals: offences

43.—(1) A person who—

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

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

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

Section 44 provides certain defences to the above.

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

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

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

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

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

Plans and Projects & Designated Sites

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

For Full details of the 2017 Habitat Regulations see:

http://www.legislation.gov.uk/uksi/2017/1012/pdfs/uksi_20171012_en.pdf

NATURAL ENVIRONMENT AND RURAL COMMUNITIES ACT 2006

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

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

Technical Appendix 2

Local Planning Policy

Local Development Framework Havant Borough Local Plan

Biodiversity Policy Draft Core Strategy (May 2009)

Policy CS11 Protecting and Enhancing the Special Environment and Heritage of Havant Borough

Planning permission will be granted for development that:

1. Ensures the key landscape and built form principles set out in the Havant Borough Townscape, Landscape and Seascape Character Assessment are protected and where possible enhanced by partnership working with developers, groups and the wider community.
2. Protects and where possible enhances the borough's statutory and non-statutory designated landscape, habitats and features of biological, hydrological or geological interest. Protection and enhancement will be achieved by appropriate adaptation and mitigation measures including wardening, education and information and the creation of new habitats, water bodies/courses planting of new trees and woodland.
3. Has particular regard to the following hierarchy of nature conservation designations within the borough (as identified on the Proposals Map):
 - (i) Special Protection Areas (SPA), Special Areas of Conservation (SAC) and Ramsar [International].
 - (ii) Sites of Special Scientific Interest (SSSI) and National Nature Reserves [National].
 - (iii) Sites of Importance for Nature Conservation (SINC), Local Nature Reserves (LNR), other Ancient Woodland not identified in (ii) above [Local].
4. Protects and where appropriate enhances the borough's statutory and non-statutory heritage designations by appropriately managing development in or adjacent to conservation areas, listed buildings, scheduled ancient monuments, historic parks and gardens, archaeological sites, buildings of local historic or architectural interest.
5. Supports an ongoing programme of survey of habitats and species and designation of Sites of Importance for Nature Conservation.
6. Incorporates partnership working with conservation organisations to improve public understanding of biodiversity and to manage public access to designated sites, particularly on the coast, to reduce harm to nature conservation interests.
7. Incorporates partnership working with landowners and developers to ensure land management practices restore, enhance and where appropriate create new valued landscapes, habitats and their soil structure, particularly the ancient woodland remnants of the Forest of Bere and coastal salt marsh.
8. Protects wildlife habitats and wildlife corridors to prevent the fragmentation of existing habitats and to allow species, for example Brent Geese, to respond to the impacts of climate change by making provision for habitat adaptation e.g. coastal managed realignment and species migration.
9. Maintains undeveloped gaps between the settlements of Emsworth/Havant; Havant/Waterlooville; Havant/Portsmouth; Emsworth/Westbourne and Leigh Park/Rowlands Castle as shown on the Proposals Map.
10. Protects the best and most versatile agricultural land that has the greatest potential for local food security.
11. Responds to the emerging evidence from the Solent Disturbance and Mitigation Project, the published recommendations, and future related research.

DM8 Conservation, Protection and Enhancement of Existing Natural Features

Development will only be permitted where it protects and enhances local habitats and landscape distinctiveness and which addresses all of the relevant criteria as set out below:

1. Protects natural features of nature conservation and/or amenity importance on the site, for example trees, woodlands, hedgerows, soils, streams, stream corridors, springs, ditches or ponds from damage, destruction and a deterioration in quality.
2. Sympathetically incorporates existing features into the overall design of the scheme including measures taken to ensure their continued survival.
3. Provides new landscape works that integrate successfully with the local environment and existing natural features, using local materials and plant species and making provision for future maintenance of new landscape works associated with new developments.
4. Ensures sequences of greenspaces are maintained and protects the attractiveness and visual amenity of all green open spaces that contribute to the identity of the borough.

DM9 Development in the Coastal Zone

Planning Permission will only be granted for development in the coastal zone which addresses all of the relevant criteria as set out below as shown on the Proposals Map:

1. Has no harmful effects on nature conservation within the Chichester and Langstone Harbour SSSIs and SPA, Solent Maritime SAC and Ramsar site, or any SINCs and Local Nature Reserves.
2. Maintains and enhances the appearance and distinctiveness of existing settlements and landmarks along the coast.
3. Contributes positively to the landscape and has regard to best practice on the design of new buildings in coastal locations.
4. Upgrades existing footpaths and ensures that public access is retained and provided to connect existing paths along the waterfront where appropriate.
5. Would result in improvements to or redistribution of moorings, marine berths or launch on demand facilities (dry berths) in the harbours.
6. Would not be detrimental to infrastructure for, and quality of, water-based recreation, or be detrimental to the safety of navigation.
7. Provides recreational opportunities that do not adversely affect the character and appearance of the coast.

Biodiversity Policy Core Strategy Adopted Allocations Plan (July 2014)**Policy DM23 Sites for Brent Geese and Waders**

Planning permission will be granted for developments that avoid important sites for Brent Geese and/or waders outside of the statutory designated areas, identified on the Policies Map.

Where this cannot be avoided, development proposals on or adjacent to an important Brent Goose and/or wader site outside of the statutory designated areas will need to demonstrate levels of impact, alone and in combination with other proposals subject to the tests of the Habitats Regulations. Where a negative impact upon a site cannot be avoided or satisfactorily mitigated, and the tests of the Habitats Regulations are met as necessary, replacement feeding/roosting habitat, on a no net loss basis, will be sought.

Where a negative impact upon an important site cannot be avoided or mitigated and replacement feeding/roosting habitat is not or cannot be provided on a no net loss basis, the proposal will be refused.

Planning permission will be granted for development on or adjacent to uncertain sites for Brent Geese and/or waders outside of the statutory designated areas, where appropriate surveys are undertaken and it is determined that the site has no importance.

- 9.18 Havant Borough is an internationally important wintering location for Brent Geese and wading bird species and as a result the coastal areas around Chichester and Langstone Harbours have been designated as Special Protection Areas (SPAs). Brent Geese and wading bird species are dependent on a network of habitats for feeding and roosting that fall outside of the SPAs. The sites of value have been identified in the Solent Waders and Brent Goose Strategy (2010) and identified as sites of 'important' or 'uncertain' value. These sites are critically linked to the integrity of the European and internationally designated sites and their development should be avoided where possible, and where this cannot be avoided negative impacts should be mitigated.
- 9.19 Proposals on or adjacent to important Brent Geese and wading bird sites must be assessed and subject to the tests of the Habitats Regulations, in order to demonstrate levels of impact, alone and in combination with other proposals. Suitable avoidance and mitigation measures will be required, proportionate to the level of risk to the SPA bird populations, and those measures put in place prior to development taking place. These measures may include carrying out construction works outside of the core winter period (October-March inclusive), or enhancing the feeding or roosting site to increase its capacity through favourable management. Such measures should be subject to consultation between the council and Natural England.

- 9.20 Where a negative impact upon a site cannot be avoided or satisfactorily mitigated, and the tests of the Habitats Regulations are met as necessary, replacement habitat may be considered. Replacement habitat may include the creation of new feeding or roosting sites (or 'refuges'), or improvements to the management of less frequently used sites to provide an equivalent level of resource. Given the right conditions (location, size, habitat and appropriate management), it is possible that coastal birds will exploit new sites or refuges. The important factors to consider in the creation of new sites or refuges for this purpose have been identified in the Solent Waders and Brent Goose Strategy (2010). Any replacement habitat must be subject to meeting the tests of the Habitats Regulations. Advice must also be sought from Natural England as to the most appropriate course of action on a case-by-case basis. Where a negative impact upon an important site cannot be avoided or mitigated, or appropriate replacement habitat is not or cannot be provided, the proposal will be refused.
- 9.21 Where data on sites of 'important' or 'uncertain' value is limited or out of date, site surveys should be undertaken to determine their level of importance. The authority recommends that the survey methodology set out in the Solent Waders and Brent Geese Strategy (2010) is followed. Appropriate methodologies should be approved by a professional ecologist and prepared in consultation with Natural England. For surveys to be considered valid, reasonable measures should be taken not to reduce the site's suitability for Brent Geese and waders during the survey period. In all cases, three consecutive years of recent survey data should ideally be carried out across the overwintering seasons and a record of any sightings on or adjacent to the application site will be required. Existing records for Brent Geese and wading bird species in Langstone Harbour are held by the Hampshire Biodiversity Information Centre, and records for Chichester Harbour are held by the Chichester Harbour Conservancy.
- 9.22 The Allocations Plan has been subject to an Appropriate Assessment under the Habitats Regulations, to help identify any potential negative impacts on the European wildlife sites, and means to avoid or mitigate such impacts, including those to the network of Brent Geese and wader sites outside of the SPAs. This forms part of the evidence base. It is considered that this policy provides sufficient flexibility to allow allocated sites that are designated as 'uncertain' sites for Brent Geese and/or waders to come forward for development within the plan period.

Policy DM24 Recreational Disturbance to Special Protected Areas (SPAs) from Residential Development

Planning permission will be granted for residential developments that avoid or mitigate a likely significant effect on the SPAs, caused by recreational disturbance through the in-combination effect of net additional dwellings. This mitigation can be provided through:

- a) A financial contribution.**
- b) A developer provided package of measures associated with the proposed development designed to avoid or mitigate any significant effect on the SPAs subject to meeting the tests of the Habitats Regulations.**
- c) A combination of measures in (a) and (b) above.**

Where these measures cannot be provided development proposals will be refused, unless the applicant can show, subject to meeting the tests of the Habitats Regulations, that there would not be an adverse effect on the integrity of the SPAs.

The provisions of this policy do not exclude the possibility that some residential schemes, due to their size/and or location, may require individual assessment under the Habitats Regulations on advice from Natural England and additional site specific avoidance or mitigation measures.

Havant Borough Council Local Plan 2036 Pre-submission Draft 04 Feb-18 March 2019**E14 | The Local Ecological Network**

All development in Havant Borough is expected to protect, conserve and enhance the Borough's Local Ecological Network. Planning permission will only be granted where:

- a. The development of one dwelling or more or a new commercial building results in biodiversity net gain;
- b. The development avoids the fragmentation of the Local Ecological Network;
- c. The applicant has identified and assessed the level of ecological value of the site through adequate and proportionate information and any matters arising have been addressed through an avoidance or mitigation plan; and
- d. Any necessary mitigation plan includes provision for ongoing management and maintenance.

In addition to the above, priority habitats in the Borough are afforded protection by specific nature conservation designations. Development proposals which could affect a designated site will need to consider the impact and respond appropriately.

International Nature Conservation Designations

Development which has the potential to have an impact on an international nature conservation designation will be subject to a Habitats Regulations Assessment and, if necessary, an Appropriate Assessment, to determine the potential for likely significant effects. Development that is likely to have an adverse effect, either alone or in combination with another project/plan, on the integrity of an international site will not be permitted unless it can be demonstrated that:

- e. Necessary avoidance or mitigation is secured such that in combination with other development there will be no adverse effects on the integrity of the designated sites; or
- f. There are no alternative sites for the proposal, there are reasons of overriding public benefit/interest and compensatory provision is secured.

National Nature Conservation Designations

In addition to criteria a) to d), planning permission will only be granted on or adjacent to a national nature conservation designation where:

- g. Development is unlikely to have an adverse effect either individually or in combination with other developments.

An exception to j) will only be made where:

- h. The benefit of development clearly outweighs the likely impact on the feature(s) of the designation; and
- i. Mitigation and/or compensation measures are secured to offset any likely impacts.

Local Nature Conservation Designations

In addition to criteria a) to d), planning permission will only be permitted on or adjacent to a local nature conservation designation where:

- j. The value of the designation is retained and, where possible, enhanced in line with its original criteria for designation through avoidance and/or mitigation measures; or
- k. The benefit of the development can be shown to clearly outweigh the substantive nature conservation value of the site, and where the impact cannot be avoided nor mitigated, compensation is provided.

Joint working

The Council will continue to work collaboratively with its PUSH partners to develop a strategic approach towards water quality and air quality.

Under duty-to-cooperate, the Council is committed to developing a shared Nitrogen Action Plan for the Farlington area (Portsmouth) in partnership with Portsmouth City Council and other appropriate partners.

E15 | Protected species

Development proposals which are likely to affect protected species, and/or their supporting habitats, must undertake appropriate surveys to establish their presence/likely absence. In using the findings of such surveys, proposals should, in the first instance, avoid an impact on a protected species. If this is not possible, planning permission will only be granted where:

- a. A Mitigation Plan, or if this is not possible a Compensation Plan, is provided to the satisfaction of the Council; and
- b. A Monitoring and Review Plan is put in place.

Bechstein's Bat

In instances where Bechstein's bat is likely to be found on site and/or nearby, survey methods appropriate to Bechstein's bat must be used and undertaken by a suitably qualified ecologist. If the presence of Bechstein's bat is established on site and/or nearby, planning permission will only be granted where:

- c. Impacts on Bechstein's bat breeding habitat (i.e. net loss of/excessive disturbance to woodland or trees containing roosts) are avoided;
- d. Proposals include appropriate buffers to woodlands, trees, hedgerows and other flight corridors, considering the location of roosts and foraging/commuting habitats; and
- e. Review and monitoring plans are put in place.

Where the above measures cannot be met planning permission will be refused, unless the applicant can show, subject to meeting the tests of the Habitats Regulations, that there would not be an adverse effect on the population of the relevant protected species.

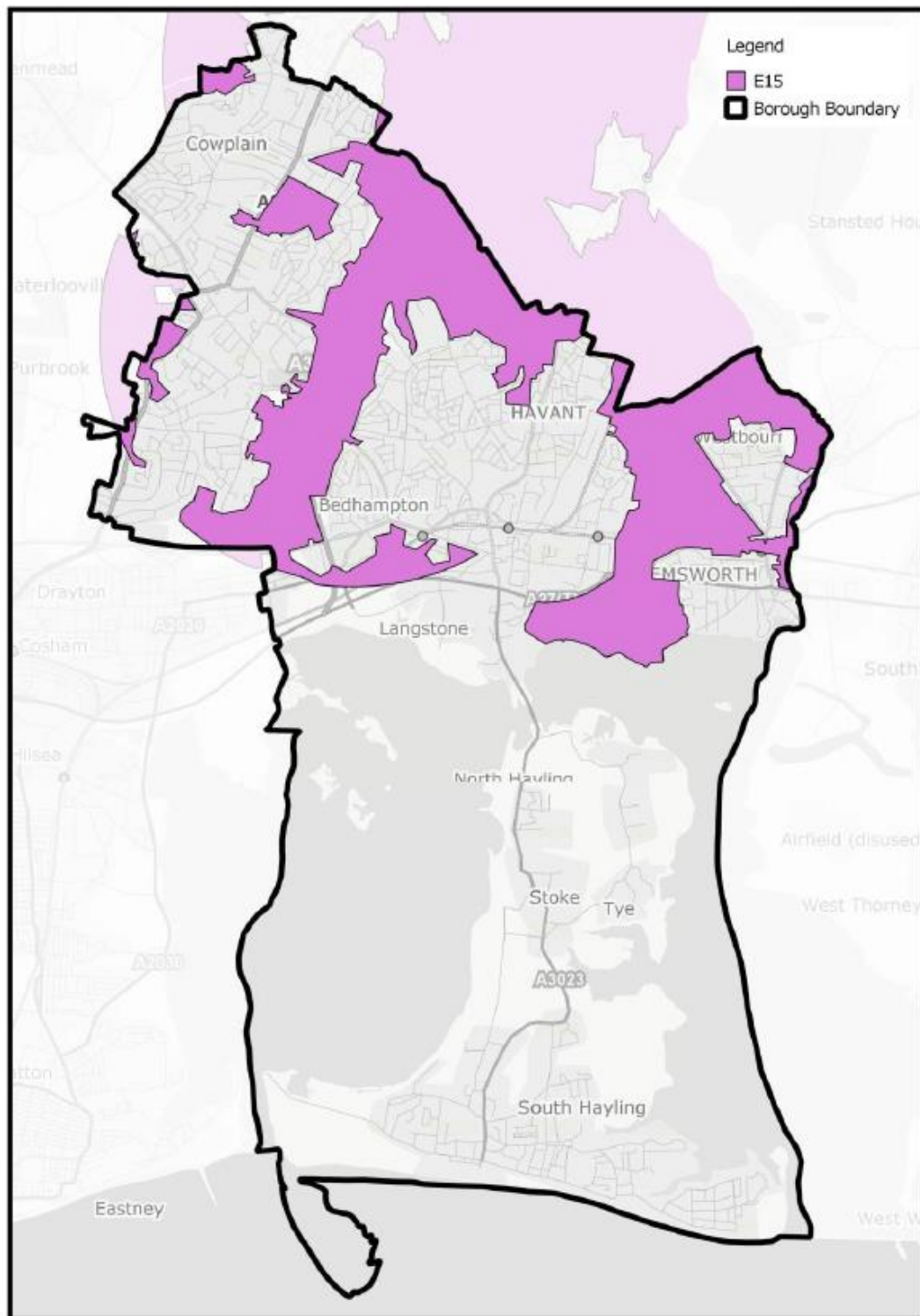
E16 | Solent Special Protection Areas

Planning permission will be granted for new dwellings that mitigate the likely significant effect on the Solent SPAs. This mitigation can be provided through either:

- a. A financial contribution consistent with the Solent Recreation Mitigation Strategy (SRMS); or
- b. A developer provided package of measures associated with the proposed development supported by evidence that it will avoid or mitigate any likely significant effect on the SPAs; or
- c. A combination of measures in (a) and (b) above.

Where these measures cannot be provided development proposals will be refused, unless the applicant can show, subject to meeting the tests of the Habitats Regulations, that there would not be a likely significant effect on the Solent SPAs either alone or in combination with other plans or projects.

Figure 20: Bechstein's Bat area of search



E17 | Solent Wader and Brent Goose feeding and roosting sites

Development proposals on, or adjacent to, sites which are used by Solent waders and/or Brent Geese will be assessed in line with the appropriate regulations. These proposals will, therefore, require a project level Habitats Regulations Assessment and, if necessary, an Appropriate Assessment. The Council will consider the Solent Waders and Brent Goose (SWBG) Strategy and the latest survey data when making such an assessment.

Core Areas and Primary Support Areas

Development proposals, other than on those sites specifically allocated in this Plan, which would involve the loss of all or part of a Core Area or Primary Support Area, will be refused.

Development proposals at Rook Farm (H27), which is located on a Core Area, will only be permitted where suitable replacement habitat is provided as part of the Hayling Island Brent Goose Refuge (E26), which:

- a. Contributes to a biodiversity net gain to the SWBG network;
- b. Is of an equal or, where possible, greater size and quality to the Core Area being lost or damaged; and
- c. Is secured through a costed Habitat Management and Monitoring Plan.

Development proposals at Campdown (H40), which is located on a Primary Support Area and a Secondary Support Area, and Land north of Sinah Lane (H29), which is located on a Primary Support Area, will only be permitted where suitable replacement habitats are provided, which:

- d. Contributes to a biodiversity net gain to the SWBG network;
- e. Are suitable in terms of habitat type and quality for at least the number of SWBG recorded on the site being lost; and
- f. Is secured through a costed Habitat Management and Monitoring Plan.

Secondary Support Areas

Development proposals on Secondary Support Areas will only be permitted where either:

- g. A suitable replacement habitat is provided on a like for like basis on or within the locality of the site which is agreed and secured through a costed Habitat Management and Monitoring Plan; or
- h. Where it can be demonstrated that criteria g) is not practicable, a smaller suitable replacement area is agreed and secured through a costed Habitat Management and Monitoring Plan and a financial contribution is provided consistent with the SWBG Strategy.

Low Use

Development proposals on Low Use Sites will only be permitted where:

- i. On site mitigation is provided which is based upon appropriate ecological assessments to the satisfaction of the Council and Natural England; or
- j. A financial contribution is provided consistent with the SWBG Strategy.

Candidate Sites

Development proposals on Candidate Sites will only be permitted where:

- k. One or two-consecutive years' survey is undertaken to determine the classification of the site; and
- l. Once the classification of the site is established, the above requirements are met according to the status of the site.

Indirect effects

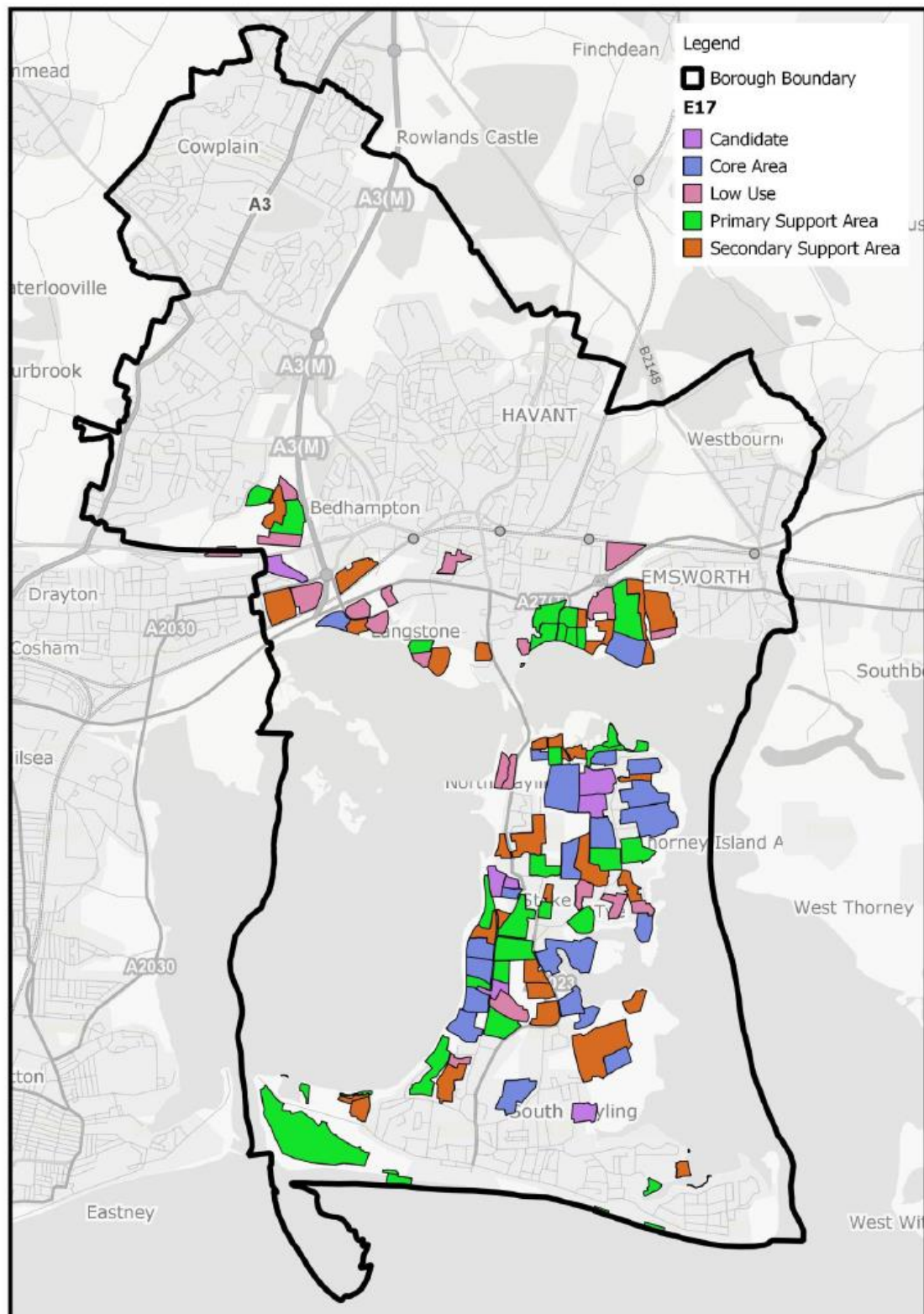
Development proposals adjacent to sites used by SWBG will only be permitted where access and disturbance to the adjacent SWBG site is prevented. This can either be achieved by avoiding development close to the adjacent SWBG site, or by providing a package of avoidance and/or mitigation measures which are agreed with the Council.

Delivery and Management of Replacement Habitat

Where suitable replacement habitat is required to offset the loss or damage to a SWBG site, the replacement land will need to be provided prior to commencement of development.

The land for replacement habitat should be within the locality of the site and managed in a suitable condition for SWBG prior to the loss or damage to the SWBG area being proposed for development. The land should be secured and managed through an agreed costed Habitat Management and Monitoring Plan in perpetuity.

Figure 22: Brent Goose and Wader Feeding and Roosting Sites



Technical Appendix 3

Ecological Appraisal Method

Introduction

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

Desk Study

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

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

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

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

Site Survey Methodology

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

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

Habitats and Vegetation

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

Protected Species

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

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

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

Bats

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

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

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

Badgers

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

Dormice

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

Other Mammals

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

Breeding Birds

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

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

Reptiles

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

Great Crested Newt

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

Invertebrates

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

Survey Constraints and Limitations

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

Assessment Guidelines

Introduction

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

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

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

Value is determined with reference to the following factors:

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

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

Assessment of Likely Impacts

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

Characterisation of Likely Impacts

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

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

Significance of Impact

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

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

Integrity

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

Conservation Status

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

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

Impact Prediction

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

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

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

Drawing Assessment Together

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

Mitigation, Compensation and Enhancement

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

Technical Appendix 4

Data Search &

Designated Sites Citation Sheets

SPA description

(information as published 2001)

Chichester and Langstone Harbours

Country	England
Unitary Authority	City of Portsmouth, West Sussex, Hampshire
SPA status	Classified 28/10/1987
Latitude	50 48 23 N
Longitude	00 55 12 W
SPA EU code	UK9011011
Area (ha)	5810.03
Component	Chichester Harbour
SSSI/ASSIs	Langstone Harbour



Chichester and Langstone Harbours are located on the south coast of England in Hampshire and West Sussex. They are large, sheltered estuarine basins comprising extensive sand- and mud-flats exposed at low tide. The two harbours are joined by a stretch of water that separates Hayling Island from the mainland. Tidal channels drain the basin and penetrate far inland. The mud-flats are rich in invertebrates and also support extensive beds of algae, especially *Enteromorpha* species, and eelgrasses *Zostera* spp. The basin contains a wide range of coastal habitats supporting important plant and animal communities. The site is of particular significance for waterbirds, especially in migration periods and in winter. It also supports important colonies of breeding terns.

Qualifying species

For individual species accounts visit the [Species Accounts section](#)

This site qualifies under **Article 4.1** of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive:

During the breeding season;

Little Tern *Sterna albifrons*, 100 pairs representing up to 4.2% of the breeding population in Great Britain (5 year mean, 1992-1996)

Sandwich Tern *Sterna sandvicensis*, 158 pairs representing up to 1.1% of the breeding population in Great Britain (1998)

On passage;

Little Egret *Egretta garzetta*, 137 individuals representing up to 17.1% of the population in Great Britain (Count as at 1998)

Solent Maritime

Site details

Country	England
Unitary Authority	City of Portsmouth; City of Southampton; Hampshire; Isle of Wight; West Sussex
Centroid*	SU756003
Latitude	50 47 47 N
Longitude	00 55 40 W
SAC EU code	UK0030059
Status	Designated Special Area of Conservation (SAC)
Area (ha)	11325.09

* This is the approximate central point of the SAC. In the case of large, linear or composite sites, this may not represent the location where a feature occurs within the SAC.

General site character

Marine areas. Sea inlets (14%)
 Tidal rivers. Estuaries. Mud flats. Sand flats. Lagoons (including saltwork basins) (59%)
 Salt marshes. Salt pastures. Salt steppes (23%)
 Coastal sand dunes. Sand beaches. Machair (0.5%)
 Shingle. Sea cliffs. Islets (3%)
 Broad-leaved deciduous woodland (0.5%)

[Boundary map](#) and associated biodiversity information on the NBN Gateway.

[Natura 2000 data form](#) for this site as submitted to Europe (PDF format, size 30kb).

[Interactive map](#) from MAGIC (Multi-Agency Geographic Information for the Countryside).



Location of Solent Maritime SAC/SCI/cSAC

Note:

When undertaking an appropriate assessment of impacts at a site, **all** features of European importance (both primary and non-primary) need to be considered.

Annex I habitats that are a primary reason for selection of this site

1130 Estuaries

The Solent encompasses a major estuarine system on the south coast of England with four coastal plain **estuaries** (Yar, Medina, King's Quay Shore, Hamble) and four bar-built **estuaries** (Newtown Harbour, Beaulieu, Langstone Harbour, Chichester Harbour). The site is the only one in the series to contain more than one physiographic sub-type of estuary and is the only cluster site. The Solent and its inlets are unique in Britain and Europe for their hydrographic regime of four tides each day, and for the complexity of the marine and estuarine habitats present within the area. Sediment habitats within the estuaries include extensive estuarine flats, often with intertidal areas supporting eelgrass *Zostera* spp. and green algae, sand and shingle spits, and natural shoreline transitions. The mudflats range from low and variable salinity in the upper reaches of the estuaries to very sheltered almost fully marine muds in Chichester and Langstone Harbours. Unusual features include the presence of very rare sponges in the Yar estuary and a sandy 'reef' of the polychaete *Sabellaria spinulosa* on the steep eastern side of the entrance to Chichester Harbour.

1320 Spartina swards (*Spartinion maritimae*)

Solent Maritime is the only site for smooth cord-grass *Spartina alterniflora* in the UK and is one of only two sites where significant amounts of small cord-grass *S. maritima* are found. It is also one of the few remaining sites for Townsend's cord-grass *S. x townsendii* and holds extensive areas of common cord-grass *Spartina anglica*, all four taxa thus occurring here in close proximity. It has additional historical and scientific interest as the site where *S. alterniflora* was first recorded in the UK (1829) and where *S. x townsendii* and, later, *S. anglica* first occurred.

1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)

The Solent contains the second-largest aggregation of **Atlantic salt meadows** in south and south-west England. Solent Maritime is a composite site composed of a large number of separate areas of saltmarsh. In contrast to the Severn estuary, the salt meadows at this site are notable as being representative of the ungrazed type and support a different range of communities dominated by sea-purslane *Atriplex portulacoides*, common sea-lavender *Limonium vulgare* and thrift *Armeria maritima*. As a whole the site is less truncated by man-made features than other parts of the south coast and shows rare and unusual transitions to freshwater reedswamp and alluvial woodland as well as coastal grassland. Typical **Atlantic salt meadow** is still widespread in this site, despite a long history of colonisation by cord-grass *Spartina* spp.

Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site

1110 Sandbanks which are slightly covered by sea water all the time**1140 Mudflats and sandflats not covered by seawater at low tide****1150 Coastal lagoons * Priority feature****1210 Annual vegetation of drift lines****1220 Perennial vegetation of stony banks****1310 *Salicornia* and other annuals colonising mud and sand****2120 Shifting dunes along the shoreline with *Ammophila arenaria* ('white dunes')**

Annex II species that are a primary reason for selection of this site

Not applicable.

Annex II species present as a qualifying feature, but not a primary reason for site selection

1016 Desmoulin's whorl snail *Vertigo moulinsiana*

Many designated sites are on private land: the listing of a site in these pages does not imply any right of public access.

Solent and Isle of Wight Lagoons

Site details

Country	England
Unitary Authority	City of Portsmouth; Hampshire; Isle of Wight
Centroid*	SZ608977
Latitude	50 46 30 N
Longitude	01 08 13 W
SAC EU code	UK0017073
Status	Designated Special Area of Conservation (SAC)
Area (ha)	36.24

* This is the approximate central point of the SAC. In the case of large, linear or composite sites, this may not represent the location where a feature occurs within the SAC.

General site character

Tidal rivers. Estuaries. Mud flats. Sand flats. Lagoons (including saltwork basins) (91.7%)
Salt marshes. Salt pastures. Salt steppes (8.3%)

[Boundary map](#) and associated biodiversity information on the NBN Gateway.

[Natura 2000 data form](#) for this site as submitted to Europe (PDF format, size 30kb).

[Interactive map](#) from MAGIC (Multi-Agency Geographic Information for the Countryside).



Location of Solent and Isle of Wight Lagoons SAC/SCI/cSAC

Note:

When undertaking an appropriate assessment of impacts at a site, **all** features of European importance (both primary and non-primary) need to be considered.

Annex I habitats that are a primary reason for selection of this site

1150 Coastal lagoons * Priority feature

The Solent on the south coast of England encompasses a series of **Coastal lagoons**, including percolation, isolated and sluiced lagoons. The site includes a number of lagoons in the marshes in the Keyhaven – Pennington area, at Farlington Marshes in Chichester Harbour, behind the sea-wall at Bembridge Harbour and at Gilkicker, near Gosport. The lagoons show a range of salinities and substrates, ranging from soft mud to muddy sand with a high proportion of shingle, which support a diverse fauna including large populations of three notable species: the nationally rare foxtail stonewort *Lamprothamnium papulosum*, the nationally scarce lagoon sand shrimp *Gammarus insensibilis*, and the nationally scarce starlet sea anemone *Nematostella vectensis*. The lagoons in Keyhaven – Pennington Marshes are part of a network of ditches and ponds within the saltmarsh behind a sea-wall. Farlington Marshes is an isolated lagoon in marsh pasture that, although separated from the sea by a sea-wall, receives sea water during spring tides. The lagoon holds a well-developed low-medium salinity insect-dominated fauna. Gilkicker Lagoon is a sluiced lagoon with marked seasonal salinity fluctuation and supports a high species diversity. The lagoons at Bembridge Harbour have formed in a depression behind the sea-wall and sea water enters by percolation. Species diversity in these lagoons is high and the fauna includes very high densities of *N. vectensis*.

Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site

Not applicable.

Annex II species that are a primary reason for selection of this site

Not applicable.

Annex II species present as a qualifying feature, but not a primary reason for site selection

Not applicable.

Many designated sites are on private land: the listing of a site in these pages does not imply any right of public access.

SPA description

(information as published 2001)

Portsmouth Harbour

Country	England
Unitary Authority	City of Portsmouth, Hampshire
SPA status	Classified 28/02/1995
Latitude	50 49 41 N
Longitude	01 07 32 W
SPA EU code	UK9011051
Area (ha)	1248.77
Component SSSI/ASSIs	Portsmouth Harbour



Portsmouth Harbour is located on the central south coast of England. It is a large industrialised estuary and includes one of the four largest expanses of mud-flats and tidal creeks on the south coast of Britain. The mud-flats support large beds of Narrow-leaved Eelgrass *Zostera angustifolia* and Dwarf Eelgrass *Z. noltii*, extensive green algae beds, mainly *Enteromorpha* species, and Sea Lettuce *Ulva lactuca*.

Portsmouth Harbour has only a narrow connection to the sea via the Solent, and receives comparatively little fresh water, thus giving it an unusual hydrology. The site supports important numbers of wintering Dark-bellied Brent Goose *Branta b. bernicla*, which feed also in surrounding agricultural areas away from the SPA.

Qualifying species

For individual species accounts visit the [Species Accounts section](#)

This site qualifies under **Article 4.2** of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species:

Over winter;

Dark-bellied Brent Goose *Branta bernicla bernicla*, 2,847 individuals representing at least 0.9% of the wintering Western Siberia/Western Europe population (5 year peak mean 1991/2 - 1995/6)

Note:

Many designated sites are on private land: the listing of a site in these pages does not imply any right of public access.

Note that sites selected for waterbird species on the basis of their occurrence in the breeding, passage or winter periods also provide legal protection for these species when they occur at other times of the year.

File ref:

County: Hampshire Site Name: Langstone Harbour SSSI

Local Planning Authority: Hampshire County Council, Havant Borough Council, Portsmouth City Council

National Grid Reference: SU 700030

Ordnance Survey Sheet 1:50,000: 197 1:25,000: SU 60, 70; SZ 69, 79

Area: 2,069.4 (ha) 5,113.4 (ac)

Date Notified (Under 1949 Act): 1958 Date of Last Revision: 1979

Date Notified (Under 1981 Act): 1985 Date of Last Revision: -

Other Information:

Farlington Marshes (118.9 ha) is a Local Nature Reserve owned by Portsmouth City Council and managed by the Hampshire and Isle of Wight Naturalists' Trust under a long lease; 550 ha including a series of saltmarsh islands and extensive mud flats are owned by the Royal Society for the Protection of Birds.

Reasons for Notification:

Langstone Harbour is a tidal basin which at high water resembles an almost land-locked lake. At low water extensive mud flats are exposed, drained by three main channels which unite to make a common and narrow exit to the sea. The harbour includes one of the largest areas of mixed saltmarsh on the south coast, and extensive cord-grass *Spartina anglica* marsh in an advanced state of degeneration. The Site of Special Scientific Interest including Farlington Marshes, a peninsula of grassland and marsh on reclaimed tidal silt protected by a sea wall; and a similar but much smaller area at Southmoor in the north-east of the harbour. The harbour is of international importance as a rich intertidal system supporting high densities of intertidal invertebrates and large populations of migrant and overwintering waders and wildfowl, dependent upon them and upon the extensive beds of eelgrass *Zostera* species. The *Zostera angustifolia* and *Z. noltii* beds are among the largest in Britain. The harbour is among the twenty most important intertidal areas in Britain as a summer and autumn assembly ground for waders during the moult (when they require abundant high protein food) and as a post-moult wintering ground. Dunlin *Calidris alpina* often exceed 30,000 individuals, or 6% of the British winter population, or 3% of the European and North African wintering population. Grey plover *Pluvialis squatarola* and black-tailed godwit *Limosa limosa* achieve numbers which represent 1-2% of the European and North African migration flyway population; and redshank *Tringa totanus* and ringed plover *Charadrius hiaticula* do so periodically. At times as many as 20% of the black-tailed godwit, 8% of the ringed plover and 8-10% of the grey plover wintering in Britain are present in the harbour. The total numbers of waders present sometimes exceeds 40,000. Langstone Harbour and the adjoining and connected Portsmouth and Chichester Harbours form a single, coherent ecosystem which is among the ten most important intertidal areas for waders in Britain. In the 1970s and 1980s Langstone Harbour alone has consistently supported in excess of 5,000 wintering dark-bellied geese *Branta bernicla*, or 5-10% of the world population depending on fluctuating population levels. It has supported up to 2.5% of the European winter population of shelduck *Tadorna tadorna* and regularly supports substantial numbers of other ducks in autumn and winter.

Farlington Marshes intrudes into the north-west sector of the harbour. Its vegetation is strongly influenced by drainage water from the chalk and by

brackish water infiltration. The marshes embrace a variety of habitats – brackish marsh, fresh marsh, a large lagoon with associated reed *Phragmites* beds, *Agrostis stolonifera* grassland and scrub. It is a vital high water wader roost for the Harbour and a major feeding ground for Brent geese after the *Zostera* beds in the Harbour have been consumed. Few comparable sites have survived agricultural improvement on the south and east coasts of England, where the habitat was formerly common: the grassland flora is especially rich for reclaimed silt, and includes over 50 species of grasses. Southmoor shares these characteristics but is much smaller.

Langstone Harbour has been the forum for important ecological research on estuarine eutrophication and the relationship with algal blanketing of the muds, changes in invertebrate communities and changes in the composition of vertebrate predator communities.

Local Nature Reserves

[◀ back](#)

Farlington Marshes

LNR Type:	Urban Fringe
County:	Hampshire
Natural England Regional Team:	South East
Year of Declaration:	1974
Declaring Authority:	Portsmouth City Council
Area (Ha):	Click here to open the site map (new window). Once displayed, click on the site to see area and other details.
Grid Reference:	SU 685 041
Location:	Eastern Road, Portsmouth. PO6 1UN
Owned by:	Portsmouth City Council
Managed by:	Hampshire and Isle of Wight Wildlife Trust
SSSI Type:	Biological
Link to site map:	Click here to open the site map from the MAGIC web site.
How to get there:	Nearest major road is A27. The western car park can be reached from the east Portsmouth A27 roundabout. The entrance is via small track between the A27 westbound exit and A2030 exit leading to Portsmouth. Train: nearest station is Hilsea – 1 mile.
Visitor facilities:	Farlington Marshes Car Park (Free) Guide Dogs permitted Tours available for groups There are benches at 300m intervals around the sea wall, and gates with RADAR locks at the entrances
What to see:	Farlington Marshes is the Trust's oldest nature reserve. It is 125 hectares (308 acres) of flower-rich grazing marsh on the northern shore of Langstone Harbour between Portsmouth and Havant.

Farlington is internationally important for the bird populations that it supports, as well as being a blaze of colour in spring and summer with many flowers and butterflies.

**Volunteer and
'Friends of'
groups:**

Volunteer through the Wildlife Trust
www.hiwwt.org.uk/pages/volunteering.html
Contact the Volunteering Manager, Gill Stanton
Tel 01489 774442
Email to volunteer@hwt.org.uk.

**Contacts for
further
information and
how to get
involved:**

Hampshire & Isle of Wight Wildlife Trust
Tel 01489 774446
Email WildLine@hwt.org.uk.
or try
Portsmouth City Council
Email parks@portsmouthcc.gov.uk
Tel 023 9283 4180

**Website
address and
other links:**

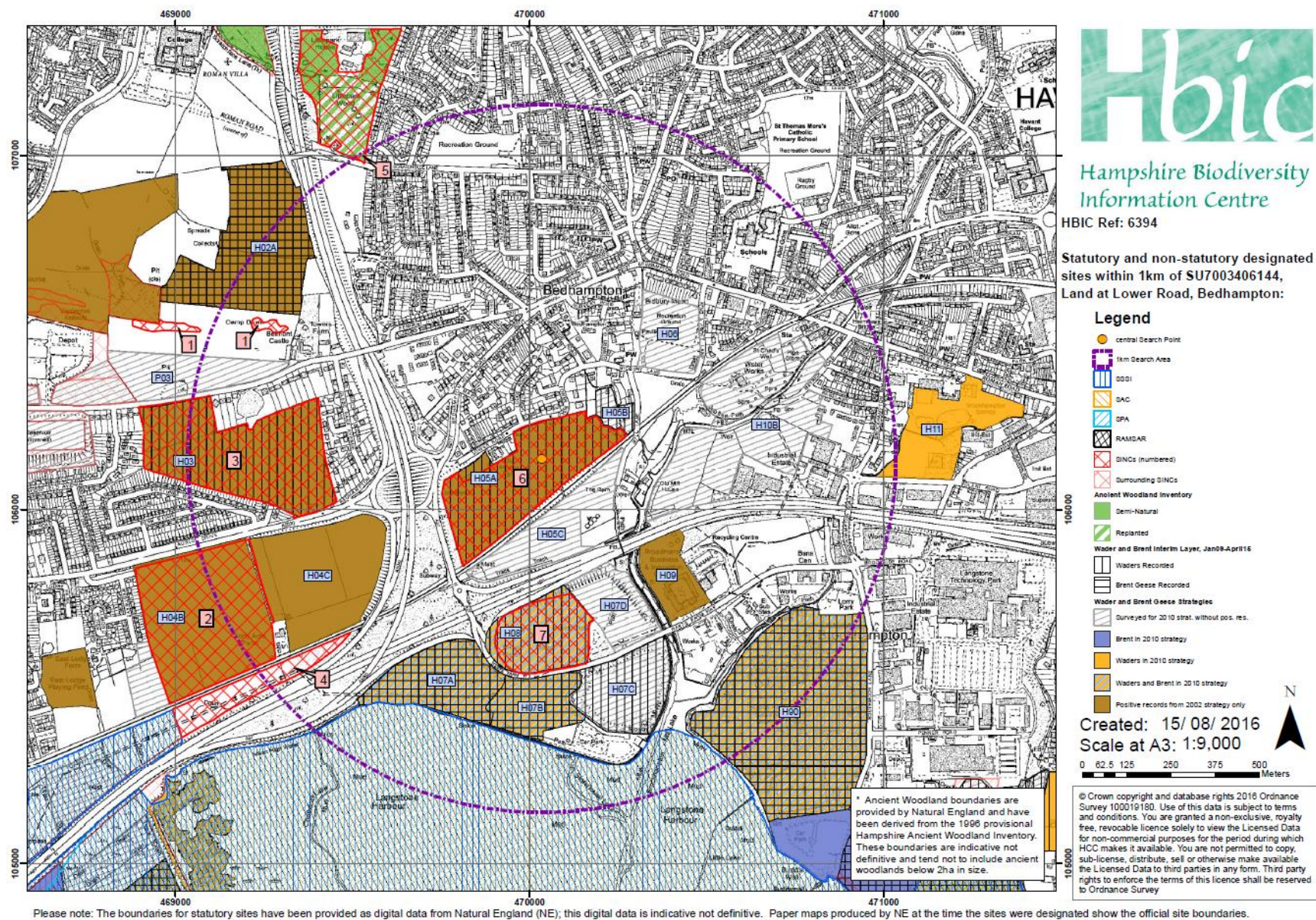
www.hiwwt.org.uk/pages/farlington-marshes-r.html
alternatively try
www.hiwwt.org.uk
www.portsmouth.gov.uk
and search for Farlington Marshes Local Nature Reserve

Last updated 11/03/13

Chichester and Langstone Harbours Ramsar Site citation sheet is not reproduced, but can be accessed at: <http://jncc.defra.gov.uk/pdf/RIS/UK11013.pdf>

Portsmouth Harbour Ramsar Site citation sheet is not reproduced, but can be accessed at: <http://jncc.defra.gov.uk/pdf/RIS/UK11055.pdf>

Solent and Dorset Coast potential SPA consultation is provided here:
<https://www.gov.uk/government/consultations/solent-and-dorset-coast-potential-special-protection-area-comment-on-proposals>



Details of Sites of Importance for Nature Conservation (SINCs) within the search area:

Please see [Criteria for SINCs in Hampshire](#) for more information on Sites of Importance for Nature Conservation in Hampshire.

Map	Status	SINC Ref	SINC Name	Central Grid Ref.	SINC Criteria	Species supported that meet Section 6 of SINC Selection Criteria	Area (ha)
1	SINC	HV0019	Camp Down Grassland Remnants	SU69000651	2D		0.66
2	SINC	HV0024	Forty Acres Farm B	SU69080568	6B	Branta bernicla bernicla (Dark-Bellied Brent Goose) [UKBAP]	12.62
3	SINC	HV0027	Fields off Havant Road	SU69180613	6A/6B	Branta bernicla bernicla (Dark-Bellied Brent Goose) [UKBAP] Euphorbia exigua (Dwarf Spurge) [NI]	12.32
4	SINC	HV0028	Farlington Marshes Grassland (North-East)	SU69200550	2A/4A		2.90
5	SINC	HV0034	Littlepark Wood (East)	SU69500710	1A/1Cii		5.87
6	SINC	HV0043	Manor Farm A	SU70000610	6B	Branta bernicla bernicla (Dark-Bellied Brent Goose) [UKBAP]	9.23
7	SINC	HV0044	Broadmarsh Playing Field	SU70020563	6B	Branta bernicla bernicla (Dark-Bellied Brent Goose) [UKBAP]	4.71

Note that latest Havant Borough Council Biodiversity Strategy (HBC, 2019) does not include sites 2, 6, & 7 that are only listed as a result of inclusion within the Brent Goose Strategy as SINCS

Details of the Solent Wader and Brent Goose Strategy sites within 1km:

Site Code	Maximum Count of Waders in 2010 strategy	Wader Site Classification in 2010 strategy	Maximum Count of Brent Geese in 2010 strategy	Brent Goose Site Classification in 2010 strategy	Brent Geese found in 2002 strategy	Data Summary	Easting	Northing
H02A	0	Uncertain	0		Yes	Positive records from 2002 strategy only	469219	106739
H03	0	Uncertain	0		Yes	Positive records from 2002 strategy only	469191	106157
H04B	0	Uncertain	0		Yes	Positive records from 2002 strategy only	469083	105698
H04C	0	Uncertain	0		Yes	Positive records from 2002 strategy only	469411	105812
H05A	0	Uncertain	0		Yes	Positive records from 2002 strategy only	469977	106088
H07A	15	Uncertain	455	Uncertain		Waders and Brent in 2010 strategy	469754	105515
H07B	9	Uncertain	350	Uncertain	Yes	Waders and Brent in 2010 strategy	470018	105451
H08	15	Uncertain	69	Important	Yes	Waders and Brent in 2010 strategy	470034	105647
H09	0	Uncertain	0		Yes	Positive records from 2002 strategy only	470398	105813
H11	2	Uncertain	0		Yes	Waders in 2010 strategy	471172	106225
H90	52	Important	200	Important		Waders and Brent in 2010 strategy	470754	105424

Notes:

- This information is based on the 'Wader and Brent Goose Strategy 2010' but refers to information held separately in the 'Brent Goose Strategy 2002' where the more recent data is deficient. Both strategies are published by the Hampshire and Isle of Wight Wildlife Trust.
- The 'site code' field relates to the unique reference given to each polygon within both strategies. This 'site code' field can be found on the map accompanying this document.
- In the above table, if the classification is blank, the Maximum count field should also be blank (rather than '0').

- During the 2010 survey work, a method of scoring the confidence for the inclusion of sites was employed (for methodology please refer to the 2010 strategy report). The classification fields in the table above refer to this level of confidence, explained more fully in the confidence table below;

Classification Explanation (Level of Confidence)	
Important	Sites which are classed as important for Waders and/or Brent Geese
Uncertain	Sites that fell below the minimum confidence threshold, meaning that sites need further survey work to inform their assessment
No recorded use	Surveyors recorded when birds were not seen at a site. Where regular negative counts were recorded, and the confidence threshold was met, sites were classified as "no recorded use"
Blank	Confidence scoring was not carried out

- Where up-to-date data does not exist in the 2010 update for sites identified as "important" in the 2002 Strategy, the 2002 Strategy remains the best available data source. It is recommended that those sites identified as important in 2002 but lacking updated data be considered as "uncertain" and warranting further investigation.

Positive Site Survey Visits since the 'Wader and Brent Goose Strategy 2010':

Site Code	Waders Recorded Post-2010 Strategy	Maximum Count of Waders	Brent Geese Recorded Post-2010 Strategy	Maximum Count of Brent Geese	EASTING	NORTHING
H02A	Yes	1	Yes	70	469254	106756
H03	Yes	101		0	469179	106149
H05A	Yes	50		0	469993	106100
H05B	Yes	1		0	470245	106280
H07A	Yes	100	Yes	200	469735	105521
H07B	Yes	37	Yes	13	470023	105450
H07C	Yes	13		0	470253	105515
H08	Yes	1		0	470028	105650
H90	Yes	44	Yes	7	470697	105414

Notes:

- This information results from survey data entered onto the online 'Goose Watch' data gathering web application, hosted by the Chichester Harbour Conservancy and the 'Solent Birds' data gathering web application, hosted by the Eastern Solent Coastal Partnership. The survey and data manipulation work has been carried out by and supported by a wider partnership.
- This dataset does not contain records made beyond April 2015.
- The 'site code' field relates to the unique reference given to each polygon, identical to all previous Wader and Brent Goose strategies. This 'site code' field can be found on the map accompanying this document.
- This does not include records collected by The Hampshire Ornithological Society or other local/national bird groups, unless entered onto 'Goose Watch' or 'Solent Birds' Web applications.
- Visits which did not produce positive results have not been included.

Data on H05A & H05B from HBIC:**Details from the 2010 strategy-**

Site	Date	Season	Time on Site	Species	Count	Use	Disturbance
H05A	22/02/2009	2008-2009	10:35	No birds seen	0		No
H05A	03/12/2006	2006-2007	11:30	No birds seen	0		No
H05B	03/12/2006	2006-2007	11:30	No birds seen	0		No
H05B	17/03/2009	2008-2009	15:45	No birds seen	0		No

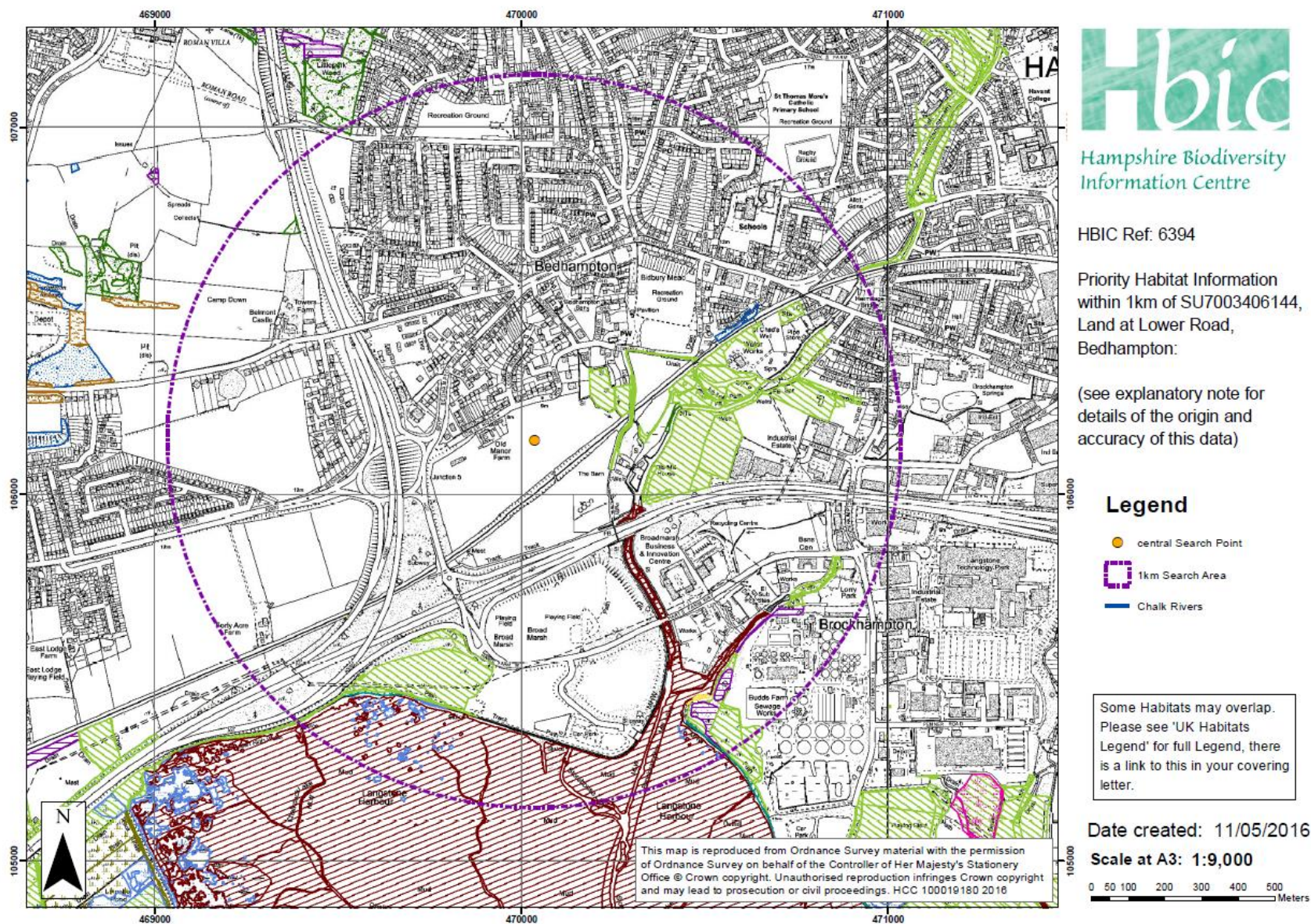
Details of further visits, since the strategy, sourced from HIWWT (HBIC)

Record_id	Source	Validated	Site	Date	Season	Time on Site	Species	Count	Use	Disturbance
1427	HIWWT	Yes	H05A	23/02/2013	2012-13		Lapwing	50	Feeding	

More recent visits-

Taxon_Comm	Taxon_Lati	No.	Sighting	Grid_Ref	Field_Code	Time_Seen	Crop_Type	Crop_Prote	Disturbanc	Submitted	SITE_ID	REFERENCE	AREA_HA
None		1	22 Nov 2013	SU70030608	null	11.50	plough	none	none	14 May 2014	H05A	SU700060	9.6162
None		1	22 Nov 2013	SU69950608	null	11.50	plough	none	none	14 May 2014	H05A	SU700060	9.6162
None		1	4 Dec 2013	SU69970605	null	10.35	plough	none	none	16 May 2014	H05A	SU700060	9.6162
None		1	14 Jan 2014	SU69950605	null	08.50	plough	none	none	20 May 2014	H05A	SU700060	9.6162
None		1	12 Feb 2014	SU69900603	null	08.40	plough	none	none	20 May 2014	H05A	SU700060	9.6162
None		1	13 Mar 2014	SU70000608	null	08:15	plough	none	none	20 May 2014	H05A	SU700060	9.6162
no waders	null	0	12 Nov 2012	SU69820609	H05A	14:45	null			17 Jun 2014	H05A	SU700060	9.6162
no brent geese	null	0	12 Nov 2012	SU69820609	H05A	14:45	null			17 Jun 2014	H05A	SU700060	9.6162
no waders	null	0	26 Nov 2012	SU69780604	H05A	09:20	null			17 Jun 2014	H05A	SU700060	9.6162
no brent geese	null	0	26 Nov 2012	SU69780604	H05A	09:20	null			17 Jun 2014	H05A	SU700060	9.6162
no waders	null	0	15 Jan 2013	SU69860616	H05A	14:20	null			17 Jun 2014	H05A	SU700060	9.6162
no brent geese	null	0	15 Jan 2013	SU69860616	H05A	14:20	null			17 Jun 2014	H05A	SU700060	9.6162
no waders	null	0	11 Feb 2013	SU69860616	H05A	12:20	null			17 Jun 2014	H05A	SU700060	9.6162
no brent geese	null	0	11 Feb 2013	SU69860616	H05A	12:20	null			17 Jun 2014	H05A	SU700060	9.6162
no waders	null	0	14 Mar 2013	SU69820612	H05A	12:20	null			17 Jun 2014	H05A	SU700060	9.6162
no brent geese	null	0	14 Mar 2013	SU69820612	H05A	12:20	null			17 Jun 2014	H05A	SU700060	9.6162
no waders	null	0	19 Dec 2012	SU69830611	H05A	12:20	null			17 Jun 2014	H05A	SU700060	9.6162
no brent geese	null	0	19 Dec 2012	SU69830611	H05A	12:20	null			17 Jun 2014	H05A	SU700060	9.6162

None		1	4 Dec 2013	SU70250626	null	11.00	scrub	none	none	16 May 2014	H05B	SU702062	0.9218
None		1	14 Jan 2014	SU70250626	null	09.20	scrub	none	none	20 May 2014	H05B	SU702062	0.9218
None		1	12 Feb 2014	SU70240625	null	08.55	scrub	none	none	20 May 2014	H05B	SU702062	0.9218
None		1	13 Mar 2014	SU70230628	null	08.35	scrub	none	none	20 May 2014	H05B	SU702062	0.9218
Little Egret	Egretta garzetta	1	26 Nov 2012	SU70270627	H05B	10:20	null			17 Jun 2014	H05B	SU702062	0.9218
no waders	null	0	26 Nov 2012	SU70160633	H05B	10:20	null			17 Jun 2014	H05B	SU702062	0.9218
no brent geese	null	0	26 Nov 2012	SU70160633	H05B	10:20	null			17 Jun 2014	H05B	SU702062	0.9218
no waders	null	0	19 Dec 2012	SU70130635	H05B	10:20	null			17 Jun 2014	H05B	SU702062	0.9218
no brent geese	null	0	19 Dec 2012	SU70130635	H05B	10:20	null			17 Jun 2014	H05B	SU702062	0.9218
no waders	null	0	14 Mar 2013	SU70130633	H05B	14:20	null			17 Jun 2014	H05B	SU702062	0.9218
no brent geese	null	0	14 Mar 2013	SU70130633	H05B	14:20	null			17 Jun 2014	H05B	SU702062	0.9218
no waders	null	0	12 Nov 2012	SU70160630	H05B	14:20	null			17 Jun 2014	H05B	SU702062	0.9218
no brent geese	null	0	12 Nov 2012	SU70160630	H05B	14:20	null			17 Jun 2014	H05B	SU702062	0.9218
no waders	null	0	11 Feb 2013	SU70140633	H05B	13:00				23 Jun 2014	H05B	SU702062	0.9218
no brent geese	null	0	11 Feb 2013	SU70140633	H05B	13:00				23 Jun 2014	H05B	SU702062	0.9218



All Species Records HBIC Database

Search Area: Within 1km of the Land at Lower Road, Bedhampton

Date: 15/08/2016

HBIC Ref: 6394

See this [Legislation Explanatory Document](#) for a document explaining notable species statuses and legislation.

HBIC has its own extensive database of habitat and higher plant data for the County. In addition, HBIC hold copies of datasets belonging to partner organisations. Through data exchange agreements with these organisations HBIC is provided with regular database updates and can supply species information on their behalf. HBIC currently holds copies of the following datasets:

- Botanical Society of Britain and Ireland's (BSBI) vascular plant database for Hampshire
- British Bryological Society (Mosses, Liverworts, Hornworts)
- Butterfly Conservation's butterfly and moth database for Hampshire
- Hampshire Ornithological Society (HOS) bird records
- Hampshire Bat Group (HBG) Records of bat roost visits and sightings
- Data administered by the Hampshire and Isle of Wight Wildlife Trust on behalf of:
 - Hampshire Amphibian and Reptile Recording Network (HARRN)
 - Hampshire Mammal Group (HMG) (excluding records for bats)
- Hampshire records from The Bees, Wasps and Ants Recording Society (BWARS)
- Hampshire records from National Stag Beetle Surveys and 'Great Stag Hunts' run by the Peoples Trust for Endangered Species
- Hampshire Odonata records from The Dragonfly Recording Network, maintained by the British Dragonfly Society
- Records gleaned from collections housed and curated by the Hampshire Cultural Trust

Taxon Name	Common Name	Status	Grid Ref.	Location	First	Last	No. of Records	Max Count
Amphibians & Reptiles								
Anguis fragilis	Slow-worm	NERC_s41 WCA_s5s91(t)	SU69560558	Hamble-le-rice	2008	2008	4	1
			SU69720566	Hamble-le-rice	2008	2008	2	4
			SU69910573	Hamble-le-rice	2008	2008	4	2
			SU69910575	Hamble-le-rice	2008	2008	4	4
			SU69990581	Hamble-le-rice	2008	2008	1	1
			SU70000579	Hamble-le-rice	2008	2008	5	3
			SU70010574	Hamble-le-rice	2008	2008	1	1
			SU70010577	Hamble-le-rice	2008	2008	5	5
			SU70040583	Hamble-le-rice	2008	2008	1	1
			SU70090582	Hamble-le-rice	2008	2008	4	1
			SU70100581	Hamble-le-rice	2008	2008	1	1
			SU70180588	Hamble-le-rice	2008	2008	3	2
			SU70250587	Hamble-le-rice	2008	2008	1	1
			SU70330590	Hamble-le-rice	2008	2008	1	1
			SU70380593	Hamble-le-rice	2008	2008	4	2
			SU70440597	Hamble-le-rice	2008	2008	4	2
			SU70640599	Hamble-le-rice	2008	2008	4	2
			SU70660599	Hamble-le-rice	2008	2008	1	1
			SU70760599	Hamble-le-rice	2008	2008	2	1
			SU70760600	Hamble-le-rice	2008	2008	1	1
SU70850599	Hamble-le-rice	2008	2008	2	2			
Birds								
Acanthis cabaret	Lesser Redpoll	BOCC_Red NERC_s41	SU7005	Lh Broadmarsh/bedhampton Shore	2003	2008	26	11
			SU7005	Lh Budds Farm Sewage Farm	2003	2003	3	5
			SU7106	Havant	2005	2005	1	1
Acrocephalus scirpaceus	Reed Warbler	HBAP	SU6905	Lh Farlington Marshes	2006	2006	1	1
			SU7005	Lh Broadmarsh/bedhampton Shore	2003	2004	3	1
			SU7005	Lh Budds Farm Sewage Farm	2003	2007	13	2

Taxon Name	Common Name	Status	Grid Ref.	Location	First	Last	No. of Records	Max Count
			SU7005	Lh South Moor, Langstone Harbour	2013	2013	1 *	1
			SU7006	Havant	2011	2011	1	1
			SU7007	Lh Bedhampton	2004	2004	2	2
			SU7105	Lh Langstone Harbour	2013	2013	1 *	3
<i>Alauda arvensis</i>	Skylark	BOCC_Red HBAP NERC_s41	SU6905	Lh Farlington Marshes	2010	2010	1	0
			SU7005	Lh Broadmarsh/bedhampton Shore	2004	2010	22	41
			SU704055	Lh Broadmarsh/Bedhampton Shore	2015	2015	1 *	2
			SU7105	Lh South Moor, Langstone Harbour	2015	2015	1 *	2
			SU7106	Havant	2010	2010	1	0
<i>Alcedo atthis</i>	Kingfisher	EU_Bird_1 WCA_s1p1	SU6905	Lh Broadmarsh/bedhampton Shore	2005	2005	1	1
			SU6905	Lh Farlington Marshes	2007	2008	3	1
			SU6905	Lh Langstone Harbour	1999	2003	10	2
			SU7005	Lh Bedhampton	2006	2006	2	1
			SU7005	Lh Broadmarsh/bedhampton Shore	1994	2009	212	12
			SU7005	Lh Budds Farm Sewage Farm	1996	2007	18	2
			SU7005	Lh Langstone Harbour	2003	2008	17	2
			SU7005	Lh Langstone South Moor	2005	2005	1	1
			SU7005	Lh South Moorlangstone Harbour	2010	2010	3	0
			SU7005	Lh Budds Farm Sewage Farm	2013	2014	3 *	1
			SU7005	Lh South Moor, Langstone Harbour	2013	2015	3 *	1
			SU7006	Lh Bedhampton Mill Pond	1993	2010	41	3
			SU7006	Lh Hermitage Stream Bedhampton	1994	2007	30	2
			SU7007	Hermitage Stream Bedhampton	2012	2012	3	1
			SU7007	Lh Bedhampton	2004	2005	12	1
			SU7007	Lh Hermitage Stream Bedhampton	2008	2009	14	1
			SU7007	Hermitage Stream Bedhampton	2013	2015	2 *	1
			SU702058	Havant	2015	2015	1 *	1
			SU704063	Lh Hermitage Stream Bedhampton	2003	2003	1	1
			SU706056	Lh Brockhampton Stream	2006	2006	1	2
			SU706056	Lh Budds Farm Sewage Farm	2013	2013	1 *	1

Taxon Name	Common Name	Status	Grid Ref.	Location	First	Last	No. of Records	Max Count
			SU706057	Lh Broadmarsh/bedhampton Shore	2000	2001	2	1
			SU707057	Lh Brockhampton Stream	2015	2015	1 *	1
			SU708057	Lh Brockhampton Stream	2009	2009	1	1
			SU708058	Lh Brockhampton Stream	2000	2009	28	2
			SU7105	Ch Langstone	1998	2009	3	1
			SU7105	Ch Langstone Mill Pond	1994	2003	2	1
			SU7105	Lh Langstone Harbour	2007	2007	1	1
			SU7105	Lh Langstone South Moor	2008	2008	1	1
			SU7105	Lh South Moor, Langstone Harbour	2012	2012	1	1
			SU7105	Ch Langstone Mill Pond	2014	2015	14 *	2
			SU7105	Lh South Moor, Langstone Harbour	2013	2013	1 *	1
			SU7106	Havant	2005	2010	2	1
			SU7106	Havant	2013	2014	2 *	1
<i>Anas clypeata</i>	Shoveler	CR	SU6905	Lh Farlington Marshes	2008	2010	8	60
			SU7005	Lh Budds Farm Sewage Farm	1994	2012	152	112
			SU7005	Lh Langstone Harbour	2001	2001	1	2
			SU7005	Lh Budds Farm Sewage Farm	2013	2013	4 *	10
			SU7005	Lh Farlington Marshes	2013	2013	1 *	2
			SU7105	Ch Langstone Mill Pond	2014	2014	2 *	2
			SU7105	Lh Budds Farm Sewage Farm	2013	2015	2 *	18
<i>Anas querquedula</i>	Garganey	WCA_s1p1	SU6905	Lh Farlington Marshes	2009	2009	1	1
			SU7005	Lh Budds Farm Sewage Farm	1994	2010	19	2
<i>Anas strepera</i>	Gadwall	HBAP	SU6905	Lh Farlington Marshes	2009	2010	3	25
			SU7005	Lh Budds Farm Sewage Farm	1993	2012	109	67
			SU7005	Lh South Moor, Langstone Harbour	2012	2012	1	30
			SU7005	Lh Budds Farm Sewage Farm	2013	2015	6 *	68
			SU7005	Lh South Moor, Langstone Harbour	2013	2015	4 *	42
			SU7006	Lh Bedhampton Mill Pond	1993	2008	46	11
			SU7006	Lh Bedhampton	2014	2014	1 *	1
			SU7006	Lh Farlington Marshes	2015	2015	1 *	21

Taxon Name	Common Name	Status	Grid Ref.	Location	First	Last	No. of Records	Max Count
			SU704055	Lh Broadmarsh/Bedhampton Shore	2015	2015	1 *	2
			SU704063	Lh Bedhampton Mill Pond	2014	2014	2 *	18
			SU7105	Lh Budds Farm Sewage Farm	2013	2015	10 *	35
<i>Anser albifrons</i>	White-fronted Goose	BOCC_Red HBAP	SU7005	Lh Broadmarsh/bedhampton Shore	2005	2005	1	12
			SU7005	Lh South Moor, Langstone Harbour	2013	2013	1 *	1
<i>Anthus petrosus</i>	Rock Pipit	CR	SU6905	Lh Broadmarsh/Bedhampton Shore	2014	2014	1 *	1
			SU695055	Lh Broadmarsh/bedhampton Shore	2010	2010	1	0
			SU696055	Lh Broadmarsh/bedhampton Shore	2009	2010	4	1
			SU7005	Lh Broadmarsh/bedhampton Shore	1998	2007	44	10
			SU7005	Lh Brockhampton Stream	2012	2012	1	1
			SU7005	Lh Budds Farm Sewage Farm	1995	2010	24	50
			SU7005	Lh South Moor, Langstone Harbour	2014	2014	1 *	1
			SU7007	Lh Bedhampton	2003	2003	1	1
			SU704055	Lh Broadmarsh/Bedhampton Shore	2013	2013	1 *	7
			SU7105	Lh Langstone South Moor	2003	2003	1	1
			SU7105	Lh South Moorlangstone Harbour	2010	2010	1	0
			SU7105	Lh Budds Farm Sewage Farm	2015	2015	1 *	1
			SU7105	Lh South Moor, Langstone Harbour	2013	2014	2 *	2
<i>Anthus spinoletta</i>	Water Pipit	CS	SU7005	Lh Broadmarsh/bedhampton Shore	1999	2005	5	1
<i>Anthus trivialis</i>	Tree Pipit	BOCC_Red NERC_s41	SU7005	Lh Broadmarsh/bedhampton Shore	1997	2004	4	2
			SU7106	Havant	2002	2002	1	1
<i>Ardea cinerea</i>	Grey Heron	CS	SU698055	Lh Broadmarsh/Bedhampton Shore	2013	2013	1 *	2
			SU7005	Lh Budds Farm Sewage Farm	2006	2009	4	1
			SU7005	Lh South Moor, Langstone Harbour	2013	2013	1 *	1
			SU7006	Lh Bedhampton Mill Pond	2007	2007	1	1
			SU7105	Ch Langstone Mill Pond	2014	2015	12 *	14
			SU7105	Lh Langstone Harbour	2013	2013	1 *	7
<i>Arenaria interpres</i>	Turnstone	HBAP	SU6905	Lh Farlington Marshes	2008	2010	2	1
			SU6905	Lh Langstone Harbour	1995	2001	8	250

Taxon Name	Common Name	Status	Grid Ref.	Location	First	Last	No. of Records	Max Count
			SU7005	Lh Bedhampton	2009	2009	1	12
			SU7005	Lh Budds Farm Sewage Farm	2012	2012	1	20
			SU7005	Lh Langstone Harbour	1998	2004	4	230
			SU7005	Lh Langstone Hbr Islands (rsph)	2004	2004	1	233
			SU7005	Lh South Moor, Langstone Harbour	2015	2015	1 *	8
			SU7105	Lh South Moor, Langstone Harbour	2015	2015	1 *	27
<i>Asio flammeus</i>	Short-eared Owl	EU_Bird_1	SU7005	Lh Broadmarsh/bedhampton Shore	1998	2002	4	1
			SU7005	Lh South Moor, Langstone Harbour	2015	2015	2 *	2
			SU704055	Lh Broadmarsh/Bedhampton Shore	2015	2015	1 *	1
<i>Asio otus</i>	Long-eared Owl	CR	SU60X	Sensitive	2009	2009	1	1
<i>Aythya ferina</i>	Pochard	BOCC_Red HBAP CS	SU7005	Lh Budds Farm Sewage Farm	1994	2012	152	73
			SU7005	Lh Budds Farm Sewage Farm	2013	2015	2 *	6
			SU7006	Lh Bedhampton Mill Pond	2006	2006	1	1
			SU7105	Lh Budds Farm Sewage Farm	2015	2015	1 *	25
<i>Aythya marila</i>	Scaup	BOCC_Red NERC_s41 WCA_s1p1	SU7005	Lh Budds Farm Sewage Farm	1996	2004	57	2
			SU7005	Lh Langstone Harbour	1995	2003	6	2
			SU7005	Lh Budds Farm Sewage Farm	2013	2013	13 *	2
			SU704055	Lh Broadmarsh/Bedhampton Shore	2013	2013	1 *	2
			SU7105	Lh Budds Farm Sewage Farm	2013	2013	2 *	2
<i>Aythya nyroca</i>	Ferruginous Duck	EU_Bird_1	SU7005	Lh Budds Farm Sewage Farm	1999	2004	6	1
<i>Branta bernicla</i>	Brent Goose	BOCC_Red HBAP NERC_s41	SU6905	Lh Bedhampton	2006	2006	2	487
			SU6905	Lh Farlington Marshes	2007	2010	9	1800
			SU6906	Lh Bedhampton Fruit Farm	2003	2003	1	82
			SU692065	Purbrook	2012	2012	1	20
			SU698060	Lh Manor Farm, Bedhampton, Su70, Havant	2003	2003	2	150
			SU700056	Lh Broadmarsh/bedhampton Shore	2004	2004	2	155
			SU7005	Lh Broadmarsh/bedhampton Shore	1997	2007	26	700
			SU7005	Lh Budds Farm Sewage Farm	2003	2012	5	600

Taxon Name	Common Name	Status	Grid Ref.	Location	First	Last	No. of Records	Max Count
			SU7005	Lh Langstone Harbour	1998	2007	2	800
			SU7005	Lh South Moorlangstone Harbour	2010	2010	1	0
			SU706062	Lh Hermitage Stream Bedhampton	2001	2001	1	69
			SU707062	Lh Bedhampton	2003	2003	2	10
			SU707063	Lh Bedhampton	2004	2004	1	14
			SU7105	Ch Langstone	2002	2002	1	220
			SU7105	Lh Langstone Harbour	2007	2010	3	300
<i>Branta leucopsis</i>	Barnacle Goose	EU_Bird_1	SU7005	Lh Broadmarsh/bedhampton Shore	2007	2007	1	2
<i>Bubo bubo</i>	Eurasian Eagle Owl	EU_Bird_1	SU7106	Havant	2008	2008	1	1
<i>Calcarius lapponicus</i>	Lapland Bunting	WCA_s1p1	SU6905	Farlington Marshes	2010	2010	1	4
<i>Calidris alba</i>	Sanderling	HBAP	SU6905	Lh Farlington Marshes	2008	2008	1	2
			SU7005	Lh Langstone Harbour	1996	2004	3	10
			SU7105	Ch Langstone Mill Pond	2015	2015	1 *	6
<i>Calidris alpina</i>	Dunlin	HBAP	SU6905	Lh Farlington Marshes	2009	2010	3	30
			SU7005	Lh Farlington Marshes	2013	2013	1 *	100
			SU7005	Lh South Moor, Langstone Harbour	2015	2015	1 *	511
			SU7007	Lh Bedhampton	2003	2003	1	150
			SU7105	Ch Langstone Shore	2014	2014	1 *	11
			SU7105	Lh Budds Farm Sewage Farm	2013	2013	1 *	100
			SU7105	Lh Farlington Marshes	2013	2013	1 *	750
<i>Calidris canutus</i>	Knot	HBAP	SU6905	Lh Broadmarsh/bedhampton Shore	2007	2007	1	5
			SU6905	Lh Farlington Marshes	2007	2010	10	80
			SU6905	Lh Langstone Harbour	2001	2001	1	383
			SU7005	Lh Broadmarsh/bedhampton Shore	2002	2005	2	12
			SU7005	Lh Budds Farm Sewage Farm	2007	2007	1	8
			SU7005	Lh Farlington Marshes	2013	2013	1 *	20
			SU7105	Ch Langstone Shore	2014	2014	1 *	7

Taxon Name	Common Name	Status	Grid Ref.	Location	First	Last	No. of Records	Max Count
<i>Cettia cetti</i>	Cetti's Warbler	HBAP WCA_s1p1 CS	SU6905	Lh Farlington Marshes	2009	2011	7	2
			SU7005	Lh Broadmarsh/bedhampton Shore	2002	2002	2	1
			SU7005	Lh Budds Farm Sewage Farm	2003	2012	21	1
			SU7005	Lh Budds Farm Sewage Farm	2013	2015	5 *	1
			SU7005	Lh Farlington Marshes	2013	2013	1 *	1
			SU7005	Lh South Moor, Langstone Harbour	2014	2014	1 *	1
			SU704055	Lh Broadmarsh/Bedhampton Shore	2015	2015	1 *	1
			SU706056	Lh Budds Farm Sewage Farm	2013	2013	1 *	1
			SU7105	Ch Langstone Mill Pond	2002	2003	2	1
			SU7105	Ch Langstone Mill Pond	2015	2015	2 *	1
			SU7105	Lh Budds Farm Sewage Farm	2015	2015	3 *	1
			SU7105	Lh South Moor, Langstone Harbour	2015	2015	5 *	2
<i>Charadrius dubius</i>	Little Ringed Plover	WCA_s1p1 CS	SU60X	Sensitive	2008	2008	1	1
<i>Charadrius hiaticula</i>	Ringed Plover	BOCC_Red	SU6905	Lh Farlington Marshes	2010	2010	2	0
			SU6905	Lh Langstone Harbour	1995	2003	9	186
			SU7005	Lh Broadmarsh/bedhampton Shore	2001	2007	3	211
			SU7007	Lh Bedhampton	2004	2004	1	1
			SU7105	Lh South Moor, Langstone Harbour	2013	2013	1 *	15
<i>Chlidonias niger</i>	Black Tern	EU_Bird_1 WCA_s1p1	SU6905	Lh Farlington Marshes	2010	2010	1	0
			SU7005	Lh Budds Farm Sewage Farm	2010	2010	3	0
<i>Chroicocephalus ridibundus</i>	Black-headed Gull	CR	SU6905	Lh Farlington Marshes	2006	2010	9	750
			SU6905	Lh Langstone Harbour	2008	2008	1	2000
			SU7005	Lh Budds Farm Sewage Farm	2000	2010	10	2500
			SU7005	Lh Budds Farm Sewage Farm	2013	2013	1 *	25
			SU7005	Lh Farlington Marshes	2013	2013	1 *	2
			SU7005	Lh South Moor, Langstone Harbour	2013	2015	3 *	1398
			SU7105	Ch Langstone	2009	2009	1	150
			SU7105	Lh Budds Farm Sewage Farm	2015	2015	2 *	350

Taxon Name	Common Name	Status	Grid Ref.	Location	First	Last	No. of Records	Max Count
			SU7105	Lh Farlington Marshes	2013	2013	1 *	818
<i>Ciconia ciconia</i>	White Stork	EU_Bird_1	SU7106	Havant	2012	2012	1	5
<i>Circus aeruginosus</i>	Marsh Harrier	EU_Bird_1 WCA_s1p1 CR	SU6905	Lh Farlington Marshes	2006	2010	3	1
			SU7005	Lh Budds Farm Sewage Farm	2006	2012	3	1
			SU7005	Lh South Moor, Langstone Harbour	2012	2012	1	1
			SU704055	Lh Broadmarsh/Bedhampton Shore	2014	2014	1 *	1
			SU7106	Havant	2013	2013	1 *	1
<i>Circus cyaneus</i>	Hen Harrier	EU_Bird_1 BOCC_Red HBAP NERC_s41 WCA_s1p1	SU7005	Lh Budds Farm Sewage Farm	2010	2010	4	0
<i>Clangula hyemalis</i>	Long-tailed Duck	BOCC_Red WCA_s1p1	SU7005	Lh Broadmarsh/bedhampton Shore	2001	2010	7	2
			SU7005	Lh Budds Farm Sewage Farm	2010	2010	3	0
			SU7005	Lh Langstone Harbour	2001	2009	11	2
			SU7005	Lh Langstone Harbour	2014	2014	7 *	2
			SU704054	Lh Langstone Harbour	2001	2001	2	1
			SU704055	Lh Langstone Harbour	2014	2014	2 *	1
			SU7105	Ch Langstone	2005	2005	1	1
<i>Cuculus canorus</i>	Cuckoo	BOCC_Red NERC_s41	SU7005	Lh Broadmarsh/bedhampton Shore	2003	2005	9	2
			SU7005	Lh Budds Farm Sewage Farm	2004	2006	7	1
<i>Egretta garzetta</i>	Little Egret	EU_Bird_1 HBAP CR	SU6905	Lh Farlington Marshes	2008	2010	8	26
			SU7005	Lh Broadmarsh/bedhampton Shore	1994	2010	3	2
			SU7005	Lh Budds Farm Sewage Farm	1996	2012	7	22
			SU7005	Lh Budds Farm Sewage Farm	2013	2015	2 *	17
			SU7006	Lh Bedhampton Mill Pond	2001	2001	1	1
			SU7006	Lh Farlington Marshes	2015	2015	1 *	55
			SU704055	Lh Broadmarsh/Bedhampton Shore	2015	2015	1 *	1
			SU7105	Ch Langstone Mill Pond	2007	2012	6	139

Taxon Name	Common Name	Status	Grid Ref.	Location	First	Last	No. of Records	Max Count
			SU7105	Ch Langstone Mill Pond	2014	2015	10 *	195
			SU7105	Lh Budds Farm Sewage Farm	2014	2015	5 *	35
			SU7105	Lh Langstone Harbour	2013	2013	1 *	1
			SU7105	Lh South Moor, Langstone Harbour	2013	2013	1 *	1
			SU7106	Havant	2001	2003	2	1
<i>Emberiza calandra</i>	Corn Bunting	BOCC_Red HBAP CS	SU7005	Lh Broadmarsh/bedhampton Shore	2002	2002	1	1
<i>Emberiza citrinella</i>	Yellowhammer	BOCC_Red NERC_s41	SU7005	Lh Broadmarsh/bedhampton Shore	1999	2007	5	2
			SU7005	Lh Budds Farm Sewage Farm	2003	2005	2	3
<i>Emberiza schoeniclus</i>	Reed Bunting	HBAP NERC_s41	SU6905	Farlington Marshes	2010	2010	2	4
			SU6905	Lh Farlington Marshes	2007	2011	3	4
			SU7005	Broadmarsh/bedhampton Shore	2010	2010	1	1
			SU7005	Farlington Marshes	2010	2010	1	2
			SU7005	Lh Broadmarsh/bedhampton Shore	2004	2008	18	5
			SU7005	Lh Budds Farm Sewage Farm	2006	2007	3	1
			SU7005	Lh Farlington Marshes	2007	2007	1	2
<i>Falco columbarius</i>	Merlin	EU_Bird_1 BOCC_Red HBAP WCA_s1p1	SU6905	Lh Farlington Marshes	2007	2010	6	1
			SU6905	Lh Langstone Harbour	1999	2008	2	1
			SU7005	Lh Broadmarsh/bedhampton Shore	1999	2010	4	1
			SU7005	Lh Budds Farm Sewage Farm	2013	2013	2 *	1
			SU7106	Havant	1995	2012	3	1
<i>Falco peregrinus</i>	Peregrine	EU_Bird_1 WCA_s1p1 CR	SU60	Sensitive	1996	2010	11	1
			SU60	Sensitive	2001	2001	1	1
			SU70	Sensitive	1997	2012	15	2
			SU70	Sensitive	2000	2012	3	1
			SU70	Sensitive	2003	2003	1	1
			SU70	Sensitive	2010	2010	1	0
<i>Falco subbuteo</i>	Hobby	HBAP WCA_s1p1	SU60X	Sensitive	1996	2010	3	1
			SU70C	Sensitive	1995	2010	4	1

Taxon Name	Common Name	Status	Grid Ref.	Location	First	Last	No. of Records	Max Count
		CI	SU70C	Sensitive	2014	2014	1 *	1
			SU70C	Sensitive	2015	2015	1 *	1
			SU70D	Sensitive	1995	2001	4	1
			SU70D	Sensitive	1999	2012	3	2
<i>Ficedula hypoleuca</i>	Pied Flycatcher	BOCC_Red CR	su7005	South Moor, Langstone Harbour	2010	2010	1	1
			SU7005	Lh South Moor, Langstone Harbour	2013	2013	1 *	1
			SU7105	Ch Langstone Mill Pond	2013	2013	2 *	1
<i>Fringilla montifringilla</i>	Brambling	WCA_s1p1	SU7005	Lh Broadmarsh/bedhampton Shore	2005	2008	16	50
			SU7006	Lh Bedhampton Mill Pond	2005	2005	1	1
			SU703063	Lh Bedhampton	2003	2003	1	1
			SU7105	Lh South Moor, Langstone Harbour	2012	2012	1	1
<i>Gallinago gallinago</i>	Snipe	HBAP CS	SU6905	Lh Farlington Marshes	2007	2008	4	21
			SU7005	Lh Broadmarsh/bedhampton Shore	2004	2007	5	8
			SU7005	Lh Budds Farm Sewage Farm	1995	2003	6	20
			SU7005	Lh South Moor, Langstone Harbour	2015	2015	1 *	2
			SU7106	Havant	2010	2010	1	0
<i>Gavia immer</i>	Great Northern Diver	EU_Bird_1 WCA_s1p1	SU7005	Lh Broadmarsh/bedhampton Shore	2009	2009	1	2
			SU7005	Lh Langstone Harbour	1993	2009	6	1
			SU7005	Lh Langstone Harbour	2014	2014	1 *	1
			SU705054	Hermitage Stream Bedhampton	2015	2015	1 *	1
<i>Gavia stellata</i>	Red-throated Diver	EU_Bird_1 WCA_s1p1	SU7005	Lh Bedhampton	2006	2006	1	1
			SU7005	Lh Broadmarsh/bedhampton Shore	2006	2006	1	1
			SU7005	Lh Budds Farm Sewage Farm	2004	2004	1	1
			SU7005	Lh Langstone Harbour	1997	2003	6	1
			SU704055	Lh Broadmarsh/Bedhampton Shore	2013	2013	1 *	1
<i>Haematopus ostralegus</i>	Oystercatcher	CS	SU6905	Lh Farlington Marshes	2007	2010	10	1200
			SU698055	Lh Broadmarsh/Bedhampton Shore	2013	2013	1 *	12
			SU7005	Lh Broadmarsh/bedhampton Shore	2001	2007	26	175
			SU7005	Lh Budds Farm Sewage Farm	2005	2009	8	100
			SU7005	Lh South Moor, Langstone Harbour	2013	2013	1 *	30

Taxon Name	Common Name	Status	Grid Ref.	Location	First	Last	No. of Records	Max Count
			SU7006	Lh Bedhampton	1998	2006	2	7
			SU7006	Lh Bedhampton Water Works	2005	2005	1	7
			SU7007	Lh Bedhampton	2005	2006	4	46
			SU708062	Lh Bedhampton	2002	2004	5	23
			SU7105	Ch Langstone Mill Pond	2015	2015	1 *	80
			SU7105	Lh Budds Farm Sewage Farm	2015	2015	4 *	30
			SU7105	Lh Farlington Marshes	2013	2013	1 *	228
			SU7106	Havant	2004	2004	1	1
<i>Haliaeetus albicilla</i>	White-tailed Eagle	EU_Bird_1 WCA_s1p1	SU7007	Lh Bedhampton	2008	2008	1	1
<i>Hydrocoloeus minutus</i>	Little Gull	EU_Bird_1 WCA_s1p1	SU6905	Lh Langstone Harbour	2000	2002	5	1
			SU7005	Lh Broadmarsh/bedhampton Shore	1998	2001	19	4
			SU7005	Lh Budds Farm Sewage Farm	1995	2012	43	3
			SU7005	Lh Langstone Harbour	1993	2002	15	9
			SU7005	Lh Budds Farm Sewage Farm	2015	2015	1 *	1
			SU704054	Lh Langstone Harbour	2001	2001	1	1
<i>Jynx torquilla</i>	Wryneck	WCA_s1p1	SU7005	Lh South Moor, Langstone Harbour	2014	2014	2 *	1
<i>Larus argentatus</i>	Herring Gull	BOCC_Red CR	SU7005	Lh Broadmarsh/bedhampton Shore	2001	2007	3	370
			SU7005	Lh Budds Farm Sewage Farm	2013	2013	1 *	2
			SU7005	Lh South Moor, Langstone Harbour	2013	2015	2 *	167
			SU7006	Lh Bedhampton	2014	2014	1 *	12
			SU7105	Lh Budds Farm Sewage Farm	2015	2015	3 *	40
			SU7105	Lh South Moor, Langstone Harbour	2013	2013	1 *	3
			SU7106	Havant	2012	2012	1	1
<i>Larus fuscus</i>	Lesser Black-backed Gull	BOCC_Red CR	SU7005	Lh Broadmarsh/bedhampton Shore	1998	2007	4	4
			SU7005	Lh Budds Farm Sewage Farm	2006	2007	2	1
			SU7005	Lh Langstone Harbour	1995	2002	9	10
			SU7105	Lh Budds Farm Sewage Farm	2015	2015	1 *	1
			SU7105	Lh South Moor, Langstone Harbour	2015	2015	1 *	2

Taxon Name	Common Name	Status	Grid Ref.	Location	First	Last	No. of Records	Max Count
<i>Larus marinus</i>	Great Black-backed Gull	CR	SU7105	Lh Budds Farm Sewage Farm	2015	2015	1 *	1
			SU7105	Lh South Moor, Langstone Harbour	2013	2015	2 *	2
<i>Larus melanocephalus</i>	Mediterranean Gull	EU_Bird_1 HBAP WCA_s1p1 CR	SU6905	Lh Farlington Marshes	2009	2010	3	17
			SU6905	Lh Langstone Harbour	1994	2008	8	9
			SU6906	Lh Bedhampton Fruit Farm	2003	2003	1	1
			SU7005	Ch Warblington	2006	2006	1	57
			SU7005	Lh Broadmarsh/bedhampton Shore	1997	2012	65	5
			SU7005	Lh Budds Farm Sewage Farm	1996	2012	38	9
			SU7005	Lh Farlington Marshes	2010	2010	1	0
			SU7005	Lh Langstone Harbour	1993	2008	40	3
			SU7005	Lh Budds Farm Sewage Farm	2013	2015	4 *	4
			SU7005	Lh Langstone Harbour	2015	2015	1 *	1
			SU7005	Lh South Moor, Langstone Harbour	2013	2015	2 *	6
			SU7006	Lh Bedhampton	2009	2009	1	3
			SU7007	Lh Bedhampton	2001	2001	1	2
			SU701058	Lh Broadmarsh/Bedhampton Shore	2015	2015	1 *	1
			SU704053	Lh Langstone Harbour	2001	2001	1	1
			SU704054	Lh Langstone Harbour	2001	2001	1	2
			SU704055	Lh Broadmarsh/bedhampton Shore	2012	2012	1	17
			SU704055	Ph Portsmouth Harbour	2012	2012	1	1
			SU704055	Lh Broadmarsh/Bedhampton Shore	2013	2015	2 *	1
			SU707054	Lh Budds Farm Sewage Farm	2007	2007	1	2
			SU7105	Ch Langstone	1999	2007	8	50
			SU7105	Lh Langstone Harbour	2003	2010	5	42
			SU7105	Lh South Moor, Langstone Harbour	2012	2012	1	1
			SU7105	Lh South Moorlangstone Harbour	2010	2010	1	0
			SU7105	Ch Langstone Mill Pond	2015	2015	1 *	1
			SU7105	Lh Budds Farm Sewage Farm	2015	2015	3 *	4
			SU7105	Lh Langstone Harbour	2013	2013	1 *	1
			SU7105	Lh South Moor, Langstone Harbour	2013	2015	3 *	3

Taxon Name	Common Name	Status	Grid Ref.	Location	First	Last	No. of Records	Max Count
			SU7106	Havant	2001	2012	2	6
			SU7106	Havant	2013	2015	2 *	25
<i>Limosa lapponica</i>	Bar-tailed Godwit	EU_Bird_1 HBAP	SU699052	Lh Broadmarsh/Bedhampton Shore	2015	2015	1 *	41
			SU7005	Lh Broadmarsh/bedhampton Shore	2003	2004	2	300
			SU7005	Lh Budds Farm Sewage Farm	2004	2004	1	2
			SU7005	Lh Langstone Harbour	1996	2001	7	83
			SU7105	Ch Langstone	2000	2009	3	300
			SU7105	Lh Langstone Harbour	2003	2010	4	82
			SU7105	Ch Langstone Shore	2014	2014	1 *	5
<i>Limosa limosa</i>	Black-tailed Godwit	BOCC_Red HBAP WCA_s1p1 CI	SU6905	Lh Farlington Marshes	2007	2010	15	200
			SU7005	Lh Broadmarsh/bedhampton Shore	2000	2010	3	146
			SU7005	Lh Budds Farm Sewage Farm	2004	2009	3	40
			SU7005	Lh Langstone Harbour	1998	2001	2	80
			SU7005	Lh South Moorlangstone Harbour	2010	2010	1	0
			SU7005	Lh Farlington Marshes	2013	2013	1 *	100
			SU7006	Lh Farlington Marshes	2015	2015	1 *	1
			SU7105	Ch Langstone	2006	2007	5	110
			SU7105	Lh Langstone Harbour	2008	2008	1	65
			SU7105	Ch Langstone Shore	2014	2014	2 *	41
			SU7105	Ch Warblington	2013	2013	1 *	27
			SU7105	Lh Budds Farm Sewage Farm	2015	2015	1 *	25
<i>Linaria cannabina</i>	Linnet	BOCC_Red HBAP	SU6905	Lh Farlington Marshes	2009	2009	1	25
			SU7005	Broadmarsh/bedhampton Shore	2010	2010	1	2
			SU7005	Lh Broadmarsh/bedhampton Shore	1996	2007	21	95
			SU7005	Lh Budds Farm Sewage Farm	2004	2006	3	40
			SU704055	Lh Broadmarsh/Bedhampton Shore	2015	2015	1 *	6
			SU7105	Lh Budds Farm Sewage Farm	2015	2015	4 *	50
			SU7105	Lh South Moor, Langstone Harbour	2015	2015	1 *	11
<i>Linaria flavirostris</i>	Twite	BOCC_Red	SU7005	Lh Broadmarsh/bedhampton Shore	2003	2003	1	3
			SU7007	Lh Bedhampton	2003	2003	1	3

Taxon Name	Common Name	Status	Grid Ref.	Location	First	Last	No. of Records	Max Count
			SU7105	Lh Langstone South Moor	2003	2003	2	3
<i>Locustella naevia</i>	Grasshopper Warbler	BOCC_Red HBAP NERC_s41 CR	SU7005	Lh Broadmarsh/bedhampton Shore	2002	2004	2	1
<i>Loxia curvirostra</i>	Common Crossbill	WCA_s1p1 CS	SU7005 SU7105	Lh Broadmarsh/bedhampton Shore Ch Langstone Mill Pond	2005 2013	2005 2013	2 1 *	11 6
<i>Lullula arborea</i>	Woodlark	EU_Bird_1 HBAP NERC_s41 WCA_s1p1 CI	SU7005 SU7005	Lh Broadmarsh/bedhampton Shore Lh Budds Farm Sewage Farm	2005 2005	2010 2005	4 1	1 3
<i>Luscinia megarhynchos</i>	Nightingale	BOCC_Red HBAP CS	SU7005	Lh South Moor, Langstone Harbour	2011	2011	1	1
<i>Melanitta fusca</i>	Velvet Scoter	WCA_s1p1	SU7005 SU7005	Lh Budds Farm Sewage Farm Lh South Moor, Langstone Harbour	2010 2015	2010 2015	1 1 *	0 1
<i>Melanitta nigra</i>	Common Scoter	BOCC_Red HBAP NERC_s41 WCA_s1p1	SU7005 SU7005 SU704055	Lh Langstone Harbour Lh South Moor, Langstone Harbour Lh Broadmarsh/Bedhampton Shore	1996 2013 2013	2002 2013 2013	3 1 * 2 *	1 1 3
<i>Mergus merganser</i>	Goosander	HBAP CR	SU7005 SU7005 SU7105	Lh Budds Farm Sewage Farm Lh Langstone Harbour Ch Langstone Mill Pond	1993 2014 2014	2008 2014 2015	8 2 * 13 *	2 1 1
<i>Mergus serrator</i>	Red-breasted Merganser	HBAP	SU6905 SU7005 SU7005 SU7005 SU7005 SU704055	Lh Farlington Marshes Lh Budds Farm Sewage Farm Lh Langstone Harbour Lh Budds Farm Sewage Farm Lh South Moor, Langstone Harbour Lh Broadmarsh/bedhampton Shore	2009 1996 2009 2015 2013 2012	2010 2012 2009 2015 2015 2012	4 3 1 1 * 3 * 1	40 25 40 4 45 24

Taxon Name	Common Name	Status	Grid Ref.	Location	First	Last	No. of Records	Max Count
			SU704055	Lh Broadmarsh/Bedhampton Shore	2015	2015	1 *	4
			SU7105	Lh South Moor, Langstone Harbour	2012	2012	1	58
			SU7105	Lh South Moorlangstone Harbour	2010	2010	1	0
			SU7105	Ch Langstone Mill Pond	2015	2015	1 *	2
			SU7105	Lh Budds Farm Sewage Farm	2013	2015	3 *	39
<i>Milvus milvus</i>	Red Kite	EU_Bird_1 HBAP WCA_s1p1 CR	SU6907	Havant Thicket	2014	2014	1 *	1
			SU7005	Lh Bedhampton Tip	2009	2009	1	1
			SU7005	Lh Broadmarsh/bedhampton Shore	2012	2012	1	1
			SU7005	Lh Budds Farm Sewage Farm	2014	2014	1 *	1
			SU7007	Lh Bedhampton	2013	2013	1 *	1
			SU7106	Havant	2010	2012	5	1
			SU7106	Havant	2013	2015	6 *	6
<i>Motacilla cinerea</i>	Grey Wagtail	BOCC_Red	SU7005	Lh Bedhampton	2006	2008	2	1
			SU7005	Lh Broadmarsh/bedhampton Shore	1995	2007	44	4
			SU7005	Lh Brockhampton Stream	2007	2007	1	2
			SU7005	Lh Budds Farm Sewage Farm	1993	2009	56	35
			SU7005	Lh Hermitage Stream Bedhampton	2002	2002	1	1
			SU7005	Lh Langstone Harbour	2002	2002	1	2
			SU7005	Lh South Moor, Langstone Harbour	2015	2015	3 *	1
			SU7006	Havant	2011	2011	2	1
			SU7006	Lh Bedhampton	2006	2006	1	1
			SU7006	Lh Bedhampton Mill Pond	1993	2007	13	6
			SU7006	Lh Hermitage Stream Bedhampton	1996	2009	20	11
			SU7006	Lh Bedhampton	2013	2014	2 *	2
			SU7007	Ha Leigh Park Havant	2010	2012	2	1
			SU7007	Havant	2012	2012	1	4
			SU7007	Lh Bedhampton	1997	2005	2	5
			SU7007	Lh Hermitage Stream Bedhampton	2006	2011	3	4
			SU7007	Hermitage Stream Bedhampton	2013	2013	2 *	5
			SU703058	Lh Hermitage Stream Bedhampton	2002	2002	1	2

Taxon Name	Common Name	Status	Grid Ref.	Location	First	Last	No. of Records	Max Count
			SU704062	Lh Bedhampton Mill Pond	1998	2002	2	1
			SU706053	Lh Broadmarsh/bedhampton Shore	2000	2001	2	1
			SU707056	Lh Budds Farm Sewage Farm	2015	2015	1 *	1
			SU708058	Lh Brockhampton Stream	2000	2006	6	3
			SU708064	Havant	2012	2012	1	1
			SU7105	Ch Langstone	2006	2009	2	1
			SU7105	Lh Langstone Harbour	2007	2007	1	1
			SU7105	Lh Langstone Harbour	2013	2013	1 *	1
			SU7106	Havant	2000	2010	3	2
			SU7106	Havant	2015	2015	1 *	1
<i>Motacilla flava</i>	Yellow Wagtail	BOCC_Red HBAP CR	SU6905	Lh Farlington Marshes	2007	2011	6	50
			SU7005	Lh Broadmarsh/bedhampton Shore	2000	2005	14	20
			SU7005	Lh Budds Farm Sewage Farm	1996	2010	8	8
			SU7005	Lh Langstone Harbour	2008	2008	1	30
			SU7005	Lh South Moor, Langstone Harbour	2012	2012	4	10
			SU7005	Lh South Moorlangstone Harbour	2010	2010	3	0
			SU7005	Lh Budds Farm Sewage Farm	2013	2013	1 *	3
			SU7005	Lh Langstone Harbour	2013	2013	1 *	1
			SU7005	Lh South Moor, Langstone Harbour	2013	2015	2 *	1
			SU7007	Hermitage Stream Bedhampton	2013	2013	1 *	2
			SU704055	Lh Broadmarsh/bedhampton Shore	2011	2011	1	10
			SU7105	Lh Langstone South Moor	1995	2006	2	67
			SU7105	Ch Langstone Mill Pond	2014	2014	3 *	13
			SU7106	Havant	2002	2002	1	1
<i>Muscicapa striata</i>	Spotted Flycatcher	BOCC_Red HBAP NERC_s41	SU6905	Lh Farlington Marshes	2008	2008	1	1
			SU7005	Lh Broadmarsh/bedhampton Shore	2003	2004	2	1
			su7005	South Moor, Langstone Harbour	2010	2010	1	1
			SU7006	Lh Bedhampton Mill Pond	2001	2003	2	1
			SU7007	Lh Bedhampton	2005	2005	1	2
			SU7007	Lh Hermitage Stream Bedhampton	2009	2009	1	1

Taxon Name	Common Name	Status	Grid Ref.	Location	First	Last	No. of Records	Max Count
			SU7007	Hermitage Stream, Leigh Park	2014	2014	1 *	1
			SU704055	Lh Broadmarsh/bedhampton Shore	2011	2011	1	1
			SU708058	Lh Brockhampton Stream	2003	2003	1	1
			SU7105	Ch Langstone Mill Pond	2012	2012	1	2
<i>Numenius arquata</i>	Curlew	BOCC_Red NERC_s41	SU6905	Lh Farlington Marshes	2007	2010	10	250
			SU692068	Lh Bedhampton	2001	2003	2	110
			SU7005	Lh Broadmarsh/bedhampton Shore	2002	2007	3	1
			SU7005	Lh Budds Farm Sewage Farm	2012	2012	2	8
			SU7005	Lh Budds Farm Sewage Farm	2013	2013	1 *	1
			SU7005	Lh South Moor, Langstone Harbour	2013	2015	2 *	96
			SU7105	Ch Warblington	2013	2013	1 *	4
			SU7105	Lh Budds Farm Sewage Farm	2013	2015	3 *	15
			SU7105	Lh Farlington Marshes	2013	2013	1 *	30
<i>Numenius phaeopus</i>	Whimbrel	BOCC_Red WCA_s1p1	SU6905	Lh Broadmarsh/bedhampton Shore	2003	2003	1	3
			SU6905	Lh Farlington Marshes	2007	2007	1	15
			SU7005	Lh Broadmarsh/bedhampton Shore	2002	2010	2	9
			SU7005	Lh Budds Farm Sewage Farm	2006	2010	2	1
			SU7005	Lh Langstone Harbour	1996	2008	7	186
			SU7005	Lh Budds Farm Sewage Farm	2013	2014	2 *	1
			SU7005	Lh South Moor, Langstone Harbour	2013	2013	1 *	2
			SU704055	Lh Broadmarsh/Bedhampton Shore	2014	2014	1 *	1
			SU7105	Ch Langstone Shore	2014	2014	1 *	1
<i>Oenanthe oenanthe</i>	Wheatear	CS	SU6905	Lh Farlington Marshes	2007	2011	14	7
			SU7005	Lh Broadmarsh/bedhampton Shore	1994	2010	63	15
			SU7005	Lh Budds Farm Sewage Farm	1993	2012	7	4
			SU7005	Lh Langstone Harbour	2006	2008	2	2
			SU7005	Lh Langstone South Moor	2003	2008	2	1
			SU7005	Lh South Moor, Langstone Harbour	2011	2012	7	4
			SU7005	Lh South Moorlangstone Harbour	2010	2010	3	0
			SU7005	Lh South Moor, Langstone Harbour	2013	2015	8 *	7

Taxon Name	Common Name	Status	Grid Ref.	Location	First	Last	No. of Records	Max Count
			SU7006	Lh Hermitage Stream Bedhampton	2001	2003	2	2
			SU704055	Lh Broadmarsh/bedhampton Shore	2011	2011	1	1
			SU704055	Lh Broadmarsh/Bedhampton Shore	2013	2015	2 *	2
			SU7105	Lh South Moor, Langstone Harbour	2011	2011	2	2
<i>Pandion haliaetus</i>	Osprey	EU_Bird_1 WCA_s1p1	SU6905	Lh Farlington Marshes	2008	2010	8	2
			SU6905	Lh Langstone Harbour	1997	2008	2	1
			SU7005	Lh Broadmarsh/bedhampton Shore	2000	2010	2	1
			SU7005	Lh Budds Farm Sewage Farm	2008	2010	5	1
			SU7005	Lh Langstone Harbour	2000	2010	3	1
			SU7005	Lh Budds Farm Sewage Farm	2013	2015	3 *	1
			SU704055	Lh Broadmarsh/Bedhampton Shore	2014	2015	3 *	2
<i>Panurus biarmicus</i>	Bearded Tit	HBAP WCA_s1p1 CR	SU6905	Farlington Marshes	2010	2010	2	12
			SU6905	Lh Farlington Marshes	2009	2011	3	2
			SU7005	Lh Farlington Marshes	2011	2011	1	2
			SU7006	Lh Farlington Marshes	2015	2015	1 *	2
<i>Passer domesticus</i>	House Sparrow	BOCC_Red NERC_s41	SU7006	Havant	2011	2011	1	6
			SU7006	Lh Bedhampton	2009	2009	1	32
			SU7105	Ch Warblington	2013	2013	1 *	1
			SU7105	Lh Langstone Harbour	2013	2013	2 *	13
			SU7106	Havant	2014	2014	1 *	43
<i>Passer montanus</i>	Tree Sparrow	BOCC_Red HBAP NERC_s41 CR	SU7005	Lh Langstone Harbour	2003	2003	1	1
<i>Pernis apivorus</i>	Honey-buzzard	EU_Bird_1 HBAP WCA_s1p1 CR	SU70	Sensitive	2000	2012	3	1
			SU70	Sensitive	2015	2015	1 *	1
<i>Phoenicurus</i>	Black Redstart	BOCC_Red	SU7005	Lh Budds Farm Sewage Farm	1996	2012	3	1

Taxon Name	Common Name	Status	Grid Ref.	Location	First	Last	No. of Records	Max Count
<i>ochruros</i>		WCA_s1p1 CR	SU7105 SU7106 SU7106	Langstone Tech Park Havant Havant	2015 2012 2013	2015 2012 2015	1 * 1 5 *	1 1 1
<i>Phoenicurus phoenicurus</i>	Redstart	CI	SU6905 SU7005 SU7005 SU7005 SU7007 SU704055 SU7105	Lh Farlington Marshes Lh Broadmarsh/bedhampton Shore Lh Budds Farm Sewage Farm Lh South Moor, Langstone Harbour Lh Bedhampton Lh Broadmarsh/bedhampton Shore Ch Langstone Mill Pond	2008 1994 2004 2013 2004 2011 2013	2008 2005 2004 2013 2004 2011 2013	1 6 1 1 * 1 1 2 * 1	1 3 1 1 1 2 1
<i>Platalea leucorodia</i>	Spoonbill	EU_Bird_1 WCA_s1p1	SU6905 SU7005	Lh Farlington Marshes Lh Langstone Harbour	2007 2002	2009 2002	2 1	1 1
<i>Plegadis falcinellus</i>	Glossy Ibis	EU_Bird_1	SU7106	Havant	2013	2013	1 *	1
<i>Pluvialis apricaria</i>	Golden Plover	EU_Bird_1 HBAP	SU6905 SU7005 SU7005 SU7105 SU7105 SU7105	Lh Farlington Marshes Lh Broadmarsh/bedhampton Shore Lh Budds Farm Sewage Farm Ch Langstone Lh Langstone Harbour Ch Langstone Shore	2008 2003 2010 2000 2007 2014	2010 2007 2010 2009 2008 2014	3 6 1 5 2 1 *	60 39 0 1000 300 233
<i>Pluvialis squatarola</i>	Grey Plover	HBAP CI	SU6905 SU7005 SU7005 SU7105 SU7105	Lh Farlington Marshes Lh South Moorlangstone Harbour Lh Farlington Marshes Ch Warblington Lh Farlington Marshes	2008 2010 2013 2013 2013	2010 2010 2013 2013 2013	8 1 1 * 1 * 1 *	270 0 100 1 44
<i>Podiceps auritus</i>	Slavonian Grebe	EU_Bird_1 HBAP WCA_s1p1	SU7005 SU7005 SU7005 SU704055 SU706056	Lh Broadmarsh/bedhampton Shore Lh Langstone Harbour Lh Langstone Harbour Lh Broadmarsh/Bedhampton Shore Lh Budds Farm Sewage Farm	2009 1996 2014 2015 2012	2009 2002 2014 2015 2012	2 2 4 * 1 * 1	2 2 4 1 1

Taxon Name	Common Name	Status	Grid Ref.	Location	First	Last	No. of Records	Max Count
			SU7105	Lh Langstone Harbour	2003	2003	1	1
<i>Podiceps cristatus</i>	Great Crested Grebe	CI	SU6905	Lh Farlington Marshes	2010	2010	2	0
			SU6905	Lh Langstone Harbour	1994	2010	6	85
			SU7005	Lh Budds Farm Sewage Farm	2010	2010	1	0
			SU7005	Lh South Moor, Langstone Harbour	2013	2013	1 *	1
			SU704055	Lh Broadmarsh/Bedhampton Shore	2015	2015	1 *	2
<i>Podiceps grisegena</i>	Red-necked Grebe	BOCC_Red	SU7005	Lh Broadmarsh/bedhampton Shore	2003	2003	1	1
			SU7005	Lh Langstone Harbour	2014	2014	2 *	1
			SU704055	Lh Langstone Harbour	2014	2014	1 *	1
<i>Podiceps nigricollis</i>	Black-necked Grebe	HBAP WCA_s1p1	SU6905	Lh Langstone Harbour	1994	2001	16	17
			SU7005	Lh Broadmarsh/bedhampton Shore	2001	2009	2	1
			SU7005	Lh Budds Farm Sewage Farm	1995	2010	5	2
			SU7005	Lh Langstone Harbour	2000	2009	6	25
			SU7005	Lh South Moorlangstone Harbour	2010	2010	1	0
			SU7005	Lh Budds Farm Sewage Farm	2013	2015	3 *	5
			SU7005	Lh Langstone Harbour	2013	2014	2 *	8
			SU7006	Lh Langstone Harbour	2008	2008	1	1
			SU704055	Lh Broadmarsh/Bedhampton Shore	2013	2013	4 *	12
			SU7105	Lh Budds Farm Sewage Farm	2013	2013	1 *	2
			SU7105	Lh Farlington Marshes	2013	2013	1 *	3
			SU7105	Lh Langstone Harbour	2014	2014	1 *	2
<i>Poecile palustris</i>	Marsh Tit	BOCC_Red	SU7005	Lh Budds Farm Sewage Farm	2002	2002	1	1
<i>Porzana porzana</i>	Spotted Crane	EU_Bird_1 WCA_s1p1	SU6905	Lh Farlington Marshes	2007	2009	3	1
<i>Pyrrhula pyrrhula</i>	Bullfinch	HBAP	SU6905	Lh Farlington Marshes	2004	2004	1	2
			SU7005	Lh Broadmarsh/bedhampton Shore	2002	2007	16	9
			SU7005	Lh Budds Farm Sewage Farm	2000	2006	2	2
			SU7005	Lh Langstone Harbour	2002	2002	1	2
			SU7005	Lh South Moor, Langstone Harbour	2015	2015	1 *	3

Taxon Name	Common Name	Status	Grid Ref.	Location	First	Last	No. of Records	Max Count
			SU7007	Lh Hermitage Stream Bedhampton	2009	2009	1	1
			SU7105	Ch Langstone Mill Pond	2015	2015	1 *	1
			SU7105	Lh South Moor, Langstone Harbour	2013	2013	1 *	2
<i>Rallus aquaticus</i>	Water Rail	CS	SU6905	Lh Farlington Marshes	2008	2010	2	1
			SU7005	Lh Budds Farm Sewage Farm	1994	2010	37	2
			SU7005	Lh South Moor, Langstone Harbour	2009	2009	1	1
			SU7005	Lh Budds Farm Sewage Farm	2013	2013	1 *	4
			SU7007	Ha Leigh Park Havant	2010	2010	3	0
			SU7007	Lh Hermitage Stream Bedhampton	2008	2009	8	1
			SU706056	Lh Budds Farm Sewage Farm	2012	2012	1	1
			SU7105	Havant	2005	2005	1	1
			SU7105	Ch Langstone Mill Pond	2014	2015	8 *	1
			SU7105	Lh Brockhampton Stream	2013	2013	1 *	1
			SU7105	Lh South Moor, Langstone Harbour	2013	2013	1 *	1
<i>Recurvirostra avosetta</i>	Avocet	EU_Bird_1 WCA_s1p1 CR	SU6905	Lh Farlington Marshes	2007	2010	9	28
			SU7005	Lh Broadmarsh/bedhampton Shore	2000	2001	9	1
			SU7005	Lh Budds Farm Sewage Farm	2002	2002	1	3
			SU7005	Lh Langstone Harbour	1999	2002	2	1
			SU7005	Lh Farlington Marshes	2014	2014	1 *	4
<i>Regulus ignicapilla</i>	Firecrest	HBAP WCA_s1p1 CS	SU6905	Lh Broadmarsh/bedhampton Shore	2012	2012	1	1
			SU6907	Swi Royal Victoria Country Park	2015	2015	1 *	1
			SU7005	Budds Farm Sewage Farm	2010	2010	2	1
			SU7006	Lh Bedhampton Mill Pond	2004	2004	1	1
			SU703061	Lh Bedhampton	2002	2002	1	1
			SU703061	Lh Bedhampton Mill Pond	2001	2001	1	1
			SU704063	Lh Bedhampton Mill Pond	2014	2014	2 *	2
			SU7105	Ch Langstone	2008	2008	1	1
			SU7106	Havant	2013	2013	1 *	1
<i>Riparia riparia</i>	Sand Martin	CS	SU6905	Lh Langstone Harbour	2003	2003	1	2
			SU7005	Lh Broadmarsh/bedhampton Shore	1996	2003	8	30

Taxon Name	Common Name	Status	Grid Ref.	Location	First	Last	No. of Records	Max Count
			SU7005	Lh Budds Farm Sewage Farm	1995	2009	31	40
			SU7005	Lh South Moor, Langstone Harbour	2012	2012	2	12
			SU7005	Lh South Moorlangstone Harbour	2010	2010	1	0
			SU7005	Lh South Moor, Langstone Harbour	2013	2013	1 *	1
			SU7007	Lh Bedhampton	2005	2005	1	1
			SU7105	Ch Langstone Mill Pond	2013	2013	1 *	70
<i>Rissa tridactyla</i>	Kittiwake	BOCC_Red	SU7005	Lh Broadmarsh/bedhampton Shore	1998	2003	10	3
<i>Saxicola rubetra</i>	Whinchat	BOCC_Red HBAP CR	SU6905	Lh Farlington Marshes	2008	2010	5	1
			SU7005	Lh Broadmarsh/bedhampton Shore	1994	2007	30	7
			SU7005	Lh Budds Farm Sewage Farm	2006	2006	1	1
			SU7005	Lh South Moor, Langstone Harbour	2011	2012	4	3
			SU7005	Lh South Moorlangstone Harbour	2010	2010	1	0
			SU7005	Lh South Moor, Langstone Harbour	2013	2013	2 *	3
			SU7006	Lh Hermitage Stream Bedhampton	2001	2003	2	1
			SU704055	Lh Broadmarsh/Bedhampton Shore	2015	2015	1 *	2
<i>Scolopax rusticola</i>	Woodcock	BOCC_Red	SU7005	Lh Broadmarsh/bedhampton Shore	2003	2003	1	1
			SU7105	Lh South Moor, Langstone Harbour	2013	2013	1 *	1
<i>Serinus serinus</i>	Serin	WCA_s1p1	SU7005	Lh Broadmarsh/bedhampton Shore	2004	2004	1	1
<i>Spinus spinus</i>	Siskin	CI	SU6905	Lh Farlington Marshes	2008	2008	1	15
			SU7005	Broadmarsh/bedhampton Shore	2010	2010	1	5
			SU7005	Lh Broadmarsh/bedhampton Shore	1999	2007	41	15
			SU7005	Lh Budds Farm Sewage Farm	2001	2006	4	12
			SU7006	Lh Bedhampton Mill Pond	2003	2004	3	15
			SU7006	Lh Hermitage Stream Bedhampton	2001	2001	1	19
			SU7007	Lh Bedhampton	1994	2006	4	35
<i>Sterna hirundo</i>	Common Tern	EU_Bird_1 CR	SU7005	Lh Langstone Harbour	1996	2001	3	9
			SU7005	Lh South Moorlangstone Harbour	2010	2010	1	0
			SU7005	Lh Budds Farm Sewage Farm	2013	2013	1 *	1

Taxon Name	Common Name	Status	Grid Ref.	Location	First	Last	No. of Records	Max Count
			SU7005	Lh South Moor, Langstone Harbour	2013	2015	2 *	2
			SU7105	Lh South Moor, Langstone Harbour	2015	2015	2 *	1
<i>Sterna sandvicensis</i>	Sandwich Tern	EU_Bird_1 CR	SU6905	Lh Farlington Marshes	2008	2010	2	1
			SU6905	Lh Langstone Harbour	1995	2003	3	2
			SU7005	Lh Broadmarsh/bedhampton Shore	2001	2012	5	3
			SU7005	Lh Budds Farm Sewage Farm	2008	2008	1	2
			SU7005	Lh Langstone Harbour	2000	2008	10	5
			SU7005	Lh Budds Farm Sewage Farm	2013	2015	2 *	2
			SU7005	Lh Langstone Harbour	2014	2014	1 *	2
			SU7005	Lh South Moor, Langstone Harbour	2015	2015	3 *	4
			SU704055	Lh Broadmarsh/Bedhampton Shore	2015	2015	2 *	7
			SU704055	Lh Langstone Harbour	2014	2014	1 *	3
			SU7105	Ch Langstone	2007	2007	1	1
			SU7105	Ch Langstone Shore	2014	2014	5 *	8
			SU7106	Havant	2012	2012	1	2
<i>Sternula albifrons</i>	Little Tern	EU_Bird_1 HBAP WCA_s1p1 CR	SU6905	Lh Farlington Marshes	2009	2010	2	40
			SU7005	Lh Farlington Marshes	2010	2010	1	0
<i>Streptopelia turtur</i>	Turtle Dove	BOCC_Red HBAP NERC_s41	SU7005	Lh Broadmarsh/bedhampton Shore	2000	2002	2	2
			SU7005	Lh Budds Farm Sewage Farm	2003	2003	1	1
<i>Sturnus vulgaris</i>	Starling	BOCC_Red	SU6905	Farlington Marshes	2010	2010	4	500
			SU6905	Lh Farlington Marshes	2007	2011	12	650
			SU7005	Broadmarsh/bedhampton Shore	2010	2010	1	82
			SU7005	Farlington Marshes	2010	2010	1	100
			SU7005	Lh Broadmarsh/bedhampton Shore	2004	2008	42	3300
			SU7005	Lh Budds Farm Sewage Farm	1996	2006	5	1100
			SU7005	Lh Farlington Marshes	2007	2011	2	100
			su7005	South Moor, Langstone Harbour	2010	2010	1	300

Taxon Name	Common Name	Status	Grid Ref.	Location	First	Last	No. of Records	Max Count
			SU7005	Lh Farlington Marshes	2013	2013	1 *	200
			SU7005	Lh South Moor, Langstone Harbour	2013	2013	1 *	7
			SU7006	Lh Broadmarsh/bedhampton Shore	2004	2004	1	300
			SU7105	Lh Budds Farm Sewage Farm	2015	2015	1 *	250
			SU7105	Lh Langstone Harbour	2013	2013	2 *	19
<i>Sylvia undata</i>	Dartford Warbler	EU_Bird_1 HBAP WCA_s1p1 CI	SU695054	Lh Farlington Marshes	2002	2002	1	1
			SU7005	Lh Broadmarsh/bedhampton Shore	1993	2001	4	1
			SU7005	Lh Budds Farm Sewage Farm	2003	2003	1	1
<i>Tadorna ferruginea</i>	Ruddy Shelduck	EU_Bird_1	SU6905	Lh Farlington Marshes	2010	2010	1	0
			SU7005	Lh Budds Farm Sewage Farm	2005	2005	1	1
			SU704055	Lh Broadmarsh/bedhampton Shore	2010	2010	1	0
<i>Tadorna tadorna</i>	Shelduck	CI	SU6905	Lh Farlington Marshes	2007	2010	5	130
			SU7005	Lh Broadmarsh/bedhampton Shore	2000	2001	8	7
			SU7005	Lh Budds Farm Sewage Farm	1996	2010	47	40
			SU7005	Lh Langstone Harbour	1996	2008	3	2
			SU7005	Lh South Moor, Langstone Harbour	2013	2013	1 *	6
			SU7105	Lh Langstone Harbour	2007	2007	1	60
<i>Tringa nebularia</i>	Greenshank	WCA_s1p1	SU6905	Lh Farlington Marshes	2007	2010	13	28
			SU6905	Lh Langstone Harbour	2001	2001	1	1
			SU6905	Lh Langstone Harbour	2014	2014	1 *	1
			SU7005	Lh Broadmarsh/bedhampton Shore	2000	2008	5	25
			SU7005	Lh Budds Farm Sewage Farm	2004	2012	3	1
			SU7005	Lh Langstone Harbour	1996	2004	2	1
			SU7005	Lh South Moor, Langstone Harbour	2015	2015	3 *	2
			SU704055	Lh Broadmarsh/Bedhampton Shore	2013	2013	1 *	1
			SU706056	Lh Brockhampton Stream	2015	2015	1 *	2
			SU708058	Lh Brockhampton Stream	2008	2008	1	1
			SU7105	Ch Langstone	2000	2007	3	3
			SU7105	Lh Langstone Harbour	2007	2010	3	1

Taxon Name	Common Name	Status	Grid Ref.	Location	First	Last	No. of Records	Max Count
			SU7105	Ch Langstone Mill Pond	2013	2015	2 *	2
			SU7105	Ch Langstone Shore	2014	2014	2 *	3
			SU7105	Ch Warblington	2013	2013	1 *	1
			SU7105	Lh Budds Farm Sewage Farm	2013	2013	1 *	1
			SU7105	Lh South Moor, Langstone Harbour	2013	2013	1 *	1
<i>Tringa ochropus</i>	Green Sandpiper	WCA_s1p1	SU6905	Lh Farlington Marshes	2008	2009	5	1
			SU7005	Lh Broadmarsh/bedhampton Shore	1997	2007	4	2
			SU7005	Lh Budds Farm Sewage Farm	1993	2012	105	9
			SU7005	Lh Langstone Harbour	2008	2008	2	1
			SU7005	Lh South Moor, Langstone Harbour	2012	2012	3	1
			SU7005	Lh South Moorlangstone Harbour	2010	2010	2	0
			SU7005	Lh Budds Farm Sewage Farm	2014	2014	1 *	1
			SU7005	Lh South Moor, Langstone Harbour	2013	2015	7 *	2
			SU7006	Lh Hermitage Stream Bedhampton	1997	2008	34	4
			SU7007	Ha Leigh Park Havant	2010	2012	39	4
			SU7007	Havant	2012	2012	16	7
			SU7007	Hermitage Stream Bedhampton	2012	2012	12	2
			SU7007	Lh Bedhampton	2004	2005	10	1
			SU7007	Lh Hermitage Stream Bedhampton	2008	2009	39	5
			SU7007	Ha Leigh Park Havant	2015	2015	1 *	4
			SU7007	Hermitage Stream Bedhampton	2013	2015	20 *	7
			SU7007	Hermitage Stream, Leigh Park	2014	2014	8 *	4
			SU707053	Lh Bedhampton	2009	2009	1	2
			SU7105	Lh Langstone South Moor	2003	2003	1	1
			SU7105	Ch Langstone Mill Pond	2013	2013	1 *	1
			SU7105	Lh Budds Farm Sewage Farm	2013	2013	1 *	1
			SU7105	Lh South Moor, Langstone Harbour	2013	2013	1 *	1
			SU7106	Havant	2001	2012	4	5
			SU7106	Havant	2013	2013	3 *	2
<i>Tringa totanus</i>	Redshank	HBAP	SU6905	Lh Farlington Marshes	2007	2010	11	400

Taxon Name	Common Name	Status	Grid Ref.	Location	First	Last	No. of Records	Max Count
			SU7005	Lh Budds Farm Sewage Farm	2008	2012	11	177
			SU7005	Lh Budds Farm Sewage Farm	2013	2013	1 *	91
			SU7005	Lh Farlington Marshes	2013	2013	1 *	4
			SU7005	Lh South Moor, Langstone Harbour	2013	2013	1 *	2
			SU7007	Lh Bedhampton	2005	2005	1	1
			SU7105	Ch Langstone Shore	2014	2014	1 *	86
			SU7105	Ch Warblington	2013	2013	1 *	1
			SU7105	Lh South Moor, Langstone Harbour	2013	2013	1 *	1
<i>Turdus iliacus</i>	Redwing	BOCC_Red WCA_s1p1	SU7005	Lh Broadmarsh/bedhampton Shore	2005	2007	23	1250
			SU7005	Lh Budds Farm Sewage Farm	1996	2010	2	1
			SU7005	Lh South Moorlangstone Harbour	2010	2010	1	0
			SU7005	Lh South Moor, Langstone Harbour	2015	2015	1 *	5
			SU7007	Lh Bedhampton	1996	2005	3	100
			SU7106	Havant	2013	2013	1 *	1
<i>Turdus philomelos</i>	Song Thrush	BOCC_Red HBAP	SU7005	Lh Broadmarsh/bedhampton Shore	2005	2010	18	10
			SU7005	Lh South Moor, Langstone Harbour	2013	2013	1 *	1
			SU7105	Ch Warblington	2013	2013	1 *	1
			SU7105	Lh Budds Farm Sewage Farm	2015	2015	1 *	4
			SU7105	Lh Langstone Harbour	2013	2013	2 *	5
<i>Turdus pilaris</i>	Fieldfare	BOCC_Red WCA_s1p1	SU7005	Lh Broadmarsh/bedhampton Shore	1994	2007	21	496
			SU7006	Lh Bedhampton	2003	2003	1	123
			SU7007	Lh Bedhampton	2003	2003	1	16
			SU7106	Havant	2003	2003	1	6
			SU7106	Havant	2013	2015	2 *	33
<i>Turdus torquatus</i>	Ring Ouzel	BOCC_Red NERC_s41	SU7005	Lh Budds Farm Sewage Farm	2011	2011	1	1
			SU704055	Lh Broadmarsh/bedhampton Shore	2011	2011	1	1
<i>Turdus viscivorus</i>	Mistle Thrush	BOCC_Red	SU7005	Lh Broadmarsh/bedhampton Shore	2005	2007	14	4
			SU7105	Ch Langstone	2007	2007	1	1
<i>Tyto alba</i>	Barn Owl	WCA_s1p1	SU6905	Lh Langstone Harbour	2004	2004	1	1
			SU7005	Lh Budds Farm Sewage Farm	2014	2014	1 *	1

Taxon Name	Common Name	Status	Grid Ref.	Location	First	Last	No. of Records	Max Count
			SU7005	Lh South Moor, Langstone Harbour	2013	2013	2 *	1
			SU704055	Lh Broadmarsh/Bedhampton Shore	2013	2013	2 *	1
			SU7105	Lh Brockhampton Stream	2010	2010	1	0
<i>Upupa epops</i>	Hoopoe	WCA_s1p1	SU7105	Ch Langstone	2005	2005	1	1
<i>Vanellus vanellus</i>	Lapwing	BOCC_Red HBAP NERC_s41	SU6905	Lh Farlington Marshes	2007	2007	2	350
			SU7005	Lh Broadmarsh/bedhampton Shore	2006	2006	2	2
			SU7006	Lh Bedhampton Mill Pond	2007	2007	1	1
			SU7007	Lh Bedhampton	2004	2004	2	23
			SU7105	Lh Langstone Harbour	2007	2007	2	150
Higher plants - Flowering Plants								
<i>Anisantha rigida</i>	Ripgut Brome	CS	SU698056	A27(t) Junction At Broadmarsh, Havant	2007	2007	1	0
<i>Anthriscus caucalis</i>	Bur Chervil	CR	SU698055	Broadmarsh, Bedhampton	1999	1999	1	1
			SU698056	Broadmarsh	1999	1999	1	1
<i>Briza media</i>	Quaking-grass	IUCN_EN_2014:NT	SU691065	Camp Down Fields 2, Portsdown Hill	2006	2006	1	0
<i>Carduus tenuiflorus</i>	Slender Thistle	CS	SU6905	Solent Way, Bedhampton	2008	2008	1	0
			SU7005	Havant Broadmarsh	2008	2008	1	0
			SU7005	Havant Southmoor Lane	2008	2008	1	0
			SU7105	Havant Southmoor Lane	2008	2008	1	0
<i>Carex divisa</i>	Divided Sedge	IUCN_GB_2001:VU NS HBAP NERC_s41	SU704060	Bedhampton	1997	1997	1	1
<i>Cochlearia anglica</i>	English Scurvygrass	CS	SU704055	Sewage Works, Brockhampton	1998	1998	1	1
<i>Cruciata laevipes</i>	Crosswort	IUCN_EN_2014:NT	SU6905	Broadmarsh, Bedhampton	1999	1999	1	1
			SU691061	UE5 Land at Portsdown Hill	2008	2008	1	0

Taxon Name	Common Name	Status	Grid Ref.	Location	First	Last	No. of Records	Max Count
			SU695066	Scratchface Lane 2	2005	2005	1	0
			SU698055	Broad Marsh	2003	2003	1	0
			SU706065	St Chads Well Meadow	1997	1997	1	0
<i>Euphorbia exigua</i>	Dwarf Spurge	IUCN_EN_2014:VU, IUCN_GB_2001:NT	SU691061	UE5 Land at Portsdown Hill	2008	2008	1 *	0
<i>Geranium rotundifolium</i>	Round-leaved Crane's-bill	CS	SU7005	Budds Farm, Bedhampton	2008	2008	1	1
			SU7005	Sewage Works	1997	1997	2	1
<i>Hippophae rhamnoides</i>	Sea-buckthorn	NS CI	SU6905	Farlington	2014	2014	1	0
			SU6905	Solent Way, Bedhampton	2007	2008	2	0
<i>Inula crithmoides</i>	Golden-samphire	NS HBAP CS	SU6905	Broadmarsh, Bedhampton	1999	1999	1	1
			SU6905	Farlington	2014	2014	1	0
			SU6905	Solent Way (foreshore), Bedhampton	2007	2008	2	0
			SU696054	Broadmarsh, Bedhampton	2009	2009	1	0
			SU700053	Broadmarsh	2006	2006	1	0
			SU7005	Sewage Works	1997	1997	1	1
			SU701053	Langstone Harbour, Broadmarsh	2006	2006	1	2
			SU703053	Bedhampton Creek	2006	2006	1	2
			SU703054	Bedhampton Creek	2006	2006	1	4
			SU703055	Bedhampton Creek	2006	2006	1	1
			SU704055	Bedhampton Creek	2006	2006	1	1
<i>Knautia arvensis</i>	Field Scabious	IUCN_EN_2014:NT	SU691065	Camp Down Fields 2, Portsdown Hill	2006	2006	1	0
<i>Lathyrus hirsutus</i>	Hairy Vetchling	NR	SU698055	Broad Marsh	2003	2003	1	0
			SU700055	Broadmarsh	2006	2006	1	0
			SU7005	Havant Broadmarsh	2008	2008	3	0
			SU703055	Broadmarsh Hill	2002	2010	4	0
			SU703055	S Of Harts Farm Way W Of Brockhampton	2005	2006	2	0
			SU70310553	Broadmarsh Hill	2002	2002	1	1

Taxon Name	Common Name	Status	Grid Ref.	Location	First	Last	No. of Records	Max Count
<i>Limonium humile</i>	Lax-flowered Sea-lavender	NS CS	SU699052	Farlington	1999	1999	1	1
<i>Limonium vulgare</i>	Common Sea-lavender	IUCN_EN_2014:NT	SU6905 SU6905	Broadmarsh, Bedhampton Farlington	1999 2014	1999 2014	1 1	1 0
<i>Lychnis flos-cuculi</i>	Ragged-Robin	IUCN_EN_2014:NT	SU6905 SU7105	Broadmarsh, Bedhampton Langstone	1999 1997	1999 1997	1 1	1 1
<i>Meconopsis cambrica</i>	Welsh Poppy	NS	SU7005	Broadmarsh, Bedhampton (car Park)	2008	2008	1	0
<i>Misopates orontium</i>	Weasel's-snout	IUCN_EN_2014:VU, IUCN_GB_2001:VU	SU698056	A27(t) Junction At Broadmarsh, Havant	2007	2007	1	0
<i>Oenanthe lachenalii</i>	Parsley Water-dropwort	IUCN_EN_2014:NT CS	SU694054 SU706065	Solent Way, Bedhampton Bedhampton	2008 1997	2008 1997	1 1	1 1
<i>Orobanche hederæ</i>	Ivy Broomrape	CS	SU7106	Havant Town	2008	2008	1	0
<i>Oxalis acetosella</i>	Wood-sorrel	IUCN_EN_2014:NT	SU6907	Crookhorn	1999	1999	1	1
<i>Parapholis incurva</i>	Curved Hard-grass	NS HBAP CS	SU6905	Broadmarsh, Bedhampton	1999	1999	1	1
<i>Plantago media</i>	Hoary Plantain	IUCN_EN_2014:NT	SU691065	Camp Down Fields 2, Portsdown Hill	2006	2006	1	0
<i>Polypogon monspeliensis</i>	Annual Beard-grass	NS HBAP	SU698055 SU698056	Broadmarsh, Bedhampton A27(t) Junction At Broadmarsh, Havant	2008 2007	2008 2007	1 1	0 0
<i>Puccinellia distans</i> <i>subsp. distans</i>	Reflexed Saltmarsh-grass	nHR, nHS	SU6905	Farlington	2014	2014	1	0

Taxon Name	Common Name	Status	Grid Ref.	Location	First	Last	No. of Records	Max Count
<i>Puccinellia rupestris</i>	Stiff Saltmarsh-grass	NS HBAP CS	SU6905	Broadmarsh, Bedhampton	1999	1999	1	1
<i>Ranunculus baudotii</i>	Brackish Water-crowfoot	CS	SU7106	Havant Town Centre	2008	2008	1	0
<i>Ranunculus flammula</i>	Lesser Spearwort	IUCN_EN_2014:VU	SU6907 SU695066	Crookhorn Scratchface Lane 2	1999 2001	1999 2001	1 1	1 0
<i>Ranunculus penicillatus</i>	Stream Water-crowfoot	HBAP	SU705062 SU708058	Bedhampton Sewage Works	1997 1997	1997 1997	1 1	1 1
<i>Raphanus raphanistrum subsp. maritimus</i>	Sea Radish	CS	SU698055	Broad Marsh	2003	2003	1 *	0
<i>Rorippa microphylla</i>	Narrow-fruited Water-cress	CS	SU70480623	Hermitage Stream	2002	2002	1	1
<i>Salicornia dolichostachya</i>	Long-spiked Glasswort	CS	SU6905	Farlington	2014	2014	1	0
<i>Salicornia europaea</i>	Common Glasswort	CS	SU6905	Farlington	2014	2014	1	0
<i>Salicornia fragilis</i>	Yellow Glasswort	NS CS	SU6905	Farlington	2014	2014	1	0
<i>Samolus valerandi</i>	Brookweed	CS	SU702059 SU703057 SU703059 SU703060 SU703061 SU704062	Hermitage Stream, Bedhampton Bedhampton Creek Sewage Works, Brockhampton Mill Stream, Bedhampton Bedhampton Hermitage Stream North Of Bedhampton Mill	1997 2009 1997 1990 1989 1997	1997 2009 1997 1997 1997 1997	1 1 1 2 2 1	0 0 1 0 1 0

Taxon Name	Common Name	Status	Grid Ref.	Location	First	Last	No. of Records	Max Count
<i>Sanicula europaea</i>	Sanicle	IUCN_EN_2014:NT	SU6907	Crookhorn	1999	1999	1	1
<i>Sarcocornia perennis</i>	Perennial Glasswort	NS CS	SU6905	Farlington	2014	2014	1	0
<i>Senecio aquaticus</i>	Marsh Ragwort	IUCN_EN_2014:NT	SU706062	Bedhampton	1999	1999	1	1
<i>Seriphidium maritimum</i>	Sea Wormwood	IUCN_EN_2014:NT CS	SU6905	Broadmarsh, Bedhampton	1999	1999	1	1
			SU6905	Farlington	2014	2014	1	0
			SU699053	Langstone Harbour	2008	2008	1	4
<i>Spergula arvensis</i>	Corn Spurrey	IUCN_EN_2014:VU, IUCN_GB_2001:VU	SU7005	Havant Southmoor Lane	2008	2008	1	0
<i>Stachys arvensis</i>	Field Woundwort	IUCN_EN_2014:NT, IUCN_GB_2001:NT	SU698056	A27(t) Junction At Broadmarsh, Havant	2007	2007	1	0
<i>Torilis nodosa</i>	Knotted Hedge-parsley	CS	SU7005	Havant Southmoor Lane	2008	2008	1	0
			SU709056	Southmoor Lane In Havant	2005	2005	1	0
<i>Veronica officinalis</i>	Heath Speedwell	IUCN_EN_2014:NT	SU6905	Broadmarsh, Bedhampton	1999	1999	1	1
			SU6907	Crookhorn	1999	1999	1	1
			SU704058	Sewage Works	1998	1998	1	1
<i>Zostera (Zosterella) noltei</i>	Dwarf Eelgrass	IUCN_GB_2001:VU NS HBAP CS	SU6905	Langstone Harbour, Bedhampton	2004	2004	1	0
Invertebrates - Coleoptera								
<i>Lucanus cervus</i>	Stag Beetle	EU_Hab_2np NS HBAP NERC_s41	SU7106	Havant Area 7106	2002	2002	1	1
			SU7106	SU7106	2002	2002	1 *	1
Invertebrates - Lepidoptera								
<i>Malacosoma neustria</i>	Lackey	NERC_s41	SU700054	Broadmarsh, Langstone Harbour	2008	2008	1	45

Taxon Name	Common Name	Status	Grid Ref.	Location	First	Last	No. of Records	Max Count
<i>Polyommatus coridon</i>	Chalk Hill Blue	IUCN_GB_2001:NT HBAP CS	SU691063	Portsdown SSSI East 7 - 10 Transect: Section 9	2015	2015	1	1
Mammals - Terrestrial (bats)								
<i>Chiroptera</i>	Bat species	WCA_s5s94b WCA_s5s94c HabReg_s2	SU7106	Sensitive	2000	2014	4	1
<i>Eptesicus serotinus</i>	Serotine	EU_Hab_4 HBAP WCA_s5s94b WCA_s5s94c HabReg_s2	SU695067	Sensitive	2011	2011	1	2
			SU707060	Sensitive	2008	2008	1	0
			SU7106	Sensitive	2003	2015	3	2
<i>Myotis</i>	Unidentified Bat	WCA_s5s94b WCA_s5s94c HabReg_s2	SU695069	Sensitive	2011	2011	1	1
			SU695070	Sensitive	2011	2011	1	2
			SU707060	Sensitive	2008	2008	1	1
			SU708062	Sensitive	2010	2010	1	1
<i>Myotis mystacinus</i>	Whiskered Bat	EU_Hab_4 WCA_s5s94b WCA_s5s94c HabReg_s2	SU6905	Sensitive	1985	1985	1	1
<i>Nyctalus noctula</i>	Noctule Bat	EU_Hab_4 NERC_s41 WCA_s5s94b WCA_s5s94c HabReg_s2	SU707060	Sensitive	2008	2008	1	1
			SU708062	Sensitive	2010	2011	5	2
			SU7106	Sensitive	2000	2013	6	2
<i>Pipistrellus</i>	Pipistrelle Bat	WCA_s5s94b	SU708062	Sensitive	2011	2011	4	2

Taxon Name	Common Name	Status	Grid Ref.	Location	First	Last	No. of Records	Max Count
	species	WCA_s5s94c HabReg_s2	SU7106	Sensitive	1999	2015	14	5
<i>Pipistrellus pipistrellus</i>	Pipistrelle	EU_Hab_4 HBAP WCA_s5s94b WCA_s5s94c HabReg_s2	SU695067 SU695068 SU695069 SU701058 SU707060 SU708062 SU7106	Sensitive Sensitive Sensitive Sensitive Sensitive Sensitive Sensitive	2010 2011 2011 2008 2008 2010 2000	2011 2011 2011 2009 2009 2011 2015	3 1 1 2 3 5 10	4 1 2 1 1 2 8
<i>Pipistrellus pygmaeus</i>	Soprano Pipistrelle	EU_Hab_4 NERC_s41 WCA_s5s94b WCA_s5s94c HabReg_s2	SU695067 SU695069 SU695070 SU701058 SU707060 SU708062 SU7106	Sensitive Sensitive Sensitive Sensitive Sensitive Sensitive Sensitive	2010 2011 2011 2008 2008 2010 2010	2010 2011 2011 2008 2009 2011 2015	1 1 1 2 3 5 5	1 2 2 1 1 1 11
Mammals - Terrestrial (non-bats)								
<i>Erinaceus europaeus</i>	West European Hedgehog	NERC_s41	SU695068 SU695069 SU704064	Bedhampton Scratchface Lane 1 Kings Croft Lane	2013 2005 2015	2013 2005 2015	1 1 1	2 0 1

The following are protected and notable species records from the datasets **listed on the previous page**, within the search area recorded in the last 15 years. For plants this has been extended to 20 years, for bats there is no time restriction:

* Indicates some of these records are unconfirmed

Technical Appendix 5

Bird Survey & Results

Breeding Bird Survey Methods

Legislation Relating to Birds

Part 1 of the Wildlife & Countryside Act, 1981 (as amended) protects any wild bird from intentional killing, injuring or taking whilst on the nest. In addition, it is an offence to take, damage or destroy the nest or eggs, whilst being built or in use. Furthermore 79 species listed on Schedule 1 of the Act have been afforded special protection from disturbance at the nest by way of their rarity, endangered, declining or vulnerable status.

At an international level a number of Conventions and European Union Directives have aimed to provide legal protection for wild bird species. These include the European Union Directive on the Conservation of Wild Birds, Directive 79/409/EEC, and the Berne Convention on the conservation of European wildlife and natural habitats.

The Wild Birds Directive provides across the EU a general protection for all birds occurring in a wild state, and additional protection for further species listed under Annex I of the Directive. The Directive requires the designation of Special Protection Areas (SPAs) in the most suitable habitats for Annex 1 species, and outside these areas Member States should also strive to avoid pollution or deterioration of habitats of birds.

Field Survey

Breeding bird survey work is undertaken in the spring time when birds are holding territories and are relatively easy to detect and monitor. A standard methodology involves visiting each part of a site on a minimum of two occasions at least 7-10 days apart, with further visits for complicated sites.

The breeding bird survey methods used were similar to the standard Common Bird Census (CBC) techniques adopted by the British Trust for Ornithology (BTO) and set out in Marchant (1983), Marchant *et al.* (1990), Bibby *et al.* (2000).

Time is spent on recording species present and identifying territory centres, territory range and size. This is done by noting what activity the birds recorded are undertaking. Sightings are noted on individual survey maps using standard codes for behaviour and species. Over a number of visits these maps can be collated and territories of species determined to a relative degree of accuracy. Further advice is also obtained from the methodology used by the BTO for their Breeding Bird Survey (BBS).

Visits are usually carried out one to two hours after dawn, as this is when the majority of species are most active and holding territory. A number of visits are usually also made at dusk in order to record species that are more visible at this time of day.

Survey Dates 2017:

Date	
24 April 2017	Am
10 May 2017	Am
19 May 2017	Am
28 May 2017	Am
07 June 2017	Am

References

Bibby, C, Burgess N, Hill D, Mustoe S (2000) "Bird Census Techniques"

Marchant J H (1980) "Common Bird Census Instructions" BTO

Species Recorded on site during Spring Breeding Bird Survey 2017, and winter bird surveys 2013/14 & 15/16

Species (BOU vernacular name - IOC International name - scientific name - category)	List	Sch1 WCA	BAP Priority Species	Red	Amber	Green	
Grey Heron Ardea cinerea A	1					1	Flying over site only
Sparrowhawk Eurasian Sparrowhawk Accipiter nisus A	1					1	Flying over site only
Black-headed Gull Chroicocephalus ridibundus A	1				1		Recorded overflying the site and on a few occasions during winter periods
Mediterranean Gull Larus melanocephalus A	1	1			1		Recorded overflying the site in Spring 2017
Common Gull ‡ Mew Gull Larus canus A	1				1		Recorded on site in winter on one occasion
Herring Gull European Herring Gull Larus argentatus A	1		1	1			Recorded on site in winter on a couple of occasions
Woodpigeon Common Wood Pigeon Columba palumbus A	1					1	
Collared Dove Eurasian Collared Dove Streptopelia decaocto A	1					1	
Swift Common Swift Apus apus A	1				1		Overflying site
Green Woodpecker European Green Woodpecker Picus viridis A	1					1	Recorded in local area, limited habitat on site
Great Spotted Woodpecker Dendrocopos major A	1					1	
Hobby Eurasian Hobby Falco subbuteo A	1	1				1	Recorded on one date in Spring 2017
Magpie Eurasian Magpie Pica pica A	1					1	
Jackdaw Western Jackdaw Corvus monedula A	1					1	
Carrion Crow Corvus corone A	1					1	
Goldcrest Regulus regulus A	1					1	
Blue Tit Eurasian Blue Tit Cyanistes caeruleus A	1					1	
Great Tit Parus major A	1					1	
Coal Tit Periparus ater A	1					1	

Skylark Eurasian Skylark <i>Alauda arvensis</i> A	1		1	1			Two recorded on a winter visit in Oct 2016, with no other records over either winter survey season or spring breeding bird season 2017
Swallow Barn Swallow <i>Hirundo rustica</i> AE	1					1	
House Martin Common House Martin <i>Delichon urbicum</i> A	1				1		Recorded overflying the site in spring 2017
Long-tailed Tit ‡ <i>Aegithalos caudatus</i> A	1					1	
Chiffchaff Common Chiffchaff <i>Phylloscopus collybita</i> A	1					1	
Blackcap Eurasian Blackcap <i>Sylvia atricapilla</i> A	1					1	
Whitethroat Common Whitethroat <i>Sylvia communis</i> A	1					1	
Wren Eurasian Wren <i>Troglodytes troglodytes</i> A	1					1	
Starling Common Starling <i>Sturnus vulgaris</i> A	1		1	1			A number of territories in dwellings north of the site. Post breeding flock uses site
Blackbird Common Blackbird <i>Turdus merula</i> A	1					1	
Song Thrush <i>Turdus philomelos</i> A	1		1	1			Two territories around the site boundaries in 2017
Redwing <i>Turdus iliacus</i> A	1	1		1			Recorded overflying site in winter bird survey work
Robin European Robin <i>Erithacus rubecula</i> A	1					1	
Dunnock <i>Prunella modularis</i> A	1		1		1		Two-three territories on site boundaries in 2017
House Sparrow <i>Passer domesticus</i> A	1		1	1			A number of territories in dwellings north of the site. Uses northern hedgerow regularly.
Grey Wagtail <i>Motacilla cinerea</i> A	1			1			Recorded overflying the site in winter
Pied Wagtail ‡ White Wagtail <i>Motacilla alba</i> A	1					1	
Chaffinch Common Chaffinch <i>Fringilla coelebs</i> AE	1					1	
Greenfinch European Greenfinch <i>Chloris chloris</i> AE	1					1	
Goldfinch European Goldfinch <i>Carduelis carduelis</i> A	1					1	
Total =	39	3	7	7	6	26	

Technical Appendix 6

Bat Survey Methodology

Bat Tree Survey, Emergence and Activity Monitoring

Trees Survey Method

Introduction

All bat species and their roosts are fully protected in Britain under the Wildlife and Countryside Act 1981(as amended) and the Conservation (Natural Habitats &c.) Regulations 1994 (as amended).

Initial Survey

Tree survey methodology involves looking for any suitable holes, cracks, niches or crevices which could be used by bats for roosting. In addition, large or apparently unhealthy trees which have a dense covering of Ivy possibly covering holes or crevices also have some potential to support bats. These are all termed potential roost features.

A survey for signs of residence by bat species consists of a slow methodical search of all aspect of the tree for actual roosting bats and their signs. Droppings around holes, on the tree trunk or on the ground beneath can be used to identify species. Scratch marks and staining at roost entry and exit holes. The presence of spider webs at a potential roost can often indicate their absence at that time although does not mean that the hole is not used at all. Careful attention is given to any sounds indicating the presence of a breeding bat roost (i.e. audible social calls). The survey is completed using binoculars from ground level and high powered torch and endoscope to inspect cavities with ladder where safe access permits.

Detailed Tree survey

Where the value of an individual tree or woodland area is found to be high during a preliminary survey, a more comprehensive survey in order to fully assess the likely value of the potential bat feature is undertaken. The scope of additional work will vary depending on a range of environmental factors.

Survey techniques are likely to include:

- Emergence survey during early evening (i.e. prior to emergence and at emergence), with the aid of a bat detector for ultrasonic calls.
- Climb-and-inspect assessment of selected trees to check for cavities and inspection with an endoscope or mirrors if appropriate.
- Foraging and transect walks through habitat surrounding potential tree roosts to understand local bat use of the site.

Survey work is tailored to each individual case, and the degree of evening emergence and foraging work undertaken is based on the following factors:

- size of the site;
- number of trees to be affected;
- habitats on site (eg water features/woodland);
- habitats and protected sites in the wider countryside;
- knowledge of bat use in local area;
- geographical range of rare species;
- proximity to known or suspected roosts.

Limitations of Tree Survey

Bats may move regularly between different tree roosts, and if used infrequently, signs to indicate the use of such trees by bats are unlikely to be evident. In addition, any signs which are left on trees by bats as a result of their use of a roost site (e.g. droppings below a roost exit) may be washed off as a result of wind and rain. Consequently, it is often difficult to confirm the presence of a bat tree roost. Surveys are best described as a sampling tool to assess presence of different bat species using the site at that time and place and general use of the area by bats.

Evaluation of Potential Suitability of Proposed Development Sites for bats (including Buildings & Trees)

The latest bat survey guidelines has provided guidance on assessing and evaluating development sites and features for bat roost potential:

The potential for trees to support roosting or breeding bats is evaluated under the following protocol for the visual inspection of trees:

Suitability	Description Roosting habitats	Commuting and foraging habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions^a and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation^b). A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential.^c	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions ^a and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions ^a and surrounding habitat.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

^a For example, in terms of temperature, humidity, height above ground level, light levels or levels of disturbance.

^b Evidence from the Netherlands shows mass swarming events of common pipistrelle bats in the autumn followed by mass hibernation in a diverse range of building types in urban environments (Korsten *et al.*, 2015). This phenomenon requires some research in the UK but ecologists should be aware of the potential for larger numbers of this species to be present during the autumn and winter in large buildings in highly urbanised environments.

^c This system of categorisation aligns with BS 8596:2015 Surveying for bats in trees and woodland (BSI, 2015).

Table from (BCT 2016 at p35)

Bat Activity Survey

Introduction

The value of a site to bats can be arrived at using activity surveys to understand how many bats use the site, the degree of use and what species are involved.

Timing

An activity survey is undertaken in conditions when bats are likely to be active. Evening surveys commenced from sunset, often beginning with monitoring certain potential bat roost trees or woodland areas where such trees exist, for any emerging bats.

Dawn survey work may also be undertaken, usually recording activity up to two hours before, and sometimes up to an hour after sunrise.

Activity surveys are undertaken during the period when bats are not hibernating, this is usually between the end of April to October.

Methods

Line transects are carried out by a surveyor carrying a bat detector/s (example used, Bat box Duet , Petterson D240x, Anabat SD1) who walks at a constant speed along a planned route and records sound for subsequent analysis, and/or bat passes or species. The data collected can be used to provide an index of bat activity along the transect. Line transects are best suited to open habitats with linear features, such as hedgerows, field boundaries and woodland rides. Transect surveys, when repeated should be undertaken in opposite directions and, if possible, started from different points along the route. The number of transects required to cover the main habitat features depend on the size and complexity of the site. Transects should be sampled within 2-3 hours after sunset. The transect methodology should consider, for example identifying listening points where a minimum of 3 minutes recording is undertaken along the route and or combined with activity monitoring with recording equipment left for longer periods recording all bat passes. (BCT, 2012)

Since different species of bats echolocate using different frequencies, there is a risk that certain species will be missed if the bat detector is not tuned to the frequency used by that species at the time. Therefore, during the majority of the survey period, a surveyor scans through different frequency ranges to ensure as many bats were recorded as possible. The main frequency ranges used were as follows:

- 32-55khz to detect the smaller species of bats, such as Pipistrelle spp, Myotis spp, etc.
- Around 22-30 khz to detect the larger bat species, including Noctule and Serotine bats.

In addition the Anabat SD1/Songmeter SM2 Automated recorders were used to allow greater survey intensity than with manual bat detector surveys. They can allow longer periods of time coverage than could be practically and economically covered by manual survey, providing more comparable results, or be used to provide a more flexible timetable for surveying. Automated systems are triggered by sound (via a detector) and these sounds are then recorded as event / bat passes.

Assessment of Landscape for Potentially Good Bat Foraging sites or Flight Lines

The habitats across the site are surveyed and assessed on their likely use by bats for foraging and for use in commuting across the landscape. This assessment is based upon the following main factors:

- Sheltered areas where insects are likely to gather;
- Presence of rough grassland or other habitats likely to result in higher insect numbers;
- Provision of linear links across otherwise open habitat to allow bats to following features within shadows (i.e. hidden from predators), while also providing foraging potential.

Data Collected

Time, flight direction and species of bat are recorded for each bat heard or seen and these were mapped on individual site maps. Time of sunset/sunrise and weather conditions are also recorded for each survey.

The following data is gathered for bat passes recorded:

- Location of observation (data highlighted on a map);
- Whether the bat was foraging or commuting (if commuting, in which direction was it travelling and whether the bat was following any landscape features);
- Species of bat observed (where possible).

Technical Appendix 7

Reptile Survey Methodology For Common Reptile Species

Introduction

All of the common reptile species (Grass Snake, Adder, Common Lizard and Slow-worm) native to Britain are protected by the 1981 Wildlife & Countryside Act 1981 (as amended) under Sections 9(1) and 9(5). This legislation makes it illegal to intentionally kill or injure a common reptile and also, to sell, barter, exchange or transport for sale these animals or parts of them. However, their habitat is not directly protected.

Survey Methods

Survey work involves the placing of cut up roofing felt or other flat materials such as corrugated iron sheeting, wood or plastic that reptiles hide under. The reptiles use these artificial refugia as they warm faster than the surrounding environment and are attractive to shelter beneath. In order to be effective, refugia need to be placed in the most suitable habitat and in the best locations within those habitats for reptiles. Survey refugia are placed at a minimum of 10/ha.

Reptiles can be surveyed using this technique between early spring and late autumn. The times of the year that provide optimum survey are April to late June, and late August to the end of September.

Survey work is undertaken during suitable weather conditions (i.e. between 9 and 18°C with little or no wind and no rain). High temperatures in late June to late August mean that suitable weather conditions occur the morning / late afternoon, after and even during rain in warm weather, and on overcast days.

Refugia survey is always complemented by visual searching for reptiles which are not utilising refugia.

Population Size Assessment

In order to assess the importance of a population the population size needs to be assessed. This uses standard numbers from the Herpetofauna Groups of the British Isles (HGBI, 1999) advisory notes for Amphibian and Reptile Groups (ARGs) **Table T1** below.

Table T1: Assessing Reptile Populations

Species	Population size (adult density)		
	High	Medium	Low
Slow-worm	(> 100 / ha)	(> 50 / ha)	(< 50 / ha)
Common lizard	(> 80 / ha)	(> 40 / ha)	(< 20 / ha)
Adder	(> 4 / ha)	(2 - 4 / ha)	(< 2 / ha)
Grass snake	(> 4 / ha)	(2 - 4 / ha)	(< 2 / ha)

References

Herpetofauna Groups of the British Isles (HGBI) Guidelines (1998) "Evaluating Local Mitigation/Translocation Programmes: Maintaining Best Practice and Lawful Standards." HGBI Advisory notes for Amphibian and Reptile Groups (ARGs). HGBI, c/o Froglife, Halesworth, personal collection.

Froglife, 1999. Froglife Advice Sheet 10. Reptile Survey. An introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife, Halesworth, Suffolk.

Technical Appendix 8

Habitat Suitability Index

Introduction

Great Crested Newts and their habitat are protected under the Wildlife & Countryside Act 1981 (as amended) and under European Law through the Habitat Regulations.

Habitat Suitability Index (HSI) scoring system has been developed to provide an indication of the likely value of a waterbody to Great Crested Newt. It was initially developed by Oldham et al (2000). The methodology has been adapted by the Amphibian and Reptile Groups of the UK (see ARG UK, 2010). The index is a measure of habitat suitability, but should not be used as a substitute for detailed newt survey work. Ponds with a high HSI score are more likely to support Great Crested Newt than those with a low score. HSI is therefore useful to (see ARG UK, 2010):

- Evaluate general suitability of a pond, or ponds for Great Crested Newt,
- Compare general suitability of ponds across different areas,
- Evaluating suitability of receptor ponds in a proposed mitigation scheme,
- Identifying habitat management priorities.

The HSI scoring system is graded in five steps from poor – below average – average – good – excellent. The table below provides an assessment for the pond off site.

HSI Criteria	Waterbody
1 – Geographic Location	1
2 – Pond Area	0.05
3 – Permanence	0.9
4 – Water Quality	0.67
5 – Shade	1
6 – Waterfowl	1
7 – Fish	1 (unknown so assume 1)
8 – Pond Count in 1km	0.1 (= 0 but given as 0.1 for assessment)
9 – Terrestrial Habitat	0.33
10 – Macrophyte Cover	0.9
Score: (Sum of 1-10)^{0.1}	0.49568 (=poor)

References

ARG UK (2010) Great Crested Newt Habitat Suitability Index ARG UK Advice Note 5

Frog Life (Langton, T., Beckett, C. & Foster, J.) (2001) Great Crested Newt Conservation Handbook.
English Nature (2001). Great Crested Newt Mitigation Guidelines. English Nature, Peterborough.

Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). Herpetological Journal 10(4), 143-155.

Technical Appendix 9

Suggested Planting Mixes

Example Seed Mixes of Native Species Local to the Zone of Influence

The mixes set out below are basic examples of what could be provided on the more fertile and high nutrient soils on site. They are based on local native species common in the relevant habitat. Variations on seed mixes can be provided given the number of areas of habitat creation potential. The mixes below are based on native species mixes selected by Emorsgate Wild Seeds (www.wildseed.co.uk).

Example Hay Meadows and Dry Neutral/Calcareous Grassland Mix

%	Species	Common Name
1	<i>Achillea millefolium</i>	Yarrow
2	<i>Centaurea nigra</i>	Common Knapweed
0.8	<i>Daucus carota</i>	Wild Carrot
1.5	<i>Galium verum</i>	Lady's Bedstraw
1.2	<i>Knautia arvensis</i>	Field Scabious
1.5	<i>Leucanthemum vulgare</i>	Ox-eye Daisy
1	<i>Lotus corniculatus</i>	Birdsfoot Trefoil
0.5	<i>Malva moschata</i>	Musk Mallow
1	<i>Plantago lanceolata</i>	Ribwort Plantain
1	<i>Primula veris</i>	Cowslip
1.5	<i>Prunella vulgaris</i>	Selfheal
3	<i>Ranunculus acris</i>	Meadow Buttercup
2.5	<i>Rhinanthus minor</i>	Yellow Rattle
1.5	<i>Rumex acetosa</i>	Common Sorrel
	Grasses	
5	<i>Agrostis capillaris</i>	Common Bent
35	<i>Cynosurus cristatus</i>	Crested Dogstail
10	<i>Festuca rubra ssp commutata</i>	Red Fescue
25	<i>Festuca rubra</i>	Red Fescue
5	<i>Anthoxanthum odoratum</i>	Sweet Vernal Grass

(Based on a standard lowland fertile field Emorsgate Wild Seeds www.emorsgate-seeds.co.uk) This mix is based on EM2, but EM3 and other hay meadow mixes may also be of value. Standard sowing rates per m² can be obtained from preferred supplier.

Example Flowering Lawn Species Mix

%	Species (based on Emorsgate Mix)	Common name
3.4	<i>Galium verum</i>	Lady's Bedstraw
0.5	<i>Leontodon hispidus</i>	Rough Hawkbit
1	<i>Leucanthemum vulgare</i>	Oxeye Daisy
3.3	<i>Lotus corniculatus</i>	Birdsfoot Trefoil
1.5	<i>Primula veris</i>	Cowslip
5	<i>Prunella vulgaris</i>	Selfheal
3	<i>Ranunculus acris</i>	Meadow Buttercup
2	<i>Rumex acetosa</i>	Common Sorrel
0.3	<i>Trifolium pratense</i>	Red Clover
	Grasses	
8	<i>Agrostis capillaris</i>	Common Bent
40	<i>Cynosurus cristatus</i>	Crested Dogstail
28	<i>Festuca rubra</i>	Red Fescue
4	<i>Phleum bertolonii</i>	Smaller Cat's-tail

Example Damp Grassland Species Mix

%	Species (EM8 Emorsgate Mix)	Common Name
0.5	<i>Achillea millefolium</i>	Yarrow
0.5	<i>Betonica officinalis</i> - (<i>Stachys officinalis</i>)	Betony
2	<i>Centaurea nigra</i>	Common Knapweed
2	<i>Filipendula ulmaria</i>	Meadowsweet
1	<i>Galium verum</i>	Lady's Bedstraw
1.5	<i>Leucanthemum vulgare</i>	Oxeye Daisy
0.5	<i>Lotus pedunculatus</i>	Greater Birdsfoot Trefoil
1.5	<i>Plantago lanceolata</i>	Ribwort Plantain
1	<i>Primula veris</i>	Cowslip
0.5	<i>Prunella vulgaris</i>	Selfheal
3	<i>Ranunculus acris</i>	Meadow Buttercup
1.5	<i>Rhinanthus minor</i>	Yellow Rattle
1.5	<i>Rumex acetosa</i>	Common Sorrel
0.5	<i>Sanguisorba officinalis</i>	Great Burnet
1	<i>Silaum silaus</i>	Pepper Saxifrage
0.5	<i>Silene flos-cuculi</i> - (<i>Lychnis flos-cuculi</i>)	Ragged Robin
1	<i>Vicia cracca</i>	Tufted Vetch
	Grasses	
12	<i>Agrostis capillaris</i>	Common Bent
5	<i>Alopecurus pratensis</i>	Meadow Foxtail (w)
1	<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass (w)
1	<i>Briza media</i>	Quaking Grass (w)

36	<i>Cynosurus cristatus</i>	<u>Crested Dogstail</u>
1	<i>Deschampsia cespitosa</i>	<u>Tufted Hair-grass (w)</u>
24	<i>Festuca rubra</i>	<u>Slender-creeping Red-fescue</u>

Example Scrub Planting Species Mix

%	Species	Common Name
30%	<i>Crataegus monogyna</i>	Hawthorn
30%	<i>Prunus spinosa</i>	Blackthorn
10%	<i>Corylus avellana</i>	Hazel
5%	<i>Salix cinerea oleifolia</i> / <i>Salix caprea</i>	Grey/Goat Willow
8%	<i>Rosa canina</i>	Dog Rose
10%	<i>Rosa arvensis</i>	Field Rose
5%	<i>Lonicera periclymenum</i>	Honeysuckle
2%	<i>Rubus fruticosus</i> agg	Bramble
Shade Understorey mix based on EH1 (Emorsgate Seed Mix)		
0.5	<i>Achillea millefolium</i>	Yarrow
1.5	<i>Agrimonia eupatoria</i>	Agrimony
1.2	<i>Alliaria petiolata</i>	Garlic Mustard
1	<i>Centaurea nigra</i>	Knapweed
0.4	<i>Clinopodium vulgare</i>	Wild Basil
1.7	<i>Galium mollugo</i>	Hedge Bedstraw
2.2	<i>Geum urbanum</i>	Wood Avens
1.5	<i>Leucanthemum vulgare</i>	Oxeye Daisy
0.5	<i>Plantago lanceolata</i>	Ribwort Plantain
0.5	<i>Primula veris</i>	Cowslip
2	<i>Prunella vulgaris</i>	Selfheal
2	<i>Silene dioica</i>	Red Campion
1.5	<i>Silene vulgaris</i>	Bladder Campion
1	<i>Stachys sylvatica</i>	Hedge Woundwort
1	<i>Torilis japonica</i>	Upright Hedge Parsley
1.5	<i>Vicia cracca</i>	Tufted Vetch
10	<i>Agrostis capillaris</i>	Common Bent
1	<i>Anthoxanthum odoratum</i>	Sweet Vernal Grass
6	<i>Brachypodium sylvaticum</i>	False Brome
35	<i>Cynosurus cristatus</i>	Crested Dogstail
2	<i>Deschampsia cespitosa</i>	Tufted Hair Grass
26	<i>Festuca rubra</i>	Red Fescue

Example Native Hedgerow Species Mix (a mixture of some or all of these species is possible)

%	Species	Common Name
20%	<i>Corylus avellana</i>	Hazel
10%	<i>Ulmus procera</i>	Elm
25%	<i>Hawthorn</i>	Hawthorn
25%	<i>Prunus spinosa</i>	Blackthorn
3%	<i>Sambucus nigra</i>	Elder
12%	<i>Acer campestre</i>	Field Maple
0.5%	<i>Quercus robur</i>	Oak
1.5%	<i>Fraxinus excelsior</i>	Ash
1%	<i>Prunus avium</i>	Wild Cherry
2%	<i>Salix sp</i>	(Native) Willow species
Potential additional species can also be used to substitute or for variation: Honeysuckle <i>Lonicera periclymenum</i> Holly <i>Ilex aquilinum</i> Alder, <i>Alnus glutinosa</i> Spindle <i>Euonymus europaea</i> Buckthorn <i>Rhamnus cathartica</i> Field Rose <i>Rosa arvensis</i> Dog Rose <i>Rosa canina</i> Crab Apple <i>Malus sylvestris</i>		

Technical Appendix 10

Reptile Translocation Methodology

Translocation of Reptiles

In summary, translocation is the movement of animals, usually deliberately, from one location to another (Gent *et al*, 1998). The receptor site is the site to which reptiles are moved, the donor site (or in this case development site/construction zone) is where they are moved from.

The aim of the mitigation strategy is to ensure that an 'equivalent population' is maintained to that which existed before (Gent *et al*, 1998). Reptile mitigation strategies usually involve translocations and habitat management which is implemented between end March/April and Sept/October once any reptiles on site have emerged from hibernation.

Receptor sites must be assessed prior to the translocation of any reptiles, against criteria provided as good practice guidance. This ascertains the existing population of reptiles on the receptor site and identifies any habitat management needs in order to provide the optimum habitat for translocated reptiles.

HGBI (1998) and Gent *et al* (1998) recommend that 'reasonable effort' should be undertaken to clear a site of reptiles prior to any works being carried out. Interpretation of what 'reasonable effort' translates as in minimum trapping days and capture methodologies is provided in **Table 1** below.

Table A1: Minimum Capture Effort for Common Reptiles

Species	Population size (adult density)	Tin density (tins/ha)	Minimum number of trapping days in good weather
Slow-worm	High (> 100 / ha)	100	All suitable days between March & September or a full year (min. 90 suitable days)
	Medium (> 50 / ha)	100	All suitable days between March & September or a full year (min. 70 suitable days)
	Low (< 50 / ha)	50	60 suitable days
Common lizard	High (> 80 / ha)	100	All suitable days between March & September or a full year (min. 90 suitable days)
	Medium (> 40 / ha)	100	All suitable days between March & September or a full year (min. 70 suitable days)
	Low (< 20 / ha)	50	60 suitable days
Grass snake	High (> 4 / ha)	100	All suitable days between March & September or for two years (min. 90 suitable days)
	Medium (2 - 4 / ha)	100	All suitable days between March & September or two years (min. 70 suitable days)
	Low (< 2 / ha)	50	60 suitable days

Monitoring is necessary in the medium and long term in order to assess the success or otherwise of the translocation programme.

Capture Areas Assessment

The areas of the site within the construction zone needs to be assessed as to potential to support reptiles and likely populations present.

Receptor Area Assessment

A receptor site for reptiles needs to meet certain criteria to ensure that the conservation status of the populations of reptiles on the capture site and any on the receptor site are maintained. In order that a receptor site is sustainable in the long term the following assessment criteria recommended by HGBI (1998) have been used to find a site:

- A receptor site should be local to the donor site, and as close as possible to it (at least within the same county or similar administrative area, with similar geology/habitat);
- Not currently supporting a viable breeding population of the species to be translocated, for known reasons, or be capable of supporting them given suitable habitat management and creation;
- Not be subject to planning or other threats in the foreseeable future;
- Subject to a written, agreed and funded pre- and post-translocation management agreement;
- Subject to a written, agreed and funded pre- and post-translocation monitoring programme.

There have been various translocation programmes which have assessed the populations and carrying capacities of a range of different reptile habitats particularly in relation to slow-worms. It is widely recognised that slow-worms can, in their ideal habitat, regularly occur at 1000+ per hectare but are usually present at lower densities. However it should always be carefully considered that few sites have large areas of continuous good slow-worm habitat capable of supporting such high populations although smaller, localised areas of a site may do so. When estimating the carrying capacity of a release site and considering the number of reptiles to be translocated, a precautionary approach will be used. The mitigation strategy will provide a larger area of suitable habitat at the receptor site than at the capture site.

Translocation Methodology

In order to fulfil a translocation of reptiles from the development site to the receptor sites, the animals must be caught, or in the case of a very low population discouraged from the areas of the site to be lost. The most effective method for capture involves the placing of cut up roofing felt or other materials such as corrugated iron sheeting, wood or plastic that snakes and lizards hide under. Refugia/Tins are best placed in locations which will be attractive to reptiles (e.g. 'sun-traps').

The most profitable time for capturing reptiles is generally between late April aJune, and again between late August and late September. The suggested number of days required to catch reptiles for a reasonable effort to remove the population is described in **Table A1** above.

Capture Site Preparation

The development site must be prepared in order to facilitate the successful removal of reptiles. Sheets of roofing felt and tin will be placed across the site to act as refugia for the reptiles. They will be placed at a high density in suitable habitat. Areas of suitable reptile habitat with a high reptile density may have a tin density of up to 5 refugia per 10m², in line with the guidance in **Table A1**. The placement of a higher number of refugia on site will increase the efficiency of capture and can reduce the number of trapping days required to clear the site of reptiles.

Capture Effort

Table A1 above provides the suggested capture effort for reptile species, based on good practice guidance (HGBI, 1998). Reptile translocation can in some circumstances require at least one season (spring to autumn), and sometimes longer, to ensure that all reptiles are removed from the development site.

The purpose of this type of translocation is to make reasonable effort to remove all reptiles from a site prior to a development. Where reptile populations are low or on small sites, Natural England often provide additional guidance that reasonable effort has been made and translocation to be considered complete in any area. The capture rate needs to have declined to zero over at least three to five consecutive trapping visits in suitable weather conditions.

Habitat Manipulation

The areas of habitat affected by the development will be modified to reduce their suitability for reptiles. This will encourage reptile movement within the site to increase capture in key areas around refugia and may also encourage some dispersal to suitable retained habitats. The grass height will be reduced by cutting to no less than 10cm on the first cut and will be phased in bands and habitat areas across the site. The location and timing of this process will be guided by capture rates in the different areas of the site.

Translocation programme

The development site will be inspected regularly and any reptiles will be captured and moved, using the methods described above to the receptor site. For the translocation to be considered complete in any area, the capture rate needs to have declined to zero over at least three to five consecutive trapping visits in suitable weather conditions.

Close monitoring of the capture rate will allow a judgement to be made of the number of visits considered to be necessary (in relation to guidelines in **Table A1**). The site will be walked very slowly in order to search for basking reptiles and by carefully lifting each refugia, an attempt will be made to catch any reptiles basking beneath.

All reptiles will be transported to the receptor site in a secure ventilated container. At the end of each visit all reptiles caught will be released in suitable conditions at the receptor site. Details of all captures and releases will be recorded.

Exclusion Fencing

Reptile fencing will be used where required to prevent reptiles returning to cleared areas, and where populations are considered sufficient to warrant it.

Supervised site clearance

Following the completion of the translocation in any areas of the site, a supervised site clearance will be carried out. This will take place outside of the hibernation season usually between April- early October (November – February is the main hibernation period dependent on weather conditions). The technique is a last method used and requires very careful specialist supervision. Normal destructive search rates are between 0.1 and 1.0 ha per day depending on machine size and habitat type.

The search will begin by dismantling rubble piles and other debris by hand. Reptiles may be found sheltering in these structures. Following this, the vegetation will be stripped using an excavator and bucket. Firstly, the top few centimetres of the ground or first layer of rubble should be removed, to expose reptiles sheltering in crevices just below the surface. At least one experienced reptile handler should be positioned to catch any remaining reptiles as they are disturbed. Following this, larger and deeper excavations can be made, concentrating on areas which afford shelter to reptiles, such as tree stumps and buried rubble. Particular care should be taken when emptying the bucket in case any reptiles are dug up with the spoil. It is not anticipated that many reptiles (if any) are discovered as the reptile populations will have almost completely been moved by this stage.

Prior to starting works, the contractors will be alerted to the presence of protected species on the site and provided with the method statement and plans. The contractors will be shown reptiles, so that they are familiar with their identification, should they come across them during vegetation works.

Monitoring

Following completion of the work, monitoring of the reptile population at the receptor site is recommended during the following two years, in order to determine the success of the translocation project.

Natural England (English Nature, 1998) suggests the following guidance which may determine the ‘success’ of a mitigation strategy:

- Removal of a ‘reasonable proportion’ of animals from a development site or no significant impact from development where in situ conservation is involved;
- Establishment and maintenance of a range of suitable habitats: with the presence of ‘good’ features and absence of ‘negative’ features;
- Breeding and successful recruitment;
- Re-establishment of animals in a range of habitat or spread of the animals throughout a site or to adjacent sites;
- Establishment of an appropriate age structure in the population;
- Survival of a large proportion of the animals that were moved;
- Establishment of:
 - A viable population

- An expanding population
 - An ‘equivalent’ population to that which previously occurred
 - A population that is fluctuating in size within acceptable limits;
- Persistence of individual animals over a number of years.

References

Herpetofauna Groups of the British Isles (HGBI) Guidelines (1998) “Evaluating Local Mitigation/Translocation Programmes: Maintaining Best Practice and Lawful Standards.” HGBI Advisory notes for Amphibian and Reptile Groups (ARGs). HGBI, c/o Froglife, Halesworth, personal collection.

Froglife, 1999. Froglife Advice Sheet 10. Reptile Survey. An introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife, Halesworth, Suffolk.