

YACHTHAVEN, HAYLING ISLAND

ENVIRONMENTAL STATEMENT

DECEMBER 2011

APPENDIX 3.1

Yachthaven, Hayling Island
Ecological Assessment (Phase II surveys)
For
Yachthaven (Hayling) Ltd
3rd April 2011



Produced by:

Gareth Matthes BSc MSc MIEEM
John Norton BSc MIEEM
Dean Swensson

Of

GPM
ECOLOGY

10 Bartholomew Close, Haslemere
Surrey, GU27 1EN

CONTENTS

1.0 EXECUTIVE SUMMARY

2.0 INTRODUCTION

- 2.1 List and brief description of Development Proposals**
- 2.2 Pre-planning comments on Ecological Impacts**
- 2.3 Appropriate Assessment under the Habitats Regulations**

3.0 LEGISLATIVE AND OTHER BACKGROUND INFORMATION

- 3.1 Nationally Designated Sites**
- 3.2 Internationally Designated Sites**
- 3.3 Appropriate Assessment under the Habitats Regulations**
- 3.4 Chichester Harbour Area of Outstanding Natural Beauty**
- 3.5 Local Sites and Planning Policies**
- 3.6 Review of Human Disturbance and Coastal Development Issues**
- 3.7 Natural Area**
- 3.8 Site Setting and General Features**

4.0 SURVEY METHODOLOGY

- 4.1 Biological Records Search**
- 4.2 Literature Review of Wader and Brent Goose Projects within the Solent**
- 4.3 Ecological Assessment, Evaluation and Zone of Influence**
- 4.4 Surveys**
 - 4.4.1 Habitat and Vegetation**
 - 4.4.2 Winter Birds Survey**
 - 4.4.3 Bird Disturbance Investigation Trial**
 - 4.4.4 Reptiles**
 - 4.4.5 Bats**

5.0 ECOLOGICAL ASSESSMENT AND EVALUATION

- 5.1 Habitats and Vegetation**
 - 5.1.1 Vegetation of boatyard areas, disturbed and made-up ground**
 - 5.1.2 Grassland**
 - 5.1.3 Hedgerows and Scrub**
 - 5.1.4 Intertidal Habitats**
 - 5.1.5 HBIC and HWT Survey Data**
 - 5.1.6 Summary and Evaluation of Important Vegetation Features**
- 5.2 Birds**
 - 5.2.1 WeBS Core Counts**
 - 5.2.2 WeBS Low Tide Counts**
 - 5.2.3 Bird Surveys**
 - 5.2.4 Results of the Boat Disturbance Investigation**
 - 5.2.5 Breeding Bird Assessment**
 - 5.2.6 Waders and Brent Goose Strategy Data**
- 5.3 Summary Evaluation of Ecological Features within zone of influence**

6.0 IMPACT ASSESSMENT

- 6.1 Current Impacts upon the SPA and SAC**
- 6.2 Impacts upon Statutory Designated Sites**
 - 6.2.1 Habitat Loss as a result of Building Works**

- 6.2.2 Disturbance as a result of Building Works
- 6.2.3 Activities associated with the Yacht Club
- 6.2.4 Disturbance to SPA features as a result of Terrestrial Recreation
- 6.3 Disturbance to sites identified by the Brent Geese and Wader Strategy
- 6.4 Impact upon Protected Species and other features
- 6.5 Summary of Impacts

7.0 RECOMMENDATIONS AND MITIGATION

- 7.1 Summary of Operations with a Likely Impact and Appropriate Mitigation
- 7.2 Mitigate disturbance to SPA bird species
 - 7.2.1 Sensitive construction practises
 - 7.2.2 Code of Conduct for Boat Usage
 - 7.2.3 Yachthaven Coastal Meadow Mitigation
- 7.3 Enhancement of SPA and SAC
- 7.4 Outline Management Plan of Yachthaven Nature Reserve
 - 7.4.1 Management Brief for Yachthaven Coastal Meadow
 - 7.4.2 Management Brief for Yachthaven Conservation Grassland
- 7.5 Protected Species and Hedgerows
- 7.6 Further Surveys

8.0 REFERENCES

FIGURES

- Figure 1a: Development Proposals and Impacts
- Figure 1b Development Access
- Figure 2: Vegetation Survey and Target Notes
- Figure 3: Bird Survey Compartment Plan
- Figure 4: Disturbance Survey Route and Location of Wader Roosts
- Figure 5: Mitigation Proposals Plan
- Figure 6: Proposed Enhancement of Yachthaven Coastal Meadow

PHOTOGRAPHS

APPENDICES

- APPENDIX I: Pre-planning Comments from Chichester Harbour Conservancy and Natural England
- APPENDIX II: National and International Designations
- APPENDIX III: Biological Desk-study information
- APPENDIX III.I: Hampshire Biodiversity Information Centre Report
- APPENDIX III.II: Current Use Analysis: Important Site for Waders and Brent Geese (Map 15)
- APPENDIX III.III: Eelgrass Map, Extract from Hampshire Wildlife Trust Surveys, February 2010
- APPENDIX III.IV: SINC Report vegetation survey, September 2002
- APPENDIX III.V: Solent Waders and Brent Goose Strategy Data
- APPENDIX IV: BTO WeBS Data
- APPENDIX V: Species list of vascular plants, bryophytes, lichens and seaweeds
- APPENDIX VI: Seagrass Code of Conduct

1.0 EXECUTIVE SUMMARY

GPM Ecology was commissioned to undertake Phase II ecological surveys at Yachthaven, Hayling Island. This report sets out the ecological features of the site (SU 728 017) and surrounding areas, impacts, mitigation and enhancement opportunities following the development of six dwellings, a Yacht Club and floating moorings for 19 berths on the site of a former boat yard.

The bird survey and available data identified important high-tide roosts in the proximity of Yachthaven Creek, but concluded that low-tide feeding areas adjacent the application site were of low value to the waterfowl. Eelgrass-beds have been identified by previous survey data to grow within the Creek and the pontoon development was located to avoid these beds. The application site supports disturbed, former scrub and tall herb habitats, several derelict buildings and hard-standing, bordered by an 'old' hedge on the landward boundary and a Coastal Meadow to the west. A small, but diverse saltmarsh grows south of the meadow.

The survey determined that while the site is adjacent to a Specially Protected Area (SPA) for Birds, Special Area of Conservation (SAC), Solent Wader and Brent Goose & Wader Strategy site and other related designations, the development does not directly impact ecological features for which these sites have been designated. Impacts associated with recreational disturbance to birds were assessed in detail and it was concluded these impacts will be insignificant for the following reasons:

1. The key associated features are not directly impacted by the development
2. Winter-roosts on the SPA peak when human-activity levels will be at its lowest
3. The extent of the Yacht Club mooring is small (limited to 19 boats), with a narrow window of time that users will be able to sail up creek (2.5 hours either side of high-tide) and boat traffic is unlikely to be close enough to cause disturbances at roost sites
4. Sub-optimal characteristics of the creek for low-tide feeding
5. Disturbance impacts from construction at foreshore will be temporary and there are no footpaths directly adjacent SPA-designated roosts

The report does however highlight several impacts either low-level or likely, but insignificant to important features adjacent the site. The following further recommendations are therefore proposed:

1. Follow-up surveys of the Coastal Meadow, presence of reptiles, extent of Eelgrass, breeding birds (if required) and monitoring of SPA-birds using Yachthaven Creek over a 5-year period once construction is completed.
2. An Ecological Clerk of Works to be appointed pre-construction.
3. Mitigation of a reptile population on site, if necessary.
4. Management of the Nature Reserve (including a Site of Interest for Nature Conservation) adjacent the development and to restrict access to these areas.
5. Sensitive construction practices within and close to the estuary.
6. The protection of roots and canopy to an 'old' hedgerow.
7. The provision of a Code of Conduct for boat users and incorporation of signage to ensure boat-users act responsibly when using the Creek.

2.0 INTRODUCTION

Yachthaven (Hayling) Ltd is proposing to construct six dwellings, along with a new yacht club and pontoon mariner (with 19 berths) on a former boatyard (SU 728 017). The western half of the site consists of coastal grassland that is proposed to be maintained as a nature reserve. During October 2010 GPM Ecology¹ produced an Ecological Scoping report on behalf Jay Laundon of Yacht Haven (Hayling) Ltd towards a planning submission to Havant Borough Council for this scheme. The site is located directly adjacent to statutory designated features including Chichester and Langstone Harbours Specially Protected Area (SPA); Solent Maritime Special Area of Conservation (SAC); Chichester Harbour Ramsar site and Chichester Harbour Site of Special Scientific Interest (SSSI).

A parcel of land to the west of the development site lies within a non-statutory designated Site of Importance for Nature Conservation (SINC), known as 'Fields & Saltmarsh South of Copse Lane'. The area of land consists of coastal grassland with associated trees and hedgerows. This, together with the adjacent intertidal areas are within the land ownership of the developer and are therefore being considered as part of the project, particularly in view of the their potential to be managed for ecological enhancement and mitigation. The area west of the development site is referred to in this report as Yachthaven Coastal Meadow.

The scoping report (GPM Ecology 2010¹) made the following recommendations to carry out:

1. Winter wildfowl and wader intertidal count of adjacent SPA
2. Detailed botanical survey to National Vegetation Community (NVC) level of the proposed Nature Reserve (designated SINC) and SAC habitats
3. Bat survey of a shed on site
4. Reptile survey
5. Breeding bird survey where clearance takes place during breeding period.

2.1 List and brief description of Development Proposals

No dredging is required as part of these proposals within the creek to allow sailing boats to gain access to their moorings. A list of the development proposals can be summarised as follows:

1. Construction of a Floating Pontoon (47m x 2m long) to accommodate nineteen sailing boats (generally about 10 to 14m long). The Pontoon will be held in position by driven piles, either timber or steel.
2. About 100m² of land within the creek, is to be built-up behind sheet piling to form a retaining wall, from which a Launching Pontoon is fixed
3. New concrete slipway constructed over the existing slipway and removal of concrete sea defence within creek to re-position by the side of slipway.
4. New buildings associated with a Yacht Club and parking area are to be constructed (and semi-metalled surface re-laid) over existing derelict hard-standing, with buildings covering an area of approximately 370m².
5. Construction of six detached dwellings covering an area of approximately 0.1ha on the site of derelict buildings associated with a former boatyard
6. Public footpath reinstated with inert materials free from contaminants.

¹ GPM Ecology (25 Oct 2010) Ecological Scoping Report, Yachthaven, Hayling Island, Hampshire

7. Removal of de-contaminated soil east of the Yacht Club. Areas of green space either side of the development are to be landscaped where necessary and managed as a Nature Reserve: Yachthaven Coastal Meadow (part of the existing SINC) to the west and Yachthaven Conservation Grassland east of the Yacht Club.

2.2 Pre-planning comments on Ecological Impacts

The Chichester Harbour Conservancy Ecologist, Edward Rowsell, was consulted on the proposals, providing comments dated 21st January 2011, in addition to Natural England Coastal Planning Officer, Thomas Schindl with comments dated 18th March 2011 (as detailed in **Appendix I**). The concerns raised by these Authorities have been addressed within this report.

2.3 Appropriate Assessment under the Habitats Regulations

Due to the proximity of the proposed development to internationally protected nature conservation sites (Chichester Harbour SPA and Solent Maritime SAC), Natural England were consulted on the project. These sites support internationally important habitats and bird populations and the development proposals have potential to impact on these features.

An important requirement of this report is therefore to set out information for Natural England to make a decision on whether an Appropriate Assessment will be necessary. This has been carried out in Sections 4 to 6, which provides a full assessment of waterfowl data for the development site, surrounding areas and designated sites, a review of disturbance studies on waterfowl in the Solent and a discussion of potential issues and mitigation.

3.0 LEGISLATIVE AND OTHER BACKGROUND INFORMATION

3.1 Nationally Designated Sites

Chichester Harbour SSSI is ‘a large estuarine basin in which at low water extensive mud and sandflats are exposed, drained by channels which unite to make a common exit to the sea. The site is of particular significance for wintering wildfowl and waders and also breeding birds both within the Harbour and in the surrounding permanent pasture fields and woodlands. There is a wide range of habitats which have important plant communities’, as detailed in **Appendix II**. The site is adjacent to Unit 8 of the SSSI, which from Natural England monitoring assessment during November 2010 consists “mainly of Littoral Sediments in ‘unfavourable recovering’ condition, suffering ‘coastal squeeze’ as much of the unit is backed by hard sea defences”. Unit 6 assessed in January 2009, consists of neutral grassland 75 to 100m from the site and was in ‘favourable’ condition.

3.2 Internationally Designated Sites

Chichester and Langstone Harbours SPA

At the time of designation Chichester Harbour SPA regularly supported just over 17,000 of the over-wintering population of the dark-bellied race of Brent Goose, equivalent to more than 5% of the world population of this race². It also supports internationally important populations of several wader species including Ringed Plover, Grey Plover, Dunlin and Redshank. See **Appendix II** for more information.

Solent Maritime SAC

Primary Annexe I habitats include (see **Appendix II**):

1. Estuaries - 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.
2. Spartina swards - Solent Maritime is the only site for smooth cord-grass *Spartina alterniflora* in the UK, one of only two sites where significant amounts of small cord-grass *S. maritima* are found and thus unique in UK with all four taxa from *Spartina* genus occurring in close proximity.
3. Atlantic Salt Meadows - The Solent contains the second-largest aggregation of Atlantic salt meadows in south and south-west England, composed of a large number of separate saltmarsh areas, 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*.

Chichester Harbour Ramsar Site

Chichester Harbour is also designated a ‘Ramsar site’, i.e. a Wetland of International Importance designated under the International Convention on Wetlands of International Importance Especially as Waterfowl Habitat (the Ramsar Convention).

3.3 Appropriate Assessment under the Habitats Regulations

Natural England has a statutory duty to advise on the protection of so-called ‘European’ sites as defined by the UK Habitats Regulations 1994. If there is likely to be a significant ecological effect on the site, they will advise that an ‘appropriate

² 17,119 individuals (5-year peak mean 1991/2 - 1995/6) representing up to 5.7% of the wintering Western Siberia/Western Europe population: SPA citation (see **Appendix II**).

assessment' is required under Regulation 33(2). This is a formal procedure for assessing the significance of effects on a European site. If required, it would be carried out by the 'competent authority', in this case Havant Borough Council, through consultation with Natural England.

3.4 Chichester Harbour Area of Outstanding Natural Beauty

Chichester Harbour is designated an Area of Outstanding Natural Beauty (AONB). The Chichester Harbour Conservancy (www.conservancy.co.uk/) was established by the Chichester Harbour Conservancy Act 1971 to administer the AONB through its Joint Advisory Committee. Its duty is the conservancy, maintenance and improvement of the harbour for recreation and leisure, nature conservation and natural beauty. Natural England is currently responsible for AONB designations and advising on their protection and management.

3.5 Local Sites and Planning Policies

Site of Importance for Nature Conservation (SINC)

Hampshire Biodiversity Information Centre provided information on six SINC lying within 500m of the development site (see **Appendix III**). These are: Verner Common West; West of North Hayling V; Fields & Saltmarsh South of Copse Lane; North Copse, Havant; West of North Hayling P and Gutner Farm. Of these, four were designated wholly under Criterion 6B (supporting important numbers of Brent Geese)³. These were designated following publication of the 2002 Hampshire Brent Goose Strategy (see below). Fields & Saltmarsh South of Copse Lane SINC (which includes Yachthaven Coastal Meadow) was designated under Criterion 4A (semi-natural coastal wetlands)⁴ as well as Criterion 6B. The remaining site, North Copse, Havant, was designated under Criterion 1A (areas of semi-natural ancient woodland). All these sites are considered to be important at county level but are protected not-statutorily at borough level through local planning policies.

Hampshire Brent Goose Strategy 2002

The Dark-bellied race of the Brent Goose (*Branta bernicla bernicla*) overwinters in the Solent harbours in internationally important numbers and is legally protected by various site designations, as listed above. Peak numbers occur during November to February, with fewer present in October, March and April. Some of these birds remain in the estuary during the day, where they feed on marine algae (seaweeds) and eel-grasses (*Zostera* spp.), a marine flowering plant. The remainder fly inland to feed on amenity grasslands, or occasionally cereal fields, a behaviour that started in the early 1970s.

By the mid 1990s it had become clear that improved amenity grasslands had become particularly important for the Brent Goose population in the Portsmouth area particularly, but that these were vulnerable to disturbance and development, with the potential to adversely affect the geese. A detailed study of the whole Solent population of Brent Geese was subsequently carried out and the results used to produce the Hampshire Brent Goose Strategy (Hampshire Brent Goose

³ Sites which regularly support a significant population of a species which has a restricted distribution or has substantially declined in population or range. Such sites may be used seasonally or for only one part of a species life-cycle.

⁴ Semi-natural coastal and estuarine habitats, including saltmarsh, intertidal mudflats, sand dunes, shingle, brackish ponds, grazing marsh and maritime grasslands.

Strategy Group 2002). This document identified sites used by Brent Geese and rated them on a three-point scale of importance ('major', 'high' or 'low to moderate' importance). Subsequently, many sites were designated as SINC. Background on Brent Geese and importance of *Zostera* in the Solent is given by Tubbs (1999).

The 2002 Strategy drew up boundaries of known and potential Brent Goose sites for survey purposes using Ordnance Survey mapping and aerial photography; each site being referred to by a code letter and number. It is important to note that where a SINC has been designated as a result of the 2002 Strategy that its boundaries do not necessarily reflect the whole area of each site used by Brent Geese because information on the spatial use of sites by the geese was not collected during the surveys.

Solent Waders and Brent Goose Strategy 2010

An updated study was carried out during 2006-2009, which also covered roosting sites for waders. This has been published as the Solent Waders and Brent Goose Strategy 2010 (SWBGS) (King 2010). The fundamental aim of the Strategy is to help reduce conflict between needs of wintering waders and human pressures by promoting an integrated approach to land use and management. The aims of the study were not only to identify important feeding sites for Brent Geese and roosting sites for waders, but also to characterise the features of these sites in order to identify potential areas for habitat creation. The study also sought to identify sites vulnerable to sea level rise and explore the effects of development pressure and significant changes in coastal management on the current resource (King 2010).

The 2010 Strategy incorporated the data from the 2002 Strategy and largely uses the same site boundaries and numbering system to refer to sites. Sites have now been classified separately for Brent Geese and waders, using the following categories:

- Important
- Uncertain
- No recorded use

The 'important' category applies to all sites identified in the Strategy as being *currently used* by waders and/or Brent Geese as they are '*all considered to form part of the ecological network of sites used by birds*' (King 2010). The 'uncertain' category is used for sites where there was insufficient survey data or regularity of survey visits to assess whether a site was important or not. The 'no recorded use' category is used for sites where regular surveys had been carried out but geese were not recorded. Therefore, it follows that even important sites may not necessarily hold large numbers of Brent Geese or waders, only that they support regular numbers and contribute to the total habitat resource. Some sites classified as 'uncertain' may support numbers of Brent Geese or waders, but many are likely to be sites that have never supported waterfowl. This is because many were not regularly checked by birdwatchers or systematically surveyed and so would not have had enough negative counts reported to move them into the 'no recorded use' category.

Strategy sites lying close to the proposed development are shown in Table 1 and on the Strategy Current Use Map 15 (see extract, **Appendix III.II**).

Table 1: Sites in vicinity of Yachthaven identified by the Solent Waders and Brent Goose Strategy 2010

Site code	Description of site	Brent Goose classification	Waders classification
H51	Western main field of Verner Common and farmland to west, as far as the main island road. Largely short-term ley (sown) grassland, used for horses.	Important	Uncertain
H55	Grass field to west of Yachthaven Coastal Meadow and beyond the caravan park.	[not included]	Uncertain
H56	Yachthaven Coastal Meadow and three large horse-grazed fields to the north, separated by hedgerows	Uncertain	Uncertain
H57	Series of about six large fields to east and north of Yachthaven, beyond the adjacent mobile home park. Largely horse-grazed, improved to semi-improved pasture.	Uncertain	Uncertain
H58C	Semi-improved pasture, part of HCC Gutner nature reserve; grazed by cattle.	Uncertain	Uncertain
H58D	Small areas of grassland divided by hedgerows with trees. Mostly improved, horse-grazed.	[not included]	Uncertain
H78	Saltmarsh areas on Gutner peninsula.	Important	Important
H79A	Saltmarsh areas on the eastern end of Verner Common.	Important	Important
H79B	Area of scrub and trees at extreme eastern end of Verner Common.	Uncertain	Uncertain
H89	Eastern main field on Verner Common.	Uncertain	Uncertain

3.6 Review of Human Disturbance and Coastal Development Issues

Disturbance Issues from Human Activity

The issues that relate to disturbance of birds are complex and initially raised in Stillman *et al.* (2009) but generally all have energetic consequences on wintering birds and include: direct flushing and interruption to feeding sites; disturbance to roost sites causing birds to fly greater distances to find alternative roost sites; and re-distribution of birds from otherwise suitable feeding and roosting locations to avoid potential disturbance (such as avoidance of footpaths).

Liley *et al.* (2010) conducted a study of the impact of disturbance events upon waders and wildfowl of the Solent over the period December 2009 to February 2010. Their report included observations of 4,064 disturbance events from the shoreline including pedestrians walking (28% of events), dog-walkers (33%) and joggers (7%), as well as water-based disturbance events from boats (4% of all events recorded) such as rowing boats, small and large sailing boats. The report notes the following points:

1. Dog-walking was the most frequently recorded activity, accounting for some 47% of instances of major flights within the study, from observations in both shoreline and intertidal zones. However, dogs on leads (8%), accounted for a lower percentage of disturbance responses compared to those off the lead (19%).
2. Although the sample size was very small (25 events and 1% total sample), over 70% rowing boat events resulted in a major flight disturbance of waders.

However, 10-20% of disturbance events from boats (small or large) with an outboard motor resulted in major flight disturbance and less than 10% of sailing boat events resulted in a major flight disturbance.

3. Proportion of events resulting in displacement of birds declined with distance, such that beyond 100m few, if any, events resulted in birds being displaced, i.e. taking the average of all species 1 in 20 events at 100m resulted in a major flight.

4. Multivariate analysis indicates that birds respond to water-based activities at greater distances and tend to be displaced further than shore or intertidal activities.

Coastal Development Issues

The Solent Waders and Brent Goose Strategy (SWBGS) (see above) includes some statistical analysis on disturbance and 'coastal squeeze' effects on Brent Goose and waterfowl. Statistical analysis of built areas within zones of less than 50m, between 50-500m and 500 to 2,500m all impact the suitability of a site for waders (p16, HWT 2010). Although for some reason Brent Geese appear to be impacted by middle distance built-up areas (between 50 and 500m) only, possibly affecting the flight paths and sight-lines of Geese. Uneven, high ground sites are less suitable for waders and Brent Geese alike, than flat low lying sites. Also, coastal grassland, then agriculture was significantly more suitable than all other habitat types.

Damage to Zostera Beds from Boats

Since Brent Geese are partly dependent on *Zostera* beds as a food source in winter, any impacts to *Zostera* may indirectly affect populations. The main potential impact from human activity is through recreation use of small boats. Boats have been known to damage seagrass through the following impacts (see **Appendix VI**)⁵:

1. Vessel Grounding - uproot plants, damaging the bed in localised areas.
2. Propeller wash - Scouring of the seabed and disturbance from wash can damage, dislodge and smother plants and can lead to visible scarring of the seagrass bed where there is heavy boat traffic.
3. Anchoring - frequently used anchorages can often suffer denuding and scarring.
4. Mooring - fixed moorings within Eelgrass beds can cause scarring and scouring and a reduction in the levels of marine life supported by the sediment as the chain drags on the seabed at low tide. Where there are lots of moorings it can cause the bed to fragment, which is evident in parts of Chichester Harbour.
5. Nutrients - increased nutrient loading from sewage and grey water discharges can disrupt the delicate balance of coastal ecosystems. This can encourage the growth of fast growing algae which can smother or out-compete the seagrass.
6. Pollutants - some antifouling paints contain herbicides (although many have now been banned) and other toxic constituents, which can reduce plant growth.

3.7 Natural Area

Yachthaven is located within the South Coast Plain and Hampshire Lowlands Natural Area, which is split between the generally open, often featureless landscape of the coastal plain and the more varied landscape in the west. The Natural Area contains a number of nature conservation features, including the

⁵ The Green Blue (2010) *Seagrass, Boating Fact Sheet No.15*. Published by The Green Blue, Southampton, Hampshire.

undeveloped shoreline of Chichester Harbour, with picturesque harbour side settlements typically clustered around small boatyards, while numerous moorings and marinas dot the harbour.

3.8 Site Setting and General Features

Land-use History of the Site

Historically the site appears to have consisted of open field with a small pond on the coastline, as shown on early edition OS Maps 1870 to 1932 (www.old-maps.co.uk), with development activities first appearing on 1938-1942 OS Maps. By 1953 the site is called Yachthaven with a landing stage illustrated in the estuary in the same location as the proposed pontoon, slipways marked next to the former pond and an expansion of the associated buildings. The pond is marked on 1972 OS maps, but is no longer present on site. At the time of the initial surveys the eastern side of the site consisted of bare earth, having had been recently heavily disturbed from scrub removal activities (likely to have been largely bramble and gorse). Ordnance Survey maps suggest that the area proposed for development was formerly an active boatyard (late 1930s to 1970s).

General Description and Topography of the Site

At the time of the October 2010 survey the site supported ten (largely derelict) buildings in various states of repair. A small boatyard in current use is located on the shore of the creek and has an associated wet dock and wooden structured workshop (separate but directly adjacent the allocated development). A further hard standing area is situated around this active boatyard. Both the existing and derelict boatyards may have been infilled to the present ground level, which is approximately 1.5 metres above the high tide mark, although there is no evidence of significant reclamation over the last 150 years, from First Edition OS Maps.

The proposed pontoon (see **Figure 1**) extends into a creek that forms part of Chichester Harbour estuary, supporting estuarine mudflats. The intertidal creek is between 75 and 150 metres in width at the point of the southern edge of the site to the adjacent northern creek shoreline to Verner Common (**Photo 1**). Below the mean high tide mark the sediments of the intertidal creek show a narrow width of gravel substrates at the higher range of the tidal level, but with a significant amount of exposed mud sediments over much of the tidal creek. The creek adjacent to the site is dominated by upper shore seaweeds of the genus *Fucus* (bladder-wracks). The width of the creek narrows to the east to an abrupt end and widens significantly to the east, towards the central intertidal area of the main harbour. At the head of the creek is a strip of vegetation between the shoreline and seawall, comprising saltmarsh plant communities west of the proposed pontoon.

The proposed development site is bounded to the west by an old hedgerow and to the east by a line of scrub with some young trees. The western part of the site ownership consists of unimproved coastal grassland, partly invaded by bramble and thorn scrub (Yachthaven Coastal Meadow). This is partly bounded by hedgerows and mature trees.

4.0 SURVEY METHODOLOGY

4.1 Biological Records Search

A desktop study was carried out to obtain existing biological data, including species records, data on protected sites and habitats and other background information. Data were obtained both for the site and surrounding areas within the zone of potential influence of the development, and where useful for evaluation purposes, outside this zone (e.g. Chichester Harbour).

- A data request was made through the Hampshire Biodiversity Information Centre (HBIC) to obtain locations of Sites of Importance for Nature Conservation (SINCs), details of Solent Waders & Brent Goose Strategy sites, records of protected species and details of other features of nature conservation interest within 1km of the site (see **Appendix III**).
- Wetlands Birds Survey (WeBS) data for Chichester Harbour was purchased from the British Trust for Ornithology (BTO). The data obtained comprises core counts (counts of high tide waterfowl roosts) and low tide counts (counts of waterfowl using intertidal areas at low tide) of the whole estuary and for the relevant count sectors covering the Yachthaven area. Further details are given in **Appendix IV**.

Additional information was obtained through the county Flora, the Solent Waders and Brent Goose Strategy document, other reports and published materials, web sites of national and local conservation organisations and through direct liaison with the Chichester Harbour Conservancy Ecologist and Natural England.

4.2 Literature Review of Wader and Brent Goose Projects within the Solent

A literature review of Brent Goose and waterfowl studies in the Solent was conducted, particularly in relation to disturbance issues associated with the proposed development, which is highlighted above in the **Section 3.6**.

4.3 Ecological Assessment, Evaluation and Zone of Influence

Ecological Assessment and Evaluation

The ecological assessment of the site follows guidelines based on guidance for habitat evaluation produced by the Institute of Ecology and Environmental Management (IEEM 2006)⁶. The following list summarises the geographical framework by which an ecological feature is evaluated: International; National; Regional; County or Metropolitan; District or Borough; Local, Parish or Neighbourhood; within zone of influence only or site. Unless stated otherwise it can be assumed that an ecological feature has been evaluated within the zone of influence only. The value of a feature is also assessed by: Designated Sites or Features; Biodiversity; Potential Value; Secondary or Supporting Value; Social Value and Economic Value; Legal Issues; Multifunctional Features. See IEEM guidelines (2006⁶) for more information.

Zone of Influence

⁶ IEEM (Institute of Ecology and Environmental Management). (2006). Guidelines for Ecological Impact Assessments in the UK - Approved version 26 June 2006

The zone of influence of the development associated with this application is considered to be within 1km into the estuary, which includes the local creek extending to Gutner Peninsula (about 750m from the development) and peripheral parts of Verner Common, i.e. with respect to potential disturbance from increased boat traffic, from boats using the new pontoon. Boat traffic will potentially affect both feeding waterfowl using intertidal habitats (mud, saltmarsh), or grasslands at the edge of Verner Common (e.g. Brent Geese) as well as roosting birds on land. The zone of influence inland is likely to be smaller, within 500m of the site, i.e. with respect to potential disturbance from site construction and increased terrestrial activities such as dog-walking.

The zone of influence will vary between ecological features. For example the zone of influence upon high-tide feeding roosts will cover the extent of boat traffic movement along Yachthaven creek (i.e. about 750m), however the zone of influence upon low-tide feeding areas will be restricted to those areas adjacent the proposed development and may only cover an area extending 100 to 200m from the application site into Yachthaven creek.

4.4 Surveys

4.4.1 Habitat and Vegetation

Survey Details and Limitations

A preliminary habitat and botanical survey was carried out during the initial site scoping visit on 19 October 2010 by G. Matthes. Further, more detailed recording was carried out from 16 February to March 2011 by two experience vegetation surveyors (for details see **Appendix V** and **Figure 2**). These surveys were undertaken outside the optimum period for surveying grassland and hedgerow habitats (usually May to August), but provided adequate information to evaluate the habitats and vegetation types present on the site and assess any potential impacts.

The surveys included the seaweed community, particularly in the area potentially affected by the pontoon and slipway construction. It was not possible to carry out a survey of Eelgrass (*Zostera* spp.) in intertidal areas in the vicinity of the pontoon, because it is likely that this species would be at its lowest abundance in late winter, through die-back and grazing by overwintering Brent Geese (none was visible during site visits). However, past survey data is available for *Zostera*. An area of saltmarsh developed on the intertidal creek adjacent to the western part of the Yachthaven Coastal Meadow (not affected by the development or enhancement proposals) was also surveyed. Other adjacent or nearby areas of grassland were also checked to provide background information on Waders and Brent Goose Strategy sites (see Table 1 above).

Future Surveys

Additional botanical surveys of the site and adjacent areas will take place in summer and autumn 2011. These will enable more comprehensive botanical data to be obtained for Yachthaven Coastal Meadow and the intertidal habitats within the adjacent SPA/Ramsar/SAC. These surveys will then be used to help corroborate past survey data and inform future mitigation work and a management planning for the proposed Yachthaven Coastal Meadow Nature Reserve.

Survey Methods

All parts of the site were inspected on foot where accessible. Notes were made on the species composition, structure and any apparent management of the vegetation. Vegetation types were identified to National Vegetation Classification (NVC) community or sub-community level where possible (Rodwell 1991-2000) and mapped by reference to Google Earth imagery. A GPS device was used to record locations of noteworthy species or features. Species lists were recorded and the relative abundance of each species estimated, where appropriate, using the DAFOR scale (see **Appendix V** for further details).

4.4.2 Winter Birds Survey

Tidal cycle counts were undertaken on three dates between 19 October and 4 March 2011 and an additional two low tide counts were carried out during an exceptionally low tide on 21 March 2011. The tidal cycle counts each consisted of six separate counts at hourly intervals on a high to low tide. These counts on 21 March were carried out during late afternoon, approximately 2.5 hours and 0.5 hours prior to the time of full low tide. On all counts birds were counted within the low tide compartments shown in **Figure 3**.

High tide counts were also carried out for Verner Common saltmarsh and Gutner Point (at least those parts visible from Yachthaven) during the tidal cycle counts. The locations of these areas are shown in **Figure 4**. Gutner Peninsula and Verner Common are both important regular high tide roosting areas for significant numbers of wildfowl and waders. During the February and March tidal cycle count surveys, specific high tide counts were carried out of both the Gutner and Verner common saltmarsh areas.

4.4.3 Bird Disturbance Investigative Survey

During the high tide period on the 8th March 2011 an investigative survey was carried out incorporating the use of a six metre rigid hull inflatable boat (RIB, as shown in **(Photo 2)**, with two surveyors to view Gutner and Verner saltmarsh either side of the craft, while navigating the channel leading to Yachthaven from the main Chichester Harbour channel. Four passes were made of the Yachthaven channel during the period. It is ascertained that watercraft would be able to navigate into the Yachthaven channel during the period of two and half hours either side of high tide, based upon standard neap tides (Richard Blake, Hayling Yacht company pers. comm.). **Figure 4** shows the route taken during this investigative survey. The first pass was undertaken at approximately 13:10 with the last pass at approximately 14:00. A speed of 8 knots which is the harbour speed limit was adhered to on three of the four passes. Although the speed limit within the harbour is recommended at 8 knots on the fourth pass the speed was increased to 20 knots to trial any possible effects of disturbance from significant wash against the roosting areas from any high speeding craft through the channel and increased noise from the RIB engine.

The navigational channel is physically marked by navigational signs marking the central Yachthaven channel passing through the area between the two high tide roosting areas. Distances from the central channel area to both the shoreline of Gutner Verner and high-tide roosts were estimated at being no less than 60 metres at any given point along the channel to a maximum of 120 metres.

General behaviour of birds present was noted during each boat pass, including whether birds were alerted to the boat movements. Responses from birds such as alertness, e.g. raising their heads and walking away from their resting/roosting areas and whether this was preceded by short or long flights or if no response was made.

First pass of the roosting areas was carried out at slow speed and several pauses were made to allow for counts of the roosting birds present and distances from the Yachthaven navigational channel were estimated.

4.4.4 Reptiles

A reptile survey was not possible due to time constraints. However, it was noted in the HBIC survey of the adjacent SINC (**Appendix III**) that common lizard are present on site and the current user on site has noted the presence of lizards. The key habitats likely to support reptiles are areas of coastal grassland and scrub that remains undisturbed at the time of this survey.

Reptile surveys should be conducted between April and September and it is recommended that five to seven survey visits are made during this period, by an experienced herpetologist, with use of refugia (sheets of corrugated tin and felt) to assist survey effort as described by Froglife (1999⁷). Following the reptile survey an appropriate mitigation plan will need to be agreed with the LPA.

It is important that no more ground disturbance to the site takes place otherwise the operators and their employees may be in breach of Wildlife legislation.

4.4.5 Bats

At the time of the October 2010 survey the site supported ten (largely derelict) buildings in various states of repair. Most of the buildings (both wall and roof) consisted of a single layer of either asbestos or corrugate metal sheets. Two buildings consisted single-story brick walls, with concrete roofs, several large openings, but with no bat roosting potential. However, one shed-type building, approximately 3m x 7m, had a double-skin roof (asbestos exterior with a wood board interior **Photo 3**), that provided a potential cavity in which bats could roost. This was the only building considered to support potential for roosting bats.

It was not possible to re-survey the building shown in **Photos 3** for bats due to vandalism conducted on site between October and November 2010. It is understood (Mr J. Laundon pers. comm.) that a lorry, fly tipping dumped a large load up against this shed, making it collapse (see **Photos 4**). The HBIC report (**Appendix III.I**) does support a record of 227 Soprano Pipistrelles *Pipistrellus pygmaeus*, from 2004, 300m west of the site, along the foreshore of the Creek. This is likely to be the record of maternity roost.

⁷ Froglife (1999) Reptile survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation, Froglife Advice Sheet 10, Froglife, Halesworth

5.0 ECOLOGICAL ASSESSMENT AND EVALUATION

5.1 Habitats and Vegetation

The main habitats/vegetation types of the site are shown on the vegetation map (**Figure 2**), drawn up on the basis of the present survey and based on Google Earth imagery, dated April 2007. Areas and specific features are identified on the map by labelled target notes, which are referred to in the text below. A species list from the present survey is given in **Appendix V**.

5.1.1 Vegetation of Boatyard areas, Disturbed and Made-up Ground

The main part of the development site to the east of the existing boatyard (**target note 1**, see **Photo 5**) consists of derelict and demolished buildings within an area of open, disturbed ground. Parts of the area had previously become scrubbed over with bramble *Rubus fruticosus* agg and some Common Gorse *Ulex europaeus* (visible on the Google Earth aerial) but all of this has now been cleared. This scrub was associated with somewhat nutrient-enriched herbaceous vegetation with frequent Nettle *Urtica dioica*, Wild Teasel *Dipsacus fullonum*, Willowherb species *Epilobium* spp. and other common plants, which were beginning to grow up again during the surveys in early 2011. A single plant of Fiddle Dock *Rumex pulcher* was found during the survey in the north-western corner of this part of the site (this is a local species over much of Hampshire, but locally frequent in Hayling Island and some other coastal areas). The southern half of the eastern area (**target note 2**) had also been cleared of scrub. This supports similar vegetation, but with a greater variety of grasses and herbs, including species such as Ragwort *Senecio jacobaea*, Yarrow *Achillea millefolium* and Creeping Cinquefoil *Potentilla reptans*. The northern edge of the eastern part of the site also supports some shade-tolerant woodland herb species, including sedges *Carex* spp. Other species noted from the eastern side include Hard Rush *Juncus inflexus* and Fool's-water-cress *Apium nodiflorum* in damp spots. Hard Rush is also locally frequent along the edges of an otherwise unvegetated ditch (**target note 3**), which partly divides the eastern area. This general area of disturbed ground south of the ditch and east of the Yacht Club will form part of Yachthaven Conservation Grassland.

The existing site access track is largely unvegetated. Areas of hard-standing and disturbed ground on both sides of the existing boatyard buildings (**target note 4**) are dominated by mosses with various smaller grasses and herbs. These largely comprise very common and widespread species of bare or disturbed ground and concrete, with the exception of Early Meadow-grass *Poa infirma*, a formerly rare species that has now spread widely in southern Britain and is particularly characteristic of disturbed or summer-parched ground in coastal areas. This is frequent around the boatyard buildings. Another species of dry ground present on the site is Biting Stonecrop *Sedum acre*, but there are no discernible areas of true acid grassland present in the development area.

The coastal track (**target note 5**, see **Photo 6**) consists of artificially made up ground, composed of broken-up asphalt, concrete and brick rubble. The surface is largely of asphalt and supports a patchy cover of mosses and short grassland with some annual and perennial herbs. Early Meadow-grass *Poa infirma* also occurs along here and there is a patch of Viper's-bugloss *Echium vulgare*. The habitat has potential to support coastal species of clovers (*Trifolium*) and other later-flowering annuals.

The moss-rich vegetation of the heavily disturbed areas and hard-standing is not covered by the National Vegetation Classification (NVC), but the scrub-clearance areas and disturbed grassland are likely to develop into either **MG6a** *Lolium perenne-Cynosurus cristatus* grassland, typical sub-community (if grazed or mown) or **MG1b** *Arrhenatherum elatius* grassland, *Urtica dioica* sub-community (if left to grow up). Both these are very common and widespread types of grassland vegetation.

5.1.2 Grassland

The western part of the site, referred to here as Yachthaven Coastal Meadow, predominantly consists of unimproved, moderately herb rich grassland (**target note 6**, see **Photo 7**), which is mainly well grazed by rabbits, though a significant proportion of the area has become scrubbed over (see below). A strip along the southern coastal edge has been tipped with brick rubble in the past, and due to enrichment has developed into more species poor rough grassland and bramble scrub (**target note 7**). The eastern part of the meadow area lying outside the SINC (**target note 8**) has been disturbed in the past from the boatyard activities and some recent scrub clearance. This also supports species poor enriched grassland.

The meadow lies over clay or other impeded soils with poor drainage in places, resulting in winter waterlogging or flooding (see **Photo 8**). There is narrow ditch running through at the eastern end (**target note 9**), which widens at the western end into a small saline depression (**target note 10**, see **Photo 9**). The mixture of different substrates and variation in drainage has resulted in high structural diversity of vegetation types.

The grassland in the main part of the meadow is mainly dominated by Yorkshire-fog *Holcus lanatus*, Common Bent *Agrostis capillaris* and Creeping Bent *Agrostis stolonifera* but is likely to support a range of other typical meadow grasses. Velvet Bent *A. canina*, a more local species of marshy habitats has been recorded by the HBIC survey. Typical but uncommon wetland mosses occur, including *Bryum pseudotriquetrum* and *Fissidens adianthoides*. Other herbs include wetland and marsh species such as Marsh Thistle *Cirsium palustre*, Common Fleabane *Pulicaria dysenterica* and Greater Bird's-foot-trefoil *Lotus pedunculatus*, together with more typical pasture species such as Common Knapweed *Centaurea nigra* and Oxeye Daisy *Leucanthemum vulgare*. Four species have been recorded that are considered to be strongly associated with unimproved neutral to acid meadows: Dyer's Greenweed *Genista tinctoria* (recorded by the HBIC survey, see below), Corky-fruited Water Dropwort *Oenanthe pimpinelloides*, Hoary Ragwort *Senecio erucifolius* (HBIC) and Pepper-saxifrage *Silaum silaus*. Of these, *Genista tinctoria* and *Silaum silaus* are quite local in Hampshire, but occur in several similar localities around Hayling Island; *Oenanthe pimpinelloides* is locally frequent in coastal grasslands, unimproved road verges and meadows throughout Hampshire; *Senecio erucifolius* is very common throughout Hampshire particularly in rough grassland, abandoned arable land and road verges.

Areas of rough species poor grassland are probably dominated by Common Couch *Elytrigia repens*, with nettle, thistles (*Cirsium* spp.) and teasel in the more enriched and disturbed areas.

The creek edges and damp saline areas support some saline vegetation with species such as Saltmarsh Rush *Juncus gerardii*, small patches of glasswort *Salicornia* sp. and the saltmarsh moss *Drepanocladus aduncus*.

Under the NVC it is likely that most of the grassland within the meadow will be referable to one or more sub-communities of MG6. Species rich areas may be classified as **MG6b** *Lolium perenne-Cynosurus cristatus* grassland, *Anthoxanthum odoratum* sub-community, but **MG5** *Cynosurus cristatus-Centaurea nigra* grassland may occur in less strongly grazed and more herb rich areas. Saline areas are likely to support **SM16b** *Festuca rubra* saltmarsh, *Juncus gerardii* sub-community, a typical grassland community of coastal, inundated, grazed grassland. The rough grassland along the coastal edge will consist of mixtures of **MG6** and **MG1a** *Arrhenatherum elatius* grassland, *Festuca rubra* sub-community, but other 'coarse' grassland communities may occur. The bramble scrub within this area can be classified as **W24a** *Rubus fruticosus* agg.-*Holcus lanatus* underscrub, *Cirsium arvense*-*C. vulgare* sub-community. A more detailed NVC assessment will be possible following planned summer surveys.

5.1.3 Hedgerows and Scrub

To the west side of the proposed development area and existing boatyard access track there is a semi-natural, species rich hedgerow (**target note 11**, see **Photo 10**) following a low bank and ditch feature. The hedge is dominated by Pedunculate Oak, with senescent Elm *Ulmus procera* (affected by Dutch Elm disease), Hawthorn *Crataegus monogyna*, roses *Rosa* spp., Elder *Sambucus nigra* and an old coppiced Field Maple at the northern end. The hedge is strongly shading, so is dominated by Ivy *Hedera helix* below, with some woodland shade-tolerant herbs including Butcher's-broom *Ruscus aculeatus* and Stinking Iris *Iris foetidissima*. It continues along part of the boundary of the site on the west side of the boatyard area (**target note 12**), where Grey Willow *Salix cinerea* and Holly *Ilex aquifolium* are also present. This hedge supports at least seven ancient woodland indicator plants (species usually associated with woodlands more than 400 years old) (see **Appendix V**), indicating that this is an old hedgerow. One other, Bluebell *Hyacinthoides non-scripta*, was seen nearby within the scrubbed-over corner of the meadow and may also be present in the hedge.

East of the development site there is a thin belt of shrubs and immature trees (**target note 13**), about 3-4m wide, but widening out at the southern end into a patch of bramble scrub. This is composed of a mixture of native and non-native species, including poplar *Populus* sp and supports some woodland herbs, but there is no indication that this is an old hedge.

The northern edge of the Yachthaven Coastal Meadow is bordered by a recently planted hawthorn hedge with a few mature Pedunculate Oak *Quercus robur* standards. The scrub which has invaded the meadow is predominantly composed of bramble and hawthorn with smaller clumps of Blackthorn *Prunus spinosa*, occasional oak saplings, elder and other shrubs. Next to the boatyard there is a clump of Buddleia *Buddleia davidii* and some small Grey Willow *Salix cinerea* trees occur on either side of the existing boatyard. The hedgerows and scrub support several typical and a few uncommon species of lichens, associated with slightly but not strongly nutrient enriched environments. The isolated, older hawthorn trees within the meadow, which are well exposed to sunlight, support the greatest cover

of lichen species. Of particular note is *Ramalina fraxinea*, a local species in Hampshire, where it is mainly confined to coastal areas (Brewis *et al.* 1996).

Under the NVC, the old hedgerows dominated by oak, with a woodland herb layer are referable to **W10c** *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland, *Hedera helix* sub-community. This is very typical of coastal parts of Hampshire and in unmanaged hedgerows and woodlands generally. The developing thorn scrub in other parts of the site is dominated by hawthorn and referable to **W21a** *Crataegus monogyna-Hedera helix* scrub, *Hedera helix-Urtica dioica* sub-community.

5.1.4 Intertidal Habitats

The area of saltmarsh adjacent to the western part of the meadow (**target note 14**, see **Photo 11**) appears to be a particularly good example of this type of habitat, supporting a mosaic of different saltmarsh vegetation types and most of the typical associated species. Although parts of the area are dominated by Common Cord-grass *Spartina anglica*, there are areas of more open, species rich vegetation with Sea-Lavender *Limonium* sp. (one or two species may potentially occur), Red Fescue *Festuca rubra*, Thrift *Armeria maritima* and probably a variety of other maritime grasses and herbaceous species. The upper edge of the area is dominated by Sea Couch *Elytrigia atherica* and a small side creek supports a few square metres of annual Glasswort *Salicornia* vegetation. There are a few clumps of Sea Rush *Juncus maritimus* along the upper edge of the saltmarsh.

The infilled coastal bank to the east of the saltmarsh (see **Photo 12**) supports frequent plants of Golden-samphire *Inula crithmoides*. These grow along the base or up to about half way up the bank, at or just above the mean high water mark. A few plants are also present just east of the boatyard.

The saltmarsh vegetation is referable to a number of NVC types, but the main ones discernible here are **SM6** *Spartina anglica* saltmarsh, **SM8** Annual *Salicornia* saltmarsh, **SM13c** *Puccinellia maritima* saltmarsh, *Limonium vulgare-Armeria maritima* sub-community and **SM24** *Elymus pycnanthus* [*Elytrigia atherica*] saltmarsh. All except SM13c are widespread and common types in estuaries of the Solent. The species rich type of saltmarsh, SM13c, is widespread but more local in distribution.

Other parts of the adjacent creek are entirely dominated by larger seaweeds, except for relatively narrow strips of bare mud each side of the creek channel. Spiral Wrack *Fucus spiralis* is strongly dominant throughout, but a few plants of Horned Wrack *F. ceranoides* and Knotted Wrack *Ascophyllum nodosum* are present in the area of the proposed pontoon (**target note 15**, see **Photos 13** and **14**). Sea Lettuce *Ulva lactuca* is probably occasional throughout the area. All these species are common in the Solent and around British coasts generally. To the east of the pontoon area there are some more extensive areas of bare mud, which are likely to support beds of Eelgrass *Zostera* species in late summer.

5.1.5 HBIC and HWT Survey Data

A survey of the Yachthaven Coastal Meadow was carried out by HBIC in September 2002 (Appendix II). The survey recorded a total of 64 plant species including four 'old meadow' indicator species, as noted above. The results are broadly similar to the present survey. They estimated areas of 0.45 ha of scrub, 0.3 ha of neutral grassland (MG1, MG5 and MG6), 0.3 ha of saltmarsh (SM16, SM24)

and 0.15 ha of tall herb and fen. The saltmarsh is presumably the area within the meadow associated with the saline depression and may include some of the rough grass on the coastal edge.

The map of eelgrass (*Zostera*) beds (**Appendix III**) compiled by Hampshire and Isle of Wight Wildlife Trust (Dale *et al.* 2010) shows the results of surveys in Chichester Harbour from 1995-2005 and 2006-2008. The exact years of survey are not known but the distribution appears to have contracted when the more recent survey was carried out. The map indicates that *Zostera* grows in parts of the creek to the east of the proposed pontoon area (in lower parts of the creek) and not within the higher-level areas which are densely vegetated by larger seaweeds. This would be expected from the known habitat preferences and ecology of the species.

5.1.6 Summary and Evaluation of Important Vegetation Features

The vegetation survey has identified the following features of ecological interest within the potential zone of influence. These features have been evaluated below individually within the context of the zone of influence. These are listed in approximate decreasing order of importance, irrespective of size or extent:

Eelgrass (*Zostera*) beds - Habitats Directive Annex I habitat, and a primary selection feature of Solent Maritime SAC. The Eelgrass beds are considered of National value.

Mixed saltmarsh with Sea-lavender (*Limonium*) - conforms to 'Atlantic Salt Meadows' Annex I habitat, and a primary selection feature of Solent Maritime SAC. This feature is considered of County value.

Annual Glasswort (*Salicornia*) beds - Annex I habitat, but not a primary selection feature of the SAC and is considered of Borough to County value.

Cord-grass (*Spartina*) saltmarsh - Annex I habitat, and a primary selection feature of Solent Maritime SAC (but only species rich areas within Southampton Water are of prime importance), considered of Borough to County value.

Unimproved, species rich coastal grassland - local and declining habitat, designated as SINC. This feature is considered of Borough to County value.

Old hedgerows with mature oak trees - also included within the SINC, will potentially qualify as an Important Hedgerow under the Hedgerows Regulation 1997 and a priority BAP habitat, of Parish value.

Colony of Golden-samphire *Inula crithmoides* - a nationally scarce plant species though frequent on Hayling Island, of Parish value.

Coastal scrub with local species of epiphytic lichens - of Parish value

5.2 Birds

This section draws together the results of bird surveys carried out by GPM Ecology during October 2010 to March 2011 and summarises other available data obtained from the desk study (see **Appendices** and **Reference** list).

The section also includes some discussion of disturbance and related issues with respect to waders and Brent Geese from a literature review undertaken. Information was obtained from the Solent Forum⁸ and web sites of various other local and national organisations. Some background information has already been given in Section 2.0.

⁸ www.solentforum.org/forum/sub_groups/Nature_Conservation_Group/

5.2.1 WeBS Core Counts

WeBS core count (high tide) data is used as the basis for assessing and designating sites in the UK. In recent years low tide data (see below) has sometimes been used. The Chichester Harbour SPA was based on the 5-year WeBS core count dataset 1991/92 to 1995/96, which recorded an average peak annual count of just over 17,000 Brent Geese, equivalent to more than 5% of the world population of this race. A level of 1% of the population qualifies for international importance. The SPA also supports internationally important wintering populations of Black-tailed Godwit *Limosa limosa islandica*, Dunlin *Calidris alpina alpina*, Grey Plover *Pluvialis squatarola*, Redshank *Tringa totanus* and Ringed Plover *Charadrius hiaticula*, and nationally important populations of Bar-tailed Godwit *Limosa lapponica* and Little Egret *Egretta garzetta*.

For the present study WeBS core count data was obtained for the more recent five-year period 2004/05 to 2008/09 both for the whole of Chichester Harbour and the local count sector (which incorporates Verner Common and Gutner Peninsula). Some of the data is summarised in **Appendix IV** and is compared for selected species (i.e. mainly those occurring in larger numbers in the local area) in **Table 2** below. The data indicate that the total Brent Goose population for the estuary now stands at below 10,000 birds (mean annual peak of 9,397), but is still 4.7 times the internationally significant level. Curlew numbers are equivalent to 99% of the national threshold. The estuary is no longer internationally important for Ringed Plover, Grey Plover or Redshank, whilst Ringed Plover numbers have dropped to just below the national importance threshold. The mean peak count for all waterfowl combined was 53,927 birds.

Table 2: Mean peak counts and population significance for selected waterfowl species using Chichester Harbour and the Yachthaven area

Based on WeBS core count summary data 2004/05 to 2008/09. Significance: N = nationally significant, I = nationally and internationally significant.

Species	Chichester Harbour	Significance	Verner / Gutner sector	Proportion (%)
Dark-bellied Brent Goose	9397	I	1296	13.8
Shelduck	654		70	10.7
Wigeon	2429		49	2.0
Teal	1383		103	7.4
Pintail	247		2	0.8
Red-breasted Merganser	198	N	35	17.7
Oystercatcher	1442		75	5.2
Ringed Plover	307		0	—
Golden Plover	2024		367	18.1
Grey Plover	1610	N	618	38.4
Lapwing	2493		387	15.5
Knot	1410		554	39.3
Dunlin	16,972	I	1744	10.3
Black-tailed Godwit	658	I	68	10.3
Bar-tailed Godwit	945	N	423	44.8

Curlew	1485		493	33.2
Greenshank	30	N	0	—
Redshank	1730	N	129	7.5

The data shows that the Verner and Gutner roost sector are used by a significant proportion of the Chichester Harbour wader population, with peak counts for four species (Grey Plover, Knot, Bar-tailed Godwit and Curlew) between 33 and 45% of the Harbour peak count. A further seven species, including Brent Geese had a peak count over 10% of the Harbour peak.

5.2.2 WeBS Low Tide Counts

Low tide surveys are undertaken for most UK estuaries once every five years. The most recent low tide count data available for Chichester Harbour was for 2005/06. Although a survey was undertaken during the 2010/11 winter the data had not been fully compiled and was not available from the BTO to include in this report.

Appendix IV presents the winter 2005/06 low tide counts for the whole of Chichester Harbour and the local count section, which takes in the creek adjacent to Yachthaven as far as the eastern side of Verner Common and across to the near the tip of Gutner Peninsula. **Table 3** summarises counts for the main species occurring in this section.

Table 3: Peak low tide counts winter 2005/06 for selected waterfowl species using Chichester Harbour and the Yachthaven area. Based on WeBS low tide count data 2005/06.

Species	Chichester Harbour	Verner / West Gutner	Proportion (%)
Dark-bellied Brent Goose	6510	6	<0.1
Shelduck	567	10	1.8
Wigeon	1665	100	6.0
Teal	669	104	15.5
Pintail	147	2	1.3
Red-breasted Merganser	191	0	—
Oystercatcher	772	21	2.7
Ringed Plover	81	3	3.7
Golden Plover	1910	0	—
Grey Plover	1227	4	3.2
Lapwing	2067	3	0.1
Knot	762	0	—
Dunlin	11265	10	<0.1
Black-tailed Godwit	472	15	3.2
Bar-tailed Godwit	463	0	—
Curlew	746	4	0.5
Greenshank	23	1	4.3
Redshank	751	21	2.8

Allowing for the fact that this data covers only a single winter (for certain species numbers can vary greatly from winter to winter) the data indicate that this sector is relatively poorly utilised at low tide by most of the key species in the estuary. The most significant proportional use is by Teal, for which the peak count of 104 corresponds to a peak count of 669 for the whole estuary (15.5%). Waders that

normally feed on open, muddy substrates, such as Ringed Plover, Dunlin, Grey Plover, Knot and Curlew occur at very low numbers in the section. The best represented species are Oystercatcher, Black-tailed Godwit and Redshank.

These low counts are likely to be a true reflection of the pattern of use of the site by waterfowl and are broadly similar to the numbers counted during our own surveys (described below). Our results suggest that this part of the estuary is largely dominated by larger seaweeds and is unsuitable for most wader species to feed.

5.2.3 Bird Surveys

The location of survey compartments can be described as follows:

Compartment A - Head of Yachthaven Creek

Compartment B - Estuary directly adjacent application site

Compartment C - Estuary south-east of application site about 150m from pontoon

Compartment D - Estuary south of application site adjacent Verner Common

Compartment E - Estuary south-east of application site adjacent Verner Common

Compartment F - Estuary at mouth of Yachthaven Creek

Low numbers of wildfowl and waders were generally observed during the waterfowl surveys (see **Tables 4 to 5** below). The compartment map drawn up for the survey is shown in **Figure 3**. Although there was little bird use of the creek observed in the close vicinity of the site, Brent geese and waders were observed foraging in small numbers in compartments E and F, although during the last visit numbers in Compartment C south-east of the application site did increase.

Key species during the survey using the tidal range were Brent Geese (max count 325 in F), Teal (max count 35 in F) and Redshank (max count 21 in F), although these species and other species, such as Curlew (max count 325 in E) and Oystercatcher (max count 11 in F) are likely to have had elevated counts if they were conducted during peak winter (November to January). Grey Plover was also recorded in low numbers in Compartment E. The SPA supports internationally important numbers of key species Brent Geese, Redshank and Grey Plover.

The initial tidal cycle count (**Table 4**) provided a snapshot of the use of the creek at a time of year when numbers of wintering birds are first arriving into the harbour and later counts (**Table 5 and 6**) provide a snapshot when they are beginning to disperse and leave the harbour for their breeding grounds. Thus surveys were not conducted during peak winter period, however the WeBS data (see **section 5.2.1** above for more information), indicate that numbers of wader and Brent Geese feeding in this part of Chichester are generally low compared to other parts of the Harbour.

The key compartments within the zone of influence of the development (Compartments B and D) had very low numbers of waders, with species observed (and maximum counts) over the three complete tidal-cycle visits included: Little Egret (1); Redshank (5), Teal (4), Oystercatcher (2) and Curlew (2).

Table 4: Tidal Cycle Count 19 October 2010

Start 10:20; high water 10:00, height 4.4m. Weather: 14°C clear, sunny, dry.

Compartment A

Species	Count 1	Count 2	Count 3	Count 4	Count 5	Count 6
Little Egret	1				1	1

Compartment B

Species	Count 1	Count 2	Count 3	Count 4	Count 5	Count 6
Little Egret		1	1			

Compartment C

Species	Count 1	Count 2	Count 3	Count 4	Count 5	Count 6
Little Egret		1			1	1
Redshank						10
Curlew						2

Compartment D

Species	Count 1	Count 2	Count 3	Count 4	Count 5	Count 6
Little Egret						

Compartment E

Species	Count 1	Count 2	Count 3	Count 4	Count 5	Count 6
Little Egret				3		
Brent Goose					45	56
Redshank				2	10	9
Curlew					2	2

Compartment F

Species	Count 1	Count 2	Count 3	Count 4	Count 5	Count 6
Little Egret						1
Brent Goose		320	325			18
Redshank	21	21	12	10	10	4
Curlew	5	5			2	4

Table 5: Tidal Cycle Count 17 February 2011

Start 10:45; high water 10:39, height 4.7m. Weather: clear but very cold, 5°C with slight NE wind, dry.

Compartment A

Species	Count 1	Count 2	Count 3	Count 4	Count 5	Count 6
Redshank		1				

Compartment B

Species	Count 1	Count 2	Count 3	Count 4	Count 5	Count 6
Redshank		1	5		1	

Compartment C

Species	Count 1	Count 2	Count 3	Count 4	Count 5	Count 6
Redshank	1		5	2		

Compartment D

Species	Count 1	Count 2	Count 3	Count 4	Count 5	Count 6
Teal				4	4	
Redshank				2	1	
Oystercatcher				2	1	

Compartment E

Species	Count 1	Count 2	Count 3	Count 4	Count 5	Count 6
Brent Goose						
Shelduck						
Teal	17	17	17	18		5
Oystercatcher				2	1	2
Redshank	3	3		2	3	
Curlew				1	1	2
Grey Plover			3	3	1	

Compartment F

Species	Count 1	Count 2	Count 3	Count 4	Count 5	Count 6
Brent Goose						21
Shelduck	22					
Teal	35	35	5	5	5	
Oystercatcher		3	5	5	6	2
Redshank	12	3	6	10	10	4
Curlew	3	4	4	3	4	3
Lapwing						

Table 6: Tidal Cycle Count 4 March 2011

Start 11:50; high water 11:31, height 4.6m. Weather: cold, 3°C, slight NNE wind increasing later in the day, dry, 5/8 cloud cover.

Compartment A

Species	Count 1	Count 2	Count 3	Count 4	Count 5	Count 6
Little Egret	1					

Compartment B

Species	Count 1	Count 2	Count 3	Count 4	Count 5	Count 6
Oystercatcher			1			
Redshank			1			

Compartment C

Species	Count 1	Count 2	Count 3	Count 4	Count 5	Count 6
Little Egret		1			1	1
Brent Goose	2	7	7	8	7	7
Teal			6			
Oystercatcher				1		
Redshank	1	2	2	8		
Curlew						

Compartment D

Species	Count 1	Count 2	Count 3	Count 4	Count 5	Count 6
Little Egret						
Curlew	1				2	
Redshank			1	1		

Compartment E

Species	Count 1	Count 2	Count 3	Count 4	Count 5	Count 6
Little Egret		1				
Oystercatcher			1	4	5	5
Redshank			4	4	4	5
Teal			5	5	8	12
Curlew					3	1
Grey Plover		3	3	3	2	1

Compartment F

Species	Count 1	Count 2	Count 3	Count 4	Count 5	Count 6
Little Egret	1	1				1
Brent Goose	5					22
Oystercatcher	6	7	9	11	3	
Redshank	4			3	3	
Curlew	5	5			2	4

Table 7: Low Tide Counts on 21 March 2011

Count 1 - 15:15 hrs

Species / Cpt	A	B	C	D	E	F	Total
Little Egret				1			1
Mallard						2	2
Oystercatcher						2	2
Curlew			1		1		2

Redshank						3	3
----------	--	--	--	--	--	---	---

Count 2 - 17:20 hrs

Species / Cpt	A	B	C	D	E	F	Total
Little Egret						1	1
Grey Plover						1	1
Curlew						1	1
Redshank			2		1	2	5

General walkover bird assessments found that the majority of the proposed development site supports habitat of low potential for waterfowl species to shelter or roost above the high tide mark. The character of the creek, i.e. small and narrow with a high foreshore, will make waterfowl unlikely to use the estuary at low-tide.

The coastal grassland and scrub to the west of the boatyard may potentially hold very few numbers of wildfowl and waders during extreme weather conditions. Presently, however the enclosed nature provided by the scrub, trees and hedgerows is likely to deter these birds from using the area (waterfowl prefer to roost in areas with open views to the skyline to be able to see potential predators).

The tidal-feeding area surveyed for waders and Brent Geese is evaluated as an ecological feature of Parish to Borough importance for feeding waders and Brent Geese, with Compartments E and F providing the key feeding areas. This is backed-up by the WeBS data (see **section 5.2.2**), which had very low counts for Verner / Gutner sector. However, the area within the zone of influence of the new mariner for feeding waterfowl (i.e. Compartments B and D which are opposite the foreshore and proposed pontoon) is considered of Parish value.

Table 8: High Tide Roost Counts, conducted during tidal-cycle count Gutner Peninsula

Species	October	February	March
Little Egret	3	-	-
Brent Goose	56	550	268
Shelduck		22	25
Teal	-	18	-
Oystercatcher		73	57
Redshank	23	-	-
Curlew	250	420	290
Black tailed godwit	-	14	-
Redshank	34	-	14
Lapwing	-	200	185

Verner Common Saltmarsh

Species	October	February	March
Little Egret	-	-	-
Brent Goose	355	234	45
Shelduck	-	-	3
Teal		35	17
Oystercatcher	-	14	7
Curlew	5	362	78
Black tailed godwit	-	-	3
Redshank	21	28	12
Greenshank	-	1	-
Lapwing	1	65	117
Grey Plover	-	3	3

The data above of high tide roosts collected during the survey demonstrate the importance of these roosts. As with the tidal cycle counts these surveys only provide a snapshot of the use of the roosts. As the surveys were not conducted during peak winter period and the WeBS data (see **section 5.2.1** above for more information), plus personal communication with Edward Rowsell, Harbour Conservancy Ecologist, indicate that numbers using the Verner Common and Gutner Peninsula are much higher than those recorded during the survey.

Table 9: Observations of wildfowl and waders on Verner Common during Tidal Cycle Counts

Species	Notes
Brent Goose	Regular small flocks feeding on eastern field. Maximum of 155 on 4 th March.
Teal	Small numbers feeding in shallow pools on eastern field maximum 10 on 19 th February.
Oystercatcher	1 seen feeding on 19 th October eastern field.
Lapwing	Feeding flocks. Up to 250 on 4 th March, 120 17 th February and 43 on 19 th October feeding on both eastern and western fields.
Curlew	Maximum of 34 on 4 th March otherwise small groups of up to 10 birds mostly seen to be feeding on eastern field.

Table 9 highlights additional observations made at the Verner Common roost opposite the development, although these observations were predominantly made on the eastern field, because visibility of western field was obscured by scrub.

Verner Common and Gutner Peninsula roosts are important to the integrity of the SPA an ecological feature of international importance, with the WeBS data demonstrating a wide variety of species using the roosts within Gutner and Verner sector and a significant large proportion of Grey Plover observed (38%), previously recorded in the Harbour at numbers of International importance. The high-tide roost on Verner Common opposite the proposed development site is considered a feature of National value within the zone of influence, but together with the Gutner Peninsula roost on account of their importance within the SPA they are considered in this report to be features International value.

5.2.4 Results of the Boat Disturbance Investigation

Details of the boat disturbance survey are described for each pass along the creek. Maximum counts of species on the high tide roosts are shown in **Table 10**.

Table 10: High Tide Roost Counts

Gutner Peninsula		
Species	Number	Activity
Brent Geese	234	Feeding & resting
Teal	8	Feeding & resting
Curlew	280	Roosting
Oystercatcher	56	Roosting
Redshank	26	Roosting
Verner Common		
Species	Number	Activity
Brent Goose	54	Feeding & resting

Curlew	25	Roosting
Redshank	20	Roosting
Grey Plover	31	Roosting
Dunlin	30	Roosting

Pass 1 - During the first pass navigating the Yachthaven channel south to north counts were carried out of roosting and resting birds on western Gutner and the Verner saltmarsh. A flock of Curlew gathered but spread over an approximately 70 metre stretch along the south western tip of Gutner saltmarsh, located some 10 metres within the *Spartina* from the shoreline (as shown in the film-clip highlighted at www.youtube.com/user/gpmecology). A flock of 56 Oystercatchers were gathered along the western Gutner shoreline and various smaller clustered groups of Redshank and Grey Plover were distributed within and around the main roosting Curlew flock. In addition at least 234 Brent Geese were scattered around the southern and western shorelines in various sized groups.

The saltmarsh on the Verner side of the channel held a smaller number of birds and included the same species, but in addition a small flock of Dunlin were roosting on the shoreline.

The first pass at 8 knots found no signs of increased alertness of birds towards the boat or its passengers. Three birds made short flights, possibly due to the presence of the RIB, but no major movements or flights of birds were noted.

Pass 2 - Heading back southwards out of the channel again generally no movement of birds was noted or alert attitudes observed from any species or particular flocks or individual birds.

Pass 3 - A closer route to the Verner common saltmarsh and Gutner Point was taken in order to assess the likely distance of 'non-tolerance' from the birds, to small boats able to access shallow waters. A distance of approximately 60 metres was taken from the main congregated roosting flocks of Dunlin, Grey Plover, Redshank and Brent Geese on the Verner shoreline and down to 30 metres from the main roosting flock of Oystercatcher on Gutner Point.

Birds on the Verner Common saltmarsh showed little reaction at the distance of approximately 70 metres, but started to show some signs of alertness at approximately 60 metres by showing awareness to the position of the RIB and walking slowly away. So as not to cause any significant disturbance to the birds the distance of approximately 60 metres was maintained and the RIB retreated away from the area where the birds were present. No birds were noted to fly or move significant distances while the RIB passed by the roosting flock.

Passing the western shore of Gutner Point and within a closer distance no alertness of birds was detected. The RIB was then steered towards a small flock of Oystercatcher located on the shoreline to within a distance of approximately 30 metres, at which point the birds started to show signs of awareness of the presence of the boat. The boat was then moved away to prevent any real disturbance or stress to the birds.

Pass 4 - The final pass of the roosting areas was carried out at an increased speed of 20 knots along the main channel. Observations indicated that the birds were not disturbed in any way.

In summary no major flight disturbances were observed directly as a result of the RIB passing at the closest points to the two high-tide roosts within the navigation channel, although three birds appeared to take a short flight on Gutner during the first pass, which may have been startled by the RIB. During the course of the survey three major disturbance events were recorded (each with 10-100+ birds taking flight), which appeared to be attributed to a Buzzard flying over the roost on two occasions and a helicopter on another occasion. A brief film clip of the disturbance investigation was also made to visually show the behaviour of birds during a boat pass and can be viewed at www.youtube.com/user/gpmecology.

5.2.5 Breeding Bird Assessment

During the October scoping survey it was apparent that the dense scrub establishing around the coastal grassland supported large numbers of passerines, with Blackcaps *Sylvia atricapilla* and flocks of tits observed. The coastal scrub is also likely to support a number of common resident breeding species, such as Dunnock *Prunella modularis* and migratory breeders such as Whitethroat *Sylvia communis*. The observations indicate that the scrub has local value as foraging habitat for migratory songbirds in autumn. A Swallow *Hirundo rustica* had nested previously within the shed that has potential for bats and the large derelict workshop supported two old passerine nests. Kestrel *Falco tinnunculus* and Sparrowhawk *Accipiter nisus* were also observed on site.

5.2.6 Waders and Brent Goose Strategy Data

Data obtained from HWT (via HBIC) for the 2010 Solent Wader and Brent Goose Strategy sites in the vicinity of Yachthaven are presented in **Appendix III.V**. Habitat information on the sites is given in **Table 1** and a map is included in **Appendix III.II**. The data can be briefly summarised as follows.

H51 - Verner Common west fields (Brent Goose: Important, Waders: Uncertain)

There are six records for Brent Goose, five for a 4-day period in January 2007 when between 100 and 1200 birds were present (in addition to one no-count). There is a further record of 33 birds in February 2009. Waders recorded from the site comprise Curlew (maximum 1), Lapwing (8) and Redshank (144); these were largely roosting birds.

H55 - Field west of Yachthaven Coastal Meadow (Brent Goose: not included, Waders: Uncertain)

There are no Brent Goose records for this site and one negative record for waders (when the site was checked but no birds were present).

H56 - Yachthaven Coastal Meadow and fields to north (Brent Goose: Uncertain, Waders: Uncertain)

For Brent Goose, there are two records of 33 and 12 birds on dates in January and February 2007. The site was checked for waders on five occasions between November 2008 and February 2009, when none were recorded. It can be presumed that Brent Geese were also not present on these dates. It is not known

whether the records refer to birds feeding in the coastal meadow or the fields to the north.

H57 - Fields to north and east of Yachthaven (Brent Goose: Uncertain, Waders: Uncertain)

There is a single Brent Goose record of 27 birds on 24 January 2007 and two negative records for waders (and geese) on later dates.

H58C - Gutner Peninsula field (Brent Goose: Uncertain, Waders: Uncertain)

The only record of Brent Goose is 90 birds feeding on 21 February 2007. There are no records of waders (two negative records).

H58D - Fields north of Gutner Peninsula (Brent Goose: not included, Waders: Uncertain)

There are two negative records for waders.

H78 - Gutner saltmarsh (Brent Goose: Important, Waders: Important)

There are 12 records of Brent Goose, ranging from 42 to 1300 birds. Maximum counts for waders are: Bar-tailed Godwit 400; Black-tailed Godwit 250 (though mostly much lower); Curlew 700; Dunlin 5000; Golden Plover 600; Greenshank 4; Grey Plover 700; Knot 2000; Lapwing 255; Oystercatcher 110; Redshank 320; Snipe 5; Turnstone 28 and Whimbrel 4. Most records are of roosting birds.

H79A - Verner Common saltmarsh (Brent Goose: Important, Waders: Important)

There are eight Brent Goose records, including one negative count and others ranging from 130 to 400 birds. Maximum counts for waders are: Black-tailed Godwit 11; Curlew 170; Dunlin 200; Golden Plover 250; Grey Plover 300; Knot 15; Lapwing 420; Oystercatcher 100; Redshank 90; Snipe 3 and Turnstone 10. Most records are of roosting birds.

H79B - Verner Common scrub (Brent Goose: Uncertain, Waders: Uncertain)

There is a single record of Brent Goose, of 44 birds feeding on 26 February 2009. Wader records include counts of Curlew on two occasions (max. 280), and single records of 130 Grey Plover, 21 Lapwing and 9 Redshank.

H89 - Verner Common east field (Brent Goose: Uncertain, Waders: Uncertain)

There is a single record of Brent Goose, of 75 birds feeding on 22 November 2007. For waders, the records comprise a count of 80 Curlew on 20 January 2007 and 250 Golden Plover on 18 October 2008.

Discussion

It is likely that the Yachthaven area and Verner Common are under-recorded generally for waterfowl, due to the low numbers of birdwatchers visiting the area and lack of suitable vantage points to view all the known and potential sites. Gutner Peninsula, however, is better recorded, due to the regular presence of the HCC site manager. Nonetheless, the amount of data available through the Strategy is relatively small. However, the results indicate that H55 and H58D are not currently used by Brent Goose or waders and our assessment is that they are not likely to be so in the future due to their small size and enclosed nature. Yachthaven Coastal Meadow (H56) has occasionally been used in the past and clearly has high future potential, especially for waders as a high tide or bad weather roost, as well as a feeding area for species such as Snipe and Redshank. The sites on Verner Common and Gutner Peninsula (particularly the saltmarsh fringes) are clearly very

important both for Brent Geese and several wader species. The Gutner Peninsula field (H58C) is noted as *not used by Brent Geese or waders, though appears to be suitable for species such as Curlew to feed* (P. Potts pers. comm.).

Yachthaven Coastal Meadow and adjacent fields (H56) are considered ecological features of Parish value for geese and waders, with potential for improvement.

5.3 Summary Evaluation of Ecological Features within zone of influence

Table 11: Summary Evaluation of Ecological Features

Feature	Legislation and planning	Evaluation
High-tide waterfowl roosts (Gutner / Verner Common)	SPA, SSSI Wader Strategy	International
Eelgrass beds	Annex I SAC habitat / SSSI	National
Mixed saltmarsh with Sea-lavender	Annex I SAC habitat / SSSI	County
Annual Glasswort beds	SAC and SSSI	Borough to County
Cord-grass saltmarsh	SAC and SSSI	Borough to County
Coastal grassland	SINC and BAP habitat	Borough to County
Low-tide feeding (Yachthaven Creek)	SPA, SSSI Wader Strategy	Parish
Known or potential inland wader and geese feeding sites	SINC and Wader Strategy	Parish
Native, species rich hedgerows	SINC, BAP and potential as an Important Hedge	Parish
Colony of Golden-samphire	Nationally Scarce Species	Parish
Coastal scrub with local epiphytic lichen	Notable species	Parish
Reptiles	WCA 1981	Site to Parish
Other Estuarine Habitats (e.g. seaweed)	SAC and SSSI	Site value only
Breeding birds	WCA 1981	Site value only
Bats	Habitat Reg.s 1994/WCA 1981	Site value only

6.0 IMPACTS

Impacts are defined here as development operations or outcomes of development that have a specific impact upon an ecological features and can be described in terms of their probability of causing an impact on a given feature, which is categorised as: Certain (>95% confidence of causing an impact); Probable (50-95% confidence); Unlikely (5%-50%); or Extremely Unlikely (<5% confidence). Further impact features (as detailed by IEEM 2006) are listed below:

1. Positive or negative
2. Magnitude - for the purposes of this study magnitude ranges from insignificant, low, medium to high levels of impact.
3. Extent - links with both magnitude and zone of influence
4. Duration - short-term, long-term
5. Reversibility - temporary or permanent
6. Timing and frequency

The development operations and the outcomes, that have potential impacts upon ecological features, can be summarised as follows:

1. Construction of a floating pontoon (47 x 2m); boats moored at the pontoon; increased boat activity within the creek and other secondary impacts such as pollution from boats.
2. Removal of about 100m² of intertidal shoreline of the creek, to be built-up behind sheet piling to form a retaining wall.
3. Construction of new slipway and removal of concrete sea defence within creek to re-position by the side of slipway.
4. Construction of buildings associated with Yacht Club and semi-metalled surface re-laid.
5. Construction of six detached dwellings and increased human activity in and around the site when these are occupied.
6. Restoration of public footpath.
7. Removal of de-contaminated soil east of the Yacht Club and landscaping of the adjacent green space into a Nature Reserve.

6.1 Current impacts upon the SPA and SAC

Currently the disturbance impacts upon the SPA are extremely low level, with casual observation of between only zero and two walkers observed (per visit) using the footpath and a single motor powered dingy observed travelling up the creek during six survey visits to Yachthaven (each visit lasting several hours). Therefore at its current levels, disturbance (from land and within the creek) is not considered to be causing any impact upon the SPA bird population.

During the period of the boat interference study (approximately 1 hour) it was evident that the main disturbances upon roosting waders and Brent Geese on Gutner and Verner roost sites were buzzards flying overhead and helicopter flights, which caused a major disturbance event on three occasions. The main disturbances upon SPA birds in the vicinity of Yachthaven Creek at the time of the boat interference study appeared to be from the air.

The Eelgrass-beds do appear to be in decline according to current data (see **Appendix III**), the cause of which is not known, although in the past this species

has declined as result of a wasting disease and this maybe a natural decline, as opposed to that induced by human activity.

The development of sea defences and the raised seashore either side of Yachthaven does presents an impact upon the SPA and SAC from coping with predicted sea-level rises. As detailed in the SSSI Unit descriptions on status (**Appendix II**), works are taking place to alleviate this impact.

6.2 Impacts upon Statutory Designated Features

It should be noted that dredging is not part of the proposals for this scheme and as the creek is very sheltered, it is considered that the activities of this development will not physically impact upon other parts of the Solent Maritime SAC outside of Yachthaven creek.

6.2.1 Habitat Loss and Gain as a result of Building Works

The pontoon and the new retaining wall on the creek will remove an area of about 250-300m² of estuarine SAC habitats and although potential as a wader and Brent Goose feeding site, our surveys indicate this area is not used to any great extent. A section of coastal sea-defence is to be removed from the shoreline covering an area of just over 100m² (about 3m x 40m, see **Photo 6**). This will provide a positive, though insignificant benefit to the SAC, providing the opportunity for estuarine plant and animal communities to colonise this area.

The botanical survey recorded larger seaweeds, dominated by Spiral Wrack *Fucus spiralis* with occasional plants of Horned Wrack *F. ceranoides* and Knotted Wrack *Ascophyllum nodosum* within the area of the proposed pontoon (**target note 15**, see **Photos 13** and **14**), all of which are common in the Solent and around British coasts. About 100-150m² of this area will be disturbed and shaded by the floating pontoon rising and falling with the tide and about 100m² of coarse sediment (with asphalt a major constituent, see **Photo 12**) and very sparse *Fucus* cover, will be removed as a result of the area to be filled behind the retaining wall. Although we have not investigated the invertebrate communities present in the seaweed area, it can be assumed that they will comprise abundant and widespread species of site value, that are associated with this type of intertidal habitat.

To the east of the pontoon area there are some more extensive areas of bare mud, which are likely to support beds of Eelgrass *Zostera* species in late summer and the current distribution of Eelgrass survey (see **Appendix III** and **Figure 1**) indicates that the pontoon currently avoids the area of Eelgrass, although this area may extend to within several metres of the pontoon. The area of Eelgrass closest to the pontoon could be temporarily impacted during installation and pile-driving.

As part of the development proposals it has been agreed that broken-off chunks of asphalt rubble along the foreshore of the application site will be removed (see **Photo 12**), which as a potential pollutant (consisting of tar-substances), is a positive impact.

In general terms there is **no net loss** of permanent SAC and SPA feature, with the removal of the concrete sea-defence exposing estuarine foreshore in compensation for the area lost as a result of construction to the new sea wall. There will however be a small amount of SAC and SPA habitat impacted by the floating pontoon,

though the degree of this impact is considered insignificant. There will also be an insignificant positive (beneficial) impact through the removal of asphalt rubble (a potential pollutant) across the foreshore of the site.

These impacts are not considered to be significant to the integrity of the SPA or SAC features.

6.2.2 Disturbance as a result of Building Works

Building works may also create a disturbance event for feeding or roosting waterfowl on the SPA and adjacent SINC.

Disturbance to low-tide winter feeding areas on the SPA and estuarine SAC habitats

The results of the winter bird survey indicate that this part of the creek is used by low numbers of wintering waterfowl during low tide counts. It is also noted in the evaluation that the creek has a number of negative physical features for feeding waders and geese, including its small size, the enclosed shoreline several metres above datum and dominance of large seaweeds, creating lack of mud where waders can probe for invertebrates. Therefore it is considered that there will be insignificant disturbance from noise and vibration to waterfowl feeding in the creek at low tide, as a result of human activities.

Disturbance to Verner Common high-tide winter roost on the SPA

The building works of these coastal structures, re-instatement of the slipway, removal of concrete sea defences, construction of the Yacht Club area and landscaping of the Nature Reserve close to the foreshore could have a temporary disturbance impact upon wildfowl roosting on the adjacent Verner Common, if conducted during the winter period.

These impacts are not considered to be significant to the integrity of the SPA or SAC features.

6.2.3 Activities associated with the Yacht Club

Disturbance to high-tide winter bird roosts on the SPA

The results of the winter bird survey carried out for this assessment have confirmed the views of the Chichester Harbour Conservancy and others that the high tide waterfowl roosts at Gutner Peninsula and Verner Common are of high ecological importance. The analysis of the WeBS data also supports this conclusion. These two roost areas support about 12% of the average total waterfowl population in the estuary, but the proportion is higher than this for several key species. Any permanent impact on these roosts, such as continual disturbance from boat traffic, could cause birds to move to other less favoured and/or less suitable roosts in the estuary and ultimately result in a reduction of the whole estuary waterfowl population. This kind of impact would be viewed as a significant impact to the function and special features of the SPA and, without adequate mitigation, would not be permissible under current wildlife legislation.

However, it is considered that the small overall increase in boat movements past the roost sites as a result of the Yachthaven development will create no significant increase in disturbance to birds on Gutner and Verner Common roosts during winter months for the following reasons:

1. With a total of 19 berths it can be concluded that during winter and peak waterfowl activity at high-roost sites, there will be few boat movements in and out of Yachthaven. Sailing boats would generally only be able to navigate into and out of the Yachthaven channel during the period of two and half hours either side of high tide, based upon standard neap tides (pers. comm. Richard Blake, Hayling Yacht company), restricting winter activities. In addition it is understood that there will be a catamaran brokerage based at Yachthaven, which will mean that a proportion of boats will travel to Yachthaven by road and these boats are likely to be static show-boats moored at the pontoon for long periods.

2. Boats travelling up the middle of Yachthaven creek will be over 60m from key roost sites on Gutner Peninsular and over 100m from Verner Common. The boat interference study conducted using a RIBs travelling at 8 knots demonstrated negligible bird disturbance, with no major disturbances taking place as a direct result of the boat movement, during four passes between 50 and 100m of the high-tide roosts (the disturbance investigation film-footage can be viewed at www.youtube.com/user/gpmecology, see **Figure 4** for boat disturbance route).

During late summer when waterfowl start congregating in the Solent there will be a greater, though still unlikely, chance of disturbance with more boat movements and the potential for small leisure craft such as RIBs landing illegally at high-tide roosts, such as Gutner Peninsula. Indeed there are no signs within the creek to indicate to boat-users that Gutner and Verner are either private or internationally important sites for waterfowl. The majority of members of yacht clubs are considered as responsible citizens, but may land on roost sites during late summer due to ignorance of understanding the status of this land. Temporary disturbance events such as this are however unlikely to cause any permanent impacts to birds and thus considered a short-duration, low-level impact. Suggestions to overcome this impact are detailed in the mitigation section below.

Disturbance to low-tide winter feeding on the SPA

The results of the winter bird survey and the WeBS low tide data strongly indicate that Brent Goose and waders use the creek adjacent to Yachthaven in very small numbers. The pattern of use is also evident from the habitat, which is dominated by larger seaweeds, without any extensive muddy areas preferred by most species of waders. However, at certain times of the year, such as during harsh winter periods, the creek may become more important as a feeding site on account of its sheltered location. There is also a possibility that the creek may be used by more feeding birds during late summer before the Eelgrass dies off.

In general terms the creek provides sub-optimal feeding habitat for waterfowl. During harsh weather, when waders may be more inclined to visit the creek, human activity on the foreshore and in boats moored at the pontoon will be less and thus this negative impact is expected to be insignificant. There is however potential for occasional disturbance to Brent Geese during late-summer where the Eelgrass grows close to the pontoon.

Damage to estuarine habitats of the SAC

The presence of boats moored on the pontoon will provide a further continuous disturbance to estuarine habitats and when moorings are fully utilised will cover an area of about (28 x 47m = 1,300m²) 0.13ha.

As the pontoon moorings will not move laterally with the tide, damage will be localised to the pontoon position, unlike swing-moorings. As indicated in **Figure 1** the pontoon has been positioned away from and north of the Eelgrass-beds, as identified on the distribution map in **Appendix III** and the survey of the estuary indicates that the location of the pontoon consists predominately of common and widespread species of *Fucus* and their relatives (see **Photo 13** and **14**). Boats moored at the pontoon are unlikely to impact Annex I SAC habitats such as Eelgrass-beds and as the beds are south and east of the pontoon, the development and associated boats should cast minimal shade.

The other Annex I primary SAC communities (sea-lavender saltmarsh and glasswort communities), while adjacent the application site, are not considered likely to suffer any impacts from Yachthaven development, with exception of the potential for pollution incidents or changes in nutrient levels, although these impacts on account of the extent of development are considered unlikely and insignificant.

These impacts are not considered to be significant to the integrity of the SPA or SAC features.

6.2.4 Disturbance to SPA features as a result of Terrestrial-based Recreation

Residents of the new dwellings and visitors to the Yacht Club are likely to utilise the coastal footpath located on the foreshore of Yachthaven, for recreational activities such as walking, running and dog-walking. However, this footpath does not run directly adjacent to the key high-tide roosts (Verner Common and Gutner Peninsula) and the creek is generally considered to be less suitable for low-tide feeding, on account of its narrow, enclosed shape. This impact is considered to be insignificant upon the high-tide roosts, but there may be a seasonal but low level impact upon low-tide feeding within the creek during late summer when Brent Geese are feeding on the Eelgrass beds.

Although the footpath along the foreshore of Yachthaven is proposed for restoration, it is currently passable and safe to use. Thus, the restoration of the footpath is not considered to result in an increase in recreational users as a result of its restoration and its impact upon the SPA and SAC is considered insignificant.

These impacts are not considered to be significant to the integrity of the SPA or SAC features.

6.3 Disturbance to sites identified by the Brent Geese and Wader Strategy

The Yachthaven Coastal Meadow site (which includes the adjacent fields to the north, forming parcel H56), appears to be rarely used by small numbers of Brent Geese and there are no wader records. However, the lack of data may partly be due to under-recording. The site has already been designated as SINC on the basis of Brent Goose use, following the 2002 Brent Goose Strategy (for which data is currently unavailable). It is possible that any birds using the coastal meadow would be disturbed by noise and human activity from site construction, but the northern fields are well screened by hedges and mature trees and would be unaffected. It is not known which parts of the site have been used by Brent Geese in the past; however, it is equally likely that birds feeding within the creek have moved on to

the coastal meadow for short periods, or may have fed in the large field immediately to the north of the meadow, which has an improved sward.

Residents of the new dwellings and visitors to the Yacht Club could utilise the landward footpath, through the middle of the SINC (and Brent Geese and Wader Strategy land-use site H56) or the footpath along the foreshore south of the SINC (and Yachthaven Coastal Meadow). Therefore there is likely to be a low-level recreational impact to the coastal meadow; especially if after enhancement its value to waterfowl is increased and birds use it on a more regular basis. Suggestions to overcome this impact are detailed in the mitigation section below. Boat traffic using the creek is not likely to disturb birds using the meadow, or those feeding within the creek itself.

A number of other sites near to Yachthaven do not appear to be used by Brent Geese or waders and no impacts to these sites are likely. Most of the surrounding land consists of improved to semi-improved closely grazed horse pasture and is enclosed by high hedgerows with frequent mature trees. Some of the larger fields have potential to be used by waders such as Curlew, but are clearly unsuitable as feeding sites for Brent Geese.

The disturbance to feeding sites identified within the Strategy, as a result of the proposed development, in isolation is considered to be a low-level impact as a result of increased human activity, in the absence of mitigation. Also, birds may utilise Yachthaven Coastal Meadow for roosting and feeding during harsh weather events, when recreational use of the coastal path will be absent or at its lowest level.

6.4 Impacts upon Protected Species and Other Features

Coastal Grassland

The management of the Nature Reserve (Yachthaven Coastal Meadow and Conservation Grassland) will have a long-term **positive** medium to high impact upon the site's coastal grassland features, which on Yachthaven Coastal Meadow (SINC) are of Borough to County Importance and currently becoming heavily encroached by scrub.

Hedgerows

The hedgerows along the access onto the site and the western boundary are priority BAP habitats and potentially 'Important Hedgerows', protected under the Hedgerow Regulations 1997. While this habitat is not proposed to be developed over, there could be compaction impacts upon root structure and damage to canopy of hedgerow trees by large vehicles accessing the site during construction and while improving the site's access. While these impacts are likely to be temporary, they may result in die-back, disease and death of trees and shrubs where damage is extreme and thus it is considered a medium-level of magnitude.

Reptiles

If a reptile population is deliberately harmed as a result of clearance and construction works, the operators would be in breach of the Wildlife and Countryside Act. Building works are likely to have a medium to high negative temporary impact upon the reptile population of the site, with site clearance already having taken place across much of the site. It is however likely that the

management of the Nature Reserve (Yachthaven Coastal Meadow and Conservation Grassland) will in the long-term provide a positive low to medium impact upon the site's reptile population.

Reptiles are protected from *harm* (Wildlife and Countryside Act 1981) thus it is important that no more ground disturbance to the site takes place, otherwise operators and their employees may breach Wildlife legislation.

Bats

It is not possible to assess whether there would have been an impact upon a roosting bat population, because the building on site that had potential to be utilised by bats was destroyed by vandals between October and November 2010. However, the impact as a result of the loss of this potential roost will be insignificant upon bat populations of Hayling Island, on account of the very small size of this building (3m x 7m, see **Photo 3**).

The site is likely to provide foraging habitat for bats roosting in the area and the mature oaks within the hedge may provide roosting sites. As there is to be no removal of trees proposed along the hedgerow and none are present within the development site, bat roosts will not be directly impacted by the development. The HBIC report (**Appendix III.I**) does support a record of 227 Soprano Pipistrelles *Pipistrellus pygmaeus* dated 2004, 300m west of the site. This is likely to be the record of maternity roost from one of the properties along the foreshore of Yachthaven Creek, although the report does not confirm the location of the bat sightings.

Breeding Birds

Demolition of existing buildings on site and removal of scrub during bird breeding period is likely to destroy or disturb active nests and would be in breach of the provisions of the Wildlife and Countryside Act. Removal of such sites in terms of the impact upon the local breeding population will to be insignificant. Long-term management of the Nature Reserve areas is likely to have a low long-term negative impact upon breeding birds, due to the removal and management of encroaching scrub upon Yachthaven Coastal Meadow

Other features

The construction of the dwellings will result in some loss of an area of disturbed ground, which formerly consisted of scrub with some grassland. It has the potential to develop into wildlife habitat of site to Parish value. However, this habitat is not considered to be of significant ecological value in the context of the site and hence impacts will be insignificant.

6.5 Summary of Impacts

Impacts are summarised below in **Table 12**, in the absence of mitigation

Table 12: Summary of site impacts upon ecological features

Feature	Evaluation	Operational Impacts	Positive / Negative	Magnitude	Chance and Type of impact
High-tide roosts	International	Winter disturbance: sailing boats; walkers	Negative	Insignificant	Unlikely, seasonal,
High-tide roosts	International	Summer disturbance: boats	Negative	Low-level	Unlikely, seasonal, short-duration

Eelgrass beds	National	Disturbance during construction and from boats mooring in creek	Negative	Insignificant	Likely, seasonal
Mixed saltmarsh	County	Pollution and nutrient-levels	Negative	Insignificant	Unlikely
Annual Glasswort	Borough to County	Pollution and nutrient-levels	Negative	Insignificant	Unlikely
Cord-grass saltmarsh	Borough to County	Pollution and nutrient-levels	Negative	Insignificant	Unlikely
Coastal grassland	Borough to County	Management of Nature Reserve	Positive	Medium-High	Likely
Low-tide feeding	Parish	Disturbance: construction work, boats (moored), walkers	Negative	Insignificant	Likely, seasonal
Inland roosts and feeding	Parish	Disturbance: construction work, boats (moored), walkers	Negative	Low-level	Likely, seasonal
Native hedgerows	Parish	Damage: construction traffic and works	Negative	Medium-level	Likely, short-term
Golden-samphire	Parish	Footpath restoration	Negative	Insignificant	Unlikely
Scrub with local lichen	Parish	Management of Nature Reserve	Positive	Low-level	Likely
Reptiles	Site to Parish	Construction works to Yacht Club	Negative	High-level	Likely
SPA / SAC estuary	Site value only	Construction of sea-wall (~100m ²); Removal of sea-defence (~ 100m ²)	Neutral (Negative / Positive)	Insignificant	Certain, permanent
SPA / SAC estuary	Site value only	Pontoon and moored boats (about 0.15ha)	Negative	Insignificant	Certain, continual disturbance
Breeding birds	Site value only	Demolition of buildings	Negative	Insignificant	Likely, seasonal
Bats	Site value only	Removal of shed with roost features	Negative	Insignificant	Unlikely

None of the impacts to the international and nationally protected features are considered to be significant for the following range of reasons:

1. The key associated features are not directly impacted by the development;
2. Winter-roosts peak when human disturbance levels will be at there lowest;
3. The extent of the Yacht Club mooring is small (19 boats), with a narrow window of time users are able to sail up creek (2.5 hrs either side of high-tide) and boat traffic is unlikely to be close enough to cause disturbance at roosts;
4. Sub-optimal characteristics of the creek for low-tide feeding;
5. Disturbance impacts from construction at foreshore will be temporary and there are no footpaths directly adjacent SPA-designated roosts.

However, the report does recognise that there is an unlikely chance of a low-level impact upon high-tide roosts during late summer and that there may be a low-level increased, negative impact upon the Yachthaven Coastal Meadow Brent Goose feeding / roosting site (H56) as a result of increased recreational activity. The development will also directly impact upon a number of Parish or features of site value, but there will be associated **positive** impacts to Coastal Grassland on site.

7.0 RECOMMENDATIONS AND MITIGATION

7.1 Summary of Mitigation

The following table highlights those features where an impact is considered likely or certain (as highlighted in **Table 12** above) and provides recommendations to mitigate those impacts. In addition recommendations are suggested to mitigate against late summer disturbance to high-tide roosts (see **section 6.2.3**). While such disturbance events are considered unlikely, due to the importance of these roosts and the potential for low-level disturbance it is recommended that mitigation is put in place to reduce the likelihood of such events taking place.

Table 13: Mitigation of Operational Impacts

Feature	Operational Impacts	Positive / Negative	Mitigation (and enhancements)	Magnitude after Mitigation
High-tide roosts	Summer disturbance: sailing boats; walkers	Negative	Signs near high-tide roosts; Code of Conduct	Decrease likelihood to Insignificant *
Low-tide feeding	Disturbance: construction; boats (moored); walkers	Negative	Restrict construction works to summer or use specialist equipment and screens	No change (Insignificant)
Eelgrass beds	Disturbance as a result of boats	Negative	Code of Conduct and exclude mooring adjacent Eelgrass-bed	No change (Insignificant)
Coastal grassland	Management of Nature Reserve	Positive	Detailed Survey and Management Plan	No change (Medium-High)
Inland roosts and feeding	Disturbance: construction; boats (moored); walkers	Negative	Sensitive construction; restrict access to SINC; and habitat management to SINC	Decrease to Insignificant *
Native hedgerows	Damage: construction traffic and works	Negative	Protection of root system and canopy	Decrease to Insignificant *
Scrub with local lichen	Management of Nature Reserve	Positive	Retention of open scrub and removal of dense scrub	No change (Low-level)
Reptiles	Construction works to Yacht Club	Negative	Survey; Mitigation Strategy; and implementation	Decrease to Medium-level #
SPA / SAC estuary	Construction of sea-wall (~100m ²)	Neutral	Removal of sea-defence (~100m ²)	No change (Insignificant)
SPA / SAC estuary	Pontoon and moored boats (~0.13ha)	Negative	None suggested: small area with habitat of site value only	No change (Insignificant)
Breeding birds	Demolition of buildings and scrub	Negative	Check active nests, if clearance during breeding period	No change (Insignificant)

* Impacts considered to have become insignificant, following mitigation

Impact that will remain significant, following mitigation

Mitigation proposals are described in detail below and highlighted on **Figure 5**. In most situations impacts are considered to be insignificant, therefore there is no change for most impacts following mitigation. The magnitude of impact, described above, has only altered during four operations following mitigation:

1. The provision of a Code of Conduct for boat users and incorporation of signs will decrease the likelihood of boat-users landing on High-tide roosts, to the extent that this impact could be considered very unlikely and therefore insignificant.
2. The low-level impacts to Brent Geese and wader feeding or roosting on Yachthaven Coastal Meadow are expected to occur due to increased human activity, but can be mitigated and made insignificant through sensitive construction practises, restriction of access to the SINC and management of the SINC for waterfowl.

3. It is considered that the protection of roots and canopy of hedgerow trees could reduce the perceived impacts from medium-level to insignificant.

4. Mitigation of the reptile population is expected to decrease the perceived impacts from a high, to a medium-level impact. It is not considered possible to decrease this impact to insignificant on account that the area the population will be able to colonise post-development, is smaller than the area the reptile population will be able to colonise pre-development. While individuals within the population would be relocated as a result of mitigation, habitat has already been removed resulting in the population and their available habitat having been reduced as a consequence. Management of the Nature Reserve will not be specifically geared towards the maintenance of future reptile populations, but it will provide some stability to the site and features for reptiles will be incorporated into the Nature Reserve areas as part of reptile mitigation.

Ecological Clerk of Works

Due to the sensitive location of the site and the extent of mitigation and enhancements listed above, it is recommended that an Ecological Clerk of Works is appointed pre-construction to oversee mitigation, construction phases, monitoring and the initial five-years of the Management Plan for the Nature Reserve. The Clerk of Works should provide an annual progress report to both the Harbour Conservancy and Operators of the Yacht Club and mariner.

7.2 Mitigate disturbance to SPA bird species

7.2.1 Sensitive Construction Practises

The following sensitive construction practises will reduce temporary impacts to roosting and feeding waders and Brent Geese during works:

1. Construction works to the foreshore and within the creek should not take place between late summer and early spring, between the months of September and April, to avoid disturbance to the low-tide feeding in the creek and occasional high-tide roosts and feeding on Yachthaven Coastal Meadow

2. Construction works within the creek should be carried-out using specialist non-vibration equipment.

3. Screens should be provided where human activity and works are likely to disturb birds, such as Brent Geese roosting and feeding on Yachthaven Coastal Meadow or waders and geese feeding in the creek.

It is recommended that an Eelgrass survey is conducted during the summer period of Yachthaven Creek in the immediate vicinity of the proposed pontoon, in order to set-out marker posts within the Creek identifying the extent of the Eelgrass-beds. Any construction and associated disturbance to the estuarine sediments should take place outside of the Eelgrass-beds.

7.2.2 Code of Conduct for Boat Users

It is recognised that the majority of boat users are responsible and aware of actions that could impact the environment. However, in order to ensure boat users

understand actions that could damage the environment it is recommended that a specific Code of Conduct for Yachthaven boat-users is put together to include the following Code of Conduct:

1. Gutner Peninsula and Verner Common are private land-holdings and internationally important winter-roost sites and thus these areas should not be landed at any times of the year.
2. During autumn winter period (September to April) boats should use the centre of the navigation in order to ensure disturbance to birds on high-tide roosts at Gutner Peninsula and Verner Common are kept to a minimum.
3. Boat-users and operators of the Yacht Club should be aware of actions that could impact upon eel-grass beds and other internationally protected maritime habitats. Mooring-up at the end of the pontoon is to be restricted to the south-west end and no moorings are to be permitted on the south-east end in order to prevent damage to Eelgrass-beds growing close-by. Potential damaging actions include pollution events, release of nutrients and physical damage due to mooring within the creek. The Eelgrass Code of Conduct should be included with or incorporated into the Yacht Club's Code (see **APPENDIX VI: Seagrass Code of Conduct and Fact Sheet**).

In addition to the above Code it is recommended that signs are attached to channel marker posts adjacent Gutner Peninsular and Verner Common, with wording to the effect, '*Keep-Off Private Land. No boat-users should land onto the foreshore of Verner Common or Gutner Peninsula unless given specific permission to do so by the land owners*'. A sign should also be attached to the south-east end of the mooring stating that, '*No mooring within this area is permitted, to protect Eelgrass-beds*'.

7.2.3 Yachthaven Coastal Meadow Mitigation

Any potential impact to Brent Geese or waders using the coastal meadow would be avoidable by timing the construction outside the main winter period, but if carried out in winter, could be mitigated by erecting screening (permanent hedging or temporary boarding). Experience with other development sites in the Solent that have been monitored for disturbance effects indicates that Brent Geese are not affected by typical noise levels from construction activities (J. Norton pers. comm.). The main potential impact will be from disturbance through an increase in human activity in and around the construction site and from the activities of the residents and boat-owners post-construction.

The survey data and incidental observations indicate that currently there is very low level usage along the coastal footpath. It is considered that levels of human activity may rise slightly but that this would not have a significant impact on the bird use of Yachthaven Coastal Meadow, due to its low level usage at present. However, if enhancement work on the meadow is successful in attracting more birds, then measures to minimise disturbance by people could include installation of a barbed wire fence on the landward side of the coastal path adjacent Yachthaven Coastal Meadow to deter people from entering the site. This area has potential to attract Teal, Snipe, Redshank and possibly Brent Geese.

7.3 Enhancement of SAC, SPA and SSSI

Due to high elevation of the site above sea level (currently several metres), it is not financially practical to provide any substantial enhancements to mitigate ‘coastal-squeeze’ and the threat posed by sea-level rises. However, small-scale enhancements are proposed to the foreshore through the following activities:

1. The removal of asphalt (see **Photo 12**) on foreshore of Yachthaven, directly east and west of the proposed mariner, will remove a potential pollutant from the shoreline to the benefit of the SAC.
2. Replacement of the concrete coastal defence from the foreshore (see **Photo 6** and **Figure 5**) to be re-located directly adjacent to the slipway, will remove a structure encouraging ‘coastal squeeze’, to the benefit of the SAC, SPA and SSSI. The new location of the concrete coastal defence adjacent to the slipway is further up the foreshore and within an area dominated by rubble and asphalt.
3. An area of ‘contaminated land’ (site of a former pond) is to be removed adjacent the slipway. It is proposed that this area is left excavated, forming a wetland scrape on the foreshore. This new scrape will be link to the sea, via a culvert beneath the coastal footpath, allowing sea to enter the scrape during storm conditions and water to exit during times of heavy rain and flood. Once colonised with vegetation this may provide an enhancement as a potential alternative high-tide winter roost / feeding site for small waders during harsh weather conditions, to the benefit of the SPA and provide a very small scale mitigation against ‘coastal squeeze’.
4. The Nature Reserve will be enhanced to encourage waders and Brent Geese to utilise Yachthaven Coastal Meadow as a high-tide roost and feeding area, especially during extreme, harsh winter weather conditions, to the benefit of the SPA bird populations. The management of this area will allow some flooding from the sea during storm conditions and lower-lying scrape area (see **Figure 6**) could become more brackish with rising sea-levels, to the benefit of the SAC, SPA and SSSI.

7.4 Outline Management Plan of Yachthaven Nature Reserve

Yachthaven Nature Reserve is split into two small parcels of lands either side of the Yacht Club, with Yachthaven Coastal Meadow to the west covering approximately 1ha of coastal grassland SINC, having become encroached with dense scrub and Yachthaven Conservation Grassland to the east, covering 0.2 to 0.3ha of currently disturbed (formerly enriched scrub, tall herbs and grassland) with no current designation.

Management recommendations for the Coastal Meadow will include a botanical survey to highlight sensitive area; a small amount of restoration and ground-works to create a scrape; and on-going management of scrub. The Conservation Grassland will include extensive restoration and ground-works; very limited soft-landscaping; and on-going management of grassland areas.

The primary objectives of the Management for the Nature Reserve areas are to create features to support waterfowl associated with the adjacent SPA, restore and maintain a coastal grassland SINC and provide additional features for species such as common lizard, locally-restricted lichen associated with open scrub and small-scale mitigation against ‘coastal squeeze’.

7.4.1 Management Brief for Yachthaven Coastal Meadow

Yachthaven Coastal Meadow key features for protection and enhancement are:

- 1) **Unimproved coastal grassland**
- 2) **Site of occasional use by Brent Geese and potential for waders.**
- 3) **Open scrub trees with notable epiphytic lichen species**

Figure 2 shows the current extent of scrub on site and illustrates what is likely to happen if the site remains unmanaged, with increasing growth of scrub and eventual loss of the unimproved grassland sward and a site of occasional use by Brent Geese. It is therefore proposed that the following outline management plan will need to be considered, as highlighted in **Figure 6**:

- a) **Unimproved coastal grassland** - A detailed botanical survey needs to be conducted (during spring and summer period) to assess the value of the grassland and determine the distribution of any sensitive species-rich area. The main management objectives to encourage and maintain unimproved grassland will be to remove extensive area of scrub.
- b) **Site of occasional use by Brent Geese and potential for wader** - Once it is understood the extent of any sensitive, species-rich unimproved grassland, following the detailed botanical survey, areas of the site will be scraped down to between 0.25 and 0.5m below existing level (see **Figure 6** for approximate area). The installation of a culvert beneath the footpath will be considered, to allow the new scrape to be inundated with seawater during storm conditions at high tide. The creation of these features will make Yachthaven Coastal Grassland attractive to both Brent Geese and waders.
- c) **Open scrub trees with notable epiphytic lichen species** - During scrub clearance a group of two to three hawthorn bushes will be retained, every 20m length of scrub clearance area, which are likely to be colonised by notable lichens. In addition those bushes supporting these lichen communities close to the foreshore will be retained within the site.

Retained hawthorns along the foreshore will provide some screening to minimise disturbance from human activity along the footpath. To minimise general human disturbance within the Yachthaven Coastal Grassland a post and three-strand barbed-wire fence will be installed along the boundary with the coastal path.

7.4.2 Management Brief for Yachthaven Conservation Grassland

Outline management brief for Conservation Grassland will include the following:

1. No planting of trees, scrub or bushes will be carried-out within the conservation grassland, as these would develop in height, making the grassland and adjacent Creek less suitable as a roosting and feeding area for waterfowl.
2. To retain a depression or scrape where the contaminated spoil is removed east of the slipway and provide a culvert to the foreshore, which may allow it to flood, during high-tide storm conditions.

3. A ditch system will be incorporated on the boundary or within the Conservation Grassland, draining into the scrape, to both provide some catchment of water and a refuge for small waders.

4. Soft-landscaping will be restricted to seeding the area with a coastal grassland seed-mix. It is recommended that this seed is collected from the adjacent coastal grassland and other sites on Hayling Island, using a forage harvester or similar machinery. Alternatively a reputable stockist such as Emorsgate or British Seed House or other such contractors listed by Flora Locale (www.floralocale.org) could be used to supply seed.

5. The Conservation Grassland will be enclosed in a fence to restrict public access

7.5 Protected Species and Hedgerows

Reptiles

A reptile survey is recommended to determine their presence and distribution across the site. Following this survey a mitigation strategy and a translocation exercise may be required to relocate reptiles to a safe receptor site, prior to site clearance and construction taking place.

Birds

Where possible clearance works should take place outside of the bird-breeding (March to September) period. If this is not possible a breeding bird survey will be required to determine where there are any active nests, prior to clearance works.

Hedgerows

A tree and hedgerow protection strategy should be agreed, to include the protection of the 'old' hedgerow feature along the site access. Without protection this hedge could suffer damage and long-term decline as a result of damage during the construction phase.

7.6 Further Surveys and Monitoring

Table 14 details recommended surveys, monitoring and time-scales.

Table 14: Further Surveys and Monitoring

Feature	Survey / Monitoring	Time-scale
Yachthaven Coastal Meadow	Botanical Survey	Spring - Summer
Reptiles	Reptile survey	Spring - Summer
Eelgrass-beds	Survey extent of beds	Summer
Breeding birds	Survey (if needed)	Spring - Summer
SPA Birds	Monitor waterfowl usage at Yachthaven Post-development	5-year monitoring period (late-summer to winter)

8.0 References

- Brewis, A., Bowman, P. & Rose, F. (1996). *The Flora of Hampshire*. Harley Books, Colchester.
- Dale, A. L., Chesworth, J. C., Leggett, V. L., 2010. *Inventory of Eelgrass beds in Hampshire and the Isle of Wight, Section Two: Data*. Hampshire and Isle of Wight Wildlife Trust, Hampshire.
- GPM Ecology (25th October 2010) Ecological Scoping Report, Yachthaven, Hayling Island, Hampshire
- Hampshire Brent Goose Strategy Group (2002). *Brent Goose Strategy*. Hampshire & Isle of Wight Wildlife Trust, Eastleigh.
- King, D. (2010). *Solent Waders and Brent Goose Strategy 2010*, Hampshire and Isle of Wight Wildlife Trust, Curdridge, Hampshire.
- Liley D, Stillman R. & Fearnley, H. (2010). *The Solent Disturbance and Mitigation Project Phase 2: Results of Bird Disturbance Fieldwork 2009/10*. Footprint Ecology / Solent Forum.
- Preston, C.D., Pearman, D.A. & Dines, T.D. (eds) 2002. *New atlas of the British and Irish flora*. Oxford University Press, Oxford.
- Rodwell, J.S. (ed.) (1991). *British plant communities, Volume 1. Woodlands and scrub*. Cambridge University Press, Cambridge.
- Rodwell, J.S. (ed.) (1992). *British plant communities, Volume 3. Grasslands and montane communities*. Cambridge University Press, Cambridge.
- Rodwell, J.S. (ed.) (2000). *British plant communities. Volume 5. Maritime communities and vegetation of open habitats*. Cambridge University Press, Cambridge.
- Stewart, A., Pearman, D.A. & Preston, C.D. (Eds), (1994). *Scarce plants in Britain*. Joint Nature Conservation Committee, Peterborough.
- Stillman R.A, Cox J, Lilley D, Ravenscroft N, Sharp J and Wells M (2009) *Solent disturbance and mitigation project: Phase I report*. Solent Forum
- Stroud, D.A., Chambers, D., Cook, S., Buxton, N., Fraser, B., Clement, P., Lewis, P., McLean, I, Baker, H. & Whitbread, S. (eds) (2001). *The UK SPA network: its scope and content. Volume 3 site accounts*. Joint Nature Conservation Committee, Peterborough.
- The Green Blue (2010) *Seagrass, Boating Fact Sheet No.15*. Published by The Green Blue, Southampton, Hampshire
- Tubbs, C.R. (1999). *The ecology, conservation and history of the Solent*. Packard Publishing, Chichester.

**Figure 1a: Development
Proposals and Impacts**
Yachthaven, Hayling Island
GPM Ecology, April 2011

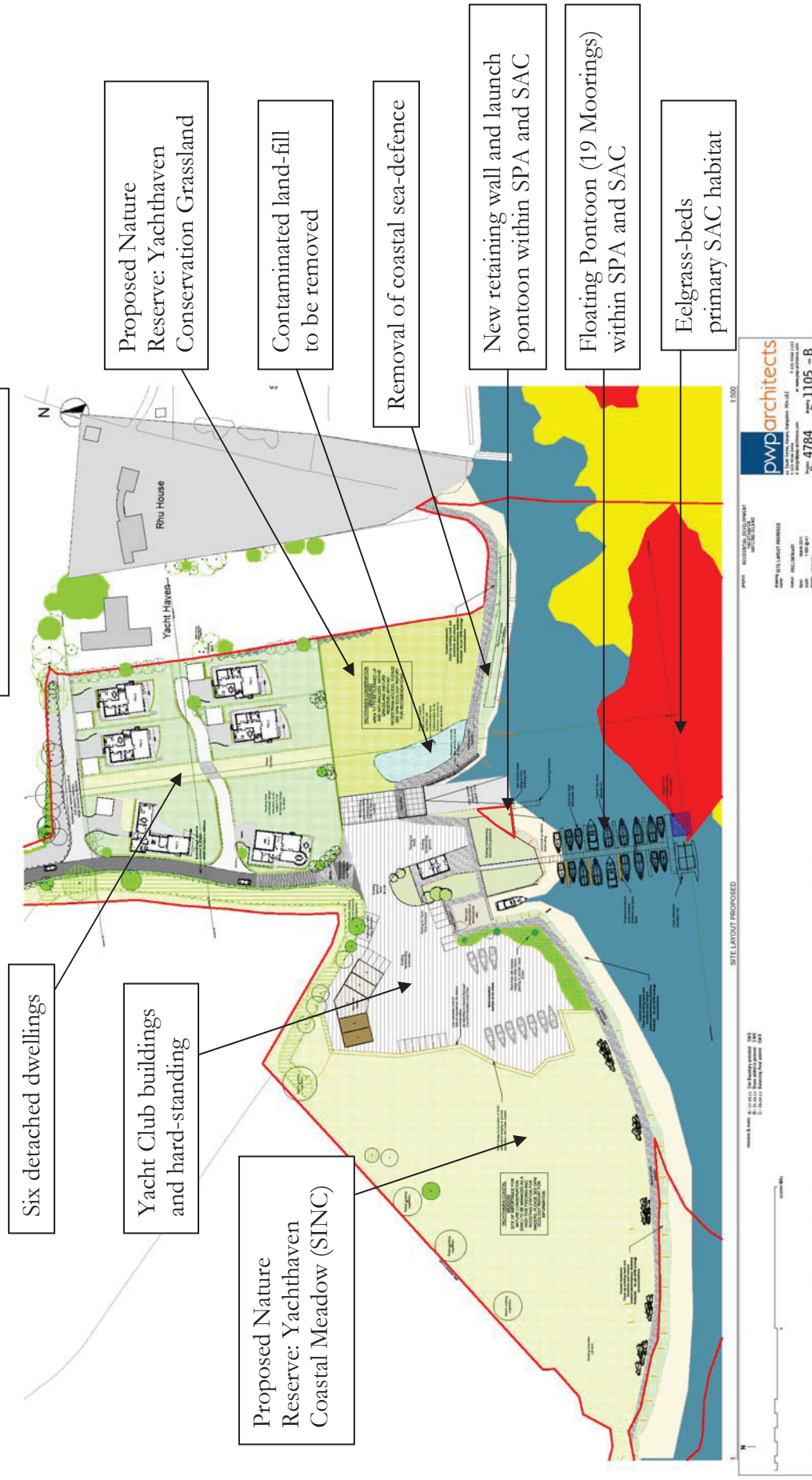


Figure 1b: Development Access
 Yachthaven, Hayling Island
 GPM Ecology, April 2011



**Figure 2: Vegetation
Survey and Target Notes**
Yachthaven, Hayling Island
GPM Ecology, April 2011



Plan compiled by John Norton

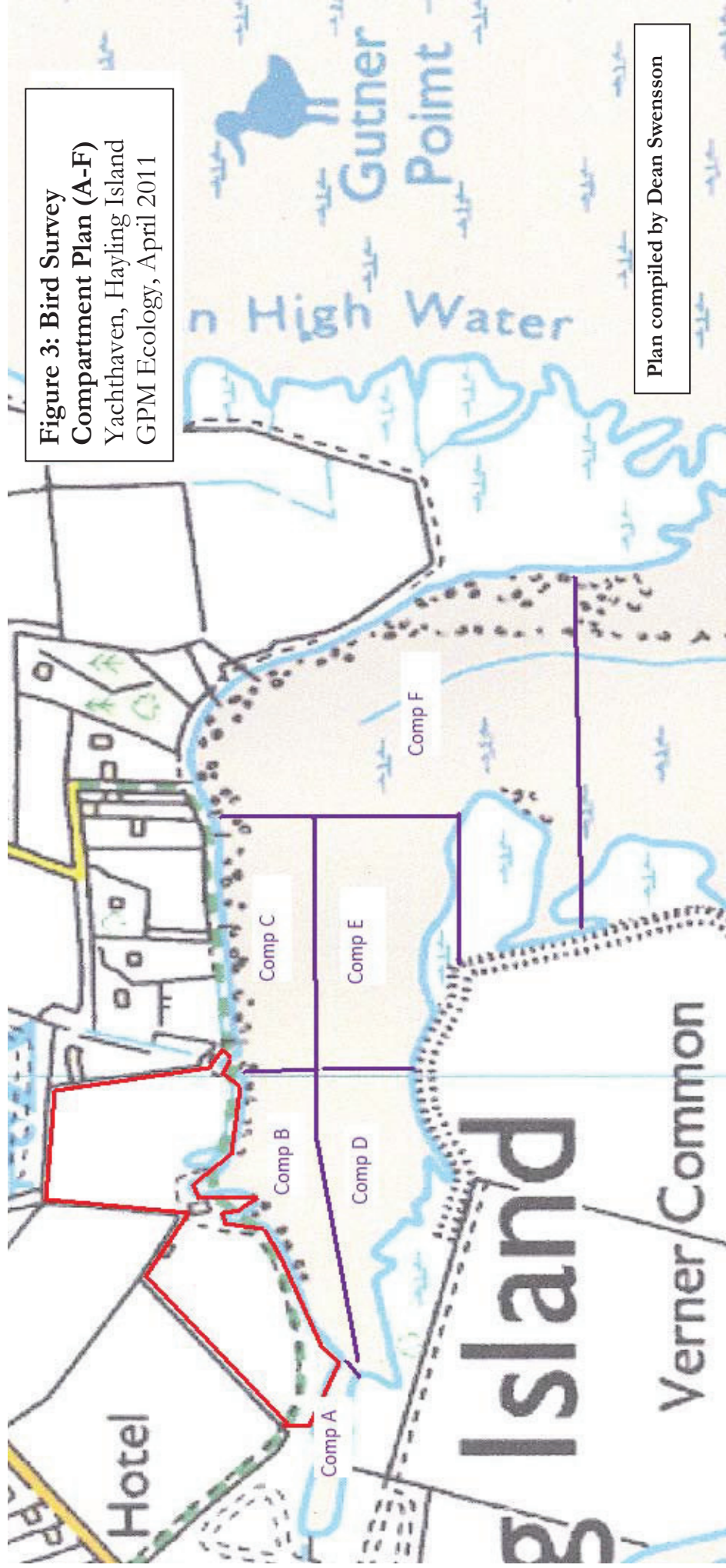


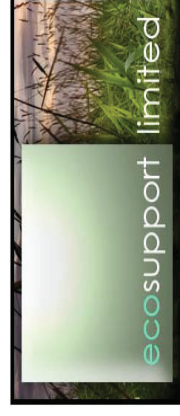
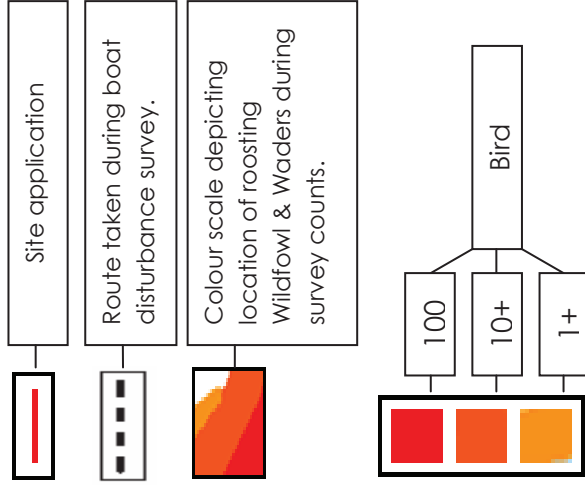
**Figure 3: Bird Survey
Compartment Plan (A-F)**
Yachthaven, Hayling Island
GPM Ecology, April 2011

Plan compiled by Dean Swenson



**Figure 4: Disturbance
Survey Route and
Location of Wader Roosts**
Yachthaven, Hayling Island
GPM Ecology, April 2011

Plan compiled by Dean Swensson



Yachthaven, Hayling Island
GPM Ecology, April 2011

Yacht Club: to provide a Code of Conduct for members and boat users and provide signage within creek, warning boat-users of sensitive areas to avoid (as detailed in Ecological Report)

Survey and mitigation for reptiles within construction areas

[illegible]

Contaminated land-fill to be removed and left unfilled as a scrape, with ditch-system draining into scrape and culvert outfall onto foreshore

Mooring
exclusion zone,
to avoid damage
to Eelgrass-beds



**Figure 6: Proposed Enhancement
of Yachthaven Coastal Meadow**
Yachthaven, Hayling Island
GPM Ecology, April 2011



Plan compiled by Dean Swensson

PHOTOGRAPHS FOR YACHTHAVEN ECOLOGICAL PHASE II REPORT



Photo 1 - The mouth of Yachthaven creek, view across the end of Verner Common High-tide Roost with Yachthaven in background



Photo 2 - Rigid-hull Inflatable Boat (RIB) used in bird disturbance investigation



Photo 3 - Shed with gap between asbestos roof and internal cladding, potential for bats



Photo 4 - Shed with potential for bats, destroyed by vandals in October 2010



Photo 5 - Area of cleared, bare ground, derelict buildings and small trees on eastern boundary



Photo 6 - Coastal bank part infill, east of existing boatyard, with patchy grassland and mossy turf