

EASTOKE POINT COASTAL DEFENCE WORKS Southern Hayling Frontage

**A Study to Inform the Scoping Phase for an
Environmental Impact Assessment**

October 2011



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Non Technical Summary

Introduction

Havant Borough Council, acting in its capacity of Coast Protection Authority, is responsible for managing the flood risk from the sea at Eastoke Peninsula, which is located along the south eastern frontage of Hayling Island, Hampshire.

The Eastoke Peninsula is a densely populated area to the south east of Hayling Island. The southern and south eastern frontages of the peninsula comprises mixed shingle beach with timber and rock groyne control structures. The southern Eastoke frontage is at risk from erosion, tidal flooding and over topping flooding. Havant Council Officers, working in partnership with the Environment Agency (EA), have considered in detail the potential risks to the Eastoke area and have developed the approved Eastoke Sectoral Strategy Study which sets out the preferred option for defending the Eastoke Peninsula, (approval date Dec 2006). The Strategy recommends works to protect the Peninsula from coastal erosion and flooding over a 100 year appraisal period and states that *"...the principle concern along the coastal frontage is that unmanaged, the shingle beach would erode leading to breach causing widespread flooding or properties...without intervention the Peninsula would be cut-off and 1,743 properties, a nature reserve, marina, sailing club, extensive holiday chalets and caravan parks and associated infrastructure would be lost through flooding from both the northern and southern frontages..."*. The Eastoke Point Coastal Defence works is one element of this "intervention". This option is consistent with the hold the line policy as recommended in the North Solent Shoreline Management Plan, adopted in December 2010, which has recently superseded the East Solent Shoreline Management Plan (June 1997).

The Eastoke Peninsula benefits from a combination of existing defences; the southern Eastoke frontage has an extensive shingle storm beach that is a vital coastal defence for the residential area of the Eastoke Peninsula. This is maintained through beach management via approved annual beach recycling and periodic re-nourishment of the beach. Also, the defences already in place at the Eastoke Point area comprise an existing rock revetment, rock groynes, and a splash wall. The Environment Agency has recently constructed a tidal flooding scheme for the north of the Eastoke Peninsular. The scheme consisted of new and raised flood walls, flood gates and various other structures to provide the required degree of flood protection. The Eastoke Point coastal defences works will be designed to compliment the existing beach management schemes along the Eastoke frontage in further managing sediment losses to the east, around Eastoke Point. Ideally, this will eventually reduce the scale of the requirement for the annual Beach Recycling.

Description of Scheme

Havant Borough Council recently commissioned HR Wallingford to undertake a study (Eastoke Point Coastal Defence Study, May 2009 available to view on the Havant Borough Council website at: <http://www.havant.gov.uk/havant-11342> to develop a sustainable coastal defence scheme for managing coastal erosion and flooding risks along the Eastoke Point frontage of Hayling Island. The study considered a total of six main options for coastal defences of the Eastoke Point area. The outcome of this study is the preferred coastal defence management option for the Eastoke Peninsula, which comprises a hybrid of various defences to achieve the desired standard of flood protection of 0.5% AEP to these low-lying residential areas. This preferred option proposes the following coastal defences:

Groyne replacement or improvement,

- Rock revetment,
- Improvement and maintenance of splash wall,
- Beach recharge,
- Groyne maintenance,
- Revetment maintenance,
- Beach access ramps and maintenance,
- Review existing access arrangements to the promenade.

The proposed scheme will be designed to be capable of adaptation in the light of changes to wave conditions, tide levels or for unforeseen affects. This is thought appropriate due to unpredictable waves and near shore depths in this area.

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1.0 Introduction

This document is a guidance note to inform the formal Screening and Scoping stage in the planning application process and marks the first stage in the Environmental Impact Assessment (EIA) of proposed works to maintain the coastal defences along the Hayling Island Eastoke Point Peninsula, located in Hampshire, UK. The summary report reviews the current state of knowledge regarding the study area, drawing on existing research and reports, in particular the Eastoke Point Coastal Defence Study 2009, for the area and addressing any significant likely impacts of the proposed defence works.

This document details the environmental scoping of all potentially technically viable options identified to maintain the beach in accordance with the Eastoke Point Coastal Defence Study 2009. For the scoping study, a high level environmental assessment has been undertaken to identify the key environmental issues and appropriate level of assessment required to develop the scheme for the construction phase.

This document will be used for consultation with the Local Planning Authority, statutory and non-statutory consultees, to confirm that the proposed level and scope of the EIA is appropriate. Any consultee comments and issues raised will be used to inform the appraisal of options.

2.0 The Study Area

Hayling Island is located on the south coast of England in the Eastern Solent as shown in Figure 1. This summary report makes particular reference to the Eastoke Peninsula, which forms the south-eastern corner of the Island and is surrounded by water on the southern, eastern and northern frontages. The main water body located to the north and east of the peninsula is Chichester Harbour and the water body to the south, is the Solent.

The Eastoke Peninsula is a densely populated area to the south east of Hayling Island. The southern and south eastern frontages of the peninsula comprises mixed shingle beach with timber and rock groyne control structures. The southern Eastoke frontage is at risk from erosion, tidal flooding and over topping flooding. Havant Council Officers, working in partnership with the Environment Agency (EA), have considered in detail the potential risks to the Eastoke area and have developed the approved Eastoke Sectoral Strategy Study which sets out the preferred option for defending the Eastoke Peninsula, (approval date Dec 2006). The Strategy recommends works to protect the Peninsula from coastal erosion and flooding over a 100 year appraisal period and states that *"...the principle concern along the coastal frontage is that unmanaged, the shingle beach would erode leading to breach causing widespread flooding or properties...without intervention the Peninsula would be cut-off and 1,743 properties, a nature reserve, marina, sailing club, extensive holiday chalets and caravan parks and associated infrastructure would be lost through flooding from both the northern and southern frontages..."*. The Eastoke Point Coastal Defence works is one element of this "intervention". This option is consistent with the hold the line policy as recommended in the North Solent Shoreline Management Plan, adopted in December 2010, which has recently superseded the East Solent Shoreline Management Plan (June 1997).

The Eastoke Peninsula benefits from a combination of existing defences; the southern Eastoke frontage has an extensive shingle storm beach that is a vital coastal defence for the residential area of the Eastoke Peninsula. Also, the defences already in place at the Eastoke Point area comprise an existing rock revetment, rock groynes, and a splash wall. The Environment Agency has recently constructed a tidal flooding scheme for the north of the Eastoke Peninsula. The scheme consisted of new and raised flood walls, flood gates and various other structures to provide the required degree of flood protection.

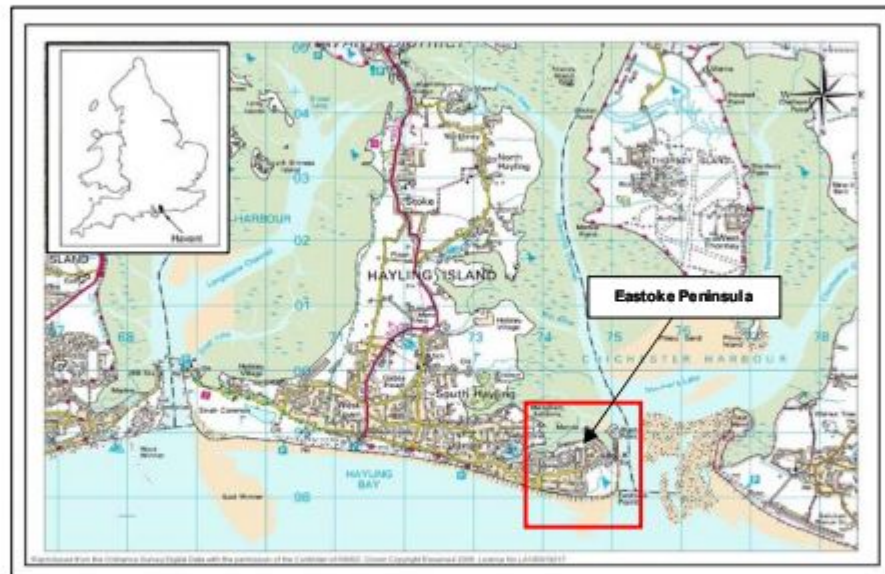


Figure 1: Site Location Map

2.1 Climate change

The climate in Hampshire is characterised by relatively low rainfall and a constant monthly mean. Average annual rainfall in the south east is around 750 mm (Reference: Met Office).

There is increasing concern about climate change. In particular, sea level rise relative to the land is expected to increase dramatically in the 21st century. This will have implications for natural coastal processes and consequently coastal protection along the study frontage.

Wave modelling of the east Solent suggests that changes in offshore wave heights due to increased storminess and sea level rise will cause a linear change in onshore wave heights. Changes in the nearshore wave climate will also have significant impact on sediment transport and coastal protection.

The proposed coastal defences will be designed to ensure that they are adaptable and sustainable, ensuring that should the design need to be altered to adapt to changing conditions (change in wave climates, sediment transport, sea level, etc), or due to any unexpected outcomes, then this can be done both relatively easily and quickly at minimal cost.

3.0 Project Description

Havant Borough Council recently commissioned HR Wallingford to undertake a study (Eastoke Point Coastal Defence Study, May 2009 available to view on the Havant Borough Council website at: <http://www.havant.gov.uk/havant-11342> to develop a sustainable coastal defence scheme to manage coastal erosion and flooding risks along the Eastoke Point frontage of Hayling Island. The Study considered a total of six main options for coastal defences of the Eastoke Point area. The studies preferred option for the Eastoke Peninsula, comprised a hybrid of various defences to achieve the desired standard of flood protection of 0.5% Annual Exceedance Probability (1 in 200 year) to these low-lying residential areas.

This preferred option proposed the following:

- Groyne replacement or improvement,
- Rock revetment,
- Improvement and maintenance of splash wall,
- Beach recharge,
- Groyne maintenance,
- Revetment maintenance,
- Beach recycling and management.

The proposed scheme will be designed to be capable of adaptation in the light of changes to wave conditions, tide levels or for unforeseen affects. This is thought appropriate due to unpredictable waves and near shore depths in this area. Also, the scheme will be designed to be capable of adaptation to ensure that should the design create adverse environmental impacts, or a navigational hazard, then steps can be taken to address the situation at relatively low cost.

3.1 Groyne Replacement or improvement

At this stage it is proposed that the existing timber groyne numbers 4, 5, 6 and 7 are replaced with new rock groynes. The new groynes will probably be constructed with 3 to 6 tonne armour rock. The majority of the groyne will normally be buried by beach. The top of the groyne will generally follow the profile of the beach but may be up to 1m above the level of the beach; this may increase after a storm event. Some work may also be required to Groyne 2.

It is also proposed to connect the existing timber groynes numbers 9, 10 and 11 to the new rock revetment, again probably with 3 to 6 tonne rock armour. This connection will normally be buried under the beach. A typical cross-section of the beach is shown on Drawing No SE13/742 found in Appendix E. This is subject to changes during the detailed design process.

3.2 Rock revetment

It is proposed to construct a new rock revetment between Groyne 2 and Groyne 12 again probably with 3 to 6 tonne armour rock. Between Groynes 6 and 12 the revetment will protect the existing concrete recurve seawall from undermining and erosion. It will also assist in stabilising the top of the beach and act as a second line of defence if the beach is removed in a storm event. Between Groyne 4 and 5 the rock revetment will protect the existing sheet piles which are in reasonable condition. Between groyne 2 and 4 the revetment will provide the secondary defence at the back of the beach against erosion. At groyne 2 it will tie in to the previously constructed rock revetment.

The majority of this revetment will be covered in beach material and will therefore not be visible except if it is exposed by a storm event. In some areas it may be necessary to use the rock to increase the height of the back of the beach and use the rock to help in keeping the beach in place. The elevation of

the berm is yet to be decided but it is unlikely to exceed +6m. OD. The elevation will need to be carefully designed to balance the standard of defence against the visual intrusion of the increased height of the berm.

An outline design for the revetments is shown on Drawing No SE13/742 found in Appendix E. This is subject to changes during the detailed design process.

3.3 Existing splash wall

The existing splash wall is at the rear of the promenade and extends from Groyne 7 westwards. It provides a tertiary line of defence for the housing on the landward side of the wall from flooding by overtopping water. It is currently a reinforced concrete wall in reasonable condition. Part of the design will involve reviewing the overtopping flows and drainage for these flows. This may involve the need to raise the splash wall to contain these flows. If this is the case the increase in level will be balanced against the visual impact of the increased height and the opportunity will be taken to consider visual enhancement of the area.

In addition as part of the overtopping flows review the opportunity will be taken to review the current stoplog arrangements at the two access points and see if they can be altered to reduce the amount of overtopping flows they are allowed to pass and also to improve disabled access at these locations.

3.4 Beach Recharge

It will be necessary to recharge the beach between groynes 4 and 7. This is needed to act as the primary coastal defence in this area. In the past it has been difficult to maintain the profile of the beach here and part of the current scheme is to design the groynes to keep the beach in place. The beach recharge material is likely to be similar to that existing on the beach. It is likely to be from an offshore source and delivered to the area by sea. Due to the water depths it is unlikely that it can be delivered to the location that is required. It may therefore be necessary to land the material further to the west and then transport it along the beach to the required location.

3.5 Groyne maintenance

There will be a continuing need to maintain the rock groynes if rocks become displaced or if it found that the groynes need to be amended in height or length to adjust to changing conditions.

3.6 Revetment maintenance

There will be a continuing need to maintain the rock revetment if rocks become displaced during a storm event or if the beach is washed away and the revetment becomes a safety hazard.

3.7 Beach recycling and management

It is likely that the current recycling and management regime will need to continue once the scheme is completed. This is necessary to maintain the primary defence, the beach to the required standard. It is hoped however that the scheme will reduce both the quantity and the frequency of the operation.

3.8 Construction period

It is estimated that the scheme will take approximately six months to construct and the preferred construction period is **April to September**. This is economically advantageous as the Contractors costs will be lower with less down time during the summer. It will also avoid disturbance to overwintering birds. It is believed that the interface with the tourists can be managed as the scheme location is away from the main beach frontage and the access arrangements can be managed.

4.0 Baseline Summary

4.1 Nature Conservation Designations

A number of environmental designations have been awarded to sites within the Eastoke Peninsular area. The Peninsula is entirely surrounded by a Special Area of Protection (SPA), whilst Chichester Harbour is designated as a Site of Special Scientific Interest (SSSI), a Special Protected Area (SPA), Ramsar Site and an Area of Outstanding Natural Beauty (AONB). Sandy Point, located on the eastern tip of the Eastoke Peninsula is designated as a Local Nature Reserve and the Southern Eastoke Frontage is a designated Site of Importance for Nature Conservation (SINC). It is recognised that any shoreline management operations must take account of the environmental value of these areas, and ensure damage is avoided or mitigated against.

Figure 2, taken from Magic Maps, <http://magic.defra.gov.uk>, and Figure 3, provided by Hampshire Biodiversity Information Centre shown below, illustrates the locations of these designations.

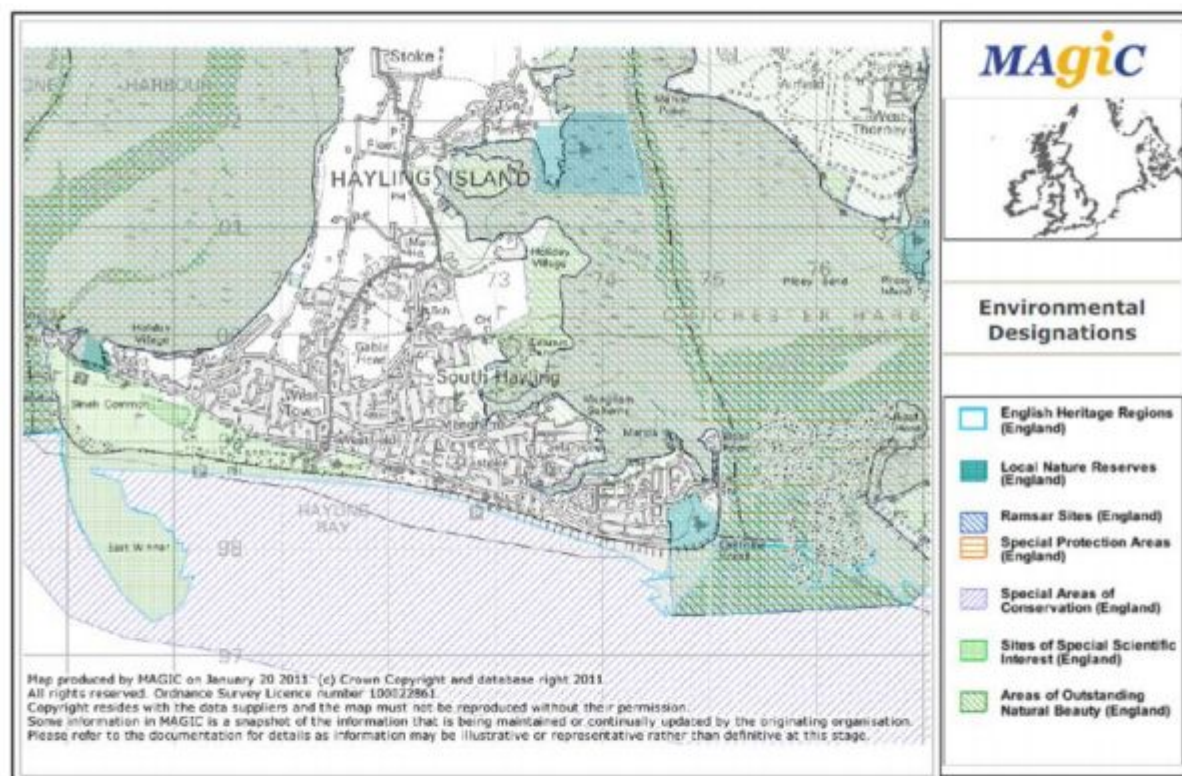


Figure 2: Designated Environmental Protection Areas

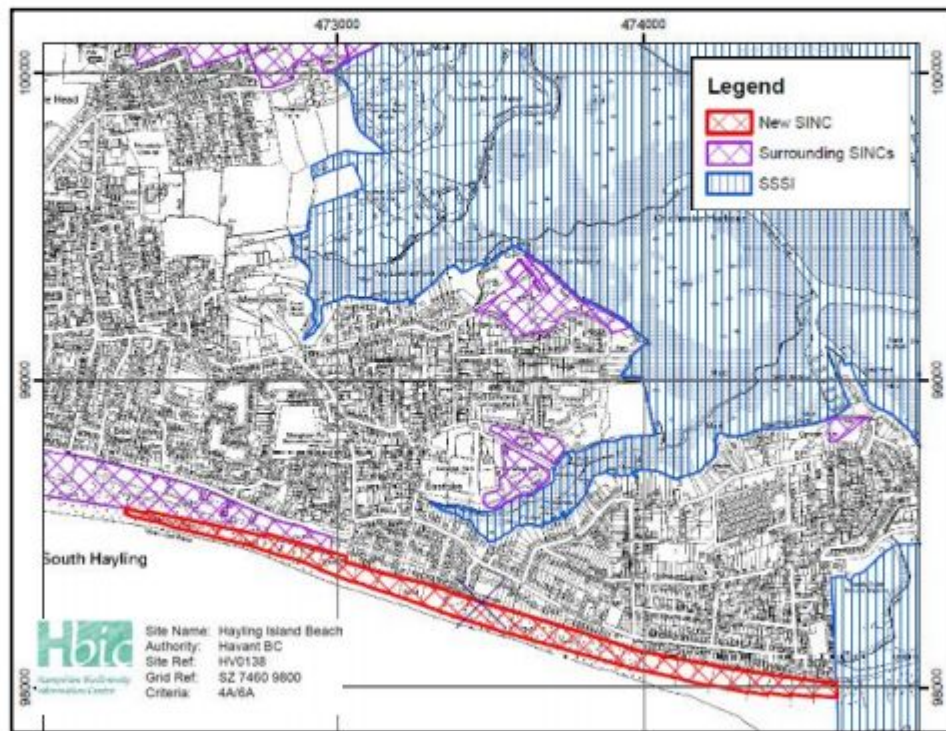


Figure 3: Designated Site of Importance for Nature Conservation

4.1.1 Special Protection Area (SPA)

A major aim of the EU Birds Directive is to conserve the habitats of qualifying bird species in order to ensure their survival and reproduction within the EU. A key mechanism in achieving this is the classification by Member States of the most suitable sites as SPA.

Chichester & Langstone Harbours qualify as a SPA for supporting an assemblage of c. 102,000 wintering waterfowl. This large population of a number of different species of waterfowl, visit the harbours during migration or overwinter there. Many travel from breeding grounds in Greenland, Iceland, Scandinavia and Siberia. The internationally important assemblage of waterfowl not only includes the internationally important regularly occurring migratory birds but also those bird species that are present in nationally important numbers or whose populations exceed 2,000 individuals. These include Ringed Plover, Curlew, Bar-tailed Godwit, Turnstone, Wigeon, Pintail, Shoveler and Red-breasted Merganser.

Their favoured roosting and breeding grounds are further up in the shelter harbour area and there should be no adverse effects on the designated interest features of these sites. The proposed construction works for the Eastoke Peninsula frontage is based on the more exposed coastal area. A meeting with Natural England and Hampshire County Council's Local Nature Reserve ranger revealed that construction works along the Eastoke Peninsula frontage are likely to have only a 'limited' impact on migratory and breeding birds (see Table 2 for the Conservation Objectives of the SPA).

4.1.2 The Solent Maritime Special Area of Conservation (SAC)

The European habitats Directive is an international agreement, which sets out a number of actions to be taken for nature conservation. The Habitats Directive takes account of economic, social, cultural and regional requirements and sets out measures to maintain or enhance natural habitats at a favourable conservation status. The Conservation of Species and Habitats Regulations 2010 transpose the Habitats Directive into law in Great Britain.

The Solent Maritime Special Area of Conservation was accepted by the European Commission in December 2004 and is now a site of community importance. This SAC includes a cluster of features qualifying under Annex 1 of the Habitats Directive. The main feature of concern within the proposed site is annual vegetation of drift lines. Approximately 1/3 of the UK coastline is fringed by beach however much of this coastline is devoid of vegetation. This habitat occurs on deposits of shingle at or above mean high water (MHW) spring tides but below highest astronomical tide (HAT). Other features that are listed in the SAC that also need consideration include the following Estuaries, Atlantic salt meadows, *Salicornia* and other annuals colonising mud and sand, Cordgrass swards (*Spartina*), Mudflats and sandflats not covered by seawater at low tide and Sandbanks which are covered by seawater all the time. Table 3 gives a summary of the above listed features of interest, the conservation objectives and consequences of the operation on those areas of interest and mitigation measures if necessary.

There must be no adverse effects on the designated interest features of this site, the ability to achieve its conservation objectives or on its overall integrity. Existing approved haul routes along the beach berm will be used.

4.1.3 Site of Special Scientific Interest (SSSI)

Sinah Common, a designated SSSI, comprises extensive maritime habitat, which extend over 2km of coastline in the south west extremity of Hayling Island, Hampshire. The most western tip is formed by Gunner Point, which contains the most extensive sand dunes and vegetated shingle beach in Hampshire. Even though Sinah Common SSSI is remarkably species-rich, it is in an unfavourable recovering condition due to the high visitor pressure in the area.

Also, the Eastoke Peninsula lies within the Chichester Harbour SSSI. Extensive mud and sand-flats are exposed at low tide and there are significant areas of saltmarsh, and unimproved grassland behind the seawall. These pastures support a considerable number of rare invertebrate species, which are a food source for the large populations of waders and other wildfowl that use the site as a wintering ground.

Natural England considered that 91% of Chichester Harbour SSSI is in a favourable condition. This includes the area of Sandy Point Nature Reserve, the main habitat being Dwarf shrub heath - lowland (Unit 1 of the Chichester Harbour SSSI). However, within the study area, the foreshore around the Eastoke Point Peninsula (Unit 2 of the Chichester Harbour SSSI) is considered to be in unfavourable recovering condition due to the likely diminishing areas of saltmarsh in the area. Natural England state that this issue is being addressed through creating compensatory habitats and coastal re-alignment at Medmerry.

4.1.4 Ramsar Sites

The study area lies within the Chichester Harbour Ramsar site and has been designated under Criterion 1a of the Ramsar Convention. The site is characterised by internationally important wetland habitats of the Atlantic bio-geographic region including:

- Estuaries;
- Saltmarshes; and
- Inter-tidal mud and sand-flats

The site is also designated under Criterion 3a of the Convention as the wetland regularly supports over 20,000 waterfowl and Criterion 3c of the Convention by supporting >1% of the individuals in a population of waterfowl species.

4.1.5 Local Nature Reserve (LNR)

Sandy Point Local Nature Reserve and Countryside Heritage Site lies immediately behind the beach at Eastoke. This site comprises an area of coastal heathland, sand dunes and scrub. The LNR is

considered to be the best example of vegetated sand and shingle with vascular plants and also host to a large number of flora species which are of restricted occurrence in Hampshire, especially mobile sand dune species (N Sanderson, 1998). Viewing the Vegetation Survey of Sandy Point, 1997 report, it can be seen that the vast majority of vegetation is present within the landward area of the perimeter fence of the reserve.

Havant Borough Council's in-house surveyor carries out an annual summer vegetation survey along the Eastoke frontage, Hayling Island to identify the locations of the vegetated shingle using a Global Positioning System (GPS). This survey is carried out in accordance with Havant Borough Council's Beach Recycling Vegetated Shingle Methodology as shown in Appendix A. This survey data will be used in conjunction with any pre-operation vegetated shingle survey to ensure any impact to the vegetated shingle is kept to an absolute minimum.

Also, as a result from an on-site meeting with the County Ranger of the LNR, it has been suggested that a seed collection and dispersal programme for the vegetated shingle species is carried out both pre (collection) and post (dispersal) construction works. It may even be possible to carry out a 'plug' planting scheme but this may require additional research. This is to be done with guidance from the County Ranger. This programme will not only help to mitigate any adverse affects to the vegetated shingle but could provide potential enhancement of the colonies.

4.1.6 Site on Importance for Nature Conservation (SINC)

There are a number of designated SINC's within close proximity to the study area, with the most recently designated site (as of beginning February 2011) being located on the beach of Hayling Island frontage, which is across the site of the proposed project works.

A survey carried out and made available by the Hampshire Biodiversity Information Centre (HBIC) indicates that the stretch of beach around Eastoke Point ranges from being 'largely unvegetated shingle' to 'partially vegetated shingle'. The survey indicates that within the area of proposed works, eight areas were surveyed. Of these eight, four areas are recorded as '**Largely unvegetated** shingle banks and beach'. A fifth area is recorded as '**largely unvegetated**' dune apart from a narrow strip of semi-fixed dune grassland comprising Sand Sedge (*Carex arenaria*), Marram (*Ammophila arenaria*), Sea Sandwort (*Honckenya peploides*) and Sea Holly (*Eryngium maritimum*), all of which are classified as 'County Scarce'. A sixth area of survey is recorded as '**partly vegetated** shingle bank' comprising Stiff Saltmarsh-grass (*Puccinellia rupestris*), classified as a 'nationally scarce' species. A seventh area is recorded as shingle community, '**partially vegetated** shingle of Sandy Point Beach' which comprises Sea Kale (*Crambe maritima*), Sea Knotgrass (*Polygonum maritimum*), Yellow-horned Poppy (*Glaucium flavum*) amongst other County scarce species and the eighth area is dune area with patches of Sheep's Fescue (*Festuca ovina*), Common Brent (*Agrostis capillaries*) and Sheep's Sorrel agg (*Rumex acetosella*) grassland. Of the species identified in this area, none were identified by HBIC as being 'species of particular interest'.

As aforementioned in Sections 4.1.5, Havant Borough Council's in-house surveyor carries out an annual summer vegetation survey along the Eastoke frontage, Hayling Island to identify the locations of the vegetated shingle using a Global Positioning System (GPS). This survey data will be used in conjunction with any pre-operation vegetated shingle survey to ensure any impact to the vegetated shingle is kept to an absolute minimum throughout the proposed works where possible. To further mitigate against potential disruption, it is proposed to undertake a seed collection and dispersal program both pre and post construction works.

For more information of the designated SINC, please refer to Appendix H.

4.1.7 Requirement for Appropriate Assessment

For all European Sites specified under Regulation 61 of the Conservation of Species and Habitats Regulations 2010, an Appropriate Assessment is required to be undertaken by law. A European Site is any classified SPA and any Special Areas of Conservation (SAC) from the point where the Commission

and the Government agree the site as a Site of Community Importance. Appropriate Assessment is also required, as a matter of Government Policy, for potential SPAs, candidate SACs and listed Ramsar Sites for the purpose of considering development proposals affecting them (PPS 9 Biodiversity and Geological Conservation). Therefore Havant Borough Council, acting as the Competent Authority will be undertaking the assessment as part of the consideration of the planning application for the proposed Eastoke Point Coastal Defence works. As part of this study, Havant Borough Council will contact Hampshire Biodiversity Information Centre (HBIC), Natural England and Sandy Point Nature Reserve Rangers (the latter two sit on the steering group for the project and are already aware of the project and have already been consulted for their input).

Havant Borough Council have prepared a 'Guidance for an Appropriate Assessment' which will be submitted along with this report to inform the appropriate assessment phase. In producing this 'Guidance for Appropriate Assessment', Havant Borough Council have been in consultation with Natural England to ensure their opinion was sought on the proposed scheme. Following consultation, Natural England has provided us with a letter of support stating "Natural England agrees with the outcomes in the Appropriate Assessment". This letter can be found in Appendix I: Natural England Letter of Support and is dated 24th August 2011.

4.1.8 The potential environmental impacts of the scheme have been assessed as detailed in table 1 below. *Please note, these areas will be covered in more detail within the Appropriate Assessment.*

Potential Impact	Significant likely impact	Mitigation measures
Disruption to the hydrodynamics/ processes of the Estuary's function	No	The design will use current research and historic data to minimise any potential impacts on the Estuarine function. The scheme will be adaptable so that any unforeseen effects can be rectified and there will be close consultation with other bodies during the design process to address any concerns.
Disturbance of nesting, roosting birds	No	Restrict working period and access to construction activities from any nesting birds
Noise and vibration	No	Restrict working hours and select time of year
Destruction of areas of vegetated shingle	No	Carry out survey prior to construction commencing and prevent access to vegetated areas
Suspended solids discharged to seawater affecting Mollusca	No	Restrict methods of working
Scheme causing beach material to migrate in to unexpected areas causing damage to habitats	No	Scheme is likely to reduce the migration of beach material, not increase it.
Public access	No	Make suitable alternative arrangements

Table 1: Potential Environmental Impacts of the Scheme

4.2 Cultural and Archaeological Heritage

The Eastoke Point Coastal Study 2009 collated information from pre-historic records for the Eastoke Peninsula area, the findings are as follows:

Prehistoric Period

A prehistoric settlement has been identified at East Head and at Gutner Common on North Hayling. A thin layer of burnt material extending 23m along a low sea cliff and containing burnt flint pot boilers sealed by alluvium has been interpreted as representing prehistoric land clearance. The potential for exposing prehistoric archaeology is unknown.

Bronze Age (2000-600 BC)

In the early Bronze Age, Chichester Harbour was used for seasonal grazing as well as butchering and tanning. There is extensive evidence of Middle to Late Bronze Age settlements including farming



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systems and enclosures. Round houses have been found on the coastal plain at Creek Field, Hayling Island and a rare, Late Bronze Age structure comprising timbers and wattle has been found on the northern frontage of the Island. Six Middle Bronze Age palstaves were located on the east coast of Hayling in 1985. These may be associated with an urn field.

The potential for recovery of Bronze Age artefacts is unclear but this possibility must be considered.

Iron Age (600BC – AD43)

A small rise in sea levels in the Iron Age is likely to have had a significant impact on the study area. There are important links between salt workings and sites on Hayling Island including Tournebury hill fort which guarded the western part of the entrance to Chichester Harbour. There is little potential for exposing Iron Age artefacts.

Roman Period (AD43-410)

The Roman invasion of AD43 resulted in major social and economic changes. There is evidence of an early Roman military presence in Chichester and many artefacts have been found in the area including a bronze helmet dredged from the Harbour and disparate pottery finds. The potential for the recovery of Roman artefacts is low.

Early Medieval Period (AD410-1066)

During the Early Medieval Period, there may have been trade in Chichester Harbour. Chichester was one of the five fortified sites mentioned in the Burghal Hidage, that was probably compiled in around AD919. Chichester evolved into a major town in the 10th century and increasing trade is likely to have led to the creation of a port.

Later Medieval Period (AD1066 -1550)

During this period, the landscape would have comprised villages centred on parish churches. The harbour industries would have included fishing, salt-working, boat building and oyster farming and trade would have formed a significant proportion of the Harbour's economy. Wool appears to have been an important commodity passing through Chichester Harbour during the 13th century. By the end of the 13th century, there seems to have been a period of increased flooding within the area that has been linked to growing storminess and a slight rise in mean sea level. A considerable area of land belonging to the Priory on Hayling Island was inundated during the 14th century.

In South Hayling, three salterns are known; one medieval and two post-medieval. The medieval was the largest, known as Menghams and recorded in the Domesday book. The salterns went out of use in the 1870s and by the 1950s there was no recognisable trace of them. Due to the inundation of Chichester Harbour, the potential for exposing artefacts from this period is low.

Post Medieval (AD1550-1800) and Modern Period (AD1800+)

The area comprises a number of post Medieval and industrial features that include mills (e.g. Hayling Island Tide Mill), harbour piles, salterns in North Hayling and oyster beds.

The sexton map of 1575 is one of the earliest maps of the area and shows Hayling Island as detached from the mainland, with channels shown as extending to Chichester. Due to the inundation of Chichester Harbour, the potential for exposing artefacts from this period is low.

The geology of the study area comprises a mixed sand and shingle storm beach overlying Upper Eocene deposits of the Barton, Bracklesham and Bagshot beds. The ground within the study area is low-lying.

There is evidence to suggest (Hooke and Riley, 1991) that the inter-tidal area decreased by 50% between 1870 and 1965 and increased again between 1965 and 2000. These natural erosion and accretion fluctuations have had a significant impact on the evolution of the Eastoke frontage.

Statutory/non statutory protected features: Scheduled Monuments

English Heritage has confirmed that there are no Scheduled Monuments within the study area.

Listed Buildings

There are no listed buildings within the Eastoke Peninsula.

Conservation Area

There are no Conservation Areas (of special architectural or historic interest) within the study area.

Non-designated Archaeology

A gazetteer listing the cultural heritage features that fall within the study area and surrounding areas is presented in Table 5.1 of the HR Wallingford Eastoke Point Coastal Defence Study, 2009.

This document has been reviewed by the Hampshire County Archaeologist and has commented that "...there are no known archaeological finds and features from within the area affected or within the immediate vicinity. Therefore there are no archaeological issues I would wish to raise in this instance". Therefore it is considered **unlikely** that the scheme will significantly impact on Archaeology of the area if any is present.

4.3 Tourism and Recreation

Tourism is an important feature of the borough's economy. It attracts c. 2.2 million visitors per year and is valued at c. £47 million providing employment for around 2000 people. Tourism makes a significant contribution to the local economy as people spend money in shops, hotels, cafes etc.

At Eastoke, the beach and the sea are important tourist attractions. To the west of the study area, the beach is mainly backed by residential properties along with some cafes and restaurants. The beach is used extensively by both locals and tourists although the latter tend to be concentrated during the summer months. The beach along the main southern seafront at Eastoke is a repeated winner of a Rural Seaside Award flag. These awards are presented to well-managed rural beaches with clean shorelines and excellent facilities excluding first aid facilities, public telephones, drinking water, disabled facilities and dog bans. In fact Eastoke beach provides all the above facilities apart from dog bans and first aid.

Sandy Point LNR also constitutes a tourist attraction, particularly for bird watching, as the area supports a number of protected and unusual bird species. However, in the main, visitors are not encouraged onto the site in order to preserve the interest features.

In addition to land based activities, there are a wide range of water based recreational activities available. These include angling, boating, jet skiing, sailing and wind surfing. Chichester Harbour, which is adjacent to the peninsula, is used extensively for a wide range of interrelated activities such as sailing, fishing, walking and wildfowling as well as nearly 9,000 vessels over 3 metres in length, 3,200 moorings, 2,000 berths in six marinas and 14 sailing clubs.

The entrance channel to Chichester Harbour is also an important consideration in any proposal for coastal management and defence schemes at Eastoke Point. This channel runs close inshore and is well used by a large number of both commercial and recreational craft using the Harbour, as well as the lifeboat. Maintaining safe navigation of the harbour channel is a key consideration when designing the coastal defences and an important reason for creating an adaptable design.

Due to the high number of both land and water based activities that are available at Eastoke Point, it is proposed that the period of working will be reviewed in the light of all various constraints. Also, considering the wide range of water and land based activities, the different users and community groups in the area, a "Stakeholder Engagement Plan" is being prepared to ensure all key interested parties are consulted/ informed of the proposed works.

The proposed works are to be located on the Eastoke Peninsula which is a relatively small area of the Eastoke Frontage. Considering this and that the works will be located away from the main tourist area, the operation is **not likely to have adverse effects** on tourism. Some local disturbance (which is not considered to be significant) is expected throughout the construction phase to nearby residents and the general public, however, we will strive to keep these disturbances to a minimum through implementing restrictions on Contractors working hours throughout the construction phase (as highlighted in section 4.6 and 4.7 of this report). It should be noted that during the construction phase, only certain sections of the beach will be closed to public for health and safety purposes. Access to the majority of the beach will be maintained at all times. Once the construction phase is completed, the coastal defence works is **not considered to have a significant adverse effect** on tourism or recreation.

4.4 Fisheries

The information presented in this section has been taken from the Eastoke Point Coastal Study 2009 which has been collated from various sources. The Solent is a mixed sea fishery that is of both commercial and non commercial importance. The main commercial fisheries are for pelagic and demersal species and shellfish cultivation. A number of inshore areas are designated as protected nursery grounds for bass.

4.4.1 Shellfish cultivation

The harbours of the Solent are one of the few areas in the UK that supports oyster (*Ostrea edulis*) fisheries. In fact, this shellfishery represents Europe's largest self-sustaining stock and as such, its conservation is of international importance. Chichester Harbour supports public and private oyster fisheries, cultivating both native and Pacific oysters. The oyster fishery is managed through bye-laws and the majority of the Solent is designated as a regulated fishery with access restricted to licence holders. The whole of Chichester Harbour is a classified shellfish production area for the native oyster under the Food Safety (Fishery Products and live Shellfish) (Hygiene) Regulations 1988.

There are up to 6 full time and 18 part time boats based in Chichester Harbour that are licensed to dredge for oysters within the harbour and the Solent between November and April. The oyster industry within Chichester Harbour is relatively small, as is net trawling activity as there are only around 12 small trawlers currently in operation. These numbers increase during the winter months when boats from Selsey join in the oyster dredging. All oyster fisheries are closed from April to October. The shellfish harvesting area in Chichester Harbour is classified Grade B due to water quality problems resulting from effluent discharges.

The Oyster beds are located as shown in Appendix F Shellfish Harvesting Areas of Chichester Harbour, and it is considered **unlikely to be significantly impacted** by the proposed coastal defences as they will be designed to manage the sediment movement around the peninsula, not halt it all together through an adaptable design. The adaptations could include, for instance, amending the heights and lengths of the rock groynes.

4.4.2 Commercial pelagic and demersal fishing

At present, there are fixed fishing pots offshore from Eastoke, and there are fixed nets on the beach itself at certain times of the year. Nets are set for a wide variety of fish species within the study area. These include spider crab, whelk, cuttlefish, mullet and bass.

As stated previously, Chichester Harbour has been designated a sea bass nursery area and boat based fishing for bass is prohibited between 1st May and 31st October. Bass fishing is extremely popular across the region and constitutes a major source of income for some part time fishermen. Bass are generally captured in gill and trammel nets, on hand and long lines or trawls.

Sole, Plaice, Turbot, Brill and several species of Ray are also fished within the region. Gill nets are used for Cod and Whiting during the winter months when the fish appear closer inshore. However, the

region is not renowned for its cod industry. Gill nets and long lines are sometimes set around wreck sites to catch Ling, Pollack, Dogfish and Tope. Otter and beam trawls are used to catch flatfish during the spring and summer. Red Mullet and Black Bream are also caught during the warmer months using otter and pair trawls.

In addition to commercial fisheries, around 10,000 amateur anglers fish from the shoreline or from boats within Chichester Harbour.

With the movement of fishing traffic, both commercial and private, through the harbour, it is important that the safe navigation of the channel is maintained and incorporated into the design of the proposed defences. The location of the fishing pots, fixed nets and other fishing equipment will also need to be considered during the construction stage. This will be done through communication with the fishing community from an early stage both through Havant Borough Council and the Chichester Harbour Conservancy.

The scheme is considered **unlikely to significantly impact** the fisheries interest in this area due to the small scale and short duration of the works.

4.4.3 Species abundance

A survey of fish species and abundance has been carried out by the University of Portsmouth in 1999 and 2004. This found that fewer fish species were recorded in 2004 compared to 1999. However, the majority of species that were not found during the later survey were those that appeared only rarely in the 1999 report. Four additional species were recorded in the 2004 survey – the Lesser Weaver, two species of Dragonet and the Red Gurnard. A total of 40 species were recorded over the two surveys. The main difference between the two surveys was in two small pelagic fishes that were found to be abundant in 1999 but absent in 2004. Many other species appeared more abundant in the later survey and hence, the variability may be attributed to changes in fishing methods as well as natural population fluctuations.

The Solent has a mixed sea fishery that is of both commercial and non commercial importance. The design and construction phase needs to be designed to avoid unnecessary disturbance.

4.4.4 Possible effect on fisheries

It is **not** thought that the proposed scheme will have effect on fisheries as it is of relatively short duration and very little of the construction activities will occur in the water.

4.5 Land Use

The Eastoke Peninsula and surrounding area supports a diverse range of land usage. These uses can be categorised as follows:

4.5.1 The Solent and Chichester Harbour

The study area is bordered by the East Solent, which has a high environmental value that is reflected in extensive areas being designated for protection including coastal habitats and geological features such as those described in Sections 3 of this report.

Chichester Harbour is widely used for recreational (mainly boating) activities. The Harbour holds 3200 moorings, 2000 berths in 6 marinas and there are 14 sailing clubs.

4.5.2 Public open spaces

The mixed sand and shingle beach is widely used by both residents and tourists for recreational purposes, particularly during the summer months.

An area of land on the northern edge of Southwood Road has been allocated as a potential site for the 'retention of open space in an urban area'.

The beach at Eastoke is also used for access to the sea by the RNLI lifeboat.

4.5.3 Urban

Eastoke Peninsula is a densely populated urban area that comprises 1538 residential properties, 990 caravans and 86 commercial premises (HBC, 2004).

Disruption to local businesses and the various recreational activities, both land and sea based, should be mitigated and kept to a minimum.

4.6 Traffic and Transportation

Due to the close proximity of residential property to the storm beach at the Eastoke Peninsula, the free flow of traffic on the surrounding highways has been considered as a potential problem associated with the scheme. Previous successful schemes for this frontage include the Beach Nourishment and Beach Recycling and therefore the traffic restrictions placed on these have been used mirrored for the Eastoke Point Coastal Defence works. There is currently an existing haul route along the top of the shingle ridge, which is used periodically to transport shingle from east to west during the annual recycling operation (see Appendix B). It is therefore unlikely that any proposed scheme will require the creation of access points to the beach.

It is recommended restrictions are placed on the contractor to only allow work between 7.00am and 7.00pm. No machinery will be allowed to be operated outside of those hours, which includes delivery, collection and maintenance. In addition to this, no weekend working nor on recognised Public Holidays, is permitted except in special cases. In exception to this, sea based activities, for example material arriving via vessel and beach re-nourishment, will need to accommodate for tidal conditions and therefore need to be able to operate over a 24hour/day time period. See section 4.7.1 for more details.

In the interest of free flowing traffic on and off the island, restrictions will be put in place so that no delivery to or collection from, the application site using construction vehicles between the hours of 3.00pm and 9.30am on any day except in special cases. Also, the construction vehicles will be restricted to a specified route of transport to minimise disturbance (see Appendix C).

The Development Engineer of Havant Borough Council's Transport and Implementation Team commented that as long as the restrictions detailed above are enforced then the works are **unlikely to have a significant** on traffic and transportation within the surrounding highways.

4.6.1 Sea transport

The entrance to Chichester Harbour lies adjacent to the study area. This serves fishing boats, pleasure craft, and limited commercial vessels. It is important that any proposed scheme will not adversely affect the dredged harbour channels. Also, should material arrive by vessel, a specific approach route will be agreed in advance with Chichester Harbour Conservancy and disseminated to all local fisherman as has been successfully done in previous years to keep Disruption to local traffic to a minimum (for example, 2009 Beach Nourishment Project).

The Hayling Island Lifeboat station is located at the eastern end of the study area. Access for launch, recovery and operation of RNLI lifeboats at this site will be maintained during construction works period.

4.7 Noise and Vibration

4.7.1 Noise

Activity within the study area is limited and, as such, noise levels are typical for a coastal location. Existing noise levels are dominated by the natural sounds of the sea and the wildlife.

Due to the urban nature of Eastoke Peninsula, vehicles and plant on the beach are allowed between 07:00 and 19:00 during the annual recycling operations. Although dependent on the types of operation being carried out, it is thought that any proposed works would also adhere to these time limits to minimise disturbance, although a review would be carried out if any complaints were received.

Renourishment works using dredgers generally operate 24 hours a day. This is to allow for tidal conditions as vessel activity will typically occur 3 hours either side of high water. This may give rise to some disturbance should the proposed scheme include beach recharge; the disturbance would be moderate and of reasonably short duration. In particular, elevated noise levels will occur whilst the vessels discharge their load onto the beach, which is typically over 60 minute periods. In recent years, dredgers have discharged shingle and sand onto the beaches at Eastoke using a "rainbow" technique. If at some future date it was decided to use a pipeline to deliver such materials, this would reduce noise levels during such operations.

4.7.2 Vibration

Due to the close proximity of the residential properties to the proposed construction area, the movement of operational machinery and the construction works may cause a potential problem through vibration, particularly to the residential dwellings located closest to the operation area (far east of the promenade on the southern frontage) and those dwellings neighbouring the compound at 72 Southwood Road both to the immediate north, east and west.

In order to limit the disturbance through vibrations, it is recommended restrictions are placed on the contractor to only allow work between 07:00 and 19:00. No machinery will be allowed to be operated outside of those hours, which includes delivery, collection and maintenance. In addition to this, no weekend working nor on recognised Public Holidays, will be permitted except in special cases.

This document has been reviewed by the Environmental Health Team Leader of Havant Borough Council's Environmental Health Department who commented with regards to Noise & Vibration "...I accept that there may be some problems with vibration in close proximity to certain residential properties but anticipate that provided works are limited to the proposed hours of operation the residents may well take the pragmatic view that it is a price worth paying...". Should complaints arise, the Environmental Health Department would review whether the best practicable means were being

taken to minimise disturbance. Therefore we anticipate that the scheme is **unlikely** to have a significant impact on area but may well have some localised impact throughout the construction phase.

Also, consideration is given to the likely affects the construction works may have on the SPA bird species. It is believed that the SPA bird's favoured roosting and breeding grounds are further up in the shelter harbour area, there should therefore be no adverse effects on the designated interest features of these sites. The proposed construction works for the Eastoke Peninsula frontage is based on the more exposed coastal area. A meeting with Natural England and Hampshire County Council's Local Nature Reserve ranger revealed that construction works along the Eastoke Peninsula frontage are likely to have only a 'limited' impact on migratory and breeding birds (see Table 2 for the Conservational Objectives of the SPA).

4.8 Air Quality

Background pollutant emissions for the study area have been estimated by the National Environmental Technology Centre for 2005 and are presented in Table 4.

Pollutant	Concentration	UK Standard
Nitrogen Dioxide	15.9 ppb	21 ppb
PM10	18.2 ug/m3	40 ug/m3
Sulphur Dioxide	2.93 ppb	8 ppb
Benzene	0.21 ppb	5 ppb
Carbon Monoxide	0.24 ppm	N/A

Table 4: Pollutant Emissions

It is evident that the estimated pollutant concentrations at the site are lower than the recommended UK levels and that air quality is unlikely to be a significant issue at the site.

This document has been reviewed by the Environmental Control Officer of Havant Borough Council and commented that "...the scope of works described is considered **unlikely** to have any adverse effect on air quality..."

4.9 Water

Groundwater

Water resources throughout Hampshire depend on groundwater stored within the Chalk aquifer of the Hampshire Downs. This groundwater is replenished by winter rainfall which percolates down into the water table. It then drains out of the aquifer to provide reliable flows in chalky rivers such as the Test, Itchen and Meon. This water is usually of very high quality and as such requires very little treatment for public supply. No groundwater protection zones are located within the study area.

Surface water

There are three main surface water features within close proximity to the study area. These are:

- Eastoke Boating Lake – This lies to the north-west of the study area;
- The Solent – The study area is bordered by the Solent; and
- Emsworth Channel – This body of water lies to the east of the study area at the mouth of Chichester Harbour.

Bathing water quality

The EU Bathing Water Directive (76/160/EEC) imposes statutory objectives on bathing waters. Its two main objectives are:

- To improve or maintain the quality of bathing water for reasons of amenity; and
- To protect human health.

Samples taken during the past 10 years from the sampling point closest to the study area have consistently achieved an excellent rating for all parameters.

West Beachlands Central beach, which is located to the west of the study area, currently holds a "Blue Flag" which is a symbol of high environmental standards as well as good sanitary and safety facilities at beaches and marinas.

During the construction stage, there is potential for suspended solids to affect the turbidity of the water which may impact on the rating. However, once the construction phase is completed, it is considered **unlikely for the proposed design to have a significant impact** on this rating due to the inert nature of proposed construction material.

4.10 Landscape and Visual Amenity

4.10.1 Local landscape character

Havant's Townscape, Landscape and Seascape Character Assessment was completed in February 2007. The site is on the edge of Landscape Character Area 40, Chichester Harbour Mouth, south of LCA 37, Black, Sandy and Eastoke Points. It is an open and exposed landscape with views across the harbour mouth to the low lying coastline of West Wittering and long views out to sea and inland across Chichester Harbour Basin to Thorney Island and the South Downs

The Eastoke frontage consists of an eroding mixed sand and shingle beach that is controlled by a series of rock and timber groynes in varying states of repair and a partially buried rock revetment. A vertical concrete splash wall runs along the length of the promenade, protecting adjacent properties from flooding. The western end of the study area is bordered by residential properties of varying styles and sizes and traditional seaside amenities such as wooden bench seats, litter bins and beach huts.

The eastern end of the study frontage is backed by the Sandy Point Nature Reserve. This was formerly part of Eastoke common and constitutes one of the last remaining areas of undeveloped land on the eastern part of the island. The nature reserve comprises areas of heathland, sand dunes and grassland. It is separated from the beach by a post and rail fence with wire mesh infill. Works should have no adverse effects on landscape character and visual amenity.

To the east of the study area is Chichester Harbour, part of which has been designated an Area of Outstanding Natural Beauty (AONB). The main characteristics of the landscape are described below.

- A unique blend of land and sea – especially the combination of large open water areas, narrow inlets and creeks;
- Frequently wooded shoreline;
- The flatness of the landscape accentuates the significance of the sea/land intersection and highlights distant landmarks across both land and water. This is an unusual feature of AONBs;
- The open water in the central area of the harbour is a microcosm of the open sea beyond the harbour mouth, reflecting the clouds and sky, the wind and rain;
- A sense of wilderness within the seascape;
- Particularly strong historic character and associations;
- Picturesque harbour-side settlements;
- A rich flora and fauna, notably flocks of wading birds, adds to the diversity of the landscape;
- Unspoilt character and unobtrusive beauty; and
- A harbour offering a very special sense of peace and tranquillity.

4.10.2 Visual impact assessment

In order to identify the potential impacts of any proposed works on the visual amenity of the area, the extent and nature of the views from a variety of representative viewpoints will be assessed,. The principal visual impacts of the proposed works fall into two categories: impacts on the character of the landscape within the study area and, the visual impacts of the works on people living, working or travelling through the area, assessed in the following order of sensitivity:

- **High sensitivity:** Private dwellings and gardens where viewers are likely to view the study area frequently;

- **Medium – high sensitivity:** Public rights of way, country parks and other informal recreational facilities where viewers gain a prolonged view due to a slower passage through the area and where the quality of the view forms part of the amenity;
- **Medium – low sensitivity:** commercial premises, public facilities and schools where the viewer may be familiar with the scene but holds it in lower regard than viewers from residential properties and the surroundings are secondary to the purpose to the visit; and
- **Low sensitivity:** Surrounding road and rail networks where the viewer gains brief glimpses of the view whilst in motion.

The magnitude of the visual impact of any proposed works will be assessed during the option evaluation according to established appraisal guidance. The visual impacts of any new coastal defences will be most apparent to those living behind the eastern end of the promenade just to the west of Eastoke Point, and to those walking along the beaches around Eastoke Point or travelling in boats into and out from Chichester Harbour. Because of this, the visual impacts of any defence scheme can be regarded as of medium-high or high sensitivity. The design of this defence scheme will take this level of sensitivity into account with a view to keep visual impact of the finished construction to a minimum.

The development guidelines for Landscape Character Area 40, Chichester Harbour Mouth, which this site falls within, states that 'the form and scale of the sea defences should as far as possible not over dominate the natural character of the harbour mouth'. The proposed stone groynes will be less prominent on the skyline than the existing decaying timber groynes because only a maximum of 1 metre of large rocks will protrude above the beach material. The current timber groynes proposed for replacement are unsightly in their current state of disrepair and therefore detract from the harbour landscape.

The guidelines for the adjacent LCA 37, Black, Sandy and Eastoke Points include 'Consider the appearance of sea defences and the collective impact they will have on the character of the area'. . The proposed rock groynes are not too intrusive and are consistent with the modern design for groynes. Timber is no longer considered to be effective or sustainable for modern sea defences, to withstand the magnitude of coastal erosion experienced at the harbour mouth.

5.0 Opportunities

Based on the available technical and environmental information, the main Opportunities for Enhancement on the scheme options are as follows:

- The proposed scheme will be designed to manage both flooding and erosion risk, which will benefit the Eastoke peninsular by providing protection to the local residents, beach users, nearby amenities and businesses as well as protection to the Local Nature Reserve (LNR),
- The scheme may be able to provide environmental enhancement of the LNR through improvements to the drainage across the site,
- The scheme will provide improved access and amenity to users of Eastoke Point,
- There will be enhancements to improve disabled access to the area,
- There will be an opportunity for enhancement to the vegetated shingle colonies through a seed collection and dispersal programme post construction works with guidance from the County Rangers.
- There will also be a possible enhancement to the splash wall and promenade along the Eastoke Frontage.

Any additional appropriate enhancement opportunities identified will be incorporated into the final scheme.

6.0 Proposed Options

The HR Wallingford (2009) report describes the main options considered for coastal defences of the Eastoke Point area. These options include:

- Option 0 Do Nothing
- Option 1 Do Minimum
- Option 2 Beach recharge and recycling (alone))
- Option 3 Timber groynes, recharge and recycling
- Option 4 Rock groynes, recharge and recycling
- Option 5 Rock revetment with groynes, with recharge and recycling
- Option 6 Seawall with groynes, recharge and recycling

Each option was carefully considered in turn, weighing the advantages and disadvantages, then scored against the criterion set out below.

Criterion	Priority	Weighting
Prevention of flooding at Eastoke (by wave overtopping or breaching of the barrier beach at Eastoke Point)	High	10
Providing continued high beaches and coastal defence standard along Eastoke frontage west of Groyne 7	High	8
Minimising down-drift erosion and risks of breaching of the spit leading to Black Point.	High	7

Minimising disturbance to flows in Chichester Harbour entrance	Moderate	5
Impacts on the Sandy Point Nature Reserve	Moderate	5
Initial and maintenance costs	Moderate	5
Sustainability	Moderate	5

Table 5: Criteria used to compare Future Coastal Defence Schemes

The multi-criteria analysis technique used indicated that the best two coastal defence options potentially suitable for the Eastoke Point frontage are:

- Option 4 Rock groyne and recycling; and
- Option 5 Rock revetment, groyne, recharge and recycling.

After further consideration, the preferred defence scheme for the Eastoke Corner frontage was decided as **Option 5**.

For a more detailed review of the different Options along with their advantages and disadvantages, please refer to Section 8 of the HR Wallingford (2009) report which can be found on the Havant Borough Council website: <http://www.havant.gov.uk/havant-11342>.

7.0 Consultation

During the study phase which determined the preferred coastal defence option for Eastoke Point, consultation with a wide variety of statutory and non-statutory consultees was carried out. This consultation process included two public exhibitions held at the Hayling Island Sailing Club in December 2009, with 231 attendees, 86% of which gave positive feedback for the scheme.

In order to progress the defence works from outline recommendations to scheme level, the Havant, Portsmouth and Gosport Coastal Partnership have set up a steering group with representatives from the bodies listed below with an interest in this section of coastline, to guide the project forward. Meeting 1 with the steering group members (listed below) took place on 8th November 2010 which confirmed buy in and support for the scheme by all members.

Steering Group Members

- Havant, Portsmouth and Gosport Coastal Partnership
- Hampshire CC (HCC) Environment
- Hampshire CC (HCC) Culture Communities and Rural Affairs
- Chichester Harbour Conservancy
- Environment Agency (EA)
- Natural England

A preliminary Communication Plan outlining requirements for consultation during the scheme is being prepared. This communication plan will involve key interested parties (see Appendix D for a list of identified stakeholders). The plan will be revised appropriately as the project progresses.

8.0 Conclusions

In conclusion, in order to provide suitable and sustainable coastal flood and erosion risk management for the Eastoke Point area that would provide an adequate standard of protection to these low-lying residential areas, the proposed scheme will be designed to be capable of adaptation in the light of changes to wave conditions, tide levels or for unforeseen affects. This is thought appropriate due to unpredictable waves and near shore depths in this area. This adaptable design is a hybrid of defences which comprises:

- Groyne replacement or improvement,
- Rock revetment,
- Improvement and maintenance splash wall,
- Beach recharge,
- Groyne maintenance,
- Revetment maintenance,
- Beach recycling and management.

From studies undertaken, officers at Havant Borough Council know that there is a point of divergence in the sediment transport system along the Eastoke frontage. Material moving easterly at the point of divergence accretes at the "Ness" just inside Chichester Harbour entrance which builds up and presents a navigational hazard at the harbour entrance. Tidal currents are ebb dominated, flushing this material seaward from the inlet. Existing beach management schemes (the annual Beach Recycling and periodic Beach Nourishment schemes) manage this sediment movement periodically. The Eastoke Point coastal defences works will be designed to compliment the existing beach management schemes along the Eastoke frontage in further managing sediment losses to the east, around Eastoke Point. Ideally, this will eventually reduce the scale of requirement for the annual Beach Recycling. It is important to note that the proposed scheme will be designed to *manage* and not designed to *halt* sediment movement around the Eastoke Point peninsula through an adaptable design. This will minimise impact on the sediment flow within the estuary and also prevent potential wider impacts from the scheme (i.e. erosion to the Sailing Club at Black Point).

In conclusion, this summary report highlights and considers the key significant likely impacts of the proposed scheme and reflects on how these key likely impacts will be managed and mitigated against. The key issues and the whether or not the scheme is likely to have an adverse significant impact on them is summarised in the summary table below, Table 6.

As stated in section 4.1.6 of this report, due to the European Designations in and around the study area, an Appropriate Assessment will need to be undertaken by the Competent Authority as part of the Planning Application process. Further to this, should the Local Planning Authority deem it necessary, an Environmental Impact Assessment and a Water Framework Directive Assessment will also be produced as part of the Planning Application process.

Summary Table

Issue	Likely Impact or Not?	Justification for professional opinion	Appendix G Page Number
Environmental Designations			
Special Area of Protection	To be detailed through the Appropriate Assessment		1 - 7
Site of Special Scientific Interest	To be detailed through the Appropriate Assessment		1 - 7
Special Protected Area	To be detailed through the Appropriate Assessment		1 - 7
Ramsar Site	To be detailed through the Appropriate Assessment		1 - 7
Area of Outstanding Natural Beauty	To be detailed through the Appropriate Assessment		1 - 7
Local Nature Reserve	Unlikely	Comments from County Ranger	1 - 7
Cultural and Archaeological Heritage	Unlikely	Comments from Hannah Fluck, Senior Archaeologist for Hampshire County Council	15 - 17
Tourism and Recreation			
Tourism	Unlikely	Based on previous experience from established successful schemes	
Recreation	Unlikely	Based on previous experience from established successful schemes	
Residents	Unlikely (Only short term insignificant impact predicted)	Based on previous experience from established successful schemes	
Fisheries			
Shellfish cultivation	Unlikely	Information taken from the Eastoke Point Coastal Defence Study, May 2009 (HR Wallingford)	
Commercial pelagic and demersal fishing	Unlikely		
Land Use			
The Solent and Chichester Harbour	Unlikely		9 - 14
Public open spaces	Unlikely		9 - 14

Urban	Unlikely		9 - 14
Traffic and Transportation			
Land transport	Unlikely	Development Engineer of Havant Borough Council's Transport and Implementation Team, Peter Marshall commented	8
Sea transport	Unlikely	Based on previous experience from established successful schemes	8
Noise and Vibration			
Noise	Anticipated some localised impact during construction (not significant)	Environmental Health Team Leader of Havant Borough Council's Environmental Health Department, Les Glass commented	18 - 19
Vibration	Anticipated some localised impact during construction (not significant)		18 - 19
Air Quality	Unlikely	Environmental Control Officer of Havant Borough Council, Jon Driver, commented	18 - 19
Water			
Groundwater	Unlikely		
Surface Water	Unlikely		
Bathing water quality	Unlikely apart from localised effects during construction.	Based on previous experience from similar successful schemes.	
Landscape and Visual Amenity			
Local landscape character	Unlikely	Reviewed by Julie Boschi, HBC Senior Landscape Architect who has added to the report and agrees with the finding.	9 - 14

Table 6: Likelihood of scheme significantly adversely affecting key issues

9.0 References

Atkins, (2004) *"Eastoke Northern Flood Defence Scheme: Addendum to Appropriate Assessment and Environmental Statement"*

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Halcrow, (2005) *"Beach Renourishment Scheme: Study to inform Appropriate Assessment"*

Hampshire Biodiversity Information Centre, (May 2009) *"Hayling Island Beach, 18/05/2009 – Survey Summary, Phase II"*

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Havant Borough Council, (October 2006), *"Hayling Island: Eastoke Sectoral Strategy Study, Strategy Appraisal Report"*.

Havant Borough Council, (October 2009), *"South Hayling Island Frontage (Beach Recycling) – Guidance for Appropriate assessment"*.

HR Wallingford, (May 2009) *"Eastoke Point Coastal Defence Study – Baseline Environmental Report"*.

Natural England, (2010) *"Nature on the Map - Sites of Special Scientific Interest (SSSI)"*
<http://www.natureonthemap.org.uk/map.aspx?m=sssi>

N Sanderson (1998), *"Vegetation Survey of Sandy Point, Hampshire, 1997"*.

Met Office (2011), *"Regional Mapped Climate Averages from 1971 - 2000"*
<http://www.metoffice.gov.uk/climate/uk/averages/regmapavge.html#sengland>

EASTOKE POINT COASTAL DEFENCE WORKS

Southern Hayling Frontage

Tables

Table 2: SPA & Ramsar Features

Table 3: SAC Features

Interest Feature	Conservation Objective	Consequences of the operation on conservation objective	Mitigation Measures proposed
Annual vegetation of drift lines	Subject to natural change, maintain the Annual vegetation of drift lines in a favourable condition.	Construction plant would run adjacent to a site populated with vegetated shingle. Construction of defences in areas populated with vegetated shingle.	Identify the extent of the vegetated shingle and cordon off the site to ensure that there is no disturbance from plant traffic. Identify areas of vegetated shingle to keep disturbance to a minimum. Carrying out a seed collection and dispersal program for the vegetated shingle species pre (collection) and post (dispersal) construction works. Guidance from the County Ranger will be sort on this program.
Sandbanks which are slightly covered by seawater all the time • Subtidal gravelly sand and sand • Subtidal muddy sand • Subtidal eelgrass beds	Subject to natural change, maintain the sandbanks slightly covered by seawater all the time in a favourable condition.	Nil	N/A
Atlantic Salt Meadows • Low-marsh communities • Mid-marsh communities • Upper marsh communities • Transitional high marsh communities	Subject to natural change, maintain the Atlantic salt meadows in a favourable condition.	Nil	N/A

Table 3- SAC Features, Conservation Objectives & Impacts From The Proposed Operation

<i>Salicornia</i> and other annuals colonising mud and sand • Annual <i>Salicornia</i> saltmarsh communities • <i>Suaeda maritima</i> saltmarsh communities	Subject to natural change, maintain the <i>Salicornia</i> and other annuals colonising mud and sand in favourable condition.	Nil	N/A
Mudflats and sandflats not covered by seawater at low Tide: • Intertidal mud communities • Intertidal muddy sand communities • Intertidal sand communities • Intertidal mixed sediment communities	Subject to natural change, maintain the mudflats and sandflats not covered by seawater at low tide in favourable condition	Nil	N/A
Estuaries • Saltmarsh communities. • Intertidal mudflat & sandflat communities. • Intertidal mixed sediment communities. • Subtidal sediment communities.	Subject to natural change, maintain the Estuaries in a favourable condition.	Construction plant running along the beach may cause potential pollution through increasing turbidity and hydrocarbon pollution (spillages/ leakages)	Restrict contractors method of working: • i.e. Not land vehicles to drive into the sea • Contractors to keep vehicles maintained to avoid fuel/ oil leaks • Contractors to submit method statements to avoid potential pollution • Designated vehicle refuelling areas away from beach frontage (Site Compound).

Table 3- SAC Features, Conservation Objectives & Impacts From The Proposed Operation

Interest Feature	Conservation Objective	Consequences of the operation on conservation objective	Mitigation Measures proposed
Internationally important populations of regularly occurring Annex 1 Species	Subject to natural change, maintain in a favourable condition the habitats for the internationally important populations of the regularly occurring Annex 1 species namely; • Sand and shingle • Saltmarsh • Intertidal mudflats and sandflats • Shallow coastal waters	Nil	N/A
Nationally important regularly occurring Migratory Species	Subject to natural change, maintain in a favourable condition the habitats for the internationally important populations of the regularly occurring migratory species, namely; • Saltmarsh • Intertidal mudflats and sandflats • Boulder and cobble shores • Mixed sediment shores	Nil	N/A
Internationally important wetland regularly supporting 20,000 waterfowl	Subject to natural change, maintain the wetland regularly supporting 20,000 waterfowl in a favourable condition.	Nil	N/A
Wetland supporting 1% or more of the individuals in a population of one species or sub-species of waterfowl	Subject to natural change, maintain the wetland supporting 1% or more of the individuals in a population of waterfowl species in a favourable condition.	Nil	N/A

Table 2 - SPA & Ramsar Features, Conservation Objectives & Impacts From The Proposed Operation

EASTOKE POINT COASTAL DEFENCE WORKS

Southern Hayling Frontage

Appendix A

Beach Recycling Vegetated Shingle Methodology



Beach Recycling

Vegetated Shingle Methodology



1. Vegetated Shingle

Vegetated Shingle is recognized as an internationally important habitat. It is characterised by specialised plants that have adapted to survive in coastal conditions, where lack of fresh water and nutrients are compounded by fierce winds and wave impact.

Vegetated Shingle is scarce in Europe with the UK supporting a high proportion of the European resource, and is listed as a priority habitat in the UK Biodiversity Action Plan (BAP).

Pioneer communities of vegetated shingle can begin to recover naturally from damage within a few years, however more established closed-turf communities and moss take several decades to recover from any extensive damage.

The area of Hayling Island frontage affected by the Beach Recycling operation is host to areas of Vegetated Shingle, although predominantly on areas landward of the beach crest that the operation will have little impact upon.

In order to ensure that no unnecessary damage is caused to the Vegetated Shingle habitats a system of monitoring is in place with a number of risk mitigation measures identified.

2. Monitoring Regime

A thorough and proven monitoring regime for Vegetated Shingle is in place along the Hayling Island frontage.

2.1 Vegetated Shingle Survey

A pre and post operation survey showing the extent of the Vegetated Shingle habitat along the frontage will be carried out either side of each Beach Recycling operation. The seaward extent of the vegetation will be logged using Global Positioning System (GPS) survey equipment and subsequently mapped.

Comparison between the pre and post operation Vegetated Shingle surveys will identify any direct impact on the vegetation due to the operation.

An annual summer assessment during the flowering season (June-August) will also be conducted, making the vegetation extent easier to identify and enable a longer-term picture of any changes in extent to be identified, alleviating the difficulties of comparing winter and summer surveys. Should the post operation survey take place within the flowering season then a separate summer survey is not required and the assessments can therefore be merged.

2.2 Topographic Survey

A pre and post operation Topographic Survey will be carried out either side of the Beach Recycling operation along the length of the frontage. The GPS Topographic survey gives accurate beach levels that can be plotted and mapped for easy analysis.

Although the primary purpose of these surveys is not for Vegetated Shingle analysis they can provide useful data with regard to areas that have been affected by the operation.

Comparison between the pre and post operation Topographic survey will identify any areas where the level has been decreased or increased therefore causing potential disturbance to any Vegetated Shingle in these areas.

3. Mitigation Measures

The report 'Guidelines for Good Practice when working on beaches with Vegetated Shingle' produced by the West Sussex Vegetated Shingle Project is used to provide guidance throughout each Beach Recycling Project.

The report identifies mechanisms by which damage can occur to Vegetated Shingle and presents advice on the best preventative measures to avoid unnecessary damage.

Prior to the start of each Beach Recycling operation, steps will be taken to ensure that all contractors and works staff are fully briefed to ensure that each individual is clear about the measures being taken. Information about the Vegetated Shingle protection measures that are being taken should be available on site throughout the operation.

All works access to the beach shall be via pre defined access points, specifically positioned to avoid areas of vegetated shingle (as identified in the pre operation survey and most recent summer survey) where practically possible. Particular care will be made to ensure that areas of closed-turf and mosses are avoided, due to the long recovery period experienced by these communities.

If shingle is required to be imported to supplement the recycled material during the beach recycling operation, the specified imported shingle is to be of a suitable size so as to allow colonisation by Vegetated Shingle.

All vehicle movement on the beach will be kept to a marked haul route to prevent adverse impact to areas of Vegetated Shingle. The haul route shall be as far as is practically possible positioned seaward of any areas of vegetation and shall be clearly marked along its route with cones at 50m centres. The haul route shall be positioned using GPS equipment with the route position defined based on results of the pre-operation and most recent summer Vegetated Shingle surveys.

4. Reporting

A report summarising the findings of both the Vegetated Shingle and Topographic surveys can then be produced at the end of the Beach Recycling operation.

The report should include the following details:

- Summary of extraction and despoliation locations and volumes.
- Details of the mitigation measures in place.
- Summary of the monitoring regime.
- Analysis and presentation of any changes to the Vegetated shingle as a result of the operation.

The report will form an Annual Assessment for monitoring the effects of recycling operations on the Vegetated Shingle habitats along the frontage.



Guidelines for Good Practice when working on beaches with Vegetated Shingle.

Introduction to the guidelines

These guidelines are aimed at coastal defence engineers and others planning to carry out works on shingle beaches which host native shingle vegetation or have the potential to do so. Highly mobile beaches with no stable shingle would not be able to support vegetation. The guidelines indicate the various ways that vegetated shingle can be damaged during the works and suggest ways in which this damage can be avoided, or at least limited.

It is recognized that it will not always be possible to incorporate all the suggestions, for example during emergency works. There are also substantial cost implications involved with some of the measures. The guidelines should therefore be viewed as suggestions to be seriously considered and implemented where costs, time and resources allow. However, some of the suggestions take the minimum of time and effort, such as limiting the number of access points to the beach, and therefore may still be possible.

It is hoped that the guidelines will be used during the planning stage so that contractors can be given clear instructions as to the measures they are required to take to protect areas of vegetated shingle.

Introduction to vegetated shingle

Vegetated shingle is recognized as an internationally important habitat. It is scarce in Europe with the UK supporting a high proportion of the European resource. Elsewhere, coastal shingle has few occurrences outside Japan and New Zealand. Coastal vegetated shingle is listed as a priority habitat in the UK Biodiversity Action Plan (BAP) and supports 9 BAP priority species.

It is characterised by specialised plants that have adapted to survive in harsh coastal conditions where lack of fresh water and nutrients are compounded by fierce winds and impact by waves. Shingle habitats are also particularly important for invertebrates and for some breeding and roosting birds.



ENVIRONMENT
AGENCY



Much has already been lost to housing developments, agriculture and coastal defence while the remaining areas face a number of threats including trampling and un-natural enrichment of the shingle substrate, for example by dog fouling and bonfires. One of the main long-term threats to vegetated shingle is as a result of man's intervention in natural coastal processes, with coast protection work changing the accretion rate of shingle to coastal areas. Trapped between urban development on the landward side and rising sea levels on the seaward side, vegetated shingle is also threatened by "coastal squeeze".

Shingle banks form a natural coastal defence, which may require replenishment in order to maintain the bank crest height and width. With coastal protection techniques moving towards a more integrated approach allowing natural processes to work where possible and relying more on "soft" defences rather than "hard" structures such as sea walls, there is an opportunity to create new, stable areas of shingle. If planned with care, these could be used to create new areas of shingle vegetation.

Vegetated Shingle Communities

Pioneer communities of vegetated shingle can begin to recover naturally from damage within a few years, as long as the seed bank remains intact and further damaging activities are halted. However, the more established communities, such as moss and lichen communities and closed-turf communities are unlikely to recover as they take many decades to develop. Some can take hundreds of years to establish. It is important that these types of vegetated shingle communities are not damaged, as they are extremely rare.

Threats from coastal defence engineering works

Vegetated shingle can be damaged in a number of ways when coastal defence and other works are being carried out on the beach. It should be noted that damage could be done not only by vehicles and machinery but also by trampling, especially on the older communities.

Damage can be in a variety of forms:

- ***Physical damage to plants***
- ***Physical damage to communities (pioneer, intermediate, closed-turf, moss and lichen etc)***
- ***Disturbance to breeding birds***
- ***Movement and/or compaction of shingle***
- ***Destruction of the seed bank***
- ***Imported marine-dredged shingle causing nutrient enrichment***
- ***Imported shingle of unsuitable type/size¹***
- ***Nutrient enrichment through mixing of the shingle and soil layers***

Measures to prevent damage or to offset unavoidable damage

There are a number of measures that can be taken, both before the commencement of coastal defence operations and while the work is being carried out. It is important that all contractors are informed in advance

the procedures they must follow to limit any impact on the vegetated shingle.

Note: English Nature's consent must be sought before any work is carried out within a statutory designated site.

Preventative measures that can be taken are:

- *Brief the works unit/contractors before commencement of work to ensure that each individual is clear about the measures being taken.*
- *Limit the number of beach access points for vehicles.*
- *Clearly define beach access points avoiding any vegetated areas where possible. If the loss of some vegetation is unavoidable, ensure that it is limited to the pioneer community and not the established, closed-turf communities that will not recover.*
- *Mark off any particularly valuable or important areas of vegetation prior to commencement of operations to ensure its protection. Use old groyne timber, tape or any other highly visible barrier laid around the perimeter. Keep all vehicles, machinery and people out of the marked area.*
- *If possible, wash imported marine-dredged shingle to prevent nutrient enrichment.*
- *If possible, use imported shingle of a suitable type/size¹ for vegetation, at least in those more stable areas where plants are likely to re/colonise.*
- *If possible, limit vehicle movement along the beach to below High Water Mark to prevent impact to vegetation or compaction of shingle on the ridge.*
- *Limit work to the period outside the bird nesting season. Shingle nesting birds generally nest between March and August.*

Continued over page

Continued

- *Include information about the shingle vegetation protection measures that are being taken, in any interpretation on the site*
- *Seek advice from the West Sussex Vegetated Shingle Project (WSVSP) or other coastal conservation body.*

¹ Land-sourced shingle tends to have sharp edges and be more angular than marine-sourced shingle, making it less suitable for coastal shingle vegetation. Pebble size is very important in determining which plants can grow. Pebbles with an average size greater than 8cm diameter are normally unsuitable for vegetation. Shingle species generally prefer an average diameter of up to 4cm. Patches of different sized pebbles are the most desirable as they allow a mosaic of vegetated and bare shingle areas to develop. A variety of pebble sizes will also allow a greater variety of species to colonise.

Measures that can be taken to offset unavoidable damage:

- *If the loss of an area of vegetated shingle is unavoidable it may be possible to incorporate the creation of a new area elsewhere along the coast in order to ensure no net loss of this very rare habitat. Opportunities for creation of vegetated shingle habitat should be sought during all planning stages of coastal defence.*
- *If unavoidable damage to an area of vegetated shingle is foreseen, liaise with the WSVSP about seed collection prior to work in order that restoration can be attempted after the work is complete. (Up to 12 months notice may be required for this, depending on the time of year)*

Information and advice

The West Sussex Vegetated Shingle Project Officer can be contacted at:
*Town Hall,
 Clarence Road,
 Bognor Regis,
 West Sussex
 PO21 1LD
 Telephone 01903 737949*

The East Sussex Coastal Biodiversity Project Officer can be contacted at:
*East Sussex County Council
 County Hall
 St. Anne's Crescent
 Lewes
 East Sussex
 BN7 1UE
 Telephone 07786 171465*

Plant ID cards for contractors

A guide for identifying vegetated shingle communities is available from both the West Sussex Vegetated Shingle Project and East Sussex Coastal Biodiversity Project.

GIS survey data

Vegetated shingle along the West Sussex coast from East Head to Shoreham has been mapped and the information is available on CD ROM in both MapInfo and Arc View formats. To obtain a copy please apply to:
*Sussex Biodiversity Record Centre,
 Woods Mill, Henfield, West Sussex BN5
 9SD.*

Glossary of terms

<i>Coastal defence</i>	<i>a combination of both Coast Protection (generally to prevent erosion – where the land is higher than sea level) and Sea Defence (to prevent flooding- where the land is lower than sea level).</i>
<i>Coastal squeeze</i>	<i>the shrinking of coastal habitats caught between rising sea level and fixed coastal defences.</i>
<i>Interpretation</i>	<i>means of displaying explanatory information for example in the form of a leaflet or notice board.</i>
<i>Nutrient enrichment</i>	<i>increase in nutrient content (soil/humus etc) of shingle.</i>
<i>Vegetated shingle</i>	<i>shingle supporting a wildlife community of flora and fauna.</i>
<i>Pioneer communities</i>	<i>plant and animal communities that establish within a relatively short time and are usually the first to colonise a new area.</i>
<i>Intermediate communities</i>	<i>plant and animal communities that are intermediate between pioneer and established, closed-turf communities.</i>
<i>Closed-turf communities</i>	<i>species rich plant and animal communities that develop over a relatively long time, gradually building up a layer of soil and humus over the shingle, eventually completely covering it with vegetation, with no bare shingle visible.</i>

EASTOKE POINT COASTAL DEFENCE WORKS

Southern Hayling Frontage

Appendix B

Existing Beach Recycling Haul Route





NOTE:-
 THE DRAWING SE13/683 HAS AN AERIAL PHOTOGRAPH BACKGROUND.
 THE PDF VERSION OF SE13/683 HAS A MAP, TO ALLOW IT TO BE CONVERTED TO A PDF FILE.

COAST DEFENCE MAINTENANCE WORK 2010 - 2015 BEACH RECYCLING EXAMPLE HAUL ROUTE			
DATE	SEP 2009	SCALE	1:10000 @ A1
DRAWN BY	SE13/683	CHECKED BY	PCTCMP/ERB/01/2015
DATE	SEP 2009	SCALE	1:10000 @ A1
DRAWN BY	SE13/683	CHECKED BY	SE13/683-HAUL-ROUTE

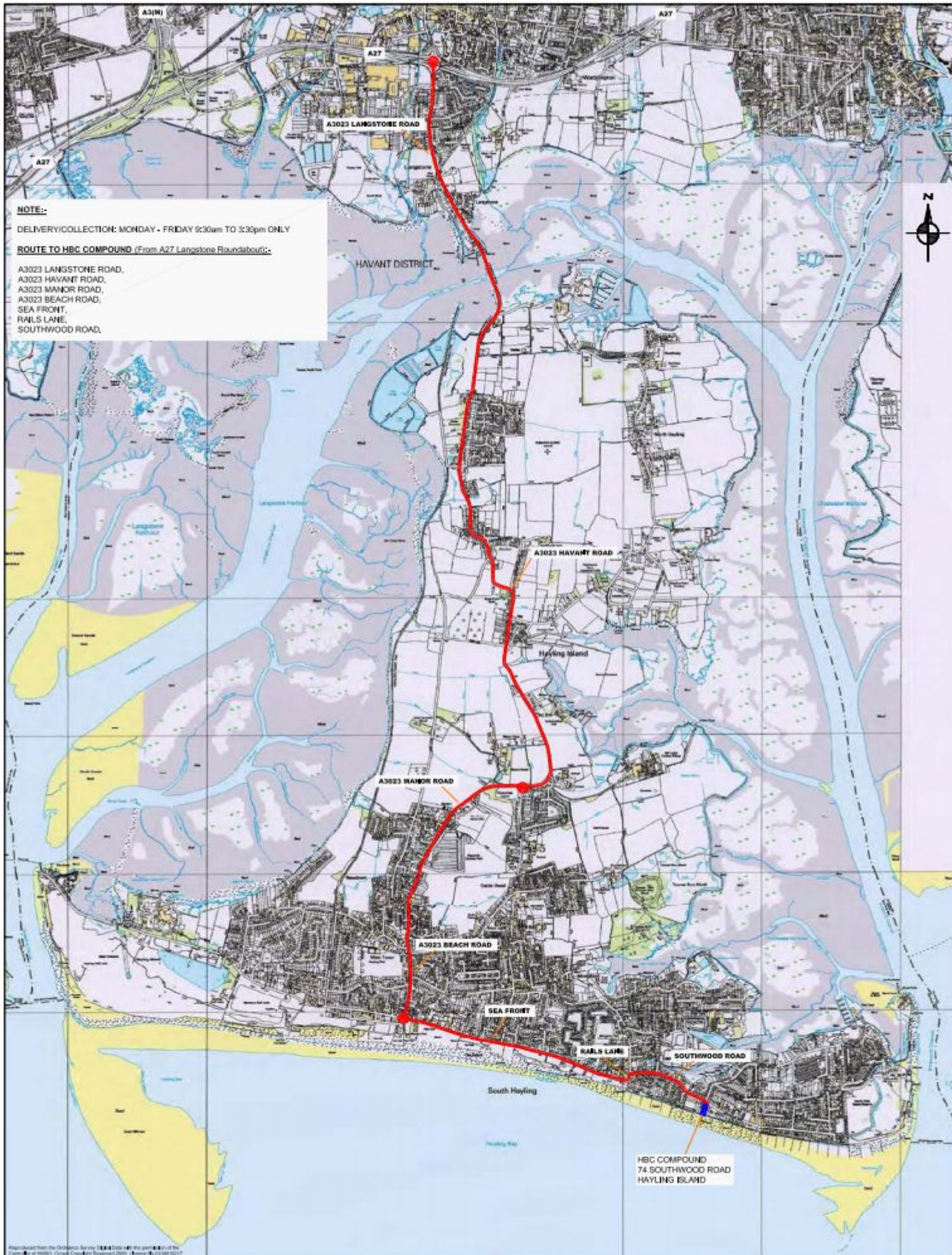
EASTOKE POINT COASTAL DEFENCE WORKS

Southern Hayling Frontage

Appendix C

Existing Specified Route of Transport





NOTE:-

DELIVERY/COLLECTION: MONDAY - FRIDAY 9:30am TO 3:30pm ONLY

ROUTE TO HBC COMPOUND (From A27 Langstone Roundabout):-

A3023 LANGSTONE ROAD,
A3023 HAVANT ROAD,
A3023 MANOR ROAD,
A3023 BEACH ROAD,
SEA FRONT,
RIALS LANE,
SOUTHWOOD ROAD.

HBC COMPOUND
74 SOUTHWOOD ROAD
HAYLING ISLAND

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City Offices, Guildhall Square,
Portsmouth, Hants. PO1 2AG
Telephone: (023) 9263 4869
Email: cityhelpdesk@portsmouthcc.gov.uk
Internet: www.portsmouthcc.gov.uk



City Offices, City Centre Road,
Havant, Hants. PO9 2AX
Telephone: (023) 9247 4174
Email: customer.services@havant.gov.uk
Internet: www.havant.gov.uk

FILE			
BEACH NOURISHMENT 2009 APPROVED DELIVERY AND COLLECTION ROUTE FOR CONSTRUCTION PLANT AND MATERIALS			
DRAWN BY BJR		CHECKED BY EBC-L SE13N50	
DATE APR 2009		PL: BEACH NOURISHMENT 2009	
SCALE NTS @ A2		ROUTE SE13-550-DEL-ROUTE	

EASTOKE POINT COASTAL DEFENCE WORKS

Southern Hayling Frontage

Appendix D

List of Identified Stakeholders



Havant
BOROUGH COUNCIL

GOSPORT
BOROUGH COUNCIL



Portsmouth
CITY COUNCIL

Appendix D - List of Identified Stakeholders

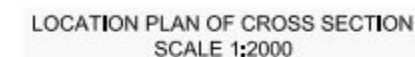
HBC - Management Team
HBC - Cabinet Members
HBC - Portfolio Holders
HBC - Coast Defence Panel
HBC - South West Hayling Island Cllr Members
Environment Agency - Local Authority Liaison Officer
Environment Agency - Area Flood Risk Manager
Environment Agency - Large Projects Review Group / Project Appraisal Board
Natural England
HBC - Planning Officers (DC)
Hayling Islander / Press
Hampshire CC - Land Owner (estates)
Hampshire CC - Local Nature Reserve Representative
Chichester District Council
Hayling Island Sailing Club
Hayling Island Residents Association - Paul Fischer
Chichester Harbour Conservancy
Alan Priddy
Marine Fisheries Agency
Local Residents
Southern Water
Royal National Lifeboat Institution
Local Businesses
Hampshire and Isle of Wight Wildlife Trust
RSPB
National Trust
West Witterings Estate
Cakeham Tower PLC - Stella
Caravan Park
Sandy Beach Estate
Hugins Residence
HM Coastguard
General Public
Portsmouth City Council
English Heritage
Trinity House
Royal Yachting Association
Water Sports Users
Fishermen (boats)
Hayling Island Angling Club
Crown Estate
Welex Sussex County Council

EASTOKE POINT COASTAL DEFENCE WORKS

Southern Hayling Frontage

Appendix E

Detail Drawing



- KEY:-**
-  PROPOSED NEW REVETMENT
 -  PROPOSED NEW GROYNES
 -  STRUCTURES TO BE INCORPORATED INTO NEW SCHEME
 -  NEW OR AMENDED SPLASH WALL
 -  EXISTING GROYNES THAT WILL NOT BE CHANGED
 -  AREA OF BEACH NOURISHMENT
 -  RESIDENTIAL AREA, PROJECT IS TO ASSIST IN PROTECTING
 -  NATURE RESERVE AREA, PROJECT IS TO ASSIST IN PROTECTING

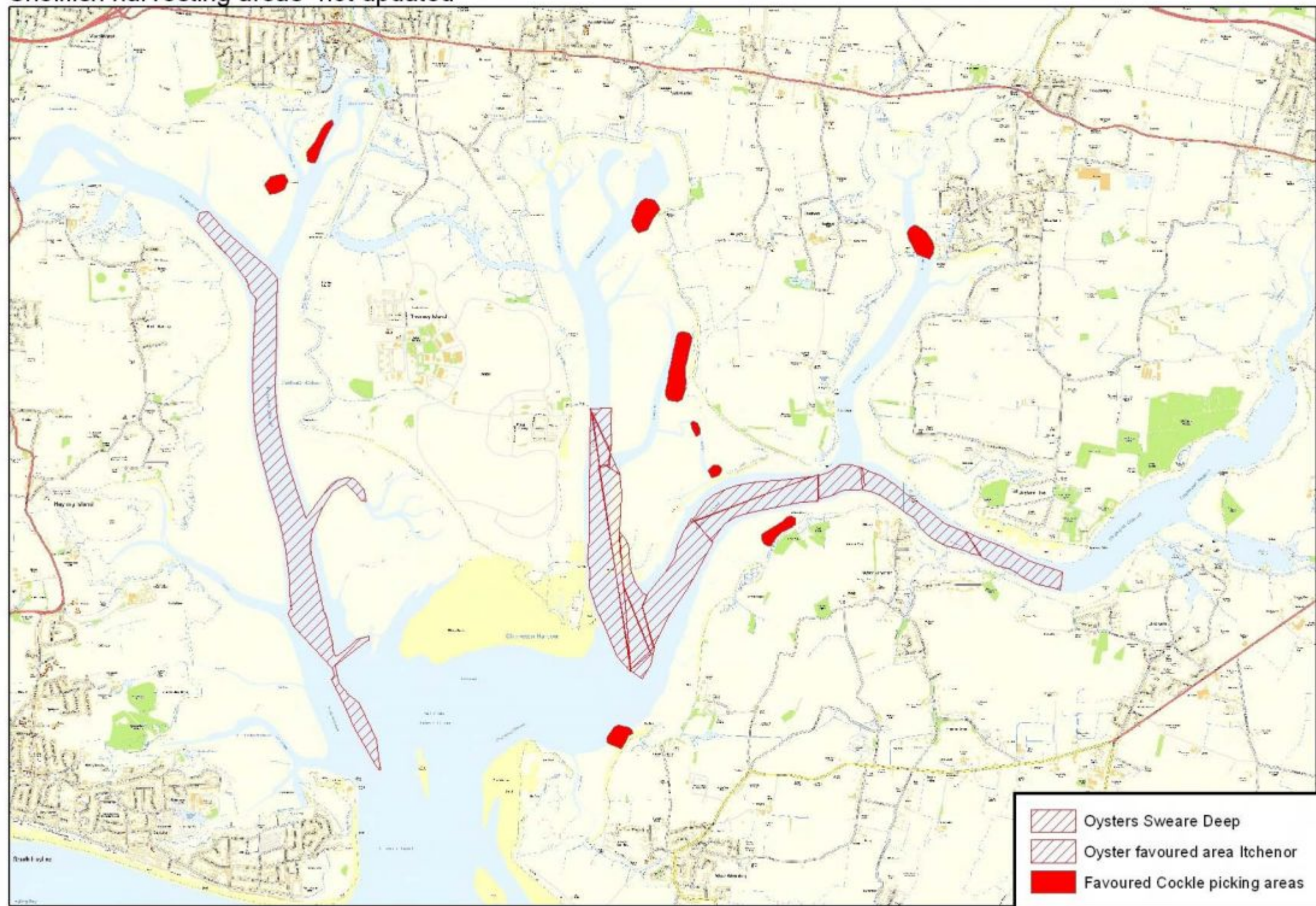
EASTOKE POINT COASTAL DEFENCE WORKS

Southern Hayling Frontage

Appendix F

Shellfish Harvesting Areas of Chichester Harbour

Shellfish harvesting areas- not updated



EASTOKE POINT COASTAL DEFENCE WORKS

Southern Hayling Frontage

Appendix G

Correspondence



Natural England

Caroline Timlett

From: Schindl, Thomas (NE) [Thomas.Schindl@naturalengland.org.uk]
Sent: 03 March 2011 16:32
To: Clive Evans
Subject: RE: Eastoke Point Coast Defence Works - Draft screening and scoping report
Categories: Red Category

Hi Clive,

Thanks for giving me the opportunity to have look at the draft report. In addition to Peter's comments, I have a few suggestions/comments to make.

Firstly, I think it would be advantageous to mention the North Solent SMP somewhere in your report. Referring to the SMP would help put your scheme in context of the wider ranging SMP, whilst also providing support/reasoning for what is effectively a Hold the Line policy.

With regards to the AA, I can only reiterate Peter's comment, that it would be a good idea to include a separate section in your ES that specifically addresses impacts to the European and Ramsar sites

Below are a few comments made specific to various sections in the report.

2.1 and 3.0 Might be worth mentioning that the 'adaptability' of the design is also to ensure that if adverse environmental impacts were being experienced as a result of the scheme, then steps can be taken to address the situation. This is one of the key elements of the strategy and another reason why we are all supportive of this scheme.

4.1.2 Annual vegetation of drift line is 1 of set of interest features, which include the following: Estuaries, Atlantic salt meadows, *Salicornia* and other annuals colonising mud and sand, Cordgrass swards (*Spartina*), Mudflats and sandflats not covered by seawater at low tide, Sandbanks slightly covered by seawater all the time. This section should take into account the whole suite of interest features for the SAC.

4.1.7 One of the environmental impacts not considered (which in my mind is the most important) is impact to the Estuary feature of the SAC, specifically with regards to Estuary function/hydrodynamics/processes.

**** It may be worthwhile to mention that a detailed assessment will be made in the AA section of the report?!!!****

4.4.1 – The native oysters are under threat and to say they are thriving is a little misleading.

4.7 – Perhaps some attention should be given to impacts to SPA bird species?

5.0 – With regards to enhancements, I remember someone mentioning that perhaps efforts could be made to protect existing shingle vegetation as well as encouraging vegetation to grow in other area. Could this be added to this section please?

Hope these comments have been useful. If there is anything you would like to discuss, please feel free to give me a call.

Tom

From: Clive Evans [mailto:Clive.Evans@havant.gov.uk]
Sent: 22 February 2011 16:25
To: Schindl, Thomas (NE)
Cc: Caroline Timlett
Subject: Eastoke Point Coast Defence Works - Draft screening and scoping report

Thomas

Reptiles - County Ranger

From: Potts, Pete [pete.potts@hants.gov.uk]
Sent: 02 March 2011 09:51
To: Caroline Timlett
Subject: RE: Sandy Point LNR - Reptiles

Hi Caroline

Yes there are good populations of both Common Lizard and Slow Worm at Sandy Point I have no idea of any formal surveys being undertaken. It is possible that Grass Snakes and Adders also occur but I am not aware of any records I will ask Andy Johnson.

I would have thought it was unlikely that reptiles will venture out onto the public beach BUT they are likely to be in the dune area inside the fence where you wish to locate a temporary path/boardwalk.

Hope that helps best wishes Pete

From: Caroline Timlett [mailto:Caroline.Timlett@havant.gov.uk]
Sent: 01 March 2011 16:01
To: Potts, Pete
Subject: Sandy Point LNR - Reptiles

Dear Pete,

We've recently received an email from Peter McKeon of the Ecology Group, Hampshire County Council regarding reptiles (common lizard and slow worms) being recorded within the Sandy Point LNR. Do you have any available information on who carried out these surveys, when they were carried out and where the reptiles were spotted?

We would like to try and establish the likelihood of the reptiles, if present, leaving the LNR and encroaching onto the beach works area. In your experience, what do you think the likelihood of this occurring is?

Kind regards

Caroline Timlett
Coastal Technician
Havant, Portsmouth & Gosport Coastal Partnership

Development and Technical Services
 Havant Borough Council
 Southmoor Depot
 2 Penner Road
 Havant
 Hampshire
 PO9 1QH

Tel: 023 92 446247



Help tomorrow take shape

On 27th March 2011, every household in England and Wales will be asked to complete a census questionnaire. Everyone needs to take part and influence the future. The information gathered will help

Ecologist View - Hampshire CC

Caroline Timlett

From: McKeon, Peter [Peter.McKeon@hants.gov.uk]
Sent: 23 February 2011 09:06
To: Clive Evans
Subject: Eastoke Point Coast Defence Scheme - Scoping Report

Clive,

Thank you for consulting me on the above report.

I advise that section 4.1.1 of the report entitled 'Nature Conservation Designations' should also include a section on Sites of Importance for Nature Conservation (SINC). SINC's are non-statutory wildlife sites which are protected by local plan policies. For example, policy NC4 of the Havant Local Plan states that development would not be permitted for development which is likely to harm a SINC.

There are several SINC's in the vicinity of the proposed works area. A new SINC, Hayling Island Beach (ref HV0138), would be directly affected by the proposals as the works area falls within its eastern boundary. This SINC, which was only designated on 07/02/11, supports coastal vegetated shingle, lowland dry acid grassland and coastal sand dune habitat. Fourteen notable plant species have been recorded there, including two nationally rare species - Smooth Cat's-Ear (*Hypochaeris glabra*) and Sea Knotgrass (*Polygonum maritimum*).

My main concern with these proposals would therefore be the potential impact of the works on the foreshore habitats. I welcome the fact that the scoping report recognises that disturbance to vegetated shingle should be kept to a minimum. Any net loss of habitat as a result of the works must be avoided and suitable measures taken to ensure that no damage is caused to habitats within and adjacent to Sandy Point LNR and the SINC's. These measures should be detailed in the Environmental Statement. Natural England should act as advisors with regard to the SSSI, SPA and SAC.

I advise that the Environmental Statement should include an ecological desk study. Various statutory and non-statutory organisations should be contacted in order to collect and collate ecological data that is available for the site. Section 4.1.5 of the scoping report states that data will be available from Havant Borough Council's in house surveyor. In addition to this I would advise that Hampshire Biodiversity Information Centre (HBIC), Natural England, the Hampshire Wildlife Trust and the rangers at Sandy Point are also contacted for biological data which would assist in informing the scope of the ecological assessment.

The planners at Havant may have information on the SINC boundaries, apart from the newly designated Hayling Island Beach SINC. I advise that HBIC should be contacted for this, as well as SINC survey data.

Reptiles (common lizard and slow worm) have been recorded within Sandy Point LNR. If terrestrial habitat is to be affected by the works, I advise that reptile surveys should also be undertaken as a part of the ecological assessment.

I advise that the Environmental Statement should take into account the potential ecological impacts during all phases of the proposed works. The nature of the impacts (e.g. extent, magnitude and duration – quantified as appropriate) reversibility of impacts, detailed mitigation, monitoring measures (including reference to long-term management and maintenance measures / plans) and residual impacts must also be considered. In addition to this, cumulative effects of the proposal and all other related coastal protection works within the vicinity also to be assessed in-combination. The Environmental Statement should also outline alternatives that have been considered and provide an explanation as to the preference for this particular scheme.

I advise that the ecological impact assessment should be carried out with reference to the Institute of Ecology and Environmental Management (2006) guidelines.

Sections 4.1.2 and 4.1.6 of the scoping report makes reference to the Conservation (Natural Habitats &c.) Regulations 1994. This legislation was amended in 2010 and is now known as the Conservation of Species and Habitats Regulations 2010. It is now Regulation 61 which requires an Appropriate Assessment to be undertaken. Also, section 4.1.6 refers to PPG 9. This has now been replaced by Planning Policy Statement 9

Ecologist View - Hampshire CC
(PPS9).

Sufficient information should be provided in the Environmental Statement to inform a full Appropriate Assessment. It may be worth having a separate section of the Environmental Statement which addresses impacts on European Protected Sites. Section 4.1.7 of the scoping report broadly identifies the potential impacts of the scheme and this is acceptable at this stage.

I hope these comments are of assistance and please do not hesitate to contact me if you have any queries.

Regards,

Peter

Peter McKeon
Senior Ecologist
Ecology Group, Environment Department
Hampshire County Council
3rd Floor, Capital House, 48-52 Andover Road,
Winchester, SO23 7BH.

Tel :01962 832335 Fax :01962 832312
Email: peter.mckeon@hants.gov.uk
www.hants.gov.uk/biodiversity

Please note that this advice is given in accordance with the Service Level Agreement that has been signed between the Ecology Group and your Council. The comments within this letter are expressed as a professional view provided to Havant Borough Council and should not, therefore, be interpreted as those of Hampshire County Council.

Traffic - Havant BC

From: Clive Evans

Sent: 17 February 2011 11:35

To: Caroline Timlett

Subject: Eastoke Point Screening and Scoping
Caroline

I have talked to Peter Marshall and he is happy with the traffic measures.

You could word it like ' As long as the restrictions as detailed in the report are enforced then the works are unlikely to have a significant effect'

Cheers

Clive Evans

Coastal Project Engineer

Havant, Portsmouth & Gosport Coastal Partnership

Development and Technical Services

Havant Borough Council

Southmoor Depot

2 Penner Road

Havant

Hampshire

PO9 1QH

Tel: 02392 446617



Think before you print!

Visual Amenity - Havant BC

From: Clive Evans

Sent: 16 February 2011 14:47

To: Caroline Timlett

Subject: FW: summary table for eastoke

Caroline

I have talked to Julie and have added the following words.

I have also changed the wording on the other comments as discussed.

Regards

Clive Evans

Coastal Project Engineer

Havant, Portsmouth & Gosport Coastal Partnership

Development and Technical Services

Havant Borough Council

Southmoor Depot

2 Penner Road

Havant

Hampshire

PO9 1QH

Tel: 02392 446617



Think before you print!

From: Clive Evans

Sent: 16 February 2011 10:44

To: Julie Boschi

Cc: Caroline Timlett

Subject: FW: summary table for eastoke

Julie

Thanks for your suggested additions to the report which we have incorporated.

Could you please complete the matrix below for Land Use and Landscape and Visual Amenity

Thanks

Clive Evans

Coastal Project Engineer

Havant, Portsmouth & Gosport Coastal Partnership

Development and Technical Services

Havant Borough Council

Southmoor Depot

2 Penner Road

Havant

Hampshire

PO9 1QH

Tel: 02392 446617



Think before you print!

Visual Amenity - Havant BC

From: Caroline Timlett
Sent: 16 February 2011 09:52
To: Clive Evans
Subject: summary table for eastoke

Issue	Likely Impact or Not?	Justification for professional opinion
Environmental Designations		
Special Area of Protection	Awaiting answer ecologist	
Site of Special Scientific Interest	Awaiting answer ecologist	
Special Protected Area	Awaiting answer ecologist	
Ramsar Site	Awaiting answer ecologist	
Area of Outstanding Natural Beauty	Awaiting answer ecologist	
Local Nature Reserve	Awaiting answer ecologist	
Cultural and Archaeological Heritage	Unlikely	Comments from Hannah Fluck, Senior Archaeologist for Hampshire County Council
Tourism and Recreation		
Tourism	Unlikely	Based on previous experience from similar successful schemes
Recreation	Unlikely	Based on previous experience from similar successful schemes
Residents	Short term impact	Based on previous experience from similar successful schemes
Fisheries		
Shellfish cultivation	Unlikely	Information taken from the Eastoke Point Coastal Defence Study, May 2009 (HR Wallingford)
Commercial pelagic and demersal fishing	Unlikely	
Land Use		
The Solent and Chichester Harbour	Unlikely	
Public open spaces	Unlikely	
Urban	Unlikely	
Traffic and Transportation		
Land transport	Unlikely – awaiting transport answer	
Sea transport	Unlikely	Based on previous experience from similar successful schemes

Visual Amenity - Havant BC

Noise and Vibration		
Noise	Anticipated some localised impact during construction (not significant)	Environmental Health Team Leader of Havant Borough Council's Environmental Health Department, Les Glass commented
Vibration	Anticipated some localised impact during construction (not significant)	
Air Quality	Unlikely	Environmental Control Officer of Havant Borough Council, Jon Driver, commented
Water		
Groundwater	Awaiting env health answer	
Surface Water	Awaiting env health answer	
Bathing water quality	Unlikely apart from localised effects during construction.	Based on previous experience from similar successful schemes
Landscape and Visual Amenity		
Local landscape character	Unlikely	Reviewed by Julie Boschi, HBC Senior Landscape Architect who has added to the report and agrees with the finding

Caroline Timlett
Coastal Technician
Havant, Portsmouth & Gosport Coastal Partnership

Development and Technical Services
Havant Borough Council
Southmoor Depot
2 Penner Road
Havant
Hampshire
PO9 1QH

Tel: 023 92 446247



4.10 Landscape and Visual Amenity

4.10.1 Local landscape character

Havant's Townscape, Landscape and Seascape Character Assessment was completed in February 2007. The site is on the edge of Landscape Character Area 40, Chichester Harbour Mouth, south of LCA 37, Black, Sandy and Eastoke Points. It is an open and exposed landscape with views across the harbour mouth to the low lying coastline of West Wittering and long views out to sea and inland across Chichester Harbour Basin to Thorney Island and the South Downs.

The Eastoke frontage consists of an eroding mixed sand and shingle beach that is controlled by a series of rock and timber groynes in varying states of repair and a partially buried rock revetment. A vertical concrete splash wall runs along the length of the promenade, protecting adjacent properties from flooding. The western end of the study area is bordered by residential properties of varying styles and sizes and traditional seaside amenities such as wooden bench seats, litter bins and beach huts.

The eastern end of the study frontage is backed by the Sandy Point Nature Reserve. This was formerly part of Eastoke common and constitutes one of the last remaining areas of undeveloped land on the eastern part of the island. The nature reserve comprises areas of heathland, sand dunes and grassland. It is separated from the beach by a post and rail fence with wire mesh infill. Works should have no adverse effects on landscape character and visual amenity.

To the east of the study area is Chichester Harbour, part of which has been designated an Area of Outstanding Natural Beauty (AONB). The main characteristics of the landscape are described below.

- A unique blend of land and sea – especially the combination of large open water areas, narrow inlets and creeks;
- Frequently wooded shoreline;
- The flatness of the landscape accentuates the significance of the sea/land intersection and highlights distant landmarks across both land and water. This is an unusual feature of AONBs;
- The open water in the central area of the harbour is a microcosm of the open sea beyond the harbour mouth, reflecting the clouds and sky, the wind and rain;
- A sense of wilderness within the seascape;
- Particularly strong historic character and associations;
- Picturesque harbour-side settlements;
- A rich flora and fauna, notably flocks of wading birds, adds to the diversity of the landscape;
- Unspoilt character and unobtrusive beauty; and
- A harbour offering a very special sense of peace and tranquillity.

4.10.2 Visual impact assessment

In order to identify the potential impacts of any proposed works on the visual amenity of the area, the extent and nature of the views from a variety of representative viewpoints will be assessed. The principal visual impacts of the proposed works fall into two categories: impacts on the character of the landscape within the study area and, the visual impacts of the works on people living, working or travelling through the area, assessed in the following order of sensitivity:

- **High sensitivity:** Private dwellings and gardens where viewers are likely to view the study area frequently;
- **Medium – high sensitivity:** Public rights of way, country parks and other informal recreational facilities where viewers gain a prolonged view due to a slower passage through the area and where the quality of the view forms part of the amenity;

- **Medium – low sensitivity:** commercial premises, public facilities and schools where the viewer may be familiar with the scene but holds it in lower regard than viewers from residential properties and the surroundings are secondary to the purpose to the visit; and
- **Low sensitivity:** Surrounding road and rail networks where the viewer gains brief glimpses of the view whilst in motion.

The magnitude of the visual impact of any proposed works will be assessed during the option evaluation according to established appraisal guidance. The visual impacts of any new coastal defences will be most apparent to those living behind the eastern end of the promenade just to the west of Eastoke Point, and to those walking along the beaches around Eastoke Point or travelling in boats into and out from Chichester Harbour. Because of this, the visual impacts of any defence scheme can be regarded as of medium-high or high sensitivity. The design of this defence scheme will take this level of sensitivity into account with a view to keep visual impact of the finished construction to a minimum.

The development guidelines for Landscape Character Area 40, Chichester Harbour Mouth, which this site falls within, states that 'the form and scale of the sea defences should as far as possible not over dominate the natural character of the harbour mouth'. The proposed stone groynes will be less prominent on the skyline than the existing decaying timber groynes because only a maximum of 1 metre of large rocks will protrude above the beach material. The current timber groynes proposed for replacement are unsightly in their current state of disrepair and therefore detract from the harbour landscape.

The guidelines for the adjacent LCA 37, Black, Sandy and Eastoke Points include 'Consider the appearance of sea defences and the collective impact they will have on the character of the area'.

The proposed rock groynes are not too intrusive and are consistent with the modern design for groynes. Timber is no longer considered to be effective or sustainable for modern sea defences, to withstand the magnitude of coastal erosion experienced at the harbour mouth.

Historic Environment - Hampshire CC

Caroline Timlett

From: Fluck, Hannah [Hannah.Fluck@hants.gov.uk]
Sent: 04 February 2011 16:30
To: Clive Evans
Cc: Sunley, Thomas
Subject: Eastoke Point Coast Defence Scheme - Screening and Scoping Report. Consultation response
Attachments: SUMMARY REPORT_Scoping Phase CE 02FEB11.pdf

Dear Mr Evans,

Re: Eastoke Point Coast Defence Scheme - Screening and Scoping Report.

Thank you for consulting me regarding the above scoping report. There are no known archaeological finds and features from within the area affected or within the immediate vicinity. Therefore there are no archaeological issues I would wish to raise in this instance.

Should you have any further queries please do not hesitate to contact me.

Yours Sincerely,

Hannah Fluck
Senior Archaeologist

Landscape Planning & Heritage
 Environment Department
 Hampshire County Council
 Capital House,
 48-52 Andover Road,
 Winchester SO23 7BH

Tel. 01962 832337 Fax. 01962 832312
 Email: hannah.fluck@hants.gov.uk

 **Please consider the environment before printing this email.**

From: Historic Environment
Sent: 02 February 2011 16:08
To: Fluck, Hannah
Cc: Sunley, Thomas
Subject: FW: Eastoke Point Coast Defence Scheme - Screening and Scoping Report

FYI.

Tom Sunley
 Assistant Archaeologist (Development Control)
 Archaeology & Historic Buildings
 Landscape, Planning & Heritage
 Environment Department
 Hampshire County Council

Historic Environment - Hampshire CC

Tel. 01962 832340 Fax. 01962 832312

Email: thomas.sunley@hants.gov.uk

Please note that the archaeology team are now based in Capital House, 48-52 Andover Road, Winchester SO23 7BH

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From: Clive Evans [<mailto:Clive.Evans@havant.gov.uk>]

Sent: 02 February 2011 15:55

To: Historic Environment

Subject: FW: Eastoke Point Coast Defence Scheme - Screening and Scoping Report

David

Following our recent telephone call, thank you for agreeing to assist me with this matter.

I am the Project Manager for the Borough Council developing a coast defence scheme for Eastoke Point on the Southeast corner of Hayling Island.

The council will need planning permission for the scheme and we intend to apply for this in September this year.

I have been talking to Stephen Cantwell in our planning department about the planning process and to this end we have produced a scoping/screening report to review the need for an EIA.

He has asked me to obtain the views of the County Archaeologist on this document and this is why I am contacting you.

Please find enclosed the scoping/screening report that we would appreciate your comments on - specifically if you think the scheme will have a significant adverse affect on any archaeology in the vicinity of the scheme.

If you would prefer a paper copy of the document please let me know.

Also if you require any further information please let me know.

Could you also please let me know your likely response time.

Regards

Clive Evans
Coastal Project Engineer
Havant, Portsmouth & Gosport Coastal Partnership

Development and Technical Services
 Havant Borough Council
 Southmoor Depot
 2 Penner Road

Noise, Vibration & Air Quality - Environmental Health

Caroline Timlett

From: Les Glass
Sent: 02 February 2011 17:06
To: Clive Evans
Subject: RE: Eastoke Point Coast Defence Scheme - Screening and Scoping Report

Clive

As regards Noise & Vibration I accept that there may be some problems with vibration in close proximity to certain residential properties but anticipate that **provided works are limited to the proposed hours of operation the residents may well take the pragmatic view that it is a price worth paying.** In any event, should complaints arise we would have to take a view on whether the best practicable means were being taken to minimise disturbance.

My colleague, Jonathan Driver has looked at the Air Quality issues and commented that the scope of works described is **considered unlikely to have any adverse effect on air quality**

Les Glass
 Environmental Health Team Leader (Environment)
 Havant Borough Council
 Civic Centre Road
 Havant PO9 2AX

Tel (023) 9244 6668

From: Clive Evans
Sent: 02 February 2011 16:07
To: Les Glass
Subject: FW: Eastoke Point Coast Defence Scheme - Screening and Scoping Report

Les

I am the Project Manager for the Borough Council developing a coast defence scheme for Eastoke Point on the Southeast corner of Hayling Island.

The council will need planning permission for the scheme and we intend to apply for this in September this year.

I have been talking to Stephen Cantwell in our planning department about the planning process and to this end we have produced a scoping/screening report to review the need for an EIA.

He has asked me to obtain the views of the [Environmental Health Department](#) on this document and this is why I am contacting you.

Please find enclosed the scoping/screening report that we would appreciate your comments on - specifically if you think the scheme will have a significant adverse affect on air quality and the affects on the local population of noise and vibration.

If you would prefer a paper copy of the document please let me know.

Also if you require any further information please let me know.

Noise, Vibration & Air Quality - Environmental Health

Could you also please let me know your likely response time.

Regards

Clive Evans
Coastal Project Engineer
Havant, Portsmouth & Gosport Coastal Partnership

Development and Technical Services
Havant Borough Council
Southmoor Depot
2 Penner Road
Havant
Hampshire
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Think before you print!

EASTOKE POINT COASTAL DEFENCE WORKS

Southern Hayling Frontage

Appendix H

**Hampshire Biodiversity Information Centre:
SINC Survey
for Hayling Island Beach – 18/05/2009**



Havant
BOROUGH COUNCIL

GOSPORT
BOROUGH COUNCIL



Portsmouth
CITY COUNCIL

Survey Summary

Hayling Island Beach 18/05/2009

Site Details

Grid Reference :	SZ74609800	File Reference :	79-0023
Total Area :	33.33 ha		
District :	Havant		
Vice-County :	11, South Hampshire		

Survey Details

Survey Type :	Phase II
Survey Date :	18/05/2009
Data Owned By :	Hampshire Biodiversity Information Centre Partnership
Data Recorded By :	Ian Ralphs, HBIC

Site Summary

Hayling Island Beach is an extensive unstable shingle structure, located on the southern coast of Hayling Island, stretching from the Inn on the Beach, east to Sandy Point Beach at the mouth of Chichester Harbour.

This extensive and largely undeveloped shingle structure is, for the most part, only sparsely to moderately vegetated. However, the site retains a flora characteristic of shingle beaches on the south coast, several of which are rare and scarce, both in Hampshire and in two cases nationally.

Site Designations

Designation

Part of an SSSI
Site of Importance for Nature Conservation

Site Features

<u>Type</u>	<u>Description</u>
Damage	Off Road Vehicles
Damage	Recreational Pressure
Geology	Shingle
Management	Unmanaged
Usage	Amenity
Usage	Dog Walking
Usage	Other
Usage	Public Access

BAP Habitats

<u>BAP Priority Habitats</u>	<u>Area</u>
Coastal vegetated shingle	25 %
Lowland dry acid grassland	5 %
Coastal sand dunes	5 %

BAP/Notable Species

<u>Taxon Name</u>	<u>Common Name</u>	<u>Status</u>
-------------------	--------------------	---------------

<i>Ammophila arenaria</i>	Marram	County Scarce
<i>Carex arenaria</i>	Sand Sedge	County Scarce
<i>Crambe maritima</i>	Sea-Kale	County Scarce
<i>Crassula tiliacea</i>	Mossy Stonecrop	Hampshire BAP Species Nationally Scarce
<i>Crithmum maritimum</i>	Rock Samphire	County Scarce
<i>Cynoglossum officinale</i>	Hound's-Tongue	IUCN (2001) - Near Threatened County Scarce
<i>Elytrigia juncea</i>	Sand Couch	County Scarce
<i>Eryngium maritimum</i>	Sea Holly	County Scarce
<i>Euphorbia paralias</i>	Sea Spurge	County Rare
<i>Glaucium flavum</i>	Yellow Horned Poppy	County Scarce
<i>Honckenya peploides</i>	Sea Sandwort	County Scarce
<i>Hypochaeris glabra</i>	Smooth Cat's-Ear	Hampshire BAP Species IUCN (2001) - Vulnerable Nationally Rare
<i>Phleum arenarium</i>	Sand Cat's-Tail	County Rare
<i>Polygonum maritimum</i>	Sea Knotgrass	WACA Sch 8 IUCN (2001) - Vulnerable Nationally Rare
<i>Puccinellia rupestris</i>	Stiff Saltmarsh-Grass	Hampshire BAP Species Nationally Scarce
<i>Raphanus raphanistrum subsp. maritimus</i>	Sea Radish	County Scarce
<i>Sedum anglicum</i>	English Stonecrop	County Scarce
<i>Trifolium suffocatum</i>	Suffocated Clover	Hampshire BAP Species Nationally Scarce
<i>Vulpia fasciculata</i>	Dune Fescue	Hampshire BAP Species Nationally Scarce
<i>Vulpia unilateralis</i>	Mat-Grass Fescue	Hampshire BAP Species Nationally Scarce

Survey Details

Hayling Island Beach 18/05/2009

Habitats Recorded

BAP Priority Habitats

	<u>Area</u>
Coastal vegetated shingle	25 %
Coastal sand dunes	5 %
Lowland dry acid grassland	5 %

National Vegetation Classifications

	<u>Area</u>
SD1, Rumex crispus-Glaucium flavum shingle community	25 %
SD6, Ammophila arenaria mobile dune community	5 %
U1, Festuca ovina-Agrostis capillaris-Rumex acetosella grassland	5 %

Species Recorded

<u>Taxon Name</u>	<u>Taxon Common Name</u>	<u>Frequency</u>	<u>Notable</u>
<i>Achillea millefolium</i>	Yarrow	R	
<i>Aethusa cynapium</i>	Fool's Parsley	R	
<i>Agrostis stolonifera</i>	Creeping Bent	R/O	
<i>Aira praecox</i>	Early Hair-Grass	R	
<i>Ammophila arenaria</i>	Marram	R/O	Y
<i>Anagallis arvensis</i>	Scarlet Pimpernel	R	
<i>Anisantha sterilis</i>	Barren Brome	R/O	
<i>Aphanes arvensis</i>	Parsley-Piert	R	
<i>Armeria maritima</i>	Thrift	R	
<i>Atriplex littoralis</i>	Grass-Leaved Orache	OLF	
<i>Atriplex prostrata</i>	Spear-Leaved Orache	R	
<i>Beta vulgaris</i> subsp. <i>maritima</i>	Sea Beet	R/O	
<i>Brassica napus</i>	Rape	R	
<i>Bromus hordeaceus</i>	Soft-Brome	OLF	
<i>Calystegia silvatica</i>	Large Bindweed	R/O	
<i>Carex arenaria</i>	Sand Sedge	OLF	Y
<i>Carex otrubae</i>	False Fox-Sedge	R	
<i>Catapodium maritimum</i>	Sea Fern-Grass	R/O	
<i>Centaureum erythraea</i>	Common Centaury	R	
<i>Cerastium fontanum</i>	Common Mouse-Ear	R/O	
<i>Cerastium glomeratum</i>	Sticky Mouse-Ear	R/O	
<i>Cerastium semidecandrum</i>	Little Mouse-Ear	R/O	
<i>Chaerophyllum temulum</i>	Rough Chervil	R	
<i>Cirsium arvense</i>	Creeping Thistle	R/O	
<i>Cirsium vulgare</i>	Spear Thistle	R	
<i>Cochlearia danica</i>	Danish Scurvygrass	R/O	
<i>Coronopus squamatus</i>	Swine-Cress	R	
<i>Crambe maritima</i>	Sea-Kale	FLA	Y
<i>Crassula tillaea</i>	Mossy Stonecrop	R	Y
<i>Crepis vesicaria</i>	Beaked Hawk's-Beard	OLF	
<i>Crithmum maritimum</i>	Rock Samphire	OLA	Y
<i>Cynoglossum officinale</i>	Hound's-Tongue	R	Y
<i>Dactylis glomerata</i>	Cock's-Foot	R/O	
<i>Daucus carota</i>	Wild Carrot	R/O	
<i>Diploxys muralis</i>	Annual Wall-Rocket	R	
<i>Dipsacus fullonum</i>	Wild Teasel	R/O	

<u>Taxon Name</u>	<u>Taxon Common Name</u>	<u>Frequency</u>	<u>Notable</u>
<i>Elytrigia atherica</i>	Sea Couch	O	
<i>Elytrigia juncea</i>	Sand Couch	R	Y
<i>Erodium cicutarium</i>	Common Stork's-Bill	R	
<i>Eryngium maritimum</i>	Sea Holly	R	Y
<i>Euphorbia paralias</i>	Sea Spurge	R/O	Y
<i>Festuca ovina</i>	Sheep's Fescue	R	
<i>Festuca rubra</i>	Red Fescue	R/O	
<i>Filago minima</i>	Small Cudweed	R	
<i>Galium aparine</i>	Cleavers	R/O	
<i>Glaucium flavum</i>	Yellow Horned Poppy	FLA	Y
<i>Honckenya peploides</i>	Sea Sandwort	R/O	Y
<i>Hordeum murinum</i>	Wall Barley	O	
<i>Hypochaeris glabra</i>	Smooth Cat's-Ear	R	Y
<i>Hypochaeris radicata</i>	Cat's-Ear	O	
<i>Lagurus ovatus</i>	Hare's-Tail	R/O	
<i>Lepidium draba</i>	Hoary Cress	O	
<i>Lotus corniculatus</i>	Common Bird's-Foot-Trefoil	R/O	
<i>Luzula campestris</i>	Field Wood-Rush	R	
<i>Medicago arabica</i>	Spotted Medick	R/O	
<i>Melilotus</i>	Melilotus	R	
<i>Ononis repens</i>	Common Restharrow	R/O	
<i>Phleum arenarium</i>	Sand Cat's-Tail	R	Y
<i>Picris echioides</i>	Bristly Oxtongue	R/O	
<i>Plantago coronopus</i>	Buck's-Horn Plantain	FLA	
<i>Plantago lanceolata</i>	Ribwort Plantain	OLF	
<i>Plantago major</i>	Greater Plantain	O	
<i>Poa annua</i>	Annual Meadow-Grass	FLA	
<i>Polygonum maritimum</i>	Sea Knotgrass	R/LF	Y
<i>Puccinellia maritima</i>	Common Saltmarsh-Grass	R	
<i>Puccinellia rupestris</i>	Stiff Saltmarsh-Grass	R	Y
<i>Raphanus raphanistrum</i>	Wild Radish	R	
<i>Raphanus raphanistrum subsp. maritimus</i>	Sea Radish	R	Y
<i>Rosa</i>	Rose	R	
<i>Rubus fruticosus</i> agg.	Bramble	R	
<i>Rumex acetosella</i>	Sheep's Sorrel agg.	R	
<i>Rumex crispus</i>	Curled Dock	OLA	
<i>Sagina procumbens</i>	Procumbent Pearlwort	R	
<i>Sambucus nigra</i>	Elder	R	
<i>Sedum anglicum</i>	English Stonecrop	R	Y
<i>Senecio jacobaea</i>	Common Ragwort	R	
<i>Senecio vulgaris</i>	Groundsel	R/O	
<i>Silene uniflora</i>	Sea Campion	R/O	
<i>Sisymbrium officinale</i>	Hedge Mustard	R	
<i>Sisymbrium orientale</i>	Eastern Rocket	R	
<i>Solanum dulcamara</i>	Bittersweet	OLF	
<i>Sonchus arvensis</i>	Perennial Sow-Thistle	R/O	
<i>Sonchus oleraceus</i>	Smooth Sow-Thistle	R/O	
<i>Spergularia marina</i>	Lesser Sea-Spurrey	R/O	
<i>Stellaria media</i>	Common Chickweed	R/O	
<i>Taraxacum</i>	Dandelion Agg.	R	
<i>Trifolium pratense</i>	Red Clover	R	
<i>Trifolium repens</i>	White Clover	O	
<i>Trifolium striatum</i>	Knotted Clover	R/O	
<i>Trifolium subterraneum</i>	Subterranean Clover	R/O	
<i>Trifolium suffocatum</i>	Suffocated Clover	R	Y

<u>Taxon Name</u>	<u>Taxon Common Name</u>	<u>Frequency</u>	<u>Notable</u>
<i>Tripleurospermum maritimum</i>	Sea Mayweed	R/O	
<i>Veronica persica</i>	Common Field-Speedwell	R	
<i>Vicia cracca</i>	Tufted Vetch	R	
<i>Vicia sativa</i>	Common Vetch	R/O	
<i>Vulpia bromoides</i>	Squirrel-Tail Fescue	R/O	
<i>Vulpia fasciculata</i>	Dune Fescue	R	Y
<i>Vulpia unilateralis</i>	Mat-Grass Fescue	R	Y

Species Summary

Total no. of species :	98
No. of woodland species :	12
* No. of AWVP indicators :	0
# No. of acid/neutral grassland indicators :	0

Notes

Habitat Classifications :

BAP Priority: Habitats identified as the highest priority for conservation action in the UK

NVC: A system of classifying natural habitat communities according to species associations

Phase 1: A standardised system for surveying, classifying and mapping broad wildlife habitats including urban areas

Peterken: A stand type classification that describes woodlands by tree species

Indicators Species :

- * Ancient Woodland Vascular Plants (AWVP) - species most strongly associated with ancient woodland and are typical components of botanically rich ancient woodland communities
- # Acid/neutral grassland indicators - species which seldom occur outside of unimproved acid/neutral grasslands or are indicative of a long period of uninterrupted grassland management
- ~ Chalk grassland indicators - species characteristic of unimproved chalk downland or have a strong affinity to calcareous soil

Species Abundance:

Frequency: D=dominant A=abundant F=frequent O=occasional R=rare L=locally

Frequencies within brackets () indicate non-native occurrences

Hayling Island Beach.

General description.

Hayling Island Beach is an extensive unstable shingle structure, located on the southern coast of Hayling Island, stretching from the Inn on the Beach, east to Sandy Point Beach at the mouth of Chichester Harbour.

This extensive and largely undeveloped shingle structure is, for the most part, only sparsely to moderately vegetated. However, the site retains a flora characteristic of shingle beaches on the south coast, several of which are rare and scarce, both in Hampshire and in two cases nationally.

These species of particular interest are the Nationally Rare; **Smooth Cat's-ear** (*Hypochaeris glabra*), the Nationally Scarce; **Mossy Stonecrop** (*Crassula tillaea*), **Stiff Salt-marsh-grass** (*Puccinellia rupestris*), **Suffocated Clover** (*Trifolium suffocatum*) and **Dune Fescue** (*Vulpia fasciculata*); the County Rare; **Sea Spurge** (*Euphorbia paralias*) and **Sand Cat's-tail** (*Phleum arenarium*), the County Scarce; **Marram** (*Ammophila arenaria*), **Sand Sedge** (*Carex arenaria*), **Sea Kale** (*Crambe maritima*), **Rock Samphire** (*Crithmum maritimum*), **Hound's-tongue** (*Cynoglossum officinale*), **Sand Couch** (*Elytrigia juncea*), **Sea Holly** (*Eryngium maritimum*), **Yellow-horned Poppy** (*Glaucium flavum*), **Sea Sandwort** (*Honckenya peploides*), **Sea Radish** (*Raphanus raphanistrum ssp maritimus*) and **English Stonecrop** (*Sedum anglicum*).

A major population of the Nationally Rare; **Sea Knotgrass** (*Polygonum maritimum*) occurs on the extreme eastern edge of the site at Sandy Point beach.

Communities.

(1). [SD1]: *Rumex crispus* - *Glaucium flavum* shingle community.

The sparsely to moderately vegetated, landward slope of the shingle beach. (IHS-SS31).

Flora :- **Sea Kale**, Bittersweet, Curled Dock, Common Vetch, Sea Campion, **Rock Samphire**, Bramble, Hoary Cress, **Sand Sedge**, **Yellow-horned Poppy** and Spear Thistle.



Hayling Island Beach (1), view west toward the amusements.

(2). Transitional community.

Characterised by a complex matrix of small and broken Red Fescue dominated lawns, with open shingle. (IHS-SS31).

Flora :- Red Fescue, Ribwort Plantain, Common Restharrow, Dandelion sp and Cock's-foot.

(3). Beach. Largely unvegetated shingle banks and beach. (IHS-SS3Z).

(4). [SD1]: *Rumex crispus* - *Glaucium flavum* shingle community.

The sparsely to moderately vegetated, landward slope of the shingle beach. Just north of the boundary (also refer to Beachlands East). (IHS-SS31).

Flora :- **Rock Samphire** and **Yellow-horned Poppy** scattered.

(5). [SD1]: *Rumex crispus* - *Glaucium flavum* shingle community.

Partially vegetated shingle on the seaward edge of the car park, partly inside and partly just outside current SINC boundary. (IHS-SS31).

Flora :- Danish Scurvygrass, Buck's-horn Plantain, Annual Meadow-grass, **Yellow-horned Poppy**, Soft Brome, Oil-seed Rape, Elder, Ribwort Plantain and Cock's-foot.

(6). [SD1]: *Rumex crispus* - *Glaucium flavum* shingle community.

Partly vegetated shingle bank in front of the path. (IHS-SS31).

Flora :- Sea Mayweed, **Sea Radish**, **Sea Kale**, Annual Meadow-grass, Danish Scurvygrass, Spear-leaved Orache, Sea Beet, **Yellow-horned Poppy**, Wall Barley, Sea Fern-grass, Rough Chervil, Creeping Thistle, Sterile Brome, **Dune Fescue**, False Fox-sedge, Curled Dock, Creeping Bent, Cleavers, Wild Carrot, Ribwort Plantain and Annual Wall-rocket.



Partly vegetated shingle bank, next to the path (6).

(7). [SD1]: *Rumex crispus* - *Glaucium flavum* shingle community.

The shingle bank in front of the small concrete wall. Largely as for (6) above, although narrower and more heavily disturbed. (IHS-SS31).



Shingle bank in front of the small wall (7).

(8). [SD1]: *Rumex crispus* - *Glaucium flavum* shingle community.

Again largely as for (6), although here the concrete wall is absent giving a more natural slope down to the path side. (IHS-SS31).

Flora :- As for (6) although the sandy base to the landward edge (by the path) has small damp sandy patches which retain Common Saltmarsh-grass and **Stiff Saltmarsh-grass**.

(9). [SD6]: *Ammophila arenaria* dune.

The beach in front of sandy point. Largely unvegetated, apart from a narrow strip of semi-fixed dune grassland along the fence line. (IHS-SS12).

Flora :- **Sand Sedge, Marram, Sea Sandwort, Hoary Cress and Sea Holly.**

(10). [SD1]: *Rumex crispus* - *Glaucium flavum* shingle community.

The partially vegetated shingle of Sandy Point Beach. (IHS-SS31).

Flora :- **Sea Kale, Sea Knotgrass, Yellow-horned Poppy, Curled Dock, Dune Fescue, Sea Fern-grass, Red Fescue, Bittersweet, Marram, Ragwort, Spear Thistle, Hound's-tongue and Sea Spurge.**

(11). [SD6]: *Ammophila arenaria* dune.

On shingle/sandy bank in the fenced enclosure on the landward side of the spit. With patches of [U1]: *Festuca ovina* - *Agrostis capillaris* - *Rumex acetosella* grassland, on more stable sandy ground locally. (IHS-SS12).

sharing information about Hampshire's wildlife

The Hampshire Biodiversity Information Centre Partnership includes local authorities, government agencies, wildlife charities and biological recording groups.

Flora :- Occasional Bramble patches. With **Marram, Sand Sedge, Sea Bindweed, Sea Sandwort, Sea Spurge**, Creeping Thistle, Common Stork's-bill, **Sand Couch, Dune Fescue** and **Sand Cat's-tail**.

*Variant 1 :- Short cropped stable shingle/sandy lawns with Sheep's-sorrel, **Smooth Cat's-ear, Suffocated Clover**, Squirreltail Fescue, Sheep's Fescue, **English Stonecrop**, Common Century, Early Hair-grass, Little Mouse-ear, Buck's-horn Plantain, Common Stork's-bill and **Mossy Stonecrop**.

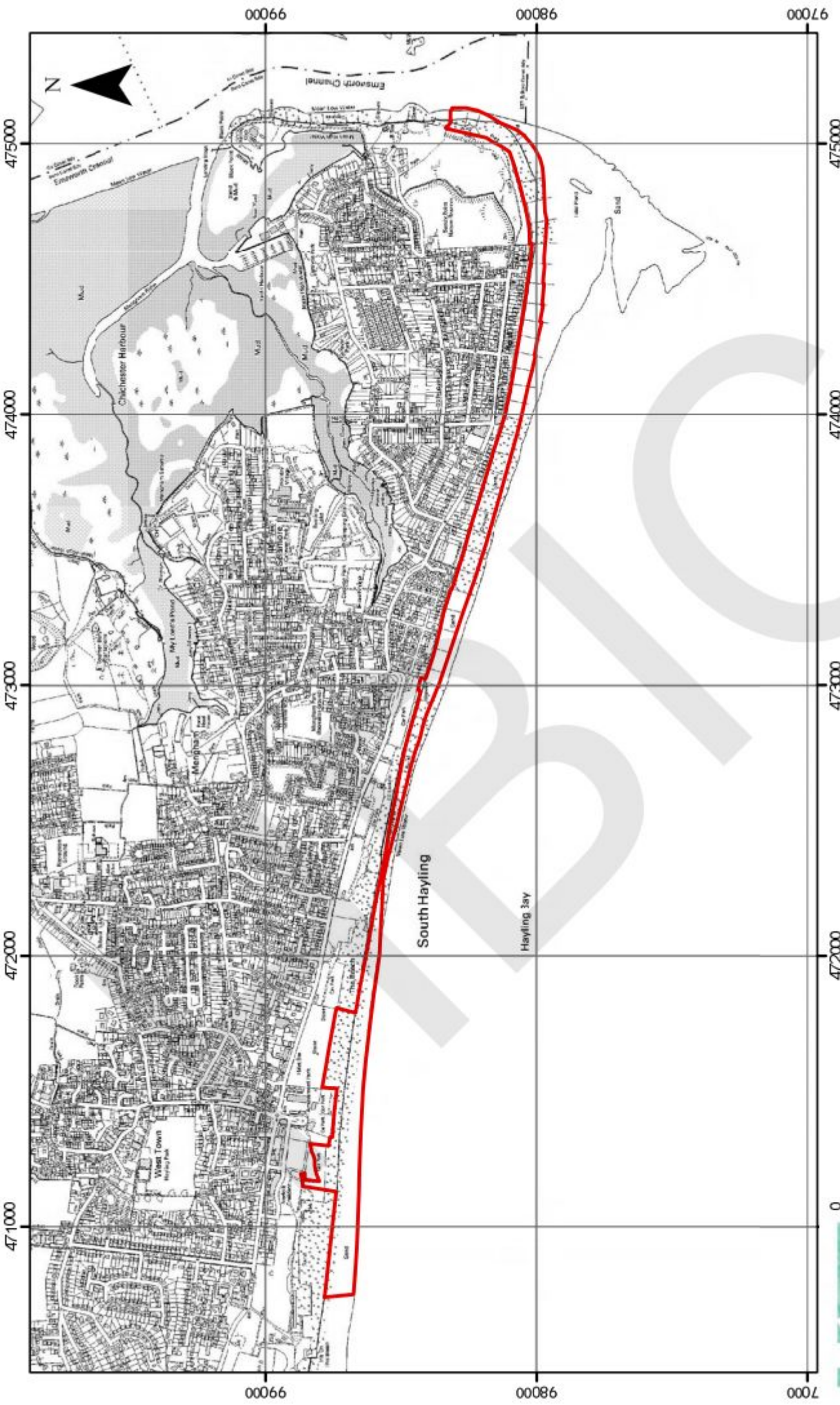


Sandy Point Beach enclosure (11).

Ian Ralphs,
Field Ecologist,
HBIC.

sharing information about Hampshire's wildlife

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Legend

Site for Survey

Survey Programme 2009:
Hayling Island Beach
SZ74609800

Scale: 1:18,000

EASTOKE POINT COASTAL DEFENCE WORKS

Southern Hayling Frontage

Appendix I

Natural England Letter of Support

Dated 24th August 2011



Havant
BOROUGH COUNCIL

GOSPORT
BOROUGH COUNCIL



Portsmouth
CITY COUNCIL

Date: 24 August 2011
Our ref: 31611



Caroline Timlett
Development and Technical Services
Havant Borough Council
Southmoor Depot
2 Penner Road
Havant
PO9 1QH

Cromwell House
2nd Floor,
15 Andover Road
WINCHESTER
Hampshire
SO23 7BT

Dear Caroline

EASTOKE POINT COASTAL DEFENCE WORKS: SOUTHERN FRONTAGE – GUIDANCE FOR AN APPROPRIATE ASSESSMENT (AUGUST 2011)

**Chichester and Langstone Harbour Special Protection Area/Ramsar (SPA/Ramsar)
Solent Maritime Special Area of Conservation (SAC)**

Following the information received from the Havant Borough Council for the Eastoke Point Coastal Defence Works scheme, we write to confirm that **Natural England agrees with the outcomes in the Appropriate Assessment**. However, we would like to emphasise the requirement to compensate for any internationally designated habitat or interest feature, which may be lost or affected as a result of the Strategy. Natural England would expect this loss or damage to any interest feature to be addressed through the Regional Habitat Creation Programme and Natural England will continue to work with the Environment Agency to achieve this.

Natural England expects to be formally consultant with regards to planning permission. It is at this stage that Natural England will also provide any necessary assent or advice for the purposes of s28H of the Wildlife and Countryside Act 1981 (as amended). Before undertaking any proposed works, the operating authority, having considered its general duty under section 28G(2) of The Wildlife and Countryside Act 1981 (as amended), is required to give notice to Natural England and is required to carry out the works in accordance with the provisions of section 28H of the Wildlife and Countryside Act 1981 (as amended). This is because the proposed works will be within or adjacent to the SSSIs found within the designated sites listed above.

Finally, we would like to congratulate you for progressing the scheme forward and to thank you for working closely with Natural England.

Please do not hesitate to contact Natural England if you need any further advice or help.

Yours sincerely



On behalf of
Dr Chris McMullon
SE Senior Coastal Specialist
Ph: 0300 060 4085
chris.mcmullon@naturalengland.org.uk

Summary of Natural England's advice at the option choice stage	Answer only yes or no
Is the proposal likely to lead to an environmentally acceptable solution?	Yes

N:\Incentives Delivery Advice and ISS\Incentives Schemes Services\LUP Casework\Havant District\Complex\Eastoke Coastal Defence Scheme\31611 - HBC Eastoke CDS HRA Support Letter 240811TS.doc