

Hayling Island Coastal Management Strategy 2120

Habitats Regulations Assessment – Screening Report
(Likely Significant Effects)

January 2021

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EXECUTIVE SUMMARY

Coastal Partners, on behalf of Havant Borough Council (HBC), is developing the Hayling Island Coastal Management Strategy 2120 to plan the future management of coastal flood and erosion risk on Hayling Island over the next 100 years.

This Habitats Regulations Assessment (HRA) Screening (Likely Significant Effects) report has been prepared to support the Strategic Environmental Assessment (SEA) Scoping stage for the Hayling Island Coastal Management Strategy. This report provides the information required to assist the competent authorities (Havant Borough Council and the Environment Agency) with determining the implications of the Hayling Island Coastal Management Strategy on the relevant European nature conservation sites and their interest features, and the need for further assessment.

This report provides an overview of the HRA process and details the methodology for the assessment of the Hayling Island Coastal Management Strategy. It includes a summary of the objectives of the Strategy and the option development process; information on the relevant European sites and their interest features; identification of the potential impact pathways that may arise from the policies, management options and measures in the Hayling Island Coastal Management Strategy; and a screening assessment of whether the potential impact pathways could have a likely significant effect on the features of each relevant European site, either alone or in-combination with other plans and projects.

The information in the screening assessment indicates that the Hayling Island Coastal Management Strategy is not likely to have a significant effect on the Solent and Dorset Coast SPA, either alone or in-combination with other plans and projects. The Solent and Dorset Coast SPA has therefore been screened out of any further assessment in the HRA for the Hayling Island Coastal Management Strategy.

However, for the Solent Maritime SAC and the Chichester and Langstone Harbours SPA and Ramsar site, the screening assessment indicates that a likely significant effect from the Strategy cannot be excluded due to potential habitat losses from coastal squeeze, tidal inundation or under the footprint of structures, potential barriers to species movements, potential changes to coastal processes, potential recreational disturbance arising from changes in coastal access routes and/or potential erosion or flooding of contaminated coastal landfill sites. Therefore, the Solent Maritime SAC and the Chichester and Langstone Harbours SPA and Ramsar site have been screened in for further assessment in the next stage of the HRA process (i.e. the appropriate assessment and integrity test), to ascertain whether the draft Strategy will have an adverse effect on the integrity of these European sites in view of their conservation objectives, taking account of any mitigation measures that may be included in the Strategy.

The information within this HRA Screening report will be used to inform the Strategy development during the short-listing and selection of preferred coastal management options for each Option Development Unit (ODU). Avoidance and reduction measures will be incorporated so far as is possible for policies and measures where it has been identified that Strategy options could have a likely significant effect on the features and supporting habitats of the European sites. Mitigation measures developed during the Strategy development and appraisal of management approaches will be presented in the appropriate assessment section

of the full HRA report, which will be included as an Appendix to the SEA Environmental Report to be produced to support the consultation stage of the draft Strategy.

ACRONYMS

AA	Appropriate Assessment
AEOI	Adverse Effect on Integrity
AEP	Annual Exceedance Probability
AoO	Advice on Operations
BAP	Biodiversity Action Plan
EMS	European Marine Site
FAP	Feature-Activity-Pressure (interactions)
FCERM	Flood and Coastal Erosion Risk Management
HBBS	Havant Borough Biodiversity Strategy
HBC	Havant Borough Council
HLCO	High Level Conservation Objectives
HRA	Habitat Regulations Assessment
HTL	Hold the Line
IROPI	Imperative Reasons of Overriding Public Interest
LSE	Likely Significant Effect
MMO	Marine Management Organisation
MPA	Marine Protected Area
RHCP	Regional Habitat Compensation Programme
SAC	Special Areas of Conservation
SACO	Supplementary Advice on Conservation Objectives
SCI	Site of Community Importance
SDCP	Solent Dynamic Coast Project
SEA	Strategic Environmental Assessment
SMP	Shoreline Management Plan
SoP	Standard of Protection
SPA	Special Protection Area
StAR	Strategy Appraisal Report
TLSE	Test of Likely Significant Effect

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1 Introduction

1.1 Background to the Strategy

Coastal Partners, on behalf of Havant Borough Council (HBC), is developing the Hayling Island Coastal Management Strategy 2120 to plan the future management of coastal flood and erosion risk on Hayling Island over the next 100 years.

A coastal management strategy forms an important part of the wider planning framework and it is important to consider the position of the Strategy in relation to other plans, programmes and schemes. Shoreline Management Plans sit at the top of the hierarchy of plans for managing coastal flooding and erosion, as shown in **Figure 1.1**. A Shoreline Management Plan (SMP) is a high-level non-statutory planning document which provides a large-scale assessment of the risks associated with coastal processes and presents a long-term policy framework to reduce these risks to people and the developed, historic and natural environment in a sustainable manner. The North Solent SMP was adopted by HBC in 2010 and recommended the need to develop a coastal strategy for the Hayling Island coastline (NFDC, 2010).

Coastal management strategies sit at the next tier in the hierarchy and it is the role of strategies to identify the appropriate measures (schemes) to implement the SMP policies. The final stage of work is undertaken at scheme level where different options are compared and a preferred option is selected, designed and submitted for planning approval, a marine licence and other required consents and permissions. Once the detailed design of the scheme is approved, the works can be carried out on the ground.



Figure 1.1: Hierarchy of coastal management

In addition to the coastal management hierarchy, the Strategy also needs to integrate with and have regard to wider plans and policies, such as the emerging Local Plan (HBC, 2020) and Regeneration Strategy (HBC, 2018). The related plans and policies that are relevant to the Hayling Island Coastal Management Strategy are described within **each theme chapter (Chapters 3 to 11) of the Strategic Environmental Assessment (SEA) Scoping Report.**

The Hayling Island Coastal Management Strategy is being developed in two stages:

- Part 1 – the Hayling Island Funding and Implementation Strategy (HIFIS) was completed in 2019. HIFIS established the baseline information to provide evidence and recommendations on the future approach to FCERM on Hayling Island; and
- Part 2 – the full Hayling Island Coastal Management Strategy, which is being developed over the course of 2020 to 2022.

Part 2, the full Hayling Island Coastal Management Strategy, is the subject of this Habitats Regulations Assessment (HRA) Screening report.

1.2 Habitats Regulations Assessment

This report provides the information required to assist the competent authorities with determining the implications of the Hayling Island Coastal Management Strategy (hereafter referred to as ‘the Strategy’) on the relevant designated European nature conservation interests and the need for further assessment. The competent authorities in relation to the Strategy will be HBC, who will be responsible for approving the adoption of the Strategy as the relevant Local Authority, and the Environment Agency, who will be responsible for approving the Strategy as the Government’s national strategic Flood and Coastal Erosion Risk Management (FCERM) authority.

The information presented within this HRA Screening report is taken from relevant sections of the SEA Scoping Report and supplemented, where required, by additional data and information from other relevant and available sources.

As the Strategy is currently only at the start of the option appraisal stage, the HRA presented here is limited to Stage 1 of the HRA process (Screening and Test of Likely Significant Effect) and we would welcome the competent authorities’ views (and those of their statutory advisors) on the results and findings of this Screening stage to inform the next (preferred option and policy development) stage of the Strategy. Further information, including an ‘Appropriate Assessment’ (Stage 2 of the HRA process), will be provided on completion of the option appraisal and policy development stage when the draft Strategy and its accompanying Strategy Appraisal Report (StAR) are published.

This HRA Screening report is structured to present a view as to whether the Strategy will (either alone or in-combination with other plans or projects) have a likely significant effect on the internationally important interest features of the relevant European sites. The assessment process is explained in more detail in **Section 3** but, in summary, the following is provided:

- An overview of the HRA process and methodology for assessment;
- Background information regarding the relevant European sites;
- Screening of impacts and Likely Significant Effects (LSE); and
- A summary and recommended next steps.

Throughout the option appraisal and policy development process for the Strategy, the project team will seek advice and input from HBC's planning policy team, highways engineers, regeneration team and conservation officer as well as statutory consultees, including Natural England, Historic England, the Environment Agency, Langstone Harbour Board and Chichester Harbour Conservancy, which will inform the development of the Strategy as described in **Section 12.2 of the SEA Scoping Report**.

2 Description of the Hayling Island Coastal Management Strategy

Hayling Island has a population of over 17,000, is located on the south Hampshire coast, within the Borough of Havant and has approximately 38 km of coastline.

Being an island community, climate change is one of the largest challenges Hayling Island will face. It poses a significant threat to the economy, environment, health and way of life. Rising sea levels due to climate change are predicted to significantly increase the level of coastal flood and erosion risk on the island.

With no flood defences in place, 609 residential properties and 348 non-residential properties are currently at flood risk on the island from a 0.5% Annual Exceedance Probability (AEP) event. By 2120, with climate change and sea level rise, this figure rises to 2,490 properties at risk from coastal flooding during a similar extreme event and 531 properties at risk from coastal erosion on Hayling Island. Access and egress on and off the island to the mainland via the sole road bridge connection (the A3023) is also at risk.

As described in **Section 1.1**, in order to manage these risks into the future, the North Solent SMP recommended the need to develop a coastal management strategy for the Hayling Island coastline (NFDC, 2010). The aim of the Hayling Island Coastal Management Strategy is:

“To produce a sustainable cohesive strategy for managing flood and coastal erosion risk for Hayling Island for the next 100 years.”

In order to achieve this aim, the Strategy will:

- Develop **strategic coastal management** options for Hayling Island for the next **100 years**;
- Outline a programme of **investment to reduce the risk** of coastal flooding and erosion to people living on the island;
- Identify the potential funding sources and partners required to deliver that investment programme and **be open and honest** about where funding is likely to be a challenge;
- **Incorporate adaptation strategies**, as defence improvements will not be possible in all locations;
- Be **holistic, yet flexible** for both **people and nature**;
- Respond to **future changes**, support sustainable development of the island and take into account **predicted sea level rise** and **climate change**;
- Make a **partnership approach** central, between HBC, the Environment Agency, Natural England, landowners, businesses and local communities, making sure local needs and priorities are at its core.

The present day land use, future land use (e.g. redevelopment), land ownership, coastal defence asset types and flood and erosion risk varies significantly along the Hayling Island coastline. These factors produce constraints and opportunities at the local scale for identifying and developing options for coastal management.

Therefore, in order to facilitate the development of coastal management options, the coastline has been divided into 15 Option Development Units (ODUs), as shown in **Figure 2.1**. The

ODUs can be defined as manageable areas with consistent themes that help to facilitate and rationalise the appraisal and selection of management options (AECOM, 2019). The creation of the ODUs provides the flexibility to develop coastal management options on an area by area basis to ensure that those identified are appropriate at the local scale, taking into account local needs, but still comply with national guidelines.

The following information was used to inform the selection of the ODU boundaries:

- The North Solent SMP boundaries and policies;
- Current coastal risk management assets (ownership, maintainer and residual life);
- Coastal processes;
- Flood risk (flood cell boundaries);
- SMP erosion zones;
- Current land use and ownership;
- Opportunities and constraints (e.g. redevelopment opportunities); and
- Historical and current issues or concerns.

Further information on the key drivers and justification for the selection of ODU locations and boundaries can be found in the 'Identification of Option Development Units – Summary Report' (AECOM, 2019).

The Strategy is being developed using the following steps:

1. **Information gathering** – collation of baseline information on who and what property is currently at risk, the current condition of defences, the natural and historic environment, coastal processes and what impact climate change and sea level rise will have in the future and engagement with key stakeholders.
2. **Development and appraisal of management approaches** – including consideration of these approaches on people, property, business, communities, the landscape, wildlife and heritage, the costs and benefits of the different management approaches and engagement with key stakeholders.
3. **Identification of a programme of works** for the next 100 years, including a detailed implementation programme for the short term, and identification of opportunities for broader outcomes (place making) and potential funding sources.
4. **Engagement and consultation on the draft Strategy** with the general public and statutory stakeholders and regulators.
5. **Finalising the Strategy** – the Strategy will be updated with any amendments required following the consultation and submitted for HBC approval and adoption and approval by the Environment Agency. The final Strategy will be published and the programme of work can begin to be implemented.

The Strategy is currently at the start of Step 2 – Development and appraisal of management approaches. As part of this stage of the Strategy development, the 'Do Nothing' (baseline for comparison), 'Do Minimum' (continue with existing patching and maintenance) and 'Do Something' (sustain or improve the standard of protection or adaptation and resilience) options will be considered for each ODU. For the 'Do Something' option, a long list of coastal management measures will be developed and assessed for each section of the coastline. The long list assessment will identify a short list of feasible 'Do Something' management options

for each ODU, which will be assessed, using tools including modelling and economic analysis, to select the preferred measure(s) for the 'Do Something' option. The recommended strategic option identified for each ODU, along with the preferred measure(s) that could be implemented for the 'Do Something' option, will be set out in an Option Development Report.

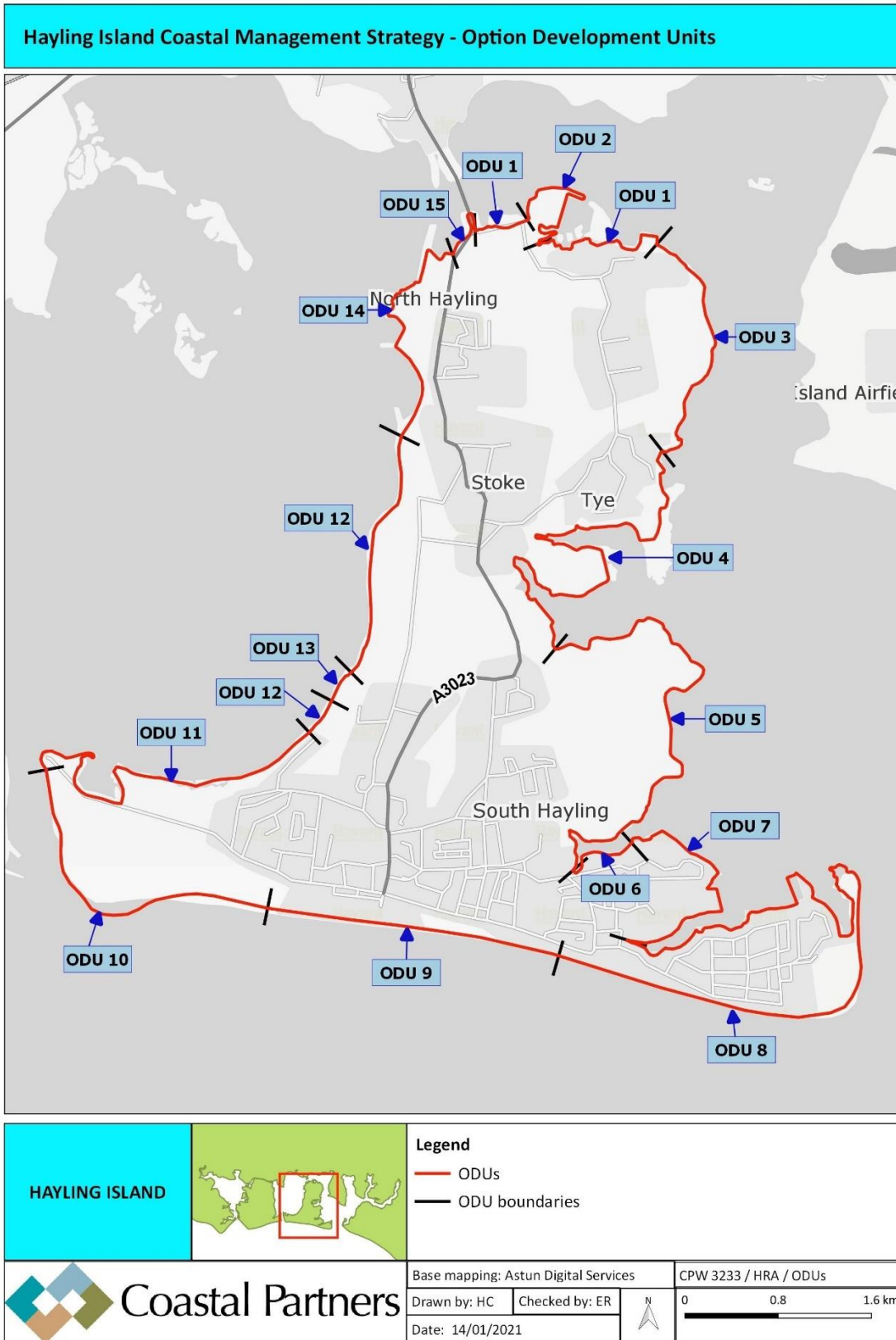


Figure 2.1: Location of ODUs for the Hayling Island Coastal Management Strategy

3 Overview of the Habitat Regulations Assessment Process and Methodology

3.1 Overview of the Habitat Regulations

The 'Habitats Directive' (Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora) protects habitats and species of European nature conservation importance. Together with Council Directive 2009/147/EC on the conservation of wild birds (the 'Birds Directive'), the Habitats Directive establishes a network of internationally important sites designated for their ecological status. Special Areas of Conservation (SACs) and Sites of Community Importance (SCIs) are designated under the Habitats Directive and promote the protection of flora, fauna and habitats. Special Protection Areas (SPAs) are designated under the Birds Directive to protect rare, vulnerable and migratory birds. These sites combine to create a Europe-wide 'Natura 2000' network of designated sites; hereafter referred to as 'European sites'.

In the United Kingdom (UK) the Conservation of Habitats and Species Regulations 2017 (as amended) (the 'Habitats Regulations') incorporate all SPAs into the definition of European sites and, consequently, the protections afforded to European sites under the Habitats Directive apply to SPAs designated under the Birds Directive.

In addition to sites designated under European nature conservation legislation, UK Government policy (ODPM Circular 06/2005) states that internationally important wetlands designated under the Ramsar Convention 1971 (Ramsar sites) are afforded the same protection as SPAs and SACs for the purpose of considering development proposals that may affect them.

Regulation 63 of the Habitats Regulations defines the procedure for the assessment of the implications of plans and projects on European sites. Under this Regulation, if a proposed plan or project is unconnected with site management and is likely to significantly affect the European site, the competent authority must undertake an 'appropriate assessment' (Regulation 63(1)).

The UK left the EU on 31 January 2020 under the terms set out in the European Union (Withdrawal Agreement) Act 2020 ("the Withdrawal Act"). However, The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 make it clear that the HRA process continues to apply following the UK's exit.

3.2 The Habitat Regulations Assessment Process

The Strategy is considered a plan within the meaning and scope of the Habitats Directive and is therefore subject to the requirements of Regulation 63 of the Habitats Regulations. The Strategy will be assessed in the following stepwise approach under the Habitat Regulations:

- **Stage 1 - Screening:** This stage includes two steps. The first step is the 'Management Test' to determine whether or not the plan is directly connected with or necessary to site management for nature conservation. The second step in this stage is the 'Test of Likely Significant Effect (TLSE)', which determines whether the plan is likely to have a significant

effect on the internationally important interest features of the European site(s), either alone or in combination with other plans and projects.

- **Stage 2 - Appropriate Assessment and Integrity Test:** If a plan is not necessary for the conservation management of the European site and a LSE cannot be excluded, the competent authority must undertake an appropriate assessment of the plan. This stage assesses in more detail the implications of the effects of the plan and its policies on the site's conservation objectives and whether or not the plan will adversely affect the integrity of the site, either alone or in combination with other plans and projects. Where adverse effects are identified, mitigation measures can be incorporated to enable the competent authority to determine that the plan will not have an Adverse Effect on the Integrity (AEOI) of the European site(s), either alone or in combination with other plans or projects. If mitigation measures cannot support a conclusion of no adverse effect on the integrity of the site(s), then the plan can only be agreed and adopted if Stages 3 and 4 (below) are followed and a 'derogation' is approved by the Secretary of State.
- **Stage 3 - Alternative Solutions:** This stage of the assessment examines alternative ways of achieving the objectives of the plan to establish whether there are any financially, legally and technically feasible solutions that would avoid or have a lesser adverse effect on the integrity of the European site(s).
- **Stage 4 - Imperative Reasons of Overriding Public Interest (IROPI) and Compensatory Measures:** This stage assesses whether the reasons for undertaking the plan are imperative (for health and safety and/or socio-economic reasons) and in the public interest. If IROPI can be demonstrated, and the necessary compensatory measures have been secured to ensure the overall coherence of the European site network is maintained, then the plan may be approved and adopted.

These stages must be followed in order as part of the stepwise approach to a HRA. The four stages are distinct and mark the points at which the plan may no longer need further assessment work to be undertaken.

3.3 Methodology for Assessment of the Strategy

It is important to note that the Strategy will set the location, scale and general method of coastal management for the island, but it will not define the details of the recommended options and management measures. The details will be defined during the design stage of each relevant scheme. As coastal management strategies form the middle tier in a three tiered system (as described in **Section 1.1** and **Figure 1.1**), the HRA of the Strategy needs to be pitched at the appropriate level of detail for assessment of the high level recommended management options and measures. The most detailed HRA will be undertaken at the scheme level when more specific information will be available about how and when the policies and measures recommended in the SMP and Strategy will be implemented.

This is in line with EU and UK case law. Advocate-General Kokott¹ has commented that *'It would also hardly be proper to require a greater level of detail in preceding plans [than lower tier plans or planning applications] or the abolition of multi-stage planning and approval procedures so that the assessment of implications can be concentrated on one point in the procedure. Rather, adverse effects on areas of conservation must be assessed at every relevant stage of the procedure to the extent possible on the basis of the precision of the plan. This assessment is to be updated with increasing specificity in subsequent stages of the procedure'*. Similarly, the High Court² has ruled that for *'a multistage process, so long as there is sufficient information at any particular stage to enable the authority to be satisfied that the proposed mitigation can be achieved in practice it is not necessary for all matters concerning mitigation to be fully resolved before a decision maker is able to conclude that a development will satisfy the requirements of the Habitats Regulations'*.

The HRA of the Strategy will be undertaken in accordance with the 'Practical Guidance for the Assessment of Plans under the Regulations' chapter of the DTA Habitats Regulations Assessment Handbook (Tyldesley and Chapman, 2013). This guidance advises that there are several steps to go through when undertaking an HRA of a plan, summarised as follows:

1. **Consider the European site(s) to be included** in the assessment and gather information on the sites' protected features and conservation objectives;
2. **Check the plan's emerging strategy, aims and objectives** and analysis of the broad options or alternatives;
3. **Consider how the plan could affect the European site(s)** and whether significant effects are likely either from the plan alone or in-combination with other plans and projects;
4. If a likely significant effect cannot be excluded, **undertake an appropriate assessment** of the plan's policies and the effects on the European site(s) in view of their conservation objectives. Consider potential changes to the plan to avoid or reduce any adverse effects identified;
5. Prepare a **draft record of the HRA**, to accompany the publication of the draft plan, and consult with the statutory nature conservation body (Natural England). If it has not been possible for the appropriate assessment to ascertain no adverse effect on the integrity of the European site(s), the HRA record should include information on whether there are alternative solutions that would have no, or a lesser, effect on the integrity of the European site(s) adversely affected by the plan and set out the IROPI that are sufficient to override the harm that the plan will cause, together with the agreed compensatory measures;
6. **Update the draft HRA in light of any comments** and amendments required following consultation on the draft plan; and

¹ Opinion of Advocate General Kokott, 9th June 2005, Case C-6/04. Commission of the European Communities v United Kingdom of Great Britain and Northern Ireland, paragraph 49. <http://curia.europa.eu/juris/document/document.jsf?docid=58359&doclang=EN>

² High Court case of R (Devon Wildlife Trust) v Teignbridge District Council, 28 July 2015

7. **Complete and publish the final HRA record**, with clear conclusions, to accompany the publication of the final plan.

As the Government's statutory nature conservation adviser, Natural England has a duty, under Regulation 37 of the Habitats Regulations, to produce conservation advice for European Marine Sites (EMS). Natural England is currently updating its conservation advice packages and some new packages are still in draft and being consulted on and, therefore, may be subject to change. However, the new draft advice reflects the most up-to-date evidence held by Natural England and will be referred to when undertaking the HRA of the Strategy.

The conservation advice package for each European site includes specific information on the designated or qualifying features, conservation objectives, advice on operations (how an activity can affect a protected site feature) and advice on the seasonal sensitivity of any mobile species features. To accompany the updated conservation advice, Natural England has produced guidance on how to use the new advice packages when providing information for HRA (Natural England, 2016a & 2019). This guidance advises that there are several steps to go through when using the conservation advice to assess if an activity will impact a site. In summary, these are:

- 1) **Use the Site Information and maps** to determine if the plan or project is in, or near to, an EMS;
- 2) **Use the Advice on Operations (AoO)** to determine potential interactions between protected features and the activities within the proposed plan or project. Identify the pressures that the activities will cause that could impact the habitats and/or species features of the site;
- 3) **Screen the Feature-Activity-Pressure (FAP) interactions** identified in step 2. 'Not relevant' interactions can be screened out of any further assessment. 'Not sensitive' interactions can be screened out as long as the pressure level resulting from the proposed activity will not exceed the defined benchmark in the AoO. In addition to sensitivity, pressures have also been risk profiled within the AoO. Unless there are evidence based case or site-specific factors that increase the risk or uncertainty on the level of the pressure on a receptor, 'Low Risk' pressures generally do not occur at a level of concern and should not require further consideration as part of an assessment. However, before screening out low risk pressures, consideration should be given to the activities within the proposed plan or project to ensure that there are no site-specific factors under which the risk associated with the pressure could increase;
- 4) **Use the Conservation Objectives and the Supplementary Advice** to assess the impacts of the proposed plan or project on the attributes of each protected feature.
- 5) **Bring this together in an assessment of the overall impacts** on the features of the European site(s) to determine whether or not the proposed plan or project will have an AEOL of the European site(s) in view of the Conservation Objectives.

Steps 1 to 3 represent the TLSE in the Screening Stage of the HRA process and Steps 4 to 5 comprise the Appropriate Assessment and Integrity Test stage.

Whilst the high level nature of the options and recommended measures that will be included in the Strategy means that a detailed assessment of the AoO and FAP interactions may not be possible, or indeed appropriate, the site information, maps, lists of pressures, high level conservation objectives and supplementary advice contained within the conservation advice packages will be referred to during the HRA as they provide important evidence to inform the assessment of potential effects on the European sites.

The HRA of the Strategy will also build on the information and findings within the North Solent SMP HRA (NFDC, 2010), in particular in relation to coastal squeeze / tidal inundation impacts and the Regional Habitat Compensation Programme (RHCP).

4 Background Information on the Relevant European Sites

The Hayling Island coastline is located within and/or adjacent to the following European sites:

- The Solent Maritime SAC;
- The Chichester and Langstone Harbours SPA and Ramsar site; and
- The Solent and Dorset Coast SPA.

The location and boundaries of the relevant European sites included in this HRA for the Strategy are shown in **Figure 4.1**. Details of these European sites and their reasons for designation are outlined in the following sections.

In addition to the designated European sites, the over-wintering bird features of the Chichester and Langstone Harbours SPA and Ramsar site also use areas outside of the site boundaries, namely for high tide feeding and roosting. These areas of functionally linked land are essential for supporting these features and maintaining the integrity of the Chichester and Langstone Harbours SPA and Ramsar site. As such, potential impacts on functionally linked land must be considered as part of the HRA due to the important role it plays in maintaining or restoring the protected species' populations at favourable conservation status. Therefore, it is imperative that the potential effects on these areas from the policies and measures in the Strategy are considered within the HRA. Details of these functionally linked areas are provided in **Section 4.4** as a requisite part of this background information on the relevant European sites.

Hayling Island Coastal Management Strategy - European Sites

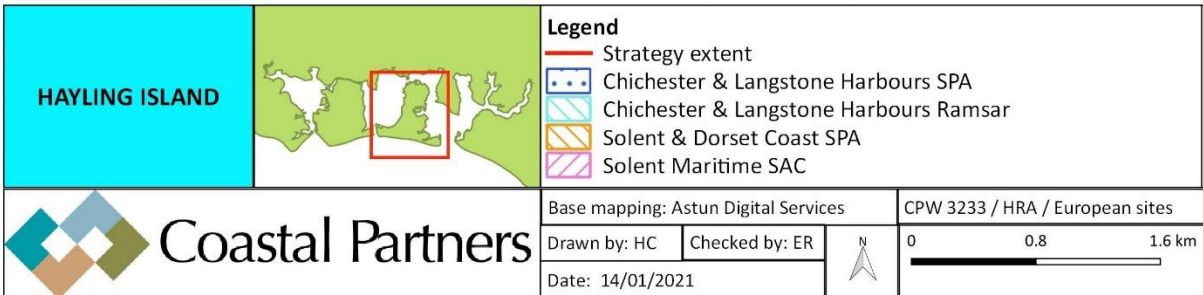
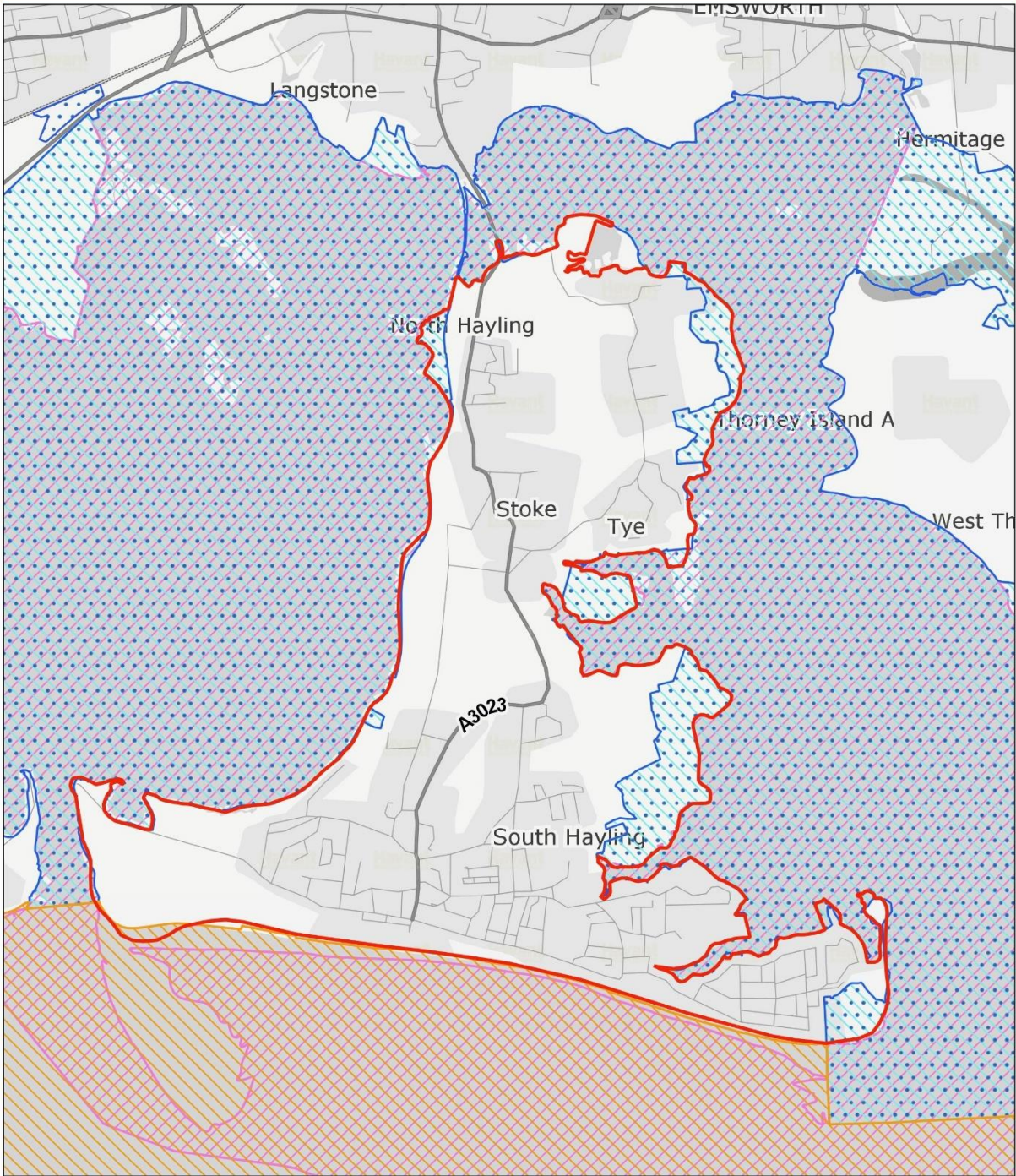


Figure 4.1: Location of the European sites relevant to the HRA of the Hayling Island Coastal Management Strategy

4.1 Solent Maritime SAC

The Solent Maritime SAC is a unique suite of functionally linked estuaries and dynamic marine and estuarine habitats. The site has the largest number of small estuaries in the tightest cluster anywhere in Great Britain, with examples of coastal plain estuaries (Yar, Medina, King's Quay Shore and Hamble) and bar-built estuaries (Newtown Harbour, Beaulieu, Langstone Harbour, Chichester Harbour). Sediment habitats within the site include extensive areas of intertidal mudflats and sandflats, often supporting eelgrass (*Zostera* species), subtidal sandbanks, saltmarsh and natural shoreline transitions such as drift line vegetation (Natural England, 2020a).

The Solent Maritime SAC is designated under the Habitats Directive, due to the presence of the habitats and species set out in **Table 4.1**.

Table 4.1: Annex I habitats and Annex II species that are qualifying features of the Solent Maritime SAC (from [Natural England, 2020a](#) and [JNCC, 2015a](#)).

SAC feature	Qualifying details
Annex I habitats that are a primary reason for the selection of this site:	
Estuaries	This site is considered to be one of the best areas in the United Kingdom for the estuaries feature. The Solent and its inlets are unique in Britain and Europe for their hydrographic regime of four tides each day, and for the complexity of the marine and estuarine habitats present within the area. It is the only SAC within the UK to contain more than one physiographic estuary type, comprising four bar-built estuaries (Newtown Harbour, Beaulieu Estuary, Langstone Harbour and Chichester Harbour) and four coastal plain estuaries (Yar, Medina, Kings Quay Shore and the Hamble).
Spartina swards (<i>Spartina</i> spp.)	The Solent Maritime SAC is the only site in the UK where smooth cordgrass (<i>Spartina alterniflora</i>) is present. It is also one of only two sites where native small cordgrass (<i>Spartina maritima</i>) and Townsend's cordgrass (<i>Spartina townsendii</i>) are found. There are also extensive areas of common cordgrass (<i>Spartina anglica</i>) and, thus, all four <i>Spartina</i> species occur here in close proximity.
Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>)	This site is considered to be one of the best areas in the United Kingdom. The Solent contains the second-largest aggregation of Atlantic salt meadows in south and south-west England. The Atlantic salt meadows of the Solent are notable as being representative of the ungrazed type and subsequently support a range of communities dominated by sea purslane (<i>Atriplex portulacoides</i>), common sea lavender (<i>Limonium vulgare</i>) and sea thrift (<i>Armeria maritima</i>), as well as common saltmarsh grass (<i>Puccinellia maritima</i>).
Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:	
Sandbanks which are slightly covered by sea water all the time	Shallow sediment communities occur around the Solent and include subtidal seagrass beds (<i>Zostera marina</i>), which is a UK habitat of principal importance. Subtidal mud and sand is generally found in the estuaries including the Hamble, Medina, Yar and Beaulieu, whilst subtidal sand and gravel is more predominant along the open coast. These subtidal sediments typically occur at depths of less than 20 metres below chart datum and are characterised by burrowing worms, crustaceans, bivalve

SAC feature	Qualifying details
	molluscs and echinoderms, such as brittle stars and sea urchins. The subtidal sediments in the Solent also include substantial populations of the non-native slipper limpet (<i>Crepidula fornicata</i>).
<i>Salicornia</i> and other annuals colonizing mud and sand	The Solent Maritime SAC supports a significant presence of this pioneer saltmarsh habitat, which comprises glasswort (<i>Salicornia</i> species) and annual sea-blite (<i>Suaeda maritima</i>). Pioneer saltmarsh vegetation colonises intertidal mudflat and sandflats in areas protected from strong wave action.
Mudflats and sandflats not covered by seawater at low tide	The Solent Maritime SAC supports a significant presence of this feature. Intertidal mudflats and sandflats are found throughout the site and form much of the intertidal region. They support nationally rare seagrass beds (<i>Zostera</i> species and <i>Ruppia marina</i>). Mud communities are present in the most sheltered areas of the site and are dominated by worms, bivalve molluscs and the mud snail <i>Hydrobia ulvae</i> . Coarser sand and cobble communities are found on beaches on the more exposed open coast and embayment areas around the Solent, where wave action and / or strong tidal currents prevent the deposition of finer silt.
Coastal lagoons (priority feature)	The Solent Maritime SAC includes two coastal lagoons, which are both located on the Isle of Wight, namely Newtown Quay Lagoon and Yar Bridge Lagoon. Coastal lagoons are a priority habitat of European importance.
Annual vegetation of drift lines	The Solent Maritime SAC supports a significant area of vegetated drift lines (also known as strandline habitat or vegetated shingle). This is a rare habitat as its total extent in the UK is estimated to be less than 100 hectares. Two important drift line communities are present in the site. The first is dominated by spear-leaved orache (<i>Atriplex prostrata</i>) or grass-leaved orache (<i>Atriplex littoralis</i>) on the seaward side of the shingle. The second is a community dominated by sea sandwort (<i>Honkenya peploides</i>) and sea rocket (<i>Cakile maritima</i>) with associated perennial plants.
Perennial vegetation of stony banks	This site supports a significant presence of perennial vegetation of stony banks and, collectively with the annual vegetation of drift lines feature, is commonly referred to as vegetated shingle. Perennial vegetation develops on more stable (typically landward) shingle or stony substrates than the annual vegetation of drift lines habitat. There are several distinct perennial shingle community types present but most common is the curled dock (<i>Rumex crispus</i>) and yellow-horned poppy (<i>Glaucium flavum</i>) community or an associated transition or variation.
Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ("white dunes")	The Solent Maritime SAC includes sand dune habitats at East Head and Pilsley Island in Chichester Harbour and at Norton Spit to the west of the Yar Estuary on the Isle of Wight.
Annex II species present as a qualifying feature, but not a primary reason for site selection:	
Desmoulin's whorl snail <i>Vertigo moulinsiana</i>	When the Solent Maritime SAC was designated in 2005 the site supported a small population of the rare Desmoulin's whorl snail in the freshwater fen and brackish reedbeds at the top of Fishbourne Channel in Chichester Harbour. However, the species was last recorded here in 2005 and no individuals were found during surveys in 2009 and 2010.

4.2 Chichester and Langstone Harbours - SPA and Ramsar

The large, sheltered estuarine basins of Chichester and Langstone Harbours comprise extensive sand and mud-flats which are exposed at low tide. The harbour basin contains a wide range of coastal habitats supporting important plant and animal communities. The invertebrate-rich mud-flats support extensive beds of algae (especially *Enteromorpha*³ species) and eelgrasses. The Chichester and Langstone Harbours site is of particular significance for water birds, especially in migration periods and in winter (Natural England, 2020b). It also supports important colonies of breeding terns (*Sterna* species) during the summer months.

4.2.1 Chichester and Langstone Harbours SPA

Chichester and Langstone Harbours are of European importance and are classified as a SPA based on the criteria set out in **Table 4.2**. The total area of the SPA is 5,810.03 ha.

Table 4.2: Chichester and Langstone Harbours SPA site qualification information (from [Natural England, 2020b](#)).

Site qualification criteria	Qualifying details
This site qualifies under Article 4.1 of the Birds Directive by supporting populations of European importance of species listed on Annex I of the Directive	During the breeding season the area regularly supports:
	Little tern, <i>Sterna albifrons</i> - 109 pairs representing up to 5.7% of the UK breeding population (5 year mean 1982 – 1986).
	Common tern, <i>Sterna hirundo</i> - 126 pairs representing up to 1.1% of the UK breeding population (5 year mean 1982 – 1986).
	Sandwich tern, <i>Sterna sandvicensis</i> - 93 pairs representing up to 0.7% of the UK breeding population (5 year mean 2011 - 2015).
	Over winter the area regularly supports: (5 year peak mean 1982/83 - 1986/87 unless stated otherwise. Internationally important population percentages are taken from the original SPA citation.)
	Bar-tailed godwit, <i>Limosa lapponica</i> – 1,491 individuals representing up to 3.9% of the GB breeding population
This site also qualifies under Article 4.2 of the Directive (79/409/EEC). Over winter the area regularly supports:	Northern pintail, <i>Anas acuta</i> – 323 individuals representing 1.1% of the GB population
	Northern shoveler, <i>Anas clypeata</i> – 124 individuals representing 0.7% of the GB population
	Eurasian teal, <i>Anas crecca</i> – 2,553 individuals representing 1% of the North-western Europe population
	Eurasian wigeon, <i>Anas penelope</i> – 3,947 individuals representing 0.9% of the GB population (5 year peak mean 2010/11 – 2014/15)

³ Now known as *Ulva* species

Site qualification criteria	Qualifying details
	<p>Ruddy Turnstone, <i>Arenaria interpres</i> – 564 individuals representing 1.2% of the GB population</p> <p>Dark-bellied Brent Goose, <i>Branta bernicla bernicla</i> – 17,712 individuals representing 12% of the Western Siberia/Western Europe population</p> <p>Sanderling, <i>Calidris alba</i> – 407 individuals representing 3.1% of the Eastern Atlantic/Western & Southern Africa wintering population</p> <p>Dunlin, <i>Calidris alpina alpina</i> – 53,977 individuals representing 2.6% of the Northern Siberia/Europe/Western Africa population</p> <p>Common Ringed Plover, <i>Charadrius hiaticula</i> – 1,012 individuals representing 3% of the GB population</p> <p>Red-breasted merganser, <i>Mergus serrator</i> – 366 individuals representing 4.4% of the GB population (5 year peak mean 2010/11 – 2014/15)</p> <p>Eurasian Curlew, <i>Numenius arquata</i> – 2,937 individuals representing 2.1% of the GB population</p> <p>Grey Plover, <i>Pluvialis squatarola</i> – 3,271 individuals representing 3.9% of the Eastern Atlantic wintering population</p> <p>Common Shelduck, <i>Tadorna tadorna</i> – 4,287 individuals representing 4% of the North-western Europe population</p> <p>Common Redshank, <i>Tringa totanus</i> – 3,417 individuals representing 1.4% of the Eastern Atlantic wintering population</p>
<p>The area qualifies under Article 4.2 of the Birds Directive by regularly supporting at least 20,000 waterfowl.</p>	<p>Over winter, the area regularly supports 108,811 individual waterbirds including:</p> <p>Wigeon <i>Anas penelope</i>, Bar-tailed Godwit <i>Limosa lapponica</i>, Dark-bellied Brent Goose <i>Branta bernicla bernicla</i>, Common Ringed Plover <i>Charadrius hiaticula</i>, Grey Plover <i>Pluvialis squatarola</i>, Dunlin <i>Calidris alpina alpina</i>, Redshank <i>Tringa totanus</i>, Shelduck <i>Tadorna tadorna</i>, Curlew <i>Numenius arquata</i>, Teal <i>Anas crecca</i>, Pintail <i>Anas acuta</i>, Shoveler <i>Anas clypeata</i>, Red-breasted Merganser <i>Mergus serrator</i>, Ruddy turnstone <i>Arenaria interpres</i>, Sanderling <i>Calidris alba</i>.</p>

4.2.2 Chichester and Langstone Harbours Ramsar site

Chichester and Langstone Harbours are designated as a Ramsar site, under the international Ramsar Convention, based on the criteria set out in **Table 4.3**.

Table 4.3: Chichester and Langstone Harbours Ramsar site qualification information (from Ramsar Information Sheet, JNCC, October 1987).

Ramsar Criterion	Qualifying details	
Ramsar criterion 1 – a representative, rare, or unique example of a natural or near-natural wetland type	Two large estuarine basins linked by the channel which divides Hayling Island from the main Hampshire coastline. The site includes intertidal mudflats, saltmarsh, sand and shingle spits and sand dunes.	
Ramsar criterion 5 – regularly supports 20,000 or more water birds	Assemblages of international importance: Species with peak counts in winter: 76,480 waterfowl (5 year peak mean 1998/99 - 2002/2003)	
Ramsar criterion 6 – species / populations occurring at levels of international importance	Qualifying species / populations occurring at levels of international importance	Number of individuals (5 year peak mean 1998/9 - 2002/3)
	Peak counts spring/autumn:	
	Ringed plover, <i>Charadrius hiaticula</i>	853 individuals, representing an average of 1.1% of the population
	Black-tailed godwit, <i>Limosa limosa islandica</i>	906 individuals, representing an average of 2.5% of the population
	Common redshank, <i>Tringa totanus totanus</i>	2,577 individuals, representing an average of 1% of the population
	Peak counts winter:	
	Dark-bellied Brent goose, <i>Branta bernicla bernicla</i>	12,987 individuals, representing an average of 6% of the population
	Common shelduck, <i>Tadorna tadorna</i>	1,468 individuals, representing an average of 1.8% of the GB population
	Grey plover, <i>Pluvialis squatarola</i>	3,043 individuals, representing an average of 1.2% of the population
	Dunlin, <i>Calidris alpina alpina</i>	33,436 individuals, representing an average of 2.5% of the population

4.3 Solent and Dorset Coast SPA

The Solent and Dorset Coast SPA is approximately 89,078 ha in size and extends from the Isle of Purbeck in the west to Bognor Regis in the east. The site encompasses shallow coastal waters that are important foraging areas for breeding terns from colonies within the adjacent, estuarine SPAs (i.e. Poole Harbour SPA, Solent and Southampton Water SPA, Chichester and Langstone Harbours SPA and Pagham Harbour SPA). The qualifying features of the SPA are set out in **Table 4.4** below. The Solent and Dorset Coast SPA was formally classified on 16th January 2020, having been first consulted upon between January and April 2016 and a second consultation running from September 2016 until January 2017 (Natural England, 2016b).

Table 4.4: Solent and Dorset Coast SPA site qualification information (from [Natural England, 2016b](#)).

Site qualification criteria	Qualifying details
This site qualifies under Article 4.1 of the Birds Directive by supporting populations of European importance of species listed on Annex I of the Directive	During the breeding season the area regularly supports:
	Common tern, <i>Sterna hirundo</i> - 492 pairs representing up to 4.77% of the GB breeding population (5 year mean, 2009 - 2014).
	Little tern, <i>Sternula albifrons</i> - 63 pairs representing up to 3.31% of the GB breeding population (5 year mean, 2009 - 2014).
	Sandwich tern, <i>Sterna sandvicensis</i> - 441 pairs representing up to 4.01% of the GB breeding population (5 year mean, 2009 – 2014).

4.4 Functionally Linked Land (SPA/Ramsar supporting habitat outside of the European sites)

As described earlier in **Section 4**, the over-wintering bird features of the Chichester and Langstone Harbours SPA and Ramsar site also use areas outside of the European site boundaries. They use these arable and grassland areas, especially during high tide periods, for feeding and roosting and, as such, these areas are an important part of the functional integrity of the SPA and Ramsar site.

4.4.1 Solent Waders and Brent Goose Strategy (SWBGS) sites

Local Authorities in the Solent have worked collaboratively with other organisations for several years to protect the Solent’s SPAs and Ramsar sites and the terrestrial sites used by SPA/Ramsar species. This started in 2002 with the publication and implementation of the original South East Hampshire Brent Goose Strategy (Wicks, 2002). This was updated with the 2010 Solent Waders and Brent Goose Strategy (King, 2010). In 2019, an interim new strategy was published, which significantly updates the previous strategy in terms of the data used to identify sites and the level of protection given (Whitfield, 2019).

The SWBGS is a non-statutory document that provides analysis and recommendations relating to strategic planning within and around the Solent coast with respect to the non-designated terrestrial sites that support the SPA/Ramsar wetlands and their bird populations. The SWBGS highlights that many of the important Brent Goose feeding sites and wader roost sites around the Solent fall outside of the European site boundaries (SWBGS, 2018a), and a large proportion of the important bird sites are in flood risk areas as identified by the Environment Agency.

As described in **Section 6.2 of the SEA Scoping Report**, there are 109 SWBGS sites on Hayling Island outside of the SPA, including 20 Core Areas, 27 Primary Support Areas and 21 Secondary Support Areas. These sites are shown in **Figure 4.2** and represent the functionally linked supporting habitat for the brent geese and wader species that are features of the Chichester and Langstone Harbours SPA and Ramsar site.

The development of policies and measures within the Hayling Island Coastal Management Strategy will need to give due consideration to these important functionally linked sites. Should the Strategy policies and measures result in a significant effect on any functionally linked sites, the SWBGS sets out the mitigation and off-setting requirements needed to ensure the network of SWBGS sites is protected and this will be used to inform the appropriate assessment of the plan as part of the next stage of the HRA (SWBGS, 2018b). The level of mitigation and off-setting required is dependent on the importance of the site within the ecological network and how these non-designated sites support the wider designated Solent SPA network.

4.4.2 Solent Bird Studies sites

The SWBGS does not categorise the importance and network value of high tide roosting and feeding sites within the SPA. However, the Solent Bird Studies (Nightingale et al., 2020) investigated the importance of the network of sites including those within the SPA with a particular focus on future flood and coastal erosion risk management strategies and schemes.

As described in **Section 6.2 of the SEA Scoping Report**, there are 24 additional wader roost or brent goose sites located within the SPA, and the Solent Bird Studies consider 10 of these sites to be critical parts of the network of wader and brent goose sites. The Solent Bird Studies classification of wader and brent goose sites on and around Hayling Island is shown in **Figure 4.3** below.

4.4.3 Havant Borough Local Plan bird refuge sites

The current adopted Havant Borough Local Plan (comprising of the Core Strategy and Allocations Plan) includes policy DM23 for the protection of Brent Geese and wader sites, which requires that where a negative impact on an important site cannot be avoided or satisfactorily mitigated, replacement feeding/roosting habitat must be provided on a no net loss basis (HBC, 2014).

To support and inform the emerging new Havant Borough Local Plan 2036 (HBC, 2020), the Havant Borough Biodiversity Strategy (HBBS) has been produced (HBC, 2019). The HBBS will replace the 2011 Havant Borough Biodiversity Action Plan (BAP) and provides a vision and strategy for conserving and enhancing biodiversity throughout the Borough. Within the new draft Local Plan, policy DM23 from the 2011 Core Strategy has been updated and is covered by the new policy E17 on Brent Goose and Wader Feeding and Roosting Sites, supported by the evidence within the HBBS.

The HBBS outlines the establishment of permanent Solent Wader and Brent Goose Refuges as part of the emerging new Havant Borough Local Plan 2036, to ensure that development can take place to meet the Borough's housing and employment needs whilst ensuring no significant adverse effect on the SPA/Ramsar over-wintering bird species. The permanent refuges will be used as a means of mitigating the impacts of planned development and securing high quality terrestrial habitat for SPA/Ramsar birds via a habitat banking approach. The HBBS sets out the best potential sites within the Borough that could provide the required characteristics for supporting SPA/Ramsar over-wintering birds. The locations of these potential refuge sites are shown in **Figure 4.4** below and all but two are located on Hayling Island.

An important consideration for the Hayling Island Coastal Management Strategy is that the Solent Wader and Brent Goose Refuge sites proposed in the HBBS to mitigate for the allocations in the new Havant Borough Local Plan 2036, together with the sites which have already been secured as replacement habitat/enhancements to the SWBGS network from previous planning permissions (namely SWBGS sites H34C, H34D and H34E), must be protected and not adversely impacted by the Strategy's policies and measures. Otherwise the emerging Local Plan and the already consented planning permissions would contravene the Habitats Regulations.

Sites 1 to 5 on **Figure 4.4** comprise 'Refuge 1: Hayling Island' in the HBBS, which encompasses five large arable fields along West Lane. This refuge is proposed as one of the first two priority refuges to be established to mitigate the allocations in the Havant Borough Local Plan 2036. The Council has already submitted a bid to the Solent LEP to raise funds for land purchase for this refuge. There is potential for the Hayling Island Coastal Management Strategy to explore additional benefits for Hayling Island alongside this bird refuge through the improvement and/or relocation of the Hayling Billy Trail, to provide an enhanced transport route, recreation opportunities and measures to prevent recreational disturbance to the SPA/Ramsar birds using the adjacent harbour as well as the refuge, as described in the HBBS (HBC, 2019).

Hayling Island Coastal Management Strategy - SWBGS Sites

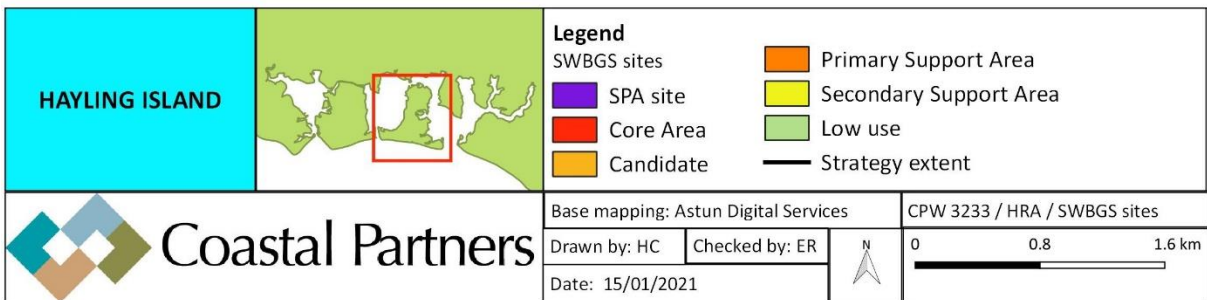
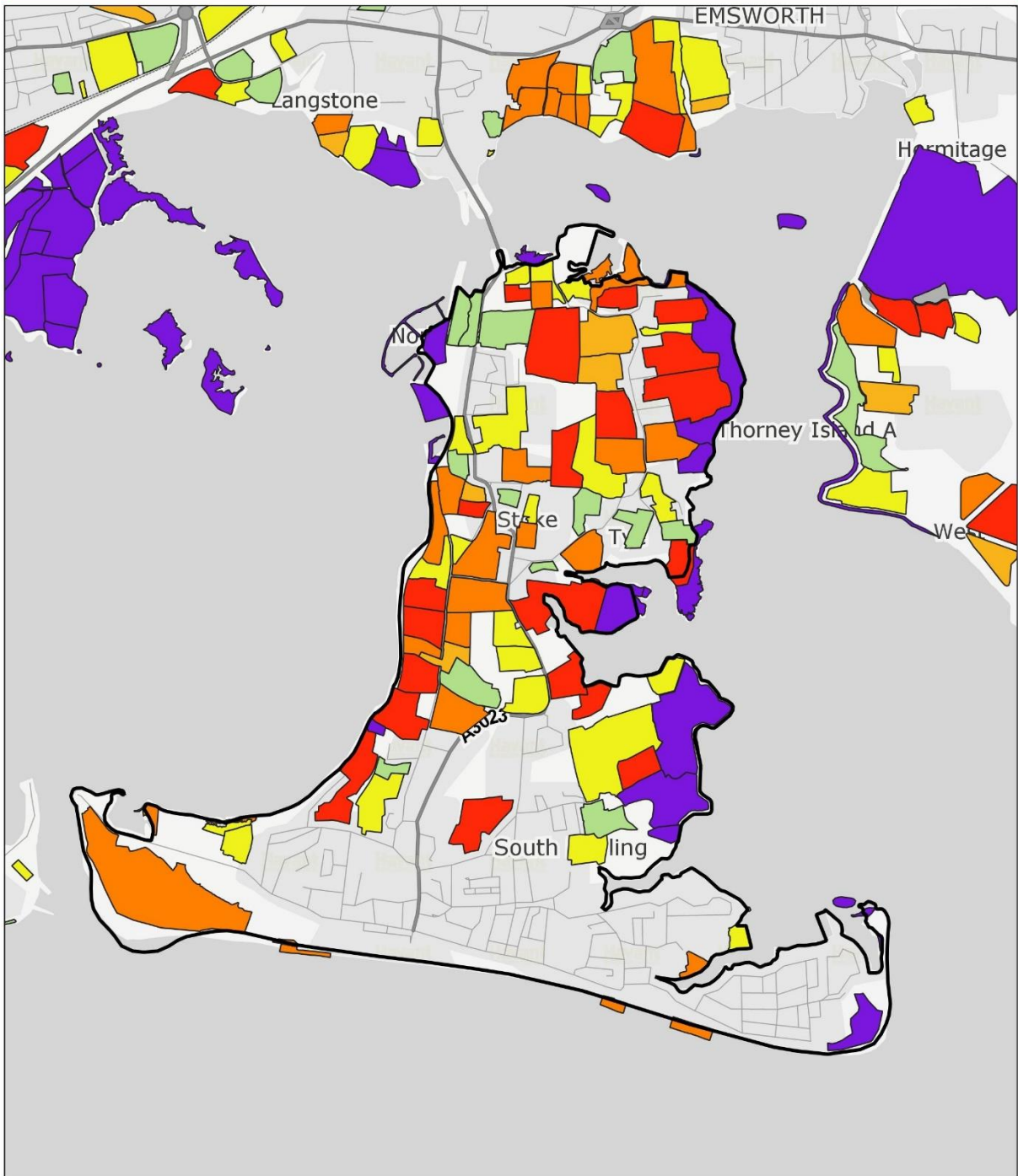


Figure 4.2: Location of SWBGS sites on Hayling Island

Hayling Island Coastal Management Strategy - Solent Bird Studies sites

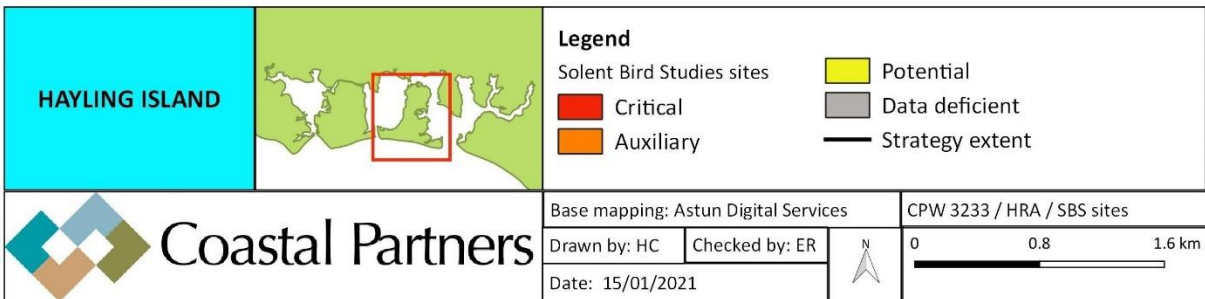
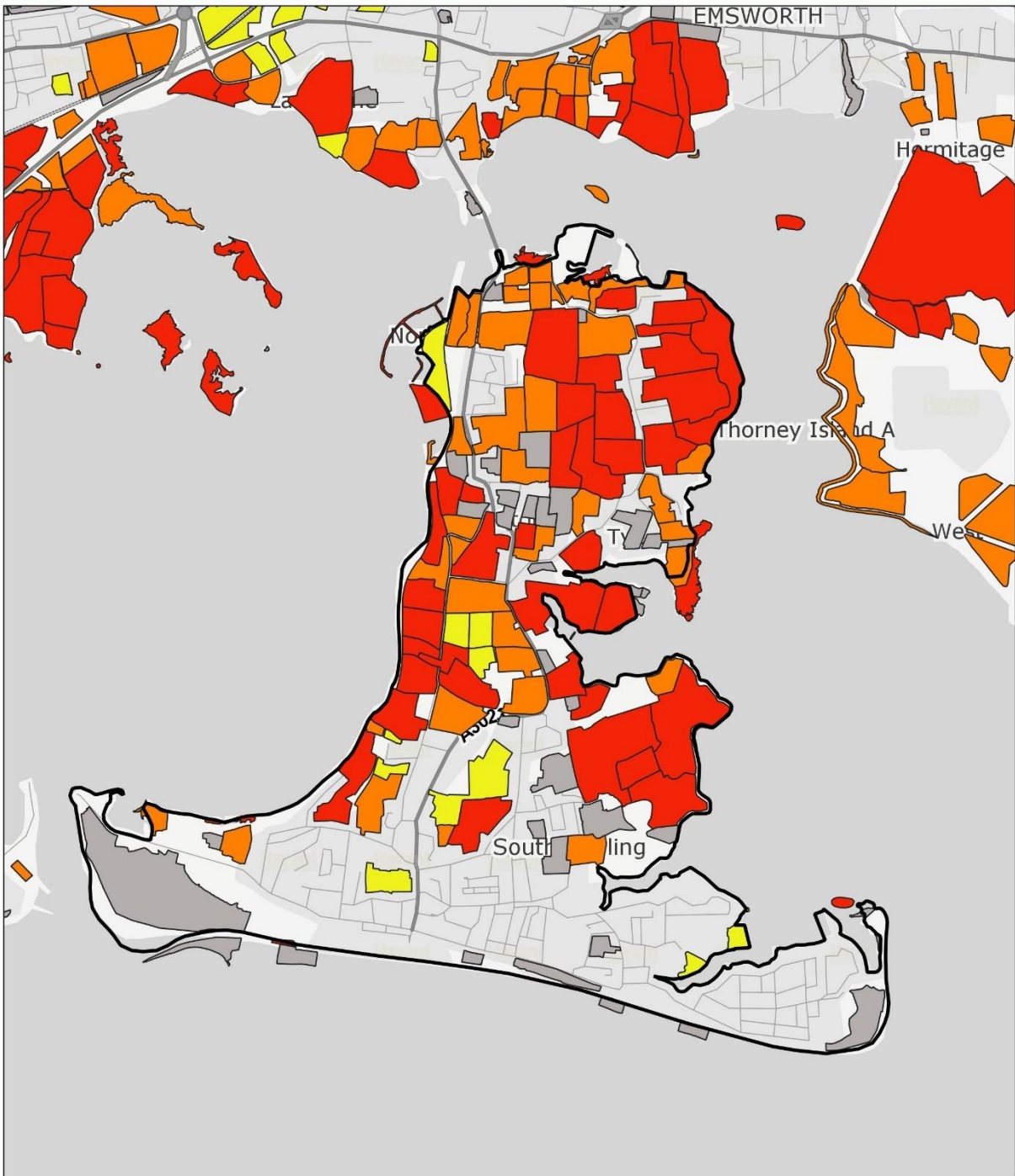


Figure 4.3: Location of Solent Bird Studies sites on Hayling Island

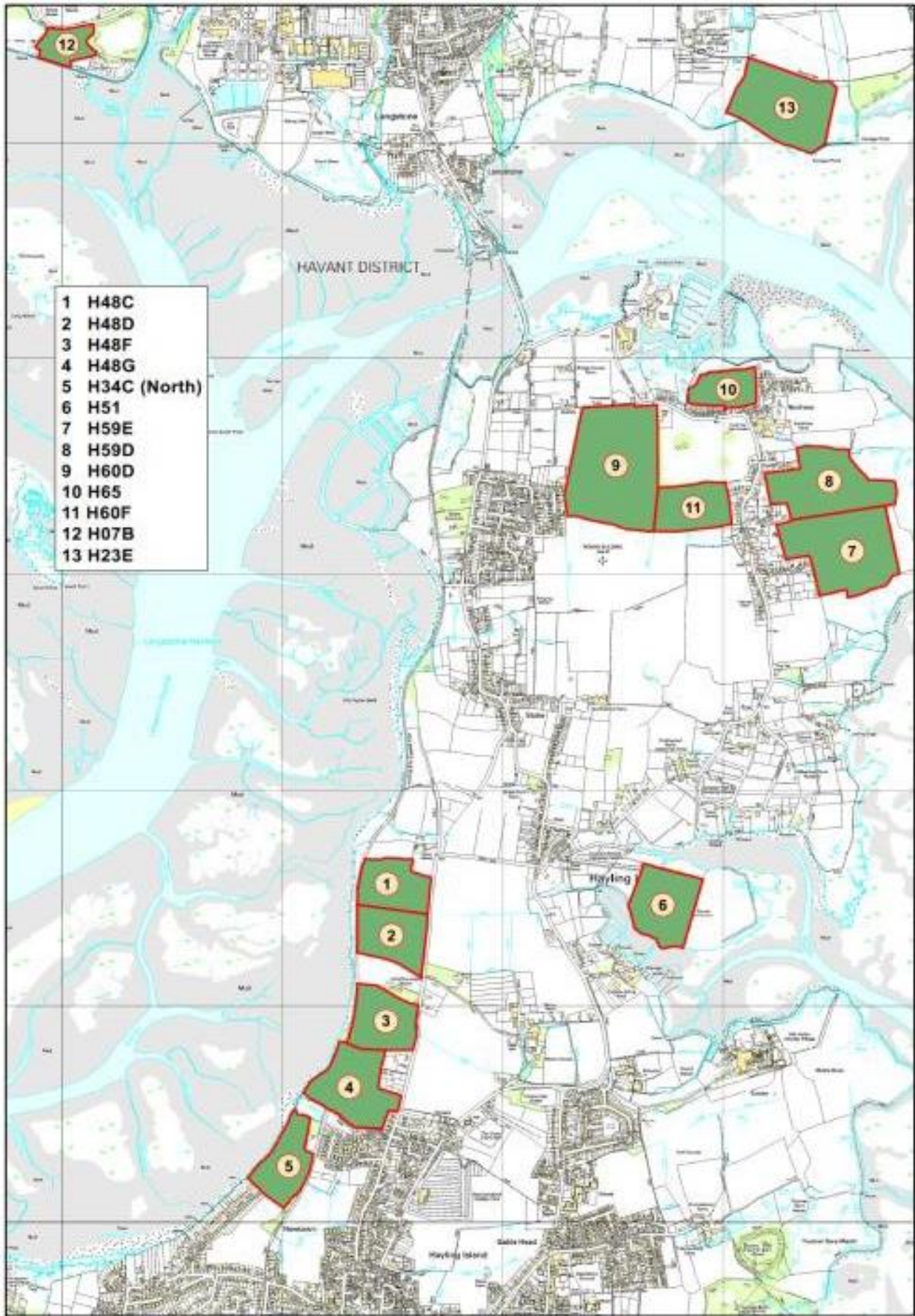


Figure 4.4: The locations of potential over-wintering bird refuges on Hayling Island as identified in the HBC emerging Local Plan, source: Havant Borough Biodiversity Strategy (HBC, 2019).

5 Stage 1 – Screening (Likely Significant Effects)

As described in **Section 3.2**, the first stage of the HRA process is to screen the proposed plan to determine whether it is necessary for site management and whether it is likely to have a significant effect on the internationally important interest features of the European sites, either alone or in combination with other plans or projects. This HRA screening for the Hayling Island Coastal Management Strategy was undertaken in September 2020, during the information gathering stage of the Strategy development. The results of the HRA screening assessment are presented in this section and will feed into the options appraisal stage of the Strategy to inform the development of sustainable policies and measures.

5.1 Management Test

The Strategy is not directly connected with or necessary for the management of all of the relevant European sites' qualifying features for nature conservation; however, failure to maintain the defences along some parts of the Hayling Island coastline could result in uncontrolled pollution incidents from the potentially contaminated land they protect, and loss of important terrestrial habitats landward of the existing defences. Nonetheless, because the proposed plan includes non-conservation elements, further assessment under the Habitats Regulations is required.

5.2 Potential Impact Pathways

This section describes the potential impacts that may arise from the policies, management options and measures in the Strategy. As described in **Section 2**, the Strategy is currently at the “development and appraisal of management approaches” stage and therefore this screening of potential impact pathways is a high level assessment of the potential impacts that could arise from the long list of management options that are being considered, as described in **Table 5.1**.

Table 5.1: Long list of management options being considered in the development and appraisal stage of the Strategy

Management Option		
Do Nothing Option	Do Minimum Options (Maintenance)	Do Something Options (Improvement or Adaptation)
N/A – baseline for comparison	Patch and repair (small scale, reactive maintenance)	Beach recycling (moving existing material) (can also be maintenance activity)
	Refurbishment (like-for-like replacement)	Crest raising (frontline, existing structure)
		Floodwall (typically setback)
		Seawall (frontline, new structure)
		Revetment (frontline, new structure)
		Earth embankment (typically setback)
		Managed realignment / Regulated tidal exchange
		Timber breastwork
		Gabion wall

Management Option		
Do Nothing Option	Do Minimum Options (Maintenance)	Do Something Options (Improvement or Adaptation)
		Sheet piling
		Land / road raising
		Deployable defences (in situ e.g. flood gates, flip-up barriers)
		Temporary / demountable defences
		Groyne(s)
		Beach nourishment
		Mudflat restoration
		Saltmarsh restoration
		Flood storage area (wave overtopping)
		Offshore breakwater
		Creek flood barrier
		Harbour wide flood barrier / barrage
		Relocation
		Community resilience & property level protection

Table 5.2 below lists the relevant activities within the AoO component of Natural England's Conservation Advice that are represented by the possible options and measures being considered in the long list for the Strategy. These activities in the AoO were used to identify pressures and impact pathways that could affect the features, sub-features and/or supporting habitats of the relevant European sites.

Table 5.2: Activities in the NE AoO that are relevant to the options being considered in the Strategy

Construction phase	Operational phase
Construction of coastal flood and erosion risk management schemes	Maintenance of hard coastal defences
Construction and operation of offshore coastal defence structures (wave screens/breakwaters)	Maintenance of soft coastal defences
Intertidal recharge	Operation of coastal flood and erosion risk management schemes
Managed realignment	
Piling	
Reclaim and land take (e.g. the footprint of coastal defences)	

Conservation advice, and therefore AoO, is not yet available for the Solent and Dorset Coast SPA but the relevant qualifying features (common tern, little tern and Sandwich tern) and the supporting habitat (water column) are included within the AoO for the Chichester and

Langstone Harbours SPA. Therefore, the Chichester and Langstone Harbours SPA AoO was used as a proxy for the Solent and Dorset Coast SPA AoO.

For Ramsar sites, a decision has been made by Defra and Natural England not to produce Conservation Advice packages. Natural England considers the Conservation Advice packages for the overlapping European Marine Site designations to be, in most cases, sufficient to support the management of the Ramsar interests (Natural England, 2018). Therefore, the AoO for the Chichester and Langstone Harbours SPA has been used to cover both the SPA and the Ramsar interest features for that site in this HRA. All the features of the Chichester and Langstone Harbours Ramsar site are qualifying species or supporting habitats of the Chichester and Langstone Harbours SPA, except for the godwit qualifying species – bar-tailed godwit is a classified feature of the SPA whilst black-tailed godwit is a designated feature of the Ramsar site. However, the two species have similar ecology and therefore the SPA AoO provides adequate information for assessment of both features/protected sites.

The potential impacts that could arise from the Strategy that may affect the features, sub-features and supporting habitats of the relevant European sites are described in the sub-sections below.

5.2.1 Littoral and supralittoral habitat loss and/or gain

Options and measures that hold the line of defence via a hard structure or other management action will result in the loss and/or deterioration in the quality of habitats on the seaward side of the defence line due to **coastal squeeze** by preventing the landward transgression of those habitats in response to sea level rise. European site habitats present around the coastline of Hayling Island that could be affected by coastal squeeze impacts include:

- Mudflats and sandflats and their associated sub-features: intertidal coarse sediment, intertidal sand, intertidal mud, intertidal mixed sediments and intertidal seagrass beds.
- Saltmarsh habitats: *Salicornia* and other annuals colonising mud and sand, *Spartina* swards and Atlantic salt meadows.
- Vegetated shingle habitats: annual vegetation of drift lines and perennial vegetation of stony banks.
- Non-vegetated shingle banks and spits used by SPA/Ramsar breeding birds for nesting and non-breeding birds for high tide roosting.
- Estuaries SAC feature – Langstone Harbour and Chichester Harbour.

Loss of these habitats could also impact the breeding, passage and over-wintering SPA/Ramsar bird species that they support through the loss of feeding, roosting and/or nesting habitat.

Direct losses of littoral and supralittoral habitats may also occur under the footprint of new defence structures; for example, due to the placement of toe protection in areas of erosion or foreshore lowering and/or as a result of the need to widen defence structures as part of their improvement where landward widening is not feasible.

The managed realignment / regulated tidal exchange and setback floodwall / earth embankment options will result in the **creation of littoral habitats** on the landward side of the current defence line, resulting in a gain in the extent of these habitats around the coastline of

Hayling Island. An increase in the extent of littoral habitats also has the potential to have a positive impact on SPA/Ramsar bird species through the creation of intertidal sediment and shallow coastal water feeding habitat.

The Solent and South Downs RHCP reviewed the potential for intertidal habitat creation at several sites on Hayling Island (ESCP, 2020) with Northney Farm identified as a site suitable for further investigation.

5.2.2 Loss of landward coastal grazing marsh, freshwater habitats and/or arable farmland

Whilst having a positive effect on the extent of intertidal habitats and the estuary features, the no active intervention ('do nothing'), managed realignment / regulated tidal exchange and setback floodwall / earth embankment options will result in the loss of landward coastal grazing marsh, freshwater habitats (including reedbeds, grassland and ponds) and/or arable farmland due to either the gradual deterioration or active breaching/management of the existing defence structure(s) and the resulting **tidal inundation** of the land behind. These landward habitats provide an important functional supporting habitat for SPA / Ramsar passage and over-wintering birds, which use these habitats for high tide feeding and roosting (as described in **Section 4.4**).

5.2.3 Subtidal habitat loss

The following long list management options could give rise to the placement of structures or material within subtidal areas around Hayling Island:

- groynes;
- beach nourishment (if it results in beach widening);
- offshore breakwater;
- creek flood barrier; and
- harbour wide flood barrier / barrage.

The placement of structures or materials within subtidal areas could result in the **direct loss** of the following habitats:

- Subtidal sandbanks and their associated sub-features: subtidal coarse sediment, subtidal sand, subtidal mud and subtidal mixed sediments.
- Estuaries SAC feature – Langstone Harbour and Chichester Harbour.
- Shallow coastal waters used for foraging and/or loafing by SPA / Ramsar features, namely breeding terns and non-breeding red-breasted merganser, pintail, shelduck, shoveler, teal and wigeon.

5.2.4 Barrier to species movements

The offshore breakwater, creek flood barrier and harbour wide flood barrier / barrage options have the potential to cause a **physical obstruction to species movements**. This could include:

- A barrier to local movements by SPA/Ramsar birds, for example between nesting and foraging areas for breeding terns or between intertidal feeding and high tide roosting areas for over-wintering species.

- A barrier to fish that use the estuaries as a nursery area, and which are a key prey species for the SPA breeding terns and the SPA/Ramsar non-breeding red-breasted merganser features.
- A barrier to seed / propagule supply for the regeneration and replenishment of the saltmarsh and vegetated shingle habitats, with annual plant species being at particular risk.

5.2.5 Recreational disturbance arising from changes in the coastline and access routes

Coastal management options that result in the alteration / re-routing of public and permissive footpaths or existing desire lines could introduce footfall into previously undisturbed areas or increase recreational disturbance impacts within existing affected areas. This could result in significant visual and/or acoustic disturbance impacts on SPA breeding terns and/or SPA/Ramsar over-wintering birds and/or cause trampling impacts to SAC vegetated shingle habitats.

However, the Strategy also provides an opportunity to improve the management of existing recreational disturbance issues through the enhancement or relocation of public rights of way, provision of alternative recreation opportunities and the implementation of measures such as screening, signage and interpretation.

This potential impact and opportunity for enhancement is particularly relevant to the important high tide roosting and feeding areas used by SPA/Ramsar over-wintering birds (as described in **Sections 4.4.1 and 4.4.2**) and the refuge areas identified within the Havant Borough Local Plan 2036 (as described in **Section 4.4.3**).

5.2.6 Changes to coastal processes (water flows, wave exposure, sediment transport and/or emergence regime)

Local management options that involve the construction of significant intertidal or subtidal structures, in particular cross shore structures such as groynes or large offshore structures such as breakwaters, have the potential to **affect water flows, sediment transport and erosion/accretion patterns** around Hayling Island, both within the harbours and on the open Solent coastline.

The no active intervention ('do nothing'), managed realignment / regulated tidal exchange and setback floodwall / earth embankment options could result in **changes to the local geomorphology** and water flows / sediment transport patterns, as well as potentially affecting **water levels and therefore the emergence regime within the estuary** due to the increase in tidal prism that arises from the breaching of the existing defences and subsequent tidal inundation of the land behind. This would predominantly affect the littoral and supralittoral habitats within the harbours (i.e. the intertidal mudflats and sandflats, saltmarsh and vegetated shingle habitats) and the SPA/Ramsar bird features that they support.

Barriers constructed across an estuary, or even part of an estuary, such as the harbour wide flood barrier / barrage and creek flood barrier long list options being assessed for the Strategy can **completely change the emergence regime, wave exposure and sediment supply** within an estuary. This would affect all of the estuarine habitats (intertidal mudflats and

sandflats, saltmarsh, vegetated shingle, sand dunes, subtidal sediments) within the European sites, as well as the SPA/Ramsar bird species that depend on them.

5.2.7 Erosion, flooding or disturbance of potentially contaminated land

The implementation of no active intervention ('do nothing'), managed realignment / regulated tidal exchange or setback floodwall / earth embankment options at some frontages around Hayling Island could result in new pathways being introduced, or existing pathways increased, between **potentially contaminated landfill** sites on the coast and the habitats and species of the adjacent European sites as a result of flooding and/or erosion. Erosion can cause direct exposure and leaching of contaminants, whilst flooding can cause leaching and run-off.

Contaminants present within historic coastal landfill sites may include substances such as asbestos, heavy metals, hydrocarbons and synthetic compounds such as polychlorinated biphenyls (PCBs), antifoulants (including organotins such as tributyl tin), pesticides and pharmaceuticals, which can all have harmful effects on estuarine and marine habitats and species.

There are eight historic landfill sites that have been identified on Hayling Island that are at risk of erosion or flooding over the next 100 years, as shown in **Figure 5.1** (ESCP, 2019). These sites were assessed for risk based on consequence and probability using the CIRIA guidance on the management of landfill sites and land contamination on eroding or low-lying coastlines (CIRIA, 2012), as described in **Section 10.2 of the SEA Scoping Report**. High risk sites within the Strategy area have been identified at Yachthaven and Mill Rythe Industrial Land.

The Strategy can help to reduce and/or prevent linkages between sources and receptors by:

- Implementing new defences to reduce the erosion rate or prevent areas from eroding;
- Maintaining existing defences to continue providing necessary protection against flooding and erosion;
- Remedial work to actively treat or remove the contamination source present;
- Capping and hydraulic isolation of contaminated sites.

However, the Strategy also has the potential to increase or introduce new linkages between sources and receptors by:

- Realigning the existing defences thereby allowing contaminants to become exposed;
- Recommending a 'No Active Intervention' policy which allows erosion and/or tidal flooding to occur;
- Allowing the standard of protection of current tidal flooding defences to diminish, thereby increasing direct dispersal and leaching potential.

Options and measures that maintain or improve defences will provide a beneficial effect by preventing the erosion of contaminated landfill behind the defences. However, the construction of frontline structures could potentially result in the remobilisation of contaminated sediments present either on the foreshore or within made ground on the landward side during excavations for the construction or maintenance of the structures. This construction phase impact can generally be well managed via comprehensive ground investigations and contaminated land / waste management plans at the scheme level when more detailed, location specific information will be available. Therefore, this construction phase impact has been screened out of any further assessment within the plan level HRA for the Strategy.

LANDFILL SITES



<p>HAYLING ISLAND</p>	<p>Landfill</p>
	<p>Strategy Frontage</p>
<p>© Environment Agency (2019) © Havant Borough Council (2019) Aerial Photography: CCO (2016)</p>	<p>0 1 2 km</p>

Figure 5.1: Location of historic landfill sites within the Strategy area (from ESCP, 2019).

5.2.8 Disturbance of habitats and/or species during construction of the preferred management options and measures (i.e. schemes)

A number of temporary impacts may result from the implementation of coastal management options and measures during construction and/or maintenance works. These temporary impacts could include:

- **Physical disturbance of habitat** that is required for the temporary construction working area and haul routes (e.g. designated foreshore areas that are immediately seawards of defence works and/or landward functionally linked supporting habitat for SPA/Ramsar birds).
- **Visual and/or acoustic disturbance** of SPA/Ramsar birds using areas within or adjacent to construction sites, where they may be displaced as a result of the presence of machinery and workers and/or noise from construction activities, particularly those that generate impulsive noise sources such as piling.
- **Underwater noise** generated by construction works in the marine environment, particularly those that generate impulsive noise sources such as piling, can impact fish which are a key source of food for SPA breeding terns and SPA/Ramsar diving ducks (namely red-breasted merganser).
- **Changes to water clarity (suspended sediment concentrations) and/or smothering/siltation rates and associated deoxygenation effects** as a result of beach recharge/nourishment activities or during construction works within the marine environment as a result of sediment mobilisation during excavations e.g. for the construction of foundations or the toe of new defences.

These temporary construction phase impacts can be managed via good design and construction methods / programming at the scheme level when more detailed and location specific information will be available. As temporary impacts are difficult to establish and accurately define at the plan level, in assessing the likely impact pathways of the Strategy it is assumed that the following best practice measures will be implemented:

- Working areas and methods will be controlled to avoid damage to interest features and supporting habitats;
- Works will be programmed outside of SPA tern nesting and/or the SPA/Ramsar over-wintering seasons at sensitive locations;
- Ecological surveys will be undertaken at the scheme level in advance of construction works to ascertain the presence or absence of European site interest features to inform the implementation of appropriate mitigation measures if required; and
- Pollution control measures will be implemented to safeguard European site interest features within and adjacent to the construction site.

It is considered that the well-established and proven effective best practice measures above will be sufficient to manage temporary impacts associated with the construction and/or maintenance of coastal management options and measures promoted by the Strategy. Therefore, these **construction phase impacts have been screened out** of any further assessment within the plan level HRA for the Strategy; instead they will be assessed and managed via the scheme level HRA when the Strategy policies and options are implemented.

5.2.9 Low risk pressures (impact pathways) screened out of further assessment

Pressures that are listed as ‘Low risk’ in the AoO component of Natural England’s Conservation Advice were screened out, unless it was considered that there is a case-specific factor that could increase the risk of a pressure for the Strategy, in which case that low risk pressure was screened in for further assessment in accordance with the precautionary principle and Natural England guidance. The **low risk pressures that have been screened out** of further assessment for all activities and features / supporting habitats are listed in **Table 5.3**, together with their justification.

Table 5.3: Low risk pressures screened out of further assessment

Pressure (from NE AoO)	Justification
Collision above water with static or moving objects not naturally found in the marine environment (e.g. boats, machinery and structures)	The policies and management measures promoted by the Strategy are unlikely to result in the construction of structures or buildings of significant height that could impact the flight paths of SPA/Ramsar birds. No new aerial structures or devices are likely to be proposed within the Strategy that could introduce a collision risk for SPA/Ramsar birds. Therefore, the benchmark for this pressure is not likely to be triggered and no case specific factors have been identified that would increase the risk of this pressure for the Hayling Island Coastal Management Strategy.
Introduction of light	The policies and management measures promoted by the Strategy are unlikely to result in any significant changes to lighting levels and locations around the coastline. Any potential temporary impacts from lighting required for construction or maintenance works to implement the Strategy policies and management measures will be managed in accordance with best practice construction methods at the scheme level. Construction works for schemes will generally be undertaken during daytime hours (7am to 7pm), thereby minimising the requirement for task lighting. No case specific factors have been identified that would increase the risk of this pressure for the Hayling Island Coastal Management Strategy.
Introduction or spread of invasive non-native species (INNS)	The policies and management measures promoted by the Strategy are unlikely to introduce or increase the spread of INNS within the adjacent harbours or the open Solent coast. Best practice will be implemented for construction site management and maintenance activities, which will minimise the risk of introduction or spread of INNS at the scheme level. This is included as standard in the CEMP for all Coastal Partners (formerly known as the Eastern Solent Coastal Partnership) projects. Any vessels used for the delivery of materials to implement Strategy policies and measures will adhere to industry legislation, codes of conduct and/or best practice to minimise the risk of introduction or spread of INNS. No case specific factors have been identified that would increase the risk of this pressure for the Hayling Island Coastal Management Strategy.
Litter	The policies and management measures promoted by the Strategy are unlikely to introduce or increase the amount of litter in the marine environment. Best practice will be in place for construction site management and maintenance activities, which will minimise the risk of introducing litter to the marine environment at the scheme level. This will include suitable waste management and storage facilities, which is included as standard in the CEMP for all Coastal Partners projects. No case specific factors have been identified that would increase the risk of this pressure for the Hayling Island Coastal Management Strategy.

Pressure (from NE AoO)	Justification
Nutrient enrichment	The policies and management measures promoted by the Strategy are unlikely to create new sources or pathways for nutrient enrichment or organic enrichment. The Strategy will not include policies or measures in relation to outflows of domestic or industrial origin, sludge, or aquaculture food and faeces, which are the key sources highlighted in the AoO. No case specific factors have been identified that would increase the risk of this pressure for the Hayling Island Coastal Management Strategy.
Organic enrichment	

5.3 Test of Likely Significant Effect

The potential impact pathways identified in **Sections 5.2.1 to 5.2.7** above have then been screened for each relevant European site and its associated features and sub-features or supporting habitats in the following sections (**Sections 5.3.1 to 5.3.3**), to determine the scope of the next stage of the HRA once the preferred options and measures have been determined and the draft Strategy produced for consultation.

Features, sub-features and supporting habitats were screened out of requiring further assessment where there is no realistic pathway between the feature / sub-feature / supporting habitat and the long list of policies and management measures being considered within the Strategy. Features and supporting habitats that have been **screened out** of further assessment are listed in **Table 5.4**, together with their justification.

Table 5.4: Features and supporting habitats screened out of further assessment

Feature / Supporting habitat	Justification
Coastal lagoons	<p>There are only two coastal lagoons within the Solent Maritime SAC, which are both on the Isle of Wight and therefore will not be affected by policies and management measures within the Strategy.</p> <p>Shut Lake, located 3 km away from the Strategy frontage at Farlington Marshes, is a feature of the Solent and Isle of Wight Lagoons SAC. The isolated nature of the lagoon, which is located on the landward side of the Farlington sea wall (with water flow regulated by a tidal flap), means that there is unlikely to be an impact pathway to this receptor.</p> <p>Great Deep on Thorney Island in Chichester Harbour is not a true saline lagoon but is mapped as such on the Priority Habitat Inventory (PHI) and, as it is within the SPA/Ramsar site, has been considered as saline lagoon supporting habitat for the purpose of this HRA screening. However, Great Deep is located over 1 km away from the Strategy frontage on the opposite side of the Emsworth Channel and its semi-isolated nature (it is separated from the harbour at both ends by a sea wall with culverts) means that there is not likely to be an impact pathway to this receptor.</p> <p>The only coastal lagoon habitat shown on the PHI within the Strategy frontage is at Selsmore Boating Lake, which is located between Lakeside Coastal Village and Fishery Creek Touring Park. However, this lake functions as an ornamental pond and numerous ornamental wildfowl occur at the site. In their survey of the Portsmouth lagoons, Sheader & Sheader (1988) noted that the flora and fauna were impoverished versions of that occurring in the adjacent harbour and the site is of little merit as a coastal lagoon. It is therefore not considered to represent coastal lagoon habitat and it is not identified as important supporting</p>

Feature / Supporting habitat	Justification
	habitat for SPA/Ramsar birds in either the SWBGS (2018a) or the Solent Bird Studies (Nightingale et al., 2020).
Desmoulin's whorl snail	When the Solent Maritime SAC was designated in 2005 the site supported a small population of Desmoulin's whorl snail in the freshwater fen and brackish reedbeds at the top of the Fishbourne Channel in Chichester Harbour (English Nature, 2005). However, this species was last recorded here in 2005 and no individuals were found during surveys in 2009 and 2010. The population in Fishbourne Channel is likely to have been a small relict population that was originally more widespread prior to the development of housing and infrastructure in the area (Natural England, 2020a). This species is therefore considered to be functionally extinct from the site. Furthermore, the northern reaches of the Fishbourne Channel are located over 10 km away from the closest point of the Strategy frontage and there is unlikely to be an impact pathway to this receptor from policies and management measures being considered within the long list of options for the Strategy.
Subtidal seagrass beds	There are no subtidal seagrass beds present within Chichester or Langstone Harbours. The nearest subtidal seagrass beds are located in the open Solent off north coast of the Isle of Wight at Osborne Bay (over 15 km from the Strategy frontage) and at Lepe/Stansore Point off the New Forest coast (over 19 km from the Strategy frontage). Therefore, there is unlikely to be any impact pathway to this receptor.

For the remaining features, sub-features and supporting habitats of the relevant European sites, the potential impact pathways identified in **Sections 5.2.1 to 5.2.7** were reviewed to determine if they could have a significant effect on the features of each relevant European site. The results of this assessment are described for each relevant European site in turn in the following sections. The potential impact pathways were screened using information from the activity-pressure notes, the sensitivity assessments and the risk profiling contained within the AoO component of Natural England's conservation advice, together with knowledge of the Strategy area and the long list of management options being considered in the development and appraisal of management approaches.

5.3.1 Solent Maritime SAC

A likely significant effect from policies and management measures within the Strategy on the Solent Maritime SAC cannot be excluded at this stage as the potential impact pathways listed in **Table 5.5** below have been **screened in** for further assessment for this site.

Table 5.5: Potential impact pathways that are likely to arise from policies and/or management measures within the Strategy that have the potential to affect the Solent Maritime SAC and have therefore been screened in for appropriate assessment.

Potential impact pathway	SAC features and/or sub-features that could be affected	Notes
Littoral and/or supralittoral habitat loss due to coastal squeeze and/or direct losses under the footprint of structures	<ul style="list-style-type: none"> • Annual vegetation of drift lines • Perennial vegetation of stony banks • <i>Salicornia</i> and other annuals colonising mud and sand • Atlantic salt meadows • <i>Spartina</i> swards • Estuaries • Mudflats and sandflats not covered by seawater at low tide • Intertidal seagrass beds • Intertidal coarse sediment • Intertidal mixed sediments • Intertidal mud • Intertidal sand and muddy sand 	<p>This impact pathway is only relevant to ODUs within Langstone Harbour and Chichester Harbour. There are no littoral or supralittoral SAC features along the open coast at South Hayling as the landward SAC boundary at this location follows the mean low water mark and therefore does not include the littoral and supralittoral sediment habitats.</p>
Subtidal habitat loss	<ul style="list-style-type: none"> • Estuaries • Sandbanks which are slightly covered by seawater all the time • Subtidal coarse sediment • Subtidal mixed sediments • Subtidal sand 	<p>This impact pathway is only likely to arise if one or more of the following long list management options are taken forward as a preferred option in the Strategy:</p> <ul style="list-style-type: none"> • groynes • beach nourishment (if it results in beach widening) • offshore breakwater • creek flood barrier • harbour wide flood barrier / barrage <p>If none of the above options are included in the draft Strategy, then this impact pathway will be screened out of the appropriate assessment as there will not be any pathway for direct loss of subtidal habitat.</p>
Barrier to species movements	<ul style="list-style-type: none"> • Annual vegetation of drift lines • Perennial vegetation of stony banks • <i>Salicornia</i> and other annuals colonising mud and sand • Atlantic salt meadows 	<p>This impact pathway is only likely to arise if one or more of the following long list management options are taken forward as a preferred option in the Strategy:</p> <ul style="list-style-type: none"> • offshore breakwater • creek flood barrier

Potential impact pathway	SAC features and/or sub-features that could be affected	Notes
	<ul style="list-style-type: none"> • <i>Spartina</i> swards • Estuaries 	<ul style="list-style-type: none"> • harbour wide flood barrier / barrage <p>If none of these three options are included in the draft Strategy, then this impact pathway will be screened out of the appropriate assessment as there will not be any pathway for the Strategy to result in a barrier to seed / propagule supply that could affect the regeneration and replenishment of SAC saltmarsh and vegetated shingle habitats.</p>
Recreational disturbance arising from changes in the coastline and access routes	<ul style="list-style-type: none"> • Annual vegetation of drift lines • Perennial vegetation of stony banks 	<p>This impact pathway is only relevant to ODUs within Langstone Harbour and Chichester Harbour. Whilst vegetated shingle habitats are present along the open coast at South Hayling, they are not within the SAC boundary and are therefore not SAC features at this location.</p>
Changes to coastal processes (water flows, wave exposure, sediment transport pathways and/or emergence regime)	<ul style="list-style-type: none"> • Annual vegetation of drift lines • Perennial vegetation of stony banks • Shifting dunes along the shoreline with <i>Ammophila arenaria</i> • <i>Salicornia</i> and other annuals colonising mud and sand • Atlantic salt meadows • <i>Spartina</i> swards • Estuaries • Mudflats and sandflats not covered by seawater at low tide • Intertidal seagrass beds • Intertidal coarse sediment • Intertidal mixed sediments • Intertidal mud • Intertidal sand and muddy sand • Sandbanks which are slightly covered by seawater all the time • Subtidal coarse sediment • Subtidal mixed sediments • Subtidal sand 	<p>The sandbanks feature and its associated subtidal sediment sub-features is only likely to be significantly affected by changes in coastal processes if one or more of the following long list management options are taken forward as a preferred option in the Strategy:</p> <ul style="list-style-type: none"> • groynes • offshore breakwater • creek flood barrier • harbour wide flood barrier / barrage <p>If none of the above options are included in the draft Strategy, then the sandbanks feature and its associated subtidal sediment sub-features will be screened out of the appropriate assessment for this impact pathway.</p> <p>The SAC shifting dunes feature is only present at East Head on the eastern side of Chichester Harbour mouth and is therefore only likely to be significantly affected by changes in coastal processes (namely sediment supply effects) if a barrier/barrage or offshore breakwater is proposed across the estuary near the mouth of Chichester Harbour (i.e. for ODU8). If these options are not included in the draft Strategy for ODU8, then the shifting dunes feature will be screened out of the appropriate assessment.</p>

Potential impact pathway	SAC features and/or sub-features that could be affected	Notes
Erosion or flooding of potentially contaminated landfill sites	<ul style="list-style-type: none"> • Annual vegetation of drift lines • Perennial vegetation of stony banks • <i>Salicornia</i> and other annuals colonising mud and sand • Atlantic salt meadows • <i>Spartina</i> swards • Estuaries • Mudflats and sandflats not covered by seawater at low tide • Intertidal seagrass beds • Intertidal coarse sediment • Intertidal mixed sediments • Intertidal mud • Intertidal sand and muddy sand • Sandbanks which are slightly covered by seawater all the time • Subtidal coarse sediment • Subtidal mixed sediments • Subtidal sand 	<p>This impact pathway will only have a likely significant effect on SAC features and sub-features if a no active intervention (do nothing) option, a do minimum option (i.e. allowing the standard of protection from tidal flooding to diminish), management realignment / regulated tidal exchange or a setback floodwall / earth embankment option is proposed within ODUs where potentially contaminated land sites have been identified, i.e. ODU1, ODU4, ODU5, ODU7 and ODU14.</p>

During the development of the Strategy and the accompanying SEA Environmental Report, avoidance and reduction measures will be included where possible for ODUs where it is identified that the proposed policies and measures could have a likely significant effect on the features of the Solent Maritime SAC. These measures will be incorporated into the Strategy and its action plan to ensure that they are implemented.

However, the ruling by the Court of Justice of the European Union (CJEU) in April 2018 in the case of *People Over Wind and Sweetman v Coillte Teoranta* (C-323/17) stated that measures intended to avoid or reduce the harmful effects of a proposed plan or project on a European site may not be taken into account at the screening stage of an HRA when judging whether a proposed plan or project is likely to have a significant effect on a European site. Therefore, avoidance and reduction mitigation measures to address, as far as possible, potential impacts on SAC features and/or sub-features have not been considered in this Screening stage but instead will be considered in the appropriate assessment stage to be undertaken once the draft Strategy has been produced for consultation. These measures will be described within the appropriate assessment to be produced alongside the draft Strategy and the SEA Environmental Report.

5.3.2 Chichester and Langstone Harbours SPA and Ramsar site

A likely significant effect from policies and management measures within the Strategy on the Chichester and Langstone Harbours SPA and Ramsar site cannot be excluded at this stage as the potential impact pathways listed in **Table 5.6** below have been **screened in** for further assessment for this site.

Table 5.6: Potential impact pathways that are likely to arise from policies and/or management measures in the Strategy that have the potential to affect the Chichester and Langstone Harbours SPA/Ramsar site and have therefore been screened in for appropriate assessment.

Potential impact pathway	SPA/Ramsar feature(s) and/or supporting habitats that could be affected	Notes
Littoral and/or supralittoral habitat loss due to coastal squeeze and/or direct losses under the footprint of structures	<ul style="list-style-type: none"> • <i>Salicornia</i> and other annuals colonising mud and sand • Atlantic salt meadows • <i>Spartina</i> swards • Intertidal seagrass beds • Intertidal rock • Intertidal coarse sediment • Intertidal mixed sediments • Intertidal mud • Intertidal sand and muddy sand • Supralittoral shingle banks • All non-breeding waterbird features • All breeding tern features 	This impact pathway is only relevant to ODUs within Langstone Harbour and Chichester Harbour.
Loss of landward coastal grazing marsh, freshwater habitats, amenity grassland and/or arable farmland	<ul style="list-style-type: none"> • Coastal reedbeds • Coastal and freshwater grazing marsh • Functionally linked grassland and arable farmland (SWBGS sites and HBBS bird refuges) • All non-breeding waterbird features 	
Subtidal habitat loss	<ul style="list-style-type: none"> • Subtidal coarse sediment • Subtidal mixed sediments • Subtidal mud • Subtidal sand • Water column • Common tern • Little tern • Sandwich tern • Dark-bellied brent goose • Red-breasted merganser • Pintail • Shelduck • Shoveler • Teal 	<p>This impact pathway is only likely to arise if one or more of the following long list management options are taken forward as a preferred option for ODUs within Langstone Harbour or Chichester Harbour:</p> <ul style="list-style-type: none"> • groynes • beach nourishment (if it results in beach widening) • offshore breakwater • creek flood barrier • harbour wide flood barrier / barrage <p>If none of the above options are included in the draft Strategy for ODUs within Langstone Harbour or Chichester Harbour, then this impact pathway will be screened out of the appropriate assessment as there will not be any</p>

Potential impact pathway	SPA/Ramsar feature(s) and/or supporting habitats that could be affected	Notes
	<ul style="list-style-type: none"> • Wigeon • Waterbird assemblage 	<p>pathway for direct loss of subtidal habitat within the SPA/Ramsar site.</p>
Barrier to species movements	<ul style="list-style-type: none"> • All non-breeding waterbird features • All breeding tern features • Water column • <i>Salicornia</i> and other annuals colonising mud and sand • Atlantic salt meadows • <i>Spartina</i> swards 	<p>This impact pathway is only likely to arise if one or more of the following long list management options are taken forward as a preferred option for ODUs within Langstone Harbour or Chichester Harbour:</p> <ul style="list-style-type: none"> • offshore breakwater • creek flood barrier • harbour wide flood barrier / barrage <p>If none of these three options are included in the draft Strategy for ODUs within Langstone Harbour or Chichester Harbour, then this impact pathway will be screened out of the appropriate assessment as there will not be any pathway for the Strategy to result in a barrier to local movements by SPA/Ramsar birds, their small fish prey species and/or seed and propagule supply that could affect the regeneration and replenishment of saltmarsh supporting habitats.</p>
Recreational disturbance arising from changes in the coastline and access routes	<ul style="list-style-type: none"> • All non-breeding waterbird features • All breeding tern features • Functionally linked grassland and arable farmland (SWBGS sites and HBBS bird refuges) • Supralittoral shingle banks 	
Changes to coastal processes (water flows, wave exposure, sediment transport pathways and/or emergence regime)	<ul style="list-style-type: none"> • <i>Salicornia</i> and other annuals colonising mud and sand • Atlantic salt meadows • <i>Spartina</i> swards • Intertidal seagrass beds • Intertidal rock • Intertidal coarse sediment • Intertidal mixed sediments • Intertidal mud • Intertidal sand and muddy sand • Subtidal coarse sediment 	<p>The subtidal sediment supporting habitats are only likely to be significantly affected by changes in coastal processes if one or more of the following long list management options are taken forward as a preferred option for ODUs within Langstone Harbour or Chichester Harbour:</p> <ul style="list-style-type: none"> • groynes • offshore breakwater • creek flood barrier • harbour wide flood barrier / barrage

Potential impact pathway	SPA/Ramsar feature(s) and/or supporting habitats that could be affected	Notes
	<ul style="list-style-type: none"> • Subtidal mixed sediments • Subtidal mud • Subtidal sand • Water column • All non-breeding waterbird features • All breeding tern features 	<p>If none of the above options are included in the draft Strategy for ODUs within Langstone Harbour or Chichester Harbour, then the subtidal sediment supporting habitats will be screened out of the appropriate assessment for this impact pathway.</p>
<p>Erosion or flooding of potentially contaminated landfill sites</p>	<ul style="list-style-type: none"> • All non-breeding waterbird features • All breeding tern features • <i>Salicornia</i> and other annuals colonising mud and sand • Atlantic salt meadows • <i>Spartina</i> swards • Intertidal seagrass beds • Intertidal rock • Intertidal coarse sediment • Intertidal mixed sediments • Intertidal mud • Intertidal sand and muddy sand • Subtidal coarse sediment • Subtidal mixed sediments • Subtidal mud • Subtidal sand • Water column • Coastal reedbeds • Coastal and freshwater grazing marsh 	<p>This impact pathway will only have a likely significant effect on SPA/Ramsar features and supporting habitats if a no active intervention (do nothing) option, a do minimum option (i.e. allowing the standard of protection from tidal flooding to diminish), management realignment / regulated tidal exchange or a setback floodwall / earth embankment option is proposed within ODUs where potentially contaminated land sites have been identified, i.e. ODU1, ODU4, ODU5, ODU7 and ODU14.</p>

As stated above (**Section 5.3.1**), avoidance and reduction measures will be included where possible for ODU's where it is identified that proposed Strategy policies and measures could have a likely significant effect on the SPA/Ramsar features and/or their supporting habitats. These measures will be incorporated into the Strategy and its action plan to ensure that they are implemented, and they will be considered in the appropriate assessment stage of the HRA to be undertaken alongside the SEA Environmental Report once the draft Strategy has been produced for consultation.

5.3.3 Solent and Dorset Coast SPA

The policies and management measures within the Strategy are not likely to have a significant effect on foraging terns or the availability of their prey (small fish) in the shallow coastal waters of the Solent. Therefore, the Solent and Dorset Coast SPA has been **screened out** of any further assessment within the HRA.

Little terns mostly forage inside the harbours (Natural England, 2020b) and are not frequently observed along the South Hayling seafront. Foraging common and Sandwich terns are not likely to be affected by the presence of coastal management construction or maintenance activities as they are regularly seen foraging in areas of high activity e.g. around vessels / in marinas. The footprint of any new hard structures or a widened beach along the South Hayling seafront would result in the loss of water column foraging habitat for terns; however, this extent would be very small and inconsequential to foraging terns compared to the extent of available shallow coastal waters within the Solent. Similarly, any changes to water clarity and/or coastal processes along the South Hayling seafront from policies and management measures within the Strategy (e.g. beach replenishment) are likely to be small scale and localised and are not likely to have a significant effect on the foraging success and/or prey availability for foraging terns in the Solent.

Therefore, potential impacts from the Strategy on foraging terns in the Solent have been screened out of further assessment in accordance with advice received from Natural England (see **Annex B**), and the Strategy 'alone' is not likely to have a significant effect on the Solent and Dorset Coast SPA. Potential effects on nesting terns and terns foraging within the harbours will be considered as part of the appropriate assessment for the Chichester and Langstone Harbours SPA, as described in **Section 5.3.2** above.

6 In-combination Assessment

The screening assessment undertaken in **Sections 5.3.1 and 5.3.2** indicates that the Strategy 'alone' is likely to have a significant effect on the Solent Maritime SAC and the Chichester and Langstone Harbours SPA and Ramsar site. There is, therefore, no need for an in-combination assessment for these sites at this stage as any such effects are irrelevant to the conclusion of the Test of Likely Significant Effect (Tyldesley and Chapman, 2013). Instead the Strategy must proceed to the appropriate assessment stage (Stage 2) of the HRA process for these two sites, which will be undertaken alongside the SEA Environmental Report once the draft Strategy has been produced.

The screening assessment undertaken in **Section 5.3.3** indicates that the Strategy 'alone' is not likely to have a significant effect on the Solent and Dorset Coast SPA. However, under the Habitats Regulations, there is also a need to consider whether the Strategy could have a likely significant effect on the SPA in combination with other plans and projects. That is, assessment of the potential effects of the Strategy's policies and measures when combined with the potential effects of other relevant plans and projects in the study area (i.e. the area of influence of the Strategy or the area in which receptors potentially affected by the Strategy are present).

The SEA Scoping Report prepared as part of the first stage of the SEA process for the Strategy includes consideration of cumulative effects (see **Section 15 of the SEA Scoping Report**) and this has been used to inform the in-combination assessment for the Solent and Dorset Coast SPA.

In line with agreed practice, this assessment is limited to plans and projects where there is sufficient information to allow consideration of the potential for a cumulative or in-combination effect to arise. In the absence of publicly available information (usually in the form of a published plan, a planning application or a marine licence application) or a defined 'scheme', it is not possible to undertake a proper consideration of in-combination effects (e.g. if proposals are speculative or where assumptions regarding potential impacts may be contentious).

The Natural England (2014) and Marine Management Organisation (MMO) (2014) framework approach has been followed for this in-combination assessment, with the first step being to determine the effects of the proposed plan (i.e. the Strategy) that have the potential to affect the SPA interest features (foraging terns) and their supporting habitat (the shallow coastal waters of the Solent) in-combination with other proposed activities (i.e. the residual effects that are not significant 'alone'); the next being to determine the likely spatial and temporal overlaps of the plans and projects scoped into the assessment in order to determine where interactions could arise; and the final step being to determine the significance of any potential interactions/in-combination effects identified (together with relevant mitigation). The assessment of potential in-combination effects has also been undertaken in accordance with the guidance in the HRA Handbook (Tyldesley & Chapman, 2013) and that provided by the European Commission (2018).

6.1 Residual effects of the proposed plan that could affect receptors in-combination with other proposed activities

As described in **Section 5.3.3**Error! Reference source not found., the Strategy 'alone' will not have a likely significant effect on foraging terns or their support habitat in the Solent. However, the Strategy may give rise to the following small-scale, localised effects:

- Increases in suspended sediment concentrations and reduced water clarity around the South Hayling seafront;
- Loss of water column habitat within the Solent; and/or
- Changes to coastal processes around the South Hayling seafront

Whilst these effects are not significant for the Strategy 'alone', they could interact with and have a cumulative effect on foraging terns and the availability of their prey (small fish) in the Solent if other plans or projects that will cause these same effects are undertaken in close proximity and/or at the same time as management measures proposed in the Strategy. These effects on the supporting habitat of the Solent and Dorset Coast SPA have therefore been scoped into the in-combination assessment but, as they are not likely to extend beyond the immediate area of the South Hayling seafront, the consideration of potential cumulative effects on foraging terns and their supporting habitat has been limited to other plans and projects that could also affect the eastern Solent.

6.2 Other Plans and Projects Identified

In accordance with the HRA Handbook methodology for in-combination assessment (Tyldesley & Chapman, 2013), having identified the potential for cumulative effects to arise from increased suspended sediment concentrations, loss of water column habitat or changes to coastal processes, the next step is to consider how effects from other plans and projects could potentially produce a combined adverse effect on the Solent and Dorset Coast SPA that could be significant.

Cumulative effects from marine and coastal activities associated with other plans and projects could have:

- An **additive effect** on the SPA water column supporting habitat as a greater input of sediment, loss of habitat or change to water flows could make the effect significant by affecting the qualifying feature(s) and/or supporting habitat to a greater degree or by affecting a larger proportion of the qualifying feature(s) or supporting habitat within the SPA; and/or
- A **layering effect** by affecting the same qualifying feature(s) and/or supporting habitat in the same place over the same time; and/or
- A **spreading effect** by affecting the same qualifying feature(s) and supporting habitat over a greater area (due to the connectivity of the marine environment); and/or
- A **scattering effect** by affecting new (different) areas of the same qualifying feature(s) and supporting habitat within the SPA.

Therefore, any plan or project leading, at any time, to an increase in suspended sediment, loss of water column habitat and/or a change in coastal processes within the eastern Solent could be relevant to this in-combination assessment.

There are a number of plans and projects that have been identified as having the potential to have a cumulative effect on suspended sediment, loss of water column habitat and/or a change in coastal processes within the eastern Solent and have therefore been scoped into to this in-combination assessment. These plans and projects are outlined in **Table 6.1**. This list has been collated following searches of the HBC planning portal and the MMO Marine Information System, as well as the Strategy team’s knowledge of the area.

Due to the nature of the identified non-significant residual effects from the Strategy on the Solent and Dorset Coast SPA, the key other plans and projects relate to the SMPs and other coastal strategies in the eastern Solent area, together with any dredging, beach recharge or significant offshore construction activities. Terrestrial housing and infrastructure plans (i.e. Local Plans and Core Strategies) have not been included in this in-combination assessment as they are not likely to affect the foraging success or availability of small fish prey for terns in the Solent.

Table 6.1: Plans and projects included in the in-combination assessment

No.	Plans and projects to be considered for cumulative impacts
1.	The North Solent SMP
2.	The Isle of Wight SMP
3.	The River Hamble to Portchester Coastal Strategy (RHPS)
4.	The Portsea Island Coastal Strategy Study (PICSS)
5.	The Pagham to East Head Coastal Defence Strategy
6.	The South Marine Plan
7.	HMNB Portsmouth Maintenance Dredging and Disposal
8.	South Hayling Island Beach Management Plan (2017-2022)
9.	Southsea Coastal Scheme

6.3 Assessment of any potential interactions/effects identified

Table 6.2 below provides an assessment of the potential for in-combination effects with the relevant plans and projects identified in **Table 6.1**.

Table 6.2: Assessment of potential in-combination effects between the Hayling Island Coastal Management Strategy and other relevant plans and projects on foraging terns and their water column supporting habitat in the Solent and Dorset Coast SPA

No.	Plan or project	Potential for cumulative effects with the Hayling Island Coastal Management Strategy?
1.	The North Solent SMP	<p>No. The following North Solent SMP policy units are on the open coast in the eastern Solent and therefore relevant to this in-combination assessment: 5a01, 5a02, 5a03, 5a04, 5aHI05, 5aPI02, 5b01 and 5b02.</p> <p>The SMP policy between Selsey West Beach and Cakeham (policy units 5a01, 5a02 and 5a03) is to Hold the Line (HTL) via defence improvements and beach management activities (including beach recycling and beach replenishment), with managed realignment at Medmerry. These policies were assessed as the preferred option through the Pagham to East Head Coastal Defence Strategy (see row #5 below). The SMP policy between Cakeham and Ella Nore (5a04) is for adaptive management as approved through the Pagham to East Head Coastal Defence Strategy and includes beach management and recycling activities. The SMP policy for the open coast frontage of Hayling Island is to HTL via maintenance and improvements to the defence structures and integrated beach management activities, including beach recycling and beach replenishment. The SMP policy for the open coast frontage of Portsea Island is to HTL via improvement of the coastal defences and is consistent with the Portsea Island Coastal Strategy Study (PICSS – see row #4 below) and is being implemented via the Southsea Coastal Scheme (see row #9 below). The SMP policy for the Hill Head to Portsmouth Harbour frontage (policy units 5b01 and 5b02) is HTL via beach management and replenishment.</p> <p>No significant offshore structures are proposed within the SMP policies for these open coast frontages, therefore there are unlikely to be any significant cumulative supporting habitat loss or coastal processes effects. The beach recycling and replenishment activities included within the SMP policies for these open coast frontages have the potential to result in increases in suspended sediment concentrations and reduced water clarity. However, these effects will be highly localised (a few hundred metres from the source of the sediment disturbance or recharge), short-term (days) and within the natural variability of the background turbidity conditions in the Solent. It is also highly unlikely that beach recharge would be undertaken simultaneously in multiple frontages as this activity is generally only undertaken by one vessel in this area (the Sospan Dau) and is therefore substantially limited by dredger availability. Therefore, it is not considered likely that coastal management activities arising from SMP policies will have a significant cumulative effect on foraging terns within the Solent and Dorset Coast SPA.</p>
2.	The Isle of Wight SMP	<p>No. The following Isle of Wight SMP policy units are on the open coast in the eastern Solent and therefore relevant to this in-combination assessment: PU2A.1, PU2A.2, PU2B.8, PU2C.1, PU2C.2, PU2C.3 and PU2C.4.</p> <p>The SMP policy between Osborne Bay and Binstead (PU2A.1, PU2A.2 and PU2B.8) is No Active Intervention (NAI) supporting natural processes and nature conservation objectives. As no management is proposed along this undefended frontage, these policies will have no effect on suspended sediment concentrations, coastal processes or water column habitat loss so no in-combination assessment is necessary.</p> <p>The SMP policy between Ryde and Seagrove Bay (PU2C.1, PU2C.2, PU2C.3 and PU2C.4) is to HTL by maintaining and improving the existing sea defences and via sediment movement control. As described above for the North Solent SMP, the beach management activities included within these SMP policy units have the potential to</p>

No.	Plan or project	Potential for cumulative effects with the Hayling Island Coastal Management Strategy?
		<p>result in increases in suspended sediment concentrations and reduced water clarity. However, these effects will be highly localised, short-term and within the natural variability of the background turbidity conditions in the Solent and it is therefore not considered likely that they will have a significant cumulative effect on foraging terns within the Solent and Dorset Coast SPA. In PU2C.4 (Seagrove Bay) the SMP policy highlights an opportunity to investigate offshore breakwaters along the central section of this policy unit. Whilst these structures could have localised effects on coastal processes, it is not likely that they would have a significant cumulative effect on the foraging success or prey availability for foraging terns in the Solent and Dorset Coast SPA with any options proposed for the South Hayling open coast frontage in the Hayling Island Coastal Management Strategy.</p>
3.	The River Hamble to Portchester Coastal Strategy (RHPS)	<p>No. The following RHPS policy units are on the open coast in the eastern Solent and therefore relevant to this in-combination assessment: ODU20, ODU21 and ODU22.</p> <p>The strategic approach for ODU20 (Haslar Royal Naval Cemetery to Fort Monckton) is to HTL via maintenance and improvement of the existing defences. In ODU21 and ODU22, the strategic approach is for beach management activities together with maintenance of the existing defences and groynes. As described above for the North Solent SMP policies covering this section of coastline, no significant offshore structures are proposed within the RHPS for these open coast frontages, therefore there are unlikely to be any significant cumulative supporting habitat loss or coastal processes effects. The beach recycling and replenishment activities included within the RHPS policies have the potential to result in increases in suspended sediment concentrations and reduced water clarity. However, these effects will be highly localised, short-term and within the natural variability of the background turbidity conditions in the Solent. Therefore, coastal management activities arising from the RHPS policies are not likely to have a significant cumulative effect on foraging terns within the Solent and Dorset Coast SPA with any options proposed for the South Hayling frontage in the Hayling Island Coastal Management Strategy.</p>
4.	The Portsea Island Coastal Strategy Study (PICSS)	<p>No. The following policy units in the PICSS are on the open coast in the eastern Solent and therefore relevant to this in-combination assessment: sub-cells 1b, 1c, 1d and 2e, which are located in flood cell 1 (Southsea) and flood cell 2 (Fraser Battery). The preferred option in PICSS for all of these sub-cells on the open coast of Portsea Island is to HTL of defence and improve the standard of protection to 0.5%AEP. No beach recharge or offshore structures are proposed in the PICSS, therefore there are unlikely to be any significant cumulative water clarity, supporting habitat loss or coastal processes effects on foraging terns in the open Solent between the PICSS and the Hayling Island Coastal Management Strategy. The HTL policy in PICSS sub-cells 1b to 1d is being implemented by the Southsea Coastal Scheme (see row#9 below for more detail).</p>
5.	The Pagham to East Head Coastal Defence Strategy (PEHCDS)	<p>No. The following PEHCDS policy units are on the open coast in the eastern Solent and therefore relevant to this in-combination assessment: Selsey, Medmerry, East Wittering & Bracklesham, Cakeham, and West Wittering & East Head. The strategic policy for Selsey, East Wittering & Bracklesham and Cakeham is to HTL through maintenance and improvement of the existing defences and groynes. At Medmerry, the strategic policy is for managed realignment, which was implemented in 2016, and at West Wittering & East Head there is a policy of Adaptive</p>

No.	Plan or project	Potential for cumulative effects with the Hayling Island Coastal Management Strategy?
		<p>Management, which includes small scale beach recycling from the tip of East Head to 'The Hinge' at Chichester Harbour mouth.</p> <p>As described above for the North Solent SMP policies covering this section of coastline (see row #1 above), no significant offshore structures are proposed within the PEHCDS, therefore there are unlikely to be any significant cumulative supporting habitat loss or coastal processes effects. The beach recycling activities included within the PEHCDS have the potential to result in minor increases in suspended sediment concentrations and reduced water clarity. However, these effects will be highly localised, short-term and within the natural variability of the background turbidity conditions in the Solent. Therefore, coastal management activities arising from the PEHCDS policies are not likely to have a significant cumulative effect on foraging terns within the Solent and Dorset Coast SPA with any options proposed for the South Hayling frontage in the Hayling Island Coastal Management Strategy.</p>
6.	The South Marine Plan	<p>No. The South Marine Plan was published in 2018 and covers the coastline from Folkestone in Kent to the River Dart in Devon (MMO, 2018). Many policies in the South Marine Plan are not spatially explicit and/or the nature of the potential development is unclear and therefore it is not possible for them to be assessed as part of this in-combination assessment. Policies related to activities for which HRAs have already been produced were screened out (e.g. tidal and wind lease areas, oil and gas licensing blocks and aggregate extraction licensing areas). The policy maps in the South Marine Plan were reviewed and there are no tidal/wind lease areas, licenced aggregate dredging areas or oil and gas licence blocks in the eastern Solent that could have cumulative effects with policies and/or management measures in the Hayling Island Coastal Management Strategy.</p> <p>Only two policies in the South Marine Plan were screened into the appropriate assessment for the South Marine Plan HRA as having sufficient detail and spatial information and having the potential to cause a likely significant effect on European sites. These two policies have therefore been considered in this in-combination assessment:</p> <ul style="list-style-type: none"> • <i>S-AQ-1: sites of existing aquaculture production will be protected and proposals for aquaculture in identified locations of potential aquaculture production will be supported. Other proposals within these areas must demonstrate consideration of and compatibility with aquaculture production.</i> The aquaculture policy map in the South Marine Plan has been reviewed – there are no current aquaculture cultivation areas, offshore shellfish mussel farm lease sites or fisheries order regions within the eastern Solent. There are two small potential aquaculture areas shown between Portsmouth and Ryde, but these are described as indicative and no further detail is included. As such there is not enough information available on these proposed aquaculture areas to reasonably enable assessment of potential cumulative effects. However, given their small size it is considered unlikely that there will be any significant cumulative water clarity, water column loss or coastal processes effects on foraging terns. As such, it is not considered likely that this policy will result in any significant in-combination effects between the South Marine Plan and the Hayling Island Coastal Management Strategy that could affect the foraging tern features of the Solent & Dorset Coast SPA. • <i>S-DD-2: proposals must identify where use of disposal sites can be minimised by pursuing re-use opportunities through matching of spoil to suitable sites.</i> There is no policy map for this policy and as it is not spatially specific there is not enough information available on these proposed beneficial re-use areas to reasonably enable

No.	Plan or project	Potential for cumulative effects with the Hayling Island Coastal Management Strategy?
		assessment of potential cumulative effects. Individual proposals will be subject to HRA at the time when licence applications are made.
7.	HMNB Portsmouth Maintenance Dredging and Disposal (L/2018/00293/1)	<p>No. A marine licence has been issued for 10 years from July 2018 until July 2028 to undertake navigational dredging to maintain the operational and navigation depths in the approaches, berths and basins at HMNB Portsmouth and to dispose of the material at the Nab Tower disposal site. The licence is for a total disposal quantity of approximately 551,000 tonnes, which equates to an average annual amount of approximately 55,100 wet tonnes (approximately 38,000 m³ per year). The material to be removed largely comprises of silt, which has accreted within channels, berthing pockets and basins. A trailing suction hopper dredger (TSHD) will be used in conjunction with a number of additional small-scale dredging techniques (i.e. plough and grab). It is expected that the dredging activity will be carried out on an annual basis and each campaign would be achievable over a spring neap tidal cycle (about 14 days). Additional ad hoc dredging at other times to maintain operational requirements may also be carried out as required subject to plant availability.</p> <p>Both TSHD and plough dredging will lead to localised increases in suspended sediment concentrations (SSC) in the vicinity of the dredger. However, plume modelling undertaken for the QEC capital dredge (ABPmer, 2012) indicates that when dredging takes place at the Hamilton Bank and in the Outer Channel (the areas in the open Solent relevant to this in-combination assessment), the largest increases in SSC occur within the channel itself and sediment is largely dispersed to the west over Hamilton Bank, with only a low SSC plume (no greater than 10 mg/l) moving eastwards along the Southsea frontage towards Hayling Island. This is within the natural background turbidity levels of 10-20 mg/l for the Solent. Furthermore, for the maintenance dredging activity, the quantities of material being removed are more than an order of magnitude smaller than that modelled for the capital dredge (38,000 m³ compared to 807,502m³) and the maintenance dredging will only last for 14 days at a time. Therefore, there are not likely to be any significant cumulative effects on SSC from the HMNB Portsmouth maintenance dredging and any beach recharge activities in the Hayling Island Coastal Management Strategy that could affect the foraging tern features of the Solent and Dorset Coast SPA.</p>
8.	South Hayling Island Beach Management Plan (2017-2022) (L/2017/00240/1)	<p>No. A marine licence has been issued for 10 years from August 2017 until September 2027 for beach management activities at South Hayling in order to maintain the beach height and profile at Eastoke to protect 1,550 properties. The South Hayling Island Beach Management Plan (BMP) is delivering the North Solent SMP policy to HTL via maintenance and improvements to the defence structures and integrated beach management activities. The BMP includes the following beach management activities:</p> <ul style="list-style-type: none"> • Beach recycling within the sediment cell; • Beneficial re-use of dredged material from the Chichester Harbour entrance channel (within the same sediment cell); and • Beach recharge using sediment from offshore aggregates sites. <p>The South Hayling Island Beach Management Plan will be reviewed as part of the development and appraisal of management approaches for the Hayling Island Coastal Management Strategy and the next 5 years of the BMP will</p>

No.	Plan or project	Potential for cumulative effects with the Hayling Island Coastal Management Strategy?
		likely reflect the findings and preferred options recommended by the Strategy. As the BMP will be implementing the SMP and Strategic policies, there is no potential for cumulative effects between this project and the plans sitting above it.
9.	Southsea Coastal Scheme (L/2020/00121/2)	No. The Southsea Coastal Scheme covers 4.5 km of open coastline running along the south coast of Portsea Island and is delivering the North Solent SMP and the PICSS policy of HTL for this frontage. The scheme was granted planning permission in December 2019 and a marine licence in April 2020. Construction works commenced at sub-frontage 1 (Long Curtain Moat) in September 2020. The proposed works for the Southsea Coastal Scheme include beach recharge at sub-frontage 3 (Southsea Common), sub-frontage 5 (The Pyramids Centre and South Parade Pier) and sub-frontage 6 (Canoe Lake Park) and a rock revetment and rock groyne at sub-frontage 4 (Southsea Castle). Both the rock revetment / groyne and beach recharge (widening) aspects of the Southsea Coastal Scheme were assessed for their potential to result in changes to coastal processes and increases in suspended sediment concentrations. The EIA for the Southsea Coastal Scheme concluded that the temporary changes to hydrodynamic and sedimentary processes are not expected to extend any further than 200 metres from the source of the disturbance, flow obstruction or sediment input. As these effects will be highly localised, short-term and within the natural variability of the background turbidity conditions in the Solent, coastal management activities within the Southsea Coastal Scheme are not likely to have a significant cumulative effect on foraging terns within the Solent and Dorset Coast SPA with any options proposed for the South Hayling frontage in the Hayling Island Coastal Management Strategy. No permanent changes to coastal processes due to the presence of the new defence structures, design beach or the ongoing beach management activities were identified from the Southsea Coastal Scheme.

7 Conclusions and Next Steps

The information in the screening assessment (**Section 5**) indicates that the Hayling Island Coastal Management Strategy 'alone' is not likely to have a significant effect on the Solent and Dorset Coast SPA. Furthermore, the information in the in-combination assessment (**Section 6**) indicates that there are unlikely to be any significant cumulative effects on the foraging tern features of the Solent and Dorset Coast SPA or their supporting habitat with other plans and projects. Therefore, the Strategy is not likely to have a significant effect on the Solent and Dorset Coast SPA, either alone or in-combination with other plans and projects, and this European site has been screened out of any further assessment in the HRA for the Strategy.

However, as described in **Section 5**, the screening assessment indicates that the Strategy 'alone' is likely to have a significant effect on the Solent Maritime SAC and the Chichester and Langstone Harbours SPA and Ramsar site and the Strategy must therefore proceed to appropriate assessment (Stage 2 of the HRA process) for these sites.

The appropriate assessment will provide the information to allow the competent authorities to ascertain whether the proposed Strategy will have an adverse effect on the integrity of the Solent Maritime SAC and/or the Chichester and Langstone Harbours SPA and Ramsar site in view of their conservation objectives, taking account of any mitigation measures included in the Strategy (the Integrity Test). The impact pathways that have been screened in for further consideration in this Stage 1 screening assessment (in **Sections 5.3.1 and 5.3.2**) will be assessed in more detail in the appropriate assessment once preferred options and management measures have been selected for each ODU and the draft Strategy has been produced. The appropriate assessment will use information on predicted effects from the SEA Environmental Report together with consideration of mitigation (avoidance and reduction) measures, to conclude whether the policies and management measures for each ODU, and therefore the Strategy overall, is likely to have an adverse effect on the integrity (AEOI) of the Solent Maritime SAC and/or the Chichester and Langstone Harbours SPA and Ramsar site.

In accordance with Natural England guidance, the High Level Conservation Objectives (HLCO) and the Supplementary Advice on Conservation Objectives (SACO) components of the relevant conservation advice packages will be used to link the screened in impact pathways to relevant ecological attributes of the SAC and SPA/Ramsar qualifying features and therefore assess the impacts of the Strategy's policies and management measures against the conservation objectives of the site.

The appropriate assessment will be informed by the information collated and investigations undertaken to inform the development and appraisal of management approaches for the Strategy and for the relevant SEA topic areas, namely biodiversity, soil, water and climate. These investigations will include:

- a) Undertaking a coastal processes study for the Hayling Island frontage to look at the longer term flood and erosion risk to both the open Solent and harbour coastlines using the latest sea level rise predictions (UKCIP18).
- b) Assessment of the costs of different approaches and the associated wider economic benefits to develop a detailed short-term implementation plan.
- c) Investigation of the wider benefits of schemes, links with regeneration opportunities and environmental enhancement opportunities, and identification of potential contribution opportunities for future coastal management measures.

- d) Appraisal of the short, medium and long term sustainable FCERM approaches for Hayling Island.
- e) Quantification of the extent of littoral and supralittoral habitat that will be lost due to coastal squeeze over the 100 year period of the Strategy from options and measures that hold the line of defence.
- f) Quantification of the extent of landward coastal grazing marsh, reedbeds and functionally linked SPA/Ramsar supporting habitat that will be lost due to tidal inundation over the 100 year period of the Strategy from 'Do nothing' (no active intervention), managed realignment / regulated tidal exchange and setback floodwall / earth embankment options.

The quantification of the extent of habitat losses and gains from coastal squeeze and tidal inundation as a result of the Strategy options and measures (i.e. items e) and f) above) will be undertaken using the LiDAR flooding outputs from the Solent Dynamic Coast Project (SDCP) (Cope et al., 2008). This will ensure that the calculations undertaken for the Strategy HRA are consistent with the North Solent SMP appropriate assessment, which also used the SDCP outputs. Habitat losses and gains were calculated strategically across the SMP area by the SDCP and the required compensation was also identified strategically and passed on to the South East (now Solent and South Downs) RHCP for delivery of the compensatory habitat (NFDC, 2010).

The appropriate assessment will also be informed by the responses received to this HRA Screening report from our key stakeholders and statutory advisers, such as Natural England, the Environment Agency, Havant Borough Council, the Marine Management Organisation, Langstone Harbour Board and Chichester Harbour Board. Coastal Partners will continue to have close engagement and further meetings with Natural England (the statutory nature conservation body) during the development and appraisal of management approaches for the Strategy, to discuss the proposed options and management measures for each ODU and agree suitable mitigation measures, to ensure that an adverse effect on the integrity of the European sites is avoided so far as is possible.

The information within this HRA Screening report will be used to inform the Strategy development during the short-listing and selection of preferred coastal management options for each ODU. During the development and appraisal of management approaches for the Strategy, different options and alternatives for delivering the Strategy's overall aim and objectives will be considered, and avoidance and reduction measures will be incorporated so far as is possible for policies and measures where it has been identified that Strategy options could have a likely significant effect on the features and supporting habitats of the European sites. These mitigation measures will be included in the Strategy policies for the relevant ODUs to ensure that they are clearly documented and implemented. The mitigation measures developed during the Strategy development and appraisal of management approaches will be presented in the appropriate assessment section of the full HRA report, which will be included as an Appendix to the SEA Environmental Report to be produced to support the consultation stage of the draft Strategy.

During policy development, habitat losses from coastal squeeze and tidal inundation will be minimised as far as is possible whilst still delivering the objectives of the Strategy. However, it is clear from the North Solent SMP HRA that it is likely that some permanent loss of intertidal and/or supralittoral habitat from coastal squeeze and/or landward loss of coastal grazing

marsh, reedbeds or functionally linked supporting habitat from tidal inundation will be unavoidable. Without prejudice to the outcome of the appropriate assessment to be undertaken at the draft Strategy stage, it is considered likely that the policies and management measures in the Strategy will result in an adverse effect on the extent and distribution attribute of the European sites' conservation objectives for the Estuaries, Mudflats and sandflats not covered by seawater at low tide, *Salicornia* and other annuals colonising mud and sand, Atlantic salt meadows and *Spartina* swards SAC features and the intertidal sediment, saltmarsh, coastal grazing marsh, reedbeds and functionally linked grassland and arable land SPA/Ramsar supporting habitats. As such, the appropriate assessment is likely to conclude that the draft Strategy will have an adverse effect 'alone' on the integrity of the Solent Maritime SAC and the Chichester and Langstone Harbours SPA and Ramsar sites in view of their conservation objectives.

Therefore, there is unlikely to be a need to undertake an in-combination assessment as any such effects will be irrelevant to the conclusion of the appropriate assessment and integrity test (Tyldesley and Chapman, 2013). Instead, the Strategy will need to proceed to the derogation tests under Article 6(4) of the Habitats Directive. The HRA report, which will be included as an Appendix to the SEA Environmental Report in support of the consultation stage of the draft Strategy, will include information for Stages 3 and 4 of the HRA i.e. Consideration of Alternatives, Imperative Reasons of Over-riding Public Interest and Compensation Measures.

As the North Solent SMP has already been through the HRA process and the derogation tests, the Secretary of State has already approved the plan and the policies in the SMP for the Hayling Island coastline. Therefore, it is not expected that another derogation will be required for the Hayling Island Coastal Management Strategy if there is no change in the proposed management approach to that described in the SMP, as the alternatives and IROPI tests have already been agreed at the plan (SMP) level. The Solent and South Downs Regional Habitat Compensation Programme (RHCP) has already been approved by the Secretary of State as the agreed compensatory mechanism for habitat losses caused by coastal management policies within the North Solent SMP. The Secretary of State derogation confirmation letter for the North Solent SMP is included in **Annex A**, together with the Environment Agency's approval letter. However, if the policies and management measures recommended in the Strategy differ from those in the North Solent SMP, it is likely that a separate derogation approval will be required from the Secretary of State for the Hayling Island Coastal Management Strategy.

8 References

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Annex A: SMP derogation confirmation and EA approval letters

This Annex includes the Secretary of State derogation confirmation letter for the North Solent Shoreline Management Plan (SMP), together with the letter confirming the Environment Agency's approval of the SMP.

A1. North Solent SMP Secretary of State derogation confirmation letter

Zone 1/06, Temple Quay House
2 The Square
Temple Quay
Bristol BS1 6EB

Telephone

Website www.defra.gov.uk



Andrew Colenutt
North Solent SMP Project Manager
New Forest District Council
Appletree Court
Lyndhurst
Hampshire
SO43 7PA

Our ref N55557

4 April 2011

Dear Mr Colenutt

NORTH SOLENT SMP

1. Thank you for supplying the Habitats Regulations Assessment and the completed Appendix 20 application for the North Solent SMP.
2. I recognise that your Council has fulfilled its obligations under the Habitats Regulations and appropriately assessed the impacts of the proposed SMP on the European sites that may have been affected.
3. I am satisfied that you have carried out a thorough evaluation of alternative solutions. I accept that there are no alternative solutions to the preferred options that would have a lesser effect on the integrity of the European sites.
4. Given that coastal flooding and erosion poses a risk to 51,000 residential and commercial properties, two major ports, industrial assets and key infrastructure, I consider that you have made a strong case to justify the potential damage on grounds of imperative reasons of overriding public interest.
5. I am satisfied that you have taken appropriate steps to secure suitable compensatory habitat within the Southern Regional Habitat Creation Programme to ensure that the overall coherence of the Natura 2000 network is protected.
6. Consequently, I can confirm that, in respect of regulation 62 of the Conservation of Habitats and Species Regulations 2010, Defra has no objections to your Council's intention to approve this strategy.
7. I would be grateful if you could inform Craig Lee once the Strategy is approved so that he can forward the details to the European Commission.



8. I am copying this letter to Paul Murby in Defra, Jenny Buffrey in the EA and Chris McMullon in Natural England.

Yours sincerely



Steve Lee-Bapty
Head of Protected Areas
Acting on behalf of the Secretary of State

Direct Line 0117 372 8615
Email steve.lee-bapty@defra.gsi.gov.uk

A2. North Solent SMP Environment Agency approval letter

Andrew Colenutt
New Forest District Council
Town Hall
Avenue Road
Lymington
SO41 9ZG



Date: 6 May 2011

Dear Andrew,

Shoreline Management Plan Review (SMP)
North Solent

I write in the context of the Environment Agency's (EA) strategic overview to confirm EA approval of the above mentioned second generation Shoreline Management Plan.

This approval is provided on recommendation from the SMP Quality Review Group (QRG) and recognises that the QRG is satisfied that you have followed the guidance for:

- developing an overall understanding of the coast;
- identifying and analysing problems;
- engaging stakeholders at appropriate stages;
- developing policy in line with current guidance; and
- ensuring that your SMP meets the principles of sustainable development.

I understand that the Plan has been adopted by your council and the following partner authorities:

- Test Valley Borough Council
- Southampton City Council
- Eastleigh Borough Council
- Winchester City Council
- Fareham District Council
- Gosport Borough Council
- Portsmouth City Council
- Havant Borough Council
- Chichester District Council

The approved plan will be stored electronically in the EA along with this letter, as a permanent record of the approval. Please maintain an audit trail of any agreed amendments to the approved plan.



Any future policy option changes in the SMP arising from emerging strategies will need to be formally recorded by means of the agreed change process. This should be done through Raahil Javaheri, at the EA.

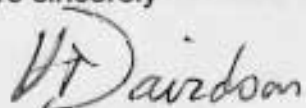
I would be grateful if you would keep the EA's Regional Flood and Coastal Risk Manager (RFCRM) involved in any developments. Also, please ensure that the approved status of the plan is now reflected on your SMP website. The Statement of Environmental Particulars (SoEP) will also need to be published on the website.

Future decisions on approval or funding of the investments or studies identified in the plan will be subject to FDGIA allocation and appraisal processes.

The EA, through its National Coastal Erosion Risk Mapping (NCERM) project, is providing information on coastal erosion risk which takes account of the latest climate change predictions (UKCP09). A report comparing SMP and NCERM data will be prepared, along with guidance on making any amendments to the SMP that may be required. Achievement of this will be dependent upon the continuing liaison between EA Regional staff and yourself. You will need to review this data, or any other significant coastal developments, and consider possible amendments to the SMP.

We are grateful to everyone who has contributed to developing this plan and look forward to working with you on putting it into practice.

Yours sincerely



Howard Davidson
South East Director
Environment Agency

Copies to:

James Humphrys

Peter Quarmby

Encl: Bundle of approval documents items 1-9

Annex B: Natural England advice

This Annex includes the advice received from Natural England in relation to the Solent and Dorset Coast pSPA vulnerability assessment for flood and coastal erosion risk management schemes.

B1. Natural England's advice on the Solent and Dorset Coast pSPA vulnerability assessment for FCERM schemes

Date: 26th May 2016



Stephen Treby
Natural England
1st Floor
Temple Quay House
2 The Square
Bristol
BS1 6EB
0300 060 1821

BY EMAIL ONLY

Dear Gavin,

Thank you for your detailed survey response to the Formal Consultation for the proposed Solent and Dorset Coast SPA.

We note your comments regarding the potential socio-economic impacts of classifying the site and will ensure the Consultation Report outlines your responses which contain socio-economic information. The Consultation Report will be submitted to Defra along with comments on the scientific evidence.

An SPA classification does not aim to stop or restrict activities occurring within the site, rather to ensure that the conservation of rare, endangered and migratory bird populations is reflected in how activities which may impact the bird features are managed. There are examples of other SPAs (e.g. Liverpool Bay SPA, Outer Thames SPA) located in areas that are highly important in commercial terms where activities are managed accordingly.

We have undertaken some research to assess whether any of the activities that currently take place within the draft boundary could potentially have a negative impact upon foraging terns. This research (known as a Vulnerability Assessment) **did not** identify any activities which would require additional management measures to those already in place across the site.

This is because foraging terns are considered to have a low sensitivity to most activities that occur within the site. This includes the various Flood and Coastal Erosion Risk Management schemes in place across the site. Whilst we cannot rule out that new evidence, or new activities in the future might need some management measures, based on our current understanding we consider this unlikely.

Within the remainder of this response I will endeavour to demonstrate why we feel that the proposed boundary of the pSPA is appropriate:

Modelled Approach

It is important to note that the models used to define site boundaries for tern species are based on direct observations of the foraging behaviour of breeding terns from many colonies around the UK over a period of up to three years. The patterns of tern distribution predicted by the models have been shown to match with the observed distributions of terns at sea recorded in other years and at other colonies.

As outlined in the appendices of the Departmental Brief, the models were subjected to a process of cross-validation which indicated a satisfactory match between model predictions and independent survey data (as described in summary in the Departmental Brief). The cross-validation exercise demonstrated a degree of consistency in terns' foraging distribution between years and sites, and significantly reduced uncertainty regarding the reliability of the predictive models, and hence the boundaries based upon them.

Validation

The confidence in the reliability of these models was further enhanced via verification survey work undertaken at a range of locations around England in 2015 (Perrow *et al* 2015). The verification work involved surveys of tern activity at nine sites around England, all within the boundaries of pSPAs or within areas that may be identified as pSPAs in due course. This programme of surveys confirmed the occurrence of foraging terns in every system in which they were predicted to occur and in which they were looked for (Perrow *et al.* 2015). The verification work was further reinforced by a similar program in Northern Ireland (Allen & Mellon Environmental Ltd, 2015) as noted in the Departmental Brief, which confirmed the presence of terns up to and beyond the furthestmost alongshore limits of modelled boundaries and also provided some evidence to indicate that larger tern species feed further out to sea than the limits of the modelled boundaries. The English site verification work was not reported in the Departmental Brief as the surveys were in progress at the time the document was being drafted. The report on this work (Perrow *et al* 2015) is now available and is listed in the references provided below.

It is important to note that it is not standard practice via ground truthing to survey every location where presence/abundance has been inferred by methods such as simple interpolation or, as in this instance, by more complex modelling. Similar model-based approaches have been used to underpin marine SPAs already (e.g. Liverpool Bay SPA, Outer Thames Estuary SPA, Falmouth Bay to St Austell Bay pSPA) and this peer-reviewed approach demonstrates an **objective, repeatable and scientific method** to boundary identification. In the light of the verification work carried out as detailed, Natural England is content that the cross-validation of model predictions and subsequent programmes of verification work provide satisfactory confidence that model predictions are not simply reliable in locations where verification work was carried out, but equally reliable in all the other locations in which verification work was not carried out.

Maximum Curvature

The sea areas with a level of usage by terns that merit inclusion within the pSPA have been defined objectively following UK marine SPA selection guidance¹ and established marine SPA

¹ Webb, A. & Reid, J.B. (2004). Guidelines for the selection of marine SPAs for aggregations of inshore non-breeding waterbirds. Annex B in: Johnston, C., Turnbull, C. Reid, J.B. & Webb, A. (2004). Marine Natura 2000: Update on progress in Marine Natura.

boundary delineation methods² using a method known as Maximum Curvature Analysis (MCA). This approach has been used for boundary setting in several other marine SPAs and pSPAs (e.g. Liverpool Bay SPA and Outer Thames Estuary SPA). The approach is based on the principle of diminishing returns and explicitly seeks to **exclude** areas that are used by the birds, at a level which is so low that their inclusion would result in an increase in site extent that would be disproportionate to the importance of the area(s) for the birds. MCA provides an objective way in which to define a threshold level of usage that distinguishes between areas warranting inclusion and those that do not and is not reliant on a “target” for how much area should be protected (which would be arbitrary and subjective).

We acknowledge that the Maximum Curvature Analysis (MCA) approach does not clarify the functional importance of areas inside or outside the proposed boundary.

MCA provides an objective, repeatable and established method for defining a limit in the marine environment in which there is no scope to define boundaries based on limits to clearly defined habitats. In this instance, as in other applications of the MCA approach (e.g. Liverpool Bay SPA, Outer Thames Estuary SPA), MCA has resulted in the exclusion of large areas of sea that support some level of usage by birds from within site boundaries. Natural England considers that the application of MCA in this case, as in others, has provided a pragmatic and conservative approach to boundary setting, particularly when viewed in the context of the far wider sea areas which the scientific literature indicates is within the foraging range for these species.

Natural England does not consider that the complexity of the Solent and Dorset Coast pSPA coastline is so markedly different from many other SPAs/pSPAs. We are confident that the robustness of model predictions apply equally here as elsewhere.

We note that you are currently collecting data through the Eastern Solent Coastal Partnership - Solent Wide Bird Study app, to inform your future Flood and Coastal Erosion Risk Management works. Please do send us this data when it is available.

I hope that this response is helpful and that I have provided sufficient information for you to re-assess the Eastern Solent Coastal Partnerships position towards the proposed SPA. If I can provide any further information or explanation please don't hesitate to contact me directly.

Yours sincerely,



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Dorset, Hampshire Coast and IoW
Natural England

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² O'Brien, S.H., Webb, A., Brewer, M.J., & Reid, J.B. 2012. Use of kernel density estimation and maximum curvature to set Marine Protected Area boundaries: Identifying a Special Protection Area for wintering red-throated divers in the UK. *Biological Conservation* **156**: 15-21.

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