Havant BOROUGH COUNCIL

Coastal Partners

Hayling Island Coastal Strategy

Water Framework Directive Assessment

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Document Control:

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Water Framework Directive Chapters

List of Appendices (see separate documents)

1. Introduction

Coastal Partners, on behalf of Havant Borough Council (HBC) is developing the Hayling Island Coastal Management Strategy (hereafter referred to as 'the Strategy'). This Water Framework Directive (WFD) compliance assessment has been produced to determine whether the Strategy complies with the objectives of the WFD. The WFD (2000/60/EC as amended) came into force in 2000 and establishes a framework for the management and protection of Europe's water resources. It was implemented in England and Wales through the Water Environment (WFD) (England and Wales) Regulations 2003 (the Water Framework Regulations). These Regulations were revoked and replaced in April 2017 by the Water Environment (WFD) (England and Wales) Regulations 2017. The overall objective of the WFD is to achieve good status (GS) in all inland, transitional, coastal and ground waters by 2015, unless alternative objectives are set and there are appropriate reasons for time limited derogation.

Please note, the term 'surface water' and 'surface waters' within this report refers to coastal and transitional waters, rivers, streams or lakes, as defined by the WFD. It does not refer to surface water run-off or surface water ponding which may be caused by rainfall, which will be addressed separately where necessary at a scheme level by Surface Water Management Plans.

1.1 Structure of this report

This report has been structured as follows:

- **Section 1: Introduction.** Brief project background including an overview of the Strategy area, rationale and development.
- **Section 2: Strategy Development**. A background to the Strategy, project objective and the option development process.
- **Section 3: Legislative Framework.** An overview of the WFD Directive, the North Solent SMP and the approach of the WFD assessment.
- **Section 4: WFD screening.** The identification of Option Development Units (ODUs) and waterbodies for further assessment.
- **Section 5: WFD scoping.** The scoping of receptors for further assessment.
- **Section 6: WFD impact assessment.** A high level impact assessment.

A separate Habitat Regulations Appraisal (HRA) has been produced to consider the impacts of the Strategy on the European Sites (Protected Sites) (AECOM, 2023). Conclusions from this have been included in this report. Reference should also be made to the separate Strategic Environmental Assessment (SEA) which also makes reference to this WFD report (Coastal Partners, 2023).

1.2 Strategy Area and Rationale

Hayling Island is situated on the south coast of England, within the borough of Havant in the county of Hampshire. The borough lies between Portsmouth in the west and Chichester in the east and is serviced by the A27 from the east and west. Access to the island is limited to the

A3023, the only road connecting Hayling Island with the mainland. The Strategy covers a location length of approximately 37 km around Hayling Island.

Hayling Island is a low-lying island community. Consequently, 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. Currently, without the existing defences in place, there are estimated to be 609 residential properties and 348 non-residential properties at risk on the island from a 0.5% Annual Exceedance Probability (AEP) event. Due to sea level rise in 100 years' time there are estimated to be 1,830 residential properties and 660 non-residential properties at risk from a 0.5% AEP event.

2 Strategy Development

In order to develop the Strategy, a number of possible strategic options were identified and appraised. As part of the process of selecting the overall leading options, numerous options were subject to an environmental assessment to identify the most favourable in this respect. This section provides an overview of the stages of the Strategy development.

2.1 Background to Strategy

A coastal 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 and programmes. Shoreline Management Plans (SMP) sit at the top of the hierarchy of plans for managing coastal flooding and erosion, as shown in **Figure 1**. A 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. A number of management policies can be assigned within the SMP, these include:

- Hold the Line (HTL);
- Managed Realignment (MR);
- Advance the Line (ATL); and
- No Active Intervention (NAI).

The North Solent SMP was adopted by HBC in 2010 and recommended the need to develop a Strategy for the Hayling Island coastline (New Forest District Council (NFDC), 2010). The existing North Solent SMP policies for Hayling Island are shown in **Figure 2**.

Coastal 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 are outputs of a strategy. During this stage leading options are designed and submitted for planning approval, a marine licence and other required consents and permissions. Once the detailed design of the scheme is approved and funding secured, the works can be carried out on the ground.

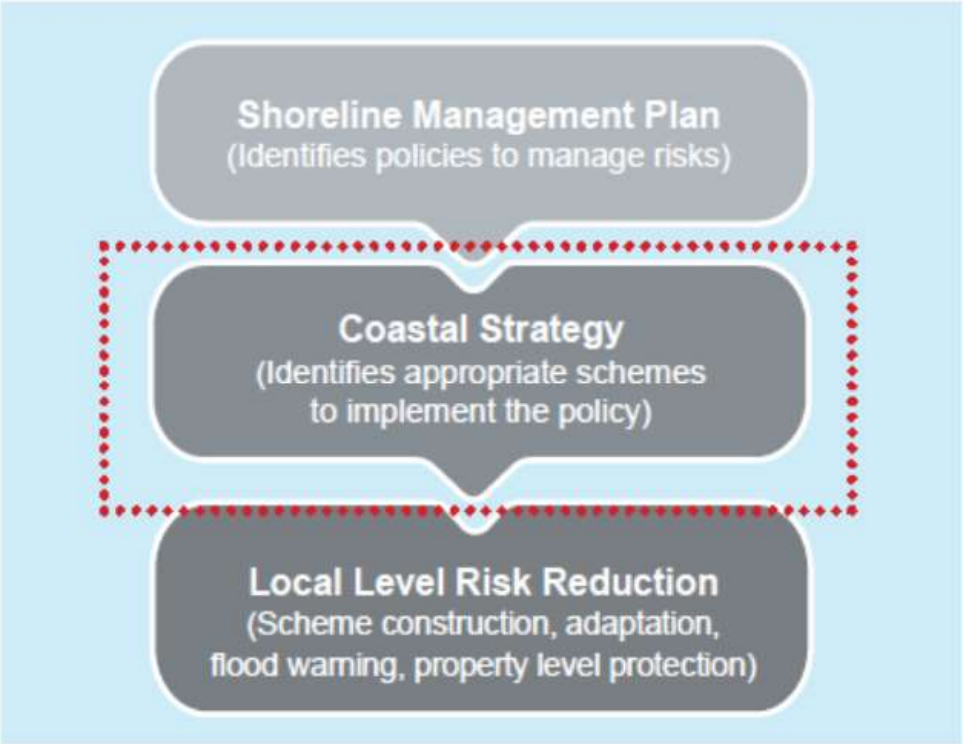

Figure 1 Hierarchy of coastal management planning (AECOM, 2022a)

Figure 2 Existing North Solent SMP policies

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 adopted and emerging Local Plans and associated documents.

2.2 Project Objectives

Specific objectives and aspirations for the Strategy were developed and agreed by the Project Steering Group. The following primary strategy objectives agreed were:

- To build on the work of the North Solent Shoreline Management Plan; challenging SMP policy where appropriate to do so;
- To define the coastal flooding and erosion risks to people and the developed, historic and natural environments;
- To identify the preferred technically, economically, socially and environmentally sound and sustainable options for managing those risks over a 100 year appraisal period, and define an implementation plan (considering climate change and predicted sea level rise);
- To identify the consequences of implementing the preferred policies from the North Solent Shoreline Management Plan and challenge SMP policies if appropriate;
- To integrate and align with the HBC Local Plan and Regeneration Strategy;
- To balance the needs of people and the environment;
- To comply with environmental legislation and identify opportunities for environmental enhancement, allowing where possible the natural evolution of the shoreline;
- Where schemes are required and are appropriate to develop; to identify their costs, benefits and associated outcome measures;
- Where schemes are not appropriate, to identify plans for adaptation;
- To identify beneficiaries and opportunities for potential financial contributions to future FCERM schemes; and
- Integrate and achieve wider HBC initiatives such as place making, regeneration and amenity objectives.

The secondary Strategy objectives are:

- To provide a co-ordinated approach across a range of authorities and organisations managing the coastline; and
- To link with neighbouring strategies, projects and initiatives including those which are outside the realm of coastal management and to utilise existing information for the area where possible.

2.3 Option Development

The option development process has followed the Environment Agency's Flood and Coastal Erosion Risk Management appraisal guidelines (FCERM-AG, 2020). This has involved a multi-staged systematic process as shown in **Figure 3**.

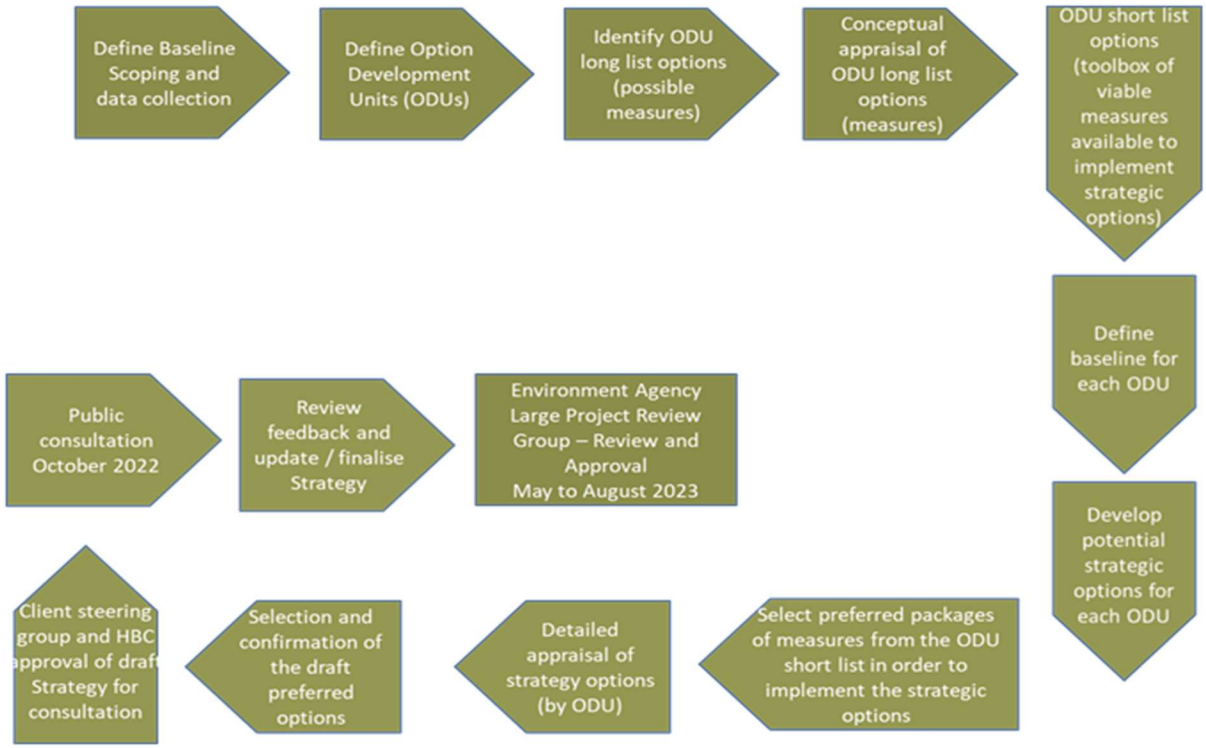

Figure 3 Work flow summary of the options development process

The Strategy options are appraised over 3 time periods (referred to as epochs):

- Short term (epoch 1): 2022 – 2042 (present day to year 20)
- Medium Term (epoch 2): 2042 – 2072 (year 20 to year 50)
- Longer term (epoch 3): 2072 – 2122 (year 50 to year 100)

In most situations the option development process seeks to align with the SMP policies, but opportunities to challenge and update the SMP policies have been considered where appropriate.

An overview of the main stages of the options development process is provided within the following sections.

2.3.1 Option Development Units

The first key stage of the options development process involves defining 'Option Development Units' (ODUs). Flood and erosion risks, coastal defence types, land uses, land ownership and issues and opportunities vary significantly along the Strategy frontage. For effective flood and erosion risk management options to be developed it is important to consider and recognise this local variability. With this in mind the frontages of Hayling Island was divided into small, local sections. As shown in **Figure 4**, the coastline has been divided into 16 ODUs. The ODUs can be defined as manageable areas with consistent themes that help to facilitate and rationalise the appraisal and selection of management options. 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).

Figure 4: Location of ODUs for the Hayling Island Coastal Management Strategy

2.3.2 Development of Long List Measures

The next stage of the option development process was to develop a long list of potential management measures for each ODU.

In accordance with FCERM-AG a variety of measures were identified, including measures that:

- Modify the source, pathway or change the probability of risk;
- Manage or modify receptors to reduce the consequences;
- Work with natural processes wherever possible;
- Are adaptable to future changes in risk;
- Require actions to be taken to deliver the predicted benefits (i.e. closing flood gates); and,
- Deliver opportunities and wider benefits, through partnership working where possible.

The generic methods or management structures that were considered are outlined below. Measures were not limited by these lists:

To implement a 'hold the line' policy:

- Crest raising of existing defences (e.g. concrete crest wall / wave return wall);
- Setback flood walls (as secondary defences with frontline maintenance);
- Revetments (blocks, paving, rock armour etc.);
- Seawall;
- Land raising;
- Earth embankment;
- Flood storage areas;
- Offshore breakwaters;
- Beach recycling / management;
- Beach nourishment;
- Groynes;
- Gabion wall;
- Temporary / demountable defences;
- Timber breastwork;
- Sheet piling;
- Deployable defences (e.g. swing gates, rising flood barriers etc.);
- Sand bars;
- Clearance of ditches and drainage; and
- Dredging of channels and creek.

To implement a 'managed realignment' policy:

- Setback defences;
- Breach existing defences;
- Regulated tidal exchange; and
- Habitat creation or restoration (Saltmarsh / Mudflat / Sand Dune / Bird Roost Islands).

To implement an 'advance the line' policy:

- Flood barriers / barrages – local and harbour wide; and
- Land reclamation.

The measures associated with adaptation to flood risk included:

- Road raising / realignment;
- Rollback;
- Coastal Change Management Areas (CCMAs);
- Relocation of properties and communities;
- Community resilience and Property Flood Resilience (PFR); and
- Remediation and removal of contaminated land.

Following this stage, scoping of the SEA, WFD and HRA was undertaken (Coastal Partners, 2021). A scoping report was submitted to HBC for consultation on February 2021 to inform a scoping opinion (**Appendix A**), which was provided by HBC in May 2021. In relation to the WFD this report stated 'The Environment Agency have confirmed that:

We have reviewed the sections of the scoping report that relate to marine water quality and WFD Assessment. We confirm that we are satisfied with the applicant's approach; we have no further comments at this stage.'

2.3.3 Development of Short List Measures

The next stage of the option development process involves appraising the long list of local measures to identify a short list of local measures. This process was carried out at the ODU level and typically six to eight local level measures were taken forward in each unit.

The appraisal was undertaken by scoring each long list measure against each of the following categories:

- SMP policy facilitation;
- Flood risk reduction;
- Erosion risk reduction;
- Environmental risks and opportunities;
- Broader outcome potential;
- Coastal process impacts;
- Technical complexity;
- Operation and maintenance requirements;
- Design life; and,
- Cost.

Full details on this process are provided within the AECOM long list to short list report (AECOM, 2022a).

This stage included developing strategic options for each ODU by outlining the general approach to managing the risks – whether that be adaptation, maintaining the defences, raising existing defences to keep pace with sea level rise, or constructing entirely new defences to a high standard of protection. The strategic options were implemented by selecting the most appropriate measures from the local level shortlist.

Typically five to eight strategic options were identified for each ODU which allowed a comparison between options to be made and the justification for a leading option to be taken forward.

The range of strategic options available to each ODU includes:

- Do Nothing (No Active Intervention).
- Do Minimum – e.g. reactive maintenance / repairs and health and safety compliance
- Maintain – e.g. continue to protect against erosion or maintain the current defence crest height, Standard of Protection (SoP) falls over time.
- Sustain – sustain at the SoP by raising defences over time to keep pace with sea level rise.
- Maintain then Sustain – maintain existing defences, then raise SoP of defences in the next epoch to keep pace with sea level rise when the risk of flooding and coastal erosion increases.
- Improve SoP – improve the SoP compared to present day.
- Maintain then Improve – maintain existing defences, then implement new defences in the next epoch as the risk increases to improve the SoP compared to the present day, when the risk of flooding and coastal erosion increases.
- Managed Realignment (including setback defences and habitat creation through regulated tidal exchange and managed realignment)).
- Advance the line – advance the shoreline seawards to provide an increased SoP against flooding and reduced erosion risk, including flood barriers and land reclamation.
- Resilience / Adaptation – improving community resilience through initiatives such as Coastal Change Management Areas (CCMAs), relocation, Property Flood Resilience (PFR) and policy changes. Also includes relocation of properties at significant risk of flooding and coastal erosion.

2.3.4 Selection of Leading Options

Strategic options continued to be developed through the 'short list to leading options report' (AECOM, 2022c). This included a potential 'package' of measures to implement each strategic option at a local level, for each ODU. Each package of measures comprises of defence structures and management methods, including maintenance and the required phasing of works over the next 100 years to deliver the strategic option. To support the selection of the leading options a multi-criteria analysis was undertaken. The multi-criteria analysis scored each strategic option against the following four key categories:

- **Technical;**
- **Economic;**
- **Environmental; and**
- **Social.**

Up to two leading options were identified for each ODU:

1. The 'FCERM leading' or 'cost effective' option was identified through the economic appraisal process.

2. The 'overall leading option' was identified considering the wider environmental, social and technical objectives. This option meets the widest objectives overall and may be the same as the 'FCERM leading option'.

The 'short list to leading options report' (AECOM, 2022c) details the options proposed in each ODU and for each epoch. Within this report a summary 'road map' is also provided for each ODU.

An overview of all the options selected for each ODU are provided **Table 2.1**. This WFD compliance assessment focuses on the overall leading options only. Should any Strategy

proposal progress to scheme stage, a more detailed WFD will be required which would incorporate alternative options if necessary.

Table 2.1: Summary of leading options for each ODU

ODU	Overall Leading Option (Considered within the report only)	FCERM Leading Option*	
1: Langstone Bridge to Northney Farm	**Sustain 0.5% AEP with managed realignment Hybrid** **Construction of frontline floodwall on the west (ODU1a), setback embankment on the east (ODU1b) and frontline protection of historic landfill (ODU1c), with habitat creation. Increasing length and height over time to keep pace with sea level rise**	**Sustain 1.33% AEP with managed realignment** **Construction of frontline floodwall on the west (ODU1a), setback embankment on the east (ODU1b) and frontline protection of historic landfill (ODU1c), with habitat creation. Increasing length and height over time to keep pace with sea level rise**	
2: Northney Marina	**Resilience** **PFR to properties at risk of flooding from 5% AEP event.**	**Do Nothing** **No active intervention**	
3: Northney Farm to Chichester Road	**Sustain 0.5% AEP with managed realignment -** **Setback earth embankment with habitat creation. Increasing length and height over time to keep pace with sea level rise**	**Same as overall leading option**	
4: Chichester Road to Mill Rythe Junior School	**Resilience** **PFR to properties at risk of flooding from 5% AEP event.**	**Do Nothing** **No active intervention**	
5: Mill Rythe Junior School to Salterns Lane	**Sustain 1.33% AEP with Managed Realignment** **Setback embankment with habitat creation. Increasing length and height over time to keep pace with sea level rise (ODU5a,b and c).)**	**Maintain then Managed Realignment (improve) 0.5% AEP in year 50.** **Scheduled maintenance on existing assets for 50 years. Setback embankment built to a 0.5% AEP SoP, with habitat creation in year 50. PFR**	

ODU	Overall Leading Option (Considered within the report only)	FCERM Leading Option*	
6: Salterns Lane to Wilsons Boat Yard	Maintain then Improve from year 50 0.5% AEP frontline defence. Maximise the life of existing defences, then implement frontline floodwall PFR	Same as overall leading option	
7: Wilsons Boat Yard to Fishery Creek	Sustain 0.5% AEP Frontline rock revetment. Increasing length and height over time to keep pace with sea level rise	Same as overall leading option	
8: Eastoke	Sustain 0.5% AEP Combination of rock revetment, floodwalls and setback floodwalls across the frontage. Increasing length and height over time to keep pace with sea level rise. Includes beach management (replacement of all groynes with new rock groynes, beach nourishment and beach recycling)	Sustain 0.5% AEP - Crest raising / floodwall / setback floodwall / rock groynes + beach management. Increasing length and height over time to keep pace with sea level rise. Includes replacement of all groynes with new rock groynes, beach nourishment and beach recycling.	
9: Eastoke Corner to Inn on the Beach	Sustain 0.5% AEP - Maintain Inn on the Beach Setback floodwall, increasing length and height over time to keep pace with sea level rise. Capital refurbishment of the defences in front of Inn on the Beach. Beach management including replacement of the timber groynes with rock groynes (same size of groyne field), beach nourishment and beach recycling	Sustain 0.5% AEP - Replace Inn on the Beach Setback floodwall, increasing length and height over time to keep pace with sea level rise. Replacement of Inn on the Beach with rock groyne. Replace timber groynes with rock groynes (same length of groyne field). Beach nourishment and beach recycling.	
10: Inn on the Beach to North Shore Road	Resilience PFR to properties at risk of flooding from 5% AEP event. PFR	Same as overall leading option	
11: North Shore Road	Sustain 1.33% AEP Floodwall around west side, then followed by east side in yr20. Increasing length	Improve 0.5% AEP Frontline floodwall, west side defence only. Built	

ODU	Overall Leading Option (Considered within the report only)	FCERM Leading Option*	
	and height over time to keep pace with sea level rise	to 0.5%AEP, then maintained.	
12: North Shore Road to Newtown	Do Nothing No active intervention	Same as overall leading option	
13: Newtown	Sustain from year 20 (Maintain then Sustain) 0.5% AEP Maximise the life of existing defences, then implement a frontline floodwall. Increasing length and height over time to keep pace with sea level rise	Same as overall leading option	
14: Newtown to Stoke	Do Nothing No active intervention	Same as overall leading option	
15: Stoke to Langstone Bridge Carpark	Sustain 0.5% AEP Setback earth embankment. Increasing length and height over time to keep pace with sea level rise	Same as overall leading option	
16: Langstone Bridge Carpark to Langstone Bridge	Sustain 0.5% AEP - Frontline defence. Increasing length and height over time to keep pace with sea level rise	Sustain 1.33% AEP – Frontline defence. Increasing length and height over time to keep pace with sea level rise	

*The 'FCERM leading' options are not assessed within this report and are included for reference only.

2.3.5 Consultation and Finalisation of Options

All coastal strategies are considered and approved by the Environment Agency's Large Project Review Group (LPRG).

A coastal strategy submission requires the completion of a Strategy Appraisal Report (StAR) along with other documentation generated in support of the Strategy. The StAR format provides a consistent reporting format for the LPRG to appraise, and is prescriptive in the level of detail required. Additional supporting evidence, including calculations, drawings, and additional reports are contained in Appendices to the StAR.

Following public consultation and completion of the final revision of the Strategy, the StAR document will then go to the LPRG for consideration and final approval.

3 Legislative Framework and approach

The WFD divides rivers, lakes, lagoons, estuaries, coastal waters (out to one nautical mile from the low water mark), man-made docks and canals into surface water bodies. It sets ecological as well as chemical targets (objectives) for each surface water body. For a surface water body to be at overall Good Status (GS), the water body must be achieving good ecological status (GES) and good chemical status (GCS). Ecological status is measured on a scale of high, good, moderate, poor or bad, while chemical status is measured as good or fail.

Each surface water body has a hydromorphological designation that describes how modified it is from its natural state. Water bodies are either undesignated (i.e. natural, unchanged), designated as a heavily modified water body (HMWB) or designated as an artificial water body (AWB). HMWBs are defined as bodies of water which, as a result of physical alteration by human use activities (such as flood protection and navigation) are substantially changed in character and cannot therefore meet good ecological status. AWBs are artificially created through human activity. The default target for HMWBs and AWBs under the WFD is to achieve good ecological potential (GEP), a status recognising the importance of their human use while ensuring ecology is protected where possible.

The ecological status of surface waters is classified using information on the biological (e.g. fish, benthic invertebrates, phytoplankton, angiosperms and macroalgae), physico-chemical (e.g. dissolved oxygen and salinity) and hydromorphological (e.g. hydrological regime) quality of the body of water, as well as several specific pollutants (e.g. copper and zinc). Compliance with chemical status objectives is assessed in relation to environmental quality standards (EQS) for a specified list of 'priority' and 'priority hazardous' substances. These substances were first established by the Priority Substances Directive (PSD) (2008/105/EC) which entered into force in 2009. The PSD sets objectives, including for the reduction of these substances through the cessation of discharges or emissions.

The WFD also incorporates groundwater water bodies. Groundwaters are assessed against different criteria compared to surface water bodies as they do not support ecological communities. Therefore, groundwater water bodies are classified as good or poor quantitative status in terms of their quantity (groundwater levels and flow directions) and quality (pollutant concentrations and conductivity), along with chemical (groundwater) status.

River Basin Management Plans (RBMPs) are a requirement of the WFD, setting out measures for each river basin district to maintain and improve quality in surface and groundwater water bodies where necessary. In 2009, the Environment Agency published the first cycle (2009 to 2015) of RBMPs for England and Wales, reporting the status and objectives of each individual water body. The Environment Agency subsequently published updated RBMPs for England as part of the second cycle (2015 to 2021), as well as providing water body classification results from 2015 via the Environment Agency Catchment Data Explorer (http://environment.data.gov.uk/catchment-planning). The RBMPs were updated and published in December 2022 (third cycle) along with a set of Programme of Measures (PoMs) to be delivered by 2027. Hayling Island is located within the south east river basin district which is reported in the south east river basin district RBMP (Environment Agency, 2022).

Consideration of WFD requirements is necessary for works which have the potential to cause deterioration in ecological, quantitative and/or chemical status of a water body or to compromise improvements which might otherwise lead to a water body meeting its WFD objectives. Therefore, it is necessary to consider the potential for the Hayling Island Strategy

to impact WFD water bodies, specifically referring to the following environmental objectives of the WFD:

- **Prevent deterioration in status of all surface water bodies (Article 4.1 (a)(i));**
- **Protect, enhance and restore all surface water bodies with the aim of achieving good surface water status by 2015 or later assuming grounds for time limited derogation (Article 4.1 (a)(ii));**
- **Protect and enhance all HMWBs/AWBs, with the aim of achieving GEP and GCS by 2015 or later assuming grounds for time limited derogation (Article 4.1 (a)(iii));**
- **Reduce pollution from priority substances and cease or phase out emissions, discharges and losses of priority hazardous substances (Article 4.1 (a)(iv));**
- **Prevent or limit the input of pollutants into groundwater and prevent deterioration of the status of all groundwater water bodies (Article 4.1 (b)(i));**
- **Protect, enhance and restore all groundwater water bodies and ensure a balance between abstraction and recharge of groundwater (Article 4.1 (b)(ii));**
- **Ensure the achievement of objectives in other water bodies is not compromised (Article 4.8); and**
- **Ensure compliance with other community environmental legislation (Article 4.9).**

There is also a duty to enhance and restore waterbodies where possible and by implication there is a need to ensure that actions do not prevent currently failing waterbodies from reaching a GS or Potential. In order to meet the objectives, any activity which has the potential to have an impact on any of the quality elements must be assessed. The overall leading Strategy options will therefore be considered to ensure there are no future failures in meeting the Environmental Objectives, and any failures that do occur can be defended.

Each water body that could be impacted by delivery of the strategic management options have a suite of mitigation measures that have defined ecological potential. These were considered through the option selection process to ensure, where possible, that the leading options would not prevent the mitigation measures being implemented. Opportunities were actively sought to contribute to the mitigation measures. These mitigation measures are explored further as part of this WFD assessment.

3.1 North Solent Shoreline Management Plan

The North Solent SMP (2010) provides broad scale assessment of the coastal flooding and erosion risks and advice to operating authorities and private landowners on the management of their defences. The SMP covers 386km of coastline, extending from Selsey Bill in the east to Hurst Spit in the west, and includes Portsmouth, Langstone and Chichester Harbours, Southampton Water and the tidal extent of the main rivers within the SMP area (the Test, Itchen, Hamble and Meon).

Hayling Island is covered by eight SMP policy units as indicated in Table 3.1. As highlighted in orange in this table, the Strategy is proposing policy changes to ODU's 1b, 3 and 5b due to proposed managed realignment and ODU 2, 4 and 10 due to proposed resilience.

Table 3.1: Overview of the SMP policies, Strategy leading option and SMP changes

SMP Policy	Frontage	Strategy ODU	Strategy Leading Option	Change in Policy
5aHI01: Hold the Line	Langstone Bridge to Northney Farm	1 (a, b and c)	0-100 years: Sustain with managed realignment hybrid	Yes in part, as managed realignment in ODU 1b
	Northney Marina	2	0-100 years: Resilience	Yes – From hold the line to resilience
5aHI02 – Hold the Line (No Public Funding Available) (further detailed studies are required which consider whether MR may occur at Northney Farm in epoch 3)	Northney Farm to Chichester Road	3	0-100 years: Managed Realignment, sustain setback defences	Partly, bringing forward managed realignment
5aHI03 – Hold the Line (No Public Funding Available)	Chichester Road to Mill Rythe Junior School	4	0-100 years: Resilience	Yes – From hold the line to resilience –
	Mill Rythe Junior School to Salterns Lane	5	0-100 years: Managed Realignment, sustain setback defences	Yes, in part ODU5b managed realignment
5aHI04 – Hold the Line	Salterns Lane to Wilsons Boat Yard	6	0-50 years: Maintain existing defences 50-100 years: Improve new frontline defence	No
	Wilsons Boat Yard to Fishery Creek	7	0-100 years: Sustain new frontline defence	No
5aHI04 and 5aHI05 – Hold the Line	Eastoke	8	0-100 years: Sustain new defences	No
5AHI05: Hold the Line	Eastoke Corner to Inn on the Beach	9	0-100 years: Sustain new setback floodwall	No

5AHI05 and 5AHI06: Hold the Line (localised natural evolution at Gunner Point)	Inn on the Beach to North Shore Road	10	0-100 years: Resilience	Yes – From hold the line to resilience
5AHI06: Hold the Line	North Shore Road	11	0-100 years: Sustain new defences	No
5AHI07: No Active Intervention (with localised Hold the Line for Newtown)	North Shore Road to Newtown	12	0-100 years: Do Nothing	No
	Newtown	13	0-20 years: Maintain existing defences 20-100 years: Sustain new defences	No
5AHI07: No Active Intervention	Newtown to Stoke	14	0-100 years: Do Nothing	No
5AHI08: Hold the Line* (* further detailed studies to consider Managed Realignment at West Northney or Regulated Tidal Exchange at Stoke)	Stoke to Langstone Bridge Carpark	15	0-100 years: sustain new setback defence	No
	Langstone Bridge Carpark to Langstone Bridge	16	0-100 years: Sustain new frontline defence	No

3.2 North Solent SMP WFD Assessment

A WFD assessment was undertaken for the North Solent SMP (2010) which sets the framework for the future delivery of smaller- scale strategies.

A general set of WFD environmental objectives for all water bodies within the North Solent SMP were identified based on Article 4 of the Directive as described in **Table 3.2**.

Table 3.2: WFD environmental objectives

WFD1	**No change affecting high status**
WFD2	**No changes that will cause failure to meet surface water Good Ecological Potential or result in a deterioration of surface water Ecological Potential**
WFD3	**No changes which will permanently prevent or compromise the environmental objectives being met in other waterbodies**

WFD4	**No changes that will cause failure to meet Good groundwater status or result in a deterioration in groundwater status**

There are currently no High Status Water Bodies within the North Solent SMP area. Hence, no further consideration of WFD1 and the impact of SMP policy on high status Water Bodies was undertaken. The North Solent SMP WFD considered that policies which will modify coastal, estuarine and groundwater processes will only do so in localised areas. Therefore, cumulative changes in coastal, estuarine and groundwater processes along frontages adjacent to but outside the SMP were not expected as a result of SMP policies. Hence WFD Environmental Objective 3 was met. In relation to changes to groundwater (WFD4) ,MR and NAI policies were recognised to have the potential to result in a change in the land areas that are tidally inundated. However, none of the policy units with MR or NAI policies overlie a groundwater outer source protection Zone (SPZ 3). Consequently, at the water body scale, all of the groundwater Water Bodies within the North Solent SMP were considered not at risk of saline intrusion. Therefore, WFD environmental objective 4 was not considered further.

The North Solent SMP WFD focused on WFD2 and concluded that for some Policy Units 'Protect, enhance and restore all bodies of surface water, with the aim of achieving Good surface water status in 2015', would not be met by the proposed policy. A Summary Statement was therefore completed for each of the waterbodies, which could be adversely affected by the proposed policy. The Summary Statement outlined the reasons behind selecting the final SMP policy and any mitigation measures that have been incorporated into the policies.

In effect, for each waterbody where a failure to meet one of the WFD environmental objectives has been recorded, the Summary Statement concludes that there is overriding public interest, no environmentally better options which would meet the required public interest and no significant effects on any internationally designated nature conservation site, designated fishery or shellfishery.

3.3 Approach to WFD

The Environment Agency has published guidance ("Clearing the Waters for All") regarding how to assess the impact of activities in transitional and coastal waters for the WFD[1]. This guidance sets out the following three discrete stages to WFD assessments:

1. **Screening: excludes any activities that do not need to go through the scoping or impact assessment stages;**
2. **Scoping: identifies the receptors that are potentially at risk from an activity and need impact assessment; and**
3. **Impact Assessment: considers the potential impacts of an activity, identifies ways to avoid or minimise impacts, and indicates if an activity may cause deterioration or jeopardise the water body achieving GS.**

This strategy-level WFD assessment addresses Stage 1 Screening and Stage 2 Scoping (Section 4 and 5 of this report). A high level appraisal of potential impacts of the strategy options (Stage 3) (Section 6 of this report) has also been undertaken, sufficient to determine whether they present a risk to the quality status of any water body and where a more detailed

[1] https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters (Accessed January 2022).

assessment is needed for any specific activity. However, overall it is recommended that should any Strategy proposal progress to scheme stage, a more detailed WFD assessment will be required when more information on the design is available.

This assessment draws on key guidance provided by the Environment Agency (including the Clearing the Waters for All guidance, and Water Framework Directive risk assessment: how to assess the risk of your activity), UKTAG (UK Technical Advisory Group) and The Planning Inspectorate (PINS) Advice Note 18 (PINS, 2017).

4 WFD Screening (Stage 1)

The aim of this stage is to identify the extent to which the proposals are likely to affect the water bodies and to identify what activities should go through the scoping or impact assessment stages. This section therefore:

- Defines which policy units have been screened in for further assessment, considering the activities that may result from implementation of the Strategy that could directly or indirectly impact water bodies.
- Identifies the relevant water bodies (surface and groundwater) that could be directly or indirectly impacted by the Strategy and defines which water bodies have been screened in for further assessment.

4.1 Screening of ODUs

Table 4.2 identifies whether ODUs are screened in or out of further consideration in this WFD assessment.

ODUs have been screened out of further assessment due to the following criteria:

- **Existing WFD assessment -** The current guidance advises that if activities are low risk or represent a continuation of an activity undertaken between 2009 and 2014 and have an existing WFD assessment these may be excluded from further assessment. Although all frontages within this Strategy are included within the SMP and therefore there is an over-arching WFD assessment in place covering the preferred SMP policy, the Strategy considers the implementation of the policy therefore this assessment has reassessed the proposals.

- **Do nothing approaches** - Where the SMP policy is no active intervention and the Strategy proposes an approach of do nothing, it is considered that this supports the natural functioning of the coast or estuary. Therefore, deterioration in ecological status is considered unlikely and no further assessment has been undertaken. Whilst the details associated with any properties to be potentially lost at sea are yet to be confirmed they are anticipated to be demolished in advance and will be managed to ensure no deterioration of WFD water bodies.

- **Managed realignment approaches** – There are no ground water bodies on Hayling Island and consequently only surface water is considered further. For surface waterbodies it is considered that although this could have impacts on elements of the water body, the overall intent of the policy is for habitat creation or improvement and as such this supports the natural functioning of the coast or estuary. Therefore,

deterioration in ecological status is considered unlikely and no further assessment has been undertaken.

- **Exempt activities -** certain activities that are considered by the Environment Agency not to require assessment as they are unlikely to cause deterioration or result in a waterbody failing to achieve WFD status/potential objectives. These are listed in the **Table 4.1** below.

Table 4.1: Types of modification not requiring WFD assessment

Maintenance activities	Re-pointing (block work structures)
	Void filling ('solid' structures)
	Re-positioning (rock or rubble or block work structures)
	Replacing elements (not whole structure)
	Re-facing
	Skimming/covering
	Blockage removal
	Removal of management of in-stream debris/rubbish from culverts and trash screens (not woody debris)
	Vermin control
Linear flood defences	Temporary flood defences

Table 4.2 identifies potential activities that have been screened in or out of further assessment.

Table 4.2: Screening of ODUs

ODU and overall leading option	**Comments**	**Screened in or out**
1 - Langstone Bridge to Northney Farm **Sustain 0.5% AEP with Managed Realignment Hybrid**	This ODU is split into three discrete sections. The leading option proposes the construction of a frontline floodwall on the west (including in front of the access road to Langstone Quays Resort) at ODU1a, a setback embankment on the east at ODU1b and frontline protection of the historic landfill at ODU1c. Create intertidal habitat in front of the setback defences on the east side along ODU1b. Consequently ODU1b is screened out as the habitat creation will support the natural functioning of the coast or estuary. ODU 1a and 1b however is screened in where no habitat creation is proposed.	ODU1b out and ODU 1a and 1c in
2 - Northney Marina **Resilience**	The leading option involves Property Flood Resilience (PFR) measures as well as patch and repair of the of the existing defences. Best practice measures would be followed for any maintenance. A do nothing approach will be followed where there are no formal defences. The leading option would therefore not cause any change or deterioration to the water body and does not require further consideration.	Out
3 - Northney Farm to Chichester Road	The leading option involves constructing new setback defences which would be raised overtime to keep pace with sea level rise. New intertidal	Out

Sustain 0.5% AEP with Managed Realignment - setback defence	habitat would also be created as supported by the SMP policy for this area. Consequently the natural functioning of the coast or estuary is likely to be improved and deterioration of the water body unlikely. This ODU is therefore screened out of further assessment.	
4 - Chichester Road to Mill Rythe Junior School **Resilience**	PFR measures as well as patch and repair of the of the existing frontline defence would not cause any change or deterioration to the water body. Best practice measures would be followed for any maintenance and this leading option will also help to protect three historic landfills (Yachthaven, Mill Rythe and land at Fleet) from flooding and coastal erosion. This ODU is therefore screened out of further assessment.	Out
5 - Mill Rythe Junior School to Salterns Lane **Sustain 1.33% AEP with Managed Realignment**	This ODU is split into three discrete sections. The leading option proposes construction of a setback embankment, with habitat creation in front of the defences along ODU5b and maintain and raise defences along ODU5a and ODU5c. ODU5b scoped out as the habitat creation will supports the natural functioning of the coast or estuary. ODU 5a and 5b however scoped in where no habitat creation is proposed.	ODU5b out and ODU5a and 5c in
6 - Salterns Lane to Wilsons Boat Yard **Maintain then Improve 0.5% AEP from year 50**	Maintenance and PFR in epoch 1 and 2 would not cause any change or deterioration to the water body. However, in 50 years new defences are proposed and consequently this ODU is screened in for further assessment.	In
7 - Wilsons Boat Yard to Fishery Creek **Sustain 0.5% AEP - frontline defence**	The leading option involves constructing new defences in epoch 1 and consequently this ODU is screened in for further assessment.	In
8 – Eastoke **Sustain 0.5% AEP - Rock revetment/floodwall/setback floodwall**	The leading option involves constructing new defences in epoch 1 and consequently this ODU is screened in for further assessment.	In
9 - Eastoke Corner to Inn on the Beach **Sustain 0.5% AEP - Maintain Inn on the Beach**	The leading option involves constructing new defences in epoch 1, with additional lengths added in epoch 2 and 3. Consequently this ODU is screened in for further assessment.	In
10 - Inn on the Beach to North Shore Road **Resilience**	PFR measures as well as patch and repair would not cause any change or deterioration to the water body. Best practice measures would be followed for any maintenance. This ODU is therefore screened out of further assessment.	Out
11 - North Shore Road **Sustain 1.33% AEP**	The leading option involves constructing new defences in epoch 1. Consequently this ODU is screened in for further assessment.	In
12 - North Shore Road to Newtown **Do Nothing**	The leading option of 'do nothing' would allow the coastline to naturally evolve and would therefore not cause any deterioration to WFD objectives. This ODU is therefore screened out of further assessment.	Out
13 – Newtown **Sustain from year 20 (Maintain then Sustain) 0.5% AEP**	The leading option involves maintaining existing defences in epoch 1 and 2 until year 20. New defences will then be phased and raised over time to keep pace with sea level rise. This ODU is therefore screened in for further assessment.	In
14 - Newtown to Stoke **Do Nothing**	This option involves allowing the coastline to naturally evolve with the existing defences likely to fail within 10 years. This option would therefore not	Out

	cause any deterioration to WFD objectives and is screened out of further assessment.	
15 - Stoke to Langstone Bridge Carpark **Sustain 0.5% AEP - setback defence**	This option involves constructing new setback embankment in epoch 1 in combination with maintain defences in front of historic landfill and is therefore screened in for further assessment.	In
16 - Langstone Bridge Carpark to Langstone Bridge **Sustain 0.5% AEP - Frontline defence**	The leading option involves constructing new frontline defences in epoch 1. This ODU is therefore screened in for further assessment.	In

4.2 Screening of Waterbodies

The following water bodies are located adjacent to or overlap with the Hayling Island Strategy and are therefore screened into this report for further assessment:

- Chichester Harbour (GB580705210000) – East of Hayling Island
- Isle of Wight East (GB650705530000) – Southern Eastern Tip of Haying Island
- Solent (GB650705150000) – South of Hayling Island
- Langstone Harbour (GB580705130000) – West of Hayling Island
- Langstone Oysterbeds (GB510070073000) – North west of Hayling Island

The location of these waterbodies in relation to each ODU is shown in **Figure 5**.

Hayling Island also overlaps with the following Groundwater Bodies:

- South East Hants Bracklesham Group; and
- Hants South Lambeth Group.

It is considered unlikely that the Strategy would cause a significant effect or cause deterioration in status of these ground water bodies. Key risks to the status of these water bodies, in relation to coastal management, are the potential for saline intrusion and contamination. Saline intrusion is a particular risk where implementing managed realignment or no active intervention policies. However, as noted above ODUs including managed realignment have already been screened out of further assessment, as the overall intent would be to improve natural functioning of the system. At scheme design for managed realignment, further appraisal will be undertaken to ensure that the design takes account of this risk. For other ODUs, contamination could be a risk during construction stages, but this would be managed at scheme stage through best practice measures.

There are no works proposed as part of implementation of the Strategy that would involve construction of new structures within rivers. Managed realignment and do nothing policies have been screened out of further assessment as the intent is for a more natural functioning system. Implementation of hold the line options mainly involves maintenance or improvement of existing defences within existing footprints, therefore associated activities are not anticipated to impact on the status of fluvial water bodies. Further WFD appraisal may be required during scheme design stage to ensure that any related culverts are not blocked or affected by coastal defences works.

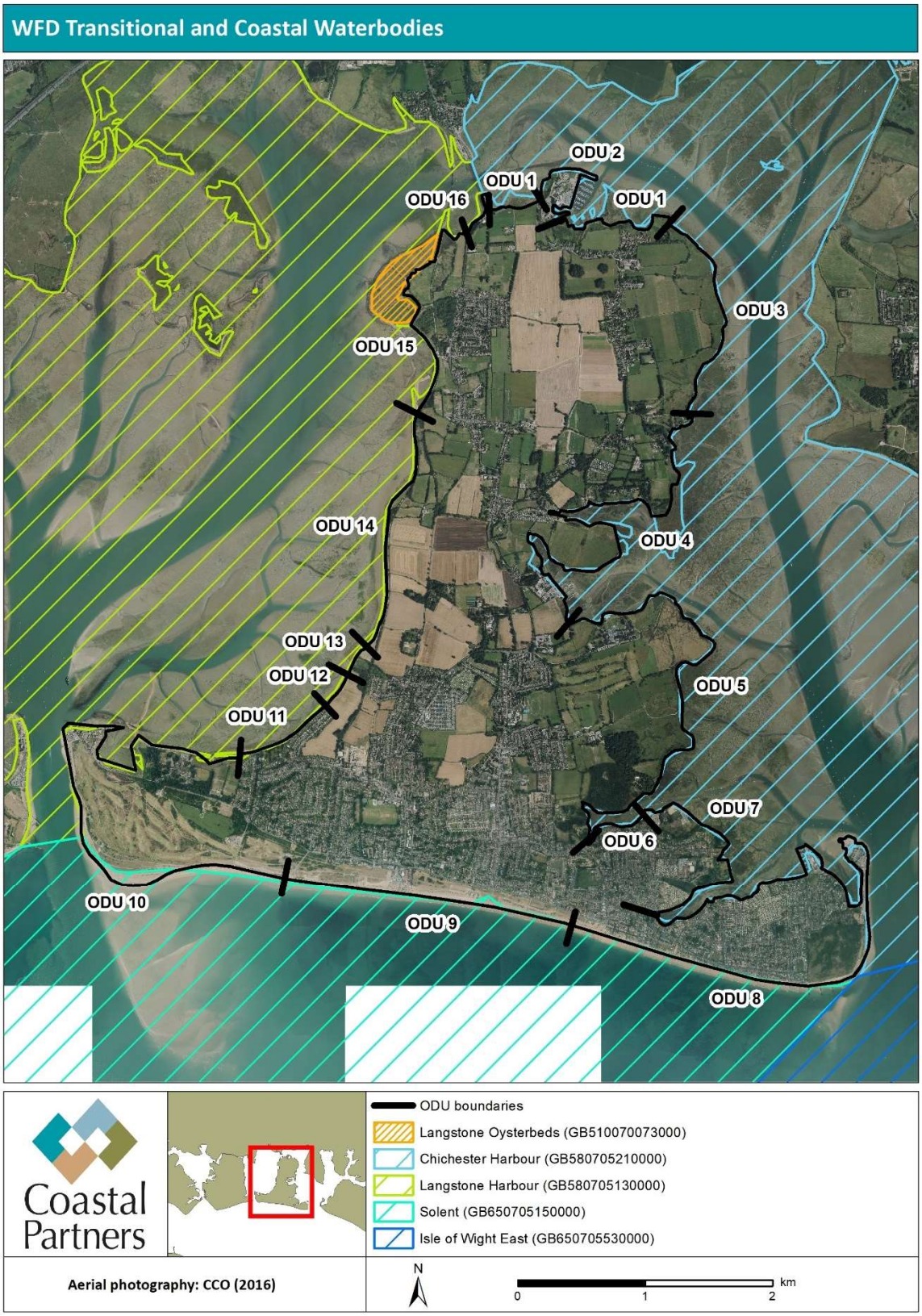

Figure 5 location of waterbodies in relation to each ODU

Table 4.3 – 4.7 provides a summary of the water bodies that have been screened in for further assessment. These tables include details on the current water body status (overall, ecological

and chemical) and any parameters currently failing to achieve good status. The complete scoping templates for all water bodies is provided in **Appendix B.** These scoping tables have been updated since submission as part of the scoping opinion in May 2021, to reflect the current understanding of the proposed works anticipated as part of the Strategy.

Table 4.3: Chichester Harbour water body overview

Water body	Description, notes or more information
WFD water body name	Chichester Harbour
Water body ID	GB580705210000
River basin district name	South East River Basin District
Water body type (estuarine or coastal)	Transitional[2]
Water body total area (ha)	3031.685
Overall water body status (2019)	Moderate. The reasons for not achieving good also includes physical modifications/classification element associated with coastal protection use.
Ecological status (2019)	Moderate
Chemical status (2019)	Fail
Target water body status and deadline	Good (2027) Low confidence
Hydromorphology status of water body	Supports good
Heavily modified water body and for what use	Heavily modified – for coastal protection, navigation, ports and harbours.
Higher sensitivity habitats present	Intertidal seagrass (111.01 ha), Saltmarsh (332.75), Subtidal seagrass (0.41)
Lower sensitivity habitats present	Intertidal soft sediment (1612.24 ha), Rocky shore (1.66ha), subtidal rocky reef (0.01) ha and subtidal soft sediments (961.25 ha)
Phytoplankton status	High
History of harmful algae	No
WFD protected areas within 2km	Overlaps/adjacent to protected areas including: • The Solent Maritime Special Area Conservation (SAC) (Habitats and Species Directive) • Chichester and Langstone Harbours and Solent and Dorset Coast Special Protection Area (SPA) (Wild Birds Directive)

[2] Transitional in accordance with the EA Catchment explorer https://environment.data.gov.uk/catchment-planning/WaterBody/GB580705210000. Estuarine in accordance with the water body summary table https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters (last accessed 04 2022)

Water body	Description, notes or more information
	• The Langstone Harbour and Chichester Harbour (Emsworth Channel) eutrophic coastal sensitive (Urban Waste Water Treatment Directive and Nitrates Directive) • The Langstone Harbour and Chichester Harbour Shellfish Waters area (Shellfish Water Directive)

Table 4.4: Isle of Wight East water body overview

Water body	Description, notes or more information
WFD water body name	Isle of Wight East
Water body ID	GB650705530000
River basin district name	South East River Basin District
Water body type (estuarine or coastal)	Coastal
Water body total area (ha)	26491.46
Overall water body status (2019)	Good
Ecological status (2019)	Good
Chemical status (2019)	Fail
Target water body status and deadline	Good (2015)
Hydromorphology status of water body	Not assessed
Heavily modified water body and for what use	Heavily modified – for coastal protection, and flood defence
Higher sensitivity habitats present	Chalk reef (8847.33 ha), Intertidal seagrass (0.81 ha), Maerl (22.63 ha), Mussel beds, including blue and horse mussel (557.87 ha), Subtidal kelp beds (42.66 ha)
Lower sensitivity habitats present	Cobbles, gravel and shingle (822.08 ha), Intertidal soft sediment (206.04 ha), Rocky shore (75.75 ha), subtidal rocky reef (10304.64 ha), subtidal soft sediments (5344.56 ha)
Phytoplankton status	-
History of harmful algae	Not monitored
WFD protected areas within 2km	Overlaps/adjacent to protected areas including: • The Solent Maritime Special Area Conservation (SAC) (Habitats and Species Directive) • Chichester and Langstone Harbours and Solent and Dorset Coast Special Protection Area (SPA) (Wild Birds Directive)

Water body	Description, notes or more information
	• The Chichester Harbour (Emsworth Channel) eutrophic coastal sensitive (Urban Waste Water Treatment Directive and Nitrates Directive)

Table 4.5: Solent Water Body Overview

Water body	Description, notes or more information
WFD water body name	Solent
Water body ID	GB650705150000
River basin district name	South East River Basin District
Water body type (estuarine or coastal)	Coastal Water
Water body total area (ha)	25993.588
Overall water body status (2019)	Moderate
Ecological status (2019)	Moderate
Chemical status (2019)	Fail
Target water body status and deadline	Moderate (2015)
Hydromorphology status of water body	Not assessed
Heavily modified water body and for what use	HMWB (coastal protection, flood protection and navigation ports and harbours)
Higher sensitivity habitats present	Chalk reef (3308.84 ha), Intertidal seagrass (141.34ha), mussel beds (0.80 ha), Saltmarsh (132.87), subtidal kelp (111.65), subtidal seagrass (186.05ha)
Lower sensitivity habitats present	Cobbles gravel and shingle (129.48 ha), intertidal soft sediment (1496.88) ha, rocky shore (80.05ha), Subtidal rocky reef (40.77 ha) and subtidal soft sediments (11772.25 ha)
Phytoplankton status	Good
History of harmful algae	No
WFD protected areas within 2km	Overlaps/adjacent to protected areas including: • The Solent Maritime Special Area Conservation (SAC) (Habitats and Species Directive) • Chichester and Langstone Harbours and Solent and Dorset Coast Special Protection Area (SPA) (Wild Birds Directive)

Water body	Description, notes or more information
	• The Langstone Harbour and Chichester Harbour (Emsworth Channel) eutrophic coastal sensitive (Urban Waste Water Treatment Directive and Nitrates Directive) • The Langstone Harbour Shellfish Waters area (Shellfish Water Directive)

Table 4.6: Langstone Harbour water body overview

Water body	Description, notes or more information
WFD water body name	Langstone Harbour
Water body ID	GB580705130000
River basin district name	South East River Basin District
Water body type (estuarine or coastal)	Transitional
Water body total area (ha)	1902.686
Overall water body status (2019)	Moderate. The reasons for not achieving good also includes physical modifications/classification element associated with coast and flood protection use.
Ecological status (2019)	Moderate
Chemical status (2019)	Fail
Target water body status and deadline	Good (2027) Low confidence
Hydromorphology status of water body	Supports good
Heavily modified water body and for what use	Heavily modified – for coastal protection, and flood defence
Higher sensitivity habitats present	Intertidal seagrass (130.8 ha), saltmarsh (72.67 ha), subtidal seagrass (0.18 ha)
Lower sensitivity habitats present	Cobbles, gravel and shingle (24.94 ha), intertidal soft sediment (1388.93 ha), rocky shore (10.85 ha), subtidal soft sediments (382.67 ha).
Phytoplankton status	-
History of harmful algae	Yes
WFD protected areas within 2km	Overlaps/adjacent to protected areas including: • The Solent Maritime Special Area Conservation (SAC) (Habitats and Species Directive)

Water body	Description, notes or more information
	• Chichester and Langstone Harbours and Solent and Dorset Coast Special Protection Area (SPA) (Wild Birds Directive) • The Langstone Harbour and Chichester Harbour (Emsworth Channel) eutrophic coastal sensitive (Urban Waste Water Treatment Directive and Nitrates Directive) • The Langstone Harbour and Chichester Harbour Shellfish Waters area (Shellfish Water Directive)

Table 4.7: Langstone Oysterbeds water body overview

Water body	Description, notes or more information
WFD water body name	Langstone Oysterbeds
Water body ID	GB510070073000
River basin district name	South East River Basin District
Water body type (estuarine or coastal)	Transitional
Water body total area (ha)	15.938
Overall water body status (2019)	Moderate
Ecological status (2019)	Good
Chemical status (2019)	Fail
Target water body status and deadline	Good (2027) Low confidence
Hydromorphology status of water body	Artificial[3]
Higher sensitivity habitats present	Saltmarsh (0.70 ha)
Lower sensitivity habitats present	Intertidal Soft Sediment (17.37 ha)[4] and Rockyshore (Intertidal rock A1) and Gravel and Cobbles (intertidal and subtidal coarse sediment A2.1, A5.1)[5]
Phytoplankton status	-
History of harmful algae	Not monitored

[3] Artificial in accordance with the EA Catchment explorer https://environment.data.gov.uk/catchment-planning/WaterBody/GB510070073000. Heavily modified water body for flood protection in accordance with the water body summary table https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters

[4] Intertidal soft sediment only in accordance with the water body summary table https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters.

[5] Rockyshore/Gravel and Cobbles noted on https://magic.defra.gov.uk/MagicMap.aspx WFD mapping

Water body	Description, notes or more information
WFD protected areas within 2km	Overlaps/adjacent to protected areas including: • Langstone Harbour Shellfish Waters (Shellfish Waters Directive) • Solent Maritime Special Area Conservation (SAC) (Habitats and Species Directive), • Langstone Harbour eutrophic coastal sensitive areas (Urban Waste Water Treatment Directive) • Chichester and Langstone Harbours Special Protection Area (SPA)(Conservation of Wild Birds Directive)

All these water bodies are currently classified as moderate status overall and did fail to achieve good chemical status in 2019, specifically from levels of mercury and its compounds and Polybrominated diphenyl ethers (PBDE). However, there is no connection of these failures with flood or costal protection use and measures have been delivered to address reasons for these failures and recovery is awaiting[6]. In addition for both Solent and Langstone Harbour water bodies reasons for not achieving good status include investigations associated with physical modifications from flood protection structures or coastal squeeze on angiosperms, specifically a moderate status for saltmarsh.

5 WFD Scoping (Stage 2)

The Environment Agency's "Clearing the Water for All" guidance provides a scoping template (**Appendix B)** to record findings and consider potential risks for the following key receptors, specifically:

- Hydromorphology
- Biology (Habitats)
- Biology (Fish)
- Water quality
- Protected areas
- Invasive non-native species (INNS)

Table 5.1 summarises receptors that have been scoped in for each waterbody Reference should be made to **Appendix B** for further details. These scoping tables have been updated since submission as part of the scoping opinion in May 2021, to reflect the current understanding of the proposed works anticipated as part of the Strategy.

[6] https://environment.data.gov.uk/catchment-planning (Last accessed 0323)

Table 5.1: Summary of receptors scoped in for each water body

Receptor	Solent water body	Chichester Harbour water body	IoW East water body	Langstone Oysterbeds water body	Langstone water body
Hydromorphology	Yes	Yes	Yes	Yes	Yes
Biology: habitats	Yes	Yes	No	Yes	Yes
Biology: fish	No – not at Strategy-level				
Water Quality	No – not at Strategy-level				
Protected area	Yes	Yes	Yes	Yes	Yes
Invasive Non-Native species	No – not at Strategy-level				

6 WFD impact assessment (Stage 3)

Stage 3 involves a high level impact assessment for each receptor identified during scoping (stage 2) as being at risk from the leading option. This has been undertaken for each water body identified during stage 1 and considers the screened in ODUs.

The South East River Basin Management Plan (RBMP) has set a series of mitigation measures for waterbodies to bring them up to Good Potential/Status. The RBMP concluded that it is disproportionately expensive and technically infeasible to achieve Good Potential/Status by 2015, hence the target for attainment of Good Potential/Status is 2027. When assessing the impacts of the Strategy against WFD, the ability of the measures to be delivered in the future needs to be considered, so as not to compromise future Good Potential/Status within the waterbodies. The mitigation measures identified by the RBMP that would be required to reach Good Potential/Status are given below in **Table 6.1**. This WFD assessment will present an impact assessment, that will confirm whether or not the preferred strategic management options could prevent any of these mitigation measures being delivered in the future, to confirm whether delivery of the policy could prevent the water bodies meeting good potential / status by 2027. It will also identify opportunities to deliver elements of the mitigation measures.

Table 6.1: Water Body Mitigation Measures[7]

Water Body	Mitigation measure identified
Chichester Harbour	Vessel Management
	Dredging disposal strategy
	Retime dredging or disposal
	Dredge disposal site selection
	Manage disturbance
Solent	Sediment management (Flood and coast protection use)
	Manage disturbance (Flood and coast protection use)

[7] Mitigation measures obtained from 'mitigation measures table' https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters (Last accessed March 2023)

Langstone	N/A
Langstone Oysterbeds	N/A
Isle of Wight East	Sediment management (Flood and coast protection use)
	Dredge disposal site selection (Flood and coast protection use)
	Manage disturbance (Flood and coast protection use)
	Remove obsolete structure (Flood and coast protection use)
	Bank rehabilitation (Flood and coast protection use)

The following sections provide a impact assessment for each water body including consideration of the mitigation measures where applicable.

6.1.1 Chichester Harbour Water Body

ODU 1 (a and c only) and ODU 5 a and c, 6-8 are located within Chichester Harbour Water body and have been screened in for further assessment (see Section 4). **Table 6.2** provides a impact assessment of receptors and considered if deterioration on the water body can be avoided and if any mitigation measures and the good status will be jeopardised.

Table 6.2: Impact Assessment for Chichester Harbour water body

Receptor and current status (2019)	Impact assessment	Can deterioration of the water body status be avoided?	Will impact jeopardise mitigation measures?	Will impact jeopardise good status
Biological (habitats) • Invertebrates (Good) • Macroalgae (good) • Phytoplankton (High) Higher sensitivity habitats • Intertidal seagrass (130.8 ha) • Saltmarsh (72.67 ha) • Subtidal seagrass (0.18 ha)	New defences are proposed within ODU 1 and ODU 6-8. Higher sensitivity habitats fringe these ODUs notably saltmarsh (A2.5) adjacent to the coastline and intertidal seagrass beds (A2.61) which are generally slightly further offshore. However, defence works within the water body will be limited to the toe of the existing defences or at the back of the beach which will minimise any direct footprints on these habitats. In addition, this option provides increased protection to the historic landfill sites at Fishery Creek and land at former Oyster beds, Selsmore from erosion. Consequently, there is the potential for positive indirect impacts associated with the prevention of potential contamination on sensitive receptors.	Yes - Implementation of the Strategy involving any works that extend the footprints seawards will be designed to minimise encroachment on higher sensitivity habitats, specifically saltmarsh and seagrass. Mitigation will be used where possible such as plug planting new defences with saltmarsh plants to encourage colonisation. A scheme level WFD is likely to be required which will more precisely define the potential effects of the works together with project level mitigation measures when the scale and nature of the works are known.	No – the leading option is not anticipated to impact on mitigation measures which are focused on navigation, ports and harbour use only.	No - The leading option is not predicted to cause either deterioration to the current status of the water body nor prevent the water body from achieving future WFD status objectives.
Hydromorphology (Supports good)	Where new defences are required, these will be along the toe of existing or set back where possible and are unlikely to significantly impact on the hydrology and morphology of the water body.			
Protected Areas Overlaps/adjacent to protected areas including: • The Solent Maritime Special Area Conservation SAC	The proposed works overlap and are adjacent to the Chichester Harbour Shellfish Waters (Emsworth channel). However, defence works will be at the toe of existing defences or set back which will minimise	The AA concluded that there would be an adverse impact on the Solent Maritime SAC and Chichester and Langstone Harbours SPA resulting in the loss of intertidal habitats (including both mudflats and saltmarsh) due to HTL		

• Chichester and Langstone Harbours and Solent and Dorset Coast SPA • Chichester Harbour Shellfish Waters	any direct footprints on these habitats. Temporary impacts will be controlled by best practice measures e.g., pollution prevention measures put in place to minimise the risks of incidents.	policies ODU 1a and 1c, ODU 5a and 5c, ODU6, ODU7 and ODU8. However, this loss has been accounted for in the overarching North Solent (NS) SMP since there is no change in the Strategy policies compared to the NS SMP for these frontages. Compensation has been agreed and will be secured through the Habitat Creation and Restoration Programme (HCRP). The AA further concluded that there would be an adverse impact on Solent Maritime SAC resulting in an estimated loss of 1.02 ha of vegetated shingle over the Strategy period due to HTL policy for ODU 8. The AA concluded that compensation for vegetated shingle can be delivered through adequate management as individual planning applications at the ODU level are progressed. No impact on shellfish waters are anticipated. Standard mitigation measures will be defined at scheme design stage when detailed construction methods are known		

6.1.2 Isle of Wight East Water Body

A relatively short section of ODU 8 overlaps with the Isle of Wight East Water body which has been scoped in for further assessment (see Section 4). **Table 6.3** provides a impact assessment of receptors and considered if significant impact on the water body can be avoided and if any mitigation measures and the good status will be jeopardised.

Table 6.3: Impact Assessment for Isle of Wight water body

Receptor and current status (2019)	Impact assessment	Can deterioration of the water body status be avoided?	Will impact jeopardise mitigation measures?	Will impact jeopardise good status
•		Yes - Coastal modelling will be undertaken to assess changes in hydromorphology and habitats where required. A scheme level WFD is likely to be required which will more precisely define the potential effects of the works together with any project level mitigation measures when the scale and nature of the works are known.	No – Mitigation measures relate to flood and coastal protection use. However, considering the small scale of the works, the leading option is not anticipated to impact on mitigation measures. A benefit may occur from the removal of obsolete structures with the replacement of groynes	No - The leading option is not predicted to cause either deterioration to the current status of the water body nor prevent the water body from achieving future WFD status objectives.
Hydromorphology (Not assessed)	Where new defences are required, these will be along the toe of existing or set back where possible and are unlikely to significantly impact on the hydrology and morphology of the water body.			
Protected Areas • The Solent Maritime Special Area Conservation SAC • Chichester and Langstone Harbours and Solent and Dorset Coast SPA	There are no shellfish waters within this waterbody and the nearest bathing water is approximately 2km east in West Wittering's. Considering the small overlap of the leading option with this water body no impacts on	The AA concluded that there would be an adverse impact on the Solent Maritime SAC and Chichester and Langstone Harbours SPA resulting in the loss of intertidal habitats due to HTL policy for ODU8. However, this loss has been accounted for in the overarching NS SMP since		

	bathing waters are anticipated.	there is no change in the Strategy policy compared to the NS SMP for this frontage. Compensation has been agreed and will be secured through the HCRP. The AA further concluded that there would be an adverse impact on Solent Maritime SAC resulting in an estimated loss of 1.02 ha of vegetated shingle over the Strategy period due to HTL policy for ODU 8. The AA concluded that compensation for vegetated shingle can be delivered through adequate management as individual planning applications at the ODU level are progressed.		

6.1.3 Solent Water Body

ODU 8 and 9 overlap with Solent Water body and have been scoped in for further assessment (see Section 4). **Table 6.4** provides an impact assessment of receptors and considered if significant impact on the water body can be avoided and if any mitigation measures and the good status will be jeopardised

Table 6.4: Impact Assessment for Solent water body

Receptor and current status (2019)	Impact assessment	Can deterioration of the water body status be avoided?	Will impact jeopardise mitigation measures?	Will impact jeopardise good status
Biological (habitats) • Angiosperms (moderate) • Invertebrates (Good) • Macroalgae (Good) • Phytoplankton (Good) Higher sensitivity habitats • Chalk reef (3308.84 ha) • Intertidal seagrass (141.34ha) • Mussel beds (0.80 ha) • Saltmarsh (132.87) • Subtidal kelp (111.65) • Subtidal seagrass (186.05ha)	New defences are proposed within ODU 8 and 9. ODU 8 will be split into different areas to implement defences including a combination of rock revetments, crest raising, floodwalls and setback floodwall. The area overlapping with this water body (Area A, Open Coast, from the eastern end of the Hayling Seaside Railway to the eastern end of Southwood) will involve rock revetment with beach management. ODU 9 will involve the construction of a new setback floodwall and capital refurbishment. Inn on the Beach currently acts as a terminal groyne which allows sediment to accumulate; it holds the beach in place on the east side, and is therefore an important control feature for longshore sediment transport and retaining the beach profile. As such, it is necessary to either maintain the existing defences at Inn on the Beach or replace them with other structures in order to prevent the sediment dynamics from changing. This option would involve capital refurbishment of the defences in front of Inn on the Beach with continued beach nourishment and recycling to regulate the accumulation. All	Yes – Best practice measures such as pollution management will be used to prevent impacts on angiosperms, invertebrates, macroalgae and phytoplankton . Coastal modelling will be undertaken to assess changes in hydromorphology and habitats where required. A scheme level WFD is likely to be required which will more precisely define the potential effects of the works together with any project level mitigation measures when the scale and nature of the works are known.	No – Mitigation measures relate to flood and coastal protection use. However, considering the small scale of the works, the leading option is not anticipated to impact on mitigation measures.	No - The leading option is not predicted to cause either deterioration to the current status of the water body nor prevent the water body from achieving future WFD status objectives.

	groynes in the east of the area would be replaced with new rock groynes, maintaining the existing size of the groyne field. Subtidal kelp beds (A3.21, A3.22, A3.31, A3.32, A5.52) are within approximately 100m of the coast which are a higher sensitivity habitat. However, defence works will be at the toe of existing defences or at the back of the beach. Which will minimise any direct footprints on these habitats. The scheme will also be designed to minimise indirect effects from changes in physical processes.			
Hydromorphology (Not assessed)	Where new defences are required, these will be along the toe of existing or set back where possible and are unlikely to significantly impact on the hydrology and morphology of the water body.			
Protected Areas • The Solent Maritime Special Area Conservation SAC • Chichester and Langstone Harbours and Solent and Dorset Coast Special Protection Area SPA • The Langstone Harbour Shellfish Waters	The north west of this water body has a minor overlap with the Langstone harbour shellfish water area. However, this shellfish water is over 1.5km west of any proposed works in ODU9. Considering this distance and the nature of proposed works no impacts on shellfish water are anticipated. The leading option is adjacent and overlapping with bathing waters at Eastoke, beachlands central and west.	The AA concluded that there would be an adverse impact on the Solent Maritime SAC and Chichester and Langstone Harbours SPA resulting in the loss of intertidal habitats due to HTL policies for ODU8 and ODU9. However, this loss has been accounted for in the overarching NS SMP since there is no change in the Strategy policies compared to the NS SMP for these frontages. Compensation has been agreed and will be secured through the HCRP. The AA further concluded that there would be an adverse impact on Solent Maritime SAC resulting in an estimated loss of 1.02 ha of		

		vegetated shingle over the Strategy period due to HTL policy for ODU 8. The AA concluded that compensation for vegetated shingle can be delivered through adequate management as individual planning applications at the ODU level are progressed. Best practice measures such as pollution management will be used to prevent any significant impact on bathing waters. A scheme level WFD is likely to be required which will more precisely define the potential effects of the works together with any project level mitigation measures when details of the scale and extent of the works are known.		

6.1.4 Langstone Harbour Water Body

ODU 11, 13, 15 and 16 overlap with Langstone Harbour Water body and have been scoped in for further assessment (see Section 4). **Table 6.5** provides an impact assessment of receptors and considered if significant impact on the water body can be avoided and if any mitigation measures and the good status will be jeopardised.

Table 6.5: Impact Assessment for Langstone Harbour water body

Receptor and current status (2019)	Impact assessment	Can deterioration of the water body status be avoided?	Will impact jeopardise mitigation measures?	Will impact jeopardise good status
Biological (habitats) • Angiosperms (moderate) • Invertebrates (Good) • Macroalgae (Good) • Phytoplankton (High) Higher sensitivity habitats • Intertidal seagrass (130.8ha) • Saltmarsh (72.67ha) • Subtidal Seagrass (0.18ha)	New defences are proposed within ODU 11,13,15 and 16. Higher sensitivity habitats fringe these ODUs notably Intertidal seagrass and saltmarsh. However, defence works will be at the toe of existing defences or setback which will minimise any direct footprints on these habitats. In addition this option provides increased protection to the historic landfill site west of the old railway. Consequently there is the potential for positive indirect impacts associated with the prevention of potential contamination on sensitive receptors.	Yes – Best practice measures to such as pollution management will be used to prevent impacts on angiosperms, invertebrates, macroalgae and phytoplankton . A scheme level WFD is likely to be required which will more precisely define the potential effects of the works together with any project level mitigation measures when the scale and nature of the works are known.	N/A - No mitigation measures are identified for this water body	No - The leading option is not predicted to cause either deterioration to the current status of the water body nor prevent the water body from achieving future WFD status objectives.
Hydromorphology (supports good)	Where new defences are required these will be along the toe of existing or set back where possible and are unlikely to significantly impact on the hydrology and morphology of the water body.			
Protected Areas • The Solent Maritime Special Area Conservation SAC • Chichester and Langstone Harbours and Solent and Dorset Coast SPA • The Langstone Harbour Shellfish Waters	There are no bathing waters within this water body. The proposed works do overlap and are adjacent to the Langstone Harbour Shellfish Waters. However defence works will be at the toe of existing defences or set back which will minimise any direct footprints on these habitats. Temporary impacts will be controlled by best practice measures eg pollution prevention	The AA concluded that there would be an adverse impact on the Solent Maritime SAC and Chichester and Langstone Harbours SPA resulting in the loss of intertidal habitats due to HTL policies for ODUs 11, 13, 15 and 16. However, this loss has been accounted for in the overarching NS SMP since there is no change in the Strategy policies compared to the NS SMP for these frontages. Compensation has been		

	measures put in place to minimise the risks of incidents.	agreed and will be secured through the HCRP. The AA further concluded that there would be an adverse impact on Solent Maritime SAC resulting in an estimated loss of 1.42ha of vegetated shingle over the Strategy period due to HTL policy for ODUs 13 and15. The AA concluded that compensation for vegetated shingle can be delivered through adequate management as individual planning applications at the ODU level are progressed.		

6.1.5 Langstone Oysterbeds Water Body

ODU 15 overlaps with Langstone Oysterbeds Water body and have been scoped in for further assessment (see Section 4). **Table 6.6** provides a impact assessment of receptors and considered if significant impact on the water body can be avoided and if any mitigation measures and the good status will be jeopardised.

Table 6.6: Impact Assessment for Langstone Oysterbeds water body

Receptor and current status (2019)	Impact assessment	Can significant impact on the water body status be avoided?	Will impact jeopardise mitigation measures?	Will impact jeopardise good status
Biological (habitats) Higher sensitivity habitats • Saltmarsh (0.70 ha)	New setback defences are proposed within ODU 15 which overlap with Langstone Oysterbeds water body. The proposed are likely to be within 100m of Saltmarsh. However, defence works will be set back from the existing alignment and therefore unlikely to result in direct loss of this higher sensitivity habitat.	Yes - Mitigation will be used where possible such as plug planting new defences with saltmarsh plants to encourage colonisation. A scheme level WFD is likely to be required which will more precisely define the potential effects of the works together with project level mitigation measures when the scale and nature of the works are known.	N/A – This is a artificial water body. Only heavily modified have mitigation measures.	No - The leading option is not predicted to cause either deterioration to the current status of the water body nor prevent the water body from achieving future WFD status objectives.
Hydromorphology (supports good)	The proposed defences will be set back and are unlikely to significantly impact on the hydrology and morphology of the water body.			
Protected Areas • Langstone Harbour Shellfish Waters (Shellfish Waters Directive) • Solent Maritime Special Area Conservation SAC • Chichester and Langstone Harbours Special Protection Area SPA	There are no bathing waters within this water body. The proposed works do overlap and are adjacent to the Langstone Harbour Shellfish Waters. However, defence works will be at the toe of existing defences or set back which will minimise any direct footprints on these habitats. Temporary impacts will be controlled by best practice measures eg pollution prevention measures put in place to minimise the risks of incidents.	The AA concluded that there would be an adverse impact on the Solent Maritime SAC and Chichester and Langstone Harbours SPA resulting in the loss of intertidal habitats due to HTL policy for ODU 15. However, this loss has been accounted for in the overarching NS SMP since there is no change in the Strategy policy compared to the NS SMP for these frontages. Compensation has been agreed and will be secured through the HCRP. The AA further concluded that there would be an adverse impact on Solent Maritime SAC resulting in an estimated loss of 1.33ha of vegetated shingle over the Strategy period due to HTL policy for ODU15. The AA concluded that compensation for vegetated shingle can be delivered through adequate		

		management as individual planning applications at the ODU level are progressed.		

6.1.6 Consideration of cumulative effects

The strategy will take place alongside other plans, projects and strategies. These have the potential to result in additional or modified impacts on the same waterbodies as those already identified for the Strategy, resulting in a cumulative effects.

The identification and assessment of the cumulative effects of other plans, programmes, strategies and ongoing or planned future development proposals has been undertaken throughout the development of the Strategy. **Table 6.7** summarises the key plans, programmes and strategies identified and how they have been considered within the Strategy that have the potential for cumulative effects on waterbodies. Monitoring the progression of other schemes which may derive from the other plans and programmes should also be undertaken throughout the lifetime of the Strategy.

Table 6.7 Summary of the likely cumulative effects from key plans, programmes and strategies

key plans, programmes and strategies	Brief description and likely Significant Effect
Emerging new Havant Borough Local Plans and associated documents	The emerging new Havant Borough Plan overlaps with the Strategy area. The Strategy will protect residential and non residential properties, complementing the objectives of the local plan. However cumulative effects could occur if any proposals identified in the local plan are constructed at the same times as the Strategy. However, no detailed proposals are currently identified in the Local Plan making this unlikely. In addition a sustainability appraisal is being carried out alongside local plan development against a set of sustainability objectives developed in consultation with local stakeholders and communities. This assessment helps Local Planning Authorities identify the relative environmental, social and economic performance of possible strategic, policy and site options, and to evaluate which of these may be most sustainable. Mitigation measures have been identified relating to biodiversity, landscape and climate change. Monitoring is proposed including an annual report with spatial planning. An HRA for the plan would also be carried out and would consider in-combination effects. Planning applications would be completed where necessary including a WFD if required to prevent cumulative effects on water bodies. With such control measures in place no significant cumulative effects are anticipated with the Strategy.
Adjacent Local Plans (Fareham Borough Local Plan, Gosport Borough Local Plan, The Portsmouth Plan, Chichester Local Plan)	A number of additional local plans are located adjacent to the Strategy. Whilst these do not directly overlap spatially, they may indirectly result in cumulative effects particularly between receptors covering a wider study area such as water and ornithology. However, sustainability appraisals are being carried out alongside all local plan development and mitigation and monitoring measures identified where necessary. HRAs

	for the Local Plans would also be carried out and would consider cumulative effects. Planning applications would be completed where necessary including a WFD if required to prevent cumulative effects on water bodies. With such control measures in place cumulative effects are considered unlikely.
North Solent SMP	SMPs sit at the top of the hierarchy of plans for managing coastal flooding and erosion and therefore this coastal strategy forms an important part of the wider framework. The SMP aims to balance the management of coastal flooding and erosion risk with the requirements regarding climate change and natural process and sets out coastal management approaches across large stretches of frontage. This SMP has been adopted and includes a statement of environmental particulars to help monitor significant effects of implementation and therefore no cumulative effects are anticipated.
Isle of Wight Shoreline Management Plan	An SEA HRA and WFD has been produced for the Isle of Wight SMP which includes the identification of potentially significant impacts including water quality and biodiversity. Whilst cumulative impacts could occur with the Strategy the SEA process develops mitigation and monitoring to address specific issues and an action plan has been created. In particular the WFD has identified potential for failure of Solent coastal water body (which partly overlaps with Strategy) to meet WFD Environmental Objectives. Consequently, a summary statement is produced including mitigation measures that must be included within the SMP2 Action Plan to ensure that good ecological potential/status is achieved or maintained. With this action plan in place and considering the limited residual effects from the Strategy, no significant cumulative effects are anticipated.
Adjacent strategies (River Hamble to Portchester Coastal Strategy, Portchester Castle to Emsworth Strategy, Portsea Island Coastal Strategy Study, Pagham to East Head Coastal Defence Strategy, Isle of Wight)	Adjacent strategies identify preferred strategic management options along the adjacent coastline, based on objectives identified in the SMP. The delivery of other coastal strategies within the area have the potential to result in cumulative effects. Most critically the following strategies overlap with the same waterbodies as this Strategy: • River Hamble to Portchester Coastal Strategy and West Wight Coastal Strategy – overlaps with Solent water body • Portchester Castle to Emsworth Strategy - overlaps with Langstone Harbour and Chichester Harbour water bodies • Portsea Island Coastal Strategy Study - Langstone Harbour and Solent water bodies • Pagham to East Head Coastal Defence Strategy – overlaps with Isle of Wight East water body. Particularly where overlaps occur with the same water bodies further deterioration of the current status of the Chichester Harbour, Isle of Wight East, Solent, Langstone Harbour and Langstone Oysterbeds water bodies could occur. However, all strategies have been adopted and subjected to SEA, WFD and HRA as part of the statutory consenting process.

	The approved WFD assessments and compliance statements of these adjacent strategies identify similar potential impacts to those of this Strategy; however, as per the SMP it has been demonstrated that these are unavoidable and necessary given the lack of alternatives and the imperative reasons of overriding public interest. These strategies have also looked at cumulative effects, and it is concluded that effects are acceptable in relation to the WFD objectives. Whilst some coastal squeeze effects will occur form the delivery of the strategies, this has been considered within the option appraisal process and should be minimised and assessed further through detailed design at a scheme level. Designs should also include the uptake of improvement opportunities where feasible which will also be supported though emerging biodiversity net gain requirements. When considering this Strategy in combination with these other Strategies, there is a potential for additional loss of habitat such as saltmarsh due to coastal squeeze. However as demonstrated by the compliance statements of the adjacent Strategies the losses are within the requirements of the WFD. This strategy requires that any compensation would be secured through the Regional Habitat Compensation and Restoration Programme and in line with the IROPI agreement made for the North Solent SMP to deliver its policy. Therefore overall there would be no cumulative effects between these strategies. Works within the Strategy waterbodies and overlapping SPA / Ramsar / SAC sites should be timed so that they don't occur at the same time and during sensitive periods. This will help avoid significant disturbance. Consequently, considering the limited residual effects from the Strategy, no significant cumulative effects with the Strategy are anticipated.
South Marine Plan	The South Marine Plan covers an area of approx. 20,000km^2 of inshore and offshore waters across 1,000km of coastline between Folkestone and the River Dart, setting out specific planning policies to regulate activities in the marine environment. This was adopted in 2018 and includes a sustainability appraisal and statement which includes measures to monitor all potentially significant effects of implementation of the Plan. Considering the localised and limited residual effects from the Strategy, no significant cumulative effects are anticipated.
South Hayling Island Beach Management Plan (2017-2022)	This work is being delivered by Coastal Partners and delivers beach management to ensure adequate flood protection in line with the North Solent SMP using beach recycling and beach recharge methods. This scheme obtained environmental consents and has been in operation for a number of years without significant environmental impacts. The Strategy is considered to complement this plan and no significant cumulative effects are identified.

Farlington Marshes Flood and Coastal Erosion Risk Management scheme	This project is in the early stages to identify ways to strengthen existing sea defences that are in poor condition at Farlington Marshes and deliver intertidal habitat creation via Regulated Tidal Exchange to ensure that the site continues to support the qualifying birds of the Chichester and Langstone Harbours SPA / Ramsar). Considering the early stage of this project, the potential for cumulative effects with the Strategy are considered limited and environment assessments, including the WFD and HRA will be undertaken where necessary as this project develops which will account for this Strategy.
Langstone Flood and Coastal Erosion Risk Management scheme	Similar to Farlington FCERM scheme this project is in the early stages to identify ways to strengthen existing sea defences. Considering the early stage of this project, the potential for cumulative effects with the Strategy are considered limited and environment assessments, including the WFD and HRA will be undertaken where necessary as this project develops which will account for this Strategy.
North Portsea Island Coastal Defence Scheme	This scheme is also being delivered by Coastal Partners and involves the construction of a Flood and coastal erosions scheme along 8.4km of Portsmouth over five phases. Phase 4 is currently under construction. All phases required completion of an EIA, HRA and WFD and supporting documentation, including mitigation for any potentially significant impacts. Any effects are indicated to be highly localised and unlikely to result in cumulative effects with the Strategy.
Southsea Coastal Scheme	Coastal Partners are currently delivering this 4.5km coastal defence project to reduce coastal flood risk from Old Portsmouth to Eastney. Work started in September 2020 and is consented through a number of environmental assessments an EIA,HRA and WFD. These assessments include the mitigation and monitoring for any significant impacts. Considering the distance from the scheme and the localised nature of any residual effects associated with this scheme and the Strategy, cumulative impacts are considered unlikely.

7 Conclusion

Based upon the information presented within this WFD assessment, it is concluded that the overall leading options are not likely to have a permanent (i.e. non-temporary) effect on the status of WFD parameters that are significant at water body level. Therefore, deterioration to the current status of the Chichester Harbour, Isle of Wight East, Solent, Langstone Harbour and Langstone Oysterbeds water bodies is not predicted, nor a prevention of these water bodies achieving future WFD status objectives.

8 References

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Appendix A:

Environment Agency Scoping Opinion

Havant Borough Council
Civic Offices Civic Centre Road
Havant
Hampshire
PO9 2AX

Our ref: HA/2021/123035/01-L01
Your ref: GEN/21/00220

Date: 12 April 2021

Dear Sir/Madam

HAYLING ISLAND COASTAL MANAGEMENT STRATEGY - SCOPING OPINION CONSULTATION HAYLING ISLAND COASTAL MANAGEMENT

Thank you for consulting us on the above EIA scoping opinion request, which we received on 9th March 2021.

Environment Agency position
We have reviewed the submitted Hayling Island Coastal Management Strategy Scoping Report January 2021. The following comments, made in respect of water quality, flood risk and biodiversity will ensure that the environmental statement addresses the key environmental issues for this proposal.

Flood Risk
The scoping opinion for the Hayling Island Coastal strategy adequately covers the aspects pertaining to current and future flood risk.

Water Quality
We have reviewed the sections of the scoping report that relate to marine water quality and WFD Assessment. We confirm that we are satisfied with the applicant's approach; we have no further comments at this stage.

Biodiversity
We have reviewed Section 3 Biodiversity, Appendix A (HRA) and Appendix B (WFD Assessments). We support the key issues listed in section 3.3, especially the inclusion of opportunities for environmental enhancement and achieving biodiversity net gain as well as section 3.4 assessment questions.

We are satisfied with the applicants approach and have no further comments at this stage.

Should you require any additional information, or wish to discuss these matters further, please do not hesitate to contact me on the number below.

Yours faithfully

Mrs Sophie Brown
Sustainable Places Planning Advisor

Direct dial 02030 257250
Direct e-mail planningSSD@environment-agency.gov.uk

End

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Appendix B:

Updated Scoping Tables

1 Introduction

The WFD divides rivers, lakes, lagoons, estuaries, coastal waters, man-made docks and canals into a series of discrete surface water bodies. It sets ecological as well as chemical targets (objectives) for each water body. River Basin Management Plans (RBMPs) are a requirement of the WFD, setting out measures for each river basin district to maintain and improve quality in surface and groundwater water bodies where necessary. A summary of the proposed works are provided in Table 1 following the Environment Agency WFD Directive assessment: scoping template for activities in estuarine and coastal waters[1].

Table 1: Proposed works

Your activity	Description, notes or more information
Applicant name	Coastal Partners
Application reference number (where applicable)	N/A
Name of activity	Hayling Island Coastal Management Strategy
Brief description of activity	A range of options are being considered to sustainably manage coastal flood and erosion risks around Hayling Island
Location of activity (central point XY coordinates or national grid reference)	Entire coastline around Hayling island, Hampshire (SU 72648 01455)
Footprint of activity (ha)	TBC
Timings of activity (including start and finish dates)	TBC
Extent of activity (for example size, scale frequency, expected volumes of output or discharge)	TBC
Use or release of chemicals (state which ones)	None anticipated

A outlined in Section 11 of the main report Hayling Island is located within the south east river basin district which is reported in the south east river basin district RBMP (Environment Agency, 2016). The following water bodies are located adjacent to or overlap with the Hayling Island strategy and are therefore screened in:

- Langstone Harbour (GB580705130000) – West of Hayling Island
- Langstone Oysterbeds (GB510070073000) – North west of Hayling Island
- Chichester Harbour (GB580705210000) – East of Hayling Island
- Solent (GB650705150000) – South of Hayling Island
- Isle of Wight East (GB650705530000) – Southern Eastern Tip of Haying Island

[1] https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters

The Environment Agency's "Clearing the Water for All" guidance provides a scoping template to record findings and consider potential risks for the following key receptors, specifically:

- Hydromorphology
- Biology (Habitats)
- Biology (Fish)
- Water quality
- Protected areas
- Invasive non-native species (INNS)

This appendix provides scoping tables for each key receptor for Chichester Harbour. These tables follow the Environment Agency WFD Directive assessment: scoping template for activities in estuarine and coastal waters[2]. Where one or more consideration indicates that a risk could be associated with the proposed works on a water body, the receptor is scoped in for future assessment. These tables have been updated since submission as part of the scoping opinion in May 2021, to reflect the current understanding of the proposed works anticipated as part of the Strategy.

2 Chichester Harbour water body scoping

Table 2 provides an overview of Chichester Harbour water body. Table 3 – 6 provides a table for each of the key receptors summarising considerations and associated risk issues for the proposed works.

Table 2: Chichester Harbour water body overview

Water body	Description, notes or more information
WFD water body name	Chichester Harbour
Water body ID	GB580705210000
River basin district name	south east river basin district RBMP
Water body type (estuarine or coastal)	Transitional[3]
Water body total area (ha)	3031.685

[2] https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters
[3] Transitional in accordance with the EA Catchment explorer https://environment.data.gov.uk/catchment-planning/WaterBody/GB580705210000. Estuarine in accordance with the water body summary table https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters (last accessed 12012021)

Water body	Description, notes or more information
Overall water body status (2019)	Moderate. The reasons for not achieving good also includes physical modifications/classification element associated with coastal protection use.
Ecological status (2019)	Moderate.
Chemical status (2019)	Fail
Target water body status and deadline	Good (2027)
Hydromorphology status of water body	Supports good
Heavily modified water body and for what use	Heavily modified – for coastal protection, navigation, ports and harbours
Higher sensitivity habitats present	Intertidal seagrass (111.01 ha), Saltmarsh (332.75), Subtidal seagrass (0.41)
Lower sensitivity habitats present	Intertidal soft sediment (1612.24 ha), Rocky shore (1.66ha), subtidal rocky reef (0.01) ha and subtidal soft sediments (961.25 ha)
Phytoplankton status	High
History of harmful algae	No
WFD protected areas within 2km	Overlaps/adjacent to protected areas including: • The Solent Maritime Special Area Conservation (SAC) (Habitats and Species Directive) • Chichester and Langstone Harbours and Dorset Coast Special Protection Area (SPA) (Wild Birds Directive) • The Langstone Harbour and Chichester Harbour (Emsworth Channel) eutrophic coastal sensitive (Urban Waste Water Treatment Directive and Nitrates Directive) • The Langstone Harbour and Chichester Harbour Shellfish Waters area (Shellfish Water Directive)

2.1 Hydromorphology

Hydromorphology is the physical characteristics of estuaries and coasts, including the size, shape and structure of the water body and the flow and quantity of water and sediment. Table 3 presents a summary of hydromorphological considerations and associated risk issues for the proposed works. As at least one hydromorphological consideration indicates that a risk could be associated with the proposed works, this receptor has been scoped in for future impact assessment.

Table 3: Hydromorphology scoping summary

Consider if your activity	Yes	No	Hydromorpholgy risk issues (s)
Could impact on the hydromorphology (for example morphology or tidal patterns) of a water body at high status	~~Requires impact assessment~~	Impact assessment not required	Water body is not at high status
Could significantly impact the hydromorphology of any water body	Requires impact assessment	~~Impact assessment not required~~	Details of the Scheme are yet to be confirmed but could include activities that may significantly impact the hydromorphology of the water body
Is in a water body that is heavily modified for the same use as your activity	Requires impact assessment	~~Impact assessment not required~~	The heavily modified designation relates to flood protection (the same use as activity)

2.2 Biology

2.2.1 Habitats

Consideration is required into the impact of the physical footprint of an activity on nearby marine and coastal habitats. This specifically refers to habitats of higher sensitivity (e.g. intertidal seagrass, maerl and saltmarsh) and lower sensitivity (e.g. cobbles, gravel and shingle, subtidal rock reef and intertidal soft sediments like sand and mud). Table 4 presents a summary of biology (habitat) considerations and associated risk issues for the proposed works. As biology (habitat) considerations indicate that a risk could be associated with the proposed works, this receptor has been scoped in for future impact assessment.

Table 4: Biology (habitat) scoping summary

Consider if your activity	Yes	No	Biology habitats risk issues (s)
0.5km^2 or larger	Yes to one or more – requires impact assessment	~~No to all – impact assessment not required~~	Details of the Scheme are yet to be confirmed but unlikely to have a footprint of 0.5km2 or larger
1% or more of the water body's area			Details of the Scheme are yet to be confirmed but unlikely to be 1% or more of the water body's area
Within 500m of any higher sensitivity habitat			Saltmarsh and seagrass beds are within 500m
1% or more of any lower			Details of the Scheme are yet to be confirmed but unlikely to result in loss of 1% or more of a lower sensitivity

Consider if your activity	Yes	No	Biology habitats risk issues (s)
sensitivity habitat			habitat due to the linear nature of coastal defences.

2.2.2 Fish

Activities occurring within an estuary could impact on normal fish behaviour such as movement, migration or spawning. Table 5 presents a summary of biology (fish) considerations and associated risk issues for the proposed works. As the biology (fish) considerations indicate that a risk could be associated with the proposed works, this receptor has been scoped in for future impact assessment.

Table 5: Biology (fish) scoping summary

Consider if your activity	Yes	No	Fish risk issues (s)
Is in an estuary and could affect fish in the estuary, outside the estuary but could delay or prevent fish entering it or could affect fish migrating through the estuary	~~**Continue with questions**~~	Go to next section	The proposed works are not within an estuary. There is the potential for migratory fish, many of which are of conservation concern e.g. European eel (Anguilla anguilla) and sea trout (Salmo trutta morpha trutta), to pass through the water bodies and the Langdale Brook (and potentially Lymbrook Stream) in the vicinity of Langstone to the North of Hayling Island. It is not anticipated that works would significantly affect fish behaviour in the longer term or cause entrainment or impingement. There could be disturbance during construction and this would need to be considered and mitigated during scheme design stage where necessary, not at a strategy level.
Could impact on normal fish behaviour like movement, migration or spawning (for example creating a physical barrier, noise, chemical change or a change in depth or flow)	~~**Requires impact assessment**~~	Impact assessment not required	
Could cause entrainment or impingement of fish	~~**Requires impact assessment**~~	Impact assessment not required	Details of the Scheme are yet to be confirmed but unlikely to cause entrainment of impingement of fish

2.3 Water Quality

Consideration should be made regarding whether phytoplankton status and harmful algae could be affected by the proposed works, as well as identifying the potential risks of using, releasing or disturbing chemicals. Table 6 presents a summary of water quality considerations and associated risk issues of the proposed works. As at least one water quality consideration indicates that a risk could be associated with the proposed works, this receptor has been scoped in for future impact assessment.

Table 6: Water quality scoping summary

Consider if your activity	Yes	No	Water quality risk issues (s)
Could affect water clarity, temperature, salinity, oxygen levels, nutrients or microbial patterns continuously for longer than a spring neap tidal cycle (about 14 days)	~~Requires impact assessment~~	Impact assessment not required	Details of the Scheme are yet to be confirmed but could affect water clarity, temperature, salinity, oxygen levels, nutrients or microbial patterns continuously for longer than a spring neap tidal cycle during construction. These impacts would be considered and mitigated at scheme design stage, e.g. through pollution prevention measures and timing of works, not at strategy level
Is in a water body with a phytoplankton status of moderate, poor or bad	~~Requires impact assessment~~	Impact assessment not required	Phytoplankton status not assessed for this water body
Is in a water body with a history of harmful algae	~~Requires impact assessment~~	Impact assessment not required	No history of harmful algae
If your activity uses or releases chemicals (for example through sediment disturbance or building works) consider if the chemicals are on the Environmental Quality Standards Directive (EQSD) list?	~~Requires impact assessment~~	Impact assessment not required	There is the potential for release of contaminants from disturbed sediment during construction. These impacts would be considered and mitigated at scheme design stage, not at strategy level
If your activity uses or releases chemicals (for example through sediment disturbance or building works) consider if it disturbs sediment with contaminants above Cefas Action Level 1?	~~Requires impact assessment~~	Impact assessment not required	
If your activity has a mixing zone (like a discharge pipeline or outfall) consider if the chemicals released are on the Environmental Quality Standards Directive (EQSD) list?	~~Requires impact assessment~~[5]	Impact assessment not required	The Scheme is unlikely to include a new discharge pipe or outfall

2.4 **Protected Areas**

Table 7 considers if WFD protected areas are at risk from the proposed activity. These include:

- special areas of conservation (SAC)
- special protection areas (SPA)
- shellfish waters
- bathing waters
- nutrient sensitive areas

As the protected areas considerations indicate that a risk could be associated with the proposed works, this receptor has been scoped in for future impact assessment.

Table 7: Protected areas scoping summary

Consider if your activity	**Yes**	**No**	**Protected areas risk issues (s)**
Within 2km of any WFD protected area	Requires impact assessment	~~Impact assessment not required~~	Protected sites are located within 2 km, including the Solent Maritime SAC and Chichester and Langstone Harbours SPA overlapping/adjacent to the Scheme. The Scheme is also located within the Langstone Harbour and Chichester Harbour (Emsworth Channel) Shellfish Waters and a eutrophic coastal sensitive area.

2.5 **Invasive non-native species (INNS)**

Risks of introducing or spreading INNS include:

- materials or equipment that have come from, had use in or travelled through other water bodies
- activities that help spread existing INNS, either within the immediate water body or other water bodies

Table 8 presents a summary of INNS considerations and associated risk issues of the proposed works. As the INNS considerations indicate that a risk could be associated with the proposed works, this receptor has been scoped in for future impact assessment.

Table 8: Invasive non-native species scoping summary

Consider if your activity	**Yes**	**No**	**Protected areas risk issues (s)**
Introduce or spread INNS	~~Requires impact assessment~~	Impact assessment not required	There is potential to spread non-native invasive species during construction works such by moving contaminated machinery. However, impacts would be considered and mitigated at scheme design stage. Activities which involve the movement of sediment, such as renourishment and recycling also have the potential to spread existing INNS during construction. Impacts would need to be considered and mitigated at scheme design stage, not at strategy level.

3 Chichester Harbour summary

Table 9 provides a summary of the receptors and risks scoped in for future impact assessment

Table 9: Chichester Harbour summary

Receptor	Potential risk to receptor	Note the risk issue(s) for impact assessment
Hydromorphology	Yes	• Details of the Scheme are yet to be confirmed but could include activities that may significantly impact the hydromorphology of a water body • The heavily modified designation relates to coastal protection (the same use as activity)
Biology: habitats	Yes	• Saltmarsh and seagrass beds are within 500m
Biology: fish	No – not at Strategy-level	There could be disturbance during construction and this would need to be considered and mitigated during scheme design stage where necessary.
Water quality	No – not at Strategy-level	Details of the Scheme are yet to be confirmed but could affect water clarity, temperature, salinity, oxygen levels, nutrients or microbial patterns continuously for longer than a spring neap tidal cycle during construction. The potential for release of contaminants from disturbed sediment is also currently unclear. These impacts would be considered and mitigated at scheme design stage, e.g. through pollution prevention measures and timing of works.
Protected areas	Yes	Protected sites are located within 2 km, including the Solent Maritime SAC and Chichester and Langstone Harbours SPA potentially overlapping/adjacent to the Scheme. The Scheme is also located within the Langstone Harbour and Chichester Harbour (Emsworth Channel) Shellfish Waters and a eutrophic coastal sensitive area
Invasive non-native species	No – not at Strategy-level	There is potential to spread non-native invasive species during construction Impacts would need to be considered and mitigated at scheme design stage.

1 Introduction

The WFD divides rivers, lakes, lagoons, estuaries, coastal waters, man-made docks and canals into a series of discrete surface water bodies. It sets ecological as well as chemical targets (objectives) for each water body. River Basin Management Plans (RBMPs) are a requirement of the WFD, setting out measures for each river basin district to maintain and improve quality in surface and groundwater water bodies where necessary. A summary of the proposed works are provided in Table 1 following the Environment Agency WFD Directive assessment: scoping template for activities in estuarine and coastal waters[1].

Table 1: Proposed works

Your activity	Description, notes or more information
Applicant name	Coastal Partners
Application reference number (where applicable)	N/A
Name of activity	Hayling Island Coastal Management Strategy
Brief description of activity	A range of options are being considered to sustainably manage coastal flood and erosion risks around Hayling Island
Location of activity (central point XY coordinates or national grid reference)	Entire coastline around Hayling island, Hampshire (SU 72648 01455)
Footprint of activity (ha)	TBC
Timings of activity (including start and finish dates)	TBC
Extent of activity (for example size, scale frequency, expected volumes of output or discharge)	TBC
Use or release of chemicals (state which ones)	None anticipated

A outlined in Section 11 of the main report Hayling Island is located within the south east river basin district which is reported in the south east river basin district RBMP (Environment Agency, 2016). The following water bodies are located adjacent to or overlap with the Hayling Island strategy and are therefore screened in:

- Langstone Harbour (GB580705130000) – West of Hayling Island
- Langstone Oysterbeds (GB510070073000) – North west of Hayling Island
- Chichester Harbour (GB580705210000) – East of Hayling Island
- Solent (GB650705150000) – South of Hayling Island
- Isle of Wight East (GB650705530000) – Southern Eastern Tip of Haying Island

[1] https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters

The Environment Agency's "Clearing the Water for All" guidance provides a scoping template to record findings and consider potential risks for the following key receptors, specifically:

- Hydromorphology
- Biology (Habitats)
- Biology (Fish)
- Water quality
- Protected areas
- Invasive non-native species (INNS)

This appendix provides scoping tables for each key receptor for Isle of Wight East. These tables follow the Environment Agency WFD Directive assessment: scoping template for activities in estuarine and coastal waters[2]. Where one or more consideration indicates that a risk could be associated with the proposed works on a water body, the receptor is scoped in for future assessment. These tables have been updated since submission as part of the scoping opinion in May 2021, to reflect the current understanding of the proposed works anticipated as part of the Strategy.

2 Isle of Wight East water body scoping

Table 2 provides an overview of Isle of Wight East water body. Table 3 – 6 provides a table for each of the key receptors summarising considerations and associated risk issues for the proposed works.

Table 2: Isle of Wight East overview

Water body	Description, notes or more information
WFD water body name	Isle of Wight East
Water body ID	GB650705530000
River basin district name	south east river basin district RBMP
Water body type (estuarine or coastal)	Coastal
Water body total area (ha)	26491.46
Overall water body status (2019)	Good
Ecological status (2019)	Good

[2] https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters

Water body	Description, notes or more information
Chemical status (2019)	Fail
Target water body status and deadline	Good (2015)
Hydromorphology status of water body	Not assessed
Heavily modified water body and for what use	Heavily modified – for coastal protection, and flood defence
Higher sensitivity habitats present	Chalk reef (8847.33 ha), Intertidal seagrass (0.81 ha), Maerl (22.63 ha), Mussel beds, including blue and horse mussel (557.87 ha), Subtidal kelp beds (42.66 ha)
Lower sensitivity habitats present	Cobbles, gravel and shingle(822.08 ha), Intertidal soft sediment (206.04 ha), Rocky shore (75.75 ha), subtidalrocky reef (10304.64 ha), subtidal soft sediments (5344.56 ha)
Phytoplankton status	-
History of harmful algae	Not monitored
WFD protected areas within 2km	Overlaps/adjacent to protected areas including: • The Solent Maritime Special Area Conservation (SAC) (Habitats and Species Directive) • Chichester and Langstone Harbours and Solent and Dorset Coast Special Protection Area (SPA) (Wild Birds Directive) • The Chichester Harbour (Emsworth Channel) eutrophic coastal sensitive (Urban Waste Water Treatment Directive and Nitrates Directive)

2.1 Hydromorphology

Hydromorphology is the physical characteristics of estuaries and coasts, including the size, shape and structure of the water body and the flow and quantity of water and sediment. Table 3 presents a summary of hydromorphological considerations and associated risk issues for the proposed works. As at least one hydromorphological consideration indicates that a risk could be associated with the proposed works, this receptor has been scoped in for future impact assessment.

Table 3: Hydromorphology scoping summary

Consider if your activity	Yes	No	Hydromorpholgy risk issues (s)
Could impact on the hydromorphology (for example morphology or tidal	~~Requires impact assessment~~	Impact assessment not required	Water body is not at high status

Consider if your activity	Yes	No	Hydromorpholgy risk issues (s)
patterns) of a water body at high status			
Could significantly impact the hydromorphology of any water body	Requires impact assessment	~~Impact assessment not required~~	Details of the Scheme are yet to be confirmed but could include activities that may significantly impact the hydromorphology of the water body
Is in a water body that is heavily modified for the same use as your activity	Requires impact assessment	~~Impact assessment not required~~	The heavily modified designation relates to coastal protection, and flood defence (the same use as activity)

2.2 Biology

2.2.1 Habitats

Consideration is required into the impact of the physical footprint of an activity on nearby marine and coastal habitats. This specifically refers to habitats of higher sensitivity (e.g. intertidal seagrass, maerl and saltmarsh) and lower sensitivity (e.g. cobbles, gravel and shingle, subtidal rock reef and intertidal soft sediments like sand and mud). Table 4 presents a summary of biology (habitat) considerations and associated risk issues for the proposed works. As biology (habitat) considerations indicate that a risk could be associated with the proposed works, this receptor has been scoped in for future impact assessment.

Table 4: Biology (habitat) scoping summary

Consider if your activity	Yes	No	Biology habitats risk issues (s)
0.5km^2 or larger	~~Yes to one or more – requires impact assessment~~	No to all – impact assessment not required	Details of the Scheme are yet to be confirmed but unlikely to have a footprint of 0.5km2 or larger
1% or more of the water body's area			Details of the Scheme are yet to be confirmed but unlikely to be 1% or more of the water body's area
Within 500m of any higher sensitivity habitat			No higher sensitivity habitats are within 500m. The nearest (subtidal kelp beds) are over 900m south.
1% or more of any lower sensitivity habitat			Details of the Scheme are yet to be confirmed but unlikely to result in loss of 1% or more of a lower sensitivity habitat due to the linear nature of coastal defences.

2.2.2 Fish

Activities occurring within an estuary could impact on normal fish behaviour such as movement, migration or spawning. Table 5 presents a summary of biology (fish) considerations and associated risk issues for the proposed works. As the biology (fish) considerations indicate that a risk could be associated with the proposed works, this receptor has been scoped in for future impact assessment.

Table 5: Biology (fish) scoping summary

Consider if your activity	Yes	No	Fish risk issues (s)
Is in an estuary and could affect fish in the estuary, outside the estuary but could delay or prevent fish entering it or could affect fish migrating through the estuary	~~**Continue with questions**~~	Go to next section	The proposed works are not within an estuary. There is the potential for migratory fish, many of which are of conservation concern e.g. European eel (Anguilla anguilla) and sea trout (Salmo trutta morpha trutta), to pass through the water bodies and the Langdale Brook (and potentially Lymbrook Stream) in the vicinity of Langstone to the North of Hayling Island. It is not anticipated that works would significantly affect fish behaviour in the longer term or cause entrainment or impingement. There could be disturbance during construction and this would need to be considered and mitigated during scheme design stage where necessary, not at a strategy level.
Could impact on normal fish behaviour like movement, migration or spawning (for example creating a physical barrier, noise, chemical change or a change in depth or flow)	~~**Requires impact assessment**~~	Impact assessment not required	
Could cause entrainment or impingement of fish	~~**Requires impact assessment**~~	Impact assessment not required	Details of the Scheme are yet to be confirmed but unlikely to cause entrainment of impingement of fish

2.3 Water Quality

Consideration should be made regarding whether phytoplankton status and harmful algae could be affected by the proposed works, as well as identifying the potential risks of using, releasing or disturbing chemicals. Table 6 presents a summary of water quality considerations and associated risk issues of the proposed works. As at least one water quality consideration indicates that a risk could be associated with the proposed works, this receptor has been scoped in for future impact assessment.

Table 6: Water quality scoping summary

Consider if your activity	Yes	No	Water quality risk issues (s)
Could affect water clarity, temperature, salinity, oxygen levels, nutrients or	~~Requires impact assessment~~	Impact assessment not required	Details of the Scheme are yet to be confirmed but could affect water clarity, temperature, salinity, oxygen levels, nutrients or

Consider if your activity	Yes	No	Water quality risk issues (s)
microbial patterns continuously for longer than a spring neap tidal cycle (about 14 days)			microbial patterns continuously for longer than a spring neap tidal cycle during construction. These impacts would be considered and mitigated at scheme design stage, e.g. through pollution prevention measures and timing of works, not at strategy level
Is in a water body with a phytoplankton status of moderate, poor or bad	~~Requires impact assessment~~	Impact assessment not required	Phytoplankton status not assessed for this water body
Is in a water body with a history of harmful algae	~~Requires impact assessment~~	Impact assessment not required	Not monitored
If your activity uses or releases chemicals (for example through sediment disturbance or building works) consider if the chemicals are on the Environmental Quality Standards Directive (EQSD) list?	~~Requires impact assessment~~	Impact assessment not required	There is the potential for release of contaminants from disturbed sediment during construction. These impacts would be considered and mitigated at scheme design stage, not at strategy level
If your activity uses or releases chemicals (for example through sediment disturbance or building works) consider if it disturbs sediment with contaminants above Cefas Action Level 1?	~~Requires impact assessment~~	Impact assessment not required	
If your activity has a mixing zone (like a discharge pipeline or outfall) consider if the chemicals released are on the Environmental Quality Standards Directive (EQSD) list?	~~Requires impact assessment~~[5]	Impact assessment not required	The Scheme is unlikely to include a new discharge pipe or outfall

2.4 **Protected Areas**

Table 7 considers if WFD protected areas are at risk from the proposed activity. These include:

- special areas of conservation (SAC)
- special protection areas (SPA)
- shellfish waters
- bathing waters
- nutrient sensitive areas

As the protected areas considerations indicate that a risk could be associated with the proposed works, this receptor has been scoped in for future impact assessment.

Table 7: Protected areas scoping summary

Consider if your activity	**Yes**	**No**	**Protected areas risk issues (s)**
Within 2km of any WFD protected area	Requires impact assessment	~~Impact assessment not required~~	Protected sites are located within 2 km, including the Solent Maritime SAC and Chichester and Langstone Harbours and SPA potentially overlapping with the Scheme. The Scheme is also located within the Langstone Harbour and Chichester Harbour (Emsworth Channel) Shellfish Waters and a eutrophic coastal sensitive area

2.5 **Invasive non-native species (INNS)**

Risks of introducing or spreading INNS include:

- materials or equipment that have come from, had use in or travelled through other water bodies
- activities that help spread existing INNS, either within the immediate water body or other water bodies

Table 8 presents a summary of INNS considerations and associated risk issues of the proposed works. As the INNS considerations indicate that a risk could be associated with the proposed works, this receptor has been scoped in for future impact assessment.

Table 8: Invasive non-native species scoping summary

Consider if your activity	**Yes**	**No**	**Protected areas risk issues (s)**
Introduce or spread INNS	~~Requires impact assessment~~	Impact assessment not required	There is potential to spread non-native invasive species during construction works such by moving contaminated machinery. However, impacts would be considered and mitigated at scheme design stage. Activities which involve the movement of sediment, such as renourishment and recycling also have the potential to spread existing INNS during construction. Impacts would need to be considered and mitigated at scheme design stage, not at strategy level.

3 Summary

Table 9 provides a summary of the receptors and risks scoped in for future impact assessment

Table 9: Summary

Receptor	Potential risk to receptor	Note the risk issue(s) for impact assessment
Hydromorphology	Yes	Details of the Scheme are yet to be confirmed but could include activities that may significantly impact the hydromorphology of a water body The heavily modified designation relates coastal protection, and flood defence (the same use as activity)
Biology: habitats	No	
Biology: fish	No – not at Strategy-level	There could be disturbance during construction and this would need to be considered and mitigated during scheme design stage where necessary.
Water quality	No – not at Strategy-level	Details of the Scheme are yet to be confirmed but could affect water clarity, temperature, salinity, oxygen levels, nutrients or microbial patterns continuously for longer than a spring neap tidal cycle during construction. The potential for release of contaminants from disturbed sediment is also currently unclear. These impacts would be considered and mitigated at scheme design stage, e.g. through pollution prevention measures and timing of works.
Protected areas	Yes	Protected sites are located within 2 km, including the Solent Maritime SAC and Chichester and Langstone Harbours SPA potentially overlapping/adjacent to the Scheme. The Scheme is also located within the Langstone Harbour and Chichester Harbour (Emsworth Channel) Shellfish Waters and a eutrophic coastal sensitive area
Invasive non-native species	No – not at Strategy-level	There is potential to spread non-native invasive species during construction Impacts would need to be considered and mitigated at scheme design stage.

1 Introduction

The WFD divides rivers, lakes, lagoons, estuaries, coastal waters, man-made docks and canals into a series of discrete surface water bodies. It sets ecological as well as chemical targets (objectives) for each water body. River Basin Management Plans (RBMPs) are a requirement of the WFD, setting out measures for each river basin district to maintain and improve quality in surface and groundwater water bodies where necessary. A summary of the proposed works are provided in Table 1 following the Environment Agency WFD Directive assessment: scoping template for activities in estuarine and coastal waters[1].

Table 1: Proposed works

Your activity	Description, notes or more information
Applicant name	Coastal Partners
Application reference number (where applicable)	N/A
Name of activity	Hayling Island Coastal Management Strategy
Brief description of activity	A range of options are being considered to sustainably manage coastal flood and erosion risks around Hayling Island
Location of activity (central point XY coordinates or national grid reference)	Entire coastline around Hayling island, Hampshire (SU 72648 01455)
Footprint of activity (ha)	TBC
Timings of activity (including start and finish dates)	TBC
Extent of activity (for example size, scale frequency, expected volumes of output or discharge)	TBC
Use or release of chemicals (state which ones)	None anticipated

A outlined in Section 11 of the main report Hayling Island is located within the south east river basin district which is reported in the south east river basin district RBMP (Environment Agency, 2016). The following water bodies are located adjacent to or overlap with the Hayling Island strategy and are therefore screened in:

- Langstone Harbour (GB580705130000) – West of Hayling Island
- Langstone Oysterbeds (GB510070073000) – North west of Hayling Island
- Chichester Harbour (GB580705210000) – East of Hayling Island
- Solent (GB650705150000) – South of Hayling Island
- Isle of Wight East (GB650705530000) – Southern Eastern Tip of Haying Island

[1] https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters

The Environment Agency's "Clearing the Water for All" guidance provides a scoping template to record findings and consider potential risks for the following key receptors, specifically:

- Hydromorphology
- Biology (Habitats)
- Biology (Fish)
- Water quality
- Protected areas
- Invasive non-native species (INNS)

This appendix provides scoping tables for each key receptor for Solent. These tables follow the Environment Agency WFD Directive assessment: scoping template for activities in estuarine and coastal waters[2]. Where one or more consideration indicates that a risk could be associated with the proposed works on a water body, the receptor is scoped in for future assessment. These tables have been updated since submission as part of the scoping opinion in May 2021, to reflect the current understanding of the proposed works anticipated as part of the Strategy.

2 Solent water body scoping

Table 2 provides an overview of the Solent water body. Table 3 – 6 provides a table for each of the key receptors summarising considerations and associated risk issues for the proposed works.

Table 2: Langstone Oysterbeds water body overview

Water body	Description, notes or more information
WFD water body name	Solent
Water body ID	GB650705150000
River basin district name	south east river basin district RBMP
Water body type (estuarine or coastal)	Coastal Water
Water body total area (ha)	25993.588
Overall water body status (2019)	Moderate
Ecological status (2019)	Moderate
Chemical status (2019)	Fail

[2] https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters

Water body	Description, notes or more information
Target water body status and deadline	Moderate (2015)
Hydromorphology status of water body	Not assessed
Heavily modified water body and for what use	HMWB (coastal protection, flood protection and navigation ports and harbours)
Higher sensitivity habitats present	Chalk reef (3308.84 ha), Intertidal seagrass (141.34ha), mussel beds (0.80 ha), Saltmarsh (132.87), subtidal kelp (111.65), subtidal seagrass (186.05ha)
Lower sensitivity habitats present	Cobbles gravel and shingle (129.48 ha), intertidal soft sediment (1496.88) ha, rocky shore (80.05ha), Subtidal rocky reef (40.77 ha) and subtidal soft sediments (11772.25 ha)
Phytoplankton status	Good
History of harmful algae	No
WFD protected areas within 2km	Overlaps/adjacent to protected areas including: • The Solent Maritime Special Area Conservation (SAC) (Habitats and Species Directive) • Chichester and Langstone Harbours and Solent and Dorset Coast Special Protection Area (SPA) (Wild Birds Directive) • The Langstone Harbour and Chichester Harbour (Emsworth Channel) eutrophic coastal sensitive (Urban Waste Water Treatment Directive and Nitrates Directive) • The Langstone Harbour and Chichester Harbour Shellfish Waters area (Shellfish Water Directive)

2.1 Hydromorphology

Hydromorphology is the physical characteristics of estuaries and coasts, including the size, shape and structure of the water body and the flow and quantity of water and sediment. Table 3 presents a summary of hydromorphological considerations and associated risk issues for the proposed works. As at least one hydromorphological consideration indicates that a risk could be associated with the proposed works, this receptor has been scoped in for future impact assessment.

Table 3: Hydromorphology scoping summary

Consider if your activity	Yes	No	Hydromorpholgy risk issues (s)
Could impact on the hydromorphology (for example morphology or tidal patterns) of a water body at high status	~~Requires impact assessment~~	Impact assessment not required	Water body is not at high status

Consider if your activity	Yes	No	Hydromorpholgy risk issues (s)
Could significantly impact the hydromorphology of any water body	Requires impact assessment	~~Impact assessment not required~~	Details of the Scheme are yet to be confirmed but could include activities that may significantly impact the hydromorphology of the water body
Is in a water body that is heavily modified for the same use as your activity	Requires impact assessment	~~Impact assessment not required~~	The heavily modified designation relates to coastal and flood protection (the same use as activity)

2.2 Biology

2.2.1 Habitats

Consideration is required into the impact of the physical footprint of an activity on nearby marine and coastal habitats. This specifically refers to habitats of higher sensitivity (e.g. intertidal seagrass, maerl and saltmarsh) and lower sensitivity (e.g. cobbles, gravel and shingle, subtidal rock reef and intertidal soft sediments like sand and mud). Table 4 presents a summary of biology (habitat) considerations and associated risk issues for the proposed works. As biology (habitat) considerations indicate that a risk could be associated with the proposed works, this receptor has been scoped in for future impact assessment.

Table 4: Biology (habitat) scoping summary

Consider if your activity	Yes	No	Biology habitats risk issues (s)
0.5km^2 or larger	Yes to one or more – requires impact assessment	~~No to all – impact assessment not required~~	Details of the Scheme are yet to be confirmed but unlikely to have a footprint of 0.5km2 or larger
1% or more of the water body's area			Details of the Scheme are yet to be confirmed but unlikely to be 1% or more of the water body's area
Within 500m of any higher sensitivity habitat			Subtidal kelp beds (higher sensitivity habitats) are within 500m
1% or more of any lower sensitivity habitat			Details of the Scheme are yet to be confirmed but unlikely to result in loss of 1% or more of a lower sensitivity habitat due to the linear nature of coastal defences.

2.2.2 Fish

Activities occurring within an estuary could impact on normal fish behaviour such as movement, migration or spawning. **Error! Reference source not found.** presents a summary of biology (fish) considerations and associated risk issues for the proposed works. As the biology (fish) considerations indicate that a risk could be associated with the proposed works, this receptor has been scoped in for future impact assessment.

Table 4: Biology (fish) scoping summary

Consider if your activity	Yes	No	Fish risk issues (s)
Is in an estuary and could affect fish in the estuary, outside the estuary but could delay or prevent fish entering it or could affect fish migrating through the estuary	~~**Continue with questions**~~	Go to next section	The proposed works are not within an estuary. There is the potential for migratory fish, many of which are of conservation concern e.g. European eel (Anguilla anguilla) and sea trout (Salmo trutta morpha trutta), to pass through the water bodies and the Langdale Brook (and potentially Lymbrook Stream) in the vicinity of Langstone to the North of Hayling Island. It is not anticipated that works would significantly affect fish behaviour in the longer term or cause entrainment or impingement. There could be disturbance during construction and this would need to be considered and mitigated during scheme design stage where necessary, not at a strategy level.
Could impact on normal fish behaviour like movement, migration or spawning (for example creating a physical barrier, noise, chemical change or a change in depth or flow)	~~**Requires impact assessment**~~	Impact assessment not required	
Could cause entrainment or impingement of fish	~~**Requires impact assessment**~~	Impact assessment not required	Details of the Scheme are yet to be confirmed but unlikely to cause entrainment of impingement of fish

2.3 Water Quality

Consideration should be made regarding whether phytoplankton status and harmful algae could be affected by the proposed works, as well as identifying the potential risks of using, releasing or disturbing chemicals. Table 4 presents a summary of water quality considerations and associated risk issues of the proposed works. As at least one water quality consideration indicates that a risk could be associated with the proposed works, this receptor has been scoped in for future impact assessment.

Table 4: Water quality scoping summary

Consider if your activity	Yes	No	Water quality risk issues (s)
Could affect water clarity, temperature, salinity, oxygen levels, nutrients or	~~Requires impact assessment~~	Impact assessment not required	Details of the Scheme are yet to be confirmed but could affect water clarity, temperature, salinity, oxygen levels, nutrients or

Consider if your activity	Yes	No	Water quality risk issues (s)
microbial patterns continuously for longer than a spring neap tidal cycle (about 14 days)			microbial patterns continuously for longer than a spring neap tidal cycle during construction. These impacts would be considered and mitigated at scheme design stage, e.g. through pollution prevention measures and timing of works, not at strategy level
Is in a water body with a phytoplankton status of moderate, poor or bad	~~Requires impact assessment~~	Impact assessment not required	Phytoplankton status is good
Is in a water body with a history of harmful algae	~~Requires impact assessment~~	Impact assessment not required	No history of harmful algae
If your activity uses or releases chemicals (for example through sediment disturbance or building works) consider if the chemicals are on the Environmental Quality Standards Directive (EQSD) list?	~~Requires impact assessment~~	Impact assessment not required	There is the potential for release of contaminants from disturbed sediment during construction. These impacts would be considered and mitigated at scheme design stage, not at strategy level
If your activity uses or releases chemicals (for example through sediment disturbance or building works) consider if it disturbs sediment with contaminants above Cefas Action Level 1?	~~Requires impact assessment~~	Impact assessment not required	
If your activity has a mixing zone (like a discharge pipeline or outfall) consider if the chemicals released are on the Environmental Quality Standards Directive (EQSD) list?	~~Requires impact assessment~~[5]	Impact assessment not required	The Scheme is unlikely to include a new discharge pipe or outfall

2.4 **Protected Areas**

Table 6 considers if WFD protected areas are at risk from the proposed activity. These include:

- special areas of conservation (SAC)
- special protection areas (SPA)
- shellfish waters
- bathing waters
- nutrient sensitive areas

As the protected areas considerations indicate that a risk could be associated with the proposed works, this receptor has been scoped in for future impact assessment.

Table 6: Protected areas scoping summary

Consider if your activity	Yes	No	Protected areas risk issues (s)
Within 2km of any WFD protected area	Requires impact assessment	~~Impact assessment not required~~	Protected sites are located within 2 km, including the Solent Maritime SAC potentially overlapping with the Scheme and potentially bathing waters.

2.5 **Invasive non-native species (INNS)**

Risks of introducing or spreading INNS include:

- materials or equipment that have come from, had use in or travelled through other water bodies
- activities that help spread existing INNS, either within the immediate water body or other water bodies

Table 7 presents a summary of INNS considerations and associated risk issues of the proposed works. As the INNS considerations indicate that a risk could be associated with the proposed works, this receptor has been scoped in for future impact assessment.

Table 7: Invasive non-native species scoping summary

Consider if your activity	Yes	No	Protected areas risk issues (s)
Introduce or spread INNS	~~Requires impact assessment~~	Impact assessment not required	There is potential to spread non-native invasive species during construction works such by moving contaminated machinery. However, impacts would be considered and mitigated at scheme design stage. Activities which involve the movement of sediment, such as renourishment and recycling also have the potential to spread existing INNS during construction. Impacts would need to be considered and mitigated at scheme design stage, not at strategy level.

3 Summary

Table 8 provides a summary of the receptors and risks scoped in for future impact assessment

Table 8: Summary

Receptor	Potential risk to receptor	Note the risk issue(s) for impact assessment
Hydromorphology	Yes	• Details of the Scheme are yet to be confirmed but could include activities that may significantly impact the hydromorphology of a water body • The heavily modified designation relates to coastal and flood protection (the same use as activity)
Biology: habitats	Yes	• Subtidal kelp beds (higher sensitivity habitats) are within 500m
Biology: fish	No – not at Strategy-level	There could be disturbance during construction and this would need to be considered and mitigated during scheme design stage where necessary.
Water quality	No – not at Strategy-level	Details of the Scheme are yet to be confirmed but could affect water clarity, temperature, salinity, oxygen levels, nutrients or microbial patterns continuously for longer than a spring neap tidal cycle during construction. The potential for release of contaminants from disturbed sediment is also currently unclear. These impacts would be considered and mitigated at scheme design stage, e.g. through pollution prevention measures and timing of works.
Protected areas	Yes	• Protected sites are located within 2 km, including the Solent Maritime SAC potentially overlapping with the Scheme and potentially bathing waters
Invasive non-native species	No – not at Strategy-level	There is potential to spread non-native invasive species during construction Impacts would need to be considered and mitigated at scheme design stage.

1 Introduction

The WFD divides rivers, lakes, lagoons, estuaries, coastal waters, man-made docks and canals into a series of discrete surface water bodies. It sets ecological as well as chemical targets (objectives) for each water body. River Basin Management Plans (RBMPs) are a requirement of the WFD, setting out measures for each river basin district to maintain and improve quality in surface and groundwater water bodies where necessary. A summary of the proposed works are provided in Table 1 following the Environment Agency WFD Directive assessment: scoping template for activities in estuarine and coastal waters[1].

Table 1: Proposed works

Your activity	Description, notes or more information
Applicant name	Coastal Partners
Application reference number (where applicable)	N/A
Name of activity	Hayling Island Coastal Management Strategy
Brief description of activity	A range of options are being considered to sustainably manage coastal flood and erosion risks around Hayling Island
Location of activity (central point XY coordinates or national grid reference)	Entire coastline around Hayling island, Hampshire (SU 72648 01455)
Footprint of activity (ha)	TBC
Timings of activity (including start and finish dates)	TBC
Extent of activity (for example size, scale frequency, expected volumes of output or discharge)	TBC
Use or release of chemicals (state which ones)	None anticipated

A outlined in Section 11 of the main report Hayling Island is located within the south east river basin district which is reported in the south east river basin district RBMP (Environment Agency, 2016). The following water bodies are located adjacent to or overlap with the Hayling Island strategy and are therefore screened in:

- Langstone Harbour (GB580705130000) – West of Hayling Island
- Langstone Oysterbeds (GB510070073000) – North west of Hayling Island
- Chichester Harbour (GB580705210000) – East of Hayling Island
- Solent (GB650705150000) – South of Hayling Island
- Isle of Wight East (GB650705530000) – Southern Eastern Tip of Haying Island

[1] https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters

The Environment Agency's "Clearing the Water for All" guidance provides a scoping template to record findings and consider potential risks for the following key receptors, specifically:

- Hydromorphology
- Biology (Habitats)
- Biology (Fish)
- Water quality
- Protected areas
- Invasive non-native species (INNS)

This appendix provides scoping tables for each key receptor for Langstone Harbour. These tables follow the Environment Agency WFD Directive assessment: scoping template for activities in estuarine and coastal waters[2]. Where one or more consideration indicates that a risk could be associated with the proposed works on a water body, the receptor is scoped in for future assessment. These tables have been updated since submission as part of the scoping opinion in May 2021, to reflect the current understanding of the proposed works anticipated as part of the Strategy.

2 Langstone Harbour water body scoping

Table 2 provides an overview of Langstone Harbour water body. Table 3 – 6 provides a table for each of the key receptors summarising considerations and associated risk issues for the proposed works.

Table 2: Langstone Harbour water body overview

Water body	Description, notes or more information
WFD water body name	Langstone Harbour
Water body ID	GB580705130000
River basin district name	south east river basin district RBMP
Water body type (estuarine or coastal)	Transitional[3]
Water body total area (ha)	1902.686
Overall water body status (2019)	Moderate

[2] https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters

[3] Transitional in accordance with the EA Catchment explorer https://environment.data.gov.uk/catchment-planning/WaterBody/GB580705210000. Estuarine in accordance with the water body summary table https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters (last accessed 12012021)

Water body	Description, notes or more information
Ecological status (2019)	Moderate
Chemical status (2019)	Fail
Target water body status and deadline	Good (2027) Low confidence
Hydromorphology status of water body	Supports good
Heavily modified water body and for what use	Heavily modified – for coastal protection, and flood defence
Higher sensitivity habitats present	Intertidal seagrass (130.8 ha), saltmarsh (72.67 ha), subtidal seagrass (0.18 ha)
Lower sensitivity habitats present	Cobbles, gravel and shingle (24.94 ha), intertidal soft sediment (1388.93 ha), rocky shore (10.85 ha), subtidal soft sediments (382.67 ha).
Phytoplankton status	-
History of harmful algae	Yes
WFD protected areas within 2km	Overlaps/adjacent to protected areas including: • The Solent Maritime Special Area Conservation (SAC) (Habitats and Species Directive) • Chichester and Langstone Harbours and Dorset Coast Special Protection Area (SPA) (Wild Birds Directive) • The Langstone Harbour and Chichester Harbour (Emsworth Channel) eutrophic coastal sensitive (Urban Waste Water Treatment Directive and Nitrates Directive) • The Langstone Harbour and Chichester Harbour Shellfish Waters area (Shellfish Water Directive)

2.1 Hydromorphology

Hydromorphology is the physical characteristics of estuaries and coasts, including the size, shape and structure of the water body and the flow and quantity of water and sediment. Table 3 presents a summary of hydromorphological considerations and associated risk issues for the proposed works. As at least one hydromorphological consideration indicates that a risk could be associated with the proposed works, this receptor has been scoped in for future impact assessment.

Table 3: Hydromorphology scoping summary

Consider if your activity	Yes	No	Hydromorpholgy risk issues (s)
Could impact on the hydromorphology (for example morphology or tidal	~~Requires impact assessment~~	Impact assessment not required	Water body is not at high status

Consider if your activity	Yes	No	Hydromorpholgy risk issues (s)
patterns) of a water body at high status			
Could significantly impact the hydromorphology of any water body	Requires impact assessment	~~Impact assessment not required~~	Details of the Scheme are yet to be confirmed but could include activities that may significantly impact the hydromorphology of the water body
Is in a water body that is heavily modified for the same use as your activity	Requires impact assessment	~~Impact assessment not required~~	The heavily modified designation relates to coastal protection, and flood defence (the same use as activity)

2.2 Biology

2.2.1 Habitats

Consideration is required into the impact of the physical footprint of an activity on nearby marine and coastal habitats. This specifically refers to habitats of higher sensitivity (e.g. intertidal seagrass, maerl and saltmarsh) and lower sensitivity (e.g. cobbles, gravel and shingle, subtidal rock reef and intertidal soft sediments like sand and mud). Table 4 presents a summary of biology (habitat) considerations and associated risk issues for the proposed works. As biology (habitat) considerations indicate that a risk could be associated with the proposed works, this receptor has been scoped in for future impact assessment.

Table 4: Biology (habitat) scoping summary

Consider if your activity	Yes	No	Biology habitats risk issues (s)
0.5km^2 or larger	Yes to one or more – requires impact assessment	~~No to all – impact assessment not required~~	Details of the Scheme are yet to be confirmed but unlikely to have a footprint of 0.5km2 or larger
1% or more of the water body's area			Details of the Scheme are yet to be confirmed but unlikely to be 1% or more of the water body's area
Within 500m of any higher sensitivity habitat			Saltmarsh and seagrass beds are potentially within 500m
1% or more of any lower			Details of the Scheme are yet to be confirmed but unlikely to result in loss of 1% or more of a lower sensitivity

Consider if your activity	Yes	No	Biology habitats risk issues (s)
sensitivity habitat			habitat due to the linear nature of coastal defences.

2.2.2 Fish

Activities occurring within an estuary could impact on normal fish behaviour such as movement, migration or spawning. Table 5 presents a summary of biology (fish) considerations and associated risk issues for the proposed works. As the biology (fish) considerations indicate that a risk could be associated with the proposed works, this receptor has been scoped in for future impact assessment.

Table 5: Biology (fish) scoping summary

Consider if your activity	Yes	No	Fish risk issues (s)
Is in an estuary and could affect fish in the estuary, outside the estuary but could delay or prevent fish entering it or could affect fish migrating through the estuary	~~**Continue with questions**~~	Go to next section	The proposed works are not within an estuary. There is the potential for migratory fish, many of which are of conservation concern e.g. European eel (Anguilla anguilla) and sea trout (Salmo trutta morpha trutta), to pass through the water bodies and the Langdale Brook (and potentially Lymbrook Stream) in the vicinity of Langstone to the North of Hayling Island. It is not anticipated that works would significantly affect fish behaviour in the longer term or cause entrainment or impingement. There could be disturbance during construction and this would need to be considered and mitigated during scheme design stage where necessary, not at a strategy level.
Could impact on normal fish behaviour like movement, migration or spawning (for example creating a physical barrier, noise, chemical change or a change in depth or flow)	~~**Requires impact assessment**~~	Impact assessment not required	
Could cause entrainment or impingement of fish	~~**Requires impact assessment**~~	Impact assessment not required	Details of the Scheme are yet to be confirmed but unlikely to cause entrainment of impingement of fish

2.3 Water Quality

Consideration should be made regarding whether phytoplankton status and harmful algae could be affected by the proposed works, as well as identifying the potential risks of using, releasing or disturbing chemicals. Table 6 presents a summary of water quality considerations and associated risk issues of the proposed works. As at least one water quality consideration indicates that a risk could be associated with the proposed works, this receptor has been scoped in for future impact assessment.

Table 6: Water quality scoping summary

Consider if your activity	Yes	No	Water quality risk issues (s)
Could affect water clarity, temperature, salinity, oxygen levels, nutrients or microbial patterns continuously for longer than a spring neap tidal cycle (about 14 days)	~~Requires impact assessment~~	Impact assessment not required	Details of the Scheme are yet to be confirmed but could affect water clarity, temperature, salinity, oxygen levels, nutrients or microbial patterns continuously for longer than a spring neap tidal cycle. In addition there is a history of harmful algae. These impacts would be considered and mitigated at scheme design stage, e.g. through pollution prevention measures and timing of works, not at strategy level. Phytoplankton status not assessed for this water body
Is in a water body with a phytoplankton status of moderate, poor or bad	~~Requires impact assessment~~	Impact assessment not required	
Is in a water body with a history of harmful algae	Requires impact assessment	~~Impact assessment not required~~	
If your activity uses or releases chemicals (for example through sediment disturbance or building works) consider if the chemicals are on the Environmental Quality Standards Directive (EQSD) list?	~~Requires impact assessment~~	Impact assessment not required	
If your activity uses or releases chemicals (for example through sediment disturbance or building works) consider if it disturbs sediment with contaminants above Cefas Action Level 1?	~~Requires impact assessment~~	Impact assessment not required	
If your activity has a mixing zone (like a discharge pipeline or outfall) consider if the chemicals released are on the Environmental Quality Standards Directive (EQSD) list?	~~Requires impact assessment~~[5]	Impact assessment not required	The Scheme is unlikely to include a new discharge pipe or outfall

2.4 **Protected Areas**

Table 7 considers if WFD protected areas are at risk from the proposed activity. These include:

- special areas of conservation (SAC)
- special protection areas (SPA)
- shellfish waters
- bathing waters
- nutrient sensitive areas

As the protected areas considerations indicate that a risk could be associated with the proposed works, this receptor has been scoped in for future impact assessment.

Table 7: Protected areas scoping summary

Consider if your activity	Yes	No	Protected areas risk issues (s)
Within 2km of any WFD protected area	Requires impact assessment	~~Impact assessment not required~~	Protected sites are located within 2 km, including the Solent Maritime SAC and Chichester and Langstone Harbours and SPA potentially overlapping with the Scheme. The Scheme is also located within the Langstone Harbour and Chichester Harbour (Emsworth Channel) Shellfish Waters and a eutrophic coastal sensitive area

2.5 Invasive non-native species (INNS)

Risks of introducing or spreading INNS include:

- materials or equipment that have come from, had use in or travelled through other water bodies
- activities that help spread existing INNS, either within the immediate water body or other water bodies

Table 8 presents a summary of INNS considerations and associated risk issues of the proposed works. As the INNS considerations indicate that a risk could be associated with the proposed works, this receptor has been scoped in for future impact assessment.

Table 8: Invasive non-native species scoping summary

Consider if your activity	Yes	No	Protected areas risk issues (s)
Introduce or spread INNS	~~Requires impact assessment~~	Impact assessment not required	There is potential to spread non-native invasive species during construction works such by moving contaminated machinery. However, impacts would be considered and mitigated at scheme design stage. Activities which involve the movement of sediment, such as renourishment and recycling also have the potential to spread existing INNS during construction. Impacts would need to be considered and mitigated at scheme design stage, not at strategy level.

3 Summary

Table 9 provides a summary of the receptors and risks scoped in for future impact assessment

Table 9: Chichester Harbour summary

Receptor	Potential risk to receptor	Note the risk issue(s) for impact assessment
Hydromorphology	Yes	• Details of the Scheme are yet to be confirmed but could include activities that may significantly impact the hydromorphology of a water body • The heavily modified designation relates coastal protection, and flood defence (the same use as activity)
Biology: habitats	Yes	• Saltmarsh and seagrass beds are potentially within 500m
Biology: fish	No – not at Strategy-level	There could be disturbance during construction and this would need to be considered and mitigated during scheme design stage where necessary.
Water quality	No – not at Strategy-level	History of harmful algae. Details of the Scheme are yet to be confirmed but could affect water clarity, temperature, salinity, oxygen levels, nutrients or microbial patterns continuously for longer than a spring neap tidal cycle during construction. The potential for release of contaminants from disturbed sediment is also currently unclear. In addition there is a history of harmful algae. These impacts would be considered and mitigated at scheme design stage, e.g. through pollution prevention measures and timing of works.
Protected areas	Yes	• Protected sites are located within 2 km, including the Solent Maritime SAC and Chichester and Langstone Harbours SPA potentially overlapping/adjacent to the Scheme. The Scheme is also located within the Langstone Harbour and Chichester Harbour (Emsworth Channel) Shellfish Waters and a eutrophic coastal sensitive area
Invasive non-native species	No – not at Strategy-level	There is potential to spread non-native invasive species during construction Impacts would need to be considered and mitigated at scheme design stage.

1 Introduction

The WFD divides rivers, lakes, lagoons, estuaries, coastal waters, man-made docks and canals into a series of discrete surface water bodies. It sets ecological as well as chemical targets (objectives) for each water body. River Basin Management Plans (RBMPs) are a requirement of the WFD, setting out measures for each river basin district to maintain and improve quality in surface and groundwater water bodies where necessary. A summary of the proposed works are provided in Table 1 following the Environment Agency WFD Directive assessment: scoping template for activities in estuarine and coastal waters[1].

Table 1: Proposed works

Your activity	Description, notes or more information
Applicant name	Coastal Partners
Application reference number (where applicable)	N/A
Name of activity	Hayling Island Coastal Management Strategy
Brief description of activity	A range of options are being considered to sustainably manage coastal flood and erosion risks around Hayling Island
Location of activity (central point XY coordinates or national grid reference)	Entire coastline around Hayling island, Hampshire (SU 72648 01455)
Footprint of activity (ha)	TBC
Timings of activity (including start and finish dates)	TBC
Extent of activity (for example size, scale frequency, expected volumes of output or discharge)	TBC
Use or release of chemicals (state which ones)	None anticipated

A outlined in Section 11 of the main report Hayling Island is located within the south east river basin district which is reported in the south east river basin district RBMP (Environment Agency, 2016). The following water bodies are located adjacent to or overlap with the Hayling Island strategy and are therefore screened in:

- Langstone Harbour (GB580705130000) – West of Hayling Island
- Langstone Oysterbeds (GB510070073000) – North west of Hayling Island
- Chichester Harbour (GB580705210000) – East of Hayling Island
- Solent (GB650705150000) – South of Hayling Island
- Isle of Wight East (GB650705530000) – Southern Eastern Tip of Haying Island

[1] https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters

The Environment Agency's "Clearing the Water for All" guidance provides a scoping template to record findings and consider potential risks for the following key receptors, specifically:

- Hydromorphology
- Biology (Habitats)
- Biology (Fish)
- Water quality
- Protected areas
- Invasive non-native species (INNS)

This appendix provides scoping tables for each key receptor for all Langstone Oysterbeds. These tables follow the Environment Agency WFD Directive assessment: scoping template for activities in estuarine and coastal waters[2]. Where one or more consideration indicates that a risk could be associated with the proposed works on a water body, the receptor is scoped in for future assessment. These tables have been updated since submission as part of the scoping opinion in May 2021, to reflect the current understanding of the proposed works anticipated as part of the Strategy.

2 Langstone Oysterbeds water body scoping

Table 2 provides an overview of Langstone Oysterbeds water body. Table 3 – 6 provides a table for each of the key receptors summarising considerations and associated risk issues for the proposed works.

Table 2: Langstone Oysterbeds water body overview

Water body	Description, notes or more information
WFD water body name	Langstone Oysterbeds
Water body ID	GB510070073000
River basin district name	South East River Basin District RBMP
Water body type (estuarine or coastal)	Transitional[3]
Water body total area (ha)	15.938

[2] https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters
[3] Transitional in accordance with the EA Catchment explorer https://environment.data.gov.uk/catchment-planning/WaterBody/GB510070073000. Estuarine in accordance with the water body summary table https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters (last accessed 12012021)

Water body	Description, notes or more information
Overall water body status (2019)	Moderate
Ecological status (2019)	Good
Chemical status (2019)	Fail
Target water body status and deadline	Good (2027) Low confidence
Hydromorphology status of water body	Artificial[4]
Higher sensitivity habitats present	Saltmarsh (0.70 ha)
Lower sensitivity habitats present	Intertidal Soft Sediment (17.37 ha)[5] and Rockyshore (Intertidal rock A1) and Gravel and Cobbles (intertidal and subtidal coarse sediment A2.1, A5.1)[6]
Phytoplankton status	-
History of harmful algae	Not monitored
WFD protected areas within 2km	Overlaps/adjacent to protected areas including: • Langstone Harbour Shellfish Waters (Shellfish Waters Directive) • Solent Maritime Special Area Conservation (SAC) (Habitats and Species Directive), • Langstone Harbour eutrophic coastal sensitive areas (Urban Waste Water Treatment Directive) • Chichester and Langstone Harbours Special Protection Area (SPA)(Conservation of Wild Birds Directive)

2.1 Hydromorphology

Hydromorphology is the physical characteristics of estuaries and coasts, including the size, shape and structure of the water body and the flow and quantity of water and sediment. Table 3 presents a summary of hydromorphological considerations and associated risk issues for the proposed works. As at least one hydromorphological consideration indicates that a risk could be associated with the proposed works, this receptor has been scoped in for future impact assessment.

[4] Artificial in accordance with the EA Catchment explorer https://environment.data.gov.uk/catchment-planning/WaterBody/GB510070073000. Heavily modified water body for flood protection in accordance with the water body summary table https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters

[5] Intertidal soft sediment only in accordance with the water body summary table https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters.

[6] Rockyshore/Gravel and Cobbles noted on https://magic.defra.gov.uk/MagicMap.aspx WFD mapping

Table 3: Hydromorphology scoping summary

Consider if your activity	Yes	No	Hydromorpholgy risk issues (s)
Could impact on the hydromorphology (for example morphology or tidal patterns) of a water body at high status	~~Requires impact assessment~~	Impact assessment not required	Water body is not at high status
Could significantly impact the hydromorphology of any water body	Requires impact assessment	~~Impact assessment not required~~	Details of the Scheme are yet to be confirmed but could include activities that may significantly impact the hydromorphology of the water body
Is in a water body that is heavily modified for the same use as your activity	~~Requires impact assessment~~	Impact assessment not required	Artificial in accordance with the EA Catchment explorer[7]. However heavily modified water body for flood protection in accordance with the EA water body summary table (the same use as activity)[8]. The EA catchment explorer is understood to be more updated and therefore the water body is not considered a water body that is heavily modified for the same use as activity.

2.2 Biology

2.2.1 Habitats

Consideration is required into the impact of the physical footprint of an activity on nearby marine and coastal habitats. This specifically refers to habitats of higher sensitivity (e.g. intertidal seagrass, maerl and saltmarsh) and lower sensitivity (e.g. cobbles, gravel and shingle, subtidal rock reef and intertidal soft sediments like sand and mud). Table 4 presents a summary of biology (habitat) considerations and associated risk issues for the proposed works. As biology (habitat) considerations indicate that a risk could be associated with the proposed works, this receptor has been scoped in for future impact assessment.

Table 4: Biology (habitat) scoping summary

Consider if your activity	Yes	No	Biology habitats risk issues (s)
0.5km^2 or larger	Yes to one or more – requires	~~No to all – impact~~	Details of the Scheme are yet to be confirmed but unlikely to have a footprint of 0.5km2 or larger

[7] https://environment.data.gov.uk/catchment-planning/WaterBody/GB510070073000
[8] https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters

Consider if your activity	Yes	No	Biology habitats risk issues (s)
	impact assessment	~~assessment not required~~	
1% or more of the water body's area			Details of the Scheme are yet to be confirmed but unlikely to be 1% or more of the water body's area
Within 500m of any higher sensitivity habitat			Saltmarsh is potentially within 500m
1% or more of any lower sensitivity habitat			Details of the Scheme are yet to be confirmed but unlikely to result in loss of 1% or more of a lower sensitivity habitat due to the linear nature of coastal defences.

2.2.2 Fish

Activities occurring within an estuary could impact on normal fish behaviour such as movement, migration or spawning. Table 5 presents a summary of biology (fish) considerations and associated risk issues for the proposed works. As the biology (fish) considerations indicate that a risk could be associated with the proposed works, this receptor has been scoped in for future impact assessment.

Table 5: Biology (fish) scoping summary

Consider if your activity	Yes	No	Fish risk issues (s)
Is in an estuary and could affect fish in the estuary, outside the estuary but could delay or prevent fish entering it or could affect fish migrating through the estuary	~~**Continue with questions**~~	Go to next section	The proposed works are not within an estuary. There is the potential for migratory fish, many of which are of conservation concern e.g. European eel (Anguilla anguilla) and sea trout (Salmo trutta morpha trutta), to pass through the water bodies and the Langdale Brook (and potentially Lymbrook Stream) in the vicinity of Langstone to the North of Hayling Island. It is not anticipated that works would significantly affect fish behaviour in the longer term or cause entrainment or impingement. There could be disturbance during construction and this would need to be considered and mitigated during scheme design stage
Could impact on normal fish behaviour like movement, migration or spawning (for example creating a physical barrier, noise, chemical change or a change in depth or flow)	~~**Requires impact assessment**~~	Impact assessment not required	

Consider if your activity	Yes	No	Fish risk issues (s)
			where necessary, not at a strategy level.
Could cause entrainment or impingement of fish	~~**Requires impact assessment**~~	Impact assessment not required	Details of the Scheme are yet to be confirmed but could cause entrainment of impingement of fish

2.3 Water Quality

Consideration should be made regarding whether phytoplankton status and harmful algae could be affected by the proposed works, as well as identifying the potential risks of using, releasing or disturbing chemicals. Table 6 presents a summary of water quality considerations and associated risk issues of the proposed works. As at least one water quality consideration indicates that a risk could be associated with the proposed works, this receptor has been scoped in for future impact assessment.

Table 6: Water quality scoping summary

Consider if your activity	Yes	No	Water quality risk issues (s)
Could affect water clarity, temperature, salinity, oxygen levels, nutrients or microbial patterns continuously for longer than a spring neap tidal cycle (about 14 days)	~~Requires impact assessment~~	Impact assessment not required	Details of the Scheme are yet to be confirmed but could affect water clarity, temperature, salinity, oxygen levels, nutrients or microbial patterns continuously for longer than a spring neap tidal cycle during construction. These impacts would be considered and mitigated at scheme design stage, e.g. through pollution prevention measures and timing of works, not at strategy level
Is in a water body with a phytoplankton status of moderate, poor or bad	~~Requires impact assessment~~	Impact assessment not required	Phytoplankton status not assessed for this water body
Is in a water body with a history of harmful algae	~~Requires impact assessment~~	Impact assessment not required	No history of harmful algae
If your activity uses or releases chemicals (for example through sediment disturbance or building works) consider if the chemicals are on the Environmental Quality Standards Directive (EQSD) list?	~~Requires impact assessment~~	Impact assessment not required	There is the potential for release of contaminants from disturbed sediment during construction. These impacts would be considered and mitigated at scheme design stage, not at strategy level

Consider if your activity	Yes	No	Water quality risk issues (s)
If your activity uses or releases chemicals (for example through sediment disturbance or building works) consider if it disturbs sediment with contaminants above Cefas Action Level 1?	Requires impact assessment	~~Impact assessment not required~~	
If your activity has a mixing zone (like a discharge pipeline or outfall) consider if the chemicals released are on the Environmental Quality Standards Directive (EQSD) list?	~~Requires impact assessment~~[5]	Impact assessment not required	The Scheme is unlikely to include a new discharge pipe or outfall

2.4 Protected Areas

Table 7 considers if WFD protected areas are at risk from the proposed activity. These include:

- special areas of conservation
- special protection areas
- shellfish waters
- bathing waters
- nutrient sensitive areas

As the protected areas considerations indicate that a risk could be associated with the proposed works, this receptor has been scoped in for future impact assessment.

Table 7: Protected areas scoping summary

Consider if your activity	Yes	No	Protected areas risk issues (s)
Within 2km of any WFD protected area	Requires impact assessment	~~Impact assessment not required~~	Protected sites are located within 2 km, including the Solent Maritime SAC potentially overlapping with the Scheme and potentially bathing waters

2.5 Invasive non-native species (INNS)

Risks of introducing or spreading INNS include:

- materials or equipment that have come from, had use in or travelled through other water bodies
- activities that help spread existing INNS, either within the immediate water body or other water bodies

Table 8 presents a summary of INNS considerations and associated risk issues of the proposed works. As the INNS considerations indicate that a risk could be associated with the proposed works, this receptor has been scoped in for future impact assessment.

Table 8: Invasive non-native species scoping summary

Consider if your activity	Yes	No	Protected areas risk issues (s)
Introduce or spread INNS	~~Requires impact assessment~~	Impact assessment not required	There is potential to spread non-native invasive species during construction works such by moving contaminated machinery. However, impacts would be considered and mitigated at scheme design stage. Activities which involve the movement of sediment, such as renourishment and recycling also have the potential to spread existing INNS during construction. Impacts would need to be considered and mitigated at scheme design stage, not at strategy level.

3 Langstone Oysterbeds summary

Table 9 provides a summary of the receptors and risks scoped in for future impact assessment

Table 9: Langstone Oysterbeds summary

Receptor	Potential risk to receptor	Note the risk issue(s) for impact assessment
Hydromorphology	Yes	Details of the Scheme are yet to be confirmed but could include activities that may significantly impact the hydromorphology of a water body
Biology: habitats	Yes	Saltmarsh is potentially within 500m
Biology: fish	No – not at Strategy-level	There could be disturbance during construction and this would need to be considered and mitigated during scheme design stage where necessary.
Water quality	No – not at Strategy-level	Details of the Scheme are yet to be confirmed but could affect water clarity, temperature, salinity, oxygen levels, nutrients or microbial patterns continuously for longer than a spring neap tidal cycle during construction. The potential for release of contaminants from disturbed sediment is also currently unclear. These impacts would be considered and mitigated at scheme design stage, e.g. through pollution prevention measures and timing of works.
Protected areas	Yes	Protected sites are located within 2 km, including the Solent Maritime SAC potentially overlapping with the Scheme and potentially bathing waters
Invasive non-native species	No – not at Strategy-level	There is potential to spread non-native invasive species during construction Impacts would need to be considered and mitigated at scheme design stage.