Havant BOROUGH COUNCIL

Coastal Partners

Hayling Island Coastal Strategy

Strategic Environmental Assessment

Environmental Report

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Non-technical summary

The Hayling Island Coastal Strategy

This Strategic Environmental Assessment (SEA) has been undertaken by Coastal Partners, with support from AECOM and on behalf of Havant Borough Council (HBC) to develop the Hayling Island Coastal Strategy 2120.

Strategic Environmental Assessment

A SEA is required for certain plans and programmes as a result of the SEA Regulations. SEA is undertaken to identify possible effects that these plans, programmes and strategies may have on the existing environment, and therefore increase the consideration of environmental issues in the decision making process.

Coastal Flood and Erosion Risk Management Strategies are covered by the SEA Regulations and the options of the Strategy have been tested through the SEA as detailed in this Report.

Strategy objectives

The North Solent SMP was adopted by HBC in 2010 and recommended the need to develop a Coastal Strategy for the Hayling Island coastline. The strategy covers a location length of approximately 37km around Hayling Island. The coastline comprises both urban and rural landscapes including agricultural land and natural areas with both residential and commercial development. The south of the Island has popular beaches as well as recreation and leisure facilities responsible for tourism on the Island. Facilities include an amusement park and golf courses, as well as several seaside cafes and restaurants. There are a number of marinas, boat yards and sailing clubs on the Island, and the Hayling Billy Line is a popular coastal foot / cycle path.

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 were divided into 16 small, local sections, or Option Development Units (ODUs).

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 SMP, 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 SMP 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 Flood and Coastal Erosion Risk Management (FCERM) schemes
- 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
- 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.

Baseline and Context Review

The SEA scoping phase defined the baseline and set the environmental objectives for the Strategy which were reviewed by appropriate regulators. The SEA Scoping Report, review comments, and details of how these have been accounted for in the SEA are included in **Appendix A** of this report.

Summary of Significant Environmental Effects and Mitigation and Enhancement Opportunities

The SEA was undertaken as an integral part of the Strategy option appraisal phase to appraise the potential management options against the environmental indicators and objectives and to ascertain, evaluate and compare the potential environmental impacts of the strategic management options.

This process, coupled with statistical analysis resulted in the selection of leading options considering a combination of environmental, technical, economic and social factors. For each ODU up to two leading options were identified:

1. The ‘FCERM leading’ or ‘cost effective’ was identified based on economics.

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

This SEA provides an assessment of the leading options considering a number of environmental topics. Overall, there is the potential for a number of positive and

negative effects on the environment. Without mitigation there is the potential for minor negative adverse effects on climatic factors such as from Green House Gas emissions during construction. However, the creation of new intertidal habitat is proposed in some areas which will act as a carbon sink, reducing atmospheric carbon levels, and therefore help mitigate some effects of climate change.

There is also the potential for minor significant adverse effects on the Historic Environment as a result of changes to the setting of designated historic assets. Similarly, there is the potential for some significant adverse effects on Landscape, particularly due to the location of Hayling Island within an Area of Outstanding Natural Beauty. These effects will be considered in further detail at the scheme level such as through the detailed design and materials used.

Haying Island overlaps with a number of environment designations and important habitats and species. There is likely to be a mixture of beneficial and detrimental effects for biodiversity due to the balance of protecting between the loss of seaward or landward habitats. Some significant adverse effects have been identified for resilience options at ODU 4 and 10 without intervention. However this would occur in a baseline scenario without the Strategy. In general biodiversity is contingent upon robust consideration of biodiversity matters at the scheme level. This includes minimising any encroachment into designated sites and ensuring any compensation habitat is secured through the Habitat Compensation and Restoration Programme (HCRP) (Formerly Regional Habitat Compensation Programme)

In addition, a 'Habitat Regulations Appraisal' was undertaken to consider whether the Strategy has the potential to result in significant adverse effects on particular designated sites, specifically the Chichester and Langstone Harbours Special Protection Area (SPA) / Ramsar and Solent Maritime Special Area of Conservation (SAC). Overall it is considered that there will be no net loss of intertidal habitats, losses in vegetated shingle can be compensated and sites for the creation of new coastal grazing marsh would compensate for loss of high-tide wader and waterfowl foraging and roosting sites. Provided that the relevant organisations are consulted at the earliest opportunity in habitat creation and scheme design, adequate mitigation for functionally linked habitat loss is achievable in principle.

The Coastal Strategy could also have the following significant benefits on the environment:

- Health: There will be benefits to physical health of people who are currently at risk from flooding and coastal erosion due to further protection of properties, businesses and other assets. This includes protecting some road access like the A3023 connecting Hayling Island to the mainland as well as tourist and recreation facilities.
- Material Assets: where defences are maintained or built, there will be a reduction in the flooding of assets including houses, businesses and infrastructure
- Soil: protection of some agricultural land and increased protection of some historic landfill site from flooding and erosion.

- Cultural Heritage / Historic Environment: there will be a reduction in the number of important historic buildings and structures at risk from flooding and coastal erosion.

Monitoring

The SEA Directive requires that the significant environmental effects of The Strategy should be monitored once it has been adopted. Monitoring of a series of environmental indicators, outlined in this final Environmental Report, is proposed to determine whether changes to The Strategy are required to account for future unexpected events.

Contents

List of Appendices (see separate documents)

Abbreviations

AEP	Annual Exceedance Probability
ALC	Agricultural Land Classification
AONB	Area of Outstanding Natural Beauty
ATL	Advance the Line
AWB	Artificial Water Bodies
BNG	Biodiversity Net Gain
CCMA	Coastal Change Management Areas
CCT	Cost and Carbon Tool
CEMP	Construction Environmental Management Plan
CH_4	Methane
CO_2	Carbon Dioxide
CTMP	Construction Traffic Management Plan
Defra	Department for Environment, Food and Rural Affairs
EA	Environment Agency
EIA	Environmental Impact Assessment
ELC	European Landscape Conservation
FCERM	Flood and Coastal Erosion Risk Management
GCS	Good Chemical Status
GES	Good Ecological Status
GHG	Greenhouse Gas Emissions
GS	Good Status
HBC	Havant Borough Council
HBIC	Hampshire Biodiversity Information Centre
HCRP	Habitat Compensation and Restoration Programme
HE	Historic England
HER	Historic Environment Record
HMWB	Heavily Modified Water Bodies
HRA	Habitats Regulations Assessment
HTL	Hold the Line
IROPI	Imperative reasons of overriding public interest
LCA	Landscape Charter Area
LNR	Local Nature Reserve
LP SV	Local Plan Submission Version
LPRG	Large Project Review Group
MMO	Marine Management Organisation
MR	Managed Realignment
NAC	National Character Area
NAI	No Active Intervention
NBS	Nature Based Solutions

NE	Natural England
NERC	Natural Environment and Rural Communities Act
NO_2	Nitrogen Dioxide
NPPF	National Planning Policy Framework
NPPF	National Planning Policy Framework
ODU	Options Development Units
PBDE	Polybrominated Diphenyl Ethers
PFR	Property Flood Resilience
PPG	Policy and Planning Guidance
RBMP	River Basin Management Plan
SA	Sustainability Appraisal
SAC	Special Area of Conservation
SDCP	Solent Dynamic Coast Project
SEA	Strategic Environmental Assessment
SINC	Site of Importance for Nature Conservation
SLR	Sea Level Rise
SMP	Shoreline Management Plan
SoP	Standard of Protection
SPA	Special Protection Area
SPD	Supplementary Planning Document
SSSI	Site of Special Scientific Interest
StAR	Strategy Appraisal Report
SWBGS	Solent Waders & Brent Goose Strategy
UK	United Kingdom
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WFD	Water Framework Directive

1. Introduction

1.1 Context

This Strategic Environmental Assessment (SEA) has been undertaken by Coastal Partners, on behalf of Havant Borough Council (HBC) to develop the Hayling Island Coastal Management Strategy 2120 (hereafter 'the Strategy'). The Strategy aims to plan the future management of coastal flood and erosion risk on Hayling Island, including the effects of climate change, over the next 100 years. This SEA is undertaken in accordance with Environmental Assessment of Plans and Programmes Regulations 2004 (SI 1633, 2004 'the SEA Regulations'[1]). The main purpose of the SEA is to ensure that the leading options of the Strategy are environmentally sustainable. An SEA is undertaken to identify possible effects that plans, programmes and strategies may have on the existing environment, and therefore increase the consideration of environmental issues in the decision-making process.

The SEA process is conducted in five key stages[2]:

Stage A: Setting the context and objectives, establishing the baseline and deciding on the scope

Stage B: Developing and refining alternatives and assessing effects

Stage C: Preparing the Environmental Report

Stage D: Consulting on the draft plan or programme and the Environmental Report

Stage E: Monitoring the significant effects of implementing the plan or programme on the environment.

This Draft Environmental Report is concerned with Stage D as highlighted above in red. A scoping report (Stage A) was prepared by Coastal Partners (Coastal Partners, 2021) and submitted to HBC for consultation with statutory consultees February 2021 to inform a scoping opinion. This was provided by HBC May 2021 and has been used to identify the issues that should be covered in this report**. Appendix A** provides a summary of the issues raised, cross-referencing to the relevant sections in this SEA to demonstrate how, and where, the scoping comments have been addressed.

This report sets out the information required in Schedule 2 of the SEA Regulations. It sets out the scoping information including the SEA framework of objectives. It includes a discussion of the likely significant effects of the implementation of the Strategy and recommendations are made to reduce likely adverse effects on the environment or enhance beneficial effects. Further to this the report includes proposals for relevant environmental indicators to monitor the significant effects of the implementation of the Strategy. During Stage D this report will be submitted to consultation with HBC and consultees comprising the Environment Agency (EA), Natural England (NE) and Historic England (HE). Stage E of the process (monitoring) will be managed and overseen by Coastal Partners and other key stakeholders following adoption of the Coastal Strategy.

[1] Modified by the Environmental Assessments and Miscellaneous Planning (Amendment) (EU Exit) Regulations on 31 January 2020

[2] https://www.gov.uk/government/publications/strategic-environmental-assessment-directive-guidance (Last accessed March 2021)

1.2 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: Legislative Framework.** An overview of the SEA Directive and how the requirements have been met in this Report
- **Section 3: Strategy Development**. A background to the strategy and an overview of project objective and the option development process.
- **Section 4: SEA Development**. An overview of the SEA scoping process and environmental appraisal undertaken during the option development process
- **Section 5-13:** Topic chapters including consideration of cumulative effects
- **Section 14:** Conclusions and Next Steps

Reference should also be made to the Habitats Regulations Assessment (HRA) and a Water Framework Directive (WFD) assessment which are appended separately to the Strategy Appraisal Report (StAR).

1.3 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 37km 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 any 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, i.e. a flood event which has a 0.5% (1 in 200) chance of occurring in any one year. 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 Legislative Framework

The SEA Regulations aim to *"provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development"*.

An SEA involves the systematic identification and evaluation of the potential environmental impacts of high-level decision-making (e.g. a plan, programme or strategy). By addressing strategic level issues, the SEA aids the selection of options, directs individual schemes towards the most appropriate solutions and locations and helps to ensure that resulting schemes comply with legislation and other environmental requirements. This includes helping inform the consideration of alternatives required as part of any Environmental Impact Assessments (EIA) at a scheme level and a range of legislation and guidance in relation to the conservation of biodiversity.

The application of the SEA process to flood management plans and programmes, including any plan for medium to long-term river or coastal management is not legally required, however adopting the SEA approach is strongly encouraged by Defra and the EA to allow a strategic approach to managing the coast.

Table 2.1 below sets out the required content of this Environmental Report as defined in the SEA Regulations and details how these have been met in this Report.

Table 2.1 SEA Regulations Requirements

Environmental Report Requirements	Section of SEA
(a) an outline of the contents, main objectives of the plan or programme and relationship with other relevant plans and programmes;	Section 1.2 Structure of this report, Section 3.2 Project objectives and Section 5-13
(b) the relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme;	Baseline and Likely Future Conditions in Sections 5 - 12
(c) the environmental characteristics of areas likely to be significantly affected;	Baseline within Section 5-12
(d) any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to Directives 79/409/EEC (The Birds Directive) and 92/43/EEC (The Habitats Directive);	Section 5-12

(e) the environmental protection objectives, established at international, community or Member State level, which are relevant to the plan or programme and the way those objectives and any environmental considerations have been taken into account during its preparation;	Section 5-12
(f) the likely significant effects on the environment, including on issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors;	Appraisal findings in Sections 5-12
(g) the measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme;	Proposed management of effects and proposed monitoring within Sections 5-12
(h) an outline of the reasons for selecting the alternatives dealt with, and a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information;	Section 3 Strategy Development and Section 4 SEA Development with specific reference to **Appendix C** containing summary appraisal matrices for all the strategic options
(i) a description of the measures envisaged concerning monitoring in accordance with Article 10;	Proposed monitoring within Sections 5-12
(j) a non-technical summary of the information provided under the above headings.	Provided at the beginning of this Environmental Report

A summary of the principal legislation and requirements is provided in **Appendix B**. These have been specifically identified, as appropriate, in the relevant sections of this SEA. All relevant national, regional and local planning policy and guidance has also been taken fully into account.

3 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 leading option, the 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.

3.1 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 Coastal Strategy for the Hayling Island coastline (NFDC, 2010). The existing North Solent SMP policies for Hayling Island are shown in **Figure 2**.

Coastal strategies sit in the next tier of the hierarchy, and it is the role of strategies to identify the appropriate measures (schemes) to implement the SMP policies. During the final stage of a strategy, 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, the works can be carried out on the ground.

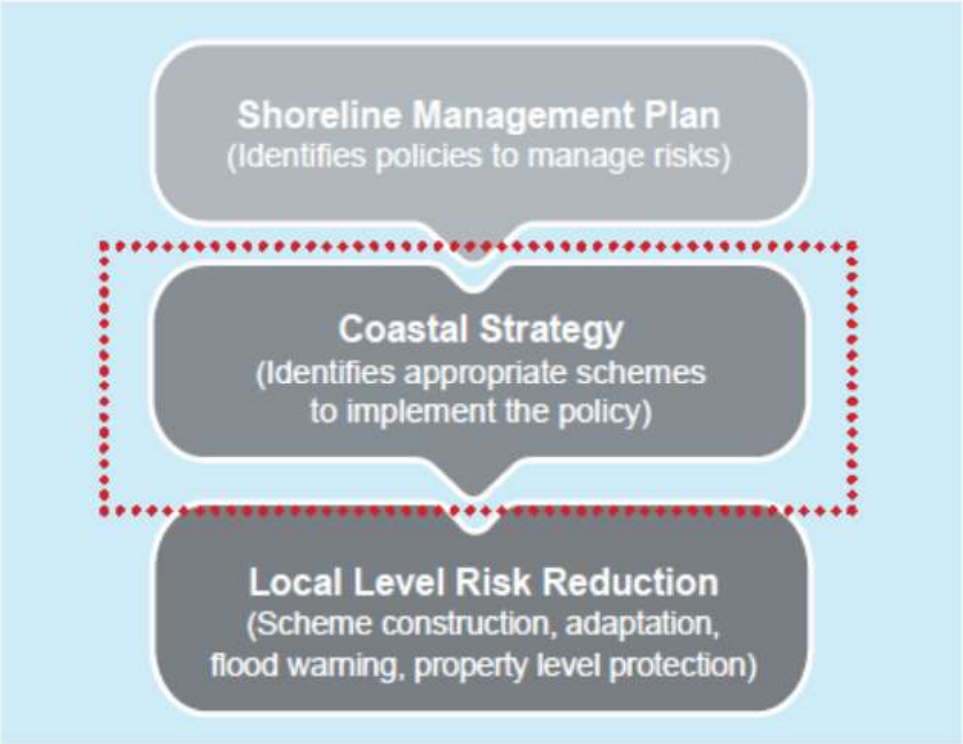

Figure 1 Hierarchy of coastal management planning (AECOM, 2022)

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.

3.2 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 SMP, 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 SMP 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
- 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
- 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.

3.3 Option Development Overview

The option development process has followed the EA's FCERM appraisal guidelines (FCERM-AG, 2020). This has involved a multi-staged systematic process as shown in **Figure 3**.

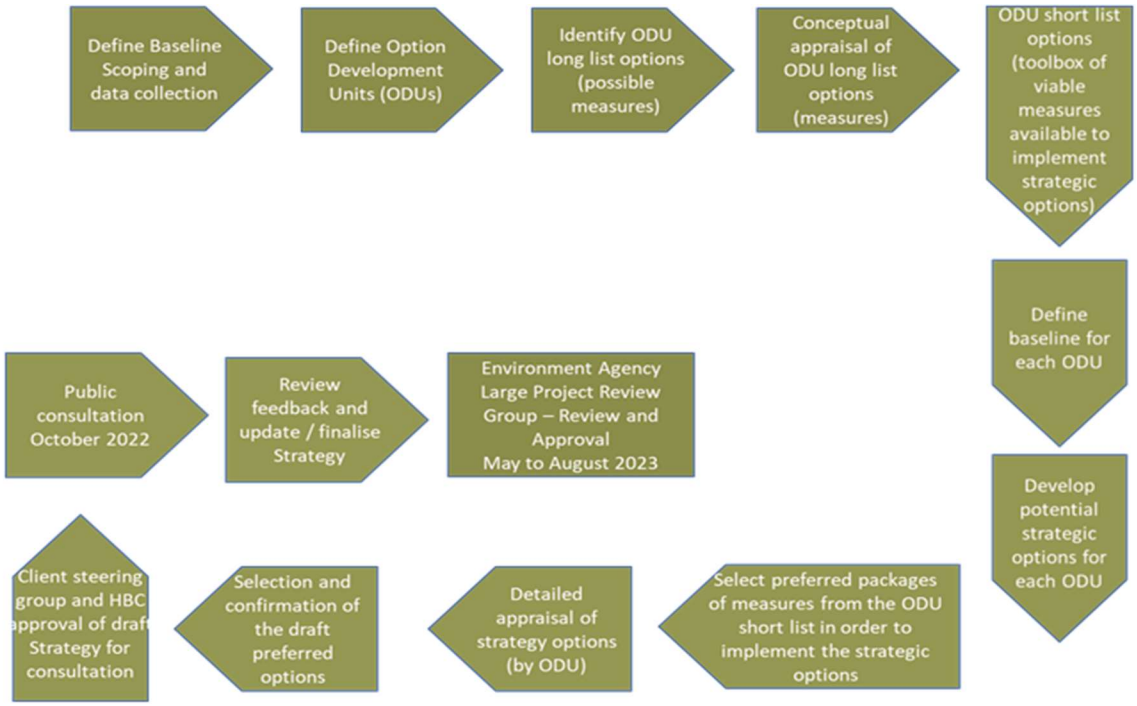

Figure 3 Work-flow summary of the options development process

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.

3.3.1 Option Development Units

The first key stage of the option 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 important to consider and recognise this local variability. With this in mind, the frontages of Hayling Island were 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)
- 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

3.3.2 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)
- 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 HTL 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
- Dredging of channels and creek.

To implement a MR policy:

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

To implement an ATL 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)
- 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 statutory consultees for comment February 2021 to inform a scoping opinion. This was provided by HBC May 2021 and has been used to identify the issues that should be covered in this SEA report (**Appendix A**). Further details on this stage are provided in **Section 4.1**.

3.3.3 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
- Cost.

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

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 (NAI)
- 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)
- ATL – including flood barriers and land reclamation
- Resilience – improving community resilience through initiatives such as CCMAs, relocation, PFR and policy changes.

Further details on this stage are provided within the 'short list to leading option' report (AECOM, 2022).

3.3.4 Selection of Leading Options

Strategic options continued to be developed through the 'short list to leading options report' (AECOM 2022). 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
- Social.

To support the scoring of the environment within the multi-criteria analysis the environmental effects and the relative impacts of the strategic options were assessed against the SEA environmental indicators and objectives and an evaluation of likely environmental impacts undertaken. A summary environmental appraisal matrices for all the strategic options are presented in **Appendix C.** This assessment was a qualitative exercise based on professional judgement taking into account the detailed understanding of the frontage and the information gathered in the Scoping Report as well as other available data and background information relevant to the issues raised in the Strategy. Options were assessed in terms of the nature of their impacts (beneficial/adverse/neutral/uncertain) for a number of environmental receptors and an indicative scale between -4 and +4 was been used to indicate the impacts whereby:

- -4 to -3: significant negative impact – reflect the high vulnerability and importance of a receptor including mitigation or compensation
- -2 to -1: minor negative impact - Effects likely to be discernible but tolerable and unlikely to require mitigation beyond best practice measures
- 0: no impact / neutral or N/A; - not having a discernible effect
- +1 to +2: minor positive impact; and
- +2 to +4: significant positive impact.

This scale differs but are comparable to that used in the multi-criteria analysis tables as detailed within the short list to leading option report (AECOM, 2022). This is because the scores have been normalised to fit with the approach to assessing against the 'Do Nothing' baseline in the SEA. These criteria were then used to judge whether the resulting effect would be minor or significant and to flag any potential 'showstoppers' considering mitigation requirements. These scores then fed into the wider multivariate option appraisal and helped inform the selection of the leading options (AECOM, 2022). This approach ensured that no environmentally unacceptable options would be taken forward and that the leading options are environmentally sustainable.

Two options were identified for each ODU:

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

4. 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'.

For some options a 'fallback' option is also identified if there is no funding available. An overview of all the options selected for each ODU are provided in **Table 3.1**. The 'short list to leading options report' (AECOM 2022) details the options proposed in each ODU and for each epoch. This includes a summary 'road map' for each ODU and outline all options in further details.

Whilst the environment contributed towards the selection of the leading options, other factors such as economic, social and technical factors also formed key drivers. Therefore, the leading options in the Strategy are not necessarily the option that have the highest environmental scoring however they are Is it because these are the only options that are considered to be the most realistic overall. A summary of how the environmental objectives have influenced the overall leading option is provided in **Appendix D**.

Table 3.1: Summary of leading options for each ODU

ODU	Overall Leading Option	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. (ODU5 a, b and c).	Maintain then Managed Realignment (improve) 0.5% AEP from 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.
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.	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	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.

	groynes (same size 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.	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 and height over time to keep pace with sea level rise.	Improve 0.5% AEP west side only Frontline floodwall west side defence only. Built to 0.5%AEP, then maintained.
12: North Shore Road to Newtown	Do Nothing NAI	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 NAI	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. Both the leading option and economic option are considered to result in similar effects. Worst case the overall leading option of Sustain 1.33% AEP has the potential to be a marginally higher defence and take slightly longer to construct than the economic option of sustain 0.5% AE. However any differences are considered negligible for the purpose of this strategic assessment and both options are therefore considered to have the same effects.

3.3.5 Consultation and Finalisation of Options

All coastal strategies are considered and approved by the EA'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.

4 SEA Development

4.1 Overview

The interface of the strategy development process (**Section 3**) with the SEA is summarised in **Table 4.1.**

Table 4.1 Strategy Development and interface with the SEA, HRA and WFD

SEA Stage	Main Strategy Stage
Stage A: Scoping Stage • Setting the context and objectives, • Establishing the baseline; • Identifying key issues; and • Developing SEA objectives. Production of SEA scoping, HRA screening, and WFD Scoping reports	• Scoping and data collection • Objective setting • Defining ODUs • Identifying ODU long list measures
Stage B: Environmental Appraisal • Developing and refining options; and • Evaluating the effects of the options.	• Development of long list to shortlist measures • Selection of leading options
Stage C: Preparing the Environmental Report, HRA and WFD	The Draft Strategy
Stage D: Consulting on the draft plan or programme and the Environmental Report	Strategy Approval and Strategy Appraisal Report
Stage E: Monitoring the significant effects of implementing the plan or programme on the environment	

Further detail on stage A and B are provided below. The outputs of Stage Care provided within the remainder of the report (**Section 5** onwards).

4.2 Scoping

The SEA scoping report was prepared by Coastal Partners (Coastal Partners, 2021) and submitted to HBC for consultation February 2021 to inform a scoping opinion. This was provided by HBC May 2021 and has been used to identify the issues that should be covered in this report (**Appendix A**).

A key part of this process was to establish the environmental baseline which the SEA Scoping Report defined together with key issues and SEA objectives and assessment questions. This helped set the context for the option development and associated environmental appraisal (Stage B).

The following issues (or receptors/topics) were scoped in for further consideration:

- Biodiversity (including flora and fauna)
- Climate

- Cultural heritage / historic environment
- Human health
- Landscape
- Material assets
- Population
- Soil
- Water
- The interrelationship between the above factors.

Table 4.2 summarises the receptors which were scoped out from further consideration, including a justification. As noted in this table a number of these receptors are likely to require detailed consideration at a scheme level when details on the scale and nature of the works are known.

Table 4.2 Environmental Receptors and issues excluded from further consideration

Receptor	Justification
Air	The Strategy is unlikely to have a significant impact on the air quality of Hayling Island. Changes in air quality as a result of emissions from the transport of materials and people to the site is considered separately under climatic factors. Any minor increase in dust during the construction phase would be controlled and managed by good site practice outlined in the Construction Environmental Management Plan (CEMP). The Strategy will not result in significant increases in road traffic during operation as the road layouts will not be changed. Subsequently no indirect changes in air quality are anticipated and it is proposed that this is scoped out of this SEA on the basis air quality assessments will be undertaken where necessary at a scheme level.
Traffic, access and navigation	Impacts on traffic and navigation are unlikely to be significant with appropriate management measures in place. The mobilisation of vessels is unlikely to be required during operation, however during construction some delivery and deployment may be undertaken by vessels. There is likely to be a very slight increase in traffic demand during the operational phase to enable maintenance, however this is expected to be negligible against background levels. There is likely to be an increased traffic demand during construction. However, any changes in Annual Average Daily Traffic cannot be determined at this strategic level. Management measures are likely to be confirmed through a detailed in a Construction Traffic Management Plan (CTMP). Subsequently, it is proposed that traffic and navigation is scoped out of this SEA on the basis appropriate assessment and construction traffic management planning will be undertaken where necessary at a scheme level.
Noise and vibration	The Strategy is unlikely to have a significant impact on noise and vibration. Any increases during the construction phase such as from construction methods and in association with traffic would be controlled and managed by good site practice outlined in the CEMP. Consequently, it is proposed that noise and vibration is scoped out of this SEA on the basis noise quality assessments will be undertaken where necessary at a scheme level particularly when detail on construction methods are available.

Commercial fisheries	A small fleet of fishermen operate from Langstone and Chichester Harbours, often fishing in the wider Solent and potentially around Hayling Island. Overall considering the low commercial fishing activity indicated and the limited potential for the mobilisation of vessels as part of the Strategy, no further assessment in relation to commercial fishing activity is therefore undertaken at this stage and will be considered in more detail at scheme level where necessary.
Fish, shellfish and marine mammals	Evidence based maps for spawning and nursery grounds for selected fish species in the UK have been produced by Coull et al (1998) and later revised by Ellis et al (2012) and show that there are spawning and nursery grounds for several species of fish around Hayling Island. In addition migratory fish use the area on their way to and from spawning grounds in rivers and streams. Hayling Island also supports shellfish. The Solent was historically the largest native oyster fishery in Europe and intertidal areas such as mudflats support a large diversity of bivalves including clams and mussels together with whelk. Marine mammals primarily include a small but growing population of harbour seals and occasional Grey Seals around Hayling Island. However information on fish, shellfish and marine mammals in the area is quite broad and whilst there is the potential for disturbance during construction, effects are more dependent on the detailed design, such as requirements for piling. Effects relating to fish, shellfish and marine mammals are therefore not considered further at a strategy level.

4.3 SEA Framework

The output of the scoping process is a SEA Framework comprising the identified environmental issues and potential indicators to measure the effects of the implementation of the Strategy on the environmental receptors. The Framework provides a means by which the environmental effects of the Strategy can be assessed and has been derived from the key environmental issues identified for the area and the key environmental objectives identified in the policy review. The SEA Framework is detailed in **Table 4.3**.

Table 4.3 SEA Framework

SEA Topic and objectives	Key Environmental Issue	Potential Indicator and assessment questions
Biodiversity Protect and enhance habitats and species within and surrounding Hayling Island	• There are a number of sites designated for their nature conservation importance within the influence of the Strategy area, including international designations (Chichester and Langstone Harbour SPA/Ramsar, Portsmouth Harbour SPA/Ramsar, Solent and Dorset Coast SPA, Solent Maritime SAC) and national designations (Site of Special Scientific Interest SSSI). The condition and integrity of these sites and their interest	• Condition and extent of designated sites Will the option help to: • Avoid disruption of coastal or other natural processes that might lead to the loss or change of coastal and estuarine habitat, including mudflats, saltmarsh and vegetated shingle, or landward habitats

	features must not be compromised. • There are several areas with features that are of special interest locally on Hayling Island including 5 Local Nature Reserves (LNR) and 30 Sites of Importance for Nature Conservation (SINCs). • The Strategy area contains numerous functionally linked supporting habitats including the network of waders roosts and brent goose sites. • Hayling Island has a rich biodiversity interest including the priority habitats: vegetated shingle and coastal grazing marsh. • Opportunities for ecological enhancements and achieving biodiversity net gain should be sought thorough the Strategy. • Coastal habitats are at risk from coastal squeeze due to accelerating sea level rise. The policies in the Strategy have the potential to increase coastal squeeze through the construction of new sea defences and maintaining existing ones but also to reduce coastal squeeze if the coastline is allowed to evolve naturally.	including coastal grazing marsh? • Protect the integrity of the internationally and nationally designated sites within and surrounding Hayling Island? • Protect and enhance priority habitats and species within and surrounding Hayling Island? • Protect and enhance LNRs and SINCs on Hayling Island? • Protect the integrity of the network of core areas for brent geese and waders in line with the Solent Waders & Brent Goose Strategy (SWBGS)?
Historic Environment Protect and enhance the significance of the historic environment, heritage assets (both designated and non-designated) and their settings within and surrounding Hayling Island	• There is a wealth of designated and non-designated heritage assets on Hayling Island. • There are a number of Conservation Areas potentially at risk on Hayling Island and in the wider area. • There are a number of Scheduled Monuments on Hayling Island and in the wider area. Their preservation and enhancement should still be considered where appropriate.	• Number of historic assets at risk of flooding / erosion Will the option help to: • Conserve or enhance the significance of designated heritage assets including their setting? • Conserve or enhance the significance of non-designated heritage assets including their setting?
Landscape	• Different landscape types present within the strategy area, such as open coast, harbour plains, inlets	• Proportion of undeveloped coastline

Protect and enhance the character and quality of Hayling Island's landscapes and townscapes	and harbour basins, provide a variety of habitats to support biodiversity • Different landscape types present within the borough offer visual separation between different land uses and extensive views including that of an Area of Outstanding Natural Beauty (AONB) • Proposed development affecting Chichester Harbour AONB should be of highest design quality in consideration of its high-status landscape and scenic beauty • Careful and long-term consideration of rare, fragile dune system present at the south west of Hayling Island	Will the option help to: • Conserve or enhance locally important townscapes and landscapes features on Hayling Island? • Protect and enhance the characteristic coastal features and scenic beauty of the Chichester Harbour ANOB? • Conserve and enhance the fragile dune system at the south west of Hayling Island?
Population and Human Health Protect the health and well-being of Hayling Island's population	• Flooding can have a negative effect on both physical and psychological health. Repeated flooding is particularly damaging to mental health and well-being and can exacerbate existing health issues. • There are residential properties at risk from flooding and this risk will increase with sea level rise • The only access onto the island (A3023 across Langstone Bridge) is currently at risk from flooding and thus impacting the wellbeing of residents and access for emergency services • The health value of the natural environment and access to it is essential for human health and wellbeing. • Hayling Island beaches and other tourist facilities attract visitors to the island and support the local economy. The southern frontage, in particular West Beach, is at risk of erosion and is highlighted as an important location for development and regeneration of tourism facilities. • The amenity value of the natural environment for example coastal paths for walking and cycling and Hayling beaches for recreation and sports use.	• Properties at risk of flooding / erosion • Standard of coastal defence • Area at risk of present day 1:200 year tidal flood event Will the option help to: • Prevent loss and damage to residential properties from flooding and/or coastal erosion? • Improve and enhance the health and wellbeing of residents through the protection and enhancement of recreation facilities, accessible green space, coastal paths and beaches from coastal change? • Protect access onto Hayling Island? • Protect residents from potentially contaminated land on the west frontage of the island?

	• Historic landfill sites on Hayling Island could potentially be contaminated.	
Soil Protect high grade agricultural land and potentially contaminated land on Hayling Island from flooding and /or coastal erosion	• The Hayling Island Funding and Implementation Strategy – Desktop Landfill Assessment (2019) identifies key potential contamination issues from land where potentially contaminative activities have been identified such as landfill, commercial boatyards and industrial land. High risk sites within the strategy area have been identified at Yachthaven and Mill Rythe Industrial Land. • Where this land continues to be exposed, or where change of land use or FCERM scheme works occur, there is a potential for significant contaminating sources to link to the receptors either through existing or new pathways.	• Properties at risk of flooding / erosion Will the option help to: • Protect historic landfill sites from flooding and/or erosion, in particular sites which have been identified as potential sources of significant contamination? • Prevent loss/reduce potential of high-grade agricultural land from flooding?
Water Protect and improve the water environment	• Potential changes to the levels of contaminants in watercourses as a result of accidental plant spillages (e.g. fuel releases) during the construction phases • Potential changes to levels of contaminants in water from introduction of construction materials in the marine environment • All WFD water bodies overlapping with Hayling Island are currently classified as moderate status overall and did fail to achieve good chemical status in 2019, specifically from failures in 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[3]. In addition for both Solent and Langstone Harbour water bodies reasons for not achieving good	• Water quality Will the option help to: • Comply with the WFD and contribute to enhancing the status of water bodies? • Contribute to the sustainable management of water resources?

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

	status include investigations associated with physical modifications from flood protection structures or coastal squeeze on angiosperms, specifically a moderate status for saltmarsh.	
Climatic Factors Mitigate and adapt to climate change	• The Strategy has the potential to have an impact on greenhouse gas emissions through the construction of new sea defences at the scheme level which could use significant energy and material resources. In addition, through its policies the Strategy has the potential to have an impact on greenhouse gas emissions through the reduced carbon footprint of natural flood management measures. • The policies set out in the Strategy have the potential to have an impact on climatic factors by protecting green networks which act as carbon sinks and also allowing coastal habitats which act as carbon sinks to naturally evolve. • Through the Strategy measures can be considered to help adapt to predicted changes in climate. These include consideration of future predicted sea level rise and an increase in severe weather conditions when designing sea defences at the scheme level and use of natural flood management measures	• Proportion of undeveloped coastline Will the option help to: • Contribute to adapting to climate change? • Contribute to mitigating the main causes of climate change by promoting low or zero carbon approaches? • Contribute to mitigating the main causes of climate change by protecting green networks which act as carbon sinks?
Material Assets Protect material assets and infrastructure on Hayling Island from risk of flooding and coastal erosion	• The Strategy should ensure that material assets within HBC's coastal region are not compromised as a result of coastal change. • New and existing development and material assets are at risk of erosion and flooding, sea level rise is a serious concern, particularly for an Island.	• Properties at risk of flooding / erosion Will the option help to: • Ensure that commercial (including boat yards) and residential properties on Hayling inland are protected from coastal change? • Protect key infrastructure on Hayling Island including the only access onto the island from flooding?

		• Ensure that social infrastructure on Hayling Island including schools and public buildings are protected from coastal change? • Protect recreation and leisure facilities (including marinas) on Hayling Island from coastal change?

The following sections provide an appraisal for the overall leading option and provides a summary of potential effects from the leading economic option if different for each receptor scoped in. This Environmental Report can be read in conjunction with the Scoping Report (**Appendix A**), which sets the context within which the assessment has been undertaken. However, the relevant portions of the scoping report baseline and context review have been reproduced herein and updated where necessary.

The subsequent sections are supported by **Appendix E** which provides a more detailed appraisal of the likely environmental effects by epoch, over the short, medium and longer term. As a basis for assessing the level of the impact and its significance the following significance levels are used :

- Potential Significant beneficial effects
- Potential Minor beneficial effects
- Neutral - Change not anticipated to have a discernible effect
- Potential Minor Adverse effects – Effects likely to be discernible but tolerable and unlikely to require mitigation beyond best practice
- Potential Significant Adverse effects – Effects are highest in magnitude and reflect the high vulnerability and importance of a receptor. They will require mitigation.
- Potential beneficial and adverse effects.

It should be noted that this assessment follows a different methodology to that used as part of the selection of leading options (**Section 3.3.4).** Most notably the do nothing scenario was previously always considered a neutral baseline when scoring all strategic options. However for completeness this subsequent assessment has considered all risks including identifying those associated with a ‘do nothing’ approach.

5 Biodiversity

5.1 Context Review

5.1.1 International and National legislation, policy and guidance

Hayling Island is in a particularly rich area for biodiversity, bordered on all sides by National Network Sites (previously known as Natura 2000 sites) established through the European Birds Directive (79/409/EEC) and Habitats Directive (92/43/EC), as well as an internationally important wetland site designated under the Ramsar Convention 1971. These sites and their associated legal protections are transposed into UK law via the Conservation of Habitats and Species Regulations 2017 (as amended) and seek to maintain a network of habitats and species of international importance at favourable conservation status.

There is a range of legislation and guidance at the national level in relation to the conservation of biodiversity. The Wildlife & Countryside Act (1981) (as amended) sets the protection of Sites of Special Scientific Interest (SSSI) (**see Table 5.1**) and provides lists of species protected to certain degrees. The Natural Environment and Rural Communities Act (NERC) 2006 places duties of certain bodies to have regard to nature conservation and establishes lists of species and habitats of principle conservation concern. The Environment Bill (2021) has introduced new governance and duties in relation to protection and enhancement of biodiversity, including a requirement for all new development to deliver a 10% Net Gain for biodiversity.

The South Marine Plan (Marine Management Organisation (MMO), 2018) introduced a strategic approach to planning within the inshore and offshore waters between Folkestone in Kent and the river Dart in Devon. It includes objectives to protect, conserve and enhance marine biodiversity, including Objective 12: To safeguard space for, and improve the quality of, the natural marine environment, including to enable continued provision of ecosystem goods and services, particularly in relation to coastal and seabed habitats, fisheries and cumulative impacts on highly mobile species. Which includes the following sub objectives;

- **S-BIO-1**-Proposals that may have significant adverse impacts on natural habitat and species adaptation, migration and connectivity must demonstrate that they will, in order of preference: a) avoid, b) minimise c) mitigate significant adverse impacts
- **S-BIO-2**-Proposals that incorporate features that enhance or facilitate natural habitat and species adaptation, migration and connectivity will be supported.
- **S-BIO-3-** Proposals that enhance coastal habitats where important in their own right and/or for ecosystem functioning and provision of goods and services will be supported. Proposals must take account of the space required for coastal habitats where important in their own right and/or for ecosystem functioning and provision of goods and services and demonstrate that they will, in order of preference: a) avoid, b) minimise, c) mitigate for net loss of coastal habitat.
- **S-BIO-4-** Proposals that enhance the distribution and net extent of priority habitats should be supported. Proposals must demonstrate that they will avoid reducing the distribution and net extent of priority habitats.

5.1.2 National Planning Policy for biodiversity

The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and how these should be applied. It provides a framework within which locally prepared plans for housing and other development can be produced. Of particular relevance

in this context is section 15 - Conserving and enhancing the natural environment, which includes the following provisions:

Paragraph 170 - July 2018

Planning policies and decisions should contribute to and enhance the natural and local environment by:

a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);

b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;

c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;

d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;

e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and

f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

5.1.3 Local Planning Policy for biodiversity

Whether the proposal requires planning permission or not the local plan policy for 'Protecting and Enhancing the Special Environment and Heritage of Havant Borough' is relevant as it establishes the strategic direction and aspirations for the local area. The adopted plan is in this case is Havant Borough Council Core Strategy 2011 and the relevant policy CS11, copied in full below:

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

Planning permission will be granted for development that:
1. Ensures the key landscape and built form principles set out in the Havant Borough Townscape, Landscape and Seascape Character Assessment are protected and where possible enhanced by partnership working with developers, groups and the wider community.
2. Protects and where possible enhances the borough's statutory and non-statutory designated landscape, habitats and features of biological, hydrological or geological interest. Protection and enhancement will be achieved by appropriate adaptation and mitigation measures including wardening, education and information and the creation of new habitats, water bodies/courses planting of new

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

5.1.4 Local non statutory policy

Local Wildlife Sites called Sites of Importance for Nature Conservation (SINC) in Hampshire are sites with 'substantive nature conservation value'. They are defined areas, identified and selected for their nature conservation value, based on important, distinctive and threatened habitats and species with a national, region. SINC's are local wildlife sites designated for their importance for wildlife at a county level. Although not provided any statutory protection, they are given policy level protection under Havant Borough Council's planning policy.

The 'Solent Waders and Brent Goose Strategy' (SWBGS)(2019) is a non-statutory document provides analysis and recommendations relating to strategic planning within and around the Solent Coast. Highlighting many of the Brent Goose feeding sites and wader roost sites around the Solent fall outside of the statutory nature conservation site boundaries as designated in the Habitats and Bird Directives, and a large proportion of the bird sites are in flood risk areas as identified by the EA. The SWBGS does not categorise sites within the SPA, the Solent Bird Studies (2020) investigated the importance of the network of sites including those within the SPA with a particular focus on future flood and coastal erosion risk management.

5.2 Baseline Review

Hayling Island is bounded on two sides by the estuarine harbours of Langstone to the west and Chichester to the East, and by the open coast of the Solent to the south. Inland of the existing sea defences are built up areas and farmland that contains a number of valued terrestrial and transitional habitats.

5.2.1 Havant Borough

Within 7km of the strategy boundary there are a number of international sites; three Special Protection Areas, one Special Area of Conservation (SAC) and two Ramsar Sites, also within 7km are an additional six Sites of Special Scientific Interest **(see Figure 5 and 6 and Table 5.1)**

Table 5.1 Statutory Environmental Designations within 7km of the Hayling Island Coastal Strategy

Statutory Nature Conservations	Designation	Distance and Direction
Chichester and Langstone Harbours	SPA	Contains part
Portsmouth Harbour	SPA	6km West
Solent and Dorset Coast	SPA	Adjacent
Solent Maritime	SAC	Adjacent
Sinah Common	SSSI	Adjacent
Chichester and Langstone Harbours	Ramsar	Adjacent
Portsmouth Harbour	Ramsar	6km West
Chichester Harbour	SSSI	Adjacent
Langstone Harbour	SSSI	Adjacent
Portsmouth Harbour	SSSI	6km West
Bracklesham Bay	SSSI	2.5km East
Warblington Meadow	SSSI	0.7km North
Portsdown	SSSI	6.5km West

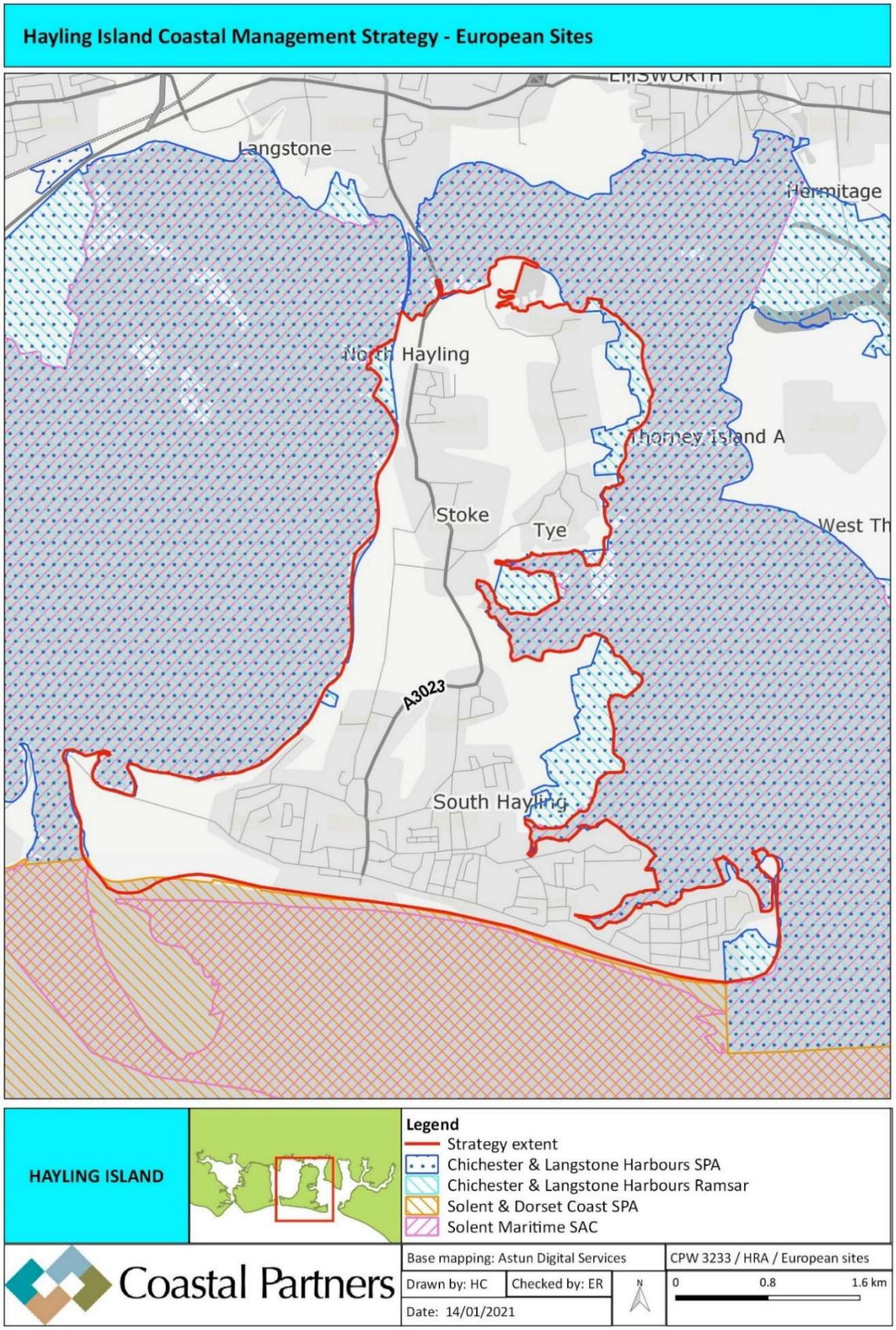

Figure 5 International and Nature Conservation Designations

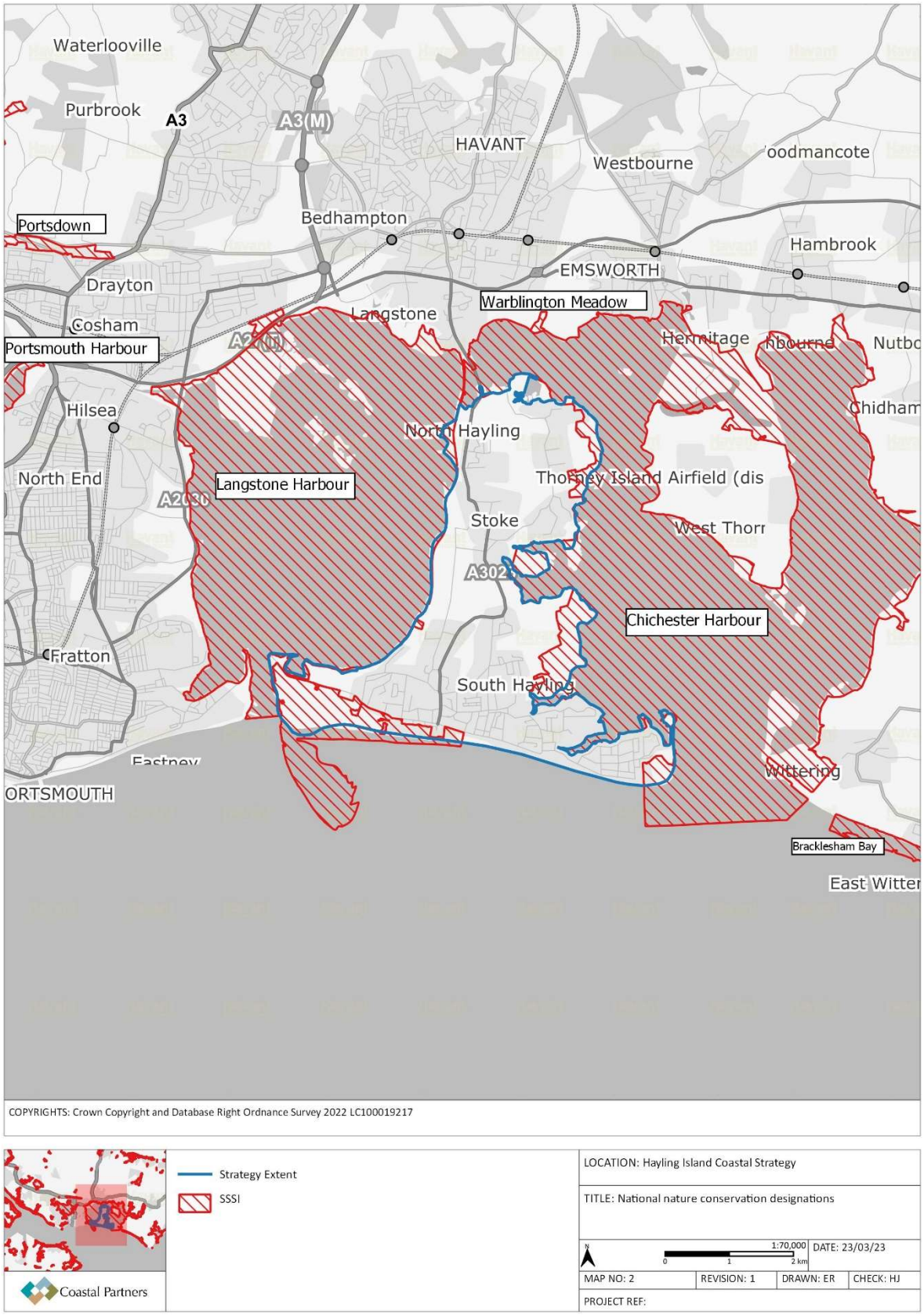

Figure 6 National and Nature Conservation Designations

The adjacent Chichester and Langstone Harbour SPA is classified for its over-wintering and passage populations of waders and wildfowl, and alongside the Solent and Dorset Coast also

for its breeding populations of terns (Natural England, 2014). Seabird breeding colonies are located in Chichester and Langstone Harbours including a colony immediately adjacent to the Hayling Coastline.

In addition to the designated habitats and species the area is home to a population of Harbour Seals (*Phoca vitulina*) with estimated numbers currently 40-50 individuals. It is the only resident population of seals in the eastern English Channel (Chesworth et al, 2010).

5.2.2 Hayling Island

Hayling Island contains five Local Nature Reserve (LNR), which are mainly also SSSI's the exception being the Hayling Billy which is largely outside of other designations. There are 30 Sites of Importance for Nature Conservation (SINC) on the Island, which have been identified to recognise the notable species and habitats present. In addition, there are a number of notable habitats within the area, including priority habitats such as vegetated shingle and coastal grazing marsh. Hampshire Biodiversity Information Centre (HBIC) data identifies a number of notable species many of which are typical of these habitats (HBIC, 2022).

There is a total of 109 SWBGS sites on Hayling Island outside of the SPA, including 20 core, 27 primary support and 21 secondary support sites (**see Figure 7)**. These sites represent functionally linked supporting habitat for brent geese and waders using the SPA (Whitfield et al 2020). 24 additional wader roost or brent goose sites are located within the SPA, the Solent Bird Studies consider 10 of these sites to be critical parts of the network of wader and brent goose sites. (Solent Bird Studies, 2019)

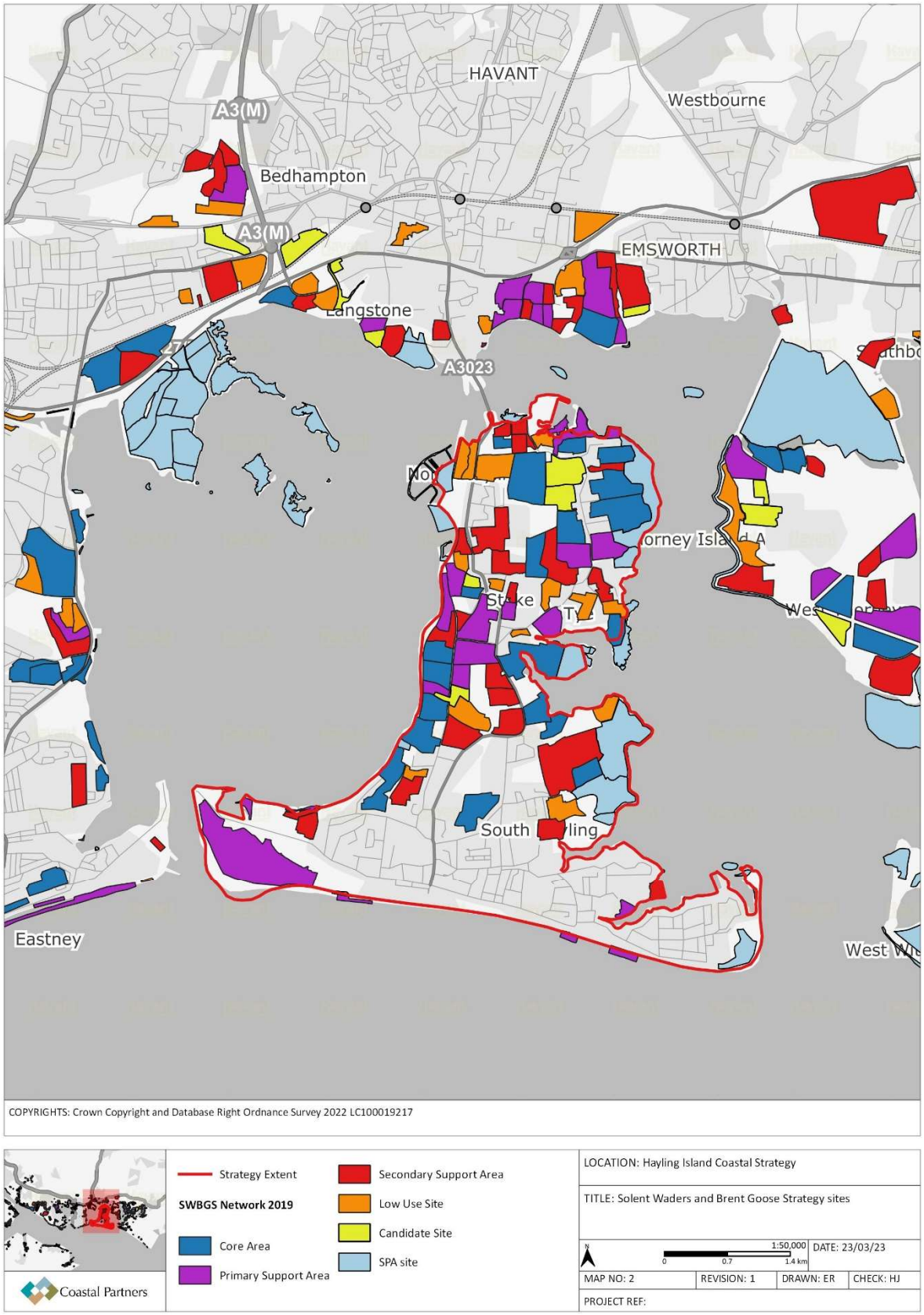

Figure 7 Solent Waders and brent Goose Sites in and around Hayling Island

5.3 Likely Future Conditions

It can be assumed that the condition of those sites designated for nature conservation purposes will subject to natural processes remain similar to the current recorded condition, given their relative importance and conservation status. The condition of those sites currently not in favourable condition is assumed to improve over time, given their conservation status.

5.4 Key Environmental Issues

- There are a number of sites designated for their nature conservation importance within 7km of the Strategy area, including international designations (Chichester and Langstone Harbour SPA/Ramsar, Portsmouth Harbour SPA/Ramsar, Solent and Dorset Coast SPA, Solent Maritime SAC) and national designations (SSSI). The condition and integrity of these sites and their interest features must not be compromised.
- Avoid disruption of coastal or other natural processes that might lead to the loss or change of coastal and estuarine habitat, including mudflats, saltmarsh and vegetated shingle, or landward habitats including coastal grazing marsh. These habitats if not also interest features of the statutory designations, will have intrinsic value and may also be listed as under s41 of the NERC Act 2006 as habitats of principle concern
- The strategy area contains numerous functionally linked/supporting habitats of the SPA including a network of waders roosts and brent goose sites, ensure they are not adversely affected by FCERM schemes.
- Hayling Island has a rich biodiversity interest. Ensure notable species and habitats are not adversely affected by FCERM schemes
- Opportunities for ecological enhancements and achieving biodiversity net gain should be sought thorough the strategy. The Environment Act 2021 has introduced a mandatory requirement for Biodiversity Net Gain for projects requiring planning permission.

5.5 Appraisal Findings

5.5.1 ODU 1: Langstone Bridge to Northney Farm

Overall Leading Option: Sustain 0.5 % AEP with Managed Realignment Hybrid

5.5.1.1 Likely Minor Effects

There is likely to be a mixture of beneficial and detrimental effects for biodiversity principally to the Chichester Harbour SSSI for any option along this frontage due to the balance of protecting between the loss of seaward or landward habitats. For this option saltmarsh may be lost through coastal squeeze. However, the current sea defences protect existing feeding and roosting area for birds many of which are SWBGS sites landward of the existing line of defence. This option however gives opportunities through managed realignment to protect and enhance both saltmarsh and maintain the functional use for feeding and roosting birds in situ, resulting in a minor beneficial effects for the first epoch.

As sea level rise increases in later epochs through the effects of coastal squeeze, the seawards habitats will have to be migrated inland which could reduce the area of inland

habitat. The effect in the 2030-2060 epoch is therefore considered to be **neutral.** In later epochs without BUDS type intervention, it is unlikely seaward saltmarsh will be extant due to sea level rise driven coastal squeeze. Consequently maintaining of intertidal habitat would require migrating inland with a knock on reduction in the area of inland habitat available. This is anticipated to result in Minor adverse effects in epoch 2060-2115.

Leading Economic Option: Sustain 1.33% AEP with Managed Realignment

This option is similar to the overall leading option, the differences in protection levels do not change the effects on the biodiversity as identified above for the overall leading option.

5.5.2 ODU 2: Northney Marina

Overall Leading Option: Resilience

5.5.2.1 Likely Neutral Effects

A resilience approach will allow natural process to come to the fore, although in reality the current ground levels are likely to be too high to form intertidal habitats and therefore will reduce the ability of intertidal habitats to migrate inland. However, this option is likely to continue to provide opportunities for roosting over-wintering birds. Overall this option is considered to be **neutral** for biodiversity across all three epochs.

Leading Economic Option: Do nothing

This option is similar to the overall leading option, the differences between a resilience option and do nothing approach does not change the effects on the biodiversity as identified above for the overall leading option.

5.5.3 ODU 3: Northney Farm to Chichester Road

Leading Overall and Economic Option: Sustain 0.5% AEP with Managed Realignment

5.5.3.1 Likely Significant Effects

The setback defence proposed in this location provides significant opportunities for habitat creation and the promotion of natural processes that will benefit Chichester Harbour SSSI. There will be a knock-on effect on current use of the inland fields by over-wintering birds, that will have to be mitigated within the scheme, but should be achievable and functional use of the land for roosting and feeding over-wintering birds could be maintained. Equally impacts arising from loss of freshwater habitat and associated species, could be accommodated if enough space is allocated to enable habitat to migrate inland. Such issues will need to be considered at a scheme level and designed to ensure it has to the required longevity or adaptability to sustain the habitat balance. It is considered that this approach results in Significant beneficial effects for biodiversity.

5.5.4 ODU 4: Chichester Road to Mill Rythe Junior School

Overall Leading Option: Resilience

5.5.4.1 Likely Significant Effects

A resilience approach will allow natural process to come to the fore. There are significant areas of saltmarsh habitat and seagrass beds within Chichester Harbour SSSI, and freshwater habitats present for intertidal habitats to migrate landward into. Significant wader roosts at Gutner Point and Verner Common are also present which should continue to provide functional use as roosting areas. However some losses of valued habitats and species could

arise from sea level rise if habitats are not allowed to migrate landward. On balance without intervention this option is considered to result over the three epochs in a significant adverse effect for biodiversity. However this would also occur in a do nothing or baseline scenario without the Strategy.

Leading Economic Option: Do nothing
This option is similar to the overall leading option, the differences between a resilience option and do nothing approach does not change the effects on the biodiversity as identified above for the overall leading option.

5.5.5 ODU 5 Mill Rythe Junior School to Salterns Lane

Overall leading option: Sustain 1.33% AEP with managed realignment

5.5.5.1 Likely Minor Effects

The proposal for managed realignment for ODU5B provides significant opportunities for habitat creation and the promotion of natural processes that will benefit Chichester Harbour SSSI. This should allow salt marsh habitat to develop and create a more natural transition of intertidal habitats and protect and enhance existing habitats including extensive seagrass beds. There will be a knock-on effect on the inland fields including significant areas of coastal grazing marsh of botanical interest and inland feeding and roosting areas that are currently used by over-wintering birds associated with Chichester Harbour SSSI. The majority of the inland fields within the SPA/SSSI area at this location are considered to be part of the critical over-wintering bird network by the Solent Bird Studies and further SWBGS core areas and secondary support areas outside of the SPA may also be affected. Losses of valued habitats such as lowland broad-leaved woodland, and species could also arise. Impacts arising from loss of freshwater habitats and associated species, could be accommodated if enough space is allocated to enable habitat to migrate inland and alignment of defences to avoid harm to specific features such as woodland. Such issues will need to be considered at a scheme level and designed to ensure it has to the required longevity or adaptability to sustain the habitat balance.. It is considered that overall this approach results in significant beneficial effects for biodiversity

Leading Economic Option: Maintain then Managed Realignment (improve) 0.5% AEP from year 50.

This option involves maintaining the existing defences (including some capital refurbishment where there are failing defences), then constructing a setback embankment in 2072 with intertidal habitat creation in front of the new defences. This approach will allow coastal squeeze to act on the fronting intertidal habitats for the first 2 epochs, which could have a negative effect on interest features of Chichester Harbour SSSI. However, there will be protection of inland feeding/roosting areas for over-wintering birds and coastal grazing marsh habitat.

When defences are constructed and habitat created (i.e from 2072) this should result in the creation of new intertidal habitats, the protection of seaward habitats and enable them to migrate landward. This will, however, result in the loss of inland feeding/roosting areas for over-wintering birds and coastal grazing marsh. It is considered that for the first two epochs this could result in a significant adverse effect, but overall this approach is considered to result in minor beneficial effects for biodiversity

5.5.6 ODU 6 Salterns Lane to Wilsons Boat Yard

Overall Leading and Economic Option: Maintain then Improve from year 50 0.5% AEP frontline defence.

5.5.6.1 Likely Minor Effects

Landward of these defences is residential development of low intrinsic biodiversity value. Seaward within Chichester harbour SSSI are mudflats and seagrass beds which whilst less sensitive to coastal squeeze related losses are likely to be impacted in later epochs and the effects of sea level rise. There are limited bird roosting opportunities in this frontage. Any design should be sensitive to the presence of the mudflats and seagrass and look for opportunities for enhancement of these feature and wader roosting opportunities. Overall, it is considered that by the 2030-2060 this option will lead to Minor adverse effects on biodiversity due to coastal squeeze.

5.5.7 ODU 7 Wilsons Boat Yard to Fishery Creek

Overall Leading and Economic Option: Sustain 0.5% AEP

5.5.7.1 Likely Minor Effects

Seaward of the frontage are significant areas of saltmarsh and some wader roosting interest within Chichester Harbour SSSI. Landward is a mix of habitats some of which could be characterised as coastal grazing marsh and some inland areas used by over-wintering birds that are SWBGS sites. There is likely to be mixed beneficial and detrimental effects whatever the option for this frontage and this assessment will be a balance of protecting seaward or landward habitats. However, overtime as the effects of SLR increase sustaining intertidal habitats will be increasing difficult. Overall, it is considered that by the 2030-2060 this option will lead to Minor adverse effects on biodiversity.

5.5.8 ODU 8 Eastoke

Overall Leading and Economic Option: Sustain 0.5% AEP

5.5.8.1 Likely Minor Effects

This frontage is a mix of high density residential with little intrinsic biodiversity value and habitats of very high biodiversity value including rare coastal heath habitats and coastal vegetated shingle within Chichester Harbour SSSI. There are also bird roost locations that are highly significant e.g., Black Point a site classified as being a critical part of the network by the Solent Bird Studies. There is limited saltmarsh that will be affected by coastal squeeze. However, coastal squeeze will become an increasing issue and will also result in the reduction of wader roosting opportunities and may impact coastal vegetated shingle. Beach nourishment will potentially provide opportunities of expansion of vegetated shingle habitats and roosting opportunities. Any design and ongoing beach management will have to be sensitive to valued habitats and species particularly wader roosts. Although initially considered to be of minor beneficial effect in the earlier epochs, however, over the lifetime of the strategy the effect on biodiversity is likely to be **Neutral.**

5.5.9 ODU 9 Eastoke Corner to Inn on the Beach

Overall Leading Option: Sustain 0.5% AEP - Maintain Inn on the Beach

5.5.9.1 Likely Minor Effects

Although it lays adjacent to the Dorset and Solent Coast SPA, designated for breeding tern populations, the main interest on this frontage is coastal vegetated shingle and dune habitats, most of which fall outside of the Solent Maritime SAC in significant blocks further to the west which are largely within the Sinah Common SSSI, but with remnant patches throughout. The setback defence will allow some natural processes, these habitats particularly annual vegetation of drift lines require dynamic movement of sediment to create suitable conditions to continue. The Inn on the Beach acts as a barrier to the natural movement of sediment. Beach nourishment will provide a source of sediment to maintain the system and conditions for perennial and annual vegetation to flourish. As sea level rise advances sustaining the dynamic nature of these habitats will become more difficult, through the first two epochs this is considered to be neutral, but by 2060 the effect on biodiversity is likely to beMinor adverse .

Leading Economic Option: Sustain 0.5 % AEP - Replace Inn on the Beach

5.5.9.2 Likely Minor Effects

The result of this approach will be similar to above, however the removal of Inn-on-the-beach will allow a more natural process to develop. This is considered to result in a minor beneficial effect in the first two epochs. As sea level rise advances sustaining the dynamic nature of these habitats will become more difficult, is considered that by 2060 the effect is likely to be **Neutral** for biodiversity.

5.5.10 ODU 10 Inn on the Beach to North Shore Road

Overall Leading and Economic Option: Resilience

5.5.10.1 Likely Mixed Effects

This is very diverse frontage, with coastal vegetated shingle and dune habitats within Sinah Common SSSI on the open coast of southern and western elements and saltmarsh and grazing march on the estuarine northern element within Langstone Harbour SSSI, which include some significant roosting areas for over-wintering birds. Resilience will allow natural processes to continue, which should benefit all of these habitats in the short term. In the longer term sea level rise and limited opportunities for the saltmarsh and coastal grazing marsh to migrate landward could reduce the ability to sustain saltmarsh without intervention. This will result in a mixed effect on biodiversity**,** it is, considered that overall this couldlead to an adverse effect However this would also occur in a do nothing or baseline scenario without the Strategy.

5.5.11 ODU 11 North Shore Road

Overall Leading Option: Sustain 1.33% AEP

5.5.11.1 Likely Neutral Effects

Landward of these defences is residential development of low intrinsic biodiversity value. Seaward are mudflats which in the shorter term will be less sensitive to coastal squeeze related losses than saltmarsh habitats within Langstone Harbour SSSI. There are limited bird roosting opportunities in this frontage. Any design needs to be sensitive to the presence of

seagrass beds and look for opportunities for enhancement of these feature and for the creation of wader roosting opportunities. Overall it is considered that this option should result in a **Neutral** effect on biodiversity across all epochs**.**

Overall Economic Option: Improve 0.5% AEP

5.5.11.2 Likely Neutral Effects

This option is similar to the overall leading option, these differences in standard of protection do not change the effects on the biodiversity as identified above for the overall leading option and the resulting effect on biodiversity is considered to be **Neutral.**

5.5.12 ODU 12 North Shore Road to Newtown

Overall Leading and Economic option: Do nothing

5.5.12.1 Likely Minor Effects

Seaward of the existing defences are some small areas of saltmarsh, but predominately mudflat within Langstone Harbour SSSI. Landward are arable fields used by brent geese and waders classified as a Core Solent Waders and Brent Goose Strategy (SWBGS) site. Sea level rise has the potential to cause the loss of the fronting saltmarsh, but will start to migrate landward into the arable field in an unplanned way. Whilst this option is considered unlikely to make the SWBGS field unsuitable for geese and waders and may create new intertidal habitat, further details at scheme level are required to confirm effects. It is considered that this will result in a **Neutral** effect on biodiversity within the first epoch, but could create modest increases in habitat or the status quo in later epochs. Overall the effect on biodiversity will be **Neutral**.

5.5.13 ODU 13 Newtown

Overall Leading and Economic option: Sustain from year 20 (Maintain then Sustain 0.5% AEP)

5.5.13.1 Likely Minor Effects

Seaward of the defence is predominately mudflat and landward is coastal grazing marsh, small areas of coastal vegetated shingle all within Langstone Harbour SSSI and fields used by brent geese and waders categorised as core sites by SWBGS. The maintain then sustain option should have limited affect on seaward habitats but will protect landward grazing marsh and brent goose sites. It is considered that this will result in a Minor beneficial effect on biodiversity.

5.5.14 ODU 14 Newtown to Stoke

Overall Leading and Economic option: Do nothing

5.5.14.1 Likely Minor Effects

There are small areas of saltmarsh seaward of this option within Langstone Harbour SSSI that may be affected by the continued existence of defences through the action of coastal squeeze. Landward is some areas of saltmarsh, but mainly arable land much of which is used by brent geese and waders and is classified as SWBGS sites. Due to the relatively high ground levels, it is unlikely that local failures of existing sea defences lead to significant habitat migrating landward, but in later epochs this may lead to some natural habitat creation. It is therefore considered that this will result in a neutral effect on biodiversity up to 2060 when some Minor beneficial effect may be delivered.

5.5.15 ODU 15 Stoke to Langstone Bridge Carpark

Overall Leading and Economic Option: Sustain 0.5% AEP setback defences

5.5.15.1 Likely Significant Effects

This option involves a setback defence which could provide opportunities for habitat creation and the promotion of natural processes. This has the potential to improve the condition and value of intertidal habitats including saltmarsh and mudflat within Langstone Harbour SSSI and scrubby coastal grazing marsh adjacent to the site. Internationally important seabird nesting colonies are also present just offshore of the existing sea defences, a setback defences could create greater separation from recreational pressure on the footpath associated with the existing defences and therefore protection from disturbance. Overall it is considered that this option could result in a Significant beneficial effect on biodiversity across all epochs.

5.5.16 ODU 16 Langstone Bridge Carpark to Langstone Bridge

Overall Leading and Economic Option: Sustain 0.5% AEP and Sustain 1.33% AEP – Frontline defence

5.5.16.1 Likely Neutral Effects

There is limited potential for significant effects from this short frontage. The principal habitat seaward of the existing defence is intertidal mudflat which is within Chichester Harbour SSSI. This mudflat is an important sheltered feeding location for waders. To landward habitats have little intrinsic biodiversity value, formed primarily of a carpark and road. Any future scheme should be designed to reduce encroachments into valued habitats. On this basis, the resulting effects on biodiversity are considered to be **Neutral.**

5.6 Proposed Management of Effects

No significant adverse effects have been identified for any ODU's for the overall leading or economic options in the Strategy. However, much of this is contingent upon robust consideration of biodiversity matters at the scheme level or ongoing operational management of nature conservation sites. Where effects have been identified they are principally at the operational phase of scheme development within individual ODU's.

The following proposed compensation, mitigation or management would be likely to reduce any potential adverse effects that have been identified to reduce harm at the construction phase.

Chichester and Langstone Harbour SPA / Ramsar support over-wintering waterbirds alongside the Solent and Dorset Coast SPA breeding populations of sea birds. In order to reduce the disturbance to these designated sites it is suggested that any construction processes are carefully phased to avoid disturbance in the peak breeding season and peak over-wintering season.

In addition, the working areas for each flood defence scheme will be subject to detailed design in order to minimise the defence footprint and any potential impacts on biodiversity. There should be no increase in defence footprint encroachment into designated sites unless adverse effects on the integrity of National Network Sites can be avoided, mitigation can be agreed with the Competent Authority or there is no alternative viable option. Any compensation habitat would need to be secured through the Habitat Compensation and Restoration Programme

(HCRP) (Formerly Regional Habitat Compensation programme) and in line with the IROPI agreement made for the North Solent SMP to deliver its policy.

As noted within the HRA report, in terms of coastal squeeze and sea level rise there is potential for losses of saltmarsh and potentially coastal vegetated shingle. Coastal squeeze losses in all epochs will need to be addressed at scheme level if possible and if not deliverable at scheme level by compensatory sites delivered prior to those Epochs as part of the HCRP, and it would be the responsibility of those undertaking the project or plan to ensure compensatory habitat has been provided prior to any losses occurring.

5.7 Proposed Monitoring

The following indicators are proposed to monitor the effects of the Strategy:

- SSSI conditions assessments, monitor relevant conditions for coastal management related activities contributing toward deterioration or improvement.
- WFD (Good Ecological Condition) - monitor relevant conditions for coastal management related activities contributing toward deterioration or improvement of status.

As noted in the preceding text success or otherwise for biodiversity matters is within the details at the scheme level. In order to ensure a robust consideration of biodiversity effects, preliminary ecological appraisals and any identified follow on investigations should be undertaken at the scheme level to guide design and implementation principles.

6 Historic Environment

6.1 Context Review

6.1.1 International Policy and Guidance

To ensure, as far as possible, the proper identification, protection, conservation and presentation of the world's heritage, the Member States of UNESCO adopted the World Heritage Convention in 1972. **The UNESCO World Heritage Convention** aims at the identification, protection, conservation, presentation and transmission to future generations of cultural and natural heritage of Outstanding Universal Value. States Parties to the World Heritage Convention, have the responsibility to “ensure the identification, nomination, protection, conservation, presentation, and transmission to future generations of the cultural and natural heritage found within their territory.”

The European Landscape Convention (ELC) promotes the protection, management and planning of European landscapes and organises European co-operation on landscape issues. General measures include “recognising landscapes in law as an essential component of people’s surroundings, an expression of the diversity of their shared cultural and

natural heritage, and a foundation of their identity.” The ELC further requires “landscape to be integrated into regional and town planning policies and in cultural, environmental, agricultural, social and economic policies, as well as any other policies with possible direct or indirect impacts on landscape”.

The main purpose of the **Convention for the Protection of the Architectural Heritage of Europe** is to reinforce and promote policies for the conservation and enhancement of Europe's heritage. The Convention constitutes an important framework for the safeguarding of the cultural heritage of monuments and sites.

The European Convention for the Protection of the Archaeological Heritage of Europe (Revised) (1992) defines the archaeological heritage and identifies measures for its protection. The Convention addresses the prevention of illicit excavation of archaeological heritage and recommends the integration of conservation with planning and development, calls for financing of archaeological research and conservation, and the collection and dissemination of information regarding the archaeological heritage. It recommends efforts to promote public awareness.

6.1.2 National Policy and Guidance

National legislation protects individual features within the historic environment by the way of designations such as Scheduled Monuments and Listing of buildings. Such designations afford nationally important historic sites or historic buildings legal protection from unauthorised change or damage. Separate consideration is required for locally important historic assets which don’t meet the criteria for being nationally listed.

Protection of Wrecks Act 1973 provides specific protection for wreck sites of archaeological, historic or artistic interest.

Ancient Monuments & Archaeological Areas Act 1979 provides specific protection for monuments of national interest.

Planning (Listed Buildings & Conservation Areas) Act 1990 provides specific protection for buildings and areas of special architectural or historic interest.

Marine and Coastal Areas Access Act 2009 established the legal basis for marine planning, setting provisions for the management and protection of the marine environment.

The National Planning Policy Framework 2021 sets out the Governments planning policies for the historic environment and heritage assets. It describes these assets as an irreplaceable resource which should be conserved in a manner appropriate to their significance. It states that plans should set out a positive strategy for the conservation and enjoyment of the historic environment.

Planning Practice Guidance: Historic Environment (2014, revised 2019) advises on enhancing and conserving the historic environment.

The Heritage White Paper (2007) describes heritage protection as an integral part of the planning system and states that the importance of the historic environment should be promoted to ensure effective.

Historic England Advice Note 8: Sustainability Appraisal (SA) and Strategic Environmental Assessment (SEA) (2016) provides advice on heritage considerations during each stage of the SA/SEA process and helps to establish the basis for comprehensive assessments.

Historic England Advice Note 1: Conservation Area Designation, Appraisal and Management (2019) outlines ways to manage change that conserves and enhances historic areas.

Historic Environment Good Practice Advice Planning Note 3: The setting of Heritage Assets (2017) provides advice on understanding the setting and how it may contribute to the significance of heritage assets.

6.1.3 Local Planning policy

A primary objective of the **Havant Borough Council Local Plan Core Strategy 2011** is the preservation and enhancement of the borough's natural landscape, open space, its biodiversity and built heritage. *Policy CS11 Protecting and Enhancing the Special Environment and Heritage of Havant Borough* sets out that planning permission will be granted for development that *"protects and where appropriate enhances the borough's statutory and non-statutory heritage designations by appropriately managing development in or adjacent to conservation areas, listed buildings, scheduled ancient monuments, historic parks and gardens, archaeological sites, buildings of local historic or architectural interest."*

Policy DM20 Historic Assets within the **Havant Borough Local Plan (Allocations) 2014** specifically relates to the historic environment. Policy DM20 sets out the development management requirements for planning applications that affect or have the potential to affect heritage assets.

The Havant Borough Local Plan Submission version (LP SV) Includes Policy E13 Historic Environment and heritage assets. This policy recognizes that heritage assets, as part of the wider historic environment, are replaceable and that they make a valuable contribution to the character of the Borough.

HBC's Regeneration and Economy Strategy 2022 – 2036 sets out local opportunities for the borough, including using cultural assets to support economic and social regeneration.

The Hayling Island Seafront Regeneration Analysis and Feasibility Study 2019 sets out specific objectives for Hayling Island in this respect, including opportunities to enjoy the destinations' cultural heritage and support rural tourism.

Conservation Area Character Appraisals and Management Plans have been prepared for Havant Borough's 14 conservation areas. Character Appraisals define the special interest of the conservation area that merits its designation and describes and evaluates the contribution made by the different features of its character and appearance.

The Chichester Harbour AONB Management Plan 2019 - 2024 explains the importance of planning in this nationally important protected landscape, setting out planning principles to compliment Local Plan planning policies discussed above.

6.2 Baseline Review

6.2.1 Havant Borough

According to the Submission Plan for the Havant Borough Local Plan 2036, it is recognised by the Council that the historic environment contributes to the distinctive character of the landscape and townscape, and to the quality of life of current and future residents.

The Submission Plan states that there are 14 conservation areas within the Borough designated under the Planning (Listed Buildings and Conservation Areas) Act. In 2019 the borough had 250 listed buildings grade I, II* or II, a number of locally listed buildings and 1 grade II* Registered Parks and Garden. In addition, the borough has 7 Scheduled Monuments.

6.2.2 Hayling Island

The Strategy looks at coastal defence management options around the perimeter of Hayling Island, which sits within Havant Borough. Of the historic assets discussed above, there are two Conservation Areas on the Island, shown in **Figure 8**. These are St Peter's Conservation Area in the Centre and North which falls within ODU 5, and Coastguards Conservation area in the South, which falls within ODU 9.

The Conservation Area Character Appraisals set out a brief history of the north and south of Hayling Island. Taking each in turn:

The appearance of the central and northern parts of Hayling Island have remained largely unchanged since the 19th Century with flat fields, tall hedgerow trees, substantial farmsteads and small hamlets; the land merging imperceptibly into the tidal mudflats of the coast.[4] St Peter's Conservation Area encompasses North Hayling, an early settlement situated astride St Peter's road which serves the farms, homes and settlements to the north-east of the Island. Small and modest scale, St Peter's church is at the heart of the Conservation Area.

The south of Hayling Island is focused on two distinct and contrasting building groups. The first is 'Seaview Terrace' a small group of two-storey cottages dating from the early 19th

[4] Havant Borough Council (1993) St Peter's Conservation Area Character Appraisal [online] available at: https://www.havant.gov.uk/conservation-areas-and-listed-buildings/details-conservation-areas

Century situated on the north side of Sea Front Road with limited private land around.[5] The second is 'Gorseway House' an early 20th Century building set within substantial landscaped grounds. Seaview Terrace is an isolated feature of the Conservation Area, distinctive and obvious in appearance. The beach to the south of the Conservation Area, a broad natural area of gorse and marram grass, has remained virtually unchanged since the beginning of the century.

In 2020, there were 49 listed building on the Island including one Grade I listed and one at Grade II* listed, the remainder are listed as Grade II. In addition, there are 2 Scheduled Monuments on the Island, which are Tourner Bury Fort (List Entry Number: 1001945) and Sinah Common WWII anti-aircraft gun site (List Entry Number: 1020961).

It is worth noting that although not on the Island, four additional Conservation Areas to be considered are Langstone, Mill Lane, Warblington and Emsworth Conservation Areas. All extend across/ border stretches of the coastline, with views across to the Island which are integral to their character. Also not on the Island but worth noting is Scheduled Monument Fort Cumberland. Fort Cumberland is located on the eastern promenade along the southeast tip of Portsea Island. The Fort overlooks Hayling Island, its setting extending across to Hayling Island.

Historic England's Heritage at Risk Register Programme protects and manages the historic environment and helps to understand the overall state of England's historic sites. The Heritage at Risk Register identifies one asset, 'Coastguards Conservation Area', listing it to be in poor condition and highly vulnerable (Historic England 2020).

The Hampshire Historic Environment Record (HER) identifies the important distinctive structures or features that positively contribute to the local distinctiveness and sense of place of Hayling Island.[6] Following a high-level review of the HER, there are hundreds of assets present across the Island, including along the coastline and many maritime heritage assets. This includes pits, bronze age remains, former railway, iron age and roman temple, and Saxon pottery. In addition Hayling Island also contains several non-designated heritage features including 19 Locally Listed Buildings registered on Havant Borough's List of Buildings of Local Interest and a number of common type 22 pillboxes scattered around the island.

While no designated archaeological assets have been identified, this does not mean that they do not exist. It is noted that the Langstone Harbour archaeological survey, which placed the many archaeological discoveries of the harbour edge into context, does suggest a very high archaeological potential for as yet undiscovered archaeological sites at the harbour shoreline, particularly of prehistoric date. Archaeology is frequently uncovered during development and it is important that sufficient research and investigation is carried out prior to development as part of proposals.

NPPF footnote 63 states: "*Non-designated heritage assets of archaeological interest, which are demonstrably of equivalent significance to scheduled monuments, should be considered*

[5] Havant Borough Council (1993) Coastguards Conservation Area Character Appraisal [online] available at: https://www.havant.gov.uk/conservation-areas-and-listed-buildings/details-conservation-areas

[6] Hampshire County Council (2022) Hantsweb – Search and Request Historic Environment Records [online] available at: https://maps.hants.gov.uk/historicenvironment/?_gl=1*1ktyanv*_ga*MTg4MDE2ODc0NC4xNjQ4ODA1OTE5*_ga_8ZVSPZWL5T*MTY1NjY4NDU2NC4xLjAuMTY1NjY4NDU2NC4w

subject to the policies for designated heritage assets." This serves to illustrate the protection that as yet unrecorded archaeology is afforded.

It is recognised that there is the potential for previously unknown historic assets/ features to be present (for example paleoenvironmental). In addition, some heritage assets that are already known may prove to have greater significance than might have been assumed.

Figure 8 Location of Historic Environment assets

6.3 Likely Future Conditions

The archaeological potential of the area is unlikely to alter in the foreseeable future. The number of Scheduled Monuments and Listed Buildings is likely to remain the same. However, increased flood and erosion risk over time has the potential to damage historic environment assets.

6.4 Key Environmental Issues

The following key environmental issues have been identified through the baseline review:

- There is a wealth of designated and non-designated heritage assets on and surrounding Hayling Island
- There are a number of Conservation Areas potentially at risk on Hayling Island and in the wider area.
- There are a number of Scheduled Monuments on Hayling Island and in the wider area. Their preservation and enhancement should still be considered where appropriate.

6.5 Appraisal Findings

6.5.1 ODU 1 Langstone Bridge to Northney Farm

Overall Leading Option: Sustain 0.5 % AEP with Managed Realignment Hybrid

6.5.1.1 *Likely Minor Effects*

There are no cultural heritage designations or designated structural heritage assets within or adjacent to ODU1. There is however archeology present within ODU1, specifically archeological monuments exist along the shoreline, along Northney Road and south of Northney Road towards North Hayling. During construction, disturbance could lead to temporary minor negative effects on archeology present.

Although not on the island, Langstone Conservation Area and Warblington Conservation Area extend across the coastline, with views across to the Island including the location of ODU1 east and west respectively. These views support the character of the Conservation Areas, specifically Langstone Conservation Area, which sets out in its Conservation Area Appraisal and Management Plan (2011) *'views generally represent a natural scene with tree screens masking the marina and hotel development on the north shore of Hayling Island'*. Minor negative effects have therefore been identified as a result of constructing new defences along Northney Road epoch 1 (2022-2042), and upgrading new setback defences in the longer term (2072-2122). There is however a level of uncertainty at this stage, noting that further details including the defence alignments, exact heights and lengths will be investigated as part of the scheme appraisal process following the Strategy.

It is considered that this option is also likely to lead to minor positive effects in the medium to longer term, providing flood and erosion defences to archaeology at risk of flooding and erosion.

Leading Economic Option: Sustain 1.33% AEP with Managed Realignment

This option is similar to the overall leading option; however, it does not include protection of the historic landfill site on the east side and the setback embankment on the west side could lead to reduced protection to Northney Road. These differences do not change the effects on the historic environment identified above for the overall leading option.

6.5.2 ODU 2 Northney Marina

Overall Leading Option: Resilience

This option will provide continued maintenance of existing frontline defences, which is considered to protect other assets within the marina, including archeology. Archaeology present includes a bronze age cremation vessel, a hearth, and the Great Saltern monument. This is likely to provide minor benefits.

Overall Economic Option: Do Nothing

No minor or significant effects have been identified for this option.

6.5.3 ODU 3 Northney Farm to Chichester Road

Leading Overall and Economic Option: Sustain 0.5% AEP with Managed Realignment

6.5.3.1 Likely Minor Effects

There are a number of Listed Buildings located inland, to the west of the ODU within North Hayling, extending along St Peter's Road. This includes Grade I Listed Church of St Peter. The construction of new setback defences in the short term, and upgrades to maintain the standard of protection in the longer term, could impact upon the setting of the Grade I listed Church, and other Grade II Listed Buildings present. However effects are considered negligible to minor given the distance of assets from the shoreline (Grade I St Mary's Church approx. 1.4km), and relatively flat topography.

There is also archeology present within ODU3, specifically archeological monuments exist along the shoreline. In the short-term during construction, disturbance has the potential to result in temporary minor negative effects.

Conversely, new defences in the short-term followed by upgrades to maintain the standard of protection over the medium and longer term is likely to lead to minor positive effects, providing a level of protection to archaeology from flooding and erosion.

6.5.4 ODU 4 Chichester Road to Mill Rythe Junior School

Overall Leading Option: Resilience

There are eight Grade II Listed Buildings present within ODU4, concentrated inland around Havant Road and Copse Lane. There are also numerous archeological monuments and named places scattered throughout the ODU, including along the shoreline. It is considered that implementing PFR measures and delivering patch and repair of existing frontline defences is unlikely to impact upon these features.

Overall Economic Option: Do Nothing

6.5.4.1 *Likely Significant Effects*

In the longer term (2072-2122) there will be no flood or erosion protection to assets in the ODU, which is likely to lead to damage or destruction through erosion or flooding. Effects are likely to be most significant in relation to local archeology present along the shoreline. Assets along the shoreline are abundant, with sites including Site of Landing Stage, Modern Ploughing Ridges, possible Ridge and Furrow, and Undated Hearth, E Of Gutner Point.

In terms of Listed Buildings, these are located further inland, with the closest to the shore being 500m away, along Copse Lane. Given designated assets are located inland, these are considered unlikely to be thought as of significantly 'at risk'.

6.5.4.2 *Likely Minor Effects*

It is considered that the current defences protecting the historic assets discussed above will likely begin to deteriorate during the short term (2022-2042). This is likely to have a minor adverse effect in the medium to longer term as assets are increasingly at risk of damage/ destruction due to flooding and erosion. As above, effects are likely to be most significant in relation to local archeology present along the shoreline, and therefore at greatest risk of damage/ destruction.

6.5.5 ODU 5 Mill Rythe Junior School to Salterns Lane

Overall leading option: Sustain 1.33% AEP with Managed Realignment

6.5.5.1 *Likely Minor Effects*

There are a number of Listed Buildings (Grade II with one Grade II*) located within ODU5, inland along Church Road and off Manor Road. These assets and their setting are considered too far inland to be impacted by this option.

There is significant archaeology present along the coastline, towards the north and south of the ODU, and centrally located along Church Road. Along the coastline, within an area of coastal and floodplain grazing marshes, is Tourner Bury Scheduled Monument. The Scheduled Monument sits adjacent to the area proposed for habitat creation, in front of the defences. During construction, it is considered that there is the potential for disturbance to lead to temporary minor negative effects on archeology, including the Scheduled Monument present. There is also the potential for new intertidal habitat to decrease the condition of buried assets, leading to effects of greater significance, however this is uncertain.

It is considered that this option is likely to lead to minor positive effects in the medium to longer term, providing flood defence to archaeology, including the Scheduled Monument, at risk of flooding and erosion.

Leading Economic Option: Maintain then Managed Realignment (improve 0.5% AEP from year 50.

6.5.5.2 Likely Minor Effects

This option involves maximising the life of the existing defences (including some capital refurbishment where there are failing defences), then constructing a setback embankment in

2072 with intertidal habitat creation in front of the defences. Negligible effects are therefore considered in the short (2022 - 2042) and medium (2042-2072) term as existing defences are maximised.

There is the potential for minor negative effects in the long term (2072-2122) when defences are constructed and habitat created, as set out above for the leading option.

It is considered that this option also is also likely to lead to minor positive effects in the long term, providing erosion and flood defence to archaeology, including for the Scheduled Monument present.

6.5.6 ODU 6 Salterns Lane to Wilsons Boat Yard

Overall Leading and Economic Option: Maintain then Improve from year 50, 0.5% AEP – Frontline defence.

6.5.6.1 Likely Minor Effects

There are no cultural heritage designations or designated structural heritage assets within or adjacent to this ODU. There are however two archeological monuments present within ODU6, along the shoreline, and along the western ODU boundary. No effects are anticipated in epoch 1 and epoch 2 (2022 – 2072) as existing defences are maintained. In 2072, the construction of new defences could disturb buried assets, leading to temporary minor negative effects.

It is considered that this option also is also likely to lead to minor positive effects in the long term, providing erosion and flood defence to archaeology present.

6.5.7 ODU 7 Wilsons Boat Yard to Fishery Creek

Overall Leading and Economic Option: Sustain 0.5% AEP

6.5.7.1 *Likely Minor Effects*

There are no cultural heritage designations or designated structural heritage assets within or adjacent to this ODU. There are however a number of archeological monuments present within ODU7, along the shoreline, and further inland for example along Selsmore Avenue. It is considered that in epoch 1 (2022 – 2042), the construction of a frontline rock revetment could disturb buried assets, leading to temporary minor negative effects.

It is considered that this option also is also likely to lead to minor positive effects in the medium and long term, providing erosion and flood defence to archaeology present.

6.5.8 ODU 8 Eastoke

Overall Leading and Economic Option: Sustain 0.5% AEP

6.5.8.1 *Likely Minor Effects*

There are no cultural heritage designations or designated structural heritage assets within or adjacent to this ODU. There are however archeological monuments present within ODU8, extending along the entirety of the ODU. It is considered that in epoch 1 (2022 – 2042), the

construction of a frontline rock revetment could disturb buried assets, leading to temporary minor negative effects.

It is considered that this option is also likely to lead to minor positive effects in the medium and long term, providing erosion and flood defence to archaeology present.

6.5.9 ODU 9 Eastoke Corner to Inn on the Beach

Overall Leading Option: Sustain 0.5% AEP - Maintain Inn on the Beach

Leading Economic Option: Sustain 0.5 % AEP - Replace Inn on the Beach

6.5.9.1 Likely Minor Effects

There are eight Grade II Listed Buildings located within ODU9, three along Sea Front Road, with the rest further inland, mainly close to Bacon Lane and Mengham Road. While the majority are considered too far inland to be impacted by these options, the Listed Buildings located along Sea Front are approximately 200m from the shoreline and defences.

There is also significant archaeology present within ODU9, this is scattered throughout the ODU, including towards South Hayling and along Sea Front Road.

There is currently a concrete recurve wave wall 3m high at Inn on the Beach. This wall 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. The policy options are therefore 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.

Effects on the historic environment are the same for both policy options; given current defences in front of Inn on the Beach are to be retained / enhanced or replaced with infrastructure of similar dimensions. Therefore, visual impact on the historic environment (assets and their setting) is likely to be negligible in the long term.

In the short term both options have the potential to lead to minor negative visual effects on listed buildings located along Sea Front Road during construction. Additionally, the construction of defences could disturb buried assets, leading to temporary minor negative effects.

It is considered that this option also is also likely to lead to minor positive effects in the medium and long term, providing erosion and flood defence to archaeology present.

6.5.10 ODU 10 Inn on the Beach to North Shore Road

Overall Leading and Economic Option: Resilience

6.5.10.1 Likely Minor Effects

This option is also likely to provide continued maintenance of existing frontline defences, which is considered to protect historic assets present within the ODU. This includes considerable archeology and a Scheduled Monument (World War II Heavy Anti-aircraft gunsite (P2) at

Sinah Common, 570m south-east of Sinah Farm). This is likely to provide minor beneficial effects.

Depending on the outcome of monitoring, localised erosion controls such as rock armour could be implemented, which would consist of large rocks / rubble at the coastline. This has the potential to lead to minor negative effects in relation to disturbance, views and setting of assets.

6.5.11 ODU 11 North Shore Road

Overall Leading Option: Sustain 1.33% AEP

6.5.11.1 Likely Minor Effects

There are two Grade II Listed Buildings located within ODU11, just off Sinah Lane, within 200m of the shoreline. There is also archaeology present within ODU11, which is scattered throughout the ODU, predominately inland away from the shoreline.

This option involves constructing new defences in epoch 1 (2022 – 2042), as the residual life of the existing defences is between 10 and 20 years. The implementation of the defences will be phased; the initial height of the defences will be built to a 1.33% SoP for 2041 on the west side, and in epoch 2 (2042 – 2072) an additional length will be added on the east to keep pace with sea level rise.

In epoch 1 there is the potential for minor adverse visual effects on Grade II Listed Buildings and their settings as a result of the floodwall construction. Construction in the short term may also impact upon buried assets through disturbance.

In the long term, there may be temporary adverse visual effects as additional lengths are added to the defences. There may be minor permanent adverse visual effect as a result of this option given that Listed Buildings are located close to the foreshore, however this is uncertain and will be worked into the defense design.

It is considered that this option is also likely to lead to minor positive effects in the medium and long term, providing erosion and flood defence to assets present.

Overall Economic Option: Improve 0.5% AEP

6.5.11.2 Likely Minor Effects

This option performs similarly to the Overall Leading Option, although this option does not include the construction of any defences to the east (North Shore Road). However, given Listed Buildings are located to the west, along Sinah Lane, effects are unlikely to be considerably different, with minor negative effects predicted as discussed above.

6.5.12 ODU 12 North Shore Road to Newtown

Overall Leading and Economic option: Do nothing

There are no cultural heritage designations or designated structural heritage assets within or adjacent to this ODU. There is however a single archeological monument present along the shoreline.

Under a 'do nothing' scenario, no minor or significant effects have been identified for this frontage. It is currently an undefended area of the coastline, with no risk of flooding or coastal erosion to historic assets.

6.5.13 ODU 13 Newtown

Overall Leading and Economic option: Sustain from year 20 (Maintain then Sustain 0.5% AEP)

6.5.13.1 Likely Minor Effects

This ODU includes only a small extent of the shoreline, extending considerably inland to the centre of West Town, adjoining St Mary's Road. The ODU includes three Grade II Listed Buildings located along Manor Road and Beach Road, distant from the shoreline. These assets are considered too far inland to be impacted by this policy option. There is also archaeology scattered throughout the ODU, with two monuments notably present along the shoreline.

Maintaining defences in the epoch 1 (2022-2042) is unlikely to impact upon the historic environment/ assets present. Capital works to improve frontline defences in the medium term (2042 -2072) and upgrades in the longer term (2072-2122) could lead to temporary minor negative effects on archeology near the shoreline through disturbance.

It is considered that this option also is also likely to lead to minor positive effects in the medium and long term, providing erosion and flood defence to historic assets.

6.5.14 ODU 14 Newtown to Stoke

Overall Leading and Economic option: Do nothing

6.5.14.1 Likely Minor Effects

This ODU includes three Grade II Listed Buildings, located inland along Havant Road, approximately 400m from the coastline. There is also archaeology scattered throughout the ODU, with clusters of monuments notably present along the shore-line.

In the long term (2072– 2122) the defences along this frontage will have deteriorated and no longer provide any protection to heritage asset at increased risk from flooding as sea levels rise. This is likely to have a minor adverse effect.

6.5.15 ODU 15 Stoke to Langstone Bridge Carpark

Overall Leading and Economic Option: Sustain 0.5% AEP setback defences

6.5.15.1 Likely Minor Effects

This ODU includes three Grade II Listed Buildings, located inland along Northwood Lane. In epoch 1 new setback defences (likely embankment) are proposed within approximately 200m of the Listed Buildings, with the potential to lead to minor negative effects on setting. However,

it is recognised that the setback defences would likely involve habitat creation and be grass covered, reducing the potential for residual adverse visual effects in the long term.

There is also archaeology scattered throughout the ODU, notably concentrated around Havant Road and along the coastline. Minor negative effects are predicted on buried assets through construction in epoch 1, as a result of potential disturbance/ damage.

It is considered that this option is also likely to lead to minor positive effects in the medium and long term, providing erosion and flood defence to historic assets.

6.5.16 ODU 16 Langstone Bridge Carpark to Langstone Bridge

Overall Leading and Economic Option: Sustain 0.5% AEP and Sustain 1.33% AEP – Frontline defence

6.5.16.1 Likely Minor Effects

There are no cultural heritage designations or designated structural heritage assets within or adjacent to this ODU. There is however a single archeological monument present along the shoreline. The construction of a frontline floodwall in the short term (2022-2042) has the potential to disturb the single buried asset present within ODU16, which could lead to temporary minor negative effects.

It is considered that this option also is also likely to lead to minor positive effects in the medium and long term, providing erosion and flood defence to the archeological asset present.

6.6 Proposed Management of Effects

The character and setting of designated heritage assets and the wider historic environment must be considered when designing and delivering coastal flood and erosion defence works. This includes through the detailed design of any new infrastructure, and any subsequent planning applications. Both the National Planning Policy Framework (NPPF) (2021) and Policy and Planning Guidance (PPG) (2021) contain detail on why good design is important and how it can be achieved. In terms of the historic environment, some or all of the following factors may influence what will make the scale, height, massing, alignment, materials and proposed use of new development successful in its context:[7]

- The relationship of the proposal to its specific site
- The significance of nearby assets and the contribution of their setting
- The diversity or uniformity in style, construction, materials, colour, detailing, decoration and period of existing buildings and spaces
- The general character and distinctiveness of the area in its widest sense, including the general character of local buildings, spaces, public realm and the landscape, the grain of the surroundings, which includes, for example the street pattern.

[7] Historic England (2015) Managing Significance in Decision-Taking in the Historic Environment [online] available at: https://historicengland.org.uk/images-books/publications/gpa2-managing-significance-in-decision-taking/gpa2/

This is to ensure that the character and setting of important historic buildings and structures is not unnecessarily compromised by any structures which have the potential to alter the overall character and setting of the area.

Where defence works have the potential to impact heritage assets of archaeological interest, detailed design should be informed by archaeological investigations, which may involve field evaluations and / or surveys. The assessment must define the significance of the assets and the impact of the proposed development to allow informed and reasonable planning decisions to be made. Consultation with Local Authority heritage professionals and Historic England is likely to define the need for additional fieldwork and surveys.

The NPPF (2021) requires local authorities to 'maintain or have access to a historic environment record', which should 'contain up-to-date evidence about the historic environment in the area to both assess the significance of assets, and predict the likelihood that currently unidentified heritage assets, particularly sites of historic and archaeological interest, will be discovered in the future.

Where a planning proposal affects a heritage asset, the NPPF requires that 'as a minimum the relevant historic environment record should have been consulted' so that an applicant for planning permission can describe the significance of the heritage asset in question.

An assessment of significance is required to inform the application process to an extent necessary to understand the potential impact (positive or negative) of the scheme, and to a level of thoroughness proportionate to the relative importance of the asset whose fabric or setting is affected.[8] Where the significance of a heritage asset is not obvious, appropriate expertise would need to be used.[9]

Where there is the potential for proposals to result in damage to, or loss of, historic assets an Action Plan should be prepared.[10] This should include provision for additional studies to quantify the rate of resource loss, and to identify appropriate mitigation strategies, to be defined specifically as part of strategy development. Resources should be identified to cover the costs of a mitigation strategy for conservation, publication and deposition of the archive in a publicly accessible location. At the scheme stage, mitigation might involve ‘preservation by investigation’ for archaeological sites (i.e. survey, excavation and recording) or recording, (followed by controlled dismantling and/or relocation in some cases), for historic buildings.

Where property-level protection measures are proposed for historic buildings and structures (flood-resistance or proofing works, and flood-resilient works) [11] then these measures must respect the character of the building or structure where possible to ensure that this is maintained.

[8] https://historicengland.org.uk/images-books/publications/statements-heritage-significance-advice-note-12/heag279-statements-heritage-significance/
[9] https://historicengland.org.uk/images-books/publications/statements-heritage-significance-advice-note-12/heag279-statements-heritage-significance/
[10] Historic England (2015) Shoreline Management Plan Review and the Historic Environment: [online] available at: https://historicengland.org.uk/images-books/publications/shoreline-management-plan-review-and-historic-environment/shoreline-management-plan-review/
[11] Historic England (2015) Shoreline Management Plan Review and the Historic Environment: [online] available at: https://historicengland.org.uk/images-books/publications/shoreline-management-plan-review-and-historic-environment/shoreline-management-plan-review/

6.7 **Proposed Monitoring**

The following indicators are proposed to monitor the effects of the Strategy:

- Number of historic assets at risk on the Historic Environment Record (HER)?
- Number of objections to any relevant planning applications from Historic England?

7 Landscape

7.1 Context Review

7.1.1 International Legislation, Policy and Guidance

The ELC promotes the protection, management and planning of European landscapes and organises European co-operation on landscape issues. The ELC requires "landscape to be integrated into regional and town planning policies and in cultural, environmental, agricultural, social and economic policies, as well as any other policies with possible direct or indirect impacts on landscape".

7.1.2 National Legislation, Policy and Guidance

The National Planning Policy Framework 2021 states that strategic policies should set out an overall strategy for the pattern, scale and design quality of places, and make sufficient provision for: conservation and enhancement of the natural, built and historic environment, including landscapes and green infrastructure. In addition, it states that great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty which have the highest status of protection in relation to these issues. This is particularly relevant due to the presence of Chichester Harbour AONB adjacent to Hayling Island.

The 25 Year Environment Plan and **National Design Guide** outline the same aims as one another, focusing on creating a cleaner, greener country that puts the environment first and celebrates the variety of natural landscapes and habitats present in the UK. Design is focused on creating beautiful, enduring and successful places, which respond to local character and provide a network of high quality and green open spaces. Of note is 'Chapter 2: Recovering nature and enhancing the beauty of landscapes' and 'Goal 6: Enhanced beauty, heritage and engagement with the natural environment'. Recognising that in England, 15% of the landscape is designated as AONB, Chapter 2 sets a commitment to ensuring the conservation and enhancement of England's AONBs, while supporting them as living landscapes that underpin many rural communities.

7.1.3 Local Planning Policy

Havant Borough Council's Local Plan Core Strategy 2011 sets out that the landscape and built form principles in the Havant Borough Townscape, Landscape and Seascape Character Assessment are protected and where possible enhanced by partnership working with developers, groups and the wider community. Policies of particular relevance to the landscape SEA theme include:

- *CS11 Protecting and Enhancing the Special Environment and Heritage of Havant Borough:* seeks to ensure that new development not only protects the borough's environmental assets but also uses them to generate higher quality development.
- *CS12 Chichester Harbour Area of Outstanding Natural Beauty (AONB):* sets out that proposed development affecting the AONB should be of the highest design quality and applicants are encouraged to seek pre-application advice from Chichester Harbour Conservancy
- *CS16 High Quality Design:* seeks to secure good design through all new developments, ensuring the design of developments consider and respond to local context.

- *DM8 Conservation, Protection and Enhancement of Existing Natural Features*: permits development only where it protects and enhances local habitats and landscape distinctiveness.
- *DM9 Development in the Coastal Zone:* permits development in the coastal zone only where relevant criteria is met, including protecting the character and appearance of the coast.

Havant Borough Local Plan (Allocations) 2014 includes *Policy AL2 Urban Area Boundaries and Undeveloped Gaps between Settlements* which relates to landscape, ensuring the protection and enhancement of Havant Borough's special environment. Specifically, the undeveloped gap between Havant and Emsworth is partially designated as Chichester Harbour AONB, which is given the highest status of protection in the NPPF, along with National Parks and the Norfolk Broads, in relation to landscape and scenic beauty.

The Havant Borough Local Plan Submission Version (LP SV) sets out the following policies related to landscape:

- *E1 High quality design:* sets out the Borough's expectations in achieving high quality design, enhancing connections between people and places and integrating new development with the Borough's high quality natural, built and historic environment.

- *E3 Landscape and settlement boundaries:* the policy is to protect and enhance the natural environment for its own sake, for its nature conservation value and for public access and recreation.

- *E4 Development on the Coast:* the policy is to control the adverse effects which could occur as a result of new development on coastal areas of the Borough, recognising that these are some of the most sensitive areas to develop, with complex nature conservation, flood risk and erosion, as well as landscape impact and public enjoyment of the waterfront to be considered. Multiple policies in this Plan cover aspects which also apply to in-land areas (see Policies E3, E5, E14, E16, E17 and E19, in particular), while this policy adds some specific considerations for coastal development and areas of coastal change.

- *E5: Chichester Harbour Area of Outstanding Natural Beauty* sets specific provisions for development proposals affecting the Chichester Harbour AONB. Criteria in this policy supplements the general landscape provision in Policy E3, and policy E4 on coastal development (discussed above).

The Chichester Harbour AONB Management Plan 2019 - 2024 explains the importance of planning in this nationally important protected landscape, setting out planning principles to compliment Local Plan planning policies discussed above.

7.2 Baseline Review

Havant Borough and Hayling Island sit within the 'The South Coast Plain' National Character Area (NCA). The South Coast Plain is characterised by flat, coastal landscapes which includes

several major inlets which have distinctive local landscapes and intertidal habitats of international environmental importance (Natural England, 2014). Chichester Harbour AONB lies within the NCA and the foothills of the South Downs National Park.

7.2.1 Havant Borough

The Havant Borough Townscape, Landscape and Seascape Character Assessment 2007, assesses the distinctive character of the borough considering landscape, ecology, and cultural heritage to define 41 landscape character areas. Each Landscape Character Area (LCA) is defined and comes with a set of guidelines to aid in their conservation, restoration and enhancement.

A Landscape Capacity Study (2015) has been produced for HBC to provide evidence to support the new emerging Havant Borough Local Plan 2036. The study assesses the value and capacity of undeveloped open land in Havant. It uses LCA identified in the Havant Borough Townscape, Landscape and Seascape Character Assessment 2007 modifying them to reflect settlement boundaries and examines parcels of land within each LCA. The study provides a landscape capacity score and recommendations for future development within each land parcel.

Chichester Harbour AONB lies to the south of Emsworth. The Chichester Harbour AONB is a compact 74 square miles located between Chichester in the east to Hayling Island in the west. The area is unusual as it is one of the last remaining areas on the south coast that is relatively under-developed (see Section 1.3.3).

7.2.2 Hayling Island

Of the 41 LCA identified by Havant Borough, those most likely to be impacted by the strategy will be those present on and near Hayling Island. These have been listed in **Table 7.1** below.

Table 7.1 Havant Borough LCAs most likely to be impacted by the Strategy, extracted from Section 5 of Havant Borough Townscape, Landscape and Seascape Character Assessment, 2007.

LCA	Havant Borough Name	Landscape Type (LCT)
27	Langstone	Urban Lower Harbour Plain
29	North Hayling	Open Lower Harbour Plain
30	Stoke and north-west Hayling	Enclosed Lower Harbour Plain
31	Central Hayling Plain	Open Lower Harbour Plain, Enclosed Lower Harbour Plain, Broad Inlet, Minor Inlet
32	Langstone Harbour	Harbour Basin
33	Chichester Harbour	Harbour Basin, Broad Inlet
34	Sinah Common and the Kench	Open Lower Harbour Plain, Harbour Basin, Lowland Open Coastal Plain
35	West town, Hayling Island	Open Lower Harbour Plain, Lowland Coastal Settlement, Lowland Open Coastal Plain
36i	South Hayling	Lowland Coastal Settlement, Lowland Open Coastal Plain
36ii	Eastoke	Minor Inlet, Lowland Coastal Settlement
37	Black, Sandy, Eastoke points	Minor Inlet, Lowland Open Coastal Plain

38	Langstone Harbour Mouth	Harbour Mouth, Open Coast
39	South coast Hayling Island	Open Coast
40	Chichester Harbour Mouth	Harbour Mouth, Open Coast

Details of each LCA and Landscape Type are available within the Havant Borough Townscape, Landscape and Seascape Character Assessment, 2007. This includes key characteristics and key local issues for each LCA which will need to be considered as part of the ongoing development of this strategy.

The Landscape Capacity Study (2015) assessed 7 LCA on Hayling Island. A summary of the results is presented in **Table 7.2** below.

Table 7.2 Results from Havant Borough Council Land Capacity Study (2015) for LCA on Hayling Island

LCA	Name	Land Parcel	Land Capacity	Recommendation
29	North Hayling	29.1	Low	Not recommended as having any potential to contribute to growth in Havant Borough
		29.2	Low	Small scale development would need be carefully designed to conserve and enhance ANOB
		29.3	Low	Not considered for further potential growth
		29.4	Medium/Low	Not considered for further potential growth
30	Stoke and south-west Hayling	30.1	Medium/Low	Any growth would need to relate very well to settlement patterns of villages
		30.2	Medium	Growth south of Fleet is not recommended
		30.3	Medium/Low	Further growth would harm landscape value
31	Central Hayling Plain	31.1	Medium/Low	Growth would need to avoid impacting Hayling Billy coastal path
		31.2	Medium/Low	Growth to avoid impacting open coastal plain
		31.3	Low	Not considered for further potential growth
		31.4	Medium/Low	Not considered for further potential growth
		31.5	Low	Not considered for further potential growth
		31.6	Low	Not considered for further potential growth
34	Sinah Common and the Kench	34.1	Medium/Low	Growth would need to be outside flood zone
35	West Town, Hayling Island	35.1	Medium	Growth would need to respect setting of footpaths & St May's Church.
		35.2	Low	Not considered for further potential growth
36i	Eastoke	36i1	Low	Not considered for further potential growth
		36i2	Low	Not considered for further potential growth
37	Black, Sandy and Eastoke points	37.1	Low	Not considered for further potential growth

7.2.3 Chichester Harbour AONB

The NPPF confirms AONBs as having the highest status of protection in relation to landscape and scenic beauty. Chichester Harbour AONB is made up of a unique blend of landscape and seascape which covers 74km^2, of which 41% is water at high tide (Chris Blandford Associates, 2019). Its Management Plan and supporting documents provide the framework for the management and planning of Chichester Harbour AONB. HBC's Local Plan Core Strategy 2011, and submission Local Plan 2036 advises that proposed development affecting the AONB should be of the highest design quality and pre-application advice from Chichester Harbour Conservancy as well as HBC is strongly advised.

The third review of the Chichester Harbour Management Plan (2019) establishes a new long-term vision to 2050. It outlines 15 policies to safeguard the unique environment which include conserving and enhancing the landscape, development management, habitat protection, water quality, navigation and protection of wildlife species.

7.3 Likely Future Conditions

The landscape character areas and landscape types identified in the Havant Borough Townscape, Landscape and Seascape Character Assessment, could be eroded over time if significant development takes place within these areas. This could either be in the form of new strategic infrastructure to manage flood risk in a few locations or piecemeal development of infrastructure across and surrounding Hayling Island. New infrastructure also has the potential to lead to changes in the landscape through visual impact. In terms of the AONB, as set out above, it is considered that higher level policy, including the AONB Management Plan (2019) will ensure its appropriate protection and enhancement, supporting the landscape's intrinsic character and quality.

7.4 Key Environmental Issues

The following key environmental issues have been identified through the baseline review:

- Different landscape types present within the strategy area, such as open coast, harbour plains, inlets and harbour basins, provide a variety of habitats to support biodiversity.
- Different landscape types present within the borough offer visual separation between different land uses and extensive views including that of an AONB.
- Proposed development affecting Chichester Harbour AONB should be of highest design quality in consideration of its high-status landscape and scenic beauty.
- Careful and long-term consideration of rare, fragile dune system present at the south-west of Hayling Island.

7.5 Appraisal Findings

7.5.1 ODU 1 Langstone Bridge to Northney Farm

Overall Leading Option Sustain 0.5 % AEP with Managed Realignment Hybrid

7.5.1.1 Likely Significant Effects

Over the short term (2022-2042) the construction of frontline defences is considered likely to lead to significant adverse effects, impacting upon Chichester Harbour AONB, which extends

across the north of Hayling Island, including the coastal strip, land within Northney and the entirety of ODU1. Most of the coastal edge is undeveloped, with views from the coastal path at this section of the AONB considered 'panoramic'.[12] This notably includes sea views from landmarks Bridge View Point and Langstone View Point. Pressure from shore side development is a key issue for the AONB at North Hayling.[13] The extensive area of undeveloped coastline should where possible be protected.

Construction could also impact upon views from the Public Right of Way which connects to the main settlement of North Hayling, and Shipwrights Way bridleway extending west. Views are likely to be highly valued given the presence of the AONB, flat topography and open nature of the landscape.

Over the medium term (2042-2072) and long term (2072– 2122), the implementation of the defences and subsequent raising to keep pace with sea level rise, could lead to further significant negative effects in respect of the AONB, views and amenity assets discussed above. This is likely to be a worst-case assessment, and therefore there is a level of uncertainty at this stage, noting that further details including the defence alignments, exact heights and lengths will be investigated as part of the scheme appraisal process following the Strategy.

7.5.1.2 Likely Minor Effects

In the east side, the creation of intertidal habitat may be considered beneficial to the local landscape. However, this could also be seen as a potential adverse impact because the good quality semi-improved grassland landscape would be lost with the creation of this new intertidal habitat.

Leading Economic Option: Sustain 1.33% AEP with Managed Realignment

This option is similar to the overall leading option; however, it does not include protection of the historic landfill site on the east side and the setback embankment on the west side could lead to reduced protection to Northney Road. These differences do not change the effects on landscape out lined above for the overall leading option.

7.5.2 ODU 2 Northney Marina

Overall Leading Option: Resilience

No minor or significant effects have been recorded for this option.

Overall Economic Option: Do Nothing

7.5.2.1 Likely Minor effects

During the short term (2022-2042) the current defences will come to the end of their life and there is the potential for the landscape to be improved as a more natural coastal environment would be created. This is likely to have a minor positive effect on the landscape, including the AONB.

[12] https://www.chichester.gov.uk/media/28140/Adopted-Joint-Chichester-Harbour-Area-of-Outstanding-Natural-Beauty-Supplementary-Planning-Document-May-2017/pdf/r_Final_adopted_16_May_2017.pdf
[13] https://www.chichester.gov.uk/media/28140/Adopted-Joint-Chichester-Harbour-Area-of-Outstanding-Natural-Beauty-Supplementary-Planning-Document-May-2017/pdf/r_Final_adopted_16_May_2017.pdf

In the longer term (2072-2122) there will be no flood or erosion protection to assets in the ODU, which will further support the development of a natural coastline, with further positive effects predicted for the landscape. The significance of effects in the longer term will depend on extent of flood events / erosion.

7.5.3 ODU 3 Northney Farm to Chichester Road

Overall Leading and Economic Option: Sustain 0.5% AEP with Managed Realignment

7.5.3.1 Likely Minor Effects

The construction of new setback defences in epoch 1 (2022 – 2042) has the potential to lead to negative effects on the character and setting of the AONB, including sea views. As new setback defences are replacing existing defences, and the structure is anticipated to be earth filled, covered with vegetation, effects on the AONB are likely to be minor. The implementation of the defences will be phased; the initial height of the defences will be built to a 0.5% SoP for 2042, and raised over time to keep pace with sea level rise. Effects are therefore likely to increase in significance over time as the height of defences increase.

The creation of new intertidal habitat in front of the defences in the short term (2022 – 2042) may be considered beneficial to the local landscape. However, this could also be seen as a potential adverse impact because the open agricultural landscape, leading to coastal and floodplain grazing marsh and good quality semi-improved grassland, would be lost with the creation of this new intertidal habitat.

7.5.4 ODU 4 Chichester Road to Mill Rythe Junior School

Overall Leading Option: Resilience

It is considered that implementing PFR measures and delivering patch and repair of existing frontline defences is unlikely to impact upon the landscape, including the AONB which adjoins extends within the ODU along the coastline.

Overall Economic Option: Do Nothing

7.5.4.1 Likely Minor Effects

During the short term (2022-2042) the current defences will come to the end of their life and there is the potential for the landscape to be improved as a more natural coastal environment would be created. This is likely to have a minor positive effect on the landscape, including the AONB.

In the longer term (2072-2122) it is considered that there will be no flood or erosion protection to assets in the ODU, which will further support the development of a natural coastline, with further positive effects predicted for the landscape. The significance of effects in the longer term will depend on extent of flood events/ erosion.

7.5.5 ODU 5 Mill Rythe Junior School to Salterns Lane

Overall Leading Option: Sustain 1.33% AEP with Managed Realignment

7.5.5.1 Likely Minor Effects

There may be potential temporary minor negative visual effects as a result of the construction of new setback defences in epoch 1 (2022 – 2042). The new setback defences fronted with new intertidal habitat may result in the loss of part or all of the Tournerbury Golf Course, which could impact upon local landscape, sea views, and setting of the AONB. However, it is understood that the embankment would be an earth filled structure, covered with vegetation, which would reduce effects on the landscape once established.

Conversely, as the defences are raised to keep pace with sea level rise, it is considered that impact on landscape setting and views could increase over time. There is however a level of uncertainty at this stage, noting that further details including the defence alignments, exact heights and lengths will be investigated as part of the scheme appraisal process following the Strategy.

The creation of intertidal habitat in front of the defences may be considered beneficial to the local landscape. However, this could also be seen as a potential adverse impact because good quality semi-improved grassland landscape would be lost with the creation of this new intertidal habitat.

Leading Economic Option: Maintain then Managed Realignment (improve) 0.5% AEP from year 50.

7.5.5.2 Likely Minor Effects

This option involves maximising the life of the existing defences (including some capital refurbishment where there are failing defences), then constructing a setback embankment in 2072 with intertidal habitat creation in front of the defences. Negligible effects are therefore considered in the short term as existing defences are maximised.

There is the potential for minor negative effects in the long term, as discussed above for the leading option, when defences are constructed and habitat created (i.e from 2072). Specifically, managed realignment may result in the in the loss of part or all of the Tournerbury Golf Course, which may impact upon local landscape, sea views, and the setting of the AONB.

As set out above, the creation of intertidal habitat in front of the defences has the potential to deliver minor positive or negative effects, with a level of uncertainty currently.

7.5.6 ODU 6 Salterns Lane to Wilsons Boat Yard

Overall Leading and Economic Option: Maintain then improve from year 50, 0.5% AEP frontline defence.

7.5.6.1 Likely Significant Effects

No effects are anticipated in epoch 1 and epoch 2 (2022 – 2072) as existing defences are maintained.

In epoch 3 the construction of a frontline floodwall is likely to result in significant negative effects on the AONB landscape including sea views. Once built, the floodwall is considered to have a permeant significant negative effect on the landscape, altering the undeveloped coastal edge and 'panoramic' views.[14]

7.5.7 ODU 7 Wilsons Boat Yard to Fishery Creek

Overall Leading and Economic Option: Sustain 0.5% AEP

7.5.7.1 Likely Significant Effects

The construction of a frontline rock revetment epoch 1 (2022 – 2042) could lead to a significant negative change in the landscape aesthetics, the setting of the AONB and important views. Once built, the frontline rock revetment is considered to have a permanent significant negative effect on the landscape, altering the undeveloped coastal edge and 'panoramic' AONB views.[15] It is however recognised that there is some uncertainty in terms of the defence alignments (i.e. exact heights and lengths), which will be investigated as part of the scheme appraisal process following the Strategy.

7.5.8 ODU 8 Eastoke

Overall Leading Option: Sustain 0.5% AEP

7.5.8.1 Likely Significant Effects

There may be temporary significant negative visual effects on the AONB landscape, setting and sea views as a result of the construction of new defences in epoch 1 (2022 – 2042). While it is recognised that the ODU will be split into different areas to implement defences which are most suitable to the coastline, all defence types being delivered are considered to lead to a change in landscape character, particularly given the undisturbed nature of the AONB coastline. Significant negative effects are therefore also considered likely in the long term.

7.5.9 ODU 9 Eastoke Corner to Inn on the Beach

Overall Leading Option: Sustain 0.5% AEP - Maintain Inn on the Beach

Leading Economic Option: Sustain 0.5% AEP - Replace Inn on the Beach

There is currently a concrete recurve wave wall 3m high at Inn on the Beach. It 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. The policy options are therefore 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.

Effects on the landscape are the same for both policy options; given current defences in front of Inn on the Beach are to be retained / enhanced or replaced with infrastructure of similar dimensions. Therefore, impact on the landscape is likely to be negligible in the long term.

[14] https://www.chichester.gov.uk/media/28140/Adopted-Joint-Chichester-Harbour-Area-of-Outstanding-Natural-Beauty-Supplementary-Planning-Document-May-2017/pdf/r_Final_adopted_16_May_2017.pdf
[15] https://www.chichester.gov.uk/media/28140/Adopted-Joint-Chichester-Harbour-Area-of-Outstanding-Natural-Beauty-Supplementary-Planning-Document-May-2017/pdf/r_Final_adopted_16_May_2017.pdf

In the short term both options have the potential to have minor negative visual effects during construction.

7.5.10 ODU 10 Inn on the Beach to North Shore Road

Overall Leading and Economic Option: Resilience

7.5.10.1 Likely Minor Effects

This option is anticipated to provide continued maintenance of existing frontline defences, with no significant new infrastructure to be provided. Depending on the outcome of monitoring, localised erosion controls such as rock armour could be implemented, which would consist of large rocks/ rubble at the coastline. Negligible effects are therefore considered in relation to views and landscape setting.

Alternative option: Improve 1.33%

1.6.10.2 Likely Minor Effects

The construction of a frontline floodwall in in the short term (2022-2042) has the potential to have a minor negative effect on the landscape and sea views. Minor effects in this respect may also exist in the long term once the floodwall is established, and through the maintenance of defences over time.

7.5.11 ODU 11 North Shore Road

Overall Leading Option – Sustain 1.33% AEP

7.5.11.1 Likely Minor Effects

This option involves constructing new defences in epoch 1 (2022 – 2042), as the residual life of the existing defences is between 10 and 20 years. The implementation of the defences will be phased; the initial height of the defences are anticipated to be built to a 1.33% SoP for 2041 on the west side. In epoch 2 (2042 – 2072), an additional length will be added on the east as flood risk increases with the initial defences raised over time to keep pace with sea level rise.

There are likely to be minor adverse visual effects in epoch 1 as a result of the flood wall construction. In the long term, there may be temporary visual effects as additional lengths are added. There may be minor permanent adverse visual effects as a result of this option given that property boundaries are located close to the foreshore, however this is uncertain and will be worked into the defense design.

Overall Economic Option – Improve 0.5% AEP

This option performs similarly to the Overall Leading Option, although this option does not include the construction of any defences to the east (North Shore Road). Reducing the potential for impact on the landscape setting and views along North Shore Road performs more positively than the Overall Leading Option; however, the construction of defences on the west (Sinah Lane) are considered likely to lead to minor negative effects as discussed above.

7.5.12 ODU12 North Shore Road to Newtown

Overall Leading and Economic Option: Do nothing

Minor positive effects are predicted in the long term through the delivery of this policy option, allowing the coastline to evolve naturally over the appraisal period.

7.5.13 ODU 13 Newtown

Overall Leading and Economic option: Sustain from year 20 (Maintain then Sustain 0.5% AEP)

7.5.13.1 Likely Minor Effects

Maintaining defences in the epoch 1 (2022-2042) is unlikely to impact upon the local landscape. However capital works and upgrades to the new defences in the medium (2042 – 2072) and long term (2072 - 2122) has the potential to lead to minor negative visual effects on the local landscape and sea views. The significance of effects are likely to increase over time as defences are raised to keep pace with sea level.

There may be temporary minor adverse visual effects during construction of new defences and maintenance, but there is likely to be permanent minor adverse visual effects as a result of this option. This is given that while properties exist close to the seafront along Saltmarsh Lane, any visual effects of the scheme will likely be screened to some extent by the broadleaved and deciduous woodland present. There is however a level of uncertainty at this stage, noting that the exact height of defences in the long term will depend on sea level rise.

7.5.14 ODU 14 Newtown to Stoke

Overall Leading and Economic Option: Do nothing

7.5.14.1 Likely Minor Effects

Minor positive effects are predicted in the long term through the delivery of this policy option, allowing the coastline to evolve naturally over the appraisal period.

7.5.14.2 Likely Minor Effects

While no defences would be built in front of the new alignment of the Billy Trail, a small floodwall would be built to protect some properties from flooding. This may lead to minor adverse effects on local landscape and views during construction.

It is also recognised that relocating the Hayling Billy Trail is anticipated to prevent it being damaged and lost through coastal erosion. Minor benefits are therefore predicted in terms of promoting understanding of, and access to, Hayling Island's coastal landscape.

7.5.15 ODU 15 Stoke to Langstone Bridge Carpark

Overall Leading and Economic Option: Sustain 0.5% AEP setback defences

7.5.15.1 Likely Minor Effects

This option involves constructing new setback defences in epoch 1 (2022 – 2042), as the residual life of the existing defences is between 10 and 20 years. The existing defences would be replaced with similar infrastructure, as to keep the defence line in place. As such, negative

impacts are likely to be only temporary and occur during the construction phase as much of the ODU frontage is already defended.

The creation of intertidal wetland habitat may be considered beneficial to the local landscape. However, this could also be seen as a potential adverse impact because the good quality semi-improved grassland landscape would be lost with the creation of this new intertidal habitat.

In terms of the construction of a new embankment, this would be an earth filled structure, covered with grass, and therefore any minor negative visual effects on the local landscape during construction would be negligible in the long term, once the grass has established itself.

7.5.16 ODU 16 Langstone Bridge Carpark to Langstone Bridge

Overall Leading and Economic Option: Sustain 0.5% AEP and sustain 1.33% AEP – Frontline defence

7.5.16.1 Likely Minor Effects

The construction of a frontline floodwall in in the short term (2022-2042) has the potential to have a minor negative effect on the local landscape and sea views. Minor negative effects on views may also exist in the long term as defences are raised over time to keep pace with sea level rise.

7.6 Proposed Management of Effects

The character and setting of the landscape/ seascape should be considered through the detailed design of any new infrastructure, and any subsequent planning applications. This is particularly relevant to the Chichester Harbour AONB and the extensive areas of undeveloped coastline, which should be appropriately considered in line with objectives of the AONB Management Plan. The following steps are advised through the AONB SPD (2017):[16]

- Develop outline design with dimensional drawings, technical specifications and method statements
- Obtain all the necessary consents and licences
- Develop detailed design for construction stage and
- Undertake construction.

It is recognised that different shoreline management approaches will impact the landscape differently. Hard engineering approaches (groynes, sea walls, rip rap, revetments, offshore breakwaters, etc.) directly alter physical processes and systems, whereas soft engineering approaches (beach nourishment, cliff regrading and drainage, dune stabilization, etc.) attempt to work with physical systems and processes to protect coasts while managing changes in sea level.[17]

Where possible, nature-based solutions should be explored to provide cost-effective solutions with reduced impact on the landscape, rural character, and wider environment. For example,

[16] Chichester District and Havant Borough Councils (2017) Adopted Joint Chichester Harbour AONB SPD [online] available at: https://conservancy.co.uk/assets/files/cms_item/135/d-Supplementary_Planning_Document_2017-qUFaDLUfvu.pdf

[17] Natural England (2020) Climate change, biodiversity and Nature-based Solutions [online] available at: https://naturalengland.blog.gov.uk/2020/06/22/climate-change-biodiversity-and-nature-based-solutions/

the use of natural habitats can provide a buffer against the effects of storm surges on top of rising sea levels, creating a more natural coastal landscape.18 There is an opportunity to provide potential intertidal habitat and compensatory farmland creation through managed coastline realignment (influenced by the objectives of the Solent Dynamic Coast Project (SDCP) SMP.19

Identifying and developing appropriate mitigation measures will be particularly important for many ODUs, recognising that coastal adaptation is a new and evolving area of work. Innovative, co-ordinated and sustainable solutions will be required from landowners, businesses, planning authorities, communities and risk management authorities, to manage this important landscape for the long-term.[20]

Recognising the importance of the local landscape to the community, significant engagement work with coastal communities will also be crucial to ensure the local and wider-scale benefits are understood and local 'buy-in' is secured for proposed scheme(s).[21]

The Chichester Harbour AONB SPD (2017) further states that any applicants should seek pre-application advice from the Environment Agency, Natural England and Chichester Harbour Conservancy, particularly where proposals involve works to the shoreline or new/ altered intertidal structures and sea defences.

7.7 Proposed Monitoring

The following indicators are proposed to monitor the effects of the Strategy:

- Proportion of undeveloped coastline
- Objections from Chichester Harbour Conservancy and NE to any planning applications for flood defences.

[18] Natural England (2020) Climate change, biodiversity and Nature-based Solutions [online] available at: https://naturalengland.blog.gov.uk/2020/06/22/climate-change-biodiversity-and-nature-based-solutions/

[19] Hampshire County Council (2012) Hayling Island Coastal Plain Integrated Character Assessment

[20] Environment Agency (2020) National Flood and Coastal Erosion Risk Management Strategy for England [online] available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/920944/023_15482_Environment_agency_digitalAW_Strategy.pdf

[21] Environment Agency (2010) The coastal handbook [online] available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/292931/geho0610bsue-e-e.pdf

8 Population and Human Health

8.1 Context Review

8.1.1 National Policy and Guidance

The National Planning Policy Framework 2019 states that 'access to high quality open spaces and opportunities for sport and recreation can make an important contribution to the health and well- being of people in the community'.

The 25 Year Environment Plan states that 'making sure that there are high quality, accessible, natural spaces close to where people live and work, particularly in urban areas, and encouraging more people to spend time in them to benefit their health and wellbeing'.

8.1.2 Local Planning policy

HBC's Local Plan Core Strategy 2011 sets out the following policies relating to population and human health:

- *Policy CS1* sets out that planning permission will be granted for developments which encourage healthier lifestyles that improve the wellbeing across the borough and promote the borough as an attractive destination for recreation, leisure and culture.
- *DM10 Pollution* ensures that developments which may cause pollution will only be permitted if the health and safety of existing and future users of the site are not put at risk.

Havant Borough Local Plan (Allocations) 2014 sets out the following policies relating to population and human health:

- *DM17 Contaminated Land* identifies that the borough has historic contaminated sites which may present a potential risk to human health and therefore planning permission will only be granted where an appropriate investigation of the potential risks is undertaken, and any identified risks are mitigated.
- *DM18 Protecting new development from pollution* controls the adverse effects which could occur as a result of inappropriate location of development close to sources of pollution or other amenity impacts.

The Havant Borough LP SV sets out the following policies related to population and human health:

- *E2 Health and wellbeing*: this policy will allow developments that promote a sense of community, facilitate active and healthy lifestyles and new opportunities for active travel. The

plan also highlights Hayling Island and in particular the seafront as a focus for regeneration. It identifies the five key areas: Southwood Road, Eastoke Corner, Beachlands, West Beach and Northney Marina.

- *E19 Managing flood risk in new development:* this policy states that developments need to provide a flood risk assessment and highlights that flood risk can be due to tidal flooding, fluvial flooding, surface water run-off and rising ground water.

- *E22 Amenity and Pollution:* the purpose of the policy is to control the adverse effects which could occur as a result of new development on existing occupiers, as well as through the inappropriate location of new development close to sources of pollution or other threats to amenity.

- *E24 Contamination:* that the borough has historic contaminated sites which may present a potential risk to human health and therefore planning permission will only be granted where an appropriate investigation of the potential risks is undertaken, and any identified risks are mitigated.

8.2 Baseline Review

8.2.1 Havant Borough

The population of Havant Borough is 126,300 and is forecast to rise to 134,000 by 2036 according to the Havant Small Area Population Forecast 2019. The Borough has an ageing population and forecasts predict that by 2026 there will be 146.5 elderly people for every 100 children. The health of the people of Havant is generally similar to the England average and life expectancy for both men and women is also similar to the England average. However, life expectancy for both men and women differ between the most deprived and least deprived areas within the Borough (Havant Borough Profile, 2018). Between 2016 - 2018, all-cause mortality rates for the Borough were similar to the England average.

There are strong links between deprivation and poor health. Havant Borough is one of the most deprived areas in Hampshire and in 2015 it was ranked 142nd out of 326 local authorities in England in terms of deprivation. However, within the Borough there is a high level of variation at ward level, in 2015 the Borough had 18 areas within the 20% most deprived areas in England and some of the least deprived areas, for example, Emsworth (Havant Borough Profile 2018).

8.2.2 Hayling Island

Hayling Island is located in South Hampshire within Havant Borough. The Island is split into two wards, Hayling West and Hayling East. The population of Hayling Island is 17,379 (2011 Census) and is expected to increase to 18,565 by 2022. The island has an ageing population with over a third of the population aged 65 years and over in Hayling West and over half the population aged 65 years and over in Hayling East (Havant Borough Profile (2018).. This is

higher than the national average and is predicted to increase in the future (Havant Borough Profile 2018). The population density for the island is among the lowest in the Borough, with Hayling East showing the lowest value at 1.1 persons per hectare (Havant Small Area Population Forecast 2019). The health of the people on Hayling Island is generally better than the England average. Life expectancy for women is higher than the England average and similar to the England average for men. Between 2013 - 2017, all-cause mortality rates for Hayling Island were better than the England average.

Indicators of deprivation show that within Hayling Island there is a variation between wealth and deprivation. The Beachlands area along the south coast of Hayling Island is within 20% of the most deprived areas in England. In contrast Sinah has been identified as in the 20% least deprived areas (Havant Core Strategy 2011).

Hayling Island has approximately 38km of coastline and there are an estimated 609 residential properties at risk from a 0.5% AEP flood event (without existing sea defences in place). By 2120, with sea level rise and climate change, this estimate increases to 1,830 residential properties at risk from coastal flooding (**Table 8.1)**. The main source of flooding to the east, west and north of the island is from tidal inundation while the exposed southern frontage is from both tidal inundation and wave overtopping (AECOM 2019b).

Table 8.1. Properties at risk from 0.5% AEP flood event (without existing defences in place) (AECOM, 2019b)

Scenario	Year	AEP event	Residential properties at risk	Non- Residential properties at risk	Total properties at risk of coastal flooding
Do nothing	2020	0.5% AEP	609	348	957
Do nothing	2120	0.5% AEP	1830	660	2490

The main threats to health from flooding are physical injuries, infections, exposure to chemicals, disruption to health services and psychological mental health and wellbeing. The English National Study of Flooding and Health 2020 found that flooding has a very significant impact on mental health. The study found that not only was there an adverse impact on the mental health for those who's homes were flooded but also on those whose lives were disrupted.

The health benefits of engaging with and accessing the natural environment is supported by an extensive range of studies. These indicate that places with more accessible green space are associated with better physical and mental health. Hayling Beach and Hayling Park have been identified in the new emerging Havant Borough LP SV 2021 as being of particular importance to protect. The nature reserves at Sinah Common and Sandy Point provide areas

for informal recreation and the Hayling Billy Trail is a shared route for walkers, cyclists and horse riders along the west coast of the island. Other recreational facilities include golf clubs at Sinah Common and Tournerbury.

Public Health England Spatial Planning for Health 2017 report looked at the links between the build environment and health and wellbeing. It found a wealth of evidence to show that investing in infrastructure to support walking and cycling can lead to numerous health gains. Prioritising future network development on the island for pedestrians, cyclists and other forms for active travel, over road vehicles will have benefits for both the health of residents in addition to reducing fossil fuels contributing to pollution and climate change.

Hayling Island is regarded as the birthplace of windsurfing and during the 20th century the island flourished as a tourist destination. Although there has been a decline in tourist activity in more recent years the Blue Flag awarded seafront continues to attract visitors for recreation and water-based activities including windsurfing and sailing. The emerging Havant Borough LP SV 2021, recognises that regeneration of the seafront is required to help maintain day visitors to the island. The island also has two main marinas: Northney and Sparkes Yacht Harbour and a nationally important sailing club at Sandy Point.

There are a number of historic landfill sites along the Hayling Island coastline that are at risk of erosion and tidal flooding if current defences fail, these are shown in **Figure 10** in **Chapter 9 Soil**. A desktop landfill assessment (ESCP 2019) identified two historic landfill sites on the west frontage of Hayling Island: Yacht Haven and Mill Rythe industrial land as high risk. Classifying them as likely to contain a significant source of contamination and are very likely to be linked to receptors, including humans, via coastal erosion and / or tidal flooding. However, further investigations and more detailed studies are required to ascertain whether these potential sources can be classified as ‘contaminated’ as per statutory definition.

The current defences protecting Yacht Haven landfill site have an estimated residual life of between 1-10 years and some sections >10 years. The site lies within the Environmental Agency’s Flood zone 3 leading to the potential risk of leaching of contaminates. If defences along this frontage are not maintained or are realigned there is a potential risk to human health resulting from the release of potential contaminates.

The current defences around Mill Rythe Industrial site are in fair condition but this site also lies within the EA’s Flood zone 3 leading to the potential risk of leaching of contaminates. Similarly, if defences along this frontage are not maintained or are realigned there is a potential risk to human health resulting from the release of potential contaminates.

Therefore, the preferred policies need to consider the potential contaminative risk to human health and defence alignments should not increase this risk but actively improve the baseline (e.g. preventing the continued erosion of a currently eroding former landfill site).

8.3 Likely Future Conditions

The population of Hayling Island is predicted to increase in the future putting greater demands on health care, housing and transport. This growing population is also predicted to increase in those over 65 years old, increasing an elderly population on the island.

Sea levels are predicted to rise in the future which will increase the risk of flooding and erosion to residential properties on the island. This will have an impact on the health and well-being of residents on Hayling Island at risk from flooding.

There are potentially contaminated land sites on Hayling Island at risk from erosion and tidal flooding if current defences fail. With predicted sea level rise, the frequency of tidal flooding and rate of erosion is likely to increase leading to an increased risk to human health from the release of potential contaminates.

8.4 Key Environmental Issues

The following key environmental issues have been identified through the baseline review:

- Flooding can have a negative effect on both physical and psychological health. Repeated flooding is particularly damaging to mental health and well-being and can exacerbate existing health issues.

- There are residential properties at risk from flooding and this risk will increase with sea level rise

- The only access onto the island (A3023 across Langstone Bridge) is currently at risk from flooding and thus impacting the wellbeing of residents and access for emergency services

- The health value of the natural environment and access to it is essential for human health and wellbeing.

- Hayling Island beaches and other tourist facilities attract visitors to the island and support the local economy. The southern frontage, in particular West Beach, is at risk of erosion and is highlighted as an important location for development and regeneration of tourism facilities.

- The amenity value of the natural environment for example coastal paths for walking and cycling and Hayling beaches for recreation and sports use.

- Historic landfill sites on Hayling Island could potentially be contaminated and have negative impacts on human health through the release of contaminates if defences are not maintained or coastal realignment proposed.

- Prioritise future network development on the island for pedestrians, cyclists and other forms for active travel, over road vehicles.

8.5 Appraisal Findings

8.5.1 ODU 1 Langstone Bridge to Northney Farm

Overall Leading Option: Sustain 0.5 % AEP with Managed Realignment Hybrid

8.5.1.1 *Likely Significant Effects*

Upgrades of new setback defences in the longer term (2072-2122) will provide protection to an estimated 62 residential properties from flooding in a 0.5% AEP event as the risk increases with predicted sea level rise. This is likely to provide significant benefits to human health in relation to improved psychological health of people at risk from flooding and physical health through a reduction in injuries during flooding events. Construction of a new frontline floodwall in epoch 1 (2022-2042) on the west of the frontage will provide protection to Northney Road from flooding and maintain access to the east of the island.

8.5.1.2 *Likely Minor Effects*

Construction of setback defences along the east side of the frontage in epoch 1 (2022-2042) and sustaining the standard of protection in the medium term (2042-2072) will provide protection to an estimated 14 residential properties at risk from flooding in a 0.5% AEP event. This is likely to provide minor benefits to human health in relation to improved psychological health of people at risk from flooding and physical health through a reduction in injuries during flooding events.

Construction of new defences to protect the historic landfill site east of Northney Marina from erosion and flooding are likely to have minor beneficial effects on population health. This historic landfill site has been classed as moderate risk in the in the Hayling Island Funding and Implementation Strategy – Desktop Landfill Assessment (2019). This defines the landfill site as potentially containing a source of contamination not currently linked to receptors but, which has the potential in the future as a consequence of tidal flooding or erosion. The study identified the risk from the historic landfill site on human health as a receptor as low.

Leading Economic Option: Sustain 1.33% AEP with Managed Realignment

8.5.1.3 *Likely Significant Effects*

Upgrades of new setback defences in the longer term (2072-2122) will provide protection to an estimated 58 residential properties from flooding in a 1.33% AEP event as the risk increases with predicted sea level rise. This is likely to provide significant benefits to human health in relation to improved psychological health of people at risk from flooding and coastal erosion in addition to physical health through a reduction in injuries during flooding events.

8.5.1.4 *Likely Minor Effects*

Construction of setback defences in epoch 1 (2022-2042) and sustaining the standard of protection in the medium term (2042-2072) will provide protection to an estimated 20 residential properties at risk from flooding in a 1.33% AEP event. This is likely to provide minor benefits to human health in relation to improved psychological health of people at risk from flooding and coastal erosion in addition to physical health through a reduction in injuries during flooding events.

This policy option doesn't include defences to protect the historic landfill site east of Northney Marina from erosion and flooding. The site has been identified as moderate risk in the Hayling Island Funding and Implementation Strategy – Desktop Landfill Assessment (2019) however, the risk to human health as a receptor has been classified as low. It is predicted that with increased risk from flooding with sea level rise in the future that there is likely to be a minor adverse effect on human health.

8.5.2 ODU 2 Northney Marina

Overall Leading Option: Resilience

Overall Economic Option: Do Nothing

There would be a neutral effect on the baseline as there are no recreational facilities at risk from flooding in this ODU.

8.5.3 ODU 3 Northney Farm to Chichester Road

Leading Overall and Economic Option: Sustain 0.5% AEP with Managed Realignment

8.5.3.1 Likely Minor Effects

Construction of new setback defences in the short term (2022-2042) followed by upgrades to maintain the standard of protection over the medium (2042-2072) and longer term (2072-2122) will provide protection to 45 residential properties at risk from flooding in a 0.5% AEP event and 10 residential properties from coastal erosion. This is likely to provide minor benefits to human health in relation to improved psychological health of people at risk from flooding and coastal erosion in addition to physical health through a reduction in injuries during flooding events.

8.5.4 ODU 4 Chichester Road to Mill Rythe Junior School

Overall Leading Option: Resilience

8.5.4.1 *Likely Significant Effects*

This policy option also includes the protection of 3 historic landfill sites; Yachthaven, Rythe Mill and land at Fleet Farm. Yachthaven and Rythe Mill have been identified as high risk in the Hayling Island Funding and Implementation Strategy – Desktop Landfill Assessment (2019).

A high-risk site was classified in the study as a site which is likely to contain a significant source of contamination and are currently linked, or very likely to become linked to receptors (e.g. humans), via coastal erosion or flooding. The study predicted that Yachthaven and Rythe Mill sites to have a moderate effect on human health as a receptor. Therefore, protection of these former landfill sites from erosion and tidal flooding is likely to have a significant benefit to human health in all epochs.

8.5.4.2 Likely Minor Effects

Property level protection over all epochs will provide protection to 5 residential properties at risk of flooding in a 1.33% AEP event in 2021 and an estimated 30 residential properties in 2121. This is likely to provide minor benefits to human health in relation to improved psychological health of people at risk from flooding and coastal erosion in addition to physical health through a reduction in injuries during flooding events.

Overall Economic Option: Do Nothing

8.5.4.3 Likely Significant Effects

The current defences protecting the historic landfill sites; Yachthaven and Rythe Mill will begin to deteriorate during the short term (2022-2042). This is likely to have a significant adverse effect on human health in terms of exposure of potentially contaminated land in all epochs.

8.5.4.4 Likely Minor Effects

The current defences protecting 3 residential properties from flooding in a 0.5% AEP event will begin to deteriorate during the short term (2042 - 2072) this is likely to have a minor adverse effect on human health in relation to reduced psychological health of people at risk from flooding and coastal erosion in addition to physical health as a result of injuries during flooding events.

In the longer term (2072-2122) there will be no flood or erosion protection to an estimated 30 residential properties at risk from flooding in a 0.5%AEP event and 15 residential properties at risk from coastal erosion. This is likely to have a minor adverse effect on human health in relation to reduced psychological health of people at risk from flooding and coastal erosion in addition to physical health as a result of injuries during flooding events.

8.5.5 ODU 5 Mill Rythe Junior School to Salterns Lane

Overall leading option: Sustain 1.33% AEP with Managed Realignment

8.5.5.1 Likely Significant Effects

Upgrades to defences in the longer term (2072-2122) will provide protection to 90 residential properties from flooding in a 1.33% AEP event as the risk increases with predicted sea level rise. This is likely to provide significant benefits to human health in relation to improved psychological health of people at risk from flooding and coastal erosion in addition to physical health through a reduction in injuries during flooding events.

8.5.5.2 Likely Minor Effects

New setback defences in the short term (2022 - 2042) and upgrades in the medium (2042-2072) will provide protection to 24 residential properties at risk from flooding in a 1.33% AEP event. This is likely to provide minor benefits to human health in relation to improved psychological health of people at risk from flooding and coastal erosion in addition to physical health through a reduction in injuries during flooding events.

The new setback defences will provide protection to the historic landfill site at Mengham Lane which is currently at risk from erosion and tidal flooding. The site has been classed as a low risk in the Hayling Island Funding and Implementation Strategy – Desktop Landfill Assessment (2019) and the effect on human health has been classified as a minor. Therefore, it is likely that this policy will have a minor benefit on human health in terms of risk of exposure of potentially contaminated land.

Creation of new intertidal habitat may result in the loss of part or all of the Tournerbury Golf Course. This would result in the loss of a recreational amenity which contributes to the health and wellbeing of residents and visitors to the island.

Leading Economic Option: Maintain then Managed Realignment (improve) 0.55 AEP from year 50.

8.5.5.3 Likely Significant Effects

Upgrades to defences in the longer term (2072-2122) will provide protection to over 100 residential properties from flooding in a 0.5% AEP event as the risk increases with predicted sea level rise. This is likely to provide significant benefits to human health in relation to improved psychological health of people at risk from flooding and coastal erosion in addition to physical health through a reduction in injuries during flooding events.

8.5.5.4 Likely Minor Effects

Maintaining the existing defences in the short (2022 - 2042) and medium (2042-2072) term will provide protection to 24 residential properties at risk from flooding in a 1.33% AEP event. This is likely to provide minor benefits to human health in relation to improved psychological health of people at risk from flooding and coastal erosion in addition to physical health through a reduction in injuries during flooding events.

Maintaining the existing defences in the short (2022-2042) and medium (2042-2072) term will provide protection to the historic landfill site at Mengham Lane which is currently at risk from erosion and tidal flooding. The site has been classed as a low risk in the Hayling Island Funding and Implementation Strategy – Desktop Landfill Assessment (2019) and the effect on human health has been classified as a minor. Therefore, it is likely that this policy will have a minor benefit on human health in terms of risk of exposure of potentially contaminated land.

Maintaining the current defences in the short term (2042-2072) and medium term (2042-2072) will continue to provide protection to Tournerbury Golf Course from flooding. This is likely to have minor benefits for the health and wellbeing of residents and visitors to the island who

use this recreational facility. However, in the longer term (2072-2122) managed realignment may result in the in the loss of part or all of the Tournerbury Golf Course.

8.5.6 ODU 6 Salterns Lane to Wilsons Boat Yard

Overall Leading and Economic Option: Maintain then Improve from year 50, 0.5% AEP Frontline Defence.

8.5.6.1 Likely Significant Effects

Over the long-term (2072– 2122) the construction of new frontline defences will provide protection to 69 residential properties from flooding in a 0.5% AEP event and 12 residential properties at risk from coastal erosion. This is likely to provide significant benefits to human health in relation to improved psychological health of people at risk from flooding and coastal erosion in addition to physical health through a reduction in injuries during flooding events.

8.5.6.2 Likely Minor Effects

The current defences along this frontage have a predicted residual life of between 10-20 years and provide protection to 9 residential properties at risk from flooding in a 0.5% AEP event, in the short term (2022-2042). Property level resilience will provide protection in epoch 1 (2022-2042) and epoch 2 (2042-2072) from flooding and is likely to provide minor benefits to human health in relation to improved psychological health of people at risk from flooding and coastal erosion in addition to physical health through a reduction in injuries during flooding events.

8.5.7 ODU 7 Wilsons Boat Yard to Fishery Creek

Overall Leading and Economic Option: Sustain 0.5% AEP

8.5.7.1 Likely Significant Effects

Over the medium (2042-2072) and long-term (2072– 2121) phased upgrades to frontline defences will provide protection to 189 residential properties in 2021 from flooding in a 0.5% AEP event as the flood risk increases with predicted sea level rise. This is likely to provide significant benefits to human health in relation to improved psychological health of people at risk from flooding and coastal erosion in addition to physical health through a reduction in injuries during flooding events.

8.5.7.2 Likely Minor Effects

New frontline defences in the short term (2022 - 2042) will provide protection to 2 residential properties at risk from flooding in a 0.5% AEP event. This is likely to provide minor benefits to human health in relation to improved psychological health of people at risk from flooding and coastal erosion in addition to physical health through a reduction in injuries during flooding events.

The frontline defences will also provide protection to two historic landfill sites at risk from erosion and tidal flooding. These sites, land at former Oysterbeds and Fishery Creek, have been identified as moderate risk in the Hayling Island Funding and Implementation Strategy –

Desktop Landfill Assessment (2019). The study defines moderate risk as sites which could potentially contain a source of contamination but are not currently linked to receptors yet have the potential in the future as a consequence of tidal flooding or erosion. The study classified the risk at both historic landfill sites to human health as low. Therefore, it is predicted that the policy option is likely to be a minor benefit to human health in terms of contamination risk from historic landfill sites across all epochs.

8.5.8 ODU 8 Eastoke

Overall Leading and Economic Option: Sustain 0.5% AEP

8.5.8.1 Likely Significant Effects

Construction of new defences in the short term (2022-2042) will provide protection to an estimated 76 residential properties at risk of flooding in a 0.5% AEP event. Upgrades to improve defences in the medium term (2042- 2072) and longer term (2072- 2122) will provide increased flood protection to over 1000 residential properties at risk from flooding in 2121 from a 0.5% AEP event as the risk increases with predicted sea level rise. This is likely to provide significant benefits to human health in relation to improved psychological health of people at risk from flooding and coastal erosion in addition to physical health through a reduction in injuries during flooding events.

This policy option will also provide protection and enhance recreational amenities along this frontage including access to the beach and Sandy Point local reserve. This is likely to have significant benefits for local residents and visitors to the island who use these amenities for health and wellbeing benefits.

8.5.9 ODU 9 Eastoke Corner to Inn on the Beach

Overall Leading Option: Sustain 0.5% AEP - Maintain Inn on the Beach

Leading Economic Option: Sustain 0.5 % AEP - Replace Inn on the Beach

8.5.9.1 Likely Significant Effects

The significant effects on human health are the same for both policy options; 'maintain Inn on the Beach' which involves maintaining the current defences in front of Inn on the Beach or 'replacing Inn on the Beach' which involves replacing Inn on the Beach with a rock revetment. Both policy options include the construction of new defences in the short term (2022- 2042) in front of assets, this is likely to have a significant benefit on human health protecting over 50 residential properties from flooding in a 0.5% AEP event in 2021 and protecting an estimated 137 residential properties at risk from erosion. These significant benefits to human health are in relation to improved psychological health of people at risk from flooding and coastal erosion in addition to physical health through a reduction in injuries during flooding events.

Both policy options will enhance and maintain the beach, this is likely to have significant benefits for local residents and visitors to the island who use the beach for health and wellbeing benefits.

8.5.10 ODU 10 Inn on the Beach to North Shore Road

Overall Leading and Economic Option: Resilience

8.5.10.1 Likely Minor Effects

This policy option includes PFR measures for residential properties and patch and repair to maintain the current defences. This will provide protection to 16 residential properties at risk of flooding in a 1.33% AEP event in 2021. This likely to have a minor benefit to human health in relation to improved psychological health of people at risk from flooding and coastal erosion in addition to physical health through a reduction in injuries during flooding events.

In the long term (2072-2122) as sea levels rise, there is an estimates 65 residential properties at risk from flooding in a 1.33% AEP event. PFR measures will provide some protection from flooding but may have an adverse impact on the psychological health of people at risk from flooding in addition to the risk of physical injury. This option does not provide improved protection to Ferry Road therefore there is a risk of damage to the road resulting in reduced access to some residential properties.

Monitoring and erosion controls if required, will protect coastal access and the golf club within this frontage. This is likely to have minor benefits to human health in relation to wellbeing and access to recreational amenities.

8.5.11 ODU 11 North Shore Road

Overall Leading Option: Sustain 1.33% AEP

8.5.11.1 Likely Significant Effects

Upgrades to defences along the west and east of the frontage in the longer term (2072–2122) will provide protection to over 50 residential properties from flooding in a 1.33% AEP event as the risk increases with sea level rise. This is likely to provide significant benefits to human health in relation to improved psychological health of people at risk from flooding and coastal erosion in addition to physical health through a reduction in injuries during flooding events.

8.5.11.2 Likely Minor Effects

Construction of new defences along the west of the frontage in the short term (2022-2042) will provide protection to 1 residential property at risk from flooding in a 1.33% AEP event. This is likely to provide minor benefits to human health in relation to improved psychological health of people at risk from flooding and coastal erosion in addition to physical health through a reduction in injuries during flooding events.

Construction of new defences along the east of the frontage in the medium term (2042-2072) will provide protection to 39 residential properties at risk from flooding in a 1.33% AEP event. This is likely to provide minor benefits to human health in relation to improved psychological health of people at risk from flooding and coastal erosion in addition to physical health through a reduction in injuries during flooding events.

Overall Economic Option: Improve 0.5% AEP

8.5.11.3 Likely Significant Effects

Upgrades to new defences along the west the frontage in the longer term (2072–2122) will provide protection to 62 residential properties from flooding in a 0.5% AEP event as the risk increases with predicted sea level rise. This is likely to provide significant benefits to human health in relation to improved psychological health of people at risk from flooding and coastal erosion in addition to physical health through a reduction in injuries during flooding events.

8.5.11.4 Likely Minor Effects

Construction of new defences along the west the frontage in the short term (2022-2042) will provide protection to one residential property from flooding. This is likely to provide minor benefits to human health in relation to improved psychological health of people at risk from flooding and coastal erosion in addition to physical health through a reduction in injuries during flooding events.

During the short term (2022-2042) as the defences along the east frontage begin to fail the residential properties along this section of the coastline will be at risk from flooding and coastal erosion. This is likely to result in minor adverse effects on human health in relation to reduced psychological health of people at risk from flooding and coastal erosion as well as physical health through potential injuries during flooding events.

8.5.12 ODU 12 North Shore Road to Newtown

Overall Leading and Economic option: Do nothing

Both policy options will have a neutral impact on human health as there are no residential properties, recreation facilities or recorded historic landfills at risk from flooding or erosion within this frontage.

8.5.13 ODU 13 Newtown

Overall Leading and Economic option: Sustain from year 20 (Maintain then Sustain 0.5% AEP)

8.5.13.1 Likely Significant Effects

Capital works to improve frontline defences in the medium term (2042-2072) and upgrades in the longer term (2072-2122) will provide protection to an estimated 72 residential properties from flooding in a 0.5% AEP event as the risk increases with predicted sea level rise. This is likely to provide significant benefits to human health in relation to improved psychological health of people at risk from flooding and coastal erosion in addition to physical health through a reduction in injuries during flooding events.

8.5.13.2 Likely Minor Effects

Maintaining the current defences in the short-term (2022-2042) followed by capital works in the medium term (2042-2072) will provide protection to the Hayling Billy Coastal Path at risk from flooding. This is likely to have minor benefits on the health and wellbeing of residents and visitors who use this recreational amenity.

8.5.14 ODU 14 Newtown to Stoke

Overall Leading and Economic option: Do nothing

8.5.14.1 Likely Minor Effects

The policy option to do nothing along this frontage will result in an estimated three residential properties at risk from flooding in a 1.33% AEP event in 2121. This is likely to have minor adverse effects on human health in relation to reduced psychological health of people at risk from flooding and coastal erosion as well as physical health through potential injuries during flooding events.

The Hayling Billy Coastal Path runs along this frontage and is also at risk from coastal erosion as the current defences begin to fail in the short term (2022-2042). This is likely to have a minor adverse effect in terms of the loss and or damage of a recreational amenity which is known to have benefits to health and wellbeing.

8.5.15 ODU 15 Stoke to Langstone Bridge Carpark

Overall Leading and Economic Option: Sustain 0.5% AEP setback defences

8.5.15.1 Likely Significant Effects

Upgrades to defences in the longer term (2072-2122) will provide protection to 10 residential properties at risk from coastal erosion and over 200 residential properties from flooding in a 0.5% AEP event in 2121, as the risk increases with sea level rise. This is likely to provide significant benefits to human health in relation to improved psychological health of people at risk from flooding and coastal erosion in addition to physical health through a reduction in injuries during flooding events.

8.5.15.2 Likely Minor Effects

Maintaining defences in the short term (2021- 2041) will provide protection to 21 residential properties at risk from flooding in a 0.5% AEP event. This is likely to provide minor benefits to human health in relation to improved psychological health of people at risk from flooding and physical health through a reduction in injuries during flooding events.

Maintaining the frontline defences will provide protection to the former landfill site at land west of the old railway (Oyster beds) from flooding and erosion. This site has been identified as moderate risk in the Hayling Island Funding and Implementation Strategy – Desktop Landfill Assessment (2019). This defines the site as one which could potentially contain a source of contamination but are not currently linked to receptors yet have the potential in the future as a consequence of tidal flooding or erosion. The study classified the risk at the site to human health as low. Therefore, it is predicted that the policy option is likely to be a minor benefit to human health in terms of contamination risk from the historic landfill site.

Maintaining the frontline defences will provide protection to the Hayling Billy Coastal Path from coastal erosion. This recreational amenity is important for improving and enhancing the health and well-being of residents and visitors.

8.5.16 ODU 16 Langstone Bridge Carpark to Langstone Bridge

Overall Leading and Economic Option: Sustain 0.5% AEP and Sustain 1.33% AEP – Frontline defence

8.5.16.1 Likely Significant Effects

Sustaining the frontline defences along this frontage will protect the A3023 from flooding which provides the only access onto the island. This is likely to have significant benefits for the psychological and physical health of the residents of the island and allowing emergency services to access the island.

8.6 Proposed Management of Effects

No significant adverse impacts have been identified for any ODU's for the overall leading policy options in The Strategy.

Significant adverse effects on human health have been identified at ODU 4 for the leading FCERM policy option: 'do nothing'. Within this frontage there are two historic landfill sites which have been identified as high risk. Both sites; Yachthaven and Mill Rythe have been identified as potentially containing contaminates which are likely to have a medium effect on human health (ESCP, 2019). At the scheme level, there is the potential to include remediation of the sites which would reduce the risk to human health.

8.7 Proposed Monitoring

The following indicators are proposed to monitor the effects of the Strategy:

- Number of residential properties at risk from flooding and erosion
- Number of historic landfill sites at risk from flooding and erosion and their impact on human health as a receptor
- Disruption and loss of recreational facilities and amenities including coastal paths, beaches and open space at risk from flooding and erosion.

9 Soil

9.1 Context Review

9.1.1 National Legislation, Policy and Guidance

Section 78A(2) of Part IIA of the Environmental Protection Act, 1990. Contaminated land is any land which appears to the local authority in whose area it is situated to be in such condition, by reason of substances in, on or under the land, that:

a) Significant harm is being caused or there is a significant possibility of such harm being caused or

b) Significant pollution of controlled waters is being caused, or there is a significant possibility of such pollution being caused.

Under Section 78(A), the regulatory authority is required to determine the significance and likelihood of contamination in accordance with guidance issued by the Secretary of State.

CIRIA C718 guidance (2012): Guidance on the management of landfill sites and land contamination on eroding or low-lying coastlines. This guidance was used to assess risks of pollutant linkage using the Source, Pathway, Receptor model.

The NPPF (2019) states that the planning system should contribute to and enhance the natural and local environment by remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land.

Safeguarding our Soils: A Strategy for England (2011) seeks to improve the quality of England's soils and understand the impacts of contaminated land and develop sustainable remediation techniques.

9.1.2 Local Planning Policy

Havant Borough Council's Local Plan Core Strategy 2011 sets out the following policies relating to soil:

- *DM8 Conservation, Protection and Enhancement of Existing Natural Features:* Recognises the importance of the rich and diverse environment and the need to protect and enhance it for both its nature conservation value, recreation and public access opportunities.
- *DM10 Pollution:* Ensures that developments which may cause pollution will only be permitted if the health and safety of existing and future users of the site or residents is not put at risk.

Havant Borough Local Plan (Allocations) 2014 sets out the following policies relating to soil:

- *DM17 Contaminated Land:* Identifies that the borough has historic contaminated sites which may present a potential risk to human health and therefore planning permission will only be granted where an appropriate investigation of the potential risks is undertaken, and any identified risks are mitigated.

- *DM18 Protecting new development from pollution:* Controls the adverse effects which could occur as a result of inappropriate location of development close to sources of pollution or other amenity impacts.

The Havant Borough Local Plan Submission version (LP SV) sets out the following policies related to soil:

- *E6 Best and most versatile agricultural land*: States that development for housing and economic development should consider protecting the best and most versatile land.

- E22 *Amenity and Pollution:* The policy is to control the adverse effects which could occur as a result of new development on existing occupiers, as well as through the inappropriate location of new development close to sources of pollution or other threats to amenity.

- *E24 Contamination*: Addresses the potential risk to human health and/or the built natural environment of contamination associated with previous use of land.

9.2 Baseline Review

The Agricultural Land Classification (ALC) classifies land into 5 classes for agricultural land where grade 1 is recognised as the best and most fertile land and grade 5 as the poorest. The ALC map for Hayling Island shows areas of high-grade agricultural land classified as grade 2 and 3a. The majority of the grade 2 agricultural land is concentrated in the centre of the island as shown in **Figure 9 below.**

Figure 9 Agricultural land on Hayling Island

The Hayling Island Funding and Implementation Strategy – Desktop Landfill Assessment (2019) identified eight historic landfill sites on Hayling island that were at risk of erosion or flooding over the next 100 years (**Figure 10**). These sites were assessed for risk based on consequence and probability using the CIRIA C718 guidance (2012), the results are presented in **Table 9.1** below. The study concluded that Yachthaven and Mill Rythe Industrial Land were high risk sites.

The policies in the strategy can help to reduce and / or prevent direct exposure and leaching of contaminates caused from erosion or leaching and run off resulting from flooding. New defences can reduce the erosion rate and prevent areas eroding while maintaining defences can continue to provide necessary protection against flooding and erosion. Policy options which include remediation can actively treat or remove the contamination source. Additionally, policies set out in the Strategy have the potential to increase the exposure of potential contamination. Realigning current defences will allow contaminates to become exposed and a NAI policy will allow erosion/or flooding to occur. Allowing the standard of protection of the current defences to diminish will also increase erosion and flooding in the future with sea level rise and increase the exposure of potential contaminates.

Landfill sites - Flood and Eroosion Risk

Coastal Partners

EA Flood Zone 3 (0.55 AEP)
NS SMP erosion year 0-20
NS SMP erosion year 20-50
NS SMP erosion year 50-100
Landfill - high risk
Landfill - medium risk
Landfill - low risk

Background Mapping: Aerial Photography CCO 2016

0 0.7 1.4 km

Figure 10 Location of historic landfill sites and flood and erosion risk on Hayling Island

Table 9.1 A summary of the risk assessments for each site of interest along the Strategy frontage.

Site	Site Categori-sation	Current Usage	Residual life of defence(s)	Most susceptible receptor	Risk		
					Probabil-ity	Conse-quence	Risk
Northney	Closed (permitted)	Private open land	Eroding now	Controlled waters	High likelihood	Mild	Moderate
Yachthaven, Copse Lane	Closed (permitted)	Boat-yard / derelict	1-10 years and >10 years	Controlled waters/ Environment	Likely	Severe	High
Land at Fleet Farm Caravan Park	Closed (permitted)	Amenity land/ residential	10-15 years	Human health	Low likelihood	Mild	Low
Mill Rythe Lane Industrial Land	Closed (permitted)	Boat-yard / commercial units	10-15 years	Controlled waters/ Environment	Likely	Severe	High
Mengham Lane	Closed (permitted)	Grazing pasture	<10 years	Controlled waters	Likely	Minor	Low
Former Oyster Beds, Selsmore	Closed (permitted)	Amenity land	Eroding now	Controlled waters	High likelihood	Mild	Moderate
Land at Fishery Creek Campsite, Selsmore	Closed (permitted)	Amenity land/ residential	Eroding now	Controlled waters	High likelihood	Mild	Moderate

Land west of the Old Railway, Stoke	Closed (permitted)	Amenity land	10-15 years with section eroding now	Controlled waters	High likelihood	Mild	Moderate

9.3 Likely Future Conditions

In the absence of the Strategy erosion and flooding will occur to historic landfill sites and agricultural land that are behind aging sea defences or have no defence from the sea and this is likely to increase in severity with sea level rise.

9.4 Key Environmental Issues

The following key environmental issues have been identified through the baseline review:

- There are eight historic landfill sites at risk from flooding and erosion which potentially contain contamination sources. Two of these sites (Yachthaven and Mill Rythe Industrial Land) have been identified as high-risk sites.
- Agricultural land at risk from flooding and erosion

9.5 Appraisal Findings

9.5.1 ODU 1 Langstone Bridge to Northney Farm

Overall Leading Option Sustain 0.5 % AEP with Managed Realignment Hybrid

9.5.1.1 Likely Significant Effects

Over the short term (2022-2042) the construction of new defences around Northney historic landfill site will help prevent erosion and reduce the chance of exposure of potentially contaminated land. The construction of new frontline defences will also provide protection to low grade agricultural land from flooding.

Over the medium term (2041-2072) and long term (2072–2122), upgrades to new defences will provide increased protection to Northney historic landfill site from erosion and significantly reduce the chance of contaminated land exposure. Upgrades to the new defences will also provide increased protection to agricultural land from flooding as the flood risk will increase over the medium and longer term due to sea level rise. This is likely to have a significant beneficial effect.

Leading Economic Option: Sustain 1.33% AEP with Managed Realignment

9.5.1.2 Likely Significant Effects

This policy option doesn't include protection to the historic landfill at Northney where the current defences are eroding. In the short- term (2021 - 2041) there is a significant risk of exposure of potentially contaminated land. The historic landfill site is also at risk from flooding

leading to a potential for leaching of contaminants. Therefore, this policy option is likely to have a significant adverse effect.

9.5.1.3 Likely Minor Effects

The construction and upgrade of new setback defences will provide protection to agricultural land from flooding over the 3 epochs as the flood risk increases with sea level rise this is likely to have minor beneficial effect.

9.5.2 ODU 2 Northney Marina

Overall Leading Option: Resilience

Leading Economic Option: Do nothing

There are no recorded historic landfill sites or agricultural land at risk from coastal erosion or flooding within this frontage.

9.5.3 ODU 3 Northney Farm to Chichester Road

Overall Leading and Economic Option: Sustain 0.5% AEP with Managed Realignment

9.5.3.1 Likely Minor Effects

The construction of new setback defences for managed realignment to create new intertidal habitat in the short term (2021–2041) may result in the loss of agricultural land depending on the boundaries for the new intertidal creation site. This is likely to have a minor adverse effect.

9.5.4 ODU 4 Chichester Road to Mill Rythe Junior School

Overall Leading Option: Resilience

9.5.4.1 Likely Significant Effects

Maintenance of the frontline defences will provide protection to three historic landfill sites: Yachthaven, Mill Rythe and land at Fleet Farm from coastal flooding and erosion. Yachthaven and Mill Rythe historic landfill sites have been classed as high-risk sites in the Hayling Island Funding and Implementation Strategy – Desktop Landfill Assessment (2019). This indicates that the sites contain a significant source of contamination and are currently linked or very likely to be linked to receptors. The main receptors for contamination at these sites are controlled waters and environmentally sensitive sites. Protection of these historic landfill sites will have a significant benefit reducing the risk of exposure of potential contaminates as a result of erosion or leaching of potential contaminates resulting from flooding. This is likely to have a significant beneficial effect.

9.5.4.2 Likely Minor Effects

Within this frontage there is grade 2 agricultural land at flood risk in the longer term (2072 - 2122). Patch and repair of current defences may not provide increased protection as the flood risk increases with sea level rise. This is likely to have a minor adverse effect.

Overall Economic Option: Do Nothing

9.5.4.3 Likely Significant Effects

During the short term (2022-2042) the current defences protecting the historic landfill sites along this frontage (Yachthaven, Rythe Mill and land at Fleet farm) from erosion will come to the end of their life and there will be a risk of exposure of potentially contaminated land. This is likely to have a significant adverse effect.

9.5.4.4 Likely Minor Effects

Within this frontage there is grade 2 agricultural land at risk from flooding as current defences come to the end of their life within the first epoch (2022-2042). This flood risk will increase over the medium (2042-2072) and longer term (2072-2122) as a result of sea level rise. This is likely to have a minor adverse effect.

9.5.5 ODU 5 Mill Rythe Junior School to Salterns Lane

Overall Leading Option: Sustain 1.33% AEP with Managed Realignment

Leading Economic Option: Maintain the Managed Realignment (improve) 0.5% AEP from year 50.

9.5.5.1 Likely Significant Effects

For both the overall leading and economic options there is likely to be significant benefits in the long term (2072-2122) resulting from the protection of high-grade agricultural land at risk from flooding.

9.5.5.2 Likely Minor Effects

For both the overall leading and economic options there is likely to be minor benefits across all epochs. The historic landfill site at Mengham will be protected from erosion in the short term (2022-2042) from both the maintenance of current defences (economic option) and construction of new defences (leading option). This site has been classed as low-risk sites in the Hayling Island Funding and Implementation Strategy – Desktop Landfill Assessment (2019). In the medium (2042-2072) and longer term (2072-2122) upgrades to the new defences (leading option) and current defences (economic option) will provide protection to the historic landfill site from exposure of potentially contaminated land.

9.5.6 ODU 6 Salterns Lane to Wilsons Boat Yard

Overall Leading and Economic Option: Maintain then improve from year 50, 0.5% AEP Frontline defence.

There are no recorded historic landfill sites or agricultural land at risk from coastal erosion or flooding within this frontage.

9.5.7 ODU 7 Wilsons Boat Yard to Fishery Creek

Overall Leading and Economic Option: Sustain 0.5% AEP

9.5.7.1 Likely Significant Effects

Construction of frontline defences in the short term (2021-2041) followed by upgrades to the frontline defences in the medium (2030-2060) and longer term (2060–2115) will have a significant benefit by providing increased protection to the historic landfill sites at Fishery Creek and land at former Oyster beds, Selsmore from erosion. These sites have been classed as moderate risk in the Hayling Island Funding and Implementation Strategy – Desktop Landfill Assessment (2019). This indicates that these sites potentially contain a source of contamination but are not currently linked to a receptor yet have the potential in the future as a result of erosion or tidal flooding. The main receptors for contamination at both these sites are controlled waters, wildlife and environmentally sensitive sites.

9.5.8 ODU 8 Eastoke

Overall Leading Option: Sustain 0.5% AEP

There are no recorded historic landfill sites or agricultural land at risk from coastal erosion or flooding, along this frontage.

9.5.9 ODU 9 Eastoke Corner to Inn on the Beach

Overall Leading Option: Sustain 0.5% AEP - Maintain Inn on the Beach

Leading Economic Option: Sustain 0.5% AEP - Replace Inn on the Beach

There are no recorded historic landfill sites or agricultural land at risk from coastal erosion or flooding, along this frontage.

9.5.10 ODU 10 Inn on the Beach to North Shore Road

Overall Leading and Economic Option: Resilience

9.5.10.1 Likely Minor Effects

The current defences along this frontage will begin to deteriorate within the short term (2022 -2042) however, this policy option includes patch and repair to current defences which currently provides protection to agricultural land at risk from flooding. This is likely to have a minor benefit. The flood risk is predicted to increase over the medium (2042-2072) and longer term (2072-2122) with sea level rise and patch and repair to current defences may not be able to keep pace with predicting sea rise. As a result, there is potential for minor adverse effects on agricultural land in the long term (2072- 2122)

9.5.11 ODU 11 North Shore Road

Overall Leading Option – Sustain 1.33% AEP

Overall Economic Option – Improve 0.5% AEP

There are no recorded historic landfill sites or agricultural land at risk from coastal erosion or flooding, along this frontage.

9.5.12 ODU12 North Shore Road to Newtown

Overall Leading and Economic Option: Do nothing

There are no recorded historic landfill sites or agricultural land at risk from coastal erosion or flooding, along this frontage.

9.5.13 ODU 13 Newtown

Overall Leading and Economic option: Sustain from year 20 (Maintain then Sustain 0.5% AEP)

9.5.13.1 Likely Minor Effects

Maintaining the current defences in the short term (2022–2042) followed by capital works and upgrades to the new defences in the medium (2042–2072) and long term (2072 - 2122) will protect grade 3 agricultural land from flooding now and in the future as the flood risk increases with predicted sea level rise. This is likely to have a minor beneficial effect.

9.5.14 ODU 14 Newtown to Stoke

Overall Leading and Economic Option: Do nothing

9.5.14.1 Likely Minor Effects

In the long term (2072–2122) the defences along this frontage will have deteriorated and no longer provide any protection to agricultural land at increased risk from flooding as sea levels rise. This is likely to have a minor adverse effect on agricultural land.

9.5.15 ODU 15 Stoke to Langstone Bridge Carpark

Overall Leading and Economic Option: Sustain 0.5% AEP setback defences

9.5.15.1 Likely Significant Effects

Maintaining the frontline defences will provide protection to the historic landfill site west of the old railway from flooding and coastal erosions. This site has been classed as moderate risk in the Hayling Island Funding and Implementation Strategy – Desktop Landfill Assessment (2019). This indicates that the sites potentially contain a source of contamination, but this is not currently linked to a receptor, however, has the potential in the future as a result of erosion or tidal flooding. The main receptors for contamination at both sites are controlled waters, wildlife and environmentally sensitive sites. Maintaining defences will protect agricultural land at risk from flooding. Overall, there is likely to be a significant beneficial effect.

9.5.16 ODU 16 Langstone Bridge Carpark to Langstone Bridge

Overall Leading and Economic Option: Sustain 0.5% AEP and Sustain 1.33% AEP – Frontline defence.

There are no recorded historic landfill sites or agricultural land at risk from coastal erosion or flooding within this frontage.

9.6 Proposed Management of Effects

No significant adverse impacts have been identified for any ODU's for the overall leading policy options in the Strategy.

In ODU 1 the leading economic option to sustain 1.3% with Managed Realignment doesn't include protection to the historic landfill site at Northney. If this option is taken forward to replace the preferred policy for the ODU then any potential for pollution during construction of the proposed flood defences would need to be appropriately managed at the scheme level to prevent the exposure of contaminants.

9.7 Proposed Monitoring

The following indicators are proposed to monitor the effects of the Strategy:

- Number of historic landfill sites at risk from flooding and/or erosion and potential contamination risk at each site
- Rates of erosion when compared to SMP estimations
- Area of high-grade agricultural land at risk from flooding and/or erosion

Further studies and monitoring of historic landfill sites to investigate the sources of contamination. Therefore, the following activities could be undertaken:

- Visual Inspection
- Surface sampling
- Intrusive ground investigations.

10 Water

10.1 Context Review

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. 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).

Local Planning Policy

Havant Borough Council's Local Plan Core Strategy 2011 sets out a number of policies relating to water. This includes CS15 Flood and Erosion Risk which ensures that new development is located away from areas at risk of flooding or coastal erosion now and in the future taking into account predicted sea level rise.

Havant Borough Local Plan (Allocations) 2014 also includes relevant policies specifically AL4 Coastal Management Areas, which restricts development in coastal change management areas.

Further policies are also set out in The Havant Borough Local Plan Submission version (LP SV), including E20 Drainage Infrastructure in new development which relates to the effective management of surface water.

A number of policies relating to water indirect link with other receptors and references should be particularly made to **Section 9 Soil,** due to contaminated land.

10.2 Baseline Review

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) – Northwest of Hayling Island
- Chichester Harbour (GB580705210000) – East of Hayling Island
- Solent (GB650705150000) – South of Hayling Island

Scoping tables for these water bodies is provided in **Appendix B.**

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. For a surface water body to be at overall 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 (i.e. failing to achieve good). 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). The latest (2019) classification for Langstone Harbour, Chichester Harbour, Solent and Langstone Oysterbeds water bodies is shown in **Table 10.1**. This shows that all waterbodies achieved moderate status but did fail in chemical status. The latest results for Langstone Harbour, Isle of Wight East, Chichester Harbour and Solent waterbodies show no change in overall status since 2016. All these water bodies are currently classified as moderate status overall and did fail to achieve good chemical status in 2019, specifically from failures in levels of mercury and its compounds and 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[22]. 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.

Table 10.1 2019 Classification of water bodies

Water Body	Ecological	Chemical	Overall
Langstone Oysterbeds	Good	Fail	Moderate
Langstone Harbour	Moderate	Fail	Moderate
Chichester Harbour	Moderate	Fail	Moderate
Solent	Moderate	Fail	Moderate

The WFD recognises that some waterbodies have been physically altered, for example for navigation or flood defence, and allows for these water bodies to be designated as Heavily Modified Water Bodies (HMWB) or Artificial Water Bodies (AWB) and need to achieve good ecological potential rather than ecological status. Ecological potential means that the waterbody is managed to achieve the biology that can be achieved given its modified condition. As detailed in **Appendix B** the Langstone Harbour, Chichester Harbour and Solent water bodies are all HMWB including for coastal protection and flood protection.

Hayling Island also overlaps with Hants South Lambeth (GB40702G503700) and South-East Hants Bracklesham (GB40702G503000) groundwater bodies. It is considered unlikely that the strategy would cause a significant effect or cause deterioration in status of these waterbodies. However potential effects will be reviewed as details develop.

The strategy is also adjacent and potentially overlaps with the Langstone Harbour and Chichester Harbour Shellfish Water Production Area, located to the east and west of Hayling Island respectively. The shellfish classification zones are currently classified as follows (Food Standards Agency, 2020):

- Chichester Harbour (Emsworth Channel) – Class B-LT for native oysters (Ostrea Edulis) (Over the last 5 years *E. coli* levels have been within the Class B category and as such the area has a Class B long-term. Class B means 90% of sample results must be less than or equal to 4600 E. coli/100g with none exceeding 46000 E. coli/100g - molluscs can go for human consumption after purification in an approved

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

establishment OR after relaying in a class A relaying area OR after an EC approved heat treatment process)

- Chichester Harbour (Thorney) – Class C for native oysters (Class C molluscs must contain less than or equal to 46,000 Escherichia coli per 100 grams of flesh. Molluscs from Class C classification zones can go for human consumption only after relaying for at least two months in an approved Class B relaying area followed by treatment in an approved purification centre or relaying for at least two months in an approved Class A relaying area or a European Commission approved heat treatment process)
- South-East Langstone Harbour Class B-LT for hard clams (Mercenaria Mercenaria)
- Langstone Channel – Class C for Native Oysters and Pacific Oyster (Crassostrea gigas)

There are also three designated bathing waters on the south of Hayling Island (Beachlands West, Beachlands Central and East Stoke) which all have a current classification of excellent according to the EA's bathing water profiles.

Portsmouth Water supplies the residents of Hayling Island with public water. Portsmouth Water's Water Resource Management Plan 2019, sets out the Company's objectives for the next 25 years for maintaining clean and sustainable supplies of water. The plan assesses the impact of climate change on water resources and quantifies the impact of any short-term loss of production.

10.3 Likely Future Conditions

The ecological and chemical status of the coastal waters around Hayling Island is unlikely to improve significantly in the short to medium-term. The quality of groundwater is likely to remain the same. There is the potential for water resources to decline over time as the population increases.

10.4 Key Environmental Issues

The following key environmental issues have been identified through the baseline review:

The ecological and chemical status of water bodies. The Strategy should ensure that the current situation is not exacerbated and should seek to improve the status of the water bodies where appropriate

Contamination and indirect effects on water assessed under Section 9 soil

10.5 Appraisal Findings

The risk from erosion and tidal and coastal flooding is covered by the Health and Material Assets topics within this SEA Environmental Report.

A WFD Assessment has been produced which includes an assessment of all water bodies that could be affected by the implementation of The Strategy, including their current water quality. This can be found appended separately to the StAR. The WFD Assessment has concluded that 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.

In delivery of the strategic management options, at the scheme development stage, a rigid options selection process will be undertaken. This will challenge defence footprints and structure types to ensure minimal impacts on the designated sites and water body. This will include measures to avoid seaward encroachment of structures, where technically feasible, and to promote options that could enhance the ecological value of marginal aquatic habitat (i.e., looking for opportunities to deliver the mitigation measures identified by the RBMP)

The effects of the Strategy on issues covered by other European Directives have also been considered and it is concluded that standards set by the Habitats and Shellfish Waters Directives will not be affected, subject to detailed impact assessments undertaken at the Project Appraisal Report stages for individual schemes.

10.6 Proposed Management of Effects

The preferred management option measures proposed within each SMZ should seek to improve the status of the water bodies where appropriate and help to deliver the mitigation measures of each water body, or at least not prevent them from being delivered within the water body. However, the following mitigation has been recommended within the WFD Assessment (appended separately to the StAR):

- Potential for localised water quality impacts as a result construction works and the potential to expose soils that are contaminated, could be further reduced with sensitive construction techniques and reference to the EA's Pollution Prevention Guidelines.

10.7 Proposed Monitoring

The following indicators are proposed to monitor the effects of The Strategy:

Water quality.

11 Material Assets

Although Material Assets are listed as a topic to be addressed in SEA, there is no definition as to what they might encompass. A common interpretation of Material Assets includes housing and infrastructure relating to areas such as energy, water and transport networks, as well as social infrastructure such as schools, hospitals and other public buildings. Consideration has also been given to marinas, boatyards and sailing clubs as important features of Hayling Island in terms of employment and as facilities.

11.1 Context Review

Material Assets are taken to be those whose loss would have the potential to have an effect, often economic, on an area, such as built development and infrastructure.

Making Space for Water (2004) advocates a holistic approach to flooding. Flood and coastal erosion risk management will be clearly embedded across a range of Government policies, including planning, urban and rural development, agriculture, transport, and nature conservation and conservation of the historic environment. There will be a mix of policies designed to minimise the creation of new risks (by the way development policy is implemented in areas of flood risk), to manage risk and to increase resistance and resilience.

Similarly, the NPPF sets out that the purpose of the planning system is to contribute to the achievement of sustainable development. It advocates that new development should take account of environmental issues by accommodating natural hazards and the impact of climate change while avoiding areas at risk of flooding and sea-level rise. It also seeks to ensure that flood risk is taken into account at all stages in the planning process to avoid inappropriate development in areas at risk of flooding.

Local Planning Policy

Havant Borough Council's Local Plan Core Strategy 2011 sets out a number of policies relating to material assets. This includes CS5 Tourism relates to safeguarding existing tourist facilities, CS6 Regeneration of the Borough including flood and erosion management measures and CS19 Effective Provision of Infrastructure.

Havant Borough Local Plan (Allocations) 2014 also includes relevant policies specifically AL4 Coastal Management Areas restricting development in coastal change management areas.

Further policies are also set out in The Havant Borough Local Plan Submission version (LP SV) including DR 1 (sustainable development in the borough) and 2 relating to the regeneration of Hayling Island seafront. Other policies include C1 Protection of Existing Employment Sites, C2 relating to the sustainable tourism opportunities C7 Protection of existing community facilities and shops as well as Development Allocations: Hayling Island H27, H28, H29, H31, H32, H33.

11.2 Baseline Review

11.2.1 Havant Borough

The coastal areas of Havant Borough comprise both urban and rural landscapes with considerable residential and commercial development in some areas. In the Langstone, Warblington and Emsworth areas, there is great historic and natural value as well as recreation and leisure facilities, on the fringe of Chichester Harbour AONB. Infrastructure in the coastal

area includes the only road access to Hayling Island which runs through Langstone from the Town Centre, and waste management facilities.

11.2.2 Hayling Island

On Hayling Island, coastline comprises both urban and rural landscapes with considerable residential and commercial development. In particular, the south of the Island has substantial residential development as well as recreation and leisure facilities responsible for tourism on the Island. Facilities include an amusement park and golf courses, as well as several seaside cafes and restaurants. There are a number of marinas on the Island and the Hayling Billy Line is popular coastal foot / cycle path. Infrastructure on the island includes a household waste and recycling centre and a solar farm located at Manor Farm.

There are a mixture of publicly and privately owned / maintained defences around Hayling Island. Defence owners/maintainers include Highways Agency, EA, EH, Hampshire County Council, HBC, Southern Water Services and private individuals. The coastline has several defences types including sections which are undefended. Defence types include; sea walls, concrete blocks, revetments, rock armour, sheet piling, gabions, embankments, verges and managed beaches. An assessment of the condition of the defences around Hayling Island has been undertaken to help inform the Strategy (AECOM, 2019). This provides a map of the location and type of defences around the island's coastline (**Figure 11**), current condition and residual life of the defences assuming no maintenance.

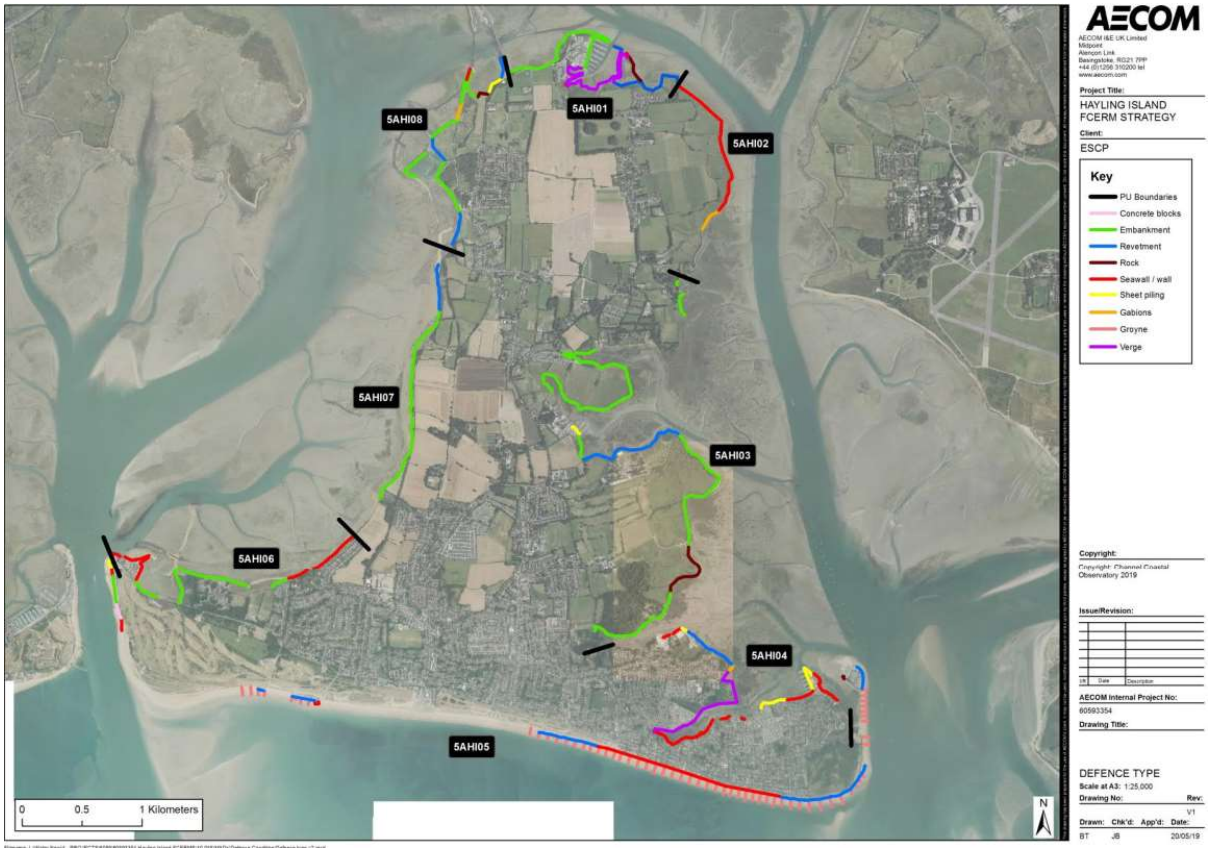

Figure 11 Defence Types around Hayling Island (AECOM, 2019)

11.3 Likely Future Conditions

HBC are currently working with local residents, businesses and a range of other key stakeholders to enhance Hayling Island seafront. This includes developing water-sports and activity holidays, improving access to the beach including the Billy Trail as well as enhancing cycle and walking routes. Regeneration is focused at West Beach, Beachlands and Eastoke. Public engagement on the draft ambition document closed 28 November 2021 with further details on the next steps anticipated 2022.

Sea level rise will continue in the future and may increase over time. This being the case, the areas and material assets currently at risk of flooding will increase in size and the number of properties at risk of flooding will increase over time.

11.4 Key Environmental Issues

The following key issues have been identified:

- The Strategy should ensure that material assets within Havant Borough's coastal region are not compromised as a result of coastal change.
- New and existing development and material assets are at risk of erosion and flooding, sea level rise is a serious concern, particularly for an Island.

11.5 Appraisal Findings

11.5.1 ODU 1 Langstone Bridge to Northney Farm

Overall Leading Option Sustain 0.5 % AEP with Managed Realignment Hybrid

11.5.1.1 Likely Significant effects

In the first epoch capital works to the frontline floodwall to the west would protect Northney Road from flooding. Northney Road is a major road connecting to Langstone Road, and there would be social impacts if flood risk to the road continued to increase in the future due to sea level rise, as the road is necessary for accessing the eastern part of the Island.

The presence of a frontline defence would provide improved access along Northney Road, preventing people from walking through the saltmarsh or on the road itself. As part of this option, there would also be new defences in front of the access road to Langstone Quays Resort, ensuring that there is sufficient flood protection to the hotel in the absence of defences in ODU 2. Consequently, the proposed works are likely to have to have a major beneficial effect on material assets in these areas. Maintenance and upgrades in defences with ensure this benefit continues across all epochs.

Leading Economic Option: Sustain 1.33% AEP with Managed Realignment

11.5.1.2 Likely Significant Effects

The construction of a setback embankment in the first epoch would result in disruption to the road and Langstone Quays Hotel resulting in potentially significant adverse effects to material assets which would continue across all epochs.

11.5.2 ODU 2 Northney Marina

Overall Leading Option: Resilience

Implementing PFR measures for all properties at risk of flooding from a 5% AEP flood event will offer some minor benefits to individual, non-residential property currently at risk. As part

of this option, there will also be patch and repair of the existing frontline defences protecting other assets within the marina. These benefits will continue across all epochs.

Leading Economic Option: Do nothing

Do nothing would result in the current defences deteriorating. This is likely to have a minor adverse effect in the medium to longer term as assets are increasingly at risk of damage/ destruction due to flooding and erosion..

11.5.3 ODU 3 Northney Farm to Chichester Road

Leading Overall and Economic Option: Sustain 0.5% AEP with Managed Realignment

Capital works with Managed Realignment during epoch 1 would provide sufficient flood and erosion protection to all properties and infrastructure resulting in minor beneficial effects. Maintenance and upgrades would provide the ongoing benefit across all epochs.

11.5.4 ODU 4 Chichester Road to Mill Rythe Junior School

Overall Leading Option: Resilience

Implementing PFR measures for all properties at risk of flooding up to a 5% AEP flood event will offer some minor benefit to material assets. As part of this option, there will also be patch and repair of the existing frontline defences to protect properties at risk. However frontline private properties such as Yacht Haven Marina will not benefit.

Overall Economic Option: Do Nothing

11.5.5 ODU 5 Mill Rythe Junior School to Salterns Lane

Overall leading option: Sustain 1.33% AEP with Managed Realignment

Capital works with Managed Realignment during epoch 1 would provide sufficient flood and erosion protection to all properties and infrastructure resulting in a minor beneficial effects but some potential disruption to the adjacent school, golf course and farmland. Maintenance and upgrade is likely to provide an ongoing minor benefit to material assets across all epochs.

Leading Economic Option: Maintain then Managed Realignment (improve) 0.5% AEP from year 50.

11.5.6 ODU 6 Salterns Lane to Wilsons Boat Yard

Overall Leading and Economic Option: Maintain then Improve from year 50 0.5% AEP Frontline defence

Maintenance and PFR will provide sufficient flood and erosion protection to all properties and infrastructure during this epoch, resulting in a minor beneficial effects. In epoch 3 new defences have the potential to act as a barrier to foreshore access, however this can be limited during detailed design. Ultimately capital works will continue to protect all properties and infrastructure across all epochs.

11.5.7 ODU 7 Wilsons Boat Yard to Fishery Creek

Overall Leading and Economic Option: Sustain 0.5% AEP

Capital works in epoch 1 will provide sufficient flood and erosion protection to all properties and infrastructure, and it is similar to previous works undertaken by the EA. There is a potential for the new defences to act as a barrier to Mengham Rythe Moorings, however this would be

worked into the design to minimise access restrictions. Overall, this option will result in minorpositive effects protecting properties and other assets including the sailing club.

11.5.8 ODU 8 Eastoke

Overall Leading and Economic Option: Sustain 0.5% AEP

Capital works should provide sufficient flood and erosion protection to all properties and infrastructure. This includes protection of Southwood Road from erosion, which is a key access road into Eastoke, protecting access to approximately 810 properties. Beach access would be maintained, and support provided for future regeneration and redevelopment plans under development with HBC. Maintenance and upgrade will enable ongoing significant benefits to material assets across all epochs.

11.5.9 ODU 9 Eastoke Corner to Inn on the Beach

Overall Leading Option: Sustain 0.5% AEP - Maintain Inn on the Beach

Capital works including maintaining Inn on the Beach with a rock groyne would have minor positive adverse effect through protecting assets including the adjacent public house.

Leading Economic Option: Sustain 0.5% AEP - Replace Inn on the Beach

This option is similar to the overall leading option, the differences in replacing Inn on the Beach do not change the effects on material assets as identified above for the overall leading option.

11.5.10 ODU 10 Inn on the Beach to North Shore Road

Overall Leading and Economic Option: Resilience

Implementing PFR measures for all properties at risk of flooding up to a 5% AEP flood event will offer some minor benefit to material assets. However, this option does not provide improved protection to Ferry Road. It is likely that road damages to Ferry Road would reduce access to some properties in the area. Localised erosion controls could be implemented to help retain coastal access and reduce the impact of erosion on the golf club, supporting recreation and the future redevelopment plans which are currently under consideration by HBC. The continued implementation of PFR measures for all properties at risk of flooding up to a 5% AEP flood event across all epochs will enable some minor benefit to material assets.

11.5.11 ODU 11 North Shore Road

Overall Leading Option – Sustain 1.33% AEP

Capital works will provide sufficient flood and erosion protection to all properties and infrastructure in epoch 1. There may be some technical challenges in building defences as the property boundaries are located close to the foreshore, however this would be considered in the design. Maintenance and upgrade will enable ongoing significant benefits to material assets across all epochs.

Overall Economic Option – Improve 0.5% AEP

Capital works would not include the construction of any defences to the east (North Shore Road). Consequently, there may be some residual flood risk to the gardens on the east side resulting in less benefit to material assets than the overall leading option. Maintenance and in epochs 2 and 3 would result in minor beneficial effects to material assets across all epochs.

11.5.12 ODU12 North Shore Road to Newtown

Overall Leading and Economic Option: Do nothing

No minor or significant effects have been identified for this option.

11.5.13 ODU 13 Newtown

Overall Leading and Economic option: Sustain from year 20 (Maintain then Sustain 0.5% AEP)

Maintenance and upgrade will provide sufficient flood and erosion protection to all properties and infrastructure, including the Billy Trail. This will result in significant beneficial effects across all epochs.

11.5.14 ODU 14 Newtown to Stoke

Overall Leading and Economic Option: Do nothing

This option would not change the current base case. The natural evolution would likely result in failure of existing defences within 10 years. There is some risk of flooding to properties here, as well as a risk of coastal erosion to the Billy Trail.

11.5.15 ODU 15 Stoke to Langstone Bridge Carpark

Overall Leading and Economic Option: Sustain 0.5% AEP setback defences

The construction of new set back defences in epoch 1 will benefit 30 properties at risk of flooding from a 0.5% AEP event. The ongoing maintenance and upgrade will ensure ongoing significant benefits across all epochs.

11.5.16 ODU 16 Langstone Bridge Carpark to Langstone Bridge

Overall Leading and Economic Option: Sustain 0.5% AEP and Sustain 1.33% AEP – Frontline defence

Capital works during epoch 1 will provide sufficient flood and erosion protection to all properties and infrastructure. This including protecting the A3023, the only road connecting Hayling Island to the mainland resulting in significant benefits to assets throughout Hayling Island. The ongoing maintenance and upgrade will enable these significant beneficial effects to continue across all epochs.

11.6 Proposed Management of Effects

None proposed.

11.7 Proposed Monitoring

The following indicators are proposed to monitor the effects of The Strategy:

- Properties, infrastructure and assets at risk of flooding/erosion.

12 Climatic Factors

12.1 Context Review

12.1.1 International and National Legislation, Policy and Guidance

The 2019 amended UK Climate Change Act places duties on public bodies around adaptation to and mitigation of climate change. In relation to managing flood risk, this includes adapting to future changes in precipitation and sea level, and to reducing emissions. It commits the UK to at least a 100% reduction in greenhouse gas emissions by 2050 from 1990 levels.

The National Flood and Coastal Erosion Risk Management Strategy 2020 states that 'between now and 2050 risk management authorities will help places plan and adapt to flooding and coastal change across a range of climate futures'.

The National Planning Policy Framework 2019 'support the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change' and 'plans should take a proactive approach to mitigating and adapting to climate change'.

12.1.2 Local Planning Policy

HBC's Local Plan Core Strategy 2011 aims to adapt to, and where appropriate mitigate against, the impacts of climate change. It sets out the following policies relating to climatic factors:

- *CS11 Protecting and Enhancing the Special Environment and Heritage of Havant Borough*
- *CS14 Efficient Use of Resources:* Will grant permission for developments which deliver renewable energy and where resource efficiency is maximised.
- *CS15 Flood Risk and Coastal Erosion*: Ensures that new development is located away from areas at risk of flooding or coastal erosion now and in the future taking into account predicted sea level rise.
- *DM12 Mitigating the Impacts of Travel:* New developments will be required to mitigate their travel impact, including the environmental impacts of travel (such as noise, air and visual pollution) and impacts on amenity, health and climate change.

The Havant Borough LP SV sets out the following policies related to climatic factors:

- *E12 Low carbon design*: Supports new developments which propose to improve energy efficient of existing buildings or provide low or zero carbon energy.
- *E18 Trees, hedgerows and woodland*: Recognises the importance of trees, hedgerows and woodland as a valuable resource in terms of biodiversity, amenity and for climate change adaption and mitigation.

- *E19 Managing flood risk in new development*: States that planning permission for new developments will need to assess the flood risk for now and in the future taking in to account climate change.

HBC Climate Change and Environmental Strategy 2021- 2026 sets out 2 main objectives:

- To reduce carbon emissions in line with the Climate Change Act 2008 to net-zero carbon by 2050 for all Council services, whether they are delivered by us, or through a partnership. To use the authority's mandate as Planning authority for sustainable development. To influence and support our residents and enterprises in every sector to reduce carbon emissions to net-zero by 2050.
- The ecosystem services provided by the natural environment represent a life-support system we all rely upon. HBC works in partnership to protect, improve and enhance our natural environment locally for biodiversity net gain.

HBC Climate Action Plan (Draft)

- This initial action plan sets the council's priorities for implementing the 2 main objectives set out in the Climate Change and Environmental Strategy 2021-2026, this includes *HC3iv: Collaborate with the Coastal Partnership on adaptation. Support proposals to minimize carbon emissions from implementation of the shoreline management plan.*

12.2 **Baseline Review**

Climate change and flood and erosion risk management are inextricably linked with climate change being a significant driver to flood and erosion risk. There is clear scientific evidence the global climate is changing and that greenhouse gas emissions (GHG) from human activity is the dominant cause. The main effects of climate change are increases in sea level rise, higher than average temperatures and more extreme weather conditions.

The state of the UK climate 2018 report observations show:

- The most recent decade (2008-2017) has been on average 0.3 °C warmer than the 1981-2010 average and 0.8 °C warmer than 1961-1990. All of the top ten warmest years have occurred since 1990.
- The average hottest day of the year, in the decade (2008-2017), was on average 0.1 °C warmer than the 1981-2010 average and 0.8 °C warmer than the 1961-1990 average hottest day of 26 °C.
- The most recent decade (2009-2018) has been on average 1% wetter than 1981-2010 and 5% wetter than 1961-1990 for the UK overall.
- The mean sea level around the UK have risen by 17 cm since the start of the 20th century

Coastal flood risk is expected to increase over the 21st century and beyond with an increase in the frequency and magnitude of extreme water levels around the UK coastline. Sea level rise is the main cause of this increased future coastal flood risk. Projections predict that there is likely to be an increase in sea level rise even if GHG emissions are significantly reduced this century (UK Climate Projections 2019).

Research on the probable effects of climate change in the UK is available on the Met Office website. It provides projections down to the regional level which illustrate the potential range of changes and level of confidence in each prediction. The effects of climate change under medium emissions scenario (50th percentile) for the Southeast of England during the period 2040-2059 compared to 1981-2000 are likely to be as follows:

- Annual mean temperature increase between 1°C and 2°C
- Change in annual mean precipitation of 0 to +20% in winter and - 10% to -20% in summer

Hayling Island being predominantly low-lying is at increased risk from climate change. The projected rise in sea levels is likely to be the most significant risk associated with climate change. Data for the English Channel show a rise in mean sea level of 1.86mm/yr between 1915 and 2019, increasing to 3.8mm/yr between 1990 and 2019 (SCOPAC 2020).

In the past there have been several flood events on Hayling Island occurring in the south-eastern corner of the Island at Eastoke Peninsula, South Hayling and Mengham. The predicted rise in sea levels will increase the flooding risk to people and properties on Hayling Island. Currently with no sea defences in place, there are an estimated 957 properties at risk from flooding. Due to sea level rise, predictions estimate that an additional 1,533 properties will be at risk in 100 years' time from a 0.5% AEP flooding event (**Table 12.1**).

Table 12.1 Properties at risk from 0.5% AEP flood event (without existing defences in place) (AECOM, 2019)

Scenario	Year	AEP event	Residential properties at risk	Non- Residential properties at risk	Total properties at risk of coastal flooding
Do nothing	2020	0.5% AEP	609	348	957
Do nothing	2120	0.5% AEP	1830	660	2490

It is widely recognised that emissions of carbon dioxide (CO2) and other GHGs such as methane (CH4) and nitrogen dioxide (NO2) from human activities, have caused global warming and climate change (IPCC, 2014). The 2019 amended Climate Change Act commits the UK to at least a 100% reduction in greenhouse gas emissions by 2050 from 1990 levels to limit the temperature increase to 1.5°C. In terms of coastal flood and erosion risk

management the construction and maintenance of coastal defences and transport of materials will result in CO2 emissions.

In response to the increase in GHG emissions there has been growing research into the role of carbon sinks. Carbon sinks absorb more carbon than they release and thereby lower the concentration of CO2 in the atmosphere. Widely recognised natural carbon sinks include oceans, peatlands, wetland habitats, woodlands and forests. The total carbon stock stored within UK forests is about 4,000 Mt CO_2e and UK forests removed an estimated 18.2 Mt CO_2e in 2018, representing around 4 per cent of total UK GHG emissions for 2018 (NE 2021).

Woodlands are reliable carbon sinks that continue to take up carbon over centuries, but it is also important to recognise that hedgerows and scrub can also contribute to carbon sequestration and storage. Urban green spaces are also becoming increasingly recognised for their role as natural carbon sinks (Strohbach, 2012). In terms of coastal flood and risk management protecting woodlands and green spaces in addition to incorporating new green spaces and planting new trees at the scheme level, will help reduce climate change through the sequestration and storage of carbon.

Vegetated coastal habitats, particularly saltmarsh and seagrass have the capacity to capture and store more CO2 per unit area than any other natural system. Saltmarshes can sequester carbon very efficiently in terms of area and estimates from the UK range from 235 and 804tCo2e/km/year (Beaumont, 2014). This is due to the high rate at which they generate biomass, and the saline, oxygen-depleted soils in which they grow, which are ideal for the burial and long-term storage of organic carbon. Subsequently, damage to these habitats can cause stored carbon to be released back into the atmosphere.

Chichester Harbour to the east of Hayling Island, is designated at the International and National level as a SPA, Ramsar site and a SSSI for its intertidal habitats including saltmarsh. Intertidal saltmarshes habitats are at risk from ‘coastal squeeze’ due to accelerating sea level rise. Coastal squeeze is where an intertidal area is trapped between a fixed landward structure, such as a sea wall, and cannot respond naturally to changing water levels and as a result becomes narrower or submerged. The North Solent SMP Appropriate Assessment calculated that there would be a loss of 207 ha of salt marsh within the Chichester and Langstone Harbours SPA as a result of the policies set out in the SMP. In terms of coastal flood and erosion risk management, existing saltmarsh habitats can be protected by allowing the coastline to naturally evolve and new saltmarsh habitats created through managed realignment. These management approaches will help reduce climate change through the sequestration and storage of carbon in coastal habitats.

12.3 **Likely Future Conditions**

UKCP18 predicts warmer, wetter winters and hotter drier summers for the 21st century. Marine projections predict sea level rise by the end of the century for the south of the UK to be in the

range 0.29m to 0.70 m for the low emission scenario and between 0.53m to 1.15 m for high emissions scenario (Met Office 2021).

Future predictions of wetter winters, sea level rise and increase storminess are likely to have an impact on Hayling Island in terms of an increase of assets at risk from flooding and coastal erosion. Estimates predict that there will be an additional 2823 properties at risk from coastal erosion in 2121 under a 'do nothing' policy scenario and an additional 1476 properties at risk from flooding (0.5% AEP event) (AECOM 2022).

12.4 Key Environmental Issues

Considering the baseline and context review, the following key issues have been identified:

- The Strategy has the potential to have an impact on GHG emissions through the construction of new sea defences at the scheme level which could use significant energy and material resources. In addition, through its policies the Strategy has the potential to have an impact on GHG emissions through the reduced carbon footprint of natural flood management measures.
- The policies set out in the Strategy have the potential to have an impact on climatic factors by protecting green networks which act as carbon sinks, allowing coastal habitats which act as carbon sinks to naturally evolve and creating new intertidal habitat through managed realignment and restoration
- Through the Strategy measures can be considered to help adapt to predicted changes in climate. These include consideration of future predicted sea level rise and an increase in severe weather conditions when designing sea defences at the scheme level and use of natural flood management measures.

12.5 Appraisal Findings

Appraisal of the ODU's used the following assessment questions to assess how the overall leading policy option and leading economic policy option (if different) would have an impact on climatic factors:

- Contribute to mitigating the main causes of climate change by promoting low or zero carbon approaches?
- Contribute to mitigating the main causes of climate change by protecting green networks which act as carbon sinks?

The appraisal did not assess how the individual ODU's would contribute to adapting to climate change because the Strategy as a whole is likely to make a significant positive contribution to adapting to changes in flood risk and coastal processes, driven by climate change.

12.5.1 ODU 1 Langstone Bridge to Northney Farm

Overall Leading Option: Sustain 0.5 % AEP with Managed Realignment Hybrid

12.5.1.1 Likely Minor Effects

Capital works in the short-term (2022-2042) to create a new frontline floodwall along the west of this frontage and protection of the historic landfill site in the east will contribute to GHG emissions through the use of materials (including concrete and steel) and transport of materials and people to the site. The increase in GHG will be short-term and not considered to have a significant effect on global climate change therefore, likely to have a minor adverse impact on climatic factors.

In the medium (2042-2072) and longer term (2072 -2122) upgrades to these defences to keep pace with sea level rise will also contribute to GHG emissions and predicted to have a minor adverse impact on climatic factors in relation to the baseline.

New intertidal habitat created from managed realignment will act as a carbon sink, absorbing and storing CO2 from the atmosphere, reducing atmospheric carbon levels, and therefore help mitigate the effects of climate change. There will be some loss of saltmarsh in front of the frontline floodwall on the west of the frontage from coastal squeeze over the medium (2042-2072) and longer term (2072 -2122) compared to a 'do nothing' policy as the current defences have a residual of 10-15 years. Overall, there is likely to be a significant benefit.

Capital works in the short-term (2022-2042) to create a setback embankment in the east of this frontage, followed by maintenance and upgrades in the medium (2042-2072) and longer term (2072-2122) to maintain the SoP in line with predicted sea level rise, will contribute to GHG emissions. It is predicted that GHG emissions for the construction of soft defences (earth embankments) will have a lower carbon footprint than hard defences (e.g. concrete and steel) in terms of materials used for construction therefore, likely to have a minor adverse impact on climatic factors.

Leading Economic Option: Sustain 1.33% AEP with Managed Realignment

This policy option is predicted to have the same significant and minor effects on climatic factors as the overall leading option above.

12.5.2 ODU 2 Northney Marina

Overall Leading Option: Resilience and Overall Economic Option: Do Nothing

12.5.2.1 Likely Minor Effects

This policy option includes the maintenance of existing defences, the current earth embankment has a residual life of 15-20 years. Maintenance of the earth embankment in the medium (2042-2072) and longer term (2072-2122) will contribute to GHG emissions through the transport of materials and people to the site. This is likely to have a minor adverse impact on climatic factors.

12.5.3 ODU 3 Northney Farm to Chichester Road

Leading Overall and Economic Option: Sustain 0.5% AEP with Managed Realignment

12.5.3.1 *Likely Significant Effects*

New intertidal habitat created from MR will act as a carbon sink, absorbing and storing carbon dioxide from the atmosphere, reducing atmospheric carbon levels, and therefore help mitigate the effects of climate change. This is likely to have a significant benefit.

12.5.3.2 *Likely Minor Effects*

Construction of a new setback earth embankment in the short term (2022 -2042), followed by maintenance and upgrades in the medium (2042-2072) and longer term (2072-2122) to maintain the SoP in line with predicted sea level rise, is likely to have minor adverse impact on climatic factors.

12.5.4 ODU 4 Chichester Road to Mill Rythe Junior School

Overall Leading Option: Resilience

12.5.4.1 Likely Minor Effects

This policy option includes the maintenance of existing defences, the current earth embankment along the majority of this frontage has a residual life of 10-15 years. Maintenance of the earth embankment in the medium (2042-2072) and longer term (2072-2122) will contribute to GHG emissions through the transport of materials and people to the site. This is likely to have a minor adverse impact on climatic factors.

The maintenance of the current defences in medium (2042-2072) and longer term (2072-2122) will result in the loss of intertidal habitats through coastal squeeze. This is likely to have a minor adverse effect on climatic factors as intertidal habitats act as carbon sinks, absorbing and storing carbon from the atmosphere and help to mitigate the effects of climate change.

Overall Economic Option: Do Nothing

12.5.4.2 Likely Significant Effects

The policy option to 'do nothing' is likely to have significant benefits in the medium (2042-2072) and longer term (2072-2122) by allowing intertidal habitats to migrate landwards with sea level rise. Saltmarsh acts as a carbon sink by absorbing and storing CO2 from the atmosphere and therefore help mitigate the effects of climate change. This is likely to have a significant benefit.

12.5.5 ODU 5 Mill Rythe Junior School to Salterns Lane

Overall leading option: Sustain 1.33% AEP with Managed Realignment

12.5.5.1 Likely Significant Effects

New intertidal habitat created from MR will act as a carbon sink, absorbing and storing CO2 from the atmosphere, reducing atmospheric carbon levels, and therefore help mitigate the effects of climate change. This is likely to have a significant benefit.

12.5.5.2 Likely Minor Effects

Construction of a new setback earth embankment in the short term (2022-2042), followed by maintenance and upgrades in the medium (2042-2072) and longer term (2072-2122) to maintain the SoP in line with predicted sea level rise, is likely to have minor adverse impact on climatic factors.

Leading Economic Option: Maintain then Managed Realignment (improve) 0.55 AEP from year 50.

12.5.5.3 Likely Significant Effects

New intertidal habitat created from managed realignment in the longer term (2072-2122) will act as a carbon sink, absorbing and storing CO2 from the atmosphere, reducing atmospheric carbon levels, and therefore help mitigate the effects of climate change. This is likely to have a significant benefit.

12.5.5.4 Likely Minor Effects

Along this frontage there are a range of different defence types including earth embankments and concrete walls. The residual life of these defences range from 10-15 years to less than 10 years. Therefore, it is likely that some maintenance and possibly capital works will be required in the short term (2022 -2042) this will contribute to GHG emissions and have a minor adverse effect.

Further maintenance and upgrades in the medium (2042-2072) to maintain the SoP in line with predicted sea level rise, is likely to have minor adverse impact on climatic factors.

The construction of new setback embankment in the long term (2072-2122) for MR will contribute to GHG emissions in terms of transport of materials and people to site and likely to have a minor adverse effect.

12.5.6 ODU 6 Salterns Lane to Wilsons Boat Yard

Overall Leading and Economic Option: Maintain then Improve from year 50, 0.5% AEP frontline defence

12.5.6.1 Likely Minor Effects

Construction of a new floodwall in the longer term (2072-2122), will contribute to GHG emissions through the use of materials (including concrete and steel) and transport of materials and people to the site. This is predicted to have a minor adverse impact on climatic factors compared to the baseline.

12.5.7 ODU 7 Wilsons Boat Yard to Fishery Creek

Overall Leading and Economic Option: Sustain 0.5% AEP

12.5.7.1 Likely Minor Effects

Construction of a new frontline rock revetment in the short-term (2022-2042) followed by maintenance and upgrades in the medium (2042-2072) and longer term (2072-2122), will contribute to GHG emissions through the use of materials in construction of the floodwall

(including concrete and steel) and transport of materials and people to the site. This is likely to have a minor adverse impact on climatic factors in relation to the baseline.

There will be some loss of saltmarsh in front of the frontline floodwall on the west of the frontage from coastal squeeze over the medium (2042-2072) and longer term (2072 -2122) compared to a 'do nothing' policy as the current defences have a residual of 10-15 years.

12.5.8 ODU 8 Eastoke

Overall Leading and Economic Option: Sustain 0.5% AEP

12.5.8.1 Likely Minor Effects

This policy option involves the constructing new defences in the short term (2022-2042) and includes the construction of different types of defences to suit the coastline. This includes a combination of rock revetments, crest raising, floodwalls and setback floodwalls. These defences will be raised over time to keep pace with sea level rise. Construction of the defences is likely to have a minor adverse effect on GHG emissions as a result of the materials used (e.g. concrete and steel) and transport of materials and people to the site..

In the medium (2042-2072) and longer term (2072-2122) upgrades to the defences to keep pace with predicted sea level rise are also likely to have a minor adverse effect on GHG emissions in relation to the baseline.

12.5.9 ODU 9 Eastoke Corner to Inn on the Beach

Overall Leading Option: Sustain 0.5% AEP - Maintain Inn on the Beach

Leading Economic Option: Sustain 0.5 % AEP - Replace Inn on the Beach

12.5.9.1 Likely Minor Effects

The significant effects on climatic factors are likely to be the similar for both policy options. Both options involve the construction of new defences to protect assets in the short term (2022-2042) in addition to continued beach nourishment and recycling over all epochs. The difference between the options is either capital refurbishment of the defences in front of Inn on the Beach, or replacement of Inn on the Beach with a new rock groyne. It is predicted that both policy options will have a minor adverse impact on GHG emissions in terms of materials used for construction (including concrete and steel) and transport of materials and people to the site. This is likely to have a minor adverse impact on climatic factors.

12.5.10 ODU 10 Inn on the Beach to North Shore Road

Overall Leading and Economic Option: Resilience

12.5.10.1 Likely Minor Effects

There are a range of different defence types along this frontage including a concrete quay and earth embankment in the north. This policy option includes patch and repair to the current defences, the residual life of the current defences is estimated between 15- 20 years so maintenance is expected to be required in the medium (2042-2072) and long term (2072-2122). Maintenance of the current defences will contribute to GHG emissions through

construction materials and transport of materials and people to site. This is likely to have a minor adverse effect.

12.5.11 ODU 11 North Shore Road

Overall Leading Option: Sustain 1.33% AEP

12.5.11.1 Likely Minor Effects

This policy options involves the construction of a new floodwall to the east in the short term (2022-2042) followed by an additional floodwall to the west in the medium term (2042-2072). These capital works will contribute to GHG emissions through the use of materials in construction of the floodwalls (including concrete and steel) and transport of materials and people to the site. This is likely to have a minor adverse impact on climatic factors in all epochs.

Overall Economic Option: Improve 0.5% AEP

12.5.11.2 Likely Significant Effects

This policy option is predicted to have the same impact in terms of adverse effects on climatic factors as the leading option above.

12.5.12 ODU 12 North Shore Road to Newtown

Overall Leading and Economic option: Do nothing

No significant on minor effects have been identified.

12.5.13 ODU 13 Newtown

Overall Leading and Economic option: Sustain from year 20 (Maintain then Sustain 0.5% AEP)

12.5.13.1 Likely Significant Effects

Capital works in the medium-term (2042-2072) to create a new frontline floodwall, followed by maintenance and upgrades in the longer term (2072-2122), will contribute to GHG emissions through the use of materials in construction of the floodwall (including concrete and steel) and transport of materials and people to the site. This is considered to have a minor adverse impact on climatic factors as these impacts will be short term and minor in relation to the baseline.

12.5.13.2 Likely Minor Effects

Maintenance and upgrades to existing earth embankment in the short term (2021-2041) will contribute to GHG emissions through the transport of materials and people to site but likely to have less of an impact than large scale capital works to construct hard defences. This is likely to have a minor adverse impact on climatic factors.

12.5.14 ODU 14 Newtown to Stoke

Overall Leading and Economic option: Do nothing

No significant on minor effects have been identified.

12.5.15 ODU 15 Stoke to Langstone Bridge Carpark

Overall Leading and Economic Option: Sustain 0.5% AEP setback defences

12.5.15.1 Likely Minor Effects

This policy option includes the construction of a new setback earth embankment in the short-term (2021-2041) followed by upgrades in medium (2042-2072) and longer term (2072-2122). This is likely to have minor adverse impact on climatic factors as a result of an increase in GHG emissions from construction of the embankment in terms of transport of materials and people to the site.

This policy option also includes maintaining the current defences to provide protection to the historic landfill site. There is a mixture of defence types along this frontage including earth and rubble embankments with residual life's ranging from 10-15 years and less than 10 years. Therefore, it is expected that some maintenance will be required in the short term (2042-2072) and further maintenance in the medium (2042-2072) and longer term (2072-2122) to maintain the SoP. This is likely to have minor adverse impact on climatic factors as a result of an increase in GHG emissions from construction of the embankment in terms of transport of materials and people to the site.

12.5.16 ODU 16 Langstone Bridge Carpark to Langstone Bridge

Overall Leading and Economic Option: Sustain 0.5% AEP and Sustain 1.33% AEP – Frontline defence

12.5.16.1 Likely Minor Effects

This policy option includes the construction of a new frontline floodwall in the short-term (2022-2042) followed by upgrades in medium (2042-2072) and longer term (2072-2122) to keep pace with predicted sea level rise. This is likely to have minor adverse impact on climatic factors as a result of an increase in GHG emissions from the use of materials in construction of the floodwall (including concrete and steel) and transport of materials and people to the site. The increase in GHG emissions will be short-term and considered to be minor in relation to the baseline.

The frontline defences will cause the loss of intertidal habitat as sea levels rise and the intertidal habitat is unable to migrate inland. This will result in the loss an important carbon sink but also carbon emissions from habitat loss. This is predicted to have minor adverse impacts on climatic factors in relation to the baseline. .

12.6 Proposed Management of Effects

The assessment identified significant adverse effects from the overall leading policy options for 8 ODU's as summarised in **Table 12.2** below:

Table 12.2 Summary of the likely significant adverse effects of the leading policy options

ODU	Epoch	Policy	Likely Significant Effect
1	All	Sustain 0.5 % with Managed Realignment Hydrid	**Increase in GHG emissions** through the construction and future upgrades of a new frontline floodwall to the west of the frontage to protect the historic landfill site.
6	3	Maintain then Improve	**Increase in GHG emissions** through the construction of a new floodwall in epoch 3 (2072-2122).
7	All	Sustain 0.5% - Frontline Defences	**Increase in GHG emissions** through the construction and future upgrades of a new frontline rock revetment.
8	All	Sustain 0.5%	**Increase in GHG emissions** through the construction and future upgrades of new defences. These includes a combination of rock revetments, crest raising, floodwalls and setback floodwalls
9	1	Sustain 0.5% - Maintain Inn on the Beach	**Increase in GHG emissions** through the construction of a new floodwall in epoch 1 (2022-2042).
11	All	Sustain 1.33%	**Increase in GHG emissions** through construction of a new floodwall to the east in epoch 1 (2022-2042) followed by an additional floodwall to the west in epoch 2 (2042-2072).
13	2 & 3	Sustain from 2041 (Maintain then Sustain 0.5%)	**Increase in GHG emissions** through construction of a new frontline floodwall in epoch 2 (2042-2072) and future upgrades.
16	All	Sustain 0.5%	**Increase in GHG emissions** through construction of a new frontline floodwall in epoch 1 (2022 -2042) and future upgrades.

The likely significant adverse effect identified in **Table 12.2** for all 8 ODU's is an increase in GHG emissions resulting from the construction of hard defences for a HTL policy. Options appraisal for each ODU strategic options included climatic factors as part of the environmental assessment considered along with economic, social and technical factors. These HTL policies will be assessed in further detail at the scheme design stage, where alternatives to the construction of hard defences maybe considered.

GHG emissions from the construction of hard defences can be reduced at the scheme level by considering the design of the defences to effectively use natural land formations and the efficient use of high carbon materials (such as concrete and steel). GHG emissions can be

further reduced by considering using lower carbon materials, for example low carbon concrete or recycled steel, or alternative materials such as rock instead of concrete. GHG emissions from the transport of materials can be reduced by using local suppliers and materials.

Incorporating recycling into the design phase will help reduce GHG emissions, for example using construction debris where possible by incorporating into the scheme design rather than disposing it off site, this will avoid additional transport and therefore reduce GHG emissions.

Further measures to reduce GHG emission during construction at the scheme level include using alternative low carbon energy sources on site, increasing participation in public transportation systems and using ultra-low emission or electric vehicles for construction.
Enhancing man-made structures with ecological features, known as green-grey infrastructure can contribute to reducing GHG emissions. For example, the growth of seaweed on an Eco-formliner can increase asset resilience and therefore increase the longevity of the defence, thus reducing the need to replace and upgrade the defence in the future and as such reducing GHG emissions in the long-term.

Incorporating additional Nature Based Solutions (NBS) into the scheme design has the potential to reduce GHG emissions. NBS include using existing or enhanced natural landscapes (saltmarsh, sand-dunes and wetlands) to increase resilience to climate impacts. The creation of saltmarsh habitat in-front of defences will increase the longevity of the defence, increase the standard of protection and resilience of the defence.

The use of tools developed by the EA, including ERIC and the Cost and Carbon Tool (CCT) can be used to estimate carbon use over the life of constructed assets. This will help inform decisions to reduce carbon use in construction projects including impacts from commuting and supply chain. Using these tools at the scheme level can provide a carbon assessment for the project and inform what is required to achieve net zero through off setting GHG emissions.

Off-setting GHG emissions can be achieved on site through carbon sequestration by incorporating new green spaces, planting new trees, intertidal and wetland habitat creation and restoration into scheme design. In addition, offsetting GHG emissions can be achieved through creating and restoring intertidal and marine habitats off-site through strategic programs including the HCRP) projects and Biodiversity Net Gain (BNG) projects.

12.7 **Proposed Monitoring**

The following indicators are proposed to monitor the effects of the Strategy:

- Carbon footprint calculator at the scheme level to calculate the carbon emission from coastal defences schemes
- Area of intertidal habitats lost through coastal squeeze

- Area of intertidal habitats created through MR

13 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 receptors as those already identified for the Strategy, resulting in a cumulative effects. Reference should be made to consideration of in-combination effects relevant to the HRA and WFD appended separately to the StAR.

The SEA Directive requires information to be provided on the 'likely significant impacts including cumulative and synergistic impacts… on the environment'. This section assesses the potentially significant cumulative effects of the Strategy with external plans and programmes, which have been considered in relation to the environmental receptors and SEA objectives. Consideration of overall aggregated effects or intra-plan cumulative effects, ie interactions between options that are in different ODUs is provided in **Section 14**.

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 13.1** summarises the key plans, programmes and strategies identified and how they have been considered within the Strategy. 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.

The consideration of in-combination effects is also provided separately for the HRA (appended separately to the StAR). Overall the HRA considers that given that all development proposals will be required to mitigate their own anticipated impacts, it is concluded that there will be no adverse effects of the Strategy in-combination with other plans and projects.

Table 13.1 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 HCRP 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.

14 Overall summary and next steps

Table 14.1 provides a summary of the potential effects and proposed mitigation for all receptors or topics including consideration of overall aggregated effects or intra-plan cumulative effects, ie interactions between options that are in different ODUs. With mitigation the potential effects that can be attributed to the Strategy are likely to be localised and considered to be negligible/minor and not significant for all receptors.

Table 14.1 Potential Effects and Proposed mitigation Summary

SEA Topic	Summary	Proposed Management Effects and Conclusion	Environmental Indicators to Monitor the Effects
Biodiversity	There is likely to be a mixture of beneficial and detrimental effects for biodiversity due to the balance of protecting between the loss of seaward or landward habitats. Overall coastal squeeze and the loss of habitats is likely to cause minor adverse effects for ODU 1, ODU6, ODU7, ODU9. However significant beneficial effects are anticipated for ODU3 and ODU15 and minor beneficial for ODU13 and ODU14. Significant adverse effects could also occur at ODU 4 and 10. However this would also occur in a do nothing or baseline scenario without the Strategy.	The overall leading and economic options in the Strategy have the potential for a mixture of effects. However, much of this is contingent upon robust consideration of biodiversity matters at the scheme level or ongoing operational management of nature conservation sites. This includes potential seasonal restrictions due to breeding and over wintering birds and minimising any encroachment into designated sites during detailed design. Any compensation habitat would need to be secured through the HCRP and in line with the IROPI agreement made for the North Solent SMP to deliver its policy. It would be the responsibility of those undertaking the project or plan to ensure compensatory habitat has been provided prior to any losses occurring. Overall	Extent and condition of coastal habitats - BAP mudflats and saltmarsh. Extent and condition of adjacent designated sites (SSSI / SPA / SAC / Ramsar).

		the Strategy has the potential for neutral effects.	
Historic Environment	The potential for some minor adverse effects from construction and potentially during operation due to changes in the setting of designated historic assets including adjacent li listed buildings and conservation areas. These effects could be more significant from the aggregation of effects if multiple ODUs are construction concurrently. However, the increased flood and erosion risk over time has the potential to damage historic environment assets. Positive effects are identified in the medium to longer term from providing flood and erosion defences to archaeology at risk of flooding and erosion.	The character and setting of designated heritage assets and the wider historic environment must be considered at a scheme level. Where property-level protection measures are proposed for historic buildings and structures (flood-resistance or proofing works, and flood-resilient works) then these measures must respect the character of the building or structure where possible to ensure that this is maintained. Any defence works should be designed to complement and preserve views of heritage assets where necessary. With these measures in place no adverse significant effects are anticipated on	Number of historic assets at risk of flooding / erosion.

		historic environment.	
Climatic Factors	The construction of new flood defences, future upgrades and maintenance will have a have significant adverse impact on climatic factors as a result of an increase in GHG emissions from the use of materials in construction of the floodwall (including concrete and steel) and transport of materials and people to the site. Severity could be increased if multiple ODUs are constructed at a similar time. However , the creation of new intertidal habitat from new set- back defences for ODUs 1b, 3b and 5b will act as a carbon sink, absorbing and storing CO2 from the atmosphere, reducing atmospheric carbon levels, and therefore help mitigate some effects of climate change from construction overall.	Increase in GHG emissions as a result of HTL policies will be assessed in further detail at the scheme design stage, where alternatives to the construction of hard defences maybe considered including if a number of ODUs are constructed concurrently. GHG emissions from the construction of hard defences can be reduced at the scheme level by considering several options including the design of the defences to effectively use natural land formations, efficient use of high carbon materials, using lower carbon materials and incorporating Nature Based Solutions (NBS) into design. With these measures in place no adverse significant effects are anticipated.	Carbon footprint calculator at the scheme level to calculate the carbon emission from coastal defences schemes Area of intertidal habitats lost through coastal squeeze Area of intertidal habitats created through MR

Population and Human health	Constructing new defences, maintaining, and raising defences over time to keep pace with sea level rise will provide flood protection to properties and businesses. This will have a significant beneficial effect in relation to the improved psychological health of people currently at risk from flooding and coastal erosion. There will also be benefits in relation to physical health through a reduction of injuries during flooding events Construction of a new frontline floodwall in ODU1a and ODU16 will provide further benefits including protection to Northney road and A3023 from flooding and maintain access to the island.	None proposed as part of The Strategy. Overall the Strategy has the potential for significant positive effects.	Number of residential properties at risk from flooding and erosion Number of historic landfill sites at risk from flooding and erosion and their impact on human health as a receptor Disruption and loss of recreational facilities and amenities including coastal paths, beaches and open space at risk from flooding and erosion.
Landscape	There is the potential for some temporary minor visual adverse effects from construction of new defences. The construction of new frontline floodwall in in the short term for ODUs 1a, 1b 7, 11 and 16 have the potential to have a minor negative effect on the landscape and sea views however this could be more significant if multiple ODUs are	The character and setting of the landscape/ seascape should be considered through the detailed design of any new infrastructure, and any subsequent planning applications. This is particularly relevant to the Chichester	Proportion of undeveloped coastline Objections from Chichester Harbour Conservancy and NE to any planning applications for flood defences.

	constructed at a similar time. In addition upgrades to frontline defences for ODUs 1a, 1b, 5a, 6, 7, 11 and 13 in later epochs to keep pace with sea level rise are likely to result in significant negative effects on the AONB landscape including sea views. The creation of intertidal habitat in front of the defences for frontages ODU1b, ODU3b and ODU5b may be considered beneficial to the local landscape. However, this could also be seen as a potential adverse impact because good quality semi-improved grassland landscape would be lost with the creation of this new intertidal habitat. NAI policy for ODU 2, 12 and 14 has the potential for positive effects on the landscape, as the policy will allow the coastline to evolve more naturally over the appraisal period. Overall there are the potential for some benefits but overall negative effects are anticipated especially if works on a number of ODUs are constructed concurrently.	Harbour AONB and the extensive areas of undeveloped coastline. Where possible, nature-based solutions should be explored to provide cost-effective solutions with reduced impact on the landscape, rural character, and wider environment. With these measures in place no adverse significant effects are anticipated.	

Material assets	Construction of new defences, maintaining, and raising defences over time to keep pace with sea level rise will provide flood and coastal erosion protection to a number of properties and businesses. A new frontline floodwall in ODU1a and ODU16 will also provide protection to Northney road and A3023 which provides the only maintain access to the island.	None proposed as part of The Strategy. Overall the Strategy has the potential for significant positive effects.	Number of properties at risk of flooding / erosion.
Soil	The construction of new frontline defences will provide a number of benefits. This includes protecting agricultural land along some frontages from flooding. Significant beneficial effects will also occur as a result of the reduced risk of flooding and erosion to those areas of frontage that contain historic landfill sites (ODUs 1, 4, 5 and 15).	None proposed as part of The Strategy. At a scheme level, appropriate pollution management is required during construction of proposed flood defence measures in areas of former historic landfill sites. Overall the Strategy has the potential for significant positive effects.	Number of historic landfill sites and high-risk areas at risk from flooding (coastal and tidal). Number of historic landfill sites and high-risk areas at risk from erosion. Rates of erosion when compared to SMP estimations.
Water	As detail in the WFD assessment a number of ODUs and receptors were scoped in for further assessment. It is recommended that should any Strategy	A range of mitigation is proposed within the WFD assessment. Over the overall leading options are not likely to have a	Water quality

	proposal progress to scheme stage, a more detailed WFD assessment will be required when more information on the design is available.	permanent (i.e. non-temporary) effect on the status of WFD parameters that are significant at water body level.	

The SEA Directive requires that the public, together with certain environmental bodies: *"be given an early and effective opportunity within appropriate time frames to express their opinion on the draft plan or programme and the accompanying environmental report"* (Article 6(2)).

This Environmental Report will be sent to the statutory SEA consultees (NE, EA and HE) for comment as part of The Coastal Strategy consultation. The Environmental Report will then be updated following stakeholder consultation.

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Appendix A:

Scoping summary and responses

Appendix A – Scoping response

A scoping report was prepared by Coastal Partners (Coastal Partners, 2021) and submitted to HBC for consultation 24th February 2021 to inform a scoping opinion. This was provided by HBC 24th May 2021 and has been used to identify the issues that should be covered in this report. The appendix firstly provides a summary table of the issues raised, cross-referencing to the relevant sections in this SEA to demonstrate how, and where, the scoping comments have been addressed where considered necessary. The appendix then provides details of subsequent consultation and a copy of the full scoping opinion as received from HBC.

Topic	Comment	Action (including clarification sought/received if applicable	Section in SEA
Habitats Regulations Assessment	The screening assessment indicates that the Strategy 'alone' is likely to have a significant effect on the Solent Maritime SAC and the Chichester and Langstone Harbours SPA and Ramsar site and the Strategy must therefore proceed to appropriate assessment (Stage 2 of the HRA process) for these sites. The proposed plan would have a potentially significant impact on (but not limited to) Habitat/Biodiversity, Archaeology, the Historic Environment, Landscape and Visual receptors, Population and Human Health, Soil, Water, Air, Climatic Factors, Material Assets and Highways.	Noted. Please see a separate Habitats Regulations Assessment (HRA) including the appropriate assessment and derogation stages of the HRA	Section 5-13 of the SEA provides an assessment of potentially significant impacts
General	It is noted that the Scoping Opinion Report submitted references a previous version of the emerging Havant Borough Local Plan. The most up to date version is the Submission Havant Borough Local Plan (https://www.havant.gov.uk/local-plan-examination). As a consequence, new policies such as 'EX1 Water Quality impact on the Solent European Sites' are not referenced within the document, and the scoping opinion report may contain information which is no longer relevant.	The SEA has been written using the most up to date version of the Havant Borough Local Plan	Applies to all Sections of the SEA
General	It should be noted that the Local Plan will change status again through the course of its ongoing examination. It is expected that adoption of the final version will take place at the end of 2021 or early 2022.	Noted, although this is now out of date.	N/A

	Chichester Harbour Conservancy have referenced their Sustainable Shorelines guidance which should be acknowledged / referenced as appropriate in the SEA	.	Appendix
	Northney and Tye Village Design Statement should be referenced in the SEA and provides a useful description of locally distinctive features of that part of Hayling Island	All policies within the adopted and emerging local plan are taken into account, along with the overall objectives. The individual policies are referenced when of relevance within the report but apply more specifically to the future project/scheme stage planning applications.	
Biodiversity	In addition to the policies identified the following policies have an impact on Biodiversity and need to be considered: Havant Borough Local Plan (Core Strategy) 2011 policies: CS12 Chichester Harbour Area of Outstanding Natural Beauty (AONB), CS15 Flood and Coastal Erosion Risk, DM8 Conservation, Protection and Enhancement of Existing Natural Features, DM9 Development in the Coastal Zone and DM10 Pollution. Havant Borough Local Plan (Allocations) 2014: DM23 Sites for Brent Geese and Waders Havant Borough Local Plan Submission version (LP SV) policies: E1 High Quality Design E4 Development on the Coast E5 Chichester Harbour Area of Outstanding Natural Beauty EX1 Water Quality Impact on the Solent European Sites E18 Trees, hedgerows and woodland E22 Amenity and pollution E24 Contamination		
	As above an updated Solent Waders and Brent Goose Strategy will need to be referenced.	Noted.	See section 5 Biodiversity
	The Council's Ecologist has provided the following comments: *I would be particularly interested in an assessment of the potential implications for terrestrial SPA/Ramsar supporting habitat (functionally-linked land). The Scoping Reports mention that in some locations, where some form of 'managed retreat' may be an option, there may be direct loss of terrestrial supporting habitat such as coastal grassland or other farmland. This may well have implications for important areas of supporting habitat (e.g. the potential establishment of permanent terrestrial bird refuges) and require compensatory measures to ensure continuity of terrestrial habitat for SPA/Ramsar bird species in accordance with the Solent Waders & Brent Goose Strategy*	All policies within the adopted and emerging local plan are taken into account, along with the overall objectives. The individual policies are referenced when of relevance within the report	See section 5 Biodiversity and separate HRA
	Natural England state that: *Sites on Hayling Island also provide important feeding and roosting areas for over-*		See section 5 Biodiversity

	wintering and passage birds (as shown in the Solent Waders and Brent Goose Strategy (SWBGS)) and, as such, are considered functionally linked land to the SPAs and Ramsar sites. Detailed consideration of these sites within the SEA/HRA is required with respect to land take and disturbance and we recommend that you seek further information from the Hampshire Biodiversity Information Centre and other appropriate bodies to supplement surveys.	but apply more specifically to the future project/scheme stage planning applications.	and separate HRA
HRA	*Biodiversity Mitigation and Enhancement* *In order to secure appropriate biodiversity mitigation and enhancements Natural England recommends that the strategy is supported by a Biodiversity Mitigation and Enhancement Plan (BMEP). The BMEP should include measures for mitigating impacts on protected species and habitats and include biodiversity compensation measures for any residual biodiversity losses that cannot be fully mitigated on site. This might include the provision of offsite replacement habitats, or an agreed financial contribution for biodiversity enhancements elsewhere calculated using a Biodiversity Compensation Framework, Environment Bank, or similar mechanism. In the recent 25 Year Environment Plan, the Government has committed to making sure the existing requirements for net gain for biodiversity in national planning policy are strengthened and the current trend of biodiversity loss is halted. This approach is likely to be supported by the forthcoming planning policy guidance. Currently most developments still result in biodiversity loss. Natural England therefore advises that each development reverse this trend and deliver net gains in biodiversity.* *Natural England strongly recommends that this strategy achieves a net gain for biodiversity and we advise that a biodiversity metric is used that would be relevant to each local authority. This approach would ensure that your authority will have met its duties under Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006 which states that 'Every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity.*	Please see additional clarification sought from NE through the Discretionary Advice Service below (email 26/11/2021)	
HRA	*cumulative and in-combination effects* *A full consideration of the implications of the whole scheme should be undertaken. All supporting infrastructure should be included within the assessment.* *Assessments should include an impact assessment to identify, describe and evaluate the effects that are likely to result from the project in combination with other projects and activities that are being, have been or will be carried out. The following types of projects*	The HRA is a high level assessment and more detailed HRAs will be submitted, if	

	should be *included in such an assessment, (subject to available information):* *a. existing completed projects;* *b. approved but uncompleted projects;* *c. ongoing activities;* *d. plans or projects for which an application has been made and which are under consideration by the consenting authorities; and* *e. plans and projects which are reasonably foreseeable, i.e. projects for which an application* *has not yet been submitted, but which are likely to progress before completion of the development and for which sufficient information is available to assess the likelihood of cumulative and in combination effects.* *Natural England would advise that the cumulative impacts section should also consider impacts on ecologically sensitive receptors such as designated sites, non-designated sites, priority habitats and species, protected species etc. In relation to point e, Natural England would advise consideration of forthcoming planning applications in close proximity to the areas covered by this strategy, where there are potential impacts on key ecological interests.*	required, for the individual projects/schemes**.**	
Historic Environment	*We recommend a wider set of plans, policies and programmes are considered as part of the SEA and that some additional baseline information is included.* *International* *• UNESCO World Heritage Convention* *• European Landscape Convention* *• The Convention for the Protection of the Architectural Heritage of Europe* *• The European Convention on the Protection of Archaeological Heritage* *National* *• Protection of Wrecks Act 1973* *• Ancient Monuments & Archaeological Areas Act 1979* *• Planning (Listed Buildings & Conservation Areas) Act 1990* (referenced) *• Marine and Coastal Areas Access Act 2009* *• National Planning Policy Framework 2019* (referenced) *• Planning Practice Guidance* *Local* *• Local plans* *• Historic environment records*	Policy context updated to include wider set of plans, policies and programmes	Context review in Historic Environment section

	• *AONB management plans* • *Heritage/conservation strategies* • *Other strategies (e.g. cultural or tourism)* • *Conservation area character appraisals and management plans* • *Listed building heritage partnership agreements*		
	The following additional policies need to be considered: Core Strategy CS11 Protecting and Enhancing the Special Environment and Heritage of Havant Borough Havant Borough Local Plan (Allocations) 2014 DM20 Historic Assets	See note above re. individual local plan policies.	Local Planning Policy in Historic Environment section
	Historic England state: *In additional to the conservation areas already identified, we recommend that you include Warblington and Emsworth conservation areas. We also recommend that Fort Cumberland is added to the baseline information, as development within its setting could negatively affect its significance. Fort Cumberland's setting will extend across to Hayling Island.* (these comments are supported by the Council's Heritage Team) *While no designated archaeological assets have been identified, this does not mean that they do not exist. Archaeology is frequently uncovered during development and it is important that sufficient research and investigation is carried out prior to development as part of proposals. NPPF footnote 63 states: "Non-designated heritage assets of archaeological interest, which are demonstrably of equivalent significance to scheduled monuments, should be considered subject to the policies for designated heritage assets." This serves to illustrate the protection that as yet unrecorded archaeology is afforded.* (Further comments on Archaeology are provided by the County Archaeologist under key issues).	Reference to Warblington and Emsworth conservation areas included	Context review in Historic Environment section
	We would suggest that the anticipated form of development is incorporated into this section. This helps the key sustainability issues to be more realistic. P8 of the scoping report states that the Coastal Management Strategy will identify measures (schemes) to implement the North Solent Shoreline Management Plan policies. The North Solent Shoreline Management Plan policies that apply to Hayling Island are broadly, to hold the line. In order to achieve this, we presume that the schemes/measures that the Hayling Island Coastal Management Strategy will recommend include physical interventions, such as sea walls, revetments, rock	Noted - Comment relates scoping report which does not require any update for HE chapter	

	armour, groynes, gabions or offshore reefs. These types of interventions could cause harm to the significance of heritage assets, for example through physical impacts on buried or above ground archaeology, physical impacts on designated or non designated buildings or other structures or harm to the significance of heritage assets through development in their settings. We suggest this section is written to anticipate, as far as can be done at this point, a more realistic set of impacts on the historic environment. HBC Heritage team state: *In terms of the key sustainability issues it is my view that any anticipated forms of development should be incorporated into this section. The North Solent Shoreline Management Plan policies that apply to Hayling Island are broadly, to hold the line. In order to achieve this, I would assume that physical interventions such as sea walls, revetments, rock armour, groynes, gabions etc. would be required. These types of interventions cam cause harm to the significance of heritage assets through physical change or development in their settings.* The County Archaeologist states: *The key reasons for my hesitancy lies in paragraph 4.3 which states that as the two scheduled monuments (Tournebury Hillfort and Sinah Common) are not in the coastal zone they will not be impacted by the strategy. However I have in the past been consulted regarding a study that showed predicted future high water level combined with storm surge would see some outer* *elements of Tournebury hillfort inundated. Whilst the scheduled monument may lie outside any coastal defence construction zone Tournebury will be impacted by coastal change and therefore will be affected (protected or sacrificed) by whichever strategy is pursued. Sinah Common is also close to the sea edge and low lying and I imagine the same would be true for that (but I have not seen a study to that effect).* *The construction phase of whatever strategy is adopted will have historic environment impacts. Para 4.2.2 is weak in its articulation of the heritage assets associated with Hayling Island, describing 'several' non designated heritage assets and carrying an implication that these might be predominantly Second World War pillboxes. Para 4.3 more helpfully acknowledges that Hayling Island has a 'wealth' of non-designated heritage assets. Para 4.3 is a more accurate summary than that in para 4.2.2. I would also point out that the Langstone Harbour archaeological survey, which placed the many archaeological discoveries of the harbour edge into context, does suggest a very high archaeological potential for as yet undiscovered archaeological sites at the harbour shoreline, particularly of prehistoric date.*	Noted - effects have been considered and included in HE chapter/ assessment (i.e. in relation to construction phase)	

	SEA Objectives English Heritage state: *We support the SEA objective in relation to the historic environment as set out. We recommend the assessment questions are amended as below, in order to use the language of the NPPF and for the avoidance of doubt as to meanings. We also recommend reference to Hayling Island is avoided because while any development will be located on or around Hayling Island, impacts on the historic environment can be felt much more widely:* *Will the option* *• Conserve or enhance the* ~~existing character and~~ *significance* ~~*setting*~~ *of designated heritage* ~~*features*~~ *assets including their settings* ~~*conservations areas, listed buildings and Scheduled Monuments within and surrounding Hayling Island*~~*?* *• Conserve or enhance the* ~~*existing character and setting*~~ *significance of non-designated heritage* ~~*features*~~ *assets including their settings* ~~*local archaeological remains, local listed buildings and historical assets on Hayling Island?*~~ *We think it is important to have two separate questions for designated and non-designated assets, as set out, because the NPPF deals with these quite differently.* Historic England provide further comments: *Decision-making criteria to evaluate the impact of the plan* *We note that detailed decision-making criteria are not included within the framework. This is of some concern as the use of inappropriate criteria can easily render a framework at worst meaningless or more often, impacts can be overlooked. We strongly recommend that you do not assess impact through the use of geographical information systems and a set of buffers. Such an approach is likely to miss impacts, for example from long-range views, or paint an inaccurate picture, for example where two options are similarly distant from a heritage asset, but one is visible and the other is hidden. We would advocate the use of an appropriate heritage specialist to assess impacts. Indeed, it is our contention that accurate results can only be obtained in this way.* These comments are supported by HBC Conservation Team. Finally, the County Archaeologist states in relation to References and Sources of Information: *it might be prudent to include the Historic Environment Record as a source within Para*	Noted amendments to the SEA objectives / assessment questions are made Historic Environment Chapter is completed by AECOM HER is included as a source/ reference and	Table 4.3 See Baseline Review and Proposed

	4.5, as the 'wealth' of heritage assets associated with Hayling Island and it's coast are recorded there.		Manage-ment of Effects in Historic Environment section
Landscape	The following additional policy context will need to be included: Chichester Harbour Management Plan Core Strategy: CS11 Protecting and Enhancing the Special Environment and Heritage of Havant Borough CS12 Chichester Harbour Area of Outstanding Natural Beauty (AONB) CS16 High Quality Design DM8 Conservation, Protection and Enhancement of Existing Natural Features DM9 Development in the Coastal Zone Havant Borough Local Plan Submission version (LP SV) policies: E1 High Quality Design	Policy context updated to include wider set of plans, policies and programmes. Please see previous note re. local plan policies.	Context review in Landscape section
Population and Human Health	The following additional policy context will need to be included: Core Strategy: CS15 Flood and Erosion Risk DM10 Pollution Havant Borough Local Plan (Allocations) 2014 DM17 Contaminated Land DM18 Protecting new development from pollution Havant Borough Local Plan Submission version (LP SV) policies: E19 Managing flood risk in new development E22 Amenity and Pollution E24 Contamination	Additional policies added from the Core Strategy and Havant Borough Local Plan Submission version (LP SV) policies	Local Planning Policy in Section 8 Population and Human Health
	Chichester Harbour Conservancy comment on the issues of coastal realignment and potential for impacts on historic landfill sites and their comments should be considered as part of the assessment. Particular attention is drawn to the Yachthaven site	Additional information included in the Baseline Section under Hayling Island considering the risk to human	Baseline Review in Section 8 Population and Human Health

		health from historic landfills.	
	The Council's Environmental Control Officer notes that the release of contaminants is a risk to human health under the scope of the 'Population & Human Health' assessment although this notwithstanding, contamination is principally considered under section 7 (Soils). It is important to provide details of links to Human Health.	Additional information included in the Baseline Section under Hayling Island considering the risk to human health from historic landfills	Baseline Review in Section 8 Population and Human Health
	Hampshire County Council Public Health welcome the identified questions and agree that flooding has devastating effects on community and mental health. We also are strongly aligned with the need to protect and enhance green, blue and recreational spaces, both formal and informal, as these are instrumental for good physical and mental health. We also welcome management of protection of access and land for resident wellbeing, to insulate from the effects of noise, odour and other features which make places unattractive. They also welcome prioritisation of future network development on the island for pedestrians, cyclists and other forms of active travel, over road vehicles. This will make Hayling Island more health promoting with the co-benefit of reducing fossil fuel emissions contributing to pollution and climate change.	Prioritising future green networks added to key environmental issues	Key Environmental Issues in Section 8 Population and Human Health
	HCC Public Health make reference to Public Health England Spatial Planning for Health 2017 which can be viewed at the following web address: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data /file/729727/spatial_planning_for_health.pdf This document will need to be referenced	Referenced in baseline review section under Hayling Island	Baseline Review in Section 8 Population and Human Health
Soil	The following additional policy context will need to be included: Core Strategy: DM8 Conservation, Protection and Enhancement of Existing Natural Features DM10 Pollution Havant Borough Local Plan (Allocations) 2014 DM17 Contaminated Land DM18 Protecting new development from Pollution	Additional policies added to context review under local planning section	Context Review in Section 9 Soil

	Havant Borough Local Plan Submission version (LP SV) policies: E6 Best and most versatile Agricultural Land E22 Amenity and Pollution		
Water	The following additional policy context will need to be included: Core Strategy: CS5 Tourism CS11 Protecting and Enhancing the Special Environment and Heritage of Havant Borough CS12 Chichester Harbour Area of Outstanding Natural Beauty CS15 Flood and Erosion risk DM8 Conservation, Protection and Enhancement of Existing Natural Features DM9 Development in the Coastal Zone DM10 Pollution Havant Borough Local Plan (Allocations) 2014 AL4 Coastal Management Areas DM17 Contaminated Land DM18 Protecting new development from Pollution Havant Borough Local Plan Submission version (LP SV) policies: E1 High Quality Design E5 Chichester Harbour Area of Outstanding Natural Beauty E15 Protected Species E19 Managing flood risk in new developments E20 Drainage Infrastructure in new development E22 Amenity and Pollution E24 Contamination	Additional policies added to context review under local planning section	Context Review in Section 10 Water
	The Council's Environmental Control Officer comments that: *Contamination is not specifically mentioned within section 8 (Water), and I would simply highlight that actions to address the SEA Objective & Questions described above for soils will equally contribute toward the section 8 SEA Objective to 'Protect and improve the water environment', and so to the SEA question of whether the option/proposal help to 'comply with the Water Framework Directive and contribute to enhancing the status of water bodies?'.* The impacts of contaminated sites should therefore be assessed in relation to Water	Noted, clearer reference is made with the SEA to indirect effects between contamination is soil and water	See section 10 Soil and Section

	The Marine Management Organisation provide detailed comments, and these have been forwarded to you separately, it is also understood that direct consultation / discussion is taking place with the MMO. Their input is considered critical to the impacts on water quality from the plan on the Harbour and Sea environments including impacts on fisheries.	Subsequent correspondence from the MMO (email 19th March 2021) confirmed they are not a statutory consultee and do not usually provide advice on this type of document	
	The SEA should make reference to Marine Plans and demonstrate how they are taken into account	The South Marine Plan has been considered within Appendix B	Appendix B
	The following additional policy context will need to be included: Core Strategy: DM10 Pollution DM12 Mitigating the Impacts of Travel Havant Borough Local Plan (Allocations) 2014 DM18 Protecting new development from pollution Havant Borough Local Plan Submission version (LP SV) policies: E23 Air Quality	Whilst there is the potential for air quality impacts during construction, effects are more dependent on the detailed design, such as any change in HDV flows which can not be determined at this stage. Changes in air quality as a result of emissions from the transport of	
	The Council's Environmental Control Officer states: *The scoping report proposes that impacts on local Air Quality are scoped out. I would broadly agree that the strategy is only likely to have temporary construction effects. However, it is possible that significant construction activities can have significant effects on air quality that would be relevant to human health. If the authors consider it likely that the projects falling under the strategy are likely to result in a +100 change in HDV flows at any sensitive location (on an AADT basis), either air quality should be scoped in, or scoped out on the basis of assessment & construction traffic management planning.* *Key locations would be expected to be represented by residential property within 5m of*		

	the kerbside of the A3023 route. Overall traffic demand (averaged over a year) will be the critical factor for screening purposes. Hampshire Public Health state: *We are pleased to see that the Strategy is unlikely to have a significant impact on the air quality of Hayling Island. Any minor increase in fuel emissions / dust during the construction phase will be controlled and managed by good site practise outlined in the Construction Environmental Management Plan.* Given the above comments from Environmental Control, it is not possible at this stage to screen out air quality impacts. They are therefore Scoped In	materials and people to the site is considered separately under Chapter 12, climatic factors. Consequently air quality assessments will be undertaken where necessary at a scheme level when design information is available.	
Climatic Factors	The following additional policy context will need to be included: Core Strategy: CS11 Protecting and Enhancing the Special Environment and Heritage of Havant Borough CS15 Flood Rik and Coastal Erosion DM12 Mitigating the Impacts of Travel Havant Borough Local Plan Submission version (LP SV) policies: E18 Trees, hedgerows and woodland	Policies added to context review under local planning section	Context Review in Climatic Factors Chapter
	Chichester Harbour Conservancy state that: *The concept of carbon sinks (page 48) should be* *explored more fully in terms of coastal habitats and woodland contributing to them*.	Additional information added about carbon sinks included in Baseline Review	Baseline Review in Climatic Factors Chapter
Material Assets	The following additional policy context will need to be included: Core Strategy: CS5 Tourism CS6 Regeneration of the Borough CS11 Protecting and Enhancing the Special Environment and Heritage of Havant Borough	Policies added to context review under local planning section	Context Review in Material Assets Chapter 11

	CS15 Flood and Coastal Erosion Risk CS19 Effective Provision of Infrastructure DM15 Safeguarding Transport Infrastructure Havant Borough Local Plan (Allocations) 2014 DM20 Historic Assets HY1 Hayling Island Housing Allocations HY2 Hayling Island Mixed Use Allocations Havant Borough Local Plan Submission version (LP SV) policies: DR1 Delivering Sustainable Development in Havant Borough DR2 Regeneration KP3 Hayling Island Regeneration E13 Historic Environment and Heritage Assets C1 Protection of Existing Employment Sites C2 Tourism C7 Protection of existing community facilities and shops Development Allocations: Hayling Island H27, H28, H29, H31, H32, H33		
	Chichester Harbour Conservancy have commented: *The Conservancy would be interested to know if "material assets" includes marinas and boatyards as well as sailing clubs, which are also important features of Chichester Harbour.* These facilities / employment sites should be included in the consideration of Material Assets.	Noted. The definition of material assets for this SEA has been refined to include marinas, boat yards and sailing clubs.	Section 11 Material assets
Highways	Given the nature of Hayling Island in terms of road access being afforded by a single link to the mainland via the A3023 Havant Road, the proposals in the Hayling Island Coastal Management Strategy will lead to physical works that will impact the highway network. Transport and access considerations can impact noise, air and visual pollution particularly if traffic interrupts the free flow of traffic on the existing congested routes. The policy context will need to be included: NPPF, Hayling Island Transport Assessment (January 2019) Hayling Island Transport Assessment Addendum (January 2020). Core Strategy: CS19 Effective Provision of Infrastructure	There is likely to be an increased traffic demand, especially during construction however this can only be quantified at a more detailed scheme level. Traffic and	N/A

	CS20 Transport and Access Strategy DM12 Mitigating the Impacts of Travel Havant Borough Local Plan Submission version (LP SV) policies: IN1 Effective provision of infrastructure IN2 Improving transport Infrastructure IN3 Transport and parking in new development IN4 Access to Classified Roads E22 Amenity and pollution E23 Air quality The County Highway Authority have provided the following comments: *No highway specific matters are detailed within the report submitted. It is noted however that there is likely to be significant highway impact as a result of the proposals both in relation to the infrastructure required, the proposed locations and the management of any construction.* *Highways Development Planning are aware that the applicant has been in conversation with various highway teams at the Highway Authority. They are advised however to enter into Hampshire County Councils Pre-planning Application process to ensure a co-ordinated highway response is obtained which draws together all highway elements of the scheme.* The plans likely impact on transport and highways and the environmental impacts of the plan are therefore Scoped In.	access is therefore scoped out of this SEA on the basis appropriate assessment and construction traffic management planning will be undertaken where necessary at a scheme level.	

<u>Email 26/11/2021 14.52 from Natural England (names removed due to confidentiality)</u>

Subject: DAS A001056: Haying Island Flood Coastal and Erosion Risk Management Scheme - Queries following on from the SEA Scoping / HRA Screening consultation - Natural England

Dear xxxx

Discretionary Advice Service (Charged Advice)

DAS A001056: Haying Island Flood Coastal and Erosion Risk Management Scheme

Queries following on from the SEA Scoping / HRA Screening consultation

Thank you for your consultation on the above dated 17 June 2021.

This advice is being provided as part of Natural England's Discretionary Advice Service.

Coastal Partners (previously known as Eastern Solent Coastal Partnership) have asked Natural England to provide advice upon:

- Advice on potential impacts on designated or proposed designated sites
- Advice on Green Infrastructure and/or Priority Habitat delivery
- Advice on biological survey methodology
- Advice on Landscape(seascape)Visual Impact Assessment
- Advice on the ecological mitigation plan
- Advice on monitoring strategy
- Advice on the information for a draft Habitats Regulations Assessment

This advice is provided in accordance with the Quotation and Agreement dated 05th July 2021.

The following advice is based upon the information within the following documents.

1. HI Strategy HRA Screening Report Final; and
2. Natural England response to Hayling Island Coastal Management - Scoping Opinion

Coastal Partners seek comments on the above documents as set out in the questions provided below.

Natural England's Comments

1. Does Natural England agree with the conclusions of the HRA screening and proposed approach for the AA? I've attached a copy of the HRA screening report for ease of reference. In particular:

1. Do you agree that the Solent & Dorset Coast SPA can be screened out as no LSE? The Solent Maritime SAC and Chichester & Langstone Harbours SPA and Ramsar sites will be taken forward to stage 2 appropriate assessment.

Please ensure the justification for screening out Solent and Dorset Coast SPA also includes considerations of impacts from seaward defences such as offshore breakwaters.

2. Do you agree with the potential impact pathways identified in Section 5.2 of the HRA screening report and the TLSE screening in Section 5.3?

Natural England agrees with the potential impact pathways identified in Section 5.2 of the HRA screening report and the TLSE screening in Section 5.3

3. Do you agree with the proposed approach for the appropriate assessment, in particular the quantification of habitat losses and gains from coastal squeeze and tidal inundation (see Section 7 of the HRA screening report)?

Natural England are supportive of the Solent Dynamic Coast Project (SDCP). The SDCP was conducted 13 years ago and figures, such as sea level rise, maybe out of date. Please confirm and provide justification around these figures/SDCS outputs being up to date.

Please ensure you consider not just intertidal impacts but impacts on high tide roost and feeding areas and opportunities to deliver on these, and consideration how these ties in with the wider Solent and pressure on these sites and birds use.

2. The Natural England Scoping response (copy attached) refers to the need for a Biodiversity Mitigation and Enhancement Plan (BMEP) – please can you confirm if this is required for a plan level assessment and, if so, do you have any plan level examples as Coastal Partners has only ever produced BMEPs at the scheme/project development level in the past.

3. The Natural England Scoping response also refers to using a metric to demonstrate Biodiversity Net Gain – again do you have any examples of where a metric has been used at the plan level as Coastal Partners has only used them at a scheme/project level to date. It is very much our intention to include environmental enhancements and pursue opportunities for habitat creation to support the delivery of the Regional Habitat Compensation Programme (RHCP) within the development of the Strategy, but we are not clear how this could be 'measured' using a metric at the plan level as the detail required by the metric tools is not available until the proposed options have been designed at the scheme level.

Natural England's comments for 2. and 3. Natural England can confirm that the BMEP should be produced at the scheme/project level and that the plan/strategic level tend to have the overarching plans and policy which outline the need for detail that can come via BMEPS. Similarly, the net gain calculations, details of mitigation measures and environmental enhancement opportunities are welcomed at the scheme/project level. As such, Natural England do not have any examples of where the metric or BMEP has been used at plan level.

The BMEP should include measures for mitigating impacts on protected species and habitats and include biodiversity compensation measures for any residual biodiversity losses that cannot be fully mitigated on site. This might include the provision of offsite replacement habitats, or an agreed financial contribution for biodiversity enhancements elsewhere calculated using a Biodiversity Compensation Framework, Environment Bank, or similar mechanism. In the recent 25 Year Environment Plan, the Government has committed to making sure the existing requirements for net gain for biodiversity in national planning policy are strengthened and the current trend of biodiversity loss is halted. This approach is likely to be supported by the forthcoming planning policy guidance. Currently most developments still result in biodiversity loss. Natural England therefore advises that each development reverse this trend and deliver net gains in biodiversity."

Net gain will be also be required for this scheme and the strategy could help identify if this can be delivered on site or will have to be nearby or as part of LNRS etc. Remember it cannot enhance a designated feature this is already required under SSSI legislation and management.

Other

Natural England would also refer you to the work the Environment Agency are doing to update the saltmarsh audit around the country.

The Saltmarsh classification is composed of a number of metrics, one of which is Saltmarsh extent. In 2011 the EA undertook an inventory of Saltmarsh extent (based on data from 2006-9) and this was repeated for England in 2021 (remapping data from 2016-19).

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24 May 2021

Site Location: Hayling Island Coastal Management
Re:

1. Hayling Island Coastal Management Strategy 2120 Habitats Regulations Assessment – Screening Report (Likely Significant Effects)

2. Hayling Island Coastal Management Strategy Strategic Environmental Assessment Scoping Report January 2021 - Scoping Opinion under Environmental Assessment of Plans and Programmes Regulations 2004 (the Strategic Environmental Assessment Regulations)

Dear Mr Rowsell

I am writing to you further to your enquiry received on the 24 February 2021 regarding the above address, an extension of time for the scoping was subsequently agreed until the 24th May 2021.

1. **Hayling Island Coastal Management Strategy 2120 Habitats Regulations Assessment – Screening Report (Likely Significant Effects)**

Proposal

As the Strategy is currently only at the start of the option appraisal stage, the HRA presented here is limited to Stage 1 of the HRA process (Screening and Test of Likely Significant Effect).

In screening the Hayling Island Coastal Management Strategy there are two steps:

The first step is the 'Management Test' to determine whether or not the plan is directly connected with or necessary to site management for nature conservation.

The second step in this stage is the 'Test of Likely Significant Effect (TLSE)', which determines whether the plan is likely to have a significant effect on the internationally important interest features of the European sites, either alone or in combination with other plans and projects.

Management Test

The management test is set out at 5.1 of the Hayling Island Coastal Management Strategy 2120 Habitats Regulations Assessment – Screening Report (Likely Significant Effects). This states:

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

Havant Borough Council confirm that The Strategy is not is directly connected with or necessary to site management for nature conservation and further assessment under the Habitats Regulations is therefore required.

Test of Likely Significant Effect

The Strategy relates to the future management of coastal flood and erosion risk on Hayling Island, including the effects of climate change, over the next 100 years.

Designated sites
Both Langstone Harbour, to the west, and Chichester Harbour, to the east of Hayling Island are nationally and internationally designated for their environmental significance. Designations include:

• Solent Maritime Special Area of Conservation (SAC)
• Solent and Isle of Wight Lagoons SAC
• Chichester and Langstone Harbours Special Protection Area (SPA)
• Solent and Dorset Coast SPA
• Chichester and Langstone Harbours Ramsar site
• Chichester Harbour Site of Special Scientific Interest (SSSI)
• Langstone Harbour SSSI
• Warblington Meadows SSSI
• Sinah Common SSSI
• Chichester Harbour Area of Outstanding Natural Beauty (AONB)

Characteristics and potential impact:

- Littoral and supralittoral habitat loss and/or gain – Coastal Squeeze, Direct Loss, creation of littoral habitats
- Loss of lowland coastal grazing marsh, freshwater habitats and/or arable farmland – tidal inundation
- Subtidal habitat loss – direct loss
- Barrier to species movement – physical obstruction to species movements
- Recreational disturbance arising from changes in the coastline and access routes
- Changes to coastal processes (water flows, wave exposure, sediment transport and/or emergence regime – impacts on water flows, sediment transport and erosion/accretion patterns, changes to local geomorphology, water levels and therefore emergence regime within the estuary
- Erosion, flooding or disturbance of potentially contaminated land – potentially contaminated infill
- Disturbance of habitats and/or species during construction of preferred management options and measures (i.e. schemes) – Physical disturbance of habitat, visual and/or acoustic disturbance, underwater noise, changes to water clarity (suspended sediment concentrations) and/or smothering/siltation rates and associated deoxygenation effects
- Low risk pressures (impact pathways)

Likely significant effects have been identified to the following designated sites:

- Chichester and Langstone Harbours SPA and Ramsar site
- Solent Maritime SAC

Conclusion:

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

The proposed plan would have a potentially significant impact on (but not limited to) Habitat/Biodiversity, Archaeology, the Historic Environment, Landscape and Visual receptors, Population and Human Health, Soil, Water, Air, Climatic Factors, Material Assets and Highways.

In coming to these conclusions, the consultation responses received from Environmental Health, County Archaeologist, Historic England, Natural England, HBC Ecologist, Chichester Harbour Conservancy, and others have all been taken into account.

2. **Hayling Island Coastal Management Strategy Strategic Environmental Assessment Scoping Report January 2021 - Scoping Opinion under Environmental Assessment of Plans and Programmes Regulations 2004 (the Strategic Environmental Assessment Regulations)**

Proposal

Hayling Island Coastal Management Strategy Strategic Environmental Assessment - Scoping Report January 2021

The requirement for a Strategic Environmental Assessment (SEA) arises from the Environmental Assessment of Plans and Programmes Regulations 2004 (the SEA Regulations). A SEA is undertaken to identify the likely significant effects that plans, programmes and strategies may have on the environment, and therefore increase the consideration of environmental issues in the decision-making process.

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

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 sit at the top of the hierarchy of plans for managing coastal flooding and erosion. A Shoreline Management Plan (SMP) is a high-level non-statutory planning document which provides a large-scale assessment of the risks associated with coastal processes and presents a long-term policy framework to reduce these risks to people and the developed, historic and natural environment in a sustainable manner. The North Solent SMP was adopted by HBC in 2010 and recommended the need to develop a Coastal Strategy for the Hayling Island coastline (NFDC, 2010).

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

This scoping relates to the Hayling Island Coastal Management Strategy stage.

Scoping

The submitted Scoping Report sets out the scope for undertaking the SEA for the Hayling Island Coastal Management Strategy. This includes the policy context, baseline information, key issues and SEA framework that will be used to appraise the Strategy.

The report includes the following key SEA themes:

- Biodiversity
- Historic Environment
- Landscape
- Population and Human Health
- Soil
- Water
- Air
- Climatic Factors
- Material Assets

In considering the scoping requirements for the SEA Havant Borough Council have carried out extensive consultation with internal and external consultees including with the statutory consultees (Environment Agency, Historic England and Natural England).

The following comments in relation to screening are set pout under the key SEA themes and incorporate where appropriate comments from consultees. Copies of consultee responses have also been forwarded to the Coastal Partners and any further comments received will be forwarded as appropriate.

Designated sites
Both Langstone Harbour, to the west, and Chichester Harbour, to the east of Hayling Island are nationally and internationally designated for their environmental significance. Designations include:

• Solent Maritime Special Area of Conservation (SAC)
• Solent and Isle of Wight Lagoons SAC
• Chichester and Langstone Harbours Special Protection Area (SPA)
• Solent and Dorset Coast SPA
• Chichester and Langstone Harbours Ramsar site
• Chichester Harbour Site of Special Scientific Interest (SSSI)
• Langstone Harbour SSSI
• Warblington Meadows SSSI
• Sinah Common SSSI
• Chichester Harbour Area of Outstanding Natural Beauty (AONB)

Overarching Comments in relation to policy background

It is noted that the Scoping Opinion Report submitted references a previous version of the emerging Havant Borough Local Plan. The most up to date version is the Submission Havant Borough Local Plan (https://www.havant.gov.uk/local-plan-examination). As a consequence, new policies such as 'EX1 Water Quality impact on the Solent European Sites' are not referenced within the document, and the scoping opinion report may contain information which is no longer relevant. Also the data and information used from the Solent Waders and Brent Goose Strategy is now out of date; the updated strategy and data is now published and available to view on-line (https://solentwbgs.wordpress.com/page-2/).

The SEA will need to ensure that the report is assessing the most up to date information and evidence to ensure compliance with the emerging local plan and other strategies.

It should be noted that the Local Plan will change status again through the course of its ongoing examination. It is expected that adoption of the final version will take place at the end of 2021 or early 2022.

Chichester Harbour Conservancy have referenced their Sustainable Shorelines guidance which should be acknowledged / referenced as appropriate in the SEA.

Northney and Tye Village Design Statement should be referenced in the SEA and provides a useful description of locally distinctive features of that part of Hayling Island.

Biodiversity

Policy Context

In addition to the policies identified the following policies have an impact on Biodiversity and need to be considered:

Havant Borough Local Plan (Core Strategy) 2011 policies:

CS12 Chichester Harbour Area of Outstanding Natural Beauty (AONB),
CS15 Flood and Coastal Erosion Risk,
DM8 Conservation, Protection and Enhancement of Existing Natural Features,
DM9 Development in the Coastal Zone and DM10 Pollution.

Havant Borough Local Plan (Allocations) 2014:

DM23 Sites for Brent Geese and Waders

Havant Borough Local Plan Submission version (LP SV) policies:

E1 High Quality Design
E4 Development on the Coast
E5 Chichester Harbour Area of Outstanding Natural Beauty
EX1 Water Quality Impact on the Solent European Sites
E18 Trees, hedgerows and woodland
E22 Amenity and pollution
E24 Contamination

As above an updated Solent Waders and Brent Goose Strategy will need to be referenced.

Key Issues identified through Consultation responses

The Council's Ecologist has provided the following comments:

I would be particularly interested in an assessment of the potential implications for terrestrial SPA/Ramsar supporting habitat (functionally-linked land). The Scoping Reports mention that in some locations, where some form of 'managed retreat' may be an option, there may be direct loss of terrestrial supporting habitat such as coastal grassland or other farmland. This may well have implications for important areas of supporting habitat (e.g. the potential establishment of permanent terrestrial bird refuges) and require compensatory measures to ensure continuity of terrestrial habitat for SPA/Ramsar bird species in accordance with the Solent Waders & Brent Goose Strategy.

The Environment Agency have confirmed - *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.*

Natural England state that:

Sites on Hayling Island also provide important feeding and roosting areas for over-wintering and passage birds (as shown in the Solent Waders and Brent Goose Strategy (SWBGS)) and, as such, are considered functionally linked land to the SPAs and Ramsar sites. Detailed consideration of these sites within the SEA/HRA is required with respect to land take and disturbance and we recommend that you seek further information from the Hampshire Biodiversity Information Centre and other appropriate bodies to supplement surveys.

Natural England would be happy to advise further on mitigation and offsetting requirements through our Discretionary Advice Service as the Management Strategy is developed.
For the purposes of the Habitats Regulations Assessment, Natural England advises that these areas of functionally-linked land, together with other habitats that provide a supporting role, are assessed in a manner consistent with designated supporting habitat.

An island wide Strategic Environmental Assessment, Habitat Regulations Assessment or Water Framework Directive Assessment should set out how the impacts of any future FCERM works on these important habitats and sites are taken into consideration and fully integrated into the development of an FCERM strategy. Assessments should also set out how any habitat creation schemes will contribute to the Regional Habitat Compensation Programme.

Biodiversity Mitigation and Enhancement

In order to secure appropriate biodiversity mitigation and enhancements Natural England recommends that the strategy is supported by a Biodiversity Mitigation and Enhancement Plan (BMEP). The BMEP should include measures for mitigating impacts on protected species and habitats and include biodiversity compensation measures for any residual biodiversity losses that cannot be fully mitigated on site. This might include the provision of offsite replacement habitats, or an agreed financial contribution for biodiversity enhancements elsewhere calculated using a Biodiversity Compensation Framework, Environment Bank, or similar mechanism.

In the recent 25 Year Environment Plan, the Government has committed to making sure the existing requirements for net gain for biodiversity in national planning policy are strengthened and the current trend of biodiversity loss is halted. This approach is likely to be supported by the forthcoming planning policy guidance. Currently most developments still result in biodiversity loss. Natural England therefore advises that each development reverse this trend and deliver net gains in biodiversity.

Natural England strongly recommends that this strategy achieves a net gain for biodiversity and we advise that a biodiversity metric is used that would be relevant to each local authority. This approach would ensure that your authority will have met its duties under Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006 which states that 'Every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity.

Where residual biodiversity losses are considered unavoidable, Natural England recommends that further advice on these aspects is sought through our Discretionary Advice Service (DAS). Further information on the DAS service and how to apply can be found here: https://www.gov.uk/guidance/developers-get-environmental-advice-on-your-planning-proposals

Cumulative and in-combination effects

A full consideration of the implications of the whole scheme should be undertaken. All supporting infrastructure should be included within the assessment.
Assessments should include an impact assessment to identify, describe and evaluate the effects that are likely to result from the project in combination with other projects and activities that are being, have been or will be carried out. The following types of projects should be included in such an assessment, (subject to available information):
a. existing completed projects;
b. approved but uncompleted projects;
c. ongoing activities;
d. plans or projects for which an application has been made and which are under consideration by the consenting authorities; and
e. plans and projects which are reasonably foreseeable, i.e. projects for which an application has not yet been submitted, but which are likely to progress before completion of the development and for which sufficient information is available to assess the likelihood of cumulative and in combination effects.

Natural England would advise that the cumulative impacts section should also consider impacts on ecologically sensitive receptors such as designated sites, non-designated sites, priority habitats and species, protected species etc. In relation to point e, Natural England would advise consideration of forthcoming planning applications in close proximity to the areas covered by this strategy, where there are potential impacts on key ecological interests.

Impacts on Bio-Diversity are therefore **Scoped In** as set out in your Scoping Report as amended by the above comments.

Historic Environment

Policy Context

Historic England have provided the following comments in relation to the policy context:

We recommend a wider set of plans, policies and programmes are considered as part of the SEA and that some additional baseline information is included.

International
- *UNESCO World Heritage Convention*
- *European Landscape Convention*
- *The Convention for the Protection of the Architectural Heritage of Europe*
- *The European Convention on the Protection of Archaeological Heritage*

National
• *Protection of Wrecks Act 1973*
• *Ancient Monuments & Archaeological Areas Act 1979*
• *Planning (Listed Buildings & Conservation Areas) Act 1990* (referenced)
• *Marine and Coastal Areas Access Act 2009*
• *National Planning Policy Framework 2019* (referenced)
• *Planning Practice Guidance*

Local
• *Local plans*
• *Historic environment records*
• *AONB management plans*
• *Heritage/conservation strategies*
• *Other strategies (e.g. cultural or tourism)*
• *Conservation area character appraisals and management plans*
• *Listed building heritage partnership agreements*

The following additional policies need to be considered:

Core Strategy

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

Havant Borough Local Plan (Allocations) 2014

DM20 Historic Assets

Baseline Review

Historic England state:

In additional to the conservation areas already identified, we recommend that you include Warblington and Emsworth conservation areas. We also recommend that Fort Cumberland is added to the baseline information, as development within its setting could negatively affect its significance. Fort Cumberland's setting will extend across to Hayling Island. (these comments are supported by the Council's Heritage Team)

While no designated archaeological assets have been identified, this does not mean that they do not exist. Archaeology is frequently uncovered during development and it is important that sufficient research and investigation is carried out prior to development as part of proposals. NPPF footnote 63 states: "Non-designated heritage assets of archaeological interest, which are demonstrably of equivalent significance to scheduled monuments, should be considered subject to the policies for designated heritage assets." This serves to illustrate the protection that as yet unrecorded archaeology is afforded. (Further comments on Archaeology are provided by the County Archaeologist under key issues).

Key Issues identified through Consultation process

Historic England state:

We would suggest that the anticipated form of development is incorporated into this section. This helps the key sustainability issues to be more realistic. P8 of the scoping report states that the Coastal Management Strategy will identify measures (schemes) to implement the North Solent Shoreline Management Plan policies. The North Solent Shoreline Management Plan policies that apply to Hayling Island are broadly, to hold the line. In order to achieve this, we presume that the

schemes/measures that the Hayling Island Coastal Management Strategy will recommend include physical interventions, such as sea walls, revetments, rock armour, groynes, gabions or offshore reefs. These types of interventions could cause harm to the significance of heritage assets, for example through physical impacts on buried or above ground archaeology, physical impacts on designated or non designated buildings or other structures or harm to the significance of heritage assets through development in their settings. We suggest this section is written to anticipate, as far as can be done at this point, a more realistic set of impacts on the historic environment.

HBC Heritage team state:

In terms of the key sustainability issues it is my view that any anticipated forms of development should be incorporated into this section. The North Solent Shoreline Management Plan policies that apply to Hayling Island are broadly, to hold the line. In order to achieve this, I would assume that physical interventions such as sea walls, revetments, rock armour, groynes, gabions etc. would be required. These types of interventions cam cause harm to the significance of heritage assets through physical change or development in their settings.

The County Archaeologist states:

The key reasons for my hesitancy lies in paragraph 4.3 which states that as the two scheduled monuments (Tournebury Hillfort and Sinah Common) are not in the coastal zone they will not be impacted by the strategy. However I have in the past been consulted regarding a study that showed predicted future high water level combined with storm surge would see some outer elements of Tournebury hillfort inundated. Whilst the scheduled monument may lie outside any coastal defence construction zone Tournebury will be impacted by coastal change and therefore will be affected (protected or sacrificed) by whichever strategy is pursued. Sinah Common is also close to the sea edge and low lying and I imagine the same would be true for that (but I have not seen a study to that effect).

The construction phase of whatever strategy is adopted will have historic environment impacts. Para 4.2.2 is weak in its articulation of the heritage assets associated with Hayling Island, describing 'several' non designated heritage assets and carrying an implication that these might be predominantly Second World War pillboxes. Para 4.3 more helpfully acknowledges that Hayling Island has a 'wealth' of non-designated heritage assets. Para 4.3 is a more accurate summary than that in para 4.2.2. I would also point out that the Langstone Harbour archaeological survey, which placed the many archaeological discoveries of the harbour edge into context, does suggest a very high archaeological potential for as yet undiscovered archaeological sites at the harbour shoreline, particularly of prehistoric date.

<u>SEA Objectives</u>

English Heritage state:

We support the SEA objective in relation to the historic environment as set out. We recommend the assessment questions are amended as below, in order to use the language of the NPPF and for the avoidance of doubt as to meanings. We also recommend reference to Hayling Island is avoided because while any development will be located on or around Hayling Island, impacts on the historic environment can be felt much more widely:

Will the option
• Conserve or enhance the existing character and significance setting of designated heritage features assets including their settings conservations areas, listed buildings and Scheduled Monuments within and surrounding Hayling Island?
• Conserve or enhance the existing character and setting significance of non-designated heritage features assets including their settings local archaeological remains, local listed buildings and historical assets on Hayling Island?

We think it is important to have two separate questions for designated and non-designated assets, as set out, because the NPPF deals with these quite differently.

Historic England provide further comments:

Decision-making criteria to evaluate the impact of the plan
We note that detailed decision-making criteria are not included within the framework. This is of some concern as the use of inappropriate criteria can easily render a framework at worst meaningless or more often, impacts can be overlooked. We strongly recommend that you do not assess impact through the use of geographical information systems and a set of buffers. Such an approach is likely to miss impacts, for example from long-range views, or paint an inaccurate picture, for example where two options are similarly distant from a heritage asset, but one is visible and the other is hidden. We would advocate the use of an appropriate heritage specialist to assess impacts. Indeed, it is our contention that accurate results can only be obtained in this way.

These comments are supported by HBC Conservation Team.

Finally, the County Archaeologist states in relation to References and Sources of Information:

it might be prudent to include the Historic Environment Record as a source within Para 4.5, as the 'wealth' of heritage assets associated with Hayling Island and it's coast are recorded there.

Impacts on the Historic Environment are therefore **Scoped In** as set out in your Scoping Report and as amended by the above comments.

Landscape

Policy Context

The following additional policy context will need to be included:

Chichester Harbour Management Plan

Core Strategy:

CS11 Protecting and Enhancing the Special Environment and Heritage of Havant Borough
CS12 Chichester Harbour Area of Outstanding Natural Beauty (AONB)
CS16 High Quality Design
DM8 Conservation, Protection and Enhancement of Existing Natural Features
DM9 Development in the Coastal Zone

Havant Borough Local Plan Submission version (LP SV) policies:

E1 High Quality Design

The following comments have been received from Natural England

The landscape and visual assessment should also include the cumulative effect of the strategy with other relevant existing or proposed developments in the area. In this context Natural England advises that the cumulative impact assessment should include other proposals currently at Scoping stage due to the overlapping timescale of their progress through the planning system.

Impacts on Landscape are therefore **Scoped In** as set out in your Scoping Report and as amended by the above comments.

Population and Human Health

Policy Context

The following additional policy context will need to be included:

Core Strategy:

CS15 Flood and Erosion Risk
DM10 Pollution

Havant Borough Local Plan (Allocations) 2014

DM17 Contaminated Land
DM18 Protecting new development from pollution

Havant Borough Local Plan Submission version (LP SV) policies:

E19 Managing flood risk in new development
E22 Amenity and Pollution
E24 Contamination

Baseline Review

Chichester Harbour Conservancy comment on the issues of coastal realignment and potential for impacts on historic landfill sites and their comments should be considered as part of the assessment. Particular attention is drawn to the Yachthaven site.

Key Issues

The Council's Environmental Control Officer notes that the release of contaminants is a risk to human health under the scope of the 'Population & Human Health' assessment although this notwithstanding, contamination is principally considered under section 7 (Soils). It is important to provide details of links to Human Health.

SEA Objectives and Assessment Questions

Hampshire County Council Public Health welcome the identified questions and agree that flooding has devastating effects on community and mental health. We also are strongly aligned with the need to protect and enhance green, blue and recreational spaces, both formal and informal, as these are instrumental for good physical and mental health. We also welcome management of protection of access and land for resident wellbeing, to insulate from the effects of noise, odour and other features which make places unattractive.

They also welcome prioritisation of future network development on the island for pedestrians, cyclists and other forms of active travel, over road vehicles. This will make Hayling Island more health promoting with the co-benefit of reducing fossil fuel emissions contributing to pollution and climate change.

References and Sources of Information

HCC Public Health make reference to Public Health England Spatial Planning for Health 2017 which can be viewed at the following web address:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/729727/spatial_planning_for_health.pdf

This document will need to be referenced.

Impacts on Population and Human Health are therefore **Scoped In** as set out in your Scoping Report and as amended by the above comments.

Soil

The following additional policy context will need to be included:

Core Strategy:

DM8 Conservation, Protection and Enhancement of Existing Natural Features
DM10 Pollution

Havant Borough Local Plan (Allocations) 2014

DM17 Contaminated Land
DM18 Protecting new development from Pollution

Havant Borough Local Plan Submission version (LP SV) policies:

E6 Best and most versatile Agricultural Land
E22 Amenity and Pollution

SEA Objectives and Assessment Questions

The Council's Environmental Control Officer comments that:

Paragraph 7.4 outlines an SEA Objective to 'protect potentially contaminated land…' from 'coastal erosion'; and poses the SEA question *'Will the option/proposal help to: Protect historic landfill sites from flooding and/or erosion, in particular sites which have been identified as potential sources of significant contamination?'* (contamination scoped-in). The scoping report acknowledges that further assessment is required aim – to prevent increase in risk, where possible to 'improve baseline [conditions]'.

Impacts on Soil are therefore **Scoped In** as set out in your Scoping Report and as amended by the above comments.

Water

The following additional policy context will need to be included:

Core Strategy:

CS5 Tourism
CS11 Protecting and Enhancing the Special Environment and Heritage of Havant Borough
CS12 Chichester Harbour Area of Outstanding Natural Beauty
CS15 Flood and Erosion risk
DM8 Conservation, Protection and Enhancement of Existing Natural Features
DM9 Development in the Coastal Zone
DM10 Pollution

Havant Borough Local Plan (Allocations) 2014

AL4 Coastal Management Areas
DM17 Contaminated Land
DM18 Protecting new development from Pollution

Havant Borough Local Plan Submission version (LP SV) policies:

E1 High Quality Design
E5 Chichester Harbour Area of Outstanding Natural Beauty
E15 Protected Species
E19 Managing flood risk in new developments
E20 Drainage Infrastructure in new development
E22 Amenity and Pollution
E24 Contamination

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.*

Southern Water highlight the existence of public apparatus within the proposed plan area and requirements for the detailed proposals stage.

SEA Objectives and Assessment Questions

The Council's Environmental Control Officer comments that: *Contamination is not specifically mentioned within section 8 (Water), and I would simply highlight that actions to address the SEA Objective & Questions described above for soils will equally contribute toward the section 8 SEA Objective to 'Protect and improve the water environment', and so to the SEA question of whether the option/proposal help to 'comply with the Water Framework Directive and contribute to enhancing the status of water bodies?'.*

The impacts of contaminated sites should therefore be assessed in relation to Water.

The Marine Management Organisation provide detailed comments, and these have been forwarded to you separately, it is also understood that direct consultation / discussion is taking place with the MMO. Their input is considered critical to the impacts on water quality from the plan on the Harbour and Sea environments including impacts on fisheries.

The MMO have confirmed that: *any works within the Marine area require a licence from the Marine Management Organisation. It is down to the applicant themselves to take the necessary steps to ascertain whether their works will fall below the Mean High Water Springs mark.*

The Marine Management Organisation (MMO) is a non-departmental public body responsible for the management of England's marine area on behalf of the UK government. The MMO's delivery functions are; marine planning, marine licensing, wildlife licensing and enforcement, marine protected area management, marine emergencies, fisheries management and issuing European grants.

Further detailed comments are provided in relation to Environmental Impact and links to MMO requirements, Marine Plans. The SEA should make reference to Marine Plans and demonstrate how they are taken into account.

Impacts on Water are therefore **Scoped In** as set out in your Scoping Report and as amended by the above comments.

Air

The following additional policy context will need to be included:

Core Strategy:

DM10 Pollution
DM12 Mitigating the Impacts of Travel

Havant Borough Local Plan (Allocations) 2014

DM18 Protecting new development from pollution

Havant Borough Local Plan Submission version (LP SV) policies:

E23 Air Quality

The Council's Environmental Control Officer states: *The scoping report proposes that impacts on local Air Quality are scoped out. I would broadly agree that the strategy is only likely to have temporary construction effects. However, it is possible that significant construction activities can have significant effects on air quality that would be relevant to human health. If the authors consider it likely that the projects falling under the strategy are likely to result in a +100 change in HDV flows at any sensitive location (on an AADT basis), either air quality should be scoped in, or scoped out on the basis of assessment & construction traffic management planning.*

Key locations would be expected to be represented by residential property within 5m of the kerbside of the A3023 route. Overall traffic demand (averaged over a year) will be the critical factor for screening purposes.

Hampshire Public Health state: *We are pleased to see that the Strategy is unlikely to have a significant impact on the air quality of Hayling Island. Any minor increase in fuel emissions / dust during the construction phase will be controlled and managed by good site practise outlined in the Construction Environmental Management Plan.*

Given the above comments from Environmental Control, it is **not possible at this stage to screen out** air quality impacts. They are therefore **Scoped In**.

Climatic Factors

The following additional policy context will need to be included:

Core Strategy:

CS11 Protecting and Enhancing the Special Environment and Heritage of Havant Borough
CS15 Flood Rik and Coastal Erosion
DM12 Mitigating the Impacts of Travel

Havant Borough Local Plan Submission version (LP SV) policies:

E18 Trees, hedgerows and woodland

Baseline Review

Chichester Harbour Conservancy state that: *The concept of carbon sinks (page 48) should be explored more fully in terms of coastal habitats and woodland contributing to them*.

Impacts on Climatic Factors are therefore **Scoped In** as set out in your Scoping Report and as amended by the above comments.

Material Assets

The following additional policy context will need to be included:

Core Strategy:

CS5 Tourism
CS6 Regeneration of the Borough
CS11 Protecting and Enhancing the Special Environment and Heritage of Havant Borough
CS15 Flood and Coastal Erosion Risk
CS19 Effective Provision of Infrastructure
DM15 Safeguarding Transport Infrastructure

Havant Borough Local Plan (Allocations) 2014

DM20 Historic Assets
HY1 Hayling Island Housing Allocations
HY2 Hayling Island Mixed Use Allocations

Havant Borough Local Plan Submission version (LP SV) policies:

DR1 Delivering Sustainable Development in Havant Borough
DR2 Regeneration
KP3 Hayling Island Regeneration
E13 Historic Environment and Heritage Assets
C1 Protection of Existing Employment Sites
C2 Tourism
C7 Protection of existing community facilities and shops
Development Allocations: Hayling Island H27, H28, H29, H31, H32, H33.

Chichester Harbour Conservancy have commented: *The Conservancy would be interested to know if "material assets" includes marinas and boatyards as well as sailing clubs, which are also important features of Chichester Harbour.*

These facilities / employment sites should be included in the consideration of Material Assets.

Impacts on Material Assets are therefore **Scoped In** as set out in your Scoping Report and as amended by the above comments.

Other Matters:

Highways:

Given the nature of Hayling Island in terms of road access being afforded by a single link to the mainland via the A3023 Havant Road, the proposals in the Hayling Island Coastal Management Strategy will lead to physical works that will impact the highway network. Transport and access considerations can impact noise, air and visual pollution particularly if traffic interrupts the free flow of traffic on the existing congested routes.

The policy context will need to be included:

NPPF, Hayling Island Transport Assessment (January 2019) Hayling Island Transport Assessment Addendum (January 2020).

Core Strategy:

CS19 Effective Provision of Infrastructure
CS20 Transport and Access Strategy
DM12 Mitigating the Impacts of Travel

Havant Borough Local Plan Submission version (LP SV) policies:

IN1 Effective provision of infrastructure
IN2 Improving transport Infrastructure
IN3 Transport and parking in new development
IN4 Access to Classified Roads
E22 Amenity and pollution
E23 Air quality

The County Highway Authority have provided the following comments:

No highway specific matters are detailed within the report submitted. It is noted however that there is likely to be significant highway impact as a result of the proposals both in relation to the infrastructure required, the proposed locations and the management of any construction.

Highways Development Planning are aware that the applicant has been in conversation with various highway teams at the Highway Authority. They are advised however to enter into Hampshire County Councils Pre-planning Application process to ensure a co-ordinated highway response is obtained which draws together all highway elements of the scheme.

The plans likely impact on transport and highways and the environmental impacts of the plan are therefore **Scoped In**.

Conclusions

In conclusion and in summary taking into account The Strategy's scale, nature and location, associated proposed assessments to accompany a planning application and likely mitigation measures it is anticipated it will result in significant environmental effects. Therefore, the Local Planning Authority considers that Hayling Island Coastal Management Strategy for Hayling Island requires a **SEA**. The topics and pathways proposed for further assessment under the SEA as summarised in Tables 5.5 and 5.6 are agreed, with consideration also to be given to the matters set out above. Further, it is considered that in accordance with the Conservation of Habitats and Species Regulations 2017 an **Appropriate Assessment as part of the**

Habitats Regulations Assessment process should be conducted due to the likely significant effects upon Chichester and Langstone Harbours Special Protection Area (SPA) and Ramsar site and the Solent Maritime SAC, and their functionally linked land.

I trust that the contents of this opinion are clear, but please do not hesitate to contact me if you require any clarification.

This letter should be taken as the local planning authority's scoping opinion under the Regulations.

Yours sincerely

Simon Jenkins
Director of Regeneration and Place
Havant Borough Council and East Hampshire District Council

Further Advice received:

The following Comments in relation to HRA have been provided by the Council's **Environmental Control Officer**:

Habitats Regulations Assessment – Contamination

Paragraph 5.1 of the HRA scoping report (Management Test) recognises that a *'failure to maintain the defences along some parts of the Hayling Island coastline could result in uncontrolled pollution incidents from the potentially contaminated land they protect'*. I would agree with this assessment.

Paragraph 5.2.7 acknowledges that a 'do minimum' scenario may result in significant effects arising, indicating that contamination could be adequately *'managed via comprehensive ground investigations and contaminated land / waste management plans at the scheme level'*. On the basis of an assumption that the strategy 'preferred options' proceed under a 'do something' scenario, contamination is scoped out of the report as a 'significant effect'.

This is reflected in Tables 5.5 & 5.6, which both state that that Contamination will *'only have a likely significant effect on SAC features and sub-features if a no active intervention (do nothing) option'*

The text in the notes section which follows the above-quoted statement implies that the 'do minimum' option is considered to be sufficient to maintain the adverse impacts below the threshold of significance (i.e. may be considered to result in effects no worse than 'acceptable deterioration').

I would agree that this is a likely scenario, however I am not aware that sufficient work has been undertaken to justify relying upon the implied conceptual site model to scope the matter out of the HRA on the basis of 'no significance'. The implied conclusion is necessarily based upon an assumption that the actual ground conditions are as the desk based information would indicate is likely (this is unconfirmed), and that the 'do minimum' scenario will not result in a significant release (e.g. via a significant storm erosion event).

I would agree that contamination can be adequately managed at the scheme level (as quote above) in relation to construction risks – however to rely upon this would presupposes that 'comprehensive ground investigations' form part of the 'do minimum' scenario. Comprehensive investigation might materially alter the strategy (e.g. show that 'do minimum' might result in a significant effect without either proactive remediation or a 'do something' scheme be implemented to address risks as a secondary function of a coastal protection enhancement.

In this way, it is possible that contamination would be more appropriately remain 'scoped in' to the environmental assessment which is shaping the development of the strategy. This may not be necessary if the 'do minimum' scenario includes both the 'comprehensive (contamination) assessment' & implementation of a 'scheme of risk mitigation' to reduce contamination risks to acceptable levels.

Where the strategy 'do minimum' scenario excludes both these elements, I would suggest that we have insufficient information to scope out contamination (significant effects could occur over relatively small geographic areas, and sources & receptors could in principle be located proximally, making significant effects more likely).

Comments received from MMO

Marine Licensing, Wildlife Licences and other permissions

Dear Sir/Madam,

Please be aware that any works within the Marine area require a licence from the Marine Management Organisation. It is down to the applicant themselves to take the necessary steps to ascertain whether their works will fall below the Mean High Water Springs mark.

Response to your consultation

The Marine Management Organisation (MMO) is a non-departmental public body responsible for the management of England's marine area on behalf of the UK government. The MMO's delivery functions are; marine planning, marine licensing, wildlife licensing and enforcement, marine protected area management, marine emergencies, fisheries management and issuing European grants.

Marine Licensing

Works activities taking place below the mean high water mark may require a marine licence in accordance with the Marine and Coastal Access Act (MCAA) 2009.

Such activities include the construction, alteration or improvement of any works, dredging, or a deposit or removal of a substance or object below the mean high water springs mark or in any tidal river to the extent of the tidal influence.

Applicants should be directed to the MMO's online portal to register for an application for marine licence

https://www.gov.uk/guidance/make-a-marine-licence-application

You can also apply to the MMO for consent under the Electricity Act 1989 (as amended) for offshore generating stations between 1 and 100 megawatts in English waters.

The MMO is also the authority responsible for processing and determining Harbour Orders in England, together with granting consent under various local Acts and orders regarding harbours.

A wildlife licence is also required for activities that that would affect a UK or European protected marine species.

The MMO is a signatory to the coastal concordat and operates in accordance with its principles. Should the activities subject to planning permission meet the above criteria then the applicant should be directed to the follow pages: check if you need a marine licence and asked to quote the following information on any resultant marine licence application:

- local planning authority name,
- planning officer name and contact details,
- planning application reference.

Following submission of a marine licence application a case team will be in touch with the relevant planning officer to discuss next steps.

Environmental Impact Assessment

With respect to projects that require a marine licence the EIA Directive (codified in Directive 2011/92/EU) is transposed into UK law by the Marine Works (Environmental Impact Assessment) Regulations 2007 (the MWR), as amended. Before a marine licence can be granted for projects that require EIA, MMO must ensure that applications for a marine licence are compliant with the MWR.

In cases where a project requires both a marine licence and terrestrial planning permission, both the MWR and The Town and Country Planning (Environmental Impact Assessment) Regulations http://www.legislation.gov.uk/uksi/2017/571/contents/made may be applicable.

If this consultation request relates to a project capable of falling within either set of EIA regulations, then it is advised that the applicant submit a request directly to the MMO to ensure any requirements under the MWR are considered adequately at the following link

https://www.gov.uk/guidance/make-a-marine-licence-application

Marine Planning

Under the Marine and Coastal Access Act 2009 ch.4, 58, public authorities must make decisions in accordance with marine policy documents and if it takes a decision that is against these policies it must state its reasons. MMO as such are responsible for implementing the relevant Marine Plans for their area, through existing regulatory and decision-making processes.

Marine plans will inform and guide decision makers on development in marine and coastal areas. Proposals should conform with all relevant policies, taking account of economic, environmental and social considerations. Marine plans are a statutory consideration for public authorities with decision making functions.

At its landward extent, a marine plan will apply up to the mean high water springs mark, which includes the tidal extent of any rivers. As marine plan boundaries extend up to the level of the mean high water spring tides mark, there will be an overlap with terrestrial plans which generally extend to the mean low water springs mark.

A map showing how England's waters have been split into 6 marine plan areas is available on our website. For further information on how to apply the marine plans please visit our Explore Marine Plans service.

Planning documents for areas with a coastal influence may wish to make reference to the MMO's licensing requirements and any relevant marine plans to ensure that necessary regulations are adhered to. All public authorities taking authorisation or enforcement decisions that affect or might affect the UK marine area must do so in accordance with the Marine and Coastal Access Act and the UK Marine Policy Statement unless relevant considerations indicate otherwise. Local authorities may also wish to refer to our online guidance and the Planning Advisory Service soundness self-assessment checklist. If you wish to contact your local marine planning officer you can find their details on our gov.uk page.

Minerals and waste plans and local aggregate assessments

If you are consulting on a mineral/waste plan or local aggregate assessment, the MMO recommend reference to marine aggregates is included and reference to be made to the documents below;

- The Marine Policy Statement (MPS), section 3.5 which highlights the importance of marine aggregates and its supply to England's (and the UK) construction industry.
- The National Planning Policy Framework (NPPF) which sets out policies for national (England) construction minerals supply.
- The Managed Aggregate Supply System (MASS) which includes specific references to the role of marine aggregates in the wider portfolio of supply.
- The National and regional guidelines for aggregates provision in England 2005-2020 predict likely aggregate demand over this period including marine supply.

The NPPF informed MASS guidance requires local mineral planning authorities to prepare Local Aggregate Assessments, these assessments have to consider the opportunities and constraints of all mineral supplies into their planning regions – including marine. This means that even land-locked counties, may have to consider the role that marine sourced supplies (delivered by rail or river) play – particularly where land based resources are becoming increasingly constrained.

If you require further guidance on the Marine Licencing process, please follow the link https://www.gov.uk/topic/planning-development/marine-licences

Regards
Andy

Comments received from Historic England:

Hayling Island Coastal Management Plan Strategic Environmental Assessment Scoping Report

Thank you for inviting Historic England to comment on the above document. As the government's adviser on the historic environment, Historic England is keen to ensure that protection of the historic environment is fully taken into account at all levels and stages of the local planning process.

We recommend a wider set of plans, policies and programmes are considered as part of the SEA and that some additional baseline information is included. We also suggest that key sustainability issues are couched in terms of the likely form or forms of development that the plan will facilitate, and we recommend that heritage specialists are used in the assessment, instead of using GIS and buffers.

Relevant Plans, Policies and Programmes

We recommend considering the following:

International

- UNESCO World Heritage Convention
- European Landscape Convention
- The Convention for the Protection of the Architectural Heritage of Europe
- The European Convention on the Protection of Archaeological Heritage

National

- Protection of Wrecks Act 1973
- Ancient Monuments & Archaeological Areas Act 1979
- Planning (Listed Buildings & Conservation Areas) Act 1990
- Marine and Coastal Areas Access Act 2009
- National Planning Policy Framework 2019
- Planning Practice Guidance

Local

- Local plans
- Historic environment records
- AONB management plans
- Heritage/conservation strategies
- Other strategies (e.g. cultural or tourism)
- Conservation area character appraisals and management plans
- Listed building heritage partnership agreements

Baseline Information

In additional to the conservation areas already identified, we recommend that you include Warblington and Emsworth conservation areas. We also recommend that Fort Cumberland is added to the baseline information, as development within its setting could negatively affect its significance. Fort Cumberland's setting will extend across to Hayling Island.

While no designated archaeological assets have been identified, this does not mean that they do not exist. Archaeology is frequently uncovered during development and it is important that sufficient research and investigation is carried out prior to development as part of proposals. NPPF footnote 63 states: *"Non-designated heritage assets of archaeological interest, which are demonstrably of equivalent significance to scheduled monuments, should be considered subject to the policies for designated heritage assets."* This serves to illustrate the protection that as yet unrecorded archaeology is afforded.

Key sustainability issues

We would suggest that the anticipated form of development is incorporated into this

section. This helps the key sustainability issues to be more realistic. P8 of the scoping report states that the Coastal Management Strategy will identify measures (schemes) to implement the North Solent Shoreline Management Plan policies. The North Solent Shoreline Management Plan policies that apply to Hayling Island are broadly, to *hold the line*. In order to achieve this, we presume that the schemes/measures that the Hayling Island Coastal Management Strategy will recommend include physical interventions, such as sea walls, revetments, rock armour, groynes, gabions or offshore reefs. These types of interventions could cause harm to the significance of heritage assets, for example through physical impacts on buried or aboveground archaeology, physical impacts on designated or nondesignated buildings or other structures or harm to the significance of heritage assets through development in their settings. We suggest this section is written to anticipate, as far as can be done at this point, a more realistic set of impacts on the historic environment.

SA objectives

We support the SEA objective in relation to the historic environment as set out. We recommend the assessment questions are amended as below, in order to use the language of the NPPF and for the avoidance of doubt as to meanings. We also recommend reference to Hayling Island is avoided because while any development will be located on or around Hayling Island, impacts on the historic environment can be felt much more widely:

Will the option

- *Conserve or enhance the existing character and significance setting of designated heritage features assets including their settings conservations areas, listed buildings and Scheduled Monuments within and surrounding Hayling Island?*
- *Conserve or enhance the existing character and setting significance of nondesignated heritage features assets including their settings local archaeological remains, local listed buildings and historical assets on Hayling Island?*

We think it is important to have two separate questions for designated and nondesignated assets, as set out, because the NPPF deals with these quite differently.

Decision-making criteria to evaluate the impact of the plan

We note that detailed decision-making criteria are not included within the framework. This is of some concern as the use of inappropriate criteria can easily render a framework at worst meaningless or more often, impacts can be overlooked. We strongly recommend that you do not assess impact through the use of geographical information systems and a set of buffers. Such an approach is likely to miss impacts, for example from long-range views, or paint an inaccurate picture, for example where two options are similarly distant from a heritage asset, but one is visible and the other is hidden. We would advocate the use of an appropriate heritage specialist to assess impacts. Indeed, it is our contention that accurate results can only be obtained in this way.

I hope the above is of assistance. Should you require any clarification, please do not hesitate to contact me.

Yours sincerely

Edward Winter

Historic Environment Planning Adviser

Comments received from County Ecologist:

GEN/21/00220 | Scoping Opinion consultation | Hayling Island Coastal Management 21.0314

Thank you for consulting me on this SEA/HRA Scoping Opinion submission. Thank you for your patience.

The submitted Strategic Environmental Assessment Scoping Report and Habitats Regulations Assessment – Screening Report (both Coastal Partners, January 2021) are comprehensive in nature and contain detailed information on the scope and methodology proposed for these two assessment processes. Both reports contain details of the ecological receptors (statutory and non-statutory designated sites, supporting habitat, and habitats and species) considered to be potentially affected by the proposed Hayling Island Coastal Management Strategy 2120.

I am in agreement with the stated scope and acknowledge that the 'long list' of potential options/interventions will be refined for future submissions, with the result that some receptors/impact pathways may be screened out. All European Marine Sites (and the habitats and species supported by them) have been included at this stage. The exception is the Solent & Dorset Coasts Special Protection Area: this site has been screened-out of further assessment under the Habitats Regulations. The justification for this is well-detailed and I am satisfied that the reasoning is sound. This reasoning, and any further justification, can be detailed within any upcoming SEA and HRA submissions and accompanying documentation.

A suite of ecological assessments has been/are being carried out and, clearly, we would expect the results and analysis of these to be used within upcoming applications in order to refine overall impact assessments on the identified receptors and to devise appropriate mitigation, compensation and enhancement strategies. All proposals within each Option Development Unit taken forward will need full ecological assessment and, where impacts to ecological receptors are identified, full details of mitigation, compensation and enhancement packages as well as any monitoring requirements. As identified within the Scoping Reports there are likely to be many opportunities for innovative habitat creation/improvement options and I would welcome any opportunity to provide such enhancements, especially where these provide strategic opportunities to enhance the Local Ecological Network and embed resilience in the overall coastal landscape for habitats and species. The proposals will be an opportunity for meaningful Biodiversity Net Gain. The Hayling Island coastline is of the highest ecological importance, containing numerous habitats and species of international and national importance. Any future submissions will of course need to consider impacts on habitats and species not covered by the Habitats Regulations e.g. locally-designated sites, priority/notable habitats and species, the Local Ecological Network.

I would be particularly interested in an assessment of the potential implications for terrestrial SPA/Ramsar supporting habitat (functionally-linked land). The Scoping Reports mention that in some locations, where some form of 'managed retreat' may be an option, there may be direct loss of terrestrial supporting habitat such as coastal grassland or other farmland. This may well have implications for important areas of supporting habitat (e.g. the potential establishment of permanent terrestrial bird refuges) and require compensatory measures to ensure continuity of terrestrial habitat for SPA/Ramsar bird species in accordance with the Solent Waders & Brent Goose

Strategy.

I hope the above is suitable – if you have any queries please don't hesitate to contact me.

Kind regards,

Tristan

Tristan Norton

Senior Ecologist
Ecology Team

Comments received from Natural England

Hayling Island Coastal Management Strategy Scoping Opinion
Thank you for seeking our advice on the scope of the Strategic Environmental Assessment and Habitat Regulations Assessment in your consultation dated 09 March 2021 which we received on the same date.

Natural England is a non-departmental public body. Our statutory purpose is to ensure that the natural environment is conserved, enhanced, and managed for the benefit of present and future generations, thereby contributing to sustainable development.

East Solent Coastal Partnership is developing Hayling Island Coastal Management Strategy for the entirety of the Hayling Island coastline for the next 100 years, in line with the recommendation of the approved and adopted North Solent Shoreline Management Plan (2010). Natural England recognises and supports in principle the benefits of developing a Flood and Coastal Erosion Risk Management (FCERM) strategy from both a flood and erosion risk perspective and an environmental perspective.

Annex A to this letter provides Natural England's detailed advice on the scope of the Strategic Environmental Assessment for this development.

Designated sites
Both Langstone Harbour, to the west, and Chichester Harbour, to the east of Hayling Island are nationally and internationally designated. Designations include:
- Solent Maritime Special Area of Conservation (SAC)
- Solent and Isle of Wight Lagoons SAC
- Chichester and Langstone Harbours Special Protection Area (SPA)
- Solent and Dorset Coast SPA
- Chichester and Langstone Harbours Ramsar site
- Chichester Harbour Site of Special Scientific Interest (SSSI)
- Langstone Harbour SSSI
- Warblington Meadows SSSI
- Sinah Common SSSI
- Chichester Harbour Area of Outstanding Natural Beauty (AONB)

Further information on the SSSIs and their special interest features can be found at www.magic.gov. European site conservation objectives are available on our internet site http://publications.naturalengland.org.uk/category/6490068894089216.
Environmental assessments should include a full assessment of the direct and indirect effects of the strategy on the features of special interest within relevant sites and should identify such mitigation measures as may be required in order to avoid, minimise or reduce any adverse significant effects.

Sites on Hayling Island also provide important feeding and roosting areas for over-wintering and passage birds (as shown in the Solent Waders and Brent Goose Strategy (SWBGS)) and, as such, are considered functionally linked land to the SPAs and Ramsar sites. Detailed consideration of these sites within the SEA/HRA is required with respect to land take and disturbance and we recommend that you seek further information from the Hampshire Biodiversity Information Centre and other appropriate bodies to supplement surveys.

Natural England would be happy to advise further on mitigation and offsetting requirements through our Discretionary Advice Service as the Management Strategy is developed.

For the purposes of the Habitats Regulations Assessment, Natural England advises that these areas of functionally-linked land, together with other habitats that provide a supporting role, are assessed in a manner consistent with designated supporting habitat.

An island wide Strategic Environmental Assessment, Habitat Regulations Assessment or Water Framework Directive Assessment should set out how the impacts of any future FCERM works on these important habitats and sites are taken into consideration and fully integrated into the development of an FCERM strategy. Assessments should also set out how any habitat creation schemes will contribute to the Regional Habitat Compensation Programme.

Biodiversity Mitigation and Enhancement
In order to secure appropriate biodiversity mitigation and enhancements Natural England recommends that the strategy is supported by a Biodiversity Mitigation and Enhancement Plan (BMEP). The BMEP should include measures for mitigating impacts on protected species and habitats and include biodiversity compensation measures for any residual biodiversity losses that cannot be fully mitigated on site. This might include the provision of offsite replacement habitats, or an agreed financial contribution for biodiversity enhancements elsewhere calculated using a Biodiversity Compensation Framework, Environment Bank, or similar mechanism.

In the recent 25 Year Environment Plan, the Government has committed to making sure the existing requirements for net gain for biodiversity in national planning policy are strengthened and the current trend of biodiversity loss is halted. This approach is likely to be supported by the forthcoming planning policy guidance. Currently most developments still result in biodiversity loss. Natural England therefore advises that each development reverse this trend and deliver net gains in biodiversity.

Natural England strongly recommends that this strategy achieves a net gain for biodiversity and we advise that a biodiversity metric is used that would be relevant to each local authority. This approach would ensure that your authority will have met its duties under Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006 which states that ‘Every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity.

Where residual biodiversity losses are considered unavoidable, Natural England recommends that further advice on these aspects is sought through our Discretionary Advice Service (DAS). Further information on the DAS service and how to apply can be found here: https://www.gov.uk/guidance/developers-get-environmental-advice-on-your-planning-proposals

Cumulative and in-combination effects
A full consideration of the implications of the whole scheme should be undertaken. All supporting infrastructure should be included within the assessment.

Assessments should include an impact assessment to identify, describe and evaluate the effects that are likely to result from the project in combination with other projects and activities that are being, have been or will be carried out. The following types of projects should be

included in such an assessment, (subject to available information):
a. existing completed projects;
b. approved but uncompleted projects;
c. ongoing activities;
d. plans or projects for which an application has been made and which are under consideration by the consenting authorities; and
e. plans and projects which are reasonably foreseeable, i.e. projects for which an application has not yet been submitted, but which are likely to progress before completion of the development and for which sufficient information is available to assess the likelihood of cumulative and in-combination effects.

Natural England would advise that the cumulative impacts section should also consider impacts on ecologically sensitive receptors such as designated sites, non-designated sites, priority habitats and species, protected species etc. In relation to point e, Natural England would advise consideration of forthcoming planning applications in close proximity to the areas covered by this strategy, where there is potential impacts on key ecological interests.

The landscape and visual assessment should also include the cumulative effect of the strategy with other relevant existing or proposed developments in the area. In this context Natural England advises that the cumulative impact assessment should include other proposals currently at Scoping stage due to the overlapping timescale of their progress through the planning system.

Should the proposal be amended in a way which significantly affects its impact on the natural environment then, in accordance with Section 4 of the Natural Environment and Rural Communities Act 2006, Natural England should be consulted again.

We would be happy to comment further should the need arise but if in the meantime you have any queries please do not hesitate to contact us. For any queries relating to the specific advice in this letter only please contact Rachael Clemson on 02080 261472. For any new consultations, or to provide further information on this consultation please send your correspondences to consultations@naturalengland.org.uk.

Yours sincerely,

Rachael Clemson
Sustainable Development Lead Adviser
Thames Solent Area Team

Marine Management Organisation

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Rachel Cook
Coastal Partners, Havant Borough Council
PUBLIC SERVICE PLAZA
CIVIC CENTRE ROAD
HAVANT
PO9 2AX

Case reference: ENQ/2021/00030

17th March 2021

Dear Rachel Cook,

Re: Hayling Island Coastal Management Strategy

Thank you for your enquiry dated 08 February 2021, regarding the above matter.

I can see that Lauren James from Marine Planning has responded to you this afternoon via email.

A case manager, within Marine Licensing has also advised: 'The MMO would not comment on the appropriateness of the strategy.'

This enquiry will now show as being as accepted and resolved but please do not hesitate to contact me should you wish to discuss this matter further, quoting the following reference: ENQ/2021/00030

Kind Regards,

Natalie Morton| Business Support Team| Her Majesty's Government - Marine Management Organisation

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Appendix B - List of key Influential Policies, Plans, Legislation and Environmental Objectives

PLAN	Notes	SEA TOPIC
International		
Convention on Biological Diversity (1992)	Set the target to achieve by 2010 a significant reduction of the current rate of biodiversity loss.	Biodiversity
The European Landscape Convention 2000 (signed 2006)	Promotes various actions at the landscape scale ranging from strict conservation through protection, management and improvement to actual creation.	Cultural heritage / Historic Environment, Landscape
European Commission Thematic Strategy for Soil Protection (2006)	Promotes the protection and sustainable use of soil.	Soil, Human Health
The Kyoto Protocol (1997)	Sets legally binding measures to achieve the objectives of the United Nations Framework Convention on Climate Change (UNFCC)	Climate
UNESCO World Heritage Convention (1972)	Calls for the identification, protection, conservation, presentation and transmission to future generations of the cultural and natural heritage sites.	Cultural heritage/Historic environment
The European Landscape Convention (ELC)	Promotes the protection, management and planning of European landscapes	Cultural heritage / Historic Environment, Landscape
The European Convention for the Protection of the Archaeological Heritage of Europe (Revised) (1992)	reinforces and promote policies for the conservation and enhancement of Europe's heritage. The Convention constitutes an important framework for the safeguarding of the cultural heritage of monuments and sites.	Cultural heritage / Historic Environment
European Birds Directive (79/409/EEC)	This is the oldest piece of EU legislation on the environment. Amended in 2009, it became the Directive 2009/147/EC. It aims to protect all European wild birds and the habitats of listed species, in particular through the designation of Special Protection Areas (often known by the acronym SPA). Transposed into UK law through the Wildlife and Countryside Act 1981.	Biodiversity
Habitats Directive (92/43/EC)	The Habitats Directive ensures the conservation of a wide range of rare, threatened or endemic animal and plant species. Some 200 rare and characteristic habitat types are also targeted for conservation in their own right. It forms the cornerstone of Europe's nature conservation policy with the Birds Directive and establishes the EU wide Natura 2000 ecological network of protected areas, safeguarded against potentially damaging developments. Transposed into UK law through the Conservation of Habitats and Species Regulations 2017	Biodiversity
Water Framework Directive	This is an EU directive which commits EU member states to achieve good qualitative and quantitative status of all water bodies (including marine waters up to one nautical mile from shore). It aims for 'good status' for all ground and surface waters (rivers, lakes, transitional waters, and coastal waters) in the EU. Transposed into UK law through the Water Framework	Water
National		
Ancient Monuments and Archaeological Areas Act (1979)	Provides for nationally important archaeological sites to be statutorily protected as “scheduled ancient monuments” (now Scheduled Monuments)	Cultural heritage / Historic Environment
Planning (Listed Buildings and Conservation Areas) Act (1990)	Provides specific protection for buildings and areas of special architectural or historic interest.	Cultural heritage / Historic Environment
Protection of Wrecks Act 1973	provides specific protection for wreck sites of archaeological, historic or artistic interest.	Cultural heritage / Historic Environment
The Water Environment (Water Framnework Directive) Regulations 2017	The UK adopted the EC Directive into UK law through the enactment of legislation in 2003 (The Water Environment (Water Framework Directive) Regulation 2003 which has since been repealed by the updated 2017 legislation. These regulations provide a framework for managing the water environment in the UK. Targets are set for reaching ‘good ecological status’ not only for chemical quality of the UK’s bodies of waters , but also all of the associated biological elements such as the plants, fish and creatures living in the waters.	Biodiversity, Human Health, Water

Conservation of Habitats and Species Regulations 2017	This legislation translates into UK legislation, the EEC Council Directive 92/43/EEC, The Conservation of Natural Habitats and of wild fauna and flora, known as the Habitats Directive. This legislation protects habitats and species across Europe and so includes species on animal found in the UK. These species are known as European Protected Species (EPS) and these regulations are the primary regulations protecting these species	Biodiversity
The Wildlife & Countryside Act (1981) as amended (most notably by the Countryside and Rights of Way (CRoW) Act (2000))	Principal instrument for the protection of Sites of Special Scientific Interest and endangered wildlife within the UK.	Biodiversity
UK Post-2010 Biodiversity Framework	UK Response to the Convention on Biological Diversity covers the period from 2011 to 2020. Sets out national and local biodiversity action plans. In the absence of empirical data to support a trend we can use contextual information such as developments (land claim, marina developments, sea level rise....) to aid judgement of trends. From this it seems likely that mudflat extent in the UK is declining. UK coastal habitats and their associated species face a number of pressures and threats, which conservation initiatives are trying to address. The coastline has been subject to urban development, land-claim for agriculture and industry, recreational pressure, and changing agricultural use. Conservation designations, improved site management and planning policies have reduced some of these threats, but port and other transport developments remain issues. An increasingly important issue, especially on soft coasts, is 'coastal squeeze', i.e. where the extent of saltmarsh is diminishing as it is 'squeezed' between flood defences and rising relative sea levels.	Biodiversity
Marine and Coastal Access Act (2009)	Establishes the legal basis for marine planning, setting provisions for the management and protection of the marine environment.	ALL
Working with the Grain of Nature: A Biodiversity Strategy for England (2002)	Ensure biodiversity considerations become embedded in all the main sectors of economic activity, public and private	Biodiversity
National Environment White Paper: 'The Natural Choice: securing the value of nature' (2011)	Collaborative approach to the protection and enhancement of the natural environment, economic growth and social wellbeing. Evokes a new approach to nature and outlines four key ambitions: protecting and improving our natural environment, growing a green economy, reconnecting people and nature, and International and EU leadership. It aims to achieve these ambitions through the creation of new monitoring techniques; an Ecosystems Knowledge Network so communities can share learning practices run by an independent organisation. Environmental Monitoring partnership with the UK Environmental Observation Framework which will have a similar approach as the National Ecosystem Assessment. The new measures on National Wellbeing, once fully developed, will reflect dependency on the natural environment.	Biodiversity, Human Health
The Government White Paper: Heritage Protection for the 21st Century (2007)	To put the historic environment at the heart of the planning system.	Cultural heritage/Historic environment
The Historic Environment: A Force for Our Future (2001)	The full potential of the historic environment should be realised and it should be accessible to all.	Cultural heritage/Historic environment
Water Act 2003	Encourage more efficient use of water resources.	Water, Human Health
Soil Strategy for England (2009)	Soils in England continue to be degraded by human actions including intensive agriculture, historic levels of industrial pollution and urban development. This makes them vulnerable to erosion (by wind and water), compaction and loss of organic matter. As the climate (including temperature and rainfall patterns) changes in the future, it is likely soils have the potential to be further degraded. It sets out the current policy context on soils and a number of core objectives for policy and research.	Soil
Flood and Water Management Act (2010)	The Act aims to reduce the flood risk associated with ex	Climate, Human Health
The UK Climate Change Programme (2006)	A suite of new and established measures are predicted to reduce UK carbon emissions to 15-18% below 1990 levels by 2010. Also promotes anticipatory adaptation.	Climate
Countryside and Rights of Way Act (2000)	Create a framework for public access to the countryside,	Human health, Biodiversity

The 25 Year Environment Plan	focuses on creating a cleaner, greener country that puts the environment first	ALL
Environmental Protection Act 1990	Defines the fundamental structure and authority for waste management and control of emissions into the environment.It makes provision for the improved control of pollution arising from certain industrial and other processes	ALL
CIRIA C718 guidance (2012): Guidance on the management of landfill sites and land contamination on eroding or low-lying coastlines.	his guidance was used to assess risks of pollutant linkage using the Source, Pathway, Receptor model.	Soil, Human Health
The National Flood and Coastal Erosion Risk Management Strategy 2020	The Flood and Water Management Act 2010 places a statutory duty on the Environment Agency to develop a National Flood and Coastal Erosion Risk Management Strategy for England. This Strategy describes what needs to be done by all risk management authorities involved in flood and coastal erosion risk management for the benefit of people and places. This includes the Environment Agency, lead local flood authorities, district councils, internal drainage boards, highways authorities and water and sewerage companies, who must exercise their flood and coastal erosion risk management activities, including plans and strategies, consistently with the Strategy.The Strategy provides a framework for guiding the operational activities and decision making of practitioners supporting the direction set by government policy.	Climate
Biodiversity Strategy for England 2020	The biodiversity strategy for England builds on the Natural Environment White Paper and provides a comprehensive picture of how we are implementing our international and EU commitments. It sets out the strategic direction for biodiversity policy for the next decade on land (including rivers and lakes) and at sea.	Biodiversity
The Natural Environment and Rural Communities Act (NERC) 2006	places duties of certain bodies to have regard to nature conservation and establishes lists of species and habitats of principle conservation concern.	Biodiversity
Making Space for Water: Taking forward a new Government strategy for flood & coastal erosion risk management (2004)	Advocates a holistic approach to flooding, addressing all types of flooding together. The results of The Strategy will be seen on the ground in the form of more flood and coastal erosion solutions working with natural processes. This will be achieved by making more space for water in the environment through, for example, appropriate use of realignment to widen river corridors, areas of inter-tidal habitat and multi-functional wetlands that provide wildlife and recreational resource and reduce coastal squeeze on habitats like saltmarsh.	Water, Biodiversity
Securing the Future: UK Government Sustainable Development Strategy (2005)	This replaced an earlier strategy published in 1999 and aims to enable people to satisfy their basic needs and enjoy a better quality of life without compromising the quality of life of future generations.	ALL
Historic England Advice Note 1: Conservation Area Designation, Appraisal and Management (2019)	outlines ways to manage change that conserves and enhances historic areas.	Cultural heritage/Historic environment
Historic England Advice Note 8: Sustainability Appraisal (SA) and Strategic Environmental Assessment (SEA) (2016)	provides advice on heritage considerations during each stage of the SA/SEA process and helps to establish the basis for comprehensive assessments.	Cultural heritage/Historic environment
Historic Environment Good Practice Advice Planning Note 3: The setting of Heritage Assets (2017)	provides advice on understanding the setting and how it may contribute to the significance of heritage assets.	Cultural heritage/Historic environment
Revised National Planning Policy Framework (2021)	Published on 27 March 2012 and revised in 2018, 2019 and most recently 20 July 2021. It sets out the government's planning policies for England and how these are expected to be applied.	ALL
Planning Practice Guidance	PPG sets out how the government envisages the day to day working of the planning system in England to operate.	ALL
The Environment Act 2021	This relatively new Act forms a new legal framework for environmental protections post-Brexit. It will make provision about targets, plans and policies for improving the natural environment; for statements and reports about environmental protection; for the Office for Environmental Protection; about waste and resource efficiency; about air quality; for the recall of products that fail to meet environmental standards; about water; about nature and biodiversity; for conservation covenants; about the regulation of chemicals; and for connected purposes.	ALL

The Climate Change Act 2008	The Act makes it the duty of the Secretary of State to ensure that the net UK carbon account for all six Kyoto greenhouse gases for the year 2050 is at least 100% lower than the 1990 baseline, toward avoiding dangerous climate change. The Act aims to enable the United Kingdom to become a low-carbon economy and gives ministers powers to introduce the measures necessary to achieve a range of greenhouse gas reduction targets. An independent Committee on Climate Change was created under the Act to provide advice to UK Government on these targets and related policies	Climate
COP26 Glasgow Climate Change Pact (2021)	The package of decisions, agreed under the Glasgow CC Pact consists of a range of agreed items, including strengthened efforts to build resilience to climate change, to curb greenhouse gas emissions and to provide the necessary finance for both. Nations reaffirmed their duty to fulfill the pledge of providing 100 billion dollars annually from developed to developing countries. And they collectively agreed to work to reduce the gap between existing emission reduction plans and what is required to reduce emissions, so that the rise in the global average temperature can be limited to 1.5 degrees.	Climate
NE761: Natural England's climate change risk assessment and adaptation plan (2021)	This is the third adaptation report Natural England has produced to report under the Adaptation Reporting Power (ARP) of the Climate Change Act 2008. The ARP requires organisations to outline how they are preparing and adapting to the current and predicted risks posed by climate change. The report comprises an overarching risk assessment of climate change to Natural England's aims and objectives.	Climate, Biodiversity
UK Marine Policy Statement	This sets the framework for preparing Marine Plans and taking decisions affecting the marine environment. It provides the high level policy context within which national and sub-national Marine Plans are developed, implemented, monitored, amended and ensures appropriate consistency in marine planning across the UK marine area.	Water, Biodiversity, Human health
South Inshore and South Offshore Marine Plan (July 2018)	This seeks to protect the marine environment and achieve sustainable economic growth, whilst respecting local communities. Policies are presented within an economic, social and environmental framework, helping to support the high level marine objectives set out in the Marine Policy Statement as well as other relevant government aspirations such as those set out in the 25 Year Environment Plan and Clean Growth Strategy and sustainable development of the marine area.	Water, Biodiversity, Human health
Regional		
PUSH Integrated Water Management Strategy (2018) and 2020 update	These reports were commissioned by the Partnership for Urban South Hampshire (PUSH) to assess any implications from the planned growth in the region for the water resource and water quality environment. PUSH is a partnership with Hampshire County Council, the unitary authorities of Portsmouth, Southampton and the Isle of Wight and eight district authorities of Eastleigh, East Hampshire, Fareham, Gosport, Havant, New Forest, Test Valley and Winchester	Water
Solent Waders and Brent Goose Strategy (2020)	The Solent Waders and Brent Goose Strategy is a conservation partnership project, which aims to conserve the internationally important brent goose and wading bird populations within and around the Special Protection Areas and Ramsar wetlands of the Solent coast. The 2020 Strategy focuses on understanding bird movements from the SPA areas to inland sites, and between inland sites.	Biodiversity
North Solent Shoreline Management Plan (SMP) 2010/11	SMPs aim to balance the management of coastal flooding and erosion risks, with natural processes, and the consequences of climate change. Due to the current legislative and funding arrangements, climate change and environmental considerations, it may not be possible to protect, or continue to defend land or property from flooding or erosion. The North Solent SMP takes account of natural coastal processes, existing defences, and the natural and built environments and is compatible with adjacent coastal areas.	Climate, Human Health, Biodiversity

Hampshire Local Transport Plan 3; and LTP4 (emerging)	The current and emerging Transport Plans describe the rans[port vision for Hampshore. The emerging plan (LTP4) sets out the transport vision for 2050, the key transport outcomes they are seeking to achieve, and the principles that would guide future investment and decision making in relation to transport and travel. The vision is: "A carbon neutral, resilient and inclusive transport system designed around people, which: supports health, wellbeing and quality of life for all; supports a connected economy and creates successful and prosperous places; and respects and seeks to enhance Hampshire's unique environment"	Climate, Human health
Hampshire County Council Climate Change Strategy 2020-2025	Hampshire County Council declared a Climate Emergency in the summer of 2019. Two targets have been set for the County Council, and these also apply to Hampshire as a whole: 2050 carbon neutrality and preparing to be resilient to the imacts of climate rise. This Strategy sets out the Council's approach to delivering a strategic focus to tackling both the sources and the impacts of climate change in Hampshire.	Climate
South Hampshire Green Infrastructure Strategy 2017-2034	The purpose of this South Hampshire Green Infrastructure Strategy is to identify the key green Infrastructure (GI) features and future requirements for South Hampshire, which will be critical in enabling growth and development to take place, informing the location of new development, and providing a high quality GI network for South Hampshire's communities	Biodiversity
Local		
Havant Borough Adopted Local Plan: -Local Plan (Core Strategy) adopted March 2011 -Local Plan (Allocations) adopted July 2014	The adopted Local Plan sets out the vision for future development in the borough, identifies what areas should be developed, and what requirements and standards developers should meet in their proposals. The current adoptyed local plan is now out of date.	ALL
Havant Borough Local Plan - Building for a Better Future: Discussion/Consultation Document	Pre-LP draft discussion paper went out to consultation Oct 2022, which propsoed the obejctives for the future Building for a Better Future draft plan. Whilst this emerging local plan is in the very early stages, the objectives are influencing factors: An environmentally aware and cleaner borough - A safe environment, healthier and more active residents - a thriving local economy - a revitalised borough with infrastructure that meets our ambitions - a responsive and commercial council - a quality home for all	ALL
HBC's Regeneration and Economy Strategy 2022 – 2036	Sets out local opportunities for the borough, including using cultural assets to support economic and social regeneration.	
Conservation Area Character Appraisals and Management Plans	Prepared for Havant Borough's 14 conservation areas. Character Appraisals define the special interest of the conservation area that merits its designation and describes and evaluates the contribution made by the different features of its character and appearance.	Cultural heritage/Historic environment
The Chichester Harbour AONB Management Plan 2019 - 2024	Explains the importance of planning in this nationally important protected landscape, setting out planning principles to compliment Local Plan planning policies	Biodiversity, Water
Hayling Island Transport Assessment (January 2019)	This examines the operation of the existing transport infrastructure and networks. The assessment tests various development scenarios and reports on the potential transport related implications of the proposed land allocations within the Local Plan. The study also considers and tests mitigation measures that could be employed to offset any significant transport impacts.	Climate, Human health
Hayling Island Transport Assessment Addendum (January 2020)	This addendum covers further work unbdertaken since trhe approval of the 2019 Hayling Island TA.	Climate, Human health
Havant Biodiversity Strategy (2019)	Replaces the 2011 Havant Borough Biodiversity Action Plan (BAP) and, like its predecessor, provides a vision and a strategy to both conserve and produce a net gain in, biodiversity throughout the Borough. This strategy concentrates on how the biodiversity network of Havant Borough can be conserved and enhanced through the planning system, rather than including the full range of actions that may be undertaken by partner organisations and volunteer groups. The strategy also makes recommendations to secure sustainable development across the Borough which improves the quality of the environment and resident life.	Biodiversity

Havant Borough Council Climate Change and Environment Strategy 2021-2026, and associated Action Plan	The purpose of this strategy is to provide a clear statement of the Council's climate change and environment objectives and identify priorities that will drive action and promote accountability. It strategy describes two high level objectives for the strategy, to reduce carbon emissions to net-zero by 2050, and to protect and enhance the local natural environment	Climate, Biodiversity
Havant Open Space Strategy (2018)	This assessment has undertaken a qualitative and quantitative assessment of the existing and future needs of the community for the variousg types of open space that exist within Havant Borough. These include: Public parks and gardens, amenity greenspace and natural and semi-natural greenspaces.	Landscape, Human Health
HBC Air Quality Status Report (2019)		Human health
Revised Hayling Seafront Ambition, February 2022	It sets out an ambition and framework for the future of the seafront, accompanied by a comprehensive concept plan and roadmap to delivery. It aims to enhance the range and quality of attractions, improve the environmental quality and urban design of the seafront, and connect key attractions in ways that reflect the heritage of the island.	Cultural heritage/Historic environment, Biodiversity, Human health, water

Appendix C - Summary Appraisal Matrix

ODU 1: Hayling Bridge to Northey Farm

Strategic option	Biodiversity	Cultural/Heritage/ Historic Environment	Landscape	Health	Material Asset	Climate	Soil	Water	Key comments
Do Nothing	0	0	0	0	0	0	0	0	Baseline
Do Minimum	0	0	0	0	1	0	0	0	Some further protection of assets
Sustain	0	-1	-1	1	2	-1	0	0	Positive impacts on protection of assets. Some uncertainties over visual impacts , historic environment and emissions which could result in a negative impacts
Sustain with managed realignment	3	-1	-1	1	2	0	0	0	Environmental benefits through habitat creation
Sustain with managed realignment Hybrid	3	-1	-1	2	2	0	1	1	Protection of the historic landfill from erosion and habitat creation
Resilience	0	0	0	1	0	0	0	0	Some additional health benefits eg from PFR
Improve with managed realignment	3	-1	-1	3	3	-1	-3	0	Erosion of landfill could have negative impacts but environmental benefits through habitat creation

ODU 2: Northey marina

Strategic option	Biodiversity	Cultural/Heritage/ Historic Environment	Landscape	Health	Material Asset	Climate	Soil	Water	Key comments
Do Nothing	0	0	0	0	0	0	0	0	Baseline
Do Minimum	0	0	0	0	1	0	0	0	Some further protection of assets
Maintain	0	0	0	0	2	-1	0	0	Additional protection of Marina. significant refurbishment works could result in negative climate change impacts.
Sustain	0	-1	-1	0	3	-2	0	0	Benefit to material assets by reduced flood risk and providing regeneration opportunities.
Improve	0	-2	-2	0	3	-2	0	0	Potential for negative impact on the landscape character of the harbours and AONB, as well as the setting of the conservation areas
Resilience	0	0	0	1	0	0	0	0	Some additional health benefits eg from PFR

ODU 3: Northey Farm to Chichester Road

Strategic option	Biodiversity	Cultural/Heritage/ Historic Environment	Landscape	Health	Material Asset	Climate	Soil	Water	Key comments
Do Nothing	0	0	0	0	0	0	0	0	Baseline
Do Minimum	0	0	0	0	1	0	0	0	Some further protection to assets
Sustain with managed realignment	4	-1	1	1	2	1	0	0	Environmental benefits through habitat protection
Improve with managed realignment	3	-1	1	1	2	1	0	0	Environmental benefits through habitat protection later
Resilience	0	0	0	1	0	0	0	0	Some additional health benefits eg from PFR

ODU 4: Chichester Road to Mill Rythe Junior School

Strategic option	Biodiversity	Cultural/Heritage/ Historic Environment	Landscape	Health	Material Asset	Climate	Soil	Water	Key Comments
Do Nothing	0	0	0	0	0	0	0	0	Baseline
Do Minimum	0	0	0	0	1	0	1	1	Some further protection to assets and historic landfill
Maintain	0	0	0	1	1	-1	1	1	Some further protection to assets and historic landfill
Sustain	-2	0	-1	2	2	-2	3	2	Additional positives from protection of historic landfill. But negatives from coastal squeeze and longer construction
Improve	-2	0	-1	2	2	-1	3	2	Additional positives from protection of historic landfill. But negatives from coastal squeeze
Resilience	1	0	0	1	0	0	0	0	Some additional health benefits eg from PFR

ODU 5: Mill Rythe Junior School to Salterns Lane

Strategic option	Biodiversity	Cultural/Heritage/ Historic Environment	Landscape	Health	Material Asset	Climate	Soil	Water	Key comments
Do Nothing	0	0	0	0	0	0	0	0	Baseline
Do Minimum	0	0	0		1	0	1	1	Some further protection to historic landfill
Maintain	-2	0	0	1	1	-1	2	1	Additional protection to historic landfill. Negative impacts to climate change and from coastal squeeze
Sustain	-2	-1	-2	2	1	-2	2	1	Coastal squeeze
Maintain then Improve frontline defence	-2	-1	-3	1	2	-2	2	1	More community support but less environmentally
Maintain then Improve setback defence	0	-1	-3	0	2	-2	2	1	More social positive to frontline option due to reduced coastal squeeze
Managed realignment with sustain	4	-2	2	1	-1	1	1	1	Habitat creation in first epoch

Managed realignment with improve	3	-2	2	1	-1	1	1	1	Habitat creation would be later than sustain option
Maintain then Improve with managed realignment	3	-2	2	1	-1	1	1	1	Longer term habitat creation
Resilience	0	0	0	1	0	0	0	0	Similar to do nothing but additional health benefits eg from PFR

ODU 6:Salterns Lane to Wilsons Boat Yard

Strategic option	Biodiversity	Cultural/Heritage/ Historic Environment	Landscape	Health	Material Asset	Climate	Soil	Water	Key Comments
Do Nothing	0	0	0	0	0	0	0	0	Baseline
Do Minimum	0	0	0	0	1	0	0	0	Some further protection to assets
Maintain	-1	-1	-1	1	2	-1	0	0	Potential for some negative impacts on heritage,landscape and on climate change
Maintain then Improve	-2	-2	-2	1	2	-2	0	0	Potential for more significant negative impacts on heritage,landscape and on climate change
Maintain then Advance the line 0.5%	-4	-3	-3	1	1	-1	0	0	Least preferred due to potential for significant negative effects on biodiversity
Resilience	0	0	0	1	0	0	0	0	Similar to do nothing but additional health benefits eg from PFR

ODU 7: Wilsons Boat Yard to Fishery Creek

Strategic option	Biodiversity	Cultural/Heritage/ Historic Environment	Landscape	Health	Material Asset	Climate	Soil	Water	Key comments
Do Nothing	0	0	0	0	0	0	0	0	Baseline
Do Minimum	0	0	0	0	1	0	0	0	Some further protection to assets
Maintain	0	0	0	1	1	-1	1	1	Negative impacts to climate change and from coastal squeeze but some potential protection of historic landfill
Sustain frontline defence	0	-1	-1	2	2	-1	2	2	Improved protection of historic landfill and assets and consequently health. Negative impact on heritage and landscape due to vicinity of AONB, disrupting views.

Improve frontline defence	0	-1	-2	2	3	-2	2	2	More construction required linking to further potential impacts on climate change
Resilience	0	0	0	1	0	0	0	0	Similar to do nothing but additional health benefits eg from PFR
Sustain setback defence	0	-1	-1	2	2	-1	2	2	Some benefits including protection of historic landfill site and habitat creation
Improve setback defence	0	-1	-2	2	3	-2	2	2	Longer construction works

ODU 8: Eastoke

Strategic option	Biodiversity	Cultural/Heritage/ Historic Environment	Landscape	Health	Material Asset	Climate	Soil	Water	Key Comments
Do Nothing	0	0	0	0	0	0	0	0	Baseline
Do Minimum	0	0	0	0	1	0	0	0	Some further protection to assets
Maintain	0	0	0	0	2	-1	0	0	Coastal squeeze losses of intertidal habitat and potential impacts on roosts at Black Point - biodiversity offset by protection of Sandy Point, hence neutral. Some negative impact on Climate due to GHG emissions from capital refurbishment.
Sustain - crest raising/floodwall	-1	-1	-3	1	2	-1	0	0	A mix of some high value biodiversity e.g. black point wader roost and sand point NR and
Sustain - crest raising/floodwall	-1	-1	-3	1	2	-1	0	0	
Sustain - rock revetment/floodwall	-1	-1	-3	1	2	-1	0	0	

Sustain - concrete revetment/floodwall	-1	-1	-3	1	2	-1	0	0	significant residential development. No real opportunities for realignment that will improve biodiversity. Improving flood and erosion protection would benefit material assets enabling regeneration improving amenity value and development but have negative impacts on climate change, landscape and cultural heritage.
Improve - crest raising/floodwall	-1	-1	-3	1	2	-2	0	0	
Improve - rock revetment/floodwall	-1	-1	-3	1	2	-2	0	0	
Improve - concrete revetment/floodwall	-1	-1	-3	1	2	-2	0	0	
Maintain then Sustain - crest raising/floodwall	-1	-1	-3	1	2	-1	0	0	
Maintain then Sustain - rock revetment/floodwall	-1	-1	-3	1	2	-1	0	0	
Maintain then Sustain - concrete revetment/floodwall	-1	-1	-3	1	2	-1	0	0	
Maintain then Improve - crest raising/floodwall	-1	-1	-3	1	2	-2	0	0	
Maintain then Improve - rock revetment/floodwall	-1	-1	-3	1	2	-2	0	0	
Maintain then Improve - concrete revetment/floodwall	-1	-1	-3	1	2	-2	0	0	
Resilience	0	0	0	1	0	0	0	0	Similar to do nothing but additional health benefits eg from PFR

ODU 9: Eastoke Corner to Inn on the Beach

Strategic option	Biodiversity	Cultural/Heritage/ Historic Environment	Landscape	Health	Material Asset	Climate	Soil	Water	Key Comments
Do Nothing	0	0	0	0	0	0	0	0	Baseline
Do Minimum	0	0	0	0	0.5	0	0	0	Some further protection to assets but less than other options
Maintain	0	0	0	0	0.5	0	0	0	Positive score for biodiversity based on retained shingle habitats / roost function for subsequent options negatives from capital refurbishments works
Sustain and Maintain Inn on the beach	0	-1	-1	0	1	-2	0	0	Material assets will be largely protected from flooding. Listed buildings present and SAM in vicinity could be impacted by change to setting/views. Potential negative impacts on SSSI compared to removing In on beach

Sustain and replace Inn on the beach	0	-1	-1	0	-1	-2	0	0	Loss of Inn on the Beach has negative impact on material assets and more construction than improve- remove Inn on the Beach
Improve and remove inn on the beach	0	-1	-1	1	-1	-1	0	0	Loss of Inn on beach but less construction compared to sustain-maintain Inn on the beach
Maintain then sustain	0	-1	-1	1	1	-1	0	0	Longer term benefits to assets and health but more construction than maintain improve
Maintain then improve	0	0	0	0.5	0.5	0	0	0	Similar to below but with addition rock revetment in epoch 2
Improve beach protection	0	0	0	0.5	0.5	0	0	0	Similar to existing baseline with replacement of structures
Resilience	0	0	0	0.5	0	0	0	0	Similar to do nothing but additional health benefits eg from PFR

ODU 10: Inn on the beach to North Shore Road

Strategic option	Biodiversity	Cultural/Heritage/ Historic Environment	Landscape	Health	Material Asset	Climate	Soil	Water	Key Comments
Do Nothing	0	0	0	0	0	0	0	0	Baseline
Do Minimum	0	0	0	0	1	0	0	0	Some further protection to assets
Maintain	0	0	0		1	-1	0	0	
Sustain	0	-1	1	1	2	-2	0	0	Protection of Ferry road but potential impacts on SAM
Improve 1.33%	0	-1	1	1	2	-1	0	0	Less construction than sustain
Resilience	0	0	0	1	0	0	0	0	Similar to do nothing but additional health benefits eg from PFR

ODU 11: North Shore Road

Strategic option	Biodiversity	Cultural/Heritage/ Historic Environment	Landscape	Health	Material Asset	Climate	Soil	Water	Key comments
Do Nothing	0	0	0	0	0	0	0	0	Baseline
Do Minimum	0	0	0	0	1	0	0	0	Limited potential for further protection to assets
Maintain	-1	0	0	1	1	0	0	0	
Sustain	-1	1	0	2	1	-1	0	0	listed buildings protected resulting in positive score. Increased protection compared to other options
Improve	-1	1	0	1	1	-1	0	0	Less health benefits as gardens potentially flooded
Maintain then Sustain	-1	1	0	1	1	-1	0	0	standard of protection reduced with SLR which would reduce potential benefits to people
Resilience	0	0	0	1	0	0	0	0	Similar to do nothing except minor benefits to health from some protection from PLR to properties

ODU 12: North Shore Road to Newtown

Strategic option	Biodiversity	Cultural/Heritage/ Historic Environment	Landscape	Health	Material Asset	Climate	Soil	Water	Key Comments
Do Nothing	0	0	0	0	0	0	0	0	Baseline
Improve erosion protection (Concrete)	0	0	0	0	0	-1	0	0	Could maintain function of brent goose fields but coastal squeeze losses of intertidal habitat will require compensation. Negative impact on climate as a result of carbon emissions from capital works. No impact on health no properties at risk of flooding/erosion.
Improve erosion protection (Gabions)	0	0	0	0	0	-1	0	0	
Improve erosion protection (Rock Revetment)	0	0	0	0	0	-1	0	0	

ODU 13: Newtown

Strategic option	Biodiversity	Cultural/Heritage/ Historic Environment	Landscape	Health	Material Asset	Climate	Soil	Water	Key Comments
Do Nothing	0	0	0	0	0	0	0	0	Baseline
Do Minimum	0	0	0	0	0	0	0	0	Similar to baseline
Maintain	-1	0	0	0	1	0	0	0	
Maintain then Sustain	-2	0	-1	1	1	-1	0	0	Larger coastal squeeze losses of intertidal habitat than the maintain option, which will require compensation but will protect the landward SPA/Ramsar/SWBGS site for longer. Positive impact on health and material assets as maintaining defences will provide protection from flood risk. Negative impact on climate as a result of increased GHG emissions from construction. Negative impact on landscape due to loss of intertidal habitat and impacts on views/landscape of the harbour.

Maintain then Improve	-2	0	-2	1	2	-2	0	0	Similar to sustain but more construction overtime
Resilience	0	0	0	1	0	0	0	0	Similar to do nothing except minor benefits to health from some protection from PLR to properties
Maintain then Improve with managed realignment	3	0	-1	1	1	0	0	0	Positive biodiversity score due to environmental management. Negative impacts on climate from defence construction balanced out by positive impact from environmental management. Positive impact on health as maintaining & improving defences will provide protection from flood risk.
Maintain then Sustain with managed realignment	3	0	-1	1	1	0	0	0	Similar to sustain but more construction overtime

ODU 14: Newtown to Stoke

Strategic option	Biodiversity	Cultural/Heritage/ Historic Environment	Landscape	Health	Material Asset	Climate	Soil	Water	Key Comments
Do Nothing	0	0	0	0	0	0	0	0	Baseline
Do Minimum	0	0	0	0	0	0	0	0	Similar to baseline
Maintain	0	0	0	0	0	0	0	0	
Maintain then Sustain	0	0	-1	1	1	-1	0	0	Coastal squeeze losses of intertidal habitat but would protect landward SWBGS sites, hence neutral biodiversity score. Positive impact on health as a result of set back embankment providing flood risk protection to property. Negative impact on climate as a result of GHG emission from construction of rock revetment.

Maintain then Improve	0	0	-1	1	1	-1	0	0	Similar to sustain but longer construction
Managed realignment (sustain)	3	0	2	1	1	1	0	0	Enhancement would benefit biodiversity, but balance of maintaining the current functional use by geese and waders, but likely this can be maintained and enhanced with realignment. Positive impact on climate due to environmental management and reduced construction as only set back defences.
Resilience	0	0	0	1	0	0	0	0	Similar to do nothing except minor benefits to health from some protection from PLR to properties
Erosion protection - rock revetment	-1	1	-1	1	1	0	0	0	Some potential negative effects on biodiversity and visually

ODU 15: Stoke to Langstone Bridge Carpark

Strategic option	Biodiversity	Cultural/Heritage/ Historic Environment	Landscape	Health	Material Asset	Climate	Soil	Water	Key Comments
Do Nothing	0	0	0	0	0	0	0	0	Baseline
Do Minimum	0	0	0	0	0	0	0	0	Similar to baseline
Maintain	0	0	0	1	1	-1	1	0	Some additional benefits to road/material assets and community
Sustain - frontline defence	-1	0	-1	2	2	-2	2	1	Positive outcome for the health, soil and water quality aspects from landfill protection. In terms of climate change, this option would have negative impacts through need

Improve - frontline defence	-1	0	-1	2	2	-2	2	1	to install larger coastal defences especially longer term for sustain and it will continue to cause coastal squeeze. negative impact on landscape due to altered views over harbour. Potential for loss of biodiversity in currently undefended areas where new defences are to be built, but would protect landward SPA/Ramsar/SWBGS sites. and billy trail
Sustain - setback defence	1	0	-1	2	2	-2	1	1	A set back defence in this location will provide opportunities for habitat creation and natural processes
Improve - setback defence	1	0	-1	2	2	-2	1	1	
Resilience	0	0	0	1	0	0	0	0	Similar to do nothing but additional health benefits eg from PFR

ODU 16: Langstone Bridge Carpark to Langstone Bridge

Strategic option	Biodiversity	Cultural/Heritage/ Historic Environment	Landscape	Health	Material Asset	Climate	Soil	Water	Key comments
Do Nothing	0	0	0	0	0	0	0	0	Baseline
Do Minimum	0	0	0	0	1	0	0	0	Some further protection to assets
Maintain	0	0	0	1	1	-1	0	0	Additional protection to assets but potential significant refurbishment works could result in negative climate change impacts.
Sustain 1.33%	-1	-1	-1	2	2	-1	0	0	Coastal squeeze losses of intertidal habitat, and potentially direct losses from footprint of new defences, will require compensation - impact on conservation areas and billy line. Positive impact to health and material assets due to protecting the only access onto Hayling Island and positive impacts on properties/roads and associated health. Minor negative scores on historic environment and landscape due to changes in setting and proximity of AONB
Improve 1.33%	-1	-1	-1	2	2	-1	0	0	Similar to sustain but potentially less construction
Resilience	0	0	0	1	0	0	0	0	Similar to do nothing but additional health benefits eg from PFR

Appendix D – Summary of how environmental objectives have influenced the overall leading option

ODU	Overall Leading Option	Degree of Influence of environment objective in the selection of the preferred option	Is the Preferred option Environmentally sustainable	Explanation
1: Hayling Bridge to Northney Farm	**Sustain 0.5% 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)	**High**	**Yes**	Environmental Objectives, HRA and WFD requirements have influenced the overall leading option including protection of historic landfill and incorporation of habitat creation. Positive impacts on biodiversity from habitat creation. In addition positive impacts on health due to protection from flooding and protection of green space and material assets linking to well being. Negative impact on climate due to the increase GHG emissions through construction but balanced by some positive impact on climate by protecting open green space which acts as a carbon sink.
2: Northney Marina	**Resilience** PFR to properties at risk of flooding from 5% event. Increase in PFR over time as more properties become at risk.	**Medium**	**Yes**	This option is heavily influenced by the economic case. There is a limited case for new defences as a long defence would be required to protect comparatively few properties. However, other strategic options are unlikely to support any wider social or environmental benefits.
3: Northney Farm to Chichester Road	**Sustain 0.5% with Managed Realignment - setback defence** Setback earth embankment around assets at risk, incrementally increased in length and height. Habitat creation over time.	**High**	**Yes**	Environmental Objectives, HRA and WFD requirements have influenced the overall leading option. This option has the potential for positive impacts on AONB, over-wintering birds and important habitats. However this option could result in the loss of some rural infrastructure. In addition the loss of SPA/Ramsar/SWBGS sites would need to be mitigated/compensated but space for this could be found within the site.
	Resilience		**Yes**	

4: Chichester Road to Mill Rythe Junior School	PLR to properties at risk of flooding from 5% event. Increase in PLR over time as more properties become at risk. This also includes Patch repair on existing assets. H&S compliance.	**Medium**		This option includes some protection for the historic landfill from flooding and coastal erosion without the construction of new defences. There is a limited case for new defences as a long defence would be required to protect comparatively few properties.
5: Mill Rythe Junior School to Salterns Lane	**Sustain 1.33% with Managed Realignment** Construction (ODU5b), maintain and raise defences (ODU a and c).	**High**	**Yes**	Environmental Objectives, HRA and WFD requirements have influenced the overall leading option including protection to the historic landfill site and incorporation of habitat creation. Some impacts on climate could occur as result of construction of defences and GHG emissions but this is likely to be reduced due to positive impacts from habitat creation. A positive impact could occur on health from the additional level of flood protection, however potentially significant adverse impacts on cultural heritage may occur due to the proximity to a SAM.
6: Salterns Lane to Wilsons Boat Yard	**Maintain then Improve 0.5%** Frontline floodwall in yr50 to full length and height. PLR prior to that in yr 0 and 20.	**Medium**	**Yes**	The frontline defences will continue to provide protection to residential properties from flood/erosion risk resulting in a positive impact on health. Potential negative impacts may occur on SAM due to setting/views from across the creek. Construction of defences will have a negative impact on climate as result of increased GHG emissions and use of concrete.
7: Wilsons Boat Yard to Fishery Creek	**Sustain 0.5% - frontline defence** Frontline rock revetment. Full length initially but raising over time to keep pace with SLR.	**Medium**	**Yes**	Potential for loss of biodiversity in currently undefended areas where new defences are to be built. However by sustaining the SoP of the defences, it would be possible to prevent erosion of the landfills. In terms of climate change, this option would have negative impacts through need to install larger coastal defences and it will continue to cause coastal squeeze. Coastal squeeze losses will require compensation but this option could provide greater protection for the landward SWBGS sites.
8: Eastoke	**Sustain 0.5%**	**Medium**	**Yes**	

	Rock Revetment in present day followed by crest raising of the seawall in yr 50 (A), Setback floodwall (B,C,E), Floodwall (G), Crest Raising (D,F). Full length in yr0, increase in height over time to keep pace with SLR. Includes replacement of all groynes with new rock groynes, beach nourishment and beach recycling.			This option is likely to protect Sandy Point SPA/Ramsar/SWBGS/LNR site but coastal squeeze losses will require compensation and potential impacts on Black Point roost sites as roll back prevented. Some negative impacts may occur on climate from capital works and on the AONB from the setback wall.
9: Eastoke Corner to Inn on the Beach	**Sustain 0.5% - Maintain Inn on the Beach** Setback floodwall. Asset focussed, increase in lengths and height in stages to keep pace with SLR. Capital refurbishment of the defences in front of Inn on the Beach. Replace timber groynes with rock groynes (same length of groyne field). Beach nourishment and beach recycling.	**Medium**	**Yes**	The continued beach renourishment will allow some habitats to expand, however too much intervention could halt natural processes. Listed buildings are present and a SAM in the vicinity could be impacted by change to setting/views. Material assets could be positively impacted particularly from protecting Inn on the Beach.
10: Inn on the Beach to North Shore Road	**Resilience** PLR to properties at risk of flooding from 5% event. Increase in PLR over time as more properties become at risk.	**Medium**	**Yes**	This option is heavily influenced by the economic case, however it allows natural processes to occur. Increases in biodiversity are anticipated as intertidal areas are created but negative impacts are likely to occur to landward grassland/shingle SSSI habitat limited space to rollback (squeezed against golf courses) and landward SWBGS sites.
11: North Shore Road	**Sustain 1.33%** Floodwall around west side, then followed by east side in yr20. Raising over time.	**Medium**	**Yes**	Potential for loss of biodiversity in currently undefended areas where new defences are to be built.
12: North Shore Road to Newtown	**Do Nothing** No active intervention.	**Medium**	**Yes**	Increase in biodiversity as intertidal areas created but likely negative impacts on landward Core SWBGS site.
	Maintain then Sustain 0.5%	**Medium**	**Yes**	

13: Newtown	Maintain then Frontline floodwall from yr20. Raise floodwall over time.			Coastal squeeze and losses of intertidal habitat will require compensation but will protect the landward SPA/Ramsar/SWBGS site for longer. Positive impacts are likely on health and material assets as maintaining defences will provide protection from flood risk. Negative impact on climate are likely as a result of increased GHG emissions from construction. Potential negative impacts on landscape due to loss of intertidal habitat and impacts on views/landscape of the harbour.
14: Newtown to Stoke	**Do Nothing** No active intervention.	**Medium**	**Yes**	Potential increase in biodiversity as coastline evolves naturally however negative impacts on health and material assets from loss of Billy trail and flooding of some properties.
15: Stoke to Langstone Bridge Carpark	**Sustain 0.5% - setback defence** Setback earth embankment. Lengthened and raised over time. Maintain frontline	**Medium**	**Yes**	Increased protection to historic landfill. Setback defence will protect residential properties as well as Billy trail providing a positive impact on health and material assets.
16: Langstone Bridge Carpark to Langstone Bridge	**Sustain 0.5%** Frontline floodwall, raising over time.	**Medium**	**Yes**	Positive impact to health and material assets due to protecting the A3023 bridge connecting with the mainland. Coastal squeeze losses of intertidal habitat will require compensation.

Appendix E - SEA summary assessment of overall leading options

Key:

Potential significant beneficial effects	Potential minor beneficial effects	Potential beneficial and adverse effects	Potential minor adverse effects	Potential significant adverse effects	Neutral/ no effect

ODU 1 Hayling Bridge to Northney Farm - Sustain 0.5% with Managed Realignment Hybrid

SEA topic	Key environmental considerations	2021-2041	2041-2071	2071-2121
Biodiversity	• There are a number of sites designated for their nature conservation importance within 7km of the Strategy area, including international designations (Chichester and Langstone Harbour SPA/Ramsar, Portsmouth Harbour SPA/Ramsar, Solent and Dorset Coast SPA, Solent Maritime SAC) and national designations (SSSI). The condition and integrity of these sites and their interest features must not be compromised. • Ensuring that FCERM projects avoid disruption of coastal or other natural processes that might lead to the loss or change of coastal and estuarine habitat, including mudflats, saltmarsh and vegetated shingle, or landward habitats including coastal grazing marsh. • The strategy area contains numerous functionally linked supporting habitats including the network of waders roosts and brent goose sites, ensure they are not adversely affected by FCERM schemes.	There is likely to be mixed beneficial and detrimental effects what ever the option for this frontage and this assessment will be a balance of protecting seaward or landward habitats. In this case saltmarsh in front and inland feeding and roosting area for birds. This option however gives opportunities to protect and enhance both elements in situ. Resulting in a minor beneficial score for this epoch.	Again there is a balance of protecting landward and seaward habitats. As SLR increases the effects of coastal squeeze, the seawards habitats will have to be migrated inland which could reduce the area of inland habitat. The effect in this epoch is considered to be neutral.	Without BUDS type intervention, it is unlikely seaward saltmarsh will be extant due to SLR and coastal squeeze. However they will have been able to migrate inland with knock on reduction in the area of inland habitat available. Minor adverse

	• Hayling Island has a rich biodiversity interest. Ensure notable species and habitats are not adversely affected by FCERM schemes • Opportunities for ecological enhancements and achieving biodiversity net gain should be sought thorough the strategy.			
Historic environment	There are no cultural heritage designations or designated structural heritage assets within or adjacent to ODU1. Although not on the island, Langstone Conservation Area and Warblington Conservation Area extend across the coastline, with views across to the Island including the location of ODU 1 east and west respectively. The preservation or enhancement of the existing character, appearance and setting of cultural heritage assets, namely conservation areas, nationally and locally listed buildings. Archeological monuments exist along the shoreline which is an area at risk from flooding.	While there are no cultural heritage assets at risk of flooding or erosion, there is the potential for construction to lead to temporary impacts on archeological monuments present along the shoreline, along Northney Road and south of Northney Road towards North Hayling. The construction of new defences along Northney Road during this time epoch has the potential to impact upon key views from Langstone Conservation Area and Warblington Conservation Area. The significance of a Conservation Area is not as high as that of a Listed Building or a Scheduled Monument. There is however a level of uncertainty at this stage.	Upgrading new setback defences along Northney Road during this time epoch has the potential to impact upon key views from Langstone Conservation Area and Warblington Conservation Area. There is however a level of uncertainty at this stage. The delivery of new defences during this time epoch is likely to create minor beneficial effects. These benefits are primarily the result of the reduced flood and erosion risk to archaeology present.	Upgrading new setback defences along Northney Road during this time epoch has the potential to impact upon key views from Langstone Conservation Area and Warblington Conservation Area. There is however a level of uncertainty at this stage. The delivery of new defences during this time epoch is likely to create minor beneficial effects. These benefits are primarily the result of the reduced flood and erosion risk to archaeology present.
Landscape	Hayling Island contains extensive areas of undeveloped coastline and	There may be	Raising and maintaining defences during this time	Raising and maintaining defences during this time

	maintenance of this rural character has been identified as a priority. The north east of Hayling Island falls within Chichester Harbour AONB, valued for its intrinsic character, quality, features, setting and views. Most of the coastal edge is undeveloped, with views from the coastal path at this section of the AONB considered 'panoramic'. The open, unspoilt landscape types present offer visual separation between different land uses and extensive views including that of the AONB. Different landscape types present within the strategy area provide a variety of habitats to support biodiversity.	significant adverse visual effects on the AONB as a result of new frontline defences which are to be constructed during this time epoch. Construction could also impact upon views from PRoW/ bridleway present. Creation of frontline defences (intertidal habitat) may be considered beneficial to the local landscape. However this would also result in the loss of good quality semi-improved grassland landscape.	epoch could lead to further significant negative effects on the AONB, views and amenity assets present. A level of uncertainty exists.	epoch could lead to further significant negative effects on the AONB, views and amenity assets present. A level of uncertainty exists.
Health	Prevent loss and damage to residential properties from flooding and/or coastal erosion? Improve and enhance the health and wellbeing of residents through the protection and enhancement of recreation facilities, accessible green space, coastal paths and beaches from coastal change? Protect access onto Hayling Island? Protect residents from potentially contaminated land?	Construction of setback embankments will provide benefits in relation to improved psychological and physical health of people at risk from flooding. Frontline defences will protect the landfill site at Northney from flooding and erosion and this is likely to have a significant benefit on health by reducing the risk of exposure to potential contaminates. Frontline defences will provide protection to Northney road from flooding. This road provides access to the eastern part of the island Overall there is likely to be minor benefit.	Upgrades to setback embankments will provide benefits in relation to improved psychological and physical health of people at risk from flooding. Defences protecting the landfill site at Northney will continue to have a benefit on the health of people by reducing the risk of exposure of potential contaminates. Frontline defences will provide protection to Northney road from flooding. This road provides access to the eastern part of the island	Upgrades to setback embankments will provide significant benefits in relation to improved psychological and physical health of people at risk from flooding. Defences protecting the landfill site at Northney will continue to have a significant benefit on the health of people by reducing the risk of exposure of potential contaminates. Frontline defences will provide protection to Northney road from flooding. This road provides access to the eastern part of the island. Overall there is likely to be significant benefit.

			Overall there is likely to be minor benefit.	
Material Assets	The Strategy should ensure that material assets within Havant Borough's coastal region are not compromised as a result of coastal change.	Capital works and environmental management would be undertaken during this epoch. To the west, the frontline floodwall would protect Northney Road from flooding. Northney Road is a major road connecting to Langstone Road, and there would be social impacts if flood risk to the road continued to increase in the future due to sea level rise, as the road is necessary for accessing the eastern part of the Island. The presence of a frontline defence would provide improved access along Northney Road, preventing people from walking through the saltmarsh or on the road itself. As part of this option, there would also be new defences in front of the access road to Langstone Quays Resort, ensuring that there is sufficient flood protection to the hotel in the absence of defences in ODU 2. Consequently the proposed works are likely to have to have a major beneficial impact on material assets in these areas.	Maintenance and upgrade of defences also likely to provide an ongoing major benefit to material assets by protecting access.	Maintenance and upgrade of defences also likely to provide an ongoing major benefit to material assets by protecting access.
	New and existing development and material assets are at risk of erosion and flooding, sea level rise is a serious concern, particularly for an Island.			
Soil	Protect historic landfill sites from flooding and/or erosion, in particular sites which have been identified as	New frontline floodwall and setback embankment on the east of the frontage will	Upgrades to defences will provide increased flood and erosion protection to	Upgrades to defences will provide increased flood and erosion protection to

	potential sources of significant contamination? Prevent loss/reduce potential of high grade agricultural land from flooding?	provide flood and erosion protection to Northney historic landfill site and low grade agricultural land. This is likely to have a significant benefit.	Northney historic landfill site. This is likely to have a significant benefit reducing the risk of exposure of potential contaminates. The upgrades to frontline defences will provide increased protection to agricultural land from flooding.	Northney historic landfill site. This is likely to have a significant benefit reducing the risk of exposure of potential contaminates. The upgrades to frontline defences will provide increased protection to agricultural land from flooding.
Water	Potential deterioration to the current status of water bodies around Hayling Island	The WFD has concluded the leading options are not likely to have a permanent (i.e. non-temporary) effect on the status of WFD parameters Therefore, deterioration to the current status of the water bodies overlapping with each ODU is not predicted, nor a prevention of these water bodies achieving future WFD status objectives. However, it is recommended that a more detailed WFD assessment will be required when more information on the design is available.		
Climatic Factors	Contribute to mitigating main causes of climate change by promoting low or zero carbon approaches Contribute to mitigating main causes of climate change by protecting green networks which act as carbon sinks	There is likely to be mixed adverse and beneficial effects. Capital works to create new frontline defences on the west and set back embankment to the east is likely to have a significant adverse effect on climatic factors as a result of increased GHG emissions from construction. New intertidal habitat creation will contribute to mitigating the main causes of climate change in terms of carbon sequestration and have a significant beneficial effect.	There is likely to be mixed adverse and beneficial effects. Maintenance and upgrades to defences are likely to have a significant adverse effect on climatic factors as a result of increased GHG emissions from construction. New intertidal habitat creation will contribute to mitigating the main causes of climate change in terms of carbon sequestration and likely to have a significant beneficial effect. However, there will be a loss of coastal habitats on the west section of the frontage due to coastal squeeze.	There is likely to be mixed adverse and beneficial effects. Maintenance and upgrades to defences are likely to have a significant adverse effect on climatic factors as a result of increased GHG emissions from construction. New intertidal habitat creation will contribute to mitigating the main causes of climate change in terms of carbon sequestration and likely to have a significant beneficial effect. However, there will be a loss of coastal habitats on the west section of the frontage due to coastal squeeze.

ODU 2 Northney Marina - Resilience

SEA topic	Key environmental issue	2021-2041	2041-2071	2071-2121
Biodiversity	• There are a number of sites designated for their nature conservation importance within 7km of the Strategy area, including international designations (Chichester and Langstone Harbour SPA/Ramsar, Portsmouth Harbour SPA/Ramsar, Solent andf Dorset Coast SPA, Solent Maritime SAC) and national designations (SSSI). The condition and integrity of these sites and their interest features must not be compromised. • Ensuring that FCERM projects avoid disruption of coastal or other natural processes that might lead to the loss or change of coastal and estuarine habitat, including mudflats, saltmarsh and vegetated shingle, or landward habitats including coastal grazing marsh. • The strategy area contains numerous functionally linked supporting habitats including the network of waders roosts and brent goose sites, ensure they are not adversely affected by FCERM schemes. • Hayling Island has a rich biodiversity interest. Ensure notable species and habitats are not adversely affected by FCERM schemes • Opportunities for ecological	A do nothing approach will allow natural process to come to the fore, although in reality the ground levels will reduce the ability of habitats to migrate inland. But it will continue to provide opportunities for roosting birds. The approach is considered to be neutral	A do nothing approach will allow natural process to come to the fore, although in reality the ground levels will reduce the ability of habitats to migrate inland. But it will continue to provide opportunities for roosting birds. The approach is considered to be neutral	A do nothing approach will allow natural process to come to the fore, although in reality the ground levels will reduce the ability of habitats to migrate inland. But it will continue to provide opportunities for roosting birds. The approach is considered to be neutral

	enhancements and achieving biodiversity net gain should be sought thorough the strategy.			
Historic environment	There are no cultural heritage designations or designated structural heritage assets within or adjacent to ODU2. Three archaeological monuments exist within the Marina, which is at risk from flooding.	The maintenance of existing defences during this time epoch will reduce flood and erosion risk and is likely to have minor beneficial effects on assets within the Marina including archeology.	The maintenance of existing defences during this time epoch will reduce flood and erosion risk and is likely to have minor beneficial effects on assets within the Marina including archeology.	The maintenance of existing defences during this time epoch will reduce flood and erosion risk and is likely to have minor beneficial effects on assets within the Marina including archeology.
Landscape	Hayling Island contains extensive areas of undeveloped coastline and maintenance of this rural character has been identified as a priority. The north east of Hayling Island falls within Chichester Harbour AONB, valued for its intrinsic character, quality, features, setting and views. The open, unspoilt landscape types present offer visual separation between different land uses and extensive views including that of the AONB. Different landscape types present within the strategy area provide a variety of habitats to support biodiversity.	There is unlikely to be any effect on landscape as a result of this option.	There is unlikely to be any effect on landscape as a result of this option.	There is unlikely to be any effect on landscape as a result of this option.
Health	Prevent loss and damage to residential properties from flooding and/or coastal erosion? Improve and enhance the health and wellbeing of residents through the protection and enhancement of recreation facilities, accessible green space, coastal paths and beaches from coastal change? Protect access onto Hayling Island?	The policy is likely to have a neutral effect on human health as there are no residential properties, recreation facilities or recorded historic landfills at risk from flooding or erosion within this frontage.	The policy is likely to have a neutral effect on human health as there are no residential properties, recreation facilities or recorded historic landfills at risk from flooding or erosion within this frontage.	The policy is likely to have a neutral effect on human health as there are no residential properties, recreation facilities or recorded historic landfills at risk from flooding or erosion within this frontage.

	Protect residents from potentially contaminated land?			
Material Assets	The Strategy should ensure that material assets within Havant Borough's coastal region are not compromised as a result of coastal change. New and existing development and material assets are at risk of erosion and flooding, sea level rise is a serious concern, particularly for an Island.	Implementing PFR measures for all properties at risk of flooding from a 5% AEP flood event will offer some minor benefit to individual, non residential property currently at risk . As part of this option, there will also be patch and repair of the existing frontline defences protecting other assets within the marina.	Implementing PFR measures for all properties at risk of flooding from a 5% AEP flood event will offer some minor benefit to material assets compared to the baseline. As part of this option, there will also be patch and repair of the existing frontline defences protecting other assets within the marina.	Implementing PFR measures for all properties at risk of flooding from a 5% AEP flood event will offer some minor benefit the three, non residential properties currently at risk compared to the baseline. As part of this option, there will also be patch and repair of the existing frontline defences protecting other assets within the marina.
Soil	Protect historic landfill sites from flooding and/or erosion, in particular sites which have been identified as potential sources of significant contamination? Prevent loss/reduce potential of high grade agricultural land from flooding?	No impact. There are no recorded historic landfill sites or agricultural land at risk from coastal erosion or flooding.	No impact. There are no recorded historic landfill sites or agricultural land at risk from coastal erosion or flooding.	No impact. There are no recorded historic landfill sites or agricultural land at risk from coastal erosion or flooding.
Water	Potential deterioration to the current status of water bodies around Hayling Island	The WFD has concluded the leading options are not likely to have a permanent (i.e. non-temporary) effect on the status of WFD parameters Therefore, deterioration to the current status of the water bodies overlapping with each ODU is not predicted, nor a prevention of these water bodies achieving future WFD status objectives. However, it is recommended that a more detailed WFD assessment will be required when more information on the design is available.		
Climatic Factors	Contribute to mitigating main causes of climate change by promoting low or zero carbon approaches Contribute to mitigating main causes of climate change by protecting green networks which act as carbon sinks	Property level resilience is a low carbon approach to FCERM and likely to have a neutral impact on climatic factors.	Maintenance of the existing earth embankment is likely to have minor adverse effect as a result of increased GHG emissions from transport of materials to the site.	Maintenance of the existing earth embankment is likely to have minor adverse effect as a result of increased GHG emissions from transport of materials to the site.

ODU 3 Northney Farm to Chichester Road - Sustain 0.5% with Managed Realignment - setback defence

SEA topic	Key environmental issue	2021-2041	2041-2071	2071-2121
Biodiversity	• There are a number of sites designated for their nature conservation importance within 7km of the Strategy area, including international designations (Chichester and Langstone Harbour SPA/Ramsar, Portsmouth Harbour SPA/Ramsar, Solent andf Dorset Coast SPA, Solent Maritime SAC) and national designations (SSSI). The condition and integrity of these sites and their interest features must not be compromised. • Ensuring that FCERM projects avoid disruption of coastal or other natural processes that might lead to the loss or change of coastal and estuarine habitat, including mudflats, saltmarsh and vegetated shingle, or landward habitats including coastal grazing marsh. • The strategy area contains numerous functionally linked supporting habitats including the network of waders roosts and brent goose sites, ensure they are not adversely affected by FCERM schemes. • Hayling Island has a rich biodiversity interest. Ensure notable species and habitats are not adversely affected by FCERM schemes • Opportunities for ecological	A set back defence in this location will provide significant oppuntunities for habitat creation and natural processes. There will be a knock-on effect on current use of the inland fields bu over-wintering birds, that will have to be mitigated within the scheme, but should be achieveable. Equally impacts arsiing from loss of freshwater habitat and assosciated species, should be accomodated if enough space is allocated to enable habitat to migate inland. Significant beneficial.	A set back defence in this location will provide significant oppuntunities for habitat creation and natural processes. There will be a knock-on effect on current use of the inland fields bu over-wintering birds, that will have to be mitigated within the scheme, but should be achieveable. Equally impacts arising from loss of freshwater habitat and assosciated species, should be accomodated if enough space is allocated to enable habitat to migate inland. Significant beneficial.	A set back defence in this location will provide significant oppuntunities for habitat creation and natural processes. There will be a knock-on effect on current use of the inland fields bu over-wintering birds, that will have to be mitigated within the scheme, but should be achieveable. Equally impacts ariiing from loss of freshwater habitat and assosciated species, should be accomodated if enough space is allocated to enable habitat to migate inland. Particularly in this epoch the design will have to ensure the longevity or adaptbility to sustain the habitat balance. Significant beneficial.

	enhancements and achieving biodiversity net gain should be sought thorough the strategy.			
Historic environment	There are a number of Listed Buildings located inland, to the west of the ODU within North Hayling, extending along St Peter's Road. This includes Grade I Listed Church of St Peter. The preservation or enhancement of the existing character, appearance and setting of cultural heritage assets, namely conservation areas, nationally and locally listed buildings. Archeological monuments exist along the shoreline which is an area at risk from flooding.	The construction of new setback defences in this time epoch could impact upon the setting of Grade I and Grade II Listed Buildings. However effects are considered negligible to minor negative given distance of assets from the shoreline and relatively flat topography. Construction may also lead to temporary minor negative impacts on archeological monuments present along the shoreline.	Proposed upgrades to maintain the standard of protection in the longer term could impact upon the setting of Grade I and Grade II Listed Buildings present. However effects are considered negligible to minor given distance of assets from the shoreline and relatively flat topography. The delivery of new defences during this time epoch is likely to create minor beneficial effects. These benefits are primarily the result of the reduced flood and erosion risk to archaeology present.	Proposed upgrades to maintain the standard of protection in the longer term could impact upon the setting of Grade I and Grade II Listed Buildings present. However effects are considered negligible to minor given distance of assets from the shoreline and relatively flat topography. The delivery of new defences during this time epoch is likely to create minor beneficial effects. These benefits are primarily the result of the reduced flood and erosion risk to archaeology present.
Landscape	Hayling Island contains extensive areas of undeveloped coastline and maintenance of this rural character has been identified as a priority. The north east of Hayling Island falls within Chichester Harbour AONB, valued for its intrinsic character, quality, features, setting and views. The open, unspoilt landscape types present offer visual separation between different land uses and extensive views including that of the AONB.	The construction of new setback defences in this time epoch could impact upon the character and setting of the AONB. Creation of frontline defences (intertidal habitat) may be considered beneficial to the local landscape. However this would also result in the loss of good quality semi-improved grassland landscape.	Raising the height of new setback defences in this time epoch could impact upon the character and setting of the AONB.	Raising the height of new setback defences in this time epoch could impact upon the character and setting of the AONB.

	Different landscape types present within the strategy area provide a variety of habitats to support biodiversity.			
Health	Prevent loss and damage to residential properties from flooding and/or coastal erosion? Improve and enhance the health and wellbeing of residents through the protection and enhancement of recreation facilities, accessible green space, coastal paths and beaches from coastal change? Protect access onto Hayling Island? Protect residents from potentially contaminated land?	PLR for residential properties will provide benefits to human health in relation to both psychological and physical health of people at risk from flooding. Protection of the historic landfill sites of Yachthaven, Mill Rythe and land at Fleet farm from erosion and tidal flooding will provide significant benefits to human health in relation to reducing the risk of exposure of potential contaminates. Overall there is likely to be significant benefits.	PLR for residential properties will provide benefits to human health in relation to both psychological and physical health of people at risk from flooding. Protection of the historic landfill sites of Yachthaven, Mill Rythe and land at Fleet farm from erosion and tidal flooding will provide significant benefits to human health in relation to reducing the risk of exposure of potential contaminates. Overall there is likely to be significant benefits.	PLR for residential properties will provide benefits to human health in relation to both psychological and physical health of people at risk from flooding. Protection of the historic landfill sites of Yachthaven, Mill Rythe and land at Fleet farm from erosion and tidal flooding will provide significant benefits to human health in relation to reducing the risk of exposure of potential contaminates.Overall there is likely to be significant benefits.
Material Assets	The Strategy should ensure that material assets within Havant Borough's coastal region are not compromised as a result of coastal change. New and existing development and material assets are at risk of erosion and flooding, sea level rise is a serious concern, particularly for an Island.	Capital works with environmental management during epoch 1 would provide sufficient flood and erosion protection to all properties and infrastructure resulting in a beneficial effect	Maintenance and upgrade is likely to provide an ongoing minor benefit to material assets	Maintenance and upgrade is likely to provide an ongoing minor benefit to material assets
Soil	Protect historic landfill sites from flooding and/or erosion, in particular sites which have been identified as potential sources of significant contamination? Prevent loss/reduce potential of high	Managed realignment to create new intertidal habitat may result in the loss of agricultural land. There is likely to be a minor adverse effect.	Managed realignment to create new intertidal habitat may result in the loss of agricultural land. There is likely to be a minor adverse effect.	Managed realignment to create new intertidal habitat may result in the loss of agricultural land. There is likely to be a minor adverse effect.

	grade agricultural land from flooding?			
Water	Potential deterioration to the current status of water bodies around Hayling Island	The WFD has concluded the leading options are not likely to have a permanent (i.e. non-temporary) effect on the status of WFD parameters Therefore, deterioration to the current status of the water bodies overlapping with each ODU is not predicted, nor a prevention of these water bodies achieving future WFD status objectives. However, it is recommended that a more detailed WFD assessment will be required when more information on the design is available.		
Climatic Factors	Contribute to mitigating main causes of climate change by promoting low or zero carbon approaches Contribute to mitigating main causes of climate change by protecting green networks which act as carbon sinks	There is likely to be mixed adverse and beneficial effects. Capital works to create a new setback embankment is likely to have a minor adverse effect on climatic factors as a result of increased GHG emissions from construction. New intertidal habitat creation will contribute to mitigating the main causes of climate change in terms of carbon sequestration and likely to have a significant beneficial effect.	There is likely to be mixed adverse and beneficial effects. Maintenance and upgrades to setback embankment is likely to have a minor adverse effect on climatic factors as a result of increased GHG emissions from construction. As the intertidal habitat becomes more established it will contribute to mitigating the main causes of climate change in terms of carbon sequestration and likely to have a significant beneficial effect.	There is likely to be mixed adverse and beneficial effects. Maintenance and upgrades to setback embankment is likely to have a minor adverse effect on climatic factors as a result of increased GHG emissions from construction. As the intertidal habitat becomes more established it will contribute to mitigating the main causes of climate change in terms of carbon sequestration and likely to have a significant beneficial effect.

ODU 4 Chichester Road to Mill Rythe Junior School - Resilience

SEA topic	Key environmental issue	2021-2041	2041-2071	2071-2121
Biodiversity	• There are a number of sites designated for their nature conservation importance within 7km of the Strategy area, including international designations (Chichester and Langstone Harbour SPA/Ramsar, Portsmouth Harbour	A resilience approach will allow natural process to come to the fore. There are significant areas of saltmarsh habitat, seagrass beds and freshwater habitats are present for habitats to roll	A resilience approach will allow natural process to come to the fore. There are significant areas of saltmarsh habitat, seagrass beds and freshwater habitats are	A resilience approach will allow natural process to come to the fore. There are significant areas of saltmarsh habitat, seagrass beds and freshwater habitats are present for habitats to roll

	SPA/Ramsar, Solent andf Dorset Coast SPA, Solent Maritime SAC) and national designations (SSSI). The condition and integrity of these sites and their interest features must not be compromised. • Ensuring that FCERM projects avoid disruption of coastal or other natural processes that might lead to the loss or change of coastal and estuarine habitat, including mudflats, saltmarsh and vegetated shingle, or landward habitats including coastal grazing marsh. • The strategy area contains numerous functionally linked supporting habitats including the network of waders roosts and brent goose sites, ensure they are not adversely affected by FCERM schemes. • Hayling Island has a rich biodiversity interest. Ensure notable species and habitats are not adversely affected by FCERM schemes • Opportunities for ecological enhancements and achieving biodiversity net gain should be sought thorough the strategy.	back into. Significant waders roosts at Gutner Point and Verner Common are present which should also continue functionally. Losses of valued habitats and species could arise if habitats are not allowed to roll back. Significant adverse without intervention . However this would also occur in a do nothing or baseline scenario without the Strategy.	present for habitats to roll back into. Significant waders roosts at Gutner Point and Verner Common are present which should also continue functionally. Losses of valued habitats and species could arise if habitats are not allowed to roll back. Significant adverse without intervention However this would also occur in a do nothing or baseline scenario without the Strategy.	back into. Significant waders roosts at Gutner Point and Verner Common are present which should also continue functionally. Losses of valued habitats and species could arise if habitats are not allowed to roll back. Significant adverse without intervention However this would also occur in a do nothing or baseline scenario without the Strategy.
Historic environment	There are eight Grade II Listed Buildings present within ODU4, concentrated inland around Havant Road and Copse Lane. The preservation or enhancement of the existing character, appearance and setting of cultural heritage	Resilience measures are unlikely to impact upon heritage assets located inland.	Resilience measures are unlikely to impact upon heritage assets located inland.	Resilience measures are unlikely to impact upon heritage assets located inland.

	assets, namely conservation areas, nationally and locally listed buildings.			
	Archeological monuments and named places are present throughout the ODU, including along the shoreline.			
Landscape	Hayling Island contains extensive areas of undeveloped coastline and maintenance of this rural character has been identified as a priority.	There is unlikely to be any effect on landscape as a result of this option.	There is unlikely to be any effect on landscape as a result of this option.	There is unlikely to be any effect on landscape as a result of this option.
	The north east of Hayling Island falls within Chichester Harbour AONB, valued for its intrinsic character, quality, features, setting and views.			
	The open, unspoilt landscape types present offer visual separation between different land uses and extensive views including that of the AONB.			
	Different landscape types present within the strategy area provide a variety of habitats to support biodiversity.			
Health	Prevent loss and damage to residential properties from flooding and/or coastal erosion? Improve and enhance the health and wellbeing of residents through the protection and enhancement of recreation facilities, accessible green space, coastal paths and beaches from coastal change? Protect access onto Hayling Island? Protect residents from potentially contaminated land?	PLR for residential properties will provide benefits to human health in relation to both psychological and physical health of people at risk from flooding. Protection of the historic landfill sites of Yachthaven, Mill Rythe and land at Fleet farm from erosion and tidal flooding will provide significant benefits to human health in relation to reducing the risk of exposure of potential contaminates. Overall there is likely to be significant benefits.	PLR for residential properties will provide benefits to human health in relation to both psychological and physical health of people at risk from flooding. Protection of the historic landfill sites of Yachthaven, Mill Rythe and land at Fleet farm from erosion and tidal flooding will provide significant benefits to human health in relation to reducing the risk of exposure of potential contaminates. Overall	PLR for residential properties will provide benefits to human health in relation to both psychological and physical health of people at risk from flooding. Protection of the historic landfill sites of Yachthaven, Mill Rythe and land at Fleet farm from erosion and tidal flooding will provide significant benefits to human health in relation to reducing the risk of exposure of potential contaminates.Overall there is

			there is likely to be significant benefits.	likely to be significant benefits.
Material Assets	The Strategy should ensure that material assets within Havant Borough's coastal region are not compromised as a result of coastal change. New and existing development and material assets are at risk of erosion and flooding, sea level rise is a serious concern, particularly for an Island.	Implementing PFR measures for all properties at risk of flooding up to a 5% AEP flood event will offer some minor benefit to material assets. As part of this option, there will also be patch and repair of the existing frontline defences to protect properties at risk. However frontline private properties such as Yacht Haven Marina will not benefit.	Implementing PFR measures for all properties at risk of flooding up to a 5% AEP flood event will offer some minor benefit to material assets. As part of this option, there will also be patch and repair of the existing frontline defences to protect properties at risk.	Implementing PFR measures for all properties at risk of flooding up to a 5% AEP flood event will offer some minor benefit to material assets. As part of this option, there will also be patch and repair of the existing frontline defences to protect properties at risk.
Soil	Protect historic landfill sites from flooding and/or erosion, in particular sites which have been identified as potential sources of significant contamination? Prevent loss/reduce potential of high grade agricultural land from flooding?	Protection of the Yacht Haven historic landfill site, Rythe Mill site and land at Fleet farm is likely to have a significant benefit preventing erosion and reducing the risk of exposure to potentially contaminated land.	Protection of the Yacht Haven historic landfill site, Rythe Mill site and land at Fleet farm is likely to have a significant benefit preventing erosion and reducing the risk of exposure to potentially contaminated land.	Potential beneficial and adverse effects. Protection of the Yacht Haven, Rythe Mill and land at Fleet historic landfill sites is likely to have a significant benefit preventing erosion and reducing the risk of exposure to potentially contaminated land. The current defences will no longer provide protection during this epoch therefore there will be grade 2 agricultural land at risk from flooding.
Water	Potential deterioration to the current status of water bodies around Hayling Island	The WFD has concluded the leading options are not likely to have a permanent (i.e. non-temporary) effect on the status of WFD parameters Therefore, deterioration to the current status of the water bodies overlapping with each ODU is not predicted, nor a prevention of these water bodies achieving future WFD status objectives. However, it is recommended that a more detailed WFD assessment will be required when more information on the design is available.		
Climatic Factors	Contribute to mitigating main causes of climate change by promoting low or zero carbon approaches Contribute to mitigating main causes of climate change by protecting	Property level resilience is a low carbon approach to FCERM and is likely to have a neutral impact on climatic factors. The current defences	Maintenance of the existing earth embankment during this epoch is likely to have minor adverse effect as a result of	Maintenance of the existing earth embankment is likely to have minor adverse effect as a result of increased GHG emissions from transport of

	green networks which act as carbon sinks	have a residual life of 10 -15 years and therefore may require some maintenance towards at the end of this epoch.	increased GHG emissions from transport of materials to the site. As sea levels rise there will be coastal squeeze of intertidal habitats.	materials to the site. As sea levels rise there will be coastal squeeze of intertidal habitats.

ODU5 Mill Rythe Junior School to Salterns Lane - Sustain 1.33% with Managed Realignment

SEA topic	Key environmental issue	2021-2041	2041-2071	2071-2121
Biodiversity	• There are a number of sites designated for their nature conservation importance within 7km of the Strategy area, including international designations (Chichester and Langstone Harbour SPA/Ramsar, Portsmouth Harbour SPA/Ramsar, Solent andf Dorset Coast SPA, Solent Maritime SAC) and national designations (SSSI). The condition and integrity of these sites and their interest features must not be compromised. • Ensuring that FCERM projects avoid disruption of coastal or other natural processes that might lead to the loss or change of coastal and estuarine habitat, including mudflats, saltmarsh and vegetated shingle, or landward habitats including coastal grazing marsh. • The strategy area contains numerous functionally linked supporting habitats including the network of waders roosts and brent goose sites, ensure they are not adversely affected by FCERM schemes.	The proposal for managed realignment for ODU5B provides significant opportunities for habitat creation and the promotion of natural processes that will benefit Chichester Harbour SSSI. This should allow salt marsh habitat to develop and create a more natural transition of intertidal habitats and protect and enhance existing habitats including extensive seagrass beds. There will be a knock-on effect on the inland fields including significant areas of coastal grazing marsh of botanical interest and inland feeding and roosting areas that are currently used by over-wintering birds associated with Chichester Harbour SSSI. The majority of	The proposal for managed realignment for ODU5B provides significant opportunities for habitat creation and the promotion of natural processes that will benefit Chichester Harbour SSSI. This should allow salt marsh habitat to develop and create a more natural transition of intertidal habitats and protect and enhance existing habitats including extensive seagrass beds. There will be a knock-on effect on the inland fields including significant areas of coastal grazing marsh of botanical interest and inland feeding and roosting areas that are currently used by over-wintering birds associated	The proposal for managed realignment for ODU5B provides significant opportunities for habitat creation and the promotion of natural processes that will benefit Chichester Harbour SSSI. This should allow salt marsh habitat to develop and create a more natural transition of intertidal habitats and protect and enhance existing habitats including extensive seagrass beds. There will be a knock-on effect on the inland fields including significant areas of coastal grazing marsh of botanical interest and inland feeding and roosting areas that are currently used by over-wintering birds associated with Chichester

	• Hayling Island has a rich biodiversity interest. Ensure notable species and habitats are not adversely affected by FCERM schemes • Opportunities for ecological enhancements and achieving biodiversity net gain should be sought thorough the strategy.	the inland fields within the SPA/SSSI area at this location are considered to be part of the critical over-wintering bird network by the Solent Bird Studies and further SWBGS core areas and secondary support areas outside of the SPA may also be affected. Losses of valued habitats such as lowland broad-leaved woodland, and species could also arise. Impacts arising from loss of freshwater habitats and associated species, could be accommodated if enough space is allocated to enable habitat to migrate inland and alignment of defences to avoid harm to specific features such as woodland. Such issues will need to be considered at a scheme level and designed to ensure it has to the required longevity or adaptability to sustain the habitat balance. It is considered that overall this approach results in **Significant beneficial** effects for biodiversity	with Chichester Harbour SSSI. The majority of the inland fields within the SPA/SSSI area at this location are considered to be part of the critical over-wintering bird network by the Solent Bird Studies and further SWBGS core areas and secondary support areas outside of the SPA may also be affected. Losses of valued habitats such as lowland broad-leaved woodland, and species could also arise. Impacts arising from loss of freshwater habitats and associated species, could be accommodated if enough space is allocated to enable habitat to migrate inland and alignment of defences to avoid harm to specific features such as woodland. Such issues will need to be considered at a scheme level and designed to ensure it has to the required longevity or adaptability to sustain the habitat balance. It is considered that overall	Harbour SSSI. The majority of the inland fields within the SPA/SSSI area at this location are considered to be part of the critical over-wintering bird network by the Solent Bird Studies and further SWBGS core areas and secondary support areas outside of the SPA may also be affected. Losses of valued habitats such as lowland broad-leaved woodland, and species could also arise. Impacts arising from loss of freshwater habitats and associated species, could be accommodated if enough space is allocated to enable habitat to migrate inland and alignment of defences to avoid harm to specific features such as woodland. Such issues will need to be considered at a scheme level and designed to ensure it has to the required longevity or adaptability to sustain the habitat balance. It is considered that overall this approach results in **Significant beneficial** effects for biodiversity

			this approach results in **Significant beneficial** effects for biodiversity	
Historic environment	There are a number of Listed Buildings located within the ODU inland, along Church Road and off Manor Road. A Scheduled Monument is present along the coastline. The preservation or enhancement of the existing character, appearance and setting of cultural heritage assets, namely conservation areas, nationally and locally listed buildings. Archeological monuments exist along the shoreline and along Church Road, which is an area at risk from flooding.	Setback enhancement and habitat creation in this time epoch could impact upon archeology along the coastline including the Scheduled Monument present. New intertidal habitat could decrease the condition of buried assets, however this is uncertain. Listed Buildings are considered too far inland to be impacted by this option.	Raising the height of defences during this time epoch is likely to create minor beneficial effects. These benefits are primarily the result of the reduced flood and erosion risk to archaeology present.	Raising the height of defences during this time epoch is likely to create minor beneficial effects. These benefits are primarily the result of the reduced flood and erosion risk to archaeology present.
Landscape	Hayling Island contains extensive areas of undeveloped coastline and maintenance of this rural character has been identified as a priority. The north east of Hayling Island falls within Chichester Harbour AONB, valued for its intrinsic character, quality, features, setting and views. The open, unspoilt landscape types present offer visual separation between different land uses and extensive views including that of the AONB. Different landscape types present within the strategy area provide a variety of habitats to support biodiversity.	The construction of new setback defences in this time epoch could impact the local landscape, and the character and setting of the AONB. Embankment proposed would likely reduce effects in the long term. Creation of frontline defences (intertidal habitat) may be considered beneficial to the local landscape. However this would also result in the loss of good quality semi-improved grassland landscape.	Raising the height of new setback defences in this time epoch could impact upon the character and setting of the local landscape and wider AONB. A level of uncertainty exists.	Raising the height of new setback defences in this time epoch could impact upon the character and setting of the local landscape and wider AONB. A level of uncertainty exists.

Health	Prevent loss and damage to residential properties from flooding and/or coastal erosion? Improve and enhance the health and wellbeing of residents through the protection and enhancement of recreation facilities, accessible green space, coastal paths and beaches from coastal change? Protect access onto Hayling Island? Protect residents from potentially contaminated land?	There is likely to be mixed adverse and beneficial effects. New setback defences will protect residential properties and community facilities at risk from flooding in Rythe Mill coastal village. This will provide minor benefits to human health in relation to both psychological and physical health of people at risk from flooding. The new defences will provide protection to the historic landfill site at Mengham Lane and likely to have a minor benefit on human health. The setback defences fronted with intertidal habitat creation may result in the loss of all/part of the Tournerbury golf course potentially resulting in a minor adverse effect.	There is likely to be mixed adverse and beneficial effects. Maintenance and upgrades to setback defences will provide flood protection to residential properties and community facilities at risk from flooding in Rythe Mill coastal village. This will provide significant benefits to human health in relation to both psychological and physical health of people at risk from flooding. The defences will provide protection to the historic landfill site at Mengham Lane and likely to have a minor benefit on human health. The setback defences fronted with intertidal habitat creation may result in the loss of all/part of the Tournerbury golf course potentially resulting in a minor adverse effect.	There is likely to be mixed adverse and beneficial effects. Maintenance and upgrades to setback defences will provide flood protection to residential properties and community facilities at risk from flooding in Rythe Mill coastal village. This will provide significant benefits to human health in relation to both psychological and physical health of people at risk from flooding. The defences will provide protection to the historic landfill site at Mengham Lane and likely to have a minor benefit on human health. The setback defences fronted with intertidal habitat creation may result in the loss of all/part of the Tournerbury golf course potentially resulting in a minor adverse effect.
Material Assets	The Strategy should ensure that material assets within Havant Borough's coastal region are not compromised as a result of coastal change. New and existing development and material assets are at risk of erosion and flooding, sea level rise is a serious concern, particularly for an Island.	Capital works with environmental management during epoch 1 would provide sufficient flood and erosion protection to all properties and infrastructure resulting in beneficial effects but some potential disruption to the adjacent school, golf course and farmland.	Maintenance and upgrade is likely to provide an ongoing minor benefit to material assets	Maintenance and upgrade is likely to provide an ongoing minor benefit to material assets

Soil	Protect historic landfill sites from flooding and/or erosion, in particular sites which have been identified as potential sources of significant contamination? Prevent loss/reduce potential of high grade agricultural land from flooding?	Protection of the Mengham historic landfill site is likely to have a minor benefit preventing erosion and reducing the risk of exposure to potentially contaminated land.	Protection of the Mengham historic landfill site is likely to have a minor benefit preventing erosion and reducing the risk of exposure to potentially contaminated land.	Protection of the Mengham historic landfill site is likely to have a minor benefit preventing erosion and reducing the risk of exposure to potentially contaminated land. Defences will provide protection to high grade agricultural land at risk from flooding. Overall likely to have a significant benefit.
Water	Potential deterioration to the current status of water bodies around Hayling Island	The WFD has concluded the leading options are not likely to have a permanent (i.e. non-temporary) effect on the status of WFD parameters Therefore, deterioration to the current status of the water bodies overlapping with each ODU is not predicted, nor a prevention of these water bodies achieving future WFD status objectives. However, it is recommended that a more detailed WFD assessment will be required when more information on the design is available.		
Climatic Factors	Contribute to mitigating main causes of climate change by promoting low or zero carbon approaches Contribute to mitigating main causes of climate change by protecting green networks which act as carbon sinks	There is likely to be mixed adverse and beneficial effects. Capital works to create a new setback embankment is likely to have a minor adverse effect on climatic factors as a result of increased GHG emissions from construction. New intertidal habitat creation will contribute to mitigating the main causes of climate change in terms of carbon sequestration and likely to have a significant beneficial effect.	There is likely to be mixed adverse and beneficial effects. Maintenance and upgrades defences to setback embankment is likely to have a minor adverse effect on climatic factors as a result of increased GHG emissions from construction. As the intertidal habitat becomes more established it will contribute to mitigating the main causes of climate change in terms of carbon sequestration and likely to have a significant beneficial effect.	There is likely to be mixed adverse and beneficial effects. Maintenance and upgrades defences to setback embankment is likely to have a minor adverse effect on climatic factors as a result of increased GHG emissions from construction. As the intertidal habitat becomes more established it will contribute to mitigating the main causes of climate change in terms of carbon sequestration and likely to have a significant beneficial effect.

ODU 6 Chichester Road to Mill Rythe Junior School - Maintain then Improve 0.5%

SEA topic	Key environmental issue	2021-2041	2041-2071	2071-2121
Biodiversity	• There are a number of sites designated for their nature conservation importance within 7km of the Strategy area, including international designations (Chichester and Langstone Harbour SPA/Ramsar, Portsmouth Harbour SPA/Ramsar, Solent and Dorset Coast SPA, Solent Maritime SAC) and national designations (SSSI). The condition and integrity of these sites and their interest features must not be compromised. • Ensuring that FCERM projects avoid disruption of coastal or other natural processes that might lead to the loss or change of coastal and estuarine habitat, including mudflats, saltmarsh and vegetated shingle, or landward habitats including coastal grazing marsh. • The strategy area contains numerous functionally linked supporting habitats including the network of waders roosts and brent goose sites, ensure they are not adversely affected by FCERM schemes. • Hayling Island has a rich biodiversity interest. Ensure notable species and habitats are not adversely affected by FCERM schemes • Opportunities for ecological enhancements and achieving biodiversity net gain should be sought thorough the strategy.	Seaward of the frontage are significant areas of saltmarsh and some wader roosting interest. Landward is a mix of habitats some of which could be characterised as coastal grazing marsh and some inland areas used by over-wintering birds. There is likely to be mixed beneficial and detrimental effects what ever the option for this frontage and this assessment will be a balance of protecting seaward or landward habitats. Mixed.	Seaward of the frontage are significant areas of saltmarsh and some wader roosting interest. Landward is a mix of habitats some of which could be characterised as coastal grazing marsh and some inland areas used by over-wintering birds. There is likely to be mixed beneficial and detrimental effects what ever the option for this frontage and this assessment will be a balance of protecting seaward or landward habitats. However at the effects of SLR increase sustaining intertidal habitats will be increasing difficult. Minor adverse.	Seaward of the frontage are significant areas of saltmarsh and some wader roosting interest. Landward is a mix of habitats some of which could be characterised as coastal grazing marsh and some inland areas used by over-wintering birds. There is likely to be mixed beneficial and detrimental effects what ever the option for this frontage and this assessment will be a balance of protecting seaward or landward habitats. However at the effects of SLR increase sustaining intertidal habitats will be increasing difficult. Minor adverse.

Historic environment	There are no cultural heritage designations or designated structural heritage assets within or adjacent to ODU6. There are archeological monuments present along the shoreline, and along the western ODU boundary.	No effects are anticipated in this time epoch as existing defences are maintained.	No effects are anticipated in this time epoch as existing defences are maintained.	In this time epoch, the construction of new defences could disturb buried assets.
Landscape	Hayling Island contains extensive areas of undeveloped coastline and maintenance of this rural character has been identified as a priority. The north east of Hayling Island falls within Chichester Harbour AONB, valued for its intrinsic character, quality, features, setting and views. The open, unspoilt landscape types present offer visual separation between different land uses and extensive views including that of the AONB. Different landscape types present within the strategy area provide a variety of habitats to support biodiversity.	No effects are anticipated in this time epoch as existing defences are maintained.	No effects are anticipated in this time epoch as existing defences are maintained.	In this time epoch, the construction of new defences is likely to lead to significant adverse effects on the AONB landscape.
Health	Prevent loss and damage to residential properties from flooding and/or coastal erosion? Improve and enhance the health and wellbeing of residents through the protection and enhancement of recreation facilities, accessible green space, coastal paths and beaches from coastal change? Protect access onto Hayling Island? Protect residents from potentially contaminated land?	PLR will provide protection to residential properties and have a minor benefit on the psychological and physical health of people at risk from flooding.	PLR will provide protection to residential properties and have a minor benefit on the psychological and physical health of people at risk from flooding.	New frontline defences will provide protection to residential properties at increased risk from flooding and coastal erosion as sea levels rise. This will have a significant beneficial impact on the the psychological and physical health of people at risk from flooding and erosion.
Material Assets	The Strategy should ensure that material assets within Havant Borough's coastal region are not	Maintenance and PFR will provide sufficient flood and erosion protection to all	Maintenance and PFR will provide sufficient flood and erosion protection to all	New defences have the potential to act as a barrier

	compromised as a result of coastal change. New and existing development and material assets are at risk of erosion and flooding, sea level rise is a serious concern, particularly for an Island.	properties and infrastructure during this epoch, resulting in a minor beneficial effect.	properties and infrastructure during this epoch, resulting in a minor beneficial effect.	to foreshore, access however this can be limited during detailed design. Capital works will protection to all properties and infrastructure during this epoch resulting in a minor beneficial effect.
Soil	Protect historic landfill sites from flooding and/or erosion, in particular sites which have been identified as potential sources of significant contamination? Prevent loss/reduce potential of high grade agricultural land from flooding?	No impact. There are no recorded historic landfill sites or agricultural land at risk from coastal erosion or flooding.	No impact. There are no recorded historic landfill sites or agricultural land at risk from coastal erosion or flooding.	No impact. There are no recorded historic landfill sites or agricultural land at risk from coastal erosion or flooding.
Water	Potential deterioration to the current status of water bodies around Hayling Island	The WFD has concluded the leading options are not likely to have a permanent (i.e. non-temporary) effect on the status of WFD parameters Therefore, deterioration to the current status of the water bodies overlapping with each ODU is not predicted, nor a prevention of these water bodies achieving future WFD status objectives. However, it is recommended that a more detailed WFD assessment will be required when more information on the design is available.		
Climatic Factors	Contribute to mitigating main causes of climate change by promoting low or zero carbon approaches Contribute to mitigating main causes of climate change by protecting green networks which act as carbon sinks	Property level resilience is a low carbon approach and likely to have a neutral impact on climatic factors.	Property level resilience is a low carbon approach and likely to have a neutral impact on climatic factors.	Capital works to create new frontline defences is likely to have a minor adverse effect on climatic factors as a result of increased GHG emissions from construction.

ODU 7 Wilsons Boat Yard to Fishery Creek - Sustain 0.5% - frontline defence

SEA topic	Key environmental issue	2021-2041	2041-2071	2071-2121
Biodiversity	• There are a number of sites designated for their nature conservation importance within 7km of the Strategy area, including	Seaward of the frontage are significant areas of saltmarsh and some wader roosting interest. Landward is a mix of	Seaward of the frontage are significant areas of saltmarsh and some wader roosting interest. Landward	Seaward of the frontage are significant areas of saltmarsh and some wader roosting interest. Landward

	international designations (Chichester and Langstone Harbour SPA/Ramsar, Portsmouth Harbour SPA/Ramsar, Solent andf Dorset Coast SPA, Solent Maritime SAC) and national designations (SSSI). The condition and integrity of these sites and their interest features must not be compromised. • Ensuring that FCERM projects avoid disruption of coastal or other natural processes that might lead to the loss or change of coastal and estuarine habitat, including mudflats, saltmarsh and vegetated shingle, or landward habitats including coastal grazing marsh. • The strategy area contains numerous functionally linked supporting habitats including the network of waders roosts and brent goose sites, ensure they are not adversely affected by FCERM schemes. • Hayling Island has a rich biodiversity interest. Ensure notable species and habitats are not adversely affected by FCERM schemes • Opportunities for ecological enhancements and achieving biodiversity net gain should be sought thorough the strategy.	habitats some of which could be characterised as coastal grazing marsh and some inland areas used by over-wintering birds. There is likely to be mixed beneficial and detrimental effects what ever the option for this frontage and this assessment will be a balance of protecting seaward or landward habitats. Mixed.	is a mix of habitats some of which could be characterised as coastal grazing marsh and some inland areas used by over-wintering birds. There is likely to be mixed beneficial and detrimental effects what ever the option for this frontage and this assessment will be a balance of protecting seaward or landward habitats. However at the effects of SLR increase sustaining intertidal habitats will be increasing difficult. Minor adverse.	is a mix of habitats some of which could be characterised as coastal grazing marsh and some inland areas used by over-wintering birds. There is likely to be mixed beneficial and detrimental effects what ever the option for this frontage and this assessment will be a balance of protecting seaward or landward habitats. However at the effects of SLR increase sustaining intertidal habitats will be increasing difficult. Minor adverse.
Historic environment	There are no cultural heritage designations or designated structural heritage assets within or adjacent to ODU7.	While there are no cultural heritage assets at risk of flooding or erosion, there is the potential for construction	Raising the height of defences and maintaining new defences during this time epoch is likely to	Raising the height of defences and maintaining new defences during this time epoch is likely to create

	Archeological monuments exist along the shoreline and further inland, which includes areas at risk from flooding.	to lead to temporary impacts on archeological monuments present.	create minor beneficial effects. These benefits are primarily the result of the reduced flood and erosion risk to archaeology present.	minor beneficial effects. These benefits are primarily the result of the reduced flood and erosion risk to archaeology present.
Landscape	Hayling Island contains extensive areas of undeveloped coastline and maintenance of this rural character has been identified as a priority.	The construction of a frontline rock revertment in this time epoch could impact the local landscape, and the setting of the AONB and important views.	The permanent frontline rock revertment is considered to have a significant negative effect on the landscape, altering the undeveloped coastal edge and 'panoramic' AONB views. Uncertainty exists regarding defence alignments.	The permanent frontline rock revertment is considered to have a significant negative effect on the landscape, altering the undeveloped coastal edge and 'panoramic' AONB views. Uncertainty exists regarding defence alignments.
	The north east of Hayling Island falls within Chichester Harbour AONB, valued for its intrinsic character, quality, features, setting and views.			
	The open, unspoilt landscape types present offer visual separation between different land uses and extensive views including that of the AONB.			
	Different landscape types present within the strategy area provide a variety of habitats to support biodiversity.			
Health	Prevent loss and damage to residential properties from flooding and/or coastal erosion? Improve and enhance the health and wellbeing of residents through the protection and enhancement of recreation facilities, accessible green space, coastal paths and beaches from coastal change? Protect access onto Hayling Island? Protect residents from potentially contaminated land?	Frontline defences will provide protection to residential properties at risk from flooding and have have a beneficial impact on the the psychological and physical health of people at risk from flooding. The frontline defences will also provide protection to the historic landfill sites, land at former Oysterbeds, Selsmore and Fishery Creek from erosion and flooding. This will have a beneficial impact on human	Frontline defences will provide protection to residential properties at risk from flooding and have have a beneficial impact on the the psychological and physical health of people at risk from flooding. The frontline defences will also provide protection to the historic landfill sites, land at former Oysterbeds, Selsmore and Fishery Creek from erosion and flooding. This will have a	Frontline defences will provide protection to residential properties at risk from flooding and have have a beneficial impact on the the psychological and physical health of people at risk from flooding. The frontline defences will also provide protection to the historic landfill sites, land at former Oysterbeds, Selsmore and Fishery Creek from erosion and flooding. This will have a beneficial

		health in relation to reducing the risk of exposure of potential contaminates. Frontline defences will also provide protection to Mengeham Rythe sailing club Overall there is likely to be minor benefits.	beneficial impact on human health in relation to reducing the risk of exposure of potential contaminates. Frontline defences will also provide protection to Mengeham Rythe sailing club Overall there is likely to be significant benefits.	impact on human health in relation to reducing the risk of exposure of potential contaminates. Frontline defences will also provide protection to Mengeham Rythe sailing club Overall there is likely to be significant benefits.
Material Assets	The Strategy should ensure that material assets within Havant Borough's coastal region are not compromised as a result of coastal change.	Capital works will provide sufficient flood and erosion protection to all properties and infrastructure, and it is similar to previous works undertaken by the Environment Agency. There is a potential for the new defences to act as a barrier to Mengham Rythe Moorings, however this would be worked into the design to minimise access restrictions. Overall this option will result in a positive effects protecting properties and other assets including the sailing club.	Upgrade and maintenance will enable ongoing flood and erosion protection to all properties and infrastructure	Upgrade and maintenance will enable ongoing flood and erosion protection to all properties and infrastructure
	New and existing development and material assets are at risk of erosion and flooding, sea level rise is a serious concern, particularly for an Island.			
Soil	Protect historic landfill sites from flooding and/or erosion, in particular sites which have been identified as potential sources of significant contamination? Prevent loss/reduce potential of high grade agricultural land from flooding?	Construction of frontline defences will provide increased flood and erosion protection to the historic landfill sites within this frontage; former Oyster beds at Selsmore and Fishery Creek and reduce the chance of exposure of potential contaminates. This is likely to have a significant benefit.	Upgrades to defences will provide increased flood and erosion protection to the 2 historic landfill sites within this frontage; former Oyster beds at Selsmore and Fishery Creek and significantly reduce the chance of exposure of potential contaminates. This is likely to have a significant benefit.	Upgrades to defences will provide increased flood and erosion protection to the 2 historic landfill sites within this frontage; former Oyster beds at Selsmore and Fishery Creek and significantly reduce the chance of exposure of potential contaminates. This is likely to have a significant benefit.

Water	Potential deterioration to the current status of water bodies around Hayling Island	The WFD has concluded the leading options are not likely to have a permanent (i.e. non-temporary) effect on the status of WFD parameters Therefore, deterioration to the current status of the water bodies overlapping with each ODU is not predicted, nor a prevention of these water bodies achieving future WFD status objectives. However, it is recommended that a more detailed WFD assessment will be required when more information on the design is available.		
Climatic Factors	Contribute to mitigating main causes of climate change by promoting low or zero carbon approaches Contribute to mitigating main causes of climate change by protecting green networks which act as carbon sinks	Capital works to create new frontline defences is likely to have a minor adverse effect on climatic factors as a result of increased GHG emissions from construction.	Upgrades to defences is likely to have a minor adverse effect on climatic factors as a result of increased GHG emissions from construction. There will be a intertidal habitat loss from coastal squeeze.	Upgrades to defences is likely to have a minor adverse effect on climatic factors as a result of increased GHG emissions from construction. There will be a intertidal habitat loss from coastal squeeze.

ODU8 Mill Rythe Junior School to Salterns Lane - Sustain 0.5% AEP - Rock revetment/floodwall/setback floodwall

SEA topic	Key environmental issue	2021-2041	2041-2071	2071-2121
Biodiversity	• There are a number of sites designated for their nature conservation importance within 7km of the Strategy area, including international designations (Chichester and Langstone Harbour SPA/Ramsar, Portsmouth Harbour SPA/Ramsar, Solent and Dorset Coast SPA, Solent Maritime SAC) and national designations (SSSI). The condition and integrity of these sites and their interest features must not be compromised. • Ensuring that FCERM projects avoid disruption of coastal or other natural processes that might lead to the loss or change of coastal and estuarine habitat, including mudflats, saltmarsh and vegetated shingle, or landward habitats	This ODU is a mix of high density residential with little intrinsic biodiversity value and habitats of very high biodiversity value. There are also bird roost locations that are highly significant. There is however little saltmarsh that will be affected by coastal squeeze. Beach nourishment will potentially provide opportunities of expansion of vegetated shingle habitats. As long as design is sensitive to valued habitats and species there should be a minor beneficial effect.	This ODU is a mix of high density residential with little intrinsic biodiversity value and habitats of very high biodiversity value. There are also bird roost locations that are highly significant. There is however little saltmarsh that will be affected by coastal squeeze. Coastal squeeze will become an increasing issue and also result in lost of roosting opportunities. Beach nourishment will potentially provide opportunities of expansion of vegetated shingle habitats. The design will have to be	This ODU is a mix of high density residential with little intrinsic biodiversity value and habitats of very high biodiversity value. There are also bird roost locations that are highly significant. There is however little saltmarsh that will be affected by coastal squeeze. Coastal squeeze will become an increasing issue and also result in lost of roosting opportunities. Beach nourishment will potentially provide opportunities of expansion of vegetated shingle habitats. The design will have to be sensitive to valued habitats and species

	including coastal grazing marsh. • The strategy area contains numerous functionally linked supporting habitats including the network of waders roosts and brent goose sites, ensure they are not adversely affected by FCERM schemes. • Hayling Island has a rich biodiversity interest. Ensure notable species and habitats are not adversely affected by FCERM schemes • Opportunities for ecological enhancements and achieving biodiversity net gain should be sought thorough the strategy.		sensitive to valued habitats and species particularly wader roosts. Neutral.	particularly wader roosts. Neutral.
Historic environment	There are no cultural heritage designations or designated structural heritage assets within or adjacent to ODU8. Archeological monuments extend along the entirety of the ODU.	Construction of defences during this time epoch has the potential to impact upon Listed Buildings located along Sea Front road. Construction during this time epoch may also lead to temporary impacts on archeological monuments present.	Raising the height of defences and maintaining new defences during this time epoch is likely to create minor beneficial effects. These benefits are primarily the result of the reduced flood and erosion risk to archaeology present.	Raising the height of defences and maintaining new defences during this time epoch is likely to create minor beneficial effects. These benefits are primarily the result of the reduced flood and erosion risk to archaeology present.
Landscape	Hayling Island contains extensive areas of undeveloped coastline and maintenance of this rural character has been identified as a priority. The north east of Hayling Island falls within Chichester Harbour AONB, valued for its intrinsic character, quality, features, setting and views.	Construction of defences during this time epoch has the potential to impact the local landscape, and the setting of the AONB and views.	All defence types being delivered are considered to lead to a change in landscape character, particularly given the undisturbed nature of the AONB.	All defence types being delivered are considered to lead to a change in landscape character, particularly given the undisturbed nature of the AONB.

	The open, unspoilt landscape types present offer visual separation between different land uses and extensive views including that of the AONB.			
	Different landscape types present within the strategy area provide a variety of habitats to support biodiversity.			
Health	Prevent loss and damage to residential properties from flooding and/or coastal erosion? Improve and enhance the health and wellbeing of residents through the protection and enhancement of recreation facilities, accessible green space, coastal paths and beaches from coastal change? Protect access onto Hayling Island? Protect residents from potentially contaminated land?	Construction of new defences will provide flood and erosion protection to residential properties. This will have a beneficial impact on the the psychological and physical health of people at risk from flooding. This option will provide protection to the coastal path, Sandy Point local reserve and access to the beach. Overall there is likely to be significant benefits.	Upgrades to defences will continue to provide flood and erosion protection to residential properties at increased risk from flooding as sea levels rise. This option will provide protection to the coastal path, Sandy Point local reserve and access to the beach. Overall there is likely to be significant benefits.	Upgrades to defences will continue to provide flood and erosion protection to residential properties at increased risk from flooding as sea levels rise. This option will provide protection to the coastal path, Sandy Point local reserve and access to the beach. Overall there is likely to be significant benefits.
Material Assets	The Strategy should ensure that material assets within Havant Borough's coastal region are not compromised as a result of coastal change.	Capital works should provide sufficient flood and erosion protection to all properties and infrastructure. This includes protection of Southwood Road from erosion, which is a key access road into Eastoke, protecting access to approximately 810 properties. Beach access would be maintained and support provided for future regeneration and redevelopment plans under development with HBC. Overall a potential for		
	New and existing development and material assets are at risk of erosion and flooding, sea level rise is a serious concern, particularly for an Island.		Maintenance and upgrade will enable ongoing significant benefits to material assets	Maintenance and upgrade will enable ongoing significant benefits to material assets

		significant benefits to material assets are identified.		
Soil	Protect historic landfill sites from flooding and/or erosion, in particular sites which have been identified as potential sources of significant contamination? Prevent loss/reduce potential of high grade agricultural land from flooding?	No impact. There are no recorded historic landfill sites or agricultural land at risk from coastal erosion or flooding.	No impact. There are no recorded historic landfill sites or agricultural land at risk from coastal erosion or flooding.	No impact. There are no recorded historic landfill sites or agricultural land at risk from coastal erosion or flooding.
Water	Potential deterioration to the current status of water bodies around Hayling Island	The WFD has concluded the leading options are not likely to have a permanent (i.e. non-temporary) effect on the status of WFD parameters Therefore, deterioration to the current status of the water bodies overlapping with each ODU is not predicted, nor a prevention of these water bodies achieving future WFD status objectives. However, it is recommended that a more detailed WFD assessment will be required when more information on the design is available.		
Climatic Factors	Contribute to mitigating main causes of climate change by promoting low or zero carbon approaches Contribute to mitigating main causes of climate change by protecting green networks which act as carbon sinks	Capital works to create new defences is likely to have a minor adverse effect on o climatic factors as a result of increased GHG emissions from construction.	Upgrades to defences is likely to have a minor adverse effect on climatic factors as a result of increased GHG emissions from construction.	Upgrades to defences is likely to have a minor adverse effect on climatic factors as a result of increased GHG emissions from construction.

ODU 9 Eastoke Corner to Inn on the Beach - Sustain 0.5% - Maintain Inn on the Beach

SEA topic	Key environmental issue	2021-2041	2041-2071	2071-2121
Biodiversity	• There are a number of sites designated for their nature conservation importance within 7km of the Strategy area, including international designations	Although it lays adjacent to the Dorset and Solent Coast SPA, the main interest on this frontage is vegetated shingle and dune habitats, in	Although it lays adjacent to the Dorset and Solent Coast SPA, the main interest on this frontage is vegetated shingle and	Although it lays adjacent to the Dorset and Solent Coast SPA, the main interest on this frontage is vegetated shingle and dune habitats, in

	(Chichester and Langstone Harbour SPA/Ramsar, Portsmouth Harbour SPA/Ramsar, Solent and Dorset Coast SPA, Solent Maritime SAC) and national designations (SSSI). The condition and integrity of these sites and their interest features must not be compromised. • Ensuring that FCERM projects avoid disruption of coastal or other natural processes that might lead to the loss or change of coastal and estuarine habitat, including mudflats, saltmarsh and vegetated shingle, or landward habitats including coastal grazing marsh. • The strategy area contains numerous functionally linked supporting habitats including the network of waders roosts and brent goose sites, ensure they are not adversely affected by FCERM schemes. • Hayling Island has a rich biodiversity interest. Ensure notable species and habitats are not adversely affected by FCERM schemes • Opportunities for ecological enhancements and achieving biodiversity net gain should be sought thorough the strategy.	significant areas blocks further to the west, but remnant patches throughout. The setback defence will allow some natural processes to continue apart from the Inn on the Beach area. Beach nourishment will provide a source of sediment to maintain the system. Neutral.	dune habitats, in significant areas blocks further to the west, but remnant patches throughout. The setback defence will allow some natural processes to continue apart from the Inn on the Beach area. Beach nourishment will provide a source of sediment to maintain the system. Neutral.	significant areas blocks further to the west, but remnant patches throughout. The setback defence will allow some natural processes to continue apart from the Inn on the Beach area. Beach nourishment will provide a source of sediment to maintain the system. As SLR advances sustaining the dynamic nature of these habitats will become more difficult. Minor adverse.
Historic environment	There are a number of Listed Buildings located within the ODU, along the shoreline and inland. The preservation or enhancement of the existing character, appearance and setting of cultural	Setback enhancement and habitat creation in this time epoch could impact upon archeology along the coastline including the Scheduled Monument	Maintaining and enhancing existing and new defences during this time epoch is likely to create minor beneficial effects. These benefits are primarily the	Maintaining and enhancing existing and new defences during this time epoch is likely to create minor beneficial effects. These benefits are primarily the

	heritage assets, namely conservation areas, nationally and locally listed buildings. Archeological monuments are present throughout the ODU.	present. New intertidal habitat could decrease the condition of buried assets, however this is uncertain. Listed Buildings are considered too far inland to be impacted by this option.	result of the reduced flood and erosion risk to archaeology present.	result of the reduced flood and erosion risk to archaeology present.
Landscape	Hayling Island contains extensive areas of undeveloped coastline and maintenance of this rural character has been identified as a priority. The open, unspoilt landscape types present offer visual separation between different land uses and extensive views. Different landscape types present within the strategy area provide a variety of habitats to support biodiversity.	Construction required to maintain existing defences (i.e. refurbishment and repair) could impact upon the setting of the local landscape.	Impact on the landscape is likely to be negligible during this time epoch.	Impact on the landscape is likely to be negligible during this time epoch.
Health	Prevent loss and damage to residential properties from flooding and/or coastal erosion? Improve and enhance the health and wellbeing of residents through the protection and enhancement of recreation facilities, accessible green space, coastal paths and beaches from coastal change? Protect access onto Hayling Island? Protect residents from potentially contaminated land?	Construction of new defences will provide protection to residential properties from flooding. This will have a beneficial impact on the the psychological and physical health of people at risk from flooding. New defences and beach nourishment/recycling will maintain and enhance the beach and recreational amenities. Overall there is likely to be significant benefits.	Upgrades to defences will provide protection to residential properties from flooding. This will have a beneficial impact on the the psychological and physical health of people at risk from flooding. Upgrades to defences and beach nourishment/recycling will maintain and enhance the beach and recreational amenities. Overall there is likely to be significant benefits.	Upgrades to defences will provide protection to residential properties from flooding. This will have a beneficial impact on the the psychological and physical health of people at risk from flooding. Upgrades to defences and beach nourishment/recycling will maintain and enhance the beach and recreational amenities. Overall there is likely to be significant benefits.
Material Assets	The Strategy should ensure that material assets within Havant Borough's coastal region are not compromised as a result of coastal change.	Capital works during this epoch will provide sufficient flood and erosion protection to all properties and the seafront infrastructure. This	Upgrade and maintenance will enable ongoing significant benefits to material assets	Upgrade and maintenance will enable ongoing significant benefits to material assets

	New and existing development and material assets are at risk of erosion and flooding, sea level rise is a serious concern, particularly for an Island.	includes capital refurbishment of the defences in front on Inn on the Beach. Beach access will be maintained and support provided for future regeneration and redevelopment plans under development with HBC.		
Soil	Protect historic landfill sites from flooding and/or erosion, in particular sites which have been identified as potential sources of significant contamination? Prevent loss/reduce potential of high grade agricultural land from flooding?	No impact. There are no recorded historic landfill sites or agricultural land at risk from coastal erosion or flooding.	No impact. There are no recorded historic landfill sites or agricultural land at risk from coastal erosion or flooding.	No impact. There are no recorded historic landfill sites or agricultural land at risk from coastal erosion or flooding.
Water	Potential deterioration to the current status of water bodies around Hayling Island	The WFD has concluded the leading options are not likely to have a permanent (i.e. non-temporary) effect on the status of WFD parameters Therefore, deterioration to the current status of the water bodies overlapping with each ODU is not predicted, nor a prevention of these water bodies achieving future WFD status objectives. However, it is recommended that a more detailed WFD assessment will be required when more information on the design is available.		
Climatic Factors	Contribute to mitigating main causes of climate change by promoting low or zero carbon approaches Contribute to mitigating main causes of climate change by protecting green networks which act as carbon sinks	Capital works to create new defences is likely to have a minor t adverse effect on climatic factors as a result of increased GHG emissions from construction.	Upgrades to defences and beach nourishment and recycling is likely to have a minor adverse effect on climatic factors as a result of increased GHG emissions from construction.	Upgrades to defences and beach nourishment and recycling is likely to have a minor adverse effect on climatic factors as a result of increased GHG emissions from construction.

ODU10 Inn on the Beach to North Shore Road - Resilience

SEA topic	Key environmental issue	2021-2041	2041-2071	2071-2121
Biodiversity	• There are a number of sites designated for their nature	This is another very mixed frontage, with vegetated	This is another very mixed frontage, with vegetated	This is another very mixed frontage, with vegetated

	conservation importance within 7km of the Strategy area, including international designations (Chichester and Langstone Harbour SPA/Ramsar, Portsmouth Harbour SPA/Ramsar, Solent and Dorset Coast SPA, Solent Maritime SAC) and national designations (SSSI). The condition and integrity of these sites and their interest features must not be compromised. • Ensuring that FCERM projects avoid disruption of coastal or other natural processes that might lead to the loss or change of coastal and estuarine habitat, including mudflats, saltmarsh and vegetated shingle, or landward habitats including coastal grazing marsh. • The strategy area contains numerous functionally linked supporting habitats including the network of waders roosts and brent goose sites, ensure they are not adversely affected by FCERM schemes. • Hayling Island has a rich biodiversity interest. Ensure notable species and habitats are not adversely affected by FCERM schemes • Opportunities for ecological enhancements and achieving biodiversity net gain should be sought thorough the strategy.	shingle and dune habitats on the open coast of southern and western elements and saltmarsh and grazing march on the estuarine northern element. Resilience will allow natural processes to continue, which will benefit all of these habitats in the short term. This will result in a mixed effect on biodiversity, it is, considered that overall this could lead to an adverse effect. However this would also occur in a do nothing or baseline scenario without the Strategy.	shingle and dune habitats on the open coast of southern and western elements and saltmarsh and grazing march on the estuarine northern element. Resilience will allow natural processes to continue, which will benefit all of these habitats in the short term. In the longer term SLR and limited opportunities for the saltmarsh and CGM to roll back inland will reduce the ability to sustain saltmarsh without intervention. This will result in a mixed effect on biodiversity, it is, considered that overall this could lead to an adverse effect However this would also occur in a do nothing or baseline scenario without the Strategy.	shingle and dune habitats on the open coast of southern and western elements and saltmarsh and grazing march on the estuarine northern element. Resilience will allow natural processes to continue, which will benefit all of these habitats in the short term. In the longer term SLR and limited opportunities for the saltmarsh and CGM to roll back inland will reduce the ability to sustain saltmarsh without intervention. This will result in a mixed effect on biodiversity, it is, considered that overall this could lead to an adverse effect However this would also occur in a do nothing or baseline scenario without the Strategy.
Historic environment	There is a Scheduled Monument present within the ODU.	Providing continued maintenance of existing	Providing continued maintenance of existing	Providing continued maintenance of existing

	The preservation or enhancement of the existing character, appearance and setting of cultural heritage assets, namely conservation areas, nationally and locally listed buildings. Archeological monuments are present throughout the ODU.	frontline defences during this time epoch is considered to protect historic assets (including archeology) present within the ODU.	frontline defences during this time epoch is considered to protect historic assets (including archeology) present within the ODU.	frontline defences during this time epoch is considered to protect historic assets (including archeology) present within the ODU. Depending on the outcome of monitoring, the implementation of localised erosion controls could negatively impact upon heritage features present (through disturbance, impact on views and setting).
Landscape	Hayling Island contains extensive areas of undeveloped coastline and maintenance of this rural character has been identified as a priority. The north east of Hayling Island falls within Chichester Harbour AONB, valued for its intrinsic character, quality, features, setting and views. The open, unspoilt landscape types present offer visual separation between different land uses and extensive views including that of the AONB. Different landscape types present within the strategy area provide a variety of habitats to support biodiversity.	Impact on the landscape is likely to be negligible during this time epoch.	Impact on the landscape is likely to be negligible during this time epoch.	Impact on the landscape is likely to be negligible during this time epoch.
Health	Prevent loss and damage to residential properties from flooding and/or coastal erosion? Improve and enhance the health and wellbeing of residents through the protection and enhancement of recreation facilities, accessible	PLR will provide protection to residential properties and have a minor benefit on the psychological and physical health of people at risk from flooding. Erosion controls will protect coastal access and golf club.	PLR and patch and repair to current defences will provide some protection to residential properties as flood risk increases with sea level rise. This is likely to have a minor benefit on the psychological and physical	There is likely to be mixed adverse and beneficial impacts. PLR will provide some protection to residential properties as flood risk increases with sea level rise. This is likely to have a minor adverse on the

	green space, coastal paths and beaches from coastal change? Protect access onto Hayling Island? Protect residents from potentially contaminated land?		health of people at risk from flooding. Erosion controls will protect coastal access and golf club.	psychological and physical health of people at risk from flooding. Erosion controls will protect coastal access and golf club.
Material Assets	The Strategy should ensure that material assets within Havant Borough's coastal region are not compromised as a result of coastal change. New and existing development and material assets are at risk of erosion and flooding, sea level rise is a serious concern, particularly for an Island.	Implementing PFR measures for all properties at risk of flooding up to a 5% AEP flood event will offer some minor benefit to material assets. However, this option does not provide improved protection to Ferry Road. It is likely that road damages to Ferry Road would reduce access to some properties in the area. Localised erosion controls could be implemented to help retain coastal access and reduce the impact of erosion on the golf club, supporting recreation and the future redevelopment plans which are currently under consideration by HBC.	Continued implementation of PFR measures for all properties at risk of flooding up to a 5% AEP flood event will enable some minor benefit to material assets.	Continued implementation of PFR measures for all properties at risk of flooding up to a 5% AEP flood event will enable some minor benefit to material assets.
Soil	Protect historic landfill sites from flooding and/or erosion, in particular sites which have been identified as potential sources of significant contamination? Prevent loss/reduce potential of high grade agricultural land from flooding?	There is agricultural land at risk from flooding, patch and repair to current defences will provide protection from flooding and is likely to have a minor benefit to agricultural land.	The risk of flooding to agricultural land within this frontage will increase over the medium term and patch and repair may not be able to keep pace with predicted sea level rise. There are likely to be a neutral change.	The risk of flooding to agricultural land within this frontage will increase over the long term, patch and repair may not be able to keep pace with predicted sea level rise. This is likely to a minor adverse impact on agricultural land.
Water	Potential deterioration to the current status of water bodies around Hayling Island	The WFD has concluded the leading options are not likely to have a permanent (i.e. non-temporary) effect on the status of WFD parameters Therefore, deterioration to the current status of the water bodies overlapping with each ODU is not predicted, nor a prevention of these water bodies achieving future WFD status objectives. However, it is recommended		

		that a more detailed WFD assessment will be required when more information on the design is available.		
Climatic Factors	Contribute to mitigating main causes of climate change by promoting low or zero carbon approaches Contribute to mitigating main causes of climate change by protecting green networks which act as carbon sinks	Property level resilience is a low carbon approach and likely to have a neutral impact on climatic factors.	Property level resilience is a low carbon approach and likely to have a neutral impact on climatic factors. This policy option includes patch and repair to current defences which will require maintenance during this epoch. This is likely to have minor adverse effects as a realist of increased GHG emissions.	Property level resilience is a low carbon approach and likely to have a neutral impact on climatic factors. This policy option includes patch and repair to current defences which will require maintenance during this epoch. This is likely to have minor adverse effects as a realist of increased GHG emissions.

ODU11 North Shore Road - Sustain 1.33%

SEA topic	Key environmental issue	2021-2041	2041-2071	2071-2121
Biodiversity	• There are a number of sites designated for their nature conservation importance within 7km of the Strategy area, including international designations (Chichester and Langstone Harbour SPA/Ramsar, Portsmouth Harbour SPA/Ramsar, Solent and Dorset Coast SPA, Solent Maritime SAC) and national designations (SSSI). The condition and integrity of these sites and their interest features must not be compromised. • Ensuring that FCERM projects avoid disruption of coastal or other natural processes that might lead to the loss or change of coastal and estuarine habitat, including mudflats, saltmarsh and vegetated shingle, or landward habitats	Landward of these defences is residential development of low intrinsic biodiversity value. Seaward are mudflats which in the shorter term will be less sensitive to coastal squeeze related losses. There are limited bird roosting opportunities in this frontage. Any design should be sensitive to the presence of the seagrass and look for opportunities for enhancement of these feature and wader roosting. Neutral.	Landward of these defences is residential development of low intrinsic biodiversity value. Seaward are mudflats which in the shorter term will be less sensitive to coastal squeeze related losses. There are limited bird roosting opportunities in this frontage. Any design should be sensitive to the presence of the seagrass and look for opportunities for enhancement of these feature and wader roosting. Neutral.	Landward of these defences is residential development of low intrinsic biodiversity value. Seaward are mudflats which in the shorter term will be less sensitive to coastal squeeze related losses. There are limited bird roosting opportunities in this frontage. Any design should be sensitive to the presence of the seagrass and look for opportunities for enhancement of these feature and wader roosting. Neutral.

	including coastal grazing marsh. • The strategy area contains numerous functionally linked supporting habitats including the network of waders roosts and brent goose sites, ensure they are not adversely affected by FCERM schemes. • Hayling Island has a rich biodiversity interest. Ensure notable species and habitats are not adversely affected by FCERM schemes • Opportunities for ecological enhancements and achieving biodiversity net gain should be sought thorough the strategy.			
Historic environment	There is a Scheduled Monument present within the ODU. The preservation or enhancement of the existing character, appearance and setting of cultural heritage assets, namely conservation areas, nationally and locally listed buildings. Archeological monuments are present throughout the ODU.	Construction of a frontline floodwall during this time epoch has the potential to impact upon the setting of the Scheduled Monument and disturb archeological assets.	The established floodwall, in addition to maintenance of defences during this time epoch has the potential to impact upon the setting of the Scheduled Monument present. Maintaining new defences during this time epoch is considered to protect historic assets present within the ODU, leading to minor beneficial effects. These benefits are primarily the result of the reduced flood and erosion risk to archaeology present.	The established floodwall, in addition to maintenance of defences during this time epoch has the potential to impact upon the setting of the Scheduled Monument present. Maintaining new defences during this time epoch is considered to protect historic assets present within the ODU, leading to minor beneficial effects. These benefits are primarily the result of the reduced flood and erosion risk to archaeology present.
Landscape	Hayling Island contains extensive areas of undeveloped coastline and	Construction of new defences (flood wall) could	Potential for temporary visual effects in this time	Potential for temporary visual effects in this time

	maintenance of this rural character has been identified as a priority.	impact upon the setting of the local landscape and views.	epoch as additional lengths are added to defences. There may be minor permanent long-term adverse visual effects as a result of this option given that property boundaries are located close to the foreshore, however this is uncertain.	epoch as additional lengths are added to defences. There may be minor permanent long-term adverse visual effects as a result of this option given that property boundaries are located close to the foreshore, however this is uncertain.
	The open, unspoilt landscape types present offer visual separation between different land uses and extensive views.			
	Different landscape types present within the strategy area provide a variety of habitats to support biodiversity.			
Health	Prevent loss and damage to residential properties from flooding and/or coastal erosion? Improve and enhance the health and wellbeing of residents through the protection and enhancement of recreation facilities, accessible green space, coastal paths and beaches from coastal change? Protect access onto Hayling Island? Protect residents from potentially contaminated land?	Construction of new flood defences to the west will provide minor benefits in relation to improved psychological health of people at risk from flooding and coastal erosion. There will also be benefits in relation to physical health through a reduction of injuries during the flooding events.	Construction of new flood defences to the east and upgrades to west defences will provide minor benefits in relation to improved psychological health of people at risk from flooding and coastal erosion. There will also be benefits in relation to physical health through a reduction of injuries during the flooding events.	Upgrades of new flood defences to the east and west defences will provide significant benefits in relation to improved psychological health of people at risk from flooding and coastal erosion. There will also be benefits in relation to physical health through a reduction of injuries during the flooding events.
Material Assets	The Strategy should ensure that material assets within Havant Borough's coastal region are not compromised as a result of coastal change.	Capital works will provide sufficient flood and erosion protection to all properties and infrastructure. There may be some technical challenges in building defences as the property boundaries are located close to the foreshore, however this would be considered in the design. Overall this epoch would result in potentially significant benefits to material assets.		
	New and existing development and material assets are at risk of erosion and flooding, sea level rise is a serious concern, particularly for an Island.		Maintenance and upgrade will enable ongoing significant benefits to material assets	Maintenance and upgrade will enable ongoing significant benefits to material assets

Soil	Protect historic landfill sites from flooding and/or erosion, in particular sites which have been identified as potential sources of significant contamination? Prevent loss/reduce potential of high grade agricultural land from flooding?	No impact. There are no recorded historic landfill sites or agricultural land at risk from coastal erosion or flooding.	No impact. There are no recorded historic landfill sites or agricultural land at risk from coastal erosion or flooding.	No impact. There are no recorded historic landfill sites or agricultural land at risk from coastal erosion or flooding.
Water	Potential deterioration to the current status of water bodies around Hayling Island	The WFD has concluded the leading options are not likely to have a permanent (i.e. non-temporary) effect on the status of WFD parameters Therefore, deterioration to the current status of the water bodies overlapping with each ODU is not predicted, nor a prevention of these water bodies achieving future WFD status objectives. However, it is recommended that a more detailed WFD assessment will be required when more information on the design is available.		
Climatic Factors	Contribute to mitigating main causes of climate change by promoting low or zero carbon approaches Contribute to mitigating main causes of climate change by protecting green networks which act as carbon sinks	Capital works to create new frontline defences is likely to have a minor adverse effect on o climatic factors as a result of increased GHG emissions from construction.	Capital works to create new frontline defences is likely to have a minor adverse effect on climatic factors as a result of increased GHG emissions from construction.	Upgrades to defences is likely to have a minor adverse effect on climatic factors as a result of increased GHG emissions from construction.

ODU12 North Shore Road to Newtown - Do Nothing

SEA topic	Key environmental issue	2021-2041	2041-2071	2071-2121
Biodiversity	• There are a number of sites designated for their nature conservation importance within 7km of the Strategy area, including international designations (Chichester and Langstone Harbour SPA/Ramsar, Portsmouth Harbour SPA/Ramsar, Solent andf Dorset Coast SPA, Solent Maritime SAC) and national designations (SSSI). The condition and integrity of these	Seaward of the existing defences are some small areas of saltmarsh, but predominately mudflat. Landward is an arable fields that are used by brent geese and waders classified as a Core SWBGS sites. Depending on the residual life of the defence in the shorter	Seaward of the existing defences are some small areas of saltmarsh, but predominately mudflat. Landward is an arable fields that are used by brent geese and waders classified as a Core SWBGS sites. Depending on the residual life of the defence SLR will cause the loss of the fronting	Seaward of the existing defences are some small areas of saltmarsh, but predominately mudflat. Landward is an arable fields that are used by brent geese and waders classified as a Core SWBGS sites. Depending on the residual life of the defence SLR will cause the loss of the fronting

	sites and their interest features must not be compromised. • Ensuring that FCERM projects avoid disruption of coastal or other natural processes that might lead to the loss or change of coastal and estuarine habitat, including mudflats, saltmarsh and vegetated shingle, or landward habitats including coastal grazing marsh. • The strategy area contains numerous functionally linked supporting habitats including the network of waders roosts and brent goose sites, ensure they are not adversely affected by FCERM schemes. • Hayling Island has a rich biodiversity interest. Ensure notable species and habitats are not adversely affected by FCERM schemes • Opportunities for ecological enhancements and achieving biodiversity net gain should be sought thorough the strategy.	term the fronting saltmarsh will be lost to coastal squeeze, but the core site will be protected. Neutral	saltmarsh, but may start to roll back into the arable field in an unplanned way. It is unlikely to make the SWBGS field unsuitable for geese and waders. Minor beneficial. Minor beneficial	saltmarsh, but will start to roll back into the arable field in an unplanned way. It is unlikely to make the SWBGS field unsuitable for geese and waders and may create new intertidal habitat, but difficult to predict. Minor beneficial
Historic environment	There are no cultural heritage designations or designated structural heritage assets within or adjacent to ODU12. A single archeological monument is present along the shoreline	Under a 'do nothing' scenario, no minor or significant effects have been identified for this frontage during this time epoch.	Under a 'do nothing' scenario, no minor or significant effects have been identified for this frontage during this time epoch.	Under a 'do nothing' scenario, no minor or significant effects have been identified for this frontage during this time epoch.
Landscape	Hayling Island contains extensive areas of undeveloped coastline and maintenance of this rural character has been identified as a priority. The open, unspoilt landscape	Construction of a setback embankment in this time epoch could impact upon the setting of the local landscape and views,	Impact on the landscape is likely to be negligible during this time epoch.	Impact on the landscape is likely to be negligible during this time epoch.

	types present offer visual separation between different land uses and extensive views. Different landscape types present within the strategy area provide a variety of habitats to support biodiversity.	however impacts would be negligible in the long term. The creation of intertidal habitat may be considered beneficial to the local landscape, however the loss of deciduous woodland could have negative effects.		
Health	Prevent loss and damage to residential properties from flooding and/or coastal erosion? Improve and enhance the health and wellbeing of residents through the protection and enhancement of recreation facilities, accessible green space, coastal paths and beaches from coastal change? Protect access onto Hayling Island? Protect residents from potentially contaminated land?	The policy will have a neutral impact on human health as there are no residential properties, recreation facilities or recorded historic landfills at risk from flooding or erosion within this frontage.	The policy will have a neutral impact on human health as there are no residential properties, recreation facilities or recorded historic landfills at risk from flooding or erosion within this frontage.	The policy will have a neutral impact on human health as there are no residential properties, recreation facilities or recorded historic landfills at risk from flooding or erosion within this frontage.
Material Assets	The Strategy should ensure that material assets within Havant Borough's coastal region are not compromised as a result of coastal change. New and existing development and material assets are at risk of erosion and flooding, sea level rise is a serious concern, particularly for an Island.	This option would not change the current base case.	This option would not change the current base case.	This option would not change the current base case.
Soil	Protect historic landfill sites from flooding and/or erosion, in particular sites which have been identified as potential sources of significant contamination?	There is grade 3 agricultural land at risk from flooding but this frontage is currently undefended therefore	There is grade 3 agricultural land at risk from flooding but this frontage is currently undefended therefore there is likely to be a neutral impact.	There is grade 3 agricultural land at risk from flooding but this frontage is currently undefended therefore there

	Prevent loss/reduce potential of high grade agricultural land from flooding?	there is likely to be a neutral impact.		is likely to be a neutral impact.
Water	Potential deterioration to the current status of water bodies around Hayling Island	The WFD has concluded the leading options are not likely to have a permanent (i.e. non-temporary) effect on the status of WFD parameters Therefore, deterioration to the current status of the water bodies overlapping with each ODU is not predicted, nor a prevention of these water bodies achieving future WFD status objectives. However, it is recommended that a more detailed WFD assessment will be required when more information on the design is available.		
Climatic Factors	Contribute to mitigating main causes of climate change by promoting low or zero carbon approaches Contribute to mitigating main causes of climate change by protecting green networks which act as carbon sinks	Allowing the coastline to naturally evolve is a zero carbon approach and unlikely to have any impact on climatic factors.	Allowing the coastline to naturally evolve is a zero carbon approach and unlikely to have any impact on climatic factors.	Allowing the coastline to naturally evolve is a zero carbon approach and unlikely to have any impact on climatic factors.

ODU 13 Newtown - Sustain from 2042 (Maintain then Sustain) 0.5%

SEA topic	Key environmental issue	2021-2041	2041-2071	2071-2121
Biodiversity	• There are a number of sites designated for their nature conservation importance within 7km of the Strategy area, including international designations (Chichester and Langstone Harbour SPA/Ramsar, Portsmouth Harbour SPA/Ramsar, Solent andf Dorset Coast SPA, Solent Maritime SAC) and national designations (SSSI). The condition and integrity of these sites and their interest features must not be compromised. • Ensuring that FCERM projects avoid disruption of coastal or other natural processes that might lead to the loss or change of coastal and estuarine habitat, including mudflats, saltmarsh and vegetated shingle, or	Seaward of they defence is predominately mudflat and landward is coastal grazing marsh and fields used by brent geese and waders catergorised as core sites by SWBGS. The maintain then sustain option will not affect seaward habitats but will protect landward grazing marsh and brent goose sites. Minor beneficial	Seaward of they defence is predominately mudflat and landward is coastal grazing marsh and fields used by brent geese and waders catergorised as core sites by SWBGS. The maintain then sustain option will not affect seaward habitats but will protect landward grazing marsh and brent goose sites. Minor beneficial	Seaward of they defence is predominately mudflat and landward is coastal grazing marsh and fields used by brent geese and waders catergorised as core sites by SWBGS. The maintain then sustain option will not affect seaward habitats but will protect landward grazing marsh and brent goose sites. Minor beneficial

	landward habitats including coastal grazing marsh. • The strategy area contains numerous functionally linked supporting habitats including the network of waders roosts and brent goose sites, ensure they are not adversely affected by FCERM schemes. • Hayling Island has a rich biodiversity interest. Ensure notable species and habitats are not adversely affected by FCERM schemes • Opportunities for ecological enhancements and achieving biodiversity net gain should be sought thorough the strategy.			
Historic environment	There are a number of Listed Buildings located within the ODU, although distant from the shoreline. The preservation or enhancement of the existing character, appearance and setting of cultural heritage assets, namely conservation areas, nationally and locally listed buildings. Archeological monuments exist throughout the ODU including along the shoreline which is an area at risk from flooding.	Maintaining defences in this time epoch is unlikely to impact upon the historic environment/ assets present.	Capital works taking place during this time epoch has the potential to impact upon archeology near the shoreline. Improving frontline defences during this time epoch is likely to create minor beneficial effects. These benefits are primarily the result of the reduced flood and erosion risk to archaeology present.	Upgrading frontline defences during this time epoch has the potential to impact upon archeology near the shoreline. Delivering upgrades to frontline defences during this time epoch is likely to create minor beneficial effects. These benefits are primarily the result of the reduced flood and erosion risk to archaeology present.
Landscape	Hayling Island contains extensive areas of undeveloped coastline and maintenance of this rural character has been identified as a priority.	Construction required to maintain existing defences (i.e. refurbishment and repair) could impact upon the	Capital works and upgrades to the new defences in this time epoch has the potential to lead	Capital works and upgrades to the new defences in this time epoch has the potential

	The open, unspoilt landscape types present offer visual separation between different land uses and extensive views. Different landscape types present within the strategy area provide a variety of habitats to support biodiversity.	setting of the local landscape.	impact upon local landscape and views.	to lead impact upon local landscape and views.
Health	Prevent loss and damage to residential properties from flooding and/or coastal erosion? Improve and enhance the health and wellbeing of residents through the protection and enhancement of recreation facilities, accessible green space, coastal paths and beaches from coastal change? Protect access onto Hayling Island? Protect residents from potentially contaminated land?	There are no residential properties at risk from flooding during this epoch. This option will provide protection to the Hayling Billy Coastal Path from flooding and have minor benefits on the health and well-being of residents.	Capital works to the frontline defences will provide protection residential properties at risk from flooding. This will have a beneficial impact on the the psychological and physical health of people at risk from flooding. This option will provide protection to the Hayling Billy Coastal Path. Overall there is likely to be significant benefits.	Maintenance and upgrades to the frontline defences will provide protection to residential properties as the flood risk increases will sea level rise. This will have a beneficial impact on the the psychological and physical health of people at risk from flooding. This option will provide protection to the Hayling Billy Coastal Path. Overall there is likely to be significant benefits.
Material Assets	The Strategy should ensure that material assets within Havant Borough's coastal region are not compromised as a result of coastal change. New and existing development and material assets are at risk of erosion and flooding, sea level rise is a serious concern, particularly for an Island.	Maintenance and upgrade will provide sufficient flood and erosion protection to all properties and infrastructure, including the Billy Trail.	Capital works will provide sufficient flood and erosion protection to all properties and infrastructure, including the Billy Trail.	Maintenance and upgrade will provide ongoing flood and erosion protection to all properties and infrastructure, including the Billy Trail.
Soil	Protect historic landfill sites from flooding and/or erosion, in particular sites which have been identified as potential sources of significant contamination? Prevent loss/reduce potential of high grade agricultural land from flooding?	Maintaining current defences will protect grade 3 agricultural land at risk from flooding and is likely to have a minor benefit.	New defences will protect grade 3 agricultural land at increased risk from flooding as sea levels rise and likely to have a minor benefit.	Upgrades to defences will protect grade 3 agricultural land at increased risk from flooding as sea levels rise risk and likely to have a minor benefit.

Water	Potential deterioration to the current status of water bodies around Hayling Island	The WFD has concluded the leading options are not likely to have a permanent (i.e. non-temporary) effect on the status of WFD parameters Therefore, deterioration to the current status of the water bodies overlapping with each ODU is not predicted, nor a prevention of these water bodies achieving future WFD status objectives. However, it is recommended that a more detailed WFD assessment will be required when more information on the design is available.		
Climatic Factors	Contribute to mitigating main causes of climate change by promoting low or zero carbon approaches Contribute to mitigating main causes of climate change by protecting green networks which act as carbon sinks	Maintenance of defences is likely to have a minor adverse effect on climatic factors as a result of increased GHG emissions from construction.	Construction of frontline defence is likely to have a minor adverse effect on climatic factors as a result of increased GHG emissions from construction.	Maintenance and upgrades to defences is likely to have a minor adverse effect on climatic factors as a result of increased GHG emissions from construction.

ODU 14 Newtown to Stoke – Do nothing

SEA topic	Key environmental issue	2021-2041	2041-2071	2071-2121
Biodiversity	• There are a number of sites designated for their nature conservation importance within 7km of the Strategy area, including international designations (Chichester and Langstone Harbour SPA/Ramsar, Portsmouth Harbour SPA/Ramsar, Solent andf Dorset Coast SPA, Solent Maritime SAC) and national designations (SSSI). The condition and integrity of these sites and their interest features must not be compromised. • Ensuring that FCERM projects avoid disruption of coastal or other natural processes that might lead to the loss or change of coastal and estuarine habitat, including mudflats, saltmarsh and vegetated shingle, or landward habitats including coastal grazing marsh.	There are small areas of saltmarsh to seaward that may be affected by the continued existence of defences. Landward is some areas of saltmarsh, but mainly arable land much of which is used by brent geese and waders. Due to the levels it is unlikely that local failures will lead to much habitat roll back. Neutral	There are small areas of saltmarsh to seaward that may be affected by the continued existence of defences. Landward is some areas of saltmarsh, but mainly arable land much of which is used by brent geese and waders. Due to the levels it is unlikely that local failures will lead to much habitat roll back in early years but this will increase with SLR. Neutral	There are small areas of saltmarsh to seaward that may be affected by the continued existence of defences. Landward is some areas of saltmarsh, but mainly arable land much of which is used by brent geese and waders. Due to the levels it is unlikely that local failures will lead to much habitat roll back, in later epochs this may lead to some creation. Minor beneficial

	• The strategy area contains numerous functionally linked supporting habitats including the network of waders roosts and brent goose sites, ensure they are not adversely affected by FCERM schemes. • Hayling Island has a rich biodiversity interest. Ensure notable species and habitats are not adversely affected by FCERM schemes • Opportunities for ecological enhancements and achieving biodiversity net gain should be sought thorough the strategy.			
Historic environment	There are a number of Listed Buildings located within the ODU, although located inland. The preservation or enhancement of the existing character, appearance and setting of cultural heritage assets, namely conservation areas, nationally and locally listed buildings. Archeological monuments exist throughout the ODU including along the shoreline which is an area at risk from flooding.	Under a 'do nothing' scenario, no minor or significant effects have been identified for this frontage during this time epoch.	Under a 'do nothing' scenario, no minor or significant effects have been identified for this frontage during this time epoch.	In the long term the defences along this frontage will have deteriorated and no longer provide any protection to heritage asset at increased risk from flooding as sea levels rise.
Landscape	Hayling Island contains extensive areas of undeveloped coastline and maintenance of this rural character has been identified as a priority. The north east of Hayling Island falls within Chichester Harbour AONB, valued for its intrinsic character, quality, features, setting and views.	Impact on the landscape is likely to be negligible during this time epoch.	Allowing the coastline to evolve naturally over this time epoch will positively impact the landscape.	Allowing the coastline to evolve naturally over this time epoch will positively impact the landscape.

	The open, unspoilt landscape types present offer visual separation between different land uses and extensive views including that of the AONB. Different landscape types present within the strategy area provide a variety of habitats to support biodiversity.			
Health	Prevent loss and damage to residential properties from flooding and/or coastal erosion? Improve and enhance the health and wellbeing of residents through the protection and enhancement of recreation facilities, accessible green space, coastal paths and beaches from coastal change? Protect access onto Hayling Island? Protect residents from potentially contaminated land?	There are no residential properties at risk from flooding along this frontage in this epoch. The current defences along this frontage will begin to deteriorate within this epoch but will provide some protection to the Hayling Billy coastal path which is at risk from coastal erosion. Overall there is likely to be neutral effect.	There are no residential properties at risk from flooding along this frontage in this epoch. This likely to have minor adverse effect on the psychological and physical health of people at risk from flooding. The Hayling Billy coastal path will be at risk from coastal eroison. Overall there is likely to be a minor adverse effect.	During this epoch there are 3 residential properties at risk from flooding and erosion along this frontage. This likely to have minor adverse effect on the psychological and physical health of people at risk from flooding. The Hayling Billy coastal path will be at risk from flooding. Overall there is likely to be a minor adverse effect.
Material Assets	The Strategy should ensure that material assets within Havant Borough's coastal region are not compromised as a result of coastal change. New and existing development and material assets are at risk of erosion and flooding, sea level rise is a serious concern, particularly for an Island.	This option would not change the current base case. The natural evolution would likely result in failure of existing defences within 10 years. There is some risk of flooding to properties here, as well as a risk of coastal erosion to the Billy trail.	This option would not change the current base case.	This option would not change the current base case.
Soil	Protect historic landfill sites from flooding and/or erosion, in particular sites which have been identified as potential sources of significant contamination? Prevent loss/reduce potential of high grade agricultural land from flooding?	Neutral impact. Current defence will provide protection to agricultural land at risk from flooding and coastal erosion.	Neutral impact. The flood risk to agricultural land is small within this epoch and unlikely to have a discernible effect.	The flood risk will increases during this epoch and there is likely to be a minor adverse effect on agricultural land.

Water	Potential deterioration to the current status of water bodies around Hayling Island	The WFD has concluded the leading options are not likely to have a permanent (i.e. non-temporary) effect on the status of WFD parameters Therefore, deterioration to the current status of the water bodies overlapping with each ODU is not predicted, nor a prevention of these water bodies achieving future WFD status objectives. However, it is recommended that a more detailed WFD assessment will be required when more information on the design is available.		
Climatic Factors	Contribute to mitigating main causes of climate change by promoting low or zero carbon approaches Contribute to mitigating main causes of climate change by protecting green networks which act as carbon sinks	Allowing the coastline to naturally evolve is a zero carbon approach and unlikely to have any impact on climatic factors.	Allowing the coastline to naturally evolve is a zero carbon approach and unlikely to have any impact on climatic factors.	Allowing the coastline to naturally evolve is a zero carbon approach and unlikely to have any impact on climatic factors.

ODU15 Stoke to Langstone Bridge Carpark – Sustain 0.5%

SEA topic	Key environmental issue	2021-2041	2041-2071	2071-2121
Biodiversity	• There are a number of sites designated for their nature conservation importance within 7km of the Strategy area, including international designations (Chichester and Langstone Harbour SPA/Ramsar, Portsmouth Harbour SPA/Ramsar, Solent andf Dorset Coast SPA, Solent Maritime SAC) and national designations (SSSI). The condition and integrity of these sites and their interest features must not be compromised. • Ensuring that FCERM projects avoid disruption of coastal or other natural processes that might lead to the loss or change of coastal and estuarine habitat, including mudflats, saltmarsh and vegetated shingle, or landward habitats including coastal grazing marsh. • The strategy area contains	A set back defence in this location will provide oppuntunities for habitat creation and natural processes. But will affect some scrubby coastal grazing marsh. Internationally important seabird nesting colonies, as long as they continue to be maintained will have greater separation to the footpath. Significant beneficial	A set back defence in this location will provide oppuntunities for habitat creation and natural processes. But will affect some scrubby coastal grazing marsh. Internationally important seabird nesting colonies, as long as they continue to be maintained will have greater separation to the footpath. Significant beneficial	A set back defence in this location will provide oppuntunities for habitat creation and natural processes. But will affect some scrubby coastal grazing marsh. Internationally important seabird nesting colonies, as long as they continue to be maintained will have greater separation to the footpath. Significant beneficial

	numerous functionally linked supporting habitats including the network of waders roosts and brent goose sites, ensure they are not adversely affected by FCERM schemes. • Hayling Island has a rich biodiversity interest. Ensure notable species and habitats are not adversely affected by FCERM schemes • Opportunities for ecological enhancements and achieving biodiversity net gain should be sought thorough the strategy.			
Historic environment	There are a number of Listed Buildings located within the ODU, although located inland. The preservation or enhancement of the existing character, appearance and setting of cultural heritage assets, namely conservation areas, nationally and locally listed buildings. Archeological monuments exist throughout the ODU including along the shoreline which is an area at risk from flooding.	The construction of new setback defences in this time epoch have the potential to impact upon the setting of Listed Buildings. However defences would likely involve habitat creation and be grass covered, reducing the potential for residual adverse visual effects in the long term. Construction also has the potential to disturb archeological assets present.	Raising and maintaining defences during this time epoch is likely to create minor beneficial effects. These benefits are primarily the result of the reduced flood and erosion risk to archaeology present.	Raising and maintaining defences during this time epoch is likely to create minor beneficial effects. These benefits are primarily the result of the reduced flood and erosion risk to archaeology present.
Landscape	Hayling Island contains extensive areas of undeveloped coastline and maintenance of this rural character has been identified as a priority. The north east of Hayling Island falls within Chichester Harbour AONB, valued for its intrinsic character, quality, features, setting and views.	Constructing new setback defences and embankment in this time epoch could temporarily impact upon the setting of the local landscape.	Impact on the landscape is likely to be negligible during this time epoch.	Impact on the landscape is likely to be negligible during this time epoch.

	The open, unspoilt landscape types present offer visual separation between different land uses and extensive views including that of the AONB. Different landscape types present within the strategy area provide a variety of habitats to support biodiversity.	The creation of intertidal wetland habitat may be considered beneficial to the local landscape, however the loss of good quality semi-improved grassland landscape could have negative effects.		
Health	Prevent loss and damage to residential properties from flooding and/or coastal erosion? Improve and enhance the health and wellbeing of residents through the protection and enhancement of recreation facilities, accessible green space, coastal paths and beaches from coastal change? Protect access onto Hayling Island? Protect residents from potentially contaminated land?	New setback defences will provide protection residential properties at risk from flooding. This will have a beneficial impact on the the psychological and physical health of people at risk from flooding. This policy option includes the remediation of the historic landfill site west of the old railway. (Osysterbeds). This is will have a beneficial impact on human health through the treatment or removal of potential contaminates at the site. The new setback defence will provide protection to the Billy Hayling coastal path. Overall there is likely to be minor benefits.	Upgrades and maintenance of setback defences will provide protection to the property at increased risk from flooding as sea levels rise. This will have a beneficial impact on the the psychological and physical health of people at risk from flooding. This policy option includes the remediation of the historic landfill site west of the old railway. (Osysterbeds). This is will have a beneficial impact on human health through the treatment or removal of potential contaminates at the site. The new setback defence will provide protection to the Billy Hayling coastal path. Overall there is likely to be significant benefits.	Upgrades and maintenance of setback defences will provide protection to the property at increased risk from flooding as sea levels rise. This will have a beneficial impact on the the psychological and physical health of people at risk from flooding. This policy option includes the remediation of the historic landfill site west of the old railway. (Osysterbeds). This is will have a beneficial impact on human health through the treatment or removal of potential contaminates at the site. The new setback defence will provide protection to the Billy Hayling coastal path. Overall there is likely to be significant benefits.
Material Assets	The Strategy should ensure that material assets within Havant Borough's coastal region are not compromised as a result of coastal change.	The construction of new set back defences will benefit 30 properties at risk of flooding from a 0.5% AEP event	Maintenance and upgrade will enable ongoing benefits to material assets	Maintenance and upgrade will enable ongoing benefits to material assets

	New and existing development and material assets are at risk of erosion and flooding, sea level rise is a serious concern, particularly for an Island.			
Soil	Protect historic landfill sites from flooding and/or erosion, in particular sites which have been identified as potential sources of significant contamination? Prevent loss/reduce potential of high grade agricultural land from flooding?	This policy option includes the remediation of the historic landfill site west of the old railway. This is will have a beneficial impact on soil through the treatment or removal of potential contaminates at the site. The new setback defences will provide protection to agricultural land at risk from flooding. This is likely to have a significant benefit.	This policy option includes the remediation of the historic landfill site west of the old railway. This will have a beneficial impact on soil through the treatment or removal of potential contaminates at the site. The maintenance of setback defences will provide protection to agricultural land from increased flooding risk due to sea level rise. This is likely to have a significant benefit.	This policy option includes the remediation of the historic landfill site west of the old railway. This will have a beneficial impact on soil through the treatment or removal of potential contaminates at the site. The maintenance of setback defences will provide protection to agricultural land from increased flooding risk due to sea level rise. This is likely to have a significant benefit.
Water	Potential deterioration to the current status of water bodies around Hayling Island	The WFD has concluded the leading options are not likely to have a permanent (i.e. non-temporary) effect on the status of WFD parameters Therefore, deterioration to the current status of the water bodies overlapping with each ODU is not predicted, nor a prevention of these water bodies achieving future WFD status objectives. However, it is recommended that a more detailed WFD assessment will be required when more information on the design is available.		
Climatic Factors	Contribute to mitigating main causes of climate change by promoting low or zero carbon approaches Contribute to mitigating main causes of climate change by protecting green networks which act as carbon sinks	Capital works to create new setback earth embankment is likely to have a minor adverse effect on climatic factors as a result of increased GHG emissions from construction.	Maintaining setback earth embankment is likely to have a minor adverse effect on climatic factors as a result of increased GHG emissions from construction.	Maintaining setback earth embankment is likely to have a minor adverse effect on climatic factors as a result of increased GHG emissions from construction.

ODU16 Langstone Bridge Carpark to Langstone Bridge – Sustain

SEA topic	Key environmental issue	2021-2041	2041-2071	2071-2121

Biodiversity	• There are a number of sites designated for their nature conservation importance within 7km of the Strategy area, including international designations (Chichester and Langstone Harbour SPA/Ramsar, Portsmouth Harbour SPA/Ramsar, Solent andf Dorset Coast SPA, Solent Maritime SAC) and national designations (SSSI). The condition and integrity of these sites and their interest features must not be compromised. • Ensuring that FCERM projects avoid disruption of coastal or other natural processes that might lead to the loss or change of coastal and estuarine habitat, including mudflats, saltmarsh and vegetated shingle, or landward habitats including coastal grazing marsh. • The strategy area contains numerous functionally linked supporting habitats including the network of waders roosts and brent goose sites, ensure they are not adversely affected by FCERM schemes. • Hayling Island has a rich biodiversity interest. Ensure notable species and habitats are not adversely affected by FCERM schemes • Opportunities for ecological enhancements and achieving biodiversity net gain should be sought thorough the strategy.	There is limited potential for harm or benefit arising from this short frontage with mudflat to seaward and a carpark to the landward. Neutral	There is limited potential for harm or benefit arising from this short frontage with mudflat to seaward and a carpark to the landward. Neutral	There is limited potential for harm or benefit arising from this short frontage with mudflat to seaward and a carpark to the landward. Neutral

Historic environment	There are no cultural heritage designations or designated structural heritage assets within or adjacent to ODU6. A single archeological monument is present along the shoreline.	The construction of a frontline floodwall in this time epoch has the potential to disturb the single archeological asset present.	Raising and maintaining defences during this time epoch is likely to create minor beneficial effects. These benefits are primarily the result of the reduced flood and erosion risk to the archaeological asset present.	Raising and maintaining defences during this time epoch is likely to create minor beneficial effects. These benefits are primarily the result of the reduced flood and erosion risk to the archaeological asset present.
Landscape	Hayling Island contains extensive areas of undeveloped coastline and maintenance of this rural character has been identified as a priority. The north east of Hayling Island falls within Chichester Harbour AONB, valued for its intrinsic character, quality, features, setting and views. Most of the coastal edge is undeveloped, with views from the coastal path at this section of the AONB considered 'panoramic'. The open, unspoilt landscape types present offer visual separation between different land uses and extensive views including that of the AONB. Different landscape types present within the strategy area provide a variety of habitats to support biodiversity.	The construction of a frontline floodwall in this time epoch has the potential to impact upon the local landscape.	Raising and maintaining defences during this time epoch could lead to further negative effects on the local landscape.	Raising and maintaining defences during this time epoch could lead to further significant negative effects on the local landscape.
Health	Prevent loss and damage to residential properties from flooding and/or coastal erosion? Improve and enhance the health and wellbeing of residents through the protection and enhancement of recreation facilities, accessible green space, coastal paths and beaches from coastal change?	New frontline defences will provide flood protection to the only access route onto Hayling Island. This is important for both psychological and physical health of people at risk from flooding, allowing access for emergency services on and	Upgrades and maintenance of defences will provide flood protection to the only access route onto Hayling Island as the risk increases with sea level rise. This is important for both psychological and physical health of people at	Upgrades and maintenance of defences will provide flood protection to the only access route onto Hayling Island as the risk increases with sea level rise. This is important for both psychological and physical health of people at risk from flooding, allowing

	Protect access onto Hayling Island? Protect residents from potentially contaminated land?	off the island. Overall there is likely to be significant benefits.	risk from flooding, allowing access for emergency services on and off the island. Overall there is likely to be significant benefits.	access for emergency services on and off the island. Overall there is likely to be significant benefits.
Material Assets	The Strategy should ensure that material assets within Havant Borough's coastal region are not compromised as a result of coastal change. New and existing development and material assets are at risk of erosion and flooding, sea level rise is a serious concern, particularly for an Island.	Capital works will provide sufficient flood and erosion protection to all properties and infrastructure. This including protecting the A3023, the only road connecting Hayling Island to the main land resulting in significant benefits to assets throughout Hayling Island.	Maintenance and upgrade will enable ongoing benefits to material assets	Maintenance and upgrade will enable ongoing benefits to material assets
Soil	Protect historic landfill sites from flooding and/or erosion, in particular sites which have been identified as potential sources of significant contamination? Prevent loss/reduce potential of high grade agricultural land from flooding?	No impact. There are no recorded historic landfill sites or agricultural land at risk from coastal erosion or flooding, along this frontage.	No impact. There are no recorded historic landfill sites or agricultural land at risk from coastal erosion or flooding, along this frontage.	No impact. There are no recorded historic landfill sites or agricultural land at risk from coastal erosion or flooding, along this frontage.
Water	Potential deterioration to the current status of water bodies around Hayling Island	The WFD has concluded the leading options are not likely to have a permanent (i.e. non-temporary) effect on the status of WFD parameters Therefore, deterioration to the current status of the water bodies overlapping with each ODU is not predicted, nor a prevention of these water bodies achieving future WFD status objectives. However, it is recommended that a more detailed WFD assessment will be required when more information on the design is available.		
Climatic Factors	Contribute to mitigating main causes of climate change by promoting low or zero carbon approaches Contribute to mitigating main causes of climate change by protecting green networks which act as carbon sinks	Capital works to create new frontline defences is likely to have a minor adverse effect on climatic factors as a result of increased GHG emissions from construction. Loss of intertidal habitats from coastal squeeze will have an adverse effect resulting in	Maintenance and upgrades to frontline defences is likely to have a minor adverse effect on climatic factors as a result of increased GHG emissions from construction. Loss of intertidal habitats from coastal squeeze will have	Capital works to create new frontline defences is likely to have a minor adverse effect on climatic factors as a result of increased GHG emissions from construction. Loss of intertidal habitats from coastal squeeze will have an adverse effect

		loss of an important carbon sink and carbon emissions from habitat loss.	an adverse effect resulting in loss of an important carbon sink and carbon emissions from habitat loss.	resulting in loss of an important carbon sink and carbon emissions from habitat loss.