

# **Isle of Grain to South Foreland Shoreline Management Plan (SMP) Review**

## **Appendix D – Strategic Environmental Assessment**

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## Contents Amendment Record

This report has been issued and amended as follows:

Issue	Revision	Description	Date	Approved by
1	0	Initial Draft	27.11.09	L Galloway
	1	Amendments following initial CCC review	11.12.09	T Edwards
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## The Supporting Appendices

This appendix and the accompanying documents provide all of the information required to support the Shoreline Management Plan. This is to ensure that there is clarity in the decision making process and that the rationale behind the policies being promoted is both transparent and auditable. The appendices are:

A: SMP Development	This reports the history of development of the SMP, describing more fully the plan and policy decision-making process.
B: Stakeholder Engagement	All communications from the stakeholder process are provided here, together with information arising from the consultation process.
C: Baseline Process Understanding	Includes baseline process report, defence assessment, NAI and WPM assessments and summarises data used in assessments
D: Thematic Review	This report identifies and evaluates the environmental features (human, natural, historical and landscape).
E: Issues & Objective Evaluation	Provides information on the issues and objectives identified as part of the Plan development, including appraisal of their importance.
F: Initial Policy Appraisal & Scenario Development	Presents the consideration of generic policy options for each frontage, identifying possible acceptable policies, and their combination into 'scenarios' for testing.
G: Scenario Testing	Presents the policy assessment and appraisal of objective achievement towards definition of the Preferred Plan (as presented in the Shoreline Management Plan document).
H: Economic Appraisal and Sensitivity Testing	Presents the economic analysis undertaken in support of the Preferred Plan.
I: Metadatabase and Bibliographic Database	All supporting information used to develop the SMP is referenced for future examination and retrieval.
J: Appropriate Assessment	Presents an assessment of the effect the plan will have on European sites.
K: Strategic Environmental Assessment	Describes how environmental considerations were incorporated into SMP development and what the environmental effects of the preferred policies are.

Date	Version	Description	Author	Review
27/11/2009	1	Draft for review	O Sykes	L Galloway
11/12/2009	2	Final	O Sykes	T Edwards
05/01/2010	3	Final	O Sykes	

## Abbreviations

AONB	Area of Outstanding Natural Beauty
ATL	Advance the Line
BAP	Biodiversity Action Plan
CCA	Countryside Character Area
CFMP	Catchment Flood Management Plan
CLG	Department for Communities and Local Government
CSG	Client Steering Group
Defra	Department for the Environment, Food and Rural Affairs
EA	Environment Agency
EC	European Community
EMF	Elected Members' Forum
ER	Environmental Report
GCR	Geological Conservation Review
GIS	Geographical Information System
HRA	Habitat Regulations Assessment
HTL	Hold the Line
KSF	Key Stakeholders' Forum
LNR	Local Nature Reserve
MoD	Ministry of Defence
MR	Managed Realignment
NAI	No Active Intervention
NNR	National Nature Reserve
NTS	Non-technical summary
ODPM	Office of the Deputy Prime Minister
PU	Policy Unit
RIGS	Regionally Important Geological Site
SAC	Special Area of Conservation
SAM	Scheduled Ancient Monument
SEA	Strategic Environmental Assessment
SI	Statutory Instrument
SLA	Special Landscape Area
SMP2	Shoreline Management Plan review
SNCI	Site of Nature Conservation Interest
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
WFD	Water Framework Directive
Wrt	With respect to

## Non technical summary

### *Purpose of this report*

The purpose of this ER is to describe how environmental considerations were incorporated into decisions on proposed policies for the IoG to DF SMP review. This report complements the Environmental Assessment section of the main SMP report and retrospectively clarifies how UK and European legislation on environmental assessment of plans and programmes was complied with during development of the SMP.

### *The Plan*

The Isle of Grain to South Foreland SMP provides a large-scale assessment of the risks associated with coastal evolution and presents a policy framework to address risks to people and the developed, historic and natural environment. The policy framework comprises high level policy recommendations for shoreline management for each of the 27 policy units (PUs) in the study area and for each of three epochs covered by the SMP period (0-20 years, 20-50 years and 50-100 years). Policy recommendations for each PU are selected following appraisal and consultation from the generic policies set out in Defra (2006), namely Hold the Line, Advance the Line, Managed Realignment or No Active Intervention.

### *Approach to SEA*

A standard approach to SEA was used in this retrospective exercise, as far as was possible given the stage of development of the SMP and the work previously undertaken. Key to this was re-presentation of the SEA elements of the SMP to demonstrate compliance with the SEA Directive. Baseline environmental information was updated, policy options appraisal checked and presented in terms of standard environmental receptors, and assessment of preferred policies undertaken including consideration of impact significance. Other elements of SEA undertaken as part of the SMP process were reviewed and developed as appropriate.

### *Environmental baseline*

The study area is heavily designated for nature conservation with only small sections of developed coastline remaining undesignated. There are four Special Protection Areas, four Ramsar sites, three Special Areas of Conservation and eight Sites of Special Scientific Interest. Designated areas, especially intertidal and freshwater marsh areas, are of particular importance for overwintering and breeding bird populations. The area has a resident population of approximately 310,000 largely based in the eight settlements of Sheerness, Minster, Whitstable, Herne Bay, Margate, Broadstairs, Ramsgate and Deal, with populations of between 10,000 and 60,000. This part of the Kent coastline is important for tourism and leisure. Additional employment is in the sectors of agriculture, fishing and aquaculture, industry (power, pharmaceuticals, shipping, aggregate extraction). Major infrastructure includes ports, harbours and container terminals, an MoD site, power stations, roads and rail. Many classic English landscape elements are present including mudflats /saltmarsh, clay cliffs, chalk cliffs and sandy beaches /dunes, and the southern tip of the study area is within the Kent Downs Area of Outstanding Natural Beauty. The coastline has a significant number of heritage assets, comprising eight Scheduled Ancient Monuments, 19 conservation areas and a large number of listed buildings.

### *Options appraisal*

The four generic policy options (Hold the Line, Advance the Line, Managed Realignment or No Active Intervention) were appraised for each policy unit, against objectives derived from the environmental baseline and agreed in a consultation

process. For each policy unit, the No Active Intervention policy scenario for all epochs was appraised against a 'Do Something' scenario (namely one, or a combination, of the other three policy options over all three epochs). The report presents the results of options appraisal and outlines the rationale for selection of preferred policy scenarios for each policy unit. The table below sets out generic impacts of each policy option. At the scale of the SMP, the effects described are likely to be significant. Where effects are adverse, mitigation may be available and is described in the substantive report.

SMP option	Potential beneficial effects	Potential adverse impacts (before mitigation)
Hold the Line	Protection of communities (residential, industrial, agricultural and commercial assets) and infrastructure; Protection of habitat landward of defences (such as freshwater marshes); Protection of freshwater resources such as abstraction points; Protection of economic assets located behind defences; Protection of recreational, cultural and heritage assets landward of the defences; Prevention of pollution from contaminated sites.	Coastal squeeze (loss of intertidal habitat); Prevention /interruption of coastal processes; Landscape and visual amenity impacts through eventual raising of defences.
Advance the Line	As HTL plus: Provision of additional space for communities.	As HTL plus: Immediate reduction in extent of intertidal habitat and increased coastal squeeze; Immediate landscape and visual amenity impacts through new defence line; Change in function of the existing habitats; Potential increase in rate of coastal erosion either side of the advanced line; Uncertainty of effects.
Managed Realignment	Landward migration of coastal habitat under rising sea levels to realigned defence; Creation of wetland habitat in line with UKBAP and local BAP targets; Creation of habitat for juvenile fish and other aquatic organisms (benefits to environment and fishing communities); Reduction of flood/erosion risk to some areas; Promotion of natural coastal processes and contribution towards a more natural management of the coast.	Increased flooding/erosion of realigned area; Change in condition or reduction of terrestrial/freshwater habitat landward of defences; Impact upon aquifers and abstractions; Loss of some assets in hinterland of defences (e.g. residential, industrial, agricultural and commercial assets) ; Loss of recreational, heritage and cultural features.
No active intervention	Opportunities for landward migration of intertidal habitats under rising sea levels; Works with natural coastal processes; Development of a more natural coastal	Uncontrolled flood/erosion risk to properties and land; Uncertainty of effects and time for adaptation;



SMP option	Potential beneficial effects	Potential adverse impacts (before mitigation)
	landscape.	Loss of freshwater habitats when defences fail; Impact upon aquifers and abstractions; Uncontrolled loss /damage of economic, community, infrastructure assets; Loss of heritage and cultural features; Uncontrolled flooding /erosion, and pollution from, contaminated areas.

#### *Environmental effects of the preferred options*

Final agreed policy options were assessed against standard environmental topics (namely biodiversity, population, human health, soil and geology, water, air and climatic factors, material assets, cultural heritage and landscape). Significant effects were assessed as follows:

- Significant beneficial effects with respect to population, human health, material assets and cultural heritage resulting from HTL policies at a 19 policy units;
- Significant adverse impacts on chalk reef biodiversity in internationally-designated sites **locally** due to prevention of chalk cliff erosion resulting from HTL policies at seven policy units; however separate HRA indicates that areas of habitat gain due to cliff erosion would be outside international designations, so no net adverse effect;
- Significant beneficial effects on biodiversity due to expansion of internationally-designated intertidal areas in three policy units;
- Mixed significant effects with respect to biodiversity at four policy units due to conflicting effects on internationally-designated freshwater and intertidal habitats;
- Potential for significant adverse impacts on landscape depending on the approach to Hold the Line in the Kent Downs AONB.

#### *Mitigation and monitoring*

Mitigation measures have been suggested at the level of each policy unit and are appropriate for tiering to strategy and scheme level environmental assessment. In addition the following high-level mitigation measures are suggested:

- Ongoing awareness-raising and education with the public and with local /regional authorities about coastal behaviour and change in the face of sea level rise and increasing weather extremes, causing changes in land use, landscape, location of infrastructure;
- Public awareness-raising and education campaigns about home /community /business -level flood risk management and flood alert schemes;
- Promotion of leisure and tourism with increased focus on nature conservation;
- Development of a strategic approach to cultural heritage along a changing coastline with the possibility of losses, erosion and increasing numbers of finds;
- Consideration of SMP policies and future land use in regional, local spatial planning.

#### *Monitoring and implementation*

The main SMP report includes an Action Plan that outlines region-level and policy unit -level areas requiring monitoring as the SMP is implemented, and this should incorporate measures set out in this SEA. SEA monitoring is undertaken in order to assess the degree of fulfilment of SEA objectives, to assess the success of mitigation measures, to ensure beneficial effects are realised and to address uncertainty in

assessment and data gaps in baseline information. Where appropriate, monitoring for the purposes of the SEA should be incorporated into existing monitoring regimes.

#### *ER Conclusions*

- There were weaknesses in application of SEA in the original SMP review and these included including inadequate consideration of the full suite of SEA receptors, sparse consideration of the nature and significance of impacts, poor scoping from an SEA perspective and obscure justification of preferred policy option selection;
- However the original SMP exercise also showed strengths from an SEA perspective, principally in the extent of stakeholder consultation and the evidence shown that this fed into decisions on proposed policies. This was a crucial element in itself and provides compensation for other SEA weakness, as it strengthened the basis for decision-making;
- Retrospective application of SEA has not resulted in findings (with respect to policy implications for the environment), that differ significantly to those emerging from previous appraisals and assessments. No changes to proposed policies are suggested and no further consultation should be required.

**Where appropriate, throughout this report Appendix, reference is made to the substantive SMP to enable clear signposting to more detailed information about particular aspects of the assessment. This is facilitated using blue shaded boxes.**

## **K1 Introduction & Background**

### ***K1.1 Shoreline management plans***

A Shoreline Management Plan (SMP) provides a large-scale assessment of the risks associated with coastal evolution and presents a policy framework to address these risks to people and the developed, historic and natural environment in a sustainable manner. In doing so, an SMP is a high-level document that forms an important part of the Department for Environment, Food and Rural Affairs (Defra) strategy for flood and coastal defence.

The policy framework set out comprises high level policy recommendations for shoreline management for each of the 27 policy units (PUs) in the study area and for each of three epochs covered by the SMP period (0-20 years, 20-50 years and 50-100 years). Policy recommendations for each PU are selected following appraisal and consultation from the generic policies set out in Defra (2006), namely **Hold the Line, Advance the Line, Managed Realignment or No Active Intervention**.

**Section 1 of the main report contains detailed background information on the substantive SMP, including history, current SMP objectives and illustrative figures.**

### ***K1.2 Need for SEA***

Strategic Environmental Assessment (SEA) is the systematic appraisal of the potential environmental consequences of high-level decision-making, such as policies, plans, strategies and programmes, before they are approved. The need for SEA has been formalised through European legislation. EC Directive 2001/42/EC “on the assessment of the effects of certain plans and programmes on the environment” (known as the ‘SEA Directive’) is implemented in England through the Environmental Assessment of Plans and Programmes Regulations (SI 2004 1633). There is no legal requirement under the SEA Directive to apply SEA to SMPs. However as SMPs clearly help to set the framework for future planning, have significant environmental implications, and require extensive consultation, Defra believes that adopting an SEA approach is appropriate and strongly encourages operating authorities to undertake SEA with respect to SMPs (Defra, 2009).

**Section 2 of the substantive SMP report describes Environmental Assessment with respect to SMP development. This report appendix adds to this section and aims to clearly demonstrate SEA Directive compliance.**

### ***K1.3 Report purpose and structure***

Defra guidance on SMP development (Defra, 2006) confirms that SMPs should incorporate environmental assessment using the approach described in the SEA Directive, but guidance on procedure (Defra, 2006, Volume 2) does not provide detail on how this should be presented alongside substantive SMP development. Further to this, initial drafts of this and other SMP2s submitted for approval were rejected due for reasons of inadequate evidence of compliance with the SEA Directive. The purpose of this report is to present a Directive-compliant Strategic Environmental Assessment of the SMP in a clear and concise manner, including how the SMP

process has incorporated environmental considerations in decision making. This is done using a combination of summary narrative descriptions, cross referencing to relevant sections of the substantive SMP2 report, and fresh assessment using existing data.

Section 2 of this report Addendum sets out the standard approach to SEA and that used in this SMP. Section 3 provides information on the strategic and policy context to the SEA and section 4 describes the consultative steps taken in the development of the SEA and SMP. Section 5 provides a summary of the environmental baseline including key issues, constraints and opportunities in the study area. Sections 6 and 7 present the results of environmental appraisal of policy options and the assessment of preferred policies at each policy unit, respectively. Finally section 9 provides a summary of how monitoring measures arising from the SEA will be incorporated into the SMP Action Plan.

**Where appropriate, throughout this report Appendix, reference is made to the substantive SMP to enable clear signposting to more detailed information about particular aspects of the assessment. This is facilitated using blue shaded boxes.**

Table K1.1 below shows how this report complies with Annex 1 of the SEA Directive by signposting to relevant sections.

Table K1.1 – Environmental report and SEA Directive compliance

Directive requirement (ref)	Where /how addressed in this SEA Appendix
An outline of the contents, main objectives of the plan or programme and relationship with other relevant plans and programmes.	Section 1.1, referenced to main SMP report.
The relevant aspects of the environment and likely evolution thereof without implementation of the plan or programme.	Section 5. Future baseline considered using 'do nothing' option in SEA.
The environmental characteristics of areas likely to be significantly affected.	Section 5.
Any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of particular environmental importance, such as areas designated pursuant to Directives 79/409/EEC and 92/43/EEC.	Section 5.
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.	Referred to in Sections 3 and 5, considering in particular areas designated under the Birds and under the Habitats Directives.
The likely significant effects of the plan or programme on the environment, including on issues such as biodiversity, population, human health, flora, fauna, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors.	Section 7 and Appendix B.
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.	Section 7 and Appendix B.
An outline of the reasons for selecting the alternatives dealt with, and a description of how the assessment was undertaken including and difficulties encountered in compiling the required information.	Options selection described in Section 6. Difficulties referred to under Data Gaps and Uncertainty in Section 2.7.
A description of the measures envisaged concerning monitoring.	Section 8.
A non-technical summary of the information provided under the above headings.	NTS.

## K2 SEA Approach

The approach to SEA followed during development of this SMP was that set out in Defra SMP guidance. This states that environmental effects of policies need to be “thoroughly assessed” and that the positive and negative effects of options on a full range of receptors (namely biodiversity, population, human health, soil, water, air, climatic factors, cultural heritage, material assets and landscape) should be considered (Defra, 2006a p27). The generic approach to SEA is illustrated in Figure 2.1 below. In this SMP, SEA input was fully integrated into the SMP process. No separate SEA report was produced for the original submission and this retrospective report appendix fills this gap in documentation.

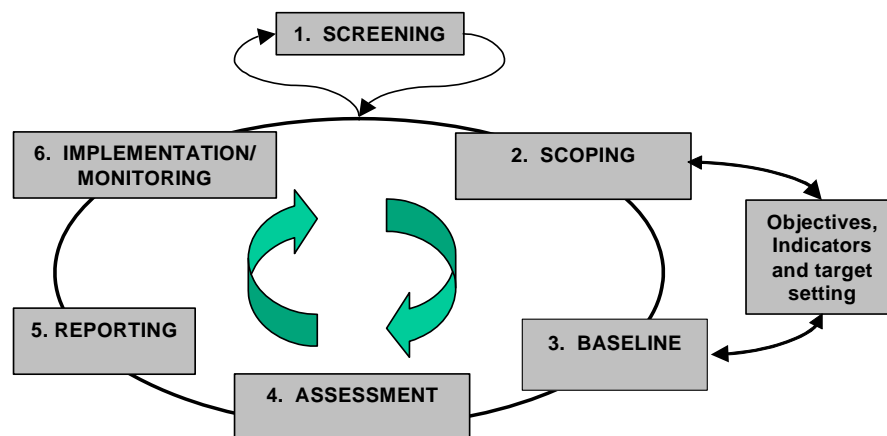


Figure 2.1 – SEA process

### K2.1 Screening and scoping

#### K2.1.1 Screening

Screening identifies whether a particular plan of programme requires SEA and guidance is provided on this by ODPM (now DCLG). In the case of SMPs, Defra guidance referred to above supersedes this screening step, with the conclusion that SMPs are “strongly encouraged” to apply SEA, to Directive compliance.

#### K2.1.2 Scoping

Scoping is a key consultative step in SEA. It produces agreed environmental parameters for the assessment, in addition to the communication approach to be followed and objectives /assessment criteria to be used to assist in appraisal and assessment. It is normal practice in SEA for a scoping report to be produced for consultation. This was not a formal stage in this case; however the scope of the SMP was consulted on at an early stage and included discussion of assessments required to support policy. A key element of the scoping process, from an SEA perspective, was agreement of objectives used for the appraisal of policy options. This was undertaken in early 2006 in Stage 2 of the SMP process and involved consultation with all key stakeholders. See Section 4 for further details on consultation in this SMP.

SMP objectives agreed for policy appraisal were derived from baseline issues arising in each policy unit and are summarised in Section 7.

The results of the scoping exercise, from an SEA perspective, are set out in Table K2.1 below.

Table K2.1 – Conclusions of SEA scoping exercise

Environmental Receptor	Scoped In	Scoped Out	Justification
Flora, Fauna and Biodiversity	International nature conservation designations, namely Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Ramsar sites. Note that there is a requirements to undertake Habitat Regulations Assessment of plans that may result in adverse impacts on these designations. This has been developed separately.	International conservation sites that will not be affected by tidal flooding or coastal erosion.	Within the SMP area, there are four SPA /Ramsar sites and three SACs with the potential to be affected (positively or negatively) by changes in flooding or erosion and by coastal defence interventions. For example, freshwater/terrestrial habitats are likely to be negatively affected by no active intervention or managed realignment policies while intertidal habitats are likely to be negatively affected by advance the line or hold the line policies.
	Sites designated as Sites of Special Scientific Interest (SSSIs) and National Nature Reserves (NNRs).	National conservation sites that will not be affected by tidal flooding or coastal erosion.	Within the SMP area, there are eight SSSIs and two NNRS with the potential to be affected by policies in the same way as the international designations described above.
	Local Nature Reserves (LNRs), Sites of Nature Conservation Interest (SNCI), RSPB Reserves and Wildlife Trust Reserves.  Biodiversity Action Plan (BAP) Habitats	Local conservation sites that will not be affected by tidal flooding or coastal erosion.  BAP species have been scoped out as the locations of all BAP species within the SMP are unknown. These will be included in assessments at strategy /scheme level.	Within the SMP area, there are two LNRs, seven SNCIs and two other non-statutory nature reserves with the potential to be affected (positively or negatively) by changes in flooding or erosion and by coastal defence interventions, as above.  There are UK and local BAP habitats (priority and broad habitats) and numerous priority BAP species within the SMP area. Future flood risk management policies may present opportunities for biodiversity gain at non-designated sites and these have been explored during the development of the SMP.

Environmental Receptor	Scoped In	Scoped Out	Justification
Population and Human Health	The impact of tidal flooding and coastal erosion on isolated properties, housing in coastal villages, towns and cities and communities they live in.	Human health - disease, stress and trauma as a result of tidal flooding/coastal erosion as it cannot be assessed meaningfully at SMP level.	Flood /erosion risks to people, property, community and recreational facilities and other local services may result from the SMP, particularly from policies of no active intervention or managed realignment.
	Sites included are: - <ul style="list-style-type: none"> <li>• key vulnerable community facilities (e.g. surgeries, NHS hospitals, aged persons homes, schools, shops, churches, libraries, universities etc), key amenity facilities (e.g. public open space)</li> <li>• key recreational facilities (e.g. golf courses, bathing beaches, formal promenades, national cycle routes and regional/national Public Rights of Way)</li> <li>• access to community/amenity facilities.</li> </ul>	N/A	
	Shops, offices, businesses, factories, warehouses, areas identified for regeneration, nursery grounds, caravan parks, stone and mineral extraction sites (quarries), military establishments and others key areas of employment	N/A	
Soils and Geology	Sites designated as SSSIs (geological)	Local geologically designated sites (RIGS/GCRs) as these are considered more applicable to assessment at strategy or scheme level.	Within the SMP area, there are three geological SSSIs and these have the potential to be affected by changes in flooding or erosion, particularly in a negative way by advance the line or hold the line coastal management policies.
Water	Sites included are designated bathing waters, historic and active landfill sites (EA source), major industry and hazardous waste sites, anecdotal evidence of disused mines and potentially contaminated land, known bathing water sites, surface and ground water	N/A	There is the possibility that contaminants can be spread over a wide area if they are transported by tidal flooding.
	Registered shellfisheries (e.g. Shellfish Harvesting Area)	N/A	Registered shellfisheries within the estuaries have the potential to be affected by SMP policy options.



Environmental Receptor	Scoped In	Scoped Out	Justification
Air and Climatic factors	Defra's recommended allowances for sea level rise have been used to provide erosion lines and flooding scenarios for the SMP.	<p>Air quality and noise levels will not influence or be affected by the recommendations of this SMP and these receptors have been scoped out of the assessment.</p> <p>Climate change is considered through the use of sea level rise allowances.</p> <p>From the point of view of mitigation (i.e. greenhouse gas emissions associated with policies), climatic factors are best considered at strategy /scheme level.</p>	Climate change (notably sea level rise) is likely to place increasing pressure on flood defences in the SMP area.
Material Assets including land use	Container ports and docks, Wharfs and marina operations	N/A	There are numerous ports, harbours and marinas within the SMP area
	Motorways, A -, B - and minor roads (where linkage is a key issue), railway lines and stations, bridges.	N/A	A range of critical infrastructure and services is present within the SMP area and could potentially be affected by changes in flooding or erosion. Policies of no active intervention or managed realignment could result in the damage to or loss of some of these material assets.
	Sewage works, existing power generating facilities, electricity pylons, dredging activities.	N/A	A range of services is present within the SMP and could potentially be affected by changes in flooding or erosion. Policies of no active intervention or managed realignment could result in the damage to or loss of some of these material assets.
	Agriculture Industry	N/A	Agricultural land and industry can be affected by changes in flooding or erosion. Policies of no active intervention or managed realignment could result in the damage to or loss of some of these land uses.
Historic Environment	Sites designated as Scheduled Monuments, Listed Buildings, built Conservation Areas and non-statutory archaeology	No Registered Battlefields or marine wreck sites are present within the SMP area.	Within the SMP area, there are seven Scheduled Ancient Monuments, approx. 230 listed buildings,

Environmental Receptor	Scoped In	Scoped Out	Justification
(Cultural Heritage)			2 Registered Parks and Gardens and 13 built Conservation Areas. All have potential to be affected (positively or negatively) by coastal defences and by changes in flooding or erosion. No active intervention or managed realignment policies have the potential to result in the damage or loss of these assets.
Landscape Character and Visual Amenity	Changes in landscape character and views within Landscape Character Areas and within sites designated as Areas of Outstanding Natural Beauty (AONB) and Special Landscape Areas (SLAs)	N/A	Within the SMP area, there is 1 AONB, 4 National Landscape Character Areas, 2 SLAs, 4 County Landscape Character Areas and 8 Local Landscape Character Areas. All have potential to be affected by changes in flooding or erosion, particularly in a negative way by coastal defence interventions such as advance the line or hold the line policies.

## ***K2.2 Appraisal objectives and assessment criteria***

In SEA, environmental objectives are commonly agreed during the scoping stage as a tool with which to appraise policy options and also to assess the impacts of preferred policies. These objectives are generally separate and different to those agreed for the plan being assessed; in which case it is usual, as part of the SEA process, for SEA objectives to be compared for compatibility with Plan objectives and potential conflicts addressed. In this SMP, appraisal objectives for the Plan emerged from consideration of the baseline during the Theme Review process and were agreed in extensive stakeholder consultation. Separate SEA objectives were not agreed and are not proposed here, as no new consultation process is envisaged. It is felt that the wording of SMP appraisal objectives permitted an adequate level of reflection, in appraisal, of SEA Directive receptors. Summary objectives used in options appraisal, and their relationship to SEA Directive receptors, can be found in Table 5.1.

With respect to assessment of the preferred option, it is usual in SEA either to use objectives, as described above, or to develop assessment criteria based on scoped-in environmental receptors and identified environmental issues. The criteria for assessment of impact in this retrospective SEA comprise a simple determination of the extent to which the preferred policy at a PU /epoch affects the given receptor.

## ***K2.3 Consultation and stakeholder engagement***

**Appendix B of the substantive SMP provides full details of stakeholder engagement undertaken and includes a Consultation Report**

Comprehensive consultation with a broad group of stakeholders was central to the development of the SMP and the SEA elements of the process.

Four main consultative groups were involved in the development of the SMP, which was substantively developed by consulting engineers Halcrow:

1. The Client Steering Group (CSG) comprised technical representatives from statutory bodies, namely the respective Local Authorities, Natural England, English Nature and the Environment Agency. The CSG oversaw SMP development;
2. An Elected Members Forum (EMF) comprised ten local authority Councillors from respective Local Authorities. The EMF was involved in ongoing SMP development;
3. A Key Stakeholders Forum (KSF) comprised representatives from 45 stakeholder organisations including 1 and 2 above, and also industry, fishing, farming, nature conservation, public amenity, regional and central government, utility and other interest groups. The KSF was involved in ongoing SMP development;
4. Other Stakeholders comprised representatives of 192 additional organisations with a local interest in the SMP, including bodies such as Parish Councils, Sailing Clubs, Golf Clubs, local societies etc. This group was made aware of the SMP process and consulted on key decisions.

Full untargeted public consultation was also undertaken during the SMP process, on a document outlining recommended policies and rationale.

Table K2.2 below sets out consultation stages in the SMP and relevance to the SEA.

Table K2.2 – SMP consultation stages and relevance to SEA

Stage of Plan	Stakeholders involved	Purpose and relevance to SEA
Stage 1 – SMP scope	Elected members, key stakeholders, other stakeholders	Awareness raising, consultation approach, scoping key issues, gathering baseline information, initial thinking on appraisal objectives.
Stage 2 – Assessments to support policy	Elected Members, Key Stakeholders	Finalise objectives for policy options appraisal
Stage 3 – policy development	Elected members, key stakeholders	Shortlisting policy options, appraisal of shortlisted options using agreed objectives, discussion of draft preferred policy options
Stage 4 – public examination	Wider public	Consultation on draft preferred policy options.
Stage 5 – finalise SMP	Elected members	Amend policies as required and produce Action Plan.
Stage 6 – SMP dissemination	Wider public	Adoption and implementation.

### ***K2.4 Baseline data collection methodology***

For the purposes of the SMP (following Defra guidance), baseline information was gathered on coastal geomorphology, the natural environment, coastal zone landscape and character, the historic environment and current and future land use. The way these themes describe baseline information required by the SEA Directive is set out in Section 5 below.

Information was gathered primarily from desk-top studies and from a variety of sources as follows:

- Environment Agency geographical information systems (GIS);
- Environment Agency flood maps;
- Futurecoast (Defra, 2002);
- Pre-existing coastal flood defence strategies;
- Results of coastal monitoring studies;
- Additional sources set out in Appendix D7 of the main report.

Although a degree of updating and cross-checking was undertaken in the process of developing this retrospective SEA report, the bulk of baseline information referred to is that presented in the original SMP Thematic Studies and Baseline Process Understanding reports.

### ***K2.5 Options appraisal***

**Appendix F of the substantive SMP provides full appraisal matrices for initial policy appraisal and scenario development, and Appendix G sets out the Policy Scenario Shoreline Response Assessment and detailed Objective Appraisal.**

The four generic policy options defined by Defra (Defra, 2006) were subjected to initial high-level appraisal, producing feasible policy scenarios for each policy unit. These policy scenarios were then appraised in greater detail against agreed

objectives to produce preferred options for each policy unit (PU) and epoch. The generic policy options were:

- Advance the Line;
- Hold the Line;
- Managed Realignment;
- No Active Intervention.

The appraisal process effectively considered, for each PU and epoch, a 'Do Nothing' (or 'No Active Intervention' scenario) against a policy scenario involving one or more of the three possible 'Do Something' scenarios.

Appraisal of each policy scenario judged (1) predicted shoreline response to the policy for each epoch and (2) the extent to which each of the defined SEA-compliant objectives for individual locations was achieved by the policy scenario. Key considerations in appraisal against objectives included the extent of retreat, if any, and the form of the shoreline (i.e. beach, cliff, mud etc).

Scores were allocated to each policy /epoch based on whether objectives were partially, fully or not met, and these scores input into subsequent decision-making on preferred policies for each PU.

Final decisions on preferred policy scenarios were made after a series of consultation meetings with the client steering group, elected members and key stakeholders.

Section 6 below provides a generic options appraisal matrix indicating the thinking behind options appraisal at PU level. Full options appraisal matrices are provided in Appendix A of this report.

## ***K2.6 Assessment methodology***

### **K2.6.1 Impact prediction**

For any particular environmental receptor, impact prediction estimates the change from baseline resulting from implementation of a particular policy, using a source-pathway-receptor approach. The SEA Directive requires that nature of the impact be considered (i.e. impact magnitude, whether beneficial or adverse, permanent or temporary, short /medium or long term) and also that indirect, synergistic and cumulative impacts be considered. This approach was followed implicitly in the SMP process and what is documented here is a presentation of beneficial and adverse impacts, with a indication of impact significance (see below).

Assessments were undertaken using professional judgement and broad consultation together with extensive use of GIS.

### **K2.6.2 Impact significance**

The SEA Directive requires that predicted impacts are evaluated for significance to facilitate targeting of mitigation and monitoring measures. One measure of impact significance is as the product of impact magnitude and receptor sensitivity, as illustrated in Table K2.3 below.

The existing SMP and appendices provide some consideration of significance of potential impacts, principally with respect to nature conservation. For example, the sections concerning Natural Environment features in Appendix D of the substantive report (Thematic Studies) (in particular section D2.2.2), assign a level of significance to the loss of individual habitats.

This report aims to present a wider evaluation of significance of impacts as required by the SEA Directive.

Table K2.3 – Impact significance

Magnitude	Sensitivity			
	High (e.g. SAC)	Moderate (SSSI)	Minor (LNR)	Low (no designation)
High	High	High	Mod	Minor
Moderate	High	Mod	Minor	Minor
Minor	Mod	Minor	Minor	Negligible
Low	Minor	Minor	Negligible	Negligible

Table K2.4 indicates the colour coding used in appraisal and assessment matrices (Appendices A and B) to facilitate interpretation.

Table K2.4 – Assessment matrix colour coding

Significant beneficial effect	Moderate /minor beneficial effect	Neutral effect	Unknown or mixed effect	Moderate /minor adverse effect	Significant Adverse effect
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### ***K2.7 Data gaps and uncertainty***

This SEA is a high level assessment covering a large geographical area and a long timescale, and uncertainty is inherent. There are uncertainties in the hydrology, hydraulic and flood modelling and the definition of the options is also necessarily coarse at this level. An awareness of the limitations and uncertainties involved with SEA is important when undertaking decision-making. Potential environmental effects of the strategic options have been predicted and evaluated based upon the best available knowledge of the existing environment. SEA is an iterative process and as such the decisions made should be reviewed after 5 years with the best available knowledge at that time, and also at strategy and scheme level. Uncertainty can also be addressed through a programme of monitoring and this needs to be incorporated into the Action Plan produced with completion of the SMP.

Data gaps in the SEA relate to the strategic level of assessment. Although detail of some local level and non-statutory designations has been presented, assessment taking these into consideration is thought more appropriate for strategy study and scheme level.

### K3 Strategic and Policy Context

**Appendix D5.4 of the substantive SMP provides detailed information on future land use and planning targets**

The purpose of this section is (a) to place the SMP in the context of spatial development and other plans that may impact, or be impacted by, agreed SMP policies and (b) emphasise the context of environmental legislation at international, community and Member State level that underpin the objectives of SEA. Figure 3.1 below fulfils the first of these aims and additional information is provided in Appendix D5.4 of the substantive SMP report, which sets out future land use and planning targets.

The second aim is not addressed in the substantive SMP or in this appendix, other than through reference to the SEA Directives (2001/42/EC) and the Habitats (92/43/EEC) and Birds (79/409/EEC) Directives. Justification for this lies in (a) the consultation process that did not add additional environmental objectives to the SEA context, (b) the implicit consideration of international environmental legislation in the SEA Directive and (c) separate assessments for compliance with the Water Framework Directive, and with the Habitats and Birds Directives.

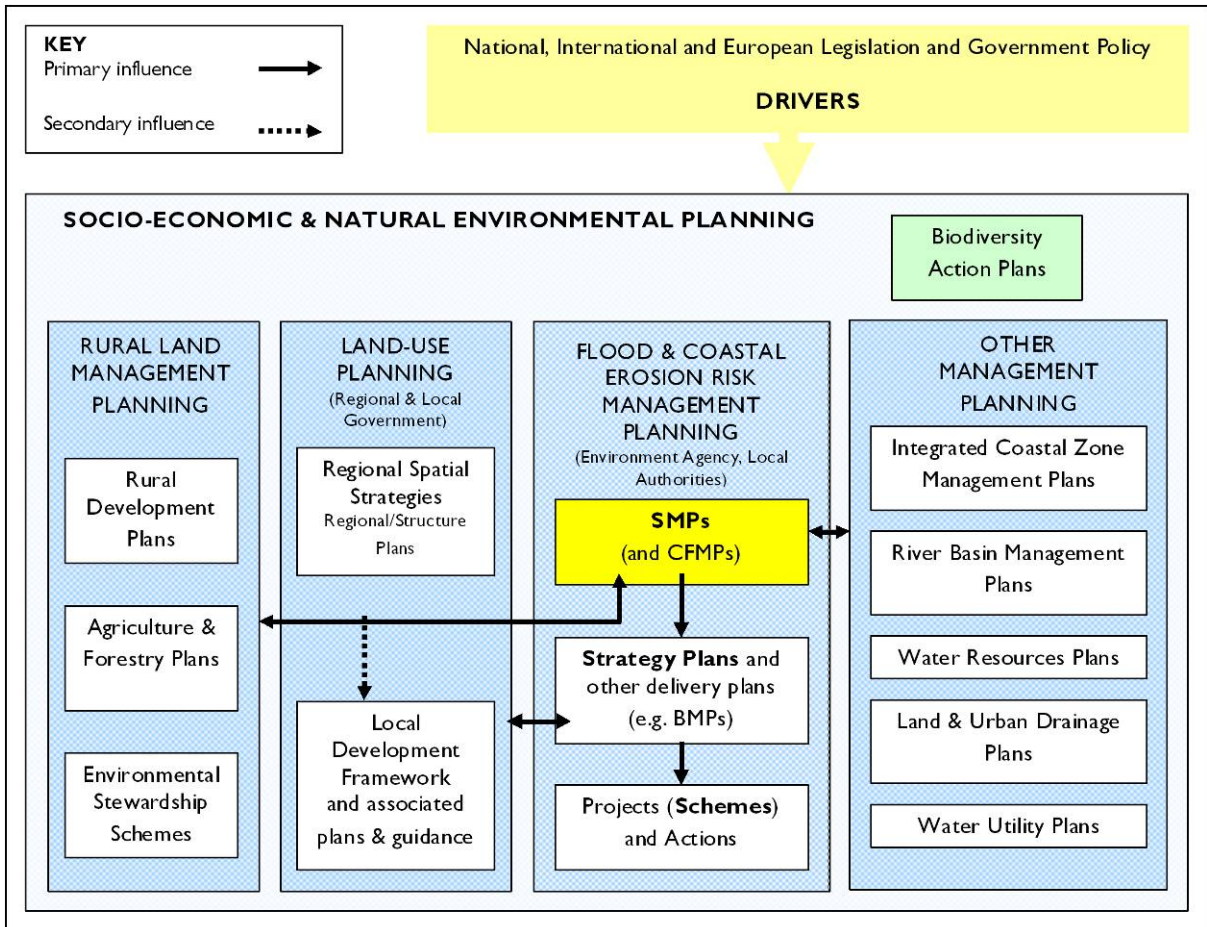


Figure K3.1 – Planning context of SMPs

## K4 Consultation

### Appendix B7 of the substantive SMP report provides a detailed Consultation Report

The SMP process, and elements relevant to SEA, involved extensive consultation with targeted stakeholder groups and with the wider public, as summarised above in Section 2.3. Responses to consultation exercises were collated, informed SMP and SEA development and were recorded in a Consultation Report.

The 73 consultation responses received from residents, businesses, Parish Councils and other organisations were broken down and categorised into ten groups. Table K4.1 below summarises both the key comments under each category and also the Client Steering Group response.

Table K4.1 – Consultation comments and CSG responses

Issue category	Number of responses and key issues	Client Steering Group response
Support for policies proposed	Four responses, comprising notes of support for the SMP	Thanks
Objections	Four responses, taking issue with the extent of MR proposed in specific PUs or over the whole SMP.	Reiteration of process objectives relating to sustainability, asset protection, more cost effective defences, habitat creation and estuary dynamics, with the assurance that MR lines to be assessed in detail at strategy level and below.
Environmental issues	Nine responses noted, ranging from environmental issues connected with managed realignment policies, the perceived relative value of environmental assets, coastal squeeze and how the SMP complies with habitats regulations.	Assurance that MR lines to be assessed in detail at strategy level and below, reiteration of actions proposed emerging from Appropriate Assessment (e.g. compensatory freshwater habitat creation before implementation).
Economic issues	Three responses noted, questioning economic appraisal approach /accuracy	Assurance that SMP guidance was followed and up to date data used, with additional assurance that policy decisions were based on fulfilment of social, technical and environmental objectives and appraised for economic viability.
Compensation issues	Four responses noted, with concern expressed about compensation to landowners wrt MR and NAI.	SMP cannot address compensation issues and there is no right to protection from flooding. Exit strategies need to be agreed.
Defences	Six responses noted, concerning urban areas protected at the expense of rural areas, future funding of defences, maintenance of existing defences, allowing landowners to maintain /build their own defences.	Reiteration of rationale for MR and NAI where appropriate as part of a sustainable approach to coastal defences in the face of sea level rise. Links to information about private landowner defences.
Consultation process	Four responses noted, concerned at vulnerable constituents in semi-rural areas and lack of involvement of local people at an earlier stage.	Reiteration of process emphasising number of organisations contacted and wide consultation on the consultation process itself.
Relationship with other plans / policies	Seven comments asking about SMP relationship (generically and in detail) with CFMPs, CHaMPs, development plans, Human	Specific responses and links.



	Rights legislation.	
Policy unit specific issues (80),	Numerous comments on policies affecting international nature conservation designations. Significant discussion on policies in several PUs, in particular Favershams Creek to Seasalter, Reculver Towers to Minnis Bay .	Faversham Creek to Seasalter split into two PUs and suggested policies changed to incorporate concerns including the need to protect freshwater marshland. Reculver Towers to Minnis Bay policy not changed but detailed investigation of strategy suggested.
Other issues	Five comments were recorded on additional issues including high sea level rise scenarios, details of assessment process, suggestion to increase political weight of SMP, food security.	Specific responses and links.

No comments were recorded that raised specific issues about the assessment approach from an environmental perspective, for example suggesting alternative appraisal objectives or questioning the detail of policy implications tables.

## K5 Environmental Baseline and appraisal objectives

Appendix C of the substantive SMP report describes Baseline Processes and includes an assessment of shoreline dynamics.

Appendix D sets out Thematic Studies on the Natural Environment, Landscape and Character, Historic Environment and Current and Future Land Use.

Appendix E evaluates issues by Policy Unit and proposes appraisal objectives.

### K5.1 Existing baseline

Baseline information was collected as indicated in Section 2.4 above. No additional data was researched for the purposes of this updated SEA appendix, although existing information was verified and updated using Environment Agency GIS and web sources as appropriate.

Table K5.1 below indicates how existing SMP documentation describes baseline information to SEA Directive requirements.

Table K5.1 – Baseline information presented in the SMP by SEA Directive receptor

SEA receptor	Where detailed baseline information can be found in the substantive SMP
Flora, fauna, biodiversity	Theme Review D2 – Natural Environment sections
Population	Theme Review – D5 Current and Future land use. For flood risk, see also Appendix C – Baseline Process Understanding
Human Health	Theme Review – D5 Current and Future land use. For flood risk, see also Appendix C – Baseline Process Understanding
Soils, geology	Appendix C – baseline process understanding; also Theme Review D5 – current and future land use.
Water	Theme Review D2 – Natural Environment sections. For coastal hydrodynamics, see Appendix C – Baseline Process Understanding. <b>See also separate WFD assessment.</b>
Climatic factors	Appendix C – baseline process understanding.
Material Assets	Theme Review D5 – Current and future land use.
Cultural Heritage	Theme Review D4 – Historic Environment.
Landscape	Theme Review D3 – Landscape and Character

Table K5.2 on the following page provides a summary of baseline information used to inform this SEA, largely extracted from existing SMP material. The SMP process used baseline details and issues emerging at each PU to develop appraisal objectives, and agreed (generic) objectives are presented below alongside the corresponding baseline information.

Table K5.2 – key baseline features, issues, appraisal objectives

SEA receptor	Designations	Features, issues	Relevant appraisal objectives
<b>Flora, fauna, biodiversity</b>	<p>SPA /Ramsar: Thames Estuary and Marshes, Medway Estuary and Marshes, The Swale, Thanet Coast and Sandwich Bay.</p> <p>SAC: Thanet Coast, Sandwich Bay, Dover and Kingsdown Cliffs.</p> <p>SSSI: South Thames Estuary and Marshes, Sheppey Cliffs and Foreshore, Medway Estuary and Marshes, The Swale, Thanet Coast, Tankerton Slopes, Sandwich bay to Hacklinge Marshes, Dover and Kingsdown Cliffs.</p> <p>SNCI: Grain Pit, Minster Marshes, Diggs and Sheppey Court Marshes, Queenborough; Minster Cliffs, Golf Course Roughs, Kingsgate; Kingsdown and Walmer Beach, Walmer and Kingsdown Golf Course.</p> <p>Local Nature Reserves: South Bank of the Swale, Bishopstone Cliffs.</p> <p>National Nature Reserves: The Swale, Sandwich and Pegwell Bay.</p> <p>Wildlife Trust Reserves: South Swale, Sandwich and Pegwell Bay.</p>	<p>The study area shoreline is extensively designated for nature conservation, with only small sections around Minster and between Deal and Kingsdown not under any national or international designation. Of the designated shoreline, the bulk is under international designation (SPA /Ramsar and /or SAC). Key habitats, and interest features described in designation citations include the following.</p> <ul style="list-style-type: none"> <li>• Intertidal saltmarsh</li> <li>• Intertidal mudflat</li> <li>• Brackish /freshwater grazing marsh and ditches;</li> <li>• Saline lagoons;</li> <li>• Internationally important numbers of wintering waterfowl;</li> <li>• Eroding chalk cliffs;</li> <li>• Sand dunes;</li> <li>• Sandy coastal grassland;</li> <li>• Internationally important numbers of breeding birds;</li> <li>• Coastal scrubland;</li> <li>• Shingle beach;</li> <li>• Chalk grassland.</li> </ul> <p>Additional interest features under local designation:</p> <ul style="list-style-type: none"> <li>• Open water and reedbeds;</li> <li>• Scrub and rough grassland;</li> <li>• Semi-improved pasture.</li> </ul>	<p>Promote biodiversity opportunities and prevent loss/ damage to designated sites from erosion risk management works</p> <p>Promote biodiversity opportunities and avoid net loss of intertidal habitat and associated species from coastal squeeze and flood risk management works.</p> <p>Promote biodiversity opportunities and avoid net loss of coastal grazing marsh and associated species from flooding and flood risk management works</p> <p>PU-specific objectives relating to local designations.</p>
<b>Population and human health</b>	n/a	<p>Major settlements (&gt;10,000 population) in the study area are Sheerness, Minster, Whitstable, Herne Bay, Margate, Broadstairs, Ramsgate and Deal. Settlements with &gt;1000&lt;10,000 are St Margaret's Bay, Walmer,</p>	<p>Prevent loss/ damage to residential properties from flooding or flood risk management works.</p>

		<p>Kingsdown, Westgate-on-Sea, Birchington, Seasalter, Leysdown-on-Sea, Grain and All Hallows-on-Sea. Settlements with populations less than 1000 are Shellness, Swalecliffe, Reculver, Sandwich Bay Estate, in addition to which there are a number of hamlets and isolated homes. Total population of the study area estimated to be in the region of 310,000. Key employers are tourism and leisure, fishing and aquaculture, agriculture, shipping, industry (pharmaceuticals, power, aggregate extraction).</p> <p>The study area is a popular tourist area with a number of camping /caravanning and chalet parks, a network of footpaths, numerous beaches, historic sites, sport and other community facilities.</p>	<p>Prevent loss/ damage to commercial properties from flooding or flood risk management works.</p> <p>Prevent loss/ damage to community facilities from flooding or flood risk management works.</p> <p>Prevent loss/ damage/ disruption to recreation and associated business from flooding and flood risk management works.</p> <p>Prevent loss/ disruption to footpaths from flooding and flood risk management works.</p> <p>Prevent loss/ damage to shellfish beds and associated business from flooding or flood risk management works.</p>
<b>Soil, geology</b>	<p>Nature conservation designations including geological interest are Dover and Kingsdown Cliffs SAC /SSSI, Sheppey Cliffs and Foreshore SSSI, Tankerton Slopes SSSI, Dover and Kingsdown Cliffs, Minster Cliffs SNCI, Bishopstone Cliffs LNR.</p>	<p>This is presented under five frontages; the soft geological isles of Grain and Sheppey (Section 4.1.1); the soft cliffed coast and low lying areas of the north Kent coast (Section 4.1.2); the hard cliffed coast of Thanet (Section 4.1.3); the predominantly soft, low-lying east Kent coast (Section 4.1.4) and the hard cliffed coast of Oldstairs Bay and South Foreland (Section 4.1.5). These sub-divisions broadly reflect differing geologies and therefore risks.</p> <p>Coastal chalk;</p> <ul style="list-style-type: none"> <li>• Chalk reefs;</li> <li>• Chalk caves;</li> <li>• Sand dunes, sandy coastland;</li> <li>• London Clay cliffs.</li> </ul>	<p>Relevant objectives used in appraisal concerned protection of landscape, defence of agricultural land and maintenance /protection of geological SSSIs.</p>
<b>Water</b>	<p>Designations of water bodies under the Water Framework Directive (WFD) is separately documented in a WFD assessment.</p>	<p>Baseline coastal behaviour by PU is described in Appendix C (Baseline Process Understanding) of the substantive SMP report. The study area contains a number of freshwater bodies, including abstraction points and significant areas of marshes sensitive to saline incursion in the event of coastal defence breach.</p>	<p>Relevant objectives used in appraisal concerned freshwater marsh habitats, dangers of causing release of contaminants from old industrial sites and protection of shellfisheries</p>
<b>Climatic factors</b>	n/a	<p>Appendices C1 and C2 provide detailed information on baseline coastal processes and on coastal defences.</p>	<p>See objectives regarding prevention of loss /damage /disruption of infrastructure, nature designations, homes and facilities.</p>

<p><b>Material Assets</b></p>	<p>n/a</p>	<p>The majority of the built assets within the study area are residential and commercial. Significant additional material assets include:</p> <ul style="list-style-type: none"> <li>• Port and harbour operations, including Thamesport container terminal;</li> <li>• MoD training area;</li> <li>• Power stations (Grain Power Station);</li> <li>• Roads, and rail lines /stations;</li> <li>• Water, sewerage, gas, power and telecommunications lines;</li> <li>• Waste disposal sites.</li> </ul>	<p>Prevent loss/ damage/ disruption to infrastructure from flooding. Prevent loss/ damage/ disruption to harbours from flooding. Objectives relating to individual assets.</p>
<p><b>Cultural heritage</b></p>	<p>SAMs: Coastal Artillery Defences (Grain), Garrison Point Fort, Sheerness Defences, Minster Abbey nunnery, Saxon Shore Fort at Reculver, Sandown Castle, Deal Castle, Walmer Castle. Conservation areas: Sheerness (3), Whitstable (3), Herne Bay, Reculver, Westgate, Margate, Kingsgate, Broadstairs, Ramsgate (2), Deal (3), Kingsdown, St Margaret's Bay.  The study area additionally contains in the region of 240 listed buildings and two registered parks /gardens.</p>	<p>This is a historic coastline with numerous designated heritage interest features reflecting the maritime, defence, industrial and trade history of Kent. In addition to the designated features described there is a large number of non-statutory features, as indicated on the Kent Sites and Monuments record, including buildings, findspots, landscapes and maritime features.</p>	<p>Prevent loss/ damage to Conservation Area and SAM from flooding and flood risk management works. Prevent loss /damage to heritage from flooding and flood risk management works, or implement appropriate mitigation measures, including preservation of evidence by record. Seek opportunities to enhance features. Feature-specific objectives.</p>

<b>Landscape</b>	One section of AONB (Kent Downs) from Kingsdown to South Foreland The study area also contains a number of character areas of countywide significance, namely North Kent Marshes Special Landscape Area, North Downs SLA, Swale County Character Area, Swale Marshes CCA, Eastern Thames Marshes CCA, Hoo Peninsula CCA and Mid Kent Greensand CCA.	Characteristic landscape features in the study area include clay cliffs and rises, coastal marshes, Industrial landmarks (ports, power stations), urban and industrial development, reclaimed channel - ditch and dyke fields, chalk cliffs, sandy bays, extensive mudflat and saltmarsh, coastal scrub, traditional seaside towns and grazing marsh.	Prevent degradation of landscape quality and visual amenity from flooding and flood risk management works. Ensure consideration of existing defences on landscape and heritage grounds. Seek opportunities to enhance features where appropriate.
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## ***K5.2 Future baseline***

The SEA Directive requires that the “likely evolution of the relevant aspects of the environment without implementation of the plan” be considered and we call this the future baseline. This is clearly of relevance to this SMP as we are considering policy options over a 100-year timescale, during which the environmental baseline is likely to change significantly. Although not explicitly described, Future Baseline considerations are incorporated into this assessment, for example in the comparative options appraisal of ‘do something’ options against the ‘do nothing’ option of No Active Intervention (NAI). As an example, the protection of community facilities, material assets and cultural heritage features into the future is assessed as a **beneficial impact of HTL or ATL policy options** in comparison with the **likely future baseline of erosion /flooding and asset loss under NAI**.

## K6 Options Appraisal

Appendix F of the substantive SMP report sets out initial policy appraisal, providing policy scenarios for detailed appraisal.

Appendix G tests these filtered policy scenarios for shoreline response and against agreed appraisal objectives. Appendix G also provides proposed policy options and the preferred policy scenario.

Chapters 4 and 5 of the SMP report set out the preferred policy scenarios for each section of coastline.

### K6.1 Environmental appraisal of policy options

The options appraisal methodology followed is set out above in Section 2.5. Appendix A of this report shows detailed options appraisal by PU of shortlisted policy scenarios against SEA receptors. The preferred option(s) for each PU are shown in green font. Preferred policy scenarios emerging from the original options appraisal in the SMP are presented in detail Chapters 4 and 5 of the substantive SMP report. Table K6.1 below provides a generic options appraisal, indicating how environmental considerations played a role in selection of preferred policy options.

Table K6.1 – Generic options appraisal

SMP option	Potential beneficial impacts	Potential adverse impacts
Hold the Line	<ul style="list-style-type: none"> <li>Protection of communities (residential, industrial, agricultural and commercial assets) and infrastructure</li> <li>Protection of habitat landward of defences (such as freshwater marshes)</li> <li>Protection of freshwater resources such as abstraction points</li> <li>Protection of economic assets located behind defences</li> <li>Protection of recreational, cultural and heritage assets landward of the defences</li> <li>Prevention of pollution from contaminated sites</li> </ul>	<ul style="list-style-type: none"> <li>Coastal squeeze (loss of intertidal habitat)</li> <li>Prevention /interruption of coastal processes</li> <li>Landscape and visual amenity impacts through eventual raising of defences</li> </ul>
Advance the Line	As HTL plus: <ul style="list-style-type: none"> <li>Provision of additional space for communities</li> </ul>	As HTL plus: <ul style="list-style-type: none"> <li>Immediate reduction in extent of intertidal habitat and increased coastal squeeze</li> <li>Immediate landscape and visual amenity impacts through new defence line</li> <li>Change in function of the existing habitats</li> <li>Potential increase in rate of coastal erosion either side of the advanced line</li> <li>Uncertainty of effects</li> </ul>
Managed Realignment	<ul style="list-style-type: none"> <li>Landward migration of coastal habitat under rising sea levels to realigned defence</li> </ul>	<ul style="list-style-type: none"> <li>Increased flooding/erosion of realigned area</li> <li>Change in condition or reduction of</li> </ul>

SMP option	Potential beneficial impacts	Potential adverse impacts
	<ul style="list-style-type: none"> <li>• Creation of wetland habitat in line with UKBAP and local BAP targets</li> <li>• Creation of habitat for juvenile fish and other aquatic organisms (benefits to environment and fishing communities)</li> <li>• Reduction of flood/erosion risk to some areas</li> <li>• Promotion of natural coastal processes and contribution towards a more natural management of the coast</li> </ul>	<ul style="list-style-type: none"> <li>• terrestrial/freshwater habitat landward of defences</li> <li>• Impact upon aquifers and abstractions</li> <li>• Loss of some assets in hinterland of defences (e.g. residential, industrial, agricultural and commercial assets)</li> <li>• Loss of recreational, heritage and cultural features</li> </ul>
No active intervention	<ul style="list-style-type: none"> <li>• Opportunities for landward migration of intertidal habitats under rising sea levels</li> <li>• Works with natural coastal processes</li> <li>• Development of a more natural coastal landscape</li> </ul>	<ul style="list-style-type: none"> <li>• Uncontrolled flood/erosion risk to properties and land</li> <li>• Uncertainty of effects and time for adaptation</li> <li>• Loss of freshwater habitats when defences fail</li> <li>• Impact upon aquifers and abstractions</li> <li>• Uncontrolled loss /damage of economic, community, infrastructure assets</li> <li>• Loss of heritage and cultural features</li> <li>• Uncontrolled flooding /erosion, and pollution from, contaminated areas</li> </ul>

## K6.2 Preferred policy options

The SEA Directive requires that an SEA Environmental Report provide the rationale behind the choice of preferred policy option for a plan or programme. The environmentally-preferred option for an element of a plan or programme is not always that finally chosen, for reasons of technical or economic viability, or because a particular plan objective does not coincide with SEA objectives.

To recap the SMP options appraisal process:

- Step 1 Initial policy appraisal;
- Step 2 Shoreline response assessment against policy scenarios;
- Step 3 Policy appraisal against agreed environmental, social, technical objectives leading to proposed policies
- Step 4 Stakeholder group consultation;
- Step 5 Public consultation leading to preferred policies.

From an SEA perspective, steps 2, 3, 4 and 5 of the above are relevant and contribute to making the SMP process SEA Directive compliant. Preferred policies emerging from the third step should effectively reflect the environmentally-preferred options for each PU /epoch. For a number of PUs, subsequent consultation steps altered the proposed policy option such that the final option chosen was different to that selected in options appraisal. These changes emphasise the iterative nature of SMP development, and of SEA. Table K6.2 describes when this happened and why.



Table K6.2 – Changes to proposed polices post-appraisal

<b>Policy Unit</b>	<b>Appraisal preferred option</b>	<b>Final preferred option and reasons for change</b>
All Hallows-on-Sea to Grain	HTL /HTL&MR /HTL&MR	Final option is HTL /MR /MR; however the villages of All Hallows-on-Sea and Grain would remain protected. Change emphasises the cost savings and environmental enhancements realisable through MR.
Warden Point to Leysdown on Sea	HTL /HTL /HTL&MR	HTL for all epochs, with localised opportunities for MR in all epochs. This change encourages authorities to look for managed realignment options earlier, with opportunity for habitat creation and more sustainable defences.
Leysdown on Sea to Shellness	HTL /MR /MR	MR for all epochs, as HTL was felt to be unjustified for the first epoch in terms of asset protection. The town of Leysdown-on-Sea remains protected.
Faversham Creek to Seasalter	HTL /HTL&MR /HTL&MR	Ultimately split into two PUs following public consultation. Final policy agreed is HTL /MR /MR for Faversham Creek to The Sportsman Pub, and HTL /HTL /MR for Sportsman to Seasalter. Maintaining defences for longer along the second frontage was justified on asset protection grounds.
Whitstable Town to Whitstable Harbour	HTL or ATL / HTL or ATL / HTL or ATL	HTL in all epochs as ATL was not justified on grounds of improved flood and erosion risk.
Minnis Bay to Westgate-on-Sea	HTL /HTL /HTL	HTL in all epochs, with localised use of NAI where defences do not currently exist or where opportunities arise not to continue maintaining defences, for cost and environmental benefits.
Cliftonville	HTL /HTL /HTL	HTL in all epochs, with NAI in a number of locations where defences do not currently exist or where there are opportunities not to continue maintaining defences, for cost and environmental benefits
White Ness to Ramsgate	HTL /HTL /HTL	HTL in all epochs, with NAI in a number of locations where defences do not currently exist or where there are opportunities not to continue maintaining defences, for cost and environmental benefits
Ramsgate Harbour to Cliffs End	HTL /HTL /HTL	Boundary change (with the River Stour as PU boundary), and change of policy. Final policy HTL /localised NAI above the mouth of the Stour and NAI below (to Sandwich Bay Estate north). Final policy provides allows for greater realisation of environmental benefits.
Cliffs End to Sandwich Bay Estate south	HTL /HTL&MR /MR	See above. Southern boundary change to Sandwich Bay Estate (north).
Sandwich Bay estate south to Sandown Castle	HTL /HTL&MR /HTL&MR	See above re boundary change. Final policy is HTL in all epochs due to low lying hinterland and important assets. It was acknowledged that this policy option would become more difficult /expensive to maintain in the second and third epochs.

## **K7 Environmental Impacts of Preferred Policies**

**Policy Unit Statement Tables in Section 5 of the substantive SMP report set out the implications of preferred policies at each PU**

### ***K7.1 Assessment of impacts***

Previous sections have outlined the process followed in the SMP to arrive at preferred policy scenarios for each policy unit, including appraisal against SEA-compliant objectives agreed during consultation.

This section describes the environmental assessment of the preferred plan, against standard SEA receptors. This assessment adds to that previously presented in the SMP, under 'Implications of preferred policies' in section 5 of the main report.

Appendix B of this report provides detailed assessment matrices by policy unit and epoch, using standard colour coding to give an indication of the significance of environmental impacts.

Table K7.1 below provides a narrative summary of significant impacts by policy unit, together with indications of appropriate mitigation measures required.

Table K7.1 – Significant environmental impacts of preferred policies by policy unit

Policy unit	Preferred policies	Summary environmental impacts of preferred policies	Mitigation /opportunities
All Hallows to Grain	HTL /MR /MR	The first epoch predicts <b>significant beneficial effects for population, human health and material assets</b> as assets remain protected. MR during the second and third epochs is predicted to cause <b>mixed significant impacts for biodiversity</b> .	Compensatory habitat to be sourced through the Regional Habitats Creation Programme (RHCP) with a large net requirement for freshwater habitat.
Garrison Point to Minster	HTL /HTL /HTL	<b>Beneficial impacts are predicted</b> for all epochs for biodiversity, population, human health, material assets, cultural heritage and landscape and these are <b>significant for population and material assets for all epochs</b> . The preferred policy may impact on geology, water and landscape as natural processes are constrained, and upgraded defences in the second /third epochs may impact on landscape.	Scheme-level design such that temporary and other impacts on biodiversity and landscape are minimised.
Minster Town	HTL /HTL /HTL	<b>Significant beneficial effect for population, human health and material assets throughout</b> . No significant adverse impacts.	Mitigation suggested in Appendix B for minor and moderate adverse impacts.
Minster Slopes to Warden Point	NAI /NAI /NAI	No effects were assessed for the majority of receptors /epochs, although there is increased potential for <b>significant adverse impacts on population /human health in the second and third epochs</b> due to reactivated mud cliff erosion. Minor adverse impacts result for material assets and cultural heritage for the same reason.	Public awareness and agreement of appropriate exit strategies from affected land /properties.
Warden Point to Leysdown-on-Sea	HTL and MR /HTL and MR /HTL and MR	<b>Mixed beneficial /adverse effects result for population and human health in all epochs</b> as policy protect some homes and assets, while others are affected. No significant effects identified for remaining receptors /epochs, with minor landscape impacts in later epochs due to new defences lines and mixed effects for water and geology due to local constraint of natural processes.	Public awareness and agreement of appropriate exit strategies from affected land /properties.
Leysdown-on-Sea to Shell Ness	MR /MR /MR	<b>Significant beneficial effects wrt biodiversity</b> emerge for all epochs. As for the previous PU, mixed significant effects emerge with respect to population and human health, as some homes and assets are protected and others affected by erosion.	Public awareness and agreement of appropriate exit strategies from affected land /properties.
Faversham Creek to the Sportsman Pub	HTL /MR /MR	<b>Mixed significant effects on biodiversity</b> in the second and third epochs as freshwater habitats become saline. <b>Significant adverse impacts on population and human health</b> in the second and third epochs , due to the fact that a small number of homes and community assets are lost.	Public awareness and agreement of appropriate exit strategies from affected land /properties. Opportunity to increase the area of intertidal habitat under designation, post-MR.
Sportsman Pub to Seasalter	HTL /HTL /MR	<b>Mixed significant effects on biodiversity</b> in the third epoch as freshwater habitats become saline, affecting international designations. <b>Significant beneficial effects on population and human health</b> in the first and second epochs, becoming <b>significant adverse</b> as some	Specific ecological surveys required and possible compensatory habitat provided under the RHCP. Public awareness and agreement of appropriate exit strategies from

		seafont residences and assets are lost to MR. Significant adverse impact also on cultural heritage with possible loss of part of a SAM.	affected land /properties. Change of realignment line to protect SAM, or recording /relocation of interest features.
Seasalter to Whitstable Town	HTL /HTL /HTL	<b>Significant beneficial effects for population, human health, material assets will also result</b> from holding the existing defence line. Habitats regulations assessment indicates that this cell is not affected by coastal squeeze.	Mitigation is suggested in Appendix B for minor and moderate adverse impacts.
Whitstable Town to Whitstable Harbour	HTL /HTL /HTL	<b>Significant beneficial effects are expected for population, human health, material assets and cultural heritage</b> as existing assets and heritage features remain protected. Habitats regulations assessment indicates that this cell is not affected by coastal squeeze.	Mitigation is suggested in Appendix B for minor and moderate adverse impacts.
Whitstable Harbour (east) to Swalecliffe	HTL /HTL /HTL	<b>Significant beneficial effects in all epochs for population, human health and material assets.</b> Minor /moderate impacts wrt biodiversity in later epochs due to coastal squeeze of internationally designated intertidal habitats.	HRA of the Thanet Coast and Sandwich Bay SPA /Ramsar indicates net gain of intertidal habitat over the designations, so no compensatory habitat requirement. Possible habitat creation opportunity at Long Rock.
Swalecliffe to Herne Bay Breakwater	HTL /HTL /HTL	<b>Significant beneficial effects in all epochs for population, human health, material assets and cultural heritage</b> due to protection of assets. Minor /moderate impacts wrt biodiversity in later epochs due to coastal squeeze of internationally designated intertidal habitats.	HRA of the Thanet Coast and Sandwich Bay SPA /Ramsar indicates net gain of intertidal habitat over the designations, so no compensatory habitat requirement. Possible habitat creation opportunity at Long Rock.
Herne Bay Breakwater to Bishopstone Manor	HTL /HTL /HTL	<b>Significant beneficial effects in all epochs for population, human health, material assets and cultural heritage</b> due to protection of assets. Minor /moderate impacts wrt biodiversity in later epochs due to coastal squeeze of internationally designated intertidal habitats.	HRA of the Thanet Coast and Sandwich Bay SPA /Ramsar and of Thanet Coast SAC indicates net gain of intertidal habitat over the designations, so no compensatory habitat requirement.
Reculver Country Park	NAI /NAI /NAI	Neutral effects predicted for most scenario /receptor interactions, with potential for minor adverse impacts on non-statutory /unknown archaeology, and adverse impacts on population /human health in the third epoch. <b>Significant beneficial effects wrt biodiversity</b> in the third epoch as intertidal habitats expand.	Mitigation is suggested in Appendix B for minor and moderate adverse impacts.
Reculver Towers to Minnis Bay	HTL /HTL&MR /HTL&MR	Expansion of intertidal habitat in the second and third epochs should result in <b>significant beneficial biodiversity effects</b> , but these will be <b>preceded by significant adverse biodiversity effects</b> due to coastal squeeze. <b>Significant beneficial effects for human health and population</b> in the first epoch only, <b>and for cultural heritage</b> in all epochs.	HRA over the whole SMP area indicates no requirement for compensatory habitat for chalk reefs.
Minnis Bay to Westgate-on-Sea	HTL&NAI / HTL&NAI /	<b>Significant adverse impacts are expected wrt biodiversity of international designations</b> in all epochs, as coastal squeeze reduces	HRA over the whole SMP area indicates no requirement for compensatory chalk reef

	HTL&NAI	intertidal habitat. <b>Significant beneficial effects predicted for all epochs wrt population and human health</b> as assets are defended.	habitat.
Margate	HTL /HTL /HTL	<b>Significant adverse impacts are expected wrt biodiversity of international designations</b> in all epochs, as coastal squeeze reduces intertidal habitat. <b>Significant beneficial effects predicted for all epochs wrt population and human health</b> as assets are defended.	HRA over the whole SMP area indicates no requirement for compensatory chalk reef habitat.
Cliftonville	HTL&NAI / HTL&NAI / HTL&NAI	Moderate adverse impacts are expected wrt biodiversity of international designations in all epochs, as coastal squeeze reduces intertidal habitat at a few locations. <b>Significant beneficial effects also predicted for all epochs wrt population, human health and material assets</b> as assets are defended.	HRA over the whole SMP area indicates no requirement for compensatory chalk reef habitat.
White Ness to Ramsgate	HTL&NAI / HTL&NAI / HTL&NAI	Moderate adverse impacts are expected wrt biodiversity of international designations in all epochs, as coastal squeeze reduces intertidal habitat at a few locations. <b>Significant beneficial effects also predicted for all epochs wrt population, human health, material assets and cultural heritage</b> as assets are defended.	HRA over the whole SMP area indicates no requirement for compensatory chalk reef habitat.
Ramsgate Harbour	HTL /HTL /HTL	<b>Significant beneficial effects with respect to population, human health, material assets and cultural heritage.</b>	No mitigation identified
West Cliff (Ramsgate Harbour to north of the River Stour)	HTL&NAI / HTL&NAI / HTL&NAI	Mixed moderate impacts with respect to biodiversity, as defences protect freshwater habitat and cause coastal squeeze of intertidal habitat. <b>Significant beneficial effects with respect to population, human health, material assets and cultural heritage</b> for all epochs.	HRA over the whole SMP area indicates no requirement for compensatory chalk reef habitat. Pollution impacts on water due to potential breach of a historic landfill at Pegwell Country Park to be mitigated by appropriate investigation and defence.
South of the River Stour to Sandwich Bay Estate (north)	NAI /NAI /NAI	No significant effects identified, although beneficial and adverse effects on biodiversity, population, human health and material assets may occur in the third epoch if dunes erode significantly.	Regular monitoring of coastal protection provided by dunes and review of management approach as necessary.
Sandwich Bay Estate north to Sandown Castle (remains of)	HTL /HTL /HTL	<b>Significant adverse impacts are expected wrt biodiversity of international designations</b> in all epochs, as coastal squeeze reduces intertidal habitat. <b>Significant beneficial effects predicted for all epochs wrt population, human health and cultural heritage</b> as assets are defended.	HRA over the whole SMP area indicates no requirement for compensatory chalk reef habitat.
Sandown Castle (remains of) to Oldstairs Bay	HTL /HTL /HTL	Minor adverse impacts with respect to biodiversity, geology and water as natural coastal erosion processes are constrained. <b>Significant beneficial effects with respect to population, human health, material assets and cultural heritage</b> as major settlements and three SAMs are protected.	Scheme level monitoring and sensitivity to maximise SSSI interest features. Consideration of SAM and landscape in design of upgraded defences when required.
Oldstairs Bay to St Margaret's	NAI /NAI /NAI	Neutral effects predicted for all receptors with the exception of population and human health, in relation to which moderate adverse impacts may	Public awareness and agreement of appropriate exit strategies from affected land

		arise from the second epoch due to gradual cliff erosion and blighting /loss of assets.	/properties.
St Margaret's Bay	HTL/HTL /HTL	<b>Significant beneficial effects wrt population, human health and cultural heritage</b> as assets remain protected. Due to constraints on natural processes, some adverse impacts possible on biodiversity, but HRA has concluded these will not be significant with respect to the SAC. Moderate adverse impacts possible regarding landscape in later epochs.	Scheme level defences designed such that upgraded defences are in keeping with local landscape character.
South Foreland	NAI /NAI /NAI	Neutral effects predicted for all receptors with the exception of population and human health, in relation to which moderate adverse impacts may arise from the second epoch due to gradual cliff erosion and blighting /loss of assets.	Public awareness and agreement of appropriate exit strategies from affected land /properties.

## K7.2 Cumulative impacts

A key element of the consideration of environmental impacts at a strategic level is the potential for indirect, secondary, synergistic and cumulative effects on a particular environmental receptor to be assessed, both within the Plan and alongside other relevant plans or programmes. These impacts are often collectively termed cumulative impacts. The SEA Directive requires these impacts to be considered in assessment. Table K7.3 below provides an indication of cumulative impacts identified in the context of this SEA.

Table K7.3 – Cumulative impacts

Receptor	Cumulative adverse impacts identified
Biodiversity, flora, fauna	Managed realignment policies over the SMP area will result in major losses of terrestrial and freshwater marsh habitat, some of which is protected by international designations and in relation to which compensatory habitat will need to be sourced under the RHCP. Significant areas of undesignated terrestrial and freshwater habitat are likely to become saline and will not be compensated. Although coastal squeeze has been identified as a common impact on intertidal chalk reefs, HRA concludes that over the whole SMP area there will not be significant chalk reef habitat loss, as sites of possible habitat gain due to cliff erosion are outside international designations.
Population and human health	Although significant sections of the shoreline are expected to remain protected under a HTL policy, this often includes localised MR or NAI. NAI along a number of frontages is eventually expected to affect amenity and community assets. Cumulative impacts wrt this receptor can be considered in terms of numbers of assets affected. However, given the lengthy timescale of the SMP, this may be less useful than an assessment of likely change in attitude to change along the shoreline, from one that assumes the status quo will continue, to one that by necessity accepts change is likely to happen to some extent. Thus the realistic policy options proposed in this SMP review are likely to have a significant cumulative impact on this receptor, both in a beneficial sense in terms of physical protection, but also in an adverse sense with respect to change, uncertainty and associated stresses.
Soil and geology	Significant cumulative loss of agricultural land is likely under policy options of NAI and MR over the SMP period, due to tidal flooding and saline intrusion. The cumulative impact on coastal geology /geomorphology of constraining coastal processes along the bulk of the shoreline is of moderate significance given the geological designations affected (SAC, SSSI).
Water	The separate WFD assessment addresses impacts of proposed policies under the SMP on freshwater, transitional and coastal waterbodies in detail.
Material assets	Policies propose to protect major infrastructure (ports, harbours, power stations, major road and rail, major utilities etc) for the SMP period. Infrastructure affected by MR or NAI is not strategic and its loss can be relatively easily mitigated at a local level. The SMP period allows for long term thinking, such that plans for future infrastructure maintenance and investment can be made well in advance, considering the planned and likely natural development of the shoreline. Minor cumulative impacts.
Cultural heritage	Moderate cumulative adverse impacts on statutory and non-statutory heritage assets are likely, as all policy options cause some adverse impact. MR and NAI will result in flooding or erosion of identified and unknown asset sites and HTL and MR will result in disturbance of heritage sites as new defences are built. Highly sensitive heritage sites (SAMs) are likely to remain protected. Beneficial effects also arise, as a changing shoreline (whether through flooding /erosion or defence building) is likely to produce a continuous stream of archaeological finds and this will contribute to awareness and appreciation of the history of this coast.
Landscape	In terms of the physical landscape and associated designations (AONB wrt the

	two southernmost PUs), negligible cumulative impacts are predicted as NAI will allow a continued natural erosion of the chalk cliff landscape. In a wider sense, across the study area and over the SMP period, significant changes to landscape are expected as defence lines are redrawn. As natural processes are to be allowed where possible, these are assessed as cumulative beneficial effects.
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#### **K7.4 Mitigation measures**

Mitigation measures to reduce adverse impacts at PU level, where these arise, have been referred to in preceding sections and these need to be tiered to environmental assessments at strategy and scheme level. With respect to biodiversity impacts, key findings of HRA are that (a) 671ha of freshwater habitat need to be sourced as compensation for that lost under SMP policies and (b) there is no net adverse effect on chalk reef habitats under SPA /Ramsar and SAC designation, so no compensatory habitat will be required.

Possible strategic level mitigation measures with respect to remaining SEA receptors have been referred to and concern generic responses to broad policy direction at a regional /study area level. At this level, impacts /effects of this SMP review should be considered together with those of neighbouring SMP such as that for the Medway Estuary and Swale. Measures may include:

- Ongoing awareness-raising and education with the public and with local /regional authorities about coastal behaviour and change in the face of sea level rise and increasing weather extremes, causing changes in land use, landscape, location of infrastructure;
- Public awareness-raising and education campaigns about home /community /business -level flood risk management and flood alert schemes;
- Promotion of leisure and tourism with increased focus on nature conservation;
- Development of a strategic approach to cultural heritage along a changing coastline with the possibility of losses, erosion and increasing numbers of finds;
- Consideration of SMP policies and future land use in regional, local spatial planning.



## K8 Implementation and monitoring

### Section 6 of the main SMP report provides an Action Plan for SMP implementation

The main SMP report contains an Action Plan that sets out steps to ensure SMP recommendations are taken forward in the short term and considered for long term planning. Stated objectives for the Action Plan are to:

1. Facilitate implementation of SMP policies;
2. Identify when and where works are expected;
3. Identify and/or promote studies to further or improve understanding where this is required to resolve policy and/or implementation;
4. Develop a prioritised programme of strategy plan development and outline plan of possible schemes;
5. **Establish actions required to deal with the consequences of the plan;**
6. Establish actions required to resolve uncertainties;
7. Promote use of the SMP recommendations in spatial planning;
8. Establish a process for informing stakeholders of progress;
9. Identify procedures for the management of the SMP until its next review; and,
10. Establish a framework to monitor progress against the action plan and initiate future SMP review.

This report suggests that point 5 above should be expanded to specifically include consideration of the findings of separate assessments of the SMP review, namely of the SEA, the HRA and the WFD assessment reports.

The Action Plan sets out a series of suggested monitoring initiatives, at the level of the study area and at individual policy unit level. These should be referred to.

From an SEA perspective, environmental monitoring during SMP implementation is important for the following reasons:

- To assess the extent to which SMP /SEA objectives have been fulfilled;
- To address areas of uncertainty in baseline data and in assessment;
- With respect to predicted significant adverse impacts, to monitor suggested mitigation measures thereby allowing alternative actions in case of failure;
- Monitoring of predicted significant beneficial effects to allow action in case of adverse effect;
- To uncover unknown effects on environmental receptors during implementation.

These points do not necessarily imply the development of a monitoring regime specifically to comply with SEA requirements and existing monitoring arrangements should be used as far as possible.

## **K10 Conclusions and next steps**

### **K10.1 Conclusions**

Guidance from Defra on SMP development (Defra, 2006) indicated that SEA should be integral to plan development. Review of SMP papers judged this approach, as implemented, not to have been compliant with the requirements of the SEA Directive and thereby not compliant with previous Defra guidance on application of SEA to SMPs. As a retrospective exercise, SEA was applied to existing documentation and analysis both to make it clearer how strategic environmental considerations were incorporated into ongoing development of the SMP and also how other aspects central to SEA (such as consultation and consideration of alternatives) were considered.

The key conclusions of this exercise are as follows:

- There were weaknesses in application of SEA in the original SMP review and these included including inadequate consideration of the full suite of SEA receptors, sparse consideration of the nature and significance of impacts, poor scoping from an SEA perspective and obscure justification of preferred policy option selection;
- However the original SMP exercise also showed strengths from an SEA perspective, principally in the extent of stakeholder consultation and the evidence shown that this fed into decisions on proposed policies. This was a crucial element in itself and strengthened the basis for incorporation of environmental considerations in decision-making;
- Retrospective application of SEA has not resulted in findings (with respect to policy implications for the environment), that differ significantly to those emerging from previous appraisals and assessments. No changes to proposed policies are suggested and no further consultation should be required.

### **K10.2 Next steps**

This SEA report indicates both how environmental concerns were incorporated in decision-making and sets out actions required in subsequent implementation of policies. Key points:

- This report suggests both high-level and PU-level mitigation measures; these need to be tiered to environmental assessment of strategies and strategy reviews in the study area, as well as schemes as appropriate;
- SEA findings need to be taken on board by Local Authorities and considered in land use planning as well and coastal defence planning;
- Objective 5 of the SMP action plan should be expanded to specifically include consideration of the findings of separate assessments of the SMP review, namely of the SEA, the HRA and the WFD assessment reports.

## References

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## **Appendices**

Appendix A – Options appraisal matrices

Appendix B – Environmental impacts of preferred policies



Coastal section	SMP policy	Environmental receptor						
		Biodiversity, flora and fauna	Population and Human Health	Soil and geology	Water	Material Assets	Cultural Heritage	Landscape
	MR	Some intertidal habitat losses in the medium /long term; also potential for creation of new grazing marsh and intertidal habitat. Significant beneficial and adverse impacts	Existing amenities, residential and commercial properties and community facilities largely maintained	Natural coastal processes allowed. Saline intrusion.	Possible breach of historic landfill site at Grain; possible to mitigate. Contribution to WFD objectives for transitional waterbodies	The bulk of potentially affected infrastructure and land will remain protected, with possible losses at some sites in the long term due to sea level rise	In the long term, individual sites and buried artefacts may be affected by flooding and by works, depending on the realignment line	In the medium and long term, some landscape impacts expected depending on the realignment line
	NAI	Uncontrolled loss of freshwater grazing marsh, extension in area of intertidal habitat. Significant beneficial and adverse impacts	Increasing loss of a variety of community assets; stress due to flooding uncertainty	Natural coastal processes allowed	Natural coastal processes positive for transitional waterbody. Breach of landfill site.	Infrastructure and land likely to remain unaffected in the short term but in the medium and long term will become increasingly vulnerable	Likely loss of individual sites and unknown artefacts in the medium /long term	Uncontrolled flooding may lead to landscape degradation in the medium /long term
Conclusion /justification	The environmentally preferred option is HTL, with minor adverse effects on coastal processes and landscape. Adverse effects on European designations under both HTL and MR would need to be appropriately compensated under RHCP. Preferred plan is for HTL in the first epoch and MR thereafter, due to increasing difficulty in defending the shoreline. This approach would involve the managed loss of assets together with biodiversity benefits. The villages of Allhallows and Grain and the electricity / railway line would be protected. Final preferred policy - HTL /MR /MR.							

Coastal section	SMP policy	Environmental receptor						
		Biodiversity, flora and fauna	Population and Human Health	Soil and geology	Water	Material Assets	Cultural Heritage	Landscape
Garrison Point to Minster	HTL	Maintenance of locally designated freshwater habitat	Existing community assets maintained	Natural coastal processes constrained	Natural coastal processes constrained with possible impacts on coastal waterbody	Protection maintained of infrastructure and agricultural land	Heritage features protected /maintained in the short /medium term; in the long term upgrading defences may adversely affect	Maintenance of existing landscape, with potential local impacts due to higher /deeper defences (mitigable).
	ATL	Maintenance of locally designated freshwater habitat	Existing community assets maintained	Natural coastal processes highly constrained	Natural coastal processes constrained with possible impacts on coastal waterbody.	As HTL	Could adversely affect heritage features	Landscape impacted by new defence line
	MR	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised
	NAI	Loss of locally designated freshwater habitat	Increasing loss of a variety of community assets; stress due to flooding uncertainty	Natural coastal processes allowed	Natural coastal processes positive for transitional waterbody	Infrastructure, land likely to be adversely affected /lost in the medium /long term	Heritage features likely not to be affected in the short term but will be increasingly vulnerable and likely to be lost in the long term	Degradation of existing landscape expected in the medium /long term
Conclusion /justification	The environmentally preferred option is HTL in all epochs, with minor adverse effects on coastal processes. No European designations present so coastal squeeze no registered as a significant impact on biodiversity. This section of the coast comprises a dense urban area that extends to the shoreline and has regionally important strategic links. The long term plan is to continue protecting the developments including the residential, commercial, industrial and infrastructural assets. Preferred policy - HTL /HTL /HTL.							





Coastal section	SMP policy	Environmental receptor						
		Biodiversity, flora and fauna	Population and Human Health	Soil and geology	Water	Material Assets	Cultural Heritage	Landscape
Point	NAI	No adverse impacts on SSSI geological and biodiversity interest features	Small number of community assets may become affected as cliffs erode	Natural coastal processes will proceed – clay cliff erosion	Natural coastal processes positive for transitional waterbody	Some loss of agricultural land expected from the first epoch	Unknown heritage assets may be lost from the first epoch	Natural erosion of existing landscape expected from the first epoch
Conclusion /justification	NAI was the only option appraised, based on conservation of SSSI interest features and as development along this frontage is minimal. However minor adverse effects are expected on population, human health, material assets and cultural heritage over the long term. Preferred policy – NAI /NAI /NAI.							
Warden Point to Leysdown-on-Sea	HTL	Maintenance of freshwater habitat, adverse impact on geological SSSI, with increasing loss of intertidal habitat in the long term	Existing community assets maintained	Natural cliff erosion will be prevented	Natural coastal processes constrained with possible impacts on coastal waterbody	Protection of infrastructure maintained	Unknown heritage assets protected	Maintenance of existing landscape with long term local impacts due to defence upgrading
	ATL	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised
	MR	Some intertidal habitat losses in the medium /long term; also potential for creation of new grazing marsh and intertidal habitat	Some community assets lost	Natural coastal processes under some constraint	Limited beneficial effects for coastal waterbody in terms of geomorphology and habitat potential	Some losses of community facilities, residential and commercial properties and infrastructure from the medium term on, depending on realignment line	Some unknown heritage assets likely to be lost	Temporary adverse impacts due to new defence line, otherwise maintenance of existing landscape

Coastal section	SMP policy	Environmental receptor						
		Biodiversity, flora and fauna	Population and Human Health	Soil and geology	Water	Material Assets	Cultural Heritage	Landscape
	NAI	Extension in area of (undesignated) intertidal habitat	Eventual loss of community assets	Natural coastal processes allowed	Beneficial effects for coastal waterbody in terms of geomorphology and habitat potential	Losses of infrastructure expected from the medium term onwards	Heritage assets lost from the medium term	Gradual change in landscape due to flooding and erosion
Conclusion /justification	This PU contains a mixture of uses and nature conservation designations and the preferred option provides for HTL with local application of MR in order to preserve SSSI interest features. Eventual adverse impacts on some human environment receptors will require appropriate mitigation. Final preferred policy – HTL with local MR where possible over all epochs.							
Leysdown-on-Sea to Shell Ness	HTL	Increasing loss of designated intertidal habitat in the long term	Existing community assets maintained	Natural coastal processes constrained	Natural coastal processes constrained with possible impacts on coastal waterbody	No loss of agricultural land expected	Listed building protected	Landscape degradation predicted in the medium /long term due to maintenance of existing defence line
	ATL	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised
	MR	Beneficial effect on designated intertidal habitat	Leysdown-on-Sea protected. Hamlet of Shellness lost, alongside other community assets	Natural coastal processes under some constraint, saline intrusion.	Will benefit ecology of coastal waters	Coastal access road lost, agricultural land lost.	Loss of a listed building.	Temporary impacts (mitigable) of new defence line.
	NAI	Beneficial effect on designated intertidal habitat	Eventual loss of community assets	Natural coastal processes allowed	Will benefit ecology of coastal waters	Loss of agricultural land expected from the medium term onwards	Loss of a listed building	Uncontrolled landscape degradation
Conclusion	The environmentally preferred option is MR, if Leysdown-on-Sea remains protected. There are some minor adverse effects material assets and cultural							

Coastal section	SMP policy	Environmental receptor						
		Biodiversity, flora and fauna	Population and Human Health	Soil and geology	Water	Material Assets	Cultural Heritage	Landscape
/justification	heritage. This appraisal does not consider adverse impacts on freshwater habitats in The Swale SPA /Ramsar /SSSI as these relevant frontage is within the Medway Estuary and Swale SMP area. Final preferred policy – MR /MR /MR.							
Faversham Creek to Seasalter	HTL	Significant beneficial and adverse effects as designated freshwater habitat protected and intertidal habitat squeezed	Existing community assets maintained	Natural geomorphological processes constrained	Natural coastal processes constrained with possible impacts on transitional waterbody	Protection maintained of infrastructure and agricultural land	Heritage assets largely protected, with some risk in the medium /long term of damage to assets due to defence upgrading	Some landscape degradation predicted in the medium /long term due to upgrading of existing defence line
	ATL	Maintenance /extension of freshwater habitat with decrease in intertidal habitat	As HTL	Natural coastal processes highly constrained	Natural coastal processes highly constrained with possible impacts on transitional waterbody	As HTL	Heritage assets largely protected, with some risk of damage to assets due to new defence line - mitigable	Some landscape degradation predicted in the medium /long term due to new defence line
	MR	Significant beneficial and adverse effects as designated intertidal habitat increased and freshwater habitat lost	Adverse impacts on homes and community assets	Natural coastal processes largely allowed	Benefits for transitional waterbody	Some losses of infrastructure from the medium term	Possible loss of part of SAM – mitigable.	Retreated defence line likely to be less intrusive than ATL or eventual HTL

Coastal section	SMP policy	Environmental receptor						
		Biodiversity, flora and fauna	Population and Human Health	Soil and geology	Water	Material Assets	Cultural Heritage	Landscape
	NAI	Significant beneficial and adverse effects as designated intertidal habitat increased and freshwater habitat lost	Loss of community assets	Natural coastal processes allowed	Natural coastal processes positive for transitional waterbody	Losses of infrastructure from the medium term	Significant heritage assets lost due to flooding in the long term	Landscape degradation predicted in the medium /long term due to uncontrolled erosion /flooding
Conclusion /justification	HTL /MR /MR, HTL /HTL /MR The environmentally preferred option for this whole frontage is HTL; MR also shows benefits. As the freshwater habitat is under international designation principally just in the east of the PU, ATL scores negatively on balance wrt biodiversity due to coastal squeeze. Ultimately this PU was split into two (Faversham Creek to the Sportsman Pub and Sportsman Pub to Seasalter), with preferred plans opting for HTL then MR. For the latter of these two PUs, HTL is proposed for the first two epochs. Final preferred plans – HTL /MR /MR for Faversham Creek to Sportsman Pub, HTL /HTL /MR for Sportsman Pub to Seasalter.							
Seasalter to Whitstable Town	HTL	HRA indicates no coastal squeeze impacts on international designations	Existing community assets maintained	Natural coastal processes constrained	Natural coastal processes constrained with possible impacts on coastal waterbody	Protection of infrastructure and agricultural land maintained	Unknown assets protected	Some landscape degradation predicted in the medium /long term due to upgrading of existing defence line
	ATL	Some coastal squeeze impacts expected	As HTL	Natural coastal processes highly constrained	Natural coastal processes highly constrained with possible impacts on coastal waterbody	As HTL, with some additional potential impact to shellfish beds from new advanced defence line	Unknown assets protected	Some landscape degradation predicted from the first epoch due to new defence line

Coastal section	SMP policy	Environmental receptor						
		Biodiversity, flora and fauna	Population and Human Health	Soil and geology	Water	Material Assets	Cultural Heritage	Landscape
	MR	Reduced impacts on international designation	Some adverse impact and changes to community assets	Natural coastal processes under some constraint	Some benefits for coastal waterbody as ecology, geomorphology more natural	Some losses of infrastructure from the medium term depending on new alignment	Possible impacts on unknown assets	Retreated defence line likely to be less intrusive than ATL or eventual HTL
	NAI	Reduced impacts on international designation	Eventual loss of community assets	Natural coastal processes allowed	Natural coastal processes positive for coastal waterbody	Loss of infrastructure from the second epoch	Possible impacts on unknown assets	Landscape degradation predicted in the medium /long term due to uncontrolled flooding
Conclusion /justification	The environmentally preferred option is HTL, with minor adverse effects on coastal processes and landscape. No adverse effects are predicted in HRA wrt international designations. Preferred plan - HTL /HTL /HTL.							
Whitstable Town to Whitstable Harbour	HTL	HRA indicates no coastal squeeze impacts on international designations	Existing community assets maintained	Natural coastal processes constrained	Natural coastal processes constrained with possible impacts on coastal waterbody	Protection of infrastructure and harbour facilities maintained	Known and unknown heritage assets protected.	Existing landscape maintained until the second epoch, after which defence upgrades will result in local impacts
	ATL	Some coastal squeeze impacts expected	Existing community assets maintained	Natural coastal processes highly constrained	Natural coastal processes highly constrained with possible impacts on coastal waterbody	As HTL	Heritage assets may be impacted from the first epoch, depending on the location of the new line	Landscape impacts from the first epoch due to new advanced defence line

Coastal section	SMP policy	Environmental receptor						
		Biodiversity, flora and fauna	Population and Human Health	Soil and geology	Water	Material Assets	Cultural Heritage	Landscape
	MR	Increase in intertidal habitat in the medium term	Some community assets lost from the second epoch	Natural coastal processes under some constraint	Some benefits for coastal waterbody as ecology, geomorphology more natural	Infrastructure and harbour facilities , lost from second epoch	Heritage assets may be impacted from the first epoch, depending on the location of the new line	Landscape impacts from second epoch due to new defence line
	NAI	Increase in intertidal habitat in the medium /long term	Community assets lost from the second epoch	Natural coastal processes allowed	Natural coastal processes positive for coastal waterbody	Infrastructure and harbour facilities , blighted from first epoch, lost from second	Significant number of heritage assets likely to be impacted from the second epoch	Landscape impacts from second epoch due to uncontrolled flooding /erosion
Conclusion /justification	The environmentally preferred option is HTL, with minor adverse effects on coastal processes and landscape. No adverse effects are predicted in HRA wrt international designations. Final preferred plan - HTL /HTL /HTL.							
Whitstable Harbour (east) to Swalecliffe	HTL	Eventual minor coastal squeeze impacts on intertidal habitats	Community assets maintained	Natural coastal processes constrained	Shellfish beds protected. Natural coastal processes constrained with possible impacts on coastal waterbody	Protection maintained of infrastructure and harbour facilities	Protection of two kisted buildings	Landscape degradation from second epoch due to raised defences
	ATL	Adverse impact on intertidal habitat and cliff habitats from the first epoch	Community assets maintained	Natural coastal processes highly constrained	Shellfish beds may be damaged. Natural coastal processes highly constrained with possible impacts on coastal waterbody	As HTL	As HTL	Landscape degradation from first epoch due to new defence line

		<b>Environmental receptor</b>						
<b>Coastal section</b>	<b>SMP policy</b>	<b>Biodiversity, flora and fauna</b>	<b>Population and Human Health</b>	<b>Soil and geology</b>	<b>Water</b>	<b>Material Assets</b>	<b>Cultural Heritage</b>	<b>Landscape</b>
	MR	Mixed significant beneficial and adverse impacts wrt an international designation due to intertidal /freshwater interests	Community assets lost from second epoch	Natural coastal processes allowed	Shellfish beds damaged. Some benefits for coastal waterbody as ecology, geomorphology more natural	Infrastructure and harbour facilities , lost from second epoch	Risk to two listed buildings.	Landscape degradation in third epoch due to new defence line
	NAI	Mixed significant beneficial and adverse impacts wrt an international designation due to intertidal /freshwater interests	Significant losses to community assets from second epoch	Natural coastal processes allowed	Shellfish beds lost due to erosion. Natural coastal processes positive for coastal waterbody	Infrastructure and harbour facilities lost from second epoch.	Loss of two listed buildings.	Landscape degradation from second epoch due to uncontrolled flooding /erosion
<b>Conclusion /justification</b>	The environmentally preferred option is HTL, with significant impacts on biodiversity and minor impacts on coastal processes and landscape. Impacts on the international designation will need to be mitigated with appropriate compensatory habitat sourced through the Regional Habitat Creation Programme. Preferred plan - HTL /HTL /HTL.							
Swalecliffe to Herne Bay Breakwater	HTL	Eventual minor coastal squeeze impacts on intertidal habitats	Community assets maintained throughout	Natural coastal processes constrained	Natural coastal processes constrained with possible impacts on coastal waterbody	Infrastructure and breakwater protected throughout	Maintenance of conservation area and listed buildings, but potential loss of known and unknown heritage from second epoch due to works	Landscape degradation from second epoch due to raised defences

Coastal section	SMP policy	Environmental receptor						
		Biodiversity, flora and fauna	Population and Human Health	Soil and geology	Water	Material Assets	Cultural Heritage	Landscape
	ATL	Adverse impact on designated intertidal habitat from the first epoch	As HTL	Natural coastal processes highly constrained	Natural coastal processes highly constrained with possible impacts on coastal waterbody	As HTL	As HTL	Landscape degradation from first epoch due to new defence line
	MR	Mixed significant beneficial and adverse impacts wrt an international designation due to intertidal /freshwater interests	Some disruption to community assets from the second epoch	Natural coastal processes under some constraint	Some benefits for coastal waterbody as ecology, geomorphology more natural	Some impacts on infrastructure and breakwater from the first epoch	Loss of some of conservation area depending on location of new defence line and potential loss of known and unknown heritage from second epoch due to works	Landscape degradation in third epoch due to new defence line
	NAI	Mixed significant beneficial and adverse impacts wrt an international designation due to intertidal and /freshwater interests	Significant losses to community assets from second epoch	Natural coastal processes allowed	Natural coastal processes positive for coastal waterbody	Some impacts on infrastructure and breakwater from the first epoch. Major impacts on all material assets from second epoch	Loss of conservation area and heritage assets from second epoch	Landscape degradation from second epoch due to uncontrolled flooding /erosion
Conclusion /justification	The environmentally preferred option is HTL, with significant impacts on biodiversity and minor impacts on coastal processes and landscape. Impacts on the international designation will need to be mitigated with appropriate compensatory habitat sourced through the Regional Habitat Creation Programme. Preferred plan - HTL /HTL /HTL.							



Coastal section	SMP policy	Environmental receptor						
		Biodiversity, flora and fauna	Population and Human Health	Soil and geology	Water	Material Assets	Cultural Heritage	Landscape
Herne Bay Breakwater to Bishopstone Manor	HTL	Eventual minor coastal squeeze impacts on intertidal habitats	Community assets maintained throughout	Natural coastal processes constrained	Natural coastal processes constrained with possible impacts on coastal waterbody	Infrastructure protected throughout	Conservation area and listed buildings protected	Landscape degradation from third epoch due to raised defences
	ATL	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised
	MR	Beneficial for designated intertidal habitats	Some disruption to community assets from the first epoch	Natural coastal processes under some constraint	Some benefits for coastal waterbody as ecology, geomorphology more natural	Some impacts on infrastructure and breakwater from the second epoch	Potential impacts on conservation area second epoch due to works	Temporary landscape impacts due to new alignment
	NAI	Beneficial for designated intertidal habitats	Significant losses to community assets from second epoch	Natural coastal processes allowed	Natural coastal processes positive for coastal waterbody	Major impacts on infrastructure and breakwater from the second epoch	Conservation area and heritage assets at risk from erosion from second epoch	Landscape degradation from second epoch due to erosion
Conclusion /justification	MR has fewest significant adverse impacts but HTL shows more environmental benefits. Adverse impacts on the international designation are addressed in HRA, under which affected chalk reefs are deemed not to be adversely impacted over the whole SMP area. Preferred plan – HTL /HTL /HTL.							
Reculver Country Park	HTL	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised
	ATL	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised
	MR	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised
	NAI	Chislet marshes maintained throughout. Maintenance of intertidal habitat	Some loss to community assets in the third epoch. Access disruption from first epoch	Natural coastal processes allowed	Natural coastal processes positive for coastal waterbody	No significant impacts identified	Potential loss of heritage assets due to erosion from second epoch	Landscape maintained
Conclusion /justification	NAI was the only option appraised following the initial filter of options. Minor adverse effects are expected on population, human health and cultural heritage over the long term. Preferred policy NAI /NAI /NAI.							

Coastal section	SMP policy	Environmental receptor						
		Biodiversity, flora and fauna	Population and Human Health	Soil and geology	Water	Material Assets	Cultural Heritage	Landscape
Reculver Towers to Minnis Bay	HTL	Coastal squeeze impacts on international designation and protects (undesigned) freshwater marshes	Community assets maintained throughout.	Natural coastal processes constrained	Natural coastal processes constrained with possible impacts on coastal waterbody	Infrastructure protected throughout. Agricultural land protected. Shellfish industry potentially affected by works from second epoch	Conservation area and SAM protected throughout, with potential for impacts on other heritage assets due to works in the third epoch	Existing landscape maintained with temporary impacts in later epochs
	ATL	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised
	MR	Beneficial for internationally designated intertidal habitat, loss of undesigned freshwater marshes	Loss of some community assets from first epoch	Natural coastal processes under some constraint	Some benefits for coastal waterbody as ecology, geomorphology more natural	Loss of some infrastructure and from first epoch. Shellfish industry at risk from flooding from first epoch.	Potential for adverse impacts on SAM and conservation area from the first epoch	Landscape more natural, temporary adverse impacts due to new defence line
	NAI	Beneficial for internationally designated intertidal habitat, loss of undesigned freshwater marshes	Loss of community assets from the first epoch	Natural coastal processes allowed	Natural coastal processes positive for coastal waterbody	Uncontrolled loss of infrastructure	Likely adverse impacts on the SAM and conservation area from first epoch	Uncontrolled changes in landscape
Conclusion /justification	MR has fewest significant adverse impacts but and HTL shows more environmental benefits due to protection of community assets and the SAM. Adverse impacts on the international designation are addressed in HRA, under which affected chalk reefs are deemed not to be adversely impacted over the whole SMP area. The preferred plan combines HTL for Reculver and the SAM, with MR for the rest of the frontage. Preferred plan – HTL /HTL and MR /HTL and MR.							

Coastal section	SMP policy	Environmental receptor						
		Biodiversity, flora and fauna	Population and Human Health	Soil and geology	Water	Material Assets	Cultural Heritage	Landscape
Minnis Bay to Westgate-on-Sea	HTL	Coastal squeeze impacts on international designation	Community assets maintained throughout.	Natural coastal processes constrained	Natural coastal processes constrained with possible impacts on coastal waterbody	Infrastructure protected throughout	Listed buildings protected	Temporary landscape impacts in third epoch due to defence improvement works
	ATL	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised
	MR	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised
	NAI	Beneficial for intertidal habitat	Significant disruption to and loss of community assets from the second epoch	Natural coastal processes allowed	Natural coastal processes positive for coastal waterbody	Loss of infrastructure from second epoch	Potential for loss of listed buildings from second epoch	Uncontrolled landscape change from first epoch due to flooding /erosion
Conclusion /justification	ATL and MR were not appraised for this PU following initial option filtering. The environmentally preferred option is HTL, with the most beneficial balance of effects. The adverse impacts on international designations are addressed in HRA, under which affected chalk reefs are deemed not to be adversely impacted over the whole SMP area. The preferred plan provides for HTL where necessary and NAI where possible, allowing localised natural processes to continue, benefiting biodiversity and soil /water. Final preferred plan – HTL and NAI / HTL and NAI / HTL and NAI.							
Margate	HTL	Coastal squeeze impacts on international designation	Community assets maintained throughout	Natural coastal processes constrained	Possible contaminant release from former Hoverport site in third epoch (mitigable)	Infrastructure, harbour, breakwaters protected throughout.	Numerous heritage assets and conservation areas protected. Some adverse impacts on heritage assets from second epoch due to works (mitigable)	Landscape maintained; some degradation from third epoch due to raised defences



Coastal section	SMP policy	Environmental receptor						
		Biodiversity, flora and fauna	Population and Human Health	Soil and geology	Water	Material Assets	Cultural Heritage	Landscape
	MR	Some impacts on intertidal habitat from first epoch	Some disruption to community assets in third epoch due to works	Natural coastal processes under some constraint	Some benefits for coastal waterbody as ecology, geomorphology more natural	Some loss of infrastructure from third epoch.	No impacts identified	Landscape impacts due to new line and works
	NAI	Beneficial for intertidal habitat	Some disruption to community assets in third epoch due to flooding /erosion	Natural coastal processes allowed	Natural coastal processes positive for coastal waterbody	Loss of infrastructure from third epoch.	No impacts identified	Uncontrolled landscape changes in third epoch
Conclusion /justification	ATL was not appraised for this PU following initial option filtering. MR emerges as the environmentally preferred option. However, HRA indicates that impacts on chalk reefs are not significant at an SMP-wide level. The preferred plan provides for protection of development and infrastructure with HTL, whilst allowing NAI locally, thus benefiting biodiversity and natural coastal processes. Final preferred plan - HTL and NAI / HTL and NAI / HTL and NAI.							
White Ness to Ramsgate	HTL	Adverse impacts on intertidal habitat from second epoch	Community assets maintained throughout	Natural coastal processes constrained	Natural coastal processes constrained with possible impacts on coastal waterbody	Infrastructure protected throughout.	Numerous listed buildings, conservation areas protected.	Landscape maintained throughout. Temporary adverse impacts of upgraded line.
	ATL	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised
	MR	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised
	NAI	Beneficial for intertidal habitat	Some disruption to community assets from second epoch due to flooding	Natural coastal processes allowed	Natural coastal processes positive for coastal waterbody	Loss of infrastructure in third epoch.	Some loss of heritage assets in third epoch. Potential impacts on conservation area from third epoch.	Uncontrolled landscape changes in third epoch
Conclusion /justification	ATL and MR were not appraised for this PU following initial option filtering. MR emerges as the environmentally preferred option, with fewest significant adverse impacts. HRA indicates that impacts on chalk reefs are not significant at an SMP-wide level. The preferred plan provides for protection of							

Coastal section	SMP policy	Environmental receptor						
		Biodiversity, flora and fauna	Population and Human Health	Soil and geology	Water	Material Assets	Cultural Heritage	Landscape
	development and infrastructure with HTL, whilst allowing NAI locally, thus benefiting biodiversity and natural coastal processes. Final preferred plan - HTL and NAI / HTL and NAI / HTL and NAI.							
Ramsgate Harbour	HTL	No impacts identified	Community assets facilities maintained throughout	Natural coastal processes constrained	Natural coastal processes constrained with possible impacts on coastal waterbody	Ramsgate port and other infrastructure maintained throughout	Conservation area maintained throughout but likely loss of some heritage assets from second epoch due to works	Existing landscape maintained
	ATL	Adverse impacts of new defences on marine habitats	As HTL	Natural coastal processes highly constrained	Natural coastal processes highly constrained with possible impacts on coastal waterbody	As HTL	Conservation area maintained throughout but likely loss of some heritage assets from first epoch due to works	Adverse impacts due to new defence line
	MR	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised
	NAI	Eventual gains as natural habitats encroach on Ramsgate	Community assets affected /lost from second epoch	Natural coastal processes allowed	Danger of contaminant release from harbour operations	Ramsgate port and other infrastructure lost or blighted from the second epoch	Some loss of heritage assets and to conservation area from second epoch	Uncontrolled landscape change in the medium term
Conclusion /justification	MR was not appraised for this PU following initial option filtering. HTL emerges as the environmentally preferred option, with fewest adverse impacts. Preferred plan - HTL / HTL / HTL.							

Coastal section	SMP policy	Environmental receptor						
		Biodiversity, flora and fauna	Population and Human Health	Soil and geology	Water	Material Assets	Cultural Heritage	Landscape
West Cliff (Ramsgate Harbour to north of the River Stour)	HTL	Mixed significant impacts, with designated freshwater habitats protected in later epochs, while designated intertidal habitats reduced due to coastal squeeze.	Community assets protected	Localised constraint to natural coastal processes	Localised constraint to natural coastal processes with minor impacts on transitional /coastal waterbodies	Infrastructure protected	Listed buildings in West Cliff protected	Adverse impacts in later epochs as defence line upgraded
	ATL	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised
	MR	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised
	NAI	Mixed significant impacts in later epochs, beneficial for intertidal habitats and adverse for freshwater habitats as saline intrusion increases	Community assets affected /lost in later epochs	Natural coastal processes allowed	Natural coastal processes positive for coastal waterbody. Eventual breach of landfill site	Loss of some infrastructure from the second epoch.	Adverse impacts on listed buildings in West Cliff in later epochs	Degradation of developed areas, also increasingly natural landscape
Conclusion /justification	HTL is the environmentally preferred option with significant beneficial effects for population, human health, material assets and cultural heritage. Adverse impacts on intertidal habitats would require compensatory habitat to be sourced under the Regional Habitats Creation Programme. As local environmental benefits are available under NAI, the preferred plan combines HTL where necessary to protect assets, with NAI where possible. Final preferred plan – HTL and NAI / HTL and NAI / HTL and NAI.							

Coastal section	SMP policy	Environmental receptor						
		Biodiversity, flora and fauna	Population and Human Health	Soil and geology	Water	Material Assets	Cultural Heritage	Landscape
South of the River Stour to Sandwich Bay Estate (north)	HTL	Minor adverse impacts on designated intertidal habitat from second epoch due to coastal squeeze	Community assets protected in third epoch	Some constraint to natural coastal processes	Some constraint to natural coastal processes with minor impacts on coastal waterbody	Protection to hinterland infrastructure and industry in third epoch	One listed building protected in later epochs	Minor landscape impacts in later epochs as defences upgraded
	ATL	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised
	MR	Mixed significant impacts as designated freshwater habitat reduced to the benefit of intertidal habitat	Some community assets lost depending on realignment	Minimal impacts on soft geology	Minimal impacts on water	Minimal loss of infrastructure	Possible loss of one listed building	Temporary landscape impacts only, due to new defence line
	NAI	Mixed significant impacts as designated freshwater habitat reduced to the benefit of intertidal habitat	Possible loss of some community assets (footpath, golf course) in later epochs due to flooding	Natural coastal processes allowed	Natural coastal processes positive for coastal waterbody	Possible loss of land in later epochs	Possible loss of one listed building in later epochs	Natural development of landscape
Conclusion /justification	Appraisal indicates HTL is the environmentally preferred option, with possible breaches of naturally accreting sand dunes in later epochs due to sea level rise. However the expectation is that dunes will in fact maintain an adequate standard of protection for inland assets, and frequent monitoring of the beaches /dunes is recommended to allow formal defence management in case of potential breaches. With this proviso the preferred plan is NAI for all epochs, which allows the environmental benefits of this option to be realised. Preferred plan – NAI /NAI /NAI.							



Coastal section	SMP policy	Environmental receptor						
		Biodiversity, flora and fauna	Population and Human Health	Soil and geology	Water	Material Assets	Cultural Heritage	Landscape
Sandwich Bay Estate north to Sandown Castle (remains of)	HTL	Mixed significant effects as designated freshwater habitats protected while designated intertidal habitats reduced	Community assets protected	Natural coastal processes constrained	Natural coastal processes constrained with possible impacts on coastal waterbodies	Infrastructure maintained throughout	SAM and listed buildings protected	Temporary adverse effects due to upgraded defences
	ATL	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised
	MR	Mixed significant effects as designated freshwater habitats reduced while designated intertidal habitats increased	Minor community assets affected	Natural coastal processes under minor constraint	Some benefits for coastal waterbody as ecology, geomorphology more natural	Some impacts on infrastructure depending on new defence line	Heritage assets likely to remain protected	Temporary adverse effects due to new defence line
	NAI	Mixed significant effects as designated freshwater habitats reduced while designated intertidal habitats increased	Community assets affected /lost in early epochs	Natural coastal processes allowed	Natural coastal processes positive for coastal waterbody	Loss of infrastructure from the first epoch	Possible damage to SAM and listed buildings from first epoch	Uncontrolled landscape changes from first epoch
Conclusion /justification	The environmentally preferred option is HTL due to significant benefits for population, human health, material assets and cultural heritage. HRA found no adverse impacts on the SAC. Adverse impacts on the SPA /Ramsar intertidal reefs have been found not to be significant over the whole SMP area. Final preferred plan – HTL /HTL /HTL.							

Coastal section	SMP policy	Environmental receptor						
		Biodiversity, flora and fauna	Population and Human Health	Soil and geology	Water	Material Assets	Cultural Heritage	Landscape
Sandown Castle (remains of) to Oldstairs Bay	HTL	Prevention of natural cliff erosion in SSSI will adversely affect interest features	Protection of community assets	Natural coastal processes constrained	Natural coastal processes constrained with minor impacts on coastal waterbodies	Infrastructure protected throughout	SAMs and conservation area maintained throughout	Eventual adverse landscape impacts due to defence upgrading
	ATL	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised
	MR	Some impacts on intertidal habitats from works and coastal squeeze from second epoch	Most community assets protected	Natural coastal processes under some constraint	Some benefits for coastal waterbody as ecology, geomorphology more natural	Key infrastructure protected	SAMs and conservation area likely to be maintained but there could be losses	Degradation of landscape expected from second epoch due to new defence line
	NAI	Natural processes benefit SSSI and local designation	Disruption to community assets from first epoch due to flooding	Natural coastal processes allowed	Natural coastal processes positive for coastal waterbody	Infrastructure losses from the first epoch	Losses to SAMs and conservation area from first epoch	Degradation of landscape expected from second epoch due to uncontrolled flooding
Conclusion /justification	The environmentally preferred option is HTL, with minor adverse effects on bio /geodiversity, coastal processes and landscape. Preferred plan – HTL /HTL /HTL.							
Oldstairs Bay to St Margaret's Bay	HTL	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised
	ATL	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised
	MR	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised
	NAI	Natural processes benefit SSSI and SAC interest features	Some community assets adversely affected from second epoch	Natural coastal processes allowed	Natural coastal processes positive for coastal waterbody	Minimal impacts	No impacts identified	Natural development of landscape
Conclusion	Initial filtering rejected HTL, ATL and MR for technical and cost reasons and due to limited development along this frontage. NAI is the environmentally							

Coastal section	SMP policy	Environmental receptor						
		Biodiversity, flora and fauna	Population and Human Health	Soil and geology	Water	Material Assets	Cultural Heritage	Landscape
/justification	preferred option and natural processes result in neutral effects predicted for all receptors apart from population, human health, as some assets may be affected by erosion in later epochs. Preferred plan – NAI /NAI /NAI.							
St Margaret's Bay	HTL	Coastal squeeze impacts on intertidal habitats from first epoch	Community assets protected	Natural coastal processes constrained	Natural coastal processes constrained with possible impacts on coastal waterbody	Local infrastructure protected	Conservation area protected	Adverse impacts on AONB due to upgraded defences
	ATL	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised
	MR	Coastal squeeze impacts on intertidal habitats in later epochs	Community assets largely protected	Natural coastal processes under some constraint	Some benefits for coastal waterbody as ecology, geomorphology more natural	Local infrastructure largely protected	Conservation area largely protected	Adverse impacts on landscape from second epoch due to defence structures
	NAI	Minimal impacts on SAC, SSSI	Eventual loss of some community assets	Natural coastal processes allowed	Natural coastal processes positive for coastal waterbody	Loss of cliff-top residential properties in third epoch	Possible impacts on conservation area from second epoch	Uncontrolled landscape changes
Conclusion /justification	The environmentally preferred option is HTL, with minor adverse impacts on biodiversity, coastal processes and landscape. HRA has found no significant adverse impacts on the SAC. Preferred plan – HTL /HTL /HTL.							
South Foreland	HTL	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised
	ATL	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised
	MR	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised	Not appraised
	NAI	Natural processes benefit SSSI and SAC interest features	Some community assets adversely affected from second epoch	Natural coastal processes allowed	Natural coastal processes positive for coastal waterbody	Local infrastructure may be affected from the third epoch	No impacts identified	Natural development of landscape
Conclusion /justification	Initial filtering rejected HTL, ATL and MR for technical reasons and due to limited development along this frontage. NAI is the environmentally preferred option. Natural processes result in neutral effects predicted for all receptors apart from population, human health and material assets as erosion may affect							

		<b>Environmental receptor</b>						
<b>Coastal section</b>	<b>SMP policy</b>	<b>Biodiversity, flora and fauna</b>	<b>Population and Human Health</b>	<b>Soil and geology</b>	<b>Water</b>	<b>Material Assets</b>	<b>Cultural Heritage</b>	<b>Landscape</b>
		assets in later epochs. Preferred plan – NAI /NAI /NAI.						

## Appendix B – Environmental impacts of preferred policies

<b>Significant beneficial effect</b>	<b>Moderate /minor beneficial effect</b>	<b>neutral</b>	<b>uncertain /mixed</b>	<b>Moderate /minor adverse effect</b>	<b>Significant adverse effect</b>
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Policy Unit /ref	All Hallows to Grain /4a 01						
Key features	Thames Estuary and Marshes SPA /Ramsar, South Thames Estuary and Marshes SSSI. Grain Pit SNCI. Listed buildings. SAM at Grain – coastal artillery defences. Settlements - All Hallows-on-Sea (1649), Grain (1731).						
Epoch /policy	Biodiversity, flora and fauna	Population & Human health	Soil and Geology	Water	Material assets	Cultural heritage	Landscape
0-20 years /HTL	Coastal squeeze impacts on designated intertidal habitat in Thames Estuary and Marshes SPA /Ramsar. Designated freshwater grazing marsh protected; net adverse impact in the epoch.	Villages of All Hallows (pop 1649) and Grain (pop 1731) protected. Amenity resources (caravan park, golf course) protected.	Natural coastal processes constrained.	No impacts identified	MoD site, roads, protected. Power station protected. Agricultural land protected.	No impacts on SAM	No impacts on existing landscape
20-50 years /MR	Increased intertidal area with significant beneficial effect on intertidal areas in Thames Estuary and Marshes SPA, but reduced freshwater and terrestrial habitat also adversely impacting the same sites. Mixed	Realignment line will defend population centres so protection will be maintained. Caravan park	Natural coastal processes facilitated. Soil /land likely to be lost to new defence line and to saline intrusion	MR will help contribute to WFD objectives for transitional waterbodies. Possible breach of historic landfill	Infrastructure protected, but some of MoD site area reduced and some agricultural land lost.	SAM remains unaffected	Temporary adverse impacts in creation of new defence line and subsequent major landscape

	significant effects.	may be affected		sites near Grain village (mitigable).			change
50-100 years /MR	As above	As above	As above	As above	As above	SAM partially affected under 100 year erosion line	Changed landscape maintained
Mitigation / Enhancement	Compensatory habitat to be sourced at strategic level through the Regional Habitat Creation Programme (RHCP), with a large net requirement for freshwater habitat.	Public awareness and agreement of appropriate exit strategies with affected property /landowners	No mitigation required	Site investigation and protection to avoid landfill contamination. See WFD assessment of this SMP for full assessment and specific objectives	Public awareness and agreement of appropriate exit strategies. Possible relocation of MoD site.	Local protection of SAM and recording /relocation of any assets as appropriate.	Scheme level sensitivity to ensure design /construction of new defence line is in keeping with area character
<b>Policy Unit /ref</b>	<b>Garrison Point to Minster /4a 02</b>						
Key features	Minster Marshes SNCI, Diggs and Sheppey Court Marshes SNCI. Garrison Point Fort SAM. Listed buildings. Sheerness defences SAM. Sheerness conservation areas. Settlements Sheerness (37,852).						
Epoch /policy	Biodiversity, flora, fauna	Population & Human health	Soils and Geology	Water	Material assets	Cultural heritage	Landscape
0-20 years /HTL	Protection of freshwater habitat at the two SINCs.	Town of Sheerness (pop 37,852) protected. Community and amenity resources (schools, leisure	Natural coastal processes constrained	Constraint of natural processes will conflict with WFD objectives for coastal waters	Protection of railway station, industrial area, docks, roads	Protection of SAMs (Sheerness Defences, Garrison Point Fort), c50 listed buildings and three conservation	Existing landscape maintained

		centre, chalet park, public parkland) protected.				areas	
20-50 years /HTL	As above. Upgraded defence line may impact on the SINCs	As above	As above	As above	As above	As above	Existing landscape maintained with minor temporary impacts due to upgraded line
50-100 years /HTL	As above	As above	As above	As above	As above	As above	Landscape maintained
Mitigation /Enhancement	Scheme level design such that construction-stage and operational footprint of upgraded defences is minimised.	n/a	n/a	See WFD assessment of this SMP for full assessment and specific objectives	n/a	n/a	Scheme level design such that landscape impacts of upgraded defences on conservation areas etc are minimised
<b>Policy Unit /ref</b>	<b>Minster Town /4a 03</b>						
Key features	Minster Cliffs SNCI. Minster Abbey nunnery SAM. Settlements Minster (12,000).						
Epoch /policy	Biodiversity, flora, fauna	Population & Human health	Soils and Geology	Water	Material assets	Cultural heritage	Landscape
0-20 years /HTL	Existing defence regime will not impact on Minster Cliffs SINC features	Town of Minster (pop 12,000) protected. Community and amenity	Natural coastal processes (cliff erosion) constrained	No impacts identified	Roads protected	No impacts identified (Minster Abbey nunnery is at 50m AOD)	Existing landscape maintained

		resources (including school, hotel) protected.					
20-50 years /HTL	Upgraded defence line will cause adverse impacts on SINC; impacts can be mitigated	As above	As above	As above	As above	As above	Existing landscape maintained with minor temporary impacts due to upgraded line
50-100 years /HTL	As above.	As above	As above	As above	As above	As above	As above
Mitigation / Enhancement	Scheme level design such that construction-stage and operational footprint of upgraded defences is minimised.	n/a	n/a	n/a	n/a	n/a	Scheme level design such that local landscape impacts of upgraded defences are minimised
<b>Policy Unit /ref</b>	<b>Minster Slopes to Warden Point /4a 04</b>						
Key Features	Sheppey Cliffs and Foreshore SSSI (bulk), Minster Cliffs SNCI. Listed buildings. No settlements near sea level. Mud cliffs.						
Epoch /policy	Biodiversity, flora, fauna	Population & Human health	Soils and Geology	Water	Material assets	Cultural heritage	Landscape
0-20 years /NAI	No impacts identified. Natural erosion will proceed and is unlikely to affect SSSI ecological interest features.	A small number of properties /amenity facilities (e.g. caravan parks) may become affected	Existing defences will erode, leading to re-initiation of cliff erosion towards the end of the epoch. Natural process so will not impact on	No impacts identified	No impacts identified in the epoch	No impacts identified in the epoch	Existing defences will erode, leading to re-initiation of cliff erosion towards the end of the epoch



		/blighted due to reinitiation of clay cliff erosion at the end of the epoch	the geological SSSI.				
20-50 years /NAI	As above	Increased impacts as cliff erosion continues to 1m /year with landslips	Natural coastal processes will continue (gradual erosion of clay cliffs)	As above	As above	As above	Increasing erosion of clay cliffs as sea levels rise
50-100 years /NAI	As above	As above	As above	As above	Increased impacts on small local access roads as cliff erosion continues to 1m /year	Three listed buildings may become blighted or lost during the epoch as clay cliff erosion continues	As above
Mitigation /Enhancement	n/a	Public awareness and agreement of appropriate exit strategies from affected land /properties.	n/a	n/a	Public awareness and adaptation of access network as appropriate	Public awareness. Recording of assets and relocation as appropriate	n/a
<b>Policy Unit /ref</b>	<b>Warden Point to Leysdown-on-Sea /4a 05</b>						
Key Features	Sheppey Cliffs and Foreshore SSSI (northern third). Settlements Warden, Leysdown on sea (2577).						
Epoch /policy	Biodiversity, flora, fauna	Population & Human health	Soils and Geology	Water	Material assets	Cultural heritage	Landscape

0-20 years /HTL ( MR where possible)	Natural erosion will proceed outside Warden village and have neutral effect on SSSI ecological interest features	Village of Leysdown (pop 2577) and the holiday village of Warden will be protected. Holiday camp and chalet park lost to MR	Natural erosion of SSSI clay cliffs only locally allowed	Localised MR will provide some contribution to WFD objectives for coastal waterbodies	No impacts identified	No impacts identified	Existing landscape likely to be maintained during this epoch
20-50 years / HTL ( MR where possible)	Neutral effect on SSSI as MR allows local erosion. Minor adverse impact of realigned defences.	As above	As above	As above	As above	As above	Temporary adverse impacts due to new defence line and altered landscape
50-100 years / HTL ( MR where possible)	Natural erosion will proceed outside Warden village and have neutral effect on SSSI ecological interest features	Erosion to MR line at Warden will lead to additional losses due to landslip.	As above	As above	Small access roads in Warden affected in third epoch	As above	Altered landscape maintained
Mitigation /Enhancement	Scheme level design such that construction-stage and operational footprint of realigned defences is minimised. Local opportunity for MR behind the beach could create new BAP habitat	Public awareness and agreement of appropriate exit strategies from affected land /properties.	None available	n/a	Public awareness and adaptation of access network as appropriate	n/a	Scheme level sensitivity such that local landscape impacts of new defence line are minimised
<b>Policy Unit /ref</b>	<b>Leysdown-on-Sea to Shell Ness /4a 06</b>						
Key features	The Swale SPA /Ramsar, SSSI. The Swale NNR around Shellness. Listed building. Settlements Leysdown on sea, Shellness (100).						
Epoch /policy	Biodiversity, flora, fauna	Population &	Soils and Geology	Water	Material assets	Cultural heritage	Landscape

		Human health					
0-20 years /MR	Significant beneficial effects on intertidal habitats in The Swale SPA /Ramsar. Loss of undesignated freshwater marshes.	Settlement of Leysdown-on-Sea (pop 2577) remains protected. Indicative realignment indicates that the hamlet of Shellness (100) would be lost. Amenity assets, such as Leysdown Country Park, partially affected	Loss of agricultural land and saline intrusion. Natural coastal processes under some constraint	MR will contribute to WFD objectives for coastal waterbodies	Coastal access road lost under indicative realignment line.	Muswell Manor (listed building) is on the edge of the indicative realignment line. Some medieval saltworks will be lost.	Temporary impacts of new defence line, more natural landscape.
20-50 years /MR	As above	As above	As above	As above	As above	As above	Neutral effect on balance
50-100 years /MR	As above	As above	As above	As above	As above	As above	As above
Mitigation / Enhancement	n/a	Public awareness and agreement of appropriate exit strategies from affected land /properties.	n/a	n/a	Public awareness and adaptation of access network as appropriate	Precise realignment line to consider listed building. Public awareness and recording of any assets affected.	Scheme level design such that upgraded defences are in keeping with local character.
<b>Policy Unit /ref</b>	<b>Faversham Creek to Sportsman Pub /4a 07A</b>						
Key Features	The Swale SPA /Ramsar, SSSI. South Swale WT reserve. South Bank of the Swale LNR.						

Epoch /policy	Biodiversity, flora, fauna	Population & Human health	Soils and Geology	Water	Material assets	Cultural heritage	Landscape
<i>0-20 years /HTL</i>	Habitat regulations assessment indicates this cell is not affected by coastal squeeze impacts in this epoch.	Seafront residences, beach huts, chalet /caravan park and pub protected.	Natural coastal processes constrained	Coastal squeeze impacts in this epoch will conflict with WFD objectives for coastal /transitional waterbodies	Road, pumping station protected	No impacts identified	Existing landscape maintained
<i>20-50 years /MR</i>	Significant beneficial effects on intertidal features of The Swale SPA /Ramsar and significant adverse effects on freshwater and terrestrial features of the same sites.	Small number of homes (c5) will be lost under the indicative realignment, in addition to beach huts, a chalet /caravan park and a pub	Natural coastal processes allowed. Loss of agricultural land. Saline intrusion	MR should improve estuarine waters and contribute to WFD objectives for coastal /transitional waterbodies	Access roads and pumping station will be lost to realignment.	No impacts identified	Temporary impacts on landscape due to new defence line
<i>50-100 years /MR</i>	As above	As above	Natural coastal processes allowed	As above	As above	No impacts identified	Neutral effect on balance
Mitigation / Enhancement	Bird, invertebrate surveys and possible mitigation /compensatory habitat prior to change in defence alignment, to be provide under the auspices of the RHCP. Opportunity to increase the area of intertidal habitat under designation post-MR.	Public awareness and agreement of appropriate exit strategies from affected land /properties.	n/a	n/a	Public awareness and adaptation of access network as appropriate, relocation of assets	n/a	Scheme level design such that upgraded defences are in keeping with local character.

<b>Policy Unit /ref</b>	<b>Sportsman Pub to Seasalter /4a 07B</b>						
Key Features	The Swale SPA /Ramsar, SSSI. South Swale WT reserve. South Bank of the Swale LNR. Road near shoreline. SAMs – medieval salterns.						
Epoch /policy	Biodiversity, flora, fauna	Population & Human health	Soils and Geology	Water	Material assets	Cultural heritage	Landscape
0-20 years /HTL	Habitat regulations assessment indicates this cell is not affected by coastal squeeze impacts.	Seafront residences, beach huts and chalet /caravan park protected.	Natural coastal processes constrained	Coastal squeeze impacts in this epoch will conflict with WFD objectives for coastal waterbodies	Coastal road to Seasalter protected. Railway outside realignment line.	Medieval salterns (SAMs) protected	Existing landscape maintained
20-50 years /HTL	Habitat regulations assessment indicates this cell is not affected by coastal squeeze impacts.	As above	As above	As above	As above	As above	As above
50-100 years /MR	Significant beneficial effects on intertidal features of The Swale SPA /Ramsar and significant adverse effects on freshwater and terrestrial features of the same sites.	Blighting /loss of seafront residences, beach huts, chalet /caravan park and pub.	Natural coastal processes allowed. Loss of agricultural land and saline intrusion	MR will improve estuarine waters and contribute to WFD objectives	Coastal road to Seasalter lost	One medieval saltern (part of the SAM) site may be lost to realignment.	Temporary impacts on landscape due to new defence line
Mitigation / Enhancement	Bird, invertebrate surveys and possible mitigation /compensatory habitat prior to change in defence alignment, to be provide under the auspices of the RHCP.	Public awareness and agreement of appropriate exit strategies from affected land /properties.	Public awareness regarding loss of land and agreement of appropriate exit strategy	See WFD assessment of this SMP for full assessment and specific objectives	Public awareness. Alternative access exists but may need to be upgraded.	Precise realignment line to consider SAM. Public awareness and recording of any assets affected.	Scheme level design such that upgraded defences are in keeping with local character.
<b>Policy Unit /ref</b>	<b>Seasalter to Whitstable Town /4a 08</b>						
Key Features	The Swale SPA /Ramsar, SSSI. Listed buildings. Settlements Seasalter (6899), Whitstable.						
Epoch /policy	Biodiversity, flora, fauna	Population &	Soils and Geology	Water	Material assets	Cultural heritage	Landscape

		Human health					
0-20 years /HTL	Habitat regulations assessment indicates this cell is not affected by coastal squeeze impacts.	Town of Seasalter (pop 6899) protected. Community and amenity resources, such as Lower island golf course, protected.	Natural coastal processes constrained	No impacts identified	Roads, railway line protected.	No impacts identified	Existing landscape maintained
20-50 years /HTL	As above	As above	As above	Constraints to natural processes will conflict with WFD objectives for coastal waterbodies	As above	As above	Existing landscape maintained with minor temporary impacts due to upgraded line
50-100 years /HTL	As above	As above	As above	As above	As above	As above	Landscape maintained
Mitigation /Enhancement	No mitigation required.	No mitigation required. Local potential for realignment at golf course.	n/a	See WFD assessment of this SMP for full assessment and specific objectives	n/a	n/a	Scheme level design such that upgraded defences are in keeping with local character.
<b>Policy Unit /ref</b>	<b>Whitstable Town to Whitstable Harbour /4a 09</b>						
Key Features	The Swale SPA /Ramsar, SSSI. Whitstable Town conservation area. Settlements Whitstable (30,195).						
Epoch /policy	Biodiversity, flora, fauna	Population & Human health	Soils and Geology	Water	Material assets	Cultural heritage	Landscape

0-20 years /HTL	Habitat regulations assessment indicates this cell is not affected by coastal squeeze impacts.	Town Whitstable (pop 30,195) protected. Community and amenity resources (beach, theatre, homes, commercial) protected.	Natural coastal processes constrained	No impacts identified	Roads, lifeboat station, harbour protected	Whitstable Town conservation area and c30 listed buildings protected	Existing landscape maintained
20-50 years /HTL	As above	As above.	As above	Constraints to natural processes will conflict with WFD objectives for coastal waterbodies	As above	As above. A small number of listed buildings may be affected by upgraded defences; impact can be mitigated.	Existing landscape maintained with minor temporary impacts due to upgraded line
50-100 years / HTL	As above	As above	As above	As above	As above	As above	Landscape maintained
Mitigation /Enhancement	No mitigation required.	No mitigation required.	n/a	See WFD assessment of this SMP for full assessment and specific objectives	No mitigation required	Design of upgraded defences will need to avoid impacting listed buildings.	Scheme level design such that upgraded defences are in keeping with local character.
<b>Policy Unit /ref</b>	<b>Whitstable Harbour (east) to Swalecliffe /4a 10</b>						
Key Features	Thanet Coast and Sandwich Bay SPA /Ramsar, Thanet Coast SSSI at eastern end of PU. Tankerton Slopes SSSI. Settlements Whitstable.						
Epoch /policy	Biodiversity, flora, fauna	Population & Human health	Soils and Geology	Water	Material assets	Cultural heritage	Landscape

0-20 years /HTL	Habitat Regulations Assessment indicates minimal impacts of coastal squeeze in this epoch. Impacts of defences on rare flora in Tankerton Slopes SSSI; possible to mitigate at scheme level.	Town of Whitstable (30,195) protected. Community and amenity resources (beaches, leisure centre, homes, commercial) protected.	Natural coastal processes constrained	No impacts identified	Roads, industrial works protected	Two listed buildings protected.	Existing landscape maintained
20-50 years / HTL	Coastal squeeze causing increasing narrowing of intertidal mudflat habitats in the SPA /Ramsar as later epochs progress.	As above	As above	Constraints to natural processes will conflict with WFD objectives for coastal waterbodies	As above	As above	Existing landscape maintained with minor temporary impacts due to upgraded line
50-100 years / HTL	As above	As above	As above	As above	As above	As above	Landscape maintained
Mitigation / Enhancement	HRA over the whole SMP area indicates that SMP policies wrt intertidal habitats will result in increased areas of mudflat and saltmarsh. Wrt Tankerton Slopes SSSI - scheme level design such that construction-stage and operational footprint of upgraded defences is minimised.	n/a	n/a	See WFD assessment of this SMP for full assessment and specific objectives	n/a	n/a	Scheme level design such that upgraded defences are in keeping with local character.



Policy Unit /ref	Swalecliffe to Herne Bay Breakwater /4a 11						
Key Features	Thanet Coast and Sandwich Bay SPA /Ramsar, Thanet Coast SSSI for western half of PU. Herne bay conservation area. Settlements Swalecliffe (400), Herne Bay (35,188).						
Epoch /policy	Biodiversity, flora, fauna	Population & Human health	Soils and Geology	Water	Material assets	Cultural heritage	Landscape
0-20 years /HTL	Habitat Regulations Assessment finds minimal impacts of coastal squeeze in this epoch.	Towns of Studd Hill (pop 400) and Herne Bay (35,188) protected. Community and amenity resources, including homes, commercial properties, two piers, caravan and chalet parks protected.	Natural coastal processes constrained	No impacts identified	Roads, harbour protected	Herne Bay conservation area and about 3 listed buildings protected	Existing landscape maintained
20-50 years / HTL	Coastal squeeze causing increasing narrowing of intertidal mudflat habitats in the SPA /Ramsar as later epochs progress.	As above	As above	Constraints to natural processes will conflict with WFD objectives for coastal waterbodies	As above	As above	Existing landscape maintained with minor temporary impacts due to upgraded line
50-100 years / HTL	As above	As above	As above	As above	As above	As above	Landscape maintained
Mitigation	HRA over the whole SMP area indicates that SMP policies wrt	n/a	n/a	See WFD assessment of	n/a	n/a	Scheme level design such that

/Enhancement	intertidal habitats will result in increased areas of mudflat and saltmarsh.			this SMP for full assessment and specific objectives			upgraded defences are in keeping with local character.
<b>Policy Unit /ref</b>	<b>Herne Bay Breakwater to Bishopstone Manor /4a 12</b>						
Key Features	Thanet Coast and Sandwich Bay SPA /Ramsar, Thanet Coast SSSI. Bishopstone Cliffs LNR. Listed buildings. Herne bay conservation area. Settlements Herne Bay.						
Epoch /policy	Biodiversity, flora, fauna	Population & Human health	Soils and Geology	Water	Material assets	Cultural heritage	Landscape
0-20 years /HTL	Habitat Regulations Assessment finds minimal impacts of coastal squeeze in this epoch.	Town Herne Bay (35,188) protected. Community and amenity resources protected.	Natural erosion of clay cliffs constrained.	Constraints to natural processes will conflict with WFD objectives for coastal waterbodies	Roads protected	Herne Bay conservation area and about 20 listed buildings (additional to above) protected	Existing landscape maintained
20-50 years / HTL	Coastal squeeze causing increasing narrowing of intertidal mudflat habitats in the SPA /Ramsar as later epochs progress.	As above. Minor impacts of upgraded defences on amenity assets such as Wantsum Walk	As above	As above	As above	As above Sig ben	Existing landscape maintained with minor temporary impacts due to upgraded line
50-100 years / HTL	As above	As above	As above	As above	As above	As above	Landscape maintained
Mitigation / Enhancement	HRA over the whole SMP area indicates that SMP policies wrt intertidal habitats will result in increased areas of mudflat and saltmarsh.	Sensitivity in design and construction of upgraded defences.	n/a	See WFD assessment of this SMP for full assessment and specific	n/a	n/a	Scheme level design such that upgraded defences are in keeping with

				objectives			local character.
<b>Policy Unit /ref</b>	<b>Reculver Country Park /4a 13</b>						
Key Features	Thanet Coast and Sandwich Bay SPA /Ramsar, Thanet Coast SSSI. Reculver conservation area.						
Epoch /policy	Biodiversity, flora, fauna	Population & Human health	Soils and Geology	Water	Material assets	Cultural heritage	Landscape
0-20 years /NAI	Natural coastal processes allowed; no significant impacts identified	No impacts	Natural coastal processes allowed	No impacts identified	No impacts identified	No impacts identified	No impacts identified
20-50 years / NAI	As above	No impacts as Reculver village has protection	As above	As above	As above	Cliff erosion at edge of Reculver conservation area may affect heritage assets	As above
50-100 years / NAI	Expansion of intertidal habitats as cliffs erode	Small number of properties (<5) may become blighted by erosion towards the end of the epoch	As above	As above	As above	As above	Landscape change as cliff erosion accelerates
Mitigation / Enhancement	n/a	Public awareness and agreement of appropriate exit strategies.	n/a	n/a	n/a	Monitoring of erosion for buried assets; recording and relocation of assets	n/a
<b>Policy Unit /ref</b>	<b>Reculver Towers to Minnis Bay/4a 14</b>						
Key Features	Eastern section in Thanet Coast SAC. All in Thanet Coast and Sandwich Bay SPA /Ramsar, Thanet Coast SSSI. SAM Saxon shore fort.. Reculver conservation area. Settlements Reculver (135).						

Epoch /policy	Biodiversity, flora, fauna	Population & Human health	Soils and Geology	Water	Material assets	Cultural heritage	Landscape
0-20 years /HTL	Coastal squeeze causing adverse impacts on intertidal reefs in the SPA /Ramsar and in the SAC. Undesignated freshwater marshes protected.	Holiday parks, a few homes and amenity assets protected. Shellfish hatchery protected.	Natural coastal processes constrained	Constraints to natural processes may conflict with WFD objectives for coastal waterbodies	Agricultural land protected	SAM and Reculver conservation area protected.	No impacts on existing landscape
20-50 years /HTL and MR	Likely to result in increased intertidal habitat, benefiting the SPA /Ramsar and the SAC.	Holiday parks, a few homes and amenity assets protected. Shellfish hatchery lost. National footpath lost. Minor beneficial effect on balance.	Soil /land likely to be lost to realignment and to saline intrusion. Natural coastal processes significantly reintroduced.	More natural processes will contribute to coastal water quality	Loss of agricultural land	As above	Landscape will change significantly due to MR; also minor temporary impacts due to upgraded line
50-100 years /HTL and MR	As above	As above	As above	As above	As above	As above	Landscape maintained
Mitigation /Enhancement	Wrt HTL impacts, HRA over the whole SMP area indicates that, on balance, chalk reef compensatory habitat is not required due to areas of potential habitat gain outside the current SPA /Ramsar and SAC boundaries.	Public awareness and agreement of appropriate exit strategies.	n/a	See WFD assessment of this SMP for full assessment and specific objectives	Public awareness and agreement of appropriate exit strategies.	n/a	Scheme level design such that upgraded defences are in keeping with local character.
<b>Policy Unit /ref</b>	<b>Minnis Bay to Westgate-on-Sea /4a 15</b>						

Key Features	Thanet Coast and Sandwich Bay SPA /Ramsar, Thanet Coast SAC /SSSI. SAM – ring ditches (inland at 12m behind Birchington). Settlements Birchington (9827).						
Epoch /policy	Biodiversity, flora, fauna	Population & Human health	Soils and Geology	Water	Material assets	Cultural heritage	Landscape
0-20 years /HTL and NAI	Localised coastal squeeze causing adverse impacts on intertidal reefs in the SPA /Ramsar and in the SAC.	Towns of Birchington (pop 9827) and Westgate-on-Sea (6594) protected. Homes, businesses and community and facilities protected.	Natural coastal processes largely constrained; allowed locally at Westgate Bay golf course	Constraints to natural processes will conflict with WFD objectives for coastal waterbodies	Roads protected	Five listed buildings in Birchington protected.	Existing landscape maintained
20-50 years / HTL and NAI	As above	As above	As above	As above	As above	As above	Existing landscape maintained with minor temporary impacts due to upgraded line
50-100 years / HTL and NAI	As above	As above	As above	As above	As above	As above	Landscape maintained
Mitigation /Enhancement	HRA over the whole SMP area indicates that, on balance, chalk reef compensatory habitat is not required due to areas of potential habitat gain outside the current SPA /Ramsar and SAC boundaries.	n/a	n/a	See WFD assessment of this SMP for full assessment and specific objectives	n/a	n/a	Scheme level design such that upgraded defences are in keeping with local character.

Policy Unit /ref	Margate /4a 16						
Key Features	Thanet Coast and Sandwich Bay SPA /Ramsar, Thanet Coast SAC /SSSI. Westgate on sea and Margate conservation areas. Settlements Westgate on Sea (6594), Margate (57,008).						
Epoch /policy	Biodiversity, flora, fauna	Population & Human health	Soils and Geology	Water	Material assets	Cultural heritage	Landscape
0-20 years /HTL	Coastal squeeze causing adverse impacts on intertidal reefs in the SPA /Ramsar and in the SAC.	Towns of Westgate-on-Sea (6594) and Margate (57,008) protected. Homes, businesses and community and facilities protected.	Natural coastal processes largely constrained; allowed at various locations where NAI policy proposed	Constraints to natural processes will conflict with WFD objectives for coastal waterbodies.	Roads, railway, railway station, harbour protected	Margate and Westgate-on-Sea conservation areas and about 20 listed buildings protected	Existing landscape maintained
20-50 years / HTL	As above	As above	As above	As above. Small historic landfill site at Westbrook Prom could be breached by defence upgrading	As above	As above. Defence line upgrades may impact on individual buildings /assets	Existing landscape maintained with minor temporary impacts due to upgraded line
50-100 years / HTL	As above	As above	As above	As above	As above	As above	Landscape maintained
Mitigation /Enhancement	HRA over the whole SMP area indicates that, on balance, chalk reef compensatory habitat is not required due to areas of potential habitat gain outside the	n/a	n/a	Site investigation and scheme level protection to avoid landfill	n/a	Record assets and design defence scheme such that impacts on individual	Scheme level design such that upgraded defences are in keeping with

	current SPA /Ramsar and SAC boundaries.			contamination.		assets are minimised	local character.
<b>Policy Unit /ref</b>	<b>Cliftonville /4a 17</b>						
Key Features	Thanet Coast and Sandwich Bay SPA /Ramsar, Thanet Coast SAC /SSSI. Settlements Margate (Cliftonville).						
Epoch /policy	Biodiversity, flora, fauna	Population & Human health	Soils and Geology	Water	Material assets	Cultural heritage	Landscape
<i>0-20 years /HTL and NAI</i>	Localised coastal squeeze causing adverse impacts on intertidal reefs in the SPA /Ramsar and in the SAC. Moderate adverse impacts.	Town of Margate (Cliftonville) protected.	Natural coastal processes largely constrained; allowed at various locations where NAI policy proposed	Some constraints to natural processes will conflict with WFD objectives for coastal waterbodies.	Roads, coastguard station protected	No impacts identified	Existing landscape maintained
<i>20-50 years / HTL and NAI</i>	As above	As above	As above	As above.	As above	As above	Existing landscape maintained with minor temporary impacts due to upgraded line
<i>50-100 years / HTL and NAI</i>	As above	As above	As above	As above	As above	As above	Landscape maintained
Mitigation / Enhancement	HRA over the whole SMP area indicates that, on balance, chalk reef compensatory habitat is not required due to areas of potential habitat gain outside the current SPA /Ramsar and SAC boundaries.	n/a	n/a	See WFD assessment of this SMP for full assessment and specific objectives	n/a	n/a	Scheme level design such that upgraded defences are in keeping with local character.

Policy Unit /ref	White Ness to Ramsgate /4b 18						
Key Features	Thanet Coast and Sandwich Bay SPA /Ramsar (apart from southern section and Broadstairs beach), Thanet Coast SAC /SSSI. Golf Course Roughs, Kingsgate SNCI. Kingsgate, Broadstairs and Ramsgate conservation areas. Settlements Broadstairs (24,370), Ramsgate (39,639).						
Epoch /policy	Biodiversity, flora, fauna	Population & Human health	Soils and Geology	Water	Material assets	Cultural heritage	Landscape
0-20 years /HTL and NAI	Localised coastal squeeze causing some adverse impacts on intertidal reefs in the SPA /Ramsar and in the SAC. Golf Course Roughs SNCI unaffected. Moderate adverse impacts.	Settlements of Broadstairs (pop 24,370) and Ramsgate (39,639) protected. Cliff-top community and amenity resources protected.	Natural coastal processes largely constrained; allowed at various locations where NAI policy proposed	Some constraints to natural processes will conflict with WFD objectives for coastal waterbodies.	Cliff-top roads, Broadstairs harbour protected	Kingsgate, Broadstairs and Ramsgate conservation areas and a significant number of listed buildings protected	Existing landscape maintained
20-50 years / HTL and NAI	As above	As above	As above	As above.	As above	As above	Existing landscape maintained with minor temporary impacts due to upgraded line  Min adv
50-100 years / HTL and NAI	As above	As above	As above	As above	As above	As above	Landscape maintained
Mitigation / Enhancement	HRA over the whole SMP area indicates that, on balance, chalk reef compensatory habitat is not required due to areas of potential habitat gain outside the current SPA /Ramsar and SAC	n/a	n/a	See WFD assessment of this SMP for full assessment and specific objectives.	n/a	n/a	Scheme level design such that upgraded defences are in keeping with local character.



	boundaries.						
<b>Policy Unit /ref</b>	<b>Ramsgate Harbour /4b 19</b>						
Key Features	Ramsgate conservation area. Settlements Ramsgate.						
Epoch /policy	Biodiversity, flora, fauna	Population & Human health	Soils and Geology	Water	Material assets	Cultural heritage	Landscape
0-20 years /HTL	No significant impacts identified.	Protection of the town of Ramsgate maintained, along with commercial, community, employment, amenity facilities provided by the harbour.	Natural coastal processes constrained	No impacts identified	Ramsgate port and harbour protected	Ramsgate conservation area and a significant number of listed buildings protected	Existing landscape maintained
20-50 years / HTL	As above	As above	As above	As above	As above	As above	As above
50-100 years / HTL	As above	As above	As above	As above	As above	As above	As above
Mitigation / Enhancement	n/a	n/a	n/a	n/a	n/a	n/a	n/a
<b>Policy Unit /ref</b>	<b>West Cliff (Ramsgate Harbour to north of the River Stour) /4b 20</b>						
Key Features	Thanet Coast SAC, Sandwich Bay SAC. Thanet Coast and Sandwich Bay SPA /Ramsar. Sandwich Bay to Hacklinge Marshes SSSI. Sandwich and Pegwell Bay WT reserve, NNR. Pegwell, Ramsgate conservation area. Listed buildings. Settlements Ramsgate, Cliffs End.						
Epoch /policy	Biodiversity, flora, fauna	Population & Human health	Soils and Geology	Water	Material assets	Cultural heritage	Landscape

0-20 years /HTL and NAI	Localised coastal squeeze causing some moderate adverse impacts on intertidal reefs in the SPA /Ramsar and in the SAC. Defences will also maintain protection of low lying freshwater marshland, some of which is SPA /Ramsar.	Towns of Ramsgate and Cliffs End protected. Community and amenity resources protected.	Natural coastal processes largely constrained; allowed at various locations where NAI policy proposed	Some constraints to natural processes will conflict with WFD objectives for coastal waterbodies.	Roads protected	Pegwell, Ramsgate conservation area protected, 15 listed buildings protected.	Existing landscape maintained
20-50 years / HTL and NAI	As above	As above	As above	As above. Prevention of contamination from historic landfill site at Pegwell Bay country park.	As above	As above	Existing landscape maintained with minor temporary impacts due to upgraded line
50-100 years / HTL and NAI	As above	As above	As above	As above	As above	As above	Landscape maintained
Mitigation /Enhancement	HRA over the whole SMP area indicates that, on balance, chalk reef compensatory habitat is not required due to areas of potential habitat gain outside the current SPA /Ramsar boundary.	n/a	n/a	See WFD assessment of this SMP for full assessment and specific objectives.	n/a	n/a	Scheme level design such that upgraded defences are in keeping with local character.
<b>Policy Unit /ref</b>	<b>South of the River Stour to Sandwich Bay Estate (north) /4b 21</b>						
Key Features	Sandwich Bay SAC. Thanet Coast and Sandwich Bay SPA /Ramsar. Sandwich Bay to Hacklinge Marshes SSSI. Settlements Great Stonar, Sandwich (6800).						
Epoch /policy	Biodiversity, flora, fauna	Population & Human health	Soils and Geology	Water	Material assets	Cultural heritage	Landscape
0-20 years /NAI	Neutral effect on coastal dune habitats in SPA /Ramsar and in SAC.	No impacts in this epoch. Town of	Natural coastal processes allowed	Promotion of natural processes likely	No impacts identified	No impacts identified	Existing landscape maintained

		Sandwich (pop 6800) defended locally.		to contribute to transitional water quality			
20-50 years / NAI	As above	No impacts	As above	As above	As above	As above	As above
50-100 years / NAI	As above, assuming coastal dunes continue to protect freshwater habitats	As above, assuming that accreting coastal dunes continue to protect the hinterland	As above	As above	As above, assuming coastal dunes continue to protect the hinterland	As above	As above
Mitigation / Enhancement	Monitoring of dunes - review of management policy may be required if dunes likely to breach	Monitoring of dunes - review of management policy may be required if dunes likely to breach	n/a	n/a	Monitoring of dunes - review of management policy may be required if dunes likely to breach	n/a	n/a
<b>Policy Unit /ref</b>	<b>Sandwich Bay Estate north to Sandown Castle (remains of) /4b 22</b>						
Key Features	Sandwich Bay SAC, SSSI. Thanet Coast and Sandwich Bay SPA /Ramsar. Sandwich Bay to Hacklinge Marshes SSSI. Sandwich Bay estate. SAM – Sandown Castle. Settlements Sandwich Bay Estate (300).						
Epoch /policy	Biodiversity, flora, fauna	Population & Human health	Soils and Geology	Water	Material assets	Cultural heritage	Landscape
0-20 years /HTL	Coastal squeeze causing adverse impacts on intertidal reefs in the SPA /Ramsar. HRA indicates SAC is not adversely affected.	Sandwich Bay estate (pop 300) protected. Golf Course and coastal path protected.	Natural coastal processes constrained	Constraints to natural processes will conflict with WFD objectives for coastal waterbodies.	Local roads protected.	SAM (Sandown Castle) protected	Existing landscape maintained

20-50 years / HTL	As above	As above	As above	As above.	As above	As above. Upgraded defence line may have impact on SAM and environs	Existing landscape maintained with possible temporary adverse impacts due to upgrading
50-100 years / HTL	As above	As above	As above	As above	As above	As above	Landscape maintained
Mitigation / Enhancement	HRA over the whole SMP area indicates that, on balance, intertidal reef compensatory habitat is not required due to areas of potential habitat gain outside the current SPA /Ramsar boundary. Opportunity for intertidal habitat creation through local realignment.	n/a	n/a	See WFD assessment of this SMP for full assessment and specific objectives.	n/a	Design and construction of upgraded defences need to ensure no damage to SAM	Scheme level design such that upgraded defences are in keeping with local character.
<b>Policy Unit /ref</b>	<b>Sandown Castle (remains of) to Oldstairs Bay /4b 23</b>						
Key Features	Southern section in Dover to Kingsdown Cliffs SSSI. Kingsdown and Walmer Beach SNCI. Walmer and Kingsdown Golf Course SNCI. SAMs -Walmer Castle, Deal Castle,. Deal, Walmer, Kingsdown Conservation areas. Settlements Deal (29,248), Walmer (6693), Kingsdown (1964).						
Epoch /policy	Biodiversity, flora, fauna	Population & Human health	Soils and Geology	Water	Material assets	Cultural heritage	Landscape
0-20 years /HTL	Maintained defences in southern section of PU will prevent natural erosion of cliff habitat /SSSI /SNCI.	Towns of Deal (pop 29,248), Walmer (6693) and Kingsdown (1964) protected. Amenity assets	Natural coastal processes constrained	Constraints to natural processes will conflict with WFD objectives for coastal	Number of assets protected, including roads, lifeboat stations, piers.	Three SAMs (Sandown Castle, Walmer Castle and Deal Castle) protected, alongside the conservation	Existing landscape maintained

		such as the Saxon shore way protected.		waterbodies.		areas of Kingsdown, Deal and Walmer.	
20-50 years / HTL	As above	As above	As above	As above	As above	Heritage assets protected. Upgraded defence line could have an adverse impact but mitigation available.	Existing landscape maintained with possible temporary adverse impacts due to upgrading
50-100 years / HTL	As above	As above	As above	As above	As above	Heritage assets protected	Landscape maintained
Mitigation / Enhancement	Monitor SSSI interest features. Design defences to minimise footprint and local biodiversity impacts.	n/a	n/a	See WFD assessment of this SMP for full assessment and specific objectives.	n/a	Design and construction of upgraded defences need to ensure no damage to SAMs	Scheme level design such that upgraded defences are in keeping with local character.
<b>Policy Unit /ref</b>	<b>Oldstairs Bay to St Margaret's Bay /4b 24</b>						
Key Features	Dover to Kingsdown Cliffs SSSI /SAC. Kent Downs AONB. Walmer and Kingsdown Golf Course SNCI. No settlements. Cliffs.						
Epoch /policy	Biodiversity, flora, fauna	Population & Human health	Soils and Geology	Water	Material assets	Cultural heritage	Landscape
0-20 years /NAI	Natural coastal processes allowed to proceed, benefiting SSSI /SAC.	No impacts identified	Natural cliff erosion processes allowed	No impacts identified	No impacts identified	No impacts identified	Natural processes allowed to proceed. No change to existing landscape in

							epoch.
20-50 years /NAI	As above	Gradual erosion of cliffs at Kingsdown and St Margaret's may impact /blight adjacent community assets including a small number of homes, a cliff-top path, parking.	As above	As above	As above	As above	Gradual cliff erosion will result in natural development of landscape
50-100 years /NAI	As above	As above	As above	As above	As above	As above	As above
Mitigation / Enhancement	Not required. HRA indicates no adverse effect on this SAC as a result of SMP policies.	Public awareness and agreement of appropriate exit strategies.	n/a	n/a	n/a	n/a	n/a
<b>Policy Unit /ref</b>	<b>St Margaret's Bay /4b 25</b>						
Key Features	Dover to Kingsdown Cliffs SSSI /SAC. Kent Downs AONB. Listed buildings. St Margaret's Bay conservation area. Settlements St Margarets (2500). Cliffs.						
Epoch /policy	Biodiversity, flora, fauna	Population & Human health	Soils and Geology	Water	Material assets	Cultural heritage	Landscape
0-20 years /HTL	Natural coastal processes constrained with potential impacts on national /international designations.	Town of St Margaret's Bay (pop 2500) protected along	Natural coastal processes constrained	No impacts identified	Local roads protected	St Margaret's Bay conservation area protected	AONB - existing landscape maintained

	However HRA concludes no significant adverse effect on the SAC.	with its residential, community, amenity assets.					
20-50 years / HTL	As above.	As above	As above	As above	As above	As above	Existing landscape maintained with possible adverse impacts due to upgrading
50-100 years / HTL	As above	As above	As above	As above	As above	As above	Landscape maintained with upgraded defences
Mitigation / Enhancement	No mitigation required.	n/a	n/a	n/a	n/a	n/a	Scheme level design such that upgraded defences are in keeping with local character.
<b>Policy Unit /ref</b>	<b>South Foreland /4b 26</b>						
Key Features	Dover to Kingsdown Cliffs SSSI /SAC. Kent Downs AONB. No settlements. Cliffs.						
Epoch /policy	Biodiversity, flora, fauna	Population & Human health	Soils and Geology	Water	Material assets	Cultural heritage	Landscape
0-20 years /NAI	Natural coastal processes allowed to proceed, benefiting SSSI /SAC.	No impacts identified	Natural cliff erosion processes allowed to proceed	No impacts identified	No impacts identified	No impacts identified	Natural processes allowed to proceed, benefiting the

							AONB. No change to existing landscape in epoch.
20-50 years /NAI	As above	Gradual erosion of cliffs may impact community /amenity assets, including a small number of homes a museum and cliff-top paths	As above	As above	As above	As above	Gradual cliff erosion will result in slow natural development of landscape
50-100 years /NAI	As above	As above	As above	As above	Gradual erosion of cliffs may impact local access roads	As above	As above
Mitigation /Enhancement	n/a	Public awareness and agreement of appropriate exit strategies.	n/a	n/a	Public awareness and agreement of appropriate exit strategies.	n/a	n/a