

# **Isle of Grain to South Foreland SMP Review 2010**

## Contents Amendment Record

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## 1 INTRODUCTION

### 1.1 The Shoreline Management Plan

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 (Defra, 2001<sup>1</sup>). This document provides the first revision to the original Isle of Grain to South Foreland SMP (1996<sup>2</sup>). Figure 1.1a and 1.1b<sup>3</sup> shows the area covered by the SMP.

Figure 1.1a

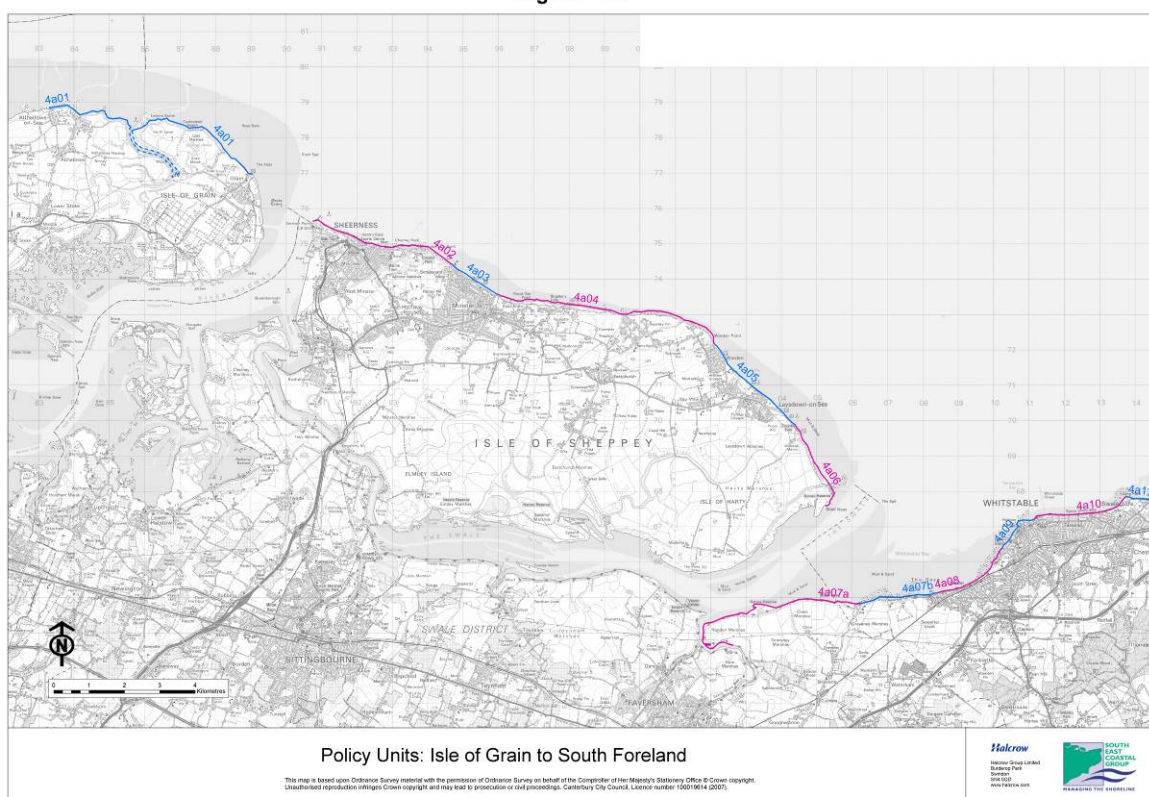


Figure 1.1a Policy Units: Isle of Grain to South Foreland, 4a01 to 4a10

<sup>1</sup> Defra (2001) *National Appraisal of Assets at Risk, from flooding and coastal erosion, including the potential impact of climate change.*

<sup>2</sup> Halcrow (1996) *North Kent Coast Isle of Grain to Dover Harbour Shoreline Management Plan.* Prepared for Canterbury City Council

<sup>3</sup> *The Ordnance Survey mapping included within this publication is provided by Canterbury City Council under licence from the Ordnance Survey in order to fulfil its public function to act as the lead authority for the review of the Shoreline Management Plan (Isle of Grain to South Foreland). Persons viewing this mapping should contact Ordnance Survey copyright for advice where they wish to licence Ordnance Survey map data for their own use.*



Figure 1.1b

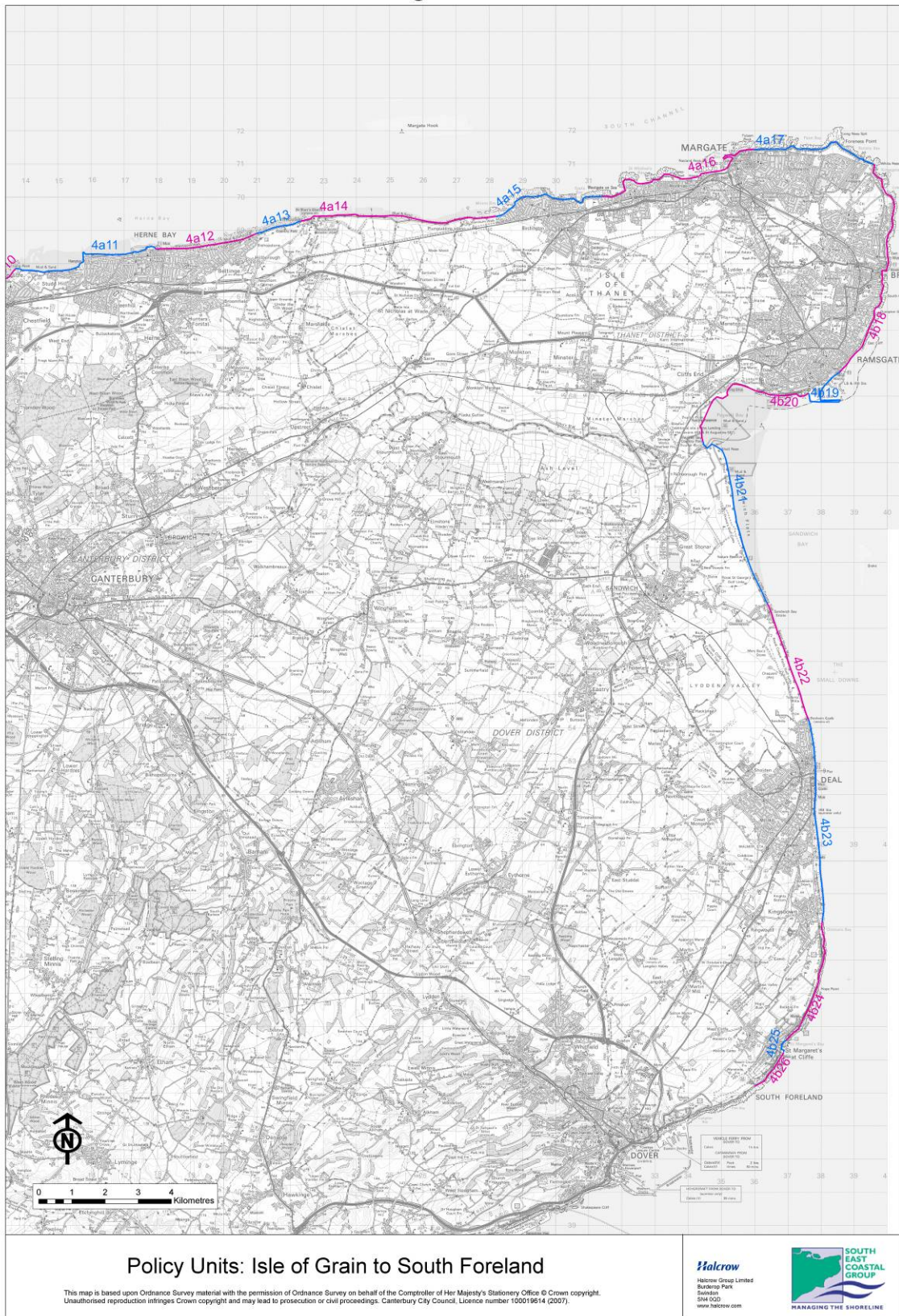


Figure 1.1b

Policy Units: Isle of Grain to South Foreland, 4a10 to 4b26.

### 1.1.1 Relationship with other plans

Shoreline Management Plans (SMPs) provide large-scale assessments of the risks associated with coastal processes for a specified length of coastline, and present policy frameworks to manage these risks. As such, SMPs sit at the top of a hierarchy of plans that proceeds from SMPs to Strategy Plans to specific scheme designs, as shown in Table 1.1.

Table 1.1 Structure of Flood & Erosion Risk Planning in England & Wales

Type of Plan	Purpose	Scale
Shoreline Management Plans	Aim to identify policies to manage coastal flood and erosion risks, deliver a wide ranging assessment of risks, opportunities, limits and areas of uncertainty	>150km Coast / River Catchment
Strategies	Aim to identify appropriate schemes to put the policies into practice, identify the preferred approach, including economic and environmental decisions	10-30km coast/ river
Schemes	Aim to identify the type of work to put the preferred scheme into practice, compares different options for putting the preferred scheme into practice	<5km

Throughout the SMP process it has been important to work closely with other studies and projects to make sure that these plans are co-ordinated and coherent. A range of plans are being developed / have been developed to co-ordinate works for Flood and Erosion risk management in North Kent which link with the SMP and include:

#### Medway and Swale Estuary Shoreline Management Plan

This SMP covers the Medway Estuary & the Swale and is the first SMP drafted for this area. It covers the Medway Estuary from the tidal limit at Allington Lock down river to the mouth between the Isle of Grain and Sheerness; and along the Swale from the Medway to its mouth in the east, between Shell Ness (Isle of Sheppey) and Faversham Creek.

This SMP was prepared in parallel with the Isle of Grain to South Foreland SMP Review with the same client steering group and consultant to ensure compatibility between the two SMPs.

#### South Foreland to Beachy Head SMP 1<sup>st</sup> Review

This SMP covers the coast adjacent to the Isle of Grain to South Foreland SMP2 at South Foreland westwards along the South Kent & Sussex coast to Beachy Head near Eastbourne. This SMP was

completed in 2005, is adopted and its action plan is being implemented. Strategies are being developed from this SMP for this area.

Policies at the interface between this SMP and the Isle of Grain to South Foreland SMP Review are identical (No Active Intervention) allowing cliff erosion to continue, ensuring compatibility between the two SMPs.

### **Thames Estuary 2100 (TE2100) Strategy**

The TE2100 overlaps with the boundaries of the Isle of Grain to South Foreland SMP2 at the Isle of Grain, and extends up the Thames Estuary and river to Teddington Lock. The Thames Estuary 2100 (TE2100) Project is an Environment Agency initiative to develop a Flood Risk Management Plan for London and the Thames Estuary for the next 100 years.

The policies for the first epoch (next 20 years) for this strategy and the Isle of Grain to South Foreland SMP Review are the same for the Isle of Grain (Hold the Line). However, for the medium and long term there is some incompatibility and this needs to be examined under the Action Plans for the two plans.

### **Stour Catchment Flood Management Plan (CFMP)**

Catchment Flood Management Plans (CFMPs) provide a similar level of strategic planning as SMP's, identifying long-term, broad policies for sustainable flood risk management within river catchments. These policies will form the basis for development of Strategy Plans, covering all or part of the overall catchment area, which will identify in more detail appropriate flood defence measures. Links between SMPs and CFMPs are important, where for example, a CFMP could identify potential areas for habitat creation as mitigation for habitat lost along the coast.

The Stour CFMP is complete and was developed between 2003 and 2007. It covers the Stour river catchment from source down to its estuary mouth (see Figure 1.2). Consultation was undertaken and closed in December 2006. The Policies for managing this catchment are in place and all authorities involved have adopted an Action Plan for putting the policies into practice through strategic planning, river management and river engineering.

This Catchment Flood Management abuts the Isle of Grain to South Foreland Shoreline Management Plan review at the Stour Estuary mouth near Sandwich and contains a section of the tidal river Stour that is being addressed in more detail within the Pegwell to Kingsdown Coastal Management Strategy in East Kent.

The policies for this CFMP and the Isle of Grain to South Foreland SMP Review at the Stour Estuary are compatible and covered in detail in the strategy plan.

### **North Kent Rivers Catchment Flood Management Plan (CFMP)**

The North Kent Rivers CFMP covers all of the freshwater streams of North Kent north of the tidal limit of the Medway. The plan is in development. The scoping stage of this plan has been consulted on and

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the report is now finished. Objectives and scenarios for the main stage agreed with Stakeholders. The team are now starting to develop the main report and consultation commenced late 2007.

In general terms, where the plans overlap, the policies for this CFMP and the Isle of Grain to South Foreland SMP Review are compatible. However, now that the CFMP has been finalised there is a need to ensure there is no conflict and this should be carried out as part of the SMP Action Plan.

#### **North Kent Coastal Habitat Management Plan (CHaMP)**

Coastal Habitat Management Plans quantify habitat change, (loss and gain), and recommended measures to prevent future losses. The plans also include strategic habitat monitoring programmes to map future changes to be delivered through Shoreline Management Plans (SMP's) and flood and coastal defence strategies and schemes. The North Kent CHaMP, completed in 2002, provides a strategic overview of the consequences of long term predicted shoreline changes for the North Kent area, on designated habitats and species.

The compatibility between the policies of this CHaMP and those of the Isle of Grain to South Foreland SMP Review, including mitigating measures where necessary, is covered in the Habitats Regulations Assessment (Appropriate Assessment) at Appendix J and the Strategic Environmental Assessment at Appendix D.

#### **Greater Thames Estuary Coastal Habitat Management Plan (CHaMP)**

The Greater Thames Estuary CHaMP is currently being undertaken and will inform the TE2100 Strategy on the provision of compensatory and replacement habitat.

The compatibility between the policies of this CHaMP and those of the Isle of Grain to South Foreland SMP Review, including mitigating measures where necessary, is covered in the Habitats Regulations Assessment (Appropriate Assessment) at Appendix J and the Strategic Environmental Assessment at Appendix D.

#### **Pegwell Bay to Kingsdown Coastal Flood Risk Management Strategy**

This strategy assessed the tidal River Stour flood defences and the coastal flood and erosion defences between Pegwell Bay and Kingsdown in order to address the risk of flooding, coastal erosion and anticipated sea level rise. This strategy builds upon the policies of the River Stour Catchment Flood Management for the tidal River Stour and the policies of the Isle of Grain to South Foreland Shoreline Management Plan review for the coastline between Pegwell to Kingsdown .

In the past, two separate strategies covered the area between Pegwell Bay to Deal, and Deal to Kingsdown, completed in 2004 and 2001 respectively. It was concluded that there was a benefit to combine both strategies into a single strategy jointly undertaken by Dover District Council and the Environment Agency. Following consultation with the public in late 2007, the Final Strategy was adopted in September 2008.

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The policies for this strategy plan and the Isle of Grain to South Foreland SMP Review are fully compatible.

There are additional coastal flood and erosion risk management strategies that had been carried out prior to the commencement of the SMP Review and others that are currently being worked on. There are some inconsistencies between some of the strategies and the policies in the SMP Review. Any incompatibilities need to be examined by future review of the strategies and this should be covered in the Action Plan.

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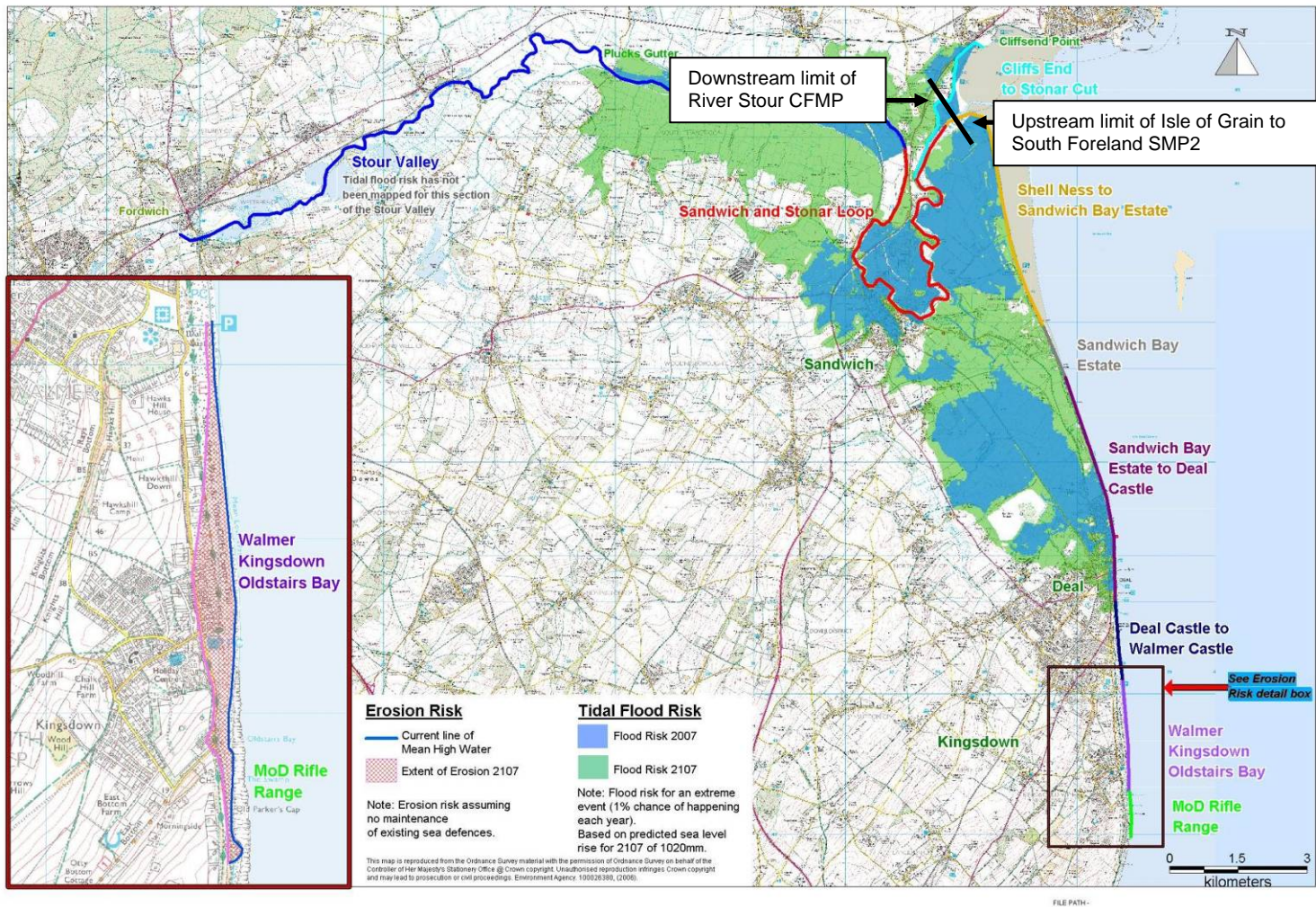


Figure 1.2 Relationship between the Isle of Grain to South Foreland SMP2 and the River Stour CFMP.

### 1.1.2 Guiding principles

The SMP is a non-statutory, policy document for coastal defence management planning. It takes account of other existing planning initiatives and legislative requirements, and is intended to inform wider strategic planning<sup>4</sup>. It does not set policy for anything other than coastal defence management.

The SMP promotes management policies for a coastline into the 22<sup>nd</sup> century, to achieve long-term objectives, while being technically sustainable, environmentally acceptable and economically viable. It is, however, recognised that given the difference between short and long term objectives, changes to management policy in the short term may be unacceptable. Thus the SMP provides a high level, step by step management plan for meeting objectives with appropriate management change i.e. a 'route map' for decision makers to move from the present situation towards a more sustainable future.

The policies that comprise this plan have been defined through the development and review of shoreline management objectives, representing both the immediate and longer term requirements of stakeholders, for all aspects of the coastal environment. Together with a thorough understanding of the coastal processes operating on the shoreline, these objectives provide a thorough basis upon which to appraise the benefits and impacts of alternative policies, both locally and plan area wide. In this way, the selection of policy takes equal account of all relevant features in identifying the best sustainable management solutions.

The original SMP for this area (identified as coastal process sub-cell 4a and 4b in a 1994 study for MAFF, now Defra) was one of the first to be completed in England or Wales. Since that time many lessons have been learned. A review funded by Defra (2001<sup>5</sup>) has examined the strengths and weaknesses of various plans and guidance was issued by Defra in 2003. Three 'pilot' SMPs (Sheringham to Lowestoft, South Foreland to Beachy Head and Beachy Head to Selsey Bill) were used to test Interim Procedural Guidance, lesson learnt from the pilots were fed into the guidance, which was subsequently updated and re-issued in 2006<sup>6</sup>. Some of this guidance is targeted at achieving greater consistency in the assessments and presentation of these plans, but there are more fundamental issues that have been identified, which this and other SMPs must address.

One significant issue is the inappropriateness of certain policies which, when tested in more detail with a view to being implemented, may be found to be unacceptable or impossible to justify either economically or technically. It is therefore important that this revision of the SMP is realistic, given known legislation and constraints, and does not promise what can not be delivered. There is no value

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<sup>4</sup> *The planning reforms under the Planning and Compulsory Purchase Act 2004 identify a requirement for Regional Spatial Strategies (the new regional level statutory planning document) and Local Development Documents (the new local level statutory planning document). These are required to contribute to the achievement of sustainable development and are supported by a range of government planning policy advice and guidance, in particular Planning Policy Statements (PPSs) and their predecessors Planning Policy Guidance Notes (PPGs). This advice and guidance shapes and directs planning at the regional and local level.*

<sup>5</sup> Defra (2001) National Appraisal of Assets at Risk, from flooding and coastal erosion, including the potential impact of climate change.

<sup>6</sup> Defra (2006) Shoreline Management Plan Guidance, Volumes 1 and 2.

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in a long-term plan which has policies that are driven by short-term politics and cannot be justified once implementation is considered several years in the future. Equally, whilst selection of the preferred plan has considered the affordability of each policy, its adoption by the authorities involved does not represent a commitment to fund its implementation. Ultimately, the economic worth of policy implementation must be considered in the context of budgetary constraints (whether private or government funding), and it cannot be guaranteed that budgets will be available for all policies. Equally, the plan must also remain flexible enough to adapt to changes in legislation, politics and social attitudes. The plan therefore considers objectives, policy setting and management requirements for 3 main epochs; from the present day, medium-term and long-term (corresponding broadly to time periods of 0 to 20 years, 20 to 50 years and 50 to 100 years respectively). There is a need to have a long-term sustainable vision, which may change with time, but should be used to demonstrate that flood and coastal defence decisions made today are not detrimental to the achievement of that vision.

### 1.1.3 Objectives

The objectives of the SMP are as follows:

- To define, in general terms, the flooding and erosion risks to people and the developed, historic and natural environment within the SMP area over the next century;
- To identify the preferred policies for managing those risks;
- To identify the consequences of implementing the preferred policies;
- To set out procedures for monitoring the effectiveness of the SMP policies;
- To inform planners, developers and others of the risks identified within the SMP and preferred SMP policies when considering future development of the shoreline and land use changes;
- To comply with international and national nature conservation legislation and biodiversity obligations; and,
- To highlight areas where knowledge gaps exist.
- To provide an action plan to facilitate implementation of the SMP policies and monitor progress.

### 1.1.4 The SMP Policies

The shoreline management policies considered are those defined by the Defra (2006<sup>6</sup>) report, they are:

<b>Hold the Line</b>	By maintaining or changing the standard of protection;
<b>Advance the Line</b>	By building new defences on the seaward side of the original defences;
<b>Managed Realignment</b>	By allowing the shoreline to move backwards and forwards with management to control or limit movement; and,
<b>No Active Intervention</b>	Where there is no investment in coastal defences or operations.

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For a number of Policy Units, the Client Steering Group has combined two policies such as **Hold the Line and Managed Realignment** or **Hold the Line and No Active Intervention**.<sup>7</sup> In these cases there is a potential to implement Managed Realignment or No Active Intervention along part(s) of the frontage. The policies have been combined to allow for more flexible shoreline management in the future and to discourage new development in these areas.

## 1.2 Structure of the SMP

The recommended plan and policies presented in this SMP are the result of numerous studies, assessments and discussions performed over a period of time. To provide clarity for different readerships, the documentation to communicate and support the plan is provided in a number of parts. At the broadest level, these are divided into two:

- The main report – the shoreline management plan; and,
- A series of supporting documents presented as appendices to the management plan.

### 1.2.1 The Shoreline Management Plan

This document provides the management plan for the next 100 years and the policies required for it to be implemented. This is intended for general readership and is the main tool for communicating intentions. Whilst the justification for decisions is presented, it does not provide all of the information behind the recommendations. Further supporting information is contained in the Appendices.

The plan is presented in five parts:

Chapter 1	Gives details on the principles, aims, structure and background to its development;
Chapter 2	Provides details of how the SMP meets the requirements of a Strategic Environmental Assessment (SEA);
Chapter 3	Presents the basis for development of the Plan, describing the concepts of sustainable policy and providing an understanding of the constraints and limitations on adopting certain policies;
Chapter 4	Presents the proposed preferred Plan at high level for the SMP as a whole, discussing the rationale, implications, and requirements to manage change. The coastline is considered in four broad sections; and,
Chapter 5	Provides a series of statements for each of the 27 coastal policy units that detail the location-specific policies proposed to implement the preferred Plan and the local implications of these policies.
Chapter 6	The Action Plan provides a programme for future activities which are required to progress the plan between now and its next review in 5 to 10 years.

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Although it is expected that many readers will focus upon the local details in Sections 4 and 5, it is important to recognise that the SMP is produced for the coast as a whole, considering issues beyond specific locations. Therefore, these statements must be read in the context of the wider-scale issues and policy implications, as reported in Chapters 3, 4 and the Appendices to the Plan.

### **1.2.2 SMP supporting documents and appendices**

The accompanying documents provide all of the information required to support the 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 documents are supported by a Glossary of Terms.

The supporting information is largely of a technical nature and is provided in nine Appendices:

- 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: Stakeholders have had an important role in shaping the plan. All communications from the stakeholder process will be provided here, together with information arising from the consultation process.
  - C. Baseline Process Understanding: Includes baseline process report, defence assessment, No Active Intervention (NAI) and With Present Management (WPM) assessments and summarises data used in assessments.
  - D. SEA Environmental Report (Thematic Review): This report identifies and evaluates the environmental features (human, natural, historical and landscape) in terms of their significance and how these need to be accommodated by the SMP.
  - E. Issues and 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 and Scenario Development: Presents the consideration of generic policy options for each frontage, identifying possibly acceptable policies, and their combination into 'scenarios' for testing, together with the process assessment and objective appraisal for each scenario.
  - G. Preferred Policy Scenario Testing: Presents the policy assessment and appraisal of objective achievement towards definition of the proposed 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.
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- J. Appropriate Assessment: Presents the assessment of the effects of the policies on European sites.
- K. Water Framework Directive Assessment: Presents a retrospective assessment of the SMP policies against the Water Framework Directive.

### **1.3 The Plan Development Process**

#### **1.3.1 Revision of the SMP**

The original Isle of Grain to South Foreland SMP was completed in 1996. Part of the SMP process is to regularly review and update the plan, taking account of new information and knowledge gained in the interim. This is the first revision to that plan, which has taken account of:

- Latest studies (e.g. Futurecoast (Defra 2002<sup>7</sup>)): a geomorphology-based project, which focused upon providing an improved understanding of larger-scale coastal behaviour in the UK) and mapping (e.g. Environment Agency indicative Flood Mapping);
- Issues identified by most recent defence planning (i.e. the 7 coastal defence strategy plans (Isle of Sheppey Coastal Defence Strategy, Whitstable Harbour to Faversham Creek Strategy, Tankerton and Swalecliffe Strategies, Herne Bay Coastal Defence Strategy, Reculver to Minnis Bay, Sandwich Bay Strategy and the Deal to Kingsdown Coastal Strategy), which have now been produced to cover the majority of the SMP area between the Isle of Grain and South Foreland);
- The results of coastal monitoring activities;
- Changes in legislation (e.g. the requirement for Appropriate Assessment under the EU Habitat Directives); and,
- Changes in national coastal defence planning requirements (e.g. the need to consider 100 year timescales in future planning on opposed to the 50 year timescale of the original SMP, modifications to economic evaluation criteria etc.).

Further reviews are anticipated to be carried out on a 5 to 10 year basis, although this timing will be driven by the availability of new information, changes in legislation and advances in the understanding of this coastline.

Table 1.2 details the boundary and policy changes between the original 1996 SMP 1 and this SMP Review.

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<sup>7</sup> Defra (2002) Futurecoast CD. Produced by Halcrow Group Ltd, Swindon, UK, as part of the Futurecoast study for Defra

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Table 1.2 Boundary and policy changes between the original Isle of Grain and South Foreland SMP1 and SMP2.

**Isle of Grain to Dover Harbour (1996)**

**Isle of Grain to South Foreland (2008)**

				0-20	20-50	50-100		
<b>Process Unit 1 (Isle of Grain)</b>	MU1A	Yantlet Creek to Grain Village	HTL	4a01	Allhallows-on-Sea to Grain	HTL	MR	MR
	MU1B	Grain Village	HTL					
	MU1C	Grain Village to Horseshoe Point	HTL					
<b>Process Unit 2 (Sheppey West)</b>	MU2A	Queenborough Point to Garrison Point	HTL	E401	Medway Estuary and Swale SMP	HTL	HTL	HTL
	MU2B	Garrison Point to Minster	HTL	E429	Medway Estuary and Swale SMP	HTL	HTL	HTL
	MU2C	Minster to Warden Point	Do Nothing	4a02	Garrison Point to Minster	HTL	HTL	HTL
<b>Process Unit 3 (Sheppey East)</b>	MU3A	Warden Point to Leysdown-on-Sea Country Park	HTL	4a03	Minster Town	HTL	HTL	HTL
	MU3B	Leysdown-on-Sea Country Park to Shell Ness	HTL	4a04	Minster Slopes to Warden Bay	NAI	NAI	NAI
	MU3C	Shell Ness to Horse Sands, Swale Estuary	HTL	4a05	Warden Bay to Leysdown-on-Sea	HTL and MR	HTL and MR	HTL and MR
<b>Process Unit 4 (Graveney Marshes)</b>	MU4A	Faversham Creek to Seasalter	HTL	4a06	Leysdown-on-Sea to Shell Ness	MR	MR	MR
	MU4B	Seasalter to Whitstable Harbour	HTL	E425	Medway Estuary and Swale SMP	MR	MR	MR
				4a07	Faversham Creek to Seasalter	HTL	MR	MR
				4a08	Seasalter to Whitstable Town	HTL	HTL	HTL

**Isle of Grain to Dover Harbour (1996)**

**Isle of Grain to South Foreland (2008)**

				0-20	20-50	50-100
Process Unit 5 (Herne Bay West)	MU5A	Whitstable Harbour to Swalecliffe	HTL	HTL	HTL	HTL
	MU5B	Swalecliffe to Hampton Pier	HTL	HTL	HTL	HTL
	MU5C	Hampton Pier to Bishopstone	HTL	HTL	HTL	HTL
Process Unit 5 (Herne Bay East)	MU5D	Bishopstone to Reculver	Do Nothing	NAI	NAI	NAI
	MU5E	Reculver to Plumpudding Island	HTL	HTL	MR	MR
Process Unit 6 (Margate)	MU6A	Plumpudding Island to Birchington	HTL	HTL (NAI where no defences)	HTL (NAI where no defences)	HTL (NAI where no defences)
	MU6B	Birchington to Palm Bay	HTL	HTL	HTL	HTL
	MU6C	Palm Bay to White Ness	Retreat the existing defence line	HTL (NAI where no defences)	HTL (NAI where no defences)	HTL (NAI where no defences)
4a09	Whitstable Town to Whitstable Harbour	HTL	HTL	HTL	HTL	HTL
4a10	Whitstable Harbour to Swalecliffe	HTL	HTL	HTL	HTL	HTL
4a11	Swalecliffe to Herne Bay Breakwater	HTL	HTL	HTL	HTL	HTL
4a12	Herne Bay Breakwater to Bishopstone Manor	HTL	HTL	HTL	HTL	HTL
4a13	Reculver Country Park	NAI	NAI	NAI	NAI	NAI
4a14	Reculver Towers to Minnis Bay	HTL	MR	MR	MR	MR
4a15	Minnis Bay to Westgate-on-Sea	HTL (NAI where no defences)	HTL (NAI where no defences)	HTL (NAI where no defences)	HTL (NAI where no defences)	HTL (NAI where no defences)
4a16	Margate	HTL	HTL	HTL	HTL	HTL
4a17	Cliftonville	HTL (NAI where no defences)	HTL (NAI where no defences)	HTL (NAI where no defences)	HTL (NAI where no defences)	HTL (NAI where no defences)

**Isle of Grain to Dover Harbour (1996)**

**Isle of Grain to South Foreland (2008)**

				0-20	20-50	50-100		
<b>Process Unit 7 (Broadstairs)</b>	MU7A	White Ness to North Foreland	Retreat the existing defence line (selective defence measures to maintain defences already in place)	4b18	White Ness to Ramsgate	HTL (NAI where no defences)	HTL (NAI where no defences)	HTL (NAI where no defences)
	MU7B	North Foreland to Port of Ramsgate	HTL			HTL	HTL	
<b>Process Unit 8 (Sandwich Bay North)</b>	MU8A	Port of Ramsgate to West Cliff, Ramsgate	HTL	4b19	Ramsgate Harbour	HTL	HTL	HTL
	MU8B	Ramsgate to Cliff End	Do Nothing	4b20	Ramsgate Harbour (west) to north of the River Stour	HTL (NAI where no defences)	HTL (NAI where no defences)	HTL (NAI where no defences)
<b>Process Unit 8 (Sandwich Bay South)</b>	MU8C	Cliff End to Sandown Castle	HTL	4b21	South of the River Stour to Sandwich Bay Estate (North)	NAI	NAI	NAI
				4b22	Sandwich Bay Estate North to Sandown Castle	HTL	HTL	HTL
<b>Process Unit 9 (Deal North)</b>	MU9A	Sandown Castle to Kingsdown	HTL	4b23	Sandown Castle to Oldstairs Bay	HTL	HTL	HTL

**Isle of Grain to Dover Harbour (1996)****Isle of Grain to South Foreland (2008)**

							0-20	20-50	50-100
<b>Process Unit 9 (Deal South)</b>	MU9B	Kingsdown to St Margaret's at Cliff	Do Nothing	4b24	Oldstairs Bay to St Margaret's Bay	NAI	NAI	NAI	
	MU9C	St Margaret's at Cliffe	HTL	4b25	St Margaret's Bay	HTL	HTL	HTL	
	MU9D	South Foreland	Do Nothing	4b26	South Foreland	NAI	NAI	NAI	
				4c01	South Foreland to Beachy Head SMP	NAI	NAI	NAI	

**1.3.2 Production of the 2009 SMP**

Development of this revision of the SMP was led by a Client Steering Group (CSG) comprising relevant members of the South East Coastal Group. These included technical officers and representatives from Canterbury City Council, Kent County Council, Thanet District Council, Swale Borough Council, Dover District Council, Tonbridge and Malling Borough Council, Medway Council, the Environment Agency and Natural England. The Client Steering Group also included a representative from Herrington Consultants.

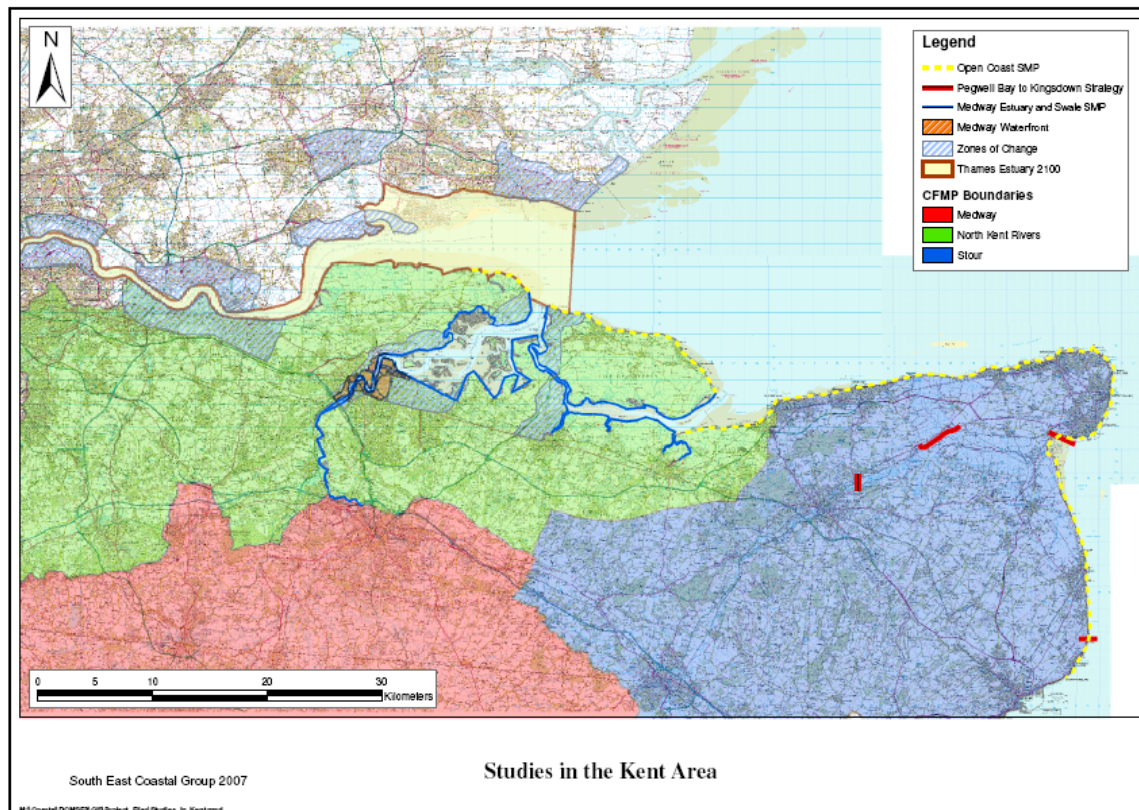
The SMP process involved approximately 35 stakeholder organisations at key decision points, through formation of a Key Stakeholder Forum (KSF). Meetings with the KSF were held to help identify and understand the issues, to review the objectives and set direction for appropriate management scenarios. The stakeholders also reviewed and commented on the preferred plan policies.

SMP development was assisted by the regular involvement of members representing each of the operating authorities (the councils and the Environment Agency), through an Elected Members Forum (EMF). This group comprised elected members from each of the councils (generally the relevant Cabinet Portfolio holder) and a representative from the Regional Flood Defence Committee. The EMF members attended meetings with a remit from their organisation to 'inform and comment on' the developing stages of the SMP thereby providing some degree of input into policy development, by those who will ultimately be adopting the policies. The EMF met at the same stages as the KSF, providing a review and informal approval of development and outputs (including matters arising from KSF discussions).

The boundaries of the Isle of Grain to South Foreland SMP and the Medway Estuary & Swale SMP have been established to link at the mouth of each of the Medway & Swale estuaries at the 'Schedule 4 Boundary' (Coast Protection Act 1949) where the estuary officially meets the sea. This is the



common interface of the Medway Estuary & Swale and the Isle of Grain to South Foreland Shoreline Management Plans. Figure 1.3 shows the boundaries between the Isle of Grain to South Foreland SMP2 and the Medway Estuary and Swale SMP.



**Figure 1.3 North Kent Strategic Flood, Coastal Erosion and Development Plan boundaries.**

The SMP review is based upon original SMP information, studies in between and information largely gathered between December 2005 and April 2006 and provided by numerous parties contacted during this period, this included contact with approximately 325 identified consultees between December 2005 and April 2006. This was followed up with information interpretation and further meetings with the key stakeholders, elected members and the steering group committee.

The main activities in producing the SMP were:

- Development and analysis of issues and objectives for various locations, assets and themes, including meetings with the Key Stakeholders and Elected Members;
- Thematic reviews, reporting upon human, historic and natural environmental features and issues, evaluating these to determine the relative importance of objectives;
- Analysis of the impact of coastal processes and coastal evolution for baseline cases of not defending and continuing to defend the coastline as at present;
- Agreement of objectives with the Key Stakeholders and Elected Members, to determine possible policy scenarios;
- Development of policy scenarios based on key objectives and primary drivers (agreed with the Key Stakeholders and approved by the Elected Members) for sections of the frontage;

- Examination of coastal evolution in response to these scenarios and assessment of the implications for the human, historic and natural environment;
- Determination of the preferred plan and policies through review with the Key Stakeholders and Elected Members, prior to compiling the SMP document;
- Consultation on the proposed plan and policies;
- Revisions to the draft plan following consultation and review by the SMP Quality Review Panel;
- Finalisation of the SMP; and,
- Adoption of the SMP by Local Authorities, Natural England and the Environment Agency.

The diagram in Figure 1.4 illustrates the SMP process up to and including Public Consultation.

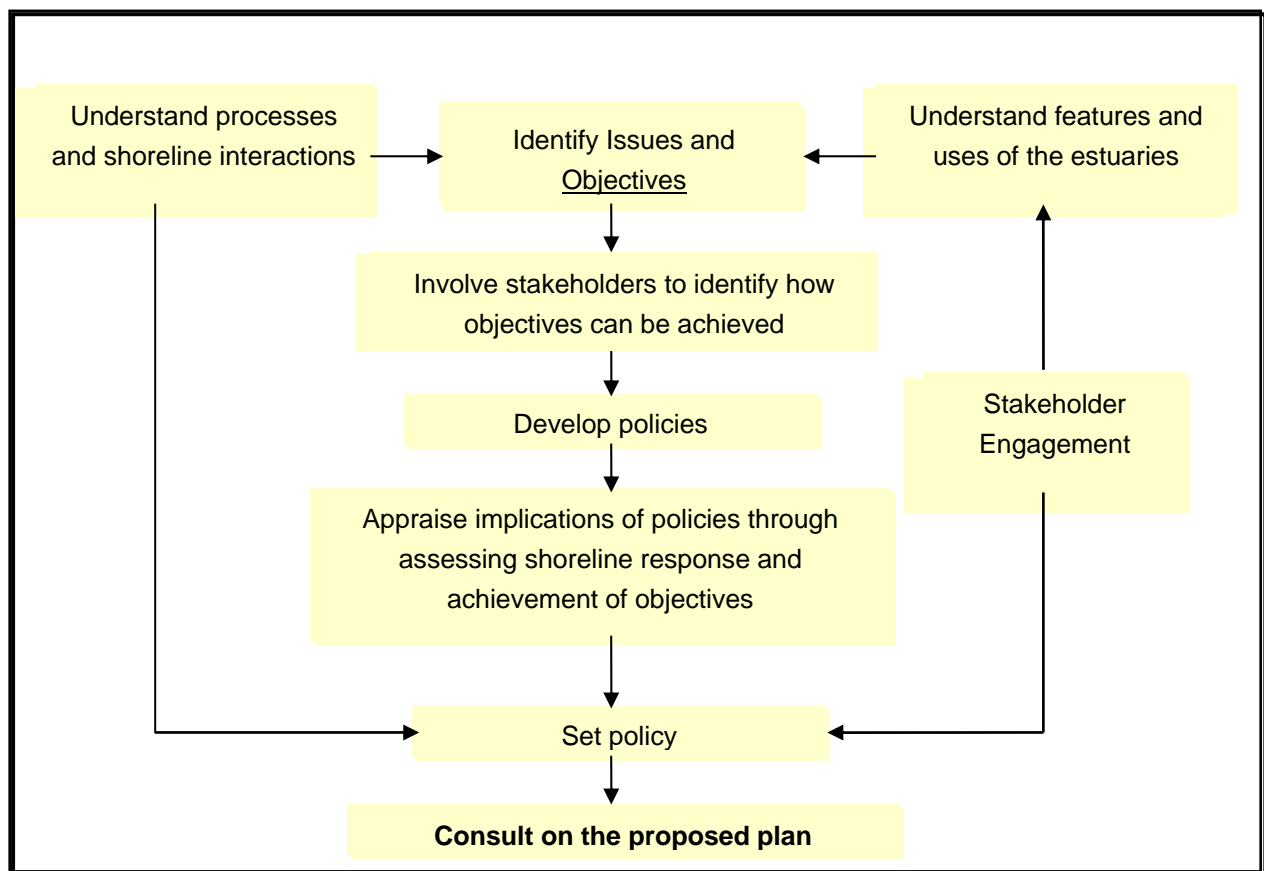


Figure 1.4 Diagrammatic Summary of the SMP Process (adapted from Defra, 2006<sup>6</sup>).

Following public consultation and consideration of all responses received, new data that was made available resulted in a reassessment of economics and objectives assessments for policy unit 4a 07. As a result, there appeared to be a strong case to:

- split the frontage into two sub-units (division point is at the Sportsman Pub);
- keep the policies the same for the western unit (HTL/MR/MR), but add that there are opportunities for MR, for habitat creation, in the first epoch subject to further studies; and,

- change the policies for the eastern unit to (HTL/HTL/MR).

The proposed revisions and potential impacts of these changes were discussed in detail and agreed by the CSG and EMF. The SMP document was revised accordingly to reflect the policy changes. In addition, the No Active Intervention and With Present Management Assessments and associated mapping, Economics Assessments and Policy Unit Statement maps for Thanet have been updated in the final SMP document with new erosion rates from a study commissioned by Thanet District Council (D'Olier, 2007). These revisions have resulted in no further changes to the preferred policies.

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## 2 Environmental Assessment

### 2.1 Strategic Environmental Assessment Background

Directive 2001/42/EC of the European Parliament and of the Council, and the associated Environmental Assessment of Plans and Programmes Regulations 2004, requires that a Strategic Environmental Assessment (SEA) be carried out by certain plans and programmes that are required by legislative, regulatory or administrative provisions. The Directive is intended to ensure that environmental considerations (both good and bad) are taken into account alongside other economic and social considerations in the development of relevant plans and programmes. Whilst it has been determined that SMPs are not required by legislative, regulatory or administrative provisions, they do set a framework for future development and have much in common with the kind of plans and programmes for which the Directive is designed. Therefore, Defra has recommended that environmental appraisal of the SMPs be undertaken in line with the approach of the Directive.

This chapter identifies how the draft Isle of Grain to South Foreland SMP achieves the requirements of the 2004 Regulations. The text is sub-divided into sections representing the key requirements of the Regulations, and identifies the sections of the SMP documentation in which the relevant information is presented. To meet the requirements of the SEA Directive, a signposting table (Table 2.1) has also been included, which details the SEA requirements and where this information can be located within the SMP documents.

Table 2.1: SEA signposting table

Environmental Report Requirements	Location of information within SMP Report
(a) an outline of the: <ul style="list-style-type: none"> <li>• contents;</li> <li>• main objectives of the plan or programme; and,</li> <li>• relationship with other relevant plans and programmes;</li> </ul>	<b>Main Document</b> - Section 1.2 <b>Main Document</b> – Sections 1.1.3  <b>Main Document</b> – Section 1.1.1 & 3.2.3
(b) the relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme;	<b>Main Document</b> – Section 2.4  <b>Appendix C – Baseline Process Understanding:</b> Section C1 – Assessment of Shoreline Dynamics Section C4 – Baseline Scenario 1: No Active Intervention
(c) the environmental characteristics of areas likely to be significantly affected;	<b>Appendix D – SEA / Theme Review</b> Section D2 – Natural Environment Section D3 – Landscape and Character Section D4 – Historic Environment

Environmental Report Requirements	Location of information within SMP Report
(d) any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to Directives 79/409/EEC and 92/43/EEC;	<b>Appendix D – SEA / Theme Review</b> Section D2 – Natural Environment  <b>Appendix J – Appropriate Assessment</b>
(e) the environmental protection objectives, established at international, Community or Member State level, which are relevant to the plan or programme and the way those objectives and any environmental considerations have been taken into account during its preparation;	<b>Main Document – Section 2.5</b>  <b>Appendix E – Issues and Objectives Evaluation</b>  <b>Appendix G – Scenario Testing</b> Section G3 – Objective Appraisal  <b>Appendix J – Appropriate Assessment</b>
(f) the likely significant effects on the environment, including on issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors;	<b>Main Document – Section 2.7</b> <b>Main Document – Section 4.2</b>  <b>Appendix J – Appropriate Assessment</b>
(g) the measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme;	<b>Main Document – Section 6 Action Plan</b>  <b>Appendix J – Appropriate Assessment</b>
(h) an outline of the reasons for selecting the alternatives dealt with, and a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information;	<b>Appendix J – Appropriate Assessment</b>
(i) a description of the measures envisaged concerning monitoring in accordance with Article 10;	<b>Main Document – Section 6 Action Plan</b>
(j) a non-technical summary of the information provided under the above headings.	<b>Main Document – Section 2 Environmental Assessment</b>

## 2.2 The Appraisal Process

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. The SMP is a non-statutory, policy document for flood and erosion risk management planning. It takes account of other existing planning initiatives and legislative requirements, and is intended to inform wider strategic planning. It does not set policy for anything other than coastal defence management.

Full details on the background to the SMP and the appraisal process are set out in Chapters 1 and 2, with the exact details of the procedure followed in development of the Plan set out in Appendix A.

### **2.3 Stakeholder Engagement**

Stakeholders have been involved in the SMP appraisal process, through the formation of a Key Stakeholders Forum (KSF) and an Elected Members Forum (EMF). This is one of the key changes from the first SMP. This involvement has:

- Been undertaken throughout development of the SMP;
- Given stakeholders an opportunity to comment on the environmental appraisal of options; and,
- Allowed representations made by the stakeholders and the public to be taken into account in the selection of policy options.

The KSF includes representatives from interests including local authorities, nature conservation, industry and heritage. This group has met periodically throughout the SMP development process to input information and review outputs as the study progressed. The EMF comprises a representative from each of the local authorities and the Environment Agency, attending with a remit to agree the various stages of the SMP as it progresses. Again, this group has met throughout the plan development, agreeing to the outputs once they have been discussed with the KSF.

In this way, the views of those whom the SMP policies will affect are involved in its development, ensuring that all relevant issues are considered, and all interests represented. The interests of landowners and residents have been represented through the involvement of Elected Members, and the views of all stakeholders are now sought through the present consultation process on the recommended policies.

Full details of all stages of stakeholder engagement undertaken during development of the draft Plan are presented in Appendix B. This includes the copies of briefing materials and records of stakeholder inputs.

### **2.4 The Existing Environment**

The coastline covered by this plan has a rich diversity in its physical form, human usage and natural environment. This includes: the London clay sea cliffs in the north; the dramatic white chalk cliffs of Thanet and South Foreland; the extensive lowlands of Grain, Sheppey, Graveney and the former Wantsum Channel area; large urban areas fringing the coast; extensive areas of agricultural land, and many areas designated and protected for their heritage, landscape, geological and biological value. This combination of assets creates a coastline of great value, with a tourism economy of regional importance.

The current state of the environment is described in the 'Thematic Review', presented in Appendix D to this report. This identifies the key features of the natural and human environment of the coastline, including commentary on the characteristics, status, relevant designations, and commentary related to

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the importance of the features and the 'benefits' they provide to the wider community. The benefits assessment is provided in support of the definition of objectives (see Section 2.5, below).

In addition to the review of natural and human environment, the extent and nature of existing coastal defence structures and management practices are presented in the 'Defence Report' in Appendix C.

This is supplemented by the 'Shoreline Dynamics and Interactions' baseline report, in Appendix C, which identifies the contemporary physical form of the coastline and the processes operating upon it.

## **2.5 Environmental Objectives**

An integral part of the SMP development process has been the identification of issues and definition of objectives for future management of the shoreline. This was based upon an understanding of the existing environment (Section 2.4), the aspirations of Stakeholders (Section 2.3), and an understanding of the likely evolution of the shoreline under a hypothetical scenario of 'No Active Intervention' (Appendix C), which identifies the likely physical evolution of the coast without any future defence management and hence potential risks to shoreline features.

These objectives include all relevant plans, policies, etc associated with the existing management framework, including all identified opportunities for environmental enhancements.

The definition and appraisal of objectives has formed the focus of engagement with stakeholders during development of the SMP (as identified in Appendix B). The full list of issues and objectives defined for this SMP are presented in Appendix E, which is supplemented by background information provided in the Thematic Studies (Appendix D).

Appendix G includes consideration of how the objective, and hence the 'environment', would be affected under the 'No Active Intervention' scenario, also their achievement under the policy options considered feasible for that frontage, with consideration of international and national designations and obligations and biodiversity. Chapter 5 of this document also details consideration of the potential environmental effects of the preferred policies.

## **2.6 Identification and Review of Possible Policy Scenarios**

As identified in Chapter 1, the SMP considers four generic policies for shoreline management. Appendix F presents the results of the initial consideration of these policies to define 'policy scenarios'. This identifies those options taken forward for detailed consideration, and identifies why the alternatives have not been considered.

The proposed 'policy scenarios' defined, have then been appraised to assess the likely future evolution of the shoreline, from which the environmental impacts can be identified. The process appraisal of these scenarios is presented in Appendix G. The results of this evolution, in terms of risks to coastal features, are then used to appraise the achievement of objectives for each scenario. This is reported in the issues and objectives table in Appendix G.

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## **2.7 Environmental Effects of the Preferred Plan**

Based upon the outputs from the testing of policy scenarios (Appendix G), the proposed preferred plan has been defined. This is reported, in summary, for the whole SMP frontage in Chapter 4, with specific details for each policy unit presented in Chapter 5.

Chapter 4 includes the 'Plan for Balanced Sustainability' (Section 4.1) defining the broad environmental impacts of the proposed plan, based upon the appraisal of objectives. This chapter also presents the 'Predicted Implications of the Proposed Preferred Plan' (Section 4.2) under thematic headings.

The twenty-six individual Policy Units in Chapter 5 each present the proposed Plan for the Unit identifying the justification, and then presents the policies to achieve the proposed Plan over the 100 year period, presenting the detailed implications of the policies and identifying any mitigation measures that would be required in order to implement the policy.

## **2.8 Monitoring and Further Study Requirements**

Where the proposed preferred plan for any Policy Unit has specific monitoring or detailed study requirements, to help clarify uncertainties, such as rates of erosion and detailed calculations of assets at risk, this is identified in the relevant 'Policy Unit Statement' (Chapter 5). Particular requirements relate to further (or ongoing studies) at the following locations:

- Warden Point to Leysdown-on-Sea;
- Reculver Country Park;
- Cliftonville;
- White Ness to Fulsam Rock; and,
- South of the River Stour to Sandwich Bay Estate north

At this level of appraisal, environmental sources of uncertainty such as buried archaeology and unknown ground conditions or contamination have been dealt with through desk study only. There is therefore some risk that closer inspection through the development of strategies and schemes may identify constraints that may change approaches to flood management at particular localities.

In addition, in carrying out the SEA, solutions that are environmentally justifiable have been selected based on existing data sources and baseline data. The assessment of cumulative impacts is therefore limited by changing environmental characteristics and future development.

Detailed monitoring and mitigation requirements will be investigated in detail as part of future strategy studies and schemes, rather than the SMP. Impacts will be mitigated through the choice of appropriate managed realignment lines, through design of flood defences including selection of suitable materials and finish, as well as through continued consultation with statutory consultees (e.g. Natural England and English Heritage) and other environmental specialists. Such mitigation measures should help to minimise any adverse impacts as far as possible.

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Future monitoring and investigations required to address the limitations of the SMP are detailed in the SMP Action Plan (developed following Public Consultation).

In addition, where a proposed policy may result in the loss of heritage features (known and unknown) it will also be important to consider an appropriate programme of survey, recording and investigation to record these important features / sites as well as potential features not yet identified.

The Action Plan also identifies Swale Estuary wide studies that will be required to inform the policies (see Section 6.2). These studies will be undertaken to inform further studies identified in both the Isle of Grain to South Foreland SMP2 and the Medway Estuary and Swale SMP.

## **2.9 Appropriate Assessment**

Regulation 48 of the Habitats Directive (92/43/EEC) requires that an Appropriate Assessment is undertaken for plans or projects that will have a significant effect on a European site (e.g. sites designated as SPA or SAC), where the plan is not directly associated with the management of the site. The Appropriate Assessment essentially assesses the implications of the plan in respect of the site's conservation objectives.

The Appropriate Assessment is a legal requirement of the final plan. The effect of the Plan on the European sites in the estuaries has been assessed through an 'Appropriate assessment' (Appendix J).

## **2.10 Water Framework Directive Assessment**

The Water Framework Directive which came into force in 2000, is the most substantial piece of EC water legislation to date. As such, the Directive needs to be taken into account in the planning of all new activities in the water environment. SMPs must recognise the requirements of the Directive and are required to undertake a broad assessment of hydromorphological change under the plan policies.

A retrospective Water Framework Assessment (Appendix K) has been undertaken for the SMP which identifies where there is potential for particular policies to deliver or compromise the Directive's environmental objectives. The assessment will be used to highlight issues that will need to be considered in strategy or scheme development, as well as in future reviews of this SMP.

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### 3 Basis for Development of the Plan

#### 3.1 *Historical Perspective*

The shoreline throughout much of the area covered by this SMP is retreating, and has been doing so for centuries. This is very much part of a natural process which has been taking place as sea levels have slowly risen and land levels have gradually dropped, both being the long-term consequences of the last (Pleistocene) ice-age. Erosion is therefore nothing new, and neither is flooding; historically there have been numerous major breaches along this coastline, particularly in the 1953 as Figure 3.1 illustrates. As such, in the past centuries there has been a well recorded loss of communities (i.e. Herne Bay) along the coast, which are evidence of this long-term natural change.



Figure 3.1 Margate, 1953

These events all took place well before the shorelines were defended to the extent they are at present. Therefore, although humans may have impacted upon the change occurring at the shoreline, they have not caused it. Equally, there is no reason to suggest that dynamic change is still not taking place, nor that we should assume that it will not continue to take place in the future. Coastal defence works carried out in the past have not prevented natural change from occurring they have simply delayed its full implications from being felt. This is the main approach to the management of erosion and shoreline retreat that has been used in the past, but it becomes increasingly difficult with climate change increasing the rate of sea level rise and the number and severity of storm events. The decision to be made now is how we are going to manage this change in the future.

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## 3.2 Sustainable Policy

### 3.2.1 Coastal Processes and Coastal Defence

#### Climate Change

The coastline is undergoing constant change due to large scale impacts of climate change, namely sea level rise, through to the day-to-day effects of waves and tidal currents. It is the implications of climate change that will determine sustainable shoreline management into the future.

Much of the present shoreline of the southern North Sea and the English Channel has been shaped by sea level rise during the Holocene period, i.e. following the last glaciation. Flooding of the southern North Sea and the English Channel commenced as sea levels rose. By approximately 8,000 years ago the entire English Channel, including the Dover Straits, was inundated. Shortly after, the shallow land separating this water body from the southern North Sea was breached, initiating a strong eastward current and sediment transportation in the eastern channel.

Sea level attained a level close to its present position around 5,000 years ago, and the modern hydrodynamic regime has been operating since this time. In the early stages of this period, the onshore migration of significant quantities of sediment led to major episodes of coarse sediment accumulation. This resulted in the formation of shingle barriers, that, rolled back to form the present shoreline and many of the present beaches.

Over the last 2,000 years sea level rise has continued, but at much lower rates, resulting in ongoing, but less dramatic, changes at the shoreline. However, we are now entering a period of accelerating sea level rise, which will result in changes to the present coastal systems. Defra (2002) predicted that sea level rise would increase from the present rate of 2mm/yr to 6mm/yr by 2105. Following the Third Assessment Report from the Intergovernmental Panel on Climate Change (IPCC) the figures have been revised (2006<sup>8</sup>). The new allowances are highlighted in Table 3.1 below.

Table 3.1 Updated figures now reflect an exponential curve, replacing the previous straight line graph (Defra, 2006<sup>8</sup>).

<u>Administrative or Devolved Region</u>	<u>Assumed vertical land movement (mm/yr)</u>	<u>Net Sea Level Rise (mm/yr)</u>				<u>Previous allowances</u>
		<u>1990-2025</u>	<u>2025-2055</u>	<u>2055-2085</u>	<u>2085-2115</u>	
<u>SE England</u>	<u>-0.8</u>	<u>4.0</u>	<u>8.5</u>	<u>12.0</u>	<u>15.0</u>	<u>6 mm/yr constant *</u>

<sup>8</sup> Defra (2006) Flood and Coastal Defence Appraisal Guidance, FCDPAG3 Economic Appraisal, Supplementary Note to Operating Authorities – Climate Change Impacts, October 2006.

Recent climate studies have indicated that there are significant changes occurring within our climate; with bigger storms, increasing rainfall and rising sea levels. The amount of physical change depends on the degree of exposure of each length of coast and the underlying geology. Increasing rainfall in-between longer periods of dryer weather can lead to increased weathering of cliff faces, with potentially more cutback of the cliff face. In areas where London Clay cliffs dominate this could be particularly damaging. Examples exist where settlements have been lost through erosion (e.g. Herne Bay Village) and in light of climate change there is now a greater probability of this occurring in the future.

It is extremely important that the long-term plan in the SMP recognises these future issues and reflects likely future constraints to management planning. Thus the SMP acts as early warning to those other plans and initiatives that are vital to the communities and infrastructure within the coastal zone.

### **Changes at the coast**

We are also now living with a relict<sup>9</sup> resource of sediment, as inputs from offshore and the hinterland are either insufficient or unsuitable. This problem has been exacerbated on this section of the south coast where there is very limited contemporary natural input of sediment into local beaches, and there has been substantial development along much of the coastline.

The reclamation of extensive areas of former coastal lowland for agriculture and development has also produced many areas where the shoreline is today artificially seaward of its natural position. Human intervention to construct embankments and drain the backing land for agricultural production, has created the large low lying areas of Grain marshes, Graveney Marshes and the former Wantsum Channel. Under natural circumstances these coastal frontages would have been inter-tidal, were it not for the man made defences holding them in place.

As already discussed, the erosion of the shoreline is nothing new; this is an ongoing process. However, we are more aware of it now than in the past and it is likely to increase. It is not just the shoreline that is changing, but the whole coastal system, i.e. the backshore, beach and nearshore zone. Along much of the south east coastline, this movement is occurring in a landward direction as sea levels rise, with the shoreline responding to the increase in energy reaching it from the sea. Although attention is focussed upon the shoreline position, this process also produces a deepening of the seabed at any particular point. That change in seabed level is evidenced by narrower and steeper beaches along much of the frontage. This in turn is becoming increasingly associated with larger sea defences.

Had the lost settlement of Herne Bay Village been defended, this would not have prevented foreshore lowering at this location, i.e. it would today stand adjacent to very deep water. We should not expect the future to be any different, and as such the future foreshore level at existing defence locations may be anticipated to be much lower than present beach levels. Indeed, accelerated sea-level rise will increase the magnitude and speed of change.

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<sup>9</sup> *Of or relating to something that has survived, as structures or minerals, after destructive processes.*

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If we choose to continue to defend our shorelines in the same locations that we do at present, then the size of the defences will need to alter considerably; one consequence of deeper water is much larger waves reaching the defence (as a shallow sea bed absorbs much of the energy of approaching waves). Defences will need to be wider to remain stable against bigger waves, have deeper foundations to cope with falling beach levels, and be greater in height to limit the amount of water passing over the top of them in storms. Should these defences fail or be overtopped then the implication would be greater than at present.

### **Sediment movement**

Beaches and low lying coastal floodplains provide a natural form of defence that react to storm waves; they do not prevent further erosion or flooding but do help to limit and control the rate and extent at which this takes place. A wide and reasonably high beach offers greater protection than a low and narrow one. They also form environmentally important habitats. On a naturally functioning coastline, the alongshore movement of sediment eroded from cliffs or transported onshore from offshore, provides beaches with material locally and further afield. A sustainable shoreline sediment system is one that is allowed to behave dynamically without any alongshore and cross-shore disruption due to coastal erosion and flood risk management.

However, defences constructed along the majority of the frontages coastal slopes and cliffs, have resulted in only limited sections of the shoreline being free to erode, which in turn provides little material to the shoreline system and insufficient amounts of beach building material. Although in some cases e.g. the London Clay cliffs, it is acknowledged that material eroded is not suitable for beach building.

Along this frontage groynes have also been constructed on many sections of the shoreline, retaining sand and shingle that would naturally be carried along the foreshore by littoral drift (alongshore transport). The implementation of these various defence schemes, along with other management practices along the majority of the frontage, has led to site specific frontages being starved of sediment as well as the progressive denudation of sediment along this SMP coastline. The latter of which has resulted in narrowing and steepening of the foreshore and exposure of the upper shore and increased wave attack on defences. Beach replenishment and recycling practices (mechanically adding or moving shingle) have been used as a method to counter the contemporary lack of sediment and reduce the rate at which this shoreline change is taking place.

The extent of current defence structures, together with the fact that the contemporary beach sediments are effectively a finite relict resource, means that the majority of the study shoreline today is generally in an 'unnatural' form and position. As such, much of the shoreline would not necessarily revert to the 'natural' coast, of the sustainable ideal outlined above, if we simply allowed it to operate in an unmanaged fashion. Indeed, it is likely that for much of the SMP frontage, the removal or failure of defences would result in the total breakdown of beaches, leaving little or no barrier to erosion and flooding of the backing land. On the large lengths of shoreline backed by low lying land this would cause inundation of the flood plain, creating a new shoreline and habitat in the process along the landward edge of the low lying area.

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In reality, the legacy of defence structures throughout this frontage has created a shoreline that is today so managed and artificial that it is effectively almost completely man made, with little real opportunity to use natural evolution of the coast as a means of satisfactorily managing the shoreline.

### **Defence impacts**

Through the development of SMPs and strategy studies, there is often a public misconception that coastal change at the coast can and should be halted through engineering works. There is often a demand to continue to hold the existing defence line to protect assets, but this is coupled with an expectation that the shoreline will continue to look exactly as it does now. However, the dynamic nature of our coasts, means that these expectations are incorrect in many, if not all, instances.

If we continue to attempt to defend into the future as we have done in the past, the long-term picture would see the exacerbation of the existing situation, with a very fragmented shoreline, characterised by long lengths of concrete frontage with little or no beach, interspersed by sections of eroding cliffs. As a consequence of rising sea levels and diminishing beaches, seawalls will be exposed to deeper water, requiring much more substantial defences to be constructed. If these frontages were to be adjacent to unconstrained 'soft' shorelines e.g. a barrier beach or London Clay cliffs, the hard frontage may form a significant promontory, increasing its exposure to waves and currents. The defences may need to be extended to prevent outflanking of the present seawalls. As the beaches reduce and disappear, groynes will become redundant and water will remain present at the structures at all times. A present day version of how this may look is illustrated by the defences at the now redundant MoD rifle range near Oldstairs Bay, although the exposure of the defences in this location is the result of seaward development rather than sea level rise.

It must be recognised that, in the long term, continuing to defend such long stretches of shoreline with increasing exposure may become technically and economically unsustainable. There is also greater risk associated with Holding the Line and continuing to occupy and develop the backing hinterland. Should inundation take place, during an extreme event for example, where assets and lives are at risk, consideration to relocate, or mitigate, for loss of assets should be considered in the future. Even where this point is considered to fall outside the SMP timescale (i.e. beyond 100 years), it is still very important to recognise that maintaining current alignments will not be possible indefinitely.

### **3.2.2 Economic Sustainability**

One of the difficulties facing us as a nation is the cost of continuing to protect shorelines to the extent that we do at present. Many of the defences that exist today have been the result of reactive management without consideration of the long-term consequences, including financial commitment.

Studies over the past few years have established that the cost of maintaining all existing defences is already likely to be at least 50% more than present expenditure levels<sup>10</sup>. In simple terms this means

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<sup>10</sup> Defra (2001) *National Appraisal of Assets at Risk, from flooding and coastal erosion, including the potential impact of climate change*.

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that either more money needs to be invested in coastal defence, or defence expenditure has to be prioritised. Whilst it is more than likely that the first option would clearly be the preference of those living or owning land along the coast, this has to be put into context of how the general UK taxpayer wishes to see their money used. Given that the cost to provide defences that are both effective and stable currently averages between £3million and £5million per kilometre, the number of privately owned properties that can be protected for this investment has to be weighed up against how else that money can be used, for example education, health and other social benefits.

Furthermore, because of the climate changes being predicted, which will accelerate the natural changes already taking place; these recent studies have also established that the equivalent cost of providing a defence will increase during the next century, by a minimum of 2 and a maximum of 4 times the present cost, excluding inflation or other factors. Consequently those areas where the UK taxpayer is prepared to continue to fund defence may well become even more selective and the threshold when an area is no longer defended could well shift. Whilst it is not known how attitudes might change, it is not unreasonable to assume that future policy-makers will be more inclined to resist investing considerable sums in protecting property in high risk areas, such as the coast, if there are substantially cheaper options, such as constructing new properties further inland.

It is extremely important that the long-term policies in the SMP recognise these future issues and reflect likely future constraints. Failure to do so would not ensure future protection; rather it would give a false impression of a future shoreline management scenario that could not be justified and would fail to be implemented once funding was sought.

The implications of these national financial constraints are that protection is most likely to be focussed upon areas where there are large amounts of assets potentially at flooding or erosion risk, where the highest level of benefit would be achieved for the investment made, i.e. more properties could be protected per pound of investment. The consequence is that rural communities will often be more affected, but from a national funding perspective, i.e. best use of the taxpayer's money, this makes economic sense.

### **3.2.3 Environmental sustainability**

Environmental sustainability is a concept that is frequently debated. As it depends upon social attitudes, which are constantly changing, it is therefore difficult to define. In the purest sense, however, environmental sustainability allows habitats to be self perpetuating.

Historically, communities at risk from coastal erosion relocated, recognising that they were unable to resist change. However, in more recent times, many coastal defences have been built without regard for the impacts upon the natural environment. Today, because we have better technology, we are less prepared to accept change, in the belief that we can resist nature. Inevitably attitudes will continue to alter; analyses of possible 'futures' are already taking place (e.g. Foresight Future Flooding, 2004 and the governments 'Making Space for Water' initiative<sup>11</sup>), considering the implications for many aspects

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<sup>11</sup> Defra, 2005a. *Making Space for Water: Taking forward a new Government strategy for flood & coastal erosion risk management – Introduction*. Available online at: <http://www.defra.gov.uk/environ/fcd/policy/strategy.htm>

of life, including approaches to flooding and erosion under different scenarios. It is not possible to predict how attitudes will change in the future; therefore the SMP is based upon existing criteria and constraints, whilst recognising that these may alter over time to accommodate changing social attitudes. Some key uncertainties have been investigated in the Sensitivity Analysis (see Appendix H).

Quality of life depends on both the natural environment and the human environment, which are discussed below.

### **Natural Environment**

The forces of nature have created a variety of landforms and habitats along the South East coastline. The special quality of the natural habitats and geological / geomorphological features on this coast is recognised in a number of local, national and international designations, protected under statutory international and national legislation, as well as regional and local planning policies.

There is a legal requirement to consider the implications of any 'plan or 'project' that may impact on a Special Protection Area (SPA) or Special Area of Conservation (SAC), through the European Union Habitats Directive (Council Directive 92/43/EEC) and Birds Directive (Council Directive 79/409/EEC). The Defra High Level Target for Flood and Coastal Defence (Target 4 – Biodiversity) also requires all local councils and other operating authorities to:

- Avoid damage to environmental interest;
- Ensure no net loss to habitats covered by Biodiversity Action Plans;
- Seek opportunities for environmental enhancement; and,
- Report progress in implementing actions that contribute to SSSI PSA Target and all losses and gains of habitats resulting from flood and coastal erosion risk management operations to the Environment Agency.

A key requirement for the SMP is therefore to promote the maintenance or enhancement of biodiversity, through identifying biodiversity opportunities.

The EU Water Framework Directive<sup>12</sup> also requires that water bodies reach at least 'good status' by 2015. A key requirement for the SMP is therefore to promote the maintenance or enhancement of biodiversity, through identifying biodiversity opportunities.

Coastal management can have significant impact on habitats and landforms, both directly and indirectly. In places, coastal defences may be detrimental to nature conservation interests, e.g. slope protection structures at Warden inhibit natural movements of the landslide complex. However, in other locations the presence of defences sustains, albeit temporally, the present interests of a site, e.g. freshwater habitats at Graveney Marshes. However, one must recognise that the preservation of fresh water interests may be at the 'expense' of alternative, more dynamic habitats i.e. saltmarsh. Coastal

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<sup>12</sup> <http://www.defra.gov.uk/environment/water/wfd/index.htm>

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habitats may also form the coastal defence, e.g. the sand dunes along the south of the River Stour to Sandwich Bay Estate north frontage. Therefore coastal management decisions need to be made through consideration of both nature conservation and risk management.

Although the conservation of ecological features in a changing environment remains key, in terms of environmental sustainability, future management of the coast needs to allow habitats and features to respond and adjust to change, such as accelerated sea level rise. It is recognised that coastal habitats cannot always be protected *in situ* because a large element of their ecological interest derives from their dynamic nature and this is important to ensure the continued functionality of any habitat. This poses a particular challenge for nature conservation and shifts the emphasis from 'preservation' to 'conservation'. Natural England (formerly English Nature) are actively seeking to ensure that coastal erosion and flood risk management proposals are designed to ensure that designated sites are conserved and where possible enhancement opportunities that benefit ecology and geology are implemented, whilst also allowing the coast to remain naturally dynamic. Under Section 28G of the Countryside and Rights of Way Act 2000, Natural England is provided with the responsibility and power to safeguard England's finest and most vulnerable wildlife and geological features. Therefore, accommodating the objectives of environmental bodies, such as Natural England, requires flexibility in the assessment of nature conservation issues, possibly looking beyond the designation boundaries to consider wider scale, or longer term, benefits.

The SMP also needs to consider opportunities for enhancing biodiversity throughout the SMP area and not just at designated sites. It has been identified that there are a number of biodiversity opportunities within this SMP area. These are where Managed Realignment or No Active Intervention have been proposed i.e. at the Allhallows-on-Sea to Grain (Policy Unit 4a01), Minster Slopes (4a04), Leysdown-on-Sea to Shell Ness (4a05), Faversham Creek to Seasalter (4a07), Reculver Country Park (4a13), Reculver to Minnis Bay (4a14), south of the River Stour to Sandwich Bay Estate north (4b21) and South Foreland (4b26). There are several other areas along this frontage where biodiversity opportunities can be taken, by incorporating localised Managed Realignment or No Active Intervention opportunities into Hold the Line policies, for example Warden Point to Leysdown-on-Sea (4a05), Minnis Bay to Westgate-on-Sea (4a15), Cliftonville (4a17), White Ness to Ramsgate (4b18) and West Cliff (4b20) or ensuring the provision of space free from development is another. However, both of these will need to be balanced against the socio-economic objectives for the area.

### **Human (Socio-Economic) Environment**

The human environment covers such aspects as land use (both current and future), heritage and landscape (which may be both natural and man-made).

#### **Land-use:**

Historically, development of the coast has taken place unconstrained. Planning Policy Guidance 20 (PPG20: Coastal Planning) identifies that approximately 30% of the coastline of England and Wales is developed, with much of this development taking place before the introduction of the Town and Country Planning Act 1947. Growth of built development, both commercial and residential, within the coastal zone over the centuries has increasingly required engineering works to defend properties and assets against the risk of erosion and flooding. However, continued construction of hard-engineered coastal and flood defences to protect development may not be economically sustainable in the long-term (see Section 3.2.2). Local Development Frameworks now identify the need for 'sustainable

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development' (Section 39 of the recently reformed Planning and Compulsory Purchase Act, 2004); although the exact definition of this is uncertain, it recognises that opportunities for development on the coast are limited due to risk of flooding, erosion, land instability and conservation policies (as discussed above). PPG20 states that in the coastal zone, development plan policies should not normally permit development that does not require a coastal location. Planning Policy Statement 25 (PPS25: Development and Flood Risk)<sup>13</sup> sets out the Government's policies for planning authorities to ensure that flood risk is properly taken into account at all stages in the planning process and to prevent and direct development away from areas at high risk of flooding.

The South East Plan (2006<sup>14</sup>) builds upon this, adopting a catchment wide approach to water management and acknowledging the links between biodiversity, water quality and flood and erosion risk management. Policies NRM6 (coastal zone management) and NRM3 (sustainable flood risk management), in particular, require local planning authorities to take account of Shoreline Management Plans, with the former advocating an integrated approach to coastal planning and management.

Thames Gateway, Europe's largest economic, social and environmental regeneration programme, extends along the southern banks of the Thames, through the Medway, to Sittingbourne and the Isle of Sheppey. Consequently a number of Thames Gateway regeneration projects are located within the SMP area, e.g. the Isle of Grain/Hoo Peninsular, Medway Waterfront, Chatham City Vision, Rochester Riverside, Milton, Kemsley and Sittingbourne.

Although the popularity of many British seaside resorts has declined in recent decades, seaside tourism still represents a substantial part of the local economy. The towns of Whitstable, Herne Bay, Margate, Ramsgate, Sandwich and Deal all have important tourism economies, and some have significant retirement communities, largely drawn by the coastal location. Many other parts of the SMP coastline are reliant upon tourism income from facilities such as caravan parks, at Royal Oak Point, Warden, Leysdown-on-Sea, Swalecliffe, Reculver and the Lydden Valley. Thus the impacts of policy on the tourism industry need to be carefully considered. In addition to the tourist industry, there are many other major commercial interests along the coast. As well as the normal commercial and industrial activities associated with the towns along this coastline, there are also important fishing economies, and other major assets such as the Port of Sheerness, Whitstable Harbour, Ramsgate Harbour and the Pfizer chemical plant at Sandwich. The continuation of these industries is essential to sustain the economy of the region as a whole.

The coastal strip also represents an important recreational and amenity resource; many activities rely on the presence of a beach or access to the sea. Although assets landward of current defences and access routes may be protected through maintaining existing defences, it must be recognised that continuing such defence practices would in the longer term result in a significant alteration in the nature of the coast, with large concrete seawall structures and narrow beaches.

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<sup>13</sup> <http://www.communities.gov.uk/index.asp?id=1504640>

<sup>14</sup> [South East England Regional Assembly \(2006\) The South East plan. http://www.southeast-ra.gov.uk](http://www.southeast-ra.gov.uk)

Heritage:

Heritage features are valuable for a number of reasons (English Heritage, 2006<sup>15</sup>):

- They are evidence of past human activity;
- They provide a sense of place (or roots) and community identity;
- They contribute to the landscape aesthetics and quality; and,
- They may represent an economic asset due to their tourism interest.

These assets are unique and if destroyed they cannot be recreated. Whilst they are vulnerable to any coastal erosion the very process of erosion is uncovering sites of historical interest. Only a few sites are protected by statutory law, but many more are recognised as being of high importance. Government advice in PPG15 (Planning and the Historical Environment) and PPG16 (Archaeology and Planning) promotes the preservation of important heritage sites, wherever practicable. However, due to the dynamic nature of our coastlines, this is not always possible, or sustainable. Therefore each site must be considered individual and balanced against other objectives at that location.

The long maritime history of this part of the South East coastline has resulted in a large number of important heritage sites, and areas with heritage potential, being present. Major heritage features include sites such as: Richborough Roman Fort and Amphitheatre, Garrison Point Fort, Reculver Towers, Sandown Castle (remains of), Deal Castle and Walmer Castle. However, there are a great many other features which shoreline management policy could potentially affect.

Landscape:

Many parts of the SMP coast are designated and protected for their landscape quality as Areas of Outstanding Natural Beauty and Heritage Coast. However, in general, landscape is difficult to value objectively as it is a mixture of the natural environment and social and cultural history. Therefore defining a sustainable landscape is usually dependent upon the human and natural environment factors discussed above.

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<sup>15</sup> English Heritage (2006) *Shoreline Management Plan Review and the Historic Environment: English Heritage Guidance*.

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## 4 THE PREFERRED PLAN

### 4.1 *Plan for Balanced Sustainability*

The SMP is built upon seeking to achieve balanced sustainability, i.e. it considers people, nature, historic and economic realities.

The policies proposed for the present-day provide a high degree of compliance with objectives to protect existing communities against flooding and erosion. The proposed long-term policies promote greater sustainability for parts of the shoreline where natural process and evolution provide a practical means of managing the coastline. However, the protection of the significant assets present along much of the shoreline remains a strong focus for the long-term sustainability of the economy and communities of this area.

The rationale behind the proposed plan is explained in the following sections of text, which consider the SMP area as a whole. 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.

Details of the preferred policies for individual locations to achieve this Plan are provided by the individual Policy Unit statements in Chapter 5.

#### 4.1.1 *The Isles of Grain and Sheppey*

The western section of the SMP coastline is dominated by the Isles of Grain and Sheppey. Much of the coastline between Allhallows-on-Sea and Grain is fronted by extensive inter-tidal mudflats, which are of environmental interest. The hinterland comprises predominantly low lying agricultural and marsh land, most of which is undeveloped and as such designated for its nature conservation and landscape value. These represent important features that need to be taken into consideration when setting future management policy. Towards Grain the topography rises where the London Clay cliffs outcrop. Erosion of these cliffs provides predominantly fine material to the sediment budget.

The mouth of the River Medway joins the Thames Estuary between Grain (the Isle of Grain) and Sheerness (the Isle of Sheppey). Interactions between open coast and estuarine processes have been considered in both this plan and the Medway Estuary and Swale SMP.

Built assets in the form of Sheerness and Minster dominate the western part of Sheppey. Regionally this section of the coast is of economic and strategic (infrastructure) importance. As such, both frontages are heavily defended and beaches along these frontages are dependent upon management practises i.e. the presence of groynes. If the current management practises were to cease, it is likely the beach would narrow due to a limited natural sediment supply and material moving alongshore and offshore, rather than forming a 'dynamically functioning' shoreline. These factors coupled with the importance and value of the range of assets, mean that the only practical solution to management of

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this frontage is to maintain the current shoreline alignment. However, in the long term, this will require increasing levels of hard defence and narrowing of the inter-tidal area, which could result in a possible beach loss. Long term planning to enable future 'flexibility' of the shoreline, thus providing the most sustainable form of coastal management, is therefore critical.

Between Minster Slopes and Warden Point, the frontage is relatively undeveloped and undefended. Here the London Clay cliffs are free to erode and provide the sandy foreshore with (fine) sediment. On top of the cliffs is agricultural land, with some tourist and residential developments. The area is of nature conservation and geological interest.

The rock bund at Warden will be designed to reduce, but not prevent, erosion. This is necessary due to the cliffs along this section being important geological features. As such, the short-term plan for Warden is to improve the current management and associated benefits during the residual life of the bund. Thereafter the presence of the structure will remain but its effectiveness, will reduce as a result of sea level rise. This approach will allow the erosion of the sand and clay cliffs to continue, thereby maintaining the important habitats, geological exposures and landscape quality of the frontage. It will, however, result in the loss of some properties and other undeveloped cliff top areas. This policy will provide a limited input of beach forming material to the shoreline, thus benefiting the fronting and downdrift beaches.

There is justification to maintain some of the current defences, at Warden and Leysdown-on-Sea in the long term due to the risk of flooding. However, there will be significant visual changes to the frontage, with higher, more robust defences required in the longer term and narrower/disappearing beaches, impacting on the character of the frontage. In the area of The Bay, realignment of the low-lying shoreline is recommended, as there are limited assets at risk and this policy will reduce the impact of coastal squeeze. Warden Village and Leysdown-on-Sea are both tourist areas, separated by agricultural land and areas of nature conservation interest. The combined approach will benefit all the aforementioned aspects.

The final frontage in this group, Leysdown-on-Sea to Shell Ness, comprises a managed sand and shell beach, which is backed by low-lying coastal grazing marsh. Under rising sea levels it is anticipated that it will become increasingly difficult to maintain a beach along this frontage. If the current alignment were to be held in the long-term, coastal squeeze, together with a diminished supply of natural beach building sediment, would lead to the need for substantial hard defences and significant beach management. The preferred policy of managed realignment would involve the loss of built assets at Shell Ness, some agricultural land as well as freshwater habitats. However, it would create a coast that will not require ever increasing expenditure to maintain in the coming centuries, negate the effects of coastal squeeze and create important brackish and saline habitats.

The Swale is a 18.4 km channel that separates the Isle of Sheppey from mainland Kent. Its second mouth joins the Thames Estuary at Shell Ness. Interactions between open coast and estuarine processes have been considered in both this plan and the Medway Estuary and Swale SMP.

#### **4.1.2 The North Kent Coast**

This section of the SMP coast stretches between Faversham Creek and Minnis Bay. The very western extent, Faversham Creek to Seasalter is predominantly low lying agricultural land that is of

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considerable environmental interest. The hinterland forms part of a single flood cell which if flooded, in an unmanaged fashion, has the potential to inundate a vast amount of land, built assets i.e. properties, infrastructure (e.g. high voltage trunk power lines) and strategic links (e.g. Faversham to Thanet main railway line) (Appendix H). Inter-tidal mudflats, of national and international nature conservation importance, front the current defended shoreline in the west. Moving eastwards towards Seasalter, the mudflats give way to a small mixed sand and shingle beach.

Realignment is possible here as the flood plain is relatively sparsely populated, and there is higher ground to which a secondary defence alignment could be tied into, limiting the extent of potential flood propagation. This approach will reduce the long term defence requirement by utilising higher ground as the new coastline. The alignment of secondary defences to limit flooding have not been defined by the SMP, but to achieve the benefits of allowing the coast to retreat it is anticipated that there would be a managed loss of developments close to the current coast.

Between Seasalter and Bishopstone Manor, the coast is highly developed and of regional importance; residentially, commercially, strategically (infrastructure), amenity (tourism) and culturally (heritage). Land backing the frontage is predominantly low lying and therefore vulnerable to flooding, elsewhere there are clay coastal slopes, which are vulnerable to erosion. Throughout this frontage the beaches fronting the developments are largely formed of relict or imported material, and are heavily managed. There are little or no alongshore sediment linkages to provide beach forming material from one section to another, other than in a controlled manner such as the recharge operations at Tankerton and Herne Bay. The extent of developments at the shoreline makes significant changes to this situation impractical in the SMP timescale. Therefore the plan is to continue maintaining and upgrading the existing defence structures. However, significant visual change to the frontage is predicted, with higher, more robust defences being required in the longer term and narrower/disappearing beaches, impacting on the character of the frontage. At Whitstable and Herne Bay it is recommended that the harbour arms and the breakwater are maintained as, although they limit the movement of shingle alongshore (east to west), they protect a large proportion of the town's assets and in the case of Whitstable, support a locally important fishing industry. Also, the release of the sediment held by the arms would only provide a short term pulse of sediment to the adjacent shoreline, with little long-term benefit. Thus the plan presented is based upon achieving the best solutions to local management of risks, taking regard of limited alongshore linkages, rather than a wholly natural coast with unconstrained alongshore sediment transport. The exact alignment of the secondary defence has not been defined by the SMP, but an indicative and maximum extent has been proposed which minimises and manages the number of assets lost, prevents uncontrolled flooding and improves the environmental opportunities. The exact alignment of the indicative and maximum extents will be informed by further studies.

Undefended clay coastal slopes, which range between 3 to 15 m height, characterise the landscape between Bishopstone Manor and Reculver Towers. The slopes are prone to minor slope failures and landslides. As there is little in the way of cliff top or indeed hinterland development along this frontage the long term plan is to allow the clay slopes to erode and to continue to provide sediment (fines) to the system. This approach maintains the nature conservation and landscape value along this frontage. East of Reculver Towers the clay slopes give way to low-lying hinterland, most of which is undeveloped and important environmentally, an aspect which is important for setting the medium and long term management policies. Realignment is possible here as the hinterland is sparsely developed

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and there are secondary defences already in place and there is higher ground to which a secondary defence alignment could be tied into, limiting the extent of potential flood propagation. This approach will reduce the long term defence requirement by minimising the impact of coastal squeeze, the use of existing defences and higher ground in setting the new coastline.

#### **4.1.3 The Isle of Thanet**

The Isle of Thanet forms the boundary between the North Kent (4a) and East Kent (4b) coast. The chalk cliffs, which dominate this frontage, stretching from Minnis Bay to West Cliff, are internationally important for their geological, environmental and landscape interest. The wave cut chalk shore platform at the base is of regional importance for its marine wildlife, geology and maritime heritage. The frontage is heavily developed and defended in some places (e.g. Margate, Ramsgate) and undeveloped and undefended in others (e.g. White Ness). Where there are defences, this has resulted in the cessation of cliff toe erosion. Conversely where there are no defences, the chalk cliffs are eroding, albeit at a slow rate and supplying a limited amount of beach forming material to the local and downdrift shoreline.

It is proposed that this eroding sediment source will be maintained over the next 100 years, sustaining the nature conservation and landscape value of the frontage. This input will provide some feed to *in situ* and local beaches, although the quantities involved will not be sufficient to offset the effects of rising sea levels and the narrowing of beaches in the long term. Defences will be maintained where there is an economic justification. However, if through detailed studies, opportunities for not maintaining current defences are identified then this will be implemented. Where there are currently no defences, no new defences will be built. This will allow natural processes to take place and the geological and environmental and landscape assets to be realised. This approach will protect a large number of assets and improve the current geological, environmental and landscape interests. This approach will also result in the input of sediment to the shoreline, providing a small amount of contemporary material for local beaches.

The towns of Margate, Broadstairs and Ramsgate provide regionally important centres supporting a wide range of residential, commercial and strategic activities that service other communities in the area and are key locations for local trade, including the tourism industry. In the case of the latter, the tourism economy of Margate, Broadstairs and Ramsgate is of regional importance and maintenance of the important features, including the promenade and seafront amenities, is therefore crucial. The existence of beaches along these frontages is dependent upon management practises i.e. the sheltering effect of the harbour arms, the presence of groynes etc. Were these management practises to cease, it is likely the beach would narrow due to material moving alongshore and offshore, rather than forming a 'dynamically functioning' shoreline. These factors, and the importance and value of the range of assets, mean that the only practical solution to management of this frontage is to maintain the current shoreline alignment. However, in the long term, this will require increasing levels of hard defence and narrowing and/or the possible loss of the beach.

The harbour arms at Margate, Broadstairs and Ramsgate impede, to varying degrees, sediment movement alongshore. As it is the plan to maintain these structures over the next 100 years, sediment volumes on downdrift frontages will continue to be affected by these structures. However, as the natural sediment supply is very limited, the impact is not a significant process and it is unlikely to be dramatically worse than if they were not there.

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An important strategic link road runs between Ramsgate and Cliffs End, with sections tunnelled through the chalk cliffs at West Cliff, as well as running across the cliff toe. It is envisaged that the toe defences present will be maintained and upgraded, but the cliff top will remain vulnerable to sub-aerial weathering. At Cliffs End the steep chalk cliffs give way to relict, undefended sandstone cliffs. Here the undefended cliffs are retreating and property losses are predicted in the latter epoch (50-100 year period). The plan here is to allow the cliffs to continue to retreat, maintaining the geological and environmental interests. This marks the transition between the Isle of Thanet and the predominantly low-lying East Kent coast.

#### **4.1.4 The East Kent Coast**

This section of the SMP coast stretches from Cliffs End in the north to Oldstairs Bay in the south. A large proportion of this frontage is designated for its nature conservation, heritage and landscape value. This is an important factor in setting future management policy. The frontage includes the towns of Sandwich (set back from the coast), Deal and Walmer, which form regionally important centres that warrant long term protection. The frontages of these towns are dominated by a combination of tourism related developments (e.g. hotels and attractions), associated infrastructure and residential properties. The frontage also has a number of smaller settlements, e.g. Sandwich Bay Estate and Kingsdown.

This section of the coast is low-lying and derives from 'soft' geologies. As such all assets are at risk from flooding and erosion. The hinterland here forms part of a single flood cell, which if flooded has the potential to inundate and erode up to 11,000 hectares of land (SMP1, 1996<sup>2</sup>; Reculver to Minnis Bay Scheme, 1998<sup>16</sup>), the towns of Sandwich, Deal and Walmer, 10,500 properties, 1750 commercial properties, together with infrastructure such as roads and rail lines, the Pfizer chemical plant, Kent International Airport, numerous tourist facilities, many heritage sites, and large areas of international nature conservation importance. Given the extent of assets at risk, it is considered imperative that flood risk management and flood defence continues to be provided for the next 100 years. The SMP plan provides a strategic approach to the management of this potential risk, identifying where defences should be provided.

The fronting coastline has been divided into two morphological forms:

- Cliffs End to Sandwich Bay Estate (north): wide inter-tidal mud and sand flats, which have been historically prograding around the mouth of the River Stour: and
- Sandwich Bay Estate (north) to Kingsdown: a mixed (shingle and sand) beach, which is presently eroding.

These two morphological forms warrant differing approaches to managing flood and erosion risk.

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<sup>16</sup> [Canterbury City Council \(1998\) Reculver to Minnis Bay Scheme Strategy.](#)

Between Cliffs End and Sandwich Bay Estate the plan is to promote, where possible, a natural functioning coastline. This is mainly driven by the lack of development and the presence of the Pegwell Bay Country Park; a national nature reserve covering some 628 hectares, which contains inter-tidal mudflats, saltmarsh, shingle, sand dunes, ancient dune pasture, chalk cliffs, wave cut platform and coastal scrubland habitats. Due to the sheltering effect of the bay and the natural supply of sediment from updrift, offshore and fluvial sources the shoreline between Cliffs End and Sandwich Bay Estate (north) is not, with the exception of the old hoverport site, heavily managed. It is the intention of the plan to maintain this approach.

Between Cliffs End and north of the River Stour the plan is to maintain and /or construct new defences where there is a contamination risk, an economic justification (i.e. Pegwell Road), or where international habitats are at risk.

Between south of the River Stour and Sandwich Bay Estate (north) the largely undeveloped frontage is fronted by accreting sand dunes of international conservation importance and backed by championship golf links (Prince's Golf Links and Royal St George's Golf Links). There are no formal defences along this section of the coast as the dunes, attributed to the 'Little Ice Age' (1300-1850 A.D.), provide a suitable standard of flood protection. It is part of the plan to protect the town of Sandwich and limit large scale flood inundation, which concurs with the objectives of the 'River Stour Catchment Flood Management Plan' and the Sandwich Bay Strategy Study. As such, monitoring of the dunes is recommended, to ensure a suitable standard of flood protection is maintained. This approach is in accordance with the environmental and recreational value of the area.

Between Sandwich Bay Estate (north) and Sandown Castle (remains of) the mixed shingle and sand beach forms the first line of defence, supported by secondary defences. This frontage is linked to the wider flood risk area and considering the number of assets at risk, it is important that the risk remains managed. Therefore the plan is to maintain the line of the defence. Holding the Line along this section of the coast could result in narrowing of the fronting beach, potentially impacting upon the recreational and landscape quality of the area.

Between Sandown Castle (remains of) and Oldstairs Bay the plan is to maintain existing defences, continuing to protect the backing assets and prevent inundation of the low lying hinterland. Over time the mixed (shingle and sand) beach fronting the defences will narrow and steepen. This will increase the exposure of the defences to wave attack and interfere with coastal processes. It is also anticipated that the movement of sediment alongshore will be further impeded. However, considering the importance and value of the assets within the flood risk area, the only practical solution is to maintain the current shoreline alignment. Significant visual changes to the frontage, with higher, more robust defences required in the longer term and narrower disappearing beaches, are to be expected, impacting on the character of the frontage.

The approaches to management outlined above have been combined to develop the plan for the East Kent coast, seeking to minimise the overall flooding risk, whilst providing technical (reduced engineering) and environmental enhancements where feasible. This approach provides a coherent approach to managing the flood and erosion risks between Cliffs End and Oldstairs Bay.

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#### **4.1.5 The White Cliffs: Oldstairs Bay to South Foreland**

Chalk cliffs become coincident with the current shoreline at Oldstairs Bay and continue down to South Foreland. The chalk cliffs are internationally important for their geological, environmental and landscape interest and the wave cut chalk shore platform at the base is of regional importance for its marine wildlife, geology and maritime heritage. The frontage is predominantly undeveloped, with the exception of the former Ministry of Defence Rifle Range, which lies at the base of the cliffs close to Oldstairs Bay and the cliff top village of St Margaret's. In places defences have resulted in the cessation of cliff toe erosion. Elsewhere the chalk cliffs are free to erode, albeit at a slow rate and supply a limited amount of beach forming material to local and downdrift frontages.

It is proposed that this source will be maintained over the next 100 years, sustaining the nature conservation and landscape value of frontage. This input will provide some feed to *in situ* and local beaches, although the quantities involved will not be sufficient to offset the effects of rising sea levels, which will result in narrowing beaches.

#### **4.2 Predicted Implications of the Preferred Plan**

Direct comparison is made below between the proposed policies and a No Active Intervention approach; this being the position if no money was spent on coastal defence i.e. if nothing was done. This approach defines the benefits of implementing the proposed plan, as it highlights what would be lost under No Active Intervention, against what would be gained if the proposed preferred policy was implemented. Where No Active Intervention is the preferred policy then obviously this methodology is not required.

##### **4.2.1 Implications for property and land use**

For much of the SMP coastline the recommended plan is to maintain existing defences where it is economically viable, to do so, in the long term. This is to minimise loss of property and assets along this extensively developed coastline. However, for some significant sections of the coast, a change in management policy, or ongoing shoreline retreat, has been identified in the longer term where a long term Hold the Line policy will not be economically viable, technically sustainable, or environmentally acceptable. In these locations policies of No Active Intervention or Managed Realignment need to be considered. The SMP has identified areas where a more naturally functioning coastline would be to the benefit of the natural environment and to coastal processes. However, there would be potential losses to assets should these policies be implemented. The key areas of management change are at Grain, the east coast of Sheppey, Faversham Creek to Seasalter and Reculver Towers to Minnis Bay, where the long term technical and environmental sustainability of a Hold the Line policy is questionable and where biodiversity opportunities can be taken to meet national targets.

#### **Properties**

Appendix H details the maximum number of properties (residential and commercial) lost due to erosion by year 2025, 2055 and 2105 under the proposed plan and compares this to the No Active Intervention baseline. A summary of number of losses is shown in Table 4.1. These figures only relate to losses through coastal erosion. In addition, there are significant numbers of assets that could

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potentially be at risk from inundation under No Active Intervention policies on the flood risk frontages. Appendix H also highlights the number of properties at risk (indicative flood map) from flooding under the preferred plan and under the baseline 'No Active Intervention' scenario.

Table 4.1 Summary of number of properties (residential and commercial) lost under the No Active Intervention baseline and proposed plan.

Policy Unit	No Active Intervention Losses		Preferred Plan Losses
	Total number of properties lost to erosion	Total number of properties lost to flooding	Total number of properties lost
4a01	89	167	10
4a02		7,803	
4a03	145		
4a04	21		21
4a05	374	162	
4a06		26	20
4a07 A		453	
4a07 B			164
4a08	151		
4a09		3,660	
4a10	57	107	
4a11	235	1,206	
4a12	625		
4a13	10		10
4a14		171	
4a16	4	83	
4b19	2	10	
4b21		12,143	
4b22		12,143	
4b23	2	12,165	
4b24	18		

Under the preferred plan the great majority of these assets will remain protected although Managed Realignment options at a number of locations will result in some losses, if the maximum extent is implemented.

### **Tourism**

Tourism is an important economic sector and the key centres are Warden, Leysdown-on-Sea, Whitstable, Herne Bay, Margate, Broadstairs, Ramsgate and Deal. Additionally, caravan and holiday parks are spread out along the coast, often along the heavily developed coastal edge. Along the developed frontages built assets will continue to be protected for the next 100 years, including important infrastructure such as promenades.

The realignment at Allhallows-on-Sea to Grain could involve the loss of footpaths but these can be reinstated at a suitable location. The realignment between Warden Point and Leysdown-on-Sea could involve the loss of Loves Holiday Camp, Little Groves Caravan and Chalet Park, footpaths along the clifftop and shoreline and potentially some amenities in Warden. The realignment between Leysdown-on-Sea and Shell Ness could result in a loss of the fronting sand beach, the car park near Muswell Manor and coastal footpaths. The realignment between Faversham Creek and Seasalter could involve the loss of the coastal road, the coastal footpath, the public house and the seafront properties. The realignment between Reculver Towers and Minnis Bay will involve the loss of footpaths but these can be reinstated at a suitable location. While the majority of policies seek to protect tourism assets, it is important to recognise that many of these 'hold' policies will have a detrimental impact on tourism through the loss of beaches on the main urban frontages.

### **Agriculture**

Agriculture also represents an important part of the local economy and along the coast there are various grades of agricultural land. Along undeveloped parts of the SMP coast, cliff top agricultural land is at risk from ongoing erosion of undefended cliffs. These areas will continue to experience losses in the future although nowhere are these anticipated to be significant. Some areas of agricultural land will be exposed to coastal flooding and erosion under Managed Realignment policies. The proposed maximum realignments could involve the following losses:

Allhallows-on-Sea to Grain	Around 30 hectares of Grade 4 and 5 land;
Leysdown-on-Sea to Shell Ness	Around 30 hectares of Grade 4 and 5 land;
Faversham Creek to Seasalter	Around 80 hectares of Grade 3 and 4 land; and,
Reculver Towers to Minnis Bay	Around 20 hectares of Grade 3 land.

### **Infrastructure**

Major infrastructure in this area includes the Port of Sheerness, Whitstable Harbour, Margate Harbour and the port of Ramsgate; all of which will be protected under the recommended policies.

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#### **4.2.2 Implications for nature conservation**

Maritime cliffs and slopes are also the subject of Local and National BAPs, and again many of the cliff sections in this area are also covered by specific nature conservation designations. The policy to allow continued erosion of the chalk cliffs between Minnis Bay and Westgate-on-Sea, Cliftonville, White Ness to Ramsgate, West Cliff, Oldstairs Bay to St Margaret's (north) and St Margaret's (south) to South Foreland is likely to support the achievement of BAP targets, as does the recommended ongoing erosion of sand/clay cliffs at Grain, Minster Slopes, Reculver Country Park and Cliffs End. The plan ensures that the environmental and landscape quality of the cliffs is improved during the course of the SMP. These policies will all invariably involve some loss of cliff top habitats, but this is reflective of a dynamic coastal environment.

Most of the conservation designations covering these cliffs and slopes also recognise and protect the earth heritage (geological/geomorphological) importance of the features. On these cliffs it is desirable to maintain active erosion to create clean exposures of the interest features. As outlined above, the recommended plan will involve the continued erosion of those cliff sections currently free to erode and will promote increased erosion of the currently defended cliffs in Thanet. This will be achieved by not upgrading the existing defence structure and allowing a reactivation of toe erosion.

There are also Local and National BAPs associated with littoral and sub-littoral chalk which supports important marine communities. The preferred policies of allowing cliff retreat on the chalk cliff frontages outlined above should provide for continued exposure of chalk platforms as the cliffs retreat in response to sea level rise. The SMP cannot, however, combat the potential submergence of the existing shore platforms as a result of sea level rise in the long-term.

The low lying areas along this frontage are also notable for their freshwater habitats, which are also covered by Local and National BAPs and much of which are designated as of international or national importance. The policies to continue defending between Deal and Oldstairs Bay will result in a continuance of large freshwater areas in the backing levels. However, Managed Realignment at Allhallows-on-Sea, Leysdown-on-Sea to Shell Ness, Faversham Creek to Seasalter and Reculver Towers to Minnis Bay would involve the loss of SPA and Ramsar designated freshwater habitats. This represents a significant loss that will potentially require mitigation through the creation of equivalent habitat elsewhere. However, the creation of inter-tidal habitats and promotion of a 'naturally functioning' coast under this policy provide important nature conservation benefits by improving the existing habitats and creating new, dynamic habitats.

Shingle beaches are present in this SMP area and whilst only parts of the frontage have conservation and geological designations associated with the shingle, the habitat is covered throughout by Local and National Biodiversity Action Plans (BAPs), targets for which include "no further net loss". The preferred policy to hold the line along a number of these frontages, by maintaining / upgrading defences, will however, result in the long term reduction and possible loss of shingle beaches as sea levels rise.

Another important habitat for Local and National BAPs are coastal dunes such as the dunes located between south of the River Stour to Sandwich Bay Estate (north). The dunes are designated as a Site of Special Scientific Interest (SSSI) and a Special Area of Conservation (SAC). The preferred policy along this frontage allows the dunes to function freely for the foreseeable future.

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### **4.2.3 Implications for landscape**

Many sections of this coastline are recognised and protected for their landscape quality through designation under the Kent Downs, Areas of Outstanding Natural Beauty (AONB) and Heritage Coasts. There are also many areas designated as being of 'local' or 'special' landscape value.

The recommended long-term plan for the SMP is to sustain the large urban areas through proactive management of the existing beaches, recognising that new linear defences will be needed in the long term. However, opportunities for forming a less managed / free functioning dynamic coastline in limited areas have been taken to create a more natural coastal landscape, reducing the extent of man-made structures on the beach. This is deemed to provide a more sustainable and aesthetically appealing coastal landscape than a policy of defending the whole coastline, which would involve construction of new, more substantial defences.

In general, the plan will maintain the landscape quality of the frontages designated as AONB or Heritage Coast. However, it is recognised that the long term loss of beaches on defended sections will detract from the quality of the coastal landscape at those locations.

### **4.2.4 Implications for the historic environment**

The long history of settlement along this stretch of coast has resulted in a wide range of heritage sites. A large number of the heritage sites are associated with former military defences and the associated infrastructure such as firing ranges, towers and castles, most of which are located immediately adjacent to the shoreline. Those assets behind sections of coast where defences will be maintained will be defended in the long term. Significant protected features include Reculver Towers, Sandown Castle (remains of), Deal Castle and Walmer Castle. These sites are Scheduled Monuments, but there are also many unscheduled sites of importance that are protected, along with areas of archaeological potential. Many listed buildings and Conservation Areas within the urban areas will also be protected under the recommended plan.

However, the policies which promote long term erosion (No Active Intervention) or Managed Realignment will invariably impact upon the recorded and unknown historic environment, as the coverage of the coastal heritage resource is so extensive. For example erosion of the chalk cliffs will result in the loss of listed buildings. These losses under the recommended long term plan for this SMP must be recognised, and consideration should be given to an appropriate programme of survey, recording and investigation to record these important sites, and those potential features not yet identified.

### **4.2.5 Implications for amenity and recreational use**

The coast is an important area for tourist and recreation use, with key interests concentrated along the coastal strip. Under the draft preferred long-term plan, the key centres of tourism and recreation of Minster, Herne Bay, Margate, Broadstairs, Ramsgate, Sandwich, Deal and Walmer will continue to be protected to maintain assets, but this will be at the expense of some beach loss along these frontages. As sea level rises, deeper water with higher energy wave conditions are created, submerging the lower part of the beach, which will make the retention of an amenity beach difficult. The promenades

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along these sections will also become more exposed to overtopping and thus will become less accessible.

Where the coast is allowed to retreat there will be potential access issues with existing access routes often being lost, e.g. Minster Slopes, Leysdown-on-Sea to Shell Ness, Faversham Creek to Seasalter and Reculver Country Park. However in some places it will be a necessity for these to be re-established, due to health and safety obligations.

This SMP coastline is extensively covered by coastal footpaths. Sections of these footpaths will be lost at varying times on the sections of coast where erosion or realignment is allowed. There is potential however, subject to planning consents, for these to be realigned as the shoreline retreats.

### **4.3 Managing the Change**

The long term management of the shoreline is important. Continuing with current practices of defence is unsustainable for some frontages, and policies must change to reflect the economic justification and sustainability of each particular frontage unit.

The consequences of these changing policies will need to be managed at various levels of planning and government. The issues that have been identified by this plan are not limited to this shoreline and will be common to many other areas around the UK. At this time, the UK Governments' 'Making Space for Water' is considering a number of these issues<sup>17</sup>.

#### **4.3.1 Recommendations**

Achieving this plan may require changes in planning and policy at local, regional and national government levels. Regional planning needs to consider the messages being delivered by this Plan, and ensure that future proposals for regional development and investment are made accordingly. Such planning needs to be looking beyond the current 20 year horizon.

To comply with Government planning guidance (PPG 20 and PPS 25), Local Development Planning should consider the risks identified in this plan and avoid inappropriate development in areas identified as at risk of flooding and erosion including where this arises from SMP policies. Local Development Planning also needs to consider that relocation of displaced people and property may require land to be made available within the same settlements, in order to maintain the same level of community and may need to become increasingly flexible to enable this. Locations for new developments may need to be identified.

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<sup>17</sup> Defra, 2005a. *Making Space for Water: Taking forward a new Government strategy for flood & coastal erosion risk management – Introduction*. Available online at: <http://www.defra.gov.uk/environ/fcd/policy/strategy.htm> and <http://www.defra.gov.uk/environ/fcd/policy/strategy/innovfnd.htm>

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Environmental bodies will have to make some difficult decisions in developing a long-term vision for a dynamic coastal environment. However, in the short-term there is the need to ensure that conservation interests within designated sites, or in the wider environment, are appropriately addressed by coastal and estuarine management. The findings of the Appropriate Assessment will be fundamental to the implementation of the SMP. In order for long-term solutions to be sought, public and local communities should be involved. Natural England published a Maritime Strategy entitled 'Our Coasts and Seas: making space for people, industry and wildlife' (available from the Natural England website<sup>18</sup>) to help deliver this.

Where policies may result in an increased risk to property and assets, whether due to coastal erosion or flooding, the effect on property owners should be managed through exit strategies. These will need to address the removal of buildings and other facilities well in advance of any loss. The plans for relocation of people also need to be established as does the basis on which mitigation should be funded. However, mitigation measures do not fall solely upon national and local government, and should not be read as such within this plan. Business and commercial enterprises will need to establish the measures that they need to take to address the changes that will take place in the future. This includes providers of services and utilities, which will need to make provision for this long-term change when upgrading or replacing existing facilities in the shorter term. They should also consider how they will relocate facilities that will become lost to erosion or flooding, and the need to provide for relocated communities. Other parties needing to consider mitigation measures will be the local highways authorities and bodies responsible for local amenities. Private land and property owners will need to consider how they will deal with changes to the shoreline that affects their property. Currently maritime authorities (Local Authorities and the Environment Agency) have 'permissive powers' to undertake coastal flood and erosion works, there is no obligation for the operating authorities or national government to assure protection against flooding or erosion. Similarly, there is no reason, at present, to assume that this will change in the future or that individual losses would be compensated from central funds.

However, the preferred Plan provides a long lead-in time for the changes that will take place at some point in the future, as advised by the Action Plan. To manage these changes effectively and appropriately, the approach put forward in the SMP needs to be considered now, not in several decades time. The Action Plan will consider these changes and is an integral part of the final Shoreline Management Plan.

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<sup>18</sup> [www.naturalengland.org.uk](http://www.naturalengland.org.uk)

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## 5 Policy statements

### 5.1 Introduction

This section contains a series of statements presenting the preferred policy and implications for individual locations. These provide local detail to support the SMP-wide preferred plan, presented in Section 4, and consider locally-specific issues and objectives, which are presented in the Annex to this document. Consequently, these statements must be read in conjunction with those and in the context of the wider-scale issues and policy implications as reported therein.

### 5.2 Content

Each Policy Statement contains the following:

**Policy Unit/Location reference** This provides the general name used for reference to each policy unit and the number identifier which is sequential along the shoreline from east to west or clockwise direction (numbering is based upon the sub-cell number [4a for the north coast and 4b for the east coast] followed by a unit number).

**Proposed preferred plan** This is a statement summarising the proposed preferred plan and describing the rationale behind it. These focus upon the long-term plan but also note any different short-term requirements.

**Preferred policies to implement the plan** This describes the policies and activities that will be undertaken in the short, medium, and long-term to implement the proposed preferred plan. In this respect, “Present day policy” is broadly representative of the next 20 years, “Medium term policy” 20 to 50 years, and “Long term policy” 50 to 100 years. These timescales should not be taken as definitive, but should instead be considered as phases in the management of a location.

**Predicted implications of the recommended plan for this location** This Table summarises the consequences *at this location only* resulting from the proposed preferred policies. These are categorised as “Property and Land Use”, “Nature Conservation”, “Landscape”, “Historic Environment” and “Amenity and Recreational Use”, and correspond with information being entered into the national database of SMPs. The implications have been assessed for the situation in terms of each epoch: short (present to 2025), medium (2025 to 2055) and long term (2055 to 2105), again to provide a nationally consistent picture.

#### 5.2.1 Policy Units

Based upon the proposed preferred scenario, Policy Units are identified representing frontages for which a discrete shoreline management policy applies. These are divided to reflect changes in policy over time, and significant differences in policy implications. Figure 1.1 shows the full plan area, and identifies the subdivision into Policy Units.

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Table 5.1 identifies the Policy Units for which statements are provided, together with a brief summary of the characteristics that define the Unit, and the page number on which the full statement can be found.

Table 5.1 Policy unit statement summary.

Unit Number	Frontage	Preferred policies			Characterisation	Page No.
		Short term policy	Medium term policy	Long term policy		
4a 01	Allhallows-on-Sea to Grain (south)	Hold the Line	Managed Realignment	Managed Realignment	The hinterland comprises predominantly low lying agricultural and marsh land, most of which is undeveloped and as such designated for its nature conservation and landscape value. Extensive inter-tidal mudflats, of environmental interest, front much of the coastline.	56
4a 02	Garrison Point to Minster	Hold the Line	Hold the Line	Hold the Line	An urban area which is dominated by the Port of Sheerness. The majority of this frontage is enclosed by the outer harbour breakwaters. Throughout the frontage developments extend to the shoreline edge.	59
4a 03	Minster Town	Hold the Line	Hold the Line	Hold the Line	A dense urban area, developed to the edge of the low coastal slope, fronted by a shingle beach of amenity and tourism importance.	61
4a 04	Minster Slopes to Warden Bay	No Active Intervention	No Active Intervention	No Active Intervention	An area of unprotected cliffs that are of national environmental and geological importance due to their landscape value and relatively sparse cliff top development.	63
4a 05	Warden Bay to Leysdown-on-Sea	Hold the Line and Managed Realignment	Hold the Line and Managed Realignment	Hold the Line and Managed Realignment	The cliff top village of Warden gives way to a relatively undeveloped, low-lying area known as 'The Bay' and the low-lying village of Leysdown-on-Sea. This section of the coast is of amenity and tourism importance.	65

Unit Number	Frontage	Preferred policies			Characterisation	Page No.
		Short term policy	Medium term policy	Long term policy		
4a 06	Leysdown-on-Sea to Shell Ness	Managed Realignment	Managed Realignment	Managed Realignment	The frontage currently comprises a managed sand (and shell) beach, which is backed by low-lying, largely undeveloped coastal grazing marsh that is of high nature conservation importance.	69
4a 07A	Faversham Creek to the Sportsman Pub	Hold the Line	Managed Realignment	Managed Realignment	A low-lying frontage of agricultural importance that is largely undeveloped.	72
4a 07B	The Sportsman Pub to Seasalter	Hold the Line	Hold the Line	Managed Realignment	A low-lying frontage of high nature conservation importance that is, with the exception of properties seawards of the current defences, largely undeveloped. The Faversham to Margate railway line runs inland of the shoreline and is within the large flood risk area.	75
4a 08	Seasalter to Whitstable Town (Golf Course)	Hold the Line	Hold the Line	Hold the Line	A dense urban area extending to edge of coast. The seafront is of amenity and tourism importance. The Faversham to Margate railway line runs parallel to the shoreline and within a large flood risk area.	78
4a 09	Whitstable Town (Golf Course) to Whitstable Harbour	Hold the Line	Hold the Line	Hold the Line	A dense urban area, which is dominated by the harbour. The majority of this frontage is enclosed by the outer harbour breakwaters. Throughout the frontage developments extend to the shoreline edge. The town is of heritage, commercial, amenity, industrial and tourism importance.	80
4a 10	Whitstable Harbour (east) to Swalecliffe	Hold the Line	Hold the Line	Hold the Line	A dense urban area that extends to the edge of heavily defended coastal slopes. The fronting shingle beach has amenity and tourism importance as such it is managed.	82

Unit Number	Frontage	Preferred policies			Characterisation	Page No.
		Short term policy	Medium term policy	Long term policy		
4a 11	Swalecliffe to Herne Bay Breakwater	Hold the Line	Hold the Line	Hold the Line	A dense urban area developed to the water's edge and fronted by a shingle beach of amenity and tourism importance. The frontage includes areas of nature conservation importance.	84
4a 12	Herne Bay Breakwater to Bishopstone Manor	Hold the Line	Hold the Line	Hold the Line	A dense urban area, developed to the edge of the low coastal slope, which is of international nature conservation importance and fronted by a shingle beach of amenity and tourism importance.	86
4a 13	Reculver Country Park	No Active Intervention	No Active Intervention	No Active Intervention	An area of unprotected cliffs of international environmental and geological importance, with high landscape value and little cliff top development.	88
4a 14	Reculver Towers to Minnis Bay	Hold the Line	Managed Realignment and Hold the Line	Managed Realignment and Hold the Line	An internationally important site for heritage and the environment, along with important road and rail links and agricultural and amenity value. The frontage and hinterland are largely undeveloped and forms part of the relict Wantsum channel flood risk area.	90
4a 15	Minnis Bay to Westgate-on-Sea	Hold the Line and No Active Intervention	Hold the Line and No Active Intervention	Hold the Line and No Active Intervention	A frontage characterised by steep, chalk cliffs of high conservation and landscape importance characterise this section of the coast along with the towns of Birchington and Westgate, which are set back from the cliff top.	94
4a 16	Margate	Hold the Line	Hold the Line	Hold the Line	A dense urban area which is developed to the water's edge and dominated by the harbour arm. The town is of amenity, tourism, heritage, landscape and environmental importance.	97

Unit Number	Frontage	Preferred policies			Characterisation	Page No.
		Short term policy	Medium term policy	Long term policy		
4a 17	Cliftonville	Hold the Line and No Active Intervention	Hold the Line and No Active Intervention	Hold the Line and No Active Intervention	A frontage characterised by steep, chalk cliffs which are of high conservation and landscape importance. The town of Cliftonville is set back from the cliff top and is of amenity, tourism, landscape and environmental importance.	99
4b 18	White Ness to Ramsgate	Hold the Line and No Active Intervention	Hold the Line and No Active Intervention	Hold the Line and No Active Intervention	A frontage characterised by steep, chalk cliffs which are of high conservation and landscape importance. The towns of Kingsgate and Broadstairs are set back from the cliff top and of amenity, tourism, landscape and environmental importance.	102
4b 19	Ramsgate Harbour	Hold the Line	Hold the Line	Hold the Line	A dense urban area which is developed to and beyond the water's edge and dominated by the harbour. The town is of amenity, tourism, heritage, landscape and environmental importance.	105
4b 20	Ramsgate Harbour (west) to north of the River Stour	Hold the Line and No Active Intervention	Hold the Line and No Active Intervention	Hold the Line and No Active Intervention	A combined landscape of chalk cliffs, sandstone cliffs and low-lying land, which is of high landscape and environmental interest. The A299 road runs through the cliffs, whilst the villages of Cliffs End and Pegwell are set slightly back from the cliff top.	107
4b 21	South of the River Stour to Sandwich Bay Estate (north)	No Active Intervention	No Active Intervention	No Active Intervention	A largely undeveloped stretch of coast fronted by accreting sand dunes of international conservation importance and backed by internationally important habitats, nationally important golf links and the historic town of Sandwich. The hinterland is low-lying and forms part of the relict Wantsum channel flood risk area.	110



Unit Number	Frontage	Preferred policies			Characterisation	Page No.
		Short term policy	Medium term policy	Long term policy		
4b22	Sandwich Bay Estate (north) to Sandown Castle (remains of)	Hold the Line	Hold the Line	Hold the Line	A largely undeveloped stretch of coast that is fronted by a mixed (sand and shingle) beach and backed by low-lying land. Sandwich Bay Estate, a linear residential development, is set back from the current coastline. Flood inundation at this location has the potential to affect an extensive area by connecting the east Kent coast with the north Kent coast.	113
4b23	Sandown Castle (remains of) to Oldstairs Bay	Hold the Line	Hold the Line	Hold the Line	A largely low-lying frontage with extensive residential and commercial developments, together with important road and rail links. The frontage is backed by the Lydden Valley, which is of environmental importance.	116
4b24	Oldstairs Bay to St Margaret's Bay	No Active Intervention	No Active Intervention	No Active Intervention	A largely undefended section of chalk cliffs of high geological, landscape and environmental interest.	119
4b25	St Margaret's Bay	Hold the Line	Hold the Line	Hold the Line	The clifftop village of St Margaret's and built developments on the undercliff platform characterise this section of the coast. Amenities attributed to the village are of local importance.	121
4b26	South Foreland	No Active Intervention	No Active Intervention	No Active Intervention	An undefended section of chalk cliffs of high geological, landscape and environmental interest. The cliff top is largely undeveloped, with the exception of the coastal footpath and the South Foreland lighthouse.	123

## **5.2.2 Additional Information**

### Heritage Features

Where a proposed policy results in the loss of heritage features (known and unknown) it will be important to consider an appropriate programme of survey, recording and investigation to record these important sites, and those potential features not yet identified.

### Footpaths

Where a proposed policy results in the loss of footpaths there is potential, subject to planning consents, for footpaths to be re-routed as the shoreline retreats and / or when defences are realigned.

### Land Use within Defended Areas/ Affected by Policies

Flood and erosion defences reduce the risk to the assets they protect but they do not remove the risk completely. To be suitably adaptable to future change and future risks all new development of residences or infrastructure, given planning permission, in flood and erosion risk areas should be appropriately adaptable, resilient and resistant. Decisions on the land use within flood and erosion risk areas should fully consider the risk and be adaptable to change.

Where the Shoreline Management Plan recommends Managed Realignment of existing defences, the effect on parties currently protected by the defences will be part of the 'management' of that change.

### Indicative and Potential Maximum Managed Realignment Extents

Within this SMP, indicative realignment extents have been identified where there is limited information available, most commonly on the Isle of Grain and the Isle of Sheppey (see applicable Policy Unit maps: 4a01, 4a05 and 4a06). Elsewhere, potential maximum long-term managed Realignment options have been identified. These extents are more robust than the indicative ones due to the information available i.e. strategy studies, to support and inform the decision making process. Nonetheless a similar methodology was applied when choosing both the indicative and maximum extents. Consideration was given to the following:

- The provision of a more sustainable coastal alignment;
- The avoidance of loss of built assets, infrastructure and internationally designated habitats where practicable;
- The provision of more economic, shorter and sheltered defences, incorporating high land where possible;
- The creation of inter-tidal habitat; and,
- The potential effects on coastal dynamics.

It should be noted that the indicative extents and the actual realignment extent along any frontage where Managed Realignment has been proposed will be the subject of further studies before any realignment scheme is undertaken. These studies will be required to:

- Identify the best alignment and extent of defences on technical, social, economic and environmental grounds, that best manages flood risk;
- Define the exact standard of protection of any realigned defences along these frontages;
- Investigate implementation methods;
- Assess hydrodynamic impacts of Managed Realignment;
- Investigate future morphological evolution; and,
- Investigate any mitigation measures required for loss of designated habitats.

There should be detailed consideration of future land use, development and infrastructure improvements in all areas of flood and erosion risk, particularly where the policy is not Hold the Line, to enable the shoreline, and the assets affected by it, to adapt in a sustainable, controlled and balanced way.

### Economic Viability

Defra Guidance (2006) states that preferred policy selection should not be purely economic driven, but should be based on an assessment of all the available information, taking account of technical, environmental, social and economic factors. However, local factors must also be considered when deciding how these policies are most appropriate to particular areas and circumstances, for example, the social and economic value of many coastal landscapes for tourism and recreation is often very high. Despite this, it is essential that the policies in the SMP are realistic, using existing legislation and likely future funding. The issue of affordability is however, difficult to address without prior knowledge of future funding rates, therefore it should be acknowledged that a preferred policy does not guarantee funding for defence maintenance and / or capital works in the future.

Furthermore, lack of economic information has been an issue. Benefits associated with protection of infrastructure for example, as well as indirect benefits, such as tourism and recreation, have not been assessed in the economics as part of this SMP. Consequently, for a number of policy units, the economics assessment suggests that some preferred MR or HTL policies are only 'marginally viable' or not 'economically preferable' compared to calculated NAI damages, which could be a risk to implementation. In these cases, it has been noted that a fuller economic evaluation of these additional benefits would be likely to provide a more robust economic justification for the policies over the next 100 years.

Consequently, where any doubt exists as to the economic viability of policies recommended in this SMP (eg HTL for the cliffs of Thanet) this has been acknowledged for each policy unit in the economics assessment, highlighted in each associated policy unit statement and more detailed economic evaluations recommended in the Action Plan.

<b>Location reference:</b>	<b>Allhallows-on-Sea to Grain</b>
<b>Policy Unit reference:</b>	<b>4a01</b>

### SUMMARY OF THE PLAN AND JUSTIFICATION

#### Plan:

*Allhallows-on-Sea to Grain marks the western extremity of the SMP frontage and marks the interface between the open coast and the Medway Estuary (Policy Unit E4 01: Grain Tower to Colemouth Creek – Medway Estuary and Swale SMP. The preferred policies for the estuary unit are Hold the Line in the short, medium and long terms).*

*In the short term the plan is to continue protecting the low lying assets, which include properties, roads, agricultural land and coastal grazing marsh. However, in the medium and long term the plan is to realign the defences, to realise potential environmental, engineering and coastal process benefits. Under rising sea levels it is anticipated that it will become increasingly difficult to defend the shoreline and maintain a beach on this frontage, due to coastal squeeze and a general lack of natural sediment inputs. This would result in a need for very substantial hard defences, if the current alignment were to be held in the long-term. Managed realignment would avoid the need for such defences, possibly creating cost savings and environmental enhancement. No specific realignment position has been defined under the SMP, only an indicative extent. There is potential for loss of buried unknown heritage with managed realignment in the latter two epochs. This approach would involve the managed loss of assets; however it is intended that the villages of Allhallows and Grain, and the electricity / railway line would be protected.*

*The marshland is a designated freshwater habitat and its loss needs to be compensated for. Delaying realignment until the 2nd epoch will give time for compensatory habitat to be established and allow for consistency with the TE2100 strategy. Although the hinterland varies, the coastal processes are consistent along the unit and treating this frontage as a single unit is the most appropriate way forward.*

#### Preferred policies to implement Plan:

**From present day:** The present day policy for Allhallows-on-Sea to Grain is to **hold the line** by maintaining existing defence structures and management practises. This will ensure that current flood protection measures will remain in place.

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**Medium-term:** In the medium term, if the socio-economic, environmental and technical benefits are confirmed, then it will be appropriate to implement a change of policy to **managed realignment**, at a set-back position and allowing the current shoreline position to migrate landwards. A policy of managed realignment will allow some inundation and erosion (of the slopes at Grain) and a degree of natural coastal processes seawards of the realigned defence as well as reduce

**Location reference:** Allhallows-on-Sea to Grain

**Policy Unit reference:** 4a01

the probability of uncontrolled large scale flooding.

No specific realignment position has been identified for the SMP. However, any set back could involve the loss of built assets, and could potentially include properties, roads, agricultural land and freshwater habitat. Realignment would create a coast that will not require ever increasing expenditure to maintain in the coming centuries, together with the creation of important brackish and saline habitats, as well as coastal process benefits i.e. reducing the impact of coastal squeeze.

The loss of the designated freshwater habitats would normally require mitigation measures to be implemented, and this aspect will require more detailed appraisal if it is still required in the long term.

**Long-term:**

Providing the socio-economic, environmental and technical benefits have been confirmed then the long-term policy for Allhallows-on-Sea to Grain is a continuation of **managed realignment**. This policy will continue to deliver technical and environmental benefits and eliminate / reduce the risk of uncontrolled large scale flooding.

Depending on the realignment extent the shoreline has the potential to reach a position more in keeping with its natural form. As such, providing sediment supply is sufficient to keep pace with sea level rise, a fronting beach and in the vicinity of Yantlet Creek, mudflats and saltmarsh, could be maintained.

*Note: The amount of realignment and subsequent flood (spatial) extent implemented along this frontage, has the potential to (slightly) increase tidal levels in the upstream sections of the Thames Estuary.*

<b>Location reference:</b>		<b>Allhallows-on-Sea to Grain (south)</b>				
<b>Policy Unit reference:</b>		<b>4a01</b>				
<b>IMPLICATIONS OF THE PLAN FOR THIS LOCATION</b>						
<b>Time Period</b>	<b>Management Activities</b>	<b>Property, Built Assets and Land Use</b>	<b>Landscape</b>	<b>Nature Conservation</b>	<b>Historic Environment</b>	<b>Amenity and Recreational Use</b>
<b>2025</b>	No change from the current management practises, construction of a realigned flood defence structure could take place during this epoch.	No built assets will be at risk during this epoch.	The current landscape will be maintained.	Current habitats will be maintained. Constructing a realigned defence structure will disturb the existing habitats.	Existing heritage assets will be maintained. Defence construction may affect heritage assets.	Current amenity usage maintained.
<b>2025 – 2055</b>	Construction / maintenance of a realigned flood defence structure. Current shoreline defences will be allowed to fail.	Some built assets and land anticipated to be at risk, the extent depends upon the position of the realigned defence.	The current landscape will change, giving way to an increasingly natural landscape.	Some freshwater areas give way to saline habitats.	Some unknown heritage assets could be at risk and will therefore need recording and / or relocating.	Improving the landscape and increasing the habitat variety could lead enhance the amenity use.
<b>2055 – 2105</b>	Maintain the realigned flood defence.	Some built assets and land anticipated to be at risk, the extent depends upon the position of the realigned defence.	An increasingly natural landscape will continue to develop.	Further freshwater areas give way to saline habitats.  Saline habitats will establish themselves.	Some unknown heritage assets could be at risk and will therefore need recording and / or relocating.	Improving the landscape and increasing the habitat variety could lead enhance the amenity use.

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The above provides the local details in respect of the SMP-wide Plan; therefore the above must be read in the context of the wider-scale issues, policy implications and funding, as presented in the preceding sections and Appendices to this Plan document.

**Location reference:** Garrison Point to Minster

**Policy Unit reference:** 4a02

### SUMMARY OF THE PLAN AND JUSTIFICATION

**Plan:**

*Garrison Point to Minster marks the western extremity of the Isle of Sheppey and the interface between the open coast and the Medway Estuary (Policy Unit E4 29: Rushenden to Sheerness – Medway Estuary and Swale SMP. The preferred policy for the estuary frontage is Hold the Line in all three epochs). 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. However, there is the potential for a loss of buried unknown heritage under this policy.*

**Preferred policies to implement Plan:**

**From present day:** The present day policy is to continue to **hold the line** by maintaining and improving the existing defences, to protect the significant assets contained within the town and port; including assets that are important to the regional economy. With rates of sediment feed and transportation along this frontage being low, very little change in coastal processes or impacts on evolution, are likely to occur within this epoch or indeed the confines of the Shoreline Management Plan.

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**Medium-term:** The medium term policy is to continue to **hold the line**. This will be achieved by maintaining and, at some point during this epoch, upgrading the defence structures. This will protect the significant built assets from sea level rise.

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**Long-term:** The significant built assets along this frontage and regionally important strategic links dictate that the long-term policy is to **hold the line**. To accomplish this and to keep pace with sea level rise, defences will need to be maintained and upgraded. However, in doing this it is unlikely that the character of this frontage is likely to change. The inter-tidal area will continue to narrow, in response to the plan form being held and sea level. Thus, retaining a protective cover, in front of the substantial defence structures, will become increasing difficult. The situation will be exacerbated by the lack of natural feed and sourcing suitable recharge material, which is likely to become problematic and expensive in the future. However, this recommendation is deemed technically and environmentally viable, for the duration of the Shoreline Management Plan.



<b>Location reference:</b>		<b>Garrison Point to Minster</b>				
<b>Policy Unit reference:</b>		<b>4a02</b>				
<b>IMPLICATIONS OF THE PLAN FOR THIS LOCATION</b>						
<b>Time Period</b>	<b>Management Activities</b>	<b>Property, Built Assets and Land Use</b>	<b>Landscape</b>	<b>Nature Conservation</b>	<b>Historic Environment</b>	<b>Amenity and Recreational Use</b>
<b>2025</b>	Continue with current practises	All properties, the port and the seafront assets are defended.	Current landscape value sustained	Limited conservation interest on this frontage.	Heritage assets maintained	Current amenity and recreational facilities maintained
<b>2025 – 2055</b>	Maintain existing hard defences, as beaches narrow and sea level rises.	All properties, the port and the seafront assets are defended.	Increased engineering has an adverse effect on the land and townscapes.	Inter-tidal area will reduce as sea level rises.	Any inter-tidal heritage assets may be damaged / lost but the terrestrial heritage assets will continue to be protected	Some shoreline recreational facilities will be lost due to a denuding beach and increased engineering
<b>2055 – 2105</b>	Maintain and upgrade hard defences, as sea level rises. Beaches management practises will need to increase to maintain a beach.	All properties, the port and the seafront assets are defended.	Increased engineering has an adverse effect on the land and townscapes.	Inter-tidal area will reduce as sea level rises.	Any inter-tidal heritage assets may be damaged / lost but the terrestrial heritage assets will continue to be protected	Unless artificially maintained, little / no recreational beach will remain.

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**Location reference:**        **Minster Town**

**Policy Unit reference:**    **4a03**

### SUMMARY OF THE PLAN AND JUSTIFICATION

**Plan:**

*Minster Town is an urban development located on clay cliffs and fronted by a popular tourist beach. The plan is to continue protecting the town and cliffs, which in turn will reduce landslide risk and the possible development of a flood corridor to adjacent low-lying land at Sheerness. The seafront is value to its economy (tourism), so protection of amenity assets is critical. However, in the long term and under a scenario of sea level rise the beach will narrow. Subsequently significant amounts of beach nourishment will be required if an amenity beach is to be maintained. This approach will ensure the protection of the commercial and residential area. However, there is the potential for a loss of buried unknown heritage under this policy.*

**Preferred policies to implement Plan:**

**From present day:** The present day policy is to **hold the line**, continuing to protect the town and the assets by maintaining and improving the defences. With rates of sediment feed and transportation along this frontage being low, very little change in coastal processes or impacts on evolution are likely to occur within this epoch. In maintaining the defences the shoreline will continue to be held seaward of its natural alignment and the groynes will continue to interrupt alongshore sediment transport.

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**Medium-term:** The medium term policy is to continue to **hold the line**. In response to sea level rise it is anticipated that the need for defence structures and beach management will increase at some point during this period.

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**Long-term:** The long term policy is to continue to **hold the line**. This will be achieved by maintaining and upgrading the present defence structures. Under a scenario of sea level rise and the plan form being held seawards of its natural alignment, defences will experience increased scour. Beaches along this section of the coast are anticipated to denude during this epoch and additional maintenance will be necessary to sustain an amenity driven frontage. If this becomes increasingly difficult, alternative (hard engineering) options may need to be sought and as such the character of the frontage would change. This recommendation is deemed sustainable over the SMP timescale although it may not be technically viable in the much longer term.

<b>Location reference:</b>		<b>Minster Town</b>				
<b>Policy Unit reference:</b>		<b>4a03</b>				
<b>IMPLICATIONS OF THE PLAN FOR THIS LOCATION</b>						
<b>Time Period</b>	<b>Management Activities</b>	<b>Property, Built Assets and Land Use</b>	<b>Landscape</b>	<b>Nature Conservation</b>	<b>Historic Environment</b>	<b>Amenity and Recreational Use</b>
<b>2025</b>	Continue with current practises.	All properties and the seafront assets are defended.	Current landscape value sustained	Limited conservation interest on this frontage.	Current heritage assets maintained.	Current amenity and recreational facilities maintained
<b>2025 – 2055</b>	Maintain existing hard defences, as beaches narrow and sea level rises.	All properties and the seafront assets are defended.	Increased engineering has an adverse effect on the land and townscapes.	Inter-tidal area will reduce as sea level rises.	Any inter-tidal heritage assets may be damaged / lost but the terrestrial heritage assets will continue to be protected	Some shoreline recreational facilities will be lost due to a denuding beach and increased engineering
<b>2055 – 2105</b>	Maintain and upgrade hard defences, as sea level rises. Beaches management practises will need to increase to maintain a beach.	All properties and the seafront assets are defended.	Increased engineering has an adverse effect on the land and townscapes.	Inter-tidal area will reduce as sea level rises.	Any inter-tidal heritage assets may be damaged / lost but the terrestrial heritage assets will continue to be protected	Unless artificially maintained, little / no recreational beach will remain.

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**Location reference:**        **Minster Slopes to Warden Bay**

**Policy Unit reference:**    **4a04**

### SUMMARY OF THE PLAN AND JUSTIFICATION

**Plan:**

*The eroding cliffs along the Minster Slopes to Warden Bay are of national conservation, geological and landscape importance. The long term recommendation is to allow continued erosion of the cliffs, which will maintain the geological exposures, environmental and landscape qualities of the frontage.*

*Development along this frontage is minimal, comprising a few residential properties, caravan parks, campsites and minor roads. Some of these assets will be at risk from erosion and landslide events within the next 100 years i.e. residential properties, caravan and camping sites. There is also a potential for loss of buried unknown heritage with erosion.*

**Preferred policies to implement Plan:**

**From present day:** The present day policy for Minster Slopes to Warden Point is to continue with the current management practises, allowing natural processes to take place, (cliff erosion), under a policy of **no active intervention**. Natural shoreline protection is provided by cliff fall debris and it is not necessary or visually desirable to defend this section of the coastline.

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**Medium-term:** The medium term policy for Minster Slopes to Warden Point is to continue allowing natural processes to take place (erosion of the cliffs and erosion of the shoreline) under a policy of **no active intervention**. With sea level rise and no defences protecting the toe it is anticipated that erosion rates will increase slightly during this epoch. Material released from the cliffs will provide some degree of cover to the foreshore, albeit temporarily.

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**Long-term:** The long-term policy sees a continuation of **no active intervention** for Minster Slopes to Warden Point. This permits erosion of the clay cliffs and shoreline retreat but maintains the coastal landscape, along with the environmental and geological assets. With sea level rise, the naturally functioning coastline will continue to provide sediment inputs to the foreshore, albeit at a slightly greater rate than those experienced historically, which will impact on some of the cliff top assets.

<b>Location reference:</b>	<b><i>Minster Slopes to Warden Bay</i></b>
<b>Policy Unit reference:</b>	<b><i>4a04</i></b>

**IMPLICATIONS OF THE PLAN FOR THIS LOCATION**

<b>Time Period</b>	<b>Management Activities</b>	<b>Property, Built Assets and Land Use</b>	<b>Landscape</b>	<b>Nature Conservation</b>	<b>Historic Environment</b>	<b>Amenity and Recreational Use</b>
<b>2025</b>	Cliff erosion will continue, providing nominal feed (fines) to the system	No built assets are at risk during this period.  Some agricultural land will be eroded.	Existing landscape maintained.	The continued erosion of the cliffs maintains the environmental and geological interests.	No significant heritage assets at risk. Some unknown heritage assets may be lost.	Current amenity and recreational facilities maintained.
<b>2025 – 2055</b>	Cliff erosion will continue, providing nominal feed (fines) to the system	A small number of built assets are at risk during this period (approximately 1 property).  Agricultural land will be eroded.	Cliff top land eroded but coastal landscape maintained.	The continued erosion of the cliffs maintains the environmental and geological interests.	No significant heritage assets at risk. Some unknown heritage assets may be lost.	The cliff top footpath may be at risk and if possible should be realigned. Other amenity and recreational assets will be maintained.
<b>2055 – 2105</b>	Cliff erosion will continue, providing nominal feed (fines) to the system	A larger number of built assets at risk during this epoch (approximately 20 properties).  Agricultural land will be eroded.	Cliff top land eroded but coastal landscape maintained.	The continued erosion of the cliffs maintains the environmental and geological interests.	No significant heritage assets at risk. Some unknown heritage assets may be lost.	The cliff top footpath may be at risk and if possible should be realigned. Other amenity and recreational assets will be maintained.

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*The above provides the local details in respect of the SMP-wide Plan; therefore the above must be read in the context of the wider-scale issues, policy implications and funding, as presented in the preceding sections and Appendices to this Plan document.*

<b>Location reference:</b>	<b>Warden Point to Leysdown-on-Sea</b>
<b>Policy Unit reference:</b>	<b>4a05</b>

## SUMMARY OF THE PLAN AND JUSTIFICATION

### Plan:

*This unit covers the clifftop village of Warden, a low-lying area known as 'The Bay' and the low-lying village of Leysdown-on-Sea. Along this section of coast a number of management structures are currently in place, for example; the cliffed section of the Warden village has a toe defence structure, which limits but does not prevent erosion, whilst the low-lying section of Warden is currently defended by a concrete seawall. At the 'The Bay' there is a secondary defence (clay bund), whilst at Leysdown-on-Sea there is a concrete seawall and groynes. It is acknowledged that the cliff toe structure, at Warden, is scheduled to be upgraded (summer 2007), which will maintain some protection of the cliff top assets. Like the existing structure its design will reduce but not prevent erosion.*

*The short term plan is to upgrade and maintain the current defences at Warden, limiting the amount of cliff erosion and flood risk and continue to limit the flood risk at The Bay and Leysdown-on-Sea. In the medium and long term it is envisaged that the effectiveness of the toe defence at Warden, will reduce in light of sea level rise and the gradual deterioration of the structure. (During the first two epochs however, there is likely to be a flattening and grassing over of the slope as toe erosion is significantly slowed down. As the upgraded defences begin to deteriorate in the third epoch, toe erosion may be reactivated.) This will result in gradually increasing erosion of the backing cliff, which will ensure the geological value is maintained and a sustainable cliff top position is achieved. However, this approach will involve the loss of some clifftop properties and minor roads, along with coastal paths, which will need re-routing. The number of losses will however, be significantly reduced by the rock defence. Under this approach there is the potential that unknown buried heritage assets will be lost.*

*At The Bay, a change in the current maximum realignment line (the clay embankment) is recommended, for the medium and long term. This approach will allow the shoreline to respond naturally, as such some inundation of the hinterland is anticipated, reduce the impact of coastal squeeze and prevent uncontrolled flooding. The potential for unknown buried heritage to be lost under this approach also exists.*

*At Leysdown-on-Sea a continuation of current practises is recommended for the medium and long term. This approach will ensure the protection of the residential area and infrastructure. However, in the long term and under a scenario of sea level rise the beach will narrow. Subsequently significant amounts of beach nourishment will be required if an amenity beach is to be maintained. Again there is the potential buried unknown heritage to be lost under this policy.*

### Preferred policies to implement Plan:

**From present day:** The present day policy for Warden to Leysdown-on-Sea is to combine **managed realignment** and **hold the line**. At Warden the plan is to implement managed realignment along the cliffed section of the village, which will be achieved by upgrading the existing rock bund at the toe of the cliffs. As the bund will not prevent but will reduce the rate of erosion, it is recommended that this approach be supplemented with regular monitoring. This policy reduces property loss and geological interest but maintains the designated landscape and does not adversely affect alongshore coastal processes. Any material

**Location reference:** Warden Point to Leysdown-on-Sea

**Policy Unit reference:** 4a05

eroded will contribute to the sediment budget.

Along the low-lying section of Warden and Leysdown-on-Sea, the plan is to continue protecting the backing assets from flood inundation under a **hold the line** policy. This will be achieved by maintaining existing defence structures. However, under a predicted scenario of sea level rise it will become increasingly to maintain a beach along this frontage.

At The Bay a policy of **managed realignment** is recommended. This will be achieved by continuing to allow the shoreline to respond naturally. Flood inundation will be limited by a secondary defence. (The position of this defence has not been defined, as it is not within the remit of the SMP to do so).

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**Medium-term:** The medium term policy for Warden Point to Leysdown-on-Sea is to manage erosion and flooding under scenario of **managed realignment** and **hold the line**.

Along the cliffed section of Warden, a policy of **managed realignment** is recommended. It is anticipated that rates of cliff erosion will increase during this epoch, in response to sea level rise and a reduction in the efficiency of the rock bund. This approach will involve the loss of some clifftop properties, although the rock defence will reduce the number.

Along the low-lying section of Warden and Leysdown-on-Sea, the plan is to continue protecting the backing assets from flood inundation under a **hold the line** policy. This will be achieved by maintaining existing defence structures.

At The Bay a policy of **managed realignment** is recommended. This will be achieved by continuing to allow the shoreline to respond naturally. Flood inundation may increase and become more frequent during this epoch, under a scenario of sea level rise, but the secondary defence will limit the flood extent. (The position of which has not been defined, nor is it within the remit of the SMP to do so).

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**Long-term:** The long-term policy for Warden Point to Leysdown-on-Sea is to continue managing erosion and flood inundation under a combined policy of **managed realignment** and **hold the line**.

Along the cliffed section of Warden a policy of **managed realignment** is recommended. Under this policy it is to be accepted that the bunds efficiency will continue to decrease with time, due to ongoing sea level rise. As such, cliff erosion will increase and there will be an ongoing loss of cliff top properties.

Along the low-lying section of Warden and Leysdown-on-Sea, the plan is to continue protecting the backing assets from flood inundation under a **hold the line** policy. This will be achieved by maintaining existing defence structures. Beaches along this section of the coast are anticipated to denude during this



**Location reference:**        **Warden Point to Leysdown-on-Sea**

**Policy Unit reference:**    **4a05**

epoch, under a scenario of sea level rise, and additional maintenance will be needed if an amenity driven frontage is to be sustained.

At The Bay a policy of **managed realignment** is recommended. This will be achieved by continuing to allow the shoreline to respond naturally. Under a scenario of accelerated sea level rise, it is anticipated that flood inundation will increase during this epoch but the secondary defence will limit the extent. (The position of this defence has not been defined, as it is not within the remit of the SMP to do so).

<b>Location reference:</b>		<b>Warden Bay to Leysdown-on-Sea</b>				
<b>Policy Unit reference:</b>		<b>4a05</b>				
<b>IMPLICATIONS OF THE PLAN FOR THIS LOCATION</b>						
<b>Time Period</b>	<b>Management Activities</b>	<b>Property, Built Assets and Land Use</b>	<b>Landscape</b>	<b>Nature Conservation</b>	<b>Historic Environment</b>	<b>Amenity and Recreational Use</b>
<b>2025</b>	Improve the existing rock bund. Maintain flood defences at Warden and Leysdown. The construction of a realigned flood defence structure could take place during this epoch, at The Bay.	Current built assets and land use maintained.	Current landscape maintained	Limited erosion of the cliffs maintains the environmental and geological assets	No significant heritage assets present. Some unknown heritage assets may be exposed / lost.	Current amenity and recreational facilities maintained.
<b>2025 – 2055</b>	Maintain, but not improve the existing rock bund.  Maintain / upgrade the flood defences at Warden and Leysdown, allow the shoreline to realign at The Bay.	Up to 16 properties could be at risk/lost due to cliff top retreat and inundation of The Bay.	The current landscape and land use will alter slightly, giving way to a transgressed shoreline and inter-tidal area at The Bay. Further cliff erosion at Warden is anticipated.	A predicted increase in cliff erosion will improve environmental and geological interests. Some freshwater interest will give way to saline habitats at The Bay.	No significant heritage assets present. Some unknown heritage assets may be exposed / lost.	The current amenity assets and recreational use at The Bay is likely to change. At Warden the cliff top footpath may be at risk and if possible should be realigned.
<b>2055 – 2105</b>	Maintain, but not improve the existing rock bund.  Significantly increase hard defences in the long term, as beaches narrow and sea level rises.	Up to 5 properties could be at risk/lost due to cliff top retreat and inundation at The Bay.	The current landscape and land use will alter slightly, giving way to a transgressed shoreline and inter-tidal area at The Bay. Further cliff erosion at Warden is anticipated.	A predicted increase in cliff erosion will improve environmental and geological interests. Some freshwater interest will give way to saline habitats at The Bay.	No significant heritage assets present. Some unknown heritage assets may be exposed / lost.	The current amenity assets and recreational use at The Bay is likely to change. At Warden the cliff top footpath may be at risk and if possible should be realigned.

<b>Location reference:</b>	<b>Leysdown-on-Sea to Shell Ness</b>
<b>Policy Unit reference:</b>	<b>4a06</b>

### SUMMARY OF THE PLAN AND JUSTIFICATION

#### Plan:

*The frontage comprises a managed sand (and shell) beach, which is backed by low-lying coastal grazing marsh. Under rising sea levels it is anticipated that it will become increasingly difficult to maintain a beach along this frontage. If the current alignment were to be held in the long-term, coastal squeeze, together with a diminished supply of natural beach building sediment would lead to the need for substantial hard defences and / or significant beach management. Managed realignment would avoid the need for such substantial work, possibly creating cost savings and environmental enhancements.*

*No specific realignment 'line' has been defined but an indicative extent has been identified (see map), which is subject to further studies. Further studies will be required to investigate and define the extent, location and implementation of the realignment i.e. the best technical, environmental and economic option that best manages flood risk, as well as to investigate the exact standard and alignment of any defences for this frontage and any mitigation measures required for loss of designated habitat.*

*Realignment along this section of the coast would require flood risk management, whilst a set back here would involve the loss of built assets; nominally the houses at Shell Ness, some agricultural land as well as freshwater habitats. Realignment would however, create a coast that will not require ever increasing expenditure to maintain in the coming centuries, negate the effects of coastal squeeze and create important brackish and saline habitats. (The loss of the designated freshwater habitats would normally require mitigation measures to be implemented – and this aspect will require a more detailed appraisal in the strategy study). Managed realignment will also potentially result in the loss of buried unknown heritage.*

*This frontage marks the interface between the open coast and estuary SMPs. As such a holistic approach between open coast and estuarine processes needs to be implemented. The management of this frontage is consistent with the estuary SMP policy unit (Policy Unit E4 25: Shell Ness to Sayes Court – Medway Estuary and Swale SMP SMP. The preferred policy for the estuary frontage is Managed Realignment for all three epochs), which also proposes managed realignment for all three*

*This policy is considered to be sustainable in the long-term, on the basis that environmental, engineering and inter-tidal benefits will be realised and that the overall flood defence is maintained to limit flood propagation.*

#### Preferred policies to implement Plan:

**From present day:** If the socio-economic, environmental and technical benefits are confirmed, then it will be appropriate to implement a change of policy, at Leysdown-on-Sea to Shell Ness, to **managed realignment**. Realignment along this section of the coast would require flood risk management. To reduce large scale inundation, it is possible that new defence structures will need to be constructed, at a set-back position, prior to allowing the existing shoreline defence structures to fail.

During this epoch it is unlikely that there will be a significant change between the present day dynamics on the open coast and those within the Swale Estuary. However, it is acknowledged that the hamlet of Shellness will become

**Location reference:** Leysdown-on-Sea to Shell Ness

**Policy Unit reference:** 4a06

increasingly vulnerable to wave attack.

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**Medium-term:** The medium-term policy is to continue to allow the coastline to respond to changes in the forcing factors albeit it in a proactive manner, under a policy of **managed realignment**. Any realigned flood defence structures will require maintenance throughout this period. It is envisaged that environmental transitions will be prominent during this epoch, as brackish and inter-tidal habitats replace some of the freshwater interests. This transition may require specific management intervention to maximise the environment benefits and limit potential habitat impacts.

During this epoch it is proposed that the open coast and the hamlet of Shellness will become increasingly vulnerable to sea level rise, potentially experiencing a number of breaches. As such the managed loss of assets close to the current coast would be required. There is also the potential that the durability of Shell Ness spit could reduce, due to a potential reduction in feed (from offshore) and the predicted rise in sea level. It is anticipated that the inter-dependency between the open coast and estuary will increase during this epoch.

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**Long-term:** The long-term policy is to continue allowing the coastline to realign, albeit in a controlled manner, under a policy of **managed realignment**. This will enable a more flexible and sustainable flood and erosion risk management for this section of the open coast (as well as the outer reaches of the Swale Estuary; Shell Ness to Sayes Court). With sea level rise predicted to accelerate during this epoch it is envisaged that the dynamics on the open coast and between the open coast and the Swale Estuary will undergo change.

On the open coast more frequent breaching is predicted and it is likely that the durability of Shell Ness spit will continue to reduce, due to sea level rise and uncertainty regarding feed. As such, it is envisaged that the northern shore of the Swale will realign landwards and the mouth will widen. This would result in the southern shore of the Swale and open coast at Faversham becoming increasingly susceptible to open coast conditions.

Further maintenance of any realigned flood defence structures will be required during this epoch.

<b>Location reference:</b>	<b>Leysdown-on-Sea to Shell Ness</b>
<b>Policy Unit reference:</b>	<b>4a06</b>

**IMPLICATIONS OF THE PLAN FOR THIS LOCATION**

<b>Time Period</b>	<b>Management Activities</b>	<b>Property, Built Assets and Land Use</b>	<b>Landscape</b>	<b>Nature Conservation</b>	<b>Historic Environment</b>	<b>Amenity and Recreational Use</b>
<b>2025</b>	Construct of realigned defences and allow the failure of existing shoreline structures.	Residential and commercial properties may be at risk in this period.	The current landscape and land use will alter, giving way to a transgressed shoreline and inter-tidal area.	Current nature conservation interests maintained.  Compensatory habitat will need to be secured before any designated habitat is lost.	No significant heritage assets present. Some unknown heritage assets may be exposed / lost.	Current amenity and recreational facilities will change i.e. potential for green tourism, as new habitats develop.
<b>2025 – 2055</b>	Maintain secondary structures / management practises.	Residential and commercial properties considered to be at risk in this period.	The current landscape and land use will continue to change; the shoreline may transgress further and the inter-tidal area may expand.	Some freshwater areas give way to saline habitats.  Compensate for the reduction in freshwater interests.	Some unknown heritage assets may be exposed / lost.	Current amenity and recreational facilities will change i.e. potential for green tourism, as the new habitats develop further.
<b>2055 – 2105</b>	Maintain secondary structures / management practises.	Residential and commercial properties considered to be at risk in this period.	The current landscape and land use will continue to change; the shoreline may transgress further and the inter-tidal area may expand.	Further freshwater areas give way to saline habitats.  Saline habitats will establish themselves.  Compensate for the reduction in freshwater interests.	Some unknown heritage assets may be exposed / lost.	Current amenity and recreational facilities will change i.e. potential for green tourism, as the new habitats further develop.

The above provides the local details in respect of the SMP-wide Plan; therefore the above must be read in the context of the wider-scale issues, policy implications and funding, as presented in the preceding sections and Appendices to this Plan document.

<b>Location reference:</b>	<b>Faversham Creek to the Sportsman Pub</b>
<b>Policy Unit reference:</b>	<b>4a07A</b>

### SUMMARY OF THE PLAN AND JUSTIFICATION

#### Plan:

*Faversham Creek to the Sportsman Pub marks the interface between the eastern landward limit of the Medway Estuary and Swale SMP and the open coast (Policy Unit E4 24: Faversham to Nagden – Medway Estuary and Swale SMP. The preferred policy for the estuary frontage is to Hold the Line in the short, medium and long terms). The frontage comprises extensive tidal mudflats to the west and a narrow beach extending to a small sand, shingle and shell spit at Castle Coot in the east. A concrete seawall, extending along the majority of frontage, protects undeveloped low lying coastal grazing marsh. The intertidal habitats along the frontage and a small section of wetland (immediately west of the Sportsman Pub) is of international nature conservation value. Under rising sea levels and a limited supply of contemporary beach building sediment, it is anticipated that the sparse section of beach will become increasingly difficult to maintain in the future. If the current alignment were to be held in the long-term, coastal squeeze, together with a diminished supply of natural beach building sediment would lead to substantial hard defences and / or significant beach management. Managed realignment would avoid the need for such defences, possibly creating cost savings and environmental enhancement.*

*No specific realignment 'line' has been defined but a maximum extent has been identified (see map). Further studies will be required to investigate and define the extent, location and implementation of the realignment i.e. the best technical, environmental and economic option that best manages flood risk, as well as to investigate the exact standard and alignment of any defences for this frontage and any mitigation measures required for loss of designated habitat. However, it is recognised that the greatest environmental benefits would be realised if the non-designated areas underwent realignment first.*

*A set back here would involve the loss of agricultural land and freshwater habitats. Realignment would however, create a coast that will not require ever increasing expenditure to maintain in the coming centuries, negate the effects of coastal squeeze and create important brackish and saline habitats. (The loss of the designated freshwater habitats would normally require mitigation measures to be implemented – and this aspect will require a more detailed appraisal in the strategy study).*

*The short term plan therefore, is to continue protecting the low-lying assets, which include footpaths, agricultural land and freshwater habitats. There remain opportunities for managed realignment to be implemented, for habitat creation purposes, in the short-term; however, this will be subject to further studies. In the medium and long term the plan is to realign the defences, along the majority of this frontage, allowing the shoreline to respond in a managed approach. The potential environmental, engineering and coastal process benefits will then be realised under a policy of managed realignment. There is the potential for a loss of buried unknown heritage within realigned areas in the latter two epochs.*

*(Note: there is the potential that this section of the coast could become more exposed to 'open coast' conditions, with the realignment of Leysdown-on-Sea to Shell Ness.)*

<b>Preferred policies to implement Plan:</b>
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**Location reference:** Faversham Creek to the Sportsman Pub

**Policy Unit reference:** 4a07A

**From present day:** The present day policy for Faversham Creek to the Sportsman Pub is to continue holding the current plan form position of the shoreline and providing protection to the backing hinterland, by maintaining defences under a policy of **hold the line**. As such, maintaining the defences will continue to reduce the flooding risks to the low-lying hinterland. However, in response to ongoing sea level rise and limited feed of beach building material, it is anticipated that the fronting beach will continue to narrow. Lower foreshore erosion will continue to be a significant problem in the west of the area.

Opportunities for implementing managed realignment in the short-term, to create habitat, may be realised, dependant on the outcome of further studies.

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**Medium-term:** If the socio-economic, environmental and technical benefits are confirmed, then the medium term policy is to introduce a policy of **managed realignment**. Prior to *allowing the existing defences to fail*, a secondary defence would need constructing to eliminate the risk of uncontrolled flood propagation.

No specific realignment position has been identified for the SMP. However any set back would involve the loss of agricultural land and freshwater habitat. Realignment would create a coast that will not require ever increasing expenditure to maintain in the coming centuries, create important brackish and saline habitats, negate the impact of coastal squeeze and reduce the risk of uncontrolled flooding.

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**Long-term:** The long-term policy is to continue allowing the coastline to realign, albeit in a controlled manner, under a policy of **managed realignment**. This policy will allow a more flexible and sustainable approach to flood and erosion risk management.

During this epoch it is envisaged that all defences will require periodic maintenance (and potential upgrading in response to sea level rise) and that the created brackish / saline habitats will become increasingly well-established during this epoch.

Thus, under a scenario of accelerated sea level rise and limited natural feed, managed realignment is considered sustainable in the long term.



<b>Location reference:</b>		<b>Faversham Creek to the Sportsman Pub</b>				
<b>Policy Unit reference:</b>		<b>4a07A</b>				
<b>IMPLICATIONS OF THE PLAN FOR THIS LOCATION</b>						
<b>Time Period</b>	<b>Management Activities</b>	<b>Property, Built Assets and Land Use</b>	<b>Landscape</b>	<b>Nature Conservation</b>	<b>Historic Environment</b>	<b>Amenity and Recreational Use</b>
<b>2025</b>	Maintain the existing shoreline structures and construct secondary defences.	Defences will continue to provide the appropriate level of protection to areas of agricultural land.	The current landscape will remain.	Existing habitats will be maintained.  Compensatory habitat will need to be secured before any designated habitat is lost.	Current heritage assets maintained.	Current amenity and recreational facilities will be maintained.
<b>2025 – 2055</b>	Maintain secondary structures / management practises.	Loss of agricultural land in this period.	The current landscape will alter, giving way to a transgressed shoreline and greater inter-tidal area.	Some freshwater areas give way to saline habitats.  Saline intrusion of the watercourse as a result of managed realignment.	Some unknown heritage assets may be exposed / lost.	Current amenity and recreational facilities will change i.e. potential for green tourism, as the new habitats develop further.
<b>2055 – 2105</b>	Maintain secondary structures / management practises.	Loss of agricultural land in this period.	The current landscape will alter, giving way to a transgressed shoreline and inter-tidal areas.	Further freshwater areas give way to saline habitats.  Saline intrusion of the watercourse as a result of managed realignment.  Saline habitats will establish themselves.	Some unknown heritage assets may be exposed / lost.	Current amenity and recreational facilities will change i.e. potential for green tourism, as the new habitats further develop.

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Location reference:	<b>The Sportsman Pub to Seasalter</b>
Policy Unit reference:	<b>4a07B</b>

## SUMMARY OF THE PLAN AND JUSTIFICATION

### Plan:

*The frontage comprises a managed beach, which is backed by Faversham Road, a number of residential properties along the road and partially developed low lying coastal grazing marsh, which is of international nature conservation value. Under rising sea levels and a limited supply of contemporary beach building sediment, it is anticipated that it will become increasingly difficult to maintain a beach along this frontage. If the current alignment were to be held in the long-term, coastal squeeze, together with a diminished supply of natural beach building sediment would lead to substantial hard defences and / or significant beach management. Managed realignment would avoid the need for such defences, possibly creating cost savings and environmental enhancement.*

*No specific realignment 'line' has been defined but a maximum extent has been identified (see map). Further studies will be required to investigate and define the extent, location and implementation of the realignment i.e. the best technical, environmental and economic option that best manages flood risk, as well as to investigate the exact standard and alignment of any defences for this frontage and any mitigation measures required for loss of designated habitat. However, it is recognised that the greatest socio-economic benefits will to be realised if managed realignment does not go beyond the railway line.*

*A set back here would involve the loss of built assets; nominally residential properties, local industries (tourism), agricultural land and freshwater habitats. Realignment would however, create a coast that will not require ever increasing expenditure to maintain in the coming centuries, negate the effects of coastal squeeze and create important brackish and saline habitats. (The loss of the designated freshwater habitats would normally require mitigation measures to be implemented – and this aspect will require a more detailed appraisal in the strategy study).*

*The short and medium term plan therefore, is to continue protecting the low-lying assets, which include properties, local industries, footpaths, agricultural land and freshwater habitats. In the long term the plan is to realign the defences, along the majority of this frontage, allowing the shoreline to respond in a managed approach. The potential environmental, engineering and coastal process benefits will then be realised under a policy of managed realignment. There is the potential for a loss of buried unknown heritage within realigned areas in the latter two epochs. It is recommended that the policies for the medium and long term are kept under review, being subject to further studies.*

*(Note: there is the potential that this section of the coast could become more exposed to 'open coast' conditions, with the realignment of Leysdown-on-Sea to Shell Ness.)*

### Preferred policies to implement Plan:

**From present day:** The present day policy for the frontage between the Sportsman Pub to Seasalter is to continue holding the current plan form position of the shoreline and providing protection to the backing hinterland, under a policy of **hold the line**. The current defences and management practices will need to be upgraded to achieve this. As such, maintaining the defences will continue to reduce the flooding risks to the low-lying hinterland and the assets it supports i.e. properties, local industries, agricultural land and freshwater habitats.

However, in response to ongoing sea level rise and limited feed of beach building material, it is anticipated that the fronting beach will continue to narrow.

There is likely to be a loss of some properties in Faversham Road which lie in front of the sea defence especially if there is a storm.

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**Medium-term:**

The medium-term policy is to continue to **hold the line**, providing protection to the backing hinterland. Maintaining the upgraded defences will continue to reduce the flooding risks to the low-lying hinterland and the assets it supports i.e. properties, local industries, agricultural land and freshwater habitats. However, in response to ongoing sea level rise and limited feed of beach building material, it is anticipated that the fronting beach will continue to narrow.

There is likely to be a loss of more properties in Faversham Road which lie in front of the sea defence with increased storminess.

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**Long-term:**

If the socio-economic, environmental and technical benefits are confirmed, then the long term policy is to introduce a policy of **managed realignment**. Prior to allowing the existing defences to fail, a secondary defence would need constructing to eliminate the risk of uncontrolled flood propagation.

No specific realignment position has been identified for the SMP. However any set back would involve the loss of assets, which is likely to include houses, agricultural land and freshwater habitat. Realignment would create a coast that will not require ever increasing expenditure to maintain in the coming centuries, create important brackish and saline habitats, negate the impact of coastal squeeze and reduce the risk of uncontrolled flooding.

This policy will allow a more flexible and sustainable approach to flood and erosion risk management.

During this epoch it is envisaged that realigned defences will require periodic maintenance (and potential upgrading in response to sea level rise) and that the created brackish / saline habitats will become increasingly well-established during this epoch.

Thus, under a scenario of accelerated sea level rise and limited natural feed, managed realignment is considered sustainable in the long term.

<b>Location reference:</b>		<b><i>The Sportsman Pub to Seasalter</i></b>				
<b>Policy Unit reference:</b>		<b><i>4a07B</i></b>				
<b>IMPLICATIONS OF THE PLAN FOR THIS LOCATION</b>						
<b>Time Period</b>	<b>Management Activities</b>	<b>Property, Built Assets and Land Use</b>	<b>Landscape</b>	<b>Nature Conservation</b>	<b>Historic Environment</b>	<b>Amenity and Recreational Use</b>
<b>2025</b>	Maintain the existing shoreline structures.	Current built assets behind the defence line will be maintained.  Built assets seaward of the defence line will be at increased risk.	The current landscape will remain.	Existing habitats will be maintained.	Current heritage assets maintained.	Current amenity and recreational facilities will be maintained.
<b>2025 – 2055</b>	Maintain the existing shoreline structures and construct secondary defences.	Current built assets behind the defence line will be maintained.  Built assets seaward of the defence line will be at increased risk.	The current landscape will remain.	Existing habitats will be maintained.  Compensatory habitat will need to be secured before any designated habitat is lost.	Current heritage assets maintained.	Current amenity and recreational facilities will change i.e. beach will diminish as sea levels rise.
<b>2055 – 2105</b>	Maintain secondary structures / management practises.	Residential and commercial properties considered to be at risk / lost in this period.	The current landscape and land use will alter, giving way to a transgressed shoreline and inter-tidal areas.	Freshwater areas will give way to saline habitats.  Saline intrusion of the watercourse as a result of managed realignment.  Saline habitats will establish themselves.	Some unknown heritage assets may be exposed / lost.	Current amenity and recreational facilities will change i.e. potential for green tourism, as the new habitats further develop.

**Location reference:** Seasalter to Whitstable Town (Golf Course)

**Policy Unit reference:** 4a08

### SUMMARY OF THE PLAN AND JUSTIFICATION

#### Plan:

This is an urban development fronted by an amenity beach. The plan is to continue protecting built assets and the seafront, which is of value to the local economy, due to tourism. Under a scenario of sea level rise it is anticipated that the fronting beach and lower foreshore will narrow, the platform will lower and defence scour will increase. Subsequently significant amounts of beach nourishment will be required if an amenity beach is to be maintained, in conjunction with an increase in defence maintenance. Nonetheless this approach will ensure the protection of the built assets and the railway line which passes within a few metres of the seawall.

#### Preferred policies to implement Plan:

**From present day:** The present day policy for Seasalter to Whitstable Town is to continue protecting the frontage and its associated assets by maintaining the defences, under a policy of **hold the line**. With rates of sediment feed and transportation along this frontage being low, very little change in coastal processes are anticipated for this epoch. In maintaining the defences the shoreline is held seaward of its natural alignment and the coast is prevented from functioning freely. The groyne along this frontage also interrupt alongshore sediment transport.

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**Medium-term:** The medium term policy is to continue to **hold the line**. In response to sea level rise it is anticipated that the defence structures and beach management will increase at some point at some point during this period.

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**Long-term:** The long-term policy is to continue to **hold the line**. This will be achieved by maintaining and upgrading the present defence structures. This will continue to protect assets from predicted sea level rise but will probably result in increased scour. Beaches along this section of the coast are anticipated to denude during this epoch and additional maintenance will be necessary to sustain an amenity driven frontage. If this becomes increasingly difficult then alternative (hard engineering) options may need to be sought. If this were to be the case then the character of the frontage would change. This recommendation is deemed sustainable over the SMP timescale although this may not be technically viable in the much longer term.

<b>Location reference:</b>	<b>Seasalter to Whitstable Town (Golf Course)</b>
<b>Policy Unit reference:</b>	<b>4a08</b>

**IMPLICATIONS OF THE PLAN FOR THIS LOCATION**

<b>Time Period</b>	<b>Management Activities</b>	<b>Property, Built Assets &amp; Land Use</b>	<b>Landscape</b>	<b>Nature Conservation</b>	<b>Historic Environment</b>	<b>Amenity &amp; Recreational Use</b>
<b>2025</b>	Maintain / upgrade existing defences.	All properties and built assets are maintained.	Current landscape and land use maintained	Current terrestrial and marine habitats maintained	Known heritage assets will be maintained.  Some unknown heritage assets may be exposed / lost.	Current amenity and recreational facilities maintained
<b>2025 – 2055</b>	Maintain defence structures.	All properties and built assets are maintained.	Increased engineering could have an adverse effect on the landscape.	Current terrestrial habitats will be maintained but the inter-tidal habitats will be at risk.	Known heritage assets will be maintained.  Some unknown heritage assets may be exposed / preserved / lost.	Recreational value will be reduced due to denuding beach
<b>2055 – 2105</b>	Maintenance and improve defence structures.	All properties and built assets are maintained.	Further engineering is likely to impact on the landscape.	Current terrestrial habitats will be maintained but the inter-tidal habitats will be at risk.	Known heritage assets will be maintained.  Some unknown heritage assets may be exposed/ preserved / lost.	Unless artificially maintained, little / no recreational beach will remain.

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<b>Location reference:</b>	<b>Whitstable Town (Golf Course) to Whitstable Harbour</b>
<b>Policy Unit reference:</b>	<b>4b09</b>

### SUMMARY OF THE PLAN AND JUSTIFICATION

#### Plan:

*Whitstable Town to Whitstable Harbour is a dense urban area that extends to the shoreline. The long term plan is to continue protecting the developments including the residential, commercial and industrial assets, as well as maintaining the amenity assets, which is of great value to the local economy due to tourism. However, in doing so there is the potential that buried unknown heritage assets could be lost.*

#### Preferred policies to implement Plan:

**From present day:** The present day policy for Whitstable Town to Whitstable Harbour is to continue to **hold the line** by maintaining the existing defences to protect the significant assets, which are important to the region's economy. This will be achieved by continuing to maintain the existing defences, i.e. the harbour arms, jetties, seawalls and the groyned beach. Transportation rates along this frontage are high but sediment feed is low. As such, pressure on the coastal system will increase throughout the duration of the Shoreline Management Plan.

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**Medium-term:** The medium term policy for Whitstable Town to Whitstable Harbour is to continue to **hold the line**. This will be achieved by maintaining and, at some point during this epoch, upgrading the defence structures. This will maintain the character of the frontage and protect the significant built assets from sea level rise. The seawall in the town is relatively low and there is a strong probability that it will need raising during this epoch under current sea level rise predictions.

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**Long-term:** The significant built assets along this frontage dictate that the long-term policy is to **hold the line**. To accomplish this and to keep pace with sea level rise defences will need to be maintained and upgraded. As such, the character of this frontage is likely to change, from one that offers amenity facilities and has landscape qualities to one that is purely defensive. The inter-tidal area will narrow further, with little or no beach building material entering the system and few fines bypassing the defence structures. Thus, retaining a beach in front of substantial defence structures will become increasingly difficult, particularly on the downdrift side of the harbour. Sourcing suitable recharge material is likely to become problematic and expensive in the future, as such the situation will be exacerbated. Despite this and the potential impact on the town's character, this recommendation is deemed technically and environmentally viable, for the duration of the Shoreline Management Plan.



<b>Location reference:</b>		<b>Whitstable Town (Golf Course) to Whitstable Harbour</b>				
<b>Policy Unit reference:</b>		<b>4a09</b>				
<b>IMPLICATIONS OF THE PLAN FOR THIS LOCATION</b>						
<b>Time Period</b>	<b>Management Activities</b>	<b>Property, Built Assets and Land Use</b>	<b>Landscape</b>	<b>Nature Conservation</b>	<b>Historic Environment</b>	<b>Amenity and Recreational Use</b>
<b>2025</b>	Maintain existing defences.	Residential, commercial properties and the harbour maintained.	Current landscape value maintained	Current marine, inter-tidal and terrestrial habitats maintained.	Known heritage assets will be maintained.  Some unknown heritage assets may be exposed / lost.	Current amenity and recreational facilities maintained
<b>2025 – 2055</b>	Maintain / upgrade defence structures.	All residential, commercial properties and the harbour maintained.	Increased engineering may have an adverse effect on the landscape and townscape	Current terrestrial habitats will be maintained but the inter-tidal habitats will be at risk.	Known heritage assets will be maintained.  Some unknown heritage assets may be exposed / preserved / lost.	Recreational value will be reduced due to denuding beach
<b>2055 – 2105</b>	Maintenance and improve defence structures.	All residential, commercial properties and the harbour maintained.	Increased engineering is likely to have an adverse effect on the landscape and townscape	Current terrestrial habitats will be maintained but the inter-tidal habitats will be at risk.	Known heritage assets will be maintained.  Some unknown heritage assets may be exposed/ preserved / lost.	Unless artificially maintained, little / no recreational beach will remain.

The above provides the local details in respect of the SMP-wide Plan; therefore the above must be read in the context of the wider-scale issues, policy implications and funding, as presented in the preceding sections and Appendices to this Plan document.

<b>Location reference:</b>	<b>Whitstable Harbour (east) to Swalecliffe</b>
<b>Policy Unit reference:</b>	<b>4a10</b>

### SUMMARY OF THE PLAN AND JUSTIFICATION

**Plan:**

*This is a densely populated urban frontage, with built assets extending to the edge of Tankerton Slopes and fronted by a popular tourist beach. The plan is to continue protecting the built assets and maintaining the amenity assets, which is of great value to the local economy due to tourism. In the long term however, this will inevitably result in a narrowing of the beach. Subsequently significant amounts of beach nourishment will be required if an amenity beach is to be maintained. This approach will ensure the protection of commercial and residential area. However, there is the potential that buried unknown heritage assets could be lost.*

**Preferred policies to implement Plan:**

**From present day:** The present day policy, for Whitstable Harbour (east) to Swalecliffe is to **hold the line**, by maintaining the defences and as such continuing to protect the densely populated town and its assets. With rates of sediment feed and transportation along this frontage being low, very little change in coastal processes are likely to occur within this epoch.

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**Medium-term:** The medium term policy is to continue to **hold the line**. In response to sea level rise it is anticipated that the defence structures and beach management will increase at some point at some point during this period.

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**Long-term:** Continuing to **hold the line** is recommended for Whitstable Harbour (east) to Swalecliffe. This will be achieved by maintaining and upgrading the present defence structures. This will continue to protect assets from predicted sea level rise but will probably induce increased scour. Beaches along this section of the coast are anticipated to denude during this epoch and additional maintenance will be necessary to sustain an amenity driven frontage. If this becomes increasingly difficult then alternative (hard engineering) options may need to be sought. If this were to be the case then the character of the frontage would change. However, this recommendation is deemed sustainable over the SMP timescale although this may not be technically viable in the much longer term.

<b>Location reference:</b>		<b>Whitstable Harbour (east) to Swalecliffe</b>				
<b>Policy Unit reference:</b>		<b>4a10</b>				
<b>IMPLICATIONS OF THE PLAN FOR THIS LOCATION</b>						
<b>Time Period</b>	<b>Management Activities</b>	<b>Property, Built Assets and Land Use</b>	<b>Landscape</b>	<b>Nature Conservation</b>	<b>Historic Environment</b>	<b>Amenity and Recreational Use</b>
<b>2025</b>	Maintain existing defences and current beach management practises.	Residential and commercial properties maintained.	Current landscape value maintained.	Current marine, inter-tidal and terrestrial habitats maintained.	Known heritage assets will be maintained.  Some unknown heritage assets may be exposed / lost.	Current amenity and recreational facilities maintained
<b>2025 – 2055</b>	Maintain / upgrade engineering and management practises to compensate for sea level rise and beach narrowing.	Residential and commercial properties maintained.	Increased engineering may have an adverse effect on the landscape and townscape	Current terrestrial habitats will be maintained but the inter-tidal habitats will be at risk.	Known heritage assets will be maintained.  Some unknown heritage assets may be exposed / preserved / lost.	Recreational value will be reduced due to denuding beach
<b>2055 – 2105</b>	Maintain / upgrade engineering and management practises to compensate for sea level rise and beach narrowing.	Residential and commercial properties maintained.	Increased engineering is likely to have an adverse effect on the landscape and townscape	Current terrestrial habitats will be maintained but the inter-tidal habitats will be at risk.	Known heritage assets will be maintained.  Some unknown heritage assets may be exposed/ preserved / lost.	Unless artificially maintained, little / no recreational beach will remain.

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The above provides the local details in respect of the SMP-wide Plan; therefore the above must be read in the context of the wider-scale issues, policy implications and funding, as presented in the preceding sections and Appendices to this Plan document.

**Location reference:** Swalecliffe to Herne Bay Breakwater

**Policy Unit reference:** 4a11

### SUMMARY OF THE PLAN AND JUSTIFICATION

**Plan:**

*This is a dense urban frontage, with assets extending to the shoreline fronted by a popular tourist beach, which is protected by the Neptune Arm breakwater. The plan is to continue protecting the frontage, which comprises the towns of Studd Hill and Herne Bay (west) and the amenity assets, such as the seafront which is of great value to the local economy. However, in the long term and under a scenario of sea level rise the beach will narrow. Subsequently significant amounts of beach nourishment will be required if an amenity beach is to be maintained. This approach will ensure the protection of the commercial and residential area. However, there is the potential that buried unknown heritage assets could be lost.*

**Preferred policies to implement Plan:**

**From present day:** The present day policy, for Swalecliffe to Herne Bay Breakwater is to **hold the line**, by maintaining the defences, thus continuing to protect the densely populated towns of Studd Hill and Herne Bay (west) and its associated assets. With rates of sediment feed and transportation along this frontage being low, very little change in coastal processes or impacts on evolution are likely to occur within this epoch or indeed the confines of the SMP.

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**Medium-term:** The medium term policy is to continue to **hold the line**. In response to sea level rise it is anticipated that the defence structures and beach management will increase at some point at some point during this period.

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**Long-term:** The long-term policy is to continue to **hold the line**. This will be achieved by maintaining and upgrading the present defence structures. This will continue to protect assets from predicted sea level rise but will probably induce increased scour. Beaches along this section of the coast are anticipated to denude during this epoch and additional maintenance will be necessary to sustain an amenity driven frontage. If this becomes technically unfeasible then alternative (hard engineering) options may need to be sought. If this were to be the case then the character of the frontage would change. However, this recommendation is deemed sustainable over the SMP timescale although this may not be technically viable in the much longer term.

<b>Location reference:</b>		<b>Swalecliffe to Herne Bay Breakwater</b>				
<b>Policy Unit reference:</b>		<b>4a11</b>				
<b>IMPLICATIONS OF THE PLAN FOR THIS LOCATION</b>						
<b>Time Period</b>	<b>Management Activities</b>	<b>Property, Built Assets and Land Use</b>	<b>Landscape</b>	<b>Nature Conservation</b>	<b>Historic Environment</b>	<b>Amenity and Recreational Use</b>
<b>2025</b>	Maintain existing defences and current beach management practises.	Residential and commercial properties maintained.	Current landscape value maintained.	Current marine, inter-tidal and terrestrial habitats maintained.	Known heritage assets will be maintained.  Some unknown heritage assets may be exposed / lost.	Current amenity and recreational facilities maintained
<b>2025 – 2055</b>	Maintain / upgrade engineering and management practises to compensate for sea level rise and beach narrowing.	Residential and commercial properties maintained.	Increased engineering may have an adverse effect on the landscape and townscape	Current terrestrial habitats will be maintained but the inter-tidal habitats will be at risk.	Known heritage assets will be maintained.  Some unknown heritage assets may be exposed / preserved / lost.	Recreational value will be reduced due to denuding beach
<b>2055 – 2105</b>	Maintain / upgrade engineering and management practises to compensate for sea level rise and beach narrowing.	Residential and commercial properties maintained.	Increased engineering is likely to have an adverse effect on the landscape and townscape	Current terrestrial habitats will be maintained but the inter-tidal habitats will be at risk.	Known heritage assets will be maintained.  Some unknown heritage assets may be exposed/ preserved / lost.	Unless artificially maintained, little / no recreational beach will remain.

The above provides the local details in respect of the SMP-wide Plan; therefore the above must be read in the context of the wider-scale issues, policy implications and funding, as presented in the preceding sections and Appendices to this Plan document.

<b>Location reference:</b>	<b>Herne Bay Breakwater to Bishopstone Manor</b>
<b>Policy Unit reference:</b>	<b>4a12</b>

### SUMMARY OF THE PLAN AND JUSTIFICATION

#### Plan:

*Urban development occupies a large proportion of this frontage and stretches to the seafront or the edge of the clay slopes. The seafront, immediately updrift of the breakwater is of great value to the local economy due to tourism. Therefore, protection of the amenity assets along this section of the coast is critical. Similarly property and infrastructure which backs the clay slopes must also be protected. In the long term, beach narrowing and an increase in sub-aerial cliff weathering is predicted. Subsequently significant amounts of beach nourishment will be required if an amenity beach is to be maintained and slope protection works will require additional maintenance. This approach will ensure the protection of the commercial and residential areas. However, there is the potential that buried unknown heritage assets could be lost.*

#### Preferred policies to implement Plan:

**From present day:** The present day policy, for Herne Bay Breakwater to Bishopstone Manor is to **hold the line**, continuing to protect the town and its assets by maintaining the defences. With rates of sediment feed and transportation along this frontage being low, very little change in coastal processes or impacts on evolution are likely to occur within this epoch or indeed the confines of the SMP. In maintaining the defences the shoreline is held seaward of its natural alignment and the coast is prevented from functioning freely. As the groyne along this frontage interrupt alongshore sediment transport, regular replenishment / recycling will be required

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**Medium-term:** The medium term policy is to continue to **hold the line**. In response to sea level rise it is anticipated that the defence structures and beach management will increase at some point during this period. There will also be a need to consider how the transition at the east end of the frontage, to a policy of with no active intervention, will be managed.

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**Long-term:** The long-term policy for Herne Bay Breakwater to Bishopstone Manor is to **hold the line**, which will be achieved by maintaining and upgrading the present defence structures. This will continue to protect assets from predicted sea level rise but will probably induce increased scour. Beaches along this section of the coast are anticipated to denude during this epoch and additional maintenance will be necessary to sustain an amenity driven frontage. If this becomes technically unfeasible then alternative (hard engineering) options may need to be sought. If this were to be the case then the character of the frontage would change. However, this recommendation is deemed sustainable over the SMP timescale although this may not be technically viable in the much longer term.

<b>Location reference:</b>		<b>Herne Bay Breakwater to Bishopstone Manor</b>				
<b>Policy Unit reference:</b>		<b>4a12</b>				
<b>IMPLICATIONS OF THE PLAN FOR THIS LOCATION</b>						
<b>Time Period</b>	<b>Management Activities</b>	<b>Property, Built Assets and Land Use</b>	<b>Landscape</b>	<b>Nature Conservation</b>	<b>Historic Environment</b>	<b>Amenity and Recreational Use</b>
<b>2025</b>	Maintain existing defences and current beach management practises.	Residential and commercial properties maintained.	Current landscape value maintained.	Current marine, inter-tidal and terrestrial habitats maintained.	Known heritage assets will be maintained.  Some unknown heritage assets may be exposed / lost.	Current amenity and recreational facilities maintained
<b>2025 – 2055</b>	Maintain / upgrade engineering and management practises to compensate for sea level rise and beach narrowing.	Residential and commercial properties maintained.	Increased engineering may have an adverse effect on the landscape and townscape	Current terrestrial habitats will be maintained but the inter-tidal habitats will be at risk.	Known heritage assets will be maintained.  Some unknown heritage assets may be exposed / preserved / lost.	Recreational value will be reduced due to denuding beach
<b>2055 – 2105</b>	Maintain / upgrade engineering and management practises to compensate for sea level rise and beach narrowing.	Residential and commercial properties maintained.	Increased engineering is likely to have an adverse effect on the landscape and townscape	Current terrestrial habitats will be maintained but the inter-tidal habitats will be at risk.	Known heritage assets will be maintained.  Some unknown heritage assets may be exposed/ preserved / lost.	Unless artificially maintained, little / no recreational beach will remain.

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*The above provides the local details in respect of the SMP-wide Plan; therefore the above must be read in the context of the wider-scale issues, policy implications and funding, as presented in the preceding sections and Appendices to this Plan document.*



**Location reference:** Reculver Country Park

**Policy Unit reference:** 4a13

### SUMMARY OF THE PLAN AND JUSTIFICATION

**Plan:**

*The eroding cliffs at Reculver Country Park are of high conservation, landscape and recreational importance. The long term recommendation is to allow continued erosion of the cliffs, which will maintain the geological exposures and landscape quality of the frontage. There will, however, be potential for loss of buried unknown heritage as the cliffs erode.*

*Development along this frontage is minimal and in most cases the built assets, are set back from the cliff face. However, in the medium term some built assets may be at risk and the coastal path may need to be re-routed. It is recommended that the flood and erosion risks be managed in conjunction with the neighbouring unit (4a14).*

**Preferred policies to implement Plan:**

**From present day:** The present day policy for Reculver Country Park is to continue with the current management practises, allowing natural erosion of the cliffs under a policy of **no active intervention**. Natural shoreline protection is provided by cliff fall debris and it is not necessary or visually desirable to defend this section of the coastline.

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**Medium-term:** The medium term policy for Reculver Country Park is to continue allowing natural processes to take place (erosion of the cliffs and erosion of the shoreline) under a policy of **no active intervention**. With sea level rise it is anticipated that erosion rates will increase during this epoch, as such, some built assets may be at risk. Material released from the cliffs will provide some predominantly fines to the foreshore and it is predicted that this will continue to contribute to the alongshore sediment budget.

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**Long-term:** The long-term policy sees a continuation of **no active intervention** for Reculver Country Park. This permits erosion of the cliffs, and as such a landward transgression of the 'shoreline', but maintains the coastal landscape, along with the environmental and geological assets. With sea level rise, the naturally functioning coastline will continue to provide sediment inputs to the foreshore, albeit at a slightly greater rate than those experienced historically.

<b>Location reference:</b>		<b>Reculver Country Park</b>				
<b>Policy Unit reference:</b>		<b>4a13</b>				
<b>IMPLICATIONS OF THE PLAN FOR THIS LOCATION</b>						
<b>Time Period</b>	<b>Management Activities</b>	<b>Property, Built Assets and Land Use</b>	<b>Landscape</b>	<b>Nature Conservation</b>	<b>Historic Environment</b>	<b>Amenity and Recreational Use</b>
<b>2025</b>	Cliff erosion will continue, providing nominal feed (fines) to the system	No built assets are considered to be at risk during this period.  Some agricultural land will be eroded.	Existing landscape maintained.	The continued erosion of the cliffs maintains the environmental and geological interests.	No significant heritage assets at risk. Some unknown heritage assets may be lost.	Current amenity and recreational facilities maintained.
<b>2025 – 2055</b>	Cliff erosion will continue, providing nominal feed (fines) to the system	No built assets are at considered to be at risk during this period  Agricultural land will be eroded.	Cliff top land eroded but coastal landscape maintained.	The continued erosion of the cliffs maintains the environmental and geological interests.	No significant heritage assets at risk. Some unknown heritage assets may be lost.	The cliff top footpath may be at risk and if possible should be realigned. Other amenity and recreational assets will be maintained.
<b>2055 – 2105</b>	Cliff erosion will continue, providing nominal feed (fines) to the system	Built assets at risk during this epoch (up to approximately 10 properties)  Agricultural land will be eroded.	Cliff top land eroded but coastal landscape maintained.	The continued erosion of the cliffs maintains the environmental and geological interests.	No significant heritage assets at risk. Some unknown heritage assets may be lost.	The cliff top footpath and Reculver Country Park visitor centre may be at risk and if possible should be realigned.

**Location reference:** Reculver Towers to Minnis Bay

**Policy Unit reference:** 4a14

### SUMMARY OF THE PLAN AND JUSTIFICATION

**Plan:**

*The frontage comprises a managed beach, which is predominantly backed by sparsely developed low lying land, which is of international nature and heritage conservation value. Under rising sea levels and a limited supply of contemporary beach building sediment, it is anticipated that it will become increasingly difficult to maintain a beach along this frontage. If the current alignment were to be held in the long-term, coastal squeeze together with a diminished supply of natural beach building sediment would lead to substantial hard defences and / or significant beach management. In addition, this site has been identified as one of the only locations where new saltwater habitats could be created to offset losses elsewhere without impinging on existing designated freshwater habitats and was therefore considered on balance, to be suitable for realignment for habitat creation purposes (subject to further more detailed studies).*

*The short term plan therefore is to continue protecting the assets, which include properties, local industries, footpaths, agricultural land and freshwater habitats. In the short term, it is imperative that a more sustainable approach to the intensive beach maintenance at Coldharbour is sought at the earliest opportunity. In the medium and long term the plan is to realign the defences east of Reculver Towers, allowing the shoreline to retreat in a controlled manner, under a policy of managed realignment.*

*No specific realignment 'line' has been defined but a maximum extent has been identified (see map). A realignment here could involve the loss of built assets; nominally residential properties, tourist facilities, local industries (oyster farm), agricultural land, saline lagoons, freshwater habitats and potentially unknown buried heritage. Realignment would however, create a coast that will not require ever increasing expenditure to maintain in the coming centuries, negate the effects of coastal squeeze and create important brackish and saline habitats. (The loss of the designated freshwater habitats and two saline lagoons would normally require mitigation measures to be implemented. An aspect which will require a detailed appraisal in the strategy study). It is anticipated that realignment along this stretch of the coast would involve the construction of secondary defences, to eliminate/reduce the risk of large scale flooding. Without defences, there would be significant flooding to the backing hinterland and therefore defences are required.*

*Reculver Towers and the small section of coast to the west would remain defended, due to the large scale flood risk and the international importance of the heritage assets. However, in the medium term the flood and erosion risks would need to be managed in conjunction with the neighbouring unit (4a13)*

**Preferred policies to implement Plan:**

**From present day:** The present day policy for Reculver Towers to Minnis Bay is to continue providing protection to the backing hinterland, under a policy of **hold the line**. The current defences and management practises will need to be upgraded to achieve this. Maintaining the defences will continue to reduce the flooding risks to the low-lying hinterland and the assets it supports i.e. properties, local industries, agricultural land and freshwater habitats. However, in response to ongoing sea level rise and limited feed of beach building material, it is

**Location reference:**        **Reculver Towers to Minnis Bay**

**Policy Unit reference:**    **4a14**

anticipated that the fronting beach will continue to narrow.

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**Medium-term:**        If the socio-economic, environmental and technical benefits are confirmed, then the medium term policy for Reculver Towers to Minnis Bay is to introduce a policy of **managed realignment**, along the majority of the frontage. Prior to implementation a suitable approach and secondary defence would need constructing or existing secondary walls would need to be upgraded to eliminate the risk of flood propagation to the hinterland (it is outside the scope of the SMP to determine either of these).

In implementing managed realignment along this section of the coast there is uncertainty regarding the shoreline's response. This is attributed to uncertainty regarding the scale of realignment, the amount of sea level rise and the future supply of sediment. There is also uncertainty regarding the impact on adjacent cells, with respect to sand sized sediment, which will require further study.

During this epoch, assets close to the current shoreline will undergo managed loss. Although no specific realignment line has been defined it is recommended that losses stop on the seaward side of the railway line.

It is envisaged that environmental transitions will be prominent during this epoch, as brackish and inter-tidal habitats replace some of the freshwater interests. This transition may require specific management intervention to maximise the environment benefits and limit potential habitat impacts.

At Reculver Towers and the small section of coast to the west, the plan is to continue managing the erosion and flood risks, under a policy of **hold the line**. This will maintain the international heritage assets and manage the risk of inundation.

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**Long-term:**        The long-term policy is to continue allowing the majority of this coastline to realign, albeit in a controlled manner, under a policy of **managed realignment**. This policy will allow a more flexible and sustainable approach to flood and erosion risk management. Reculver Towers will however, remain defended for as long as is technically and environmentally viable.

During this epoch it is envisaged that all defences will require periodic maintenance (and potential upgrading in response to sea level rise) and that the created brackish / saline habitats will become increasingly well-established during this epoch. Thus, under a scenario of accelerated sea level rise and limited natural feed, managed realignment is considered sustainable for the life time of the Shoreline Management Plan.

**Location reference:**        **Reculver Towers to Minnis Bay**

**Policy Unit reference:**    **4a14**

At Reculver Towers and the small section of coast to the west, the plan is to continue managing the erosion and flood risks, under a policy of **hold the line**. This will maintain the international heritage assets and manage the risk of inundation.

<b>Location reference:</b>		<b>Reculver Towers to Minnis Bay</b>				
<b>Policy Unit reference:</b>		<b>4a14</b>				
<b>IMPLICATIONS OF THE PLAN FOR THIS LOCATION</b>						
<b>Time Period</b>	<b>Management Activities</b>	<b>Property, Built Assets and Land Use</b>	<b>Landscape</b>	<b>Nature Conservation</b>	<b>Historic Environment</b>	<b>Amenity and Recreational Use</b>
<b>2025</b>	Maintain the existing shoreline structures and construct secondary defences.	Current built assets will be maintained.	The current landscape and land use will remain.	Existing habitats will be maintained.	Current heritage assets maintained.	Current amenity and recreational facilities will be maintained.
<b>2025 – 2055</b>	Maintain secondary structures / management practises.	Residential and commercial properties considered to be at risk in this period.	The current landscape and land use will alter, giving way to a transgressed shoreline and greater inter-tidal area.	Some freshwater areas give way to saline habitats.  Compensate for the reduction in freshwater interests.	Some unknown heritage assets may be exposed / at risk.	Current amenity and recreational facilities will change i.e. potential for green tourism, as the new habitats develop further.
<b>2055 – 2105</b>	Maintain secondary structures / management practises.	Residential and commercial properties considered to be at risk in this period.	The current landscape and land use will alter, giving way to a transgressed shoreline and inter-tidal areas.	Further freshwater areas give way to saline habitats.  Saline habitats will establish themselves.  Compensate for the reduction in freshwater interests.	Some unknown heritage assets may be exposed / at risk.	Current amenity and recreational facilities will change i.e. potential for green tourism, as the new habitats further develop.

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*The above provides the local details in respect of the SMP-wide Plan; therefore the above must be read in the context of the wider-scale issues, policy implications and funding, as presented in the preceding sections and Appendices to this Plan document.*

**Location reference:** Minnis Bay to Westgate-on-Sea

**Policy Unit reference:** 4a15

### SUMMARY OF THE PLAN AND JUSTIFICATION

**Plan:**

*Minnis Bay to Westgate-on-Sea is characterised by steep, chalk cliffs which are of international conservation and landscape importance. The towns of Birchington and Westgate are set back from the cliff top. Therefore the recommended policy is to continue maintaining defences where there is an economic justification. However, if through detailed studies an opportunity for not maintaining current defences are identified then this will be implemented.*

*Where there currently are no defences in place, a continuation of this is recommended, which will allow natural processes to take place and the geological and environmental and landscape assets to be realised. There could be a potential for loss of unknown heritage assets.*

**Preferred policies to implement Plan:**

**From present day:** The present day policy for Minnis Bay to Westgate-on-Sea is to **hold the line** continuing to maintain defences and subsequently assets where there is an economic justification. It is envisaged that this will be achieved through maintaining / upgrading the existing toe defences. (Note: the defences arrest erosion at the cliff toe but not at the cliff top, although the rate of erosion is reduced). It is acknowledged that the presence of these defences affects the environment and landscape quality of the cliffs. However, if through detailed studies an opportunity for not maintaining current defences is identified then a policy of no active intervention will be implemented.

Where there currently are no defences in place, a policy of **no active intervention** is recommended, which will allow natural processes to take place i.e. erosion of the chalk cliffs and the fronting rock platform as well as maintain / improve the geological, environmental and landscape interests.

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**Medium-term:** The medium term policy for Minnis Bay to Westgate-on-Sea is to **hold the line**, continuing to maintain defences and subsequently assets where there is an economic justification. It is envisaged that this will be achieved through maintaining / upgrading the existing toe defences. Again if through detailed studies an opportunity for not maintaining current defences is identified then a policy of no active intervention will be implemented.

Where there currently are no defences in place, a policy of **no active intervention** is recommended, which will allow natural processes to take place i.e. erosion of the chalk cliffs and the fronting rock platform as well as maintain / improve the geological, environmental and landscape interests.

Note: rates of cliff erosion (toe and top) may increase slightly during this epoch, due to the predicted rise in sea level and sub-aerial weathering. Despite ongoing sea level rise, erosion and transportation rates, along this frontage, will remain low. Therefore the general character of this frontage will not alter significantly.

**Location reference:** Minnis Bay to Westgate-on-Sea

**Policy Unit reference:** 4a15

**Long-term:**

The long-term policy for Minnis Bay to Westgate-on-Sea is to **hold the line**, continuing to maintain defences and subsequently assets where there is an economic justification. It is envisaged that this will be achieved through maintaining / upgrading the existing toe defences. Again if through detailed studies an opportunity for not maintaining current defences is identified then a policy of no active intervention will be implemented.

Where there currently are no defences in place, a policy of **no active intervention** is recommended, which will allow natural processes to take place i.e. erosion of the chalk cliffs and the fronting rock platform as well as maintain / improve the geological, environmental and landscape interests.

Rates of cliff erosion (toe and top) may increase slightly during this epoch, due to the predicted rise in sea level and sub-aerial weathering. Despite ongoing sea level rise, erosion and transportation rates, along this frontage, will remain low. Therefore the general character of this frontage will not alter significantly.



<b>Location reference:</b>		<b><i>Minnis Bay to Westgate-on-Sea</i></b>				
<b>Policy Unit reference:</b>		<b><i>4a15</i></b>				
<b>IMPLICATIONS OF THE PLAN FOR THIS LOCATION</b>						
<b>Time Period</b>	<b>Management Activities</b>	<b>Property, Built Assets and Land Use</b>	<b>Landscape</b>	<b>Nature Conservation</b>	<b>Historic Environment</b>	<b>Amenity and Recreational Use</b>
<b>2025</b>	Continue maintaining and improving defences where there is an economic justification.	The cliff top road, at the eastern end of this frontage, is believed to be at risk from cliff erosion.	A nominal amount of land is lost but the coastal landscape is maintained.	The current environmental and geological interests are maintained.	No known heritage assets are at risk. Some unknown heritage assets could be at exposed / at risk.	The current amenity and recreational facilities will be maintained.
<b>2025 – 2055</b>	Continue maintaining and improving defences where there is an economic justification.	Some properties could be at risk during this epoch.	A nominal amount of land is lost but the coastal landscape is maintained.	The current environmental and geological interests could improve.	No known heritage assets are at risk. Some unknown heritage assets could be exposed / at risk.	The current amenity and recreational facilities will be maintained.
<b>2055 – 2105</b>	Continue maintaining and improving defences where there is an economic justification.	Some properties could be at risk during this epoch.	A nominal amount of land is lost but the coastal landscape is maintained.	The current environmental and geological interests could improve.	No known heritage assets are at risk. Some unknown heritage assets could be exposed / at risk.	The current amenity and recreational facilities will be maintained.

**Location reference:** Margate

**Policy Unit reference:** 4a16

### SUMMARY OF THE PLAN AND JUSTIFICATION

**Plan:**

*This is a dense urban development fronted by a popular tourist beach that is also of international landscape and conservation importance. The plan is to continue protecting the frontage of this important town. The seafront is of great economic value due to tourism and as such, protecting the amenity assets and associated infrastructure is critical. As sediment supply to this frontage is low and the shoreline is held seawards of its natural alignment, narrowing of the beach and inter-tidal area are anticipated. Subsequently significant amounts of beach nourishment will be required if an amenity beach is to be maintained in the latter epochs.*

**Preferred policies to implement Plan:**

**From present day:** The present day policy is to **hold the line**, continuing to protect the densely populated town and substantial assets by maintaining the existing defences. With rates of sediment feed and transportation along this frontage being low, very little change in coastal processes or impacts on evolution are likely to occur within this epoch or indeed the timeframe of the SMP.

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**Medium-term:** The medium term policy is to continue to **hold the line**. In response to sea level rise it is anticipated that the defence structures and the need for beach management will increase at some point during this period.

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**Long-term:** The long-term policy for Margate is to **hold the line**. This is likely to be achieved by maintaining and upgrading the present defence structures. However, with the predicted rise in sea level and the existing defences fixing the plan form of the shoreline and the landward recession of the low water mark, it is predicted that the inter-tidal area will narrow. With little or no beach building material entering the system, retaining a beach in front of the substantial defence structures will become increasingly difficult. The situation will be exacerbated as sourcing suitable recharge material is likely to become problematic and expensive in the future. As such, the character of the town is likely to change if the characteristic sandy beaches within this policy unit cannot be maintained. In spite of this and in consideration of the need to prevent erosion of the chalk cliffs, this recommendation is deemed technically and environmentally viable for the duration of the Shoreline Management Plan.

<b>Location reference:</b>	<b>Margate</b>
<b>Policy Unit reference:</b>	<b>4a16</b>

**IMPLICATIONS OF THE PLAN FOR THIS LOCATION**

<b>Time Period</b>	<b>Management Activities</b>	<b>Property, Built Assets and Land Use</b>	<b>Landscape</b>	<b>Nature Conservation</b>	<b>Historic Environment</b>	<b>Amenity and Recreational Use</b>
<b>2025</b>	Maintain existing defences and current beach management practises.	Residential and commercial properties maintained.	Current landscape value maintained.	Current marine, inter-tidal and terrestrial habitats maintained.	Known heritage assets will be maintained.  Some unknown heritage assets may be exposed / lost.	Current amenity and recreational facilities maintained
<b>2025 – 2055</b>	Maintain / upgrade engineering and management practises to compensate for sea level rise and beach narrowing.	Residential and commercial properties maintained.	Increased engineering may have an adverse effect on the landscape and townscape	Current terrestrial habitats will be maintained but the inter-tidal habitats will be at risk.	Known heritage assets will be maintained.  Some unknown heritage assets may be exposed / preserved / lost.	Recreational value will be reduced due to denuding beach
<b>2055 – 2105</b>	Maintain / upgrade engineering and management practises to compensate for sea level rise and beach narrowing.	Residential and commercial properties maintained.	Increased engineering is likely to have an adverse effect on the landscape and townscape	Current terrestrial habitats will be maintained but the inter-tidal habitats will be at risk.	Known heritage assets will be maintained.  Some unknown heritage assets may be exposed/ preserved / lost.	Unless artificially maintained, little / no recreational beach will remain.

**Location reference:** Cliftonville (Fulsam Rock to White Ness)

**Policy Unit reference:** 4a17

### SUMMARY OF THE PLAN AND JUSTIFICATION

**Plan:**

*The frontage of Cliftonville marks the eastern extent of the North Kent coast. It is characterised by steep, chalk cliffs which are of international conservation and landscape importance. The town of Cliftonville is set back from the cliff top. Therefore the recommended policy is to continue maintaining defences where there is an economic justification. However, if through detailed studies an opportunity for not maintaining current defences are identified then this will be implemented.*

*Where there currently are no defences in place, a continuation of this is recommended, which will allow natural processes to take place and the geological and environmental and landscape assets to be realised. There could be a potential for loss of unknown heritage assets.*

**Preferred policies to implement Plan:**

**From present day:** The present day policy for Cliftonville is to **hold the line**, continuing to maintain defences and subsequently assets where there is an economic justification. It is envisaged that this will be achieved through maintaining / upgrading the existing toe defences. (Note: the defences arrest erosion at the cliff toe but not at the cliff top, although the rate of erosion is reduced). It is acknowledged that the presence of these defences affects the environment and landscape quality of the cliffs. However, if through detailed studies an opportunity for not maintaining current defences is identified then a policy of no active intervention will be implemented.

Where there currently are no defences in place, a policy of **no active intervention** is recommended, which will allow natural processes to take place i.e. erosion of the chalk cliffs and the fronting rock platform as well as maintain / improve the geological, environmental and landscape interests.

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**Medium-term:** The medium term policy for Cliftonville is to **hold the line**, continuing to maintain defences and subsequently assets where there is an economic justification. It is envisaged that this will be achieved through maintaining / upgrading the existing toe defences. Again if through detailed studies an opportunity for not maintaining current defences is identified then a policy of no active intervention will be implemented.

Where there currently are no defences in place, a policy of **no active intervention** is recommended, which will allow natural processes to take place i.e. erosion of the chalk cliffs and the fronting rock platform as well as maintain / improve the geological, environmental and landscape interests.

Note: rates of cliff erosion (toe and top) may increase slightly during this epoch, due to the predicted rise in sea level and sub-aerial weathering. Despite ongoing sea level rise, erosion and transportation rates, along this frontage, will remain low. Therefore the general character of this frontage will not alter

**Location reference:** Cliftonville (Fulsam Rock to White Ness)

**Policy Unit reference:** 4a17

significantly

**Long-term:**

The long term policy for Cliftonville is to **hold the line**, continuing to maintain defences and subsequently assets where there is an economic justification. It is envisaged that this will be achieved through maintaining / upgrading the existing toe defences. Again if through detailed studies an opportunity for not maintaining current defences is identified then a policy of no active intervention will be implemented.

Where there currently are no defences in place, a policy of **no active intervention** is recommended, which will allow natural processes to take place i.e. erosion of the chalk cliffs and the fronting rock platform as well as maintain / improve the geological, environmental and landscape interests.

Rates of cliff erosion (toe and top) may increase slightly during this epoch, due to the predicted rise in sea level and sub-aerial weathering. Despite ongoing sea level rise, erosion and transportation rates, along this frontage, will remain low. Therefore the general character of this frontage will not alter significantly.

<b>Location reference:</b>		<b>Cliftonville (Fulsam Rock to White Ness)</b>				
<b>Policy Unit reference:</b>		<b>4a17</b>				
<b>IMPLICATIONS OF THE PLAN FOR THIS LOCATION</b>						
<b>Time Period</b>	<b>Management Activities</b>	<b>Property, Built Assets and Land Use</b>	<b>Landscape</b>	<b>Nature Conservation</b>	<b>Historic Environment</b>	<b>Amenity and Recreational Use</b>
<b>2025</b>	Continue maintaining and improving defences where there is an economic justification.	No properties are considered to be at risk.	A nominal amount of land is lost but the coastal landscape is maintained.	The current environmental and geological interests are maintained.	No known heritage assets are at risk. Some unknown heritage assets could be exposed / at risk.	The current amenity and recreational facilities will be maintained.
<b>2025 – 2055</b>	Continue maintaining and improving defences where there is an economic justification.	No properties are considered to be at risk.	A nominal amount of land is lost but the coastal landscape is maintained.	The current environmental and geological interests could improve.	No known heritage assets are at risk. Some unknown heritage assets could be exposed / at risk.	The current amenity and recreational facilities will be maintained.
<b>2055 – 2105</b>	Continue maintaining and improving defences where there is an economic justification.	No properties are considered to be at risk.	A nominal amount of land is lost but the coastal landscape is maintained.	The current environmental and geological interests could improve.	No known heritage assets are at risk. Some unknown heritage assets could be exposed / at risk.	The current amenity and recreational facilities will be maintained.

**Location reference:** White Ness to Ramsgate

**Policy Unit reference:** 4b18

### SUMMARY OF THE PLAN AND JUSTIFICATION

**Plan:**

*White Ness to Ramsgate marks the northern extremity of the east Kent coast. It is characterised by steep chalk cliffs, of international conservation and landscape importance. The towns of Kingsgate and Broadstairs are, in places, set back from the cliff top. Therefore the recommended policy is to continue maintaining defences where there is an economic justification. However, if through detailed studies an opportunity for not maintaining current defences are identified then this will be implemented.*

*Where there currently are no defences in place, a continuation of this is recommended, which will allow natural processes to take place and the geological and environmental and landscape assets to be realised. There could be a potential for loss of unknown heritage assets.*

**Preferred policies to implement Plan:**

**From present day:** The present day policy for White Ness to Ramsgate is to **hold the line**, continuing to maintain defences and subsequently assets where there is an economic justification. It is envisaged that this will be achieved through maintaining / upgrading the existing toe defences. (Note: the defences arrest erosion at the cliff toe but not at the cliff top, although the rate of erosion is reduced). It is acknowledged that the presence of these defences affects the environment and landscape quality of the cliffs. However, if through detailed studies an opportunity for not maintaining current defences is identified then a policy of no active intervention will be implemented.

Where there currently are no defences in place, a policy of **no active intervention** is recommended, which will allow natural processes to take place i.e. erosion of the chalk cliffs and the fronting rock platform as well as maintain / improve the geological, environmental and landscape interests.

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**Medium-term:** The medium term policy for White Ness to Ramsgate is to **hold the line**, continuing to maintain defences and subsequently assets where there is an economic justification. It is envisaged that this will be achieved through maintaining / upgrading the existing toe defences. Again if through detailed studies an opportunity for not maintaining current defences is identified then a policy of no active intervention will be implemented.

Where there currently are no defences in place, a policy of **no active intervention** is recommended, which will allow natural processes to take place i.e. erosion of the chalk cliffs and the fronting rock platform as well as maintain / improve the geological, environmental and landscape interests.

Note: rates of cliff erosion (toe and top) may increase slightly during this epoch, due to the predicted rise in sea level and sub-aerial weathering. Despite ongoing sea level rise, erosion and transportation rates, along this frontage, will

**Location reference:** White Ness to Ramsgate

**Policy Unit reference:** 4b18

remain low. Therefore the general character of this frontage will not alter significantly.

**Long-term:** The long-term policy for White Ness to Ramsgate is to **hold the line**, continuing to maintain defences and subsequently assets where there is an economic justification. It is envisaged that this will be achieved through maintaining / upgrading the existing toe defences. Again if through detailed studies an opportunity for not maintaining current defences is identified then a policy of no active intervention will be implemented.

Where there currently are no defences in place, a policy of **no active intervention** is recommended, which will allow natural processes to take place i.e. erosion of the chalk cliffs and the fronting rock platform as well as maintain / improve the geological, environmental and landscape interests.

Rates of cliff erosion (toe and top) may increase slightly during this epoch, due to the predicted rise in sea level and sub-aerial weathering. Despite ongoing sea level rise, erosion and transportation rates, along this frontage, will remain low. Therefore the general character of this frontage will not alter significantly.



<b>Location reference:</b>		<b>White Ness to Ramsgate</b>				
<b>Policy Unit reference:</b>		<b>4b18</b>				
<b>IMPLICATIONS OF THE PLAN FOR THIS LOCATION</b>						
<b>Time Period</b>	<b>Management Activities</b>	<b>Property, Built Assets and Land Use</b>	<b>Landscape</b>	<b>Nature Conservation</b>	<b>Historic Environment</b>	<b>Amenity and Recreational Use</b>
<b>2025</b>	Continue maintaining and improving defences where there is an economic justification.	No properties are considered to be at risk.	A nominal amount of land is lost but the coastal landscape is maintained.	The current environmental and geological interests are maintained.	Grade II listed pub believed to be at risk. Some unknown heritage assets could be exposed / at risk.	The current amenity and recreational facilities will be maintained.
<b>2025 – 2055</b>	Continue maintaining and improving defences where there is an economic justification.	No properties are considered to be at risk.	A nominal amount of land is lost but the coastal landscape is maintained.	The current environmental and geological interests could improve.	No known heritage assets are at risk. Some unknown heritage assets could be exposed / at risk.	The current amenity and recreational facilities will be maintained.
<b>2055 – 2105</b>	Continue maintaining and improving defences where there is an economic justification.	Some cliff top built assets predicted to be at risk.	A nominal amount of land is lost but the coastal landscape is maintained.	The current environmental and geological interests could improve.	No known heritage assets are at risk. Some unknown heritage assets could be exposed / at risk.	The current amenity and recreational facilities will be maintained.

**Location reference:** Ramsgate Harbour

**Policy Unit reference:** 4b19

### SUMMARY OF THE PLAN AND JUSTIFICATION

**Plan:**

*The Ramsgate Harbour frontage comprises a dense urban area that extends to the shoreline. The seafront is of great economic value in terms of tourism. The harbour is also an important economic and commercial asset to the town and as such protecting the assets and associated infrastructure is critical. As sediment supply to this frontage is low and the shoreline is held seawards of its natural alignment, narrowing of the beach and inter-tidal area are anticipated. Subsequently significant amounts of beach nourishment will be required in the future if an amenity beach is to be maintained. The long term plan is to continue protecting development, which includes the residential, commercial and industrial assets.*

**Preferred policies to implement Plan:**

**From present day:** The present day policy is to continue to **hold the line** by maintaining the existing defence to protect the significant assets contained within the town and port; including assets that are important to the regional economy. This will be achieved by continuing to maintain the existing defences, i.e. harbour arms, jetties, seawalls. With rates of sediment feed and transportation along this frontage being low, very little change in coastal processes or impacts on evolution, are likely to occur within this epoch.

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**Medium-term:** The medium term policy is to continue to **hold the line**. This will be achieved by maintaining and, at some point during this epoch, upgrading the defence structures. This will protect the significant built assets from sea level rise.

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**Long-term:** The significant built assets along this frontage dictate that the long-term policy is to **hold the line**. To accomplish this and to keep pace with sea level rise, defences will need to be maintained and upgraded. Despite this, it is unlikely that the character of this frontage will change. Nonetheless the inter-tidal area will continue to narrow, exerting additional pressure and scour on the sea defences. As such further maintenance will be necessary. This recommendation is deemed technically and environmentally viable, for the duration of the Shoreline Management Plan.

<b>Location reference:</b>		<b>Ramsgate Harbour</b>				
<b>Policy Unit reference:</b>		<b>4b19</b>				
<b>IMPLICATIONS OF THE PLAN FOR THIS LOCATION</b>						
<b>Time Period</b>	<b>Management Activities</b>	<b>Property, Built Assets and Land Use</b>	<b>Landscape</b>	<b>Nature Conservation</b>	<b>Historic Environment</b>	<b>Amenity and Recreational Use</b>
<b>2025</b>	Continue with current defence structures.	All built assets are maintained.	Current landscape maintained.	Limited nature conservation interest along this frontage but the current marine and terrestrial habitats will be maintained.	No known heritage assets are at risk. Some unknown heritage assets could be exposed / at risk.	Current amenity and recreational facilities maintained.
<b>2025 – 2055</b>	Continue with current defence structures.	All built assets are maintained.	Current landscape maintained.	Limited nature conservation interest along this frontage but the current marine and terrestrial habitats will be maintained.	No known heritage assets are at risk. Some unknown heritage assets could be exposed / at risk.	Current amenity and recreational facilities maintained.
<b>2055 – 2105</b>	Upgrade and maintain the current defence structures.	All built assets are maintained.	Increased engineering could alter the landscape slightly.	Limited nature conservation interest along this frontage but the current terrestrial habitats will be maintained.	No known heritage assets are at risk. Some unknown heritage assets could be exposed / at risk.	Current amenity and recreational facilities maintained.

**Location reference:** *Ramsgate Harbour (west) to north of the River Stour*

**Policy Unit reference:** **4b20**

### SUMMARY OF THE PLAN AND JUSTIFICATION

**Plan:**

*This section of the coast is characterised by steep chalk cliffs in the east, which despite having a strategic road link to the port, running across the lower part of the slope and the town of Pegwell and holiday parks occupying a set back cliff top position, remains of international conservation and landscape importance. Fronting the chalk cliffs is a sand beach of amenity value. In the west the chalk cliffs give way to a small section of geologically important sandstone cliffs, on top of which lies the village of Cliffs End and then to low-lying land, which with the exception of the hoverport site is has no primary defences. Fronting the low-lying agricultural land are tidal flats, which extend to north of the River Stour and are of international nature conservation value. The recommended policy is to continue maintaining defences where there is an economic justification. However, if through detailed studies an opportunity for not maintaining current defences are identified then this will be implemented. Where there currently are no defences in place, a continuation of this is recommended, which will allow natural processes to take place and the geological and environmental and landscape assets to be realised. There could be a potential for loss of unknown heritage assets.*

*This section abuts the Stour Catchment Flood Management Plan at the Stour Estuary mouth near Sandwich and is also a section of coastline that has been addressed in more detail within the Pegwell to Kingsdown Coastal Management Strategy, where the preferred policy for 'Reach 1: Cliffs End to Stonar Cut' is to 'sustain', which concurs with the hold the line policy in this SMP.*

**Preferred policies to implement Plan:**

**From present day:** The present day policy for West Cliff to north of the River Stour is to **hold the line** continuing to maintain defences and subsequently assets where there is an economic justification and where there are potential contamination issues. It is envisaged that this will be achieved through maintaining / upgrading the existing defences. It is acknowledged that the presence of these defences affects the environment and the landscape quality. However, if through detailed studies an opportunity for not maintaining current defences is identified then a policy of no active intervention will be implemented.

Where there currently are no defences in place, a policy of **no active intervention** is recommended, which will allow natural processes to take place; maintaining and improving the geological, environmental and landscape interests.

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**Medium-term:** The medium term policy for West Cliff to north of the River Stour is to **hold the line**, continuing to maintain defences and subsequently assets where there is an economic justification and where there are potential contamination issues. It is envisaged that this will be achieved through maintaining / upgrading the existing defences. Again if through detailed studies an opportunity for not maintaining current defences is identified then a policy of no active intervention

**Location reference:** *Ramsgate Harbour (west) to north of the River Stour*

**Policy Unit reference:** **4b20**

will be implemented.

Where there currently are no defences in place, a policy of **no active intervention** is recommended, which will allow natural processes to take place and the geological, environmental and landscape interests will be maintained and improved.

Note: rates of cliff erosion may increase slightly during this epoch, due to the predicted rise in sea level and sub-aerial weathering. Despite ongoing sea level rise, erosion and transportation rates, along this frontage, will remain low.

**Long-term:**

The long-term policy for West Cliff to north of the River Stour is to **hold the line**, continuing to maintain defences and subsequently assets where there is an economic justification and where there are potential contamination issues. It is envisaged that this will be achieved through maintaining / upgrading the existing defences. Again if through detailed studies an opportunity for not maintaining current defences is identified then a policy of no active intervention will be implemented. Where there currently are no defences in place, a policy of **no active intervention** is recommended, which will allow natural processes to take place and the geological, environmental and landscape interests will be maintained and improved.

During this epoch it is unknown whether the tidal flats of Pegwell Bay will continue to accrete due to the predicted rise in sea level and uncertainty affiliated to sediment supply. However there is potential for rates of cliff erosion (toe and top) to increase slightly during this epoch, due to the predicted rise in sea level and a potential increase in sub-aerial weathering

<b>Location reference:</b>	<b><i>Ramsgate Harbour (west) to north of the River Stour</i></b>
<b>Policy Unit reference:</b>	<b><i>4b20</i></b>

**IMPLICATIONS OF THE PLAN FOR THIS LOCATION**

<b>Time Period</b>	<b>Management Activities</b>	<b>Property, Built Assets and Land Use</b>	<b>Landscape</b>	<b>Nature Conservation</b>	<b>Historic Environment</b>	<b>Amenity and Recreational Use</b>
<b>2025</b>	Continue maintaining and improving defences where there is an economic justification.	The current built assets will be maintained.	A nominal amount of land is lost but the coastal landscape is maintained.	The current environmental and geological interests are maintained.	No known heritage assets are at risk. Some unknown heritage assets could be exposed / at risk.	The current amenity and recreational facilities will be maintained.
<b>2025 – 2055</b>	Continue maintaining and improving defences where there is an economic justification.	The current built assets will be maintained.	A nominal amount of land is lost but the coastal landscape is maintained.	The current environmental and geological interests could improve.	No known heritage assets are at risk. Some unknown heritage assets could be exposed / at risk.	The current amenity and recreational facilities will be maintained.
<b>2055 – 2105</b>	Continue maintaining and improving defences where there is an economic justification.	Some built assets predicted to be at risk.	A nominal amount of land is lost but the coastal landscape is maintained.	The current environmental and geological interests could improve.	No known heritage assets are at risk. Some unknown heritage assets could be exposed / at risk.	The current amenity and recreational facilities will be maintained.

**Location reference:** ***South of the River Stour to Sandwich Bay Estate (north)***

**Policy Unit reference:** **4b21**

### SUMMARY OF THE PLAN AND JUSTIFICATION

**Plan:**

*A largely undeveloped frontage which is fronted by accreting sand dunes of international conservation importance and backed by nationally important golf links (Prince's Golf Links and Royal St George's Golf Links). The long-term policy here is to protect the town of Sandwich and limit large scale flood inundation, which concurs with the objectives of the 'River Stour Catchment Flood Management Plan' and the Sandwich Bay Strategy Study. Currently there are no formal shoreline defences in place, as the fronting sand dunes are accreting naturally and provide the required standard of protection. (Inland fluvial flood risk management practises will be maintained / implemented, which combined with the informal defences along the open coast will manage the flood risk to Sandwich). As such, it is anticipated that the continued provision of flood defence will not require hard defence. However, as the sand dunes are reliant on continued feed from updrift frontages and from offshore sources, it is strongly recommended that regular beach monitoring be undertaken, to ensure a suitable standard is maintained. If in the future, monitoring shows that the natural defence provided by the dunes does not keep pace with sea level rise and the risk of flood becomes unacceptable, or in the unlikely event that a breach in the dunes were to occur, then appropriate management practises would need to be put in place to limit the amount of flooding to the hinterland. Under this policy the nature conservation value will be maintained as the coastline functions naturally.*

*This section of coastline has also been addressed in more detail within the Pegwell to Kingsdown Coastal Management Strategy, where the preferred policy for 'Reach 2: Shell Ness to Sandwich Bay Estate' is 'Do Nothing', which concurs with the no active intervention policy in this SMP.*

**Preferred policies to implement Plan:**

**From present day:** The present day policy for south of the River Stour to Sandwich Bay Estate north is to introduce a policy of **no active intervention**. This will be a continuation of current practises i.e. the accreting sand dunes are substantial enough to withstand a 1:200 year event and provide protection to the substantial assets within Sandwich.

This policy has no adverse environmental or coastal process affects, sustaining the SAC, SPA, Ramsar, SSSI and NNR designations, nor is it detrimental to the built assets. However, as the sand dunes are reliant on continued feed from updrift frontages and from offshore sources, continued and stringent dune management is required.

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**Medium-term:** The medium term policy for south of the River Stour to Sandwich Bay Estate north is to continue with **no active intervention**. As no engineering structures are currently in place along this section of the coastline, comprehensive monitoring together with intervals of limited access will be required to ensure that the dunes remain healthy and the hinterland assets (Sandwich) remain sufficiently protected from flood risk.

**Location reference:** *South of the River Stour to Sandwich Bay Estate (north)*

**Policy Unit reference:** 4b21

With accelerated rates of sea level rise predicted, it is anticipated that the dunes could potentially come under some degree of pressure towards the latter stages of this epoch. Thus, in the unlikely event that a breach in the dunes were to occur then appropriate management practises would need to be put in place to limit the amount of flooding to the hinterland.

**Long-term:** The long-term plan for south of the River Stour to Sandwich Bay Estate north is to continue with a policy of **no active intervention**, which will continue to provide protection to the substantial built assets in Sandwich. Ideally protection will be achieved via the sand dunes, which are currently substantial enough to withstand a 1:200 year event.

However, with sea level rise predicted to accelerate during this epoch and uncertainty regarding sediment supply, the integrity of the dunes could come under threat. Should this be the case then active and preferably soft management of the dunes would be required (in conjunction with fluvial flood risk management practises along the River Stour). This approach will maintain the majority of the hinterland assets, although the golf links could experience periodic flooding. However, this policy would have no or limited adverse affects to the environment (SAC, SPA, Ramsar, SSSI and NNR designations) and coastal processes. Stringent beach monitoring is recommended to support this policy.



<b>Location reference:</b>		<b><i>South of the River Stour to Sandwich Bay Estate( north)</i></b>				
<b>Policy Unit reference:</b>		<b><i>4b21</i></b>				
<b>IMPLICATIONS OF THE PLAN FOR THIS LOCATION</b>						
<b>Time Period</b>	<b>Management Activities</b>	<b>Property, Built Assets and Land Use</b>	<b>Landscape</b>	<b>Nature Conservation</b>	<b>Historic Environment</b>	<b>Amenity and Recreational Use</b>
<b>2025</b>	Continue with current management practises i.e. managing the flood risk.	Flood risk to the town of Sandwich will remain managed.	Current landscape maintained.	Current environmental interests are maintained.	Current heritage assets maintained.	Current amenity and recreational facilities maintained (including backing golf links)
<b>2025 – 2055</b>	Continue with current management practises i.e. managing the flood risk.	Flood risk to the town of Sandwich will remain managed.	Current landscape maintained.	Current environmental interests are maintained.	Current heritage assets maintained.	Current amenity and recreational facilities maintained (including backing golf links)
<b>2055 – 2105</b>	Current flood management practises may need to change if there is significant dune erosion / sea level rise.	Some flooding of the backing hinterland could take place but flood risk to the town of Sandwich will remain managed.	Any increase in the management practises could, if not implemented sympathetically, have an adverse effect on the landscape.	The sand dune system may start to become vulnerable under storm conditions.  Some freshwater habitats could give way to brackish habitats.	Some unknown heritage assets may be exposed / at risk.	Some shoreline and hinterland facilities (i.e. golf links) may be affected.

**Location reference:** Sandwich Bay Estate (north) to Sandown Castle (remains of)

**Policy Unit reference:** 4b22

### SUMMARY OF THE PLAN AND JUSTIFICATION

**Plan:**

*The long term plan is to minimise flood risk and protect the backing hinterland and its associated assets. Land here is very low and flood inundation could potentially affect an extensive area. There is a possibility that flooding could combine with frontages up and down drift and extend to the north Kent coast, along the Reculver to Minnis Bay frontage. Continuing to provide flood protection will benefit the many assets at risk. A major impact of this policy will be the narrowing of the inter-tidal area. This will be highly susceptible to 'squeeze' under a scenario of sea level rise, thereby resulting in the possibility of little or no beach remaining in 100 years time. However, this will be offset by continuing to provide protection to environmental, residential and commercial assets, as well as regionally important infrastructure and nationally important golf links. There is the potential that due to the predicted rise in sea level alternative engineering options will be required (i.e. hard defences) in the long term.*

*This section of coastline has also been addressed in more detail within the Pegwell to Kingsdown Coastal Management Strategy, where the preferred policy for 'Reach 3: Sandwich Bay Estate' is 'Maintain' and the preferred policy for 'Reach 4: Sandwich Bay Estate to Deal Castle' is 'Improve', which concurs with the hold the line policy in this SMP.*

**Preferred policies to implement Plan:**

**From present day:** The present day policy for Sandwich Bay Estate (north) to Sandown Castle is to **hold the line** and continue protecting the low lying hinterland by upgrading the existing defences and monitoring the fronting shingle beach. This pressure on this coastline will be exacerbated in the future; with sea level rise it will become increasingly probable that hard defences will be required to provide the adequate standards of protection in the long term.

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**Medium-term:** The medium term policy for Sandwich Bay Estate (north) to Sandown Castle (remains of) is to continue to **hold the line**. In response to sea level rise it is anticipated that maintenance to the defence structures and beach management may need to increase at some point during this period.

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**Long-term:** The long term policy for Sandwich Bay Estate (north) to Sandown Castle is to continue to **hold the line**. However, although the position at which this is achieved will become increasingly difficult with the predicted rise in sea level and a continually diminishing sediment supply. To accomplish this, management practises may need to change at some point during this epoch. As such the character of this frontage is anticipated to change. Nonetheless, assets (infrastructure, socio-economic, environmental and residential) close to

**Location reference:**        **Sandwich Bay Estate (north) to Sandown Castle (remains of)**

**Policy Unit reference:**    **4b22**

and behind the shoreline will remain protected.

<b>Location reference:</b>	<b><i>Sandwich Bay Estate (north) to Sandown Castle (remains of)</i></b>					
<b>Policy Unit reference:</b>	<b><i>4b22</i></b>					
<b>IMPLICATIONS OF THE PLAN FOR THIS LOCATION</b>						
<b>Time Period</b>	<b>Management Activities</b>	<b>Property, Built Assets &amp; Land Use</b>	<b>Landscape</b>	<b>Nature Conservation</b>	<b>Historic Environment</b>	<b>Amenity &amp; Recreational Use</b>
<b>2025</b>	Maintain / upgrade current defence structures / management practises.	All built assets are maintained.	Current landscape maintained.	Current environmental interests are maintained.	No known heritage assets are at risk. Some unknown heritage assets could be exposed / at risk.	Current amenity and recreational facilities could be interrupted slightly as defence structures are upgraded.
<b>2025 – 2055</b>	Maintain the defence structures and management practises.	All built assets are maintained.	Current landscape maintained.	Current environmental interests are maintained but the fronting beach will denude.	No known heritage assets are at risk. Some unknown heritage assets could be exposed / at risk.	Current amenity and recreational facilities maintained.
<b>2055 – 2105</b>	Maintain / upgrade defence structures and potentially implement beach management practises under a scenario rising sea levels.	All built assets are maintained.	Upgrading defence structures could impact on the landscape along this stretch of coast.	Current environmental interests are maintained but the fronting beach will continue to denude.	No known heritage assets are at risk. Some unknown heritage assets could be exposed / at risk.	Some recreational facilities may reduce due to a denuding beach.

**Location reference:** Sandown Castle (remains of) to Oldstairs Bay

**Policy Unit reference:** 4b23

### SUMMARY OF THE PLAN AND JUSTIFICATION

**Plan:**

*The towns of Deal, Walmer and Kingsdown dominate this section of the coast. As such the built assets extend to the shoreline, which in many places is fronted by popular tourist beaches and backed by low-lying land, although this does rise to the south, towards Kingsdown. The plan is to continue protecting the towns of Deal, Walmer and Kingsdown and their associated seafronts, which are of great value to the local economy due to tourism. Under a scenario of sea level rise, a limited supply of contemporary sediment and the shoreline being held seawards of its natural alignment, a narrowing of the beach is predicted. Subsequently significant amounts of beach nourishment will be required if an amenity beach is to be maintained and existing defence structures will need to be upgraded if the built assets are to remain protected. There is a potential that upgrading defence structures here could alter the landscape quality along this section of the coast.*

*This section of coastline has also been addressed in more detail within the Pegwell to Kingsdown Coastal Management Strategy, where the preferred policy for 'Reach 4: Sandwich Bay Estate to Deal Castle' is 'Improve', the preferred policy for 'Reach 5: Deal castle to Walmer Castle' is 'Do minimum' and the preferred policy for 'Reach 6: Walmer Castle, Kingsdown and Oldstairs Bay' is 'Maintain', which concurs with the hold the line policy in this SMP.*

**Preferred policies to implement Plan:**

**From present day:** The present day policy is to **hold the line**, continuing to protect the towns of Deal, Walmer and Kingsdown and their associated assets by maintaining the defence structures.

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**Medium-term:** The medium term policy is to continue to **hold the line**. In response to sea level rise it is anticipated that the defence structures and beach management practises will need to increase at some point during this period. In continuing to maintain and upgrade the defence structures alongshore coastal processes will remain restricted but not completely interrupted.

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**Long-term:** The long-term policy is to continue to **hold the line**. This will be achieved by maintaining and upgrading the present defence structures. This will continue to protect assets from predicted sea level rise but will probably induce increased scour. Beaches along this section of the coast are anticipated to denude during this epoch and additional maintenance will be necessary to sustain an amenity driven frontage. If this becomes technically or economically unsustainable then alternative (hard engineering) options may need to be sought. If this were to be the case then the character of the frontage would change. This recommendation is deemed sustainable over the SMP timescale

although this may not be technically or economically viable in the much longer term.

<b>Location reference:</b>		<b>Sandown Castle (remains of) to Oldstairs Bay</b>				
<b>Policy Unit reference:</b>		<b>4b23</b>				
<b>IMPLICATIONS OF THE PLAN FOR THIS LOCATION</b>						
<b>Time Period</b>	<b>Management Activities</b>	<b>Property, Built Assets and Land Use</b>	<b>Landscape</b>	<b>Nature Conservation</b>	<b>Historic Environment</b>	<b>Amenity and Recreational Use</b>
<b>2025</b>	Maintain / upgrade current defence structures / management practises.	All built assets are maintained.	Current landscape maintained.	Current environmental interests are maintained.	No known heritage assets are at risk. Some unknown heritage assets could be exposed / at risk.	Current amenity and recreational facilities maintained.
<b>2025 – 2055</b>	Maintain the defence structures and management practises.	All built assets are maintained.	Current landscape maintained.	Current environmental interests are maintained but the fronting beach will denude.	No known heritage assets are at risk. Some unknown heritage assets could be exposed / at risk.	Current amenity and recreational facilities could be interrupted slightly as defence structures are upgraded.
<b>2055 – 2105</b>	Maintain / upgrade defence structures and potentially implement beach management practises under a scenario rising sea levels.	All built assets are maintained.	Upgrading defence structures could impact on the landscape along this stretch of coast.	Current environmental interests are maintained but the fronting beach will continue to denude.	No known heritage assets are at risk. Some unknown heritage assets could be exposed / at risk.	Some recreational facilities may reduce due to a denuding beach.

**Location reference:** Oldstairs Bay to St Margaret's Bay

**Policy Unit reference:** 4b24

### SUMMARY OF THE PLAN AND JUSTIFICATION

**Plan:**

*The steep chalk cliffs become coincident with the current shoreline at Oldstairs Bay and continue through to St. Margaret's Bay. The majority of this frontage is undeveloped, unprotected and eroding; as such the area is of high nature conservation and landscape value. However, there is a section in the north which is not natural. A former Ministry of Defence Rifle Range lies at the base of the cliffs and is formed on a piece of land that is held forward of the cliff line by a substantial concrete seawall. This is now falling into a state of disrepair and as contaminated land may be an issue, its removal may need to be managed during the course of the SMP. The long term plan is to allow the cliffs to erode. This will improve and maintain the important geological, environmental and landscape qualities of this frontage.*

*This section of coastline has also been addressed in more detail within the Pegwell to Kingsdown Coastal Management Strategy, where the preferred policy for 'Reach 7: MoD Rifle Range' is 'Do minimum / Managed Realignment', dependant on further analysis of the site and funding. These policies concur with the no active intervention policy in this SMP.*

**Preferred policies to implement Plan:**

**From present day:** The present day policy for Oldstairs Bay to St Margaret's is to continue allowing natural processes to operate i.e. erosion of the chalk cliffs, the rock platform and the cliff toe, under a **no active intervention** policy. This will maintain the environmental and geological assets, the landscape and a free functioning shoreline. Although a small amount of cliff top land will be lost, the majority of the assets are set back and as such not at risk during this epoch. Debris from cliff erosion will provide some natural shoreline protection to the cliff toe.

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**Medium-term:** The medium term policy for Oldstairs Bay to St Margaret's is to continue allowing natural processes to take place i.e. erosion of the chalk cliffs and erosion of the shoreline under a **no active intervention** scenario. In response to sea level rise it is anticipated that cliff erosion may increase slightly during this period.

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**Long-term:** The long-term policy for South Foreland is **no active intervention**, which will see continued erosion of the chalk cliffs, the rock platform and the shoreline. Despite the predicted rise in sea level rise erosion and transportation rates along this frontage will remain low. Continued erosion will maintain the coastal landscape, the environmental and geological assets and the naturally functioning coastline. This recommendation is deemed sustainable over the SMP timescale.



<b>Location reference:</b>		<b>Oldstairs Bay to St Margaret's Bay</b>				
<b>Policy Unit reference:</b>		<b>4b24</b>				
<b>IMPLICATIONS OF THE PLAN FOR THIS LOCATION</b>						
<b>Time Period</b>	<b>Management Activities</b>	<b>Property, Built Assets &amp; Land Use</b>	<b>Landscape</b>	<b>Nature Conservation</b>	<b>Historic Environment</b>	<b>Amenity and Recreational Use</b>
<b>2025</b>	No management activities, as such cliff erosion will continue	The MoD rifle range will continue to fail. No other built assets are at risk during this period. A small amount of cliff top land will be eroded.	The current coastal landscape will improve.	Continued erosion of the cliffs and a naturally functioning coast maintains and improves the environmental and geological interests.	No known heritage assets are at risk. Some unknown heritage assets could be exposed / at risk.	The current amenity and recreational facilities will be maintained.
<b>2025 – 2055</b>	No management activities, as such cliff erosion will continue.	The MoD rifle range will continue to fail. No other built assets are at risk during this period. A small amount of cliff top land will be eroded.	The current coastal landscape will continue to improve.	Continued erosion of the cliffs and a naturally functioning coast maintains and improves the environmental and geological interests.	No known heritage assets are at risk. Some unknown heritage assets could be exposed / at risk.	The current amenity and recreational facilities will be maintained.
<b>2055 – 2105</b>	No management activities, as such cliff erosion will continue.	No built assets are at risk. A small amount of cliff top land will be eroded.	There will be no structures impacting on the landscape therefore the current landscape will be enhanced.	Continued erosion of the cliffs and a naturally functioning coast maintains and improves the environmental and geological interests.	No known heritage assets are at risk. Some unknown heritage assets could be exposed / at risk.	Cliff top erosion may affect the coastal footpath and should this be the case it will need to be re-routed.

**Location reference:** St Margaret's Bay

**Policy Unit reference:** 4b25

### SUMMARY OF THE PLAN AND JUSTIFICATION

**Plan:**

*This unit covers the section of coast which contains the clifftop village of St Margaret's Bay as well as some development on the undercliff platform at the base of the cliffs. Thus the long-term plan for St Margaret's is to continue to protect the assets through defending the present position (the frontage has a history of defence and currently there are a number of management practises in place). This is technically viable due to the low erosion rates of chalk cliffs, the limited amount of beach building material chalk cliffs provide, low sediment transportation rates along this frontage, the frontage being naturally sheltered and the limited impact on adjacent frontages. It is acknowledged that defending the shoreline here may in the future impact upon the environmental quality of the cliffs. As such it is recommended that management practises are considerate to the surroundings.*

**Preferred policies to implement Plan:**

**From present day:** The present day policy for St Margaret's is to continue to **hold the line** and protect the assets, through maintaining existing defences and management practises. Holding the line ensures that erosion at the cliff toe is arrested but it does not ensure that for the cliff top. However, the rate of erosion is reduced. It is acknowledged that the presence of these defences adversely affects the environmental and landscape quality of the cliffs.

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**Medium-term:** The medium term policy is to continue defending St Margaret's under a policy of **hold the line**. Due to the nature of the cliffs geology, it is unlikely that rates of cliff erosion will increase during this epoch. However, under a scenario of sea level rise and coastal squeeze, it will become increasingly difficult to maintain a beach along this section of the coast. Therefore, beach nourishment may be required at some point during this epoch, if an amenity beach is to be maintained.

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**Long-term:** The long term policy is to continue defending the socio-economic assets affiliated to St Margaret's through a policy of **hold the line**. Protection would most likely be provided by upgrading the existing defence structures. As such the character of the frontage may change, as the amenity and landscape qualities reduce.

<b>Location reference:</b>	<b>St Margaret's Bay</b>					
<b>Policy Unit reference:</b>	<b>4b25</b>					
<b>IMPLICATIONS OF THE PLAN FOR THIS LOCATION</b>						
<b>Time Period</b>	<b>Management Activities</b>	<b>Property, Built Assets &amp; Land Use</b>	<b>Landscape</b>	<b>Nature Conservation</b>	<b>Historic Environment</b>	<b>Amenity and Recreational Use</b>
<b>2025</b>	Continue with the current management practises.	All built assets are maintained.	Current coastal landscape maintained.	Current environmental interests are maintained.	No known heritage assets are at risk. Some unknown heritage assets could be exposed / at risk.	The current amenity and recreational facilities will be maintained.
<b>2025 – 2055</b>	Maintain the defence structures and management practises.	All built assets are maintained.	Current coastal landscape maintained.	Current environmental interests are maintained but the fronting beach will denude.	No known heritage assets are at risk. Some unknown heritage assets could be exposed / at risk.	The current amenity and recreational facilities will be maintained.
<b>2055 – 2105</b>	Maintain / upgrade defence structures and potentially implement beach management practises under a scenario rising sea levels.	All built assets are maintained.	Upgrading defence structures could impact on the landscape along this stretch of coast.	Current environmental interests are maintained but the fronting beach will continue to denude.	No known heritage assets are at risk. Some unknown heritage assets could be exposed / at risk.	Some recreational facilities may reduce due to a denuding beach.

**Location reference:** South Foreland

**Policy Unit reference:** 4b26

### SUMMARY OF THE PLAN AND JUSTIFICATION

**Plan:**

*South Foreland marks the southern extremity of the SMP frontage. The steep chalk cliffs along this section of the coast are unprotected and eroding. This area is of high nature conservation and landscape value, with little cliff-top development. The long term plan is to allow continued cliff erosion, which will maintain the important geological and environmental interests of the frontage and its landscape quality.*

**Preferred policies to implement Plan:**

**From present day:** The present day policy for South Foreland is to continue allowing natural processes i.e. erosion of the chalk cliffs, the rock platform and the cliff toe, under a **no active intervention** policy. This will maintain the environmental and geological assets, the landscape and a free functioning shoreline. Although a small amount of cliff top land will be lost, the majority of the assets are set back and as such not at risk during this epoch. Debris from cliff erosion will provide some natural shoreline protection to the cliff toe.

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**Medium-term:** The medium term policy for South Foreland is to continue allowing natural processes to take place i.e. erosion of the chalk cliffs and erosion of the shoreline under a **no active intervention** scenario. In response to sea level rise it is anticipated that cliff erosion may increase slightly during this period.

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**Long-term:** The long-term policy for South Foreland is **no active intervention**, which will see continued erosion of the chalk cliffs, the rock platform and the shoreline. Despite the predicted rise in sea level rise, the erosion and transportation rates along this frontage will remain low. However, it is anticipated that a small number of properties may be at risk during this period, as their protection is not technically, economically or environmental viable. Continued erosion will maintain the coastal landscape, the environmental and geological assets and the naturally functioning coastline. This recommendation is deemed sustainable over the SMP timescale.

<b>Location reference:</b>		<b>South Foreland</b>				
<b>Policy Unit reference:</b>		<b>4b26</b>				
<b>IMPLICATIONS OF THE PLAN FOR THIS LOCATION</b>						
<b>Time Period</b>	<b>Management Activities</b>	<b>Property, Built Assets &amp; Land Use</b>	<b>Landscape</b>	<b>Nature Conservation</b>	<b>Historic Environment</b>	<b>Amenity &amp; Recreational Use</b>
<b>2025</b>	No management activities, as such cliff erosion will continue	No built assets are at risk. A small amount of cliff top land will be eroded.	Designated coastal landscape maintained.	Continued erosion of the cliffs and a naturally functioning coast maintains and improves the environmental and geological interests.	No known heritage assets are at risk. Some unknown heritage assets could be exposed / at risk.	The current amenity and recreational facilities will be maintained.
<b>2025 – 2055</b>	No management activities, as such cliff erosion will continue.	No built assets are at risk. A small amount of cliff top land will be eroded.	Designated coastal landscape maintained.	Continued erosion of the cliffs and a naturally functioning coast maintains and improves the environmental and geological interests.	No known heritage assets are at risk. Some unknown heritage assets could be exposed / at risk.	The current amenity and recreational facilities will be maintained.
<b>2055 – 2105</b>	No management activities, as such cliff erosion will continue.	No built assets are at risk. A small amount of cliff top land will continue to be eroded.	Designated coastal landscape maintained.	Continued erosion of the cliffs and a naturally functioning coast maintains and improves the environmental and geological interests.	No known heritage assets are at risk. Some unknown heritage assets could be exposed / at risk.	Cliff top erosion may affect the coastal footpath and should this be the case it will need to be re-routed

## 6 Action Plan

### 6.1 OBJECTIVES

The objectives of the Isle of Grain to South Foreland Action Plan are to:

- facilitate implementation of the Shoreline Management Plan (SMP) policies;
- identify when and where works are expected;
- identify and/or promote studies to further or improve understanding where this is required to resolve policy and/or implementation;
- develop a prioritised programme of strategy plan development and outline plan of possible schemes;
- establish actions required to deal with the consequences of the plan;
- establish actions required to resolve uncertainties;
- ensure the use of the SMP recommendations in spatial planning;
- establish a process for informing stakeholders of progress;
- identify procedures for the management of the SMP until its next review; and,
- establish a framework to monitor progress against the action plan and initiate future SMP review.

The following sections outline the steps required to ensure SMP recommendations are taken forward in the short term, both in planning and coast defence, and that necessary actions to facilitate the implementation of the longer-term policies are initiated as appropriate.

The Action Plan identifies the steps to be taken in the period up to the next review of the SMP. This is nominally a 5 - 10 year process, however the SMP provides for reassessment of this timescale should an earlier review be considered necessary.

#### 6.1.1 Funding Uncertainties

Defra has national policy responsibility for flood and coastal erosion risk management and provides funding through grant in aid to the Environment Agency which also administers grant for capital projects to Operating Authorities.

In 2009-2010, the Environment Agency will spend £700 million managing flood and coastal erosion risk across the UK. This budget has more than doubled from 10 years ago, and is set to increase by an estimated £100 million in 2010- 2011. In Wales, the Welsh Assembly Government is responsible for developing flood and coastal risk management policy and largely funds flood and coastal activities undertaken by operating authorities across Wales.

Despite this large commitment, the scale of coastal erosion and flood risks means we must prioritise projects to ensure we achieve the best possible results. Realistically, it is not possible to justify defending all locations to the same standard or in some cases at all.

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Coastal defences often protect against both coastal flooding and erosion. Inland flooding is also affected by how we manage coastal defences. Funding for coastal and flood defence is therefore linked. In each case, the Environment Agency employ a set of agreed indicators called 'outcome measures' to measure how effectively economic, social and environmental needs are met.

Public money is used as effectively as possible to reduce the risk to coastal communities, their property, infrastructure and the natural environment. Decisions on where to defend are based on risk assessment using a transparent, auditable and understandable process.

**Factors considered include:**

- Number of households at risk.
- Number of deprived households at risk.
- Impact of our actions on agricultural land and the farming community.
- Impact of our actions on the environment and wildlife.
- Whether erosion affects local community infrastructure and transport.
- Cost of building and maintenance.

Source: <http://www.environment-agency.gov.uk/homeandleisure/107641.aspx>

Shoreline Management Plans are an aid for government to determine future national funding requirements for flood and coastal erosion risk management. It should therefore be noted that, although the economic viability of the proposed policies has been assessed in broad terms as part of this SMP, a proposed policy of Hold the Line or Managed Realignment does not guarantee public funding for defence maintenance and / or capital works. Adoption and agreement to the SMP therefore does not commit Local Authorities, the Environment Agency or other partners to approve or fund any of the work or studies identified in the plan. Where it is unlikely that full funding will be available from the national flood risk management budget: third party or private funding will probably have to be part of the solution.

## **6.2 COASTAL DEFENCE MANAGEMENT ACTIVITIES**

In the most part, the policy recommendations of the Isle of Grain to South Foreland SMP2 will be implemented through the process of coastal defence strategy development/review and the subsequent implementation of coast defence schemes or other coastal management actions. The process of implementation will be underpinned by monitoring of the shoreline to identify ongoing behaviour (to confirm assumptions made in scenario development), together with targeted study/investigation where specific uncertainties need to be addressed to enable policy (short or longer term) implementation.

In this area, the entire frontage is routinely monitored as part of the South East Strategic Regional Coastal Monitoring Programme. This monitoring is undertaken based on frontage risk and is reviewed every five years to ensure that appropriate levels of monitoring and reporting is being carried out. The strategic regional monitoring programme is an essential part of the shoreline management processes

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and a general action from the SMP is to continue with this programme of monitoring and review it every 5 years. Where the Action Plan table below refers to the strategic regional monitoring programme this includes the proper storage and analysis of data to inform beach management practices, for example.

The consultation process has also highlighted a need to engage in a more effective way with local politicians, some stakeholders and the general public outside of the SMP process. Specific areas to target may be planning officers, Local Councillors and Local Schools.

Table 6.1 identifies Swale estuary wide studies that are required to inform the policies of units within and / or adjacent to the Swale estuary and the organisation that will be responsible for promoting these actions. These studies will be undertaken to inform further studies identified in both the Isle of Grain to South Foreland SMP2 and the Medway Estuary and Swale SMP.

Table 6.2 identifies the actions required to facilitate the implementation of the SMP policies for each individual policy unit. For each Policy Unit, Table 6.2 identifies:

- the recommended SMP policy for the unit;
- the nature of works required to implement the short term policy;
- any specific requirements for review of monitoring data from the unit;
- whether studies are required to either clarify or refine the policies or facilitate the medium to long term policies; and,
- the organisation who will be responsible for promoting the actions.

Both Tables set a prioritised programme for undertaking these actions. The relative priorities of each action are identified as:

- Very High (VH) within the next two years
- High (H) within the next five years;
- Medium (M) within the next ten years; and,
- Low (L) within the next twenty years.

For any policy other than No Active Intervention, Table 6.2 of the SMP assumes that all appropriate maintenance activities are undertaken from year 0 for all relevant epochs of the plan e.g. a Low priority action assumes that all required maintenance is undertaken to the coastal defence from year 0 of the plan until that action is undertaken.

**Table 6.1: Swale Estuary wide required monitoring and studies.**

Study requirement	Action to be promoted by	Priority
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Study requirement	Action to be promoted by	Priority
<p>Implement a study to assess the Freshwater Habitat needs of the Swale SPA &amp; Ramsar site to identify what change can occur through managed realignment whilst maintaining site integrity. This will need to be implemented as soon as practicable, build on existing data and include survey, investigations and an acceptable period of monitoring of the Freshwater Habitats.</p> <p>Before progressing this action, links shall be established with the Environment Agency led Regional Habitat Creation Programme and initiatives led by Defra EU Wildlife Division and the Environment Agency National FRM Habitats Policy Advisor. (See SMP Appropriate Assessment, Stage 4).</p>	Environment Agency & Natural England	VH
Develop Communications Plan and Programme to inform people affected by a change in coastline and to start the adaptation process	All	VH
Develop coastal management strategy, linked to the habitat management studies, for the Swale Estuary.	EA (lead), Swale BC	H
Future morphological evolution of the Swale Estuary, including creeks, taking into consideration sediment supply, climate change and sea level rise.	Environment Agency	H
Habitat creation study (linked to the Regional Habitat Creation Programme - RHCP) to inform the habitat creation potential for policy units in the Isle of Grain to South Foreland SMP2 not affected by Natura 2000 designations to compliment strategy studies.	Environment Agency	H
Monitoring of estuary wide changes in morphology and habitats within the Swale Estuary.	Environment Agency	H
Modelling to assess the in-combination effect of proposed managed realignments around the Swale Estuary (for policy units in both the Isle of Grain to South Foreland SMP2 and Medway Estuary and Swale SMP), on flood risk and morphology.	Environment Agency	H

**Table 6.2 Coastal defence management activities, monitoring and study requirements, by Policy Unit.**

Policy Unit		SMP Policy			Coast Defence Strategy	Strategy Review Required?	Engineering and Maintenance Works and Adaptation for Short Term Policy	Priority	Specific Monitoring Requirements	Priority	Specific Study Requirements	Priority	Actions to be promoted by
4a 01	Allhallows-on-Sea to Grain (south)	<b>HTL</b>	<b>MR</b>	<b>MR</b>	<b>TE2100</b>	Ongoing TE2100 studies should feed into the further studies identified in the Specific Study requirements column for this frontage.	Engage with affected parties to enable adaptation to the change in coastline.  Maintain beach  Undertake maintenance activities to hold the defence line, to maintain embankments and revetments.	<b>H</b>  <b>H</b> <b>L</b>	Undertake study to establish area of acceptable modification of freshwater habitat  Monitor beach and water levels as part of strategic regional monitoring programme  Survey, record and monitor heritage features in realignment areas.	<b>H</b>  <b>H</b>  <b>L</b>	Studies will be required to:  - determine the acceptable modification and best management of designated freshwater habitat;  - investigate the MR policy (best technical, environmental and economic option that best manages flood risk);  - investigate the impact on ground water level management;  - investigate the standard of protection, extent and alignment of set-back defences; and,  - undertake a fuller economic	<b>H</b>  <b>M</b>  <b>M</b>  <b>M</b>	Medway Council  Environment Agency  English Heritage  Natural England

**Table 6.2 Coastal defence management activities, monitoring and study requirements, by Policy Unit.**

Policy Unit		SMP Policy			Coast Defence Strategy	Strategy Review Required?	Engineering and Maintenance Works and Adaptation for Short Term Policy	Priority	Specific Monitoring Requirements	Priority	Specific Study Requirements	Priority	Actions to be promoted by
											evaluation.		
4a 02	Garrison Point to Minster	HTL	HTL	HTL	<b>Scoping Review of Cliff Erosion. Isle of Sheppey (2002); Isle of Sheppey Strategy plan 1998;</b>	Review Isle of Sheppey Strategy incorporating both flooding and erosion risks in a single strategy	Maintain beach. (recharge?)  Undertake engineering works and maintenance activities to hold the defence line, to maintain seawalls.	H  M	Monitor beach and water levels as part of strategic regional monitoring programme  Survey, record and monitor heritage features – Sheerness.	H  L			Swale Borough Council Environment Agency English Heritage
4a 03	Minster Town	HTL	HTL	HTL	<b>Scoping Review of Cliff Erosion. Isle of Sheppey (2002) Isle of Sheppey Strategy plan 1998</b>	Review Isle of Sheppey Strategy incorporating both flooding and erosion risks in a single strategy	Maintain beach and groynes.  Undertake engineering works and maintenance activities to hold the defence line, to maintain the seawalls.	H  M	Monitor beach and water levels	H	A fuller economic evaluation of potential benefits is recommended to further justify a policy of HTL.	M	Swale Borough Council Environment Agency
4a 04	Minster Slopes to Warden Bay	NAI	NAI	NAI	<b>Scoping Review of Cliff Erosion. Isle of Sheppey</b>	Review Isle of Sheppey Strategy incorporating both flooding and erosion	None		Monitoring shoreline retreat and erosion levels as part of strategic regional monitoring programme, Pro-actively implement exit plan	H	Develop exit plan for management of shoreline retreat and erosion, and eventual loss of properties.	H	Swale Borough Council Environment Agency English Heritage

**Table 6.2 Coastal defence management activities, monitoring and study requirements, by Policy Unit.**

Policy Unit		SMP Policy			Coast Defence Strategy	Strategy Review Required?	Engineering and Maintenance Works and Adaptation for Short Term Policy	Priority	Specific Monitoring Requirements	Priority	Specific Study Requirements	Priority	Actions to be promoted by
					<b>(2002)</b>	risks in a single strategy		strategy if required.  Survey and record heritage features.	<b>M</b>				
4a 05	Warden Bay to Leysdown-on-Sea	<b>HTL and MR</b>	<b>HTL and MR</b>	<b>HTL and MR</b>	<b>Scoping Review of Cliff Erosion. Isle of Sheppey (2002) Sheppey Strategy plan 1998</b>	Review Isle of Sheppey Strategy incorporating both flooding and erosion risks in a single strategy	Engage with affected parties to enable adaptation to the change in coastline.  Maintain beach and groynes at Leysdown-on-Sea.  Undertake engineering works and maintenance activities to hold the defence, to maintain seawalls and revetments along localised sections.  Construct set-back defences where MR (dependant on the outcomes of further studies regarding MR and realignment positions)	<b>H</b>  <b>H</b>  <b>M</b>  <b>M</b>	Monitoring shoreline retreat and erosion levels as part of strategic regional monitoring programme  Pro-actively implement exit plan strategy if required.  Survey and record heritage features in realignment area.  Monitor Leysdown beach and water levels.  Monitor habitat changes in MR area.	<b>H</b>  <b>H</b>  <b>H</b>  <b>M</b>	Studies will be required to:  - investigate the MR policy at The Bay (best technical, environmental and economic option that best manages flood risk);  - investigate the standard of protection, extent and alignment of set-back defences;  - undertake a fuller economic evaluation to further justify the HTL and MR policy; and,  - develop an exit strategy for removal of caravan park.	<b>H</b>  <b>H</b>  <b>H</b>	Swale Borough Council  Environment Agency  English Heritage

**Table 6.2 Coastal defence management activities, monitoring and study requirements, by Policy Unit.**

Policy Unit		SMP Policy			Coast Defence Strategy	Strategy Review Required?	Engineering and Maintenance Works and Adaptation for Short Term Policy	Priority	Specific Monitoring Requirements	Priority	Specific Study Requirements	Priority	Actions to be promoted by
4a 06	Leysdown-on-Sea to Shell Ness	<b>MR</b>	<b>MR</b>	<b>MR</b>	<b>Isle of Sheppey Strategy plan 1998</b>	Review Isle of Sheppey Strategy incorporating both flooding and erosion risks in a single strategy	Engage with affected parties to enable adaptation to the change in coastline.  Construct set-back defences (dependant on the outcomes of further studies regarding MR and realignment positions).	<b>H</b>  <b>M</b>	Undertake study to establish area of acceptable modification of freshwater habitat  Monitor Leysdown beach and water levels.  Survey, record and monitor unknown buried heritage features in realignment area  Monitor habitat changes in MR area.	<b>H</b>  <b>H</b>  <b>M</b>  <b>M</b>	Studies will be required to:  - investigate the MR policy (best technical, environmental and economic option that best manages flood risk);  - investigate the standard of protection, extent and alignment of set-back defences;  - investigate the impact on ground water level management;  - determine the acceptable modification and best management of designated freshwater habitat;  - undertake a fuller economic evaluation to further justify the	<b>H</b>  <b>H</b>  <b>H</b>  <b>H</b>	Swale Borough Council Environment Agency English Heritage Natural England

**Table 6.2 Coastal defence management activities, monitoring and study requirements, by Policy Unit.**

Policy Unit		SMP Policy			Coast Defence Strategy	Strategy Review Required?	Engineering and Maintenance Works and Adaptation for Short Term Policy	Priority	Specific Monitoring Requirements	Priority	Specific Study Requirements	Priority	Actions to be promoted by
											MR policy; and, - Develop an exit plan for the safe relocation of people and removal of properties at Shell Ness.	H	
4a 07A	Faversham Creek to the Sportsman Pub	HTL	MR	MR	<b>Faversham Creek to Whitstable Harbour Strategy 2004</b>	To review frontage in light of change to medium / long term policy	Engage with affected parties to enable adaptation to the change in coastline.  Option to construct set-back defences in the first epoch (dependant on the outcomes of further studies regarding MR and realignment positions).  Undertake maintenance activities to hold the line, to maintain the seawall.	H  M  L	Survey footprint of set-back defence and foreshore.  Survey, record and monitor in proposed realignment area  Undertake study to establish area of acceptable modification of freshwater habitat  Monitor beach and water levels as part of the strategic regional monitoring programme	H  H  H	Studies will be required to investigate:  - the MR policy (best technical, environmental and economic option that best manages flood risk);  - the option to realign in the first epoch should the need for habitat creation in the first epoch arise;  - the standard of protection, extent and alignment of set-back defences;  - compliance with SEA Directive	H  H  H	Canterbury City Council  Environment Agency  Swale Borough Council  English Heritage  Kent County Council - (funding for foreshore survey)  Natural England



**Table 6.2 Coastal defence management activities, monitoring and study requirements, by Policy Unit.**

Policy Unit		SMP Policy			Coast Defence Strategy	Strategy Review Required?	Engineering and Maintenance Works and Adaptation for Short Term Policy	Priority	Specific Monitoring Requirements	Priority	Specific Study Requirements	Priority	Actions to be promoted by
					<b>Strategy 2004</b>		works and maintenance activities to hold the defence line, to maintain the sea wall.	L	monitoring programme		of HTL.		
4a 09	Whitstable Town (Golf Course) to Whitstable Harbour	HTL	HTL	HTL	<b>Faversham Creek to Whitstable Harbour Strategy 2004</b>		Maintain beach and groynes.  Undertake engineering works and maintenance activities to hold the defence line, to maintain the sea wall.	H  L	Monitor beach and water levels as part of the strategic regional monitoring programme	H			Canterbury City Council  Environment Agency
4a 10	Whitstable Harbour (east) to Swalecliffe	HTL	HTL	HTL	<b>Tankerton Coastal strategy 1996</b>	Review ahead of next major recharge	Maintain beach with recharge and maintain / upgrade groynes.  Undertake engineering works and maintenance activities to hold the defence line, to maintain the sea wall	H  L	Monitor beach and water levels as part of the strategic regional monitoring programme	H	A fuller economic evaluation of potential benefits is recommended to further justify a policy of HTL.		<b>Canterbury City Council  Environment Agency</b>
4a 11	Swalecliffe to Herne Bay Breakwater	HTL	HTL	HTL	<b>Swalecliffe Coastal Strategy</b>	Due to commence in 2008	Undertake engineering works and maintenance activities to hold the defence line, to maintain the	H	Monitor beach and water levels as part of the strategic regional monitoring programme	H	Strategy study will include a fuller economic evaluation.	H	Canterbury City Council  Environment Agency



**Table 6.2 Coastal defence management activities, monitoring and study requirements, by Policy Unit.**

Policy Unit		SMP Policy			Coast Defence Strategy	Strategy Review Required?	Engineering and Maintenance Works and Adaptation for Short Term Policy	Priority	Specific Monitoring Requirements	Priority	Specific Study Requirements	Priority	Actions to be promoted by
							sea wall and revetment. Maintain beach and groynes.	H					
4a 12	Herne Bay Breakwater to Bishopstone Manor	HTL	HTL	HTL	<b>Herne Bay Coastal Strategy</b>	To commence in 2008/09	Maintain beach and groynes. Undertake engineering works and maintenance activities to hold the defence line, to maintain the sea wall.	H M	Monitor beach and water levels as part of the strategic regional monitoring programme	H	A fuller economic evaluation of potential benefits is recommended to further justify a policy of HTL.	H	Canterbury City Council Environment Agency
4a 13	Reculver Country Park	NAI	NAI	NAI	<b>Herne Bay Coastal Strategy</b>	To commence in 2008/09			Monitor shoreline retreat and erosion and survey, record and monitor heritage features.	H	Develop plan for management of shoreline retreat and erosion, relocation of paths etc.	H	Canterbury City Council Environment Agency
4a 14	Reculver Towers to Minnis Bay	HTL	MR	MR	<b>Reculver to Minnis Bay Coastal Strategy 1998</b>	To review frontage	Engage with affected parties to enable adaptation to the change in coastline. Maintain beach with recharge.	H H	Monitor beach and water levels as part of the strategic regional monitoring programme Survey, record and monitor heritage features	H L	Strategy review study will be required to: - investigate the MR policy (best technical, environmental and	H	Canterbury City Council Thanet District Council Environment Agency

**Table 6.2 Coastal defence management activities, monitoring and study requirements, by Policy Unit.**

Policy Unit		SMP Policy			Coast Defence Strategy	Strategy Review Required?	Engineering and Maintenance Works and Adaptation for Short Term Policy	Priority	Specific Monitoring Requirements	Priority	Specific Study Requirements	Priority	Actions to be promoted by
							Undertake engineering works and maintenance activities to hold the defence line, to maintain the sea wall and rock groynes.	L	in realignment area.		economic option that best manages flood risk); - investigate the standard of protection, extent and alignment of set-back defences; - investigate habitat creation potential; - investigate the impact on adjacent coastlines and land; - undertake a new economic evaluation to further justify the HTL and MR policies; - Particular note needs to be taken of the poor quality ground for foundation works of a new defence line and the potential impact of creating a sediment sink on the	H H H H H	

**Table 6.2 Coastal defence management activities, monitoring and study requirements, by Policy Unit.**

Policy Unit		SMP Policy			Coast Defence Strategy	Strategy Review Required?	Engineering and Maintenance Works and Adaptation for Short Term Policy	Priority	Specific Monitoring Requirements	Priority	Specific Study Requirements	Priority	Actions to be promoted by
											adjacent units; and, - Investigate impact on "fresh water" water in adjacent farmland	<b>H</b>	
4a 15	Minnis Bay to Westgate-on-Sea	<b>HTL and NAI</b>	<b>HTL and NAI</b>	<b>HTL and NAI</b>	None	Required to establish areas where maintenance / improvement works are required and areas where defences may cease to be maintained in the future. May be achieved by coastal risk assessment.	Engage with affected parties to enable adaptation to the change in coastline.  Undertake engineering works and maintenance activities to hold the defence line where HTL policy, to maintain the sea walls, none where NAI policy.	<b>H</b>  <b>M</b>	Monitor shoreline retreat and erosion where NAI as part of the strategic regional monitoring programme  Survey and record heritage features.	<b>M</b>  <b>M</b>	A fuller economic evaluation of potential benefits is recommended to further justify a policy of localised HTL.	<b>H</b>	Thanet District Council Environment Agency English Heritage
4a 16	Margate	<b>HTL</b>	<b>HTL</b>	<b>HTL</b>	None	Required to establish areas where maintenance / improvement works are required and	Maintain beaches.  Undertake engineering works and maintenance activities to hold the defence line, to maintain the	<b>H</b>  <b>L</b>	Monitor beach and water levels as part of the strategic regional monitoring programme	<b>H</b>	A fuller economic evaluation of potential benefits is recommended to further justify a policy of HTL	<b>H</b>	Thanet District Council Environment Agency

**Table 6.2 Coastal defence management activities, monitoring and study requirements, by Policy Unit.**

Policy Unit		SMP Policy			Coast Defence Strategy	Strategy Review Required?	Engineering and Maintenance Works and Adaptation for Short Term Policy	Priority	Specific Monitoring Requirements	Priority	Specific Study Requirements	Priority	Actions to be promoted by
						areas where defences may ceased to be maintained in the future May be achieved by coastal risk assessment.	sea wall.						
4a 17	Cliftonville	<b>HTL and NAI</b>	<b>HTL and NAI</b>	<b>HTL and NAI</b>	None	Required to establish areas where maintenance / improvement works are required and areas where defences may ceased to be maintained in the future May be achieved by coastal risk assessment.	Engage with affected parties to enable adaptation to the change in coastline.  Maintain beaches.  Undertake engineering works and maintenance activities to hold the defence line where HTL policy, to maintain the sea walls, none where NAI policy.	<b>H</b>  <b>H</b>  <b>L</b>	Monitor shoreline retreat and erosion where NAI. Monitor beach and water levels. as part of the strategic regional monitoring programme  Survey and record heritage features.	<b>H</b>  <b>M</b>	A fuller economic evaluation of potential benefits is recommended to further justify a policy of localised HTL	<b>H</b>	Thanet District Council  Environment Agency
4b 18	White Ness to Ramsgate	<b>HTL and NAI</b>	<b>HTL and NAI</b>	<b>HTL and NAI</b>	None	Required to establish areas where maintenance / improvement	Engage with affected parties to enable adaptation to the change in coastline.	<b>H</b>	Monitor shoreline retreat and erosion where NAI Monitor beach and water levels as part of the strategic regional	<b>M</b>	A fuller economic evaluation of potential benefits is recommended to further justify a policy of localised HTL	<b>H</b>	Thanet District Council  Environment Agency

**Table 6.2 Coastal defence management activities, monitoring and study requirements, by Policy Unit.**

Policy Unit		SMP Policy			Coast Defence Strategy	Strategy Review Required?	Engineering and Maintenance Works and Adaptation for Short Term Policy	Priority	Specific Monitoring Requirements	Priority	Specific Study Requirements	Priority	Actions to be promoted by
						works are required and areas where defences may ceased to be maintained in the future May be achieved by coastal risk assessment.	Maintain beaches  Undertake engineering works and maintenance activities to hold the defence line where HTL policy, to maintain the sea walls, none where NAI policy.	<b>H</b>  <b>L</b>	monitoring programme  Survey and record heritage features.	<b>H</b>			
4b 19	Ramsgate Harbour	<b>HTL</b>	<b>HTL</b>	<b>HTL</b>	None	Required to establish areas where maintenance / improvement works are required and areas where defences may ceased to be maintained in the future May be achieved by coastal risk assessment.	Undertake engineering works and maintenance activities to hold the defence line, to maintain the harbour arms.	<b>L</b>			A fuller economic evaluation of potential benefits is recommended to further justify a policy of HTL	<b>M</b>	Thanet District Council Environment Agency
**4b 20	*Ramsgate Harbour (west) to north of the	<b>HTL and NAI</b>	<b>HTL and NAI</b>	<b>HTL and NAI</b>	south of unit - <b>Sandwich Bay Coastal</b>	Required to establish areas where	Engage with affected parties to enable adaptation to the	<b>H</b>	Monitor shoreline retreat and erosion where NAI. as part of the strategic	<b>M</b>	A fuller economic evaluation of potential benefits is recommended	<b>H</b>	Thanet District Council Environment Agency

**Table 6.2 Coastal defence management activities, monitoring and study requirements, by Policy Unit.**

Policy Unit		SMP Policy			Coast Defence Strategy	Strategy Review Required?	Engineering and Maintenance Works and Adaptation for Short Term Policy	Priority	Specific Monitoring Requirements	Priority	Specific Study Requirements	Priority	Actions to be promoted by
	River Stour				<b>Strategy - Pegwell Bay to Kingsdown (River Stour CFMP)</b>	maintenance / improvement works are required and areas where defences may ceased to be maintained in the future May be achieved by coastal risk assessment.  Sandwich Bay Coastal Strategy ongoing.		change in coastline.  Undertake engineering works and maintenance activities to hold the defence line where HTL policy, to maintain the sea walls, revetments and groynes, none where NAI policy.	<b>L</b>	regional monitoring programme  Survey and record heritage features.	<b>M</b>	to further justify a policy of localised HTL	
**4b 21	*South of the River Stour to Sandwich Bay Estate (north)	<b>NAI</b>	<b>NAI</b>	<b>NAI</b>	<b>Sandwich Bay Coastal Strategy - Pegwell Bay to Kingsdown (River Stour CFMP)</b>	Strategy ongoing		Monitor shoreline retreat.  Monitor beach and water levels as part of the strategic regional monitoring programme  Survey record and monitor heritage features.	<b>H</b>  <b>H</b>  <b>M</b>	Studies will be required to investigate mitigation measures for loss of designated habitat.	<b>H</b>	Dover District Council  Environment Agency  English Heritage	
**4b 22	Sandwich Bay Estate (north) to Sandown Castle	<b>HTL</b>	<b>HTL</b>	<b>HTL</b>	<b>Sandwich Bay Coastal Strategy -</b>	Strategy ongoing	Maintain beach.  Undertake engineering	<b>H</b>  <b>L</b>	Monitor beach and water levels as part of the strategic regional	<b>H</b>		Dover District Council  Environment Agency	

**Table 6.2 Coastal defence management activities, monitoring and study requirements, by Policy Unit.**

Policy Unit		SMP Policy			Coast Defence Strategy	Strategy Review Required?	Engineering and Maintenance Works and Adaptation for Short Term Policy	Priority	Specific Monitoring Requirements	Priority	Specific Study Requirements	Priority	Actions to be promoted by
	(remains of)				<b>Pegwell Bay to Kingsdown</b>		works and maintenance activities to hold the defence line, to maintain revetments and embankments.		monitoring programme				
**4b 23	Sandown Castle (remains of) to Oldstairs Bay	<b>HTL</b>	<b>HTL</b>	<b>HTL</b>	<b>Deal to Kingsdown Coastal strategy 2001</b>		Maintain beach and groynes.  Undertake engineering works and maintenance activities to hold the defence line, to maintain the sea wall.	<b>H</b>  <b>L</b>	Monitor beach and water levels as part of the strategic regional monitoring programme  Survey record and monitor Scheduled Monuments.	<b>H</b>  <b>M</b>			Dover District Council Environment Agency English Heritage
**4b 24	Oldstairs Bay to St Margaret's Bay	<b>NAI</b>	<b>NAI</b>	<b>NAI</b>					Monitor shoreline retreat and erosion. as part of the strategic regional monitoring programme	<b>M</b>			Dover District Council Environment Agency
4b 25	St Margaret's Bay	<b>HTL</b>	<b>HTL</b>	<b>HTL</b>			Maintain beach and groynes.  Undertake engineering works and maintenance activities to hold the defence line, to maintain the sea wall.	<b>H</b>  <b>L</b>	Monitor beach and water levels as part of the strategic regional monitoring programme	<b>H</b>	A fuller economic evaluation of potential benefits is recommended to further justify a policy of HTL		Dover District Council Environment Agency

**Table 6.2 Coastal defence management activities, monitoring and study requirements, by Policy Unit.**

Policy Unit		SMP Policy			Coast Defence Strategy	Strategy Review Required?	Engineering and Maintenance Works and Adaptation for Short Term Policy	Priority	Specific Monitoring Requirements	Priority	Specific Study Requirements	Priority	Actions to be promoted by
4b 26	South Foreland	<b>NAI</b>	<b>NAI</b>	<b>NAI</b>					Monitor shoreline retreat and erosion as part of the strategic regional monitoring programme	<b>M</b>			Dover District Council Environment Agency

\* The Isle of Grain to South Foreland SMP abuts the River Stour Catchment Flood Management Plan (CFMP) at the River Stour estuary mouth near Sandwich. The River Stour CFMP covers the Stour catchment from the source down to its estuary mouth.

\*\* The Isle of Grain to South Foreland SMP overlaps with the Pegwell Bay to Kingsdown Coastal Management Strategy along these units. The Pegwell to Kingsdown Strategy builds upon the policies of the River Stour Catchment Flood Management Plan for the tidal River Stour and the policies of the Isle of Grain to South Foreland Shoreline Management Plan review for the coastline between Pegwell to Kingsdown .



### 6.3 APPLICATION OF THE SMP IN SPATIAL PLANNING

The risk management policies set out in the SMP cannot be implemented through engineering or coastal defence management alone. There is a need for spatial planning to adopt the policies and understand their consequences, such that risk areas are avoided by development, and future changes in policy are facilitated.

Table 6.3 sets out actions which aim to ensure that the SMP policies are appropriately reflected in the relevant Regional Plan and Local Development Frameworks, such that long term coastal erosion and flooding risks are a material consideration in the planning process.

**Table 6.3 Actions for Spatial Planning**

Action	Responsibility
1) Communicate the completion of the SMP to the South East England Regional Assembly (SEERA) to ensure appropriate reflection in the Regional Plan.	South East Coastal Group (Chair/Secretary)
2) Communicate the completion of the SMP to South East England Development Agency (SEEDA) to ensure appropriate reflection in the Regional Economic Strategy (RES).	South East Coastal Group (Chair/Secretary)
3) Inform Local Authority Planning Officers of final SMP recommendations and implications.	Local Authority Engineering Officers  Kent County Council – Kent Planning Officers Group (KPOG)
4) Submit SMP to Local Authority Planning Committees with recommendation to approve the SMP for consideration in preparation of planning documents and for development control purposes.	Local Authority Planning Officers to report to planning committee
5) Inclusion of the SMP as reference material for, or, an annex to the Local Development Framework.	Local Authority Planning Officers & Planning Committees
6) Promote the use of Strategic Flood Risk Assessment as part of the preparation of development framework documents.	Local Authority and Environment Agency Planning Officers
7) Ensure that SMP policies are integrated into Development Control activities to control development and flood risk.	Local Authorities & Environment Agency
Development Control Teams should pay particular	

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<b>Action</b>	<b>Responsibility</b>
attention to managed realignment and no active intervention policies and any associated drainage issues.	
8) Promote the development of planning policies to address potential housing stock losses through implementation of 'realignment' and 'no active intervention' policies.	Local Authority and Environment Agency Planning Officers
9) Promote the consideration of the relocation of land uses that are at risk from erosion or flooding, within the preparation of LDF documents. Identify elements of the preferred option policies where this may apply.	Local Authority and Environment Agency planning officers

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#### 6.4 **FURTHER ACTIONS TO FACILITATE MEDIUM/LONG TERM POLICIES**

In addition to the specific actions outlined in the preceding sections, there is also a need for some activities to be progressed, which require consideration at a scale beyond that of the SMP, and therefore are largely beyond the control of the Coastal Group (or its constituent organizations). However, it is important that the need for these studies is promoted with the relevant bodies.

These studies/initiatives and the actions for the Coastal Group are outlined in Table 6.4.

**Table 6.4 Further Actions to facilitate medium/long term policies**

Action	Responsibility
1) Formal adoption of the SMP by the lead authority, the Regional Flood Defence Committee, Natural England and other partner authorities.	South East Coastal Group, Elected Members and Local Authority Officers.
2) Promote the investigation, and implementation, of mechanisms to facilitate the removal of 'at risk' assets (properties, infrastructure, etc), to enable the implementation of long term realignment/NAI policies. This will require a review of national policy/legislation.	South East Coastal Group to promote with Defra, through ongoing 'Making Space for Water' initiatives.
3) Promote a formal, policy, link between SMPs and Local Development Frameworks/Regional Plans. This will require Defra and ODPM to review current arrangements.	South East Coastal Group to promote with Defra through Coastal Group Chairs forum.
4) Promote Central Government funding for all consultation/stakeholder activities in the development of SMPs, and strategies/schemes.	South East Coastal Group to promote with Defra through Coastal Group Chairs forum.
5) Take account of overall Plan, i.e. other immediate-term needs and long-term planning, when considering nature conservation commitments.	Natural England and other regulatory/stakeholder organizations.
6) Develop exit strategies/management plans for the relocation of people and removal of assets when they become at immediate risk from erosion.	Local Authority Technical Officers and Planning officers.

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<b>Action</b>	<b>Responsibility</b>
7) Develop medium to long-term plans for relocation of services and facilities that will be lost to erosion, e.g. outfalls, highways.	Service and utility providers, highways agencies.
8) Lobby Central Government in defining a clearer position on compensation issues.	Local Authorities, South East Coastal Group and Local Government Association coastal Special Interest Groups.
9) Develop and promote a communication strategy / awareness raising / education of the public with regards to potential future coastal issues and SMP recommendations.	South East Coastal Group to promote in conjunction with Kent County Council and the Environment Agency.

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## **6.5** ***MANAGEMENT OF SMP UNTIL NEXT REVIEW***

Through the implementation of actions outlined in sections 6.2 to 6.4 it is likely that the technical understanding of this coastline, the basis of some SMP policies, and the wider shoreline management framework may change. As such, it is important that progress against these actions is monitored by the Coastal Group so that any developments which might affect policy, and hence works, are notified, and also so that the need for revision of the SMP can be monitored.

Tables 6.1 to 6.4 effectively provide a checklist against which progress can be monitored. It will be the responsibility of the Coastal Group to promote and monitor progress, with the Action Plan retained on the agenda for all future Coastal Group meetings.

The Isle of Grain to South Foreland SMP2 page of the Group website (<http://www.se.coastalgroup.org.uk/>) will have an 'Updates' page, on which this Action Plan will be placed and progress against the actions reported. This will include identification of the implications of any study outputs or wider developments for the relevant SMP policies. The 'updates' are important as the means of disseminating progress to stakeholders and, as such, the existence of this page will be reported during the final SMP dissemination process. The responsibility for maintaining the 'Updates' page will remain with the Coastal Group.

It is not possible at this time to set a date for the next review of the SMP. It is considered likely that a 5 to 10 year period may be appropriate. However, it is vital that changes in understanding or the shoreline management framework are monitored to establish if there comes a point (within the next 5 to 10 years) that the SMP policies become sufficiently out of date as to warrant a full review of the plan. This will be a judgment made by the Coastal Group, as it is not possible to prescribe exactly at what point this should be.

Regardless of other developments, it is considered that the review should be undertaken in 10 years (if not before) in order to ensure the policies remain appropriate.

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