North Devon and Somerset Coastal Advisory Group (NDASCAG)

Shoreline Management Plan Review (SMP2)
Hartland Point to Anchor Head

Shoreline Management Plan (Final)

October 2010

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Contents Amendment Record

This report has been issued and amended as follows:

Issue	Revision	Description	Date	Approved by
1	0	Draft – for Public Consultation	October 2009	HJ/GO
2	1	Working Version for CSG Review	12th April 2010	AF
3	2	Draft Final for second NQRG review	14th May 2010	JR
4	3	Draft Final for Adoption	31st July 2010	JR
5	4	Final	19th October 2010	JR

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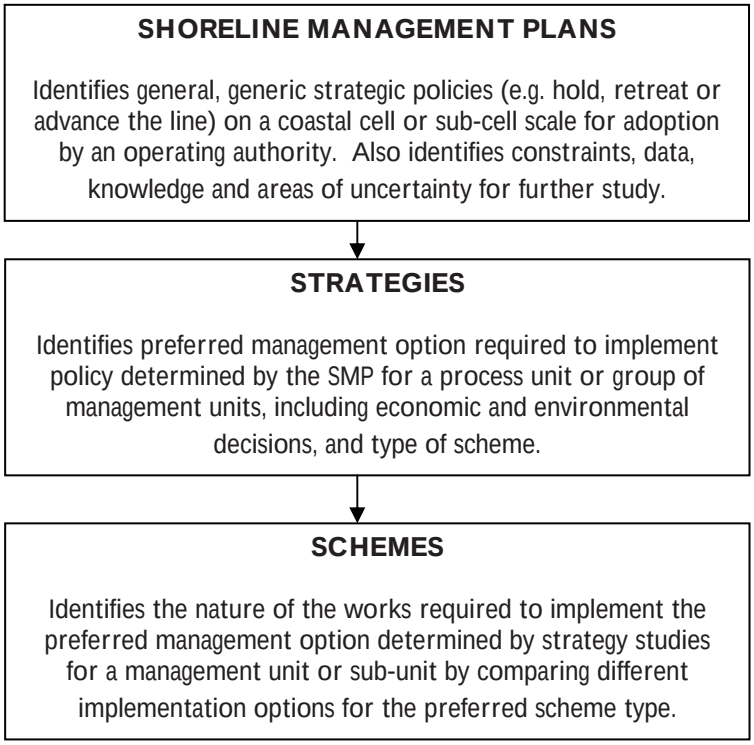
1 Introduction

1.1 The Shoreline Management Plan

A Shoreline Management Plan (SMP) provides a large-scale assessment of the risks associated with coastal evolution. It includes a policy framework to address these risks in a sustainable manner with respect to people and the developed, historic and natural environment. 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). The SMP provide the policy framework from which more detailed strategies and schemes are developed to identify the best way of implementing policy. Figure 1.1 shows where SMP sits in terms of the overall context of flood and coastal erosion risk management in the UK.

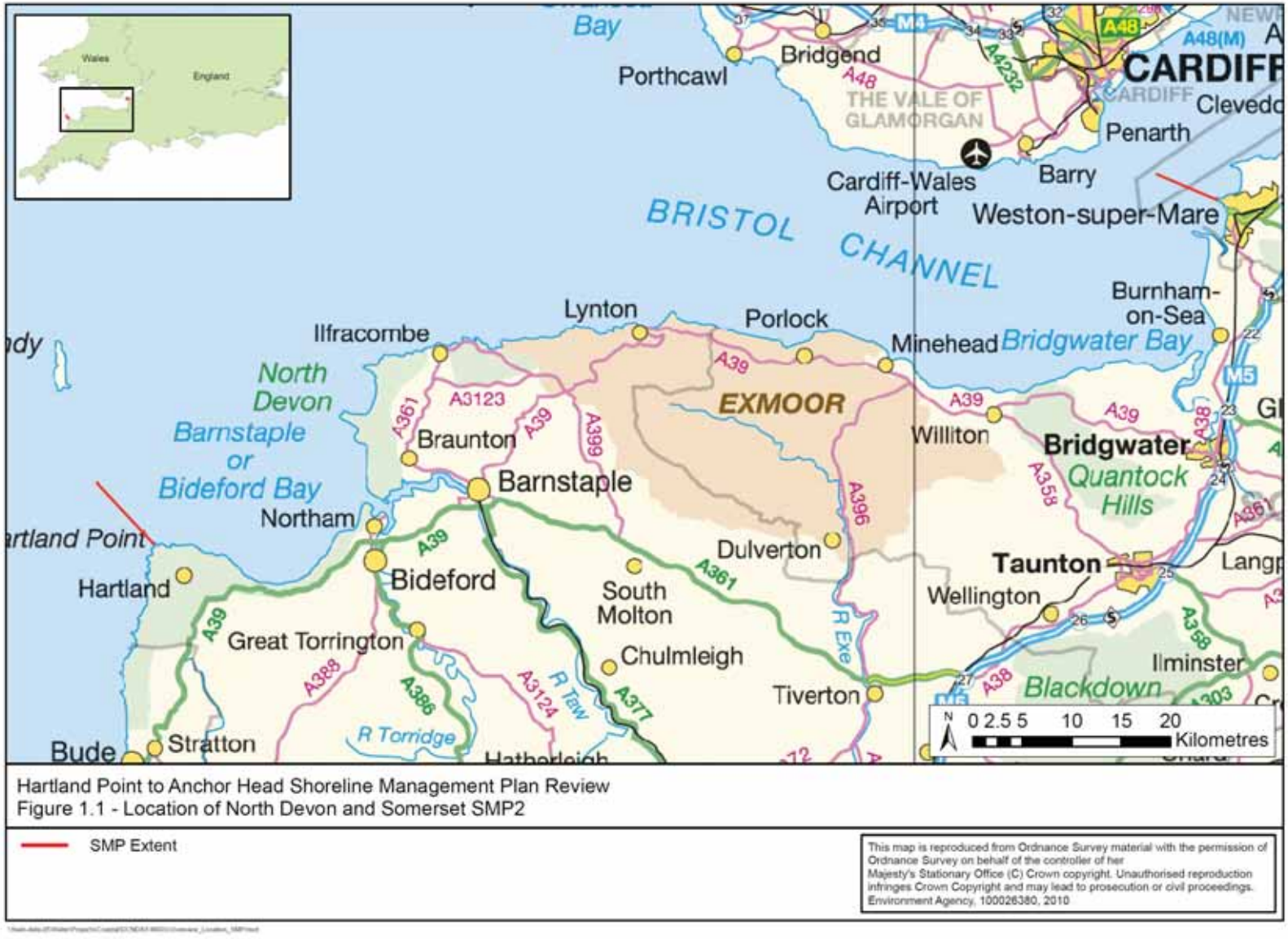
Figure 1.1 Stages in Implementing UK Coastal Management Policy and Legislation (adapted from* Atkins 2004 *and* Defra 2001*)



This document provides the first revision to the original Bridgwater Bay to Bideford Bay SMP, that covered the area from Hartland Point to Brean Down (including Lundy Island) and part of the original Severn Estuary SMP covering the coast between Brean Down and Anchor Head). These were adopted in 1998 and 2000 respectively. The change in extent between the first SMP and this SMP revision is in recognition of the potential for a breach of the dunes to the south of Brean Down that would potentially affect Weston Bay to the north. To take account of this potential linkage, the boundary of the SMP was moved from the south to the north side of Weston Bay, to Anchor Head.

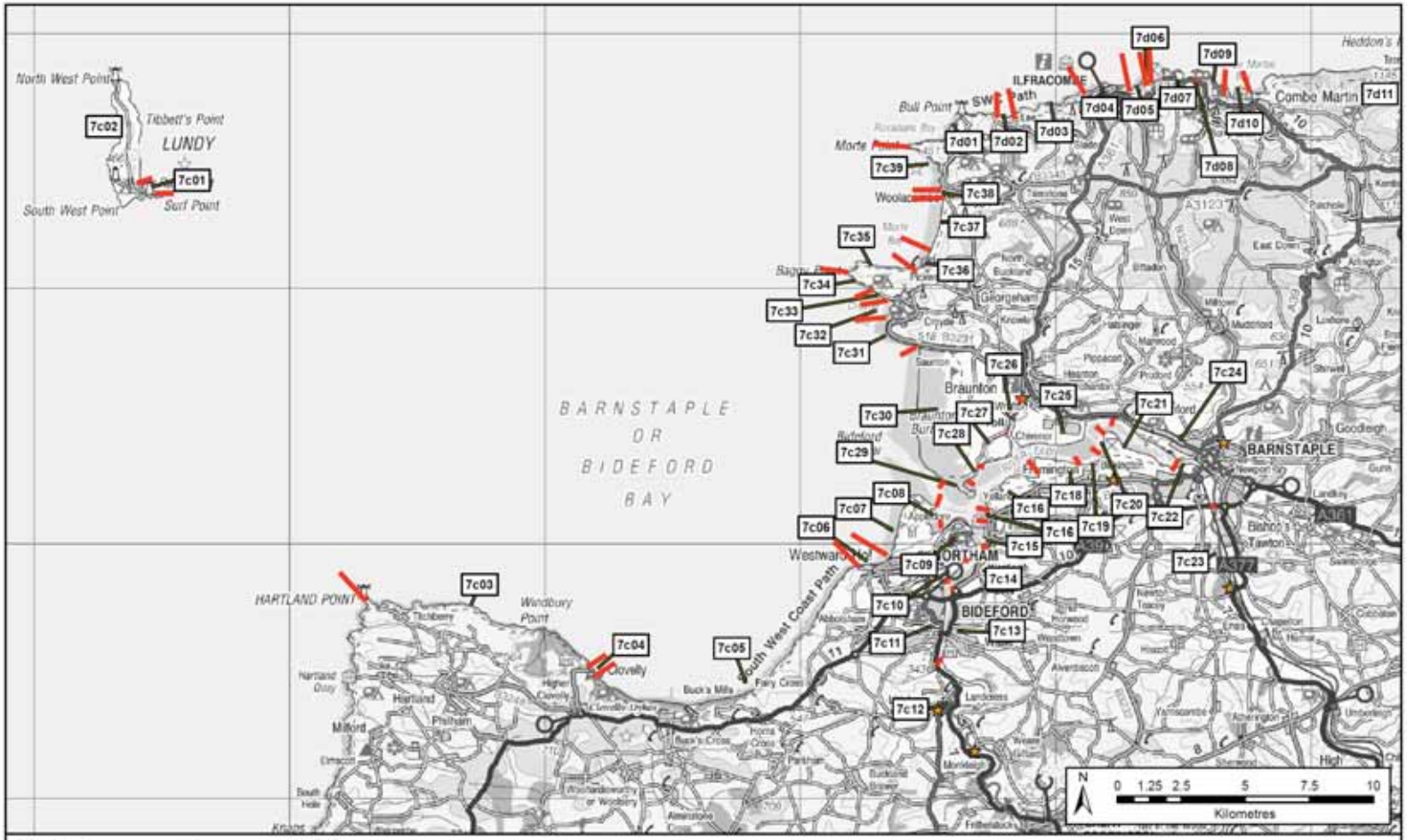
Figure 1.2 shows the area covered by the North Devon and Somerset SMP whilst Figures 1.3a to 1.3c show the location of policy units along the SMP frontage.

The structure of the SMP documents, and how they relate to each other, is summarised in the flow chart on the following page in Figure 1.4. Further details of this structure are provided in **Section 1.2**.



Hartland Point to Anchor Head Shoreline Management Plan Review
Figure 1.1 - Location of North Devon and Somerset SMP2

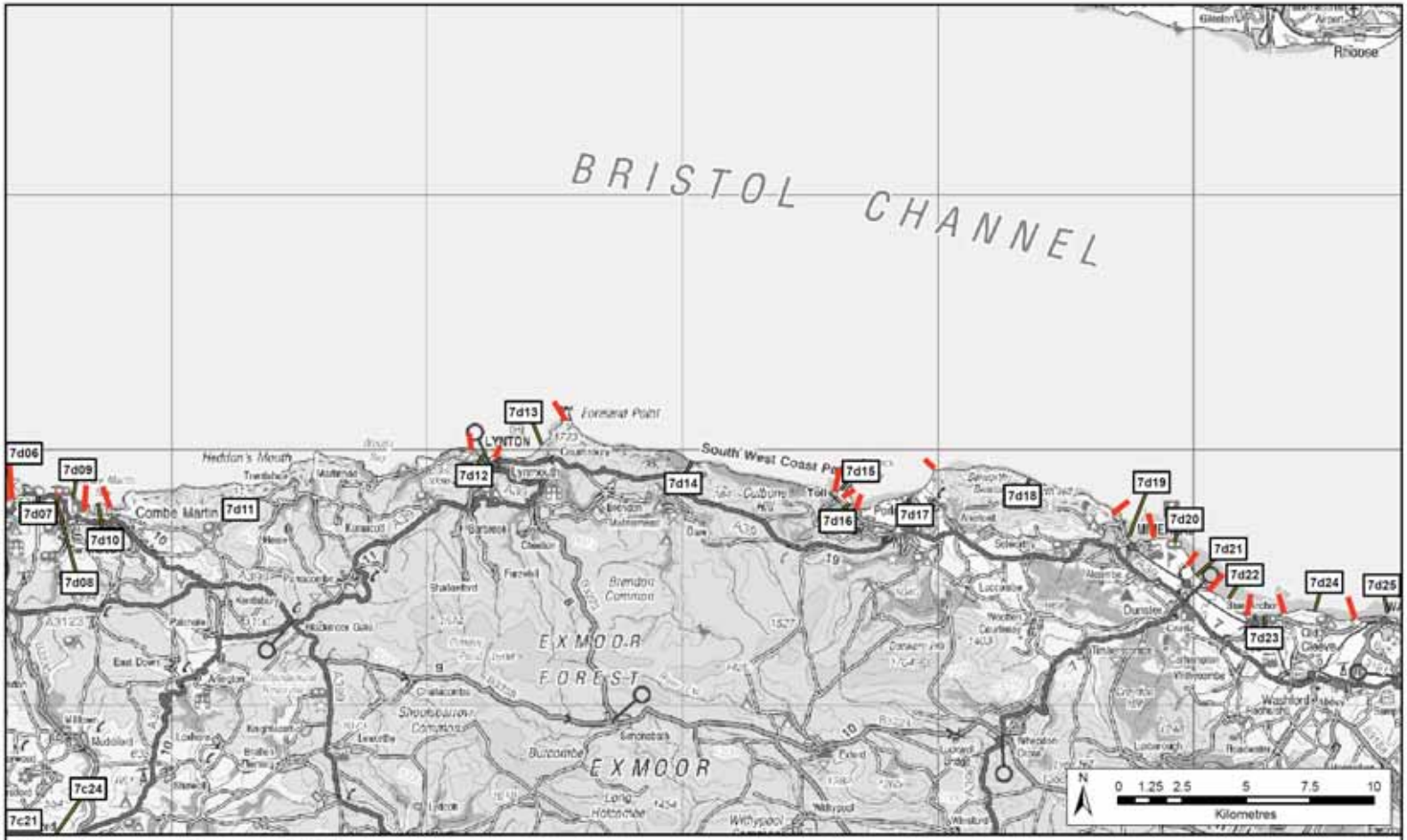
SMP Extent



North Devon and Somerset SMP2
Figure 1.3(a) - Overview Map (1 of 3)

Policy Unit Boundary

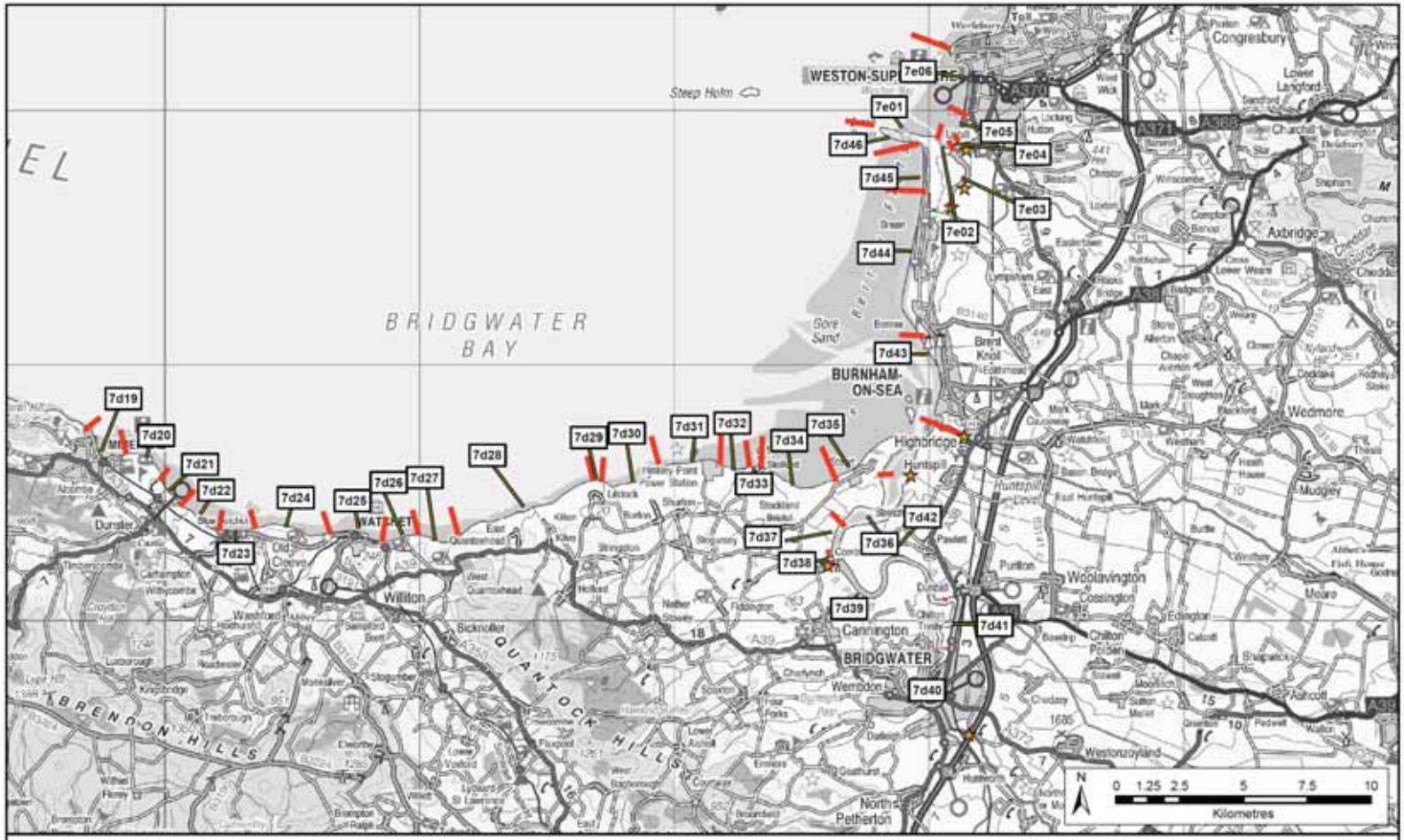
Tidal Estuary Limit



North Devon and Somerset SMP2
Figure 1.3(b) - Overview Map (2 of 3)

Policy Unit Boundary

Tidal Estuary Limit



North Devon and Somerset SMP2
Figure 1.3(c) - Overview Map (3 of 3)

Policy Unit Boundary

Tidal Estuary Limit

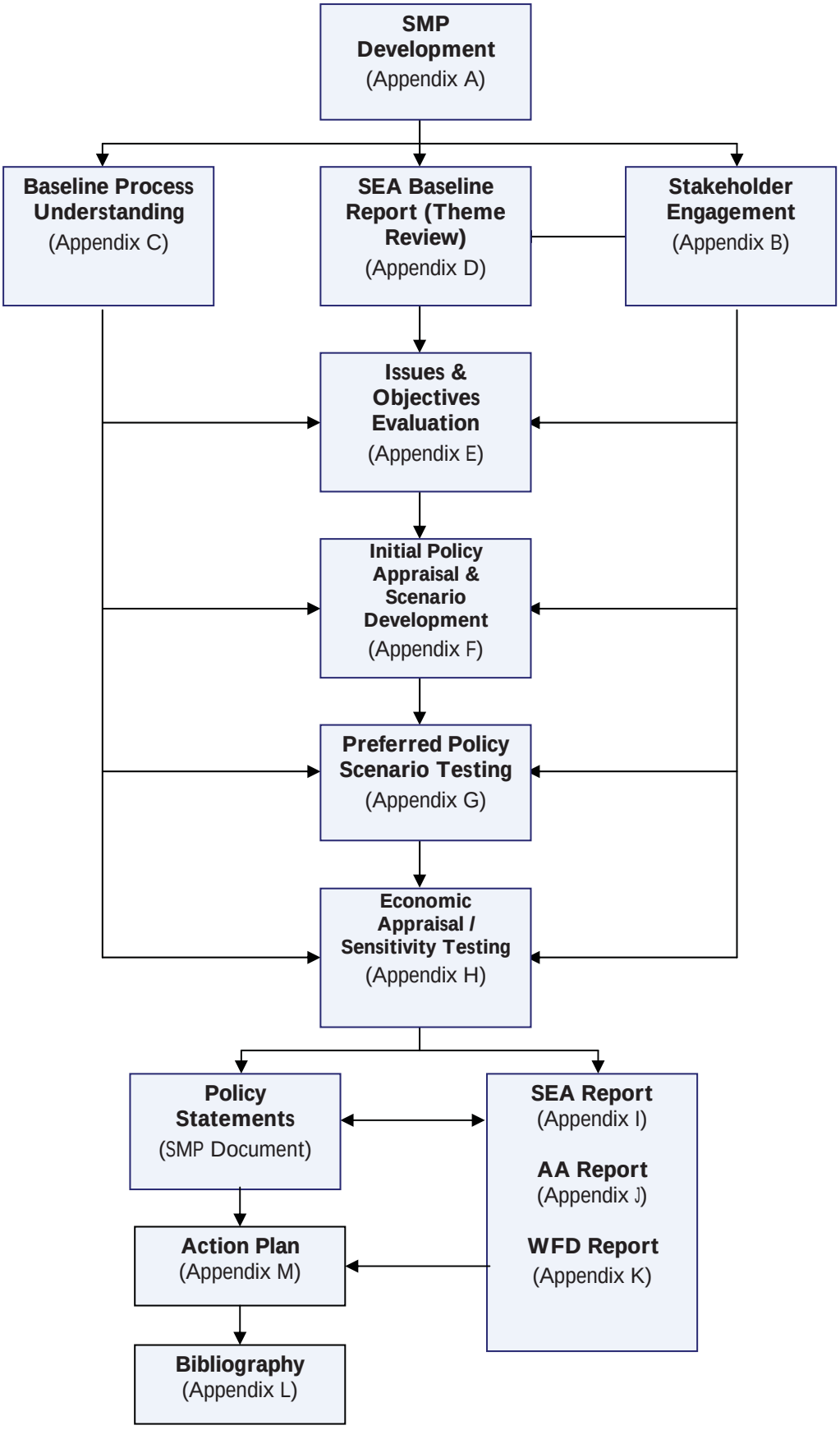


Figure 1.4 Flow chart showing how the SMP documents are structured

1.1.1 Guiding principles

The SMP is a non-statutory policy document for coastal 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[1]. The SMP does not set policy for anything other than coastal defence management.

The SMP promotes management policies for the coastline into the 22nd Century to achieve long-term objectives, while being technically sustainable, environmentally acceptable and economically viable. It is, however, recognised that given the differences between short and long term objectives, changes to management policy in the short term may be unacceptable. Thus, the SMP provides an approach for meeting objectives through appropriate management change, i.e. a 'route map' for decision makers to move from the present situation towards the 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 and processes within the estuaries also covered by the plan, these objectives provide a thorough basis upon which to appraise the benefits and impacts of alternative policies, both locally and SMP area wide. In this way, the selection of policy takes equal account of all relevant features in identifying the best sustainable management solutions.

This North Devon and Somerset SMP2 covers original SMPs of (1) Hartland Point to Brean Down, including Lundy Island, and (2) the Severn Estuary coastline, specifically the part between Brean Down and Anchor Head, which is identified as coastal process sub-cells 7c, 7d, and 7e in a 1994 study for MAFF, now Defra. Since that time many lessons have been learned. Reviews funded by Defra (2001, 2003) have examined the strengths and weaknesses of various plans and revised guidance has been issued. Some of this guidance is targeted at achieving greater consistency in the assessments and presentation of these plans, but more fundamental issues were identified, which this and other SMP reviews have to 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 the SMP is realistic, given known legislation and constraints, both human and natural, and not promise what cannot be delivered. There would be no value in a long-term plan which proposes policies that are driven by short-term politics and which cannot be justified once implementation is considered several years in the future. Equally, whilst the affordability of each policy has been considered, its adoption by the local authorities involved does not represent a commitment to fund their implementation. Ultimately, the economic viability of policy implementation must be considered in the context

[1] 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. Under the Act, Regional Planning Guidance for the South-West (RPG10) is being replaced by the South West Regional Spatial Strategy (RSS), the draft of which was approved by the Regional Assembly and submitted to the minister in April 2006. The final RSS is due for publication in the summer of 2009. The South West RSS recognises the need for an integrated approach to managing the coastal zone, recognising the links between the natural and historic environment, social, recreational and economic value of the coastal area, and flood and erosion risk management. Policies CO1: Defining the Coastal Zone, CO2: Coastal Planning, F1: Flood Risk are relevant, with Policy CO1 presuming against development of the undeveloped coast, and Policy CO2 advocating a sustainable, and consistent cross-border approach to coastal planning and management. These policies require local planning authorities to take account of SMPs both during the preparation of their Local Development Documents and in the determination of planning applications.

of budgetary constraints (whether private or government funding), and it cannot be guaranteed that budgets will be available for all policies. It is also important to recognise that implementation measures would need to meet the approved and adopted policy set out in the plan, or it would be extremely unlikely that either funding or planning approval would be granted.

The SMP must also remain flexible enough to adapt to changes in legislation, politics and social attitudes as well as helping to shape them by providing a route map for future change. The SMP therefore considers objectives, policy setting and management requirements for three main epochs; the present day (short-term), the medium-term and the long-term, corresponding broadly to time periods (also referred to as epochs) 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 the plan should demonstrate that defence decisions made today are not detrimental to achievement of that vision.

1.1.2 Objectives

The objectives of the SMP are as follows:

- to define, in general terms, the risks to people and the developed, historic and natural environment as a result of coastal evolution and behaviour within the SMP area over the next century;
- to identify the preferred policies for managing risks, together with the reasoning behind the choice of those policies;
- to identify the consequences of implementing the preferred policies;
- to inform planners, developers and others of the risks of coastal evolution and the preferred policies for managing those risks when considering future development of the shoreline, land-use changes and wider strategic planning;
- to comply with international and national nature conservation legislation and biodiversity obligations
- to set out procedures for monitoring the effectiveness of the SMP policies; and
- to highlight areas where knowledge gaps exist.

1.1.3 The SMP policies

The shoreline management policies considered are those defined by Defra (2006):

Hold the existing defence line	maintain or change the level of protection provided by defences in their present location.
Advance the existing defence line	build new defences on the seaward side of the existing defence line to reclaim land.
Managed realignment	allowing the shoreline position to move backwards (or forwards) with management to control or limit movement.
No active intervention	a decision not to invest in providing or maintaining defences.

1.2 Structure of the SMP

This SMP is the result of numerous studies and assessments performed over a period of time. To cater for the widest readership, the SMP is presented in two parts:

- the Management Plan (this document); and

- a series of supporting documents presented as appendices to the Management Plan.

1.2.1 The Management Plan

The Management Plan sets out the preferred policies for managing the risks of coastal evolution over the next century. It is intended for general readership and is the main tool for communicating intentions. While the justification for decisions is presented, further information can be found in the supporting documents.

The management plan is presented in six parts:

- **Section 1 (this part)** – gives details on the principles, structure and background to the plan's development.
- **Section 2** – presents the basis for meeting the requirements of the EU Council Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment (the Strategic Environmental Assessment Directive).
- **Section 3** – presents the basis for development of the management plan, describing the concepts of sustainable policy and providing an understanding of the constraints and limitations on adopting certain policies.
- **Section 4** – presents a broad overview of the preferred policies, discussing their rationale, implications and requirements for implementation and management.
- **Section 5** – provides a series of statements that give details of how the policies might be implemented and the local implications of these policies in terms of: management activities; property, built assets and land use; landscape; nature conservation; historic environment; and amenity and recreational use.
- **Section 6** – provides a programme for future activities to progress the plan between now and its next review.

Although it is expected that many readers will focus upon the local details in Section 5, it is important to recognise that the SMP is produced for the North Devon and Somerset 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 Sections 2, 3 and 4 and the appendices to the plan.

1.2.2 The supporting documents

The supporting documents provide all of the background information to the Management Plan. These are provided to ensure that there is clarity in the decision-making process and that the rationale behind the promoted policies is transparent and auditable.

This information is largely of a technical nature and is provided in 12 parts and two databases.

- **Appendix A: SMP Development** – provides the history of the SMP development, describing the policy decision-making process in detail.
- **Appendix B: Stakeholder Engagement** – provides communications from the all important stakeholder process, together with information arising from the consultation process.
- **Appendix C: Baseline Process Understanding** – includes the baseline coastal process report, defence assessment, no active intervention and With Present Management process assessments and summarises data used in the assessments.

- **Appendix D: SEA Environmental Baseline Report (Theme Review)** – identifies and evaluates the environmental features of the coastline (human, natural, historical and landscape) in terms of their significance and how these need to be considered by the SMP.
- **Appendix E: Issues and Objective Evaluation** – provides information on the issues and objectives identified as part of the plan development, including an appraisal of their importance.
- **Appendix F: Initial Policy Appraisal and Scenario Definition** – provides evaluation of the impacts of a range of policy scenarios upon shoreline evolution – a key part in determining the acceptable sustainable policies and their combination into 'scenarios' for testing.
- **Appendix G: Preferred Policy Scenario Testing** – provides a summary of the assessment and appraisal of the preferred policies, via (i) assessment of shoreline interactions and response against preferred policy; and (ii) assessment and achievement of the objectives against the baseline scenario (no active intervention) and the preferred policies. The assessments are based on the findings of appendices E and F.
- **Appendix H: Economic Appraisal and Sensitivity Testing** – provides a high-level assessment of the economic justification of each preferred policy, which is reported in terms of "justified", "not justified" and "marginal".
- **Appendix I: Strategic environmental assessment report** – pulls together the various items undertaken in developing the plan that specifically relate to the requirements of the EU Council Directive 2001/42/EC (the Strategic Environmental Assessment Directive), such that all of the key information is readily identifiable either within this one document, or in other parts of the SMP documentation (e.g. Appendix D).
- **Appendix J: Appropriate Assessment** – presents the Appropriate Assessment of SMP policy impacts upon European designated sites (Special Protection Areas and Special Areas of Conservation) as well as Ramsar sites, where policies might have a likely significant effect upon these sites. This is carried out in accordance with the Conservation (Natural Habitats, &c.) Regulations 1994 (the Habitats Regulations).
- **Appendix K: Water Framework Directive Assessment** – presents assessment of potential impacts of SMP policies upon coastal and estuarine water bodies, in accordance with the requirements of EU Council Directive 2000/60/EC (the Water Framework Directive).
- **Appendix L: Meta-database and Bibliographic database** – includes all supporting information used to develop the SMP.
- **Appendix M: Action Plan Summary Table**: Presents the Action Plan items included in Section 6 of this document in tabular format for ease of monitoring and reporting action plan progress.

These appendices are presented on a CD provided at the front of the Management Plan.

1.3 The Plan Development Process

1.3.1 Revision of the SMP

The original Bridgwater Bay to Bideford Bay and Severn Estuary SMPs were adopted in 1998 and 2000 respectively. Part of the SMP process is to regularly review and update SMPs, taking account of new information and knowledge gained in the interim. This is the first revision of these two plans, which for the

purpose of this SMP, has combined the original Bridgwater Bay to Bideford Bay SMP area with part of the Severn Estuary SMP area (Brean Down to Anchor Head), based upon recommendations made by Defra (2006). This revision has taken account of:

- latest studies e.g. Futurecoast (Halcrow, 2002), various reports on climate change e.g. UKCIP02 and UKCP09, Risk Assessment of Coastal Erosion (RACE), and mapping e.g. Environment Agency Flood Zone Mapping [2] and emerging National Coastal Erosion Risk Mapping.
- issues identified by most recent defence planning, i.e. coastal defence studies and schemes that cover parts of the SMP area undertaken, or in the process of being undertaken, since completion of the original SMP. This includes: the Burnham to Brean Coastal Study; Parrett Estuary Flood Risk Management Strategy, Severn Estuary Flood Risk Management Strategy, Weston Seafront Strategy Study, Steart Managed Realignment Study, Stolford to Combwich Strategy Study, Bridgwater to Burnham-on-Sea Flood Management Strategy, Minehead to Blue Anchor Coastal Defences Study, Warren Point to Dunster Beach Coastal Defence Study, and Weston-super-Mare Sea Defences Scheme.
- changes in legislation such as the EU Habitats and Birds Directives and the Marine and Coastal Access Act 2009.
- changes in national defence planning requirements such as the need to consider 100-year timescales in future planning and modifications to economic evaluation criteria.
- the results of coastal monitoring activities.

Further reviews will be carried out in future years, when deemed necessary. Future reviews may include changes to policies, particularly in light of more detailed studies of the coastline.

This SMP does not account for proposed developments, only those constructed or being progressed during the time that the plan was being developed. At the time of writing, there are a number of proposed developments being considered for the North Devon and Somerset frontage, including:

- along the Steart Peninsula with detailed studies being undertaken to assess the potential for managed realignment in the area, in part to provide compensatory habitat for expansion of Bristol Port further up the Severn Estuary;
- decommissioning of Hinkley Point Power Stations A and B, with the proposed construction of one or more new nuclear reactors at Hinkley Point;
- redevelopment of Ilfracombe harbour including building an outer breakwater, a marina with a barrage and lock with facilities for ferries and visiting cruise ships, and redevelopment of the theatre area with additional tourist attractions;
- ongoing Environment Agency studies for a surge barrier on the River Parrett downstream of Bridgwater; and
- several options identified for the Severn Tidal Power Scheme; the option within the SMP study area involves a barrage across the Severn Estuary between Weston-super-Mare and Cardiff (refer also to Section 3.2.4).

[2] Please note 2008 flood zone data has been used during the development of this plan. The Environment Agency continually updates the flood map plans. To see the latest data, please go to www.environment-agency.gov.uk

The potential impacts that some of these developments will have on the coastline will be examined in the next review of the SMP. They may proceed ahead of the next SMP review if it can be shown that they are sustainable and do not have adverse impacts on the adjacent sections of coastline.

1.3.2 Production of the SMP2 review

Development of this SMP revision has been led by a client steering group comprising members of the North Devon and Somerset Coastal Advisory Group. This group includes technical officers and representatives from North Devon District Council, North Somerset Council, Torridge District Council, West Somerset District Council, Sedgemoor District Council, Devon County Council, Somerset County Council, the Environment Agency, English Heritage, Exmoor National Park, the National Trust, Natural England and the RSPB.

The SMP process has involved over 400 registered stakeholders who were kept up-to-date and their views sought throughout. Many of these stakeholders participated at key decision-making points throughout the process, via Key Stakeholder Forums (KSF). A number of rounds of KSF meetings have been held to help to identify and understand the issues, review the objectives and set direction for appropriate management scenarios, and to review and comment upon the preferred plan policies.

The SMP is based upon information gathered largely between August 2008 and January 2010.

The main activities in producing the SMP have been:

- development and analysis of issues and objectives for various locations, assets and themes;
- thematic reviews reporting upon human, historic and natural environmental features and issues, and evaluating these to determine the relative importance of objectives;
- analysis of coastal and estuarine processes and evolution for baseline cases of not defending and continuing to defend the coastline as at present;
- agreement of objectives with the key stakeholders, to determine possible policy scenarios;
- development of policy scenarios based on key objectives and primary drivers (identified and developed through discussion with the key stakeholders) for sections of the frontage;
- examination of the 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 North Devon and Somerset Coastal Advisory Group prior to compiling the SMP document;
- consultation on the proposed plan and policies;
- consideration of consultation responses and finalisation of the SMP for formal adoption; and
- adoption of the SMP by the local authorities and dissemination.

2 Strategic Environmental Assessment

2.1 Background

Strategic Environmental Assessment (SEA) is the systematic appraisal of the potential environmental consequences of high level decision-making, such as policies, plans, strategies and programmes, before they are approved. The purpose of SEA is to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes, with a view to promoting sustainable development.

The requirement to undertake SEA of certain plans and programmes entered European Law in 2001 under Directive 2001/42/EC; transposed into UK law in 2004 by The Environmental Assessment of Plans and Programmes Regulations 2004 (SI 2004 1633)'. This SEA has been carried out with cognisance of, and in the spirit of, the following legislation and guidance:

- National Environmental Impact Assessment and Strategic Environmental Assessment Policy, Procedures and Guidance (Environment Agency, 2004 Environment Agency management system controlled documentation).
- Flood and Coastal Defence Project Appraisal Guidance (PAG) 2: Strategic Planning and Appraisal (Defra, 2001).
- Flood and Coastal Defence Project Appraisal Guidance (PAG) 5: Environmental Appraisal (MAFF, 2000).
- The Strategic Environmental Assessment Directive: Guidance for Planning Authorities. Practical guidance on applying European Directive 2001/42/EC 'on the assessment of the effects of certain plans and programmes on the environment' to land use and spatial plans in England ODPM (2003).
- Conservation (Natural Habitats &c.) Regulations 1994 (as amended) and the Conservation (Natural Habitats, &c.) (Amendment) Regulations 2007.
- A Practical Guide to the Strategic Environmental Assessment Directive (ODPM 2005)

There is no legal requirement to undertake SEA for SMPs because they are not deemed to be required by legislation, regulation or administrative provision. However, SMPs do set a framework for future planning decisions, and have the potential to result in significant environmental effects. Further to this, Defra guidance (Defra, September 2004[2]) is that SEA is applied to SMPs and this is Environment Agency policy.

In developing the North Devon and Somerset SMP, the environment has been considered alongside social, technical and economic issues. The SEA process undertaken for the North Devon and Somerset SMP is documented in **Appendix I**. This report demonstrates how the SEA process has been carried out during the development of the North Devon and Somerset SMP and outlines how the SEA Directive's requirements have been met.

The approach for this SMP was to ensure that the environmental assessment process is fully integral to the SMP development, as recommended in the Defra SMP Guidance (2006)[3]. Environmental assessment was therefore carried out in conjunction with and as part of the SMP stages, described in the guidance.

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[2] Nason, S (2004). *Guidance to operating authorities on the application of SEA to Flood Management Plans and Programmes.* Defra, 16th September 2004.
[3] Defra (2006): *Shoreline Management Plan Guidance Volumes 1 and 2*

A detailed list of SEA stages and tasks, and their purpose, is shown in Table 2.1 overleaf, which is taken from "A Practical Guide to the Strategic Environmental Assessment Directive" published by the Office of the Deputy Prime Minister in 2005 (http://www.communities.gov.uk/documents/planningandbuilding/pdf/practicalguidesea.pdf).

Table 2.1 SEA stages and tasks (from Office of the Deputy Prime Minister, 2005)

SEA stages and tasks	Purpose
Setting the context and objectives, establishing the baseline and deciding on the scope	
Identifying other relevant plans, programmes and environmental protection objectives	To establish how the plan or programme is affected by outside factors, to suggest ideas for how any constraints can be addressed, and to help to identify SEA objectives.
Collecting baseline information	To provide an evidence base for environmental problems, prediction of baseline information analysis, setting of the SEA objectives, prediction of effects and monitoring.
Identifying environmental problems	To help focus the SEA and streamline the subsequent stages, including baseline information analysis, setting of the SEA objectives, prediction of effects and monitoring.
Developing SEA objectives	To provide a means by which the environmental performance of the plan or programme and alternatives can be assessed.
Consulting on the scope of SEA	To ensure that the SEA covers the likely significant environmental effects of the plan or programme.
Developing and refining alternatives and assessing effects	
Testing the plan or programme objectives against the SEA objectives	To identify potential synergies or inconsistencies between the objectives of the plan or programme and the SEA objectives and help in developing alternatives.
Developing strategic alternatives	To develop and refine strategic alternatives
Predicting the effects of the plan or programme, including alternatives	To predict the significant environmental effects of the plan or programme and alternatives.
Evaluating the effects of the plan or programme, including alternatives	To evaluate the predicted effects of the plan or programme and its alternatives and assist in the refinement of the plan or programme.
Mitigating adverse effects	To ensure that adverse effects are identified and potential mitigation measures are considered.
Proposing measures to monitor the environmental effects of plan or programme implementation	To detail the means by which the environmental performance of the plan or programme can be assessed.
Preparing the Environmental Report	
Preparing the Environmental Report	To present the predicted environmental effects of the plan or programme, including alternatives. In a form suitable for public consultation and use by decision-makers.
Consulting on the draft plan or programme and the Environmental Report	

SEA stages and tasks	Purpose
Consulting the public and Consultation Bodies on the draft plan or programme and the Environmental Report	To give the public and the Consultation Bodies an opportunity to express their opinions on the findings of the Environmental Report and to use it as a reference point in commenting on the plan or programme. To gather more information through the opinions and concerns of the public.
Assessing significant changes	To ensure that the environmental implications of any significant changes to the draft plan or programme at this stage are assessed and taken into account.
Making decisions and providing information	To provide information on how the Environmental Report and consultees' opinions were taken into account in deciding the final form of the plan or programme to be adopted.
Monitoring the significant effects of implementing the plan or programme on the environment	
Developing aims and methods for monitoring	To track the environmental effects of the plan or programme to show whether they are as predicted; to help identify adverse effects.
Responding to adverse effects	To prepare for appropriate responses where adverse effects are identified.

These stages are described in greater detail in **Appendix I**. However, the key elements are summarised in the following sub-sections.

2.2 Screening and Scoping

Screening determines whether there is a need for SEA for the plan or programme being initiated. In this case there is no legal requirement to apply the 'SEA Regulations' to SMP, but best practice guidelines, and those of Defra, support the preparation of a voluntary SEA for SMPs.

The scoping process (i.e. identification of the environmental receptors likely to be impacted by SMP policies) was undertaken during the production of the Environmental Baseline report (Thematic Review) – see **Appendix D** of the SMP.

Consultation was carried out at the scoping stage with key stakeholders (see **Appendix B 'Stakeholder Engagement')** including statutory consultees to obtain relevant baseline environmental information and to understand key concerns and issues. The stakeholders were consulted on both the SEA Environmental Baseline Report (Thematic Review) and Issues and Objectives Tables together. The responses received during this consultation phase fed into the prioritisation and importance of SEA receptors in the option appraisal process.

2.3 Establish SEA Objectives

A list of SEA objectives for the SMP was developed following identification of key environmental features or assets along the coastline, and through a review of aerial photography, maps and consultation with key external organisations and internal staff. SEA objectives were identified for the SMP to appraise the preferred policy options during the assessment process.

The objectives developed for the SMP, which were used to develop and appraise sustainable policies, are provided in Table 2.2.

Within the environmental objectives, a distinction has been made between those that arise from legal (shown in ***bold italics)*** and those that do not represent legal obligations. The relevant Strategic Environmental Assessment (SEA) receptor to which the objectives relate, are shown in brackets.

Table 2.2 SEA Objectives

	Objective	Features covered by the objective
Social	To avoid loss of property due to erosion and/or manage risk of flooding to people and property. (Population and human health)	Houses Community
	To avoid loss due to erosion of, and manage risk of flooding to, key community, recreational and amenity facilities. (Population and human health)	Key vulnerable community facilities e.g. surgeries, hospitals, aged persons homes, schools, shops, churches and libraries Key amenity facilities e.g. public open space and car parks Key recreational facilities e.g. bathing beaches, swimming pools, country parks, public rights of way, castles and forts Access to community/amenity facilities
Economic	To avoid loss due to erosion of and manage risk of flooding to industrial, commercial and economic assets and activities. (Population, material assets)	Shops, offices, businesses, factories, warehouses, golf courses, areas identified for regeneration, commercial fishing grounds, caravan parks, stone and mineral extraction sites, military establishments and others areas of employment
	To minimise the impact of policies on marine operations and activities. (Material assets)	Ports, harbours and boatyards Moorings, yacht and sailing clubs, lifeboats and ferry terminals Dredging activities, Coastguard, lifeboat and lifeguard Access to the sea and navigation
	To ensure critical road and rail linkages are maintained. (Material assets)	A, B and minor roads (where linkage is a key issue) Railway lines and stations
	To ensure critical services remain operational. (Material assets)	Pumping stations, sewage works, wind turbines, landfills, power stations and, sub-stations
Environmental	***To allow natural processes and maintain visibility of geological exposures throughout geological Sites of Special Scientific Interest.*** (Geology and soils)	Geological Sites of Special Scientific Interest
	To maintain the integrity of internationally designated sites. (Flora, fauna and biodiversity)	United Nations Educational, Scientific and Cultural Organisation (UNESCO) Biosphere Site, Special Protection Areas, Special Area of

	Objective	Features covered by the objective
		Conservation and Ramsar Sites
	To avoid adverse impacts on, conserve and, where practical, enhance the designated interest of nationally designated conservation sites. (Flora, fauna and biodiversity; geology and soils)	Sites of Special Scientific Interest, national nature reserves, marine nature reserves, Exmoor National Park
	To avoid adverse impacts on, conserve and, where practical, enhance the designated interest of locally designated conservation sites. (Flora, fauna and biodiversity; geology and soils)	Local nature reserves County wildlife sites These sites will be considered at a scheme and project level.
	To prevent pollution from contaminated sources. (Geology and soils, water)	Relict landfill sites, disused mines, potentially contaminated land, bathing water, surface and ground water
	To avoid adverse impacts on designated, registered and other nationally, regionally and locally important historic environment assets (Historic Environment)	Scheduled Monuments Registered parks and gardens Listed Buildings Protected wrecks **Non-designated archaeology of local or regional importance will be considered, but assessment will occur at a scheme and project level.**
	To avoid conflict with ***Areas of Outstanding Natural Beauty*** management plan, heritage coast and coastal preservation area objectives. (Landscape)	Areas of Outstanding Natural Beauty Heritage coasts Coastal preservation areas Coastal zones
	To avoid loss due to erosion of and/or manage risk of flooding to agricultural land. (Population, soils)	Grades 1 to 3 farmland
	To achieve compliance with Water Framework Directive objectives. (Water)	Relict landfill sites, potentially contaminated land, bathing water, surface and ground water

2.4 Environmental Baseline

Baseline data was collected to provide a baseline against which the significant environmental effects of the plan could be measured and assessed. The current state of the environment is described in the SEA Environmental Baseline 'Theme Review', presented in **Appendix D,** and is summarised in Table 2.3.

Table 2.3 Environmental Features within the SMP Area

SEA Receptor described in the Environmental Assessment of Plans and Programmes Regulations SI 2004 1633	**Environmental Features**
Flora, Fauna and Biodiversity	There are 8 internationally designated sites wholly or partly within the North Devon and Somerset SMP study area. The study area supports a variety of habitats including red sand stone cliffs, mudflats, saltmarsh, estuaries, sand dunes, reedbeds, marshland, woodland, heathland and grassland. The quality of these natural habitats along the coastline is reflected in the designation of the following international nature conservation sites: - • 1 UNESCO International Biosphere Reserve Area at Braunton Burrows • 1 Special Protection Areas (SPA) and Ramsar sites in the Severn Estuary • 6 Special Areas of Conservation (SAC) at Lundy Island, Tintagel-Marsland-Clovelly Coast, Braunton Burrows, Exmoor Coastal Heaths, Mendip Limestone Grasslands and Severn Estuary. There is 1 Marine Nature Reserve with Marine Protected Area; 56 Sites of Special Scientific Interest, 1 National Park, 4 National Nature Reserves, 7 Local Nature Reserves and 130 County Wildlife Sites and 4 Local Wildlife Sites.
Soils and Geology	The geological interest of the coastline includes stratigraphic features, which are reflected in a range of designated earth heritage sites of local, regional, national. Natural erosion is a key driver in maintaining the geological interest of the SSSI designated for geological features by exposing rock sequences in the cliff faces and releasing fossils to the beach. The geomorphology of the area is varied and includes shingle banks, sand dunes and saltmarshes. The major shingle features of national importance are Porlock Weir and Braunton Burrow. There are significant sand dune structures, located at Burnham-on-Sea. Potential areas of known landfills are also present.
Air and Climatic Factors	The long term effects of rising sea levels expected due to climate change could have significant implications for future flood risks to the natural, historic and built environment across large areas of low-lying land in the SMP area.
Water	Within the SMP area, there are 9 Transitional and Coastal Waterbodies, 45 River Waterbodies, 1 Lake Waterbody and 6 Groundwater Bodies. These all have the potential to be affected by SMP policies and are considered further in the WFD Assessment in Appendix K.
Landscape	The coast is composed predominantly of sea cliffs, punctuated by estuaries, cobble beaches, isolated stacks, raised beaches and lagoons. These features owe their variety and interest to the relief and orientation of the coastline, the different properties, lithology and structure of the rocks and coastal processes. The coastline of Devon is internationally renowned for coastal landforms such as Saunton Sands. Other landscape types include developed urban centres and undeveloped agricultural land, much of which exhibits ancient (Medieval) field patterns. The high value of the landscape in the SMP area is recognised by the designation of two Areas of Outstanding Natural Beauty, four Heritage Coasts and the 'UNESCO International Biosphere Reserve Area.

SEA Receptor described in the Environmental Assessment of Plans and Programmes Regulations SI 2004 1633	Environmental Features
Cultural Heritage, including architectural and archaeological heritage	The SMP area contains a complex array of statutory historic buildings (e.g. Scheduled Monuments, Listed Buildings), Registered Parks and Gardens, non-statutory buildings and find spots, historic settlements, maritime archaeology, , Conservation Areas, historic landscapes and numerous unscheduled sites of importance, some of which are nationally important.
Material Assets	Material assets along the coastline of the SMP area comprises a combination of predominantly moderate quality agricultural land, beaches, A- and B-roads, urban areas (see population below), fishing ports and harbours, stone and mineral extraction sites and historic/active landfill sites.
Population and Human Health	Safety, security and social/physical well-being for occupants of properties within areas at coastal flood or erosion risk. Population and properties are concentrated in Westward Ho! Bideford, Appledore, Barnstaple, Braunton, Woolacombe, Ilfracombe, Lynmouth, Minehead, Watchet, Bridgwater, Burnham-on-Sea, Weston-super-Mare, and other smaller towns/villages. Recreation and tourism in the study area is largely centred on the coastline. Land based activities generally rely on the natural environment and comprise swimming, beaches, walking, fishing, bird watching and rock climbing. Water sports are also a popular pursuit particularly surfing and kite surfing.

2.5 Assessment Methodology

The process of assessment involves the identification of potential environmental effects and an evaluation of the significance of the predicted environmental effects.

The methodology and appraisal used to identify and predict environmental effects on the SEA receptors and environmental features identified, arising from the SMP is outlined below:

- Identification of Impacts: Following the principles of 'Making Space for Water' (which is a Defra strategy that applies to England only to improve flood and coastal erosion risk management both for now and in the future), the methodology initially appraised a policy of No Active Intervention throughout the coastline (see **Appendix C**). The implications of No Active Intervention on the features and issues identified were analysed to determine the potential environmental effects on the SEA receptors.

  The environmental impacts identified during the No Active Intervention assessment were then compared against the SEA objectives to determine whether SEA objectives have been met, focusing on how and why objectives were (or were not) met. Through consultation with key stakeholders and elected members, key policy drivers were identified (see **Appendix F**). Alternative policy scenarios were appraised where there was a clear need to protect identified assets (see **Appendix G**).

- Significance of Impacts: The direct and indirect impacts arising within each SMP epoch (short term, medium term and long term) were identified and assigned a level of strategic significance; either beneficial or adverse. Non strategic impacts and issues not considered to be significant at SMP level were not considered in the SEA. Similarly, the magnitude of SEA impacts was not considered during this high level assessment, as they are not considered to contribute to a meaningful assessment without further study/investigations, assessment and monitoring of SEA receptors.

- Mitigation Measures: These were identified for inclusion in the assessment process, and included avoidance and measures to minimise adverse effects (see Annex 2 **Appendix I**).
- Selection of the Preferred SMP Policy Scenarios – based on the appraisal of policy scenarios, the environmentally preferred policy scenarios were identified. An explanation and justification for the selection of non-environmentally optimal policy scenarios on the basis of technical or economic grounds was also provided (see **Appendix G**).
- Cumulative impacts: the SEA Directive requires the analysis of cumulative effects of the strategic options on the environment (see Section 8 of **Appendix I**).

2.6 Consultation

Consultation has been central to the development of the SEA in order to arrive at a SMP that is acceptable to as many parties as possible and to engage those parties in the process. Effective external stakeholder and public engagement has been essential for data collection, identification of key issues, definition of SEA objectives, development of policy scenarios and the selection of the preferred SMP.

A wide range of statutory and non-statutory consultees and stakeholder groups have been involved throughout the development of the SEA and the SMP, primarily through the undertaking of Key Stakeholders Forum (KSF) events at key points throughout the process. This involvement has:

- been undertaken throughout development of the SMP and SEA;
- given stakeholders an opportunity to comment on the environmental appraisal of options;
- allowed representations made by the stakeholders to be taken into account in the selection of policy options; and
- given the public the opportunity to comment on the preferred policies.

The KSF meetings included representatives from, amongst others, local authorities, nature conservation bodies, industry and heritage organisations as well as local residents and land owners. Elected Members were also involved in the development of the SMP, being consulted at key points in the process. In this way, the views of those whom the SMP policies affect were involved in its development, ensuring that all relevant issues were 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 were sought.

Full details of all stages of stakeholder engagement undertaken during development of the SMP are presented in **Appendix B**.

2.7 Reporting

The results of the SEA process are documented in **Appendix I**, which identifies, describes and evaluates the likely effects of the SMP as well as any reasonable alternatives. Appendix I documents the SEA process, sets out how alternative policy options were appraised against environmental objectives and identifies and evaluates likely environmental effects, both positive and negative, of preferred policy options. It sets out how adverse effects will be mitigated and describes recommended follow up actions.

2.7.1 Environmental Appraisal of Alternative Policy Options

Appendix F (Annex F.3) identifies the environmental impacts of each of the alternative policy options developed through an assessment of the SEA receptors set out in the SEA Directive, and has helped to identify the preferred environmental policy scenario for each coastal process unit. The generic impacts associated with each alternative SMP option is shown in Table 2.4

Table 2.4 Potential generic implications of each SMP option

SMP option	Potential positive impacts	Potential negative impacts
Hold the Line (HTL)	• Protection of communities (residential, industrial, agricultural and commercial assets) and infrastructure • Protection of habitat landward of existing defences • Protection of freshwater resources (e.g. abstractions and boreholes) • Protection of material assets located behind defences • Protection of recreational, cultural and historical assets landward of the defences and provision of opportunities to improve the condition of heritage features/sites • Protection of potential sources of contamination	• Coastal squeeze (loss of intertidal habitat) • Interruption of coastal processes • Potential increase of flood and coastal erosion risk elsewhere along coastline • Promotion of unsustainable land use practices • Ongoing commitment to future investment for maintenance and improvement of defences • Change in landscape character and reduced visual amenity and views of sea if defences raised or new defences constructed
Advance the Line (ATL)	• Provision of additional space for communities • Protection of communities and infrastructure from coastal flooding/erosion • Protection of habitat landward of original defences • Protection of freshwater resources (e.g. abstractions an boreholes) • Protection of material assets located behind defences • Protection of recreational,, cultural and historical assets landward of the defences • Protection of potential sources of contamination	• Reduction in extent of intertidal habitat • Change in function of the existing habitats • Increased coastal squeeze • Interruption of coastal processes • Potential increase in rate of coastal erosion either side of the advanced line • Uncertainty of effects • Reduced visual amenity and change in landscape
Managed Realignment (MR)	• Landward migration of coastal habitat under rising sea levels to	• Increased flooding/erosion of realigned area

SMP option	Potential positive impacts	Potential negative impacts
	realigned defence • Creation of wetland habitat in line with UKBAP and local BAP targets • Creation of habitat for juvenile fish and other aquatic organisms (benefits to environment and fishing communities) • Reduction of flood/erosion risk to some areas • Promotion of natural coastal processes and contribution towards a more natural management of the coast • Creation of high tide bird roosts and feeding areas • Maintenance of geological exposures and earth heritage features	• Change in condition or reduction of terrestrial/freshwater habitat landward of defences • Impact upon aquifers and abstractions • Loss of some assets in hinterland of defences (e.g. residential, industrial, agricultural and commercial assets) • Loss of recreational, heritage and cultural features • Uncertainty of effects
No Active Intervention (NAI)	• Landward migration of coastal habitats under rising sea levels • Promotion or continuation of natural coastal processes • Potential discovery of unknown archaeology • Maintenance of geological exposures and earth heritage features	• Uncontrolled flood/erosion risk • Uncertainty of effects and time for adaptation • Increased risk of inundation to landward habitats under rising sea levels • Impact upon aquifers and abstractions • Loss of communities or community assets • Loss of and damage to heritage and cultural features • Risk of flooding/erosion of contaminated areas • Deteriorating defences become unsightly • Hazard to public access and loss of public rights of way.

2.7.2 Environmental Effects of the Plan

An environmental assessment of the preferred policy options is presented in Annex I.1 of **Appendix I 'SEA** and the results are summarised in the Policy Statement tables in Section 5.

2.7.3 Water Framework Directive

A retrospective Water Framework Directive (WFD) assessment has been prepared and can be viewed in **Appendix K 'Water Framework Directive Assessment'** of the SMP. This WFD-related retrospective assessment takes into consideration the potential effects of SMP policy options on the ecological quality elements of the coastal and transitional water bodies directly affected by the SMP, and the associated river water bodies.

For many of the policy units, it is considered unlikely that the proposed policies will affect the current or target Ecological Status (or Potential) of the relevant WFD waterbodies. However, there are 3 Management Areas where the proposed policies have the potential not to meet one or more the Environmental Objectives. These being:

- Foreland Point to Hurlestone Point – Potential to fail WFD 2 & 4.
- Hinkley Point – Potential to fail WFD 2 & 3.
- Hinkley Point to Stolford – Potential to fail WFD 3.

These Management Areas have the potential to fail Environmental Objective WFD2 & 3 because of the loss of intertidal habitats in the mid to long term due to coastal squeeze, where the vital and extensive infrastructure of Hinkley Point nuclear power station is to be defended (i.e. Imperative Reasons of Overriding Public Interest (IROPI)). However there is the opportunity to provide mitigation for this in other part of the estuary. Foreland Point to Hurlestone Point has potential to fail WFD 2 & 4 because of the presence of an old landfill site and an SMP policy of NAI. However, mitigation measures for this are being explored by the National Trust's Adaptations Study.

None of the Groundwater Bodies is considered at risk of saline intrusion with regard to its chemical status. Further strategies and studies in this area will have to take this into regard in future to ensure the Environmental Objectives are not compromised.

There are no High Status sites in the SMP area, so Environmental Objective WFD1 (no changes affecting High Status sites) is not applicable for this assessment.

There are several recommendations to look into where SMP boundaries could change to match those of the WFD Waterbody boundaries, notably at Westward Ho!, Northam Burrows, Hinkley Point and Brean Down. However, SMP Management Area boundaries are based on coastal processes and social and economic reasons and are realistically unlikely to change.

2.7.4 Habitat Regulations Assessment

As many of the proposed SMP policies would be implemented within or adjacent to international conservation sites, a Habitats Regulations Assessment (Appendix J 'Habitats Regulations Assessment') has been undertaken in accordance with the requirements of the EC Habitats Directive (92/43/EEC) and European Union Birds Directive (79/409/EEC) and their implementation in the UK under the Conservation (Natural Habitats &c.) Regulations 1994, under Regulation 48(1) ("Habitats Regulations").

The SMP has the potential to adversely affect the integrity of the Severn Estuary SAC, SPA and Ramsar site. In most cases, the predicted adverse effects will be as a result of coastal squeeze, resulting in the progressive loss of habitats and their associated species as a result of sea level rise against coastal defences. Where a 'hold the line' policy applies within the Severn Estuary SAC, SPA and Ramsar site this will result in the progressive loss of intertidal habitat due to coastal squeeze.

Where a 'no active intervention' policy applies, this should enable natural processes, including the roll back of habitats where sea level rise results in the loss of intertidal areas. However, this may not be the case where habitats are constrained by natural features, such as hard cliffs. In this case, there may be a net loss of intertidal habitats, but it is not considered that this would be the result of SMP policy.

2.8 Implementation and Monitoring

The key principles of monitoring are to ensure that the mitigation measures are implemented and effective and to monitor the potentially significant environmental effects identified during the assessment.

Appendix I discusses the proposed monitoring of the predicted environmental effects of the plan, which have been reflected and incorporated into the **SMP Action Plan**.

Where the preferred policies for any Policy Unit have specific monitoring/study requirements to clarify uncertainties, this is identified in the relevant 'Policy Unit Statement' (**Section 5**). Detailed monitoring could be undertaken within the existing South-West Strategic Regional Coastal Monitoring Programmes or undertaken as part of coastal defence strategy studies. The latter will also define mitigation requirements.

3 Basis for Development of the Plan

3.1 Historical Perspective

The shoreline throughout much of the area covered by this SMP is naturally eroding and has been doing so for centuries. Man has sought to limit this natural process in many areas of the coast as sea levels have slowly risen and land levels gradually dropped. The erosion seen today along this coast is not a new phenomenon. Flooding is also not new with flood events being recorded along this coast throughout history, with the most recent cases occurring in March 2008

The coast has experienced a number of very large storm events that have resulted in the well-recorded loss or damage to coastal communities. One such example is the 'tsunami'-type event of January 1607 that caused extensive flooding of the coast resulting in the loss of property and life along both sides of the Bristol Channel. Events such as this are evidence of natural changes that can occur along this coast over alongside slower longer term changes.

Although humans may have impacted upon the change occurring at the shoreline, they have not, in the main, caused it. Many of these flood events took place well before parts of the shorelines affected were defended to the extent they are today, although in some places, the impacts of these natural events has been increased by human intervention. For example, the construction of groynes and other structures that protect one part of the coast can deprive sediment from sections of the coast further along. This effectively 'moves the problem' along the coast and is something that requires careful consideration when developing coastal defence schemes.

This natural change is still taking place and is likely to continue in the future. Coastal defence works help resist erosion and shoreline retreat, but it is only sustainable for a limited time and will not halt the natural changes. The decision to be made is how we are going to manage this shoreline change in the future.

Appendix C provides a detailed review of the understanding of coastal processes that has informed the development of the SMP policies.

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 global sea level rise, and 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.

Sea level attained a level close to its present position about 5,000 years ago, and the modern wave, tide and current regime has been operating since that time. The role of sea level rise in shoreline evolution is thought to have been limited over the last 2,000 years, due to the low rates of change (averaging less than a millimetre per year). We are now entering a period of accelerating sea level rise, which could result in the destabilisation of present coastal systems.

Recent climate studies have indicated that there are significant changes occurring within our climate; such as increasing winter rainfall, rising sea levels and increasing storm surge levels. The amount of physical change along any length of coast depends on the degree of exposure of the coast and the underlying geology. Increasing intensity of rainfall in between longer periods of drier weather can potentially lead to increased cliff recession, while rising sea levels may lead to increased toe erosion at the base of cliffs and slope failure.

It is extremely important that the long term policies in the SMP recognise these future risks and reflect likely future constraints to management planning. Thus, the SMP acts as early warning to other plans and initiatives related to communities and infrastructure within the coastal zone.

Changes at the coast

We are also now living with a reduced resource of sediment on many of our coasts, as its transport from further out at sea has diminished. This problem has been particularly exacerbated on the coastline examined in this plan with beaches receiving little or no fresh supply of sediment.

As already discussed, the erosion of the shoreline is an ongoing process and changes to the coastal system as a whole are better (although not fully) understood. Along much of the North Devon and Somerset coastline, movement of the shoreline is occurring in a landward direction as sea levels rise and the shoreline responds to the increase in energy reaching it from the sea. This process is called transgression. Although attention is focussed upon the shoreline position, this process also produces a deepening of the seabed at any particular point.

Beaches backed by large sea defences tend to experience narrowing, lowering and loss with the accelerating sea level rise, particularly where these sediments have not been replaced by cliff erosion. This leaves the defences in deeper water than expected which in turn allows larger waves to reach them. We should not expect the future to be any different and, as such, the level of the shore at existing defence locations may be much lower than present beach levels. Accelerated sea level rise may increase the speed of change.

If we continue to defend our shorelines with defences in the same locations as present they will need to increase in width to compensate for the larger waves in deeper water, 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.

Sediment movement

The movement of sediment along a shoreline allowed to behave naturally is considered to be sustainable. In some areas of the UK it can be demonstrated that long lengths of seemingly isolated coastline actually form one connected sediment system and that sediment movement from one source provides material to many locations further downdrift. Therefore, interference with the system at any point along the coast can have detrimental and sometimes unpredictable impacts considerable distances away.

There are limited shoreline sediment linkages along many sections of the SMP's frontage, with man-made and natural headlands limiting littoral (shoreline) sediment transport between sections of the coast. As such, the coastal processes and shoreline sediment transport interactions along the SMP coastline can be considered within largely discrete units with changes in sediment unlikely to impact other areas of shoreline. However, it should also be recognised that there is also a relationship along some parts of the SMP frontage with the transport of fine, mud sediments within the wider Severn Estuary. For example in Bridgwater Bay where the deposition of mud has resulted in a wide shallow foreshore that limits the effect of wav action at the coast. Defence management needs to work with these processes and limit problems at other locations within individual process units.

Defence impacts

In general, there is less acceptance of coastal change and it is apparent, through the development of SMPs and strategy studies, that there is commonly a public misconception that coastal change can be halted though engineering works. There is often a demand to continue to hold the existing defence line, in order to protect

assets, but this is coupled with an expectation that the shoreline will continue to look exactly as it does now. Due to the dynamic nature of our shoreline, this is incorrect in many, if not most, instances.

The North Devon and Somerset SMP coastline is, in places, heavily defended along both low-lying (flood risk) frontages and cliffed (coastal erosion risk) frontages. The defences used along this coastline comprise mainly linear seawalls at the rear of sand or shingle beaches which are, in places, also groyned to help retain beach material along these frontages. In some locations the beaches themselves act as a defence reducing the risk of flooding to large areas of low-lying land, including significant areas of development and infrastructure. An example of this is the shoreline between Burnham-on-Sea and Brean which fronts the Somerset Levels with defence provided by natural dune systems. Along the cliffed frontages of the SMP area, the base of cliffs have, in places, protected from erosion through linear seawall and revetment type defences, limiting any erosion of the cliff edge. However, even without these defences, it is likely that sediment provided through cliff erosion would only be likely to feed local beaches, with alongshore transport along this frontage generally limited by headland structures and landforms.

If we were to continue to defend parts of this coastline, as we are now, along the lengths where significant coastal retreat is expected to occur, the long term picture would be one of an even more fragmented shoreline in these areas, characterised by a series of man-made armoured headlands where settlements are defended with embayments in between. Seawalls would result in a series of large promontories, in some cases extending tens of metres out from the adjacent (undefended) eroded shoreline by the end of the century. These promontories would be highly exposed to waves in deep water, requiring much more substantial defences to be constructed. These defences would also need to be extended landward to prevent outflanking of the present seawalls. There would be no beaches along these frontages and any groynes would have become redundant with water at the structures at all times.

It must be recognised that, in the very long term, continuing to defend such stretches of shoreline may be technically unsustainable and consideration should be given to relocation of assets, or mitigation for their loss.

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 now. Many of the defences that exist today have been the result of reactive management without consideration of the long term consequences such as the financial commitment required.

Studies over the past few years have established that the cost of maintaining all existing defences is already likely to be at least 50 per cent more than present expenditure levels because of the climate changes being predicted, which will accelerate the natural changes already taking place (Burgess & Townend, 2004). In simple terms this means that either more money needs to be invested in coastal defence, or defence expenditure has to be prioritised. While the first option would clearly be the preference of those living or owning land along the coast, it has to be put into the context of how the general UK taxpayer wishes to see their money used. Given that the cost of providing effective and stable defences currently averages between £3 million and £5 million per kilometre, the number of privately owned properties that can be protected by this investment has to be weighed up against how else that money could be spent, for example in education, health and other social benefits.

Those areas where the UK taxpayer is prepared to continue to fund defence may well become even more selective and the threshold of when an area is no longer defended could well shift. While 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. Future investment in

defences, or otherwise, will in part be guided by the Environment Agency's Long Term Investment Strategy (Environment Agency, 2009a) and the definition by planning authorities of Coastal Change Management Areas to guide acceptable development in coastal areas at risk of flooding and erosion (Communities and Local Government website).

It is extremely important that the long term policies in the SMP recognise future economic issues and reflect likely future constraints, providing realism as to the future management of the shoreline.

With national financial constraints it is likely that protection will focus upon larger conurbations and towns, where the highest level of benefit is achieved for the investment made, i.e. more properties can be protected per pound of investment. In the case of the North Devon and Somerset SMP2, a number of areas will be affected by this, meaning that it will not be economically viable to replace defences. In these areas adaptation or resilience measures will be required to address the increased risk of erosion and/or flooding.

3.2.3 Environmental sustainability

The concept of environmental sustainability is subject to change over time, as it depends upon current social attitudes, which continue to alter.

Historically, communities at risk from coastal erosion were relocated, recognising that they were unable to resist change. In more recent times many coastal defences have been built without regard for the impacts upon the natural environment.

Today, because we have improved engineering, we are less prepared to accept change, in the belief that we can resist nature. Attitudes will continue to alter; analyses of possible 'futures' are already taking place considering the implications for many aspects of life, including approaches to flooding and erosion under different scenarios (the Foresight programme run by the Office of Science and Technology, www.foresight.gov.uk). We cannot predict how attitudes will change in the future; therefore the SMP is based upon existing criteria and constraints, while recognising that these may alter to accommodate changing social attitudes.

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 around the North Devon and Somerset coastline. The special quality of the natural habitats, natural landscapes and geological/geomorphological features on this coast is recognised in a number of national and international designations (protected under statutory international and national legislation) as well as national (e.g. Planning Policy Statement 9, which sets out policies on the protection of biodiversity/geological conservation), regional and local planning policies.

Large parts of the North Devon and Somerset coast are designated as Areas of Outstanding Natural Beauty (AONB), National Park and/or UNESCO Biosphere Reserve in order to sustain this unique landscape by protecting the landscape and enhancing recreational opportunities in the area. In addition, two Heritage Coasts (Lundy Island and North Devon) are present within the study area, which have been designated for their exceptional scenic quality. Generally, 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 both human and natural environmental factors.

Coastal management has the potential to change landforms and landscapes. In many areas, raising existing or constructing new coastal defences may be detrimental to both the landscape and seascape e.g. through the introduction of an artificial structure into a natural landscape or perhaps through the raising of defences which

while restricting views can also obscure the horizon and enclose a previously open landscape. The deterioration of coastal defences from a no active intervention policy also has the potential to degrade existing landscape quality.

Where possible, opportunities have been explored to enhance the existing landscape/seascape through the removal of defences and the creation of new areas of intertidal habitat.

There is a *legal* requirement to consider the implications of any 'plan or 'project' that may impact on a Special Protection Area for Birds (SPA) or a 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 Targets for Flood and Coastal Defence (Target 4 – Biodiversity) also require all local councils and other operating authorities to:

- avoid damage to environmental interest;
- ensure no net loss to habitats covered by Biodiversity Action Plans (the SMP acknowledges where certain types of Biodiversity Action Plan habitat within designated sites may be lost or gained);
- seek opportunities for environmental enhancement; and
- monitor any changes to habitats, including contributions to Sits of Special Scientific Interest/Special Protection Area conservation targets, loss and gain of habitats, and to keep records.

Biodiversity Action Plans habitats were identified in developing policy options, opportunities for improvements to existing habitats or the creation of new habitats have been considered.

Coastal management can have a significant impact on habitats and landforms, both directly and indirectly. In places, coastal defences may be detrimental to conservation interests, e.g. those seen along in areas of the Severn Estuary that can potential reduce intertidal habitat due to coastal squeeze, but in other locations defences may protect the interest of a site, e.g. freshwater sites or designated terrestrial habitats in the hinterland of defences. Natural coastal structures may also form the coastal defence, e.g. pebble ridge at Northam Burrows. Therefore, coastal management decisions need to be made through consideration of both natural environmental features and risk management.

Although the conservation of ecological features in a changing environment remains important 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. 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 site preservation to conservation.

Under Section 28G of the Countryside and Rights of Way Act 2000, Natural England is responsible for safeguarding England's finest and most vulnerable wildlife and geological features. Natural England is actively seeking to ensure that coastal erosion and flood risk management proposals are designed to ensure that Sites of Special Scientific Interest are conserved and, where possible, ecology and geology enhancements are implemented, while also allowing the coast to remain naturally dynamic. Similarly, Section 85 of the Countryside and Rights of Way Act 2000 charges relevant authorities with conserving and enhancing areas of outstanding natural beauty.

Accommodating the objectives of environmental bodies, such as Natural England, and future shoreline change requires flexibility in the assessment of nature conservation issues. This includes comprehensively assessing the potential impact of activities beyond the immediate site designation boundaries to consider wider-scale (far-field effects) or longer term benefits.

Where possible, opportunities for enhancing biodiversity have been taken into consideration in the preferred policies' selection so help authorities to make progress with implementing the UK Biodiversity Action Plan and local biodiversity action plans. There are several areas along the SMP frontage where biodiversity opportunities can be taken by allowing more natural coastal processes to take place along large stretches of low-lying areas through no active intervention or managed realignment, and the protection of important terrestrial/freshwater habitats through holding the line. Such approaches need to be balanced against the socio-economic objectives for the area and engineering feasibility to deliver long term sustainable management.

Human (socio-economic) environment

The human environment covers such aspects as current and future land use, infrastructure, material assets, cultural heritage, population and health and the man-made landscape.

(i) Land-use, infrastructure and material assets

Historically, development of the coast took place in an unconstrained manner, often undertaken by individual land owners. Planning Policy Guidance 20 (PPG20) identifies that approximately 30 per cent of the coastline of England and Wales is developed; however, much of this development took 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 against the risk of erosion and flooding.

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 development' and although the exact definition of this is uncertain, it recognises that opportunities for development on the coast are limited due to the risk of flooding, erosion, land instability and conservation policies (as discussed above). Planning Policy Statement 25 Supplement: Development and Coastal Change, that has now largely superseded PPG20, requires Coastal Change Management Areas to be defined to guide acceptable types of development based on the level of risk posed by coastal change, such that long-term sustainable development is directed to areas of very low risk.

In a similar way, Planning Policy Statement 25 (PPS25) on Development and Flood Risk seeks to direct development towards areas of low flood risk rather than areas of higher flood risk (which would in turn require more defence in the future).

The western section of this coast is predominately rural with an increasing number of commercial and industrial interests in the east towards the major conurbation of Bristol (outside of this SMP area). There are small ports and harbours and areas of mineral extraction in the west, however large scale industrial activities are concentrated along the M5 corridor in the towns of Weston-super-Mare and Bridgwater. The continuation of these industries is essential to sustain the economy of the region as a whole. Also situated along the SMP frontage is the Hinkley Point Nuclear Power Station. There are plans being developed for the expansion of this site and the SMP policies have been developed following consultation with the developer.

In addition, there are military establishments, such as the Royal Marine Base at Chivenor, and known landfill sites within the study area, which may be particularly vulnerable to flooding and/or erosion and are likely to require further consideration to ensure that policy scenarios are implemented in a sustainable manner (e.g. to avoid release of contaminants into soils, groundwater or surface water).

The potential risk of changes in coastal management posed to infrastructure (e.g. roads and railways) in some parts of the study area is also an important consideration.

(ii) Population and health

A number of urban settlements are present along the coastline of the study area but only Weston-super-Mare has a population of over 50,000 people. Sustainable coastal erosion and flood risk management of these settlements is one of the main objectives of the SMP, in order to meet social and economic needs and to avoid adverse impacts upon human health (e.g. the physical, psychological and socio-economic impacts of flooding).

A coastal location can be fundamental to some types of tourism/recreation and although the popularity of many British seaside resorts has declined in recent years, seaside tourism often still represents a substantial part of the local economy. However, the North Devon coast has seen a revival in recent years with the popularity of water based recreational activities such as surfing, windsurfing, kite surfing etc. This is aided by a number of award winning bathing beaches (e.g. Blue Flag status). This has made it an important destination for visitors from the UK, Europe and the rest of the world. In addition to recreation, the coast boasts International designations including Braunton Burrows Special Area of Conservation and the North Devon UNESCO Biosphere Reserve and the numerous nationally important nature and geological designations. Many of the towns along this coast are important centres for tourism, providing accommodation, facilities and services to the many visitors to the area each year. Thus, the impacts of policy on the tourism industry need to be carefully considered.

As the coastal strip 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, narrow beaches and limited access.

(iii) Historic environment (cultural heritage)

Heritage features are valuable because they (English Heritage, 2006):

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

Within the study area, there is a combination of designated areas such as Scheduled Monuments, Listed Buildings, Registered Parks and Gardens and built Conservation Areas, as well as non-scheduled or unknown archaeological assets. These assets are unique and irreplaceable making protection against coastal erosion and/or flooding even more important. Conversely, the very process of coastal 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 and PPG16 promotes the preservation of important heritage sites, wherever practicable. The government's policy on archaeological remains set out in PPG16 states that: *"Archaeological remains should be seen as a finite and non-renewable resource, in many cases highly fragile and vulnerable to damage and destruction. Appropriate management is therefore essential to ensure they survive in 'good condition''*.

However, due to the dynamic nature of our coastlines, this is not always possible, or sustainable to preserve these important assets. Therefore, each site must be considered as an individual site and balanced against other objectives at that location.

3.2.4 Renewable energy and the Severn Estuary

The Department for Energy and Climate Change (DECC) and the Welsh Assembly Government (WAG) are part way through funding a feasibility study of potential wave and tidal power generation technologies within the Severn Estuary. The feasibility study aims to gather evidence to help government to decide if it could/should support a tidal power scheme(s) in the Severn and on what terms for example public/private ownership or investment. Phase 1 of the study has been completed, reducing a list of ten possible schemes down to a shortlist of five.

As no decision has been made on which, if any, scheme would be supported by government, this SMP does not take into consideration any tidal or wave energy scheme in the SMP decision making process. This is also the approach being taken on the other SMP2s being developed around the Bristol Channel/Severn Estuary shoreline.

Phase 2 of the feasibility study will appraise the five shortlisted possible schemes in more detail, taking into account potential impacts on coastal flooding and erosion, including the policies set out in this SMP.

4 The Preferred Plan

4.1 Plan for Balanced Sustainability

The Shoreline Management Plan (SMP) is built upon the aim of achieving balanced sustainability, i.e. it considers people, nature, historic and economic realities.

The proposed short term (0 to 20 years) policies for the North Devon and Somerset SMP coastline provide a high degree of compliance with objectives to protect existing communities against flooding and erosion. The preferred long term (50 to 100 years) policies promote greater sustainability for parts of the shoreline and focus on sustaining and possibly enhancing the natural character of this coast. Long term policies that continue to defend the shoreline in the present-day manner would produce a change in the nature of the coast, with a prominence of large concrete seawall and armoured revetment structures and fewer beaches. However, there is the social-economic justification to maintain these defences in the short to medium term, with opportunities to optimise management techniques to sustain those coastal assets important to the community in the longer term, where appropriate.

The rationale behind the proposed policies is explained in the following sections of text, which consider the SMP area as a whole. Details of the preferred policies for individual locations, including associated mapping, are provided by the individual policy statements in **Section 5**.

4.1.1 Sustainable management

One of the main objectives in developing an SMP is the definition of sustainable long term management policies for the coast. In Defra's 2006 procedural guidance for the production of shoreline management plans this is defined as: "*those which take account of the relationships with other defences, developments and processes, and which avoid, as far as possible, committing future generations to inflexible and expensive options for defence*". Given sea level rise predictions, this would be best achieved through the creation of a naturally functioning coast; allowing it to move landwards or seawards at rates dictated by the natural processes of waves and tides. Along this SMP frontage, there are large areas of natural, undefended coastline and the policy selection in these areas has been driven by sustaining this situation.

However, on the North Devon and Somerset coast, there are many areas that have a long history of coastal defence intervention to reduce the risk of flooding and erosion. This means that the shoreline today is, in places, in an 'unnatural' form and position, and one which would not necessarily revert to 'naturally functioning' if simply allowed to develop unmanaged. Indeed, it is likely that the removal of defence along parts of the SMP frontage would result in the breakdown of beaches, with little or no protection of the land behind from erosion and flooding. The consequences of this, given the extent of development along parts of the coast, would be catastrophic, in socio-economic terms, as thousands of homes and businesses lie within the potential risk areas. The 'No Active Intervention' flood and erosion risk maps provided in **Appendix C** demonstrate the potential risk if no further intervention occurs along the SMP frontage.

As such, it is the social and economic sustainability of the SMP area which has driven policy selection for the majority of the developed areas of this frontage, although policies leading to a more 'natural' shoreline in the long term have been identified where feasible.

4.1.2 Lundy

Lundy is located in the Bristol Channel, mid-way between South Wales and North Devon, sited approximately 18km off Hartland Point. The island is a horizontal plateau of granite 5km-long by 1km-wide, surrounded by 15km of coastline of steep slopes and cliffs rising approximately 110m from the sea.

The land and waters of Lundy are ecologically rich and contain sites of national and international importance including a Site of Special Scientific Interest and Special Area of Conservation. It is also has a marine nature reserve with an established zoning system including Britain's first ever 'no take' zone; a marine protected area where fishing or the collection of wildlife is against the law. The North Devon UNESCO Biosphere Reserve's transition zone also stretches out to Lundy.

People have lived on Lundy since prehistoric times providing an abundance of archaeological history throughout the ages, much unrecorded. Lundy has 13 Scheduled Monuments and two nationally protected ship wrecks. Agriculture is the dominant land use of the island and Lundy is a popular visitor destination throughout the year, which supports the Island's economy.

The long term plan for Lundy is to continue allowing it to evolve naturally, while maintaining sea defences that protect the access via Landing Bay.

4.1.3 Hartland Point to Westward Ho!

This covers the southern half of Bideford Bay, starting at the prominent headland of Hartland Point and finishing 20km northeast at Westward Ho!.

Hartland Point is renowned for its spectacular folded and faulted rock composed predominantly from sandstone and mudstone laid down about 320 million years ago during the Carboniferous (Devon County Council website). The cliff tops from Hartland Point to Clovelly support a mosaic of habitats and, together with the geology, form part of the wider Marsland to Clovelly Coast Site of Special Scientific Interest and Tintagel-Marsland-Clovelly Coast Special Area for Conservation. Further along the coast, adjacent to Bideford between Mermaids Pool and Rowdens Gut, is the only complete sequence of the Bideford Formation. This notable geology is a designated Site of Special Scientific Interest. This area also forms part of the wider North Devon UNESCO Biosphere Reserve buffer and transition zone.

This picturesque coastline attracts many visitors and has national status as the North Devon Area of Outstanding Natural Beauty and Hartland heritage coast. Hartland, Clovelly and Bucks Mills are Conservation Areas and there are Scheduled Monuments sparsely spread along the coast including hill forts and earthworks.

This largely undefended coast is at very little risk of erosion or flooding. The plan for the long term is therefore to continue allowing the coast to evolve naturally along much of its length.

The exception is at Clovelly where continued defence is required to retain its important tourism value that is also of benefit to the economy of the wider area. Retention of Clovelly's defences is likely to be economically viable and unlikely to affect wider coastal processes provided the current annual transfer of pebbles from the west to east continues. Retaining defences at Bucks Mills is also unlikely to affect wider coastal processes, but is unlikely to attract public funds from the flood and coastal defence budget, so continued defence here would depend on the availability of other funds.

4.1.4 Westward Ho! to Saunton Down

This section of coast is approximately 10-miles long, encompassing the northern and eastern part of Bideford Bay and the outer part of the Taw and Torridge Estuary system. Westward Ho! is a significant coastal resort located at the southern-most point of the estuary with Saunton Down headland forming the northern-most point.

This area is characterised by a wide-range of habitats influenced by the coastal landforms and the processes that shape them, and contains a number of nationally and internationally important designated sites. Northam Burrows Site of Special Scientific Interest is a dune system protected by a pebble ridge located within the southern extent of the estuary. Braunton Burrows is a Sites of Special Scientific Interest, Special Area of

Conservation and part of the North Devon UNESCO Biosphere Reserve forming the northern extent of the estuary and is the largest dune system in the UK. Set back from the dunes are the Braunton Swanpool and the Greenaways and Freshway marshes, both designated Sites of Special Scientific Interest. The North Devon UNESCO Biosphere Reserve's core is based upon Braunton Burrows Special Area for Conservation, beyond this core the buffer zone stretches between Westward Ho! and Croyde, encompassing the Taw-Torridge Estuary up to Barnstaple and Bideford.

Key to this area is the future of Northam Burrows. Here the long term plan is to allow the Pebble Ridge to roll landward and align itself to the dominant wave direction. This realignment will be managed by extending defences at Westward Ho! parallel to the shoreline as it retreats eastwards and continuing to protect the former landfill site in order to prevent release of contaminants into the environment. The Skern frontage will be held in place to ensure Northam Burrows continues to protect the inner estuary but allowing tidal incursion into the eastern side of Northam Burrows to help the wider Burrows adapt to sea level rise in a way that does not result in landfill material entering the environment.

The dune system of Braunton Burrows will continue to evolve naturally. These are expected to continue to provide a robust natural defence for low-lying areas of the Taw Estuary behind the Burrows over the next century.

Although retaining current defences at Saunton would not have any wider implications for coastal processes, providing future defence here is unlikely to attract public funds from the flood and coastal defence budget so will depend on the availability of alternative funding.

4.1.5 Taw-Torridge Estuary

The estuary has two main tributaries: the River Taw and the River Torridge. The River Torridge runs in a southerly direction parallel to the coast and the port town of Bideford has developed along both banks approximately 5km upstream from its mouth. The River Taw runs in an easterly direction perpendicular to the coast, with the small tributary of the River Caen joining it at Braunton. The river meanders inland with the historic market town of Barnstaple located along both banks of the river, approximately 5km from the mouth.

The intertidal habitats within the estuary are a designated Site of Special Scientific Interest. This area features a wide range of habitats influenced by the coastal geomorphology and includes a number of nationally and internationally important designated sites. Northam Burrows Site of Special Scientific Interest is a dune system protected by a pebble ridge located within the southern extent of the estuary. Braunton Burrows is a Site of Special Scientific Interest, Special Area of Conservation and UNESCO Biosphere Reserve forming the northern extent of the estuary and is the largest dune system in the UK. Set back from the dunes are the Braunton Swanpool and the Greenaways and Freshway Marshes, both designated Sites of Special Scientific Interest. The North Devon UNESCO Biosphere Reserve's core is based upon Braunton Burrows Special Area for Conservation, beyond this core the buffer zone stretches between Westward Ho! and Croyde encompassing the Taw-Torridge Estuary up to Barnstaple and Bideford.

The far-reaching views available within the estuary are underpinned by its national status as the North Devon Area of Outstanding Natural Beauty and North Devon Heritage Coast. There are also 14 Conservation Areas located along the banks of the Taw-Torridge Estuary and five Scheduled Monuments within this section of coast.

The South West Coast Path running along the North Devon coast becomes the Tarka Trail between Saunton and Northam. The Tarka Trail follows the Taw and Torridge Rivers, providing a path from the coast into the mainland via a river. A railway runs from Barnstaple to Exeter along the southern bank of the River Taw within the SMP study area.

The long term vision for the Taw-Torridge Estuary is to manage the flood risk to people, property and infrastructure while allowing the estuary, where possible, to evolve naturally in response to climate change and rising sea levels.

The Torridge Estuary is steep-sided in many places and unlikely to alter significantly whether defended or undefended, although there are areas of low-lying land along the eastern side. Any changes in policy can generally be managed locally without significant wider impact.

The Taw Estuary has several potential areas for managed realignment that could provide floodwater storage, benefiting other parts of the estuary, and the potential to create habitat. However, there is much uncertainty about the individual and cumulative impacts of realignment schemes on sediment transport and tidal current regimes in the estuary and adjacent open coast. Implementation of managed realignment at any site in the outer Taw Estuary could alter flow regimes and thus coastal features at the mouth of the estuary which could in turn increase flood risk from the sea in the estuary itself. Therefore, the approach in the short term is to maintain existing defences while more detailed investigations are undertaken to support moving towards the long term vision.

4.1.6 Saunton Down to Morte Point

This mostly undefended coast is approximately 10km long and characterised by headlands at Saunton Down, Baggy Point and Morte Point encompassing the largely self-contained bays and dune systems of Croyde Bay and Woolacombe Bay.

There are four Sites of Special Scientific Interest in the area, notable for their geology and nature conservation value – Saunton to Baggy Point Coast, Barricane beach, Mill Rock and Morte Point. This section also forms part of the wider North Devon UNESCO Biosphere Reserve transition zone. This impressive landscape is within the nationally important North Devon Area of Outstanding Natural Beauty and heritage coast. Woolacombe, Croyde and Georgham are Conservation Areas and there are numerous archaeological sites, but no Scheduled Monuments.

This stretch of coast is a major attraction to bathers and surfers. A series of holiday parks and camping sites are located on farmland along the coast, benefiting the local village economies of Woolacombe, Croyde and Braunton. The South West Coast Path hugs the peninsula providing access to the coast.

The long term vision is to continue to allow this coast to evolve naturally, thus conserving its important landscape character. Continued protection at discrete locations such as Putsborough Sands and Middleborough Hill, may be acceptable, as retention of the existing seawall-type defences in these areas will not adversely affect coastal processes in a wider area. This is however unlikely to attract public funds from the flood and coastal defence budget, and will therefore depend on availability of alternative sources of funds.

4.1.7 Morte Point to Minehead

This 50km stretch of coast extends from the promontory at Morte Point and stretches to Minehead. It includes several bays, such as Combe Martin, Lynmouth and Porlock; large headlands including Foreland Point and Hurlstone Point; and numerous smaller bays and rocky headlands.

Exmoor Coastal Heaths are a designated Site of Special Scientific Interest and Special Area for Conservation. This coastline is rich in geological and ecological features and contains five designated Sites of Special Scientific Interest, namely Morte Point, Hele Samsons and Combe Martin Bays, Napps Cave, West Exmoor coast and woods, and Porlock ridge and saltmarsh. The coast between Morte Point and Lynton also forms part of the wider North Devon UNESCO Biosphere Reserve transition zone. This stunning stretch of coastline includes

the nationally designated Exmoor National Park, North Devon Area of Outstanding Natural Beauty and heritage coast as well as 12 Conservation Areas and numerous Scheduled Monuments.

This largely rural coastline is mostly undefended, although localised defences are present at numerous small settlements. These areas are characterised by steep river valleys leading to historic fishing or trading ports including Ilfracombe, Combe Martin, Lynton, Lynmouth, Porlock and Minehead.

The long term vision for this area is to continue to allow it to evolve naturally, thus conserving its important landscape character. It is recognised that there is a need to continue to protect some discrete locations, but this will not adversely affect coastal processes over the wider area. Therefore, existing defences will be retained into the long term at places such as Lee, Ilfracombe, Combe Martin and Lynmouth.

In some locations such as at Porlock Weir, future defence provision is unlikely to attract public funds from the flood and coastal defence budget, and retention of defences through other funding would impact on a wider coastal area. Therefore, it is proposed to move towards no active intervention in these circumstances. Currently defended areas would face increased flood and erosion risk in the medium to long term and measures will need to be put in place to manage this increased risk and reduce the impact on people and infrastructure.

4.1.8 Minehead to Blue Anchor

This coastline extends from Minehead for approximately 8.5km to Blue Anchor. There are three Conservation Areas within this stretch. Dunster Castle is a nationally important Scheduled Monument, and is one of many within the area. The West Somerset Railway serves this area, following the line of the coast around Blue Anchor Bay for much of its length. It is in close proximity to the shoreline at Ker Moor before turning inland towards Watchet.

Minehead is a popular holiday resort with its sandy beaches, holiday park and local attractions and is also a Conservation Area. The Minehead seafront forms the beginning of the South West Coast Path, which continues along the South West Peninsula to Dorset, as well as the West Somerset Way. The coastline beyond Minehead to the east is largely rural.

The long term plan here is to continue to reduce flood and erosion risk to Minehead by maintaining the town's defences. To achieve this objective, the risk of 'back-door' flooding from east of Minehead, via The Warren/Dunster Beach/Ker Moor frontage on Blue Anchor Bay, needs to be addressed. This would be achieved through a secondary defence line landward of The Warren/Dunster Beach/Ker Moor frontage in the short-term, and in the long-term to manage the realignment of this coast towards this set-back position. It is thought that any realigned position would have to be seaward of, or incorporate in some way, the West Somerset Railway so that this important economic resource is retained. Through adopting this approach more beach would be retained at Dunster and salt marsh may develop in front of the set-back defence. Retention of beach material and development of salt marsh would provide additional natural defences.

The long term plan for Blue Anchor is to move towards 'no active intervention'. Maintaining defences along the present line will become increasingly difficult and unlikely to attract public funds from the flood and coastal defence budget. This could mean that the access to the coast road will need to be re-routed, but alternative access routes are available.

4.1.9 Blue Anchor to Hinkley Point

This coastline stretches approximately 17km from Blue Anchor to Hinkley Point.

The section between Blue Anchor and Lilstock is noted for its geology and geomorphology and is designated is a Site of Special Scientific Interest. It contains one of the thickest successions (layers of geology) of the Jurassic

period, which is probably the best example of this feature in north-west Europe. The Quantock Hills rise steeply from the coast and have national nature conservation and geological interest, designated as both a Site of Special Scientific Interest and Special Area for Conservation. The distinctive and attractive nature of the landscape is also recognised by its designation as an Area of Outstanding Natural Beauty.

There are two Conservation Areas. Daw Castle is a nationally important Scheduled Monument and there are also numerous non-designated archaeological features within the area.

The coastline is largely rural, with the exception of Watchet. East of St Audries Bay there are hamlets and farms looking out onto Bridgwater Bay. Hinkley Point at the eastern end of this stretch is the location for a nuclear power station of strategic importance to the national electricity grid. The West Somerset Railway lies at close proximity to the shoreline at Watchet and Doniford before continuing inland towards Taunton.

The long term plan for the majority of this coast is for it to evolve naturally and thus retain its important landscape character. Continuing to protect some areas may not be detrimental to coastal processes but is unlikely to attract public funds from the flood and coastal defence budget. Therefore, some currently defended areas may experience increased flood and erosion risk in the medium to long term as existing defences deteriorate and fail and approaches for adapting to the increased risk may be needed for these areas. The long term plan for Hinkley Point and Watchet is to continue to defend these areas against the risk of flooding and erosion. In the case of Hinkley Point, the SMP policies have been developed on the basis of expansion of the Nuclear Power Station. However, at the time of finalising policies no definite plans for this expansion were available and so the policy reflects this uncertainty.

4.1.10 Parrett Estuary (Hinkley Point to Burnham-on-Sea)

This covers the southern coastline of Bridgwater Bay and encompasses the Parrett Estuary. It fronts the extensive low lying area of the Somerset and Bleadon Levels and will become increasingly susceptible to flooding as sea levels rise. The River Brue discharges into the Parrett Estuary, as does the Huntspill River, via a sluice control structure to control flood risk upstream.

The southern shore of Bridgwater Bay is rural, with a couple of hamlets at Stolford and Steart, while the eastern shore includes the coastal towns of Burnham-on-Sea and Highbridge. Other settlements along the banks of the Parrett Estuary include Combwich, Dunball Wharf and Bridgwater.

Bridgwater Bay is ecologically important for its succession of intertidal habitats and contains two national and three international designations including a National Nature Reserve, Site of Special Scientific Interest, Special Protection Area, Special Area of Conservation and Ramsar Site. This forms part of the wider Severn Estuary which is of international importance for its wetlands, waders and waterfowl. Inland, the River Parrett meanders between the Stert and Berrow flats. The Huntspill River is a man-made channel joining the Parrett Estuary to the Somerset Levels and Moors Site of Special Scientific Interest and Special Protection Area for Birds; providing an important wildlife corridor for migrating waterfowl and waders and is designated as a National Nature Reserve.

There are two Conservation Areas within this section of coast at Bridgwater and Burnham-on-Sea, but no landscape designations. There are also numerous archaeological sites within the Parrett Estuary. The Parrett Trail follows the western bank of the River Parrett inland towards Bridgwater.

The long term plan for the Parrett Estuary is to provide sustainable flood defence to people, property and infrastructure, while allowing the estuary to evolve as naturally as possible in response to climate change and rising sea levels. There are several areas in the outer Parrett Estuary where continued provision of defences along existing alignments may not attract funding in the long term, as larger and more expensive defences

would be required to contain the flood risk. These areas also offer opportunities for managed realignment involving construction and maintenance of more sustainable defences and bringing habitat gains.

There are potential implications of realignment in one or more parts of the Parrett Estuary in conjunction with a no intervention policy for the Steart Peninsula, both on the open coast and in upstream areas such as Bridgwater. Any potential increase in flood risk to the upper Parrett Estuary at Bridgwater and Dunball could be minimised through constructing a surge barrier, as already identified as being required to address future sea level rise in the Parrett Estuary Flood Risk Management Strategy (Environment Agency, 2009b). Implementation of a surge barrier would be subject to more detailed appraisal of both technical aspects and environmental impacts.

Towards the open coast, changes to the estuary regime could alter the low water channel which needs detailed consideration. Impacts of any such changes might be managed at Burnham-on-Sea and Highbridge by retaining defences through ongoing maintenance and eventually replacing these with larger structures as the existing structures reach the end of their effective life.

4.1.11 Burnham-on-Sea to Brean Down

This section of coast between Burnham-on-Sea and Brean Down covers the eastern and northern limits of Bridgwater Bay. It fronts the extensive low lying area of the Somerset and Bleadon Levels and will become increasingly susceptible to the risk of flooding as sea levels rise. At the southern end is the coastal town of Burnham-on-Sea, north of which are sand dunes at Berrow and Brean. The sandy beaches located along this frontage are important in attracting tourists to this area and are therefore crucial to the future of Burnham-on-Sea as a tourist destination, as well the beaches, holiday parks, caravan and camping sites at Brean and Berrow.

Bridgwater Bay is ecologically important for its support of numerous ecosystems and contains two national and three international designations including a National Nature Reserve, Site of Special Scientific Interest, Special Protection Area, Special Area of Conservation and Ramsar Site. Bridgwater Bay forms part of the wider Severn Estuary, which is of international importance for its wetlands, waders and waterfowl. The Berrow Dunes are of national conservation importance and designated as a Site of Special Scientific Interest. There is a Conservation Area within this section of coast at Burnham-on-Sea, but no landscape designations. There are also several Scheduled Monuments, including Brean Down headland and Brent Knoll.

The long term plan is to continue to provide reduce flood risk to the Somerset Levels and Moors, while maintaining the natural character and beaches along much of this frontage which are important in attracting visitors and in terms of the regional economy. The most sustainable way to achieve this is to appropriately manage the well-established natural dune systems such as those at Berrow.

Where dunes have been degraded by development or eroded through recreation, for example at Brean, the objective will be to encourage re-establishment of the dunes to provide protection. To achieve this, some properties at Brean that have been built on the dunes may have to be relocated, although this would be subject to more detailed study and monitoring. If dunes narrow in the long term and become at risk from breaching and thus widespread flooding of the Somerset Levels and Moors, then set-back defences would be needed landwards of the dunes to minimise this risk. The location of any set-back defences would need to be determined by more detailed study prior to implementation.

Between Brean and Brean Down (and along the west bank of the River Axe), the long term plan for no active intervention could result in the mouth of the River Axe switching to discharge south of Brean Down.

Flood risk to Burnham-on-Sea and Highbridge would continue to be reduced by retaining defences through ongoing maintenance and eventual replacement as the existing structures reach the end of their effective life.

4.1.12 Brean Down to Anchor Head

This short section of coast extends 7km from Brean Down to Anchor Head where Birnbeck Island lies a hundred meters from the coast. It encompasses Weston Bay and the estuary mouth to the River Axe.

The River Axe forms part of the Severn Estuary Site of Special Scientific Interest, Special Protection Area for Birds, Special Area of Conservation and Ramsar site. Brean Down is a peninsula of carboniferous limestone of geological and biological national importance and is a designated Site of Special Scientific Interest. There is also a local nature reserve at Uphill. The prominent limestone hills of the Mendip Hills Area of Outstanding Natural Beauty form a backdrop to Weston-super-Mare with access into the Bleadon Hills. There is one Scheduled Monument near the River Axe.

Weston-super-Mare is a traditional seaside resort and designated Conservation Area forming a townscape to the northern mouth of the Axe up to and beyond Anchor Head. It is fronted by wide sandy beaches and is a popular tourist destination with many traditional seaside attractions.

The long term plan is to continue to minimise flood risk to the Somerset Levels and Moors in the most technically, environmentally and economically sustainable way, while maintaining the natural character and beaches that attract many tourists contributing to the regional economy.

At Uphill, the most sustainable way to achieve this is to appropriately manage the well-established natural dune system. Along parts of the east side of the River Axe there is potential to achieve this through implementing managed realignment.

Along the west bank of the River Axe (and between Brean and Brean Down on the adjacent open coast), the long term plan for no active intervention could see the mouth of the River Axe move to the south of Brean Down. The risk of flooding to the wider Somerset Levels and Moors as a result of this policy change would need to be managed by constructing set-back defences.

Flood risk to Weston-super-Mare would continue to be reduced by maintaining the recently constructed sea defences, possibly supported in the future by beach recharge.

4.2 Predicted Implications of the Preferred Policies

In the longer term, there will come a point when preventing coastal erosion and flooding at some locations can no longer be justified, in economic, technical or environmental terms. We need to begin planning for this situation. Accepting that it is not possible or justified to continue to provide defences on the national scale that we have in the past century, it is necessary to consider any potential implications. These are presented below.

Direct comparison is made between the proposed policies and a no active intervention approach – this being the position if no money was spent on coastal defence. This comparison defines the benefits of the proposed policies.

4.2.1 Implications for property and land use

The preferred policy for much of the North Devon and Somerset coastline is to maintain existing defences where economically viable in the long term. This is to minimise loss of, or damage to, property and assets along the developed parts of the coastline, as far as possible. However, for some sections of the coast, a change in management policy has been identified for the medium to long term where a hold the line policy is

no longer acceptable or sustainable in terms of economics, technical sustainability or the environment. The SMP has identified areas where a more naturally functioning coastline would be to the benefit of the natural environment which may also lead to potential losses of assets if implemented.

The main areas of management change are: Brean, parts of the Parrett Estuary, Steart Peninsula, Lilstock, Doniford, Blue Anchor Bay, Porlock Weir, Lee Bay, Putsborough and Vention, Croyde Bay, parts of the Taw-Torridge Estuary and Bucks Mills. At these sites the long term technical sustainability and economic viability of a hold the line policy is questionable. These management policy changes are based on comprehensive consideration of many factors, including best technical knowledge and understanding of coastal evolution.

Under the preferred policies, the total loss of housing to coastal erosion through the whole SMP area up to year 2025 is up to about 12 residential and commercial properties. This compares to the no active intervention baseline, when potential erosion losses of about 14 residential and commercial properties could possibly occur.

In the medium term – by year 2055 – the difference in losses between using the policies and not using them is greater. Residential and commercial property losses as a result of coastal erosion could still cumulatively total 12, with cumulative losses of about 19 houses by the year 2105. This compares to the no active intervention baseline, under which cumulative house losses could be up to 87 by 2055, and over 325 by 2105 if the protection measures were not used. The preferred policies could deliver coastal erosion protection to over 300 'at risk' residential and commercial properties over the next 100 years. These figures relate to losses through coastal erosion only. As significant parts of the SMP frontage are very low lying, overtopping, overflowing or breaching of defences, even where flood defences are maintained, could lead to wide-spread flooding, with over 26,900 residential properties and over 3,700 businesses at risk from flood damage.

While the preferred policy for many of the areas along the shoreline is to hold the line in the long term, there may still be a detrimental impact on tourism through loss of beaches at places such as Westward Ho!, Minehead, Burnham-on-Sea and Weston-super-Mare, where it will become increasingly technically difficult to retain beaches as sea levels rise causing beaches to narrow. Tourism and recreation is an important economic sector for this area with key centres located along the SMP frontage including those at Clovelly, Westward Ho!, Braunton, Croyde, Woolacombe, Ilfracombe, Combe Martin, Lynmouth, Minehead, Dunster, Blue Anchor, Doniford, Burnham-on-Sea, Berrow, Brean and Weston-super-Mare. Along some of these frontages there will be losses of a number of properties as a result of policies to undertake realignment or no active intervention along parts of these frontages. Some re-routing of major infrastructure may also be required in the longer term under this SMP. Along frontages where some properties will be lost due to coastal erosion in the medium to long term, the preferred policy includes provision for management of the retreat at some of these locations. This could allow for relocation or mitigation measures to be implemented should there be available funding.

Agriculture and grazing also represents a share of the local economy and along the coast there are various grades of agricultural land. This land along much of the North Devon and Somerset coast is in the undeveloped stretches between the towns and within the estuaries. There is insufficient economic justification for maintaining or constructing defences, which would also be technically and environmentally inappropriate in many places. Under the preferred policies there could be loss or damage to approximately 14,800 hectares of agricultural land (over half of which is Grade 1 to 3 land) which will remain at risk of flooding, even where low-level defences are present, by year 2105. Some of this agricultural land will be actively managed under Managed Realignment where improved agricultural land will become intertidal, compensating for areas lost to coastal squeeze.

4.2.2 Implications for nature conservation

Parts of the shoreline management plan (SMP) frontage, are designated under the Conservation (Natural Habitats &c.) Regulations 1994 (as amended) and the Conservation (Natural Habitats, &c.) (Amendment) Regulations 2007 and as such if there is a change in extent or conservation value as a result of SMP policy, then a Habitats Regulations Assessment would be required. This is particularly relevant in a long section of the SMP that boarders the Severn Estuary Special Area of Conservation (SAC), Special Protected Area (SPA) and Ramsar sites, as well as Lundy SAC, Tintagel-Marsland to Clovelly Coast SAC, Braunton Burrows SAC, Exmoor Coastal Heaths SAC, Quantock Hills SAC and Mendips Limestone Grasslands SAC, There are potential losses associated with the implementation of SMP policy. This is through the loss of intertidal habitat due to coastal squeeze against control structures. Where this is an issue it is likely to be exacerbated through sea level rise and may require compensatory habitat to be provided. However, natural processes of coastal erosion and flooding are also responsible for the loss of habitat. Conversely, coastal processes can also be of benefit to the natural environment as in Porlock Weir. As the coast is allowed to naturally rollback, supported by SMP policies, there is the creation of intertidal habitat which is of benefit to birds and benthic communities, this will be achieved through either no active intervention or managed realignment and potential areas for this are actively sought to offset intertidal losses due to coastal squeeze.

Much of the SMP coast is characterised by a variety of cliff types, which are nationally and internationally important for their geology and geomorphology. The most significant threat to the sites of geological interest is the creation of artificial structures that would affect the natural processes of erosion or obscure the exposed geology. The proposed plan therefore seeks to balance the protection of these natural features with the maintenance and protection of property and material assets wherever possible. The preferred policies of no active intervention or managed realignment have been recommended in areas where there are limited human assets or along areas of undeveloped coastline to ensure the preservation of the geological interests. In general, the SMP is not recommending the construction of new defences to maintain economic assets in areas where none are currently present.

Careful management of the shoreline on Lundy Island and between Hartland Point and Anchor Head is necessary to sustain the designated habitats already in place, while managing for the impact of sea level rise. The conflicting objectives of a more dynamically functioning coastline coupled with conserving existing habitat will rely on the adoption of the appropriate management policy. By making step changes based on analysis of monitoring data, changes to management policy can be made slowly, with limited impact on the habitat.

4.2.3 Implications for landscape

The preferred long term policies in this SMP are intended to sustain the current urban areas through proactive management of the existing beaches and defences, whilst recognising that new linear and shoreline control defences may be needed in the longer term. However, in general the plan is not to construct new defences in currently undefended areas so much of the coastline will remain as today. Where appropriate, opportunities for forming a free functioning natural coastline in some areas have been taken, to create a more natural coastal landscape and reducing piecemeal man-made structures on the beach. This is more beneficial to the landscape than a policy of defending the whole coastline, which would involve construction of new, more substantial defences, which in some places would also be unlikely to be technically sustainable or economically viable. However, it is recognised that loss of some coastal properties, to which the Area of Outstanding Natural Beauty designation refers, may affect the quality of the landscape should they be of special character. An example of this would be the harbour walls at Bucks Mills. SMP policy does not recommend a policy of HTL but retains the flexibility to allow privately funded defences.

4.2.4 Implications for the historic environment

There are a wide range of Historic Environment sites along the coast and many more of these will be protected through the preferred policies than would survive a no active intervention policy. However, along some stretches of coastline, there may be possible damage to or loss of historic environmental features in the longer term due to erosion and potential in the short term due to flooding including:

- Scheduled Monuments including Barnstaple Castle (at risk from flooding) and Daw Castle (at risk of erosion);
- Small areas of Registered Parks and Gardens e.g. Tapeley Park; and
- Grades I, II* and II Listed Buildings.

Along this stretch of coast the Scheduled Monument are located evenly in town or along open sections of coast. Some Listed Buildings and Scheduled Monuments are located in areas where changes in long term policy are proposed, and in these areas there is a risk of these being lost or damaged as a result of erosion or flooding in the medium to long term. Where there may be possible damage or loss to the historic environment mitigation measures are proposed. In the case of non-designated site mitigation measure should be considered a scheme or project level as appropriate.

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 in many of the settlements in this area. The preferred long term policies will protect the key centres of tourism and recreation such as at Clovelly, Westward Ho!, Ilfracombe, Combe Martin, Lynmouth, Minehead, Burnham-on-Sea and Weston-super-Mare maintaining assets currently protected by the existing defences. However, this will be at the expense of beaches along many of these frontages, which are unlikely to be retained as the frontages become more susceptible to narrowing beaches and exposed to stronger waves as sea levels rise. Preserving beaches, where possible, will be of increasing value to tourism and recreation within the region as more and more beaches become lost as sea levels rise.

In the long term there are losses of beach expected from rising sea levels and potential access issues, with existing access to the beach becoming lost or redundant. There is potential and, in some places, a necessity due to safety issues, for access to be re-established if funding is available.

4.3 Managing the Change

Long term views are needed in managing any coastline and it is inevitable that many past policies will need to be changed. Continuing to defend the coastline by following the same approach that has been taken in the past is unsustainable in the very long term for particular frontages. It is unrealistic to present proposed policies that indicate continued defence of an area where this is unlikely to be sustainable or economically justifiable.

Consideration of the consequences at various levels of planning and government is needed to achieve successful changes. There will be matters that need to be debated at a national level, as the issues that have been identified by this SMP will exist elsewhere in the UK. It is not possible to achieve complete sustainability from all perspectives and quite probably national policies will need to be developed to help resolve the dichotomies.

4.3.1 Recommendations

It is expected that implementing this SMP may require changes at local planning, regional and national government levels. At a time when regions are being charged with increasing the national housing stock, there may need to be compensatory provisions made to offset the losses that will result from this plan and others.

These provisions may, for example, include making other land available for building. **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.

Local planning should consider the risks identified in this SMP and avoid approving development in areas at risk of flooding and erosion. It also needs to consider that relocation of displaced people and property may require land to be made available within the same settlements 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.

In the short term the need to **ensure that conservation interests within designated sites or in the wider environment are appropriately addressed by coastal management should be done in a way that engages the public and involves local communities in finding long term solutions to issues**. To help deliver this objective Natural England has published a maritime strategy entitled 'Our coasts and seas: making space for people, industry and wildlife', available from the Natural England website (http://naturalengland.etraderstores.com/NaturalEnglandShop).

To accommodate coastal change and associated potential loss of property and assets, whether due to coastal erosion or flooding, local operating authorities will need to develop action plans. These will need to address the removal of buildings and other cliff-top facilities well in advance of their loss to erosion. The plans for relocation of people also need to be established and clear for all affected.

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 measures 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. 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 including churches and golf clubs.

Private land and property owners will need to consider how they will deal with these changes. There is currently no general obligation on the part of operating authorities or national government to assure protection against flooding or erosion, and there is no reason to assume that this will change in the future, or that individual losses would be recompensed from central funds.

The SMP provides a long lead time for the changes that will take place at some point in the future. However, to manage these changes effectively and appropriately, the approach put forward in this SMP needs to be considered now. Refer to the action plan in **Section 6**.

5 Policy Statements

5.1 Introduction

This section presents the preferred policies and implications for individual sections of coast. These are to provide local detail to support the overall SMP presented in **Section 4**, and consider locally-specific issues and objectives which are presented in **Appendix E**. These statements must be read in conjunction with the wider objectives and in the context of the wider-scale issues and policy implications.

5.2 Content

Each policy statement contains the following:

- **Location reference** – This provides the general location covered by the statement, together with the policy unit or units covered by the statement. The policy units are identified by a number which is sequential along the shoreline from west to east (to accord with a new national notation).
- **Summary of the SMP recommendations and justification** – This summarises each location's plan and explains the reasoning behind it. These statements focus upon the long term policy but also note any different short term requirements necessary to achieve the long term aim.
- **Preferred policies** – This describes the preferred policies and activities to be adopted in the short, medium, and long term. In this respect, "short term" is broadly representative of the next 20 years, "medium term" the next 20 to 50 years, and "long term" the next 50 to 100 years or more. These timescales should not be taken as definitive and should be considered as phases in the management of a location. Similarly, the policy unit boundaries shown should not be taken as definitive, as the SMP is based upon high-level assessment and more detailed studies may justify the need to 'go across' boundaries to appropriately deliver the plan's policies.
- **Predicted implications of the preferred policies for this location** – This table summarises the consequences at this location only resulting from the preferred policies. These come under the categories of "property and population", "land use, infrastructure and material assets", "historic environment", "landscape", "earth heritage, soils and geology", "water", and "biodiversity, flora and fauna" and correspond with information being entered into the national database of SMPs. The implications have been assessed for the situation by years 2025, 2055 and 2105 to provide a nationally consistent picture, and consider the impact of the local policy and also policies along adjacent stretches of coast, as necessary.
- **Maps** – The maps show the erosion that is expected to occur under the preferred policy option in each area. It should be noted that in some areas no erosion is predicted to occur and so the erosion lines shown sit on top of each other (and so only a single erosion line is visible). 2008 Environment Agency flood zone maps have been used. The reader should note that these are continually updated by the Environment Agency (refer to www.environment-agency.gov.uk) but do not include the effects of climate change or raised defences. The maps, where appropriate, show potential realigned defence positions to illustrate possible implications of policies. It should be noted that the realignment extent where managed realignment is proposed will be subject to further studies before any realignment scheme is undertaken (refer to Section 5.2.2). Not all data used in the SMP is shown on these policy unit maps. Additional data used can be viewed on the maps provided in Appendix D.

5.2.1 Policy units

Policy statements are provided for the following policy units:

5.2.2 Additional policy information

Historic environment features

Where a proposed policy results in the loss of Historic Environment features (known and unknown) it will be important to consider surveys and investigations to record these important sites, and any 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. It is important to note, however, that the provision of defences to support a footpath is not sufficient justification alone for

providing the defence, as evidenced by the policy of the South-West Coast Path (www.southwestcoastpath.com).

Land use within defended areas or those 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 in flood and erosion risk areas should be appropriately adaptable, resilient and resistant. Decisions on development land use within flood and erosion risk areas should fully consider the risk and be adaptable to change. This should follow national planning policy, particularly PPG20 and PPS25 which states development should first be directed to low risk areas. Appropriate emergency/contingency plans should also be put in place to manage any residual risks of sudden extreme flooding.

Where the SMP recommends managed realignment of existing defences, the effect on parties currently protected by defences will be part of the 'management' of that change.

Health and safety and removal of defences

All the policies presented will need to be supported by strategic monitoring and must, when implemented, take due account of existing health and safety legislation. Where a policy of No Active Intervention will result in present defences not being maintained, then consideration will need to be given to removing defences so that they do not present a risk to public safety as they deteriorate.

Erosion risk

Within the policy statements, 'total erosion' is stated for a given period and refers to total erosion from the present day and not the erosion during that period. For example, if the 20 to 50 year statement states that there is 10m erosion and the 50 to 100 year statements states there is 25m erosion, then this would mean that there was a potential for 15m recession between years 50 and 100, resulting a cumulative recession of 25m by year 100.

The erosion risk stated is the maximum extent of risk expected along the stretch of coastline discussed. However, it should be recognised that erosion is not linear due to local variations in geology and structure and exposure conditions, and varying rates of erosion will occur along any length of coastline.

Economic viability

Although economic viability has been considered in putting together this plan, a proposed policy of hold the line or managed realignment does not guarantee funding for defence maintenance and/or capital works along these sections of the shoreline (see **Appendix H** for further detail on the economic appraisal for the preferred policy options presented).

Private defences

Along parts of this coast there are private defences that have been constructed by individual landowners. The policy statements indicate where we believe these existing private defences could, or should not, be maintained for technical and/or environmental reasons. However, it is acknowledged that at some point other individuals may wish to build new defences where presently there are none. In these situations, new defences might be permitted, but the landowner would need to demonstrate that these would have no adverse impacts on coastal processes and designated features, as part of the statutory planning process. It is not possible to prescribe specific policies for this situation as it is unknown as to if, when or where this situation may arise.

Managed realignment policies

Managed realignment extents are not defined in the following SMP policy unit statements because further studies are needed to:

- identify the best alignment and extent of defences that best manages flood risk on technical, social, economic and environmental grounds;
- 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;
- assess potential impacts on Designated or Registered Historic Environment assets and their settings;
- assess the potential impact on internationally designated sites; and
- investigate any mitigation measures required for loss of any designated habitats.

Theoretically the maximum extent of any realignment is limited by the extent of the floodplain, but in reality there are a number of other constraints which restrict it further. Within the present SMP, example realignment extents have been identified after considering:

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

These are indicative extents and definition of the actual realignment extent will depend upon further studies.

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 to enable the shoreline, and the assets affected by it, to adapt in a sustainable, controlled and balanced way.

Location reference:	**Lundy**
Policy unit reference:	**7c01 and 7c02**

Summary of preferred plan recommendations and justification

Plan:

The long term plan for Lundy, which is extensively designated for its environmental features, is to allow it to evolve naturally with minimal human interference. Cliff erosion will continue at low rates and may result in local loss of up to five Scheduled Monuments by 2105. Due to the slow rate of cliff retreat, there may also be a loss of key intertidal features of the Lundy Site of Special Scientific Interest, Marine Nature Reserve and Special Area for Conservation, as beaches at the toe of the cliffs narrow due to sea level rise and the limited supply of fresh sediment.

Access will still need to be maintained to the island in Landing Bay. Defences provided here to enable this are only expected to have a very localised impact on adjacent beaches and cliffs, and are not considered detrimental to the long term plan for Lundy. There could be some limited impact on features of the Lundy Special Area of Conservation through a reduction in sediment supply, although supply from the remaining unprotected cliffs should reduce this effect.

Preferred policies to implement plan:

From present day (short term):	Under a policy of **hold the line**, the existing defences at Landing Beach will need to be improved in this period. This is expected to involve re-building existing sea walls and introducing cliff stabilisation measures largely through funding provided from sources other than the flood and coastal defence budget. For the rest of Lundy natural coastal evolution will be allowed to continue through a policy of **no active intervention**.
Medium term:	At Landing Beach the defences would be maintained under a continuing policy of **hold the line**. For the rest of Lundy, natural coastal evolution will be allowed to continue through a policy of **no active intervention**.
Longer term:	A continuing policy of **hold the line** at Landing Beach would see the defences maintained to provide access to Lundy. In the long term this would mean less sediment eroded from the backing cliffs, which could result in a slight reduction of the sandbanks that form part of the Lundy Special Area of Conservation. There may also be narrowing of the shoreline and gradual loss of Landing Beach, which could impact on the conservation value of the Lundy Special Area of Conservation if sediment pathways were interrupted. These impacts will only be very localised however and should be relatively minor due to sediment supply from other unprotected cliffs. For the rest of Lundy, natural coastal evolution will be allowed to continue through a **no active intervention** policy. Cliffs could recede by up to 10m in the south-east of the island over the long term. Depending on where this occurs, there is a risk that several Scheduled Monuments could be lost or damaged, namely: Marison Castle, remains of two gun batteries; Brazen Ward in the north east of Lundy; and a battery in the central western area. Cliff erosion will vary location to location and could also result in the potential loss of non-scheduled prehistoric features, but recession rates are generally low.

The above provides the local details in respect of the SMP-wide policy presented in the preceding sections of this Plan document. These details must be read in the context of the wider-scale issues and policy implications, as reported therein.

Summary of specific policies

Policy unit		Preferred policies		
		Short term	**Medium term**	**Long term**
7c01	**Landing Beach**	Improve existing defences to continue protecting the only access to the rest of Lundy, through **hold the line**.	Maintain the defences to continue protecting the only access to the rest of Lundy, through **hold the line**.	Maintain the defences to continue protecting the only access to the rest of Lundy, through **hold the line**.
7c02	**Lundy (except Landing Beach)**	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.

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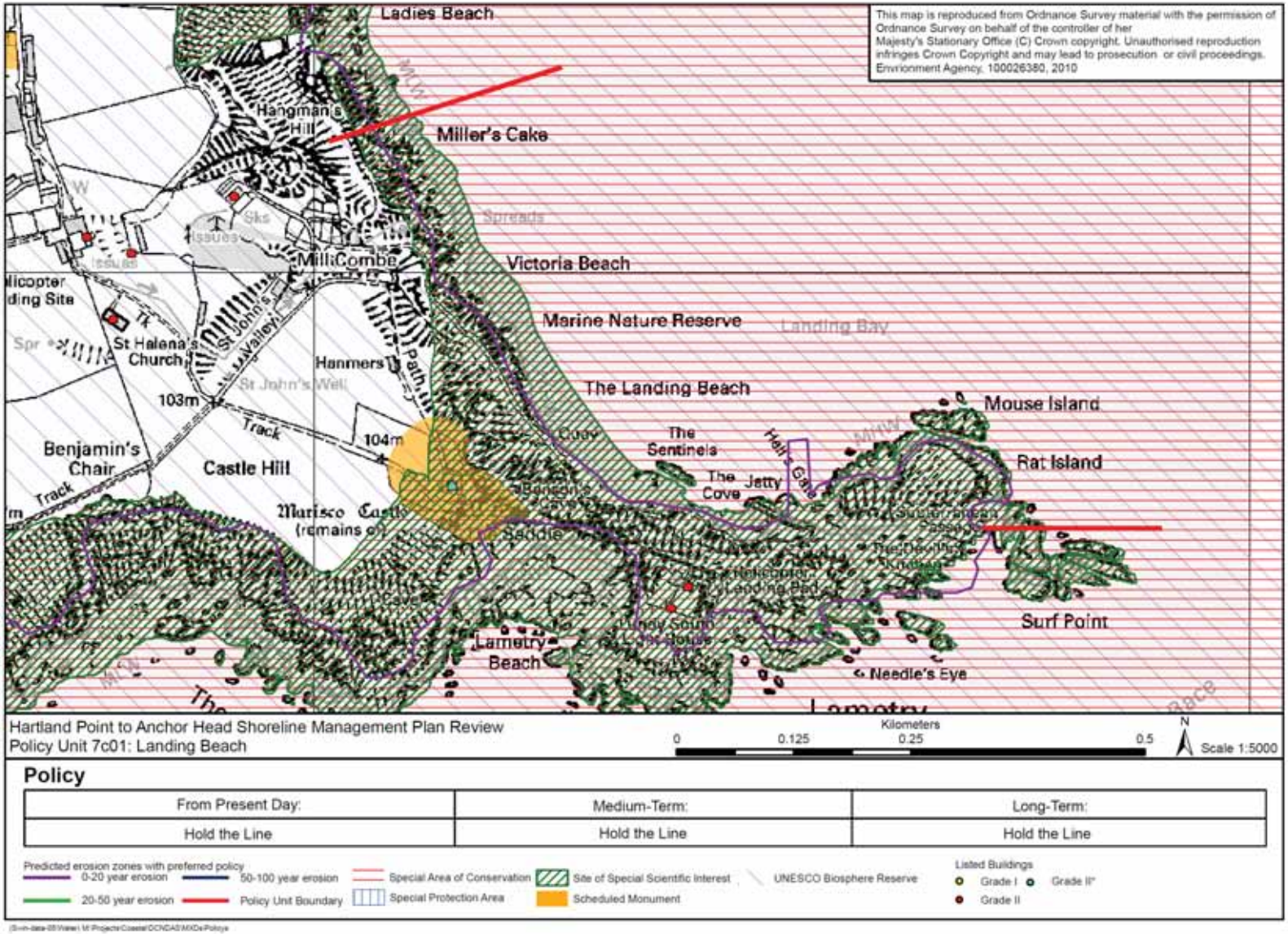
Location reference:	Lundy
Policy unit reference:	7c01 and 7c02

Implications of the preferred plan for this location

Time period	Management activities	Human Health, Property and Population	Land use, infrastructure and material assets	Historic Environment	Landscape character and Visual Amenity	Geology and Soils	Water	Biodiversity, flora and fauna
2005 to 2025	Continuation of management practises at Landing beach through improvement to existing defences. Cliffs would continue to retreat around the rest of the island. No management activities	No impact to properties or the lighthouse on Lundy Island.	Improvement of coastal defence assets will protect long-term access to the island. No loss to the access road due to erosion. No loss to Grade 3 and minimal loss to low grade agricultural land.	No predicted losses to Historic Environment features.	Localised minor adverse impact on Lundy Heritage Site & Coastal Preservation Area due to increasing height and size of coastal defence assets.	Reduction in spatial extent of the island's pocket beaches due to erosion	HTL in this coastal process unit should be implemented so as to not adversely impact on the water quality status of the coastal waters, and not to compromise the achievement of WFD water quality targets.	Continuation of management practises at Landing beach through improvement to existing defences. Cliffs would continue to retreat around the rest of the island. No management activities
2025 to 2055	Continuation of management practises at Landing beach through maintenance of existing defences. Cliffs would continue to retreat around the rest of the island. No management activities	No impact to properties or the lighthouse on Lundy Island.	Improvement of coastal defence assets will see long-term access to the island protected. This will preserve the island's economy and community. No loss to the access road due to erosion. No loss to Grade 3 and minimal loss to low grade agricultural land.	No predicted losses to Historic Environment features.	Localised minor adverse impact on Lundy Heritage Site & Coastal Preservation Area due to increasing height and size of coastal defence assets.	Reduction in spatial extent of the island's pocket beaches due to erosion	HTL in this coastal process unit should be implemented so as to not adversely impact on the water quality status of the coastal waters, and not to compromise the achievement of WFD water quality targets.	Continuation of management practises at Landing beach through maintenance of existing defences. Cliffs would continue to retreat around the rest of the island. No management activities
2055 to 2105	Continuation of management practises at Landing beach through maintenance of existing defences. Cliffs would continue to retreat around the rest of the island. No management activities	No impact to properties or the lighthouse on Lundy Island.	Improvement of coastal defence assets will see the access road, jetty and therefore access to the island protected. This will preserve the island's economy and community. No loss to Grade 3 and minimal loss to low grade agricultural land.	There is the potential loss of 5 Scheduled Monuments comprising of Marison Castle in lee of Landing Beach, 2 remains of Batterys and Brazen Ward in the North East of the island and a Battery in the central western area.	Localised minor adverse impact on Lundy Heritage Site & Coastal Preservation Area due to increasing height and size of coastal defence assets.	Loss of some pocket beaches around the island. Cliff recession of up to 10m is possible in the south-east of the island, due to erosion of the soft slate cliffs	HTL in this coastal process unit should be implemented so as to not adversely impact on the water quality status of the coastal waters, and not to compromise the achievement of WFD water quality targets.	Continuation of management practises at Landing beach through maintenance of existing defences. Cliffs would continue to retreat around the rest of the island. No management activities

The above provides the local details in respect of the SMP-wide policy presented in the preceding sections of this Plan document. These details must be read in the context of the wider-scale issues and policy implications, as reported therein.



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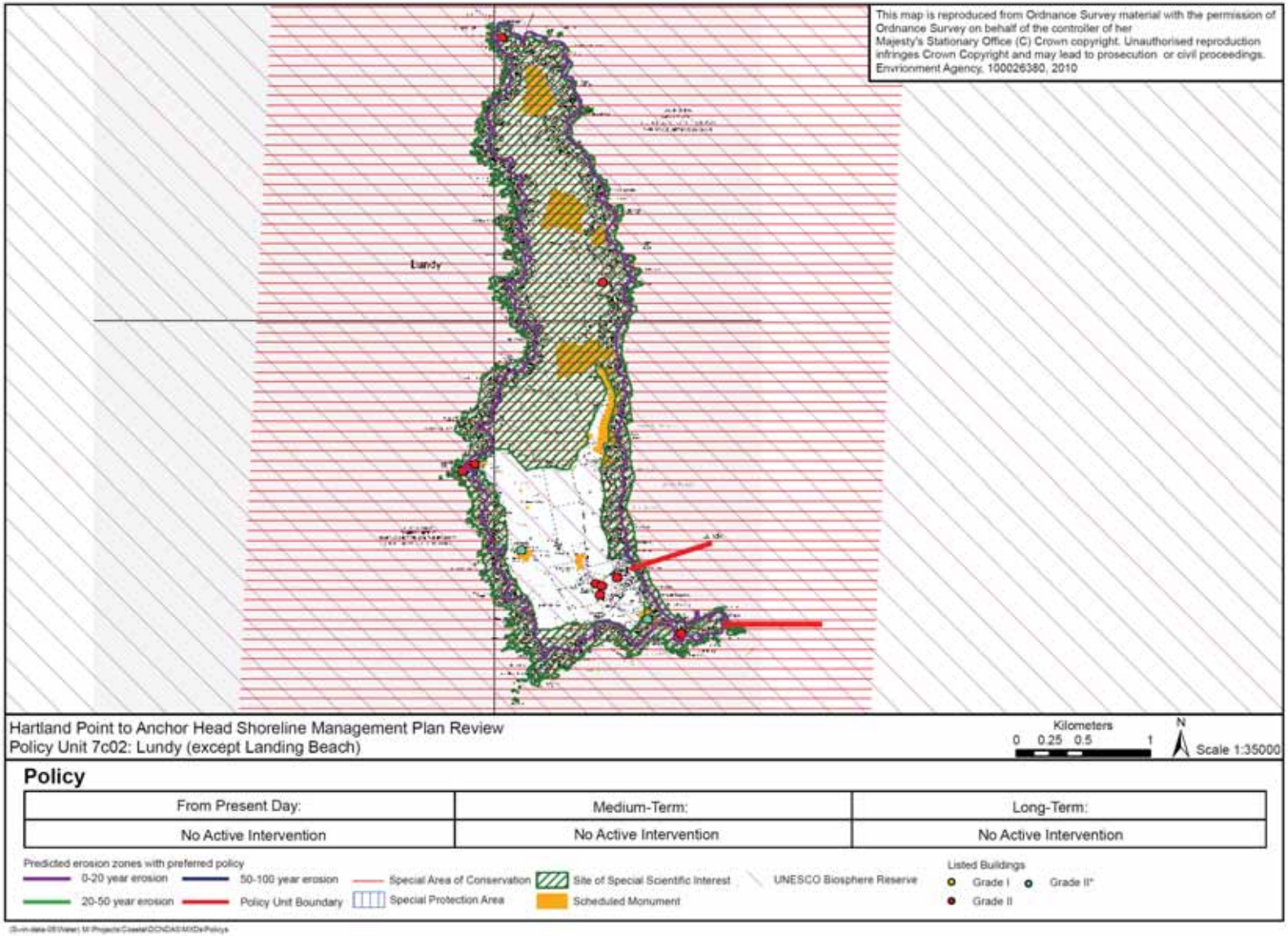

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Location reference:	**Hartland Point to Westward Ho! (Seafield House)**
Policy unit reference:	**7c03 to 7c05**

Summary of preferred plan recommendations and justification

Plan:

This coast is largely undefended with very few assets at risk from erosion or flooding and the long term plan is to allow it to evolve naturally with minimal human intervention. This will maintain environmental interests and provide continued sediment supply to beaches locally. There may be loss of internationally important cliff-top habitats and historic environment features, although cliff recession rates tend to be slow and vary along the coast. There may also be an impact on sections of the South West Coast Path and relocation will need to be considered.

The exception is at Clovelly where the town is a key tourism attraction and therefore of economic benefit to the wider region. The long term plan for Clovelly is to continue to protect assets here through defending the present position. This is technically sustainable due to the indented position of Clovelly, which means that there would be limited impact upon adjacent shoreline, provided that the annual intervention to transfer pebbles from the west to east continues. However, there is some uncertainty about the economic justification and funding for the long-term defence of Clovelly and this requires further investigation.

At Bucks Mills, continued provision of defences is also unlikely to affect adjacent areas, so will not be detrimental to the wider-scale long term vision. However, defending here is unlikely to attract public funds from national flood and coastal defence budget, and will therefore depend on alternative sources of funding.

Preferred policies to implement plan:

From present day (short term):	For most of this length of coast, natural coastal evolution will be allowed to continue through a policy of **no active intervention**. At Clovelly, a policy of **hold the line** would ensure that flooding and erosion risk continues to be reduced. The existing seawall and breakwater will require ongoing maintenance and possible improvement during this period Implementation of this policy would also include the continued annual transfer of pebbles across the harbour from west to east to reduce sediment starvation downdrift. It is unlikely that continued defence of Bucks Mills would attract public funding from national flood and coastal defence budget. However, if alternative funds are available and intervention measures will not starve the downdrift shoreline of sediment, there is no reason not to permit current defences being retained.
Medium term:	The continuation of a **hold the line** policy at Clovelly will involve the existing seawall and breakwater being maintained and eventually re-built during this period. Larger structures will be required to continue to protect Clovelly against the risk of flooding and erosion in the long term as sea level rises further. Consideration could also be given to constructing a new breakwater arm around the outside of the existing structure in order to preserve this historic feature, a concept currently being investigated by the landowner at Clovelly, rather than replacing the historic breakwater itself. Implementation would be supported by continuing the annual transfer of pebbles across the harbour from west to east. This will minimise any impact of retaining defences at Clovelly on down-drift lengths of coast further east. Working with the landowner to deliver the long-term protection of Clovelly presents opportunities for co-funding of defences and should be investigated. Along the rest of this section of coast, natural coastal evolution will continue through a policy of **no active intervention**. Parts of the coastal path may need to be relocated further inland as they become at risk from erosion; this is

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	in line with South West Coast Path policy. Some cliff-top habitats may also be at risk from erosion, such as heath and woodland designated as Tintagel-Marsland-Clovelly Coast Special Area of Conservation and Marsland to Clovelly Site of Special Scientific Interest. There is also a potential risk of erosion to Gallantry Bower Scheduled Monument and other non-designated archaeological features. It is unlikely that continued defence of Bucks Mills would attract public funding from the flood and coastal defence budget so any intervention will be subject to alternative funding. At some point existing structures would need to be replaced with much larger structures to provide adequate levels of protection; at this time an environmental appraisal may be necessary to assess potential impacts including interruption to sediment supply to adjacent shorelines from larger structures and visual impacts upon the landscape character of the area.
Longer term:	At Clovelly, under a continuing policy of **hold the line**, the defences will require ongoing maintenance to ensure the risk of flooding and erosion continues to be reduced. This would need to be supported by continuing the annual transfer of pebbles across the harbour from west to east. For the rest of this section of coast, natural coastal evolution will be allowed to continue through a **no active intervention** policy. This may present a potential risk of erosion to Windbury Head Scheduled Monument and potential loss of Listed Buildings near Blackchurch Rock and to the west of Clovelly, as well as a number of non-designated archaeological features. Loss of these features will depend on where the cliffs recede in future. Further sections of the coastal path may be at risk, requiring relocation to be considered. At Bucks Mills, provision of defences will depend upon decisions made during earlier time periods. Although defences along this short stretch would be unlikely to have a significant impact on coastal processes, larger defences would probably be required in the medium or long term and their introduction or otherwise may be subject to the outcome of any environment impact assessment.

Summary of specific policies

Policy unit		Preferred policies		
		Short term	**Medium term**	**Long term**
7c03	**Hartland Point to Clovelly**	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.
7c04	**Clovelly**	Maintain the existing seawall and breakwater to continue protecting Clovelly, through **hold the line**. This would be supported by continuing the annual transfer of pebbles across the harbour from west to	Maintain the defences and eventually replace, or add to the outside of, them with larger structures to continue protecting Clovelly, through **hold the line**. This would be supported by continuing the annual	Maintain the defences constructed in the medium term to continue protecting Clovelly, through **hold the line**. This would be supported by continuing the annual transfer of pebbles across the harbour from west to

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Policy unit		Preferred policies		
		Short term	**Medium term**	**Long term**
		east.	transfer of pebbles across the harbour from west to east.	east.
7c05	**Clovelly to Westward Ho! (Seafield House)**	Continue to allow existing localised defences to be maintained or replaced if alternative funding is available to reduce the risk of flooding and erosion and maintain visitor access. If alternative funds are not available, then allow natural coastal evolution to continue through **no active intervention**.	Continue to allow existing localised defences to be maintained or replaced if alternative funding is available to reduce the risk of flooding and erosion and maintain visitor access. If alternative funds are not available, then allow natural coastal evolution to continue through **no active intervention**.	Continue to allow existing localised defences to be maintained or replaced if alternative funding is available to reduce the risk of flooding and erosion and maintain visitor access. If alternative funds are not available, then allow natural coastal evolution to continue through **no active intervention**.

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Location reference:	Hartland Point to Westward Ho! (Seafield House)
Policy unit reference:	7c03 to 7c05

Implications of the preferred plan for this location

Time period	Management activities	Human Health, Property and Population	Land use, infrastructure and material assets	Historic Environment	Landscape character and Visual Amenity	Geology and Soils	Water	Biodiversity, flora and fauna
2005 to 2025	No management activities along this section of coast except at Clovelly, where maintenance of the seawall and breakwater will be undertaken.	Clovelly: protection to properties and harbour infrastructure. This will also ensure the fishing fleet remains operational and the tourist industry remains unaffected. Bucks Mills: if not maintained then deterioration of coastal defence assets will interrupt access but not completely limit access to the sea.	Risk of occasional landslips removing up to 50m per event along parts of this section of coast resulting in sections of the South West Coastal Path requiring relocation inland and minimal loss of medium and low grade agricultural land.	No loss to Clovelly and Bucks Mills Conservation Area, Schedule Monuments, Listed Buildings or archaeological sites due to erosion.	Continuation of natural processes maintaining the character of the North Devon AONB, Hartland Heritage Coast and Coastal Preservation Area. Localised impact of defences at Clovelly.	Continuation of natural processes is key to the integrity of Marsland to Clovelly Coast Geological SSSI, Hobby to Peppercombe Geological SSSI and Mermaids Pool to Rowdens Gut Geological SSSI along this stretch of coast. The NAI will continue to maintain the geological features and integrity of the sites.	No known impact on water.	Potential small loss of heath and old sessile oak woods with *Ilex* and *Blechum* due to coastal erosion. The cliff habitats will continue to evolve naturally with no constraints except at Clovelly. These are designated under the Tintagel-Marsland-Clovelly Coast SAC therefore this policy is considered further within the Habitats Regulations Assessment (Appendix J). Continued natural erosion of cliffs with potential small loss of grassland, heathland and woodland/scrub, oak *Quercus petraea* woodland and lichens affecting designated features of the Marsland to Clovelly SSSI and Hobby to Peppercombe SSSI but this is due to natural processes of coastal erosion.
2025 to 2055	No management activities along this section of coast except at Clovelly, where maintenance and eventual replacement of the seawall and breakwater will be undertaken.	Clovelly: protection to properties and harbour infrastructure. This will also ensure the fishing fleet remains operational and the tourist industry remains unaffected. Bucks Mills: if not maintained then deteriorating defence assets will reduce access to the sea for tourist and limit fishing opportunities. Potential loss of residential and commercial properties also due to erosion and flooding.	Risk of occasional landslips removing up to 50m per event along parts of this section of coast resulting in sections of the South West Coastal Path requiring relocation inland and minimal loss of medium and low grade agricultural land.	Potential partial loss of 1 Schedule Monument; Gallantry Bower, due to erosion. No loss of Listed Buildings or archaeological sites due to erosion. The Conservation Area at Clovelly is protected from flooding and erosion. Bucks Mills Conservation Area is at risk from erosion and flooding unless defences are provided.	Continuation of natural processes maintaining the character of the North Devon AONB, Hartland Heritage Coast and Coastal Preservation Area. Localised impact of defences at Clovelly. Potential loss of the harbour wall, lime kilns and coastal properties at Bucks Mills which are considered to be integral to the AONB	Continuation of natural processes is key to the integrity of Marsland to Clovelly Coast Geological SSSI, Hobby to Peppercombe Geological SSSI and Mermaids Pool to Rowdens Gut Geological SSSI along this stretch of coast. The NAI will continue to maintain the geological features and integrity of the sites.	No known impact on water.	Potential small loss of heath and old sessile oak woods with *Ilex* and *Blechum* due to coastal erosion. The cliff habitats will continue to evolve naturally with no constraints except at Clovelly. These are designated under the Tintagel-Marsland-Clovelly Coast SAC therefore this policy is considered further within the Habitats Regulations Assessment (Appendix J). Continued natural erosion of cliffs with potential small loss of grassland, heathland and woodland/scrub, oak *Quercus petraea* woodland and lichens affecting designated features of the Marsland to Clovelly SSSI and Hobby to Peppercombe SSSI but this is due to natural processes of coastal erosion.
2055 to	No management	Clovelly: protection to	Risk of occasional landslips	Loss of 1 Schedule	Continuation of natural	Continuation of natural	No known impact on water	Potential small loss of heath

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Location reference:	Hartland Point to Westward Ho! (Seafield House)							
Policy unit reference:	7c03 to 7c05							
Implications of the preferred plan for this location								
Time period	**Management activities**	**Human Health, Property and Population**	**Land use, infrastructure and material assets**	**Historic Environment**	**Landscape character and Visual Amenity**	**Geology and Soils**	**Water**	**Biodiversity, flora and fauna**
2105	activities along this section of coast except at Clovelly, where maintenance of the seawall and breakwater will be undertaken.	properties and harbour infrastructure. This will also ensure the fishing fleet remains operational and the tourist industry remains unaffected. Bucks Mills: if not maintained then deteriorating defence assets will reduce access to the sea and limit fishing opportunities. Potential loss of residential and commercial properties also due to erosion and flooding.	removing up to 50m per event along parts of this section of coast resulting in sections of the South West Coastal Path requiring relocation inland and minimal loss of medium and low grade agricultural land.	Monuments; Gallantry Bower and partial loss of 1 Schedule Monument at Windbury Head, due to erosion. No loss of Listed Buildings or archaeological sites due to erosion. The Conservation Area at Clovelly is protected from Flooding and erosion. Bucks Mills Conservation Area is at risk from erosion and flooding unless defences are provided.	processes maintaining the character of the North Devon AONB, Hartland Heritage Coast and Coastal Preservation Area. Localised impact of defences at Clovelly. Potential loss of the harbour wall, lime kilns and coastal properties at Bucks Mills which are considered to be integral to the AONB	processes is key to the integrity of Marsland to Clovelly Coast Geological SSSI, Hobby to Peppercombe Geological SSSI and Mermaids Pool to Rowdens Gut Geological SSSI along this stretch of coast. The NAI will continue to maintain the geological features and integrity of the sites.		and old sessile oak woods with *Ilex* and *Blechum* due to coastal erosion. The cliff habitats will continue to evolve naturally with no constraints except at Clovelly. These are designated under the Tintagel-Marsland-Clovelly Coast SAC therefore this policy is considered further within the Habitats Regulations Assessment (Appendix J). Continued natural erosion of cliffs with potential small loss of grassland, heathland and woodland/scrub, oak *Quercus petraea* woodland and lichens affecting designated features of the Marsland to Clovelly SSSI and Hobby to Peppercombe SSSI but this is due to natural processes of coastal erosion.

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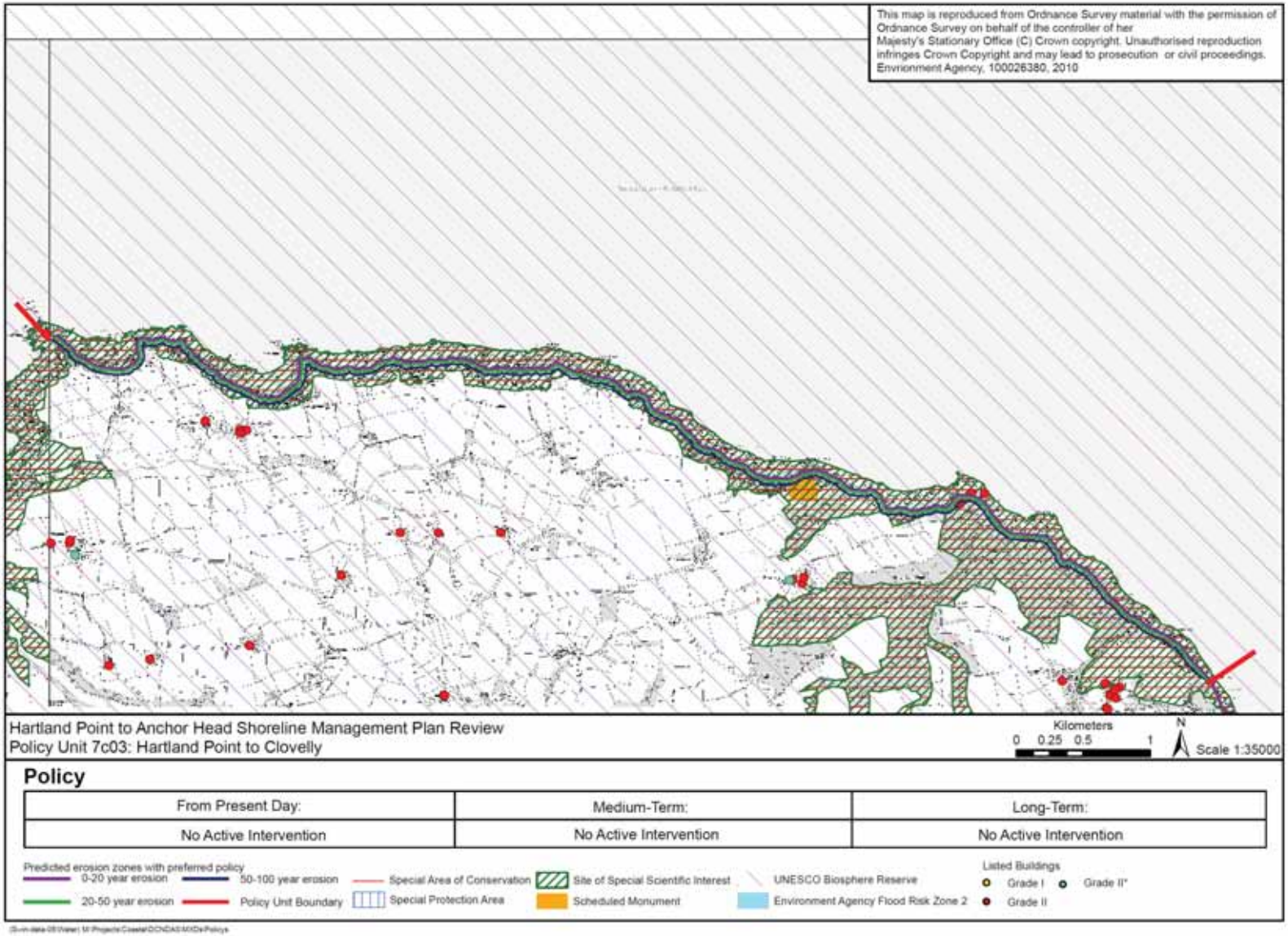

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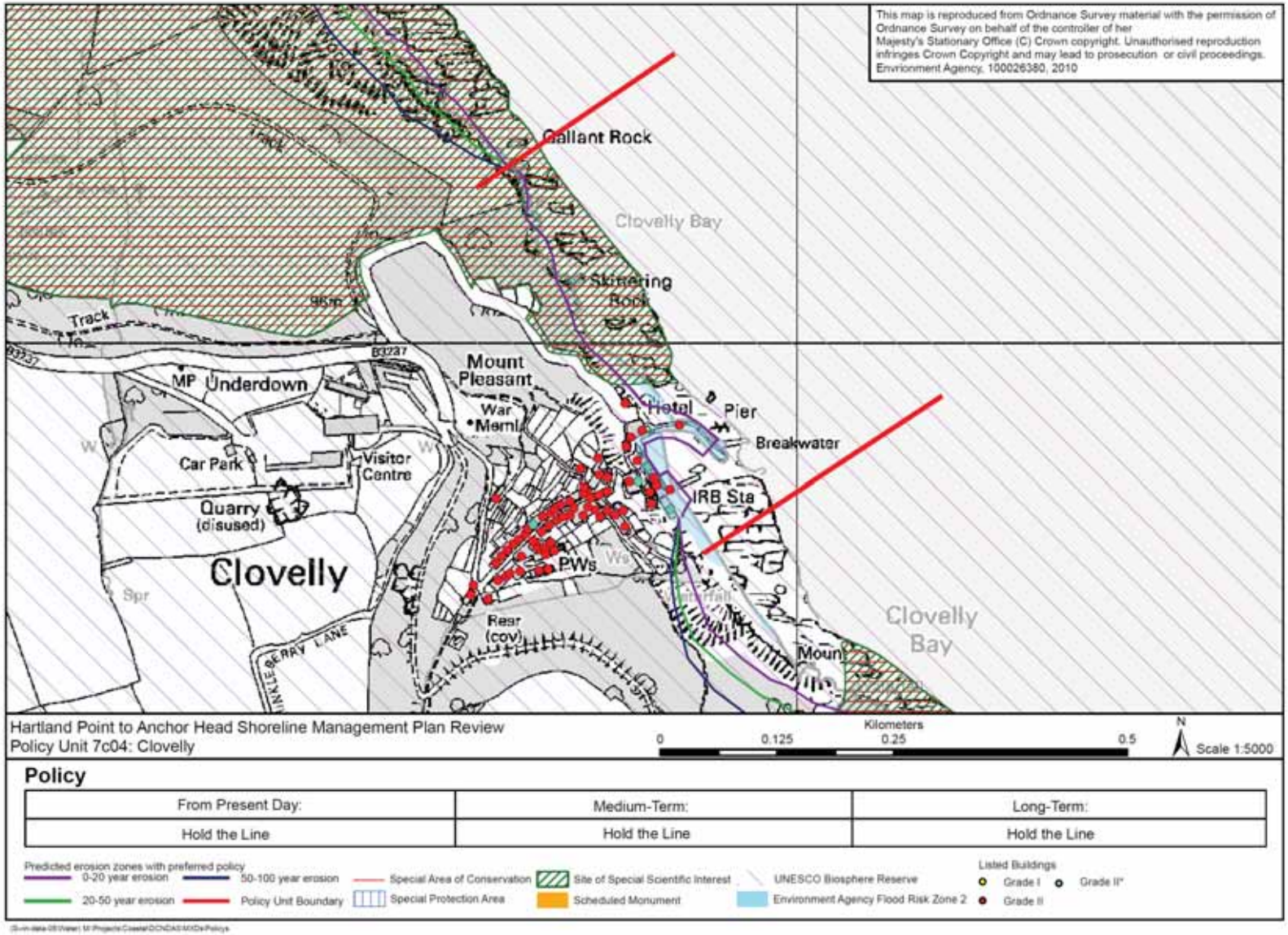

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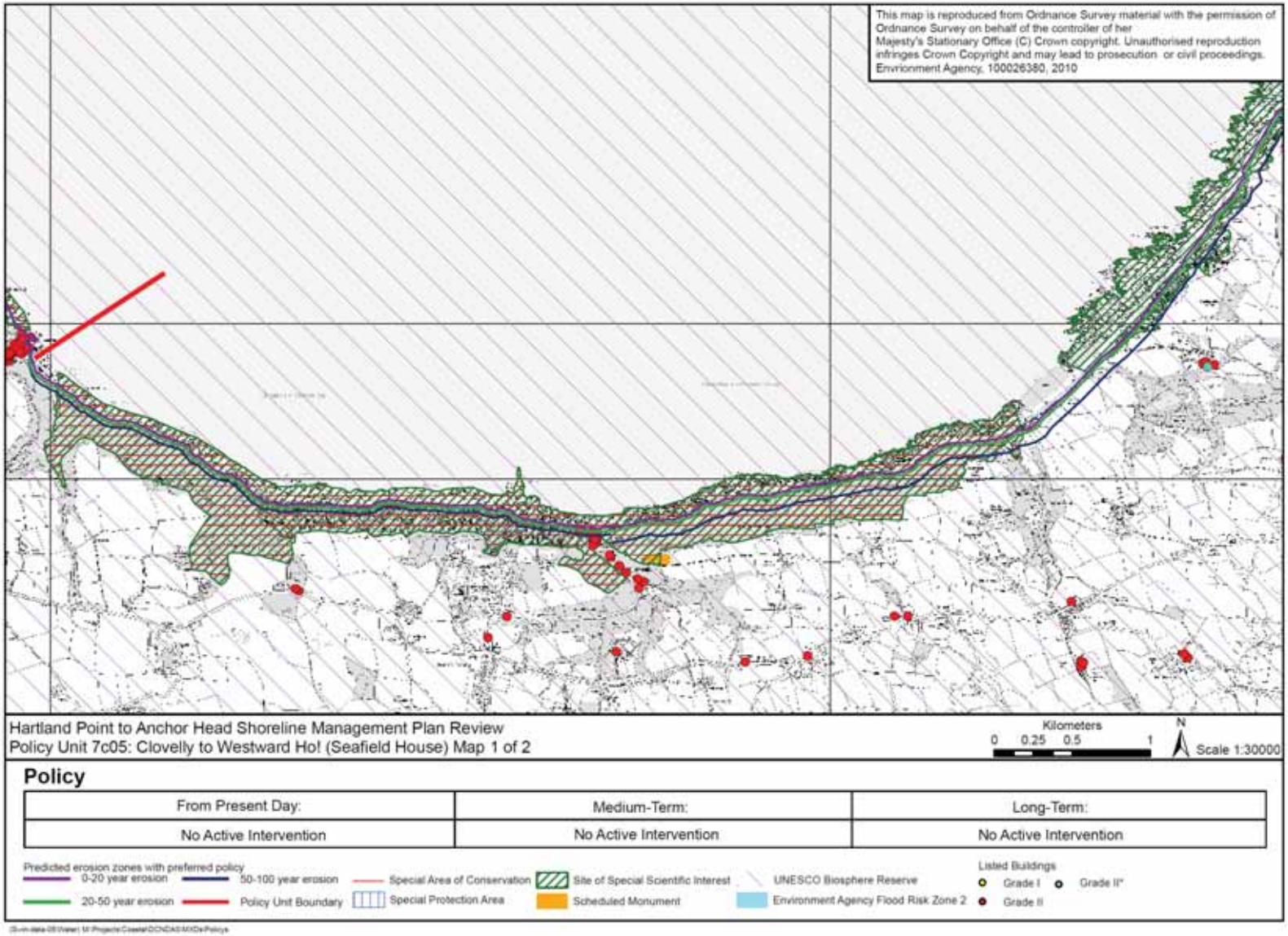

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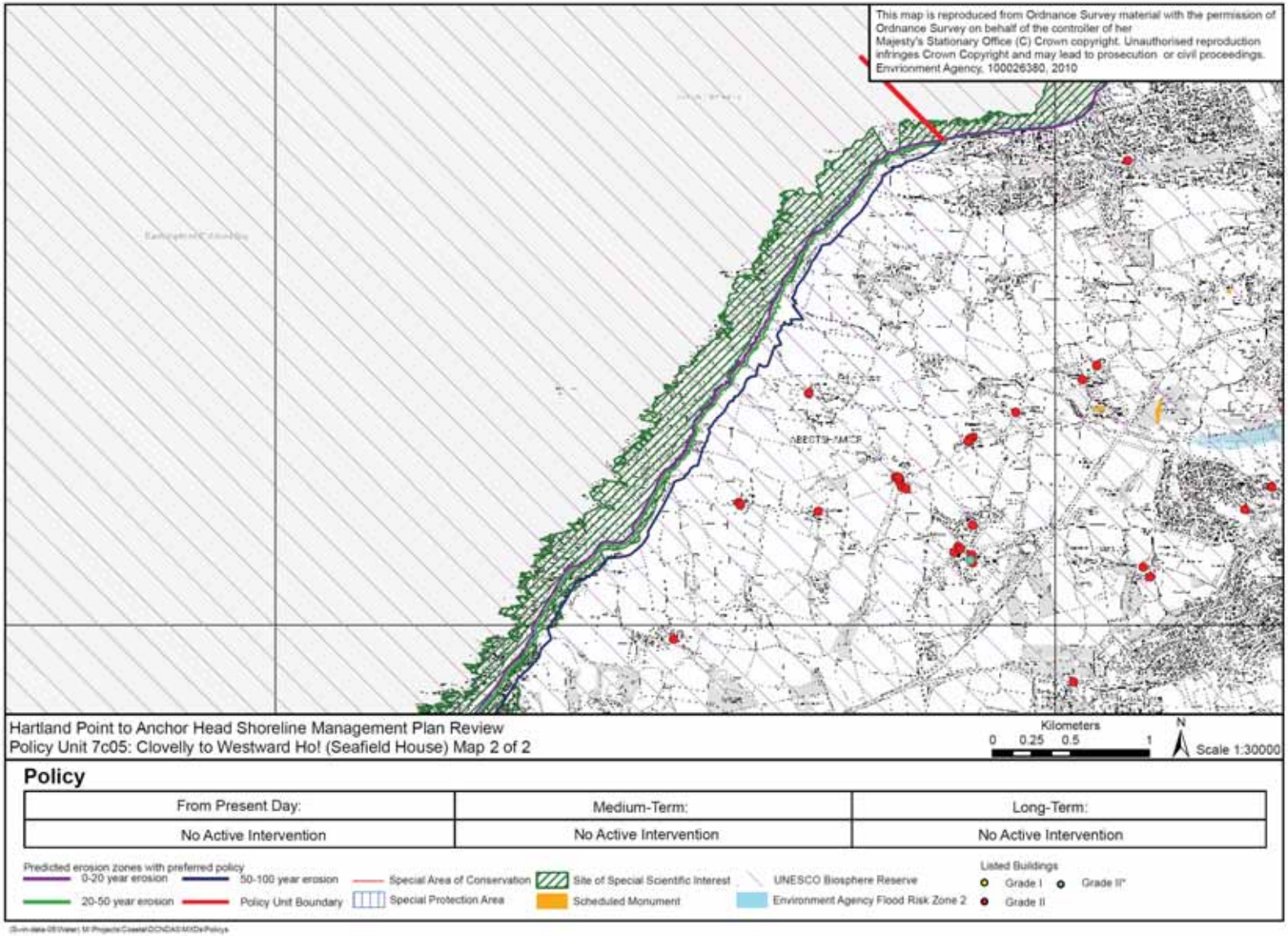

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Location reference:	**Westward Ho! to Appledore (west)**
Policy unit reference:	**7c06 to 7c08**

Summary of preferred plan recommendations and justification

Plan:

The long term plan is to continue to provide a sustainable long term solution for managing flood and erosion risk to people, property, infrastructure and the former landfill site, while working with the natural processes as far as possible. Key to this area is the future of Northam Burrows where the pebble ridge will be allowed to roll-back and become more swash aligned, with minimal human interference. This is the most technically sustainable solution and will also provide environmental benefits. Without management there would be a large flood risk to the string of settlements behind Northam Burrows, and large scale implications for the inner Taw-Torridge Estuary.

Implementation of this plan will include defences being extended north and eastwards at Westward Ho!, plus measures to prevent erosion of the former landfill site. The position of shoreline along the Skern frontage will be held to ensure Northam Burrows continues to protect the inner estuary, while retaining as much land area as possible for adaptive land-use in this area to address losses elsewhere. Consideration will be given to allowing tidal incursion into the eastern side of Northam Burrows to enable the wider area of the Burrows adapt to sea level rise in a more resilient way by creating habitat to act as a buffer for the transition whilst not compromising areas of landfill at the northern end of Northam Burrows and beneath the access road that runs along the Skern frontage. Implementation of policies here should consider the outcomes from detailed investigations of the interactions with the Taw-Torridge Estuary and open coast.

The plan will deliver long term protection of properties, community, recreational and amenity facilities at Westward Ho!, Appledore and Instow, as well as the former landfill site at the northern end of Northam Burrows. There will however be continued risk of flooding to shoreline assets within Northam Burrows, such as the golf course, caravan park, access roads, car park and non-designated archaeological features. There may also be impacts on the Northam Burrows Site of Special Scientific Interest and Braunton Burrows Special Area for Conservation.

Preferred policies to implement plan:

From present day (short term):

Replacement of the existing seawall defences with larger structures through a **hold the line** policy will protect Westward Ho! against the risk of flooding and erosion in to the long term.

Adjacent to the eastern end of Westward Ho!, at the southern end of Northam Burrows, the pebble ridge would be allowed to roll-back and rotate, within minimal interference. Roll-back of the pebble ridge here could be up to 150 to 200m. Under a policy of **managed realignment**, a new earth embankment or rock revetment structure could be constructed along a new alignment to reduce flood risk. The exact form and position of the defence would require full investigation as part of a detailed study. Beach management practices along the ridge could be used to support this process, for example building up the beach at the northern end of the spit. The need for this would be based on continuous monitoring. This is unlikely to be detrimental to the transport of material along the shore.

As part of this implementation, defences at the eastern end of Westward Ho! would need to be extended and raised as this area develops into a promontory. These would need to be sympathetic to the Area of Outstanding Natural Beauty and support biodiversity and sustainable development policies of the North Devon UNESCO Biosphere Reserve.

Under the managed realignment policy, the pebble ridge and dune system to the north of Westward Ho! would be allowed to function naturally, although any breaches that occur along the pebble ridge could be repaired if necessary. There is an agreed protocol with Natural England to allow this limited amount of intervention to occur. Implementation of this policy along this stretch would

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	also need to consider implications for environmental features and land use in the area, as well as appropriate measures for managing the risk of erosion to the landfill site. Under a policy of **hold the line** along the eastern side of Northam Burrows (Skern salt marsh) the existing revetments would require ongoing maintenance. Defences between Skern and the west side of Appledore may need to be re-built during this period.
Medium term:	The medium term policy for Westward Ho! is to continue to minimise the risk of flooding and erosion beyond the short term through **hold the line** policy. This will involve ongoing maintenance of the defences, assuming these were re-constructed in the short term. This will continue to protect assets within the town, although the beach in front of the defences is likely to diminish and may result in loss of intertidal habitat. Along the pebble ridge/Northam Burrows frontage implementation of the **managed realignment** policy will be to allow the Pebble Ridge to continue to roll-back and rotate with minimal human interference. This will provide flood protection to the southern parts of Northam Burrows and the landfill site. This policy may also require the defences along the southern end of Northam Burrows to be extended eastwards, depending upon the extent of ridge roll-back as sea levels rise. This requirement will be determined by continuous monitoring to appraise the actual risk to the landfill site in particular and adapt management approaches as appropriate. Although the pebble ridge and dune system would be allowed to function naturally, any breaches that occur along the pebble ridge could be repaired if required. There is an agreed protocol with Natural England to allow this limited amount of intervention to occur. Along the Skern salt marsh to Appledore (west) frontage, the policy is to continue to provide protection to the Taw-Torridge Estuary while minimising flood risk to parts of Northam Burrows and ensuring there is an access route to the landfill site. The **hold the line** policy here will probably require larger structures to be built and also allow tidal incursion into the eastern side of Northam Burrows to enable the Burrows to adapt to sea level rise to create habitat that in turn will act as a buffer to inundation from the open coast frontage of the Burrows. This would need to be implemented without increasing the risk of flooding to the landfill site or exposing the landfill beneath the road along the Skern frontage. Under these policies, assets within Northam Burrows would continue to be at risk from coastal flooding and there is likely to be loss of part of the minor road that provides access to the northern sections of Northam Burrows. It is possible that some of these assets could be relocated further landwards. There is likely to be loss of large sections of the South West Coast Path due to erosion and flooding; these sections will need to be moved inland inline with the South West Coast Path policy. There is also likely to be loss or damage to a number of non-designated archaeological features located on the western half of Northam Burrows.
Longer term:	In the long term the policy is to continue to protect assets at Westward Ho! through continuation of a **hold the line** policy. This would involve ongoing maintenance and possible further raising of the defences. This is likely to result in loss of beach in front of the defences during this period as a result of coastal squeeze.

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A continuation of the **hold the line** policy is also planned for the Skern salt marsh to Appledore (west) frontage. This will ensure continued protection to this site and allow continued access to the landfill site. This will involve ongoing maintenance of the seawall and revetment to continue to minimise the risk of flooding and erosion.

Along the Pebble Ridge/Northam Burrows frontage, the long term policy is to allow continued natural evolution of the ridge, while minimising the risk of flooding to assets further inland along the southern side of Northam Burrows. Implementation of this **managed realignment** policy will require ongoing maintenance of the seawall and revetment defences. Depending upon the extent of ridge roll-back as sea levels rise, measured through continuous monitoring, the defence constructed along the southern end of Northam Burrows in the short term may need to be extended further eastwards. Under this policy any breaches that occur along the pebble ridge could be repaired if necessary. There is an agreed protocol with Natural England to allow this limited amount of intervention to occur.

Summary of specific policies

Policy unit		Preferred policies		
		Short term	**Medium term**	**Long term**
7c06	**Westward Ho!**	Maintain and improve the existing seawall defences, replacing them with much larger structures as required, to continue protection for Westward Ho!, through **hold the line**.	Maintain the seawall defences to continue protection for Westward Ho!, through **hold the line**.	Maintain the seawall defences to continue protection for Westward Ho!, through **hold the line**.
7c07	**Northam Burrows**	Continue to reduce flood and erosion risk for developed areas along the southern part of Northam Burrows by constructing low embankment/revetment type defences that reflect the wave's power. Continue to take measures to protect the former landfill site, while allowing the pebble ridge to roll back and rotate to become more aligned with the dominant wave direction (possibly aided by recycling beach material), through **managed realignment**.	Continue to reduce flood and erosion risk for developed areas along the southern part of Northam Burrows by maintaining and improving embankment defences. Continue to take measures to protect the former landfill site, while allowing the pebble ridge to adapt naturally to rising sea levels, through **managed realignment**.	Continue to reduce flood and erosion risk for developed areas along the southern part of Northam Burrows by maintaining and improving embankment defences. Continue to take measures to protect the former landfill site, while allowing the pebble ridge to adapt naturally to rising sea levels, through **managed realignment**.
7c08	**Skern salt marsh to Appledore**	Maintain the existing revetment defences to continue protecting the	Maintain and improve the revetment defences to continue protecting the	Maintain the revetment defences, improved in the medium term, to

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Policy unit		Preferred policies		
		Short term	Medium term	Long term
	(west)	rest of Northam Burrows and provide access to the landfill site, through **hold the line**.	rest of Northam Burrows and provide access to the landfill site, through **hold the line**.	continue protecting the rest of Northam Burrows and provide access to the landfill site, through **hold the line**.

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Location reference:	Westward Ho! to Appledore (west)
Policy unit reference:	7c06 to 7c08

Implications of the preferred plan for this location

Time period	Management activities	Human Health, Property and Population	Land use, infrastructure and material assets	Historic Environment	Landscape character and Visual Amenity	Geology and Soils	Water	Biodiversity, flora and fauna
2005 to 2025	In areas that are currently defended the defences will be maintained and improved as necessary. At Northam Burrows, managed realignment will continue to protect the landfill site whilst allow the pebble ridge to function more naturally.	Continued protection of properties at Westward Ho!, Appledore and Northam Burrows. Increased risk to tourist infrastructure assets potentially limiting access (as list in land use, infrastructure and material assets) may potentially impact the local economy through a reduction in tourist numbers.	Continued protection of community, recreational and amenity facilities at Westward Ho! and Appledore. Continued protection of the promenade and slipway from erosion. Tourist amenities (including a holiday camp, a park and a caravan site) at Westward Ho! and the South West Coastal Path are not at risk from erosion in this epoch. The Golf Course, car parks, minor roads and the Caravan Park are at risk from coastal flooding at Northam Burrows. Continued protection of, community, recreation and tourist amenity facilities, roads (A39, A386 and cycle path), shipyard and harbour infrastructure at Appledore. No loss of grazing land on Northam Burrows due to erosion but increase risk of flooding. Protection of sections of the Tarka Trail from flooding. Other sections may require relocation inland.	Continued protection of Appledore and Northam Conservation Areas. No risk to Scheduled Monuments, Listed Building or Registered Parks and Gardens.	Minor changes in landscape within North Devon AONB due to natural processes of increased erosion and flooding. Larger defences or more structures may be required to maintain an acceptable standard of flood and erosion protection in some areas, thus potentially resulting in a change of views and a change in landscape character within AONB Heritage Coast and Coastal Preservation Area.	Small changes in coastal geomorphological features at Northam Burrows SSSI due to natural processes. Any breach in the pebble ridge would be expected to reseal by littoral processes. Holding the line may prevent erosion of Westward Ho! SSSI's geological features. With the exception of the western end of this section which comprises of undefended cliffs. Natural processes will continue and will return the undefended areas of the SSSI to favourable status. Continued protection of the former landfill site at Northam Burrows from flooding. Loss of small sections of the beach at Westward Ho! through coastal squeeze.	Potential impacts on water quality due to realignment, potentially affecting landfill sites – see soils and geology. Works in areas selected for managed realignment should be implemented so as to not adversely impact on the water quality status of the coastal waters or compromise the achievement of WFD water quality targets. Continued protection of the former landfill site at Northam Burrows from flooding helping prevent pollution.	Small changes in coastal geomorphological features at Northam Burrows SSSI creating limited impact on coastal habitats but this will be due to natural processes. Management decision on the other side of the channel (7c29) will have an impact on the status if the Northam Burrows SSSI.
2025 to 2055	In areas that are currently defended the defences will be maintained and improved as necessary. At Northam Burrows, managed realignment will continue to protect the landfill whilst allow the pebble ridge to function more naturally.	As above.	Continued protection of community, recreational and amenity facilities at Westward Ho! and Appledore. Continued protection of the promenade and slipway from erosion. Protection of tourist amenities (including a holiday camp, a park and a caravan site), promenade and slipway from erosion.	As above.	Minor changes in landscape within AONB Heritage Coast and Coastal Preservation Area due to increased erosion and flooding. Larger defences or more structures may be required to maintain an acceptable standard of flood and erosion protection in some areas, thus potentially resulting in a change of views and a change in landscape character within	Reduction in spatial extent of Northam Burrow SSSI as the pebble ridge rolls back to the retreat line but this will be in accordance with natural processes. Holding the line may prevent erosion of Westward Ho! SSSI's geological features. With the exception of the western end of this section which comprises of undefended cliffs. Natural processes will	As above.	As above.

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Location reference:	Westward Ho! to Appledore (west)
Policy unit reference:	7c06 to 7c08

Implications of the preferred plan for this location

Time period	Management activities	Human Health, Property and Population	Land use, infrastructure and material assets	Historic Environment	Landscape character and Visual Amenity	Geology and Soils	Water	Biodiversity, flora and fauna
			Protection to sections of the South West Coastal Path. Other sections may require relocation inland. The Golf Course, car parks, minor roads and the Caravan Park are at risk from coastal flooding at Northam Burrows. Loss of sections of a minor road providing vehicular access to the northern sections of Northam Burrows due to erosion and flooding Adaptation of Golf Course and the associated infrastructure will be required in order to maintain this asset. Continued protection of, community, recreation and tourist amenity facilities, roads (A39, A386 and cycle path), shipyard and harbour infrastructure at Appledore. No loss of grazing land on Northam Burrows due to erosion but increase risk of flooding. Potential loss or damage to section of the Tarka Trail due to flooding at Skern Salt Marsh		AONB Heritage Coast and Coastal Preservation Area.	continue and will return the undefended areas of the SSSI to favourable status. Continued protection of the former landfill site at Northam Burrows from flooding. Reduction in the spatial extent of the beach, at Westward Ho!, through coastal squeeze.		
2055 to 2105	In areas that are currently defended the defences will be maintained and improved as necessary. At Northam Burrows, managed realignment will continue to protect the landfill whilst allow the pebble ridge to function more naturally.	As above.	Continued protection of community, recreational and amenity facilities at Westward Ho! and Appledore. Continued protection of the promenade and slipway from erosion. Protection of tourist amenity (including holiday camp, park and caravan site), promenade, coast guard station and slipway from erosion. The Golf Course, car parks,	As above.	As above.	As above.	As above.	As above.

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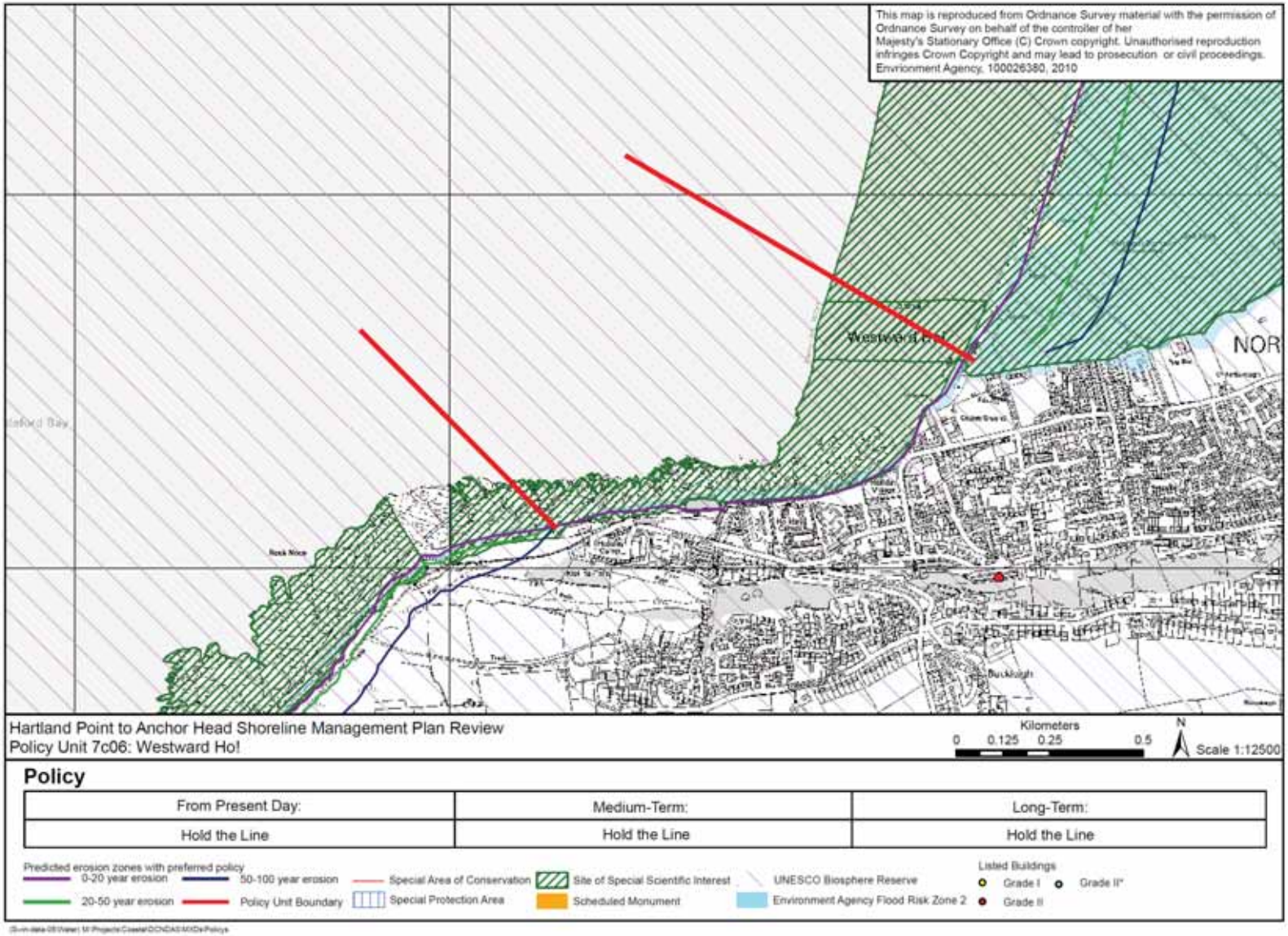
Location reference:	Westward Ho! to Appledore (west)							
Policy unit reference:	7c06 to 7c08							
Implications of the preferred plan for this location								
Time period	**Management activities**	**Human Health, Property and Population**	**Land use, infrastructure and material assets**	**Historic Environment**	**Landscape character and Visual Amenity**	**Geology and Soils**	**Water**	**Biodiversity, flora and fauna**
			minor roads and the Caravan Park are at risk from coastal flooding at Northam Burrows Loss of section of a minor road, providing vehicular access to the northern sections of Northam Burrows, the information centre and the car park due to erosion and flooding. Adaptation of Golf Course and the associated infrastructure will be required in order to maintain this asset. Continued protection of, community, recreation and tourist amenity facilities, roads (A39, A386 and cycle path), shipyard and harbour infrastructure at Appledore. Loss of grazing land on Northam Burrows due to erosion and increase risk of flooding. Potential loss or damage to section of the Tarka Trail due to flooding at Skern Salt Marsh. Some sections will require relocation.					



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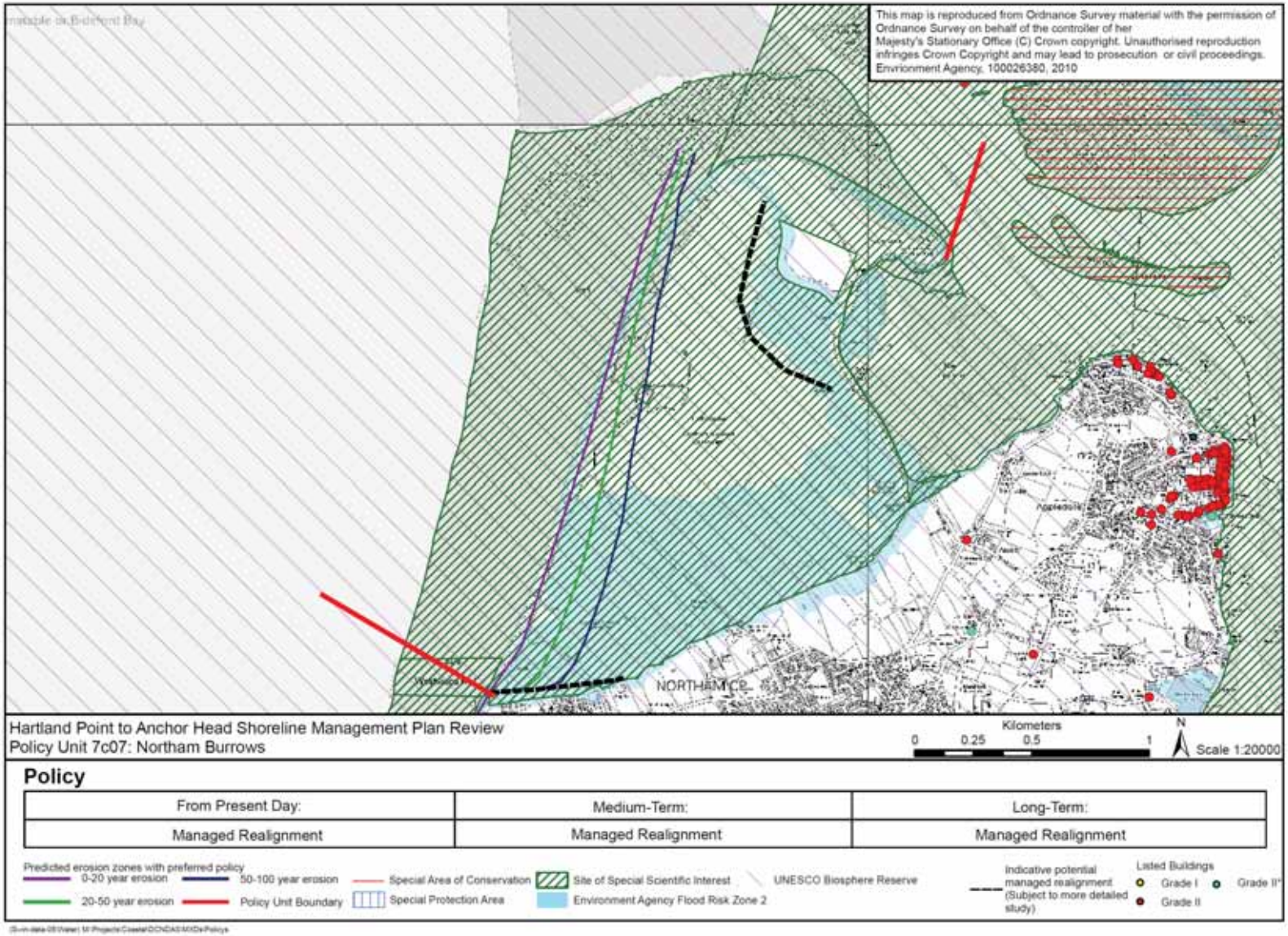

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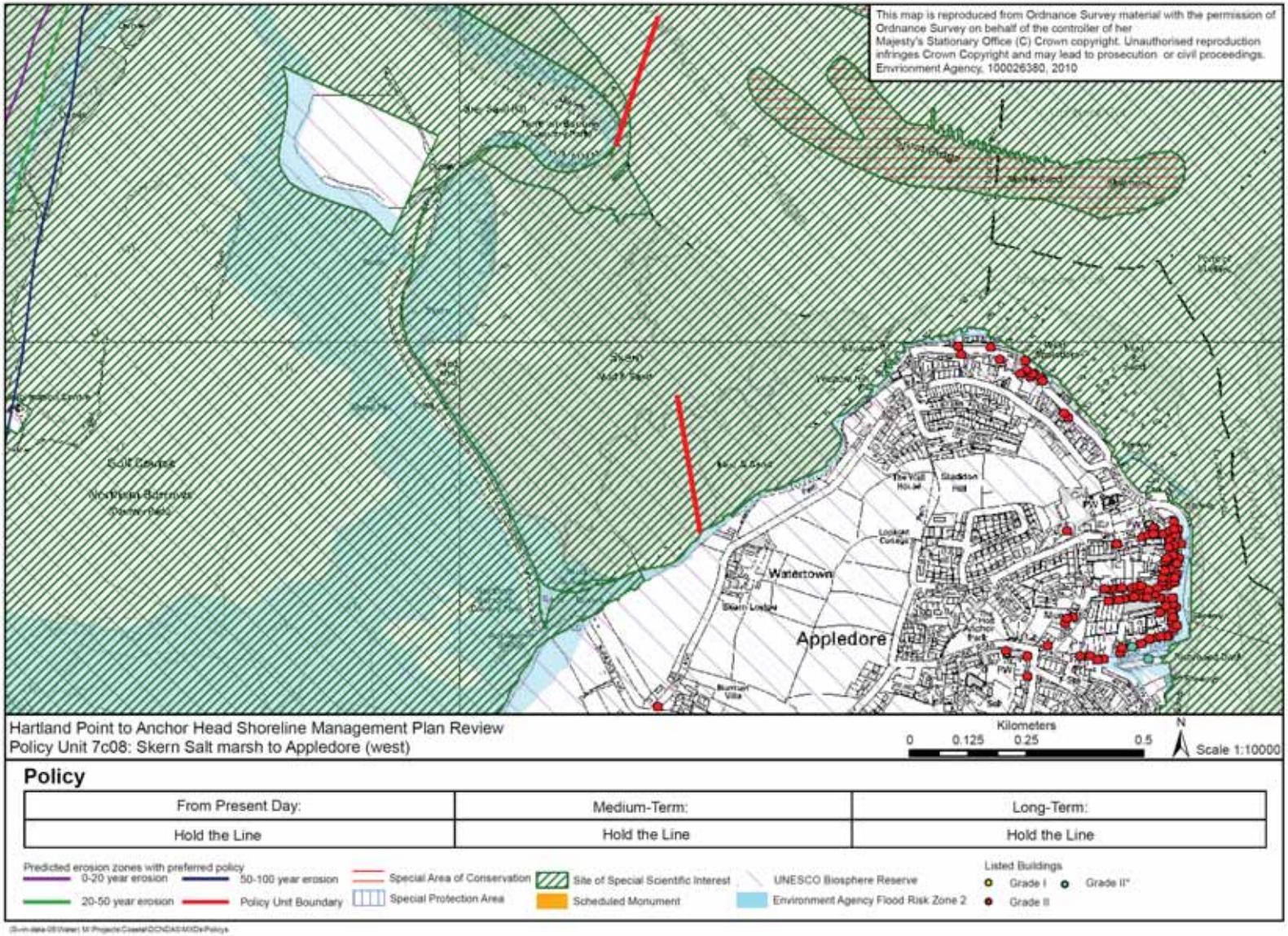

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Location reference:	**Torridge Estuary**
Policy unit reference:	**7c09 to 7c16**

Summary of preferred plan recommendations and justification

Plan:

The long term plan for the Torridge Estuary is to allow the estuary to respond naturally to climate change, particularly in its upper reaches, while continuing to provide flood defence to people, property and infrastructure where settlements exist. This means little change from present, with defences retained along the majority of the developed frontages and no further defence introduced elsewhere. There are a few areas for potential realignment within the upper estuary which could provide environment benefits without increasing flood risk.

This plan will ensure continued protection of key assets along this shoreline, but there may be potential loss of salt marsh and intertidal habitat due to coastal squeeze (narrowing of the shoreline) where defences remain, with potential impacts on Taw Torridge Site of Special Scientific Interest.

Implementation of policies here will also need to consider the outcomes from detailed investigations of the interactions with the Taw Estuary and open coast.

Preferred policies to implement plan:

From present day (short term):	The policy for Northam, Bideford, East-the-Water, Appledore and Instow is to continue to protect existing property and infrastructure assets through a **hold the line** policy. This will involve ongoing maintenance of existing flood defences at Northam, Bideford, and East-the-Water. At Appledore, Instow and some parts of East-the-Water, larger defences are likely to be required to provide an appropriate level of protection against the risk of flooding and erosion in the long term, although consideration to adapting land-use in some areas may also be feasible to help reduce flood risk. At Instow beach management might be appropriate, extending the dunes southwards along Instow Beach and altering highway drainage. Management of the dunes at Instow to ensure they provide a robust natural defence would be under a **managed realignment** policy. In the upper estuary, there may be opportunity for **managed realignment** either through set-back defences or regulated exchange through the Tarka Trail, still providing localised protection against the risk of flooding. Identification of areas where this policy rather than **hold the line** is more appropriate, will depend upon addition studies, as being undertaken for the developing Taw-Torridge Estuary Strategy Study (being led by the Environment Agency). Throughout the rest of the estuary the policy is **no active intervention**, which will allow the estuary to continue to evolve naturally.
Medium term:	In the medium term, the policy is to **hold the line** at Northam, Bideford, East-the-Water, Appledore and Instow. This will involve maintenance and improvement of defences during this period. Ongoing provision of defence will also need to include considerations for land drainage behind the defence line and its potential to cause flooding. Continuation of the **managed realignment** policy along the dunes at Instow would aim to retain these as a robust natural defence. If the defence offered by the dunes were to become compromised in this period as a result of sea level rise, then it may be necessary to construct a set-back defence to ensure the risk of flooding to Instow from this area continues to be reduced. Along the undeveloped west side of the outer estuary, between Appledore and Northam, and in areas of the upper Torridge Estuary, the recommended policy of **no active intervention** will allow the estuary to continue to evolve naturally. In parts of the upper estuary, the policy is to continue to minimise the risk of

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	flooding where assets are at risk. This could be through either **managed realignment** or **hold the line**, and should be informed by the Environment Agency-led Taw-Torridge Estuary Strategy Study.
Longer term:	The important socio-economic assets at Northam, Bideford, East-the-Water, Appledore and Instow, will continue to be defended through a **hold the line** policy. At Appledore, East-the-Water and Instow this will require the ongoing maintenance of defences, whereas at Northam and Bideford, the height of the existing flood wall defences will need to be increased to address rising sea levels. Ongoing provision of defence will also need to include considerations for land drainage behind the defence line and its potential to cause flooding. Continuation of the **managed realignment** policy along the dunes at Instow would aim to retain these as a robust natural defence. If the defence offered by the dunes were to become compromised in this period as a result of sea level rise, then it may be necessary to construct a set-back defence under this policy to ensure the risk of flooding to Instow from this area continues to be reduced. Along the outer, undeveloped, west side of the estuary between Appledore and Northam, and in areas of the upper Torridge Estuary, the long term policy is to allow the estuary to continue to evolve naturally, though a policy of **no active intervention**. Within the upper estuary, where there are assets at risk from flooding, there could be further opportunities for **managed realignment**, if not undertaken in short or medium terms; otherwise a **hold the line** policy is recommended. This will be informed by the Environment Agency led Taw-Torridge Estuary Strategy Study. Where defences are maintained, there is a risk that intertidal habitat could be lost as sea levels rise and habitat creation policies in other parts of the wider Taw/Torridge estuary system could be needed to offset this. This loss could also be mitigated in parts of the Torridge Estuary by introducing regulated flooding through the defended line onto low-lying areas of land behind parts of the defences.

Summary of specific policies

Policy unit		Preferred policies		
		Short term	**Medium term**	**Long term**
7c09	**Appledore**	Maintain and improve the various seawall/quay wall defences to continue protecting Appledore, through **hold the line**.	Maintain and further improve the various seawall/quay wall defences to continue protecting Appledore, through **hold the line**.	Maintain the various seawall/quay wall defences to continue protecting Appledore, through **hold the line**.
7c10	**Appledore to Cleave Moorings, Northam**	Allow natural estuary evolution to continue through **no active intervention**.	Allow natural estuary evolution to continue through **no active intervention**.	Allow natural estuary evolution to continue through **no active intervention**.
7c11	**Cleave Moorings, Northam and**	Maintain the existing floodwall defences to continue protecting Northam and Bideford,	Maintain the existing floodwall defences to continue protecting Northam and Bideford,	Maintain the floodwall defences, eventually raising the height of the walls in response to sea

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Policy unit		Preferred policies		
		Short term	Medium term	Long term
	Bideford	through **hold the line**.	through **hold the line**.	level rise, to continue protecting Northam and Bideford, through **hold the line**.
7c12	**Upper Torridge Estuary (right (east) and left (west) banks between Bideford and Weare Gifford)**	Allow natural estuary evolution to continue through **no active intervention** along much of the upper Torridge Estuary, but implement **managed realignment** or **hold the line** locally where defences are required to protect infrastructure and property. Exact locations suitable for managed realignment will be informed by the ongoing Taw-Torridge Estuary strategy study.	Allow natural estuary evolution to continue through **no active intervention** along much of the upper Torridge Estuary, but implement **managed realignment** or **hold the line** locally where defences are required to protect infrastructure and property. Exact locations suitable for managed realignment will be informed by the ongoing Taw-Torridge Estuary strategy study.	Allow natural estuary evolution to continue through **no active intervention** along much of the upper Torridge Estuary, but implement **managed realignment** or **hold the line** locally where defences are required to protect infrastructure and property. Exact locations suitable for managed realignment will be informed by the ongoing Taw-Torridge Estuary strategy study.
7c13	**East-the-Water to Torridge Bridge (A39)**	Minimise flood risk, by maintaining existing defences, through a **hold the line** policy.	Minimise flood risk, by maintaining existing defences, through a **hold the line** policy.	Minimise flood risk, by maintaining or improving existing defences, through a **hold the line** policy.
7c14	**Torridge Bridge (A39) to Instow**	Minimise flood risk, by maintaining existing defences, through a **hold the line** policy.	Minimise flood risk, by maintaining or improving existing defences, through a **hold the line** policy.	Minimise flood risk, by maintaining the improved defences, through a **hold the line** policy.
7c15	**Instow**	Maintain the floodwall defences, eventually replacing them with larger structures, to continue to protect Instow through a **hold the line** policy.	Maintain the defences, improved in the short term, to continue to protect Instow through a **hold the line** policy.	Maintain the defences to continue to protect Instow through a **hold the line** policy.
7c16	**Instow Dunes**	Undertake dune management through a **managed realignment** policy to ensure that the dunes provide a robust natural defence against the risk of flooding.	Continue dune management through a **managed realignment** policy to ensure that the dunes provide a robust natural defence against the risk of flooding. If this becomes compromised, construct a set back defence.	Continue dune management through a **managed realignment** policy to ensure that the dunes provide a robust natural defence against the risk of flooding. If this becomes compromised, construct a set back defence.

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Location reference:	Torridge Estuary
Policy unit reference:	7c09 to 7c16

Implications of the preferred plan for this location

Time period	Management activities	Human Health, Property and Population	Land use, infrastructure and material assets	Historic Environment	Landscape character and Visual Amenity	Geology and Soils	Water	Biodiversity, flora and fauna
2005 to 2025	Continuation of current management activities through maintenance and improvement of coastal defence and flood defence at Appledore, Northam, Bideford, and East-the-Water to Instow. In the Upper Torridge Estuary there is a planned continuation of current management activities through no active intervention and the implementation of managed realignment and hold the line locally where appropriate.	Protection of properties, community, recreation and tourist amenity facilities at Appledore, Bideford, East-the-Water, and Instow from flooding. The risk of flooding to villages along the Torridge and the development opportunity at East-the-Water will be reduced.	Protection of roads (A39, A386 and cycle path), shipyard and harbour infrastructure at Appledore, Bideford, East-the-Water, and Instow from flooding. The Yacht Club, at Instow, facilities will be protected from flooding. Protection of sections of the Tarka Trail from flooding. Other sections may require relocation inland. Minimal loss of higher grade agricultural land adjacent to the Estuary	Protection of Conservation Areas at Instow, Bideford, East-the–Water, from flooding. Tapeley Park is at risk from flooding.	Minor changes in landscape within AONB Heritage Coast and Coastal Preservation Area due to increased erosion and flooding in areas of no active intervention. Larger defences or more structures may be required to maintain an acceptable standard of flood and erosion protection in some areas, thus potentially resulting in a change of views and a change in landscape character.	Minimal impact soils and geology. No site designated along this stretch of coast for geological features.	Works in areas selected for managed realignment should be implemented so as to not adversely impact on the water quality status of the coastal waters or compromise the achievement of WFD water quality targets.	There is likely to be a change in the composition and distribution of habitats within the Taw Torridge Estuary SSSI due to natural processes and coastal squeeze. Low lying areas of the Taw-Torridge under non active intervention managed realignment provide opportunities to create intertidal habitat. To offset losses. Kenwith Valley LNR is at risk from flooding. Increased exposure to saline conditions may result in a change in freshwater habitats. But this would be due to natural processes.
2025 to 2055	Continuation of current management activities through maintenance and improvement of coastal defence and flood defence at Appledore, Northam, Bideford, and East-the-Water to Instow. In the Upper Torridge Estuary there is a planned continuation of current management activities through no active intervention and the implementation of managed realignment and hold the line locally where appropriate.	As above.	As above.	As above.	Minor changes in landscape within AONB Heritage Coast and Coastal Preservation Area due to increased erosion and flooding in areas of no active intervention. Larger defences or more structures may be required to maintain an acceptable standard of flood and erosion protection in some areas, thus potentially resulting in a change of views and a change in landscape character.	As above.	As above.	As above.
2055 to 2105	Continuation of current management activities through maintenance and improvement of coastal defence and flood defence at Appledore, Northam, Bideford, and East-the-Water to Instow.	As above.	As above.	As above.	As above.	As above.	As above.	As above.

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Location reference:	Torridge Estuary
Policy unit reference:	7c09 to 7c16

Implications of the preferred plan for this location								
Time period	**Management activities**	**Human Health, Property and Population**	**Land use, infrastructure and material assets**	**Historic Environment**	**Landscape character and Visual Amenity**	**Geology and Soils**	**Water**	**Biodiversity, flora and fauna**
	In the Upper Torridge Estuary there is a planned continuation of current management activities through no active intervention and the implementation of managed realignment and hold the line locally where appropriate.							

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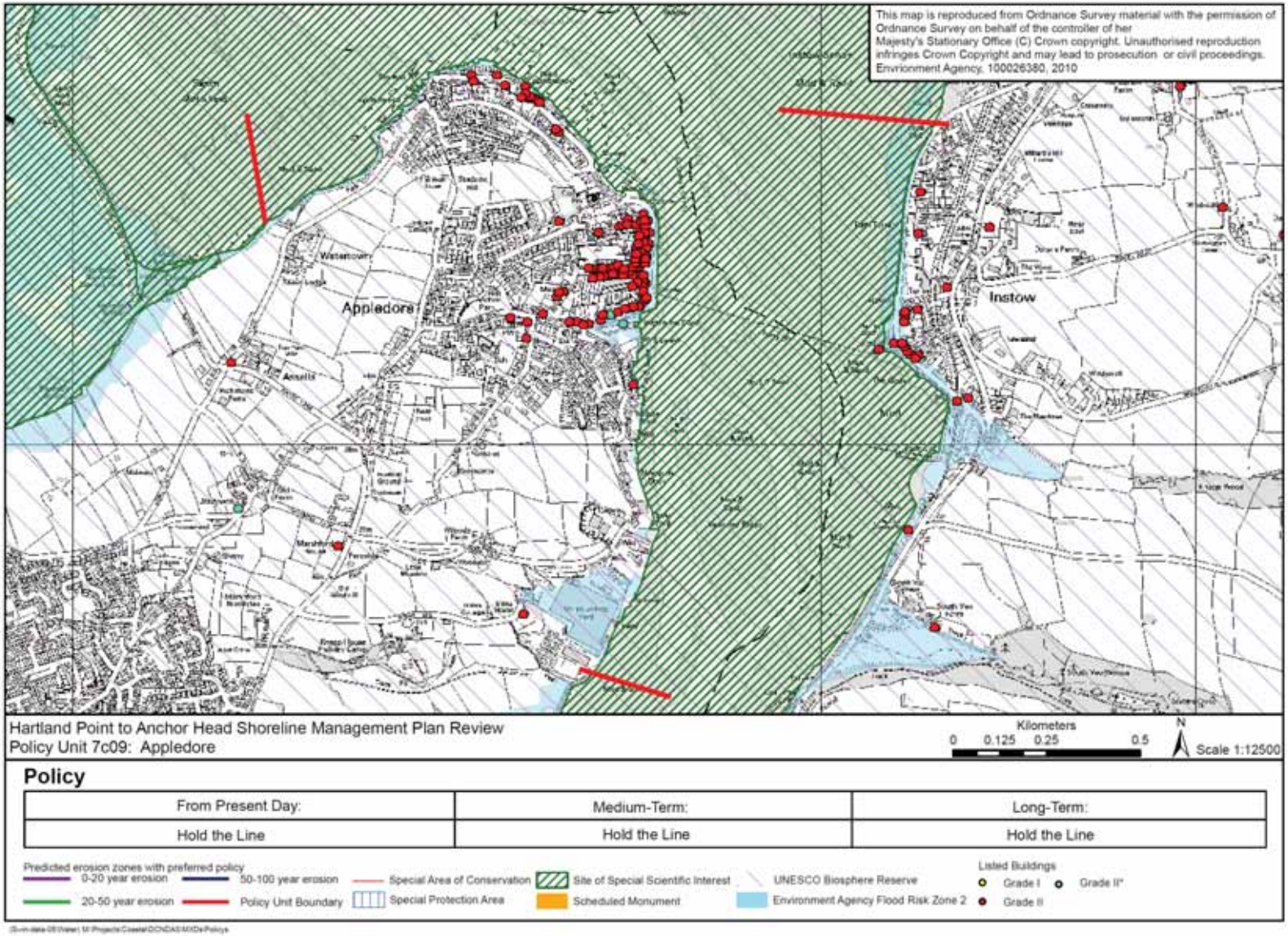

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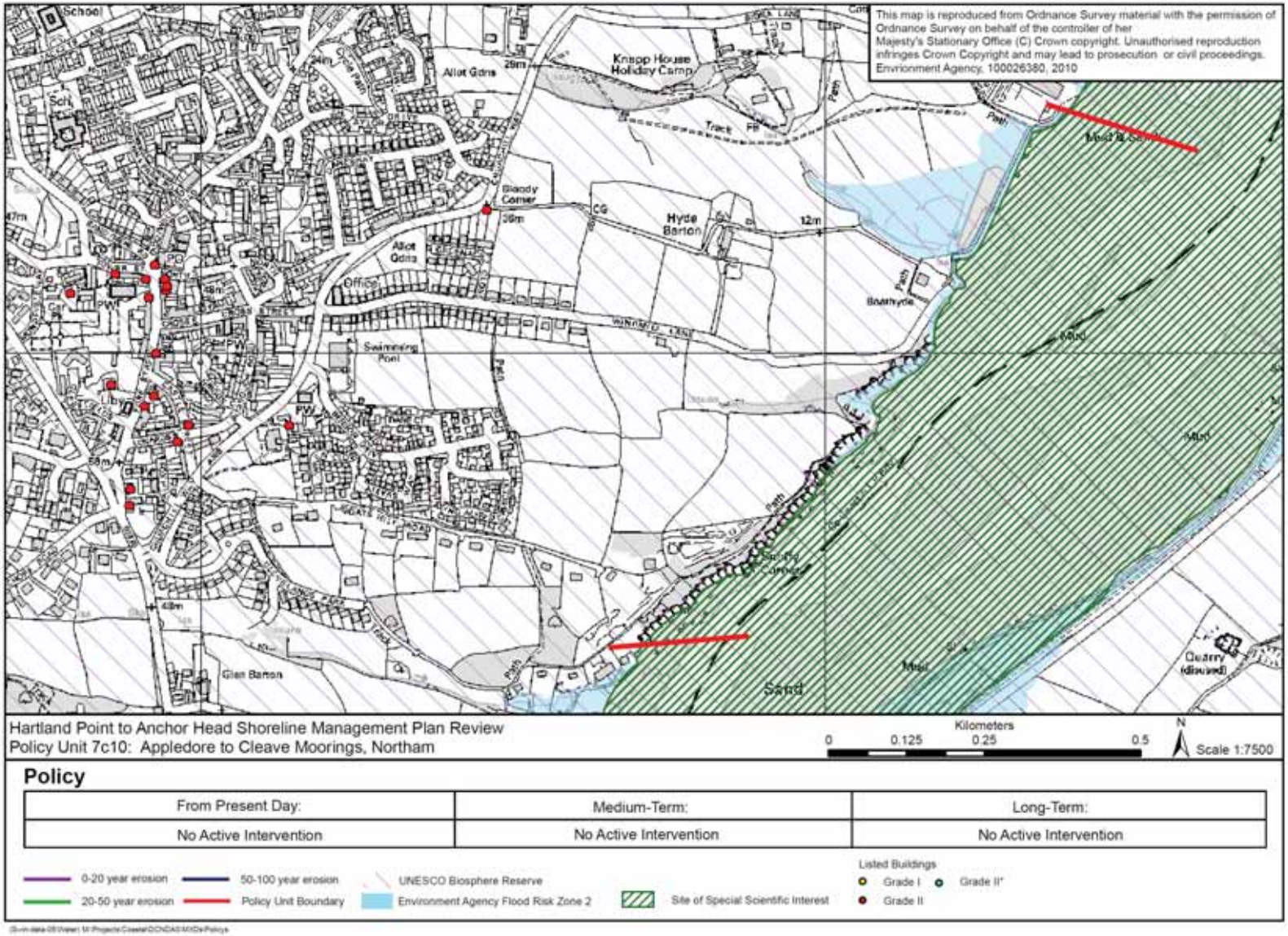

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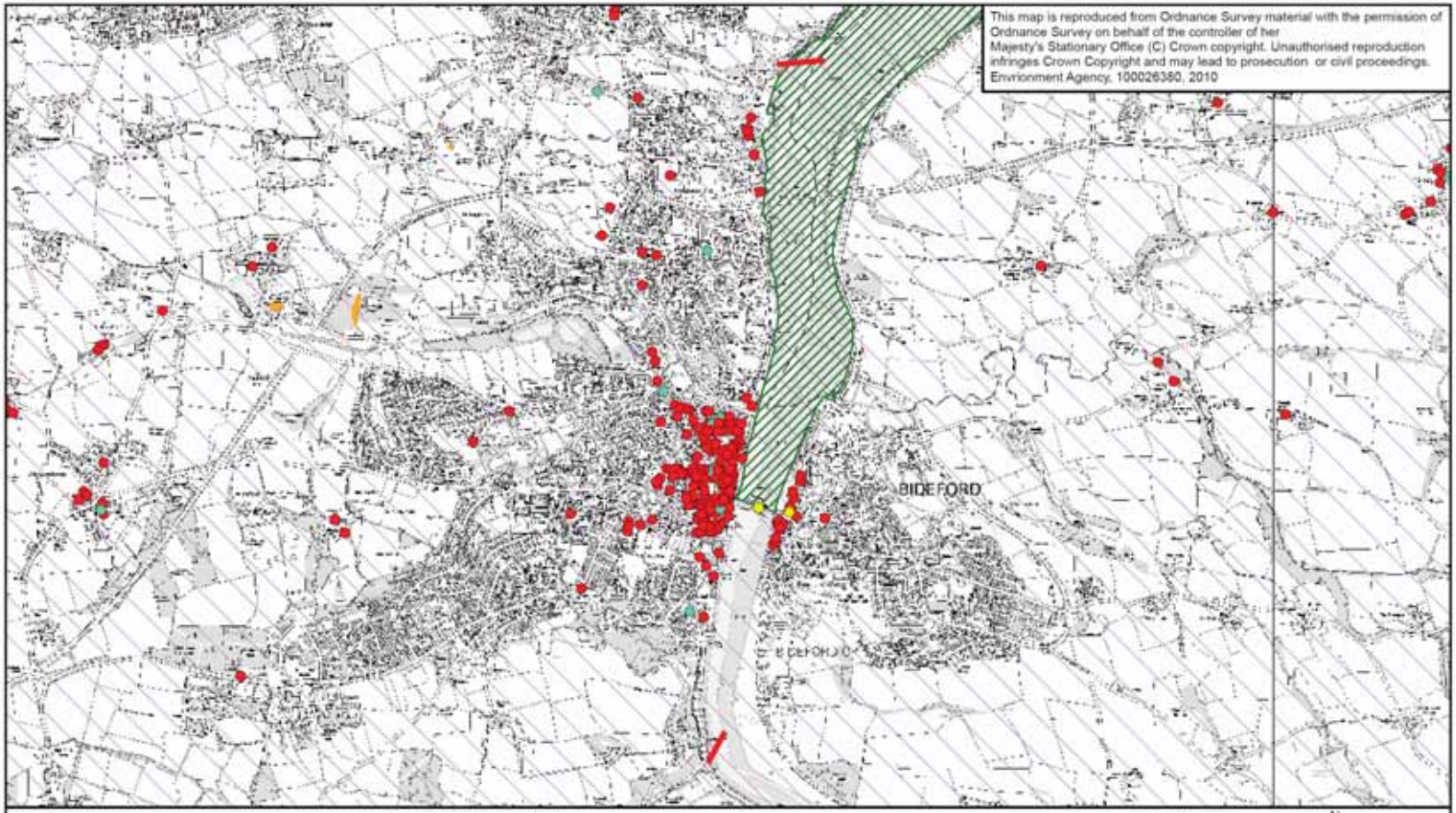

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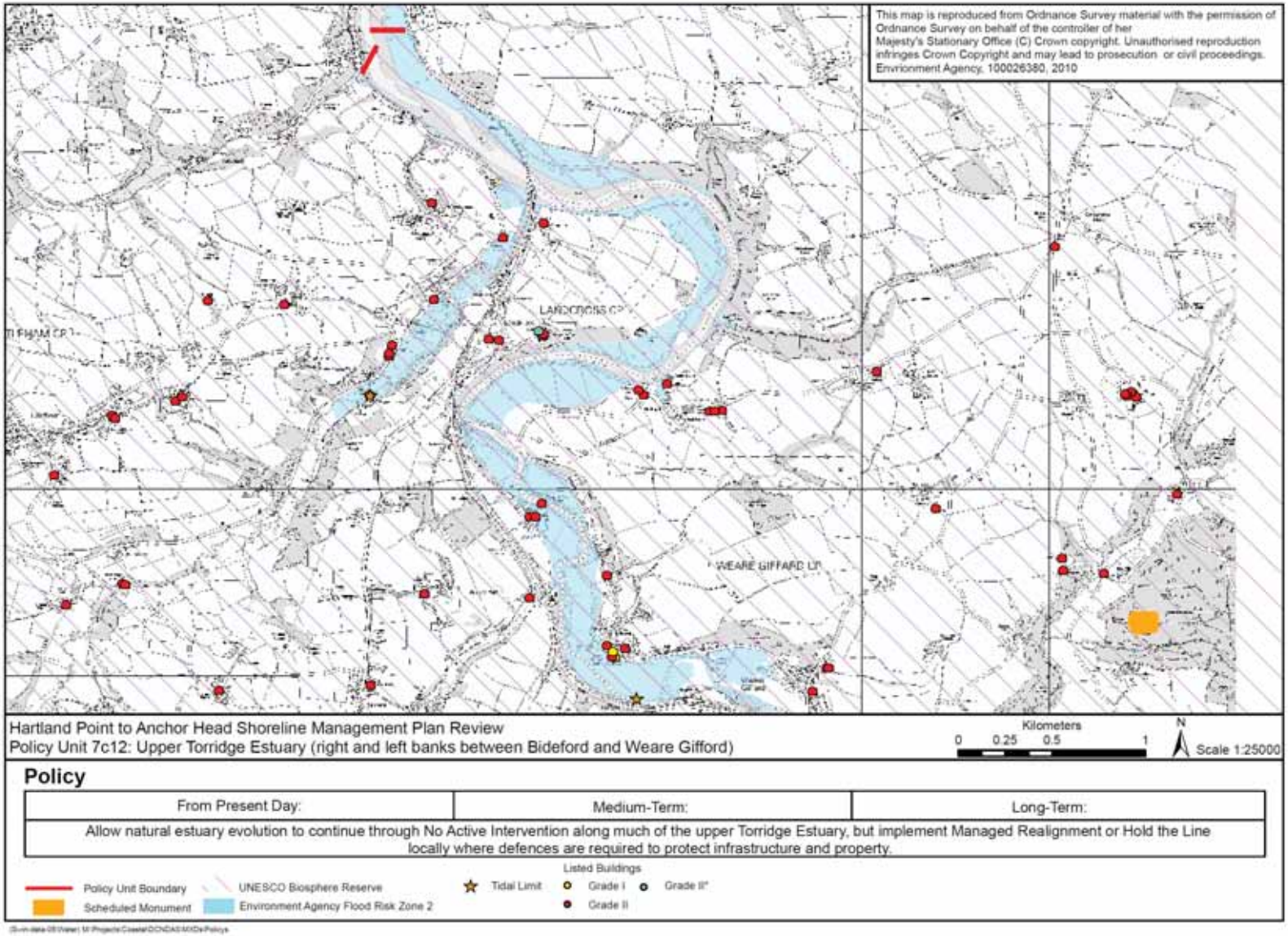

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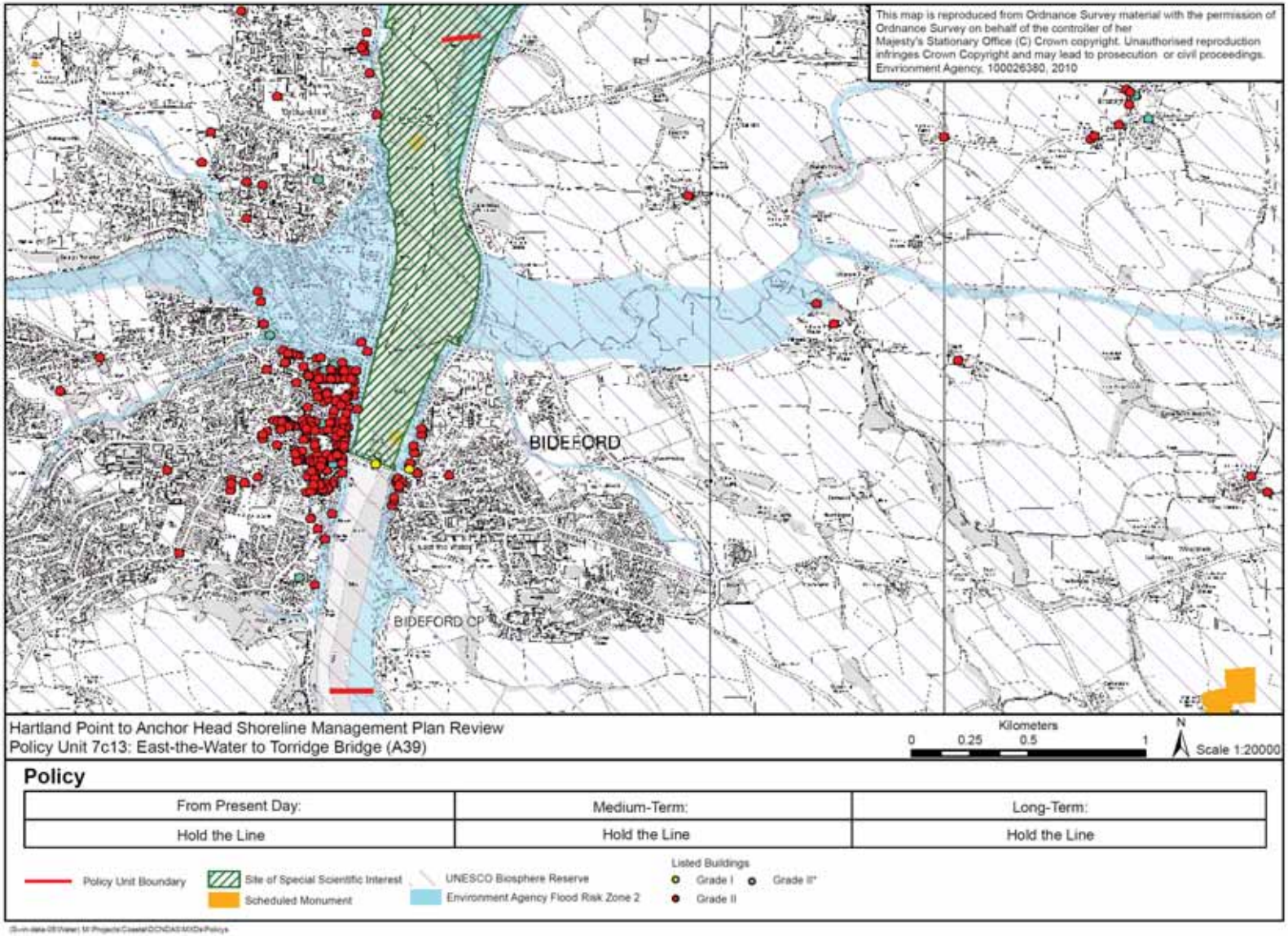

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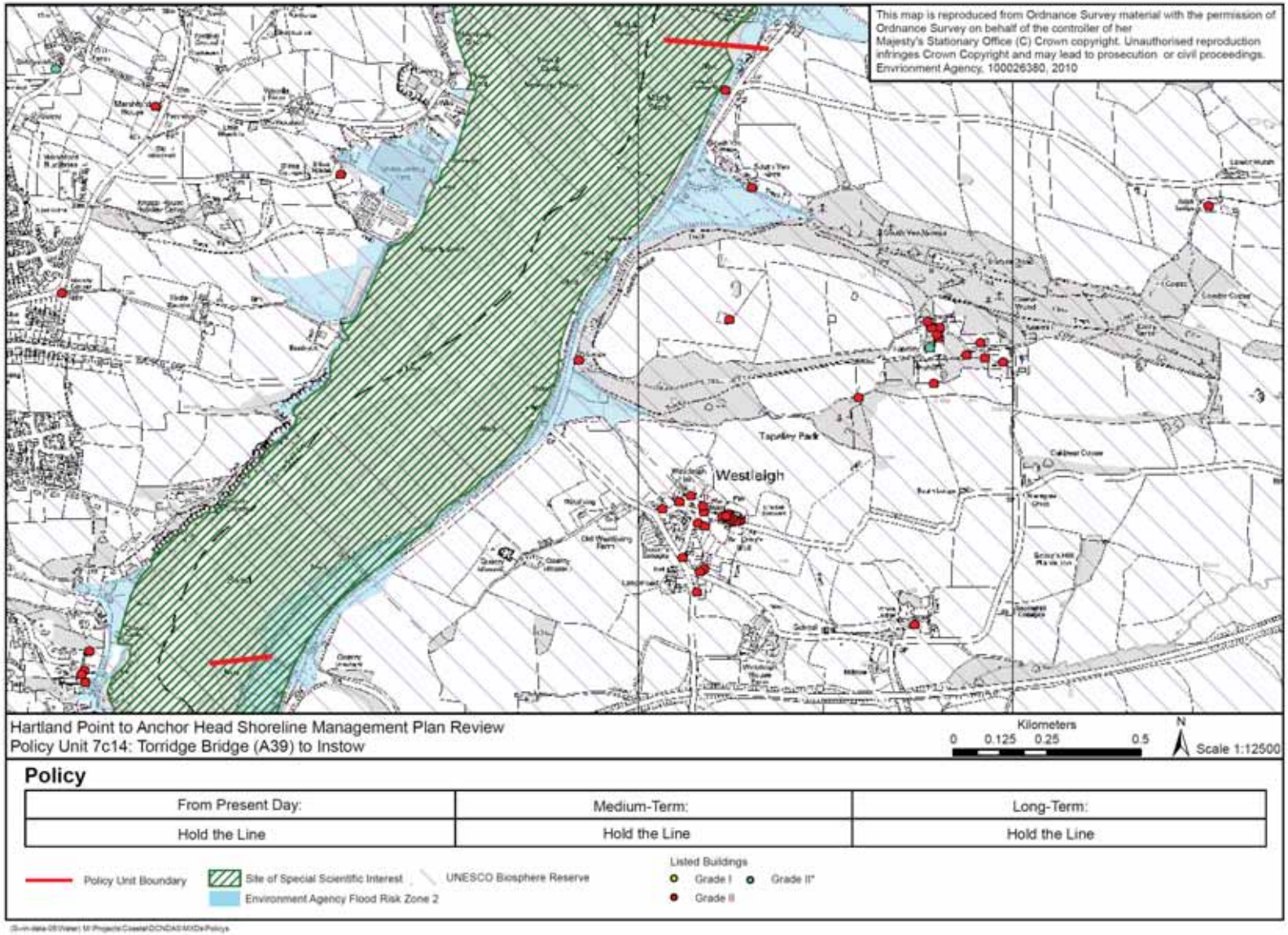

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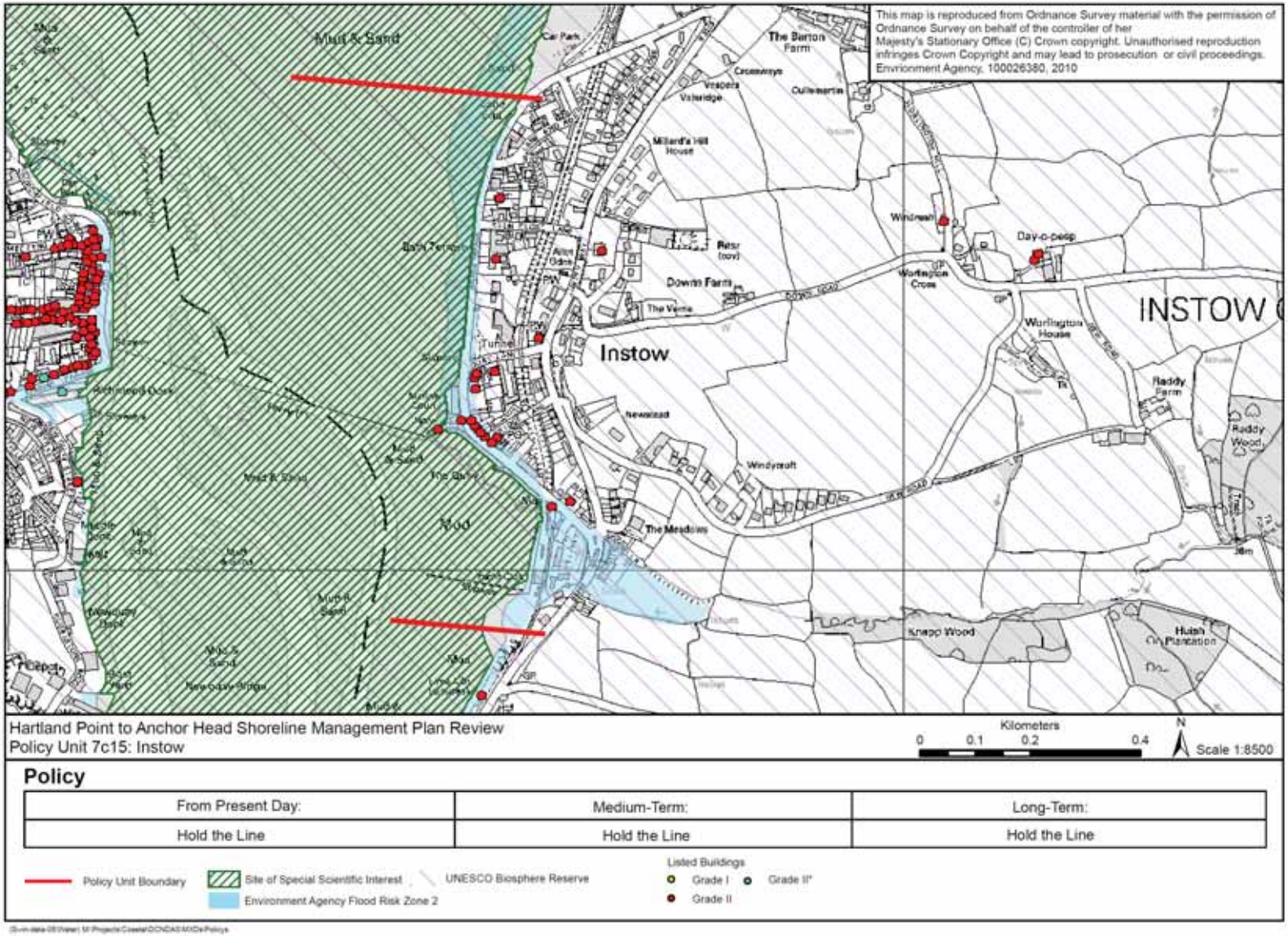

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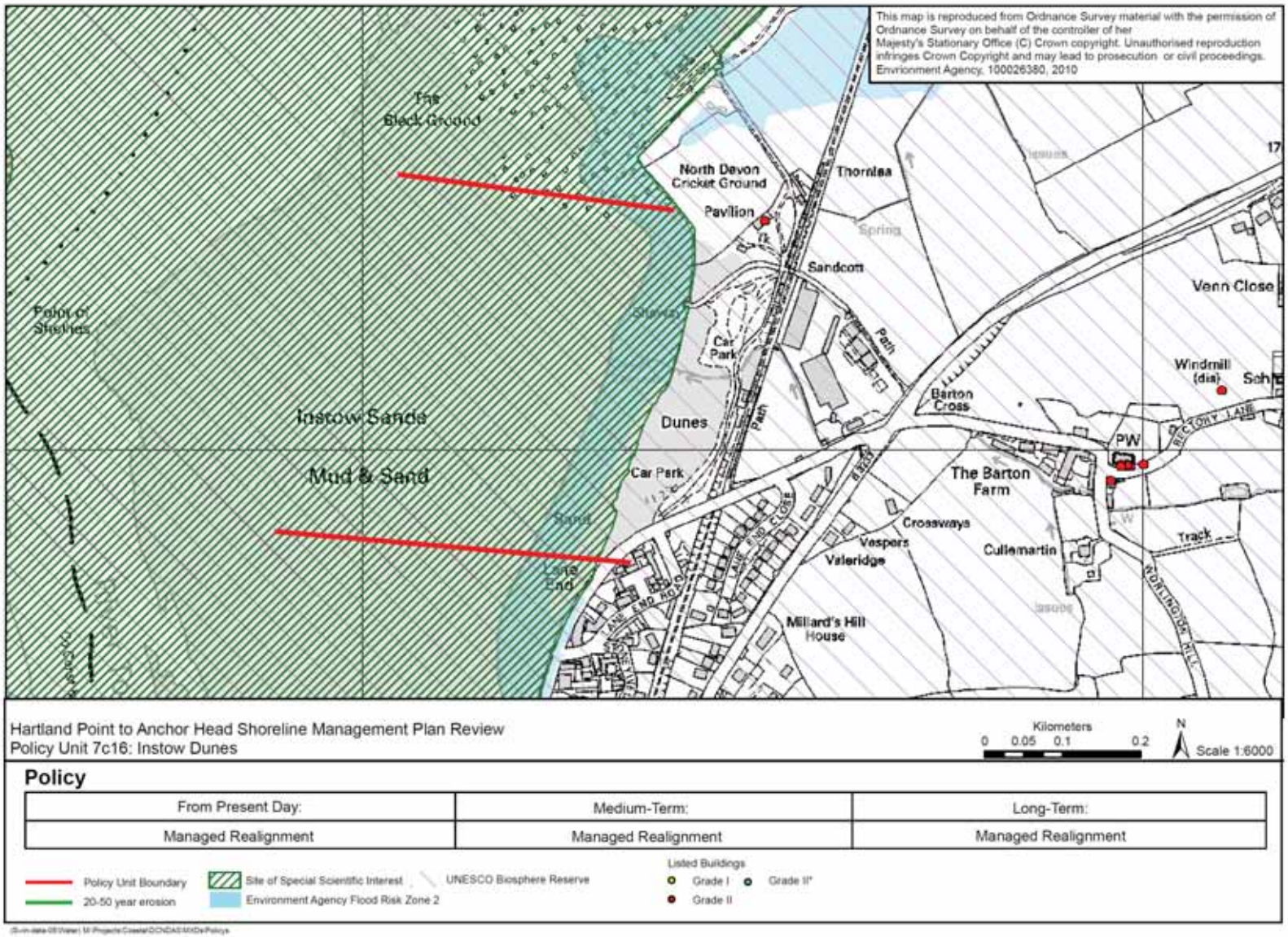

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Location reference:	**Taw Estuary**
Policy unit reference:	**7c17 to 7c29**

Summary of preferred plan recommendations and justification

Plan:

The long term plan for the Taw Estuary is to provide sustainable flood defence to people, property and infrastructure while allowing the estuary to evolve naturally to climate change and rising sea levels where possible.

There are several potential areas within the estuary where managed realignment to more long-term sustainable positions could be undertaken, which could benefit other parts of the estuary by providing flood storage, and allow considerable nature conservation and biodiversity opportunities to be realised. However, depending on where and to what extent realignment occurs there could be potential adverse impact on parts of the airfield at Chivenor and its infrastructure, areas of agricultural land, Yelland Stone Row Schedule Monument, a number of non-designated archaeological features and locally and nationally important sites at Braunton Great Field and Braunton Conservation Area. There could also be implications for the Tarka Trail, parts of which may need to be realigned.

Large scale or widespread realignment does, however, have the potential to significantly alter the large-scale functioning of an estuary system. This can have wider-scale impacts on the open coast and affect flood risk elsewhere within the estuary. Consequently detailed investigations are required before these are implemented and therefore the plan is to maintain existing defences in the short term while these are carried out.

Preferred policies to implement plan:

From present day (short term):	The short term policy is to continue to protect socio-economic assets along the majority of the Taw Estuary, through **hold the line**. Along the outer parts of the estuary this will involve maintaining existing embankment and flood wall defences, while at Barnstaple some defences are likely to need rebuilding or replacing with larger structures. Due to the significant uncertainty about the combined impacts of managed realignment in several parts of the estuary this policy will allow existing defences to be maintained while detailed studies are undertaken to fully appraise the appropriateness of implementing managed realignment in parts of the Taw Estuary. If detailed studies such as the ongoing Environment Agency led Taw-Torridge Estuary Strategy Study support managed realignment schemes, then these could begin to be implemented as appropriate. In some areas where the plan is to hold the line, controlled tidal exchange through the defended line onto small areas of low-lying land behind the defences could mitigate impacts of coastal squeeze where defences are held in the medium to long term whilst conserving features such as the Tarka Trail. Along undefended parts of the south side of the estuary between Fremington and Penhill Point, and in areas of the upper Taw Estuary, the recommended short term policy is for **no active intervention**, to allow the estuary to continue to evolve naturally as there are no assets at risk of flooding in these areas. Along the northern side of the estuary mouth, the recommended policy for Crow Point and Crow Neck is one of **managed realignment**. During this epoch detailed studies will investigate the importance of this feature in protecting the inner estuary. Should these establish that the feature is important then periodic beach recycling may be necessary to maintain it and/or repair any breaches. If this is found to not be important for defence of the inner estuary, then no intervention would occur along the spit.
Medium term:	The medium term policy for the Barnstaple area is to continue to minimise the risk of flooding to people, property and infrastructure, through a **hold the line**

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	policy. This would involve maintaining defences around Barnstaple, and possibly re-building or replacing them to a higher standard, to address the issue of rising sea levels. However, for much of the Taw Estuary, the policy will be **managed realignment**. There would be potential benefits to the Taw Torridge Site of Special Scientific Interest by creating intertidal habitat to mitigate potential losses of salt marsh and intertidal habitat resulting from coastal squeeze caused by defence elsewhere in the estuary. There could be some detrimental impacts on socio-economic, historic environment and environment assets, dependent upon the extent and location of any realignment. The precise locations of realigned defences, and the appropriateness of implementing realignment in different parts of the estuary, will be determined from the detailed studies undertaken in the short term (as part of the Environment Agency led Taw-Torridge Estuary Strategy Study). Where managed realignment is inappropriate, existing embankment defences would need to be maintained or upgraded to higher standard, under a policy of **hold the line**. Along undefended parts of the southern side of the estuary, between Fremington and Penhill Point, and in areas of the upper Taw Estuary, the recommended medium term policy is **no active intervention**, which will allow the estuary to continue to evolve naturally as there are no assets at risk. In the outer estuary, the recommended policy for Crow Point and Crow Neck is one of continued **managed realignment**, implementation of which will depend upon the outcome of studies undertaken in the short term.
Longer term:	The policy for much of the Taw Estuary in the longer term is to continue to minimise the risk of flooding to assets, through a **hold the line** policy. This would involve maintenance of defences either in existing or realigned positions (dependent upon where realignment occurs in the medium term) to ensure adequate levels of protection continue to be provided. Within the upper estuary, where there are assets at risk from flooding, there could be further opportunities for **managed realignment**. Along undefended parts of the south side of the estuary between Fremington and Penhill Point, and in areas of the upper Taw Estuary, the long term policy is to allow the estuary to evolve with minimal interference, through a policy of **no active intervention**. In the outer estuary, the recommended policy for Crow Point and Crow Neck is one of continued managed realignment depending upon the outcome of studies, undertaken in the short term.

Summary of specific policies

Policy unit		Preferred policies		
		Short term	**Medium term**	**Long term**
7c17	**Instow to Yelland**	Continue to maintain existing embankment defences under a **hold the line** policy. Investigate opportunities for managed	Implement **managed realignment** along parts of this stretch (dependent upon outcome of studies). Where realignment does not occur, continue to	**Hold the line** of the defence to continue to reduce the risk of flooding.

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Policy unit		Preferred policies		
		Short term	Medium term	Long term
		realignment.	**hold the line** to protect infrastructure and property.	
7c18	**Home Farm Marsh (Yelland to Fremington)**	Continue to maintain existing embankment defences under a **hold the line** policy. Investigate managed realignment opportunities.	Implement **managed realignment** along this stretch (dependent upon outcome of studies).	**Hold the line** of the defence.
7c19	**Fremington**	Maintain and improve the defences to continue protection against flood risk to property and infrastructure, through **hold the line**.	Maintain the improved defences to continue protection against flood risk to property and infrastructure, through **hold the line**.	Maintain the improved defences to continue protection against flood risk to property and infrastructure, through **hold the line**.
7c20	**Fremington to Penhill Point**	Allow natural estuary evolution to continue through **no active intervention**.	Allow natural estuary evolution to continue through **no active intervention**.	Allow natural estuary evolution to continue through **no active intervention**.
7c21	**Penhill Point to Bickington**	Continue to maintain existing embankment defences under a **hold the line** policy. Investigate managed realignment opportunities.	Implement **managed realignment** along this stretch (dependent upon outcome of studies).	**Hold the line** of the defence.
7c22	**Bickington to A39**	Maintain and improve the defences to continue protection against flood risk to property and infrastructure, through **hold the line**.	Maintain the improved defences to continue protection against flood risk to property and infrastructure, through **hold the line**.	Maintain the improved defences to continue protection against flood risk to property and infrastructure, through **hold the line**.
7c23	**Upper Taw Estuary (right (east) and left (west) banks between A39 to tidal limit near Bishops Tawton)**	Allow natural estuary evolution to continue through **no active intervention** along much of the upper Taw Estuary, but implement **managed realignment** or **hold the line** locally where defences are required to protect the railway line. Exact locations suitable for managed realignment will be informed by the ongoing Taw-Torridge Estuary strategy study.	Allow natural estuary evolution to continue through **no active intervention** along much of the upper Taw Estuary, but implement **managed realignment** or **hold the line** locally where defences are required to protect the railway line. Exact locations suitable for managed realignment will be informed by the ongoing Taw-Torridge Estuary strategy study.	Allow natural estuary evolution to continue through **no active intervention** along much of the upper Taw Estuary, but implement **managed realignment** or **hold the line** locally where defences are required to protect the railway line. Exact locations suitable for managed realignment will be informed by the ongoing Taw-Torridge Estuary strategy study.
7c24	**A39 to West**	Maintain the embankment	Maintain and further	Maintain the embankment

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Policy unit		Preferred policies		
		Short term	Medium term	Long term
	Ashford (Barnstaple)	defences, and eventually replace some with larger embankments, to continue protection for Barnstaple, through **hold the line**.	replace the embankment defences to continue protection for Barnstaple, through **hold the line**.	defences to continue protection for Barnstaple, through **hold the line**.
7c25	**West Ashford to Braunton (east bank of River Caen)**	Continue to maintain existing defences under a **hold the line** policy. Investigate managed realignment opportunities.	Implement **managed realignment** along parts of this stretch (dependent upon outcome of studies). Continue to **hold the line** of the recently realigned defence at RAF Chivenor.	**Hold the line** of the realigned defences.
7c26	**Braunton to Horsey Island (west bank of River Caen)**	Continue to maintain existing embankment defences under a **hold the line** policy. Investigate opportunities for managed realignment.	Implement **managed realignment** along this stretch (dependent upon outcome of studies).	**Hold the line** of the realigned defence.
7c27	**Horsey Island**	Continue to maintain existing embankment defences under a **hold the line** policy. Investigate opportunities for managed realignment.	Implement **managed realignment** along this stretch (dependent upon outcome of studies).	**Hold the line** of the realigned defence.
7c28	**Horsey Island to Crow Point**	Continue to maintain existing embankment defences under a **hold the line** policy. Investigate opportunities for managed realignment.	Implement **managed realignment** along this stretch (dependent upon outcome of studies).	**Hold the line** of the realigned defence.
7c29	**Crow Point and Crow Neck**	Continue to monitor the spit, under a policy of **managed realignment**, while investigating the importance of the spit in terms of providing protection to the inner estuary. If necessary, undertake beach replenishment to maintain this feature and/or repair any breaches, otherwise limited or no intervention is to occur.	Continue to monitor the spit, under a policy of **managed realignment**, and undertake works as required following the investigations in the short term. If studies show this area is not required for defence benefit of the inner estuary, then limited or no intervention is to occur.	Continue to monitor the spit, under a policy of **managed realignment**, and undertake works as required following the investigations in the short term. If studies show this area is not required for defence benefit of the inner estuary, then limited or no intervention is to occur.

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Location reference:	Taw Estuary
Policy unit reference:	7c17 to 7c29

Implications of the preferred plan for this location

Time period	Management activities	Human Health, Property and Population	Land use, infrastructure and material assets	Historic Environment	Landscape character and Visual Amenity	Geology and Soils	Water	Biodiversity, flora and fauna
2005 to 2025	There is a continuation of current management activities. Hold the line in areas that have been historic defended and no activate intervention in areas that have not.	Protection of residential and commercial at Barnstaple, Pottington, Pilton, Sticklepath, Bishops Tawton, Braunton, Chivenor, Wrafton and a number of smaller settlements from flooding. The development opportunity planned for Barnstaple is potentially at risk from flooding depending on its location.	Protection of community, recreational and tourist amenity facilities at Barnstaple, Pottington, Pilton, Sticklepath, Bishop's Tawton, Braunton, Chivenor, Wrafton and a number of smaller settlements from flooding. The site of the proposed incinerator may be at risk from flooding depending on its location. Protection of the Tarka Trail (South West Coastal Path) from flooding. Protection of the substations at Bideford, the south side of the Estuary at Estuary Business Park, and at Barnstaple. Protection of sections of the A361, A386 and B3233 in addition to a number of access roads and the Barnstaple to Exeter railway line from flooding. The airfield at Chivenor and its associated infrastructure, which includes the Royal Marine Base, are at risk from flooding. Ministry of Defence land on Braunton Burrows is at risk from flooding. Minimal loss of higher grade agricultural land adjacent to the Estuary due to erosion. However, areas of agricultural land are at risk from flooding. However, high grade agricultural land (Grade 2) at Braunton is at risk from flooding.	Protection of Conservation Areas at Fremington, Bickington and, Barnstaple, Tawstock and Braunton (including the Braunton Great Field) from flooding. Protection of Barnstaple Castle, Schedule Monument, from potential damage due to flooding. Grade II Listed Building at Braunton Marsh at risk from flooding.	Minor changes in landscape within AONB Heritage Coast and Coastal Preservation Area due to increased erosion and flooding. Continued maintenance of existing defences in the short term with little change to landscape within the AONB Heritage Coast and Coastal Preservation Area.	Managed realignment and no active intervention will allow the continuation of natural processes which will maintain these geological features.	Depending on the position of the set-back defences, Managed realignment has the potential to impact water quantity at Braunton Burrows. Works in areas selected for managed realignment should be implemented so as to not adversely impact on the water quality status of the coastal waters or compromise the achievement of WFD water quality targets.	Areas of Greenaways and Freshways Marshes SSSI, Fremington Local Nature Reserve, County Wildlife Sites located at Leat (Fremington), Saltpill duckpond and Horsey Island are at risk from flooding. Where there are freshwater habitats the increased exposure to saline conditions may result in a change in habitat composition. But this would be due to natural processes. . There is likely to be a change in the composition and distribution of habitats within the Taw Torridge Estuary SSSI due to natural processes and coastal squeeze. Low lying areas of the Taw-Torridge under non active intervention managed realignment provide opportunities to create intertidal habitat. To offset losses. Kenwith Valley LNR is at risk from flooding. Increased exposure to saline conditions may result in a change in freshwater habitats. But this would be due to natural processes. Braunton Burrows SAC, SSSI and UNESCO International Biosphere Reserve Area. Site may be impacted by defence decisions at Northam Burrows. Any future management decision is dependent of more detailed study in the short term to reduce the uncertainty. The policy is considered further within the Habitats Regulations Assessment (Appendix J)

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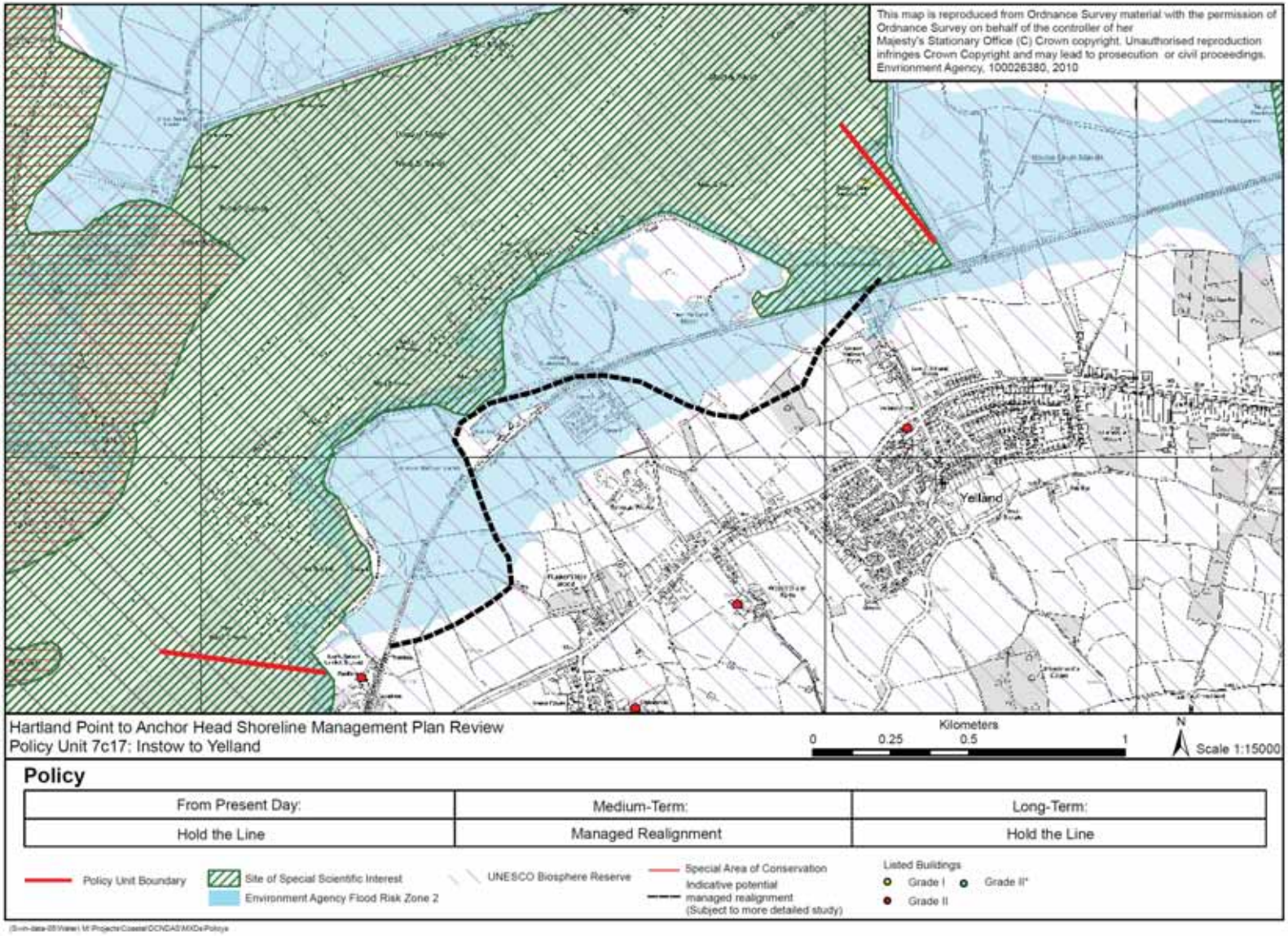
Location reference:	Taw Estuary
Policy unit reference:	7c17 to 7c29

Implications of the preferred plan for this location

Time period	Management activities	Human Health, Property and Population	Land use, infrastructure and material assets	Historic Environment	Landscape character and Visual Amenity	Geology and Soils	Water	Biodiversity, flora and fauna
			Management realignment of 7c29, Crow Point will need to consider to navigational safety issues and re-positioning of the navigational lights.					
2025 to 2055	An increase in the number of areas where defence will be allowed to fail and set back defences constructed.	As above.	As above.	As above.	Minor changes in landscape within AONB Heritage Coast, Coastal Preservation Area and the North Devon Heritage Coast due to increased erosion and flooding. If defences are not privately funded there is potential for deteriorating coastal defence structures to become unsightly within AONB Heritage Coast and Coastal Preservation Area. If defences are privately funded larger defences or more structures may be required to maintain an acceptable standard of flood and erosion protection in some areas, thus potentially resulting in a change of views and a change in landscape character.	As above.	As above.	As above.
2055 to 2105	An increase in the number of areas where defence will be allowed to fail and set back defences constructed.	As above.	As above.	As above.	As above.	As above.	As above.	As above.



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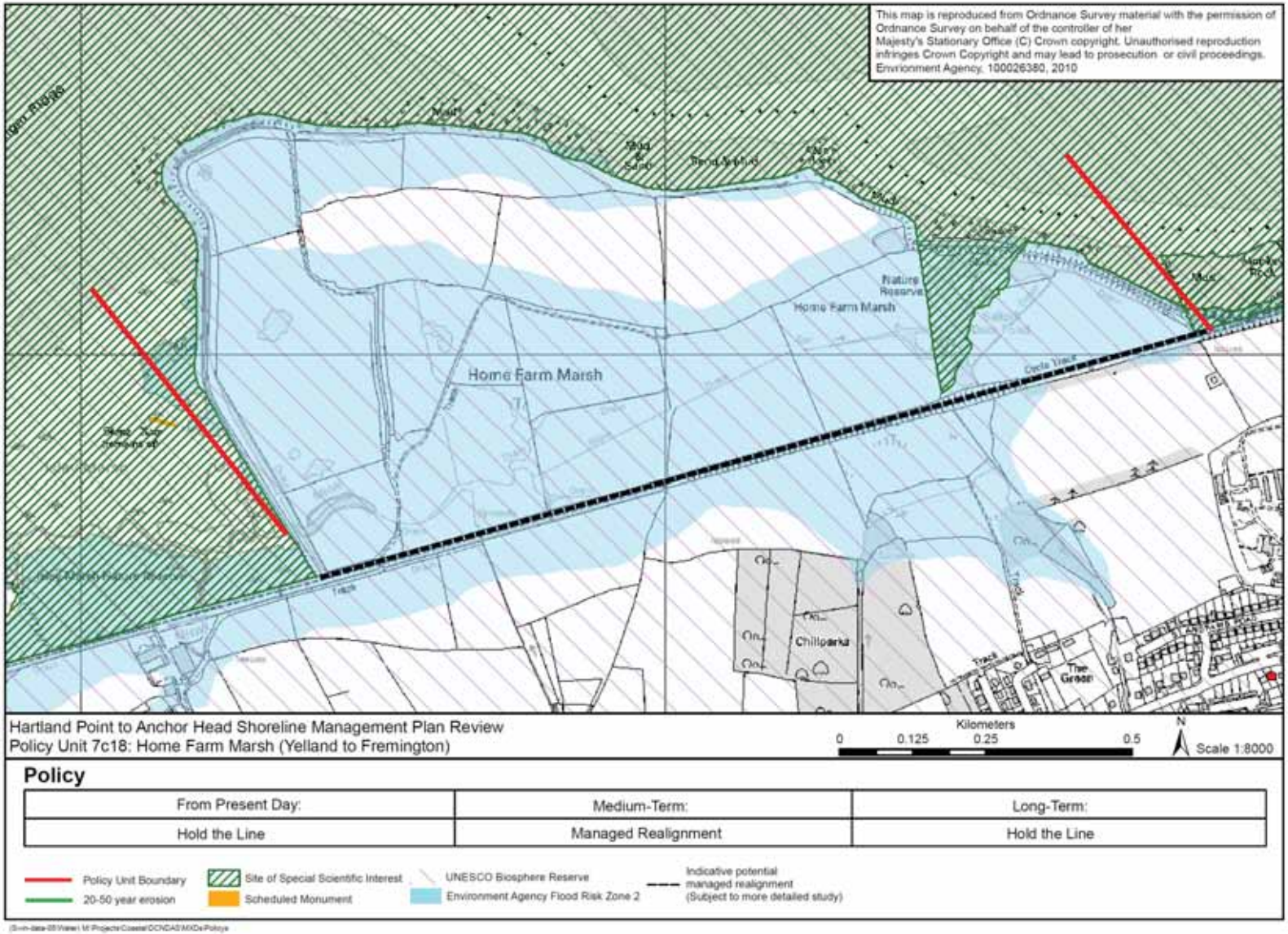

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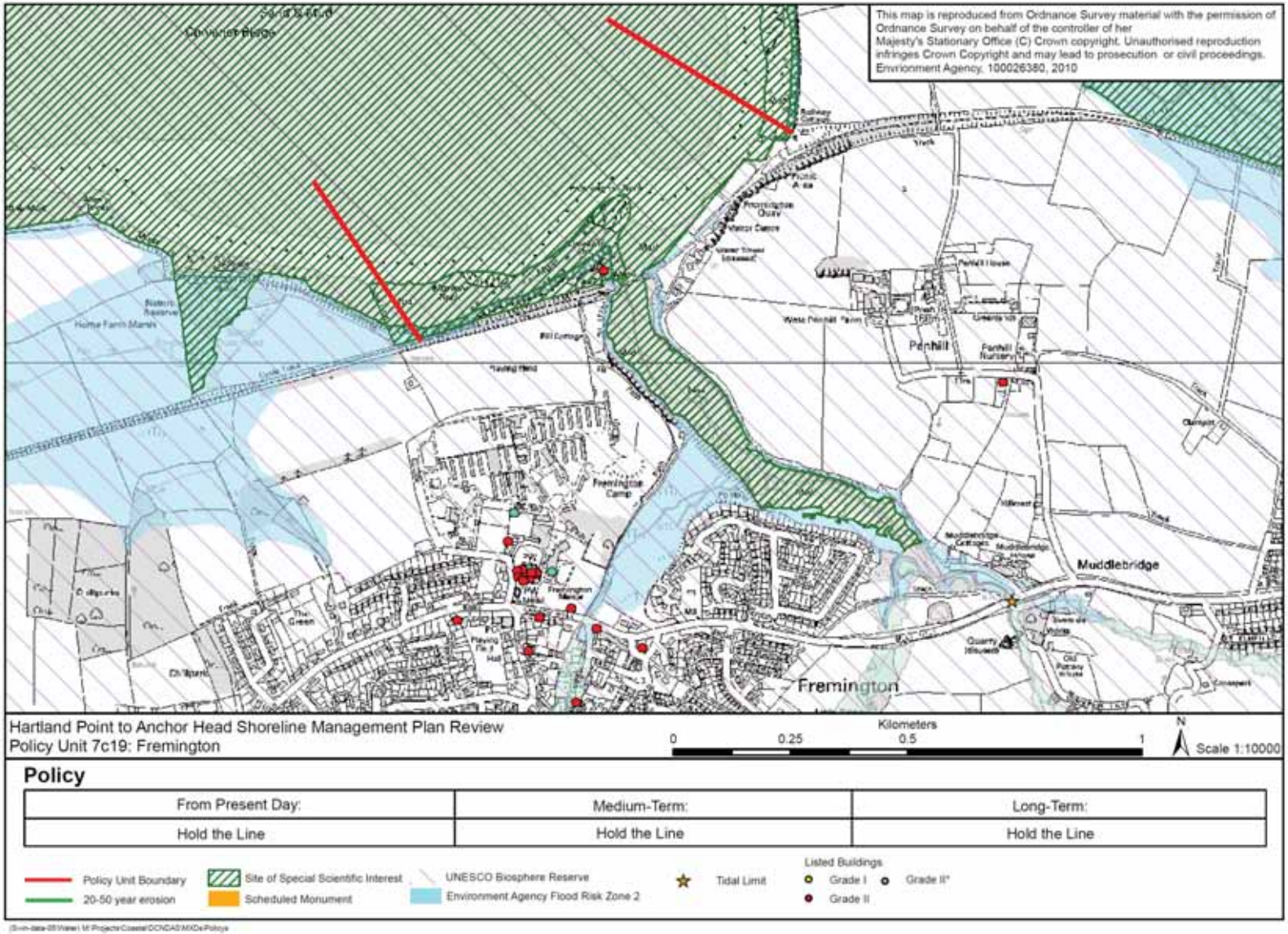

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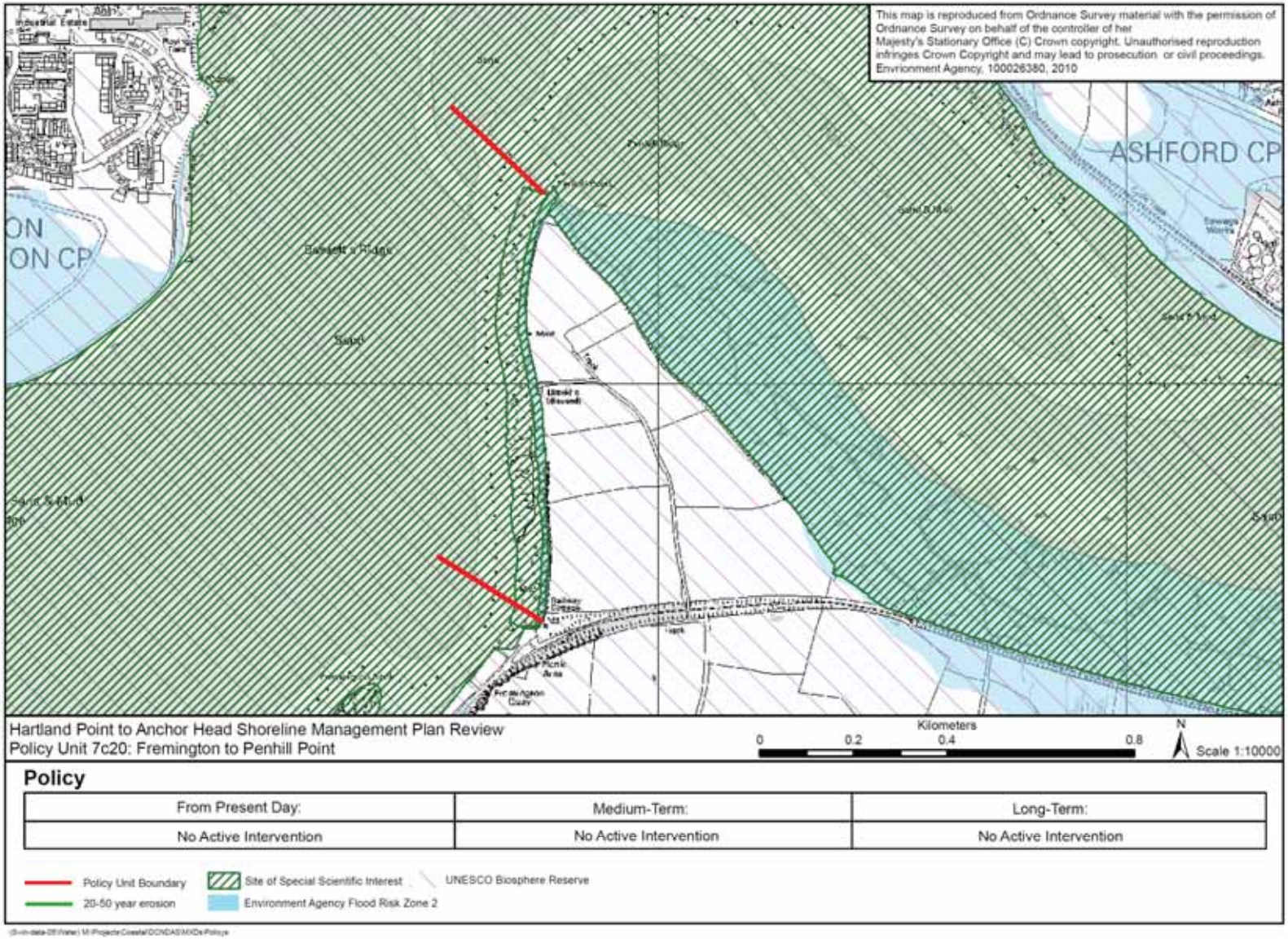

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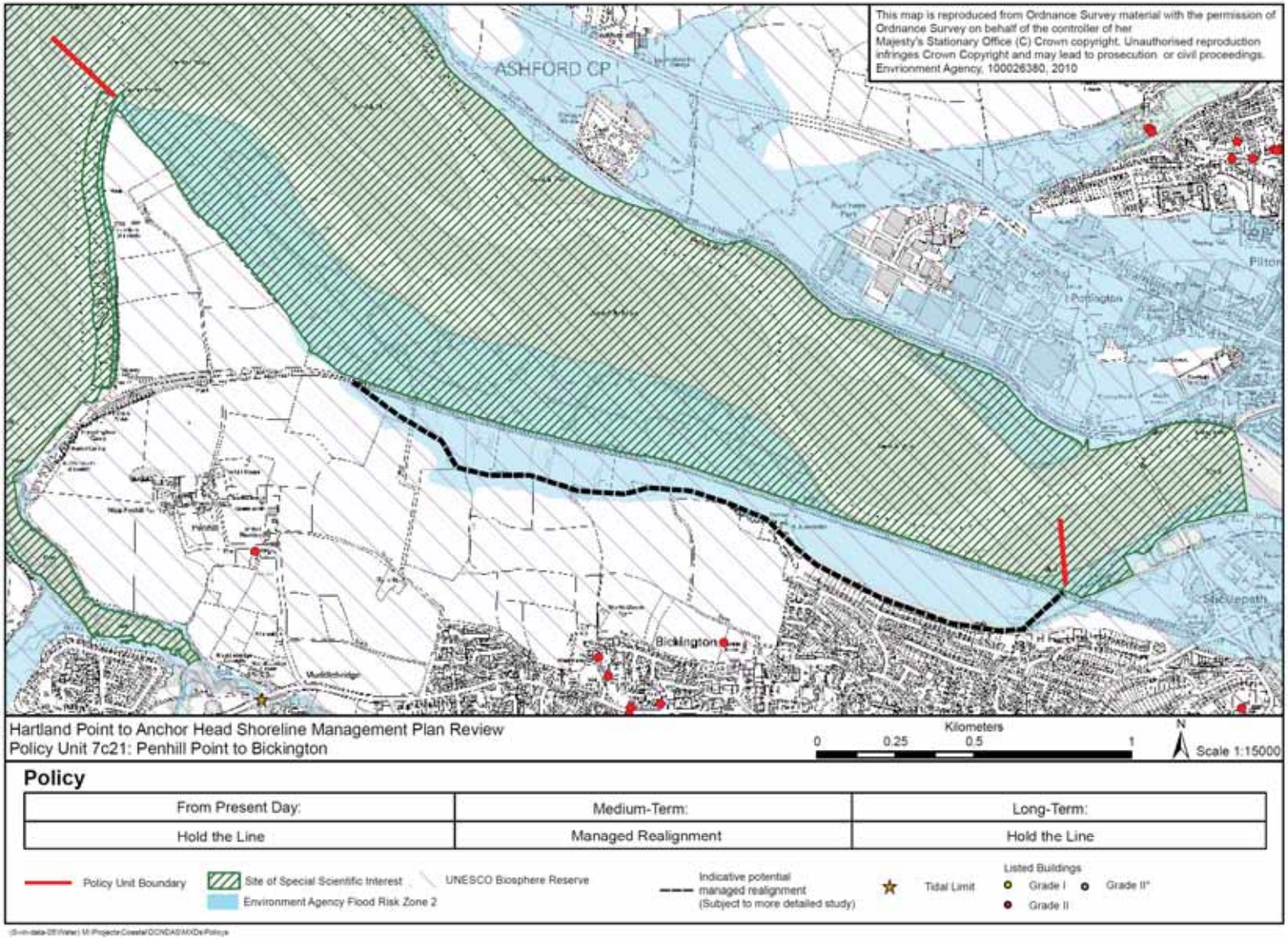

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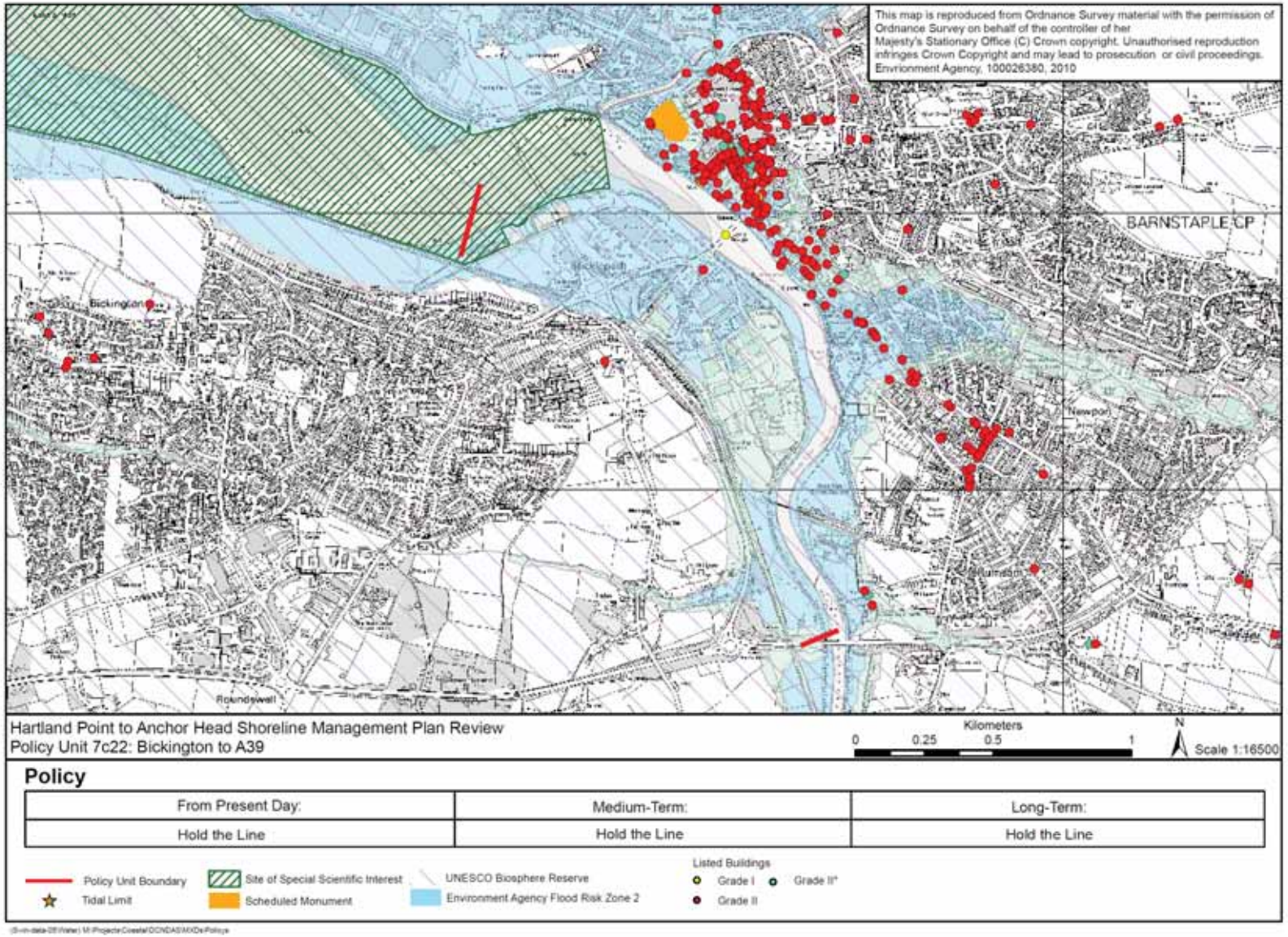

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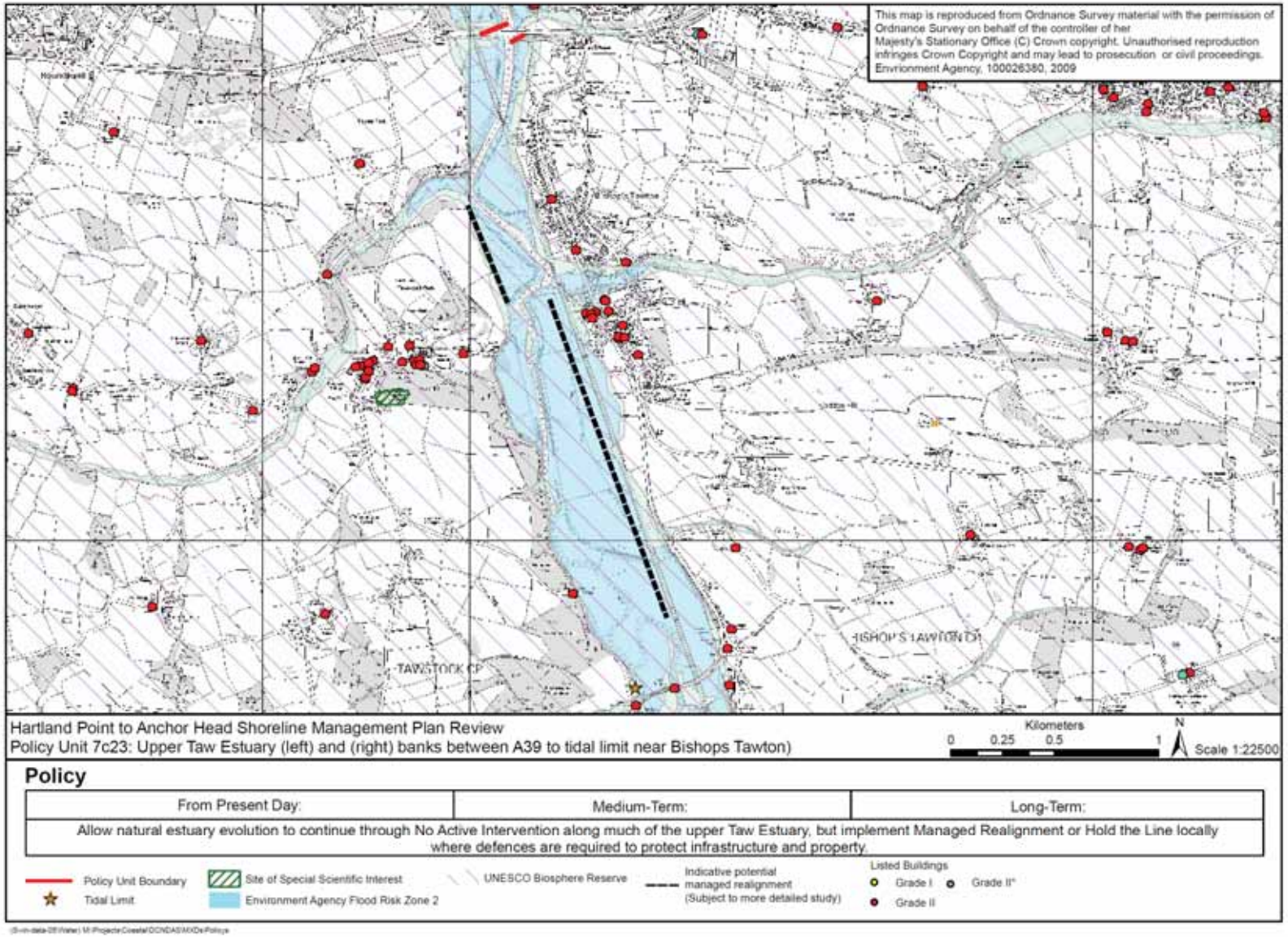

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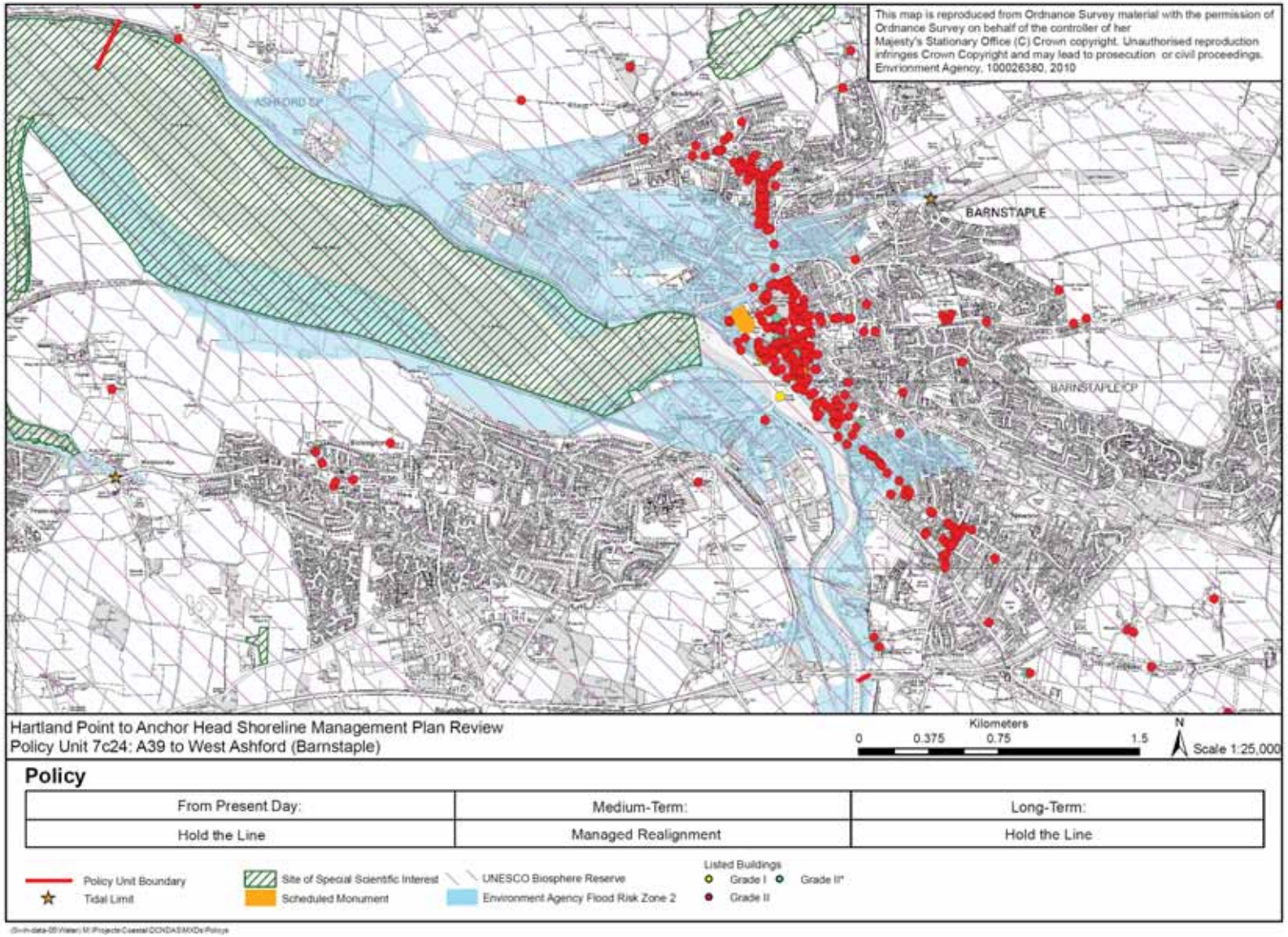

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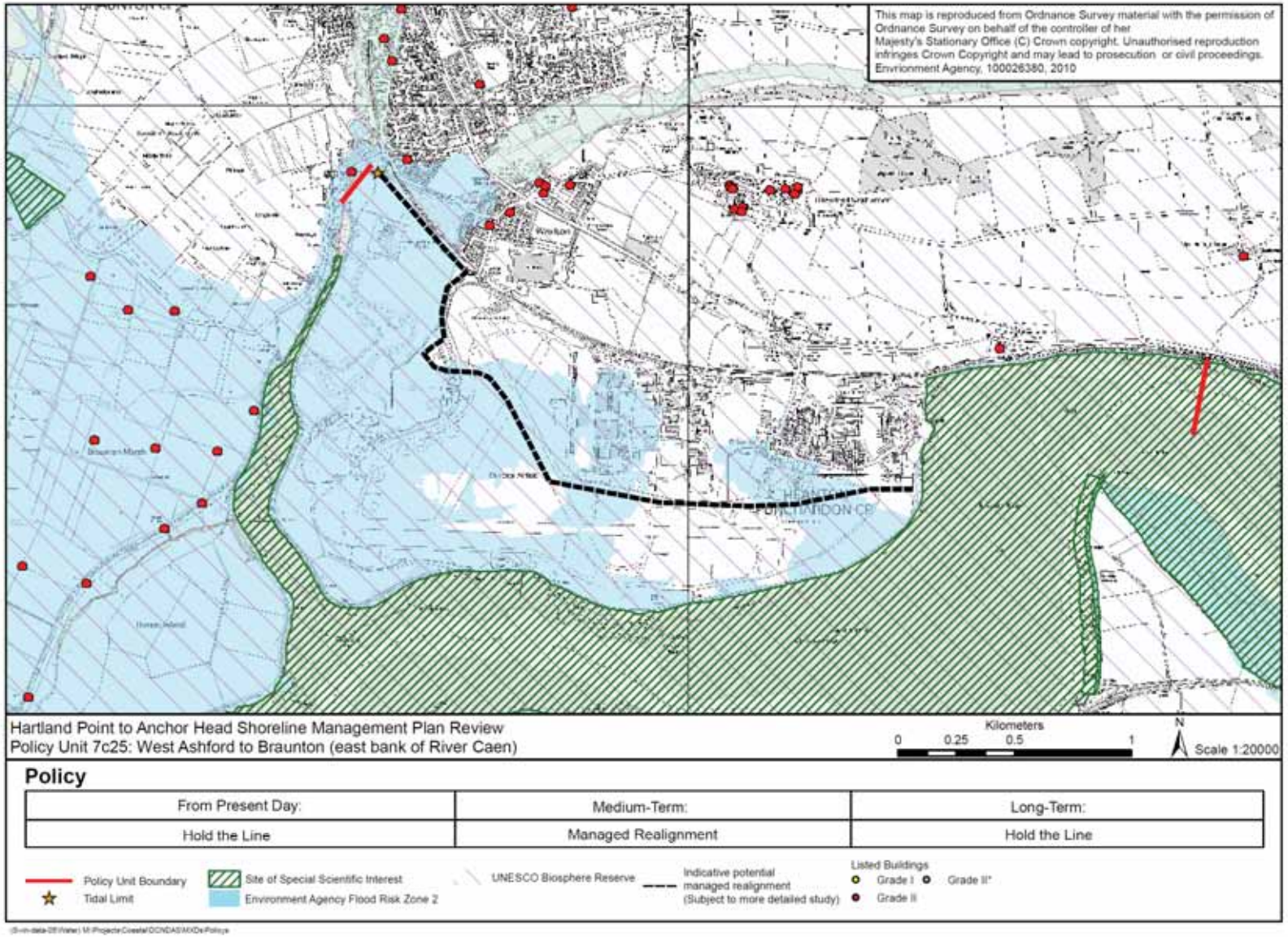

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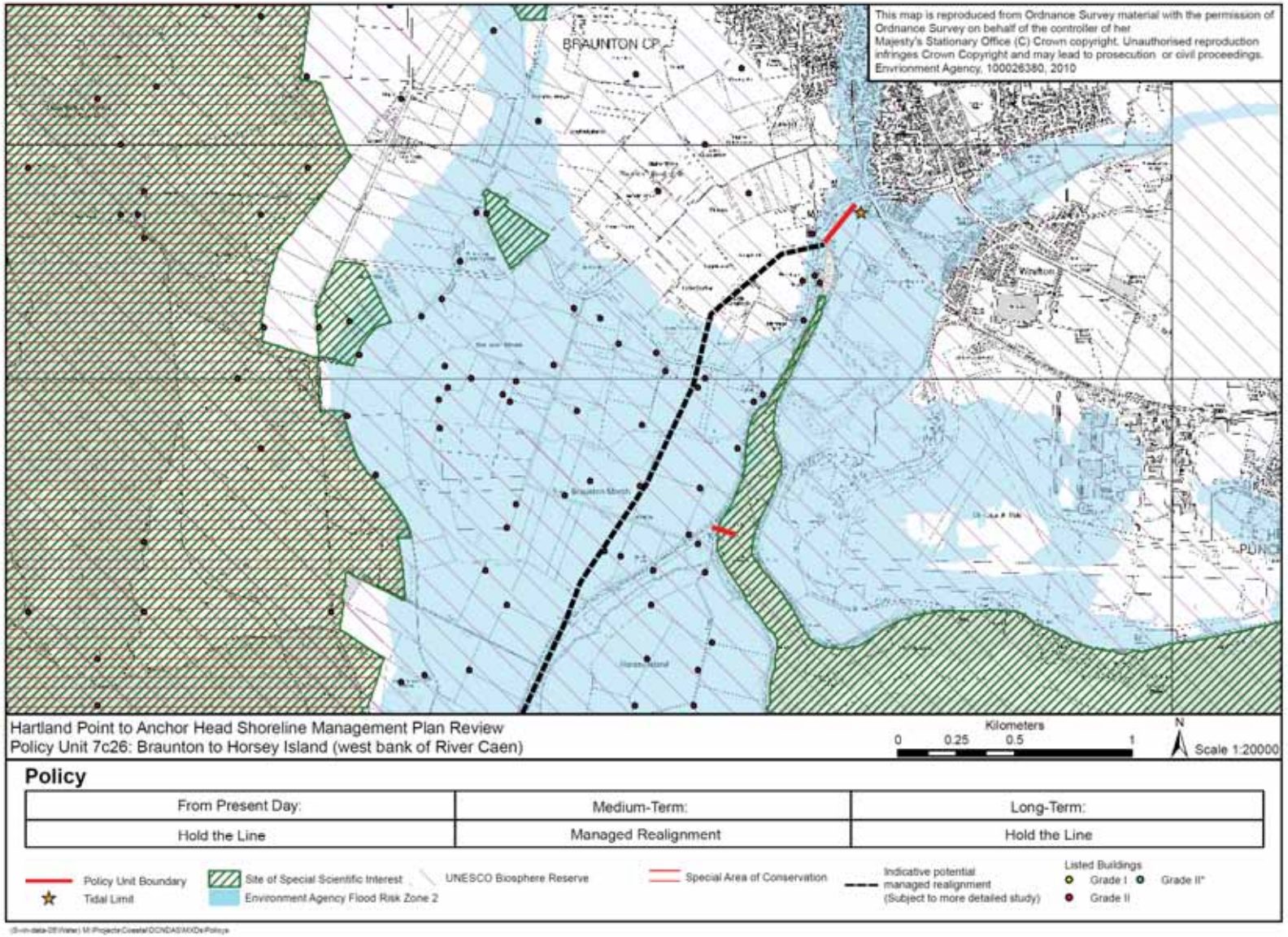

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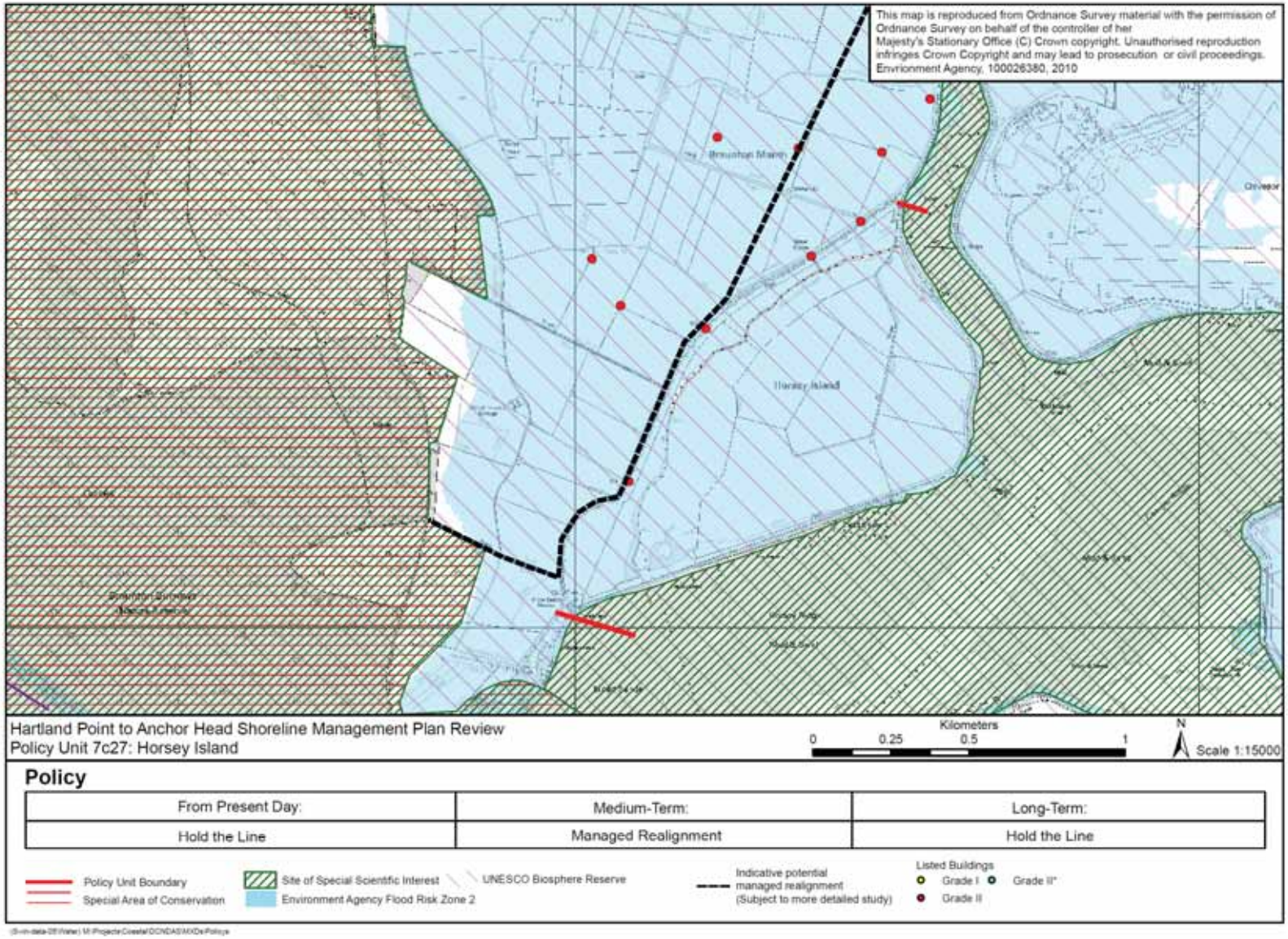

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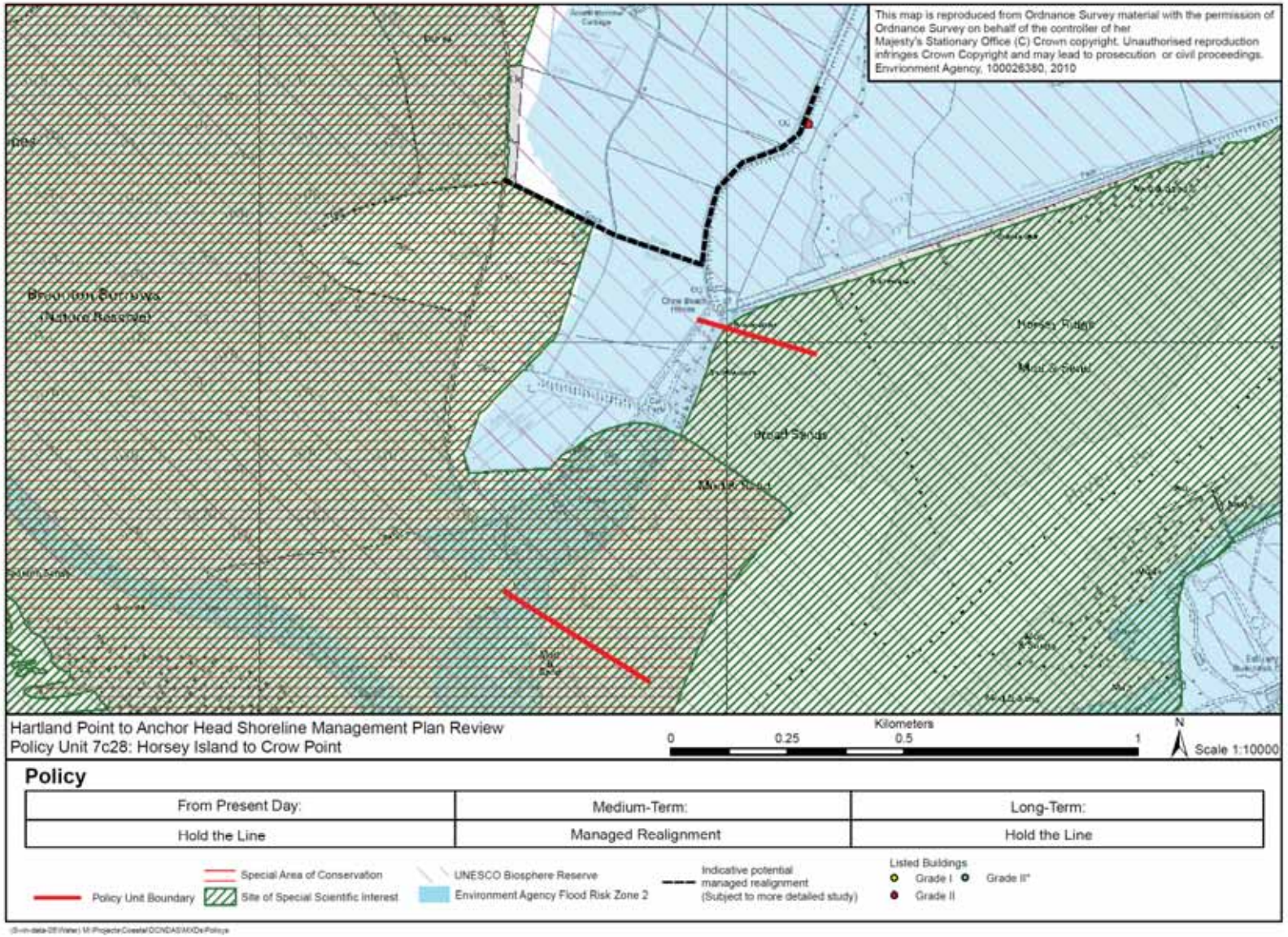

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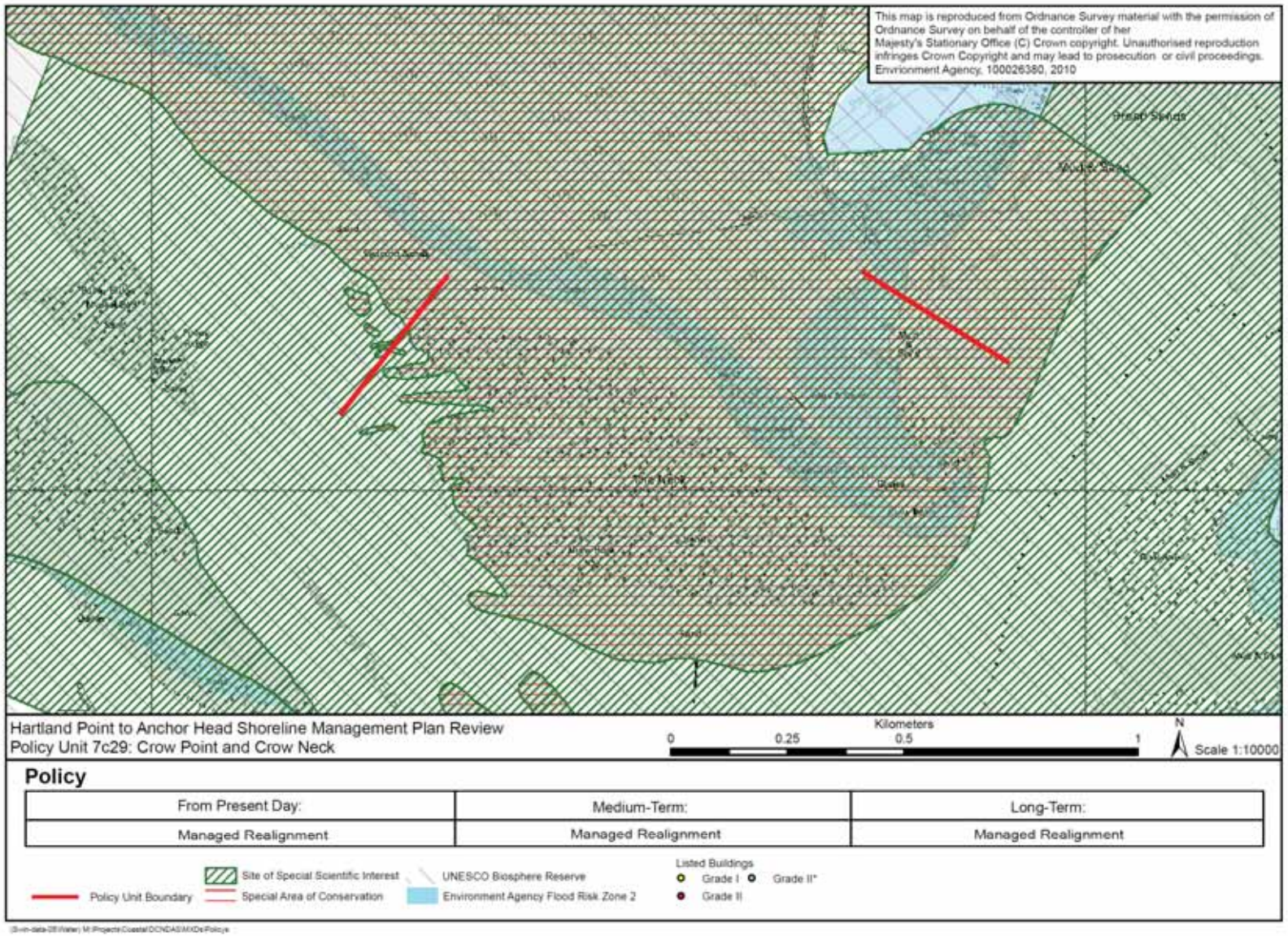

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Location reference:	**Braunton Burrows and Saunton Down**
Policy unit reference:	**7c30 and 7c31**

Summary of preferred plan recommendations and justification

Plan:

The long term plan is to promote a naturally-functioning coastline with the associated environmental and landscape benefits. Braunton Burrows dunes are expected to continue to provide a robust natural defence for the low-lying areas located behind the Burrows and as such no intervention is expected to be required. There could though be some risk to a number of non-designated archaeological features, depending upon extent of any future erosion along this stretch.

While the retention of defences at Saunton would not have any wider coastal processes implications, future provision of defence here is unlikely to attract public funds from the flood and coastal defence budget so any future defence provision would also depend on availability of alternative funds. If the coastal defence structures are not maintained, there would be an increased risk of flood and erosion to properties and tourism infrastructure at Saunton.

Preferred policies to implement plan:

From present day (short term):	The policy is to allow this predominantly undefended coast to continue to evolve naturally in order to conserve its internationally-designated features, through **no active intervention**. The existing short lengths of defences at the northern end of this section that protect a small number properties and other assets at Saunton against flood and erosion risk are likely to remain for much of this period. These are not thought to be having a detrimental impact on coastal dynamics.
Medium term:	The continued policy of **no active intervention** will allow this predominantly undefended coast to continue to evolve naturally. If not maintained, defences at Saunton are likely to fail during this period, with a resultant increase in erosion risk to local properties. The existing defences are not thought to have a detrimental impact on local processes, nor significantly affect the long term vision for this section of coast, therefore if alternative funds were available, maintenance of these short lengths of defences would be considered technically sustainable.
Longer term:	The long term policy for the continuation of **no active intervention**, which will allow this predominantly undefended coast to continue to evolve naturally. This plan will maintain the designated environmental features and the current value of the North Devon Area of Outstanding Natural Beauty and heritage coast. At Saunton, public funds are unlikely to be available for retaining defences; therefore the continued provision of protection along this frontage will depend upon decisions made in the short or medium term and the availability of alternative funding.

The above provides the local details in respect of the SMP-wide policy presented in the preceding sections of this Plan document. These details must be read in the context of the wider-scale issues and policy implications, as reported therein.

Summary of specific policies

Policy unit		Preferred policies		
		Short term	Medium term	Long term
7c30	**Braunton Burrows**	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.
7c31	**Saunton Down**	Continue to allow existing localised defences to be maintained or replaced if alternative funding is available to reduce the risk of flooding and erosion and maintain visitor access. If alternative funds are not available, then allow natural coastal evolution to continue through **no active intervention**.	Continue to allow existing localised defences to be maintained or replaced if alternative funding is available to reduce the risk of flooding and erosion and maintain visitor access. If alternative funds are not available, then allow natural coastal evolution to continue through **no active intervention**.	Continue to allow existing localised defences to be maintained or replaced if alternative funding is available to reduce the risk of flooding and erosion and maintain visitor access. If alternative funds are not available, then allow natural coastal evolution to continue through **no active intervention**.

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Location reference:	Braunton Burrows and Saunton Down
Policy unit reference:	7c30 and 7c31

Implications of the preferred plan for this location

Time period	Management activities	Human Health, Property and Population	Land use, infrastructure and material assets	Historic Environment	Landscape character and Visual Amenity	Geology and Soils	Water	Biodiversity, flora and fauna
2005 to 2025	There are no management activities planned for this section of coast.	No known impact to property or Populations.	No known impact to Land Use, Infrastructure and Material Assets.	No known impact to Historic Environment	Minor changes in landscape within AONB Heritage Coast and Coastal Preservation Area due to increased erosion and flooding.	The beach at Saunton Sands will see a reduction in extent due to erosion.	No known impact on Water.	Natural processes will continue to develop the Braunton Burrows SAC, SSSI and UNESCO Biosphere Reserve Status' dune formations. However, the site may be impacted by defence decisions at Northam Burrows. Any future management decision is dependent of more detailed study in the short term to reduce the uncertainty Therefore this policy is considered further within the Habitats Regulations Assessment (Appendix J) If a policy is taken forward that may impact on the SAC, then a Habitats Regulations assessment would be required.
2025 to 2055	There are no management activities planned for this section of coast.	No known impact to property or Populations.	No known impact to Land Use, Infrastructure and Material Assets.	No known impact to Historic Environment	Minor changes in landscape within AONB Heritage Coast and Coastal Preservation Area due to increased erosion and flooding due to natural processes. If no private funding for defences there is potential for deteriorating coastal defence structures to become unsightly within AONB Heritage Coast and Coastal Preservation Area. If defences are privately funded larger defences or more structures may be required to maintain an acceptable standard of flood and erosion protection in some areas, thus potentially resulting in a change of views and a change in landscape character.	As above.	No known impact on Water.	As above.
2055 to 2105	There are no management activities planned for this section of coast.	No known impact to property or Populations.	No known impact to Land Use, Infrastructure and Material Assets. However, there are potential losses to tourism infrastructure and	No known impact to Historic Environment	Minor changes in landscape within AONB, Heritage Coast and Coastal Preservation Area due to increased erosion and flooding.	As above.	No known impact on Water.	As above.

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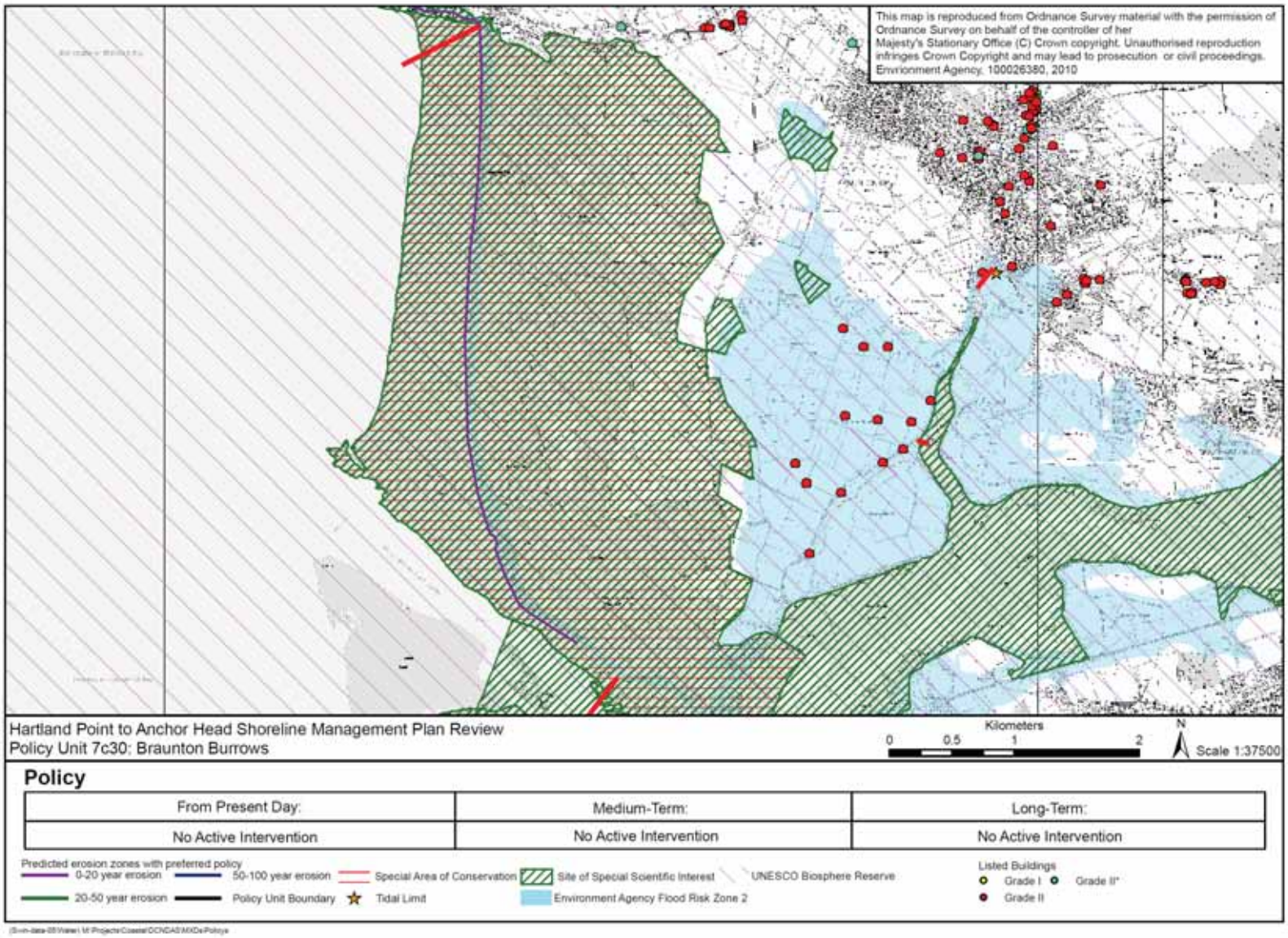
Location reference:	Braunton Burrows and Saunton Down							
Policy unit reference:	7c30 and 7c31							
Implications of the preferred plan for this location								
Time period	**Management activities**	**Human Health, Property and Population**	**Land use, infrastructure and material assets**	**Historic Environment**	**Landscape character and Visual Amenity**	**Geology and Soils**	**Water**	**Biodiversity, flora and fauna**
			access.		Potential for deteriorating coastal defence structures to become unsightly within AONB, Heritage Coast and Coastal Preservation Area. Larger defences or more structures may be required to maintain an acceptable standard of flood and erosion protection in some areas, thus potentially resulting in a change of views and a change in landscape character.			



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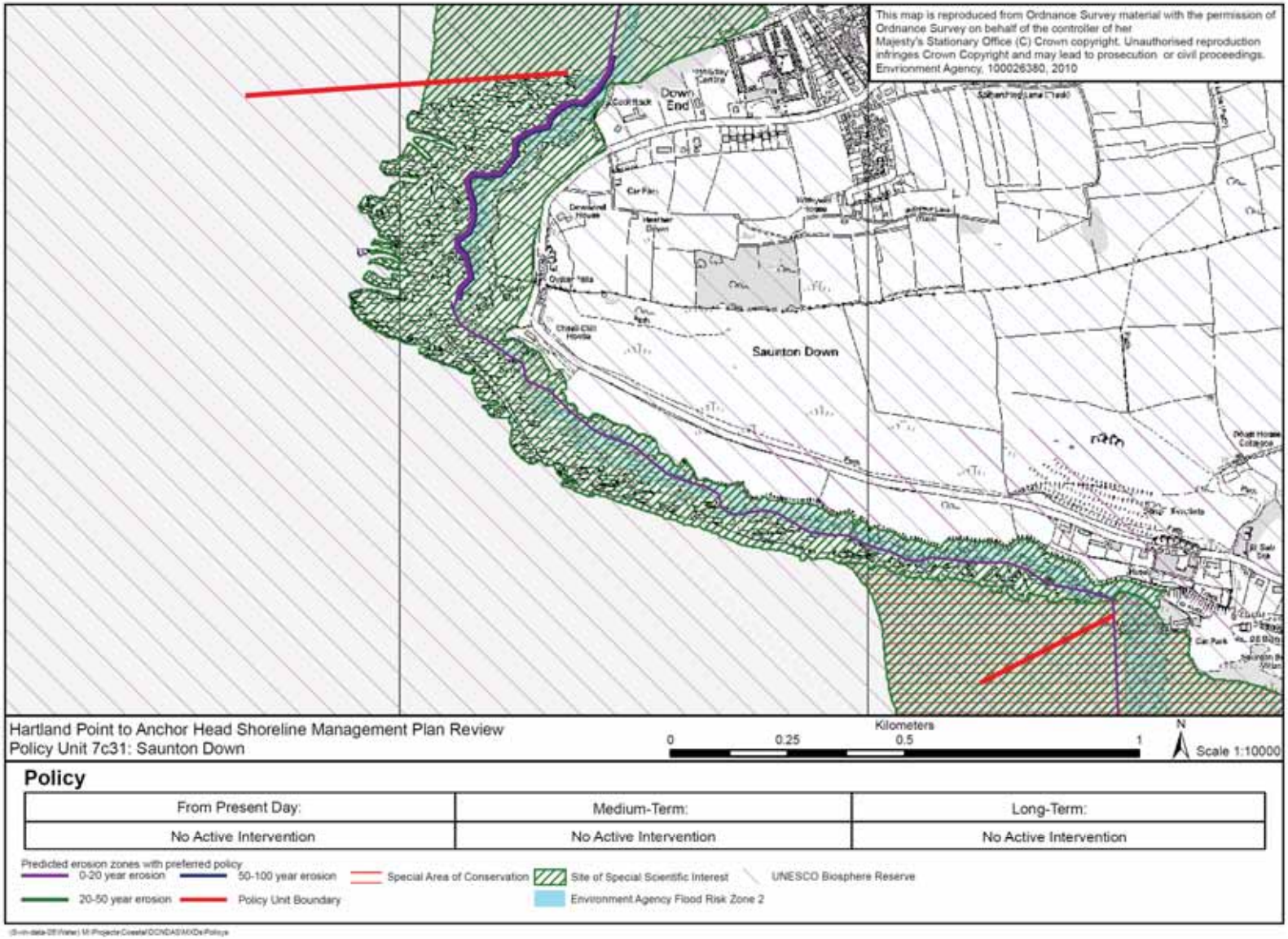

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Location reference:	**Croyde Bay**
Policy Unit reference:	**7c32 to 7c34**

Summary of preferred plan recommendations and justification

Plan:

The long term plan for this area of largely undefended coast, which encompasses the largely self-contained embayment of Croyde Bay, is to continue to allow the coast to evolve naturally. This will have environmental benefits through allowing continued erosion to maintain important geological exposures, and will conserve the important landscape character of the area. There could be a risk of erosion to a number of non-designated archaeological features, depending upon extent of any future erosion that may occur.

There are currently short stretches of private defences which protect a few properties, and while retention of these is unlikely to attract public funding, continued protection at these locations is unlikely to be detrimental to the long term evolution of this coastline.

Preferred policies to implement plan:

From present day (short term):	The policy from the present day is to allow natural processes to take place, i.e. allow coastal retreat, through a policy of **no active intervention**. Localised management activities are currently undertaken within Croyde Bay dunes to address erosion caused by recreation, and this could continue under this policy. At the northern end of Croyde Bay there are short lengths of defence which provide protection to a few properties. These are likely to remain during much of this period if maintained, but it is unlikely that maintenance would attract public funding so alternative funds would be required.
Medium term:	**No active intervention** is planned, which assumes that local-scale, low-key dune management activities would continue to address issues associated with recreation. The defences at the northern end of Croyde Bay would be at risk from failure during this period. Improvement would rely on alternative funding but would not be detrimental to the long term plan, as replacement with defences similar to those currently present will not have a significant impact on the coastal dynamics. Should the defences not be retained there would be increased risk of flooding and erosion to a few properties.
Longer term:	In the long term the recommended policy is for continuation of no active intervention, although low-key dune management within Croyde Bay dunes would be allowed. There are no assets at risk along much of the frontage and this policy will maintain the value of the North Devon Area of Outstanding Natural Beauty and heritage coast and support the North Devon UNESCO Biosphere Reserve natural processes, while allowing coastal erosion to continue, thereby maintaining nationally important geological exposures. At the northern end of Croyde Bay retention of defences will rely on decisions made during the short and medium terms and the availability of funding.

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Summary of specific policies

Policy unit		Preferred policies		
		Short term	**Medium term**	**Long term**
7c32	**Croyde Sands**	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.
7c33	**Middleborough Hill (Croyde Bay north)**	Continue to allow existing localised defences to be maintained or replaced if alternative funding is available to reduce the risk of erosion. If alternative funds are not available, then allow natural coastal evolution to continue through **no active intervention**.	Continue to allow existing localised defences to be maintained or replaced if alternative funding is available to reduce the risk of erosion. If alternative funds are not available, then allow natural coastal evolution to continue through **no active intervention**.	Continue to allow existing localised defences to be maintained or replaced if alternative funding is available to reduce the risk of erosion. If alternative funds are not available, then allow natural coastal evolution to continue through **no active intervention**.
7c34	**Middleborough Hill (Croyde Bay north) to Baggy Point**	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.

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Location reference:	Croyde Bay
Policy unit reference:	7c32 to 7c34

Implications of the preferred plan for this location

Time period	Management activities	Human Health, Property and Population	Land use, infrastructure and material assets	Historic Environment	Landscape character and Visual Amenity	Geology and Soils	Water	Biodiversity, flora and fauna
2005 to 2025	There are no management activities planned for this section of coast.	Loss of some properties north of Croyde.	Roads, amenities and infrastructure are at risk from fluvial flooding at Croyde Village. The B3231, minor roads and footpaths on Middleborough Hill are at risk from erosion. No reduction in beach width or loss of cafes, camping parks. Tourist infrastructure and amenities at risk from flooding at Croyde. Damage to these assets will impact on the tourism industry	No known impact on Historic Environment.	Minor changes in landscape within AONB Heritage Coast and Coastal Preservation Area due to increased erosion and flooding.	Continuation of natural processes is key to the integrity of Saunton to Baggy Point Coast SSSI., This scenario (NAI) will continue to maintain these geological features	No known impact on Water.	Continuation of natural processes is key to the integrity of Saunton to Baggy Point Coast SSSI., This scenario (NAI) will continue to maintain these geological features No known impact on Biodiversity, Flora and Fauna.
2025 to 2055	There are no management activities planned for this section of coast.	Loss of some properties north of Croyde.	Roads, amenities and infrastructure are at risk from fluvial flooding at Croyde Village. The B3231, minor roads and footpaths on Middleborough Hill are at risk from erosion. No reduction in beach width or loss of cafes, camping parks. Tourist infrastructure and amenities at risk from flooding at Croyde. Damage to these assets will impact on the tourism industry	No known impact on Historic Environment.	Minor changes in landscape within AONB Heritage Coast and Coastal Preservation Area due to increased erosion and flooding. If defences are not privately funded there is potential for deteriorating coastal defence structures to become unsightly within AONB Heritage Coast and Coastal Preservation Area. If defences are privately funded, larger or more structures may be required to maintain an acceptable standard of flood and erosion protection in some areas, thus potentially resulting in a change of views and a change in landscape character.	As above.	No known impact on Water.	No known impact on Biodiversity, Flora and Fauna.
2055 to 2105	There are no management activities planned for this section of coast.	Loss of some properties north of Croyde.	Roads, amenities and infrastructure are at risk from fluvial flooding at Croyde Village. The B3231, minor roads and footpaths on Middleborough Hill are at risk from erosion. Reduction in beach width and potential or loss of cafes, camping parks.	No known impact on Historic Environment.	Minor changes in landscape within AONB Heritage Coast and Coastal Preservation Area due to increased erosion and flooding. If defences are not privately funded there is potential for deteriorating coastal defence structures to become unsightly within AONB Heritage Coast and Coastal Preservation Area.	As above.	No known impact on Water.	No known impact on Biodiversity, Flora and Fauna.

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Location reference:	Croyde Bay
Policy unit reference:	7c32 to 7c34

Implications of the preferred plan for this location

Time period	Management activities	Human Health, Property and Population	Land use, infrastructure and material assets	Historic Environment	Landscape character and Visual Amenity	Geology and Soils	Water	Biodiversity, flora and fauna
			Tourist infrastructure and amenities at risk from flooding at Croyde. Damage to these assets will impact on the tourism industry		If defences are privately funded, larger or more structures may be required to maintain an acceptable standard of flood and erosion protection in some areas, thus potentially resulting in a change of views and a change in landscape character.			

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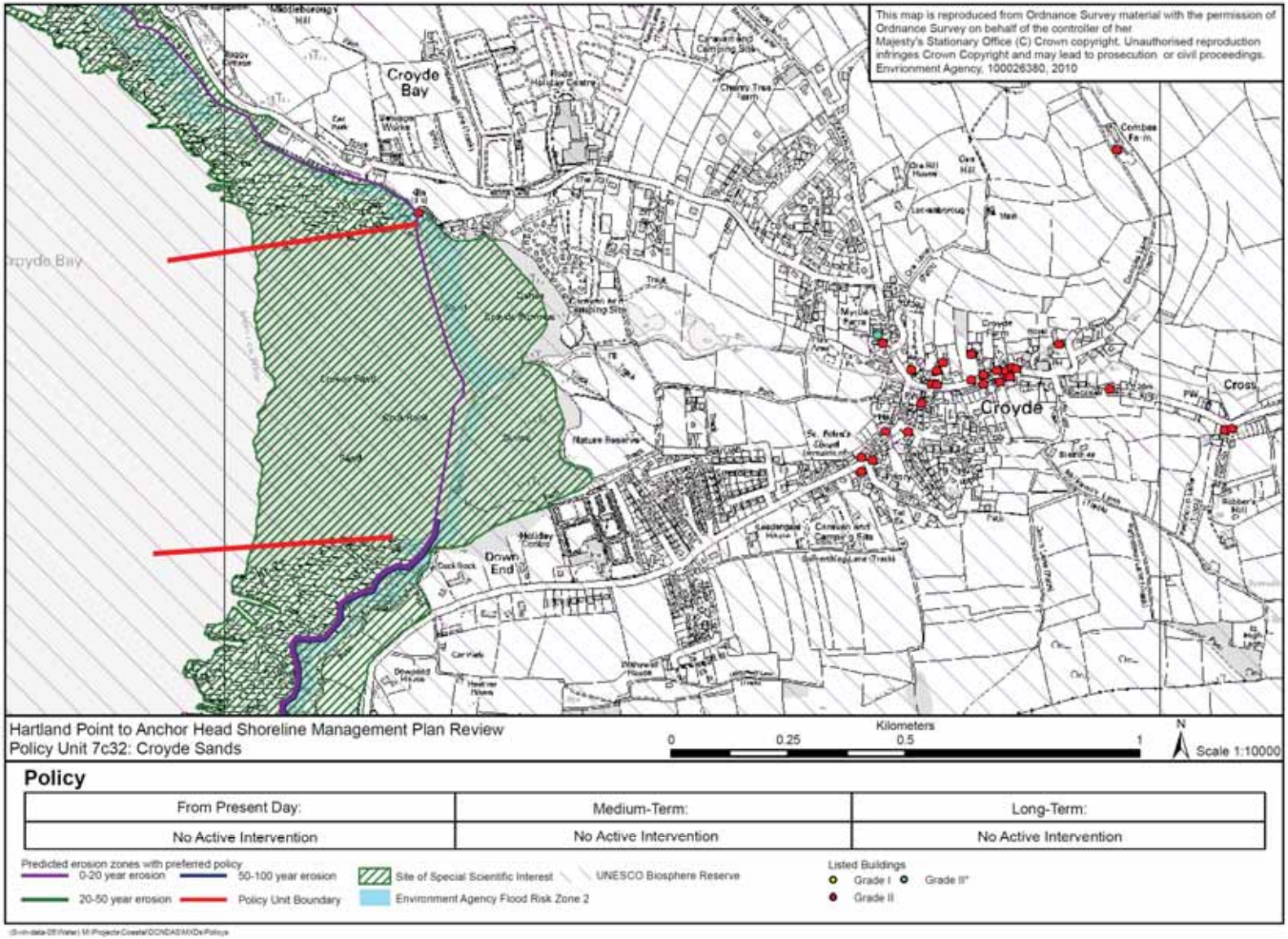

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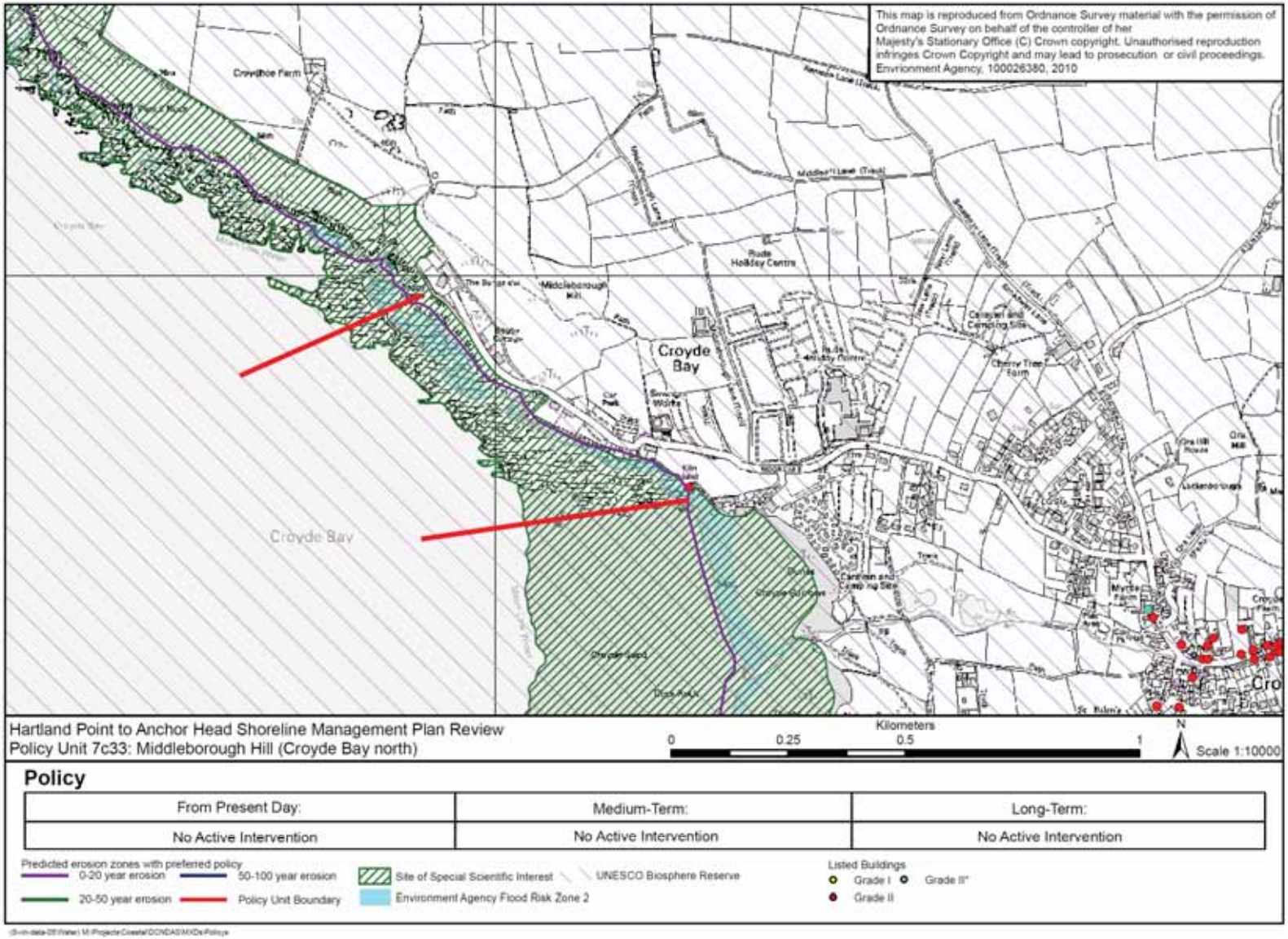

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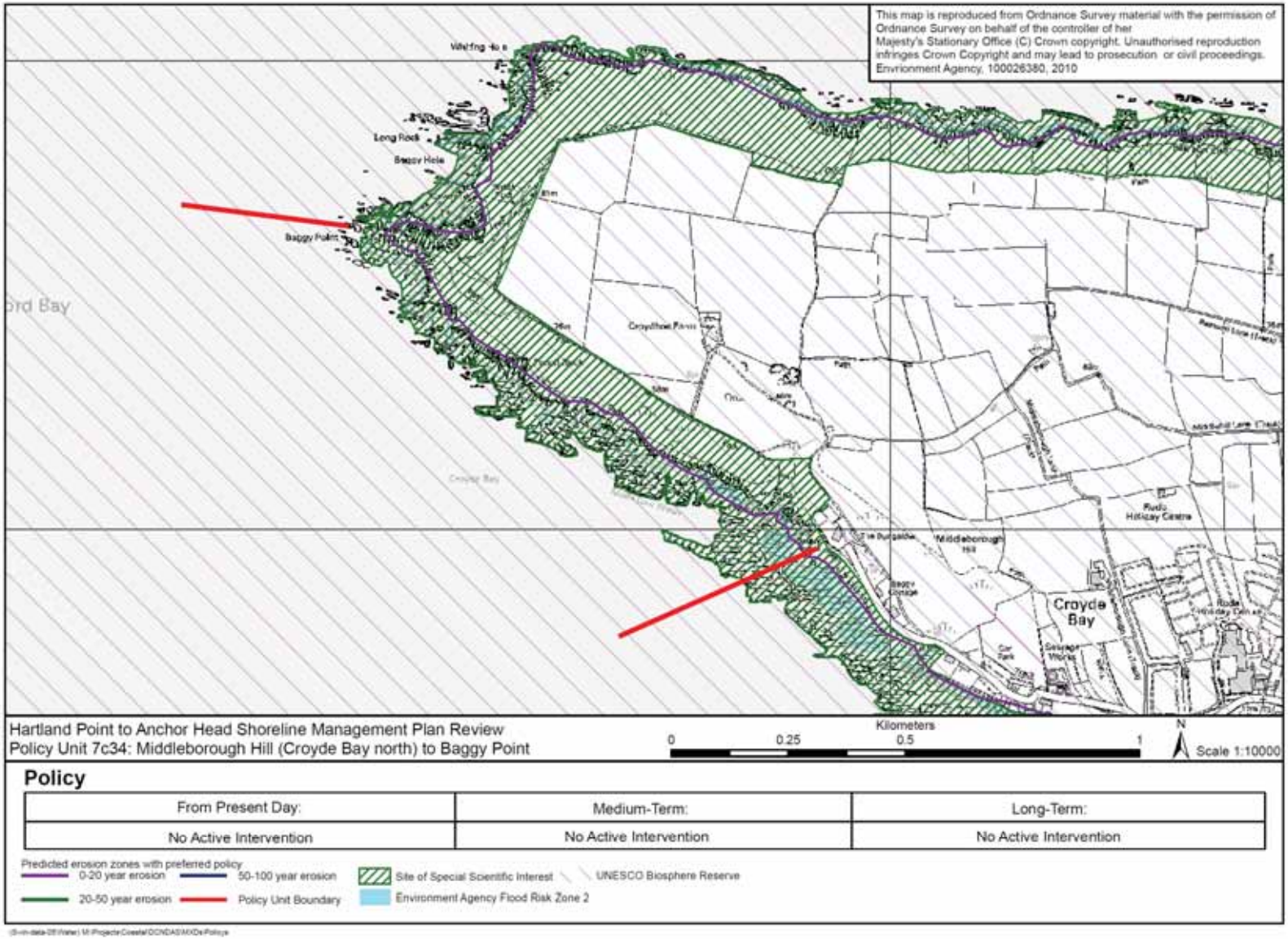

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Location reference:	**Woolacombe Bay**
Policy unit reference:	**7c35 to 7c39**

Summary of preferred plan recommendations and justification

Plan:

The long term plan for this area of largely undefended coast, which encompasses the largely self-contained embayment of Woolacombe Bay, is to continue to allow the coast to evolve naturally, with minimal human interference. This will have environmental benefits through allowing continued erosion of important geological exposures and will also conserve the important landscape character of the area. This plan may result in the loss of a number of cliff-top assets, such as the caravan park at Vention, sections of the South West Coast Path and a number of non-designated archaeological features. The car park at Woolacombe Beach could also be impacted in the long term and adaptation of the coast to accommodate future coastal change whilst retaining tourist assets in this area is likely to be required.

There are currently short stretches of private defences at Vention which protect a few properties, and while retention of these is unlikely to attract public funding, continued protection of these locations is unlikely to be detrimental to the long term plan for this coastline.

Preferred policies to implement plan:

From present day (short term):	In the short term the policy is to allow the natural evolution of this undefended section of coast through **no active intervention**. Under this policy it is assumed that localised dune management would still be undertaken, as necessary, to address issues relating to damage resulting from recreational pressures. The short lengths of defence at the southern end of Woolacombe Bay provide local protection against flood and erosion risk to people, property and infrastructure at Vention. Maintenance of these defences would not attract public funds from the flood and coastal defence budget but if alternative funds were available, this maintenance would not be considered detrimental to the overall plan. Some of these defences may start to fail which would increase the risk of erosion to local properties. Construction of new defences such as groynes or other shoreline control structures would interrupt sediment transport and affect other parts of Woolacombe Bay, so would not be supported by the plan. At the northern end of this frontage it may be necessary to introduce localised defences to protect highway and car park infrastructure if they become threatened by erosion and cannot be relocated inland. It is unlikely that this would attract public (flood and coastal defence budget) funds so alternative funds would be required. It will also be necessary before undertaking any defence works to demonstrate that they do not have an adverse impact upon other parts of Woolacombe Bay.
Medium term:	A **no active intervention** policy will be implemented to allow the natural evolution of this coastline. It is assumed, however, that local-scale, low key dune management activities would continue as necessary to address issues associated with recreation. Many of the defences at the southern end of the Bay would be at risk from failure during this period and require replacement. This would rely on alternative funding. Any plans for new structures would therefore also require and environmental impact assessment. If defences are not retained there would be localised increased risk to a few properties and beach access. To the north of this frontage, localised defences to protect highway and car

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	park infrastructure may be required if this issue has not been addressed in the shorter term. The same conditions on funding and further assessment of impacts would remain.
Longer term:	No change in policy from **no active intervention** is proposed, accepting this allows for localised dune management within the dunes. There are no assets at risk along much of the frontage and this policy will maintain the value of the North Devon Area of Outstanding Natural Beauty and heritage coast, while allowing coastal erosion to continue, maintaining nationally important geological exposures. There may be potential impacts on a number of non-designated archaeological features. At the southern and northern ends of the bay, retention of defences will rely on decisions made during the short and medium terms and the availability of funding.

Summary of specific policies

Policy unit		Preferred policies		
		Short term	**Medium term**	**Long term**
7c35	**Baggy Point to Napps Cliff (Putsborough)**	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.
7c36	**Putsborough Sands and Vention**	Continue to allow existing localised defences to be maintained or replaced if alternative funding is available to reduce the risk of erosion. If alternative funds are not available, then allow natural coastal evolution to continue through **no active intervention**.	Continue to allow existing localised defences to be maintained or replaced if alternative funding is available to reduce the risk of erosion. If alternative funds are not available, then allow natural coastal evolution to continue through **no active intervention**.	Continue to allow existing localised defences to be maintained or replaced if alternative funding is available to reduce the risk of erosion. If alternative funds are not available, then allow natural coastal evolution to continue through **no active intervention**.
7c37	**Vention to Woolacombe Beach (Woolacombe Sands)**	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.
7c38	**Woolacombe Beach**	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.
7c39	**Woolacombe to Morte Point**	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.

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Location reference:	Woolacombe Bay
Policy unit reference:	7c34 to 7c38

Implications of the preferred plan for this location

Time period	Management activities	Human Health, Property and Population	Land use, infrastructure and material assets	Historic Environment	Landscape character and Visual Amenity	Geology and Soils	Water	Biodiversity, flora and fauna
2005 to 2025	There are no management activities planned for this section of coast.	Residential properties are at risk from fluvial flooding at Woolacombe.	Roads, amenities and infrastructure are at risk from fluvial flooding at Woolacombe. No reduction in beach width or loss of cafes, camping parks. Tourist infrastructure and amenities are at risk from flooding at Woolacombe. Damage to these assets will impact on the tourism industry. Small areas of Grade 3 agricultural land and above are at risk from flooding.	Sections of the Conservation Area at Woolacombe are at risk from flooding. No other known impact on Historic Environment i.e. Listed Buildings or Scheduled Monuments.	Minor changes in landscape within AONB Heritage Coast and Coastal Preservation Area due to increased erosion and flooding.	Continuation of natural processes is key to the integrity of Barricane beach SSSI and Mill Rock SSSI, This scenario (NAI) will continue to maintain these geological features. There will be a partial dune loss at Woolacombe Bay due to erosion.	No known impact on Water.	No changes in Heath and coastal cliffs of the Morte Point SSSI and No changes in designated habitats of Middleborough Hill and Woolacombe Down CWS due to erosion.
2025 to 2055	There are no management activities planned for this section of coast.	Residential properties are at risk from fluvial flooding at Woolacombe.	Roads, amenities and infrastructure are at risk from fluvial flooding at Woolacombe. No reduction in beach width or loss of cafes, camping parks. Tourist infrastructure and amenities are at risk from flooding at Woolacombe. Damage to these assets will impact on the tourism industry. Small areas of Grade 3 agricultural land and above are at risk from flooding.	As above.	Minor changes in landscape within AONB Heritage Coast and Coastal Preservation Area due to increased erosion and flooding. Potential for deteriorating coastal defence structures to become unsightly within AONB Heritage Coast and Coastal Preservation Area. Larger defences or more structures may be required to maintain an acceptable standard of flood and erosion protection in some areas, thus potentially resulting in a change of views and a change in landscape character.	As above.	No known impact on Water.	As above.
2055 to 2105	There are no management activities planned for this section of coast.	Residential properties are at risk from fluvial flooding at Woolacombe.	Roads, amenities and infrastructure are at risk from fluvial flooding at Woolacombe. Tourist infrastructure and amenities at risk from flooding at Woolacombe. Loss of the caravan park at Putsborough Sands, Slipway, and sections of the South West Coastal Path due to	As above.	Minor changes in landscape within AONB Heritage Coast and Coastal Preservation Area due to increased erosion and flooding. Potential for deteriorating coastal defence structures to become unsightly within AONB Heritage Coast and Coastal Preservation Area. Larger defences or more structures may be required to	As above.	No known impact on Water.	As above.

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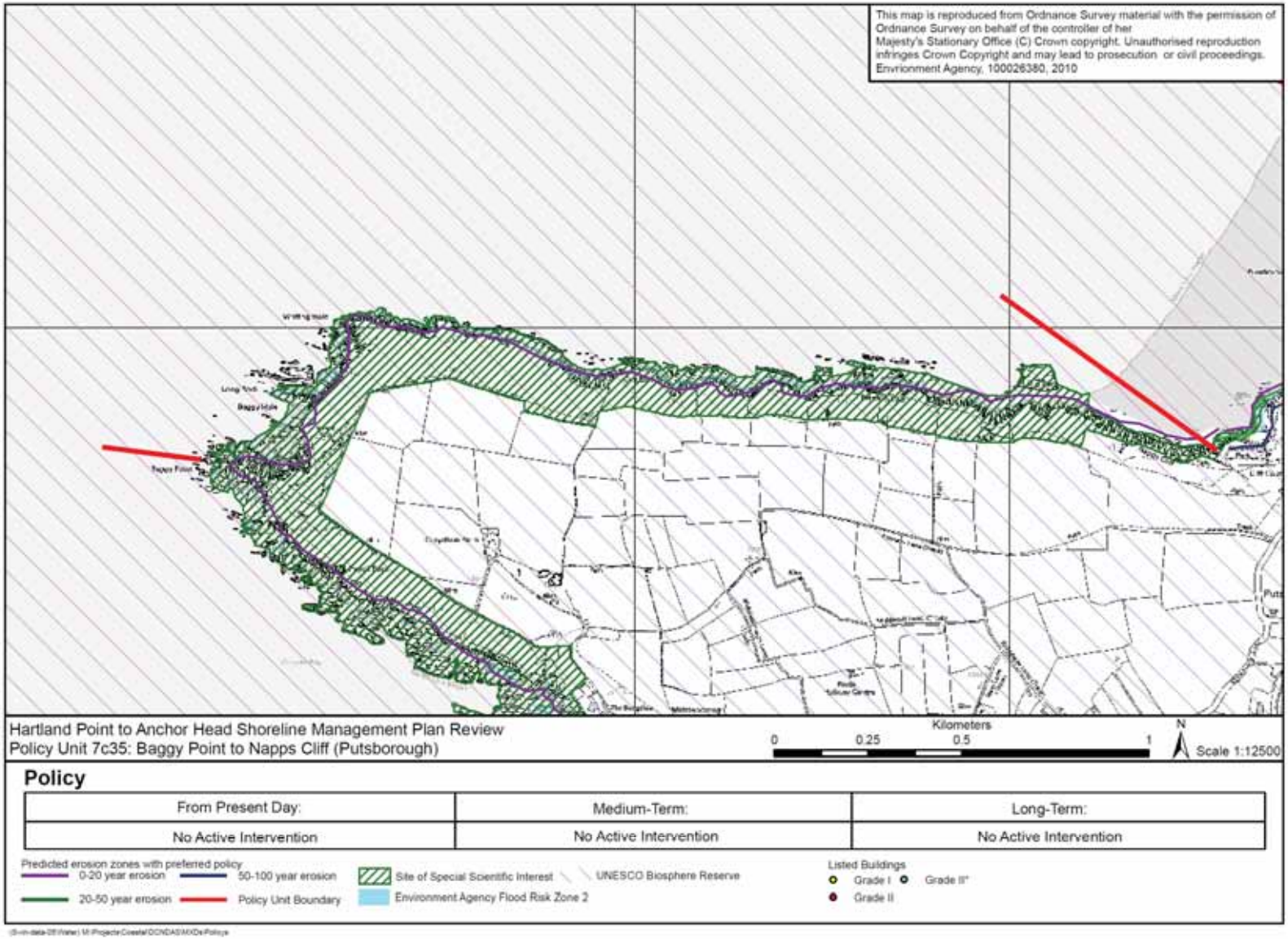
Location reference:	Woolacombe Bay							
Policy unit reference:	7c34 to 7c38							
Implications of the preferred plan for this location								
Time period	**Management activities**	**Human Health, Property and Population**	**Land use, infrastructure and material assets**	**Historic Environment**	**Landscape character and Visual Amenity**	**Geology and Soils**	**Water**	**Biodiversity, flora and fauna**
			erosion. There is also a reduction in beach width at Rockham Bay, Putsborough Woolacombe and Barricane Bay due to erosion. The loss of these assets will impact on the tourist industry. Small areas of Grade 3 agricultural land and above are at risk from flooding.		maintain an acceptable standard of flood and erosion protection in some areas, thus potentially resulting in a change of views and a change in landscape character.			



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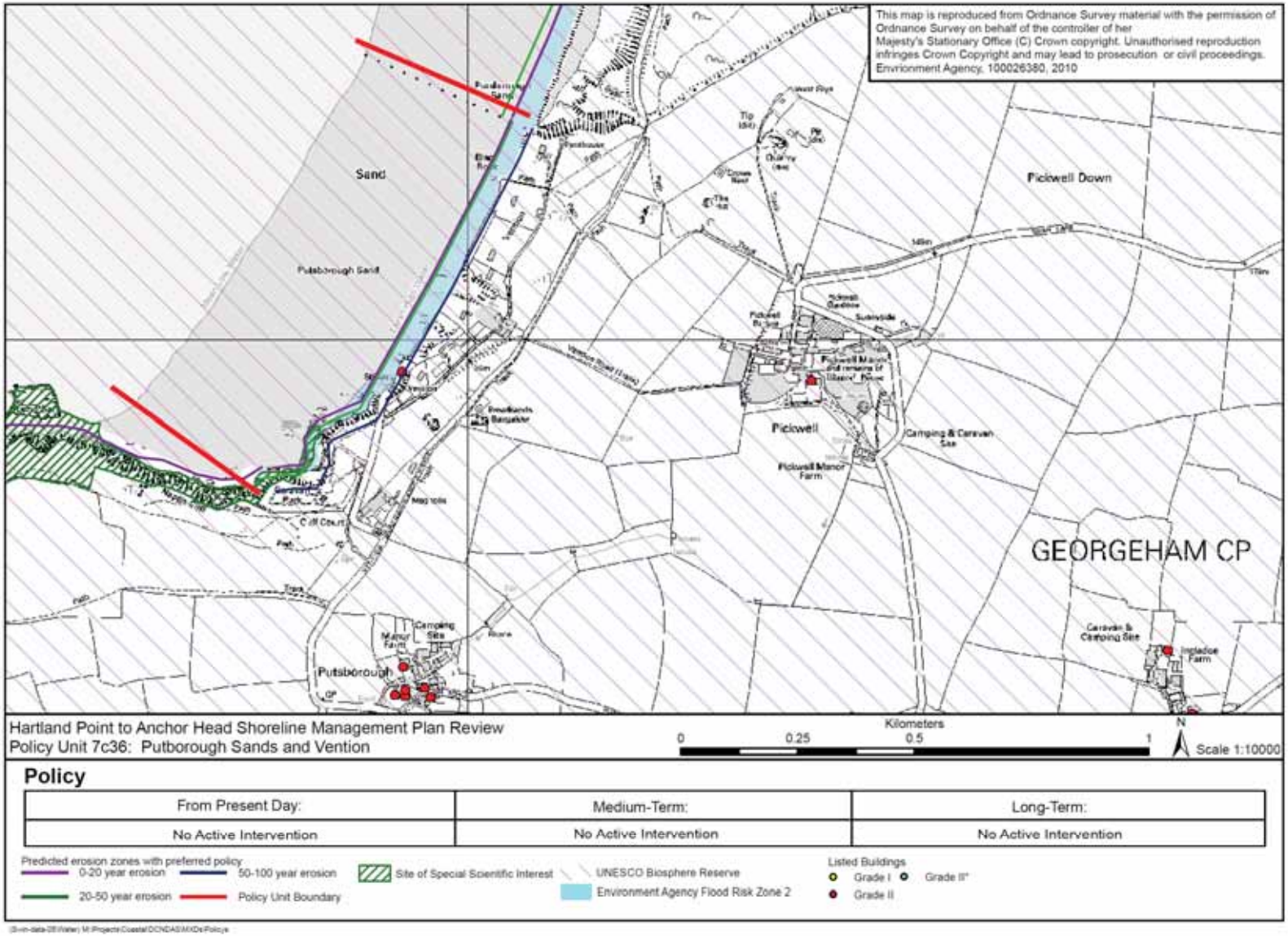

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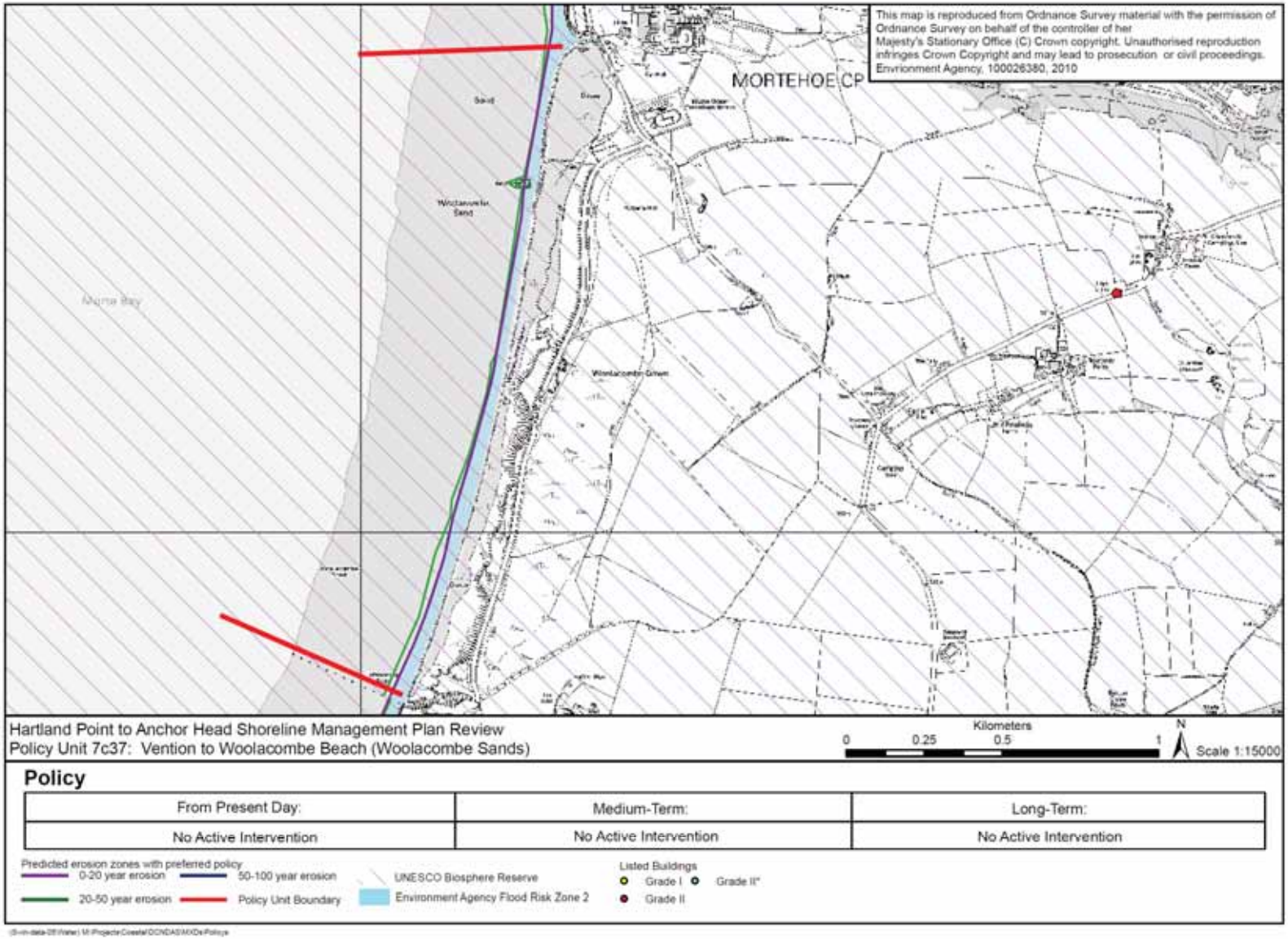

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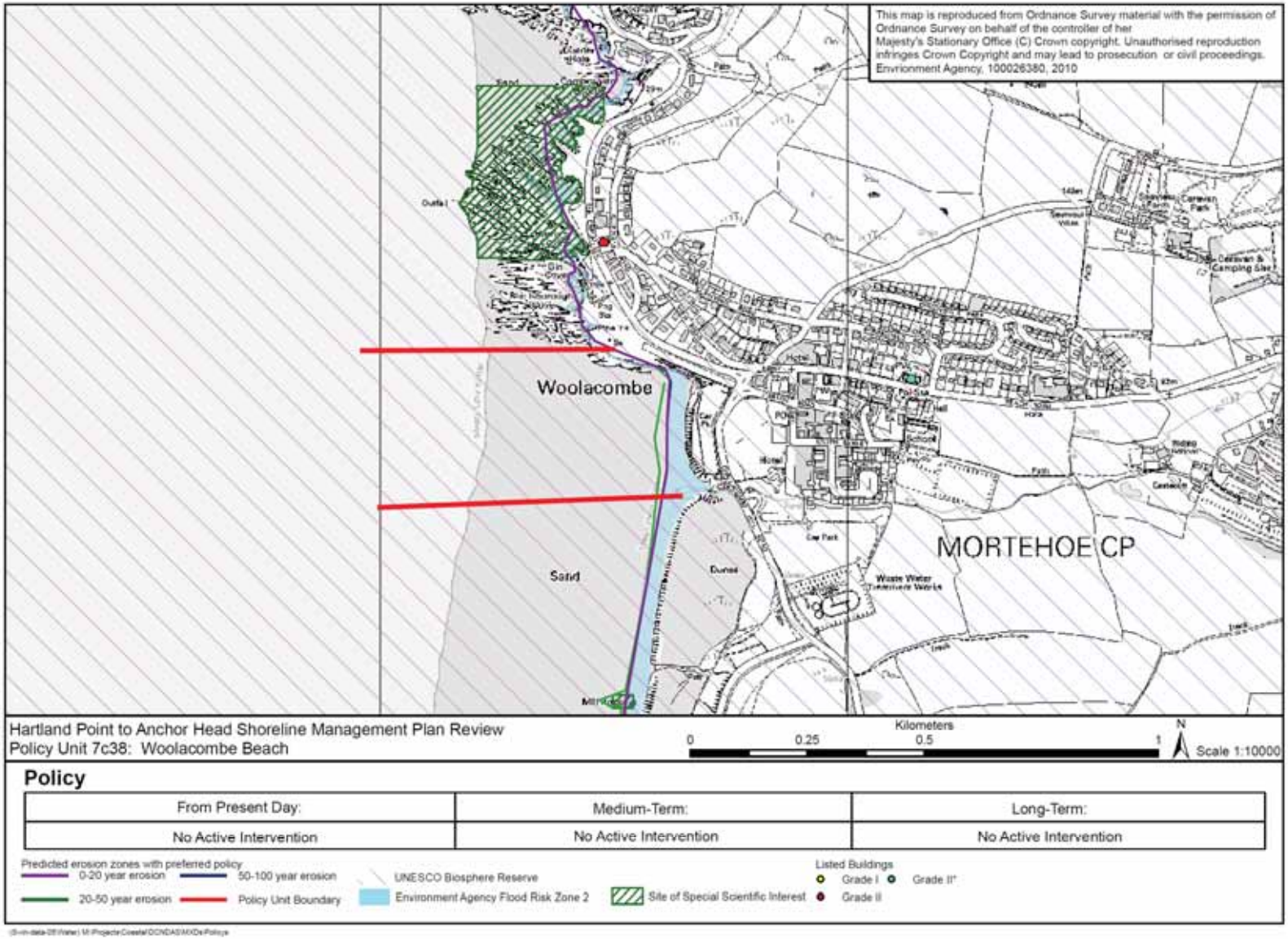

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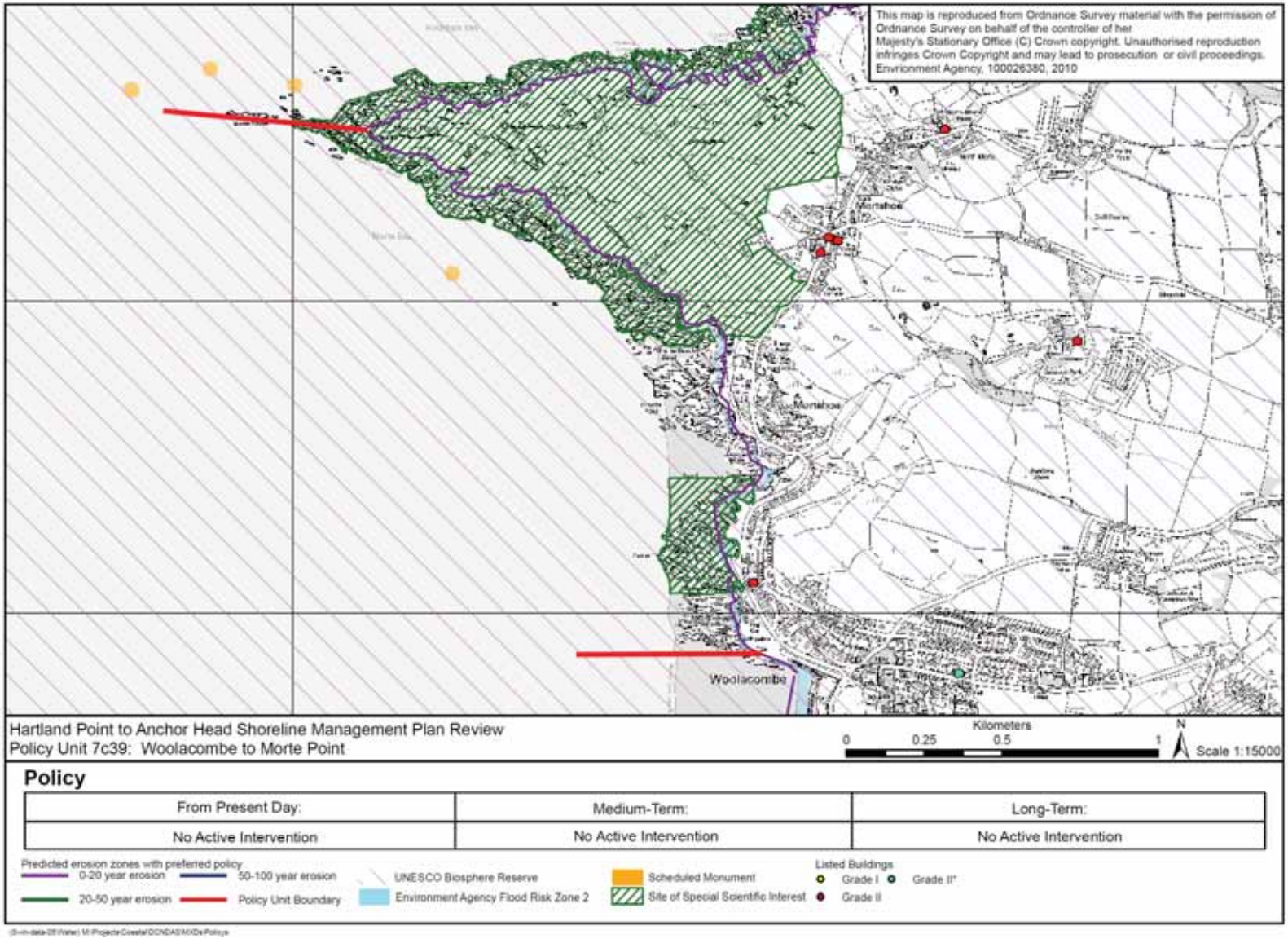

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Location reference:	**Morte Point to Foreland Point**
Policy unit reference:	**7d01 to 7d13**

Summary of preferred plan recommendations and justification

Plan:

The long term plan for this section of largely undefended coast, which in part extends across the Exmoor National Park frontage, is to continue to allow it to evolve naturally, as much as possible, thus conserving the important landscape character of the area.

It recognised that there is a need to continue to provide protection to some discrete locations where defences already exist and it is likely to be economically viable to retain them. This is not considered detrimental to the large-scale plan for this coastline, as sediment linkages along this frontage are limited and evolution of the shoreline is predominately geologically controlled. At Ilfracombe, where there are plans to re-develop the harbour area, future defence provision could be incorporated into proposals to alter the harbour configuration.

Through this plan, there will be continued protection of homes, local amenities and tourism infrastructure from the risk flooding and erosion while the currently undefended coast will retain its landscape character as recognised by its various designations as an Area of Outstanding Natural Beauty, heritage coast and National Park. There may be loss of beaches where they are prevented from moving landwards as sea levels rise due to hard defences structures or naturally rising ground. There may also be the loss of a number of Scheduled Monuments, Listed Buildings, non-designated archaeological features, and parts of the South West Coast Path.

Along some stretches of coast, such as Lee Bay (located between Combe Martin and Lynmouth) and Watermouth Slipway, defences only protect a few assets and future provision of these is unlikely to attract public funds from the flood and coastal defence budget. However, should alternative funding be available, retention of these would not adversely affect coastal processes in a wider area and therefore not be in conflict with the long term plan for this coast.

Preferred policies to implement plan:

From present day (short term):	The plan is to continue to protect key socio-economic assets along this coastline, through a policy of **hold the line** at Lee, Ilfracombe, Hele Beach, Combe Martin and Lynmouth. This will involve maintenance of existing defences. At Ilfracombe, proposals currently include reconfiguration of the harbour breakwaters as well as a small amount of reclamation. As long as this does not affect shoreline dynamics, it is not likely to be in conflict with the proposed policy. Along the rest of the coast, the policy is to allow natural coastal to continue through a policy of **no active intervention**. Along the section between Combe Martin and Lynmouth there are currently localised defences which provide protection to a few properties and other assets. Towards the end of this period these seawalls could be at risk from failure if not maintained, but it is doubtful that such maintenance would attract public funding. Should alternative funding be available these may be maintained or reconstructed subject to the necessary consents.
Medium term:	A hold **the line** policy will continue to provide protection to properties and assets along the main developed areas. This is likely to require the construction of larger and more robust structures to address rising sea levels and beach loss. The approach to management of localised defences along the Combe Martin to Lynmouth coastline will continue into the medium term.

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	For the rest of this coastline, no change in policy from **no active intervention** is planned.
Longer term:	The long term plan is to continue to provide protection to key infrastructure and properties along this frontage, while allowing undefended stretches of shoreline to evolve naturally. Therefore at Lee, Ilfracombe, Hele Beach, Combe Martin and Lynmouth the policy will remain to **hold the line**, through maintaining the defences (assuming these were upgraded or replaced as necessary during the medium term). Along the section between Combe Martin and Lynmouth, such as within Lee Bay, and at Watermouth Slipway, retention of defences will rely on decisions made during the short and medium terms, and the availability of funding. For the rest of this coast, natural coastal evolution will be allowed to continue through the recommended policy of **no active intervention**. The retention of defences could result in beach narrowing as sea levels rise, although this is also expected to occur along undefended stretches of coast, where the resistance of the cliffs means that the rate of sea level rise will outpace the rate of cliff retreat. Where the coast remains unprotected the landscape status will remain, but there could be potential loss or damage to cliff-top assets such as a number of non-designated archaeological features, including Bull Point Lighthouse, and possibly a number of Scheduled Monuments, Listed Buildings and parts of the South West Coast Path, depending upon the location and extent of any future erosion.

Summary of specific policies

Policy unit		Preferred policies		
		Short term	**Medium term**	**Long term**
7d01	**Morte Point to Lee (west)**	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.
7d02	**Lee**	Maintain the existing defences to continue protecting Lee, through **hold the line**.	Maintain and improve the defences to continue protecting Lee, through **hold the line**.	Maintain the improved defences to continue protecting Lee, through **hold the line**.
7d03	**Lee (east) to Ilfracombe (west)**	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.
7d04	**Ilfracombe**	Maintain the existing seawall and breakwater defences to continue protecting Ilfracombe, through **hold the line**. Localised **Advance the Line** will be used in Ilfracombe Harbour as part of plans to re-develop this area would also	Maintain the defences, eventually replacing them with larger structures, to continue protecting Ilfracombe, through **hold the line**.	Maintain the defences, improved in the medium term, to continue protecting Ilfracombe, through **hold the line**.

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Policy unit		Preferred policies		
		Short term	Medium term	Long term
		achieve the aim of the plan.		
7d05	**Ilfracombe (east – Larkstone Beach) to Hele Beach (west)**	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.
7d06	**Hele Beach**	Maintain the existing seawall defences to continue protecting the A399, through **hold the line**.	Maintain the seawall defences, eventually replacing them with larger structures, to continue protecting the A399, through **hold the line**.	Maintain the defences which were improved in the medium term, to continue protecting the A399, through **hold the line**.
7d07	**Hele Beach (east) to Watermouth Slipway**	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.
7d08	**Watermouth Slipway**	Continue to allow existing localised defences to be maintained or replaced if alternative funding is available to reduce the risk of flooding. If alternative funds are not available, then allow natural coastal evolution to continue through **no active intervention**.	Continue to allow existing localised defences to be maintained or replaced if alternative funding is available to reduce the risk of flooding. If alternative funds are not available, then allow natural coastal evolution to continue through **no active intervention**.	Continue to allow existing localised defences to be maintained or replaced if alternative funding is available to reduce the risk of flooding. If alternative funds are not available, then allow natural coastal evolution to continue through **no active intervention**.
7d09	**Watermouth Slipway to Combe Martin**	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.
7d10	**Combe Martin**	Maintain the existing seawall defences to continue protecting Combe Martin, through **hold the line**.	Maintain the defences, eventually replacing them with larger structures, to continue protecting Combe Martin, through **hold the line**.	Maintain the defences, improved in the medium term, to continue protecting Combe Martin, through **hold the line**.
7d11	**Combe Martin to Lynmouth**	Continue to allow existing localised defences to be maintained or replaced if alternative funding is available to reduce the risk of flooding and erosion. If alternative funds are not available, then allow natural coastal evolution to continue through **no**	Continue to allow existing localised defences to be maintained or replaced if alternative funding is available to reduce the risk of flooding and erosion. If alternative funds are not available, then allow natural coastal evolution to continue through **no**	Continue to allow existing localised defences to be maintained or replaced if alternative funding is available to reduce the risk of flooding and erosion. If alternative funds are not available, then allow natural coastal evolution

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Policy unit		Preferred policies		
		Short term	Medium term	Long term
		active intervention.	**active intervention**.	to continue through **no active intervention**.
7d12	**Lynmouth**	Maintain the existing seawall defences to continue protecting Lynmouth, through **hold the line**.	Maintain the seawall defences, eventually replacing them with larger structures, to continue protecting Lynmouth, through **hold the line**.	Maintain the defences, improved in the medium term, to continue protecting Lynmouth, through **hold the line**.
7d13	**Lynmouth to Foreland Point**	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.

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Location reference:	Morte Point to Foreland Point
Policy unit reference:	7d01 to 7d13

Implications of the preferred plan for this location

Time period	Management activities	Human Health, Property and Population	Land use, infrastructure and material assets	Historic Environment	Landscape character and Visual Amenity	Geology and Soils	Water	Biodiversity, flora and fauna
2005 to 2025	Where current defences are in place the SMP policies recommends the continuation of these defences through maintenance and improvement. The exception is at Ilfracombe where a policy of Advance the Line will see construction through the re-development of the harbour. In other locations, where there have been no historic defences there is proposed to be no active intervention.	Protection of residential properties from flooding at Ilfracombe, Hele and Watermouth Cove, Combe Martin and Lynmouth. The development opportunity planned for Ilfracombe is potentially at risk from flooding depending on its location.	Protection of roads amenities, and infrastructure from flooding at Ilfracombe, Hele and Watermouth Cove, Combe Martin and Lynmouth. Protection of these assets will ensure these towns remain tourist location. Protection of the holiday park, caravan site and camp site from flooding at Watermouth Cove. However, isolated holiday parks will continue to be at risk from erosion. Berrynabor is at risk from fluvial flooding. Protection of Ilfracombe and Lynmouth port/marina. This will allow for the continuing function of their fishing fleets. Loss or damage to sections of the South West Coastal Path due to Flooding. No loss of Grade 3 or above agricultural land.	Protection of the Conservation Areas at Ilfracombe, Lynton, due to flooding. Protection of Listed Buildings at Lee and Lynton.	Minor changes in landscape within AONB Heritage Coast and Coastal Preservation Area due to natural processes of increased erosion and flooding but this is due to natural processes.	Loss of beach width due to erosion (Sillary Sands). Continuation of natural processes is key to the integrity of the Morte Point SSSI, Hele Samsons and Combe Martin Bay SSSI and Napps Cave SSSI. NAI will continue to maintain these geological features.	No known impact on Water.	No predicted changes s through flooding or erosion to the cliffs in this epoch so no change in nature conservation value of the Exmoor Heath and Coast SAC, Exmoor Coastal Health SSSI, West Exmoor Coast and Woods SSSI or The Dunkery and Horner Wood NNR.
2025 to 2055	Where current defences are in place the SMP policies recommends the continuation of these defences through maintenance and improvement. In other locations, where there have been no historic defences there is proposed to be no active intervention.	Protection of residential properties from flooding at Ilfracombe, Hele and Watermouth Cove, Combe Martin and Lynmouth.	As above	As above.	Minor changes in landscape within AONB Heritage Coast and Coastal Preservation Area due to increased erosion and flooding but this is due to natural processes. Larger defences or more structures may be required to maintain an acceptable standard of flood and erosion protection in some areas, thus potentially resulting in a change of views and a change in landscape character.	As above.	No known impact on Water.	As above.
2055 to 2105	Where current defences are in place the SMP policies recommends the	Protection of residential properties from flooding at Ilfracombe, Hele and	As above.	Protection of the Conservation Areas at Ilfracombe, Lynton, due to	Minor changes in landscape within AONB Heritage Coast and Coastal Preservation Area	As above.	No known impact on Water.	Continuation of natural process where there is no active intervention allows the

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Location reference:	Morte Point to Foreland Point
Policy unit reference:	7d01 to 7d13

Implications of the preferred plan for this location

Time period	Management activities	Human Health, Property and Population	Land use, infrastructure and material assets	Historic Environment	Landscape character and Visual Amenity	Geology and Soils	Water	Biodiversity, flora and fauna
	continuation of these defences through maintenance and improvement. In other locations, where there have been no historic defences there is proposed to be no active intervention.	Watermouth Cove, Combe Martin and Lynmouth.		flooding. Potential partial loss of 2 Schedule Monuments comprising Hillborough Fort and Wind Hill. Protection of Listed Buildings at Lee, and Lynton.	due to increased erosion and flooding but this is due to natural processes. Larger defences or more structures may be required to maintain an acceptable standard of flood and erosion protection in some areas, thus potentially resulting in a change of views and a change in landscape character.			natural evolution of the cliffs and there may be some loss of due to erosion of the Exmoor Heath SAC's vegetated sea cliffs and to Exmoor Coastal Health through loss due to erosion. Therefore this policy is considered further within the Habitats Regulations Assessment (Appendix J). No predicted changes in conservation value of the, West Exmoor Coast and Woods SSSI or The Dunkery and Horner Wood NNR due to flooding or erosion. A reduction in the total area of the Hillborough LNR due to erosion.

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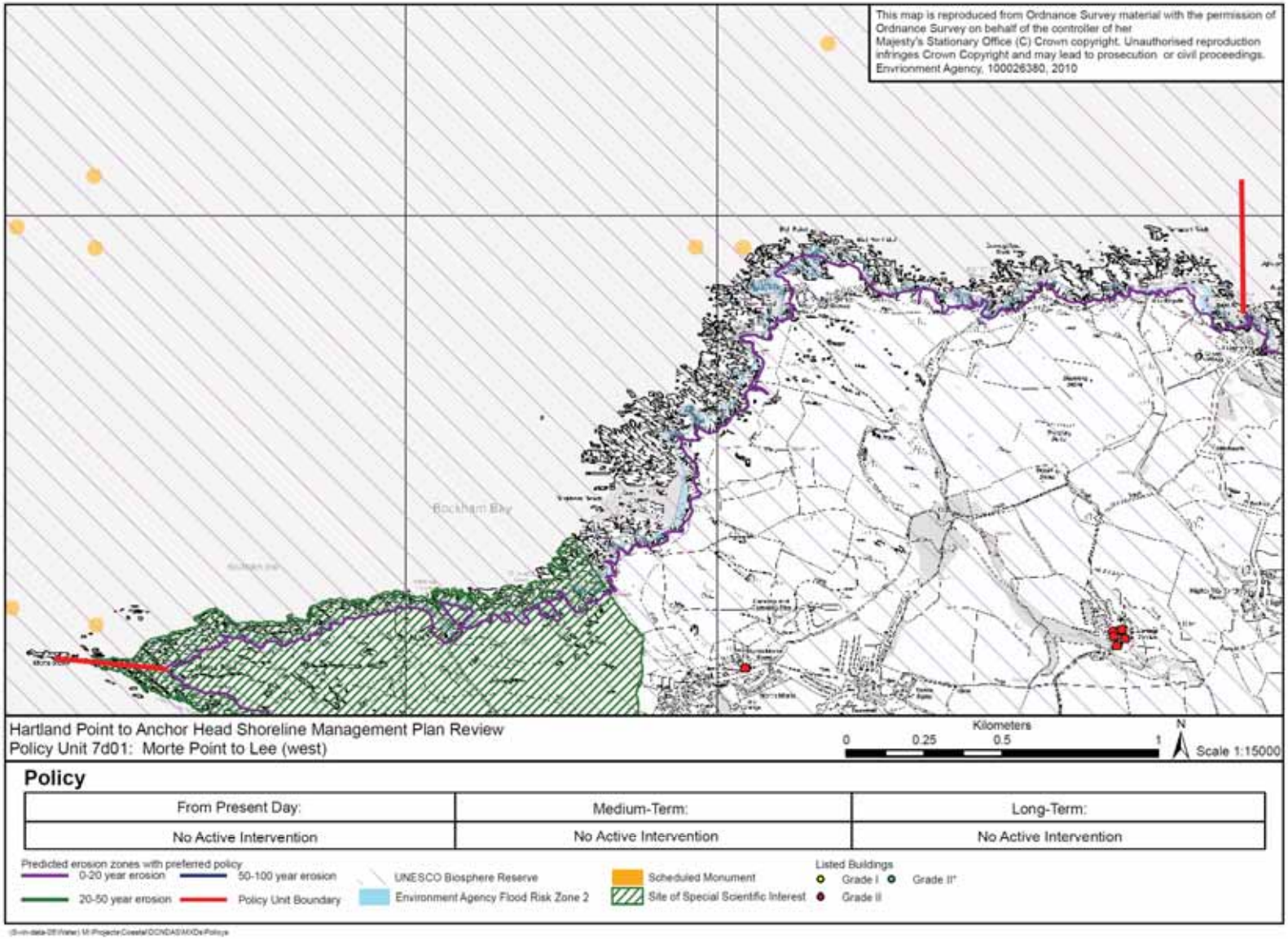

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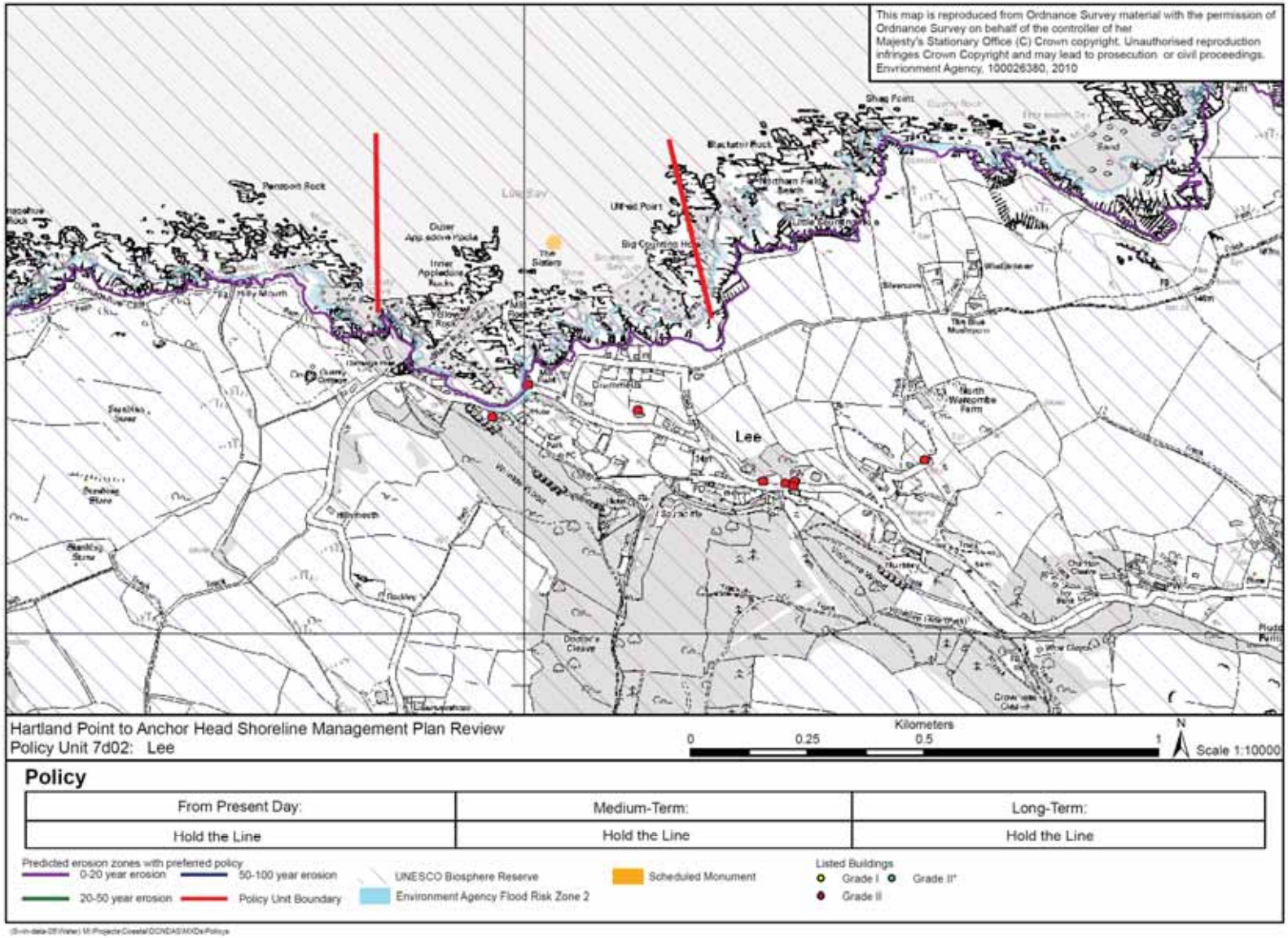

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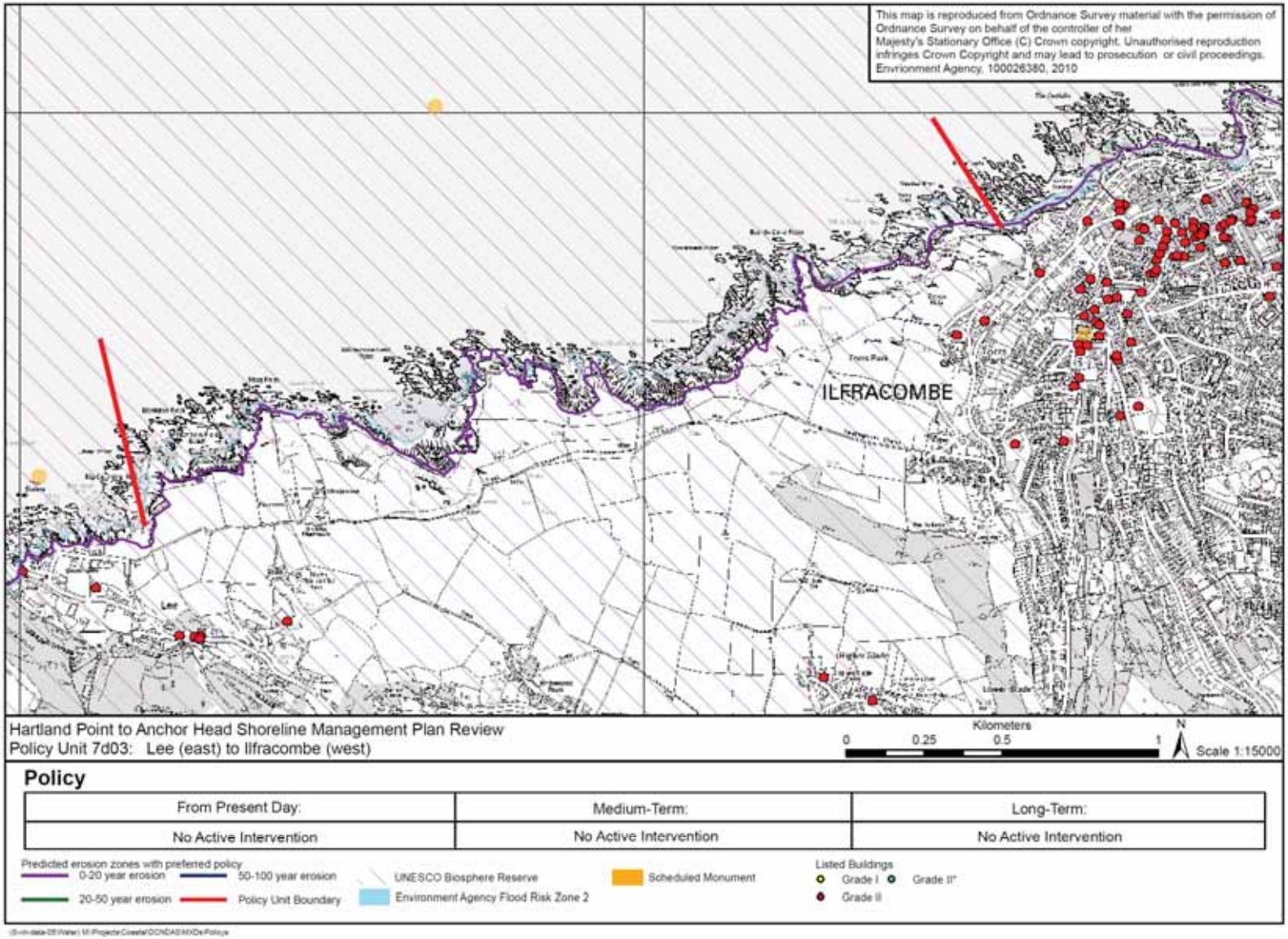

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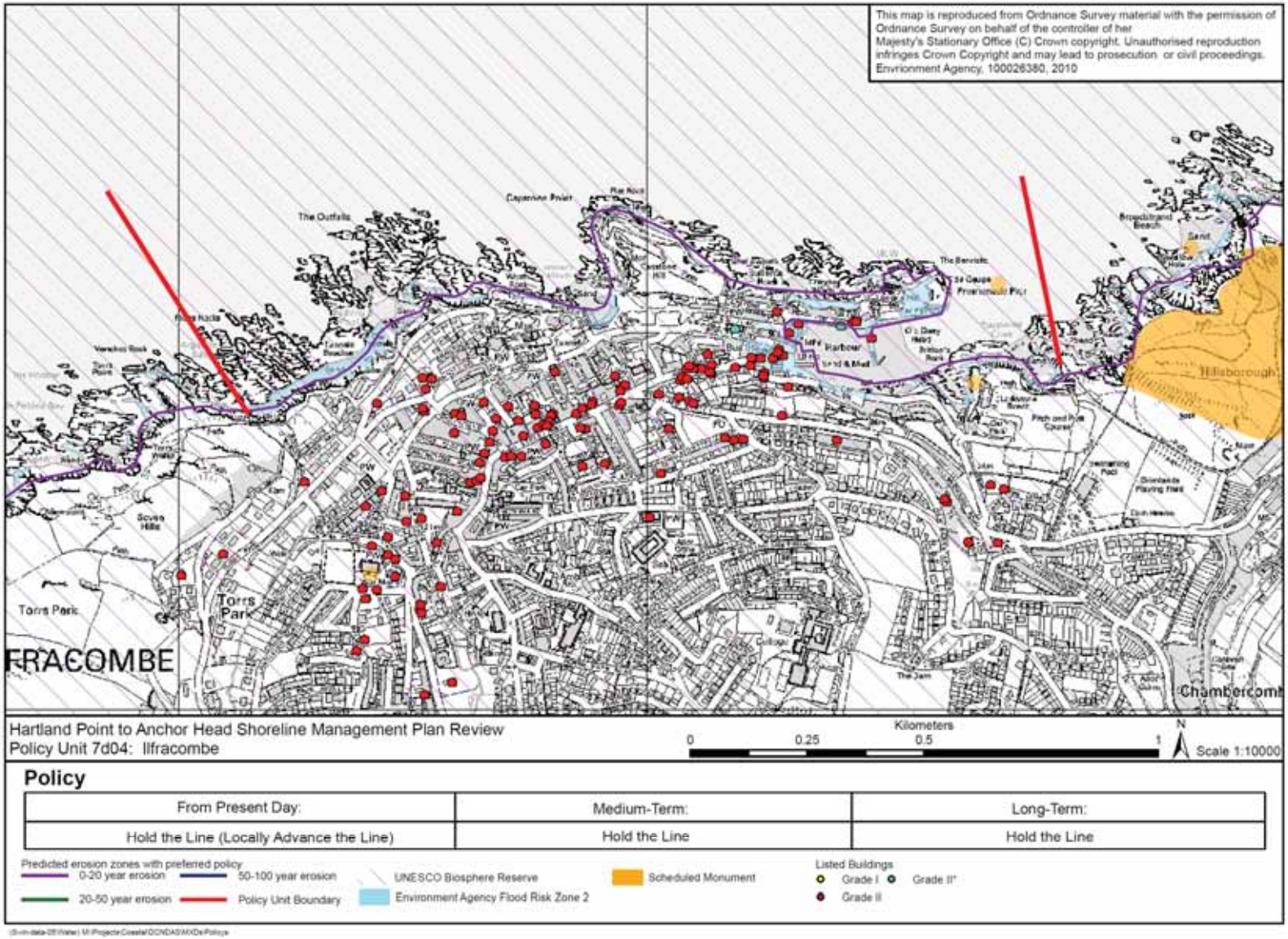

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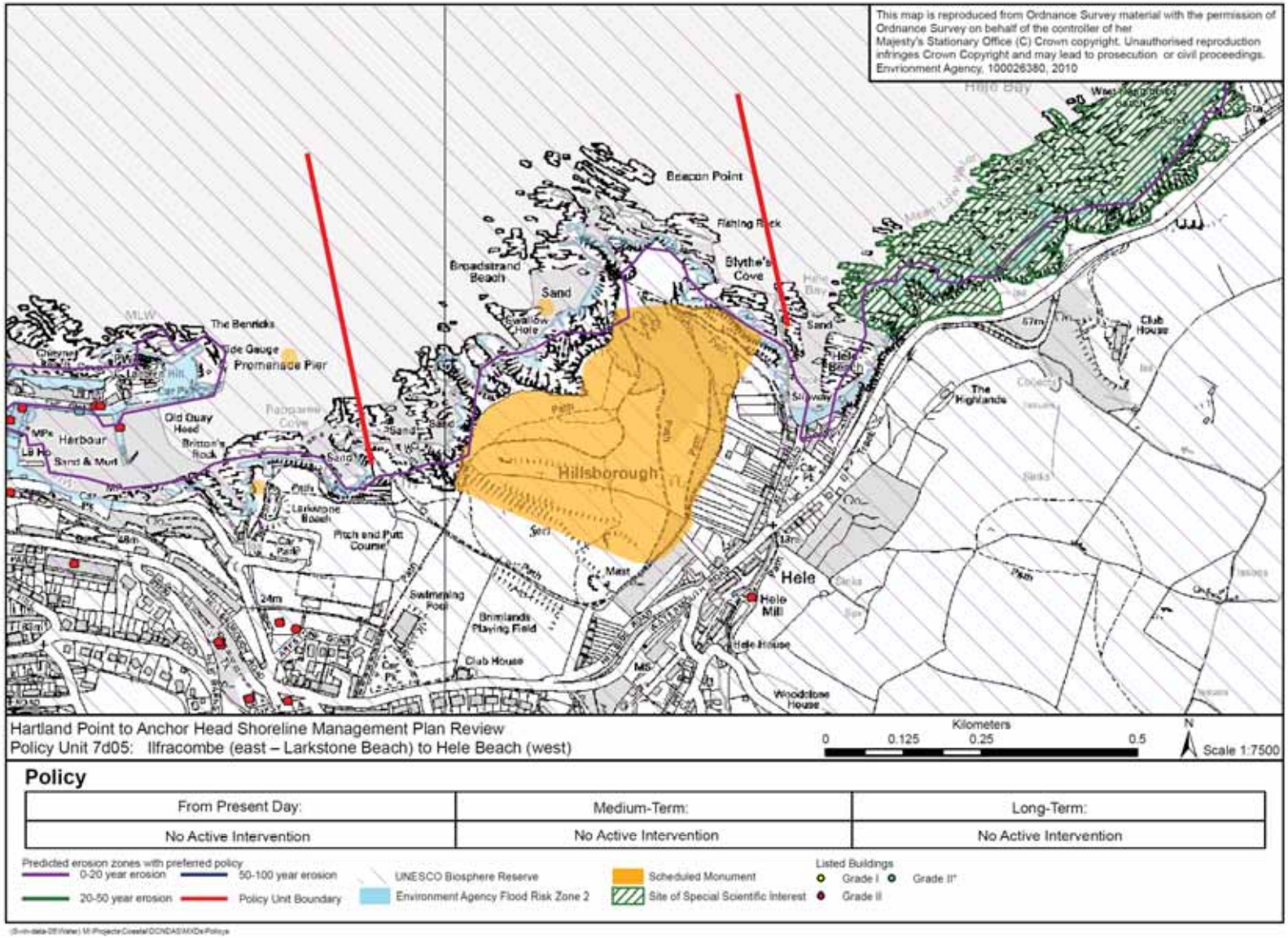

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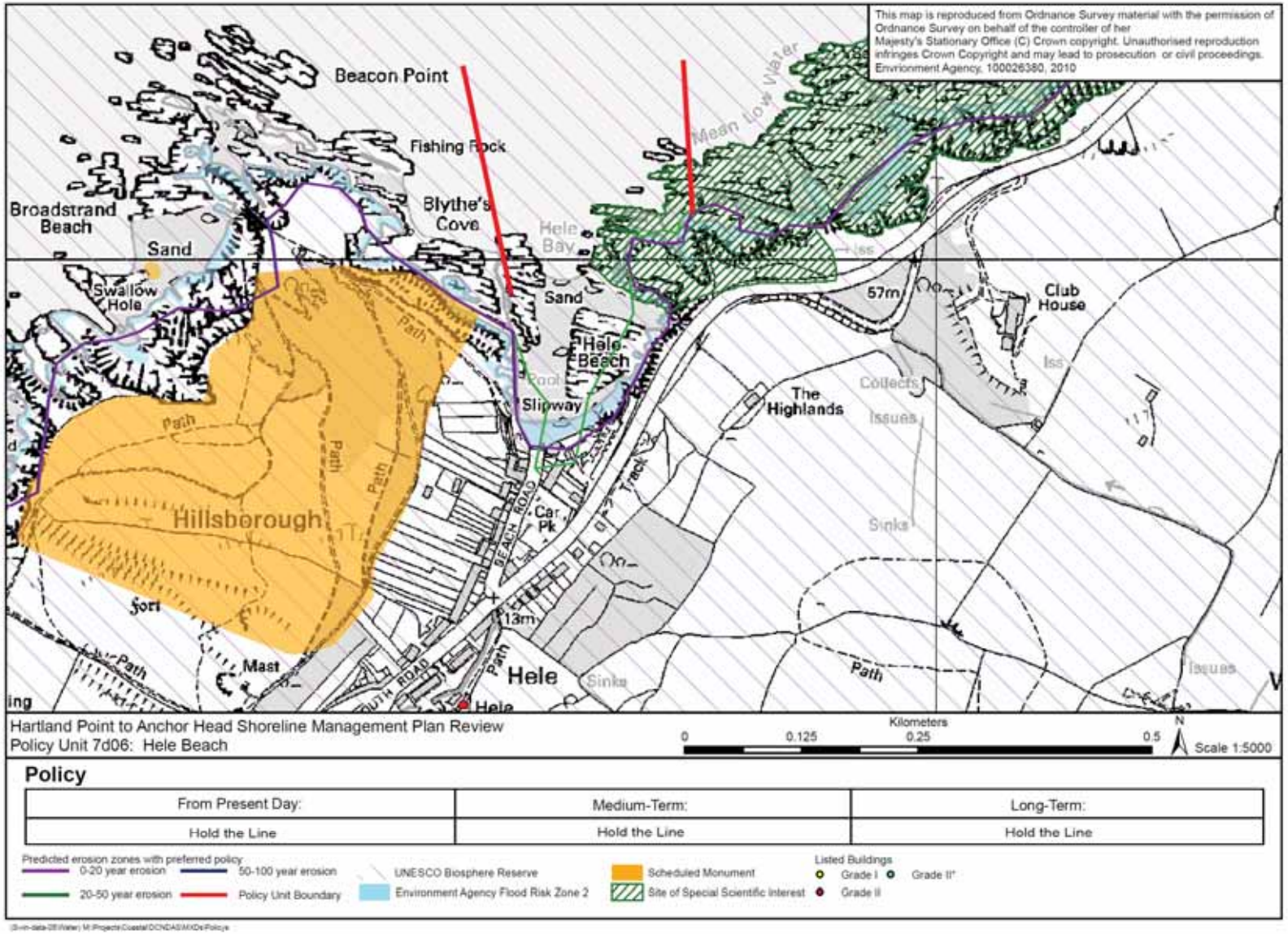

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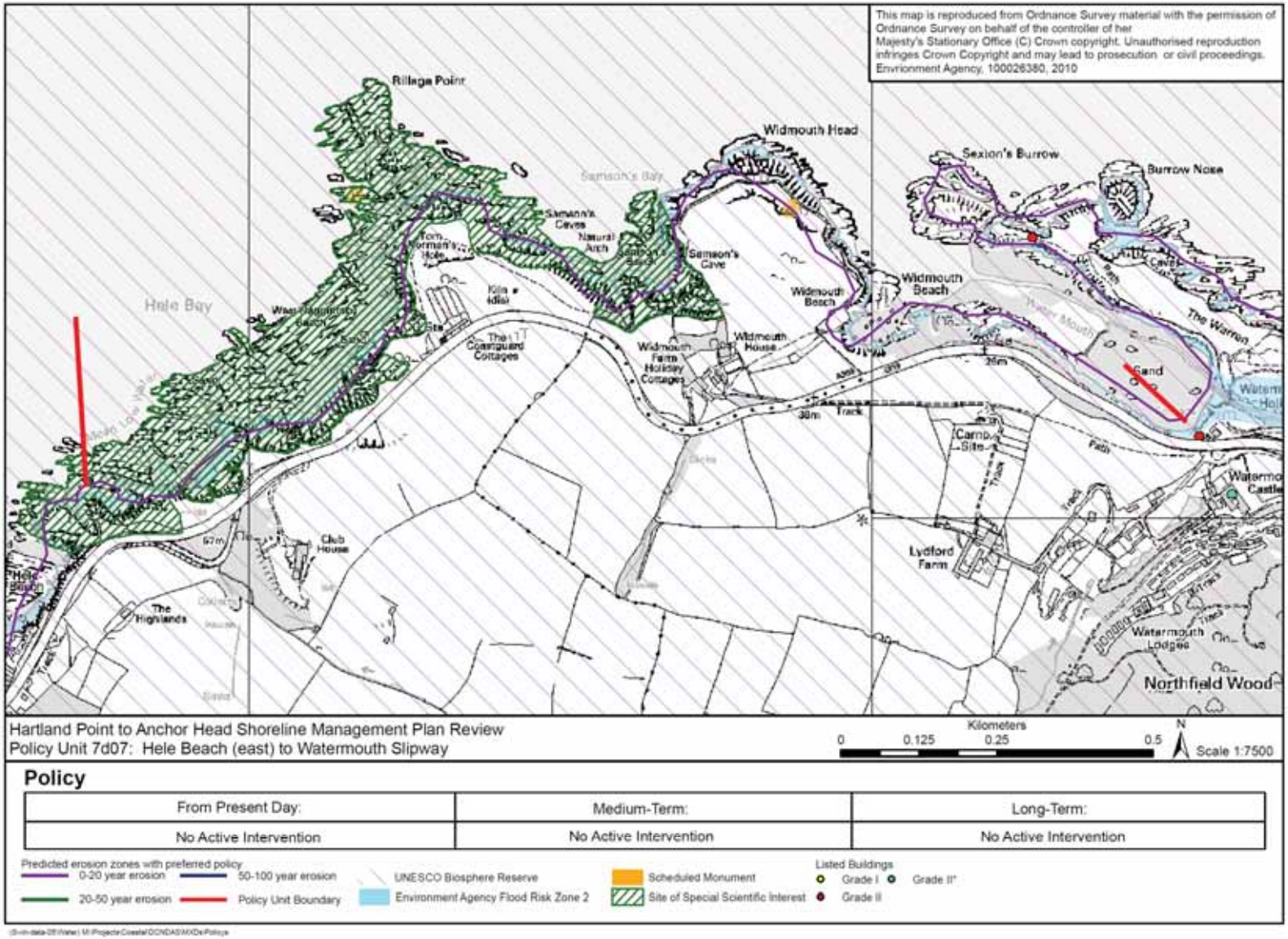

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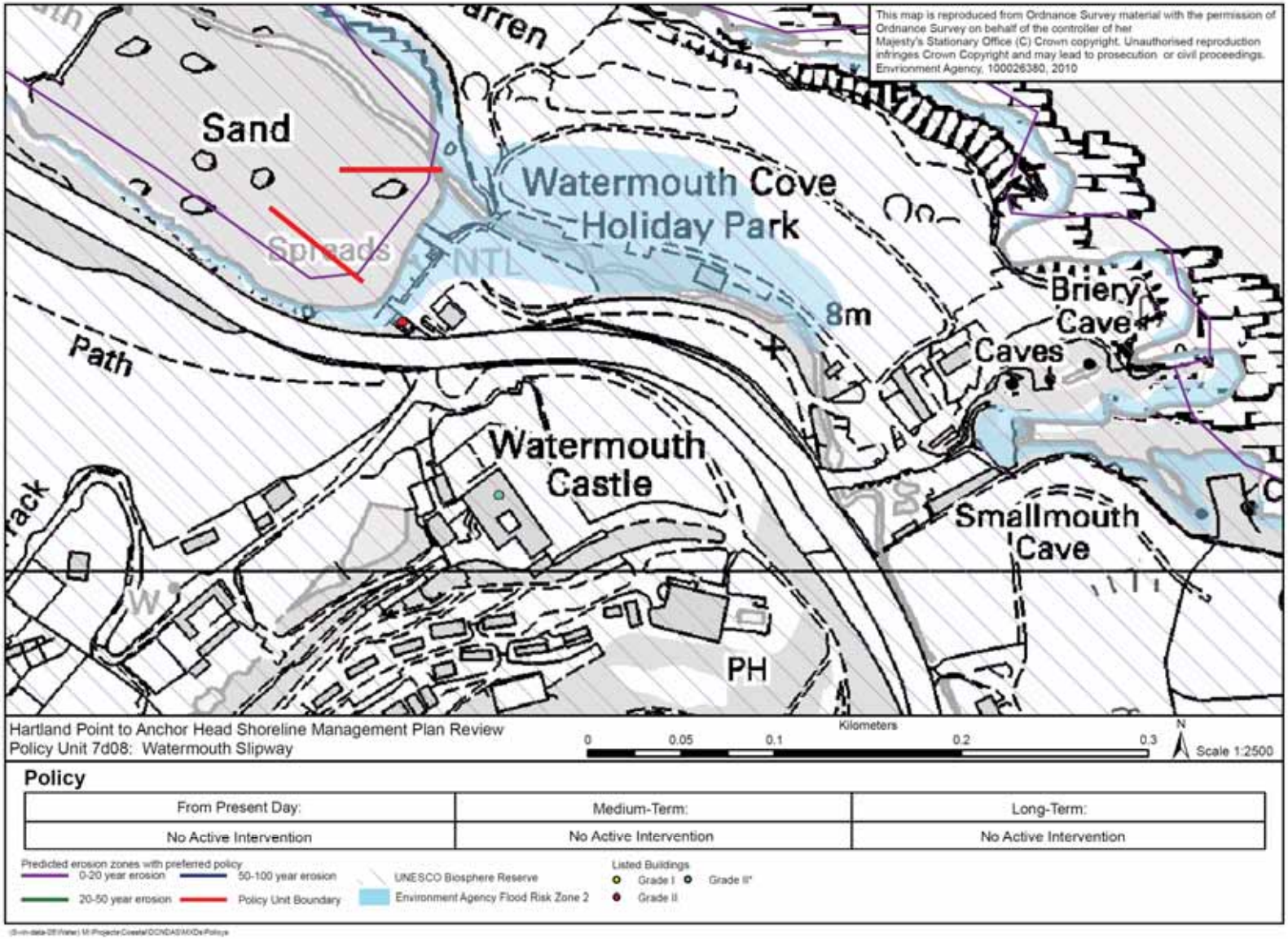

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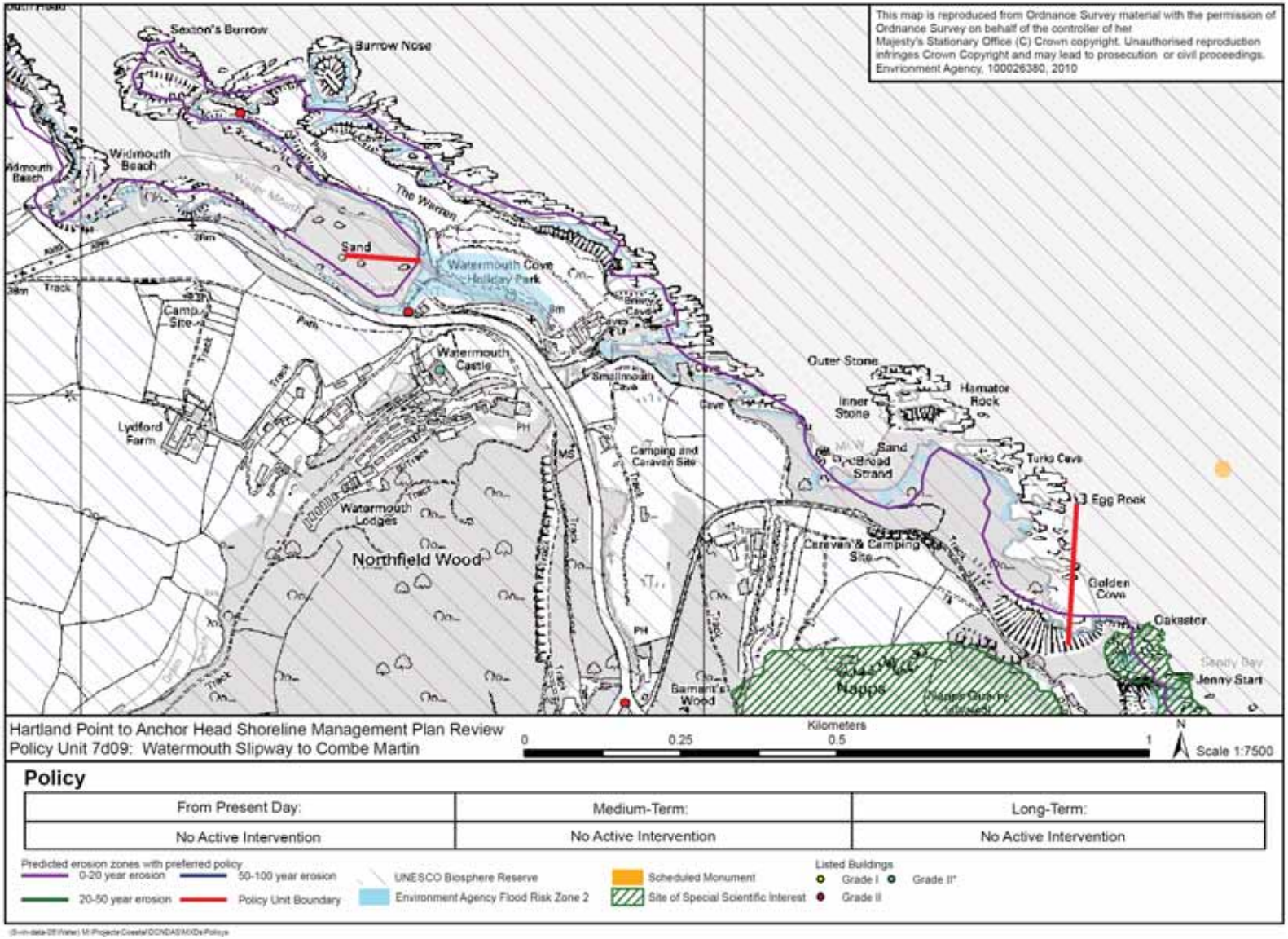

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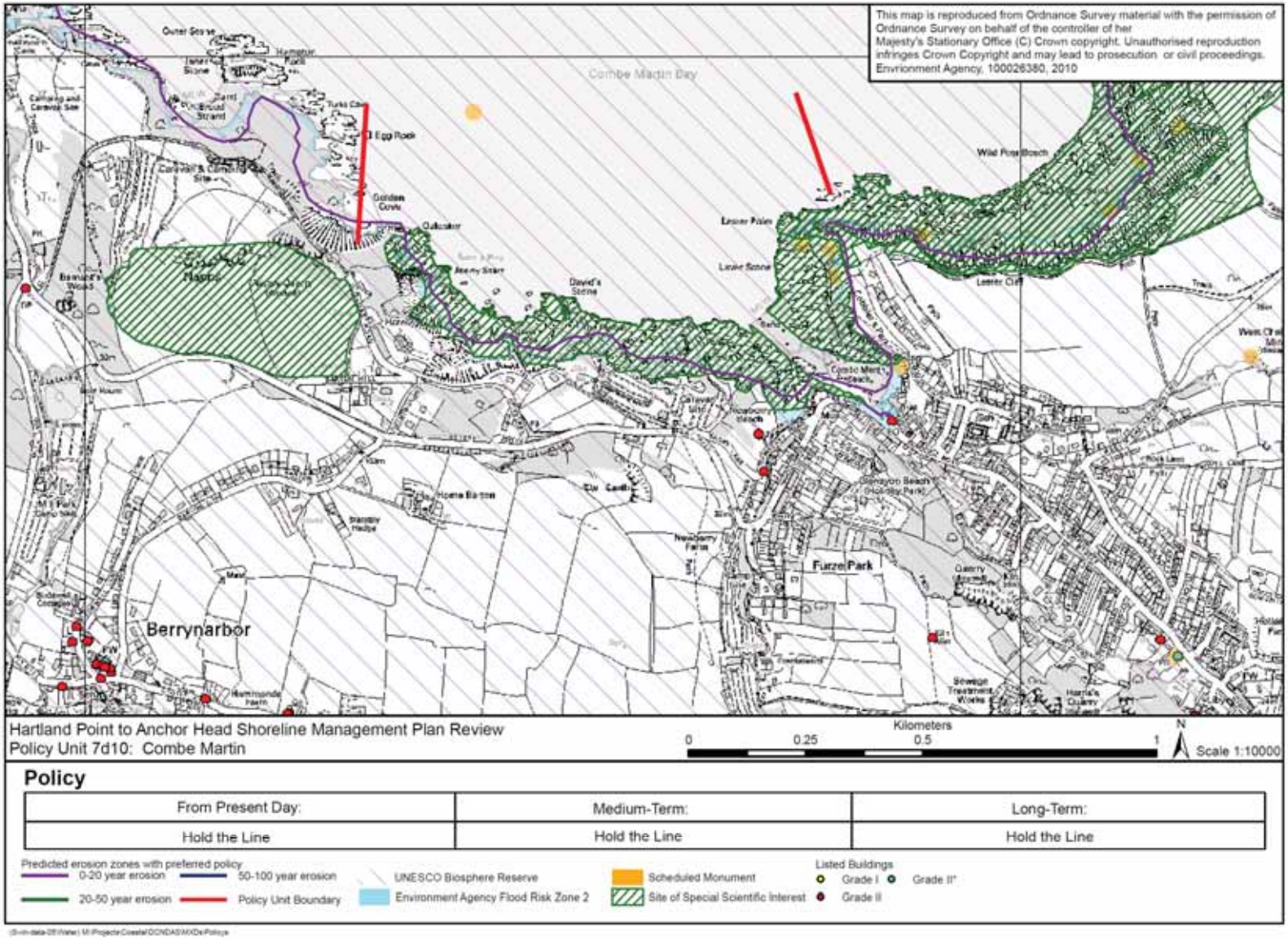

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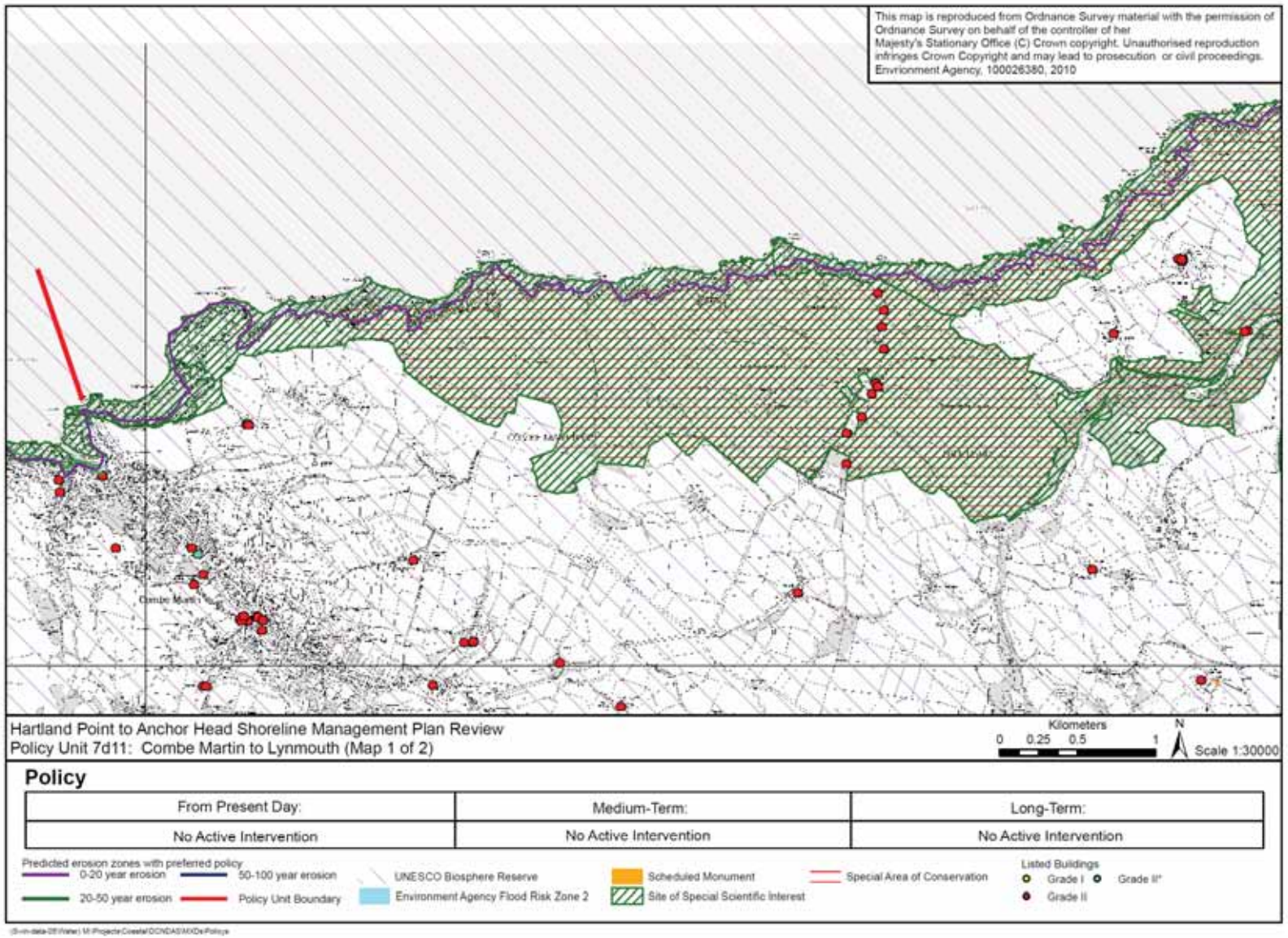

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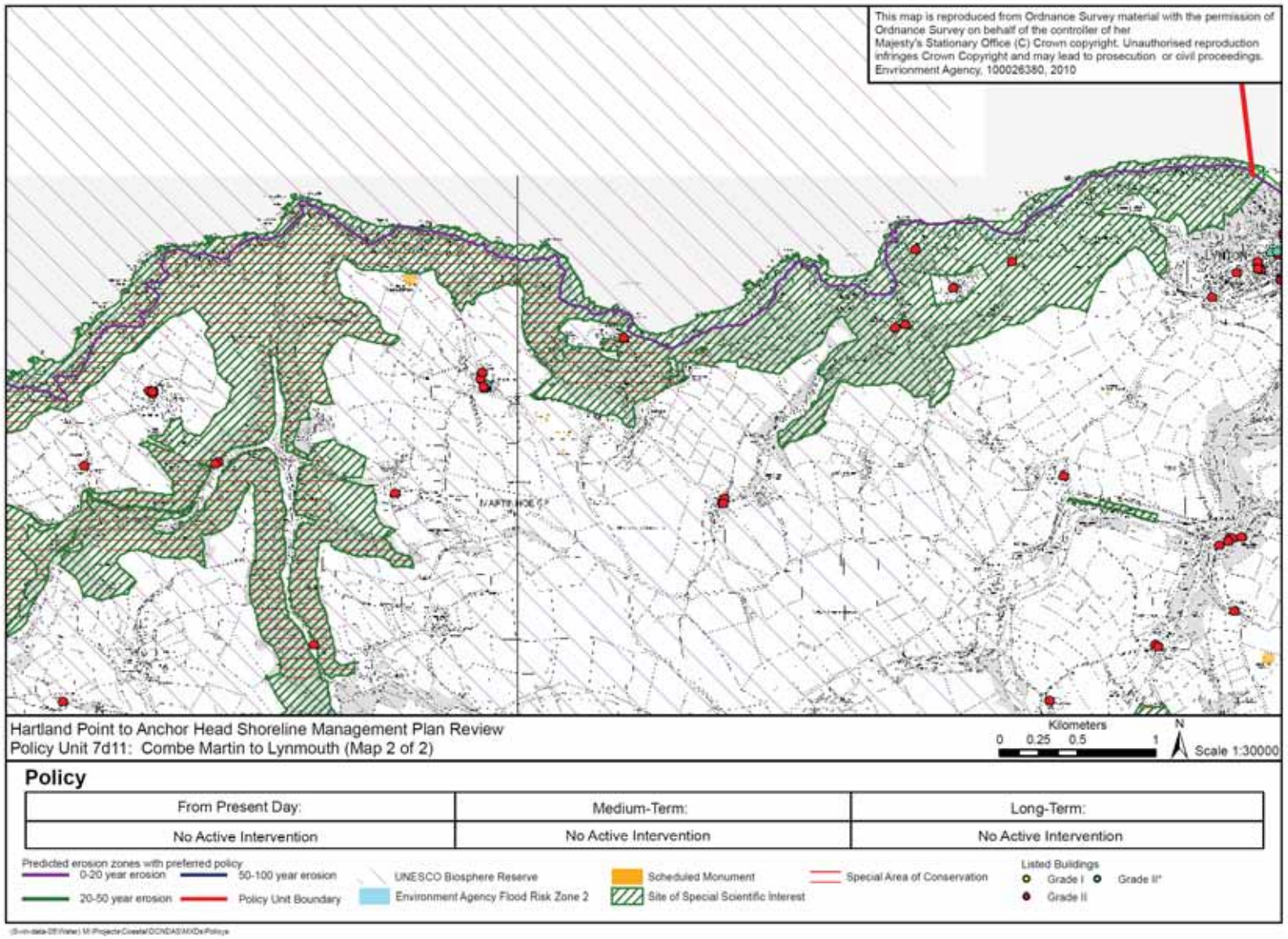

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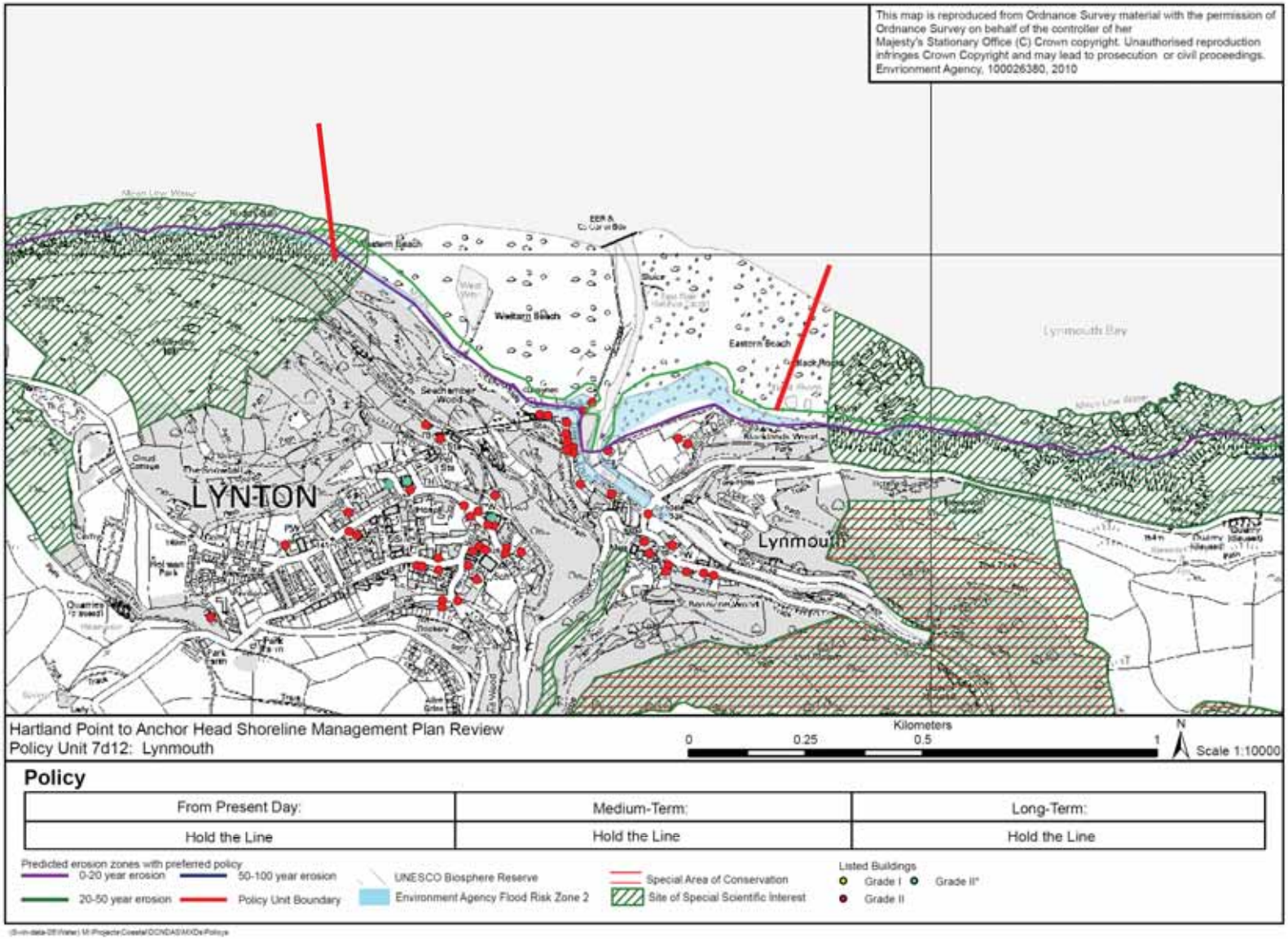

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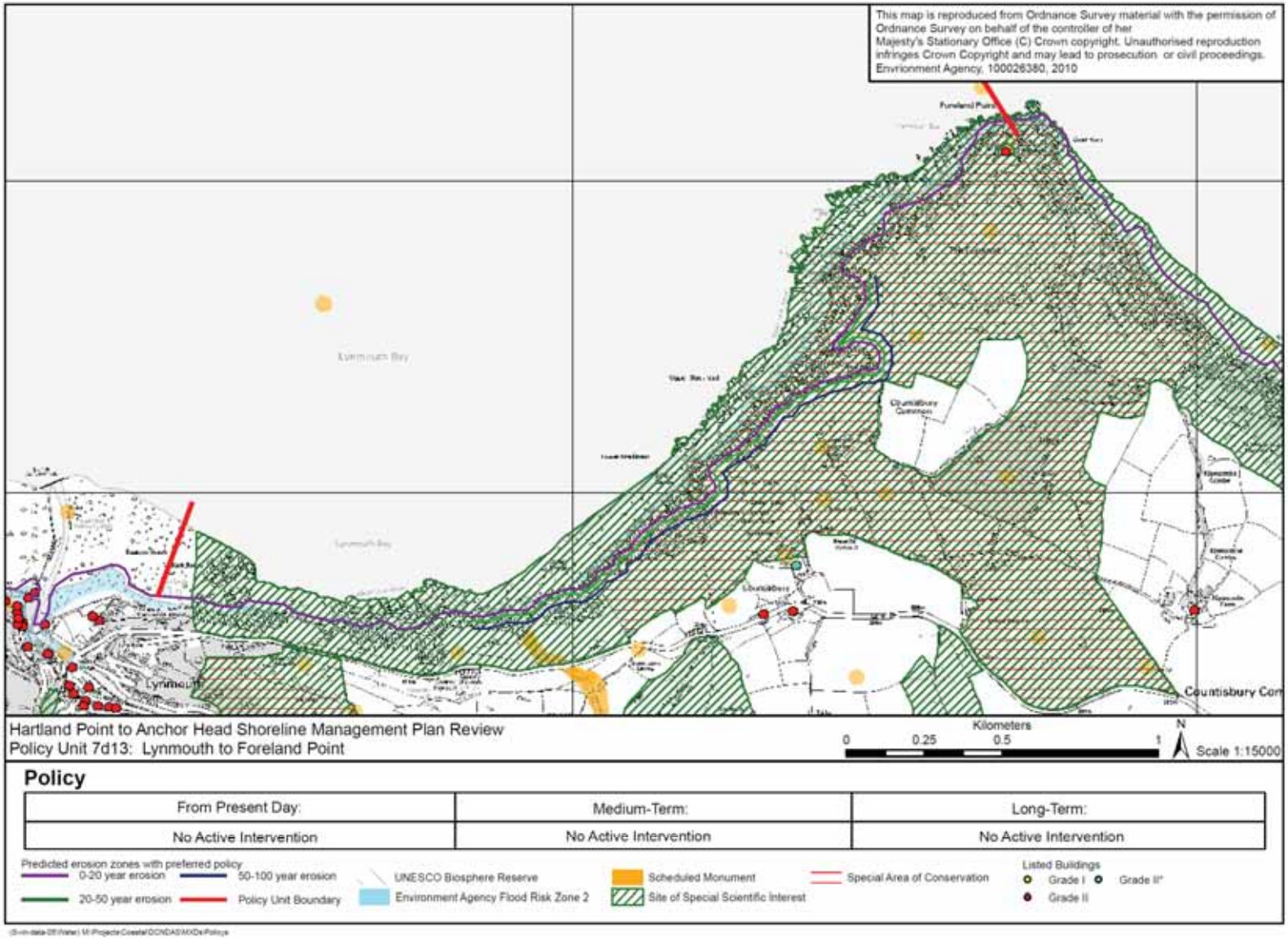

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Location reference:	**Foreland Point to Hurlstone Point**
Policy unit reference:	**7d14 to 7d17**

Summary of preferred plan recommendations and justification

Plan:

The long term plan for this section of largely undefended coast, which in part extends across the Exmoor National Park frontage, is to continue to allow it to evolve naturally, with minimal human interference, and thereby conserve the important landscape character of the area.

The coastline between Foreland Point and Gore Point is characterised by high rocky cliffs. There are no existing defences and few socio-economic assets along the frontage that would generate justification for defence construction. The coastline is recognised for its landscape and environmental value therefore the long term plan to allow natural retreat will continue to maintain these features.

Within Porlock Bay the key risk is from fluvial rather than tidal flooding, with property, historic environment features and local infrastructure at Bossington potentially at risk. Currently protection along Porlock Bay is afforded by a gravel barrier beach, which in the past has been actively managed. At the western end of the bay, Porlock Weir is currently defended by a range of structures that both reduce risk of flooding and erosion and maintain access to a small harbour in this location.

It is unlikely that future defence provision at Porlock Weir would attract public funds from the flood and coastal defence budget. Retention of defences could also potentially impact on the wider coastline of Porlock Bay in the long term; these would need to be much larger than at present which would have a much greater impact upon the movement of sediment and also on the landscape character of the area. Continued defence of Porlock Weir might be acceptable if alternative funds are available and only limited impact on sediment transport can be demonstrated. However with rising sea levels and increased exposure to wave activity with adjacent shoreline retreat, it is questionable whether this would be sustainable in the medium to long term.

A number of socio-economic and historic environment assets will be at risk if defences are not retained. Measures would need to be put in place to manage this risk and mitigate the displacement of people and loss of property and facilities if this situation arises. This is in line with established policy in this area implemented by the National Trust and the Environment Agency, who are currently investigating how to mitigate future flood risk through land-use change as part of a separate Defra-funded study.

Preferred policies to implement plan:

From present day (short term):	The policy is to allow the shoreline to retreat naturally while managing flood risk to people and property by developing ways of adapting to the risk, through **no active intervention**. Erosion along the cliffed section of shoreline is anticipated to be very slow meaning few, if any, assets will be at risk. Within Porlock Bay, the gravel ridge will continue to roll landwards, with potential to alter the designated features of the Porlock Ridge and Saltmarsh Site of Special Scientific Interest. Continued monitoring is recommended to record and observe this change. At Porlock Weir, the policy is also for **no active intervention** as it is unlikely to be economically justified to use flood and coastal defence budget to maintain or improve defences in this area. It may be acceptable to allow defences and other structures here to be maintained or improved if other funds are available, provided this can be demonstrated to have only limited impact on sediment transport in the rest of the bay and do not extend further along the shoreline and subject to the necessary consents. A detailed study should be undertaken during this period to investigate the future flood and erosion risk as well as impacts of continuing to allow defence of Porlock Weir in the long term. This will inform future management decisions for Porlock Bay as a whole as well as guide adaptation planning.

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Medium term:	The medium term policy is to continue to allow the shoreline to retreat naturally with **no active intervention**. This would involve monitoring of change along Porlock Ridge to assess changes to the Porlock Ridge and Saltmarsh Site of Special Scientific Interest. Policy at Porlock Weir and its implementation will be guided by the earlier investigations. If maintenance of defences is discontinued then it is expected these will fail during this period. Adaptation measures will need to be implemented if this situation arises.
Longer term:	The policy along the whole of this coastline is to allow the shoreline to naturally retreat, through **no active intervention**. Erosion of the gravel barrier is not expected to affect local infrastructure at Porlock and Bossington as the flood risk here is from fluvial, not tidal, sources. There would be continued monitoring of Porlock Ridge to assess changes to the Site of Special Scientific Interest. Along the cliffed coastline, cliff recession rates are expected to be low, but there could be a small risk to some cliff-top habitats. These are designated as Exmoor Coastal Heaths Site of Special Scientific Interest, Exmoor Heath and Coast Special Area for Conservation, Glenthorne Site of Special Scientific Interest, and Culbone Woods County Wildlife Site. There could also be potential risk of loss or damage to a number of Scheduled Monuments and Listed Buildings. Defences at Porlock Weir could be retained if earlier studies have confirmed this to be acceptable and other (non flood and coastal defence budget) funds are available. However, it will be increasingly likely that this could be achieved sustainably without having significant impacts on sediment transport within the rest of Porlock Bay. If defences are not retained the risk of flooding and erosion will increase to homes, tourism facilities, Listed Buildings and local infrastructure at Porlock Weir. Adaptation measures will need to be implemented to manage or adapt to this risk.

Summary of specific policies

Policy unit		Preferred policies		
		Short term	**Medium term**	**Long term**
7d14	**Foreland Point to Gore Point**	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.
7d15	**Gore Point to Porlock Weir**	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.
7d16	**Porlock Weir**	Continue to allow existing localised defences to be maintained or replaced if alternative funding is available to reduce the risk of flooding and erosion. If alternative funds are not	Continue to allow existing localised defences to be maintained or replaced if alternative funding is available to reduce the risk of flooding and erosion. If alternative funds are not	Continue to allow existing localised defences to be maintained or replaced if alternative funding is available to reduce the risk of flooding and erosion.

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Policy unit		Preferred policies		
		Short term	**Medium term**	**Long term**
		available, then allow natural coastal evolution to continue through **no active intervention**.	available, then allow natural coastal evolution to continue through **no active intervention**.	If alternative funds are not available, then allow natural coastal evolution to continue through **no active intervention**.
7d17	**Porlock Weir to Hurlstone Point**	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.

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Location reference:	Foreland Point to Hurlstone Point
Policy unit reference:	7d14 to 7d17

Implications of the preferred plan for this location

Time period	Management activities	Human Health, Property and Population	Land use, infrastructure and material assets	Historic Environment	Landscape character and Visual Amenity	Geology and Soils	Water	Biodiversity, flora and fauna
2005 to 2025	The majority of policy units along this stretch of coast require no management activities, with the exception of Porlock Weir in the short term. Here the defences could be maintained if funding is available.	Residential properties, at Porlock Weir, Porlock, Allerton and Bossington are at risk from flooding. The lack of secondary flood defence will see an increase the flood risk to Porlock Weir, Porlock, Allerton and Bossington.	Tourist and local infrastructure at Porlock Weir, Porlock, Allerton and Bossington are at risk from flooding. In addition, the landfill site is at risk from flooding. Erosion of the gravel barrier is not predicted to impact on local infrastructure. The lack of secondary flood defence will see an increase the flood risk to Porlock Weir, Porlock, Allerton and Bossington. The Quay at Porlock Weir is unlikely to experience substantial erosion in this epoch. This is also to the case of the beach. Loss or damage to sections of the South West Coastal Path due to Flooding. No loss of Grade 3 or above agricultural land	Protection of the Conservation Areas at Porlock and Bossington from flooding. Protection of Listed Buildings at Porlock.	Minor changes in landscape due to increased erosion and flooding but this is due to natural processes. Potential for deteriorating coastal defence structures to become unsightly at Porlock Weir.	The gravel ridge will roll back unabated. This will maintain natural processes and continued evolution of the Porlock Ridge and saltmarsh SSSI	Potential for landfill to be flooded which may cause pollution this should be assessed in terms of the Water Framework Directive.	The gravel ridge will roll back unabated. This will increase the spatial extent of Porlock Ridge and Saltmarsh SSSI's designated saltmarsh continuing the evolution of the SSSI.
2025 to 2055	No management activities will be undertaken once the defence at Porlock Weir have failed.	Residential properties, at Porlock Weir, Porlock, Allerton and Bossington are at risk from flooding. The lack of secondary flood defence will see an increase the flood risk to Porlock Weir, Porlock, Allerton and Bossington.	Protection of tourist and local infrastructure at Porlock Weir, Porlock, Allerton and Bossington are at risk from flooding. In addition, The landfill site is at risk from flooding. Erosion of the gravel barrier is not predicted to impact on local infrastructure. The lack of secondary flood defence will see an increase the flood risk to Porlock Weir, Porlock, Allerton and Bossington. The Quay at Porlock Weir is unlikely to experience substantial erosion in this epoch. This is also to the case of the beach.	Protection of the Conservation Areas at Porlock from flooding. The Conservation Zone at Bossington is at risk of flooding due to the lack of secondary defences. Limited protection of Listed Buildings at Porlock, as the defence fail these buildings are at risk.	As above.	As above.	Water quality status of the coastal waters and achievement of WFD water quality targets should be considered prior to the implementation of management policy.	As above.

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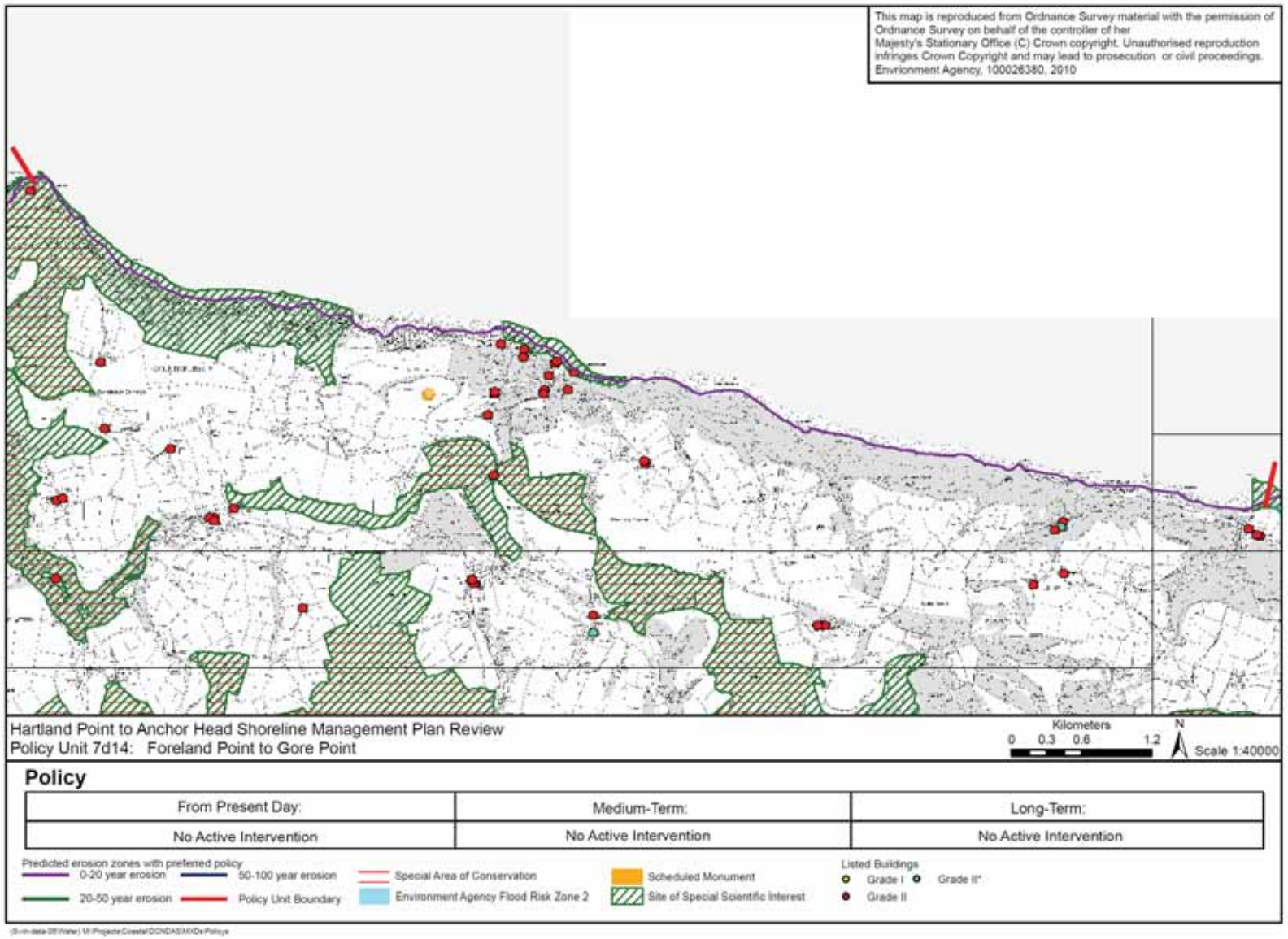
Location reference:	Foreland Point to Hurlstone Point							
Policy unit reference:	7d14 to 7d17							
Implications of the preferred plan for this location								
Time period	**Management activities**	**Human Health, Property and Population**	**Land use, infrastructure and material assets**	**Historic Environment**	**Landscape character and Visual Amenity**	**Geology and Soils**	**Water**	**Biodiversity, flora and fauna**
			Loss or damage to sections of the South West Coastal Path due to Flooding. No loss of Grade 3 or above agricultural land					
2055 to 2105	No management activities will be undertaken along this stretch of coast.	Residential properties, at Porlock Weir, Porlock, Allerton and Bossington are at risk from flooding The lack of secondary flood defence will see an increase the flood risk to Porlock Weir, Porlock, Allerton and Bossington.	Protection of tourist and local infrastructure at Porlock Weir, Porlock, Allerton and Bossington are at risk from flooding. In addition, The landfill site is at risk from flooding. Erosion of the gravel barrier is not predicted to impact on local infrastructure. The lack of secondary flood defence will see an increase the flood risk to Porlock Weir, Porlock, Allerton and Bossington. The Quay at Porlock Weir will experience damage due to erosion. The beach will also see a reduction in width. Loss or damage to sections of the South West Coastal Path due to Flooding. No loss of Grade 3 or above agricultural land	Conservation Areas at Porlock and Bossington are at risk from flooding. The Conservation Zone is at Bossington is at risk of flooding due to the lack of secondary defences. Listed Buildings at Porlock are at risk from flooding.	As above.	As above.	As above.	As above.



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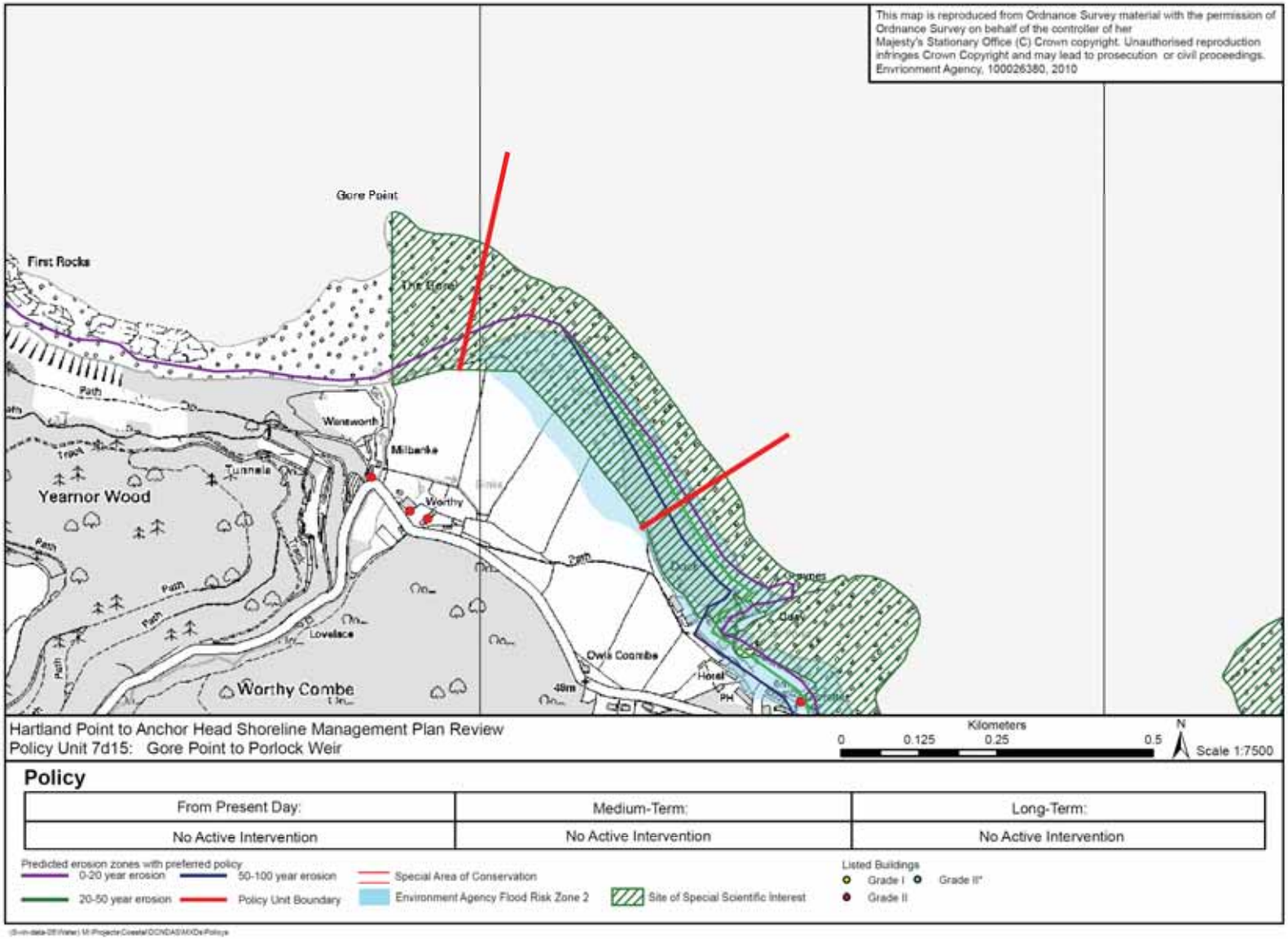

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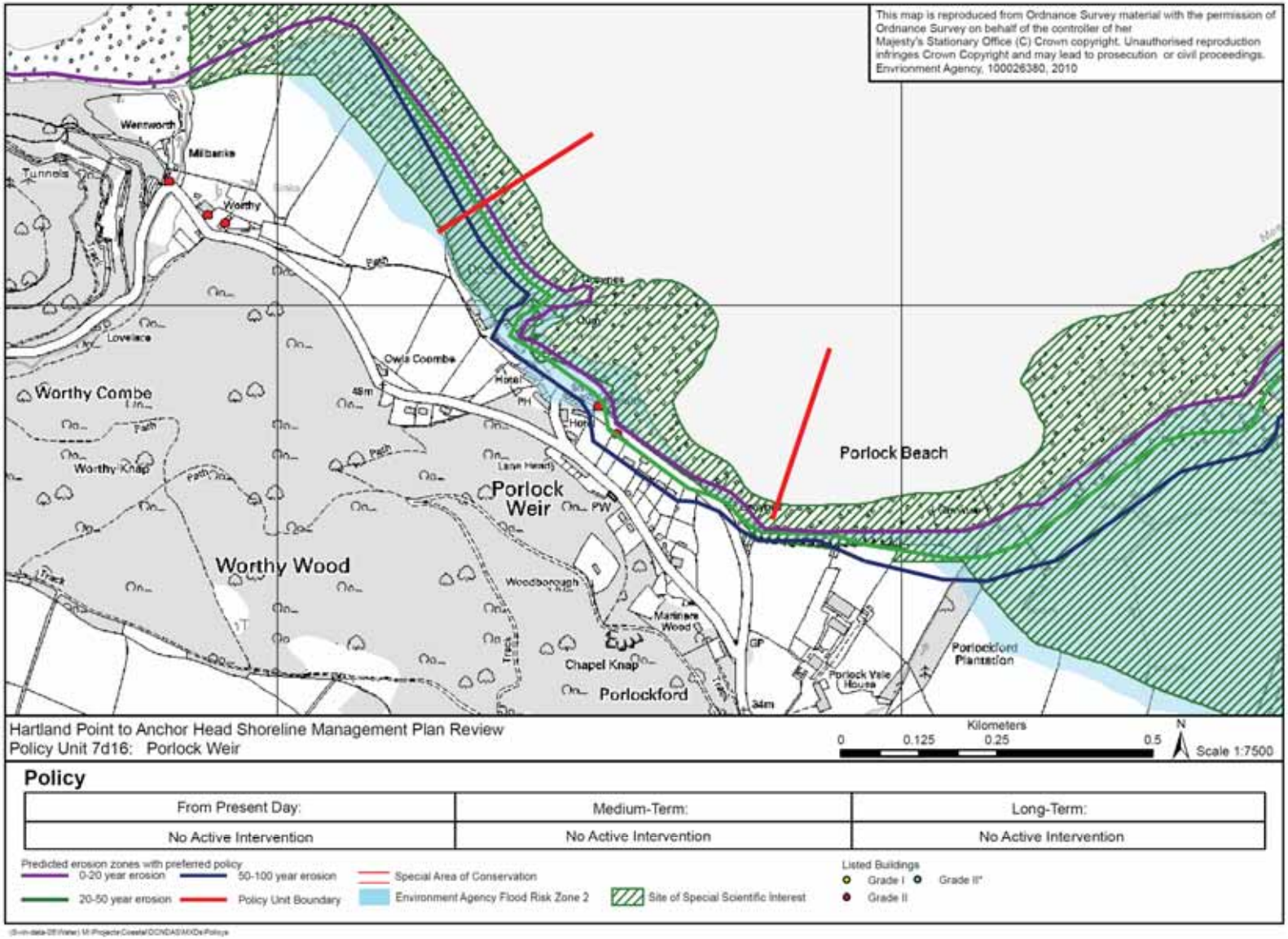

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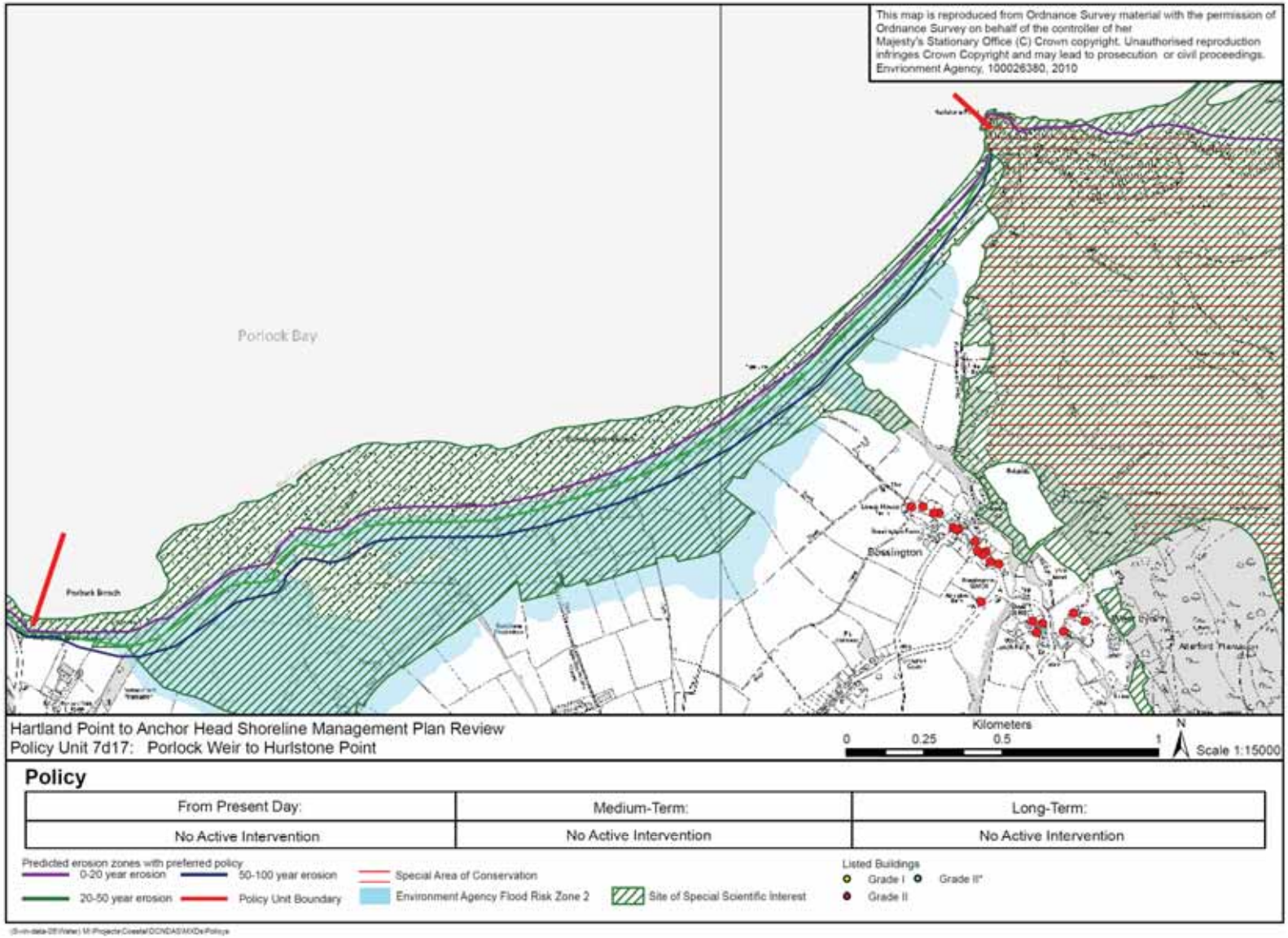

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Location reference:	**Hurlstone Point to Minehead (west)**
Policy unit reference:	**7d18**

Summary of preferred plan recommendations and justification

Plan:

The long term plan in this area is to continue to allow this undefended, slowly eroding cliffed coastline to evolve naturally with no human intervention.

The erosion risk along this shoreline over the next 100 years is predicted to be low and there are very few assets at risk. Continued erosion will also benefit the geological designations of environmental features along the coast by maintaining these exposures.

Preferred policies to implement plan:

From present day (short term):	The policy for this section of coast is one of **no active intervention**. Due to the slow cliff recession rates there is minimal erosion risk to historic environment assets along the cliff-top area and no risk of outflanking of the defences at Minehead to the east.
Medium term:	The continuation of the policy of **no active intervention** will allow the cliffs along this section of coast to continue to evolve naturally. There is no risk of cliff recession here causing outflanking of defences at Minehead to the east and only minimal erosion risk to historic environment assets along the cliff-top area.
Longer term:	The continuation of the policy of **no active intervention** will allow natural coastal evolution to continue. This is not expected to affect the defences at Minehead.

Summary of specific policies

Policy unit		Preferred policies		
		Short term	**Medium term**	**Long term**
7d18	**Hurlstone Point to Minehead (west)**	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.

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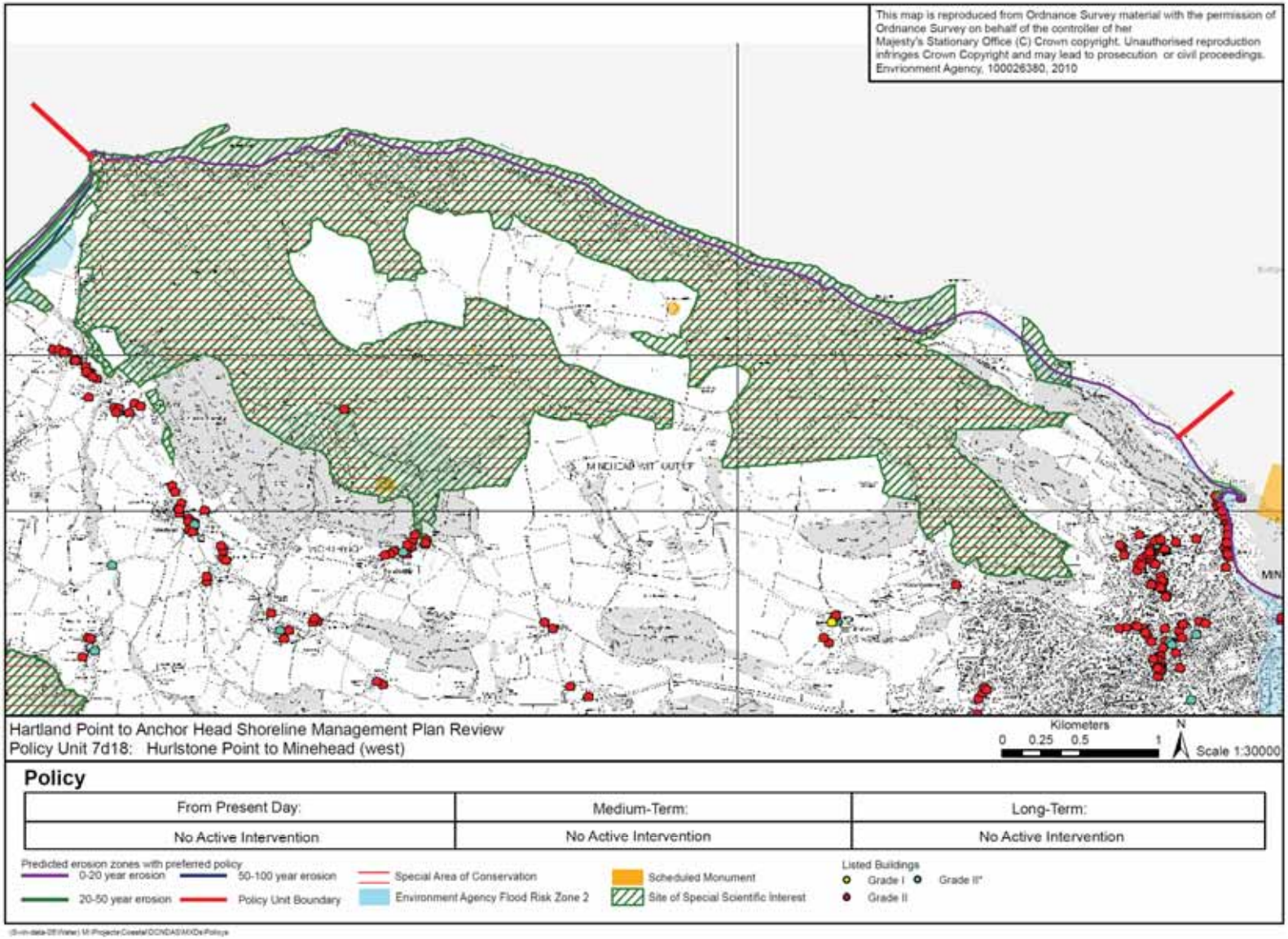
Location reference:	Hurlstone Point to Minehead (west)
Policy unit reference:	7d18

Implications of the preferred plan for this location

Time period	Management activities	Human Health, Property and Population	Land use, infrastructure and material assets	Historic Environment	Landscape character and Visual Amenity	Geology and Soils	Water	Biodiversity, flora and fauna
2005 to 2025	No management activities will be undertaken along this stretch of coast.	No risk to properties at along this stretch of coast.	Risk of flooding at Quay Street Lifeboat station and two substations in Minehead.	Risk of flooding to the Conservation Area at Minehead.	Minor changes in landscape due to increased erosion and flooding but this is due to natural processes.	No known impact to designated sites.	No known impact on Water.	Natural cliff erosion may cause loss of cliff habitats allowing the continued evolution of the Exmoor Coastal Heaths SSSI and SAC. This policy is considered further within the Habitats Regulations Assessment (Appendix J).
2025 to 2055	No management activities will be undertaken along this stretch of coast.	As above.	Risk of flooding and damage through erosion at Quay Street Lifeboat station and two substations in Minehead.	As above.	As above.	As above.	No known impact on Water.	As above.
2055 to 2105	No management activities will be undertaken along this stretch of coast.	As above.	Risk from erosion to the road at Quay Street Lifeboat station lock infrastructure, pipeline and harbour infrastructure. Risk of flooding at Quay Street, Lifeboat station and two substations in Minehead.	As above.	As above.	As above.	No known impact on Water.	As above.



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Location reference:	**Minehead to Blue Anchor**
Policy unit reference:	**7d19 to 7d23**

Summary of preferred plan recommendations and justification

Plan:

This statement covers the coastline from Minehead Harbour to the eastern end of Blue Anchor Bay. It incorporates the large commercial and residential centre of Minehead, as well as the smaller resorts of Dunster Beach and Blue Anchor.

The long term plan for this area is to continue to minimise flood risk to Minehead, including that from The Warren to Ker Moor frontage, whilst achieving a more sustainable defence line along the adjacent frontages to the east. This will involve continuing to maintain an adequate level of protection to Minehead with provision of a set-back defence along the adjacent frontages. It is expected that any realigned position would have to be seaward of, or incorporate in some way, the West Somerset Railway in order that this resource of value to the economy of the area is retained; to relocate or realign the railway is unlikely to be feasible.

At Blue Anchor it will increasingly become technically difficult to maintain the present defences. As these reach the end of their effective life replacement is unlikely to attract public funds from the flood and coastal defence budget. Therefore in the long term there will be a move towards a no intervention policy.

The plan will both provide long term protection to the majority of shoreline assets, whilst affording potential habitat gains through implementation of managed realignment. There would be potential for impacts on the golf course and also some shoreline assets, depending upon the location of the set back defences. The timing of providing a set back defence will vary along the shoreline and will require investigation to determine the most appropriate realignments.

Preferred policies to implement plan:

From present day (short term):

The policy for the Minehead, The Warren, Dunster Beach and Blue Anchor frontages is to **hold the line** during this period. This will involve maintenance of existing defences, but some will need to be replaced with larger structures to ensure they provide adequate levels of protection in the longer term. As part of this policy it is assumed that privately funded management activities on Dunster Beach would continue, provided that they continue to have a minimal effect upon the down-drift coast.

In order to reduce the risk of 'back door' flooding to Minehead from The Warren/Dunster Beach/Ker Moor frontage, a secondary defence line would be constructed in this period. Study is required to assess possible options for this and will need to consider issues of fluvial flooding behind any secondary defence line, implications for the River Avill flood relief channel, and the impact of groynes at Minehead and Dunster Beach on longshore drift patterns. In the short to medium term this would form a secondary defence line, but in the longer term could become the primary defence line as continued defence of The Warren and Dunster Beach frontages becomes increasingly unsustainable along existing alignments. Opportunities for longer term realignment of this frontage should be investigated as part of the detailed study, including the effects of the potential release of beach building sediment from erosion of The Warren. Whilst these studies are undertaken, measures should be put in place to manage the risk of a breach along The Warren.

Along Ker Moor the policy is **managed realignment**, implemented through construction of a secondary defence embankment in line with that proposed at The Warren and Dunster Beach. Investigations would be required to define the appropriate realignment which will need to consider continued protection of the West Somerset Railway.

If defences at the eastern end of Blue Anchor are not upgraded they will fail and expose this area to the risk of increased cliff recession. This would occur

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	at rates similar to those on the adjacent undefended coast, with potential for recession of up to 50m along any part of the cliffed frontage during this period and could impact upon the B3191 road (that is protected by new defences along the rest of Blue Anchor). As the plan along the whole SMP frontage is to conserve this road in the short and medium term at least, then new defences under the **hold the line policy** may have to be constructed to reduce the risk of cliff recession occurring and impacting upon the road here. If constructed, these new defences are likely to have to extend eastwards for a short distance.
Medium term:	The policy along this frontage is to **hold the line** of either the existing or newly constructed set back defences. This will be implemented through ongoing maintenance of the defences and beach management, which may require some of the groynes at Minehead to be re-built, together with additional beach recharge. Along The Warren and Dunster Beach frontage it may increasingly become technically difficult to sustain the existing defence line through continuation of embankment maintenance and beach management. If this becomes unsustainable during this period then the policy here would change to one of managed realignment. The secondary defence line constructed in the short term would then become the primary flood defence line along this frontage. Here, the fronting areas would be allowed to flood and erode landwards, potentially allowing a salt marsh and intertidal habitat to develop in front of the defence, which could have both habitat and defence benefits. There may also be release of additional beach material from erosion of The Warren, which could benefit this and down-drift frontages.
Longer term:	The long term policy along the majority of this section is to **hold the line**. At Minehead this will involve ongoing maintenance and eventual construction of larger defences. At Ker Moor, the set back defence constructed in the preceding periods would be maintained although armouring of this structure may be required to resist wave damage. Defences may also need to be constructed to protect the railway line at the western end of Blue Anchor, depending upon decisions made regarding the protection of the railway along the rest of the frontage. If not already occurred in the medium term, then it is probable that the change in policy to **managed realignment** will take place along The Warren and Dunster Beach frontage. At Blue Anchor itself the defences would be maintained for as long as technically viable to do so. However, as these reach the end of their effective life they will fail. Replacement defences are unlikely to attract public funds from the flood and coastal defence budget, so maintenance would be withdrawn and policy would change to **no active intervention**. Alternative routes to the B3191 are readily available to link Blue Anchor and Chapel Cleeve and these may need to be developed as a result of the policy here. There will be impacts on residential properties and associated infrastructure and facilities, therefore measures will need to be in place to manage this change in policy.

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Summary of specific policies

Policy unit		Preferred policies		
		Short term	**Medium term**	**Long term**
7d19	**Minehead**	Maintain and improve the existing defences to continue to provide protection to Minehead, through a **hold the line** policy.	Maintain and further improve the existing defences to continue protection for Minehead, through a **hold the line** policy.	Maintain and further improve the existing defences to continue protection for Minehead, through a **hold the line** policy.
7d20	**The Warren (Minehead Golf Course)**	Continue to provide protection by replacing and maintaining embankment defences along existing alignment, possibly supported by beach recycling and replenishment, under a policy of **hold the line**. Investigate and construct a secondary defence embankment inland to protect Minehead against flood risk.	Continue to provide protection by maintaining embankment defences along existing alignment, possibly supported by beach recycling and replenishment, under a policy of **hold the line**. Maintain the secondary defence embankment inland to protect Minehead against flood risk.	As it becomes unsustainable to maintain defence along the existing alignment, move to a policy of **managed realignment**, whereby the secondary defence line becomes the primary defence line.
7d21	**Dunster Beach**	Continue to provide protection through beach management under a policy of **hold the line**. Investigate and construct a secondary defence embankment inland to protect Minehead against flood risk.	Continue to provide protection through beach management under a policy of **hold the line**. Maintain the secondary defence embankment inland to protect Minehead against flood risk.	As it becomes unsustainable to maintain defence along the existing alignment, move to a policy of **managed realignment**, whereby the secondary defence line becomes the primary defence line.
7d22	**Dunster Beach (east) to Ker Moor**	Investigate and implement construction of set-back defence embankment under a policy of **managed realignment**.	**Hold the line** of the realigned defence through continued maintenance.	**Hold the line** of the realigned defence through continued maintenance and improvement.
7d23	**Blue Anchor**	Maintain the existing seawall and rock revetment defences, and replace defences at the eastern end near the Blue Anchor Hotel. Extend them a little to the east, to continue protecting people, property and the B3191 from erosion risk, through **hold the line**.	Maintain the defences to continue protection against flood and erosion risk, through **hold the line**.	Allow natural coastal evolution to occur by moving towards a policy of **no active intervention**, with implementation of local **managed realignment** if necessary to protect the railway.

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Location reference:	Minehead to Blue Anchor
Policy unit reference:	7d19 to 7d23

Implications of the preferred plan for this location

Time period	Management activities	Human Health, Property and Population	Land use, infrastructure and material assets	Historic Environment	Landscape character and Visual Amenity	Geology and Soils	Water	Biodiversity, flora and fauna
2005 to 2025	Maintenance and improvement of defences at Minehead and preparation for managed realignment in this or subsequent epochs.	Protection of residential properties at Minehead and Blue Anchor from flooding.	Protection of roads, the West Somerset railway (and railway facilities) amenities and infrastructure, including tourist infrastructure, from flooding at Minehead, Dunster and Blue Anchor NB the design details of the defence work needs to be consulted on with West Somerset Railway to ensure the track bed is not damaged. Protection of the West Somerset Coastal Path from flooding along low-lying sections of this coast with the exception of Dunster Beach (east) to Ker moor Protection of the gardens of the Blue Anchor Hotel from erosion. The spatial extent of the West Somerset Golf Club is at risk due to erosion. In addition it is at risk from flooding. Loss of varying amounts of Grade 3 agricultural land due to flooding and erosion	Protection of the Conservation Areas at Dunster, and Dunster Castle from flooding. Protection of the West Somerset Railway from erosion. None of the Schedule Monuments or Registered Parks and Gardens present along this section of coast are at risk from erosion. Protection of Listed Building at Minehead from flooding.	Minor changes in landscape due to natural processes of erosion and flooding. Larger or more structures may be required to maintain an acceptable standard of flood and erosion protection in some areas, thus potentially resulting in a change of views and a change in landscape character.	There will be a reduction in the spatial extent of the beaches at Minehead Terminus, The Strand and Dunster through coastal squeeze. No reduction in spatial extent of the beach at Blue Anchor in this epoch. At Blue Anchor SSSI managed realignment will allow the continuation of processes to maintain the geological features.	No known impact on Water.	Reduction in spatial extent of the CWS at the Blue Anchor Hotel Field and Blue Anchor to Lilstock Cliff CWS. Potential damage to the West Somerset Golf Course wildlife importance due to flooding. Potential damage habitat and species through saline intrusion. If managed realignment occurs in this epoch intertidal habitat will be created potentially offsetting losses due to the maintenance of defences at Minehead or other areas of coastal squeeze. There could be a loss of freshwater habitat as a result of this.
2025 to 2055	Maintenance and improvement of defences at Minehead and managed realignment outside of population centres where there is adequate space.	Dependent on the location of the secondary defences, residential properties, are at risk from flooding at Dunster Secondary defence will protection the low lying hinterland from flooding. Protection of residential properties at Minehead and Blue Anchor from flooding.	Protection of the esplanade and slipway at Minehead from erosion. Protection of roads, the West Somerset railway (and railway facilities) amenities and infrastructure, including tourist infrastructure, from flooding at Minehead and Blue Anchor Protection of the West Somerset Coastal Path from flooding along low-lying sections of this coast with the exception of Dunster Beach (east) to Ker moor	As above.	As above.	There will be a reduction in the spatial extent of the beaches at Minehead Terminus, The Strand and Dunster through coastal squeeze. At Blue Anchor SSSI managed realignment will allow the continuation of processes to maintain the geological features. There will be a reduction in the spatial extent of the beaches at Blue Anchor through coastal squeeze.	No known impact on Water.	As above.

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Location reference:	Minehead to Blue Anchor
Policy unit reference:	7d19 to 7d23

Implications of the preferred plan for this location

Time period	Management activities	Human Health, Property and Population	Land use, infrastructure and material assets	Historic Environment	Landscape character and Visual Amenity	Geology and Soils	Water	Biodiversity, flora and fauna
			Protection of small sections of the B3191 and gardens of the Blue Anchor Hotel from erosion. The spatial extent of the West Somerset Golf Club is at risk due to erosion. In addition it is at risk from flooding. Dependent on the location of the secondary defences, residential properties, roads, West Somerset Railway Line (and associated facilities) community and tourist infrastructure, are at risk from flooding at Dunster Secondary defence will protection the low lying hinterland from flooding. Protection of residential properties at Minehead and Blue Anchor from flooding. Loss of varying amounts of Grade 3 agricultural land due to flooding and erosion.					
2055 to 2105	Maintenance and improvement of defences at Minehead and managed realignment outside of population centres where there is adequate space.	Dependent on the location of the secondary defences, residential properties, are at risk from flooding at Dunster Secondary defence will protection the low lying hinterland from flooding. Protection of residential properties at Minehead and Blue Anchor from flooding.	Protection of harbour assets, place of worship, section of Quay street, the esplanade, slipway and a number of properties on the seafront from erosion at Minehead. Small sections of the B3191 and gardens of the Blue Anchor Hotel are at risk from erosion. The spatial extent of the West Somerset Golf Club is at risk due to erosion. In addition it is at risk from flooding. Dependent on the location of the secondary defences, residential properties, roads, West Somerset Railway Line (and associated facilities)	As above.	As above.	There will be a reduction in the spatial extent of the beaches at Minehead Terminus, The Strand and Dunster through coastal squeeze. At Blue Anchor SSSI managed realignment will allow the continuation of processes to maintain the geological features. There will be a reduction in the spatial extent of the beaches at Blue Anchor through coastal squeeze.	No known impact on Water.	As above.

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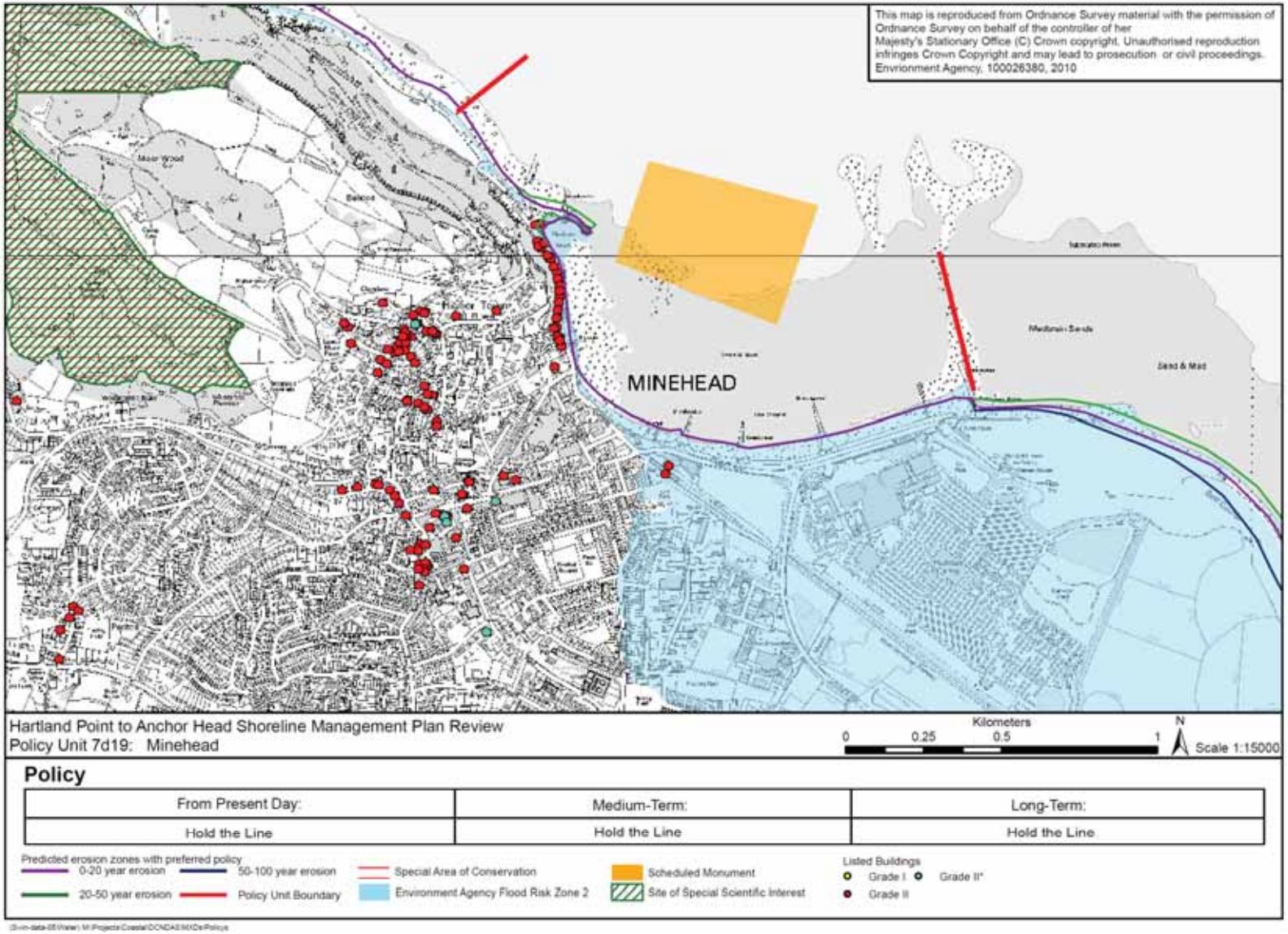
Location reference:	Minehead to Blue Anchor							
Policy unit reference:	7d19 to 7d23							
Implications of the preferred plan for this location								
Time period	**Management activities**	**Human Health, Property and Population**	**Land use, infrastructure and material assets**	**Historic Environment**	**Landscape character and Visual Amenity**	**Geology and Soils**	**Water**	**Biodiversity, flora and fauna**
			community and tourist infrastructure, are at risk from flooding at Dunster Secondary defence will protection the low lying hinterland from flooding. Protection of residential properties at Minehead and Blue Anchor from flooding. Loss of varying amounts of Grade 3 agricultural land due to flooding and erosion					



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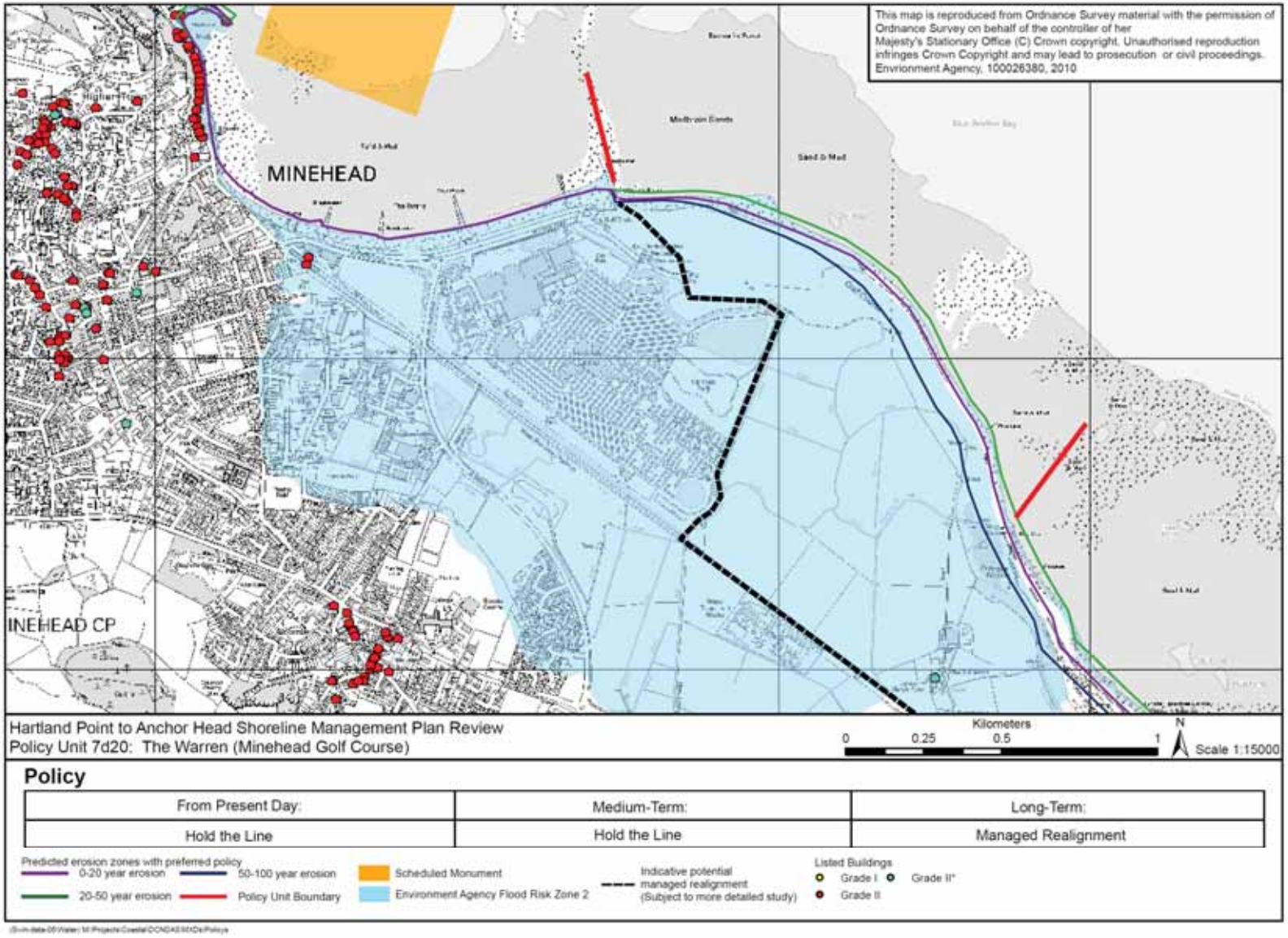

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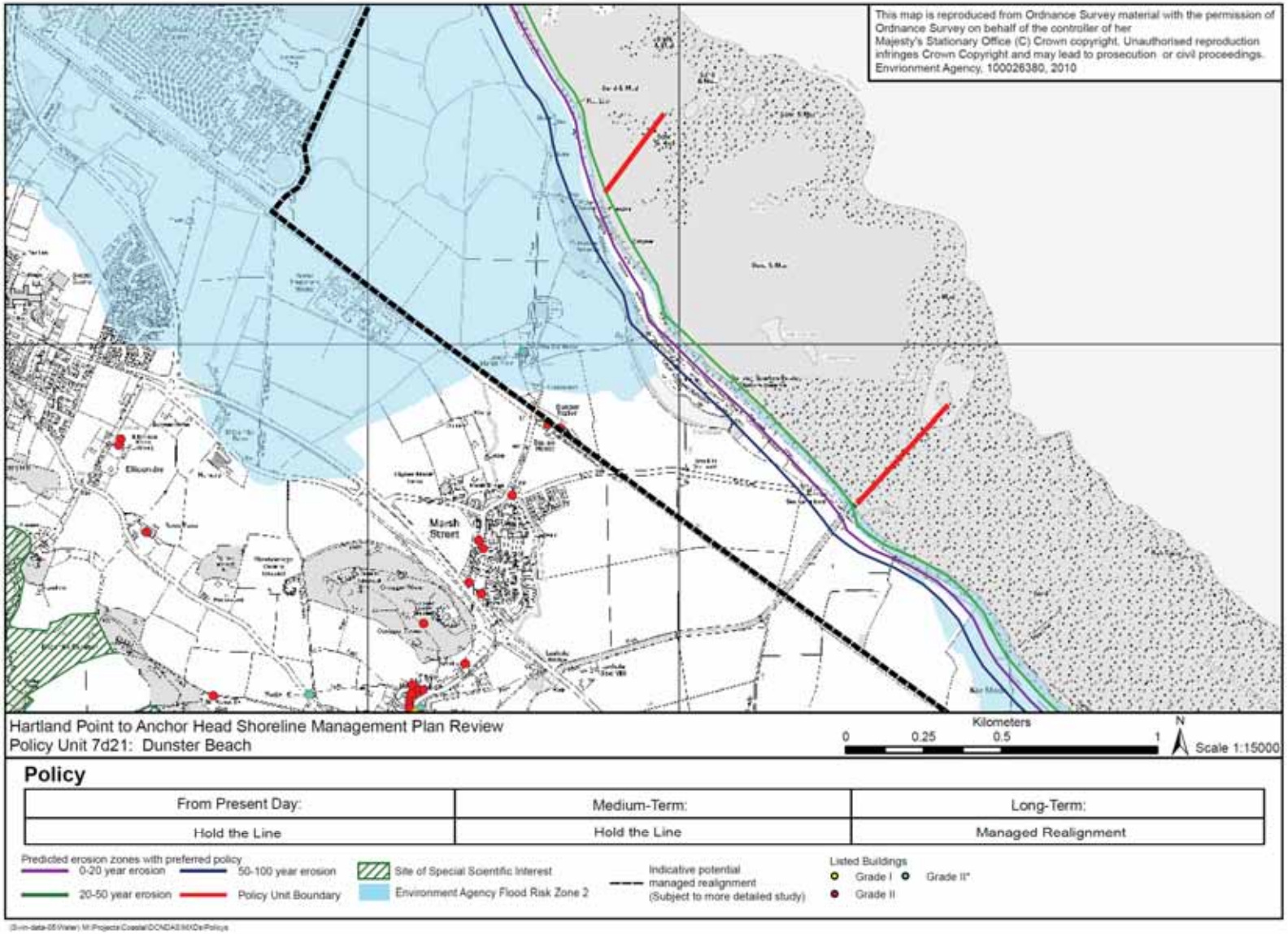

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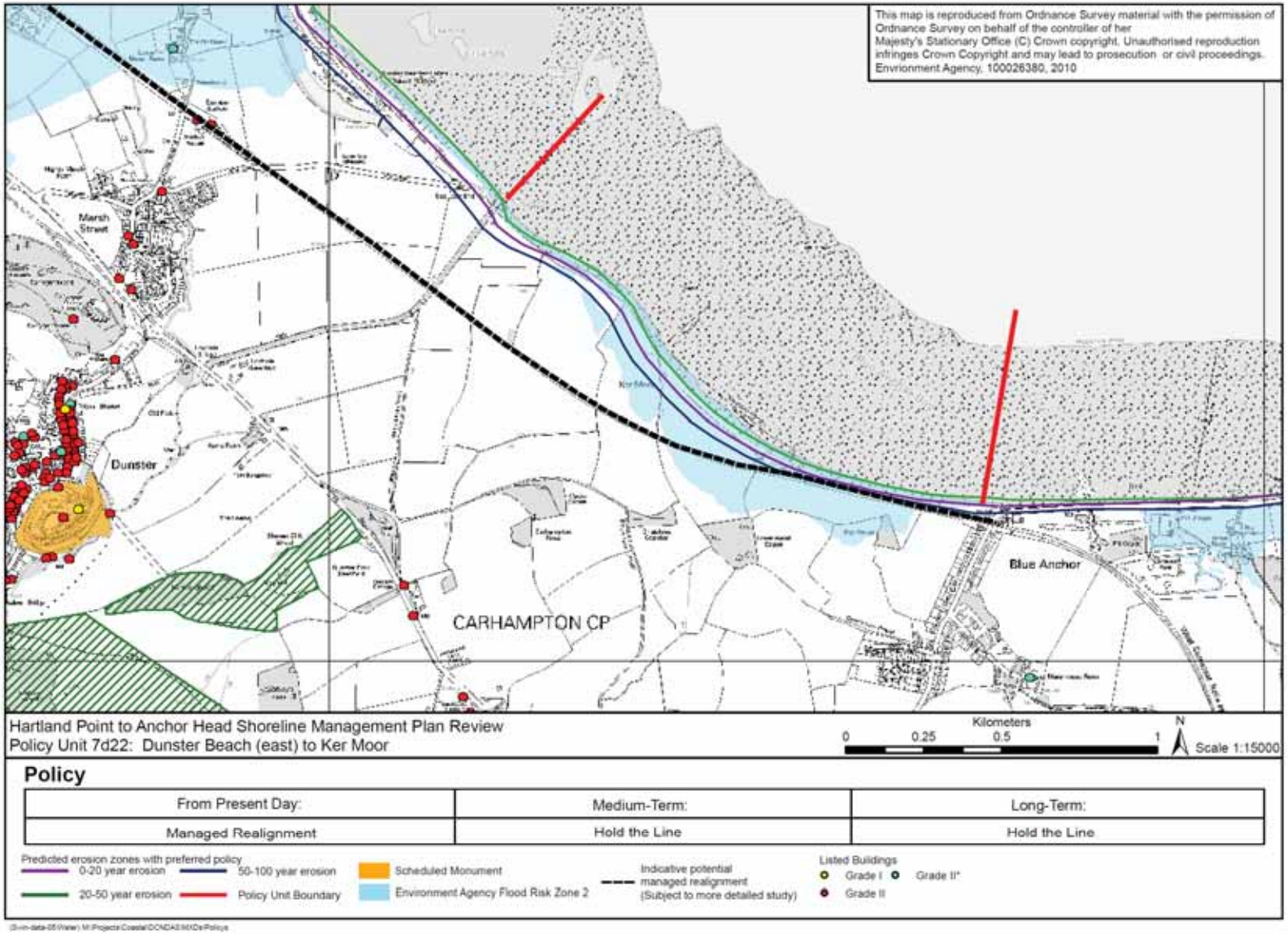

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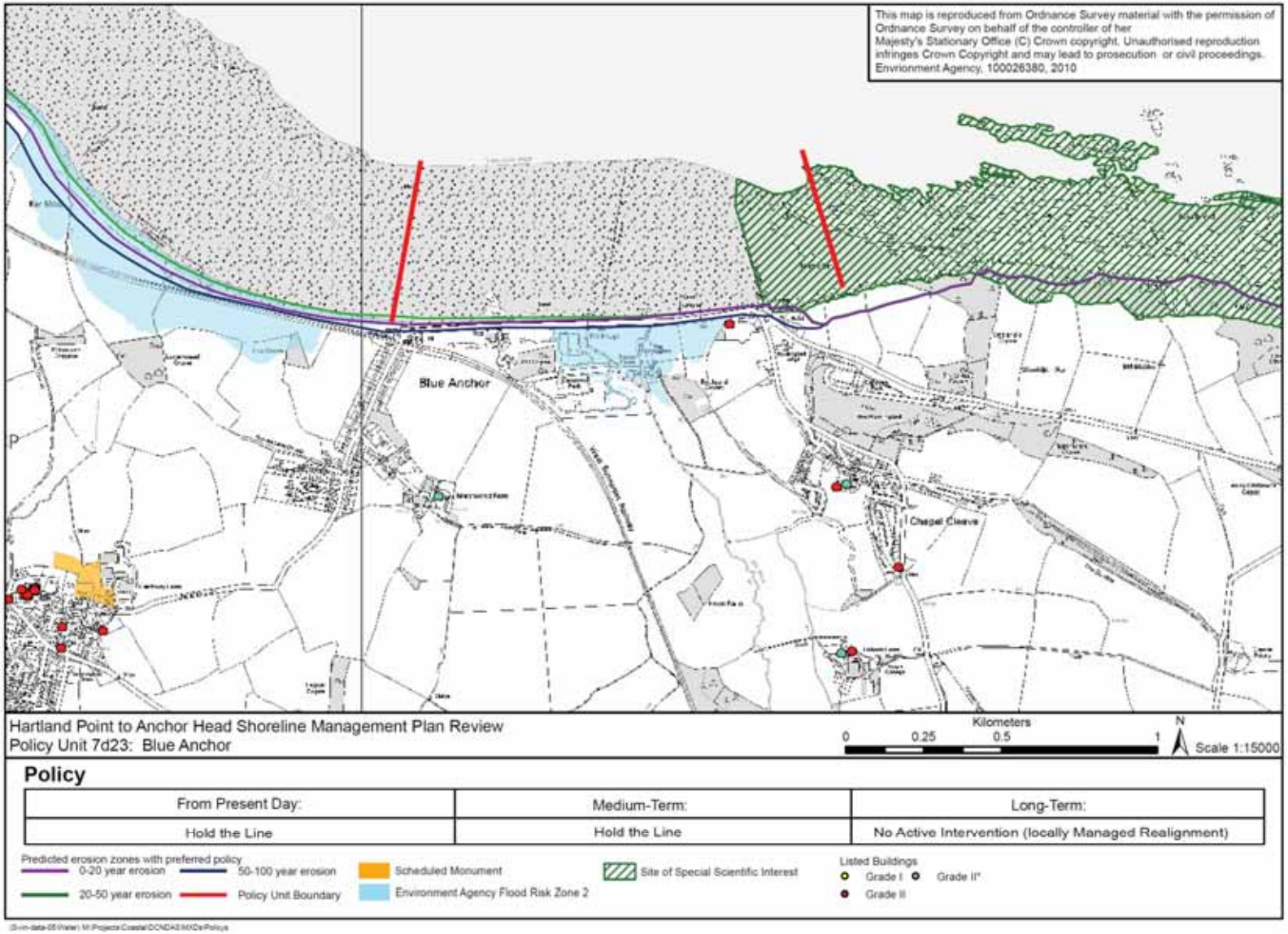

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Location reference:	**Blue Anchor to St Audries Bay**
Policy unit reference:	**7d24 to 7d27**

Summary of preferred plan recommendations and justification

Plan:

This coastline is characterised by a number of small settlements and holiday resorts along the shoreline. The largest settlement is at Watchet, where there are a large number of residential and commercial properties as well as a small harbour.

The long term plan for this coast is for it to evolve naturally, thereby retaining the important landscape character of the area. The key exception will be at Watchet where the scale of the socio-economic assets justifies continued protection, although there would be a local impact on Blue Anchor to Lilstock Site of Special Scientific Interest, as the defences would limit visible exposures of the designated geological features.

It is unlikely that the holiday parks, such as Doniford Holiday Park, will attract public funds from the flood and coastal defence budget. Therefore the plan is to move towards a long term policy of no active intervention as existing defences fail. This will have potential habitat and geological benefits but will mean currently defended areas will be at increased risk of flooding and erosion in the future. A number of other assets could also be at risk, including parts of Daw Castle Scheduled Monument, a number of non-designated archaeological sites and a small section of the registered park and garden at St Audries. Measures may therefore be required to manage this transition, so in the short term the policy is to continue to maintain existing defences along these frontages.

At Watchet there will be continued protection from erosion of homes and businesses, the harbour, some of the allotments, a place of worship, a museum and a small part of the West Somerset Railway. Two substations and the Conservation Area at Watchet will also be protected from flooding.

Preferred policies to implement plan:

From present day (short term):	The policy along the majority of this undefended section is one of **no active intervention**, allowing the coast to continue to evolve naturally. Along currently defended areas such as those at Watchet and Doniford, the short term policy is to **hold the line**. This will be implemented through ongoing maintenance of the defences at Watchet and possible improvements to the piece-meal defences that protect the West Somerset Railway towards Doniford. This would be consistent with other management policies along the coast to the west to protect the railway. This will be kept under review as relocation of the line here may become a more practical solution in the long term. On the western side of Watchet, there may be a need to intervene to reduce the risk of cliff recession to the B3191 if it proves impractical to realign the road landwards. The need for such intervention should be informed by continuing the monitoring that presently occurs in this area. The policy for the rock revetment defences at Doniford Holiday Park is one of **no active intervention** as it is unlikely to attract public funds from the flood and coastal defence budget to maintain and improve them. However, these defences are privately owned and maintained at present and could be retained during this period if alternative funds are available. However, to continue to provide an effective level of protection they would eventually need to be replaced with much larger structures. Continued defence here will exacerbate beach loss as sea levels rise, which could affect the viability of the holiday park in the medium to long term.
Medium term:	The policy along the majority of this undefended section will remain **no active intervention**, thereby allowing the coast to evolve naturally.

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	At Watchet, the policy will be to continue to provide protection to the town, through **hold the line**, maintaining, and when necessary building new more substantial defences. Continued defence of the section of railway between Watchet and Doniford will depend upon decisions made for the coast to the west on the viability of continuing to protect the West Somerset Railway. A **hold the line** policy would be implemented here should the decision be made to protect the entire line. On the western side of Watchet, in line with protecting the B3191 at other parts of the coast in this period, there may be a need to intervene to reduce the risk of cliff recession if it proves impractical to realign the road landwards. Any decision to intervene should informed by continuing the monitoring that presently occurs in this area. At Doniford Holiday Park, the recommended policy is **no active intervention** as it is unlikely that future maintenance or improvement of defences here would attract public flood and coastal defence budget funds. There is no reason in terms of coastal processes not to allow the private defence owner to maintain the rock revetment defences, but this will become technically more difficult and exacerbate local loss of beach.
Longer term:	The long term policy along the majority of this undefended section is to continue **no active intervention**. The key exception is at Watchet where, due to the socio-economic assets, the recommended policy is to continue to **hold the line**, and along the railway frontage between Watchet and Doniford. This would require ongoing maintenance of defences, assuming that adequate improvements to the level of defence were undertaken in the short or medium term. On the western side of Watchet there may remain a need to intervene to reduce the risk of cliff recession to the B3191. Any decision to intervene during this period should informed by continuing the monitoring that presently occurs as well as decisions about the future defence of the road along other parts of the coast such as at Blue Anchor. Any decision to continue to provide protection to Doniford Holiday Park would depend, in part, on conclusions made during early epochs on the viability of providing defences along this section; given the implications for the level of economic investment from private funds and potential loss of recreational beach.

Summary of specific policies

Policy unit		Preferred policies		
		Short term	**Medium term**	**Long term**
7d24	**Blue Anchor to Watchet**	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.
7d25	**Watchet to Doniford**	Maintain the existing seawall and breakwater defences, with eventual replacement of some	Maintain the defences, eventually replacing those not replaced in short term with larger structures, to	Maintain the defences to continue protection against flood and erosion risk, through **hold the**

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Policy unit		Preferred policies		
		Short term	**Medium term**	**Long term**
		defences with larger structures, to continue protection against flood and erosion risk, through **hold the line**.	continue protection against flood and erosion risk, through **hold the line**.	**line**.
7d26	**Doniford to St Audries Bay**	Continue to allow existing localised defences to be maintained or replaced if alternative funding is available to reduce the risk of erosion. If alternative funds are not available, then allow natural coastal evolution to continue through **no active intervention**.	Continue to allow existing localised defences to be maintained or replaced if alternative funding is available to reduce the risk of erosion. If alternative funds are not available, then allow natural coastal evolution to continue through **no active intervention**.	Continue to allow existing localised defences to be maintained or replaced if alternative funding is available to reduce the risk of erosion. If alternative funds are not available, then allow natural coastal evolution to continue through **no active intervention**.
7d27	**St Audries Bay**	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.

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Location reference:	Blue Anchor to St Audries Bay
Policy unit reference:	7d24 to 7d27

Implications of the preferred plan for this location

Time period	Management activities	Human Health, Property and Population	Land use, infrastructure and material assets	Historic Environment	Landscape character and Visual Amenity	Geology and Soils	Water	Biodiversity, flora and fauna
2005 to 2025	Maintenance and improving existing defences at Watchet. Withdraw defences at Doniford to St Audries Bay to allow to coast to function more naturally and no management activities along the rest of this section of coast.	Properties in Watchet are at risk from fluvial flooding.	Protection of harbour infrastructure from erosion at Watchet. Protection of the holiday park infrastructure from outflanking of localised defence structures at Doniford. Loss of varying amounts of Grade 3 agricultural land due to flooding and erosion.	Potential for Audries Bay Registered Park and Garden to be flooded.	Minor changes in landscape due to increased erosion and flooding. Potential for deteriorating coastal defence structures to become unsightly between Doniford and St Audries Bay. Larger or more structures may be required at Watchet to maintain an acceptable standard of flood and erosion protection in some areas, thus potentially resulting in a change of views and a change in landscape character.	Reduction in beach width at Watchet and Lilstock due to erosion. Continuation of natural processes is key to the integrity of the Blue anchor to Lilstock SSSI. No Active Intervention will continue to maintain these geological features.	Works in areas selected for withdrawal of defences should be implemented so as to not adversely impact on the water quality status of the coastal waters or compromise the achievement of WFD water quality targets.	The Quantocks SSSI is at risk from flooding with potential impact on freshwater habitat through saline intrusion, but this will be due to natural processes. Reduction in spatial extent of the CWS at Cridlands Corpse and Blue Anchor to Lilstock Cliff.
2025 to 2055	Maintenance and improving existing defences at Watchet. No management activities along the rest of this section of coast.	Protection of a small number of commercial and residential properties from erosion at Watchet. Properties in Watchet are at risk from fluvial flooding.	Protection of harbour infrastructure, place of worship, and a museum from erosion at Watchet. Reduction in beach width at Watchet due to erosion. Protection of the holiday park infrastructure from outflanking of localised defence structures at Doniford Loss of varying amounts of Grade 3 agricultural land due to flooding and erosion.	Potential for Audries Bay Registered Park and Garden to be flooded.	As above.	As above.	As above.	As above.
2055 to 2105	Maintenance and improving existing defences at Watchet. No management activities along the rest of this section of coast.	Protection of a small number of commercial and residential properties from erosion at Watchet. Properties in Watchet are at risk from fluvial flooding.	Protection of harbour infrastructure, sections of allotment gardens, place of worship, a museum, and small section of the West Somerset Railway from erosion at Watchet. Reduction in beach width at Watchet due to erosion. Protection of the holiday park infrastructure from outflanking of localised defence structures at Doniford	Potential for Audries Bay Registered Park and Garden to be flooded.	As above.	As above.	As above.	As above.

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Location reference:	Blue Anchor to St Audries Bay
Policy unit reference:	7d24 to 7d27

Implications of the preferred plan for this location								
Time period	**Management activities**	**Human Health, Property and Population**	**Land use, infrastructure and material assets**	**Historic Environment**	**Landscape character and Visual Amenity**	**Geology and Soils**	**Water**	**Biodiversity, flora and fauna**
			Loss of varying amounts of Grade 3 agricultural land due to flooding and erosion					

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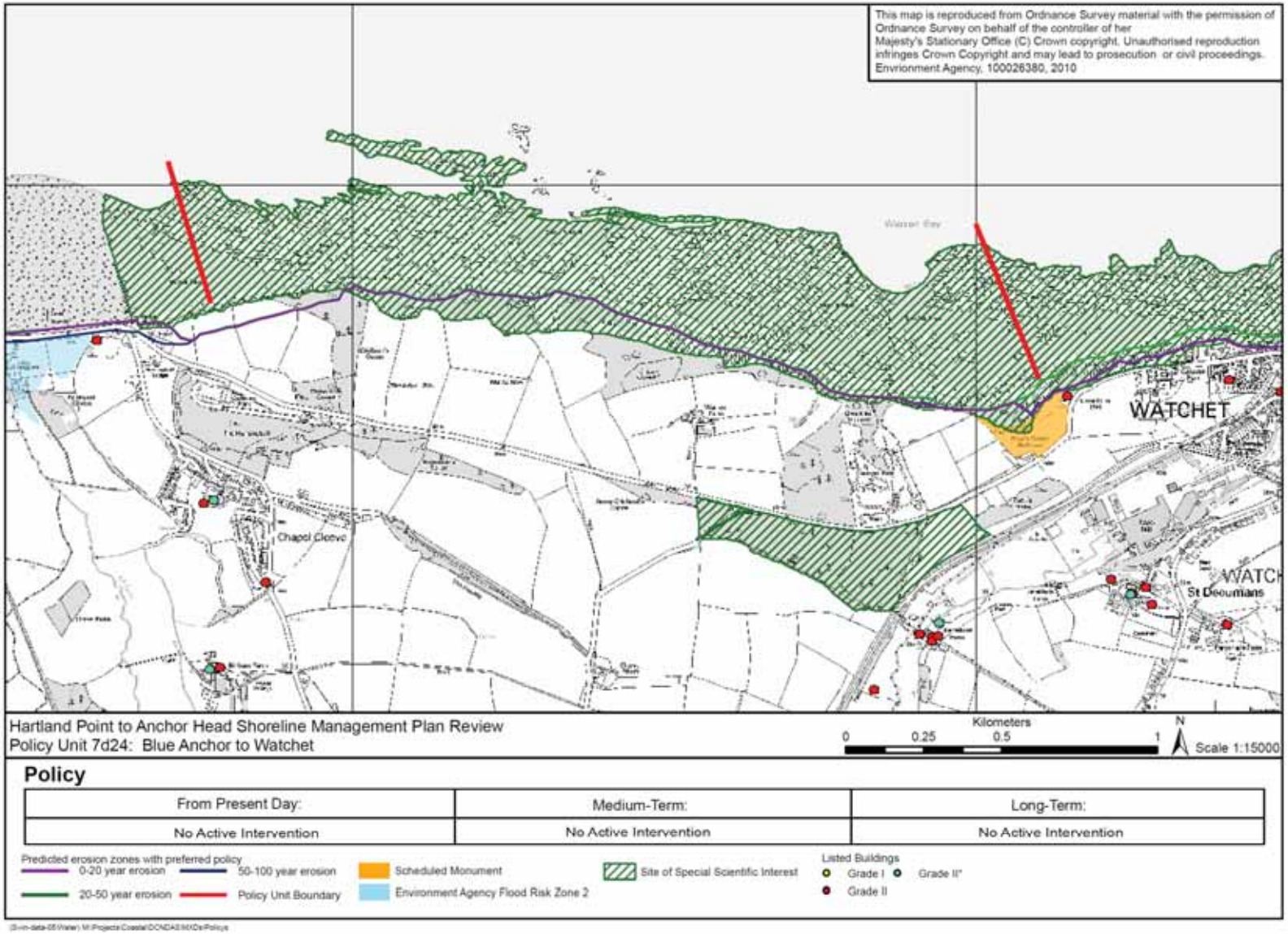

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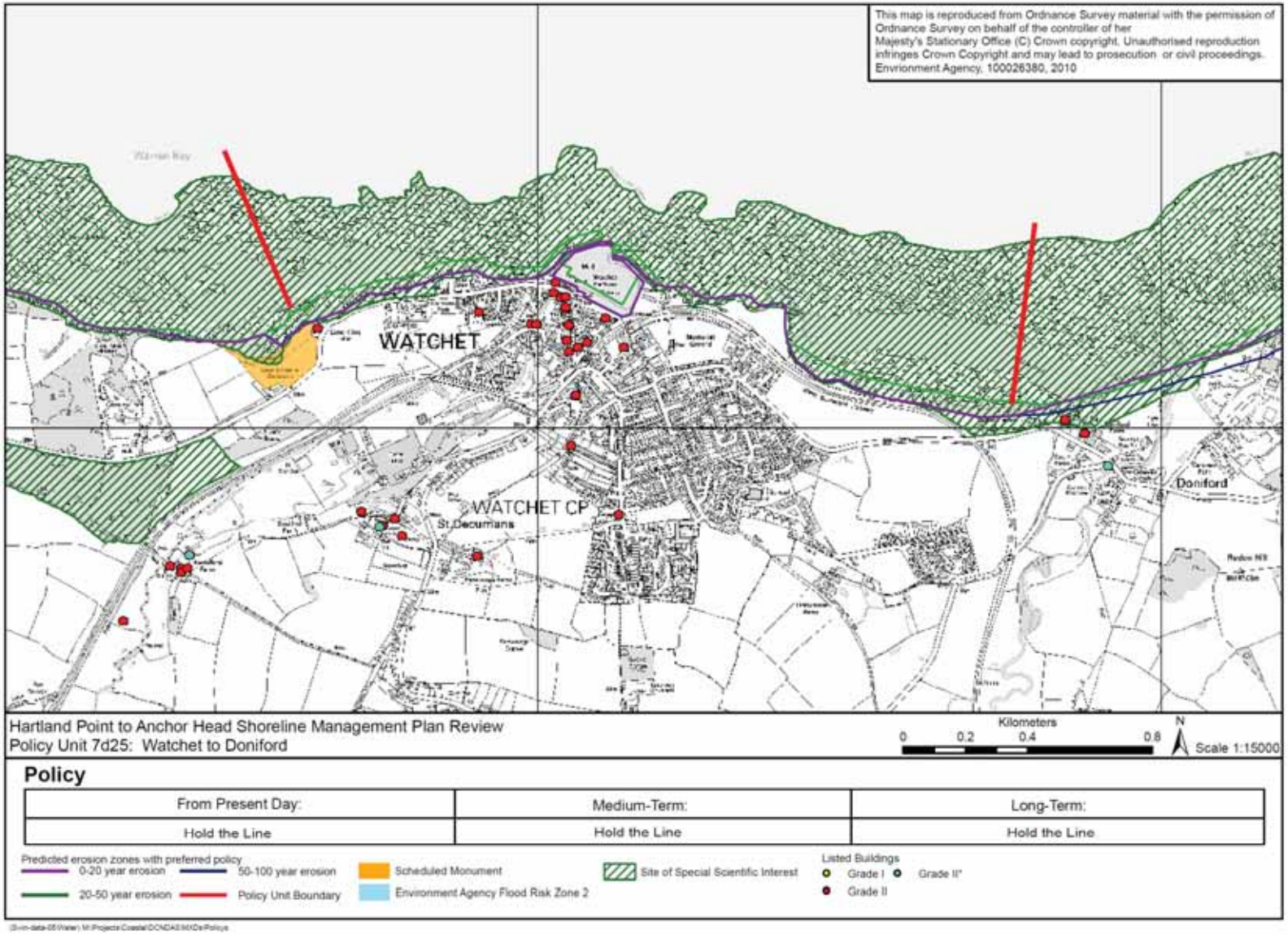

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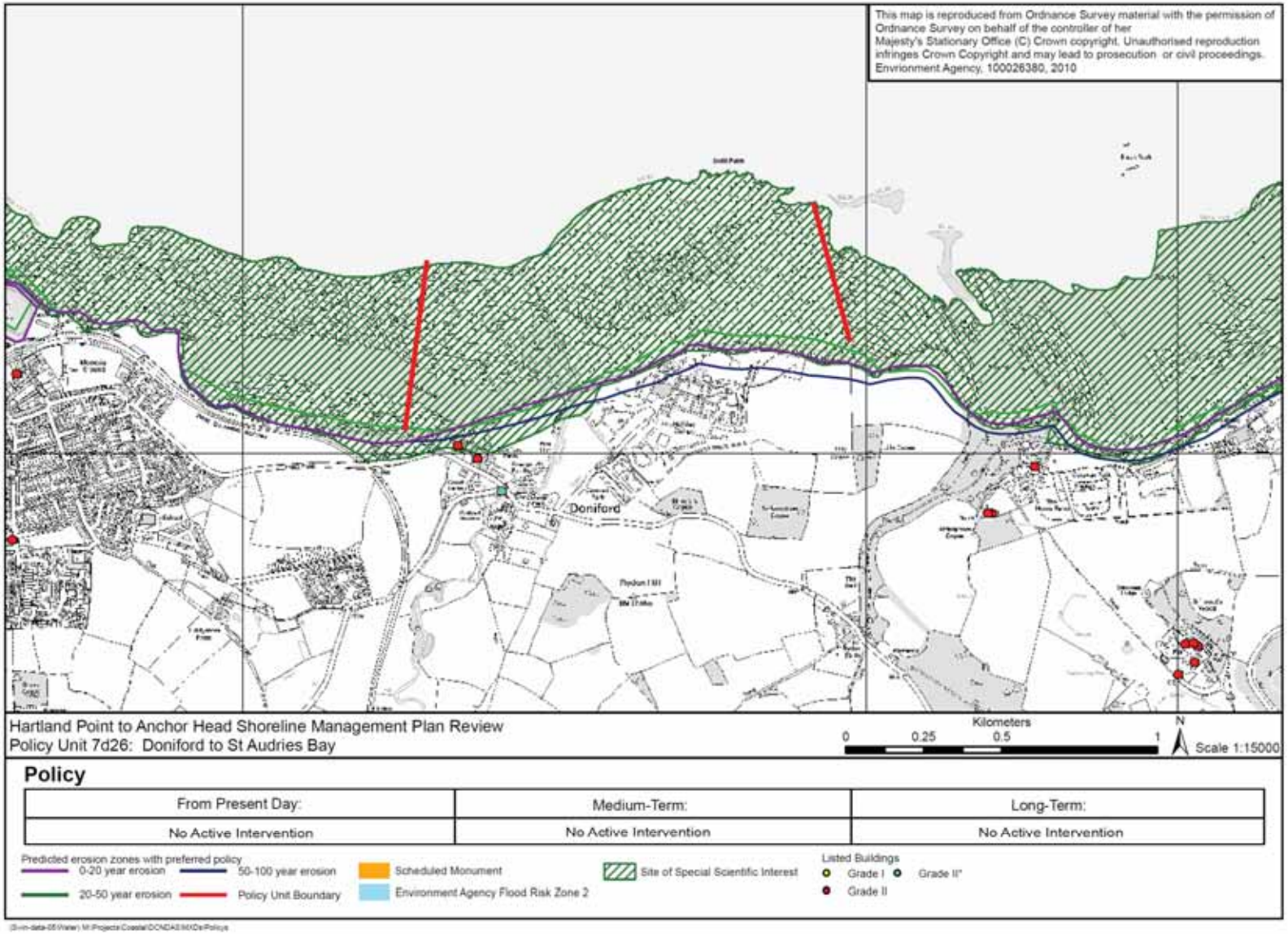

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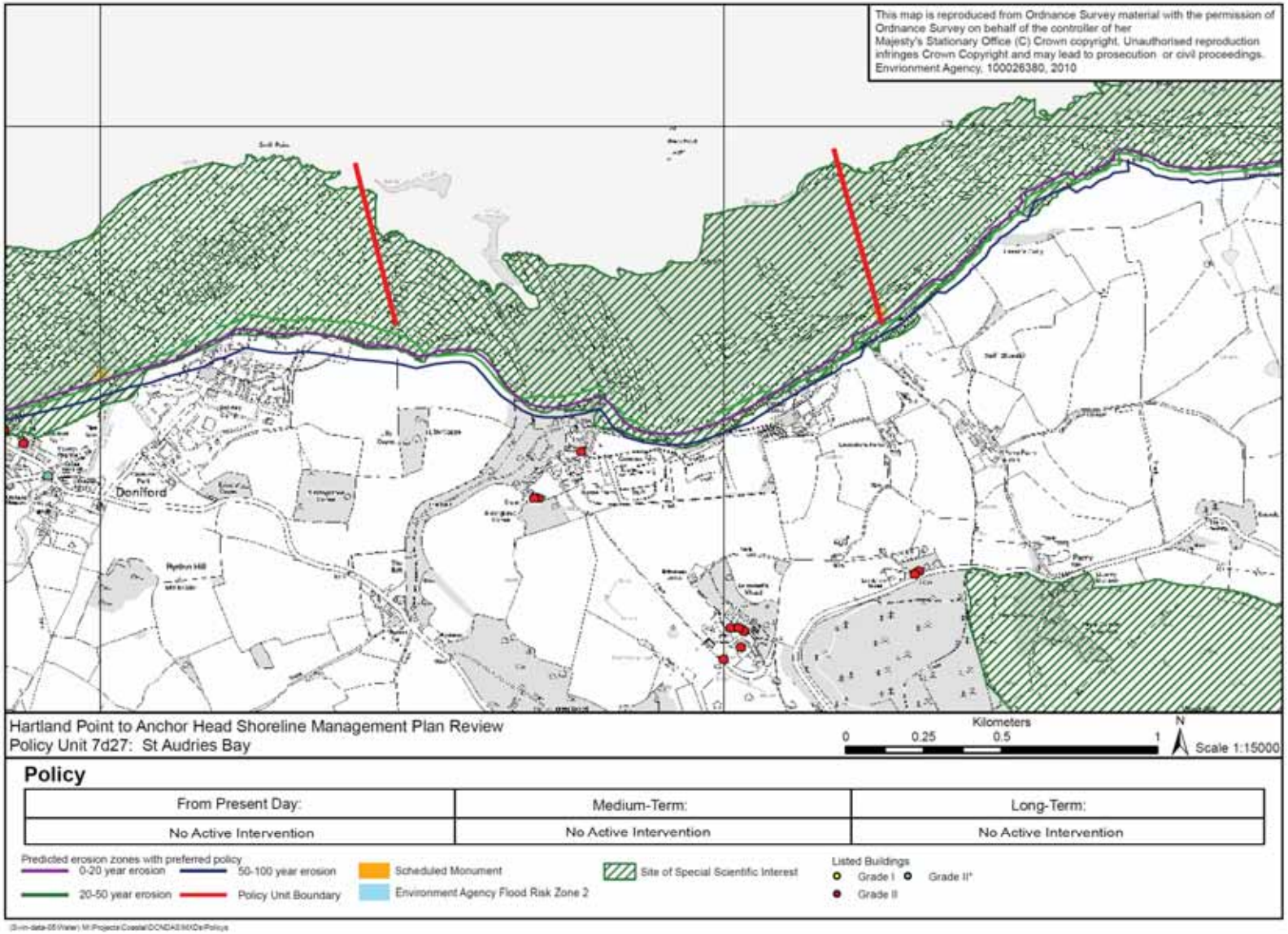

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Location reference:	**St Audries Bay to Hinkley Point**
Policy unit reference:	**7d28 to 7d30**

Summary of preferred plan recommendations and justification

Plan:

This statement covers the largely natural coastline between St Audries Bay and the western end of the power stations site at Hinkley Point. The long term plan for this section of coast is to allow it to evolve naturally along much of its length, retaining the important landscape character of the area. No cliff top assets are expected to be at risk.

Currently there is a short stretch of defence at Lilstock. Continuing to provide protection here, whilst unlikely to have a significant impact on coastal processes, is not likely to attract public funds (national flood and coastal defence budget). The plan here to not intervene further once defences have failed. This will have local implications for the access road and agricultural land which will be at increased risk of flooding.

Preferred policies to implement plan:

From present day (short term):	The policy for the majority of this undefended section is to allow the coast to continue to evolve naturally during this period, through **no active intervention**. Due to the flood risk at Lilstock, the existing embankment will be maintained for as long as technically feasible through a policy of **hold the line**. It is unlikely that improvement of this defence would attract public funds from the flood and coastal defence budget and once the defence reaches the end of its effective life and fails, it would not be replaced.
Medium term:	The policy along this entire frontage is **no active intervention**, allowing the coast to continue to evolve naturally. At Lilstock this would have local implications in terms of the access road and agricultural land.
Longer term:	The recommended policy along this whole section of coast is for **no active intervention**, allowing the shoreline to continue to evolve naturally.

Summary of specific policies

Policy unit		Preferred policies		
		Short term	**Medium term**	**Long term**
7d28	**St Audries Bay to Lilstock**	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.
7d29	**Lilstock**	Maintain the existing embankment/gabion defences to continue protection against flooding, through **hold the line**, while preparing to move towards the medium term policy.	Allow natural coastal evolution by moving towards a policy of **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.
7d30	**Lilstock to Hinkley Point**	Allow natural coastal evolution to continue	Allow natural coastal evolution to continue	Allow natural coastal evolution to continue

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Policy unit		Preferred policies		
		Short term	Medium term	Long term
		through **no active intervention**.	through **no active intervention**.	through **no active intervention**.

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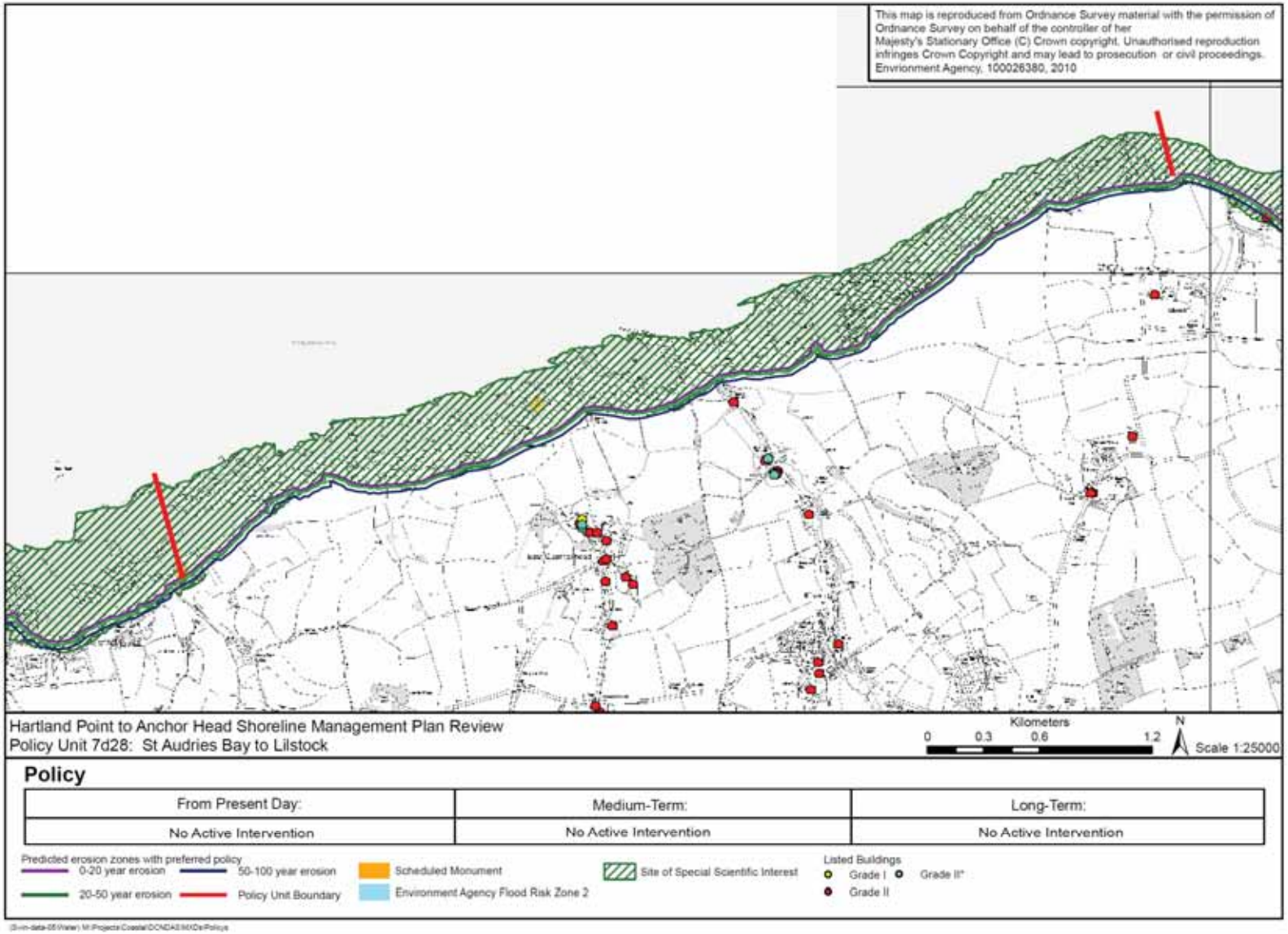
Location reference:	St Audries Bay to Hinkley Point
Policy unit reference:	7d28 to 7d30

Implications of the preferred plan for this location

Time period	Management activities	Human Health, Property and Population	Land use, infrastructure and material assets	Historic Environment	Landscape character and Visual Amenity	Geology and Soils	Water	Biodiversity, flora and fauna
2005 to 2025	Management activities of maintenance and improvement will be undertaken at Lilstock. The remaining stretch of coast will be left to function naturally.	No properties are at risk from erosion and flooding along this section of coast.	No infrastructure or material assets are at risk from erosion and flooding along this section of coast.	No historic environment features are at risk along this section of coast.	No known changes in landscape.	Reduction in beach width at Lilstock due to erosion. Continuation of natural processes is key to the integrity of the Blue Anchor to Lilstock Coast SSSI. No Active Intervention will continue to maintain these geological features.	No known impact on Water.	The Quantocks SSSI is at risk from flooding with potential impact on freshwater habitat through saline intrusion, but this will be due to natural processes. Reduction in spatial extent of the CWS at Cridlands Corpse, Blue Anchor to Lilstock Cliff and Hinkley Point due to the natural erosion of the cliffs.
2025 to 2055	This stretch of coast will be left to function naturally.	No properties are at risk from erosion and flooding along this section of coast.	No infrastructure or material assets are at risk from erosion and flooding along this section of coast.	The post medieval haven at Lilstock is potentially at risk from erosion. No additional historic environment features are at risk along this section of coast.	As above.	As above.	No known impact on Water.	As above.
2055 to 2105	This stretch of coast will be left to function naturally.	No properties are at risk from erosion and flooding along this section of coast.	No infrastructure or material assets are at risk from erosion and flooding along this section of coast.	As above.	As above.	As above.	No known impact on Water.	As above.



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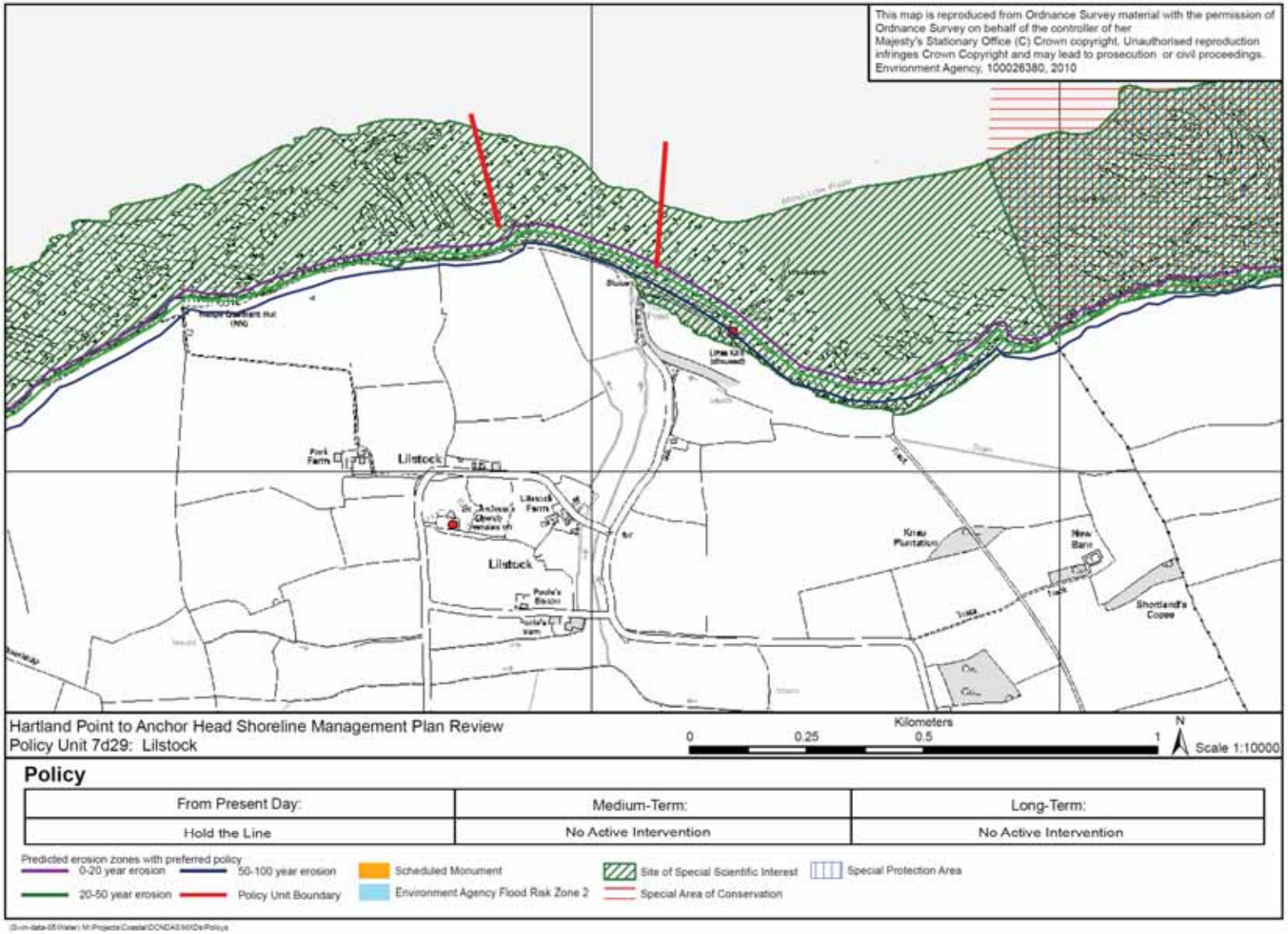

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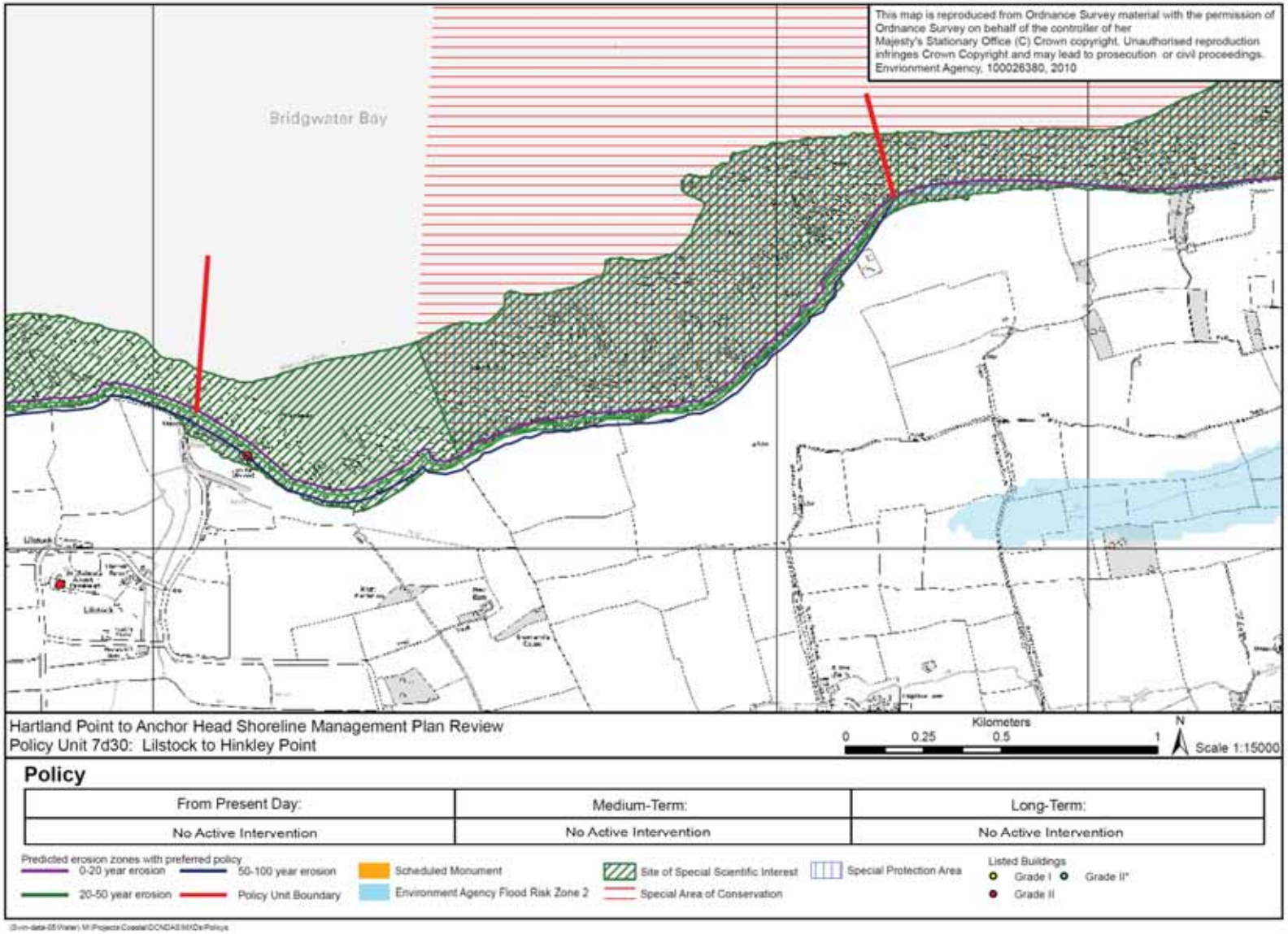

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Location reference:	**Hinkley Point**
Policy unit reference:	**7d31**

Summary of preferred plan recommendations and justification

Plan:

Due to the importance and proposed expansion of the power stations at Hinkley Point, the long term plan here is to continue to provide protection against flood and erosion risk. This will ensure continued protection of the existing power station, its outfall pipes and landfill sites from the risk of flooding and erosion. This includes the option to extend defences by about 1km westwards if required for expansion of the site to allow for construction of new power stations in the coming years. At the time of the SMP being drafted no planning application has been submitted and so precise details of the expansion are not yet available.

Any westward extension of hard defences is likely to result in loss of some intertidal habitat through coastal squeeze (narrowing of the shoreline). This could affect Bridgwater Bay Site of Special Scientific Interest and national nature reserve, Severn Estuary Special Area for Conservation, Special Protection Area for Birds, Ramsar Site and Hinkley Point County Wildlife Site, and could also impact upon a number of non-designated archaeological sites. These are issues that would have to be addressed by the developer as part of any planning application.

Preferred policies to implement plan:

From present day (short term):	This section is currently defended along the majority of its length and the policy is to continue to **hold the line** through maintenance of existing seawall and revetment structures. A hold the line policy would also cover any extension of defences westwards along the shore if required as part of the expansion and development of new reactors at Hinkley Point Power Station. If these are not required, then there is likely to be no active intervention along the currently undefended shoreline. Defences along the current power station frontage will continue to restrict the amount of beach sediment transported around Hinkley Point from west to east towards the Steart Peninsula. This would occur regardless of any effects of a proposed jetty that may be built as part of the power station extension; although such a construction could exacerbate the problem. Further studies would be required to quantify this.
Medium term:	Continuing to **hold the line** at Hinkley Point will require ongoing maintenance of defences to provide protection to the site, including any expansion and new defences constructed in accordance with that. If this has not occurred, then the currently undefended cliffs could evolve naturally under a policy of **no active intervention**.
Longer term:	Continuation of the policy to **hold the line** at Hinkley Point will require ongoing maintenance of defences to reduce the risk of flooding and erosion to the present, and potentially expanded, site of the power stations. If the site has not been extended then the currently undefended cliffs could evolve naturally under a policy of **no active intervention**.

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Summary of specific policies

Policy unit		Preferred policies		
		Short term	Medium term	Long term
7d31	Hinkley Point	Maintain the existing seawall defences, and possibly construct new seawall defences along the shoreline to the west, to continue protection against flood and erosion risk, through **hold the line**. If new defences are not required along the western part of this frontage as part of the Hinkley Point power station expansion, then **no active intervention** is to occur.	Maintain the defences to continue protection against flood and erosion risk, through **hold the line**. Any areas where the coast remains undefended are to be allowed to evolve naturally under **no active intervention**.	Maintain the defences to continue protection against flood and erosion risk, through **hold the line**. Any areas where the coast remains undefended are to be allowed to evolve naturally under **no active intervention**.

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Location reference:	Hinkley Point
Policy unit reference:	7d31

Implications of the preferred plan for this location

Time period	Management activities	Human Health, Property and Population	Land use, infrastructure and material assets	Historic Environment	Landscape character and Visual Amenity	Geology and Soils	Water	Biodiversity, flora and fauna
2005 to 2025	Maintain existing defences and construct new defences as required.	No Known impact on residential property or population.	Protection of the power station and waste holding facilities from minor erosion on the western edge of the site.	No known impact on the Historic Environment.	Minor changes in landscape due to larger defences or more structures being required to maintain an acceptable standard of flood and erosion protection, thus potentially resulting in a change of views and a change in landscape character.	Defence may reduce the area of the intertidal platform through coastal squeeze,	No known impact on Water.	Coastal squeeze will occur at Hinkley Point (sea level rise against sea defences) resulting in a net decrease in intertidal habitat and distribution of the habitats and species in this area, which are key features of the Bridgwater Bay SSSI and NNR, Severn Estuary Ramsar, SPA and SAC. Therefore this policy is considered further within the Habitats Regulations Assessment (Appendix J).
2025 to 2055	Maintain existing defences.	No Known impact on residential property or population.	Protection of the power station and waste holding facilities from erosion on the western edge of the site.	No known impact on the Historic Environment.	As above.	As above.	No known impact on Water.	As above.
2055 to 2105	Maintain existing defences.	No Known impact on residential property or population.	Protection of the power station and waste holding facilities from erosion on the western edge of the site.	No known impact on the Historic Environment.	As above.	As above.	No known impact on Water.	As above.

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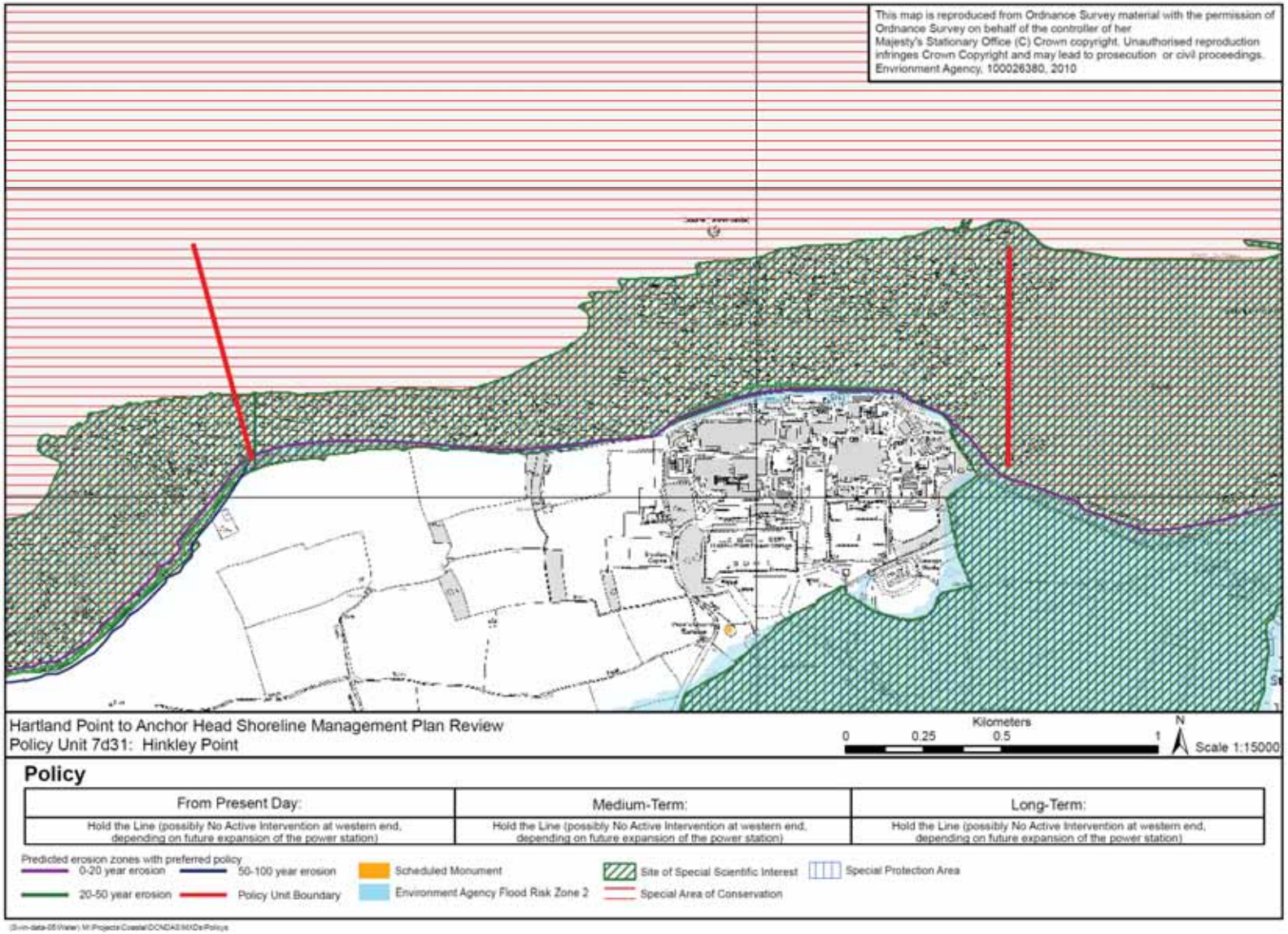

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Location reference:	**Hinkley Point to Stolford**
Policy unit reference:	**7d32 and 7d33**

Summary of preferred plan recommendations and justification

Plan:

This section covers the large flood risk area between the eastern end of the power station site at Hinkley Point, and settlement of Stolford. The long term plan is to continue to provide flood protection to the majority of properties and infrastructure, but along a more sustainable and affordable alignment.

Realignment along parts of this section to the east of Hinkley Point may also mitigate some of the impacts upon Site of Special Scientific Interest, National Nature Reserve, Special Area for Conservation, Special Protection Area for Birds and Ramsar habitats that are likely to occur as a result of the planned westwards extension of Hinkley Point power station.

Further studies are required to define the most appropriate alignment of set back defences; therefore the short term policy is to continue to maintain existing defences while those are carried out.

As a result of realignment, homes, businesses and roads at Stolford would likely remain protected against the risk of flooding as it is anticipated that the realigned position would be in front of this area, but some small areas of agricultural land will be permanently lost. Power lines running from Hinkley Point are also located in the floodplain and any managed realignment along this stretch of coast would need to consider the best form of protection for these assets.

Preferred policies to implement plan:

From present day (short term):	This section is presently defended along its full length and the short term policy is to **hold the line** through maintaining the existing revetment and embankment structures. This will allow time for detailed investigations to be carried out to determine the most appropriate form of any future managed realignment.
Medium term:	The medium term policy is for **managed realignment** through the construction of set back defences, the location of which would be determined through earlier studies. The exact location of any new set back defences would affect the assets at risk, and studies would also need to consider the power lines running from Hinkley Point, and be consistent with the implementation of policies for the Steart Peninsula.
Longer term:	The long term policy is to **hold the line** of the set back defences in order to minimise the risk of flooding and erosion to people, property and infrastructure. This will likely involve ongoing maintenance of future embankments.

Summary of specific policies

Policy unit		Preferred policies		
		Short term	**Medium term**	**Long term**
7d32	**Hinkley Point to Stolford**	Continue to maintain existing embankment defences under a **hold the line** policy. Investigate opportunities for managed	Implement **managed realignment** along this stretch.	**Hold the line** of the realigned defence.

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Policy unit		Preferred policies		
		Short term	**Medium term**	**Long term**
		realignment.		
7d33	**Stolford**	Continue maintaining existing embankment defences under a **hold the line** policy. Investigate managed realignment opportunities.	Implement **managed realignment** along this stretch.	**Hold the line** of the realigned defence.

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Location reference:	Hinkley Point to Stolford
Policy unit reference:	7d32 and 7d33

Implications of the preferred plan for this location

Time period	Management activities	Human Health, Property and Population	Land use, infrastructure and material assets	Historic Environment	Landscape character and Visual Amenity	Geology and Soils	Water	Biodiversity, flora and fauna
2005 to 2025	Continue maintaining existing embankment defences. Investigate Managed Realignment opportunities.	Protection of residential and commercial s from flooding.	Protection of residential and commercial properties and roads from flooding.	Protection of Listed Buildings at Stolford Farm.	No known change in landscape or visual amenity.	No known impact on Earth Heritage, Soils and Geology	No known impact on Water.	Protection of freshwater habitats from flooding although there may be issues of coastal squeeze where sea level rise against sea defences leading to a net decrease in intertidal habitat which are key features of the Bridgwater Bay SSSI and NNR Severn Estuary Ramsar, SPA and SAC . Therefore this policy is considered further within the Habitats Regulations Assessment (Appendix J)
2025 to 2055	Implement Managed Realignment along this stretch.	As above. Loss of agricultural land (Grade 3, 4 and 5) to areas of managed realignment.	Protection of residential and commercial properties and roads from flooding. This is dependent on the location of the secondary defences. Potential inundation/protection of critical infrastructure (power lines)	Stolford Farm is at risk from flooding depending on the position of the set back defence. Potential risk to prehistoric peat and forest bed from erosion. Historic landscape of reclaimed land forming wetlands will change towards an intertidal landscape in areas of managed realignment.	Managed realignment will cause a change in landscape from low lying wetland to intertidal habitat as well as construction of a new set-back defence.	Potential changes in soil chemistry through saline inundation.	Works in areas selected for managed realignment should be implemented so as to not adversely impact on the water quality status of the coastal waters or compromise the achievement of WFD water quality targets.	In areas of managed realignment there will be a loss of freshwater habitat to intertidal habitat. This will offset losses of intertidal habitat to coastal squeeze elsewhere in the Estuary.
2055 to 2105	Maintenance of the realigned defence.	As above.	As above	As above	As above	As above.	As above.	As above.

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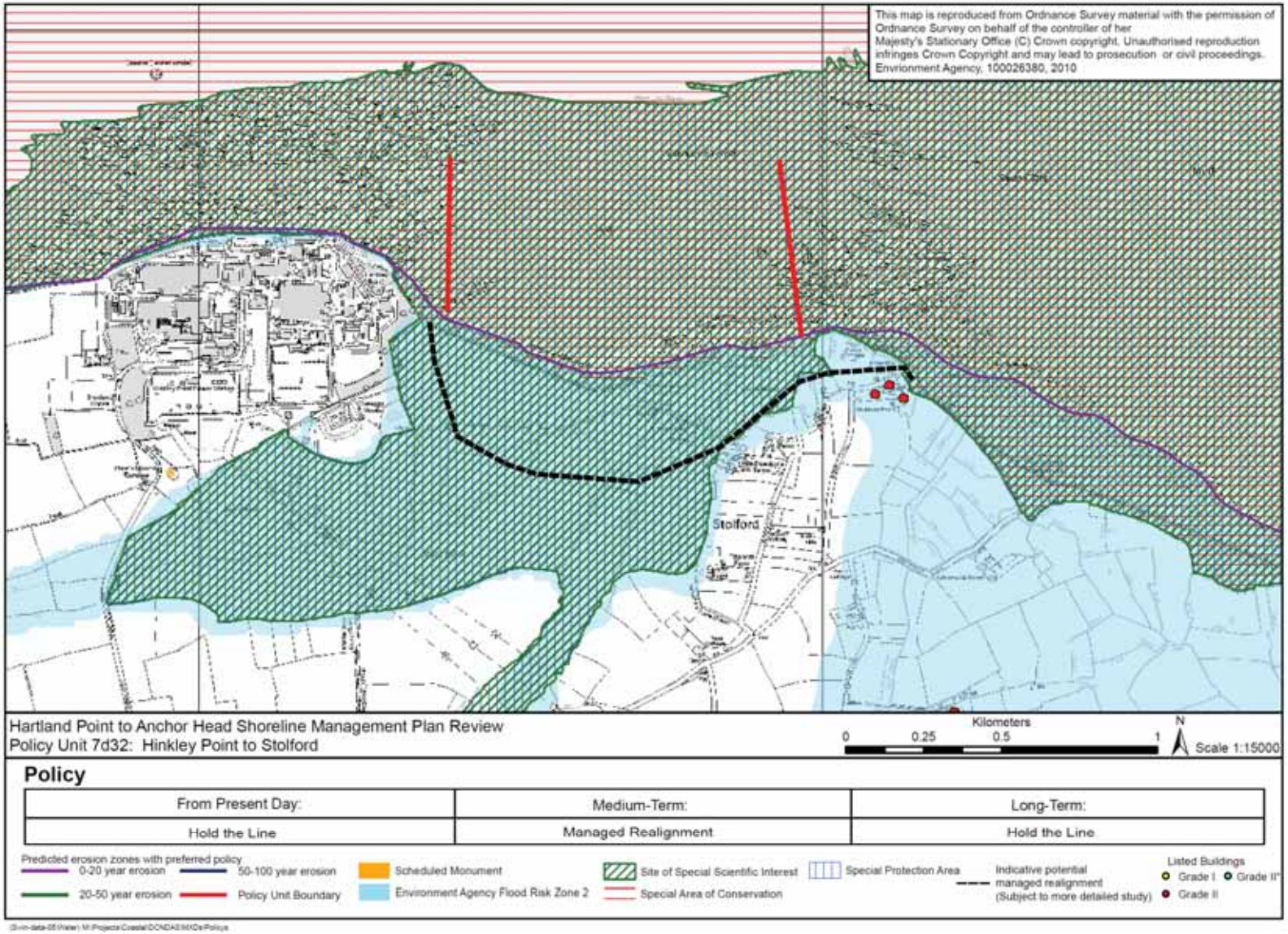

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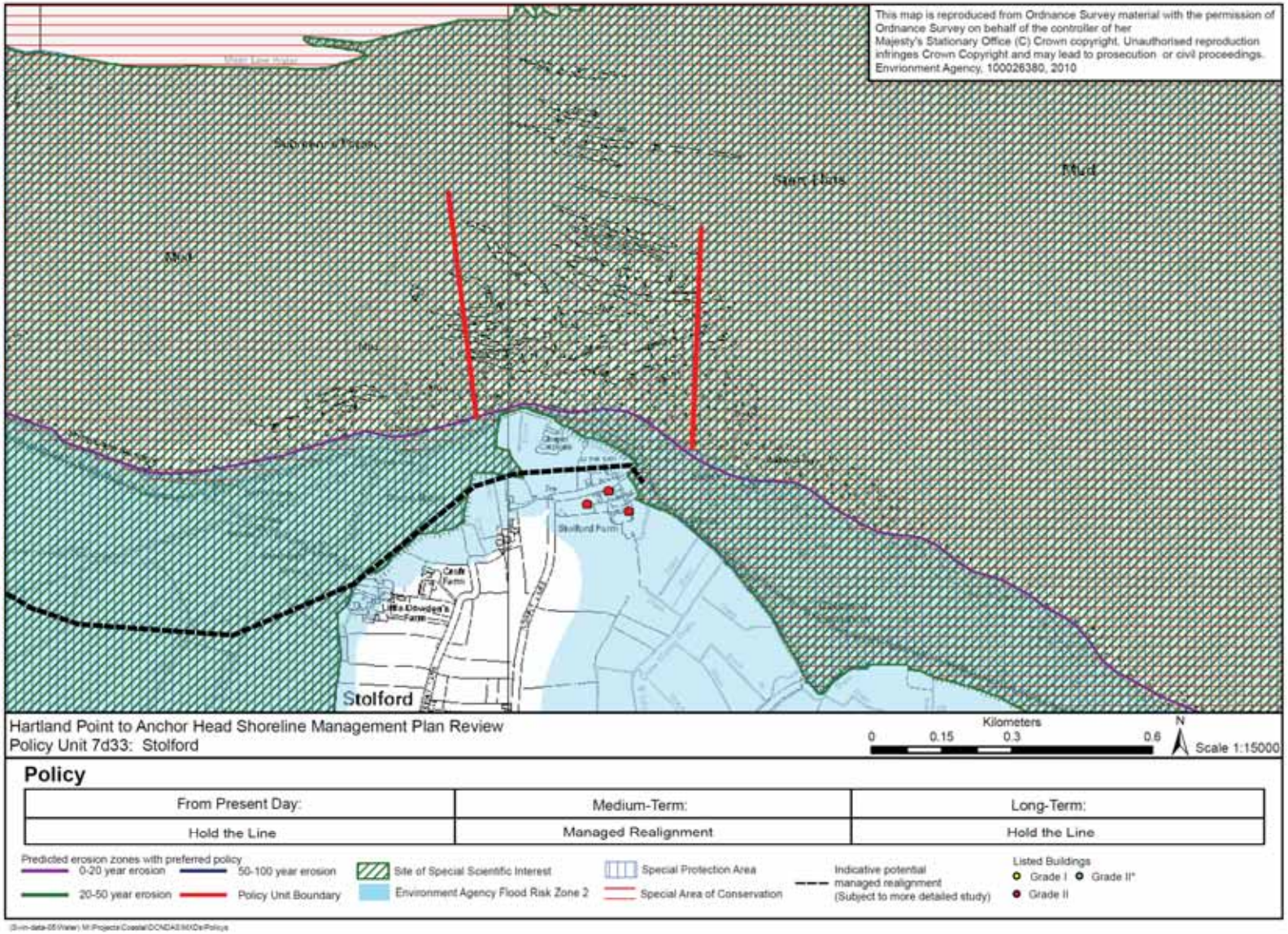

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Location reference:	**Steart Peninsula (Stolford to Combwich)**
Policy unit reference:	**7d34 to 7d37**

Summary of preferred plan recommendations and justification

Plan:

This statement should be read in combination with the statement for the Parrett Estuary as the plans for the two areas are closely linked.

The long term vision for the wider Parrett Estuary is to return it to a more natural, less constrained, state while continuing to provide defence to people and property against the risk of flooding in a way that is environmentally acceptable and economically viable. There are areas within the outer Parrett Estuary where it will become increasingly difficult in the future to economically justify continuing to defend the coast along present alignments. The Steart Peninsula is one of those areas.

The long term plan for Steart Peninsula is therefore to allow this area to function more naturally with little or no human intervention along the shorelines, with defence of assets provided through set-back defences where these can continue to be economically justified. This plan will result in the evolution of new natural intertidal and transitional habitats but would impact upon existing terrestrial habitats. There will eventually be loss of property and infrastructure at Steart village, agricultural land, and a number of non-designated archaeological features. There is also potential for impacts on the national grid power lines running from Hinkley Point and some properties at Stockland Bristol unless realigned defences are provided to protect these against future flooding.

There are also potential implications for the wider estuary hydrodynamic and geomorphological regime, one impact of which could be changes in the low water channel of the estuary which could affect the intertidal area at Burnham-on-Sea and navigation to Dunball. However, sea level rise will also produce considerable changes in these regimes irrespective of management policies within the estuary, and the impacts of any changes in policy need to be considered in that context.

In advance of any long term policy change, measures to manage the transition from present day conditions to the future state are advocated if these can be introduced effectively and economically. There is an opportunity for nature conservation and biodiversity creation to offset losses elsewhere in the Severn Estuary if a managed realignment scheme is introduced in the short term. This also provides opportunity to better manage and potentially improve the immediate flood risk to people and property on the peninsula.

Such changes require detailed investigation to determine the viability, approach, timing, consequences, and any measures that would need to be put in place to manage risk. Opportunities for undertaking realignment to create habitat are currently under review and consultation as part of the Environment Agency led Steart Coastal Management Project.

Preferred policies to implement plan:

From present day (short term):	The policy in the immediate term, i.e. the next few years, is to continue to maintain current flood defences to **hold the line** and minimise the risk of flooding while measures are developed to manage the change in policy in the medium and long term. A longer term continuation of this policy would mean that present defences will need to be re-built and raised but that will not be economically viable to do so along present alignments. During this period the policy will therefore transition to **managed realignment**, providing retired line(s) of defence further inland. The precise location and nature of these is being determined by the ongoing Steart Coastal Management Project, but expected to involve constructing a set back defence line seaward of the power lines reducing any risk of flooding to these and Stockland Bristol. There would also be a need for protection to the village of Steart such that the risk of flooding is not increased from that now by the implementation of such a scheme. The proposed scheme would include breaching the existing defence line to allow the managed development of new wetland habitats.

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	If a habitat creation scheme does not go ahead, then existing defences would be maintained for as long as economic and practical to do so but will ultimately transition to one of **no active intervention** where improvements or set back defences are not economically justified, i.e. Steart village.
Medium term:	The medium term policy would be to **hold the line** of newly constructed set back embankments as long as it remained economically viable and practical to maintain these. This would provide flood protection to people and property, and the continued development of natural habitats over a large area. Eventually, once the set back defences reach the end of their effective life in the medium to long term then the justification for any reconstruction of these will need to be re-evaluated. In some circumstances, e.g. Steart village, it may no longer be viable to continue to provide defences and policy in those areas would become **no active intervention**. Over time Stert Drove road will become more frequently inundated and impassable as sea levels rise, which may also influence this decision.
Longer term:	Provided that it remains economically viable to do so, the long term policy is likely to remain **hold the line** of set back defences and continue to provide protection to the area to the south of the power lines. Elsewhere a policy of **no active intervention** unless an economic case, or alternative funding, can be provided to continue to protect Steart village.

Summary of specific policies

Policy unit		Preferred policies		
		Short term	**Medium term**	**Long term**
7d34	**Stolford to Wall Common**	Initially continue to maintain the shingle bank and defences to **hold the line** while measures are put in place to manage the change to **managed realignment**.	**Hold the line** of the set-back defences protecting the power lines and areas to the west provided this remains economically justified. **No active intervention** along the shoreline.	**Hold the line** of the set-back defences protecting the power lines and areas to the west provided this remains economically justified. **No active intervention** along the shoreline.
7d35	**Steart Village**	Continue to minimise flood and erosion risk to Steart village from the Parrett, through **managed realignment** if a scheme can be justified on habitat creation ground, otherwise, **no active intervention**. On the seaward side initially continue to minimise flood and erosion risk to Steart village, through **hold the line**, while measures are	Continue to maintain set back defences while it remains viable to do so. Allow natural coastal evolution on the seaward side through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.

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Policy unit		Preferred policies		
		Short term	**Medium term**	**Long term**
		put in place to manage the change in policy to **no active intervention**.		
7d36	**South of Steart Village to north of Combwich (line of national grid power lines)**	Initially continue to minimise flood and erosion risk to Steart village, through **hold the line**, while measures are put in place to manage the change in policy to **managed realignment** in PUs 7d34, 7d35 and 7d37.	**No active intervention** along the former Parrett Banks.	**No active intervention** along the former Parrett Banks.
7d37	**Parrett Estuary from line of national grid power lines to Combwich**	Maintain the existing defences to continue to minimise flood risk, through **hold the line**.	Maintain the existing defences to continue to minimise flood risk, through **hold the line**, including the new set-back defences protecting the power lines and areas to the west, provided it remains economically justifiable to do so.	Maintain the existing defences to continue to minimise flood risk, through **hold the line**, including the set-back defences protecting the power lines and areas to the west, provided it remains economically justifiable to do so.

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Location reference:	Steart Peninsula (Stolford to Combwich)
Policy unit reference:	7d34 to 7d37

Implications of the preferred plan for this location

Time period	Management activities	Human Health, Property and Population	Land use, infrastructure and material assets	Historic Environment	Landscape character and Visual Amenity	Geology and Soils	Water	Biodiversity, flora and fauna
2005 to 2025	Maintenance of existing defence except in area of managed realignment in this epoch where new set back defences will be constructed.	Protection of residential and commercial properties at Stolford and Steart Village.	Protection of minor roads on the Steart Peninsula from flooding. Potential loss of some parts of the West Somerset Coastal Path from flooding but can be re-routed. Potential inundation of critical infrastructure (powerlines).	Protection of Listed Buildings at Stolford Farm from flooding. Historic landscape of reclaimed land forming wetlands will change towards an intertidal landscape in areas of managed realignment.	No change to the landscape character and visual amenity.	No known impact on Earth Heritage, Soils and Geology. No designated sites along this stretch of coast. Potential changes in soil chemistry through saline inundation.	Works in areas selected for managed realignment should be implemented so as to not adversely impact on the water quality status of the coastal waters or compromise the achievement of WFD water quality targets.	Wall Common CWS and Wall Common West Local Wildlife Site are at risk from flooding through managed realignment, resulting in a loss of freshwater habitats to intertidal habitat. This will offset losses of intertidal habitat to coastal squeeze elsewhere in the Estuary benefiting the Bridgwater Bay SSSI and NNR Severn Estuary Ramsar, SPA and SAC. This policy is considered further within the Habitats Regulations Assessment (Appendix J)
2025 to 2055	Maintenance of set back defences and defences at Stolford. No active intervention in other areas therefore no management activities.	Protection of residential and commercial properties at Stolford unless a policy of no active intervention is pursued. This may result in an increased flood risk to aforementioned properties. Damage or even loss of residential and commercial properties from flooding at Steart Village.	Protection of minor roads surrounding Stolford from flooding unless a policy of no active intervention is pursued. This may result in an increased flood risk to aforementioned roads. Stolford to Combwich damage or even loss of roads from flooding. Potential inundation of critical infrastructure (powerlines).	Protection of Listed Buildings at Stolford Farm from flooding unless a policy of no active intervention is pursued Historic landscape of reclaimed land forming wetlands will change towards an intertidal landscape in areas of managed realignment.	Managed realignment will cause a change in landscape from low lying wetland to intertidal habitat as well as construction of a new set-back defence.	As above.	As above.	As above.
2055 to 2105	Maintenance of set back defences and defences at Stolford. No active intervention in other areas therefore no management activities.	Protection of residential and commercial properties at Stolford unless a policy of no active intervention is pursued. This may result in an increased flood risk to aforementioned properties. Damage or even loss of residential and commercial properties from flooding at Steart Village.	Protection of minor roads surrounding Stolford from flooding unless a policy of no active intervention is pursued. This may result in an increased flood risk to aforementioned roads. Stolford to Combwich damage or even loss of roads from flooding. Potential inundation of critical infrastructure (powerlines).	Protection of Listed Buildings at Stolford Farm from flooding unless a policy of no active intervention is pursued Historic landscape of reclaimed land forming wetlands will change towards an intertidal landscape in areas of managed realignment.	Managed realignment will cause a change in landscape from low lying wetland to intertidal habitat as well as construction of a new set-back defence.	As above.	As above.	As above.

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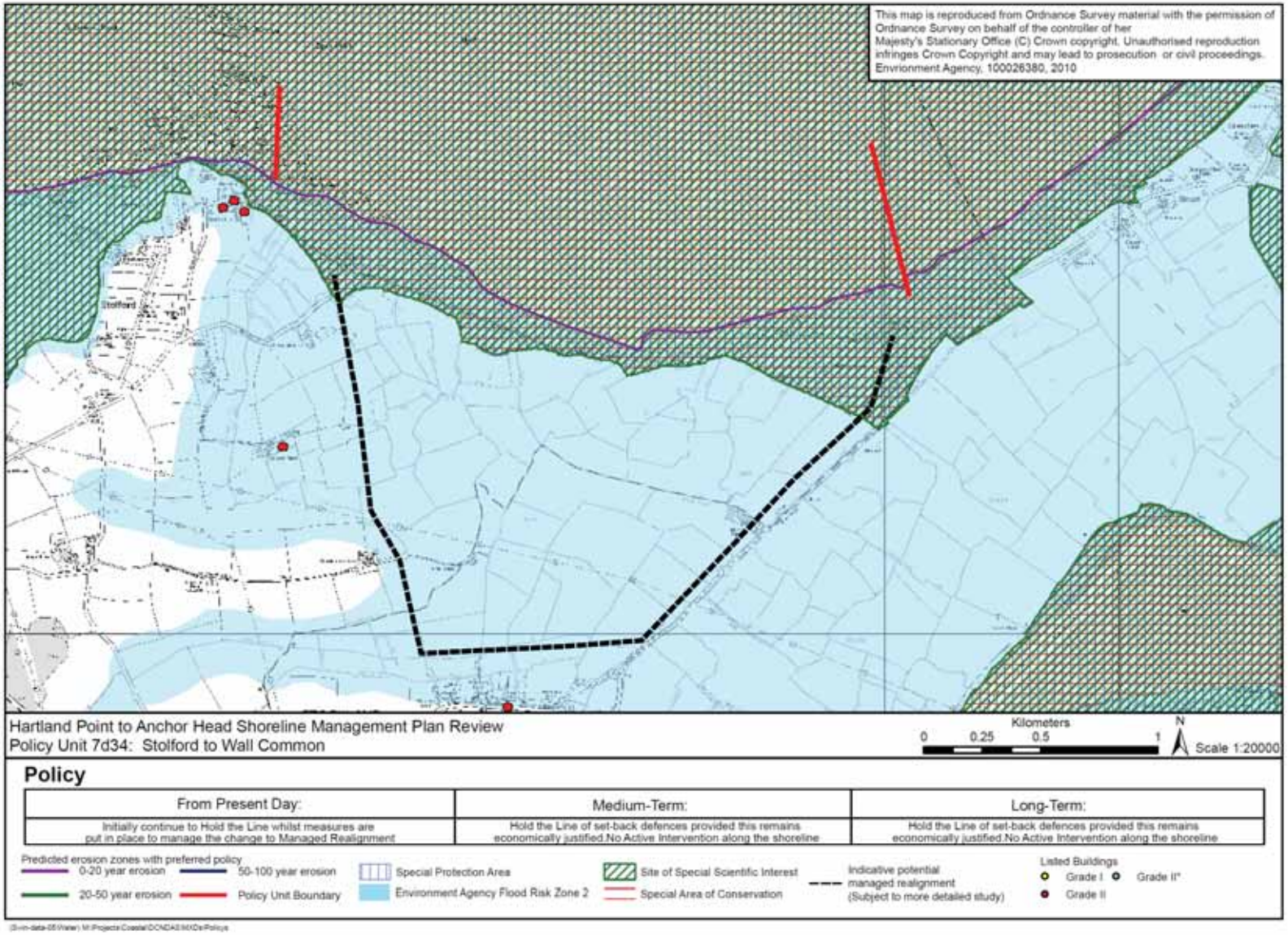

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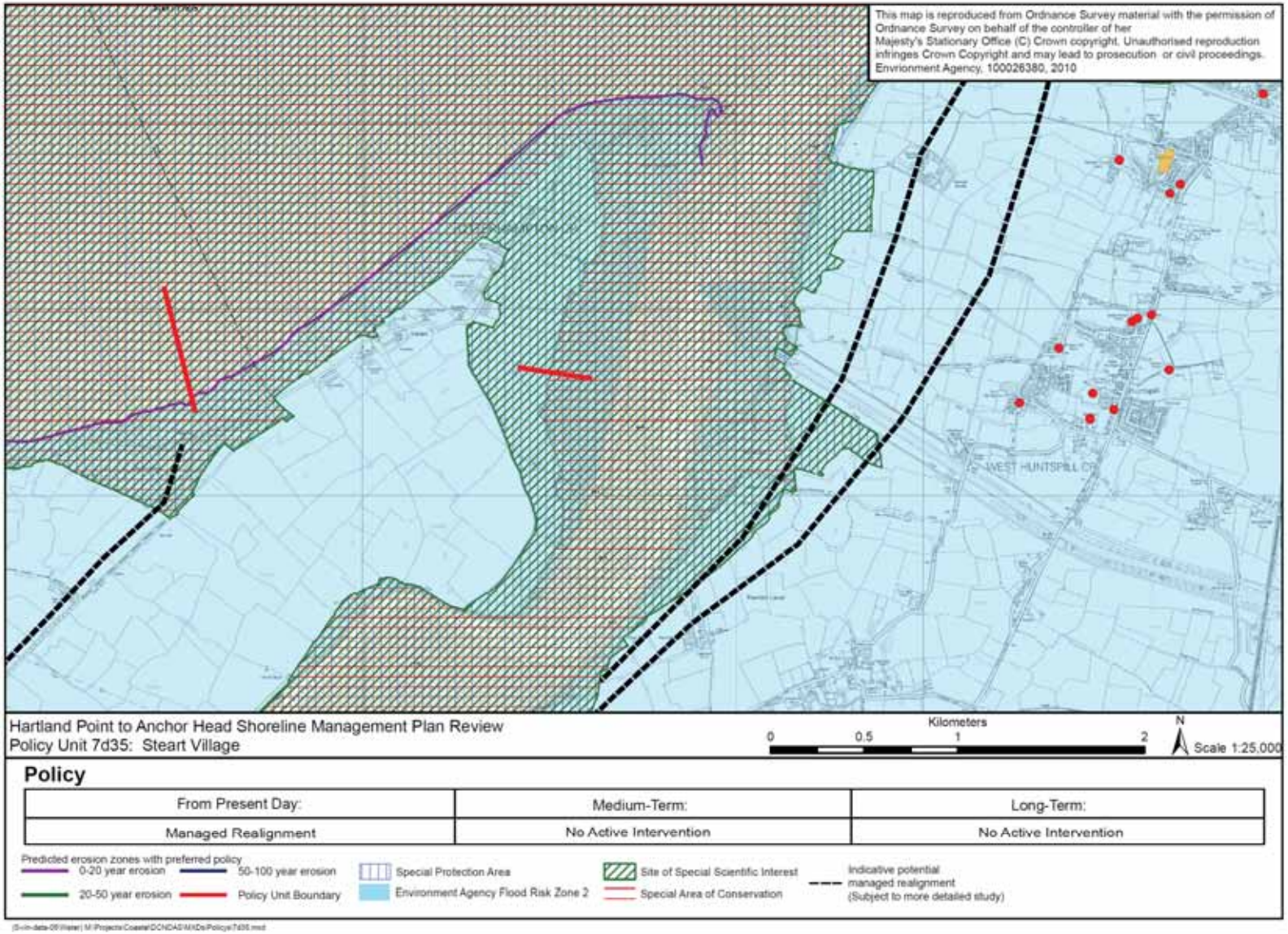

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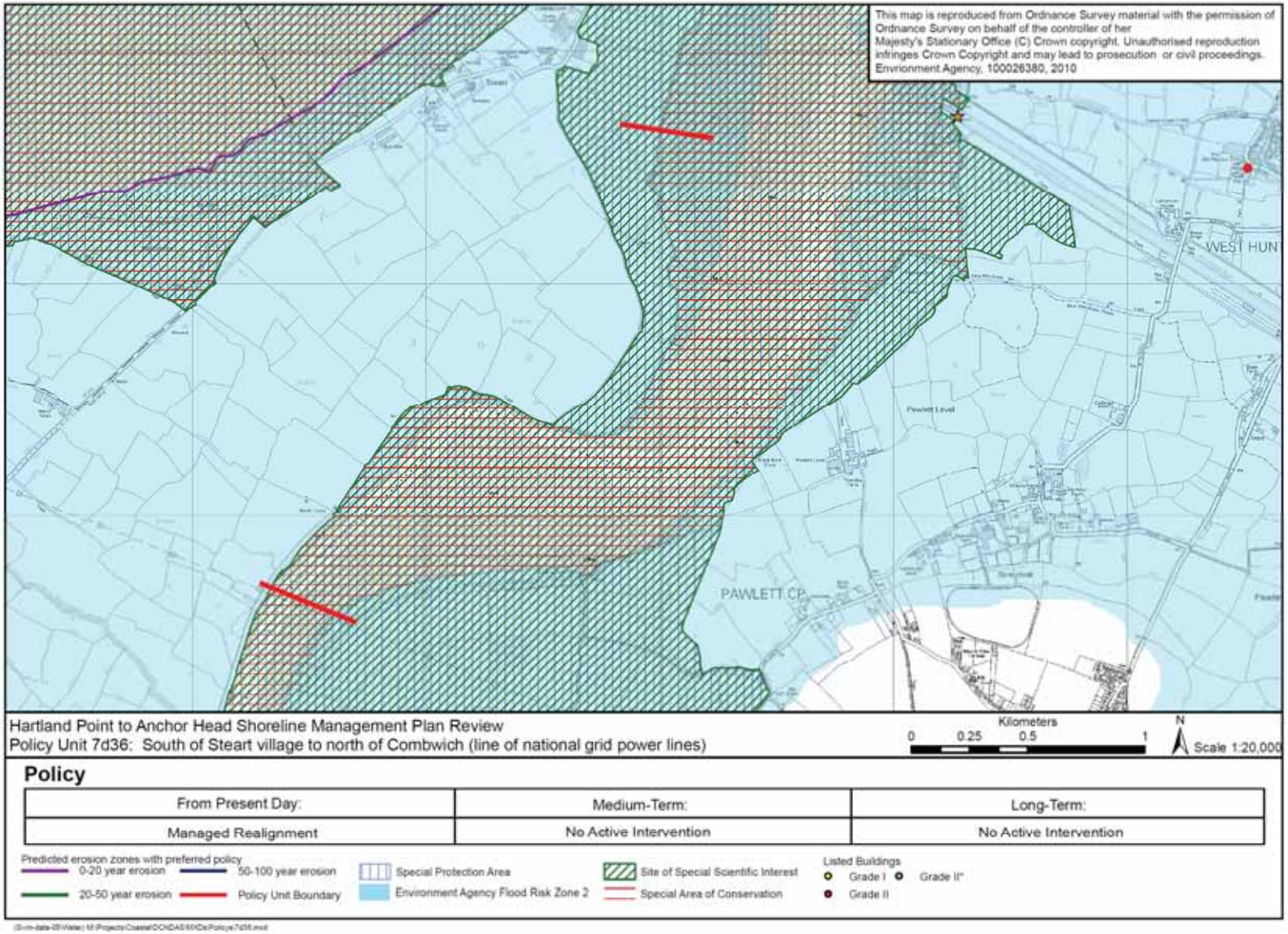

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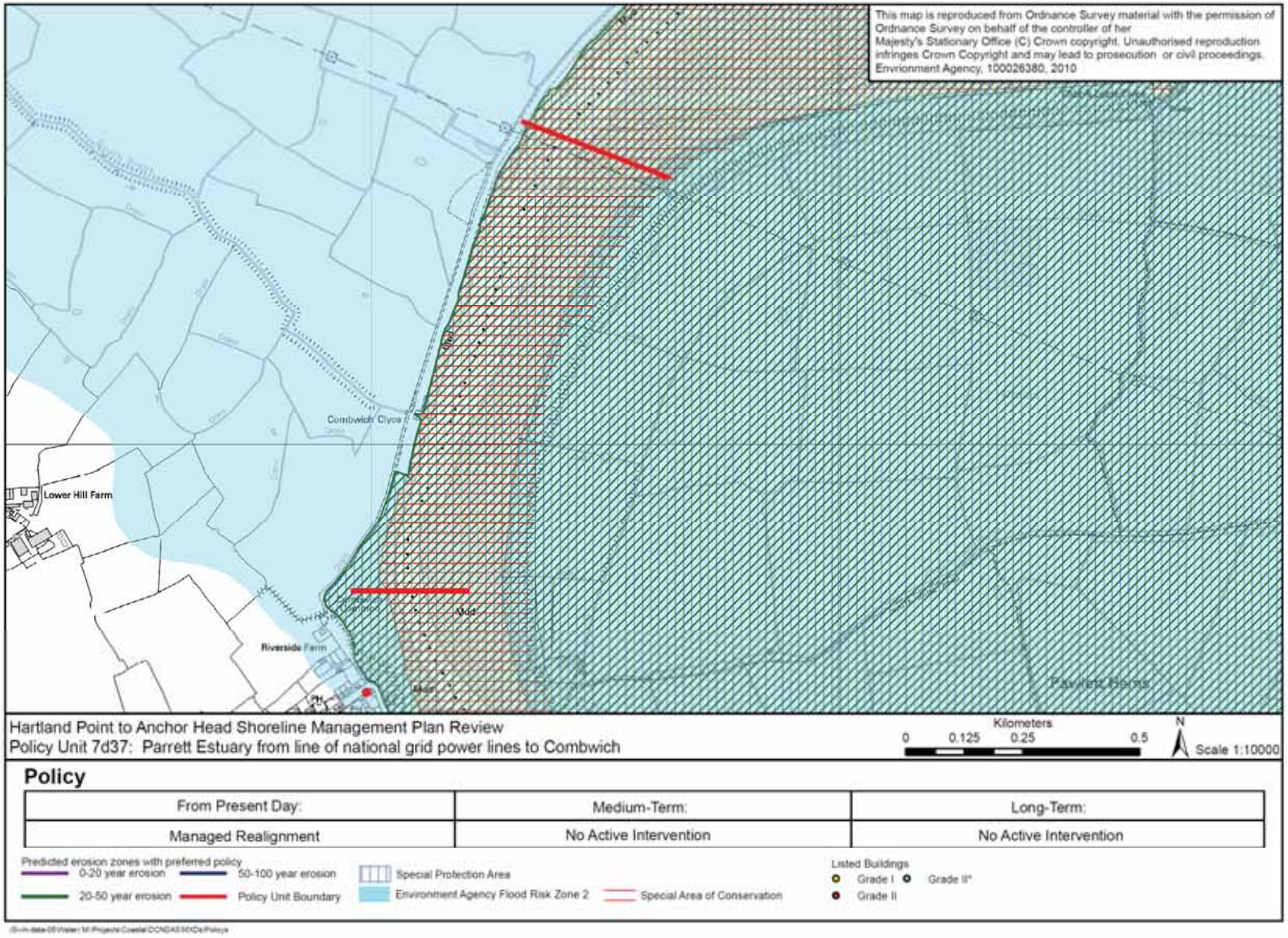

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Location reference:	**Parrett Estuary (Combwich to River Brue)**
Policy unit reference:	**7d38 to 7d42**

Summary of preferred plan recommendations and justification

Plan:

This statement should be read in combination with the statement for the Steart Peninsula as the plans for the two areas are closely linked.

The long term plan for the Parrett Estuary area is to return it to a more natural, less constrained, state while continuing to provide defence to people and property against the risk of flooding in a way that is environmentally acceptable and economically viable. There are areas within the outer Parrett Estuary where it will become increasingly difficult in the future to economically justify continuing to defend the coast along present alignments. Some of these areas offer scope for set back defences which can still provide flood protection to the majority of built assets though smaller (and less expensive) defences along shorter alignments.

These potentially large realignments also provide opportunity to maximise environmental benefits which could offset losses elsewhere, while the majority of assets in the estuary and wider Somerset Levels remain protected. Such dramatic changes require more detailed investigation to determine the viability, approach, timing, consequences, and any measures that would need to be put in place to manage risk for each site. Until such studies are undertaken the plan is to continue to defend along existing alignments for as long as is technically, environmentally and economically sustainable to do so, while preparing for any changes in policy in the medium to long term.

The potential for considerable nature conservation and biodiversity opportunities would alter some currently designated sites. Some assets, such as sewerage works, could be lost or need to be relocated and there is potential loss or damage to a number of non-designated archaeological sites, and a significant area of agricultural land. Any such losses and their extent would depend upon the exact alignment of the set-back defences.

There are also potential implications for the wider estuary hydrodynamic and geomorphological regime. This could include changes in the structure of the outer estuary, impact on navigation and access for shipping to Dunball and Combwich, change in flood risk to the upper Parrett Estuary at Bridgwater and Dunball, and changes in the position of the low water channel which could also affect the intertidal area at Burnham-on-Sea. However, sea level rise will also produce considerable changes in these regimes irrespective of management policies within the estuary, and the impacts of any changes in policy need to be considered in that context.

Preferred policies to implement plan:

From present day (short term):	The recommended policy throughout the Parrett Estuary is to continue to minimise the risk of flooding along existing defence alignments, through **hold the line**. This will involve ongoing maintenance and, where necessary, local reconstruction as already identified in the recently completed Parrett Estuary Flood Risk Management Strategy (Environment Agency, 2009b). There are, however, opportunities to increase natural habitat gain and reduce further flood defence expenditure. Alternative realignment options and the mechanisms required to enable and manage any change should continue to be explored during this period.
Medium term:	Until any investigative studies are completed to guide appropriate future realignments, the recommended policy for most of the estuary is continue to minimise flood and erosion risk along the existing defence alignments, through a **hold the line** policy. This will require further maintenance of defences and local works to reconstruct defences as they reach the end of their effective life or raised to continue to provide the necessary standards of protection. Where the need for higher defences to address the impacts of sea level rise is

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	identified the future long term plans for those areas should be re-evaluated before undertaking any works, considering less expensive options for realignment whilst also providing habitat gain and potential flood storage. Where realignment is unlikely to be appropriate, such as at Combwich, Bridgwater and between Bridgwater and Dunball, higher defences could be constructed as necessary. Pawlett Ham is identified as one site for **managed realignment**. As existing embankments reach the end of their effective life, the medium term policy will be to adopt a retired line of defence further inland. This will though be dependent upon the prior construction of a surge barrier. The need for a surge barrier in the upper estuary to counter the effects of rising sea levels has already been identified in the Parrett Estuary Flood Risk Management Strategy. This is consistent with the long term vision for this estuary by providing adequate flood protection to extensively developed areas such as Bridgwater and beyond. It may also help to limit the potential changes in tidal prism (the volume of water the moves in and out of the estuary with each tide) that may result from sea level rise.
Longer term:	The long term vision is for a more naturally functioning estuary, through construction of set-back defences under a policy of **managed realignment.** The location of any realignments will depend upon the outcome of the studies carried out during the short and medium terms but opportunities for realignment could exist along parts of the west bank of the Parrett Estuary between Combwich and Bridgwater and along the Pawlett and Huntspill Levels. Realignment along the latter frontage, if it were to be implemented, would most likely only be considered at a time when the Huntspill Sluice reaches the end of its design life and needs to be replaced. Where studies have concluded that managed realignment would not be appropriate, the long term policy would be to continue to provide flood and erosion protection along the existing defence alignments, through **hold the line**. In response to sea level rise, this will require the construction of new, higher defences. Under managed realignment and hold the line policies, there would be continued flood protection for the majority of homes and businesses throughout the estuary and wider Somerset Levels. The A38 and M5, mainline railway and associated facilities and infrastructure would also benefit. Where set-back defences are constructed and the shoreline is allowed to evolve more naturally, there would be potential benefits to the Bridgwater Bay Site of Special Scientific Interest and National Nature Reserve, Severn Estuary Special Area for Conservation, Special Protection Area for Birds and Ramsar site through the creation of intertidal habitat. This would though change some existing designations. Depending on the position of the set-back defences there is a risk that certain assets could be lost or would need to be relocated, for example: the sewage treatment works that serve Burnham-on-Sea and Highbridge, power lines running from Hinkley Point, a number of non-designated archaeological sites, and a significant area of agricultural land.

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Summary of specific policies

Policy unit		Preferred policies		
		Short term	Medium term	Long term
7d38	**Combwich**	Continue to minimise flood risk to Combwich by maintaining the existing flood defences, through **hold the line**.	Continue to minimise flood risk to Combwich by maintaining and, if necessary, rebuilding the existing flood defences, through **hold the line**.	Continue to minimise flood risk to Combwich by maintaining the existing flood defences, through **hold the line**.
7d39	**Combwich to Bridgwater (Parrett west)**	Continue to minimise flood risk by maintaining the existing flood defences, through a **hold the line** policy, as proposed by the Parrett Estuary Flood Risk Management Strategy.	Continue to minimise flood risk by maintaining the existing flood defences, through a **hold the line** policy. Investigate opportunities for implementing managed realignment in the long term.	Implement **managed realignment** as informed by studies, otherwise maintain and, if necessary, rebuild the existing flood defences under a policy of **hold the line**.
7d40	**Bridgwater (upper Parrett Estuary)**	Continue to minimise flood risk to Bridgwater by maintaining the existing flood defences, through a **hold the line** policy.	Continue to minimise flood risk to Bridgwater by maintaining and, if necessary, rebuilding the existing flood defences, through a **hold the line** policy. Construction of a surge barrier (as informed by further studies).	Continue to minimise flood risk to Bridgwater by maintaining the existing flood defences, through a **hold the line** policy.
7d41	**Bridgwater to Dunball**	Continue to minimise flood risk by maintaining the existing flood defences, through a **hold the line** policy.	Continue to minimise flood risk to Bridgwater by maintaining and, if necessary, rebuilding the existing flood defences through a **hold the line** policy.	Continue to minimise flood risk by maintaining the existing flood defences, through a **hold the line** policy.
7d42	**Dunball to River Brue**	Continue to minimise flood risk by maintaining the existing flood defences, through a **hold the line** policy. Investigate opportunities for managed realignment.	Implement **managed realignment** at Pawlett Ham, for example, as informed by studies. Otherwise maintain and, if necessary, rebuild the existing flood defences, under a policy of **hold the line**.	Implement **managed realignment** as informed by studies at places such as Pawlett and Huntspill levels. Otherwise maintain and, if necessary, rebuild the existing flood defences under a policy of **hold the line**.

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Location reference:	Parrett Estuary (Combwich to River Brue)
Policy unit reference:	7d38 to 7d42

Implications of the preferred plan for this location

Time period	Management activities	Human Health, Property and Population	Land use, infrastructure and material assets	Historic Environment	Landscape character and Visual Amenity	Geology and Soils	Water	Biodiversity, flora and fauna
2005 to 2025	Continue to maintain the existing flood defences, through a hold the line policy. Investigate opportunities for managed realignment.	Protection of residential and commercial properties, in the Parrett Estuary from flooding. The development opportunities planned for Bridgwater are potentially at risk from flooding depending on its location.	Protection of roads (A38 and M5), Mainline Railway (and associated facilities) and infrastructure in the Parrett Estuary from flooding. Protection of substations in the Bridgwater area, Dunwear and Sedgemoor from flooding. Potential loss of some parts of the River Parrett Trail from flooding but can be re-routed. Loss of Grade 3 agricultural land due to flooding	Protection of Listed Buildings at Combwich from flooding. Protection of Inland Scheduled Monuments at Stogursey Castle, Motte Baileys at Down End, Wick Barrow Mound, Cynwit Castle, Alstone lake settlement site and the Medieval Village at Horsey flooding. Protection of sections of the Conservation Areas at Bridgwater	No change to the landscape character and visual amenity.	No known impact on Earth Heritage, Soils and Geology. No designated sites along this stretch of coast.	No known impact on water.	Protection of freshwater habitats from flooding although there may be issues of coastal squeeze where sea level rise against sea defences leading to a net decrease in intertidal habitat which are key features of the Bridgwater Bay SSSI and NNR Severn Estuary Ramsar, SPA and SAC . This policy is considered further within the Habitats Regulations Assessment (Appendix J) The Huntspill River NNR is protected from flooding.
2025 to 2055	Continue to maintain and rebuild existing defences. Where research indicates it is appropriate, implement managed realignment.	Protection of residential and commercial properties, in the Parrett Estuary from flooding. The development opportunities planned for Bridgwater are potentially at risk from flooding depending on its location.	Protection of roads (A38 and M5), Mainline Railway (and associated facilities) and infrastructure in the Parrett Estuary from flooding. Protection of substations in the Bridgwater area, Dunwear and Sedgemoor from flooding. Potential loss of some parts of the River Parrett Trail from flooding but can be re-routed. Loss of Grade 3 agricultural land due to flooding	Protection of Listed Buildings at Combwich from flooding. Protection of Inland Scheduled Monuments at Stogursey Castle, Motte Baileys at Down End, Wick Barrow Mound, Cynwit Castle, Alstone lake settlement site and the Medieval Village at Horsey flooding. Protection of sections of the Conservation Areas at Bridgwater	In areas of managed realignment there will be a change in landscape from a terrestrial to intertidal landscape.	No known impact on Earth Heritage, Soils and Geology.	Works in areas selected for managed realignment should be implemented so as to not adversely impact on the water quality status of the coastal waters or compromise the achievement of WFD water quality targets.	Freshwater habitats are at risk of flooding through managed realignment, resulting in a loss of freshwater habitats to intertidal habitat. This will offset losses of intertidal habitat to coastal squeeze elsewhere in the Estuary benefiting the Bridgwater Bay SSSI and NNR Severn Estuary Ramsar, SPA and SAC. This policy is considered further within the Habitats Regulations Assessment (Appendix J) The Huntspill River NNR is potentially at risk from flooding which is currently detached from tidal influences by a sluice.
2055 to 2105	Continue to maintain and rebuild existing defences. Where research indicates it is appropriate, implement managed realignment.	Protection of residential and commercial properties in the Parrett Estuary from flooding. Unless managed realignment places defences forward of assets listed above. The development opportunities planned for Bridgwater are potentially at risk from flooding depending on its location.	Protection of roads (A38 and M5), Mainline Railway (and associated facilities) and infrastructure in the Parrett Estuary from flooding. Protection of substations in the Bridgwater area, Dunwear and Sedgemoor from flooding. Potential loss of some parts of the River Parrett Trail from flooding but can be re-routed.	Protection of Listed Buildings at Combwich from flooding. Protection of Inland Scheduled Monuments at Stogursey Castle, Motte Baileys at Down End, Wick Barrow Mound, Cynwit Castle, Alstone lake settlement site and the Medieval Village at Horsey flooding. Protection of sections of the Conservation Areas at	As above	No known impact on Earth Heritage, Soils and Geology.	As above.	As above

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Location reference:	Parrett Estuary (Combwich to River Brue)							
Policy unit reference:	7d38 to 7d42							
Implications of the preferred plan for this location								
Time period	**Management activities**	**Human Health, Property and Population**	**Land use, infrastructure and material assets**	**Historic Environment**	**Landscape character and Visual Amenity**	**Geology and Soils**	**Water**	**Biodiversity, flora and fauna**
			Loss of Grade 3 agricultural land due to flooding	Bridgwater				

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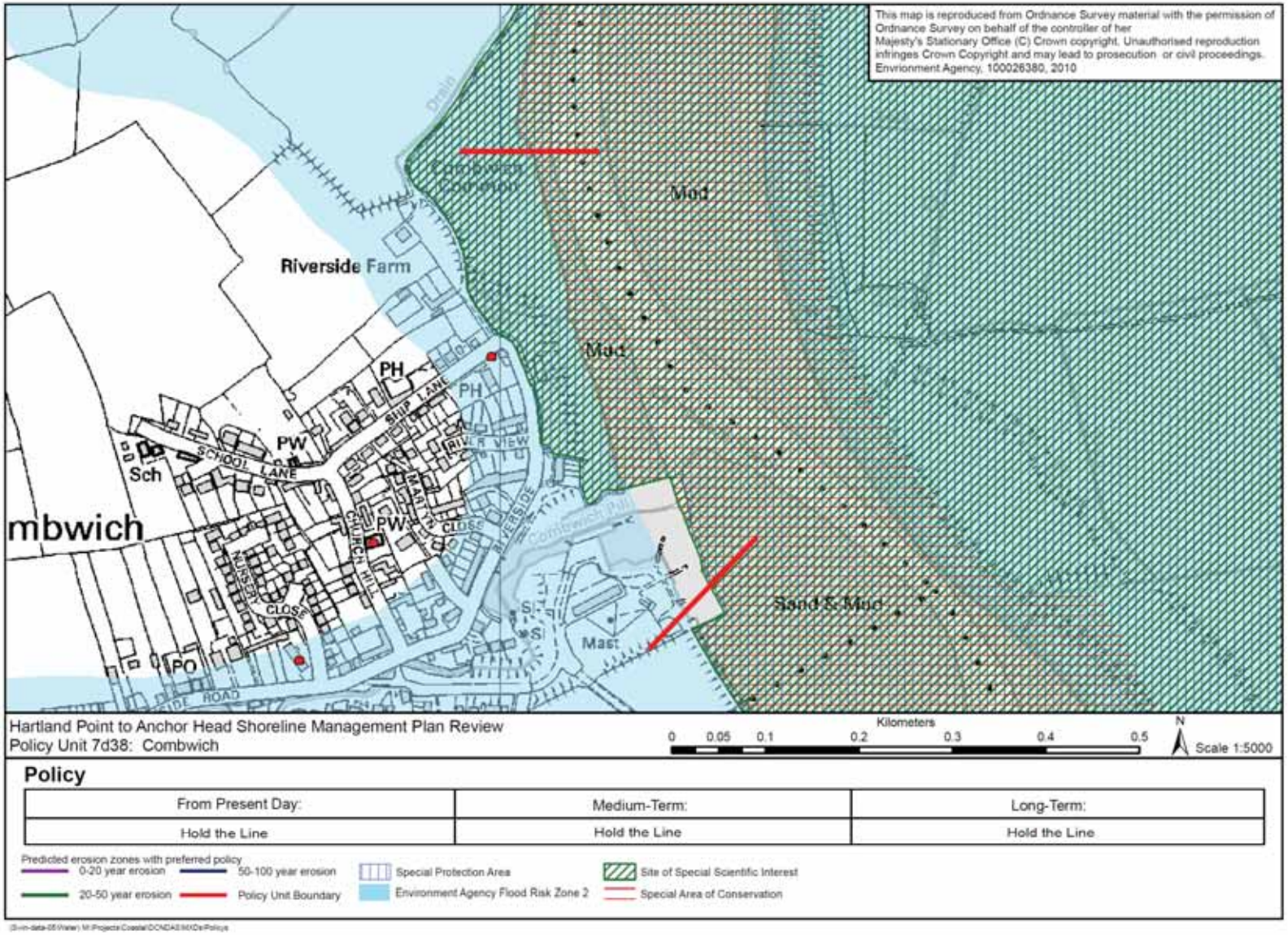

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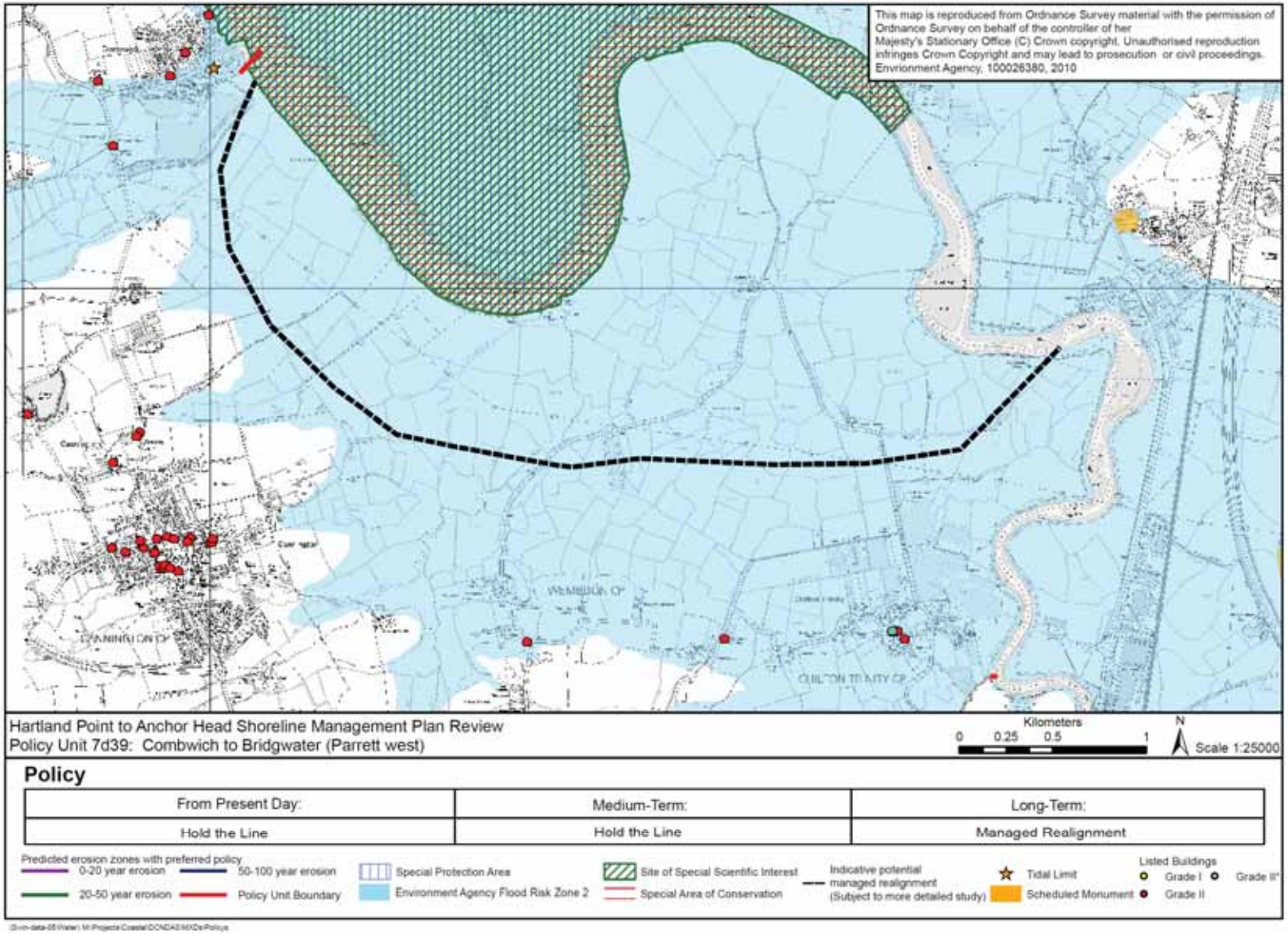

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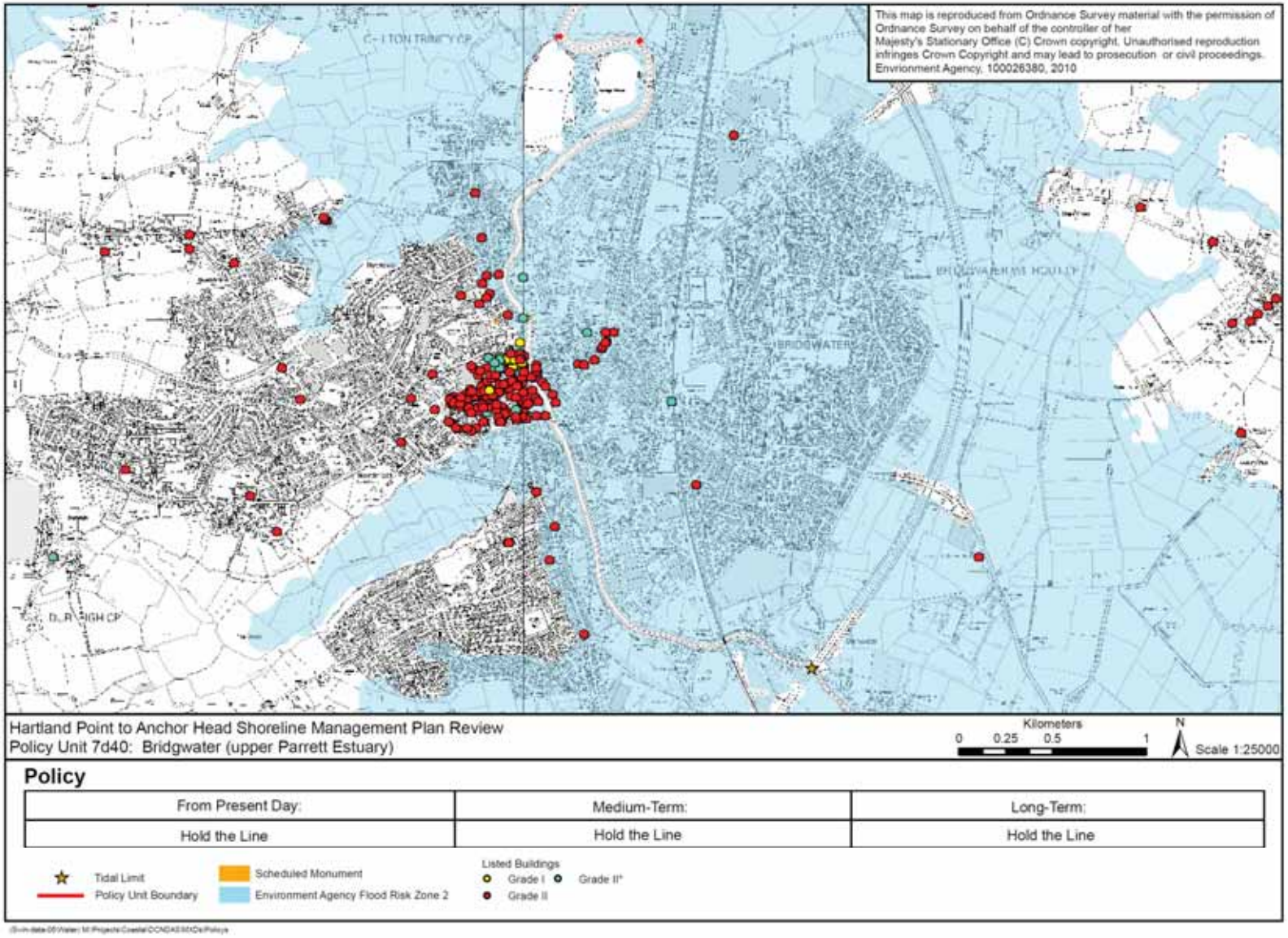

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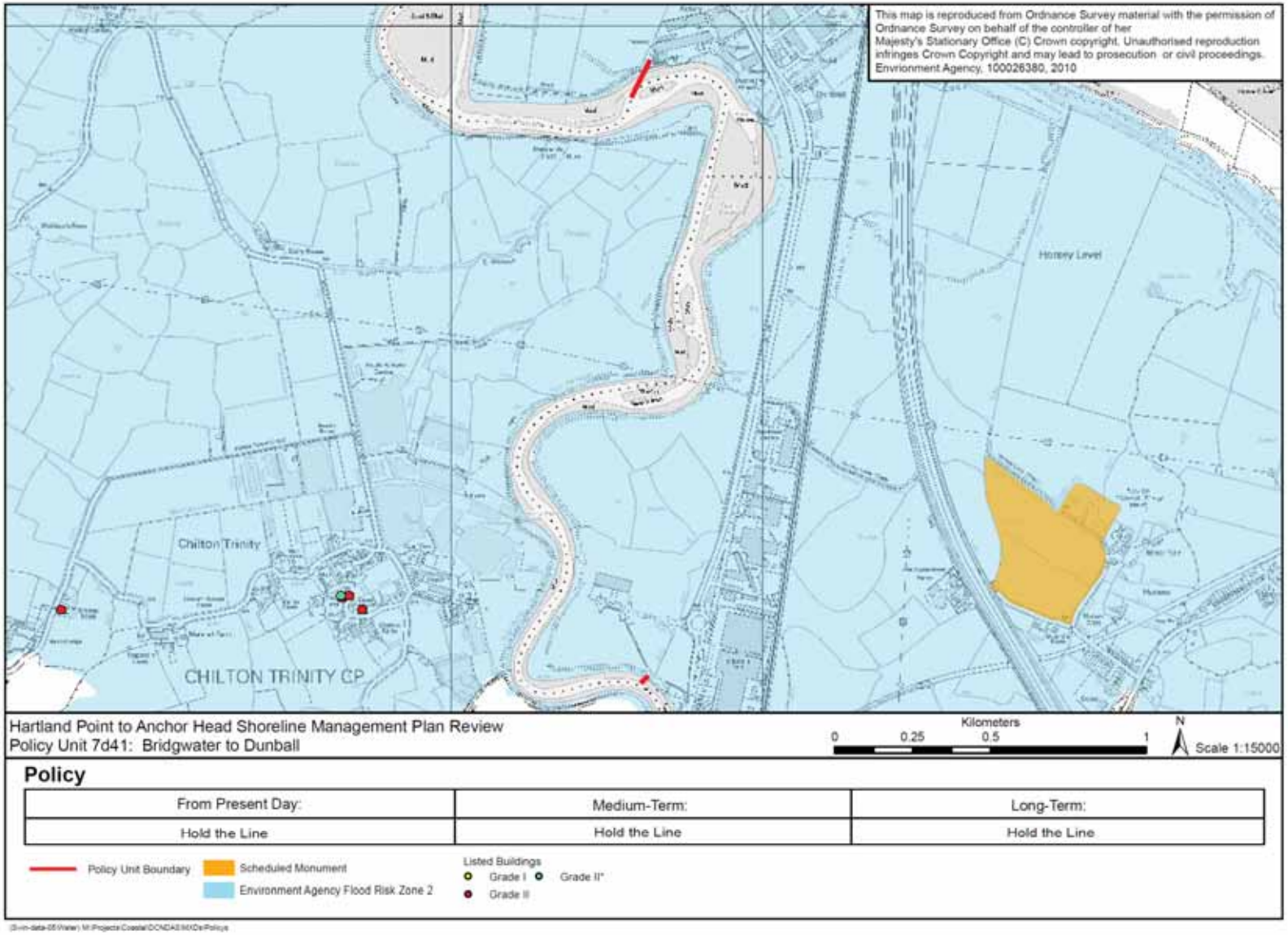

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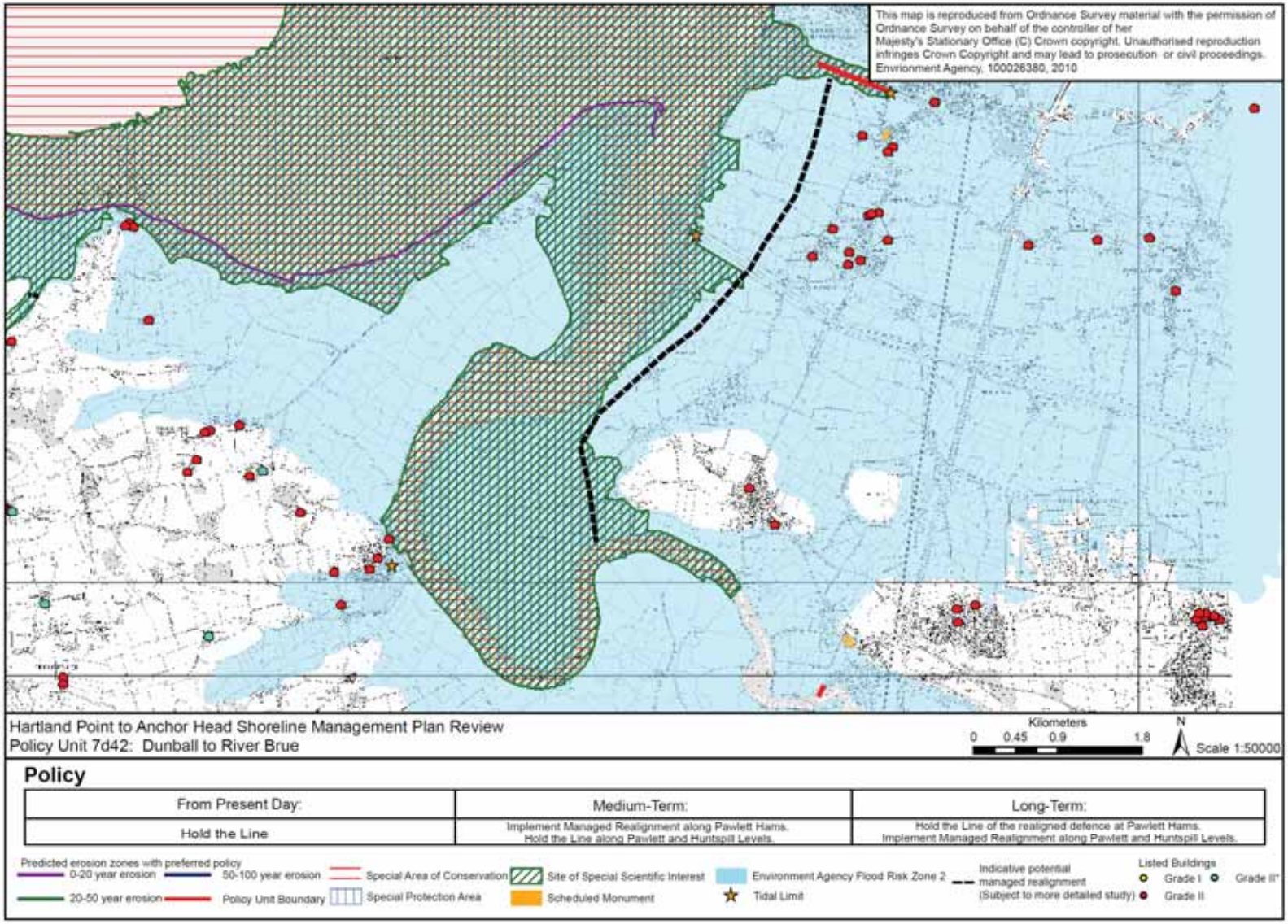

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Location reference:	**Burnham-on-Sea and Highbridge**
Policy unit reference:	**7d43**

Summary of preferred plan recommendations and justification

Plan:

The significant socio-economic assets along this frontage justify a long term plan to continue to minimise the risk of flooding to Burnham-on-Sea and the wider area of the Somerset Levels. The beach along this section is an important aspect of the tourism value of this area, and is backed by large sea wall defences along the open coast, and embankment defences along the north bank of the River Brue.

The future course of the Parrett Estuary low water channel could significantly influence how the plan is achieved in the future, particularly at Burnham-on-Sea. This will be affected by sea level rise changing the hydrodynamic and geomorphological regime of the estuary and also potentially by management changes within the Parrett Estuary (see policy statements for Parrett Estuary and Steart Peninsula). Decisions on appropriate management of the Parrett will be informed by studies which will look at these potential wider-scale impacts. This frontage will also be affected by the plan along the adjacent section of dune frontage at Berrow and Brean towards Brean Down (refer to policy units 7d44 and 7d45), which should help to retain amenities nearby.

Preferred policies to implement plan:

From present day (short term):	The policy is to continue to minimise the risk of erosion and flooding along this frontage, through **hold the line**. This will require maintenance of the existing seawall and embankment defences along the open coast and the north bank of the River Brue to ensure continued protection to key assets.
Medium term:	The medium term policy is to continue to defend the frontage through a **hold the line** policy. Implementation would be through maintaining, replacing and upgrading flood defence structures. Coastal squeeze resulting from sea level rise and the presence of hard defences, potentially compounded by changes in the low water channel from the Parrett Estuary, may require the introduction of beach stabilisation structures if this asset is to be maintained to its current extent. Along the north bank of the River Brue, new, higher defences would need to be constructed to address the issue of sea level rise, once the existing defences reach the end of their effective life. This policy will ensure continued protection to key assets along this frontage, including the A38 and M5, mainline railway and associated facilities, and Conservation Areas and Grade II Listed Buildings at Burnham-on-Sea. The narrowing and lowering of the beach at Burnham-on-Sea could reduce its amenity value.
Longer term:	The long term policy is to continue defending the frontages of Burnham-on-Sea and Highbridge through a **hold the line** policy. The defences will require ongoing maintenance, with the seawall at Burnham-on-Sea replaced by a much larger structure as the existing structure reaches the end of its effective life. This policy will ensure continued protection of key assets along this frontage. It is likely, however, that the loss or reduction of the beach at Burnham could result from holding the existing defences; which would have an impact on its amenity value.

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Summary of specific policies

Policy unit		Preferred policies		
		Short term	**Medium term**	**Long term**
7d43	**Burnham-on-Sea and Highbridge**	Continue to minimise flood risk along this frontage by maintaining and improving as necessary the defences, through a **hold the line** policy.	Continue to minimise flood risk along this frontage by maintaining and improving as necessary the defences, through a **hold the line** policy.	Continue to minimise flood risk along this frontage by maintaining and improving as necessary the defences, through a **hold the line** policy.

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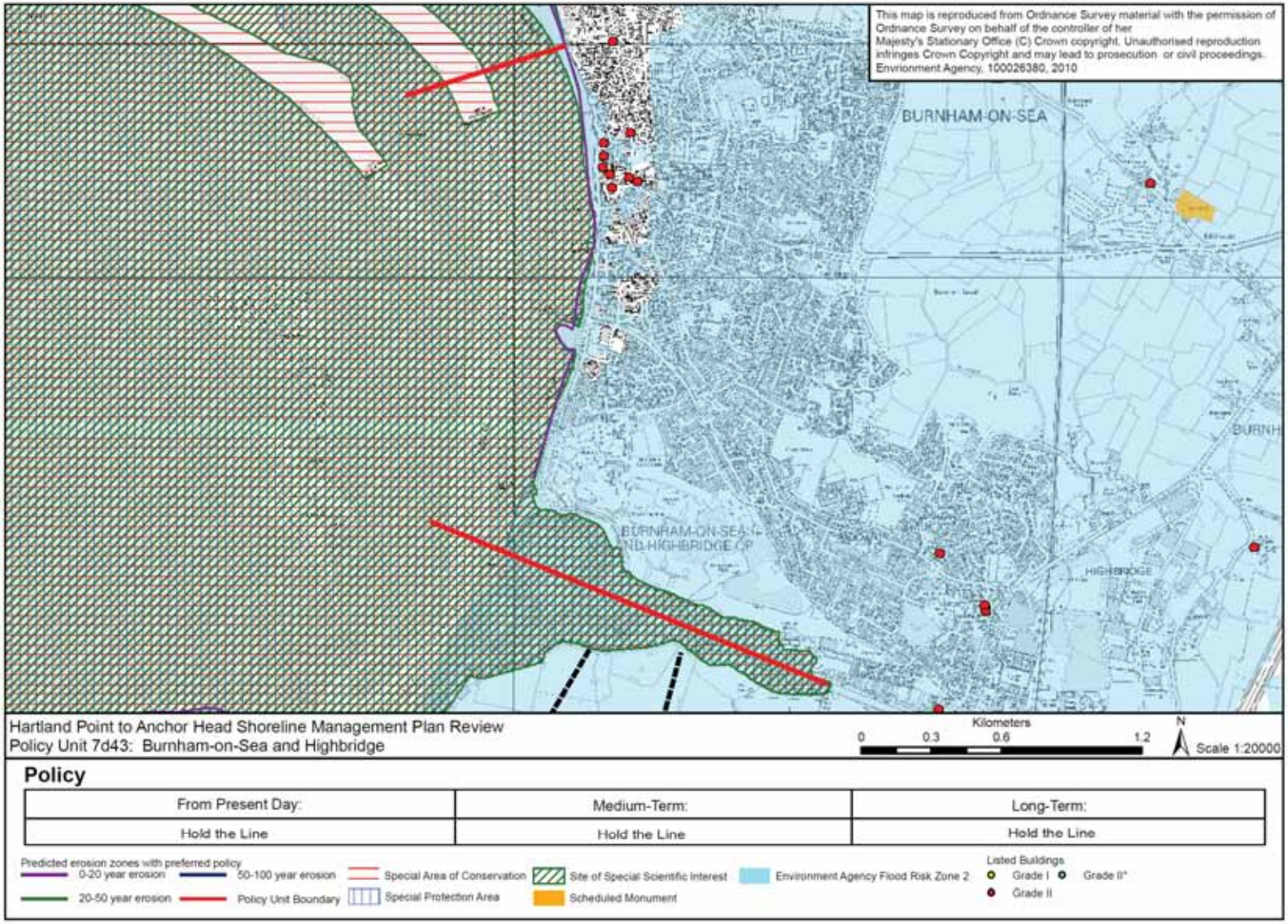
Location reference:	Burnham-on-Sea and Highbridge
Policy unit reference:	7d43

Implications of the preferred plan for this location

Time period	Management activities	Human Health, Property and Population	Land use, infrastructure and material assets	Historic Environment	Landscape character and Visual Amenity	Geology and Soils	Water	Biodiversity, flora and fauna
2005 to 2025	Continue to maintain the defences and undertaking dune management.	Protection of residential and commercial properties at Burnham-on-Sea, Highbridge and Berrow. The development opportunities planned for Highbridge and Burnham-on-Sea are potentially at risk from flooding depending on their locations.	Protection of roads (A38 and M5), Mainline Railway (and associated facilities including the Highbridge and Burnham-on-Sea railway stations), community and tourist infrastructure and the Burnham-on-Sea sailing club from flooding. Protection of tourist infrastructure (holiday park including mobile homes, caravans and road) and the Burnham and Berrow Golf Course from flooding.	Protection of a number of Listed Buildings at Burnham-on-Sea, Highbridge and Berrow. Protection of sections of the Burnham-on-Sea and Highbridge Conservation Areas.	Dune management activities should complement the natural landscape. Minor changes in landscape due to larger defences or more structures being required to maintain an acceptable standard of flood and erosion protection, thus potentially resulting in a change of views and a change in landscape character.	No designated sites along this stretch of coast. Localised narrowing of the beaches may occur in front of defences. The beaches are at risk from flooding but this is unlikely to alter their spatial extent.	No known impact on water.	Maintaining the defences at Burnham on Sea will cause coastal squeeze leading to a net decrease in intertidal habitat which are key features of the Bridgwater Bay SSSI and NNR Severn Estuary Ramsar, SPA and SAC. This policy is considered further within the Habitats Regulations Assessment (Appendix J) Dune management will help maintain the Berrow Dune SSSI and Local Nature Reserve, but may inhibit the dunes natural evolution and maturing process.
2025 to 2055	Continue to maintain the defences and undertaking dune management.	Protection of residential and commercial properties at Burnham-on-Sea, Highbridge and Berrow. The development opportunities planned for Highbridge and Burnham-on-Sea are potentially at risk from flooding depending on their locations.	As above.	As above.	As above.	As above.	No known impact on water.	As above.
2055 to 2105	Continue to maintain the defences and undertaking dune management.	Protection of residential and commercial properties at Burnham-on-Sea, Highbridge and Berrow. The development opportunities planned for Highbridge and Burnham-on-Sea are potentially at risk from flooding depending on their locations.	As above.	As above.	As above.	As above.	No known impact on water.	As above.



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Location reference:	**Berrow to Brean Down**
Policy unit reference:	**7d44 and 7d45**

Summary of preferred plan recommendations and justification

Plan:

The long term plan along this coastline is to continue to minimise flood risk to the settlements along this frontage and the wider area of the Somerset Levels in the most sustainable way. This frontage could be affected in the medium to long term by changes in policy to the Axe Estuary, therefore the two statements should be read in conjunction with each other.

Along this coastline, the current defence is provided by a belt of dunes, which narrow considerably towards the north. In the future, this dune belt will become increasingly difficult to maintain in its current position due to the impacts of sea level rise and fore dune erosion. However, it is unlikely that there would be sufficient economic justification for new publicly-funded defences along the existing shoreline; a situation that has been determined to be the case from three separate studies including this SMP. Such defences would also be difficult to retain in the long term and could result in loss of beach for amenity purposes from 'coastal squeeze', unless accompanied by an extensive beach recharge scheme, with associated control structures. Such measures could also have a significant adverse environmental impact. The long term strategy for this unit should be examined and clarified in a more detailed study in the short term.

Consequently, the proposed long term plan for this frontage is to maintain the existing defences for as long as possible, within existing economic justification, whilst investigating long term sustainable management options to reduce flood risk to the wider Somerset Levels area. Whilst this would protect many homes, businesses and key infrastructure including the A38 and M5, the mainline railway and associated facilities, some shoreline assets such as the coast road to Brean Down are likely to be lost and some tourism assets may need to be relocated as part of any potential managed realignment scenario. Therefore measures would need to be put in place to manage the increase in future risk to coastal property and mitigate the displacement of people and loss of property and facilities.

Preferred policies to implement plan:

From present day (short term):	The short term policy is to continue to protect the frontage through **hold the line**. Along the Berrow and Brean part of this section, this would involve undertaking active dune management to address long term net erosion of this frontage and ensure the retention of the dunes as an effective coastal defence. Such measures will also help to reduce the impacts of recreational pressure on the dunes such as along footpaths that cut through the dunes. The fore dunes at Brean, particularly where they are narrowest towards the north end of the village, are currently at risk of erosion and measures should be introduced to encourage the dunes to form a more effective defence for the older, higher back dunes such that they are not exposed to wave action during storm events which would promote erosion of the back dunes and so increase the risk of breaching. This, however, would be subject to more detailed study during this period and continual monitoring. A detailed study at this time should not only appraise the sustainability of this dune management approach for providing adequate levels of flood protection, but also appraise all long term sustainable options for managing flood and coastal erosion risk along this section. This should include the potential improvement of existing defences and the possibility and location of set back defences as a policy of managed realignment in the medium to long term. The impact and sustainability of any privately funded defences should also be considered. Any investigation of realignment options in this area will need to consider possible realignment along the Axe Estuary, and how realignment from both the estuary side and open coast side may be combined. All options should be assessed in terms of relative long term technical, economic, environmental and sustainable objectives.

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	Relocation of property may be required in the long term and consequently the study would need to consider this, specifically in terms of funding options to facilitate any relocation requirements that arise. Between Brean and Brean Down, implementation of the hold the line policy in the short term will involve maintaining the existing rock revetment.
Medium term:	In the medium term, the plan is to continue to protect the developed frontage as far as possible, whilst acknowledging the (presently unknown) outcomes of a more detailed study. Between Brean and Brean Down, it is expected that the plan will be achieved through maintaining the existing rock revetment and seawall under a policy of **hold the line**. This will ensure that the structure continues to protect the low-lying land behind against the risk of flooding for as long as possible into the long term. As sea levels rise, retaining the defences here is likely to exacerbate the narrowing and loss of the beach along this part of the frontage. The beach would become covered at most states of the tide. It will also become technically more difficult to maintain defences in the long term particularly as the seaward dunes to the south of the defences are likely to continue to retreat eastwards (albeit with management to control this), exposing the relatively more stable back dunes to erosion pressure. It is also unlikely that replacement defences along existing alignments would be economically justified in terms of public (flood and coastal defence budget) funds. Ongoing funding of localised private defences along this section could continue if alternative funds are available, but should recognise the long term implications of management along adjacent parts of this frontage. Whilst more detailed study and monitoring in the short term is needed to investigate all sustainable long term management options, between Berrow and Brean (north) it is anticipated that there will be continued maintenance of the dunes as an effective defence. However, it may not be possible to hold the front edge of the dunes. Therefore the policy is likely to move to **managed realignment** during this period. A managed realignment policy will involve continuation of active dune management, but may require properties to be moved from the dunes in order for the dune system to be able to function more naturally. Although this should ensure protection to the majority of backshore assets, there may be a potential for loss of properties within the frontal dunes. As sea levels rise, the risk of dune breaches could also increase over time, particularly where fore dunes are narrow and erosion risks exposing the older back dunes to wave action. All these risks and considerations would be examined and clarified in the more detailed study proposed for the short term. In response to rising sea levels, and the increasing risk of breaching along the Berrow to Brean frontage in particular, implementation of a set-back defence (to be appraised as part of detailed studies undertaken in the short term) could be required as part of the managed realignment policy. Any set-back defence at a location inland would ensure flood risk to the Somerset Levels and Moors, and the large number of properties and key infrastructure assets including the A38 and M5, the mainline railway and associated facilities, continues to be reduced. This may also help to retain more beach material here which will be beneficial to the tourism industry of the wider area, by allowing the coast to roll-back and adapt to rising sea levels. However, it is unlikely that all properties and tourism assets would be protected under this policy and so adaptation measures including relocation of

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	caravan sites may be required. There are also potential environmental benefits associated with realignment to the Severn Estuary SSSI, SAC, SPA and Ramsar site by creating habitat in the long term. Allowing the dunes to roll back landwards towards a set back defence position as sea levels rise would also potentially conserve more beach material in this area, of benefit to the tourism interests along this coast. Transport infrastructure providing access to Brean Down could be maintained for as long as it is required; however, in the long term, access to Brean Down may need to be provided in a different way or may no longer be necessary.
Longer term:	Although dependent upon outcomes of detailed study in the short term, it is anticipated that this will be a transition period, whereby the coast should be allowed to retreat once defences reach the end of their effective life at the northern part of this frontage, and the dunes along the rest of the frontage erode further and possibly start to breach. Between Brean and Brean Down, the existing rock revetment and seawall is likely to reach the end of its effective life during this period, exacerbated by narrowing beaches at the toe of the defence. It will be more difficult technically to maintain defences in the long term and it is uncertain if larger replacement defences would be economically justified or technically sustainable in the current position to continue the policy of **hold the line**. Therefore, the long term policy for this coastal frontage may need to move towards **managed realignment**. This would be informed through continual monitoring and more detailed study and would need to work with managed realignment measures should they be introduced along the west bank of the Axe Estuary in either the medium or long term. Any move to managed realignment along this section could impact on short lengths of private defences which may become outflanked and unsustainable if the revetment defence is not maintained in its current position. Although it is to be considered further as part of a more detailed study in the short term, at this time it is possible that the policy along the rest of this frontage will be one of continued **managed realignment**. This will involve continuing measures to manage the dunes with the aim being to provide a more robust natural defence to hold the rear line of dunes along the Brean frontage similar to that provided by the more extensive dunes at Berrow. The frontal dunes at Berrow are likely to experience erosion and breaching as sea levels rise. Flood risk to the wider area from this part of the dune system will, however, be controlled by the extensive back dunes that are unlikely to be compromised over the next 100 years. However, the dunes towards the northern end of Brean village are unlikely to be able to naturally recover to the extent of those at Berrow due to limited availability of suitable sediment in the system; although these measures may mitigate recreational erosion. As such, during this period the ability of the rear line of high dunes at Brean to provide a robust natural defence against the risk of flooding to the wider area of the Somerset Levels and Moors is likely to be compromised as loss of fore dunes exposes the back dunes to wave action that leads to erosion. As a consequence of the potential transition towards managed realignment along the frontage towards Brean Down, and the increasing vulnerability of the dunes at Brean where they are narrowest, there would be increased flood risk to the wider area of the Somerset Levels and Moors. This flood risk could, however, be minimised by any set-back defences constructed in the medium

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term and maintained in this period under a policy of managed realignment along this frontage.

Summary of specific policies

Policy unit		Preferred policies		
		Short term	**Medium term**	**Long term**
7d44	**Berrow to Brean (north)**	Continue to minimise the risk of flooding along this frontage through dune management to provide a more effective defence, through a policy of **hold the line**. Investigate long term sustainable management options, including improvement of existing defences and construction of a set-back defence.	The aim will be to continue to minimise the risk of flooding along this frontage. Implementation expected to be investigated by detailed study in the short term but is anticipated to include dune management to provide a more effective defence, through a policy of **managed realignment** and potential construction of a set-back defence.	The aim will be to continue to minimise the risk of flooding continue to reduce the risk of flooding to the wider area of the Somerset Levels and Moors from this frontage. Implementation is to be investigated by detailed study in the short term but is expected to include management of the dunes and beach to restore the dunes as much as possible to provide a more robust natural defence through a policy of **managed realignment** and potential construction and maintenance a set-back defence.
7d45	**Brean (north) to Brean Down**	Continue to minimise the risk of flooding along this frontage by maintaining the existing defences under a **hold the line** policy.	Continue to minimise the risk of flooding along this frontage by maintaining the existing defences under a **hold the line** policy.	If not possible to continue to **hold the line**, then allow more natural coastal evolution to occur by moving towards a policy of **managed realignment**.

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Location reference:	Berrow to Brean Down
Policy unit reference:	7d44 and 7d45

Implications of the preferred plan for this location

Time period	Management activities	Human Health, Property and Population	Land use, infrastructure and material assets	Historic Environment	Landscape character and Visual Amenity	Geology and Soils	Water	Biodiversity, flora and fauna
2005 to 2025	Continue to maintain the existing standard of defence through dune management activities and maintenance of existing defences. Investigate the construction of a set-back defence.	Protection of residential and commercial properties at Berrow and Brean.	Protection of tourist infrastructure (holiday park including mobile homes, caravans and road) from flooding.	Protection of Listed Buildings at Brean.	No known impact on landscape character and visual amenity.	Management of the dunes may limit their nature evolution, inhibiting their maturing process. This may impact on the integrity of the Berrow Dunes SSSI and LNR. Localised narrowing of the beaches may occur in front of defences. The beaches are at risk from flooding but this is unlikely to alter their spatial extent.	No Known impact on Water.	Maintaining the defences at will cause coastal squeeze leading to a net decrease in intertidal habitat which are key features of the Bridgwater Bay SSSI and NNR Severn Estuary Ramsar, SPA and SAC. This policy is considered further within the Habitats Regulations Assessment (Appendix J) Management of the dunes may limit their natural evolution, inhibiting their maturing process. This may impact on the integrity of the Berrow Dunes SSSI and LNR.
2025 to 2055	Implement construction of set-back defences and continue dune management activities and maintenance of existing defences.	Protection of residential and commercial properties at Berrow and Brean. Potential re-location of some of the seaward properties built into the dunes at Brean may be required to support the managed realignment policy.	As above	Protection of Listed Building at Brean is dependant on the whether the defences are maintained.	In areas of managed realignment there will be a change from a terrestrial landscape to an intertidal landscape. Dune management should complement the landscape. Minor changes in landscape due to set back defences.	As above.	Works in areas selected for managed realignment should be implemented so as to not adversely impact on the water quality status of the coastal waters or compromise the achievement of WFD water quality targets.	Freshwater habitats are at risk of flooding through managed realignment, resulting in a loss of freshwater habitats to intertidal habitat. This will offset losses of intertidal habitat to coastal squeeze elsewhere in the Estuary benefiting the Bridgwater Bay SSSI and NNR Severn Estuary Ramsar, SPA and SAC. This policy is considered further within the Habitats Regulations Assessment (Appendix J) Management of the dunes may limit their natural evolution, inhibiting their maturing process. This may impact on the integrity of the Berrow Dunes SSSI and LNR.
2055 to 2105	Maintain the set-back defence and if not possible to continue existing defences move towards no active intervention.	Protection of residential and commercial properties at Berrow and Brean.	As above.	Protection of Listed Building at Brean is dependant on the whether the defences are maintained.	As above	As above.	As above.	As above.

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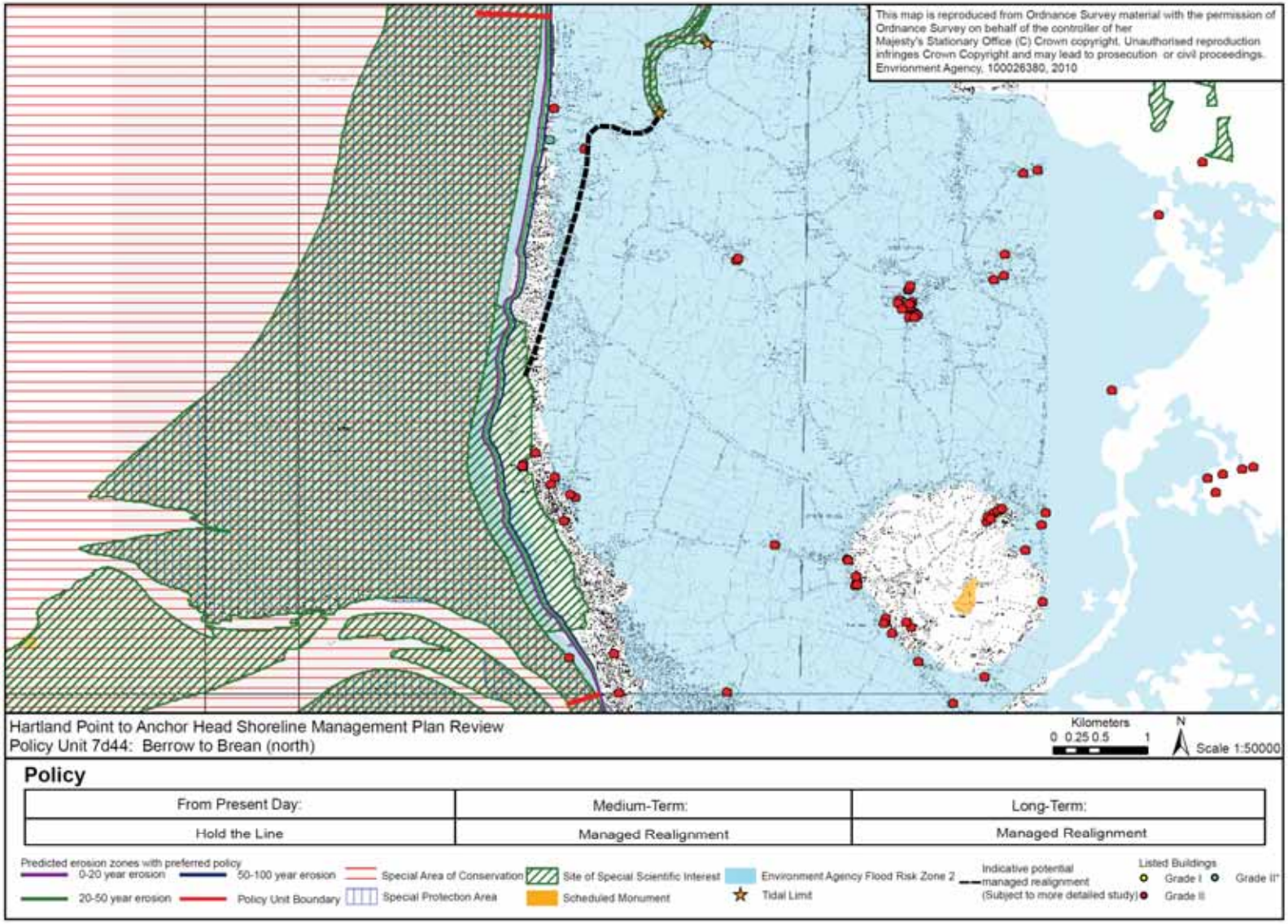

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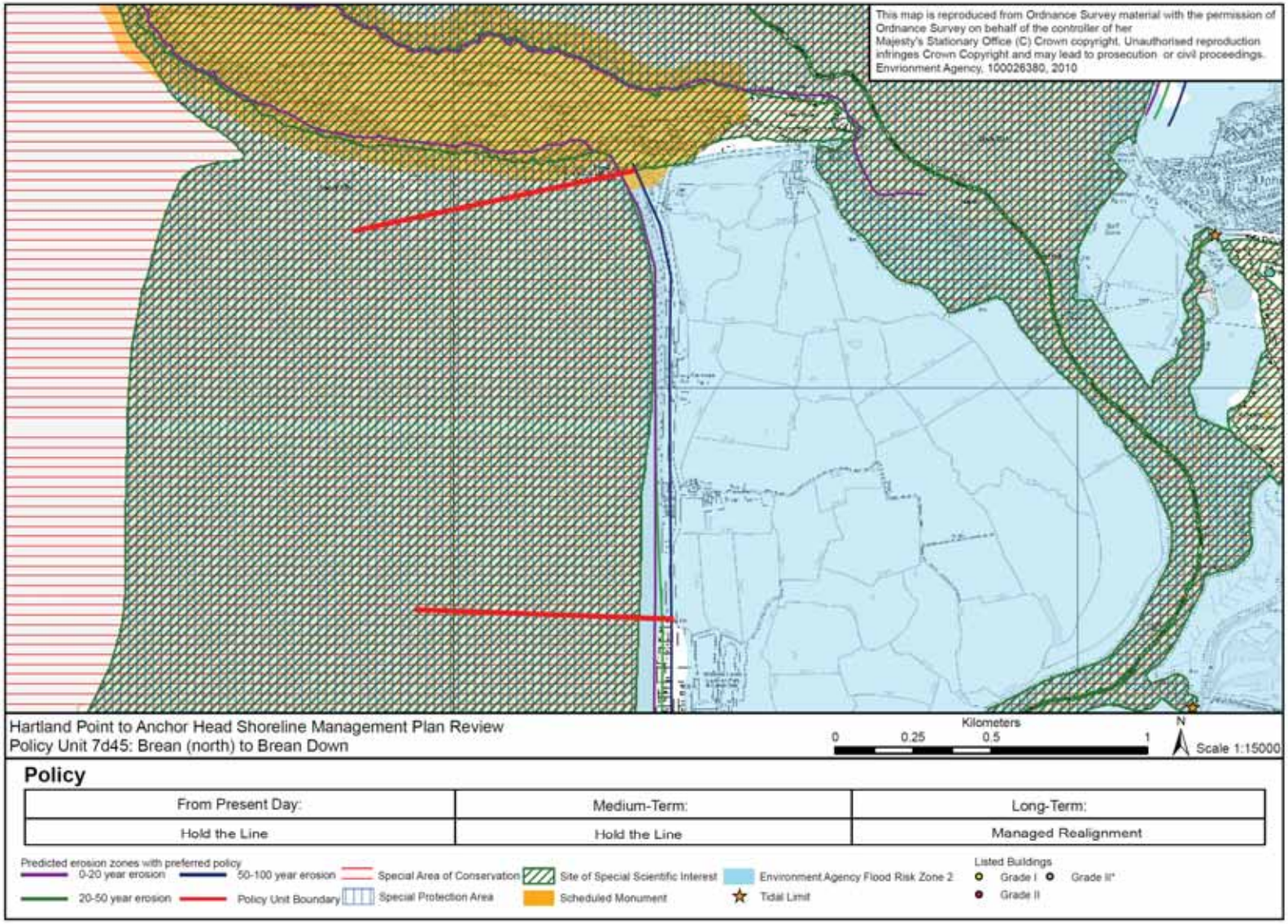

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Location reference:	**Brean Down**
Policy Unit reference:	**7d46 and 7e01**

Summary of preferred plan recommendations and justification

Plan:

The long term plan for the undefended, environmentally designated headland of Brean Down is to allow it to continue to evolve naturally without human intervention. This will allow erosion to continue to occur along the headland, conserving features through supply of sediment.

Preferred policies to implement plan:

From present day (short term):	The undefended headland of Brean Down will continue to evolve naturally under a policy of **no active intervention**.
Medium term:	The undefended headland of Brean Down will continue to evolve naturally under a policy of **no active intervention**.
Longer term:	The undefended headland of Brean Down will continue to evolve naturally under a policy of **no active intervention**.

Summary of specific policies

Policy unit		Preferred policies		
		Short term	**Medium term**	**Long term**
7d46	**Brean Down (south side)**	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.
7e01	**Brean Down (north side) to Axe Estuary mouth (west)**	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.	Allow natural coastal evolution to continue through **no active intervention**.

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Location reference:	Brean Down
Policy unit reference:	7d46 and 7e01

Implications of the preferred plan for this location

Time period	Management activities	Human Health, Property and Population	Land use, infrastructure and material assets	Historic Environment	Landscape character and Visual Amenity	Geology and Soils	Water	Biodiversity, flora and fauna
2005 to 2025	No management activities.	No known impact on property and population.	No known impact on land use, infrastructure and material assets.	No known impact on the historic environment	No known impact on Landscape character and visual amenity.	Continuation of natural processes is key to the integrity of the Brean Down SSSI. No active intervention will continue to maintain these geological features	No known impact on water.	Brean Down SSSI will continue to evolve naturally.
2025 to 2055	No management activities.	No known impact on property and population.	No known impact on land use, infrastructure and material assets.	No known impact on the historic environment	No known impact on Landscape character and visual amenity.	As above.	No known impact on water.	As above.
2055 to 2105	No management activities.	No known impact on property and population.	No known impact on land use, infrastructure and material assets.	Potential loss of Brean Down Schedule Monument due to erosion.	No known impact on Landscape character and visual amenity.	As above.	No known impact on water.	As above.

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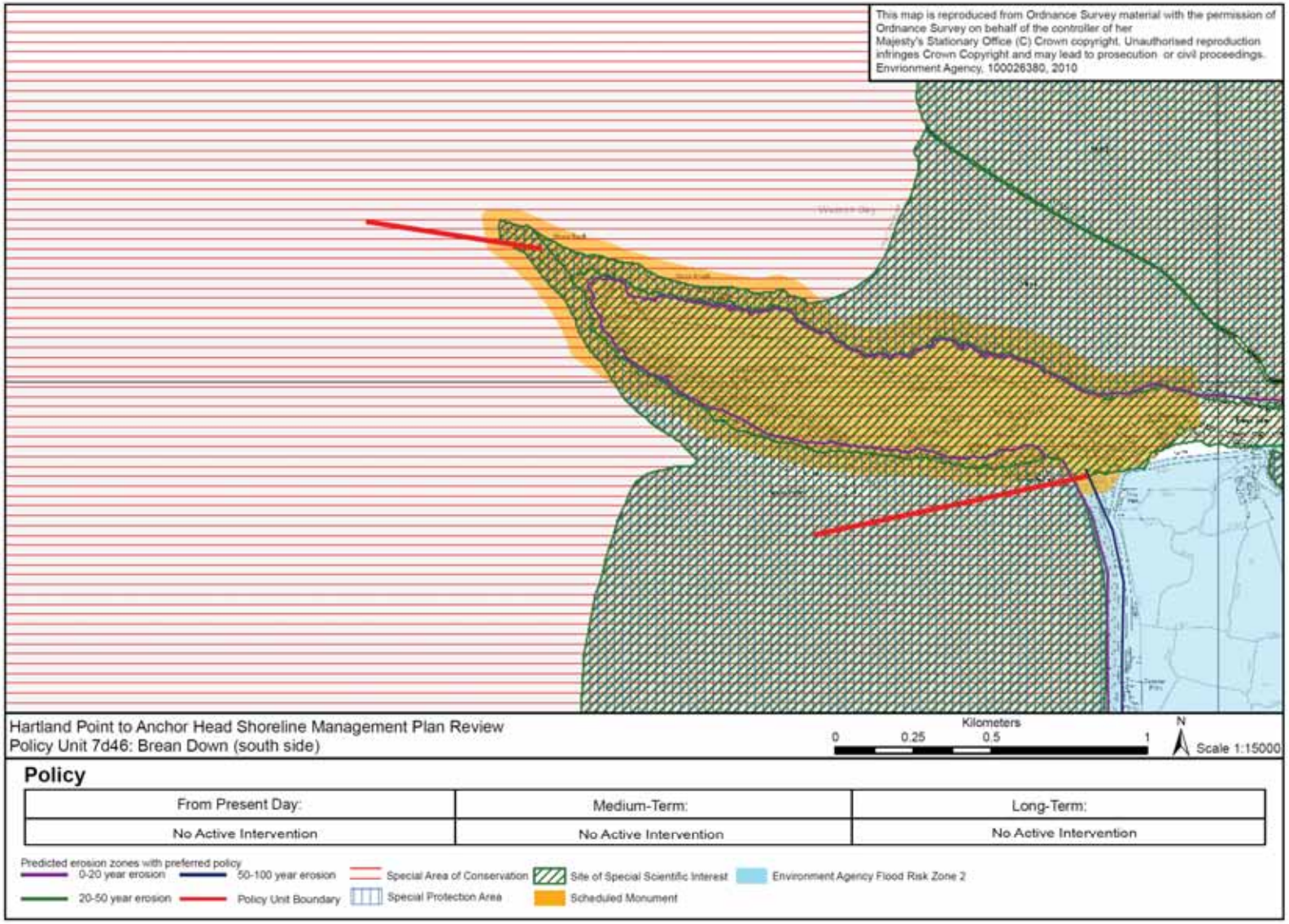

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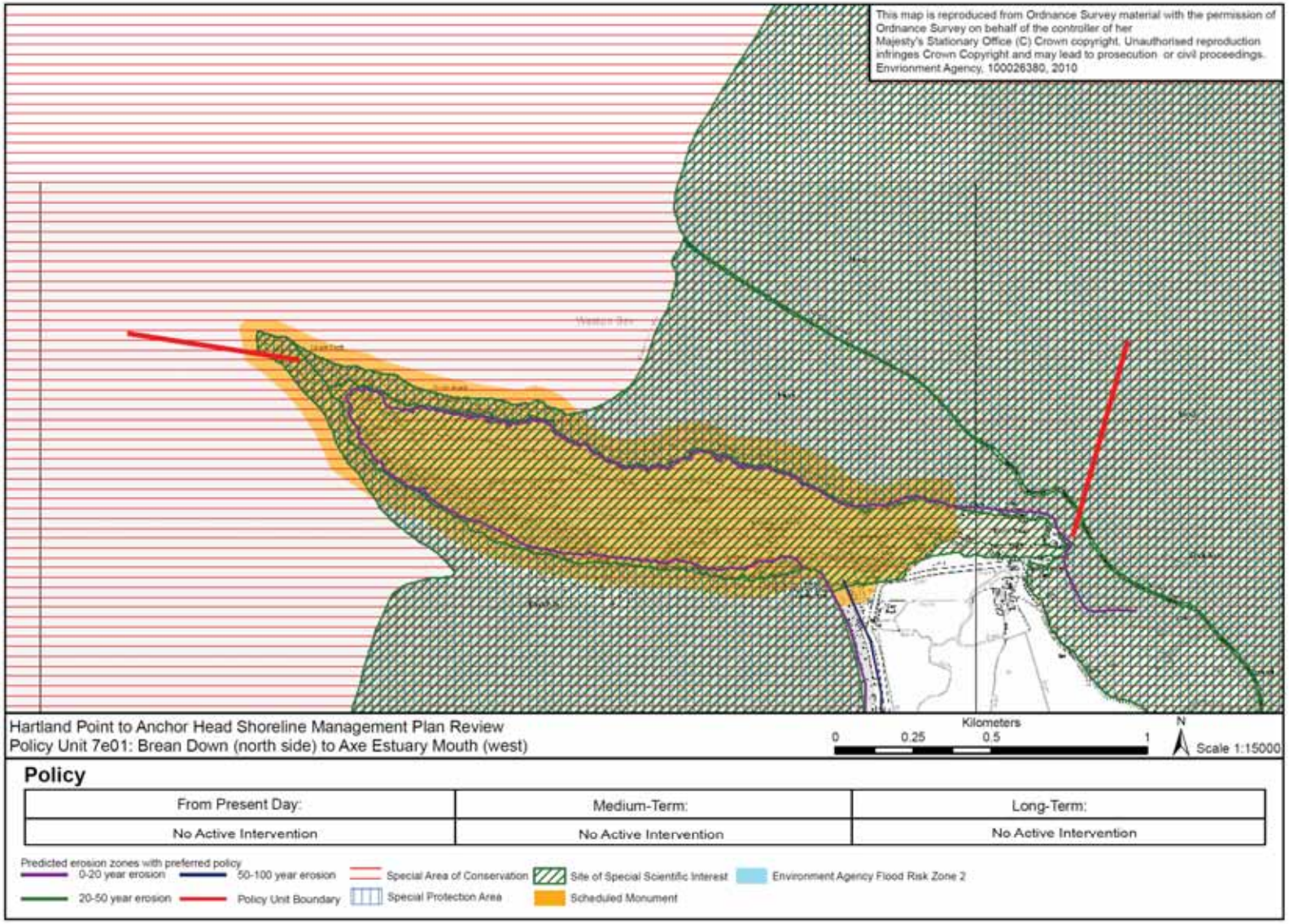

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Location reference:	**Axe Estuary**
Policy unit reference:	**7e02 to 7e04**

Summary of preferred plan recommendations and justification

Plan:

The long term plan across this whole area is to continue to minimise flood risk to the wider area of the Somerset Levels in the most sustainable way. Along the west (left) bank of the Axe Estuary, policies and implementation measures also need to take account of future management of the open coast between Berrow and Brean Down. Therefore the two statements should be read in conjunction with each other.

The long term vision for the estuary is to return it to a more natural, less constrained, state whilst continuing to provide defence against the risk of flooding in a way that it is environmentally acceptable and economically viable. The estuary is not able to return to a fully natural state as flow will remain controlled by the Brean Cross Sluice. There are however a number of locations within the Axe Estuary which offer potential opportunities for set back defences, using shorter and smaller (and less costly) defences.

Further studies are necessary to determine the viability, approach, timing and consequences of realignments, and any measures that would need to be put in place to manage risk and facilitate realignment. Although considerable nature conservation and biodiversity opportunities could be realised through this approach, this would produce changes to currently designated sites and potential impacts on habitats further inland. Although the aim would be to defend key assets, there could be potential impacts on a number of non-designated archaeological features and areas of farmland. Therefore, in the short term the present defences are to be maintained whilst retired line options are investigated more fully.

Along the west bank of the River Axe, there would be no change in the short and possibly medium term before moving towards managed realignment in the medium to long term. This would ultimately result in the loss of homes and businesses in the long term but flood risk to the wider Somerset Levels and to Brean and Berrow from the Axe Estuary would be managed. The mouth of the River Axe could potentially move position to the south of Brean Down in the very long term. If this were to occur then it could have implications for sediment circulation along the Burnham-on-Sea to Brean coast as well as within Weston Bay.

Along the east bank of the River Axe and from the east side of the mouth towards Uphill, the plan is to provide defence against the risk of flooding in a realigned position. There are opportunities here for further managed realignment to create habitat. This would continue to protect homes and businesses against flood risk, as well as key infrastructure including the A38 and M5, the mainline railway and associated facilities.

This would also provide potential benefits to the Severn Estuary SSSI, SAC, SPA and Ramsar site by creating intertidal habitat in areas of Managed Realignment. However, holding the realigned defence position in the long term may eventually cause coastal squeeze (narrowing of the shoreline) and loss of intertidal habitat. Realignment may also have potential impacts on a number of non-designated archaeological features, depending upon extent of realignment, which would be determined through further detailed study.

Preferred policies to implement plan:

From present day (short term):	Within the Axe Estuary the policy is to continue to minimise the risk of flooding to the extensive low-lying hinterland, through **hold the line** whilst studies are undertaken to investigate managed realignment opportunities. This will involve ongoing maintenance of the existing embankments.
Medium term:	Once existing defences reach the end of their effective life, the medium term policy is for **managed realignment** to implement the vision of a more naturally functioning, sustainable estuary, through construction of set back defences in a number of areas of the Axe Estuary. The location of any realignment will depend upon the outcome of the studies carried out during the short term. Realignment in this area offers potential for habitat creation benefits for the wider area as compensation for habitat losses resulting from coastal squeeze in other locations where defence continues to be provided.

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	Between the mouth of the estuary and Uphill a managed realignment policy offers potential to retain the beach along this frontage by allowing it to adapt and realign in response to rising sea levels. There is potential for managed realignment along both the left (west) and right (east) banks of the estuary at this time. Along the left bank this could create inter-tidal habitat that would act as a buffer for any long term transition in policy to managed realignment along the adjacent open coast towards Brean Down. The policy along this part of the Axe Estuary is however to be kept under review in combination with future management decisions about the adjacent open coast. If studies have concluded that managed realignment along the banks of the Axe Estuary is not appropriate, the medium term policy would be to continue to **hold the line**. In response to sea level rise, this is likely to require the construction of new, higher defences.
Longer term:	Along the east side of the Axe Estuary between the east side of the mouth and Uphill the policy will continue to be to minimise the risk of flooding to key assets through **hold the line**. This will be through ongoing maintenance along existing or set back defence alignments, depending upon decisions made during the medium term. In conjunction with the policy for the open coast between Brean and Brean Down (refer to Policy Unit 7d45), the long term policy along the west bank of the Axe Estuary may need to change to **managed realignment** if it is no longer viable to continue to hold the line of the existing defences. Construction and maintenance of a new set-back defence position may be required to continue to reduce the risk of flooding to Brean, Berrow and the wider Somerset Levels from this part of the Axe Estuary. In the very long term, this potential change in policy (along with that in 7d45) could result in the Axe Estuary mouth changing course to discharge to the south of Brean Down.

Summary of specific policies

Policy unit		Preferred policies		
		Short term	**Medium term**	**Long term**
7e02	**Axe Estuary left (west) bank (mouth to near Diamond Farm)**	Continue to minimise flood risk by maintaining the existing flood defences, through **hold the line**.	Continue to minimise flood risk by maintaining the existing flood defences, through **hold the line**. Consider moving towards a policy of **managed realignment**.	If not possible to continue to **hold the line**, then allow more natural coastal evolution to occur by moving towards a policy of **managed realignment**.
7e03	**Axe Estuary right (east) bank (near Diamond Farm to mouth)**	Continue to minimise flood risk by maintaining the existing flood defences, through a **hold the line** policy. Investigate opportunities for Managed Realignment.	Implement **managed realignment** as informed by detailed studies, otherwise maintain and if necessary rebuild the existing flood defences, under a policy of **hold the line.**	Continue to minimise flood risk by maintaining the existing (or set back) flood defences, through **hold the line**

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Policy unit		Preferred policies		
		Short term	Medium term	Long term
7e04	**Axe Estuary mouth to Uphill**	Continue to minimise flood risk by maintaining the existing flood defences, through a **hold the line** policy. Investigate opportunities for Managed Realignment.	Implement **managed realignment** as informed by studies, otherwise maintain and if necessary rebuild the existing flood defences, under a policy of **hold the line.**	Continue to minimise flood risk by maintaining the existing (or set back) flood defences, through **hold the line**

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Location reference:	Axe Estuary
Policy unit reference:	7e02 to 7e04

Implications of the preferred plan for this location

Time period	Management activities	Human Health, Property and Population	Land use, infrastructure and material assets	Historic Environment	Landscape character and Visual Amenity	Geology and Soils	Water	Biodiversity, flora and fauna
2005 to 2025	Continue to maintain defences and investigate opportunities for Managed Realignment.	Protection of residential and commercial properties from back-door flooding in Uphill and Brean.	Protection of, tourist related infrastructure, roads, Mainline Railway (and associated facilities) and infrastructure from flooding. Low grade agricultural land at risk from flooding.	Protection of Listed Buildings in Uphill and a Scheduled Monument at Walborough from back-door flooding. Protection of Uphill Conservation Area. In areas of managed realignment there is risk of damage to buried deposits of the historic environment.	No known change landscape and visual amenity.	No known impact on Earth heritage, soils and geology. No designated site along this stretch of coast.	No known impact on water.	Protection of intertidal and coastal areas of the Uphill SSSI and Local Nature Reserve from flooding.
2025 to 2055	Continue to maintain defences, rebuild where necessary and implement Managed Realignment.	As above.	As above.	As above.	In areas of managed realignment there will be a change from a terrestrial landscape to an intertidal landscape.	As above.	Works in areas selected for managed realignment should be implemented so as to not adversely impact on the water quality status of the coastal waters or compromise the achievement of WFD water quality targets.	Freshwater habitats are at risk of flooding through managed realignment, resulting in a loss of freshwater habitats to intertidal habitat. This will offset losses of intertidal habitat to coastal squeeze elsewhere in the Estuary benefiting the Bridgwater Bay SSSI and NNR Severn Estuary Ramsar, SPA and SAC. This policy is considered further within the Habitats Regulations Assessment (Appendix J) Protection of intertidal and coastal areas of the Uphill SSSI and local nature reserve from flooding at the secondary defence line.
2055 to 2105	Continue to maintain defences, rebuild where necessary and implement Managed Realignment.	As above.	As above.	As above.	As above.	As above.	As above.	Maintaining the defences at the secondary defence line will cause coastal squeeze leading to a net decrease in intertidal habitat which are key features of the Bridgwater Bay SSSI and NNR Severn Estuary Ramsar, SPA and SAC. This policy is considered further within the Habitats Regulations Assessment (Appendix J)

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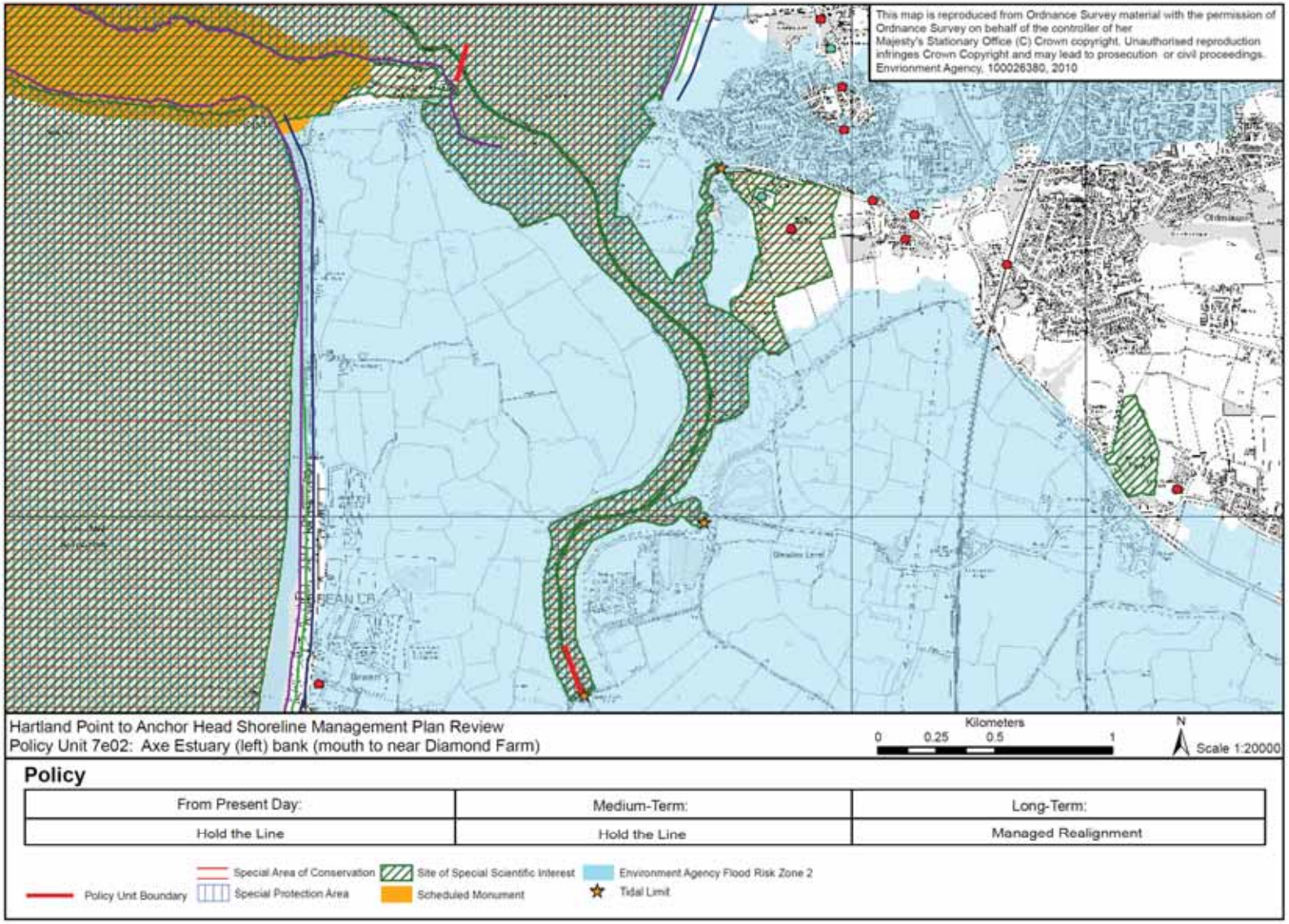

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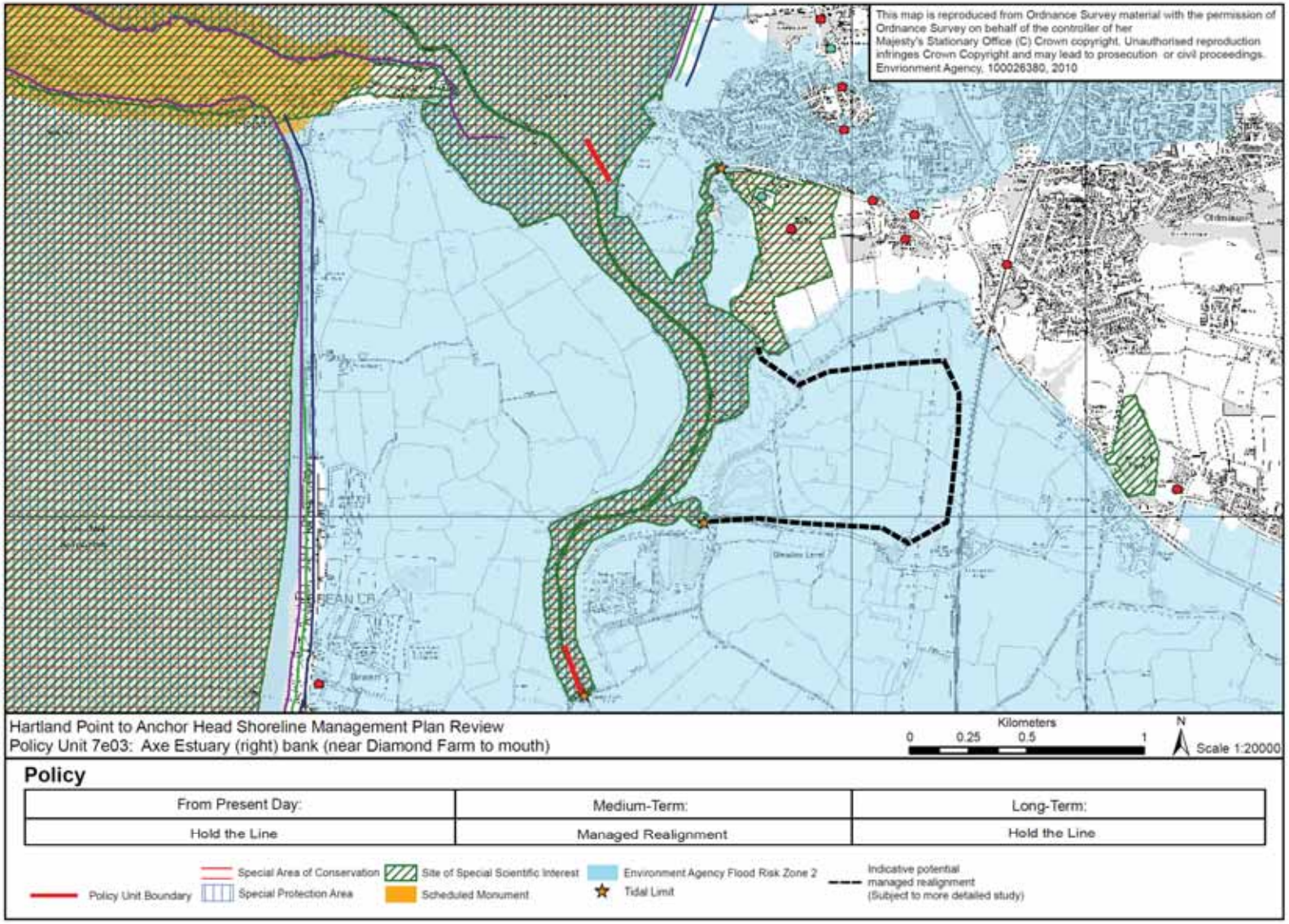

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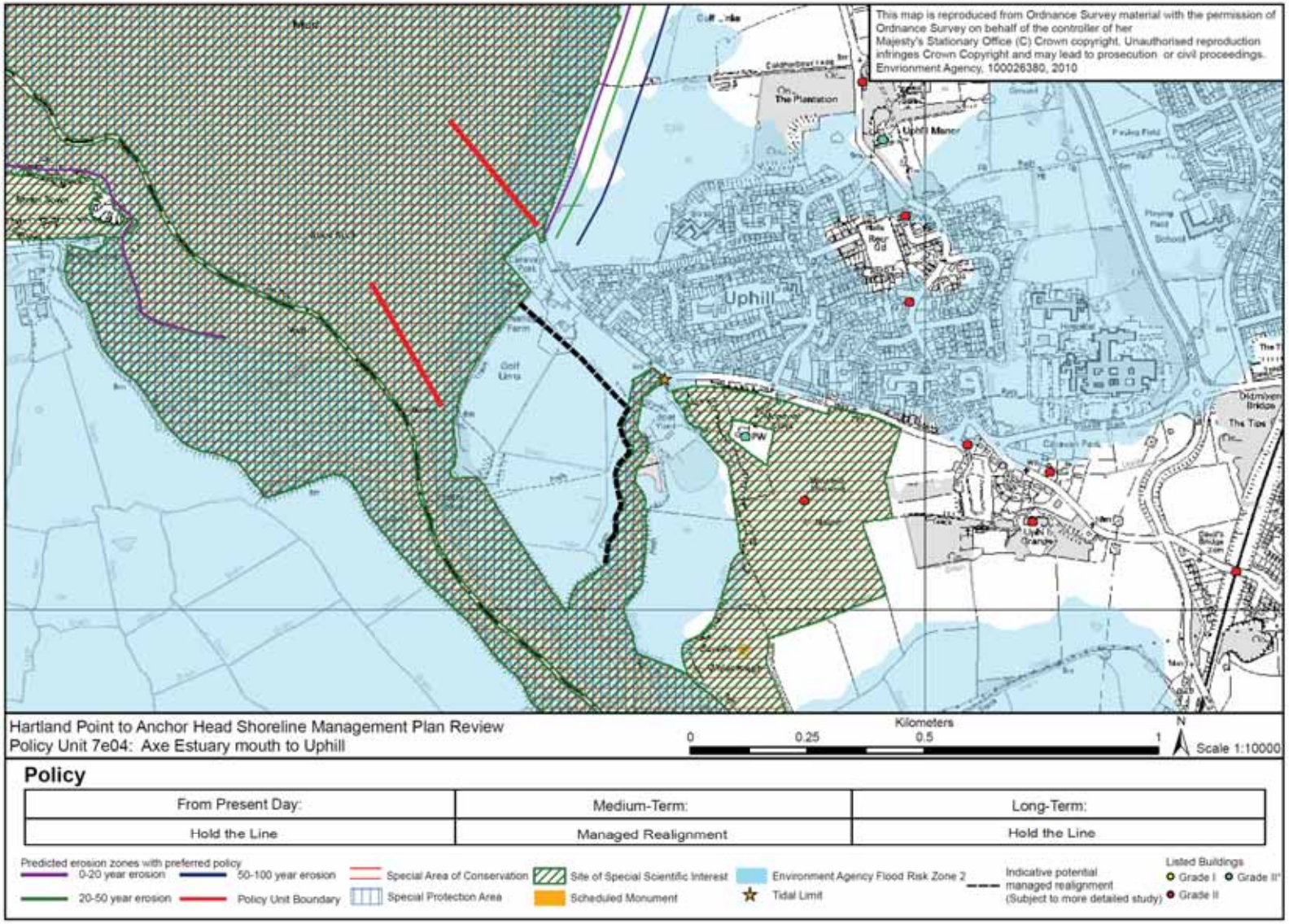

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Location reference:	**Uphill to Weston-super-Mare (Anchor Head)**
Policy unit reference:	**7e05 and 7e06**

Summary of preferred plan recommendations and justification

Plan:

The significant socio-economic assets along this frontage justify a long term plan to continue to minimise the risk of flooding and erosion to Weston-super-Mare, Uphill and the wider area of the Somerset Levels. The beach and dunes are important to tourism value in this area and are also important natural defences at Uphill.

The plan will involve the appropriate management of the existing dune system at Uphill. Between Uphill and Weston-super-Mare the dunes may become unsustainable as a defence, therefore set-back defence may be required to minimise flood risk to people and property.

Through beach and dune management, as well as maintenance of sea walls at Weston-super-Mare, there will be continued protection against flood risk for a significant number of homes and businesses in Weston-super-Mare and Uphill, as well as key infrastructure including the A370 and M5, the mainline railway and associated facilities.

Beach width is likely to reduce over time as sea levels rise, with potential for habitat loss due to narrowing of the shoreline where hard defences are present. Loss of intertidal habitats could impact upon the Severn Estuary Special Area of Conservation, Special Protection Area for Birds and Ramsar site as well as the amenity value of the area.

Preferred policies to implement plan:

From present day (short term):	Flood and erosion risk along the Weston-super-Mare frontage will be minimised through a **hold the line** policy. This will involve maintaining the recently improved defences. Along the undefended dunes between Uphill and Weston-super-Mare, the policy is to allow the dunes to function as naturally as possible, with dune management if necessary to support the defence function of the dunes through **managed realignment**. Implementation of policy will include ongoing monitoring of the effectiveness of the dunes as a defence. Based on this it may be necessary to investigate and construct a secondary defence line. A detailed study is required to assess the long term sustainable management requirements along the whole frontage, including consideration of how beach management along the Weston-super-Mare frontage influences the evolution of the dunes between Weston-super-Mare and Uphill and sediment circulation within Weston Bay as a whole.
Medium term:	In the medium term the policy is to continue to **hold the line** at Weston-super-Mare. Implementation will involve maintaining the existing defences to ensure continued protection to a significant number of homes and businesses in Weston-super-Mare and Uphill, as well as historic environment features, key infrastructure and associated facilities. Beach width will reduce over time, with intertidal habitat loss and narrowing of the shoreline where defences are held. Intertidal habitat loss could adversely affect the Severn Estuary Special Area of Conservation, Special Protection Area and Ramsar site as well as the amenity value of the area. Along the undefended dunes between Uphill and Weston-super-Mare, the policy is for allow the dunes to function as naturally as possible, although dune management could be undertaken to support the defence function of the dunes through continuation of **managed realignment**. The dunes should remain an effective defence during this period, providing protection to the settlement at Uphill and other assets behind. However, the risk of a breach

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	will increase, therefore monitoring should be undertaken to assess this risk. Plans should be put in place for future management of this frontage, including the need for constructing a secondary defence line, if it not already implemented in the short term.
Longer term:	The long term policy is to continue defending the frontage of Weston-super-Mare through a **hold the line** policy. Improvements may be required to the standard of defences, due to the impact of rising sea levels. This will require greater investment, but the significant assets along this shoreline mean this should be economically justified. Along the undefended dunes between Uphill and Weston-super-Mare, the policy of **managed realignment** will continue to allow the dunes to function as naturally as possible, with dune management if necessary to support the defence function of the dunes. Should monitoring indicate a high risk of breach a secondary defence embankment may need to be constructed landwards of the dunes if not already built, to minimise flood risk to people and property.

Summary of specific policies

Policy unit		Preferred policies		
		Short term	**Medium term**	**Long term**
7e05	**Uphill to Weston-super-Mare (south)**	Allow natural coastal evolution to continue as far as possible but undertake dune monitoring and management if required to support the defence function of the dunes through **managed realignment**. If monitoring identifies that the dunes are at risk of breaching, then construct a secondary defence embankment this policy.	Allow natural coastal evolution to continue as far as possible but undertake dune monitoring and management if required to support the defence function of the dunes through **managed realignment**. If monitoring identifies that the dunes are at risk of breaching, then construct a secondary defence embankment this policy.	Allow natural coastal evolution to continue as far as possible but undertake dune monitoring and management if required to support the defence function of the dunes through **managed realignment**. If monitoring identifies that the dunes are at risk of breaching, then construct a secondary defence embankment this policy.
7e06	**Weston-super-Mare**	Minimise risk of flooding and erosion to Weston-super-Mare by maintaining the existing defences, through a **hold the line** policy.	Minimise risk of flooding and erosion to Weston-super-Mare by maintaining the existing defences, through a **hold the line** policy.	Minimise risk of flooding and erosion to Weston-super-Mare by maintaining, or upgrading, the existing defences, through a **hold the line** policy.

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Location reference:	Uphill to Weston-super-Mare (Anchor Head)
Policy unit reference:	7e05 and 7e06

Implications of the preferred plan for this location

Time period	Management activities	Human Health, Property and Population	Land use, infrastructure and material assets	Historic Environment	Landscape character and Visual Amenity	Geology and Soils	Water	Biodiversity, flora and fauna
2005 to 2025	No management activities between Uphill and Weston-super-Mare. Continue to maintain defences at Weston-super-Mare.	Protection of residential and commercial properties in Weston-super-Mare from flooding. The development opportunities planned for Weston-super-Mare are potentially at risk from flooding depending on their locations.	Protection of tourist related infrastructure, roads (A370), mainline railway between the South West and Midlands (and associated facilities) and infrastructure from flooding. Protection of the substations at Weston-super-Mare from flooding. Potential loss of some parts of the West Mendip Way from flooding and erosion along the Golf Course at Uphill. Low grade agricultural land at risk from flooding.	Protection of the Conservation Area at Uphill and Weston-super-Mare from flooding. Protection of Listed Buildings at Weston-super-Mare. Scheduled Monuments are not at risk from flooding in Weston-super Mare.	Minor changes in landscape at Weston super Mare due to larger defences or more structures being required to maintain an acceptable standard of flood and erosion protection, thus potentially resulting in a change of views and a change in landscape character.	Reduction in beach width at the southern end of Weston Bay due to erosion	No impact on water quality, in compliance with Water Framework Directive.	Maintaining the defences at Weston super Mare will cause coastal squeeze leading to a net decrease in intertidal habitat which are key features of the Bridgwater Bay SSSI and NNR Severn Estuary Ramsar, SPA and SAC. This policy is considered further within the Habitats Regulations Assessment (Appendix J) The Walborough SSSI and local nature reserve is at risk from flooding. Net reduction in the dune area due to erosion and coastal squeeze against coastal defence at the Uphill golf course resulting in adverse impact on CWS.
2025 to 2055	No management activities between Uphill and Weston-super-Mare. Continue to maintain defences at Weston-super-Mare.	Protection of commercial properties in Weston-super-Mare from erosion and flooding.	As above.	As above.	As above.	As above.	No known impact on water.	As above.
2055 to 2105	No management activities between Uphill and Weston-super-Mare, unless monitoring concludes there is a risk of breaching the dunes. Continue to maintain and upgrade defences at Weston-super-Mare.	Protection of commercial properties in Weston-super-Mare from erosion and flooding.	Protection of the pier to Birnbeck Island from erosion and maintenance of the spatial extent of the dune field. Protection of residential and commercial properties, tourist related infrastructure, roads (A370), Mainline Railway (and associated facilities) and infrastructure from flooding. Potential loss of some parts of the West Mendip Way from flooding and erosion along the Golf Course at Uphill. Protection of the substations at Weston-super-Mare from flooding.	As above.	As above.	As above.	Works in areas selected for managed realignment should be implemented so as to not adversely impact on the water quality status of the coastal waters or compromise the achievement of WFD water quality targets.	As above.

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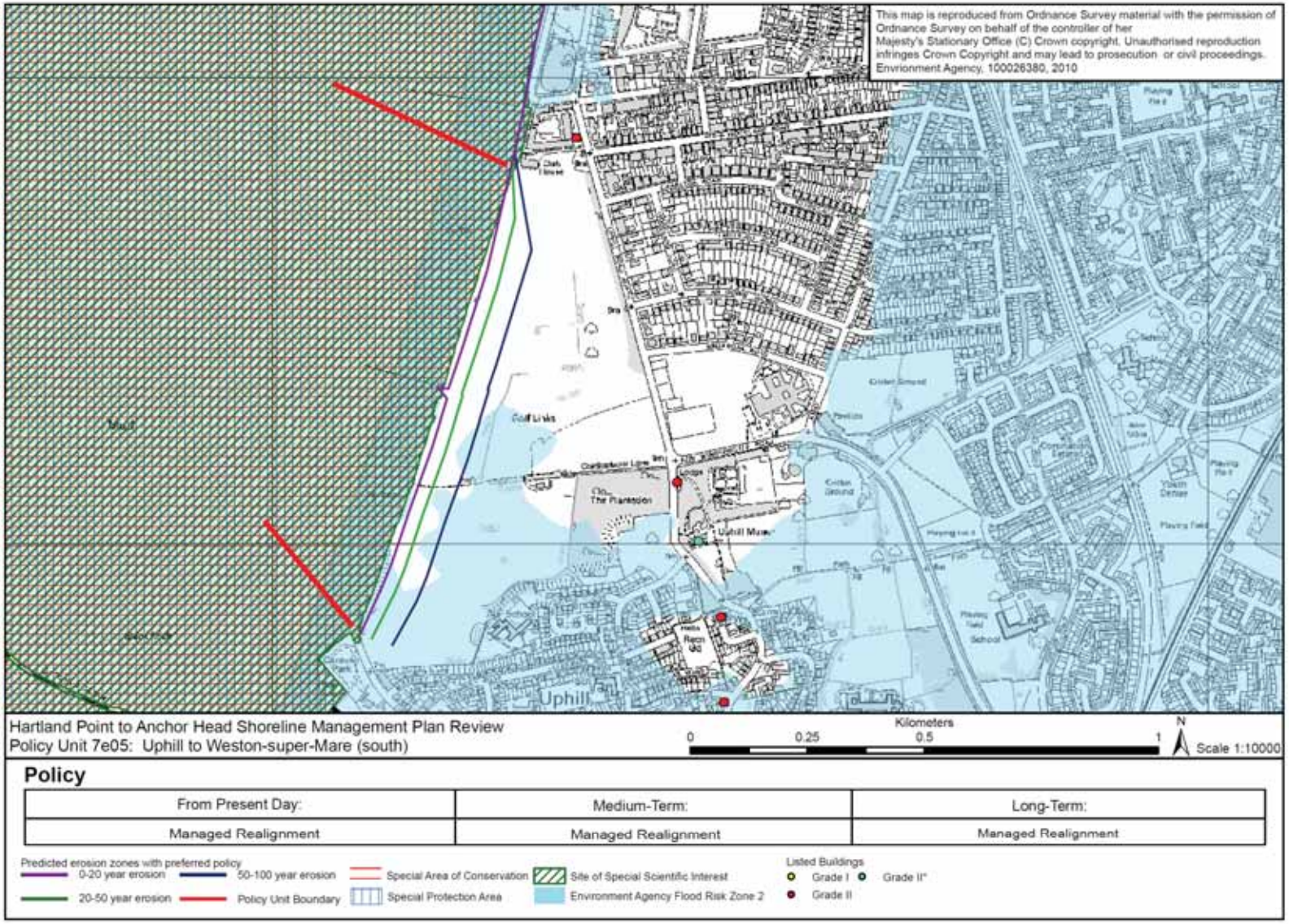
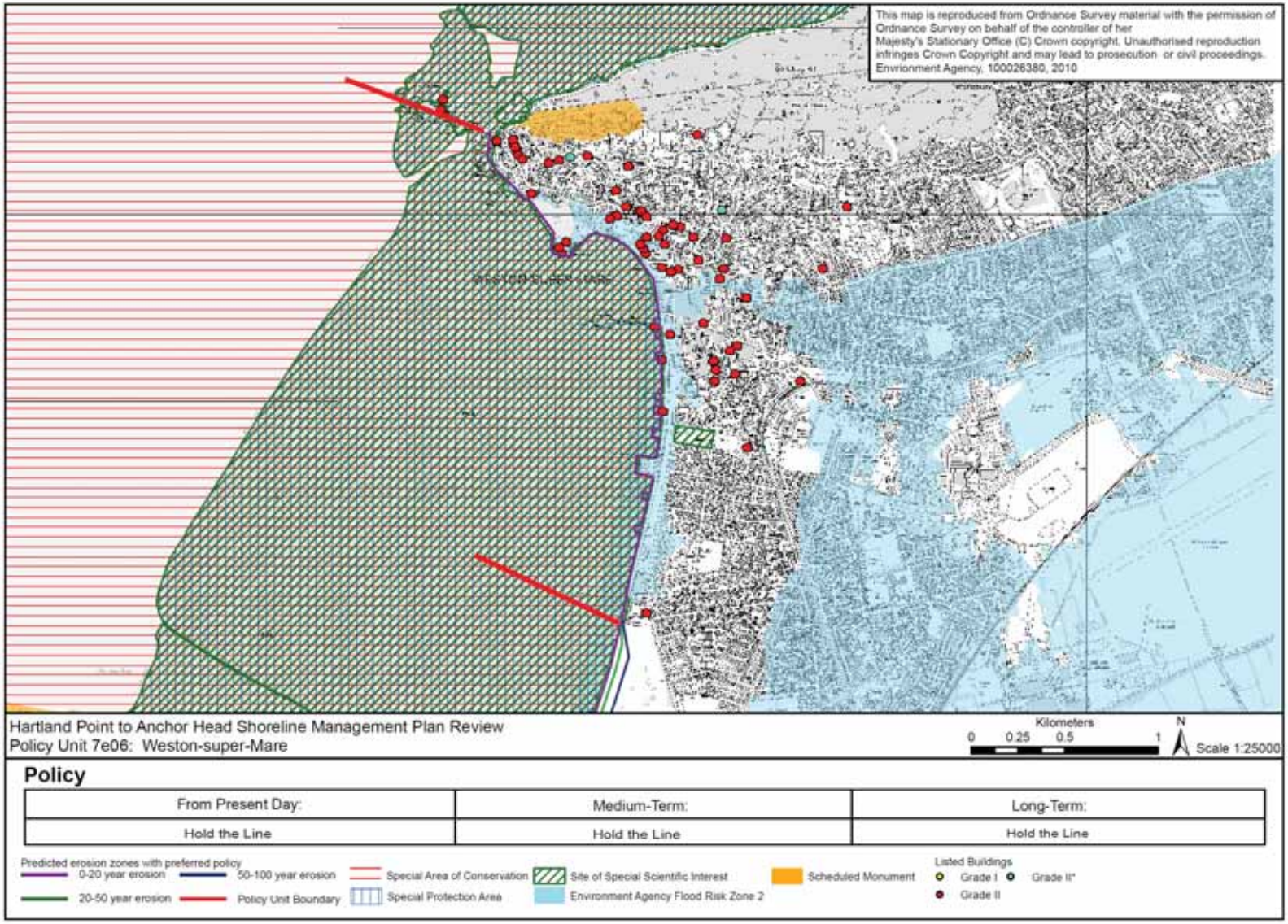
Location reference:	Uphill to Weston-super-Mare (Anchor Head)							
Policy unit reference:	7e05 and 7e06							
Implications of the preferred plan for this location								
Time period	**Management activities**	**Human Health, Property and Population**	**Land use, infrastructure and material assets**	**Historic Environment**	**Landscape character and Visual Amenity**	**Geology and Soils**	**Water**	**Biodiversity, flora and fauna**
			Low grade agricultural land at risk from flooding.					

The above provides the local details in respect of the SMP-wide policy presented in the preceding sections of this Plan document. These details must be read in the context of the wider-scale issues and policy implications, as reported therein.



The above provides the local details in respect of the SMP-wide policy presented in the preceding sections of this Plan document. These details must be read in the context of the wider-scale issues and policy implications, as reported therein.



The above provides the local details in respect of the SMP-wide policy presented in the preceding sections of this Plan document. These details must be read in the context of the wider-scale issues and policy implications, as reported therein.

6 Action Plan

6.1 Introduction

The draft North Devon and Somerset (NDAS) SMP was issued for consultation in October 2009. The consultation period ended on 8th January 2010. All comments raised during the consultation period were collated, reviewed and a response to each comment was recorded in the Consultation Feedback Report (see **Appendix B**). Where it was possible to respond to the comments immediately, the SMP was amended and the changes can be viewed in the final version of the SMP. In some cases, it was not possible to respond to the comments immediately, for reasons such as further study is required to fully answer the question; or suggestions for further work were made during the consultation period, for example to better understand the implications of an option for the coastline, the social environment, or natural environment. To account for these comments, and to formalise the actions required to complete the necessary studies, the SMP Action Plan was completed.

The Action Plan provides a list of actions that should now be taken by the Environment Agency and local authorities in the period up to the next SMP review, which will ultimately lead to better informed decision making relating to coastal management policy at the coast. This is nominally a 5 to 10 year period, however, the SMP provides for reassessment of this timescale should an earlier review be considered necessary.

The Action Plan has been completed using the latest format guidance provided by the SMP National Quality Review Group. **Appendix M** contains the full Action Plan produced in the national format for ease of future reporting of Action Plan progress. However, for ease of reading, a summary of the Action Plan is presented here in Section 6. The actions are split into those that are applicable to the whole SMP area (Section 6.2) and those that apply to specific areas or locations (Section 6.3). These specific areas, also referred to in the plan as Policy Scenario Areas, are based on the sections of coast for which it has been identified that there is a significant processes interaction for developing SMP policies.

In the preceding sections a summary of the actions to be taken is provided, along with a table for each section giving specific detail. In accordance with the guidance provided by the SMP National Quality Review Group, an 'action type' is assigned to each action, as shown in Table 6.1. Other details include a description of the action, potential source for funding, who is responsible for the action, when it should be completed by, and its relative importance and links with other actions. Table 6.2 provides a description of the table headings in the summary action tables presented in Sections 6.2 and 6.3.

Table 6.1 Description of Action Types, as defined by the SMP Review Group (2010)

Heading	Example Activities
Study	Studies and investigations, including site investigations, modelling, coastal stability studies.
Strategy	Preparation and review of strategies.
Scheme Work	Capital works.
Coastal Monitoring (ongoing)	Regional and local. Data collection and analysis.
Asset Management	Includes preparation of Asset Management Plans, maintenance.

The above provides the local details in respect of the SMP-wide policy presented in the preceding sections of this Plan document. These details must be read in the context of the wider-scale issues and policy implications, as reported therein.

Heading	Example Activities
Communication	Communication activities not covered by other headings e.g. maintaining website, ongoing engagement with stakeholders.
Planning	Activities relating to engagement with spatial planning; work to influence planning documents (e.g. Local Development Frameworks (LDFs) & Regional Spatial Strategies (RSSs)) and decisions relating to development control.
Contingency Planning & Emergency Response	Contingency and emergency response planning and engagement.
Adaptation/Resilience	Studies and engagement with others to consider development and implementation of adaptation activities at the coast.
Early Warning	Activities relating to the development and implementation of early warning.
Habitat Creation	Studies and works related specifically to the creation and restoration of habitats; work related to Regional Habitat Creation Programmes (RHCP).
Funding	Link to Medium Term Plan (MTP) entry. Identification and pursuit of alternative funding sources for any Flood and Coastal Risk Management (FCRM) activities.
SMP Management and Monitoring	Procedures for the management of the SMP until its next review such as steering group meetings. Include processes for monitoring progress and expenditure; also for considering impacts upon the plan of changes in policy or new guidance, or the emergence of new data. Links to National Indicator (NI) 189. Identify and publish lessons learnt.

Table 6.2 Description of table headings in summary Action Plan tables presented in Sections 6.2 and 6.3

Table Heading	Detail Provided
Action Type	This is the type of action as defined in Table 6.1.
Action Reference	This is a unique reference number for each separate action. In Section 6.2 these are prefixed "NDAS.ALL." – "NDAS" refers to the North Devon and Somerset SMP2; "ALL" refers to being applicable to the whole SMP area. In Section 6.3 these are prefixed "NDAS.PSA" – where "PSA" is followed by a number specific to which Policy Scenario Area the action relates to. In both cases the last part of the reference is two numbers, for example "2.1". In this example "2" refers to the action type (refer to above) and "1" refers to this being the first action under this header in this section.
Policy Unit	This states which policy units the action relates to within the policy area. In Section 6.2 "ALL" is stated here as actions applying to the whole SMP area.

The above provides the local details in respect of the SMP-wide policy presented in the preceding sections of this Plan document. These details must be read in the context of the wider-scale issues and policy implications, as reported therein.

Table Heading	Detail Provided
Action Description	This provides details of what action is to be taken.
Potential source for funding (subject to approval)	Identifies likely source of funding to implement each action. n/a = activity is part of authorities general duties, not funded through flood and erosion risk management routes.
Responsibility (lead partner)	This identifies which organisation(s) should take the lead in taking forward the action.
When by (subject to funding)	Gives an indication of when an action should be completed by. This also gives indication of relative urgency but has also been defined in considering all actions.
Relative importance and links with other actions	This describes the relative importance of undertaking an action in relation to other actions. For example, undertaking more intensive monitoring to inform detailed study later on. Links to other actions either in the same area or for the whole SMP area are also indicated.

6.1 SMP Wide Actions

This section sets out a range of actions that are applicable to the whole of the North Devon and Somerset (NDAS) SMP2 frontage and these should be read in combination with specific actions stated for each smaller section of coast (Policy Scenario Area) discussed in Section 6.3.

These SMP wide actions are aimed at ensuring that the actions required to implement the SMP are taken in the period before the next SMP review. This is to be achieved through (i) the establishment of procedures to monitor progress by the coastal group and (ii) engagement with relevant organisations and planners to ensure that any decisions made relating to the future development/management of the coastline are fully informed by the implications of the policies in this SMP. This engagement and communication also needs to extend to all stakeholders and the general public, especially in areas where there is likely to be a need for adaptation in the medium to long term as defence provision is withdrawn. In such areas adaptation plans to guide what changes in an area are required and how they are to be delivered are likely to be required. Development of adaptation plans should seek to draw upon the outcomes from Pathfinder projects.

Continuation of the South West Strategic Regional Coastal Monitoring Programme is vital to ensure that the next SMP review and all coastal risk management decisions taken in the interim are informed by site specific, evidence based data. Actions to undertake additional, or increase the frequency of, monitoring to obtain additional data is also included for in some areas.

Additional recommendations include studies to investigate implications for health and safety in areas where the policy is for No Active Intervention to occur and defences will not be maintained; and to improve understanding of sediment dynamics within the wider Bristol Channel. Review of existing (Severn Estuary) and development of further Coastal Habitat Management Plans (CHaMPS) is also recommended as a means of aiding management of habitat change.

The above provides the local details in respect of the SMP-wide policy presented in the preceding sections of this Plan document. These details must be read in the context of the wider-scale issues and policy implications, as reported therein.

Table 6.3 Actions for the whole North Devon & Somerset SMP2 area

Action Type	Action Reference	Policy Unit	Action Description	Potential source for funding (subject to approval)	Responsibility (lead partner)	When by (subject to funding)	Relative importance and links with other actions
1. Studies for Policy Scenario Area	NDAS.ALL.1.1	All	Undertake a study of the sediment dynamics of the Bristol Channel and the interaction with coastal areas to develop improved understanding of sediment transport pathways and linkages to inform future management decisions.	Defra/WAG Environment Agency	Environment Agency	2020	This study would be very useful not only for informing flood and coastal risk management studies but also other studies such as those investigating renewable energy options in the Severn Estuary. This may therefore be an opportunity for a joint study with that work. Refer also to Action Plan item NDAS.ALL.7.4.
	NDAS.ALL.1.2	All	In areas where the policy is for No Active Intervention to occur, the lack of maintenance of defences in the future may pose a health and safety risk, as structures become unsafe for public use. An investigation into the implications for health and safety of No Active Intervention policy along parts of the SMP frontage should be carried out to inform future management decisions about areas where removal of defences may be necessary.	Defra/ Environment Agency	Environment Agency / Local Authorities	2020	There are a number of areas where a policy of No Active Intervention may cause a health and safety issue, although it is not likely that this will occur until at least the end of the first epoch in some areas, and during the medium term in most areas. Therefore this study should be completed before the next SMP review.
	NDAS.ALL.1.3	All	Ensure that all studies, strategies and schemes work with the requirements of the Water Framework Directive (WFD), referring in each case to the River Basin Management Plan and associated action plan for the region.	n/a	Environment Agency / Local Authorities	ongoing	Compliance with the WFD is a statutory requirement and therefore this action needs to be undertaken as part of all future coastal projects.
	NDAS.ALL.1.4	All	Ensure that all studies, strategies and schemes work with the requirements of the Catchment Flood Management Plans (CFMPs) and associated action plans in each location.	n/a	Environment Agency / Local Authorities	ongoing	The CFMPs provide policy for flood risk management in similar way to the SMP. Therefore this action needs to be undertaken as part of all future coastal projects to ensure that implementation of SMP policy does not contrary to the CFMP policy.
	NDAS.ALL.1.5	All	Ensure that all studies, strategies and schemes work give adequate consideration to nature conservation and historic environment assets (including historic landscapes) to both fully understand and manage implications of future management decisions as well as to seek, where practical, opportunities to improve the condition of the natural and historic environment.	n/a	Environment Agency / Local Authorities	ongoing	Assessment of the natural and historic environment should be done at an appropriate level of detail depending on the project, and should engage with relevant bodies such as Natural England and English Heritage.
2. Studies for Policy Units	-	-	-	-	-	-	-
3. Strategy	-	-	-	-	-	-	-
4. Scheme Work	-	-	-	-	-	-	-
5. Coastal Monitoring (ongoing)	NDAS.ALL.5.1	All	Continue the Strategic Regional Coastal Monitoring Programme to improve the amount and quality of information on which to base future management decisions.	Defra/ Environment Agency	Environment Agency / Teignbridge District Council	ongoing	This is vital to improve understanding of coastal processes and assess the risk to the integrity of existing coastal defences.
	NDAS.ALL.5.2	All	Ensure that periodic defence inspection, including assessment of condition and photographic recording, is undertaken and that defence crest levels are confirmed.	Defra/ Environment Agency	Environment Agency	ongoing	Continued monitoring of the condition of defences is important to inform future management decisions. This could be carried out as part of studies/strategies where they are to occur along parts of this frontage. Refer also to Action Plan item NDAS.ALL.6.1.
	NDAS.ALL.5.3	All	Develop and implement routine cliff inspection and monitoring to provide improved information about cliff behaviour and recession. This could be included in the remit of the Strategic Regional Coastal Monitoring Programme or carried out separately. Consideration should also be given to establishing an expert	Defra/ Environment Agency	Environment Agency / Teignbridge District Council	ongoing	Cliff recession information needs to be improved to inform future revisions of erosion risk maps. Refer also to Action Plan item NDAS.ALL.8.1.

The above provides the local details in respect of the SMP-wide policy presented in the preceding sections of this Plan document. These details must be read in the context of the wider-scale issues and policy implications, as reported therein.

Action Type	Action Reference	Policy Unit	Action Description	Potential source for funding (subject to approval)	Responsibility (lead partner)	When by (subject to funding)	Relative importance and links with other actions
			review group to advise on recession risk in areas of complex cliff processes. This information should not only be used in future coastal management by informing future updates of the National Coastal Erosion Risk Mapping, but also to assist in stakeholder liaison by use of data in public education campaigns.				
6. Asset Management	NDAS.ALL.6.1	All	The National Flood and Coastal Defence Database (NFCDD) needs to be reviewed and updated to ensure that the information it contains is both accurate and current. This should consider being expanded to cover both public and private defences so that defence information is readily available from a single source for use in future coastal risk management planning.	Defra/ Environment Agency	Environment Agency / Local Authorities	ongoing	Whilst the NFCDD has recently been updated with information collected in parallel to this SMP, there are still many gaps in the data it contains for public assets. It lacks basic information on all publically owned assets, and does not include details of private defences. Without this, a source for identifying where private assets are located does not exist. Continual improvements to the defence information are required. This could be carried out as part of studies/strategies where they are to occur along parts of this frontage. Refer also to Action Plan item NDAS.ALL.5.2.
7. Communication	NDAS.ALL.7.1	All	Undertake consultation with key stakeholders and general public during development of adaptation plans to ensure an acceptable approach is developed.	Defra/ Environment Agency	Environment Agency / Local Authorities	ongoing	This action should be undertaken as adaptation plans are developed for different parts of the coast. Refer also to Action Plan item NDAS.ALL.10.1.
	NDAS.ALL.7.2	All	Maintain and develop the coastal group website as a means for communicating how SMP policies are being taken forward under the Action Plan.	North Devon and Somerset Coastal Advisory Group	NDASCAG	ongoing	The www.ndascag.org website should be updated on an ongoing basis with details of progress as studies, strategies, schemes and other initiatives are undertaken.
	NDAS.ALL.7.3	All	Engage with planners in all local authorities and county councils to ensure that they are fully aware of the SMP policies. This should also involve engagement with relevant organisations (e.g. highways, utilities) to ensure that the plans of those organisations also fully consider the SMP policies. To implement this policy consideration to a use of a range of media types should be given, including articles in relevant industry publications.	n/a	Environment Agency / Local Authorities	2010	This should be carried out as soon as practical following adoption of the SMP to ensure that planners are able to take full account of SMP policies. This will also help fulfil Action Plan items NDAS.ALL.8.2 and NDAS.ALL.10.1.
	NDAS.ALL.7.4	All	Engage with the Severn Tidal Power Schemes project to ensure that coastal flood and erosion issues are fully assessed as part of detailed studies into renewable energy options for the Severn Estuary.	n/a	Environment Agency / Local Authorities	ongoing	The potential construction of a renewable energy scheme in the Severn Estuary could have significant implications for coastal flood and erosion risk management and this action needs to be actively pursued as Phase 2 of the feasibility study, led by the Department for Energy and Climate Change and the Welsh Assembly Government, progresses.
8. Planning	NDAS.ALL.8.1	All	Continue with improvements to flood and erosion risk maps to provide improved information for land use planning and future coastal risk management.	Defra/ Environment Agency	Environment Agency / Local Authorities	ongoing	Updates of flood and erosion risk maps are to occur and incorporate new information. In the case of erosion risk maps, improvements will be greatly aided by data to be collected under Action Plan item NDAS.ALL.5.3.
	NDAS.ALL.8.2	All	Ensure SMP policies and flood and erosion risks are accounted for in the next revisions of land use plans in order to help manage residual risks from flooding and erosion, and to inform future planning decisions.	n/a	Environment Agency / Local Authorities	ongoing	This action will need to be implemented as each Local Development Framework is developed. It will be greatly aided by Action Plan item NDAS.ALL.7.3.
9. Contingency Planning & Emergency Response	NDAS.ALL.9.1	All	Review, develop/update and monitor contingency/evacuation/emergency response plans to prepare for coastal flood or cliff recession events in light of the final SMP policies.	n/a	Environment Agency / Local Authorities	2011	Upon adoption of the Plan, emergency/contingency/evacuation plans should be reviewed and updated as appropriate to take account of SMP policies. This should follow Action Plan item NDAS.ALL.7.3.

The above provides the local details in respect of the SMP-wide policy presented in the preceding sections of this Plan document. These details must be read in the context of the wider-scale issues and policy implications, as reported therein.

Action Type	Action Reference	Policy Unit	Action Description	Potential source for funding (subject to approval)	Responsibility (lead partner)	When by (subject to funding)	Relative importance and links with other actions
10. Adaptation / Resilience	NDAS.ALL.10.1	All	Engage with other organisations (e.g. Highways, Heritage and Utilities) and general public to inform them of the potential future risks of flood and coastal erosion as a result of SMP policies and work with these to develop plans for adapting to the changing risk. Development of adaptation plans should utilise outcomes from the Pathfinder projects.	n/a	Environment Agency / Local Authorities	ongoing	Development of adaptation plans will be an ongoing process. This will be aided by Action Plan item NDAS.ALL.7.3 and also require ongoing communication in line with Action Plan item NDAS.ALL.7.1.
11. Early Warning	NDAS.ALL.11.1	All	Continue with improvements to flood risk maps and inundation modelling to provide improved flood warning service.	Defra / Private	Environment Agency / Local Authorities	ongoing	This is an ongoing item as new information becomes available. Refer also to Action Plan item NDAS.ALL.8.1.
12. Habitat Creation	NDAS.ALL.12.1	All	Use the Regional Habitat Creation Programme (RHCP) to develop plans for any required mitigation or compensatory habitat.	Defra/ Environment Agency	Environment Agency	ongoing	The RHCP will provide a regional context to habitat creation needs and secure compensation/mitigation measures required for specific schemes. This will be updated as new information becomes available.
	NDAS.ALL.12.2	All	Review the existing Coastal Habitat Management Plan (CHaMP) for the Severn Estuary as part of the Flood and Coastal Risk Management Strategy, to help manage habitat change and to allow planning for strategic replacement or relocation of habitats as the coast evolves.	Defra	Environment Agency	2020	The CHaMP will aid delivery of the RHCP (refer to Action Plan item NDAS.ALL.12.1).
13. Funding	NDAS.ALL.13.1	All	Investigate the situation with regards providing financial compensation in areas where a policy of Managed Realignment has been identified, in order to provide guidance to both Local Authorities and Stakeholders on this issue.	Defra/Environment Agency	Environment Agency	2012	The issue of providing financial compensation to properties/landowners in areas where a policy for Managed Realignment is recommended (in order to aid facilitation of policy implementation) has been highlighted through public consultation as being a significant concern, both by Local Authorities and Stakeholders. Investigation of this issue and ultimately provision of guidance will help to clarify the situation on this matter.
14. SMP Management and Monitoring	NDAS.ALL.14.1	All	Undertake monitoring and management of Action Plans to ensure SMP policies are put into practice. This should include developing procedures for the management of the SMP until its next review such as steering group meetings, processes for monitoring progress and expenditure (with links to NI 189), and recording in a single database a full list of studies and activities undertaken in the period before the next SMP review. It should also allow for considering impacts upon the plan of changes in policy or new guidance, or the emergence of new data. For example, implications for assessment and valuation of agricultural land following publication of the UK Food Security Assessment.	n/a	Bristol Channel Strategic Coastal Group	ongoing	Development of procedures and processes for monitoring progress on the SMP should be developed as soon as possible after final adoption of the plan. Monitoring of progress will be an ongoing process. Recording of all studies and activities could be carried out in combination with Action Plan item NDAS.ALL.7.2.
	NDAS.ALL.14.2	All	Identify and publish lessons learnt from development of SMP.	n/a	Environment Agency / Local Authorities	2011	The lessons learnt from development of this SMP should be published in the period immediately after final adoption and publication of the plan. This should be provided to the National Quality Review Group to allow lessons learnt on this SMP to be collated and reviewed alongside lessons learnt from SMP2s undertaken around the rest of England and Wales.
NB. Activities from SMP will be carried forward into medium term plans that are set on a three year rolling basis and carried out on a priority basis, subject to funding and approval. n/a = activity is part of authorities general duties, not funded through flood and erosion risk management routes. '-' = no action is required in relation to this action type.							

6.2 Policy Scenario Area Actions

6.2.1 Policy Scenario Area 1 (PSA1) – Lundy

This scenario area encompasses the predominantly undefended, naturally functioning cliffed coastline of Lundy, as well as the small defended area at Landing Beach that provides the only access point to the island (policy units 7c01 and 7c02).

The main issue here is the continued provision of defence at Landing Beach (7c01) such that access can be maintained to the benefit of both the small number of residents and the many visitors to the island that also generate income for the local economy. The main actions for this area are therefore to develop a long term asset management plan for Landing Beach and investigate options for funding of these.

Future decisions here will also need to be based on information from continued coastal monitoring, as set out in the SMP wide actions in Section 6.2 (items under 'Action Type – 5. Coastal Monitoring (ongoing)' in Table 6.3).

Please note, that whilst the following Table 6.4 sets out specific actions for this policy scenario area, this should also be read in combination with the SMP wide actions set out in Section 6.2 and Table 6.3 to ensure that all actions relevant to this area are considered.

The above provides the local details in respect of the SMP-wide policy presented in the preceding sections of this Plan document. These details must be read in the context of the wider-scale issues and policy implications, as reported therein.

Table 6.4 Actions for the policy scenario area of Lundy (Policy Units 7c01 and 7c02)

Action Type	Action Reference	Policy Unit	Action Description	Potential source for funding (subject to approval)	Responsibility (lead partner)	When by (subject to funding)	Relative importance and links with other actions
1. Studies for Policy Scenario Area	-	-	-	-	-	-	-
2. Studies for Policy Units	-	-	-	-	-	-	-
3. Strategy	-	-	-	-	-	-	-
4. Scheme Work	-	-	-	-	-	-	-
5. Coastal Monitoring (ongoing)	-	-	-	-	-	-	-
6. Asset Management	NDAS.PSA1.6.1	7c01	Engage and work with relevant organisation to appraise the condition of the defences and ensure that there is an adequate Asset Management Plan in place for ongoing maintenance and improvement in the immediate term. This should include investigation of sustainable options for long term defence provision in these areas.	Private	Landowner	2013	Ensure information on these defences is included in future updates of the NFCDD. Refer to SMP wide Action Plan item NDAS.ALL.6.1. Issues of funding are to be addressed as part of this action in combination with Action Plan item NDAS.PSA1.13.1.
7. Communication	-	-	-	-	-	-	-
8. Planning	-	-	-	-	-	-	-
9. Contingency Planning & Emergency Response	-	-	-	-	-	-	-
10. Adaptation / Resilience	-	-	-	-	-	-	-
11. Early Warning	-	-	-	-	-	-	-
12. Habitat Creation	-	-	-	-	-	-	-
13. Funding	NDAS.PSA1.13.1	7c01	As part of investigating options for long term management of assets, investigate options for different funding sources in order to implement this.	Private	Landowner	2013	This is to be undertaken in combination with Action Plan item NDAS.PSA1.6.1
14. SMP Management and Monitoring	-	-	-	-	-	-	-

NB. Activities from SMP will be carried forward into medium term plans that are set on a three year rolling basis and carried out on a priority basis, subject to funding and approval. n/a = activity is part of authorities general duties, not funded through flood and erosion risk management routes. '-' = no action is required in relation to this action type.

6.2.2 Policy Scenario Area 2 (PSA2) – Hartland Point to Westward Ho!

This scenario area encompasses the predominantly undefended, naturally functioning cliffed coastline between Hartland Point and Westward Ho!, within which sits the harbour and settlement of Clovelly that is an important economic resource for the wider area (policy units 7c03 to 7c05).

The main issue along this frontage is the continued provision of defence at Clovelly (7c04). These defences here are of varying age and type and include the historic harbour breakwater. In the immediate term an asset management plan is needed to ensure that maintenance of the existing structure is adequate whilst investigation of longer term defence requirements is undertaken.

A further issue here is the future localised protection of Bucks Mills (within 7c05). Here the policy is for No Active Intervention although it is recognised in the plan that future defence here is unlikely to have a significant impact on coastal processes. As such, investigation into potential funding sources for future defence here should be carried out in the immediate term. If funding is not available, then an adaptation plan should be developed to help plan for the long term when no defences will be present in this area. The planning of adaptation measures and associated community engagement that is required to develop these should be undertaken in line with the relevant SMP wide actions in Section 6.2.

Future decisions here will also need to be based on information from continued coastal monitoring, as set out in the SMP wide actions in Section 6.2 (items under 'Action Type – 5. Coastal Monitoring (ongoing)' in Table 6.3).

Please note, that whilst the following Table 6.5 sets out specific actions for this policy scenario area, this should also be read in combination with the SMP wide actions set out in Section 6.2 and Table 6.3 to ensure that all actions relevant to this area are considered.

The above provides the local details in respect of the SMP-wide policy presented in the preceding sections of this Plan document. These details must be read in the context of the wider-scale issues and policy implications, as reported therein.

Table 6.5 Actions for the policy scenario area between Hartland Point to Westward Ho! (Policy Units 7c03 to 7c05)

Action Type	Action Reference	Policy Unit	Action Description	Potential source for funding (subject to approval)	Responsibility (lead partner)	When by (subject to funding)	Relative importance and links with other actions
1. Studies for Policy Scenario Area	-	-	-	-	-	-	-
2. Studies for Policy Units	NDAS.PSA2.2.1	7c04	Work with relevant organisations and the land owner to undertake a study to investigate options for the long term sustainable defence of Clovelly. This study should include consideration of construction of a new harbour arm outside of the historic harbour arm and the implications for shoreline sediment transport.	To be determined	Torridge District Council	2020	The defences at Clovelly are thought likely to be adequate for the immediate term subject to maintenance being carried out, which is to be guided by the outcome of Action Plan item NDAS.PSA2.6.1. The long term management of Clovelly should be resolved in advance of the next SMP review.
3. Strategy	-	-	-	-	-	-	-
4. Scheme Work	NDAS.PSA2.4.1	7c04	The need for any works to extend the defences, in order to prolong their effective life, is to be advised by outcomes of Action Plan item NDAS.PSA2.6.1.	To be determined	Torridge District Council	To be determined	A decision on the requirements for any future works is to be based on the outcomes of Action Plan item NDAS.PSA2.6.1.
5. Coastal Monitoring (ongoing)	-	-	-	-	-	-	-
6. Asset Management	NDAS.PSA2.6.1	7c04	Engage and work with relevant organisations and the land owner to appraise the condition of the defences and ensure that there is an adequate Asset Management Plan in place for ongoing maintenance in the immediate term to ensure the existing defences continue to provide protection whilst longer term options are developed.	To be determined	Torridge District Council	2014	The Asset Management Plan should be developed in the immediate future to ensure that there is a robust plan in place to prolong the effective life of the defences for as long as possible, until such time as long term future defence provision is determined as part of Action Plan item NDAS.PSA2.2.1.. Ensure information on defences is included in future updates of the NFCDD. Refer to SMP wide Action Plan item NDAS.ALL.6.1.
7. Communication	NDAS.PSA2.7.1	7c04	Undertake consultation with key stakeholders and residents in developing long term option for the protection of Clovelly.	To be determined	Torridge District Council	2015	This is to be undertaken in combination with Action Plan item NDAS.PSA2.6.1.
8. Planning	-	-	-	-	-	-	-
9. Contingency Planning & Emergency Response	-	-	-	-	-	-	-
10. Adaptation / Resilience	NDAS.PSA2.10.1	7c05	Engage with key stakeholders and the local community to begin to develop an adaptation plan for the medium to long term coastal change at Bucks Mills if funding for future defence is not forthcoming.	Defra/Environment Agency	Torridge District Council	Ongoing	Development of an adaptation plan will be required if the outcomes of investigation into funding for future defence at Bucks Mills (Action Plan item NDAS.PSA2.13.2) are not favourable. Refer also to SMP wide Action Plan items NDAS.ALL.7.1 and NDAS.ALL.10.1.
11. Early Warning	-	-	-	-	-	-	-
12. Habitat Creation	-	-	-	-	-	-	-
13. Funding	NDAS.PSA2.13.1	7c04	Investigate opportunities for co-funding future defence works with other organisations to provide the maximum possible benefit from such works to the area.	To be determined	Environment Agency	2020	This should be considered during the development of the Study in Action Plan item NDAS.PSA2.2.1 to ensure that all possible options are considered.
	NDAS.PSA2.13.2	7c05	Investigate opportunities for funding future defence works at Bucks Mills from	To be determined	Torridge District	2012	Investigation of alternative funding sources to provide localised defence at Bucks Mills should be undertaken in the immediate

The above provides the local details in respect of the SMP-wide policy presented in the preceding sections of this Plan document. These details must be read in the context of the wider-scale issues and policy implications, as reported therein.

Action Type	Action Reference	Policy Unit	Action Description	Potential source for funding (subject to approval)	Responsibility (lead partner)	When by (subject to funding)	Relative importance and links with other actions
			non-flood and coastal defence budget sources.		Council		term to allow decisions about future coastal risk management in this area to be taken in a timely manner. For example, development of an adaptation plan – refer to Action Plan item NDAS.PSA2.10.1.
14. SMP Management and Monitoring	-	-	-	-	-	-	-
NB. Activities from SMP will be carried forward into medium term plans that are set on a three year rolling basis and carried out on a priority basis, subject to funding and approval. n/a = activity is part of authorities general duties, not funded through flood and erosion risk management routes. '-' = no action is required in relation to this action type.							

6.2.3 Policy Scenario Area 3 (PSA3) – Westward Ho! to Saunton Down, including the Taw/Torridge Estuary

This scenario area extends from Westward Ho! to Saunton Down and encompasses the Taw/Torridge Estuary within which are located several extensively developed areas including the towns of Bideford and Barnstaple (policy units 7c06 to 7c31).

There are many flood and coastal erosion risk management issues to be addressed within this area in the immediate term, not least:

- Long-term sustainable defence provision at Westward Ho! (7c06).
- Implementation of managed realignment at Northam Burrows (7c07 and 7c08) including requirement for set-back defences to protect features such as the landfill site at the northern end of the Burrows, improving drainage of the Burrows, and land use adaptation.
- Within the Taw/Torridge Estuary (7c09 to 7c29) many areas have potential for undertaking managed realignment. However there is much uncertainty over which areas in isolation and combination are right for implementing managed realignment, particularly with regards to implications for sediment dynamics within the estuary and adjacent open coast areas. There is also uncertainty over how managed realignment can best work with the Tarka Trail and whether allowing inundation through the trail or relocating the trail as part of realignment is the most appropriate option.
- Investigation and management of erosion risk along the southern side of Saunton Down (7c31) including development of and adaptation plan in this area where intervention may not occur if alternatives to flood and coastal defence budget are not available.

The issues and uncertainties surrounding Westward Ho!, Northam Burrows and the Taw/Torridge Estuary are to be addressed in the first instance by a Strategy Study for this area. The erosion risk at Saunton Down is a more localised problem that may be investigated separately to the Strategy Study.

Please note, that whilst the following Table 6.6 sets out specific actions for this policy scenario area, this should also be read in combination with the SMP wide actions set out in Section 6.2 and Table 6.3 to ensure that all actions relevant to this area are considered.

The above provides the local details in respect of the SMP-wide policy presented in the preceding sections of this Plan document. These details must be read in the context of the wider-scale issues and policy implications, as reported therein.

Table 6.6 Actions for the policy scenario area between Westward Ho! and Saunton Down, including the Taw Torridge Estuary (Policy Units 7c06 to 7c31)

Action Type	Action Reference	Policy Unit	Action Description	Potential source for funding (subject to approval)	Responsibility (lead partner)	When by (subject to funding)	Relative importance and links with other actions
1. Studies for Policy Scenario Area	-	-	-	-	-	-	-
2. Studies for Policy Units	NDAS.PSA3.2.1	7c16	Develop a Dune Management Plan for the dunes at Instow to ensure that the defence function of the dunes continues to be provided.	Defra/ Environment Agency	North Devon Council	2015	This should occur following completion of the Strategy Study in Action Plan item NDAS.PSA3.3.1 and utilise data from the outcome of Action Plan item NDAS.PSA3.5.1.
	NDAS.PSA3.2.2	7c31	Investigate in detail the erosion risk at Saunton Down to inform future management decisions and/or development of an adaptation plan.	Defra/ Environment Agency	North Devon Council	Ongoing	Refer also to SMP wide Action Plan item NDAS.ALL.5.3.
	NDAS.PSA3.2.3	7c30	Develop a Dune Management Plan for the dunes at Braunton Burrows to guide future management of the dunes such that recreational use doe not adversely affect the defence function or environmental interests of the site.	To be determined	North Devon Council	2020	This could occur following completion of the Strategy Study in Action Plan item NDAS.PSA3.3.1 and utilise data from the outcome of Action Plan item NDAS.PSA3.5.1. However, the main issue for these dunes at the present time is from recreational use and so a dune management plan to manage this could be developed earlier.
3. Strategy	NDAS.PSA3.3.1	7c06 to 7c30	Undertake a Strategy Study extending from Westward Ho! to Saunton Down, including the Taw/Torridge Estuary, to determine the best approaches for delivering the Shoreline Management Plan policies and develop a programme of works. Include a detailed assessment of coastal and estuarine defence condition and assessment of the methods for implementing managed realignment in the Taw/Torridge Estuary and the implications of doing so in isolation and in combination for sediment dynamics in the area. Consider future climate change, investment plan and funding options, and determine future management and maintenance roles/responsibilities for different defence assets within the area.	Defra/ Environment Agency	Environment Agency	2014	The Strategy Study is planned to begin in the near future, with the scoping stage recently completed. Ensure information on defences is included in future updates of the NFCDD. Refer to SMP wide Action Plan item NDAS.ALL.6.1. Assessment of managed realignment options should also work with the Regional Habitat Creation Programme (refer also to Action Plan item NDAS.ALL.12.1).
4. Scheme Work	NDAS.PSA3.4.1	7c06 to 7c30	To be defined by strategy.	Defra/ Environment Agency	Environment Agency	ongoing	The need for works will be determined from the Strategy Study in Action Plan item NDAS.PSA3.3.1.
5. Coastal Monitoring (ongoing)	NDAS.PSA3.5.1	7c16	Extend coverage of beach profile monitoring to include the dunes at Instow whilst also ensuring the beach at Westward Ho! and along Northam Burrows, including the Pebble Ridge, is also regularly monitored.	Defra/ Environment Agency	Environment Agency / Teignbridge District Council	2011	Currently no information is collected for the dunes at Instow. Medium to long term management decisions will require information and so this should be implemented in the immediate term as part of the ongoing strategic coastal monitoring programme. Refer also to SMP wide Action Plan item NDAS.ALL.5.1. This will inform the development of the dune management plan in Action Plan item NDAS.PSA3.2.1.
6. Asset Management	-	-	-	-	-	-	-
7. Communication	NDAS.PSA3.7.1	7c06 to 7c30	Undertake consultation with key stakeholders and general public during strategy development to ensure an acceptable approach for the future management of coastal flood and erosion is developed.	Defra/ Environment Agency	Environment Agency / Local Authorities	ongoing	This will form a key component in the development of the Strategy Study in Action Plan item NDAS.PSA3.3.1.
8. Planning	-	-	-	-	-	-	-
9. Contingency	-	-	-	-	-	-	-

The above provides the local details in respect of the SMP-wide policy presented in the preceding sections of this Plan document. These details must be read in the context of the wider-scale issues and policy implications, as reported therein.

Action Type	Action Reference	Policy Unit	Action Description	Potential source for funding (subject to approval)	Responsibility (lead partner)	When by (subject to funding)	Relative importance and links with other actions
Planning & Emergency Response							
10. Adaptation / Resilience	NDAS.PSA3.10.1	7c31	Engage with key stakeholders and the local community to begin to develop an adaptation plan for the medium to long term coastal change at Saunton Down if funding for future defence is not forthcoming.	To be determined	North Devon Council	Ongoing	Development of an adaptation plan will be required if the outcomes of investigation into funding for future defence at Saunton Down (Action Plan item NDAS.PSA3.13.2) are not favourable. Refer also to SMP wide Action Plan items NDAS.ALL.7.1 and NDAS.ALL.10.1.
11. Early Warning	-	-	-	-	-	-	-
12. Habitat Creation	NDAS.PSA3.12.1	7c06 to 7c30	Habitat creation potential within the Taw/Torridge Estuary should work with the Regional Habitat Creation Programme to deliver benefits to the wider region.	Defra/ Environment Agency	Environment Agency	ongoing	Refer also to SMP wide Action Plan item NDAS.ALL.12.1.
13. Funding	NDAS.PSA3.13.1	7c06 to 7c30	Investigate opportunities for co-funding future defence works at various locations with other organisations to provide the maximum possible benefit from such works to the area.	n/a	Environment Agency	2014	This should be considered during the development of the Strategy Study in Action Plan item NDAS.PSA3.3.1 to ensure that all possible options are considered.
	NDAS.PSA3.13.2	7c31	Investigate opportunities for funding future defence works at Saunton Down from non-flood and coastal defence budget sources.	To be determined	North Devon Council	2012	Investigation of alternative funding sources to provide localised defence at Saunton Down should be undertaken in the immediate term to allow decisions about future coastal risk management in this area to be taken in a timely manner. For example, development of an adaptation plan – refer to Action Plan item NDAS.PSA3.10.1.
14. SMP Management and Monitoring	-	-	-	-	-	-	-

NB. Activities from SMP will be carried forward into medium term plans that are set on a three year rolling basis and carried out on a priority basis, subject to funding and approval. n/a = activity is part of authorities general duties, not funded through flood and erosion risk management routes. '-' = no action is required in relation to this action type.

6.2.4 Policy Scenario Area 4 (PSA4) – Saunton Down to Morte Point

This scenario area extends from Saunton Down to Morte Point (policy units 7c32 to 7c39) along the north-eastern part of Bideford Bay. It is comprised of the two small embayments of Croyde Bay and Woolacombe Bay that are bound by hard rock headlands.

The majority of this area is undefended and comprised of hard rock cliffs and dunes. The risk of erosion and flooding is small and unlikely to justify intervention in the long term. Therefore the policy of No Active Intervention in this area means that adaptation plans need to be developed in the immediate term to allow long term planning for coastal change.

Localised defences occur along parts of each bay, notably at Middleborough Hill in Croyde Bay (7c33) and Putsborough Sands and Vention (7c36). Whilst continued defence of these areas along similar alignments as present is unlikely to impact upon wider coastal processes, these defended areas are privately owned and unlikely to attract public funding (from the flood and coastal defence budget). The main actions here are therefore to engage and work with the relevant land owners to identify how future defence provision may be most suitably achieved in these areas and, if it is not possible, then include these areas in adaptation plans to be developed for the rest of this area.

Please note, that whilst the following Table 6.7 sets out specific actions for this policy scenario area, this should also be read in combination with the SMP wide actions set out in Section 6.2 and Table 6.3 to ensure that all actions relevant to this area are considered.

The above provides the local details in respect of the SMP-wide policy presented in the preceding sections of this Plan document. These details must be read in the context of the wider-scale issues and policy implications, as reported therein.

Table 6.7 Actions for the policy scenario area between Saunton Down to Morte Point (Policy Units 7c32 to 7c39)

Action Type	Action Reference	Policy Unit	Action Description	Potential source for funding (subject to approval)	Responsibility (lead partner)	When by (subject to funding)	Relative importance and links with other actions
1. Studies for Policy Scenario Area	-	-	-	-	-	-	-
2. Studies for Policy Units	-	-	-	-	-	-	-
3. Strategy	-	-	-	-	-	-	-
4. Scheme Work	NDAS.PSA4.4.1	7c33, 7c36	The need for any schemes is to be advised by outcomes of Action Plan item NDAS.PSA4.6.1.	Private	Environment Agency / North Devon Council	To be determined	Any decisions on the requirement for a scheme(s) are to be based on the outcomes of Action Plan item NDAS.PSA4.6.1.
5. Coastal Monitoring (ongoing)	-	-	-	-	-	-	-
6. Asset Management	NDAS.PSA4.6.1	7c33, 7c36	Engage and work with private defence owners to appraise the condition of their defences and ensure that there is an adequate Asset Management Plan in place for ongoing maintenance in the immediate term. This should include investigation of sustainable options for long term defence provision in these areas if funding from non-public funds (flood and coastal defence budget) are available to achieve this.	Private	Environment Agency / North Devon Council	2015	Ensure information on private defences is included in future updates of the NFCDD. Refer to SMP wide Action Plan item NDAS.ALL.6.1. Issues of funding are to be addressed as part of this action in combination with Action Plan item NDAS.PSA4.13.1.
7. Communication	NDAS.PSA4.7.1	7c32 to 7c39	Engage with key stakeholders and the local community to begin to develop an adaptation plan for the medium to long term coastal change along this area.	To be determined	North Devon Council	Ongoing	Development of an adaptation plan will be required for units 7c33 and 7c36 if the outcomes of investigation into funding for future defence (Action Plan item NDAS.PSA4.13.1) are not favourable. Refer also to SMP wide Action Plan items NDAS.ALL.7.1 and NDAS.ALL.10.1.
8. Planning	-	-	-	-	-	-	-
9. Contingency Planning & Emergency Response	-	-	-	-	-	-	-
10. Adaptation / Resilience	NDAS.PSA4.10.1	7c32 to 7c39	Engage with key stakeholders and the local community to begin to develop an adaptation plan for the medium to long term coastal change along this area. Should private defences not be maintained in the future in units 7c33 and 7c36, then an adaptation plan should include these areas also.	To be determined	North Devon Council	Ongoing	Development of an adaptation plan will be required for units 7c33 and 7c36 if the outcomes of investigation into funding for future defence (Action Plan item NDAS.PSA4.13.1) are not favourable. Refer also to SMP wide Action Plan items NDAS.ALL.7.1 and NDAS.ALL.10.1.
11. Early Warning	-	-	-	-	-	-	-
12. Habitat Creation	-	-	-	-	-	-	-
13. Funding	NDAS.PSA4.13.1	7c33, 7c36	As part of investigating options for long term management of assets, investigate options for different funding sources in addition to private funds.	Private	Environment Agency / North Devon Council	2015	This is to be undertaken in combination with Action Plan item NDAS.PSA4.6.1

The above provides the local details in respect of the SMP-wide policy presented in the preceding sections of this Plan document. These details must be read in the context of the wider-scale issues and policy implications, as reported therein.

Action Type	Action Reference	Policy Unit	Action Description	Potential source for funding (subject to approval)	Responsibility (lead partner)	When by (subject to funding)	Relative importance and links with other actions
14. SMP Management and Monitoring	-	-	-	-	-	-	-
NB. Activities from SMP will be carried forward into medium term plans that are set on a three year rolling basis and carried out on a priority basis, subject to funding and approval. n/a = activity is part of authorities general duties, not funded through flood and erosion risk management routes. '-' = no action is required in relation to this action type.							

6.2.5 Policy Scenario Area 5 (PSA5) – Morte Point to Minehead (west)

This scenario area extends from Morte Point to the western side of Minehead (policy units 7d01 to 7d18). Much of this length is comprised of undefended, natural cliffs that are interspersed with areas of development such as Lee, Ilfracombe, Combe Martin, Lynmouth and Porlock Weir.

There is a range of flood and coastal erosion risk management issues to be addressed within the area in the immediate term, including:

- Need to engage and work with communities to develop adaptation plans for adjusting to future coastal change in areas where the policy is for defence provision to be withdrawn in the medium to long term if non-flood and coastal defence budget funds are not available for this purpose (e.g. Watermouth Slipway (7d08) and Porlock Weir (7d16).
- Long-term requirements for providing defence to Lee (7d02), Ilfracombe (7d04), Hele Beach (7d06), Combe Martin (7d10) and Lynmouth (7d12) in a sustainable way.

In areas where the policy is for defence provision to be withdrawn in the medium to long term if alternative (non-flood and coastal defence budget) funds are not able to continue defence provision, then engagement with communities should begin to develop adaptation plans for when this change occurs, in line with the relevant SMP wide Action Plan items in Section 6.2. However, in the immediate term investigation of alternative funding and development of asset management plans to ensure existing structures are at least maintained in the short term should be developed for these areas.

Similarly, asset management plans for each of the areas where long term defence is to continue should also be developed to guide future maintenance and improvement works.

Future decisions here will also need to be based on information from continued coastal monitoring, as set out in the SMP wide actions in Section 6.2 (items under 'Action Type – 5. Coastal Monitoring (ongoing)' in Table 6.3).

Please note, that whilst the following Table 6.8 sets out specific actions for this policy scenario area, this should also be read in combination with the SMP wide actions set out in Section 6.2 and Table 6.3 to ensure that all actions relevant to this area are considered.

Table 6.8 Actions for the policy scenario area between Morte Point to Minehead (west) (Policy Units 7d01 to 7d18)

Action Type	Action Reference	Policy Unit	Action Description	Potential source for funding (subject to approval)	Responsibility (lead partner)	When by (subject to funding)	Relative importance and links with other actions
1. Studies for Policy Scenario Area	-	-	-	-	-	-	-
2. Studies for Policy Units	NDAS.PSA5.2.1	7d15 to 7d17	Undertake a detailed study to investigate the future flood and erosion risk as well as impacts of continuing to allow defence of Porlock Weir in the long term. Such information will inform future management decisions for Porlock Bay as a whole as well as guide adaptation planning measures should funds for continued defence not be available.	Defra / Private	Environment Agency	2013	Whilst detailed study was undertaken as part of a Defra/EA R&D project completed in 2005, this focused on the area of the breach in Porlock Bay and less on the whole bay. Further detailed study should be undertaken to provide further assessment of flood and erosion risk particularly at Porlock Weir. This will inform future management decisions in this area and should be undertaken in the immediate term. Alternatively this could be included in the strategy study in Action Plan item NDAS.PSA5.3.1.
3. Strategy	NDAS.PSA5.3.1	7d14 to 7d18	Undertake a Strategy Study extending from Foreland Point to Hinkley Point to determine the best approaches for delivering the Shoreline Management Plan policies and develop a programme of works. Include a detailed assessment of coastal defence condition and assessment of the methods for implementing SMP policy and the implications of doing so in isolation and in combination for sediment dynamics in the area. Consider future climate change, investment plan and funding options, and determine future management and maintenance roles/responsibilities for different defence assets within the area.	Defra/ Environment Agency	Environment Agency	2013	The Strategy Study is planned to begin in the near future, with the scoping stage recently completed. Ensure information on defences is included in future updates of the NFCDD. Refer to SMP wide Action Plan item NDAS.ALL.6.1. Assessment of managed realignment options should also work with the Regional Habitat Creation Programme (refer also to Action Plan item NDAS.ALL.12.1. Refer also to Action Plan item NDAS.PSA5.2.1.
4. Scheme Work	NDAS.PSA5.4.1	7d02, 7d04, 7d06, 7d10, 7d12	The need for any schemes is to be advised by outcomes of Action Plan item NDAS.PSA5.6.1.	Defra/ Environment Agency	North Devon Council	To be determined	The requirements for defence works should be informed by the outcomes of the asset management plans in Action Plan item NDAS.PSA5.6.1.
5. Coastal Monitoring (ongoing)	NDAS.PSA5.5.1	7d15 to 7d17	Review monitoring within Porlock Bay and, if necessary, implement further routine monitoring to ensure that adequate information on the roll back of the gravel ridge is recorded such that it informs future management decisions and allows assessment of the impacts and implications on the Porlock Ridge and Salt March SSSI to be assessed.	Defra/ Environment Agency	Natural England / National Trust / Environment Agency / Teignbridge District Council	Ongoing	This information will allow assessment of the implications for the SSSI of allowing the gravel ridge in Porlock Bay to roll back under a policy of NAI. It will also be of use
6. Asset Management	NDAS.PSA5.6.1	7d02, 7d04, 7d06, 7d10, 7d12	Engage and work with relevant organisations to appraise the condition of the defences in each area and ensure that there is an adequate Asset Management Plan in place for ongoing maintenance in the immediate term. This should include investigation of sustainable options for long term defence provision in these areas.	Private	North Devon Council	2015	Ensure information on private defences is included in future updates of the NFCDD. Refer to SMP wide Action Plan item NDAS.ALL.6.1. Issues of funding are to be addressed as part of this action in combination with Action Plan item NDAS.PSA5.13.1.
	NDAS.PSA5.6.2	7d08, 7d16	Engage and work with private defence owners to appraise the condition of their defences and ensure that there is an adequate Asset Management Plan in place for ongoing maintenance in the immediate term. This should include investigation of sustainable options for long term defence provision	Private	Environment Agency / North Devon Council / West Somerset	2014	Ensure information on private defences is included in future updates of the NFCDD. Refer to SMP wide Action Plan item NDAS.ALL.6.1. Issues of funding are to be addressed as part of this action

The above provides the local details in respect of the SMP-wide policy presented in the preceding sections of this Plan document. These details must be read in the context of the wider-scale issues and policy implications, as reported therein.

Action Type	Action Reference	Policy Unit	Action Description	Potential source for funding (subject to approval)	Responsibility (lead partner)	When by (subject to funding)	Relative importance and links with other actions
			in these areas if funding from non-public funds (flood and coastal defence budget) are available to achieve this.		Council		in combination with Action Plan item NDAS.PSA5.13.2. At Porlock Weir (7d16), consideration of long term options should be informed by the outcomes of Action Plan item NDAS.PSA5.2.1.
7. Communication	NDAS.PSA5.7.1	7d02, 7d04, 7d06, 7d10, 7d12	Undertake consultation with key stakeholders and general public during asset management plan development to ensure an acceptable approach for the future management of coastal flood and erosion is developed.	Defra/ Environment Agency	North Devon Council	2015	To be done in combination with Action Plan item NDAS.PSA5.6.1.
	NDAS.PSA5.7.2	7d01, 7d03, 7d05, 7d07, 7d08, 7d09, 7d11, 7d12, 7d13, 7d14, 7d15, 7d16, 7d17, 7d18	Engage with key stakeholders and the local community to begin to develop adaptation plans for the medium to long term coastal change along this area. This could possibly be assisted by the Somerset Pathfinder project until Spring 2011.	To be determined	North Devon Council / West Somerset Council / Somerset County Council	Ongoing	Development of an adaptation plan will be required for units 7d08 and 7d16 if the outcomes of investigation into funding for future defence (Action Plan item NDAS.PSA5.13.2) are not favourable. Refer also to SMP wide Action Plan items NDAS.ALL.7.1 and NDAS.ALL.10.1.
8. Planning	-	-	-	-	-	-	-
9. Contingency Planning & Emergency Response	-	-	-	-	-	-	-
10. Adaptation / Resilience	NDAS.PSA5.10.1	7d01, 7d03, 7d05, 7d07, 7d08, 7d09, 7d11, 7d12, 7d13, 7d14, 7d15, 7d16, 7d17, 7d18	Engage with key stakeholders and the local community to begin to develop adaptation plans for the medium to long term coastal change along this area where the policy is for No Active Intervention. This could possibly be assisted by the Somerset Pathfinder project until Spring 2011. Should private defences not be maintained in the future in units 7d08 and 7d16, then adaptation plans should be developed for these areas also.	To be determined	North Devon Council / West Somerset Council / Somerset County Council	Ongoing	Development of an adaptation plan will be required for units 7d08 and 7d16 if the outcomes of investigation into funding for future defence (Action Plan item NDAS.PSA5.13.2) are not favourable. Refer also to SMP wide Action Plan items NDAS.ALL.7.1 and NDAS.ALL.10.1.
11. Early Warning	-	-	-	-	-	-	-
12. Habitat Creation	-	-	-	-	-	-	-
13. Funding	NDAS.PSA5.13.1	7d02, 7d04,	Investigate opportunities for co-funding future defence works with other organisations to provide the maximum possible benefit from such works to the area.	n/a	North Devon Council	2015	This should be considered during the development of the asset management plans in Action Plan item

The above provides the local details in respect of the SMP-wide policy presented in the preceding sections of this Plan document. These details must be read in the context of the wider-scale issues and policy implications, as reported therein.

Action Type	Action Reference	Policy Unit	Action Description	Potential source for funding (subject to approval)	Responsibility (lead partner)	When by (subject to funding)	Relative importance and links with other actions
		7d06, 7d10, 7d12					NDAS.PSA5.6.1 to ensure that all possible options are considered.
	NDAS.PSA5.13.2	7d08, 7d16	As part of investigating options for long term management of assets, investigate options for different funding sources in addition to private funds.	Private	Environment Agency / North Devon Council	2014	This is to be undertaken in combination with Action Plan item NDAS.PSA5.6.2
14. SMP Management and Monitoring	-	-	-	-	-	-	-
NB. Activities from SMP will be carried forward into medium term plans that are set on a three year rolling basis and carried out on a priority basis, subject to funding and approval. n/a = activity is part of authorities general duties, not funded through flood and erosion risk management routes. '-' = no action is required in relation to this action type.							

6.2.6 Policy Scenario Area 6 (PSA6) – Minehead to Blue Anchor

This scenario area extends from Minehead to Blue Anchor (policy units 7d19 to 7d23). Defence of Minehead is provided by groynes and beach management whilst rock armour and sea wall protects much of Blue Anchor. Between these areas defence is provided by low-lying gravel ridges and embankments that are, in places, maintained by the Environment Agency and private land owners.

There is a range of flood and coastal erosion risk management issues to be addressed within the area in the immediate term, including:

- The medium to long term sustainability of defence provision along The Warren (7d20) and Dunster Beach (7d21) frontages in the existing alignment needs to be investigated, along with options for secondary defence to reduce the risk of backdoor flooding to Minehead that could occur if flooding of these areas occurs. This needs to be considered in combination with long term management options for Minehead (7d19), including the influence of the terminal groyne on the east side of Minehead on sediment transport and erosion to the east of this point.
- A realigned defence along Ker Moor (7d22) needs to be investigated, including how this can work with the West Somerset Railway and be integrated with secondary defence requirements along The Warren (7d20) and Dunster Beach (7d21) area.
- The potential immediate term risk of erosion to the eastern end of Blue Anchor and the B3191 (7d23) needs to be addressed through ongoing monitoring and possible defence construction to ensure that the road is protected as it approaches Blue Anchor, in support of maintenance of the seawall defences along the rest of Blue Anchor that were constructed in the last few years.

These issues are to be addressed in the first instance by a Strategy Study, although immediate works to address erosion problems at The Warren (7d20) and on the east side of Blue Anchor (7d23) could occur in the immediate future in advance of the strategy being completed.

Future decisions here will also need to be based on information from continued coastal monitoring, as set out in the SMP wide actions in Section 6.2 (items under 'Action Type – 5. Coastal Monitoring (ongoing)' in Table 6.3).

Please note, that whilst the following Table 6.9 sets out specific actions for this policy scenario area, this should also be read in combination with the SMP wide actions set out in Section 6.2 and Table 6.3 to ensure that all actions relevant to this area are considered.

The above provides the local details in respect of the SMP-wide policy presented in the preceding sections of this Plan document. These details must be read in the context of the wider-scale issues and policy implications, as reported therein.

Table 6.9 Actions for the policy scenario area between Minehead to Blue Anchor (Policy Units 7d19 to 7d23)

Action Type	Action Reference	Policy Unit	Action Description	Potential source for funding (subject to approval)	Responsibility (lead partner)	When by (subject to funding)	Relative importance and links with other actions
1. Studies for Policy Scenario Area	-	-	-	-	-	-	-
2. Studies for Policy Units	-	-	-	-	-	-	-
3. Strategy	NDAS.PSA6.3.1	7d19 to 7d23	Undertake a Strategy Study from Foreland Point to Hinkley Point that includes the Minehead to Blue Anchor frontage, to determine the best approaches for delivering the policies and develop a programme of works. Include a detailed assessment of coastal defence condition and long term sustainable defence requirements for the frontage, including options for a secondary defence, as well as ensuring that coastal process interactions along this whole frontage are well understood and accounted for in any future management decisions.	Defra/ Environment Agency	Environment Agency	2013	The Strategy Study should be informed by a greater body of data from the ongoing coastal monitoring programme, but should be undertaken in the near future to address the risk of backdoor flooding to Minehead. Refer also to SMP wide Action Plan items NDAS.ALL.5.1, NDAS.ALL.5.2 and NDAS.ALL.5.3.
4. Scheme Work	NDAS.PSA6.4.1	7d20	In order to reduce the immediate risk of erosion that could lead to a breach through the embankment along The Warren frontage, re-construct the embankment to ensure that protection in this area is not compromised in the near future whilst long term options are considered as part of the strategy study.	Defra/ Environment Agency	Environment Agency / West Somerset Council	2011	This work should be undertaken upon adoption of the SMP as it has already been identified as an action from other recent studies. To do so will not compromise the long term aims of the SMP but will reduce risk before the strategy study is completed (refer also to Action Plan item NDAS.PSA6.3.1).
	NDAS.PSA6.4.2	7d23	In order to reduce the risk of cliff recession impacting upon the B3191 at the eastern end of Blue Anchor the defences in this area may need to be improved and possibly extended slightly eastwards in the immediate term to support ongoing maintenance of the other defences along the Blue Anchor frontage that serve to protect this road. The need for this will be guided by ongoing monitoring of the cliffs.	Private / Somerset County Council (Highways)	West Somerset Council / Somerset County Council	2011	This work could be undertaken upon adoption of the SMP as there is potential for significant erosion in this area that could impact the B3191 in the immediate term if a large landslip occurs. To do so will not compromise the long term aims of the SMP but will reduce risk before the strategy study is completed (refer also to Action Plan item NDAS.PSA6.3.1). Alternatively, a decision to intervene could be delayed until further monitoring data is available, that is to be collected in line with Action Plan item NDAS.ALL.5.3.
5. Coastal Monitoring (ongoing)	-	-	-	-	-	-	-
6. Asset Management	NDAS.PSA6.6.1	7d19	Review the Minehead Beach Management Plan following completion of the Strategy Study to ensure that there is a robust plan for managing the beach and associated hard defence and control structures such that defence provision continues to be provided at the required standard.	Defra/ Environment Agency	Environment Agency	2015	This should be undertaken following completion of the Strategy Study in Action Plan item NDAS.PSA6.3.1 to take account of detailed information from the Strategy Study.
	NDAS.PSA6.6.2	7d23	Ensure that an Asset Management Plan is in place to guide the maintenance of the defences at Blue Anchor such that the required standard of protection is provided for as long as possible in to the long term.	Somerset County Council (Highways)	West Somerset Council / Somerset County Council	2015	This should be undertaken following completion of the Strategy Study in Action Plan item NDAS.PSA6.3.1 to take account of detailed information from the Strategy Study.
7. Communication	NDAS.PSA6.7.1	7d19 to 7d23	Undertake consultation with key stakeholders and general public during strategy development to ensure an acceptable approach for the future management of coastal flood and erosion is developed. This could possibly be assisted by the Somerset Pathfinder project until Spring 2011.	Defra/ Environment Agency	Environment Agency / West Somerset Council / Somerset	2014	This item is to be undertaken in combination with Action Plan item NDAS.PSA6.3.1.

The above provides the local details in respect of the SMP-wide policy presented in the preceding sections of this Plan document. These details must be read in the context of the wider-scale issues and policy implications, as reported therein.

Action Type	Action Reference	Policy Unit	Action Description	Potential source for funding (subject to approval)	Responsibility (lead partner)	When by (subject to funding)	Relative importance and links with other actions
					County Council		
8. Planning	-	-	-	-	-	-	-
9. Contingency Planning & Emergency Response	NDAS.PSA6.9.1	7d19 to 7d22	Review contingency/evacuation/emergency response plans to ensure that it is robust to deal with a large flood event from the Blue Anchor Bay area (7d20, 7d21, and 7d 22) area that could pose a risk of flooding to Minehead.	n/a	Environment Agency	ongoing	This review could be undertaken upon adoption of the SMP but should be reviewed further upon completion of more detailed studies as they occur such as the strategy study (refer to Action Plan item NDAS.PSA6.3.1). Refer also to SMP wide Action Plan item NDAS.ALL.9.1.
10. Adaptation / Resilience	NDAS.PSA6.10.1	7d19 to 7d22	Build in incremental adaptation to beach and defence management for the area to manage risks from rising sea level in medium and long term.	Defra/ Environment Agency	Environment Agency / West Somerset Council	ongoing	This item is to be undertaken as part of the Strategy Study in Action Plan item NDAS.PSA6.3.1.
	NDAS.PSA6.10.2	7d20 to 7d23	In areas where the policy is for no active intervention or managed realignment to occur in the future, engage and work with relevant organisation and communities to begin to develop adaptation plans for adjusting to future coastal change. This could possibly be assisted by the Somerset Pathfinder project until Spring 2011.	n/a	Environment Agency / West Somerset Council / Somerset County Council	ongoing	Refer also to SMP wide Action Plan items NDAS.ALL.7.1 and NDAS.ALL.10.1.
11. Early Warning	-	-	-	-	-	-	-
12. Habitat Creation	-	-	-	-	-	-	-
13. Funding	NDAS.PSA6.13.1	7d20 to 7d23	Investigate opportunities for co-funding future defence works with other organisations to provide the maximum possible benefit from such works to the area.	n/a	Environment Agency / West Somerset Council	ongoing	This should be considered during the development of the Strategy Study in Action Plan item NDAS.PSA6.3.1 to ensure that all possible options are considered.
14. SMP Management and Monitoring	-	-	-	-	-	-	-

NB. Activities from SMP will be carried forward into medium term plans that are set on a three year rolling basis and carried out on a priority basis, subject to funding and approval. n/a = activity is part of authorities general duties, not funded through flood and erosion risk management routes. '-' = no action is required in relation to this action type.

6.2.7 Policy Scenario Area 7 (PSA7) – Blue Anchor to Hinkley Point

This scenario area extends from Blue Anchor to Hinkley Point (policy units 7d24 to 7d30) and is comprised predominantly of undefended cliffed coastline interspersed with small areas of defence such as at Lilstock and Doniford. The largest area of defence in this area protects the town of Watchet.

The main issue to be addressed here in the immediate term from a flood and coastal risk management point of view is the need to establish an asset management plan and determine associated funding mechanisms to guide maintenance and improvement of defences at Watchet (7d25). In particular there is concern about erosion both at the eastern and western ends of the town. At the western end landslips threaten the B3191 road whilst at the eastern end ad-hoc defences do not provide robust protection for the West Somerset Railway line; the protection of which is a key driver along the SMP area where it occurs due to its economic importance to the area.

Additionally, in areas where the policy is for defence provision to be withdrawn in the medium to long term if alternative (non-flood and coastal defence budget) funds are not able to continue defence provision, such as at Doniford Holiday Park (7d26) and Lilstock (7d29), then engagement with communities should begin to develop adaptation plans for when this change occurs. This is in line with the relevant SMP wide Action Plan items in Section 6.2.

However, in the immediate term investigation of alternative funding and development of asset management plans, particularly at Doniford Holiday Park (7d26), to ensure existing structures are at least maintained in the short term should be developed for these areas.

Future decisions here will also need to be based on information from continued coastal monitoring, as set out in the SMP wide actions in Section 6.2 (items under 'Action Type – 5. Coastal Monitoring (ongoing)' in Table 6.3).

Please note, that whilst the following Table 6.10 sets out specific actions for this policy scenario area, this should also be read in combination with the SMP wide actions set out in Section 6.2 and Table 6.3 to ensure that all actions relevant to this area are considered.

The above provides the local details in respect of the SMP-wide policy presented in the preceding sections of this Plan document. These details must be read in the context of the wider-scale issues and policy implications, as reported therein.

Table 6.10 Actions for the policy scenario area between Blue Anchor to Hinkley Point (Policy Units 7d24 to 7d30)

Action Type	Action Reference	Policy Unit	Action Description	Potential source for funding (subject to approval)	Responsibility (lead partner)	When by (subject to funding)	Relative importance and links with other actions
1. Studies for Policy Scenario Area	-	-	-	-	-	-	-
2. Studies for Policy Units	-	-	-	-	-	-	-
3. Strategy	-	-	-	-	-	-	-
4. Scheme Work	NDAS.PSA7.4.1	7d25	In order to reduce the risk of cliff recession impacting upon the B3191 at the western end of Watchet there may be a need to intervene and construct defences in this area in the immediate term to reduce the risk of landslip. The need for this will be guided by ongoing monitoring of the cliffs and depend on the achievability of relocating the road landwards instead.	Private / Somerset County Council (Highways)	West Somerset Council / Somerset County Council	Ongoing	A decision to intervene should be based on ongoing monitoring of the cliffs that is to be collected in line with Action Plan item NDAS.ALL.5.3.
5. Coastal Monitoring (ongoing)	-	-	-	-	-	-	-
6. Asset Management	NDAS.PSA7.6.1	7d25	Engage and work with relevant organisations, in particular the West Somerset Railway, to appraise the condition of the defences in each area and ensure that there is an adequate Asset Management Plan in place for ongoing maintenance in the immediate term. This should include investigation of sustainable options for long term defence provision in these areas.	Private	Environment Agency / West Somerset Council	2014	The eastern side of Watchet is currently at risk of erosion and so this work should be completed in the near future to guide future investment such that this risk can be reduced. Ensure information on private defences is included in future updates of the NFCDD. Refer to SMP wide Action Plan item NDAS.ALL.6.1. Issues of funding are to be addressed as part of this action in combination with Action Plan item NDAS.PSA7.13.1.
	NDAS.PSA7.6.2	7d26	Engage and work with private defence owners to appraise the condition of their defences and ensure that there is an adequate Asset Management Plan in place for ongoing maintenance in the immediate term. This should include investigation of sustainable options for long term defence provision in these areas if funding from non-public funds (flood and coastal defence budget) are available to achieve this.	Private	Environment Agency / West Somerset Council	2020	This item is less urgent as the private defences at Doniford Holiday Park are not likely to fail in the near future. However this should be completed before the next SMP review. Ensure information on private defences is included in future updates of the NFCDD. Refer to SMP wide Action Plan item NDAS.ALL.6.1. Issues of funding are to be addressed as part of this action in combination with Action Plan item NDAS.PSA7.13.2.
7. Communication	NDAS.PSA7.7.1	7d25	Undertake consultation with key stakeholders and general public during asset management plan development to ensure an acceptable approach for the future management of coastal flood and erosion is developed.	Defra/ Environment Agency	Environment Agency	2014	To be done in combination with Action Plan item NDAS.PSA7.6.1.
	NDAS.PSA7.7.2	7d24, 7d26, 7d28, 7d29, 7d30	Engage with key stakeholders and the local community to begin to develop adaptation plans for the medium to long term coastal change along this area.	To be determined	Environment Agency	Ongoing	Development of an adaptation plan will be required for unit 7d26 if the outcomes of investigation into funding for future defence (Action Plan item NDAS.PSA7.13.2) are not favourable. Refer also to SMP wide Action Plan items NDAS.ALL.7.1 and NDAS.ALL.10.1.

The above provides the local details in respect of the SMP-wide policy presented in the preceding sections of this Plan document. These details must be read in the context of the wider-scale issues and policy implications, as reported therein.

Action Type	Action Reference	Policy Unit	Action Description	Potential source for funding (subject to approval)	Responsibility (lead partner)	When by (subject to funding)	Relative importance and links with other actions
8. Planning	-	-	-	-	-	-	-
9. Contingency Planning & Emergency Response	-	-	-	-	-	-	-
10. Adaptation / Resilience	NDAS.PSA7.10.1	7d24, 7d26, 7d28, 7d29, 7d30	Engage with key stakeholders and the local community to begin to develop adaptation plans for the medium to long term coastal change along this area where the policy is for No Active Intervention. Should private defences not be maintained in the future in unit 7d26, then adaptation plans should be developed for this areas also.	To be determined	Environment Agency	Ongoing	Development of an adaptation plan will be required for unit 7d26 if the outcomes of investigation into funding for future defence (Action Plan item NDAS.PSA5.13.2) are not favourable. Refer also to SMP wide Action Plan items NDAS.ALL.7.1 and NDAS.ALL.10.1.
11. Early Warning	-	-	-	-	-	-	-
12. Habitat Creation	-	-	-	-	-	-	-
13. Funding	NDAS.PSA7.13.1	7d25	Investigate opportunities for co-funding future defence works with other organisations to provide the maximum possible benefit from such works to the area.	n/a	Environment Agency	2014	This should be considered during the development of the asset management plan in Action Plan item NDAS.PSA7.6.1 to ensure that all possible options are considered.
	NDAS.PSA7.13.2	7d26	As part of investigating options for long term management of assets, investigate options for different funding sources in addition to private funds.	Private	Environment Agency	2020	This is to be undertaken in combination with Action Plan item NDAS.PSA7.6.2
14. SMP Management and Monitoring	-	-	-	-	-	-	-
NB. Activities from SMP will be carried forward into medium term plans that are set on a three year rolling basis and carried out on a priority basis, subject to funding and approval. n/a = activity is part of authorities general duties, not funded through flood and erosion risk management routes. '-' = no action is required in relation to this action type.							

6.2.8 Policy Scenario Area 8 (PSA8) – Hinkley Point to Brean Down, including the Parrett Estuary

This scenario area extends from Hinkley Point to Brean Down and encompasses the Parrett Estuary (policy units 7d31 to 7d46).

There is a number of flood and coastal erosion risk management issues to be addressed within the area in the immediate term, including:

- The implementation of Managed Realignment at Steart (7d34 to 7d37), to create new areas of habitat, is currently being investigated as part of a separate detailed study. This could have implications for geomorphological processes in the estuary, particularly in combination with other management changes such as managed realignment in the long-term. Impacts could include changes to the position of the low water channel and its relationship with the shoreline at Burnham-on-Sea and the volume of water entering the estuary and how this may be managed in the future.
- Implementation of recommendations from the Parrett Estuary Flood Risk Management Strategy to improve the flood defences along the Parrett Estuary (7d37 to 7d42), such that they continue to reduce flood risk in the short to medium term.
- Long-term sustainable management of the sea defences and beach at Burnham-on-Sea (7d43) needs to be considered through development of a beach management plan, such that both defence and amenity considerations of the beach can be managed together in the face of rising sea levels and climate change and possible movements of the Parrett Estuary low water channel.
- Along the Berrow to Brean Down frontage (7d44 and 7d45) a dune/beach management plan needs to be developed. This will guide proactive management of the dunes to ensure that they are able to provide a robust defence function and to guide future maintenance, improvement or removal of hard defence structures as appropriate in order to achieve this.
- Alongside this, study is required along the Berrow to Brean Down frontage into the future possible requirement, or otherwise, of a secondary defence behind the dunes. This can inform future coastal management decisions, including the next SMP review.

Some of these issues are in part being addressed by ongoing and recently completed studies and strategies and as such the SMP action plan reflects these studies. However, further detailed study and development of beach/dune management plans is required in other areas to provide more information and guide future management decisions.

In addition, there is uncertainty over exactly what form future expansion of the Hinkley Point Nuclear Power Station (7d31) will take. Communication and engagement with the developer is required to ensure flood and coastal risk management issues in this wider policy scenario area are assessed as part of any future plans.

Future decisions here will also need to be based on information from continued coastal monitoring, as set out in the SMP wide actions in Section 6.2 (items under 'Action Type – 5. Coastal Monitoring (ongoing)' in Table 6.3).

Please note, that whilst the following Table 6.9 sets out specific actions for this policy scenario area, this should also be read in combination with the SMP wide actions set out in Section 6.2 and Table 6.3 to ensure that all actions relevant to this area are considered.

The above provides the local details in respect of the SMP-wide policy presented in the preceding sections of this Plan document. These details must be read in the context of the wider-scale issues and policy implications, as reported therein.

Table 6.11 Actions for the policy scenario area between Hinkley Point to Brean Down, including the Parrett Estuary (Policy Units 7d31 to 7d46)

Action Type	Action Reference	Policy Unit	Action Description	Potential source for funding (subject to approval)	Responsibility (lead partner)	When by (subject to funding)	Relative importance and links with other actions
1. Studies for Policy Scenario Area	NDAS.PSA8.1.1	7d31 to 7d46	A detailed study of the geomorphological implications of changes in-combination impacts on the Parrett Estuary of managed realignment at different parts of the estuary should be undertaken to provide improved understanding of coastal and estuarine processes for informing future management decisions. This study could consider, amongst other things, implications for the low water channel and how a barrage to reduce flood risk to Bridgwater may also impact upon the system, as well as implications of beach lowering (in combination with climate change) at Burnham-on-Sea and the influence of Steart Island upon wave climate at Burnham-on-Sea.	Defra/ Environment Agency	Environment Agency	2016	This study should be completed in advance of the next Parrett Estuary Flood Risk Management Strategy review (refer to Action Plan item NDAS.PSA8.3.1).
2. Studies for Policy Units	NDAS.PSA8.2.1	7d44 to 7d45	A study of the long term evolution of this frontage, underpinned by improved monitoring data to be guided by the dune/beach management plan to be developed for this frontage (Action Plan item NDAS.PSA8.6.2), should be undertaken and include assessment of breach risk under a range of climate change scenarios and consider the future need (or otherwise) for a secondary defence to reduce flood risk to the wider Somerset Levels.	Defra/ Environment Agency	Environment Agency / Local Authorities	2020	This study should be undertaken once there is a good amount of monitoring data (including any additional monitoring data from Action Plan item NDAS.PSA8.5.1) and before the next SMP review such that it can inform future management decisions. It could also inform future reviews of the dune/beach management plan to be developed under Action Plan item NDAS.PSA8.6.2 as well as any adaptation/resilience plans to be considered under Action Plan item NDAS.PSA8.10.1. Consideration of secondary defence requirements should be undertaken in combination with similar considerations along the left (west) bank of the Axe Estuary (policy Unit 7e02) – refer also to Action Plan item NDAS.PSA9.2.1.
3. Strategy	NDAS.PSA8.3.1	7d37 to 7d42	A review of the Parrett Estuary Flood Risk Management Strategy will be required to assess progress on actions from the recently completed strategy and to consider new information from ongoing/future monitoring and studies.	Defra/ Environment Agency	Environment Agency	2018	This strategy review should occur once the geomorphological study in Action Plan item NDAS.PSA8.1.1 is completed.
4. Scheme Work	NDAS.PSA8.4.1	7d37 to 7d42	Implement flood defence improvements recommended as part of Parrett Estuary Flood Risk Management Strategy.	Defra/ Environment Agency	Environment Agency	ongoing	The Parrett Estuary Flood Risk Management Strategy recommended a programme of flood defence improvements in the Parrett Estuary. This programme should be followed in the immediate term and is to be reviewed as part of Action Plan item NDAS.PSA8.3.1.
5. Coastal Monitoring (ongoing)	NDAS.PSA8.5.1	7d43 to 7d45	Implement any additional monitoring identified as being required from development of beach/dune management plans in Action Plan items NDAS.PSA8.6.1 and NDAS.PSA8.6.2.	Defra/ Environment Agency	Environment Agency / Teignbridge District Council	To be determined	Any additional monitoring will be guided by outcomes from the beach and dune management plans to be developed under Action Plan items NDAS.PSA8.6.1 and NDAS.PSA8.6.2. Refer also to Action Plan item NDAS.ALL.5.1.
6. Asset Management	NDAS.PSA8.6.1	7d43	Develop a Beach Management Plan for Burnham-on-Sea Beach to ensure future beach management is adequate to address flood risk whilst acknowledging the significant amenity use of this beach. This should include any requirements for additional monitoring to improve information available for future management decisions.	Defra/ Environment Agency	Environment Agency / Sedgemoor District Council	2012	This dune and beach management plan should be developed in the near future in order to guide future monitoring requirements such that sufficient data can be collected in advance of Action Plan item NDAS.PSA8.1.1.
	NDAS.PSA8.6.2	7d44 to 7d45	Develop a Dune and Beach Management Plan for the Berrow to Brean Down shoreline to ensure future pro-active dune and beach management is adequate to address flood risk whilst acknowledging the significant amenity use of this beach. This should include any requirements for additional monitoring to improve information available for future management decisions.	Defra/ Environment Agency	Sedgemoor District Council	2013	This dune and beach management plan should be developed in the near future in order to guide future monitoring requirements such that sufficient data can be collected in advance of Action Plan item NDAS.PSA8.2.1. Refer also to Action Plan item NDAS.PSA8.5.1.

The above provides the local details in respect of the SMP-wide policy presented in the preceding sections of this Plan document. These details must be read in the context of the wider-scale issues and policy implications, as reported therein.

Action Type	Action Reference	Policy Unit	Action Description	Potential source for funding (subject to approval)	Responsibility (lead partner)	When by (subject to funding)	Relative importance and links with other actions
7. Communication	NDAS.PSA8.7.1	7d31 to 7d46	Undertake consultation with key stakeholders and general public during development of studies, strategies, schemes and beach/dune management plan development to ensure an acceptable approach for the future management of coastal flood and erosion is developed. This could possibly be assisted by the Somerset Pathfinder project until Spring 2011.	n/a	Environment Agency / Sedgemoor District Council / Somerset County Council	ongoing	This is to be undertaken as part of Action Plan items NDAS.PSA8.2.1, NDAS.PSA8.3.1, NDAS.PSA8.6.1 and NDAS.PSA8.6.2.
	NDAS.PSA8.7.2	7d32 to 7d46	Engage with key stakeholders and the local community to begin to develop adaptation plans for the medium to long term coastal change along this area. This could possibly be assisted by the Somerset Pathfinder project until Spring 2011.	n/a	Environment Agency / Sedgemoor District Council / Somerset County Council	ongoing	This should be undertaken alongside Action Plan item NDAS.PSA8.10.1.
	NDAS.PSA8.7.3	7d31	Engage with EDF Energy to ensure that the future expansion of Hinkley Point Nuclear Power Station considers flood and coastal erosion issues.	n/a	Environment Agency	ongoing	This engagement with the developer is ongoing.
8. Planning	-	-	-	-	-	-	-
9. Contingency Planning & Emergency Response	NDAS.PSA8.9.1	7d43 to 7d45	Contingency, evacuation and emergency planning measures should be reviewed to ensure that they are adequate to manage the risk should a breach occur along any part of the dune frontage (most likely where dunes are narrowest), as such a breach could cause wide-spread and catastrophic flooding. This could possibly be assisted by the Somerset Pathfinder project until Spring 2011.	Defra/ Environment Agency	Environment Agency / Sedgemoor District Council / Somerset County Council	ongoing	This should be reviewed as part of the development of the dune and beach management plans along this area as part of Action Plan items NDAS.PSA8.6.1 and NDAS.PSA8.6.2. It should be further reviewed following completion of the study in Action Plan item NDAS.PSA8.2.1.
10. Adaptation / Resilience	NDAS.PSA8.10.1	7d32 to 7d46	In areas where the medium to long term policy is for either No Active Intervention of Managed Realignment, engage with key stakeholders and the local community to begin to develop adaptation plans for the medium to long term coastal change. This could possibly be assisted by the Somerset Pathfinder project until Spring 2011.	Defra/ Environment Agency	Environment Agency / Sedgemoor District Council / Somerset County Council	ongoing	Information from studies to be undertaken in Action Plan items NDAS.PSA8.2.1 and NDAS.PSA8.1.1 could be used to inform development of adaptation plans. Refer also to Action Plan item NDAS.ALL.13.1.
11. Early Warning	-	-	-	-	-	-	-
12. Habitat Creation	NDAS.PSA8.12.1	7d34 to 7d37	Habitat creation potential along the Steart Peninsula should work with the Regional Habitat Creation Programme to deliver benefits to the wider region.	Defra/ Environment Agency	Environment Agency	ongoing	This habitat creation potential is currently being investigated in detailed as part of a separate project – Steart Managed Realignment Project -
	NDAS.PSA8.12.2	7d32	Investigate opportunity for Managed Realignment to the east of Hinkley Point, working with the Regional Habitat Creation Programme to deliver benefits to the wider region.	Defra/ Environment Agency	Environment Agency	2020	The primary managed realignment site is at Steart and focus should be on delivering this in the immediate term. However, an investigation into the potential for Managed Realignment in this area should be undertaken before the next SMP review in order to inform future management decisions.
13. Funding	NDAS.PSA8.13.1	7d31 to 7d46	As part of studies, investigate opportunities for co-funding future defence works with other organisations to provide the maximum possible benefit from such works to the area.	n/a	Environment Agency / Sedgemoor District Council / Somerset County Council	ongoing	This should be undertaken as part of the development of studies and beach/dune management plans in Action Plan items NDAS.PSA8.3.1, NDAS.PSA8.6.1 and NDAS.PSA8.6.2.
14. SMP Management and	-	-	-	-	-	-	-

The above provides the local details in respect of the SMP-wide policy presented in the preceding sections of this Plan document. These details must be read in the context of the wider-scale issues and policy implications, as reported therein.

Action Type	Action Reference	Policy Unit	Action Description	Potential source for funding (subject to approval)	Responsibility (lead partner)	When by (subject to funding)	Relative importance and links with other actions
Monitoring							
NB. Activities from SMP will be carried forward into medium term plans that are set on a three year rolling basis and carried out on a priority basis, subject to funding and approval. n/a = activity is part of authorities general duties, not funded through flood and erosion risk management routes. '-' = no action is required in relation to this action type.							

6.2.9 Policy Scenario Area 9 (PSA9) – Brean Down to Anchor Head, including the Axe Estuary

This scenario area extends from Brean Down to Anchor Head and encompasses Weston Bay and the Axe Estuary (policy units 7e01 to 7e06). The extensively developed town of Weston-super-Mare dominates much of this area, and the continued protection of the town from flood and erosion risk is a key issue in the immediate term. This has recently been addressed as part of the Sea Defence Scheme completed in 2009/10 and so in the immediate term only maintenance of this is required.

To the south of the sea defences, dunes at Uphill may require pro-active dune management to ensure they continue to provide a defence function. These dunes interact with the beach fronting Weston-super-Mare and so a dune and beach management plan for the Weston Bay frontage (7e04 to 7e06) is to be developed to guide future management of the beaches and dunes.

Within the Axe Estuary there are potential areas for implementing managed realignment (7e02 to 7e04) to create habitat in the medium to long term and these opportunities need to be investigated in the immediate term.

Please note, that whilst the following Table 6.12 sets out specific actions for this policy scenario area, this should also be read in combination with the SMP wide actions set out in Section 6.2 and Table 6.3 to ensure that all actions relevant to this area are considered.

The above provides the local details in respect of the SMP-wide policy presented in the preceding sections of this Plan document. These details must be read in the context of the wider-scale issues and policy implications, as reported therein.

Table 6.12 Actions for the policy scenario area between Brean Down and Anchor Head, including the Axe Estuary (Policy Units 7e01 to 7e06)

Action Type	Action Reference	Policy Unit	Action Description	Potential source for funding (subject to approval)	Responsibility (lead partner)	When by (subject to funding)	Relative importance and links with other actions
1. Studies for Policy Scenario Area	-	-	-	-	-	-	-
2. Studies for Policy Units	NDAS.PSA9.2.1	7e02 to 7e04	Investigate opportunities for Managed Realignment in the Axe Estuary to inform future management decisions on where and when it may be appropriate to implement realignment and for what habitat creation gain. In unit 7e02, assessment of realignment options needs to also consider interactions with the open coast at Brean (Policy Unit 7d45).	Defra/ Environment Agency	Environment Agency	2020	Managed Realignment in the Axe Estuary is not planned to occur until the medium term, allowing adequate time to assess the options in this area. This should be completed before the next SMP review to inform future management decisions. In unit 7e02, assessment of realignment options needs to also consider interactions with the open coast at Brean (Policy Unit 7d45) and this may be usefully informed by study in Action Plan item NDAS.PSA8.2.1.
3. Strategy	-	-	-	-	-	-	-
4. Scheme Work	-	-	-	-	-	-	-
5. Coastal Monitoring (ongoing)	NDAS.PSA9.5.1	7d43 to 7d45	Implement any additional monitoring identified as being required from development of the dune and beach management plan in Action Plan item NDAS.PSA9.6.1.	Defra/ Environment Agency	Environment Agency / Teignbridge District Council	To be determined	Any additional monitoring will be guided by outcomes from the dune and beach management plan in Action Plan item NDAS.PSA9.6.1. Refer also to Action Plan item NDAS.ALL.5.1.
6. Asset Management	NDAS.PSA9.6.1	7e04 to 7e06	Develop a Dune and Beach Management Plan for Weston Bay frontage to ensure future dune and beach management, along with monitoring and maintenance of associated hard defence structure, is adequate to address flood and erosion risk whilst acknowledging the significant amenity use of this beach. This should include any requirements for additional monitoring to improve information available for future management decisions as well as assessment of the flood risk to determine the long term sustainability of the dunes as a natural defence.	Defra/ Environment Agency	Environment Agency	2012	This dune and beach management plan should be developed in the near future in order to guide future monitoring requirements to inform future management decisions.
7. Communication	NDAS.PSA9.7.1	7e02 to 7e06	Undertake consultation with key stakeholders and general public during study/beach and dune management plan development and whenever appropriate to ensure an acceptable approach is developed.	Defra/ Environment Agency	Environment Agency / North Somerset Council	ongoing	This item is to be undertaken in combination with the Action Plan items NDAS.PSA9.2.1 and NDAS.PSA9.6.1.
8. Planning	-	-	-	-	-	-	-
9. Contingency Planning & Emergency Response	-	-	-	-	-	-	-
10. Adaptation / Resilience	-	-	-	-	-	-	-
11. Early Warning	-	-	-	-	-	-	-
12. Habitat Creation	NDAS.PSA9.12.1	7e02 to 7e04	Habitat creation potential within the Axe Estuary should work with the Regional Habitat Creation Programme to deliver benefits to the wider region.	Defra/ Environment Agency	Environment Agency	2020	Refer also to SMP wide Action Plan item NDAS.ALL.12.1.
13. Funding	-	-	-	-	-	-	-
14. SMP Management and	-	-	-	-	-	-	-

Action Type	Action Reference	Policy Unit	Action Description	Potential source for funding (subject to approval)	Responsibility (lead partner)	When by (subject to funding)	Relative importance and links with other actions
Monitoring							
NB. Activities from SMP will be carried forward into medium term plans that are set on a three year rolling basis and carried out on a priority basis, subject to funding and approval. n/a = activity is part of authorities general duties, not funded through flood and erosion risk management routes. '-' = no action is required in relation to this action type.							

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GLOSSARY OF TERMS

Term	Definition
AA	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 Special Protection Area for Birds or Special Area for Conservation), 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.
Accretion	Accumulation of sand or other beach material due to the natural action of waves, currents and wind.
ALLI	Area of Local Landscape Importance: areas which represent landscapes of importance at a local level. They are identified as areas that enhance local amenity and environmental quality and provide attractive settings for villages and urban areas. These areas are promoted in local development frameworks.
AONB	Area of Outstanding Natural Beauty: designated by the Countryside Commission. The purpose of the AONB designation is to identify areas of national importance and to promote the conservation and enhancement of natural beauty. This includes protecting its flora, fauna, geological and landscape features. This is a statutory designation.
Biodiversity Action Plans (BAPS)	A strategy for conserving and enhancing wild species and wildlife habitats in the UK.
Brackish water	Freshwater mixed with seawater.
CD	Chart Datum: Approximately the lowest astronomical tidal level, excluding the influence of the weather.
CFMP	Catchment Flood Management Plan: broadly equivalent to an SMP, for fluvial defence management.
Character Area	Areas of England identified by the Countryside Agency as separate character areas of national significance which are identified on the basis of geomorphology, vegetation and human activity. The Agency has mapped 159 separate Character Areas in England.
Cliff	Areas of elevated relief often forming a distinct break in slope between the surrounding area and the shoreline. Sea cliffs are vertical or steeply sloped faces cut by marine action.
Climate change	Long term changes in climate. The term is generally used for changes resulting from human intervention in atmospheric processes through, for example, the release of greenhouse gases to the atmosphere from burning fossil fuels, the results of which may lead to increased rainfall and sea level rise.
Coastal squeeze	The reduction in intertidal (habitat) area which can arise if the natural landward migration of the high water mark under sea level rise is prevented by a fixation of the high water mark, for example by resistant cliffs or hard defences.
Concern	This is a stated actual or perceived problem, raised by an individual or stakeholder. A concern can be strategic or local.
Conservation	The political/social/economic process by which the environment is protected and resources are used wisely.
Cost Benefit Analysis	A conceptual framework which evaluates projects by taking into account all the costs and benefits associated with the project.

Term	Definition
County Character Area	Areas identified under policy ENV4 of the Kent Structure Plan as attractive landscapes of countywide significance.
CSG	Client Steering Group: a group set up to 'steer' the SMP, comprising relevant members of the South East Coastal Group, including technical officers and representatives from local authorities, the Environment Agency, Natural England and English Heritage.
CV	Capital Value: the actual value of costs or benefits.
Defra	Department for Food, Environment and Rural Affairs (formerly known as MAFF)
Defra Procedural Guidance	The Shoreline Management Plan (SMP) Procedural Guidance produced by Defra in 2006 to provide a nationally consistent structure for the production of future generation shoreline management plans.
Discounting	The conversion of all future costs and benefits into comparable units (present value).
Downdrift	Direction of alongshore movement of beach materials.
Dredging	Excavation, digging, scraping, drag-lining, suction dredging to remove sand, silt, rock or other underwater sea-bottom material.
Ebb-tide	The falling tide, part of the tidal cycle between high water and the next low water.
Economic Analysis	The assessment of all the impacts of a policy or project and valuing them in national resource terms.
Ecosystem	Organisation of the biological community and the physical environment in a specific geographical area.
Elected members	Representatives, elected from each of the local and district authorities, chosen to be representatives of the SMP due their technical experience and local knowledge.
EMF	Elected Members Forum: meeting attended by the elected members to 'inform and comment on' the developing stages of the SMP by providing some degree of input into policy development, by those who will ultimately be adopting the policies. Elected members forums were held throughout development of the SMP.
Environment Agency	UK non-departmental government body responsible for delivering integrated environmental management including flood defence, water resources, water quality and pollution control.
Environmental impact assessment	Detailed studies which predict the effects of a development project on the environment. They also provide plans for mitigation of the adverse impacts.
Epoch	A period of time. Used in the SMP to refer to the three time periods considered in developing policies: short term (0 to 20 years), medium term (20 to 50 years) and long term (50 to 100 years).
Equilibrium	State of balance.
Erosion	Wearing away of the land, usually by the action of natural forces.
ESA	Environmentally Sensitive Area: this is an area where special land management payments are available through agreement with DEFRA to provide farming practices which are beneficial to the environment. This is a non-statutory designation.

Term	Definition
Estuary	Mouth of a river, where fresh river water mixes with the seawater.
Feature	Something tangible that provides a service to society in one form or another or, more simply, benefits certain aspects of society by its very existence. This will be of a specific geographical location and specific to the SMP.
Flood defence	A structure (or system of structures) for the alleviation of flooding from rivers, estuaries or the sea.
Flood plain	Any area of land to which water flows onto or is stored during a flood event, or would flow onto but for the presence of flood defences.
Flood-tide	Rising tide, part of the tidal cycle between low water and the next high water.
Foreshore	Zone between the high water and low water marks, also known as the inter-tidal zone.
Geomorphology/ morphology	That branch of physical geography/geology which deals with the form of the earth, the general configuration of its surface, the distribution of the land and water.
GIS	Geographic Information System: a computer system for managing spatial data and associated attributes.
Groyne	Shore protection structure built perpendicular to the shore; designed to trap sediment.
High water mark (HWM)	The highest reach of the water at high tide. It is sometimes marked by a line of debris such as seagrass or pieces of wood.
Hinterland	The area landward of the flood defences.
Inter tidal habitat	Habitat between mean low water mark and mean high water mark.
Inter tidal zone	The area exposed between highest and lowest extent of the tides.
Isostatic adjustment	Vertical changes of the land brought about by geological processes that have occurred locally.
Jetty	Structure projecting into the sea for the purpose of mooring boats or protecting a navigational channel.
Key stakeholder	A person or organisation with a major interest in the preparation of, and outcomes from, a shoreline management plan. This includes agencies, authorities, organisations and private bodies with responsibilities or ownerships that affect the overall management of the shoreline in a plan.
KSF	Key Stakeholder Forum: meetings attended by key stakeholders, as part of the SMP process, to help identify and understand the issues, to review the objectives and set direction for appropriate management scenarios. Key stakeholder forums were throughout the SMP.
Land reclamation	Process of creating new, dry land by excluding the sea from part or all of the intertidal area. Also known as land claim.
LLA	Local Landscape Area: an area identified by the local authority as being important to the appearance and environment of the local area. These areas are promoted in local development frameworks.
LNR	Local Nature Reserves: These are established by local authorities in consultation with Natural England. These sites are generally of local significance and also provide important opportunities for public enjoyment, recreation and interpretation. This is a non-statutory designation.

Term	Definition
Location	A discrete point on the coast or a length of coastline between two defined points.
Longshore current	A movement of water parallel to the shore, caused by waves.
Longshore transport	Movement of material parallel to the shore, also referred to as longshore drift or alongshore drift.
Low Water Mark (LWM)	The reach of the water at low tide.
Managed realignment	SMP policy, allowing the shoreline to move backwards or forwards, with management to control or limit movement. This includes reducing erosion or building new defences on the landward side of the original defences.
Mean sea level	Average height of the sea surface over a 19-year period.
Mean High Water (MHW)	The average of all high waters observed over a sufficiently long period.
Mean High Water Springs (MHWS)	The average height of the high waters of spring tides.
Mean Low Water (MLW)	The average of all low waters observed over a sufficiently long period.
Mean Low Water Springs (MLWS)	The average height of the low waters of spring tides.
Monitoring	Systematic recording over time.
NAI	No Active Intervention: SMP policy that assumes that existing defences are no longer maintained and will fail over time or undefended frontages will be allowed to evolve naturally.
NNR	National Nature Reserve: designated by Natural England, these represent some of the most important natural and semi-natural ecosystems in the UK, and are managed to protect the conservation value of the habitats that occur on these sites. This is a statutory designation
Objective	An objective is set, through consultation with key parties, to encourage the resolution of the issue or range of issues.
OD	Ordnance Datum: a universal zero point used in the UK, equal to the mean sea level at Newlyn in Cornwall.
Pile	Long heavy section of timber, concrete or metal, driven into the earth or seabed as support for another structure.
Policy	In this context, “policy” refers to the generic shoreline management options (no active intervention, hold the existing line of defence, managed realignment and advance the existing line of defence).
Policy scenario	A combination of policies for a particular stretch of coast.
Preferred options	Flood management options that meet most or all of the strategic objectives. There is high confidence at a strategic level that these options are feasible and should be developed by undertaking a detailed scheme appraisal prior to implementation.
Policy unit	Sections of coastline for which a single shoreline management policy has been defined.

Term	Definition
PSA	Public Service Agreement: targets set by the government for governmental departments. Part of the PSA target for Defra includes: To care for our natural heritage, make the countryside attractive and enjoyable for all and to preserve biological diversity by bringing into favourable condition, by 2010, 95 per cent of all nationally important wildlife sites.
PV	Present Value: the value of a stream of benefits or costs when discounted back to the present day. For this SMP the discount factors used are the latest provided by Defra for assessment of schemes, i.e. 3.5 per cent for years 0 to 30, 3 per cent for years 31 to 75, and 2.5 per cent thereafter.
Ramsar	Designated under the "Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat." 1971. The objective of this designation it to stem the progressive encroachment onto, and loss of, wetlands.
Relict	Refers to a geomorphological feature that was deposited or created by processes no longer active in the area where the feature, or sediment, now occurs, e.g. a relict shingle barrier or relict landslide.
Revetment	A sloping surface of stone, concrete or other material used to protect an embankment or natural shoreline against erosion.
RSPB	Royal Society for the Protection of Birds: a UK charity working to promote the conservation of birds and other wildlife through the protection and re-creation of habitats.
SAC	Special Area of Conservation: this designation aims to protect habitats or species of European importance and can include Marine Areas. SACs are designated under the EC Habitats Directive (92/43/EEC) and will form part of the Natura 2000 site network. All SACs sites are also protected as Site of Special Scientific Interest, except those in the marine environment below the Mean Low Water (MLW).
SEA	Strategic Environmental Assessment: an environmental assessment of certain plans and programmes, including those in the field of planning and land use, which complies with the EU Directive 2001/42/EC. The environmental assessment involves the: • preparation of an environmental report • carrying out of consultations • taking into account of the environmental report and the results of the consultations in decision making • provision of information when the plan or programme is adopted • showing that the results of the environment assessment have been taken into account
Scour	Removal of material by waves or currents, especially at the toe of a shore protection structure.
Seawall	Solid coastal defence structure built parallel to the shoreline to prevent erosion and damage by wave action.
Sea level change	The rise and fall of sea levels throughout time in response to global climate and local tectonic changes.
Sediment	Particles derived from rock, minerals or bioclastic debris, covering a size range from clay to boulders.

Term	Definition
Sensitivity analysis	The appraisal to identify any uncertainties or risks which may affect the policy decision and the impacts of variations in these factors.
Setback	Prescribed distance landward of a coastal feature such as the line of existing defences.
Shore	Narrow strip of land in immediate contact with the sea.
Shoreline	Intersection of a specific water height with the shore or beach, e.g. the high water shoreline is the intersection of the high water mark with the shore or beach.
SM	Scheduled Monument: formerly referred to as Scheduled Ancient Monuments. Scheduled Monuments are nationally important archaeological sites which have been awarded scheduled status in order to protect and preserve the site for the educational and cultural benefit of future generations. The main legislation concerning archaeology in the UK is the Ancient Monuments and Archaeological Areas Act 1979. This Act, building on legislation dating back to 1882, provides for nationally important archaeological sites to be statutorily protected as Scheduled Monuments.
Siltation	Deposition of silt-sized particles.
SLA	Special Landscape Area: an area identified as having a strategic landscape importance.
SMP	Shoreline Management Plan: strategic level document that provides a large-scale assessment of the risks associated with coastal processes and presents a policy framework to reduce these risks to people and the developed, historic and natural environment in a sustainable manner.
SNCI	Site of Nature Conservation Importance: these sites are defined by the Wildlife Trusts and local authorities as sites of local nature conservation interest. These are non-statutory but form an integral part of the formulation of planning policies relating to nature conservation issues.
SPA	Special Protection Area: these are internationally important sites, being set up to establish a network of protected areas of birds
Spit	Accretionary deposit of sand or stones located where a shoreline changes direction, formed by wave action and joined to the shore at one end only.
SSSI	Sites of Special Scientific Interest: these sites, notified by Natural England, represent some of the best examples of Britain's natural features including flora, fauna, and geology. This is a statutory designation
Stakeholder	A person or organisation with an interest in the preparation of a shoreline management plan or affected by the policies produced. This broad interpretation has been taken to include agencies, authorities, organisations and private persons. See "key stakeholder".
Strategy studies	A long term plan, known as a flood defence management strategy, is developed and sets out the policy and objectives for flood defence taking into account a broad range of local interests and issues.
Sustainability (in flood risk management)	The degree to which flood risk management options avoid tying future generations into inflexible or expensive options for flood defence. This usually includes consideration of other defences and likely developments as well as processes within catchments. It will take account of long term demand for non-renewable materials.

Term	Definition
Tidal current	Movement of water in a constant direction caused by the periodic rising and falling of the tide. As the tide rises, a flood-tidal current moves in one direction and as the tide falls, the ebb-tidal current moves in the opposite direction.
Tidal inlet	A river mouth or narrow gap between islands, within which salt water moves landwards during a rising tide.
Tidal prism	The volume of water that enters and leaves an estuary every flood and ebb tide respectively.
Tide	Periodic rising and falling of large bodies of water resulting from the gravitational attraction of the moon and sun acting on the rotating earth.
Toe protection	Material, commonly large boulders, placed at the base of a sea defence structure, such as a seawall, to prevent wave scour.
Topography	Configuration of a surface including its relief and the position of its natural and man-made features.
Transgression	The landward movement of the shoreline in response to a rise in relative sea level.
Updrift	Direction opposite to the predominant movement of longshore transport. Also see 'downdrift'
Wave direction	Direction from which a wave approaches.
Wetlands	Low-lying areas that are frequently flooded and which support vegetation adapted to saturated soils.
WPM	With Present Management: SMP policy which assumes that all defences are maintained to provide a similar level of protection and defence to that currently provided.
WFD	Water Framework Directive: a European Directive that aims to establish a framework for the protection of inland surface waters (rivers and lakes), transitional waters (estuaries), coastal waters and groundwater.