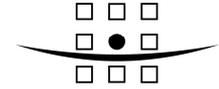


ROYAL HASKONING

Appendix H Economic Appraisal



ROYAL HASKONING

Appendix H Economic Appraisal

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H1 Introduction

A review of economic viability of the preferred plan for each area has been carried out. The review is undertaken in the context of each management area taking account of the economic consequences associated with each policy unit.

It should be noted that further detailed economic analysis will need to be undertaken in justifying any specific scheme in line with principles set out in the FCDPAG series of guidance.

The aim of the current review is to determine to what degree the preferred policy may be justified in economic terms relating to coast protection or sea defence. In addition the review aims to examine the nature of the economic justification; considering whether that justification lies strongly with the defence of clear direct benefits, in terms of direct flood or erosion risk to asset, or derives from associated damages such as amenity, recreation, traffic disruption or is driven by the aims of other plans.

Various information has been used to develop the review. As part of the SMP2 GIS and analysis procedure, damages have been derived from the Modelling and Decision Support Framework (MDSF). In addition to this, a considerable amount of work has been undertaken as part of the various strategies or scheme appraisals covering the whole area. The use of these is discussed in section H2 and H3.

The results of the review are reported in summary tables provided in Annex H1 and the development of these tables is discussed in section H4.

A discussion of sensitivity is provided in section H5 together with an identification of the approach to assessing the future costs of schemes or maintenance.

References to local studies are provided in the summary tables in section H4.

H2 Using of existing information

There has been a considerable effort put in to developing strategies for individual sections, in line with the recommendations and to address uncertainties identified in SMP1.

These studies have been able to consider the economic consequence for specific areas in far greater detail than would be appropriate for the SMP2. In particular, the strategies have been able to determine specific damages relating to flooding due to overtopping and consider damages relating to aspects such as amenity and uses of the coast. In addition the strategies have developed specific approaches to defence and from this have been able to assess future costs of scheme at least in outline.

However, in many areas the strategies have been developed only over a 50 year horizon and have used discount factors different from that now recommended by Treasury. The strategies also have not necessarily been developed over the same geographic area as policy units now defined in the SMP2. Finally, in some locations the SMP2 is now making recommendation which modify the options and recommendations considered by the strategy.

For these reasons it has been necessary to adapt information from earlier studies to allow this information to be used to effect in the SMP2.

Management of the coast is a continuous process. During the development of the SMP2 further detailed studies or strategies have been on going. While information has been incorporated as it becomes available, it is clearly not possible in a document to include detailed information of concurrent studies not completed at the time of completing this document (February 2007). Notes are included in both the following tables and in the main text of the SMP2 document to highlight where further information has or may become available.

The SMP process is continuous, taking in further information and reviewing this in the context provided by the SMP2 document.

H3 Generation of new data

Determination of Damages

In all areas of the SMP2 the MDSF has been used to provide a baseline of economic evaluation.

In simple terms MDSF uses the information contained in the SMP2 GIS to generate this economic assessment. Specifically, MDSF uses the mapping of erosion and flood risk and determines the timing of loss or probability of flooding of all assets identified in the areas affected.

The output of the MDSF provides information in relation to loss due to erosion, determining when an asset is lost, providing a value for that asset and an economic discounted value. This is reported as number and value of properties for each SMP2 epoch.

In terms of flooding and progressive erosion of land, MDSF provides a breakdown of private and commercial properties affected, together with a value of land eroded on average during a year, and determines an annual average value of loss. This is then converted in to a present value of loss over a 100 year period appropriate to the SMP2 assessment.

Determination of Costs

For much of the coast, where defences are in place, information exists from strategies of appraisal setting out future costs of defence. Where the SMP2 recommends adaptation to these plans, an assessment has had to be made of possible future costs.

In most areas where costs have had to be determined separate from strategies, this has been for works in the medium to long term. It is only possible to provide very outline costs for such work.

Where additional costs are identified the timing of such works is identified in the summary tables.

In some cases strategies have not identified maintenance costs for existing or new defences or have only considered such costs over a period of the next 50 years. In all cases where defence is recommended by the SMP2 an additional cost has been added to allow for routine maintenance over the period of the SMP2. The maintenance costs take into account the existing extent of defence and to a degree the condition or age of the works.

H4 Economic appraisal summary table

Annex H1 provides economic summary tables. The results from these are further summarised in the main SMP2 text.

The tables are produced for each management area. The tables comprise:

- The assessment of damages derived from MDSF. Three scenarios are considered for comparison and to allow an assessment of sensitivity. The three scenarios are No Active Intervention, With Present Management and the Preferred Plan. Associated with each MDSF report is an identification of other relevant information; either in terms of information from other studies or in terms of what additional damages might be considered in relation to the specific scenario. For each scenario a total damages is reported with notes to explain how this has been derived from the information.
- The assessment of costs. This is provided for the With Present Management scenario and for the Preferred Plan. In many cases this

may be the same. As above the reference with respect to costs is identified and a brief explanation of how this has been used to derive a cost for the Preferred Plan.

- Finally, the table provides a brief comment or discussion in relation to the economic analysis and justification of the preferred policy. Where the Preferred Plan is shown solely from the summary of results not to be economically justified this is highlighted in terms of either additional benefits which might be considered or in terms of other values which the plan is attempting to address.

H5 Sensitivity

The critical uncertainties with respect to policy are highlighted and discussed in the main text of the SMP2. With respect to the economics, there is recognised uncertainty particularly in relation to erosion rates and possible timing of required works. Such uncertainty affects both the timing of the occurrence of damages and when works might be required. As such these aspects tend to balance in the economics.

Certainly with the scope of the SMP2, to assess the likely affordability and overall sustainability of policies such issues of timing are already accounted for. Clearly in terms of actual loss and hence planning of individual situations, timing may be quite important and the SMP2 has recommended monitoring to improve information.

Where the preferred policy changes from present management, the tables in Annex H1 allow comparison of the economics associated with this change. This highlights, purely from an economic perspective, the sensitivity of decisions being made.

Annex H1 Supporting Economic Appraisal Data – Damages/Benefits and Costs

Economic Assessment
Policy development Zone (PDZ)1
Location: Littlehaven

Management Area (MA): 01
Policy Units (PU):1.1, 1.2, 1.3

DAMAGES

Scenario: **No ACTIVE INTERVENTION**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			0	0	1	30,696	30,696	962
Continuing erosion of agricultural land							0	0
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	2	292	104	20	2,820	256
Total Damages								1,323

Other information

Source: Littlehaven to South Pier Management Study, 2001, High-Point Rendell	PV value (£k)
damages were assessed in terms of loss of revenue to car park (AAD £20,000)	626
Notes: damages identified in strategy included within SMP2 assessment.	Total NAI Damages (£k)
	1,949

Scenario: **WITH PRESENT MANAGEMENT**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			Assumes flood defence maintained. No damages					0
Continuing erosion of agricultural land			No damages					0
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Total Damages								0

Other information

Source: Littlehaven to South Pier Management Study, 2001, High-Point Rendell	PV value (£k)
Potential overtopping to car park reduced by scheme proposed by strategy.	0
Notes:	Total WPM Damages (£k)
	0

Economic Assessment

Policy development Zone (PDZ)1

Location: Littlehaven

Management Area (MA): 01

Policy Units (PU):1.1, 1.2, 1.3

Page 2 of 2

Scenario: **PREFERRED POLICY**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			Assumes flood defence maintained.				No damages	0
Continuing erosion of agricultural land							No damages	0
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Additional damages: Loss of part of the car park.								400
							Total Damages	400

COSTS

Present management assessment

Source:	PV value (£k)
Littlehaven to South Pier Management Study, 2001, by High-Point Rendell	
Build a new seawall and build rock armoured revetment over 175m	462
Remove existing seawall and protect backshore with rock armour over 175m	312
Notes:	

Preferred Policy

Description	PV value (£k)
Remove existing sea wall and protect further to rear. Costs include for defence in year 5 with subsequent maintenance over 100 years.	2100
Notes:	

RECONCILIATION

The area is considered an important asset in terms of recreational and potential redevelopment. While there is economic justification in comparison with existing NAI losses, the real benefits are seen in terms of integrated importance of the area for tourism and recreation.

Economic Assessment
Policy development Zone (PDZ)1
Location: Herd Sands

Management Area (MA): 02
Policy Units (PU):2.1, 2.2, 2.3.-

DAMAGES

Scenario: **No ACTIVE INTERVENTION**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			0	0	0	0	0	0
Continuing erosion of agricultural land							0	0
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	2	174	9
Total Damages								9

Other information

Source:	PV value (£k)
	0
Notes: Damages do not take account of potential overtopping flood risk along promenade. Amenity loss is not determined. Both issues would require further examination.	Total NAI Damages (£k)
	0

Scenario: **WITH PRESENT MANAGEMENT**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			Assumes flood defence maintained. No damages					0
Continuing erosion of agricultural land							No damages	0
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Total Damages								0

Other information

Source:	PV value (£k)
.	0
Notes: Damages due to overtopping would be increased with sea level rise.	Total WPM Damages (£k)
	0

Economic Assessment
Policy development Zone (PDZ)1
Location: Herd Sands

Management Area (MA): 02
Policy Units (PU):2.1, 2.2, 2.3

Scenario: **PREFERRED POLICY**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			Assumes flood defence maintained.				No damages	0
Continuing erosion of agricultural land							No damages	0
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	1	86	4
Additional damages: Overtopping damages would need to be addressed.								
Total Damages								4

COSTS

Present management assessment

Source: No assessment available Assume holding the line with increasing pressure and works required to southern 700m after year 2025.	PV value (£k) 600
Notes:	

Preferred Policy

Description Maintain existing defences at present but eventually retreat line over southern area after 2025, with new defence line set back.	PV value (£k) 364
Notes:	

RECONCILIATION

The area is important for tourism, recreation and potential for re-development. This would require on-going management. There are damages not identified in terms of overtopping and long term maintenance. The preferred policy recommends a more cost effective approach to achieving the aims for the area.

Economic Assessment
Policy development Zone (PDZ)1
Location: Trow

Management Area (MA): 03
Policy Units (PU):3.1. 3.2.-

DAMAGES

Scenario: **No ACTIVE INTERVENTION**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			0	0	0	0	0	0
Continuing erosion of agricultural land							0	0
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Total Damages								0

Other information

Source: Strategy for frontage being developed.	PV value (£k)
	0
Notes: Significant costs associated with management of contamination risk.	Total NAI Damages (£k)
	0

Scenario: **WITH PRESENT MANAGEMENT**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			No damages					0
Continuing erosion of agricultural land							No damages	0
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Total Damages								0

Other information

Source: Strategy for frontage being developed	PV value (£k)
	0
Notes: : Significant costs associated with management of contamination risk	Total WPM Damages (£k)
	0

Economic Assessment
Policy development Zone (PDZ)1
Location: Trow

Management Area (MA): 03
Policy Units (PU):3.1, 3.2

Scenario: **PREFERRED POLICY**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			Assumes flood defence maintained.				No damages	0
Continuing erosion of agricultural land							No damages	0
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Additional damages: Significant costs associated with management of contamination risk								
Total Damages								0

COSTS

Present management assessment

Source:	PV value (£k)
Cost of management deferred to strategy	
Notes:	

Preferred Policy

Description	PV value (£k)
Cost of management deferred to strategy	
Notes:	

RECONCILIATION

The need for management is associated with the threat of contamination, associated with the high ecological and recreational values of the area. The emerging strategy is developing a long term course of management.

Economic Assessment
Policy development Zone (PDZ)2
Location: Frenchman's Bay to Lizard Point
Management Area (MA): 04
Policy Units (PU):4.1. 4.2.-

DAMAGES

Scenario: **No Active Intervention**
MDSF Assessment

Annual average damages (AAD):		Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages		0	0	0	0	0	0
Continuing erosion of agricultural land							
Present value of erosion		0-20 yrs		20 to 50 yrs		50 to 100 yrs	
No. properties	Total Valuation (£k)	PV for epoch (£k)	Total Valuation (£k)	No. properties	PV for epoch (£k)	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0
Total Damages							0

Other information

Source: Whitburn Coastal Strategies Study, 2002. High-Point Rendell.

Principal damage assessed as cost to realign road. Estimated cost of £700k in year 20.

Notes: additional cost in retreat of car parks not assessed.

	PV value (£k)	351
Total NAI Damages (£k)		351

Scenario: **With Present Management**
MDSF Assessment

Annual average damages (AAD):		Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages		No damages					0
Continuing erosion of agricultural land							0
Present value of erosion		0-20 yrs		20 to 50 yrs		50 to 100 yrs	
No. properties	Total Valuation (£k)	PV for epoch (£k)	Total Valuation (£k)	No. properties	PV for epoch (£k)	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0
Total Damages							0

Other information

Source: Whitburn Coastal Strategies Study, 2002. High-Point Rendell

Principal damage assessed as cost to realign road. Estimated cost of £700k in year 20

Notes: : additional cost in retreat of car parks not assessed

	PV value (£k)	351
Total WPM Damages (£k)		351

Economic Assessment

Policy development Zone (PDZ)2

Location: Frenchman's Bay to Lizard Point

Management Area (MA): 04

Policy Units (PU):4.1, 4.2

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Scenario: **PREFERRED POLICY**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			Assumes flood defence maintained.				No damages	0
Continuing erosion of agricultural land							No damages	0
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Additional damages: Damages associated with realignment of the road considered within preferred policy								351
Total Damages								351

COSTS

Present management assessment

Source:	PV value (£k)
No defence costs	0
Notes:	

Preferred Policy

Description	PV value (£k)
No defence costs	0
Notes:	

RECONCILIATION

No cost effective coastal defence.

Economic Assessment

Policy development Zone (PDZ)2

Location: Lizard Point to Souther Point

Management Area (MA): 05

Policy Units (PU):5.1. 5.2.-

Page 1 of 2

DAMAGES

Scenario: **No ACTIVE INTERVENTION**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			0	0	0	0	0	0
Continuing erosion of agricultural land							0	0
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Total Damages								0

Other information

Source: Whitburn Coastal Strategies Study, 2002. High-Point Rendell.	PV value (£k)
Estimate of damages due to amenity and fishing loss as a result of contamination.	35,099
Notes: Potential damages need to be re-assessed following investigation of possible contamination.	Total NAI Damages (£k)
	0

Scenario: **WITH PRESENT MANAGEMENT**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			. No damages					0
Continuing erosion of agricultural land							No damages	0
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Total Damages								0

Other information

Source: Whitburn Coastal Strategies Study, 2002. High-Point Rendell	PV value (£k)
Strategy aims to protect Harbour Quarry.	0
Notes: :	Total WPM Damages (£k)
	0

Economic Assessment

Policy development Zone (PDZ)2

Location: Lizard Point to Souter Point

Management Area (MA): 05

Policy Units (PU):5.1, 5.2

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Scenario: **PREFERRED POLICY**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			Assumes flood defence maintained.				No damages	0
Continuing erosion of agricultural land							No damages	0
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Additional damages: Potential damages need to be re-assessed following investigation of possible contamination								-
Total Damages								-

COSTS

Present management assessment

Source: Whitburn Coastal Strategies Study, 2002. High-Point Rendell Initial costs of infill to caves at Harbour Quarry Longer term costs to maintain and extend protection not defined.	PV value (£k)
	193
Notes:	

Preferred Policy

Description Assume short term cost as defined in strategy occurring in year 5, with allowance for maintenance. No longer term costs, subject to confirmation that contamination is allowed to diffuse.	PV value (£k)
	169
Notes:	

RECONCILIATION

Justification of cost short term defence and maintenance is provided in strategy. Longer term management will be determined by outcome of further investigation of quarry infill.

Economic Assessment

Policy development Zone (PDZ)3

Location: Souter Point to Sunderland Harbour

Management Area (MA): 06

Policy Units (PU):6.1, 6.2, 6.3, 6.4, 6.5.-

Page 1 of 2

DAMAGES

Scenario: **No ACTIVE INTERVENTION**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			0	0	0	0	0	0
Continuing erosion of agricultural land							0	0
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
2	292	153	14	2067	543	31	3681	249
								946
Total Damages								946

Other information

Source: Whitburn Bay to Ryhope Coast Protection. 2001, Scott Wilson.	PV value (£k)
Study estimates damages over this and MA07 and MA08, to be of the order of £80,190k present value. This derived primarily from flood damage around the Wear but includes overtopping damages to the Bents.	
Notes: Overtopping damage and flooding of promenade at the Bents not considered in the SMP2 assessment..	Total NAI Damages (£k)
	0

Scenario: **WITH PRESENT MANAGEMENT**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			. No damages					0
Continuing erosion of agricultural land							No damages	0
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	2	228	65	4	585	41
								106
Total Damages								106

Other information

Source: Whitburn Bay to Ryhope Coast Protection. 2001, Scott Wilson	PV value (£k)
. There would be continued overtopping to the walls along the South Bents with potential loss of property at the Bents. This concurring with the MDSF analysis. No specific values given in strategy.	
Notes: :	Total WPM Damages (£k)
	106

Economic Assessment

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Policy development Zone (PDZ)3

Management Area (MA): 06

Location: Souter Point to Sunderland Harbour

Policy Units (PU): 6.1, 6.2, 6.3, 6.4, 6.5.-

Scenario: **PREFERRED POLICY**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			Assumes flood defence maintained.				No damages	0
Continuing erosion of agricultural land							No damages	0
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Additional damages: Overtopping damages need to be considered in detail. Additional protection provided to the Bents								0
Total Damages								0

COSTS

Present management assessment

Source: Whitburn Bay to Ryhope Coast Protection. 2001, Scott Wilson Strategy recommends phased improvement to walls, with capital works in years 1 and 2.	PV value (£k)
	3,130
Notes:	

Preferred Policy

Description Continue work to maintain walls with further strategic work in 25 years.	PV value (£k)
	4,312
Notes: Justification of works set against reduction in increased overtopping in addition to amenity value and erosion loss identified by MDSF.	

RECONCILIATION

The economic assessment using MDSF does not identify the significant level of damage experienced due to overtopping. The damages identified in the strategy do not separate out those associated with this specific area. The strategy does, however, indicate that there is an economic justification to maintain defences for the area. There would be loss also in terms of an important tourist and amenity area, identified as such in the development plan. The additional costs associated with the preferred policy approach aim to address the issue of maintaining this important aspect of the area.

Economic Assessment
Policy development Zone (PDZ)3
Location: Sunderland Harbour

Management Area (MA): 07
Policy Units (PU):7.1. 7.2, 7.3.-

DAMAGES

Scenario: **No ACTIVE INTERVENTION**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			79	623	32	657	1,280	40,107
Continuing erosion of agricultural land							0	0
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	8	1046	363	66	9,459	836
Total Damages								41,305

Other information

Source: Whitburn Bay to Ryhope Coast Protection. 2001, Scott Wilson. Study estimates damages over MA06, MA07 and MA08, to be of the order of £80,190k present value. This derived primarily from flood damage around the Wear; within this area.	PV value (£k)
Notes: There would also be significant loss associated with Port activities.	Total NAI Damages (£k) 41,305

Scenario: **WITH PRESENT MANAGEMENT**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			. No damages					0
Continuing erosion of agricultural land							No damages	0
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Total Damages								0

Other information

Source: .	PV value (£k)
Notes: :	Total WPM Damages (£k) 0

Economic Assessment
Policy development Zone (PDZ)3
Location: Sunderland Harbour

Management Area (MA): 07
Policy Units (PU): 7.1, 7.2, 7.3.-

Scenario: **PREFERRED POLICY**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			Assumes flood defence maintained.				No damages	0
Continuing erosion of agricultural land							No damages	0
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Additional damages: Maintains Port operation								0
Total Damages								0

COSTS

Present management assessment

Source: Whitburn Bay to Ryhope Coast Protection. 2001, Scott Wilson Strategy recommends phased improvement to structures, with capital works in year2. Maintenance costs include for 50 years.	PV value (£k) 4,151
Notes:	

Preferred Policy

Description Cost taken from strategy but allowing additional refurbishment in year 72 and continuing maintenance.	PV value (£k) 4,866
Notes:.	

RECONCILIATION

Based on strategy evaluation, MDSF values for damages are possibly light, not taking full account of additional flooding due to overtopping. No damages are considered in relation to the port activities nor those associated with recreation and amenity. The evaluation shows a strong justification for maintaining defences.

Economic Assessment

Policy development Zone (PDZ)3

Management Area (MA): 08

Location: Sunderland Harbour to Pincushion Rocks

Policy Units (PU):8.1, 8.2, 8.3, 8.4.-

DAMAGES

Scenario: **No ACTIVE INTERVENTION**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			1	8	7	867	875	27,434
Continuing erosion of agricultural land							0	0
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	3	3,006	978	5	671	31
Total Damages								1,008
Total Damages								28,441

Other information

Source: Whitburn Bay to Ryhope Coast Protection. 2001, Scott Wilson.	PV value (£k)
Study estimates damages over MA06, MA07 and MA08, to be of the order of £80,190k present value. This derived primarily from flood damage around the Wear; within this area.	
Notes: Additional loss in terms of potential development area, not taken into account in SMP damages.	Total NAI Damages (£k)
	28,441

Scenario: **WITH PRESENT MANAGEMENT**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			. No damages					0
Continuing erosion of agricultural land							No damages	0
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Total Damages								0

Other information

Source:	PV value (£k)
.	0
Notes: : Damages do not take account of long term loss to railway and transport.	Total WPM Damages (£k)
	0

Economic Assessment

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Policy development Zone (PDZ)3

Management Area (MA): 08

Location: Sunderland Harbour to Pincushion Rocks r

Policy Units (PU): 8.1, 8.2, 8.3, 8.4.-

Scenario: **PREFERRED POLICY**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			Assumes flood defence maintained.				No damages	0
Continuing erosion of agricultural land							No damages	0
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Additional damages: Some loss of area within port, needs to assessed in terms of significance.								0
Total Damages								0

COSTS

Present management assessment

<p>Source: Whitburn Bay to Ryhope Coast Protection. 2001, Scott Wilson Strategy recommends major works to structures in port area over years 3 and 4. Maintenance costs include for 50 years.</p>	PV value (£k)
	6,420
Notes:	

Preferred Policy

<p>Description Cost taken from strategy but allowing additional for additional works to south of harbour and continuing maintenance over the 100 year period. These additional cost assumes establishing control points in the future. Further detailed study would be required based on results of monitoring.</p>	PV value (£k)
	7,014
Notes:.	

RECONCILIATION

Based on strategy evaluation, MDSF values for damages are reasonable but fail to take account of disruption to transport network nor the consequential impact of loss of railway link through to the Port area. No allowance is made for costs or damages associated with addressing the potential contamination problems between Salterfen and Pincushion. Even so there is a good economic justification for continued defence.

Economic Assessment

Policy development Zone (PDZ)3

Location: Pincushion Rocks to Chourdon Point

Management Area (MA): 09

Policy Units (PU): 9.1, 9.2, 9.3, 9.4, 9.5, 9.6, 9.7.-

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DAMAGES

Scenario: **No ACTIVE INTERVENTION**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			0	0	0	0	0	0
Continuing erosion of agricultural land							204	6
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	23	2,910	184
Total Damages								190

Other information

Source: Seaham Coastal Strategy Study, Royal Haskoning 2003.	PV value (£k)
The area is further subdivided within the strategy. Strategy considers damages due to loss of coastal road as well as access to property. The strategy does not fully take account of more recent development of the frontage. No consideration is taken of loss to the port activities.	2,612
Notes: Additional long term property loss has been allowed in addition to strategy values.	Total NAI Damages (£k)
	2,802

Scenario: **WITH PRESENT MANAGEMENT**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			. No damages					0
Continuing erosion of agricultural land							204	6
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Total Damages								6

Other information

Source: Seaham Coastal Strategy Study, Royal Haskoning 2003.	PV value (£k)
.Assumes urban area continues to be defended. Potential contamination from fill areas south of Seaham need to be examined.	
Notes: : .	Total WPM Damages (£k)
	6

Economic Assessment

Policy development Zone (PDZ)3

Management Area (MA): 09

Location: Pincushion Rocks to Chourdon Point

Policy Units (PU): 9.1, 9.2, 9.3, 9.4, 9.5, 9.6, 9.7.--

Scenario: **PREFERRED POLICY**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			Assumes flood defence maintained.				No damages	0
Continuing erosion of agricultural land							205	6
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Additional damages: Potential contamination from fill areas south of Seaham need to be examined.								6
Total Damages								6

COSTS

Present management assessment

Source: Seaham Coastal Strategy Study, Royal Haskoning 2003 Strategy recommends works principally within the medium term. There may be additional costs depending on the need to protect against contamination.	PV value (£k)
	1,031
Notes:	

Preferred Policy

Description Cost taken from strategy including maintenance over the 100 year period.	PV value (£k)
	1,031
Notes: There would be additional costs if the need to protect against contamination were demonstrated.	

RECONCILIATION

MDSF fails to fully evaluate the impact of potential erosion on properties nor does it evaluate transport disruption costs. The timing of works identified in the strategy are recognised to be dependant on actual erosion rates and on beach behaviour. The defence of specific sections of the frontage is shown to be economically effective.

Economic Assessment

Policy development Zone (PDZ)4

Location: Chourdon Point to Blackhall Rocks

Management Area (MA): 10

Policy Units (PU): 10.1.-

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DAMAGES

Scenario: **No ACTIVE INTERVENTION**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			0	0	0	0	0	0
Continuing erosion of agricultural land							497	16
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Total Damages								16

Other information

Source: Seaham Coastal Strategy Study, Royal Haskoning 2003. Potential threat to the railway in the medium to long term. Not evaluated.	PV value (£k)
Notes:..	Total NAI Damages (£k)
	0 16

Scenario: **WITH PRESENT MANAGEMENT**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			. No damages					0
Continuing erosion of agricultural land							497	16
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Total Damages								16

Other information

Source: Seaham Coastal Strategy Study, Royal Haskoning 2003. Potential threat to the railway in the medium to long term. Not evaluated.	PV value (£k)
Notes: : .	Total WPM Damages (£k)
	0 16

Economic Assessment

Policy development Zone (PDZ)4

Location: Chourdon Point to Blackhall Rocks

Management Area (MA): 10

Policy Units (PU): 10.1.--

Page 2 of 2

Scenario: **PREFERRED POLICY**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			Assumes flood defence maintained.				No damages	0
Continuing erosion of agricultural land							205	16
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Additional damages: Potential contamination from fill areas south of Seaham need to be examined.								0
Total Damages								16

COSTS

Present management assessment

Source:	PV value (£k)
Seaham Coastal Strategy Study, Royal Haskoning 2003 No coast protection works	0
Notes:	

Preferred Policy

Description	PV value (£k)
No coast protection works	0
Notes: There would be additional costs if the need to protect against contamination were demonstrated.	

RECONCILIATION

Planning policy limits threat to assets. NAI policy.

Economic Assessment

Policy development Zone (PDZ)4

Location: Blackhall Rocks to Heugh Breakwater

Management Area (MA): 11

Policy Units (PU): 11.1, 11.2, 11.3.-

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DAMAGES

Scenario: **No ACTIVE INTERVENTION**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			0	0	0	0	0	0
Continuing erosion of agricultural land							1,193	37
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	8	2,630	521	305	44,630	4,128
Total Damages								4,723

Other information

Source: Hartlepool Coastal Scheme Strategy, Atkins 2004.	PV value (£k)
Strategy includes damages associated with loss of promenade, cemetery, lighthouse and gun battery in addition to loss of property.	34,600
Notes: The strategy is felt to provide a better evaluation of potential losses.	Total NAI Damages (£k)
	34,600

Scenario: **WITH PRESENT MANAGEMENT**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			. No damages					0
Continuing erosion of agricultural land							1,193	37
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Total Damages								37

Other information

Source: Hartlepool Coastal Scheme Strategy, Atkins 2004.	PV value (£k)
Revised strategy recommends no defence to North Sands. Damages quoted still include value of Brit Mag works . .	14,430
Notes: The damages taken from the strategy reflect better the value of North Sands.	Total WPM Damages (£k)
	14,430

Economic Assessment

Page 2 of 2

Policy development Zone (PDZ)4

Management Area (MA): 11

Location: Blackhall Rocks to Heugh Breakwater

Policy Units (PU): 11.1, 11.2, 11.3--

Scenario: **PREFERRED POLICY**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			Assumes flood defence maintained.				No damages	0
Continuing erosion of agricultural land							1,193	37
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Additional damages:								0
Total Damages								37

COSTS

Present management assessment

Source: Hartlepool Coastal Scheme Strategy, Atkins 2004 Based on costs reported in strategy with realignment over North Sands	PV value (£k)
	12,150
Notes:	

Preferred Policy

Description Derived from strategy but including works to manage future erosion at North Sands	PV value (£k)
	14,483
Notes:..	

RECONCILIATION

There is strong economic argument for the continued protection of the Headland. Works to North Sand aim to provide support for re-development while maintaining protection to the cemetery and enhancement of the LNR.

Economic Assessment

Policy development Zone (PDZ)5

Location: Heugh Breakwater to Little Scar

Management Area (MA): 12

Policy Units (PU): 12.1, 12.2.-

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DAMAGES

Scenario: **No ACTIVE INTERVENTION**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			1333	3,4760	181	1,380	4,856	152,190
Continuing erosion of agricultural land						0		
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
3	438	220	68	9,994	2,911	253	36,873	3,108
Total Damages								158,429

Other information

Source: Hartlepool Coastal Scheme Strategy, Atkins 2004.	PV value (£k)
Strategy does not include for flooding but does identify other damages including loss of amenity. The strategy also highlights the value of works to the operation of the marina.	54,660
Notes: The MDSF value is taken recognising that there could be additional intangible assets.	Total NAI Damages (£k)
	158,430

Scenario: **WITH PRESENT MANAGEMENT**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			. No damages					0
Continuing erosion of agricultural land						0		
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Total Damages								0

Other information

Source:	PV value (£k)
.	0
Notes: Damages do not include those associated with the reduction of the Heugh breakwater in terms of amenity impact.	Total WPM Damages (£k)
	0

Economic Assessment

Policy development Zone (PDZ)5

Location: Heugh Breakwater to Little Scar

Management Area (MA): 12

Policy Units (PU): 12.1, 12.2--

Page 2 of 2

Scenario: **PREFERRED POLICY**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			Assumes flood defence maintained.				No damages	0
Continuing erosion of agricultural land								
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Additional damages: There would be damages associated with loss of part of the Heugh Breakwater in terms of reduced amenity.								0
Total Damages								0

COSTS

Present management assessment

Source: Hartlepool Coastal Scheme Strategy, Atkins 2004 Based on costs reported in strategy including maintenance and subsequent refurbishment over 100 years	PV value (£k) 12,991
Notes:	

Preferred Policy

Description Based on costs reported in strategy including maintenance and subsequent refurbishment over 100 years	PV value (£k) 12,991
Notes:..	

RECONCILIATION

There is strong economic argument for the continued protection Hartlepool.

Economic Assessment

Policy development Zone (PDZ)5

Location: Little Scar to Coatham Sands

Management Area (MA): 13

Policy Units (PU): 13.1, 13.2, 13.3, 13.4, 13.5, 13.6, 13.7.-

Page 1 of 2

DAMAGES

Scenario: **No ACTIVE INTERVENTION**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			76	10,193	26	1,496,333	1,506,541	47,212
Continuing erosion of agricultural land							15	
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
2	292	152	2	292	77	18	1,506	145
Total Damages								47,587

Other information

Source:	PV value (£k)
Notes: Damages do not include loss of Golf Course	Total NAI Damages (£k)
	47,587

Scenario: **WITH PRESENT MANAGEMENT**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)	
Flooding damages			. No damages						0
Continuing erosion of agricultural land							0		
Present value of erosion									
0-20 yrs			20 to 50 yrs			50 to 100 yrs			
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	
0	0	0	0	0	0	0	0	0	
Total Damages								0	

Other information

Source:	PV value (£k)
Notes: Damages do not include loss of Golf Course.	Total WPM Damages (£k)
	0

Economic Assessment

Page 2 of 2

Policy development Zone (PDZ)5

Management Area (MA): 13

Location: Little Scar to Coatham Sands

Policy Units (PU): 13.1, 13.2, 13.3, 13.4, 13.5, 13.6, 13.7.--

Scenario: **PREFERRED POLICY**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			Assumes flood defence maintained.				No damages	0
Continuing erosion of agricultural land								
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Additional damages: Damages do not include loss of Golf Course.								0
Total Damages								0

COSTS

Present management assessment

Source:	PV value (£k)
Notes:	

Preferred Policy

Description	PV value (£k)
Costs based on work to Seaton Carew in year 15, with further costs in years 40 and 80 and maintenance over the 100year period.	2,037
Notes:..	

RECONCILIATION

The main benefits derive from maintenance of the Gare breakwater. These structures are assumed to be maintained in order that Teeside industries are sustained. Works at Seaton Carew would need to be justified against loss of the town..

Economic Assessment

Policy development Zone (PDZ)5

Location: Coatham Sands to Mill Howe

Management Area (MA): 14

Policy Units (PU): 14.1, 14.2, 14.3.-

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DAMAGES

Scenario: **No ACTIVE INTERVENTION**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)	
Flooding damages			0	0	21	24,259	24,258	763	
Continuing erosion of agricultural land							90		
Present value of erosion									
0-20 yrs			20 to 50 yrs			50 to 100 yrs			
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	
3	295	163	6	977	178	171	22,494	2,010	
								Total Damages	3,115

Other information

Source: Redcar Beach study Stage 2, Babbie 2002	PV value (£k)
Strategy considers damages associated with overtopping to promenade. Damages also include damages relating to recreational loss.	11,880
Notes: Strategy under review with revised benefits.	Total NAI Damages (£k)
	3,115

Scenario: **WITH PRESENT MANAGEMENT**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)	
Flooding damages			. No damages					0	
Continuing erosion of agricultural land							0		
Present value of erosion									
0-20 yrs			20 to 50 yrs			50 to 100 yrs			
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	
0	0	0	0	0	0	0	0	0	
								Total Damages	0

Other information

Source: Redcar Beach study Stage 2, Babbie 2002	PV value (£k)
.There would be residual damage in terms of loss of recreational benefits to the beach.	0
Notes:.	Total WPM Damages (£k)
	0

Economic Assessment

Policy development Zone (PDZ)5

Location: Coatham Sands to Mill Howe

Management Area (MA): 14

Policy Units (PU): 14.1, 14.2, 14.3-

Page 2 of 2

Scenario: **PREFERRED POLICY**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			Assumes flood defence maintained.				No damages	0
Continuing erosion of agricultural land								
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Additional damages: There would still be potential loss of recreational value.								0
Total Damages								0

COSTS

Present management assessment

Source: Redcar Beach study Stage 2, Babbie 2002 based on strategy	PV value (£k)
Revised strategy indicates costs of £12,000k	4,354
	12,000
Notes:	

Preferred Policy

Description	PV value (£k)
Costs based on strategy but allowing additional costs to retain beach. Costs for protection to new development are not included. It would be anticipated that these costs would not come from coast protection funding.	4,699
Revised strategy costs	12,000
Notes..	

RECONCILIATION

The strategy identified further damages not taken into account by MDSF. These include recreation and overtopping flood damages. It is anticipated from the initial strategy that damages demonstrate economic justification for maintaining protection. Further work during the SMP2 development has identified higher benefits and costs.

Economic Assessment

Policy development Zone (PDZ)5

Location: Mill Howe to Saltburn

Management Area (MA): 15

Policy Units (PU): 15.1, 15.2, 15.3, 15.4.-

DAMAGES

Scenario: **No ACTIVE INTERVENTION**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			0	0	0	0	0	103
Continuing erosion of agricultural land							3,292	
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
2	151	78	3	438	97	39	4,688	486
Total Damages								765

Other information

Source:	PV value (£k)
.	
Notes: MDSF damages do not take fully into account the economic impact on Saltburn. This would need to be examined in greater detail.	Total NAI Damages (£k) 765

Scenario: **WITH PRESENT MANAGEMENT**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			. No damages					0
Continuing erosion of agricultural land							3,292	103
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Total Damages								103

Other information

Source:	PV value (£k)
.	0
Notes:	Total WPM Damages (£k) 103

Economic Assessment

Policy development Zone (PDZ)5

Location: Mill Howe to Saltburn

Management Area (MA): 15

Policy Units (PU): 15.1, 15.2, 15.3, 15.4.-

Page 2 of 2

Scenario: **PREFERRED POLICY**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			Assumes flood defence maintained.				No damages	0
Continuing erosion of agricultural land							3,292	103
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Additional damages:								0
Total Damages								103

COSTS

Present management assessment

Source: No strategy undertaken. Based on general maintenance with capital works undertaken in years 35 and 50.	PV value (£k)
	294
Notes:	

Preferred Policy

Description As above	PV value (£k)
	294
Notes:..	

RECONCILIATION

There is no detailed strategy for the area. Damages determined through MDSF only include properties directly impacted and does not include damages due to disruption of services. Both the timing a justification at Marske would need to be fully assessed from results of monitoring. The analysis of erosion would indicate significant loss and the SMP makes recommendations for appropriate management of this.

Economic Assessment
Policy development Zone (PDZ)6
Location: Saltburn to Huntcliff

Management Area (MA): 16
Policy Units (PU): 16.1

DAMAGES

Scenario: **No ACTIVE INTERVENTION**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			0	0	0	0	0	69
Continuing erosion of agricultural land						2,192		
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
							Total Damages	69

Other information

Source: .	PV value (£k)
Notes: ...	Total NAI Damages (£k) 69

Scenario: **WITH PRESENT MANAGEMENT**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			. No damages					0
Continuing erosion of agricultural land						2,192		69
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
							Total Damages	69

Other information

Source: .	PV value (£k)
Notes: ...	Total WPM Damages (£k) 69

Economic Assessment
Policy development Zone (PDZ)5
Location: Saltburn to Huntcliff

Management Area (MA): 16
Policy Units (PU): 16.1

Scenario: **PREFERRED POLICY**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			Assumes flood defence maintained.				No damages	0
Continuing erosion of agricultural land							2.192	69
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Additional damages: Potential threat to railway.								0
Total Damages								69

COSTS

Present management assessment

Source:	PV value (£k)
	0
Notes:	

Preferred Policy

Description	PV value (£k)
	0
Notes:..	

RECONCILIATION

No coast protection works are recommended, although the risk to the railway needs to be examined further with the possible benefit of cliff crest stabilisation.

Economic Assessment

Policy development Zone (PDZ)6

Location: Huntcliff to Hummersea Cliffs

Management Area (MA): 17

Policy Units (PU): 17.1, 17.2, 17.3

Page 1 of 2

DAMAGES

Scenario: **No ACTIVE INTERVENTION**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			0	0	0	0	0	5
Continuing erosion of agricultural land							153	
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	9	1,315	154
							Total Damages	159

Other information

Source: Skinningrove Coastal Defences Scheme strategy Plan: Mouchel (2006)	PV value (£k)
.The strategy identifies damages not taken account of by MDSF. These include overtopping flood damages, together with loss of the eastern wall. The strategy also identifies further damages, not evaluated, in relation to loss of coastal path and impact on the village due to instability of coastal slope arising from future coastal erosion.	8,847
Notes: The damages identified in the strategy are taken as being more representative of the impact on the village..	Total NAI Damages (£k) 8,847

Scenario: **WITH PRESENT MANAGEMENT**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			. No damages					0
Continuing erosion of agricultural land							0	0
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
							Total Damages	0

Other information

Source: Skinningrove Coastal Defences Scheme strategy Plan: Mouchel (2006)	PV value (£k)
.	1756
Notes: With present management is defined by that proposed in the strategy.	Total WPM Damages (£k) 1756

Economic Assessment

Policy development Zone (PDZ)6

Management Area (MA): 17

Location: Huntcliff to Hummersea Cliffs

Policy Units (PU): 17.1, 17.2, 17.3

Scenario: **PREFERRED POLICY**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			Assumes flood defence maintained.				No damages	0
Continuing erosion of agricultural land							0	0
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Additional damages: .As defined in strategy,								1756
							Total Damages	1756

COSTS

Present management assessment

Source: Skinningrove Coastal Defences Scheme strategy Plan: Mouchel (2006) Based on strategy allowing for maintenance over 100 years	PV value (£k) 1361
Notes:	

Preferred Policy

Description As with present management defined by strategy	PV value (£k) 1361
Notes:..	

RECONCILIATION

Protection works to sustain village and associated recreational, environmental and tourism assets are justified economically.

Economic Assessment
Policy development Zone (PDZ)7
Location: Hummersea to Cowbar

Management Area (MA): 18
Policy Units (PU): 18.1

DAMAGES

Scenario: **No ACTIVE INTERVENTION**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			0	0	0	0	0	5
Continuing erosion of agricultural land						0		
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	1	146	24
Total Damages								24

Other information

Source:	PV value (£k)
	0
Notes:	Total NAI Damages (£k)
	24

Scenario: **WITH PRESENT MANAGEMENT**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)	
Flooding damages			. No damages					0	
Continuing erosion of agricultural land						0	0	0	
Present value of erosion									
0-20 yrs			20 to 50 yrs			50 to 100 yrs			
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	
0	0	0	0	0	0	1	146	24	
Total Damages								24	

Other information

Source:	PV value (£k)
.	0
Notes:	Total WPM Damages (£k)
	24

Economic Assessment

Policy development Zone (PDZ)7

Location: Hummersea to Cowbar

Management Area (MA): 18

Policy Units (PU): 18.1

Page 2 of 2

Scenario: **PREFERRED POLICY**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			Assumes flood defence maintained.				No damages	0
Continuing erosion of agricultural land							0	0
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	1	146	24
Additional damages: .Cowbar lane is to be set as erosion dictates,								0
Total Damages								24

COSTS

Present management assessment

Source:	PV value (£k)
No defence planned	0
Notes:	

Preferred Policy

Description	PV value (£k)
No defence planned	0
Notes:..	

RECONCILIATION

Limited assets at risk. Technically difficult to address erosion.

Economic Assessment
Policy development Zone (PDZ)7
Location: Cowbar to Staithes

Management Area (MA): 19
Policy Units (PU): 19.1, 19.2, 19.3

DAMAGES

Scenario: **No ACTIVE INTERVENTION**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			14	87,398	5	111,640	199,038	6,254
Continuing erosion of agricultural land							519	
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
5	501	252	20	2,814	725	67	9320	919
Total Damages								8150

Other information

Source: 1) Cowbar Coast Protection and Cliff Stabilization Strategy; High Point Rendell, 1999. 2) Staithes Harbour Improvements Phase 3; High Point Rendell 1999.	PV value (£k)
1) Strategy takes into account consequential loss associated with loss of Cowbar Lane.	126,200
2) based on potential failure of breakwaters, including flood risk due to overtopping.	9,622
Notes: Works undertaken since strategies and revised erosion rates therefore MDSF values taken as indicative damages	Total NAI Damages (£k) 8,150

Scenario: **WITH PRESENT MANAGEMENT**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			continued flood risk in years 0-5				199,038	1,097
Continuing erosion of agricultural land							0	0
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Total Damages								1,097

Other information

Source: 1) Cowbar Coast Protection and Cliff Stabilization Strategy; High Point Rendell, 1999. 2) Staithes Harbour Improvements Phase 3; High Point Rendell 1999.	PV value (£k)
.Strategies developed over 50 years. Assumed with present management policy would be to maintain defence over 100 years	0
Notes:	Total WPM Damages (£k) 1,097

Economic Assessment
Policy development Zone (PDZ)7
Location: Cowbar to Staithes

Management Area (MA): 19
Policy Units (PU): 19.1, 19.2, 19.3

Scenario: **PREFERRED POLICY**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			Assumes flooding is addressed in year 5.				199,038	1,097
Continuing erosion of agricultural land							0	0
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	3	438	99	0	0	0
Additional damages:								0
Total Damages								1,196

COSTS

Present management assessment

<p>Source: .: 1) Cowbar Coast Protection and Cliff Stabilization Strategy; High Point Rendell, 1999. 2) Staithes Harbour Improvements Phase 3; High Point Rendell 1999.</p> <p>Strategies have been taken forward with some further work identified in year five. The strategies only project forward 50 years and do not therefore provide a longer term assessment of costs.</p>	PV value (£k)
Notes:	

Preferred Policy

<p>Description</p> <p>Based on the current strategies. Additional works have been allowed in year 50.</p>	PV value (£k)
Notes:..	444

RECONCILIATION

The early works to alleviate flooding are shown to be economically viable. Future works to the defence of the whole area will depend critically on monitored rates of erosion. The SMP2 assessment demonstrates a sensible balance between possible costs and anticipated benefits to justify the preferred policy.

Economic Assessment

Policy development Zone (PDZ)7

Location: Staithes to Cobble Dump

Management Area (MA): 20

Policy Units (PU): 20.1, 20.2, 20.3

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DAMAGES

Scenario: **No ACTIVE INTERVENTION**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			0	0	0	0	0	
Continuing erosion of agricultural land						0		
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Total Damages								0

Other information

Source	PV value (£k)
Possible loss of property at Port Mulgrave and loss of harbour area. Not evaluated	0
Notes:	Total NAI Damages (£k)
	0

Scenario: **WITH PRESENT MANAGEMENT**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages							0	0
Continuing erosion of agricultural land						0	0	
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Total Damages								0

Other information

Source:	PV value (£k)
. Possible loss of property at Port Mulgrave and loss of harbour area. Not evaluated	0
Notes:	Total WPM Damages (£k)
	0

Economic Assessment

Policy development Zone (PDZ)7
Location: Staithes to Cobble Dump

Management Area (MA): 20
Policy Units (PU): 20.1, 20.2, 20.3

Scenario: **PREFERRED POLICY**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages								
Continuing erosion of agricultural land						0		
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Additional damages:								0
Total Damages								0

COSTS

Present management assessment

Source: :. No costs identified.	PV value (£k)
Notes:	

Preferred Policy

Description Recommendations for further investigation of potential damages, but with no anticipated cost for defence at present.	PV value (£k)
Notes:..	

RECONCILIATION

No identified benefit in undertaking defence.

Economic Assessment

Policy development Zone (PDZ)7

Location: Cobble Dump to Sandsend Ness

Management Area (MA): 21

Policy Units (PU): 21.1, 21.2, 21.3

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DAMAGES

Scenario: **No ACTIVE INTERVENTION**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			0	0	0	0	0	91
Continuing erosion of agricultural land						2,904		
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	2	292	66	7	1,023	68
Total Damages								161

Other information

Source: Runswick Bay Coast Protection and Cliff Stabilisation Emergency works 1998, High Point Rendell	PV value (£k)
The strategy identifies that sea wall failure may trigger major landslips. Damages include tourism, properties, road access and services, but exclude loss of properties identified at risk to south of Runswick Bay village.	17,708
Notes: Strategy damages reflect better the value of the village than would MDSF. Properties outside the strategy area are included in NAI damages.	Total NAI Damages (£k) 17,925

Scenario: **WITH PRESENT MANAGEMENT**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages						0	0	91
Continuing erosion of agricultural land						2,904		
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	2	292	66	0	0	0
Total Damages								157

Other information

Source: Runswick Bay Coast Protection and Cliff Stabilisation Emergency works 1998, High Point Rendell	PV value (£k)
assumes strategy addresses damages to the village.	0
Notes:	Total WPM Damages (£k) 157

Economic Assessment

Policy development Zone (PDZ)7

Management Area (MA): 21

Location: Cobble Dump to Sandsend Ness

Policy Units (PU): 21.1, 21.2, 21.3

Scenario: **PREFERRED POLICY**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages								91
Continuing erosion of agricultural land						2,904		
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	2	292	66	0	0	0
Additional damages:								66
Total Damages								157

COSTS

Present management assessment

Source: Runswick Bay Coast Protection and Cliff Stabilisation Emergency works 1998, High Point Rendell Recommended early works in terms of a breakwater and more minor revetment	PV value (£k)
	2,456
Notes:	

Preferred Policy

Description the preferred policy at Runswick Bay would be as recommended by the strategy. Additional costs are include for further work in year 50.	PV value (£k)
	2,970
Notes:..	

RECONCILIATION

There is a strong economic and social justification for defence measures.

Economic Assessment

Policy development Zone (PDZ)8

Location: Sandsend Ness to Uppgang Beck

Management Area (MA): 22

Policy Units (PU): 22.1, 22.2, 22.3, 22.4

Page 1 of 2

DAMAGES

Scenario: **No ACTIVE INTERVENTION**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			0	0	0	0	0	
Continuing erosion of agricultural land						0		
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	13	1,900	442	45	6,099	557
							Total Damages	1000

Other information

Source: Whitby Coastal Study Sandsend to Abbey Cliff Strategy 2002, High Point Rendell	PV value (£k)
The strategy includes damages based on amenity, overtopping and traffic disruption. A significant element of these values is attributable to loss of the road.	237,060
Notes: The strategy identifies significant damages not included in MDSF. However, in assessing policy the SMP focuses on the long term damages associated with the property of the village. While recognising MDSF damages under estimates the potential economic consequence of NAI this figure is used for indicative purposes..	Total NAI Damages (£k) 1000

Scenario: **WITH PRESENT MANAGEMENT**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages							0	0
Continuing erosion of agricultural land							0	0
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
							Total Damages	0

Other information

Source: .damages associated with erosion of the golf course are not included	PV value (£k)
Notes:	Total WPM Damages (£k) 0

Economic Assessment

Policy development Zone (PDZ)7

Location: Sandsend Ness to Upgang Beck

Management Area (MA): 22

Policy Units (PU): 22.1, 22.2, 22.3, 22.4

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Scenario: **PREFERRED POLICY**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages								0
Continuing erosion of agricultural land								
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0				0	0	0
Additional damages: The SMP recommends further examination of possible benefits in re-routing the coast road. Policy recommends maintaining defence of Sandsend Village. Damages to the golf course are not evaluated.								0
Total Damages								0

COSTS

Present management assessment

Source: Whitby Coastal Study Sandsend to Abbey Cliff Strategy 2002, High Point Rendell Estimated costs from the strategy	PV value (£k) 9,000
Notes:	

Preferred Policy

Description Works are allowed for to the village in years 35 and 55. The extent and nature of works would depend on further examination of possible road options.	PV value (£k) 2,603
Notes..	

RECONCILIATION

The MDSF damages do not include for overtopping nor for direct disruption to the village with respect to loss of the road, access to properties and car parks or tourism. Loss of direct assets would not fully justify long term continued defence of the village. It is believed in comparing this result with that of the strategy, however, that the significant intangible assets, the threat of flooding due to overtopping and the social consequence would provide a robust justification.

Economic Assessment

Policy development Zone (PDZ)8

Location: Uppang Beck to Whitby Abbey

Management Area (MA): 23

Policy Units (PU): 23.1, 23.2, 23.3

Page 1 of 2

DAMAGES

Scenario: **No ACTIVE INTERVENTION**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			191	1,031	192	4,827,234	5,859,214	183,219
Continuing erosion of agricultural land							0	
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
8	1,169	588	15	2,192	743	92	11,907	995
Total Damages								185,218

Other information

Source: Whitby Coastal Study Sandsend to Abbey Cliff Strategy 2002, High Point Rendell	PV value (£k)
The strategy includes damages based on amenity, overtopping in addition to direct loss, but excludes flood damages within the harbour.	237,060
Notes: Both MDSF and the strategy identify high level of damages unde NAI	Total NAI Damages (£k)
	185,218

Scenario: **WITH PRESENT MANAGEMENT**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			Not assessed in MDSF assumed to be addressed				0	0
Continuing erosion of agricultural land							0	
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Total Damages								0

Other information

Source:	PV value (£k)
	0
Notes:	Total WPM Damages (£k)
	0

Economic Assessment

Policy development Zone (PDZ)7

Location: Uppang Beck to Whitby Abbey

Management Area (MA): 23

Policy Units (PU): 23.1, 23.2, 23.3

Page 2 of 2

Scenario: **PREFERRED POLICY**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)	
Flooding damages			Flooding addressed under the policy						0
Continuing erosion of agricultural land									
Present value of erosion			20 to 50 yrs			50 to 100 yrs			
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	
0	0	0				0	0	0	
Additional damages: Policy is to hold the line in areas at risk								0	
Total Damages								0	

COSTS

Present management assessment

Source: Whitby Coastal Study Sandsend to Abbey Cliff Strategy 2002, High Point Rendell Estimated costs from the strategy	PV value (£k) 13.415
Notes:	

Preferred Policy

Description Further detailed study of the area is being undertaken, at present costs are based on earlier study..	PV value (£k) 13,415
Notes:..	

RECONCILIATION

The significance of Whitby is reflected in the high assessed damages. There is good economic justification fro policy of sustaining the defences.

Economic Assessment

Policy development Zone (PDZ)8

Location: Whitby Abbey to Saltwick Nab

Management Area (MA): 24

Policy Units (PU): 24.1

Page 1 of 2

DAMAGES

Scenario: **No ACTIVE INTERVENTION**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			0	0	0	0	0	0
Continuing erosion of agricultural land						0		
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Total Damages								0

Other information

Source:	PV value (£k)
	0
Notes:	Total NAI Damages (£k)
	0

Scenario: **WITH PRESENT MANAGEMENT**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages							0	0
Continuing erosion of agricultural land						0		
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Total Damages								0

Other information

Source:	PV value (£k)
	0
Notes:	Total WPM Damages (£k)
	0

Economic Assessment

Policy development Zone (PDZ)7

Location: Whitby Abbey to Saltwick Nab

Management Area (MA): 24

Policy Units (PU): 24.1

Page 2 of 2

Scenario: **PREFERRED POLICY**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)	
Flooding damages			Flooding addressed under the policy						0
Continuing erosion of agricultural land									
Present value of erosion			20 to 50 yrs			50 to 100 yrs			
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	
0	0	0				0	0	0	
Additional damages:								0	
Total Damages								0	

COSTS

Present management assessment

Source:	PV value (£k)
Notes:	

Preferred Policy

Description	PV value (£k)
Notes..	

RECONCILIATION

No significant assets at risk..

Economic Assessment

Policy development Zone (PDZ)9

Location: Saltwick Nab to Hundale Point

Management Area (MA): 25

Policy Units (PU): 25.1, 25.2

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DAMAGES

Scenario: **No ACTIVE INTERVENTION**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			1	9,254	1	41,900	51,154	1,768
Continuing erosion of agricultural land							5,283	
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
2	292	147	16	2,054	510	132	17,074	1,303
Total Damages								3,728

Other information

Source: Robin Hoods Bay – Coastal Protection and Cliff Stabilization 1999; High Point Rendell The strategy identifies a high risk of land slip affect properties.	PV value (£k)
	20,864
Notes:	Total NAI Damages (£k)
	3,728

Scenario: **WITH PRESENT MANAGEMENT**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			Not assessed in MDSF				0	0
Continuing erosion of agricultural land							0	0
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Total Damages								0

Other information

Source: Robin Hoods Bay – Coastal Protection and Cliff Stabilization 1999; High Point Rendell Assume no damages	PV value (£k)
	0
Notes:	Total WPM Damages (£k)
	0

Economic Assessment

Page 2 of 2

Policy development Zone (PDZ)9

Management Area (MA): 25

Location: Saltwick Nab to Hundale Point

Policy Units (PU): 25.1, 25.2

Scenario: **PREFERRED POLICY**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			Flooding addressed under the policy				0	0
Continuing erosion of agricultural land								
Present value of erosion			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
2	292	147	3	296	81	4	584	33
Additional damages:								0
Total Damages								260

COSTS

Present management assessment

Source: Robin Hoods Bay – Coastal Protection and Cliff Stabilization 1999; High Point Rendell Minor works recommended to improve stability to slope to village.	PV value (£k)
	150
Notes:	

Preferred Policy

Description As for the strategy with additional maintenance costs over 100 year	PV value (£k)
	180
Notes..	

RECONCILIATION

There is economic justification for improving defence and stability where this impacts on the main town. At the northern end of village major works would be required to protect property. This would not be economically justified. Defence works elsewhere in the area are not economically sensible.

Economic Assessment

Policy development Zone (PDZ)10

Location: Hundale Point to Scalby Ness

Management Area (MA): 26

Policy Units (PU): 26.1

Page 1 of 2

DAMAGES

Scenario: **No ACTIVE INTERVENTION**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			0	0	0	0	0	0
Continuing erosion of agricultural land							607	19
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Total Damages								19

Other information

Source: Robin Hoods Bay – Coastal Protection and Cliff Stabilization 1999; High Point Rendell The strategy identifies a high risk of land slip affect properties.	PV value (£k) 20,864
Notes:	Total NAI Damages (£k) 3,728

Scenario: **WITH PRESENT MANAGEMENT**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages							0	0
Continuing erosion of agricultural land							607	19
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Total Damages								19

Other information

Source:	PV value (£k) 0
Notes:	Total WPM Damages (£k) 19

Economic Assessment

Policy development Zone (PDZ)10

Location: Hundale Point to Scalby Ness

Management Area (MA): 26

Policy Units (PU): 26.1

Page 2 of 2

Scenario: **PREFERRED POLICY**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages							0	0
Continuing erosion of agricultural land								
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Additional damages:								0
Total Damages								0

COSTS

Present management assessment

Source:	PV value (£k)
No works planned	0
Notes:	

Preferred Policy

Description	PV value (£k)
no active intervention	
Notes..	

RECONCILIATION

Apart from general slow loss of agriculture there are no assets at risk.

Economic Assessment

Policy development Zone (PDZ)10

Location: Scalby Ness to Castle Cliff

Management Area (MA): 27

Policy Units (PU): 27.1, 27.2

DAMAGES

Scenario: **No ACTIVE INTERVENTION**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			0	0	4	46,683	46,683	1,462
Continuing erosion of agricultural land								
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Total Damages								1,462

Other information

Source: Holbeck – Scalby Mills, Coastal Defence Strategy, 1999, High Point Rendell	PV value (£k)
The strategy includes an assessment of damages associated with amenity and traffic disruption. Some works have been undertaken to alleviate these damages.	35,835
Review of strategy (2006) has identified increased damages	641,000
Notes: A review of the current state of defences is required to determine current damages, at present those based on MDSF are taken, recognising that they in all likelihood under estimate values at risk.	Total NAI Damages (£k)
	1,462

Scenario: **WITH PRESENT MANAGEMENT**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			Assumes reduction in overtopping and alleviation of flooding				0	0
Continuing erosion of agricultural land							0	
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Total Damages								0

Other information

Source: Holbeck – Scalby Mills, Coastal Defence Strategy, 1999, High Point Rendell	PV value (£k)
Assumes assets are protected	0
Notes:	Total WPM Damages (£k)
	0

Economic Assessment

Policy development Zone (PDZ)10

Management Area (MA): 27

Location: Scalby Ness to Castle Cliff

Policy Units (PU): 27.1, 27.2

Scenario: **PREFERRED POLICY**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			Policy aims to reduce flood risk				0	0
Continuing erosion of agricultural land								
Present value of erosion			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Additional damages: Some over topping damage may still occur.								0
Total Damages								0

COSTS

Present management assessment

Source: Holbeck – Scalby Mills, Coastal Defence Strategy, 1999, High Point Rendell Urgent emergency repair schemes are identified for the frontage	PV value (£k) 3,400
Review of strategy(2006) identifies increased costs	25,600
Notes:	

Preferred Policy

Description Costs are based on those reported in the initial strategy although actual works may differ. Additional costs are assumed for year 50. Costs updated by reviewed strategy	PV value (£k) 3,693 25,600
Notes:..	

RECONCILIATION

There are recognised to be additional benefits associated with the frontage beyond those identified by MDSF. The justification for the policy of holding the line would rely on both amenity benefits and avoidance of traffic disruption. In addition there are specific features of the frontage such as the Sea Life Centre which have a broader tourism benefit to the area. Economic assessment needs have been reviewed and significant benefits identified.

Economic Assessment

Policy development Zone (PDZ)10

Location: Castle Cliff to White Nab

Management Area (MA): 28

Policy Units (PU): 28.1, 28.2, 28.3, 28.4, 28.5

Page 1 of 2

DAMAGES

Scenario: **No ACTIVE INTERVENTION**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			3	1,039	105	1,930,096	1,931,135	60,518
Continuing erosion of agricultural land								
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
73	2,816	1,477	0	0	0	12	1,364	54,887
Total Damages								62,050

Other information

Source: Holbeck – Scalby Mills, Coastal Defence Strategy, 1999, High Point Rendell	PV value (£k)
The strategy includes an assessment of damages associated with amenity and traffic disruption.	247,314
The review of strategy (2006) increases potential damages	£515,000
Notes: A review of the current state of defences is required to determine current damages, at present those based on MDSF are taken, recognising that they in all likelihood underestimate values at risk.	Total NAI Damages (£k)
	62,050

Scenario: **WITH PRESENT MANAGEMENT**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			flood risk remains until scheme is put in place				1,931,135	10,649
Continuing erosion of agricultural land							0	0
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Total Damages								10,649

Other information

Source: Holbeck – Scalby Mills, Coastal Defence Strategy, 1999, High Point Rendell	PV value (£k)
Assumes assets are protected	0
Notes:	Total WPM Damages (£k)
	10,649

Economic Assessment

Policy development Zone (PDZ)10
Location: Castle Cliff to White Nab

Management Area (MA): 28

Policy Units (PU): 28.1, 28.2, 28.3, 28.4, 28.5

Scenario: **PREFERRED POLICY**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			as WPM				1,931,135	10,649
Continuing erosion of agricultural land								
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Additional damages: As WPM.								0
Total Damages								10,649

COSTS

Present management assessment

Source:	PV value (£k)
Holbeck – Scalby Mills, Coastal Defence Strategy, 1999, High Point Rendell	15,700
Proposed improvement to defences	35,300
Review of strategy identifies increased costs.	
Notes:	

Preferred Policy

Description	PV value (£k)
Costs based on reviewed strategy with maintenance costs over 100 years	35,300
Notes:..	

RECONCILIATION

There is shown to be good justification for the hold the line policy to the main area of Scarborough. Economic assessment has been reviewed in strategy (2006).

Economic Assessment

Policy development Zone (PDZ)11

Location: White Nab to Cayton Bay

Management Area (MA): 29

Policy Units (PU): 29.1, 29.2, 29.3

DAMAGES

Scenario: **No ACTIVE INTERVENTION**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages								51
Continuing erosion of agricultural land						1,641		
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
1	146	100	10	1,461	409	43	6,283	712
							Total Damages	1,271

Other information

Source: Cayton Bay Strategy Study; 2002 Halcrow	PV value (£k)
The strategy identifies damages associated with specific erosion rather than projected potential land slip.	664
Notes: NAI damages based on strategy with allowance of loss of land.	Total NAI Damages (£k)
	686

Scenario: **WITH PRESENT MANAGEMENT**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages								51
Continuing erosion of agricultural land						1,641		
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
1	146	100	10	1,461	409	43	6,283	712
							Total Damages	1,271

Other information

Source: Cayton Bay Strategy Study; 2002 Halcrow	PV value (£k)
The strategy identifies damages associated with specific erosion rather than projected potential land slip.	664
Notes: NAI damages based on strategy with allowance of loss of land.	Total WPM Damages (£k)
	686

Economic Assessment

Policy development Zone (PDZ)11

Location: White Nab to Cayton Bay

Management Area (MA): 29

Policy Units (PU): 29.1, 29.2, 29.3

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Scenario: **PREFERRED POLICY**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)	
Flooding damages			as WPM						51
Continuing erosion of agricultural land								1,641	
Present value of erosion									
0-20 yrs			20 to 50 yrs			50 to 100 yrs			
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	
1	146	100	10	1,461	409	43	6,283	712	
Additional damages: As WPM. NAI damages based on strategy with allowance of loss of land								0	
Total Damages								686	

COSTS

Present management assessment

Source:	PV value (£k)
Cayton Bay Strategy Study; 2002 Halcrow no works proposed	0
Notes:	

Preferred Policy

Description	PV value (£k)
Costs associated with management of access	59
Notes..	

RECONCILIATION

While there is no justification for sustainable defence to the area, from an amenity aspect work is believed to be justified in maintaining access..

Economic Assessment

Policy development Zone (PDZ)11

Location: Cayton Bay to Filey Brigg

Management Area (MA): 30

Policy Units (PU): 30.1, 30.2

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DAMAGES

Scenario: **No ACTIVE INTERVENTION**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages								0
Continuing erosion of agricultural land						0		
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Total Damages								0

Other information

Source:	PV value (£k)
Losses arising from caravan parks not identified in MDSF.	
Notes: d.	Total NAI Damages (£k)
	0

Scenario: **WITH PRESENT MANAGEMENT**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages								0
Continuing erosion of agricultural land						0		
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Total Damages								0

Other information

Source:	PV value (£k)
Losses arising from caravan parks not identified in MDSF	
Notes:	Total WPM Damages (£k)
	0

Economic Assessment

Policy development Zone (PDZ)11
Location: Cayton Bay to Filey Brigg

Management Area (MA): 30
Policy Units (PU): 30.1, 30.2

Page 2 of 2

Scenario: **PREFERRED POLICY**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			as WPM					0
Continuing erosion of agricultural land						0		
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Additional damages: No account taken on loss from caravan parks								0
Total Damages								0

COSTS

Present management assessment

Source:	PV value (£k)
Cayton Bay Strategy Study; 2002 Halcrow no works proposed	0
Notes:	

Preferred Policy

Description	PV value (£k)
NAI	0
Notes..	

RECONCILIATION

There is no justification for sustainable defence to the area.

Economic Assessment

Policy development Zone (PDZ)12

Location: Filey Brigg to Muston Sands

Management Area (MA): 31

Policy Units (PU): 31.1, 31.2, 31.3

Page 1 of 2

DAMAGES

Scenario: **No ACTIVE INTERVENTION**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages								0
Continuing erosion of agricultural land						0		
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
1	146	100	10	1,461	409	43	6,284	712
Total Damages								0

Other information

Source:	PV value (£k)
Filey Bay Coastal Defence Strategy Study, 2002, Halcrow Two scenarios are put forward based on damages arising from outflanking of Filey sea wall and the failure of the wall. The latter takes account of coastal slope instability .	5,031
Notes: The strategy identifies additional damages the NAI damage are based on this.	Total NAI Damages (£k) 5,113

Scenario: **WITH PRESENT MANAGEMENT**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages								0
Continuing erosion of agricultural land						0		
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Total Damages								0

Other information

Source:	PV value (£k)
Filey Bay Coastal Defence Strategy Study, 2002, Halcrow	0
Notes:	Total WPM Damages (£k) 0

Economic Assessment

Policy development Zone (PDZ)12

Location: Filey Brigg to Muston Sands

Management Area (MA): 31

Policy Units (PU): 31.1, 31.2, 31.3

Page 2 of 2

Scenario: **PREFERRED POLICY**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			as WPM					0
Continuing erosion of agricultural land						0		
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Additional damages: No account taken on loss of recreational assets at cliff crest								0
Total Damages								0

COSTS

Present management assessment

Source: Filey Bay Coastal Defence Strategy Study, 2002, Halcrow Works only include short term works to address outflanking.	PV value (£k) 164
Notes:	

Preferred Policy

Description In addition to strategy costs allowance is made for works to the main wall in year 40.	PV value (£k) 1,278
Notes..	

RECONCILIATION

There is good economic justification for a policy of hold the line at Filey, but as identified in the strategy there is little realistic benefit in maintaining defence to north or south.

Economic Assessment

Policy development Zone (PDZ)11

Location: Muston Sands to Speeton

Management Area (MA): 32

Policy Units (PU): 32.1, 32.2, 32,3

Page 1 of 2

DAMAGES

Scenario: **No ACTIVE INTERVENTION**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages								13
Continuing erosion of agricultural land						427		
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
4	584	294	10	1,461	399	59	8,622	866
							Total Damages	1,572

Other information

Source: Filey Bay Coastal Defence Strategy Study, 2002, Halcrow damages identified by strategy.	PV value (£k)
	1,730
Notes: MDSF identifies damages to the south in addition to those taken by the strategy.	Total NAI Damages (£k)
	1,928

Scenario: **WITH PRESENT MANAGEMENT**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages								13
Continuing erosion of agricultural land						427		
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
4	584	294	10	1,461	399	59	8,622	866
							Total Damages	1,572

Other information

Source: Filey Bay Coastal Defence Strategy Study, 2002, Halcrow damages identified by strategy.	PV value (£k)
	1,730
Notes: MDSF identifies damages to the south in addition to those taken by the strategy.	Total WPM Damages (£k)
	1,928

Economic Assessment

Policy development Zone (PDZ)12

Location: Muston Sands to Speeton

Management Area (MA): 32

Policy Units (PU): 32.1, 32.2, 32,3

Page 2 of 2

Scenario: **PREFERRED POLICY**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)	
Flooding damages			as WPM						13
Continuing erosion of agricultural land								427	
Present value of erosion			20 to 50 yrs			50 to 100 yrs			
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	
4	584	294	10	1,461	399	59	8,622	866	
Additional damages: damages based on strategy								1,928	
Total Damages								1,928	

COSTS

Present management assessment

Source:	PV value (£k)
Filey Bay Coastal Defence Strategy Study, 2002, Halcrow no works proposed. Short term works examined but found not to be economically justified.	0
Notes:	

Preferred Policy

Description	PV value (£k)
NAI	0
Notes..	

RECONCILIATION

No economic justification for public funding of works.

Economic Assessment

Policy development Zone (PDZ)12

Location: Speeton to Flamborough Head

Management Area (MA): 33

Policy Units (PU): 33.1, 33.2, 33.3, 33.4

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DAMAGES

Scenario: **No ACTIVE INTERVENTION**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages								273
Continuing erosion of agricultural land						8,715		
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Total Damages								273

Other information

Source: .No assessment made as to damages at North Landing or Flamborough	PV value (£k)
Notes:.	Total NAI Damages (£k) 273

Scenario: **WITH PRESENT MANAGEMENT**

MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages								273
Continuing erosion of agricultural land						8,715		
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Total Damages								273

Other information

Source: No assessment made as to damages at North Landing or Flamborough	PV value (£k)
Notes:	Total WPM Damages (£k) 273

Economic Assessment

Policy development Zone (PDZ)12

Management Area (MA): 33

Location: Speeton to Flamborough Head

Policy Units (PU): 33.1, 33.2, 33.3, 33.4

Scenario: **PREFERRED POLICY**
MDSF Assessment

Annual average damages (AAD):			Residential (No.)	AAD residential (£)	Commercial (No.)	AAD commercial (£)	Total AAD (£)	Total Present Value (£k)
Flooding damages			as WPM					273
Continuing erosion of agricultural land						8,715		
Present value of erosion								
0-20 yrs			20 to 50 yrs			50 to 100 yrs		
No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)	No. properties	Total Valuation (£k)	PV for epoch (£k)
0	0	0	0	0	0	0	0	0
Additional damages: No assessment made as to damages at North Landing or Flamborough								0
Total Damages								273

COSTS

Present management assessment

Source:	PV value (£k)
no works proposed	0
Notes:	

Preferred Policy

Description	PV value (£k)
NAI	0
Notes..	

RECONCILIATION

There may be local justification for works to support structures at North Landing