


-SOUTHERN Box 8



planning for the future

A wide-angle photograph of a coastal town and marina. The foreground shows a grassy hillside. In the middle ground, a large marina is filled with numerous sailboats. The town extends to the water's edge, and rolling hills are visible in the background under a cloudy sky.

River Ouse to Seaford Head
Coastal defence strategy

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introduction

This information booklet summarises the key findings and recommendations of the River Ouse to Seaford Head Coastal defence strategy.

The strategy is a long term plan that establishes how the Environment Agency will manage flood risk on the River Ouse downstream of Lewes and on the coast between Newhaven and Seaford.

This strategy recommends that the urban areas of Newhaven and Seaford are defended against flooding to a standard of 1:100. All other areas will have a minimum defence standard of 1:10.

This is broadly similar to the standard of protection currently afforded and will take account of the likely impact of climate change. A 1:100 standard equates to a 1 per cent probability of flooding in any one year and a 1:10 standard equates to a 10 per cent probability of flooding in any one year. Implementation is subject to the availability of central government funding.

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why do we need a strategy?

The River Ouse is retained within raised flood defence embankments which protect low-lying areas of Newhaven and isolated properties within the floodplain. Similarly, low-lying areas of Newhaven and Seaford are defended against coastal erosion and flooding by a sea wall and shingle beach which is regularly maintained.

Having a strategy allows us to consider flood risk management in an integrated manner, plan for future investment and inform others what our plans and constraints are. The strategy also supports our application for funding from central government.

During the course of preparing the strategy, we have consulted with approximately 70 groups representing local interests and we are confident that our proposals are beneficial to the communities we are protecting.

Throughout the development of this strategy, we have followed government guidelines on climate change, environmental protection and financial investment.

The strategy will be submitted to the Department for Environment, Food and Rural Affairs (Defra) and the Treasury for funding approval before we can formally adopt it and carry out the proposed works.

Newhaven



what we are going to do

Our proposed options for managing the flood defences are outlined below. When selecting these, a number of alternatives were considered and ruled out as described later.



Looking east to Seaford from Castle Hill

Seaford – continue with shingle recycling scheme

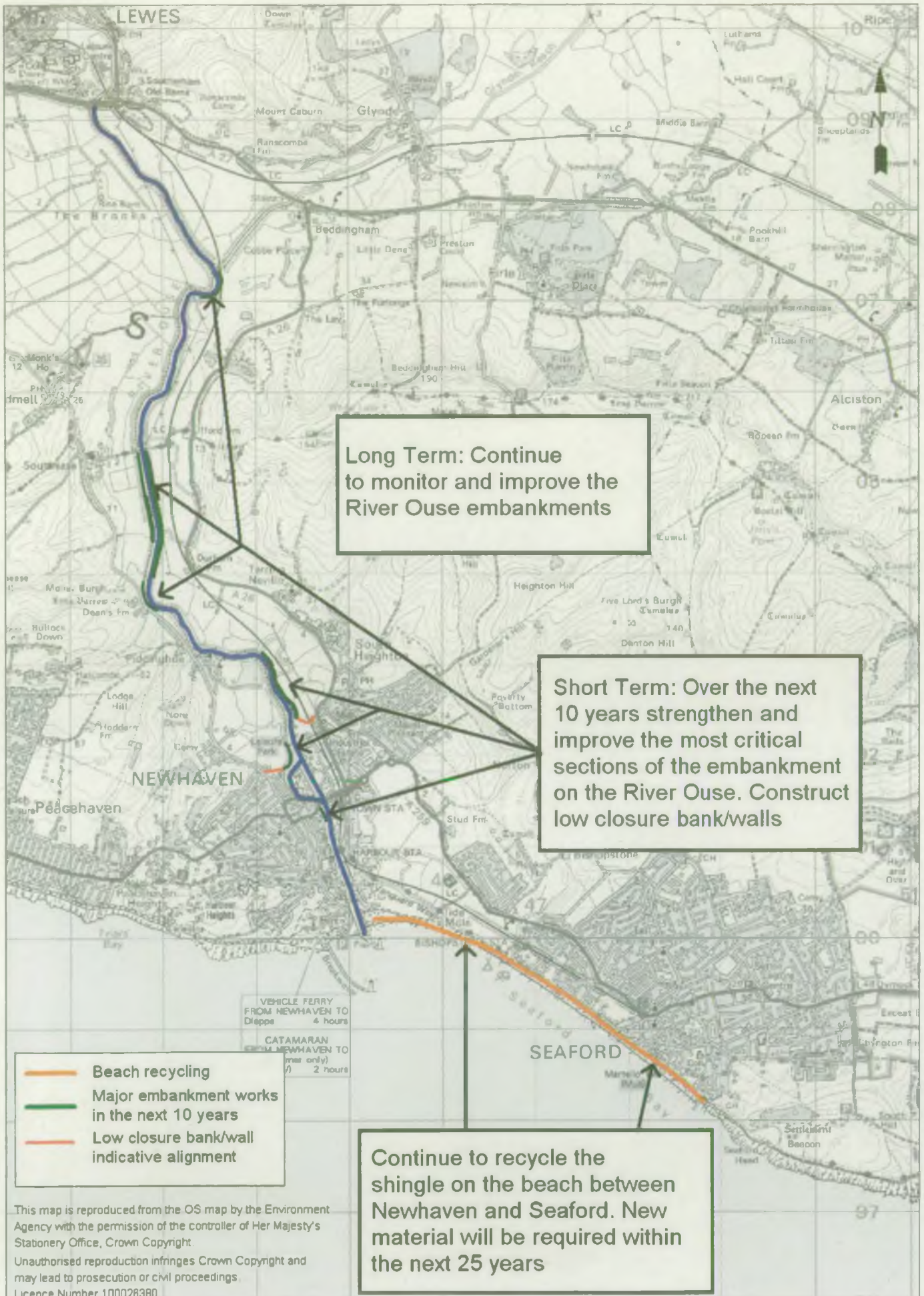
Shingle recycling is the most cost effective option for defending the coastline and has the least environmental impact. The current bi-annual recycling campaign will continue and additional shingle will be placed on the beach to make up for small losses and protect against rising sea levels, when required.

Lewes Brooks through to Newhaven – continue to maintain existing flood defences

The flood embankments retaining the river will be repaired and maintained on their existing alignment. New flood defence embankments will be constructed on either side of the river, north of Newhaven to separate the urban and rural flood plains.



Lewes Brooks and the South Downs



Long Term: Continue to monitor and improve the River Ouse embankments

Short Term: Over the next 10 years strengthen and improve the most critical sections of the embankment on the River Ouse. Construct low closure bank/walls

Continue to recycle the shingle on the beach between Newhaven and Seaford. New material will be required within the next 25 years

- Beach recycling
- Major embankment works in the next 10 years
- Low closure bank/wall indicative alignment

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how we made choices

In June 2005 we issued a consultation leaflet to 70 organisations with an interest in water, conservation or environmental issues. These groups included local parish councils, recreation groups, conservation organisations and statutory government bodies.

The consultation leaflet outlined all of the flood management options being considered for the study area and sought advice and preferences. The option preferred by most organisations was to continue to maintain river defences and shingle recycling on the coast. This is the recommendation of our strategy.

Nature conservation groups preferred realignment of the river defences leading to some areas reverting to inter-tidal habitat such as saltmarsh and mudflats.

We used the feedback on this document and our own assessments (described on page 10) to choose the options that would become our strategy.

Options available

We included 'no active intervention' and 'do minimum' options to see what would happen if we abandoned the defences or only provided minor repairs without any improvement. Under these scenarios there would be a high flood risk to life and property which could be avoided by investing in continued management and improvements. We also assessed various 'hold the line' options maintaining the current defences and upgrading to protect against sea level rise and 'realignment' options which provide flood defences on a new alignment.



River options

We considered a number of flood defence realignment options, allowing the estuary to return to a natural system with the floodplain inundated on every tidal cycle. This would increase the volume of tidal water flowing in the river, causing erosion of the banks at Newhaven. With any realignment option, we would need to reinforce the banks at Newhaven or construct a barrage to control the flow of water.

We also looked at using part of Lewes Brooks as a flood storage reservoir to provide a reduction in water levels upstream. This would have a small impact on reducing water levels but only during extreme flood events in Lewes.

The cost of realignment and the flood storage reservoir are considerably higher than the cost of continuing maintenance on the existing banks. Although

realignment is beneficial for nature conservation, this option and the flood storage option are not recommended at this stage because their higher cost is not offset by additional benefits.

The option to realign defences in the rural areas will remain a long term consideration.

Coastal options

On the coast we looked at continuing the existing beach recycling, constructing offshore breakwater structures in Seaford Bay, building timber or rock groynes along the beach or realigning defences at Tide Mills, allowing this area to flood on a tidal cycle. All these options provide a similar standard of protection and the most cost effective is beach recycling which was the chosen option. Although realignment at Tide Mills was recommended by the *Shoreline Management Plan*, this option was not considered to be technically viable.

how we made choices

In addition to consulting others, we made our own assessment of the effects of each option.

Assessment process

We used a computer model to predict the likely changes caused by each of the options and how effective they were for protection against flooding. We only selected options for our shortlist that either worked with natural processes, or did not detrimentally affect them. We also looked at how natural change, including sea level rise, would affect the estuary if we didn't change how it was managed.

We undertook an outline design of all the options to help us assess the scale and cost of potential work and future maintenance needs. We also looked at how realignment options might reduce flood risk in Lewes.

We assessed each of the options against a range of environmental objectives, which reflected interests such as flood risk management, land-use, landscape, wildlife and habitats, water quality, recreation and navigation.

We identified whether each option met each of these objectives in the short and long term.

To establish which of the options was the most cost effective, we used benefit cost analysis. Benefits were calculated from the amount of flood damage that has been avoided based on predicted depth and frequency of flooding. The costs used are the predicted construction and maintenance costs of the proposed options.



Storms prior to the original beach nourishment scheme in 1987

Options

We identified that beach recycling was the preferred coastal option, and had the highest benefit cost ratio.

On the River Ouse, continued maintenance of existing defences or realignment of the defences were favoured. Realignment would restore natural estuary processes and enable creation of a large area of inter-tidal habitat, such as saltmarsh and mudflats.

Continued maintenance of existing defences had the highest benefit cost ratio. Realignment was not cost-effective in comparison to maintaining the existing defences because of the additional cost of constructing a barrage to control tidal flows and scour.



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This document is available on our website at
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