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# Waldringfield Flood Defence Study

## The preferred option

November 2003



**ENVIRONMENT  
AGENCY**

The Environment Agency is the leading public body protecting and improving the environment in England and Wales.

It's our job to make sure that air, land and water are looked after by everyone in today's society, so that tomorrow's generations inherit a cleaner, healthier world.

Our work includes tackling flooding and pollution incidents, reducing industry's impacts on the environment, cleaning up rivers, coastal waters and contaminated land, and improving wildlife habitats.

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# Introduction

The Environment Agency is responsible for managing the flood risk in many areas arising from rivers and the sea.

Prompted by growing concern over areas in Suffolk which are susceptible to tidal flooding, the Agency has commissioned the development of a long term strategy to manage the flood defences for three of the Suffolk Estuaries: the Blyth, the Alde/Ore and the Deben.

In the meantime, certain areas have been identified which would benefit from an earlier study of flood defence options. One of these areas is Waldringfield, on the River Deben (see Figure 1). The Waldringfield study is now nearing completion, with the selection of a preferred option for flood defence. The Government applies a system to prioritise the construction of such schemes. Initial indications are that, if approved, construction works could commence in Spring 2006.

This document sets out the nature of the problem at Waldringfield, describes the flood defence study, identifies the preferred option for flood defence and the process by which this was chosen. It also provides interested parties with an opportunity to comment on the proposed scheme.

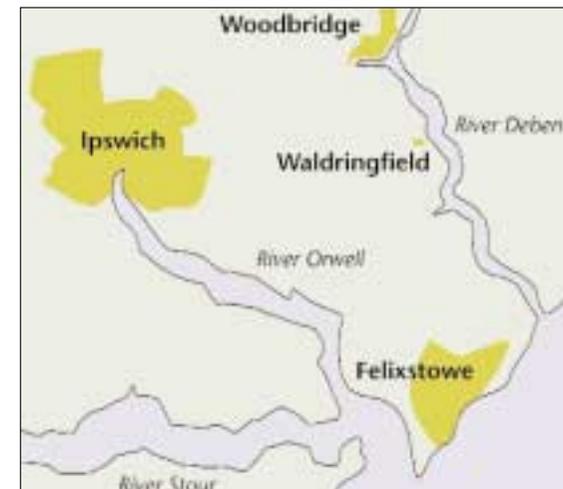


Figure 1 Location of Waldringfield

# The Suffolk Estuaries

The estuaries are very important in terms of the human and natural environments they support. The Suffolk Estuaries are shown in Figure 2 below.

These estuaries have an abundance of wildlife, with large areas being designated for their nature conservation interest at an international level. They are also important in terms of tourism and recreation with activities such as walking, sailing and fishing. All of which contribute significantly to the local economy.

In some locations the existing flood defences which protect these important features are coming to the end of their useful life. Additionally, the threat of global warming and rising sea levels will increase the risk of flooding if the defences are not improved.

The Suffolk Estuarine Strategies will set out the policy and objectives for future flood defence taking into account a broad range of issues and interests. Further information can be obtained from [www.suffolkestuaries.co.uk](http://www.suffolkestuaries.co.uk).



Figure 2 The Suffolk Estuaries

# Flooding at Waldringfield

Part of the village of Waldringfield, and an area of 13 ha of grazing land and freshwater marshes to the north, are protected from tidal flooding by a 1 km long earth embankment.

The last recorded major flood event to affect Waldringfield was in 1953 when several low-lying properties were affected. More low-lying properties have been built since this time. The existing defences could protect Waldringfield against a 1 in 5 year tidal flood event (20% chance of occurrence).

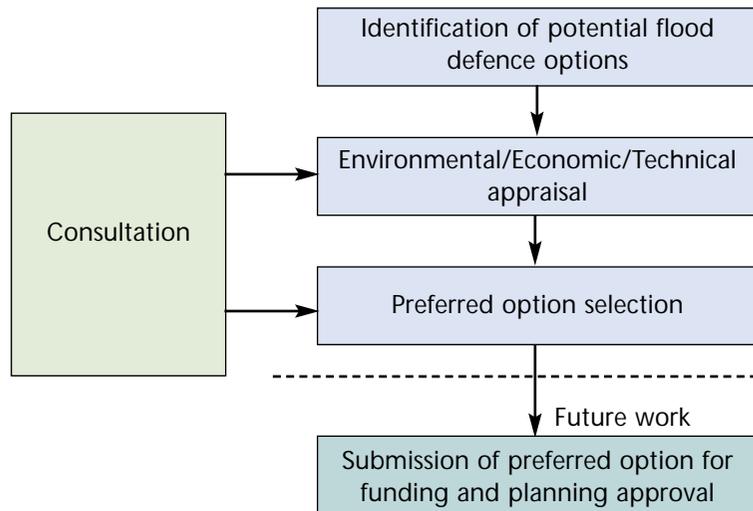
The earth embankment is generally low and during high surge tides water flows over the top of the embankment, initially at its northern end. This results in flooding starting with the marshes and grazing land and, depending upon the severity of the flooding event, flooding of the low-lying properties in Waldringfield. Furthermore, the condition of the flood defence embankment is deteriorating, and without intervention would continue to do so, particularly in front of the grazing land. This, together with sea level rise, means that the risk of flooding is increasing over time, such that flooding of Waldringfield could become an annual event. The Agency has therefore been considering a range of flood defence options to manage this increasing risk.



Photo 1 Earth embankment flood defence protecting Waldringfield

# The process so far

This study has now progressed to the preferred option consultation stage, as shown below:



At the start of the study, a number of generic flood defence options for Waldringfield were identified and evaluated. These options related to the existing flood defences as follows:

- 'Do Nothing', whereby the defences would fall into disrepair and fail, allowing flooding to occur over time
- 'Maintain' the existing defences, without improving the standard of flood defence
- 'Sustain' the existing defences to the present standard of flood defence
- 'Hold the Line', by raising the existing defences in their current locations to a specified flood defence standard
- 'Retreat' the defences landward of the existing line

Consultation is a key part of the option selection process. Interested parties were consulted in January 2003 through the issue of a consultation document and a public exhibition. Over 80 responses were received, and a range of issues were highlighted, including the:-

- importance of the footpath along the embankment;
- nature conservation value, particularly of the grazing marshes;
- amenity and landscape value of the area;
- impacts of estuary processes including siltation and erosion.

All these aspects, together with the outcome of an environmental, economic and technical appraisal of each option, were taken into account in selecting the preferred option. There will be continued consultation with interested organisations and individuals at key stages of the design and construction programme.



Photo 2 Waldringfield Boatyard

# What is the Preferred Option

The preferred flood defence option for Waldringfield is illustrated in Figure 3 below.

It is proposed to improve the existing standard of protection for Waldringfield. Presently, the defences offer protection up to the 1 in 5 year flood event (20% chance of occurrence). Several standards of protection have been found to be economically justifiable. These range from 1 in 50 years (2% chance of occurrence) to 1 in 200 years (0.5% chance of occurrence). The cost of the preferred option scheme is in the order of £1 million.

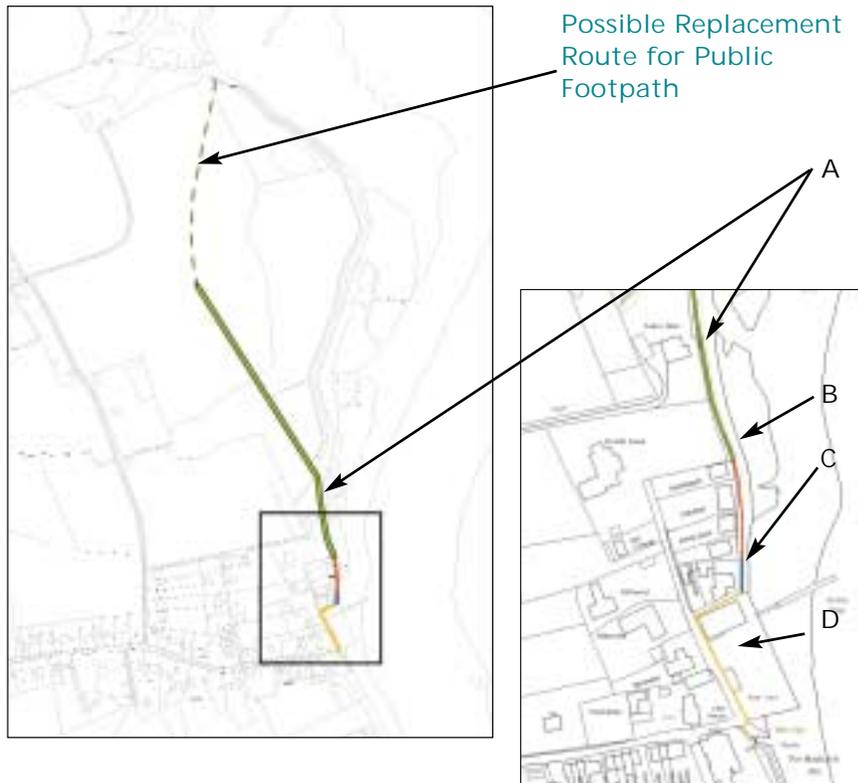
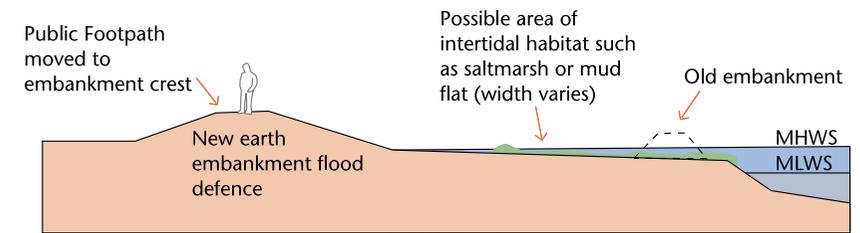
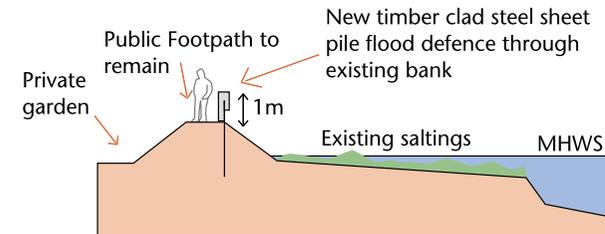


Figure 3 Plan of preferred option for Waldringfield

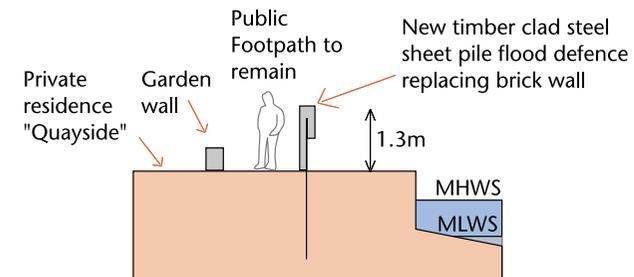
## Typical Cross Section A



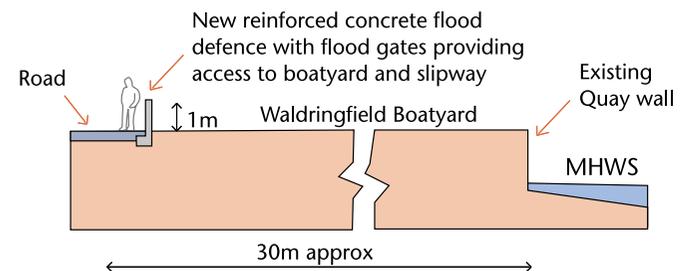
## Typical Cross Section B



## Typical Cross Section C



## Typical Cross Section D



MHWS = Mean High Water Springs  
MLWS = Mean Low Water Springs

# Why was the preferred option selected?

The preferred option was selected following a rigorous assessment of the technical, economic and environmental issues and with consideration of consultation responses (refer to Page 4 'The process so far'). Overall the preferred option is the most cost effective of those considered.

Through the village the proximity of residential properties to the existing defence embankment means it is necessary to 'Hold the Line' over this frontage.

It was apparent that the addition of high defences in front of the Boatyard would cause unacceptable disruption to its operations. A new reinforced concrete flood wall will therefore run behind the Boatyard along its boundary. Access for vehicles and pedestrians will be available through flood gates.

Steel sheet piles were selected as the most appropriate defence between the Boatyard and the northern extent of the village. A key factor influencing the decision to use steel sheet piles was the small area of land required for construction to avoid encroachment into private gardens. Also steel piles are longer lasting and have lower maintenance costs than earth embankments. The addition of timber cladding to the steel piles will help 'soften' the visual impact of the new defences, although it is acknowledged that the increased height of the new defences will be a significant change.

For the northern section managed realignment is the most cost-effective option and represents the best compromise for a number of environmental reasons. By no longer holding the existing flood defence line the effect of 'coastal squeeze' (loss of intertidal habitats through being trapped between fixed defences and rising seas) is reduced. This is an opportunity for creating intertidal habitat in front of the new embankment. While this will affect the existing grazing marsh habitat, the alignment of the new embankment will permit the retention and enhancement of valuable wildlife features present on the site. Where other features cannot be retained efforts will be made to replace them locally.

This approach to flood defence will not detract from the existing setting of Waldringfield within what is an Area of Outstanding Natural Beauty (AONB). The new embankment and its alignment also provide the opportunity to maintain a riverside footpath which is seen as a particularly important local asset.



Photo 3 View of embankment and saltmarsh north of the village

# Your feedback

We have distributed this document to a wide range of interested parties and are holding a public exhibition on Tuesday 25 November at Waldringfield Village Hall between 2pm and 7pm.

The Agency is interested in receiving any feedback on the preferred option. Please complete the questionnaire and return it to the address below by Wednesday 24 December 2003.

All feedback will be considered during the detailed design of the scheme and in the accompanying environmental impact assessment.



Photo 4 The River Deben

# What happens next?

The Government prioritises the implementation of flood defence projects using a priority scoring mechanism. This system considers the socio-economic and environmental benefits that will be provided by a scheme.

Such an assessment has been undertaken for this scheme and indicates that the scheme would not qualify for funding at this time. The scheme may be eligible for funding in spring 2006. Whilst this represents a delay for the residents of Waldringfield, it has the advantage that the Deben Estuary Strategy (part of the Suffolk Estuarine Strategies) should be substantially complete by 2005. Information gained from the Strategy will therefore be utilised to confirm the suitability of the scheme in the context of the whole estuary and finalise details of the scheme, including defence wall heights.

The Agency will carry out the necessary detailed environmental assessments and undertake further consultation with interested parties prior to submission of a planning application and commencement of construction.

In the meantime, the current flood warning system will remain in place which will continue to provide warning to the public within the flood risk zone.



Photo 5 Grazing Marshes landward of existing defences

# Consultation contact

To discuss any issues or queries on an individual basis, please contact the Project Manager, Nigel Pask:

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