

# WOODBIDGE AND MELTON FLOOD DEFENCES



**NRA**

*National Rivers Authority  
Anglian Region*

## HISTORY

Woodbridge and Melton lie at the head of the tidal estuary on the River Deben, approximately 17 km from the port of Felixstowe. The urban landscape has developed around the features of a classic English country town with several listed riverside buildings. In contrast the rural landscape is of outstanding quality in what is an Area of Outstanding Natural Beauty (AONB).

Its popularity and commercial activities are overwhelmingly river based serving the sailing activities on the river, with up to 1,000 boats visiting the town during the high season.

## THE DEFENCES

The defences protect some 200 domestic properties, boats, facilities and a number of industrial and commercial premises. In the event of a breach disruption to the adjacent Ipswich to Lowestoft railway line and A1152 trunk road, which is the principal access route to RAF bases at Woodbridge and Bentwaters, would occur.

Re-construction of the defences last took place in 1962/1963 but were only sufficient to withstand a 1 in 20 year flood. Due to settlement, the defences would now be overtopped by a surge tide on average once every ten years. Flow over and through the existing earth embankments has been witnessed on several occasions.

The length of defences under threat extends from Kyson Hill in the south, through the town of Woodbridge and continue upstream past Wilford Bridge, a total distance of 5.0 km. They form a complete defence providing protection to residential areas of Woodbridge and Melton and link into high ground at each end.



Above: Boat yards at Melton.



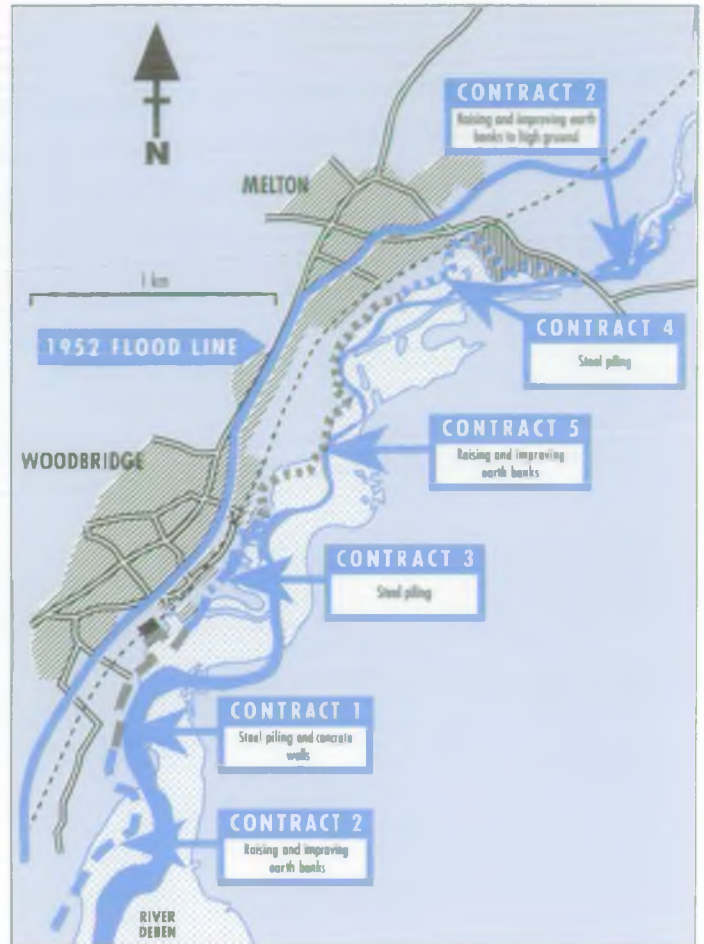


## IMPROVEMENT WORKS

The scheme was evaluated for raising the defences to the 1953 flood level and this corresponds to a 1 in 250 year standard. This will increase the height of the existing defences by 600 - 800 mm generally and by over 1 metre where significant settlement has occurred.

A blend of raised earth embankments together with brick and concrete clad steel sheet piling has been used. Significant effort has been put into the accommodation works to ensure that the improved defence merges into the natural landscape.

Taking into account the seasonal nature of earthworks and the likely disruption to the tourist area a phased programme of works has been implemented.



*Above left: Typical example of structural damage.*

*Below: Contract 2; new flood wall along Woodbridge Town Quay.*





*Above: Contract 2; improved seating area adjacent to new flood wall.*

**CONTRACT 1: DEBEN YACHT CLUB TO TIDE MILL YACHT HARBOUR**

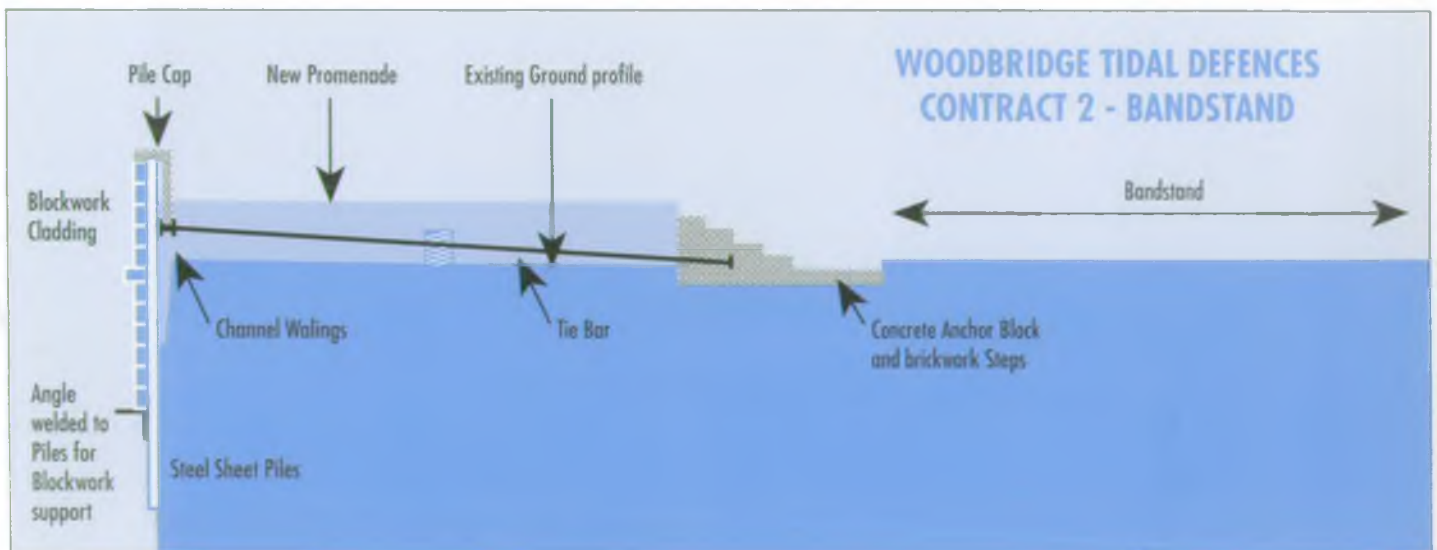
Contract value	£0.95 million
Length of defence	850 metres
Type of defence	Concrete and brick clad steel sheet piling
Works commenced	February 1990
Works completed	December 1990

The first contract required re-construction of the promenade and quayside walls through Woodbridge. It was important that views across the Deben Estuary were not destroyed with high concrete walls, and at the same time access to the boat yards and dinghy parks maintained. Pedestrian access ramps over the new defence were incorporated into the design and flood gates installed for access to the boatyards.

**CONTRACT 2: KYSON HILL TO DEBEN YACHT CLUB AND UPSTREAM OF WILFORD BRIDGE**

Contract value	£0.45 million
Length of defence	1400 metres
Type of defence	Earth embankment
Works commenced	August 1990
Works completed	September 1991

Since 1961/1962 the floodbank adjacent to Kingston Marshes has suffered from settlement and seepage such that this second phase of the scheme required the earth bank raising by as much as 1300mm. Part of the site is owned by the National Trust and is very popular with people walking from Woodbridge, offering extensive views across the Deben estuary. As part of the works the public footpath on top of the new embankment was widened and reinstated to an improved standard.



*Above: Typical Cross-section through new flood wall.*



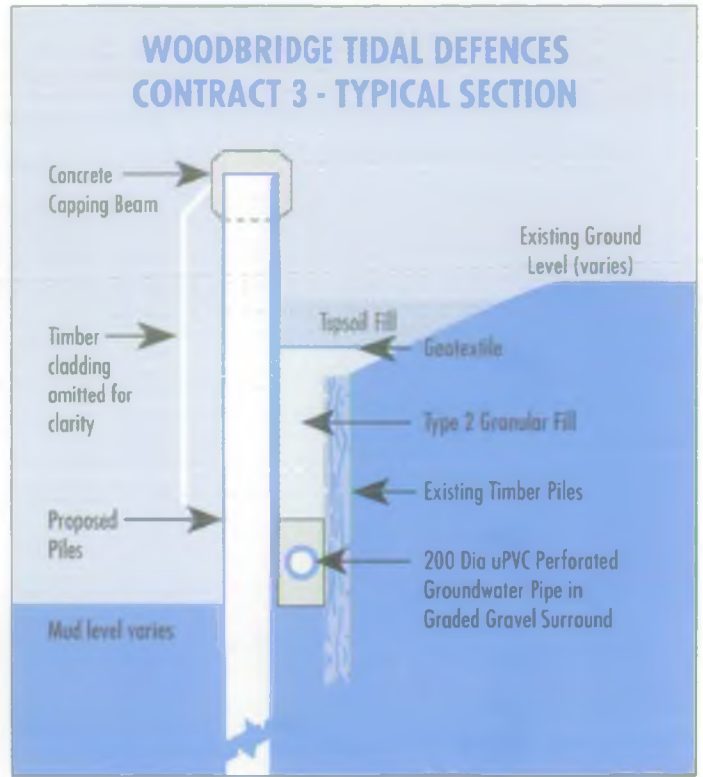


*Above: Earth embankment prior to improvements, Tide Mill Yacht Harbour.*

**CONTRACT 3: TIDE MILL YACHT HARBOUR TO SUN WHARF**

Contract value	£0.85 million
Length of defence	600 metres
Type of defence	Concrete capped steel sheet piling
Works commenced	June 1991
Works completed	December 1991

The third contract posed several problems with alignment of the new defence. Boat yards at Tide Mill and Lime Kiln Quay meant that the defence had to be threaded through the land with the minimum of disruption to these



commercial activities. The limited amount of available space and close proximity of riverside properties at Lime Kiln Quay meant that a steel sheet piled defence was the best practical solution.



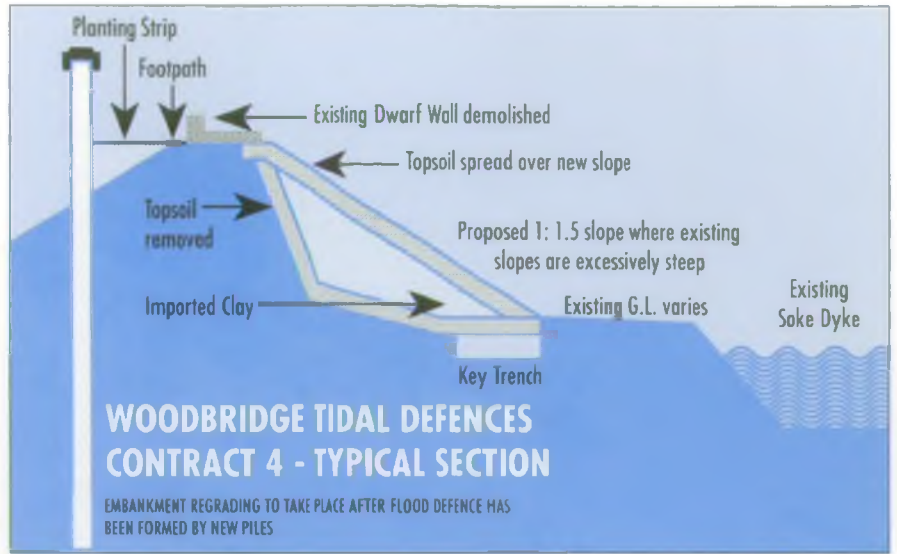
*Above: New concrete capped steel sheet pile defence, Tide Mill Yacht Harbour.*



**CONTRACT 4: WILFORD BRIDGE TO MELTON DOCK**

Contract value      £0.65 million  
 Length of defence    950 metres  
 Type of defence      Steel sheet piling and earth embankment  
 Works commenced    April 1992  
 Due date for completion    November 1992

Within the boundary of this site lies Melton Amenity Area, an important riverside recreation area providing visitors with an opportunity to appreciate wildlife on both the site and adjacent estuary without causing disturbance.



The defence will be raised by means of a composite construction of steel sheet piling and earth embankment, with some re-shaping of the soke dyke. As with other sections of the scheme the importance of the riverside footpath has been recognised and its condition upgraded.

*Left: Earth embankment prior to improvements, Melton Amenity Area.*

*Below: New steel sheet piled defence, Melton Amenity Area.*







#### CONTRACT 5: MELTON DOCK TO SUN WHARF

Estimated value	£0.9 million
Length of defence	1200 metres
Type of defence	Earth embankment and steel sheet piling
Due date for commencement	December 1992
Due date for completion	June 1993

The vast majority of the final phase will involve raising the existing earth bank using imported fill material. The bank profile will require two 3 m wide berms for access and

stability of the increased height. Around Melton Sewage Treatment Works where available space is restricted, steel sheet piling will be adapted similar to that used on Contract 4. Particular attention will be given to the existing soke dyke which will be re-profiled where required and the drainage improved. It will not, however, radically affect the wetland habitat to the rear of the flood bank. The works will contribute significantly to easier access for the public along the riverside footpath.

The estimated total cost of the scheme is £4.5 million.



Above: Contract 5; Existing earth embankment and riverside footpath.

# The National Rivers Authority

## Guardians of the Water Environment

The National Rivers Authority is responsible for a wide range of regulatory and statutory duties connected with the water environment.

Created in 1989 under the Water Act it comprises a national policy body coordinating the activities of 10 regional groups each one mirroring an area served by a former regional water authority.

The main functions of the NRA are:

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|---|--|
| Water resources                             | — The planning of resources to meet the water needs of the country; licensing companies, organisations and individuals to abstract water; and monitoring the licences.                   |
| Environmental quality and Pollution Control | — maintaining and improving water quality in rivers, estuaries and coastal seas; granting consents for discharges to the water environment; monitoring water quality; pollution control. |
| Flood defence                               | — the general supervision of flood defences; the carrying out of works on main rivers; sea defences.   |
| Fisheries                                   | — the maintenance, improvement and development of fisheries in inland waters including licensing, re-stocking and enforcement functions.   |
| Conservation                                | — furthering the conservation of the water environment and protecting its amenity.   |
| Navigation and Recreation                   | — navigation responsibilities in three regions — Anglian, Southern and Thames and the provision and maintenance of recreational facilities on rivers and waters under its control.       |

ENVIRONMENT AGENCY



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