

ALDEBURGH SEA DEFENCES



NRA

*National Rivers Authority
Anglian Region*

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Aldeburgh, sited on the exposed east coast of England, has long fought a battle with the relentless sea. Since the sixteenth century six streets sited to the east of the present town have been lost and Slaughden, once a separate village to the south of Aldeburgh, has been reduced to a Martello tower and the yacht club.

The NRA is responsible for sea defences along the 2km of coastline between southern Aldeburgh and the northern end of Orford Ness. The existing defences are a concrete wall built shortly after the serious breach in 1953, fronted by a dilapidated groyne system and stretching some 1,400 metres southwards from Fort Green. The natural shingle structure of Orford Ness starts at the termination of the existing sea wall as a narrow shingle bank which broadens to form the Lantern and then the King's Marshes which are owned by the Ministry of Defence.



Over the years, as the tides have come and gone and storms have pounded at the wall and shingle bank, the beach has receded leaving a noticeable step in alignment of the sea wall and shingle bank. At the same time, the front vertical face of the toe piles which form the foundations of the sea wall has been exposed.



Despite regular maintenance work to the sea wall, reconstruction of groynes and even the replenishment of the shingle bank, the integrity of the present wall and bank is suspect. In the winter of 1988 the intensive abrasion of sea driven shingle produced large holes in the toe piles and subsequent loss of material under the wall which simply washed away. As a result of this undermining, three bays of the wall rotated forwards and downwards resulting in the failure of their rear piled support. The level of flood protection offered by the present defences is now extremely low and the present works offer a long term sea defence strategy for this frontage.

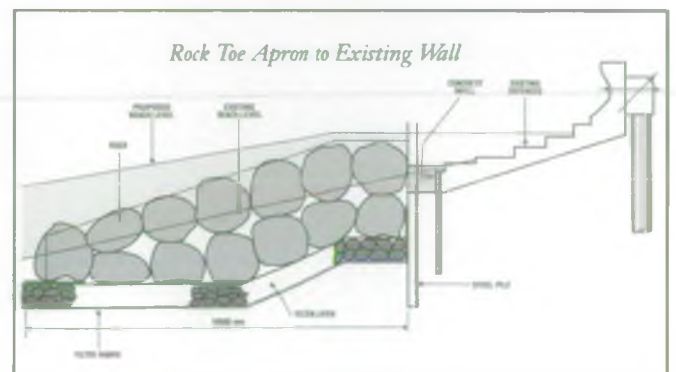
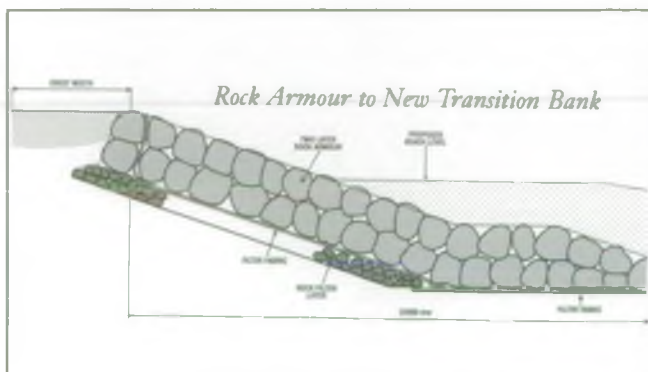
IMPROVEMENT WORKS

To arrive at the most cost effective design for the present scheme a computer based beach model was developed and various options tried. Once the best solution became apparent the computed results were confirmed on a physical model which enabled the designers to have a high level of confidence in the present works. The works will mean that the present sea wall will be strengthened except for the southern most end which will be demolished.

The work provides a seaward extension in the form of a rock toe apron, grouting of any voids under the wall, the driving of new toe piling over the most vulnerable lengths, and the repair of expansion joints between sections of wall. Where some 200 metres of the southern end of the existing wall has to be demolished a new rock armour transition bank extending for 400 metres will be built to give a realigned defence line from just south of the Martello tower back to the shingle bank. The bank has been designed to absorb and not reflect wave energy to deter erosion and scour of the beach. Existing groynes will be refurbished and hardwood groynes will be constructed in front of the new sea wall. An effective groyne system to control littoral drift and maintain beach levels is considered to be an essential element of the sea defences at this location. To replace beach material which has eroded over the years, 75,000 cubic metres of sea dredged shingle will be used to recharge the frontage.

The present works were planned as two contracts. The first contract ran for six months from November 1989 and was designed to secure the integrity of the existing sea wall.

The second contract commenced in July 1990 with an anticipated scheme completion in early 1992. The present approximate cost is £4.9 million.





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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 co-ordinating 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:

- 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, restocking 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.

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