

## All about revetment

### What is revetment?

The word “revetment” refers to man-made material placed on the slope of a tidal or river embankment. The revetment is needed to break-up and absorb the impact of waves hitting the slope and to protect the material making up the core of the embankment. (based upon the definition within The International Levee Handbook p.821)

### How old is the existing revetment?

The existing revetment, shown in the adjacent photos, was not replaced or renewed during the construction of Canvey Island’s tidal defences in the late 1970s - early 1980s. The majority of the existing revetment is at least 60 years old – since the interim tidal defence repairs were completed after the 1953 tidal surge. Some other areas of older revetment date back to the 1930s.

### What is wrong with the current revetment?

It is formed of a patchwork of different materials, ranging from concrete blocks to ragstone and is not one continuous, complete material. This means joints between the different materials provide areas likely to erode away.

The photos on the right show how the current revetment is deteriorating:

- Falling beach levels expose the bottom of the revetment, making it unstable
- Loss of material that holds blocks together allows seawater to wash away material under the blocks, leading to sinking and holes in the revetment
- This can lead to sudden loss of revetment if exposed to large waves as experienced at Chapman Sands over the winter of 2013/14

Often minor damage will lead to more significant damage unless repair work is undertaken.



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### What is currently carried out to repair the revetment?

Our current maintenance programme includes;

- Pouring a tar-like material called bitumen over areas which may be starting to move
- Pouring mass concrete in voids under the revetment
- Replacing displaced mass rocks.

These activities are currently only carried out by hand and in small, targeted areas. This is because of the width of floodgate openings within the reinforced concrete wall. This lack of width prevents modern machines accessing the revetment to carry out repair works without the disruptive need for cranes or working platforms to the landward side of the tidal defences.

The current programme of repairs can no longer keep up with the frequency of deterioration experienced on-site. These works cannot address variations of beach level that exposes the bottom of the revetment, the toe, or with localised loss of material underneath the existing revetment.

Replacing the revetment along the Canvey Island Southern Shoreline will significantly reduce the risk of significant damage occurring to the tidal defence, and reduce the level of maintenance required.

