

REFURBISHMENT OF SPURS & BANK PROTECTION OF ERODING ZONE IN KULPI

KULPI, 24 PARGANAS (SOUTH), WEST BENGAL, INDIA

Weirs, Culverts and Transverse Structures

Problem

In Nishchintpur, West Bengal, Hoogley river flows through western part of the Sundarbans delta. As per oceanography studies by Jadavpur University, it was observed using the tide gauge record that the sea is rising at the rate of 3.14mm every year.

Due to the rising sea levels and high rise tides, part of the river bank lost about 80 sqm of land in last 20 years. Homes and lands washed away with water and life of the people was badly affected due to river tides.

To overcome the above problem, different types/combinations of bank protection measures needed to be adopted.

Solution

In order to protect bank from waves and current, transverse structures were needed to be provided which will deflect the water away from the river bank. Spurs are the best options to reduce impact of water on the bank.

As affected bank was 5-6km long, Kolkata Port Trust (KoPT) suggested to construct spurs in series to resist the current. Another advantage of this arrangement was, that after time elapses, silt will accumulate in between spurs thus forming a permanent bank.

However for construction of bank, sufficient land was not available. KoPT decided to provide polymeric gabion filled with geotextile bags known as MacBag® for a stretch of 750m.

The MacBag® was made of multifilament polypropylene woven mattress and filled with locally available river sand. Each bag weighed a minimum of 100 kg after filling.

The construction steps are listed below:

- Multifilament woven geotextile as a filter was placed with the help of fascine grid having side lapping of minimum 400 mm & horizontal of minimum 250mm.
- Building of new spurs & nourishment of existing spurs with geotextile bags, so that they can get almost a permanent bank after certain time due to siltation.
- Laterite blocks to cover and protect the spurs made from geotextile bag.

Client: Kolkata Port Trust

Contractor: Maccaferri Environmental Solutions Pvt Ltd

Products used (Qty.)

- MacBag	8,78,282 no
- Geosynthetic Accessories	56,000 sqm-fascine mattress

Date of construction: 01/2009 - 06/2010



Photo 1: Site eroded due to wave effect



Photo 2: Eroded riverbank before construction

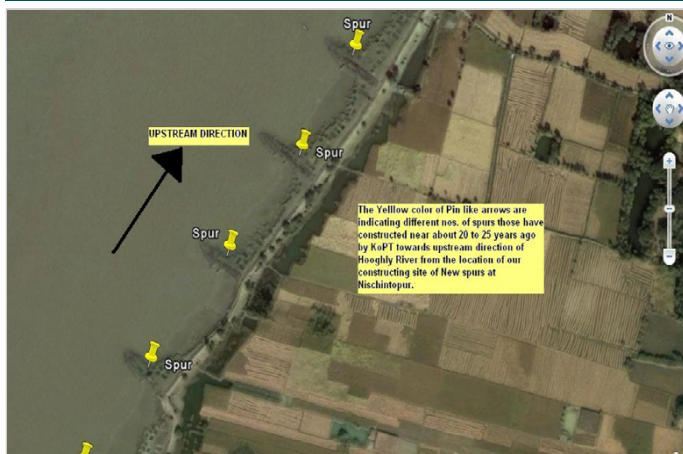


Photo 3: Spurs location on construction site



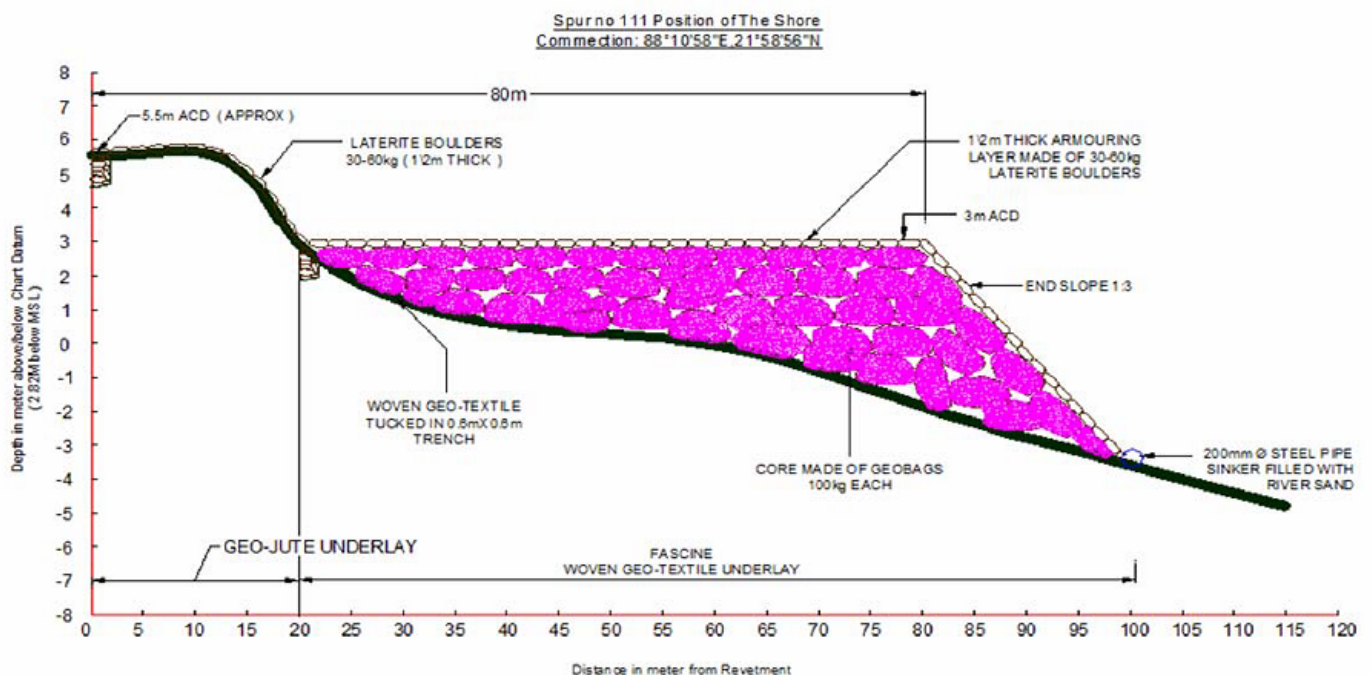
Photo 4: Placing of MacBags



Photo 5: MacBag® being carried in a wheel barrow for placement



Photo 6: Stacking and filling of MacBags® on the barge and dumping of bags



Cross section drawing

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