

CROTOY PORT UPGRADES CROTOY, PICARDIE, FRANCE

HYDRAULIC WORKS

Product: Reno[®] Mattresses and Gabions

Problem

The city of Crotoy is a lively seaside resort and for several years it had planned to increase its tourism activities. To do so, the extension of the marina was a priority. The works required would consist of the consolidation and then protection of the existing river banks to ensure pedestrian safety and improve the navigation conditions. Historically, after several storms, the area had experienced landslides and bank collapses, resulting in significant erosion of the coastline.

Solution

A solution was required to protect the banks from hydraulic erosion and future collapse.

The solution entailed the installation of steel sheet piles at the toe of the embankment, with hydraulic erosion protection to the banks above. At the top of the embankment, the bank was reshaped and a path for pedestrians was included. The solution had to also include the capability to establish vegetation on the slope to provide a "green", more environmentally friendly solution.

The technical solution adopted consisted of two Reno[®] Mattresses, 0.23m thick, anchored with a gabion unit (1.00x0.50m) abutting the rear of the sheet pile. Given their regular immersion in salt water, the Reno[®] Mattresses and gabions used were fabricated from heavily galvanized and polymer coated steel wire to ensure long term performance.

Maccaferri Reno and gabion mattresses are cages, engineered from double twisted hexagonal woven steel wire mesh. Delivered flat-packed, they are assembled and then filled with stones at the project site to form flexible and permeable, monolithic structures such as river bank protection and channel linings for erosion control. They are divided into uniformly partitioned cells by internal diaphragms.

A geotextile is installed between the existing river bank and the protection mattress. This limits the wash out of fine-soils under water's hydraulic action.

Being made of flexible double twisted wire mesh, the mattresses can accommodate differential settlements without sustaining damage, unlike rigid (e.g. welded wire mesh



Before construction

June 1994



Immediately after construction

Sep 1994

mattresses) or impermeable revetments (concrete or pumped concrete mattresses).

Maccaferri's Reno Mattresses and gabions are made from high quality steel wire, which is heavily galvanised to provide long term corrosion protection. An additional protective polymeric coating is also applied when the units are to be used in more aggressive environments, or where a longer design life is required.

A key feature of Reno and gabion mattresses is their ability to reintegrate back into the environment, whilst still providing long-term erosion protection. The voids between the rock fill within the mattress quickly accrete soils and seeds. Vegetation quickly follows and the banks can be soon inundated with plants.

To date, and facing two daily tides, the protection is still in active service: The Maccaferri Reno[®] Mattress and gabion protection has demonstrated its qualities.

Client:

DDE ABBEVILLE

Main contractor:

REVET

Products used:

3200m2 RENO MATTRESSES 60x80 Zn + PVC

Date of construction

1994



Typical project cross-section and completed project views

Officine Maccaferri S.p.A. Global Headquarters

Via JF Kennedy 10, 40069 Zola Predosa (BO) - Italy

T: (+39) 051 6436000 F: (+39) 051 643 6201

E: comes@maccaferri.com

www.maccaferri.com

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