

BANK PROTECTION ON THE RIVER LEZ BOLLENE (84), PROVENCE-ALPES-COTE D'AZUR, FRANCE

HYDRAULIC WORKS

Product: Reno[®] Mattresses, Gabions

Problem

Bollene is a commune in the Vaucluse department in the Provence-Alpes-Côte d'Azur region.

On the 1st October 1993, the Lez river overflowed its banks and strong waves completely inundated the city. The flood caused great damage to buildings and infrastructure.

Following this event the local authorities decided to improve the channeling and river banks in Bollene.

Two projects to reinforce the dyke began in 2003 to protect the banks and the city of Bollene. These were followed by other emergency works after the floods of 2003.

Solution

The solution adopted consisted of Reno Mattress[®] armour protection. The mattresses would provide high performance hydraulic erosion protection and longitudinal channeling as required.

The protection system designed was founded approximately 0.50m below the channel bed to provide stability and to limit undermining by the strong river current.

A combination of gabion units and Reno Mattresses[®] were installed to fulfil the channeling works.

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



Before construction



During construction

Maccaferri's Reno and gabion mattresses 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.

Client:

SIEE et CABINET MERLIN 84

Main contractor:

VALERIAN-FORET PLUS

Products used:

3400m² RENO[®] MATTRESSES

4600m³ GABIONS

Date of construction

JANUARY 2004-JULY 2004



During construction



Completed installation, immediately after completion of works

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