Downshutes
Product: PVC Gabions
Reno Mattresses

Problem
In 2011, Maccaferri was contacted by the Bellagio Corp. to present an alternative for the proposed downshutes and channel lining of the Ponce Municipal Landfill. The project plans provided the alternative of using cable reinforced concrete block mattresses, gabion mattresses or Class II rip rap for some channels.

Solution
After multiple discussions with the project owners, the use of Maccaferri’s gabion mattresses was approved over the other alternatives for various reasons such as greater ease of construction, availability of materials, and Maccaferri’s on-site support during construction. The proposed channel sections were revised by Maccaferri to conform to standard mattress sizes.

Construction Details
The principal downshute was a trapezoidal channel that dropped 85m (280ft) over a distance of 165m (540ft) and varied in width from 3.65m (12ft) at the top to 8.2m (27ft) at the bottom. A combination of PVC Reno Mattresses and one foot wide PVC gabions were used to form the channel bottom and sides. In addition to the downshutes, a series of rock dams and detention basins were created. Also, special protection was developed wherever the downshute crossed a terrace to avoid scouring and erosion at these points.

Results
Shortly after construction was completed the drainage structure was put to test when heavy rainfall fell upon the area. The gabion downshute performed superbly, dissipating the water’s speed, and conducting the flow to its point of discharge.
Client

MUNICIPALITY OF PONCE, PR

Landfill Operator

ALLIED WASTE OF PONCE, INC.

Main Contractor

BELLAGIO CORP.

Designer

GOLDER ASSOCIATES

Products Used

PVC GABIONS & RENO MATTRESSES

Date of Construction

FEBRUARY, 2012