

GABIONS USED FOR GOLF COURSE DRAINAGE WORKS

ALEXANDRIA, VIRGINIA, USA

CULVERTS

Product: Gabions, Reno Mattress

Problem

Since the 1970's Hilltop Landfill in Alexandria, VA had been used as a construction spoil landfill. By the mid 90's the landfill was approaching its capacity and the owner wanted to redevelop the area into an executive golf course.

The closing and capping of the landfill was completed using a clay cap layer, protected by a geotextile. Top soil and landscaping completed the closure. Water run-off from the landfill would be collected by perimeter ditches. Due to the gradient of some of the ditches some erosion protection was required. A series of retention ponds were also included in the design which also would provide visual interest to the golfers using the course.

Solution

Golf Course designers and architects, Linsay Ervin & Associates approached Maccaferri Inc., to assist in the design of erosion control solutions for the ditches and retention ponds.

The shear forces generated by the water flows in the drainage ditches would have required placing turf reinforcement mats (TRMs) throughout most of the channel area. Instead, a series of gabion drop structures were proposed. These structures allow the local gradient of the channel to be reduced and replaced by a series of 'drops'. The slopes between the drop structures would not therefore need protecting with a TRM.

Gabion retaining structures were used in a number of locations;

- A 12' high wall to retain a new tee-box
- A 9' high wall to support a cart path, and protect a piped culvert
- A 21' high wall alongside a retention pond.

Client:

THE GAILLIOT FAMILY

Main contractor:

HILLTOP LANDFILL WORK CREWS

Designer:

LINSAY ERVIN & ASSOC. INC., CROFTON, MD

Products used:

GABION, RENO MATTRESS

Date of construction

SUMMER 2003



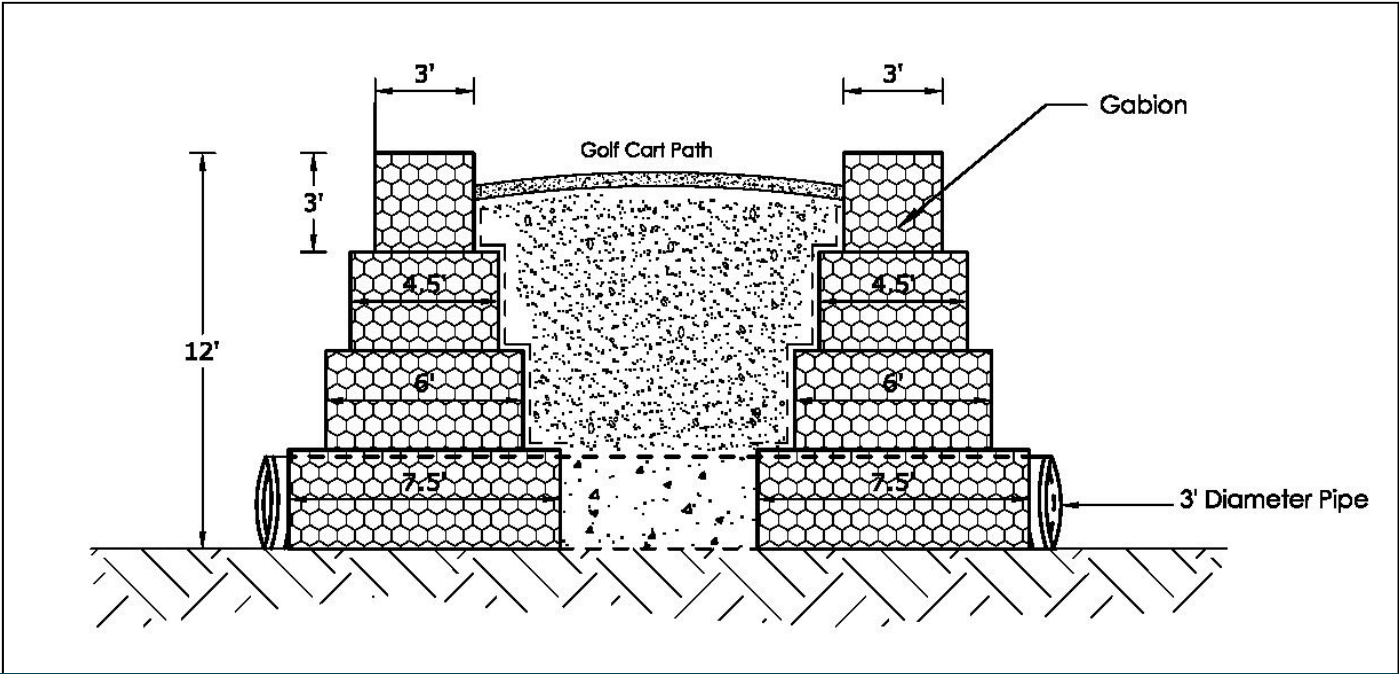
Construction of culvert and retaining walls



Construction of culvert with cart path above



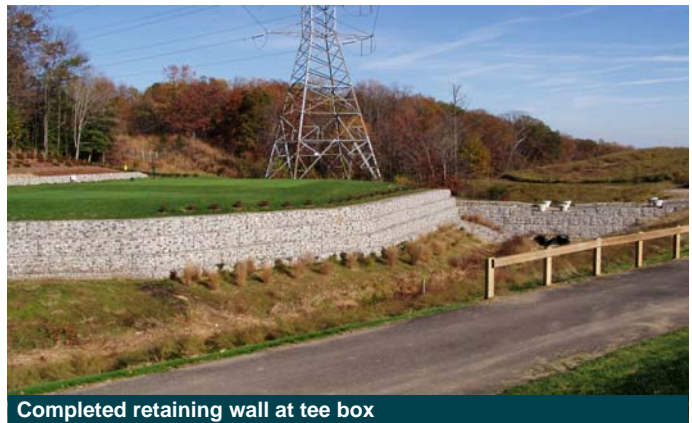
Gabion retaining wall supporting tee box under construction



Cross Section through cart path



Gabion retaining structure around retention pond



Completed retaining wall at tee box

Maccaferri double twisted woven steel wire mesh gabion baskets form permeable, monolithic and flexible structures. The woven mesh allows these gabions to accommodate large differential settlements without rupturing or unzipping.

The gabion structures were installed by the landfill work crews.

The workmanship on the gabion walls was excellent, and the client was delighted with the aesthetics and value of the gabion structures.



Completed retaining wall

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