

GABION RETAINING WALL FOR BARRAGE BANK PROTECTION, NASHIK NASHIK, MAHARASHTRA, INDIA

Weirs, Culverts and Transverse Structures

Problem

A barrage on river Darna was constructed by Nashik Municipal Corporation (NMC) to augment the water supply requirements of the city. The head work was completed in April 2008. During the high flood, when the storage reaches upto FRL, flash floods occur, resulting into the outflanking on both the banks. The water spreads over the adjoining lands on each flank. Due to the heavy flow of water during floods, the banks were subjected to severe scouring.

The soil strata was black cotton soil. Hence, it was difficult to construct heavy/rigid structures for retaining wall as the stratum was weak. Also, presence of water body on one side, land restrictions, restriction on deep excavation and erection of form work and dewatering were major concerns.

Solution

Gabion retaining walls were provided as the solution. The maximum height of retention for bank protection was 11m. Due to the presence of water, it was suggested to create a base of rubble soling of 0.5m thickness. Over this, the gabion layers were placed. Gabion wall will act as a strong flexible retaining wall.

The main advantages for selecting the above solution were:

- 1) Flexibility- Flexibility of system helps the structure to accommodate differential settlement without any compromise in structural integrity.
- 2) Simplicity in construction- The construction of gabion wall is simple and does not involve deep excavation, dewatering of trenches and erection of formwork.
- 3) Cost-effectiveness- The total cost of gabion solution is less than rubble wall and R.C.C. wall. Also, minimum foundation is required.
- 4) Permeability- The ability to combine drainage and retention functions makes it an ideal structure. The conventional methods are not able to provide this advantage.

The project was completed successfully.

Client: Nashik Municipal Corporation (NMC)

Designer / Consultant: Maccaferri / Deepak Kulkarni Consultants

Contractor: M/s. Pawar Patkar Construction Pvt. Ltd.

Products used (Qty.)

- Gabion 7,140 cum

Date of construction: 06/2011 - 11/2011



Photo 1: Before construction



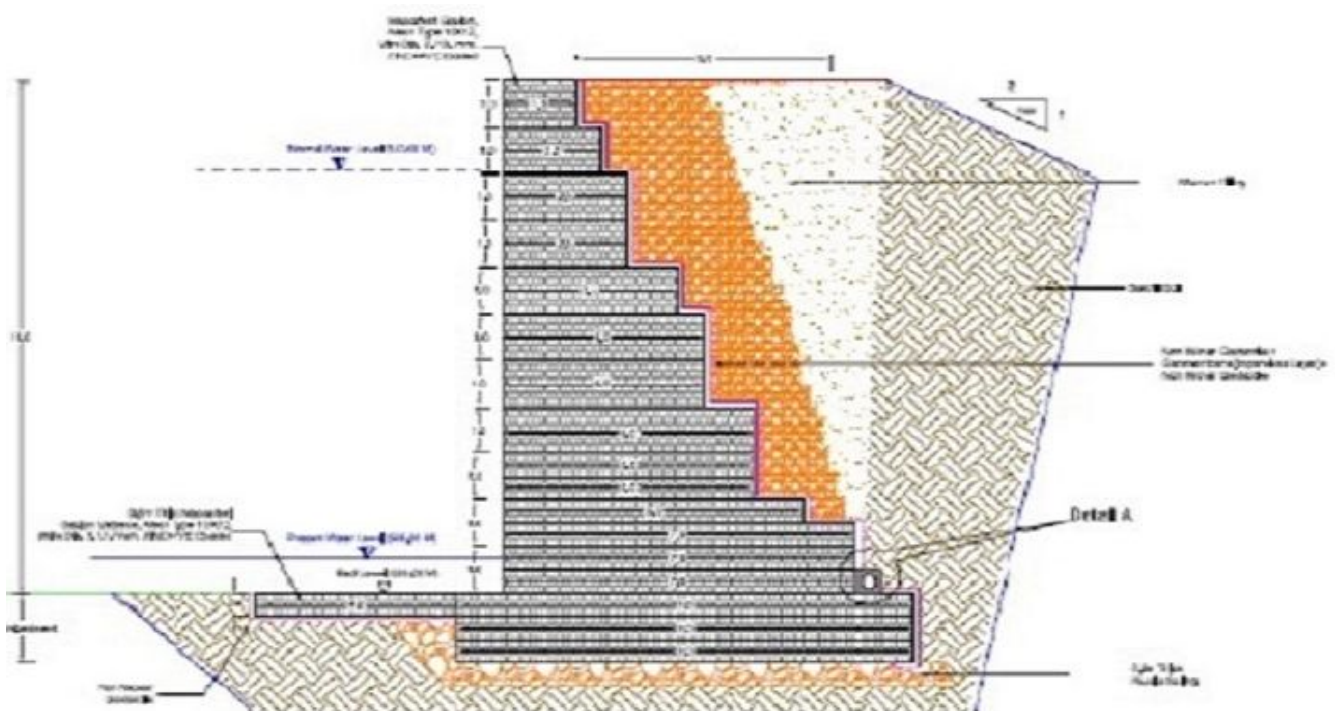
Photo 2: During construction



Photo 3: During construction



Photo 4: After construction



Typical cross-section drawing