

GABION WALL AT PANCHKARMA AYURVEDIC HOSPITAL TRIVANDRUM, KERALA, INDIA

Mass Gravity Retaining Walls

Problem

Panchkarma Ayurvedic hospital at Trivandrum was facing seepage of water under the building because of the existence of a pond at the other side of the building. A conventional rigid system can prevent the free flow of water. This will increase pore water pressure on the structure if it is rigid in nature. This in turn will increase the size of structure and increase the cost.

The foundation and backfill soil has weak shear parameters. All the above factors prompt to provide a solution with permeable structure which is free draining and flexible in nature.

Solution

Considering weak soil parameters and seepage, a flexible free draining structure would be an ideal solution and the same was proposed with gabion wall. Replacement of existing foundation soil with the soil having good characteristics was suggested. A graded filter of gravel and sand was provided for free draining behind the wall along with a geotextile.

A Gabion wall of 2 m to 5m height including foundation and batter of 6 degree was constructed.

Maccaferri gabions are cages which are engineered from double twisted hexagonal woven steel wire mesh. They are uniformly partitioned, come in variable sizes, interconnected with adjacent cages and filled with stone at the site to form flexible, permeable, monolithic structures such as retaining walls for road and railway projects.

Additional advantages of gabion retaining wall are:

- Cost-Effectiveness.
- Simplicity in construction and economy.
- Environmental friendliness.
- Permeability.
- Flexibility & Versatility.
- Structural Safety.

Client: Panchkarma Ayurvedic Hospital, Trivandrum

Designer / Consultant: Maccaferri Environmental Solutions Pvt Ltd

Contractor: Habitat Technology Group

Products used (Qty.)

- | | |
|------------|---------------|
| - MacTex N | Not available |
| - Gabion | Not available |

Date of construction: 09/2010 - 12/2010



Photo 1: Site before construction



Photo 2: During construction



Photo 3: During construction

SOIL	Cohesion (kN/m ²)	Friction Angle (Deg)	Unit Weight (kN/m ³)
Foundation Soil	0	24	18
Backfill Soil	0	24	18
Graded Sand Filter	0	34	18
Replaced Foundation	0	34	18

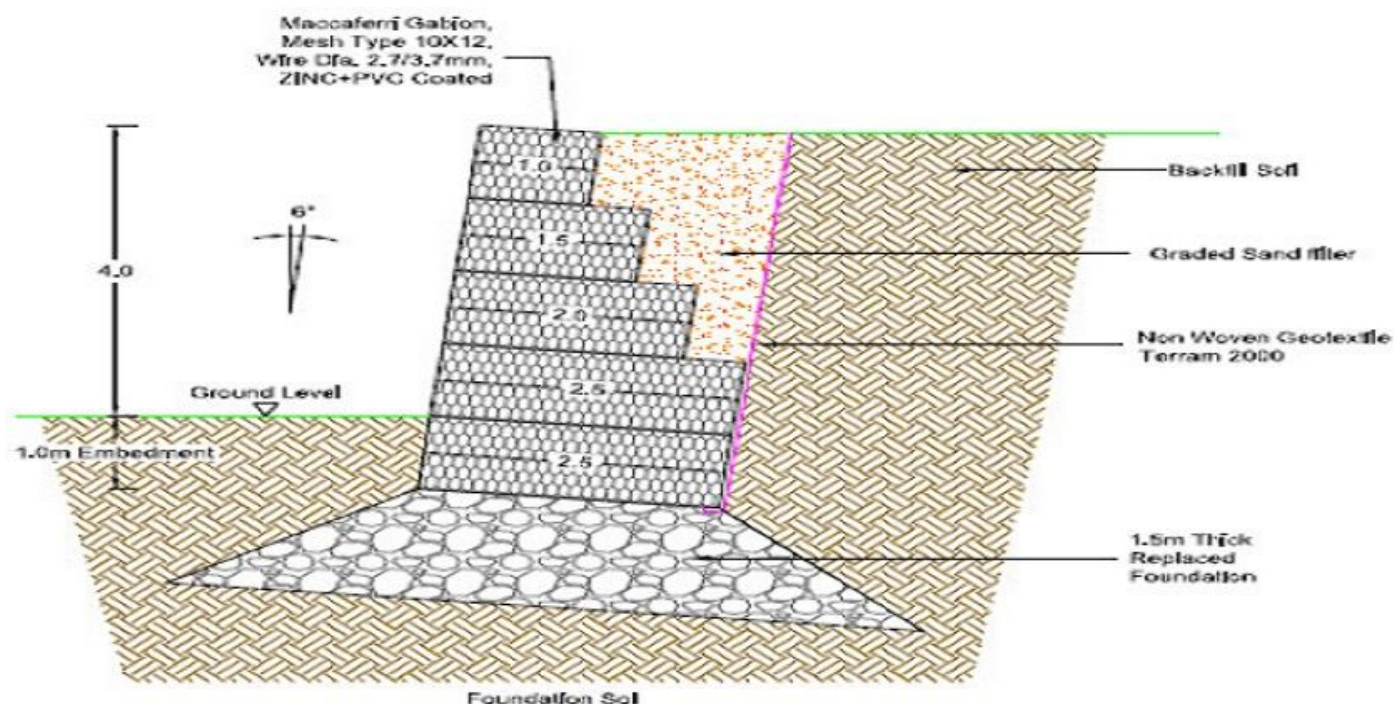
Table 1: Soil properties



Photo 5: Structure after 2 years



Photo 6: Structure after 2 years



Cross sectional drawing