

SLOPE STABILISATION - TOP WALL OF 'THE PROMONT' HOUSING PROJECT

HOSAKERE HALLI VILLAGE, BANGALORE, KARNATAKA, INDIA

Mass Gravity Retaining Walls

Problem

'The Promont' housing complex has been planned over a hilltop in Banashankari Stage III area of Bangalore. The hill slope strata is of predominantly rock (Granite). However, at certain locations, highly weathered Charnockite is also present making slope stabilization works essential. Various stabilization/retention structures namely, Top wall, Bottom wall, Access Ramp retaining wall, wall near CDP road etc are constructed as a part of external works of project.

The height for top wall varies from 1.5m to 15m.

Solution

Different combinations were proposed based on wall alignment, space availability, height and insitu strata topography. The general solutions are as follows:

-Tiered Gabion Retaining Wall with base anchoring-Height varying from 3m to 13m -Gabion Retaining Wall-Height varying from 1.5m to 3m -Gabion Retaining Wall with base anchoring-Height varying from 3m to 5m -Nailing with Gabion facia at bottom and Paramesh Reinforced Soil Wall at top- Height varying from 5m to 15m Gabion facia gives uniform facing which is aesthetically pleasing and environmental friendly. It also acts as flexible surface reinforcement and protection between soil nails while allowing free drainage of the insitu strata.

Nailing was done with HYSD bars of 32mm dia and 7.5m length while Gabion facia width varying from 0.6-2m was adopted. The Gabion facia units had H-frame arrangement at the rear end for proper connection with nails. Prestressed anchors were installed locally near the foundation as per the requirement. Gabion retaining wall had units of width 2-4m. TMS units used are of 0.5/1m height. The vertical nails (HYSD -32mm dia) at base are of approx. 1.5m long spaced at 1m c/c.

The design of nails with gabion facia system and design of Gabion retaining wall & Reinforced Soil Structure(Paramesh) are done with SLIDE and MacSTARS software respectively.

Top 0.5m high planter units (Gabion units lined with non woven geotextile and Biomac filled with soil on top half of the height) were installed throughout the stretch length for vegetation development. Suitable drainage measures were additionally adopted.

The project timeline mentioned is for the overall project.

Client: Promont Hilltop Pvt. Ltd. (a subsidiary of Tata Housing Development Company)

Designer / Consultant: Maccaferri Environmental Solutions Pvt. Ltd.

Contractor: Maccaferri Environmental Solutions Pvt Ltd.

Products used (Qty.)

- Gabion

/TMS-Facia Area-
885 SQ.M

Date of construction: 01/2013 - 01/2016



Figure-1 Top wall-Initial site condition



Figure-2 Top wall-During construction-Gabion installation



Figure-3 Top wall-During construction-Gabion installation



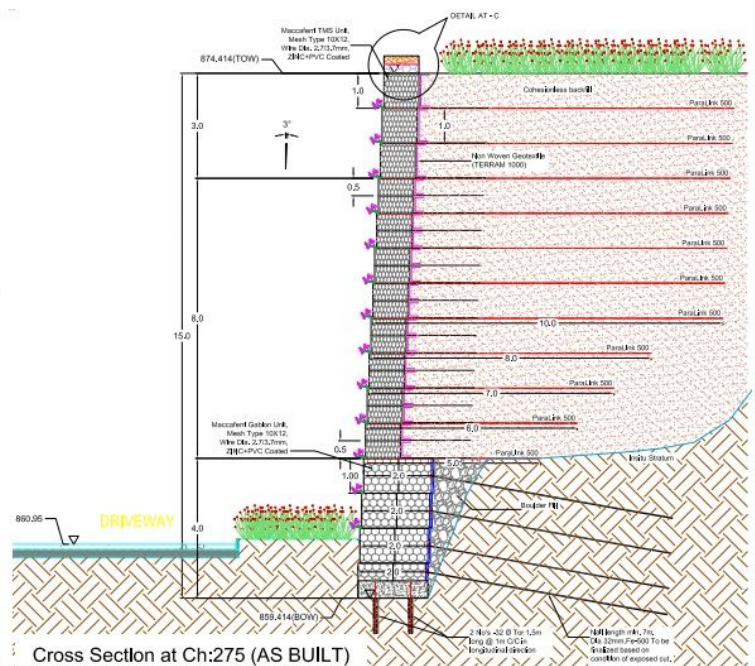
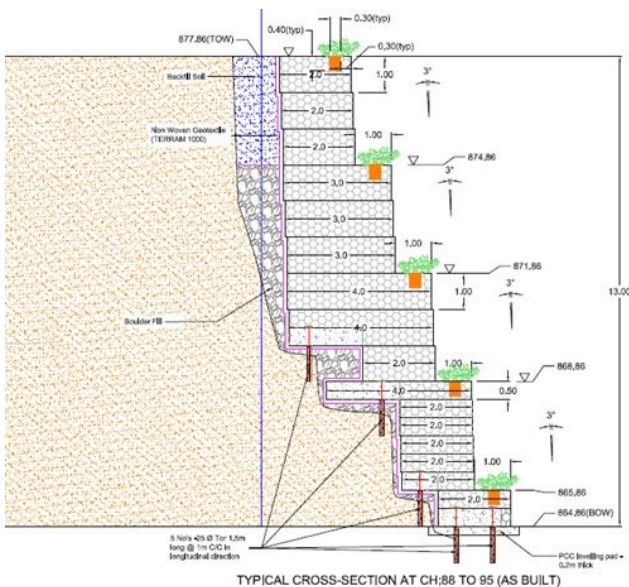
Figure-4 Top wall-During construction-Laying of Paralink



Figure-5 Top wall-After completion of works



Figure-6 Top wall-After completion of works



Typical Cross-sections

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