

REINFORCED SOIL WALL AT JAGATPURA RAILWAY CROSSING JAIPUR, RAJASTHAN, INDIA

Vertical Walls with Concrete Facing Panels

Problem

Jagatpura Railway Over Bridge (ROB) Project was envisaged for removing bottleneck in approach to Jagatpura at the Railway level crossing No. 215/T and smoothen the traffic on the particular main road linking Jagatpura with rest of the city. In order to avoid extensive foundation improvement schemes, reinforced soil wall was selected as the solution instead of conventional reinforced concrete solutions.

The cost of the conventional solution considered was high and the authorities wanted to have a system which is very flexible and simple to construct and to achieve overall economy.

Solution

Reinforced Soil Wall with concrete panels as fascia and ParaWeb® as reinforcement was selected as the best solution for the above problem.

ParaWeb strips are planar structures consisting of a core of high tenacity polyester yarn tendons encased in a polyethylene sheath. ParaWeb® is available in different grades of strength varying from 30 KN to 100 KN and the roll lengths are of 100m.

T-shaped panels with corrugations were mainly used as fascia panels and bottom panels were half panels. Some special end panels and corner panels were also used. The connection between the panels & fascia was done by galvanized toggles and loops. Polypropylene dowels were used to connect different types of panels.

R S Wall Details:

Maximum Height of Wall: 13.5 m.

Backfill Materials : $\Phi=32$ degree.

Advantages of RS System:

1. Settlement behavior: Due to inherent flexibility, RS wall can tolerate greater settlement as compared to normal RCC bridge abutments.
2. Speedy Construction: RS wall can be completed within a shorter time frame along with the approach embankment.
3. Aesthetics: The RS wall can be provided with a pleasing aesthetic finish using suitable rubber forms or fiber glass patterns in the molds of pre-cast panels.
4. Seismic Performance: Performance of RS walls in seismically active zones has clearly demonstrated that these structures have higher resistance to seismic loading.
5. Economy: RS wall is economical by 30% to 40% as compared to RCC.

Client: Jaipur Development Authority, Jaipur

Designer / Consultant: IIT Delhi and Consulting Engineers Group

Contractor: Harish Chandra (India) Ltd

Products used (Qty.)

- MacRes 8,500 sqm

Date of construction: 02/2008 - 05/2008



Photo 1: Construction of leveling pad



Photo 2: Erection of fascia panels

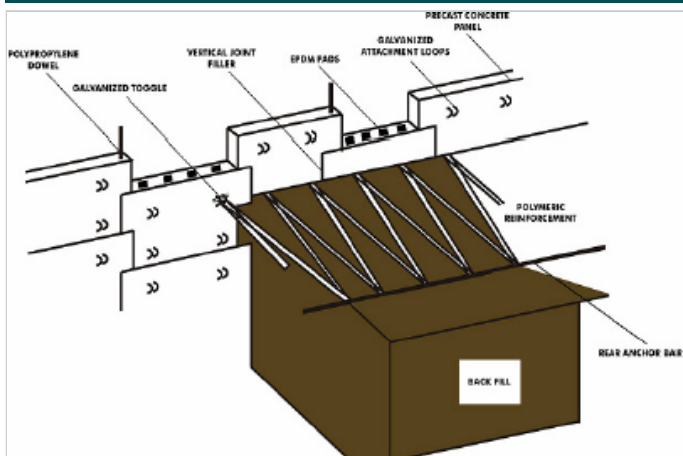


Photo 3: Components of Paraweb® reinforced soil wall



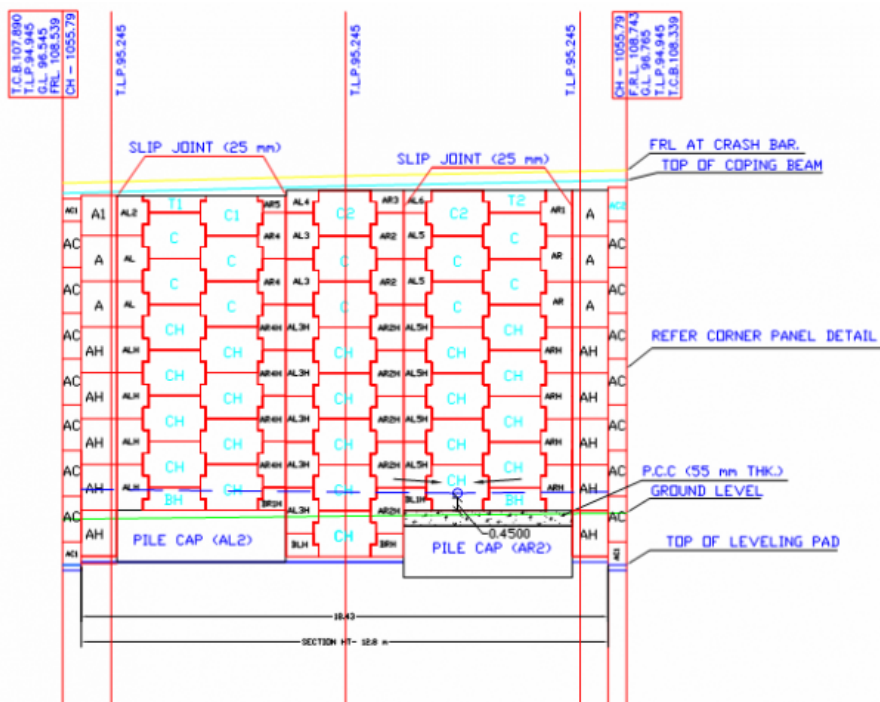
Photo 4: Construction of wall in progress



Photo 5: Completed structure



Photo 6 : Completed structure



Typical elevation drawing of closing wall