

GABION RETAINING WALL AS WING WALL AT NH8 VADODARA-BHARUCH

VADODARA-BHARUCH, GUJARAT, INDIA

Weirs, Culverts and Transverse Structures

Problem

The 83.3km stretch of NH-8 between Vadodara and Bharuch is a part of the Golden Quadrilateral and an important link in the high-density corridor connecting Mumbai and Delhi. It passes through the districts of Anand, Vadodara and Bharuch, traversing various urban centres with multiple road and rail crossings.

The scope of the project covered widening of the existing four-lane road to six-lane divided road with amenities and support infrastructure.

Project involved construction of 10 major and 36 minor bridges, 11 flyovers, 2 ROBs, pedestrian and cattle crossings at specified locations. It also included junction improvements and construction of 11km of 8m wide service road on both sides at important sections.

Solution

L & T's conventional solution was to provide RCC retaining walls as wing walls for minor bridges and culverts.

The in-situ soil was clayey in nature with low frictional values. The average cohesion value was around 30kN/m² and the average frictional value was 12 degrees. There was stream flowing in the vicinity with the estimated scour depth of 2m.

With all the above factors into consideration, it was evident that, the base width in case of rigid walls and embedment depth would have been much higher. Gabion walls being flexible and permeable in nature, could be economised to a considerable extent. Also, the speed of construction achieved at site would be more than compared to the conventional structure.

To achieve stability against foundation pressures and sliding, it was suggested to replace the foundation with frictional soil to a depth of 0.5m. To prevent the scouring action, an apron of gabion mattress was suggested to a length of 1.5 times the scour depth i.e. 3m. NHAI had the requirement that the wing walls for minor bridges and culverts to be placed in skew of angle 45 degrees, Gabions being a flexible structure could be placed along the skew with minimum site problems and wastage could be controlled to a considerable extent.

Client: National Highway Authority of India

Designer / Consultant: Artefact Consultants

Contractor: Larsen & Toubro ECC Division

Products used (Qty.)

- Gabion 30,000 cum

Date of construction: 11/2007 - 03/2008



Photo 1: Before construction



Photo 2: Before construction



Photo 3: During construction



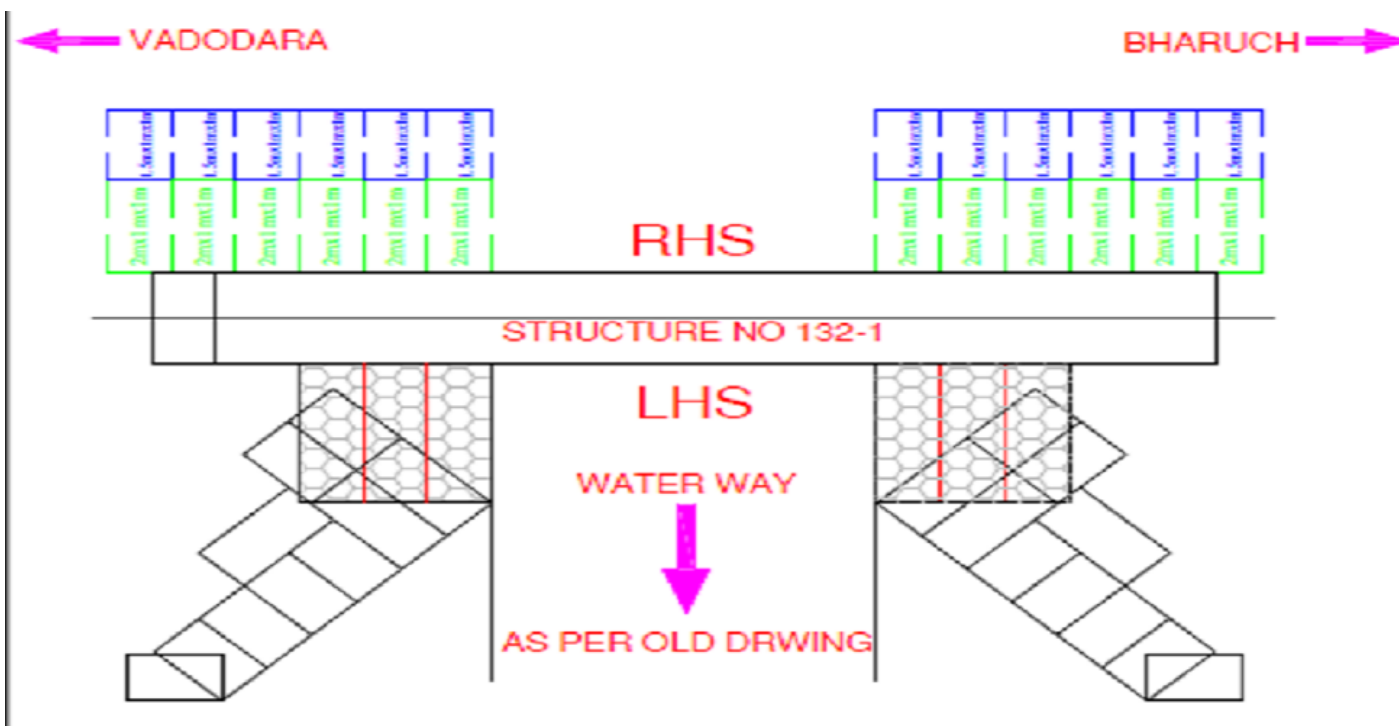
Photo 4: During Construction - Gabion Layer, Placed in Skew



Photo 5: During construction



Photo 6: During construction



Typical foundation plan