MACCAFERRI

CASE HISTORY

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CULVERT PROTECTION WITH GABION AT KURAL-SHANPUR-SOKHADA RAGHU ROAD

KURAL-SHANPUR-SOKHADA-RAGHU, GUJARAT, INDIA

Weirs, Culverts and Transverse Structures

Problem

Dhadhar river flows in Gujarat State. It originates from the Pavagadh Hills of Gujarat State and flows through Vadodara and Bharuch districts. Kural-Shanpur-Sokhada-Raghu road is an approach between two villages in Gujarat.
There is an existing pipe culvert over river Dhadhar on the approach road. The road located beyond the pipe culvert was constructed over fills which was retained with RCC structure. Due to frequent floods, the RCC structure was damaged and the approach road beyond the pipe culvert was washed away, affecting the road link between two villages. The villagers had to suffer throughout the year by using long route for travel. Road and Buildings Department requested Maccaferri for a suitable solution.

Solution

The embankment being located in high flood zone, an inherently permeable and free draining structure would have been technically suitable. Maccaferri suggested flexible gabion retaining walls. Considering the heavy flood conditions and extensive discharge through culvert, few more pipes of higher dia were provided in addition to the existing ones. Flexible structures of approximately 6m height were designed and constructed.

Major highlights of the solution and the execution are:
• Flexible nature of the solution accommodates differential settlement of foundation to a considerable extent. Further the flexibility and modular structure permitted the construction and diversion of culverts through the retaining walls.
• Permeability ensures dissipation of pore water pressure.
• Simplicity in construction ensured timely execution in difficult conditions like presence of ground water table, poor ground conditions etc.
• Environment friendly solutions.

Client: Roads & Buildings Dept (Panchayat), Gujarat
Designer / Consultant: Maccaferri (Designer) / R&B Dept (Panchayat)
Contractor: Maccaferri Environmental Solutions Pvt Ltd
Products used (Qty.)

- Gabion	Quantity Not Available
- MacTex N	Quantity Not Available

Date of construction: 05/2012 - 07/2012

Photo 1: Site Before Construction- RCC Structure failure

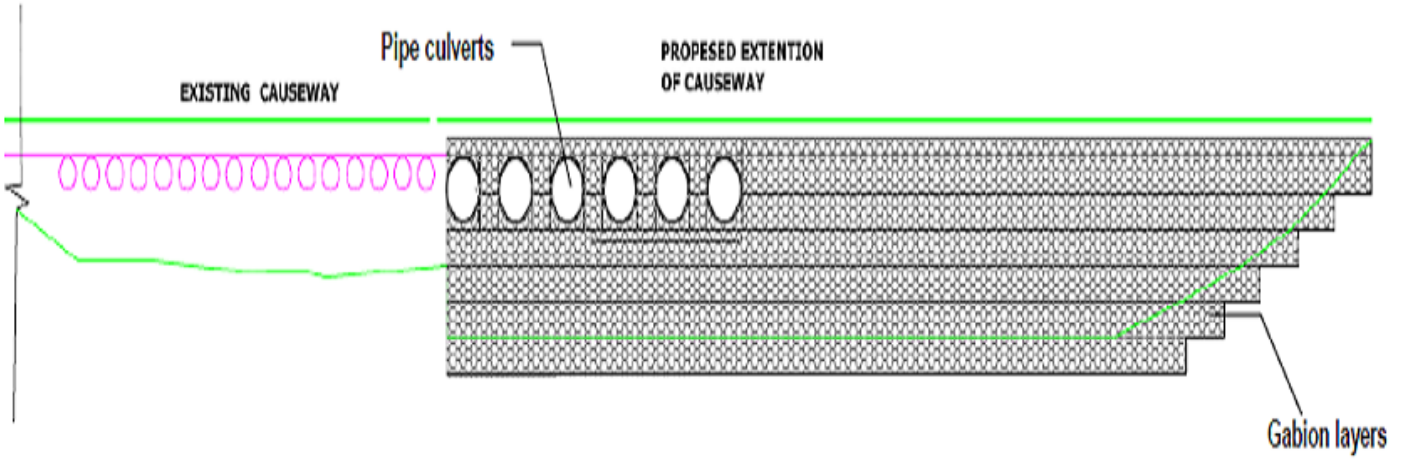
Photo 2: Site Before Construction- RCC Structure failure

Photo 3: Existing Pipe Culvert

Photo 4: Gabion layers placed in position

Photo 5: Construction of approach road

Photo 6: Construction of gabion wall



Cross sectional drawing

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