

## CASE HISTORY

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### RIVER BANK PROTECTION WORK AT ORSANG RIVER WITH TECHFAB METAL GABION REINFORCED SOIL WALL FOR BAPS TEMPLE, BODELI, GUJARAT BODELI, GUJARAT, INDIA



#### River Training Works

Client:	Products used & Quantity Supplied:
B.A.P.S SWAMINARAYAN TEMPLE, GUJARAT	• TECHFAB METAL GABION 10X12, ZN+PVC COATED 2X1X0.8 - 1079 NOS & 3X2X0.3 - 113 NOS • TECHGRID GEOGRID - TGU 100 - 5100 SQM, TGU 150 - 4590 SQM & TGU 200 - 1530 SQM • NONWOVEN GEOTEXTILE PR 20 - 3350 SQM
Consultant:	
B.R. PATEL ASSOCIATES, VADODARA, GUJARAT	
Main contractor:	
TAHIR MEMON, BODELI, GUJARAT	
Manufacturer & Supplier:	Year of construction:
TECHFAB (INDIA) INDUSTRIES LTD.	2019

#### Problem:

BAPS temple at Bodeli is situated on the Orsang river bank. Orsang is the biggest river of Chhota Udaipur district. It is the main source of the sand in this area. In 2018, Heavy rain has caused flooding in Bodeli. Nearly 4,000 people become homeless and were relocated to safer place by NDRF commanders.

The devastating floods not only result in loss of precious human lives, cattle and damage to public and private property but also create a sense of insecurity and fear in the minds of people living in the flood plains. Almost every year, Orsang river overflowing due to heavy rain in Chhota Udaipur. BAPS temple being at the bank of the river, prone to river bank erosion and flood damage.

However, the softer forms of erosion protection are not appropriate for situations where flow velocities or turbulence are high. Whereas the achievement of an environmentally acceptable protection system is very important, this has to be in the context of achieving the primary aim of bank stabilization.



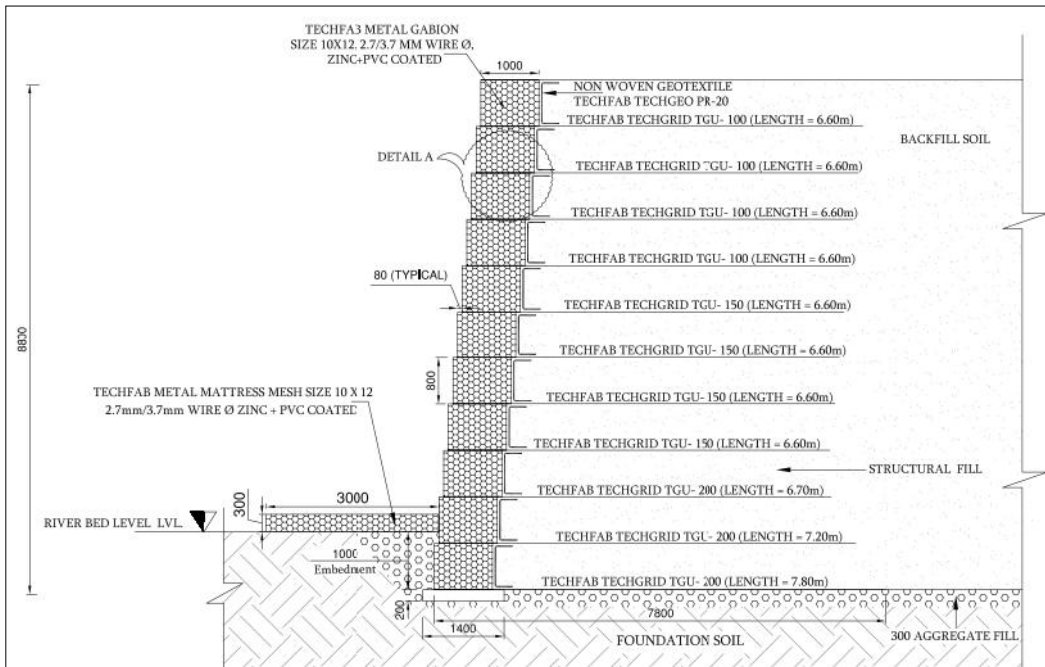
BAPS Shri Swaminarayan Temple

**Solution:**

To protect temple in case of flood situation, BAPS authority wanted a solution to reduce the flood/erosion losses and protect the flood plains near the temple area. After discussion of BAPS Temple Authority officials , consultant & Techfab Engineers it was decided to propose the system which will help to reclaim the eroded land.

Based upon the site conditions and project requirements, the engineering team has decided to construct Reinforced Soil Wall with Gabion Fascia which will provide a sustainable , environmentally friendly solutions for this project. The composite design used as a reinforced soil wall with Gabion as fascia, which is an extremely effective solution for riverbank protection work and land reclamation of eroded land.

The typical cross-section drawing for Gabion Fascia Reinforced Soil Wall is as follows: , which shows the Techfab Metal Gabions as Fascia and Techgrid Geogrid as High strength Geogrid Reinforcement and Techgeo Nonwoven Geotextile as filter media behind the Gabion fascia. The maximum height of retention in this project is around 8.8m, to protect the wall foundation from scouring flexible launching apron with Gabion Mattress is suggested at the river bed level.



**Typical Cross Section Drawing**



**During Construction Photographs**

### Advantages of Gabion Fascia Reinforced Soil walls over Conventional Retaining Wall :

- The proposed system did not require the heavier or/and deeper foundation that a conventional retaining wall would have.
- The Gabion fascia of the system is permeable in nature and allows the water to drain off and Non-Woven Geotextile behind the fascia did not allow the soil to pass through so the combine system will drain off the excess water from the backfill and restrict the building up of hydrostatic pressure.
- The proposed system enables to withstand differential settlement without affecting the integrity of the structure
- Vegetation was permitted to grow with the system, thus enabling it to blend into the natural environment and roots of the vegetation further increase the strength of the structure. which is not the case in RCC/Masonry Retaining Structure.
- The Gabion Fascia Reinforced Soil Walls are more cost-efficient and can construct speedily compare to any other similar Rigid structure.



**During Construction Photograph**



**During Construction Photograph**

### **Conclusion:**

The temple authority and Consultant are very happy with the technical support provided by TechFab team during the entire period i.e. from design, training, implementation, and completion of the project. Immediately after the completion of the structure, it has witnessed the flood of 2019 in Orsang river, and structure is in well condition and serves the purpose for which it constructed.

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