

# CASE STUDY

## Speeding up the journey from Surat to Bharuch

**Owner:**

National Highway Authority of India

**Contractor:**

IRB Infrastructure Developers Ltd.

**Project Size:**

28,000 sq.mtrs.

**Max. Height of Wall:**

10.5 m

**Project Type:**

Construction of Reinforced Soil Wall using StrataGrid

**Location:**

Surat - Bharuch (NH- 8 in the state of Gujarat)

**System Offered:**

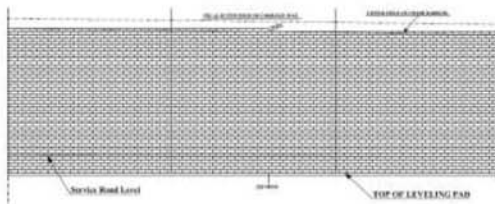
StrataGrid + StrataBlock

**Consultant**

Stup Consultants Pvt Ltd

**Completion Year:**

2010



### Project Brief

The section of the National Highway (NH 8), connecting Surat to Bharuch needed a site solution that would create additional roadway access to the prevailing high density traffic. In order to ease the traffic on the National Highway Authority decided to construct three flyovers and one vehicular underpass. The StrataBlock reinforced soil wall system was selected due to its ease in construction in constrained spaces, cost benefits and quality assurances.

### Challenge

In addition of erection of the structures, a large quantum of blocks were to be casted. The biggest challenge faced by the design team was that each site had was plagued with a different problem from erratic soil conditions to seepage water. The onsite soil investigation report, which was carried out to assess the bearing capacity of the soil indicated the soil to be weak which could lead to excessive settlement of the structures. The results of the Standard Penetration Test (SPT) showed a variation from 7 to 21 indicating erratic ground conditions, the depth varying from 1.5m to 4.0m. And from 3.0m downwards, the soil profile consisted of blackish yellow plastic silt clay with sand and natural moisture content which was less than the plastic limit. Seepage (ground) water was present near the base (levelling pad) of the proposed site of construction of reinforced soil wall. About 25m of the area was subjected to seepage water.

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### Strata Solution

Reinforced soil wall system was the most preferred solution for this project considering the prevailing site conditions. StrataGrid and StrataBlock units were used for the construction of the reinforced soil wall due to their proven performance and easy installation procedure. The StrataBlock systems has been used as they have a built-in slope, are self aligning and are cast with an inter-locking system. Faced with problems of tough soil properties and ground water, the innovative design team at Strata revamped the designs of the structures to accommodate the problems while using Federal Highway Administration National Highway Institute (FHWA) guidelines and comprised checks for external, internal and global stability under static and seismic conditions. Weak soil was replaced by well compacted granular soil. The soil below the leveling pad was replaced with graded free draining soil wrapped in geotextile. To factor the water pressure the spacing of the StrataGrid reinforcement was reduced above the levelling pad to provide stronger reinforcement.

### Benefits to client

Strata Geosystems (India) Pvt Ltd, not only completed the structures on time after tackling difficult challenges but also provided the client with superior quality service which was well appreciated by the client. Regular coordination with the client and monitoring the progress of the project on site as well as from the head office was done by the company. This level of efficiency enabled the client to start traffic on the structures on time.

### About Strata

Strata Geosystems (India) Pvt. Ltd., established in 2004, is a joint venture with Strata Systems Inc., USA (part of the 130-year old Glen Raven group of companies). Strata Geosystems provides end-to-end technical solutions, from design to execution for geotechnical applications such as reinforced soil walls (flyovers, road over bridges etc.), soil embankment stabilization, reinforced steep slopes, reinforced foundations, slope protection, load support for paved and unpaved roads and bearing capacity improvement, landfills and reservoirs.

We are renowned for our quality, durability and cost effectiveness and manufacture conforming to strict international quality standards. Our committed team of experienced design engineers and project implementation specialists ensure timely and accurate installation.



Head Office: 317, Tantia Jogani Industrial Premises, J. R. Boricha Marg,  
Lower Parel (East), Mumbai 400 011.  
Tel.: +91 22 4063 5100 | Fax: +91 22 4063 5199  
e: info@strataindia.com | w: www.strataindia.com