

HIGH STRENGTH SEAMLESS GEOTUBE



Geotextile tubes are large tube like structures fabricated from high strength Geotextile with soil-infills. Geotextile tube is formed in situ by the hydraulic pumping of local soil into the prefabricated Geotextile tube. This leads to a flexible, monolithic, continuous structure that is highly resistant to water currents. Sand is widely used as the soil in-fill material because of its low compressibility but other hydraulically pumped soil types can be used. Geotextile Tubes are also used in constructing Geotextile Encased Columns (GEC) which is form of sleeves made of high strength woven Geotextile. GEC can be filled with sand, gravel or silt. GEC used on very soft ground, where soil improvement can't be done conventionally. GEC is the development of stone column. Its main function is to transfer the embankment load through the soft soil to a firm stratum. GEC also can act as vertical drains, so it can reduce the time of consolidation. Application of geotextile tube has been demonstrated in the following figure.

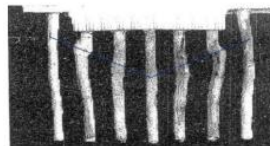
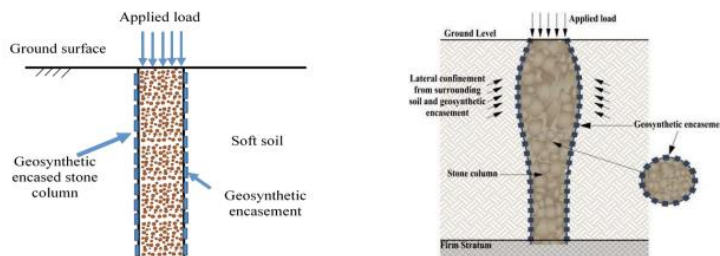


Fig 26: Stone column failure in soft soil



Geotextile Encased Stone Column, no failure

- ❖ Conventional Geotubes are formed by introducing seam along the length direction
- ❖ The seam strength is typically 30 % to 50% from main fabric
- ❖ Seam forms a weak link and failure can cause huge financial and human life loss

Seamless structures are ideal where heavy loading are encountered. SASMIRA has developed circular weaving technology for development of seamless circular fabric. Technical Specification of developed seamless tubular fabric is as under:

Technical Results of the Samples Developed

| Sample No. | Diameter (mm) | Strength CD [kN/m] (ASTM -D-4595:2011) (Wide Width) | Strength MD (kN/m) (ASTM -D-4595:2011) (Wide Width) | GSM | Warp Count Denier | Ends/ Inch | Weft Count Denier | Picks/ Inch |
|------------|---------------|---|---|------|-------------------|------------|-------------------|-------------|
| 1 | 400 | 343.81 | 112.00 | 1137 | 4000 | 10 | 12000 | 16 |
| 2 | 400 | 319.50 | 110.00 | 1066 | 4000 | 10 | 12000 | 14 |
| 3 | 400 | 242.46 | 105.10 | 845 | 4000 | 10 | 12000 | 10 |

Contact Details

The Synthetic & Art Silk Mills' Research Association (SASMIRA)
 Sasmira Marg, Worli,
 MUMBAI - 400 030, INDIA
 Tel: +91-22-24935351
 Email: project@sasmira.org
 Website: www.sasmira.org