

Stabilization of Embankment fill with Soil nails and Flexible Anchors at Malad-Goregaon IT Park, Goregaon, Ferani Developers

Project Summary: At the project site, Goregaon IT Park, Raheja Developers. Malad, Mumbai, the existing road embankment rests on fill material with varying heights as per the road levels and ground elevation. During monsoon, in the year 2019, the fill had collapsed at the location that was shown during joint visit by the consultant, contractor, client and Gripple representative. The affected area stretches for a stretch length of about 70m and a sloping length of 26m(average). The failed slope is at a slope of 1V: 2H while the proposed filled up slope is proposed to be dressed at 1V:1.75 H (around 37 degrees to the horizontal).The authorities have proposed to stabilise this embankment fill with suitable soil stabilisation measures.

Project Details	
Client's Name	K.Raheja
Consultant	Engosyms Consultants,Pune
Construction Year	2019
Product Used	32mm Dia Anchors,Gripple mat/Anchors
Contractor Name	Atharva Construction
Work Value	2.18 Cr



Solution Details: Soil Nails of 18m-22m deep at 15 deg angle have been designed for the existing embankment fills with M.S Pipe encasing with fully grouted hole of 120mm Diameter. Further soil filling and compaction need to be done to achieve the final proposed slope at 37 degrees. This will result in thickness of filling ranging from 1m to 3m. To stabilize the filled material with flexible earth anchors which is called as Terra lock system and Erosion control mat.

The Terra lock system is composed of a top termination plate to hold and lock the erosion control mat on the surface, connected with multi stranded wire length fixed to an anchor.



DRILLING AT 15° INCLINATION



ANCHORING ANCHOR BARS AND FIXING OF M.S PIPE ENCASING

System Benefits

1. Green Solution-System makes good use of on-site material,
2. Failure Prevention-Actively holds surface, locking it deep into structure. Catches and retains surface failures.
3. Increased factor of safety-Installation depth of anchors calculated to ensure system locks into structurally sound soil for an engineered solution.
4. Steepened Slopes-Allows slopes and embankments to be made steeper, reducing ground-works and maximizing use of space.
5. Lightweight-Easy to handle on site, adds minimal excess load to structure, Minimise settlement and subsidence, especially in poor soils.
6. Easy and efficient installation-can be installed quickly and economically, allowing fast assets protection and vastly reducing the time spent on site.

7. Promotes vegetation-Improving contact between surface stabilizing products and soil means vegetation can establish more quickly.
8. Durable-Manufactured using corrosion resistant materials to create a long term solution.



SLOPE STABILITY CHECK ON DATED-13TH JULY 2020

Completed Structure.

Present Status of the Slope: Slope was completed in 2019 and has withstood heavy Mumbai rainfalls till date.