

EROSION CONTROL TRIAL ALONG OOTY STATE HIGHWAY, TAMILNADU NILGIRI DISTRICT, TAMILNADU, INDIA

Slope Protection

Problem

The existing cut slope in some stretches along Ooty – Nilgiri state highway, Tamil Nadu have witnessed slope failures because of soil erosion. This has become a matter of serious concern as unchecked erosion has resulted in cuts, rills or gullies and slide problems.

After the site preparation, the soil slope has been trimmed to max. 70 degree. To prevent erosion on slope, suitable erosion control measures have been proposed and the trials are done to demonstrate the effectiveness of the proposed measures.

Solution

To carry out the trial in identified slope area of 300 sq.m, Maccaferri suggested surface nails (Self drilling Anchors (SDA) of 32mm dia.), 3D erosion control mat (a steel reinforced synthetic geomat ie, MacMat R) and hydraulically applied erosion control measures (MacFlex HP FGM and MacGanics BSM (top soil alternative)) and agronomic amendments, along with seeds. The top anchoring of MacMat R is done with top nails at crest. Agronomic soil tests have been conducted to determine the soil nutrients condition to measure soil's ability to supply essential elements to seeds, to recommend the suitable solution, assess required amendments to improve the soil and to ensure appropriate plant species selection.

The seed species are selected based on the soil type present at site, pH, climate, type of planting, availability of local seeds and discussions with a horticulturist. The quantities of various components are finalized before mixing in a hydroseeder along with seeds and water in a two step process. The mixed slurry has been sprayed over the slope surface and maintenance has been done by spraying water on the slope to avoid drying of the material.

Soon after the application of erosion control measures at site, the solution started showing the performance with respect to erosion control of the embankment slope (i.e, vegetation coverage). Trial has been successful with germination starting within few weeks and grasses were visible on the treated slope. Proper maintenance of the treated areas was mandatory to ensure the effectiveness of the system.

Client: TAMIL NADU STATE HIGHWAY

Designer / Consultant: MACCAFERRI
ENVIRONMENTAL SOLUTIONS PVT. LTD

Contractor: MACCAFERRI ENVIRONMENTAL
SOLUTIONS PVT. LTD

Products used (Qty.)

- MacMat R - Steel	-300 Sq.m
- Other Biomaterials	(MacFlex, MacGanics)-260 Sq.m
- Anchor Bar	-SDA-32mm dia- 307 RM

Date of construction: 12/2021 - 02/2022



Figure 1-Site preparation



Figure 2-Application of MacGanics over nailed slope



Figure 3-Application of MacFlex



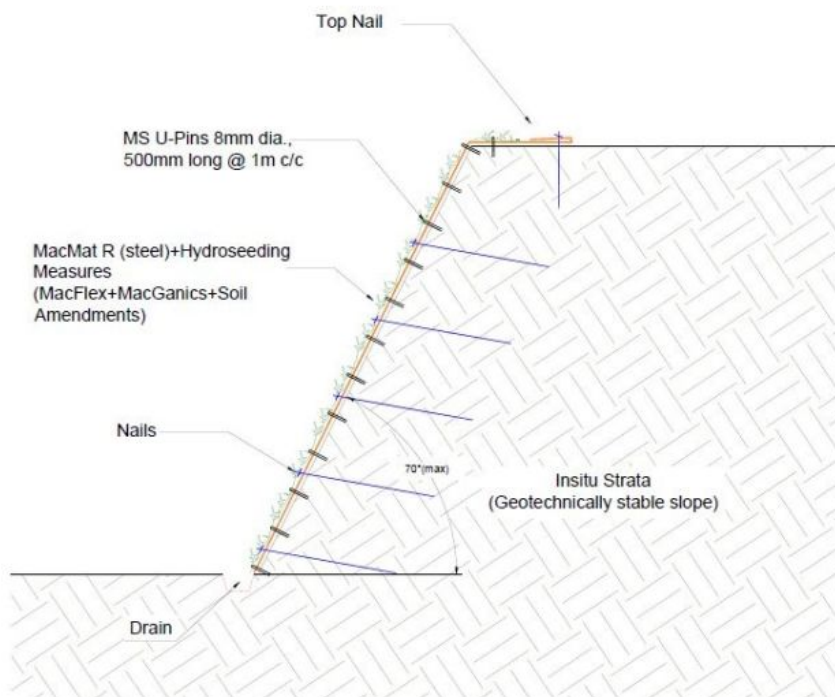
Figure 4-Watering after mulch application



Figure 5-Laying of MacMat R over hydroseeded slope



Figure 6-Vegetation establishment on slope



Typical Cross section

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