MACCAFERRI

CASE HISTORY

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EROSION CONTROL TRIALS DONE ON RAILWAY EMBANKMENT AT HOSHANGABAD

HOSHANGABAD, MADHYA PRADESH, INDIA

Slope Protection

Problem

The trial location was identified on side slope of constructed railway embankment at Managau, Near Babai, Hosangabad, Madhya Pradesh. The site has been facing soil erosion problems by erosive agents such as wind, water and gravity. Resultant loss of soil due to erosion had become a matter of serious concern. Unchecked erosion had resulted in cuts, rills or gullies and slide problems.

The prepared embankment for railway line had slope inclination of 1V:2H. The embankment filled soil was consisting of very little biotic ingredients to support vegetation.

Client: North Western Railway (NWR)

Designer / Consultant: Maccaferri Environmental Solutions Pvt Ltd

Contractor: M/s S C Jain

Products used (Qty.)

- Other Biomaterials	3,500 sqm (MacFlex, MacGanics)

Date of construction: 03/2020 - 03/2020

Solution

To protect the slope, Maccaferri suggested Hydraulically Applied Erosion Control materials - MacFlex, MacGanics and other agronomic amendments such as AquapHix, Jumpstart, Bioprime & NPK. As part of the trial, project area of 3,500 sqm was selected, split into multiple bays and the above mentioned products along with different combination of seeds are applied on the slope. Agronomic soil tests had been conducted to determine the soil nutrients condition to measure soil's ability to supply essential elements to seeds, to recommend the amendment to improve the soil and to ensure appropriate plant species selection. The solution was decided according to these tests.

The seed species were 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 hydraulically applied erosion control materials, soil amendments were finalized before mixing in a hydroseeder along with seeds and water in a two step process. The slurry obtained after mixing was sprayed over the slope surface and maintenance was done by spraying water on the slope to avoid drying of the material.

Soon after the application of erosion control measures at site, the applied systems started showing the performance with respect to erosion control of the embankment slope (i.e. vegetation coverage). Germination started within few weeks and grasses were visible on the treated slope. Proper maintenance of the treated areas was mandatory to ensure the sustenance of the system.

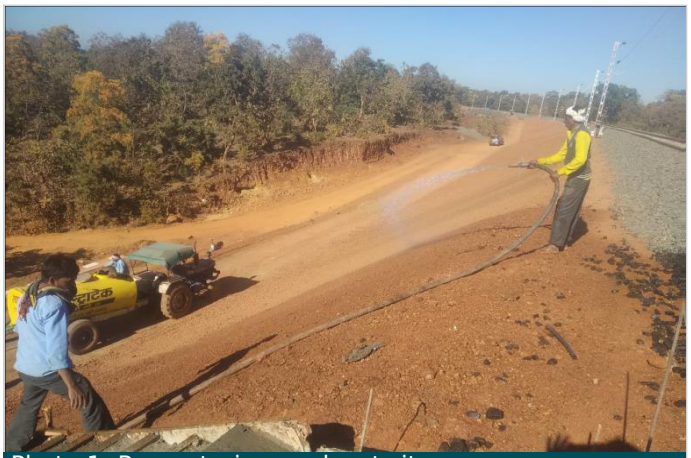


Photo 1: Pre-watering works at site

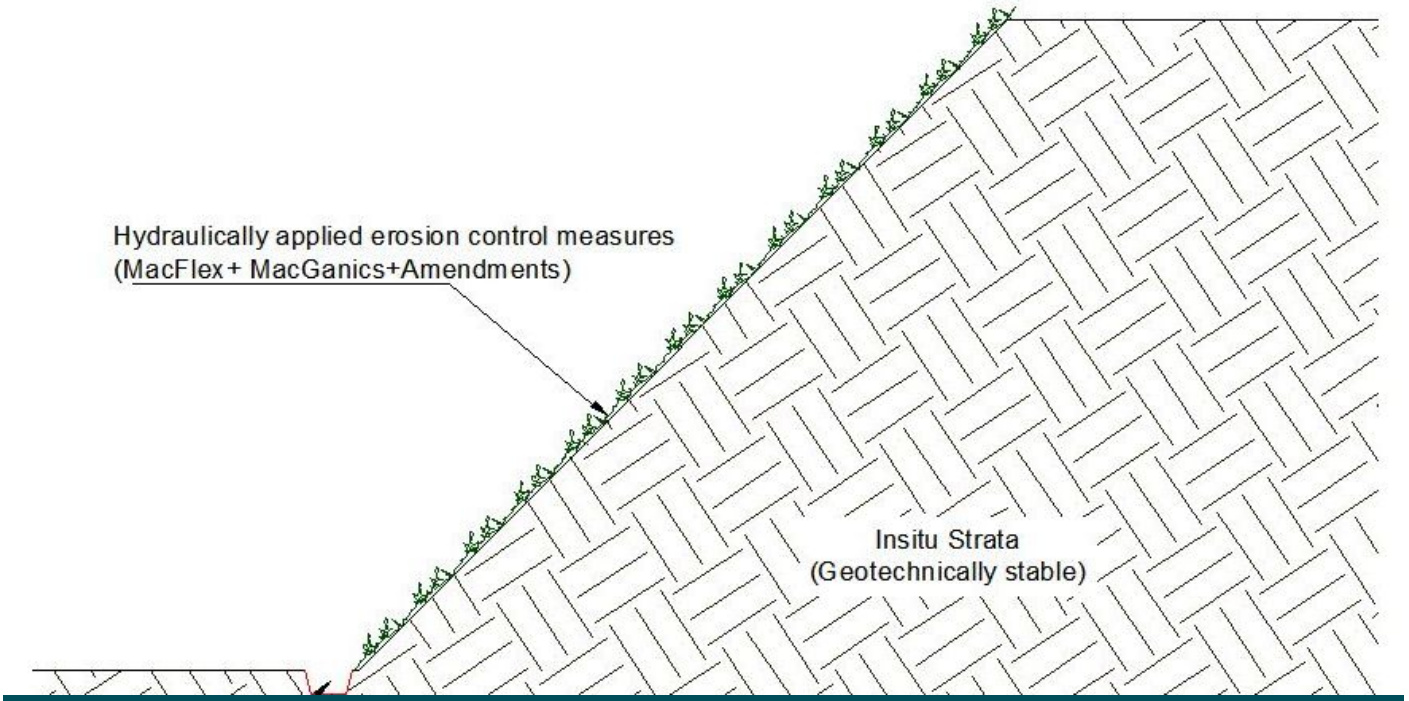
Photo 2: Completion of application of MacGanics

Photo 3: Completion of application of MacFlex

Photo 4: Watering after mulch application

Photo 5: Germination

Photo 6: Establishment of vegetation



Typical cross-sectional drawing

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