

EROSION CONTROL MEASURES TRIAL AT HINDALCO'S MURI PLANT

MURI, JHARKHAND, INDIA

Slope Protection

Problem

HIL has an aluminium plant in Muri, Jharkhand. The by-product of aluminium extraction process- red mud, gets dumped in a dumping yard. The man made slope of dumped red mud was getting eroded due to the flow of surface runoff. The red mud is highly alkaline in nature and its physical and chemical properties can limit the plant growth due to high alkalinity and salinity. The trial location identified over the area of dumped soil (over burden at the mining location) which was getting transported via wind causing severe environmental pollution of surrounding areas and was getting eroded in monsoon season, triggering rain cuts.

To protect the slope from erosion, bio-engineering measures were required to be adopted. The objective of the trial was to find out the feasibility and effectiveness of using Hydraulically Applied Erosion Control solutions on the dump soil, ensuring the vegetation growth for long term erosion control.

Solution

To protect the slope, Maccaferri suggested Hydraulically Applied Erosion Control materials - MacFlex, MacGanics and other agronomic amendments such as AquapHix, Jumpstart and Bioprime. As part of the trial, project area of 1,000 sqm was selected, split into 10 bays and the above mentioned products along with different combination of seeds were applied on the slope. Trials with top soil, flyash, red mud and other combinations were performed. 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 soil, to ensure appropriate plant species selection.

The solution has been decided according to these tests.

Client: Hindalco Industries Limited (HIL)

Designer / Consultant: Maccaferri Environmental Solutions Pvt. Ltd.

Contractor: Maccaferri Environmental Solutions Pvt. Ltd.

Products used (Qty.)

- Other Biomaterials	1000 sqm (MacFlex, MacGanics)
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Date of construction: 04/2017 - 06/2017



Photo 1: View of dumped soil slopes at site



Photo 2: Prewatering done



Photo 3: Application of MacGanics



Photo 4: Application of MacFlex



Photo 5: Vegetation establishment

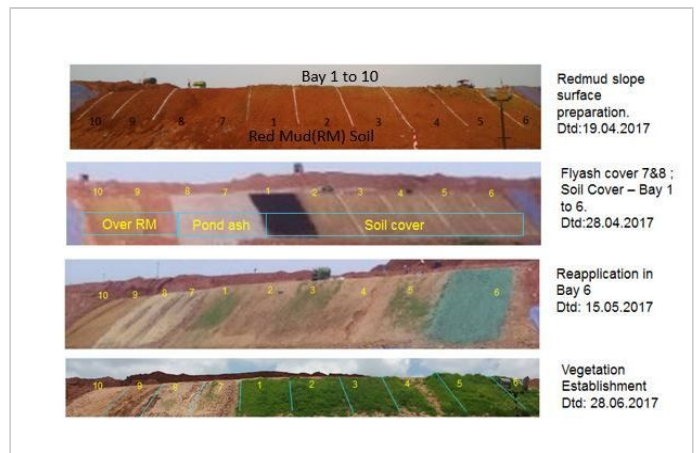
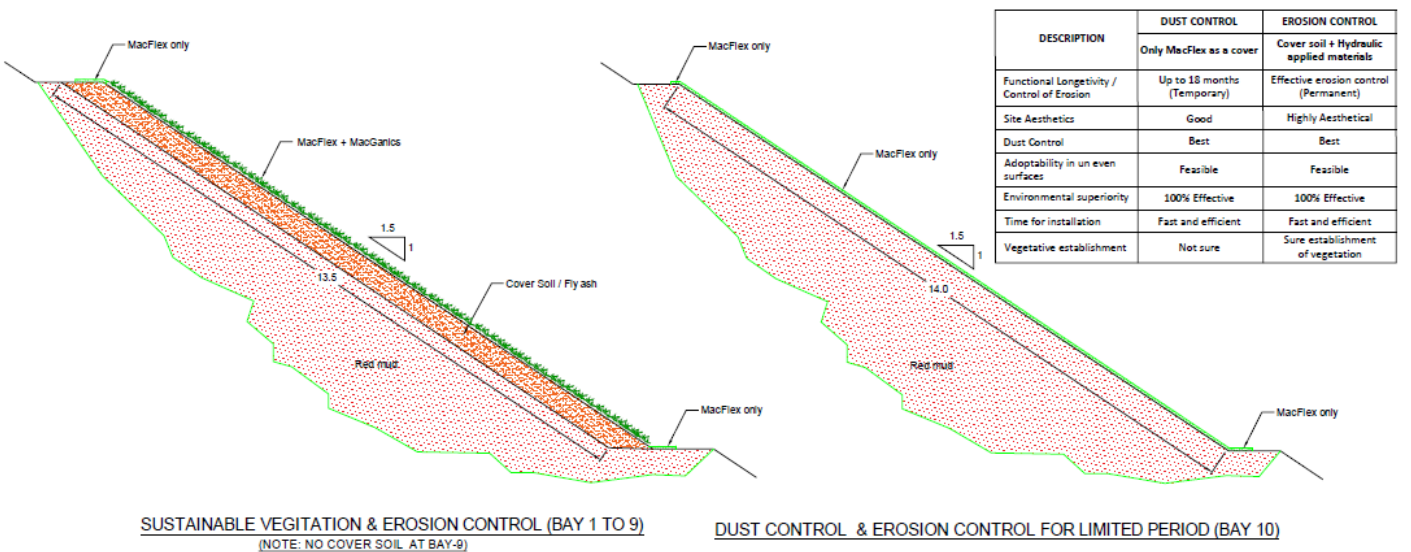


Photo 6: Summary of trials



Cross-sectional drawing

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