EROSION CONTROL MEASURES ALONG ARIYALUR BYPASS OF NH, TAMIL NADU

NH 226 EXTN (NEW NH NO 136), ARIYALUR, TAMIL NADU, INDIA

Slope Protection

Problem

Road embankment has been constructed along the stretch of Km 0/8 - Km 1/6 along Ariyalur Bypass of NH 226 Extn (New NH No 136) in Tamil Nadu. In these stretches', slope failures have been observed because of soil erosion by erosive agents such as wind, water and gravity. This has become a matter of serious concern. Unchecked erosion has resulted in cuts, rills or gullies and slide problems.

Solution

To address erosion control, Maccaferri has supplied biodegradable erosion control mat (woven coir mat (BioMac CCW)) and hydraulically applied erosion control measures (MacFlex HP FGM (HECP), MacGanics BSM (top soil alternative) and agronomic amendments, along with seeds). The top anchoring of mat is done with cement concrete blocks at the crest. Suitably designed chute drains are also constructed at stipulated intervals along the slope.

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, amendment 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.

After the site preparation, the soil slope has been covered with a layer of fertile soil and filled all the cuts and gullies present locally. 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 applied systems started showing the performance with respect to erosion control of the embankment slope (ie, vegetation coverage). The successful germination has started within few weeks and grasses have been visible on the treated slope. Proper maintenance of the treated areas was mandatory to ensure the effectiveness of the system.

Client: National Highways, Madurai Designer / Consultant: -Contractor: BS Engineering India Private Ltd. Products used (Qty.)

- Other Biomaterials

- Biomac natural

CCW-5000 Sq.m (MacFlex, MacGanics)-5000 Sq.m

Date of construction: 07/2022 - 08/2022



Figure 1-Site preparation



Figure 2-Slope after MacGanics application







Figure 4-Watering after mulch application



Figure 5- Biomac (with top anchorage) installed slope after hydromulching







Typical Cross section

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