

MUCK DISPOSAL FROM RAMPUR HYDROELECTRIC POWER PLANT SHIMLA, HIMACHAL PRADESH, INDIA

Slope Protection

Problem

The hydroelectric power plant was to be executed by the Sutlej Jal Vidyut Nigam (SJVN) near the Sutlej River. The project site is near Jhakri village, upstream of Rampur Bushahr town, Shimla.

It was strongly recommended to have estimates for muck generation and quantity that is proposed for reuse, as it could be a very serious concern if it finds a path in river Satluj.

It was also advised to adopt scientific technology for preparation of muck disposal sites including landscaping to avoid deteriorating impacts on river ecology. Most muck disposal sites identified by the SJVN are on right bank of river as majority of the village settlements were along the left bank of the river.

Solution

With consideration of specified problem, it was decided to dump the muck on the upper slopes of the Satluj river. To avoid the muck from falling down into the river, slope protection was proposed. For the environmental considerations, it was required to protect the slope with a solution which allows growth of vegetation. Hence, coir mat-BioMac® C was selected to serve the purpose.

BioMac® C is an “extended life” erosion control blanket manufactured from 100% coconut (coir) fiber. The blanket is covered on the top and bottom with a UV stabilized polypropylene netting, which is stitched together to create an even mat. The coconut fiber is evenly distributed between the nets. The edges of the mat are rolled and stitched to create a closed edge and prevent unraveling. Biomac® C has an expected design life of approximately 36 months in normal conditions.

Biomac® C is used in combination with soil bioengineering techniques such as live fascines to reduce surface runoff and live stakes as an anchoring device for the system. Biomac® C can be used in combination with other ecological systems such as Green Gabions® and EnviroLogs® for protection, restoration and erosion mitigation of wetlands.

Benefits:

- Immediate erosion control and high moisture containment.
- Creates hospitable conditions for plant invasion and establishment.
- The polypropylene netting provides initial root reinforcement for plants.

The project is completed and very good vegetation has grown on the protected slope.

Client: Rampur Hydro electric Project

Designer / Consultant: Maccaferri Environmental Solutions Pvt. Ltd.

Contractor: M/s Amit Sharma Contractor

Products used (Qty.)

- Biomac natural 1,71,938 sqm

Date of construction: 11/2009 - 12/2009



Photo 1: Slope before construction



Photo 2: During construction



Photo 3: Laying of Biomac®



Photo 4: Anchoring of Biomac®



Photo 5: Completed structure



Photo 6: Growth of vegetation on the slope



Photo 7: Vegetated slope