OFFICE OF THE DIVISIONAL FOREST OFFICER
RAMNAGAR FOREST DIVISION
RAMNAGAR
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BIOLOGICAL MEASURES FOR STABILIZATION OF MUCK DUMPING SITES TO BE UNDERTAKEN IN THE CONSTRUCTION OF ROAD FROM NALLA GOURAN TO MURRARA DEVI IN RESPECT OF RAMNAGAR FOREST DIVISION.

1. **Introduction:**

The Ramnagar Forest Division was constituted in 1984 vide Govt. order No. FST of 1984 dated 23.05.1984. It has three Ranges viz: Ramnagar North, Ramnagar South and Basantgarh. This Forest Division is situated between 75^0.9' E to 75^0.42' E Longitude (meridian and 32^0.40' N to 32^0.58' Latitude (Parallel). The Ramnagar Forest Division is bounded on its North by Jug Dhar which extends towards South East to the highest peak (Kaplas) (4341 m) from the mean sea level. On the eastern side, ridge of the Ujh catchment separates Basantgarh and Billawar Ranges. On the Western side River Tawi, Champal Khad (partly), Barmeen Khad (partly) and Nardan Nallah forms the boundary.

2. **Configuration of the ground**:

The tract is extremely hilly and rugged in nature having varied range of aspects and is cut up by numerous Nallahs and Khads which makes it difficult to traverse. The hilly slopes range from precipitous to gentle. The altitude varies from 500 m to 4341 m. There are two main rivers i.e. river Tawi and river Ujh.

3. **Geology, Rock and Soil**:

   a. **Recent**: Consist of alluvial gravel and glacial moraines.

   b. **Upper Siwaliks**: It consists of coarse boulder-conglimerate, coarse grits, sand grits and clays.

c. **Middle Siwaliks**: It consists of brown sandstone, gravel beds or clays & hales hard gray sandstone with inter bedded clays.

d. **Lower Siwaliks**: Consists of dark grey, buff brown shales and sand stone, hard red sand stone, purple shales and pseudo-conglomerate.

e. **Murrees**: Purple, Grey hard and compact bedded, massive undulated sand stones inter bedded with purple and red clays.

4. **Climate and Rainfall:**

The climate of the tract varies with altitude, aspect and topography, a Sub-tropical climate prevails over most parts of the division as its tract consists of low lying hills. Most part of Ramnagar North and Basantgarh Ranges experience a moist climate. Snow fall is a regular feature at higher reaches of the division during winters. It melts early in the Ramnagar North Range but lasts for a pretty long time in higher elevations of Basantgarh Range.

5. **Diversion of Forest Land for Non-Forestry Works:**

In order to uplift the life of downtrodden people in terms of access to better education, enhancement of living standard, and access to economy, the road connectivity is the main key for which a special project PMGSY has been launched by the Central Govt. In the implementation of this scheme, various types of land is to be involved, and the Central Government under the provision of Indian Forest (Conservation) Act, 1980 has made access to use of forest land for non-forestry activity. To mitigate the loss of environment which is the key component for the sustainable of all living creatures on this planet, several parameters have been kept in view by the Government while considering the use of forest land for non-forestry purposes.

6. Stabilization of Muck Dumping Sites.

While taking into hand the construction activities of road, a large scale much is generated and thrown in the forest land, thus disturbing the natural feature of the site. In order to stabilize these sites, a plan with respect to biological measures has been drawn as under:

Area under mulba dumping sites = 3.125 ha.

S. No.	Item of works	unit	Qtty.	Rate (in Rs)	Amount (Rs. in lakh)
1	Fencing: Using Square Fence post conforming to product code PCFP-4 at spacing of 10' & 5 strands of Galvanized Barbed wire with 2 criss cross conforming to the product code GA-BW all fence post be fixed in the cement concrete 1:3:6 (1 Cement:3coarse sand: 6stone aggregate 40 mm nominal size) block of size 1'6" x 1'x1'	Rft	4000	100/rft	4.00
2	Afforestation (1st Year)				
i	**Plantation**: Poly bagged planting of fast-growing soil binding local species (Tree/Shrubs) in pits of size 45 x 45 x 45 cm in staggered fashion along the contour.	Nos.	4700	29.34	1.38
ii	**Plant Production:** Raising of plants in Polythene bags of size (9" x 6") conforming to product code No. PB-60/90 with artificial source of irrigation in the nursery	Nos.	5000	8.03	0.40
iii	Maintenance of Plants raised in departmental Nursery	Nos.	5000	2.66	0.13
iv	**Agave:** Agave bulbs planted between interspaces of plants, open spaces & along the fence line of size	Nos.	12500	15.45	1.93
v	**Grass slips** (Soil binding grasses viz: Vetivers, Napier, Saccharum munja & Arundo donax)	Nos.	12500	6.35	0.79
vi	**Cutting:** Ipomea/Vitex/Popular/Salix/Mulberry (area specific)	Nos.	3200	6.00	0.19
vii	**Seed ball**: Broad casting/dibbling of seed balls	Nos.	3200	2.35	0.075
				Total	**4.895**
3	**Maintenance for 9 Years:** 2nd year @ 25% + 3rd year @ 10% + 4th Year to 10th Year 7@ 5% = 70% of afforestation				3.43
				Total (1+2+3)	**12.325**
4	Overhead 10% of total				01.23
				Grand Total	**13.555**

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7. **Modus Operandi**

a) Fast growing species of plants shall be planted to stabilize the area in the very near future.

b) Soil binding species viz: Vetivers, Napier, Saccharum munja & Arundo donax shall be planted.

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04/04.

ENGINEERING MEASURES FOR STABILISATION OF MUCK DISPOSAL SITES IN FOREST AREA

"Typical Estimate for Construction of Crated Wall at Dumping Sites for Muck Disposal"

Proposed Length of Crated Wall = 60 m

Trench excavation in dense soils

Quantity = 1 x 60m x 1.40m x 0.60m = 50.40 cum

Amount = 50.40 cum @ Rs. 332/cum = Rs. 16732

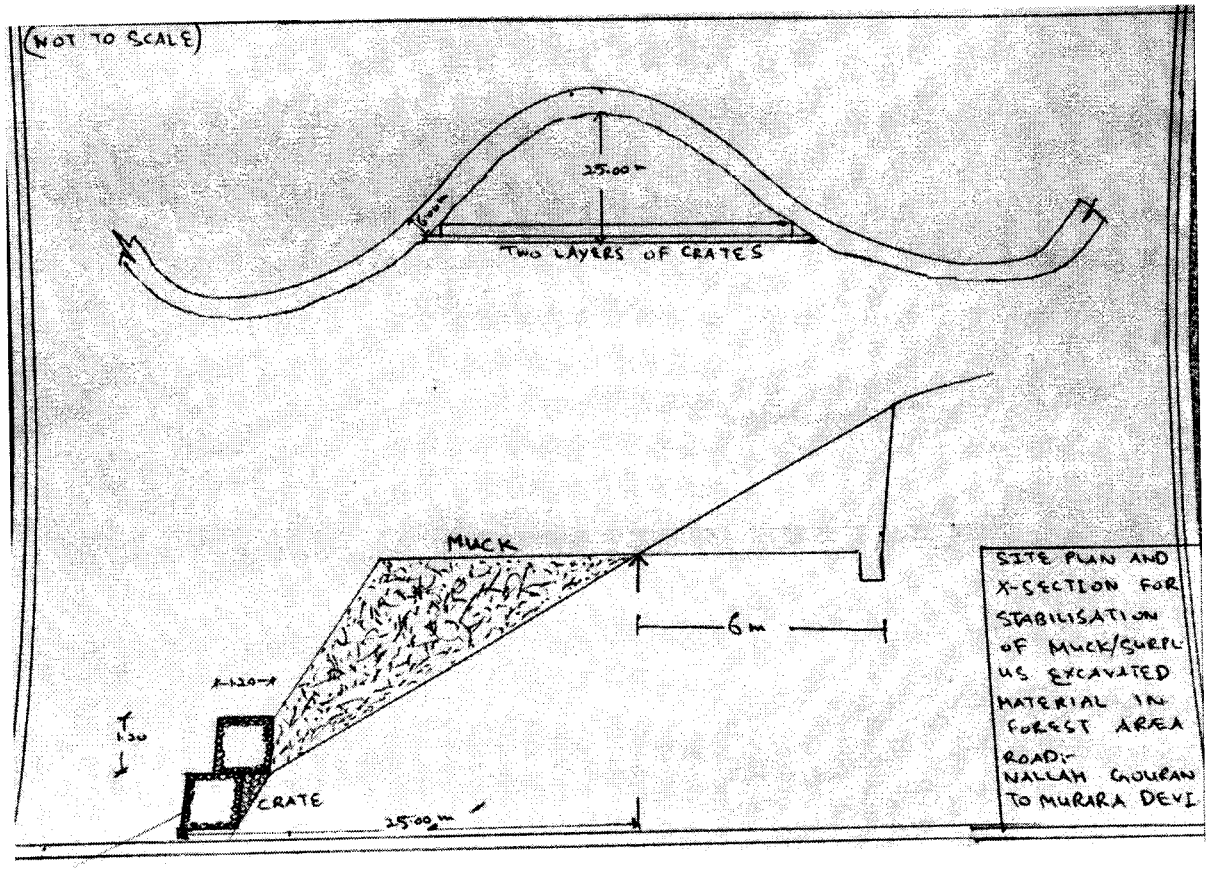
For two layered crated wall

Quantity = 2 x 60m x 1.2m x 1.2m = 172.80 cum

Amount = 172.80 cum @ Rs. 1200/cum = Rs. 207360

Total amount for two layered crated wall at a dumping site = 16732 + 207360 = Rs. 224092

Total amount for two layered crated wall at 25 dumping sites = 25 x 224092 = Rs. 5602300



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