

**Reclamation Plan for Dumping Site in respect of FCA proposal for widening and strengthening to Double lane of Poanta-Rajban-Shilai-Hatkoti road, Portion snail to Hatkoti from RD 149/00 to 161/715 (Old NH-72B), within the jurisdiction of Rohru Forest Division, Distt. Shimla H.P.**

Diversion of 5.368 Ha. of forest land has been proposed for widening and strengthening to Double lane of Poanta-Rajban-Shilai-Hatkoti road, Portion snail to Hatkoti from RD 149/00 to 161/715 (Old NH-72B), within the jurisdiction of Rohru Forest Division, Distt. Shimla H.P. by NH- Division Theog Distt. Shimla.

The total length of the road is 12.715 Kms, and the length i.e. 1.66 Km (Including 3 No. of Bridges) passes through the forest land and 11.055 Kms through non-forest land. The road will be constructed in cut and fill method. A total quantity of muck 98284.67 cumn of muck will be generated during the construction of this road. Since after excavation of earth there will be some increase in volume of soil which is calculated at 40%. The serviceable material will be stacked at site in the form of stone/aggregate i.e. 19855.49 m<sup>3</sup> and will be used in dry masonry & edge wall, nearly 20% of muck will have to be disposed off in the identified dumping sites as per reclamation plan.

Thus all the muck generated will be dumped in the designated dumping sites. 2 numbers dumping sites designated as DS-1 & DS-2 have been indentified for dumping of muck/debris to be produced during the construction phase of the project. It is proposed that the dumping sites are treated in such a manner that these do not pose any problem to the environment management of the locality. This reclamation plan has been formulated with the following objectives:-

1. To arrest the dumped muck in situ so that it does not find its way to the nearby drainage channels, thus altering the drainage pattern of the area.
2. To rehabilitate the dumped area over a period of time so that it merges with the adjoining natural landscape and does not stand out as a sore point.
3. To improve the aesthetic view of the dumping grounds/dumping site by planting suitable plants and trees species thereby increasing the vegetable cover in the area.
4. To stabilize the dumping site by vegetative and engineering structure.

### **Implementation**

The proposal will be implemented by the user agency itself at its own cost as detailed in this plan. The implementation of the plan will be supervised by the forest department from time to time and the progress will be periodically monitored. In case of default the sanction of diverted land may be revoked with suitable penalty as decided by the Govt. of India.

### **Strategy**

The two phased approach will be followed for reclamation of the dumping sites. In the first instance crate walls will be created around the dumping site so that required capacity for dumping of muck is created at the sites. The detailed drawings of the Crate works to be undertaken are enclosed. The primary objective of the crate works will be to arrest the dumping muck to the dumping site and not to allow its spillage to the adjoining area eventually to nearby drainage lines. The capacity of the dumping sites has been calculated i.e. 198554.49 cumm as detailed in the Muck Management Plan and will be enough to hold the muck to be dumped in each of the sites.

In the second phase once the dumping is complete it will be ensured that the dumping site is planted with the grasses, bushes shrubs so that it gives an aesthetic look. This vegetal cover will also help in binding the soil and will prevent its erosion. For vegetating the dumping sites suitable local species will be preferred. However, it may be noted that bulk of the muck to be dumped will be excavated material which will be lacking in essential nutrients and organic matter and hence it will be desirable to increase the nutrients status of the top soil to be conducive to tree vegetal growth. For this purpose maturing of the top soil be done if required, the imported soil be brought to replenish the top soil. Intently the grasses and bushes will be planted in the area to improve soil condition. Once these grasses and bushes take hold to the site, the tree species will be planted in the next phase. The tree species to be planted will be mainly Kail (Pinus Walichiana), Chir (Pinus Roxburghii). Grasses like Steria and Napier will also be propagated. Trees will be planted at the closer spacing so that canopy is closed at the earliest. Hence, the spacing will be kept at 1.5x1.5



mtrs. The total area involved in the dumping site is 30468 Sqm. Shrubs and bushes will be planted in between these trees. The dumping site will be fenced with bared wire fencing to prevent the entry of the stray cattle thereby ensuring the protection of the plant from grazing. Also, due to inert nature of the soil, plant will need extra care for their establishment for the purpose imported soil/organic manner will be added in each pit for easy establishment of plants. Watering of the plant in dry session will be provided to prevent mortality. The plantation will be further maintained in project cost for ten years when beating up of failure will be done.

The cost estimate of dumping site is enclosed as Annexure R and the cost of trees will be met from the yearly programme of plantation during rainy season. The plantation work will be started from the year following the completion of dumping site. However, creation of the crate walls around the dumping sites will be done prior to actual dumping.

Plantation cost = Rs. 9,65,115/-  
Civil cost = Rs. 85,67,171/-

The total cost of the reclamation Plan is Rs. 95,32,286/- only. (copy enclosed)

**Post Reclamation arrangement:**

Since the area in question is required by the user agency only for the temporary use of dumping, hence the area will be reverted back to the forest department after implementing the reclamation plan, if so stipulated by Govt. of India. However, it at the time of so reverting back the forest department if any activity as per this reclamation plan is found wanting then the forest department may realize the cost of that activity from the user agency at the prevailing wage rates applicable in forest department and may get the same done departmentally at the project cost.

  
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**ABSTRACT OF COST**

**Annexure-R**

**Name of Work:- Widening to two lane i/c road safety works on Paonta Raibari Shillai Meenus Hatkoti Road from Km.149/0 to 161/715 on NH-72**  
**B (New NH-707) in state of HP**

**SH : Dumping site with cost of dumping**

S.No	Description of item	Unit	Quantity	Rate	Amount
1	Earthwork in excavation for structures as per drawing and technical specifications Clause 305.1 including setting out, construction of shoring and bracing, removal of stumps and other deleterious material and disposal upto a lead of 50 m, dressing of sides and bottom and backfilling in trenches with excavated suitable material.	cum	585.00	43.70	25564.50
2	Providing and construction of a gabian structure for retaining earth with segments of wire crates of size 7 m x 3 m x 0.6 m each divided into 1.5 m compartments by cross netting, made from 4 mm galvanised steel wire @ 32 kg per 10 sqm having minimum tensile strength of 300 Mpa conforming to IS:280 and galvanizing coating conforming to IS:4826, woven into mesh with double twist, mesh size not exceeding 100 x 100 mm, filled with boulders with least dimension of 200 mm, all loose ends to be tied with 4 mm galvanised steel wire for retaining earth	cum	1828.13	2805.60	5128987.50
3	Carriage of excavated material which requires hauling for dumping at proposed site	tonne	99232.19	13.26	1315818.81
4	Planting permanent hedges including digging of trenches, 60 cm wide and 45 cm deep, refilling the excavated earth mixed with farmyard manure, supplied at the rate of 4.65 cum per 100 metres and supplying and planting hedge plants at 30 cm apart	m	1600.00	1310.50	2096800.00
	<b>Total</b>				<b>8567171.00</b>

Note: This abstract has been taken from original Detailed Project Report sanctioned by the MORT&H.

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## Reclamation Plan for Muck Dumping

## Rajban-Shilai-Minus-Hatkoti road 0/00 to 3/360.

Year	Area in (ha)	Unit cost at wage structure per Ha for 2023-24	Total amount (col. 2*3)	No. of plants planted in 1 Ha	Total No. of plants Planted (col. 2*5)	Total amounts of plants (Col. 6*22)	Total amounts {Unit cost +Plant cost (4+7)}	Year of execution of work	Cost of cost escalation	Amount of Cost escalation	Total amount (4+7+11)
1	2	3	4	5	6	7	8	9	10	11	12
0 Year Plantation	3.0468	94500	287922.6	1100	3352	73744	361666.6	2022-23	10%	36166.66	397833.3
1" Year Maintenance	3.0468	11480	34733.52	330	1006	22132	56865.52	2023-24	20%	11373.1	68238.62
2" Year Maintenance	3.0468	7700	23460.36	220	671	14762	38222.36	2024-25	30%	11466.71	49689.07
3" Year Maintenance	3.0468	3900	11882.52	110	336	7392	19274.52	2025-26	40%	7709.808	26984.33
4" Year Maintenance	3.0468	3900	11882.52	110	336	7392	19274.52	2026-27	50%	9637.26	28911.78
5" Year Maintenance	3.0468	3900	11882.52	110	336	7392	19274.52	2027-28	60%	11564.71	30839.23
6" Year Maintenance	3.0468	3900	11882.52	110	336	7392	19274.52	2028-29	70%	13492.16	32766.68
7" Year Maintenance	3.0468	3900	11882.52	110	336	7392	19274.52	2029-30	80%	15419.62	34694.14
8" Year Maintenance	3.0468	3900	11882.52	110	336	7392	19274.52	2030-31	90%	17347.07	36621.59
9" Year Maintenance	3.0468	3900	11882.52	110	336	7392	19274.52	2031-32	100%	19274.52	38549.04
10" Year Maintenance	3.0468	3900	11882.52	110	336	7392	19274.52	2032-33	110%	21201.97	40476.49

Year of execution of work	Cost of cost escalation	Amount of Cost escalation	Total amount (4+7+11)
9	10	11	12
2022-23	10%	36166.66	397833.3
2023-24	20%	11373.1	68238.62
2024-25	30%	11466.71	49689.07
2025-26	40%	7709.808	26984.33
2026-27	50%	9637.26	28911.78
2027-28	60%	11564.71	30839.23
2028-29	70%	13492.16	32766.68
2029-30	80%	15419.62	34694.14
2030-31	90%	17347.07	36621.59
2031-32	100%	19274.52	38549.04
2032-33	110%	21201.97	40476.49
Total			785,604
Contingency 5%			39,280
Total			824,884
Departmental Charges 17.5%			140,230
G.Total			965,115

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