

Muck Management Plan

ame of work: - Construction of Chillon to chowki mrigwal km 0/00 to 8/00

1.	Total quantity of muck to be generated from cutting	37051 m ³
2.	Deduction of useful stone as required under clause of agreement to be executed by the Executive Engineer of Project implementing Unit division on behalf of Govt. of H.P. for suing in the project.	5558 m ³
3.	Net balance quantity of debris/muck	31493 m ³
4.	Add quantity available on site with swell factor @ 25% on PW & JW	7873 m ³
	Total (A)	39366 m ³
5.	Less for materials required for dumping in behind R/wall etc. @10% of A	3937 m ³
6.	Less for materials required for levelling of proposed road @ 15% of A	5905 m ³
7.	Less materials/muck required for levelling/filling of road on the analogy of half cutting and half fittings @ 40% of A	15746 m ³
	Total (B)	25588 m ³
8.	Materials/Muck left at site which will require carriage for proper dumping into the recognized sites as per the illustration of forest and environment Ministry reinforced by various judgment of the Apex court Govt. of India i.e. (A-B)	13778 m ³
9.	Design proposed for dumping sites (attached)	4 Nos
10.	Total capacity of dumping sites as per details attached	14000 m ³
11.	Area in hectare for dumping sites.	
	i. Forest area	0.16 hect.
	ii. Non forest	0.00
	iii. Total	0.16 hect

Assistant Engineer
Sub Division Sataun
HPPWD SATAUN

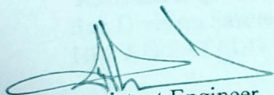
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(B&R) Shillai Division
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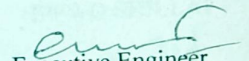
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Executive Engineer
Shillai B&R Division
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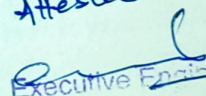
Details of dumping sites.

MUCK MANAGEMENT

SR. No	Name of dumping site	RD/KM	Area coming under dumping			Capacity of dumping sites.
			Forest area	Non Forest Area	Total	
1.	Dumping site NO. 1	0/645 to 0/665	0.04		0.04	3400
2	Dumping site NO. 2	1/270 to 1/290	0.04		0.04	3500
3	Dumping site NO. 3	1/360 to 1/380	0.04		0.04	3300
4	Dumping site NO. 4	2/840 to 2/860	0.04		0.04	3800
Total :-			0.16	0.00	0.16	14000


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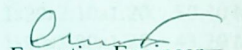
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Shillai B&R Division
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Detail showing the capacity of dumping sites.

Sr. No	Name of dumping site	RD/KM	X-sectional area of dumping site	Length	Quantity/ Capacity
1	Dumping site NO. 1	0/645 to 0/665	170 SQM	20	3400
2.	Dumping site NO. 2	1/270 to 1/290	175 SQM	20	3500
3 No. 3	Du mping site	1/360 to 1/380	165 SQM	20	3300
4	Dumping site NO. 4	2/840 to 2/860	190 SQM	20	3800
	Total :-				14000 m3

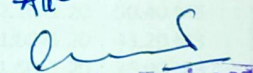


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Detail of Measurement

Name of work **Construction of Chillon to chowki mrigwal km 0/00 to 8/00 (SH: Construction of wire crates for dumping sites)**

Sr. NO	Description	No. L x B x H	Quantity in CUM
1	Providing and laying of boulder apron laid on wire crates with 4mm dia wire confirming to 1:5:280 and 1:5:4826 in 100mmx100mm mesh (woven diagonally) including 10% extra for lapse & joints laid with stone boulders weighing not less than 25 kg each. Dumping Site No. 1 RD. 0/645 to 0/665		
	1 st layer	1x20x2.70x1.20	64.80 M3
	2 nd layer	1x20x2.40x1.20	57.60 M3
	3 rd layer	1x20x2.10x1.20	50.40 M3
	4 th layer	1x20x1.80x1.20	43.20 M3
	5 th layer	1x20x1.50x1.20	36.00 M3
	Dumping site No. 2 RD 1/270 to 1/290		
	1 st layer	1x20x2.70x1.20	64.80 M3
	2 nd layer	1x20x2.40x1.20	57.60 M3
	3 rd layer	1x20x2.10x1.20	50.40 M3
	4 th layer	1x20x1.80x1.20	43.20 M3
	5 th layer	1x20x1.50x1.20	36.00 M3
	Dumping site No. 3 RD 1/360 to 1/380		
	1 st layer	1x20x2.70x1.20	64.80 M3
	2 nd layer	1x20x2.40x1.20	57.60 M3
	3 rd layer	1x20x2.10x1.20	50.40 M3
	4 th layer	1x20x1.80x1.20	43.20 M3
	5 th layer	1x20x1.50x1.20	36.00 M3
	Dumping site No. 4 RD 2/840 to 2/860		
	1 st layer	1x20x1.50x1.20	64.80 M3
	2 nd layer	1x20x2.40x1.20	57.60 M3
	3 rd layer	1x20x2.10x1.20	50.40 M3
	4 th layer	1x20x1.80x1.20	43.20 M3
	5 th layer	1x20x1.50x1.20	36.00 M3
			1008.00 m3

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H.P.P.W.D., Shillai

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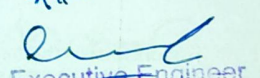
ABSTRACT OF COST

Name of work:- Construction of Chillon to chowki mrigwal km 0/00 to 8/00 (SH:
Construction of wire crates for dumping sites)

Sr. NO	Sub Head and Item of work	Qty	Rate	Unit	Amount
1	Providing and laying of boulder apron laid on wire crates with 4mm dia wire confirming to 1:5:280 and 1:5:4826 in 100mmx100mm mesh (woven diagonally) including 10% extra for lapse & joints laid with stone "boulders weighing not less than 25 kg each	1008.00 cum	1857.10	Per Cum	1871957
	Total :-				1871957


Assistant Engineer
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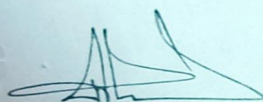

Executive Engineer
(B&R) Shillai Division
HPPWD SHILLAI


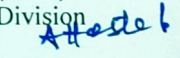
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Executive Engineer
Shillai B&R Division
H.P.P.W.D., Shillai

PURPOSE WISE BREAK UPTO TOTAL LAND REQUIRED FOR
Construction of Chillon to chowki mrigwal km 0/00 to 8/00

SR. No	Description	Total land required (Hect)	Private Land required (Hect.)	Forest land required (hect).
1.	Construction of Chillon to chowki mrigwal km 0/00 to 8/00	1.92		
2	For dumping site RD. 1 0/645 to 0/665		---	0.04
3	For dumping site RD. 2 1/270 to 1/290		----	0.04
4	For dumping site RD. 3 1/360 to 1/380		----	0.04
5.	For dumping site RD. 4 2/840 to 2/860		----	0.04

Total land for road construction(i/c dumping sites) = 1.92 Hect.
Total land for dumping site = 0.16 Hect


Divisional Forest Officer,
Renuka Ji Forest
Division


Executive Engineer
(B&R) Shillai
Division

Executive Engineer
Shillai B&R Division
H.P.P.W.D., Shillai


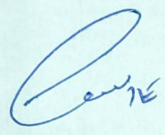
FULL TITLE OF THE PROJECT: DIVERSION OF 1.92 Hactares OF FOREST LAND IN FAVOUR OF HPPWD FOR THE
C/O CHILLON TO CHOKI MARGWAL ROAD KM 0/00 TO 8/00 WITHIN THE JURISDICTION OF RENUKA JI FOREST
DIVISION IN DISTRICT SIRMOUR, HP.

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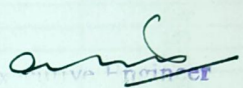
Date of Proposal: _____

CERTIFICATE

It is certified that there is no private land & non forest land available for dumping sites on
Chillon to Choki Margwal road as total road length is passing through forest land.



Assistant Engineer
Sataun Sub-Division
H.P.P.W.D., Sataun



Division
H.P. P.W.D. SHILLAI


FULL TITLE OF THE PROJECT: DIVERSION OF 1.92 HACTARES OF FOREST LAND IN FAVOUR OF HPPWD FOR THE C/O CHILLON TO CHOKIMRGWAL ROAD KM 0/00 TO 8/00 WITHIN THE JURISDICTION OF RENUKA JI FOREST DIVISION IN DISTRICT SIRMOUR, HP.


File No. : _____


Date of Proposal: _____


LENGTH WIDTH DETAIL OF FOREST LAND INVOLVED FOR CONSTRUCTION OF ROAD

Sr. No	RD	LENGTH (MTR.)	WIDTH (MTR.)	AVG. WIDTH (MTR.)	QUANTITY
1	0/00				
3	0/100	100	5.5	5.5	550
5	0/200	100	5.5	5.5	550
7	0/300	100	5.5	5.5	550
9	0/400	100	5.5	5.5	550
11	0/500	100	5.5	5.5	550
13	0/600	100	5.5	5.5	550
15	0/700	100	5.5	5.5	550
17	0/800	100	5.5	5.5	550
19	0/900	100	5.5	5.5	550
21	1/00	100	5.5	5.5	550
23	1/100	100	5.5	5.5	550
25	1/200	100	5.5	5.5	550
27	1/300	100	5.5	5.5	550
29	1/400	100	5.5	5.5	550
31	1/500	100	5.5	5.5	550
33	1/600	100	5.5	5.5	550
35	1/700	100	5.5	5.5	550
37	1/800	100	5.5	5.5	550
39	1/900	100	5.5	5.5	550
41	2/00	100	5.5	5.5	550
43	2/100	100	5.5	5.5	550
45	2/200	100	5.5	5.5	550
47	2/300	100	5.5	5.5	550
49	2/400	100	5.5	5.5	550
51	2/500	100	5.5	5.5	550
53	2/600	100	5.5	5.5	550
55	2/700	100	5.5	5.5	550
57	2/800	100	5.5	5.5	550
59	2/900	100	5.5	5.5	550
61	3/00	100	5.5	5.5	550
63	3/100	100	5.5	5.5	550
65	3/200	100	5.5	5.5	550
				TOTAL	17600
					SQM


Junior Engg.


ASSISTANT ENGINEER
SATAUN SUB DIVISION
HPPWD SATAUN


Executive Engineer
Shillat (B & R) Division
H.P.P.W.D. Shillat


Executive Engineer
Shillat (B & R) Division
H.P.P.W.D. Shillat

LENGTH WIDTH DETAIL OF NON FOREST LAND INVOLVED FOR CONSTRUCTION OF ROAD

Sr. No	RD	LENGTH (MTR.)	WIDTH(MTR.)	AVG.WIDTH(MTR.)	QUANTITY
1	3/200				
2	3/300				
3	3/400	100	5.5	5.5	550
4	3/500	100	5.5	5.5	550
5	3/600	100	5.5	5.5	550
6	3/700	100	5.5	5.5	550
7	3/800	100	5.5	5.5	550
8	3/900	100	5.5	5.5	550
9	4/100	100	5.5	5.5	550
10	4/100	100	5.5	5.5	550
11	4/200	100	5.5	5.5	550
12	4/300	100	5.5	5.5	550
13	4/400	100	5.5	5.5	550
14	4/500	100	5.5	5.5	550
15	4/600	100	5.5	5.5	550
16	4/700	100	5.5	5.5	550
17	4/800	100	5.5	5.5	550
18	4/900	100	5.5	5.5	550
19	5/100	100	5.5	5.5	550
20	5/100	100	5.5	5.5	550
21	5/200	100	5.5	5.5	550
22	5/300	100	5.5	5.5	550
23	5/400	100	5.5	5.5	550
24	5/500	100	5.5	5.5	550
25	5/600	100	5.5	5.5	550
26	5/700	100	5.5	5.5	550
27	5/800	100	5.5	5.5	550
28	5/900	100	5.5	5.5	550
29	6/100	100	5.5	5.5	550
30	6/100	100	5.5	5.5	550
31	6/200	100	5.5	5.5	550
32	6/300	100	5.5	5.5	550
33	6/400	100	5.5	5.5	550
34	6/500	100	5.5	5.5	550
35	6/600	100	5.5	5.5	550
36	6/700	100	5.5	5.5	550
37	6/800	100	5.5	5.5	550
38	6/900	100	5.5	5.5	550
39	7/100	100	5.5	5.5	550
40	7/100	100	5.5	5.5	550
41	7/200	100	5.5	5.5	550
42	7/300	100	5.5	5.5	550
43	7/400	100	5.5	5.5	550
44	7/500	100	5.5	5.5	550
45	7/600	100	5.5	5.5	550
46	7/700	100	5.5	5.5	550
47	7/800	100	5.5	5.5	550
48	7/900	100	5.5	5.5	550
49	8/100	100			26400
					SQM

Executive Engineer
Shillai (B & R) Division
H.P.P.W.D. Shillai

ASSISTANT ENGINEER
SATAUN SUB DIVISION
HPPWD SARAUN

Executive Engineer
Shillai (B & R) Division
H.P.P.W.D. Shillai

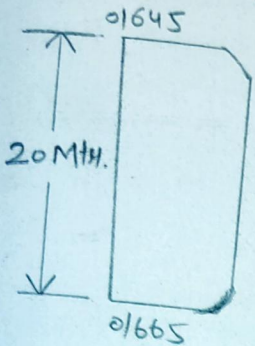
J.E

Division of 1.92 HA. of Forest land in favour of H.P.P.W.D for the
 100 chillon to chokimigwal km 0 to 810 within the jurisdiction
 of Renukaji Forest Division in District - Shimour, Himachal Pradesh.

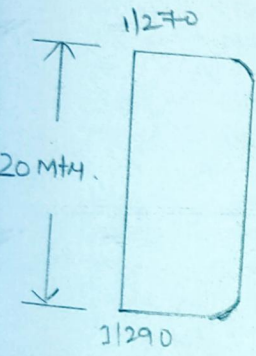
RECLAMATION PLAN

Dumping Site No.1

RD 0/645 to 0/665

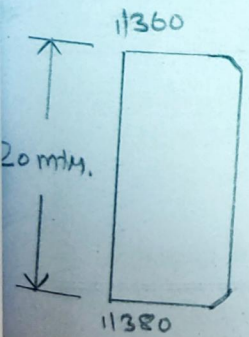


Dumping Site No-2



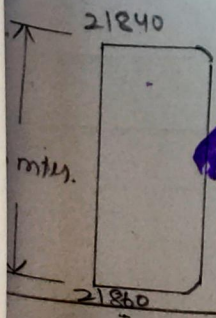
Executive Engineer
 Shillai (B & R) Division
 H.P.P.W.D. Shillai

Dumping Site No-3

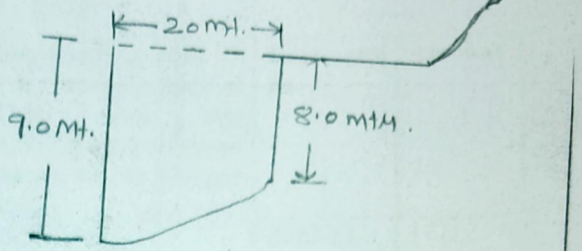


ASSISTANT ENGINEER
 SATALUN SUB DIVISION
 H.P.P.W.D. SATALUN

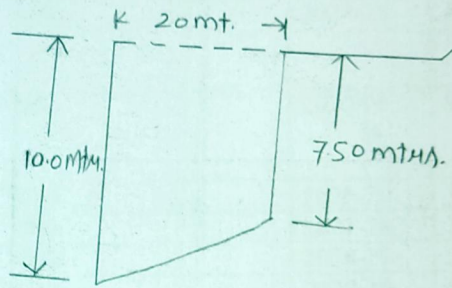
Dumping Site No-4



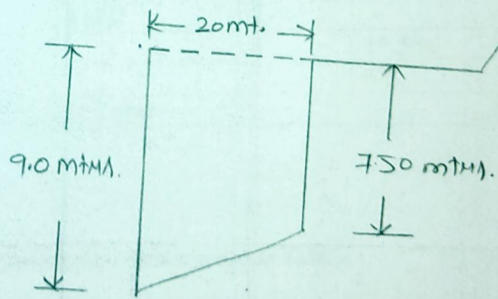
Executive Engineer
 Shillai (B & R) Div
 Shillai



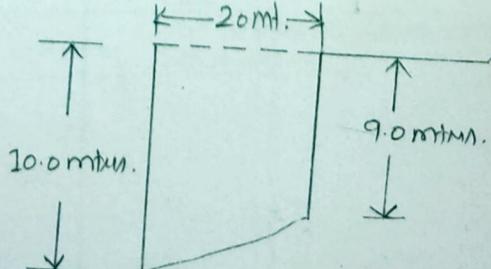
$$X\text{-Section Area} \Rightarrow 20 \times \frac{9+8}{2} = 170 m^2$$



$$X\text{-Section Area} \Rightarrow 20 \times \frac{10+7.5}{2} = 175 m^2$$



$$X\text{-Section Area} \Rightarrow 20 \times \frac{9+7.5}{2} = 165 m^2$$



$$X\text{-Section Area} \Rightarrow 20 \times \frac{10+9}{2} = 190 m^2$$

Reclamantion Plan of dumping site on forest land

General abstract of estimate of reclamation over an area 0.16 ha. forest land proposed for dumping for construction of link road from chillion to chowkimigrwal within the jugdrication of the Renukaji Forest Division

Year	Area in ha.	Norm fixed for 2022-23 at the wage rated of Rs.350/- per day (including cost of plant 1100 per ha. @ 19/- per plant)	Rate per ha.	Amount
Year plantaion over an area of 1.6 ha. has proposed for dumping	0.16	110700	2022-23	17712
1 st year maintenance (Including cost of plant 30% @ 19/- per plant)	0.16	16870	2023-24	2700
2 nd year maintenance (Including cost of plant 20% @ 19/- per plant)	0.16	11280	2024-25	1805
3 rd year maintenance (Including cost of plant 10% @ 19/- per plant)	0.16	5790	2025-26	926
4 th year maintenance	0.16	3700	2026-27	592
5 th year maintenance	0.16	3700	2027-28	592
6 th year maintenance	0.16	3700	2028-29	592
7 th year maintenance	0.16	3700	2029-30	592
8 th year maintenance	0.16	3700	2030-31	592
9 th year maintenance	0.16	3700	2031-32	592
10 th year maintenance	0.16	3700	2032-33	592
		Total		27287
Departmental Charges			17.5%	4775
Contingencies			5%	1364
		G.Total		33426/-

Technical Details:-

Technical details of Compensatory Afforestation Scheme are as follows:-

a	General Details	Reclamation to be carried in dumping site.
b	Spacing	3 mtrs.X 3 mtrs.
c	Species	B/L
d	Plantation Method	By mannual pit digging and planting.Pit size 45x45x45 cm

e	Soil and Moisture Conservation Works	As per reclamation plan proposed by user Agency.
f	Protection (Fencing, Watch man, people's Participlation etc.)	B/wire fencing with RCC Posts.
g	Proposed Monitoring Mechanism	Frequent inspection of area by Forest Officers.
h	Any other information:-	As per site condition minor variation can be made in the planattion. Area to be planted as per notional hectare.

ccw.
 Divisional Forest Officer,
 Sri Renuka Ji Forest Division
 District Sirmour HP.

RECLAMATION PLAN for Dumping site in respect of FCA proposal for Diversion of 1.92 Hectare of forest land has been proposed for construction of road from Chillon to Chowkimrigwal km 0/00 to 8/00.

The total length of the road is 8.0 kms in which length i.e. 3200 metres passed through the forest and 4800 mtr through private land. The road will be constructed in cut and fill method. A total quantity of 37051 cum of muck will be generated during the construction of this road. Since after excavation of earth, there will be some increases in volume of soil which is calculated @ 40%. The serviceable materials will be stacked at site in the form of stone/Aggregates i.e. 5558.00 m³, 31493.00 m³ of muck generated will be used for in dry masonry & edge wall, nearly 15% of muck generated will be used for leveling of road. After increases in volume 10097.00 cum, muck will have to be disposed of in the identified dumping sites as per reclamation plan.

The details of dumping site is as under:

S.No.	Name of dumping site	RD/KM	Area coming under dumping		Total
			Forest area	Non Forest Area	
1.	Dumping site No. 1	0/645 to 0/665	0.04 Hectare	0	0.04
2.	Dumping site No. 2	1/270 to 1/290	0.04 Hectare	0	0.04
3.	Dumping site No. 3	1/360 to 1/380	0.04 Hectare	0	0.04
4.	Dumping site No. 4	2/840 to 2/860	0.04 Hectare	0	0.04
		Total :-	0.16 Hectare	0	0.16

Thus all the muck generated will be dumped in the designated dumping sites. Three numbers of dumping sites designated as DS-1, DS-2, DS-3 & DS-4 have been identified for dumping the muck/debris to be produced during the construction phases of the project. It is proposed that the dumping site are treated in such a manner that these do not pose any problem to the environment of the locality. This reclamation plan has been formulated with the following objective.

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 sites 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

Three pronged approach will be followed for reclamation of the dumping sites. In the first instance crate walls will be erected around the dumping site so that the required capacity for dumping of muck is created at the sites. The details drawing of the crates works to be undertaken are enclosed. The primary objective of the crate work will be to arrest the dumped muck to the dumping site and not to allow its spillage to the adjoining are eventually to nearby drainage lines. The capacity of the dumping sites has been calculated 14000 m3 as details in the table at page No. 103 and will be enough to hold the muck to be dumped in the 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 it's erosion for vegetating the dumping sites suitable local species will be preferred. However, it may be noted that the bulk of the muck to be dumped will be excavated materials 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 requited the imported soil be brought to replenish the top soil. Intently the grasses and bushes will be planted in the area of improve the soil condition. Once these grasses and bushes take hold to the site the trees species will be planted in the next phase. The Dumping site will be fenced with barbed 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 be need extra care for their establishment for the purpose imported soil/organic manure 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 plant 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 R1 at page No. 105 and the cost for the 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 erection of the crate walls around the dumping sites will be done period to actual dumping.


The total cost for reclamation Plan is Rs. 1871957.00 only.

Post reclamation arrangements:

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 implementation the reclamation plan, if so stipulated by the Govt. of India. However if 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.

Date:- 26-12-2022

Place:- Shillai


Executive Engineer
Shillai (BER) Division
H.P.WD Shillai