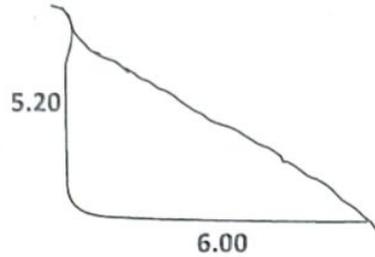


**Reclamation Plan for Dumping Sites in respect of FRA proposal for Construction of link road from Drawl to Jaishi Km 0/00 to 7/965, in Gram Panchayat Bharara, Block Basantpur, Tehsil Sunni, Distt. Shimla, H.P.**



TYPICAL SECTION FOR ROAD CUTTING

Average height = 5.20 m  
 Average width = 6.00 m  
 Area = 15.60 m<sup>2</sup>  
 Total Length = 7965 m  
 Total Qty. = 124254.00 m<sup>3</sup>

**MUCK MANAGEMENT PLAN (MMP)**

1	Total Qty of Muck being produced	124254.00	m <sup>3</sup>		
2	Deduction for useful stone as required under the clause of agreement to be executed by the contractor and the Executive Engineer of Project @20%	24850.80	m <sup>3</sup>		
3	Net balance Quantity of Debris/Muck (=1-2)	99403.20	m <sup>3</sup>	A	
4	Quantity available on site with swell factor @45 % i.e., 1.45% x A	144134.64	m <sup>3</sup>	B	
5	Material/ Muck to be used in Project:				
	i) Deduction for material required for the construction of dumping place in dry masonry wall/ Edge wall @ 10% of B	14413.46	m <sup>3</sup>		
	ii) Less for material /Muck required for leveling of the proposed road for the construction @ 15% of (B).	21620.20	m <sup>3</sup>		
	iii) Less for material /Muck required for construction of the proposed road on analogy of half cutting & half filling for the construction @40% of B	57653.86	m <sup>3</sup>		
	Total Qty. = 5 (i) + (ii) + (iii)	93687.52	m <sup>3</sup>	C	
6	Net Material/ Muck to be dumped in dumping site (=B-C)	50447.12	m <sup>3</sup>	D	
<b>CAPACITY OF PROPOSED DUMPING SITES:</b>					
Sr. No.	RD	Length	Width	Capacity per RMT	Qty.
1	2/715 to 2/755	40.00	20.00	129.20 m <sup>2</sup>	5168.00 m <sup>3</sup>
2	3/385 to 3/425	40.00	30.00	171.60 m <sup>2</sup>	6864.00 m <sup>3</sup>
3	4/035 to 4/075	40.00	30.00	171.60 m <sup>2</sup>	6864.00 m <sup>3</sup>
4	4/600 to 4/640	40.00	30.00	171.60 m <sup>2</sup>	6864.00 m <sup>3</sup>
5	5/755 to 5/795	40.00	30.00	171.60 m <sup>2</sup>	6864.00 m <sup>3</sup>
6	6/610 to 6/640	30.00	20.00	111.60 m <sup>2</sup>	3348.00 m <sup>3</sup>
7	6/875 to 6/905	30.00	25.00	152.90 m <sup>2</sup>	4587.00 m <sup>3</sup>
8	7/250 to 7/280	30.00	20.00	111.60 m <sup>2</sup>	3348.00 m <sup>3</sup>
9	7/625 to 7/665	40.00	30.00	171.60 m <sup>2</sup>	6864.00 m <sup>3</sup>
					<b>Total = 50771.00 m<sup>3</sup></b>

*[Signature]*  
 P. B. ... Division  
 ... Jaloq

*[Signature]*  
 Executive Engineer  
 Shimla Rural Division  
 ... W/D Dhanaj

## Reclamation Plan for Dumping Sites in respect of FRA proposal for Construction of link road from Drawl to Jaishi Km 0/00 to 7/965, in Gram Panchayat Bharara, Block Basantpur, Tehsil Sunni, Distt. Shimla, H.P.

Diversion of 5.4794 hac. of forest land has been proposed for the Construction of link road from Drawl to Jaishi Km 0/00 to 7/965, in Gram Panchayat Bharara, Block Basantpur, Tehsil Sunni, Distt. Shimla, H.P. The total length of the road is 7.965 Km, which passes through the forest land and private land. The road will be constructed in cut and fill method. A total quantity of 124254.00 m<sup>3</sup> of muck will be generated during the construction of this road. The 20% serviceable material will be stacked at site in the form of stone/ aggregate i.e., 24850.80 m<sup>3</sup>. Since, after excavation of earth there will be some increase in volume of soil which is calculated @45% i.e., 144134.64 m<sup>3</sup>. The 10% of muck generated will be used in dry masonry & edge wall, nearly 15% of muck generated will be used for levelling of road & 40% will be used in filling behind Retaining walls, breast walls, wing walls & culverts etc. After increase in volume 50447.12 m<sup>3</sup> 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. Nine numbers dumping sites designated as D-1, D-2, D-3, D-4, D-5, D-6, D-7, D-8 & D-9 has been identified 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.

Thus, reclamation plan has been formulated with the following objective:

- a. 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.
- b. 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.
- c. 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.
- d. 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:

The two-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 required capacity for dumping of muck is created at the sites. The detailed drawings of the crate work to be undertaken are enclosed. The primary objective of the crate works will be to arrest the dumped muck to the dumping site and not to allow its spillage to the adjoining area eventually to nearby drainage lines. The total capacity of the dumping sites has been calculated 50771.00 m<sup>3</sup> and will be enough to hold the muck to be dumped in the dumping sites.

In the second phase once the dumping is complete it will be ensured that the dumping sites are 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 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 trees species to be planted will be mainly Robinia, Lucinea, Albizia, Drek, Amla, Bamboo. Grasses like Steria and Napier will also propagate. Trees will be planted at the closer spacing so that canopy is closed at the earliest. Hence the spacing will be kept at 1.5×1.5 mts. The total area involved in the dumping site is Sqm. Thus, in all plants will be planted at the dumping site. Shrubs and bushes will be planted in between these trees. 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 needing 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 maintained in project cost for seven years when beating up of failure will be done.

The total cost estimate of dumping sites is enclosed and the cost of trees will be met from the yearly program of plantation during rainy season. The plantation work will be started from the year following the completion of dumping sites. However, erection of the crate walls around the dumping sites will be done prior to actual dumping.

**The total cost of the Reclamation Plan is Rs. 44,02,494.36**

**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 implementing the reclamation plan, if so, stipulated by Govt of India. However, if at the time of so reverting back the areas of 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.

Place: Dhami

Date.....



Assistant Engineer,  
Jalog Sub-Division  
HP PWD Jalog

Signature of User Agency

Executive Engineer  
Office Seal.....  
Sahana Kural Division  
HPPWD Dhami

## ABSTRACT OF COST

**Name of work:** Construction of link road from Drawl to Jaishi Km 0/00 to 7/965, in Gram Panchayat Bharara, Block Basantpur, Tehsil Sunni, Distt. Shimla, H.P.

**SH:** C/O Dumping Site

SR. NO.	DESCRIPTION	QTY.	UNIT	RATE	AMOUNT
1	Excavation in earth work and disposal of all excavated earth to be selected and healthy dressed: PJ work	554.40	Cum	128.15	71,046.36
2	Providing & laying of boulder apron laid in wire crate with 4mm dia GI wire confirming to IS:280 and IS:4826 in 100mm X 100mm mesh (woven diagonally) including 10% extra for laps and joint with stone boulder weighing not less than 25 Kg each as per drawing and technical specification clause 1301.	2970.00	Cum	1458.40	<u>43,31,448.00</u>
				Total=	44,02,494.36

*[Signature]*  
Executive Engineer,  
S & R Div- Division  
HPPWD Jalog

*[Signature]*  
Executive Engineer,  
Shimla Rural Division  
HPPWD Dhami

*[Signature]*  
Assistant Engineer,  
Jalag Sub-Division  
HP PWD Jalog

*[Signature]*

## DETAIL OF MEASUREMENT

**Name of work:** Construction of link road from Drawl to Jaishi Km 0/00 to 7/965, in Gram Panchayat Bharara, Block Basantpur, Tehsil Sunni, Distt. Shimla, H.P.

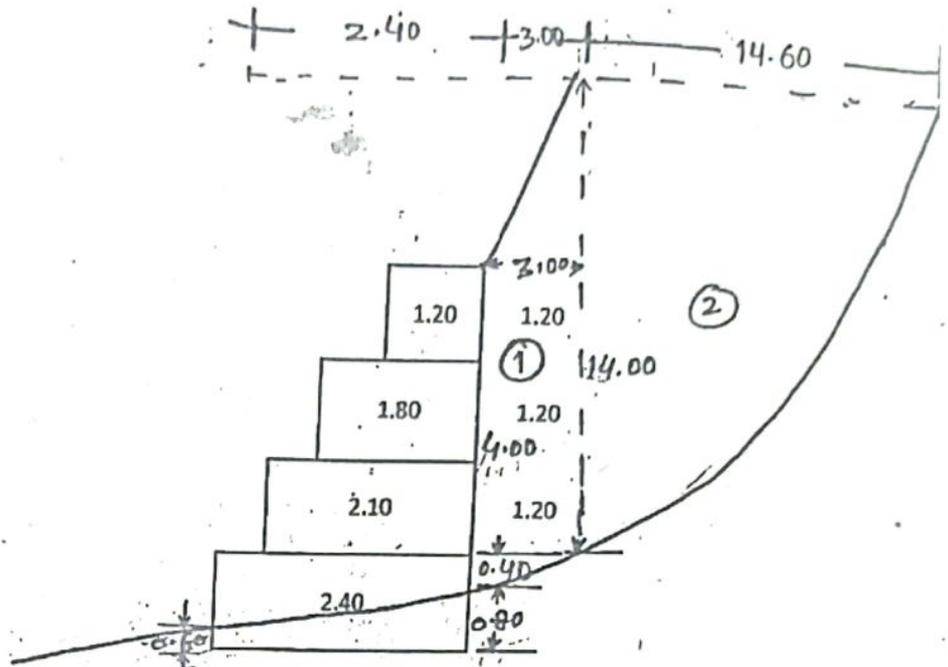
**SH:** C/O Dumping Site

Sr. No.	ITEM OF WORK	No.	L	B	H	Qty.
1	Excavation in earth work and disposal of all excavated earth up to a lead of 20 mtrs.					
	1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> , 4 <sup>th</sup> , 5 <sup>th</sup> & 9 <sup>th</sup> dumping site	6		1.68 x 40		403.20 m <sup>3</sup>
	6 <sup>th</sup> , 7 <sup>th</sup> & 8 <sup>th</sup> dumping site	3		1.68 x 30		151.20 m <sup>3</sup>
	<b>Total Qty. = 554.40 m<sup>3</sup></b>					
2	Providing & laying of boulder apron laid in wire crate with 4mm dia GI wire conforming to IS:280 and IS:4826 in 100mm X 100mm mesh (woven diagonally) including 10% extra for laps and joint with stone boulder weighing not less than 25 Kg each as per drawing and technical specification clause 1301.					
	1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> , 4 <sup>th</sup> , 5 <sup>th</sup> & 9 <sup>th</sup> dumping site	6		40.00 X 9.00 =		2160.00 m <sup>3</sup>
	6 <sup>th</sup> , 7 <sup>th</sup> & 8 <sup>th</sup> dumping site	3		30.00 X 9.00 =		810.00 m <sup>3</sup>
	<b>Total Qty. = 2970.00 m<sup>3</sup></b>					

*Handwritten signature*

Assistant Engineer,  
Jalag Sub-Division  
HP PWD Jalag

(DS-1)  
RD: 2/715 to 2/755



Qty:

C/A

$$E/W \quad \frac{0.60 + 0.80}{2} \times 2.40 = 1.68 \text{ m}^2$$

**Boulder Filling :**

Ist Step	1.20	x	1.20	=	1.44 m <sup>2</sup>
2nd step	1.80	x	1.20	=	2.16 m <sup>2</sup>
3rd step	2.10	x	1.20	=	2.52 m <sup>2</sup>
4th step	2.40	x	1.20	=	2.88 m <sup>2</sup>

**Total = 9.00 m<sup>2</sup>**

**MUCK/DEBRES CAPACITY:**

$$(1) \quad \frac{4.00 + 14.00}{2} \times 3.00 = 27.00 \text{ m}^2$$

$$(2) \quad \frac{1}{2} \times 14.00 \times 14.60 = 102.20 \text{ m}^2$$

**TOTAL = 129.20 m<sup>2</sup>**

Executive Engineer  
Shimla Rural Division  
HPPWD Shimla

Assistant Engineer,  
Jalag Sub-Division  
HP PWD Jalag

RD:

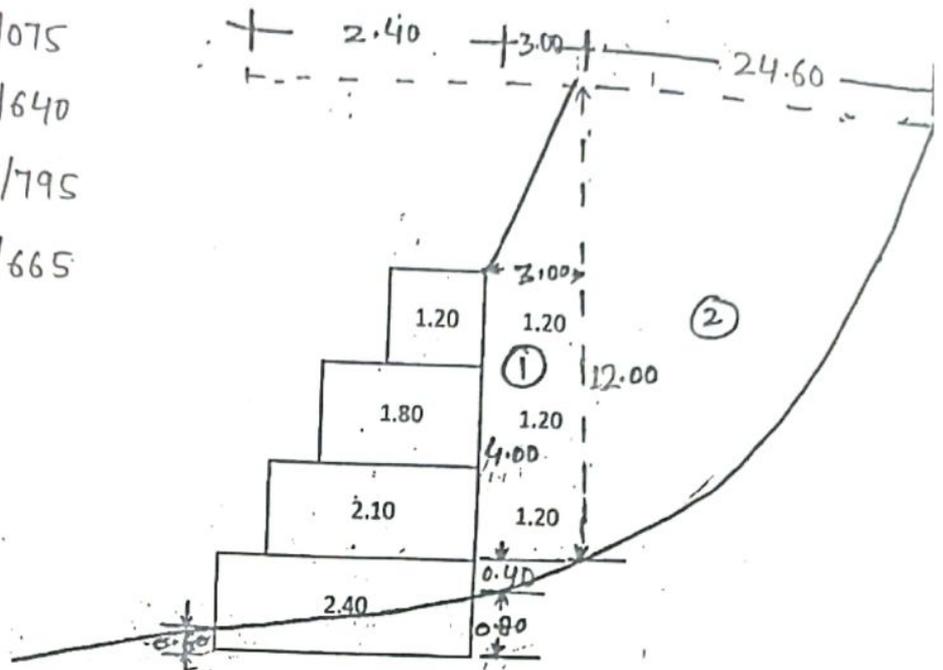
(DS-2) 3/385 to 3/425

(DS-3) 4/035 to 4/075

(DS-4) 4/600 to 4/640

(DS-5) 5/755 to 5/795

(DS-9) 7/625 to 7/665



Qty:

C/A

$$E/W \quad \frac{0.60 + 0.80}{2} \times 2.40 = 1.68 \text{ m}^2$$

**Boulder Filling :**

Ist Step  $1.20 \times 1.20 = 1.44 \text{ m}^2$

2nd step  $1.80 \times 1.20 = 2.16 \text{ m}^2$

3rd step  $2.10 \times 1.20 = 2.52 \text{ m}^2$

4th step  $2.40 \times 1.20 = 2.88 \text{ m}^2$

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**Total = 9.00 m<sup>2</sup>**

**MUCK/DEBRIS CAPACITY:**

(1)  $\frac{4.00 + 12.00}{2} \times 3.00 = 24.00 \text{ m}^2$

(2)  $\frac{1}{2} \times 12.00 \times 24.60 = 147.60 \text{ m}^2$

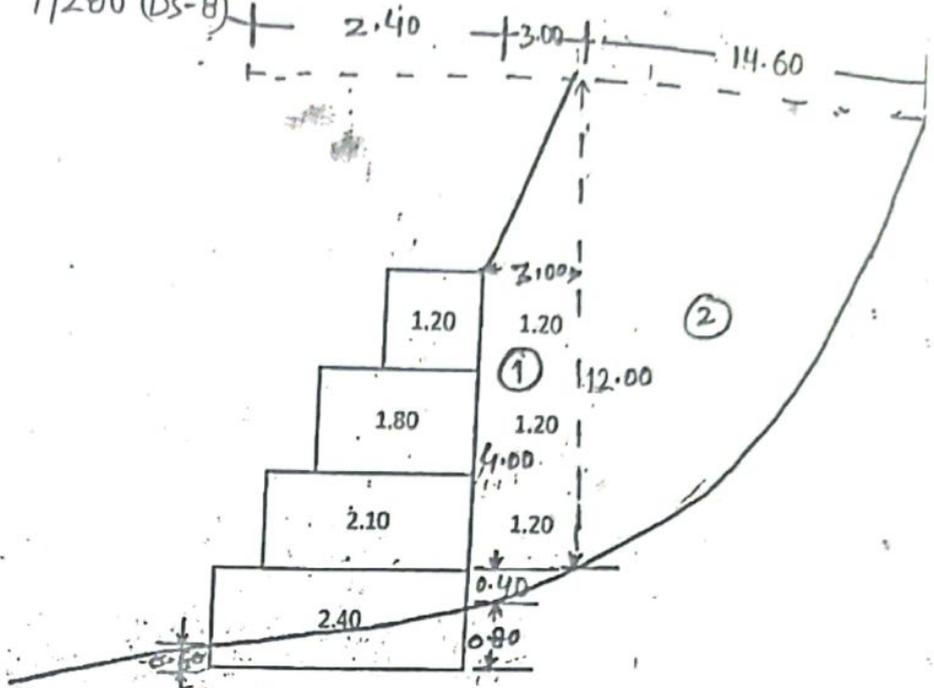
**TOTAL = 171.60 m<sup>2</sup>**

Excavated by  
Shimla Rural Division  
HPPWD, Shimla

Assistant Engineer,  
Jalag Sub-Division  
HP PWD Jalag

RD: 6/610 to 6/640 (DS-6)

7/250 to 7/280 (DS-8)



Qty:

C/A

$$E/W \quad \frac{0.60 + 0.80}{2} \times 2.40 = 1.68 \text{ m}^2$$

**Boulder Filling :**

Ist Step	1.20	x	1.20	=	1.44 m <sup>2</sup>
2nd step	1.80	x	1.20	=	2.16 m <sup>2</sup>
3rd step	2.10	x	1.20	=	2.52 m <sup>2</sup>
4th step	2.40	x	1.20	=	2.88 m <sup>2</sup>

**Total** = 9.00 m<sup>2</sup>

**MUCK/DEBRIS CAPACITY:**

$$(1) \quad \frac{4.00 + 12.00}{2} \times 3.00 = 24.00 \text{ m}^2$$

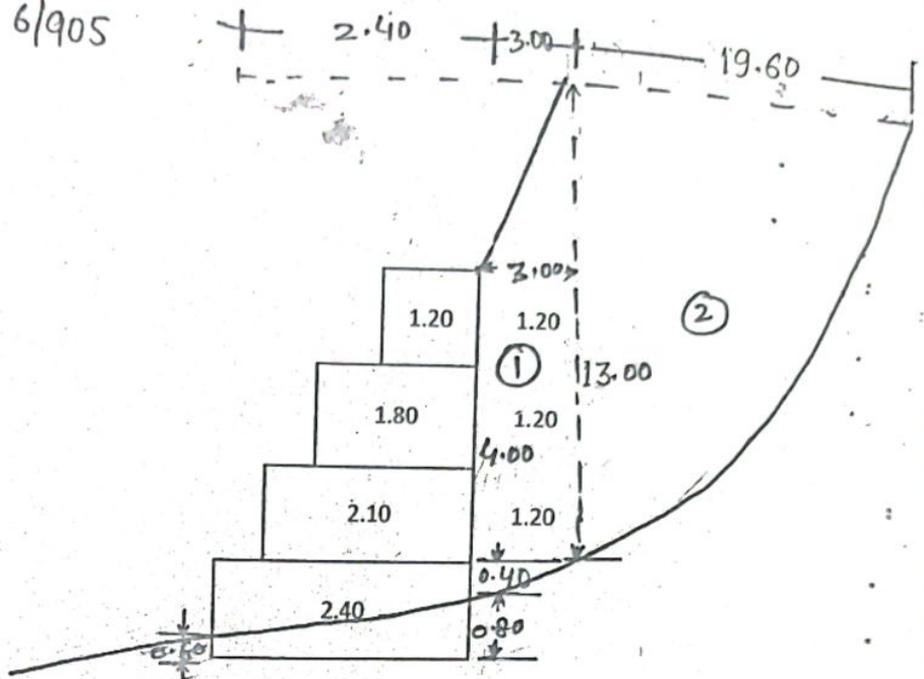
$$(2) \quad \frac{1}{2} \times 12.00 \times 14.60 = 87.60 \text{ m}^2$$

**TOTAL** = 111.60 m<sup>2</sup>

Assistant Engineer,  
Jalag Sub-Division  
HP PWD Jalag

(DS-7)

RD: 6/875 to 6/905



Qty: 0

C/A

E/W  $\frac{0.60 + 0.80}{2} \times 2.40 = 1.68 \text{ m}^2$

**Boulder Filling:**

Ist Step	1.20	x	1.20	=	1.44 m <sup>2</sup>
2nd step	1.80	x	1.20	=	2.16 m <sup>2</sup>
3rd step	2.10	x	1.20	=	2.52 m <sup>2</sup>
4th step	2.40	x	1.20	=	2.88 m <sup>2</sup>

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**Total** = 9.00 m<sup>2</sup>

**MUCK/DEBRIS CAPACITY:**

(1)  $\frac{4.00 + 13.00}{2} \times 3.00 = 25.50 \text{ m}^2$

(2)  $\frac{1}{2} \times 13.00 \times 19.60 = 127.40 \text{ m}^2$

**TOTAL = 152.90 m<sup>2</sup>**

Executive Engineer,  
Shimla Rural Division  
HPPWD Dhamsi

Assistant Engineer,  
Jalag Sub-Division  
HP PWD Jalag