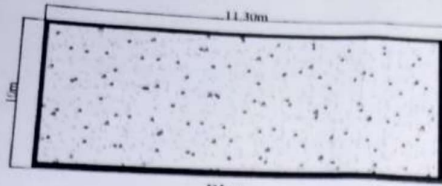


MUCK DUMPING PLAN FOR GHATOR TOP SMALL HYDRO PROJECT 4.98 MW														
Sl. No.	Name of Component From Where Muck is To Be Produced	Actual Size Of Component in sqm.	Total Qty. Of Muck is to be Produced (in cum)	Factor of increase in volume after excavation (45%)	Total Qty. Of Muck is to be Dumped on The Basis Of increased Qty (in cum)	Qty Of Muck To Be utilized (in cum)	Total Qty. Of Muck Remaining After Utilisation	Name of Dumping place	Size of Dumping Sites	Area of Dumping place in sqm	Remaining Height of Muck Dumped	Capacity of Muck To be Dumped	Quantity to be Dumped	Remarks
1	Intake/Trench Weir	30*19.83=595	595	595*45/100=267.75	862.75	301.96	560.78	Dumping Site-IV	40*22.35	894	2.4	2145.6	560.78	Out of total Muck Generated About 35% Shall Be Used in Construction of Crates, Aggregate, Road A/Walls, S/Walls, Rest Of The Muck including Swell Factor (45%) shall be Dumped in muck Dumping sites IV
2	Feeder Channel	18*2.50=45	45	45*45/100=20.25	65.25	22.83	42.41						42.41	
3	Silt Flushing	16*2=32	30	30*45/100=13.50	43.5	15.22	28.27						28.27	
3	O-rank	26*11.42=297	594	594*45/100=267.30	861.3	301.45	559.84						559.84	
4	HRT INLET	250*2.50=625	1000	1000*45/100=450	1450	507.5	942.5						942.5	
5	HRT OUTLET	481.60*2.50=1229	1966.4	1966.40*45/100=884.88	2851.28	1140.51	1710.76	Dumping Site-VI	40*22.35	894	2.7	2413.8	1710.76	Out of total Muck Generated About 40% Shall Be Used in Construction of Crates, Aggregate, Road A/Walls, S/Walls, Filling, Rest Of The Muck including Swell Factor (45%) shall be Dumped in muck Dumping sites VI
6	Surge Tank	20*19.85=397	794	794*45/100=357.30	1151.3	460.52	690.78						690.78	
7	Penstock	1398*2.84=3970	425	425*45/100=191.25	616.25	246.5	369.75	Dumping Site-V	40*29.75	1190	2.5	2975	369.75	Out of total Muck Generated About 40% Shall Be Used in Construction of Crates, Aggregate, Protection works i.e A/Walls, S/Walls, Filling, Rest Of The Muck including Swell Factor (45%) shall be Dumped in muck Dumping sites V
8	Power House	60*39.65=2379	2025	2025*45/100=911.25	2936.25	1174.5	1761.75						1761.75	
9	Switch Yard	30*19.83=595	950	950*45/100=427.50	1377.5	551	826.5						826.5	
10	Road	1231.50*4=4926	985	985*45/100=443.25	1428.25	571.3	856.95	Dumping Site-III	11.30*10	113	2.45	276.85	270	Out of total Muck Generated About 40% Shall Be Used in Construction of Crates, Aggregate, Protection works i.e A/Walls, S/Walls, Filling, Rest Of The Muck including Swell Factor (45%) shall be Dumped in muck Dumping sites III
								Dumping Site-II	11*9	99	2.45	242.55	235	
								Dumping Site-I	14.60*10	146	2.45	357.7	352	
Total			9409.4		13643.63	5293.29	8350.29			3336	2.49	8411.9	8350.29	

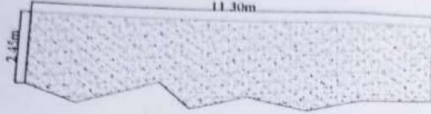
Chamba Hydro Ventures
 Authorised Signatory

Deputy Conservator of Forests
 Bharmour Forest Division
 Bharmour, Chamba (H.P.)

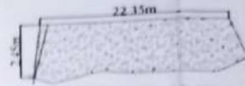
Dumping Site No.III (Along the Road)



Plan



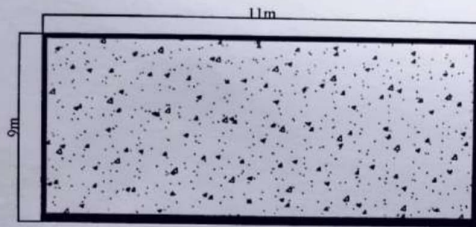
Section at X- X (L-section)



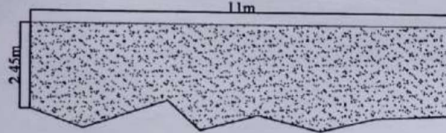
Section at Y- Y (Cross-section)

Area= 11.30mX10m=113Sqm
 Averag height=2.45m
 Capacity of Muk Dumping Site
 113X2.45=276.85 Cum

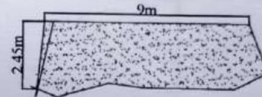
Dumping Site No.II (Along the Road)



Plan



Section at X- X (L-section)



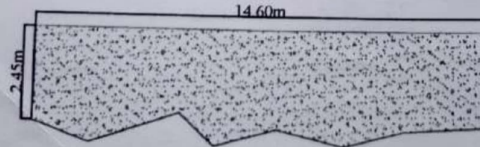
Section at Y- Y (Cross-section)

Area=11mX9m=99Sqm
 Averag height=2.45m
 Capacity of Muk Dumping Site
 99X2.45=242.55 Cum

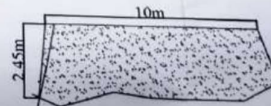
Dumping Site No.I (Along the Road)



Plan



Section at X- X (L-section)



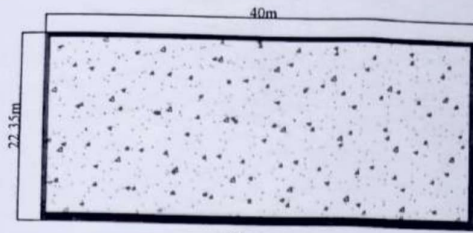
Section at Y- Y (Cross-section)

Area=14.60mX10m=146Sqm
 Averag height=2.45m
 Capacity of Muk Dumping Site
 146X2.45=357.70 Cum

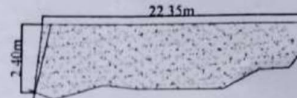
Signature: *[Handwritten Signature]*

Deputy Conservator of Forests
 Bharnour Forest Division
 Bharnour, Chamba (H.P.)

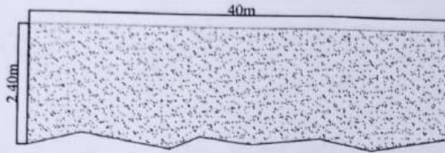
Dumping Site No.IV (Along the Intake/Trench Weir, Feeder Channel, Silt Flushing, D/Tank, and hrt inlet)



Plan



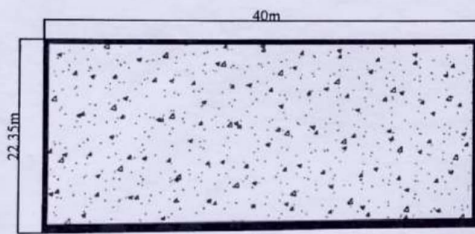
Section at Y- Y (Cross-section)



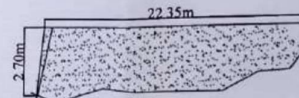
Section at X- X (L-section)

Area=40mX22.35m=894Sqm
 Averag height=2.40m
 Capacity of Muk Dumping Site
 894X2.40=2145.60 Cum

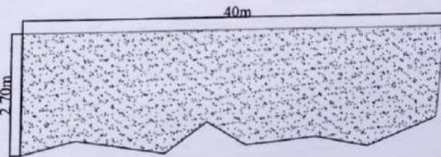
Dumping Site No.VI (Along the hrt outlet, and Shurg Tank)



Plan



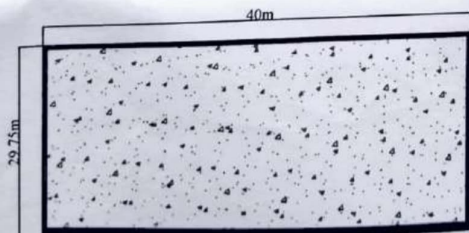
Section at Y- Y (Cross-section)



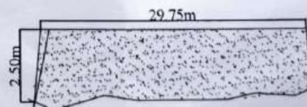
Section at X- X (L-section)

Area=40mX22.35m=894Sqm
 Averag height=2.70m
 Capacity of Muk Dumping Site
 894X2.70=2413.80 Cum

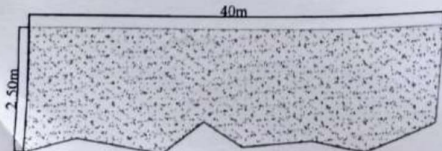
Dumping Site No.V (Along the penstock, Power House, and Switch Yard)



Plan



Section at Y- Y (Cross-section)



Section at X- X (L-section)

Area=40mX29.75m=1190Sqm
 Averag height=2.50m
 Capacity of Muk Dumping Site
 1190X2.50=2975 Cum

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Deputy Conservator of Forests
 Bharmour Forest Division
 Bharmour, Chamba (H.P.)

CHAMBA HYDRO VENTURES

HOTEL ALPS RESORTS, PO & TEHSIL DALHOUSIE, DISTT. CHAMBA HP- 176304
Mob. No. 9418080340 Email Id—ranjan.upmanyu@gmail.com

Ref.No.-CHV/FA/292/24

Dated 28/3/24

UNDERTAKING FOR DUMPING MUCK

I Rajeev Kumar Upmanyu authorised signatory of M/S Chamba Hydro Ventures , hereby undertake the muck generated from the construction of Ghator Top HEP will not be disposed off in the nearby forest,river/stream except in the diversion area for Dumping sites .

Date--- 28/3/24

Place--- Bharmour

For Chamba Hydro Ventures
Chamba Hydro Ventures
Authorized Signatory

Deputy Conservator of Forests
Bharmour Forest Division
Bharmour, Chamba (H.P.)

COMPREHENSIVE REPORT ON MUCK DUMPING

Muck generated from excavation of any project component is required to be disposed in a plan manner so that it takes a least possible space and is not hazardous to the environment. The muck disposal site cause increased sedimentation in the rivers/Nala (though in significant compared to natural sedimentation) and totally spoils the visual aesthetics of the area. It is of prime importance that these sites will have to be rehabilitated as soon as the disposal sites are full.

Proposed Dumping sites for the execution of Ghator Top SHEP (4.98MW) in Distt. Chamba within the jurisdiction of Bharmour Forest Division there are I to VI dumping sites has been proposed for muck dumping. On these dumping areas no vegetation and trees standing. As per proposal about the project will generate the total of muck 9409.4 Cubic Meters which after applying 45% soil factor is become 13643.63 Cubic meters. Out of this total app. 5293 Cubic meters muck will be utilized locally in leveling, filling and behind retaining/Breast walls etc. The remaining 8350.29 cubic meters muck will required safe disposal for which Six numbers of dumping sites have been identified. The capacity of these dumping sites has been calculated as 8411.9 Cubic meters which will be sufficient for holding the quantity of muck to be disposed off. The muck generated will be utilized either locally as fillings in retaining/Bwalls, Crate works and leveling of ground or will be dumped in the designated dumping sites for six numbers.

To minimize the ecological impact in the proposed area safety measures are required and to be implemented. Keeping in view this to prevent the rolling of Muck in to the nala during construction and post construction of project some necessary bioengineering measures as well as Engineering measures are mandatorily required as detailed below

1. Methodology of Muck Disposal

The main objectives of process of muck dumping and restoration of these muck disposal sites are:

- *To protect and control soil erosion*
- *To create greenery in the muck disposal areas*
- *To improve and develop the sites in to recreational sites*
- *To ensure maximum utilization of muck for the construction purpose*
- *To develop the muck dumping sites / dumping yards to blend with the surrounding landscape and to minimize damage due to the spoilage of muck in the project area.*

During identification of the dumping sites above mentioned aspects have to be kept in mind. All possible alternate sites have to be inspected and examined before rejecting or selecting any site. All the dumping sites should adhere to following points:

- All the dumping sites have minimum possible forest cover.
- At all the dumping sites, the settlement areas are far away from the identified dumping site so as to have least impact on human life.
- The proposed dumping sites are located at a distance varying from 20 Mtrs to 30 Mtrs away from the HFL (Highest Flood level) of rivers/nala.
- Muck disposal sites are close to the sites from weir muck is to be generated to avoid hazards related to transport of muck to long distances.

2. 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 sanction of diverted land may be revoked with suitable penalty as decided by the State Govt./Govt.of India

3. Safety Measures for Muck Disposal

A) Engineering Measures

Retaining Wall/ Wire Crate wall - for stacking of dumped material retaining wall/Wire crate wall is proposed to be built before dumping of any material on to the sites. In addition, leveling would also be done after dumping the material on every cycle and simultaneously improving the drains of the disposal site. The approach road to power house structures will be constructed by employing the methodology recommended by the state highway authority of HP with minimal environmental damage. The methodologies consist in developing the formation with id half cutting and half filling, so that the materials obtained from cutting are utilized in filling. The excavation on hill side will be done to get a stable slope for the materials encountered. At place B/Wall, gabion wall shall be done in natural slope to retain filled material, particularly where there is problem of retaining the hill slope.

To minimize the environmental damage, construction material i.e stones, sand etc. required for the construction of road will be obtained mostly from the excavated material. In the streams box culverts will be provided to prevent the erosion of nala bed. In addition, stone/Concrete work on the downstream area will also be provided at vulnerable places to minimize erosion.

Compaction and leveling- Compaction is an engineering measures, which would reduced bulk density of the muck thereby optimizing the use of muck disposal area and would make it suitable for the plantation and other biological measures. Top surface would be leveled and graded to make the alternative use. The muck will be spread in 50cm thick layers. Top surface would be leveled and graded to make the alternative use. on top a layer of soil would be spread to make the land suitable for plantation.

- *R/Wall /Wire Crate wall*
- *Boulder Crate wall*
- *RCC*
- *Catch water Drain*

B) Biological Measures

Top surfaces and slopes of all dumping area would be left. These areas will be treated for the purpose of plantations. Vegetation cover controls the hydrological and mechanical effects on soils and slopes therefore, biological measures to stabilize the loose slope are essential. In order to implement the biological measures in dumping areas the following activities would be taken into account. The biological measures include the following:

- Soil Treatment-** Muck dumped at various sites is not considered to be nutrient rich as it is excavated from Tunnels and other components. In order to make it suitable for the plantation it will be provided bio treatment. The work plan will be formulated for re-vegetation of the dumping sites through integrated biotechnological approach.
- Fencing-** Fencing is a bio-engineering measure. After rehabilitation of muck the dumping areas need protection for some time from disturbing by human and domestic animals.
- Plantation-** The selected species will be planted after their nurseries have been developed. The dumping areas are very small therefore: separate nursery would not be required. In order to stabilize the stacked dumped material, vegetation cover would be provided to for dumped material over a period of time. Followings steps are envisaged:
 - *Plantation of suitable tree species and soil binding species.*
 - *Turfing of the exposed area and improvement of environment with ornamental species.*
 - *Protection with mechanical support i.e Barbed wire fencing*

4. Assessment of Slope Stability:

- We acknowledge that steep slopes pose a significant challenge for muck dumping, especially regarding the potential for erosion and instability. In response to this, we have initiated a detailed geotechnical survey of the proposed sites to assess the stability of the slopes. This will help us determine the maximum permissible slope for dumping activities and whether any corrective measures, such as terracing, soil reinforcement, or slope stabilization, are needed.
- We are prepared to adjust the site layout or consider alternative measures, such as reinforcing the slopes with retaining walls or erosion control methods, to ensure the safety and stability of the dumping sites to prevent the rolling of muck into the nala.

5. Impact on Dense Vegetation:

- In the proposed dumping sites there is no vegetation or trees standing But We are aware of the dense vegetation on the surrounding the proposed Dumping sites, which could be affected by the muck dumping. The ecological impact of disturbing these areas will be closely monitored. In consultation with our environmental experts, we will explore options to minimize vegetation loss, such as relocating or transplanting affected plant species, and enhancing the overall biodiversity of the site post-closure.
 - Additionally, we are developing a comprehensive vegetation management plan to mitigate the environmental impact. This plan will include measures for replanting, maintaining ecological balance, and ensuring the stability of the site after the muck has been deposited.

6. Erosion Control Measures:

- To prevent soil erosion and ensure the long-term stability of the site, we will implement appropriate erosion control measures stated above , such as:
 - *Installation of silt fences or barriers.*
 - *Applying soil binders or mulch to prevent surface runoff.*
 - *Planting ground cover vegetation to stabilize the slopes.*
- Regular monitoring of the site will be undertaken to assess the effectiveness of these measures, especially after rainfall or other weather events that could affect the slopes.

7. Ongoing Monitoring and Management:

- We commit to continuous monitoring during and after the muck dumping process. This will include regular site inspections to assess slope stability, vegetation health, and the effectiveness of the erosion control measures in place.

If any issues or concerns arise during the monitoring phase, corrective actions will be taken promptly to address them.

8. Comprehensive Monitoring and Maintenance Plan:

Post-implementation, we will establish a comprehensive monitoring and maintenance plan to assess the effectiveness of the proposed erosion control measures. This will include regular site inspections to identify any issues related to slope stability, soil erosion, or the performance of the contour trenches and other stabilization methods.

If necessary, corrective actions will be taken to address any emerging issues, ensuring the long-term success of the closure and aftercare activities. By incorporating these additional measures into the proposal, we can mitigate the risks associated with the rolling out the muck into the nala and ensure the success of safe muck dumping.

DETAILED ESTIMATE**DUMPING SITE NO. 1**

For Reclamation & Rehabilitation of Dumping (Muck) Site

User Agency:	Chamab Hydro Ventures
Project Name:	Ghator Top (4.98MW)
Location:	Ghator DPF
Name of the Duping Site :	Dumping Site-I
Area Involved:	0.0146 Hectares /146 Sqmtrs
Range / Beat:	Swai/Ghator
Maintenance Period:	1 to 5 Years
Financial Year:	2026-27

1. INTRODUCTION

This estimate is prepared for reclamation and ecological restoration of dumping (muck) site created due to project activities by the user agency. The treatment includes slope stabilization, earth work, drainage management, soil improvement, plantation and protection measures to restore the site as per Forest Clearance conditions.

2. OBJECTIVES

•	Stabilization of loose muck material
•	Prevention of soil erosion & landslide risk
•	Restoration of vegetative cover
•	Long term ecological rehabilitation
•	Compliance of Forest Clearance conditions

3. SITE DESCRIPTION

•	Total Dump Area:	0.0146 Hect/146 Sqmtrs
•	Slope Category:	Gentle Slope
•	Approx. Dump Height:	2.45 Mtrs.
•	Soil Type:	Mixed
•	Accessibility:	Approachable

Planting Bio engineering plants list

Plants Name	From	Justification
1 Bikhhal	Lamu Nry	Dumping sites consist of loose and unstable material, making them highly susceptible to soil erosion and slope failure. Plantation through Bio-engineering techniques helps in stablizing the soil by binding it with plant roots, reducing erosion and runoff. it also aids in ecological restoration,improves soil quality, and enhances the overall environmental condition of the area.Being a cost effective and sustainable method, bio-engineering plantation is essential for long -term stabilization and protection of dumping sites.
2 Willow	Lamu Nry	
3 Rambaan	local area	
4 Piak	from river bed	
5 Fescue grass	local area	
6 white clovar	local area	

4. DETAILED COST ESTIMATE (BOQ)

(Rates as per latest approved HP Forest SOR 2012-13 onward)

1st YEAR PLAN**A. EARTH WORK & SITE SHAPING**

Sr. No.	Item Description	Unit	Qty.	Rate(₹)	Amount (₹)
1	Dressing and grading of muck	Cum	26	81.19	2110.94
2	Spreading & leveling of muck	Cum	12	120	1440
3	Bench formation/terracing	Cum	8	250	2000
4	Manual compaction of muck	Cum	15	60	900
					6450.94
	Sub Total (A)=₹		6450.94		

B. RETAINING & DRAINAGE STRUCTURES

Sr. No.	Item Description	Unit	Qty.	Rate(₹)	Amount (₹)
5	Dry Stone masonry toe wall	Cum	3.5	2100	7350
6	Gabion wall/crate wire	Cum	27.5	3500	96250
					103600
	Sub Total (B)=₹		103600		

C. SOIL IMPROVEMENT & BIO ENGINEERING

Sr. No.	Item Description	Unit	Qty.	Rate(₹)	Amount (₹)
7	Application of FYM	Qtl	0.3	1000	300
8	Mulching through chil needles	Sqm	132	35	4620
9	Grass Turfing	Sqm	130	20	2600
					7520
	Sub Total (C)=₹		7520		

D. PLANTATION WORK

Sr. No.	Item Description	Unit	Qty.	Rate(₹)	Amount (₹)
10	Digging of Pits 45x45x45cm	%No.	26	3375	877.5
11	Filling of Pits 45x45x45cm	No.	26	964.51	250.7726
12	Carriage of Plants from Nry.with loading and unloading by trp .	Trip	1	800	800
13	Planting of P/Bag Plants	%No.	26	771.73	200.6498
14	Planting of Bio-Engg. Plants	%No.	90	494.9	445.41
15	Preparation of Path	Rmt.	5	38	190
16	Carriage of RCC Fence Post to work site	Trip	1	600	600
					3364.3324
	Sub Total (D)=₹		3364.332		

E. PROTECTION Work

Sr. No.	Item Description	Unit	Qty.	Rate(₹)	Amount (₹)
17	Preparation /digging of holes 20-30cm deep	%Nos	32	3206	1025.92
18	Cost of RCC Fence Post	No.	32	500	160
19	Fixing of RCC Fence Post	%Nos.	32	2461	787.52
20	Cost of Barbed Wire	Qtl.	0.3	9000	2700
21	Stretching & fixing of b/wire	Rmt.	168	16.75	2814
22	cost of board for plantation	No.	1	2000	5000
					12487.44

G. LABOUR COST

Sr. No.	Item Description	Unit	Qty.	Rate(₹)	Amount (₹)
23	Weeding ,Hoeing , Watering , Watch & Ward work for six month April to September				
	2027-28	Days	180	562.5	101250
24	Watch & ward for six months				
	2027-28	Day	180	562.5	101250
25	Cost of cement and sand in cement masonry for retaining wall 3.00m(L)x 2.45m(H) 5no str				
	Cement	Bag	11	550	6050
	Sand	Cum	2.3	2500	5750
	Stone	Cum	10	2000	20000
	Earth work	Cum	2.5	350	875
					32675
	First Year Plan Total				368597.7124

2nd YEAR PLAN

F. MAINTENANCE

Sr. No.	Particulars of works	Unit	Qty.	Rate(₹)	Amount (₹)
1st YEAR MAINTENANCE (30% BEATING UP) :					
26	Re-digging of pits 45x45x45 cm	%Nos	8	1687.48	134.9984
27	Filling of Pits 45x45x45 cm	% Nos	8	964.51	77.1608
28	Planting of plants raised in P/bags	% Nos	8	771.73	61.7384
29	Carriage of P/bag Plants i/c loading and unloading	Trip	1	500	500
30	Repair of Fencing	Rmt	168	5.71	959.28
	1st year Total				1733.1776
31	Purchasing of Sintex Tank 1000 ltr. for watering in plants	Each.	1	5000	5000
32	Cost of Pipe	Meter	25	120	3000
33	Preparation of Hut with benches	No.	1	10000	10000
34	Weeding ,Hoeing & Watering work for six month April to September				
	2028-29	days	180	593.75	106875
35	Watch & ward for six months				
	2028-29	day	180	593.75	106875
	2nd Year Plan Expenditure				233483.1776

3rd year plan

2nd YEAR MAINTENANCE (20% BEATING UP) :

36	Re-digging of pits 45x45x45 cm	%Nos	6	1687.48	101.2488
37	Filling of Pits 45x45x45 cm	% Nos	6	964.51	57.8706
38	Planting of plants raised in P/bags	% Nos	6	771.73	46.3038
39	Carriage of P/bag Plants i/c loading and unloading	Trip	1	500	500
40	Repair of Fencing	Rmt	120	5.71	685.2
	2nd year Total				1390.6232
41	Weeding ,Hoeing & Watering work for six month April to September				
	2028-29	Days	180	625	112500
42	Watch & ward for six months				
	2028-29	Day	180	625	112500
	3rd Year Plan expenditure				226390.6232

4th Year Plan

3rd YEAR MAINTENANCE (10% BEATING UP) :

43	Re-digging of pits 45x45x45 cm	%Nos	3	1687.48	50.6244
44	Filling of Pits 45x45x45 cm	% Nos	3	964.51	28.9353
45	Planting of plants raised in P/bags	% Nos	3	771.73	23.1519
46	Carriage of P/bag Plants i/c loading and unloading	Trip	1	500	500
47	Repair of Fencing	Rmt	17	5.71	97.07
3rd year Total					699.7816
48	Weeding ,Hoeing & Watering work for six month April to September				
	2029-30	day	180	656.25	118125
49	Watch & ward for six months				
	2029-30	day	180	656.25	118125
4th Year Total Expenditure					236949.7816

5th Year Plan

4th to 5th YEAR MAINTENANCE (10% BEATING UP) :

50	Re-digging of pits 45x45x45 cm	%Nos	3	1687.48	50.6244
51	Filling of Pits 45x45x45 cm	% Nos	3	964.51	28.9353
52	Planting of plants raised in P/bags	% Nos	3	771.73	23.1519
53	Carriage of P/bag Plants i/c loading and unloading	Trip	1	500	500
54	Repair of Fencing	Rmt	17	5.71	97.07
4th year Total					699.7816
5th year total					699.7816
55	Weeding ,Hoeing & Watering work for six month April to September				
	2030-31	Days	180	687.25	123705
56	Watch & ward for six months				
	2030-31	Day	180	687.25	123705
5th Year Total Expenditure					248809.5632

ABSTRACT OF PLAN

1st Year Plan Expenditure	368597.7124
2nd Year Plan Expenditure	233483.1776
3rd Year Plan Expenditure	226390.6232
4th Year Plan Expenditure	236949.7816
5th Year Plan Expenditure	248809.5632
Total Expenditure	1314230.858
	0
	0
Grand Total	1314230.858

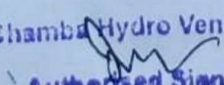
6. JUSTIFICATION

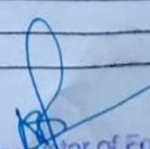
The dumping site consists of loose unconsolidated muck material which poses risk of erosion and environmental degradation. The proposed engineering and biological measures are essential for stabilization and ecological restoration. The estimate is prepared strictly as per prevailing Schedule of Rates and Forest Clearance conditions.

7. CERTIFICATE

Certified that:

- The estimate has been prepared as per latest approved SOR.
- Quantities are based on site inspection and actual measurements.
- The proposed treatment is technically feasible and necessary.

Chamba Hydro Ventures

 Authorized Signatory

Deputy Conservator of Forests
 Bhamour Forest Division
 Bhamour Chamba (H.P.)


DETAILED ESTIMATE		
Site No-II		
For Reclamation & Rehabilitation of Dumping (Muck) Site		
User Agency:	Chamab Hydro Ventures	
Project Name:	Ghator Top (4.98MW)	
Location:	Ghator DPF	
Name of the Duping Site :	Dumping Site-II	
Area Involved:	0.0099 Hectares /99 Sqmtrs	
Range / Beat:	Swai/Ghator	
Maintenance Period:	1 to 5 Years	
Financial Year:	2026-27	
1. INTRODUCTION		
This estimate is prepared for reclamation and ecological restoration of dumping (muck) site created due to project activities by the user agency. The treatment includes slope stabilization, earth work, drainage management, soil improvement, plantation and protection measures to restore the site as per Forest Clearance conditions.		
2. OBJECTIVES		
•	Stabilization of loose muck material	
•	Prevention of soil erosion & landslide risk	
•	Restoration of vegetative cover	
•	Long term ecological rehabilitation	
•	Compliance of Forest Clearance conditions	
3. SITE DESCRIPTION		
•	Total Dump Area: 0.0099 Hectares/99 Sqmtrs.	
•	Slope Category: Gentle Slope	
•	Approx. Dump Height: 2.45 Mtrs.	
•	Soil Type: Mixed	
•	Accessibility: Approachable	
Planting Bio engineering plants list		
Plants Name	From	Justification
1 Bikhhal	Lamu Nry	Dumping sites consist of loose and unstable material, making them highly susceptible to soil erosion and slope failure. Plantation through Bio-engineering techniques helps in stablizing the soil by binding it with plant roots, reducing erosion and runoff. it also aids in ecological restoration,improves soil quality, and enhances the overall environmental condition of the area.Being a cost effective and sustainable method, bio-engineering plantation is essential for long -term stabilization and protection of dumping sites
2 Willow	Lamu Nry	
3 Rambaan	local area	
4 Piak	from river bed	
5 Fescue grass	local area	
6 white clovar	local area	

4. DETAILED COST ESTIMATE (BOQ)

(Rates as per latest approved HP Forest SOR 2012-13 onward)

1st YEAR PLAN

A. EARTH WORK & SITE SHAPING

Sr. No.	Item Description	Unit	Qty.	Rate(₹)	Amount (₹)
1	Dressing and grading of muck	Cum	22	81.19	1786.18
2	Spreading & leveling of muck	Cum	8	120	960
3	Bench formation/terracing	Cum	6	250	1500
4	Manual compaction of muck	Cum	9	60	540
					4786.18
Sub Total (A)=₹		4786.2			

B. RETAINING & DRAINAGE STRUCTURES

Sr. No.	Item Description	Unit	Qty.	Rate(₹)	Amount (₹)
5	Dry Stone masonry toe wall	Cum	2.5	2100	5250
6	Gabion wall/crate wire	Cum	21.5	3500	75250
					80500
Sub Total (B)=₹		80500			

C. SOIL IMPROVEMENT & BIO ENGINEERING

Sr. No.	Item Description	Unit	Qty.	Rate(₹)	Amount (₹)
7	Application of FYM	Qtl	0.2	1000	200
8	Mulching through chil needles	Sqm	92	35	3220
9	Grass Turfing	Sqm	90	20	1800
					5220
Sub Total (C)=₹		5220			

D. PLANTATION WORK

Sr. No.	Item Description	Unit	Qty.	Rate(₹)	Amount (₹)
10	Digging of Pits 45x45x45cm	%No.	18	3375	607.5
11	Filling of Pits 45x45x45cm	No.	18	964.51	173.6118
12	Carriage of Plants from Nry.with loading and unloading by trp .	Trip	1	800	800
13	Planting of P/Bag Plants	%No.	18	771.73	138.9114
14	Planting of Bio-Engg. Plants	%No.	63	494.9	311.787
15	Preparation of Path	Rmt.	5	38	190
16	Carriage of RCC Fence Post to work site	Trip	1	600	600
					2821.8102
Sub Total (D)=₹		2821.8			

E. PROTECTION Work

Sr. No.	Item Description	Unit	Qty.	Rate(₹)	Amount (₹)
17	Preparation /digging of holes 20-30cm deep	%Nos	18	3206	577.08
18	Cost of RCC Fence Post	No.	18	500	90
19	Fixing of RCC Fence Post	%Nos.	22	2461	541.42
20	Cost of Barbed Wire	Qtl.	0.2	9000	1800
21	Stretching & fixing of b/wire	Rmt.	126	16.75	2110.5
22	cost of board for plantation	No.	1	2000	5000
					10119

G. LABOUR COST						
Sr. No.	Item Description	Unit	Qty.	Rate(₹)	Amount (₹)	
23	Weeding ,Hoeing , Watering , Watch & Ward work for six month April to September					
		2027-28	Days	180	562.5	101250
24	Watch & ward for six months					
		2027-28	Day	180	562.5	101250
25	Cost of cement and sand in cement masonry for retaining wall 3.00m(L)x 2.45m(H) 5no str					
	Cement	Bag	11	550	6050	
	Sand	Cum	2.3	2500	5750	
	Stone	Cum	10	2000	20000	
	Earth work	Cum	2.5	350	875	
					32675	
					First Year Plan Total	338621.9902
2nd YEAR PLAN						
F. MAINTENANCE						
Sr. No.	Particulars of works	Unit	Qty.	Rate(₹)	Amount (₹)	
1 st YEAR MAINTENANCE (30% BEATING UP) :						
26	Re-digging of pits 45x45x45 cm	%Nos	6	1687.48	101.2488	
27	Filling of Pits 45x45x45 cm	% Nos	6	964.51	57.8706	
28	Planting of plants raised in P/bags	% Nos	6	771.73	46.3038	
29	Carriage of P/bag Plants i/c loading and unloading	Trip	1	500	500	
30	Repair of Fencing	Rmt	126	5.71	719.46	
					1424.8832	
31	Purchasing of Sintex Tank 1000 ltr. for watering in plants	Each.	1	5000	5000	
32	Cost of Pipe	Meter	20	120	3000	
33	Preparation of Hut with benches	No.	1	10000	10000	
34	Weeding ,Hoeing , Watering , Watch & Ward work for six month April to September					
		2028-29	days	180	593.75	106875
35	Watch & ward for six months					
		2028-29	day	180	593.75	106875
					2nd Year Plan Expenditure	233174.8832
3rd year plan						
2 nd YEAR MAINTENANCE (20% BEATING UP) :						
36	Re-digging of pits 45x45x45 cm	%Nos	4	1687.48	67.4992	
37	Filling of Pits 45x45x45 cm	% Nos	4	964.51	38.5804	
38	Planting of plants raised in P/bags	% Nos	4	771.73	30.8692	
39	Carriage of P/bag Plants i/c loading and unloading	Trip	1	500	500	
40	Repair of Fencing	Rmt	25	5.71	142.75	
					2nd year Total	779.6988
41	Weeding ,Hoeing & Watering work for six month April to September					
		2029-30	Days	180	625	112500
42	Watch & ward for six months					
		2029-30	Days	180	625	112500
					3rd Year Plan expenditure	225779.6988

4th Year Plan					
3rd YEAR MAINTENANCE (10% BEATING UP):					
43	Re-digging of pits 45x45x45 cm	%Nos	2	1687.48	33.7496
44	Filling of Pits 45x45x45 cm	% Nos	2	964.51	19.2902
45	Planting of plants raised in P/bags	% Nos	2	771.73	15.4346
46	Carriage of P/bag Plants i/c loading and unloading	Trip	1	500	500
47	Repair of Fencing	Rmt	12	5.71	68.52
3rd year Total					636.9944
48	Weeding ,Hoeing , Watering , Watch & Ward work for six month April to September				
		2030-31 day	180	656.25	118125
49	Watch & ward for six months				
		2030-31 days	180	656.25	118125
4th Year Total Expenditure					236886.9944
5th Year Plan					
4th to 5th YEAR MAINTENANCE (10% BEATING UP):					
50	Re-digging of pits 45x45x45 cm	%Nos	2	1687.48	33.7496
51	Filling of Pits 45x45x45 cm	% Nos	2	964.51	19.2902
52	Planting of plants raised in P/bags	% Nos	2	771.73	15.4346
53	Carriage of P/bag Plants i/c loading and unloading	Trip	1	500	500
54	Repair of Fencing	Rmt	12	5.71	68.52
4th year Total					636.9944
5th year total					636.9944
55	Weeding ,Hoeing & Watering work for six month April to September				
		2031-32 Days	180	687.25	123705
56	Watch & ward for six months				
		2031-32 Day	180	687.25	123705
5th Year Total Expenditure					248683.9888
ABSTRACT OF PLAN					
1st Year Plan Expenditure			338621.9902		
2nd Year Plan Expenditure			233174.8832		
3rd Year Plan Expenditure			225779.6988		
4th Year Plan Expenditure			236886.9944		
5th Year Plan Expenditure			248683.9888		
Total Expenditure			1283147.555		
			0		
			0		
Grand Total			1283147.555		
6. JUSTIFICATION					
The dumping site consists of loose unconsolidated muck material which poses risk of erosion and environmental degradation. The proposed engineering and biological measures are essential for stabilization and ecological restoration. The estimate is prepared strictly as per prevailing Schedule of Rates and Forest Clearance conditions.					
7. CERTIFICATE					
Certified that:					
•	The estimate has been prepared as per latest approved SOR.				
•	Quantities are based on site inspection and actual measurements.				
•	The proposed treatment is technically feasible and necessary.				

Chamba Hydro Ventures
Authorized Signatory

Deputy Conservator of Forests
Bhermour Forest Division
Bhermour, Chamba (H.P.)

DETAILED ESTIMATE**Site No -III****For Reclamation & Rehabilitation of Dumping (Muck) Site**

User Agency:	Chamab Hydro Ventures
Project Name:	Ghator Top (4.98MW)
Location:	Ghator DPF
Name of the Duping Site :	Dumping Site-III
Area Involved:	0.0113 Hectares /113 SqMtrs
Range / Beat:	Swai/Ghator
Maintenance Period:	1 to 5 Years
Financial Year:	2026-27

1. INTRODUCTION

This estimate is prepared for reclamation and ecological restoration of dumping (muck) site created due to

2. OBJECTIVES

- Stabilization of loose muck material
- Prevention of soil erosion & landslide risk
- Restoration of vegetative cover
- Long term ecological rehabilitation
- Compliance of Forest Clearance conditions

3. SITE DESCRIPTION

• Total Dump Area:	0.0113 Hectares/113SqMtrs
• Slope Category:	Gentle Slope
• Approx. Dump Height:	2.45 Mtrs.
• Soil Type:	Mixed
• Accessibility:	Approachable

Planting Bio engineering plants list

Plants Name	From	Justification
1 Bikhhal	Lamu Nry	Dumping sites consist of loose and unstable material, making them highly susceptible to soil erosion and slope failure. Plantation through Bio-engineering techniques helps in stablizing the soil by binding it with plant roots, reducing erosion and runoff. it also aids in ecological restoration,improves soil quality, and enhances the overall environmental condition of the area.Being a cost effective and sustainable method, bio-engineering plantation is essential for long -term stabilization and protection of dumping sites
2 Willow	Lamu Nry	
3 Rambaan	local area	
4 Piak	from river bed	
5 Fescue grass	local area	
6 white clovar	local area	

4. DETAILED COST ESTIMATE (BOQ)					
(Rates as per latest approved HP Forest SOR 2012-13 onward)					
1st YEAR PLAN					
A. EARTH WORK & SITE SHAPING					
Sr. No.	Item Description	Unit	Qty.	Rate(₹)	Amount (₹)
1	Dressing and grading of muck	Cum	24	81.19	1948.56
2	Spreading & leveling of muck	Cum	10	120	1200
3	Bench formation/terracing	Cum	8	250	2000
4	Manual compaction of muck	Cum	11	60	660
					5808.56
Sub Total (A)=₹		5808.6			
B. RETAINING & DRAINAGE STRUCTURES					
Sr. No.	Item Description	Unit	Qty.	Rate(₹)	Amount (₹)
5	Dry Stone masonry toe wall	Cum	3	2100	6300
6	Gabion wall/crate wire	Cum	24.5	3500	85750
					92050
Sub Total (B)=₹		92050			
C. SOIL IMPROVEMENT & BIO ENGINEERING					
Sr. No.	Item Description	Unit	Qty.	Rate(₹)	Amount (₹)
7	Application of FYM	Qtl	0.25	1000	250
8	Mulching through chil needles	Sqm	110	35	3850
9	Grass Turfing	Sqm	98	20	1960
					6060
Sub Total (C)=₹		6060			
D. PLANTATION WORK					
Sr. No.	Item Description	Unit	Qty.	Rate(₹)	Amount (₹)
10	Digging of Pits 45x45x45cm	%No.	22	3375	742.5
11	Filling of Pits 45x45x45cm	No.	22	964.51	212.1922
12	Carriage of Plants from Nry.with loading and unloading by trp .	Trip	1	800	800
13	Planting of P/Bag Plants	%No.	22	771.73	169.7806
14	Planting of Bio-Engg. Plants	%No.	77	494.9	381.073
15	Preparation of Path	Rmt.	8	38	304
16	Carriage of RCC Fence Post to work site	Trip	1	600	600
					3209.5458
Sub Total (D)=₹		3209.5			
E. PROTECTION Work					
Sr. No.	Item Description	Unit	Qty.	Rate(₹)	Amount (₹)
17	Preparation /digging of holes 20-30cm deep	%Nos	22	3206	705.32
18	Cost of RCC Fence Post	No.	22	500	110
19	Fixing of RCC Fence Post	%Nos.	22	2461	541.42
20	Cost of Barbed Wire	Qtl.	0.25	9000	2250
21	Stretching & fixing of b/wire	Rmt.	155	16.75	2596.25
22	cost of board for plantation	No.	1	2000	2000
					8202.99

G. LABOUR COST						
Sr. No.	Item Description	Unit	Qty.	Rate(₹)	Amount (₹)	
23	Weeding ,Hoeing , Watering , Watch & Ward work for six month April to September					
		2027-28	Days	180	562.5	101250
24	Watch & ward for six months					
		2027-28	Day	180	562.5	101250
25	Cost of cement and sand in cement masonry for retaining wall 1.00m(L)x 2.45m(H) 5no str					
	Cement	Bag	9	550	4950	
	Sand	Cum	1.9	2500	4750	
	Stone	Cum	8	2000	16000	
	Earth work	Cum	2.5	350	875	
					26575	
					First Year Plan Total	344406.0958
2nd YEAR PLAN						
F. MAINTENANCE						
Sr. No.	Particulars of works	Unit	Qty.	Rate(₹)	Amount (₹)	
1 st YEAR MAINTENANCE (30% BEATING UP) :						
26	Re-digging of pits 45x45x45 cm	%Nos	7	1687.48	118.1236	
27	Filling of Pits 45x45x45 cm	% Nos	7	964.51	67.5157	
28	Planting of plants raised in P/bags	% Nos	7	771.73	54.0211	
29	Carriage of P/bag Plants i/c loading and unloading	Trip	1	500	500	
30	Repair of Fencing	Rmt	155	5.71	885.05	
					1624.7104	
31	Purchasing of Sintex Tank 1000 ltr. for watering in plants	Each.	1	5000	5000	
32	Cost of Pipe	Meter	20	120	3000	
33	Preparation of Hut with benches	No.	1	10000	10000	
34	Weeding ,Hoeing , Watering , Watch & Ward work for six month April to September					
		2028-29	days	180	593.75	106875
35	Watch & ward for six months					
		2028-29	day	180	593.75	106875
					2nd Year Plan Expenditure	233374.7104
3rd year plan						
2 nd YEAR MAINTENANCE (20% BEATING UP) :						
36	Re-digging of pits 45x45x45 cm	%Nos	5	1687.48	84.374	
37	Filling of Pits 45x45x45 cm	% Nos	5	964.51	48.2255	
38	Planting of plants raised in P/bags	% Nos	5	771.73	38.5865	
39	Carriage of P/bag Plants i/c loading and unloading	Trip	1	500	500	
40	Repair of Fencing	Rmt	32	5.71	182.72	
					2nd year Total	853.906
41	Weeding ,Hoeing & Watering work for six month April to September					
		2029-30	Days	180	625	112500
42	Watch & ward for six months					
		2029-30	Day	180	625	112500
					3rd Year Plan expenditure	225853.906

4th Year Plan					
3rd YEAR MAINTENANCE (10% BEATING UP):					
43	Re-digging of pits 45x45x45 cm	%Nos	2	1687.48	33.7496
44	Filling of Pits 45x45x45 cm	% Nos	2	964.51	19.2902
45	Planting of plants raised in P/bags	% Nos	2	771.73	15.4346
46	Carriage of P/bag Plants i/c loading and unloading	Trip	1	500	500
47	Repair of Fencing	Rmt	16	5.71	91.36
3rd year Total					659.8344
48	Weeding ,Hoeing , Watering , Watch & Ward work for six month April to September				
		2030-31 day	180	656.25	118125
49	Watch & ward for six months				
		2030-31 day	180	656.25	118125
4th Year Total Expenditure					236909.8344
5th Year Plan					
4th to 5th YEAR MAINTENANCE (10% BEATING UP):					
50	Re-digging of pits 45x45x45 cm	%Nos	2	1687.48	33.7496
51	Filling of Pits 45x45x45 cm	% Nos	2	964.51	19.2902
52	Planting of plants raised in P/bags	% Nos	2	771.73	15.4346
53	Carriage of P/bag Plants i/c loading and unloading	Trip	1	500	500
54	Repair of Fencing	Rmt	16	5.71	91.36
4th year Total					659.8344
5th year total					659.8344
55	Weeding ,Hoeing & Watering work for six month April to September				
		2030-32 Days	180	687.25	123705
56	Watch & ward for six months				
		2031-32 Day	180	687.25	123705
5th Year Total Expenditure					248729.6688
ABSTRACT OF PLAN					
1st Year Plan Expenditure			344406.0958		
2nd Year Plan Expenditure			233374.7104		
3rd Year Plan Expenditure			225853.906		
4th Year Plan Expenditure			236909.8344		
5th Year Plan Expenditure			248729.6688		
Total Expenditure			1289274.215		
			0		
			0		
Grand Total			1289274.215		
6. JUSTIFICATION					
The dumping site consists of loose unconsolidated muck material which poses risk of erosion and environmental degradation. The proposed engineering and biological measures are essential for stabilization and ecological restoration. The estimate is prepared strictly as per prevailing Schedule of Rates and Forest Clearance conditions.					
7. CERTIFICATE					
Certified that:					
•	The estimate has been prepared as per latest approved SOR.				
•	Quantities are based on site inspection and actual measurements.				
•	The proposed treatment is technically feasible and necessary.				

Chamla Hydro Ventures
 Authorised Signatory

Deputy Conservator of Forests
 Bhimnagar Forest Division
 Bhimnagar, Chamla (J.K.)

DETAILED ESTIMATE**Site No -4****For Reclamation & Rehabilitation of Dumping (Muck) Site**

User Agency:	Chamab Hydro Ventures
Project Name:	Ghator Top (4.98MW)
Location:	Ghator DPF
Name of the Duping Site :	Dumping Site-IV
Area Involved:	0.0894 Hectares/ 894 SqMtrs
Range / Beat:	Swai/Ghator
Maintenance Period:	1 to 5 Years
Financial Year:	2026-27

1. INTRODUCTION

This estimate is prepared for reclamation and ecological restoration of dumping (muck) site created due to

2. OBJECTIVES

- Stabilization of loose muck material
- Prevention of soil erosion & landslide risk
- Restoration of vegetative cover
- Long term ecological rehabilitation
- Compliance of Forest Clearance conditions

3. SITE DESCRIPTION

• Total Dump Area:	0.0894 Hectares/ 894 Sqmtrs
• Slope Category:	Gentle Slope
• Approx. Dump Height:	2.40 Mtrs.
• Soil Type:	Mixed Pick Jumper
• Accessibility:	Approachable

Planting Bio engineering plants list

Plants Name	From	Justification
1 Bikhhal	Lamu Nry	Dumping sites consist of loose and unstable material, making them highly susceptible to soil erosion and slope failure. Plantation through Bio-engineering techniques helps in stablizing the soil by binding it with plant roots, reducing erosion and runoff. it also aids in ecological restoration, improves soil quality, and enhances the overall environmental condition of the area Being a cost effective and sustainable method, bio-engineering plantation is essential for long -term stabilization and protection of dumping sites
2 Willow	Lamu Nry	
3 Rambaan	local area	
4 Piak	from river bed	
5 Fescue grass	local area	
6 white clovar	local area	

4. DETAILED COST ESTIMATE (BOQ)					
(Rates as per latest approved HP Forest SOR 2012-13 onward)					
1st YEAR PLAN					
A. EARTH WORK & SITE SHAPING					
Sr. No.	Item Description	Unit	Qty.	Rate(₹)	Amount (₹)
1	Dressing and grading of muck	Cum	22	81.19	1786.18
2	Spreading & leveling of muck	Cum	12	120	1440
3	Bench formation/terracing	Cum	8	250	2000
4	Manual compaction of muck	Cum	15	60	900
Sub Total (A)=₹					6126.2
B. RETAINING & DRAINAGE STRUCTURES					
Sr. No.	Item Description	Unit	Qty.	Rate(₹)	Amount (₹)
5	Dry Stone masonry toe wall	Cum	6.5	2100	13650
6	Gabion wall/crate wire	Cum	44.5	3500	155750
Sub Total (B)=₹					169400
C. SOIL IMPROVEMENT & BIO ENGINEERING					
Sr. No.	Item Description	Unit	Qty.	Rate(₹)	Amount (₹)
7	Application of FYM	Qtl	0.45	1000	450
8	Mulching through chil needles	Sqm	182	35	6370
9	Grass Turfing	Sqm	190	20	3800
Sub Total (C)=₹					10620
D. PLANTATION WORK					
Sr. No.	Item Description	Unit	Qty.	Rate(₹)	Amount (₹)
10	Digging of Pits 45x45x45cm	%No.	122	3375	4117.5
11	Filling of Pits 45x45x45cm	No.	122	964.51	1176.7022
12	Carriage of Plants from Nry.with loading and unloading by trp .	Trip	1	900	900
13	Planting of P/Bag Plants	%No.	122	771.73	941.5106
14	Planting of Bio-Engg. Plants	%No.	427	494.9	2113.223
15	Preparation of Path	Rmt.	10	38	380
16	Carriage of RCC Fence Post to work site	Trip	1	800	800
Sub Total (D)=₹					10428.9358
E. PROTECTION Work					
Sr. No.	Item Description	Unit	Qty.	Rate(₹)	Amount (₹)
17	Preparation /digging of holes 20-30cm deep	%Nos	60	3206	1923.6
18	Cost of RCC Fence Post	No.	60	500	300
19	Fixing of RCC Fence Post	%Nos.	60	2461	1476.6
20	Cost of Barbed Wire	Qtl.	0.6	9000	5400
21	Stretching & fixing of b/wire	Rmt.	375	16.75	6281.25
22	cost of board for plantation	No.	1	2000	2000
Sub Total (E)=₹					17381.45

G. LABOUR COST					
Sr. No.	Item Description	Unit	Qty.	Rate(₹)	Amount (₹)
23	Weeding ,Hoeing , Watering , Watch & Ward work for six month April to September				
		2027-28 Days	180	562.5	101250
24	Watch & ward for six months				
		2027-28 Day	180	562.5	101250
25	Cost of cement and sand in cement masonry for retaining wall 3.00m(L)x 2.45m(H) 5no str				
	Cement	Bag	11	550	6050
	Sand	Cum	2.3	2500	5750
	Stone	Cum	10	2000	20000
	Earth work	Cum	2.5	350	875
					32675
					First Year Plan Total 449131.5658
2nd YEAR PLAN					
F. MAINTENANCE					
Sr. No.	Particulars of works	Unit	Qty.	Rate(₹)	Amount (₹)
1 st YEAR MAINTENANCE (30% BEATING UP):					
26	Re-digging of pits 45x45x45 cm	%Nos	37	1687.48	624.3676
27	Filling of Pits 45x45x45 cm	% Nos	37	964.51	356.8687
28	Planting of plants raised in P/bags	% Nos	37	771.73	285.5401
29	Carriage of P/bag Plants i/c loading and unloading	Trip	1	800	800
30	Repair of Fencing	Rmt	375	5.71	2141.25
					1st year Total 4208.0264
31	Purchasing of Sintex Tank 1000 ltr. for watering in plants	Each.	1	5000	5000
32	Cost of Pipe	Meter	35	120	4200
33	Preparation of Hut with benches	No.	1	5000	5000
34	Weeding ,Hoeing & Watering work for six month April to September				
		2028-29 days	180	593.75	106875
35	Watch & ward for six months				
		2028-29 day	180	593.75	106875
					2nd Year Plan Expenditure 232158.0264
3rd year plan					
2 nd YEAR MAINTENANCE (20% BEATING UP):					
36	Re-digging of pits 45x45x45 cm	%Nos	25	1687.48	421.87
37	Filling of Pits 45x45x45 cm	% Nos	25	964.51	241.1275
38	Planting of plants raised in P/bags	% Nos	25	771.73	192.9325
39	Carriage of P/bag Plants i/c loading and unloading	Trip	1	800	800
40	Repair of Fencing	Rmt	35	5.71	199.85
					2nd year Total 1855.78
41	Weeding ,Hoeing & Watering work for six month April to September				
		2029-30 Days	180	625	112500
42	Watch & ward for six months				
		2029-30 Day	180	625	112500
					3rd Year Plan expenditure 226855.78

4th Year Plan					
3rd YEAR MAINTENANCE (10% BEATING UP) :					
43	Re-digging of pits 45x45x45 cm	%Nos	12	1687.48	202.4976
44	Filling of Pits 45x45x45 cm	% Nos	12	964.51	115.7412
45	Planting of plants raised in P/bags	% Nos	12	771.73	92.6076
46	Carriage of P/bag Plants i/c loading and unloading	Trip	1	500	500
47	Repair of Fencing	Rmt	18	5.71	102.78
3rd year Total					1013.6264
48	Weeding ,Hoeing & Watering work for six month April to September				
		2030-31 day	180	656.25	118125
49	Watch & ward for six months				
		2030-31 day	180	656.25	118125
4th Year Total Expenditure					237263.6264
5th Year Plan					
4th to 5th YEAR MAINTENANCE (10% BEATING UP) :					
50	Re-digging of pits 45x45x45 cm	%Nos	12	1687.48	202.4976
51	Filling of Pits 45x45x45 cm	% Nos	12	964.51	115.7412
52	Planting of plants raised in P/bags	% Nos	12	771.73	92.6076
53	Carriage of P/bag Plants i/c loading and unloading	Trip	1	800	800
54	Repair of Fencing	Rmt	18	5.71	102.78
4th year Total					1313.6264
5th year total					1313.6264
55	Weeding ,Hoeing & Watering work for six month April to September				
		2031-32 Days	180	687.25	123705
56	Watch & ward for six months				
		2031-32 Day	180	687.25	123705
5th Year Total Expenditure					250037.2528
ABSTRACT OF PLAN					
1st Year Plan Expenditure			449131.5658		
2nd Year Plan Expenditure			232158.0264		
3rd Year Plan Expenditure			226855.78		
4th Year Plan Expenditure			237263.6264		
5th Year Plan Expenditure			250037.2528		
Total Expenditure			1395446.251		
			0		
			0		
Grand Total			1395446.251		
6. JUSTIFICATION					
The dumping site consists of loose unconsolidated muck material which poses risk of erosion and environmental degradation. The proposed engineering and biological measures are essential for stabilization and ecological restoration. The estimate is prepared strictly as per prevailing Schedule of Rates and Forest Clearance conditions.					
7. CERTIFICATE					
Certified that:					
•	The estimate has been prepared as per latest approved SOR.				
•	Quantities are based on site inspection and actual measurements.				
•	The proposed treatment is technically feasible and necessary.				

Ghamba Hydro Ventures
 Authorised Signatory

Deputy Conservator of Forests
 Bhamour Forest Division
 Bhamour Chamba (H.P)

DETAILED ESTIMATE**Site No -5****For Reclamation & Rehabilitation of Dumping (Muck) Site**

User Agency:	Chamab Hydro Ventures
Project Name:	Ghator Top (4.98MW)
Location:	Ghator DPF
Name of the Duping Site :	Dumping Site-V
Area Involved:	0.1190 Hectares/1190 SqMtrs
Range / Beat:	Swai/Ghator
Maintenance Period:	1 to 5 Years
Financial Year:	2026-27

1. INTRODUCTION

This estimate is prepared for reclamation and ecological restoration of dumping (muck) site created due to project activities by the user agency. The treatment includes slope stabilization, earth work, drainage management, soil improvement, plantation and protection measures to restore the site as per Forest Clearance conditions.

2. OBJECTIVES

- Stabilization of loose muck material
- Prevention of soil erosion & landslide risk
- Restoration of vegetative cover
- Long term ecological rehabilitation
- Compliance of Forest Clearance conditions

3. SITE DESCRIPTION

• Total Dump Area:	0.1190 Hect./1190 Sqmtrs
• Slope Category:	Moderate Slope
• Approx. Dump Height:	2.50 Mtrs.
• Soil Type:	Mixed Rocky Type
• Accessibility:	Manually

Planting Bio engineering plants list

Plants Name	From	Justification
1 Bikhhal	Lamu Nry	Dumping sites consists of loose and and unstable material, making them highly susceptible to soil erosion and slope failure. Plantation through Bio-engineering techniques helps in stablizing the soil by binding it with plant roots, reducing erosion and runoff. it also aids in ecological restoration,improves soil quality, and enhances the overall environmental condition of the area. Being a cost effective and sustainable method, bio-engineering plantation is essential for long - term stabilization and protection of dumping sites
2 Willow	Lamu Nry	
3 Rambaan	local area	
4 Piak	from river bed	
5 Fescue grass	local area	
6 white clovar	local area	

4. DETAILED COST ESTIMATE (BOQ)					
(Rates as per latest approved HP Forest SOR 2012-13 onward)					
1st YEAR PLAN					
A. EARTH WORK & SITE SHAPING					
Sr. No.	Item Description	Unit	Qty.	Rate(₹)	Amount (₹)
1	Dressing and grading of muck	Cum	42	81.19	3409.98
2	Spreading & leveling of muck	Cum	32	120	3840
3	Bench formation/terracing	Cum	14	250	3500
4	Manual compaction of muck	Cum	25	60	1500
Sub Total (A)=₹					12249.98
B. RETAINING & DRAINAGE STRUCTURES					
Sr. No.	Item Description	Unit	Qty.	Rate(₹)	Amount (₹)
5	Dry Stone masonry toe wall	Cum	8.5	2100	17850
6	Gabion wall/crate wire	Cum	64.5	3500	225750
Sub Total (B)=₹					243600
C. SOIL IMPROVEMENT & BIO ENGINEERING					
Sr. No.	Item Description	Unit	Qty.	Rate(₹)	Amount (₹)
7	Application of FYM	Qtl	0.65	1000	650
8	Mulching through chil needles	Sqm	282	35	9870
9	Grass Turfing	Sqm	280	20	5600
Sub Total C=₹					16120
D. PLANTATION WORK					
Sr. No.	Item Description	Unit	Qty.	Rate(₹)	Amount (₹)
10	Digging of Pits 45x45x45cm	%No.	150	3375	5062.5
11	Filling of Pits 45x45x45cm	No.	150	964.51	1446.765
12	Carriage of Plants from Nry.with loading and unloading by trp .	Trip	1	900	900
13	Planting of P/Bag Plants	%No.	150	771.73	1157.595
14	Planting of Bio-Engg. Plants	%No.	530	494.9	2622.97
15	Preparation of Path	Rmt.	10	38	380
16	Carriage of RCC Fence Post to work site	Trip	1	800	800
Sub Total (D)=₹					12369.83
E. PROTECTION Work					
Sr. No.	Item Description	Unit	Qty.	Rate(₹)	Amount (₹)
17	Preparation /digging of holes 20-30cm deep	%Nos	70	3206	2244.2
18	Cost of RCC Fence Post	No.	70	500	350
19	Fixing of RCC Fence Post	%Nos.	70	2461	1722.7
20	Cost of Barbed Wire	Qtl.	0.65	9000	5850
21	Stretching & fixing of b/wire	Rmt.	425	16.75	7118.75
22	cost of board for plantation	No.	1	2000	2000
					19285.65

G. LABOUR COST						
Sr. No.	Item Description	Unit	Qty.	Rate(₹)	Amount (₹)	
23	Weeding ,Hoeing , Watering , Watch & Ward work for six month April to September					
		2027-28	Days	180	562.5	101250
24	Watch & ward for six months					
		2027-28	Day	180	562.5	101250
25	Cost of cement and sand in cement masonry for retaining wall 5.00m(L)x 2.50m(H) 5no str					
	Cement	Bag	18	550		9900
	Sand	Cum	5.5	2500		13750
	Stone	Cum	22	2000		44000
	Earth work	Cum	6.5	350		2275
						69925
						First Year Plan Total
						576050.46
2nd YEAR PLAN						
F. MAINTENANCE						
Sr. No.	Particulars of works	Unit	Qty.	Rate(₹)	Amount (₹)	
1 st YEAR MAINTENANCE (30% BEATING UP) :						
26	Re-digging of pits 45x45x45 cm	%Nos	45	1687.48		759.366
27	Filling of Pits 45x45x45 cm	% Nos	45	964.51		434.0295
28	Planting of plants raised in P/bags	% Nos	45	771.73		347.2785
29	Carriage of P/bag Plants i/c loading and unloading	Trip	1	800		800
30	Repair of Fencing	Rmt	425	5.71		2426.75
						1st year Total
						4767.424
31	Purchasing of Sintex Tank 1000 ltr. for watering in plants	Each.	1	5000		5000
32	Cost of Pipe	Meter	35	120		4200
33	Preparation of Hut with benches	No.	1	5000		5000
34	Weeding ,Hoeing & Watering work for six month April to September					
		2028-29	days	180	593.75	106875
35	Watch & ward for six months					
		2028-29	day	180	593.75	106875
						2nd Year Plan Expenditure
						232717.424
3rd year plan						
2 nd YEAR MAINTENANCE (20% BEATING UP) :						
36	Re-digging of pits 45x45x45 cm	%Nos	30	1687.48		506.244
37	Filling of Pits 45x45x45 cm	% Nos	30	964.51		289.353
38	Planting of plants raised in P/bags	% Nos	30	771.73		231.519
39	Carriage of P/bag Plants i/c loading and unloading	Trip	1	800		800
40	Repair of Fencing	Rmt	85	5.71		485.35
						2nd year Total
						2312.466
41	Weeding ,Hoeing & Watering work for six month April to September					
		2029-30	Days	180	625	112500
42	Watch & ward for six months					
		2029-30	Day	180	625	112500
						3rd Year Plan expenditure
						227312.466

4th Year Plan					
3rd YEAR MAINTENANCE (10% BEATING UP) :					
43	Re-digging of pits 45x45x45 cm	%Nos	15	1687.48	253.122
44	Filling of Pits 45x45x45 cm	% Nos	15	964.51	144.6765
45	Planting of plants raised in P/bags	% Nos	15	771.73	115.7595
46	Carriage of P/bag Plants i/c loading and unloading	Trip	1	500	500
47	Repair of Fencing	Rmt	43	5.71	245.53
3rd year Total					1259.088
48	Weeding ,Hoeing & Watering work for six month April to September				
	2030-31	day	180	656.25	118125
49	Watch & ward for six months				
	2030-31	day	180	656.25	118125
4th Year Total Expenditure					237509.088
5th Year Plan					
4th to 5th YEAR MAINTENANCE (10% BEATING UP) :					
50	Re-digging of pits 45x45x45 cm	%Nos	15	1687.48	253.122
51	Filling of Pits 45x45x45 cm	% Nos	15	964.51	144.6765
52	Planting of plants raised in P/bags	% Nos	15	771.73	115.7595
53	Carriage of P/bag Plants i/c loading and unloading	Trip	1	800	800
54	Repair of Fencing	Rmt	43	5.71	245.53
4th year Total					1559.088
5th year total					1559.088
55	Weeding ,Hoeing & Watering work for six month April to September				
	2031-32	Days	180	687.25	123705
56	Watch & ward for six months				
	2031-32	Day	180	687.25	123705
5th Year Total Expenditure					250528.176
ABSTRACT OF PLAN					
1st Year Plan Expenditure			576050.46		
2nd Year Plan Expenditure			232717.424		
3rd Year Plan Expenditure			227312.466		
4th Year Plan Expenditure			237509.088		
5th Year Plan Expenditure			250528.176		
Total Expenditure			1524117.614		
			0		
			0		
Grand Total			1524117.614		
6. JUSTIFICATION					
The dumping site consists of loose unconsolidated muck material which poses risk of erosion and environmental degradation. The proposed engineering and biological measures are essential for stabilization and ecological restoration. The estimate is prepared strictly as per prevailing Schedule of Rates and Forest Clearance conditions.					
7. CERTIFICATE					
Certified that:					
•	The estimate has been prepared as per latest approved SOR.				
•	Quantities are based on site inspection and actual measurements.				
•	The proposed treatment is technically feasible and necessary.				

Chamba Hydro Ventures
 Authorised Signatory

Deputy Conservator of Forests
 Bhamour Forest Division
 Bhamour Chamba (H.P)

DETAILED ESTIMATE**Site No -6****For Reclamation & Rehabilitation of Dumping (Muck) Site**

User Agency:	Chamab Hydro Ventures
Project Name:	Ghator Top (4.98MW)
Location:	Ghator DPF
Name of the Duping Site :	Dumping Site-VI
Area Involved:	0.0894 Hectares /894 SqMtrs
Range / Beat:	Swai/Ghator
Maintenance Period:	1 to 5 Years
Financial Year:	2026-27

1. INTRODUCTION

This estimate is prepared for reclamation and ecological restoration of dumping (muck) site created due to

2. OBJECTIVES

- Stabilization of loose muck material
- Prevention of soil erosion & landslide risk
- Restoration of vegetative cover
- Long term ecological rehabilitation
- Compliance of Forest Clearance conditions

3. SITE DESCRIPTION

• Total Dump Area:	0.0894 Hect./894 Sqmtrs
• Slope Category:	Gentle to moderate Slope
• Approx. Dump Height:	2.70 Mtrs.
• Soil Type:	Mixed Pick Jumper Type
• Accessibility:	Manually

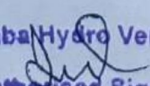
Planting Bio engineering plants list

Plants Name	From	Justification
1 Bikhhal	Lamu Nry	Dumping sites consist of loose and unstable material, making them highly susceptible to soil erosion and slope failure. Plantation through Bio-engineering techniques helps in stabilizing the soil by binding it with plant roots, reducing erosion and runoff. it also aids in ecological restoration, improves soil quality, and enhances the overall environmental condition of the area. Being a cost effective and sustainable method, bio-engineering plantation is essential for long -term stabilization and protection of dumping sites
2 Willow	Lamu Nry	
3 Rambaan	local area	
4 Piak	from river bed	
5 Fescue grass	local area	
6 white clovar	local area	

4. DETAILED COST ESTIMATE (BOQ)					
(Rates as per latest approved HP Forest SOR 2012-13 onward)					
1st YEAR PLAN					
A. EARTH WORK & SITE SHAPING					
Sr. No.	Item Description	Unit	Qty.	Rate(₹)	Amount (₹)
1	Dressing and grading of muck	Cum	22	81.19	1786.18
2	Spreading & leveling of muck	Cum	12	120	1440
3	Bench formation/terracing	Cum	8	250	2000
4	Manual compaction of muck	Cum	15	60	900
Sub Total (A)=₹					6126.2
B. RETAINING & DRAINAGE STRUCTURES					
Sr. No.	Item Description	Unit	Qty.	Rate(₹)	Amount (₹)
5	Dry Stone masonry toe wall	Cum	6.5	2100	13650
6	Gabion wall/crate wire	Cum	44.5	3500	155750
Sub Total (B)=₹					169400
C. SOIL IMPROVEMENT & BIO ENGINEERING					
Sr. No.	Item Description	Unit	Qty.	Rate(₹)	Amount (₹)
7	Application of FYM	Qtl	0.45	1000	450
8	Mulching through chil needles	Sqm	182	35	6370
9	Grass Turfing	Sqm	190	20	3800
Sub Total (C)=₹					10620
D. PLANTATION WORK					
Sr. No.	Item Description	Unit	Qty.	Rate(₹)	Amount (₹)
10	Digging of Pits 45x45x45cm	%No.	122	3375	4117.5
11	Filling of Pits 45x45x45cm	No.	122	964.51	1176.7022
12	Carriage of Plants from Nry.with loading and unloading by trp .	Trip	1	900	900
13	Planting of P/Bag Plants	%No.	122	771.73	941.5106
14	Planting of Bio-Engg. Plants	%No.	427	494.9	2113.223
15	Preparation of Path	Rmt.	10	38	380
16	Carriage of RCC Fence Post to work site	Trip	1	800	800
Sub Total (D)=₹					10428.9358
E. PROTECTION Work					
Sr. No.	Item Description	Unit	Qty.	Rate(₹)	Amount (₹)
17	Preparation /digging of holes 20-30cm deep	%Nos	60	3206	1923.6
18	Cost of RCC Fence Post	No.	60	500	300
19	Fixing of RCC Fence Post	%Nos.	60	2461	1476.6
20	Cost of Barbed Wire	Qtl.	0.6	9000	5400
21	Stretching & fixing of b/wire	Rmt.	375	16.75	6281.25
22	cost of board for plantation	No.	1	2000	2000
Sub Total (E)=₹					17381.45

G. LABOUR COST						
Sr. No.	Item Description	Unit	Qty.	Rate(₹)	Amount (₹)	
23	Weeding ,Hoeing , Watering , Watch & Ward work for six month April to September					
		2027-28	Days	180	562.5	101250
24	Watch & ward for six months					
		2027-28	Day	180	562.5	101250
25	Cost of cement and sand in cement masonry for retaining wall 10.00m(L)x 2.70m(H) 5no str					
	Cement	Bag	24	550	13200	
	Sand	Cum	4.8	2500	12000	
	Stone	Cum	25	2000	50000	
	Earth work	Cum	6.5	350	2275	
					77475	
					First Year Plan Total	493931.5658
2nd YEAR PLAN						
F. MAINTENANCE						
Sr. No.	Particulars of works	Unit	Qty.	Rate(₹)	Amount (₹)	
1 st YEAR MAINTENANCE (30% BEATING UP) :						
26	Re-digging of pits 45x45x45 cm	%Nos	37	1687.48	624.3676	
27	Filling of Pits 45x45x45 cm	% Nos	37	964.51	356.8687	
28	Planting of plants raised in P/bags	% Nos	37	771.73	285.5401	
29	Carriage of P/bag Plants i/c loading and unloading	Trip	1	800	800	
30	Repair of Fencing	Rmt	375	5.71	2141.25	
					1st year Total	4208.0264
31	Purchasing of Sintex Tank 1000 ltr. for watering in plants	Each.	1	5000	5000	
32	Cost of Pipe	Meter	35	120	4200	
33	Preparation of Hut with benches	No.	1	5000	5000	
34	Weeding ,Hoeing & Watering work for six month April to September					
		2028-29	days	180	593.75	106875
35	Watch & ward for six months					
		2028-29	day	180	593.75	106875
					2nd Year Plan Expenditure	232158.0264
3rd year plan						
2 nd YEAR MAINTENANCE (20% BEATING UP) :						
36	Re-digging of pits 45x45x45 cm	%Nos	25	1687.48	421.87	
37	Filling of Pits 45x45x45 cm	% Nos	25	964.51	241.1275	
38	Planting of plants raised in P/bags	% Nos	25	771.73	192.9325	
39	Carriage of P/bag Plants i/c loading and unloading	Trip	1	800	800	
40	Repair of Fencing	Rmt	35	5.71	199.85	
					2nd year Total	1855.78
41	Weeding ,Hoeing & Watering work for six month April to September					
		2029-30	Days	180	625	112500
42	Watch & ward for six months					
		2029-30	Day	180	625	112500
					3rd Year Plan expenditure	226855.78

4th Year Plan					
3rd YEAR MAINTENANCE (10% BEATING UP) :					
43	Re-digging of pits 45x45x45 cm	%Nos	12	1687.48	202.4976
44	Filling of Pits 45x45x45 cm	% Nos	12	964.51	115.7412
45	Planting of plants raised in P/bags	% Nos	12	771.73	92.6076
46	Carriage of P/bag Plants i/c loading and unloading	Trip	1	500	500
47	Repair of Fencing	Rmt	18	5.71	102.78
3rd year Total					1013.6264
48	Weeding ,Hoing & Watering work for six month April to September				
		2030-31 day	180	656.25	118125
49	Watch & ward for six months				
		2030-31 day	180	656.25	118125
4th Year Total Expenditure					237263.6264
5th Year Plan					
4th to 5th YEAR MAINTENANCE (10% BEATING UP) :					
50	Re-digging of pits 45x45x45 cm	%Nos	12	1687.48	202.4976
51	Filling of Pits 45x45x45 cm	% Nos	12	964.51	115.7412
52	Planting of plants raised in P/bags	% Nos	12	771.73	92.6076
53	Carriage of P/bag Plants i/c loading and unloading	Trip	1	800	800
54	Repair of Fencing	Rmt	18	5.71	102.78
4th year Total					1313.6264
5th year total					1313.6264
55	Weeding ,Hoing & Watering work for six month April to September				
		2031-32 Days	180	687.25	123705
56	Watch & ward for six months				
		2031-32 Day	180	687.25	123705
5th Year Total Expenditure					250037.2528
ABSTRACT OF PLAN					
1st Year Plan Expenditure			493931.5658		
2nd Year Plan Expenditure			232158.0264		
3rd Year Plan Expenditure			226855.78		
4th Year Plan Expenditure			237263.6264		
5th Year Plan Expenditure			250037.2528		
Total Expenditure			1440246.251		
			0		
			0		
Grand Total			1440246.251		
6. JUSTIFICATION					
The dumping site consists of loose unconsolidated muck material which poses risk of erosion and environmental degradation. The proposed engineering and biological measures are essential for stabilization and ecological restoration. The estimate is prepared strictly as per prevailing Schedule of Rates and Forest Clearance conditions.					
7. CERTIFICATE					
Certified that:					
•	The estimate has been prepared as per latest approved SOR.				
•	Quantities are based on site inspection and actual measurements.				
•	The proposed treatment is technically feasible and necessary.				

Ghamba Hydro Ventures

 Authorised Signatory

Deputy Conservator of Forests
 Bhawanpur Forest Division
 Bhawanpur, Chamba (H.P.)

