वन विभाग हिमाचल प्रदेश
Himachal Pradesh Forest Department
Chamba Forest Circle, Chamba
Ph. 01899-225839, 222237
E-mail : head-forcircha-hp@hp.gov.in

No. D-V-18/Gen. 592 **Dated Chamba, the** 22/05/2026

From:- Conservator of Forests
Chamba Forest Circle, Chamba

To: Nodal Officer –cum-APCCF (FCA)
O/o Pr. CCF, H.P, Shimla-1

Subject:- **Diversion of 3.7463 hectares of forest land in favour of Chamba Hydro Ventures, Hotel Alps Resorts, PO and Tehsil Dalhousie, District Chamba HP for the construction of Ghatore Top SHEP (4.98M.W.) within the jurisdiction of Bharmour Forest Division Distt. Chamba HP (Online Proposal No. FP/HP/HYD/155802/2022)**

Memo: Kindly refer to Govt. of India MoEF & CC Sub Office - Shimla Himachal Pradesh letter dated 19-03-2026 on the subject cited above.

The observation as raised vide letter under reference have been attended by DCF Bharmour and User Agency as under:-

S. No	Observation	Reply
1.	The State Government is required to submit complete details of the trees standing within the proposed muck dumping sites along with the photographs of the dumping sites, authenticated by the concerned DFO. In addition, the State Government need to submit an undertaking stating that no trees will be felled within the proposed muck dumping sites.	DFO Bharmour has submitted that there are no trees standing within the proposed Dumping Sites (I to VI) of the Ghatore Top SHEP (4.98 MW), as verified by the field staff. The authenticated field verification report and geo-tagged photographs of all proposed dumping locations have been uploaded in PDF format. Furthermore, a formal undertaking certifying that "no trees shall be felled within the designated muck dumping sites" has been executed by the User Agency and uploaded against Additional Information in Part-I on the Parivesh Portal.
2.	The State Government is also required to clarify the approach proposed for accessing the dumping sites. Details of approach road to access the proposed dumping sites need to be submitted.	The Ghatore Top SHEP is a high-head scheme optimized to minimize surface footprint. Consequently, muck handling will primarily be executed manually. Out of the six proposed sites, four (4) dumping sites lie directly parallel to core project components (the approach road and Power House), requiring no independent access infrastructure. The remaining two (2) sites are adjacent to the Weir site, HRT, Desilting Tank, and Forebay, where construction and mucking will be handled manually via localized project pathways. A

वन विभाग हिमाचल प्रदेश
Himachal Pradesh Forest Department
Chamba Forest Circle, Chamba
Ph. 01899-225839, 222237
E-mail : head-forcircha-hp@hp.gov.in

		comprehensive Access Plan detailing these configurations has been compiled and uploaded as supplementary data under Part-I.
3.	The State Government needs to submit a comprehensive report detailing with the bioengineering measures proposed to prevent the rolling of muck into the nallah, along with a clear statement of the financial outlay. The report shall also specifically include proper and scientific protection measures for safeguarding existing green standing trees, if any.	In reply to this observation user agency has submitted that the proposed dumping locations are completely devoid of existing standing trees or dense vegetation, robust protection measures are planned to secure the local ecosystem. To effectively prevent muck from rolling into the adjoining nallah during both construction and operational phases, a comprehensive Catchment/Muck Bioengineering Plan—complete with a detailed financial outlay—has been prepared and uploaded under Part-I on the portal.
4.	The State Government needs to revise the canopy density of the forest diversion area in accordance with the actual ground realities and update the same under S.N-3, Part-ll of the proposal, Consequently, the NPV bill/calculation sheet may be updated, if required.	In reply to this observation DFO has submitted that the forest canopy density has been reassessed & found correct as per the actual ground realities. Hence no need to update in SN-3 Part –II.
5.	To ensure the extent of forest area proposed for diversion is barest minimum, the State Government needs to revisit the area proposed for diversion (including all the components) and ensure that no area has been proposed in the local Karam. unit, detail in this regard, duly authenticated by DFO concerned need to be submitted in the area proposed for diversion.	The total forest area proposed for diversion is strictly confined to 3.7463 hectares, which represents the barest minimum operational requirement. **No component area has been proposed or calculated in the localized 'Karam' unit; all metric breakdowns are maintained in meters and hectares. For administrative clarity, a certificate from the Deputy Commissioner, Chamba, confirming that 'Karam' is solely a Revenue Department measurement unit** (and not used in forest layouts), along with the authenticated component-wise land breakup, has been uploaded in Part-I.
6.	State Govt. needs to submit the detailed Geologist report along with recommendations/comments duly authenticated by competent authority.	The comprehensive Geological Assessment Report for the Ghatore Top SHEP (4.98 MW), detailing stability recommendations and duly authenticated by the competent authority, has been uploaded under the appropriate column of Part-I.
7.	State Govt. needs to submit the detailed Evacuation Plan of the instant proposal.	The detailed Power Evacuation Plan, along with its technical layout, has been successfully uploaded into the Additional Information

वन विभाग हिमाचल प्रदेश
Himachal Pradesh Forest Department
Chamba Forest Circle, Chamba
Ph. 01899-225839, 222237
E-mail : head-forcircha-hp@hp.gov.in

		module of the online proposal.
8.	State Govt. needs to submit the revised DGPS map of the diversion area in legible format showing lat/long of the components.	A high-resolution, legible Differential GPS (DGPS) map, distinctly demarcating the latitudes, longitudes, and boundary pillars of all critical project components, has been uploaded under Part-I by the User Agency.
9.	State Govt. need to revisit the proposed CA area for its suitability for plantation and submit the exact details of CA along with the requisite documents of the CA viz. KML, Comprehensive CA scheme, DGPS/Toposheet Map, Land suitability certificate etc. duly authenticated by DFO concerned. Also, update the details of CA in S.No-13(i), part-II.	The proposed Compensatory Afforestation (CA) land has been thoroughly reassessed on the ground and certified as highly suitable for plantation. All requisite authenticated documents—including the KML files, Comprehensive CA Scheme, DGPS/Toposheet Map overlays, and the Land Suitability Certificate duly signed by DFO have been uploaded against Serial Number 13(i) of Part-II on Parivesh Portal.

This is submitted for favour of your information and further necessary action please.

Conservator of Forests
Chamba Forest Circle, Chamba.

CERTIFICATE FOR NO TREES ON DUMPING SITES

This is to be certify that there are not any standing trees standing in the proposed Dumping sites for the execution of Ghator Top SHEP being executed by Chamba Hydro ventures , Hotel Alps resorts, Tehsil Dalhousie, Distt. Chamba HP.

Chamba Hydro Ventures
Authorised Signatory

Divisional Forest Officer
Forest Division Bharmour
Bharmour Distt Chamba

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/FG/211/26 Dated 17/4/26

UNDERTAKING FOR NO TREES FEELING

I Rajeev Kumar Upmanyu authorised signatory of M/S **Chamba Hydro Ventures ,** hereby undertake that the no trees will be felled in the proposed Muck Dumping sites for the construction of Ghator Top (4.98MW) SHEP in the jurisdiction of Bharmour Forest Division Distt. Chamba HP.

Date----

Place--- Bharmour

Chamba Hydro Ventures
Authorised Signatory

For Chamba Hydro Ventures,

Authorized Signatory

Countersigned By:-

Divisional Forest Officer
Forest Division Bharmour
Distt. Chamba HP (H.P)

DUMPING SITE NO. 4 (NEAR WEIR SITE)


DUMPING SITE NO. 6 (FOREBAY &HRT

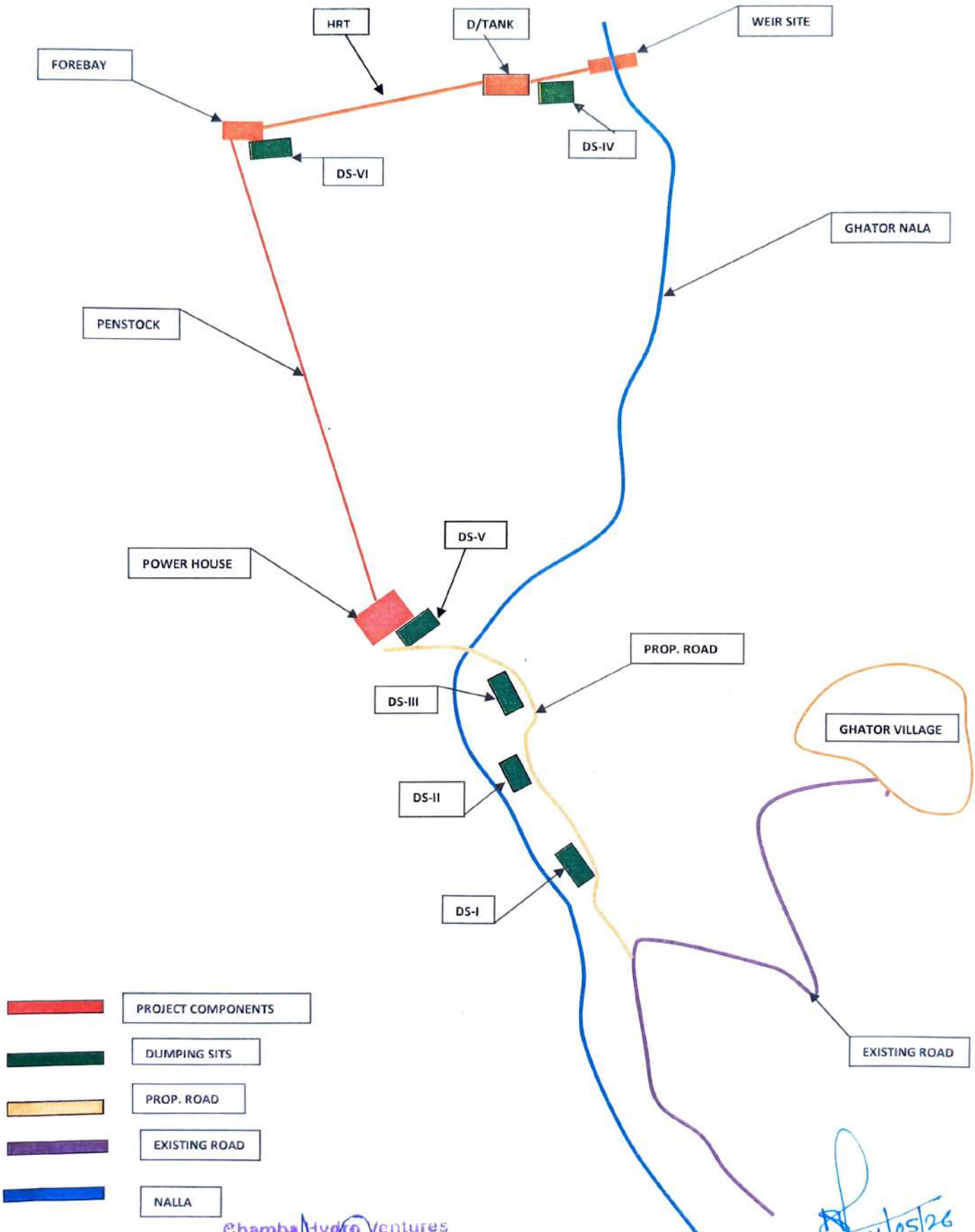

DUMPING SITE-V (POWER
HOUSE & S. YARD


DUMPING SITE-I (ROAD)


DUMPING SITE-II (ROAD)


DU MPING SITE-III (ROAD)

ACCESS PLAN FOR GHATOR TOP SHEP 4.98MW



Chamba Hydro Ventures
Authorised Signatory

11/05/26

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 for 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 provoided 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:

i) **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 provoided bio treatment. The work plan will be formulated for re-vegetation of the dumping sites through integrated biotechnological approach.

ii) **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.

iii) **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 provoided 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	Bikhal	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 ©=₹	**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	Prepration 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	Prepration /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	Prepration 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
Authorised Signatory

Deputy Conservator of Forests
Bharmour Forest Division
Bharmour 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	Bikhal	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 ©=₹	**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	Prepration 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	Prepration /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 (₹)
	1st 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
	1st year Total				**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	Prepration 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

	2nd 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
Authorised Signatory

Deputy Conservator of Forests
Dharmour Forest Division
Dharmour 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	Bikhal	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 ©=₹	**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	Prepration 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	Prepration /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 (₹)
1st 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
	1st year Total				**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	Prepration 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					
2nd 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.

Chamba Hydro Ventures
Authorised Signatory

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

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	Bikhal	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
					6126.18
	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
					169400
	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
					10620
	Sub Total ©=₹	**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	Prepration of Path	Rmt.	10	38	380
16	Carriage of RCC Fence Post to work site	Trip	1	800	800
					10428.9358
	Sub Total (D)=₹	**10429**			

E. PROTECTION Work

Sr. No.	Item Description	Unit	Qty.	Rate(₹)	Amount (₹)
17	Prepration /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
					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 (₹)
1st 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	Prepration 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					
2nd 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.

Chamba Hydro Ventures
Authorised Signatory

Deputy Conservator of Forests
Bharmour Forest Division
Bharmour 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	Bikhal	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
					12249.98
	Sub Total (A)=₹	**12250**			

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
					243600
	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
					16120
	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	Prepration of Path	Rmt.	10	38	380
16	Carriage of RCC Fence Post to work site	Trip	1	800	800
					12369.83
	Sub Total (D)=₹	**12370**			

E. PROTECTION Work

Sr. No.	Item Description	Unit	Qty.	Rate(₹)	Amount (₹)
17	Prepration /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 (₹)
1st 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	Prepration 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					
2nd 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
Bharmour Forest Division
Bharmour 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	Bikhal	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
					6126.18
	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
					169400
	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
					10620
	Sub Total ©=₹	**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	Prepration of Path	Rmt.	10	38	380
16	Carriage of RCC Fence Post to work site	Trip	1	800	800
					10428.9358
	Sub Total (D)=₹	**10429**			

E. PROTECTION Work

Sr. No.	Item Description	Unit	Qty.	Rate(₹)	Amount (₹)
17	Prepration /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
					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 (₹)
1st 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	Prepration 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					
2nd 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	**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.

Chamba Hydro Ventures
Authorised Signatory

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

DIVERSION OF 3.7463HA.OF FORESTLAND FOR CONSTRUCTION OF GHATOR TOP SMALL HYDRO PROJECT 4.98 MW IN TEHSIL BHARMOUR DISTRICT CHAMBA (H.P)
FILE NO .. :**FP/HP/HYD/156608/2022**
DATE OF PROOSAL :

CHECK LIST -11

CERTIFICATE FOR MINIMUM USE OF FOREST LAND

This is to certify that the forest area involved in the proposal is unavoidable and barest minimum forest area i.e. 3.7463 hectare is proposed for diversion for the construction of GHATOR TOP SHEP (4.98MW)at Gram panchayat Jagat in Distt. Chamba HP . Three alternatives have been considered for this project and adopted alternative I uses minimum forest land and details are as under;

Various Alternatives for the project

I) **Alternative I**

This is mainly a right bank alternative. The alternative involves construction of diversion structure at EL. 2735m on Ghator nalla. The water conductor shall consist of feeder channel 18m, 741m HRT lenght & 1398 m long surface Penstock pipe on the right bank of the Ghator nalla. Also the penstock alignment is on surface as there is steep slope & rocky terrain except some bends to the Penstock. The gross head available for the power generation shall be around 656.50. This alternative envolvs the forest land of 3.7463 hectares and 57 numbers of trees cutting . The approved estimated cost of the alternative is 4051 lacs.

II) **Alternative II**

This alternative involves construction of diversion structure on Chhurkhu nala at El.2735m on its right bank . The water conductor system of 50 m length from weir diversion upto forebay. The Penstock leads from the forebay to the Power house through loose rock and ocassionaly slidy portion and Also the some portion of the penstock passing through strethed area which leads to more laying length so keeping in view this there may be the loss of head which leads to the slightly less annual generation. In this Alternative 4.52 hetares of land is utilising and 65 numbers of trees coming due to which the estimated cost of the scheme goes upto near about 4125 lacs.

III) **Alternative III**

This is left bank alternative involves construction of diversion structure at EL. 2735m on the Ghator nalla . The water of Ghator nala shall diverted through a 55 m long water conductor system to the forebay. The proposed Power house

and penstock consist of loose strata which is vulnerable to landslides and most of the alignment of the components are coming in cultivated land and habitant area inspite of that forest land is more than earlier mentioned alternatives because of length of the transmission line and road increasing . In this alternative near about 4.10 hectares of land is coming and 70 numbers of trees envolving. The estimated cost of this alternate stands about 4210 Lacs.

In view of the advantages offered by the Alternative I, It has been taken up for preparing Detailed Project Report

A summarised view presented in table below:-

Sr. No.	Description	Alt-I	Alt -II	Alt-III
1	Forest land envolved in Project components	3.7463	4.5200	4.1000
2	Road	1.279	2.4	4.6
3	Trees Coming in alignment of Project components	57	65	70
4	Estimated cost (in Lacs)	4051	4125	4210

This shows that alternative I shall be use minimum forest cover, less cutting of trees and economically viavility

All alternatives are shown in drawing and enclosed

Place----Bharmour

Date--

For Chamba Hydro Ventures

Chamba Hydro Ventures

Authorised Signatory

Authorised Signatory

Countersigned by :

Divisional Forest Officer

Bharmour Forest Division

Bharmour (H.P.)

CONVERSION TABLE FOR CONVERTING LOCAL MEASURES INTO HECTARES

PART – B

(Applicable to the areas where the length of Karam is 56" and Bigha is equivalent to 968 Sq. Yards.)

(Applicable in Districts Mandi, Kullu, Chamba and Lahaul & Spiti)

1 inch	=	0.0254	Metre
1 Karam (56 inchs)	=	1.4224	Metre
1 Sq. Karam (Biswansi)	=	2.02322176	Sq. metre
1 Biswa	=	40.4644352	Sq. metre
1 Bigha (968 Sq. yard)	=	809.288704	Sq. metre

Abbreviations

1 Sq. metre	=	1 Centare	(Cent)
100 Sq. metres	=	1 Are	(Are)
10,000 Sq. metres	=	1 Hectare	(ha.)

Chamba Hydro Ventures
New Hydel Power
Authorised Signatory

Divisional Forest Officer
Chamba Forest Division
CHAMBA-176310

M.: 98145-23801, 97794-51344
L.L. No. 01874-220801
E-mail : kanwalbakshi65@gmail.com

Friends HIM Energies

Head Office C/o Happy Sen. Sec. School, Jail Road, Gurdaspur

Ref. No. FHE/SHP/Siul-IV-0078

Dated 22-9-21

To

The Divisional Forest Officer,
Churah (Salooni) Distt. Chamba H.P.

Subject: - **Diversion of 8.0678 ha. of forest land in favour of M/S Friends Him Energies C/o Near Happy Sr. Sec. school, Jail Road, Gurdaspur- 143521 for the construction of Siul-IV SHEP. Within the jurisdiction of Churah Forest Division, Distt. Chamba HP. (online Proposal No. FP/HP/HYD/35437/2018)**

Respected Sir,

In reference of Government of India Ministry of Environment, Forest and Climate Change, Integrated Regional office, Shimla First and Second Floor, C.G.O Complex Longwood, Shimla-171001. Present Address: Integrated Regional office, 25 Subhash Road. Dehradun-248001, letter No. 8B/HP/01/147/2019/FC/101 Dated 22-06-2021 vide which they have pointed out some shortcoming in the proposal folder in respect of above cited subject. In this context we have submitting point wise reply for your kind information and farther necessary action please.

1. In this point, it has been submitted the around area for transmission line ROW and as per the revenue department measurement unit, according to Himachal Pradesh Revenue department 15meters equal to 15/1.42 = 10.5633 karma comes. So the total breadth is taken in 11 karmas. According to the opinion of the revenue deprtment, one karma is equal =1.42metrs. If equal to 11x1.42 = 15.62 meters. Similarly the width of ROW is taken 11 karama which is equal to 15.62 meters to match the requirement of forest department for the transmission line. Also the necessary correction and justification have been made by Deputy Commissioner Chamba Distt. Chamba Himachal Pradesh on justify the local measurement. The copy of measurement justification is attached herewith.
2. In this point ends of the State Government may provide its comments. For favour of further necessary action please. Kindly approve and oblige.

Yours Faithfully,

Project Manager
Authorized Signatory
M/S Friends Him Energies

Copy to: - CC.F. Chamba Circle Chamba for necessary action.

DIVERSION OF 3.7463 HAC. OF FOREST LAND FOR CONSTRUCTION OF GHATOR TOP SMALL HYDRO PROJECT 4.98 MW IN TEHSIL BHARMOUR, DISTRICT CHAMBA (H.P.)
FILE NO : **FP/HP/HYD/156608/2022**
DATE OF PROPOSAL : 9/6/2022

CHECK LIST NO. -24

COMPONENT WISE DETAIL OF LAND REQUIRED FOR CONSTRUCTION OF GHATOR TOP SHEP

Sr. No.	COMPONENTS	LENGTH	BREADTH	Khasra Number/ Survey or Compartment Number or Km Stone	Forest area proposed for Diversion (HA)
1	WEIR SITE	30	19.83	1/1	00-05-95
2	FEEDAR CHANNEL	18	2.50	2/4	00-00-45
3	D-TANK	25	11.88	2/2	00-02-97
4	SILT FLUSING	16	2	2/5	00-0032
5	TUNNEL	701	2.645	2/1,11/8	00-18-54
6	SHURGE TANK	25	15.88	11/7	00-03-97
7	PENSTOCK	1398	2.84	11/5	00-03-97
8	POWER HOUSE	60	39.65	11/1	00-23-79
9	SWITCH YARD	30	19.85	11/4	00-05-95
10	ROAD	55.58	3.85	11/3	00-02-14
11	ROAD	638.70	3.85	1673/1	00-24-59
12	TRANSMISSION	661.52	11.15	1673/1	00-73-76
13	ROAD	55.51	3.85	1908/1	00-19-27
14	TRANSMISSION	518.65	11.15	1908/1	00-57-83
15	ROAD	8.57	3.85	1909/1	00-00-33
16	TRANSMISSION	8.57	11.15	1909/1	00-00-99
17	ROAD	5.97	3.85	1823/1	00-00-68
18	TRANSMISSION	6.09	11.15	1823/1	00-00-68
19	ROAD	70.12	3.85	1935/1,1854/1	00-20-70
20	TRANSMISSION	72.64	11.15	1935/1,1854/1	00-08-10
21	TRANSMISSION	205	1.42	1911/3/1	00-02-91
22	TRANSMISSION	172.52	1.42	1973/304/1	00-02-45
23	TRANSMISSION	508.4	1.42	375/1	00-07-22
24	TRANSMISSION	478.87	1.42	1923/551/1	00-06-80
25	TRANSMISSION	223.94	1.42	619/1	00-03-18
26	TRANSMISSION	181	1.42	638/1	00-02-57
27	TRANSMISSION	407.74	1.42	642/1	00-05-79
28	TRANSMISSION	494.36	1.42	970/1	00-07-02
29	TRANSMISSION	544.36	1.42	1087/1	00-07-73
30	TRANSMISSION	235.21	1.42	1095/1	00-03-34
31	DUMPING SITE -I	17	10	1673/2	00-01-46
32	DUMPING SITE –II	14.2	10	1673/3	00-00-99
33	DUMPING SITE –III	19.4	10	1908/2	00-01-13
34	DUMPING SITE –IV	15.6	10	2/3	00-08-94
35	DUMPING SITE –V	17	10	11/2	00-11-90
36	DUMPING SITE -VI	15.6	10	11/6	00-08-94
				TOTAL AREA	**3.7463 Hact.**

Place: Bharmour
Dated: 11/5/2026

For Chamba Hydro Ventures

Authorised Signatory

Countersigned by:

Divisional Forest Officer
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/FGT/211/26 Dated 17/4/26

UNDERTAKING FOR NO TREES FEELING

I Rajeev Kumar Upmanyu authorised signatory of M/S **Chamba Hydro Ventures ,** hereby undertake that the no trees will be felled in the proposed Muck Dumping sites for the construction of Ghator Top (4.98MW) SHEP in the jurisdiction of Bharmour Forest Division Distt. Chamba HP.

Date---11/5/2026

Place--- Bharmour

Chamba Hydro Ventures
Authorised Signatory

For Chamba Hydro Ventures

Authorized Signatory

Countersigned By:-

Divisional Forest Officer
Forest Division Bharmour
Distt. Chamba HP

GEOLOGICAL REPORT

FOR

GHATOR TOP SMALL HYDRO ELECTRIC PROJECT (4.98 MW)

Location Details

Village: Ghator
Tehsil: Bharmour
District: Chamba
State: Himachal Pradesh

Project Details

Name of Project: Ghator Top Small Hydro Electric Project
Installed Capacity: 4.98 MW
Type of Scheme: Run-of-the-River
River/Nallah: Ghator Nallah (Tributary of Chirchind Nallah, Ravi Basin)

Prepared For

Forest Clearance (FCA) Submission
Under the Forest (Conservation) Act, 1980

Submitted By

M/s Chamba Hydro Ventures
(Project Proponent)

Prepared By

Arun Dhiman
Geologist cum RQP
Reg. No.: H.P./R.Q.P/25/2/2019
Vill. & P.O. Dhaloon (Panchpuli)
Tehsil Nagrota Bagwan
District Kangra
Himachal Pradesh – 176056

GEOLOGICAL REPORT FOR PROPOSED CONSTRUCTION
GHATOR TOP SMALL HYDRO ELECTRIC PROJECT (4.98 MW)
Village: Ghator | District: Chamba (H.P.)

1. INTRODUCTION

India is experiencing a steady increase in electricity demand due to economic growth and rising living standards. To meet this demand sustainably, there is a need to promote renewable energy sources, particularly hydropower, which is clean, reliable, and suitable for peak load management. In hilly states like Himachal Pradesh, small hydro projects are well-suited due to the availability of perennial streams and steep gradients.

In this context, the Ghator Top Small Hydro Electric Project (4.98 MW) has been proposed on Ghator Nallah in District Chamba. The project is a run-of-the-river scheme, utilising the natural flow and available head of the stream without large-scale storage, making it environmentally compatible and suitable for fragile Himalayan conditions.

The present geological report has been prepared to assess the geological suitability of the project area with respect to rock formations, structural features, slope stability, and foundation conditions under the Forest (Conservation) Act, 1980. The project area lies in the Lesser Himalayan region, where rocks such as phyllites and quartzites provide generally competent foundations, particularly along the right bank where major components are proposed.

The report is based on field inspection and DPR data, and aims to ensure that the project is geologically safe, feasible, and suitable for implementation with necessary engineering precautions..

2. LOCATION AND SITE SETTING

The proposed Ghator Top Small Hydro Electric Project (4.98 MW) is located near the village Ghator in District Chamba, Himachal Pradesh, on Ghator Nallah, a tributary of Chirchind Nallah in the Ravi Basin. The diversion weir is proposed at an elevation of about 2735 m, while the powerhouse is located on the right bank at an elevation of about 2078.50 m, utilising a significant head suitable for hydropower generation.

The geographical coordinates of the project are as follows: the diversion weir site lies at approximately Latitude 32°22'33" N and Longitude 76°23'02" E, whereas the powerhouse site is located at approximately Latitude 32°46'12.80" N and Longitude 76°15'58.02" E. The project area falls within the rugged terrain of the Lesser Himalayas.

The site is characterised by steep slopes, narrow valleys, and rocky terrain, typical of geologically young Himalayan formations. From a geological point of view, the right bank, where major project components are proposed, consists of comparatively stable and competent rock

formations, while the left bank is relatively fragile with debris and weathered material. Accordingly, the project layout has been planned along the right bank to ensure structural stability and safe construction.

Overall, the location and geological setting of the project area are considered suitable for the development of the proposed hydroelectric project, subject to standard engineering and slope stabilization measures.

3. PHYSIOGRAPHY AND TOPOGRAPHY

The project area of the Ghator Top Small Hydro Electric Project (4.98 MW) lies within the Lesser Himalayan region and is characterised by highly rugged and mountainous terrain. The area exhibits steep to very steep hill slopes, often exceeding 50°, with deep and narrow valleys formed due to intense fluvial activity. The Ghator Nallah flows through a confined gorge with a sharp gradient, indicating active erosion, vertical downcutting, and strong geomorphic control over the landscape.

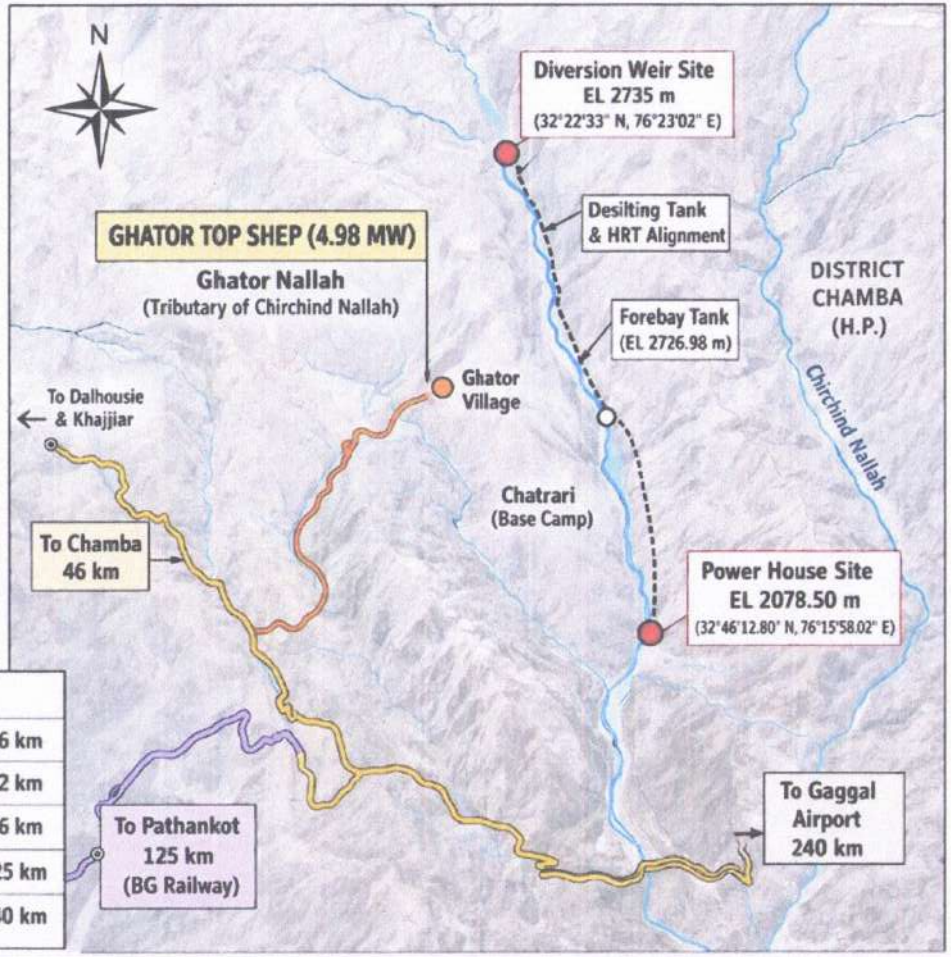
The physiography is marked by high relief variation, rocky escarpments, and discontinuous slope profiles. The hill slopes are generally covered with a thin mantle of soil, along with exposed rock outcrops and accumulations of colluvial debris and slope wash material. These features are typical of weathered metamorphic terrains of the Himalayas and indicate continuous processes of weathering, erosion, and mass wasting. The presence of drainage channels cutting across slopes further contributes to slope instability in localized zones.

From a geological perspective, such topographic conditions require careful alignment of project components to avoid weak and unstable zones. Based on field observations and as reflected in the approach map, the project layout has been planned along the right bank, where rock exposures are more continuous and slopes are comparatively stable. The left bank, showing irregular slopes and debris accumulation, has been avoided to minimise geological risk.

Overall, the physiographic and topographic conditions of the area are suitable for development of a run-of-the-river hydroelectric project. However, due to steep slopes and active geomorphic processes, adequate slope stabilization measures, proper drainage arrangements, and controlled excavation practices are essential to ensure long-term stability and safety of the project structures.

APPROACH MAP TO GHATOR TOP SHEP (4.98 MW)

Village: Ghator | District: Chamba (H.P.)



LEGEND

- Project Site (Weir/PH)
- Village
- Motorable Road
- HRT & Penstock Alignment
- Stream / Nallah

APPROACH ROUTE

Pathankot (Railway) 125 km
↓
Chamba Town 46 km
↓
Chatrari 32 km (Road Head)
↓
Ghator Village 6 km
↓
Ghator Top SHEP (4.98 MW)

APPROACH DISTANCES

Chamba (District H/Q)	: 46 km
Chatrari (Road Head)	: 32 km
Ghator Village (Site)	: 06 km
Pathankot (Railway Station)	: 125 km
Gaggal Airport	: 240 km

HRT - Head Race Tunnel
PH - Power House
SHEP - Small Hydro Electric Project

4. REGIONAL AND LOCAL GEOLOGICAL SETTING

Geologically, the project area of the Ghator Top Small Hydro Electric Project (4.98 MW) falls within the Himalayan tectonic belt, specifically in the Lesser Himalayan zone, which is influenced by major regional structures such as the Main Central Thrust (MCT). The region is geologically young, tectonically active, and highly deformed, characterised by intense folding, faulting, and metamorphism. These tectonic processes have significantly controlled the present geological framework, including the disposition, structure, and engineering behaviour of rock formations in the area. The regional stratigraphy comprises formations such as the Chamba Formation, Bhadra Formation, and Katargali Formation, consisting mainly of slates, phyllites, quartzites, and occasional limestone bands. These rocks have undergone varying degrees of metamorphism, resulting in well-developed foliation, schistosity, and structural discontinuities, which impart anisotropic characteristics to the rock mass and influence its strength and response to excavation.

At the project level, the local geology is predominantly represented by rocks of the Chamba Formation, including phyllites, quartzites, carbonaceous slates, and phyllitic quartzites. These rocks are generally moderately hard to hard and exhibit well-defined foliation planes trending in NW–SE to NNW–SSE direction with moderate to steep dips. The rock mass is intersected by joints, fractures, and minor discontinuities typical of metamorphic terrains, which may locally influence excavation behaviour and slope stability, especially where joint orientations are unfavourable. Weathering is moderate near the surface, with fresh and competent rock encountered at shallow depths, and the overburden cover is generally thin, consisting of slope wash material, colluvium, and river-borne deposits along the nallah. The presence of continuous rock outcrops, particularly along the right bank, indicates good rock continuity and favourable foundation conditions.

From an engineering geology perspective, the combined effect of regional tectonics and local geological conditions governs important parameters such as rock mass quality, jointing pattern, orientation of foliation planes, and seismic response. While the folded and fractured nature of rocks requires careful design and support measures, the presence of competent lithologies like quartzites and compact phyllites provides suitable conditions for foundation and underground works. Overall, despite structural complexity and seismic sensitivity, the geological setting is considered favourable for the development of the proposed hydroelectric project, subject to appropriate engineering design and treatment measures.

5. GEOLOGY OF PROJECT COMPONENTS

5.1 General Geological Setting

The geological conditions of the Ghator Top Small Hydro Electric Project (4.98 MW) and the proposed Siul Baroti-III Hydro Electric Project (5.0 MW) have been assessed through field visits (road

assessment) and review of DPR and layout plans. The project areas fall within the Lesser Himalayan terrain, comprising phyllites, quartzites, and slates of the Chamba Formation, which are moderately hard to hard with well-developed foliation, joints, and fractures. The alignment of project components has been selected along comparatively stable stretches, mainly on the right bank, considering rock mass quality, structural features, and slope stability. Competent rock is available at shallow depths, providing generally favourable conditions, though geological discontinuities will require suitable engineering measures during execution. The assessment is based on surface observations only, without any subsurface investigation. The approach roads have also been assessed and pass through stable rocky terrain with hard and compact formations; slopes are generally stable with minor weathered patches, and only localized slope protection and drainage measures may be required for safe and sustained access..

5.2 Diversion Weir Site

The diversion weir site is located in a narrow gorge section of Ghator Nallah, where rock exposures are available on both banks. The bed material comprises boulders and gravels overlying the bedrock of phyllite and quartzite. Geological assessment indicates that fresh and competent rock is available at a depth of about 6 to 8 metres, which is suitable for the foundation of the trench weir. The confined gorge and sound rock conditions provide favourable stability against hydraulic forces, although excavation through overburden and weathered zones will require proper treatment.

5.3 Desilting Tank Area

The desilting tank area is situated on relatively stable terrain underlain by phyllites and slates. These rocks possess adequate strength and bearing capacity to support the structural loads of the desilting arrangement. However, due to the foliated and anisotropic nature of these rocks, the orientation of foliation planes plays an important role in stability. If unfavourably oriented, these planes may act as potential slip surfaces. Therefore, a detailed assessment of foliation orientation and provision of adequate drainage arrangements are essential to prevent seepage-induced weakening and to maintain long-term stability of the structure.

5.4 Water Conductor System (HRT)

The water conductor system, including the Head Race Tunnel (HRT), passes through predominantly rocky terrain comprising phyllites and quartzites. The rock mass is generally of fair to good quality, but is intersected by joints, fractures, and minor shear zones typical of metamorphic formations. During tunnelling operations, localised weak zones, fractured patches, and minor seepage conditions may be encountered. These geological features may affect excavation behaviour and require systematic support. Accordingly, suitable support measures such as rock bolting, shotcreting, steel ribs (if required), and wire mesh will be adopted based on actual ground conditions encountered during

excavation. Controlled blasting techniques and continuous geological mapping during tunnelling will be necessary to ensure the safety and stability of underground openings.

5.5 Forebay Area

The forebay area is located on competent rock formations exhibiting good continuity and strength characteristics. The rock mass in this area provides adequate bearing capacity for supporting the forebay structure. Minor surface weathering may be present due to exposure to atmospheric conditions; however, this can be easily removed during foundation preparation. After removal of weathered material, the underlying fresh rock will provide a stable and reliable foundation. No major geological constraints are anticipated at this location.

5.6 Penstock Alignment

The penstock alignment traverses steep and rugged rocky slopes, primarily along the right bank, where rock exposures are continuous and comparatively stable. The alignment is mostly over-exposed bedrock with only limited patches of overburden. The geological conditions are generally favourable for the installation of the penstock; however, due to steep gradients and the presence of joints and foliations, there is a possibility of local instability along slopes. Therefore, proper anchoring of the penstock, provision of saddle supports at regular intervals, and implementation of slope stabilization measures such as rock bolting, retaining structures, and drainage arrangements will be required to ensure long-term safety and operational reliability.

5.7 Powerhouse Site

The powerhouse site is located on the right bank of Ghator Nallah, where geological conditions are comparatively stable and suitable for surface construction. The foundation rock mainly consists of carbonaceous phyllite interbedded with quartzite, exhibiting fair to good rock mass quality. The presence of quartzite bands enhances the strength and competency of the rock mass. The site offers adequate bearing capacity for supporting the powerhouse structure. However, localised zones of jointing, fracturing, or weathering may be encountered and will require appropriate treatment measures such as rock bolting, shotcreting, and foundation consolidation to ensure structural stability and safety.

5.8 Overall Assessment of the Project

Overall, the geological conditions of all project components are favourable for the construction of the proposed hydroelectric scheme. Competent rock is available at shallow depths across the project area, particularly along the right bank, which has been preferred for alignment due to its relatively stable geological conditions. While the rock formations are suitable for foundation and excavation, the presence of foliations, joints, fractures, and moderate weathering introduces certain engineering challenges. These can be effectively managed through appropriate design, systematic excavation practices, and the adoption of suitable support and stabilization measures. Continuous geological supervision during construction is essential to monitor ground conditions and to address

any unforeseen geological issues, thereby ensuring long-term stability, safety, and performance of the project.

6. OTHER OBSERVATIONS

The slope stability conditions in the project area indicate that the right bank, where major components of the Ghator Top SHEP are proposed, is comparatively stable with firm and competent rock strata and minimal evidence of landslide activity. In contrast, the left bank is relatively fragile, characterised by debris accumulation and indications of past slope movements, and has therefore been avoided in project planning. The stability of slopes is primarily controlled by geological factors such as the orientation of foliation planes, joint patterns, and the degree of weathering, which may create potential planes of weakness in localized areas. However, no major active landslides have been observed along the project alignment. With suitable engineering measures such as retaining structures, rock bolting, slope dressing, and proper drainage arrangements, long-term stability of slopes can be ensured during and after construction.

The hydrogeological conditions of the area are governed by hard and compact rock formations with limited groundwater storage capacity. Groundwater movement is mainly confined to joints, fractures, and weathered zones, resulting in minor seepage during excavation of tunnels and foundations. No significant groundwater pressure conditions are anticipated that could adversely affect structural stability. The Ghator Nallah is a perennial stream, primarily sustained by snowmelt and rainfall, and the geological formations facilitate adequate natural drainage. Overall, the hydrogeological regime is favourable and does not pose any major constraint to the project.

The project area falls under Seismic Zone-V as per IS 1893, indicating a very high seismic risk zone typical of the Himalayan region. The area has experienced significant seismic events in the past, and the geological formations are subject to ongoing tectonic stresses. From a geological and engineering perspective, this necessitates the incorporation of earthquake-resistant design, adequate safety factors, and proper structural detailing in all project components. Despite the seismic sensitivity, the presence of competent rock formations provides a stable base for construction when appropriate design measures are adopted.

From an environmental and geological safety point of view, the project is a run-of-the-river scheme involving limited excavation and no large-scale submergence. The impact on natural landforms is minimal, and no major geological hazards have been identified in the project area. However, localized impacts related to slope cutting and muck disposal require careful management through appropriate engineering and environmental safeguards. Overall, considering the geological conditions, slope behaviour, hydrogeology, and seismicity, the project is safe and suitable for development, subject to the implementation of standard precautionary and mitigation measures.

7. CONCLUSION AND RECOMMENDATIONS

Based on detailed geological analysis, it is concluded that the Ghator Top Small Hydro Electric Project (4.98 MW) area possesses generally favourable geological conditions for the construction of the proposed hydroelectric scheme. The rock formations comprising phyllites, quartzites, and slates are competent and suitable for foundation, particularly along the right bank, where major project components are planned. The slopes in this area are comparatively stable, and no major active landslides or critical geological hazards have been identified along the project alignment. The key geological factors such as lithology, structural features including joints and foliations, degree of weathering, slope conditions, and seismic considerations, have been adequately examined and taken into account during project planning. From an engineering geology point of view, the site is considered feasible and suitable for development, subject to the adoption of appropriate design and construction practices in compliance with the provisions of the Forest (Conservation) Act.

In order to ensure safe and sustainable execution of the project, it is recommended that detailed geotechnical investigations be carried out prior to construction to confirm foundation characteristics, rock mass quality, and design parameters. Controlled and systematic blasting techniques should be adopted during excavation to minimise disturbance to the surrounding rock mass. Adequate slope stabilization measures, including retaining structures, rock bolting, shotcreting, and proper drainage arrangements, should be implemented wherever required to maintain slope stability. The muck generated during excavation should be disposed of in a scientific manner at designated and geologically stable locations, with provision of retaining walls and drainage to avoid erosion and slope failure. All project structures must be designed considering seismic forces as per the relevant IS codes, given the location of the project in Seismic Zone-V. Further, continuous geological supervision and monitoring during construction is essential to identify and address any unforeseen geological conditions, thereby ensuring long-term stability and safety of the project.

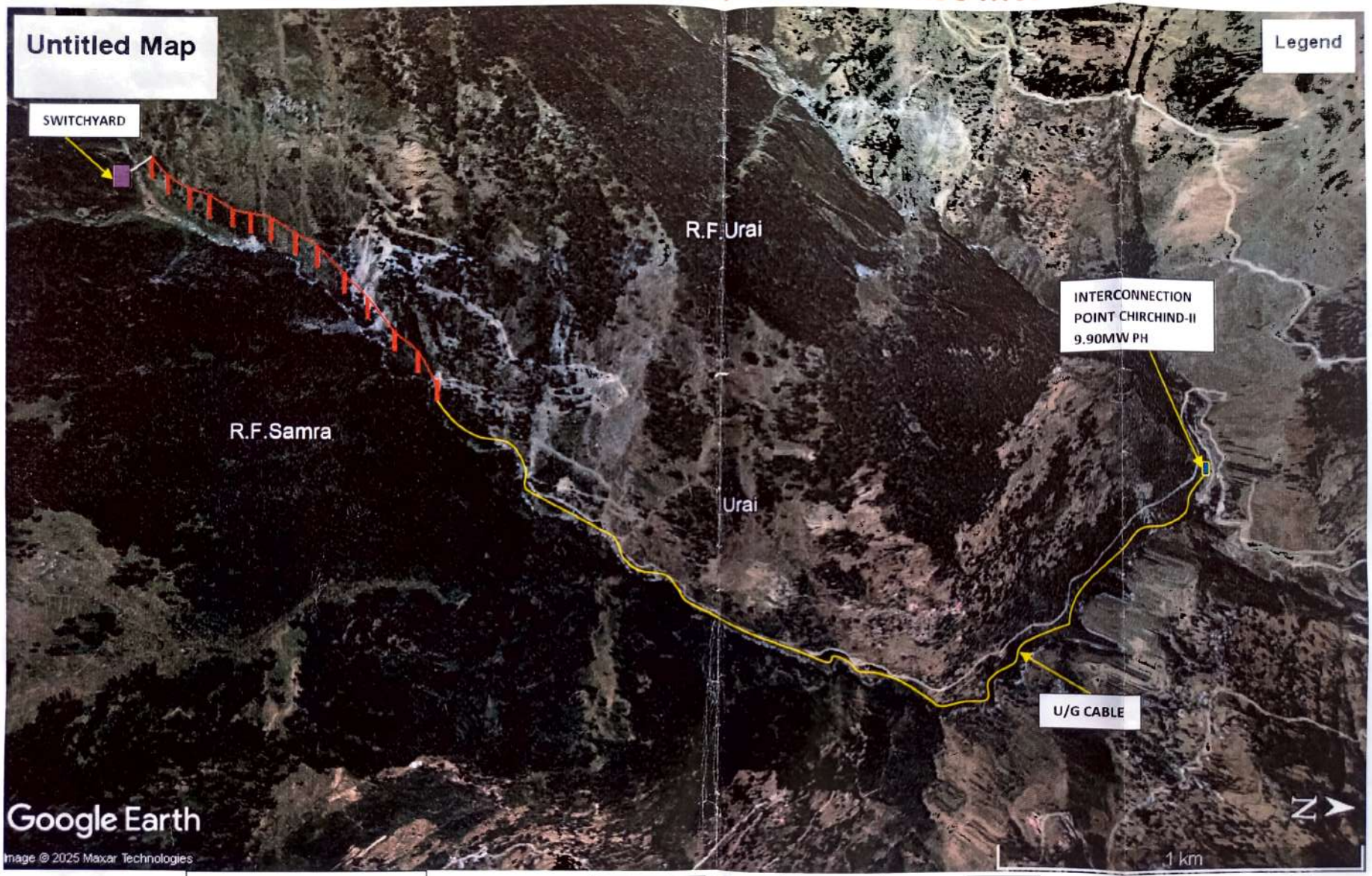
Prepared By:

Arun Dhiman
RQP Registration No.
HP/RQP/25/2/2019

Arun Dhiman
Geologist cum RQP
Reg. No.: H.P./R.Q.P/25/2/2019

****

EVACUATION PLAN OF GHATOR TOP SHEP 4.98 MW



POLE TO POLE DISTANCE			
SY TO P1 70M	P4 TO P5 92M	P8 TO P9 94M	P12 TO P13 90M
P1 TO P2 93M	P5 TO P6 92M	P9 TO P10 93M	P13 TO P14 92M
P2 TO P3 92M	P6 TO P7 85M	P10 TO P11 90M	UG CABLE
P3 TO P4 95M	P7 TO P8 95M	P11 TO P9 12 95M	3451 M

SWITCHYARD | U/G CABLE | POLES | INTERCONNECTION POINT

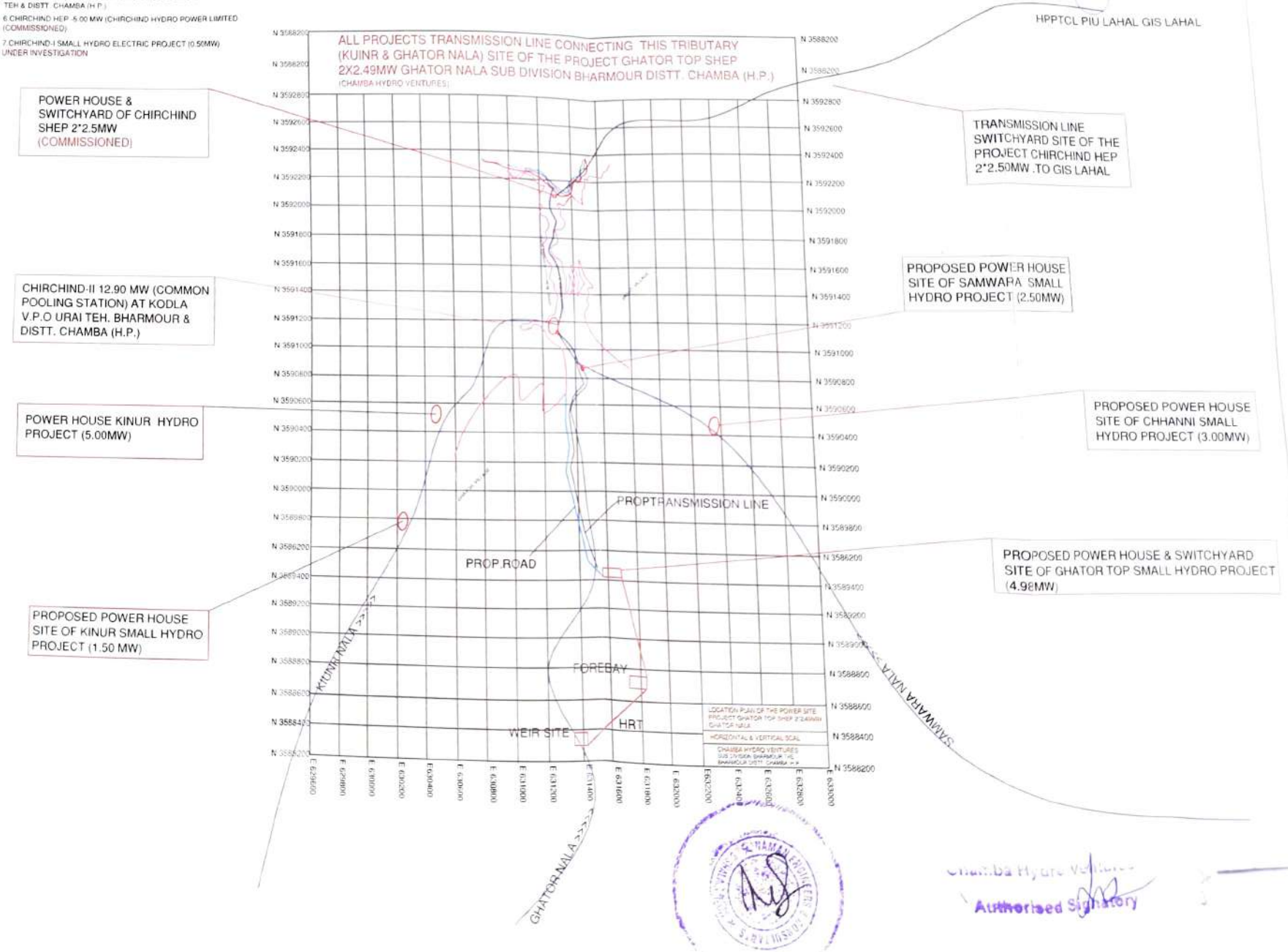
Chamba Hydro Ventures
Authorised Signatory

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

ALL PROJECTS TRANSMISSION LINE CONNECTING TO CHIRCHIND-II COMMON POOLING STATION (C.C.P.S.)AT THIS TRIBUTARY (KUINR & GHATOR NALA) SITE OF THE PROJECT CHIRCHIND-II HEP 12.90MW.

DIGITIZED LOCATION MAP FOR HEP IN THE AREA/LANDSCAPE OF GHATOR TOP SMALL HYDRO ELECTRIC PROJECT (4.98MW)

1. SAMWARA SMALL HYDROELECTRIC PROJECT (2.50MW) UNDER INVESTIGATION
2. CHHANNI SMALL HYDROELECTRIC PROJECT (3.00MW) UNDER INVESTIGATION
3. GHATOR-ISMALL HYDROELECTRIC PROJECT (2.20MW) UNDER INVESTIGATION
4. CHIRCHIND -II HEP -12.90MW OF M/S SHIVALIK ENERGY PVT LTD. UNDER CONSTRUCTION
5. KIUNR HEP -5.00 MW OF SNOW DEW HYDEL POWER PROJECT (COMMISSIONED)AT KARERI VPO-KUNR, SUB TEH BHARWALA, TEH & DISTT. CHAMBA (H.P.)
6. CHIRCHIND HEP -5.00 MW (CHIRCHIND HYDRO POWER LIMITED (COMMISSIONED)
7. CHIRCHIND-I SMALL HYDRO ELECTRIC PROJECT (0.50MW) UNDER INVESTIGATION



Chamba Hydro Ventures

Authorised Signatory

Geo-Reference Map For 3.7463 Hect. of Forest Land to be Diverted for Construction of Ghator Top SHEP(4.98MW)

Sr. No.	Description	Latitude	Longitude
	WEIR SITE	32°22'39.42"N	76°22'48.18"E
		32°22'39.13"N	76°22'47.27"E
		32°22'39.77"N	76°22'48.11"E
		32°22'39.43"N	76°22'47.12"E
	FEEDER CHANNEL	32°22'40.60"N	76°22'48.46"E
		32°22'40.01"N	76°22'48.39"E
	D/TANK	32°22'41.73"N	76°22'48.19"E
		32°22'40.86"N	76°22'48.56"E
		32°22'40.92"N	76°22'48.04"E
		32°22'41.54'N	76°22'48.04"E
	HRT	32°22'40.40"N	76°22'49.97"E
		32°22'45.45"N	76°22'98.81"E
		32°22'51.90"N	76°22'47.45"E
		32°22'53.69"N	76°22'47.29"E
		32°22'56.35"N	76°22'52.05"E
		32°22'58.67"N	76°22'49.29"E
		32°22'55.57"N	76°22'58.41"E
		32°22'58.11"N	76°22'51.77"E
		32°22'58.12"N	76°22'54.76"E
		32°22'52.76"N	76°22'52.76"E
	S TANK	32°22'57.54"N	76°22'54.68"E
		32°22'56.70"N	76°22'57.30"E
		32°22'57.71"N	76°22'56.96"E
		32°22'56.89"N	76°22'56.03"E
	PENSTOCK	32°23'0.64"N	76°22'54.27"E
		32°23'05.94"N	76°22'52.63"E
		32°23'11.63"N	76°22'52.48"E
		32°23'2.72"N	76°22'53.83"E
		32°23'10.87"N	76°22'51.61"E
		32°23'30.46"N	76°22'51.68"E
		32°23'39.61"N	76°22'49.21"E
		32°23'39.88"N	76°22'50.02"E
	POWER HOUSE	32°23'40.50"N	76°22'49.68"E
		32°23'40.38"N	76°22'48.33"E
		32°23'41.49"N	76°22'48.63"E
		32°23'41.20"N	76°22'49.81"E
	SWITCH YARD	32°22'41.11"N	76°22'50.24"E
		32°23'43.73"N	76°22'50.50"E
		32°23'43.78"N	76°22'50.55"E
	TRC	32°23'41.42"N	76°22'49.13"E
		32°23'39.90"N	76°22'49.57"E
	ROAD	32°23'41.69"N	76°22'51.58"E
		32°23'43.98"N	76°22'52.74"E
		32°23'47.75"N	76°22'53.74"E
		32°23'52.56"N	76°22'56.80"E
		32°23'57.52"N	76°22'51.49"E
		32°24'0.20"N	76°22'59.25"E
		32°24'3.87"N	76°23'1.62"E
		32°24'0.23"N	76°23'4.87"E
		32°24'10.03"N	76°23'9.62"E
		32°24'17.76"N	76°23'13.85"E
		32°24'17.78"N	76°23'14.10"E
		32°24'17.95"N	76°23'14.25"E

Sr. No.	Description	Latitude	Longitude
	TL	32°23'42.82"N	76°22'51.17"E
		32°23'48.82"N	76°22'54.39"E
		32°23'58.68"N	76°22'57.91"E
		32°24'6.11"N	76°23'3.26"E
		32°23'56.95"N	76°22'57.03"E
		32°24'7.70"N	76°23'4.89"E
		32°24'18.67"N	76°23'16.56"E
		32°24'25.92"N	76°23'24.09"E
		32°24'17.42"N	76°23'14.25"E
		32°24'4.01"N	76°23'1.80"E
	DS-I	32°23'44.78"N	76°22'52.96"E
		32°24'55.49"N	76°23'47.99"E
		32°24'46.65"N	76°23'43.58"E
		32°24'37.11"N	76°23'35.14"E
		32°24'31.99"N	76°23'31.05"E
	DS-II	32°22'41.73"N	76°22'47.74"E
		32°22'41.03"N	76°22'47.78"E
		32°22'40.36"N	76°22'47.89"E
	DS-III	32°22'57.40"N	76°22'57.43"E
		32°22'56.60"N	76°22'56.45"E
		32°22'57.64"N	76°22'56.93"E
	DS-IV	32°23'41.55"N	76°22'50.85"E
		32°23'41.55"N	76°22'50.97"E
		32°23'41.60"N	76°22'49.98"E
	DS-V	32°23'44.20"N	76°22'51.48"E
		32°23'44.66"N	76°22'51.88"E
		32°23'44.12"N	76°22'51.87"E
	DS-VI	32°23'53.04"N	76°22'57.39"E
		32°23'54.65"N	76°22'57.33"E
		32°23'54.20"N	76°22'57.37"E
	TRC	32°24'10.30"N	76°23'10.38"E
		32°24'11.17"N	76°23'10.60"E
		32°24'11.84"N	76°23'10.90"E
		32°23'41.42"N	76°22'49.13"E
		32°23'39.90"N	76°22'49.57"E

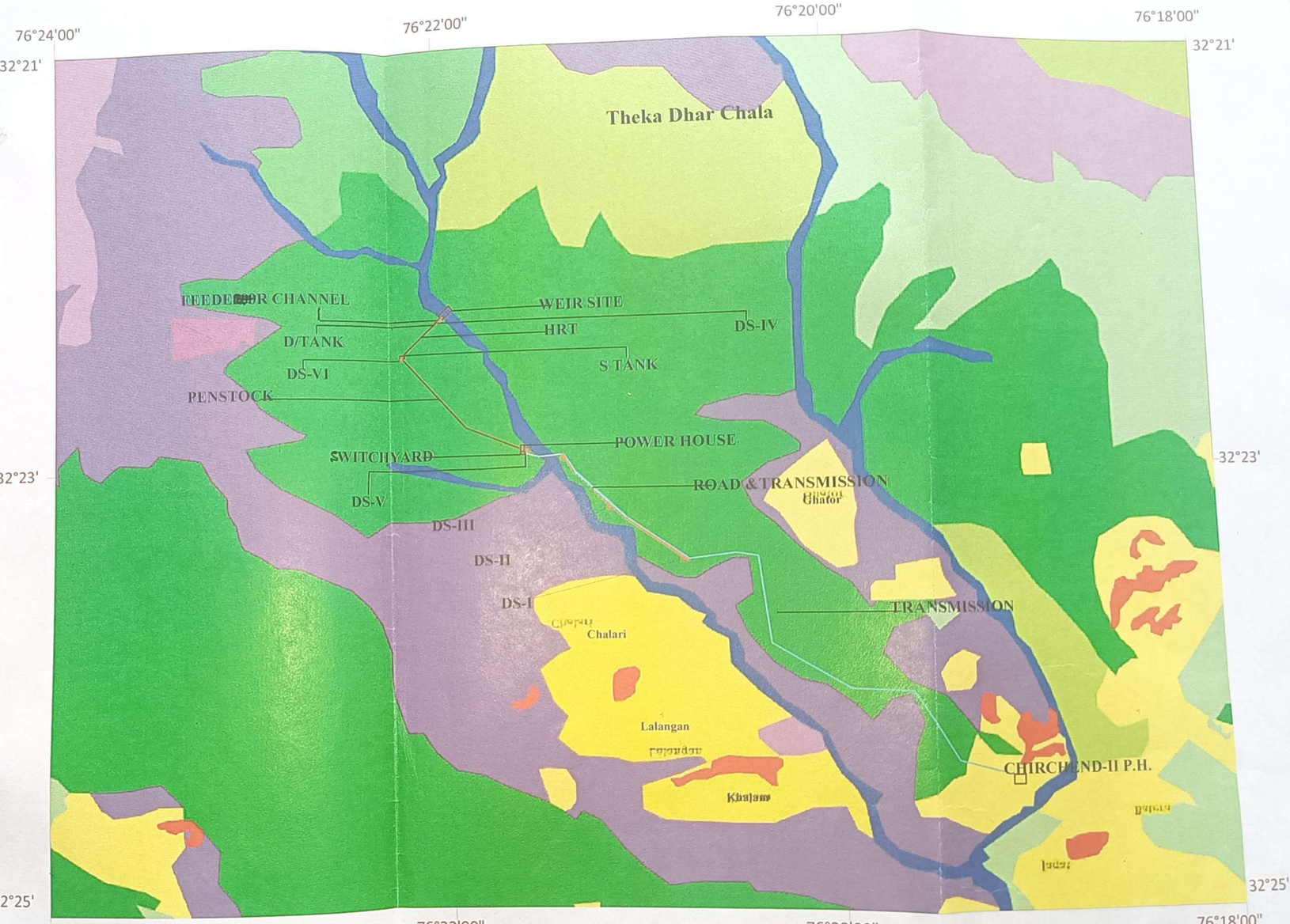
GEO-REFERENCE MAP ON SOI SHEET 52-D-7 (1:50000)
FOR
3.7463 HECT. OF FOREST LAND TO BE DIVERTED FOR
CONSTRUCTION OF GHATOR TOP SHEP(4.98MW)

PROJECT:- GHATOR TOP SHEP(4.98MW)

NAME OF APPLICANT:- CHAMBA HYDRO VENTURES

NAME OF FOREST DIVISION — BHARMOUR

SOI SHEET NO. 52-D/7



WATER BODY

RESIDENTIAL AREA /CULTIVATED LAND

FORESTLAND

PROJECT COMPONENTS

DUMPING SITES

PROP. ROAD

TRANSMISSION

R.F.O Swal

Divisional Forest Officer
Bharmour Forest Division
Bharmour (H.P.)

Chamba Hydro Ventures
Authorised Signatory

Geo-Reference Map on SOI Sheet 52-D-7 (1:5000)For 3.7463 Hect. of Forest Land to be Diverted for Construction of Ghator Top SHEP (4.98MW)

Sr. No.	Description	Latitude	Longitude
	WEIR SITE	32°22'39.42"N	76°22'48.18"E
		32°22'39.13"N	76°22'47.27"E
		32°22'39.77"N	76°22'48.11"E
	FEEDER CHANNEL	32°22'39.43"N	76°22'47.12"E
		32°22'40.60"N	76°22'48.46"E
	D/TANK	32°22'40.01"N	76°22'48.39"E
		32°22'41.73"N	76°22'48.19"E
		32°22'40.86"N	76°22'48.56"E
		32°22'40.92"N	76°22'48.04"E
		32°22'41.54"N	76°22'48.04"E
	HRT	32°22'40.40"N	76°22'49.97"E
		32°22'45.45"N	76°22'50.81"E
		32°22'51.90"N	76°22'47.45"E
		32°22'53.69"N	76°22'47.29"E
		32°22'56.35"N	76°22'52.05"E
		32°22'58.67"N	76°22'49.29"E
		32°22'55.57"N	76°22'50.41"E
		32°22'58.11"N	76°22'51.77"E
		32°22'58.12"N	76°22'54.76"E
	S TANK	32°22'52.76"N	76°22'52.76"E
		32°22'57.54"N	76°22'54.68"E
		32°22'56.70"N	76°22'57.30"E
		32°22'57.71"N	76°22'56.96"E
		32°22'56.89"N	76°22'56.03"E
	PENSTOCK	32°23'0.64"N	76°22'54.2"E
		32°23'05.94"N	76°22'52.63"E
		32°23'11.63"N	76°22'52.48"E
		32°23'2.72"N	76°22'53.83"E
		32°23'10.87"N	76°22'51.61"E
		32°23'30.46"N	76°22'51.68"E
		32°23'39.61"N	76°22'49.21"E
		32°23'39.88"N	76°22'50.02"E
		32°23'40.50"N	76°22'49.68"E
	POWER HOUSE	32°23'40.38"N	76°22'48.33"E
		32°23'41.49"N	76°22'48.63"E
		32°23'41.20"N	76°22'49.81"E
	SWITCH YARD	32°22'41.11"N	76°22'50.24"E
		32°23'43.73"N	76°22'50.50"E
		32°23'43.78"N	76°22'50.55"E
	TRC	32°23'41.42"N	76°22'49.13"E
		32°23'39.90"N	76°22'49.57"E
	ROAD	32°23'41.69"N	76°22'51.50"E
		32°23'43.98"N	76°22'52.74"E
		32°23'47.75"N	76°22'53.74"E
		32°23'52.56"N	76°22'56.80"E
		32°23'57.52"N	76°22'51.49"E
		32°24'0.20"N	76°22'59.25"E
		32°24'3.87"N	76°23'1.62"E
		32°24'0.23"N	76°23'4.87"E
		32°24'10.03"N	76°23'9.62"E
		32°24'17.76"N	76°23'13.85"E
		32°24'17.78"N	76°23'14.10"E
		32°24'17.95"N	76°23'14.25"E

Sr. No.	Description	Latitude	Longitude
	TL	32°23'42.82"N	76°22'51.17"E
		32°23'48.83"N	76°22'54.39"E
		32°23'58.68"N	76°22'57.91"E
		32°24'6.11"N	76°23'3.26"E
		32°23'56.95"N	76°22'57.03"E
		32°24'7.70"N	76°23'4.89"E
		32°24'18.67"N	76°23'16.56"E
		32°24'25.92"N	76°23'24.09"E
		32°24'17.42"N	76°23'14.25"E
		32°24'4.01"N	76°23'1.80"E
		32°23'44.78"N	76°22'52.96"E
		32°24'55.49"N	76°23'47.99"E
		32°24'46.65"N	76°23'43.58"E
		32°24'37.11"N	76°23'35.14"E
		32°24'31.99"N	76°23'31.05"E
	DS-I	32°22'41.73"N	76°22'47.74"E
		32°22'41.03"N	76°22'47.78"E
	DS-II	32°22'40.36"N	76°22'47.89"E
		32°22'57.40"N	76°22'57.43"E
	DS-III	32°22'56.60"N	76°22'56.45"E
		32°22'57.64"N	76°22'56.93"E
		32°23'41.55"N	76°22'50.85"E
		32°23'41.55"N	76°22'50.97"E
		32°23'41.60"N	76°22'49.98"E
	DS-IV	32°23'44.20"N	76°22'51.48"E
		32°23'44.66"N	76°22'51.88"E
		32°23'44.12"N	76°22'51.87"E
	DS-V	32°23'53.04"N	76°22'57.39"E
		32°23'54.65"N	76°22'57.33"E
		32°23'54.20"N	76°22'57.37"E
	DS-VI	32°24'10.30"N	76°23'10.38"E
	TRC	32°24'11.17"N	76°23'10.60"E
		32°24'11.84"N	76°23'10.90"E
		32°23'41.42"N	76°22'49.13"E
		32°23'39.90"N	76°22'49.57"E

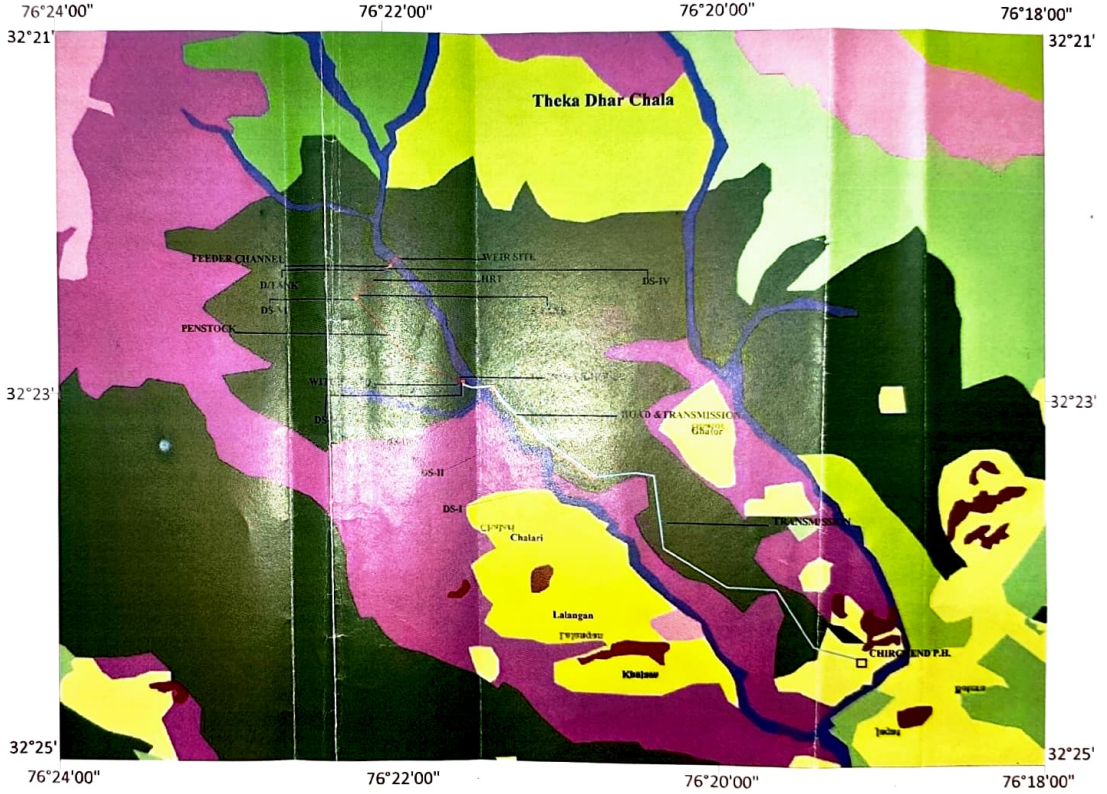
GEO-REFERENCE MAP ON SOI SHEET 52-D-7 (1:5000) FOR 3.7463 HECT. OF FOREST LAND TO BE DIVERTED FOR CONSTRUCTION OF GHATOR TOP SHEP(4.98MW)

PROJECT:- GHATOR TOP SHEP(4.98MW)

NAME OF APPLICANT:- CHAMBA HYDRO VENTURES

NAME OF FOREST DIVISION BHARMOUR

SOI SHEET NO 52-D



WATER BODY | RESIDENTIAL AREA /CULTIVATED LAND | FORESTLAND | PROJECT COMPONENTS

DUMPING SITES | PROP. ROAD | TRANSMISSION

Chamba Hydro Ventures
Authorised Signatory

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

Full Title of the Project :- **Ghator Top SHEP (4.98 MW).**
File No. : - **FP/HP/HYD/156608/2022.**
Date of Proposal :- **09/06/2022.**

Check List Serial No. 18.

"DETAILED SCHEME FOR COMPENSATORY AFFORESTATION"

Detailed Scheme for Compensatory Afforestation to be carried out in lieu of **3.7463 hectares** of forest area to be diverted in favour of **M/S Rajeev Upamnyu, Chamba Hydro Venture, Hotel Alps Resorts, P.O. Tehsil Dalhousie District Chamba (H.P.)** for the construction of **Ghator Top SHEP (4.98 MW)** within the jurisdiction of Bharmour Forest Division in Chamba District, Himachal Pradesh.

---

1. **Details of degraded forest land/ non forest land:-**

District	:-	Chamba
Village	:-	Kuthar & Agasan
Tehsil	:-	Bharmour
Name of Forest Division	:-	Bharmour
Range	:-	Swai & Bharmour
Block/ Compartment/Survey Sheet No	:-	52D/6/SE & 52D/6D
Area to be afforested:-		Afforestation will be carried out 07.50 Hectare in Kuthar DPF (4.00 Hect. & Khabbar DPF 3.50 Hect.).

2. **Description of area:-**

I)	Whether the site selected for Compensatory Afforestation is a land bank or not.	Yes
II)	If the C.A. Site is other than the land bank, reasons be given.	N.A.
III)	In case of non-forest area identified for CA, then what is the distance of CA site from the adjoining forest boundary:-	N.A.
IV)	Soil Type.	Clayey loam
V)	a) Topography: Hilly/undulating/Plain.	Hilly
	b) Slope: Steep/Medium/Gentle.	Medium
VI)	Whether the area is bearing any root stock of vegetation.	No

3. **Plantation Model:-** Departmental
Copy of the approved Compensatory Afforestation Scheme/Modelshowing component wise physical and financial break up is enclosed.

P.T.O.

5. Technical details:-

Technical details of Compensatory Afforestation Scheme are as follows:-

a)	**General Details.**	The land bank identified in Kuthar & Khabbar DPF 7.50 Hectare **(Total Kuthar 4.00 & Khabbar 3.50 = 7.50 Hectare)** is blank patches where coniferous species will be planted at the pit size 30cmx30cmx30cm and broad leaf at pit size 45cmx45cmx45cm with inward slope. The area will be protected by 4 stand barbed wire fencing with R.C.C. fence posts.
b)	**Spacing.**	3.00m x 3.00m from plant to plant.
c)	**Species.**	Conifer:- Deodar & Kail Broad Leave:- Ban, Walnut , Chulli, Aadu & Kainth
d)	**Plantation Method.**	Contour Planting.
e)	**Soil and Moisture Conservation Works.**	Contour Trenches with in the plantation area, check walls / protection walls, check dams as per site requirement.
f)	**Protection (Fencing, Watchman, People's Participation etc.).**	Fencing, Watch & Ward.
g)	**Proposed Monitoring Mechanism.**	Department.
h)	**Any other information.**	NIL.

Deputy Conservator of Forests,
Bharmour Forest Division
Bharmour

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

REVISE COST COMPENSATORY AFFORESTATION SCHEME FOR THE DIVERSION OF 3.7463 HECT. FOREST LAND FOR CONSTRUCTION OF GHATOR TOP SHEP (4.98MW) TEHSIL BHARMOUR IN JURISDICTION OF BHARMOUR FOREST DIVISION

Norms of plantation and maintenance of old plantation for Non-Tribal and Tribal Areas for the year 2025-26 applicable vide Pr.CCF (HoFF) H.P. Shimla memo.No.Ft.State CAMPA/2010/Norms/Vol.III dated 25.06.2024.

Total area diverted in hectare		3.7463 Hac.
Area proposed for compensatory afforestation.		3.7463x2= 7.4926 or Say 7.50 Hectares
Name of proposed plantation area		Kuthar DPF (4.00 Hac.) & Khabbar DPF (3.50 Hac.)
Plants to be planted per Hectare		1100
Total number of plants to be planted.		8250
Year of Execution (Tentative)		2027-28
Species to be planted		Deodar, Kail and OBL Species

Particulars of works	Area in Ha.	Cost Norm per Ha. for the FY 2025-26 for Plantation/ Maintenance	Total Plantation / Maintenance Cost	Plants to be planted per Ha.	Total no. of plants to be planted	Nursery cost per plant	Total Nursery Cost	Total Plantation cost + Total nursery cost (Col 3+7)	Year of Execution of Works	Cost Escalation taking 10 % for each subsequent year	Escalated Cost	Total Amount (Col. 8+11)
	1	2	3	4	5	6	7	8	9		11	12
Initial cost for raising compensatory afforestation over an area of 7.50 ha.	7.50	124000	930000	1100	8250	33.94	280005	1210005	2027-28	10%	121001	1331006
Soil & Moisture Conservation Works @ 25% of Planting Cost												332751
Total - A												1663757
1st year maintenance	7.50	15200	114000	330	2475	33.94	84002	198002	2028-29	20%	39600	237602
2nd year maintenance	7.50	10200	76500	220	1650	33.94	56001	132501	2029-30	30%	39750	172251
3rd year maintenance	7.50	5300	39750	110	825	33.94	28001	67751	2030-31	40%	27100	94851
4th year maintenance	7.50	5300	39750	110	825	33.94	28001	67751	2031-32	50%	33875	101626
5th year maintenance	7.50	5300	39750	110	825	33.94	28001	67751	2032-33	60%	40650	108401
6th year maintenance	7.50	5300	39750	110	825	33.94	28001	67751	2033-34	70%	47425	115176
7th year maintenance	7.50	5300	39750	110	825	33.94	28001	67751	2034-35	80%	54200	121951
8th year maintenance	7.50	5300	39750	110	825	33.94	28001	67751	2035-36	90%	60975	128726
8th year maintenance	7.50	5300	39750	110	825	33.94	28001	67751	2036-37	100%	67751	135501
10th year maintenance	7.50	5300	39750	110	825	33.94	28001	67751	2037-38	110%	74526	142276
Total-B												1358360
Total - A+B												3022117
Add Contigencies Charges @ 5 %												151106
Sub Total												3173223
Add Departmental Charges of Supervision@17.5 %												555314
Grand Total												3728537

Deputy Conservator of Forests
(I.C.F. Bharmour)
Bharmour Forest Division
Bharmour Chamba (H.P)

Full Title of the Project :- Ghator Top SHEP (4.98 MW).
File No. :- FP/HP/HYD/156608/2022.
Date of Proposal :- 09/06/2022.

Check List Serial No-20.

"LAND SUITABILITY CERTIFICATE BY DFO (T)"

This is to certify that 04.00 hectare at DPF Kuthar (CA Site) bearing Survey No./ Compartment No.52D/6/SE of village Kuthar,Tehsil Bharmour, District Chamba, HP identified for Compensatory Afforestation is suitable for plantation from management point of view and is free from all sorts of encumbrances and encroachments.

Place : Bharmour
Dated: 21/04/2026

Range Forest Officer
Swai

Divisional Forests Officer,
Bharmour Forest Division
Bharmour

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

Scanned with OKEN Scanner

Full Title of the Project :- **Ghator Top SHEP (4.98 MW).**
File No. : - **FP/HP/HYD/156608/2022.**
Date of Proposal :- **09/06/2022.**

Check List Serial No-20.

"LAND SUITABILITY CERTIFICATE BY DFO (T)"

This is to certify that 03.50 hectare at DPF Khabar (CA Site) bearing Survey No./ Compartment No.**52D/6D** of village **Agasan,**Tehsil **Bharmour**, District **Chamba**, HP identified for Compensatory Afforestation is suitable for plantation from management point of view and is free from all sorts of encumbrances and encroachments.

Place : Bharmour
Dated: .....

Range Forest Officer
Bharmour

Range Forest Officer
Bharmour Forest Range
Bharmour

Divisional Forests Officer,
Bharmour Forest Division
Bharmour

Bharmour Chamba (H.P.)