

Tele 3210

Garrison Engineer  
863 Engr Wks Section  
PIN 913863  
c/o 56 APO

4436/WS/ 117 /E4

Stn HQ Pooh  
PIN-900341  
C/O 56 APO

24 Aug 2024

WATER SUPPLY SCHEME (WSS) AT PRITHI MILITARY STATION (PMS),  
AVERIPATTI GARRISON UNDER GARRISON ENGINEER,  
863 ENGINEER WORKS SECTION

- 1 PI ref dirns of Stn Cdr on the sub.
- 2 Damage report of WSS in PMS, Averi alongwith feedback & recom measures is submitted herewith for perusal and further dirns on the sub
- 3 This letter may be put up to Stn Cdr for perusal pl

  
(Viret Kurtkoti)  
Maj  
Garrison Engineer

**Encls : As above**

**Copy to -**

HQ Chief Engineer Bareilly Zone  
Military Engineer Services  
Bareilly Cantt-243001

HQ Commander Works Engineer (Hills)  
Military Engineer Services  
The Mall Road, Dehradun Cantt  
PIN 900461, C/o 56 APO

HQ 136 (I) Inf Bde Gp (Q)  
PIN 908636  
C/O 56 APO

Assistant Engineer  
Irrigation and Public Hygeine Deptt  
Jal Shakti Division, Nirmand(Distt Kullu)

- For info pl

11 MAHAR

22 MFVH

871 Fd Regt

876 AT Coy

HRDC, c/o HQ 136 (I) Inf Bde

**Internal -**

AGE E/M

AGE B/R-II

**RESTRICTED**

**WATER SUPPLY SCHEME (WSS) AT PRITHI MILITARY STATION (PMS),  
AVERIPATTI GARRISON UNDER GARRISON ENGINEER,  
863 ENGINEER WORKS SECTION**

**INTRODUCTION**

1. Headquarter 136 (I) Infantry Brigade Group is located at Pooh with its area of responsibility spread over 400 kms in three districts of Himachal Pradesh. GE, 863 EWS is responsible to provide effective Military Engineer Services (MES) cover to 22 major and minor units in five major garrisons. The functional role of GE, 863 EWS includes provision of uninterrupted essential services of electric and water supply to users.
2. Prithi Mil Stn (PMS) is located at Averipatti and includes two major and four minor units in addition to other attachments and detachments. Provision of potable drinking water supply is crucial and inescapable due to the presence of two Key Location Plans, troops and animals (mules). The detailed strength of troops, staff check for daily consumption and requirement of water and disposition of army units thereof in Averipatti Garrison is deliberately not disclosed due to security reasons.

**WATER SUPPLY SCHEME : PRITHI MILITARY STATION  
IN AVERIPATTI GARRISON**

3. Water Supply Scheme for Averipatti Garrison was constructed as part of AMWP works listed under Serial Number 10, List II of AMWP 2007-08 of Western Comd vide Director General LW & E letter No B/50898/LW(West)/36 dt 13 Mar 2008 (**Appendix A**). The subject work was handed over in 15 Oct 2009 as Deposit Works for execution under the aegis of Irrigation and Public Hygiene Department, Jal Shakti Vibhag (JSV), Nirmand of Kullu District. The source of water exists at 28 kms from Averipatti garrison in Kurpan Khad of Kedas Nala. Water is supplied through pipeline fed through gravity upto Water Filtration Plant of MES loc in AGE B/R-II subdivision. The filtration plants consist of deliberate arrangements for collection, sedimentation, filtration and chlorination of water. The potable water is then distributed to all units of Averi and local Averi village.
4. The scheme was completed with observations from MES authorities in 2014 -15. The deficiencies have already been highlighted to Irrigation and Public Hygiene Department, Jal Shakti Vibhag (JSV), Nirmand of Kullu District through regular correspondence (**Appendix B**). The scheme was made operational with shortcomings as per BOO incl user rep, MES and IPH rep and intimated the same in writing to IPH to rectify the same incl catchment area, valves of various sizes etc due to which scheme could not be taken over by MES.

**DAMAGE ASSESSMENT**

5. On night of 31 Jul 24, a huge cloud burst occurred in the highest mountain reach causing massive flash floods in Kurpan Khad of Kedas Nala (Water Source) and damaged the Water Supply Scheme. Initial damage report was initiated by Executive Engineer, JSV Division, Anni vide JSV Division, Anni letter No EE-JSV-

**RESTRICTED**

**RESTRICTED**

JSDA-DB-Letter/2024-25 dt 05 Aug 24 (**Appendix C**). and subsequently submitted to the Deputy Commissioner, Kullu District vide JSV Division, Anni letter No EE-JSV-JSDA-DB-Letter/2024-25 3570-74 dt 23 Aug 24 (**Appendix D**).

6. On 16 Aug 24, a joint recce of water supply scheme was conducted to assess the damage caused and ascertain the anticipated time for restoration of water supply. GE, 863 EWS alongwith AGE E/M visited the office of Assistant Engineer, Jal Shakti Vibhag (JSV), Nirmand Subdivision, Anni Division. Team of JSV detailed by JSV accompanied MES auth for foot recce of Water Supply Scheme. Photographs for ready reference are attached at **Appendix E**. Due to flash floods the crucial components severely damaged are listed as under :-

- (a) Diversion Head Weir.
- (b) Desilting Tank.
- (c) Mild Steel Electric Resistance Welded (MS ERW) pipeline 250mm dia of 2500 RM.

7. An estimate of Rs 229.92 Lacs has been worked out by JSV Division, Anni to restore the subject water supply scheme. Funds for restoration work are to be released through competent financial authority of Jal Shakti Vibhag, Government of Himachal Pradesh.

**INTERIM MEASURES ADOPTED BY GE, 863 EWS TO PROVIDE RELIEF**

8. Actions initiated and immediate measures adopted by GE, 863 EWS are highlighted (**Appendix F**) as under :-

- (a) Initial damage report initiated on 01 Aug 24. Lorry filling point functioning at existing borewell site of Animal Transport Company.
- (b) Establishment of lorry filling point at Jhakri Garrison (located 30 kms from Averipatti) for immediate relief on 04 Aug 24.
- (c) Coordination with local authorities to utilise natural source of spring water near Dutt Nagar along NH-05.
- (d) Engineer estimates submitted vide GE 863 EWS letter No 2012/Proj/2024-25/08/E2 dt 02 Aug 24 for Low Budgeted Work (LBW) Provision of Borewell size 8" and connected works including pipe connectivity with valve controls for Prithi Military Station under GE 863 EWS.
- (e) Two reminders issued to JSV Division, Anni dt 06 Aug 24 and 16 Aug 24 to rectify the shortcomings / defects through flood mitigation funds from Government of Himachal Pradesh.
- (f) Interim measures adopted by GE, 863 EWS for revival of old existing borewell to establish lorry filling point inside Averipatti Garrison wef 22 Aug 24 under own arrangements and resources.

**RESTRICTED**



## **RESTRICTED**

- (g) Estimates submitted regarding provn of water supply scheme in LBW (Connecting Borewell projected in AT Coy with existing pipeline/tanks).

## **RECOMMENDATIONS**

9. Following recommendations are submitted for consideration and further necessary action :-

(a) **Interim Measure.** Breakdown of water supply scheme in Kurpan Khad of Kedas Nala is seriously detrimental to provision of essential service of water supply in Prithi Military Station, Averipatti. It is strongly recommended to sanction Low Budgeted Work (LBW) for Provision of Borewell size 8" and connected works including pipe connectivity with valve controls for Prithi Military Station under GE 863 EWS. It is submitted that SoC, Engineer estimates alongwith CGWB report has already been submitted to Stn HQ, Pooh vide GE 863 EWS letter No 2012/2024-25/Para 36/08/E2 dt 03 Aug 24 (**Appendix G**).

(b) **Recommended Measure.** Damage Assessment reports submitted by Executive Engineer, JSV Division Anni adequately substantiates the massive efforts in terms of time, effort and funds required for restoration of Water Supply Scheme. Moreover, the existing Water Filtration Plant and allied infrastructure can be gainfully utilised by restoration of Water Supply Scheme under Flood Mitigation Measures by Government of Himachal Pradesh. Special Case is recommended to be taken up by HQ 136 (I) Inf Bde Gp with following :-

- (i) Engineer-in-Chief Jal Shakti Bhawan, Tutikandi, Shimla.
- (ii) Chief Engineer, Jal Shakto Vibhag (MZ), Distt Mandi.
- (iii) Superintending Engineer, Jal Shakti Circle, Bashing, Kullu.
- (iv) The Deputy Commissioner, Kullu District (HP).



Tele 23011508

26861/42  
20352/54

Addl Dte Gen LWE/ LW(West)  
Quartermaster General's Branch  
Integrated Headquarter of MOD (Army)  
New Delhi - 110011

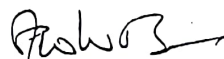
B/50358/LW (West)/36

13 Mar 2008

HQ Western Command (Q/Wks)  
PIN 505 543, C/O 56 APO

JOB No. W- 1841 : PROVN OF WATER SUPPLY, FILTRATION PLANT  
ELECTRIC SUPPLY AND KEY PERSONS QUARTERS AT AVERI PATTI

1. Reference Ser No. 10 of List II of MWP 2007-08 of Western Command.
2. Under the provisions of Defence Works Procedure 2007, the Chief of the Army Staff accepts the necessity for and accords Administrative Approval for Job No. W-1841 : 'Provn of Water Supply, Filtration Plant, Electric Supply and Key Persons quarters at Averi Patti' at an estimated cost of Rs. 835.18 lakh (Rupees eight hundred thirty five lakh and eighteen thousand only) as per details given in the AEs Part I & II appended to this letter.
3. The work will be executed by MES in accordance with the provision of Defence Works Procedure 2007 and is hereby released for a ceiling of Rs 835.18 lakh and initial allotment of Rs.50000/- (Rupees Fifty thousand only) is made.
4. Time required for physical completion of work under normal circumstances from the date of release of work is 156 weeks.
5. The expenditure involved will be debitable to Major Head 4076 Capital Outlay on Defence Services, Sub Major Head 01, Army Minor Head 202, Construction of Works (2) New Code Head 902/36 OTM.
6. The letter issues with the concurrence of IFA (Army) vide their u.o No.21539/IFA (Army-Q)/ Works/1576/632 dated 11.03.2008.



(Sudhir Sharma)  
Lt Gen  
Quartermaster General

Copy to :-

The CGDA, New Delhi  
The DG ADS, New Delhi  
The Pr CDA Western Command  
The Sr DADS, Chandigarh  
IFA (Army-Q)  
QMG Br/LW(West)  
QMG Br/LW(Wks & Budget)  
E-in-C Br/E-2 Army (WC)

E-in-C Br/E-5 Budget (WC)  
HQ Western Command (Q/Wks)  
HQ 2 Corps (Q/Wks)  
HQ PH & HP(I) Sub-Area (Q/Wks)  
HQ 36 Sector (Q), C/o 56 APO  
HQ CE Chandigarh Zone  
CE HQ Western Comd  
CWE Shimla Hills, Jutogh

Copy signed in ink :-

The Pr CDA, Western Command  
Sector 9C, Chandigarh

Garrison Engineer  
863 Engr Wks Section  
PIN-913863  
C/o 56 APO

2915/ 80 /E2

22 Sep 2016

The Executive Engineer  
I & PH Department  
Averipatti, IPH Circle Kullu  
Distt : Kullu (HP)

**JOINT INSPECTION BY EXECUTIVES OF GE 863 EWS AND  
ASSISTANT ENGINEER I & PH DEPARTMENT NIRMUND**

**JOB NO W-1844 PROVIDING WATER SUPPLY AND FILTRATION  
PLANT AT AVERI (PRITHI MIL STN)**

Dear Sir,

1 Please ref this office letter No 4436/WS/54/E4 dated 04 Aug 2016.

2 A joint inspection team was assembled on 15 Sep 2016 at 1100 Hrs at Water Filtration Plant at Averi (Prithi Mil Stn) for checking status of work executed by the I & PH Department, "Provision of Water Supply Scheme to Army Camp at Averi in Nirmand Block". The team comprised of the executives of both I & PH Deptt and MES. GE 863 EWS.

3 During the aforesaid inspection it was found that the defects communicated/ highlighted vide Para 4 (e) & (f) of this office minutes of joint meeting issued under letter No W-1841/33/E4 dt 26 Oct 2015 have been rectified. However, the following defects are yet to be rectified fully:-

Ser No	Points	Decision given by Asst Engr I & PH Deptt during the Joint Inspection
(a)	<b>Seepages in Raw water Tank:-</b> Although repair work was done to rectify the seepage in the tank, however, some seepage has still been noticed in it.	In connection with these defects the rep assured that expert will be deployed to arrest leakage/ seepage and remedial measures will be taken up for repair of cracks.
(b)	<b>Seepage in Filter Bed:-</b> It was noticed that there is some seepage through wall and flange pipe of the filter beds still exist, which need to be rectified.	
(c)	<b>Cracks in Plant building, Lab and Filter Media Building:-</b> Diagonal/ vertical cracks seen in walls, slab of Plant building, Lab, Filter Media building.	
(d)	<b>Sluice Valves in Chambers:-</b> It was noticed that some of the sluice valves installed in the various tanks are not functioning properly due to which there has been a problem in regulating the supply in the WTP. These valves need to be either replaced or repaired.	Will be replaced if required by them.

4. Further, AE, I & PH Deptt brought-out that Land Acquisition for site of Intake Chamber at source point (Kedas) is in process by their department. Required infrastructure will be constructed once the land is acquired.

5. IPH officials have also been asked to handover the following documents related to project by MES officials:-

- Copy of Contract Agreement.
- Copy of all related drawings/Architectural/structural.
- Completion drawings.
- Line diagram of sewage and water supply line.
- Pump operation manual.
- Test certificates of Motors, Pumps etc for allotment of MES No.

ID NO 24  
DT 12/09/2016



ब्रिगेडियर एन एस ठाकुर  
कमान्डर  
Brig N S Thakur  
Commander

6008/AMWP/Stn HQ

Mr PC Dhiman  
Additional Chief Secretary  
I&PH  
Govt of Himachal Pradesh  
Himachal Pradesh Secretariat  
Shimla

मुख्यालय 136 (स्वतन्त्र) इन्फैंट्री ब्रिगेड युग  
पिन : 908636  
द्वारा 56 ए पी ओ  
Headquarters 136 (I) Inf Bde Gp  
PIN : 908636  
C/o : 50 APO

10 Jul 2015

INORDINATE DELAY IN EXECUTION OF WATER SUPPLY AT AVERIPATTI

Dear Sir,


1. Please refer my letter No 6008/AMWP/Stn HQ dated 01 January 2015 and your Demi Official letter No IPH-B(F)17-1/2014 dated 16 January 2015.
2. I am writing this letter with great regret and to inform you about the deplorable way of execution of Water Supply at Prithi Military Station (Averipatti) and Him Yodha Military Station (Sumdo).
3. Inspite of the assurance given by you in your letter under reference in Para 1 above, the execution work of water supply filtration plant at Prithi Military Station (Averipatti) has not been completed till date. Almost six months have lapsed but the progress on the work remains tardy.
4. It is intimated that Rs 70,92,100/- (Rupees Seventy Lacs Ninety Two Thousand One Hundred only) has been deposited to HP I&PH for the said work which was required to be implemented as a deposit work. However, the pace of defect rectification as well as the quality of rectification is not upto the mark. The following has been observed:-
  - (a) The leakage in raw water tank, clean water tank and pre-setting tank is still persisting.
  - (b) Flocculators motors are still not working.
  - (c) Washout and air release valve has not been provided in entire length of pipeline.
  - (d) Intake chamber with grill at source still not provided.



- (e) At source, the water receiving chamber is to be constructed with gate valves and grills for preventing from garbage and stone.
  - (f) Wash out and air release valve to be provided for pipe line wherever required as per site condition.
  - (g) The alternative pipe line from pre-settling tank to raw water tank is to be provided for during repair/maintenance.
  - (h) At many places of WTP the retaining/breast wall is to be constructed as per direction given by the Executive Engineer.
  - (i) Settling tank and Flocculators tank repair work is under progress but after repairing recheck is to be carried out.
  - (k) Chemical dozer treatment tank is leading badly, the necessary repair action is to be carried out with providing tiles as per instruction given by EE.
  - (l) Drainage to be extended upto approx 15 meter upto the end of raw water tank.
  - (m) RCC supports for pipe line is to be constructed at delivery end of pipe line.
  - (n) Damaged LT UG cable is to be replaced.
  - (o) Seepages are found in raw water tank, pre settling tank, settling water tank, back wash tank and clear water tanks is to be rectified.
  - (p) Leakages from filter bed tanks are to be rectified.
  - (q) Water level indicators for raw water tank and clear water tanks are to be provided.
  - (r) Site clearance/earth filling of the filtration plant at many places is to be carried out.
5. It is pertinent to note that all the E/M equipment like chlorinator, dosing pump, water pumping sets, motors and starters are to be working condition, before handing/taking over of the WTP. The chronological progress for the Water Supply and Filtration Plant at Prithi Military Station (Averipatti) is attached as Appendix for your information. With the Increase of troops in the Brigade area of responsibility it is pertinent to mention that potable drinking water is a mandatory and basic requirement for the survival of troops. Due to non-completion of the said project the troops and animals are facing lot of hardship which is attributable to the slow progress of work done by I & PH over a period of six year since 2008.

Next joint inspection is agreed to be scheduled on receipt of documents mentioned at Para '5' above and once the leakage/ seepage rectification works in progress by I & PH Deptt are over.

7. This is for your information and necessary action please.

  
(Jayant Chaudhari)  
Major  
Garrison Engineer  
✓

Copy to :-

HQ 136 (I) Inf Bde Gp 'Q'  
PIN- 908636  
C/O 56 APO

HQ Chief Engineer  
Chandigarh Zone  
PIN : 160 003, Chandigarh

Chief Engineer  
I & PH Department  
Averipatti, IPH Circle Kullu  
Distt : Kullu (HP)

HQ Commander Works Engineer  
Shimla Hills, Jutogh, Shimla – 171 008

Stn HQ, Pooh  
PIN-900341  
C/o 56 APO

Assistant Engineer  
I & PH Sub Division  
Nirmund, Disdrict- Kullu (HP)

AGE B/R, Prithi Mil Stn

AGE E/M (WE) Pooh

- for information please.

HQ 136 (I) Inf Bde GP  
PIN-908 636  
c/o 56 APO

85

6008/AMWP/Stn HQ

20 Apr 16.

I&PH Dept  
Govt of Himachal Pradesh  
Himachal Pradesh Secretariat  
Shimal-1

WATER SUPPLY SCHEME AT PRITHI MILITARY STATION (AVERIPATTI)

1. Refer this Head Quarters DO letter No 6008/AMWP/Stn HQ dated 10 Jul 15 and your letter No IPH-B(A)9-8/2013 dated 11 Jan 16.
2. It is intimated that deposit work for providing Water Supply Scheme at Prithi Military Station (Averipatti) was started in the year 2009. It is pertinent to mention that potable drinking water is a mandatory and basic requirement for the survival of troops. Due to slow progress of work by I & PH, troops and animals are facing lot of hardship. ODC/PDC dated 31-10-2010/31-11-15). Observations which were raised during joint inspection in 27 Feb 15 were intimated to your office vide our letter (para 1 above refers). In order to expedite the completion of water supply scheme, a joint inspection of site was carried out on 12 Apr 16. Defects which were observed during the inspection are enumerated in succeeding paras
  - (a) Intake Tank and Diversion Head Weir. The RCC Diversion head weir has been constructed at the intake point of the source. The intake tank could not be constructed due to dispute at the site. The land where the intake tank is proposed to be constructed belongs to a local resident and he is not allowing construction of the tank without monetary compensation. The joint inspection pointed out that without the intake tank, the line is frequently getting choked.
  - (b) Seepages in Raw Water Tank. Despite the repair effort, the defect has not been rectified completely.
  - (c) Seepage in Filter Bed. There is seepage in the corner of one of the filter beds.
  - (d) Sluice Valves in Chambers. Some of the sluice valves installed in various tanks are not functioning properly due to which there has been a problem in regulating the supply in the Water Treatment Plant. These valves need to be either repaired or replaced on priority.
  - (e) Scour Valves/ Line. There was a provision of Scour valves, Air valves and Scour line in the gravity main which have not been installed.
  - (f) Painting and White Washing. Although all structures of WTP were painted/white washed at the time of construction but they need to be repainted/ white washed.
3. Despite repeated assurances, the execution work of water supply filtration plant at Prithi Military Station (Averipatti) has not been completed till date. In view of the above, your personal indulgence in the matter is requested for expeditious repair of defects.
4. This is for your information and necessary action please. /



Jal Shakti Vibhag  
Govt. of Himachal Pradesh



No. EE- JSV-JSDA-DB-Letter/2024-25 2994-97 Dated:- 05-08-2024

To

The Garrison Engineer,  
863 Engineer work section.

Subject:- Regarding Water Supply Scheme to Army Camp at Avery patti , Damage report thereof.  
Sir,

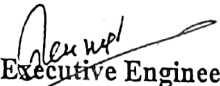
In this regard it is intimated that the above cited Subject Scheme was constructed by this department under deposit head to provide drinking water facility to Army Camp at Averi Patti in Nirmand Block District Kullu (HP) .The scheme was completed during 2014 -15 and water was also being supplied to the camp accordingly . The deposited funds are also fully utilized.

Unfortunately, in the night of 31st August 2024 a huge cloud burst has been occurred in kurpan khad, which is a source of this scheme and the scheme has been damaged badly . The following components are completely washed away:

1. Diversion Head Weir.
2. Desilting Tank.
3. MSERW pipe line 250 mm dia = 1200 Rmt

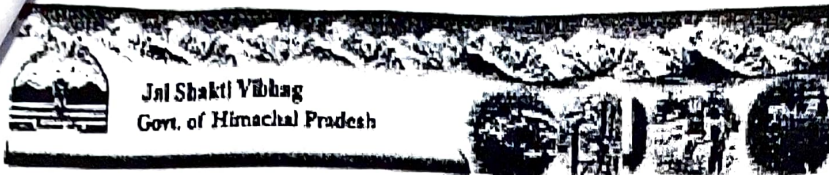
Now the water level of Kurpan Khad has been gone lower by 2-3 meter. So that to restore the scheme 2500 Rmt MSERW pipe 250 mm dia are required.

Keeping in view the above ,the assessment of this huge damages is under process and the amount of damages shall be intimated separately.It is for your kind information and necessary action please.

  
Executive Engineer,  
JSV Division, Anni.

1. Copy to the Engineer-in-Chief Jal Shakti Bhawan, Tutikandi, Shimla-171 005 for information please.
2. Copy to the Chief Engineer JSV (MZ) Distt. Mandi for information please.
3. Copy to the Superintending Engineer Jal Shakti Circle Kullu at Bashing for information please.

Executive Engineer,  
JSV Division, Anni.



No. EE-JSV-JSDA-DB-Letter/2024-25

3570-74

Dated:- 23-8-24

To

The Deputy Commissioner,  
Kullu Distt Kullu (HP)

Subject:- Restoration of Water supply scheme to Army Camp at Avri Patti in Nirmand Block  
Distt Kullu (HP) damaged on 31-07-2024 Cloud Burst.

Madam,

In this regard it is intimated that the above cited Subject water supply scheme was constructed by JSV department, tapping the source from Kurpan Khad to provide drinking water facilities to Army camp at Averi Patti, under deposit head. This was completed during 2014 -15 and the water was also being supplied to the Army Camp as per their demand regularly.

Unfortunately, in the night of 31st August 2024 the incident of cloud burst occurred in highest mountain reach, resulting a flash flood by rising the water level in Kurpan Khad, due to which this scheme damaged badly. The following component are completely washed away:

1. Diversion Head Weir.
2. Desilting Tank.
3. MSERW pipe line 250 mm dia = 1400 Rmt

The damage report of the scheme is also been intimated to the Army authority vide this office letter no EE-JSV-JSDA-DB-Letter/2024-25 Dated:-05-08-2024.

Keeping in view an estimate for amounting to Rs 229.92 Lacs has been framed to restore the water supply of Army Camp at Averi Patti and Submitted to arrange the funds from competent authority as early as possible. So that water supply could be restored.

Executive Engineer,  
JSV Division, Anni.

1. Copy to the Engineer-in-Chief Jal Shakti Bhawan, Tutikandi, Shimla-171 005 for information please.
2. Copy to the Chief Engineer JSV (MZ) Distt. Mandi for information please.
3. Copy to the Superintending Engineer Jal Shakti Circle Kullu at Bashing for information please.
- ✓ 4. Copy to The Garrison Engineer, 863 Engineer work section. MES, Camp Jhakri Distt shimla (HP) for information please.

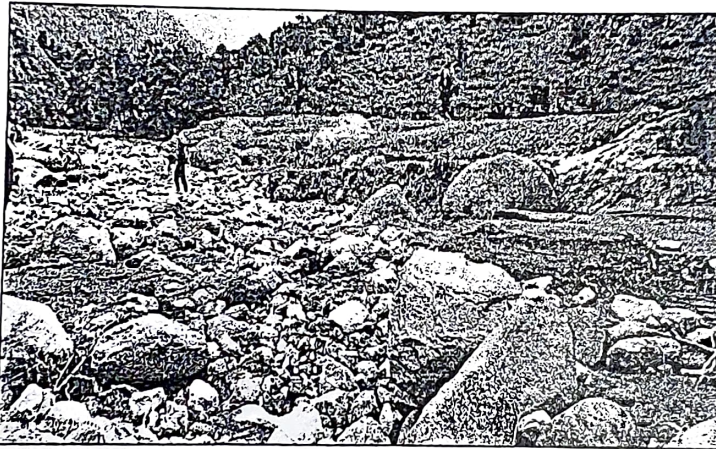
*[Signature]*



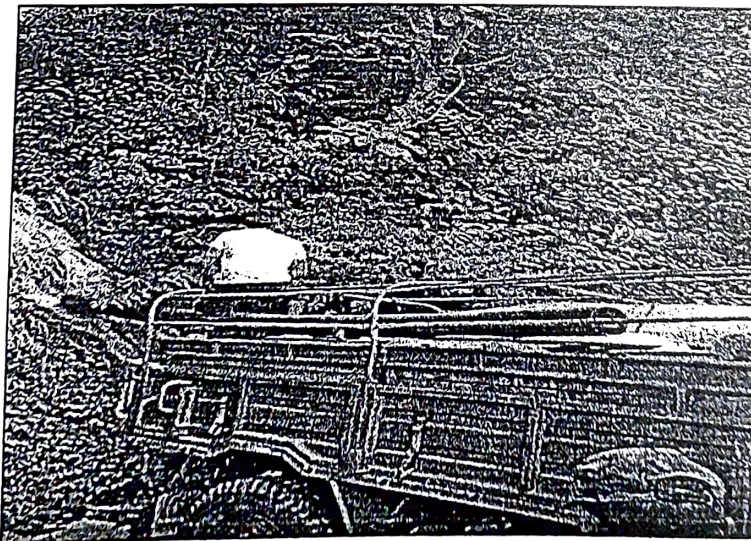
PHOTOGRAPHS



WATER SOURCE PPL SUBMERGED DUE TO SILT



EFFORTS TO REPAIR DAMAGED PPL



TEMP LORRY FILLING PT : DUTT NAGAR



Tele: 3210

Garrison Engineer  
863 Engr Wks Section  
PIN: 913863  
c/o 56 APO

4436/WS/114 /E4

16 Aug 2024

All units of PMS (Averipatti)

**STANDBY BORE WELL AT AVERIPATTI GARRISON**

1. It is intimated that an old Borewell near AT location has been made functional by MES. Units of PMS can also utilise the same in view of water scarcity in station, due to damage of main IPH pipeline due to flash floods/cloud burst.
2. This is for info pl.

  
(Vijet Kurtkoti)  
Maj  
Garrison Engineer

**Copy to :-**

Stn HQ Pooh  
PIN-900341  
C/O 56 APO

HQ 136 (I) Inf Bde Gp (Q)  
PIN: 908636  
C/O 56 APO



- for info pl.

**REMINDER NO -2**

Tele: 3210

Garrison Engineer  
863 Engr Wks Section  
PIN: 913863  
c/o 56 APO

4436/WS/ 113 /E4

16 Aug 2024

✓ Executive Engineer  
Irrigation and Public Hygeine Deptt  
Jal Shakti Division  
Nirmand (Distt - Kullu)

**SCARCITY OF WATER AT PMS AVERIPATTI DUE TO DAMAGE OF MAIN  
WATER SUPPLY PIPELINE OF IPH (AVERIPATTI GARRISON)**

1. Please refer the following letters
  - (a) This office letter No 4436/111/E4 dated 02 August 2024.
  - (b) Your letter No EE-JSDA-DB-Letter/2024-25 /2994-97 dt 05 Aug 24.
  - (c) This office letter No 4436/112/E4 dated 06 August 2024
2. The subject scheme was still under IPH due to short comings/ defects mentioned by Board of Officers conducted jointly by IPH, MES and users and confirmation regarding the same is still remain pending at your end.
3. So, it is requested to rectify the damages caused due to flash floods projecting the same through flood relief at your end, taking in view hardships being faced by troops in view of scarcity of water in operational area.
4. Accord TOP priority.

  
(Vijet Kurtkoti)  
Maj  
Garrison Engineer

**Copy to :-**

Assistant Engineer  
Irrigation and Public Hygeine Deptt  
Jal Shakti Division, Nirmand (Distt Kullu)

Superintending Engineer  
Irrigation and Public Hygeine Deptt, Rampur

Engineer-in-Chief  
Jal Shakti Bhawan, Tutikandi, Shimla 171005

Chief Engineer JSV (MZ)  
Distt-Mandi (HP)

Superintending Engineer  
Jal Shakti Circle Kullu at Bashing  
Distt-Kullu (HP)

Stn HQ Pooh  
PIN-900341  
C/O 56 APO

HQ 136 (I) Inf Bde Gp (Q)  
PIN: 908636  
C/O 56 APO

- for info and necessary action please.

- for info please.



Jal Shakti Vibhag  
Govt. of Himachal Pradesh



No. EE-JSV-JSDA-DB-Letter/2024-25 2994-97 Dated:- 05-08-2024

To

The Garrison Engineer,  
863 Engineer work section.

Subject:-  
Sir,

Regarding Water Supply Scheme to Army Camp at Avery patti , Damage report thereof.


In this regard it is intimated that the above cited Subject Scheme was constructed by this department under deposit head to provide drinking water facility to Army Camp at Averi Patti in Nirmand Block District Kullu (HP) .The scheme was completed during 2014 -15 and water was also being supplied to the camp accordingly . The deposited funds are also fully utilized.

Unfortunately, in the night of 31st August 2024 a huge cloud burst has been occurred in kurpan khad, which is a source of this scheme and the scheme has been damaged badly . The following components are completely washed away:

1. Diversion Head Weir.
2. Desilting Tank.
3. MSERW pipe line 250 mm dia = 1200 Rmt

Now the water level of Kurpan Khad has been gone lower by 2-3 meter. So that to restore the scheme 2500 Rmt MSERW pipe 250 mm dia are required.

Keeping in view the above ,the assessment of this huge damages is under process and the amount of damages shall be intimated separately.It is for your kind information and necessary action please.

  
Executive Engineer,  
JSV Division, Anni.

1. Copy to the Engineer-in-Chief Jal Shakti Bhawan, Tutikandi, Shimla-171 005 for information please.
2. Copy to the Chief Engineer JSV (MZ) Distt. Mandi for information please.
3. Copy to the Superintending Engineer Jal Shakti Circle Kullu at Bashing for information please.

Executive Engineer,  
JSV Division, Anni.



**REMINDER NO -1**

Tele: 3210

Garrison Engineer  
863 Engr Wks Section  
PIN: 913863  
c/o 56 APO

4436/WS/ 112 /E4

06 Aug 2024

Executive Engineer  
Irrigation and Public Hygeine Deptt  
Jal Shakti Division  
Nirmand (Distt - Kullu)

**SCARCITY OF WATER AT PMS AVERIPATTI DUE TO DAMAGE OF MAIN  
WATER SUPPLY PIPELINE OF IPH (AVERIPATTI GARRISON)**

1. Refer this office letter No 4436/111/E4 dated 02 August 2024 and your letter No EE-JSDA-DB-Letter/2024-25 /2994-97 dt 05 Aug 24.
2. The subject scheme was still under IPH due to short comings/ defects mentioned by Board of Officers conducted jointly by IPH, MES and users and confirmation regarding the same is still remain pending at your end.
3. So, it is requested to rectify the damages caused due to flash floods projecting the same through flood relief at your end, taking in view hardships being faced by troops in view of scarcity of water in operational area.
4. Accord TOP priority.

  
(Vijet Kurtkoti)  
Maj  
Garrison Engineer

**Copy to :-**

Assistant Engineer  
Irrigation and Public Hygeine Deptt  
Jal Shakti Division, Nirmand(Distt Kullu)

Superintending Engineer  
Irrigation and Public Hygeine Deptt, Rampur

Engineer-in-Chief  
Jal Shakti Bhawan, Tutikandi, Shimla171005

Chief Engineer JSV (MZ)  
Distt-Mandi (HP)

Superintending Engineer  
Jal Shakti Circle Kullu at Bashing  
Distt-Kullu (HP)

Stn HQ Pooh  
PIN-900341  
C/O 56 APO

HQ 136 (I) Inf Bde Gp (Q)  
PIN: 908636  
C/O 56 APO

- for info and necessary action please.

- for info please.

Tele: 3210

Garrison Engineer  
863 Engr Wks Section  
PIN: 913863  
c/o 56 APO

4436/WS/ \ \ /E4

02 Aug 2024

Executive Engineer  
Irrigation and Public Hygeine Deptt  
Jal Shakti Division  
Nirmand (Distt - Kullu)

**SCARCITY OF WATER AT PMS AVERIPATTI DUE TO DAMAGE OF MAIN  
WATER SUPPLY PIPELINE OF IPH (AVERIPATTI GARRISON)**

1. It has come to notice that your main IPH water supply pipeline from Kedas (around 28 Kms) from PMS has got damaged due to heavy flash floods/ cloud bursts in night of 31 Jul/ 01 Aug 2024 leading to scarcity of water at PMS.
2. You are requested to do repair/ replacement/ re-instatement of pipeline at the earliest taking into view hardships being faced by troops because of scarcity of water and in view of operational readiness of troops.
3. Accord TOP priority.

  
(Vijet Kurtkoti)  
Maj  
Garrison Engineer

**Copy to :-**

Assistant Engineer  
Irrigation and Public Hygeine Deptt  
Jal Shakti Division, Nirmand(Distt Kullu)

Superintending Engineer  
Irrigation and Public Hygeine Deptt, Rampur

Engineer-in-Chief  
Jal Shakti Bhawan, Tutikandi, Shimla171005

Chief Engineer JSV (MZ)  
Distt-Mandi (HP)

Superintending Engineer  
Jal Shakti Circle Kullu at Bashing  
Distt-Kullu (HP)

Stn HQ Pooh  
PIN-900341  
C/O 56 APO

HQ 136 (I) Inf Bde Gp (Q)  
PIN: 908636  
C/O 56 APO

- for info and necessary action please.

- for info please.

Appx 'G'

Tele: 3210

Garrison Engineer  
863 Engr Wks Section  
PIN-913863  
C/o 56 APO

2012/2024-25/Para 36/ *OS* /E2

03 Aug 2024

Stn HQ, Pooh

**FWD OF RIC PT- I & II : PROVN OF BOREWELL SIZE 8" DIA AND CONNECTED  
WORKS INCLUDING PIPE CONNECTIVITY WITH VALVE CONTROLS UNDER  
PARA 36 OF DWP 2020 FOR PMS AT AVERIPATTI UNDER GE 863 EWS**

S of C, RIC Pt-I & II alongwith CGWB Report in r/o subject wk is submitted herewith  
for your necessary action pl.

**Encls** : (As above)

*Vijet Kurtkoti*  
(Vijet Kurtkoti)  
Maj  
Garrison Engineer



**STATEMENT OF CASE FOR PROVISION OF BOREWELL SIZE 8" DIA AND  
CONNECTED WORKS INCLUDING PIPE CONNECTIVITY WITH VALVE  
CONTROLS FOR PRITHI MIL STN, AVERI UNDER 863 EWS  
UNDER PARA 36 OF DWP 2020**

**INTRODUCTION**

1. Averipatti is one of the grn of 36 (I) Inf Bde Gp, where 22 MFVH, 876 AT Coy, 871 Fd Regt, 11 MAHAR and other dets of HQ 36 (I) Inf Bde Gp are located. MES is providing the maintenance support to the assets created and responsible for smooth and effective functioning of water distribution network to ensure steady water supply. Main IPH water supply pipeline from Kedas (around 28 Kms) from PMS has got damaged due to heavy flash floods/ cloud bursts in night of 31 Jul/ 01 Aug 2024 due to which around 1200 M main pipeline has got washed away not traceable in it. Repair/ replacement/ re-instatement of pipeline is being undertaken jointly by MES and IPH department which would take time taking in view orange alert in subject area and non-accessibility of water source/ pipeline to Kedas water source. However an urgent requirement of Borewell size 8" Dia and connected works including pipe connectivity with valve controls for Prithi Mil Stn, Averi under 863 EWS under Para 36 of DWP 2020.

**PROPOSAL**

2. It is proposed that Provision of Borewell size 8" Dia and connected works including pipe connectivity with valve controls for Prithi Mil Stn, Averi under 863 EWS be sanctioned under as special repair to E/M installation for addition load requirement in Prithi Mil Stn, Averi.

**DETAILED JUSTIFICATION**

3. Averipatti is one of the major military garrison of 36 (I) Inf Bde Gp. Presently Stn HQ, 22 MFVH, 876 AT Coy, 871 Fd Regt, 11 MAHAR and other supporting elements of HQ 36 (I) Inf Bde Gp are located at Averipatti. A Borewell size 8" Dia and connected works including pipe connectivity with valve controls for Prithi Mil Stn, Averi under 863 EWS has been installed at Averipatti, to provide water supply to 22 MFVH, 876 AT Coy and other elements of HQ 36 (I) Inf Bde Gp.

**FINANCIAL EFFECTS**

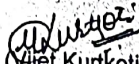
4. The financial effect of the proposed work of Provision of Borewell size 8" Dia and connected works including pipe connectivity with valve controls for Prithi Mil Stn, Averi under 863 EWS. Approx cost Rs 39.15 lakhs (Rupees Thirty Nine Lakhs Seventy Six thousand only) as given in AE Part-I.

**CONCLUSION**

5. Provision of Borewell size 8" Dia and connected works including pipe connectivity with valve controls for Prithi Mil Stn, Averi under 863 EWS is essential requirement to improve the living standards of the Garrison in any conditions. Therefore, there is an urgent requirement to execute the above mentioned projects under Para 36 of DWP 2020.

Station : C/O 56 APO

Dated : 01 Aug 2024

  
(Vijet Kurtkoti)  
Maj  
Garrison Engineer

# ROUGH INDICATION COST PART-I

Station : C/o 56 APO

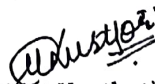
Name of Work : Provn of Borewell size 8" dia and connected works including pipe connectivity with valve controls under Para 36 of DWP 2020 for PMS at Averipatti under GE 863 EWS

Ser. No.	Description of Works	Amount	Remarks
1	Cost of Land	-	
2	(a) Survey and Soil Investigation	-	
	(b) Site Clearance and Development	-	
3	Building (incl internal water supply )	-	
	(a) Building Work	-	
	(b) E/M Portion	-	
	(c) Hot Water Supply	-	
4	Furniture	-	
5	Special Items of work	-	
6	<u>External Services:-</u>	-	
	(a) Road/Path/Culvert	3800000.00	
	(b) External Water Supply	-	
	(c) External Electric Supply	-	
	(d) Sewage Disposal	-	
	(e) Area Drainage	-	
	(f) Boundary wall/Fencing	-	
7	Arboriculture, if any	-	
8	Consultancy, if any	-	
	<b>Total</b>	<b>3800000.00</b>	
9	Contingencies (3% in items 1 to 7 above)	114000.00	
10	Establishment Charges	-	
11	Railways Works	-	
	<b>Grand Total</b>	<b>3914000.00</b>	
	<b>Say Rs</b>	<b>39.14 lakh</b>	
12	Time required for physical completion of work : 52 Weeks under normal circumstances from the date of Release of work		

Note : Any Variation in quantities, specifications and size is permissible at detailed

Station : C/o 56 APO

Dated : 02 Aug 2024

  
(Vijet Kurtkoti)  
Maj  
Garrison Engineer

# ROUGH INDICATION COST PART-II

NAME OF WORK : PROVISION OF BORE WELL SIZE 8" DIA AND CONNECTED WORKS INCLUDING PIPE CONNECTIVITY WITH VALVE CONTROLS UNDER PARA 36 OF DWP 2020 FOR PMS AT AVERIPATTI UNDER 863 EWS.

Station : c/o 56 APO

Ser No	Desc of Work	Auth	Description of Item of Work		A/U	Qty	Rate	Amount	Remarks
1	2	3	4	5	6	7	8	9	10
	Bore Well	Chapter 65 Of SOA 2022	1	Boring/ Drilling/trail pilot bore' of suitable dia for lowering 200mm bore ERW pipe , by suitable method (by ODEX or DTH-cum-rotary or reverse rig method or hammer method or telescopic method) to any depth (not exceeding 150m) below ground level in any type of strata/ soil/ rock with sand including disposal of materials obtained (soil, rock etc.) from boring to a distance not exceeding 50m with and including deploying required rig, machinery, T&P, equipments etc with and including collection of logical samples (drilling/cutting) and to maintain drill time logbook complete all as specified and directed. Note :- 1. Neccessary fuel, lubricant and chemicals extra required for construction work shall be arrange by contractor and cost of these items shall be deemed to be included in quoted rates. 2. Depending upon availability of water bearing strata, drilling beyond 200 m below ground level be carried out with prior written approval of GE. 3. Items accept sr no 1 to be executed only after successful execution of this item lot work / successful boring depending upon availability of water.	RM	210	7630.00	1602300.00	Quotation attd
			2	Development of pilot / trial bore by reaming vertical bore upto 550 mm in steps by heavy duty direct rotary rig machine at approved site location in any type of stata for 200mm bore ERW casing pipe for following depth as mentioned below including all connected works complete all as specified and directed :-					
			2.1	Upto a depth of 60m from ground level.	RM	55	2500.00	137500.00	-do-
			2.2	From depth exceeding 60m depth as required at site and as directed by Engineer-in-Charge. Note :- The cost of hiring and transportation of suitable truck mounted rig machine and other required equipments deemed included in quoted.	RM	155	2500.00	387500.00	-do-
			3	Supplying, assembling and lowering in position in the bore hole inner assembly of MS housing blind pipes ERW grade threaded and socket jointed 175 mm nominal bore and 5 mm wall thickness or bevelled end conforming to IS 4270 complete all as specified and directed	RM	50	4530.00	226500.00	Quotation attd
			4	Supplying, assembling and lowering in position in the bore hole inner assembly of MS housing slotted pipes ERW grade threaded and socket jointed 175 mm nominal bore and 5 mm wall thickness or bevelled end conforming to IS 4270 complete all as specified and directed	RM	120	5123.00	614760.00	-do-
			5	Note :- The length as mentioned at 3 & 4 may vary as per availability of water					



1	2	3	4	5	6	7	8	9	10
			6	S&F Housing clamps in position MS holding down clamps (Set of two nos.) made out of 40 mm X5 mm flat iron and length upto 0.75 metre , bent to shape as suitable to holding 65mm column pipe complete with 4 Nos. nut, bolt & washers complete all as speicfied and directed	Each Set	1	2500.00	2500.00	-do-
			7	Supplying sample box of strata sample made out of teak wood planks 25mm thick size of board 1000mm X 1000mm, size of sample bins 100mm X 100mm with front provided with glazed hinged shutters, hasp and staples for strata samples as found while drilling tube well and fixed in position complete all as specified and directed	Each Job	1	4000.00	4000.00	Quotation attd
			8	M&L for packing with pea gravels of size 3 to 8 mm natural shape brought direct from river bank packing around casing pipe to entire depth upto required ground water table level complete all as specified and directed.	Cum	55	1200.00	66000.00	-do-
			9	Developing the tube/ bore well firstly by means of pumping unit using air compressor unit of adequate capacity not less than 250 PSI and then by over pumping untill sand free water is obtained & testing the yield for duration as under :-					-do-
			9.1	With air compressor (first 24 hours).	24	Per Hr	2500.00	60000.00	-do-
			9.2	With air compressor (24 hours to 48 hours).	24	Per Hr	2600.00	62400.00	-do-
			9.3	Over pumping with the help of suitable size of pump and accessories and standby DG set in order to ensure continuous pumping for 24 hours and yield test by 'V' notch method/ orifice method. Note :- The cost of provision/ hiring and transportation of of all T&P required for testing and other equipments required are deemed to be included in quoted rate.	24	Per Hr	3500.00	84000.00	-do-
			10	Chemical and bacteriological testing of water sample to ensure potability of water complete all as specified and directed by Engr-in-Charge complete including collection of samples, carrying to Lab and testing charges etc.	Each Job	1	9500.00	9500.00	-do-
			11	Supply and laying UPVC pipe of 65mm dia, SH-40 grade including all type of fittings & jointing materials complete all as specified and directed	RM	220	531.00	116820.00	SSR-29001
			12	Supply and fix CI non return valve of 65 mm bore, flanged ends, heavy duty, PN 1.0 class complete all as specified and directed	Each	1	9183.00	9183.00	MR
			13	S&F Submersible pump, 20 HP capacity, electric driven 415 V, TP suitable for 200 mm dia bore well (Casing pipe size 200 mm) with 28 to 135 mtr head and discharge range 560 to 250 LPM, 65 mm dia delivery line with all accessories, fittings and hanging with nylon rope in bore well complete all as specified and directed by Engr-in-Charge. Make : KSB/Kirloskar/CG	Each	1	145000.00	145000.00	-do-
			14	Supply and fixing fully automatic star delta starter suitable for submersible pump 12.5 HP capacity, having overload relay range 8.0 A to 12A complete all as specified and directed Make : L&T/BCH/Havells	Each	1	15000.00	15000.00	-do-
			15	Supply and fixing PVC insulated submersible cable flat type, 10 sqmm, 3 core 1100 volts grade complete all as specified and directed	RM	150	815.50	122325.00	-do-
			16	Supply, laying and testing cable XLPE Insulated ,screened, PVC bedded, galvanized steel strip or wire armoured, electric power cables (heavy duty) 1100 Volts grade with stranded aluminium conductor of size 16 sq mm 4 core	RM	85	560.00	47600.00	-do-

1	2	3	4	5	6	7	8	9	10
			17	Excavation in trenches n.exc 1.5m wide and n.exc 1.5m deep and getting out in hard/dense soil for laying/jointing kit/repair of cable and erection of poles complete all as specified and directed	Cum	16	675.00	10800.00	SSR-03006
			18	Returning filling in including spreading, leveling watering and well ramming in layers n.exc 25 cm in hard/dense soil all as specified and directed	Cum	10	139.10	1391.00	SSR-03009
			19	Removing excavated material n.exc 50 meters and depositing where directed at a level n.exc 1.5 meter above the starting point all as specified and directed	Cum	7	320.40	2242.80	SSR-03029
			20	M & L for Sand cushioning on under ground cables provided with a layer of sand 8 cm deep before laying the cable and 15 cm depth after punning down and stretching the cable complete all as specified and directed	Cum	5	1974.30	9871.50	SSR-03019
			21	Supply and lay well burnt class 'B' bricks as mechanical protection to under ground cables laying with length of the bricks equal to the width of the trench all as specified and directed	Per 1000 Nos	0.47	5551.88	2609.38	SSR-05088
			22	Supply and laying of GI pipe light grade galvanized with all fittings laid in trenches for cable protection of 50 mm bore all as specified and directed	RM	16	402.00	6432.00	SSR-18046
			23	Earthing complete with galvanised steel earth plate electrode 600 x 600 x 6mm thick, buried directly in ground (earth pit not less than 2.25 metres deep below ground level) with top edge of the plate not less than 1.5 metres below normal ground level, connected to galvanised earth lead wire 4.0mm dia by means of bolts, nuts, check nuts and washers of galvanised iron or steel all as shown in electrical plate No. 3 connected to earthing test point all as specified or indicated including testing on completion all as directed	Each	1	6688.40	6688.40	SSR-19471
			24	Supply and fixing Nylon rope twisted, Virgin Polypropylene, 10-20mm, suitable size for hanging submersible pump complete all as specified and directed	RM	150	150.00	22500.00	MR

Add MV @ 58% over SSR Items Rs 40035.08 Rupees  
 Total 3775423.08  
 23220.34  
 Total Rupees 3798643.42  
 Say Rupees 3800000.00

JE E&M

AGE E&M (WE) Pooch



GOVERNMENT OF INDIA  
CENTRAL GROUND WATER BOARD

*Secret/Defence  
For Office Use only*

HYDROGEOLOGICAL INVESTIGATION FOR WATER SUPPLY TO PRITHI  
MILITARY STATION, AVERPATTI DISTRICT KULLU, HIMACHAL PRADESH

By

Dr. Sanjay Pandey  
SCIENTIST

NORTHERN HIMALAYAN REGION  
DHARAMSHALA  
August 2024



Secret/Defence

**HYDROGEOLOGICAL INVESTIGATION FOR WATER SUPPLY TO PRITHI  
MILITARY STATION, AVERIPATTI DISTRICT KULLU, HIMACHAL PRADESH**

by

**Dr. Sanjay Pandey**  
SCIENTIST

---

**CONTENTS**

	<u>Page</u>
1. General	1
2. Area details	1
3. Status of Present Water Supply	2
4. Hydrogeological Study	

**Figures**

1. Location of the site I
2. Location of the site II

**HYDROGEOLOGICAL INVESTIGATION FOR WATER SUPPLY TO  
PRITHI MILITARY STATION, AVERIPATTI, DISTRICT KULLU,  
HIMACHAL PRADESH**

by

**Dr. Sanjay Pandey  
SCIENTIST**

---

**1. General**

At the request of the office of Garrison Engineer, 863 Engr Wks Section PIN 913863 c/o 56 APO, Regional Director, Central Ground Water Board, Northern Himalayan Region, Dharamsala deputed Author to carried out detailed hydrogeological investigation to know the availability of the ground water and to pin point the sites for drilling of tube wells in order to fulfill the requirement of 378000 litres per day in Prithi Military station, Averipatti, district Kullu, Himachal Pradesh. Undersigned visited the above said area and conducted hydro-geological investigation with Er. Harpal Singh Tayal, AGE, Jakhri.

**2. Area details:**

The Prithi Military station, Averipatti is located on the south of the Satluj River. Author visited two sites with Er. Harpal Singh Tayal, AGE, Jakhri. The details of proposed sites for construction of tubewells were identified after intensive hydrogeological investigation:

**3. Status of Present Water Supply**

At present water supply is available through the natural source (Spring) near to Army camp area. The water requirement to the tune of 378000 litres per day is to be fulfilled by constructing two number of proposed Tubewell.

The area receives average rainfall of 1400 mm, mainly from south-west monsoon from July to September. The hard rocks consist of sandstone, Boulder and clay. The joints and fracture system is responsible for proper percolation of ground water. Geomorphologically, the terrain is undulating with moderate to high slopes.

#### **4. Hydrogeological study:**

The Author has conducted detailed hydrogeological investigation of the area and in this regards collected hydrogeological data by measuring the various hydrogeological parameters of abandoned shallow tubewell constructed along the side of Satluj river.

#### **Proposed Sites**

Sites is located near Satluj river and falls at north latitude  $31.390542^{\circ}\text{N}$  and east longitude  $77.617987^{\circ}\text{E}$  and  $31.390222^{\circ}\text{N}$  and east longitude  $77.619444^{\circ}\text{E}$ . The sites have been shown in Fig.1 and 2 respectively.

In the above proposed locations groundwater level is expected to be around 60 m.bgl (meter below ground level) and proposed tubewells may be drilled down to the depth of 150 meter below ground level. The diameter of pipe should be of 6" dia with placement of proper slots against granular zones encountered during drilling operation. Prior to drilling operation surface geophysical investigation (VES) may also be carried out.

Since the area receives adequate average annual rainfall of about 1400 mm, it is recommended that roof-top rainwater harvesting may be adopted in the Military station.

**During the drilling operation and lowering of well assembly the officers of Central Ground Water Board office may be contacted for technical guidance.**