Construction of New type Slow Sand Filtration Plant / Filtration Gallery (Low Turbidity

Presented by:

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On

STATUS OF FILTRATION PLANTS

S. No.	Name of the component	Total works	Tendered	Responsive	LOI Issued	Under Technical	Under Financial evaluation	Allotted	Started	Completed	Remarks
1.	Rapid sand filtration plant	38	38	38	00	00	00	38	38	3	
2.	Slow Sand filtration plant	214	214	214	00	00	00	214	214	49	
	Total:	**252**	**252**	**252**	**00**	**00**	**00**	**252**	**252**	**52**	

STATUS OF SLOW SAND FILTRATION PLANT

S. No.	Type of filtration gallery / filter plant	Total	Tendered	Responsive	LOI	Under Tech. / financial.	Allotted	Started	Completed	Remarks
1	SSFP (Old design)	20	20	20	00	00	20	20	05	
2	Zero turbidity	70	70	70	00	00	70	70	35	
3	Low turbidity	124	124	124	00	00	124	124	09	
	Total:	**214**	**214**	**214**	**00**	**00**	**214**	**214**	**49**	

REASON FOR NEW TYPE DESIGN

- Initially there were 214 no of slow sand filtration plants (old design) which were proposed in various DPRs in District Udhampur without considering the topography of the area and intensity of turbidity particularly in hilly areas. The e-tender of the 194 no. of slow sand filtration plants remains unresponsive for about 12 months continuously due to the reasons that these slow sand filtration plants (old design) requires a lot of land more than 2 kanals which was not available in hilly areas. The contractors during the meetings raised the issues for non availability of feasible land in hilly terrain which also requires lot of bulk cutting, protection work and same was not technically feasible to construct these huge structures at such sites. Moreover, the turbidity of the flowing water in hilly area was much less as compared to the turbidity of the flowing water in plain area in Udhampur District. The variation in turbidity and the limitation of the availability of land for construction of already old designed slow sand filtration plant were the two major points to think over. This division took the challenge and divided the 194 no. filters into zero turbidity, low turbidity and medium turbidity after taking the fresh turbidity reports from Divisional Laboratory Udhampur and accordingly a new type filtration plant / filtration gallery was planed/ designed and same was vetted by IIT Jammu.

- In this new type of design, a new filter media i.e **anthracite coal** was also added which actually makes the water cleaner by acting like a sponge that traps particles. The filtration capacity of the **anthracite coal** is much higher as compared to routine filter media. This new design remained economical, require less time to construct and the area required is 40% of the old design. The approval for using this new vetted design was also given by the Worthy Chief Engineer Jal Shakti (PHE) Department Jammu vide letter no. PHEJ/JJM/9377-81 dated: 08-09-2023. At present work on all 194 No. filtration gallery / filtration plants is in progress.

FINANCIAL SAVING DUE TO ADOPTION OF NEW DESIGN

Old Type

S. No	Capacity	No	Amount	Total
1	1000	134	28.00	3752.00
2	2000	30	41.00	1230.00
3	3000	21	49.00	1029.00
4	5000	8	61.00	488.00
Total:		**194**		**6499.00**

New type filtration gallery

S. No	Capacity	No	Amount	Total
1	zero	70	4.34	303.80
2	Low	124	18.00	2232.00
Total:		**194**		**2535.80**
			Saving	**Rs. 3963.20 = 39.63 Cr.**

Total no. of slow sand filtration plants = 214

Estimated cost with old design = Rs. 6499 lakhs

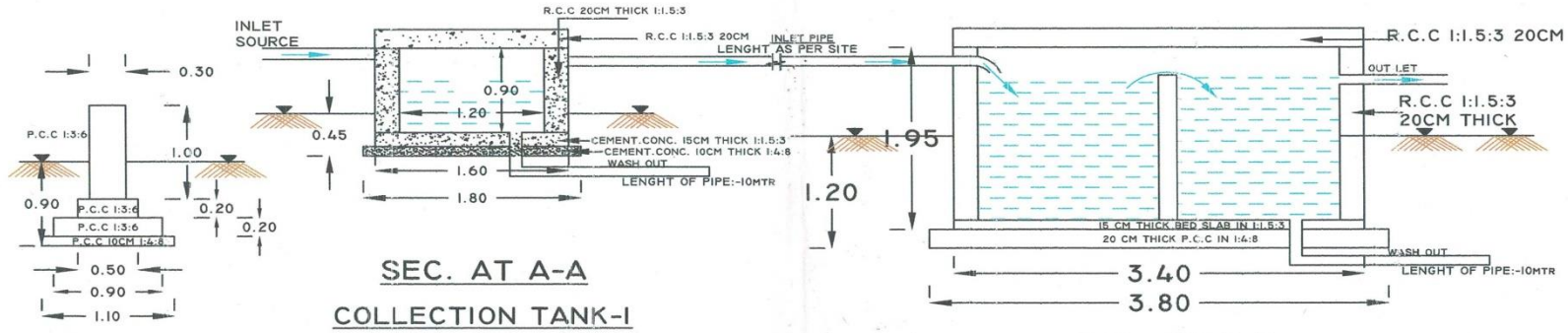
Work executed with old design = 20

Work executed with new / change in design = 194

Estimated cost with new design = Rs. 2535.80 lakhs

Net saving in slow sand filtration plants using the new design in Udhampur District only = Rs. 3963.20 lakhs

DETAIL DRAWING SHOWING COLLECTION TANK FOR NATURAL SOURCE WITH ZERO TURBIDITY AT UNDER W.S.S (JJM)



SEC. AT X-X

SIDE WALL
5MTR LENGHT

SEC. AT A-A

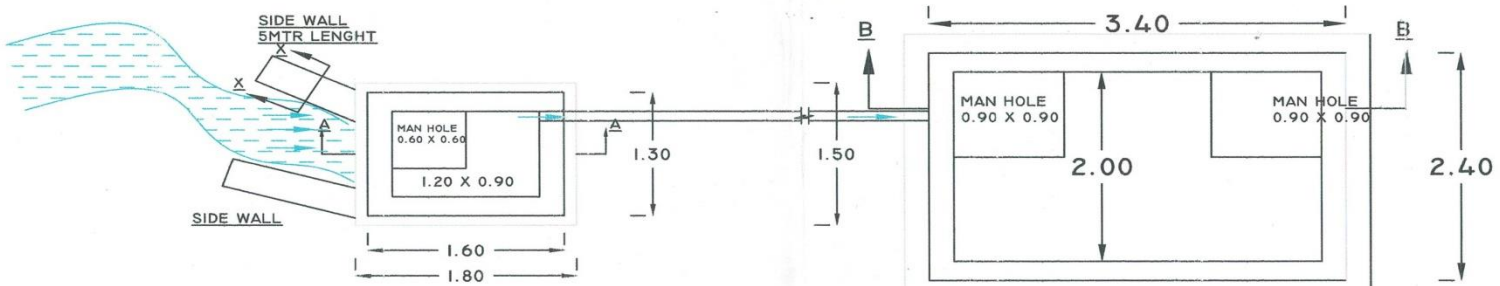
COLLECTION TANK-I

CAPACITY:- 190 GLS

SEC. AT B-B

COLLECTION TANK-2

CAPACITY:- 3000 GLS



PLAN

COLLECTION TANK-I

PLAN

COLLECTION TANK-2

PROJECT **CONSTRUCTION OF COLLECTION TANK FOR NATURAL SOURCE WITH ZERO TURBUDITY**	AGENCY AUTHORITY EXECUTIVE ENGINEER JAL SHAKTI(P.H.E)DIVISION UDHAMPUR DIVISION UDHAMPUR	NOTES 1. ALL DIMENSIONS ARE IN MM 2. DO NOT SCALE FOLLOW WRITTEN DIMENSION ONLY. 3. FOR OTHER NOTE AND REINFORCEMENT DETAILS REFER STRUCTURE DRAWING

J.E	ASSTT.EX.ENGINEER JAL SHAKTI(PHE) SUB. DIV.	EXECUTIVE ENGINEER JAL SHAKTI(PHE) DIVISION UDHAMPUR	SUPERINTENDING ENGINEER HAYDRAULIC CIRCLE UDHAMPUR

DETAIL DRAWING SHOWING CONSTRUCTION OF FILLETRATION GALLERY FOR LOW TURBIDITY WITH CAPACITY 1000GPH AND 2000GPH AT _____ UNDER W.S.S _____ (JJM)

vetted for structural and hydraulic design

Rajendra

डॉ० राजेंद्र वर्मा
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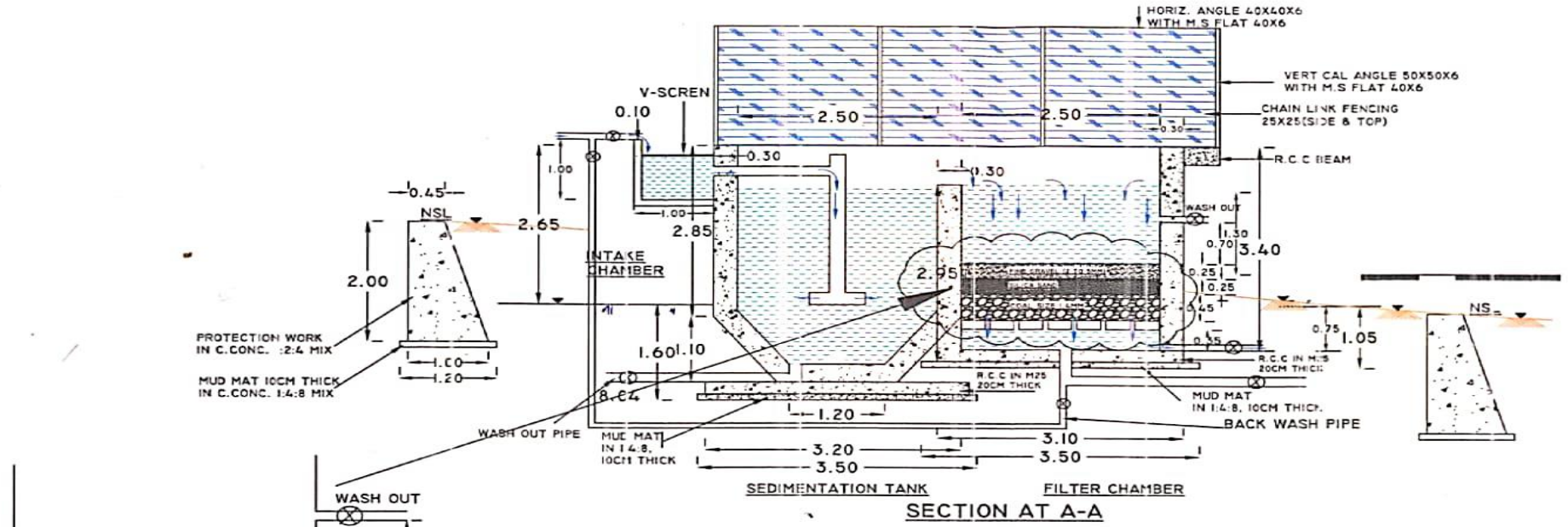

PROJECT	AGENCY	NOTES			
CONSTRUCTION OF FILLETRATION GALLERY FOR LOW TURBIDITY WITH CAPACITY 1000GPH AND 2000GPH	AUTHORITY: EXECUTIVE ENGINEER JAL SHAKTI(P.H.E)DIVISION UDHAMPUR DIVISION UDHAMPUR	1. ALL DIMENSIONS ARE IN MM 2. DO NOT SCALE FOLLOW WRITTEN DIMENSION ONLY. 3. FOR OTHER NOTE AND REINFORCEMENT DETAILS REFER STRUCTURE DRAWING	J.E	ASSTT.EX.ENGINEER JAL SHAKTI(PHE) SUB. DIV.	EXECUTIVE ENGINEER JAL SHAKTI(PHE) DIVISION UDHAMPUR / SUPERINTENDING ENGINEER HAYDRAULIC CIRCLE UDHAMPUR

SECTIONAL ELEVATION SHOWING DETAIL OF REINFORCEMENT FOR PROPOSED FILLETRATION GALLERY/S.S.F.P FOR LOW TURBIDITY AND WITH CAPACITY 1000 TO 2000 GPH AT _____ UNDER W.S.S _____ (JJM)

Vetted for Structural and hydraulic design

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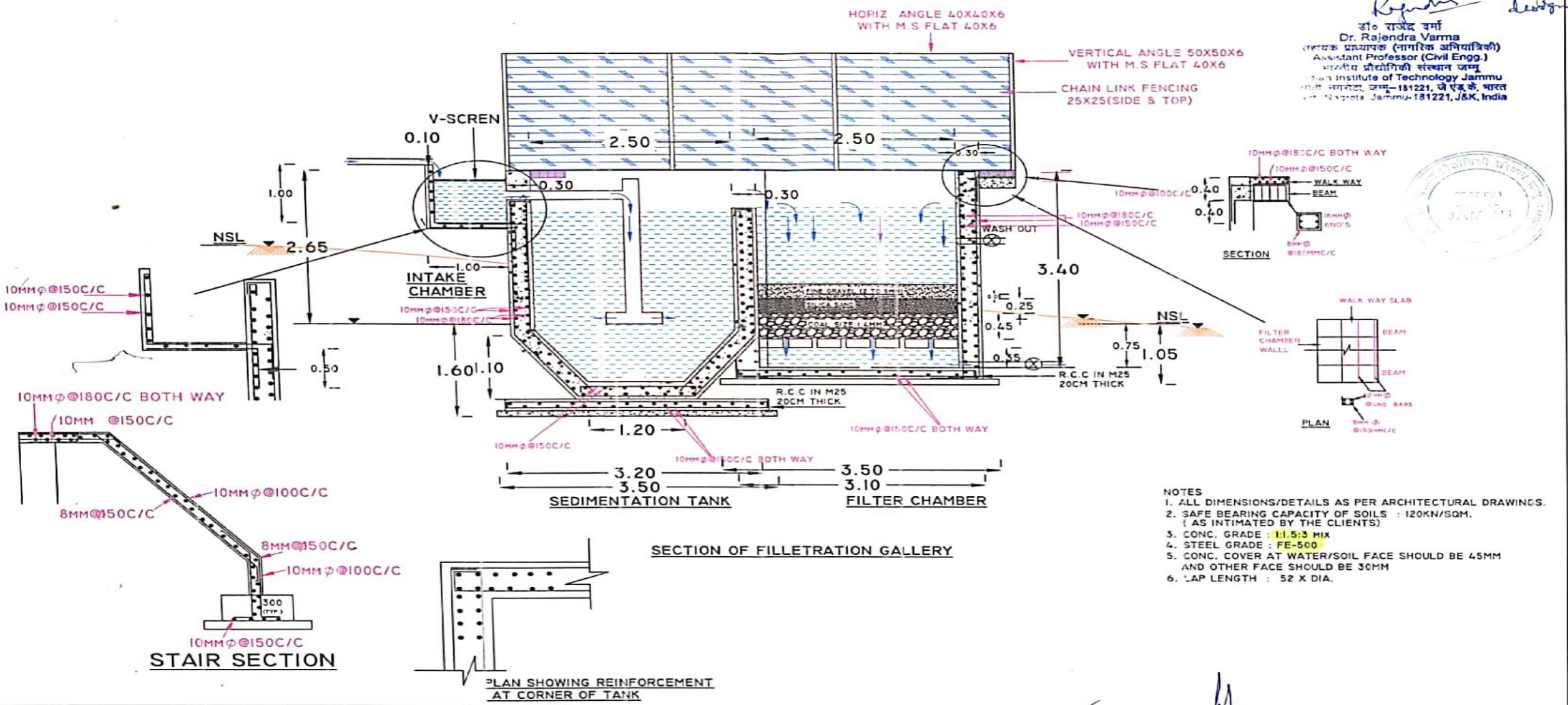

NOTES
1. ALL DIMENSIONS/DETAILS AS PER ARCHITECTURAL DRAWINGS.
2. SAFE BEARING CAPACITY OF SOILS : 120KN/SQM. (AS INTIMATED BY THE CLIENTS)
3. CONC. GRADE : 1:1.5:3 MIX
4. STEEL GRADE : FE-500
5. CONC. COVER AT WATER/SOIL FACE SHOULD BE 45MM AND OTHER FACE SHOULD BE 30MM
6. LAP LENGTH : 52 X DIA.

PROJECT	AGENCY
SECTIONAL ELEVATION SHOWING DETAIL OF REINFORCEMENT FOR PROPOSED FILLETRATION GALLERY/S.S.F.P FOR LOW TURBIDITY AND WITH CAPACITY 1000 TO 2000 GPH	AUTHORITY: EXECUTIVE ENGINEER JAL SHAKTI(P.H.E)DIVISION UDHAMPUR DIVISION UDHAMPUR

J.E

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JAL SHAKTI(PHE)
SUB. DIV.

EXECUTIVE ENGINEER
JAL SHAKTI(PHE)
DIVISION UDHAMPUR

SUPERINTENDING ENGINEER
HAYDRAULIC CIRCLE
UDHAMPUR

CONSTRUCTION 5000 GPH SLOW SAND FILTRATION PLANT UNDER WSS MAJALTA

CONSTRUCTION OF NEW TYPE SLOW SAND FILTRATION PLANT /FILTRATION GALLERY (LOW TURBIDITY) UNDER WSS PROWA JAGIR

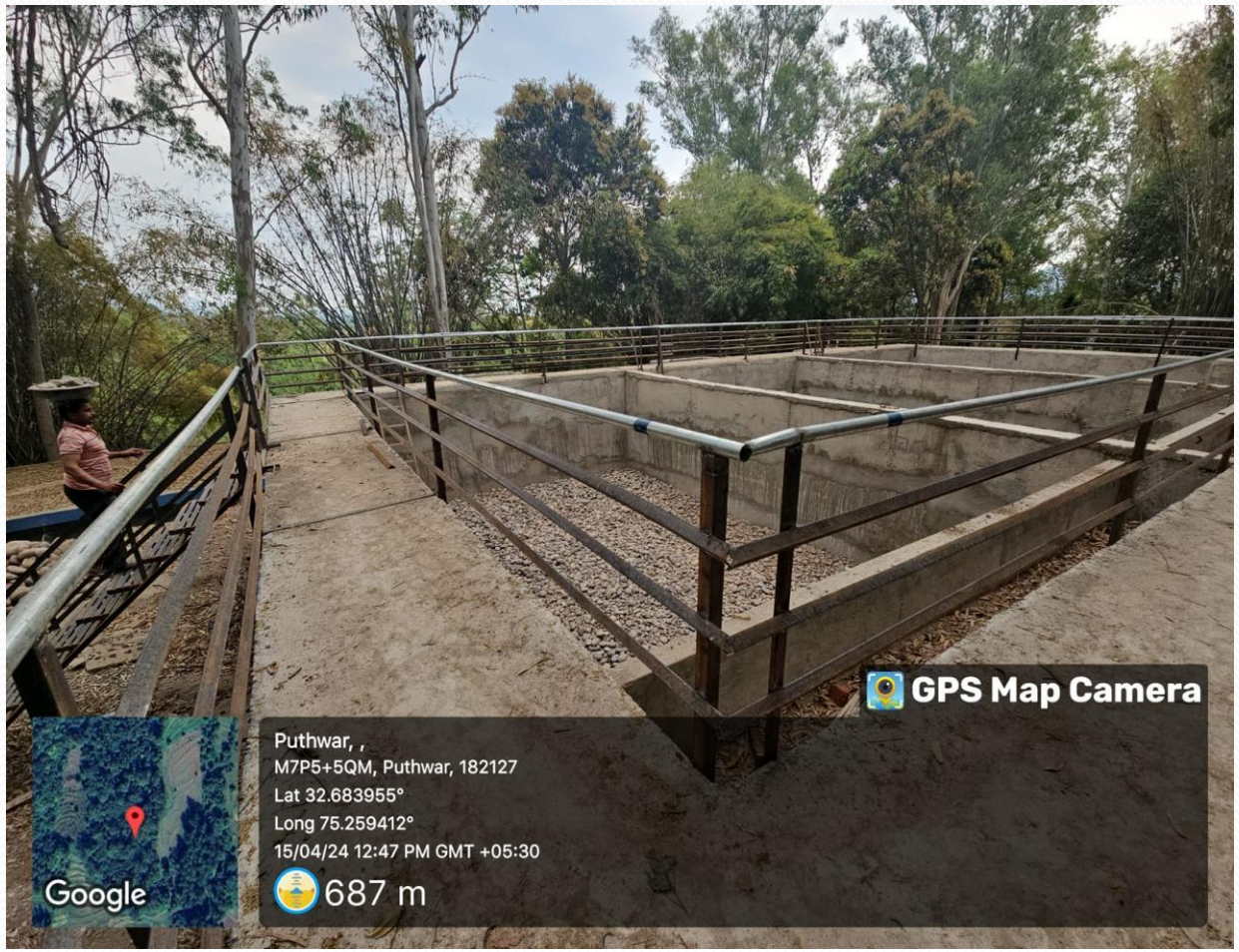
CONSTRUCITON OF NEW TYPE SLOW SAND FILTRATION PLANT/ FILTRATION GALLERY (LOW TURBIDITY) UNDER WSS KOSAR

CONSTRUCTION OF NEW TYPE SLOW SAND FILTRATION PLANT / FILTRATIONGALLERY UNDER WSS DHANNU

UNDER CONSTRUCTION OF SLOW SAND FILTRATION PLANT/ FILTRATION GALLERY (NEW TYPE) UNDER WSS GHARRIAN MATLOVA

CONSTRUCTION OF 5000 GPH SLOW SAND FILTRATION PLANT UNDER WSS KAIL

CONSTRUCTION OF 5000 GPH SLOW SAND FILTRATION PLANT UNDER WSS DEOT



CONSTRUCTION OF NEW TYPE FILTRATION GALLERY (ZERO TURBIDITY) UNDER WSS KHANED

CONSTRUCTION OF NEW TYPE FILTRATION GALLERY (ZERO TURBIDITY) UNDER WSS KATWALT

THANKS