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(FOR OFFICIAL USE ONLY)



परीक्षण प्रतिवेदन संख्या 63-
टी.आर (सम.टी- 1)

U. P. IRRIGATION RESEARCH INSTITUTE

ROORKEE-247667 INDIA

शर्मा 8/4/81
गोती अभियन्ता
परीक्षण खण्ड

468 200
422239

1025/38 RECOMMENDED

SL. No	PARTS	DATE METER	DATE METER	DATE METER	DATE METER	DATE METER	DATE METER	DATE METER
1.	PAIR 'A' GEAR 7J 61891 / 892		27/2/02					
2.	PAIR 'B' GEAR 7J 61799 / 800		4/10/02	27/2/02				
3.	IDLER GEAR 7J 61888							
4.	MAG. ROLL GEAR 7J 61785							
5.	FEED ROLLER 22M 70010							
6.	RETARD PAD 4S 61088							
7.	DRUM FINGER 19M 61350							
8.	PRES. FINGER X 4 19J 61089	17/6/02	29/1/02					
9.	CORO WIRE (C+T) 117M 65402							
10.	PACK 'A' TBA							
11.	M. M. GEAR 7K 90430		22/5/02	6/12/02				
12.	XERO GEAR 7J 61746							
13.	FUSER GEAR 7J 61757							
14.	PAIR 'C' GEAR 7M 61868 / 869							
15.	DEV. BUSH X 2 13M 7004							
16.	DOC. BLADE 33M 60264		4/10/02	27/1/02				
17.	H. R. FINGER X 2 19E 91200	17/6/02	29/1/02					
18.	CORO WIRE(P+D) 117M 65402							
19.	P. STOPPER X 2 3M 62593							
20.	PACK 'B' TBA							

PARTS TRACK SHEET

SL. No	PARTS	DATE METER	DATE METER	DATE METER	DATE METER	DATE METER	DATE METER	DATE METER	DATE METER
21.	LINK ASSY 7M 61898								
22.	REG. ROLL ASSY. 22M 63974								
23.	HOPPER SEAL 35P 61743								
24.	ILL (1 : 1 / RE) 122S 60354								
25.	HEAT ROLLER 22M 63128								
26.	FILM SEAL 35S 62431								
27.	PRES. BEARING 13P 61059								
28.	AUGER GEAR 7J 61760								
29.	CC END BLOCK 118M 61385								
30.	CC END BLOCK 118M 61336								
31.	PCC END BLOCK 118M 90140								
32.	PCC END BLOCK 118M 90150								
33.	T/D END BLOCK 118M 61482								
34.	T/D END BLOCK 118M 61483								
35.	DEVELOPER SR 90092	27/2/02	19/0/02	22/6/02					
36.	DRUM 1R 90054	19/0/02	22/6/02						
37.									
38.									
39.									
40.									

METER IN K COPIES

CRITICAL ACTIVITY TRACK SHEET

SL No	A R E A	DATE METER	DATE METER	DATE METER	DATE METER	DATE METER	DATE METER	DATE METER
1.	REGULATING LAMP I/C							
2.	CROSS MIXING IN DEV MOD. (PICK OFF BAFFLE) - I/C							
3.	DEV. BIAS PLATE I/A							
4.	DRUM FINGER HOLDER I/C/L							
5.	RETRACT ARM/RACKET I/A							
6.	PRESSURE ROLL FREENESS (UNLATCH COND) - I/C/L							
7.	MAIN MOTOR GEAR SHAFT I/C/L							
8.	TONER HOPPER + AGITATOR GEAR - I/C							
9.	REG. ROLL ASSY. I/C							
10.	EM / PP 2000 I							
11.	MACHINE EARTHING I/A							
12.	UPPER PINCH ROLL / BUSH I/C							
13.	MACHINE / TABLE LEVELLING I/A							
14.	TRIM BAR I/A							
15.	HR/FR CARRIAGE ALIGNMENT I/A							
16.	HR / FR CARRIAGE RAIDER I/A							
17.	DOC. BLADE ASSY. BUSH I/C							
18.	MIRROR CLIPS I/A/R							
19.								
20.								

सिवाई अनुसंधान संस्थान, रजुकी

पदार्थ परीक्षण खण्ड

जमरानी बांध परियोजना हेतु गोला नदी से प्राप्त पदार्थों का परीक्षण प्रतिवेदन ।

परीक्षण प्रतिवेदन सं० 63-टी०आर० §एम०टी०- 1 §

अधिशारी, अभियन्ता, जमरानी बांध निर्माण खंड-5, हलद्वानी के पत्रांक: 189/ज०वा०ख०-5/एस-4 दिनांक 28.1.91 द्वारा गोला नदी से प्राप्त पदार्थों के 11 नमूने तथा पत्रांक 676/ज०वा०ख०-5/एस०-4 दिनांक 10.4.91 द्वारा 4 नमूने यांत्रिक विश्लेषण एवं अन्य भौतिक गुणों के परीक्षण हेतु प्राप्त किये गये।

उपरोक्त पदार्थों के यांत्रिक विश्लेषण हेतु परीक्षण आई०एस०:2720-IV-1975 की विविधियों के अनुसार किया गया एवं इनके परिणाम संलग्न तालिका सं०-1 एवं सं०-2 में दिये गये हैं। तालिका सं०-2 में जो परिणाम दिये गये हैं वह प्राप्त पदार्थों को 100 प्रतिशत मान कर दिये गये हैं क्योंकि प्रायोजक द्वारा 50 मि०मी० से बड़े साइज के पत्थरों का प्रतिशत उपलब्ध नहीं कराया गया है, जबकि तालिका सं०-1 में 50 मि०मी० से बड़े पत्थरों का प्रतिशत उपलब्ध करायी गई सूचना के अनुसार हैं। इन परिणामों के अनुसार संलग्न ड्राइंग सं०-1 से ड्राइंग सं०-6 में ग्रेडेशन कर्व बनाये गये जिनका कि वर्गीकरण आई०एस०-1498-1970 के अनुसार किया गया है ।

कोर्स एग्रीगेट का परीक्षण इनके विभिन्न भौतिक गुणों अर्थात् क्रसिंग वैल्यू, इम्पेक्ट वैल्यू, एब्रेजन वैल्यू, साउन्डनेस, फ्लैकेनेस इन्डेक्स, इलॉगेशन इन्डेक्स, विविध धनत्व, जल अवशोषण, बल्क घनत्व, कम्पैक्टेड घनत्व आई०एस०:2386-1963 की विविधियों के अनुसार किया गया, जिनके परिणाम संलग्न तालिका-3 में दिये गये हैं ।।

फाइनल एग्रीगेट का परीक्षण आई०एस०:2386-1963 की विविधियों के अनुसार किया गया जिसके परिणाम संलग्न तालिका - 4 में दिये गये हैं ।

इस परियोजना से सम्बन्धित अन्य प्रतिवेदनों की सूची संदर्भ हेतु संलग्नक-1 में दी गई है ।

§ सुरेन्द्र कुमार शर्मा §
सहायक अभियन्ता-चतुर्थ
पदार्थ परीक्षण खण्ड

18.4.92

§ हरनन्दन शर्मा §
अधिशारी अभियन्ता
पदार्थ परीक्षण खण्ड

TABLE-1

T.M.-63 (M.T.-1)

U.P. IRRIGATION RESEARCH INSTITUTE, ROORKEE

CLASSIFICATION OF AGGREGATE SAMPLES OF RIVER GOLA, JAMRANI DAM PROJECT
(RECEIVED VIDE E.E. JAMRANI CONST. DIV.5 LETTER NO. 189/JBK-54 dt. 28.1.91)

Sl. No.	Lab. No.	Pit No.	Above 50mm (as reported by site authorities)	Mechanical Analysis %						
				Gravel		Sand			Fine below	
				Coarse 50-20 mm %	Fine 20-4.75mm %	Coarse 4.75-2.0mm %	Medium 2-.425 mm %	Fine .425-0.075 mm %		
1.	9/1	1-L	69.54	17.2	6.56	0.70	4.0	1.7	0.3	
2.	9/2	2-R	47.33	7.2	12.17	5.30	14.0	13.4	0.6	
3.	9/3	3-L	65.20	5.6	10.70	3.50	8.0	6.5	0.5	
4.	9/4	4-R	73.34	3.4	11.86	3.40	4.0	3.5	0.5	
5.	9/5	5-L	45.95	12.10	19.45	5.50	7.00	9.40	0.6	
6.	9/6	11-C	47.65	10.45	14.60	3.30	9.00	13.20	1.8	
7.	9/7	19	52.56	8.74	16.10	7.60	7.50	7.00	0.5	
8.	9/8	20	34.77	9.70	14.73	8.60	14.20	16.80	1.2	
9.	9/9	24	52.70	11.20	12.30	3.30	12.50	7.70	0.3	
10.	9/10	25	60.20	5.5	10.60	4.70	6.00	10.30	2.7	
11.	9/11	27	47.37	9.93	18.70	8.00	9.50	6.00	0.5	

31.3.92

(S.K.Sharma)
Assistant Engineer-IV
M.T.Division

S. Singh

18.4.91

(H.N.Sharma)
Executive Engineer
M.T.Division

TABLE-2

CLASSIFICATION OF AGGREGATE SAMPLES OF RIVER GOLA
(RECEIVED VIDE E.E. JAMRANI CONST. DIV.5 LETTER NO. 676/JBK-5/S-4
Dated 10.4.91)

Sl. No.	Lab. No.	Pit No.	Gravel		Sand		Below		Remarks
			Coarse	Fine	Coarse	Medium	Fine		
			50-20 mm %	20-4.75 mm %	4.75-2.0 mm %	2.0-0.425 mm %	0.425-0.075 mm %	0.075 mm %	
1.	10/1	6	12.5	28.5	10.0	23.0	23.6	2.4	The individual percentage have been computed considering the material $\leq 50\text{mm}$ as 100%
2.	10/2	7	11.0	30.7	13.3	24.0	19.4	1.6	
3.	10/3	21	23.2	32.5	5.3	22.0	14.6	2.4	
4.	10/4	26	18.4	26.7	15.9	19.0	17.8	2.2	

(Signature)
S.K.Sharma) 31.3.92
Assistant Engineer-IV
M.T.Division

(Signature)
e budy

(Signature)
H.N.Sharma
Executive Engineer
M.T.Division

TABLE-3

TEST RESULTS OF COARSE AGGREGATE (JAIRANI DAM PROJECT)

Sl. No.	Lab. No.	Pit No.	Crushing value %	Impact value %	Abrasion value %	Soundness (loss in weight) % After 5 cycles	Elakiness Index					Elongation Index					Specific Gravity	Water Absorption %	Bulk Density gm/cc	Compact Density gm/cc
							50-40mm	40-25mm	25-10mm	10-6.3mm	6.3mm	50-40mm	40-25mm	25-10mm	10-6.3mm	6.3mm				
1.	9/1	1-1	16.8	14.0	17.8	0.23	53.8	66.2	76.5	30.9	18.0	48.6	23.6	20.3	13.6	14.4	2.740	0.2	1.72	1.81
2.	9/2	2R	18.9	17.0	25.3	0.64	-	37.2	42.7	33.0	60.9	-	29.8	23.1	33.8	38.6	2.724	0.3	1.76	1.92
3.	9/3	3L	21.7	16.9	21.4	0.17	-	28.6	28.2	32.4	47.1	-	41.7	37.6	40.7	26.4	2.724	0.3	1.74	1.90
4.	9/4	4R	15.7	15.8	26.2	0.20	-	28.1	31.0	26.4	27.3	-	23.8	20.7	36.2	56.5	2.730	0.1	1.80	1.90
5.	9/5	5L	19.7	14.4	19.7	0.90	-	28.7	27.1	37.5	27.0	-	32.3	24.0	26.4	13.3	2.730	0.4	1.76	1.90
6.	9/6	11C	20.7	12.0	23.0	0.30	-	47.8	30.4	19.3	66.7	-	36.9	22.7	52.7	18.7	2.730	0.3	1.74	1.90
7.	9/7	19	18.2	14.2	18.8	0.40	-	21.8	30.0	44.5	44.2	-	26.3	40.5	27.5	23.5	2.734	0.5	1.78	1.94
8.	9/8	20	22.1	16.2	22.8	0.13	-	31.2	23.6	39.4	44.5	-	24.5	27.3	29.1	47.9	2.734	0.2	1.76	1.90
9.	9/9	24	19.5	15.7	23.4	0.42	-	24.1	23.8	27.4	35.6	44.3	19.6	27.2	31.7	39.8	2.727	0.2	1.72	1.92
10.	9/10	25	19.6	18.6	21.0	0.32	-	24.9	38.8	42.5	41.5	-	24.7	24.3	31.2	44.8	2.730	0.4	1.73	1.89
11.	9/11	27	21.1	13.5	25.9	0.27	-	22.4	21.3	27.1	38.1	-	27.6	29.1	29.2	38.5	2.736	0.4	1.72	1.92
12.	10/1	6	21.8	16.2	23.5	1.2	-	31.3	28.9	30.2	39.8	-	32.5	25.5	35.0	21.2	2.724	0.3	1.72	1.88
13.	10/2	7	20.3	18.2	21.0	0.23	-	26.7	28.5	46.6	20.8	-	31.6	35.3	17.4	22.7	2.730	0.3	1.76	1.92
14.	10/3	21	14.7	16.6	20.3	0.73	-	16.6	25.6	33.7	47.5	-	43.4	36.1	37.1	24.9	2.736	0.4	1.70	1.89
15.	10/4	26	16.5	15.8	23.0	0.18	-	35.3	35.9	22.8	38.6	22.2	61.0	21.0	33.8	27.8	2.720	0.3	1.76	1.87

Requirement As per I.S.:383-1970

1. Crushing value :- Crushing value shall not exceed 45 percent for aggregate used for concrete other than wearing surfaces, and 30 percent for concrete for wearing surfaces.

2. Impact value :- Impact value shall not exceed 45 percent by weight for aggregates used for concrete other than for wearing surfaces and 30 percent by weight for concrete for wearing surfaces.

3. Abrasion value:- Abrasion value shall not exceed 30 percent for aggregate to be used in concrete for wearing surfaces and 50 percent for aggregates to be used in other concrete.

4. Soundness of Aggregate:- Soundness of aggregate should not exceed 12 percent for each 5 cycles.

Requirement as per A.S.T.M. (C33-61T)

1. Abrasion value :- Abrasion value of aggregate should not exceed 50 percent.

2. Soundness :- Average loss of weight after each 5 cycles should not exceed 12 percent.

(S.K. Sharma)
Assistant Engineer-IV

Rajendra

(H.N. Sharma)
Executive Engineer

Rajendra

TEST Results of Sand (Jamrami Dam)

1. SIEVE ANALYSIS																	
Sl. No.	Size of sieve mm	1-L	2-R	3L	4R	5L	11C	19	20	24	25	27	6	7	21	26	Remarks
	10.00	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	4.75	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	2.36	92.8	86.8	85.0	85.6	80.2	91.6	76.4	83.0	83.0	85.6	73.6	87.4	82.0	90	83.6	
	1.18	66.0	74.0	69.0	69.0	55.4	83.0	50.4	67.6	62.6	77.0	49.8	69.4	62.6	74	64.8	
	0.60	52.0	59.8	58.0	55.2	40.2	71.0	34.4	50.6	42.0	68.0	40.4	55.0	42.0	53	49.2	
	0.30	29.2	24.6	24.0	32.0	20.0	45.6	16.0	27.2	17.0	49.6	22.0	30.6	24.0	25	28.0	
	0.15	8.4	6.8	9.0	16.0	6.0	14.0*	5.0	9.0	4.0	25.6	4.0	7.6	6.0	10.6	7.8	
I.S. GRADE ZONE		II	II	II	-	II	-	II	II	II	-	-	II	II	II	II	
2. OTHER TEST RESULTS																	
(i)	F.M.	2.51	2.48	2.55	2.42	2.99	1.95	3.18	2.46	2.92	2.12	3.11	2.43	2.83	2.47	2.66	
(ii)	Silt & clay %	700	2.6	3.8	4.4	5.0	14.4	3.6	2.8	2.4	17.0	0.6	3.0	4.2	2.5	3.9	
(iii)	Specific Gravity	2.660	2.675	2.682	2.676	2.68	2.67	2.68	2.677	2.68	2.67	2.68	2.67	2.672	2.66	2.680	
(iv)	Water Absorption	1.34	1.32	1.73	1.43	1.42	1.42	1.42	1.52	1.63	1.52	1.60	1.32	1.42	1.42	1.42	
(v)	Bulk Density	1.62	1.70	1.66	1.73	1.68	1.64	1.67	1.66	1.68	1.66	1.72	1.65	1.72	1.67	1.63	
(vi)	Compacted Density	1.78	1.82	1.78	1.86	1.80	1.78	1.79	1.80	1.75	1.76	1.86	1.75	1.81	1.78	1.79	
(vii)	Soundness (Loss in weight %)																
(A)	After 5 cycles	3.2	1.90	2.30	3.5	3.30	2.70	4.10	3.70	2.70	3.90	1.80	3.80	2.85	2.60	3.70	
(B)	After 5 to 10 cycles	2.8	1.76	2.97	3.1	4.24	3.0	3.24	3.0	4.21	4.20	2.29	3.01	3.6	3.18	3.1	

* Needs Confirmation by repetition.

Requirement as per I.S. 383-1970

(finer than 75µ)

(1) Silt and clay content: should not exceed 3% for uncrushed and 15% for crushed sand.

(2) Soundness :- Average loss of weight after each 5 cycles should not exceed 10 percent.

Requirement as per A.S.T.M. C22-61I

(1) Fineness Modulus: F.M. of sand shall not be less than 2.3 nor more than 3.1 and the fine aggregate shall not have more than 45% retained between any two consecutive sieves.

(2) Soundness: Average loss of weight after each 5 cycles should not exceed 10 percent.

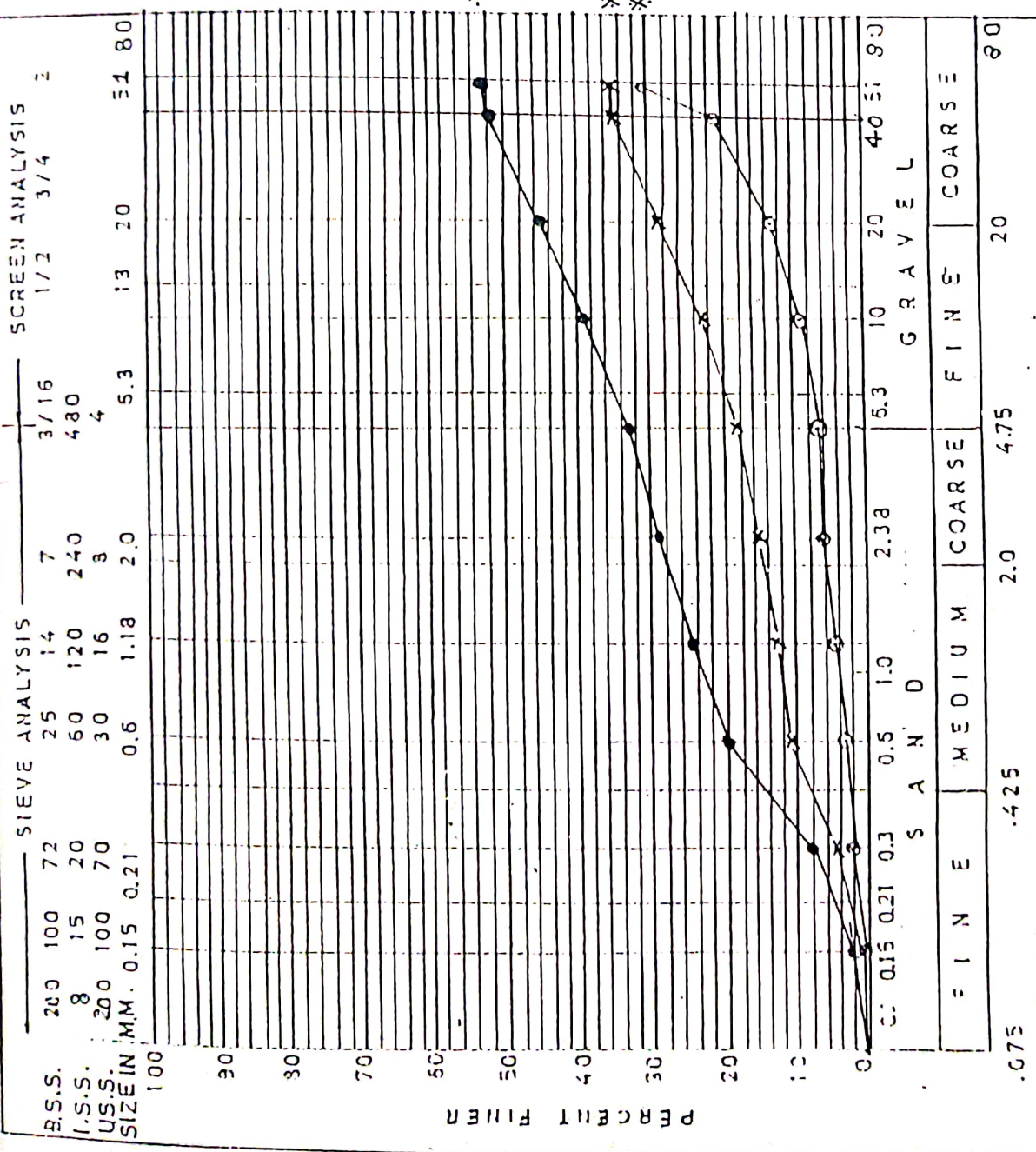
(Signature)
 (H.N. Sharma)
 Executive Engineer

(Signature)
 (S.K. Sharma)
 2.3.72

Sandy

Reference of Technical Memorandum Issued Earlier

Sl.No.	Full Name	No.	Date of Issue
1.	Mix Design Regarding Roller compacted concrete for Jamrani Dam	57(MT-33)	March 1967
2.	Roller compacted concrete for Jamrani Dam	J-3	May 1990
3.	Laboratory Test for coarse and fine Aggregate of River Gola for Jamrani Dam Project.	61-TR(MT-34)	October 1990
4.	Laboratory Test for coarse and fine Aggregate of River Gola for Jamrani Dam Project.	62-TR(MT-9)	June 1991



LEGEND

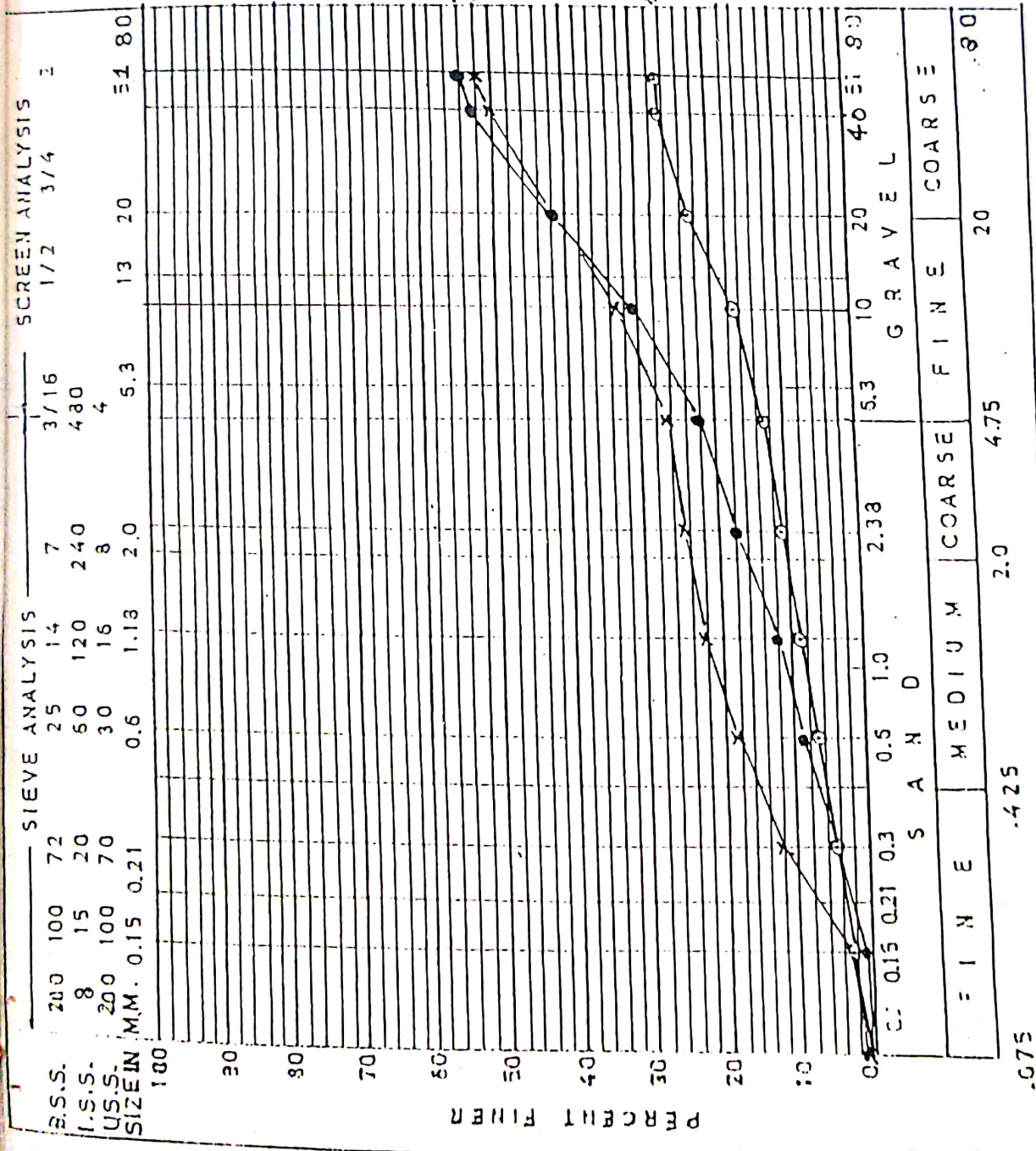
SL.NO. LOCATION OF SAMPLE

- 1. PIT NO. 1L
- 2. PIT NO. 2R
- 3. PIT NO. 3L

U. P. I. R. I. ROORKEE
 JAMRANI DAM PROJECT
 GRADATION CURVES OF
 PIT NO. 1L, 2R, 3L
 DRAWN BY *[Signature]*
 TRACED BY *[Signature]*
 DATE *[Date]*

GRAIN SIZE IN mm
 (I.S. CLASSIFICATION 1498 - 1970)

* % OF ABOVE 50mm SIZE PARTICLES AS REPORTED BY SITE AUTHORITIES



LEGEND

SL.NO. LOCATION OF SAMPLE

- 1. PIT NO. 4R ○
- 2. PIT NO. 5L ●
- 3. PIT NO. 11C x

U. P. I. R. I. ROORKEE

JAMRANI DAM PROJECT

GRADATION CURVES OF

PIT NO. 4R, 5L, 11C

DRAWN BY *[Signature]*

TRACED BY *[Signature]*

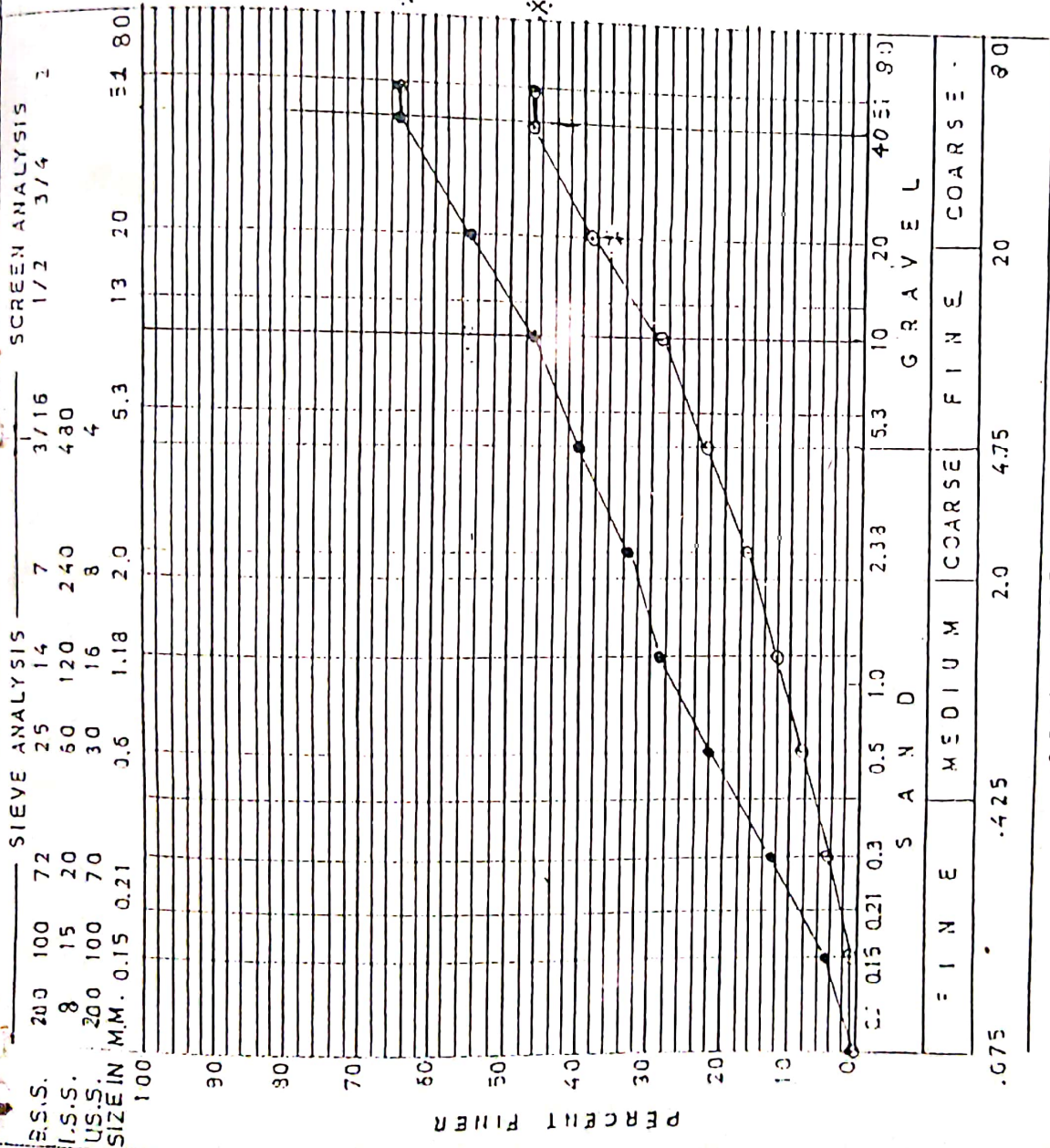
DATE *[Signature]*

2

GRAIN SIZE IN mm

(I.S. CLASSIFICATION 1498 - 1970)

% OF ABOVE 50mm SIZE PARTICLES AS REPORTED BY SITE AUTHORITIES



GRAIN SIZE IN MM
(I.S. CLASSIFICATION 1498 - 1970)

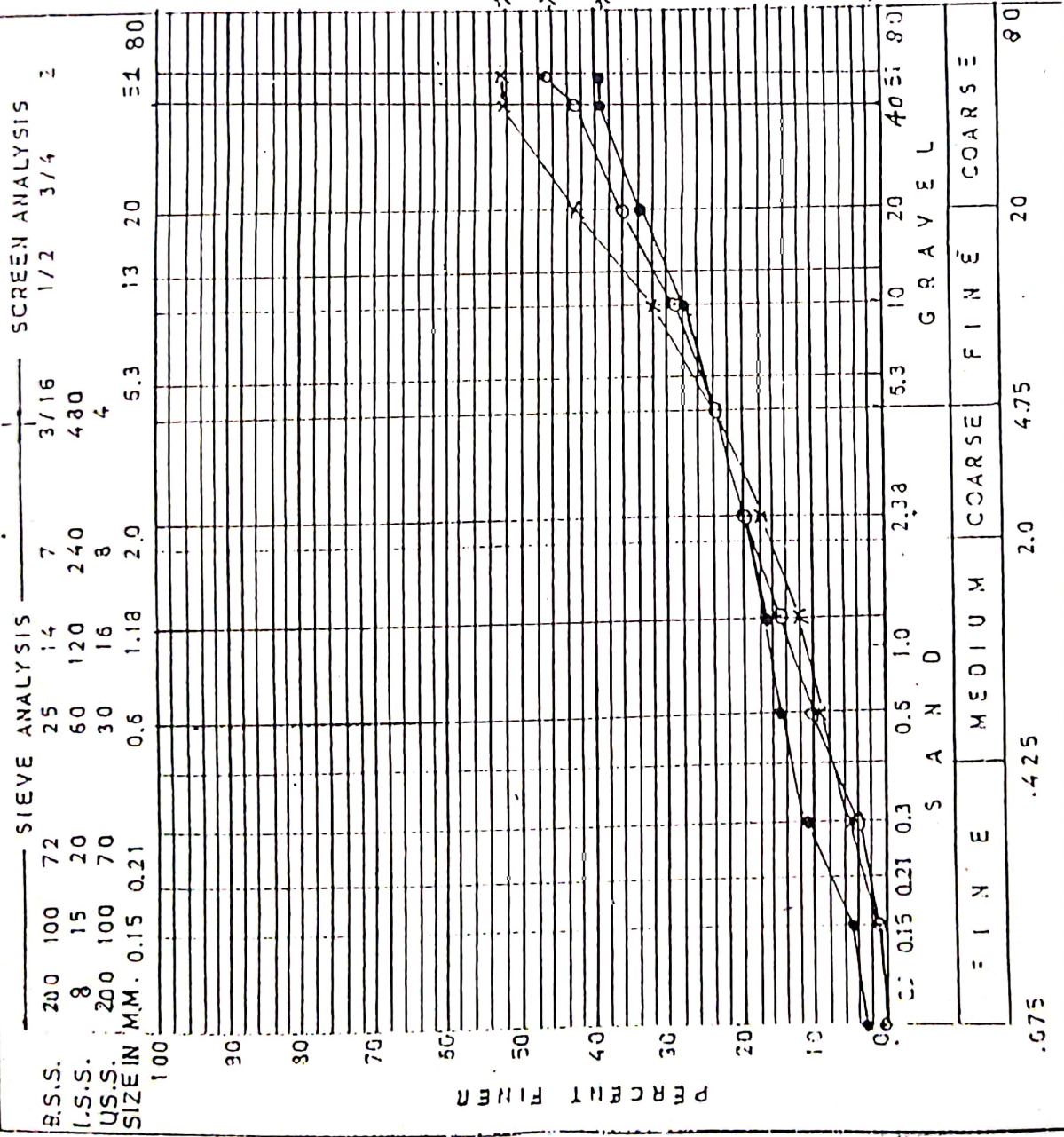
※ ※ % OF ABOVE 50mm SIZE PARTICLES AS REPORTED BY SITE AUTHORITIES

LEGEND

SL.NO. LOCATION OF SAMPLE

- 1. PIT NO. 19
- 2. PIT NO. 20

U. P. I. R. I. ROORKEE
JAMRANI DAM PROJECT
GRADATION CURVES OF
PIT NO. 19, 20
DRAWN BY <i>[Signature]</i>
TRACED BY <i>[Signature]</i>
DATE <i>[Signature]</i>
003 NO. 3



LEGEND

- SL.NO. LOCATION OF SAMPLE
- 1. PIT NO. 24 ○
 - 2. PIT NO. 25 ●
 - 3. PIT NO. 27 X

U. P. I. R. I. ROORKEE

JAMRANI DAM PROJECT

GRADATION CURVES OF

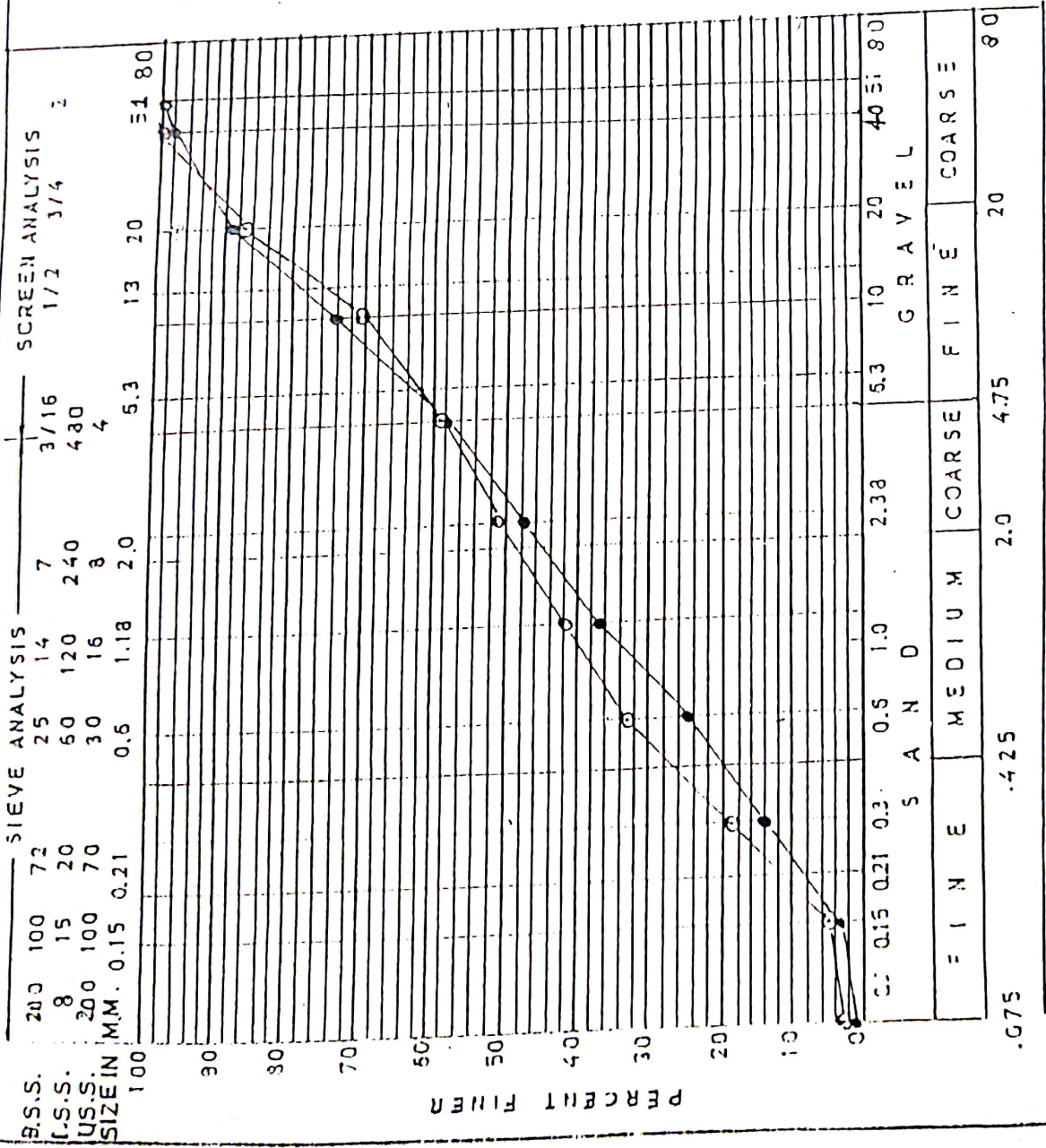
PIT NO. 24, 25, 27

DRAWN BY *[Signature]* DATE *[Date]*

TRACED BY *[Signature]* DATE *[Date]*

DESIGN NO. 4

* * * % OF ABOVE 50 mm SIZE PARTICLES AS REPORTED BY SITE AUTHORITIES



LEGEND

SL.NO. LOCATION OF SAMPLE

- 1. PIT NO. 6
- 2. PIT NO. 7

U. P. I. R. I. ROORKEE	
JAMBANI DAM PROJECT	
GRADATION CURVES OF	
PIT NO. 6, 7	
DRAWN BY: <u>SAE IV</u>	TRACED BY: <u>SAE IV</u>
DATE: <u>22.12.71</u>	

