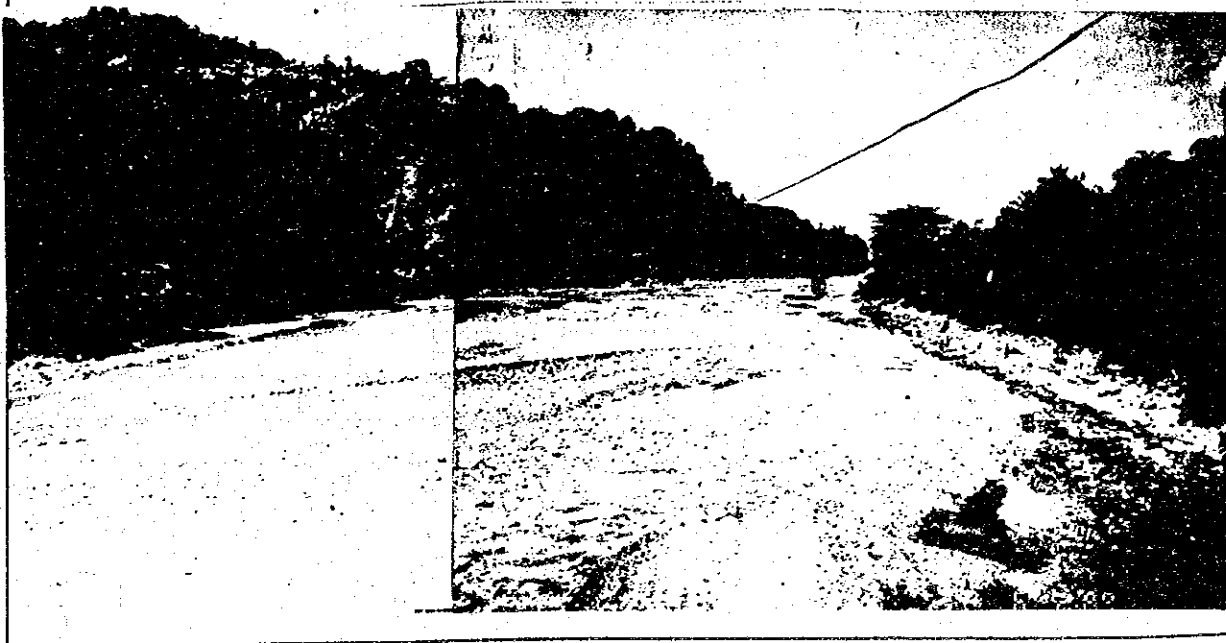


DATA SHEET (1/4) FOR RIVER BED MATERIALS SURVEY

1. SAMPLING

Sample No.	Bu-3		
River / Irrigation Canal	BUED RIVER		
Location	Camp 1; Tuba Benguet		
Date of Sampling	June 2, 1989		
Sampled by	M. KATAYAMA		
Condition of Sampling of Site	Breadth (Bank to Bank)	100 m	
	Bed Materials	Cobble, Gravel Sand	
	Others		

Discription of Sample		
Average Size of Armour Coats	100 mm	
Characteristics Observed by the Eyes		
1) Materials	Cobble Gravel Sand	
2) Shape	Round	
3) Colour	Gray	
4) Others		



DATA SHEET (2/4) FOR RIVER BED MATERIALS SURVEY

2. GRADATION ANALYSIS

Sample No. : Bu-3
 Date of Test: June 8, 1989
 Tested by : _____

2-1 Particles Greater than 100 mm.

Total Weight of Materials Smaller than 100 mm. $W_s = 52.0$ kg.
 Total Weight of Materials Greater than 100 mm. $W_g = 1.5$ kg.

(1) Particle Size (Diameter) d	(2) Particle Weight w (d)	(3) Total Weight of Particles Smaller than d: wt(d)	(4) Percentage of Particles Smaller than d Pt(d)	Dimensions (mm.)		
				Length	Width	Thickness
100 mm.	1.5 kg.	53.5 kg.	100 %	170	120	70

(4) = $Wt(d)/(W_s + W_g) \times 100$

2-2 Sieve Test

Total Weight of Sample for Sieve Test $W_t = 32,000$ gr.

(1) Sieve Size Ds	(2) Weight of Par- ticles Retained on Sieve W(Ds)	(3) Percentage of Particles Retained on Sieve Ds Pr(Ds)	(4) Percentage of Particles Passing Sieve Ds Pp(Ds)	(5) Percentage of Total Particles Passing Sieve Ds Pt(Ds)	Remarks
	gr.	%	%	%	
76.2 mm. (3")					
50.8 (2")	7,652	23.91	76.09	73.81	
38.1 (1 1/2")	5,018	15.68	60.41	58.60	
25.4 (1")	4,610	14.41	46	44.62	
19.1 (3/4")	1,789	5.59	40.41	39.20	
9.52 (3/8")	2,477	7.74	32.67	31.69	
4.76 (No. 4)	1,935	6.05	26.62	25.82	
2.00 (No. 10)	2,178	6.81	19.81	19.22	
1.18 (No. 16)	1,642	5.13	14.68	14.24	
0.42 (No. 40)	3,644	11.39	3.29	3.19	
0.297 (No. 50)	429	1.34	1.95	1.89	
0.150 (No. 100)	475	1.48	.47	.46	
0.074 (No. 200)	67	.21	.26	.25	

(5) = (4) x $W_s/(W_s+W_g)$

DATA SHEET (3/4) FOR RIVER BED MATERIALS SURVEY

Sample No. : BU-3
 Date of Test: June 9, 1960
 Tested by : _____

2-3 Hydrometer Test

Weight of Sample for Hydrometer test : $W_h =$ _____ gr.
 Specific Gravity : $G_s =$ _____
 Percentage of Total Particles Passing 0.074 mm. Sieve; $P_t (0.074) =$ _____ %

(1) Period of Sedimentation	(2) Maximum Diameter of Particles in Suspension	(3) Percentage of Particles in Suspension	(4) Percentage of Particles Suspen- sion out of Total Sample	Remarks
2 min.	mm.	%	%	
5				
15				
30				
60				
240				
1440				

$$(4) = (3) \times P_t (0.074) / 100$$

3. SPECIFIC GRAVITY TEST

3-1 Particles Smaller than 0.074 mm.

(1) Weight of Bottle Filled with Water	gr.
(2) Weight of Oven-dry Particles	gr.
(3) Weight of Bottle Filled with Particles and Water	gr.
(4) Specific Gravity	

$$(4) = \frac{(3)}{(1) + (2) - (3)}$$

3-2 Particles Greater than 0.074 mm. and Smaller than 9.52 mm.

Case No.	1	2	Average
(1) Weight of Water Added to Flask	317 gr.	316 gr.	-
(2) Volume of Flask	500 ml.	500 ml.	-
(3) Specific Gravity (Saturated Surface-dry Basis)	2.73	2.72	2.725

$$(3) = \frac{500}{(2) - (1)}$$

3-3 Particles Greater than 9.52 mm.

Case No.	1	2	Average
(1) Weight of Saturated Surface-Dry Sample in Air	7771 gr.	9618 gr.	-
(2) Weight of Saturated Sample in Water	4900 gr.	6155	-
(3) Specific Gravity (Saturated Surface-dry Basis)	2.71	2.78	2.745

$$(3) = (1) / ((1) - (2))$$

DATA SHEET (4/4) FOR RIVER BED MATERIALS SURVEY

1. REPORT

Station no. : BU-3	River/Channel : RUD	Location : Camp 1, Donion
Date of Sampling : June 2, 1989	Date of Gravel Size Analysis : June 8, 1989	Date of Specific Gravity Test : June 9, 1989

1-1 Specific Gravity

Range of Particle Size	less than 0.075 (No. 200)	0.075 mm - 4.75 mm	Greater than 4.75 mm
Specific Gravity		2.725	2.745

1-2 Gradation

Particle Size (mm)	Percentage of Passing (%)	Particle Size (mm)	Percentage of Passing (%)	Particle Size (mm)	Percentage of Passing (%)	Particle Size (mm)	Percentage of Passing (%)
100	100	7.5		5.0	79.22		
		10.0	73.81	1.18	74.24		
		15.0	58.60	0.42	3.19		
		25.0	44.62	0.25	1.89		
		30.0	39.20	0.15	.46		
		37.5	31.69	0.075	0.25		
		4.75	25.82				

Percentage According to Classification of Materials

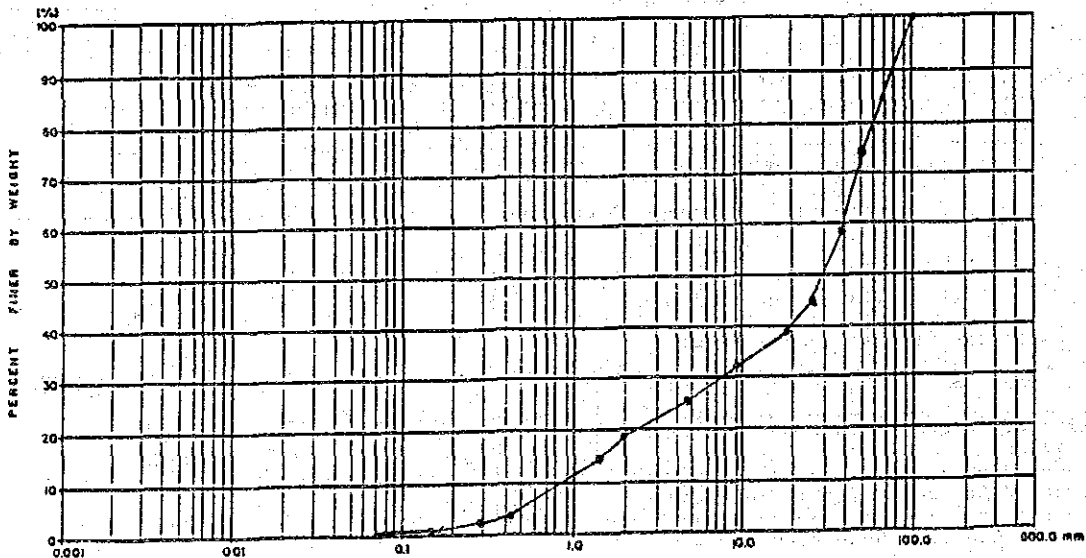
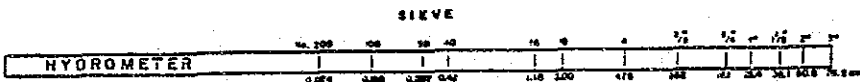
Classification	Range of Particle Size	Percentage	Classification	Range of Particle Size	Percentage
Boulder	Greater than 300 mm	0%	fine sand	0.075 - 0.425 mm	2.04%
Cobbles	75.0 - 300 mm	11%	silt	0.075 - 0.075 mm	
Gravel	2.0 - 75.0 mm	59.78%	clay	0.001 - 0.001 mm	
Coarse Sand	0.425 - 2.0 mm	16.03%	siltoids	Smaller than 0.001 mm	

10% Particle Size $D_{10} = 0.85$ mm

30% Particle Size $D_{30} = 30.0$ mm

60% Particle Size $D_{60} = 40$ mm

Uniformity Coefficient $U_c = D_{60}/D_{10} = 47.1$



CLAY	SILT	FINE SAND	GRAVEL	COBBLES	BOULDER
		COARSE SAND			

DATA SHEET (1/4) FOR RIVER BED MATERIALS SURVEY

I. SAMPLING

Sample No.	Ar-1		
River / Irrigation Canal	ARIS MAIN		
Location	San Roque, San Manuel Pangasinan		
Date of Sampling	May 31, 1980		
Sampled by	M. KATAYAMA		
Condition of Sampling of Site	Breadth (Bank to Bank)	10 m	
	Bed Materials	Coarse Sand	
	Others		

Discription of Sample		
Average Size of Armour Coats	mm	
Characteristics Observed by the Eyes 1) Materials : Coarse Sand 2) Shape : 3) Colour : Gray 4) Others :		



DATA SHEET (2/4) FOR RIVER BED MATERIALS SURVEY

2. GRADATION ANALYSIS

Sample No. : Ar-1
 Date of Test: June 7, 1989
 Tested by : _____

2-1 Particles Greater than 100 mm.

Total Weight of Materials Smaller than 100 mm. WS = _____ kg.
 Total Weight of Materials Greater than 100 mm. Wg = 0 kg.

(1) Particle Size (Diameter) d	(2) Particle Weight w (d)	(3) Total Weight of Particles Smaller than d: wt(d)	(4) Percentage of Particles Smaller than d Pt(d)	Dimensions (mm.)		
				Length	Width	Thickness
mm.	kg.	kg.	%	:	:	:

(4) = $Wt(d)/(Ws + Wg) \times 100$

2-2 Sieve Test

Total Weight of Sample for Sieve Test Wt = 1,000 gr.

(1) Sieve Size Ds	(2) Weight of Particles Retained on Sieve W(Ds)	(3) Percentage of Particles Retained on Sieve Pr(Ds)	(4) Percentage of Particles Passing Sieve Pp(Ds)	(5) Percentage of Total Particles Passing Sieve Pt(Ds)	Remarks
	gr.	%	%	%	
76.2 mm. (3")	0	0	100	100	
50.8 (2")	0	0	100	100	
38.1 (1 1/2")	0	0	100	100	
25.4 (1")	0	0	100	100	
19.1 (3/4")	0	0	100	100	
9.52 (3/8")	.10	0.01	99.99	99.99	
4.76 (No. 4)	5.00	.50	99.49	99.49	
2.00 (No. 10)	26.0	2.60	96.86	96.86	
1.18 (No. 16)	67	6.70	90.19	90.19	
0.42 (No. 40)	497	49.7	40.49	40.49	
0.297 (No. 50)	231	23.10	17.39	17.39	
0.150 (No. 100)	155	15.5	1.89	1.89	
0.074 (No. 200)	14	1.4	0.49	0.49	

(5) = (4) x Ws/(Ws+Wg)

DATA SHEET (3/4) FOR RIVER BED MATERIALS SURVEY

Sample No. : An 1
 Date of Test: June 8, 1969
 Tested by :

2-3 Hydrometer Test

Weight of Sample for Hydrometer test : Wh = _____ gr.
 Specific Gravity : Gs = _____
 Percentage of Total Particles Passing 0.074 mm. Sieve: Pt (0.074) = _____ %

(1) Period of Sedimentation	(2) Maximum Diameter of Particles in Suspension	(3) Percentage of Particles in Suspension	(4) Percentage of Particles Suspen- sion out of Total Sample	Remarks
2 min.	mm.	%	%	
5				
15				
30				
60				
240				
1440				

(4) = (3) x Pt (0.074)/100

3. SPECIFIC GRAVITY TEST

3-1 Particles Smaller than 0.074 mm.

(1) Weight of Bottle Filled with Water	gr.
(2) Weight of Oven-dry Particles	gr.
(3) Weight of Bottle Filled with Particles and Water	gr.
(4) Specific Gravity	

(4) = $\frac{(3)}{(1) + (2) - (3)}$

3-2 Particles Greater than 0.074 mm. and Smaller than 9.52 mm.

Case No.	1	2	Average
(1) Weight of Water Added to Flask	322 gr.	320 gr.	-
(2) Volume of Flask	500 ml.	500 ml.	-
(3) Specific Gravity (Saturated Surface-dry Basis)	2.81	2.78	2.79

(3) = $\frac{500}{(2) - (1)}$

3-3 Particles Greater than 9.52 mm.

Case No.	1	2	Average
(1) Weight of Saturated Surface-Dry Sample in Air	gr.	gr.	-
(2) Weight of Saturated Sample in Water	gr.		-
(3) Specific Gravity (Saturated Surface-dry Basis)			

(3) = (1)/((1) - (2))

DATA SHEET (4/4) FOR RIVER BED MATERIALS SURVEY

1. REPORT

Sample No.	Ar-1	River/Canal	ARIS Main	Location	Sn. Roque
Date of Sampling	May 31, 1980	Date of Examination	June 7, 1980	Date of Specific Gravity test	June 8, 1989

1-1 Specific Gravity

Range of Particle Size	Less than 0.075 mm - 0.075 mm - 2.50 mm	Greater than 2.50 mm
Specific Gravity	2.79	

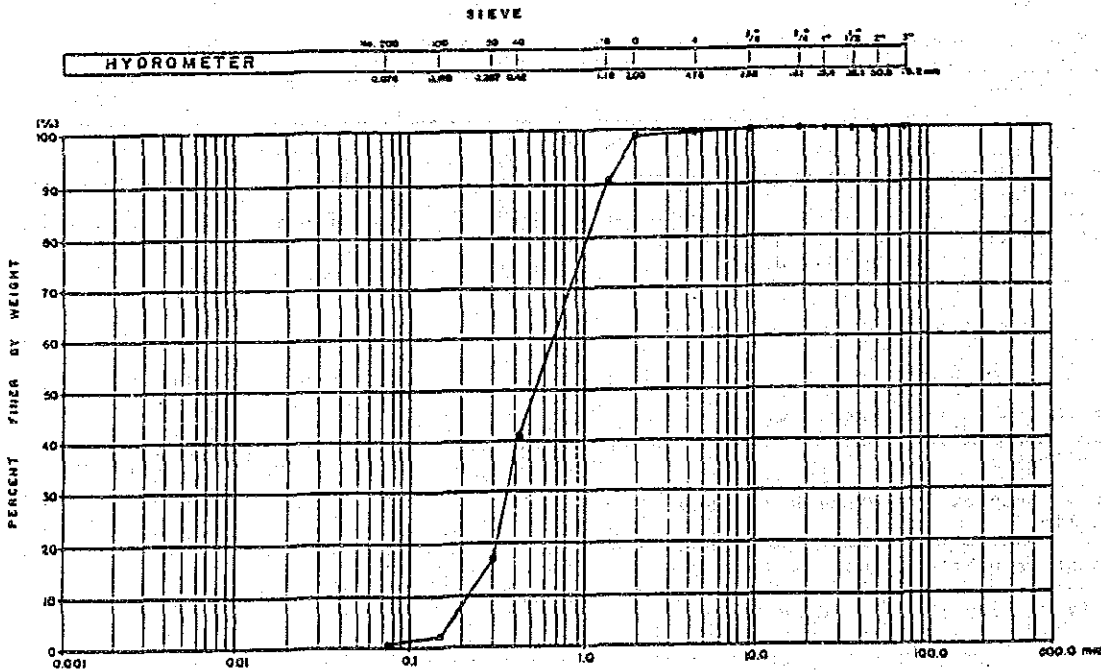
1-2 Gradation

Particle Size (mm)	Percentage of Passing (%)	Particle Size (mm)	Percentage of Passing (%)	Particle Size (mm)	Percentage of Passing (%)	Particle Size (mm)	Percentage of Passing (%)
75		1.18	100	2.50	98.86		
47.5		4.75	100	4.75	90.10		
25		7.5	100	7.5	40.40		
15		15	100	15	17.39		
7.5		30	100	30	1.89		
4.75		60	99.99	60	0.49		
2.5		125	99.49				

Percentage According to Classification of Materials

Classification	Range of Particle Size	Percentage	Classification	Range of Particle Size	Percentage
Boulder	Greater than 75 mm	0	fine sand	0.075 - 0.425 mm	40.0
Cobbles	75 - 250 mm	0	silt	0.075 - 0.075 mm	
Gravel	2.5 - 75 mm	1.14	clay	0.001 - 0.001 mm	
Coarse Sand	0.425 - 4.75 mm	58.37	silts	Smaller than 0.075 mm	

10% Particle Size 0.25 mm 50% Particle Size 0.5 mm
 60% Particle Size 0.7 mm Uniformity Coefficient $C_u = 0.67/0.10 = 3.33$



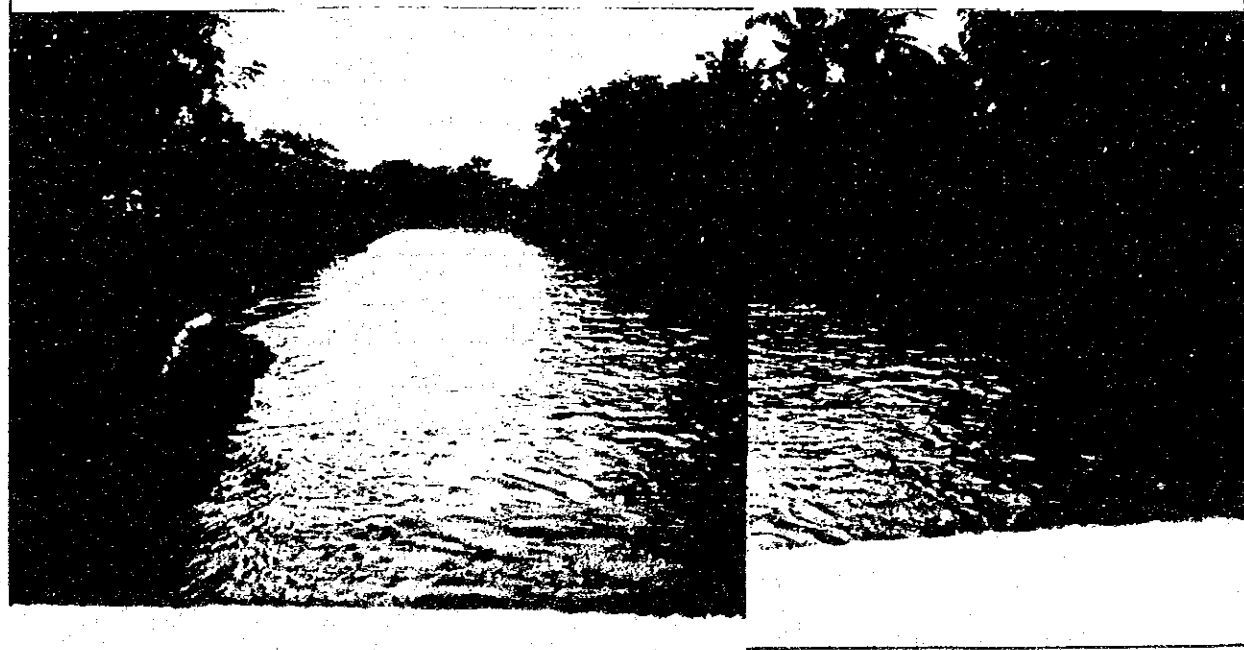
CLAY	SILT	FINE SAND		GRAVEL	COBBLES	BOULDER

DATA SHEET (1/4) FOR RIVER BED MATERIALS SURVEY

1. SAMPLING

Sample No.	Ar-2		
River / Irrigation Canal	ARIS Main		
Location	San Manuel, Pangasinan		
Date of Sampling	May 31, 1989		
Sampled by	M. KATAYAMA		
Condition of Sampling of Site	Breadth (Bank to Bank)	10 m	
	Bed Materials	Coarse Sand	
	Others		

Discription of Sample		
Average Size of Armour Coats	mm	
Characteristics by the Eyes	Observed	
1) Materials :	Coarse Sand	
2) Shape :		
3) Colour :	Gray	
4) Others :		



DATA SHEET (2/4) FOR RIVER BED MATERIALS SURVEY

2. GRADATION ANALYSIS

Sample No. : Ar-2
 Date of Test: June 7, 1989
 Tested by : _____

2-1 Particles Greater than 100 mm.

Total Weight of Materials Smaller than 100 mm. WS = _____ kg.
 Total Weight of Materials Greater than 100 mm. Wg = 0 kg.

(1) Particle Size (Diameter) d	(2) Particle Weight w (d)	(3) Total Weight of Particles Smaller than d wt(d)	(4) Percentage of Particles Smaller Pt(d)	Dimensions (mm.)		
				Length	Width	Thickness
mm.	kg.	kg.	%			

(4) = $Wt(d)/(Ws + Wg) \times 100$

2-2 Sieve Test

Total Weight of Sample for Sieve Test Wt = 1,000 gr.

(1) Sieve Size Ds	(2) Weight of Particles Retained on Sieve W(Ds)	(3) Percentage of Particles Retained on Sieve Ds Pr(Ds)	(4) Percentage of Particles Passing Sieve Ds Pp(Ds)	(5) Percentage of Total Particles Passing Sieve Pt(Ds)	Remarks
	gr.	%	%	%	
76.2 mm. (3")	0	0	100	100	
50.8 (2")	0	0	100	100	
38.1 (1 1/2")	0	0	100	100	
25.4 (1")	0	0	100	100	
19.1 (3/4")	0	0	100	100	
9.52 (3/8")	49	4.9	95.1	95.1	
4.76 (No. 4)	102	10.2	84.9	84.9	
2.00 (No. 10)	105	10.5	74.4	74.4	
1.18 (No. 16)	108	10.8	63.6	63.6	
0.42 (No. 40)	395	39.5	24.1	24.1	
0.297 (No. 50)	153	15.3	8.8	8.8	
0.150 (No. 100)	81	8.1	0.7	0.7	
0.074 (No. 200)	4	0.4	0.3	0.3	

(5) = (4) x Ws/(Ws+Wg)

DATA SHEET (3/4) FOR RIVER BED MATERIALS SURVEY

Sample No. : Am-2
 Date of Test: _____
 Tested by : _____

2-3 Hydrometer Test

Weight of Sample for Hydrometer test : Wh = _____ gr.
 Specific Gravity : Gs = _____
 Percentage of Total Particles Passing 0.074 mm. Sieve: Pt (0.074) = _____%

(1) Period of Sedimentation	(2) Maximum Diameter of Particles in Suspension	(3) Percentage of Particles in Suspension	(4) Percentage of Particles Suspen- sion out of Total Sample	Remarks
2 min.	mm.	%	%	
5				
15				
30				
60				
240				
1440				

(4) = (3) x Pt (0.074)/100

3. SPECIFIC GRAVITY TEST

3-1 Particles Smaller than 0.074 mm.

(1) Weight of Bottle Filled with Water	gr.
(2) Weight of Oven-dry Particles	gr.
(3) Weight of Bottle Filled with Particles and Water	gr.
(4) Specific Gravity	

(4) = $\frac{(3)}{(1) + (2) - (3)}$

3-2 Particles Greater than 0.074 mm. and Smaller than 9.52 mm.

Case No.	1	2	Average
(1) Weight of Water Added to Flask	311 gr.	318 gr.	-
(2) Volume of Flask	500 ml.	500 ml.	-
(3) Specific Gravity (Saturated Surface-dry Basis)	2.64	2.75	2.69

(3) = $\frac{500}{(2) - (1)}$

3-3 Particles Greater than 9.52 mm.

Case No.	1	2	Average
(1) Weight of Saturated Surface-Dry Sample in Air	gr.	gr.	-
(2) Weight of Saturated Sample in Water	gr.		-
(3) Specific Gravity (Saturated Surface-dry Basis)			

(3) = $\frac{(1)}{(1) - (2)}$

DATA SHEET (1/1) FOR RIVER BED MATERIALS SURVEY

1. REPORT

Sample No. : Ar-2	River/Canal : ARIS	Location : San Manuel
Date of Sampling : May 31, 1989	Date of Gravel Analysis : June 7, 1989	Date of Specific Gravity test : June 8, 1989

1-1 Specific Gravity

Range of Particle Sizeless than 0.075 mm. - 0.30 mm.	Greater than 0.30 mm.
Specific Gravity	2.69

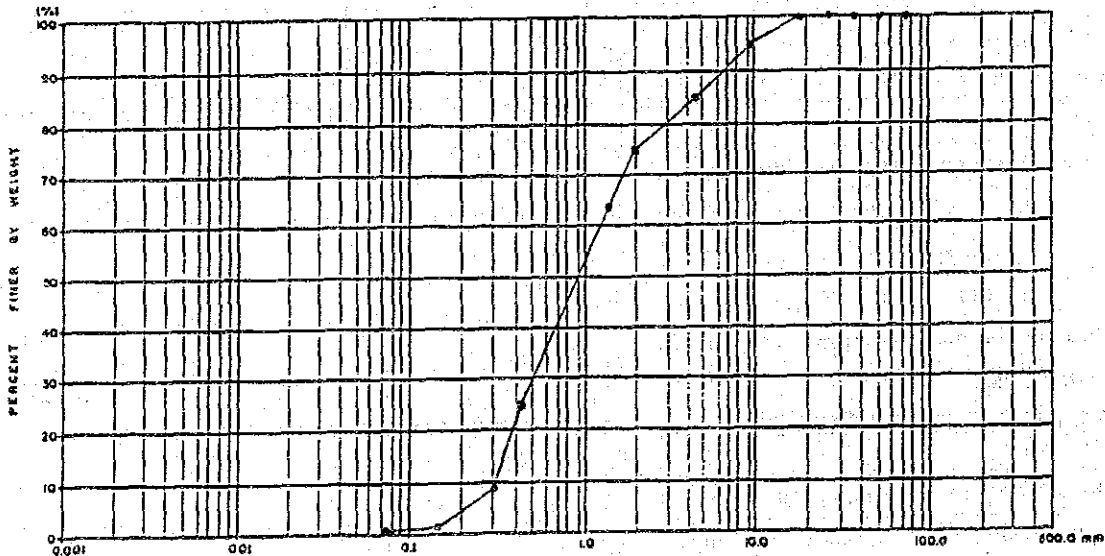
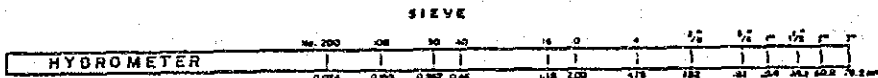
1-2 Gradation

Particle Size (mm.)	Percentage of Passing (%)	Particle Size (mm.)	Percentage of Passing (%)	Particle Size (mm.)	Percentage of Passing (%)	Particle Size (mm.)	Percentage of Passing (%)
75	100	2.0	74.4	4.75	63.6	75	0
4.75	100	1.18	24.7	2.5	8.8	75	0
2.5	100	0.85	0.7	2.0	0.3	75	0
0.85	95.7	0.425	84.0				

Percentage according to Classification of Materials

Classification	Range of Particle Size	Percentage	Classification	Range of Particle Size	Percentage
Soilder	Greater than 300 mm	0	fine sand	0.075 - 0.425 mm.	23.8
Cobbles	76.2 - 300 mm	0	silt	0.075 - 0.075 mm.	
Gravel	2.0 - 76.2 mm	25.6	clay	0.001 - 0.005 mm.	
Coarse Sand	0.425 - 2.0 mm.	50.3	silt/clay	Smaller than 0.005 mm.	

10% Particle Size $D_{10} = 0.3$ mm. 50% Particle Size $D_{50} = 0.87$ mm.
 90% Particle Size $D_{90} = 1.1$ mm. Uniformity Coefficient $C_u = 0.60/0.10 = 3.67$



CLAY	SILT	FINE SAND	COARSE SAND	GRAVEL	COBBLES	BOULDER

DATA SHEET (1/4) FOR RIVER BED MATERIALS SURVEY

1. SAMPLING

Sample No.	Ar-3		
River / Irrigation Canal	ARIS MAIN		
Location	Sobol, Asingan Pangasinan		
Date of Sampling	June 2, 1989		
Sampled by	H. KATAYAMA		
Condition of Sampling of Site	Breadth (Bank to Bank)	10 m	
	Bed Materials	Coarse Sand	
	Others		

Discription of Sample		
Average Size of Armour Coats	mm	
Characteristics Observed by the Eyes		
1) Materials :	Coarse Sand	
2) Shape :		
3) Colour :	Gray	
4) Others :		



DATA SHEET (2/4) FOR RIVER BED MATERIALS SURVEY

2. GRADATION ANALYSIS

Sample No. : Am-3

Date of Test: June 15, 1980

Tested by : _____

2-1 Particles Greater than 100 mm.

Total Weight of Materials Smaller than 100 mm. $W_s =$ _____ kg.

Total Weight of Materials Greater than 100 mm. $W_g =$ _____ kg.

(1) Particle Size (Diameter) d	(2) Particle Weight w (d)	(3) Total Weight of Particles Smaller than d wt(d)	(4) Percentage of Particles Smaller than d Pt(d)	Dimensions (mm.)		
				Length	Width	Thickness
mm.	kg.	kg.	%			

(4) = $W_t(d)/(W_s + W_g) \times 100$

2-2 Sieve Test

Total Weight of Sample for Sieve Test $W_t =$ 1,000 gr.

(1) Sieve Size Ds	(2) Weight of Particles Retained on Sieve W(Ds)	(3) Percentage of Particles Retained on Sieve Pr(Ds)	(4) Percentage of Particles Passing Sieve Pp(Ds)	(5) Percentage of Total Particles Passing Sieve Pt(Ds)	Remarks
	gr.	%	%	%	
76.2 mm. (3")	0	0			
50.8 (2")	0	0	100	100	
38.1 (1 1/2")	0	0	100	100	
25.4 (1")	0	0	100	100	
19.1 (3/4")	0	0	100	100	
9.52 (3/8")	0	0	100	100	
4.76 (No. 4)	4.90	.49	99.51	99.51	
2.00 (No. 10)	13.30	1.33	98.18	98.18	
1.18 (No. 16)	397.00	39.70	58.48	58.48	
0.42 (No. 40)	223.80	22.38	36.10	36.10	
0.297 (No. 50)	351.70	35.17	0.93	0.93	
0.150 (No. 100)	5.00	0.5	0.43	0.43	
0.074 (No. 200)	4.3	0.43	0	0	

(5) = (4) x $W_s/(W_s+W_g)$

DATA SHEET (3/4) FOR RIVER BED MATERIALS SURVEY

Sample No. : Ar-3
 Date of Test: JUNE 16, 1960
 Tested by : _____

2-3 Hydrometer Test

Weight of Sample for Hydrometer test : Wh = _____ gr.
 Specific Gravity : Gs = _____
 Percentage of Total Particles Passing 0.074 mm. Sieve: Pt (0.074) = _____%

(1) Period of Sedimentation	(2) Maximum Diameter of Particles in Suspension	(3) Percentage of Particles in Suspension	(4) Percentage of Particles Suspen- sion out of Total Sample	Remarks
2 min.	mm.	%	%	
5				
15				
30				
60				
240				
1440				

$$(4) = (3) \times Pt (0.074) / 100$$

3. SPECIFIC GRAVITY TEST

3-1 Particles Smaller than 0.074 mm.

(1) Weight of Bottle Filled with Water	gr.
(2) Weight of Oven-dry Particles	gr.
(3) Weight of Bottle Filled with Particles and Water	gr.
(4) Specific Gravity	

$$(4) = \frac{(3)}{(1) + (2) - (3)}$$

3-2 Particles Greater than 0.074 mm. and Smaller than 9.52 mm.

Case No.	1	2	Average
(1) Weight of Water Added to Flask	313 gr.	314 gr.	-
(2) Volume of Flask	500 ml.	500 ml.	-
(3) Specific Gravity (Saturated Surface-dry Basis)	2.67	2.69	2.68

$$(3) = \frac{500}{(2) - (1)}$$

3-3 Particles Greater than 9.52 mm.

Case No.	1	2	Average
(1) Weight of Saturated Surface-Dry Sample in Air	gr.	gr.	-
(2) Weight of Saturated Sample in Water	gr.		-
(3) Specific Gravity (Saturated Surface-dry Basis)			

$$(3) = (1) / ((1) - (2))$$

DATA SHEET (1/1) FOR RIVER BED MATERIALS SURVEY

1. REPORT

Sample No. :	Ar-3	River/Canal :	ARTS UAIN	Location :	Sobol, Asingan
Date of Sampling :	June 2, 1989	Date of Graining :	June 15, 1989	Date of Specific Gravity test :	June 16, 1989

(1-1) Specific Gravity

Range of Particle Sizes less than 0.075 mm, 0.075 mm - 0.50 mm, Greater than 0.50 mm.
Specific Gravity
2.68

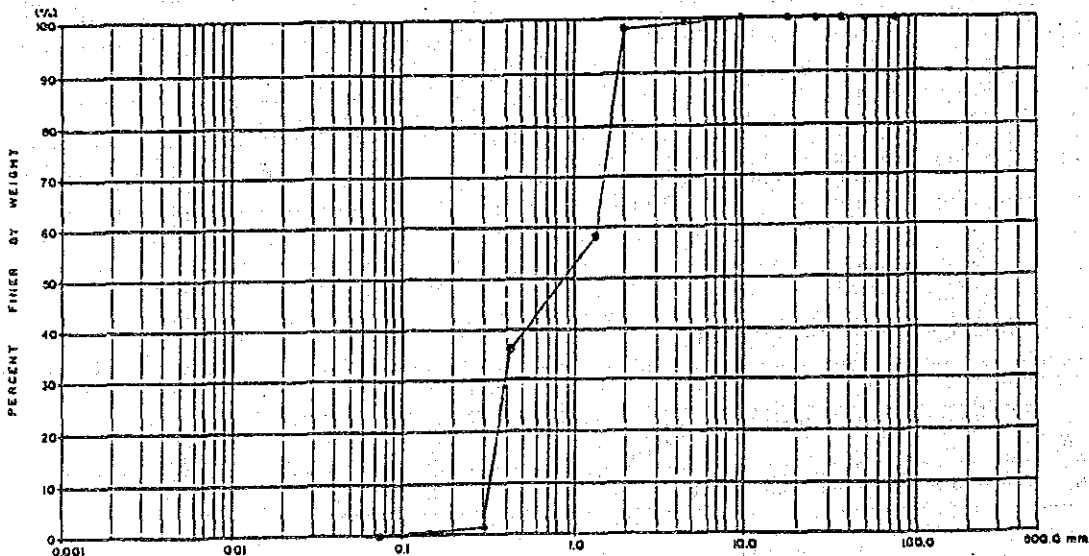
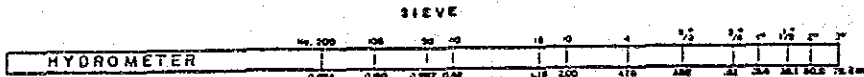
(1-2) Gradation

Particle Size (mm)	Percentage of Passing (%)	Particle Size (mm)	Percentage of Passing (%)	Particle Size (mm)	Percentage of Passing (%)	Particle Size (mm)	Percentage of Passing (%)
75	100	2.0	98.18				
300	100	0.84	58.48				
4.75	100	0.425	36.10				
75	100	0.25	0.93				
4.75	100	0.15	0.43				
0.075	100	0.075	0				
0.075	99.51						

Percentage According to Classification of Materials

Classification	Range of Particle Size	Percentage	Classification	Range of Particle Size	Percentage
Boulder	Greater than 300 mm	0 %	fine sand	0.075 - 0.425 mm	36.1 %
Cobble	75 - 300 mm	0	silt	0.075 - 0.075 mm	
Gravel	2.0 - 75 mm	1.82	clay	0.001 - 0.001 mm	
Coarse Sand	0.425 - 2.0 mm	62.08	colloids	Smaller than 0.001 mm	

10% Particle Size 0.3 mm 10% Particle Size 0.90 mm
 60% Particle Size 0.60 mm Uniformity Coefficient $C_u = 0.90/0.3 = 4.67$



CLAY	SILT	FINE SAND	COARSE SAND	GRAVEL	COBBLES	BOULDER
		SAND				

DATA SHEET (1/4) FOR RIVER BED MATERIALS SURVEY

1. SAMPLING

Sample No.	Ar-4		
River / Irrigation Canal	ARIS Main		
Location	Yatyat, Binalonan Pangasinan		
Date of Sampling	June 2, 1989		
Sampled by	M. KATAYAMA		
Condition of Sampling of Site	Breadth (Bank to Bank)	8 m	
	Bed Materials	Sand	
	Others		

Discription of Sample		
Average Size of Armour Coats	mm	
Characteristics Observed by the Eyes		
1) Materials : Sand 2) Shape : 3) Colour : Gray 4) Others :		



DATA SHEET (2/4) FOR RIVER BED MATERIALS SURVEY

2. GRADATION ANALYSIS

Sample No. : Ar-4
 Date of Test: June 15, 1989
 Tested by : _____

2-1 Particles Greater than 100 mm.

Total Weight of Materials Smaller than 100 mm. $W_s =$ _____ kg.

Total Weight of Materials Greater than 100 mm. $W_g =$ _____ kg.

(1) Particle Size (Diameter) d	(2) Particle Weight w (d)	(3) Total Weight of Particles Smaller than d: wt(d)	(4) Percentage of Particles Smaller than d Pt(d)	Dimensions (mm.)		
mm.	kg.	kg.	%	Length	Width	Thickness

(4) = $Wt(d)/(W_s + W_g) \times 100$

2-2 Sieve Test

Total Weight of Sample for Sieve Test $W_t =$ 1000 gr.

(1) Sieve Size Ds	(2) Weight of Particles Retained on Sieve W(Ds)	(3) Percentage of Particles Retained on Sieve Pr(Ds)	(4) Percentage of Particles Passing Sieve Pp(Ds)	(5) Percentage of Total Particles Passing Sieve Pt(Ds)	Remarks
mm.	gr.	%	%	%	
76.2 (3")	0	0	100	100	
50.8 (2")	0	0	100	100	
38.1 (1 1/2")	0	0	100	100	
25.4 (1")	0	0	100	100	
19.1 (3/4")	0	0	100	100	
9.52 (3/8")	0	0	100	100	
4.76 (No. 4)	0	0	100	100	
2.00 (No. 10)	0	0	100	100	
1.18 (No. 16)	0.40	.04	99.96	99.96	
0.42 (No. 40)	64.80	6.48	93.48	93.48	
0.297 (No. 50)	503.00	50.30	43.18	43.18	
0.150 (No. 100)	420.00	42.0	1.18	1.18	
0.074 (No. 200)	5.50	.55	.63	.63	

(5) = (4) x $W_s/(W_s+W_g)$

DATA SHEET (3/4) FOR RIVER BED MATERIALS SURVEY

Sample No. : Ar-4
 Date of Test: June 16, 1989
 Tested by : _____

2-3 Hydrometer Test

Weight of Sample for Hydrometer test : Wh = _____ gr.
 Specific Gravity : Gs = _____
 Percentage of Total Particles Passing 0.074 mm. Sieve: Pt (0.074) = _____ %

(1) Period of Sedimentation : Suspension	(2) Maximum Diameter : Particles in : Suspension	(3) Percentage of : Particles in : Suspension	(4) Percentage of : Particles Suspen- : sion out of : Total Sample	Remarks
2 min.	mm.	%	%	
5				
15				
30				
60				
240				
1440				

(4) = (3) x Pt (0.074)/100

3. SPECIFIC GRAVITY TEST

3-1 Particles Smaller than 0.074 mm.

(1) Weight of Bottle Filled with Water	gr.
(2) Weight of Oven-dry Particles	gr.
(3) Weight of Bottle Filled with Particles and Water	gr.
(4) Specific Gravity	

(4) = $\frac{(3)}{(1) + (2) - (3)}$

3-2 Particles Greater than 0.074 mm. and Smaller than 9.52 mm.

Case No.	1	2	Average
(1) Weight of Water Added to Flask	314 gr.	316 gr.	-
(2) Volume of Flask	500 ml.	500 ml.	-
(3) Specific Gravity (Saturated Surface-dry Basis)	2.69	2.72	2.705

(3) = $\frac{500}{(2) - (1)}$

3-3 Particles Greater than 9.52 mm.

Case No.	1	2	Average
(1) Weight of Saturated Surface-Dry Sample in Air	gr.	gr.	-
(2) Weight of Saturated Sample in Water	gr.		-
(3) Specific Gravity (Saturated Surface-dry Basis)			

(3) = (1) / ((1) - (2))

DATA SHEET (4/4) FOR RIVER BED MATERIALS SURVEY

1. REPORT

Station No.	Ar-11	River/Channel	ARIS MAIT	Location	Vatvat, Binalonan
Date of Sampling	June 2, 1989	Date of Creation	June 15, 1989	Date of Specific Gravity Test	June 16, 1989

1-1 Specific Gravity

Range of Particle Size	Specific Gravity
Greater than 0.075 mm - 3.54 mm	2.705

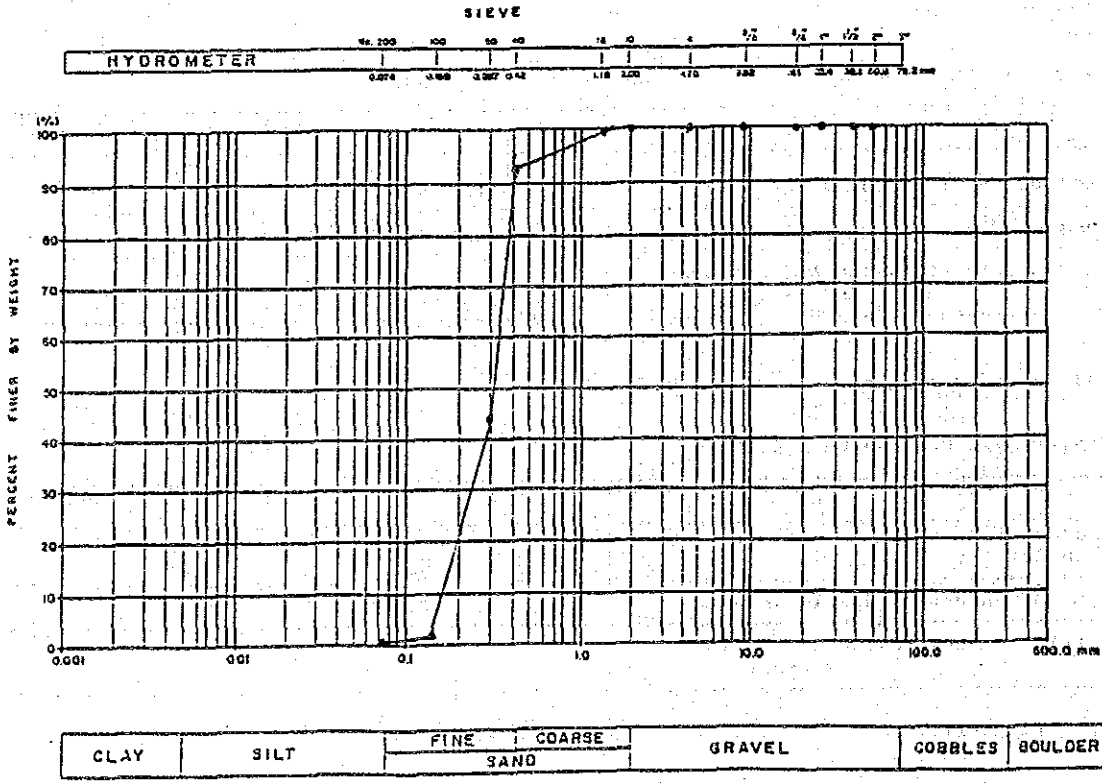
1-2 Gradation

Particle Size (mm)	Percentage of Passing (%)	Particle Size (mm)	Percentage of Passing (%)	Particle Size (mm)	Percentage of Passing (%)	Particle Size (mm)	Percentage of Passing (%)
75	100	4.75	100	0.075	0.63	0.075	0.63
150	100	7.5	100	0.15	1.18	0.15	1.18
300	100	15	100	0.3	0.63	0.3	0.63
600	100	30	100	0.6	0.63	0.6	0.63
1200	100	60	100	1.18	0.63	1.18	0.63
2400	100	120	100	2.36	0.63	2.36	0.63
4800	100	240	100	4.75	0.63	4.75	0.63

Percentage According to Classification of Materials

Classification	Range of Particle Size	Percentage	Classification	Range of Particle Size	Percentage
Soil	Greater than 300 mm	0	fine sand	0.075 - 0.425 mm	0.63
Cobbles	76.2 - 300 mm	0	silt	0.075 - 0.075 mm	0.63
Gravel	2.0 - 76.2 mm	0	clay	0.075 - 0.075 mm	0.63
Coarse Sand	0.425 - 2.0 mm	6.52	colloids	smaller than 0.0075 mm	0.63

10% Particle Size $d_{10} = 0.16$ mm
 50% Particle Size $d_{50} = 0.30$ mm
 90% Particle Size $d_{90} = 0.31$ mm
 Uniformity Coefficient $U_c = d_{90}/d_{10} = 1.94$



DATA SHEET (1/4) FOR RIVER BED MATERIALS SURVEY

I. SAMPLING

Sample No.	Ar-5		
River / Irrigation Canal	ARIS MAIN		
Location	Catablan, Sta. Barbara Pangasinan		
Date of Sampling	June 2, 1989		
Sampled by	M. KATAYAMA		
Condition of Sampling of Site	Breadth (Bank to Bank)	8 m	
	Bed Materials	Sand	
	Others		

Description of Sample		
Average Size of Armour Coats	mm	
Characteristics by the Eyes	Observed	
1) Materials :	Sand	
2) Shape :		
3) Colour :	Gray	
4) Others :		



DATA SHEET (2/4) FOR RIVER BED MATERIALS SURVEY

2. GRADATION ANALYSIS

Sample No. : Ar-5
 Date of Test: June 8, 1989
 Tested by : _____

2-1 Particles Greater than 100 mm.

Total Weight of Materials Smaller than 100 mm. WS = _____ kg.
 Total Weight of Materials Greater than 100 mm. Wg = 0 kg.

(1) Particle Size (Diameter) d	(2) Particle Weight w (d)	(3) Total Weight of Particles Smaller than d wt(d)	(4) Percentage of Particles Smaller than d Pt(d)	Dimensions (mm.)		
mm.	kg.	kg.	%	Length	Width	Thickness

(4) = $Wt(d)/(Ws + Wg) \times 100$

2-2 Sieve Test

Total Weight of Sample for Sieve Test Wt = 1,000 gr.

(1) Sieve Size Ds	(2) Weight of Par- ticles Retained on Sieve W(Ds)	(3) Percentage of Particles Retained on Sieve Ds Pr(Ds)	(4) Percentage of Particles Passing Sieve Ds Pp(Ds)	(5) Percentage of Total Particles Passing Sieve Ds Pt(Ds)	Remarks
	gr.	%	%	%	
76.2 mm. (3")					
50.8 (2")	0	0	100	100	
38.1 (1 1/2")	0	0	100	100	
25.4 (1")	0	0	100	100	
19.1 (3/4")	0	0	100	100	
9.52 (3/8")	0	0	100	100	
4.76 (No. 4)	0	0	100	100	
2.00 (No. 10)	0.50	0.05	99.95	99.95	
1.18 (No. 16)	0.30	0.03	99.92	99.92	
0.42 (No. 40)	9.80	0.98	98.94	98.92	
0.297 (No. 50)	503.00	50.30	48.64	48.64	
0.150 (No. 100)	417.50	41.75	6.89	6.89	
0.074 (No. 200)	44.40	4.44	2.85	2.45	

(5) = (4) x Ws/(Ws+Wg)

DATA SHEET (3/4) FOR RIVER BED MATERIALS SURVEY

Sample No. : Ar-5
 Date of Test: June 9, 1939
 Tested by : _____

2-3 Hydrometer Test

Weight of Sample for Hydrometer test : Wh = _____ gr.
 Specific Gravity : Gs = _____
 Percentage of Total Particles Passing 0.074 mm. Sieve: Pt (0.074) = _____ %

(1) Period of Sedimentation :	(2) Maximum Diameter of Particles in Suspension :	(3) Percentage of Particles in Suspension :	(4) Percentage of Particles Suspen- sion out of Total Sample :	Remarks
2 min.	mm.	%	%	
5				
15				
30				
60				
240				
1440				

$$(4) = (3) \times Pt (0.074) / 100$$

3. SPECIFIC GRAVITY TEST

3-1 Particles Smaller than 0.074 mm.

(1) Weight of Bottle Filled with Water	gr.
(2) Weight of Oven-dry Particles	gr.
(3) Weight of Bottle Filled with Particles and Water	gr.
(4) Specific Gravity	

$$(4) = \frac{(3)}{(1) + (2) - (3)}$$

3-2 Particles Greater than 0.074 mm. and Smaller than 9.52 mm.

Case No.	1	2	Average
(1) Weight of Water Added to Flask	314 gr.	313 gr.	-
(2) Volume of Flask	500 ml.	500 ml.	-
(3) Specific Gravity (Saturated Surface-dry Basis)	2.68	2.67	2.675

$$(3) = \frac{500}{(2) - (1)}$$

3-3 Particles Greater than 9.52 mm.

Case No.	1	2	Average
(1) Weight of Saturated Surface-Dry Sample in Air	gr.	gr.	-
(2) Weight of Saturated Sample in Water	gr.		-
(3) Specific Gravity (Saturated Surface-dry Basis)			

$$(3) = (1) / ((1) - (2))$$

DATA SHEET (4/4) FOR RIVER BED MATERIALS SURVEY

1. REPORT

Station No. : <u>12-5</u>	River/Canal : <u>ARTS MATIN</u>	Location : <u>Carablan, Sta.</u>
Date of Sampling : <u>June 2, 1989</u>	Date of Generation : <u>June 8, 1989</u>	Date of Specific Gravity test : <u>June 9, 1989</u>

1-1 Specific Gravity

Range of Particle Size : <u>less than 0.075 (No. 200) to 2.5 mm.</u>	Greater than 2.5 mm.
Specific Gravity	<u>2.675</u>

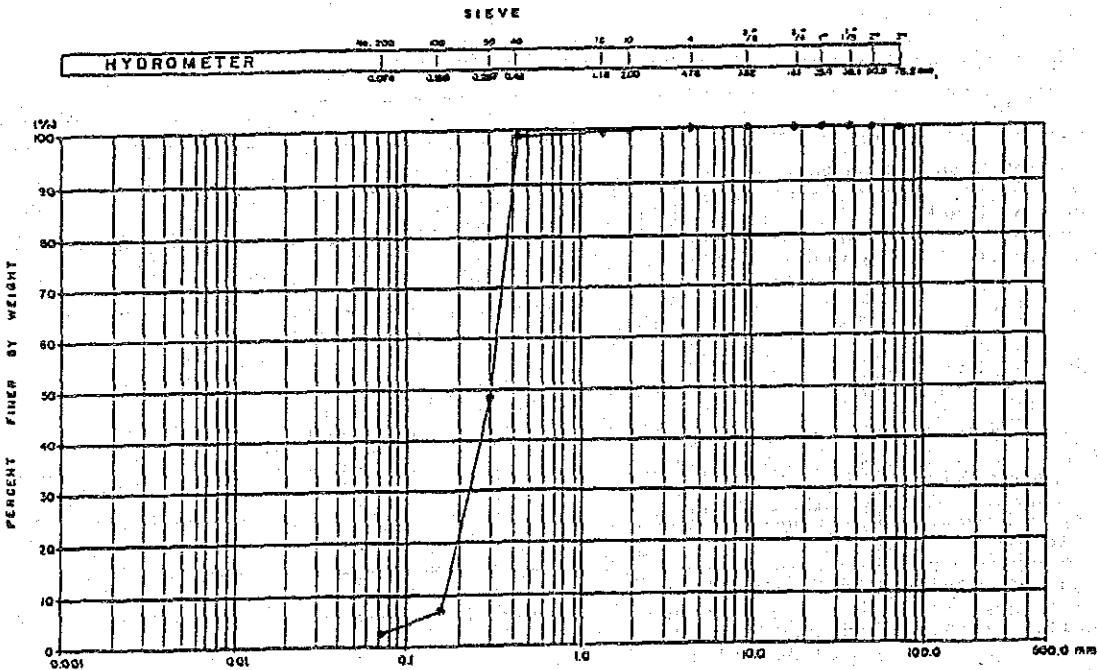
1-2 Gradation

Particle Size (mm)	Percentage of Passing (%)	Particle Size (mm)	Percentage of Passing (%)	Particle Size (mm)	Percentage of Passing (%)	Particle Size (mm)	Percentage of Passing (%)
7.5	100	2.0	99.05	0.75	99.92	0.425	98.94
15.0	100	1.18	98.94	0.25	98.68	0.25	6.80
30.0	100	0.85	98.68	0.075	2.45		
60.0	100	0.425	6.80				
125.0	100	0.25	2.45				
250.0	100	0.15	0.30				
500.0	100	0.075	0.05				

Percentage According to Classification of Materials

Classification	Range of Particle Size	Percentage	Classification	Range of Particle Size	Percentage
Boulder	Greater than 375 mm	0	fine sand	0.075 - 0.425 mm	96.40
Cobbles	76.2 - 375 mm	0	silt	0.075 - 0.075 mm	
Gravel	2.0 - 76.2 mm	0.05	clay	0.002 - 0.005 mm	
Coarse Sand	0.425 - 2.0 mm	1.01	colloids	smaller than 0.002 mm	

10% Particle Size $D_{10} = 0.15$ mm 50% Particle Size $D_{50} = 0.30$ mm
 90% Particle Size $D_{90} = 0.31$ mm Uniformity Coefficient $U = D_{60}/D_{10} = 2.07$



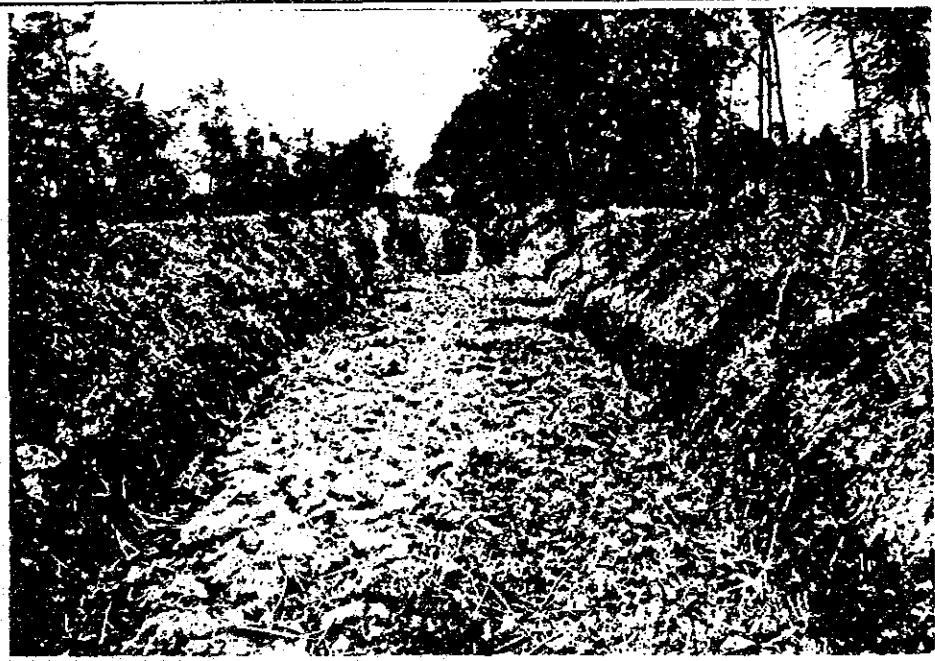
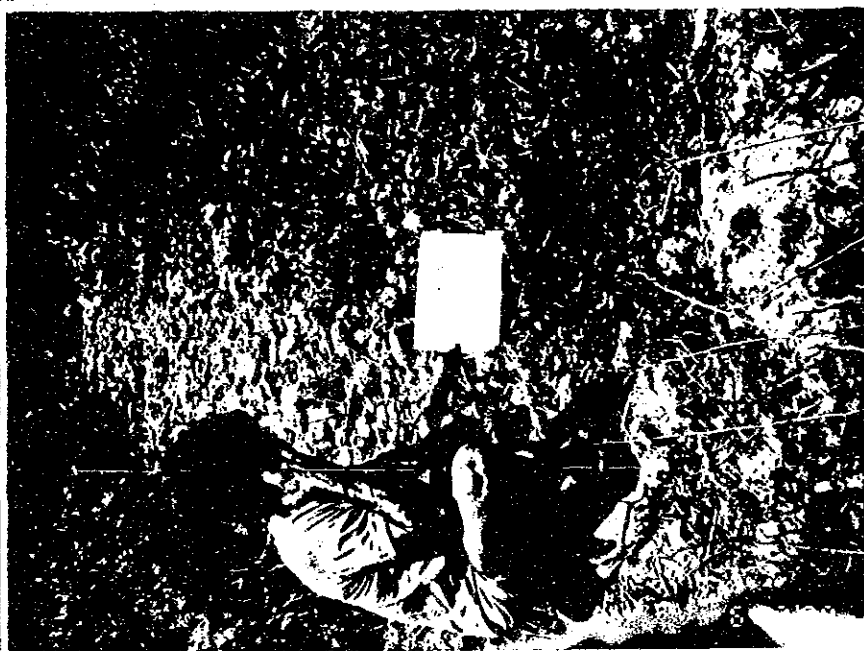
CLAY	SILT	FINE SAND	COARSE SAND	GRAVEL	COBBLES	BOULDER
		SAND				

DATA SHEET (1/4) FOR RIVER BED MATERIALS SURVEY

I. SAMPLING

Sample No.	Ar-6		
River / Irrigation Canal	ARIS LATERAL		
Location	Binalonan, Pangasinan		
Date of Sampling	June 2, 1989		
Sampled by	M. KATAYALIA		
Condition of Sampling of Site	Breadth (Bank to Bank)	4 m	
	Bed Materials	No Sediment	
	Others	Abandoned Canal	

Description of Sample	
Average Size of Armour Coats	mm
Characteristics Observed by the Eyes	
1) Materials :	
2) Shape :	
3) Colour :	
4) Others :	

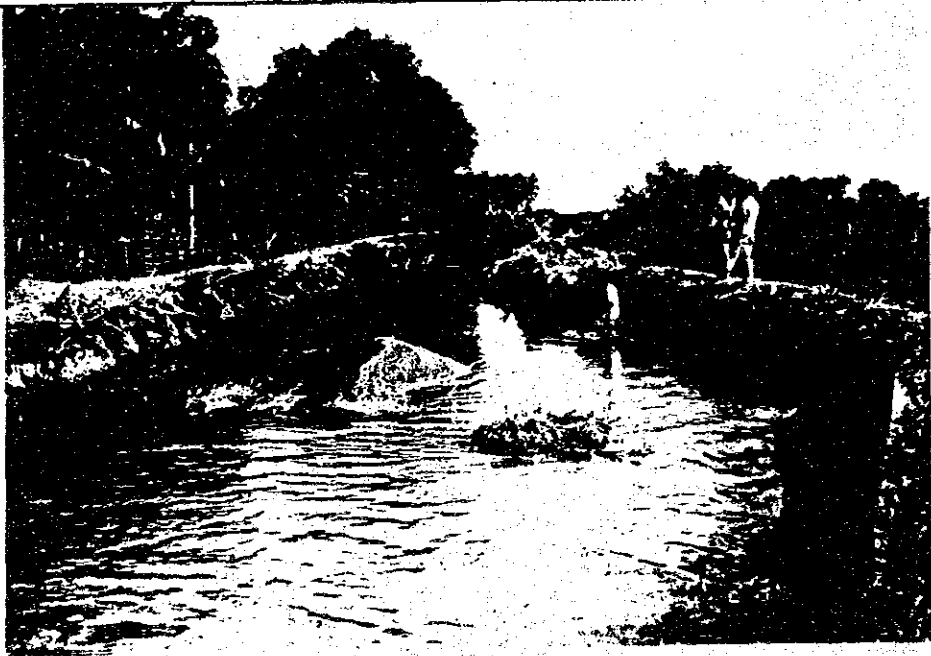


DATA SHEET (1/4) FOR RIVER BED MATERIALS SURVEY

1. SAMPLING

Sample No.	Ar-7		
River / Irrigation Canal	ARIS LATERAL		
Location	Bagdad, Urdaneta Pangasinan		
Date of Sampling	June 2, 1989		
Sampled by	M. KATAYAMA		
Condition of Sampling of Site	Breadth (Bank to Bank)	8 m	
	Bed Materials	Sand	
	Others		

Description of Sample		
Average Size of Armour Coats	mm	
Characteristics Observed by the Eyes		
1) Materials :	Sand	
2) Shape :		
3) Colour :	Gray	
4) Others :		



DATA SHEET (2/4) FOR RIVER BED MATERIALS SURVEY

2. GRADATION ANALYSIS

Sample No. : Ar-7
 Date of Test: June 9, 1989
 Tested by : _____

2-1 Particles Greater than 100 mm.

Total Weight of Materials Smaller than 100 mm. WS = _____ kg.

Total Weight of Materials Greater than 100 mm. Wg = 0 kg.

(1) Particle Size (Diameter) d	(2) Particle Weight w (d)	(3) Total Weight of Particles Smaller than d wt(d)	(4) Percentage of Particles Smaller than d Pt(d)	Dimensions (mm.)		
				Length	Width	Thickness
mm.	kg.	kg.	%			

(4) = Wt(d)/(Ws + Wg) x 100

2-2 Sieve Test

Total Weight of Sample for Sieve Test Wt = 1,000 gr.

(1) Sieve Size Ds	(2) Weight of Particles Retained on Sieve W(Ds)	(3) Percentage of Particles Retained on Sieve Ds Pr(Ds)	(4) Percentage of Particles Passing Sieve Ds Pp(Ds)	(5) Percentage of Total Particles Passing Sieve Ds Pt(Ds)	Remarks
	gr.	%	%	%	
76.2 mm. (3")					
50.8 (2")	0	0	100	100	
38.1 (1 1/2")	0	0	100	100	
25.4 (1")	0	0	100	100	
19.1 (3/4")	0	0	100	100	
9.52 (3/8")	0	0	100	100	
4.76 (No. 4)	0	0	100	100	
2.00 (No. 10)	.4	.04	99.96	99.96	
1.18 (No. 16)	1.0	.10	99.86	99.86	
0.42 (No. 40)	74.1	7.41	92.45	92.45	
0.297 (No. 50)	465.0	46.50	45.95	45.95	
0.150 (No. 100)	418.0	41.80	4.15	4.15	
0.074 (No. 200)	39.0	3.9	.25	.25	

(5) = (4) x Ws/(Ws+Wg)

DATA SHEET (3/4) FOR RIVER BED MATERIALS SURVEY

Sample No. : Ar-7
 Date of Test: June 9, 1969
 Tested by : _____

2-3 Hydrometer Test

Weight of Sample for Hydrometer test : Wh = _____ gr.
 Specific Gravity : Gs = _____
 Percentage of Total Particles Passing 0.074 mm. Sieve: Pt (0.074) = _____%

(1) Period of Sedimentation	(2) Maximum Diameter of Particles in Suspension	(3) Percentage of Particles in Suspension	(4) Percentage of Particles Suspen- sion out of Total Sample	Remarks
2 min.	mm.	%	%	
5				
15				
30				
60				
240				
1440				

(4) = (3) x Pt (0.074)/100

3. SPECIFIC GRAVITY TEST

3-1 Particles Smaller than 0.074 mm.

(1) Weight of Bottle Filled with Water	gr.
(2) Weight of Oven-dry Particles	gr.
(3) Weight of Bottle Filled with Particles and Water	gr.
(4) Specific Gravity	

(4) = $\frac{(3)}{(1) + (2) - (3)}$

3-2 Particles Greater than 0.074 mm. and Smaller than 9.52 mm.

Case No.	1	2	Average
(1) Weight of Water Added to Flask	315 gr.	314 gr.	-
(2) Volume of Flask	500 ml.	500 ml.	-
(3) Specific Gravity (Saturated Surface-dry Basis)	2.70	2.68	2.69

(3) = $\frac{500}{(2) - (1)}$

3-3 Particles Greater than 9.52 mm.

Case No.	1	2	Average
(1) Weight of Saturated Surface-Dry Sample in Air	gr.	gr.	-
(2) Weight of Saturated Sample in Water	gr.		-
(3) Specific Gravity (Saturated Surface-dry Basis)			

(3) = (1)/(1) - (2)

DATA SHEET (1/4) FOR RIVER BED MATERIALS SURVEY

1. REPORT

Sample No. :	Ar-7	River/Canal :	APIS LAT	Location :	Bactad, Urdaneta
Date of Sampling :	June 2, 1989	Date of Gravel Analysis :	June 9, 1989	Date of Specific Gravity Test :	June 10, 1989

(1) Specific Gravity

Range of Particle Size (mm) :	0.075 to 0.425 mm.	Greater than 0.425 mm.
Specific Gravity :	2.69	

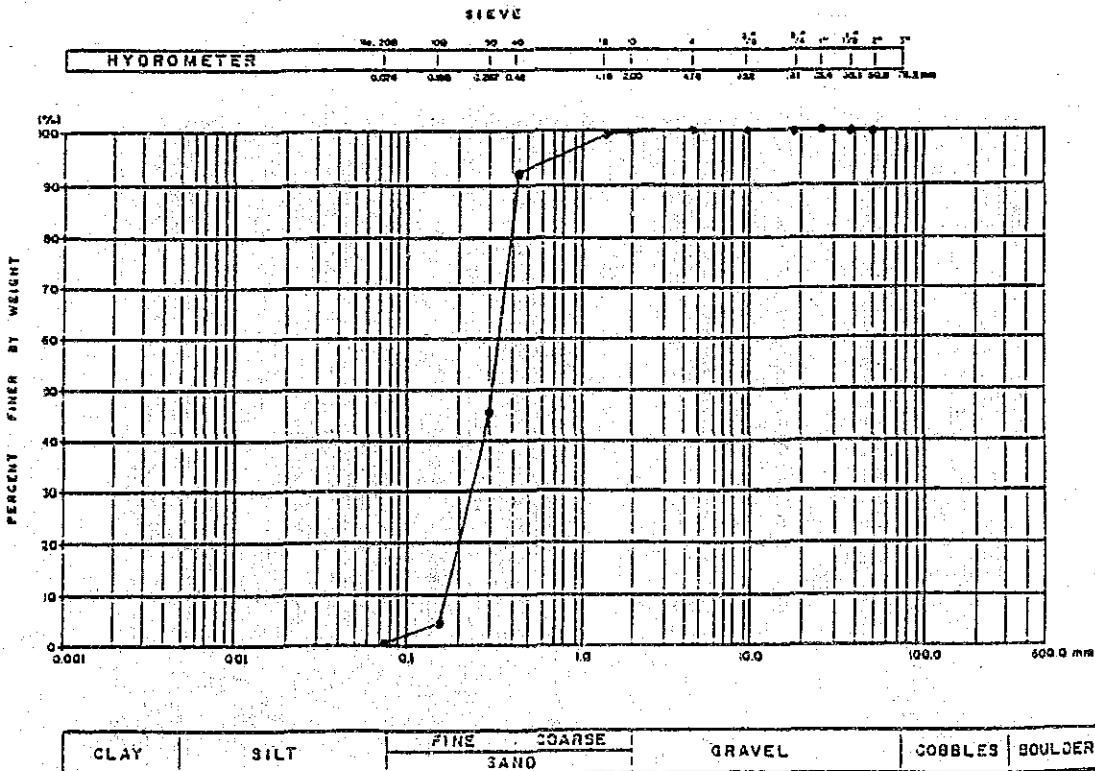
(2) Gradation

Particle Size (mm)	Percentage of Passing (%)	Particle Size (mm)	Percentage of Passing (%)	Particle Size (mm)	Percentage of Passing (%)	Particle Size (mm)	Percentage of Passing (%)
75	0	1.18	100	4.75	100	75	100
150	0	2.0	100	7.5	100	150	100
300	0	3.75	100	150	100	300	100
600	0	6.0	100	300	100	600	100
1.18	99.96	150	100	600	100	1.18	99.86
2.0	92.45	300	100	1.18	92.45	2.0	92.45
3.75	45.95	600	100	3.75	45.95	3.75	45.95
6.0	4.15	1.18	100	6.0	4.15	6.0	4.15
7.5	2.25	2.0	100	7.5	2.25	7.5	2.25
15.0	0	3.75	100	15.0	0	15.0	0
30.0	0	6.0	100	30.0	0	30.0	0

Percentage According to Classification of Materials

Classification	Range of Particle Size	Percentage (Classification)	Range of Particle Size	Percentage	
Soil	Greater than 76.2 mm	0	fine sand	0.075 - 0.425 mm	99.2
Cobbles	76.2 - 200 mm	0	silt	0.425 - 0.075 mm	
Gravel	2.0 - 76.2 mm	0.04	clay	0.075 - 0.0075 mm	
Coarse Sand	0.425 - 2.0 mm	7.51	silts	finer than 0.075 mm	

10% Particle Size #10 = 0.16
 10% Particle Size #20 = 0.3
 Uniformity Coefficient $C_u = 0.60/0.10 = 1.94$



DATA SHEET (1/2) FOR RIVER BED MATERIALS SURVEY

I. SAMPLING

Sample No.	Ar-8		<p>Site Location Map (S=1/50,000)</p>
River / Irrigation Canal	ARIS LATERAL		
Location	Sumabnit, Binalonan Pangasinan		
Date of Sampling	June 2, 1989		
Sampled by	M. KATAYAMA		
Condition of Sampling of Site	Breadth (Bank to Bank)	5 m	
	Bed Materials	No Sediment	
	Others	Abandoned Canal	

Description of Sample		<p>Photo of Sampling Spot</p>
Average Size of Armour Coats	mm	
<p>Characteristics Observed by the Eyes</p> <p>1) Materials : Sand</p> <p>2) Shape :</p> <p>3) Colour : Gray</p> <p>4) Others :</p>		



DATA SHEET (1/4) FOR RIVER BED MATERIALS SURVEY

1. SAMPLING

Sample No.	Ar-9		
River / Irrigation Canal	ARIS LATERAL		
Location	Calbeg, Malasiqui Pangasinan		
Date of Sampling	June 2, 1989		
Sampled by	M. KATAYAMA		
Condition of Sampling of Site	Breadth (Bank to Bank)	m	
	Bed Materials	No Sediment	
	Others		

Discription of Sample		
Average Size of Armour Coats	mm	
Characteristics Observed by the Eyes 1) Materials : 2) Shape : 3) Colour : 4) Others :		



DATA SHEET (1/4) FOR RIVER BED MATERIALS SURVEY

1. SAMPLING

Sample No.	AP-10		
River / Irrigation Canal	ARIS LATERAL		
Location	Jimenez, Mapandan Pangasinan		
Date of Sampling	June 1, 1989		
Sampled by	M. KATAYAMA		
Condition of Sampling of Site	Breadth (Bank to Bank)	5 m	
	Bed Materials	Sand	
	Others		

Discription of Sample		
Average Size of Armour Coats	mm	
Characteristics Observed by the Eyes		
<p>1) Materials : Sand</p> <p>2) Shape :</p> <p>3) Colour : Gray</p> <p>4) Others :</p>		



Republic of the Philippines
 Department of Public Works and Highways
 BUREAU OF RESEARCH AND STANDARDS
 Sta. Lucia St., Intramuros, Metro Manila

ERS Form No. 12
 Nov. 1982

Lab. Report No. 8-46-89

23 August 1989

TEST REPORT ON SOIL

Project Agno River Basin Flood Control Study Pangasinan
 (Number) (Name) (City/Province)

Kind of material River Bed sample

Sample identification Ar-10 Quantity represented -

Sampled at -

Original source Agno River

Supplied by JICA/DPWH Study Team

Proposed use Sedimentation Analysis Spec's. Item No. -

Sampled by Mr. Katayama, Sediment Analyst not stated not stated
 (Name and designation) (Office) (Date)

Submitted by E. Fano, not stated PMO-Major Flood Control Project 8-2-89
 (Name and designation) (Office) (Date received)

Lab. No. 5941-89 (Paid under OR # 8735139)

Particle Size Analysis:

TEST RESULTS

Sieve Analysis (% Passing)

Sieve Size

9.5 mm	100
4.75 mm	95
2.00 mm	94
0.425 mm	94
0.075 mm	15

Hydrometer Analysis (%)
 smaller than

0.05 mm	6
0.02 mm	0
0.005 mm	0
0.002 mm	0
0.001 mm	0
Liquid Limit	NP
Plasticity Index	NP
Specific Gravity	2.66

Checked by:

Pura V. Revillame
 PURA V. REVILLAME

Chief, Materials Testing Division

ATTESTED:

Jose H. Espiritu
 JOSE H. ESPIRITU
 Director

Tested by:

- N. Abarca
- A. Ponce de Leon
- L. de Jesus
- C. Pinto
- B. Villanueva

Witnessed by:

M. Marquez

/lma

DATA SHEET (1/4) FOR RIVER BED MATERIALS SURVEY

I. SAMPLING

Sample No.	La-1		<p>Site Location Map (S=1/50,000)</p>
River / Irrigation Canal	LATRIS MAIN		
Location	Sta. Maria, Pangasinan		
Date of Sampling	May 31, 1989		
Sampled by	M. KATAYAMA		
Condition of Sampling of Site	Breadth (Bank to Bank)	10 m	
	Bed Materials	Coarse Sand	
	Others		

Discription of Sample	
Average Size of Armour Coats	mm
<p>Characteristics Observed by the Eyes</p> <p>1) Materials : Coarse Sand</p> <p>2) Shape :</p> <p>3) Colour : Gray</p> <p>4) Others :</p>	



DATA SHEET (2/4) FOR RIVER BED MATERIALS SURVEY

2. GRADATION ANALYSIS

Sample No. : La-1
 Date of Test: June 8, 1980
 Tested by : _____

2-1 Particles Greater than 100 mm.

Total Weight of Materials Smaller than 100 mm. WS = _____ kg.

Total Weight of Materials Greater than 100 mm. Wg = 0 kg.

(1) Particle Size (Diameter) d	(2) Particle Weight w (d)	(3) Total Weight of Particles Smaller than d wt(d)	(4) Percentage of Particles Smaller than d Pt(d)	Dimensions (mm.)		
				Length	Width	Thickness
mm.	kg.	kg.	%			

(4) = $Wt(d)/(Ws + Wg) \times 100$

2-2 Sieve Test

Total Weight of Sample for Sieve Test Wt = 1,000 gr.

(1) Sieve Size Ds	(2) Weight of Particles Retained on Sieve W(Ds)	(3) Percentage of Particles Retained on Sieve Ds Pr(Ds)	(4) Percentage of Particles Passing Sieve Ds Pp(Ds)	(5) Percentage of Total Particles Passing Sieve Ds Pt(Ds)	Remarks
	gr.	%	%	%	
76.2 mm. (3")					
50.8 (2")	0	0	100	100	
38.1 (1 1/2")	0	0	100	100	
25.4 (1")	0	0	100	100	
19.1. (3/4")	0	0	100	100	
9.52 (3/8")	0	0	100	100	
4.76 (No. 4)	0	0	100	100	
2.00 (No. 10)	0.80	.08	99.92	99.92	
1.18 (No. 16)	0.60	.06	99.86	99.86	
0.42 (No. 40)	34	3.40	96.46	96.46	
0.297 (No. 50)	409	40.9	55.56	55.56	
0.150 (No. 100)	499	49.9	5.66	5.66	
0.074 (No. 200)	45	4.5	1.16	1.16	

(5) = (4) x Ws/(Ws+Wg)

DATA SHEET (3/4) FOR RIVER BED MATERIALS SURVEY

Sample No. : 1a-1
 Date of Test: June 2, 1959
 Tested by : _____

2-3 Hydrometer Test

Weight of Sample for Hydrometer test : Wh = _____ gr.
 Specific Gravity : Gs = _____
 Percentage of Total Particles Passing 0.074 mm. Sieve: Pt (0.074) = _____%

(1) Period of Sedimentation	(2) Maximum Diameter of Particles in Suspension	(3) Percentage of Particles in Suspension	(4) Percentage of Particles Suspen- sion out of Total Sample	Remarks
2 min.	mm.	%	%	
5				
15				
30				
60				
240				
1440				

(4) = (3) x Pt (0.074)/100

3. SPECIFIC GRAVITY TEST

3-1 Particles Smaller than 0.074 mm.

(1) Weight of Bottle Filled with Water	gr.
(2) Weight of Oven-dry Particles	gr.
(3) Weight of Bottle Filled with Particles and Water	gr.
(4) Specific Gravity	

(4) = $\frac{(3)}{(1) + (2) - (3)}$

3-2 Particles Greater than 0.074 mm. and Smaller than 9.52 mm.

Case No.	1	2	Average
(1) Weight of Water Added to Flask	313 gr.	315 gr.	-
(2) Volume of Flask	500 ml.	500 ml.	-
(3) Specific Gravity (Saturated Surface-dry Basis)	2.67	2.70	2.685

(3) = $\frac{500}{(2) - (1)}$

3-3 Particles Greater than 9.52 mm.

Case No.	1	2	Average
(1) Weight of Saturated Surface-Dry Sample in Air	gr.	gr.	-
(2) Weight of Saturated Sample in Water	gr.		-
(3) Specific Gravity (Saturated Surface-dry Basis)			

(3) = (1)/((1) - (2))

DATA SHEET (1/1) FOR RIVER BED MATERIALS SURVEY

1. REPORT

Station No. :	1a-1	River/Canal :	BARIS	Location :	Sta. Maria
Date of Sampling :	May 31, 1989	Date of Gravimetric Analysis :	June 8, 1989	Date of Specific Gravity test :	June 9, 1989

1-1 Specific Gravity

Range of Particle Size less than 0.075 mm - 0.425 mm :	Greater than 0.425 mm :
Specific Gravity :	2.685

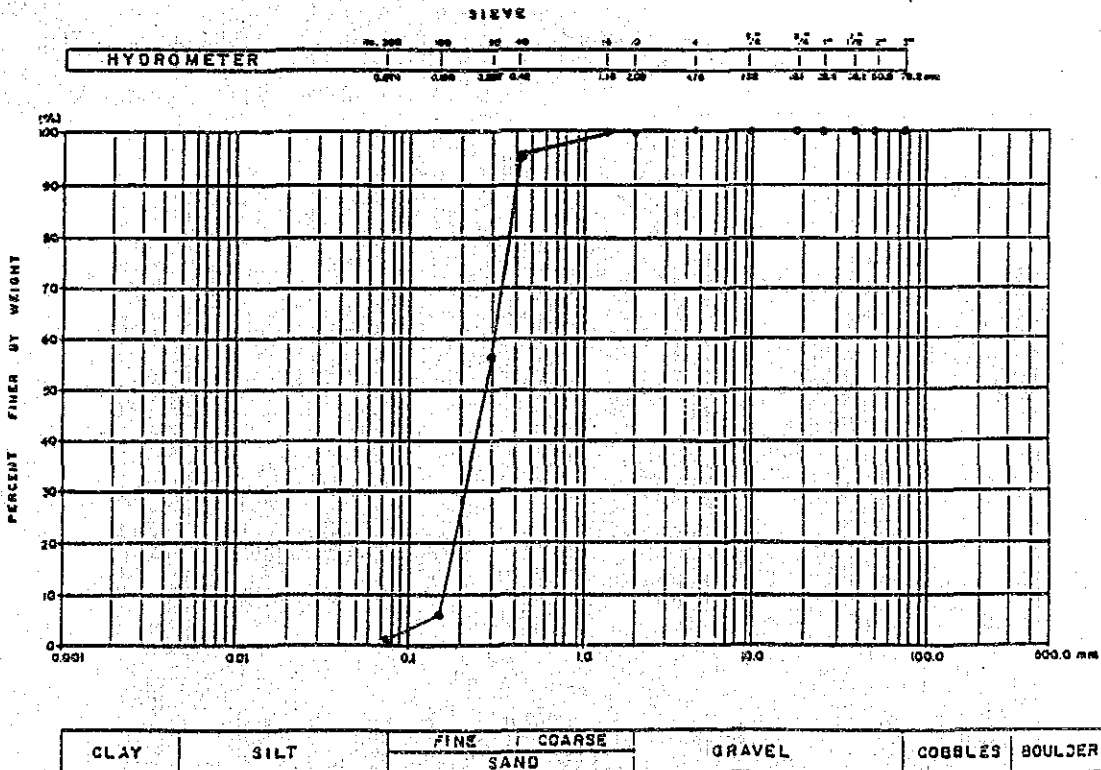
1-2 Gradation

Particle Size (mm)	Percentage of Passing (%)	Particle Size (mm)	Percentage of Passing (%)	Particle Size (mm)	Percentage of Passing (%)	Particle Size (mm)	Percentage of Passing (%)
75	100	4.75	100	75	99.92	4.75	100
60	100	2.5	100	60	99.86	2.5	100
42.5	100	1.18	100	42.5	96.46	1.18	100
30	100	0.85	100	30	55.56	0.85	100
25	100	0.75	100	25	5.66	0.75	100
20	100	0.60	100	20	2.16	0.60	100
15	100	0.425	100	15	0	0.425	100

Percentage According to Classification of Materials

Classification	Range of Particle Size	Percentage (Classification)	Range of Particle Size	Percentage	
Boulder	Greater than 300 mm	0 %	Flow sand	0.075 - 0.425 mm	95.30 %
Cobbles	75.0 - 300 mm	0	silt	0.002 - 0.075 mm	
Gravel	2.0 - 75.0 mm	0.08	clay	0.001 - 0.002 mm	
Coarse Sand	0.425 - 2.0 mm	3.46	Ballast	Smaller than 0.075 mm	

100 Particle Size #10 = 0.15 100 Particle Size #20 = 0.29 mm
 100 Particle Size #40 = 0.31 Uniformity Coefficient $U_c = 0.60/0.10 = 2.1$

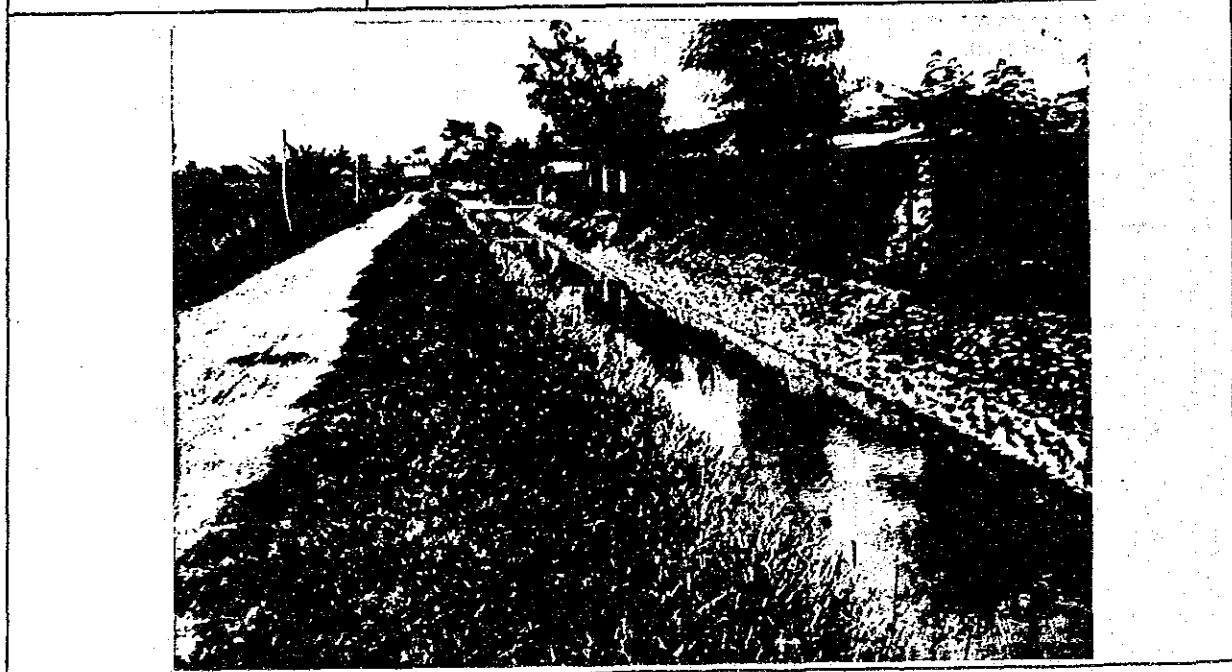


DATA SHEET (1/4) FOR RIVER BED MATERIALS SURVEY

1. SAMPLING

Sample No.	La-2		
River / Irrigation Canal	LATRIS MAIN		
Location	Carmen; Rosales Pangasinan		
Date of Sampling	May 31, 1989		
Sampled by	M. KATAYALIA		
Condition of Sampling of Site	Breadth (Bank to Bank)	6 m	
	Bed Materials	Fine Sand	
	Others		

Discription of Sample		
Average Size of Armour Coats	mm	
Characteristics Observed by the Eyes		
<p>1) Materials : Fine Sand</p> <p>2) Shape :</p> <p>3) Colour : Gray</p> <p>4) Others :</p>		



Republic of the Philippines
 Department of Public Works and Highways
 BUREAU OF RESEARCH AND STANDARDS
 Sta. Lucia 600, Intramuros, Metro Manila

ZIS Form No. 12
 Nov. 1982

Report No. 8-44-89

TEST REPORT ON SOIL

23 August 1989

Project Agno River Basin Flood Control Study Pangasinan
 (Number) (Name) (City/Province)
 Kind of material River Bed sample
 Sample identification LA-2 Quantity represented -
 Sampled at _____
 Original source Agno River
 Supplied by JICA/DPWH Study Team
 Proposed use Sedimentation Analysis Spec's. Item No. -
 Sampled by Mr. Katayama, Sediment Analyst not stated not stated
 (Name and designation) (Office) (Date)
 Submitted by E. Fano, not stated PMO Flood Control Project 8-2-39
 (Name and designation) (Office) (Date received)
 Lab. No. 5939-89 (Paid under OR # 8733139)

Particle Size Analysis:

TEST RESULTS

Sieve Analysis (% Passing)

Sieve Size

9.5 mm	100
4.75 mm	99
2.00 mm	98
0.425 mm	97
0.075 mm	93

Hydrometer Analysis (%)

Smaller than

0.05 mm	81
0.02 mm	59
0.005 mm	30
0.002 mm	20
0.001 mm	15
Liquid Limit	48
Plasticity Index	23
Specific Gravity	2.56

Checked by:

Pura V. Revillame
 PURA V. REVILLAME

Chief, Materials Testing Division

ATTESTED:

Jose H. Espiritu
 JOSE H. ESPERITU
 Director

Tested by:

N. Abarca
 A. Ponce de Leon
 L. de Jesus
 C. Pinto
 B. Villanueva

Witnessed by:

M. Marquez

/lma

3.

**GEOLOGICAL LOGS AND
TEST PIT LOGS**

GEOLOGICAL DRILL LOG

Bore Hole No. AG-1

PROJECT		THE FEASIBILITY STUDY OF AGNO RIVER FLOOD CONTROL			LOCATION		SAN ROQUE, SAN MANUEL, PANG.		DEPTH	15.00 m.						
ELEVATION		105.231 m.		DATE	July 2-7, '90		DRILL RIG	TONE TASS I		DRILLED	N. SOTERIO		LOGGED	H. FUNAOKA		
DATE	DEPTH	SOIL SYMBOL	SOIL CLAS.	SOIL TYPE / FORMATION	DESCRIPTION	GROUND WATER DEPTH	STANDARD PENETRATION TEST (SPT)				CORE RECOVERY (%)				REMARKS	DEPTH
							N-VALUE									
							20	40	60	80	20	40	60	80		
	0.26		SM	SILTY SAND	Brown silty sand with about 20-40% of fine to coarse gravel, sub-rounded and rounded, max. size 7.0cm; 60% of non-plastic fines; numerous roots and decayed plant matters; wet; very dense.											
7/2	1															
	2															
	3															
7/3	4				Light gray to grayish white gravel-sand mixture, with cobbles and boulders; alternating fine to coarse gravel, maximum size is ranging from 3 cm to 4 cm, with fine to coarse sand mixture being washed out; light gray to gray fresh cobbles about 30% were recovered, its size is ranging from 6 to 10 cm; light gray to grayish white boulders about 14 cm long, boulders are hard and fresh; appreciable amount of fines; alluvial deposits; gravel is mainly consist of Quartz porphyry and Andesite.	4.15m ▽ (7/1)										
	5															
	6			GRAVEL												
7/4	7		GP	SAND MIXTURE												WB
	8															
	9															
7/5	10															
	11															
7/6	12															
	13															
	14															
7/7	15															
	15.00															
					W.B.; Wash Boring											

GEOLOGICAL DRILL LOG

Bore Hole No. AG-2

PROJECT		THE FEASIBILITY STUDY OF AGNO RIVER FLOOD CONTROL			LOCATION		CAVITE, SAN MANUEL PANGASINAN		DEPTH	15.00 m.					
ELEVATION		91.636 m.		DATE	June 28 - July 5, '90		DRILL RIG	KOKEN I DRILLED J. DELEON		LOGGED	H. FUNAOKA				
DATE	DEPTH	SOIL SYMBOL	SOIL CLAS.	SOIL TYPE / FORMATION	DESCRIPTION	GROUND WATER	STANDARD PENETRATION TEST (SPT)				CORE RECOVERY (%)	REMARKS	DEPTH		
							N-VALUE								
							20	40	60	80	20	40	60	80	
	1		ML	SANDY SILT	Brown sandy silt; traces of fine to coarse gravel, max. size 1cm; traces of slight organic materials (roots); about 0-5% of slightly plastic clay; moist to wet; stiff.										D.D.
	2														
6/28	2.45														
	3		ML	CLAYEY SILT	Brown clayey silt; slightly plastic; traces of fine sand; moist; stiff.										D.D.
	3.00														
	4		ML	SANDY SILT	Brown sandy silt; none to slight plasticity; with small amount of clay at 4.48-5.0m; moist; stiff.										D.D.
	5														
6/29	5.00														
	5.95		CL	SILTY CLAY	Gray silty clay; med. plasticity; traces of slight organic materials; moist; very stiff.										
	6		ML	SANDY SILT	Brown to gray sandy silt; low plasticity; about 5-10% of slightly plastic clay; moist; very stiff.										D.D.
	7														
4/30	6.85														
	8		GP	GRAVEL SAND MIXTURE	Light gray to gray gravel-sand mixture; fine to coarse gravel (φ max. 3cm), about 0-5% of low plastic clay at 6.85-7.0m; fresh cobbles and boulders (φ max. 10-15cm) at 7.5-8.0m; alternating layer of gravel, cobbles and boulders with fine to coarse sand at 8.0-10.0m, rounded to sub-rounded; moist; very dense.										
	9														
7/1	10														
	10.00		SP	MEDIUM TO COARSE SAND											
	11														
7/2	11.00														
	12														
7/3	12														
	13		GP	GRAVEL SAND MIXTURE	Gray medium to coarse sand; traces of grayish white cobbles (φ max. 8-10cm); moist; very dense.										
	14														
7/4	14														
	15														
7/5	15				The same formation as of 6.85-10.0m; but cobbles are slightly weathered; with appreciable amount of non plastic fines.										
	15.00														

GEOLOGICAL DRILL LOG

Bore Hole No. AG-3

PROJECT THE FEASIBILITY STUDY OF AGNO RIVER FLOOD CONTROL LOCATION NARRA, SAN MANUEL, PANGASINAN DEPTH 15.00 m.

ELEVATION 78.912 m. DATE June 28 - July 6, '90 DRILL RIG KOTEN I DRILLED R. BRUNO LOGGED H. FUNADA

DATE	DEPTH	SOIL SYMBOL	SOIL CLAS.	SOIL TYPE / FORMATION	DESCRIPTION	GROUND WATER	STANDARD PENETRATION TEST (SPT)				CORE RECOVERY (%)	REMARKS	DEPTH			
							N-VALUE									
							20	40	60	80						
	1.00		ML	SANDY SILT	Brown sandy silt; traces of roots and slightly organic materials; moist to wet; stiff.								D.D.	1		
	2.00		SM	SILTY SAND	Brown to dark gray silty sand; traces of roots at 1.85-2.0m; moist to wet; medium dense.								D.D.	2		
	3.00		SP	FINE TO MEDIUM SAND	Gray to dark gray fine to med. sand; about 0-10% of non-plastic silt; with fine to coarse gravel, rounded and sub-rounded, max. size 4cm; wet; dense to very dense.	3.00	40	30	15	15			D.D.	3		
	4.48															
	5.00		GP	GRAVEL SAND MIXTURE	Grayish brown to grayish white gravel-sand mixture; alternating layers of gravel, sand and cobbles; traces of boulders; about 10-30% of fine to coarse sand; appreciable amount of non-plastic fines; Gravel is consist of tuff breccia, quartz porphyry, andesite and basalt, rounded to sub-rounded; very dense.	3.50m										
	6.00															
	7.00															
	8.00															
	9.00															
	10.00															
	11.00															
	12.00															
	13.00															
	14.00															
	15.00															

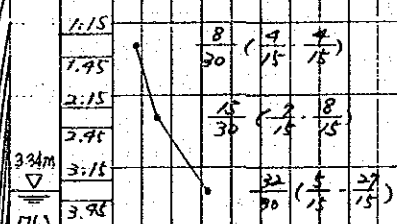
GEOLOGICAL DRILL LOG

Bore Hole No. AG-4

PROJECT: THE FEASIBILITY STUDY OF AGNO RIVER FLOOD CONTROL LOCATION: CALANUTIAN, SAN MANUEL, PANG.

ELEVATION: 73.054 m. DATE: June 29 - July 2, '80 DRILL RIG: TONE PASS I DRILLED: N. SOTERIO LOGGED: H. FUNAOKA DEPTH: 15.00 m.

DATE	DEPTH	SOIL SYMBOL	SOIL CLAS.	SOIL TYPE / FORMATION	DESCRIPTION	GROUND WATER	STANDARD PENETRATION TEST (SPT)				CORE RECOVERY (%)	REMARKS	DEPTH				
							N-VALUE										
							20	40	60	80							
	0.39		CL	SILTY CLAY	Brown silty clay; traces of roots and fine-bounded gravel; slight plasticity; wet; medium stiff.												
	1.00		CL	SANDY SILTY CLAY													
	1.95		CL	SILTY CLAY													
	2.00		ML	SANDY SILT		Brown sandy clay with fine to coarse gravel, max. size 7 cm; wet; med. stiff.											
	2.95		CL	SILTY CLAY													
	3		ML	CLAYEY SILT	Brown silty clay; med. plasticity; traces of fine sand; moist; stiff.												
	3.95		ML	SANDY SILT	Brown sandy silt; traces of fine gravel; moist.												
6/29	4.00		ML	SANDY SILT	Brown silty clay; med. to high plasticity; moist; stiff.												
	5				Brown clayey silt; traces of fine sand and gravel; low to med. plasticity; moist; hard.												
	6				Brown sandy silt; 0-5% of fine gravel; moist.												
6/30	7				Grayish brown to light gray gravel - sand mixture, fine to coarse sand, granules, pebbles, cobbles and boulders.												
	8		GP	GRAVEL-SAND MIXTURE	Gravel is mainly consist of andesite and quartz-porphry; moist to wet; very dense.												
	9																
	10																
	11																
	12																
7/1	13																
	14																
7/2	15																



GEOLOGICAL DRILL LOG

Bore Hole No. AG-5

PROJECT THE FEASIBILITY STUDY OF AGNO RIVER FLOOD CONTROL LOCATION SAN VICENTE, SAN MANUEL, PANG. DEPTH 15.00 m.

ELEVATION 61.266 m. DATE June 28 - July 6, 190 DRILL RIG TONE TASS II DRILLED E. HONARIO LOGGED H. FUNAOKA

DATE	DEPTH	SOIL SYMBOL	SOIL CLAS.	SOIL TYPE / FORMATION	DESCRIPTION	GROUND WATER	STANDARD PENETRATION TEST (SPT)				CORE RECOVERY (%)	REMARKS	DEPTH				
							DEPTH	N-VALUE									
							20	40	60	80	20	40	60	80			
	1		SP	GRAVELLY SAND	Brown gravelly sand, fine to coarse sand and gravel, med. size is 5.5 cm, rounded to sub-rounded; traces of dark gray clay, silt with organic materials (roots); moist; medium dense.	0.20m (6/29)											
	2					1.15											
	3					1.95											
	4					2.45											
	5					3.45											
	6					5.00											
	7					5.06											
	8																
	9		GP	GRAVEL SAND MIXTURE	Grayish brown and gray gravel-sand mixture, fine to coarse sand, granules, pebbles, cobbles and boulders; formation of these materials are stratified with appreciable amount of non-plastic fines with about 20-30% of fine to coarse sand; cobbles and boulders are mainly consist of andesite and quartz-porphry; moist; very dense.												
	10																
	11																
	12																
	13																
	14																
	15																

GEOLOGICAL DRILL LOG

Bore Hole No. AG - 6

PROJECT		THE FEASIBILITY STUDY OF AGNO RIVER FLOOD CONTROL			LOCATION		STA. ANNA TAYUG, PANEP.		DEPTH	15.45 m.					
ELEVATION		55.885 m.		DATE	June 4-6, '90		DRILL RIG	KOKEN I		DRILLED	J. DELEON		LOGGED	H. FUNAOKA	
DATE	DEPTH	SOIL SYMBOL	SOIL CLAS.	SOIL TYPE / FORMATION	DESCRIPTION	GROUND WATER	STANDARD PENETRATION TEST (SPT)				CORE RECOVERY (%)	REMARKS	DEPTH		
							N-VALUE								
							20	40	60	80	20	40	60	80	
	1		ML	CLAYEY SILT	Brown to light brown clayey silt; traces of fine sand and roots; low to med. plasticity; medium dry strength; wet; stiff to very stiff.										
	2														
	3														
	4														
	4.00														
	5		ML	SANDY SILT	Brown sandy silt; traces of very fine sand; wet.										
	5.00														
	5.95		SM	SILTY SAND	Brown silty sand; wet; medium dense.										
	6		SP	FINE SAND	Brown fine sand with non-plastic silt; traces of fine gravel; moist to wet; medium dense.										
	6.95														
	7		SM	SILTY SAND	Brown fine sand with non-plastic silt; traces of fine gravel; moist to wet; medium dense.										
	7.00														
	8		SW	GRAVELLY SAND	Brown to dark brown silty sand; traces of fine gravel (ϕ max. 4cm); saturated.										
	9														
	10														
	10.00														
	11														
	12		GP	GRAVEL-SAND MIXTURE	Gray gravel - sand mixture, fine to coarse sand and fine to coarse gravel (ϕ 2cm - 3.5cm), rounded to sub-rounded; with small percentage of non-plastic fines; moist to wet; very dense.										
	13														
	14														
	15														
	15.45														

GEOLOGICAL DRILL LOG

Bore Hole No. AG - 7

PROJECT THE FEASIBILITY STUDY OF AGNO RIVER FLOOD CONTROL LOCATION SAN VICENTE TAYUG, BANG. DEPTH 15.45 m.

ELEVATION 50.026 m. DATE June 4-6, '90 DRILL RIG TONE TASS II DRILLED E. HONORIO LOGGED H. FUNAOKA

DATE	DEPTH	SOIL SYMBOL	SOIL CLAS.	SOIL TYPE / FORMATION	DESCRIPTION	GROUND WATER DEPTH	STANDARD PENETRATION TEST (SPT)				CORE RECOVERY (%)	REMARKS	DEPTH		
							N-VALUE								
							20	40	60	80	20	40	60	80	
	1.00		ML	SANDY SILT	Brown sandy silt with some fine to coarse gravel (φmax. 3cm); dry; medium stiff.										
	1.45		SM	SILTY SAND	Brown silty sand; non-plastic; dry; medium dense.										
	2.15														
	2.45														
	3.15		ML	SANDY SILT	Brown sandy silt; traces of fine to coarse gravel; non-plastic; dry; medium stiff to stiff.										
	3.45														
	5.00														
	5.45		SM	SILTY SAND	Brown to brownish gray silty sand; traces of fine to coarse gravel (φmax. 1cm); dry; dense.										
	7.00														
	7.45														
	7.75														
	7.45														
	7.60m														
	7.45														
	7.45														
	10.15														
	10.45		GP	SAND MIXTURE	Gray to light gray gravel-sand mixture, gravel maximum size 4cm; traces of cobbles at 8.0-10.0m; small amount of non-plastic fines; moist to wet; dense to very dense.										
	12.15														
	12.45														
	12.15														
	12.45														
	15.15														
	15.45														

GEOLOGICAL DRILL LOG

Bore Hole No. AG - 8

PROJECT	THE FEASIBILITY STUDY OF AGNO RIVER FLOOD CONTROL			LOCATION	Bo. DIPARTE, ASINGAN, PANG.	DEPTH	15.45 m.
ELEVATION	48.363 m.	DATE	June 24, '90	DRILL RIG	STONE TASS II	DRILLED	E. HONORIO
						LOGGED	H. FUNAOKA

DATE	DEPTH	SOIL SYMBOL	SOIL CLAS.	SOIL TYPE / FORMATION	DESCRIPTION	GROUND WATER	STANDARD PENETRATION TEST (SPT)				CORE RECOVERY (%)	REMARKS	DEPTH				
							N-VALUE										
							20	40	60	80							
	0.32		ML	SANDY SILT	Brown sandy silt; traces of fine gravel; non-plastic; wet; med. stiff.												
	1.15		SM	SILTY SAND	Brown silty sand, traces of fine to coarse gravel (φ max. 2cm); non-plastic; moist; medium stiff.												
	2.00		ML	SANDY SILT	Light brown sandy silt; traces of fine to coarse gravel (cobbles) at 2.45-3.0m, max. size 6cm, mainly 2-4cm; moist; medium stiff.												
	3.00		SM	SILTY SAND	Brown silty sand; traces of fine to coarse gravel at 3.45-5.0m, max. size 4cm, non-plastic; moist; dense.												
	4.2		GP	GRAVEL SAND MIXTURE	Light gray gravel-sand mixture; about 0-15% non-plastic silt; gravel maximum size 4cm; traces of cobbles at 5.45-7.0m, φ max. 6.75cm; med. to coarse sand with fine gravel at 7.45-10.0m (φ max. 2.5cm) with appreciable amount of non-plastic fines; moist to wet; medium dense to dense.												
	5.00		SP	COARSE SAND	Dark gray to dark brownish gray coarse sand with some medium sand and fine gravel (φ 2-10%, φ max. 25%); moist to wet; dense to very dense.												
	6.30																
	7.15																
	7.45																
	10.15																
	10.45																
	12.15																
	12.45																
	15.15																
	15.45																

GEOLOGICAL DRILL LOG

Bore Hole No. AG-9

PROJECT		THE FEASIBILITY STUDY OF AGNO RIVER FLOOD CONTROL			LOCATION		BANTOG, ASINGAN PANGASINAN		DEPTH	15.45 m.					
ELEVATION		40.563 m.	DATE	June 2-4, '90	DRILL RIG	KOKEN I	DRILLED	J. DELEON	LOGGED	H. FUNAOKA					
DATE	DEPTH	SOIL SYMBOL	SOIL CLAS.	SOIL TYPE / FORMATION	DESCRIPTION	GROUND WATER	STANDARD PENETRATION TEST (SPT)				CORE RECOVERY (%)	REMARKS	DEPTH		
							DEPTH	N-VALUE							
							20	40	60	80	20	40	60	80	
	1.00		ML	SANDY SILT	Brown sandy silt; low to med. plasticity; about 0-10% of clay; wet; stiff.	1.0m ▽									D.D.
	1.45		MH	CLAYEY SILT	Brown clayey silt; traces of fine sand; low to med. plasticity; wet; medium stiff.	(4/4)	1.15	5	2	3					D.D.
	2.00		ML	SANDY SILT	Brown sandy silt; about 0-20% of clay; low plasticity; wet.		1.45	30	15	15					D.D.
6/2	2.95		SW	MEDIUM SAND	Brown sandy silt; about 0-20% of clay; low plasticity; wet.		2.15	15	6	8					D.D.
	3.30		ML	SANDY SILT	Brown medium sand with fines and gravel (ϕ15%); moist; medium dense.		2.45	30	15	15					D.D.
	3.45				Brown sandy silt with some fine gravel (ϕmax. 30%); moist; stiff.		3.15	27	15	12					D.D.
	4.00				Brown to gray gravel-sand mixture; some cobbles (ϕ6cm), sub-rounded and rounded, at 2.3-5.0m; fine to coarse gravel (ϕmax. 5cm) and sand at 5.0-9.0m; same material (ϕmax. 3.5cm) with appreciable amount of fines; moist; dense to very dense.		3.45	30	15	15					D.D.
	5.00						5.15	22	15	15					D.D.
	6.00						5.45	15	15	15					D.D.
6/3	7.00						7.15	35	31	15					D.D.
	8.00		GP	SAND MIXTURE			7.45	15	15	15					*
	9.00														*
	10.00						10.15	27	35	15					*
	11.00						10.45	15	15	15					*
	12.00						12.15	30	38	15					*
	13.00						12.45	15	15	15					*
	14.00														
	14.85						15.15	6	2	4					
6/4	15.45		CL	SILTY CLAY	Brown silty clay; low to medium plasticity; traces of fine sand; wet; medium stiff.		15.45	30	15	15					

GEOLOGICAL DRILL LOG

Bore Hole No. AG-10

PROJECT: THE FEASIBILITY STUDY OF AGNO RIVER FLOOD CONTROL LOCATION: ARAGAAG BRIDGE, ASINGAN, PANG.

ELEVATION: 38,546 m. DATE: June 3-5, '90 DRILL RIG: TONE TASS I DRILLED: N. SOTERIO LOGGED: H. FUNAOKA

DATE	DEPTH	SOIL SYMBOL	SOIL CLAS.	SOIL TYPE / FORMATION	DESCRIPTION	GROUND WATER	STANDARD PENETRATION TEST (SPT)				CORE RECOVERY (%)	REMARKS	DEPTH				
							N-VALUE										
							20	40	60	80							
	0.25		SM	SILTY SAND	Dark brown silty sand; with organic materials; traces of fine gravel; moist.	0.51m (45)											
	1		SP	FINE TO MEDIUM SAND	Gray fine to medium sand; traces of fine gravel at 1.0-3.45m, max. size 4.0cm; with appreciable amount of non-plastic fines; moist; medium dense to dense.		1.15	16	7	2							
	2						1.45	30	15	15							
	3						2.15	12	4	6							
	3.45						2.45	30	15	15							
	4						3.15	33	17	15							
	4		CL	SILTY CLAY	Brownish gray to gray silty clay; medium plasticity at 3.45-5.45m, high plasticity at 5.45-8.10m; wet; stiff to very stiff.		3.45	30	15	15							
	5						5.15	8	3	5							
	6						5.45	30	15	15							
	7						7.15	18	9	9							
	8						7.45	30	15	15							
	8.10																
	9																*
	10						10.15	25	11	14							
	10.45						10.45	30	15	15							*
	11		SP	FINE TO MEDIUM SAND	Brownish gray to gray fine to medium sand; appreciable amount of non-plastic fines; moist to wet; medium dense to dense.		12.15	36	16								
	12						12.45	30	15								
	13																
	14																*
	15						15.15	34	17	17							
	15.45						15.45	30	15	15							

GEOLOGICAL DRILL LOG

Bore Hole No. AG - 11

PROJECT		THE FEASIBILITY STUDY OF AGNO RIVER FLOOD CONTROL			LOCATION		CABALITIAN ASINGAN, PANG		DEPTH	15.45 m.							
ELEVATION		36.525 m.		DATE	June 2-4, '90		DRILL RIG	KOKEN II		DRILLED	R. BRUNO		LOGGED	H. FUNAOKA			
DATE	DEPTH	SOIL SYMBOL	SOIL CLAS.	SOIL TYPE / FORMATION	DESCRIPTION	GROUND WATER DEPTH	STANDARD PENETRATION TEST (SPT)				CORE RECOVERY (%)	REMARKS	DEPTH				
							N-VALUE										
							20	40	60	80	20	40	60	80			
	1.00		ML	SANDY SILT	Brown sandy silt; none plastic; traces of roots; moist; medium stiff.										D.D.	1	
6/2	1.95		SM	V. FINE SAND	Brownish gray very fine sand with some silt; moist; loose.	1.15											
	2.00		SC	CLAYEY SAND		Brown clayey sand; low plasticity; moist; loose.	1.45	8	5	3							D.D.
					Light gray to gray medium to coarse sand; appreciable amount of fines; traces of fine to coarse gravel at 2.0-12.0m (φ 2-15%, φ max 25%); wet; loose to medium dense.	2.15	15	5	10								D.D.
						2.45	15	5	10								D.D.
						3.15	8	4	4								D.D.
						3.45	8	4	4								D.D.
					MEDIUM TO COARSE SAND	5.15											
						5.45	16	7	9								*
						7.15	18	7	11								*
						7.45	18	7	11								*
					FINE SAND	10.15											
						10.45	14	6	8								*
						12.15	16	6	10								*
						12.45	16	6	10								*
6/4	15.45					15.15	16	7	9								
						15.45	16	7	9								

GEOLOGICAL DRILL LOG

Bore Hole No. AG-12

PROJECT		THE FEASIBILITY STUDY OF AGNO RIVER FLOOD CONTROL			LOCATION		PIAZ. VILLASIS PANGASINAN		DEPTH		15.45 m.				
ELEVATION		28.681 m.		DATE		May 31 - June 1, '90		DRILL RIG		TONE TASS I		DRILLED N. SOTERIO		LOGGED H. FUNAOKA	
DATE	DEPTH	SOIL SYMBOL	SOIL CLAS.	SOIL TYPE / FORMATION	DESCRIPTION	GROUND WATER	STANDARD PENETRATION TEST (SPT)				CORE RECOVERY (%)	REMARKS	DEPTH		
							DEPTH	N-VALUE							
							20	40	60	80	20	40	60	80	
	1		ML	CLAYEY SILT	Brown clayey silt; traces of slightly organic materials; slight plasticity; wet; stiff.	1.15									
	2		SP	FINE SAND	Light brown fine sand; moist; medium dense.	1.45	15	8	2						
	2.45		SP	FINE SAND		2.15	13	7	6						
	3		ML	SANDY SILT	Light brown sandy silt; non-plastic; unconsolidated; moist; stiff to med. stiff.	2.45									
	3.00		SP	FINE SAND		3.15	7	4	3						
	3.45		SP	FINE SAND	Light brown fine sand; moist; loose.	3.45									
	4					4.81									DD.
	5					5.15	8	4	4						
	6		CH	SILTY CLAY	Grayish brown to brown silty clay; high plasticity; high dry strength; grayish brown at 3.45-5.45 m, brown at 5.45-10.00 m; wet; medium stiff to stiff.	5.45									
	7					7.15	12	5	2						
	8					7.45									
	9														
	10					10.15	8	4	4						
	10.00		ML	SANDY SILT	Brownish gray sandy silt with 30-40% of fine sand; wet; stiff.	10.45									
	11														
	12					12.15	27	11	16						
	13		SP	MEDIUM SAND	Gray medium sand; with appreciable amount of fines; moist; medium dense to dense.	12.45									
	14														
	15					15.15	42	18	24						
	15.45					15.45									

GEOLOGICAL DRILL LOG

Bore Hole No. AG-13

PROJECT		THE FEASIBILITY STUDY OF AGNO RIVER FLOOD CONTROL			LOCATION	PUELAY, VILLASIS, PANGASINAN		DEPTH	15.45 m.								
ELEVATION		26.736 m.		DATE	May 31 - June 1, '90		DRILL RIG	TONE	DRILLED	E. HONORIO	LOGGED	H. FUNAOKA					
DATE	DEPTH	SOIL SYMBOL	SOIL CLAS.	SOIL TYPE / FORMATION	DESCRIPTION	GROUND WATER	STANDARD PENETRATION TEST (SPT)				CORE RECOVERY (%)	REMARKS	DEPTH				
							DEPTH	N-VALUE									
							20	40	60	80	20	40	60	80			
	1			SM	Brown, dark brown to dark gray silty sand; with fine to coarse gravel at 0-1.0m, sub-rounded; brown from 0 up to 2.45 m, dark brown from 2.45 up to 3.45 m, dark gray from 3.45 up to 5.0m; moist; medium dense to loose.	1.15										D.D.	
	2					1.45	16	8	8								D.D.
	3					2.15	11	7	7								D.D.
	4					2.45	5	2	3								D.D.
	5					3.15	30	15	15								D.D.
	5.00				3.45												
	6			SP	Dark gray medium to coarse sand, with small percentage of non-plastic fines; moist to wet; medium dense.	4.50 m ▽ (6/1)											
	5.15					5.15	20	10	10								*
	5.45					5.45	30	15	15								*
	7			SP	Dark gray medium to coarse sand; small amount of non-plastic fines; wet; dense.												
	7.15					7.15	16	6	10								*
	7.45				7.45	30	15	15								*	
	8				Dark gray silt with some very fine sand; traces of organic materials; moist; soft to medium stiff.												
	10.15					10.15	4	2	2								*
	10.45			ML	10.45	30	15	15								*	
	12			SP	Dark gray medium to coarse sand; small amount of non-plastic fines; wet; dense.												
	12.15					12.15	36	17	19								*
	12.45				12.45	30	15	15								*	
	13				Dark gray medium to coarse sand; small amount of non-plastic fines; wet; dense.												
	13.15					13.15	36	17	19								*
	13.45				13.45	30	15	15								*	
	15				Dark gray medium to coarse sand; small amount of non-plastic fines; wet; dense.												
	15.15					15.15	36	17	21								*
	15.45				15.45	30	15	15								*	

GEOLOGICAL DRILL LOG

Bore Hole No. AG -14

PROJECT	THE FEASIBILITY STUDY OF AGNO RIVER FLOOD CONTROL		LOCATION	CARMEN, ROSALES, PANGASINAN	DEPTH	15.45 m.
ELEVATION	25.165 m.	DATE	May 31 - June 2, '90	DRILL RIG	KOKEN I	DRILLED J. DELEON
						LOGGED H. FUNAOKA

DATE	DEPTH	SOIL SYMBOL	SOIL CLAS.	SOIL TYPE / FORMATION	DESCRIPTION	GROUND WATER	STANDARD PENETRATION TEST (SPT)				CORE RECOVERY (%)	REMARKS	DEPTH	
							N-VALUE							
							20	40	60	80				
	1.00		ML	SANDY SILT	Dark brown sandy silt; traces of slight organic materials (roots); non-plastic; wet; fill material.								D.D.	1
	1.51		CL	SILTY CLAY	Brown silty clay; traces of fine sand; slight to medium plasticity; wet; medium stiff.									2
	2.00		ML	SANDY SILT	Brown sandy silt; moist; loose.									3
	3.00		NL	CLAYEY SILT	Brown clayey silt; slight plasticity; with fine sand; wet; medium stiff.									4
	3.95		ML	SILT	Brown silt with some silty sand and gravel (ϕ1cm); wet; medium stiff.									5
	5.31		SP, SM	FINE SAND	Gray fine sand with small amount of non-plastic silt at 3.95-5.0m, silty fine sand at 5.0-7.0m; traces of sandy silt at 5.0-5.2m; moist; loose.	5.45m								6
	7.00		ML	CLAYEY SILT	Brown clayey silt; low to medium plasticity; saturated; stiff.									7
	7.45		ML	CLAYEY SILT	Brown silty clay; slight to medium plasticity; medium dry strength; saturated; stiff to very stiff.									8
	10.61		CL	SILTY CLAY	Brown silty clay; slight to medium plasticity; medium dry strength; saturated; stiff to very stiff.									9
	12.80		SM	V. FINE SAND	Dark brown very fine sand; silty sand at upper part; wet; stiff to very stiff.									10
	15.42		SM	V. FINE SAND	Dark brown very fine sand; silty sand at upper part; wet; stiff to very stiff.									11