

FIG-3.3.3 INUNDATION AREA BY FLOOD OF TYPHOON "DALING" IN 1981

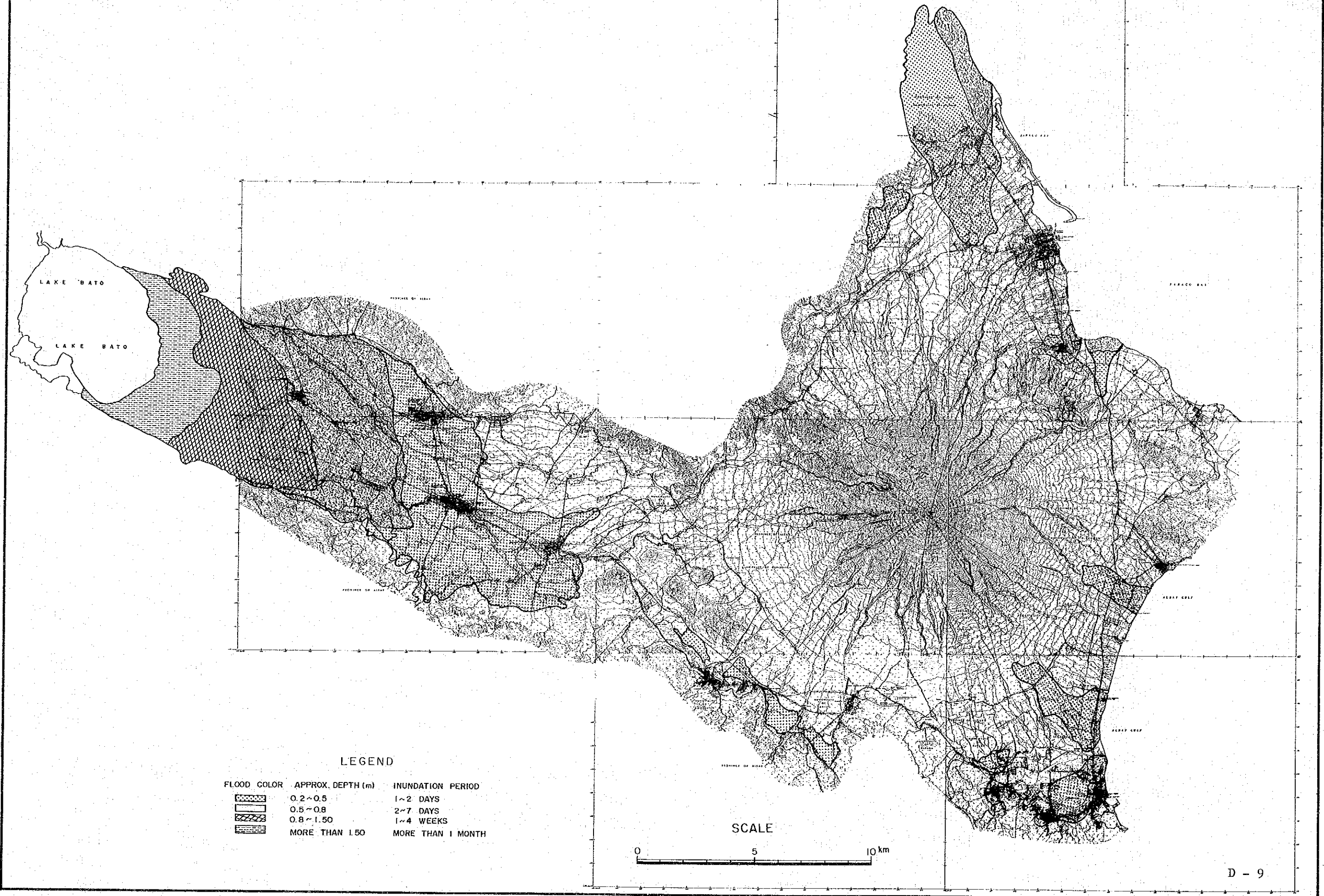
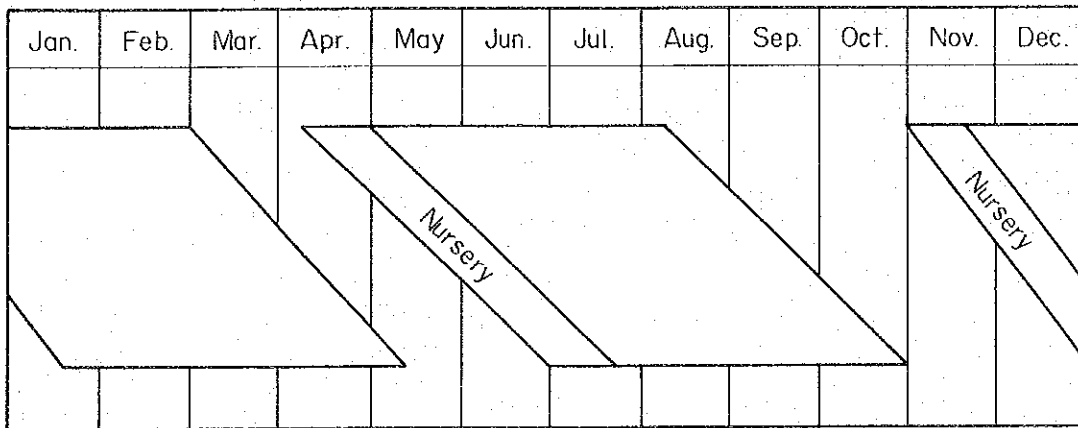


FIG. - 3.4.1 PRESENT CROPPING PATTERN OF PALAY

QUINALI (A) RIVER BASIN



QUINALI (B) RIVER BASIN

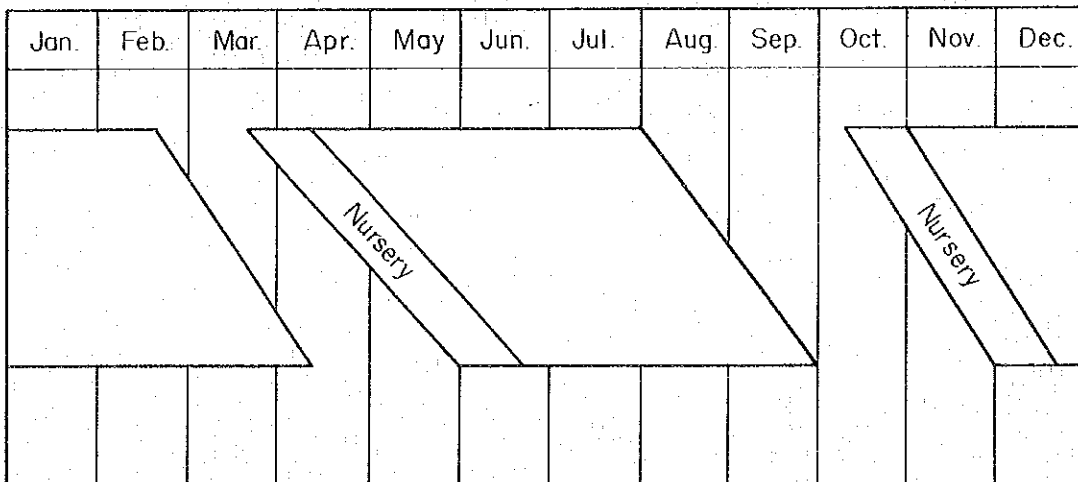
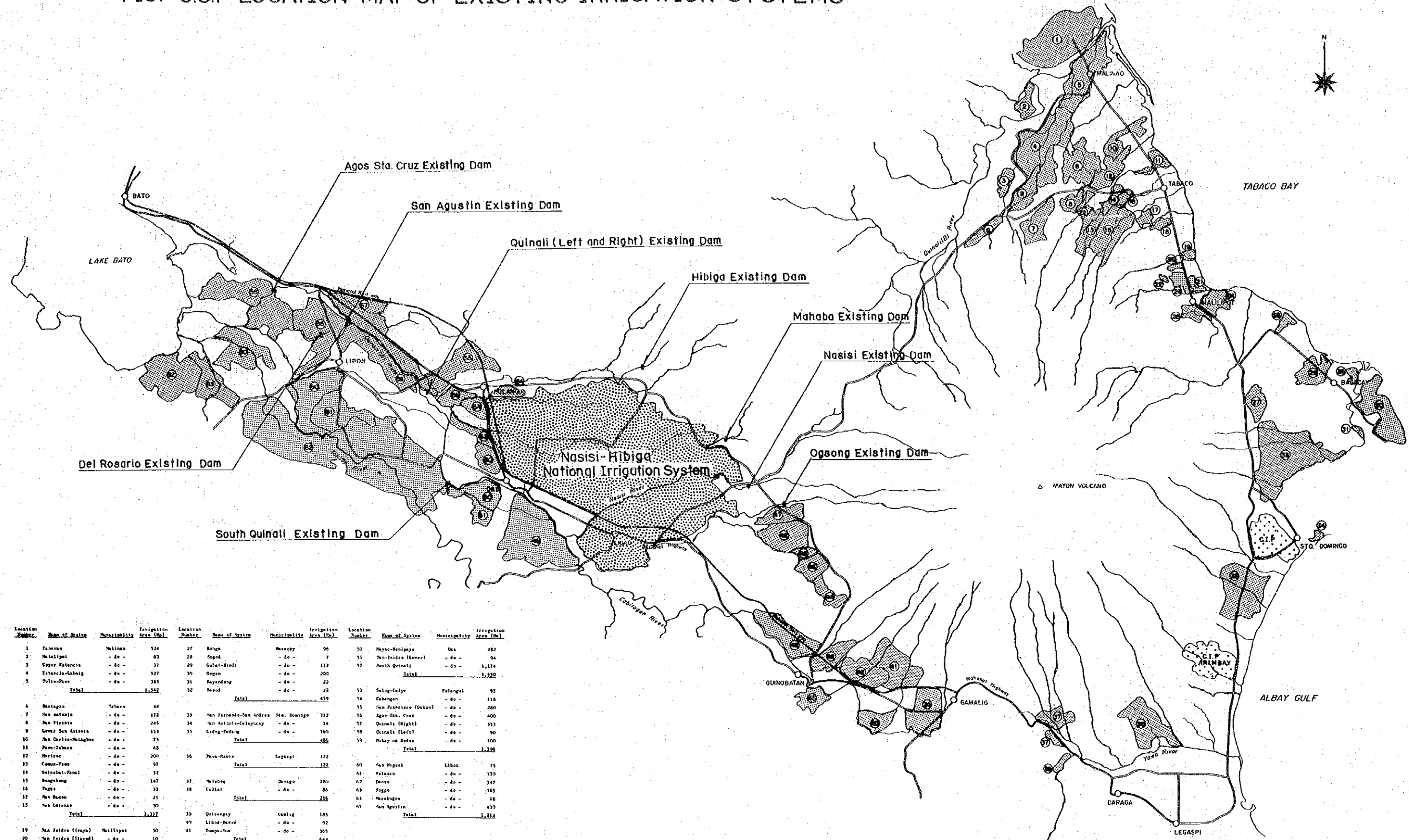
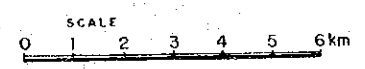


FIG.- 3.5.1 LOCATION MAP OF EXISTING IRRIGATION SYSTEMS



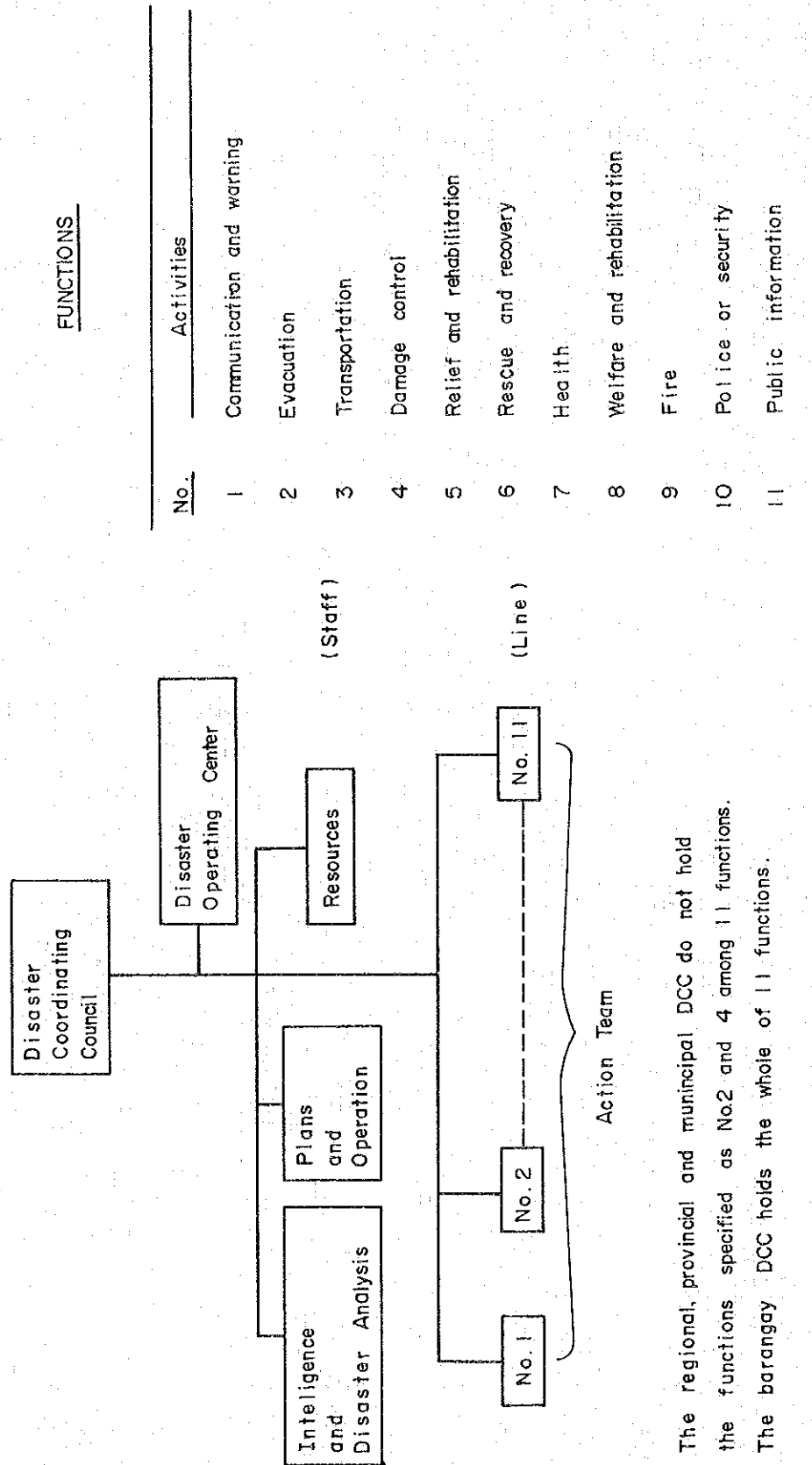
Location Number	Name of Water	Municipality	Irrigation Area (Ha)	Location Number	Name of Water	Municipality	Irrigation Area (Ha)	Location Number	Name of Water	Municipality	Irrigation Area (Ha)
1	Tanawa	Malinao	524	27	Banga	Marikina	96	50	Masac-Banajaya	Oza	282
2	Makipip	- do -	67	28	Sagud	- do -	7	51	San-José (Lower)	- do -	94
3	Upper Estancia	- do -	32	29	Cabul-Bandi	- do -	112	52	South Quinali	- do -	1,174
4	Estancia-Labag	- do -	527	30	Ogong	- do -	200	Total			1,322
5	Tulay-Puro	- do -	383	31	Raynang	- do -	22	53	Salong-Cajay	Pologui	95
Total			1,422	32	Navad	- do -	22	54	Cibangan	- do -	118
6	Matagan	Tabaco	44	Total			459	55	San Francisco (Upper)	- do -	280
7	San Antonio	- do -	172	33	San Fernando-San Andres	Sta. Domingo	312	56	Agos-Sta. Cruz	- do -	400
8	San Vicente	- do -	245	34	San Antonio-Catapanay	- do -	34	57	Quinali (Right)	- do -	393
9	Lower San Antonio	- do -	353	35	Ling-Palang	- do -	160	58	Quinali (Left)	- do -	90
10	San Cayetano-Malagbo	- do -	75	Total			456	59	Pikay na Bayas	- do -	100
11	Puro-Tabaco	- do -	48	36	Puro-Ramis	Legaspi	122	Total			1,326
12	Morize	- do -	201	Total			122	60	San Miguel	Liton	75
13	Comas-Puro	- do -	97	37	Malibing	Davao	126	61	Palasco	- do -	120
14	Delosol-Puro	- do -	12	38	Cullar	- do -	86	62	Davao	- do -	347
15	Bangbang	- do -	147	Total			216	63	Yago	- do -	165
16	Papas	- do -	33	39	Quirangay	Cauig	185	64	Masagosa	- do -	18
17	San Basilio	- do -	21	40	Litod-Naray	- do -	92	65	San Agustin	- do -	437
18	San Sebastian	- do -	30	Total			365	Total			1,312
Total			1,422	41	Tumpa-Sua	- do -	642				
19	San Jairo (Iraya)	Malilipot	50	42	Tandara-Malibite	Guinobatan	283				
20	San Jairo (Ibarra)	- do -	10	43	Quilpa-Quizon	- do -	118				
21	Togay	- do -	30	44	Masagosa (Lower)	- do -	54				
22	Upper Togay	- do -	4	45	Dona Tomas	- do -	30				
23	Sta. Cruz-Togay	- do -	68	46	Malibit (Iraya)	- do -	120				
24	Sta. Teresa	- do -	95	47	Malibit (Ibarra)	- do -	125				
25	San Jairo	- do -	5	48	Bubuyan	- do -	29				
26	Malilipot-Palorion	- do -	13	Total			847				
Total			372	49	Cabilaga	Liga	480				
				Total			480				



LEGEND

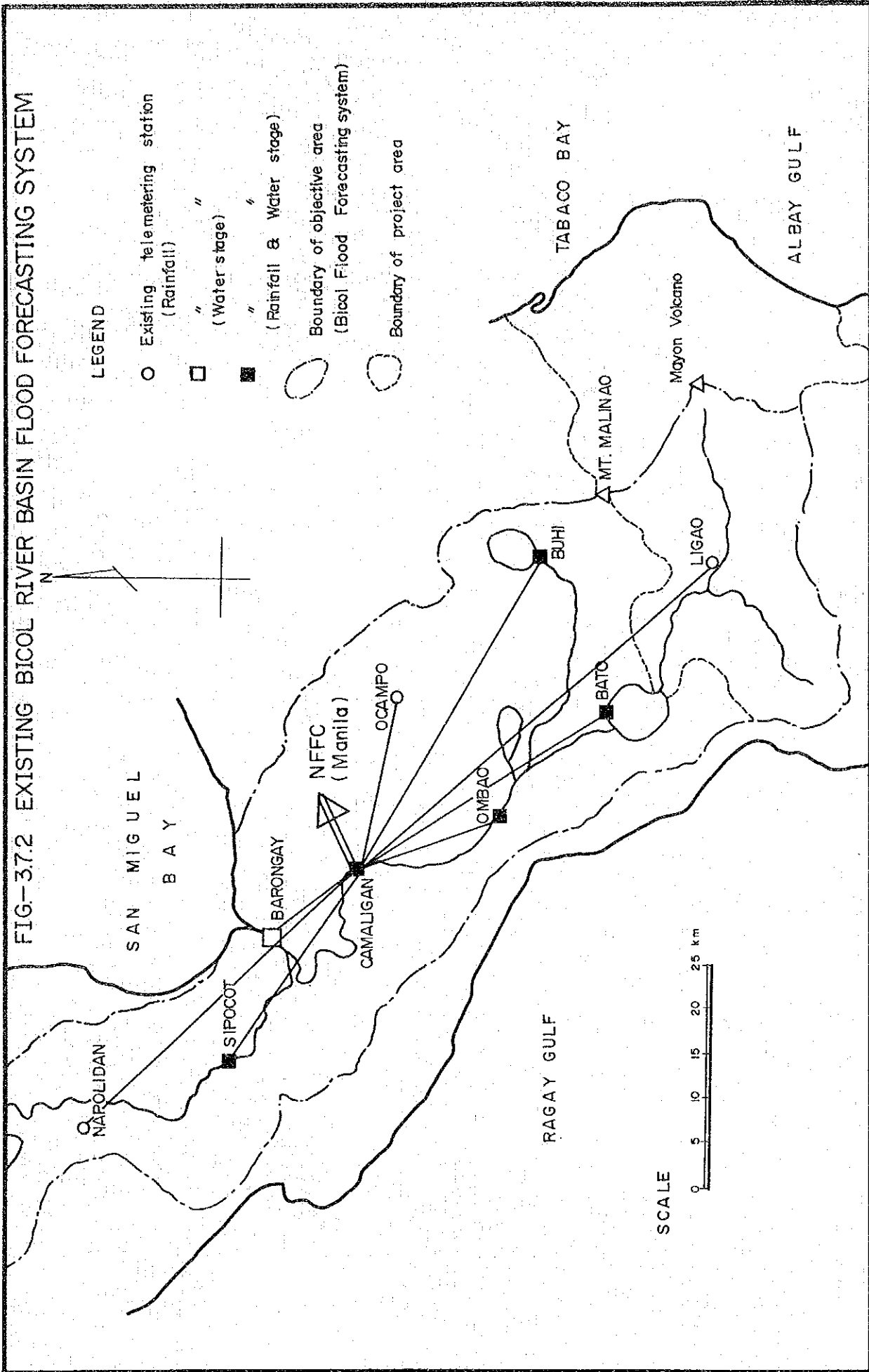
- National Irrigation System.
- Communal Irrigation System.
- On-going Small Scaled Scheme

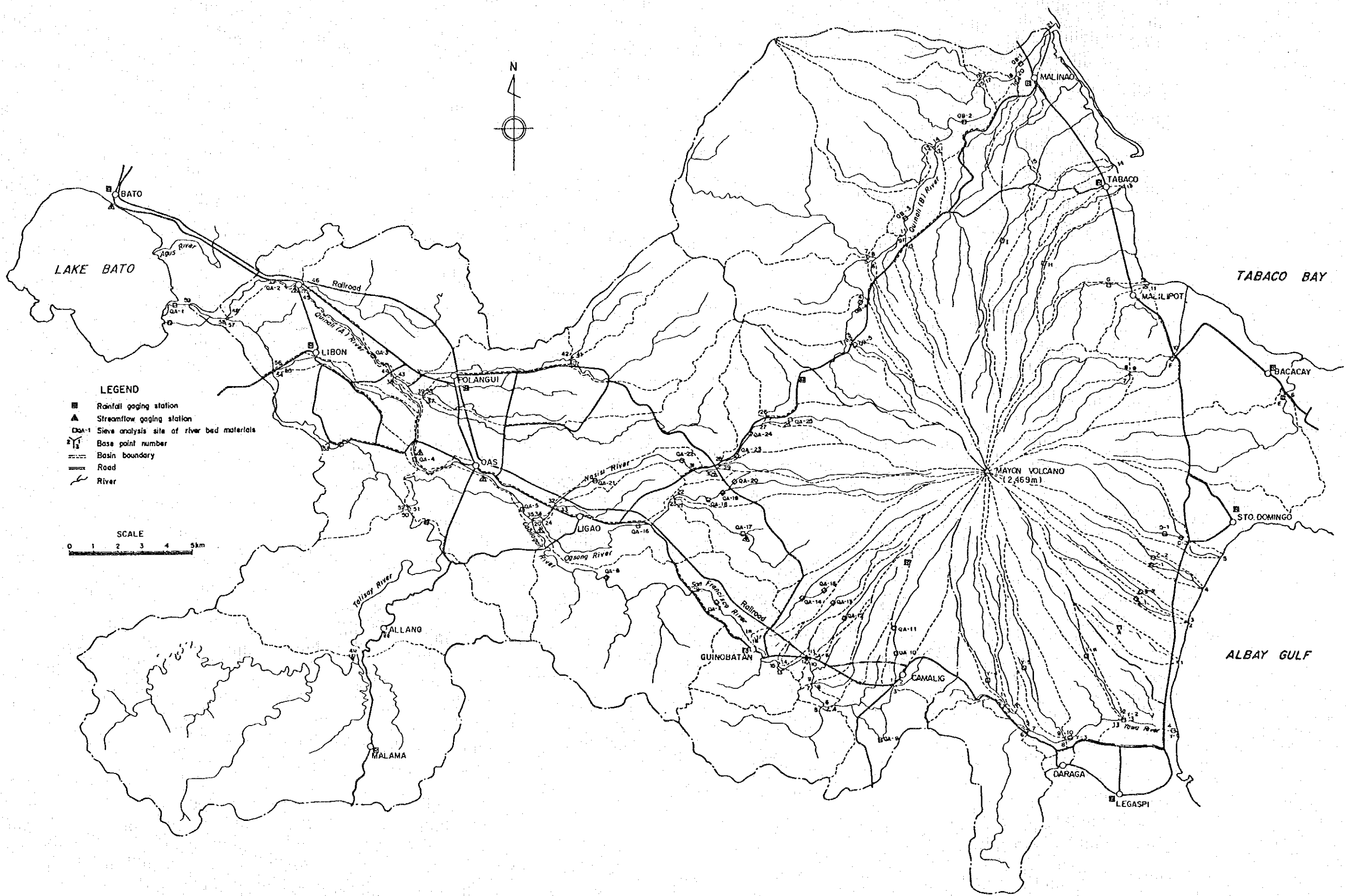
FIG.-3.7.1 ORGANIZATION AND FUNCTION OF DCC



The regional, provincial and municipal DCC do not hold the functions specified as No.2 and 4 among 11 functions. The barangay DCC holds the whole of 11 functions.

FIG-37.2 EXISTING BICOL RIVER BASIN FLOOD FORECASTING SYSTEM





- LEGEND**
- Rainfall gaging station
 - ▲ Streamflow gaging station
 - 1 Sieve analysis site of river bed materials
 - 2-3 Base point number
 - Basin boundary
 - == Road
 - ~ River

SCALE
0 1 2 3 4 5 km

FIG.- 5.2.1 BASIN MAP

FIG.-5.2.2 PROBABLE 50-YR RAINFALL INTENSITY-DURATION CURVES FOR LEGAZPI

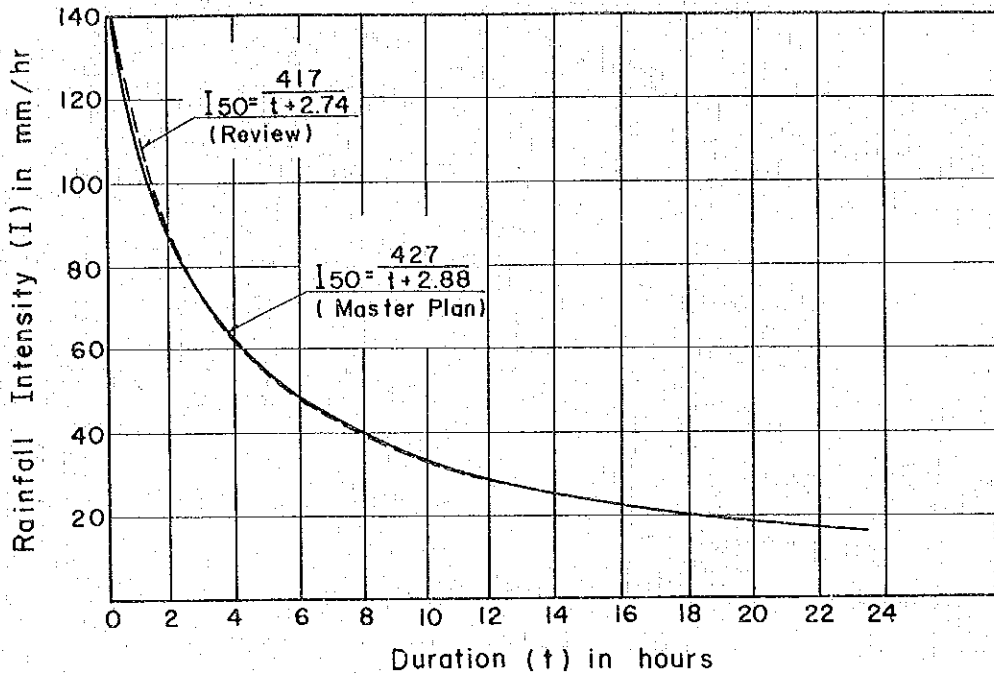
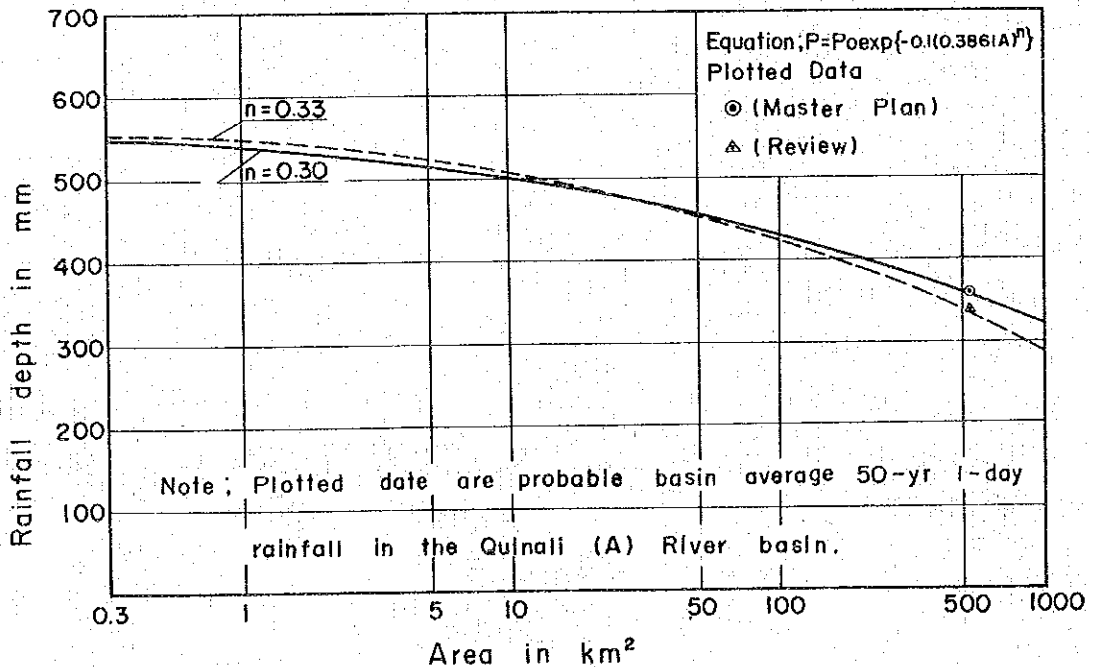


FIG.-5.2.3 PROBABLE 50-YR DAILY RAINFALL DEPTH-AREA CURVES FOR THE QUINALI (A) RIVER BASIN



REPUBLIC OF THE PHILIPPINES
 DEPARTMENT OF NATIONAL DEFENSE
 PHILIPPINE ATMOSPHERIC, GEOPHYSICAL AND
 ASTRONOMICAL SERVICES ADMINISTRATION

TYPE CHART
 FOR _____ SBT _____ 18
 PLOTTER ANACT 77
 PADANG CHART NO. 7094 (REV. JANUARY 1972)

CONVERSION TABLE
 METERS TO FEET
 1.8 1.9 2.0 2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8 2.9 3.0 3.1 3.2 3.3 3.4 3.5 3.6 3.7 3.8 3.9 4.0 4.1 4.2 4.3 4.4 4.5 4.6 4.7 4.8 4.9 5.0 5.1 5.2 5.3 5.4 5.5 5.6 5.7 5.8 5.9 6.0 6.1 6.2 6.3 6.4 6.5 6.6 6.7 6.8 6.9 7.0 7.1 7.2 7.3 7.4 7.5 7.6 7.7 7.8 7.9 8.0 8.1 8.2 8.3 8.4 8.5 8.6 8.7 8.8 8.9 9.0 9.1 9.2 9.3 9.4 9.5 9.6 9.7 9.8 9.9 10.0 10.1 10.2 10.3 10.4 10.5 10.6 10.7 10.8 10.9 11.0 11.1 11.2 11.3 11.4 11.5 11.6 11.7 11.8 11.9 12.0 12.1 12.2 12.3 12.4 12.5 12.6 12.7 12.8 12.9 13.0 13.1 13.2 13.3 13.4 13.5 13.6 13.7 13.8 13.9 14.0 14.1 14.2 14.3 14.4 14.5 14.6 14.7 14.8 14.9 15.0 15.1 15.2 15.3 15.4 15.5 15.6 15.7 15.8 15.9 16.0 16.1 16.2 16.3 16.4 16.5 16.6 16.7 16.8 16.9 17.0 17.1 17.2 17.3 17.4 17.5 17.6 17.7 17.8 17.9 18.0 18.1 18.2 18.3 18.4 18.5 18.6 18.7 18.8 18.9 19.0 19.1 19.2 19.3 19.4 19.5 19.6 19.7 19.8 19.9 20.0 20.1 20.2 20.3 20.4 20.5 20.6 20.7 20.8 20.9 21.0 21.1 21.2 21.3 21.4 21.5 21.6 21.7 21.8 21.9 22.0 22.1 22.2 22.3 22.4 22.5 22.6 22.7 22.8 22.9 23.0 23.1 23.2 23.3 23.4 23.5 23.6 23.7 23.8 23.9 24.0 24.1 24.2 24.3 24.4 24.5 24.6 24.7 24.8 24.9 25.0 25.1 25.2 25.3 25.4 25.5 25.6 25.7 25.8 25.9 26.0 26.1 26.2 26.3 26.4 26.5 26.6 26.7 26.8 26.9 27.0 27.1 27.2 27.3 27.4 27.5 27.6 27.7 27.8 27.9 28.0 28.1 28.2 28.3 28.4 28.5 28.6 28.7 28.8 28.9 29.0 29.1 29.2 29.3 29.4 29.5 29.6 29.7 29.8 29.9 30.0 30.1 30.2 30.3 30.4 30.5 30.6 30.7 30.8 30.9 31.0 31.1 31.2 31.3 31.4 31.5 31.6 31.7 31.8 31.9 32.0 32.1 32.2 32.3 32.4 32.5 32.6 32.7 32.8 32.9 33.0 33.1 33.2 33.3 33.4 33.5 33.6 33.7 33.8 33.9 34.0 34.1 34.2 34.3 34.4 34.5 34.6 34.7 34.8 34.9 35.0 35.1 35.2 35.3 35.4 35.5 35.6 35.7 35.8 35.9 36.0 36.1 36.2 36.3 36.4 36.5 36.6 36.7 36.8 36.9 37.0 37.1 37.2 37.3 37.4 37.5 37.6 37.7 37.8 37.9 38.0 38.1 38.2 38.3 38.4 38.5 38.6 38.7 38.8 38.9 39.0 39.1 39.2 39.3 39.4 39.5 39.6 39.7 39.8 39.9 40.0 40.1 40.2 40.3 40.4 40.5 40.6 40.7 40.8 40.9 41.0 41.1 41.2 41.3 41.4 41.5 41.6 41.7 41.8 41.9 42.0 42.1 42.2 42.3 42.4 42.5 42.6 42.7 42.8 42.9 43.0 43.1 43.2 43.3 43.4 43.5 43.6 43.7 43.8 43.9 44.0 44.1 44.2 44.3 44.4 44.5 44.6 44.7 44.8 44.9 45.0 45.1 45.2 45.3 45.4 45.5 45.6 45.7 45.8 45.9 46.0 46.1 46.2 46.3 46.4 46.5 46.6 46.7 46.8 46.9 47.0 47.1 47.2 47.3 47.4 47.5 47.6 47.7 47.8 47.9 48.0 48.1 48.2 48.3 48.4 48.5 48.6 48.7 48.8 48.9 49.0 49.1 49.2 49.3 49.4 49.5 49.6 49.7 49.8 49.9 50.0 50.1 50.2 50.3 50.4 50.5 50.6 50.7 50.8 50.9 51.0 51.1 51.2 51.3 51.4 51.5 51.6 51.7 51.8 51.9 52.0 52.1 52.2 52.3 52.4 52.5 52.6 52.7 52.8 52.9 53.0 53.1 53.2 53.3 53.4 53.5 53.6 53.7 53.8 53.9 54.0 54.1 54.2 54.3 54.4 54.5 54.6 54.7 54.8 54.9 55.0 55.1 55.2 55.3 55.4 55.5 55.6 55.7 55.8 55.9 56.0 56.1 56.2 56.3 56.4 56.5 56.6 56.7 56.8 56.9 57.0 57.1 57.2 57.3 57.4 57.5 57.6 57.7 57.8 57.9 58.0 58.1 58.2 58.3 58.4 58.5 58.6 58.7 58.8 58.9 59.0 59.1 59.2 59.3 59.4 59.5 59.6 59.7 59.8 59.9 60.0 60.1 60.2 60.3 60.4 60.5 60.6 60.7 60.8 60.9 61.0 61.1 61.2 61.3 61.4 61.5 61.6 61.7 61.8 61.9 62.0 62.1 62.2 62.3 62.4 62.5 62.6 62.7 62.8 62.9 63.0 63.1 63.2 63.3 63.4 63.5 63.6 63.7 63.8 63.9 64.0 64.1 64.2 64.3 64.4 64.5 64.6 64.7 64.8 64.9 65.0 65.1 65.2 65.3 65.4 65.5 65.6 65.7 65.8 65.9 66.0 66.1 66.2 66.3 66.4 66.5 66.6 66.7 66.8 66.9 67.0 67.1 67.2 67.3 67.4 67.5 67.6 67.7 67.8 67.9 68.0 68.1 68.2 68.3 68.4 68.5 68.6 68.7 68.8 68.9 69.0 69.1 69.2 69.3 69.4 69.5 69.6 69.7 69.8 69.9 70.0 70.1 70.2 70.3 70.4 70.5 70.6 70.7 70.8 70.9 71.0 71.1 71.2 71.3 71.4 71.5 71.6 71.7 71.8 71.9 72.0 72.1 72.2 72.3 72.4 72.5 72.6 72.7 72.8 72.9 73.0 73.1 73.2 73.3 73.4 73.5 73.6 73.7 73.8 73.9 74.0 74.1 74.2 74.3 74.4 74.5 74.6 74.7 74.8 74.9 75.0 75.1 75.2 75.3 75.4 75.5 75.6 75.7 75.8 75.9 76.0 76.1 76.2 76.3 76.4 76.5 76.6 76.7 76.8 76.9 77.0 77.1 77.2 77.3 77.4 77.5 77.6 77.7 77.8 77.9 78.0 78.1 78.2 78.3 78.4 78.5 78.6 78.7 78.8 78.9 79.0 79.1 79.2 79.3 79.4 79.5 79.6 79.7 79.8 79.9 80.0 80.1 80.2 80.3 80.4 80.5 80.6 80.7 80.8 80.9 81.0 81.1 81.2 81.3 81.4 81.5 81.6 81.7 81.8 81.9 82.0 82.1 82.2 82.3 82.4 82.5 82.6 82.7 82.8 82.9 83.0 83.1 83.2 83.3 83.4 83.5 83.6 83.7 83.8 83.9 84.0 84.1 84.2 84.3 84.4 84.5 84.6 84.7 84.8 84.9 85.0 85.1 85.2 85.3 85.4 85.5 85.6 85.7 85.8 85.9 86.0 86.1 86.2 86.3 86.4 86.5 86.6 86.7 86.8 86.9 87.0 87.1 87.2 87.3 87.4 87.5 87.6 87.7 87.8 87.9 88.0 88.1 88.2 88.3 88.4 88.5 88.6 88.7 88.8 88.9 89.0 89.1 89.2 89.3 89.4 89.5 89.6 89.7 89.8 89.9 90.0 90.1 90.2 90.3 90.4 90.5 90.6 90.7 90.8 90.9 91.0 91.1 91.2 91.3 91.4 91.5 91.6 91.7 91.8 91.9 92.0 92.1 92.2 92.3 92.4 92.5 92.6 92.7 92.8 92.9 93.0 93.1 93.2 93.3 93.4 93.5 93.6 93.7 93.8 93.9 94.0 94.1 94.2 94.3 94.4 94.5 94.6 94.7 94.8 94.9 95.0 95.1 95.2 95.3 95.4 95.5 95.6 95.7 95.8 95.9 96.0 96.1 96.2 96.3 96.4 96.5 96.6 96.7 96.8 96.9 97.0 97.1 97.2 97.3 97.4 97.5 97.6 97.7 97.8 97.9 98.0 98.1 98.2 98.3 98.4 98.5 98.6 98.7 98.8 98.9 99.0 99.1 99.2 99.3 99.4 99.5 99.6 99.7 99.8 99.9 100.0

Legend:
 ○ Positions at time indicated
 Formative or dissipating stage
 - - - - - Depression stage
 — Typhoon or storm stage

Trop. Storm "DALING" (8104)
 June 26 - July 2, 1981

FIG. - 5.2.4 TYPHOON "DALING'S TRACK

FIG.-5.2.5 HOURLY RAINFALL DISTRIBUTION

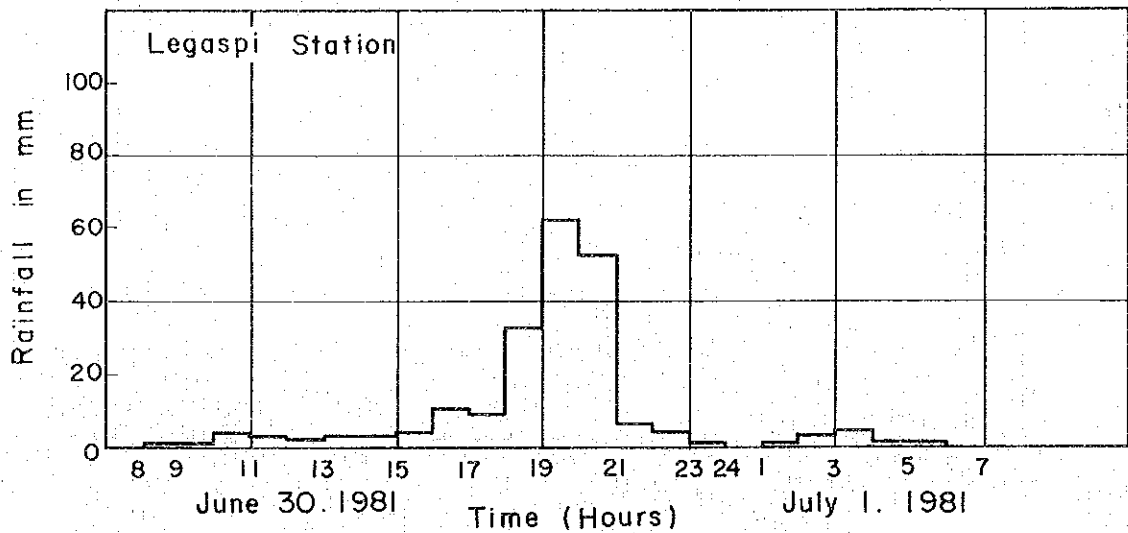
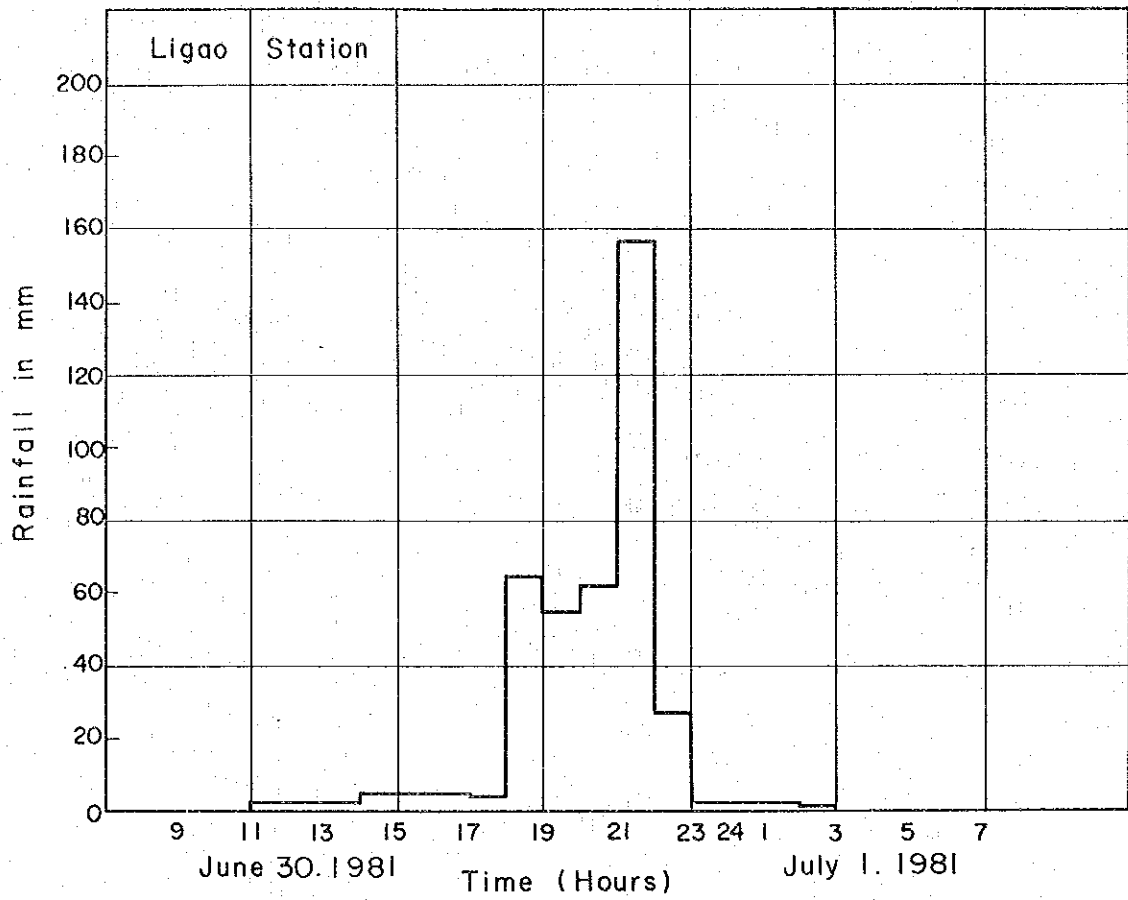


FIG.-5.4.1 RIVER WIDTH AND DISCHARGE CAPACITY OF THE PRESENT RIVER CHANNEL, THE QUINALI (A) RIVER, MAIN COURSE

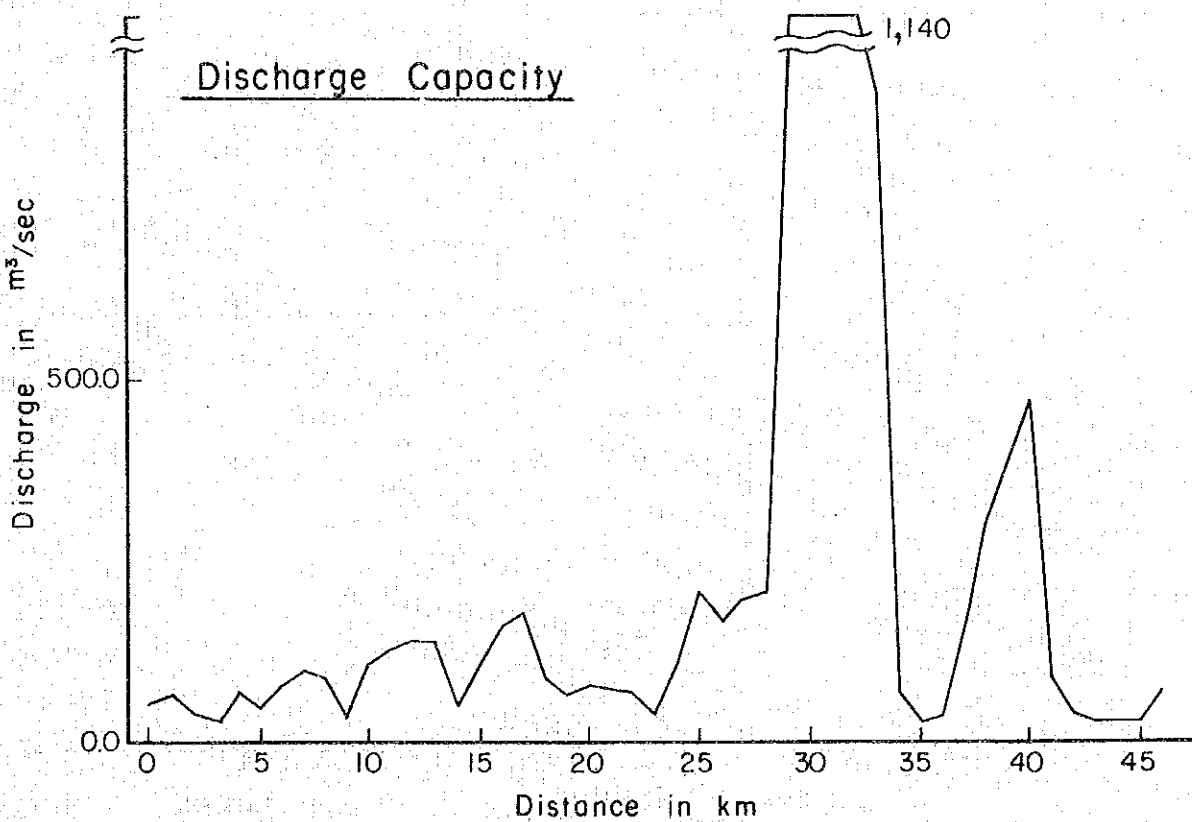
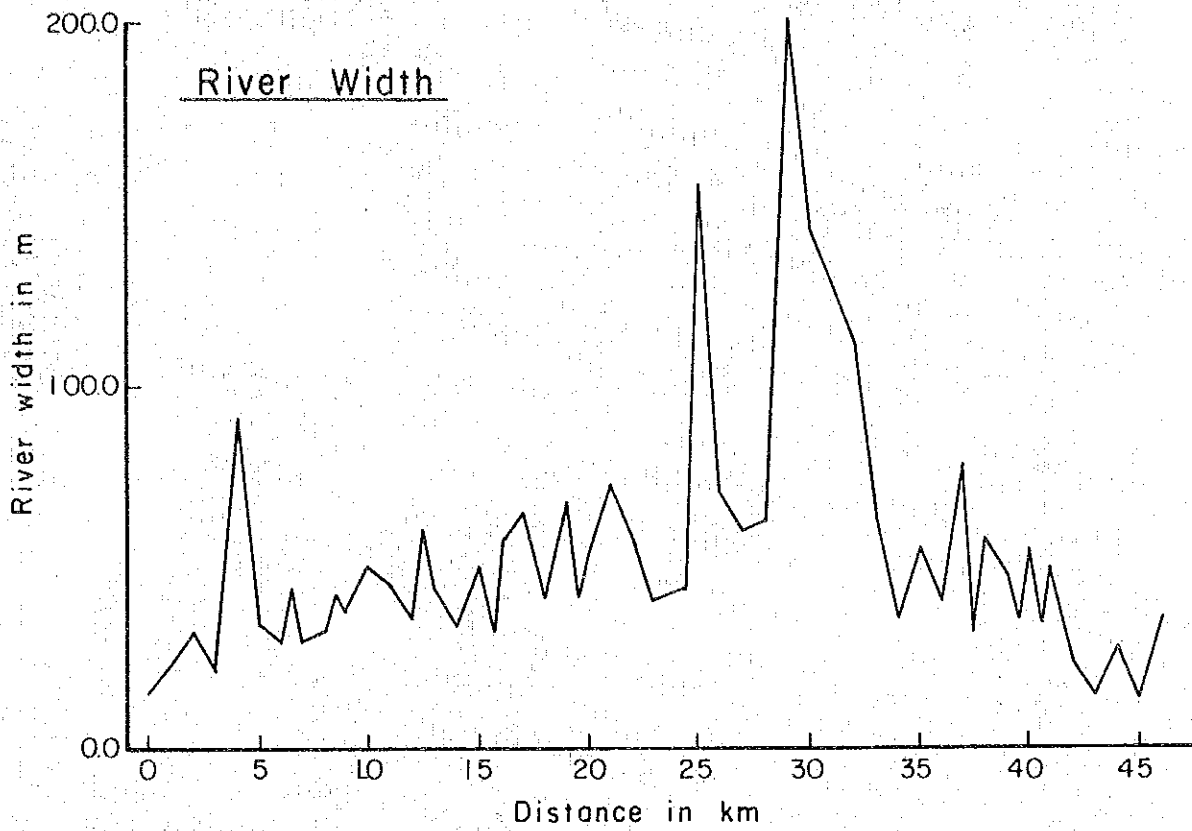


FIG.-5.4.2 RIVER WIDTH AND DISCHARGE CAPACITY OF THE PRESENT RIVER CHANNEL, THE TALISAY RIVER

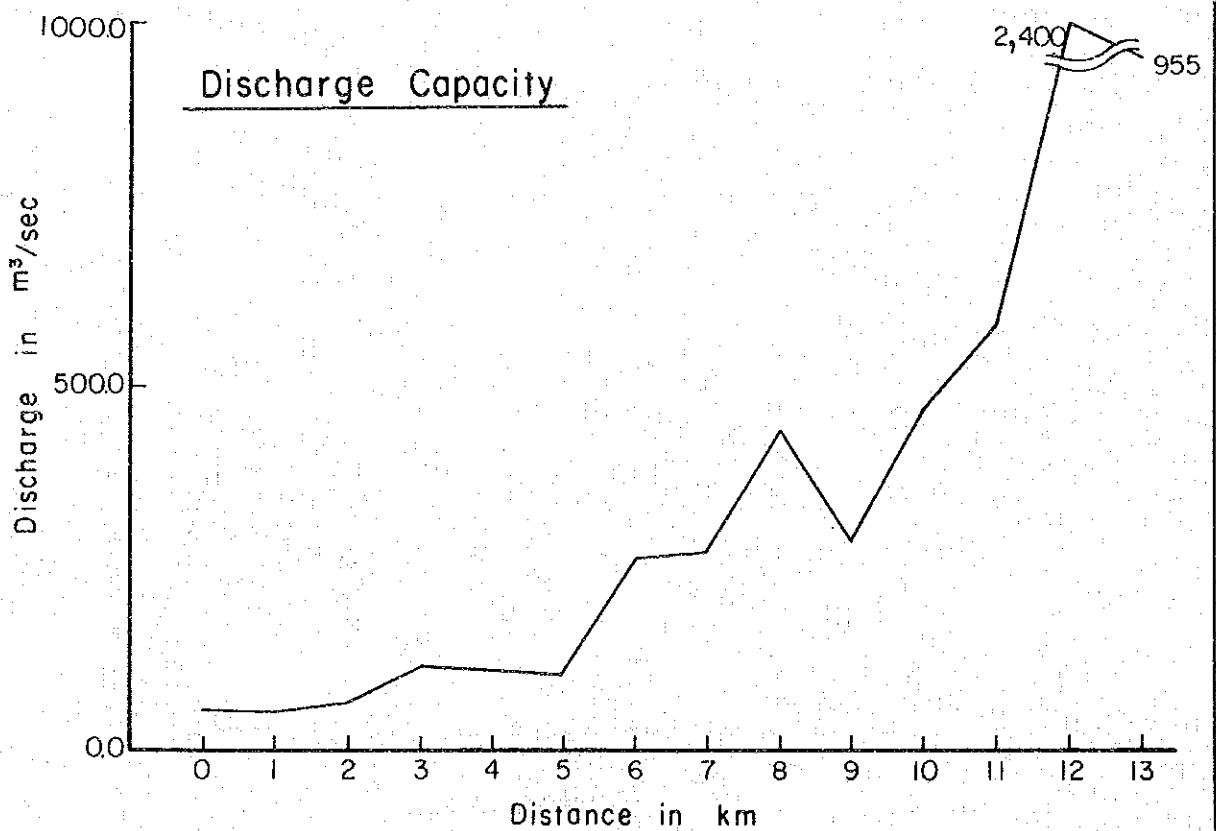
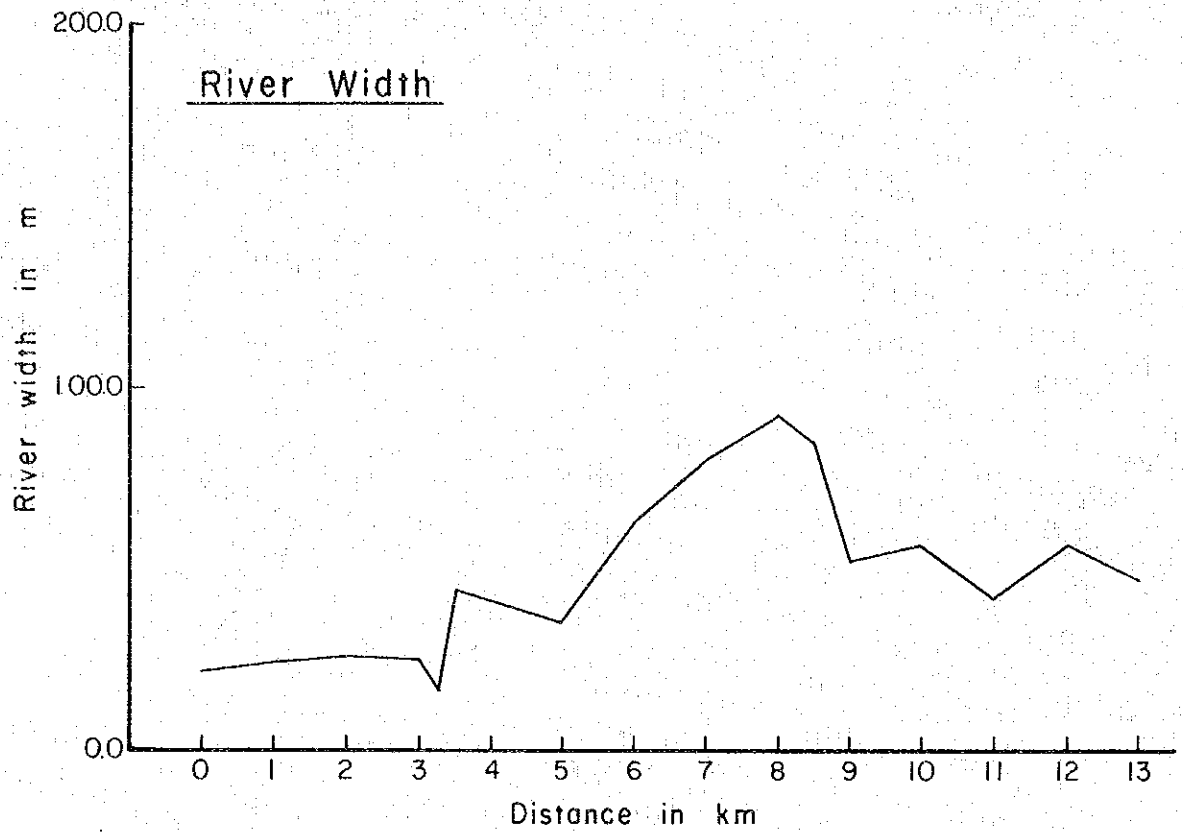


FIG.-5.4.3 RIVER WIDTH AND DISCHARGE CAPACITY OF THE PRESENT RIVER CHANNEL, THE NASISI RIVER

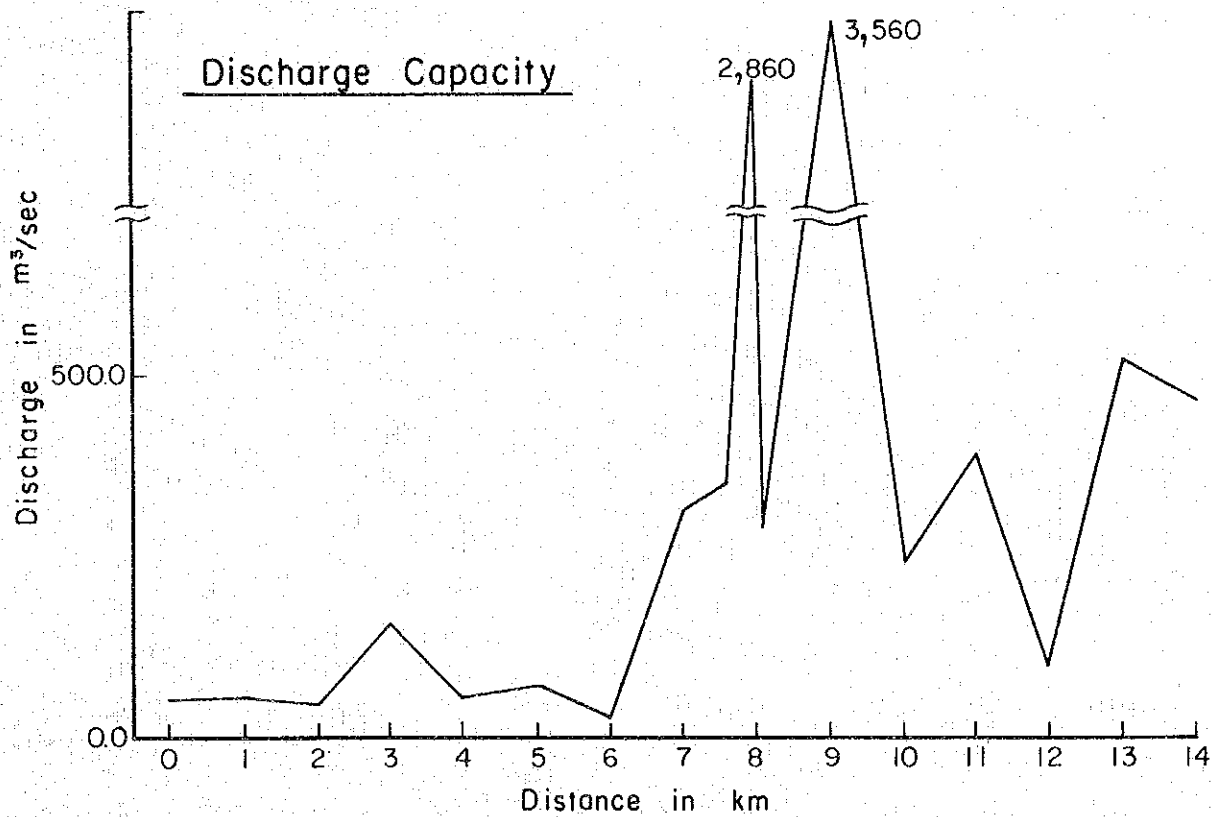
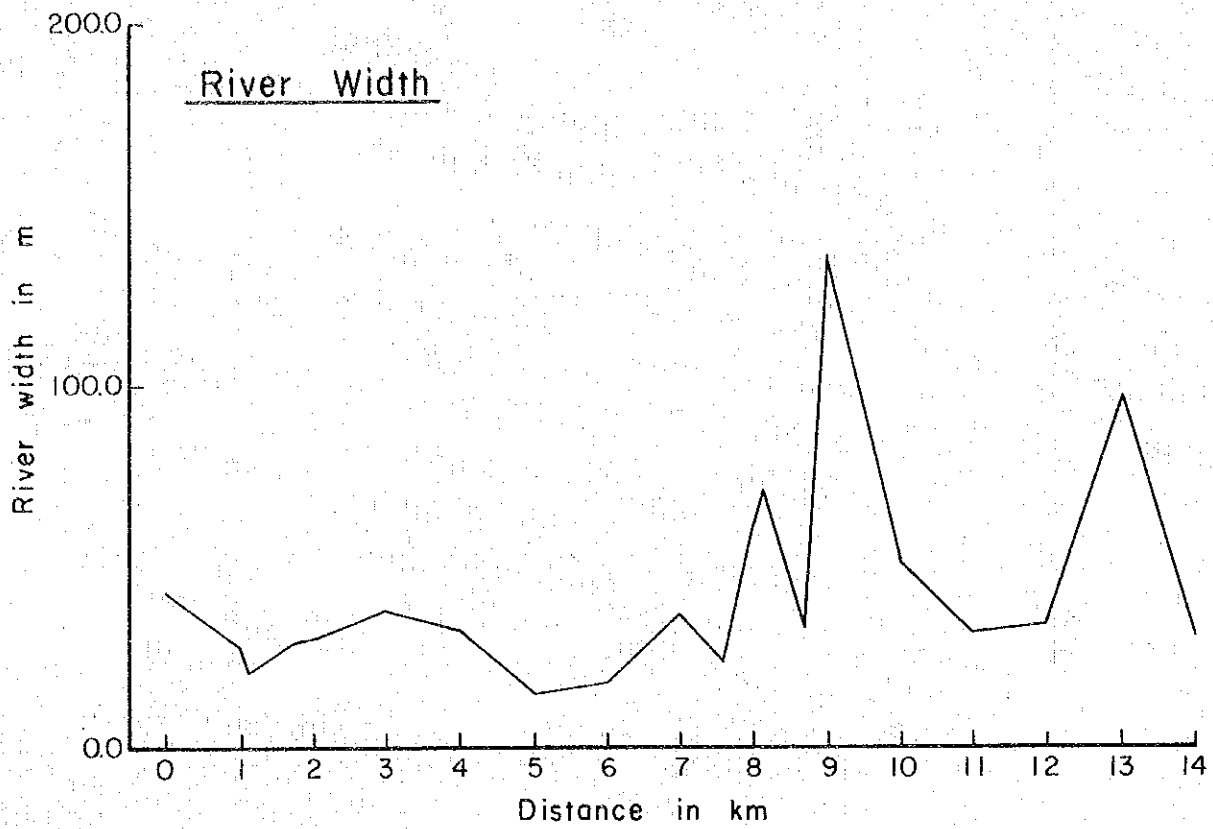


FIG-5.4.4 DESIGN DISCHARGE DISTRIBUTION DIAGRAM, THE QINALI (A) RIVER
 (PROPOSED SCHEME RETURN PERIOD 50--YEAR)

Unit : m³/sec

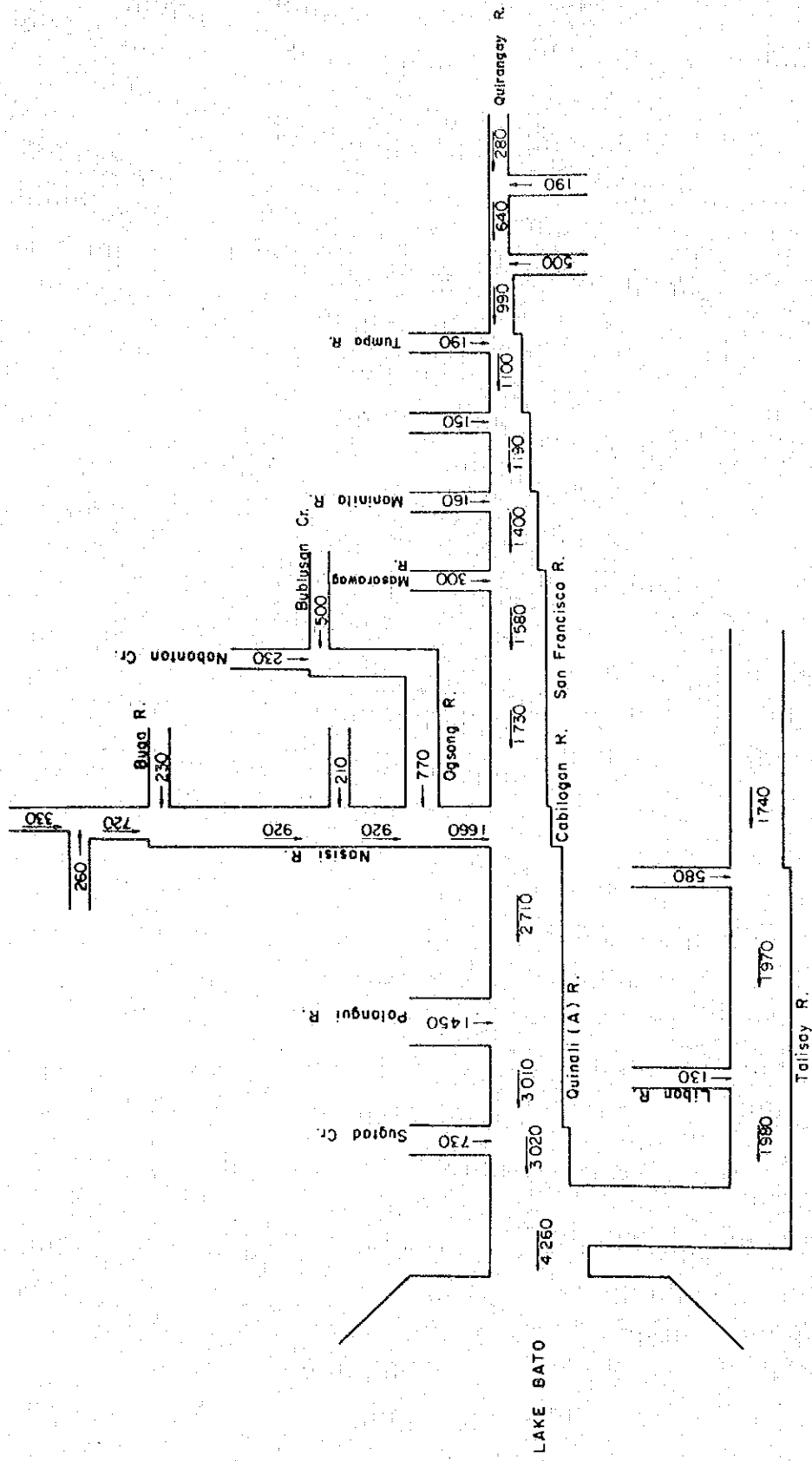


FIG.-5.4.5 ALTERNATIVES FOR ROUTE SELECTION

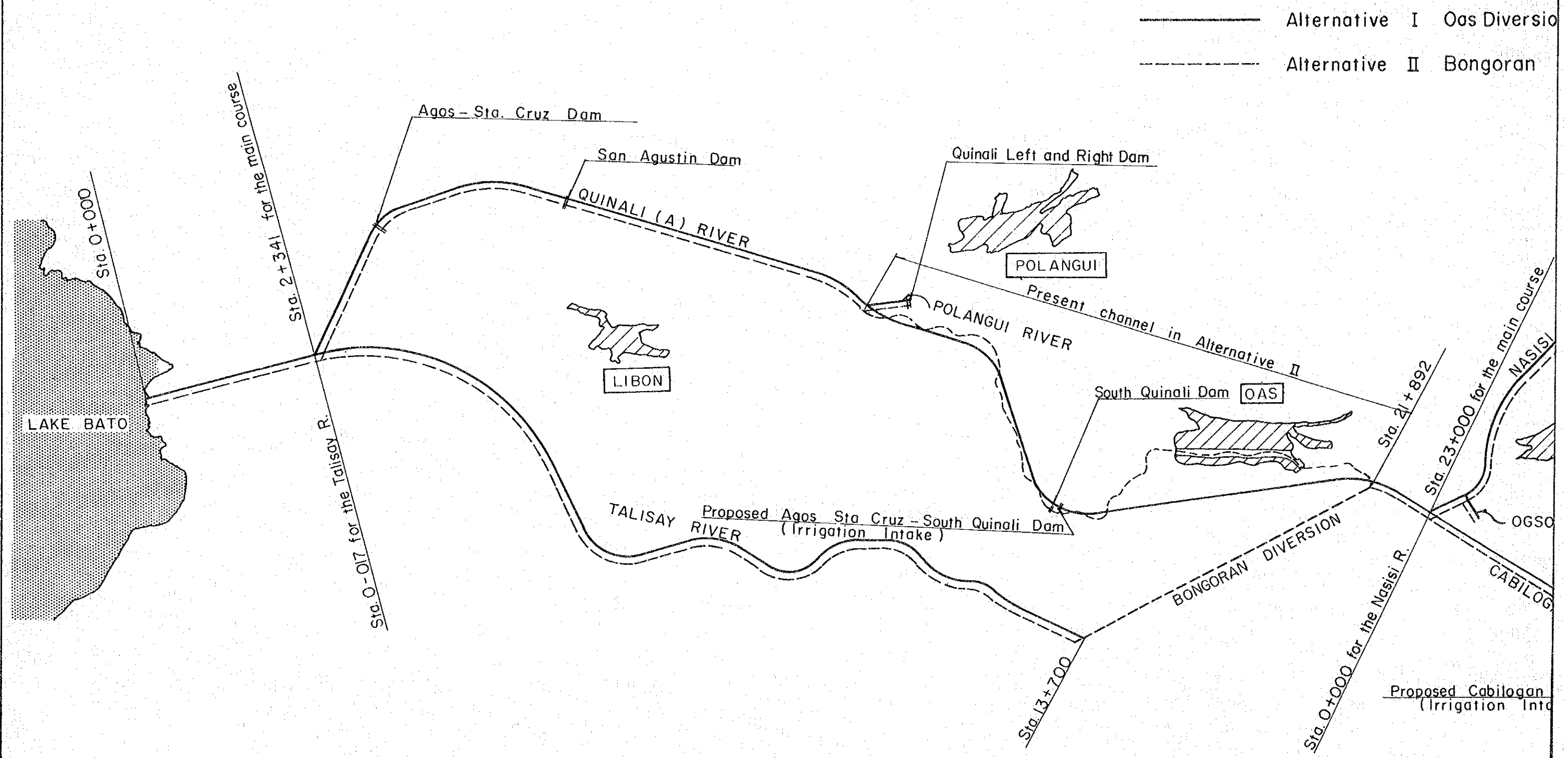


FIG.-5.4.5 ALTERNATIVES FOR ROUTE SELECTION

- Alternative I Oas Diversion Scheme (Selected)
- - - - - Alternative II Bongoran Diversion Scheme

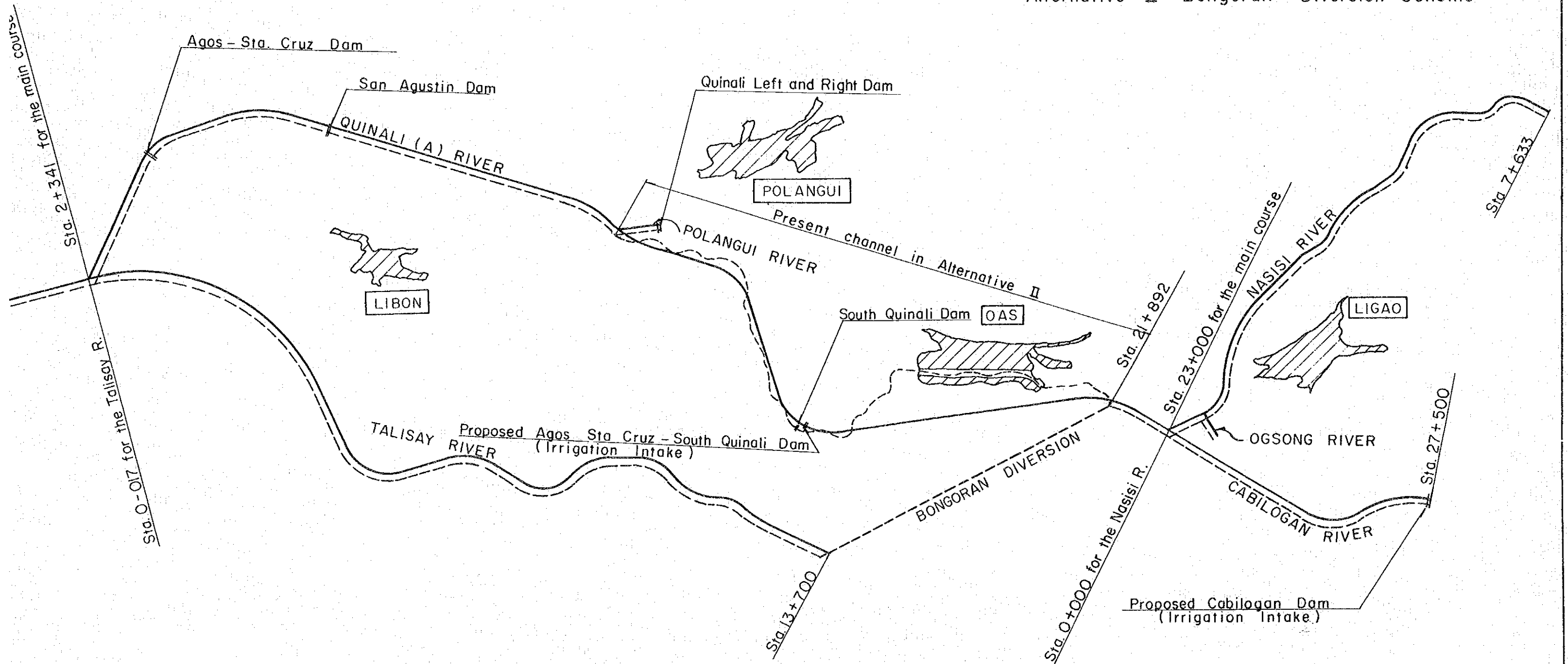


FIG-5.4.6 DESIGN DISCHARGE DISTRIBUTION DIAGRAM, THE QUINALI (A) RIVER
 BONGORAN DIVERSION SCHEME (RETURN PERIOD 50 - YEAR)
 Unit : m³/sec

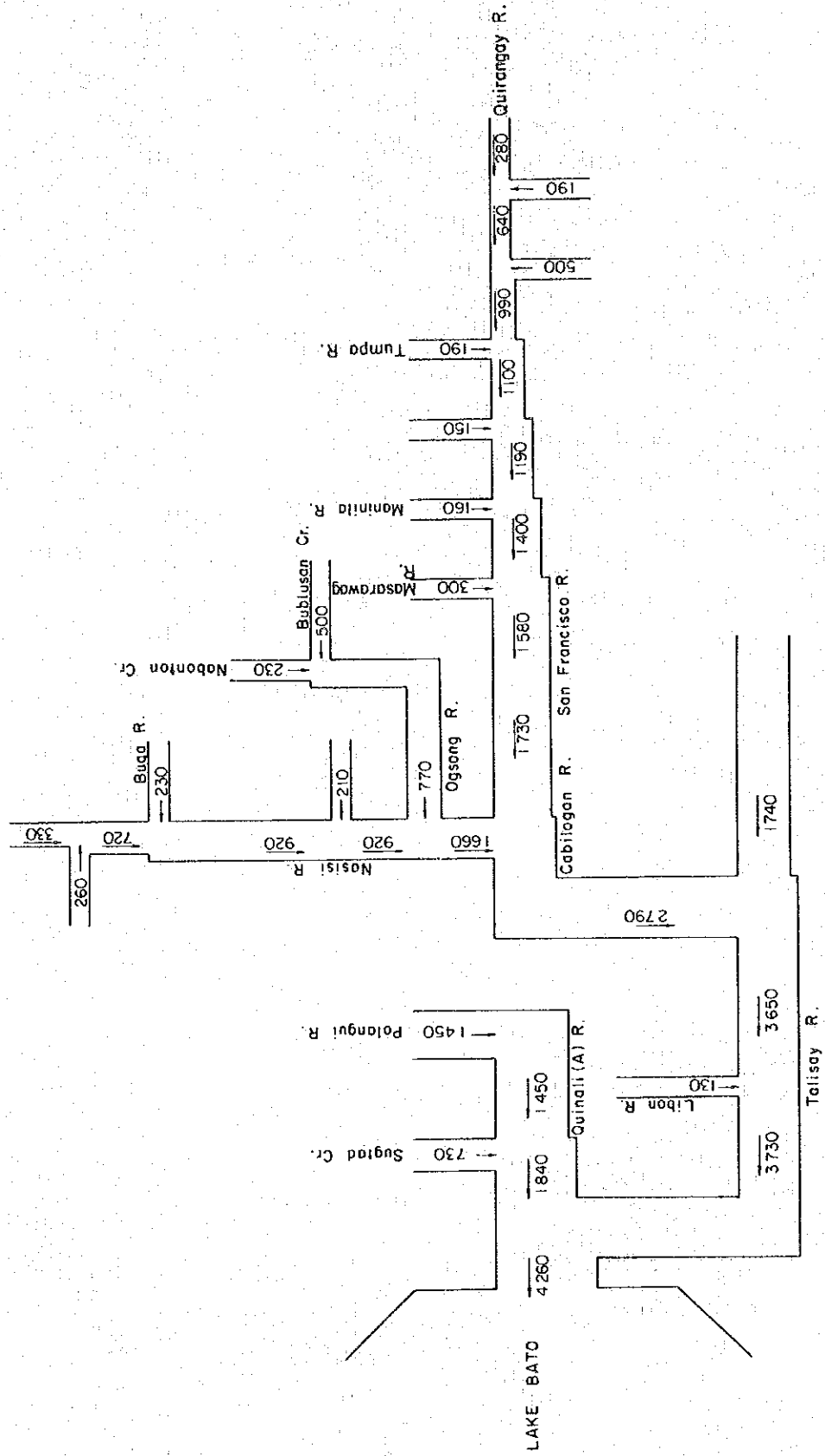
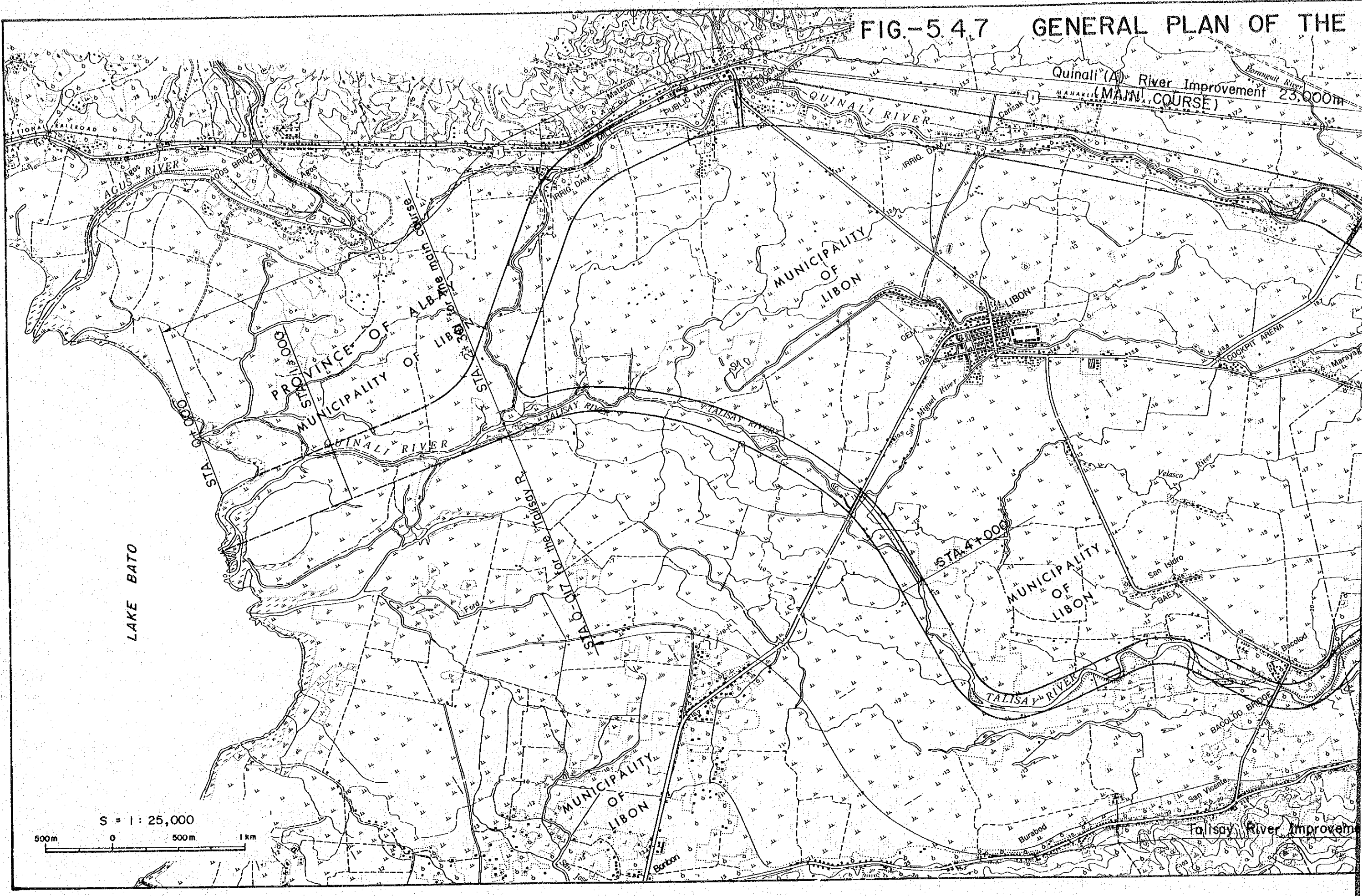
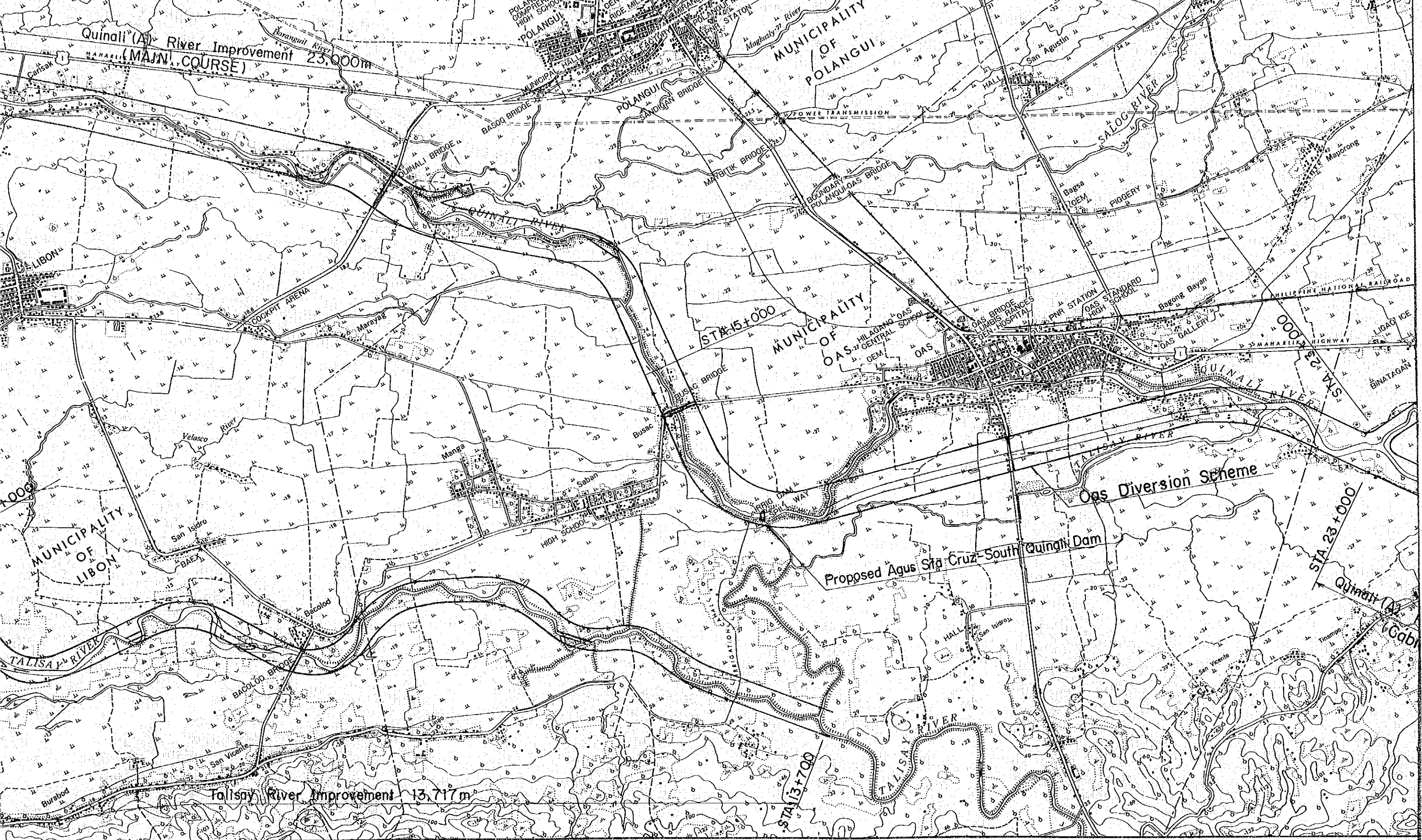


FIG-5.47 GENERAL PLAN OF THE



7 GENERAL PLAN OF THE QUINALI(A) RIVER, MAIN COURSE & THE TALISAY RIVER



Quinali(A) River Improvement (MAIN COURSE) 23,000m

Talisay River Improvement 13,717m

Proposed Agus Srg Cruz-South Quinali Dam

Oas Diversion Scheme

MUNICIPALITY OF POLANGUI

MUNICIPALITY OF OAS

MUNICIPALITY OF LIBON

STA 13+700

STA 15+000

STA 23+000

STA 12+000

Quinali(A) River

TALISAY RIVER

TALISAY RIVER

QUINALI RIVER

SALOC RIVER

LIBON

POLANGUI

OAS

BINATAGAN

LIGAO

PHILIPPINE NATIONAL RAILROAD

MAHARLIKA HIGHWAY

POWER TRANSMISSION

COCKPIT ARENA

HIGH SCHOOL

PNR STATION

OAS STANDARD HIGH SCHOOL

POLANGUI COMPREHENSIVE HIGH SCHOOL

POLANGUI WOOD FACTORY

POLANGUI MARKET

POLANGUI RICE MILL

MIRANDA

POLANGUI MA

STATION

San Agustin

HALL

Bagsa

ICE

PIGGERY

Maporong

San Isidro

Manga

Saban

Busac

ARRIO DAM

WAY

BRIDGE

UMIS

HOSPITAL

OAS GALLERY

Bagong Bayan

San Vicente

Lingo

Bacolod

BACOLOD BRIDGE

HALL

San Isidro

San Vicente

San Vicente

San Vicente

San Vicente

San Vicente

Burabod

San Vicente

San Vicente

San Vicente

San Vicente

San Vicente

San Vicente

San Vicente

San Vicente

San Vicente

San Vicente

ER, MAIN COURSE & THE TALISAY RIVER

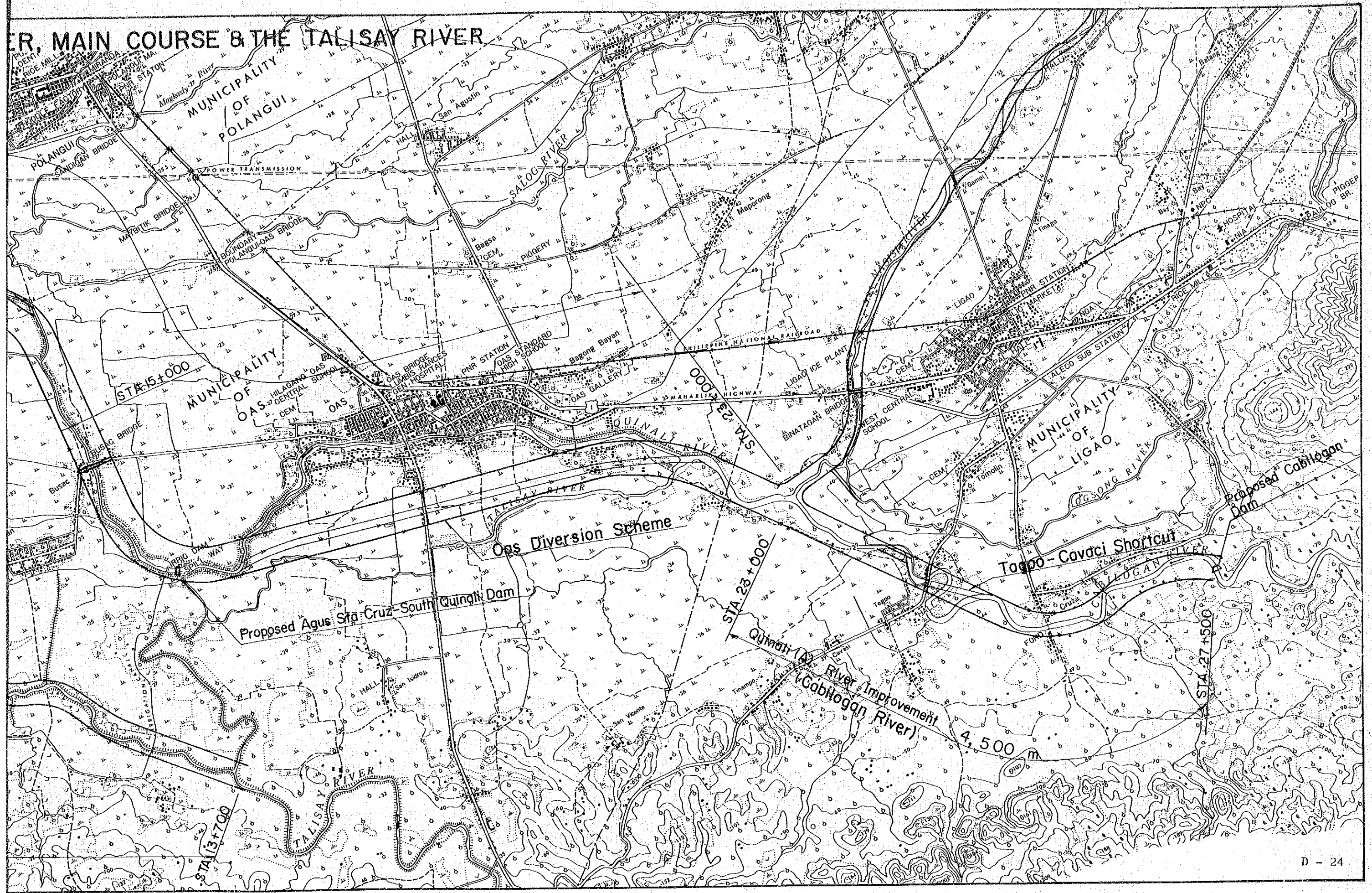


FIG.-5.4.8 GENERAL PLAN OF THE NASISI RIVER

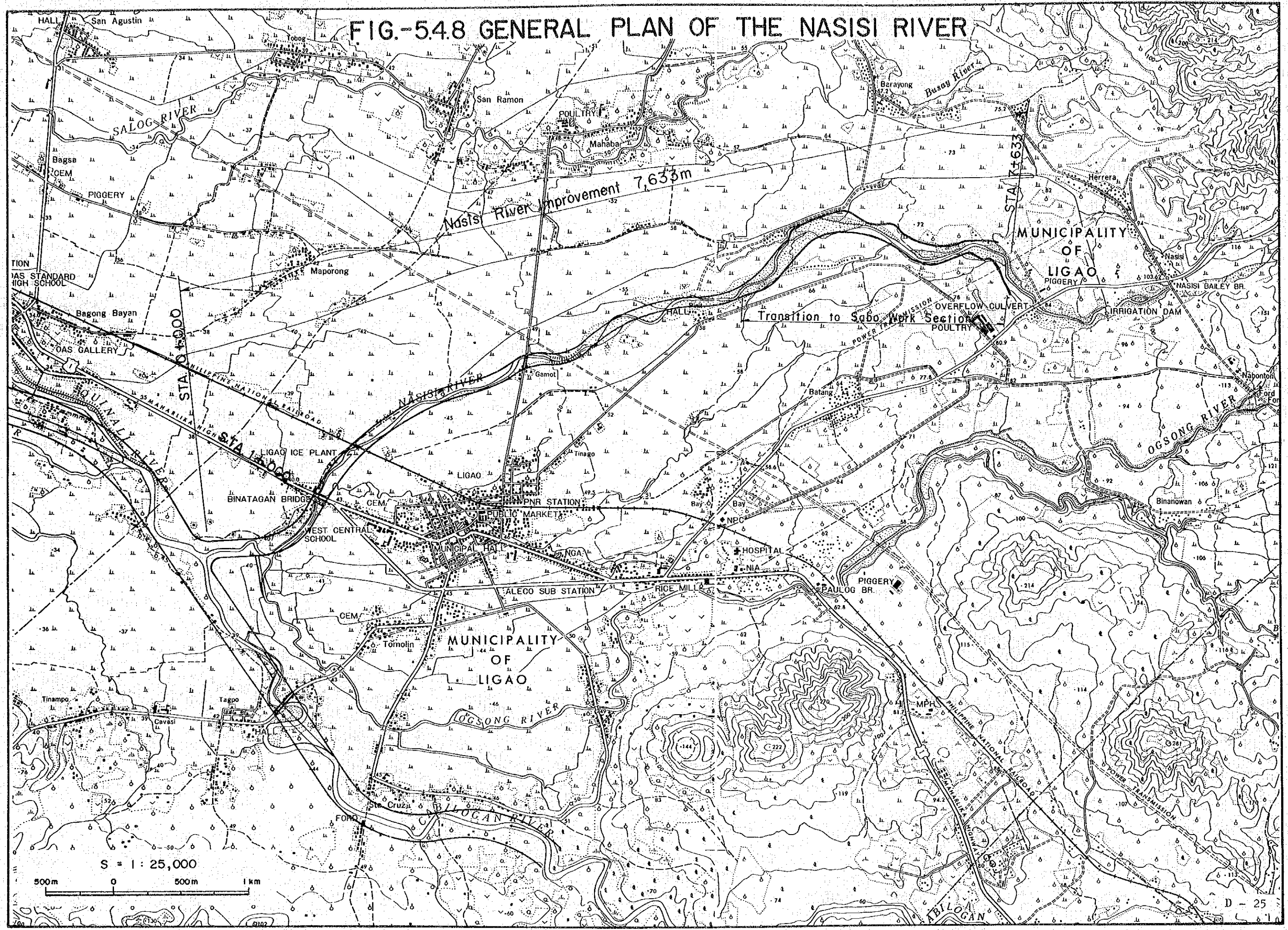
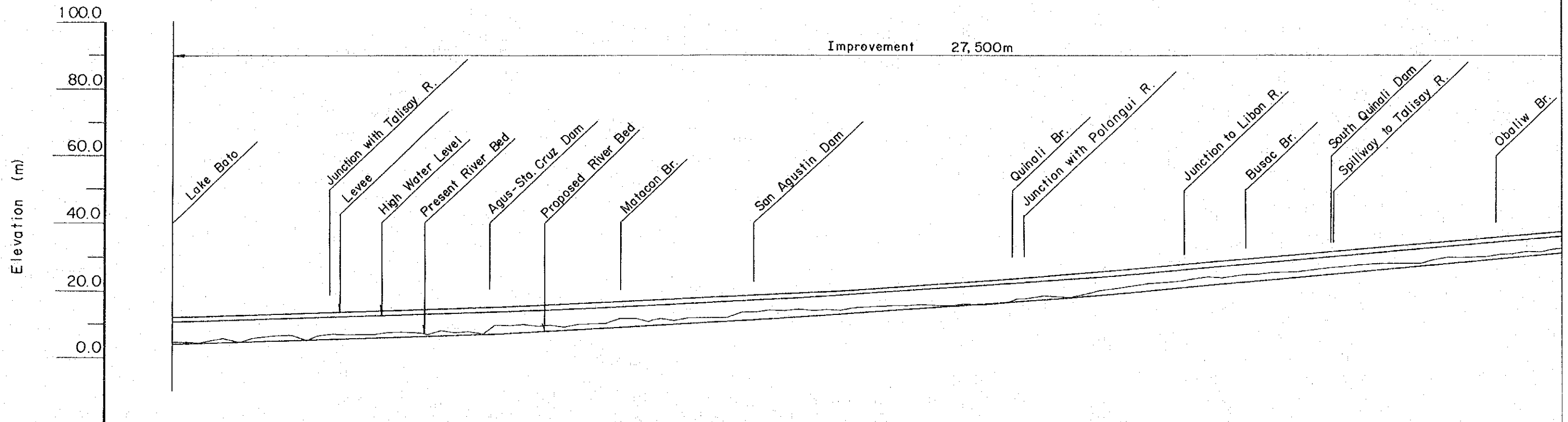
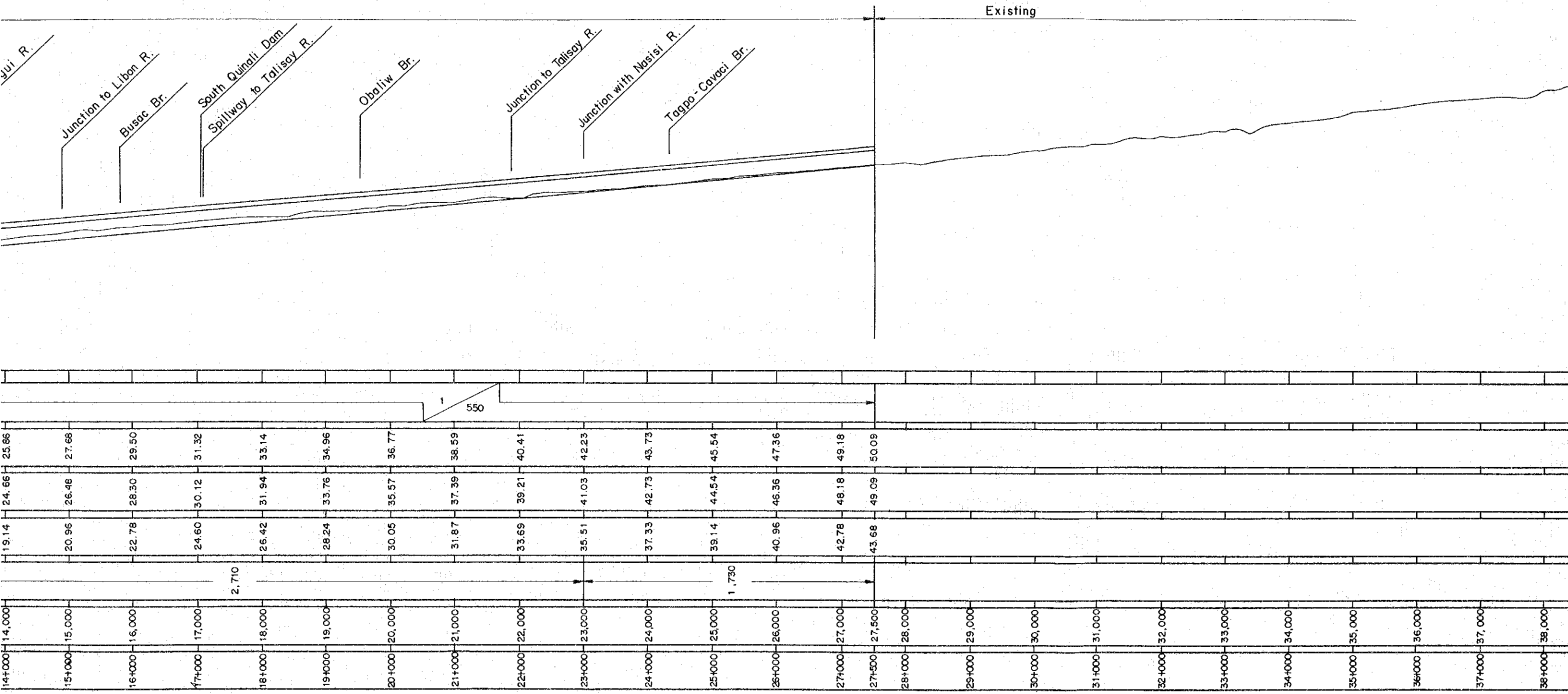


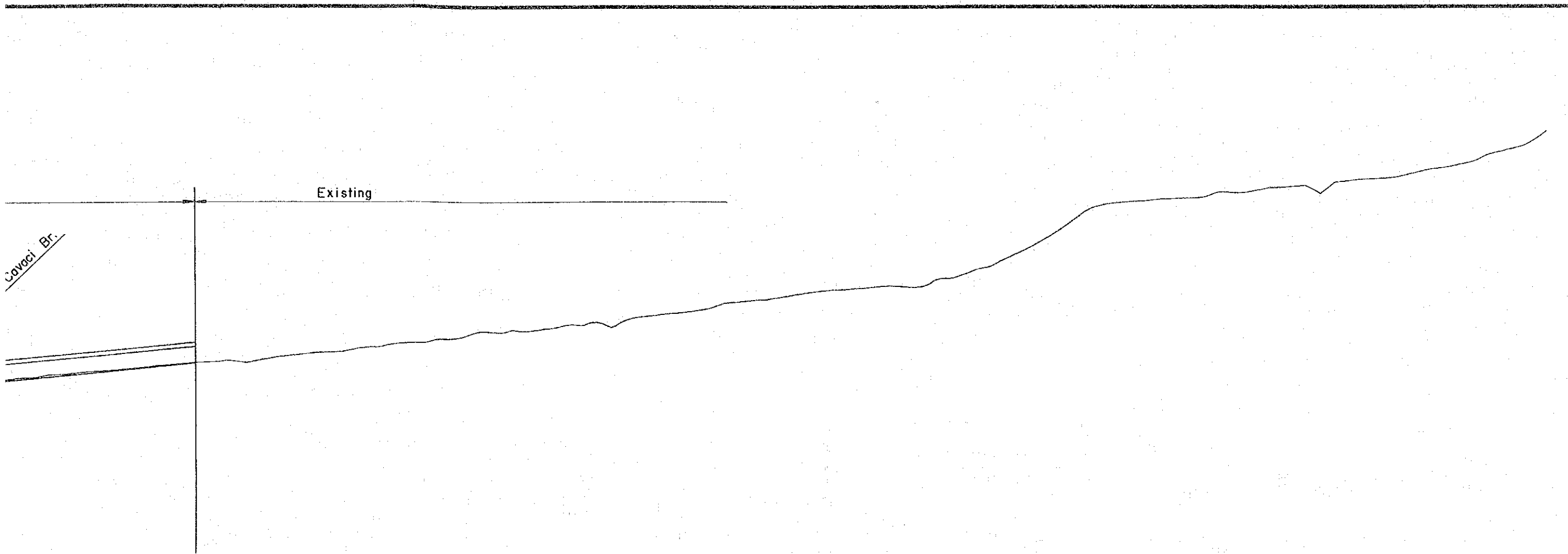
FIG.-5.4.9 PROFILE OF QUINALI (A) RIVER, MAIN COURSE



Proposed River Bed Gradient																										
Formation Height of Levee (EL.m)	12.00	12.64	13.28	13.66	14.30	14.53	15.53	16.52	17.52	18.67	20.10	21.53	22.96	24.40	25.86	27.68	29.50	31.32	33.14	34.96	36.77					
High Water Level (EL.m)	10.80	11.44	12.08	12.46	13.10	13.33	14.33	15.32	16.32	17.47	18.90	20.33	21.76	23.20	24.66	26.48	28.30	30.12	31.94	33.76	35.57					
Formation Height of River Bed (EL.m)	3.98	4.63	5.27	5.92	6.56	7.35	8.35	9.35	10.35	11.69	13.12	14.55	15.98	17.41	19.14	20.96	22.78	24.60	26.42	28.24	30.05					
Discharge (m ³ /s)	0	4,260		3,020		3,010		2,710																		
Cumulative Distance (m)	0	1,000	2,000	2,341	3,000	4,000	4,600	5,000	6,000	7,000	8,000	8,200	9,000	10,000	11,000	12,000	12,512	13,000	13,200	14,000	15,000	16,000	17,000	18,000	19,000	20,000
Station No.	0+000	1+000	2+000	2+341	3+000	4+000	4+600	5+000	6+000	7+000	8+000	8+200	9+000	10+000	11+000	12+000	12+512	13+000	13+200	14+000	15+000	16+000	17+000	18+000	19+000	20+000

PROFILE OF QUINALI (A) RIVER, MAIN COURSE





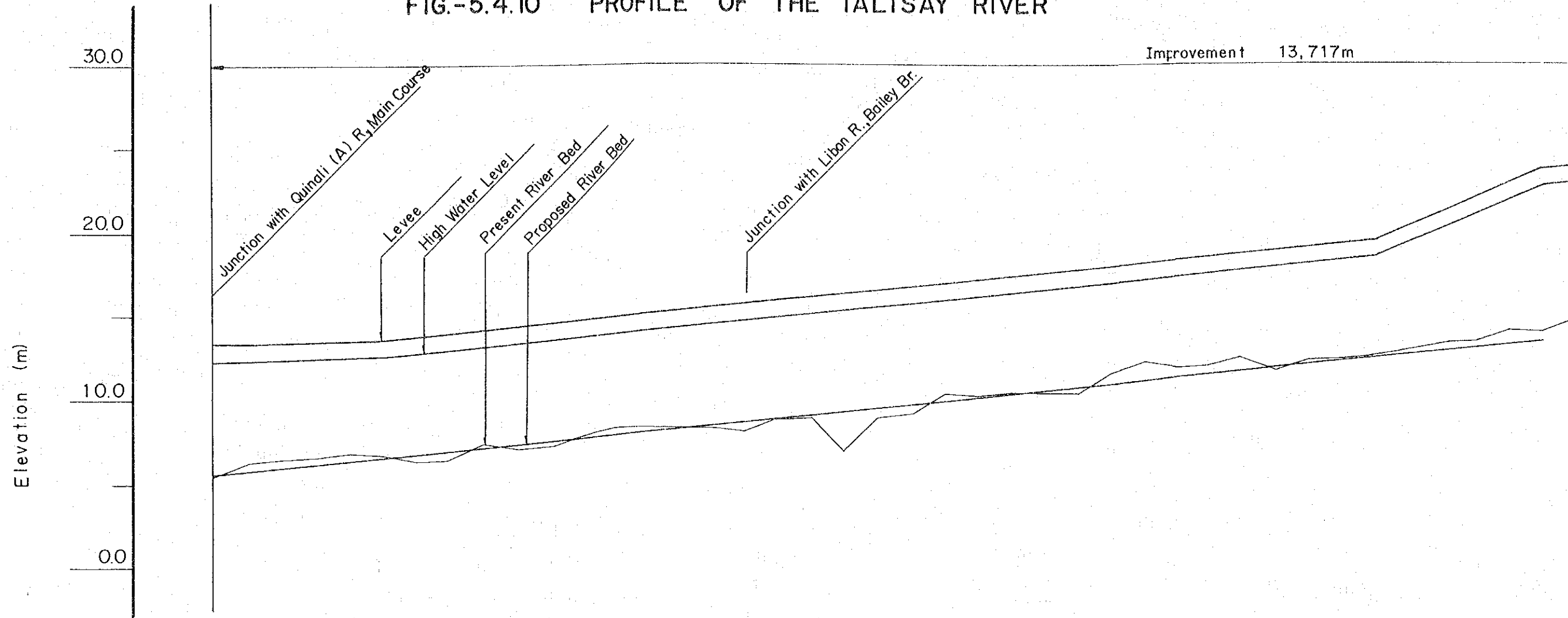
25+000	25,000	39.14	44.54	45.54
26+000	26,000	40.96	46.36	47.36
27+000	27,000	42.78	48.18	49.18
27+500	27,500	43.68	49.09	50.09
28+000	28,000			
29+000	29,000			
30+000	30,000			
31+000	31,000			
32+000	32,000			
33+000	33,000			
34+000	34,000			
35+000	35,000			
36+000	36,000			
37+000	37,000			
38+000	38,000			
39+000	39,000			
40+000	40,000			
41+000	41,000			
42+000	42,000			
43+000	43,000			
44+000	44,000			
45+000	45,000			
46+000	46,000			
46+527	46,527			
46+672	46,672			

Coveci Br.

Existing

1,730

FIG.-5.4.10 PROFILE OF THE TALISAY RIVER

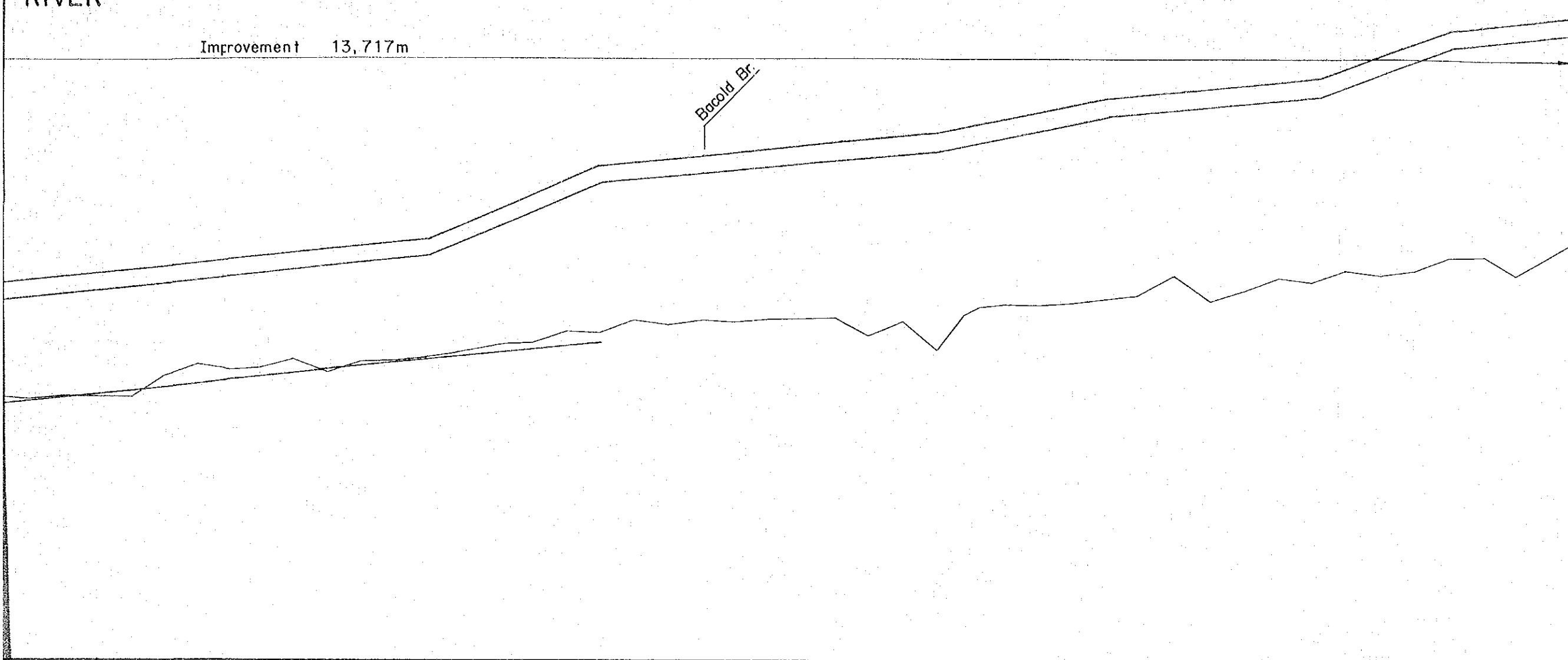


Proposed River Bed Gradient													
Formation Height of Levee (EL.m)	13.50	13.50	13.64	13.64	14.64	15.64	15.64	16.63	17.63	17.63	18.63	19.63	23.77
High Water Level (EL.m)	12.30	12.32	12.64	12.64	13.64	14.64	14.64	15.63	16.63	16.63	17.63	18.63	22.77
Formation Height of River Bed (EL.m)	5.49	5.51	6.51	6.51	7.51	8.51	8.51	9.51	10.51	10.51	11.51	12.51	13.51
Discharge (m ³ /s)													
Cumulative Distance (m)	0	1,000	1,000	2,000	3,000	3,266	3,266	4,000	5,000	6,000	7,000	8,000	8,000
Station No.	0+017	0+000	1+000	2+000	3+000	3+266	4+000	5+000	6+000	7+000	8+000	8+000	8+000

RIVER

Improvement 13,717m

Bacold Br.



Station	Improvement Elevation (m)	Existing River Bed Slope $I = 1/1,000$ Elevation (m)	Existing River Bed Slope $I = 1/800$ Elevation (m)
5+000	10.51	16.63	17.63
6+000	11.51	17.63	18.63
7+000	12.51	18.63	19.63
8+000	13.51	22.77	23.77
9+000	23.77	23.77	24.77
10+000	24.77	24.77	25.77
11+000	26.86	26.86	27.86
12+000	27.86	27.86	28.86
13+000	30.71	30.71	31.71
13+700	31.59	31.59	32.59

FIG.-5.4.II

PROFILE OF THE NASISI RIVER

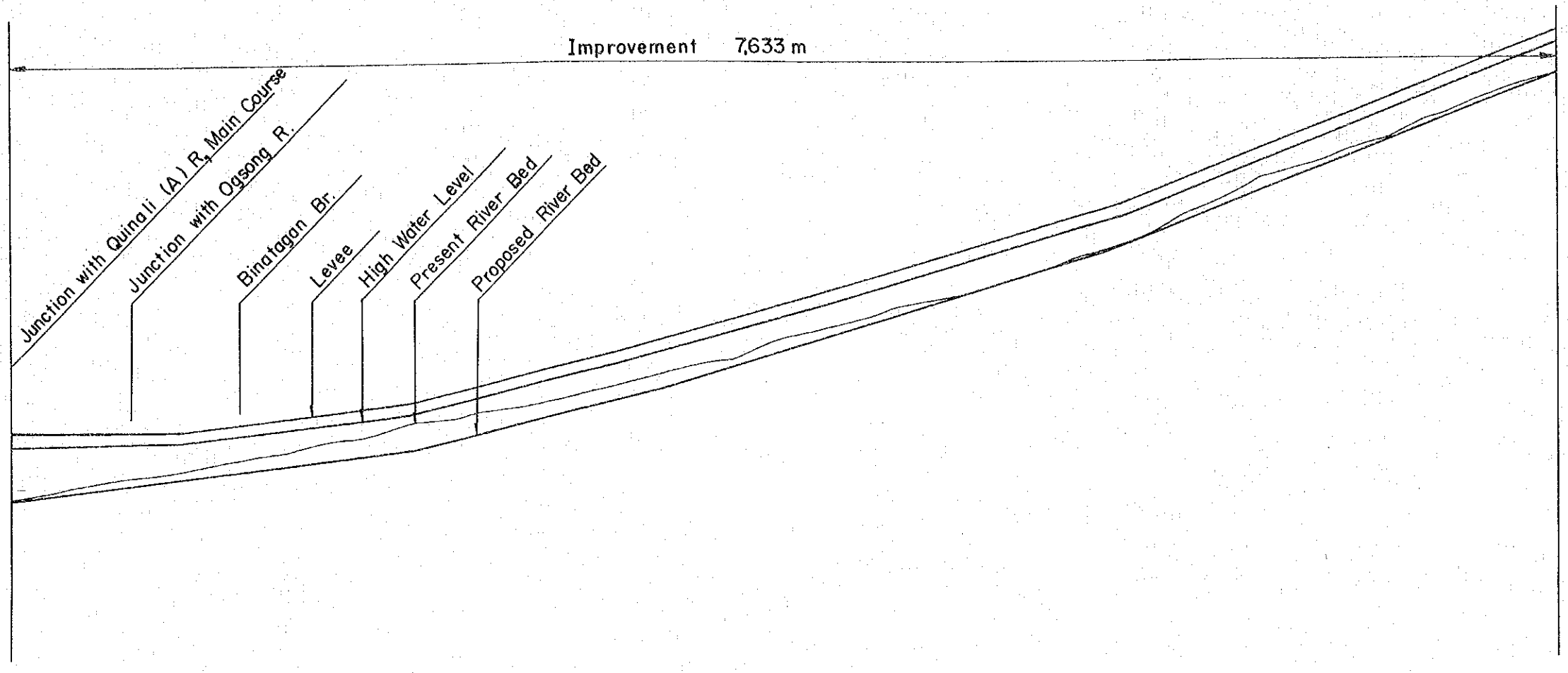
Elevation (m)

80.0

60.0

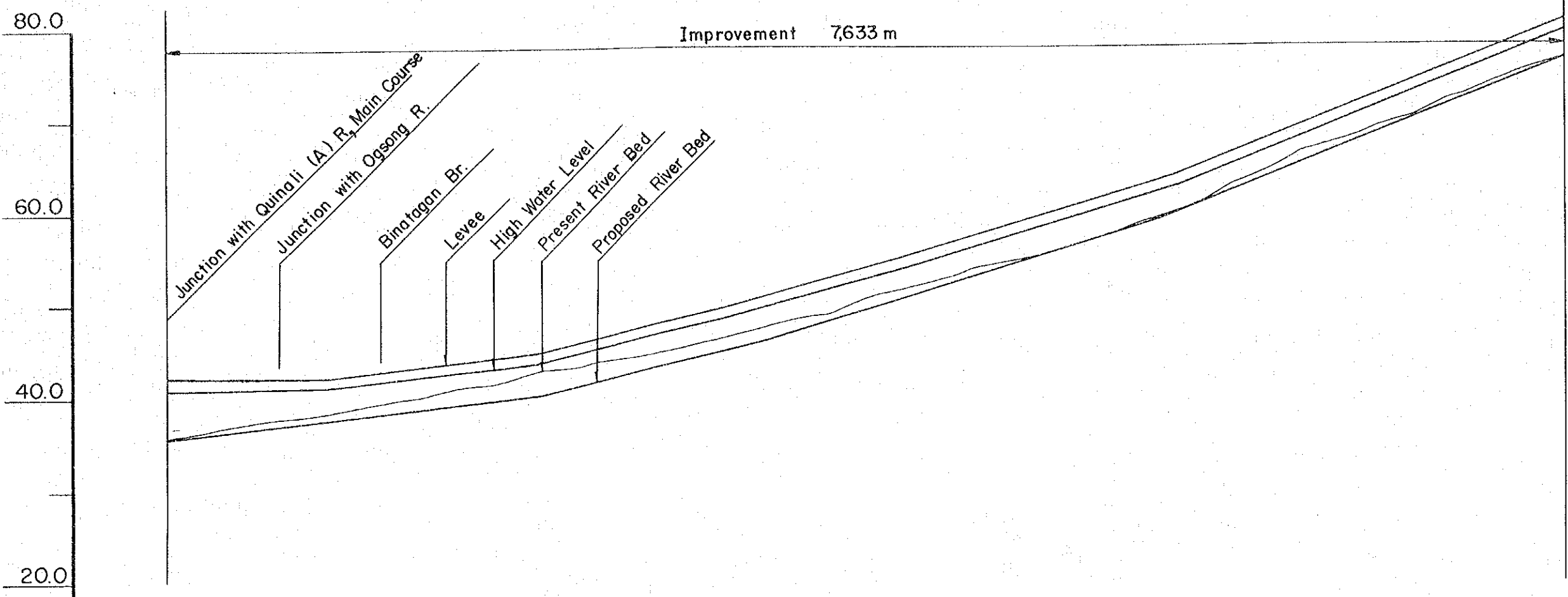
40.0

20.0



Proposed River Bed Gradient	1/400		1/200		1/170		1/130					
Formation Height of Levee (EL.m)	42.23	42.23	42.46	44.05	44.96	49.83	55.38	61.26	67.99	75.68	80.55	
High Water Level (EL.m)	41.03	41.03	41.46	43.09	43.96	48.83	54.38	60.26	66.99	74.68	79.55	
Formation Height of River Bed (EL.m)	35.51	37.01	38.01	39.60	40.51	45.51	51.22	57.10	64.07	71.76	76.63	
Discharge (m ³ /s)	1,660		920									
Cumulative Distance (m)	0	600	1,000	1,636	2,000	3,000	4,000	5,000	6,000	7,000	7,633	8,000
Station No.	0+000	0+600	1+000	1+636	2+000	3+000	4+000	5+000	6+000	7+000	7+633	8+000
					RAIL-ROAD BRIDGE							BOX CULVERT

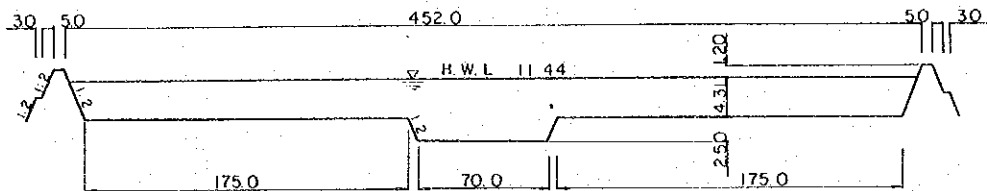
FIG.-5.4.II PROFILE OF THE NASISI RIVER



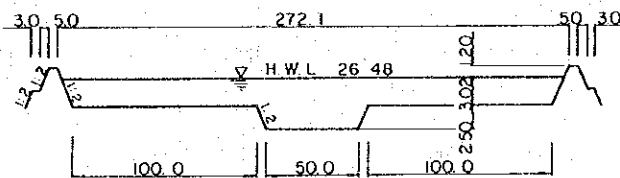
Proposed River Gradient												
Levee Height (EL.m)	42.23	42.23	42.46	44.05	44.96	49.83	55.38	61.26	67.99	75.68	80.55	
High Water Level (EL.m)	41.03	41.03	41.46	43.09	43.96	48.83	54.38	60.26	66.99	74.68	79.55	
Present River Bed (EL.m)	35.51	37.01	38.01	39.60	40.51	45.51	51.22	57.10	64.07	71.76	76.63	
Discharge (m ³ /s)												
Cumulative Distance (m)	0	600	1,000	1,636	2,000	3,000	4,000	5,000	6,000	7,000	7,633	8,000
Station No.	0+000	0+600	1+000	1+636	2+000	3+000	4+000	5+000	6+000	7+000	7+633	8+000

FIG.-5.4.12 TYPICAL CROSS SECTION OF THE QUINALI (A) RIVER

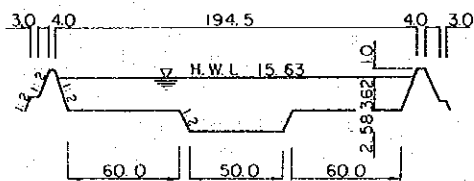
STA. 1 + 000 (Main Course)



STA. 15 + 000 (Main Course)



STA. 4 + 000 (Talisay R.)



STA. 1 + 000 (Nasisi R.)

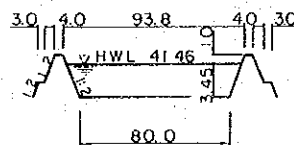


FIG.-54.13 RIVER WIDTH AND DISCHARGE CAPACITY OF THE PRESENT RIVER CHANNEL, THE QUINALI (B) RIVER

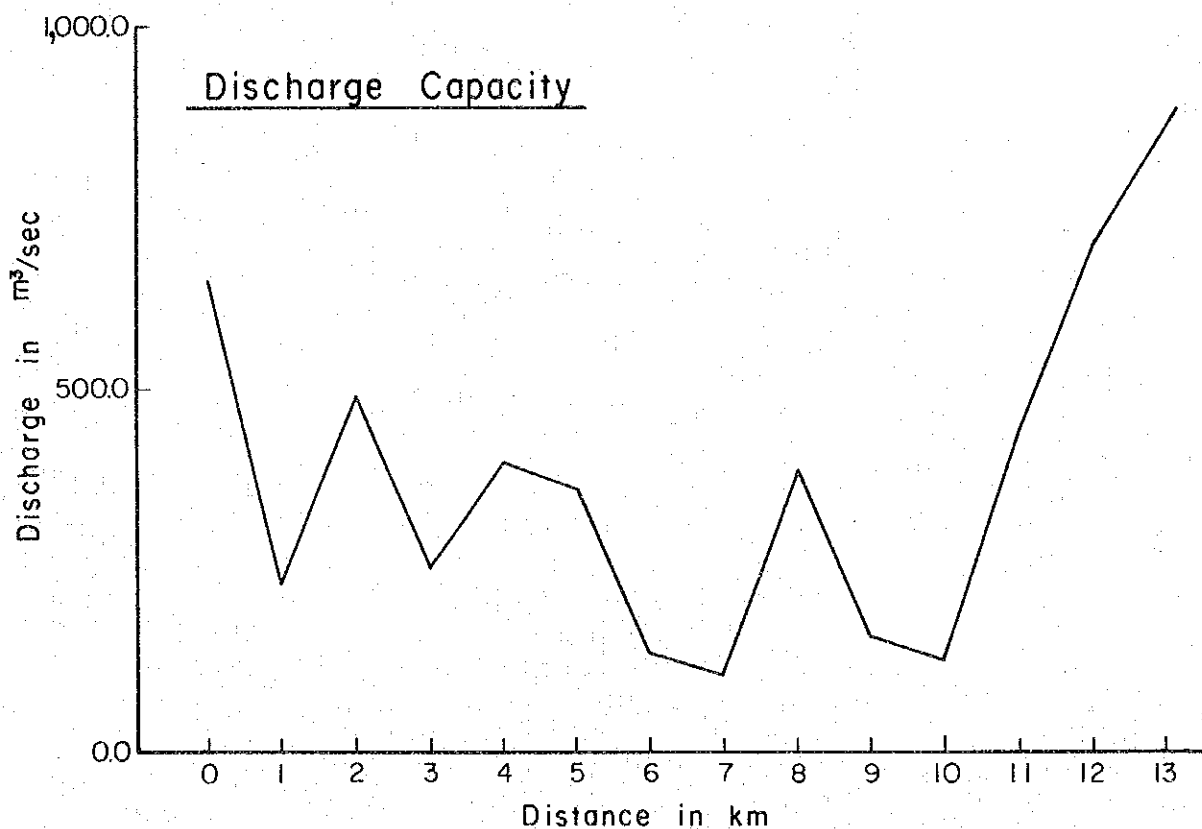
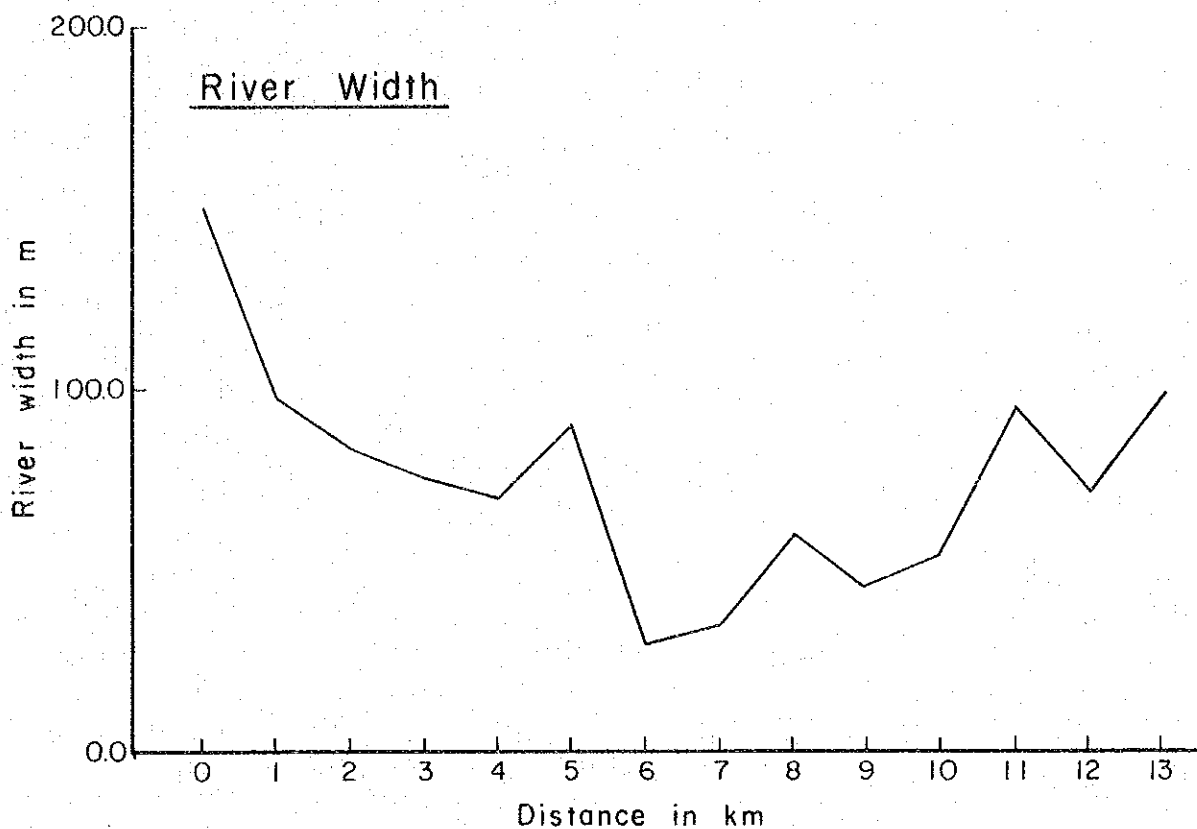


FIG.-5.4.14 DESIGN DISCHARGE DISTRIBUTION DIAGRAM,
 THE QUINALI (B) RIVER (RETURN PERIOD 50 - YEAR)

Unit: m³/sec

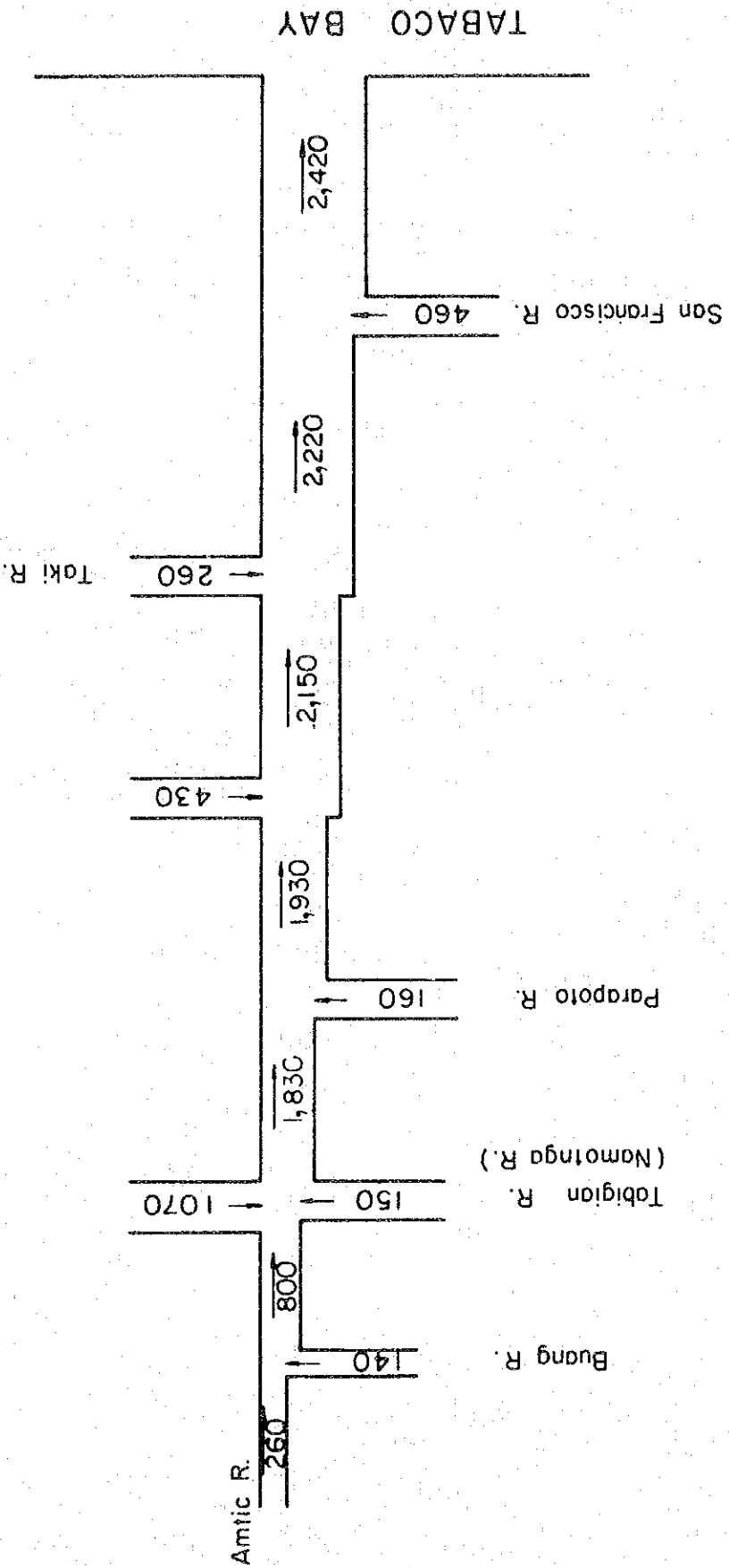
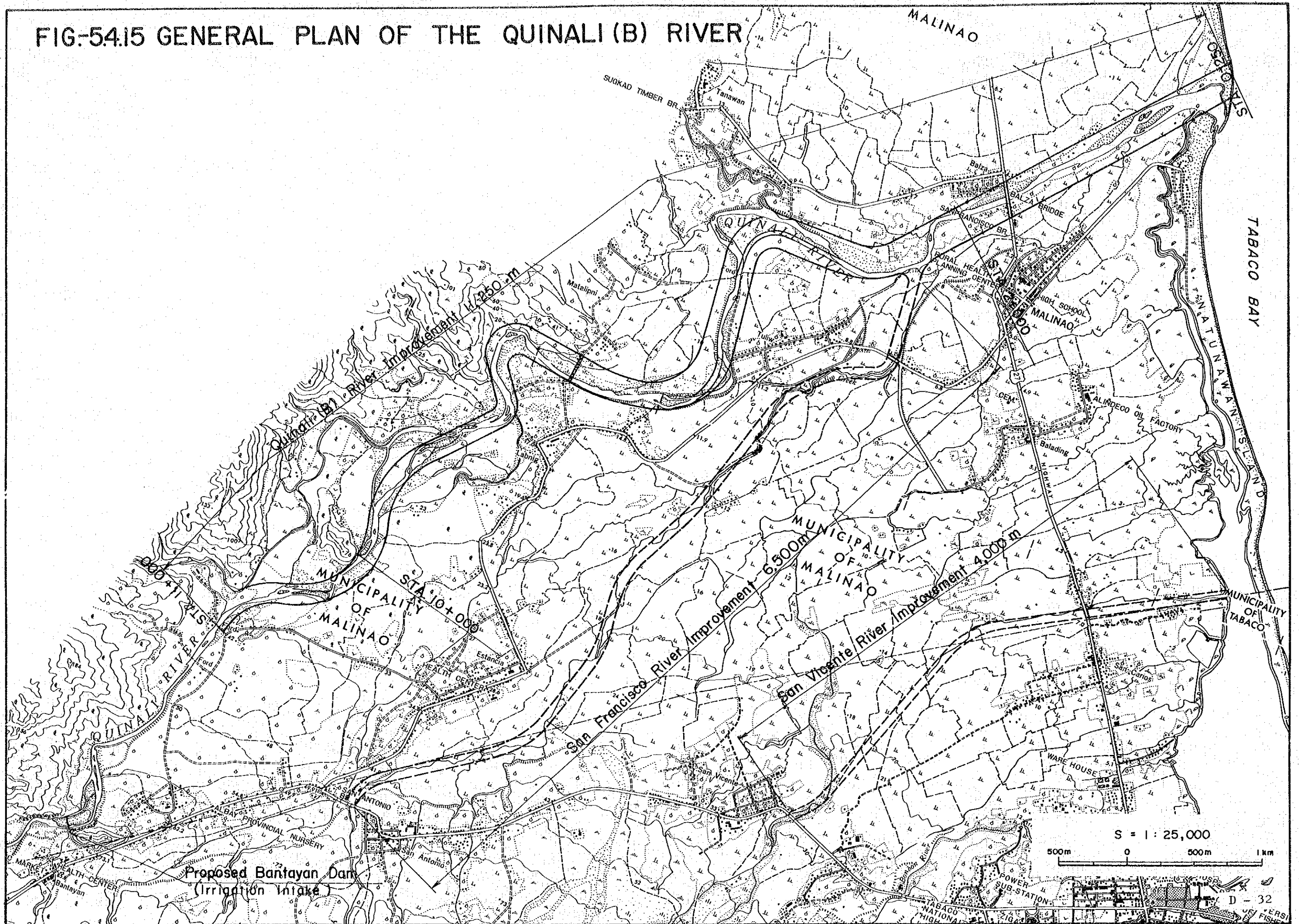


FIG-54.15 GENERAL PLAN OF THE QUINALI (B) RIVER



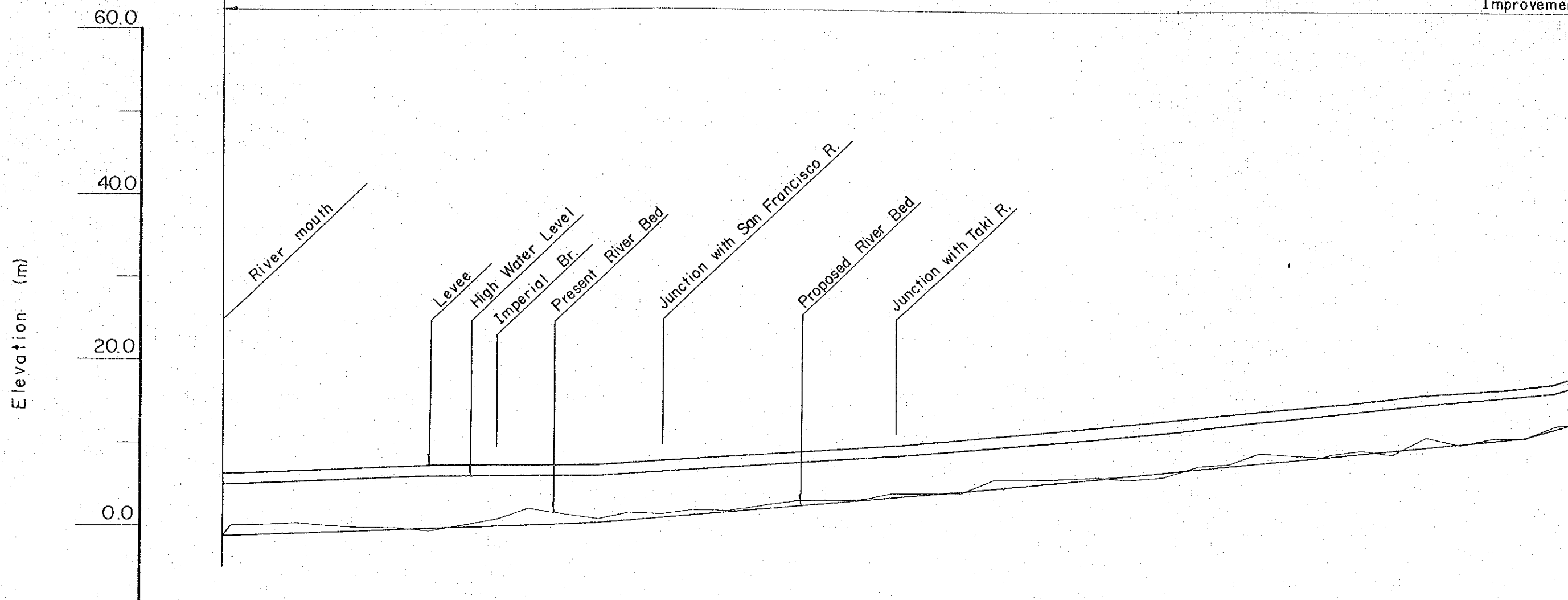
S = 1 : 25,000

500m 0 500m 1km



FIG.-5.4.16 PROFILE OF THE QUINALI (B) RIVER

Improvement

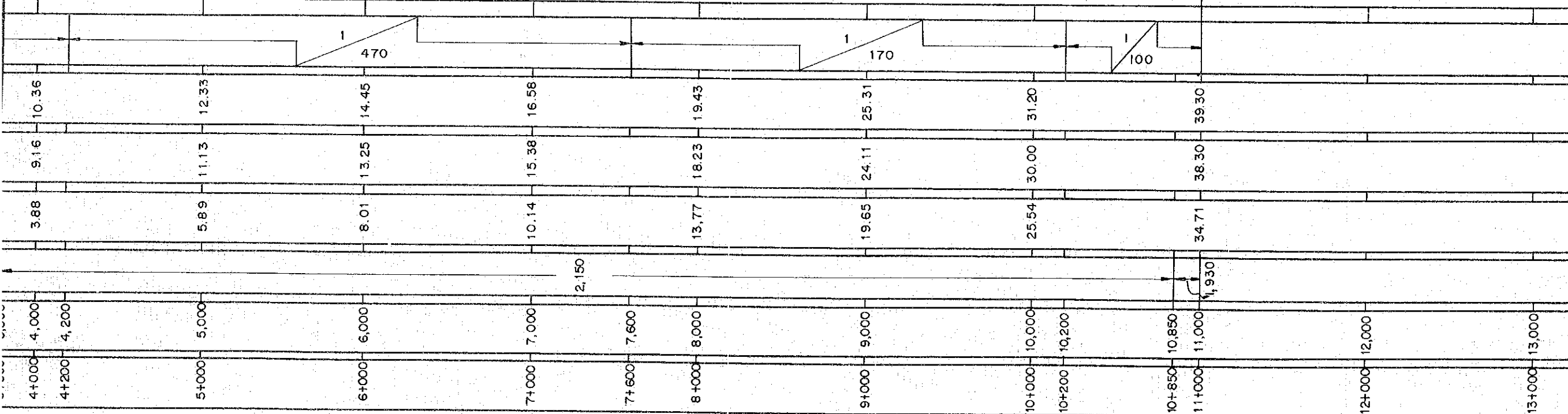
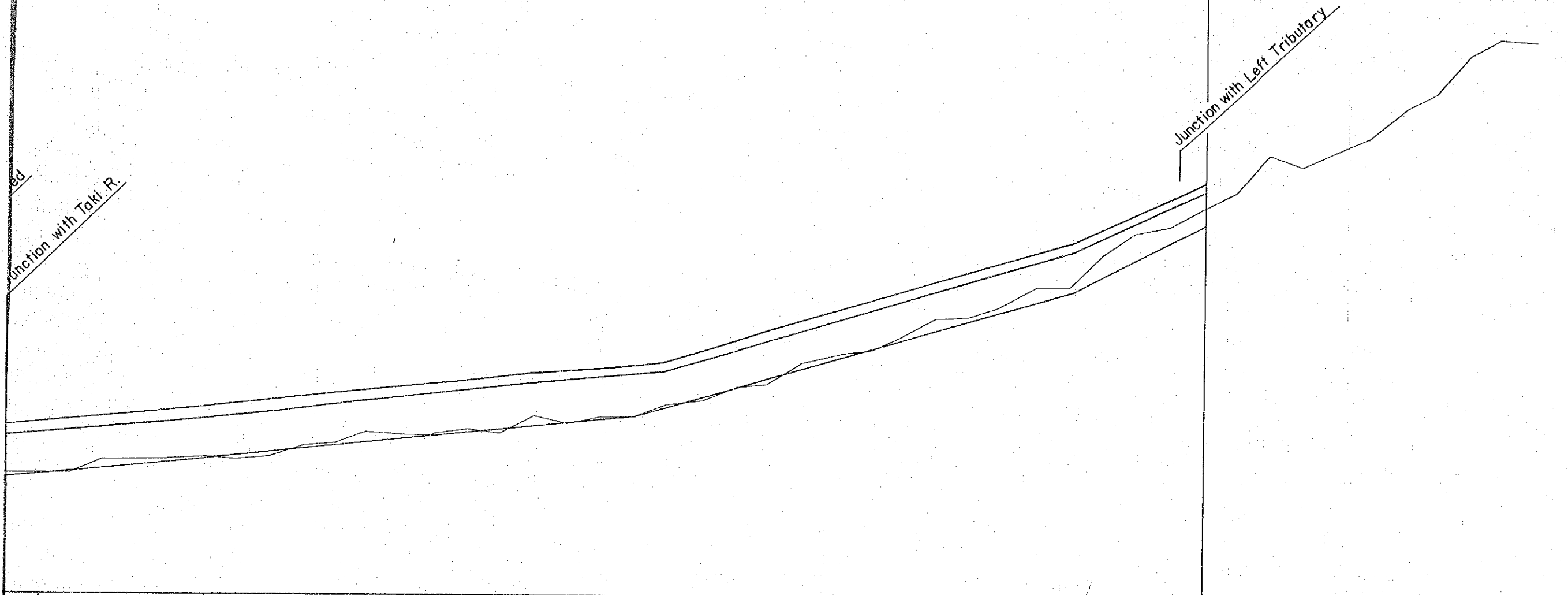


Proposed River Bed Gradient			1 1,200		1 660		1 470						
Formation Height of Levee (EL.m)	6.33	6.54	7.38	7.60	8.91	10.36	12.33	14.45	16.58				
High Water Level (EL.m)	5.13	5.34	6.18	6.40	7.71	9.16	11.13	13.25	15.38				
Formation Height of River Bed (EL.m)	-1.02	-0.61	0.03	0.85	2.36	3.88	5.69	8.01	10.14				
Discharge (m ³ /s)			2,420		2,220					2,150			
Cumulative Distance (m)	-250	0	1,000	2,000	2,400	3,000	3,800	4,000	4,200	5,000	6,000	7,000	7,600
Station No.	0+250	0+000	1+000	2+000	2+400	3+000	3+800	4+000	4+200	5+000	6+000	7+000	7+600

UINALI (B) RIVER

Improvement 11,250 m

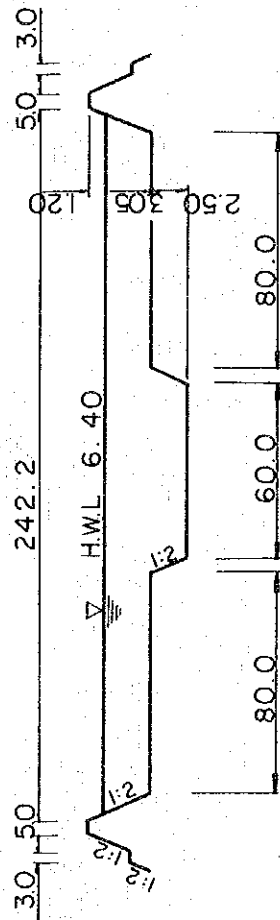
Existing



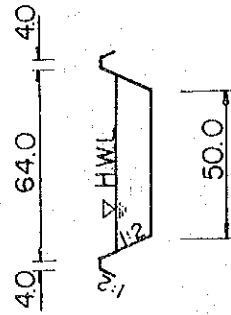
[The page contains extremely faint and illegible text, likely due to low contrast or scanning quality. No specific content can be transcribed.]

FIG.-5.4.17 TYPICAL CROSS SECTION OF THE QUINALI (B) RIVER

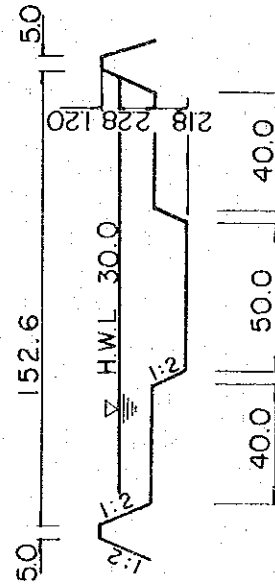
STA. 2 + 000 (Main Course)



THE SAN FRANCISCO RIVER



STA. 10 + 000 (Main Course)



THE SAN VICENTE RIVER

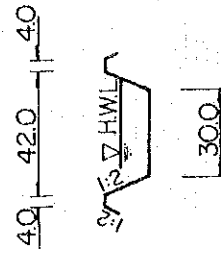


FIG-5.4.18 RIVER WIDTH AND DISCHARGE CAPACITY OF THE PRESENT RIVER CHANNEL, THE YAWA RIVER

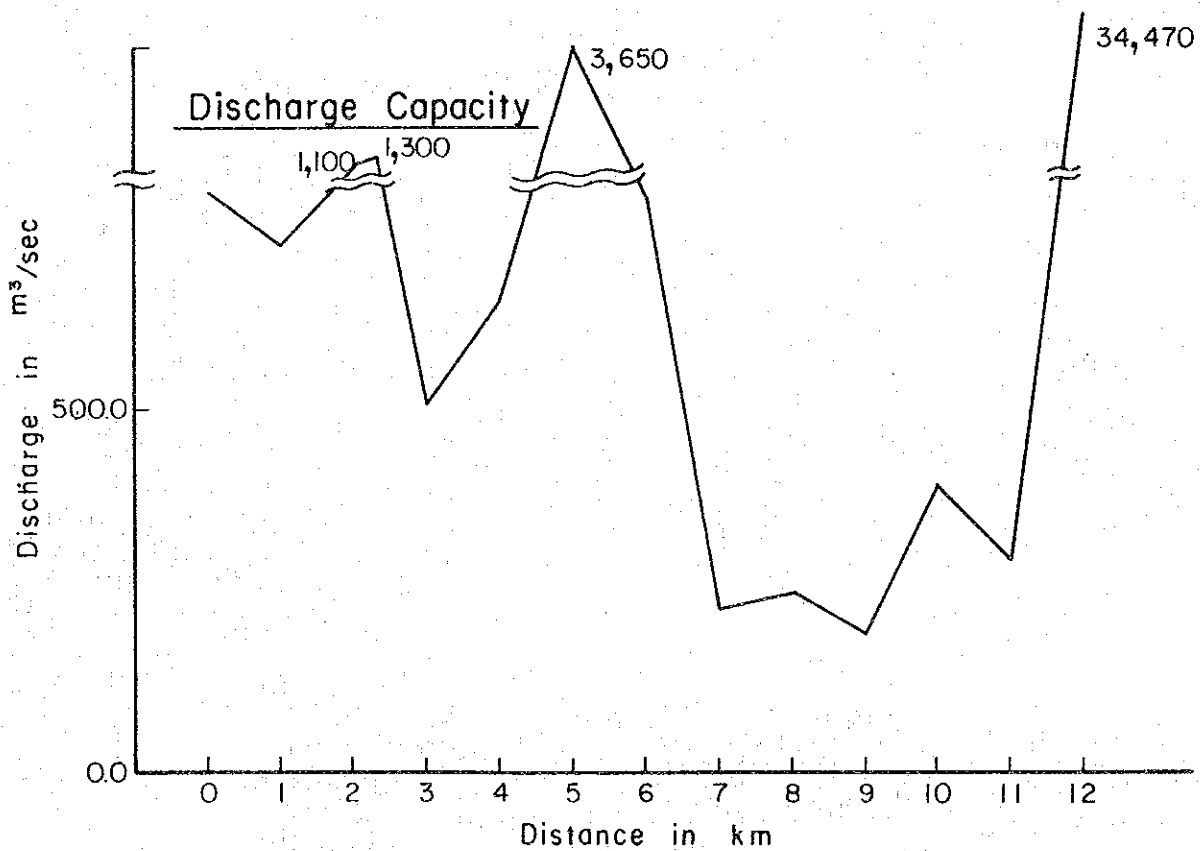
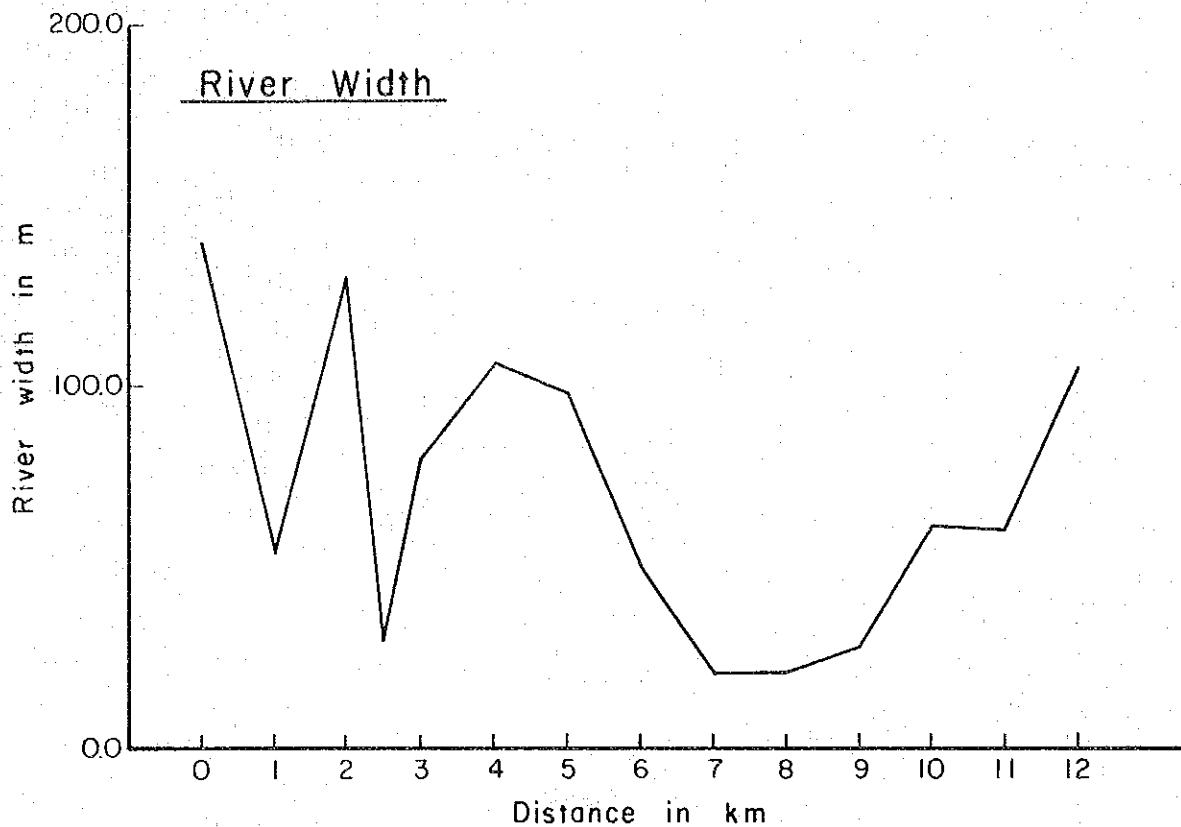


FIG-54.19 DESIGN DISCHARGE DISTRIBUTION DIAGRAM, THE YAWA RIVER
 (RETURN PERIOD 50 - YEAR)

Unit : m³/sec

