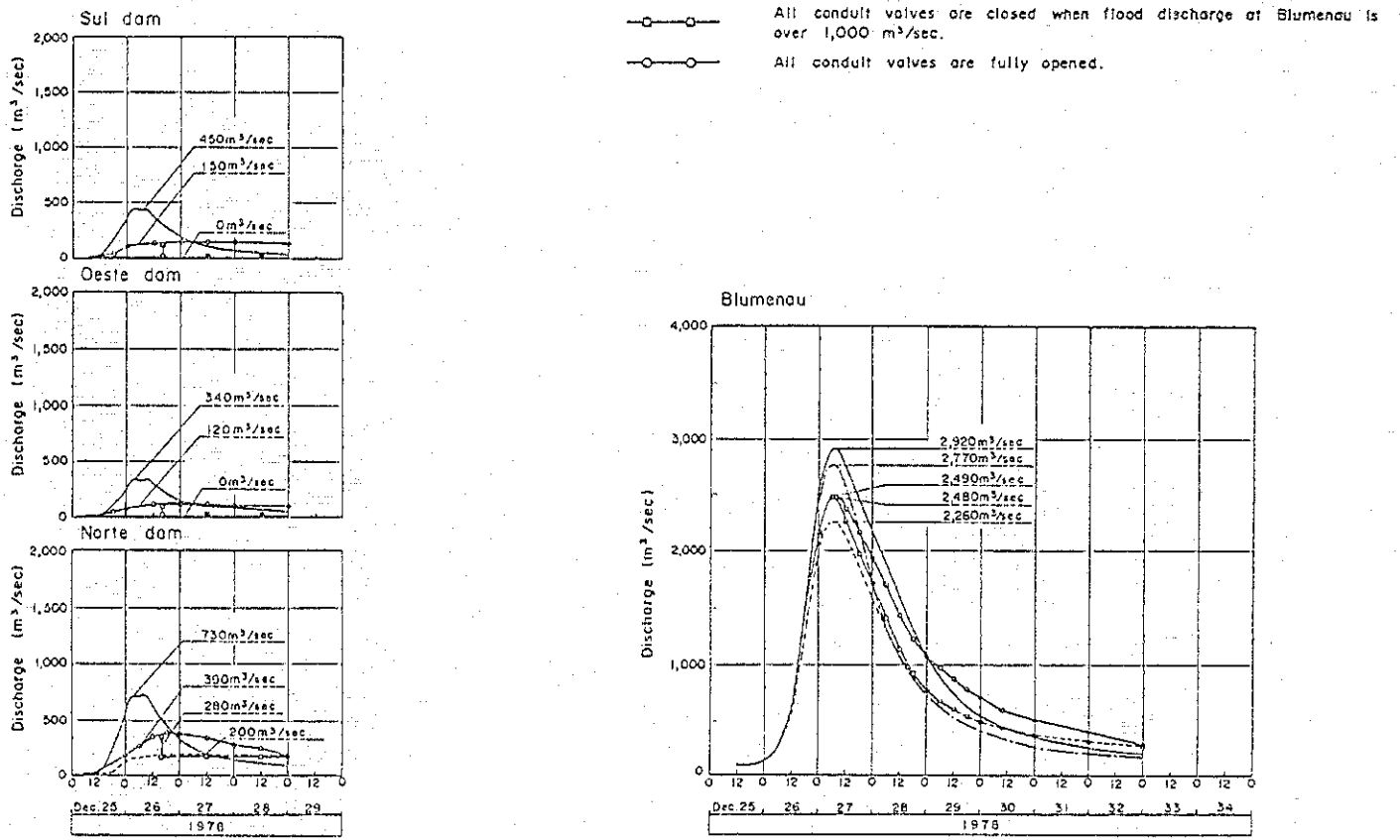


Fig.12 RESULTS OF RESERVOIR OPERATION STUDY (1/8)
FLOOD HYDROGRAPHS ON DEC.1978

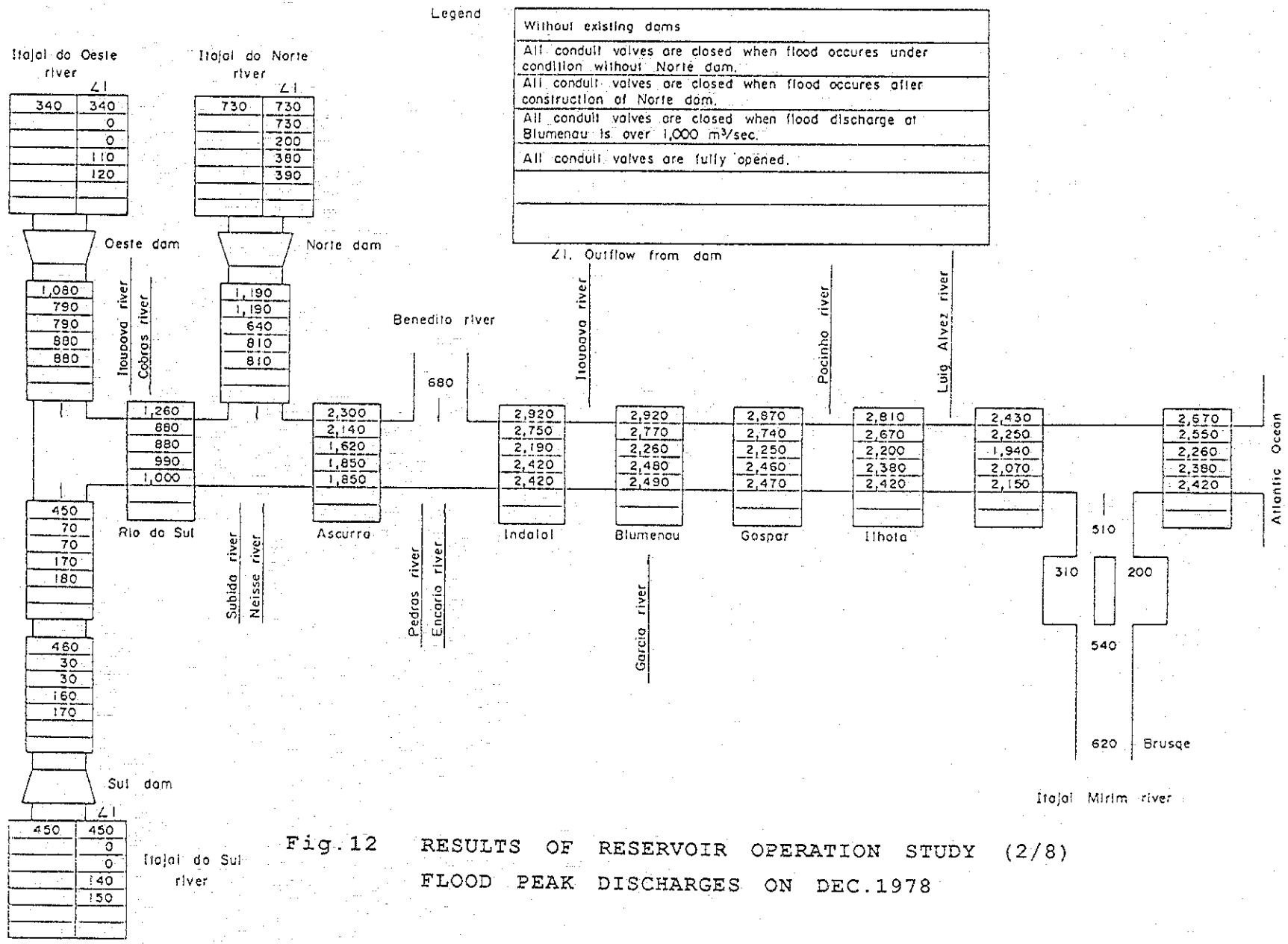


Fig.12 RESULTS OF RESERVOIR OPERATION STUDY (2/8)
FLOOD PEAK DISCHARGES ON DEC.1978

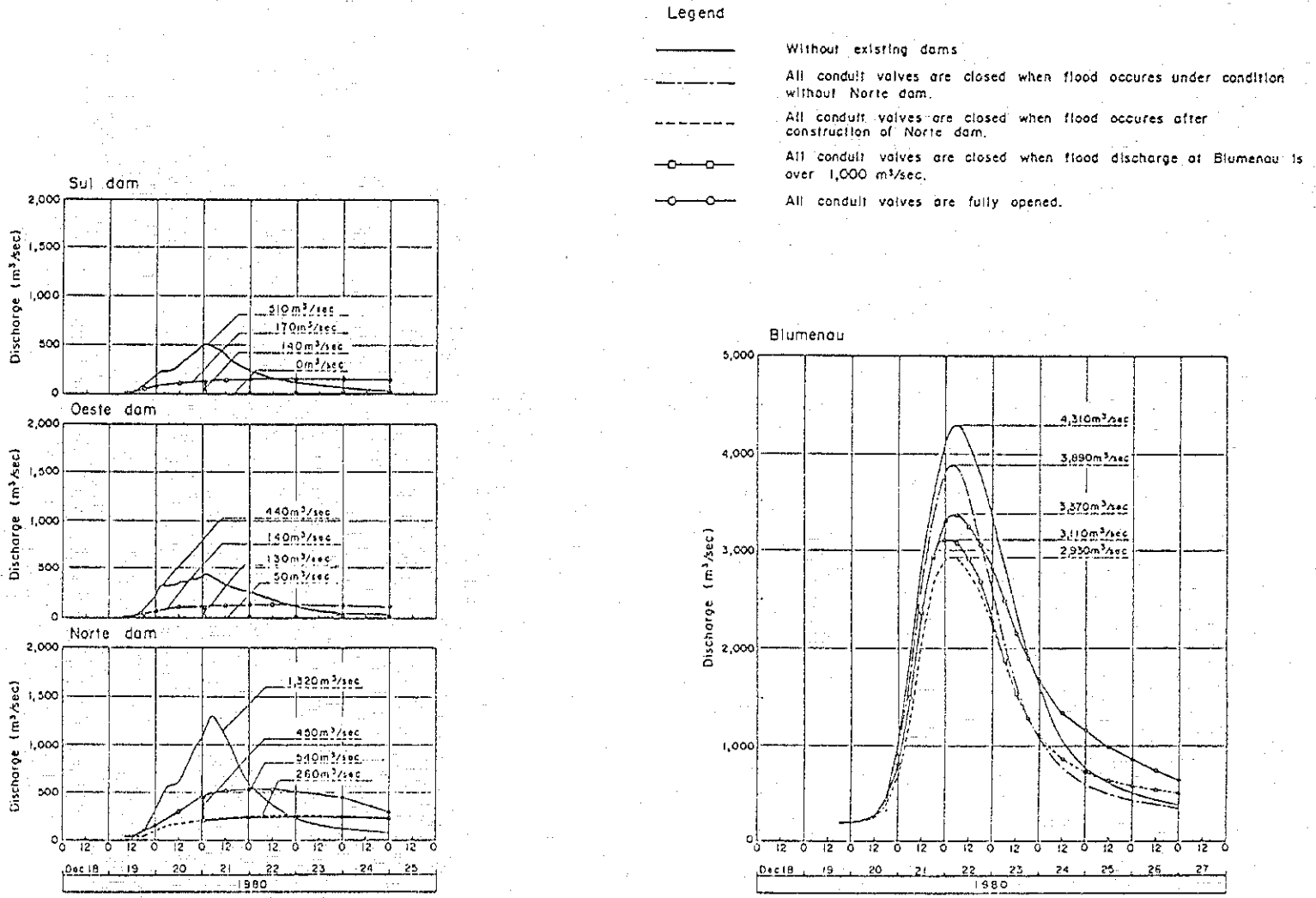


Fig.12 RESULTS OF RESERVOIR OPERATION STUDY (3/8)
FLOOD HYDROGRAPHS ON DEC.1980

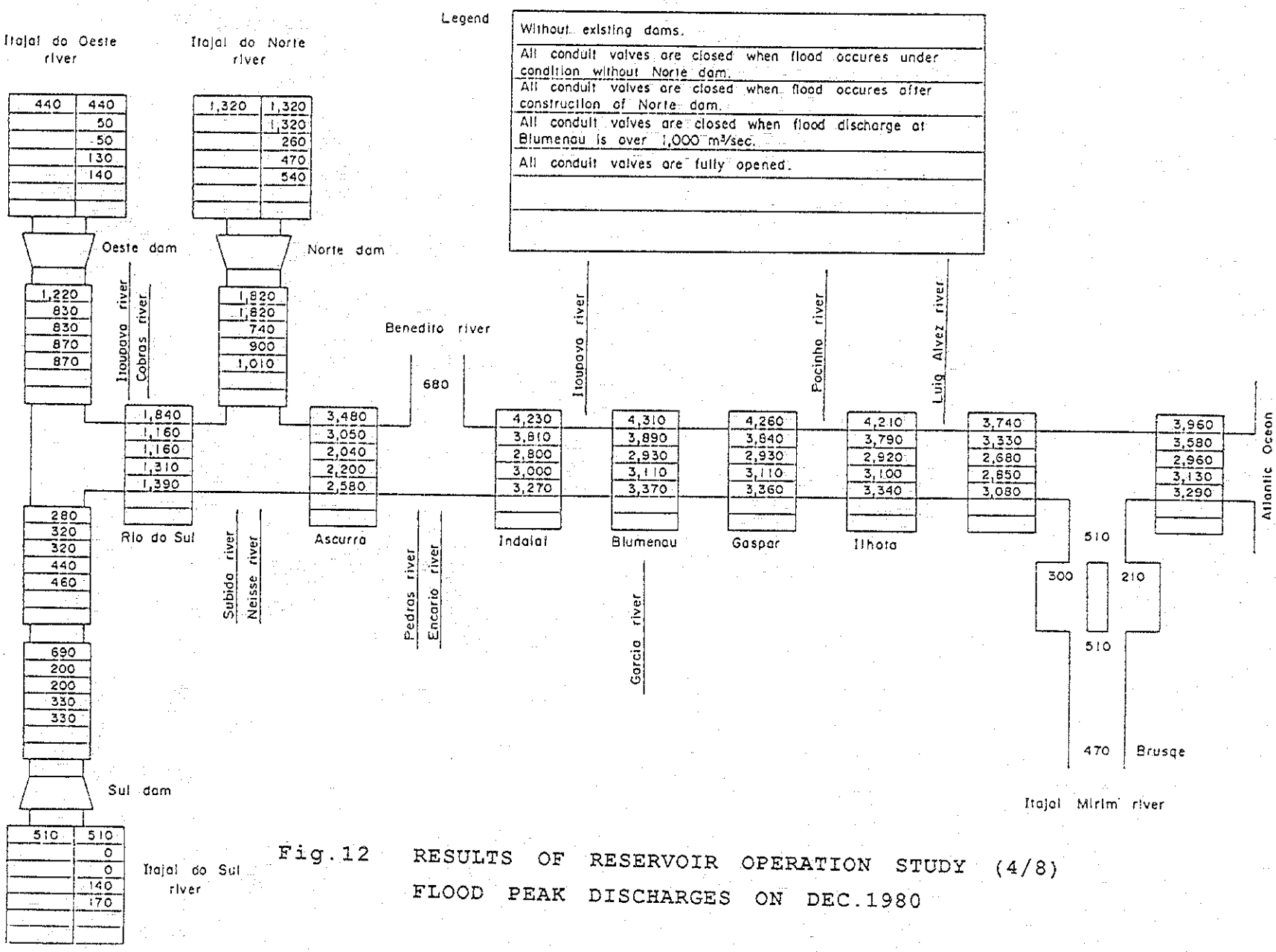


Fig.12 RESULTS OF RESERVOIR OPERATION STUDY (4/8)
FLOOD PEAK DISCHARGES ON DEC.1980

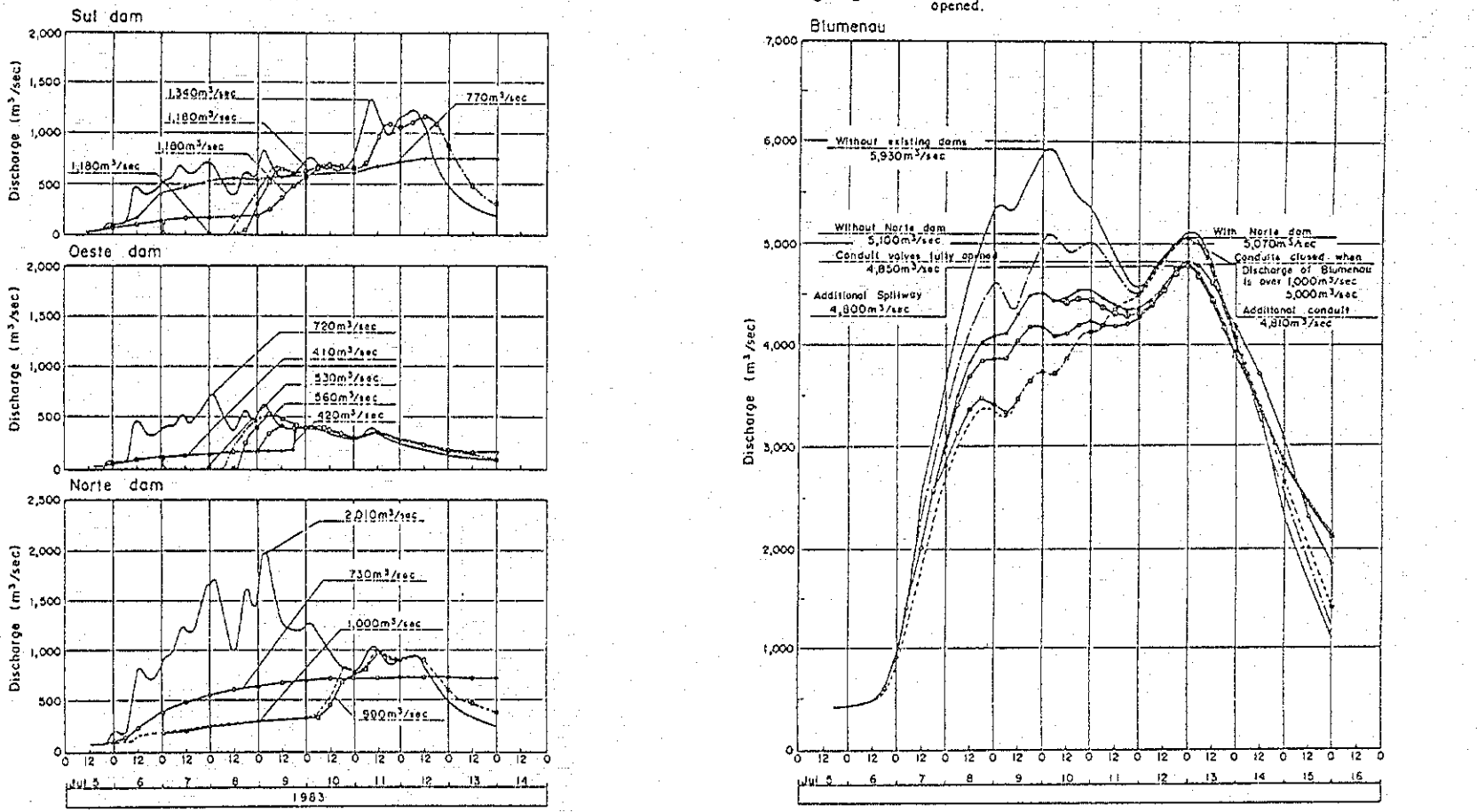


Fig.12 RESULTS OF RESERVOIR OPERATION STUDY (5/8)
FLOOD HYDROGRAPHS ON JUL.1983

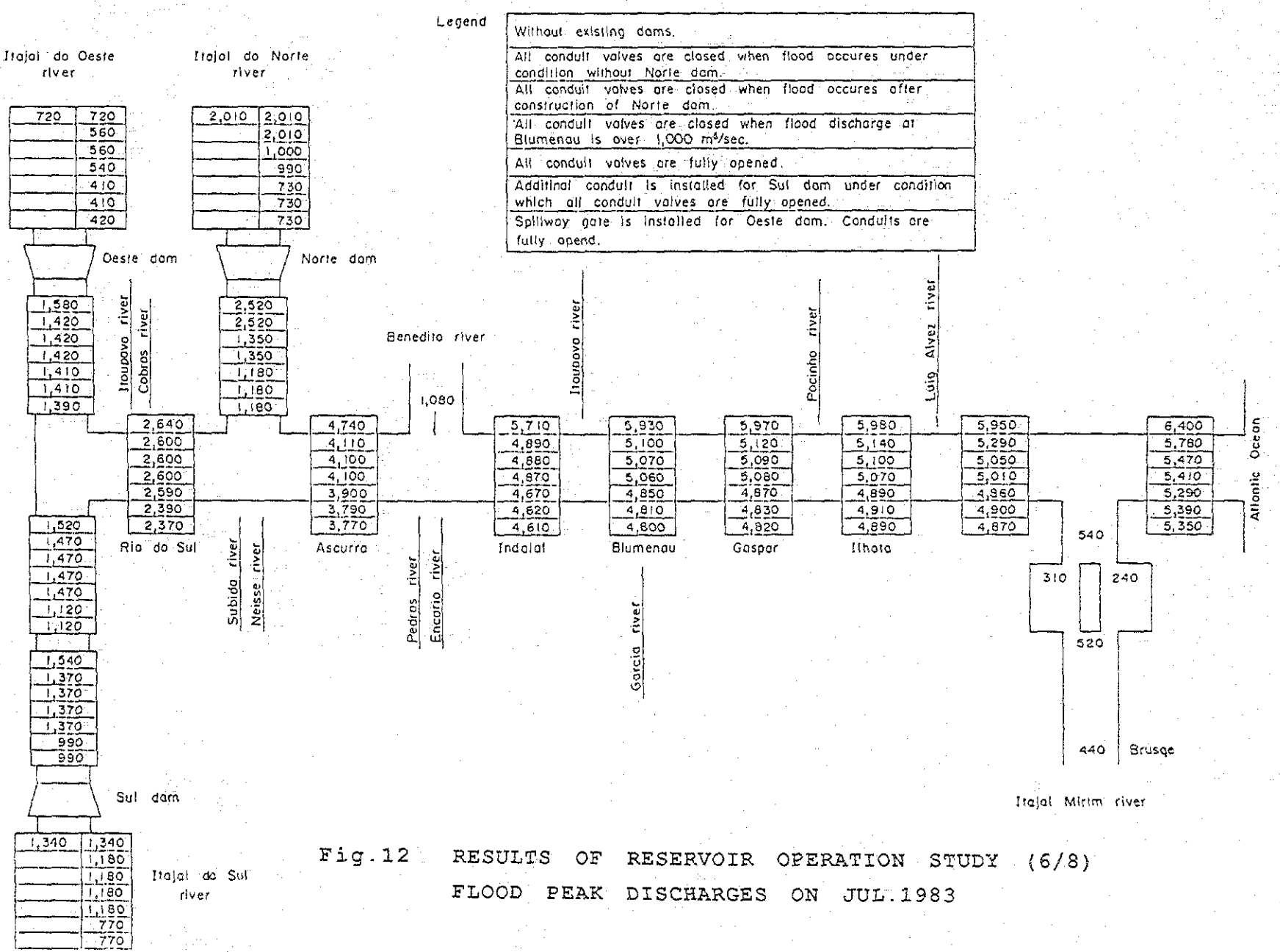


Fig.12 RESULTS OF RESERVOIR OPERATION STUDY (6/8)
FLOOD PEAK DISCHARGES ON JUL.1983

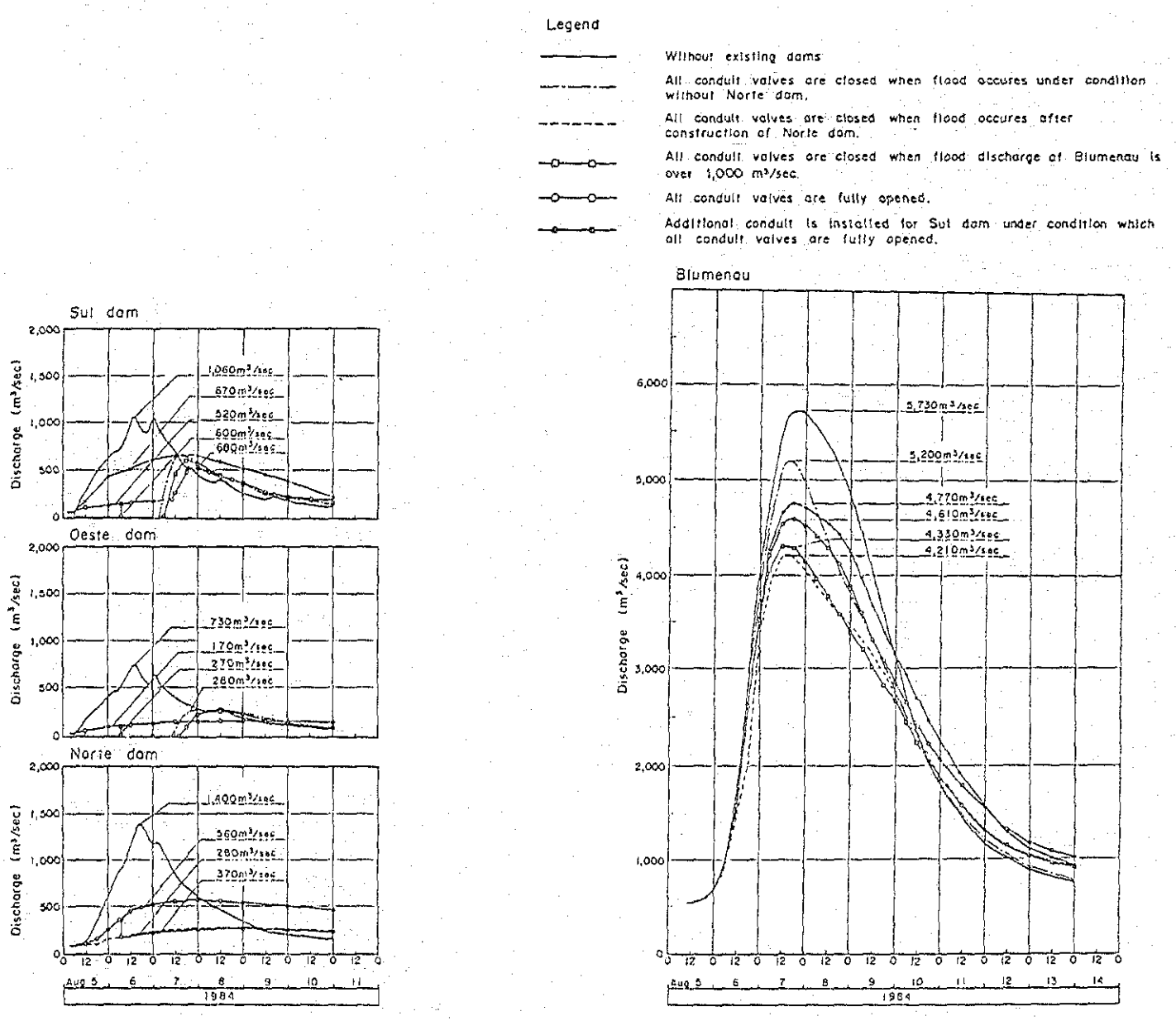


Fig.12 RESULTS OF RESERVOIR OPERATION STUDY (7/8)
FLOOD HYDROGRAPHS ON AUG.1984

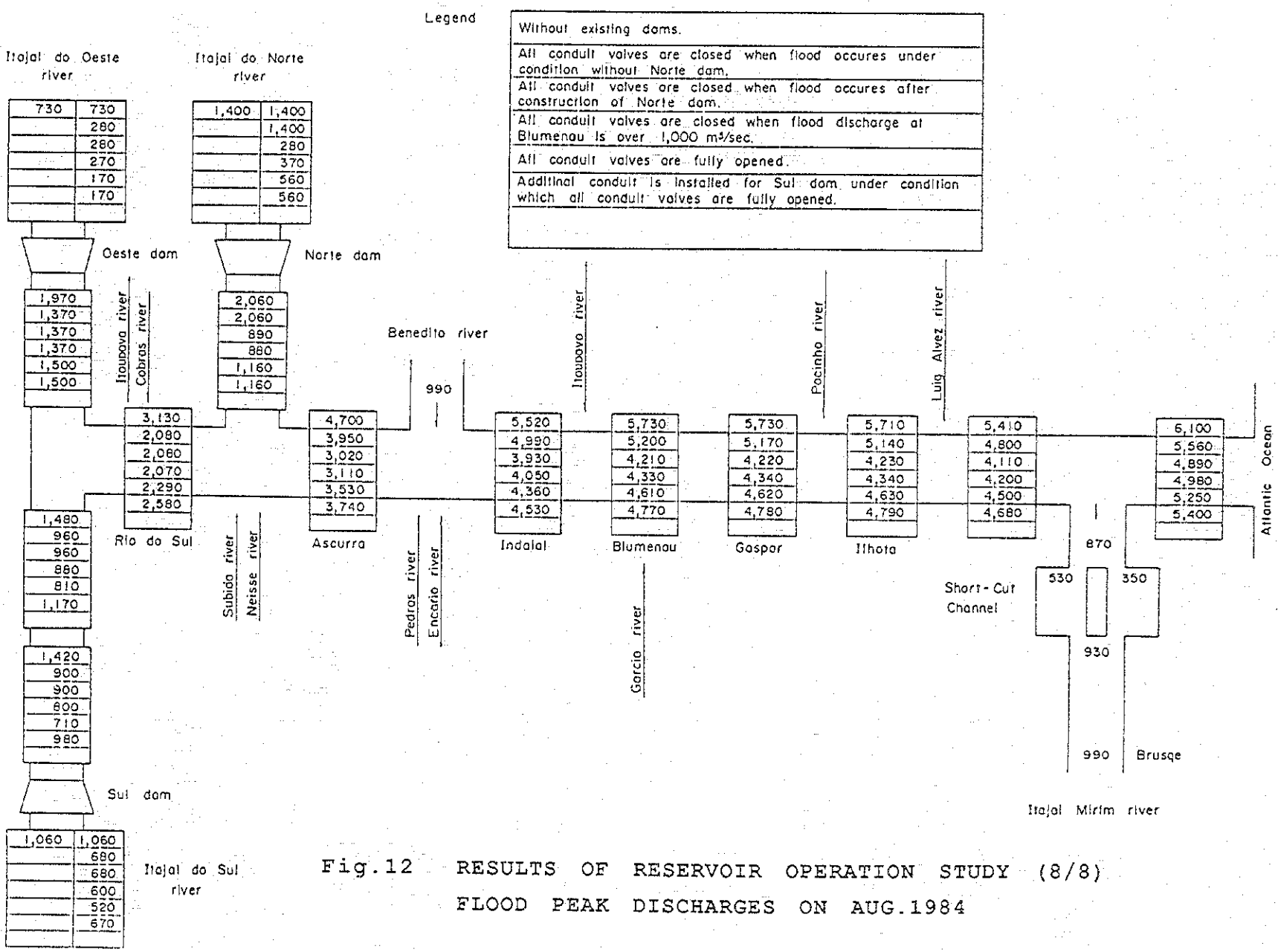


Fig.12 RESULTS OF RESERVOIR OPERATION STUDY (8/8)
FLOOD PEAK DISCHARGES ON AUG.1984

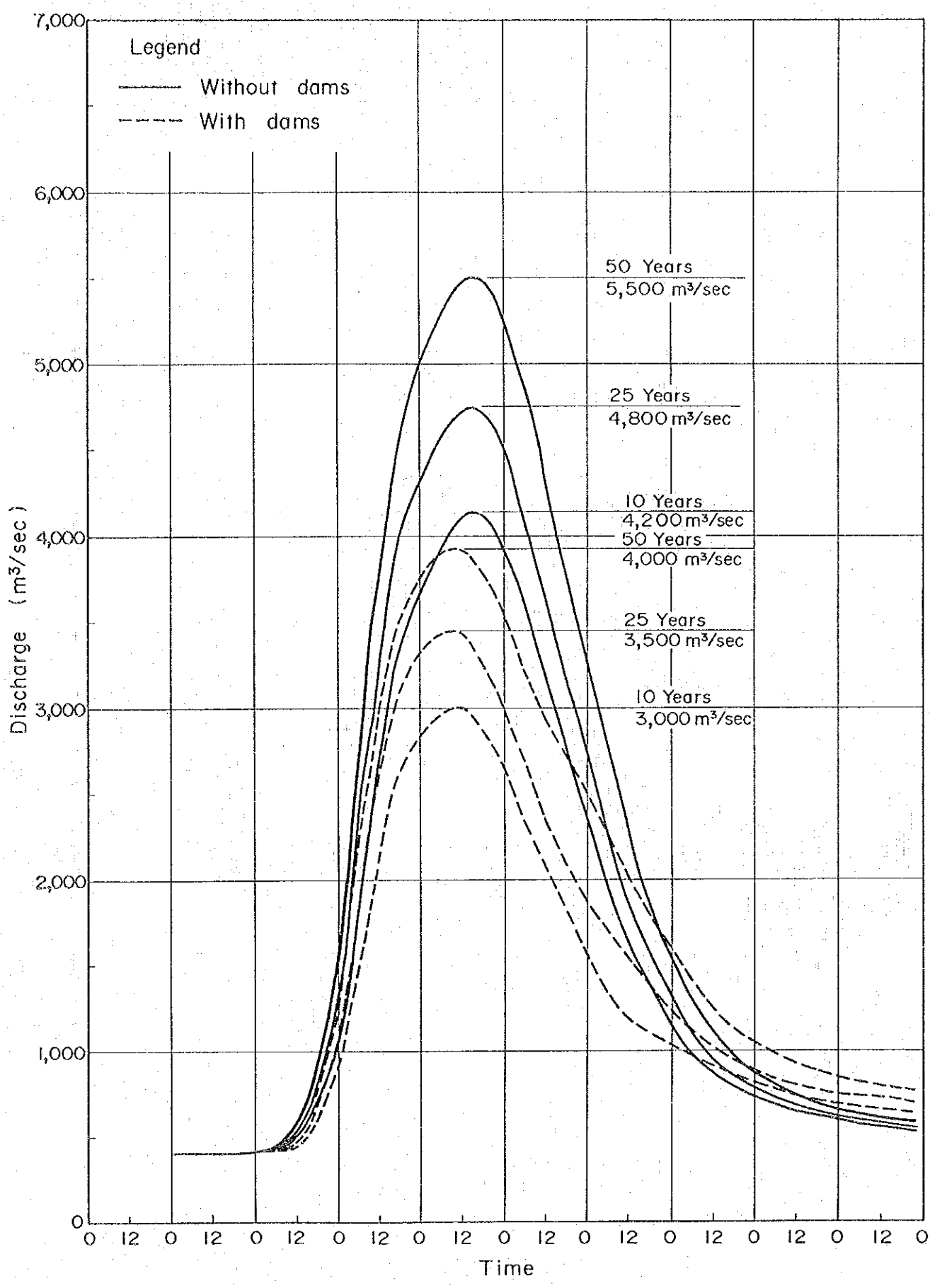


Fig.13 PROBABLE FLOOD HYDROGRAPHS AT BLUMENAU WITH/WITHOUT EXISTING FLOOD CONTROL DAMS (1/4) BASED ON 1978 RAINFALL PATTERN

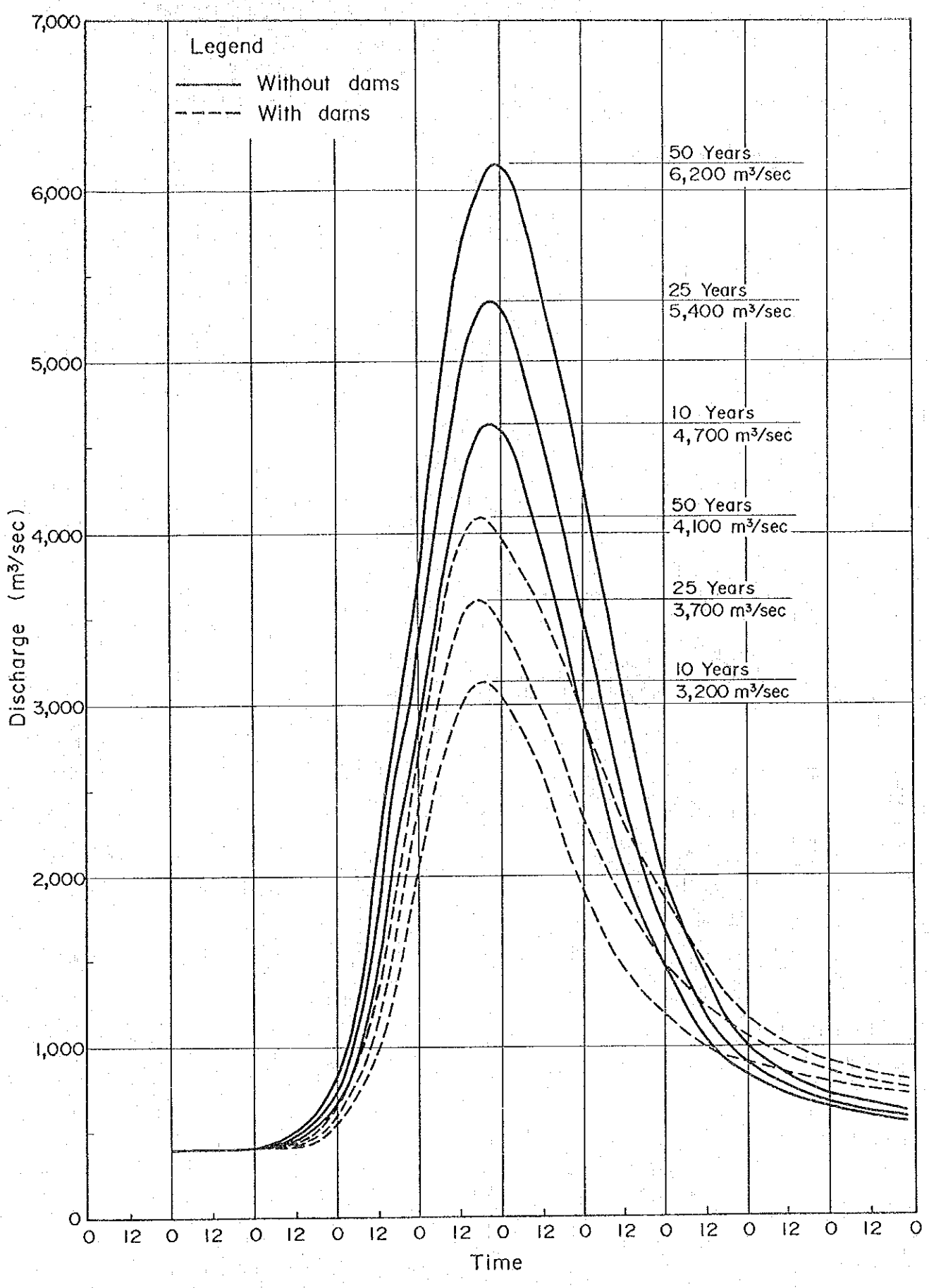


Fig.13 PROBABLE FLOOD HYDROGRAPHS AT BLUMENAU WITH/WITHOUT EXISTING FLOOD CONTROL DAMS (2/4) BASED ON 1980 RAINFALL PATTERN

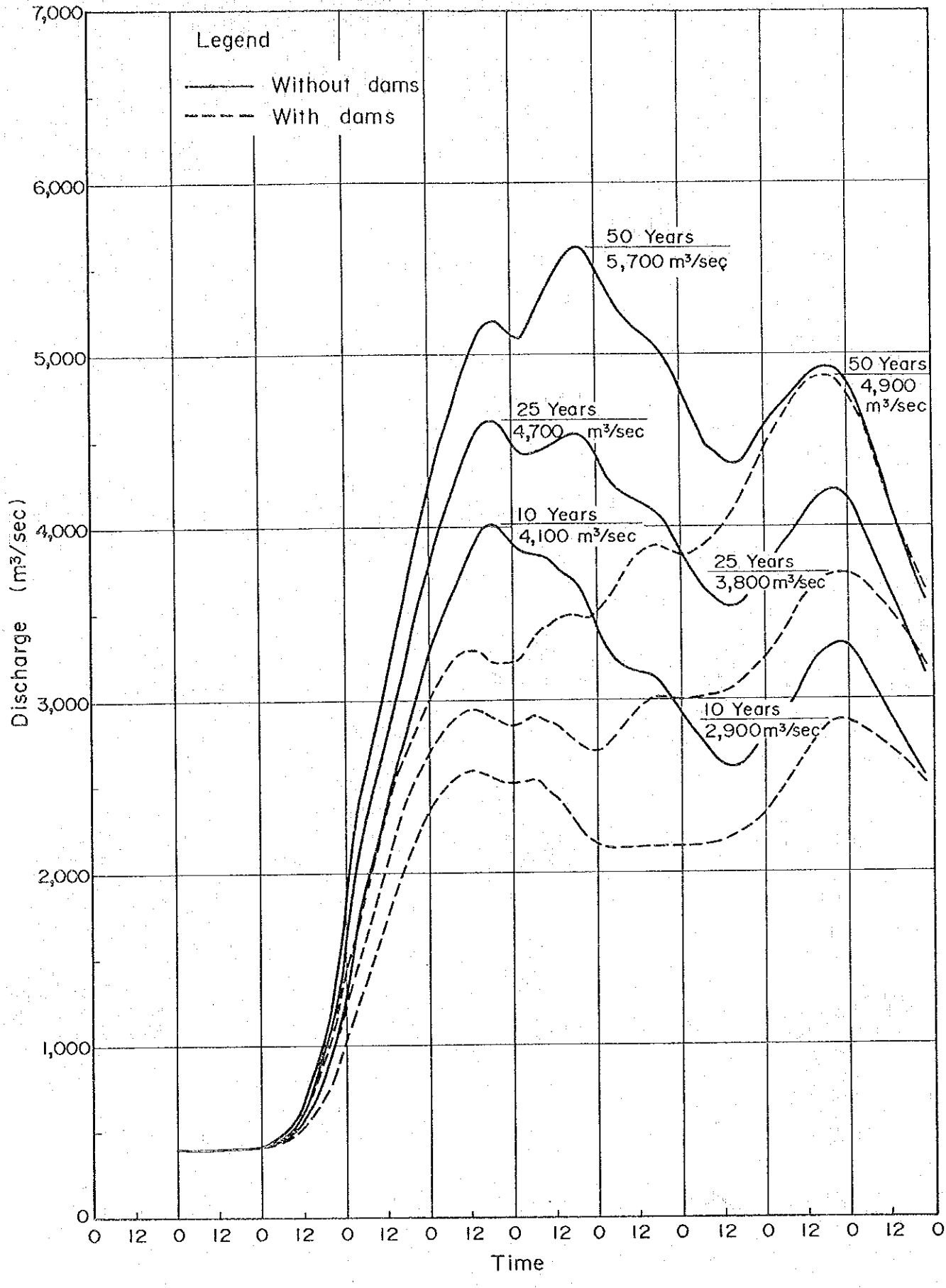


Fig.13 PROBABLE FLOOD HYDROGRAPHS AT BLUMENAU WITH/WITHOUT EXISTING FLOOD CONTROL DAMS (3/4) BASED ON 1983 RAINFALL PATTERN

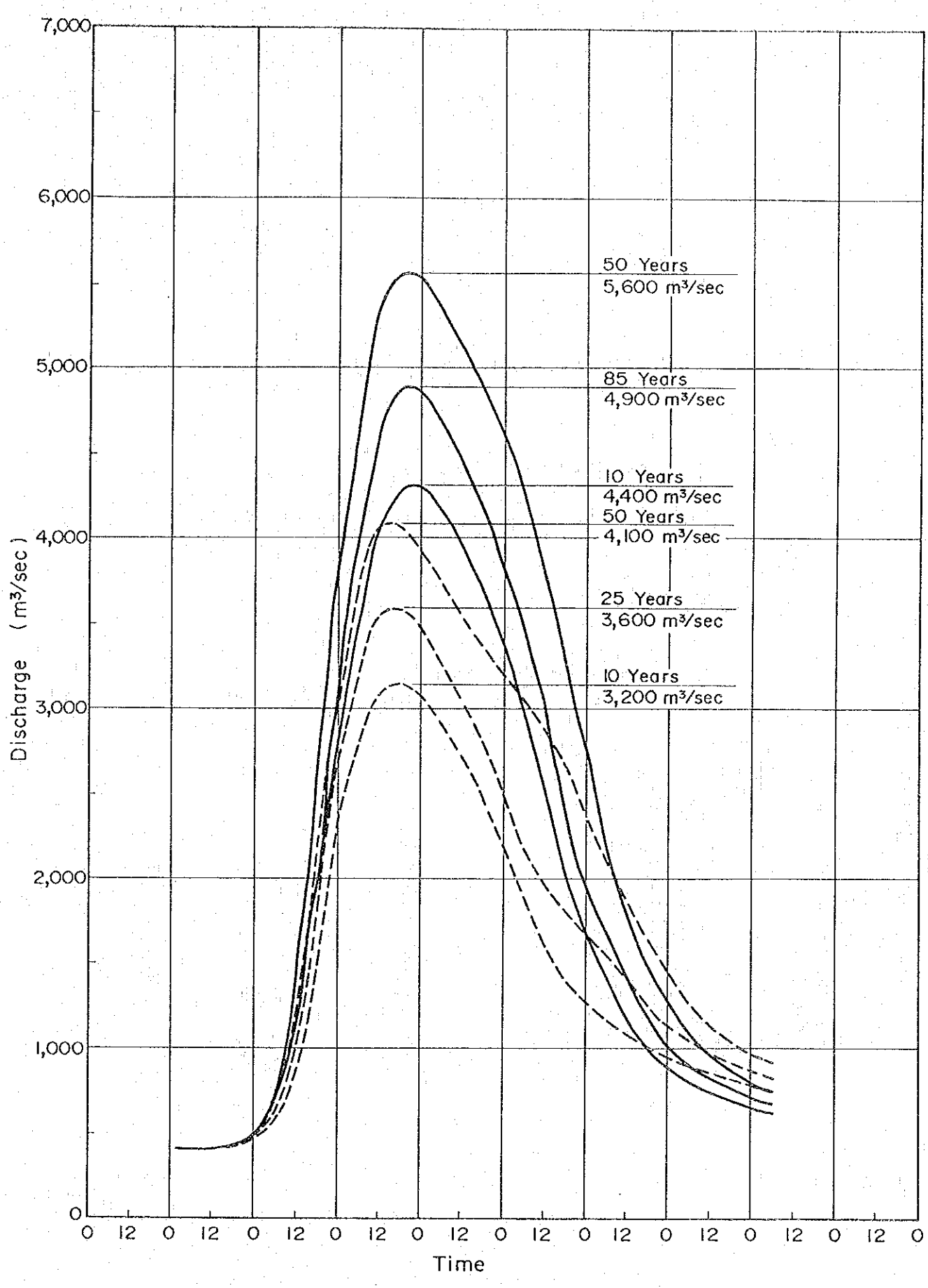


Fig.13 PROBABLE FLOOD HYDROGRAPHS AT BLUMENAU WITH/WITHOUT EXISTING FLOOD CONTROL DAMS (4/4) BASED ON 1984 RAINFALL PATTERN

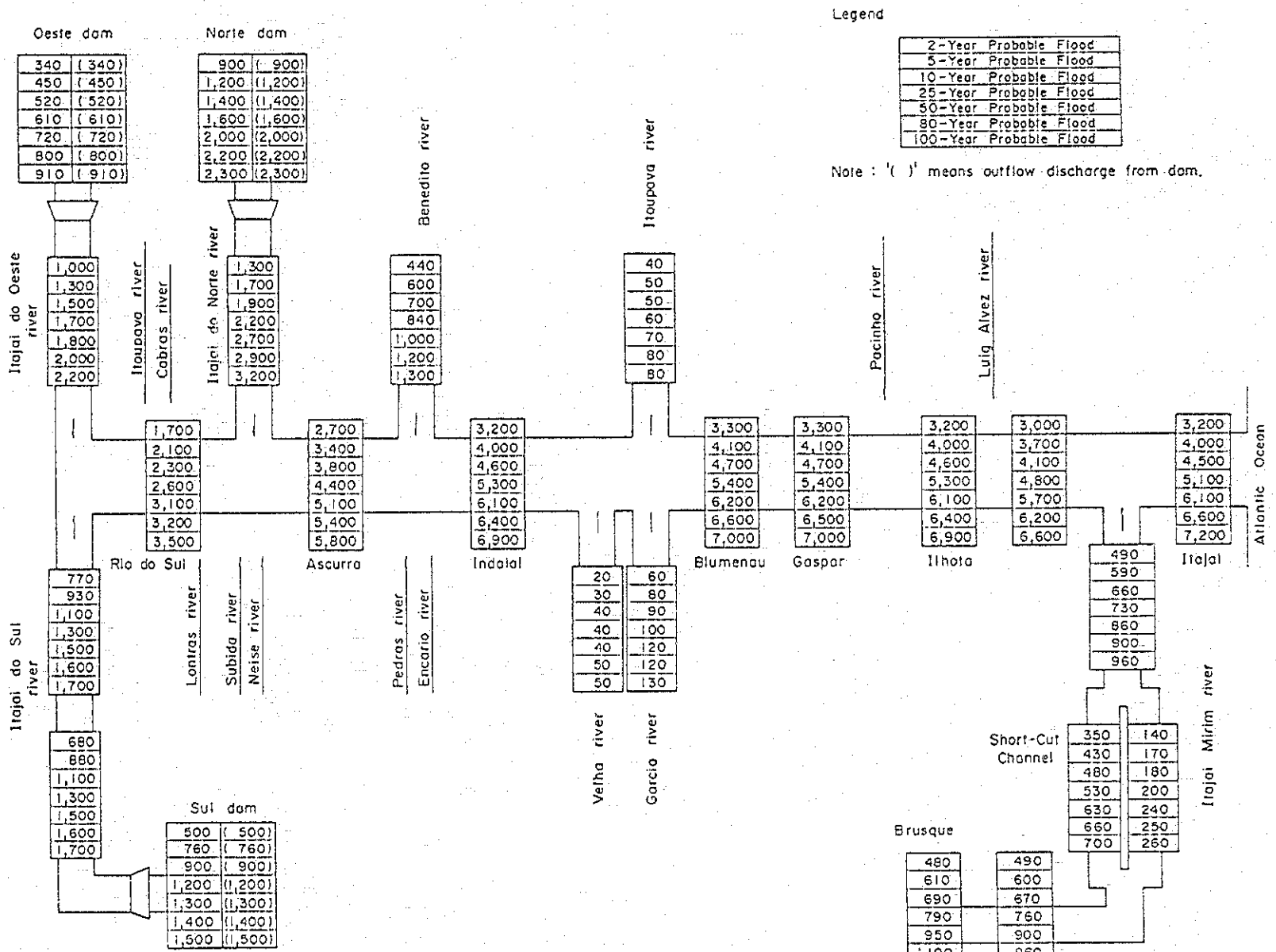


Fig.14 PROBABLE FLOOD DISCHARGE DISTRIBUTION WITH/WITHOUT EXISTING FLOOD CONTROL DAMS (1/2) WITHOUT DAMS

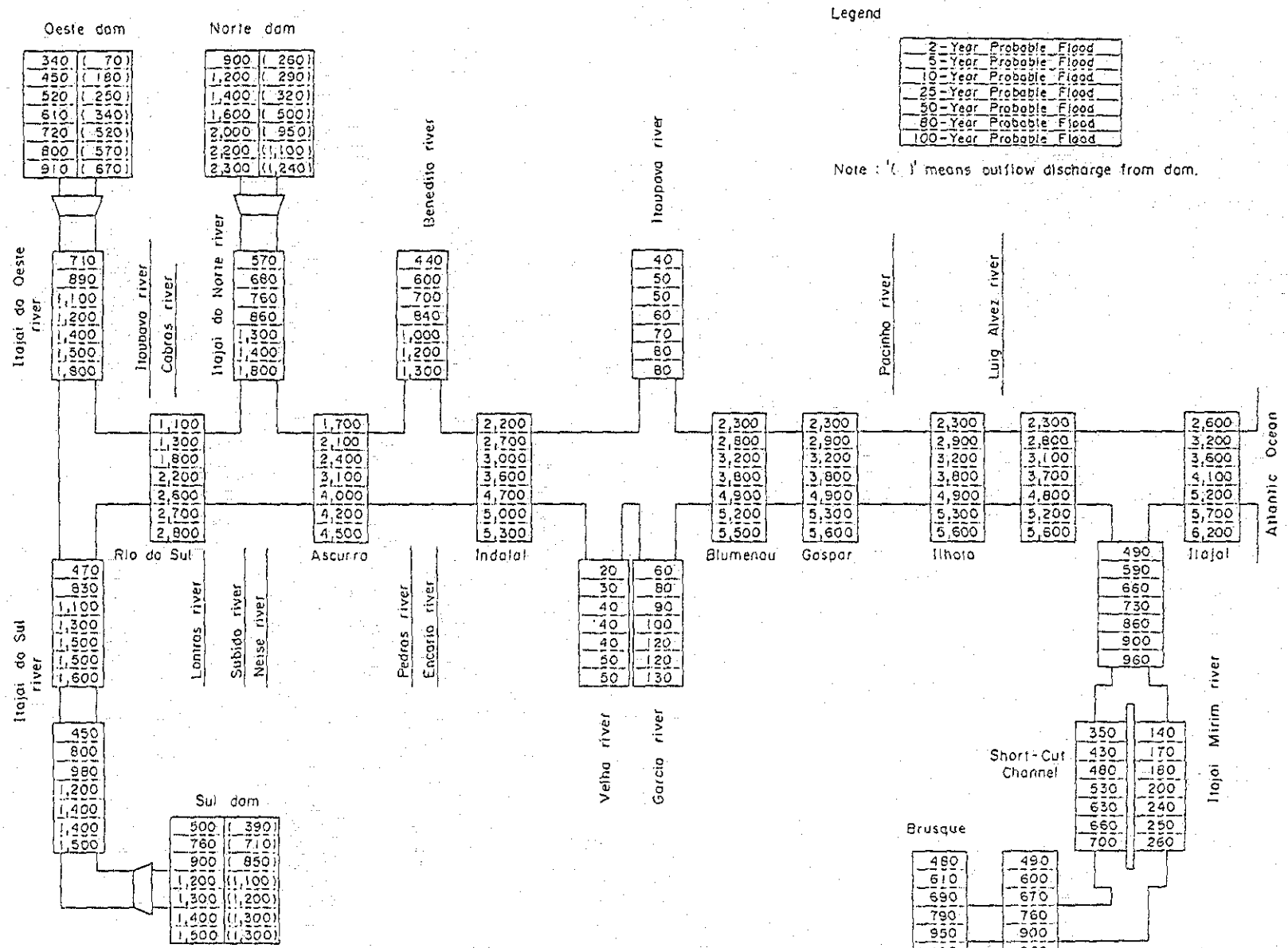


Fig.14 PROBABLE FLOOD DISCHARGE DISTRIBUTION WITH/WITHOUT EXISTING FLOOD CONTROL DAMS (2/2) WITH DAMS

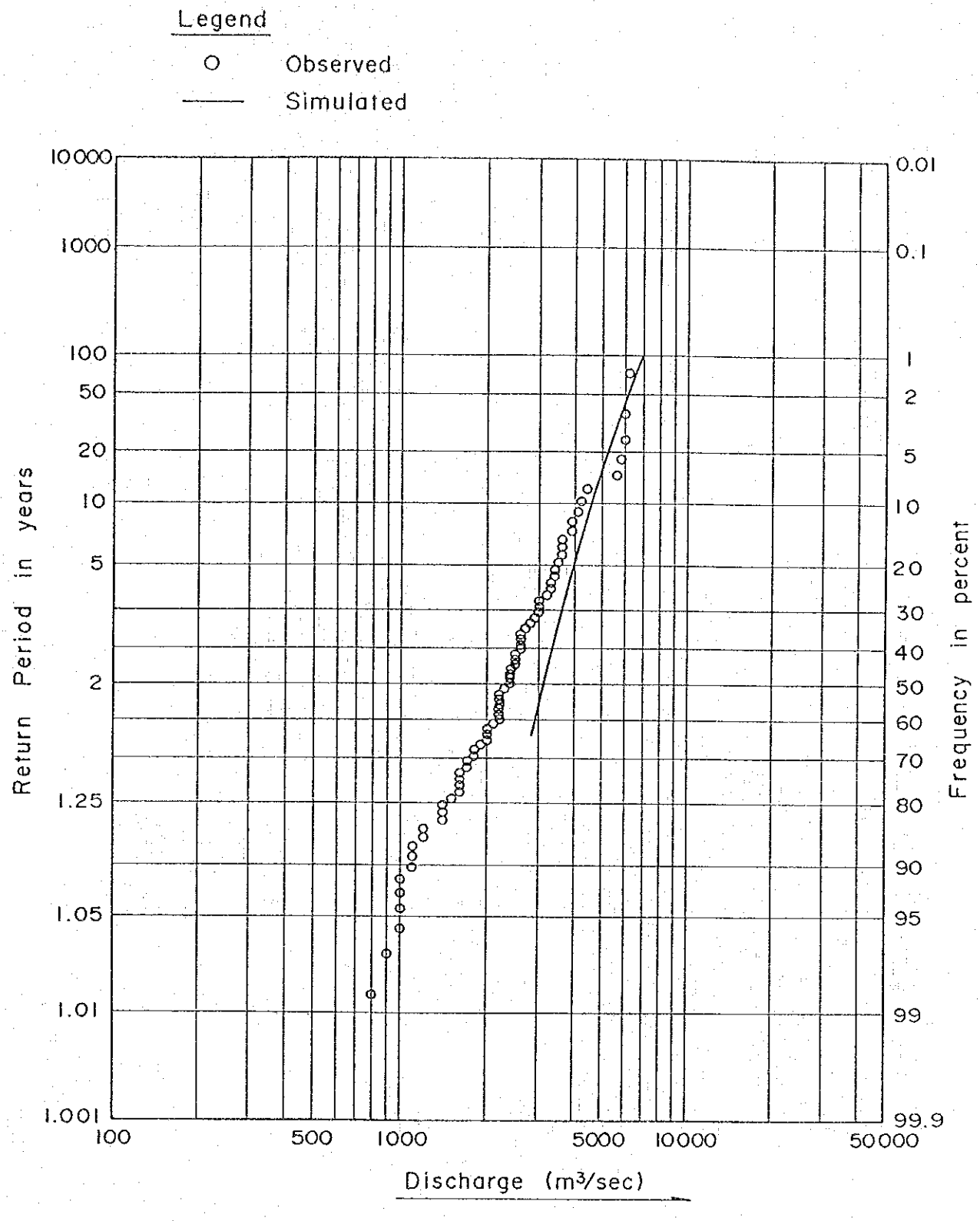


Fig.15 FREQUENCY CURVE OF FLOOD PEAK DISCHARGE AT BLUMENAU

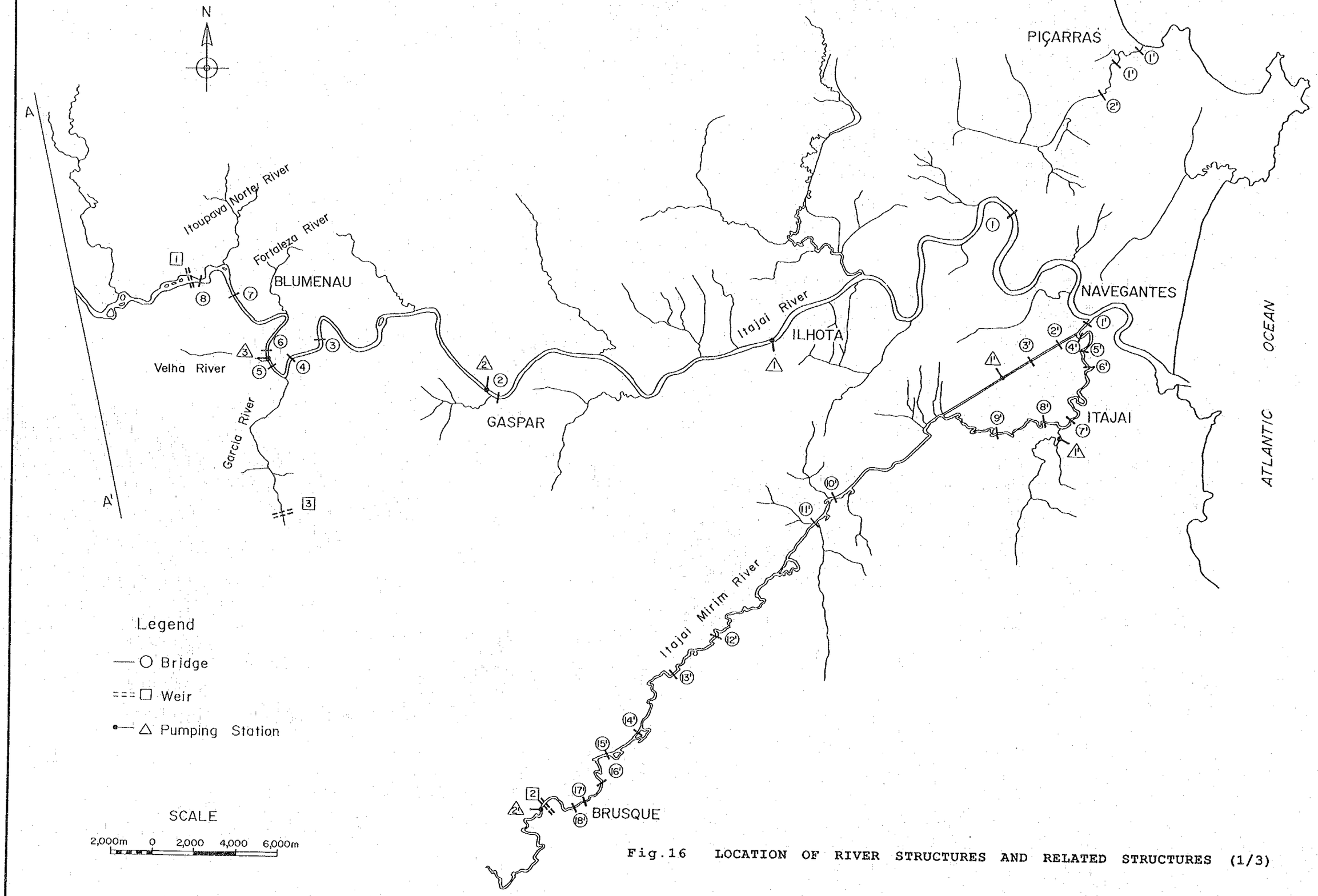


Fig.16 LOCATION OF RIVER STRUCTURES AND RELATED STRUCTURES (1/3)

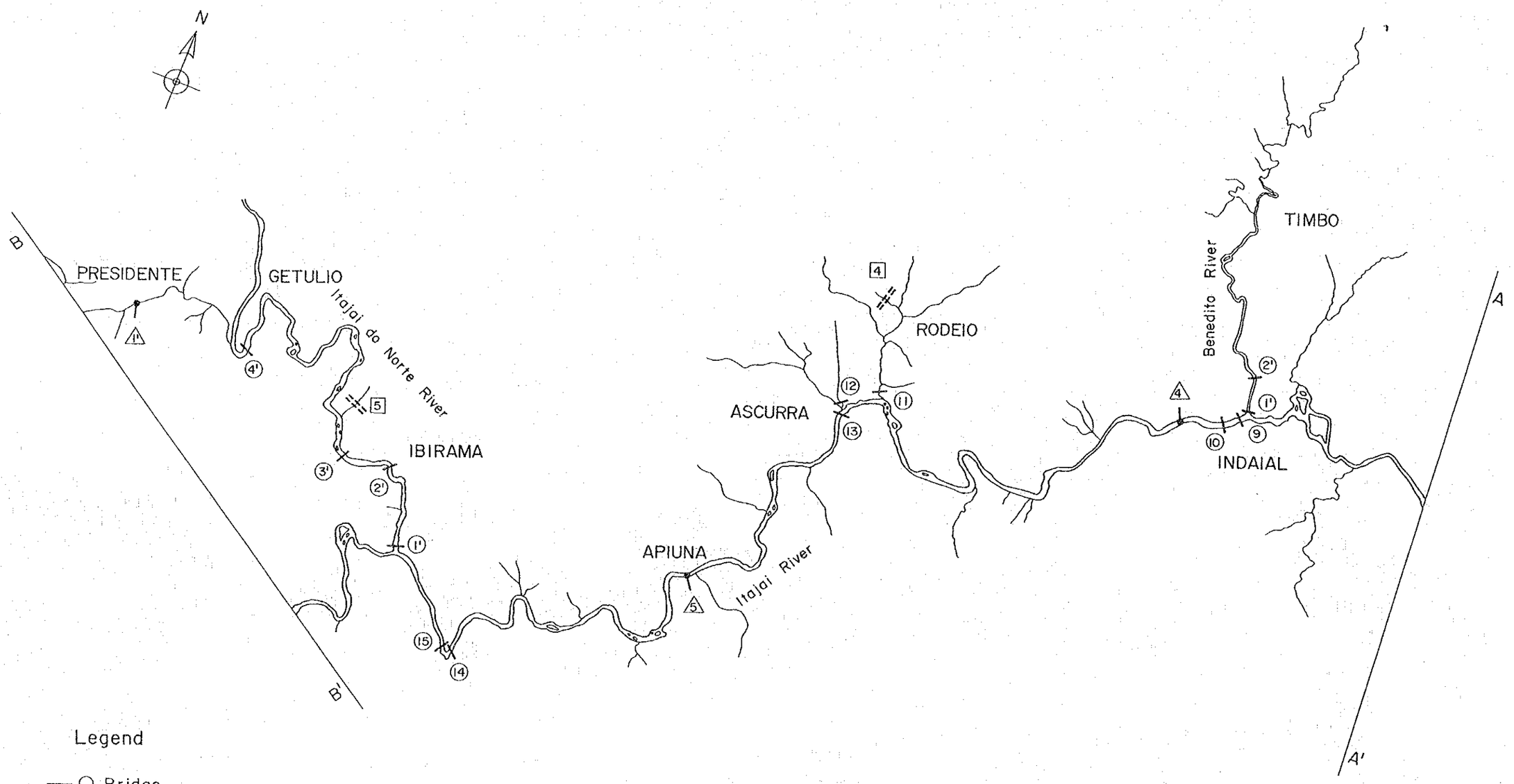


Fig.16 LOCATION OF RIVER STRUCTURES AND RELATED STRUCTURES (2/3)

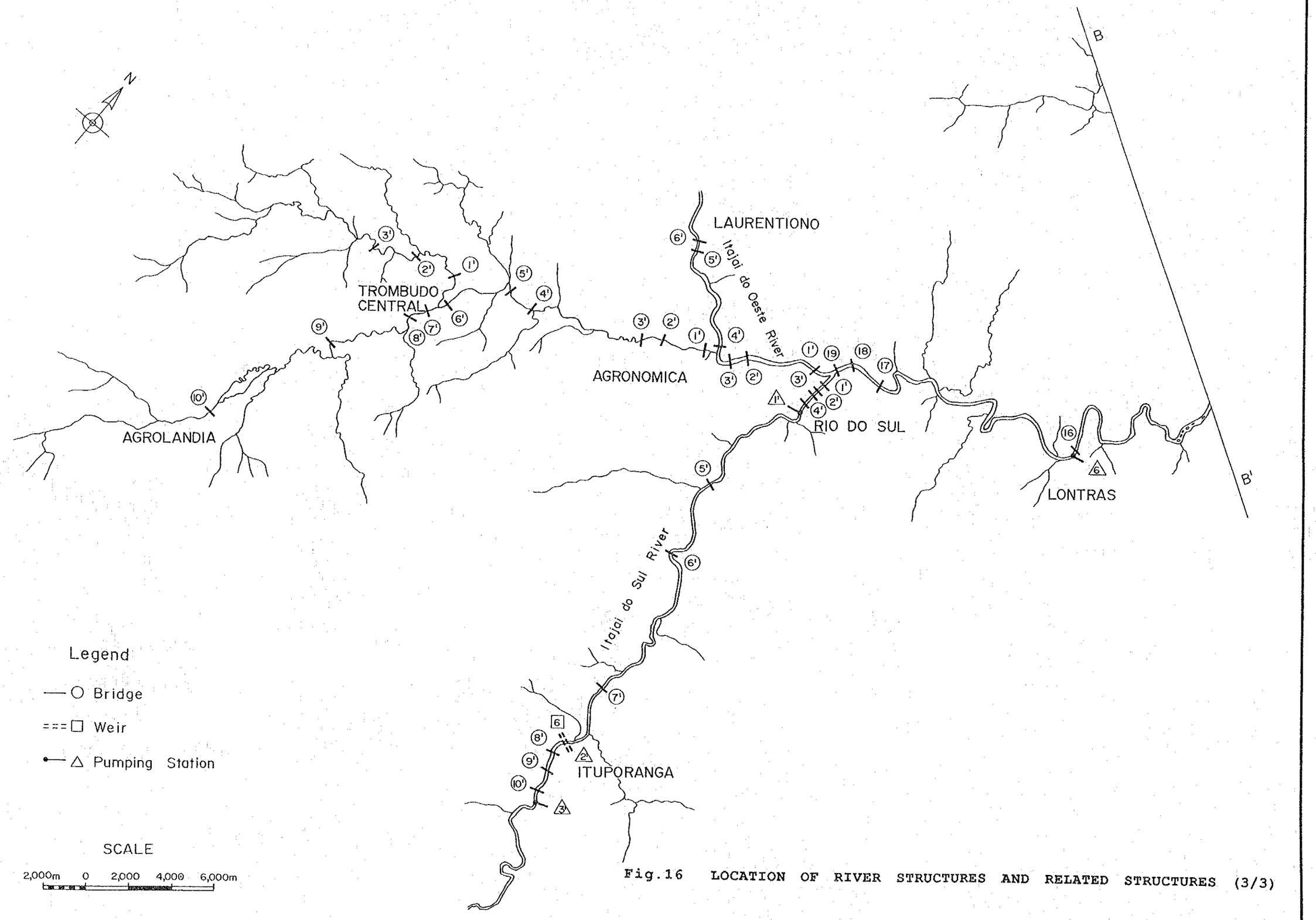
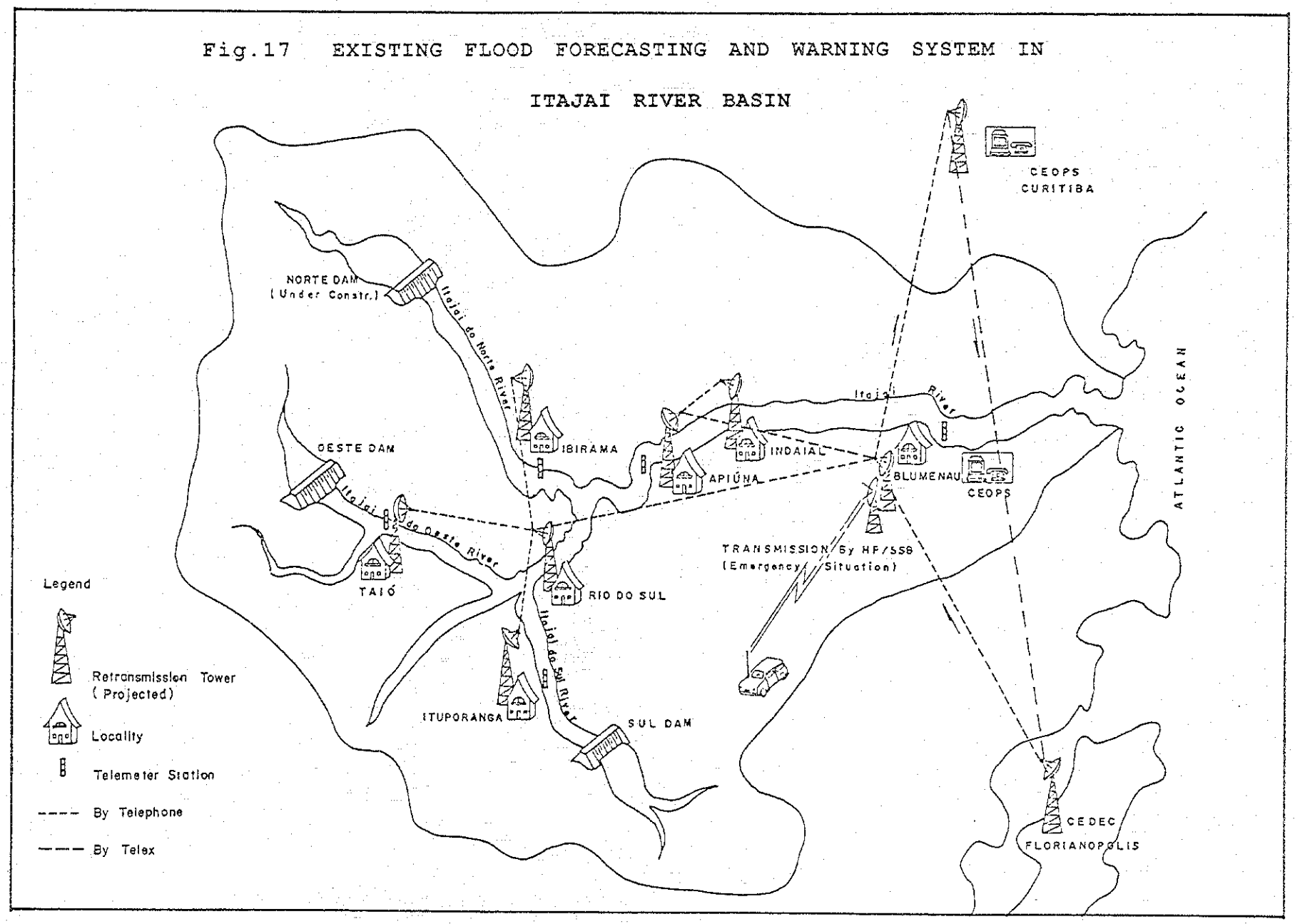


Fig.16 LOCATION OF RIVER STRUCTURES AND RELATED STRUCTURES (3/3)

Fig.17 EXISTING FLOOD FORECASTING AND WARNING SYSTEM IN ITAJAI RIVER BASIN



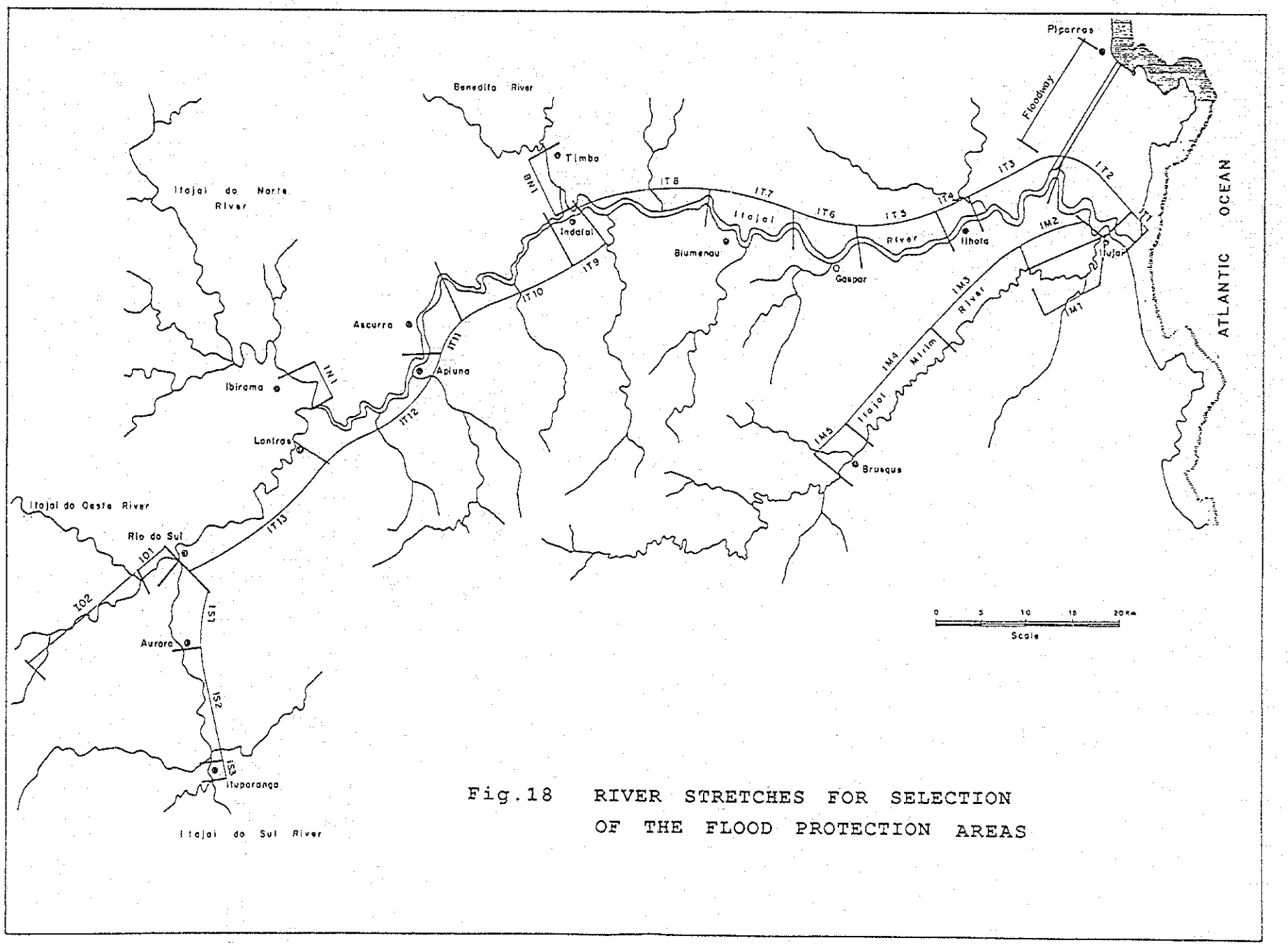


Fig.18 RIVER STRETCHES FOR SELECTION OF THE FLOOD PROTECTION AREAS

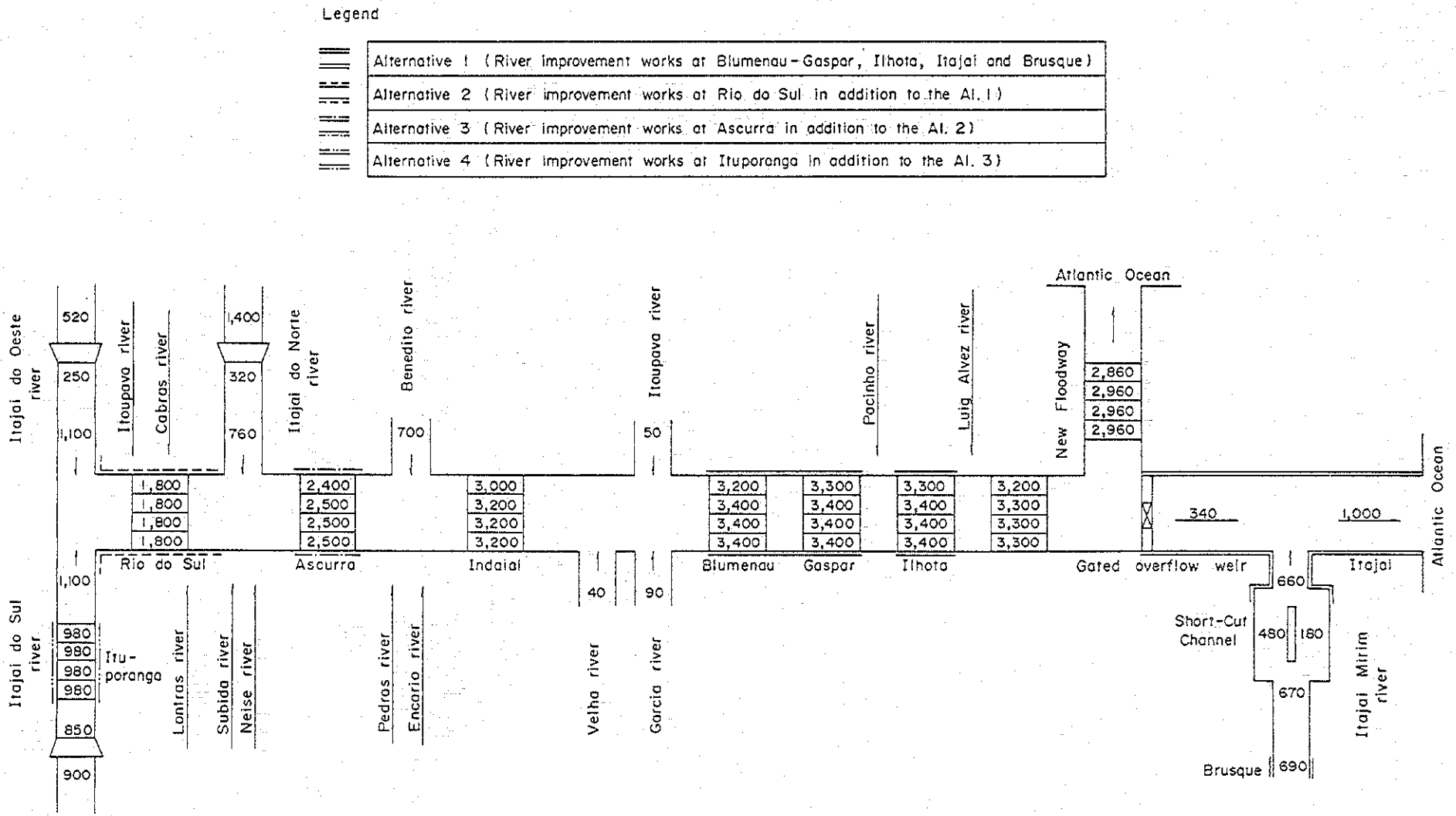


Fig. 19 10-YEAR PROBABLE FLOOD PEAK DISCHARGES FOR RIVER IMPROVEMENT SCHEMES

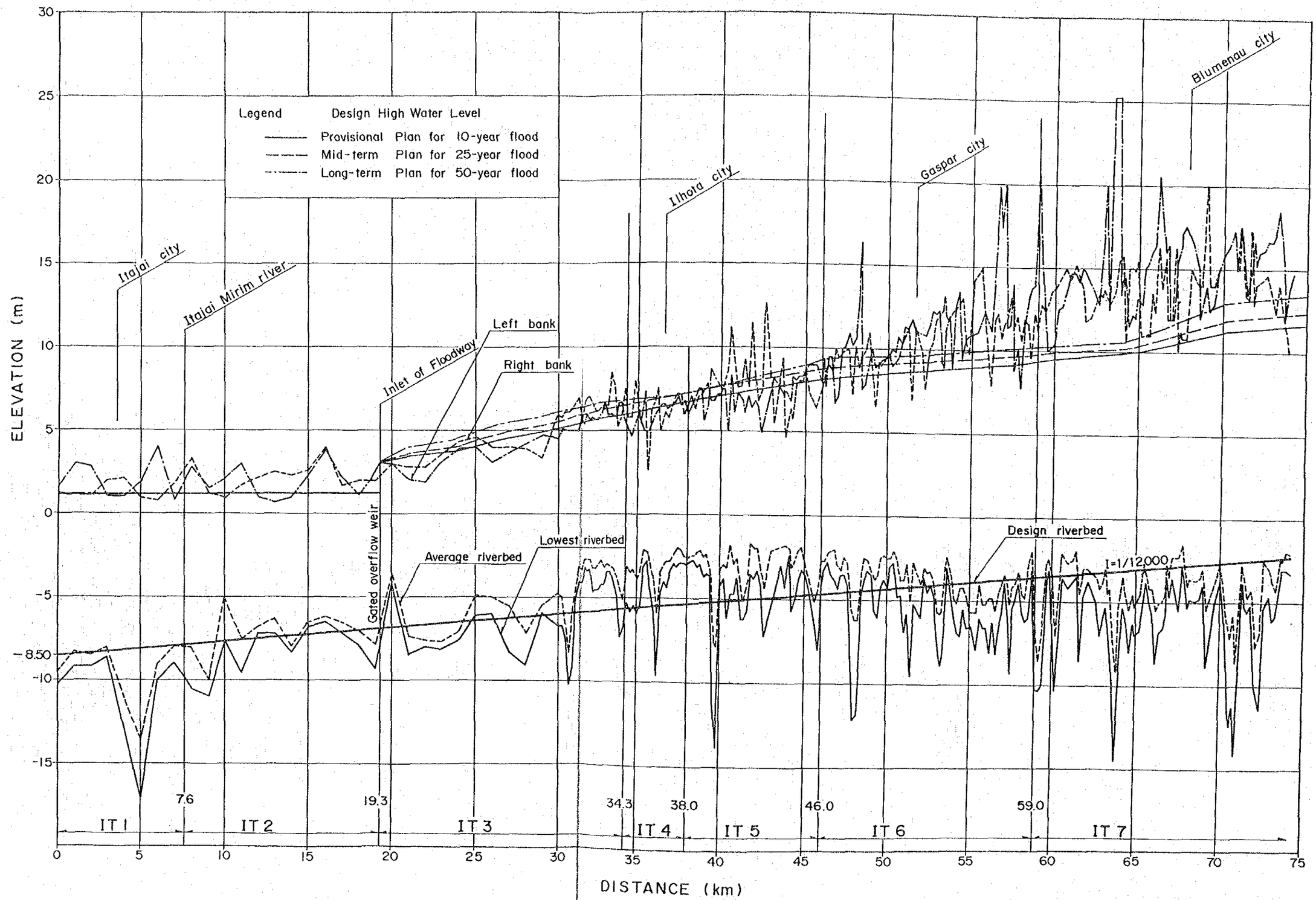
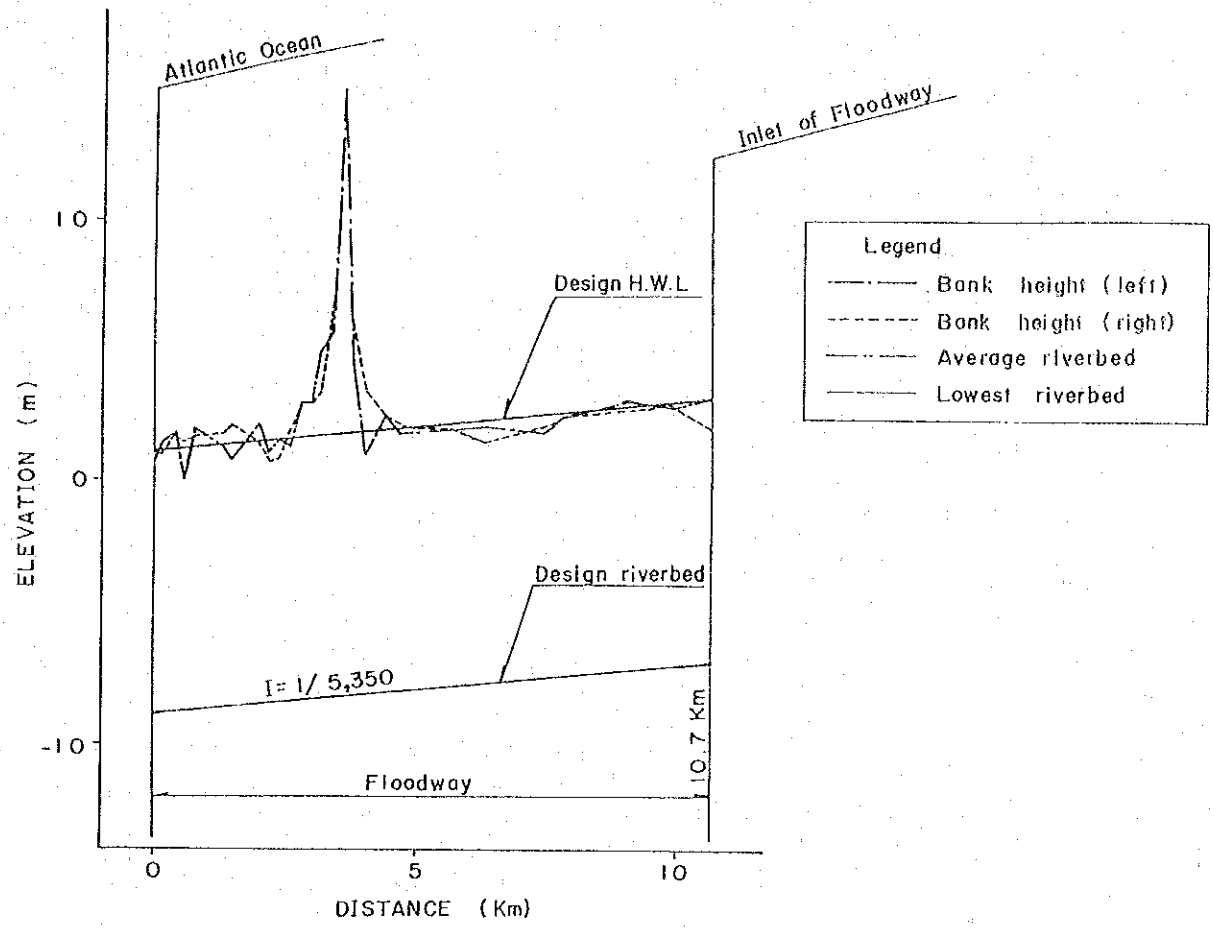
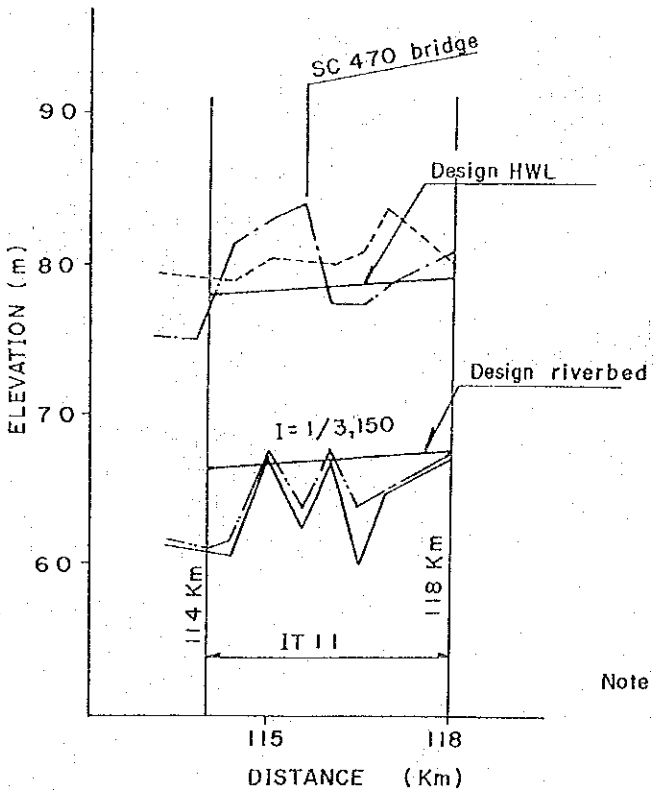


Fig.20 LONGITUDINAL PROFILE (1/4)





Note ; Design HWL will be the same level in any plan.

Fig.20 LONGITUDINAL PROFILE (2/4)

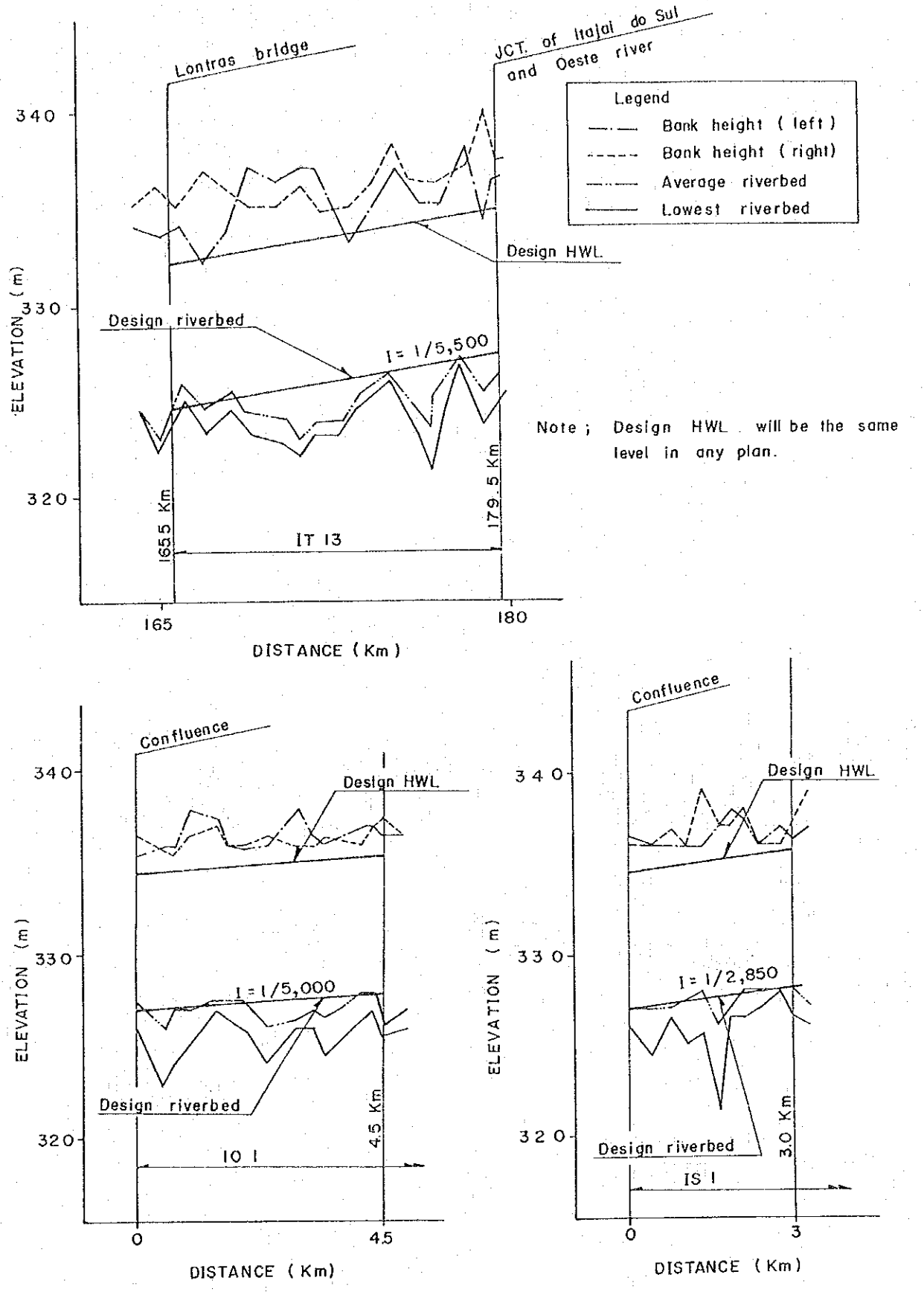


Fig.20 LONGITUDINAL PROFILE (3/4)

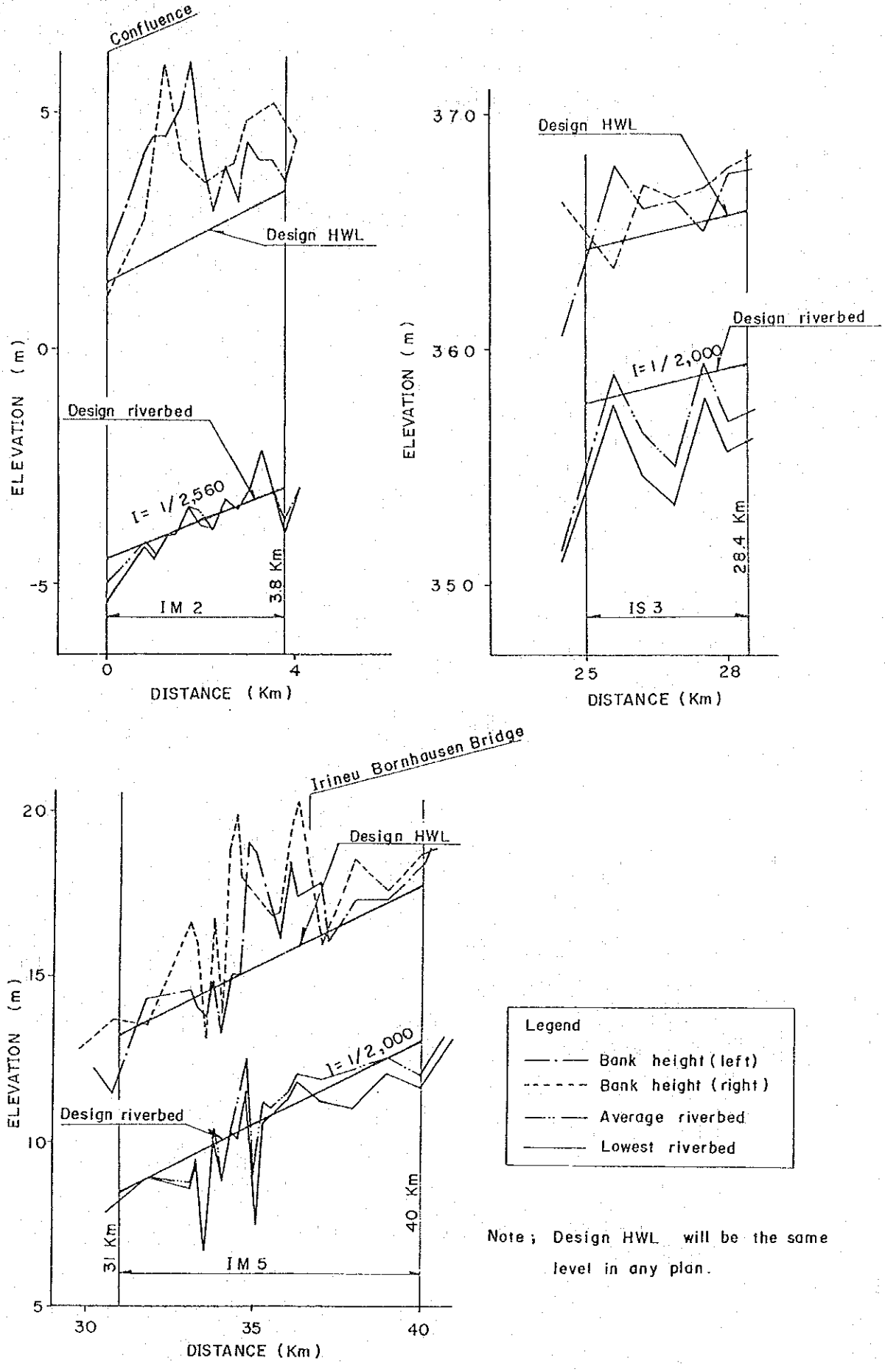


Fig.20 LONGITUDINAL PROFILE (4/4)

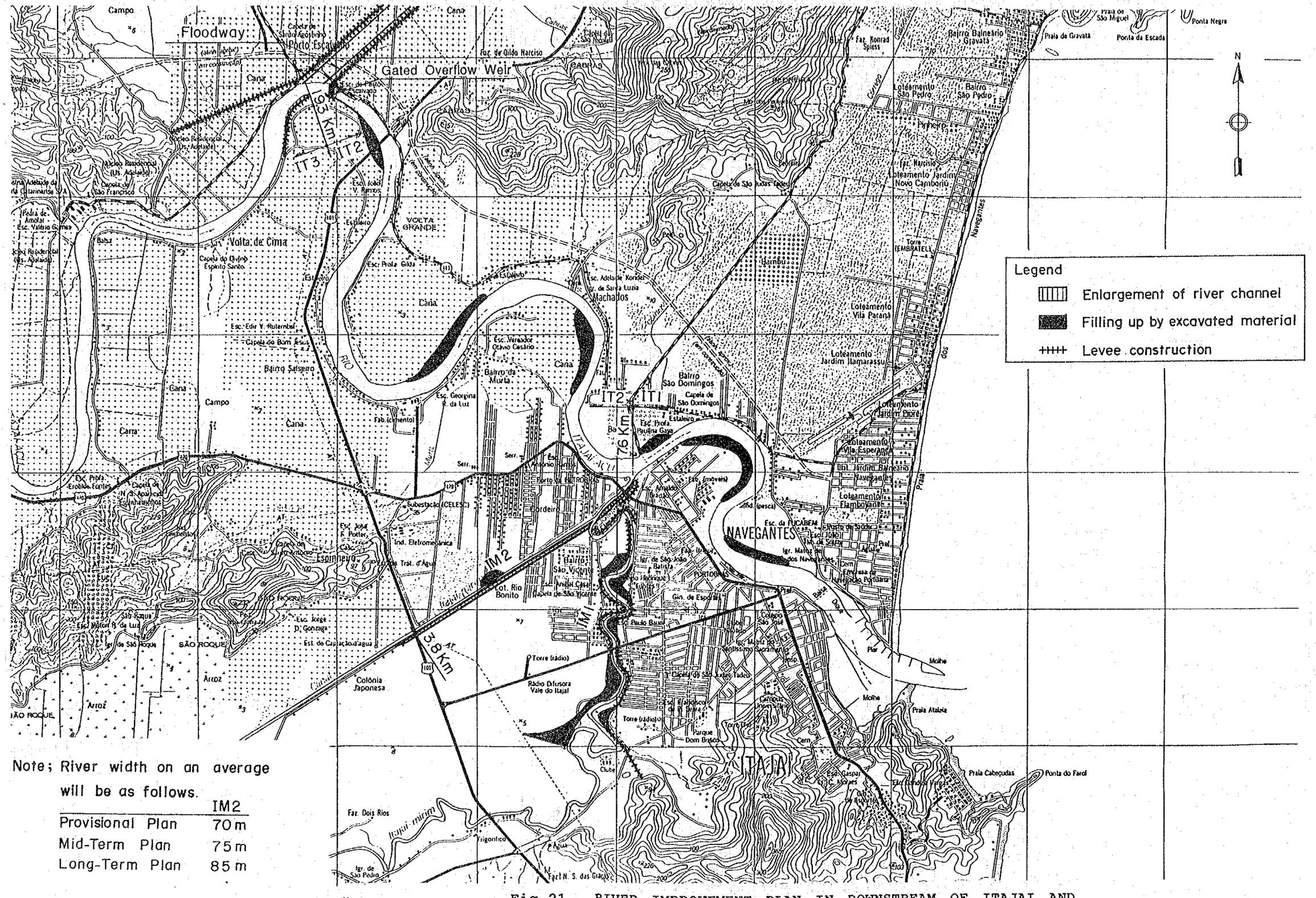


Fig.21 RIVER IMPROVEMENT PLAN IN DOWNSTREAM OF ITAJAI AND ITAJAI MIRIM RIVERS

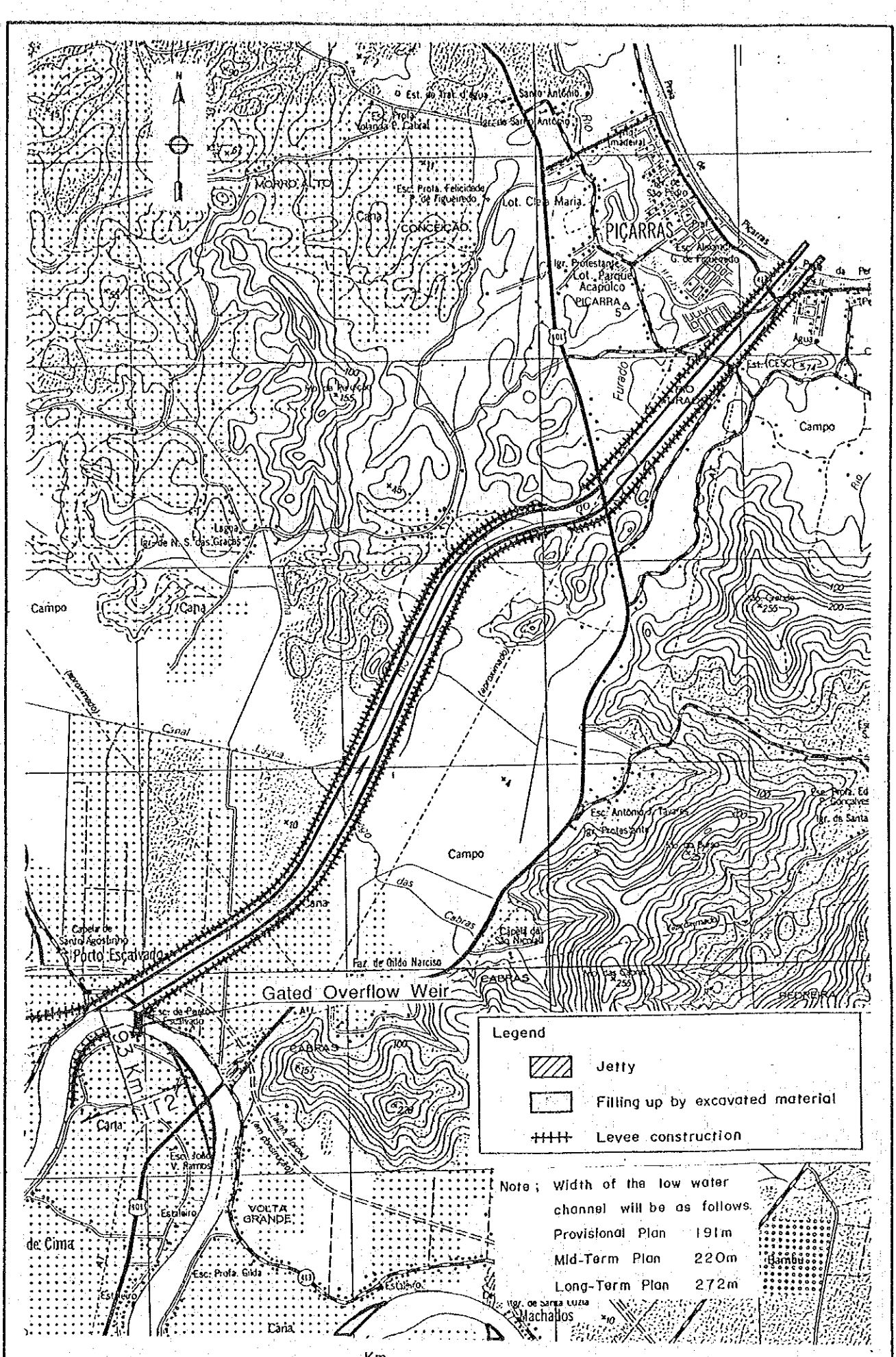


Fig.22 ROUTE OF FLOODWAY

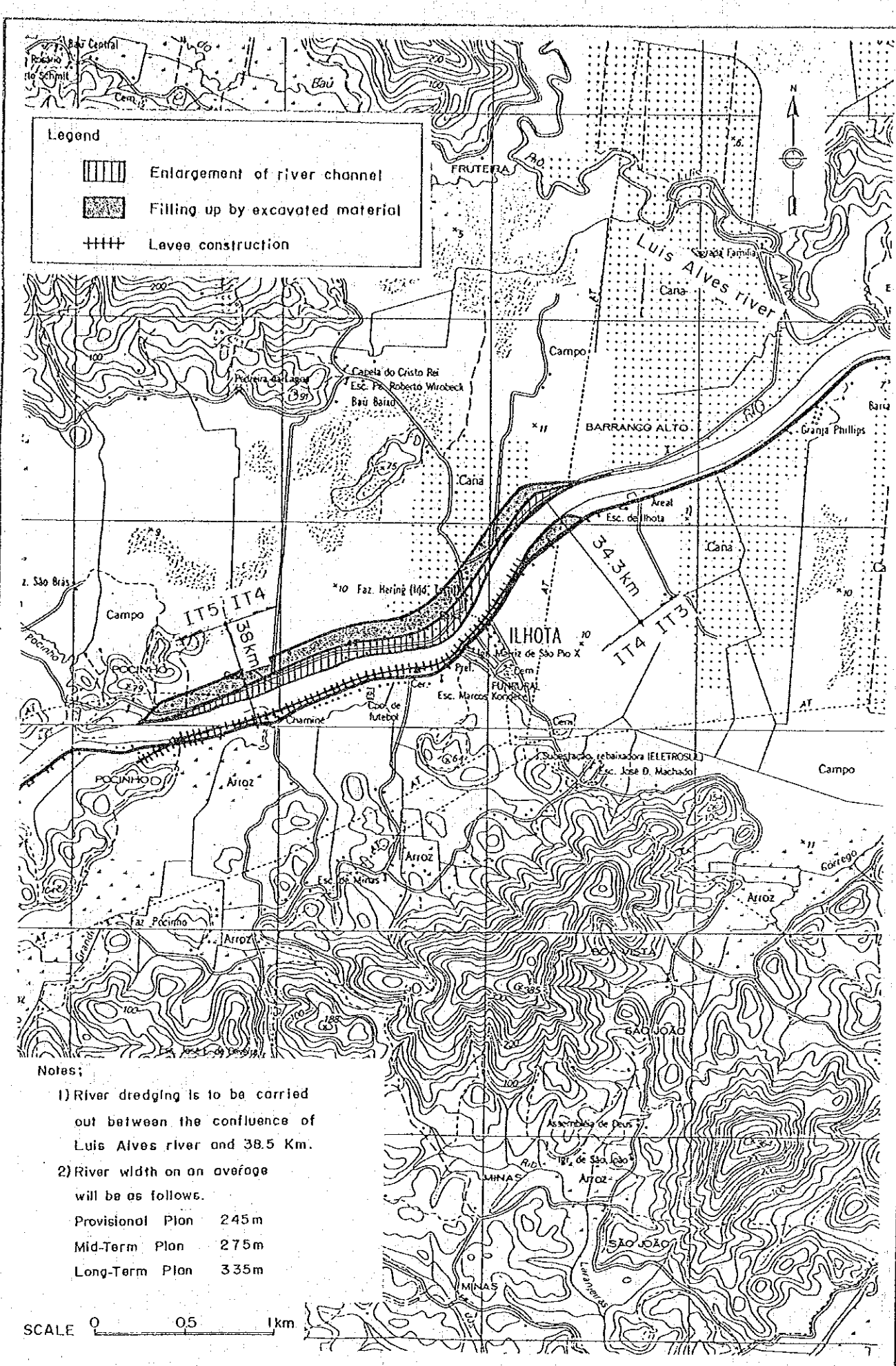


Fig.23 RIVER IMPROVEMENT PLAN IN ILHOTA STRETCH

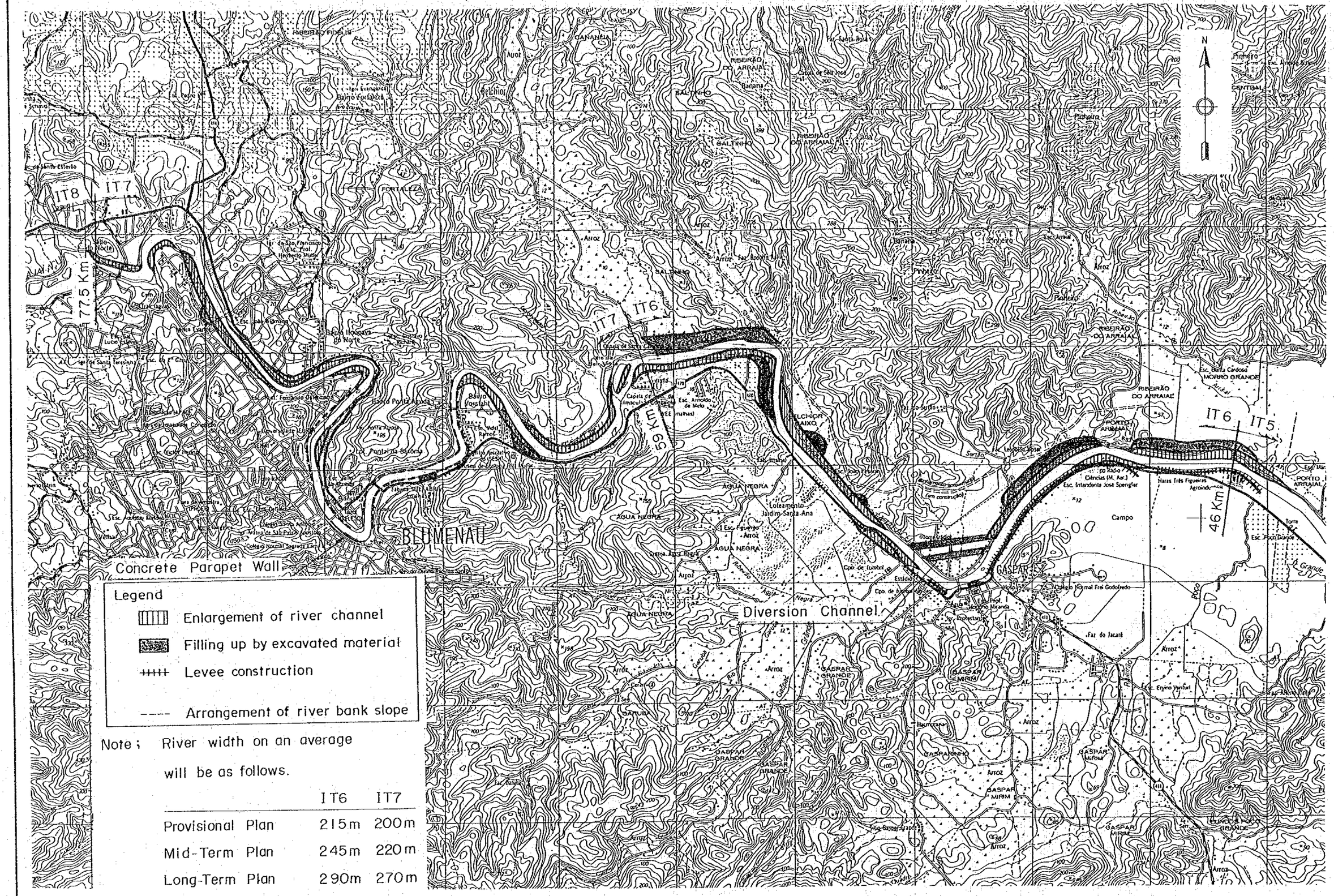


Fig.24 RIVER IMPROVEMENT PLAN IN BLUMENAU-GASPAR STRETCH

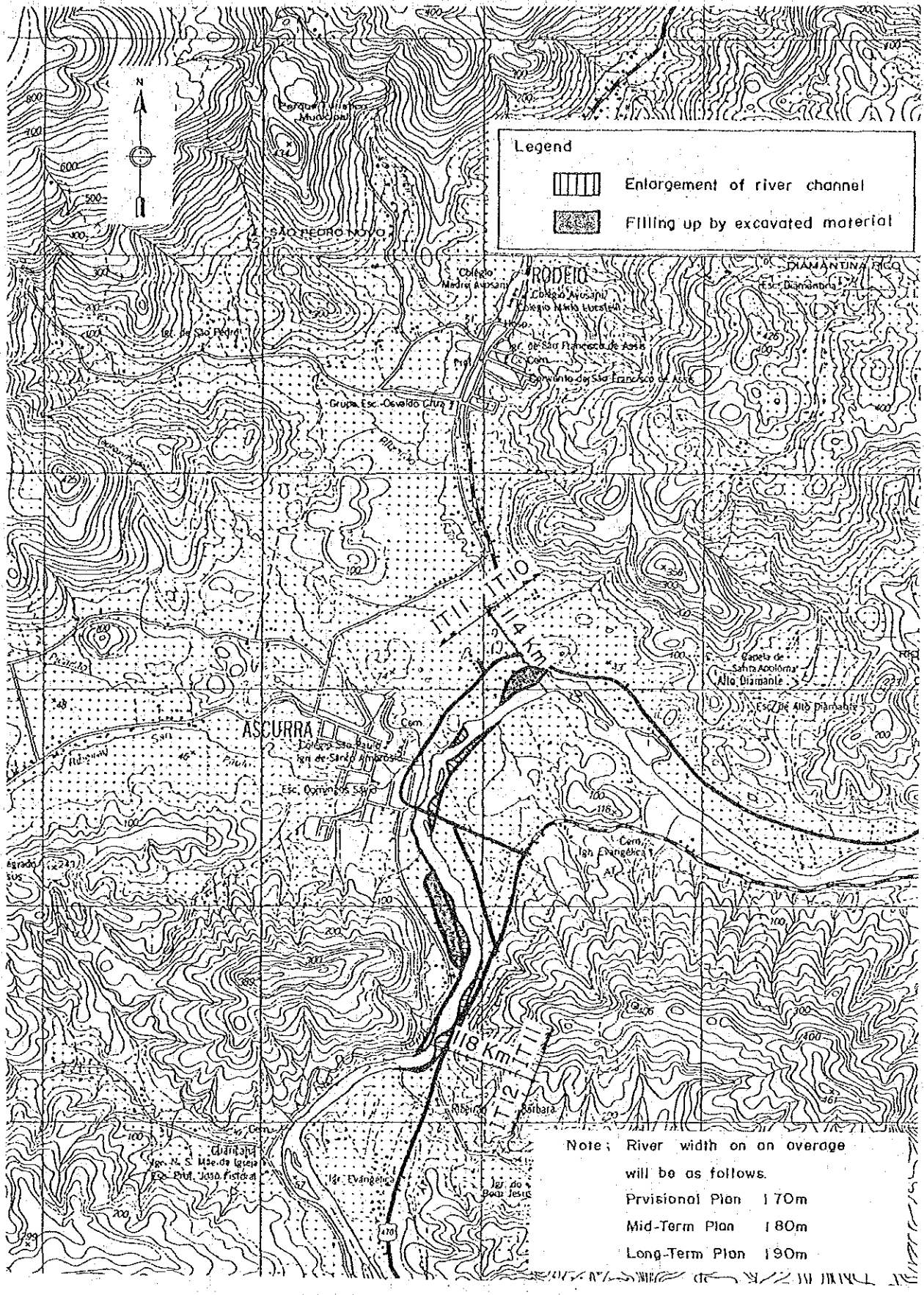


Fig.25 RIVER IMPROVEMENT PLAN IN ASCURRA STRETCH

Legend

Enlargement of river channel

Filling up by excavated material

Short-cut Channel

Short-cut Channel

1655 Km

179.5 Km

145 Km

130 Km

Note; River width on an average will be as follows.

	IT13	101	ISI
Provisional Plan	190m	120m	110m
Mid-Term Plan	230m	130m	120m
Long-Term Plan	250m	145m	130m

SCALE 0 1 2 3 Km

Fig.26 RIVER IMPROVEMENT PLAN IN RIO DO SUL-LONTRAS STRETCH

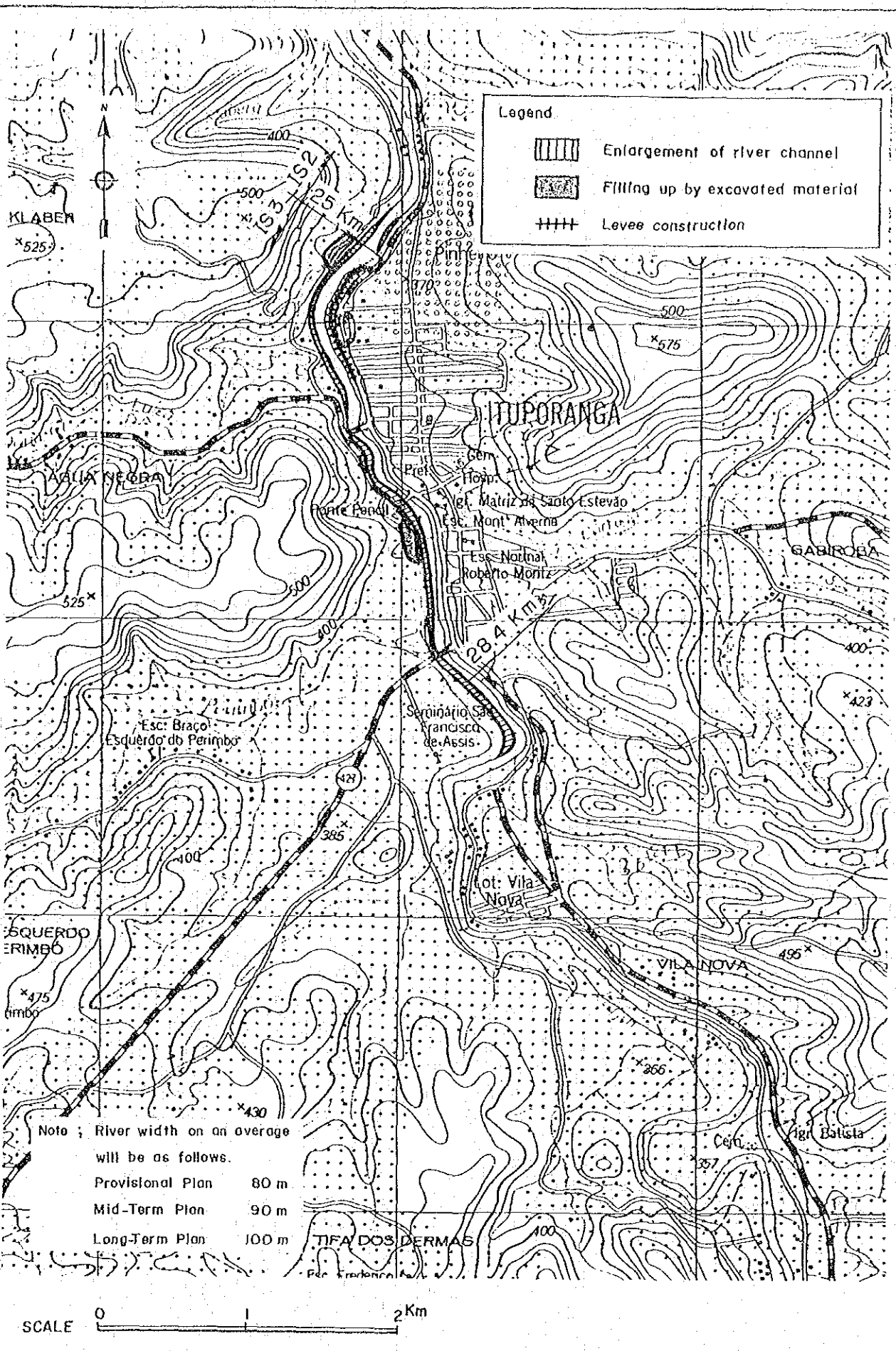


Fig.27 RIVER IMPROVEMENT PLAN IN ITUPORANGA STRETCH

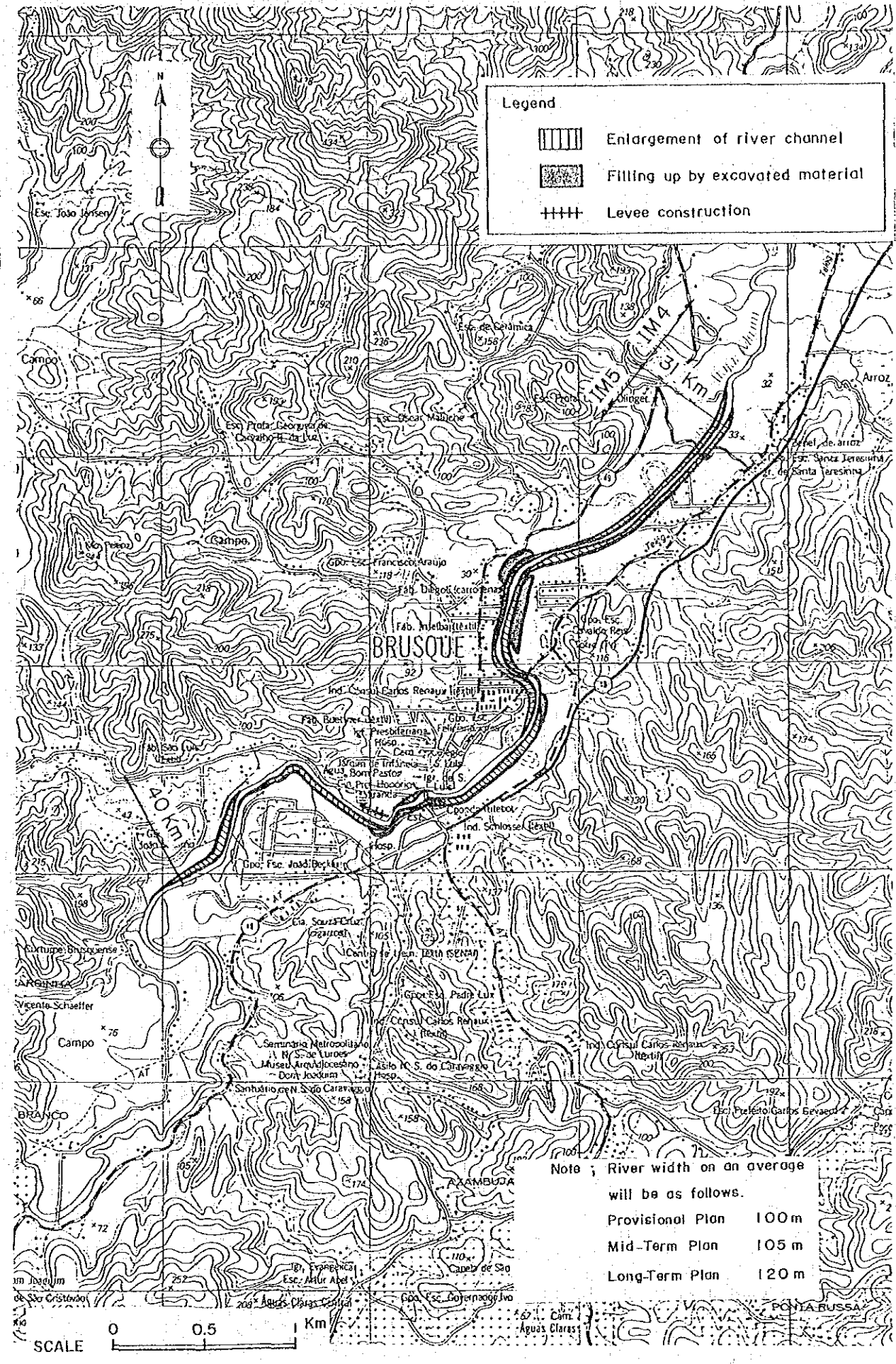
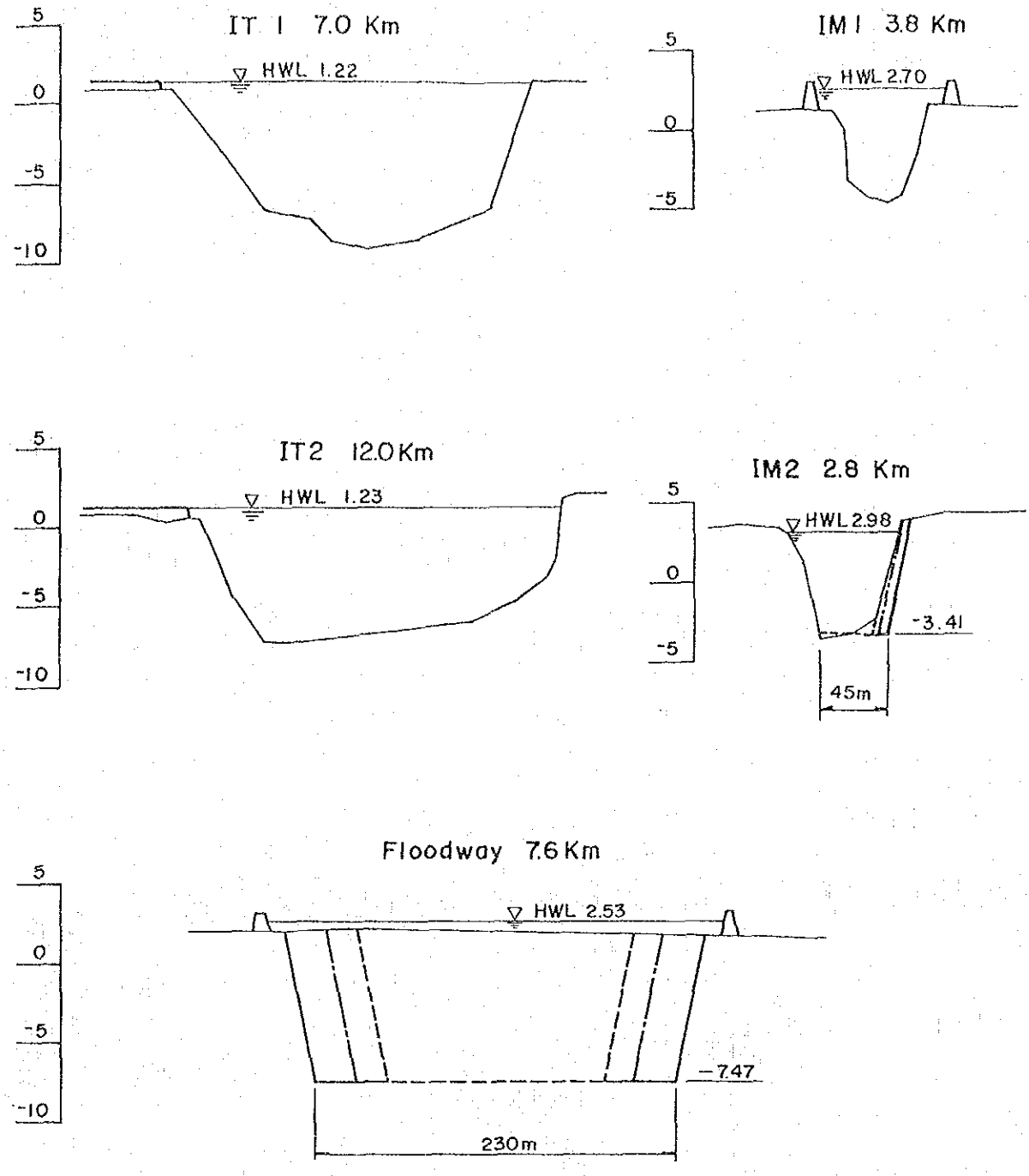


Fig.28 RIVER IMPROVEMENT PLAN IN BRUSQUE STRETCH



Legend

---- Provisional Plan
—·— Mid-Term Plan
——— Long-Term Plan

Note; HWL means design high water level for Long-Term Plan.
HWL for floodway will be the same level in any case.

Fig.29 TYPICAL CROSS SECTION (1/4)

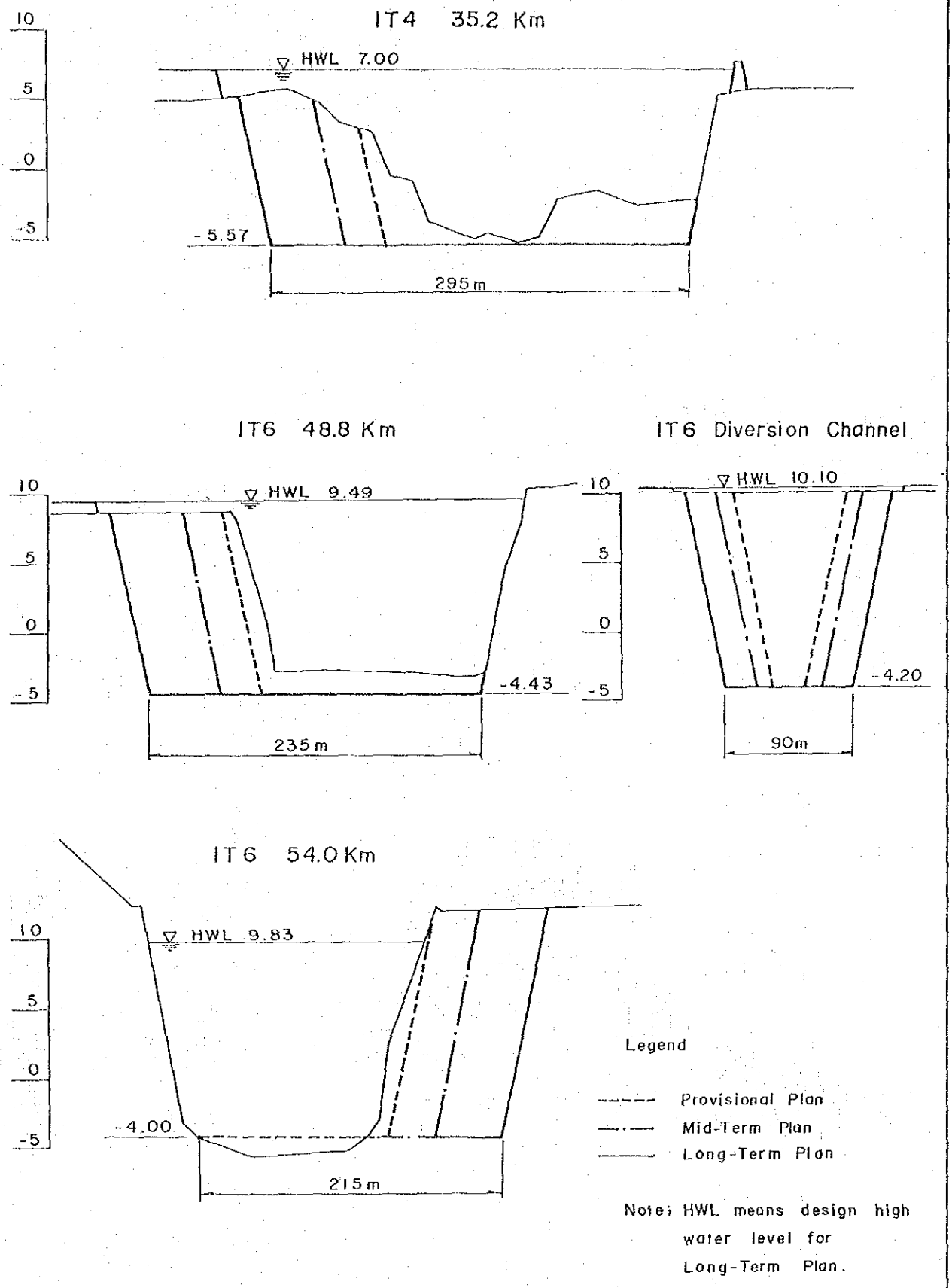


Fig.29 TYPICAL CROSS SECTION (2/4)

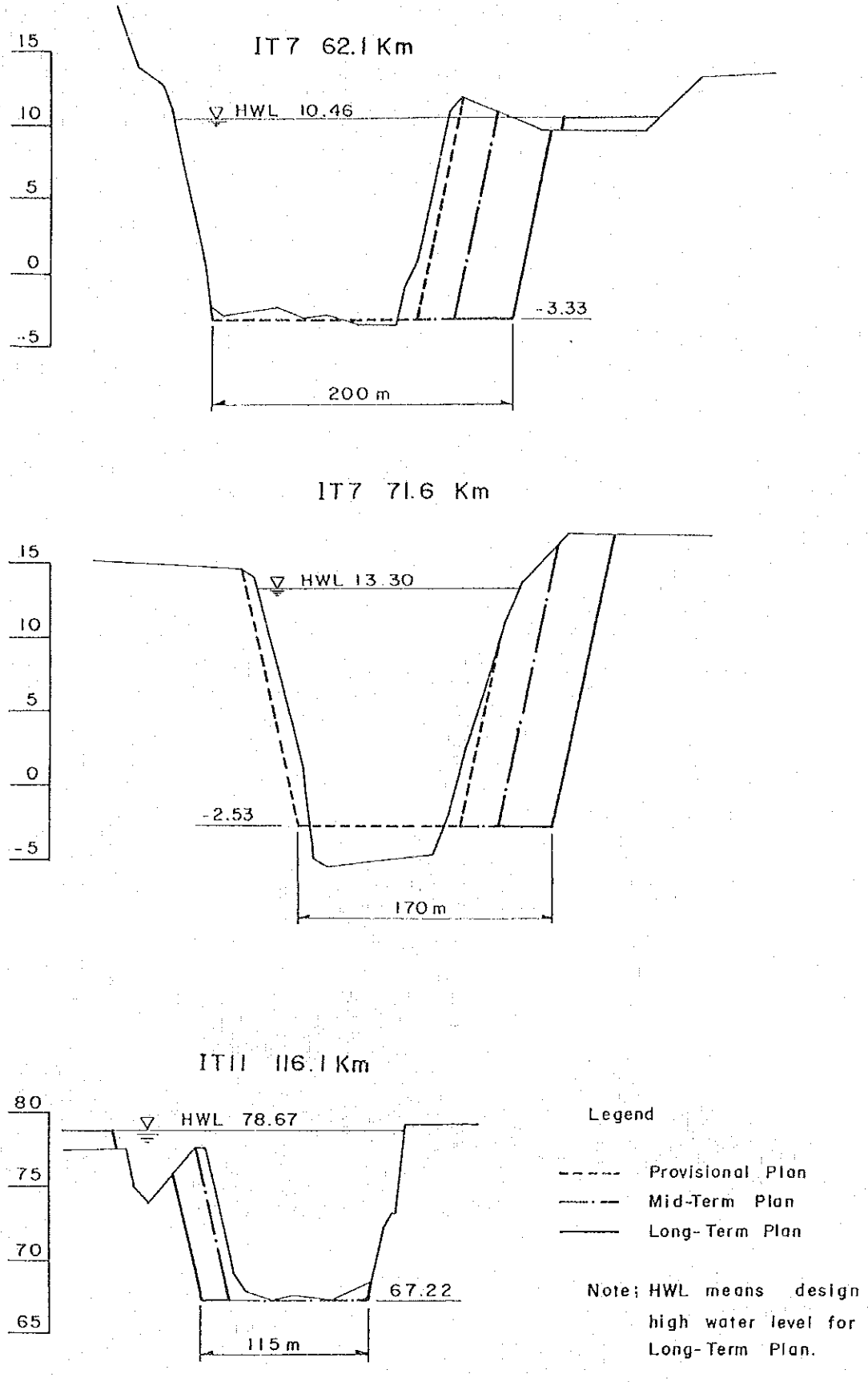


Fig.29 TYPICAL CROSS SECTION (3/4)

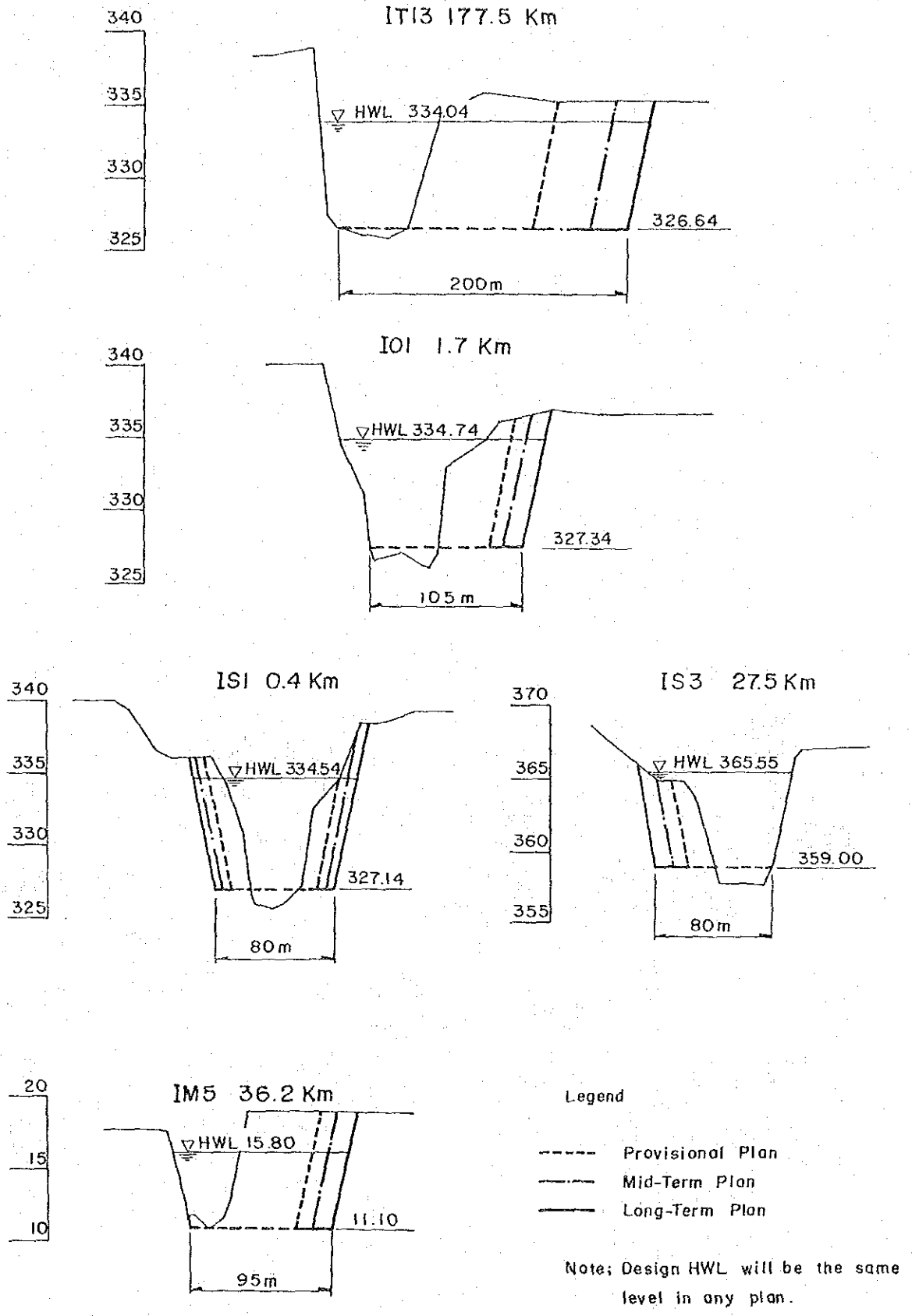


Fig.29 TYPICAL CROSS SECTION (4/4)

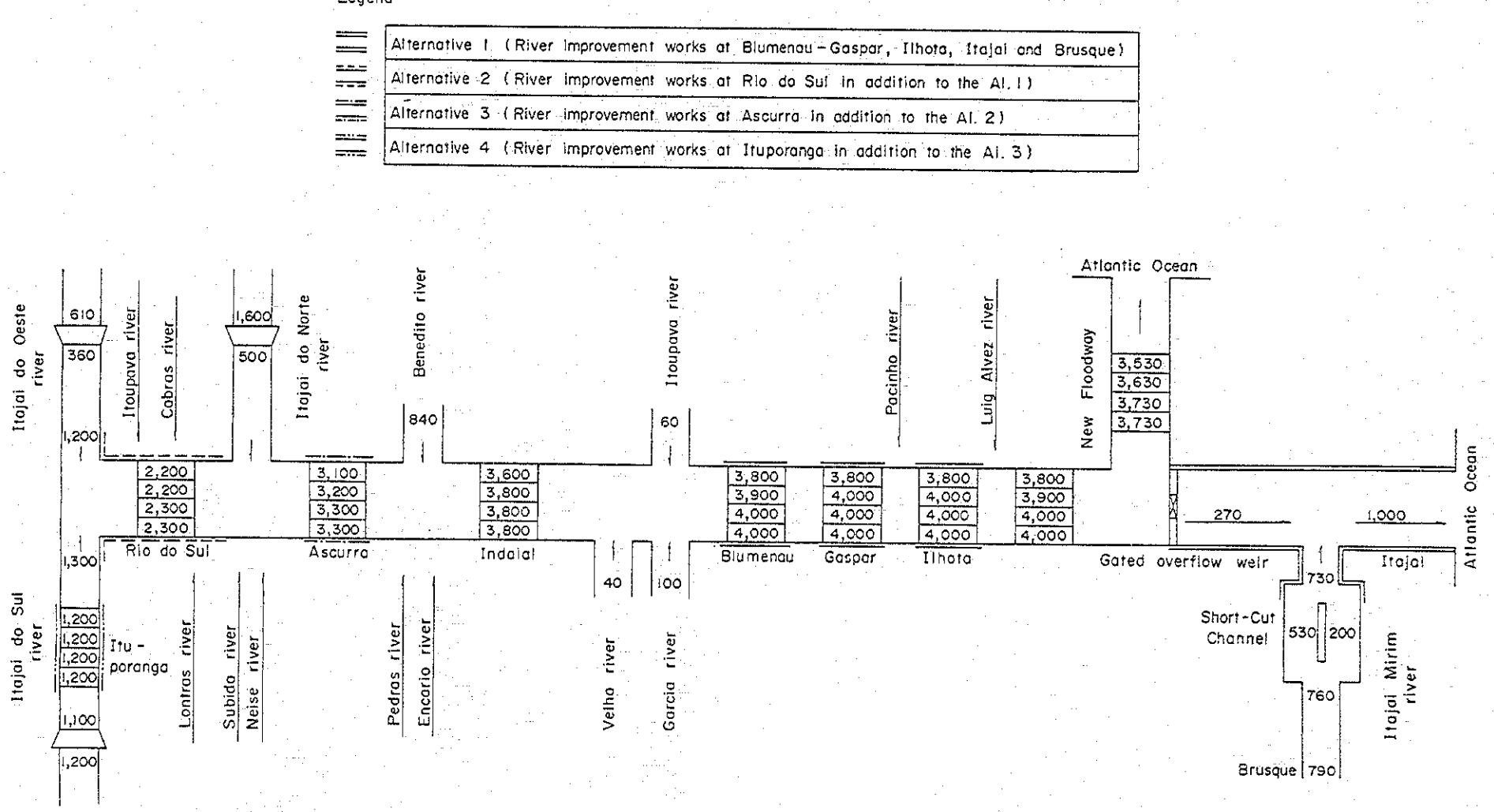


Fig. 30 25-YEAR PROBABLE FLOOD PEAK DISCHARGES FOR RIVER IMPROVEMENT SCHEMES

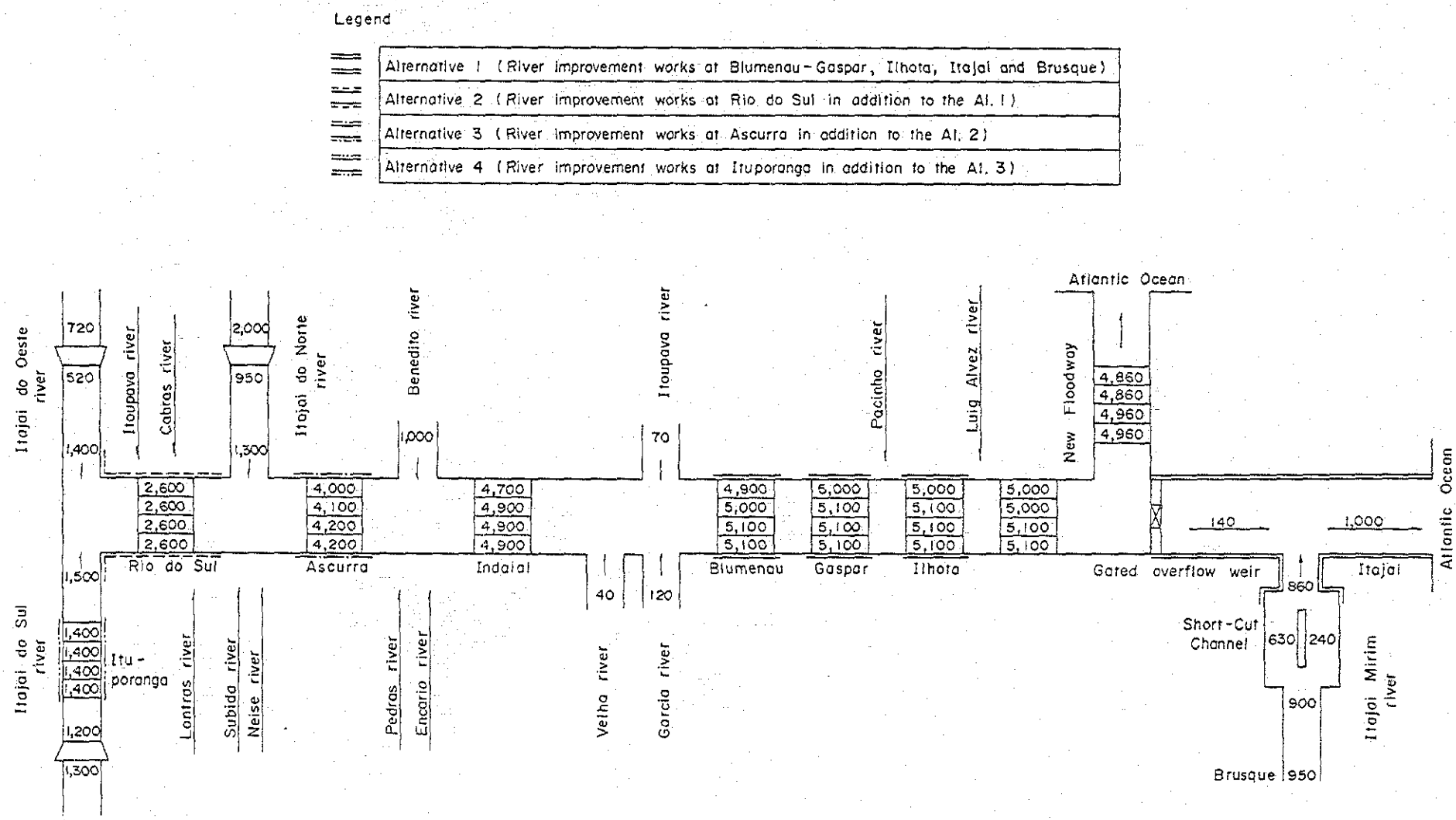


Fig. 31 50-YEAR PROBABLE FLOOD PEAK DISCHARGES FOR RIVER IMPROVEMENT SCHEMES

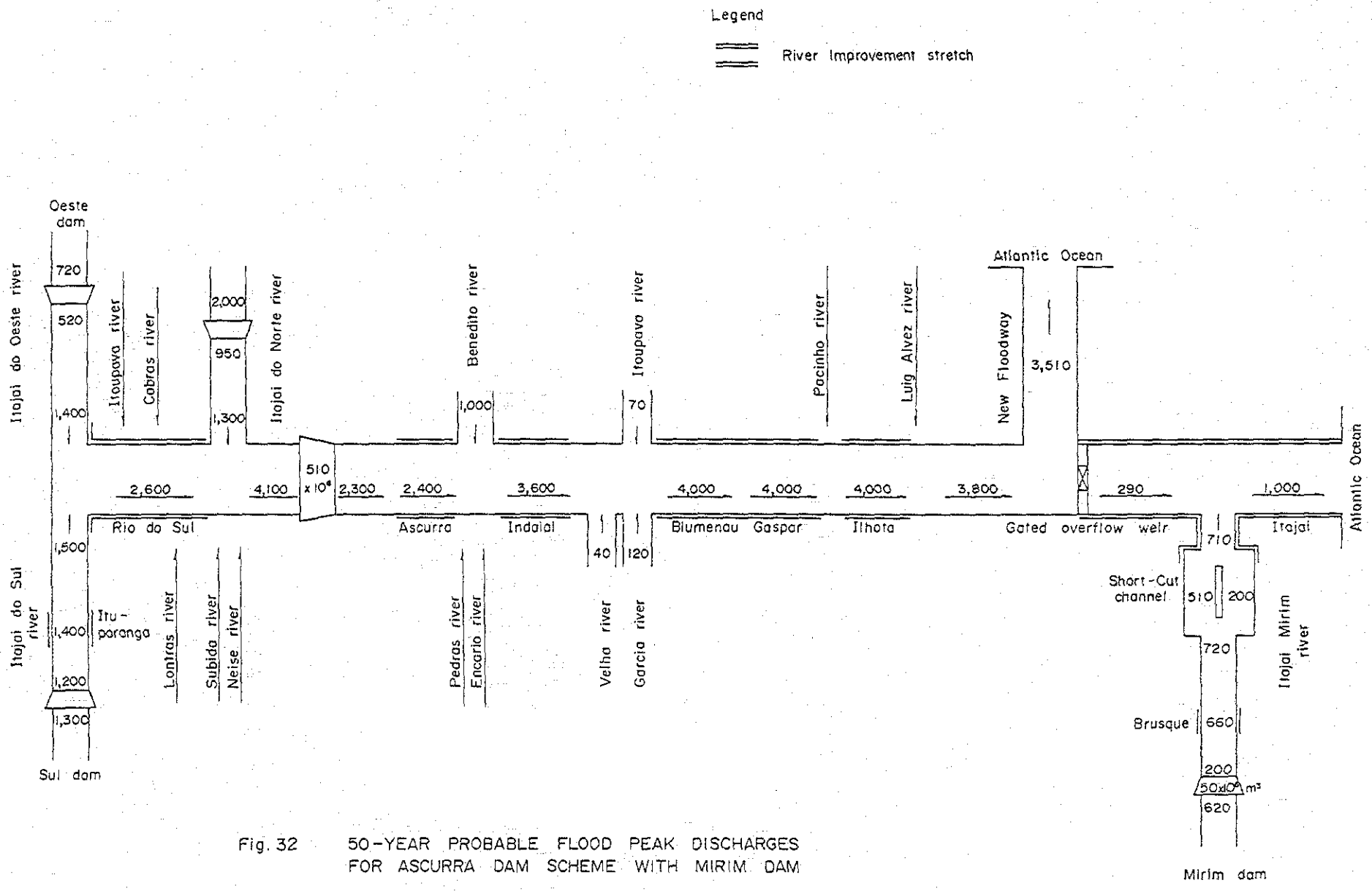


Fig. 32 50-YEAR PROBABLE FLOOD PEAK DISCHARGES FOR ASCURRA DAM SCHEME WITH MIRIM DAM

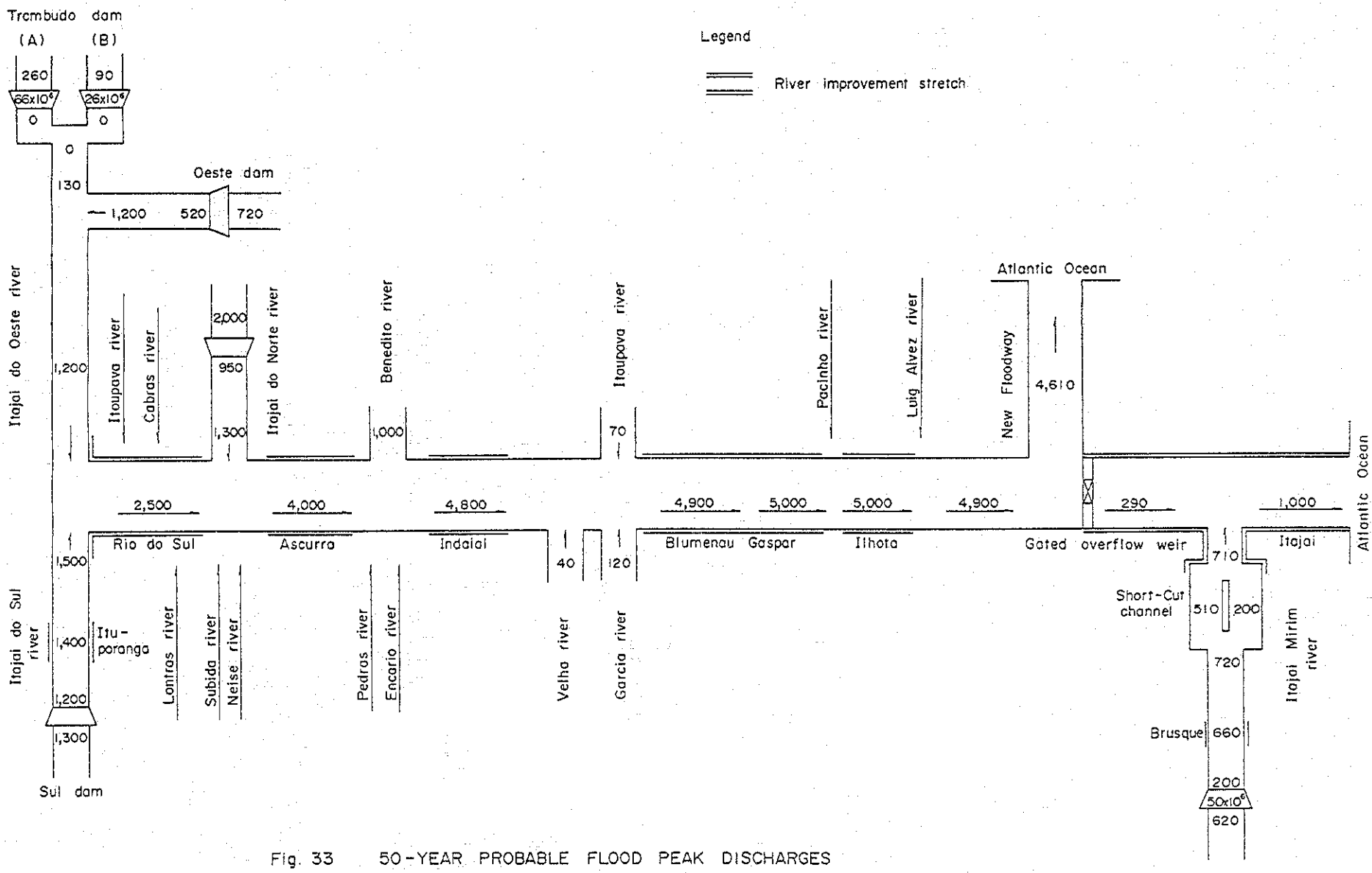


Fig. 33 50-YEAR PROBABLE FLOOD PEAK DISCHARGES FOR TROMBUDO (A) AND (B) DAM SCHEMES WITH MIRIM DAM

Fig.34 IMPLEMENTATION SCHEDULE OF PROPOSED FLOOD CONTROL PROJECTS

Project	Const. Cost (10^6 Cz $)	87	88	89	90	91	92	93	94	95	96	97	98	99	2000	2001	2002	2003	2004	2005
Provisional Plan																				
River improvement																				
Blumenau-Gaspar stretch	501		FN		T.C.															
Floodway and downstream of Itajai Mirim	737				FN		T.C.													
Rio do Sul-Lontras and Ituporanga stretches	879			FN		T.C.														
Brusque stretch	105				FN		T.C.													
Sub total	2,222																			
Mid-Term Plan																				
River improvement																				
Blumenau-Gaspar stretch	261							FN	T.C.											
Floodway and downstream of Itajai Milim	119										FN	T.C.								
Rio do Sul-Lontras and Ituporanga stretches	378									FN	T.C.									
Brusque stretch	13										FN	T.C.								
Sub total	771																			
Long-Term Plan																				
River improvement																				
Blumenau-Gaspar stretch	391												FN	T.C.						
Floodway and downstream of Itajai Mirim	197																FN	T.C.		
Rio do Sul-Lontras and Ituporanga stretches	283																FN	T.C.		
Brusque stretches	22																FN	T.C.		
Ilhota stretch	237													FN	T.C.					
Ascurra stretch	95														FN	T.C.				
Sub total	1,225																			
Total	4,218																			

Note: Feasibility study; Detailed design; Construction
FN ; Financing
T.C. ; Tendering and Contract

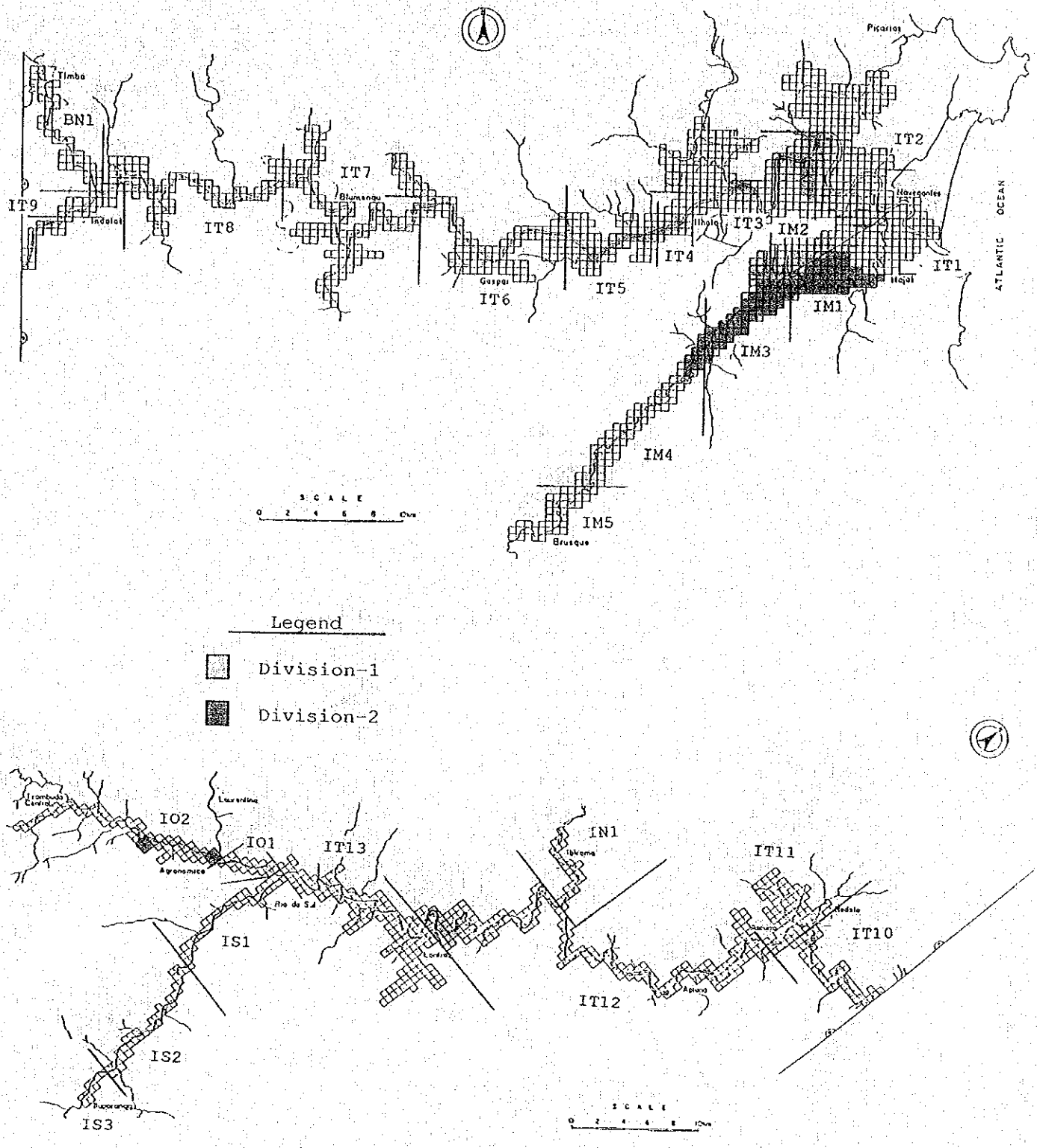


Fig.35 ZONING MAP OF EACH STRETCH