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"For Overall Reference"

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FIGURE 2.1

Fig. 2.1 LANDFORMS AND RELIEF

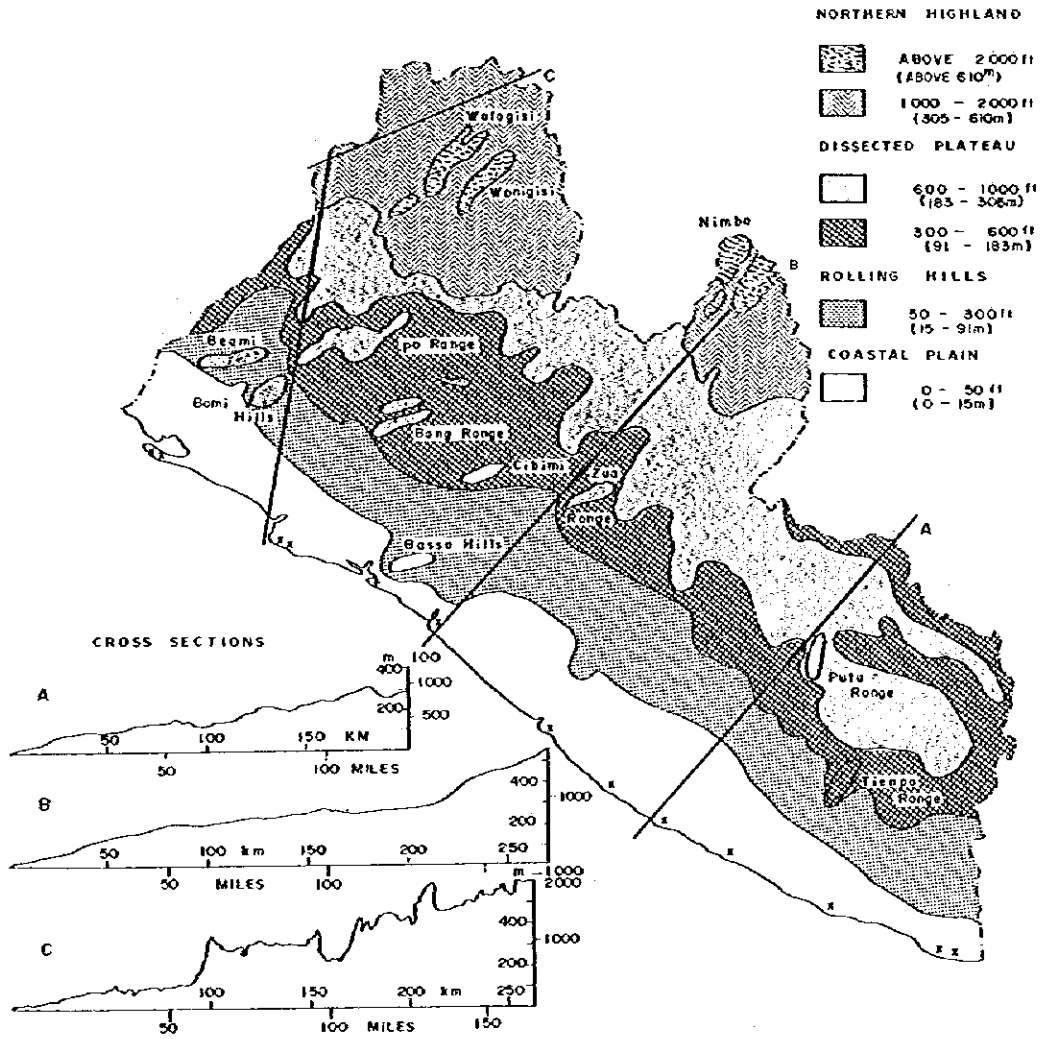


Fig. 2.2 VEGETATION

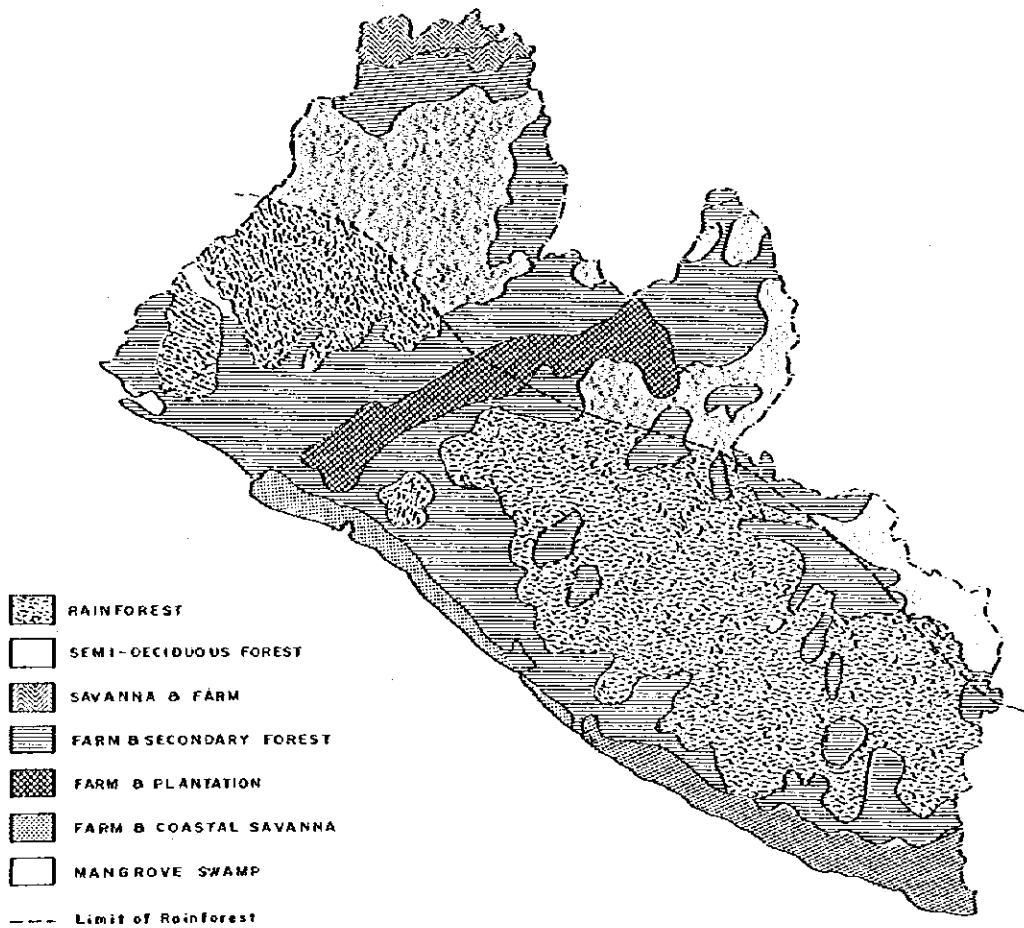


Fig. 2.3 DISTRIBUTION OF RAINFALL

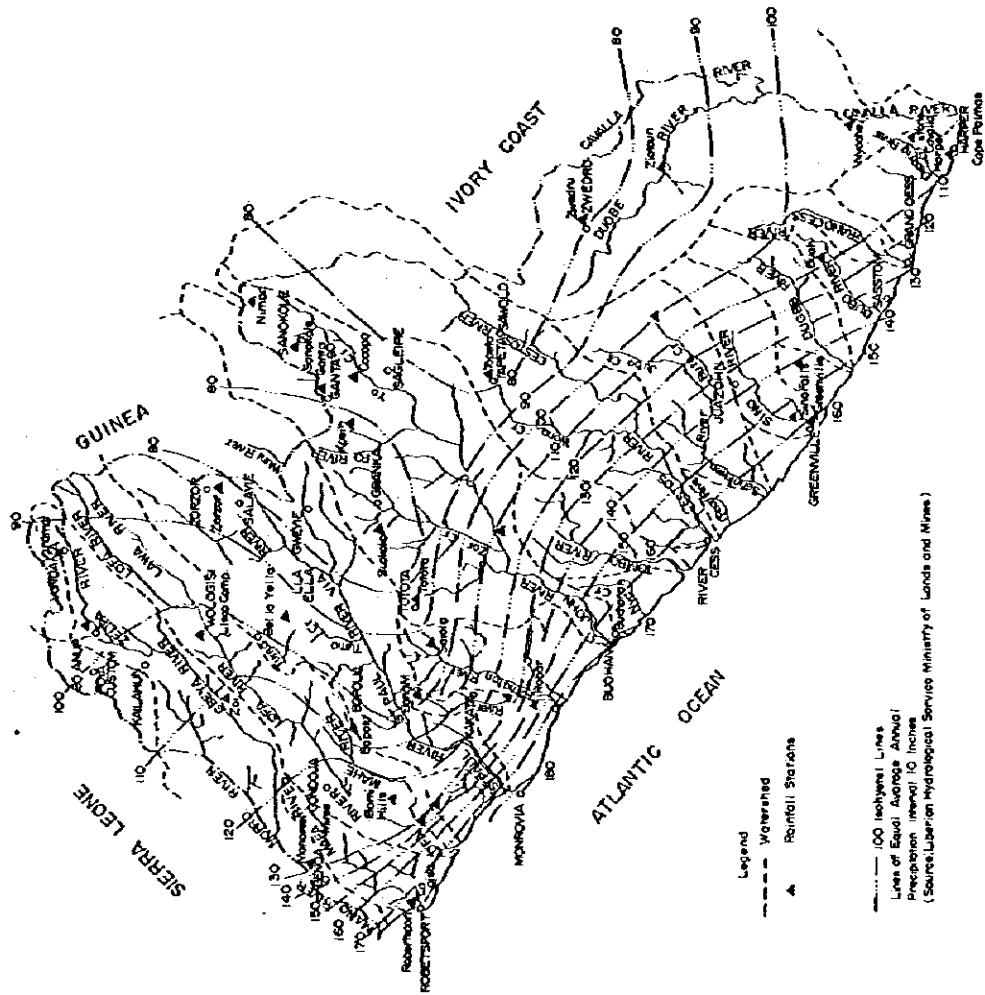


Fig. 2.4 DENSITY OF POPULATION

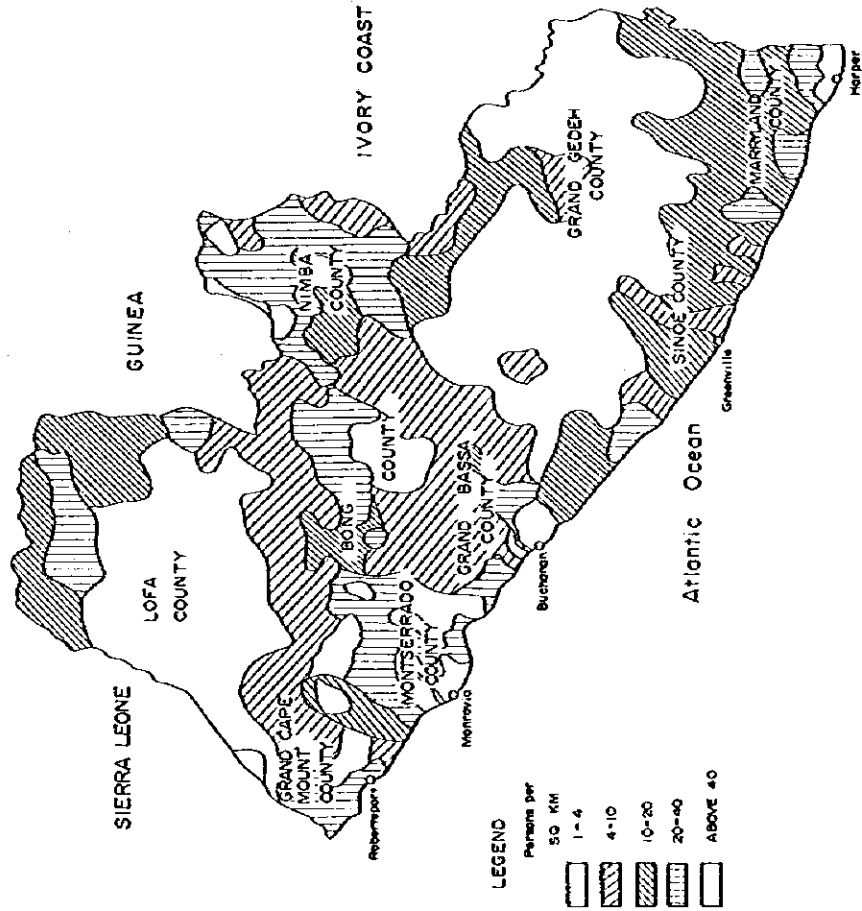


Fig.2.5 SIZE AND DISTRIBUTION OF TOWNS

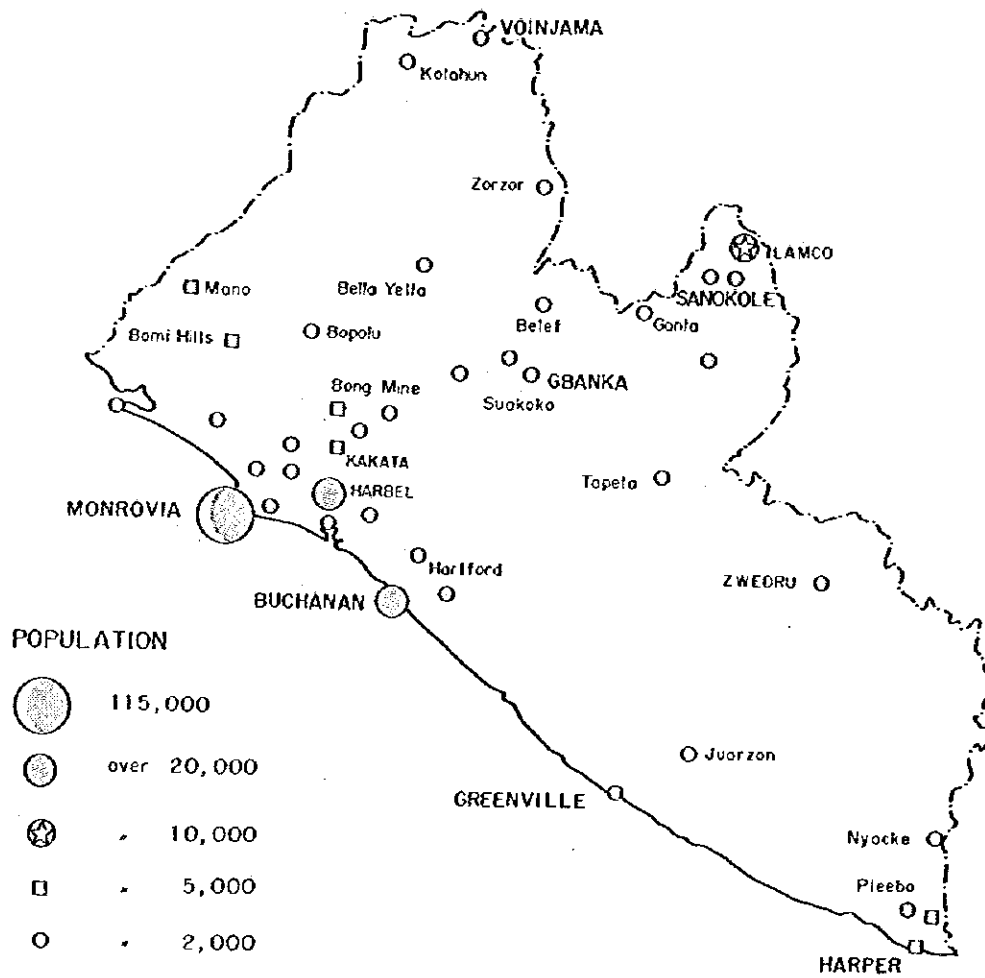


Fig. 2.6 AGRICULTURE

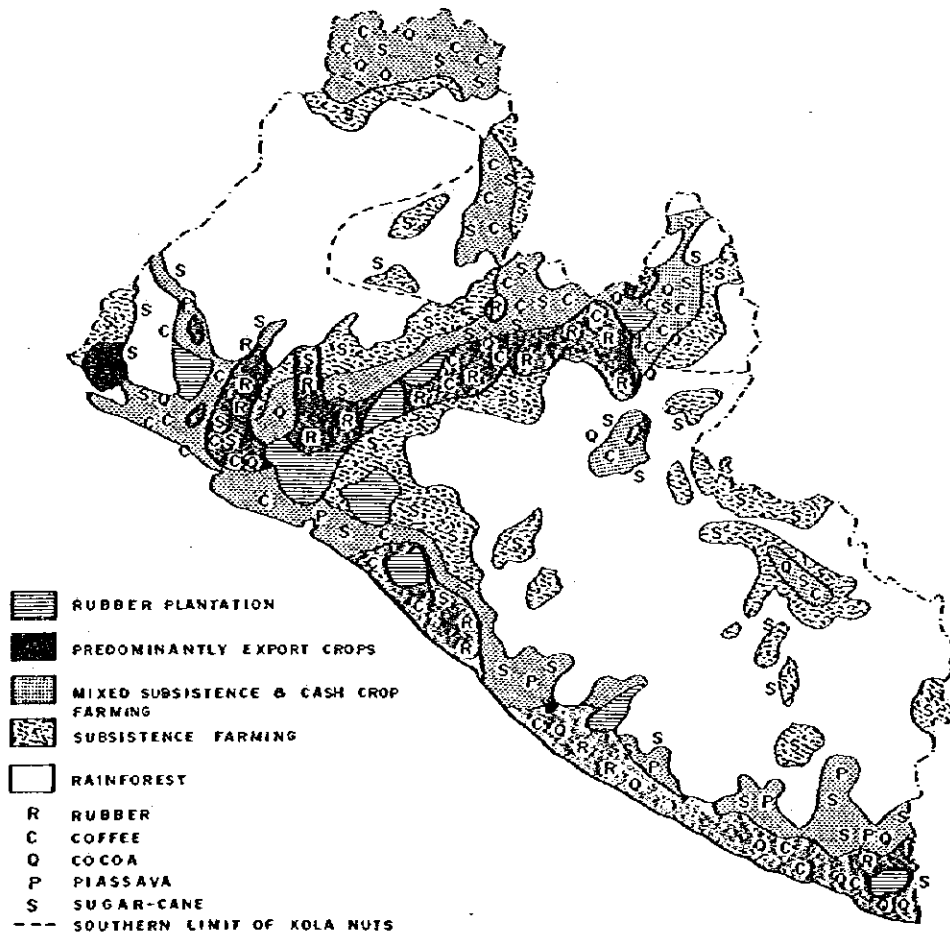




Fig. 2.7 RUBBER

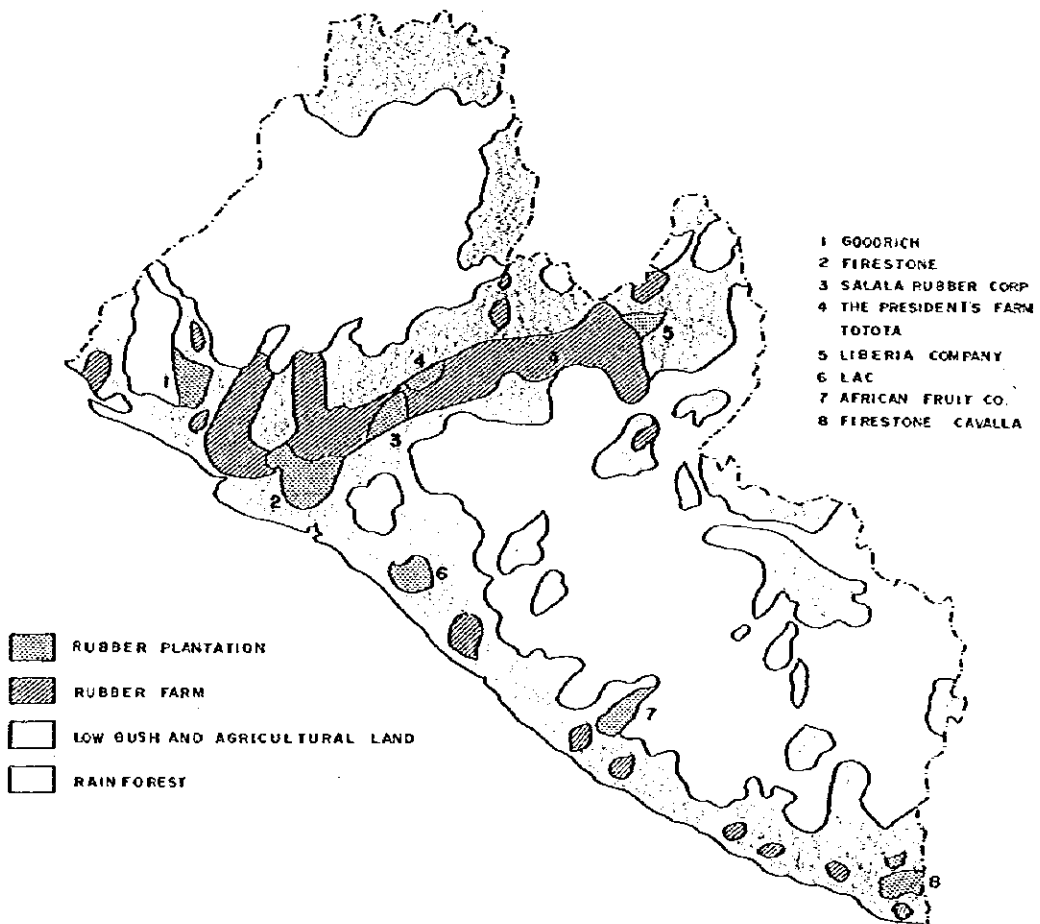


Fig. 2.8 RICE

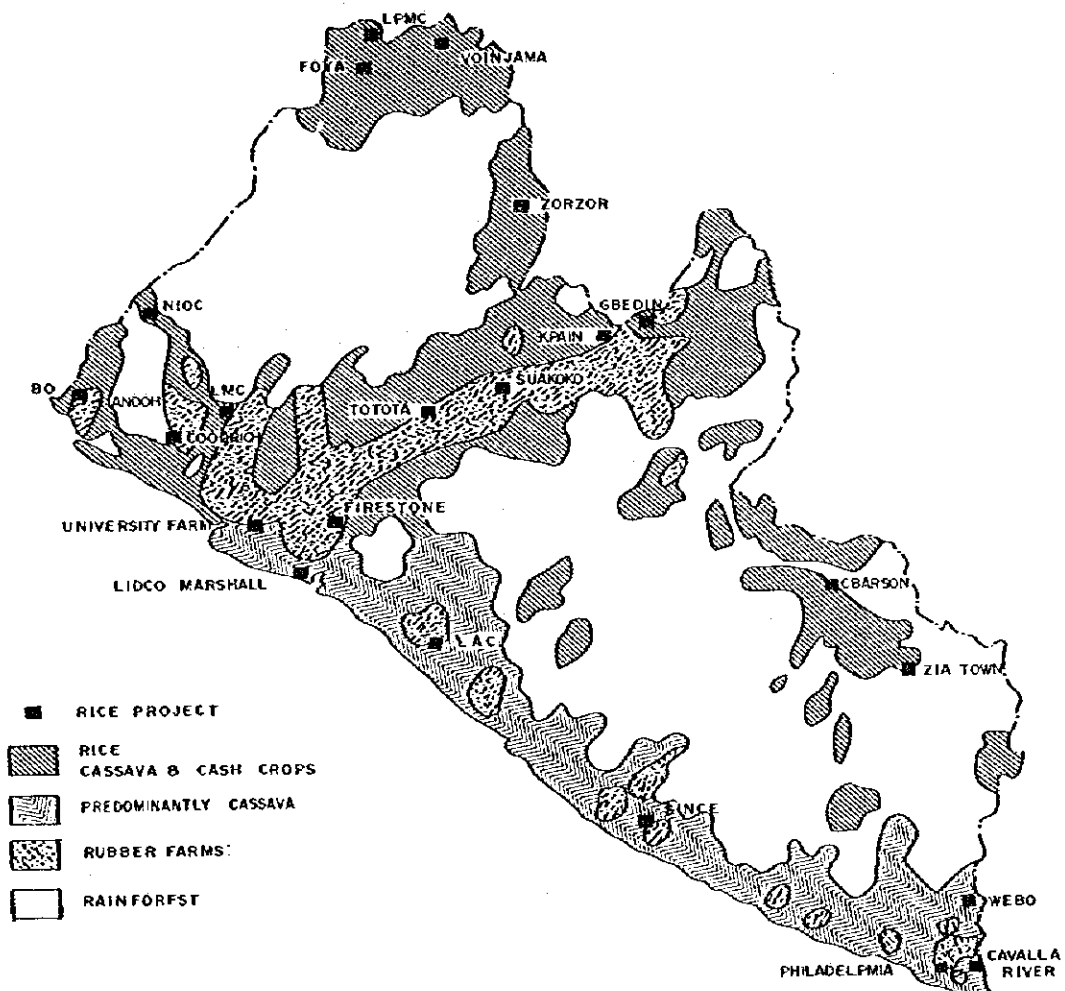


Fig. 2.9 FOREST ESTATE

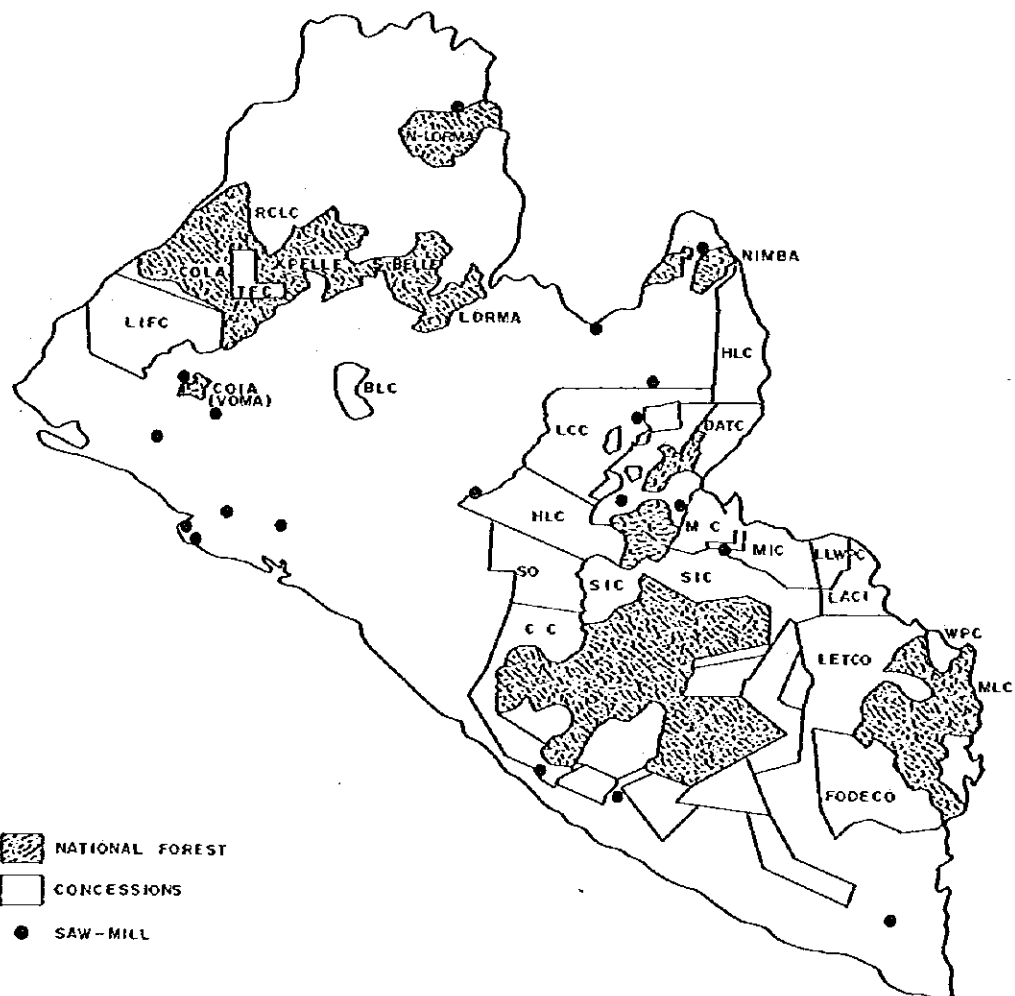


Fig. 2.10 MINERAL RESOURCES

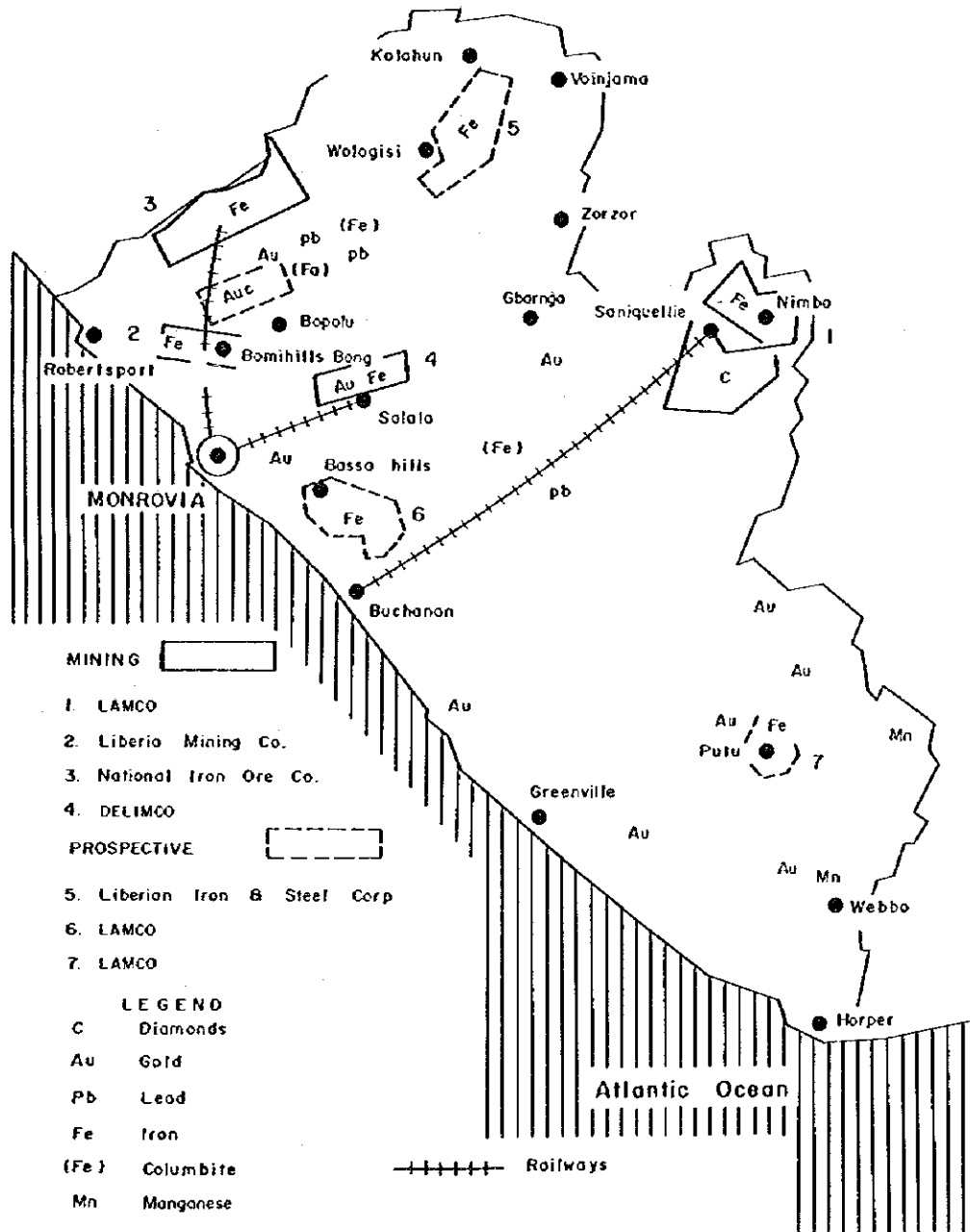




FIGURE 4.1(1)

Fig. 4.1(1) ROAD INVENTORY - PRIMARY ROAD
Gbarnga - Voinjama (1)

Accum. Dist.		Place Name	Route Investigation	Topography	Existing Road Condition					Remarks	
(Mile)	(Km)				Road Width (m)	Pavement Type	Surface Condition	Horizontal Alignment	Vertical Alignment		Side Ditch
40	64	Village									
37.7	60.32		B-740x965		08-12 92-102 08-12				Δ	Δ	
									Δ	Δ	
35	56	Village									
			C-B-30x30x155		112				Δ	Δ	
									Δ	Δ	
30	48										
278	4148	Village	St Paul Br 740x12345		08-12 78-83 08-12				Δ	Δ	
268	4268	Noorm Rv Gbolafuai Village	Noorm Br 750x1820						Δ	Δ	
25	40	Village	Rubber Farm C-PlCor1#15								
			Rubber Farm		90-130				Δ	Δ	
			Rubber Farm						Δ	Δ	
20	32		Rubber Farm Men Br 690x1515		08-12 72-81 08-12						
18.1	2896	Man Creek							X	X	
15	24		Rubber Farm						Δ	Δ	
			Rubber Farm		66				Δ	Δ	
10	16		Rubber Farm								
			Rubber Farm		08-12 70-92 08-12						
69	1104	Wainse	C-B-2-35x35								
5	8	Village	C-S-30x30x120								
0	0	Gbarnga IS									

○ Good
△ Fair
X Bad

○ ≤ 4%
△ 4-6%
X > 6%

○ Good
△ Fair
X Bad

FIGURE 4.1(2)

Fig. 4.1(2) ROAD INVENTORY - PRIMARY ROAD
Gbarnga - Voinjama (2)

Accum. Dist.		Place Name	Route Investigation	Topography	Existing Road Condition					Remarks
(Mile)	(Km)				Road Width (m)	Pavement Type	Surface Condition	Horizontal Alignment	Vertical Alignment	
80	128	Benev Rv		Rolling	08-12 94-117 08-12	Gravel	R(60)	o	x	x
781	1250									
755	12080	Village		Rolling	103	Gravel	R(140)	o	o	x
75	120	Weather Rv								
70	112	Village		Rolling	103	Gravel	R(140)	o	o	x
682	10912	LPMC Farm								
65	104	Zorzor Town		Rolling	08-12 81-135 08-12	Gravel	R(250)	o	o	x
644	10306									
640	10240	Zorzor Town		Rolling	86	Gravel	R(200)	o	o	o
632	10112									
60	96	Jhalabu		Rolling	08-12 88-107 08-12	Gravel	R(100)	o	o	x
551	8816	Banwi								
550	88	Telamei		Rolling	11.6	Gravel	R(100)	o	o	o
546	8736									
50	80	Sapoye		Rolling	08-12 86-106 08-12	Gravel	R(100)	o	o	x
499	7984									
487	7792	Sapoye Rv		Rolling	89-99	Gravel	R(100)	o	o	x
45	72	Village								
434	6944	Village		Rolling	89-99	Gravel	R(140)	o	o	x
401	6416	Leya Rv								
40	64	Leya Rv								

o Good >250 <4% o Good
 Δ Fair >50 <4.6% Δ Fair
 x Bad <150 >6% x Bad

Fig. 4.1(3) ROAD INVENTORY - PRIMARY ROAD
Gbarnga - Voinjama (3)

Accum. Dist. (Mile)	(Km)	Place Name	Route Investigation	Topography	Existing Road Condition							Remarks								
					Road Width (m)	Pavement Type	Surface	Condition	Horizontal Alignment	Vertical Alignment	Side Ditch									
122	19520		Voinjama IS Voinjama Town																	
1205	19280	Zetiba Rv	Zetiba Br 740 x 3760		08-12	88-105	08-12													
120	192		Monument of Ashau Governance																	
115	184	Village	Palm Oil Farm Voinjama Airstrip																	
110	176	Village																		
1093	17468	Village	C-PLCor #10																	
1063	17008	Village	Wotogiei		08-12	88-108	08-12													
105	168	Village	Wotogiei																	
100	160	Village	Wotogiei																	
972	15552	Village	Zear Br 740 x 4910		08-12	98-121	08-12													
95	152	Village	Lower Br 740 x 6940																	
949	15184	Village	Lower Br																	
926	14816	Village	Lueah Br 740 x 4995																	
90	141	Village	Comp Brus																	
898	14368	Village	Goboryea Br 740 x 3125																	
85	136	Village																		
808	12928	Village	Br. 745 x 1040																	
80	128	Village	Konia Health Center Palm Oil Farm																	



Fig. 4.1(4) ROAD INVENTORY - PRIMARY ROAD
Voinjama - Kpakuta

Accum. Dfst.		Place Name	Route Investigation	Topography	Existing Road Condition						Remarks
(Mile)	(Km)				Road Width (m)	Pavement Type	Surface Condition	Horizontal Alignment	Vertical Alignment	Side Ditch	
135.7	217.2	Kpakuta IS		Rolling	08-12 90-06 08-12	o	o	o	x	x	
135	216					o	o	o	o	x	x
130	203	Voinjama IS		Rolling	87-126	o	o	o	o	o	
126.5	202.4					o	o	o	o	o	o
125	200	Voinjama IS		Rolling	1:1.5	o	o	o	o	o	
122	195.20					o	o	o	o	o	o
						o Good	o ≥ 250	o $\leq 4\%$	o Good		
						Δ Fair	Δ 200	Δ 4-6%	Δ Fair		
						x Bad	x < 150	x > 6%	x Bad		

Fig. 4.1(5) ROAD INVENTORY - LISCO ROAD
Wologisi - Kpakuta

Accum. Dist.		Place Name	Route Investigation	Topography	Existing Road Condition						Remarks
(Mile)	(Km)				Road Width (m)	Pavement Type	Surface Condition	Horizontal Alignment	Vertical Alignment	Side Ditch	
179	2864	Kpakuta	Kpakuta								
175	280		Kolahun								
170	272		Voinjama								
167	2672	Zelba Rv	Cocoa & Coffee Farm Zelba Br M-35x152 Wd-Br 22x50	Rolling	05 52-61 05		X	X	X	X	X X
160	2544		Cocoa & Coffee Farm Wd-Br 35x52				X	X	O	X I	
152	2432						X	X	O	X I	
150	240							X	O	X I	
144	2304	Zedama	Cocoa & Coffee Farm C-P#058		46-64		X	X	O	X I	X Δ
140	224						X	X	O	X I	
134	2144		Wd-Br 27x60				X	X	O	X I	
130	208						X	X	O	X I	Δ X
125	200		Marowamai				X	X	O	X I	
120	192				05 50-57 05		X	X	O	X I	X X
110	176		Bus Station				X	X	O	X I	X X
100	160						Δ	X	O	X I	X
90	144	Zeyozu	Zeyozu		61		Δ	X	O	X I	
82	132						Δ	X	O	X I	
80	128	Magoo Rv	Wd-Br 30x66				Δ	O	O	X I	
75	120		Wd-Br 40x42				Δ	O	O	X I	
70	112						Δ	O	O	X I	
68	1088						Δ	O	O	X I	
60	96		Kpatamai		05 65-77 05		Δ	O	O	X I	
50	80		Wd-Br 36x102				Δ	O	O	X I	
40	64						Δ	O	O	X I	
30	48		Wd-Br 34x84				Δ	O	O	X I	
25	40						Δ	O	O	X I	
20	32		Wologisi Village				Δ	X	O	X I	
19	304		Wologisi School				Δ	X	O	X I	
10	144		Wologisi School				Δ	X	O	X I	
09	134		Wologisi School				Δ	X	O	X I	
0	0	Wologisi Comp	Ar. Strip Wologisi Comp		58-79		O	O	O	X I	
			Condahun				O	O	O	X I	

Traffic Volume
20 Vehicles/day

This road is controlled and maintained by LISCO.

○ Good
△ Fair
× Bad

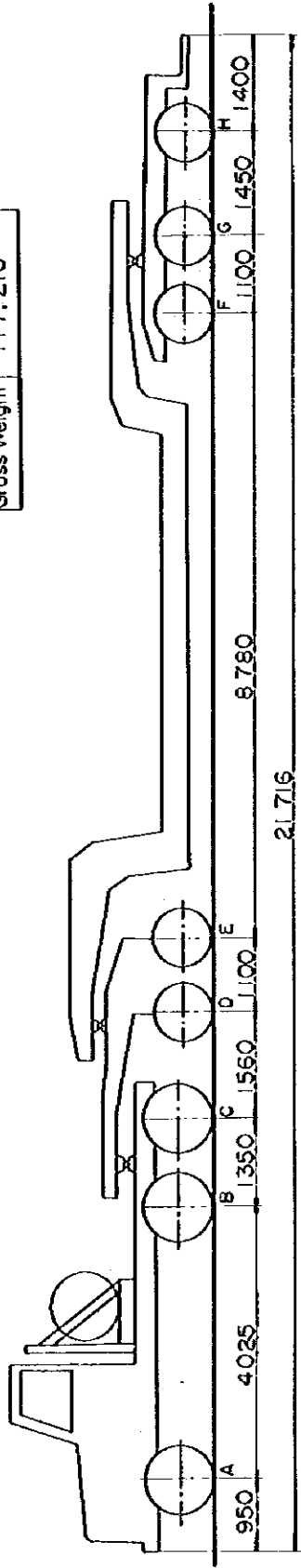
○ > 250
△ 150-250
× < 150

○ ≤ 4%
△ 4-6%
× > 6%

○ Good
△ Fair
× Bad

Fig. 5.1 MODEL FEATURE OF 70T TRAILER

Load	73,000†
Self Weight	44,210†
Gross Weight	117,210†



Axial Load		Unit : TON					
A	B	C	D	E	F	G	H
4850	10618	10618	17974	17974	21967	21967	11241

FIGURE 5.1

Fig. 5.2 (1) ROAD PLAN AND PROFILE

KPAKUTA - WOLOGISI (I)

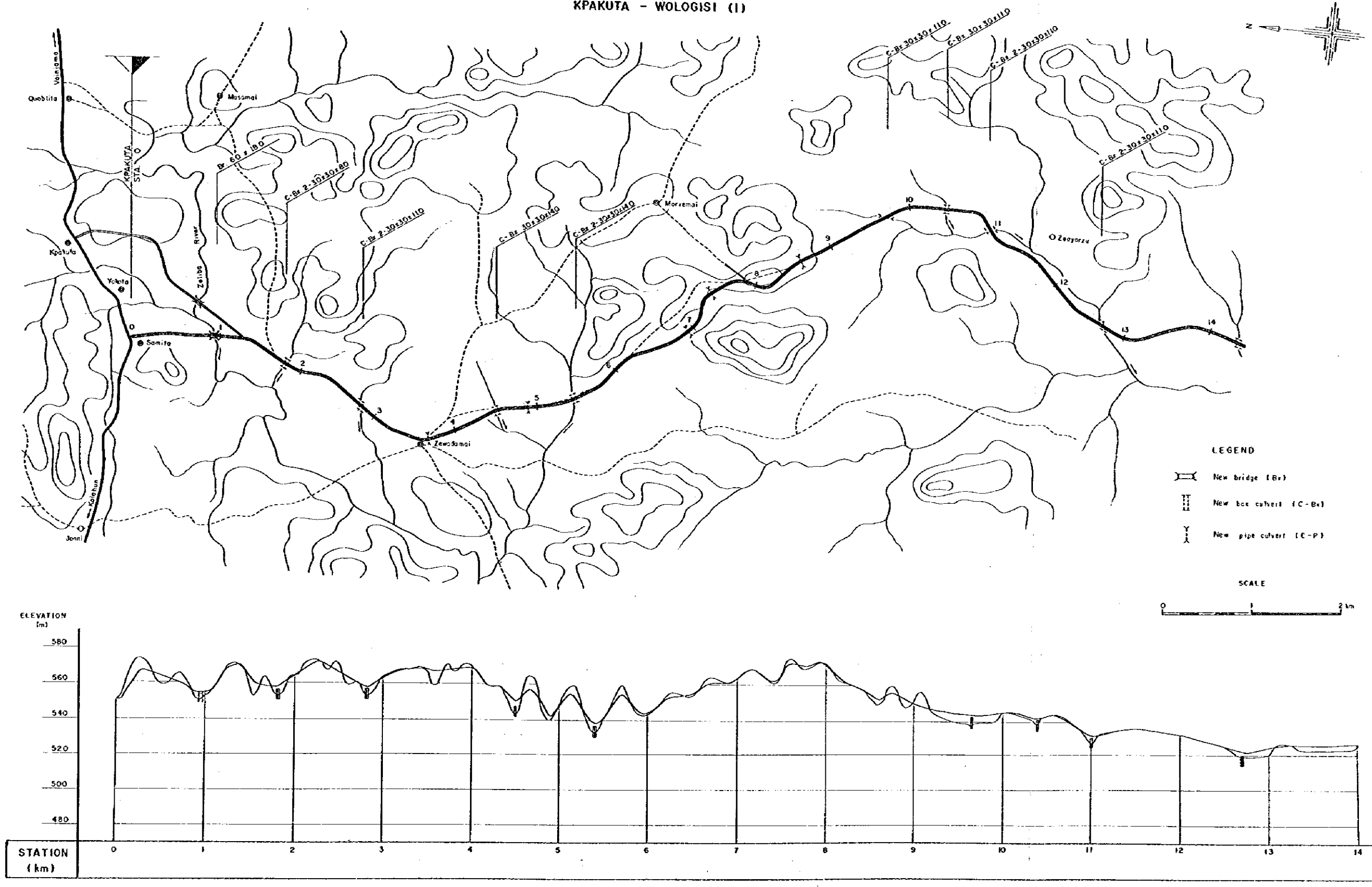
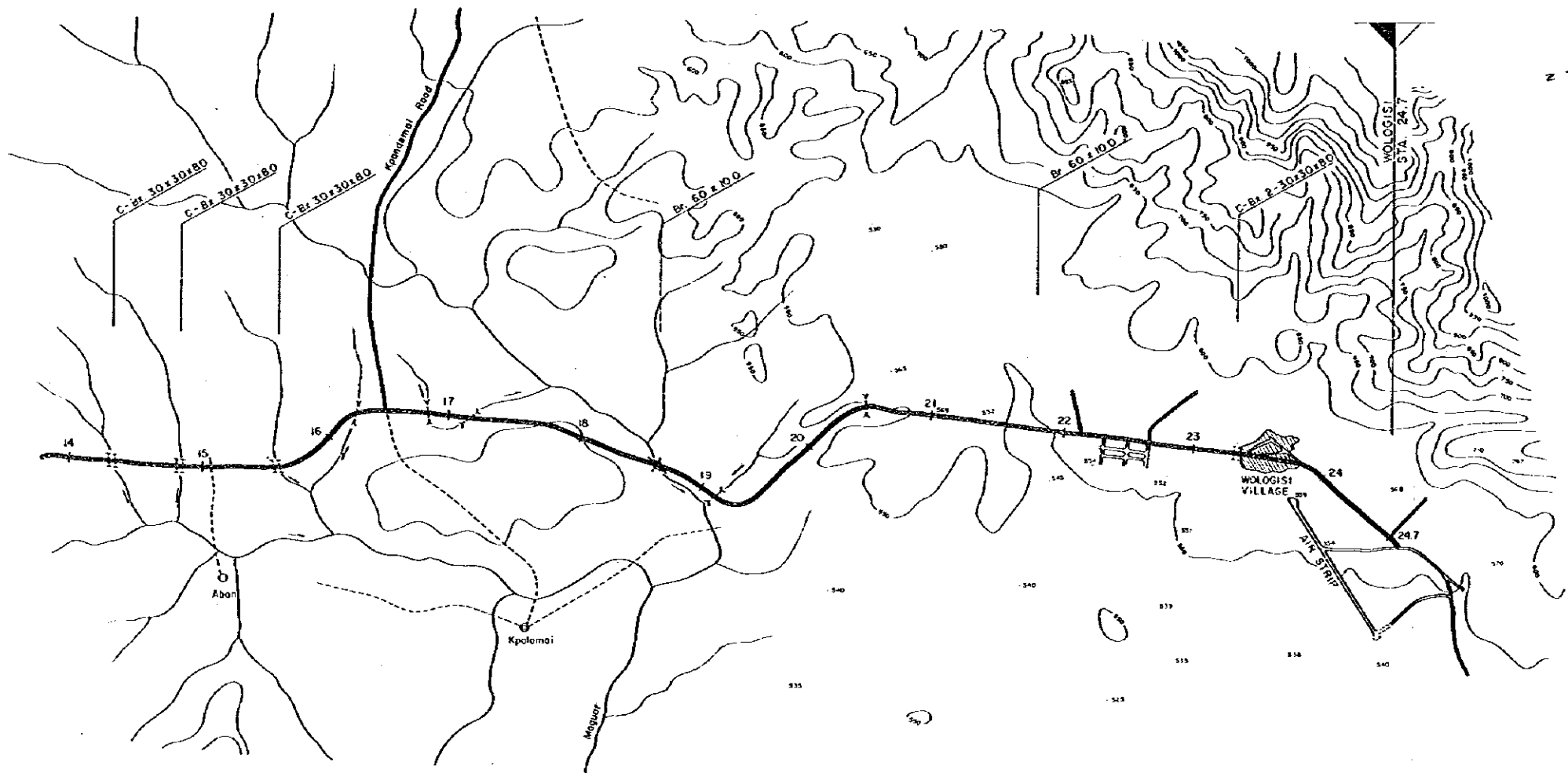


Fig. 5.2 (2) ROAD PLAN AND PROFILE

KPAKUTA - WOLOGISI (2)



- LEGEND**
- New bridge (Br)
 - New box culvert (C-Br)
 - New pipe culvert (C-P)

SCALE

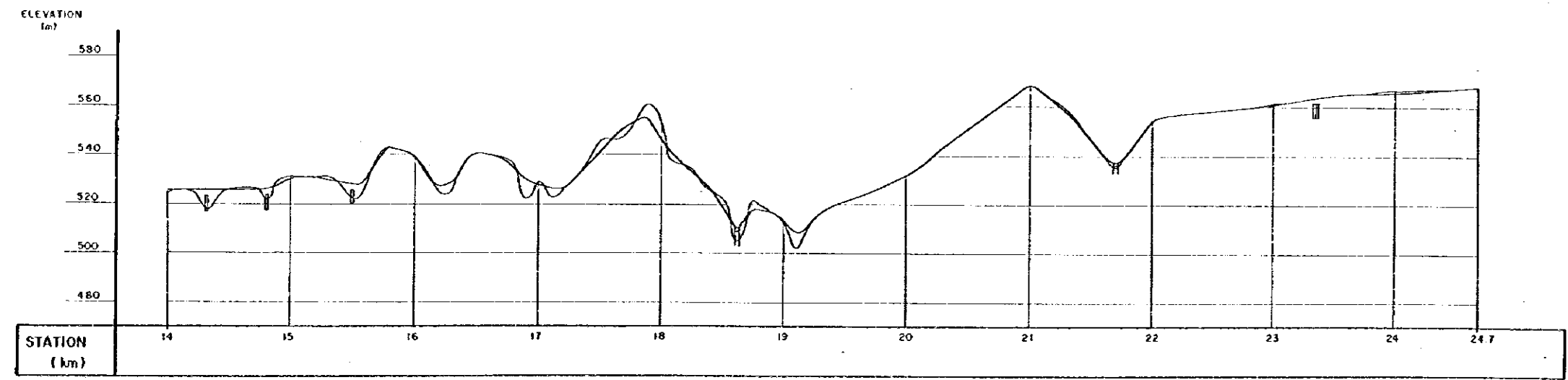
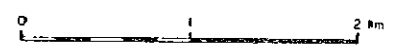


Fig. 5.3 TYPICAL CROSS SECTION OF PROPOSED LISCO ROAD

Scale: 1/100
Unit : m

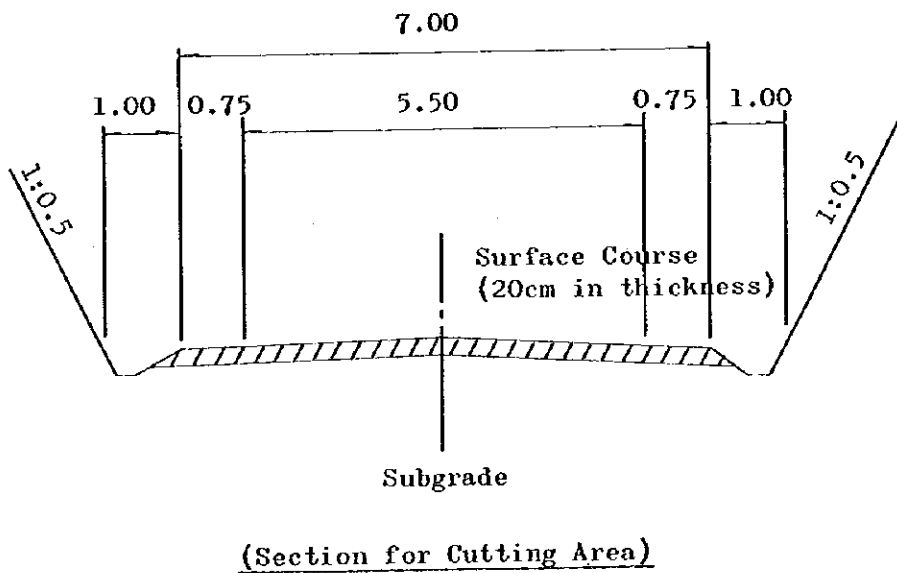
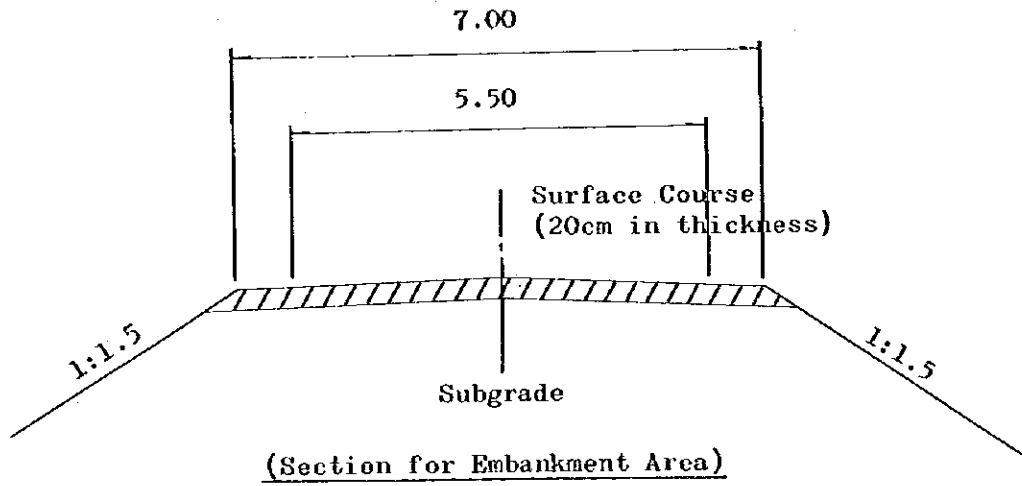
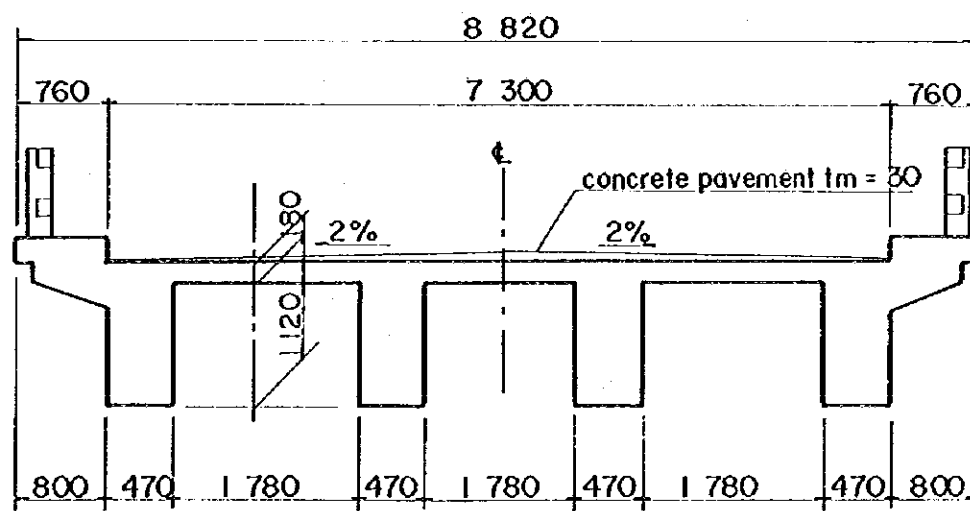
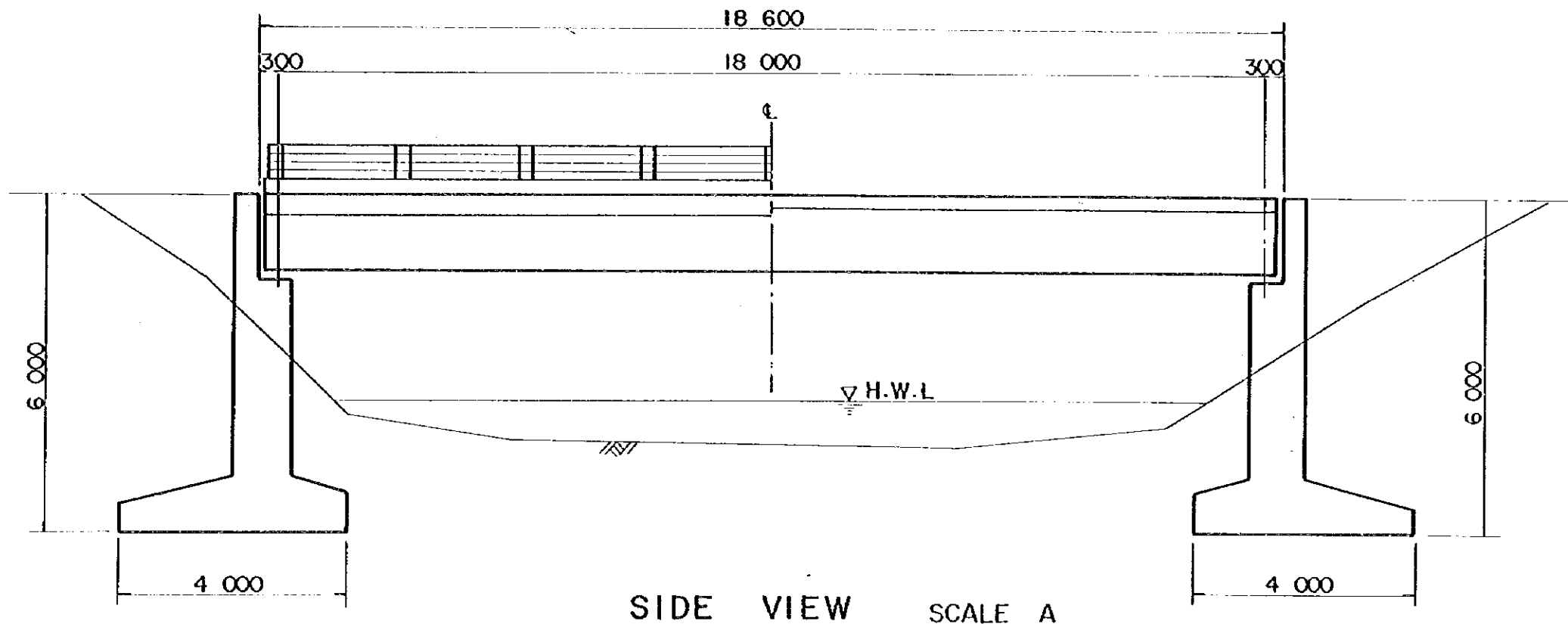


FIGURE 5.4

Fig. 5.4 TYPICAL RC T-BEAM BRIDGE

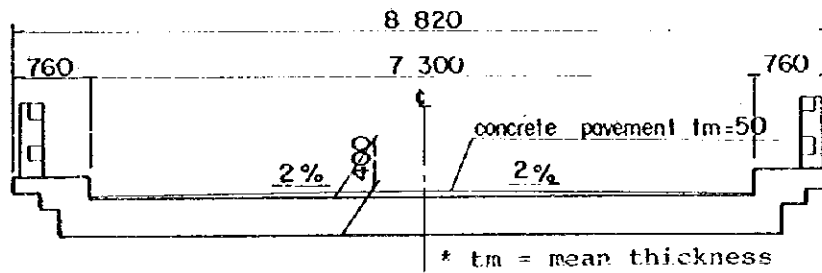
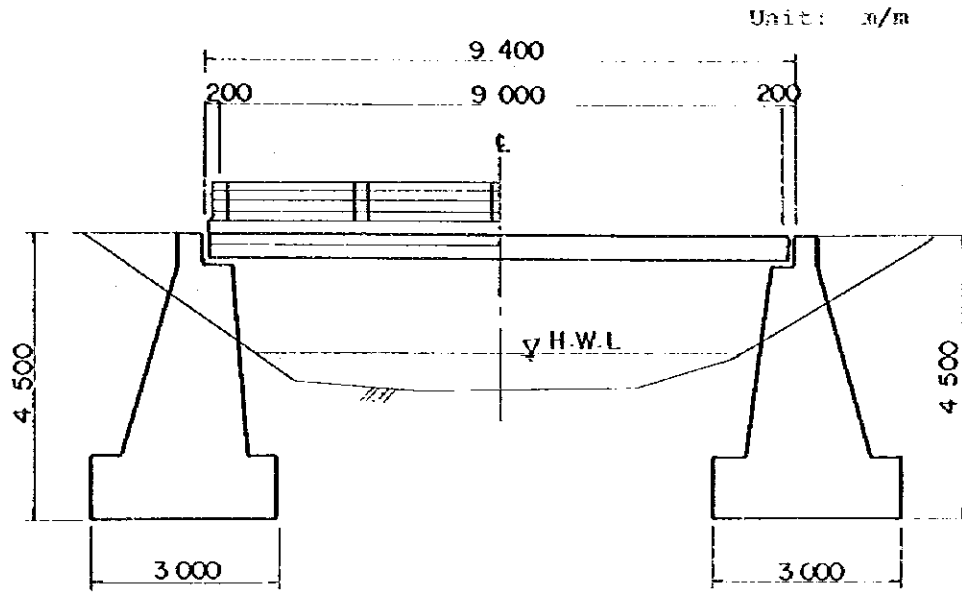
Unit : m/m



SCALE A 0 1 2 3 (m)

SCALE B 0 1 2 (m)

Fig. 5.5 TYPICAL RC SLAB BRIDGE

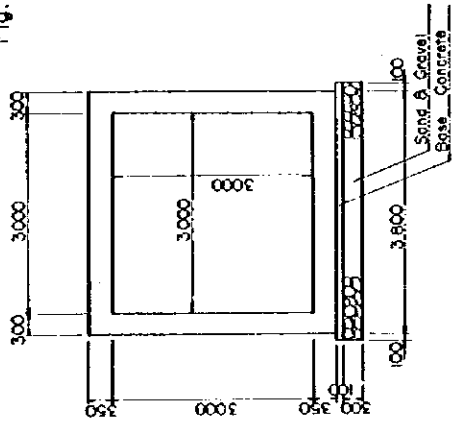


SCALE A 0 1 2 3 (m)

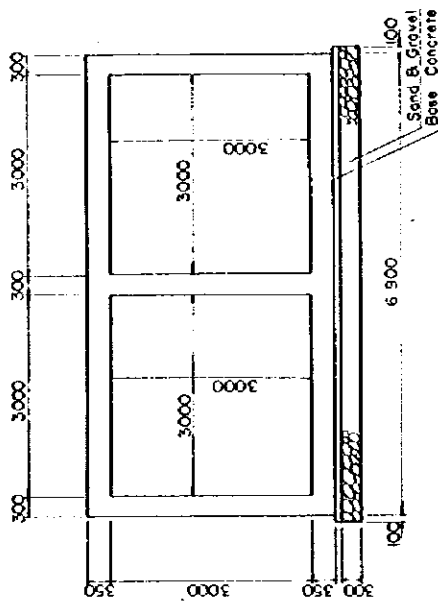
SCALE B 0 1 2 (m)

FIGURE 5.6

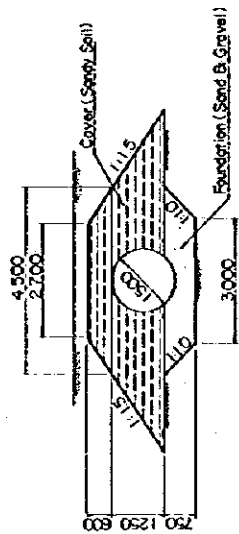
Fig. 5.6 TYPICAL DRAINAGE STRUCTURE



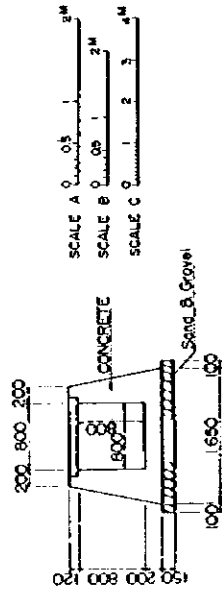
BOX CULVERT SCALE B



2-SPAN BOX CULVERT SCALE B



CORRUGATED METAL PIPE SCALE C



CROSS DITCH SCALE A

SCALE A 0 0.5 1 2 3 4 M
 SCALE B 0 1 2 3 4 M
 SCALE C 0 1 2 3 4 M

Fig. 6.2 (1) ROAD PLAN AND PROFILE
GBARNGA - KPAKUTA (I)

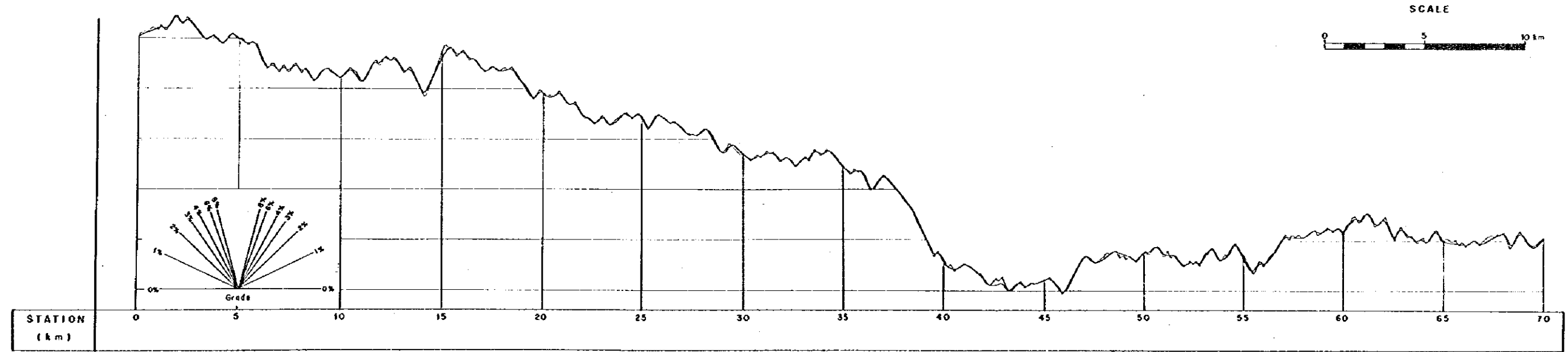
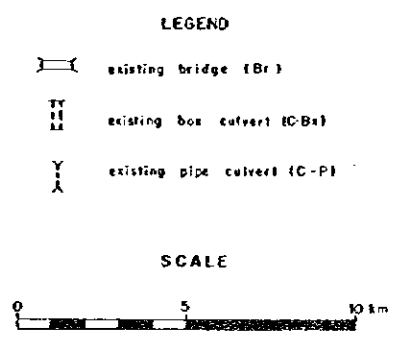
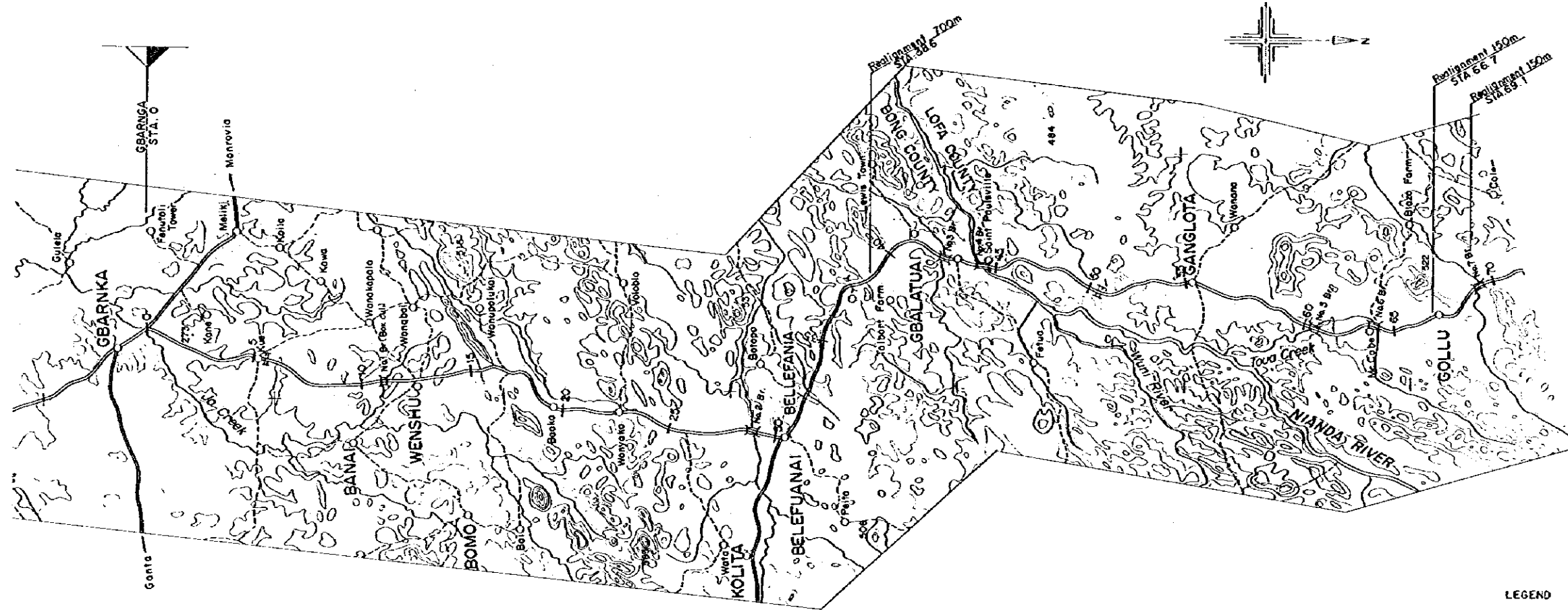


Fig. 6.2 (2) ROAD PLAN AND PROFILE
GBARNGA - KPAKUTA (2)

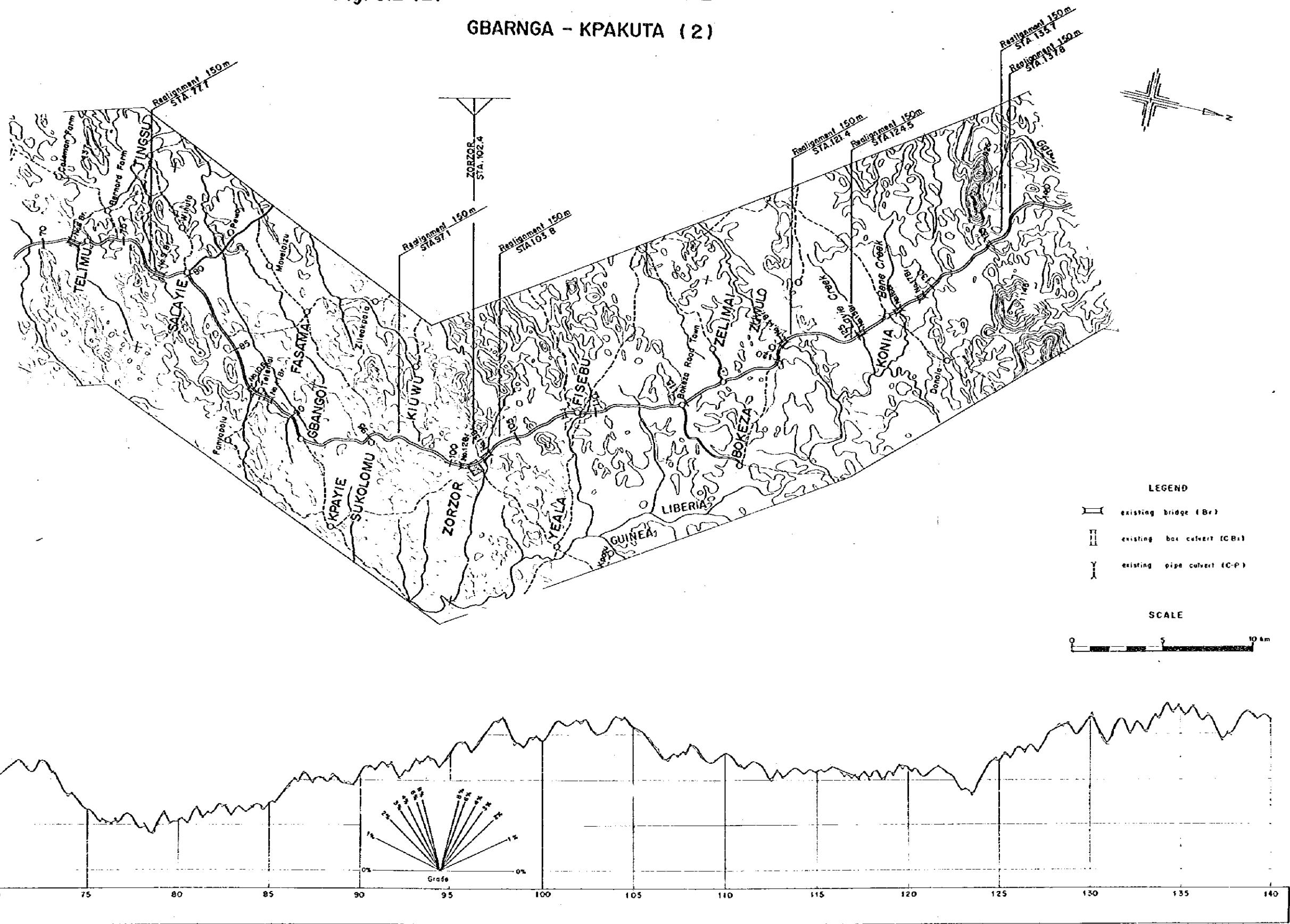
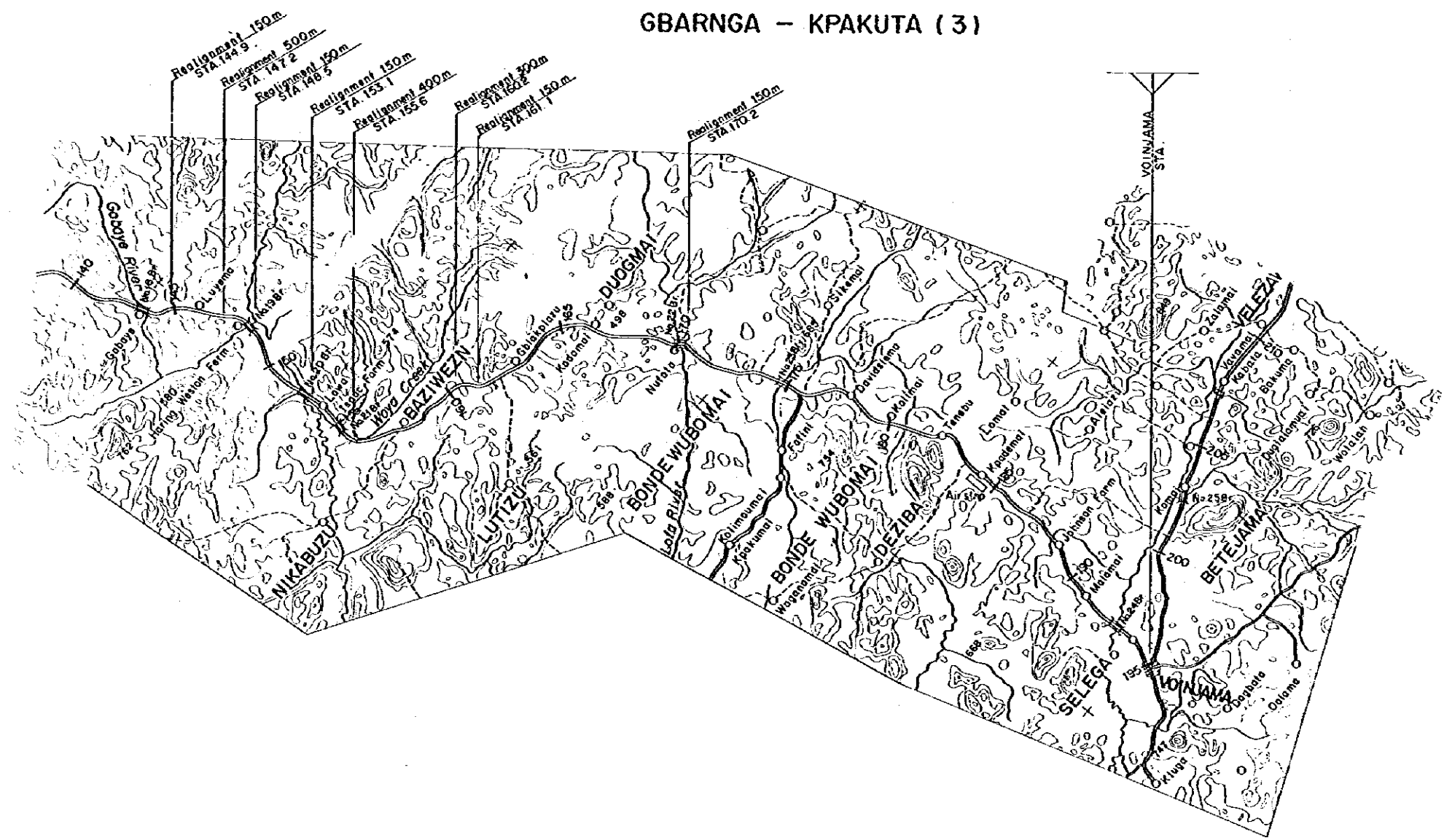


Fig. 6.2 (3) ROAD PLAN AND PROFILE
GBARNGA - KPAKUTA (3)



LEGEND

- existing bridge (Br)
- existing box culvert (C-Br)
- existing pipe culvert (C-P)

SCALE

0 5 10 km

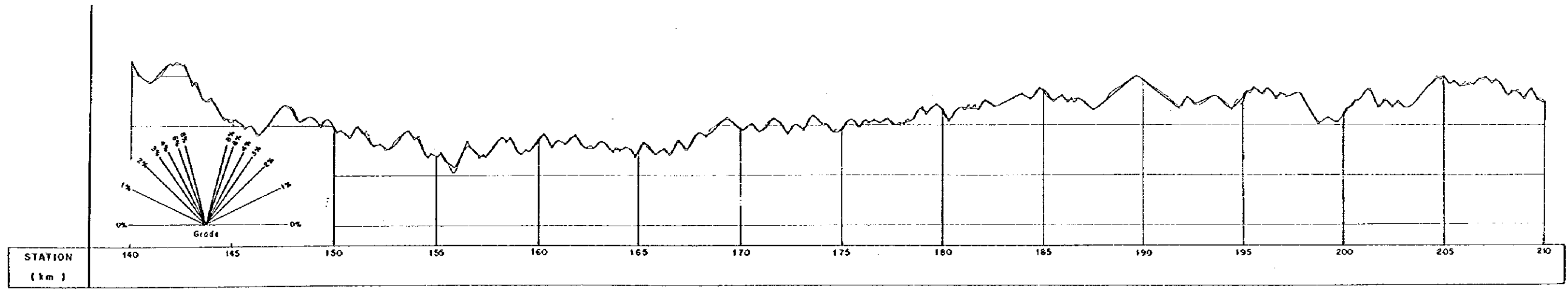


Fig.6.2 (4) ROAD PLAN AND PROFILE
GBARNGA - KPAKUTA (4)

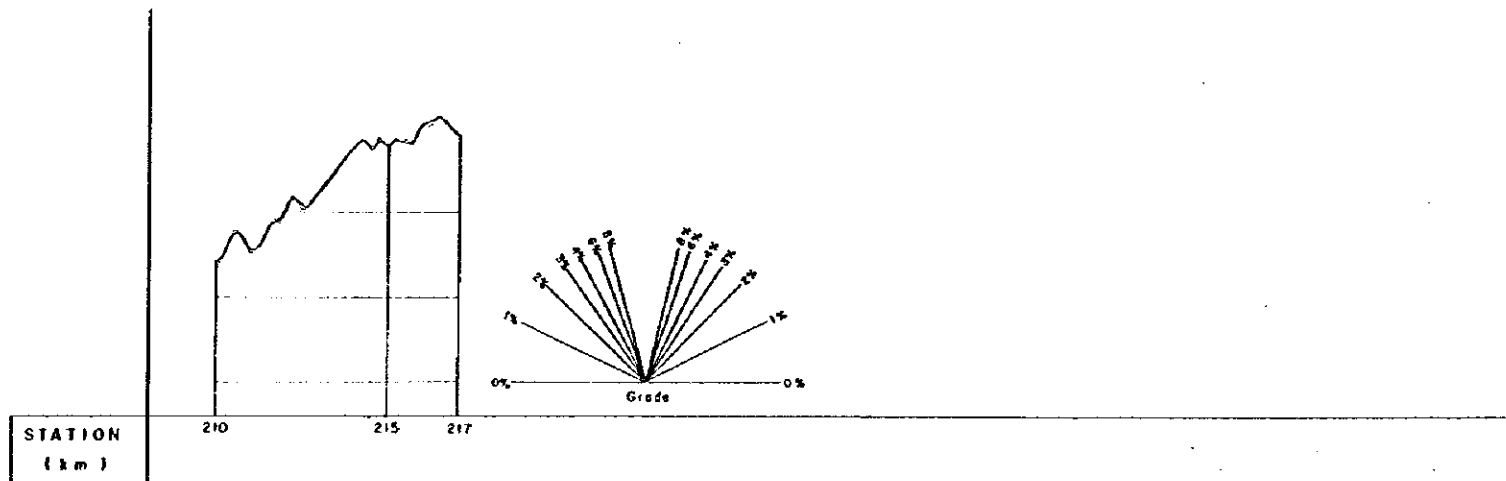
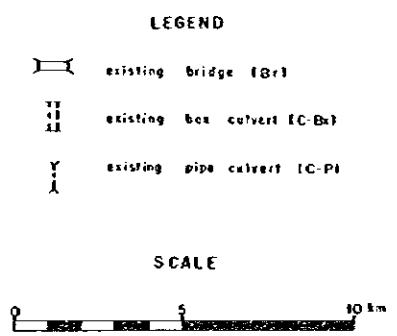
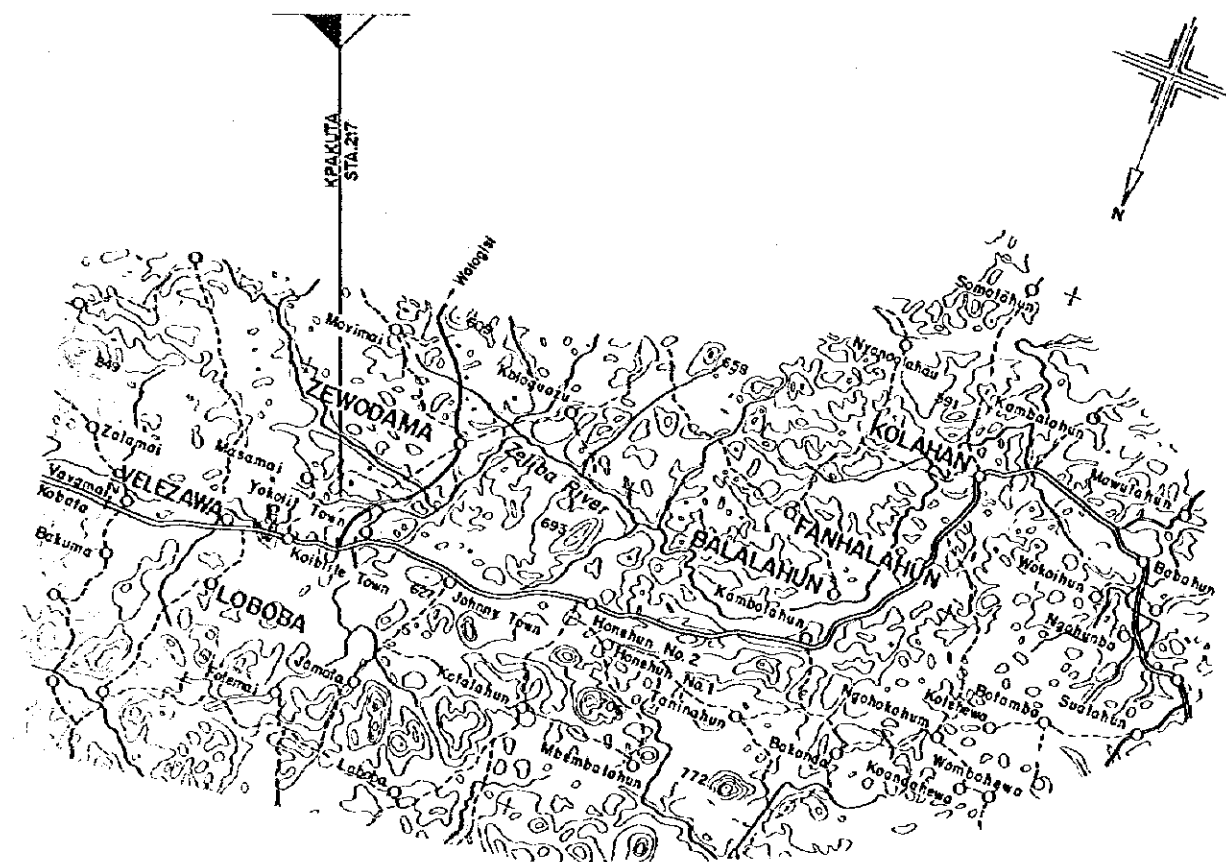
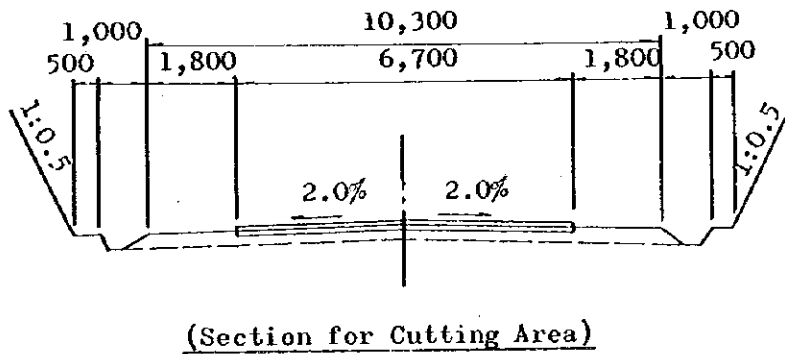
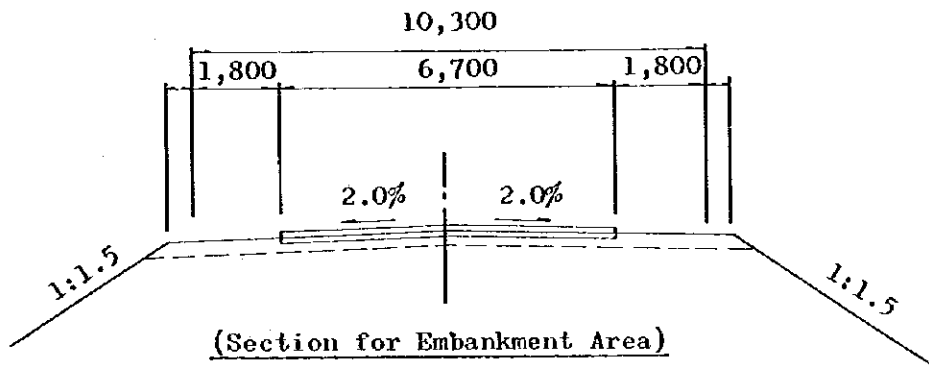


Fig. 6.2 TYPICAL CROSS SECTION
OF PROPOSED PRIMARY ROAD

Scale: 1/150
Unit : m/m



JICA