

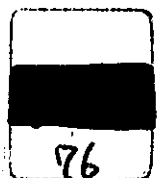
REPUBLIC OF INDONESIA

FEASIBILITY STUDY REPORT
ON
CENTRAL AND EAST JAVA
ROAD BETTERMENT PROJECT

DRAWINGS

OCTOBER, 1976

JAPAN INTERNATIONAL COOPERATION AGENCY



REPUBLIC OF INDONESIA

FEASIBILITY STUDY REPORT
ON
CENTRAL AND EAST JAVA
ROAD BETTERMENT PROJECT

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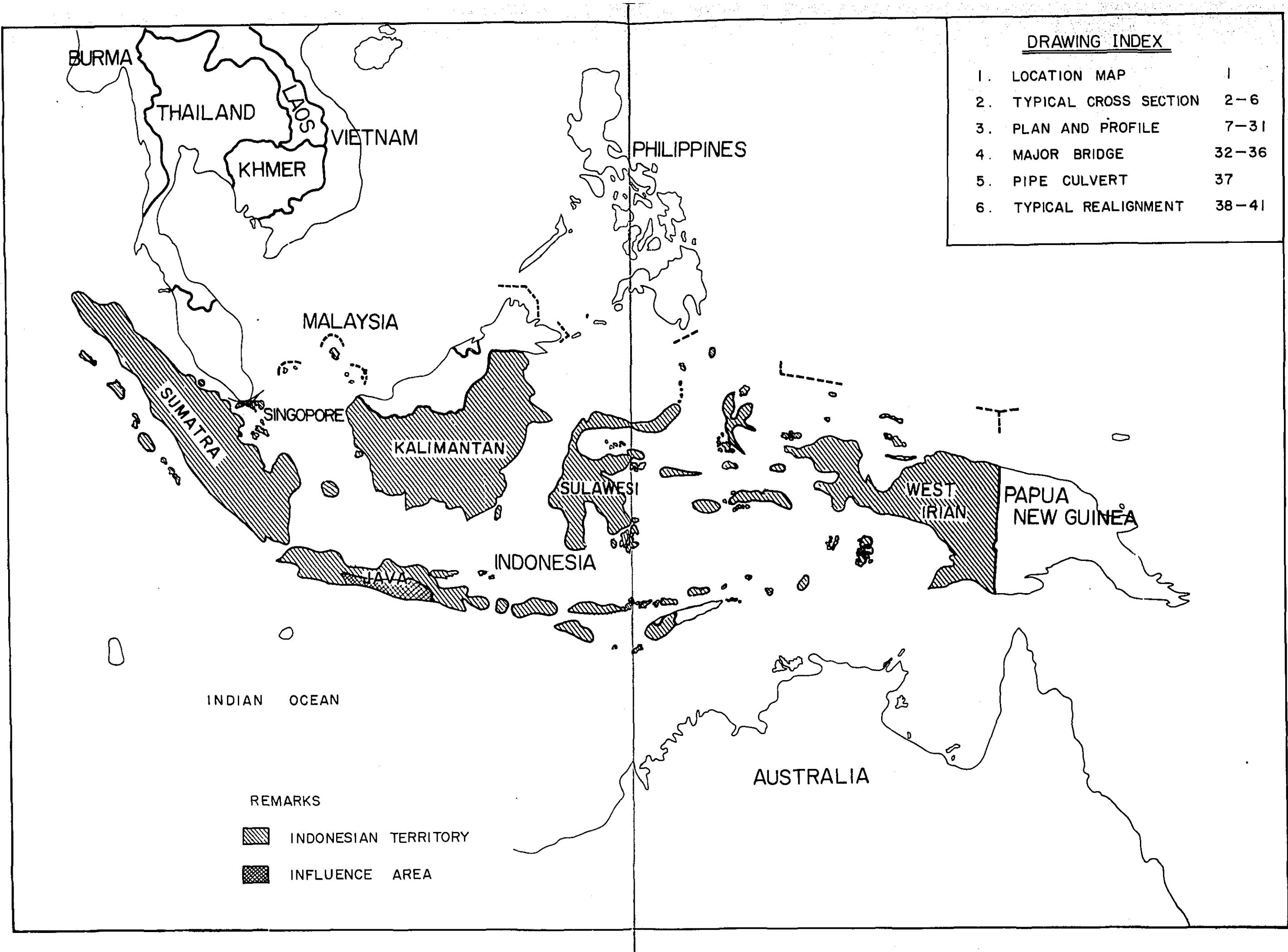
JAPAN INTERNATIONAL COOPERATION AGENCY

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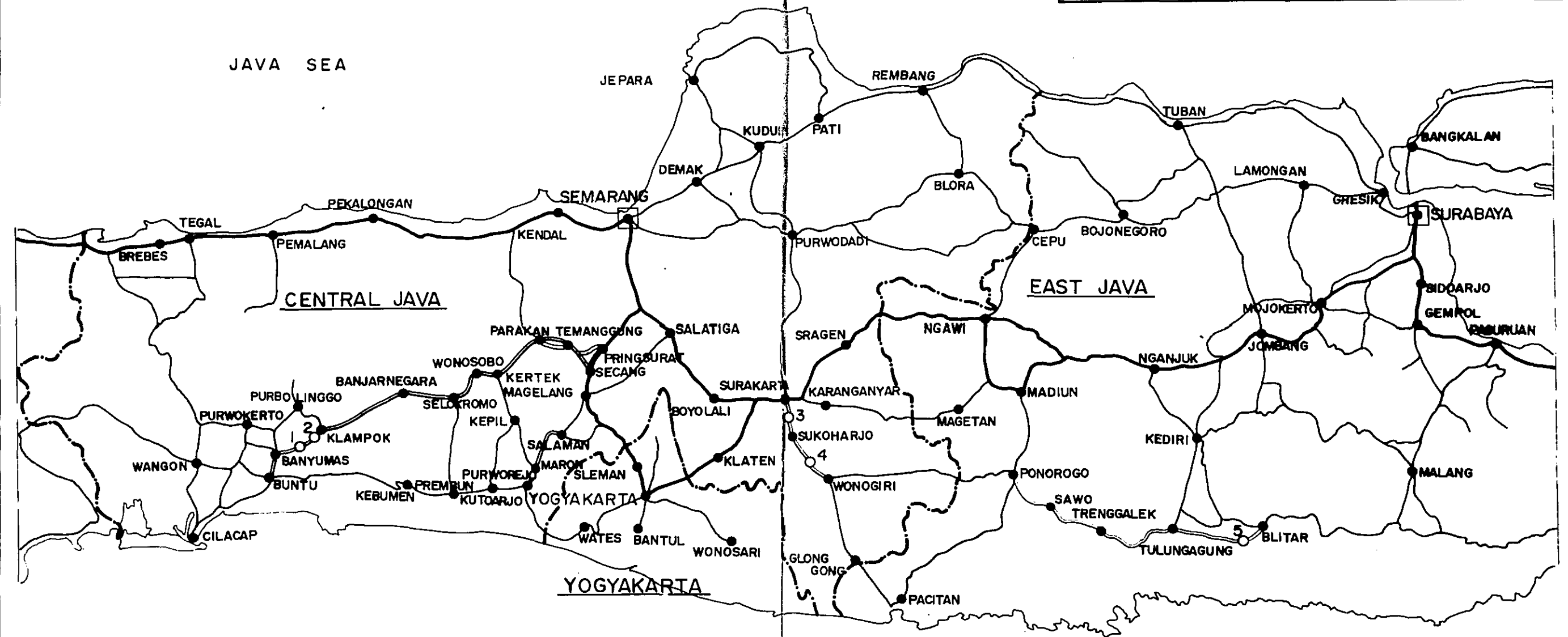
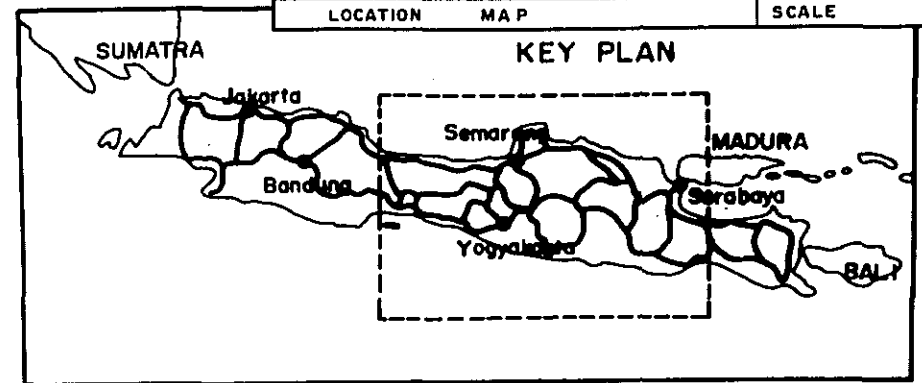


INDIAN OCEAN

- REMARKS
-  INDONESIAN TERRITORY
 -  INFLUENCE AREA

LOCATION MAP OF CENTRAL AND EAST JAVA ROAD BETTERMENT PROJECT

PROJECT	TOTAL SHEETS	SHEET NO.
CENTRAL AND EAST JAVA ROAD BETTERMENT	41	1
LOCATION MAP	SCALE	



LEGEND

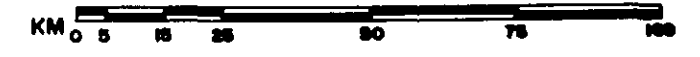
- NATIONAL ROAD
- PROVINCIAL ROAD
- PROVINCIAL CAPITAL
- MAIN TOWN
- PROVINCIAL BOUNDARY

- SELECTED ROUTE
- ROUTE I (BUNTU - PRINGSURAT)
- ROUTE II (SALAMAN - PURWOREJO)
- ROUTE III (SURAKARTA - WONOGIRI)
- ROUTE IV (PONOROGO - BLITAR)

- SELECTED MAJOR BRIDGE SITE
- 1. GUMELEM BRIDGE
- 2. SAPI BRIDGE
- 3. BACEM BRIDGE
- 4. NGUTER BRIDGE
- 5. TRISULA BRIDGE

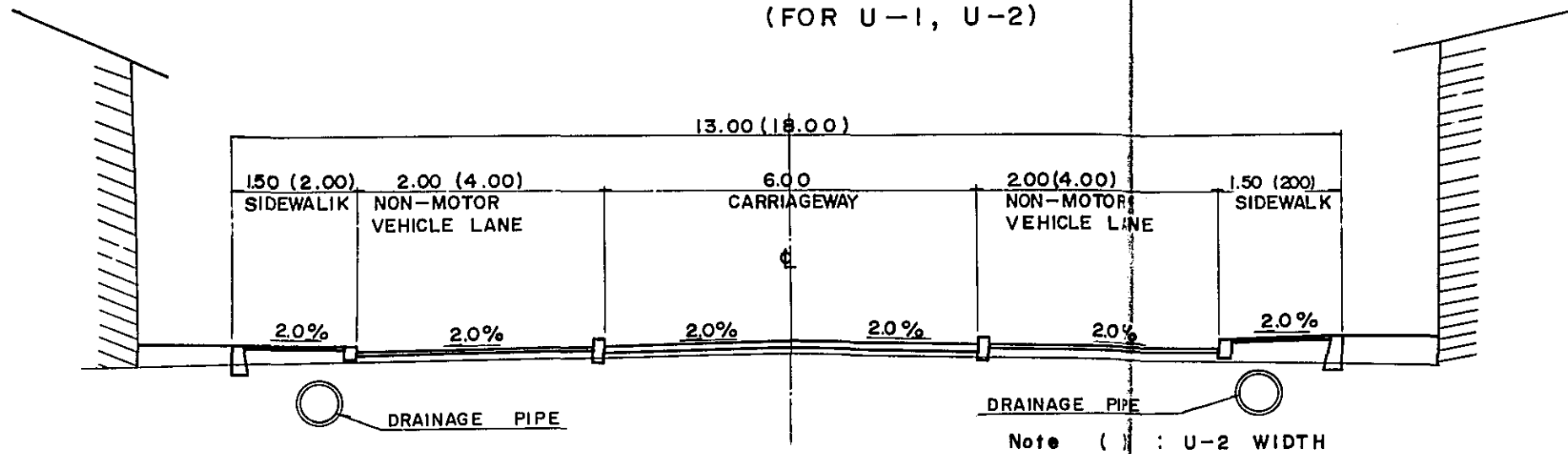
INDIAN OCEAN
(INDONESIAN OCEAN)

SCALE

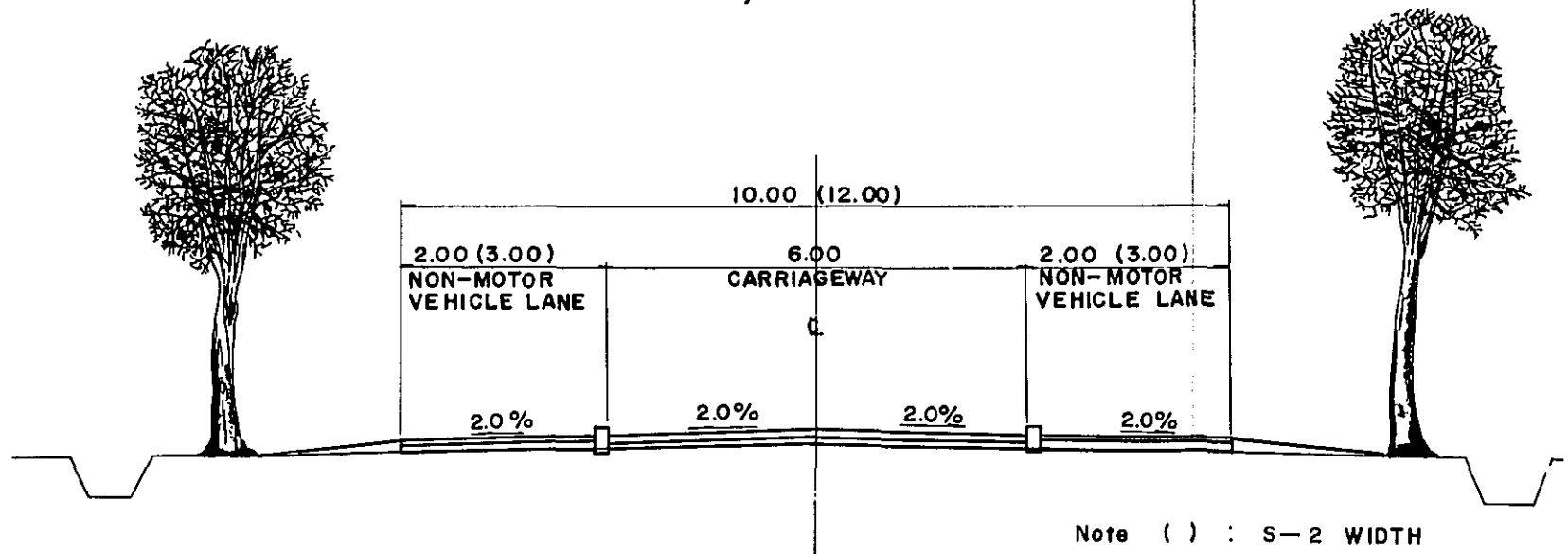


TYPICAL CROSS SECTION IN URBAN AND SUBURBAN AREA

IN URBAN AREA
(FOR U-1, U-2)

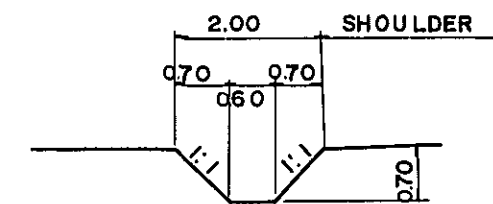


IN SUBURBAN AREA
(FOR S-1, S-2)

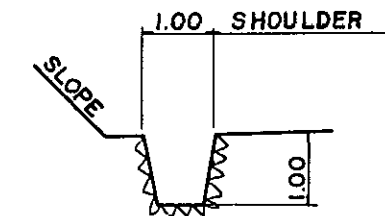


DETAIL OF DRAINAGE FACILITIES

IN GENTLE GRADE SECTION
EARTH TYPE

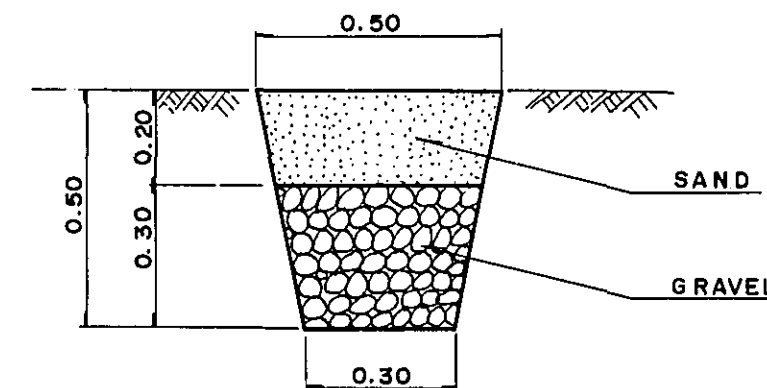


IN STEEP GRADE SECTION
STONE PAVED TYPE



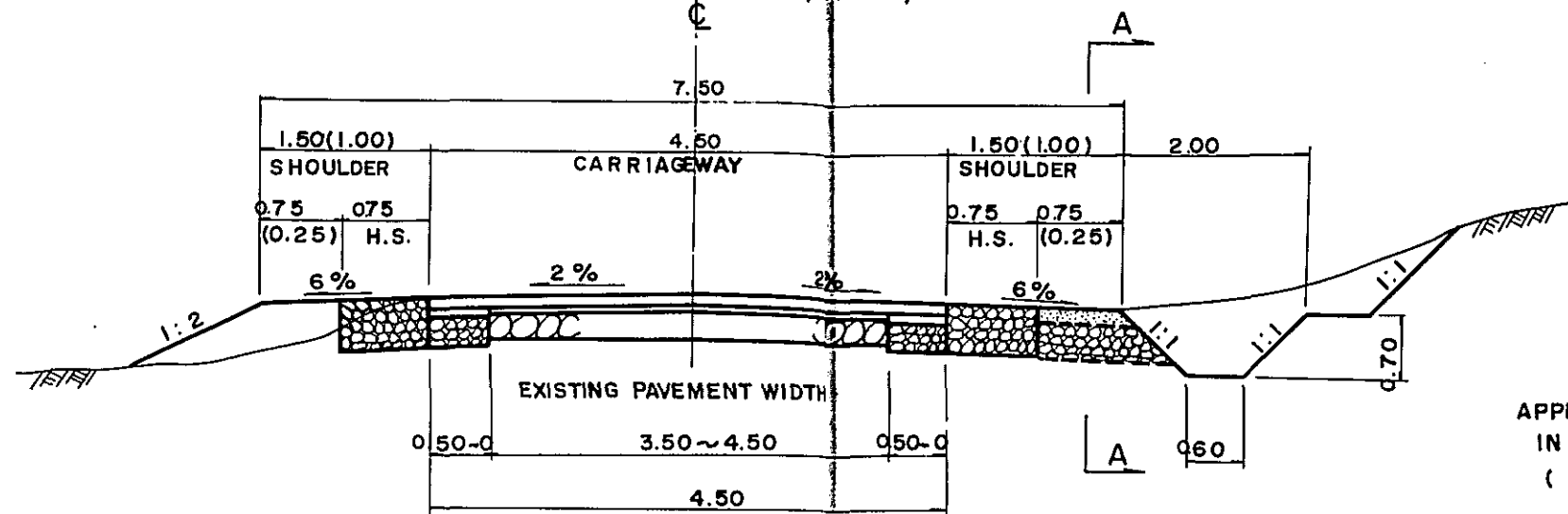
SECTION A-A (Scale 1:15)

French Drain: average intervals
of 20 meters on both sides
in RURAL AREA



TYPICAL CROSS SECTION IN RURAL AREA

TYPE 1 (FOR RF-1, RH-1, RM-1)



Note () : RM-1 WIDTH

APPLIED TYPICAL CROSS SECTION BY PLAN
IN RURAL AREA
(In detail, shown in sheet NO. 7-31.)

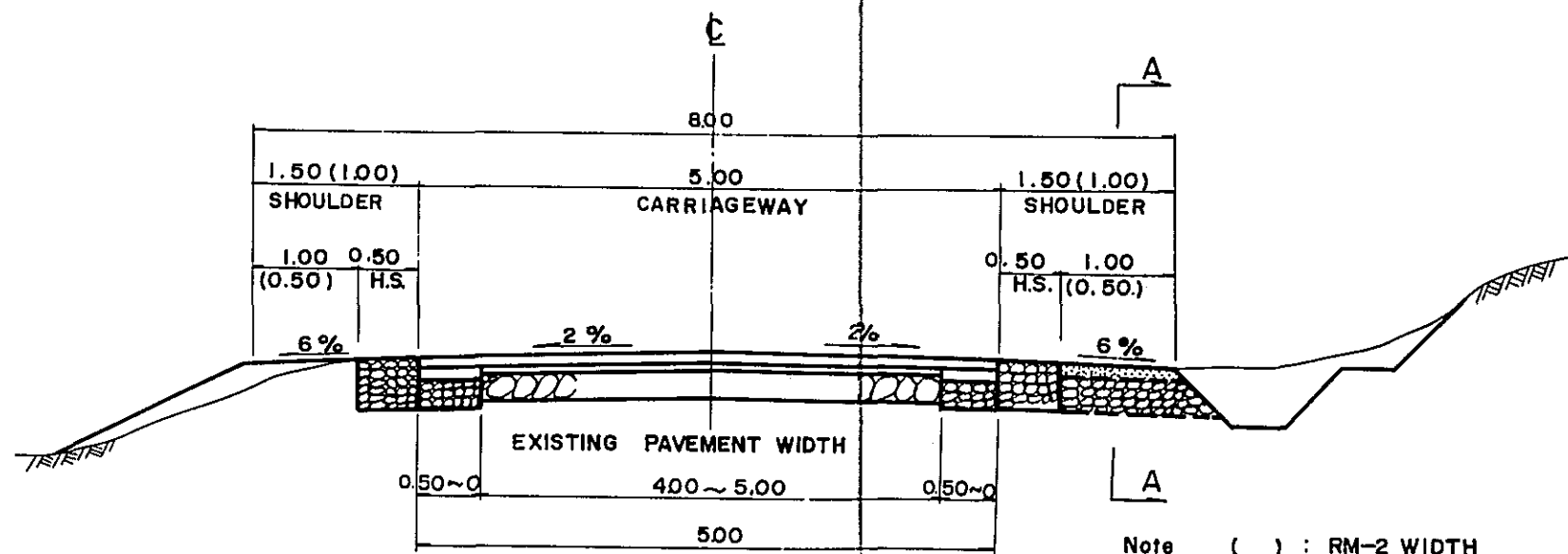
	PLAN I	PLAN II
TYPE 1	X	O
TYPE 2	X	O
TYPE 3	O	O
TYPE 4	O	X

Notes

O : Applied

X : Not applied

TYPE 2 (FOR RF-2, RH-2, RM-2)



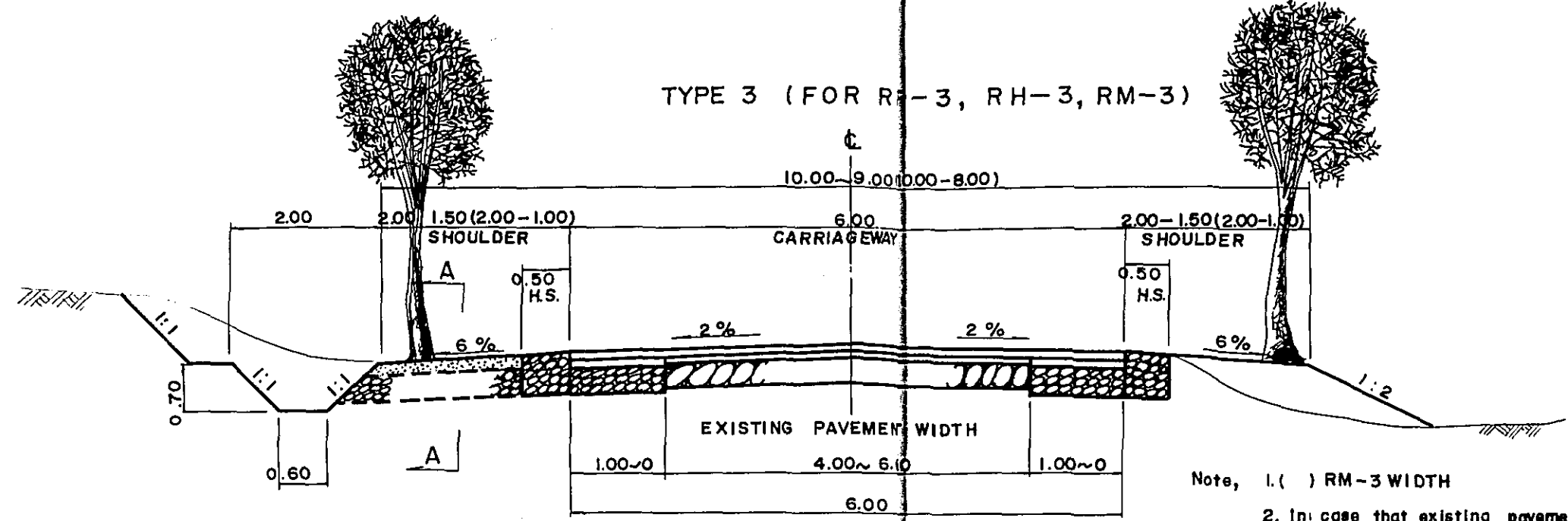
Note () : RM-2 WIDTH

Remarks :

1. As to pavement structure, refer to sheet NO. 5 & 6.
2. H.S. stands for Hard Shoulder.
3. As to Section A-A, refer to sheet NO. 3.

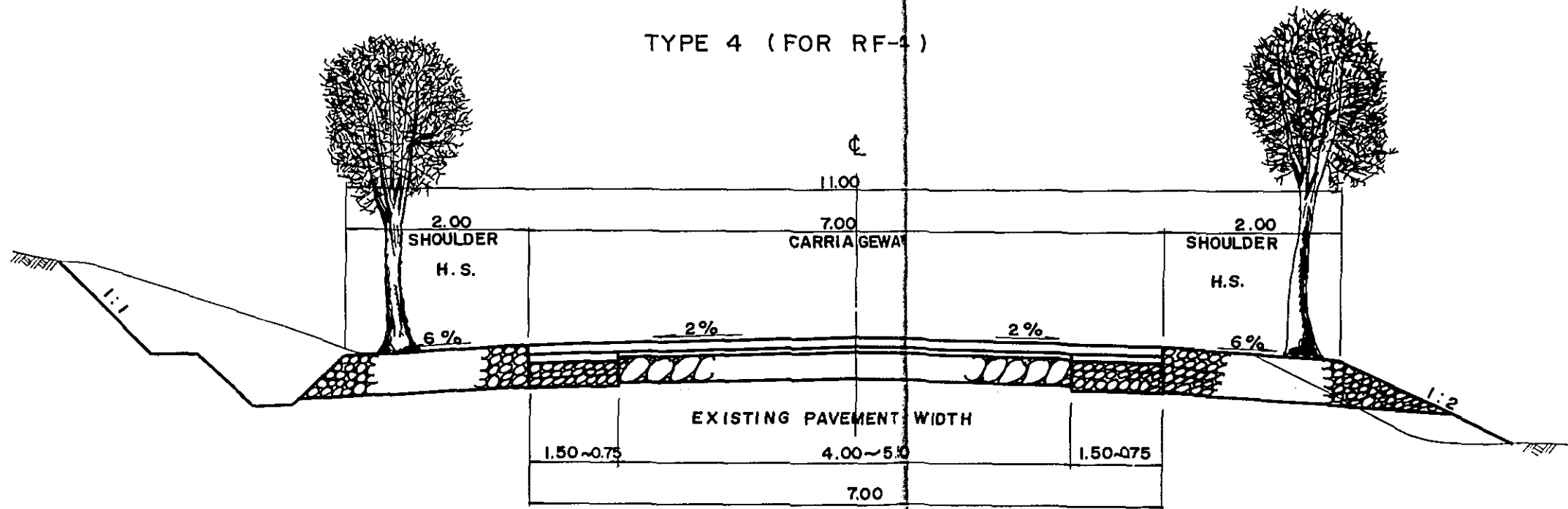
TYPICAL CROSS SECTION IN RURAL AREA

TYPE 3 (FOR RF-3, RH-3, RM-3)



Note, 1. () RM-3 WIDTH
 2. In case that existing pavement width is 5.5m or 6.5m, carriageway width with betterment is 5.5m or 6.5m. In this case, the abbreviation of typical cross section is shown as RF-3'(5.5) or RF-3'(6.5) or RH-3'(5.5) or RH-3'(6.5) or RM-3'(5.5) or RM-3'(6.5) in sheet NO. 7-3).

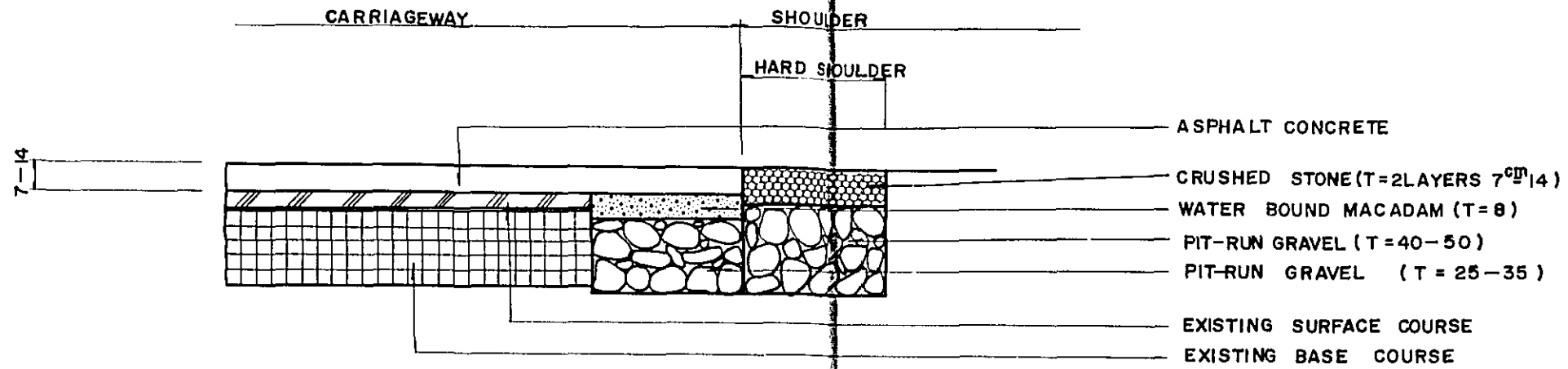
TYPE 4 (FOR RF-4)



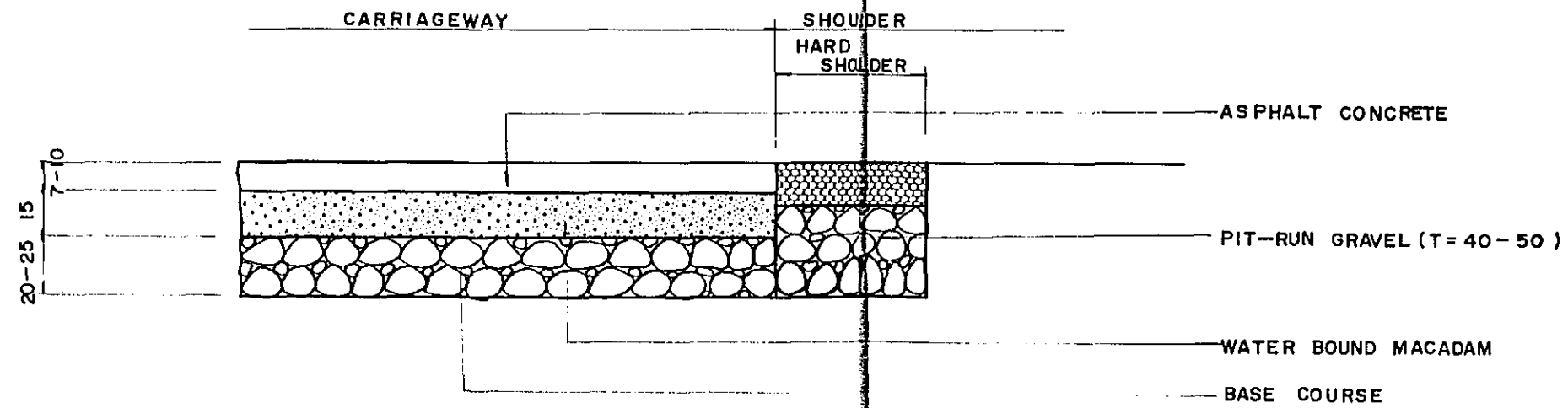
- Remarks :
1. As to pavement structure, refer to sheet NO.5 & 6.
 2. H.S. stands for Hard Shoulder.
 3. As to Section A-A, refer to sheet NO.2.

TYPICAL PAVEMENT SECTION (UNIT : CM)
(NON STAGED CONSTRUCTION)

WIDENING SECTION



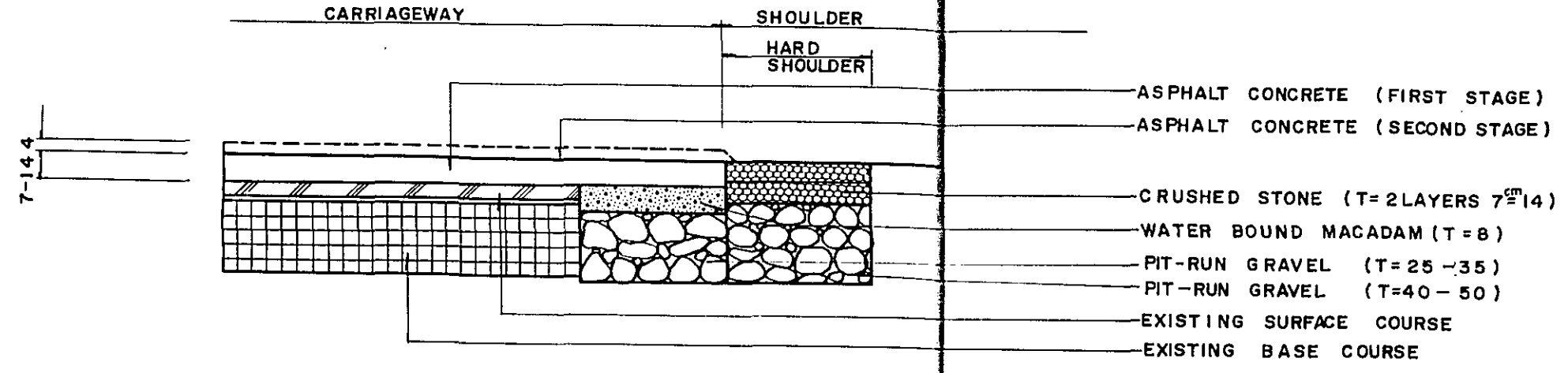
NEW CONSTRUCTION ROAD SECTION



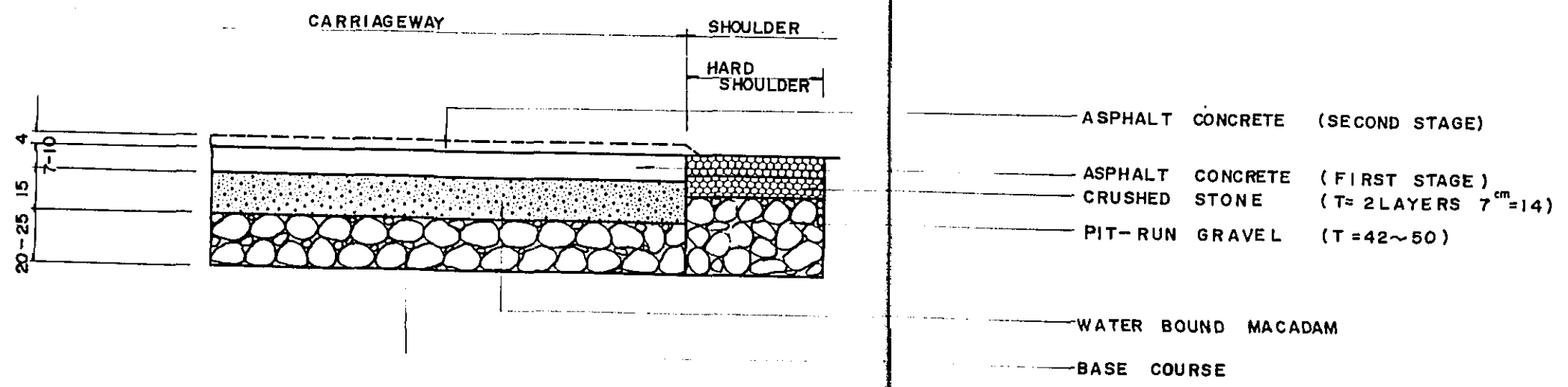
PROJECT	TOTAL SHEETS	SHEET NO.
CENTRAL AND EAST JAVA ROAD BETTERMENT	41	6
TYPICAL CROSS SECTION	SCALE	

TYPICAL PAVEMENT SECTION (UNIT: CM)
(STAGED CONSTRUCTION)

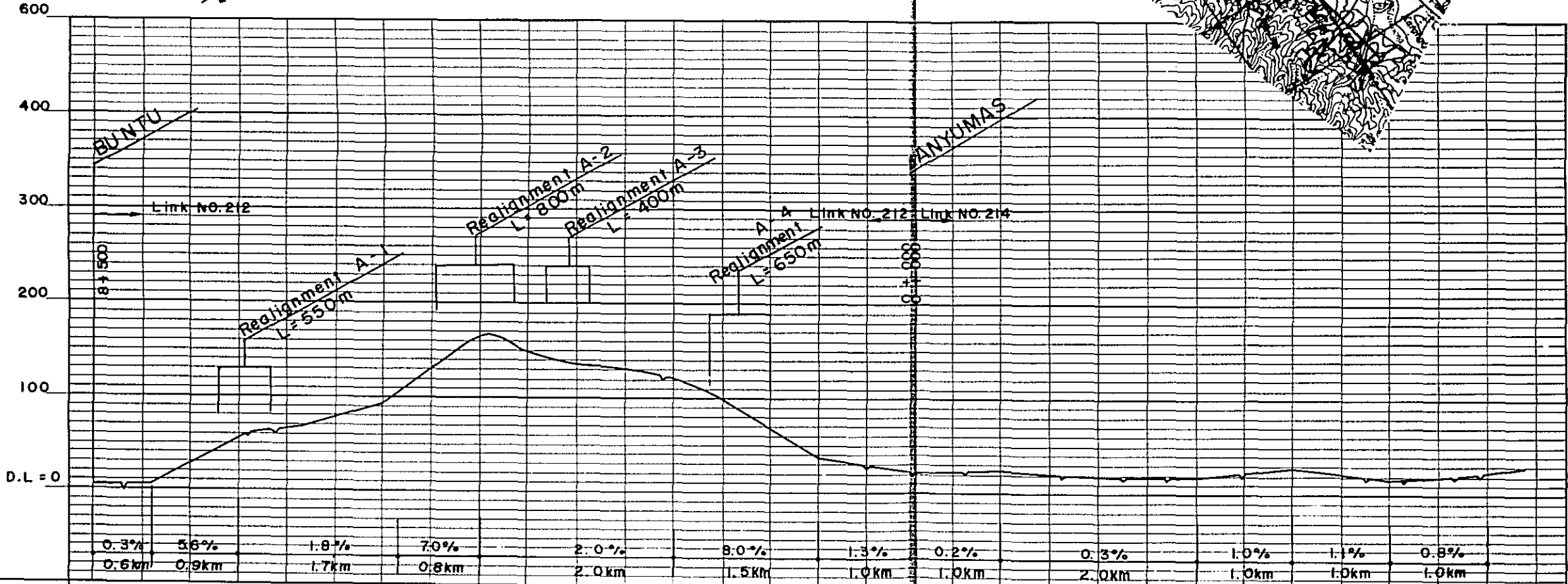
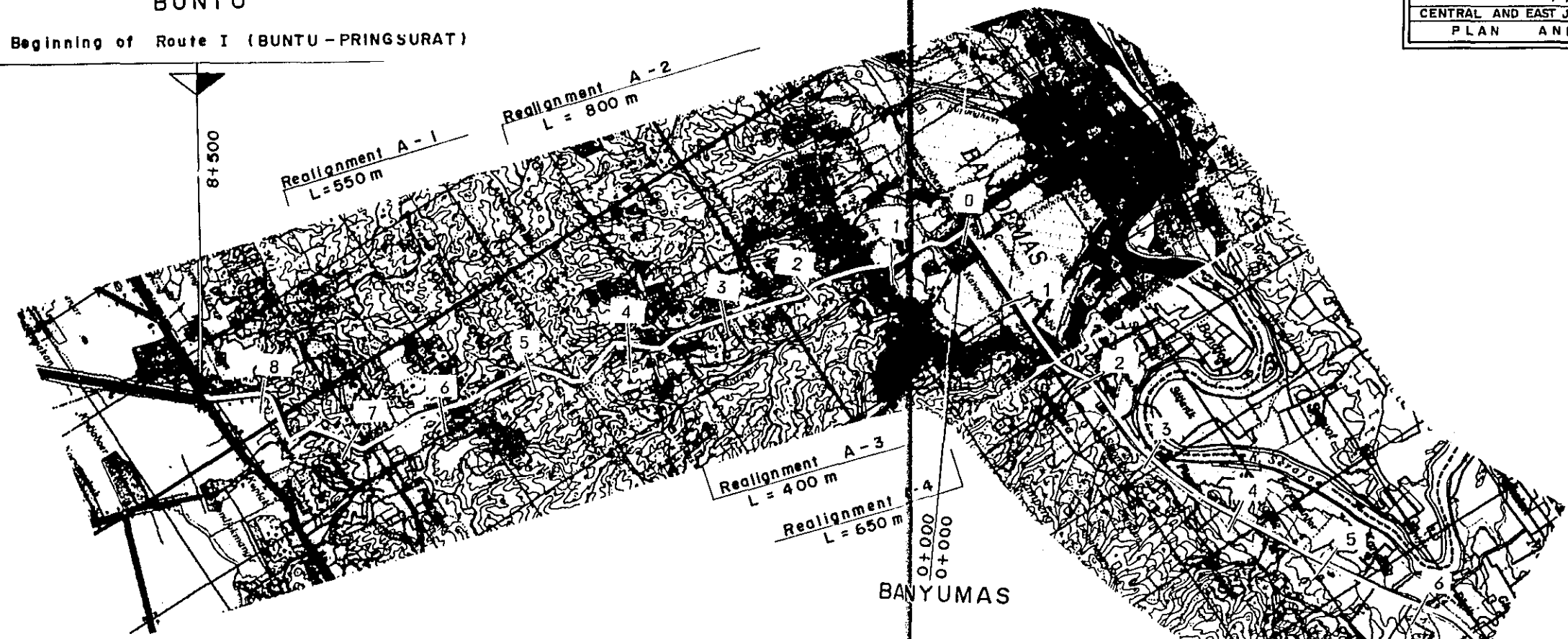
WIDENIG SECTION



NEW CONSTRUCTION ROAD SECTION

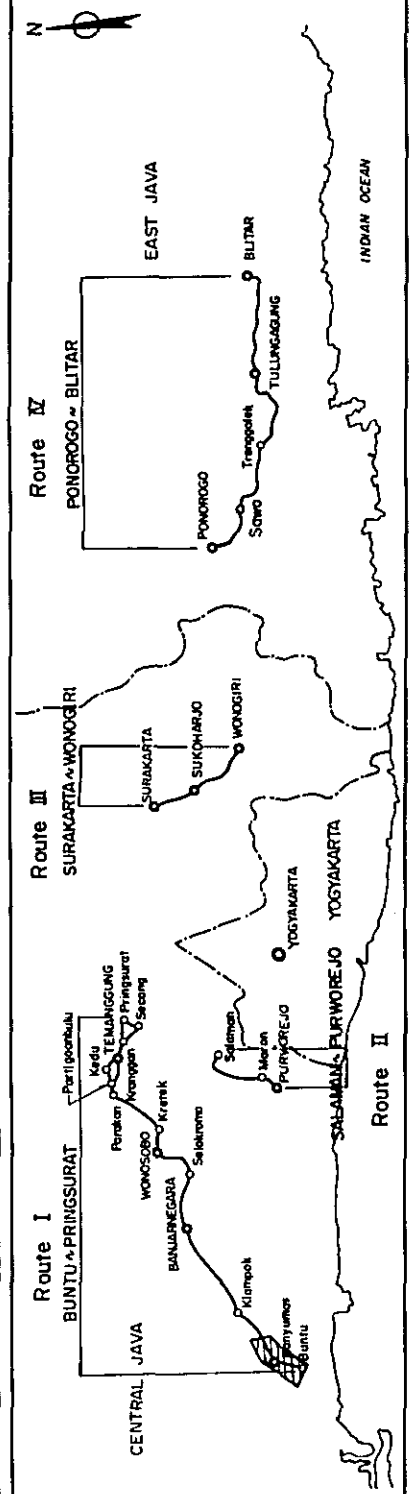


BUNTU
Beginning of Route I (BUNTU-PRINGSURAT)

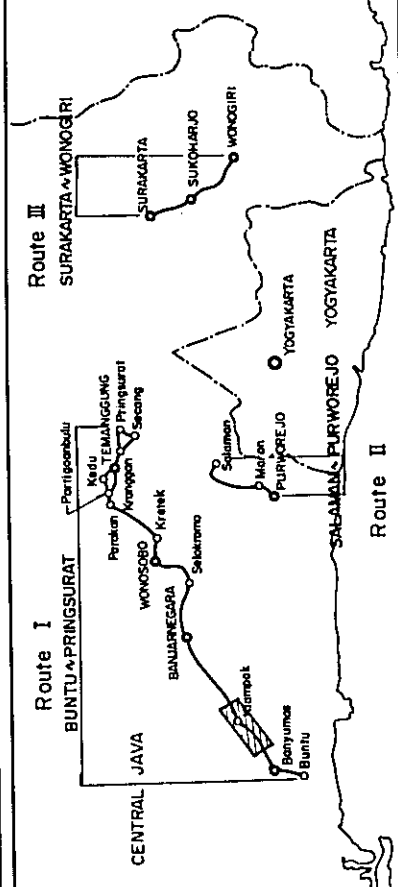
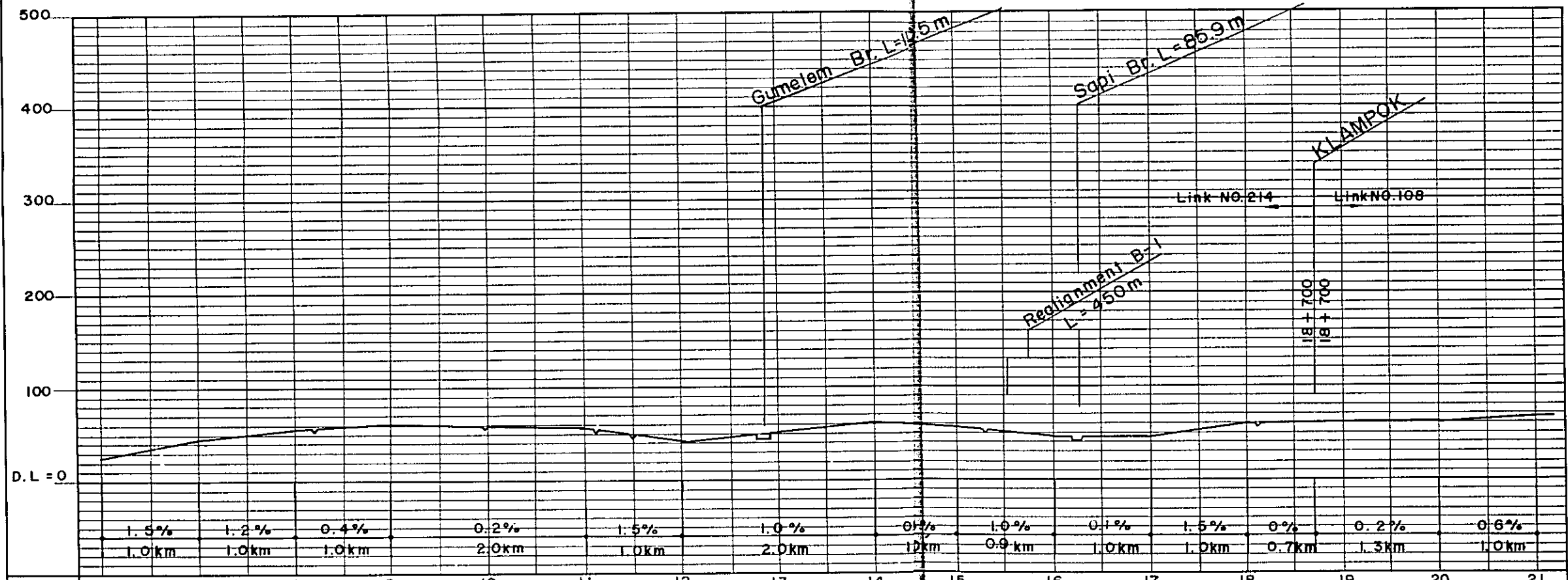
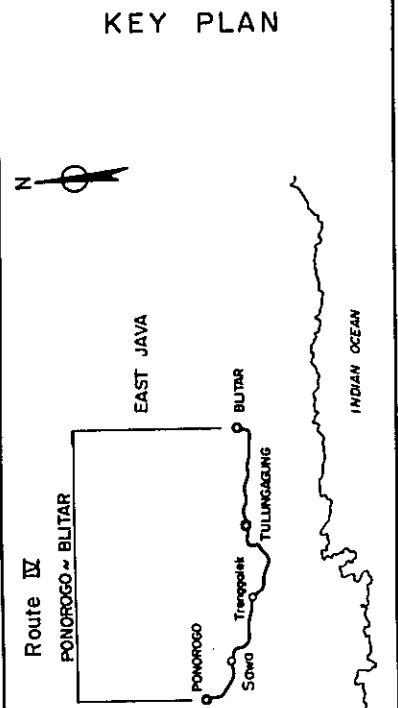
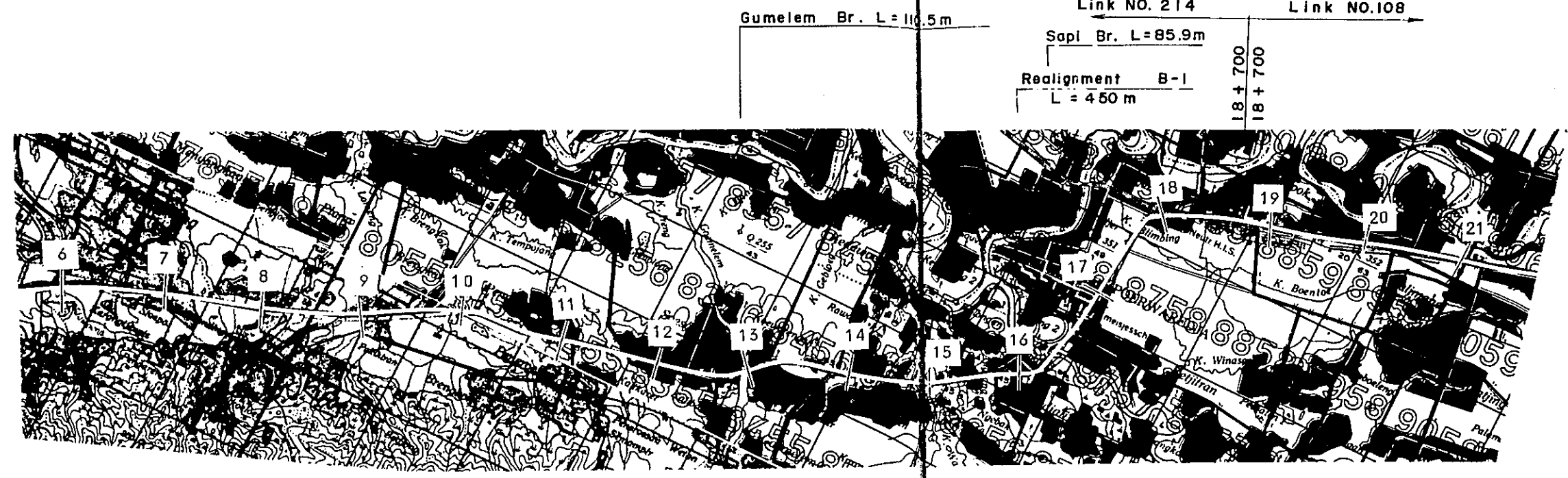


STATION	8	7	6	5	4	3	2	1	1	1	2	3	4	5	6
PLAN I	RF - 3			RM - 3					RF - 3						
	L = 0.5km			L = 7.0km					L = 1.0km						
PLAN II		RM - 3		RM - 3 (5.5)		RM - 2			RF - 3 (5.5)		RF - 2				
		L = 3.1km		L = 0.5km		L = 3.4km			L = 0.5km		L = 13.4km				

KEY PLAN

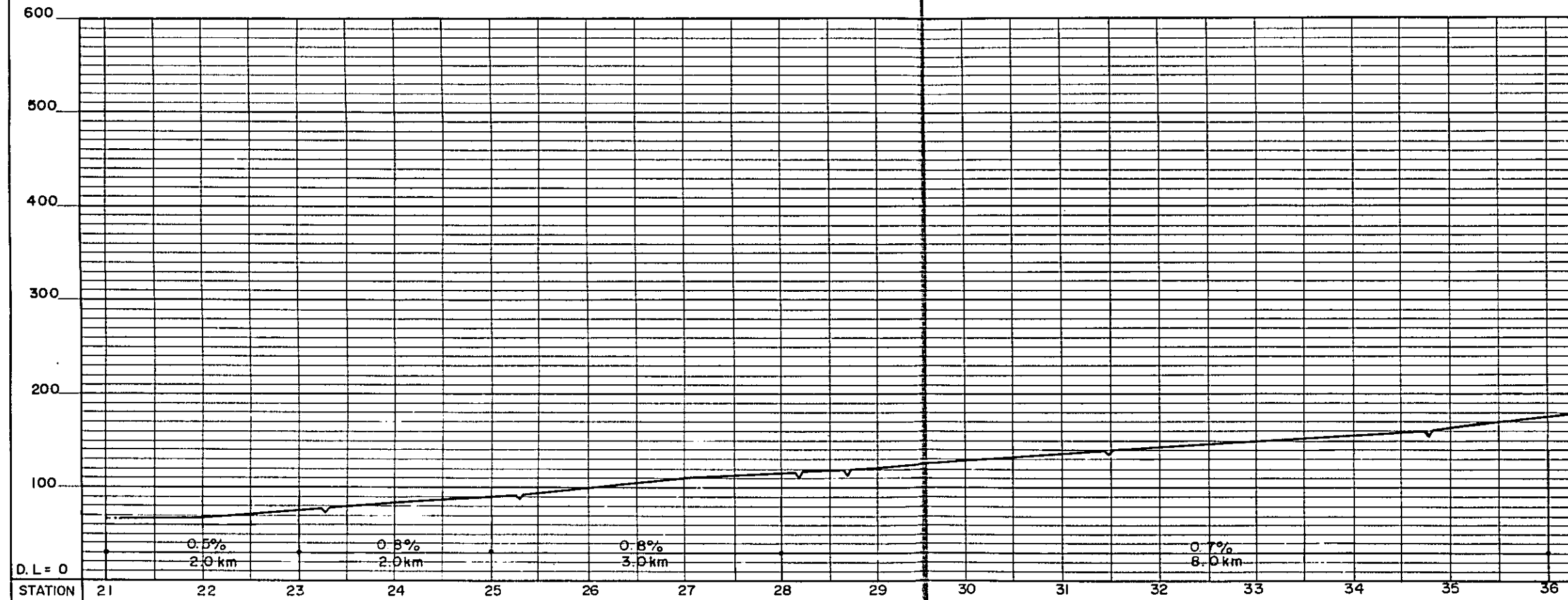


KLAMPQK



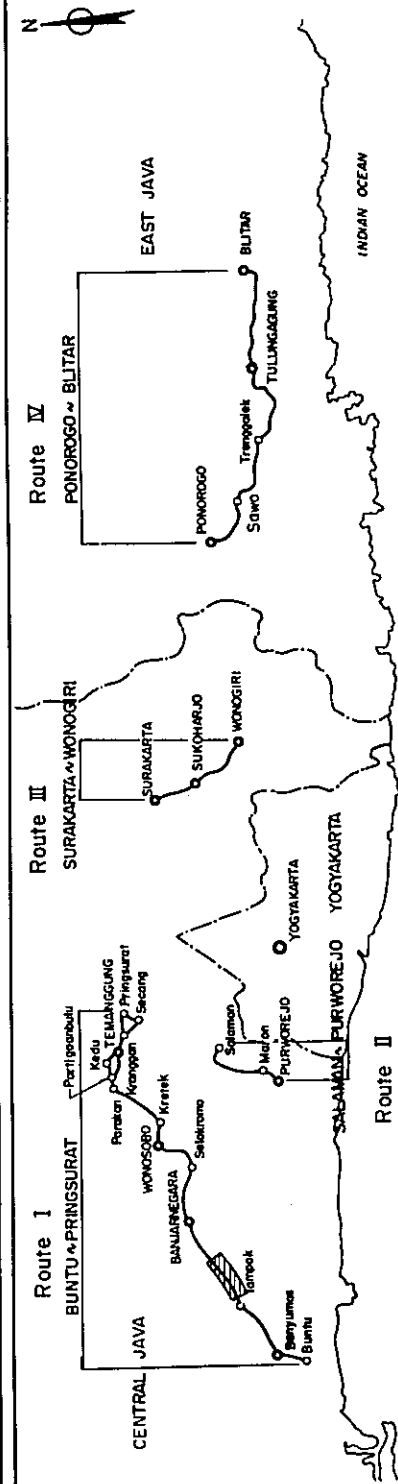
STATION	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
	1.5%			1.2%		0.4%		0.2%		1.5%		1.0%		0.1%		1.5%	
	1.0km			1.0km		1.0km		2.0km		1.0km		2.0km		1.0km		1.0km	
PLAN I	RF - 3			L = 15.0km						S - 1		RF - 3		S - 1		L = 15.0 km	
PLAN II	RF - 2			L = 13.4 km				RF 3		L = 0.9 km		L = 2.0 km		L = 0.7 km		RF-3'(55) L = 1.2 km	

PROJECT	TOTAL SHEETS	SHEET NO
CENTRAL AND EAST JAVA ROAD BETTERMENT	41	9
PLAN AND PROFILE	SCALE : H = 1 : 50,000	V = 1 : 5,000

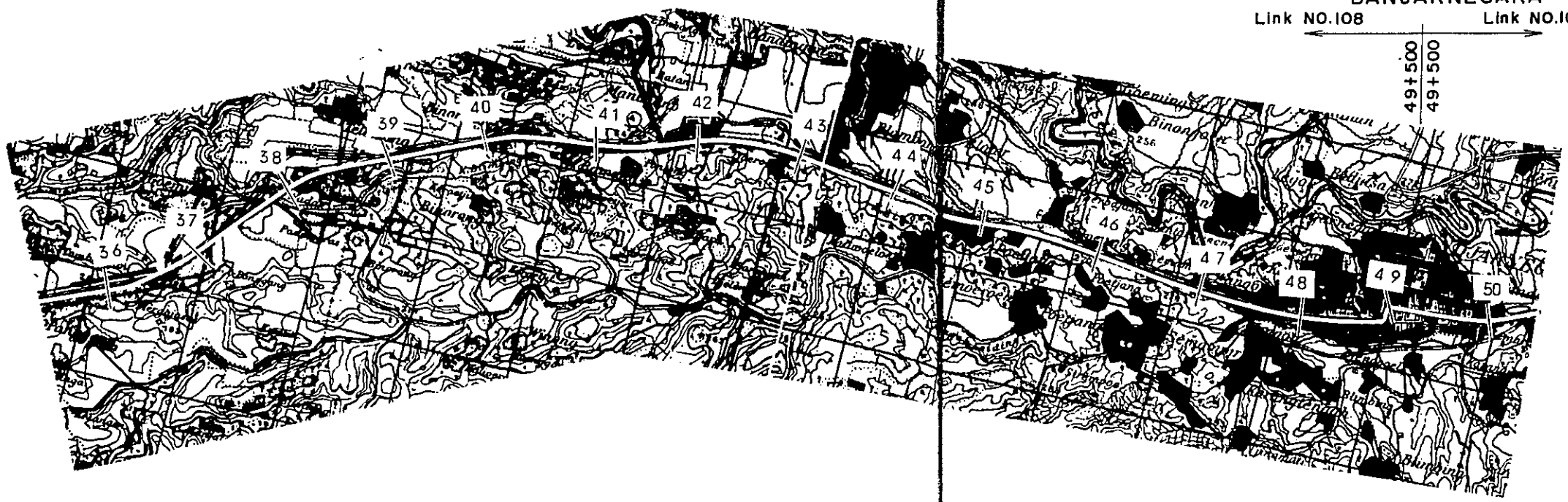


STATION	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
PLAN I	RF - 4 L = 30.2 km															
PLAN II	RF - 3 L = 3.7 km			RF - 3'(5.5) L = 2.3 km			RF - 3 L = 9.0 km			RF - 3'(5.5) L = 3.7 km						

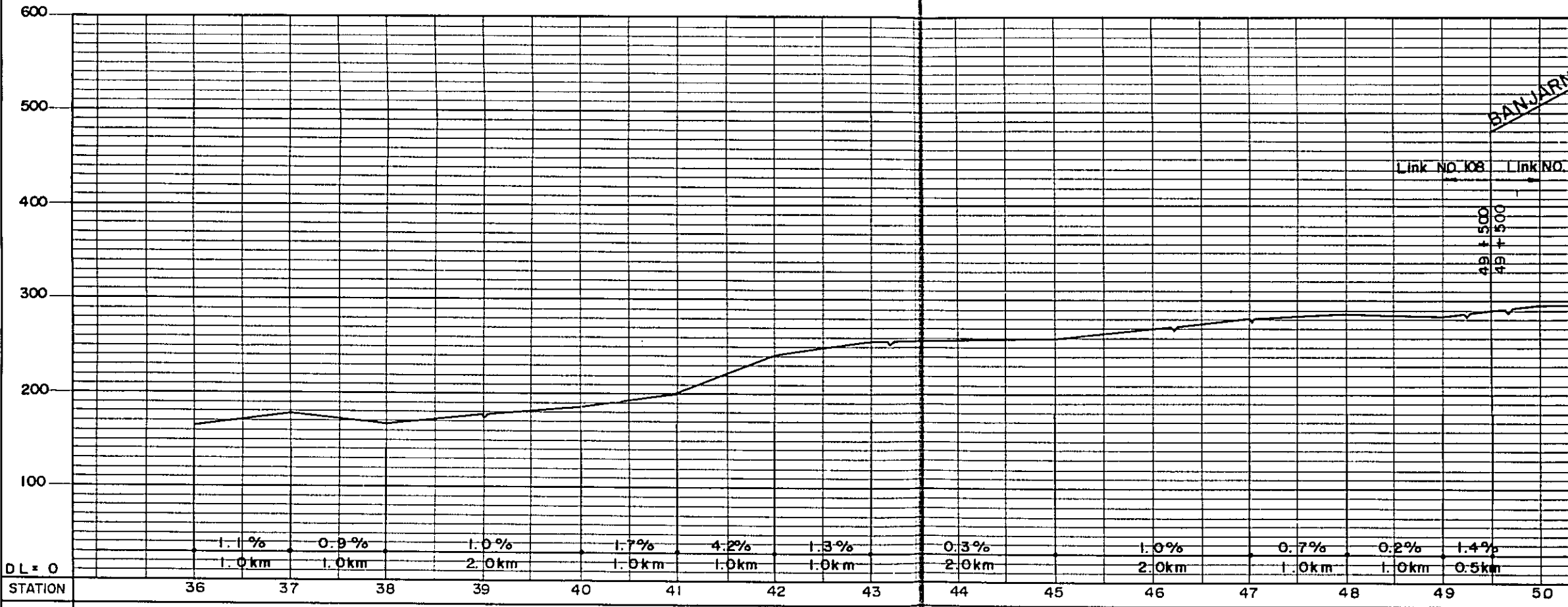
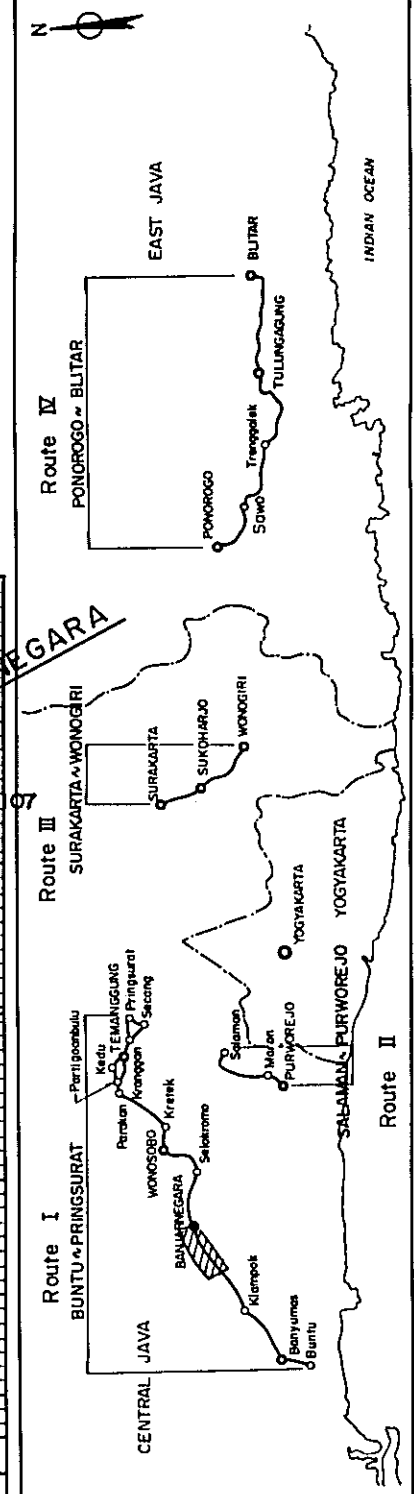
KEY PLAN



BANJARNEGARA
Link NO.108 Link NO.107



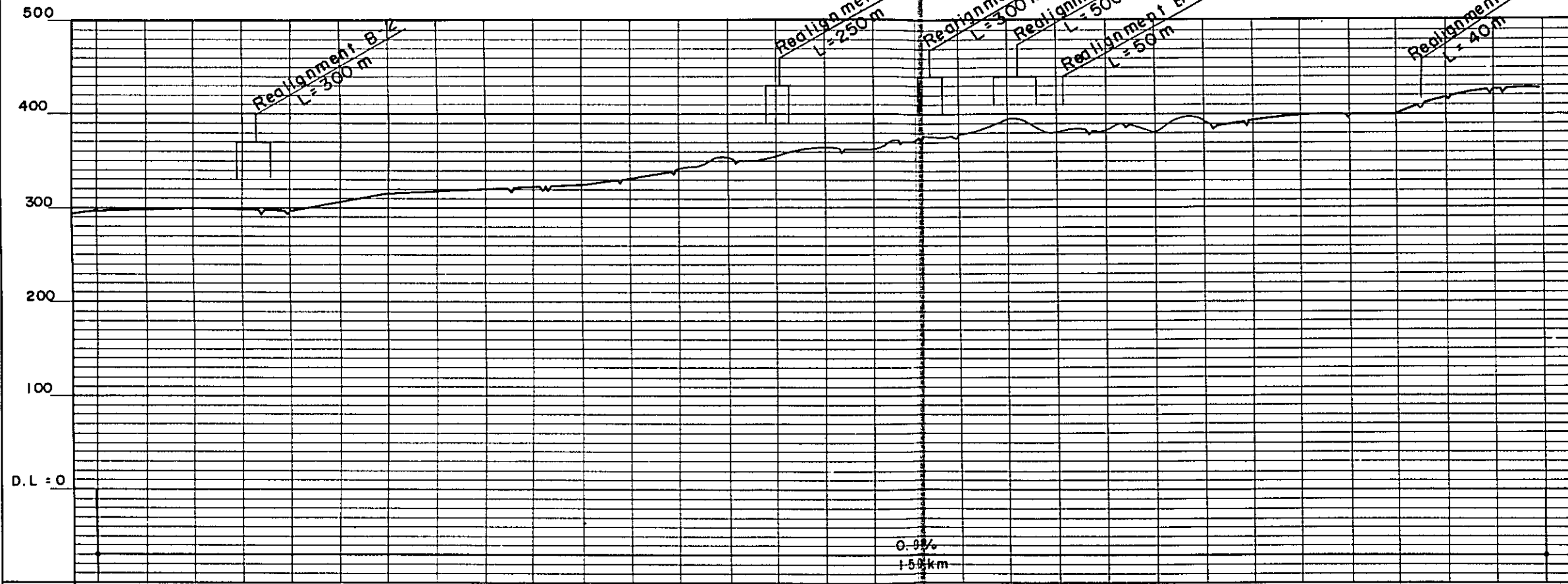
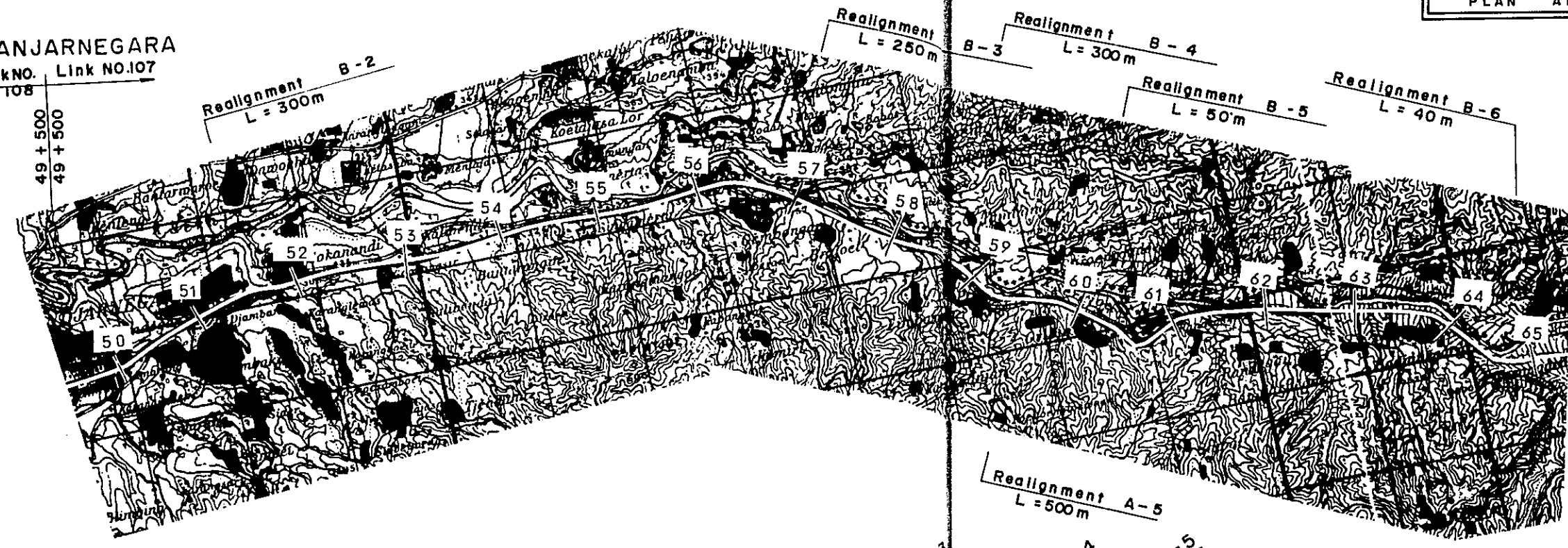
KEY PLAN



PLAN I	RF - 4 L = 30.2 km															U-2 U-2
PLAN II	RF - 3 (5.5) L = 3.7km	RF - 3 L = 1.3 km	RF - 3 (5.5) L = 4.0 km				RF - 3 L = 3.0 km			RF - 3 (5.5) L = 3.0 km						L=0.5km L=1.5km

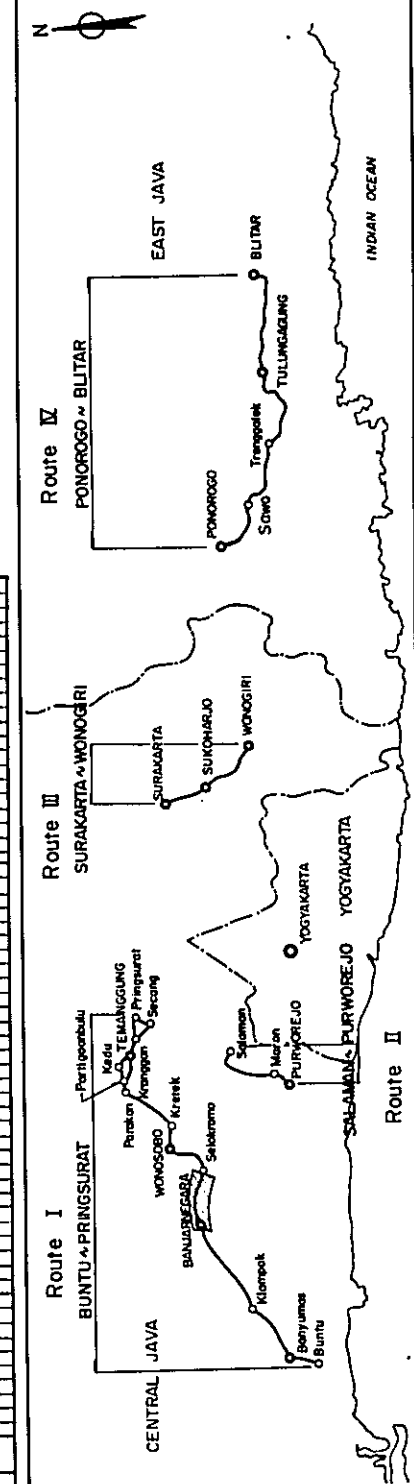
PROJECT	TOTAL SHEETS	SHEET NO.
CENTRAL AND EAST JAVA ROAD BETTERMENT	41	11
PLAN AND PROFILE	SCALE: H = 1:50,000	V = 1:5,000

BANJARNEGARA
Link NO. Link NO.107

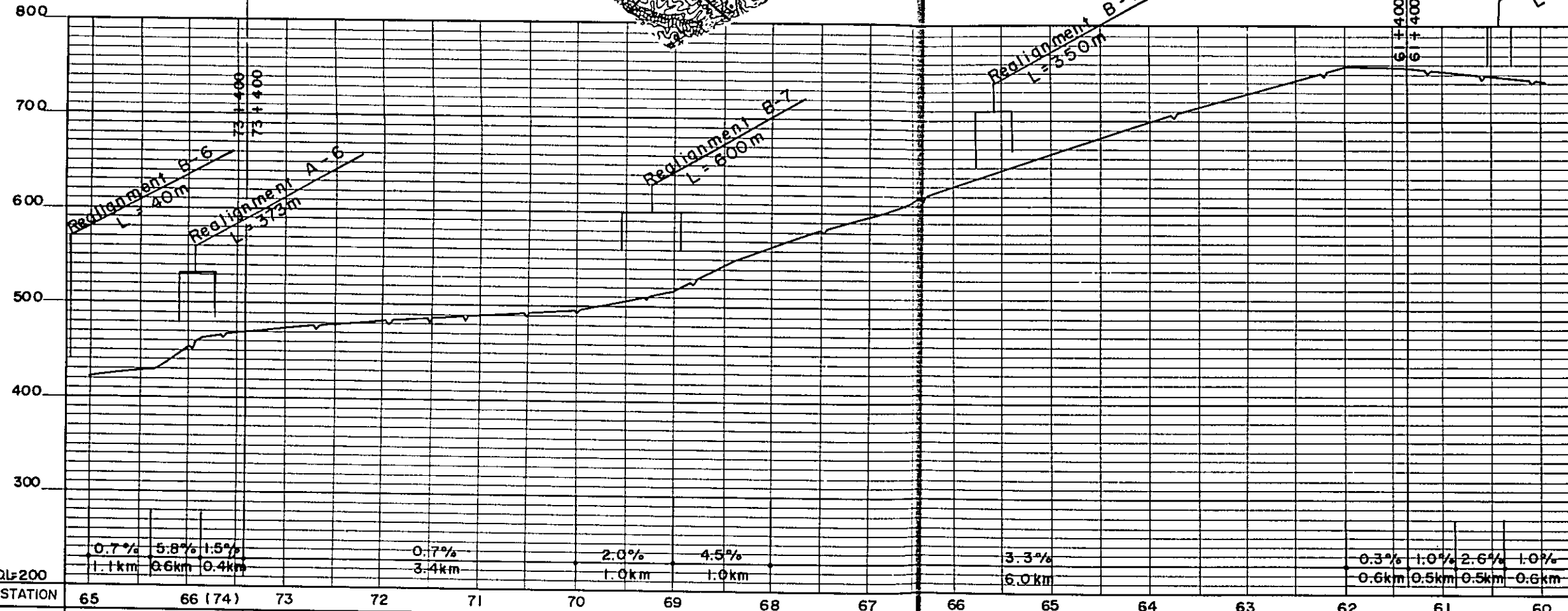
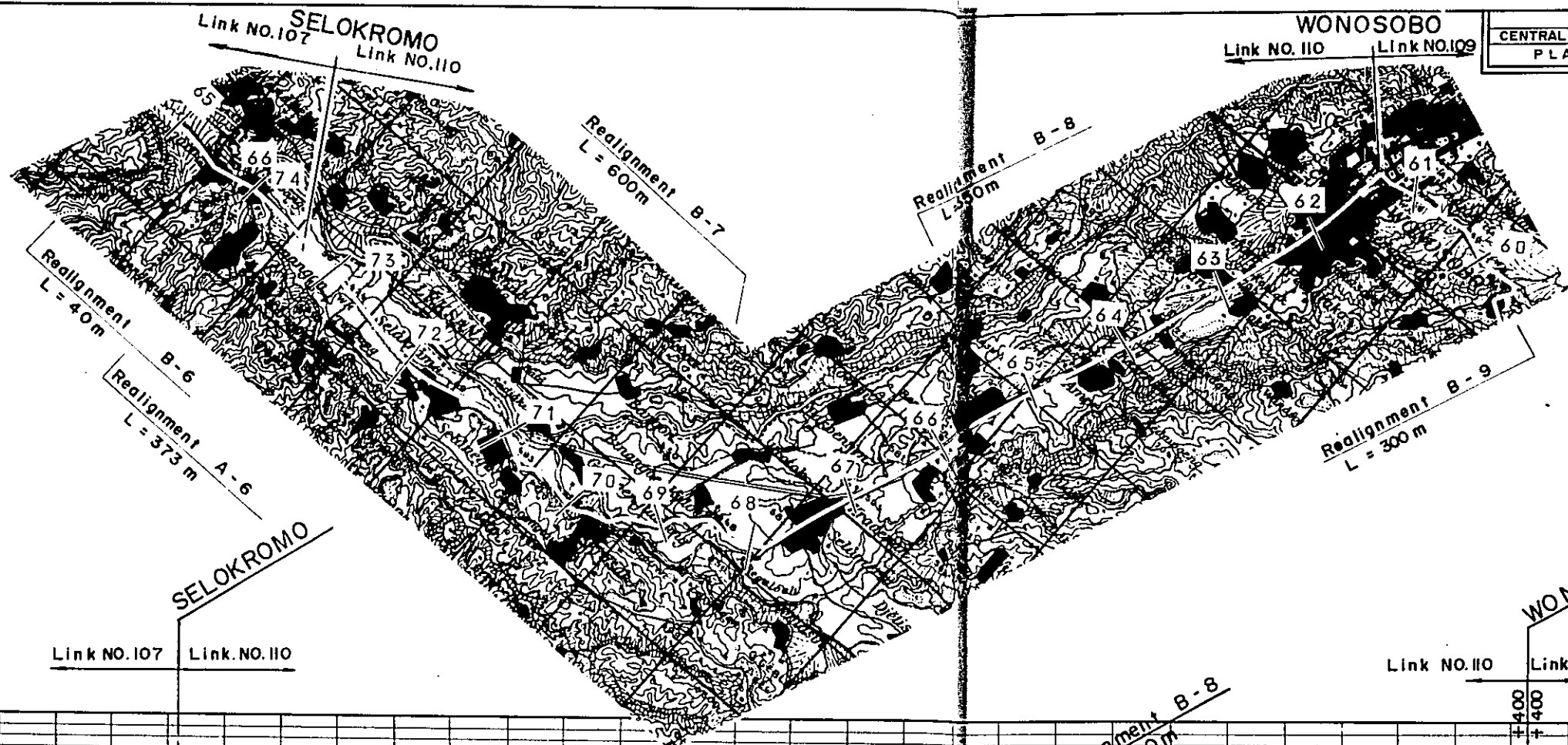


STATION	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65
PLAN I	U - 2		RF - 3		L = 2.0 km		RM - 3									
PLAN II	L = 1.5 km		RF - 3' (5.5)		L = 2.0 km		L = 13.6 km									

KEY PLAN

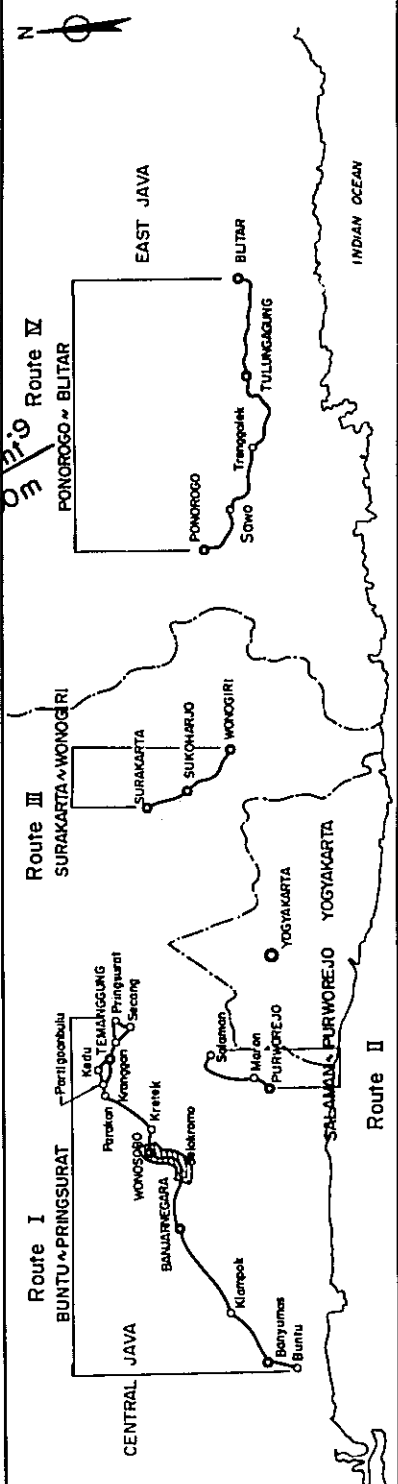


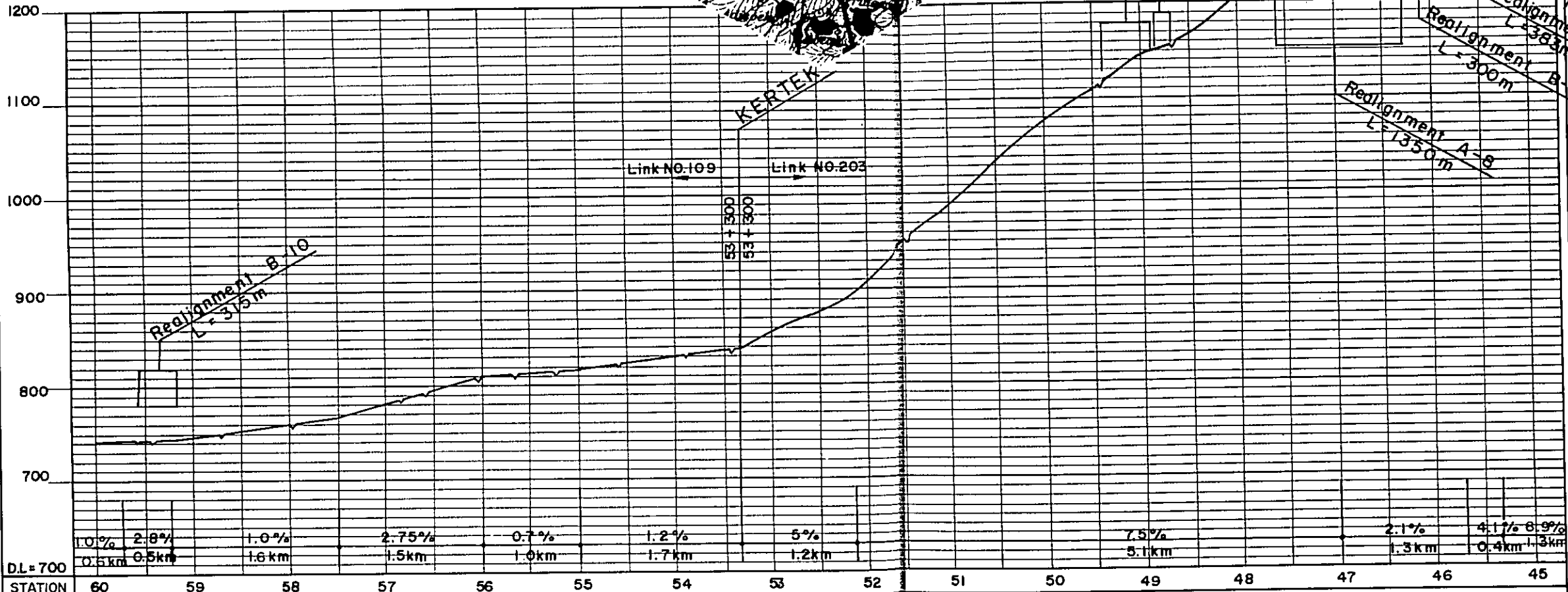
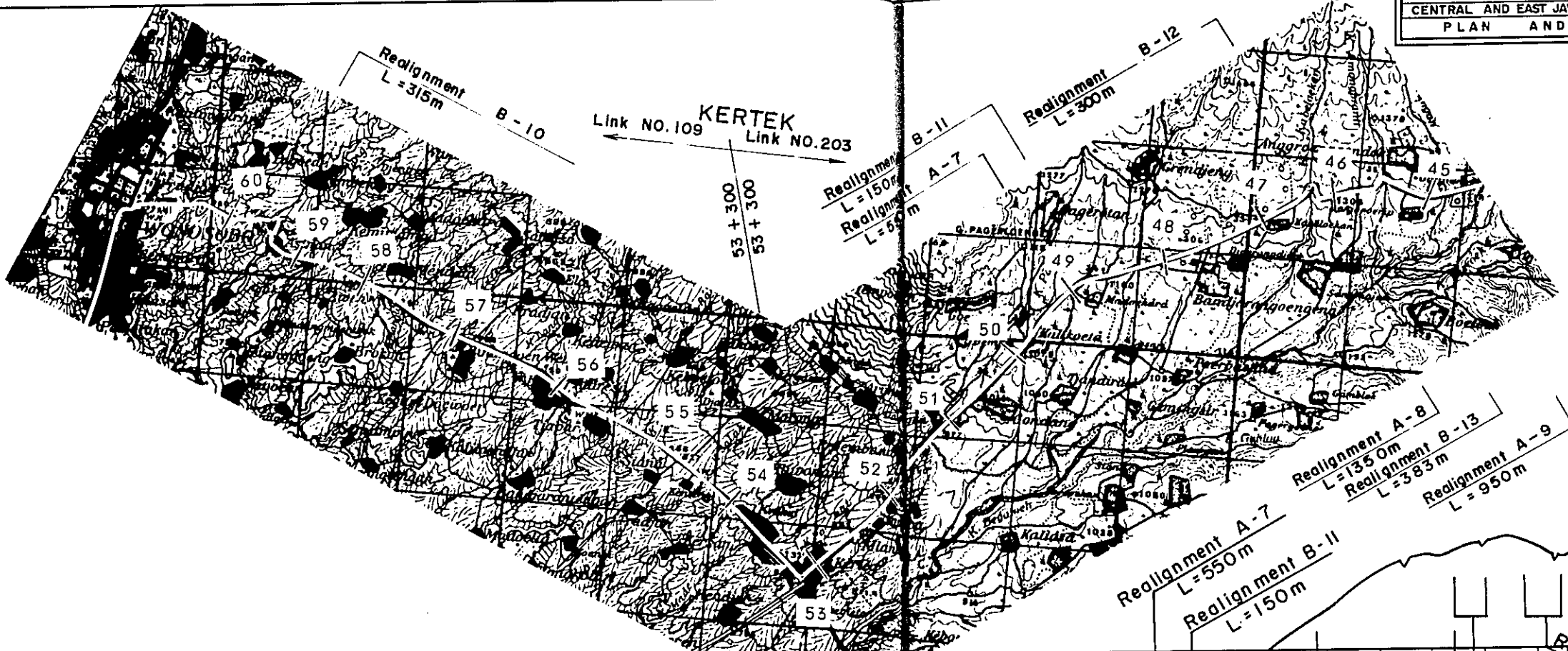
PROJECT	TOTAL SHEETS	SHEET NO.
CENTRAL AND EAST JAVA ROAD BETTERMENT	41	12
PLAN AND PROFILE	SCALE	H: 1:50,000 V: 1:5,000



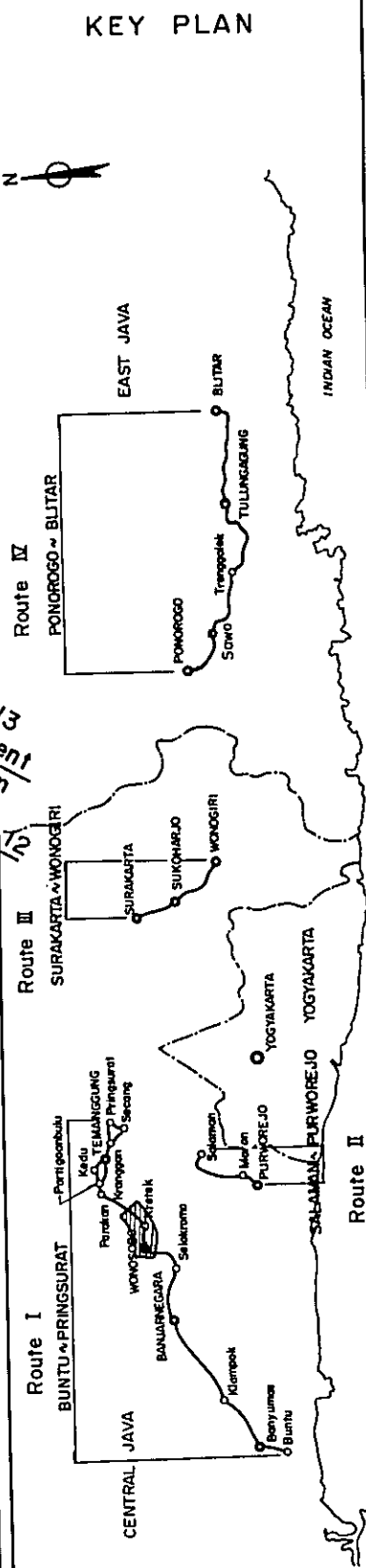
DL=200	0.7% 1.1km	5.8% 0.6km	1.5% 0.4km	0.7% 3.4km	2.0% 1.0km	4.5% 1.0km	3.3% 6.0km	0.3% 0.6km	1.0% 0.5km	2.6% 0.5km	1.0% 0.6km												
STATION	65	66 (74)	73	72	71	70	69	68	67	66	65	64	63	62	61	60							
PLAN I	RM - 3			RH - 3																			
PLAN II	L = 13.6km			L = 10.9km																			
				RH - 3				RH - 3' (5.5)				U - 1				U - 1				RH - 3			
				L = 7.4km				L = 3.5km				L = 1.1km				L = 0.4km				L = 6.8km			

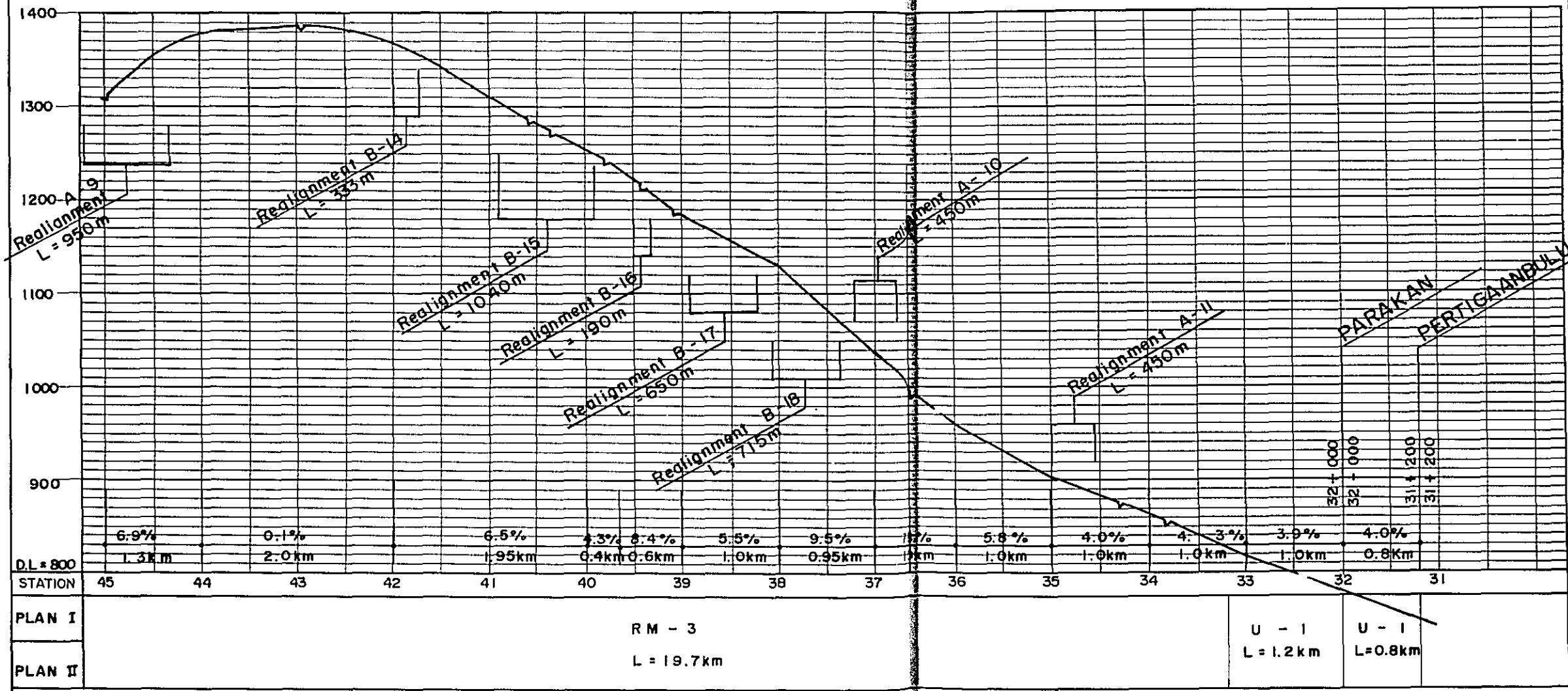
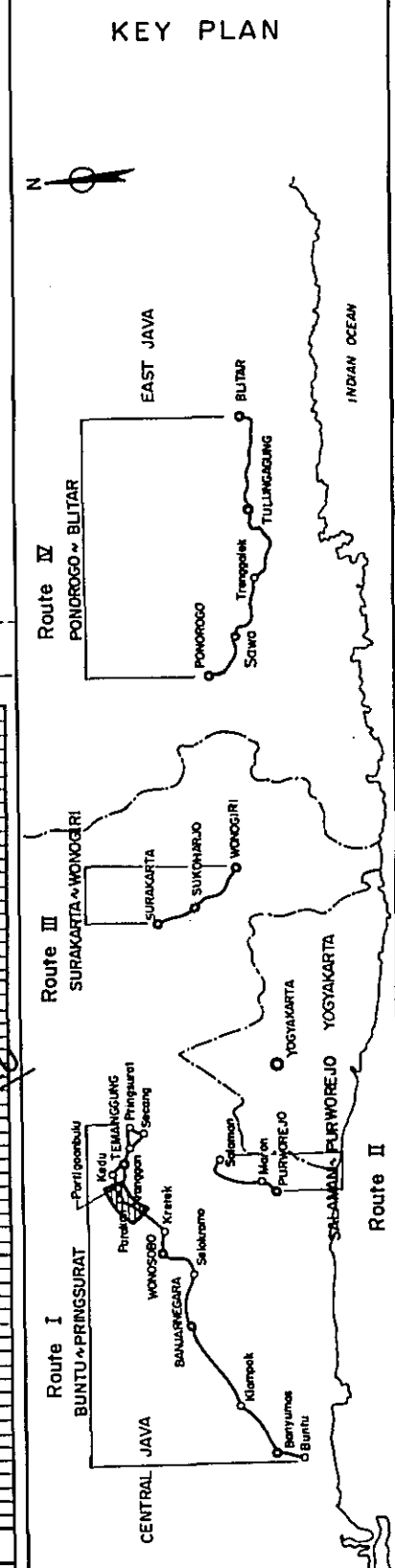
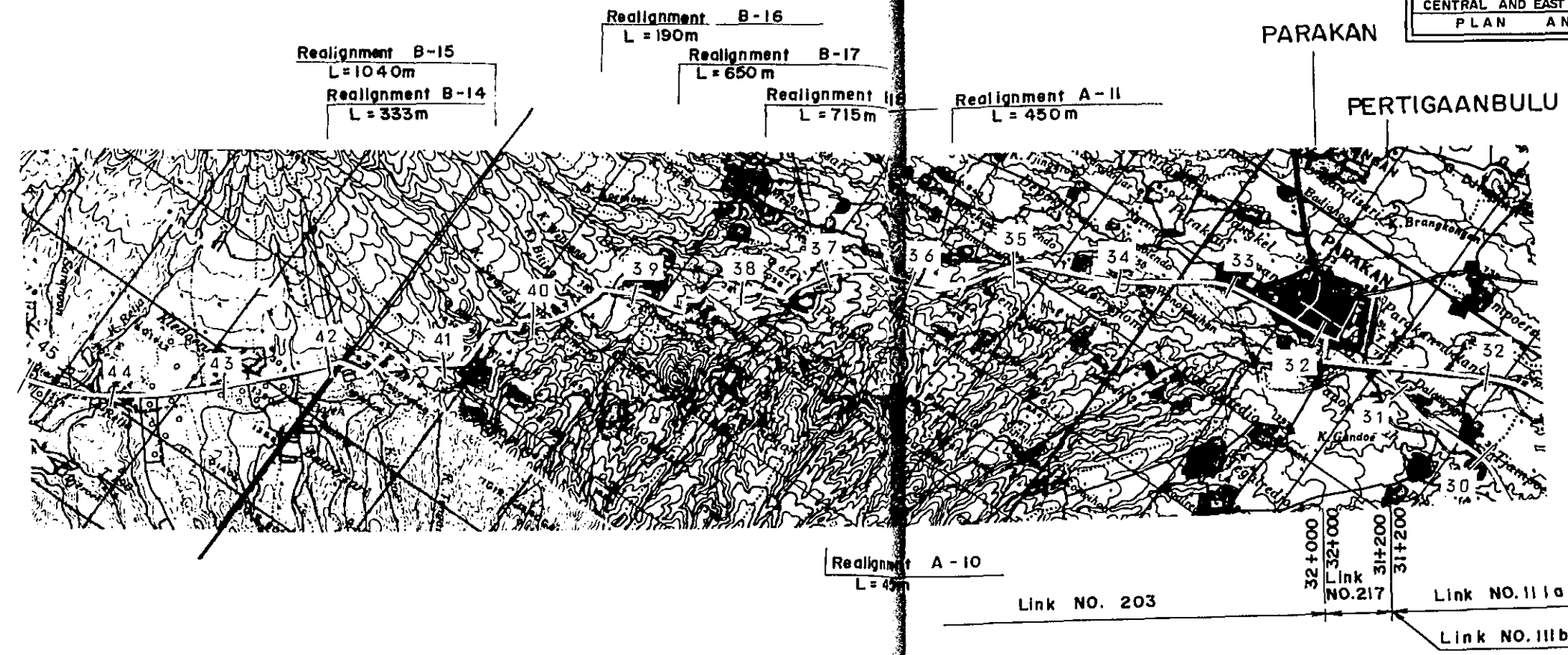
KEY PLAN





STATION	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45
PLAN I	RH - 3					S - 1		S - 1		RM - 3						
PLAN II	L = 6.8 km					L = 0.7 km		L = 0.3 km		L = 19.7 km						





PERTIGAANBULU

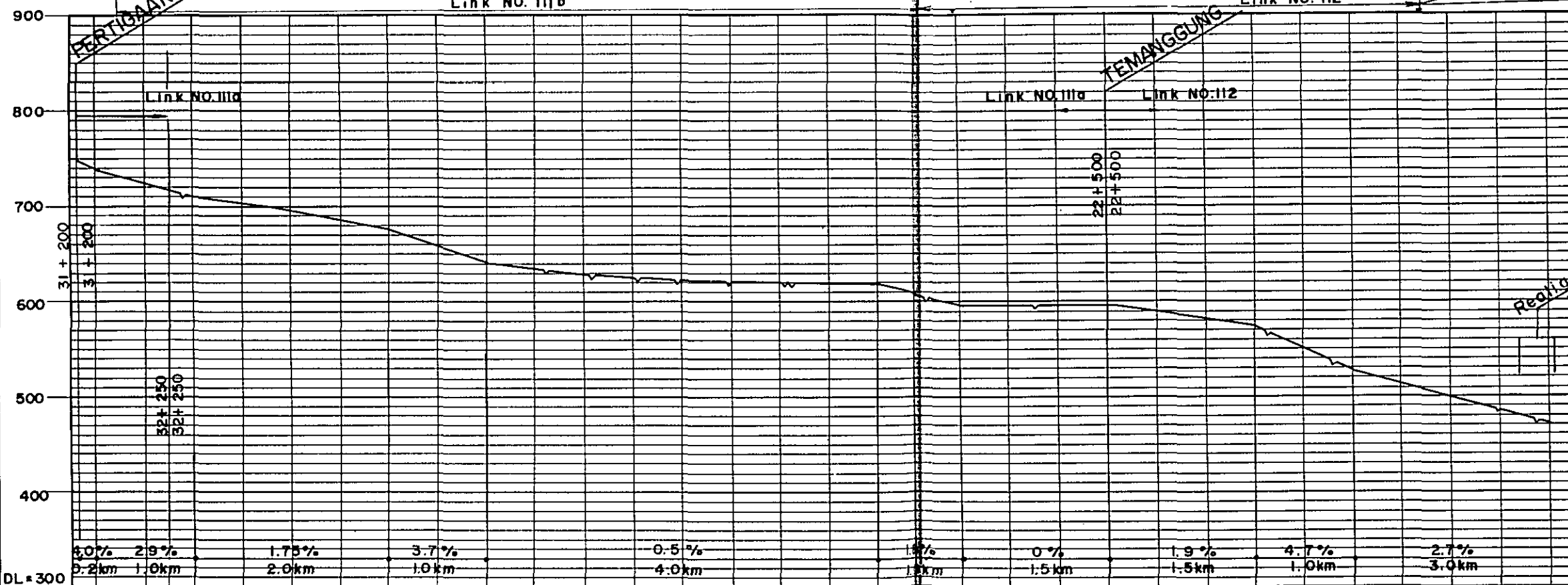
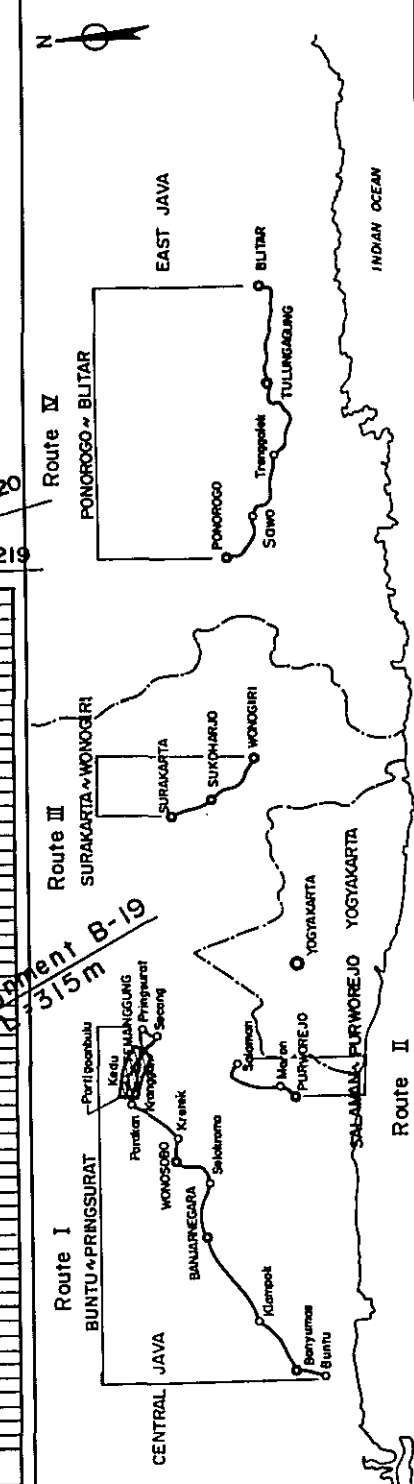
TEMANGGUNG

Realignment B-19
L = 315m

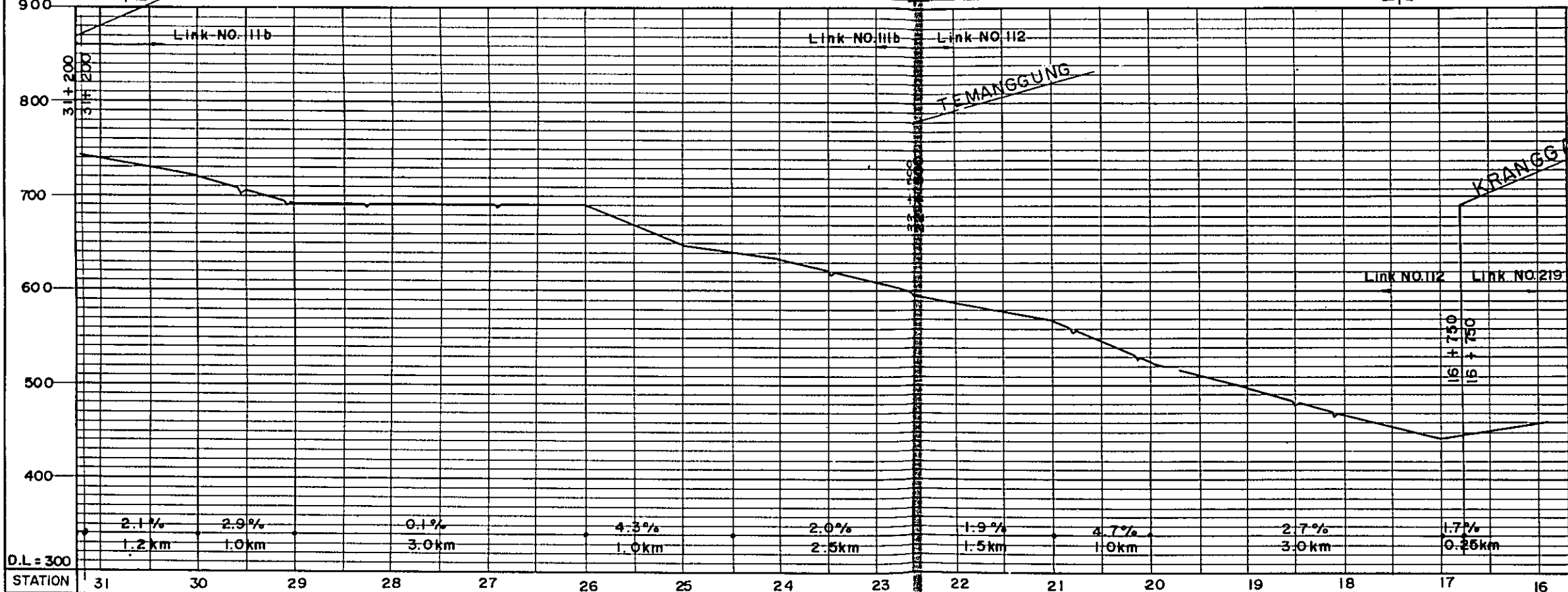
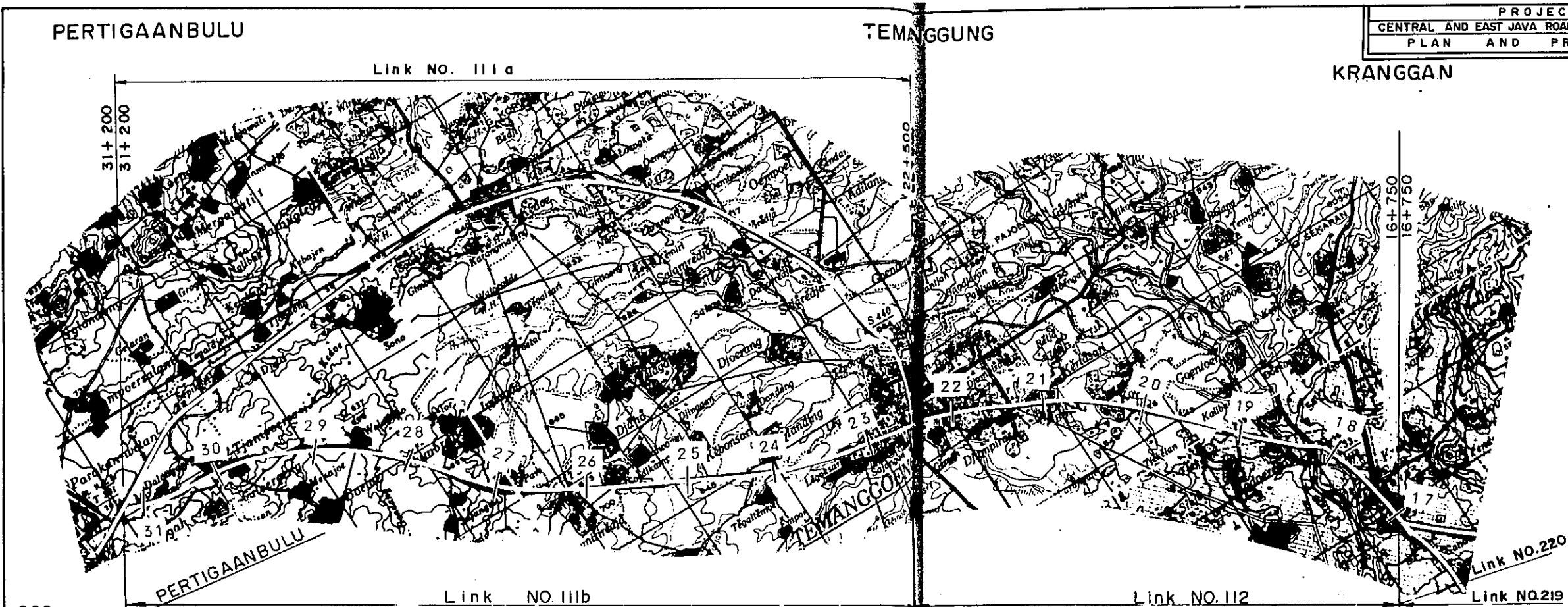
PROJECT	TOTAL SHEETS	SHEET NO.
CENTRAL AND EAST JAVA ROAD BETTERMENT	41	15
PLAN AND PROFILE	SCALE: 1:50,000	1:5,000



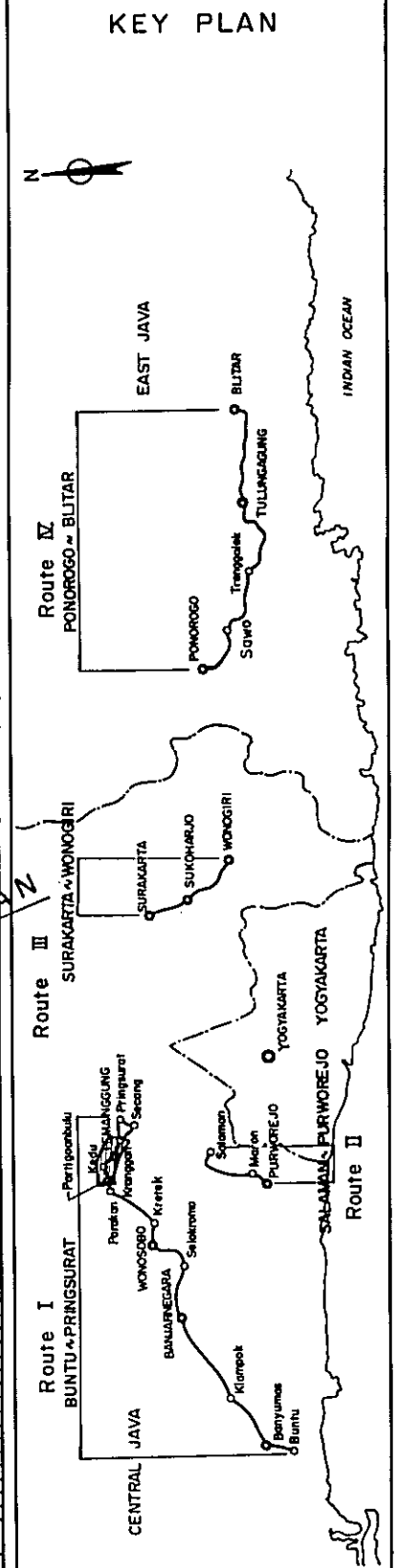
KEY PLAN



STATION	32	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18
PLAN I	U-1		RF - 3 L = 9.7 km					U-1		U-1		RH - 3 L = 4.25km				
PLAN II	L = 0.2km		RF - 3 L = 6.0km					RF - 3 (5.0) L = 3.7 km		L = 0.8km		L = 1.5 km				

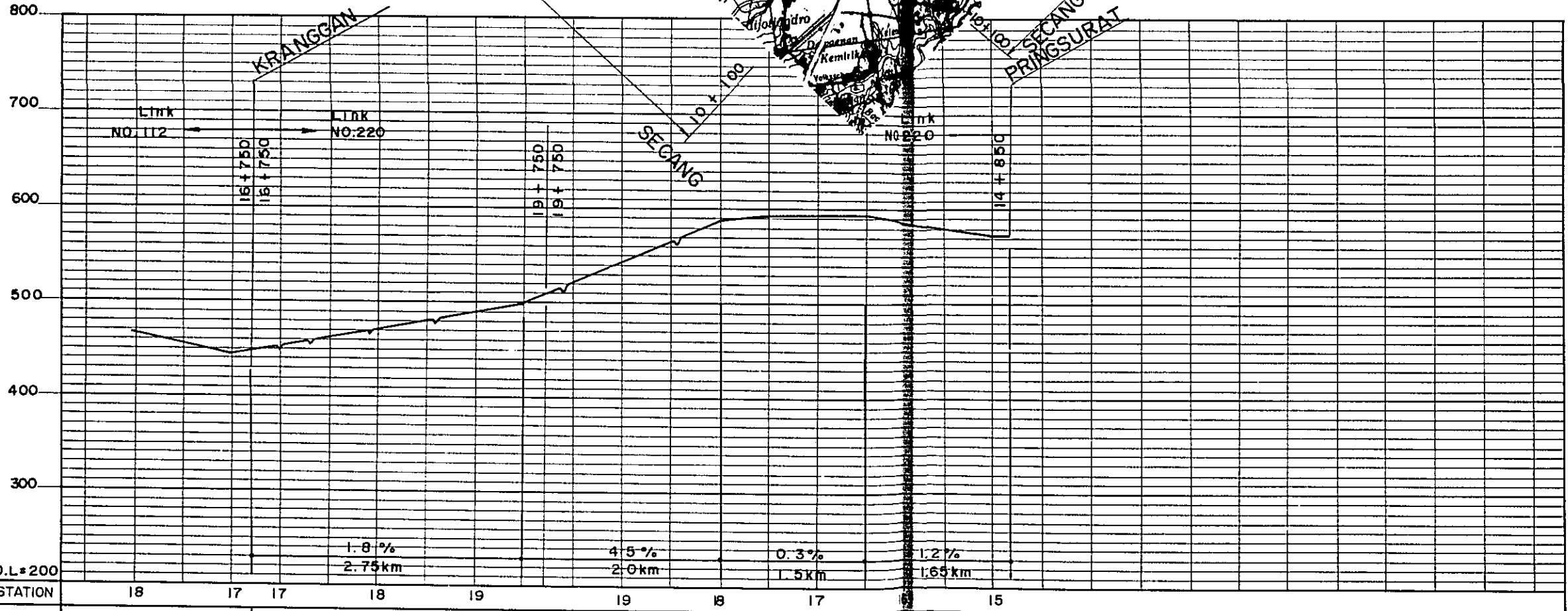
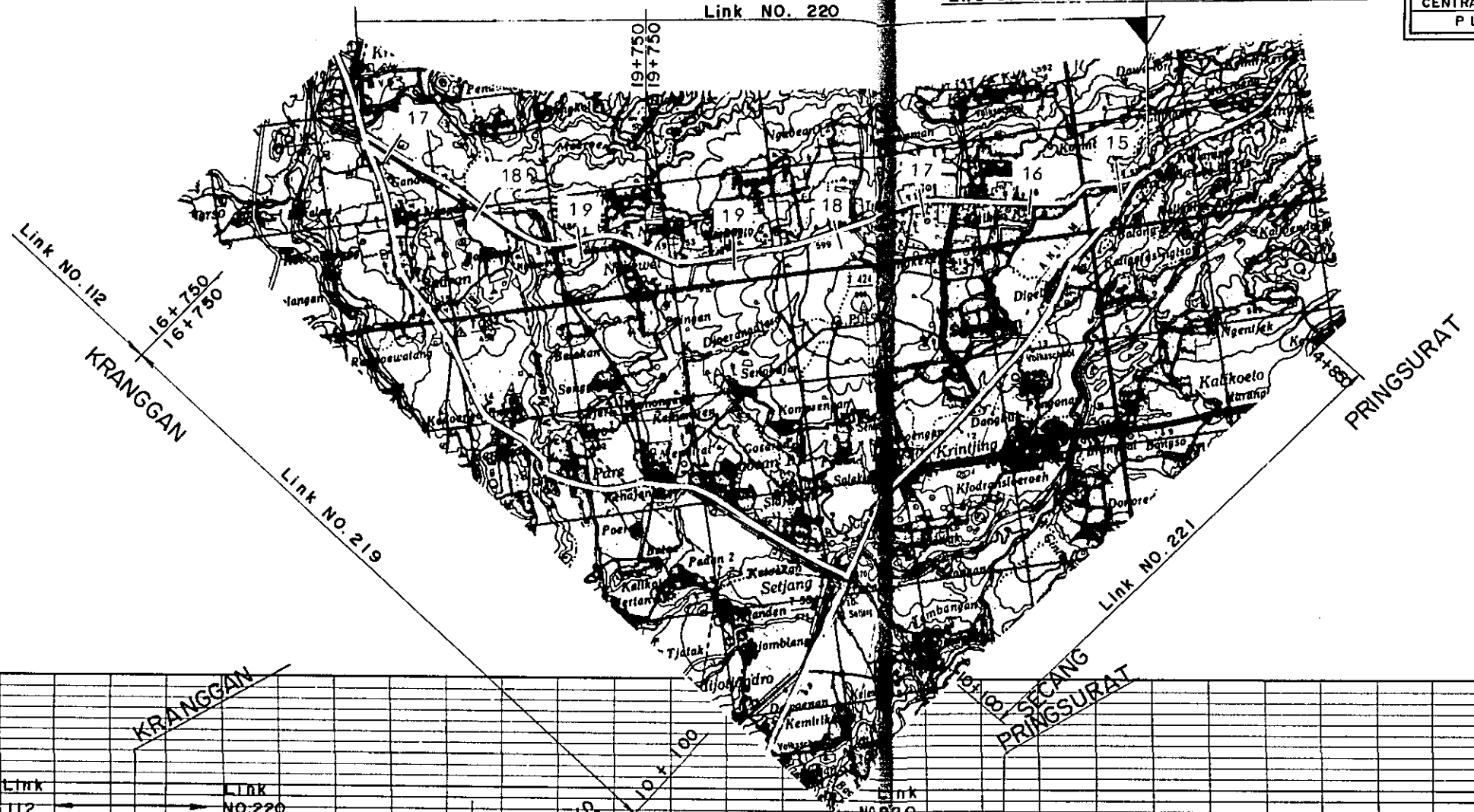


D.L. = 300	STATION	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16				
PLAN I	U - 2	RF - 3					U - 1					U - 1					RH - 3				
PLAN II	L = 0.2 km	L = 7.7 km					L = 0.8 km					L = 1.5 km					L = 4.25 km				
		L = 7.7 km																			



End of Route I (BUNTU - PRINGSURAT)

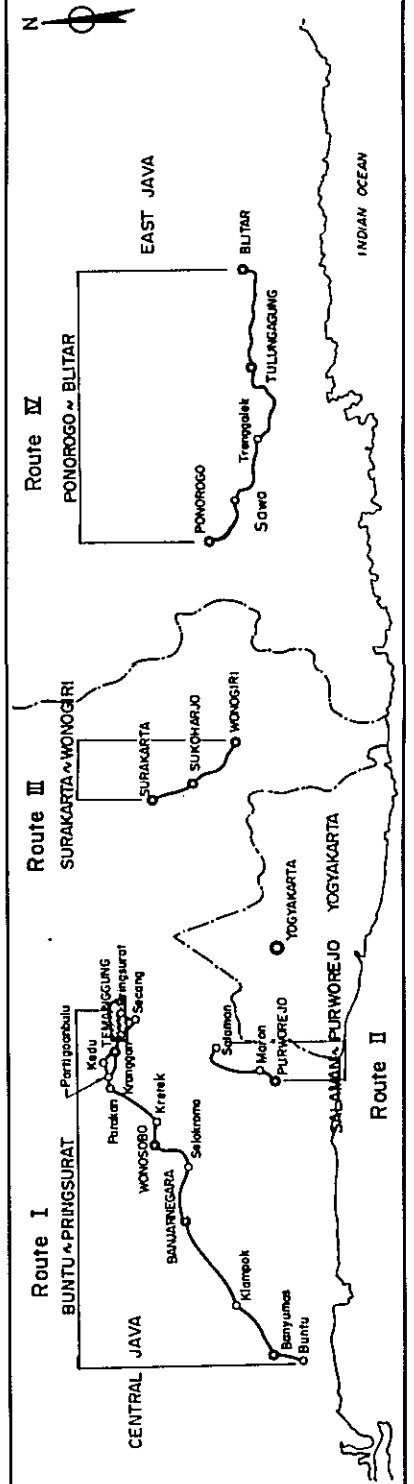
PROJECT	TOTAL SHEETS	SHEET NO.
CENTRAL AND EAST JAVA ROAD BETTERMENT	41	17
PLAN AND PROFILE	SCALE	H: 1:50,000 V: 1:5,000



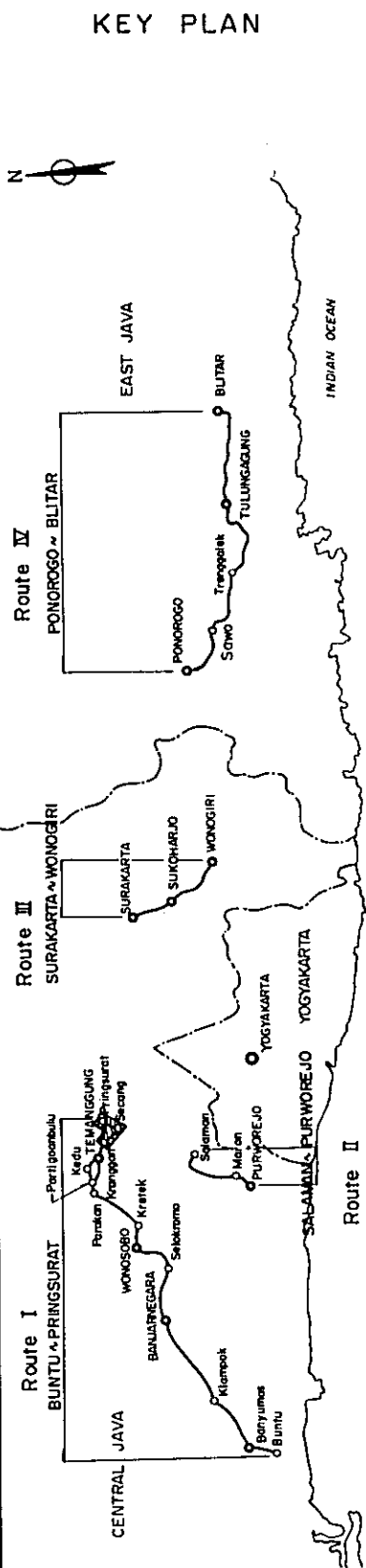
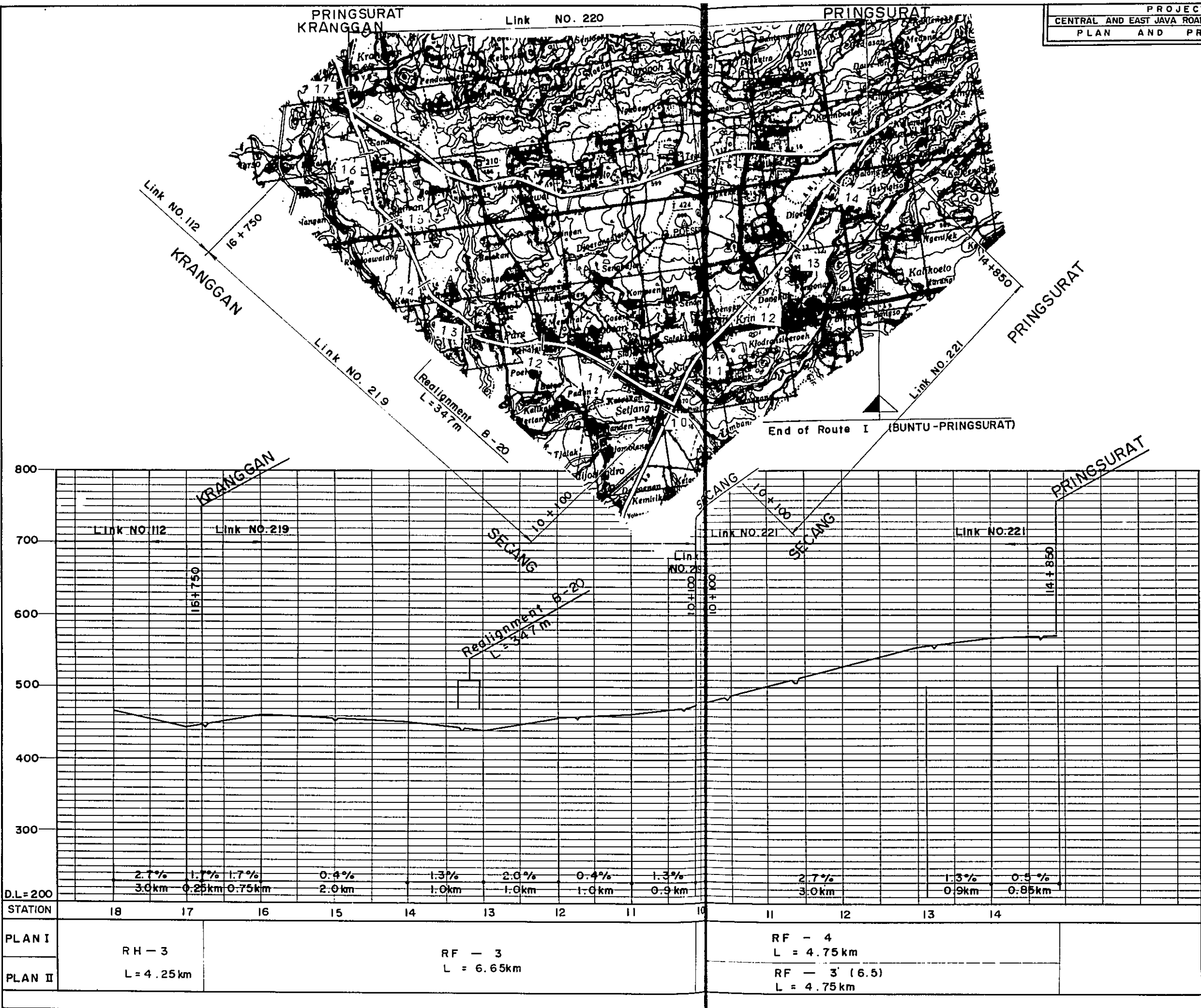
D.L. = 200

STATION	18	17	17	18	19	19	18	17	15
PLAN I	RH - 3 L = 4.25 km		RF - 3 L = 2.75 km		RH - 3 L = 2.0 km		RF - 3 L = 3.15 km		
PLAN II			RF - 2 L = 2.75 km		RH - 2 L = 2.0 km		RF - 2 L = 3.15 km		

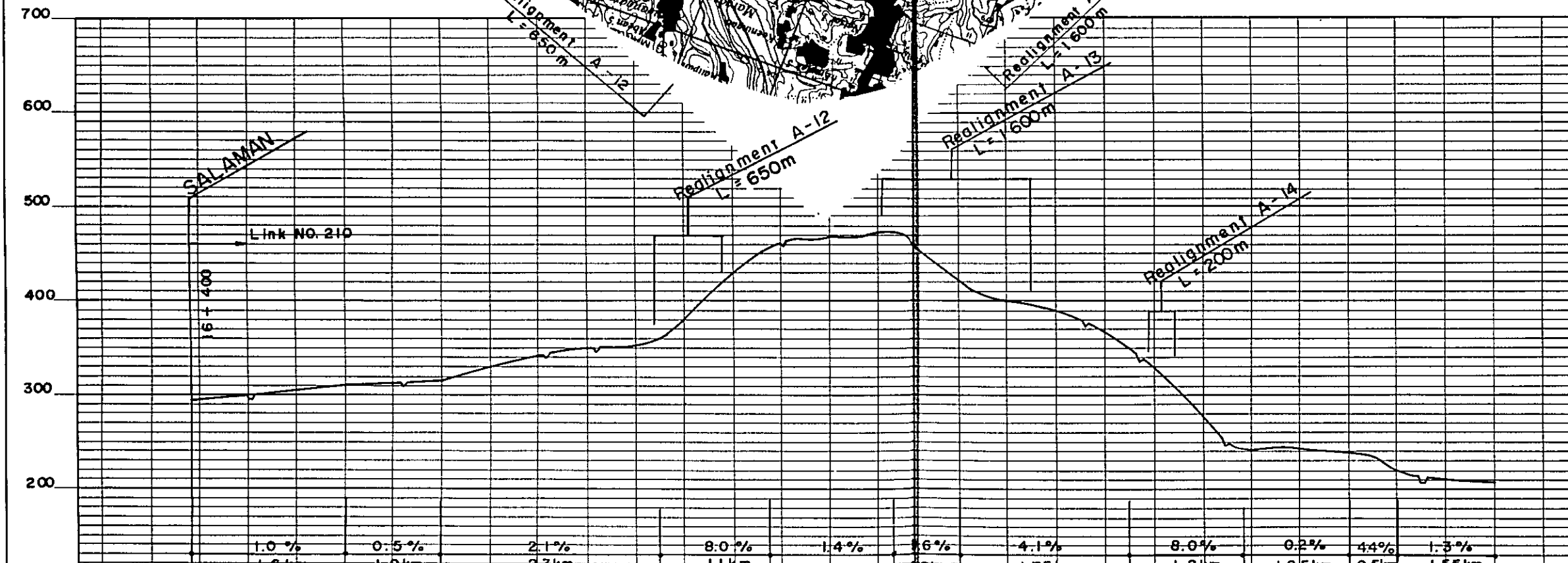
KEY PLAN



PROJECT	TOTAL SHEETS	SHEET NO.
CENTRAL AND EAST JAVA ROAD BETTERMENT	41	18
PLAN AND PROFILE	SCALE: H: V	1: 50,000 1: 3,000

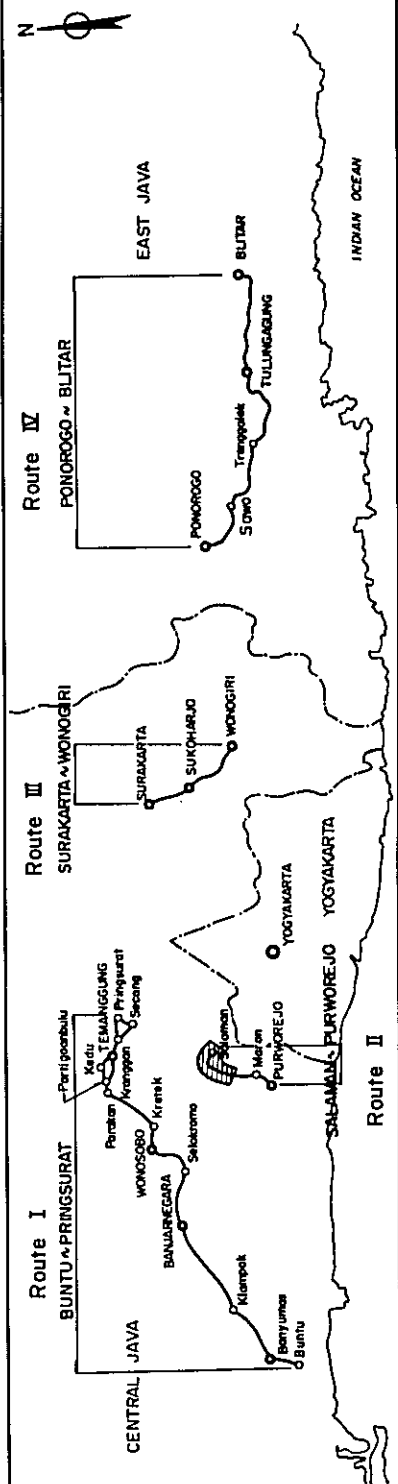


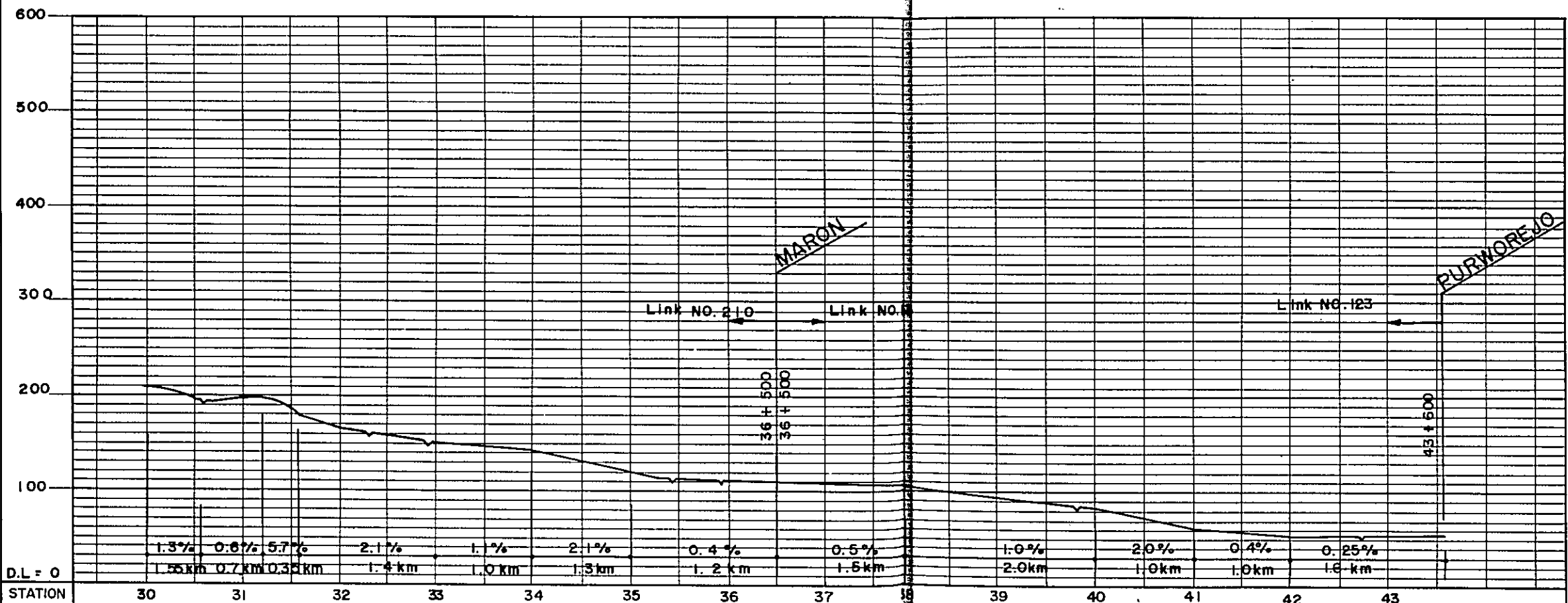
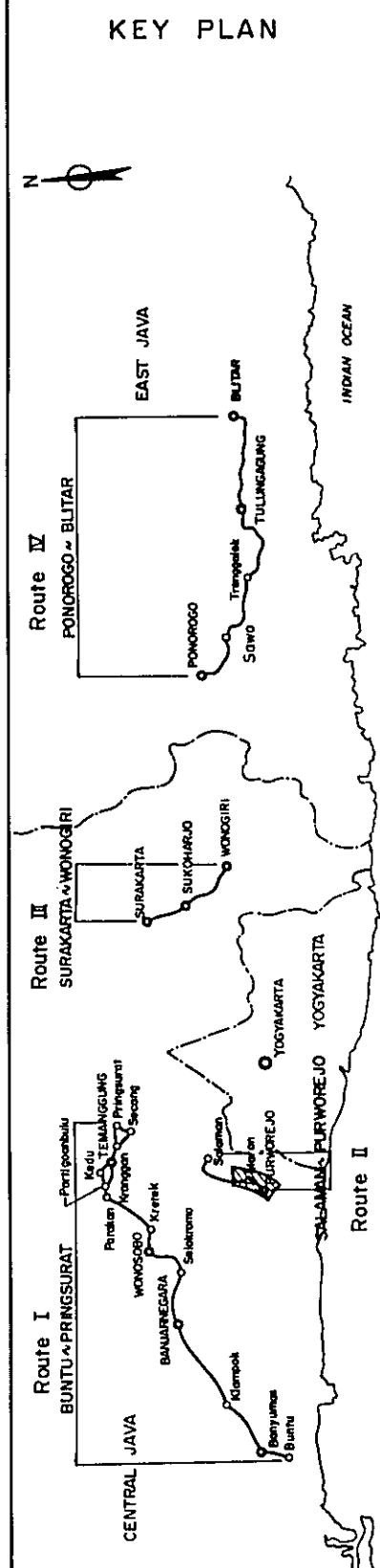
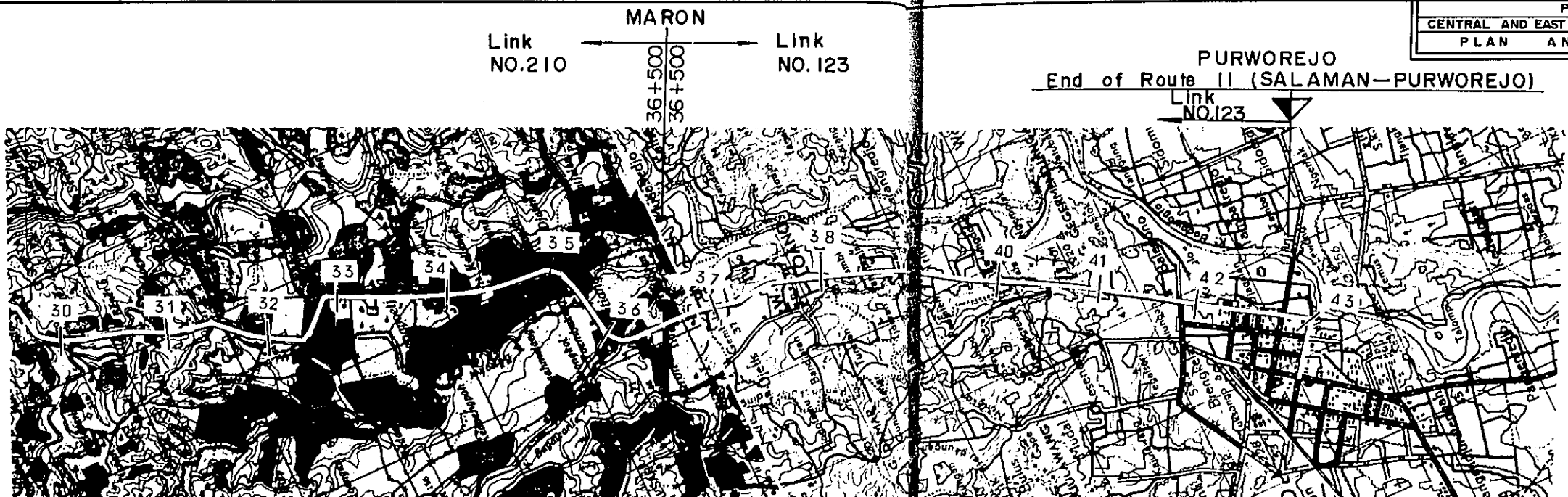
SALAMAN
Beginning of Route II (SALAMAN-PURWOREJO)



DL = 100														
STATION	17	18	19	20	21	22	23	24	25	26	27	28	29	30
PLAN I		S - 2		RF - 3 L = 3.7 km					RM - 3 L = 10.8 km					
PLAN II		L = 0.6 km		RF - 2 L = 3.7 km					RM - 2 L = 10.8 km					

KEY PLAN

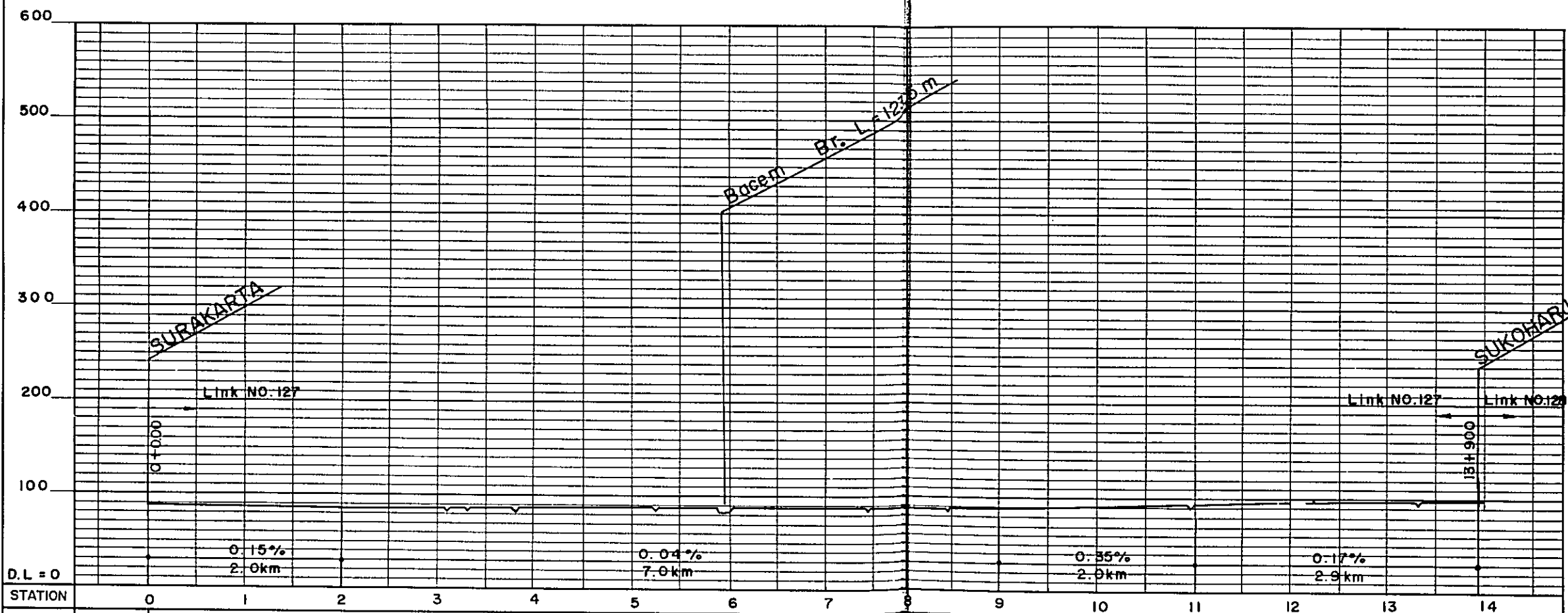
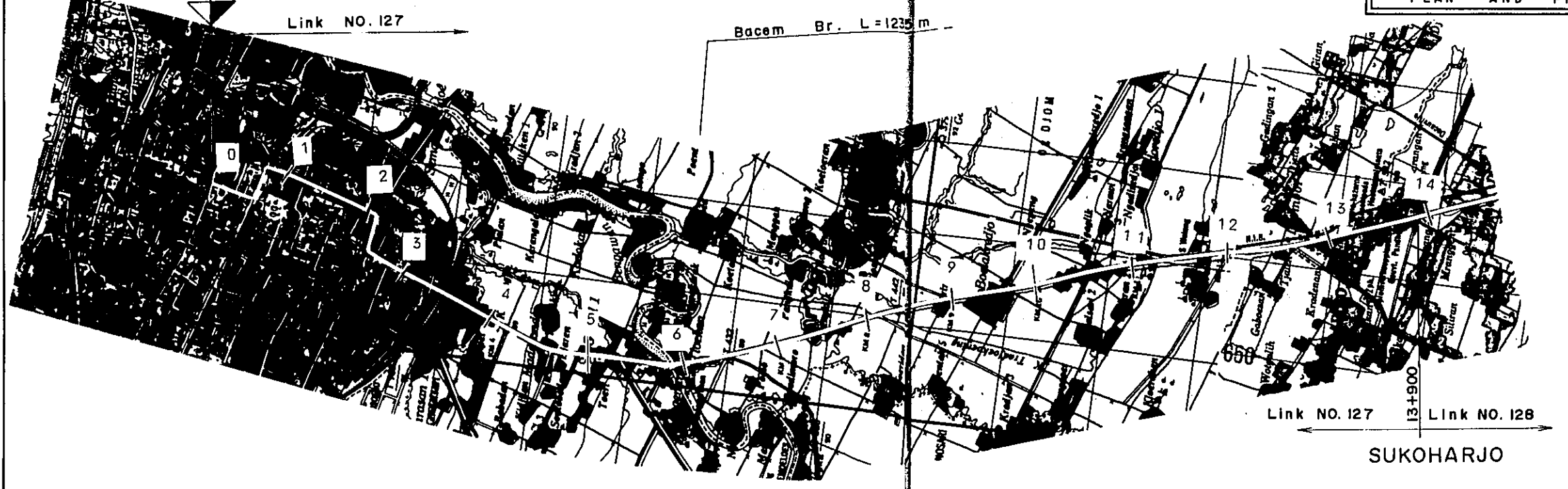




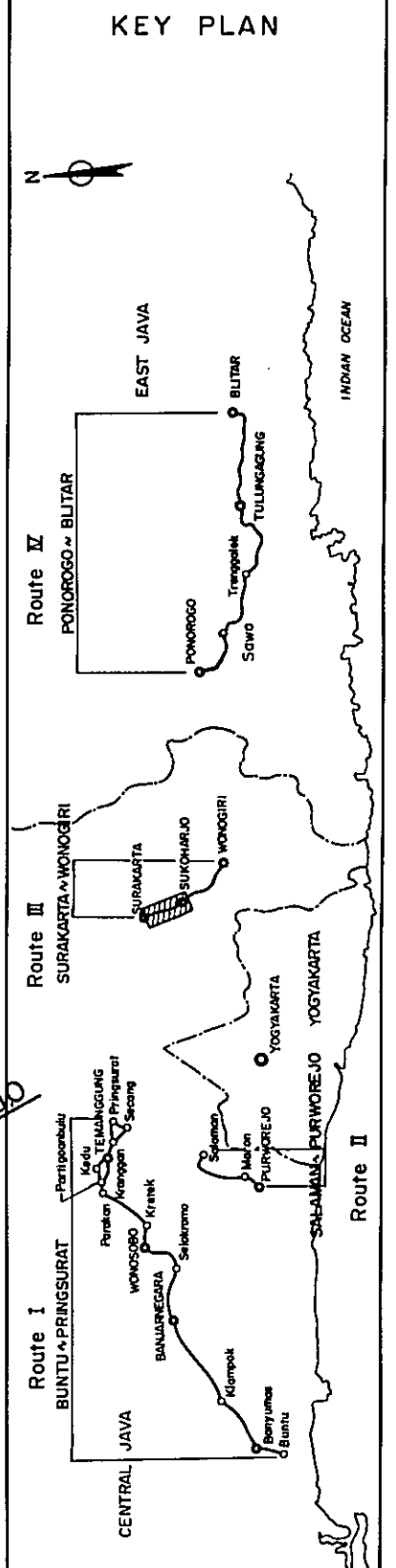
D.L = 0	STATION	30	31	32	33	34	35	36	37	38	39	40	41	42	43
PLAN I		RM-3 L = 10.8 km		S - 1				S - 1				U - 2			
PLAN II		RM-2 L = 10.8 km		L = 5.0 km				L = 5.2 km				L = 1.9 km			

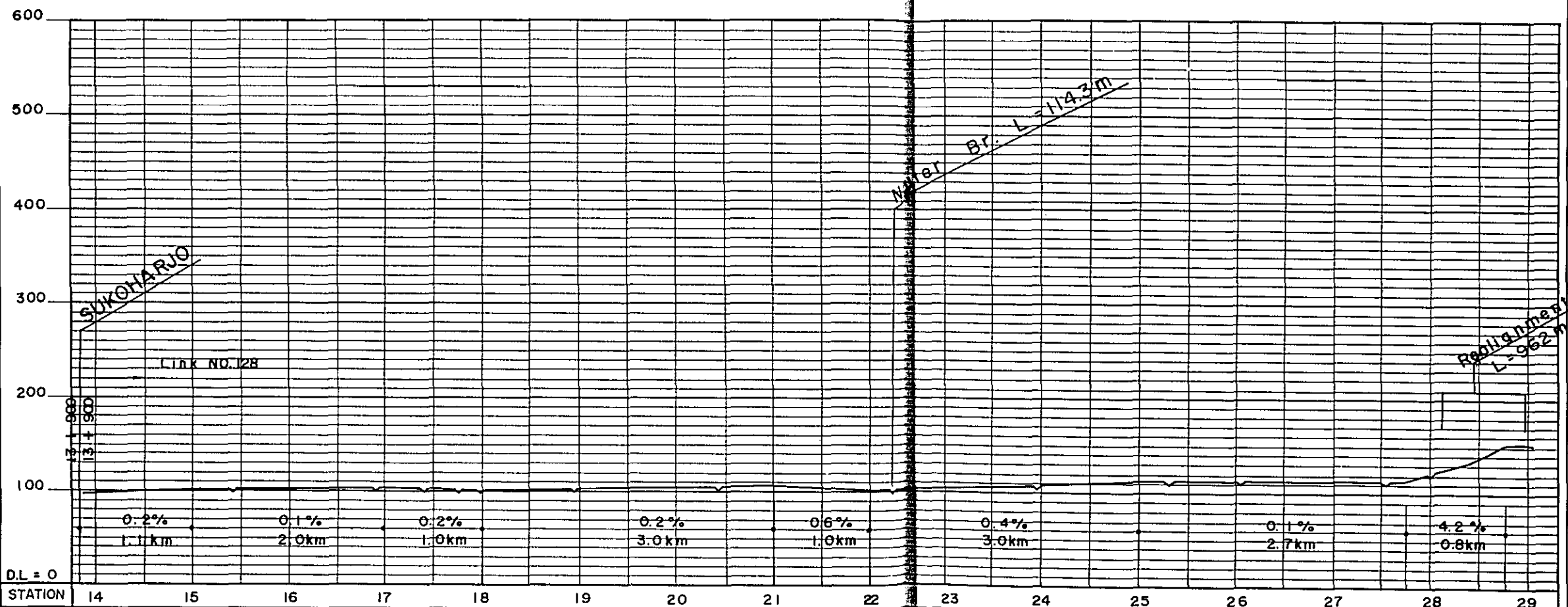
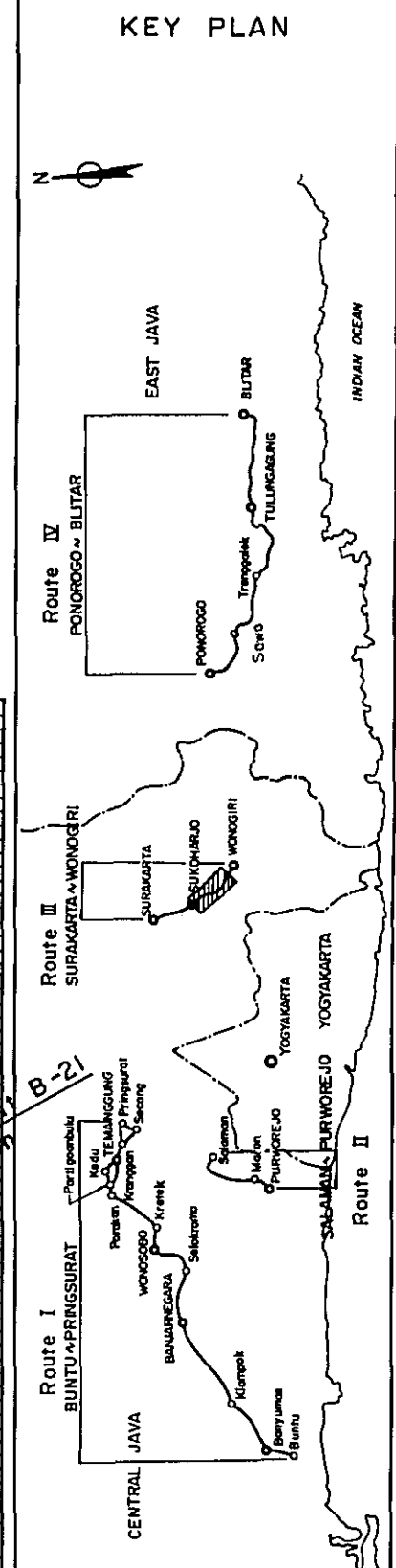
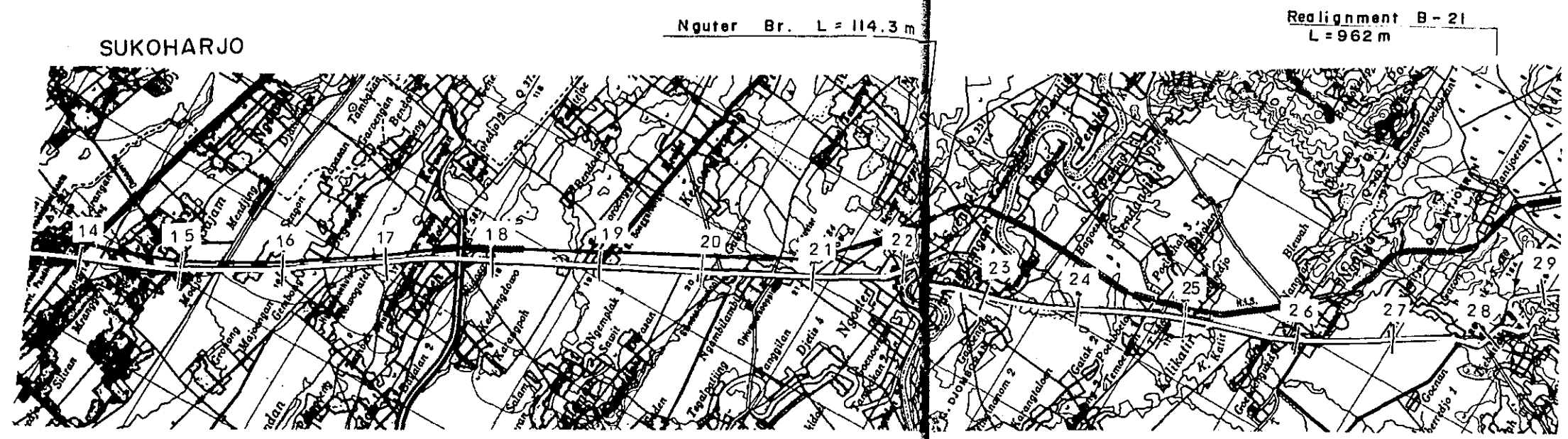
SURAKARTA
Beginning of Route III (SURAKARTA-WONOGIRI)

PROJECT	TOTAL SHEETS	SHEET NO.
CENTRAL AND EAST JAVA ROAD BETTERMENT	41	21
PLAN AND PROFILE	SCALE: H = 1:50,000	V = 1:5,000



D.L = 0	0.15%	0.04%	0.35%	0.17%
STATION	2.0km	7.0km	2.0km	2.9km
PLAN I	U - 2 L = 4.0km		S - 2 L = 2.5km	
PLAN II			S - 2 L = 1.9km	

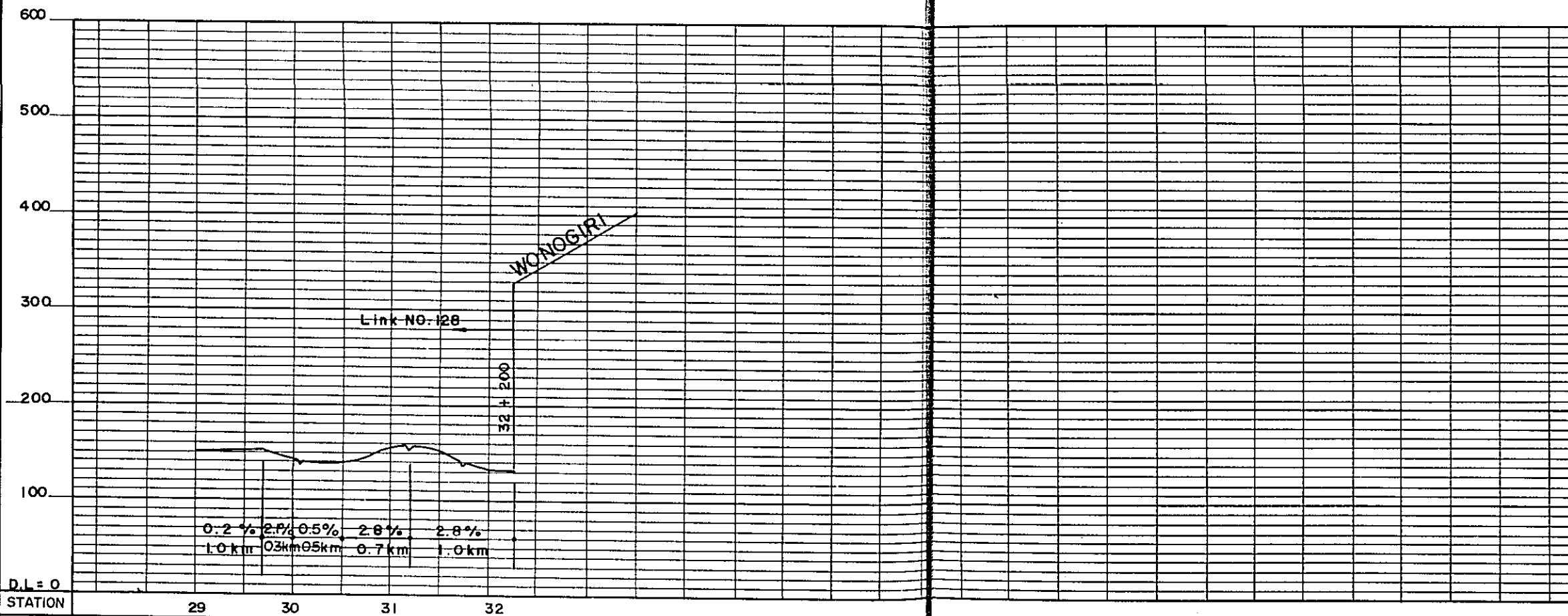
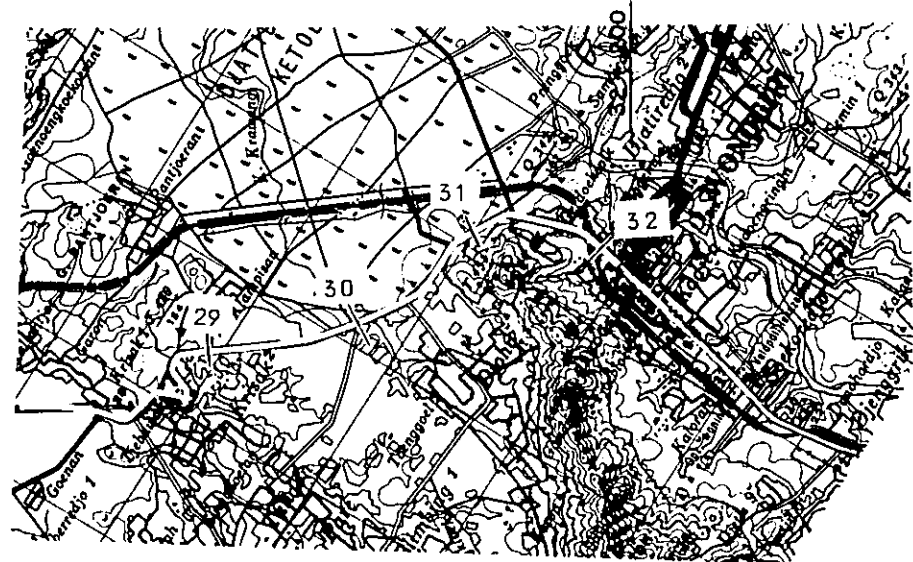




DL = 0																
STATION	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
PLAN I	S - 2		RF - 3 L = 6.0 km				S - 2		RF - 3 L = 5.2 km			RH - 3		RF - 3		
PLAN II	L = 1.1 km		RF - 3 (5.5) L = 1.5 km		RF - 3 L = 4.5 km		L = 1.5 km					L = 0.8 km		L = 3.1 km		

WONOGIRI
End of Route III (SURAKARTA - WONOGIRI)

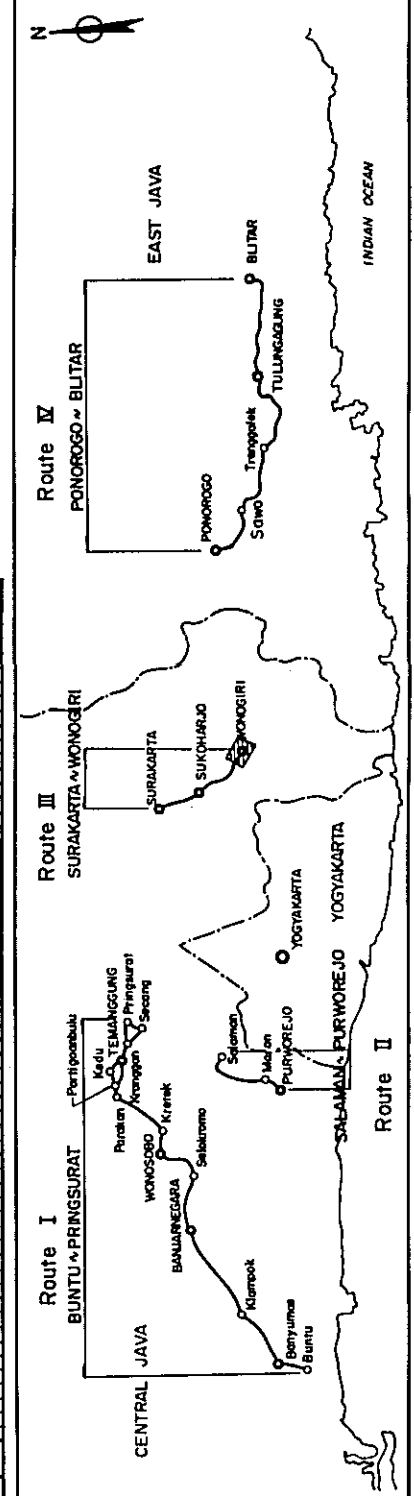
Link NO. 128



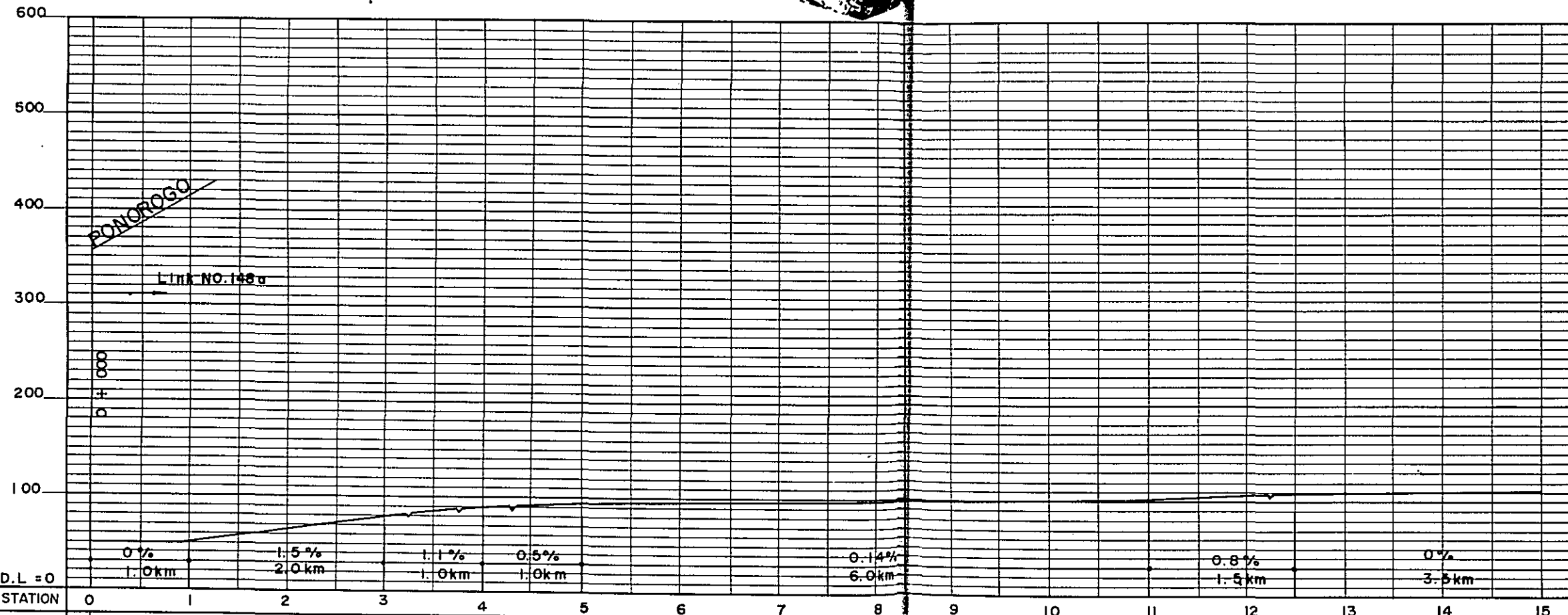
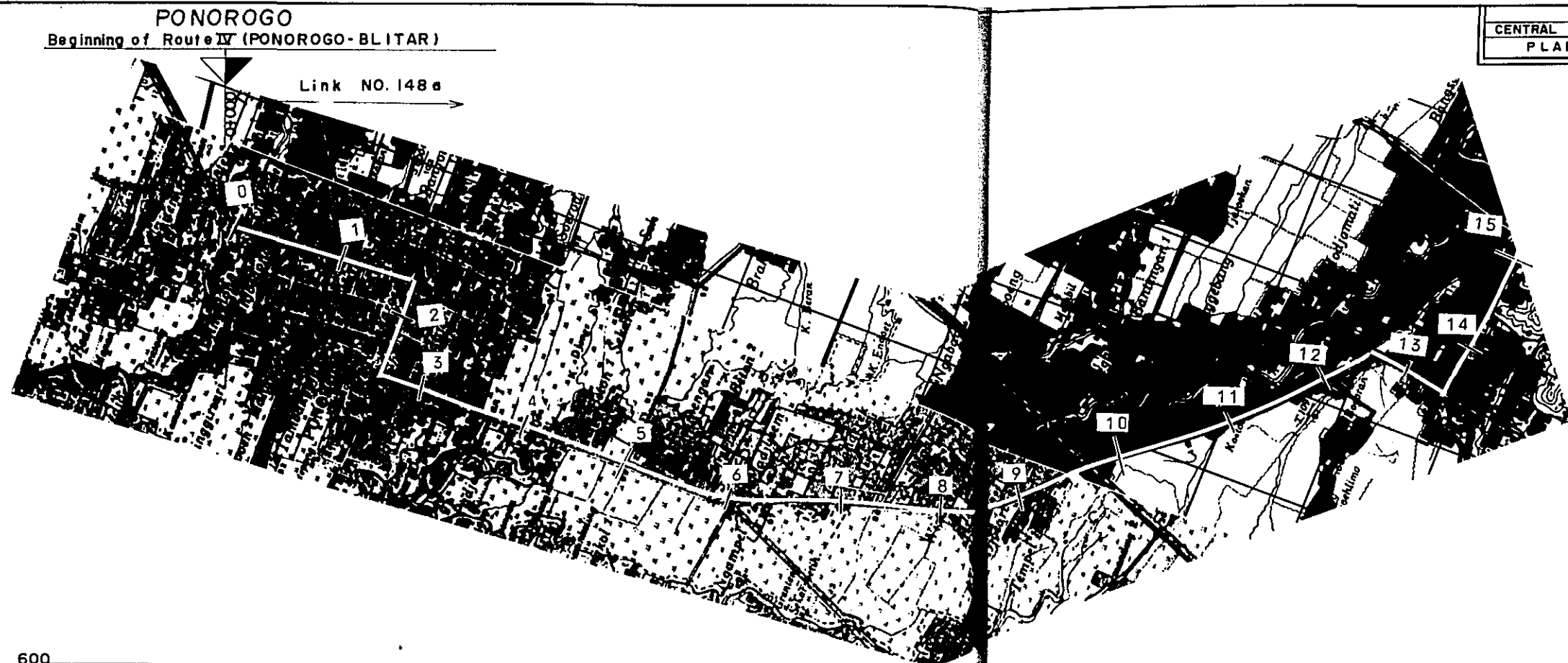
D.L. = 0				
STATION	29	30	31	32
PLAN I	RF - 3		U - 2	
PLAN II	L = 3.1 km		L = 0.4 km	

PROJECT	TOTAL SHEETS	SHEET NO.
CENTRAL AND EAST JAVA ROAD BETTERMENT	41	23
PLAN AND PROFILE	SCALE : H : 1 : 50,000	V : 1 : 5,000

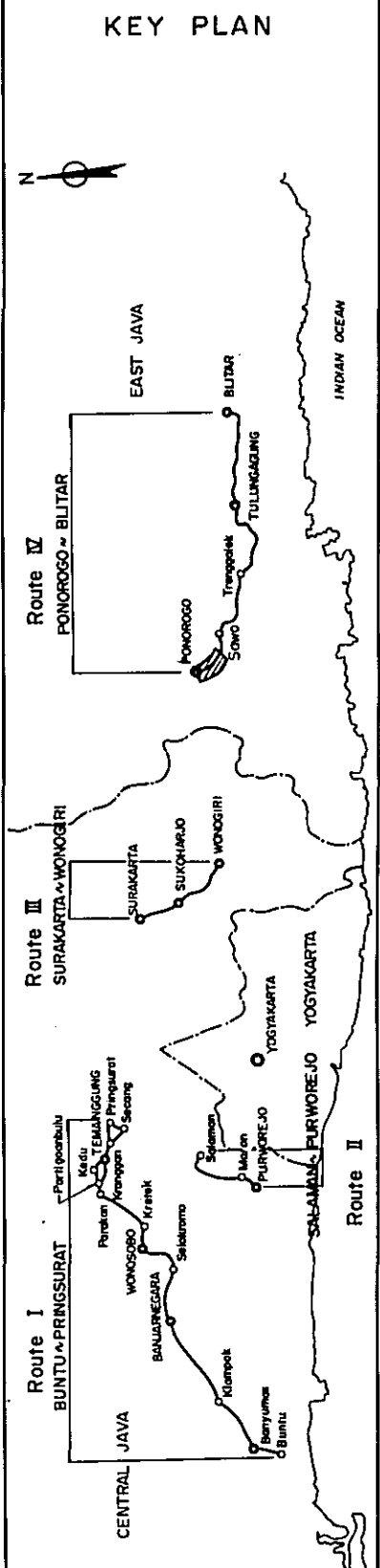
KEY PLAN

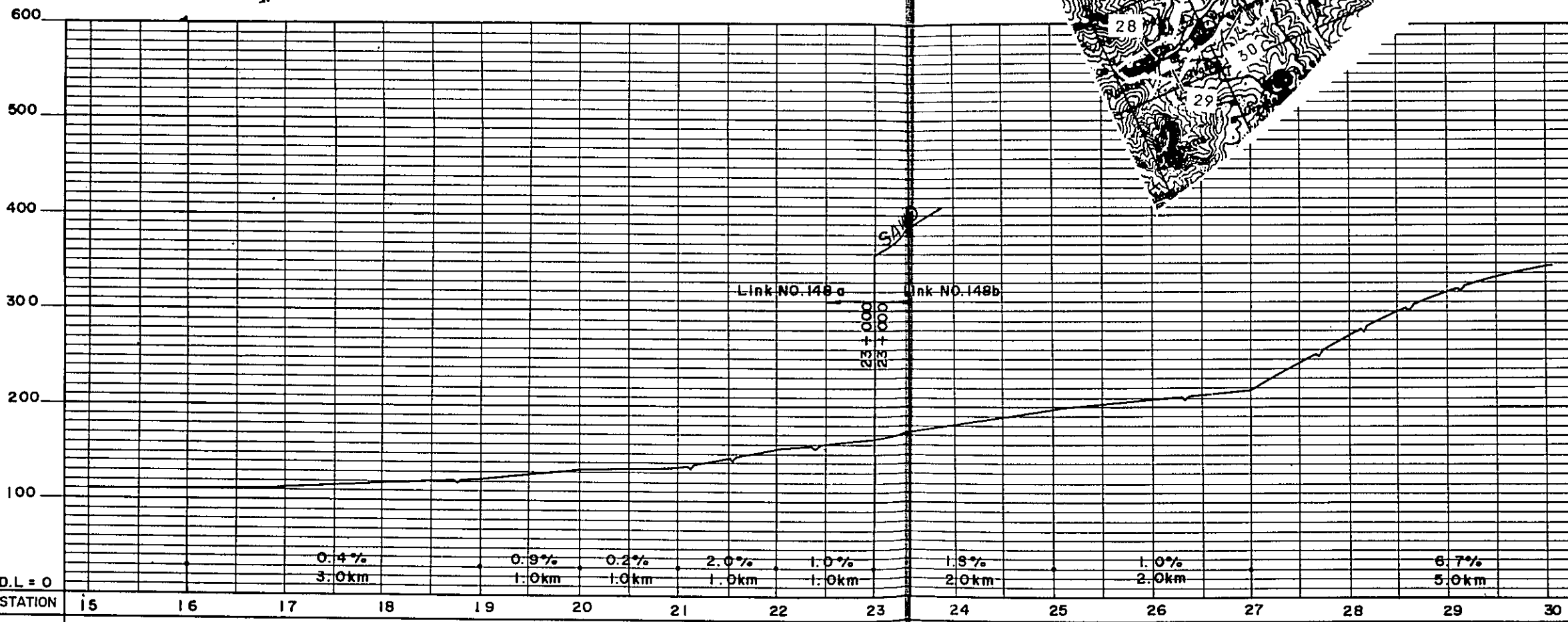
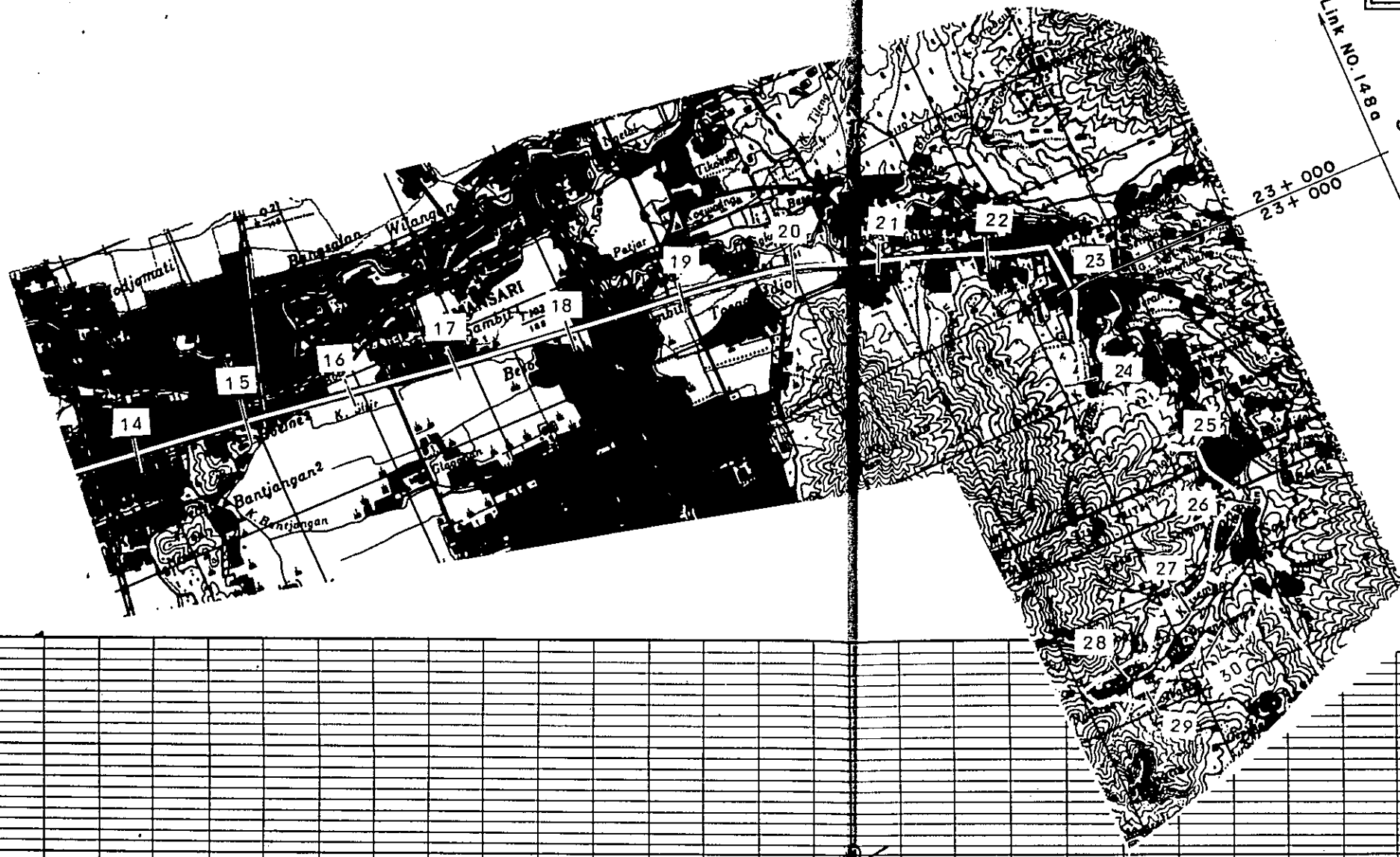


PROJECT	TOTAL SHEETS	SHEET NO
CENTRAL AND EAST JAVA ROAD BETTERMENT	4	24
PLAN AND PROFILE	SCALE : H : V	1 : 50,000 1 : 5,000

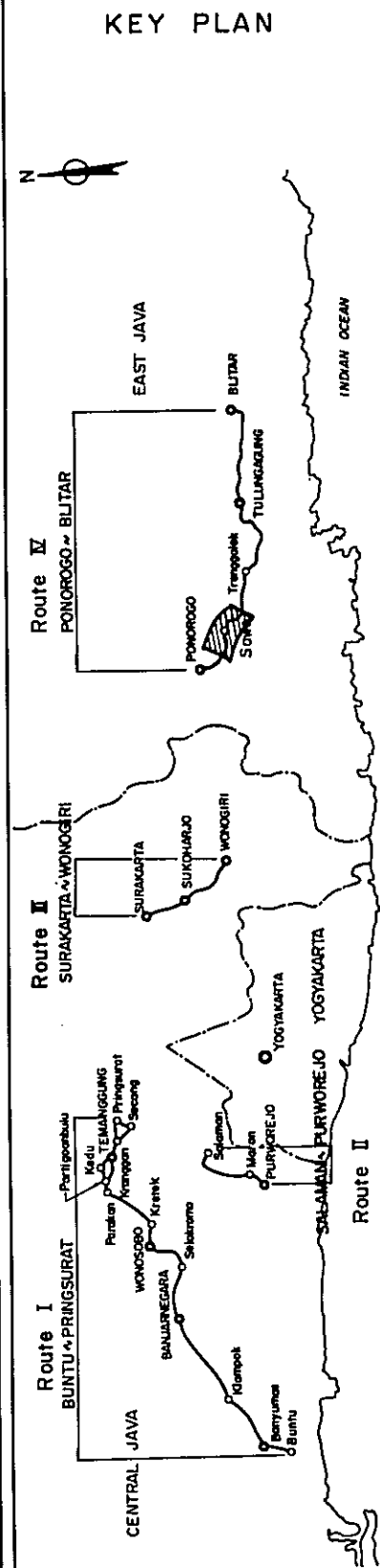


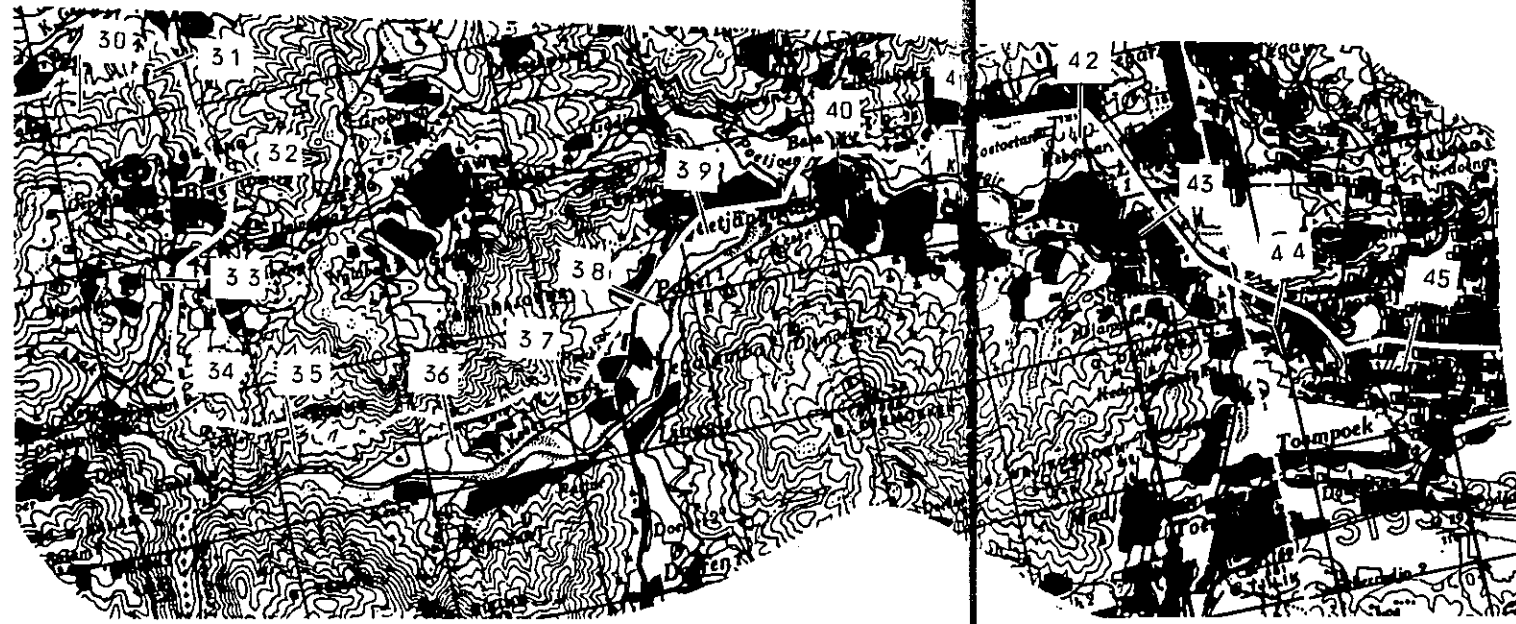
PLAN I	U - 2	S - 2			RF - 3		
	L = 2.6km	L = 1.0km	RF - 3	RF - 2	L = 19.4km		
PLAN II			L = 0.7km	L = 1.8 km	RF - 1		
					L = 16.9 km		



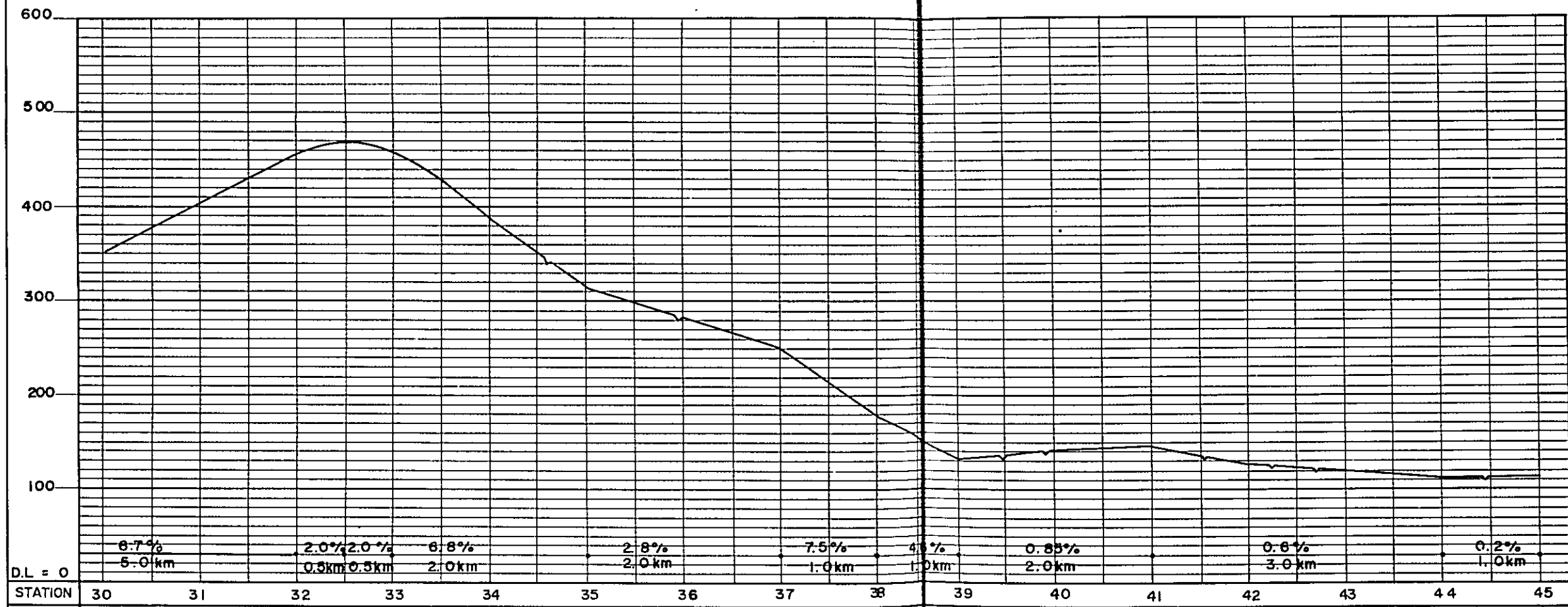
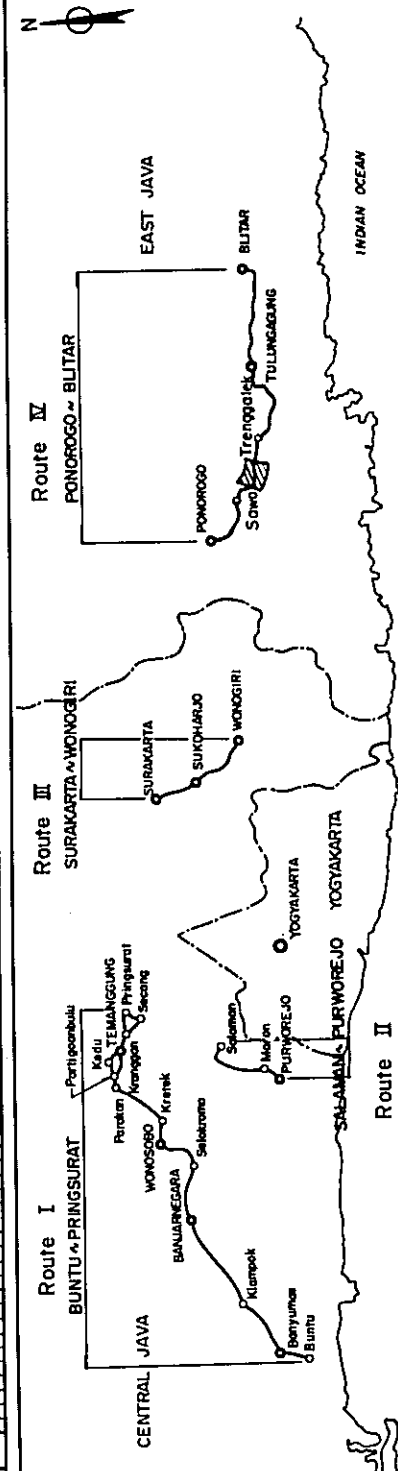


D.L. = 0	0.4%	0.9%	0.2%	2.0%	1.0%	1.8%	1.0%	6.7%
STATION	3.0km	1.0km	1.0km	1.0km	1.0km	2.0km	2.0km	5.0km
PLAN I	RF - 3 L = 19.4 km					RM - 3 L = 16.0 km		
PLAN II	RF - 1 L = 16.9 km					RM - 1 L = 7.5 km		

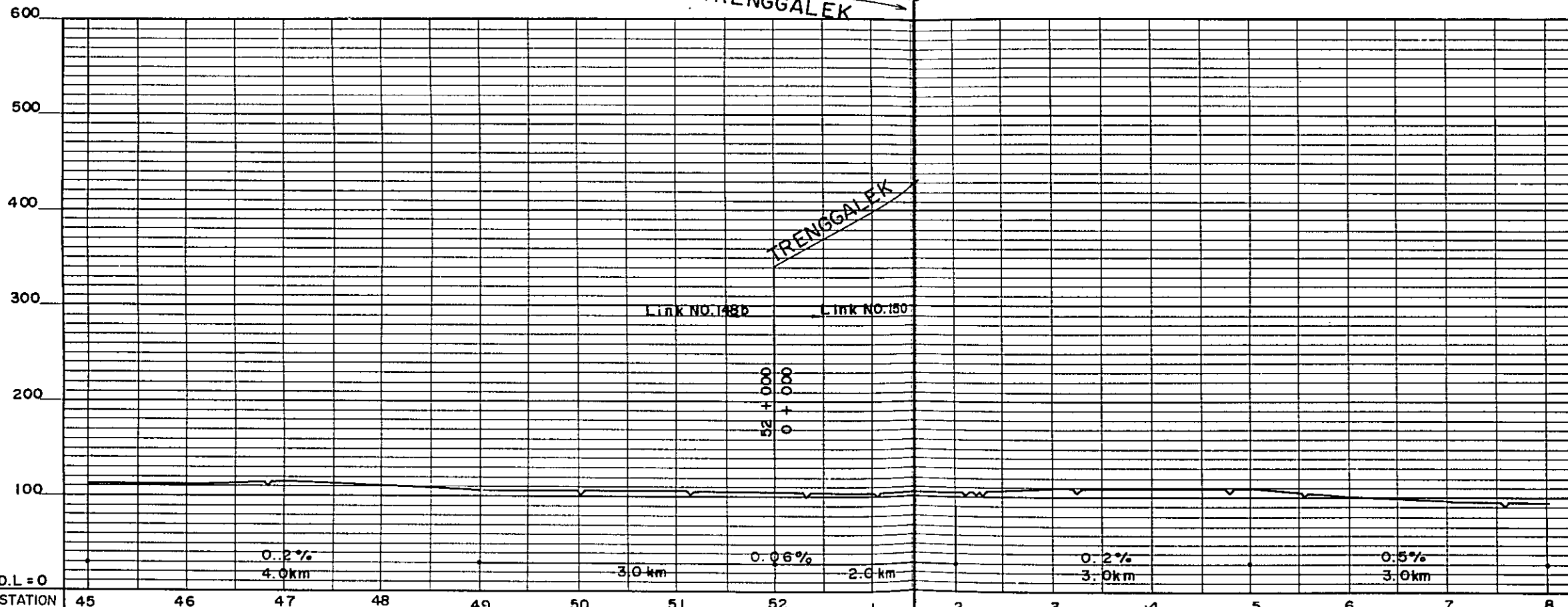
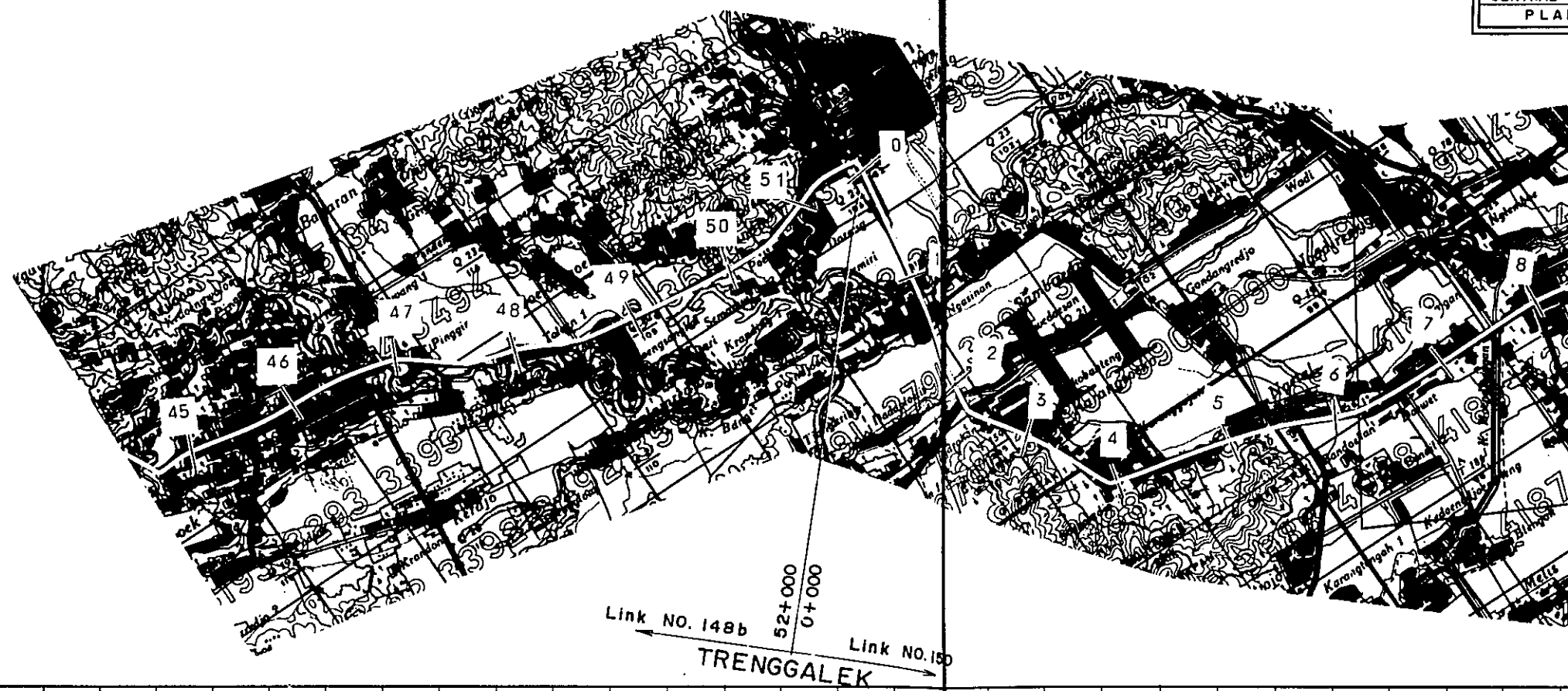




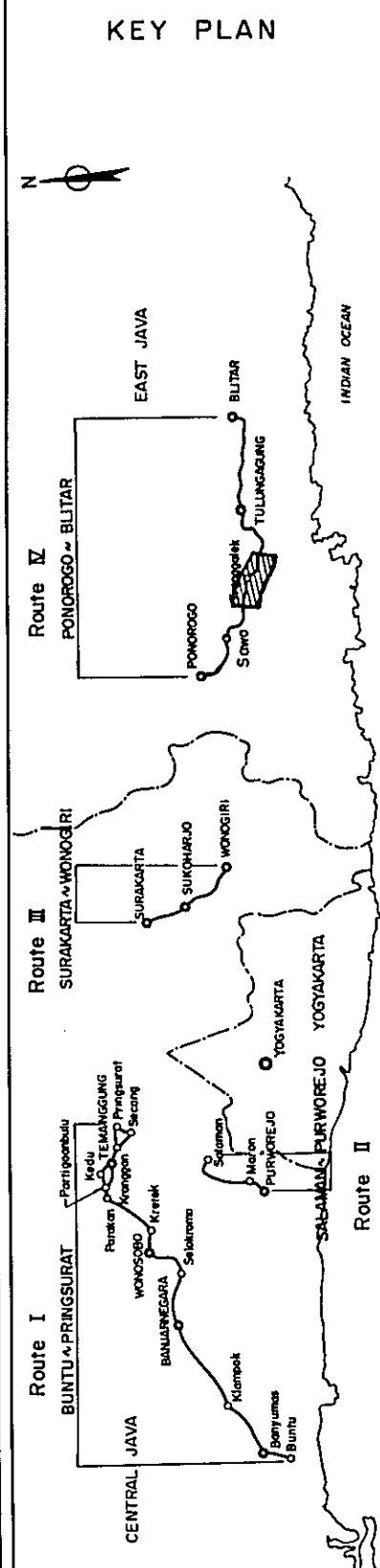
KEY PLAN



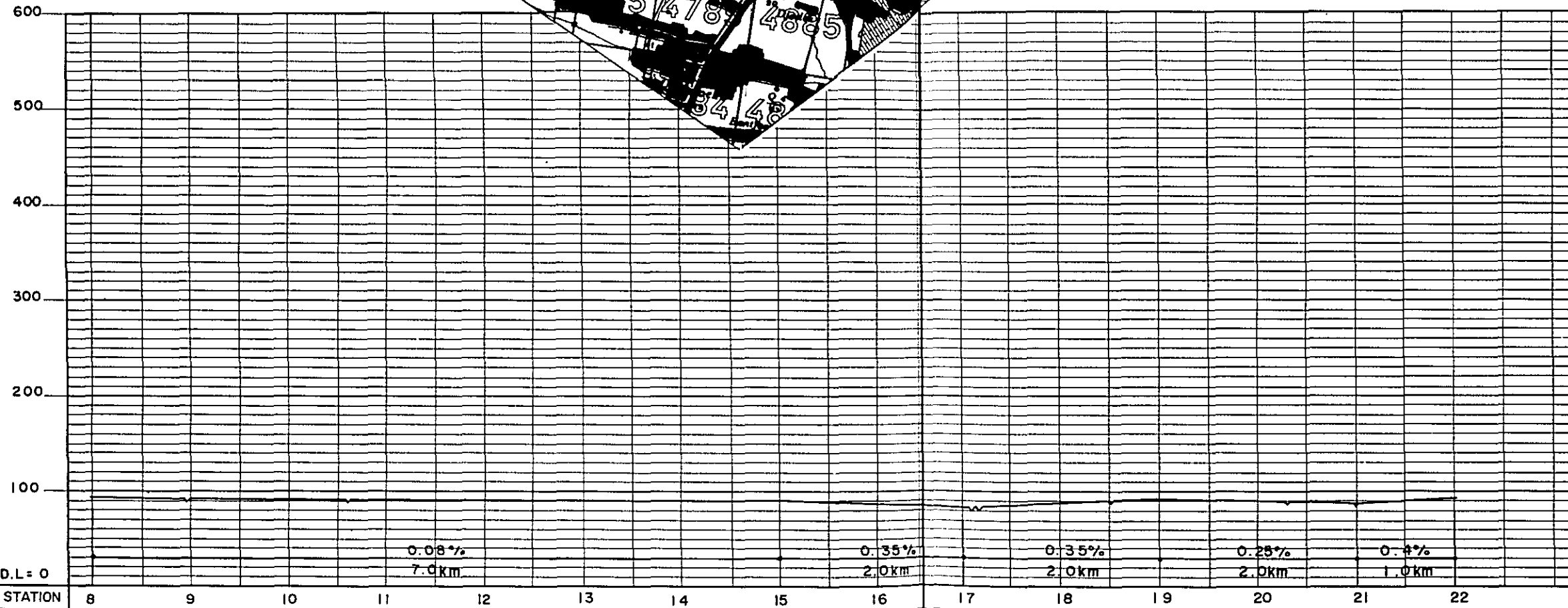
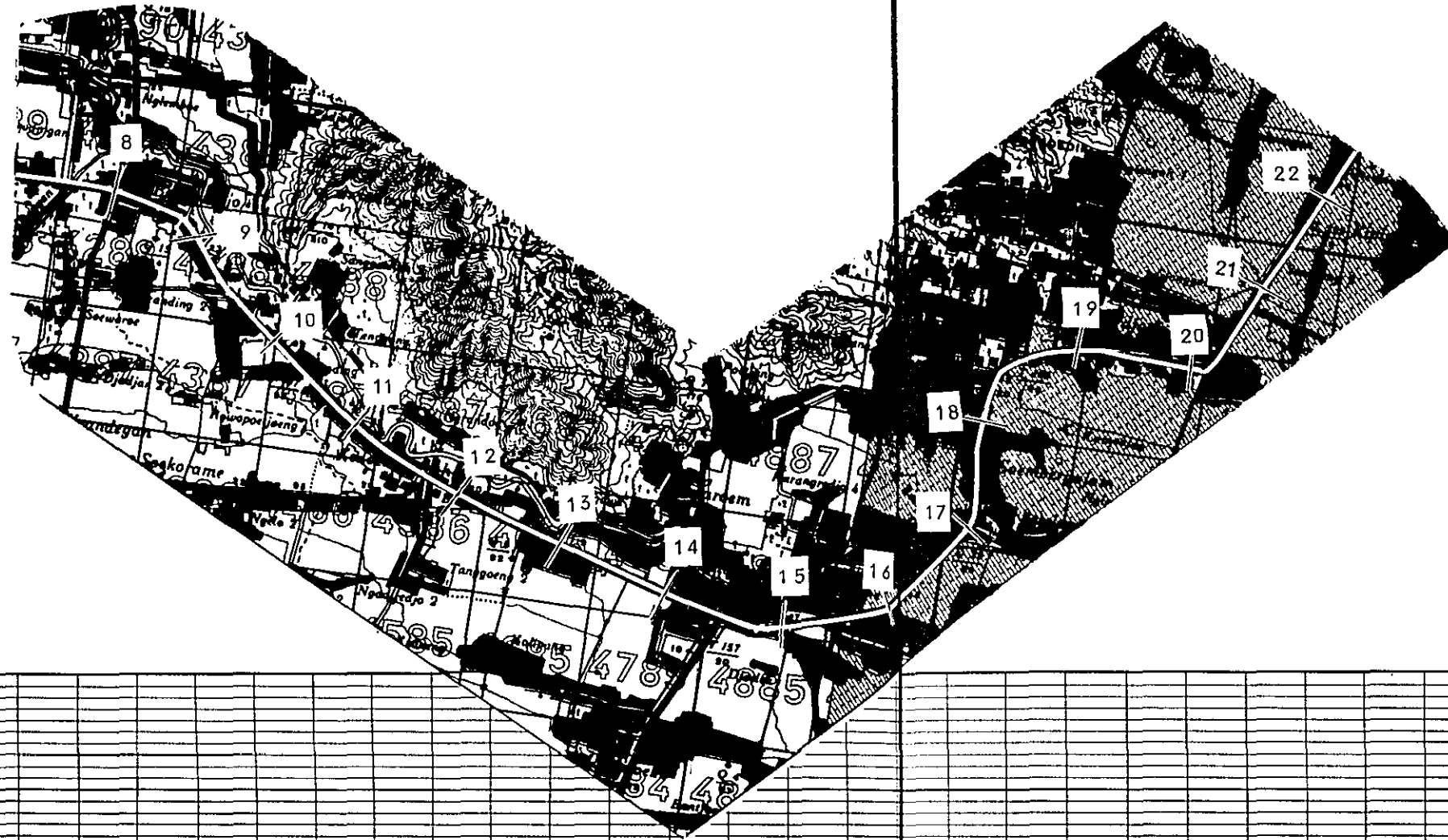
STATION	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
PLAN I				RM - 3									RF - 3			
				L = 16.0 km									L = 6.0 km			
PLAN II	RM - I				RM - 2		RM - I						RF - I			
	L = 7.5 km				L = 3.5 km		L = 5.0 km						L = 6.0 km			



D.L = 0	STATION	45	46	47	48	49	50	51	52	1	2	3	4	5	6	7	8
PLAN I		S - 1		RF - 3 L = 4.0km				U - 1		RF - 3 L = 29.0km							
PLAN II		L = 2.0km		RF - 1 L = 2.7km		RF - 2 L = 1.3km		L = 1.0km		RF - 3 L = 26.0km							



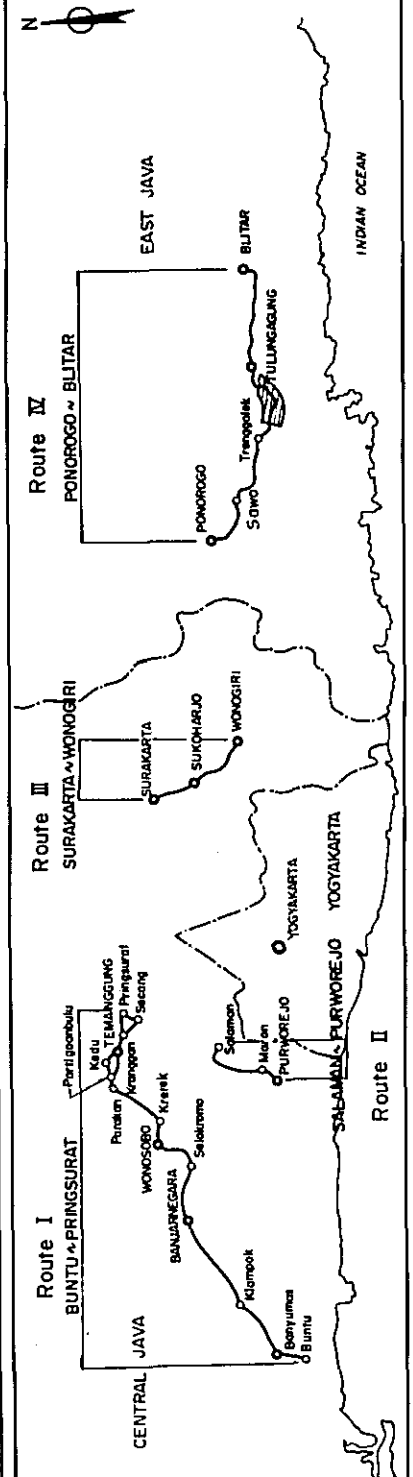
PROJECT	TOTAL SHEETS	SHEET NO.
CENTRAL AND EAST JAVA ROAD BETTERMENT	41	28
PLAN AND PROFILE	SCALE :	H : 1 : 50,000 V : 1 : 5,000



STATION	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
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PLAN I		RF - 3	L = 29.0km
PLAN II		RF - 3	L = 26.0km

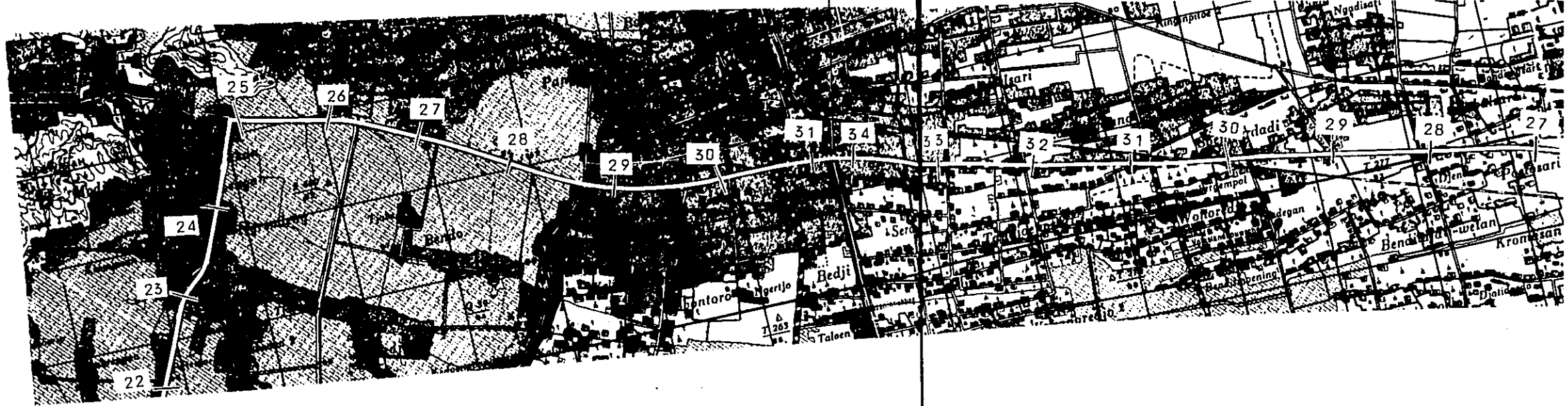
KEY PLAN



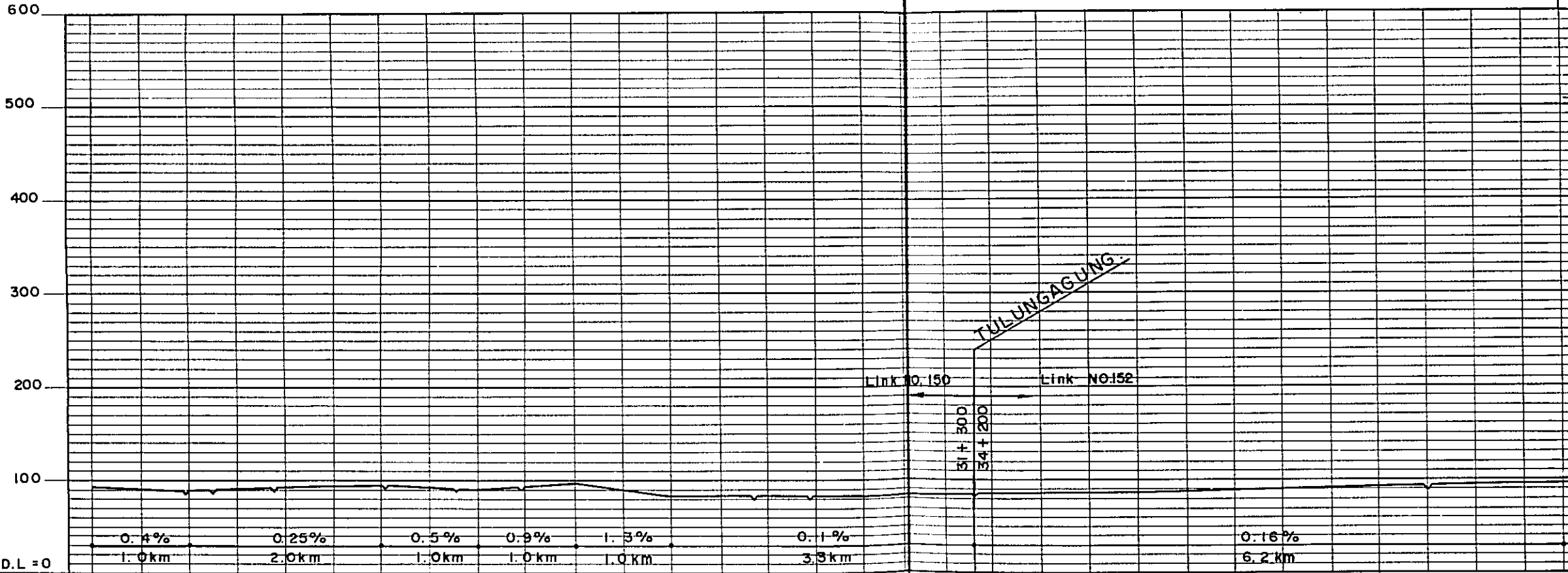
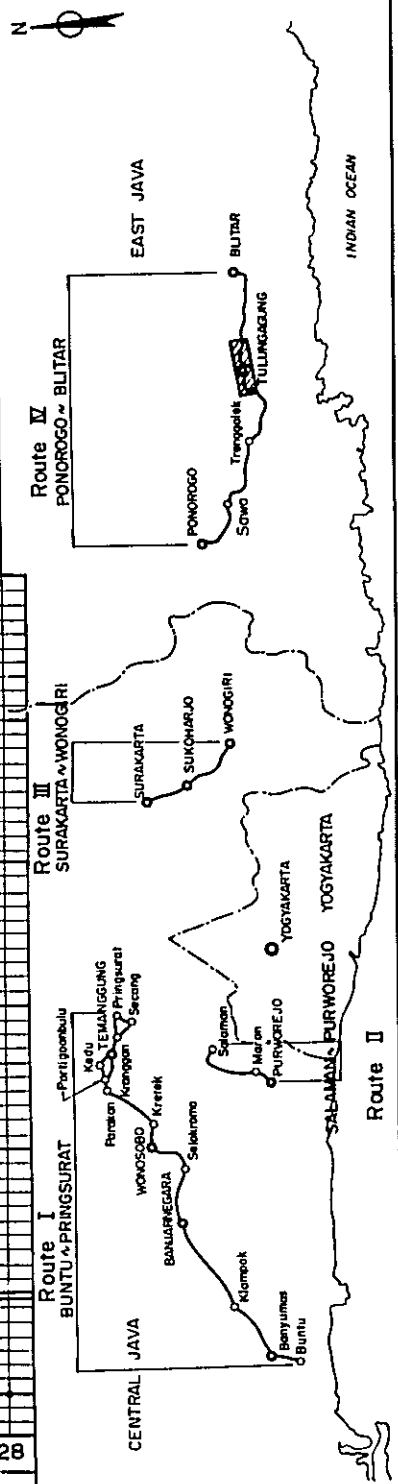
TULUNGAGUNG

Link NO.150 Link NO.152

31+300
34+200

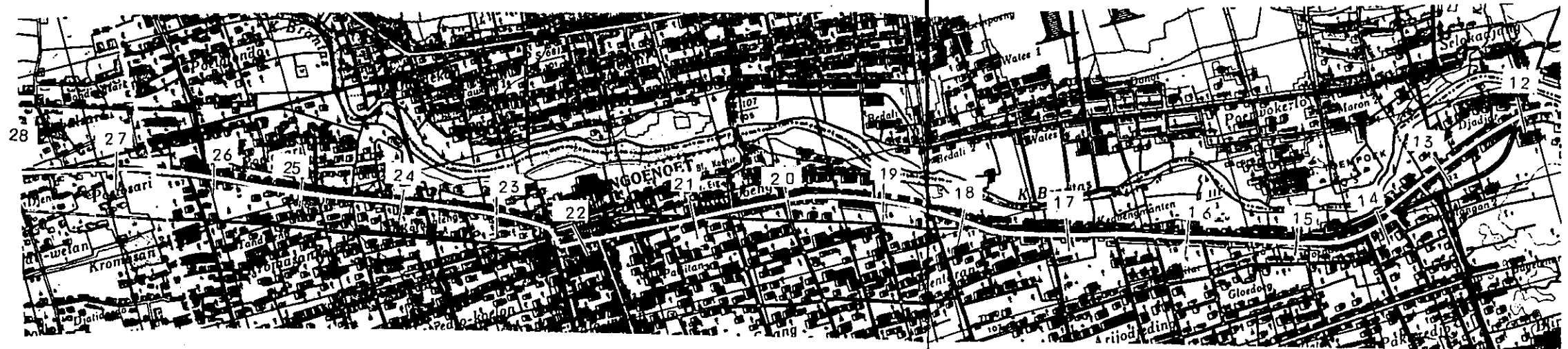


KEY PLAN

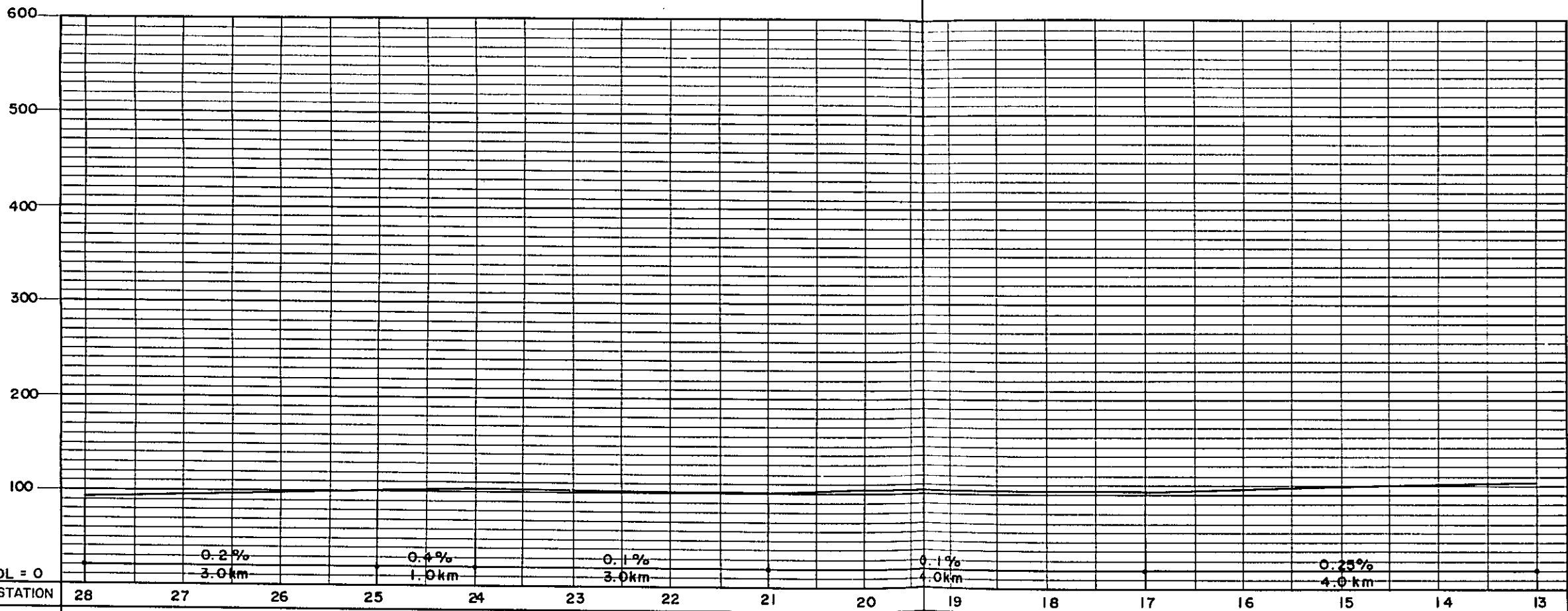
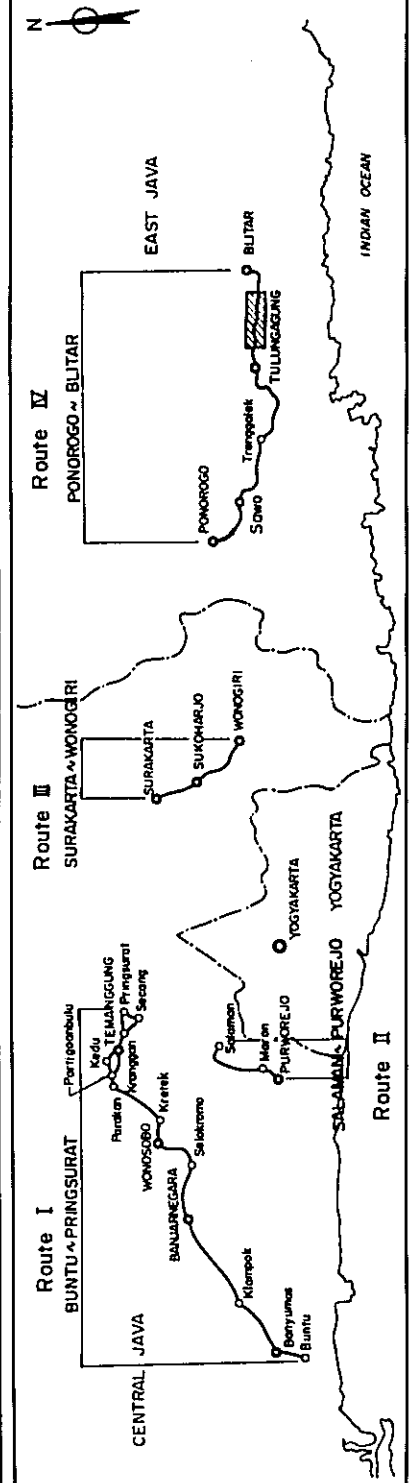


STATION	22	23	24	25	26	27	28	29	30	31	34	33	32	31	30	29	28
PLAN I	RF - 3 L = 29.0 km							U - 1	U - 1	RF - 3 L = 10.5 km							
PLAN II	RF - 3 L = 26.0 km				RF - 3' (6.5) L = 2.0 km		RF - 3 L = 1.0 km	L = 2.3 km	L = 1.2 km								

NGUNUT



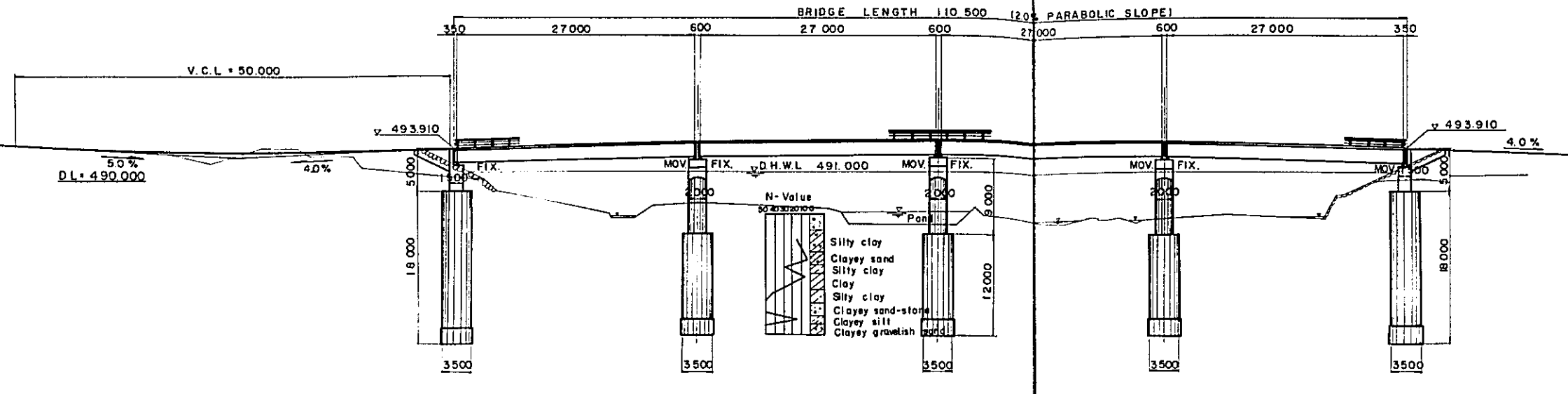
KEY PLAN



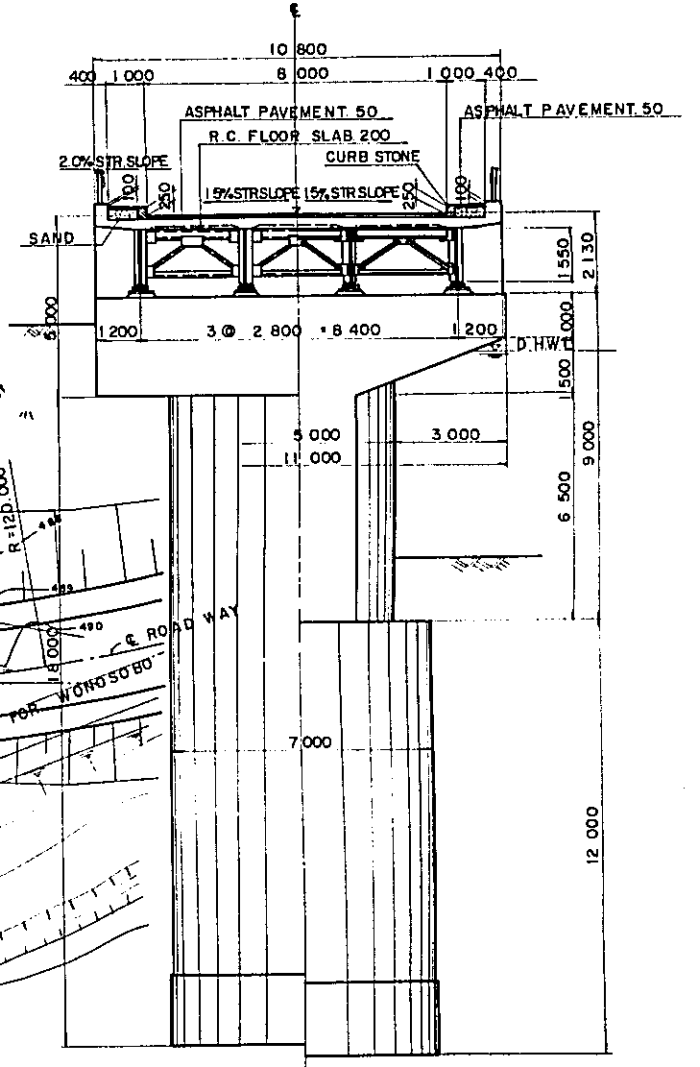
PLAN I	RF - 3	S - 2	RF - 3	RF - 3
PLAN II	L = 10.5 km	L = 1.5 km	L = 1.0 km	L = 12.0 km
			L = 19.0 km	L = 6.0 km
			RF - 3 (5.5)	

PROJECT	TOTAL SHEETS	SHEET NO.
CENTRAL AND EAST JAVA ROAD BETTERMENT	41	32
GUMELEM BRIDGE (STEEL COMPOSITE GIRDER)	SCALE	1/600, 1/200

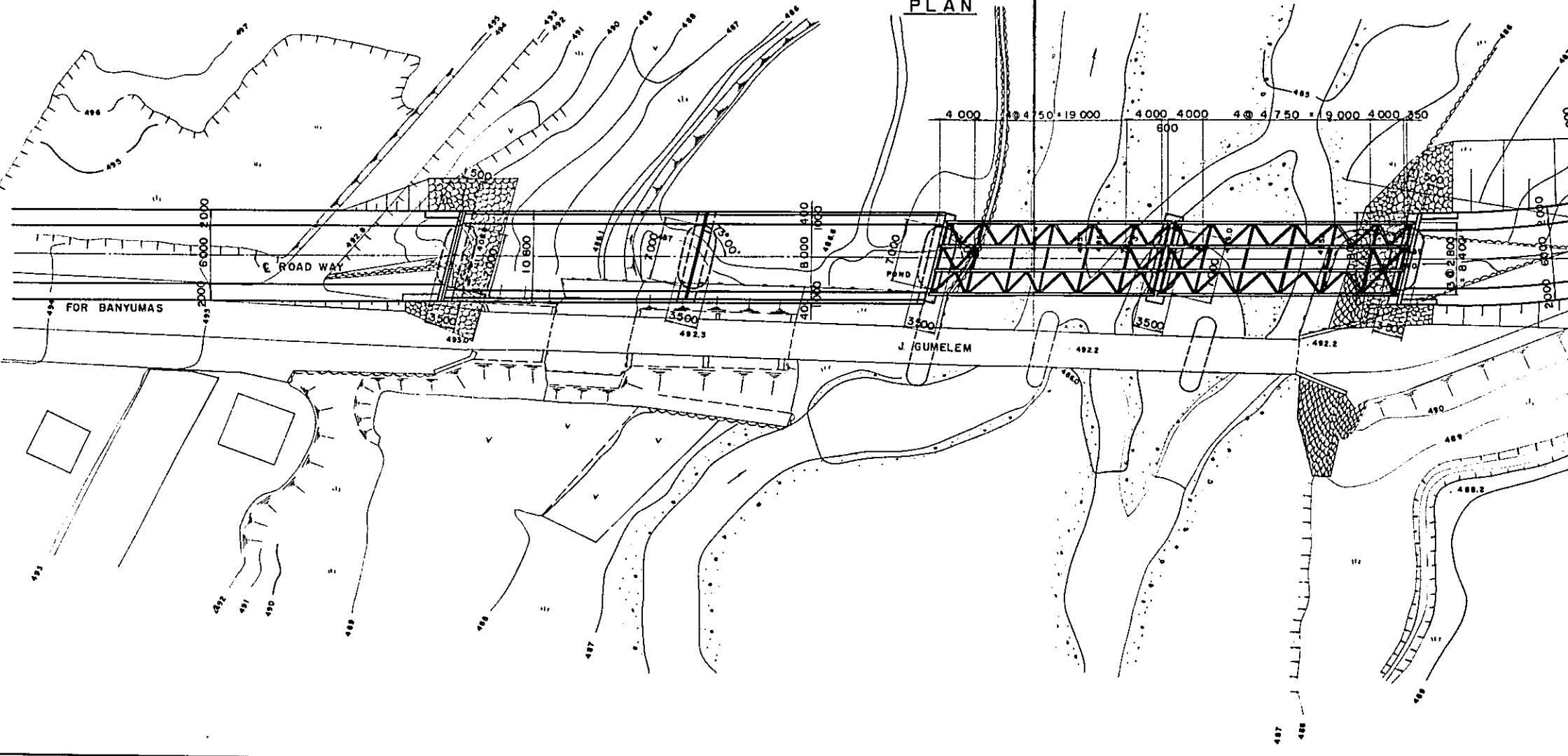
GUMELEM BRIDGE s = 1/600
 (STEEL COMPOSITE GIRDER)
 SIDE VIEW



CROSS SECTION s = 1/200



PLAN

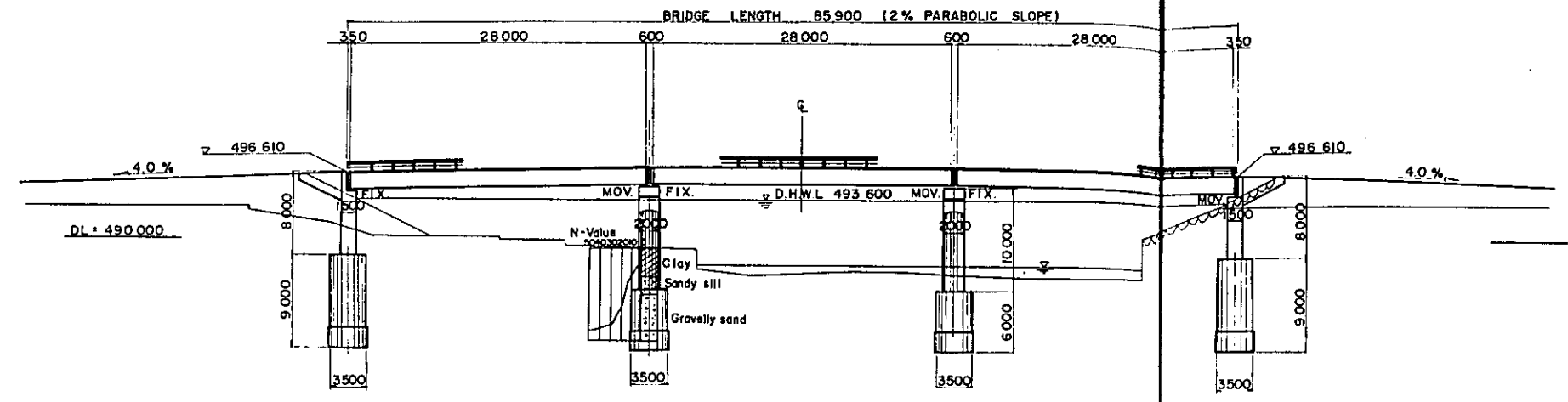


PROJECT	TOTAL SHEETS	SHEET NO.
CENTRAL AND EAST JAVA ROAD BETTERMENT	41	33
SAPI BRIDGE (STEEL COMPOSITE GIRDER)	SCALE 1/600, 1/200	

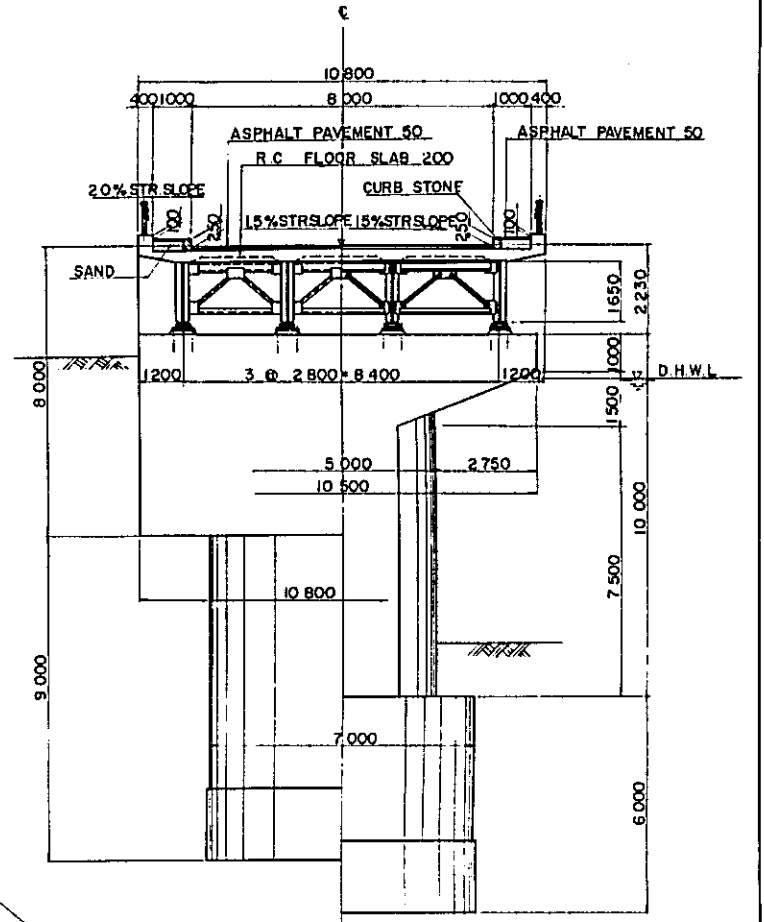
SAPI BRIDGE
(STEEL COMPOSITE GIRDER)

s = 1/600

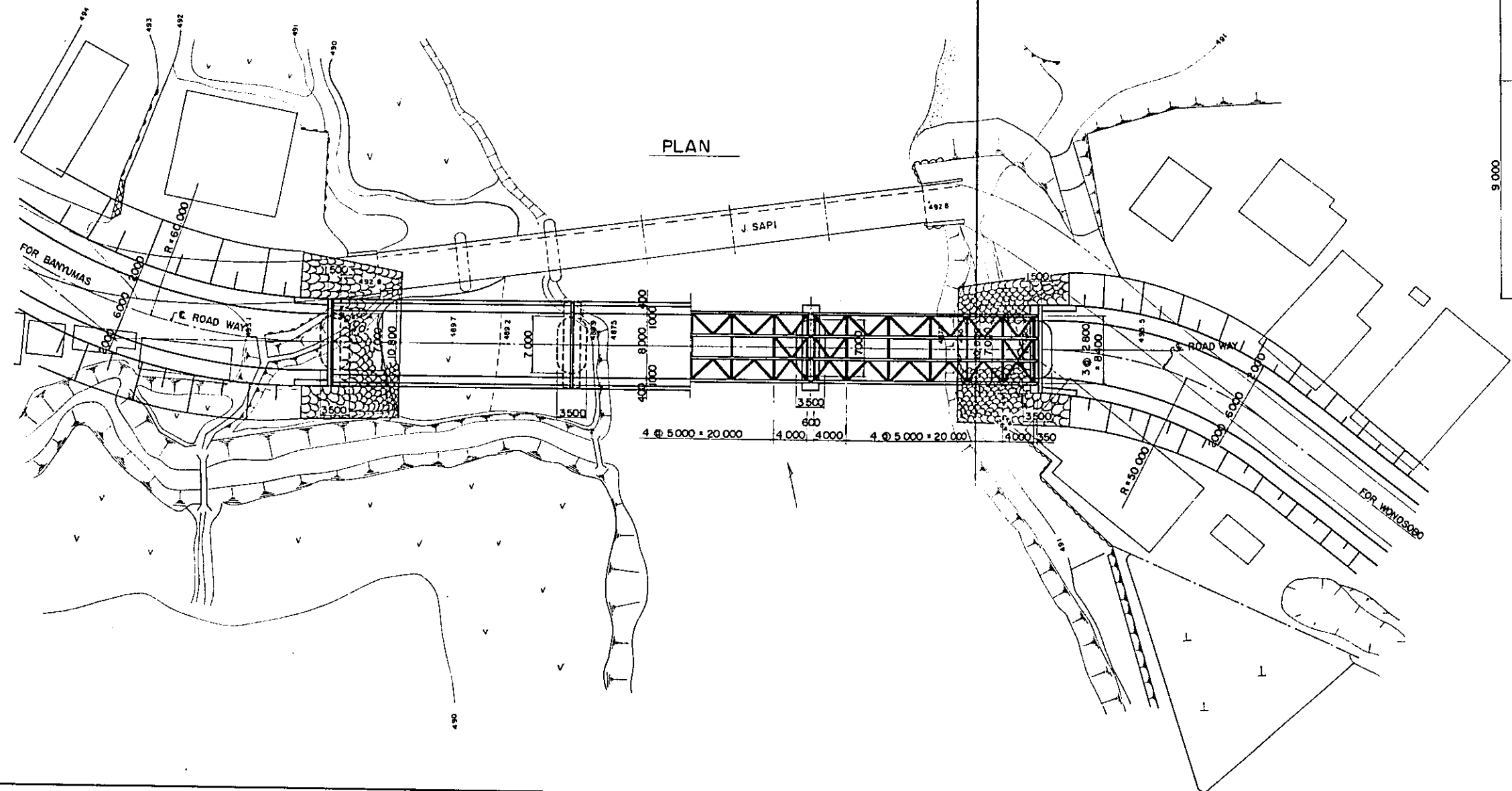
SIDE VIEW



CROSS SECTION s = 1/200

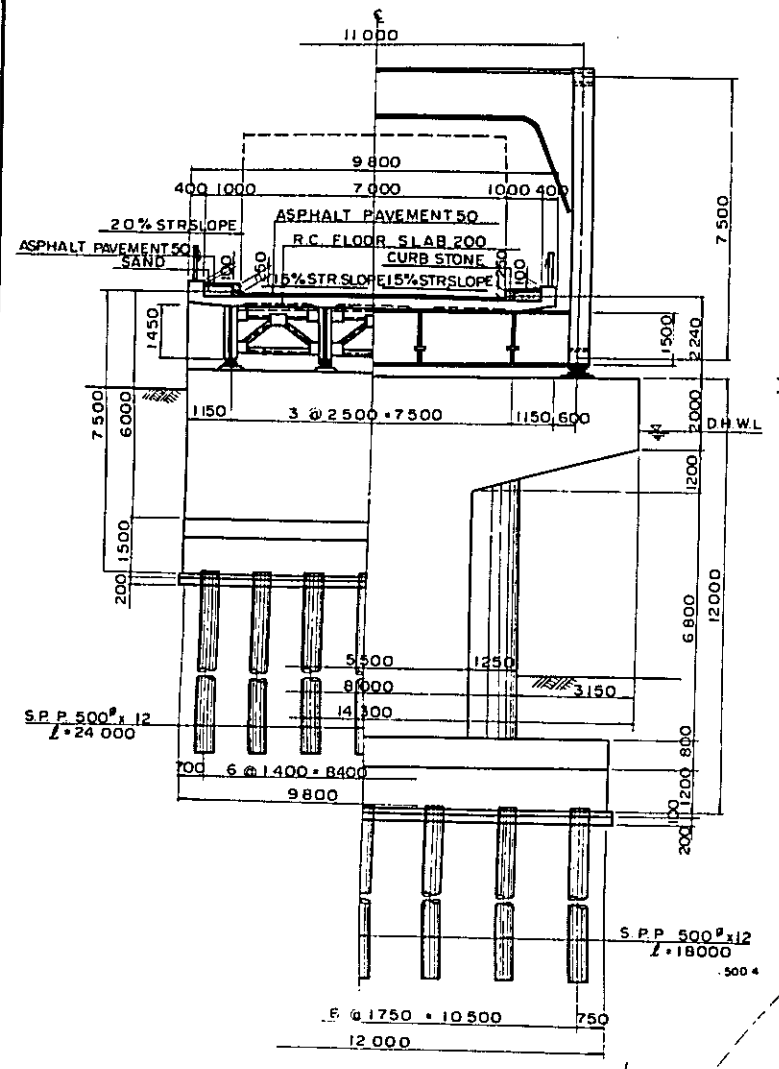


PLAN

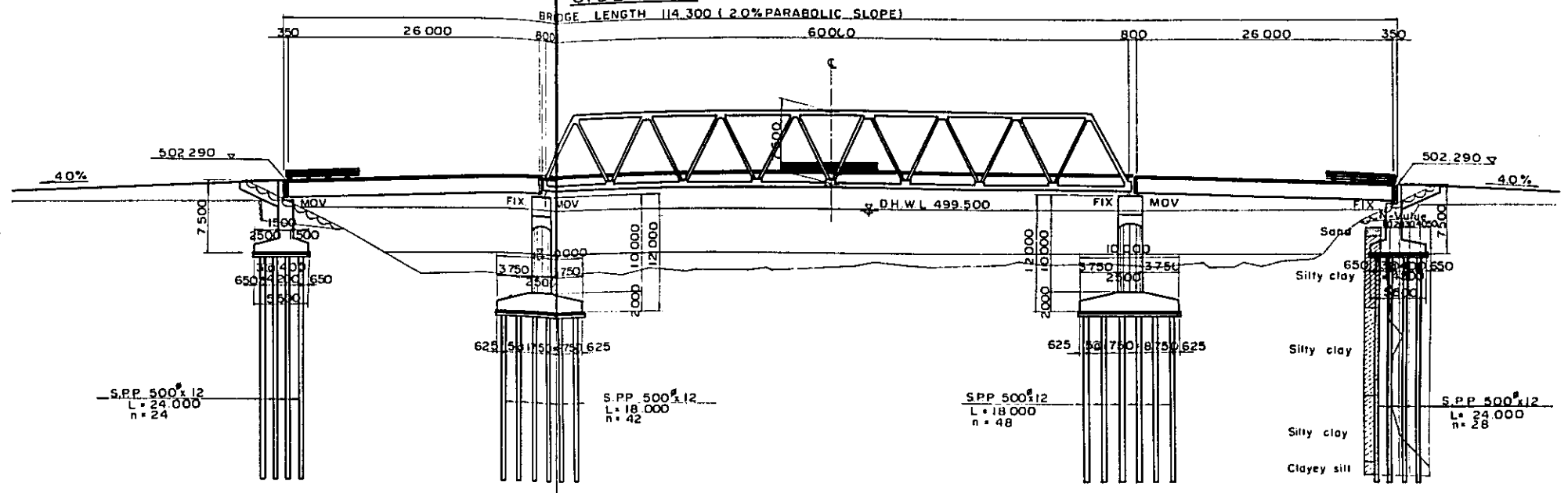


PROJECT	TOTAL SHEETS	SHEET NO.
CENTRAL AND EAST JAVA ROAD BETTERMENT	41	35
NGUTER BRIDGE (STEEL COMPOSITE GIRDER & TRUSS)	SCALE 1/600, 1/200	

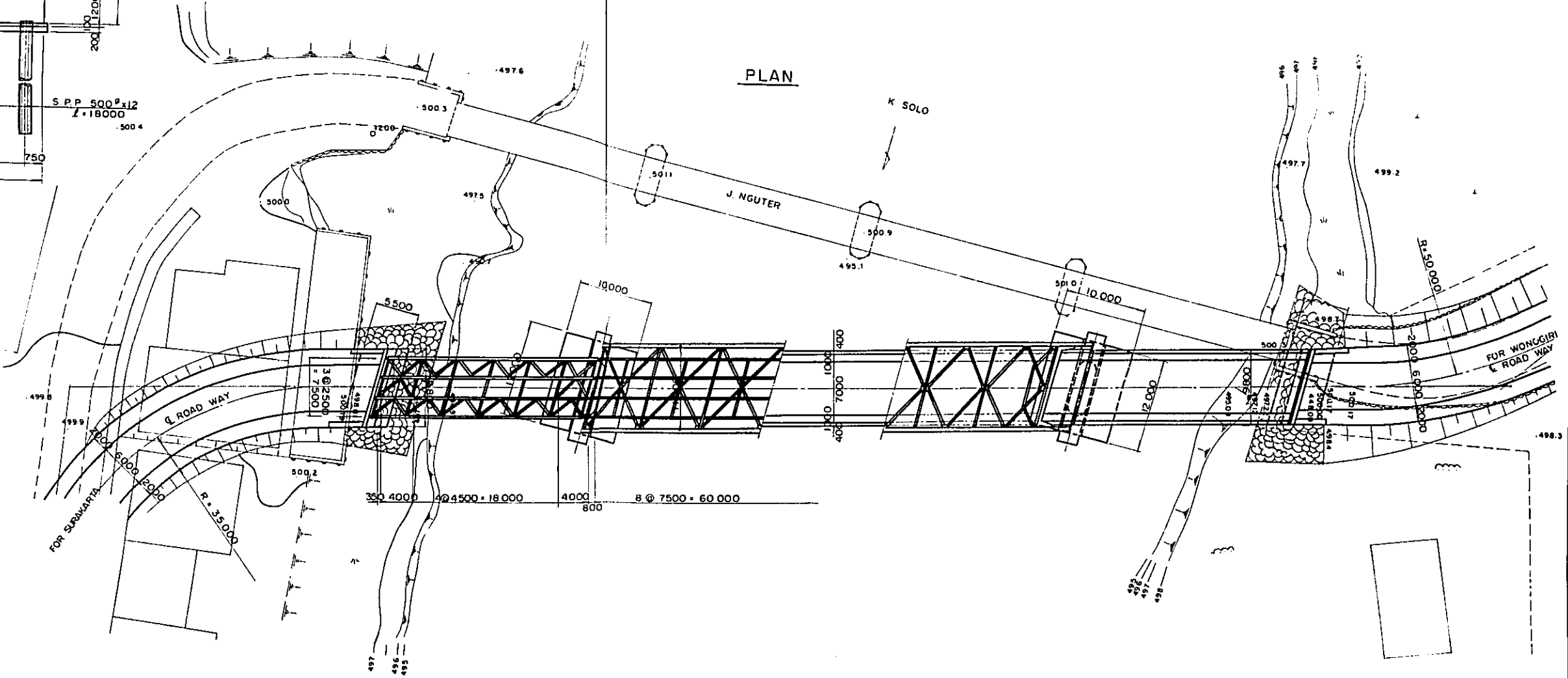
CROSS SECTION s.s. 1/200



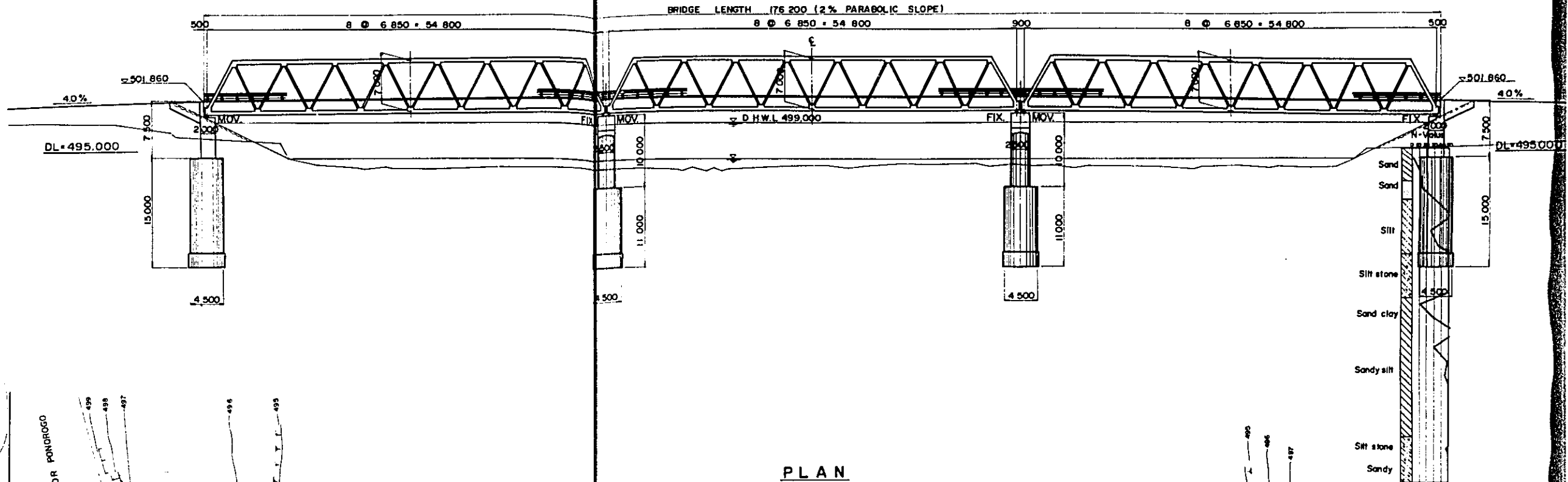
NGUTER BRIDGE s.s. 1/600
(STEEL COMPOSITE GIRDER & TRUSS)
SIDE VIEW



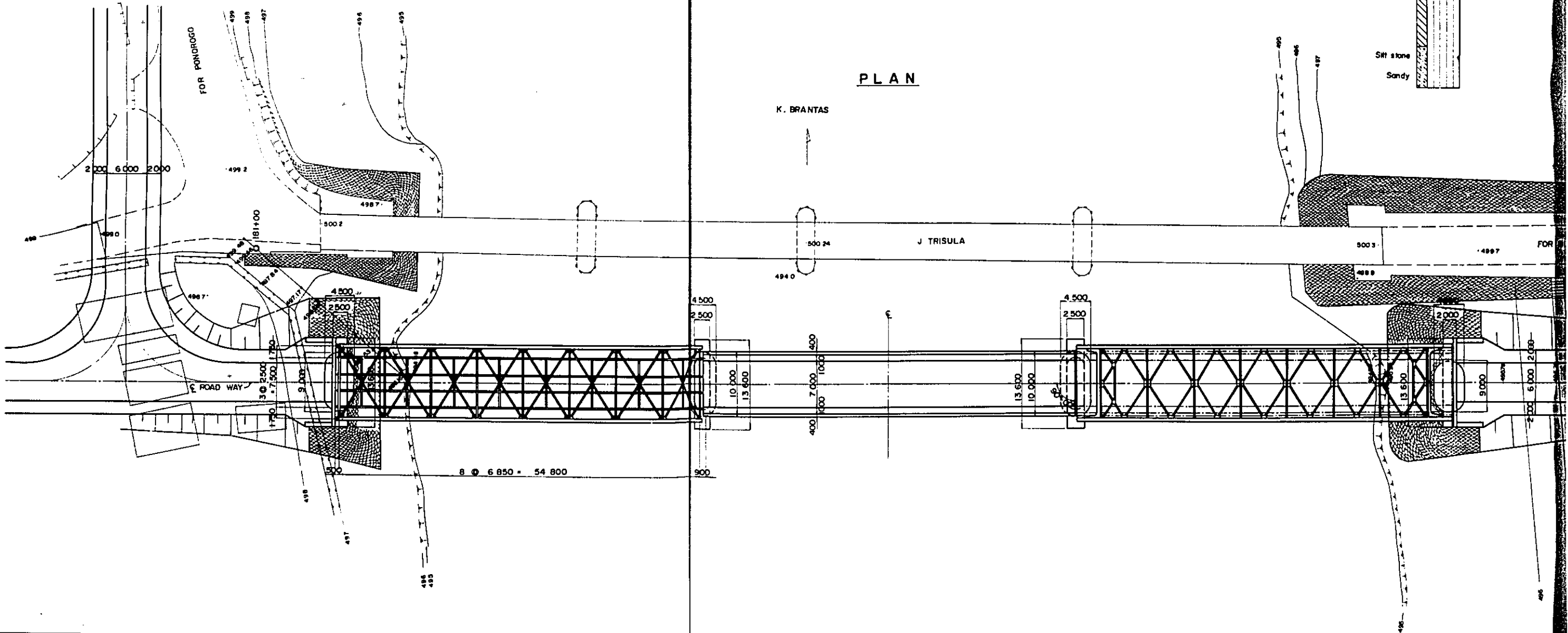
PLAN



TRISULA BRIDGE *s. 1/600*
(STEEL TRUSS)
SIDE VIEW

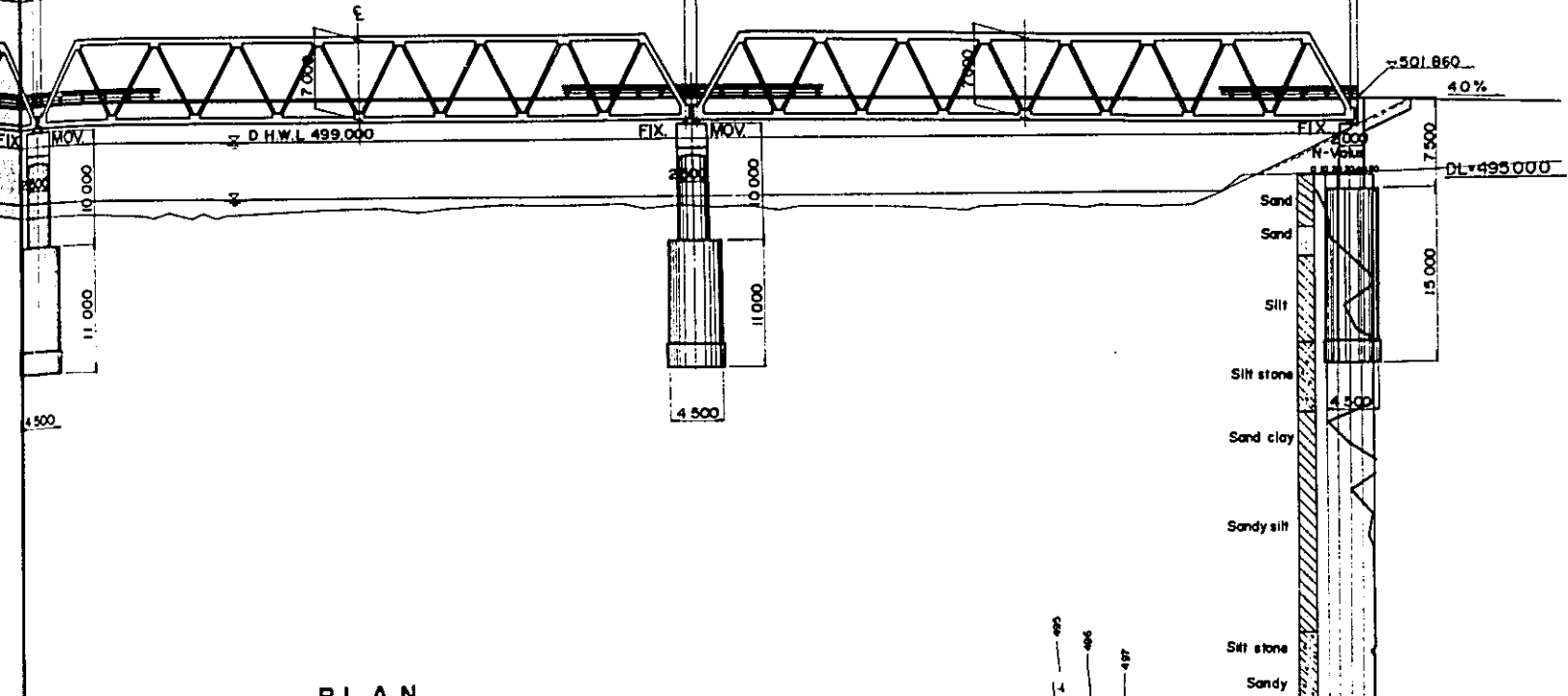


PLAN

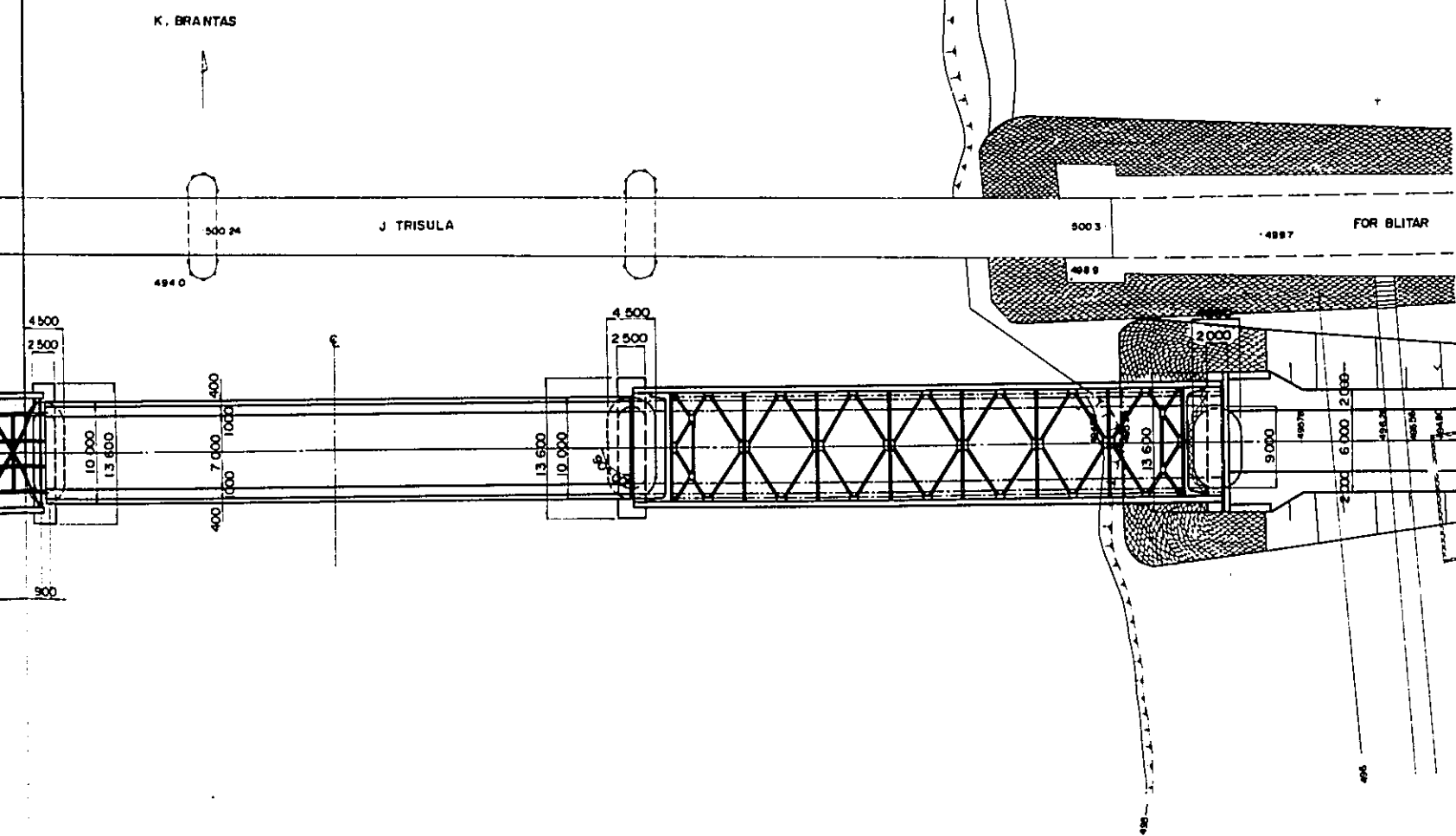


TRISULA BRIDGE s. 1/600
(STEEL TRUSS)
SIDE VIEW

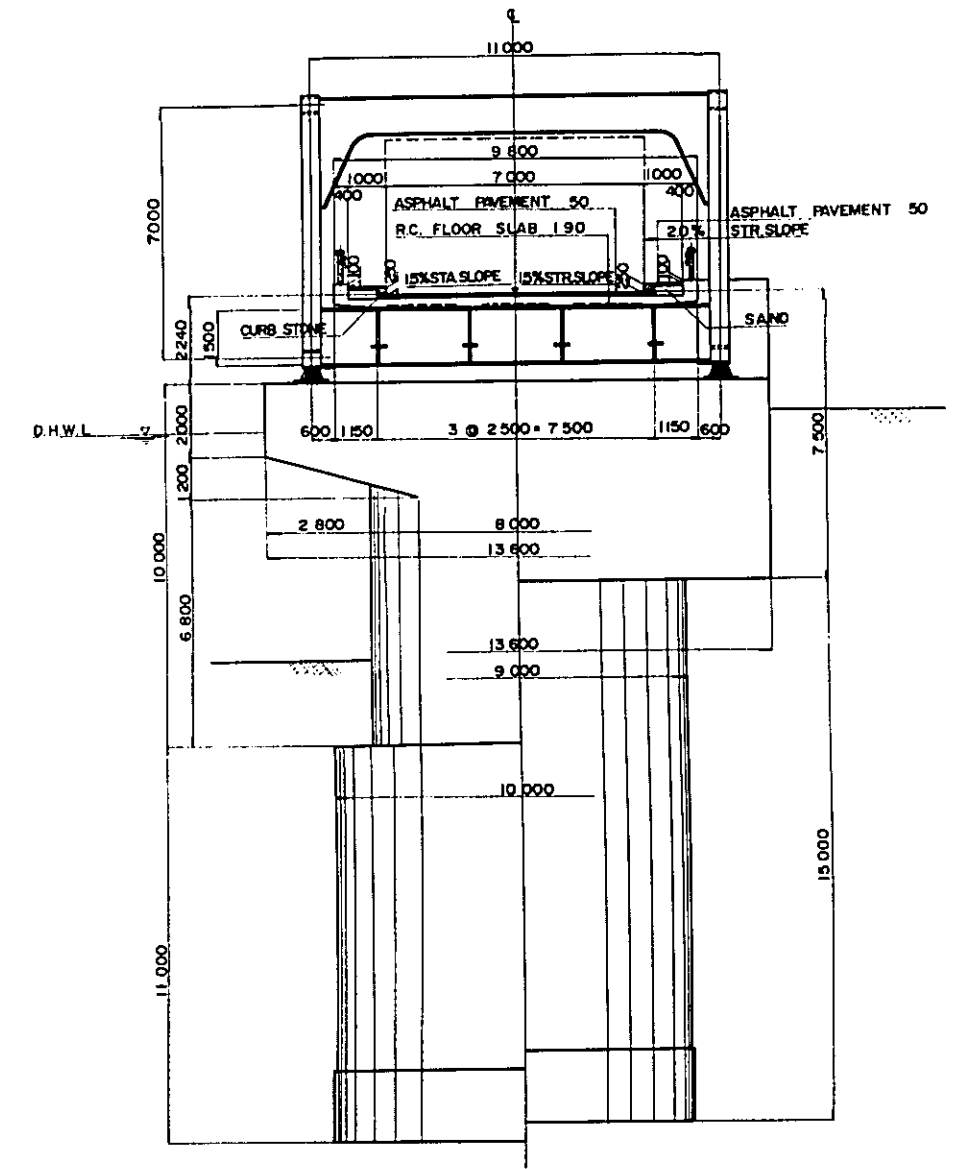
BRIDGE LENGTH 176.200 [2% PARABOLIC SLOPE]
 6 @ 6.850 = 54.800



PLAN



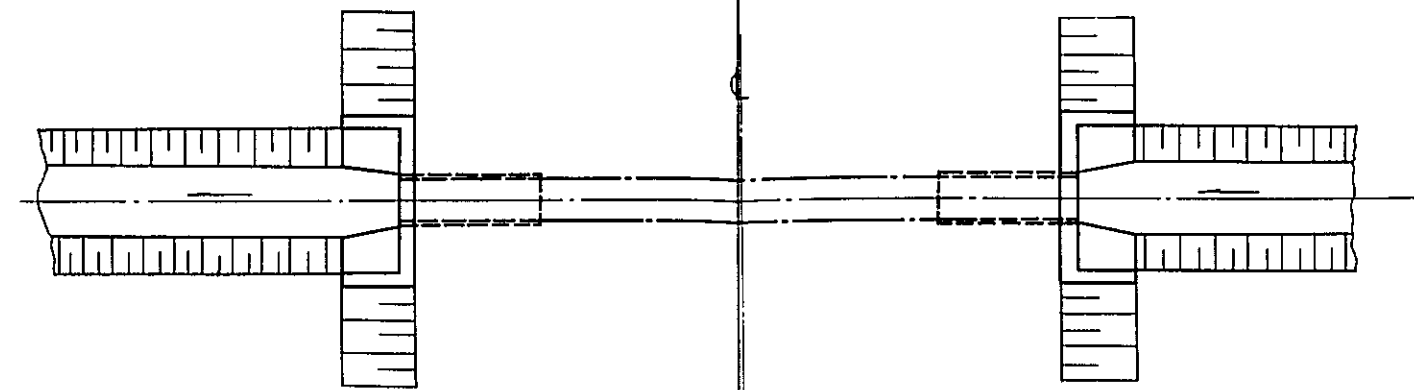
CROSS SECTION s. 1/200



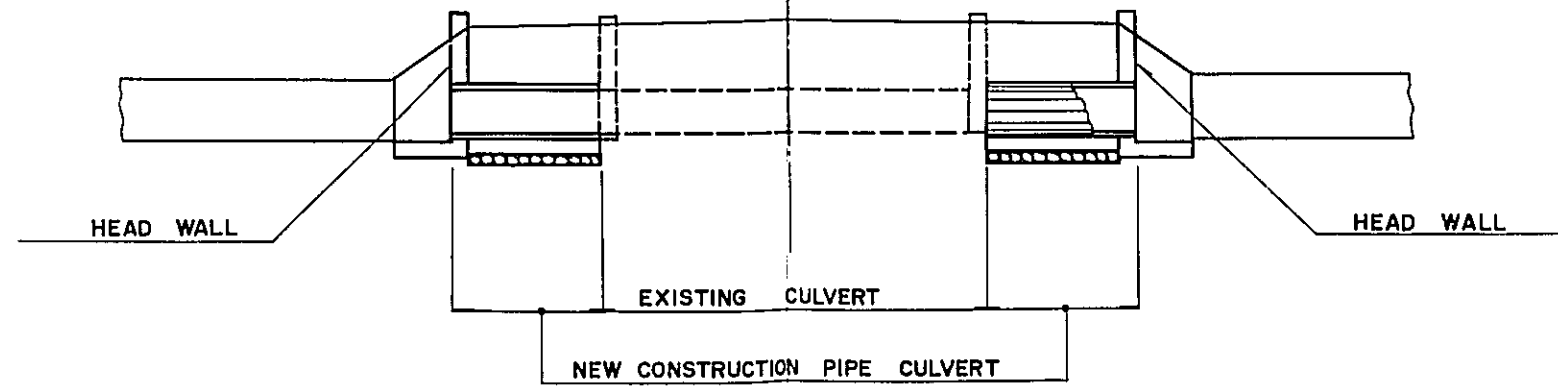
PROJECT	TOTAL SHEETS	SHEET NO.
CENTRAL AND EAST JAVA ROAD BETTERMENT	41	37
PIPE CULVERT	SCALE : 1 : 100	

PIPE CULVERT

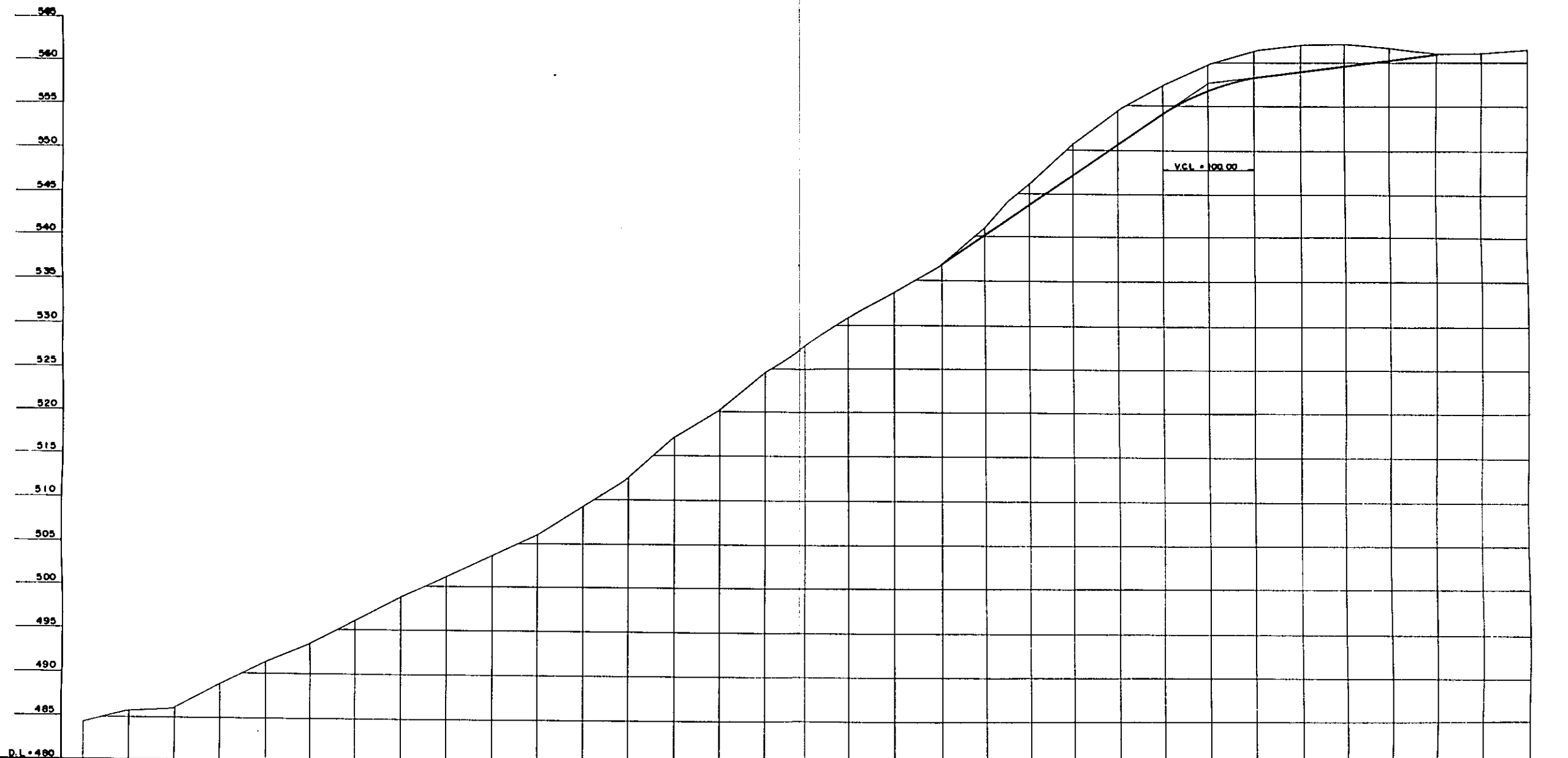
PLAN



PROFILE

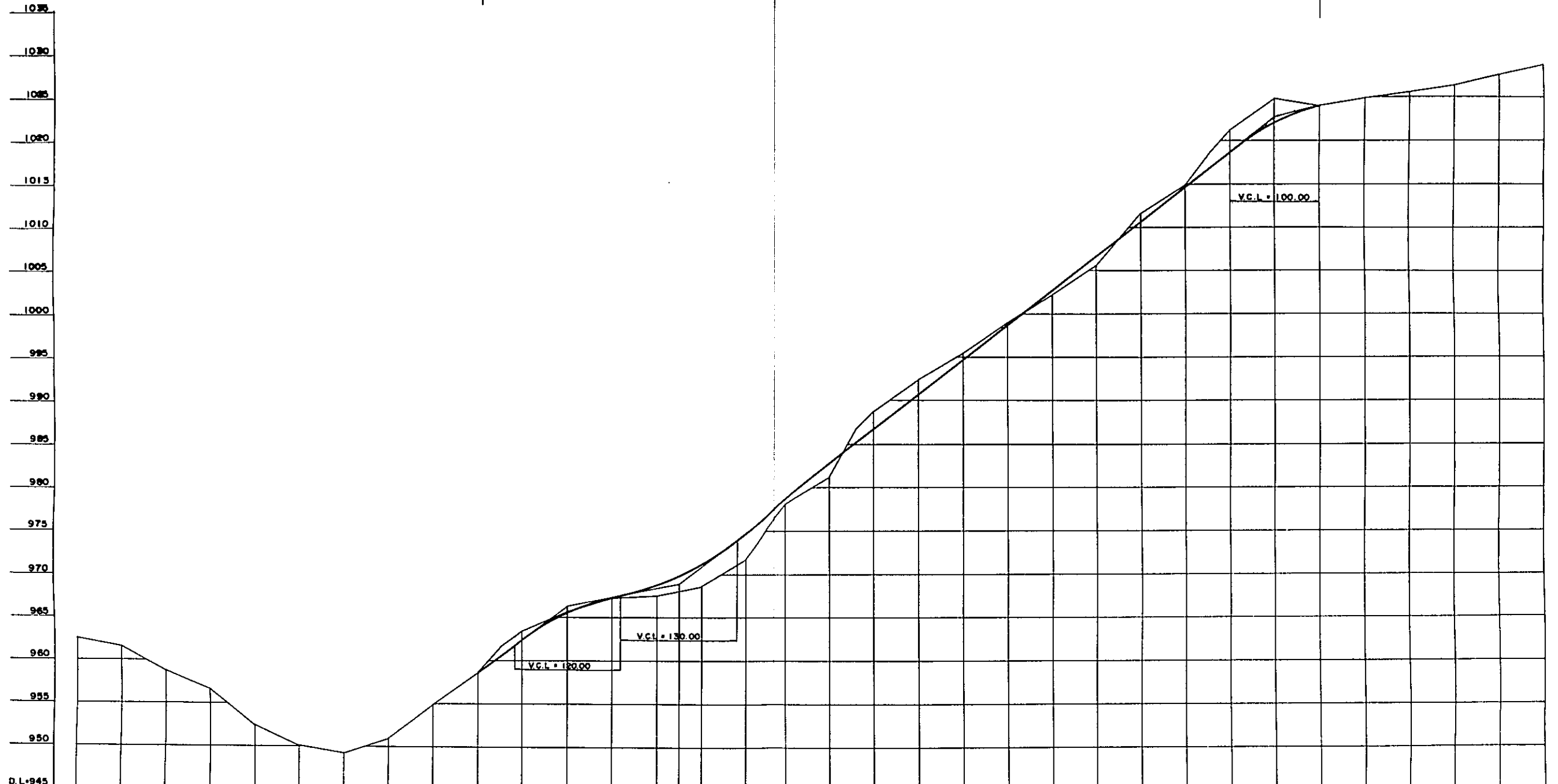


SECTION OF VERTICAL GRADE TO BE IMPROVED (REALIGNMENT A-1)
(WITHIN LINK NO. 212 OF ROUTE 1)



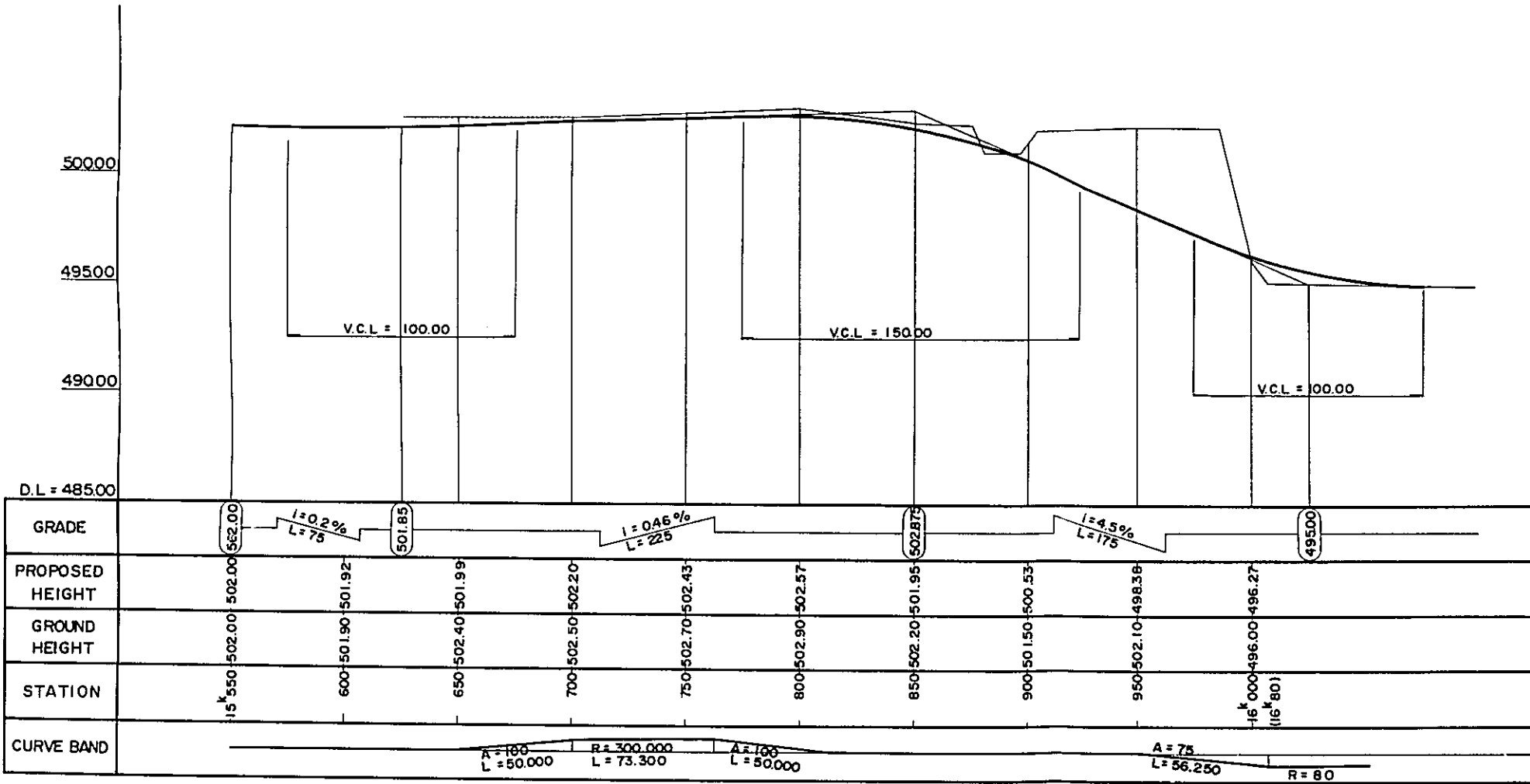
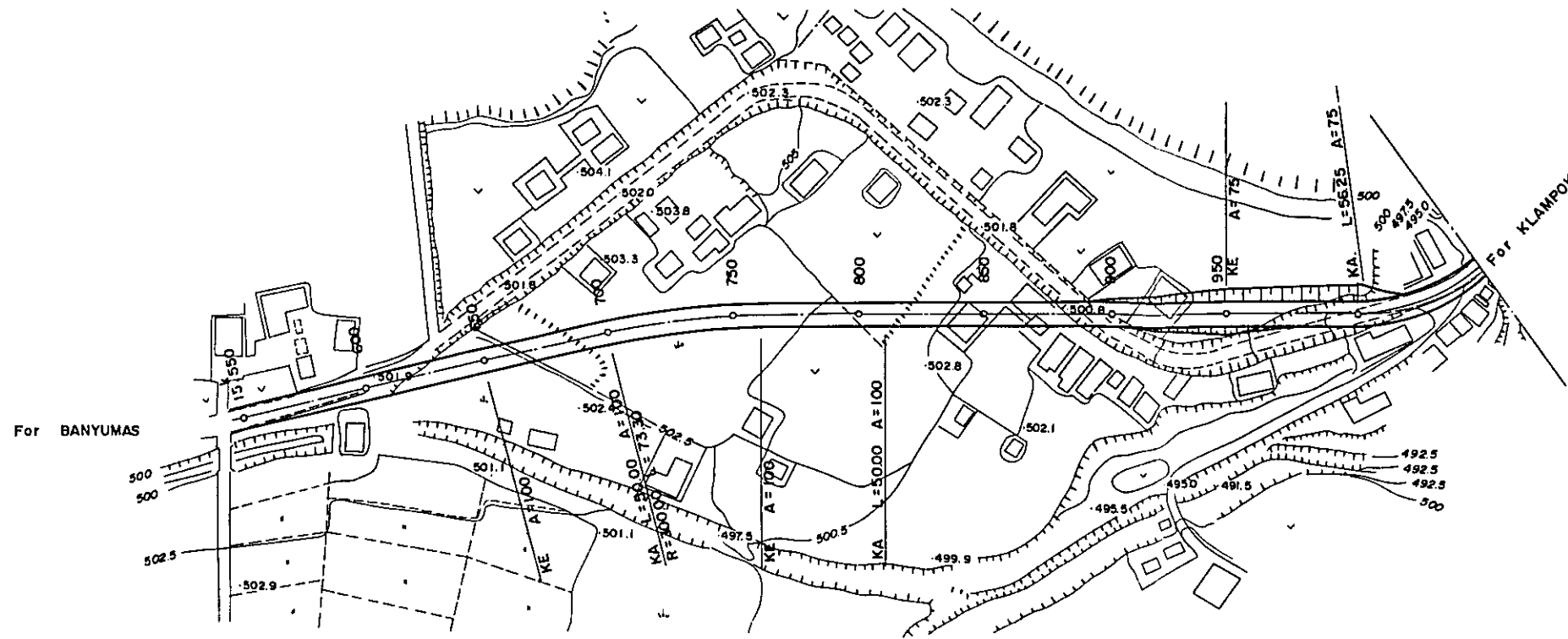
GRADE	PROPOSED HEIGHT	GROUND HEIGHT	STATION
		484.22	8+150
		484.50	8+100
		485.76	8+050
		486.62	8+000
		491.22	7+950
		493.30	7+900
		495.84	7+850
		498.66	7+800
		500.93	7+750
		503.30	7+700
		505.75	7+650
		509.02	7+600
		512.32	7+550
		517.03	7+500
		520.06	7+450
		524.40	7+400
		527.50	7+350
		530.46	7+300
		533.40	7+250
	336.38	536.38	7+200
		539.88	7+150
		543.38	7+100
		546.88	7+050
		550.38	7+000
		553.88	6+950
	567.38	556.88	6+900
		559.03	6+850
		558.66	6+800
		559.32	6+750
		559.97	6+700
		560.62	6+650
			6+600
			6+550

SECTION OF VERTICAL GRADE TO BE IMPROVED (REALIGNMENT A-9)
(WITHIN Link NO. 203 OF ROUTE 1)

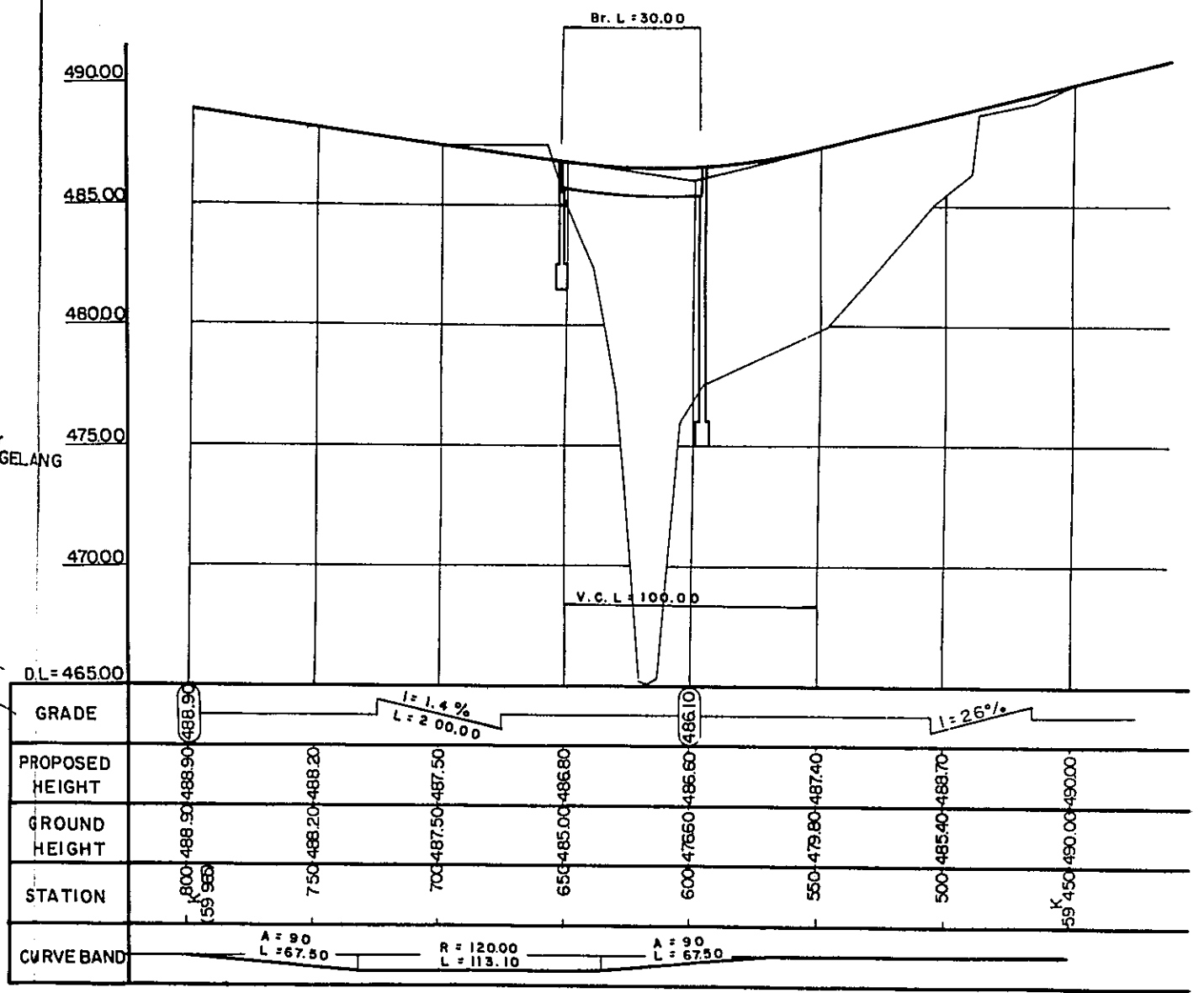
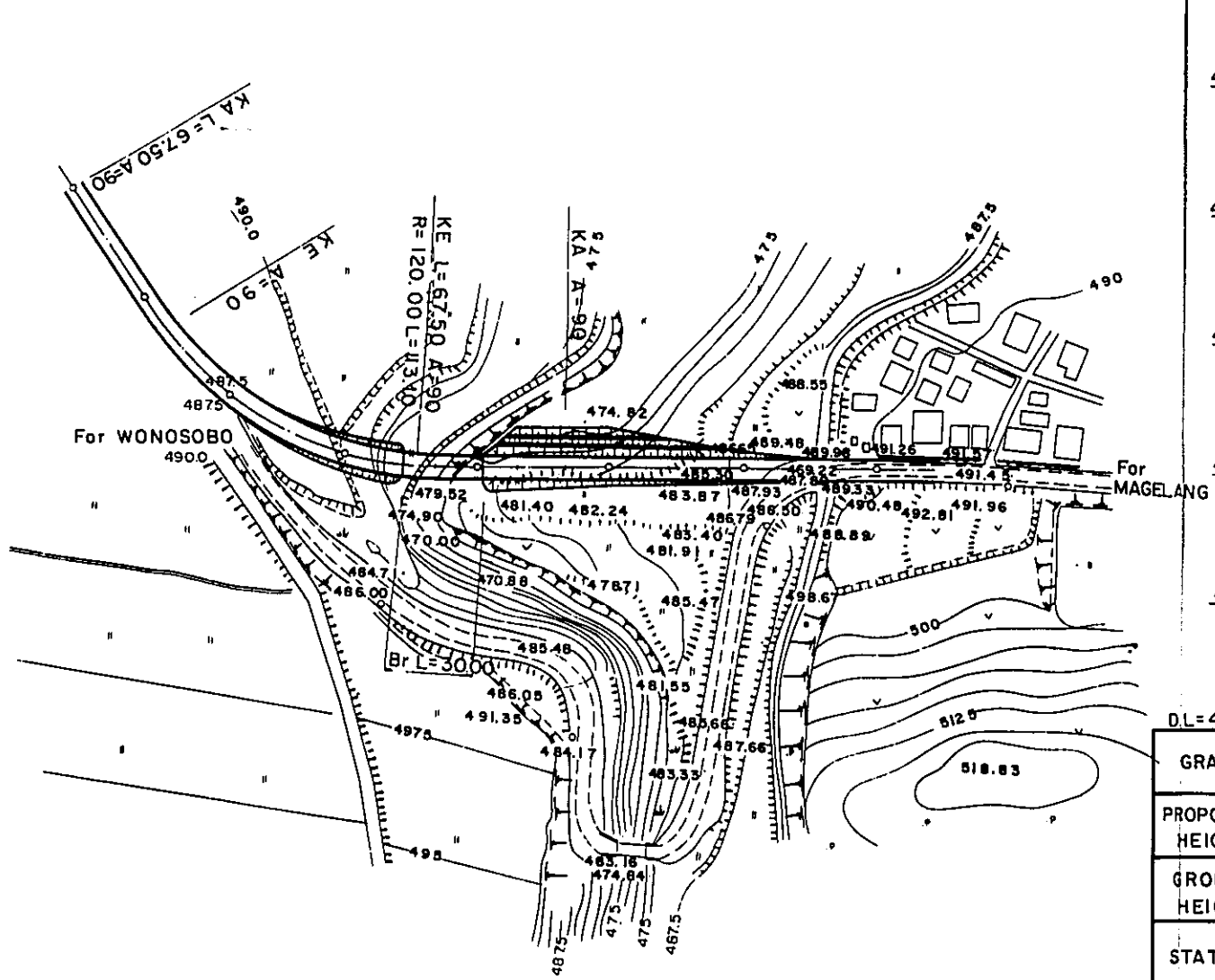


GRADE	PROPOSED HEIGHT	GROUND HEIGHT	STATION
		962.50	45+700
		961.55	45+650
		958.87	45+600
		956.63	45+550
		952.56	45+500
		950.08	45+450
		949.27	45+400
		951.04	45+350
		954.99	45+300
	958.66	958.66	45+250
	922.62	963.56	45+200
	965.74	963.76	45+150
	967.37	967.38	45+100
	968.91	967.67	45+050
	971.38	968.83	45+000
	975.00	971.99	44+950
	979.00	978.35	44+900
	983.00	981.39	44+850
	987.00	989.00	44+800
	991.00	992.69	44+750
	995.00	995.69	44+700
	999.00	999.29	44+650
	1003.00	1002.37	44+600
	1007.00	1006.07	44+550
	1011.00	1011.87	44+500
	1015.00	1015.17	44+450
	1019.00	1021.46	44+400
	1023.00	1025.68	44+350
		1024.16	44+300
		1024.81	44+250
		1025.51	44+200
		1026.33	44+150

REALIGNMENT B - I (WITHIN Link NO. 214 OF ROUTE I)



REALIGNMENT B - 10
(WITHIN Link No. 109 OF ROUTE I)



GRADE	488.90	488.20	487.50	486.80	486.10	487.40	488.70	490.00
PROPOSED HEIGHT	488.90	488.20	487.50	486.80	486.10	487.40	488.70	490.00
GROUND HEIGHT	488.90	488.20	487.50	485.00	486.00	479.80	485.40	490.00
STATION	599	750	700	650	600	550	500	450
CURVE BAND	A = 90 L = 67.50		R = 120.00 L = 113.10		A = 90 L = 67.50			

