

THE REPUBLIC OF INDONESIA  
REPORT ON FEASIBILITY STUDY  
OF  
GRADE SEPARATED CROSSING IN MANGGARAI STATION  
TRACK ADDITION AND OTHER IMPROVEMENTS ON MERAK LINE  
AND  
TRACK ADDITION AND OTHER IMPROVEMENTS ON TANGERANG LINE  
DRAWINGS

JUNE 1984

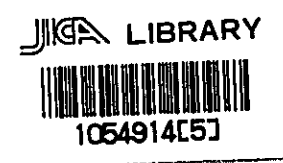
JAPAN INTERNATIONAL COOPERATION AGENCY  
( J I C A )

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THE REPUBLIC OF INDONESIA  
REPORT ON FEASIBILITY STUDY  
OF  
GRADE SEPARATED CROSSING IN MANGGARAI STATION  
TRACK ADDITION AND OTHER IMPROVEMENTS ON MERAK LINE  
AND  
TRACK ADDITION AND OTHER IMPROVEMENTS ON TANGERANG LINE

D R A W I N G S



JUNE 1984

JAPAN INTERNATIONAL COOPERATION AGENCY  
( J I C A )

国際協力事業団	
受入 月日 61.8.12	L108
登録 No. 15153	61.6
	SDF

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APPEN. 1 PROPOSED TRACK LAYOUT IN MANGGARAI STATION  
( ALTERNATIVE F-14 )

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( ALTERNATIVE F-22 )

APPEN. 3 PROPOSED TRACK LAYOUT IN MANGGARAI STATION  
( ALTERNATIVE G-22 )

## 2. MERAK LINE

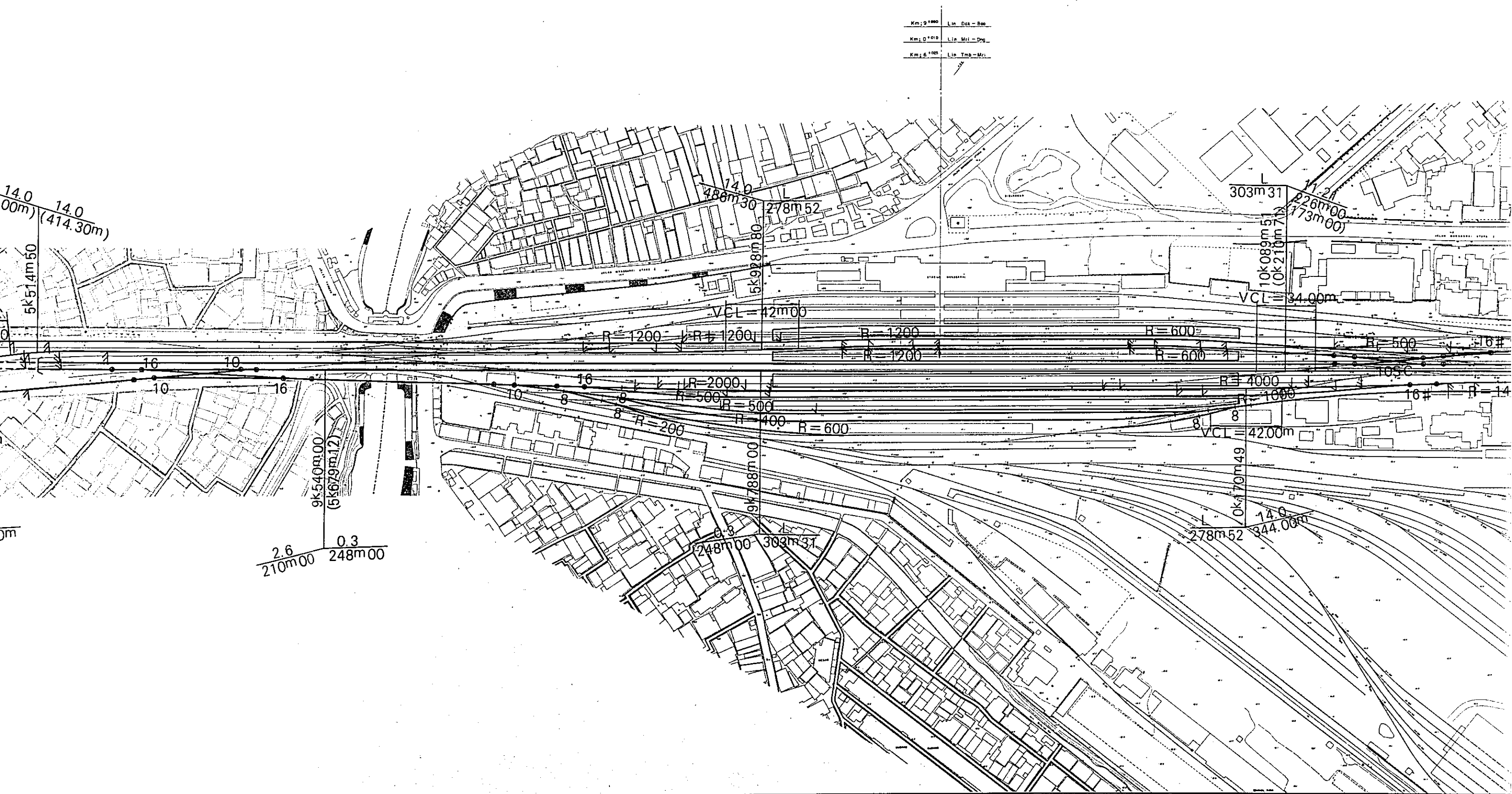
Dwg. 2 . 1~8 TRACK ALIGNMENT OF MERAK LINE

## 3. TANGERANG LINE

Dwg. 3 . 1~6 TRACK ALIGNMENT OF TANGERANG LINE



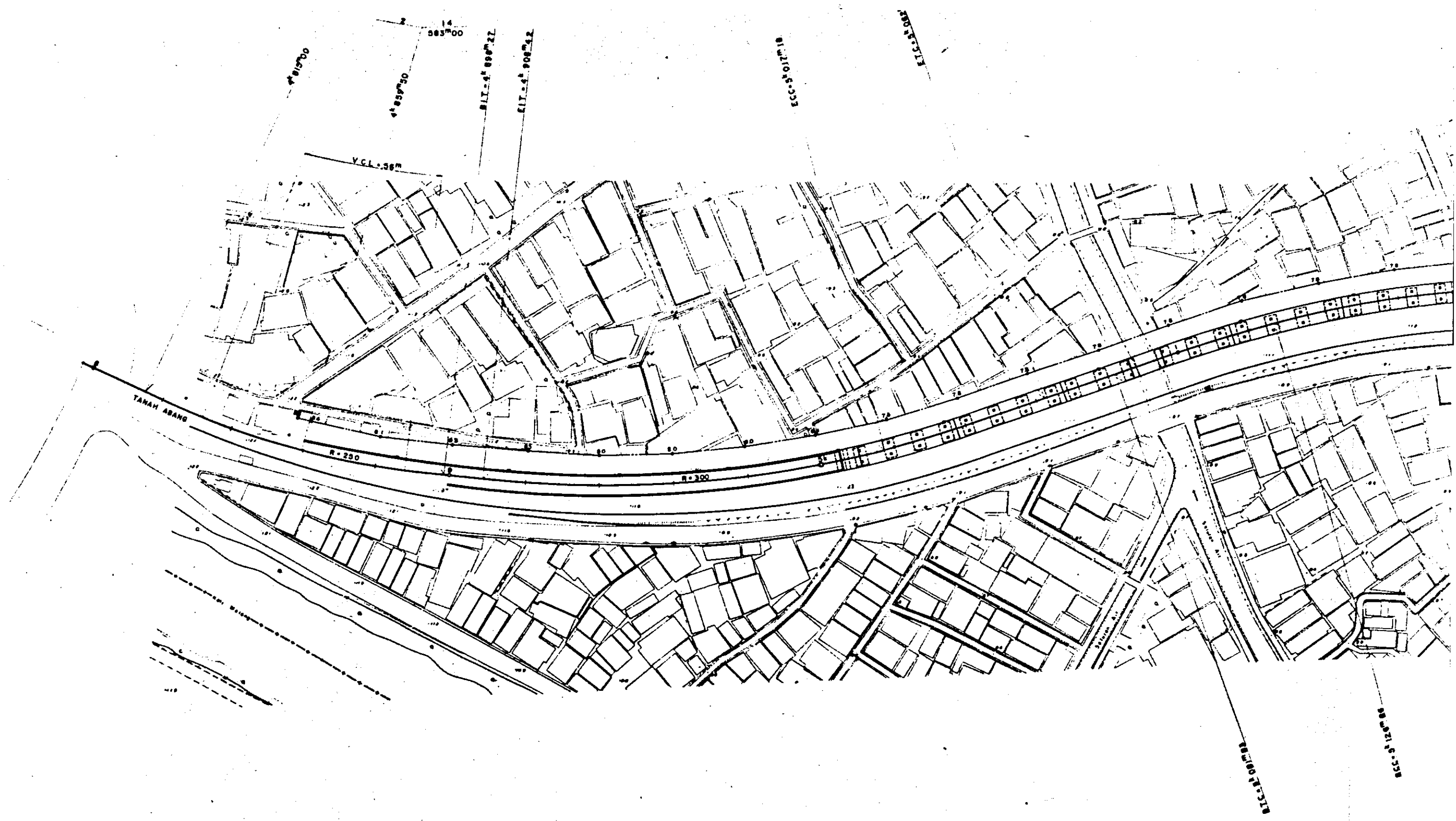
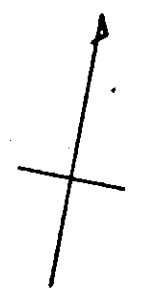
# Dwg. 1.1 PROPOSED TRACK LAYOUT FOR GRADE SEPARATED CROSSING(G-14)

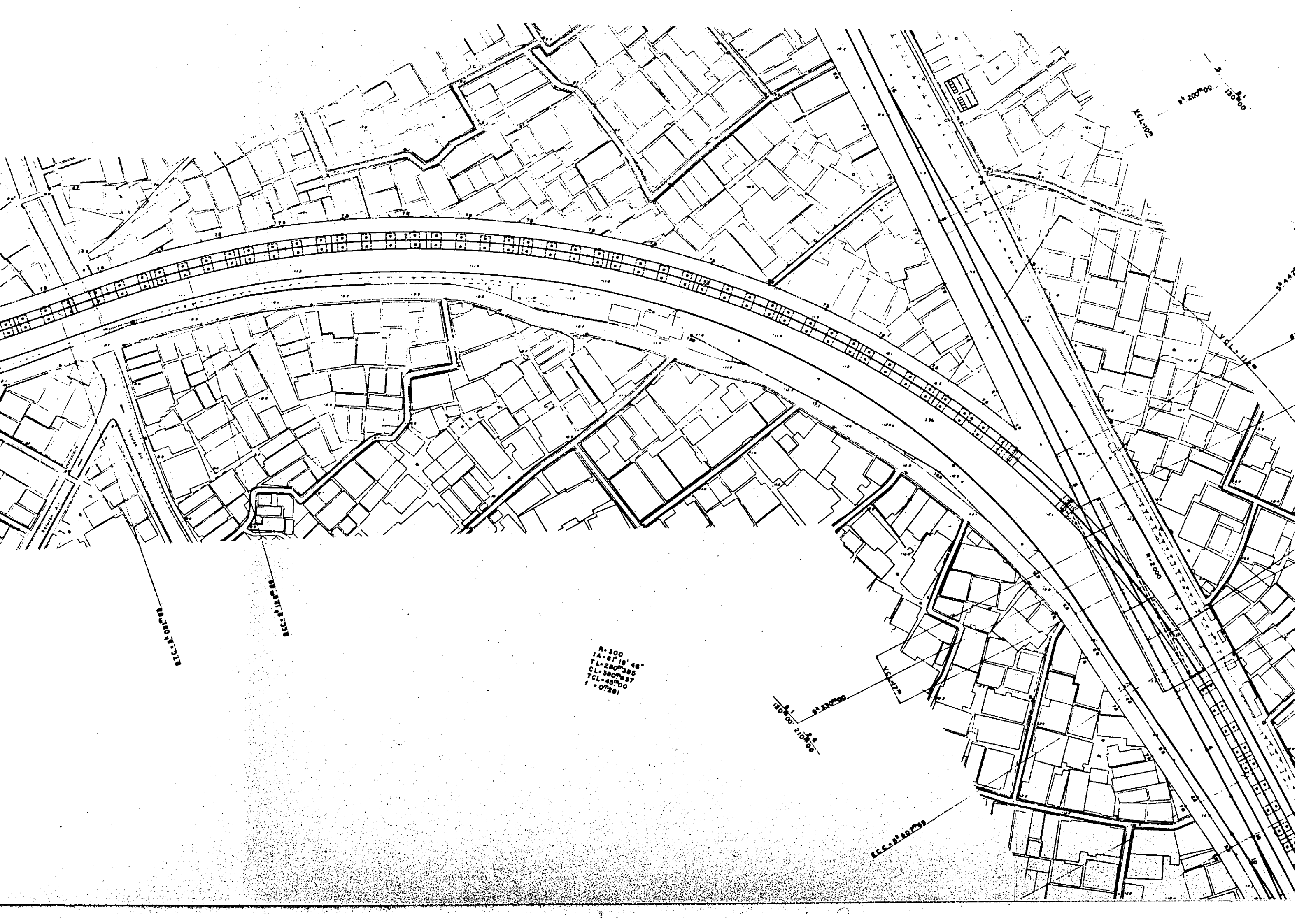












R-200  
1A-87 10' 46"  
TL-280° 38'  
CL-380° 57'  
TCL-45° 00'  
1-07281

R.C. 100

R.C. 200

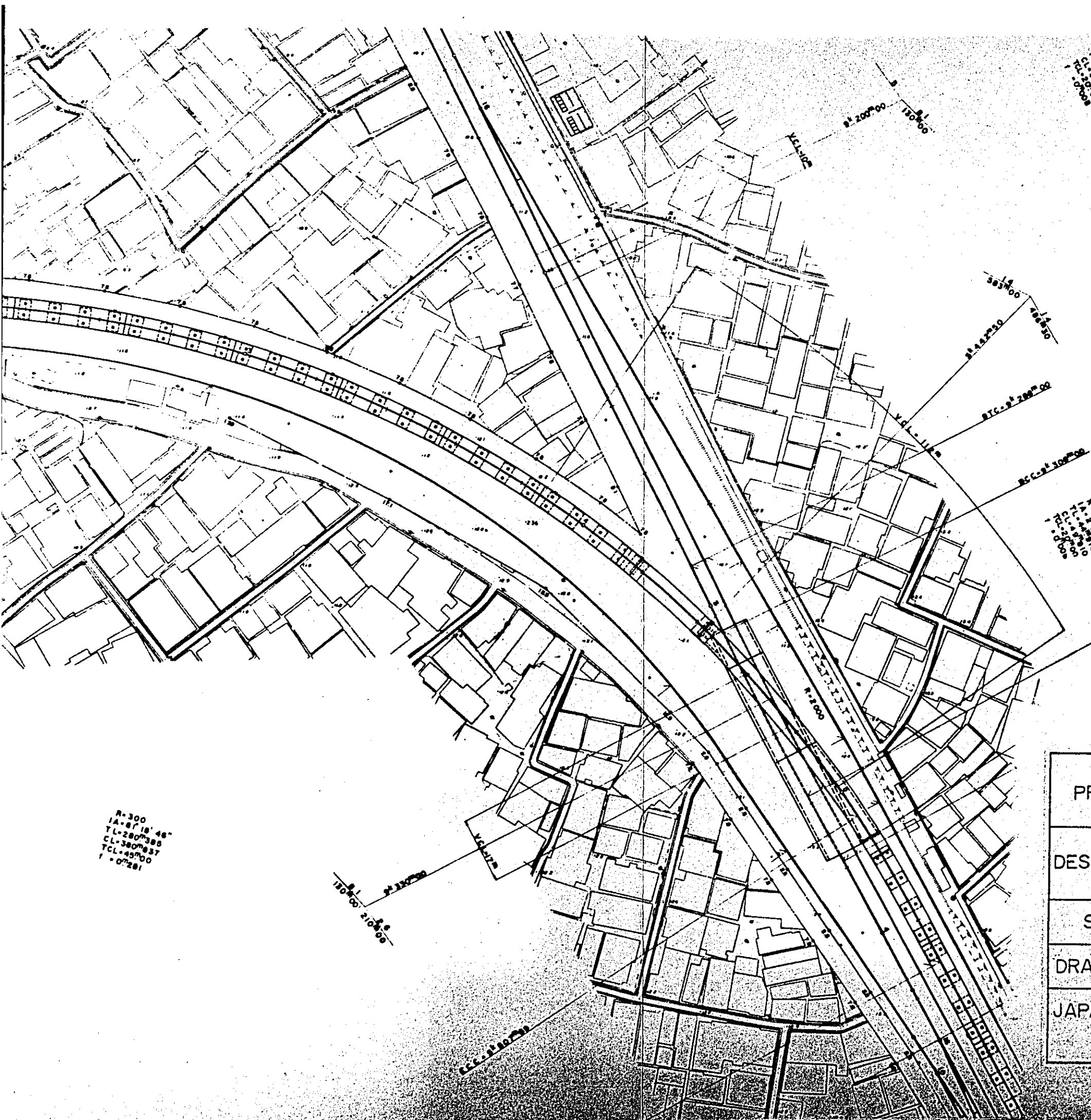
N 200° 00'

R.C. 100

R.C. 100

N 200° 00'

130° 00'



PROJECT	GRADE SEPARATED CROSSING IN MANGGARAI STATION
DESCRIPTION	PLAN (I) (INCLUDING REQUIRED RIGHT-OF-WAY)
SCALE	1 : 1.000
DRAWING No.	Dwg. 1. 2
JAPAN INTERNATIONAL COOPERATION AGENCY ( J I C A )	

KOTA

R - 2000

815-8'45"00

825-8'45"00

835-8'45"00

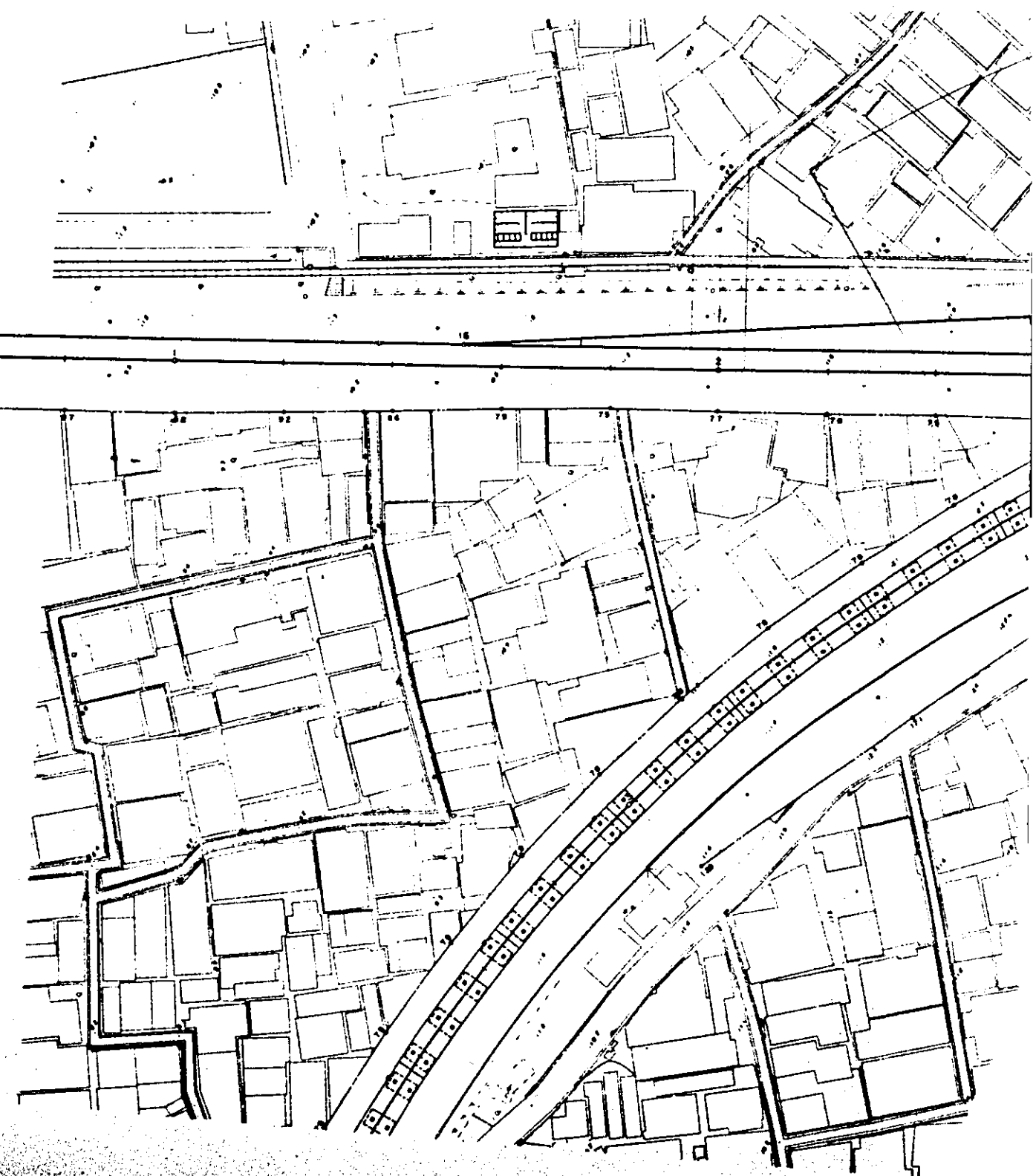
845-8'45"00

R - 2000  
IA - 1°36'44"  
TL - 37°375  
CL - 36°273  
TCL - 20°00  
f - 0°008

YCL-10

8' 200'00

130°00



130°00'  
200'00"

14  
185'00" 488'30"

R - 2000  
IA - 2°00'00"  
TL - 44°31'0"  
CL - 49°31'0"  
TCL - 20°00'  
I = 0.006

14  
172'00" 414'30"

YCL-102

YCL-112

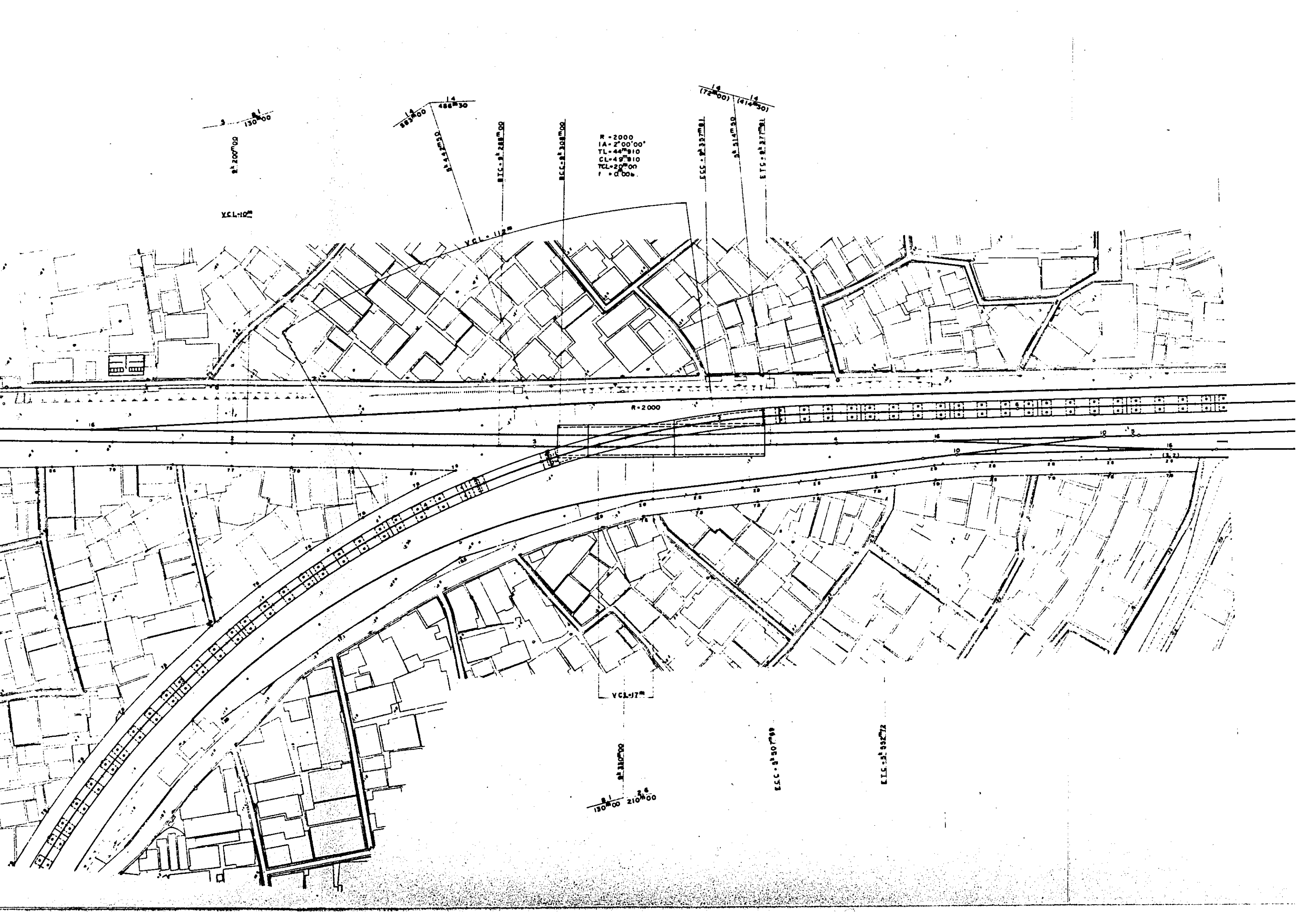
R - 2000

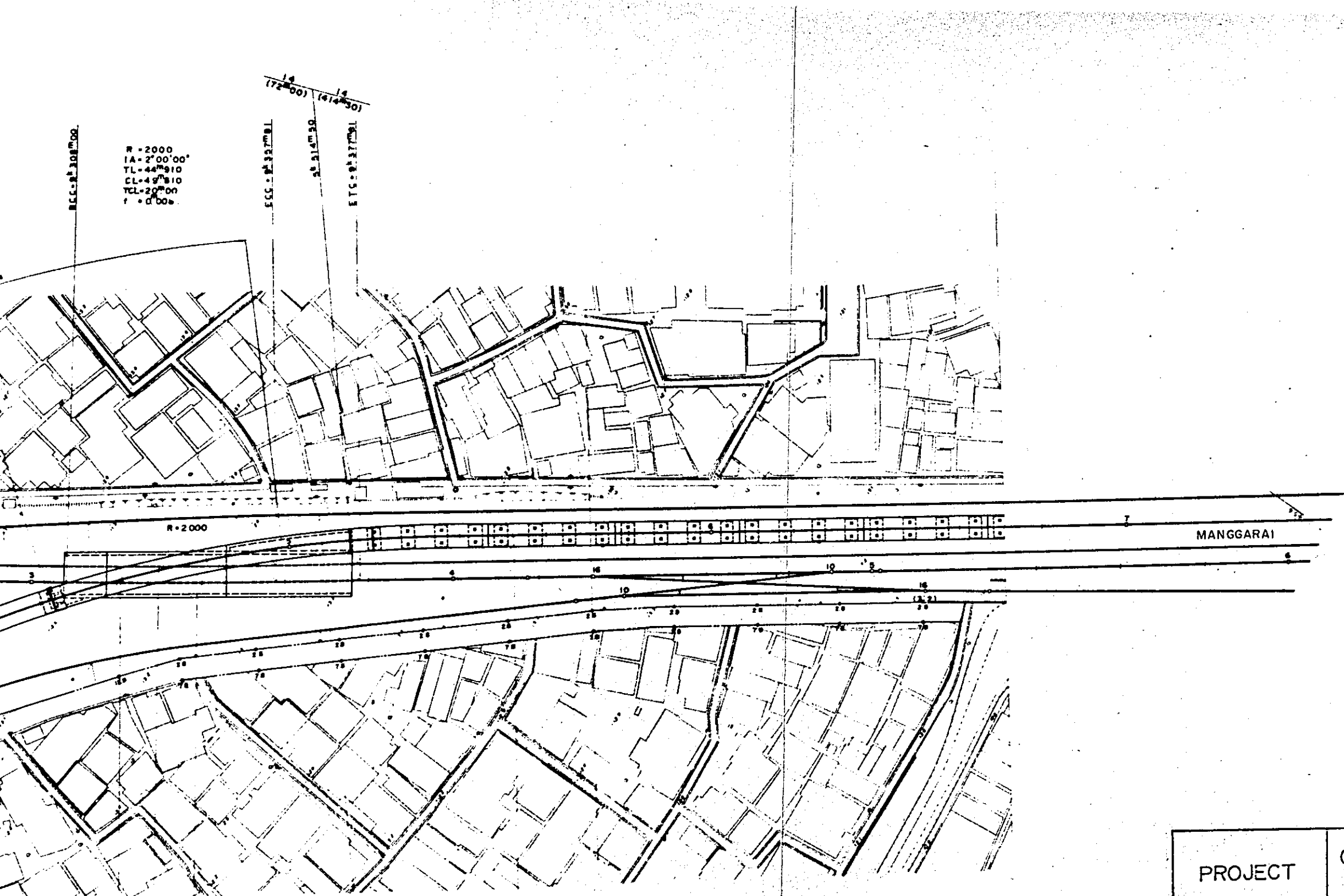
YCL-172

210°00'  
130°00'

352'00" 86'00"

352'00" 86'00"





R = 2000  
 LA = 2°00'00"  
 TL = 44°31'00"  
 CL = 45°31'00"  
 TCL = 20°00'  
 P = 0.006

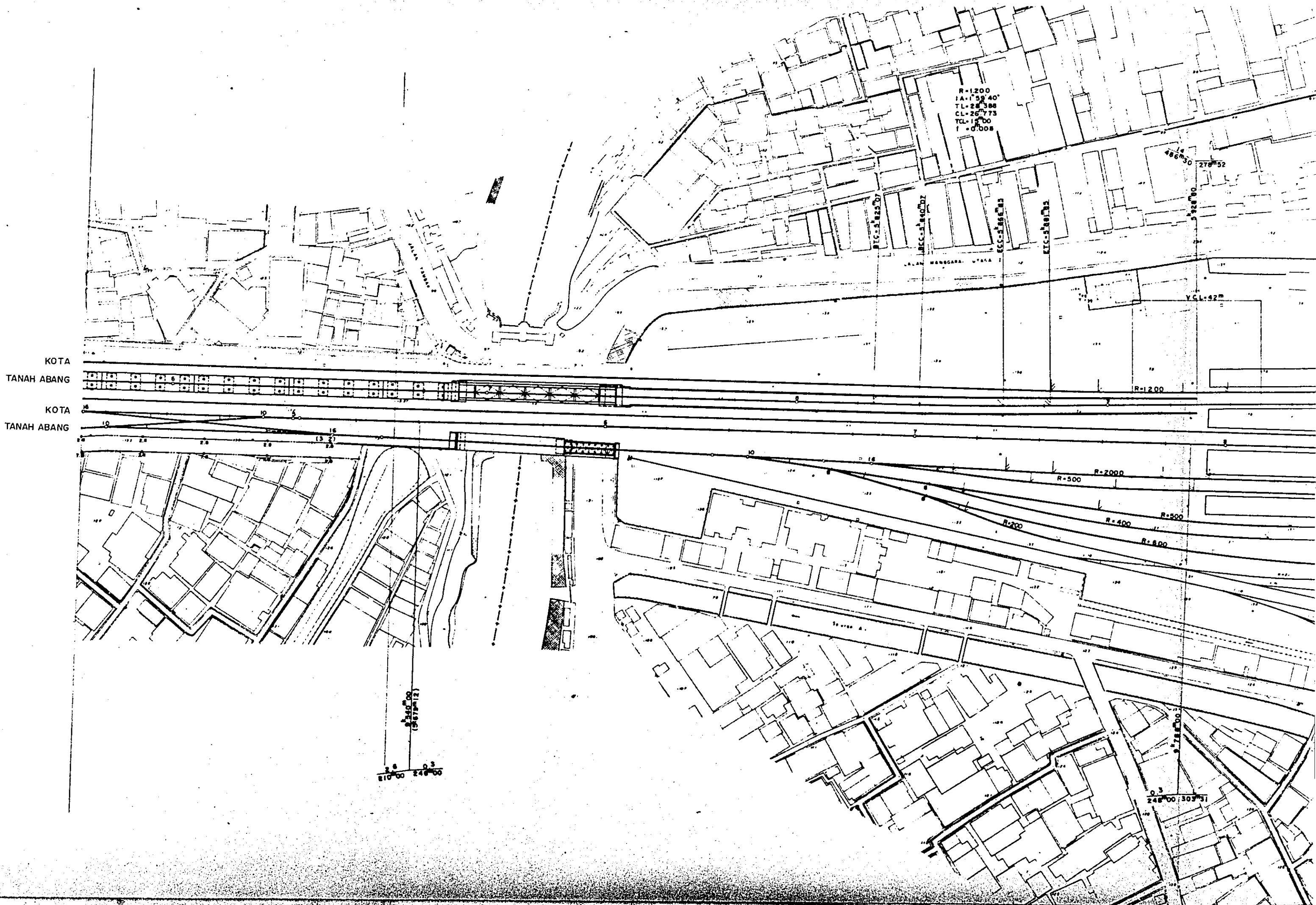
MANGGARAI

PROJECT	GRADE SEPARATED CROSSING IN MANGGARAI STATION
DESCRIPTION	PLAN (2) (INCLUDING REQUIRED RIGHT-OF-WAY)
SCALE	1 : 1,000
DRAWING No.	Dwg. 1. 3
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	

VCL=17m  
 2°33'00"  
 150°00' 210°00'

69°05'55"

81°51'32"



R-1200  
IA-159°40'  
TL-28°388  
CL-26°773  
TCL-15°00  
f=0.008

KOTA  
TANAH ABANG  
KOTA  
TANAH ABANG

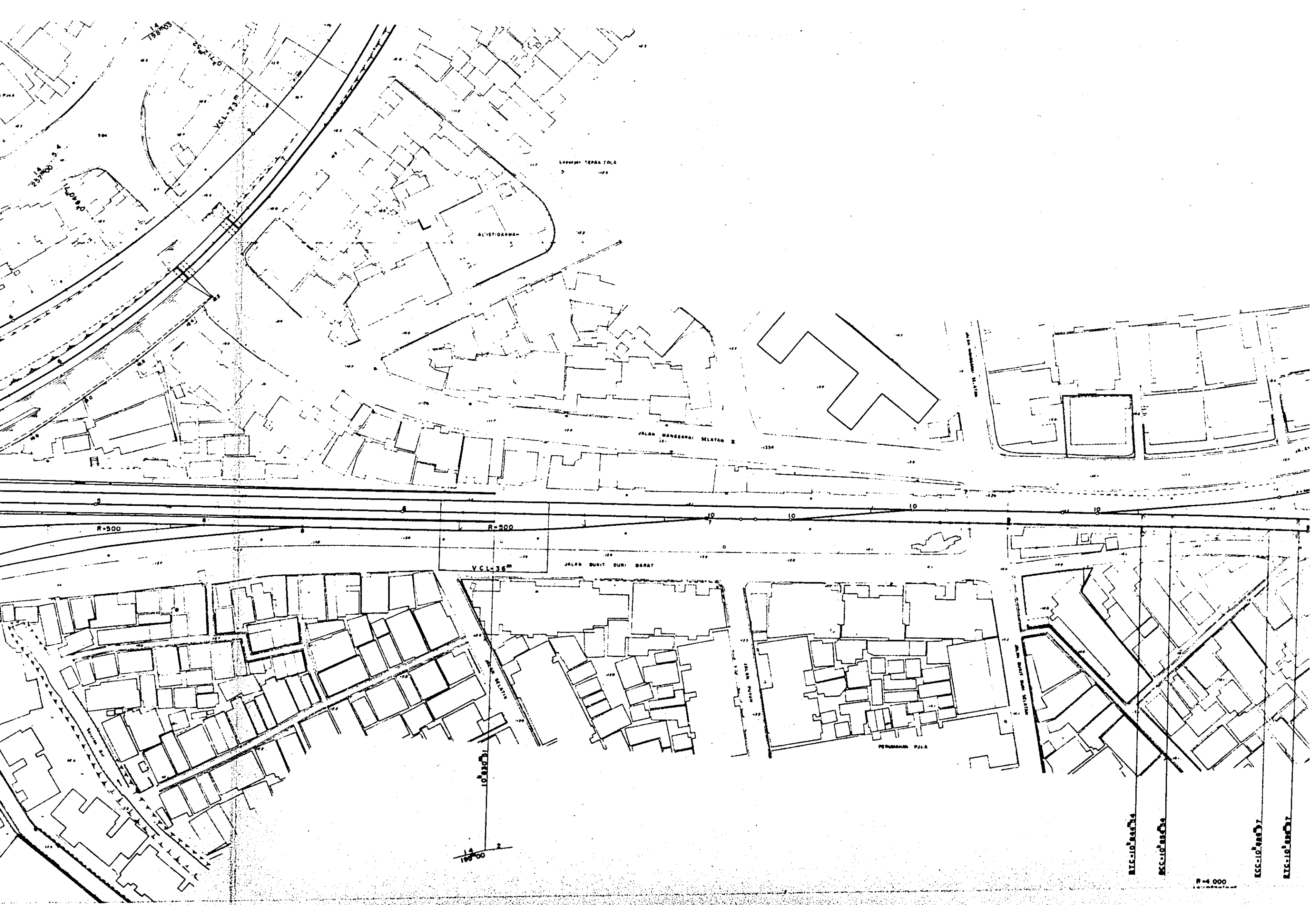
810°00  
248°00  
248°00  
303°00

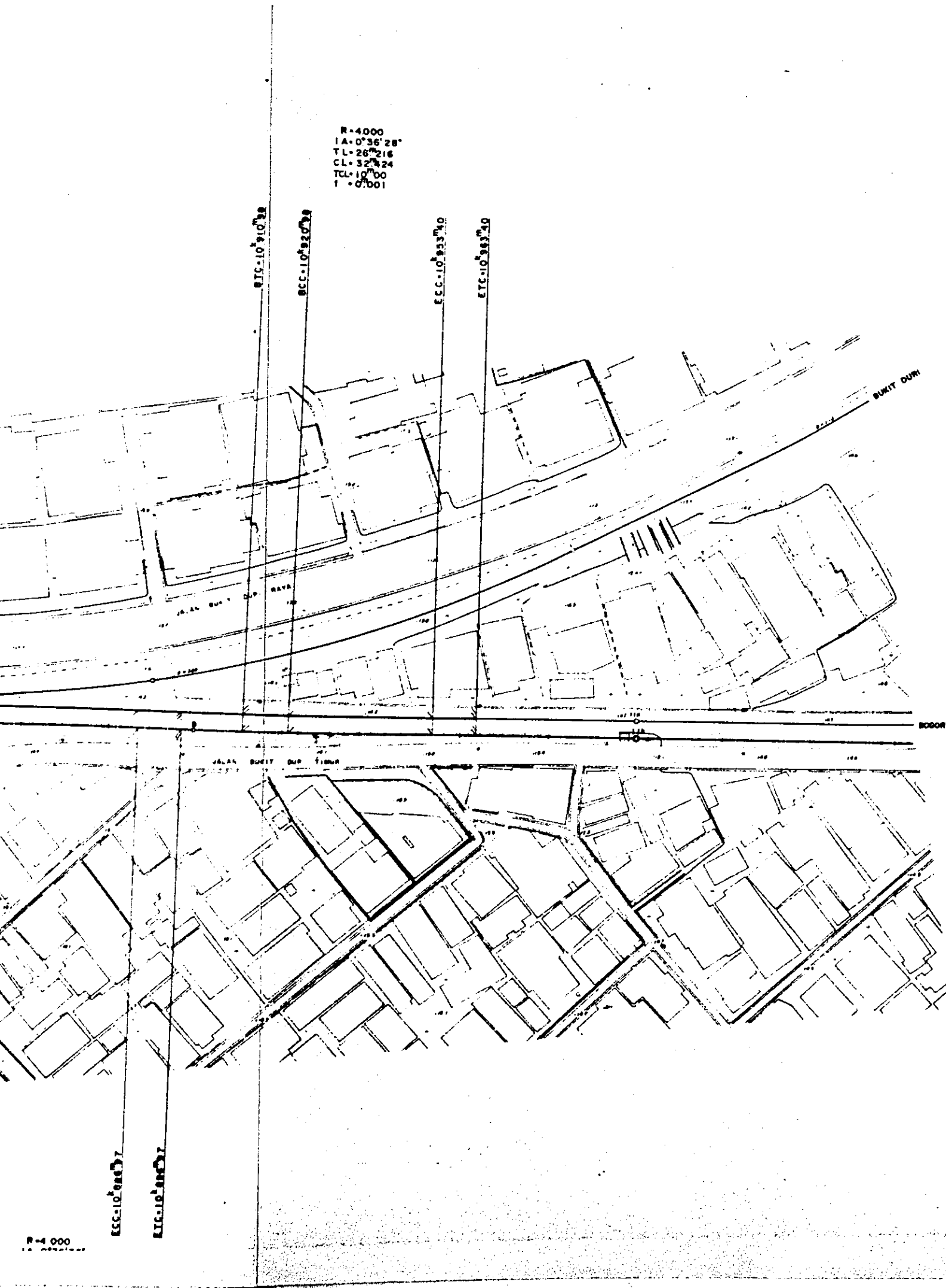
248°00  
303°00











PROJECT	GRADE SEPARATED CROSSING IN MANGGARAI STATION
DESCRIPTION	PLAN (3) (INCLUDING REQUIRED RIGHT-OF-WAY)
SCALE	1 : 1,000
DRAWING No.	Dwg. 1. 4
JAPAN INTERNATIONAL COOPERATION AGENCY ( J I C A )	



R-300  
TA-75  
CL-25  
TU-40  
071230

MANGGARAI

JALAN MANGGARAI UTARA I

JALAN MANGGARAI UTARA II

JALAN MANGGARAI SELATAN II

JALAN MANGGARAI UTARA I

JALAN MANGGARAI SELATAN II

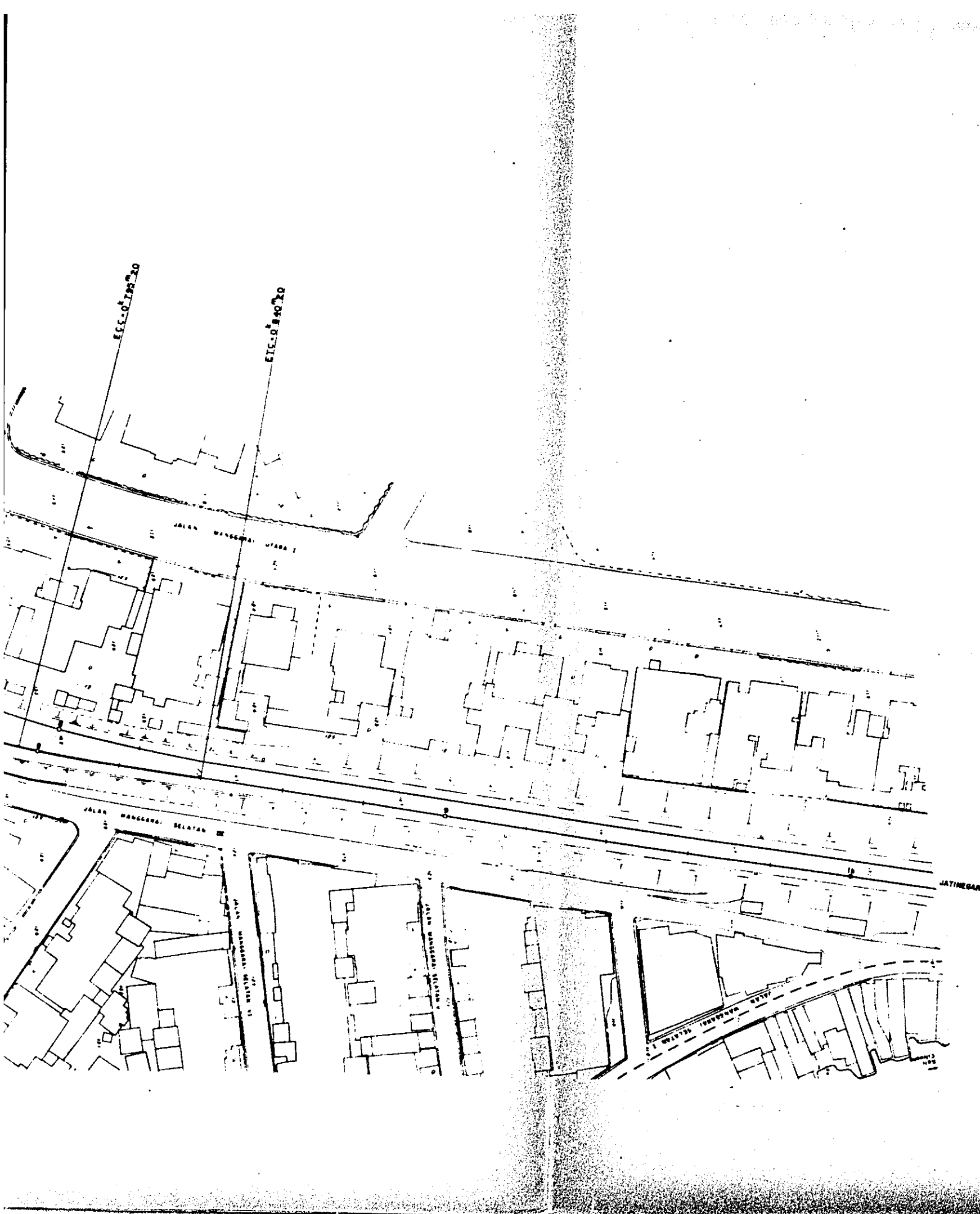
ALY...  
L...

L...

L...

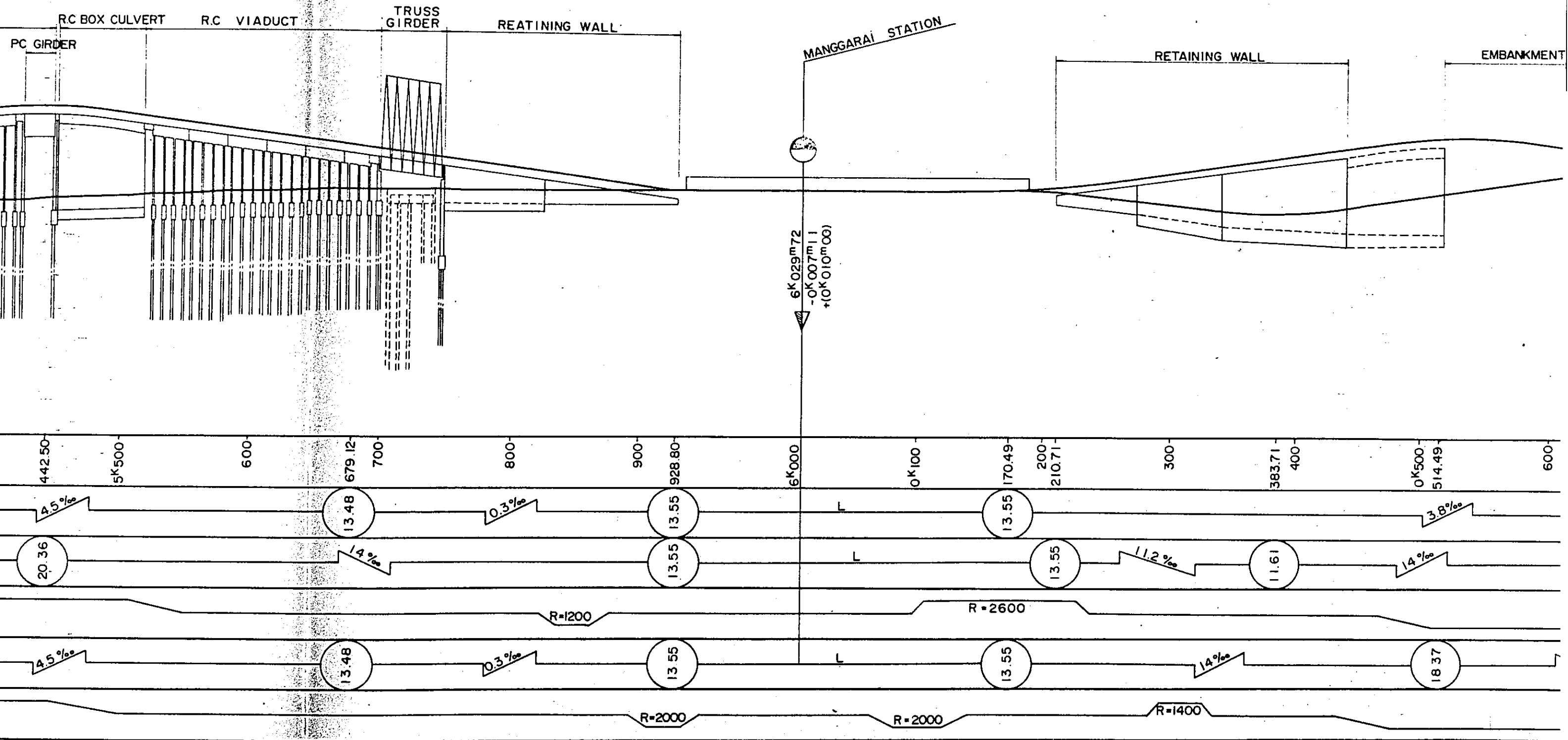
L...

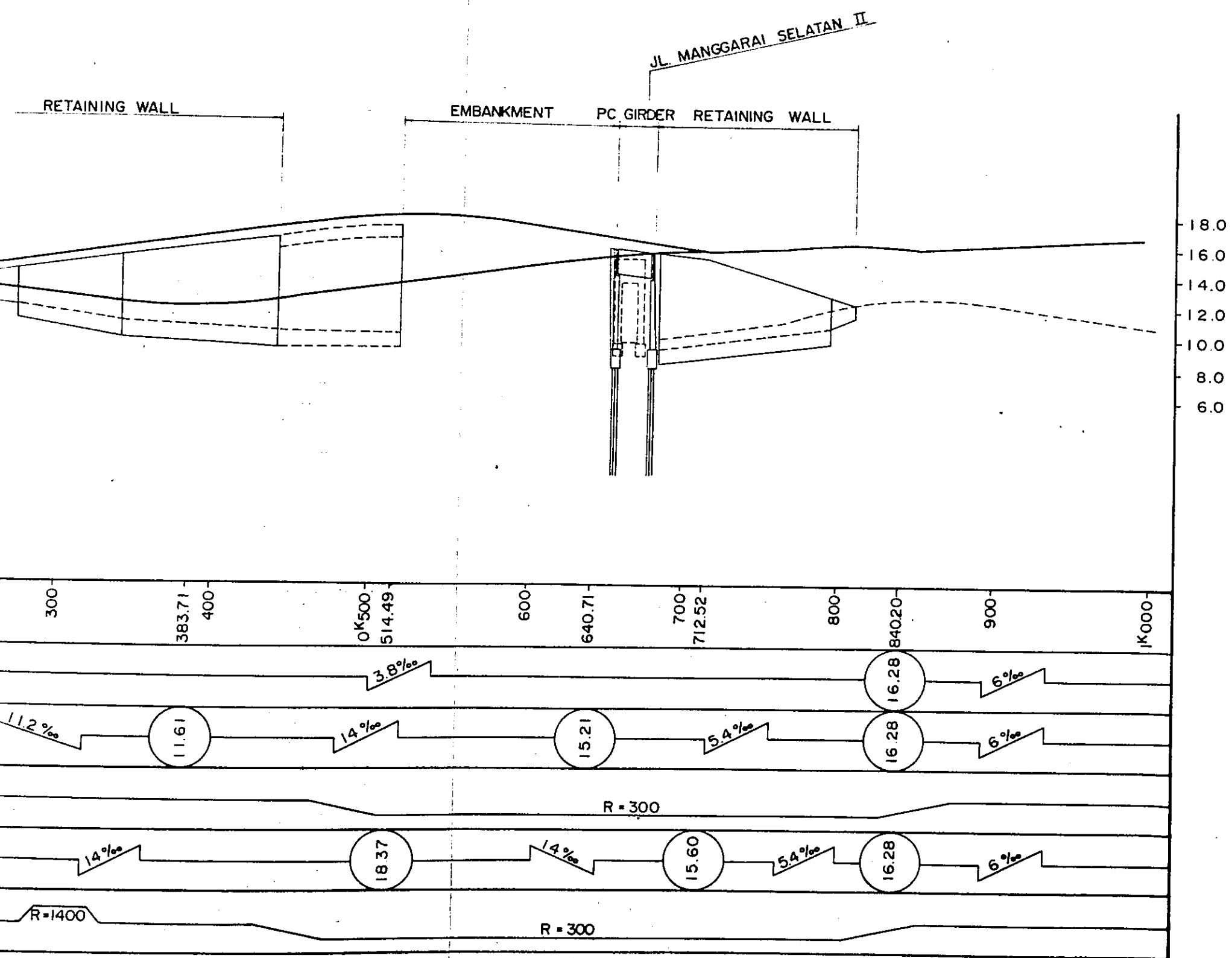
L...



PROJECT	GRADE SEPARATED CROSSING IN MANGGARAI STATION
DESCRIPTION	PLAN (4) (INCLUDING REQUIRED RIGHT-OF-WAY)
SCALE	1 : 1.000
DRAWING No.	Dwg. 1.5
JAPAN INTERNATIONAL COOPERATION AGENCY ( J I C A )	

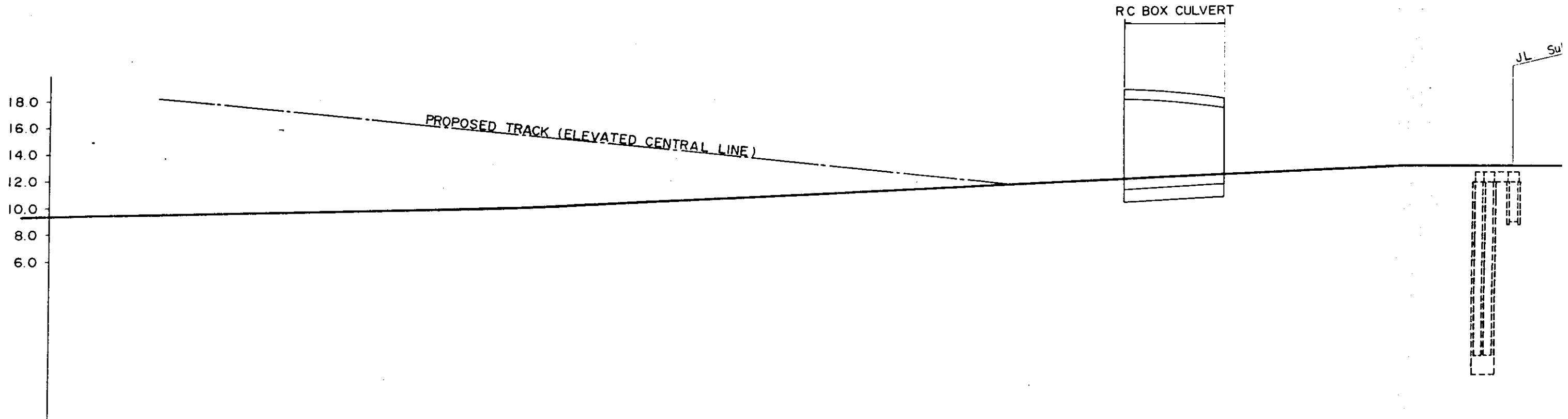






PROJECT	GRADE SEPARATED CROSSING IN MANGGARAI STATION
DESCRIPTION	PROFILE (WESTERN LINE) (1)
SCALE	DIFFERENT REDUCTION HORIZONTAL=1:2000 VERTICAL=1:200
DRAWING No.	Dwg. 1.6
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	





KILOMETERAGE	8K 600	700	770	800	900	9K 000	100	200	300	330	400	9K 500	540	600
EXISTING GRAND HEIGHT (RAIL TOP)	1.4‰		9.73		5‰			11.88		4.7‰			13.48	
PROPOSED PROFILE	1.4‰		9.73		5‰			11.88	8.1‰	12.93			2.6‰	
PROPOSED PLAN						R = 2000					R = 2000			

VERT

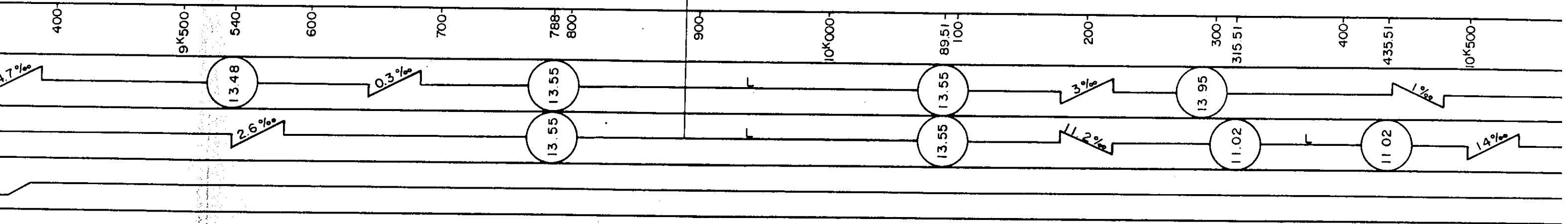
JL. Sultan Agung

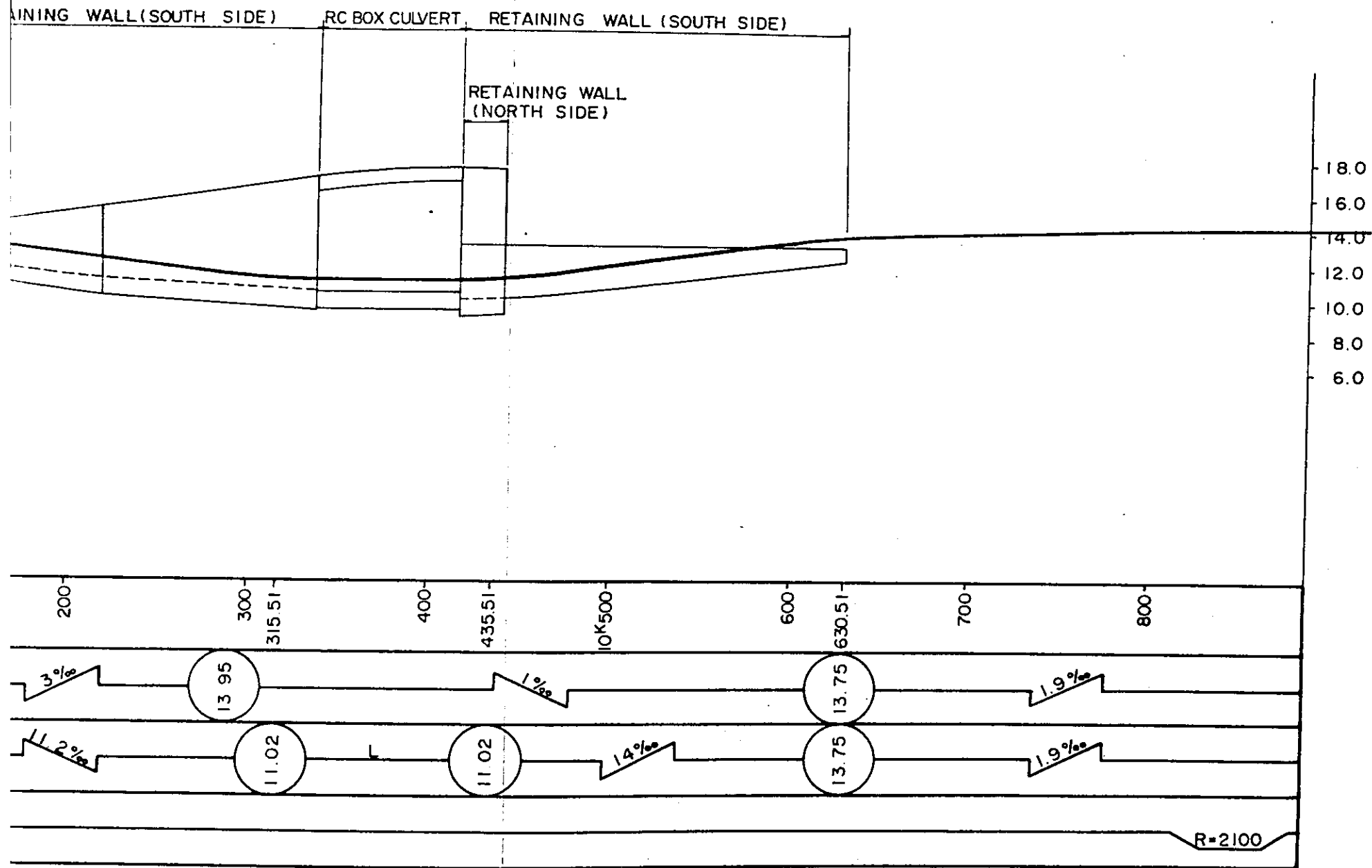
MANGGARAI STATION

RETAINING WALL (SOUTH SIDE) RC BOX CULVERT RETAINING WALL (SOUTH

RETAINING WALL (NORTH SIDE)

9 K 890 m 60  
9 K 889 m 80





PROJECT	GRADE SEPARATED CROSSING IN MANGGARAI STATION
DESCRIPTION	PROFILE (CENTRAL LINE) (2)
SCALE	DIFFERENT REDUCTION HORIZONTAL=1:2,000 VERTICAL=1:200
DRAWING No.	Dwg.1. 7
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	

TO TANAH ABANG

▽ R.L  
▽ G.L  
▽ D.L = 10.000

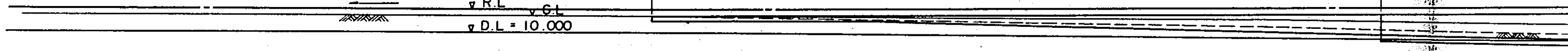
2 14  
583<sup>M</sup>00  
V.C.L = 56 M

4<sup>K</sup> 859<sup>M</sup> 50

(GRAVITY WALL) 68 500

4<sup>K</sup> 928<sup>M</sup> 00

RETAINING WALL



4' 928' 00

RETAINING WALL L = 146<sup>M</sup>.50

(CANTILEVER WALL) 78 000

5' 006' 00

5' 011' 00

5 000

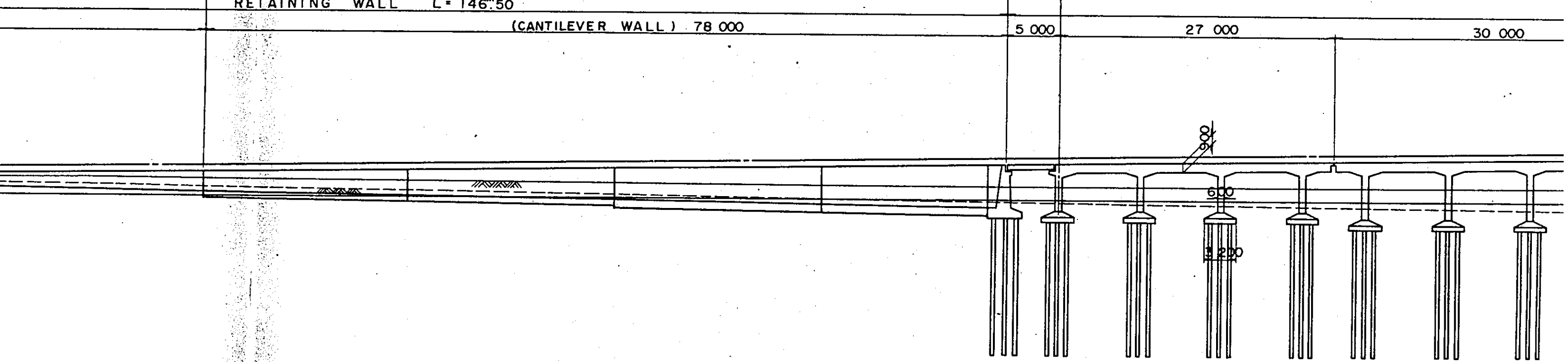
27 000

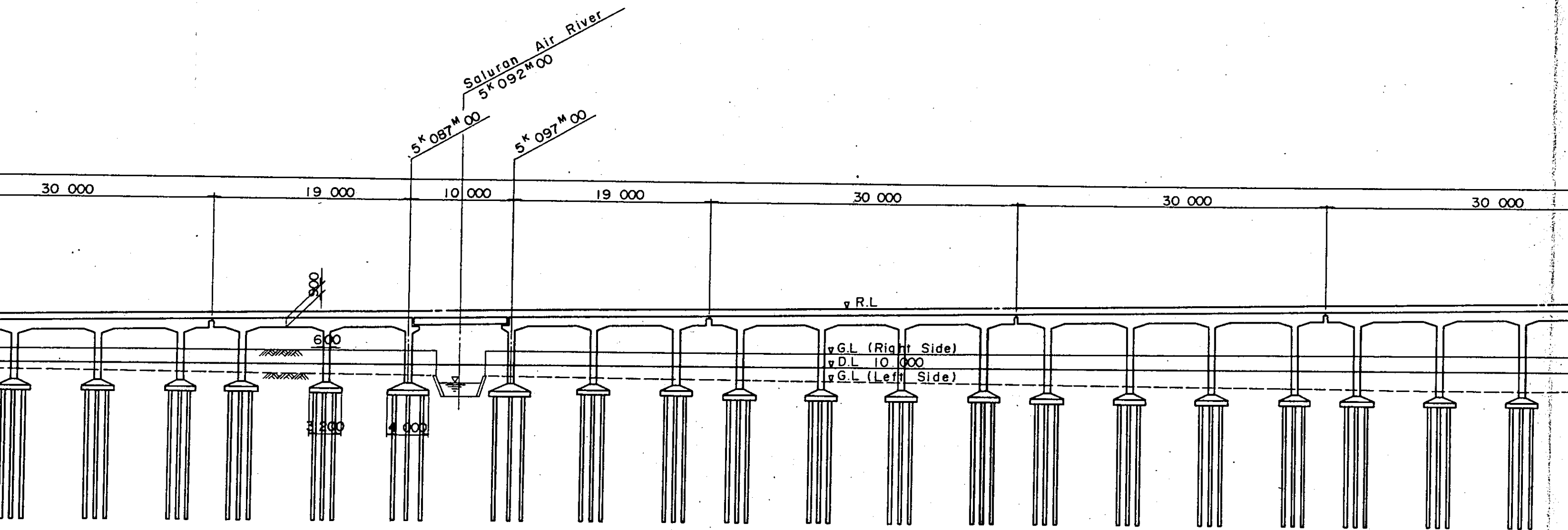
30 000

80

600

3 200





R.C VIADUCT L = 439<sup>M</sup>.50

30 000

30 000

30 000

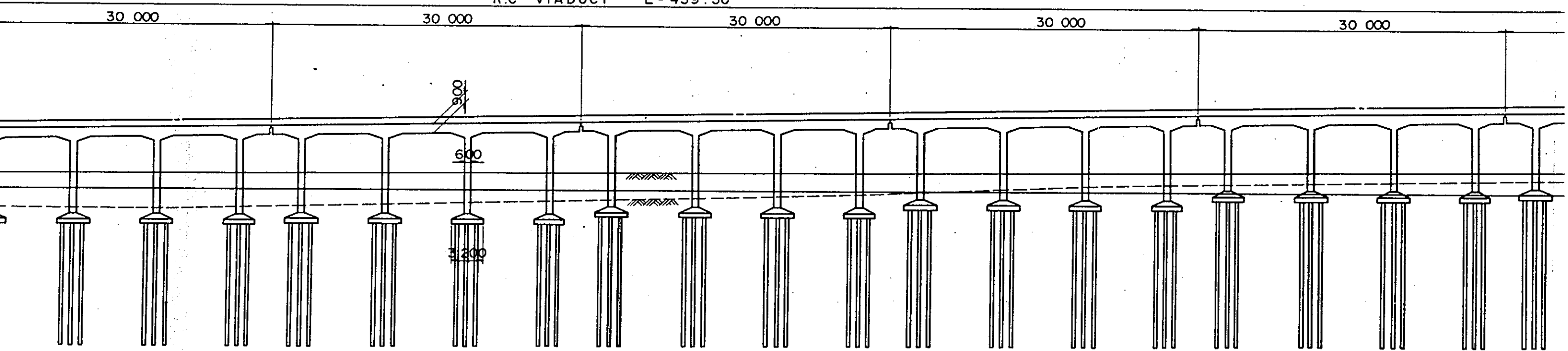
30 000

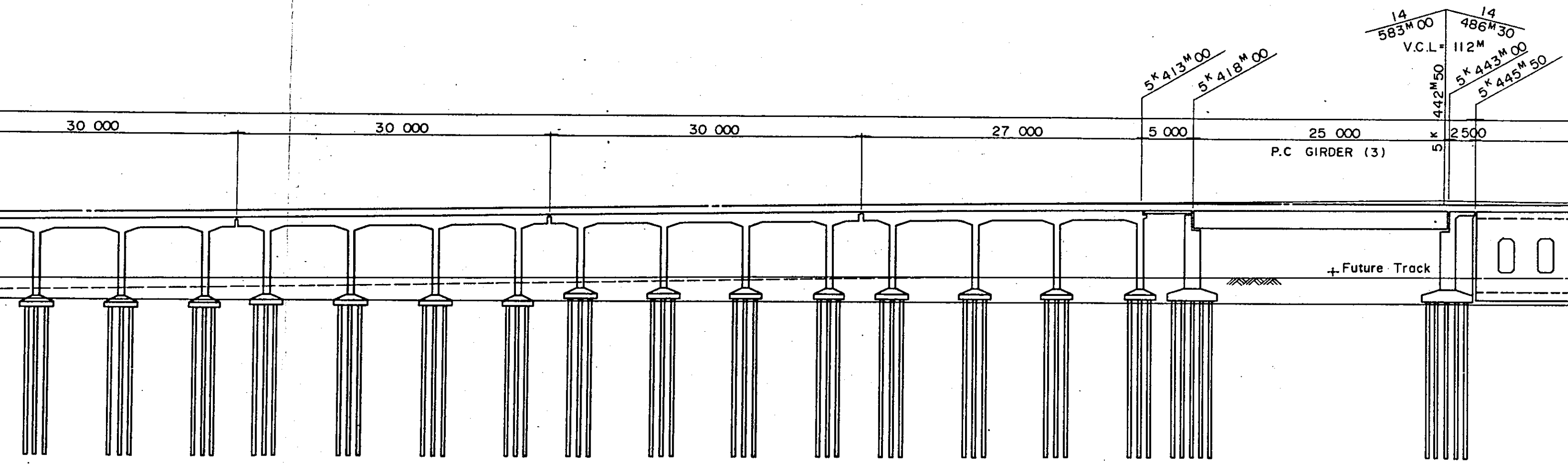
30 000

900

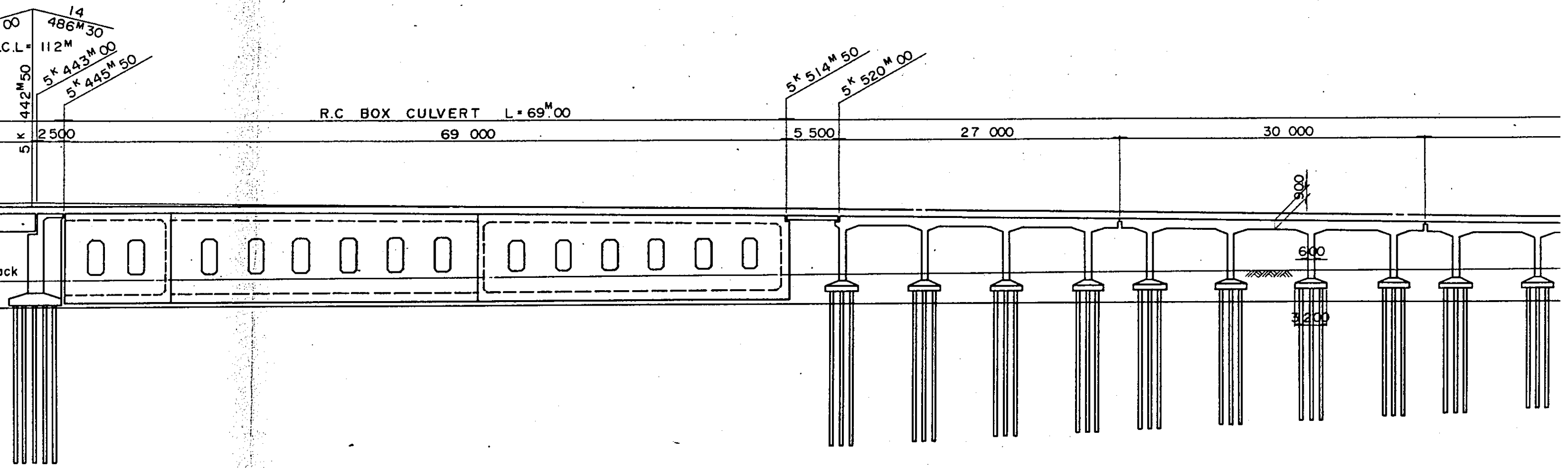
600

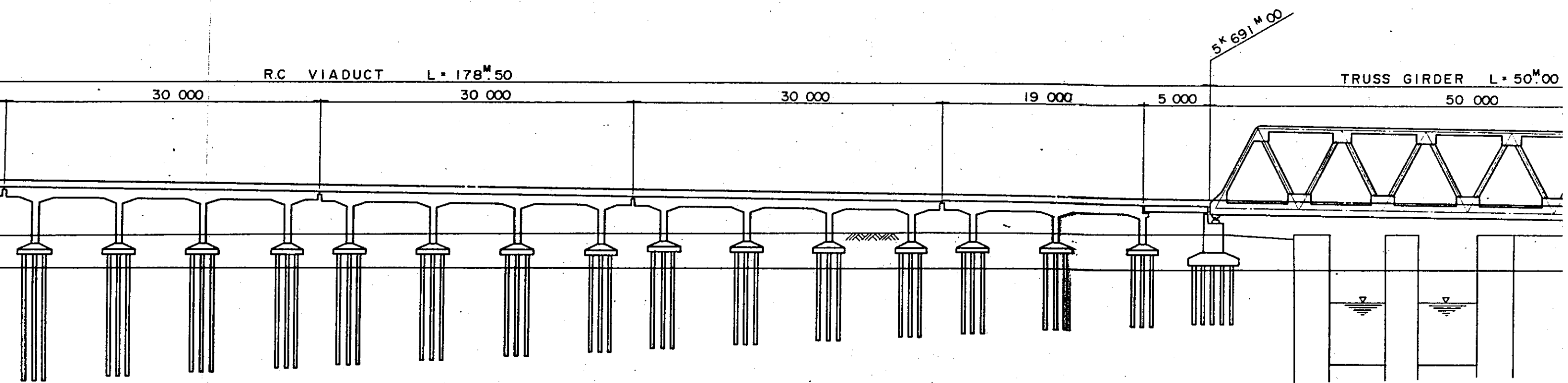
1200











00

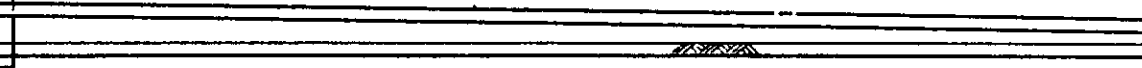
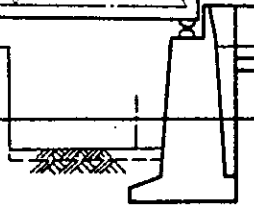
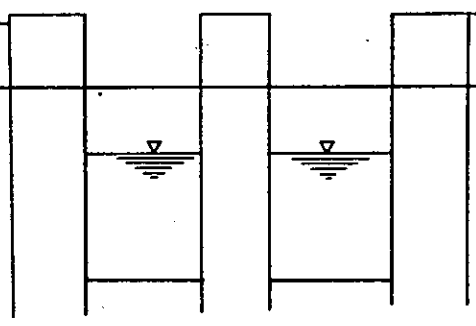
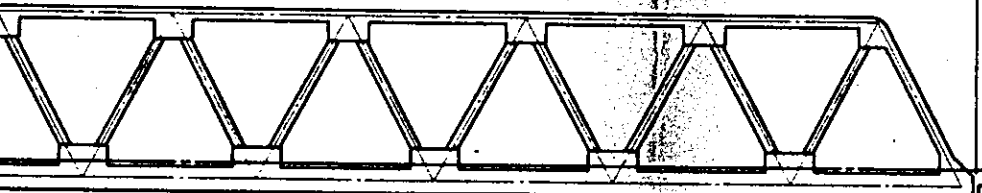
TRUSS GIRDER L = 50<sup>M</sup>.00  
50 000

5' 741<sup>M</sup>.00

(CANTILEVER WALL) 50 000

5' 791<sup>M</sup>.00

RETAINING WALL L = 187<sup>M</sup>.8  
(GRAVI



NING WALL L = 187<sup>M</sup>80  
(GRAVITY WALL) 137 800

14  
486<sup>M</sup>30 Level  
278<sup>M</sup>52  
V.C.L = 42<sup>M</sup>

5 K 928<sup>M</sup> 80

PLATFORM

D.L = 10

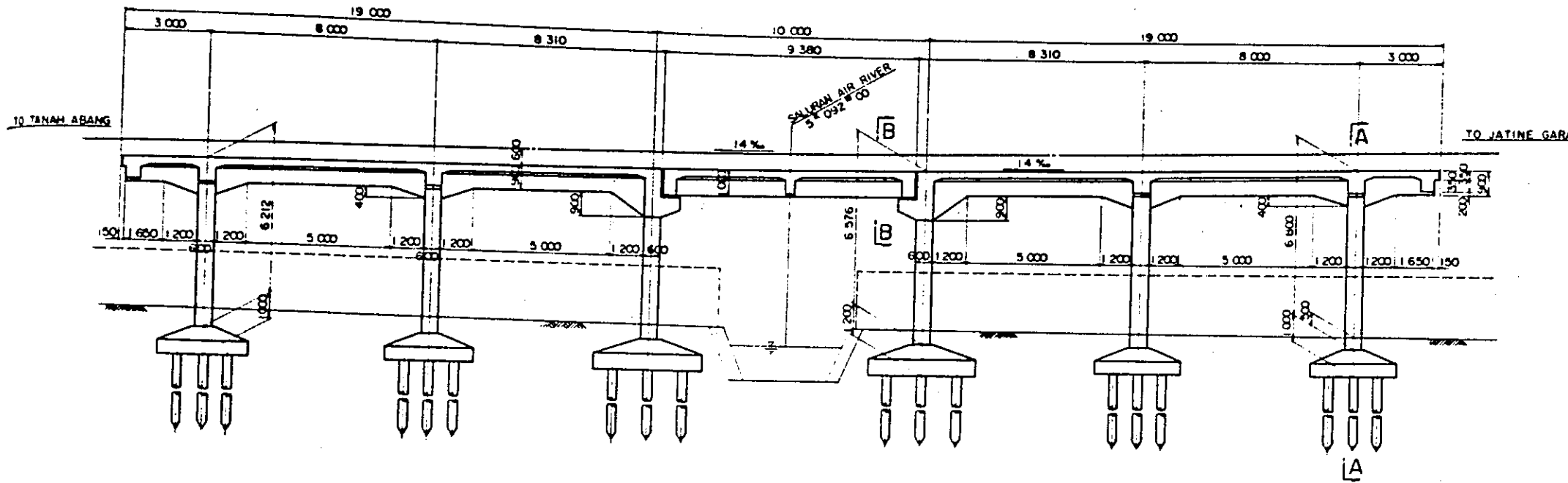
PLATFORM

D.L = 10.00

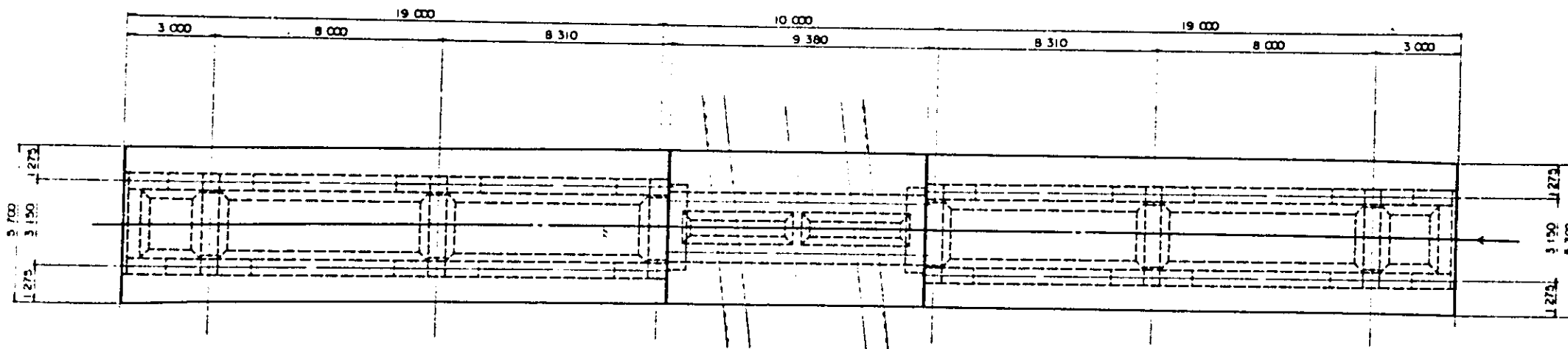
PROJECT	GRADE SEPARATED CROSSING IN MANGGARAI STATION
DESCRIPTION	GENERAL VIEW
SCALE	1 : 250 DIFFERENT REDUCTION
DRAWING No.	Dwg.1. 8
JAPAN INTERNATIONAL COOPERATION AGENCY ( J I C A )	



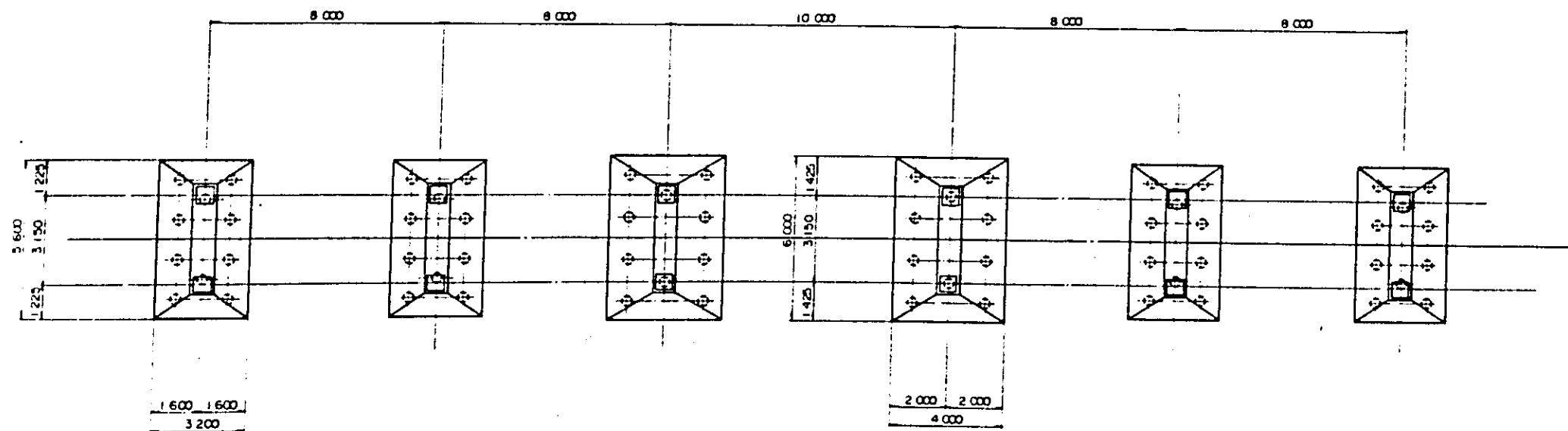
SIDE VIEW



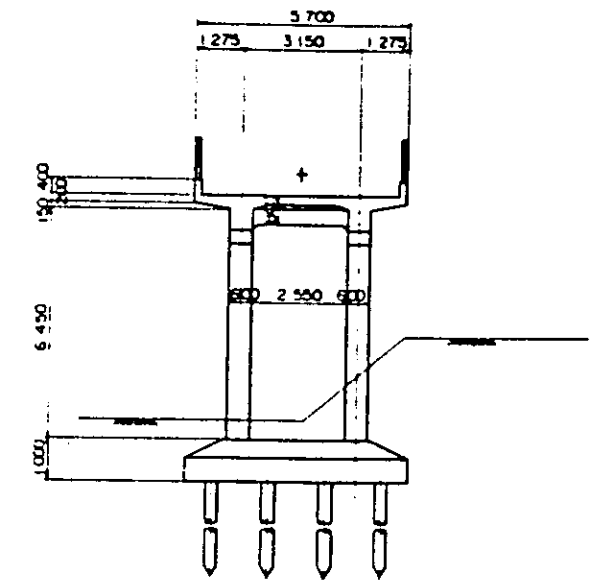
PLAN



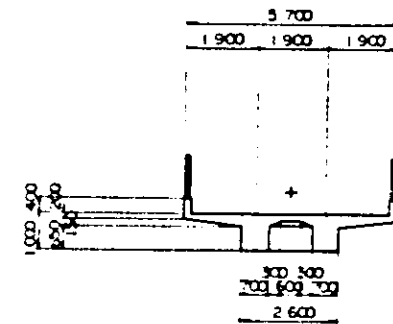
FOOTING



SECTION A-A

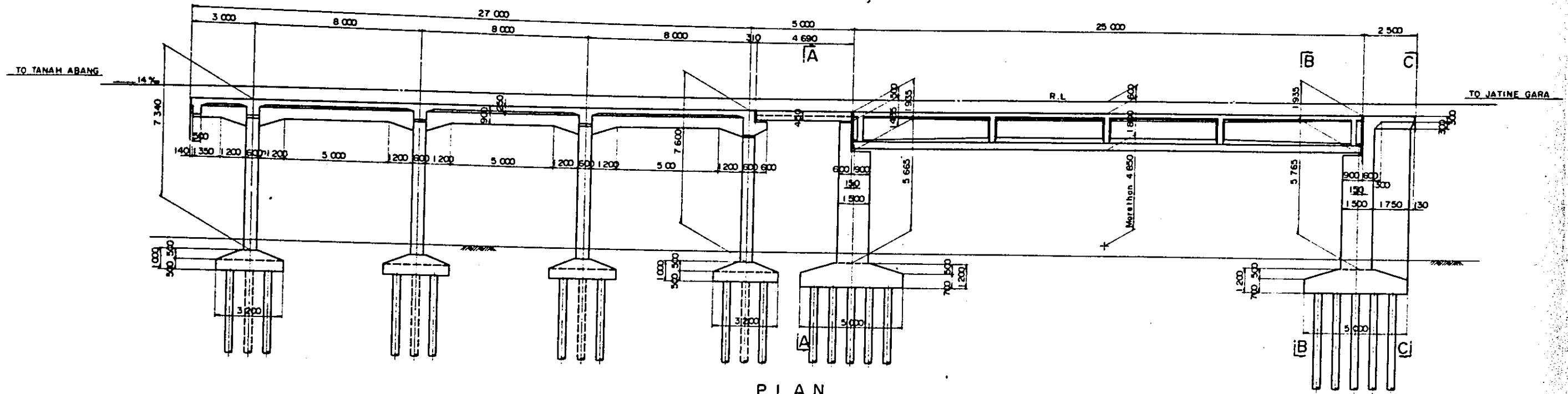


SECTION B-B

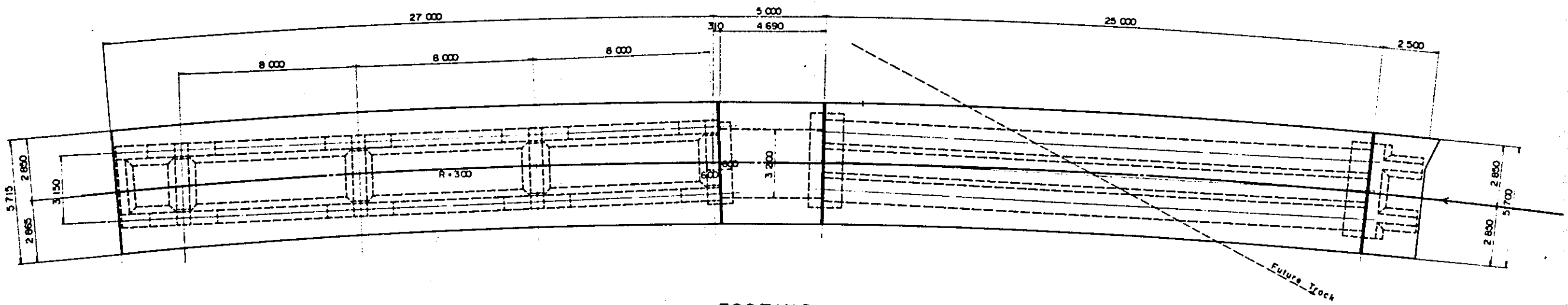


PROJECT	GRADE SEPARATED CROSSING IN MANGGARAI STATION
DESCRIPTION	R.C VIADUCT (2)
SCALE	DIFFERENT REDUCTION
DRAWING No	Dwg. 1. 10
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	

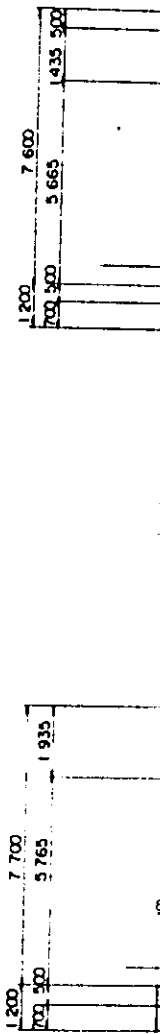
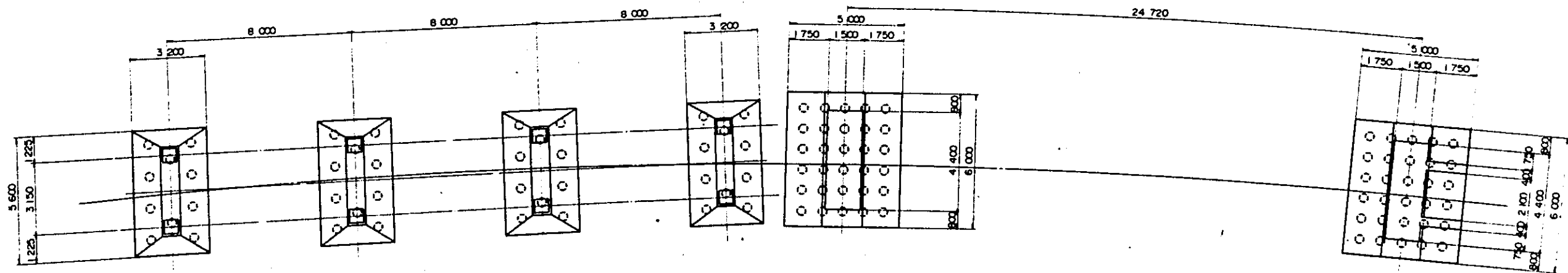
SIDE VIEW



PLAN

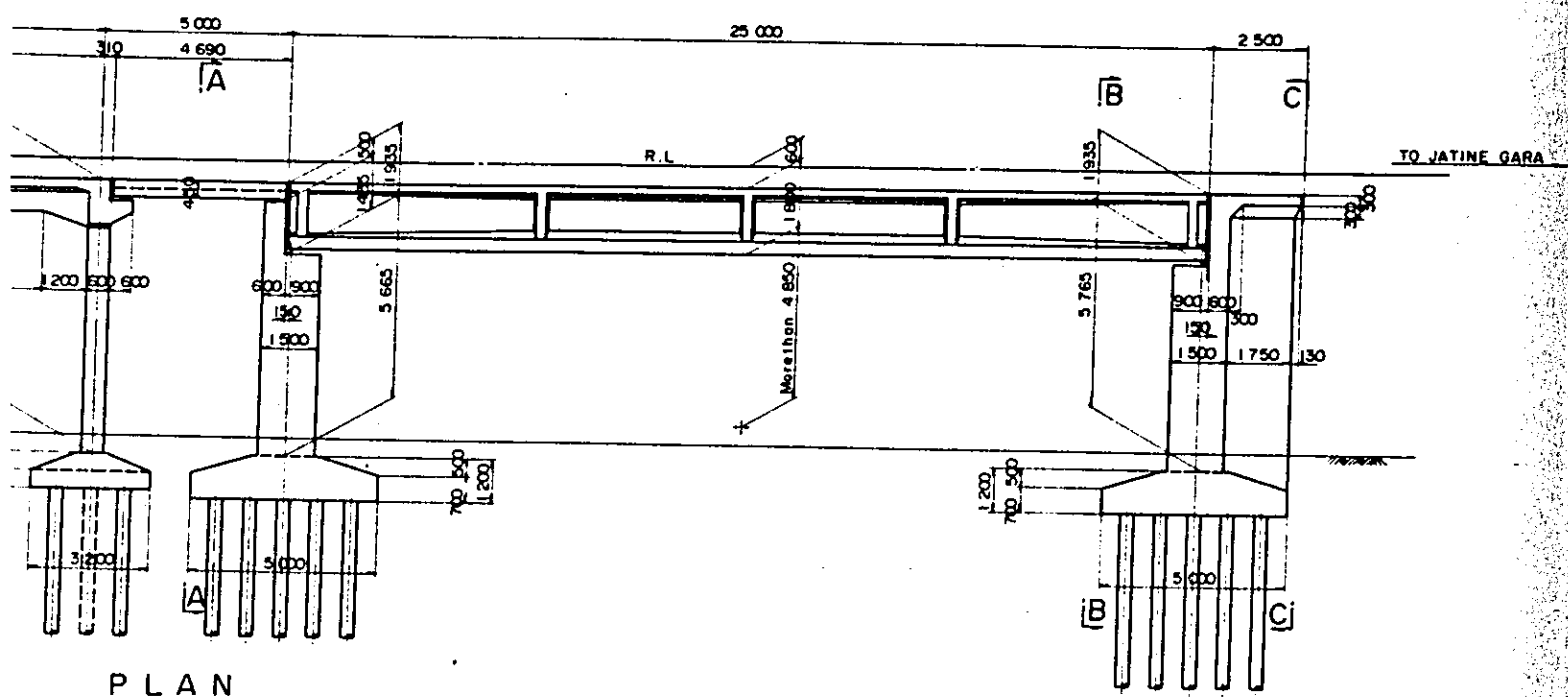


FOOTING

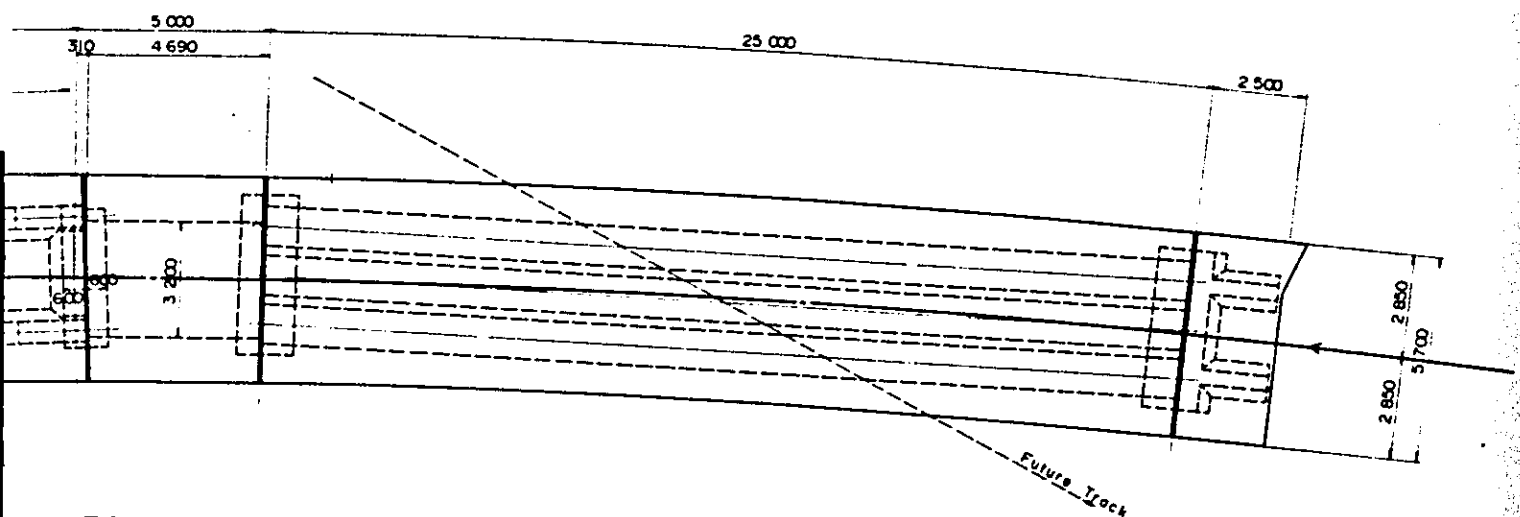




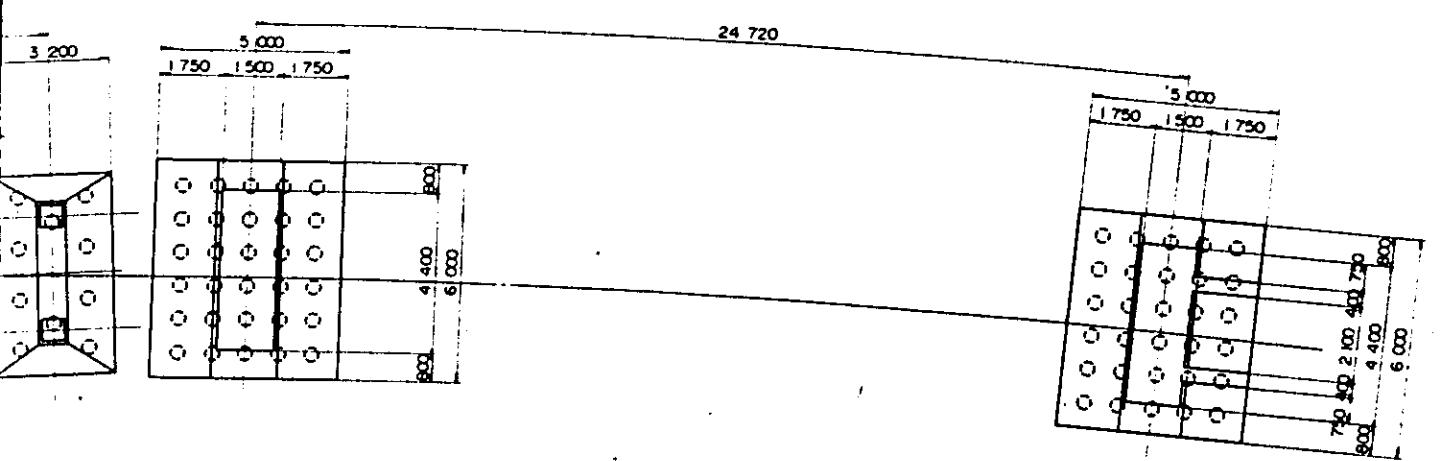
SIDE VIEW



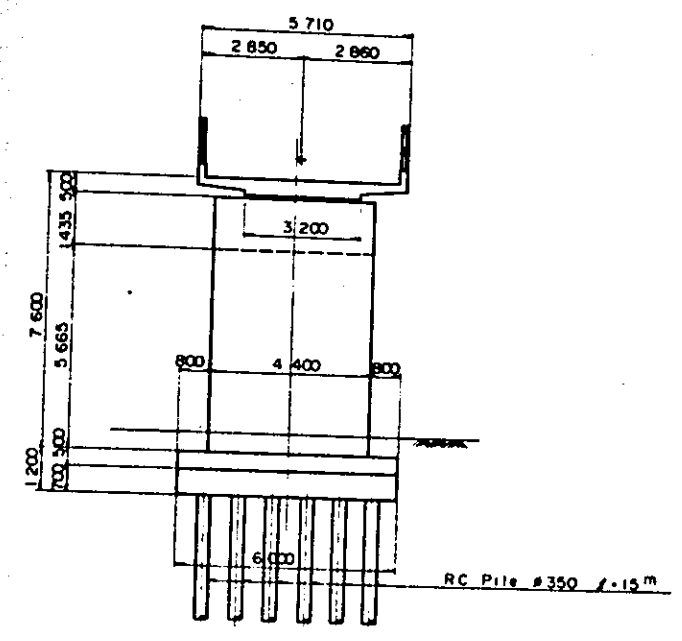
PLAN



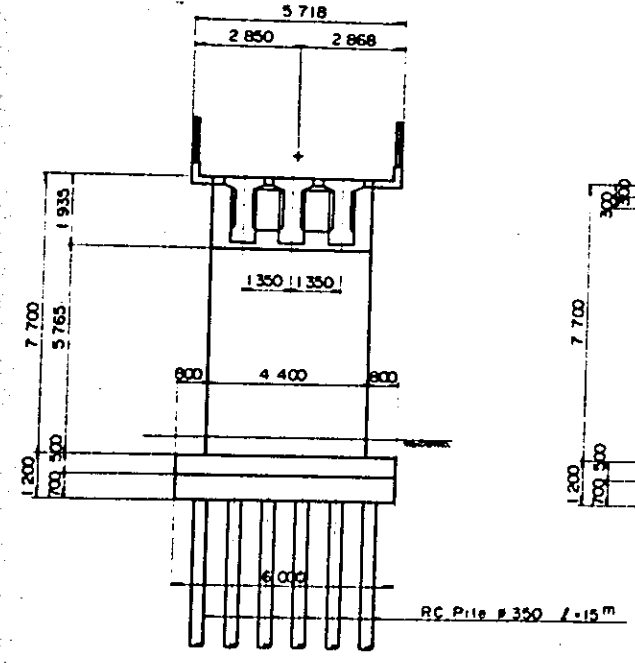
FOOTING



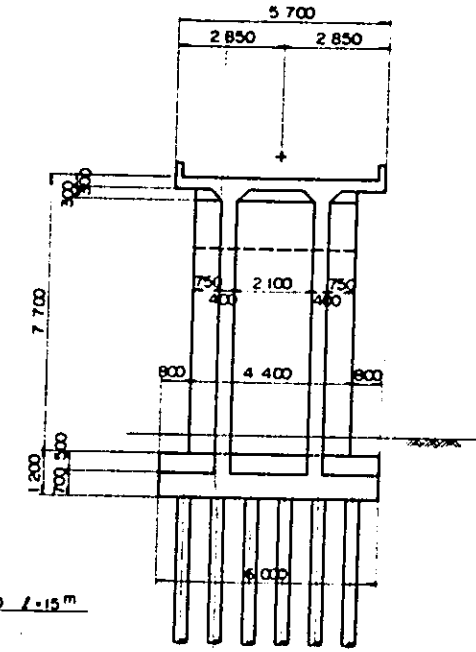
SECTION A-A



SECTION B-B

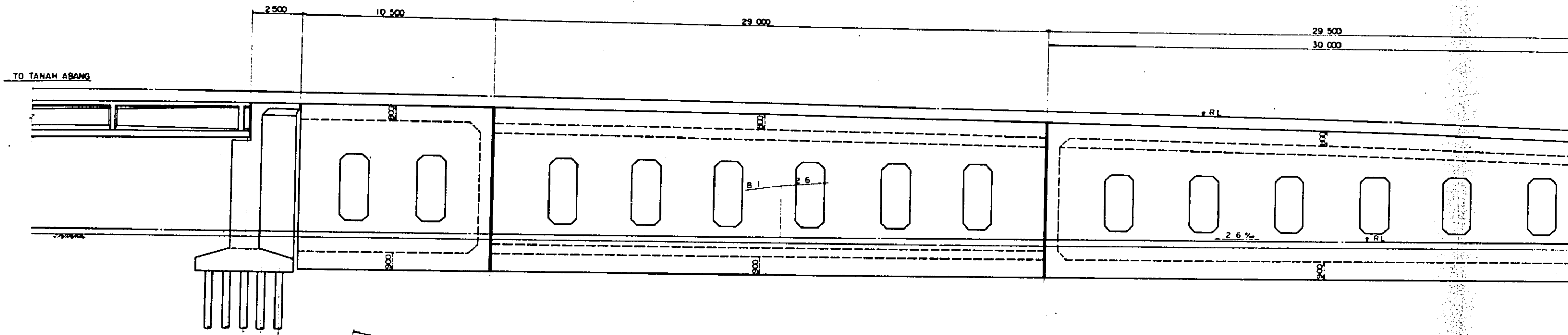


SECTION C-C

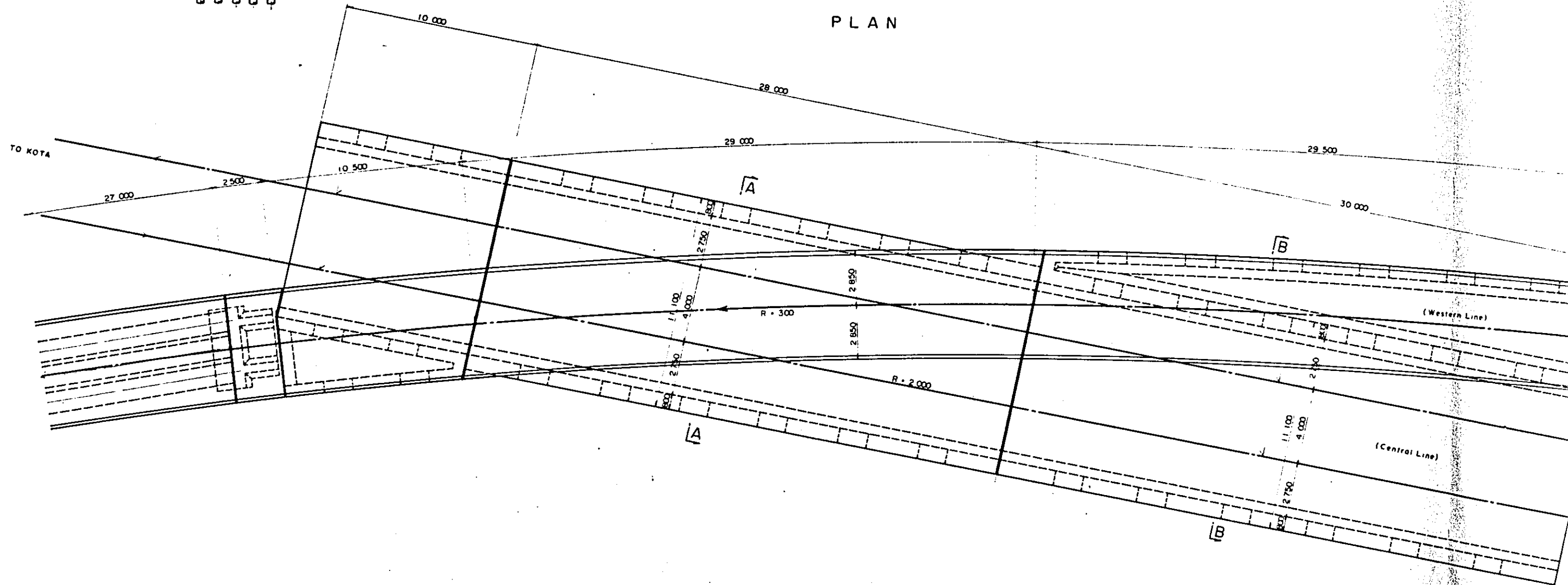


PROJECT	GRADE SEPARATED CROSSING IN MANGGARAI STATION
DESCRIPTION	R.C VIADUCT (3) (P.C GIRDER)
SCALE	DIFFERENT REDUCTION : 100
DRAWING No.	Dwg. 1. 11
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	

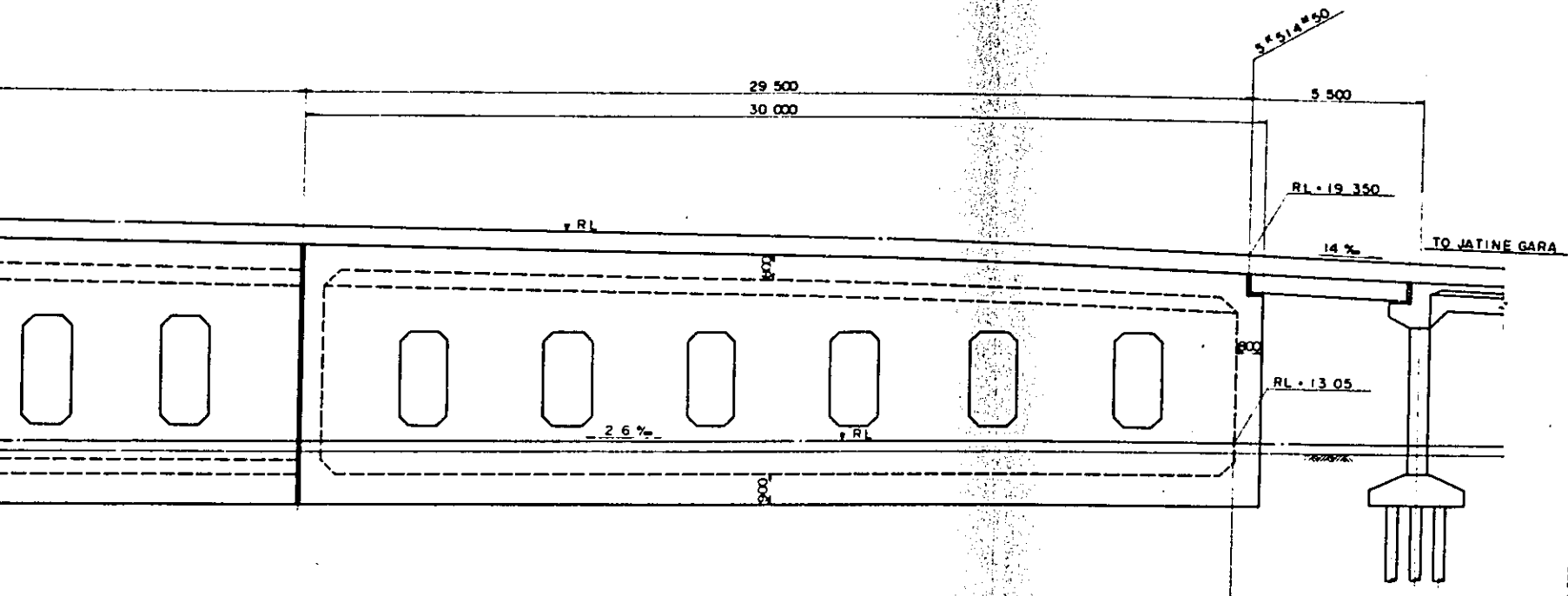
SIDE VIEW



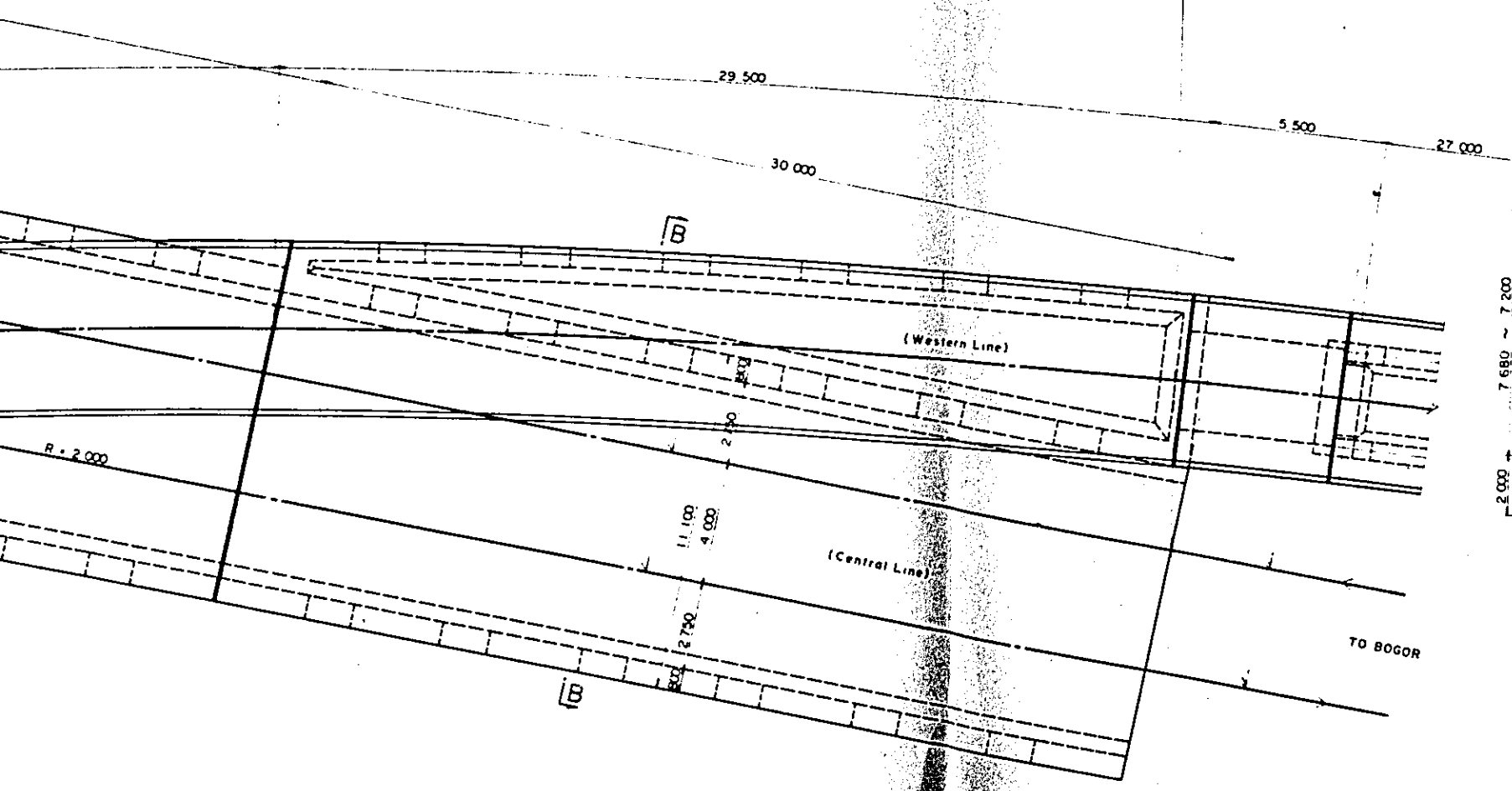
PLAN



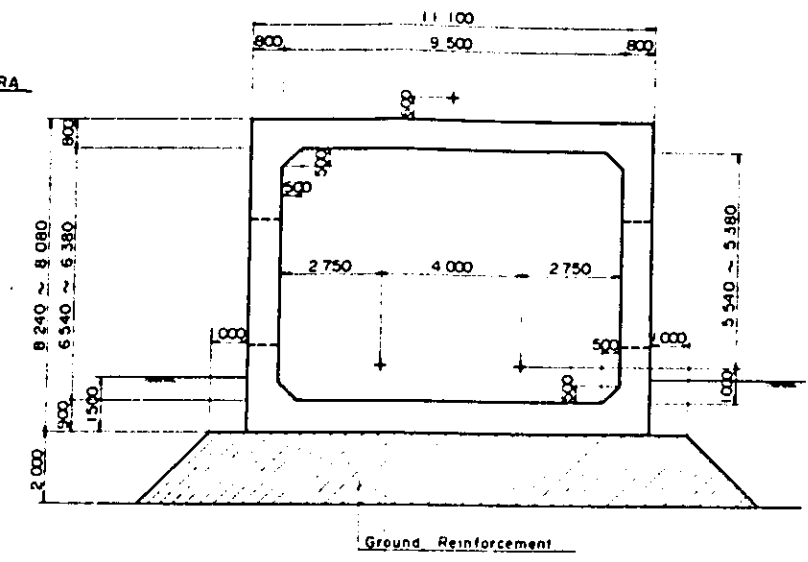
VIEW



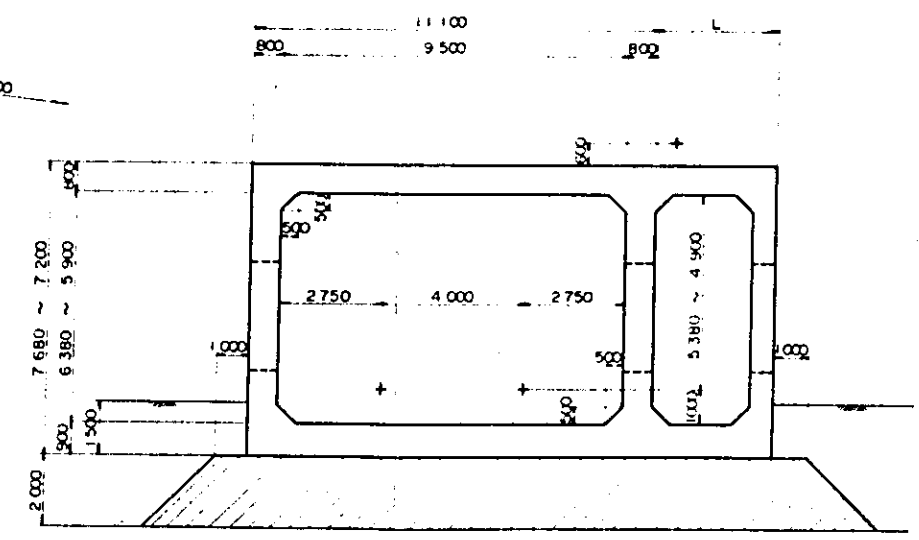
AN



SECTION A-A

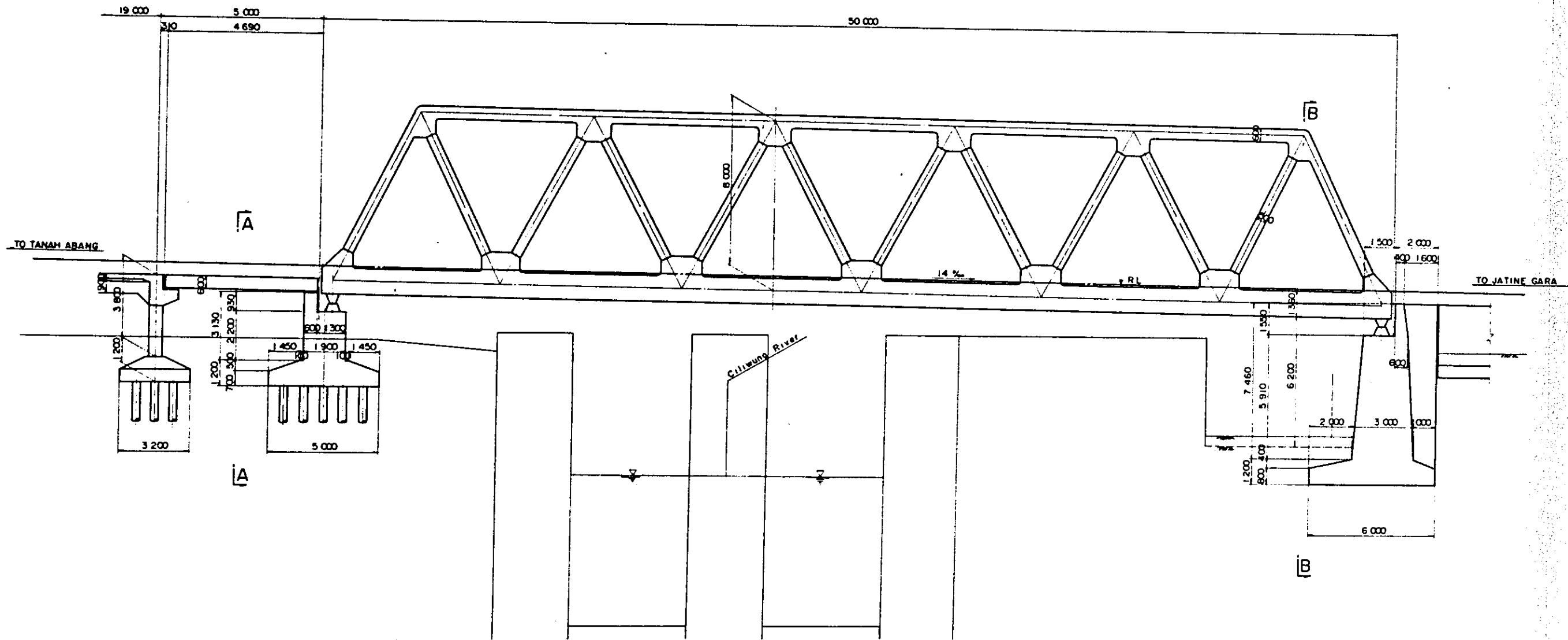


SECTION B-B

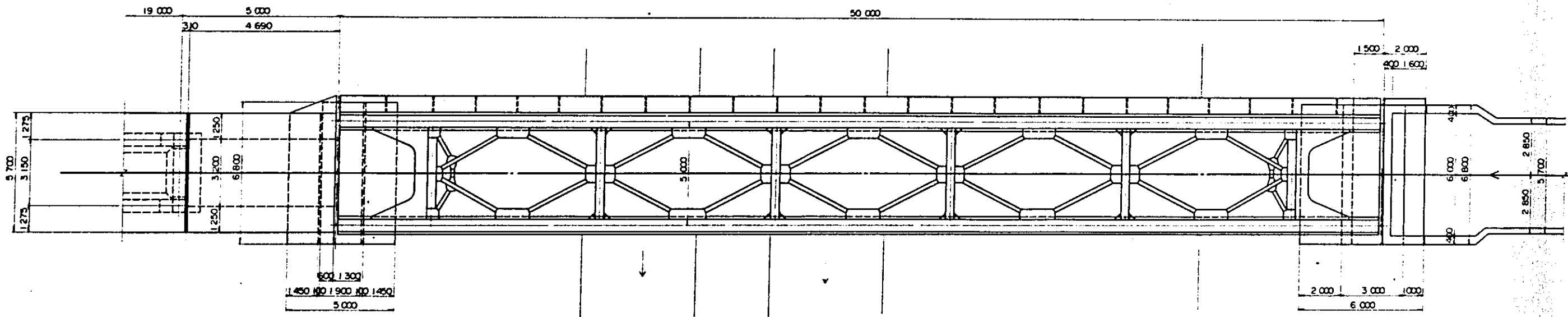


PROJECT	GRADE SEPARATED CROSSING IN MANGGARAI STATION
DESCRIPTION	BOX CULVERT (KOTA SIDE)
SCALE	DIFFERENT REDUCTION 1 : 100
DRAWING No.	Dwg. 1. 12
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	

SIDE VIEW

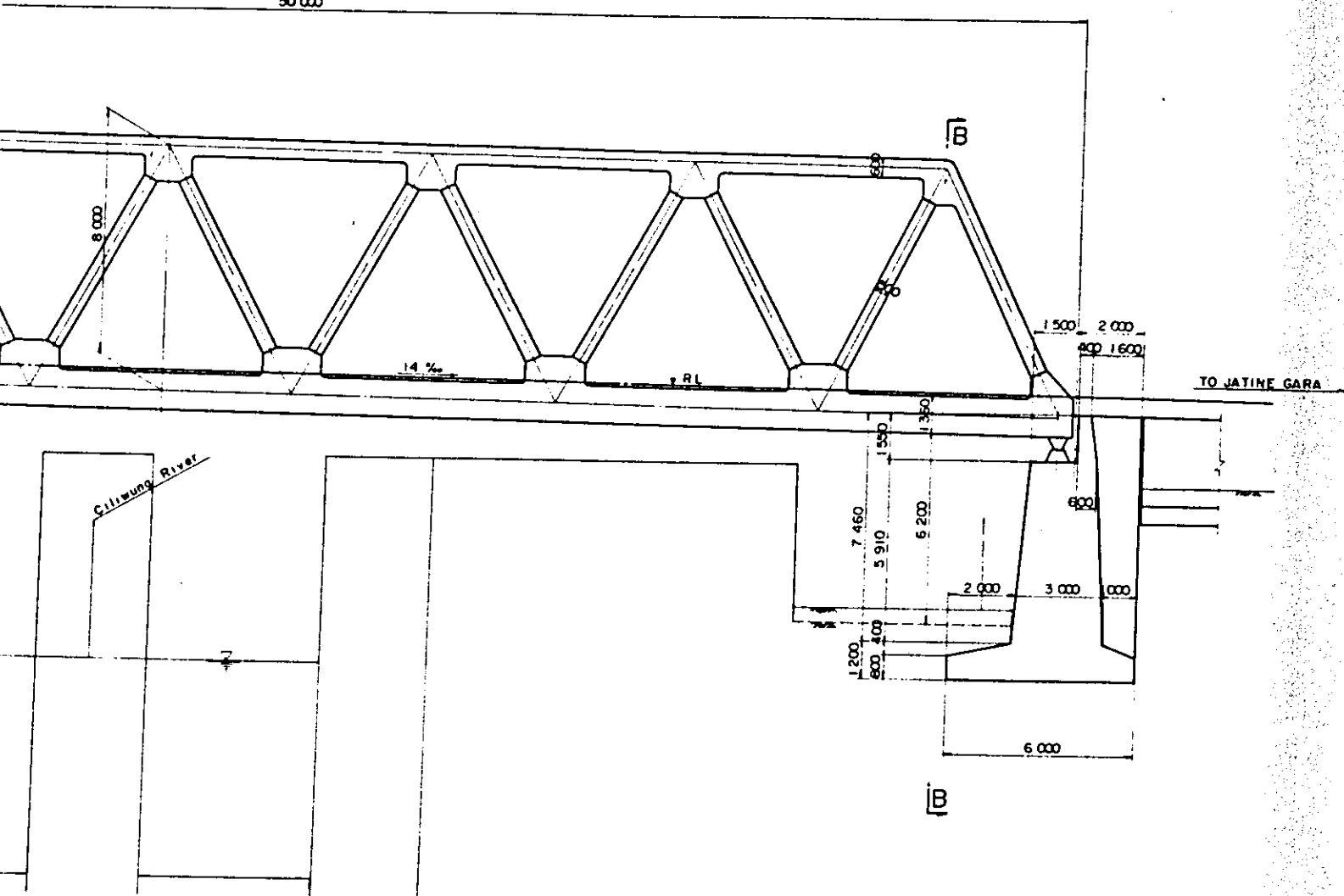


PLAN



SIDE VIEW

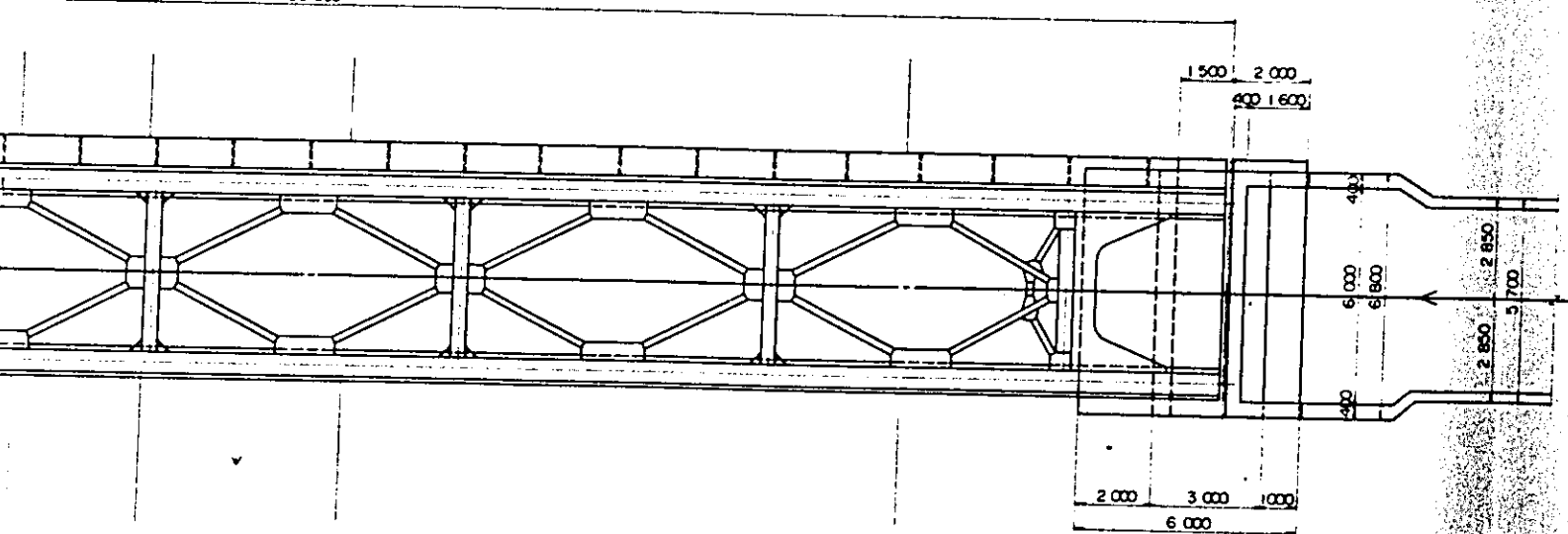
50 000



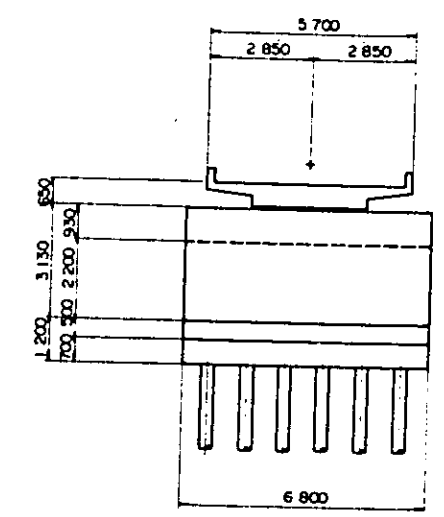
TO JATINE GARA

PLAN

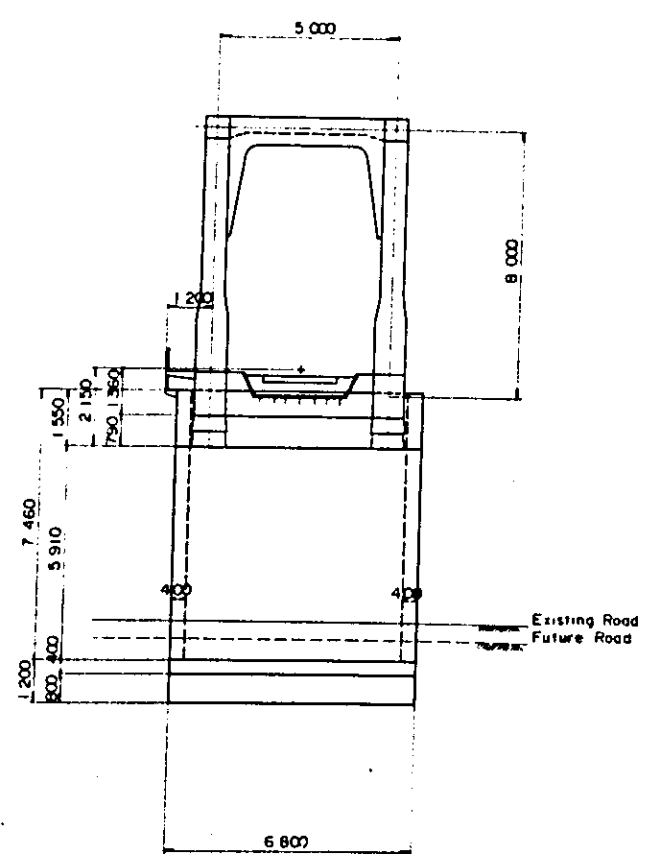
50 000



SECTION A-A



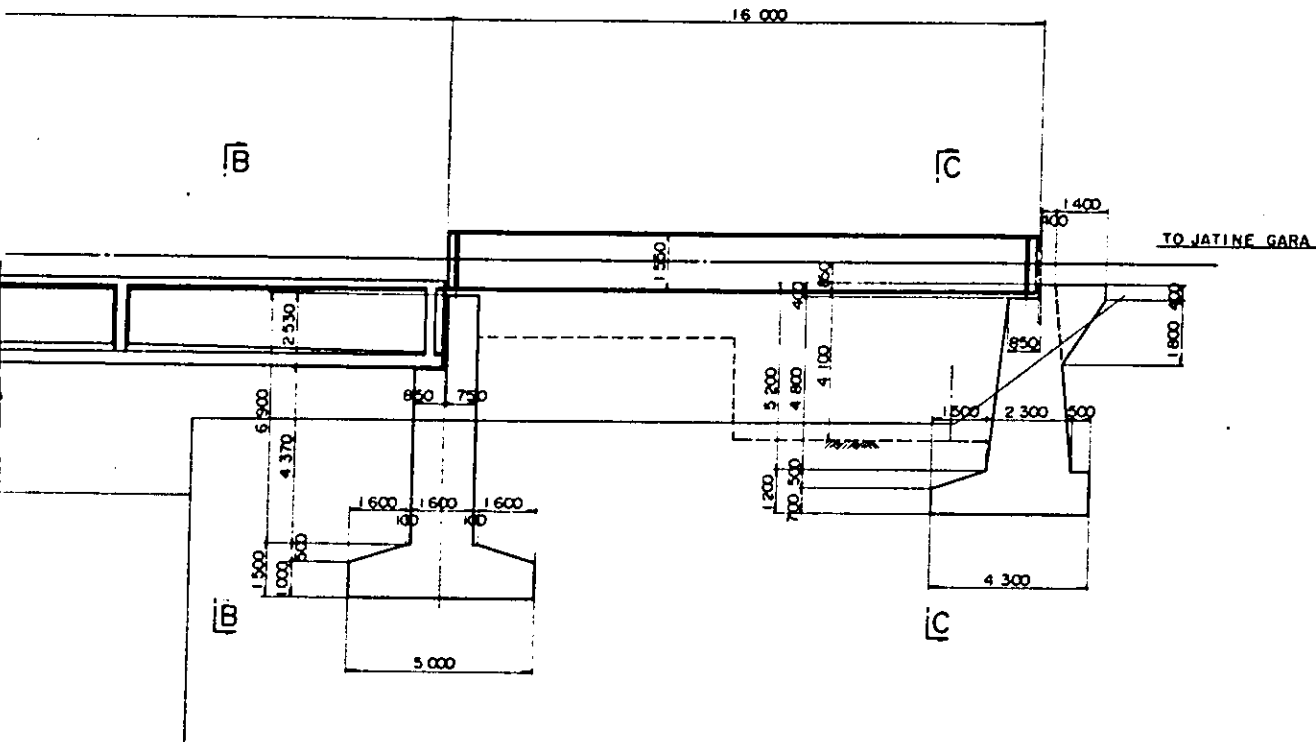
SECTION B-B



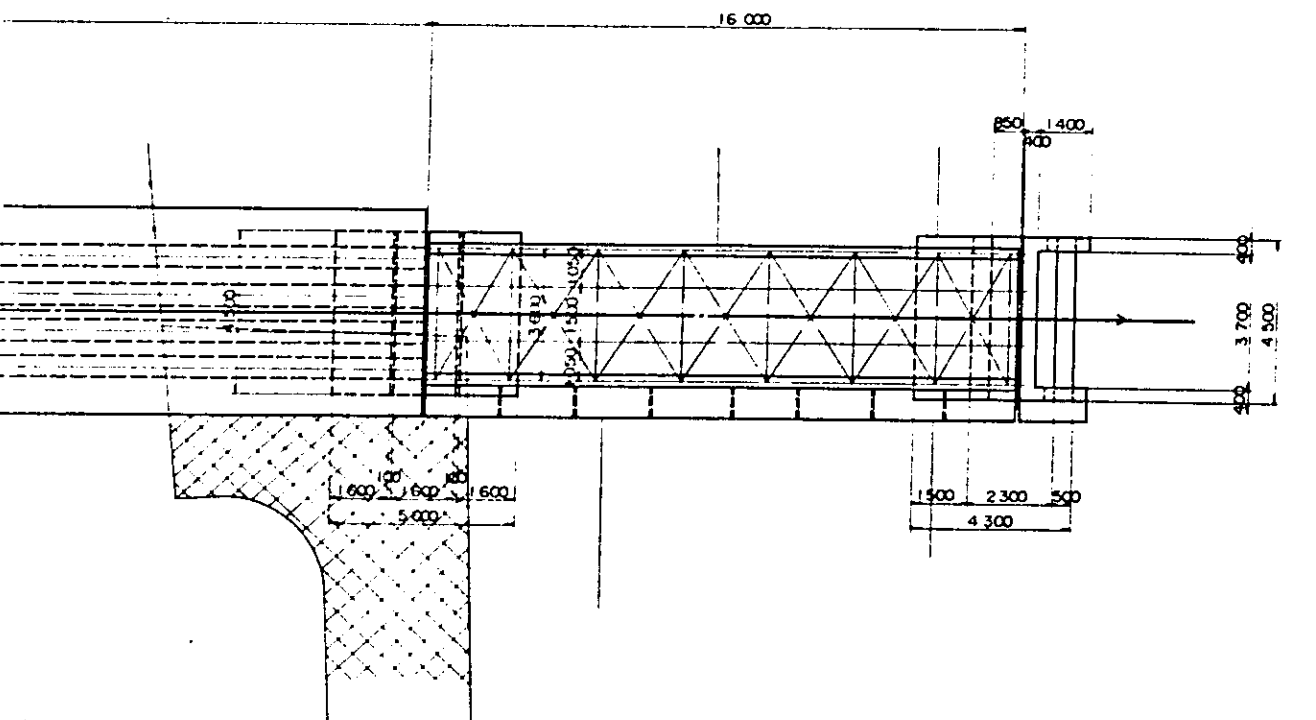
PROJECT	GRADE SEPARATED CROSSING IN MANGGARAI STATION
DESCRIPTION	CILIWUNG RIVER BRIDGE (TRUSS GIRDER) (1)
SCALE	DIFFERENT REDUCTION 1:100
DRAWING No.	Dwg. 1. 13
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	



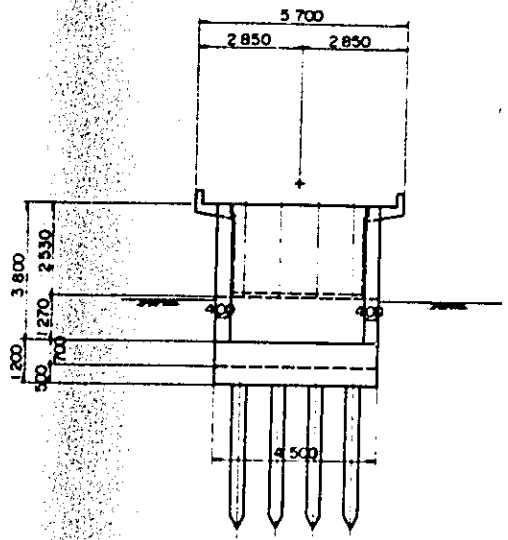
SIDE VIEW



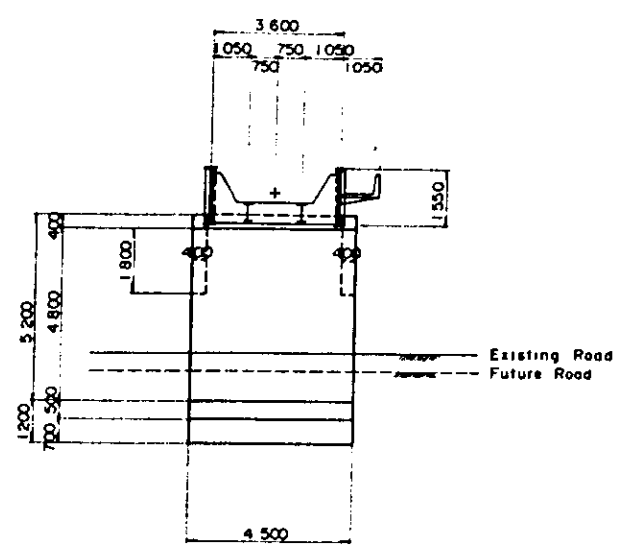
PLAN



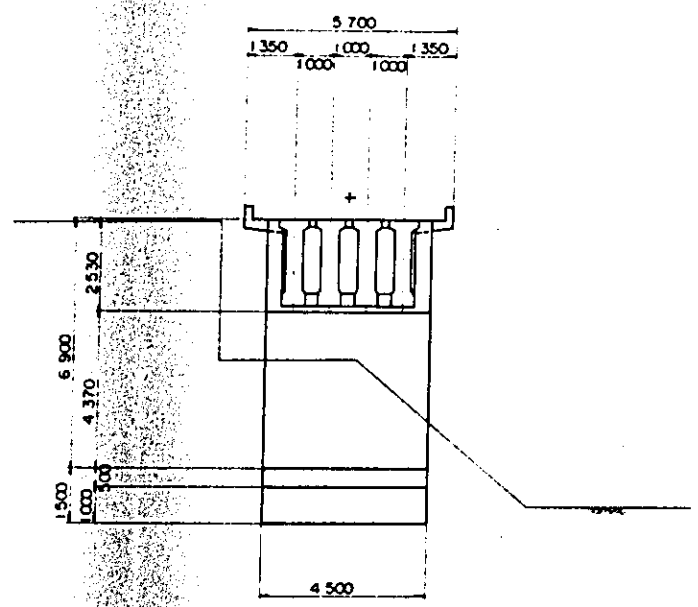
SECTION A-A



SECTION C-C

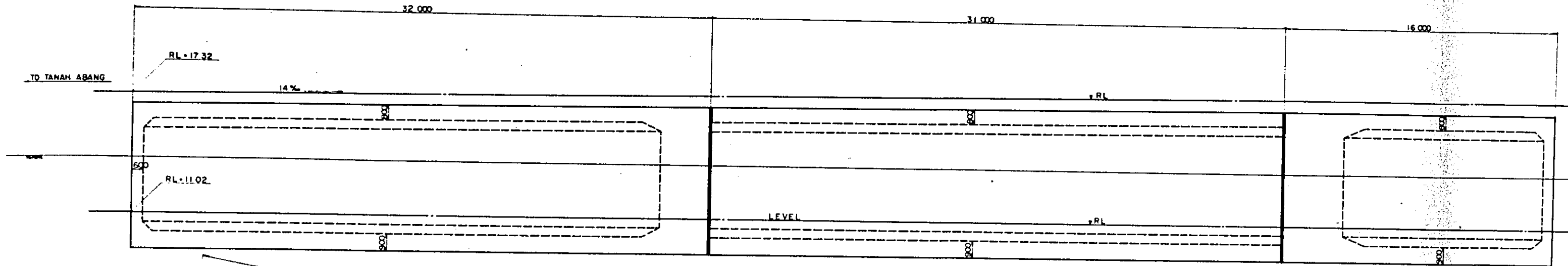


SECTION B-B

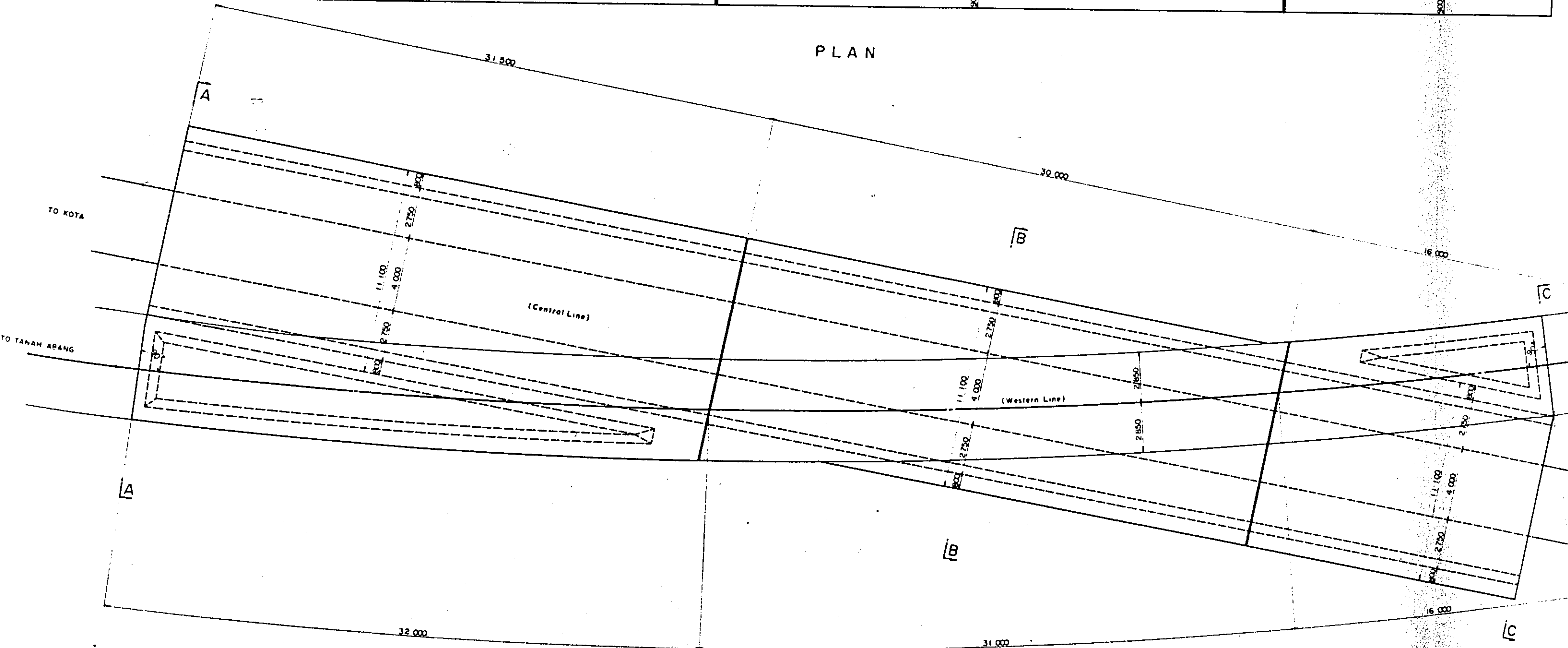


PROJECT	GRADE SEPARATED CROSSING IN MANGARAI STATION
DESCRIPTION	CILIWUNG RIVER BRIDGE (2) (PC GIRDER & THROUGH GIRDER)
SCALE	DIFFERENT REDUCTION 1: 100
DRAWING No.	Dwg. I. 14
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	

SIDE VIEW

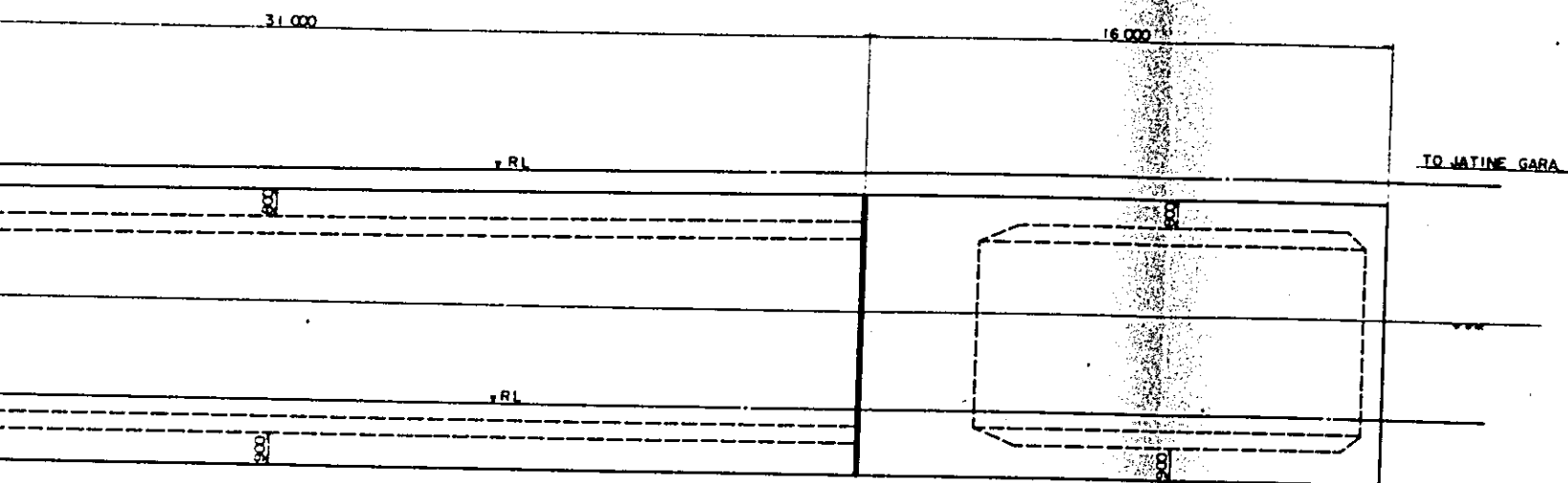


PLAN

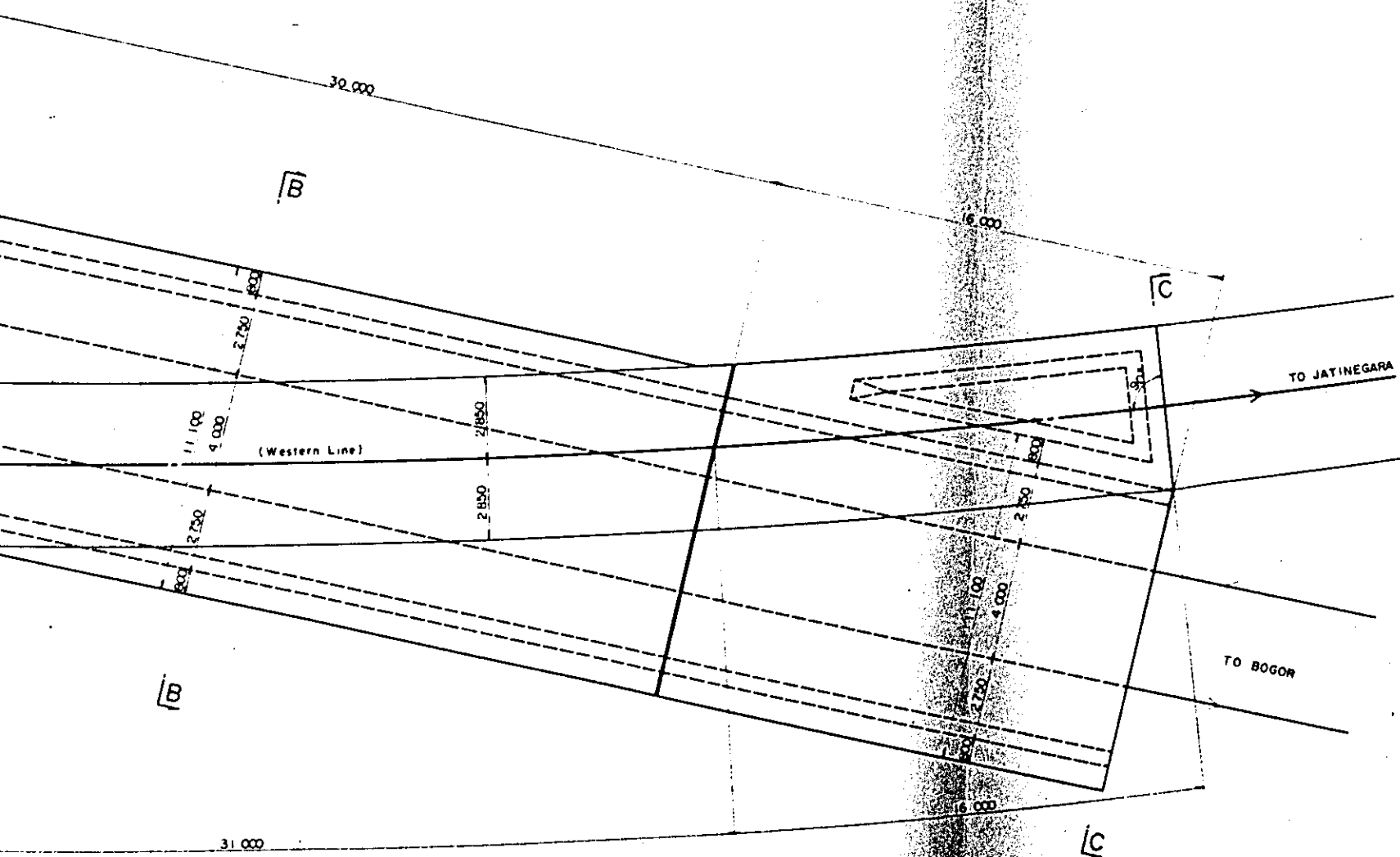




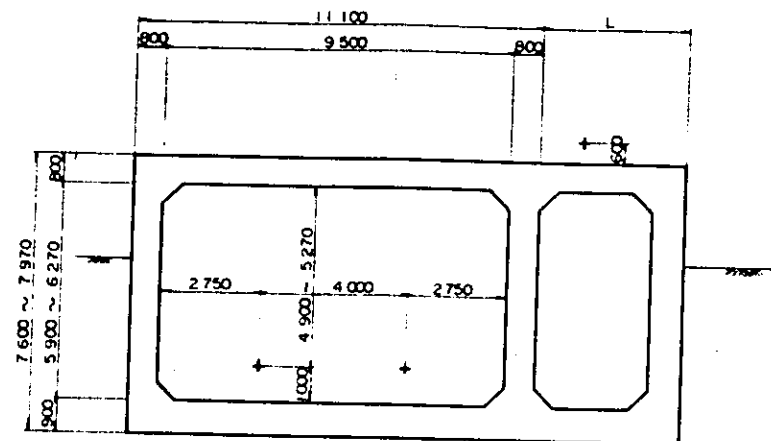
DE VIEW



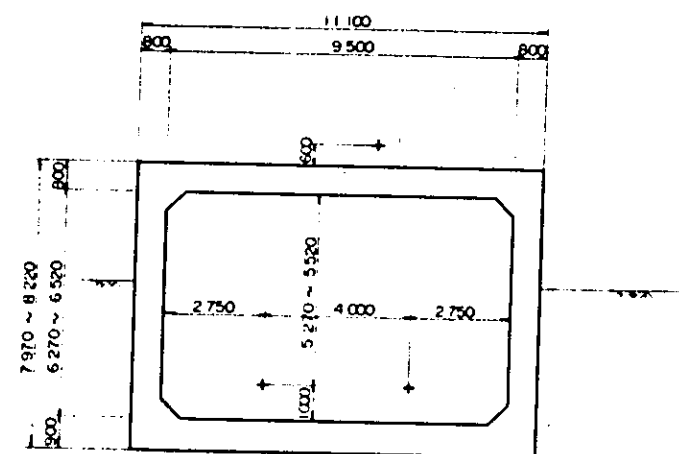
PLAN



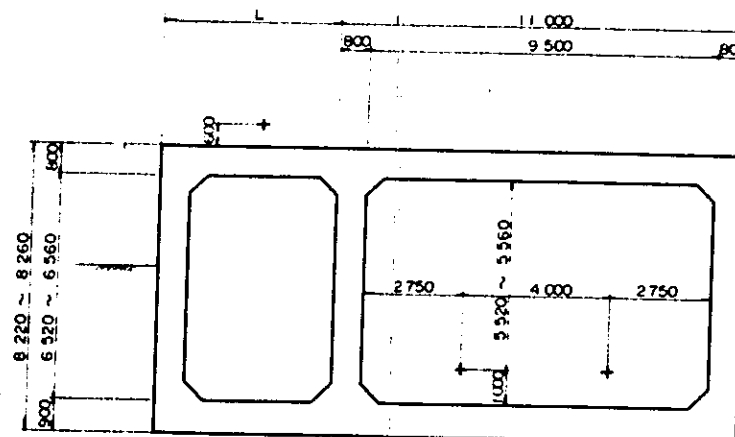
SECTION A-A



SECTION B-B

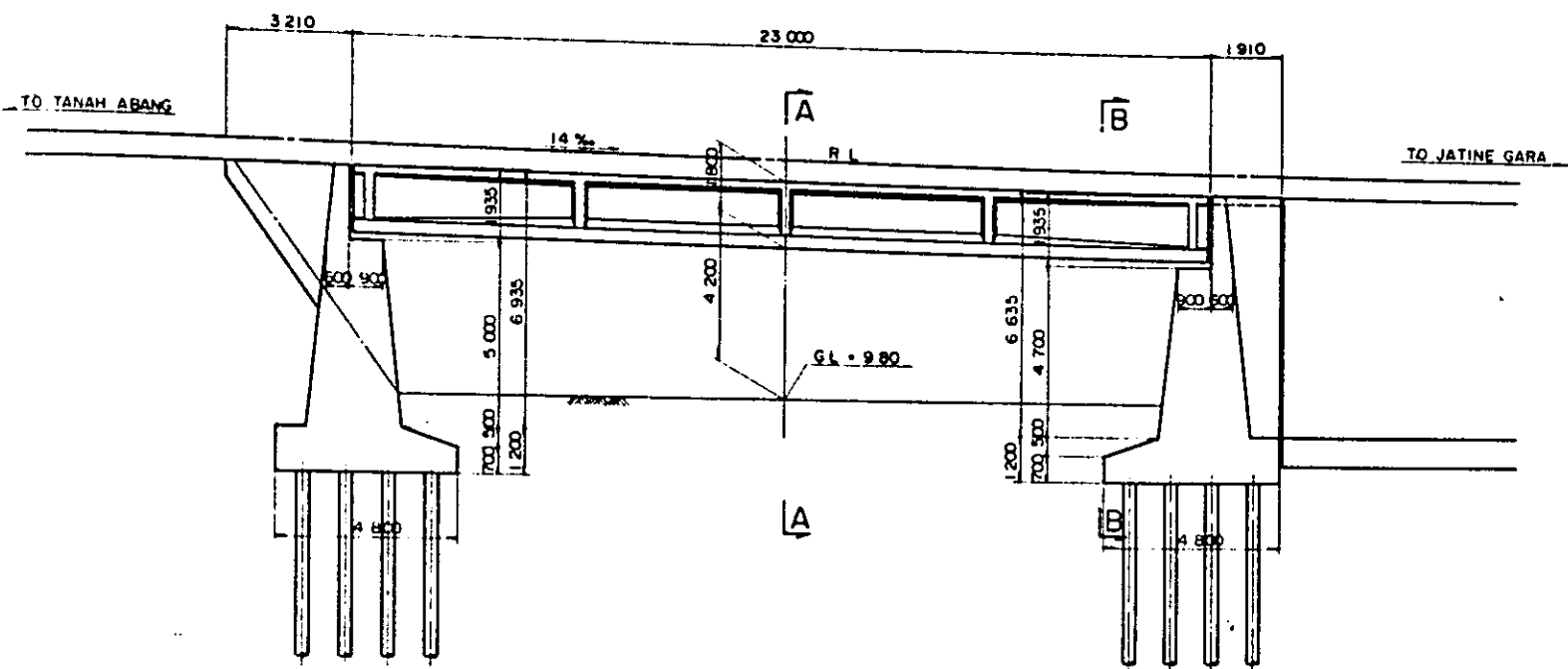


SECTION C-C

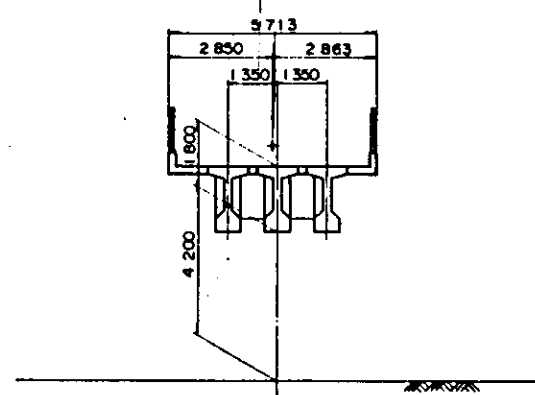


PROJECT	GRADE SEPARATED CROSSING IN MANGARAI STATION
DESCRIPTION	BOX CULVERT (BOGOR SIDE)
SCALE	DIFFERENT REDUCTION 1 : 100
DRAWING No	Dwg. 1. 15
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	

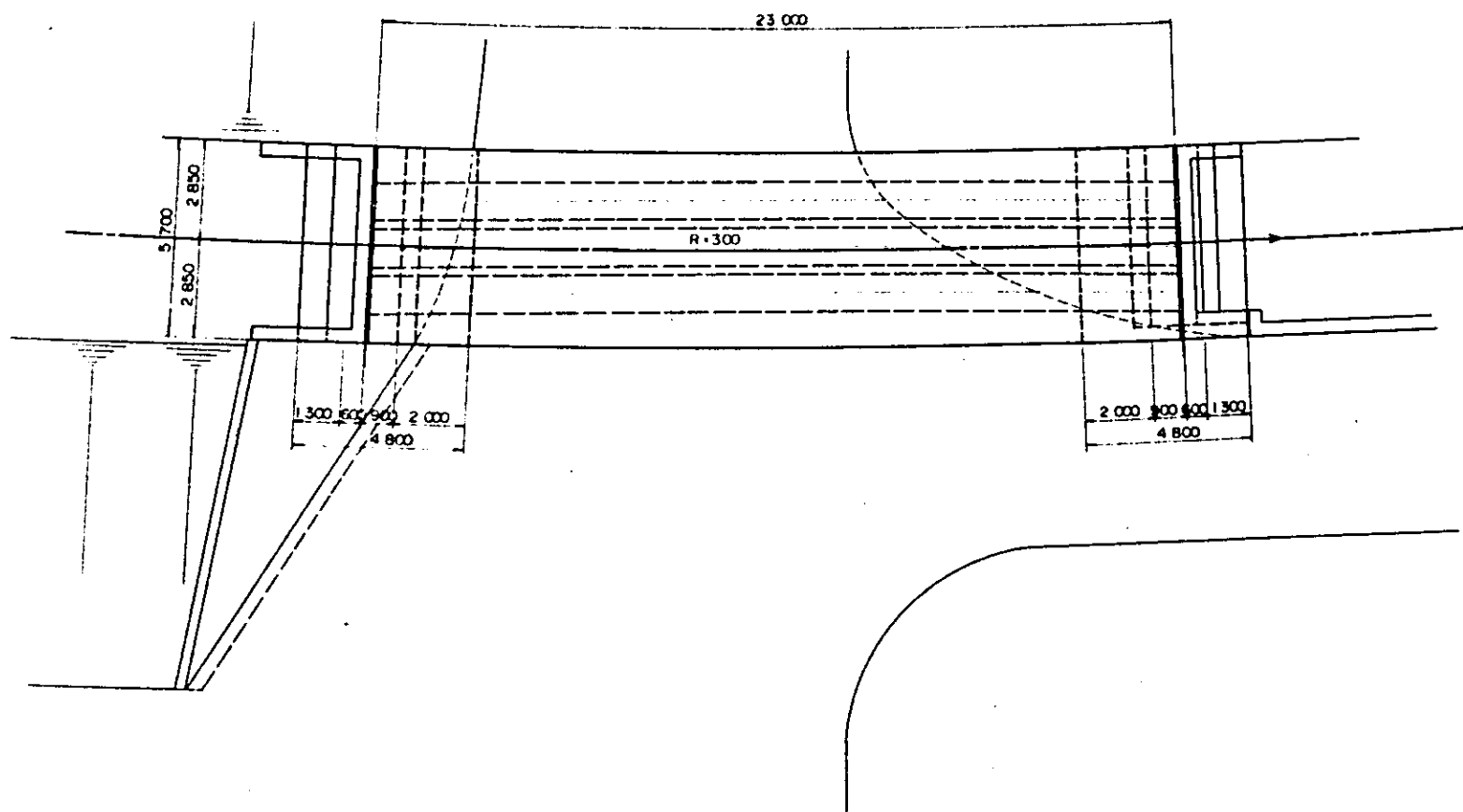
SIDE VIEW



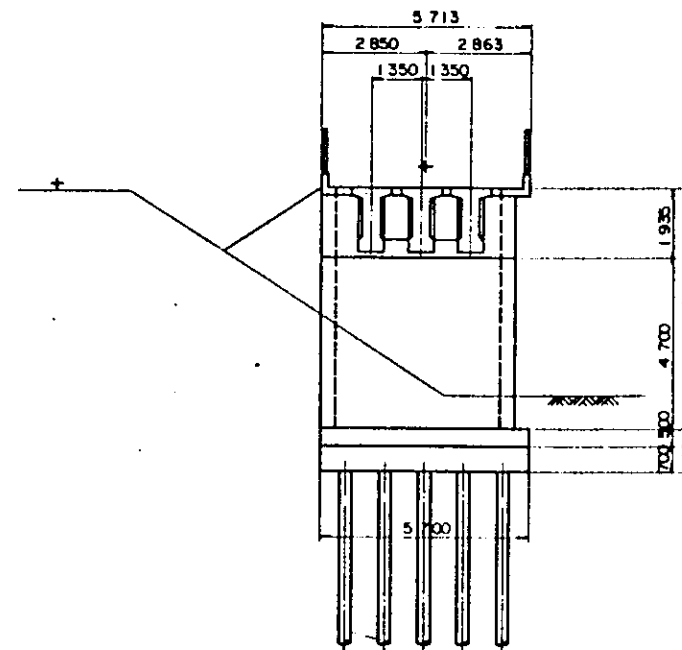
SECTION A-A



PLAN

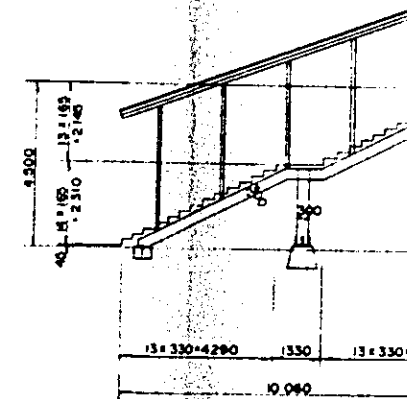
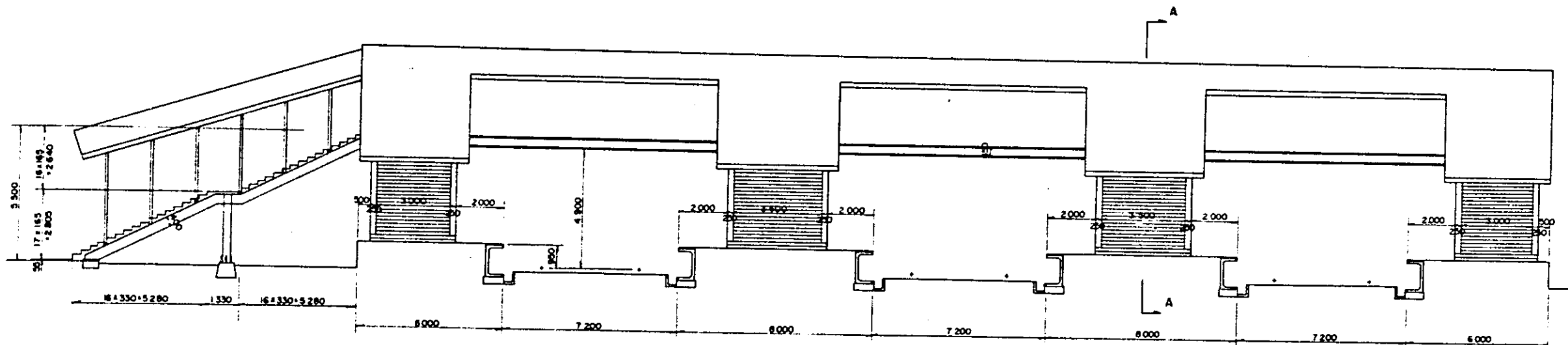


SECTION B-B



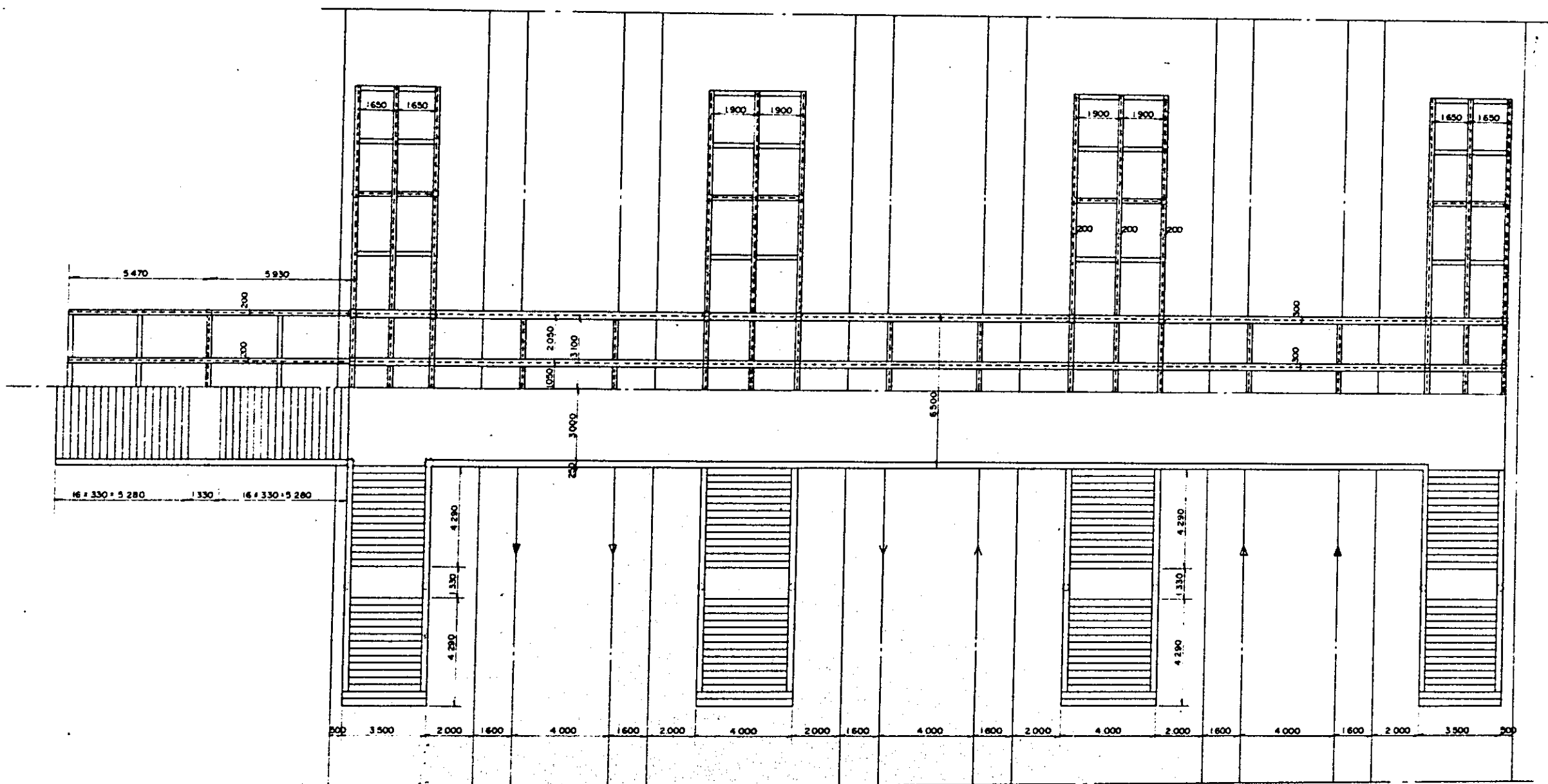
PROJECT	GRADE SEPARATED CROSSING IN MANGGARAI STATION
DESCRIPTION	MANGGARAI SELATAN BRIDGE (P.C GIRDER)
SCALE	DIFFERENT REDUCTION 1:100
DRAWING No.	DWJ. 1. 16
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	

SIDE VIEW

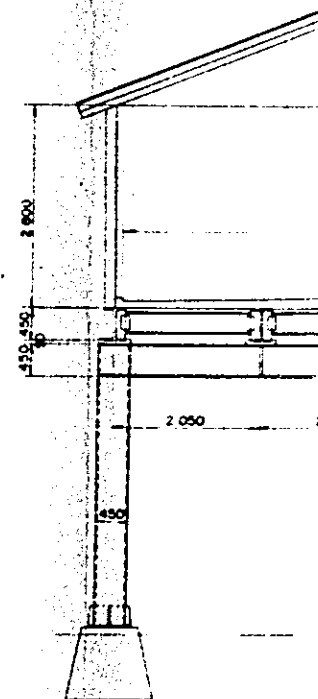


PLAN

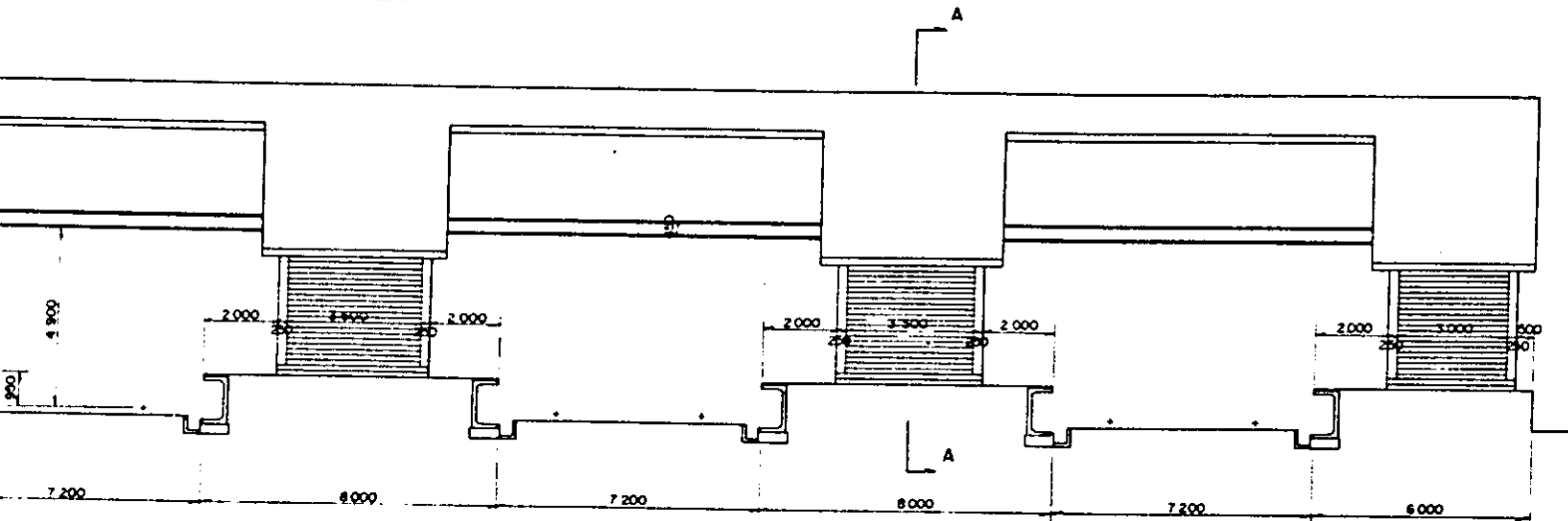
TO BOGOR



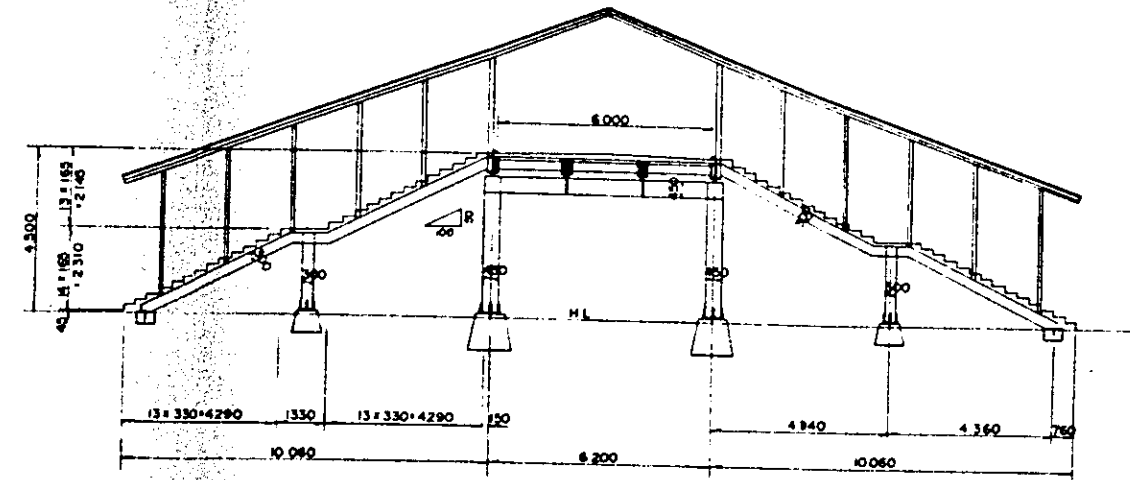
TO JAKARTA



SIDE VIEW

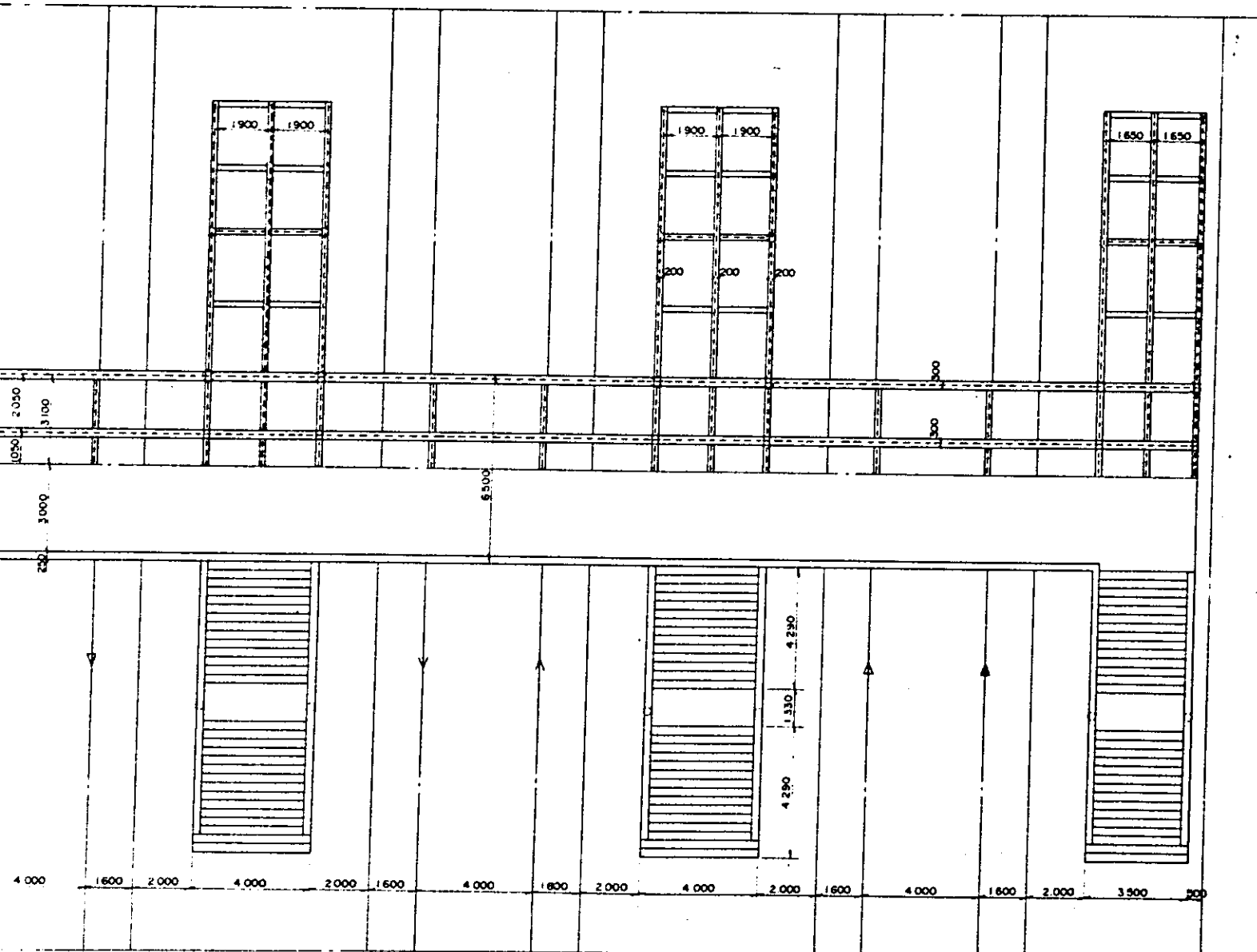


SECTION A-A



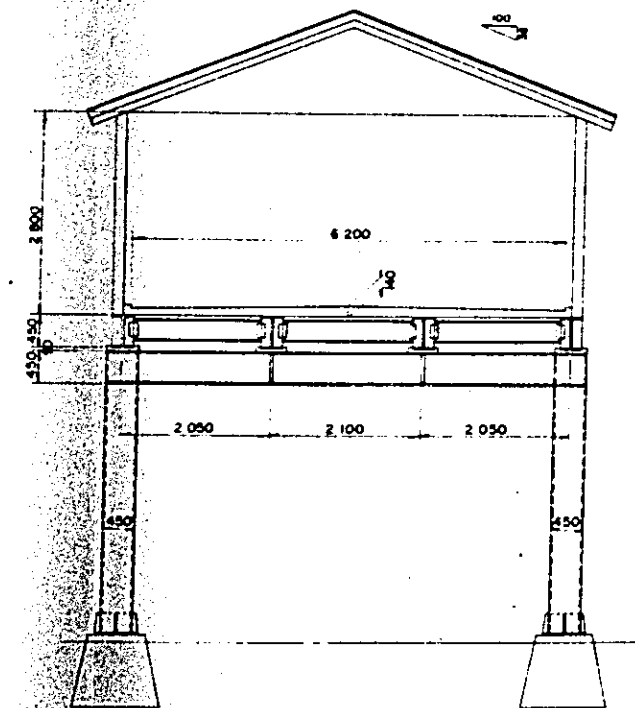
PLAN

TO BOGOR



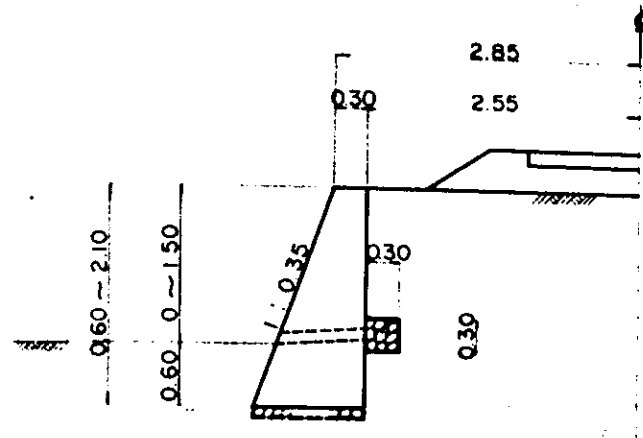
TO JAKARTA

1/50

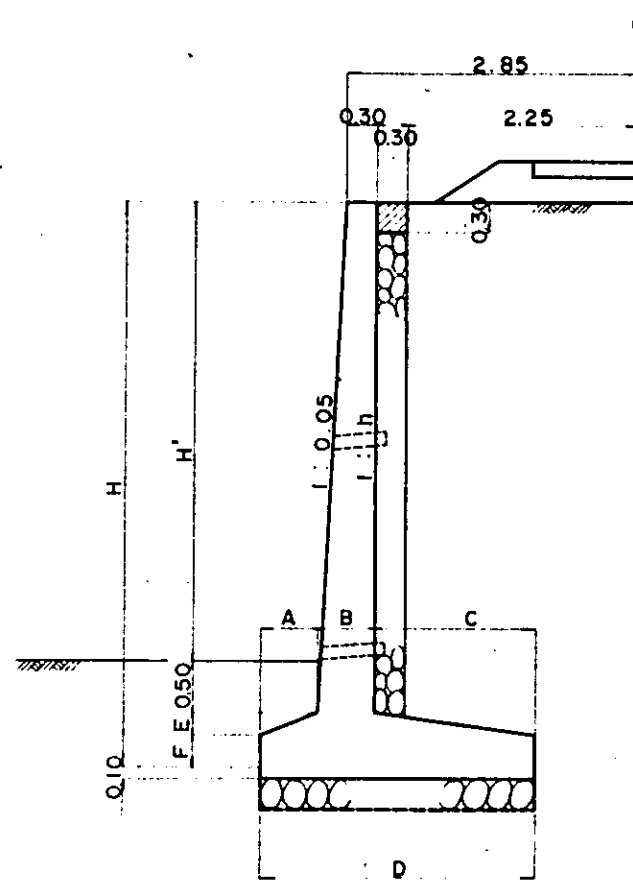


PROJECT	GRADE SEPARATED CROSSING IN MANGGARAI STATION
DESCRIPTION	PASSAGE WAY BRIDGE
SCALE	DIFFERENT REDUCTION 1:100
DRAWING No.	Dwg. 1. 17
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	

GRAVITY WALL (EMBANKMENT)



CANTILEVER WALL (EMBANKMENT)



SEMI-GRAVITY WALL (CUT)

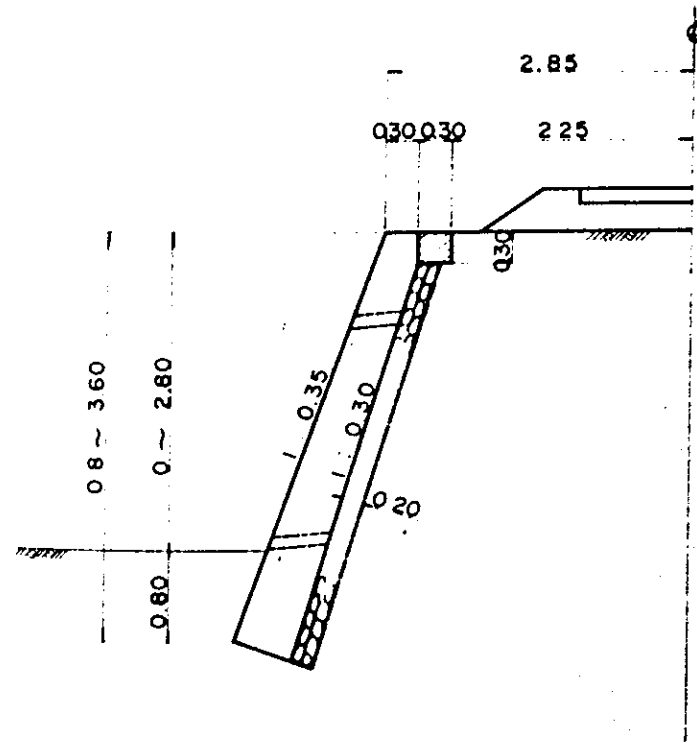


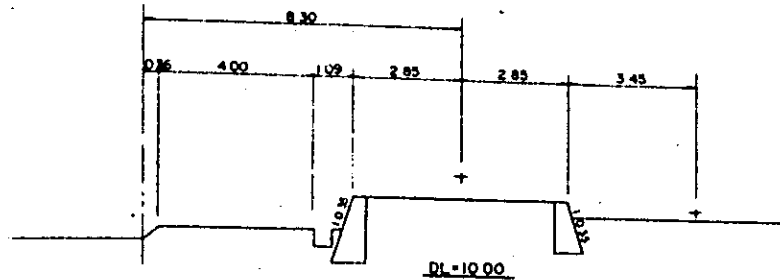
TABLE OF DIMENSIONS

H	DIMENSIONS (m)							
	H'	A	B	C	D	E	F	n
2.40	2.00	0.30	0.40	0.80	1.50	0.10	0.30	0
3.00	2.57	0.35	0.43	0.97	1.75	0.13	0.30	0
4.00	3.52	0.45	0.48	1.27	2.20	0.18	0.30	0
5.00	4.48	0.55	0.52	1.58	2.65	0.22	0.30	0
6.00	5.33	0.65	0.67	1.93	3.25	0.27	0.40	0.02
8.00	7.10	0.90	1.19	2.41	4.50	0.40	0.50	0.075

PROJECT	GRADE SEPARATED CROSSING IN MANGGARAI STATION
DESCRIPTION	RETAINING WALL
SCALE	DIFFERENT REDUCTION 1 : 50
DRAWING No.	Dwg. I. 18
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	

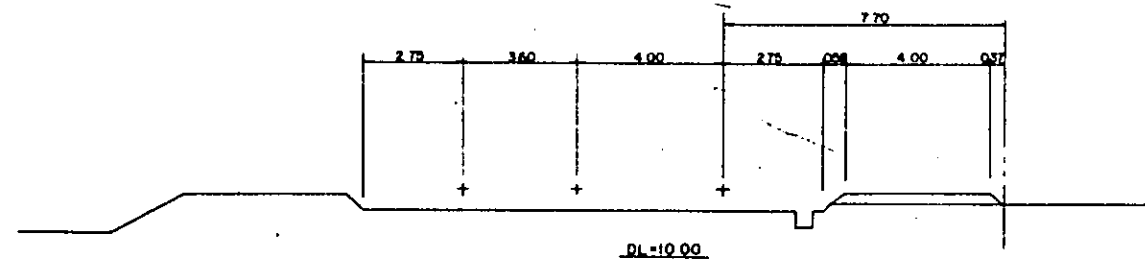
4<sup>k</sup> 900<sup>m</sup>00 (Western Line)

RL: 12.65 m  
FL: 12.05 m



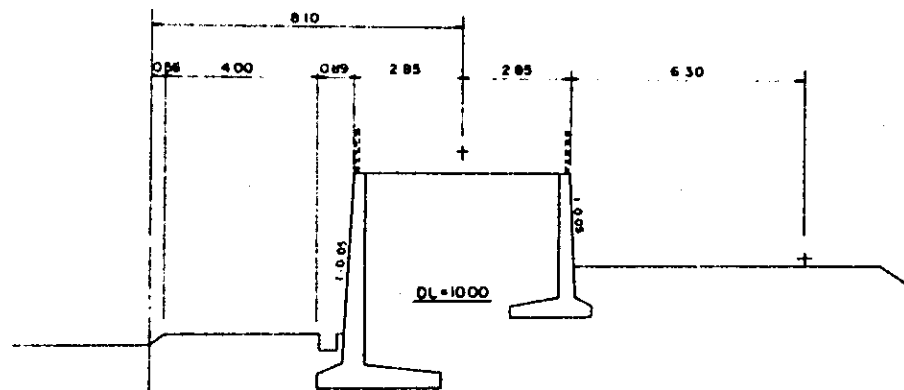
9<sup>k</sup> 200<sup>m</sup>00 (Central Line)

RL: 11.88 m  
FL: 11.28 m



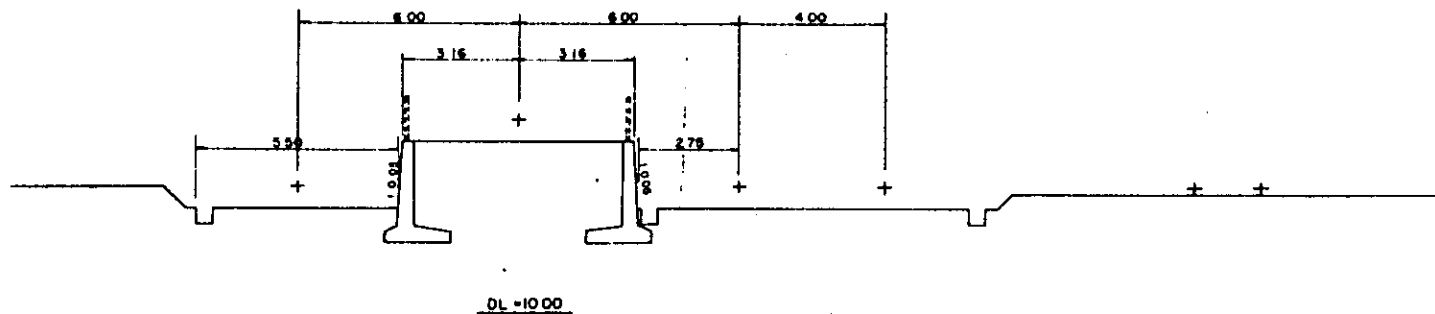
5<sup>k</sup> 000<sup>m</sup>00 (Western Line)

RL: 14.05 m  
FL: 13.45 m



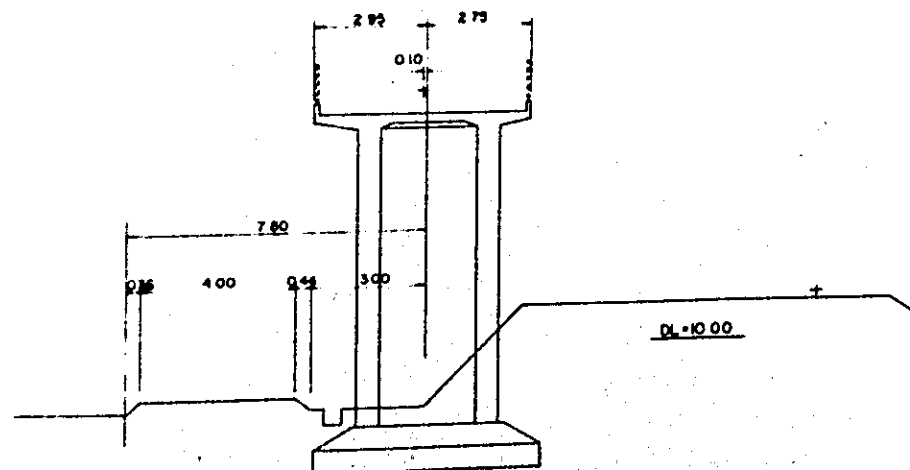
5<sup>k</sup> 800<sup>m</sup>00 (Western Line)

RL: 13.51 m  
FL: 12.91 m



5<sup>k</sup> 200<sup>m</sup>00 (Western Line)

RL: 16.85 m  
FL: 16.25 m



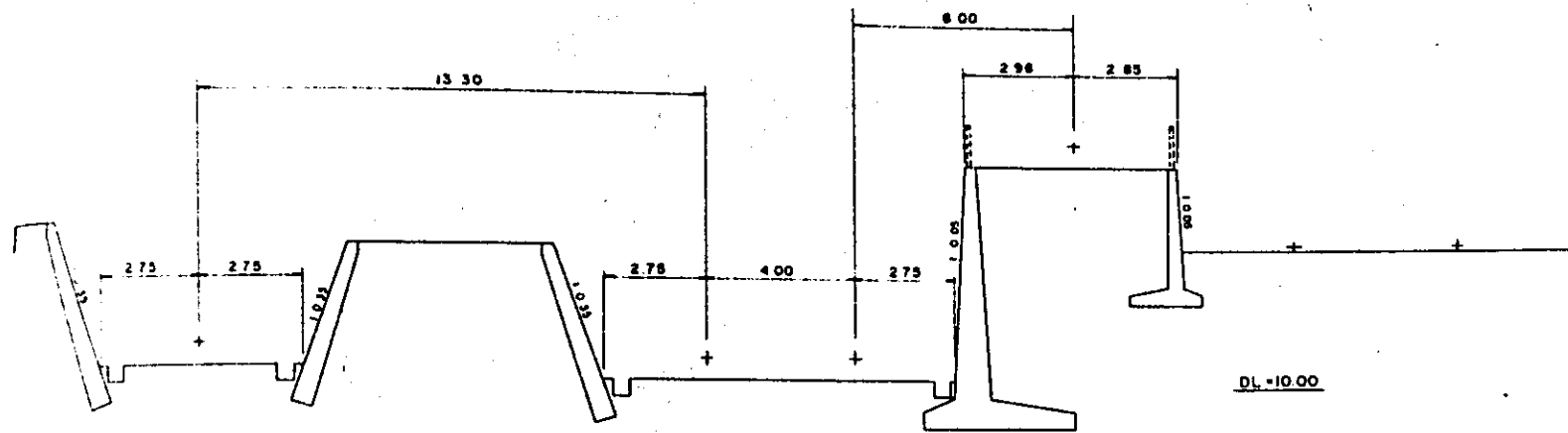
PROJECT	GRADE SEPARATED CROSSING IN MANGGARAI STATION
DESCRIPTION	CROSS SECTION (I)
SCALE	DIFFERENT REDUCTION 1:100
DRAWING No.	Dwg. 1. 19
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	

RL=11.22m  
FL=10.62m

0 k 400 m 00 (Western Line)

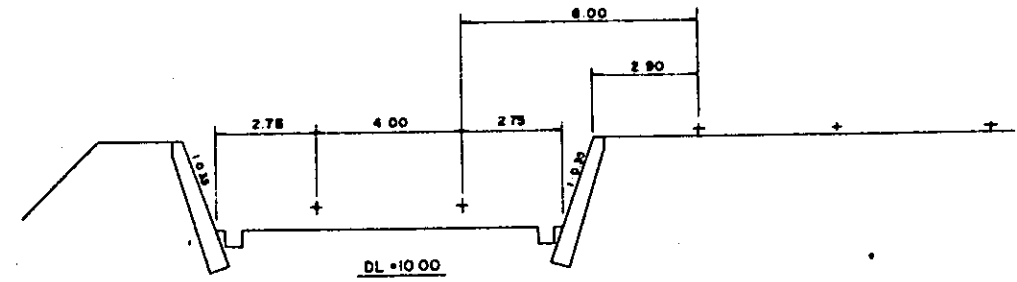
RL=10.88m  
FL=10.28m

RL=10.78m  
FL=10.16m



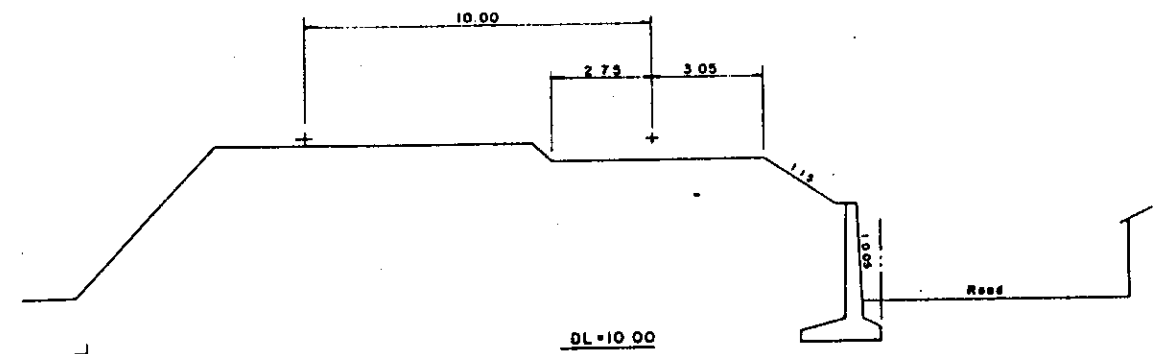
10 k 500 m 00 (Central Line)

RL=11.92m  
FL=11.32m



0 k 760 m 00 (Western Line)

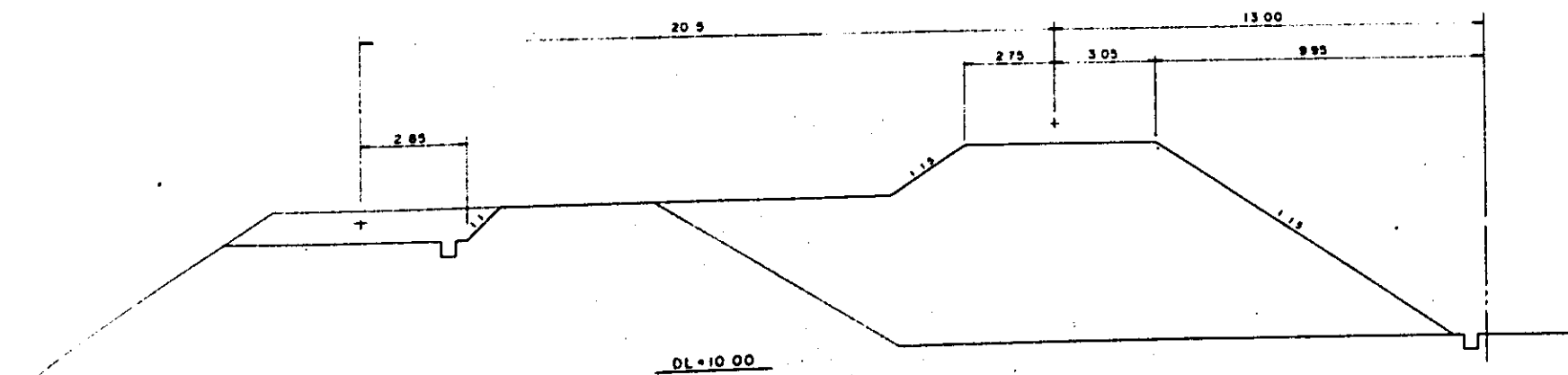
RL=15.86m  
FL=15.26m



0 k 600 m 00 (Western Line)

RL=14.73m  
FL=14.13m

RL=17.17m  
FL=16.57m



PROJECT	GRADE SEPARATED CROSSING IN MANGGARAI STATION
DESCRIPTION	CROSS SECTION (2)
SCALE	DIFFERENT REDUCTION 1: 100
DRAWING No.	Dwg. 1. 20
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	

TANAH ABANG

4° 01' 57" 00

4° 02' 50" 50

V.C.L. - 56m

14  
583m00

B.I.L. - 4° 09' 27" 27

B.I.L. - 4° 09' 27" 27

E.C.C. - 5° 01' 17" 18

E.C.C. - 5° 01' 17" 18

R-250

R-300

E.C.C. - 5° 01' 17" 18

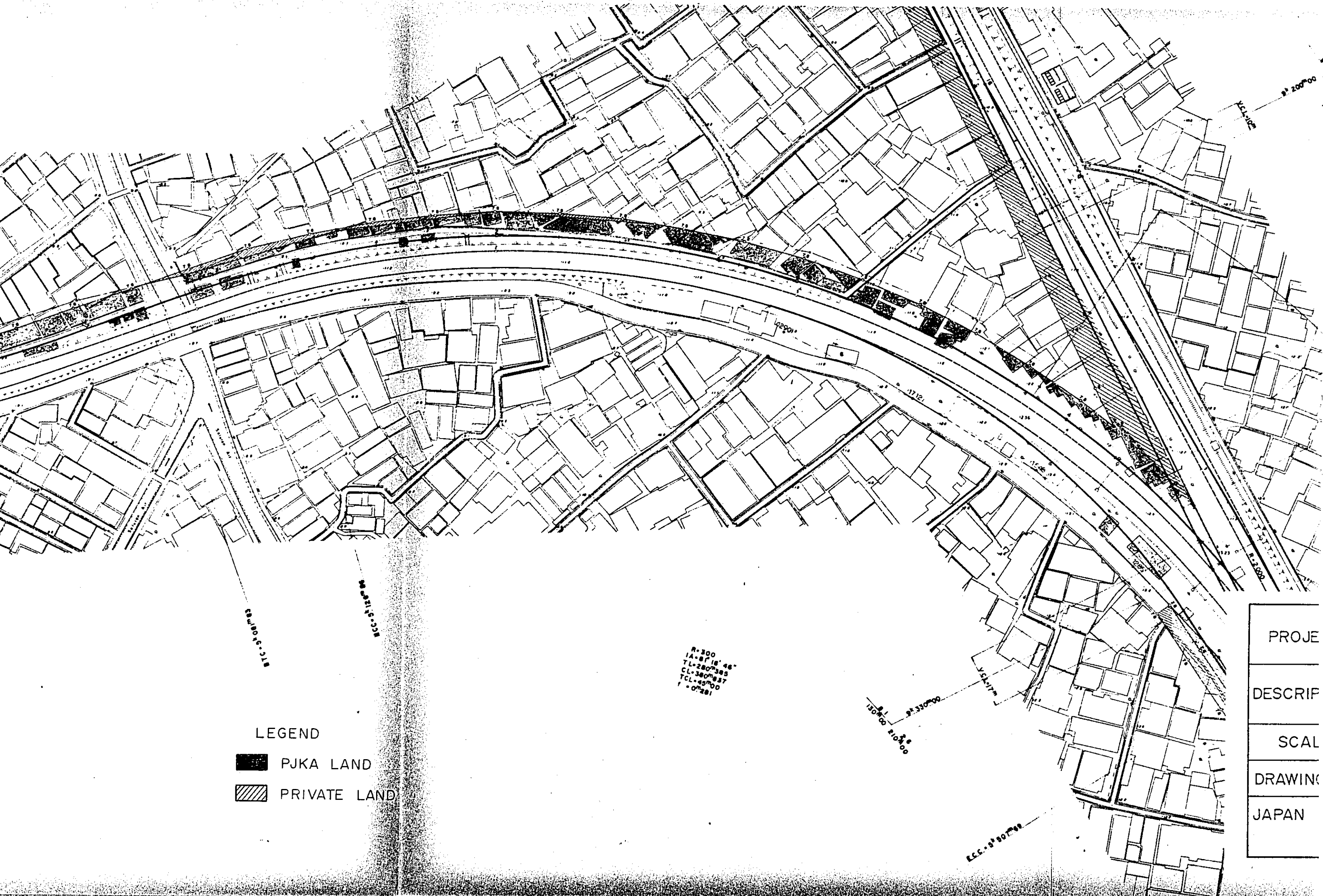
E.C.C. - 5° 01' 17" 18

LEGEND

 PJKA LAND

 PRIVATE LAND





LEGEND

- PJKA LAND
- PRIVATE LAND

PROJE
DESCRIP
SCAL
DRAWING
JAPAN



KOTA

R - 2000

BTC - 8° 08' 60"

ECC - 8° 30' 60"

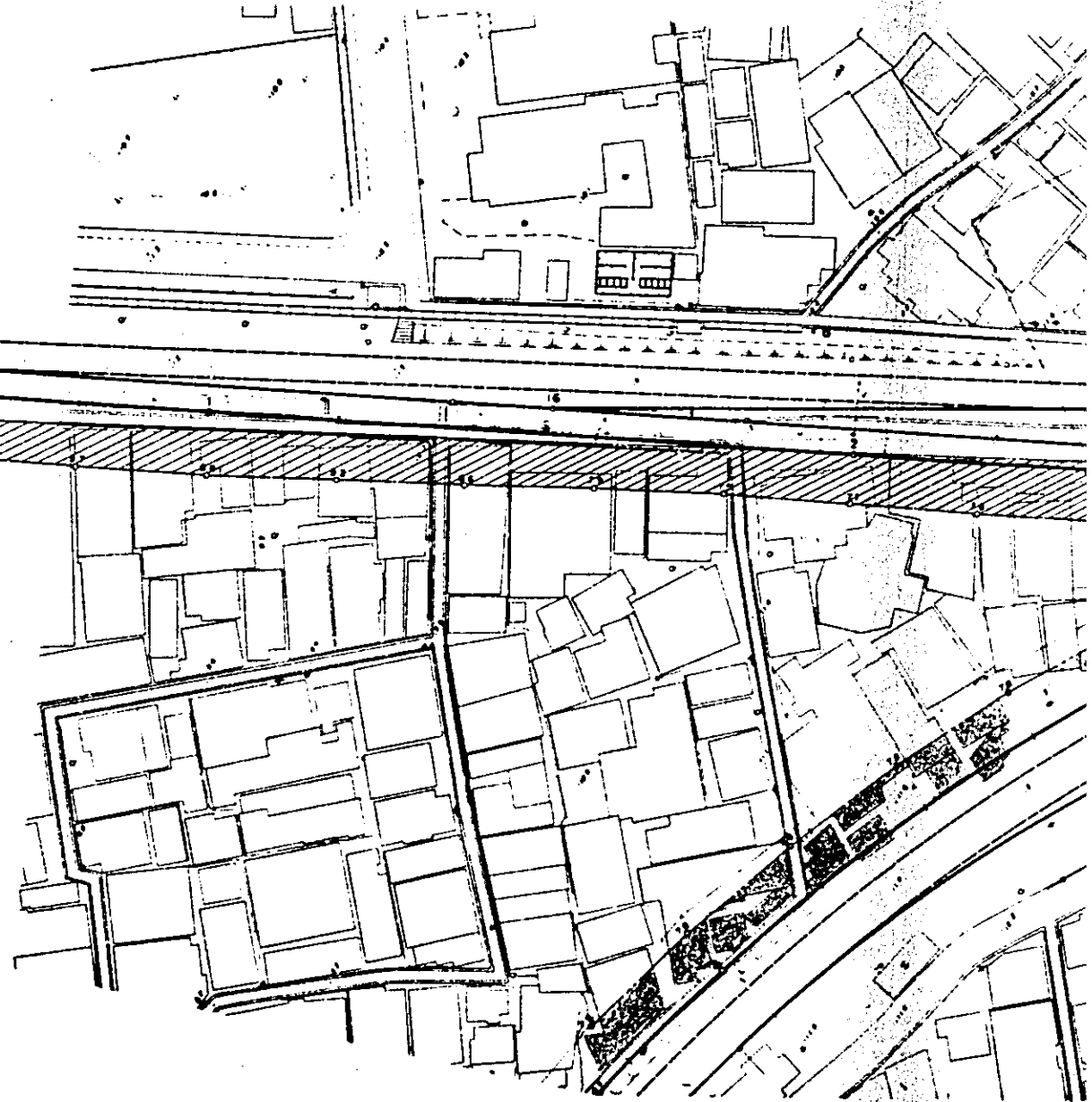
ECC - 8° 45' 00"

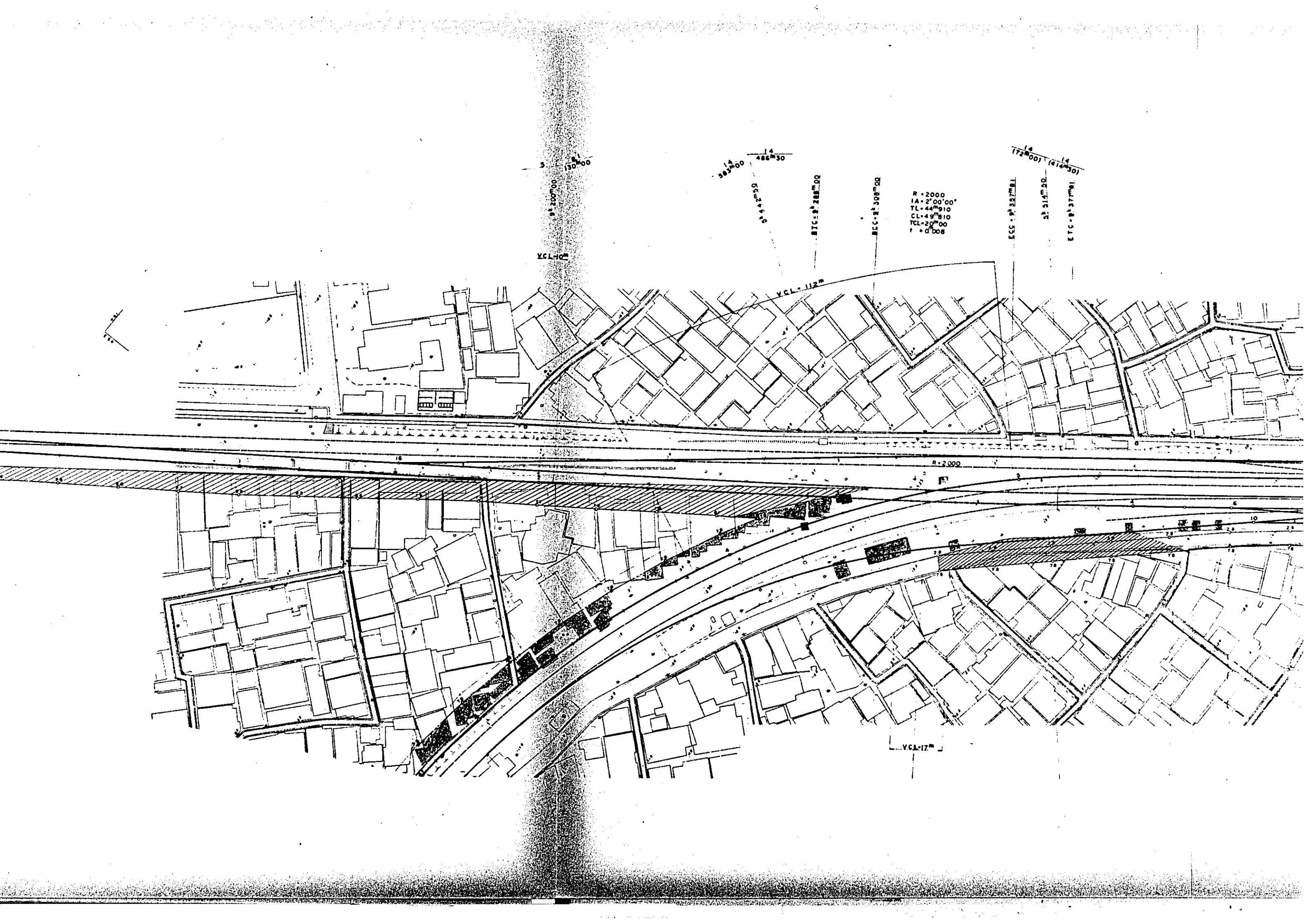
ECC - 8° 45' 00"

R - 2000  
IA - 1° 36' 44"  
TL - 37<sup>m</sup> 375  
CL - 36<sup>m</sup> 273  
TCL - 20<sup>m</sup> 00  
I - 0<sup>m</sup> 008

130° 00'  
200<sup>m</sup> 00

YCL - 10<sup>m</sup>





S 130°00' 130'00"  
S 100°00' 100'00"  
YCL-10

S 83°00' 583'00"  
S 46°30' 466'30"

S 10°30' 288'00"

S 10°30' 308'00"

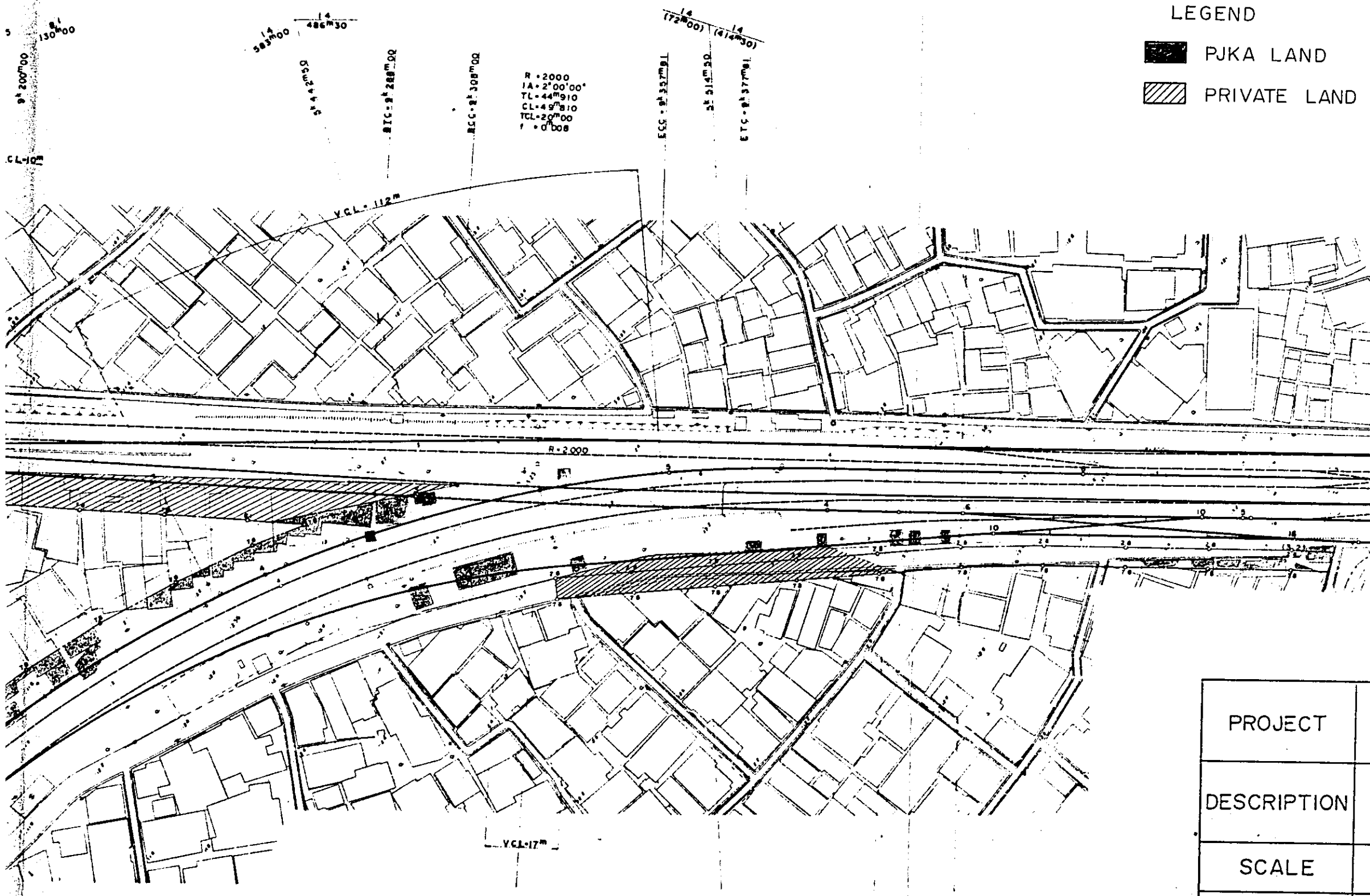
R = 2000  
IA = 2°00'00"  
TL = 44°59'10"  
CL = 49°59'10"  
TCL = 20°00'00"  
I = 0'008

S 72°00' 720'00"  
S 51°30' 513'00"  
S 14°30' 143'00"

YCL-112

R = 2000

YCL-17

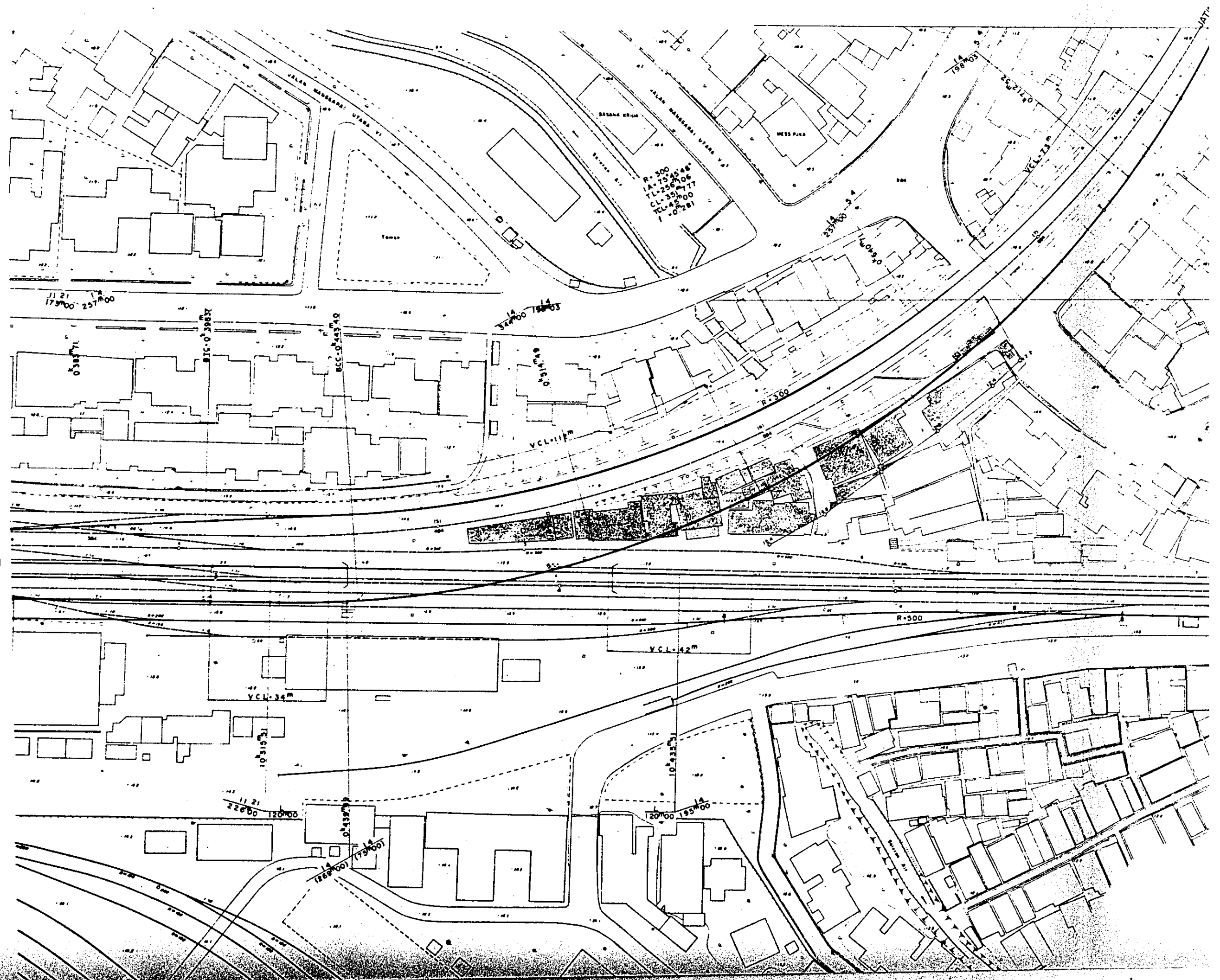


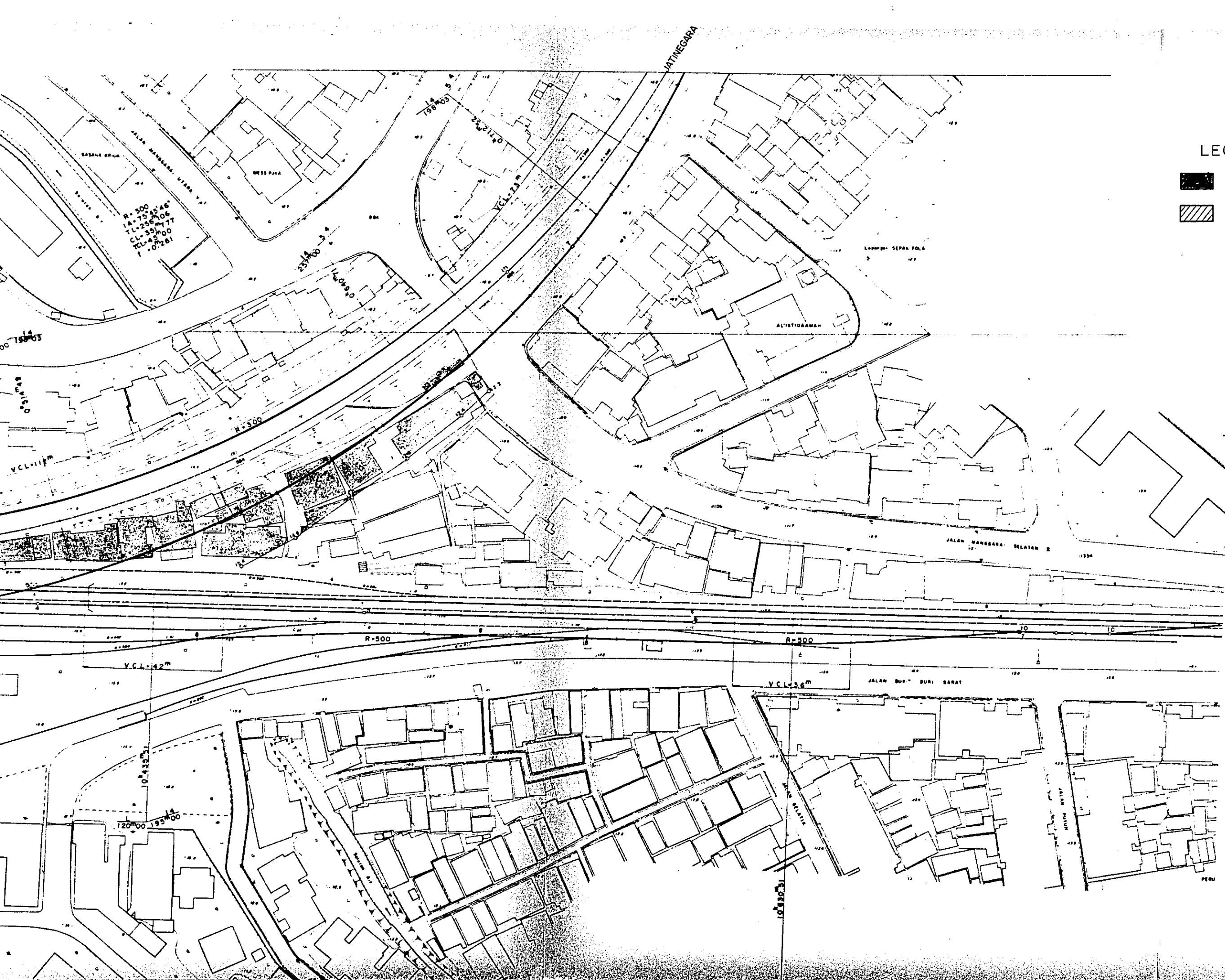
LEGEND

- PJKA LAND
- PRIVATE LAND

PROJECT	GRADE SEPARATED CROSSING IN MANGGARAI STATION
DESCRIPTION	PJKA AND PRIVATE LAND (2)
SCALE	1 : 1,000
DRAWING No.	Dwg. 1. 22
JAPAN INTERNATIONAL COOPERATION AGENCY ( JICA )	

MANGGARAI





LEGEND

- PJKA LAND
- PRIVATE LAND

PROJECT	GRADE IN
DESCRIPTION	PJK
SCALE	
DRAWING No.	
JAPAN INTERNATIONAL (JI)	



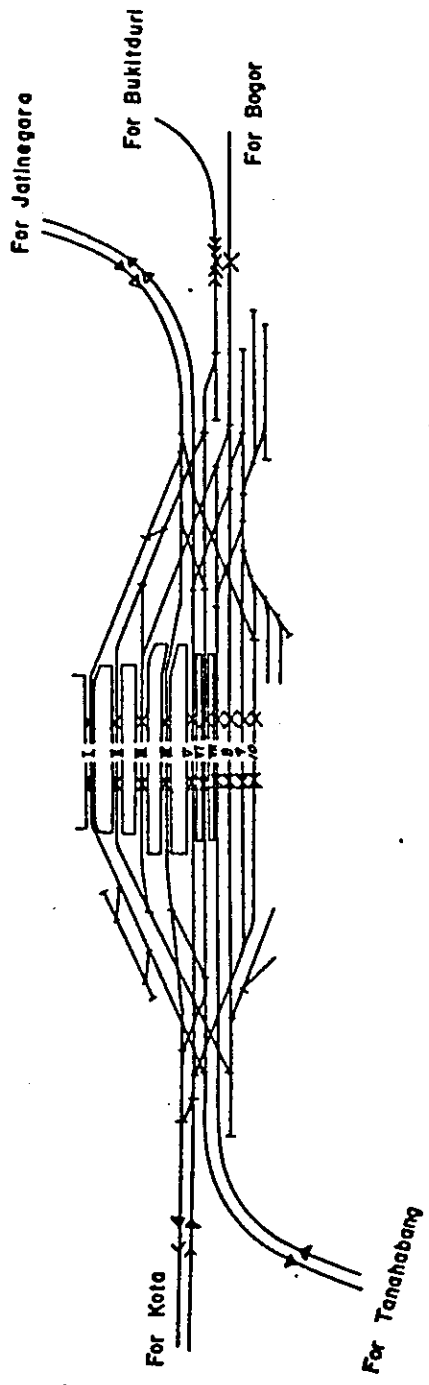
LEGEND

- PJKA LAND
- PRIVATE LAND

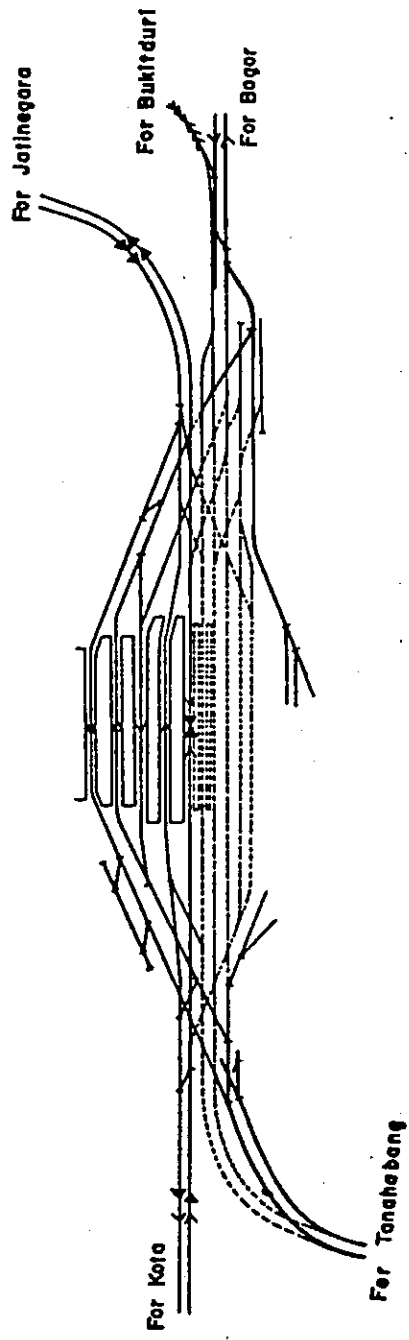
PROJECT	GRADE SEPARATED CROSSING IN MANGGARAI STATION
DESCRIPTION	PJKA AND PRIVATE LAND (3)
SCALE	1 : 1.000
DRAWING No.	Dwg. 1. 23
JAPAN INTERNATIONAL COOPERATION AGENCY ( J I C A )	



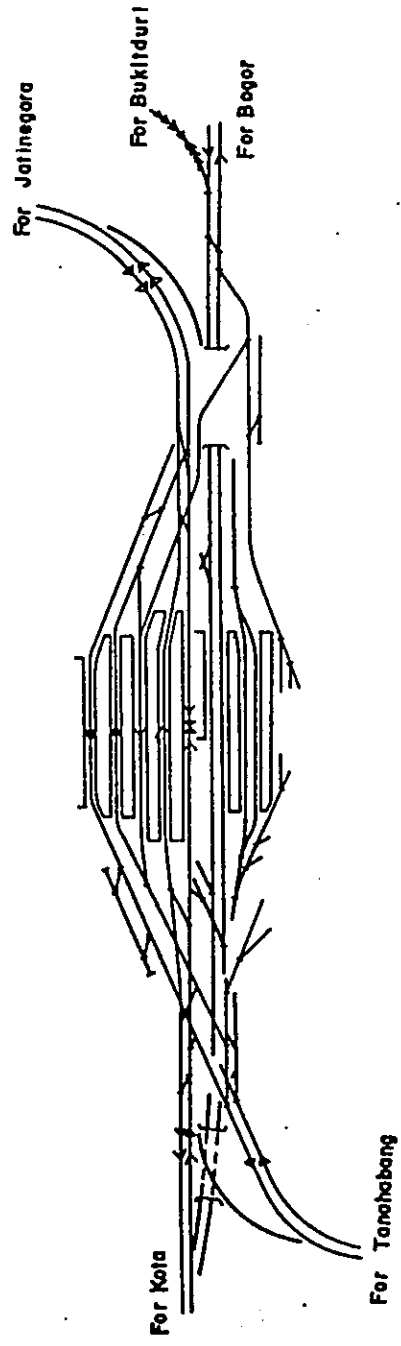
Existing track layout



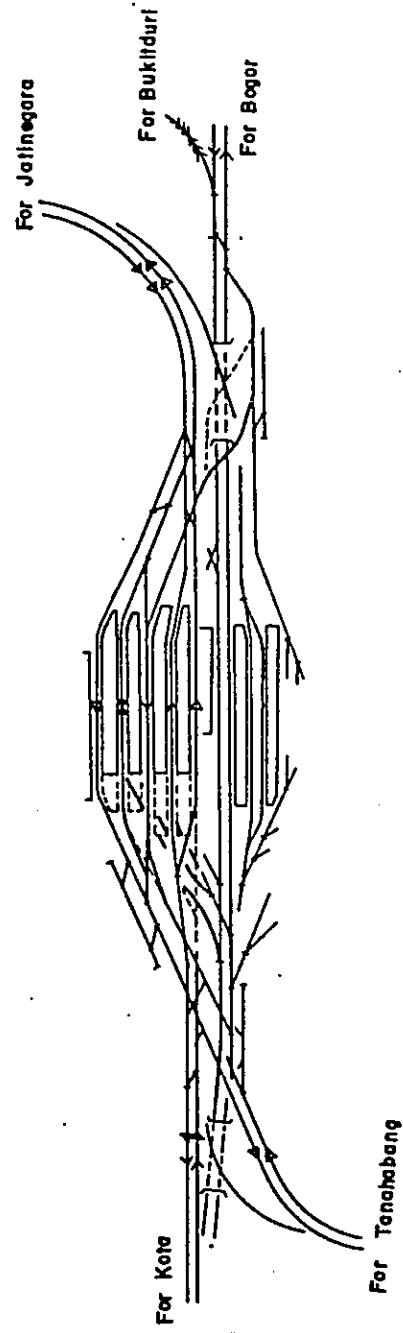
Phase 1



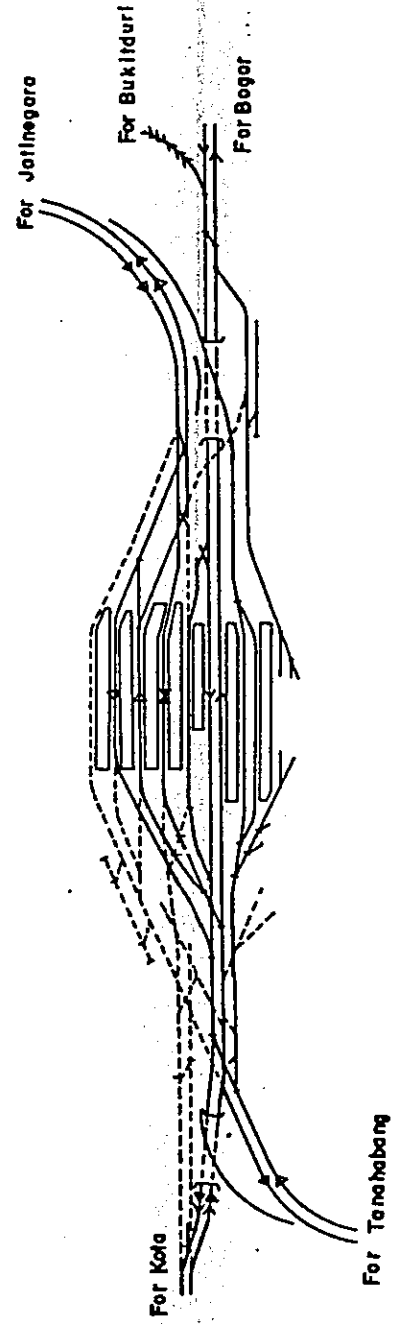
Phase 2



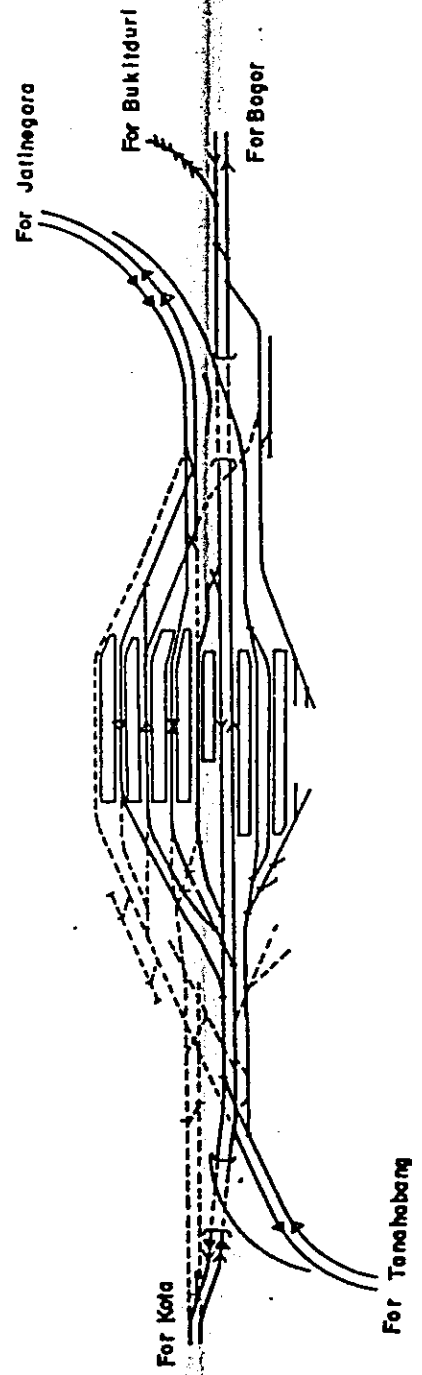
Phase 3



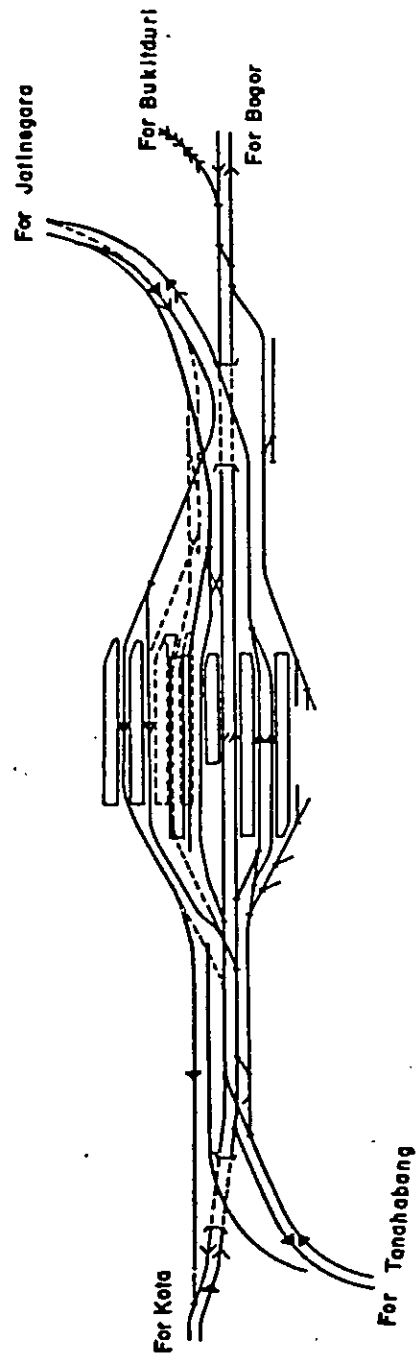
Phase 4



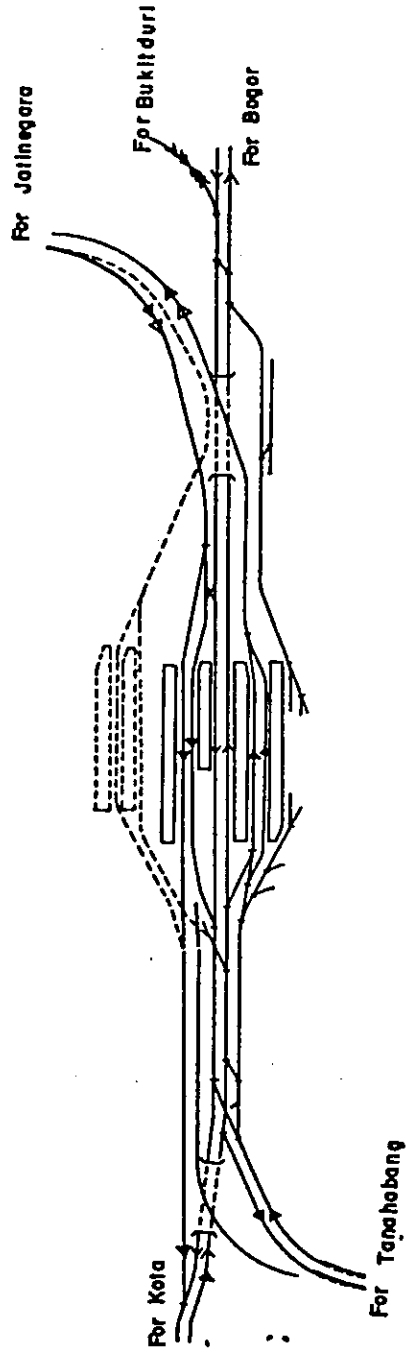
Phase 4



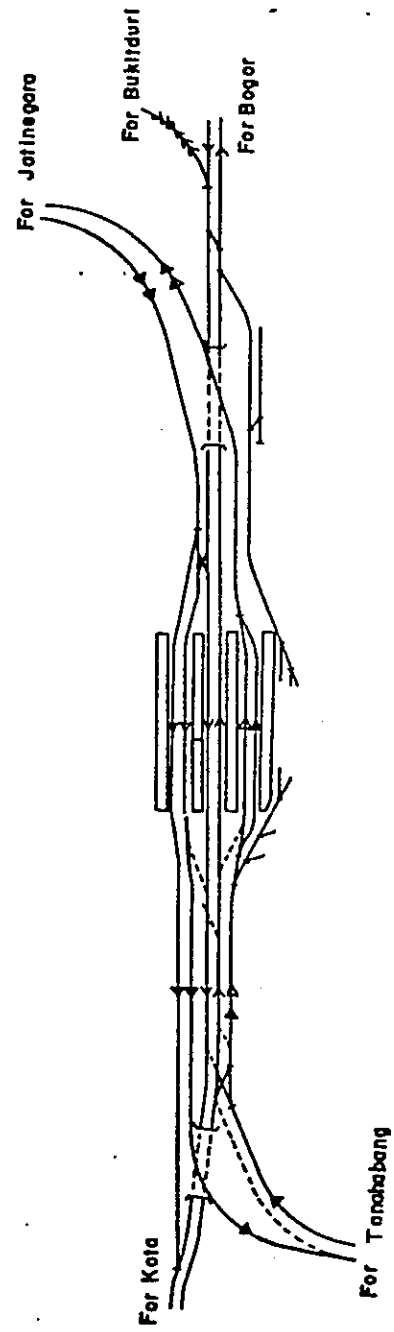
Phase 5



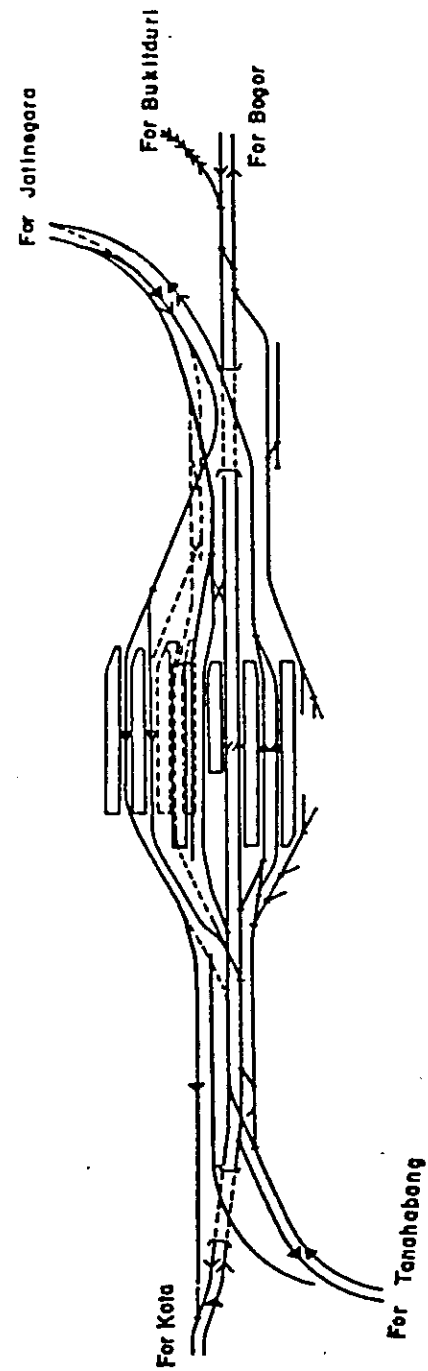
Phase 6



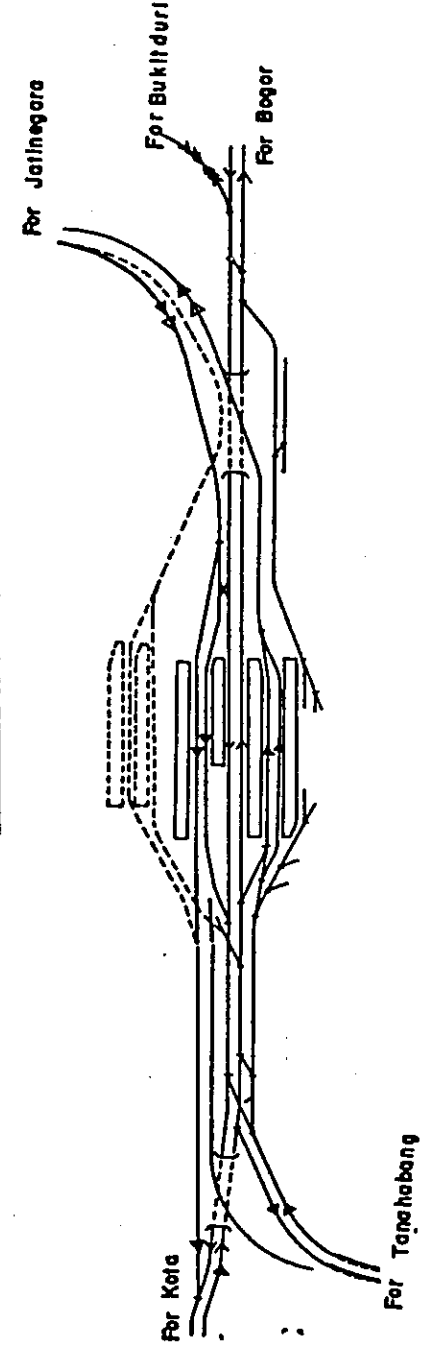
Phase 7



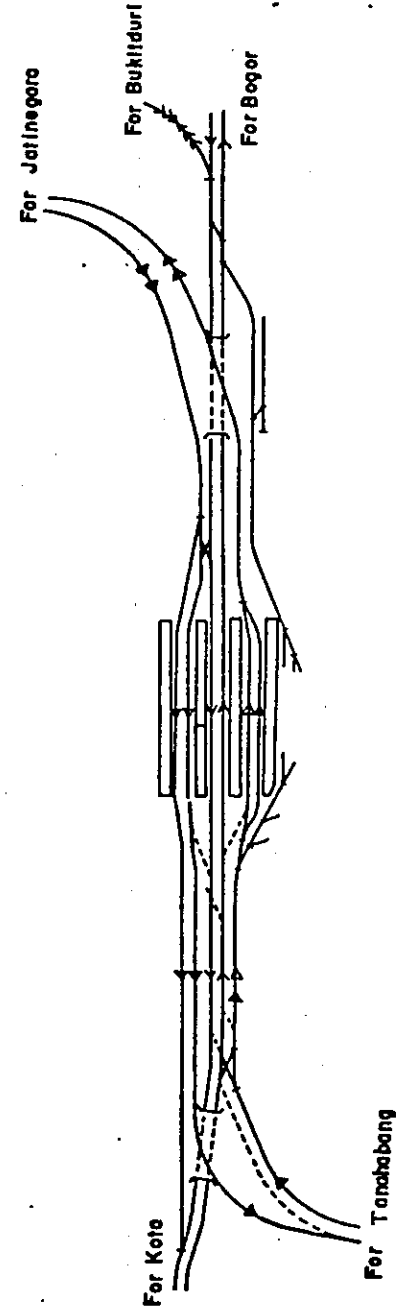
PROJECT	GRADE SEPARATION IN MANGGARAI
DESCRIPTION	TRACK REMOVAL
SCALE	
DRAWING No.	Dwg. 1.1
JAPAN INTERNATIONAL COOPERATION (JICA)	



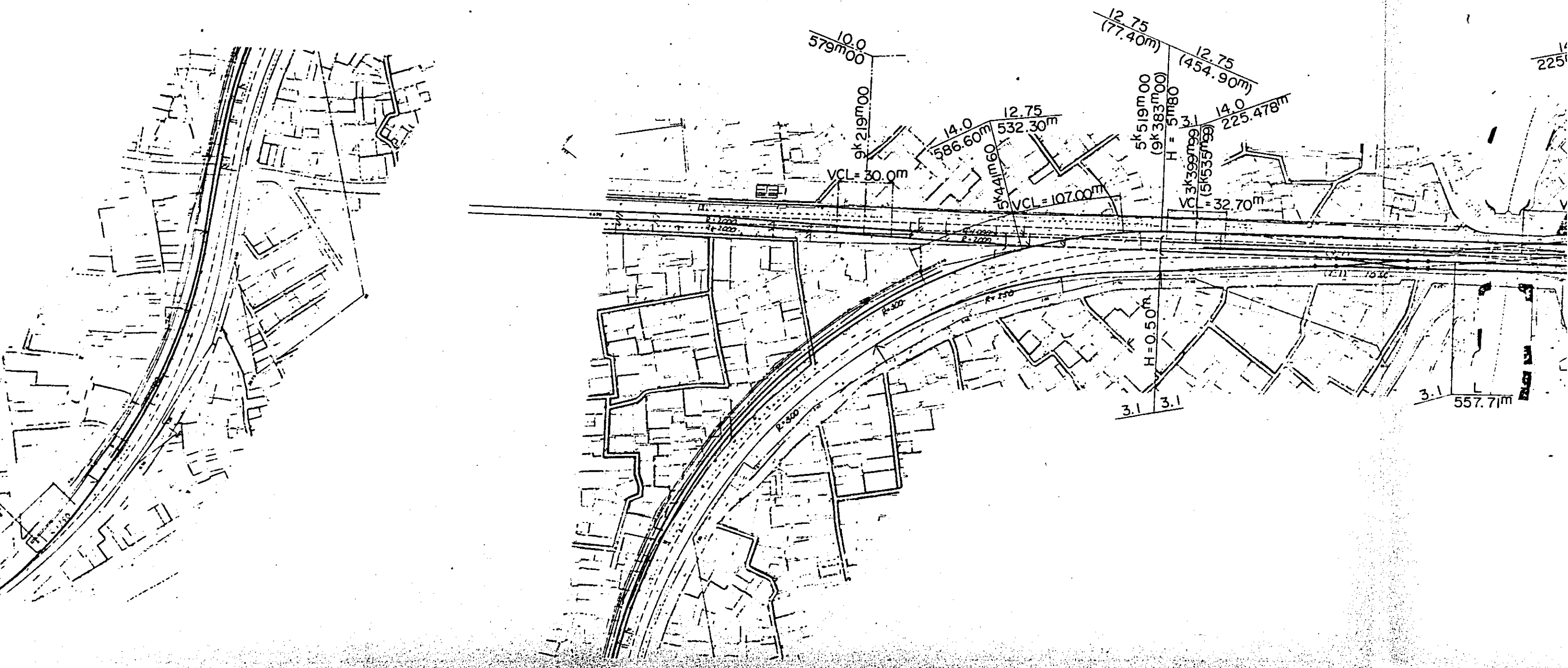
Phase 6



Phase 7

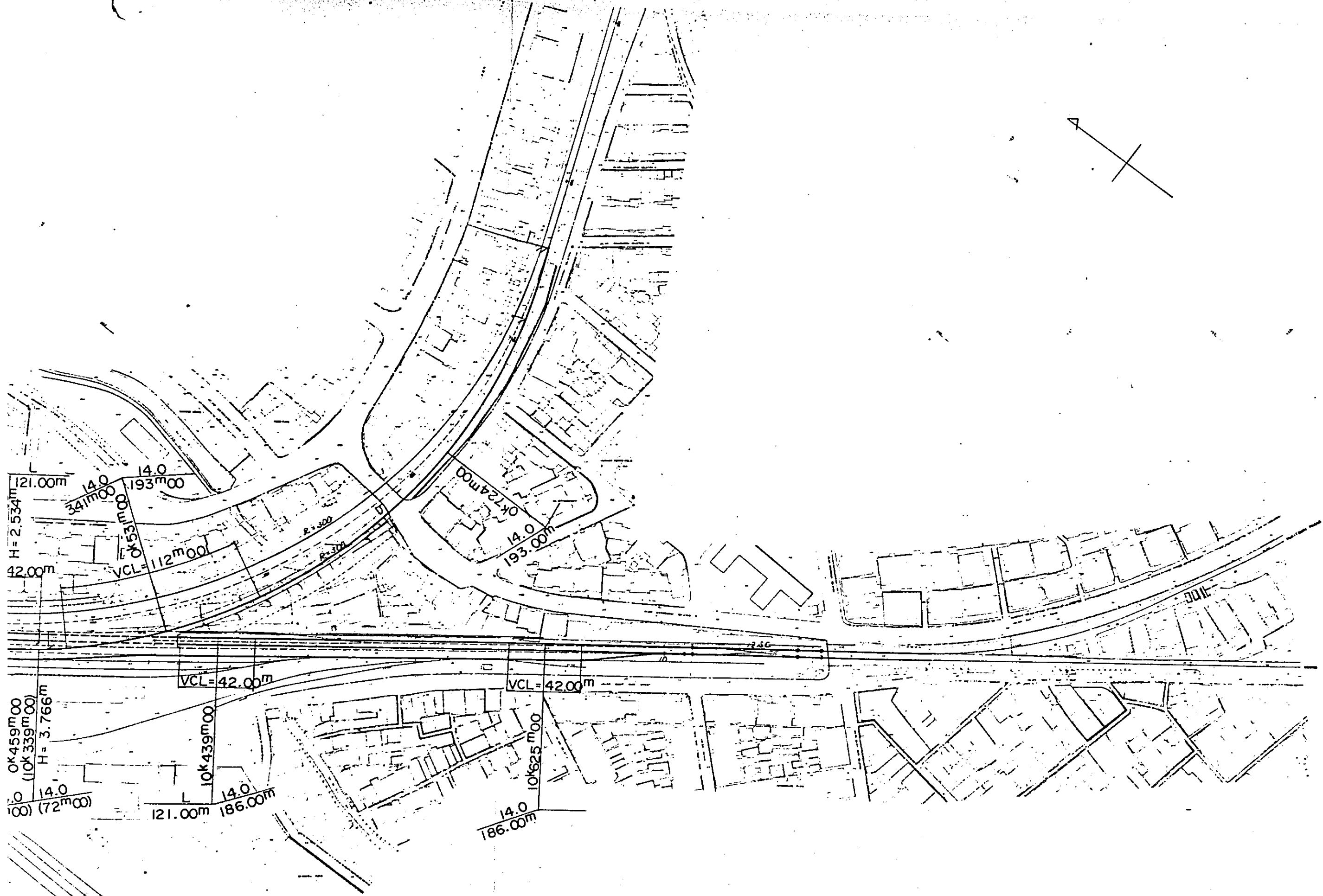


PROJECT	GRADE SEPARATED CROSSING IN MANGGARAI STATION
DESCRIPTION	TRACK REMOVAL WORK
SCALE	
DRAWING No.	Dwg. 1. 24
JAPAN INTERNATIONAL COOPERATION AGENCY ( J I C A )	

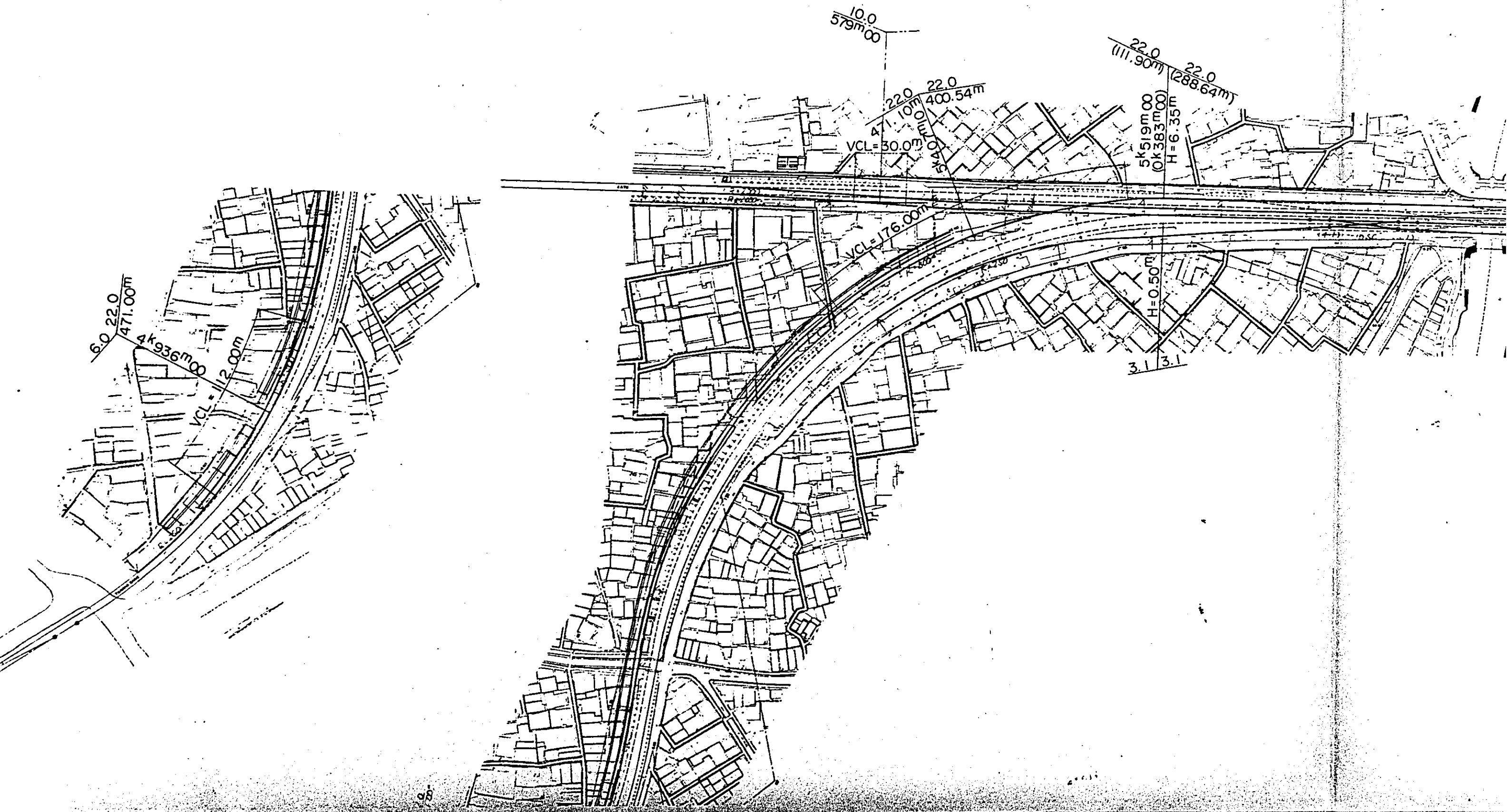






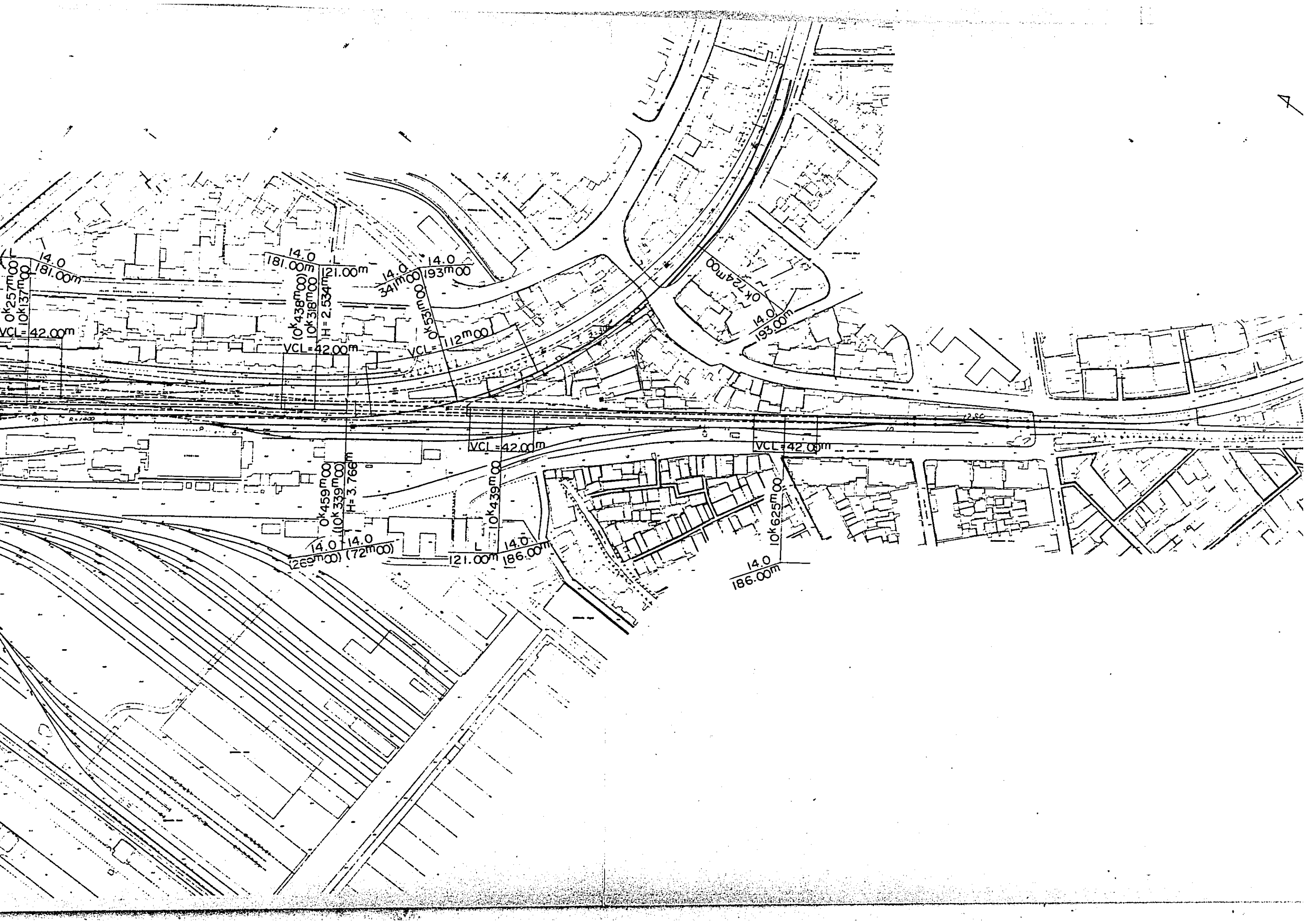


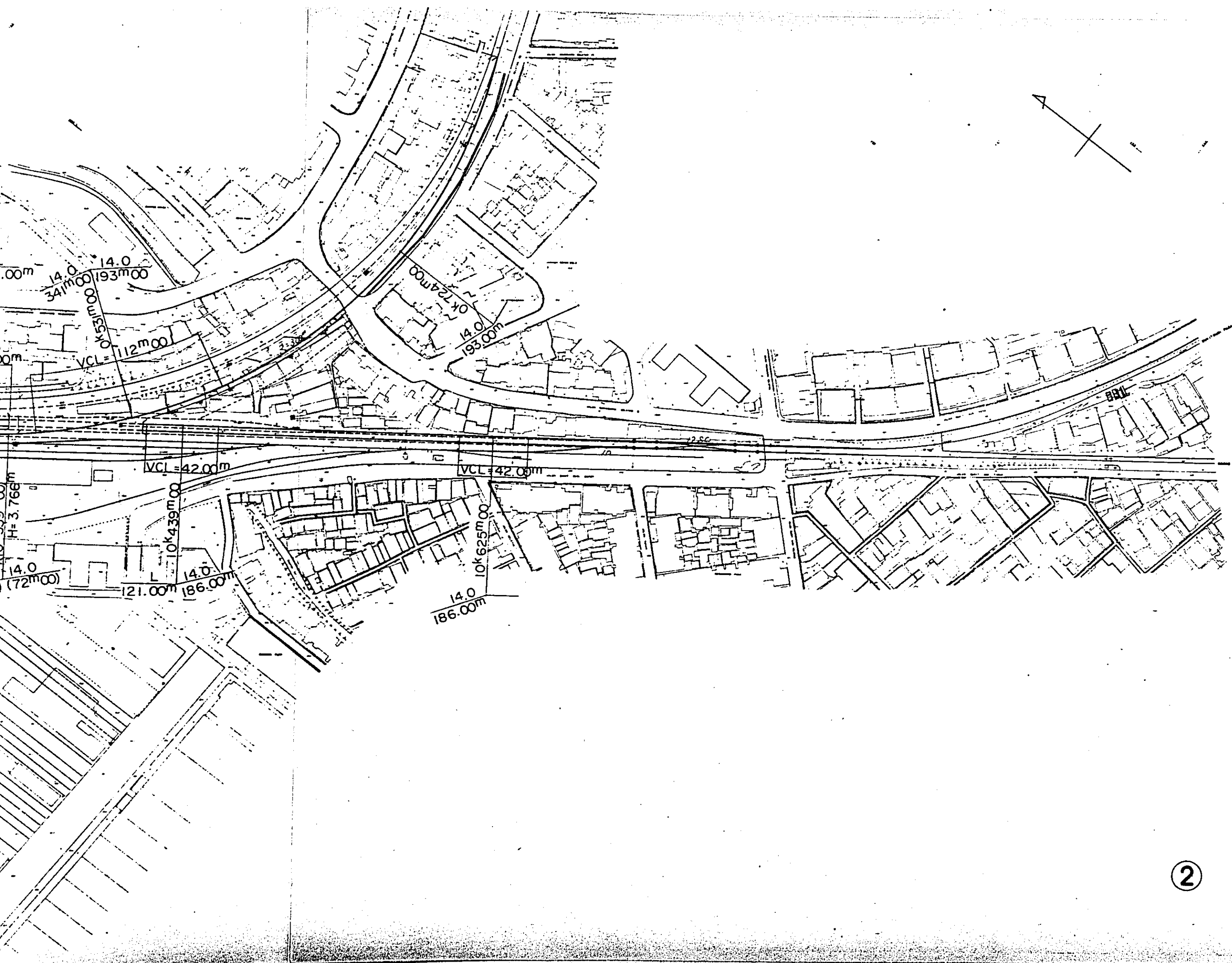
APPEN.2 PROPOSED TRACK LAYOUT IN MANGGARAI STATION (ALTERNATIVE F-22)

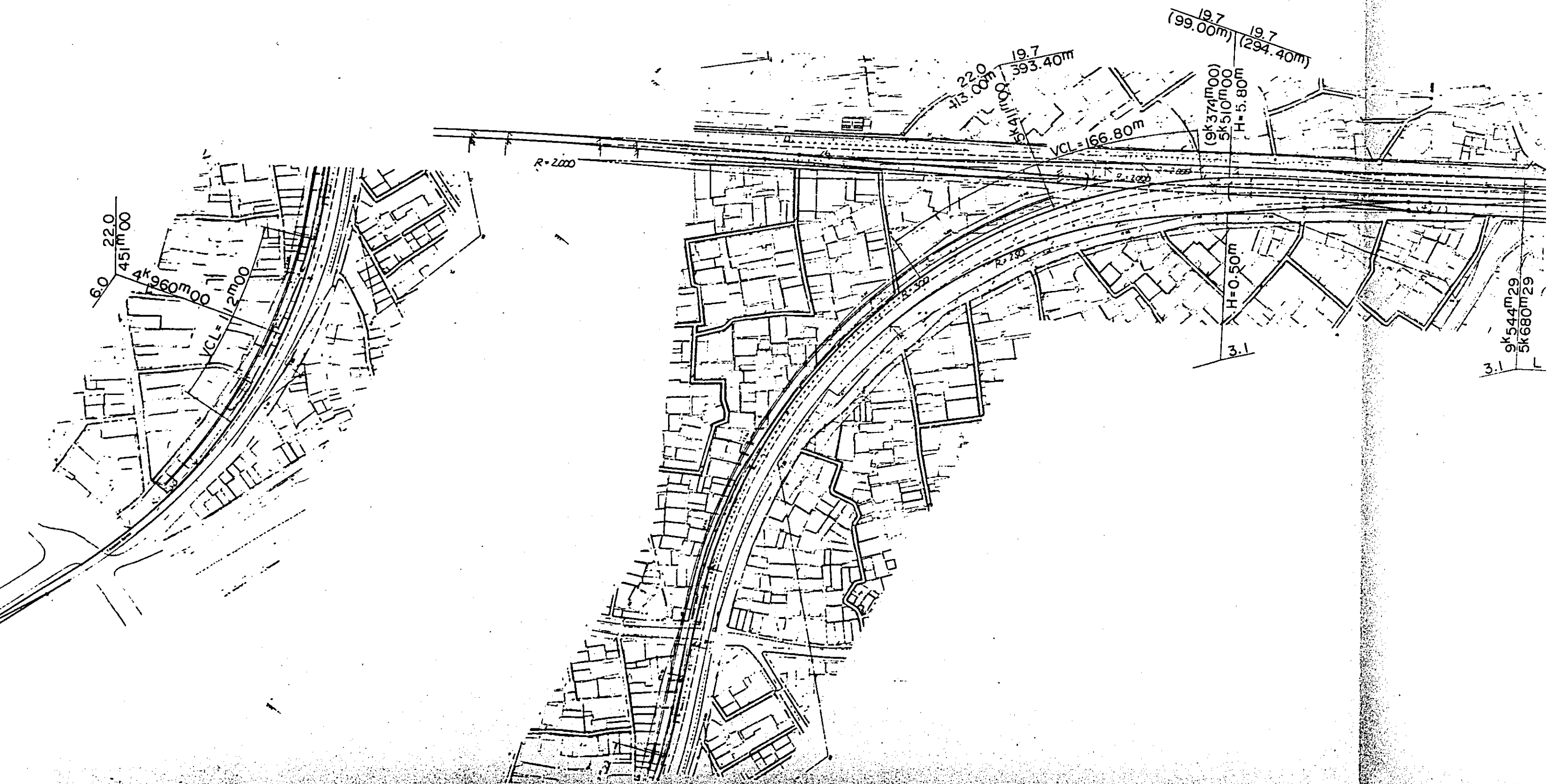












ON (ALTERNATIVE G-22)

Km: 9+890 Lin Jak - Boo  
Km: 0+010 Lin Mri - Jng  
Km: 6+026 Lin Tnb - Mri

7  
40m

19.7  
393.40m

(9k668m40)  
5k804m40

VCL = 59.10m

11.21  
226m00  
(178m80)

(0k208m00)  
10k088m00

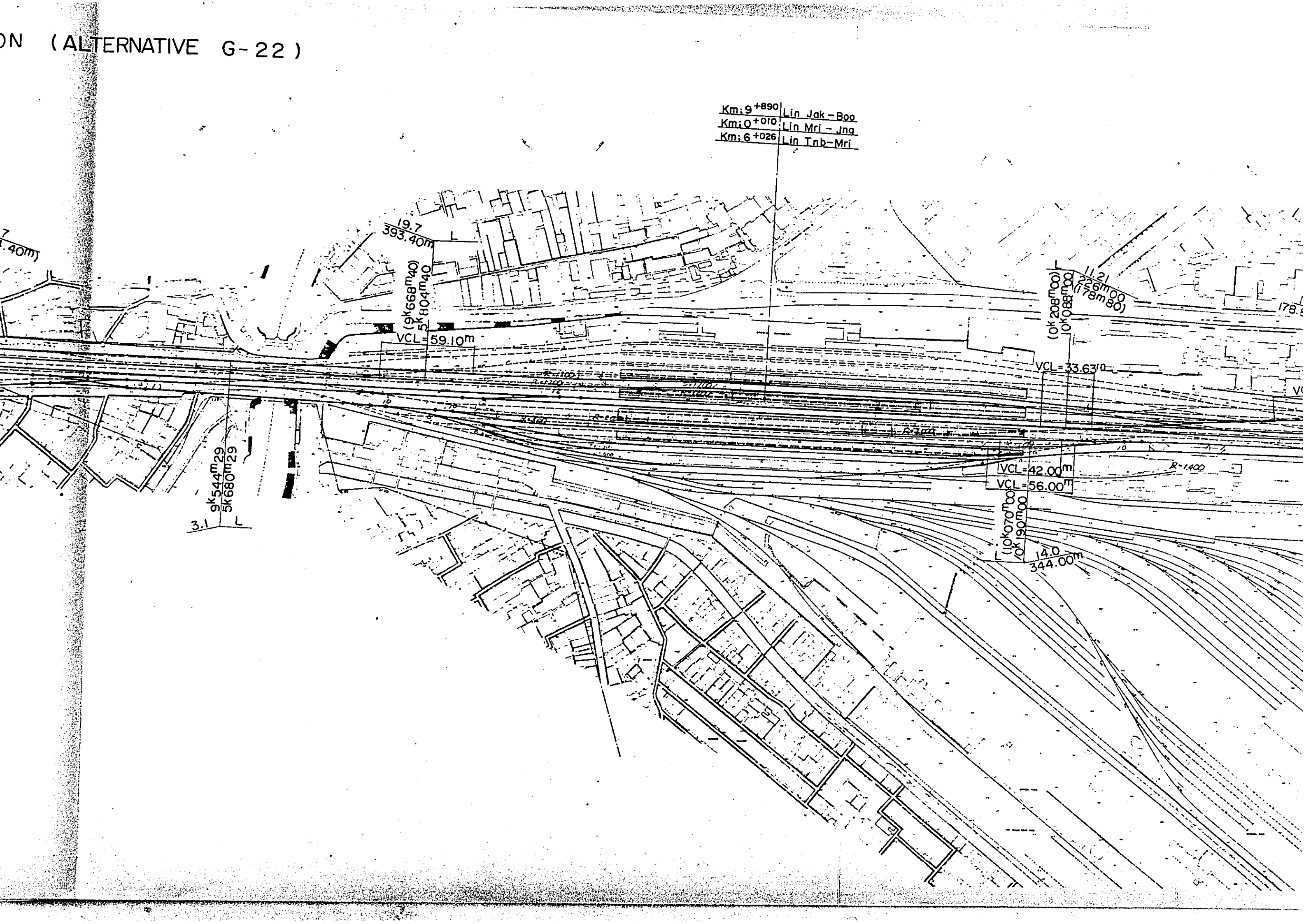
VCL = 33.63m

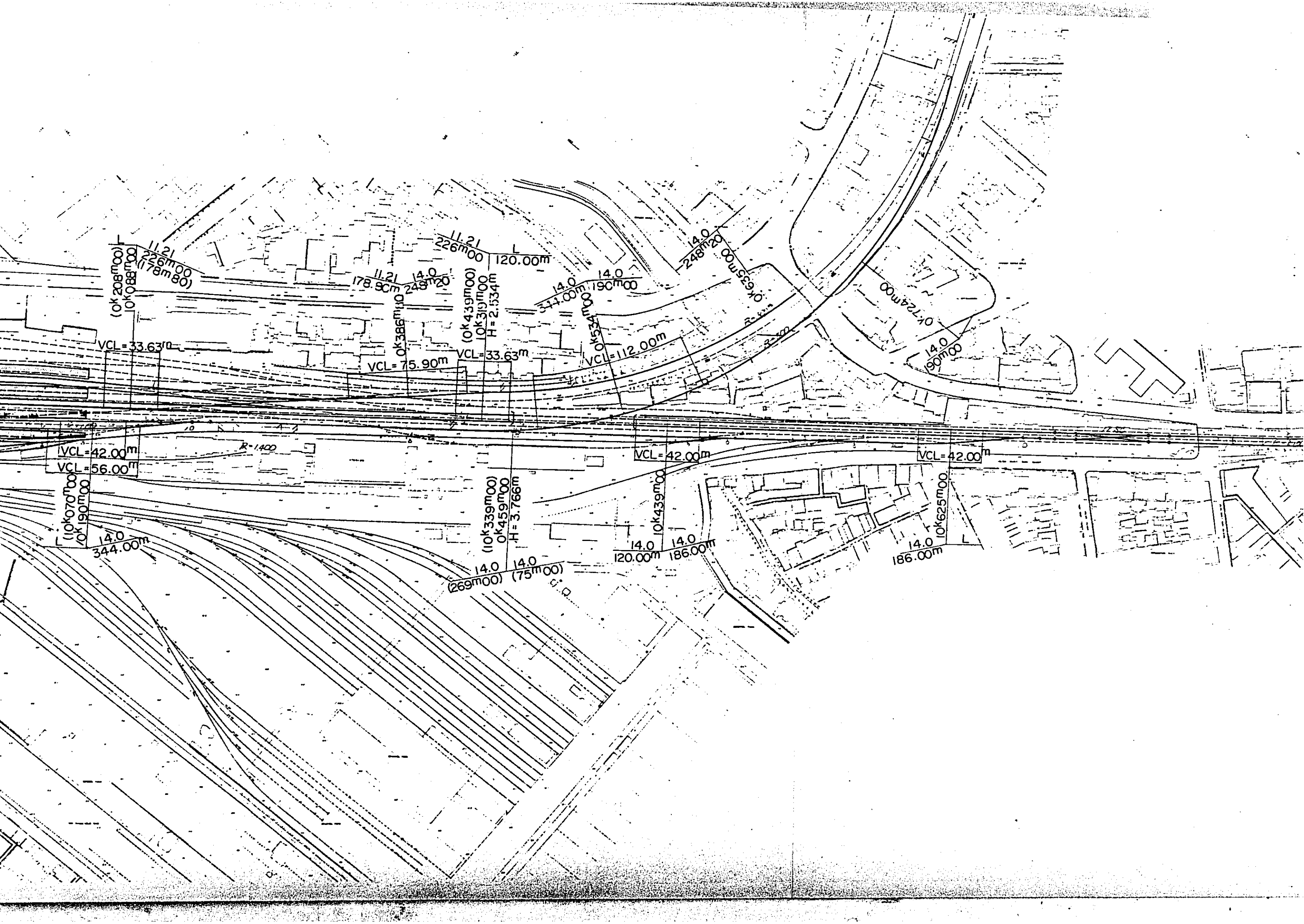
3.1  
9k544m29  
5k680m29

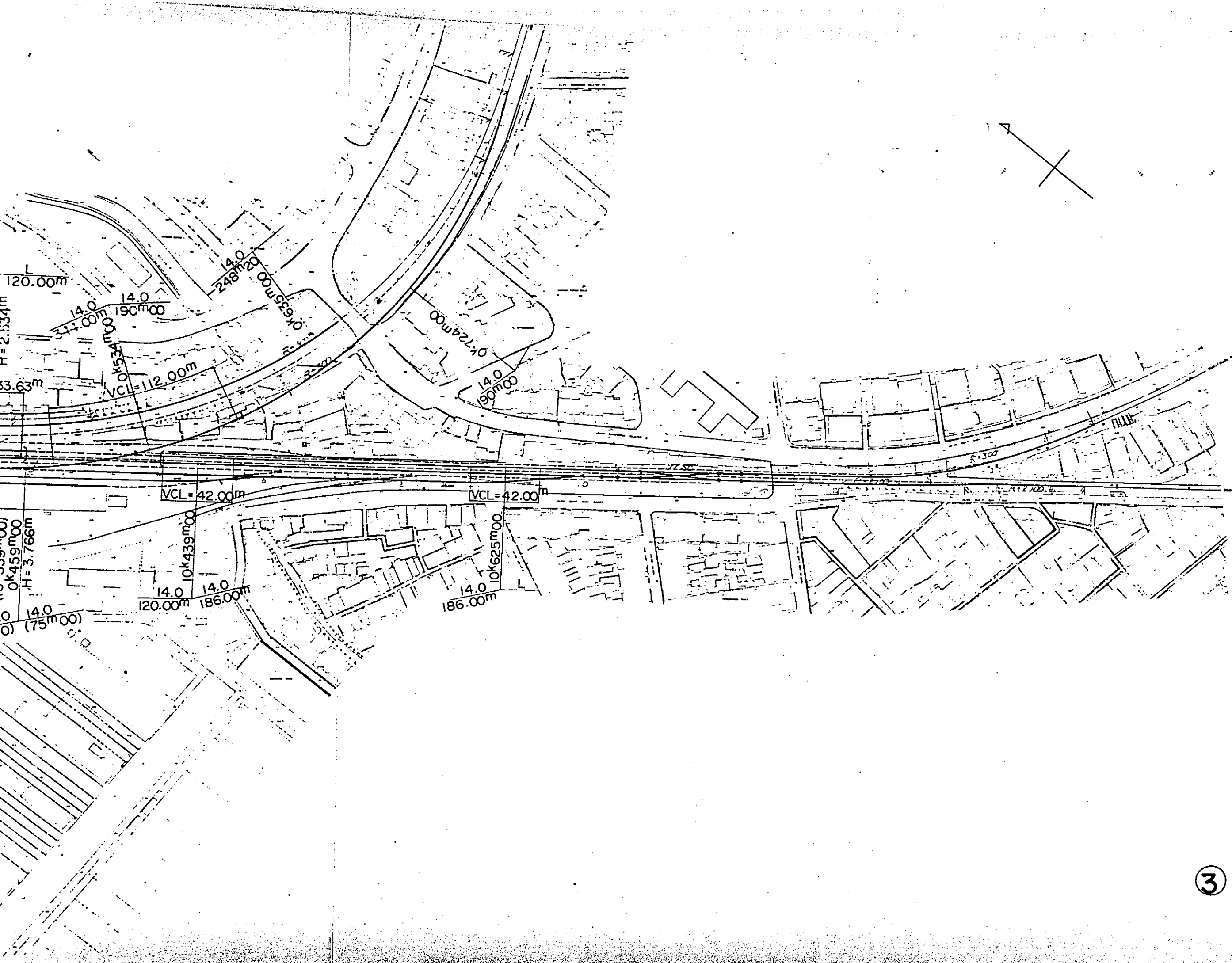
VCL = 42.00m  
VCL = 56.00m

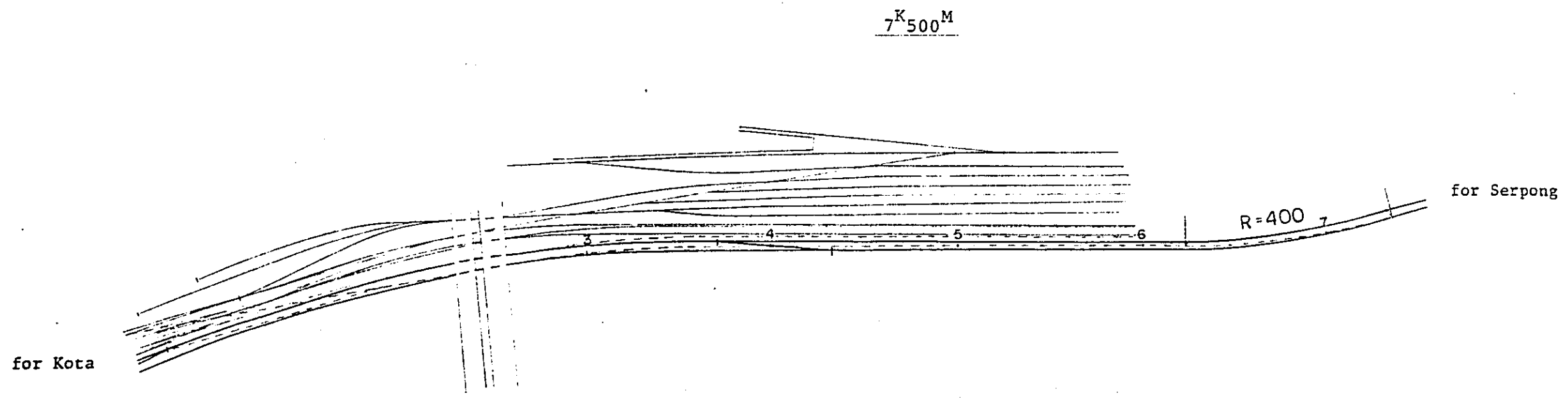
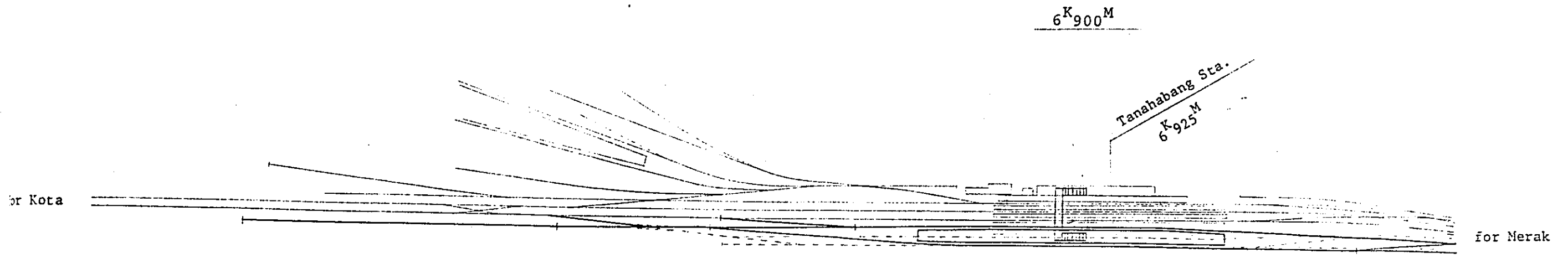
(10k070m00)  
10k190m00

14.0  
344.00m



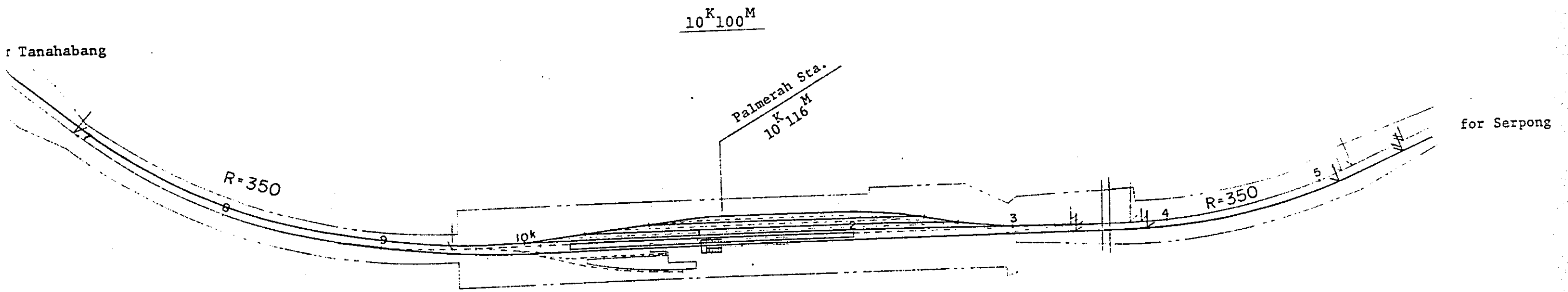
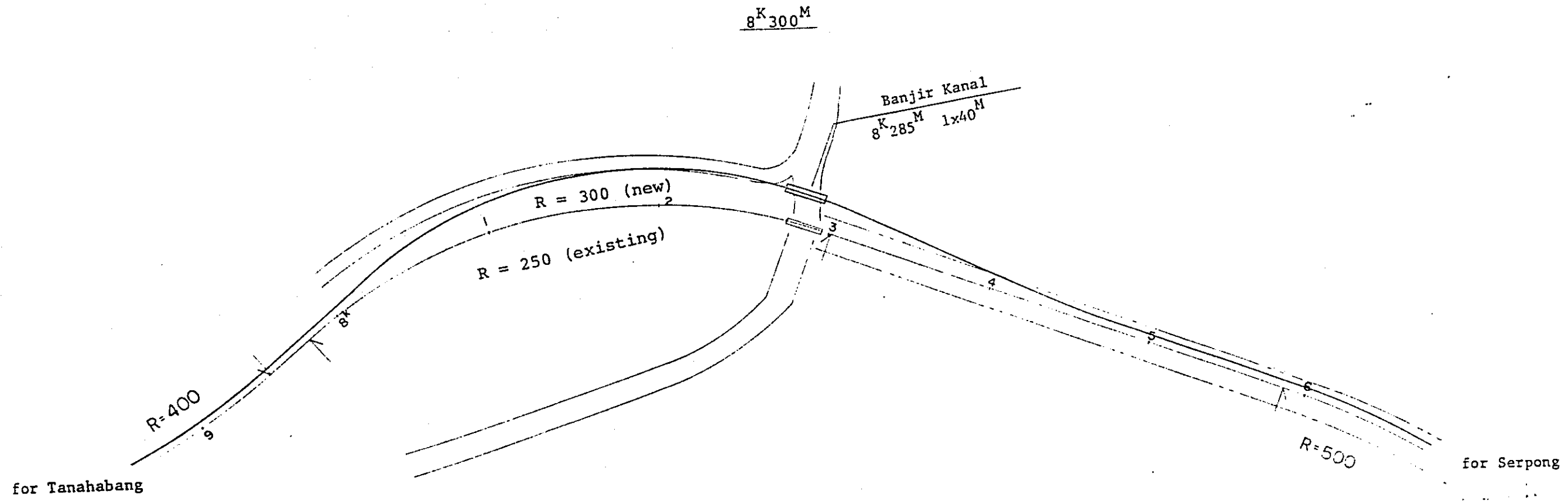




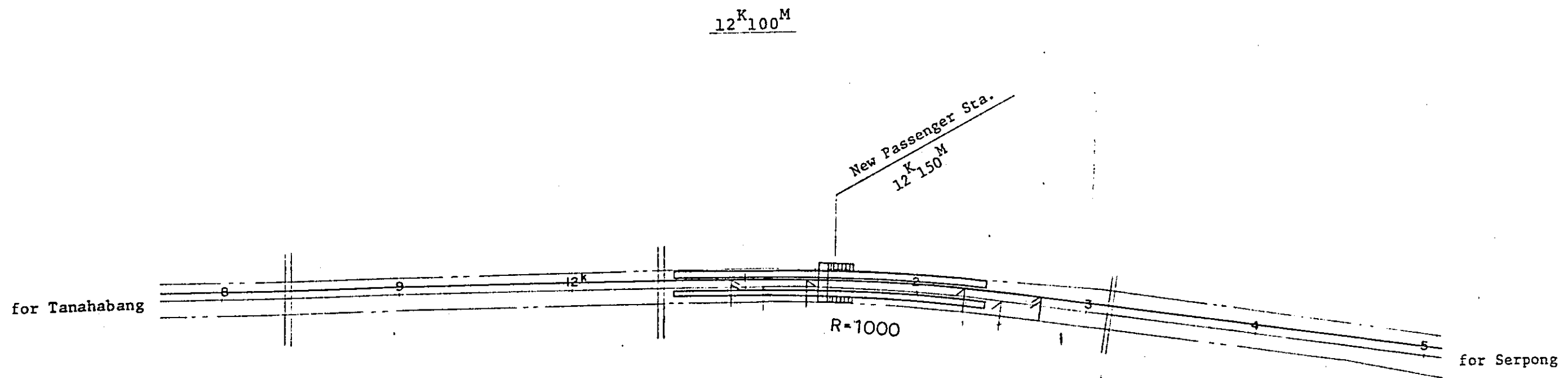
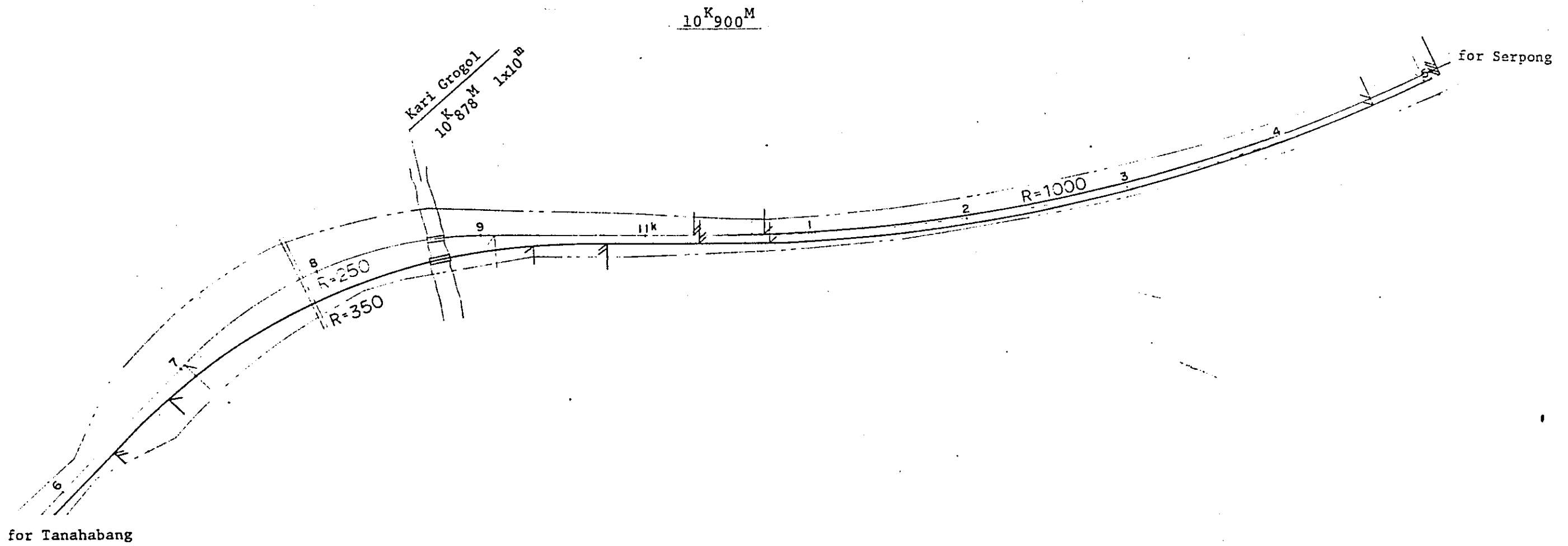


Dwg.2.1 Track Allgnment of Merak Line



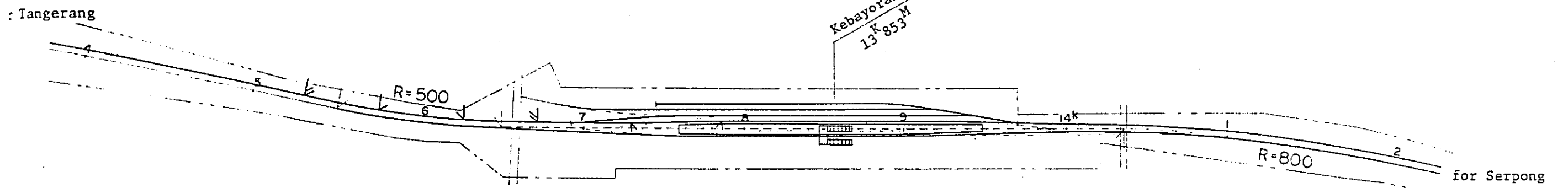


Dwg.2:2 Track Allignment of Merak Line

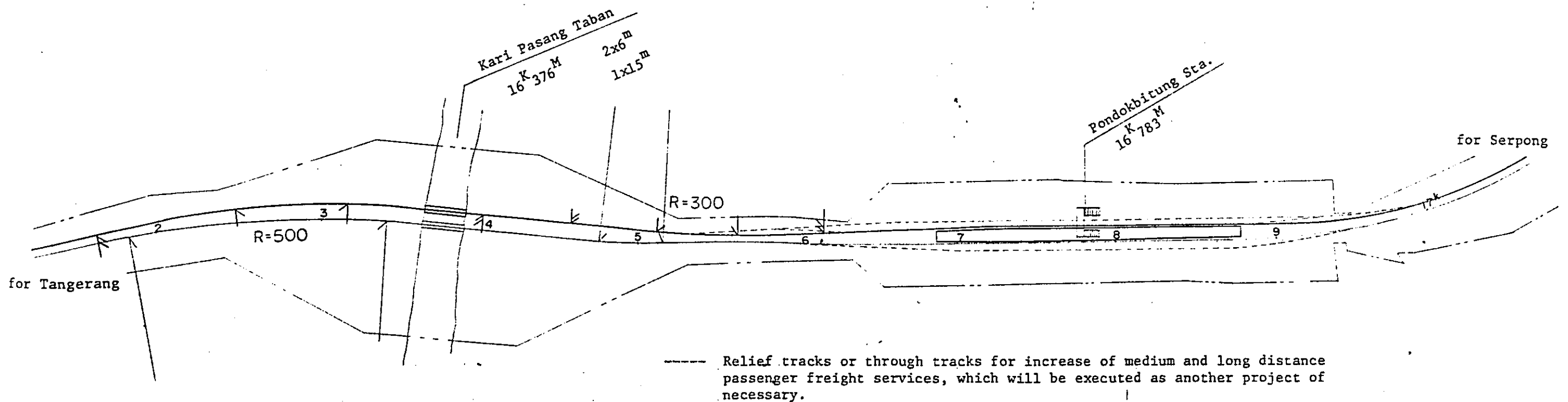


Dwg. 2.3 Track Allgnment of Merak Line

13<sup>K</sup> 800<sup>M</sup>

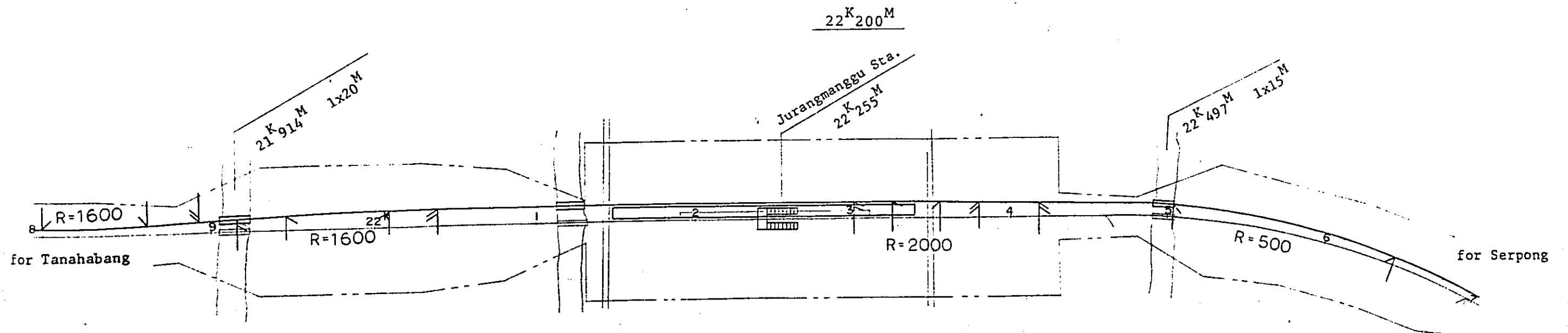
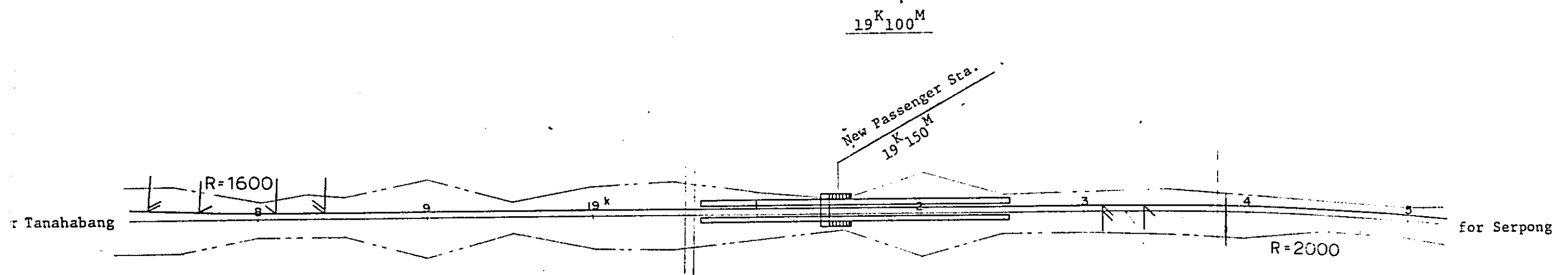
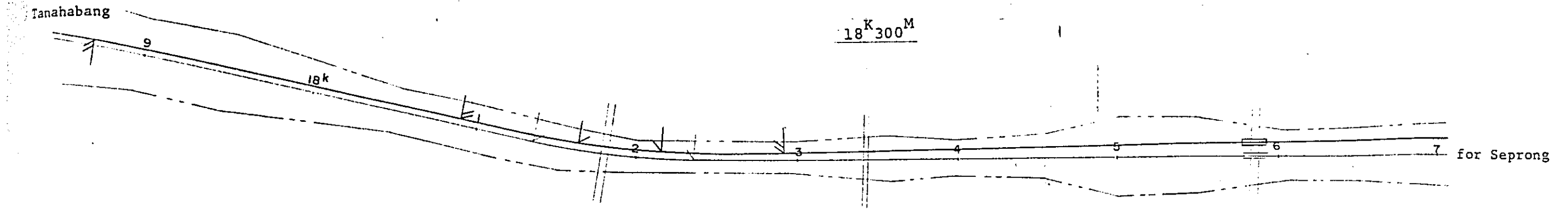


16<sup>K</sup> 800<sup>M</sup>

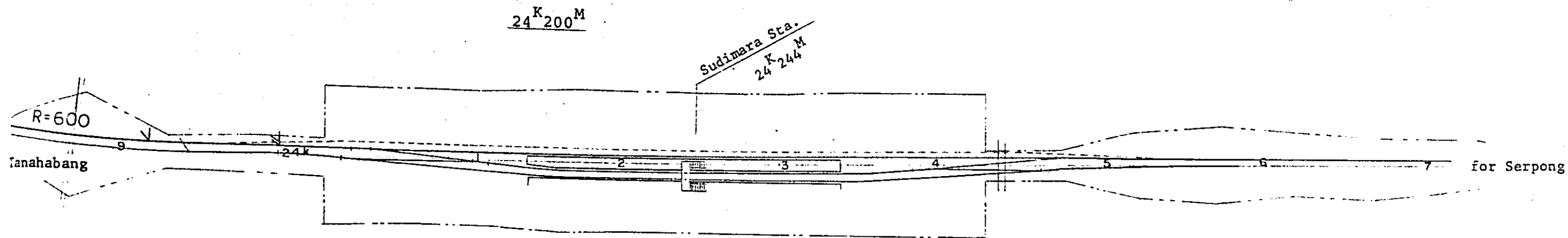


----- Relief tracks or through tracks for increase of medium and long distance passenger freight services, which will be executed as another project of necessary.

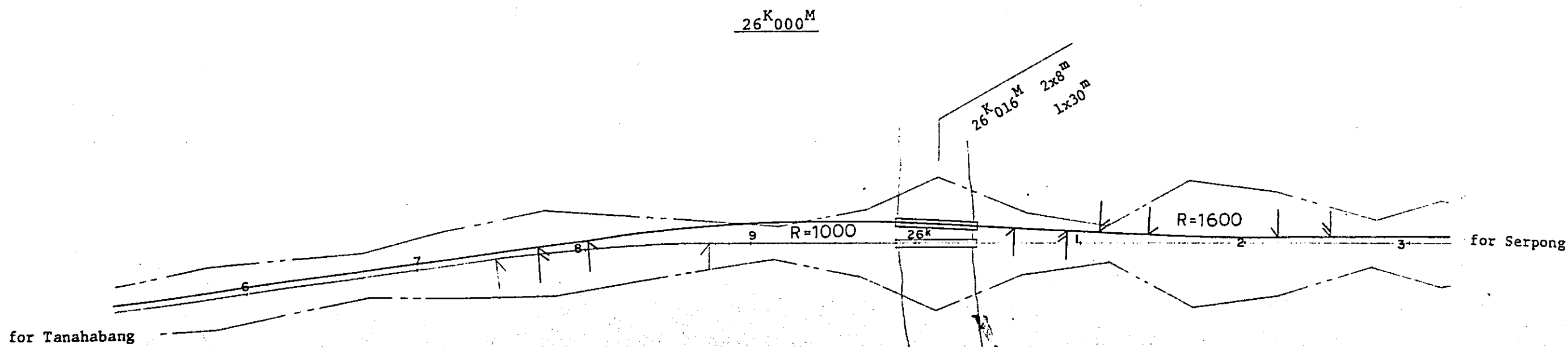
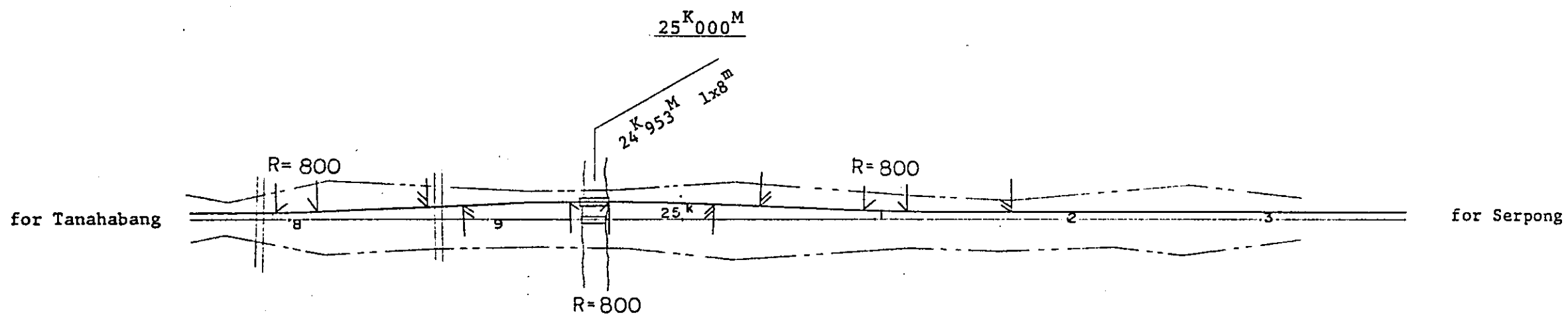
Dwg.2.4 Track Allignment of Merak Line



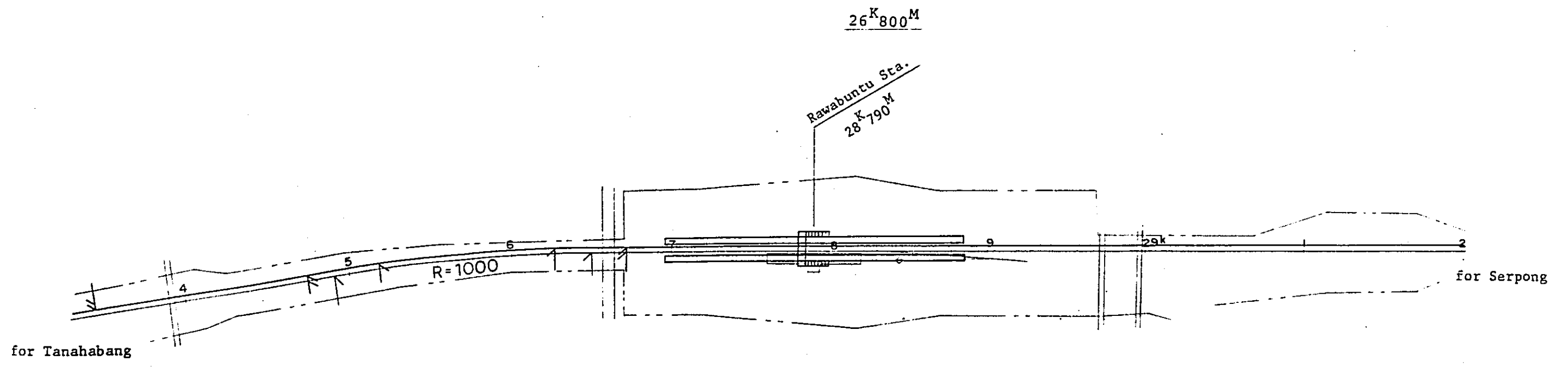
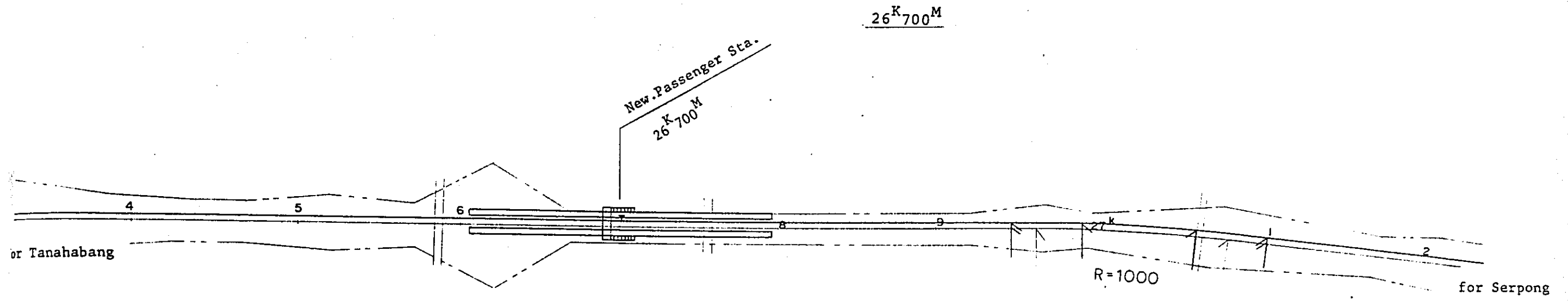
Dwg.2.5 Track Allignment of Merak Line



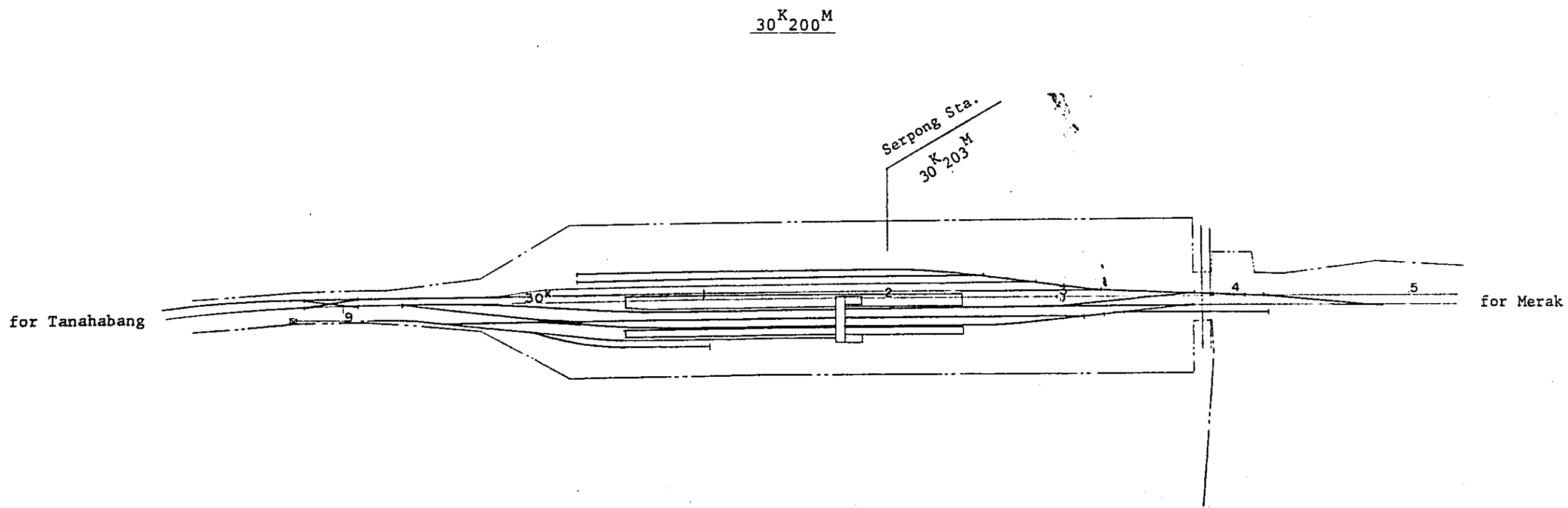
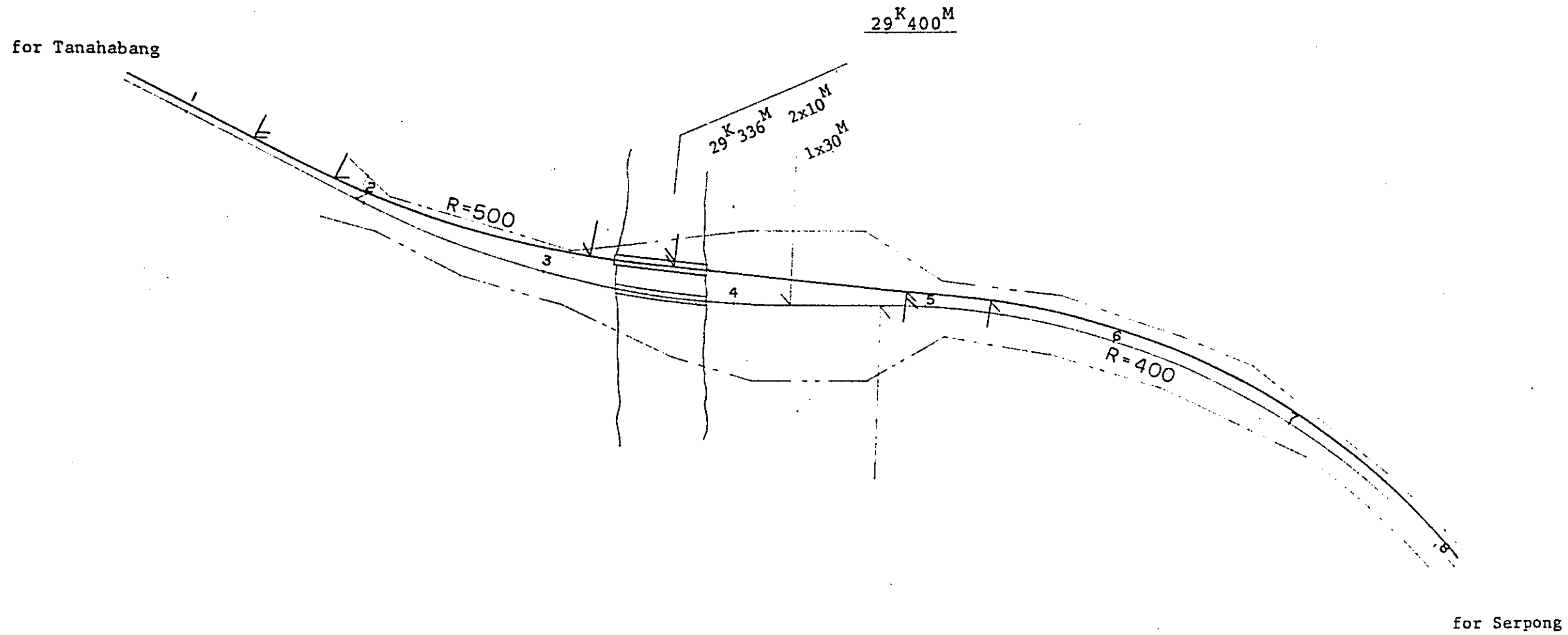
----- Relief tracks or through tracks for increase of medium and long distance passenger freight services, which will be executed as another project of necessary.



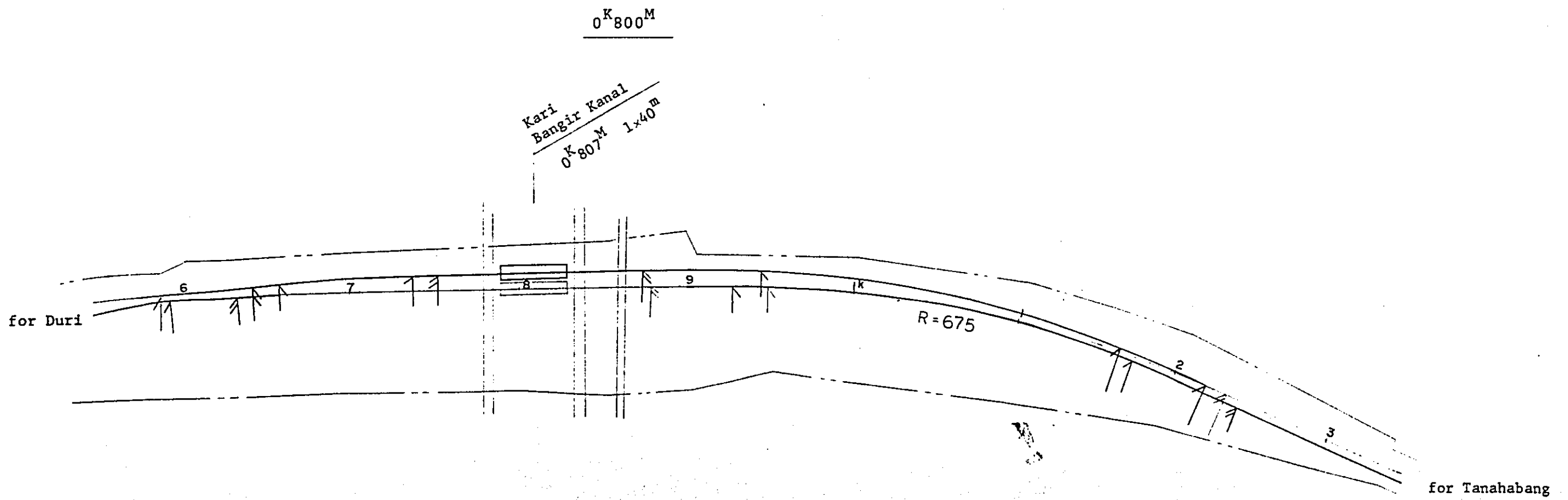
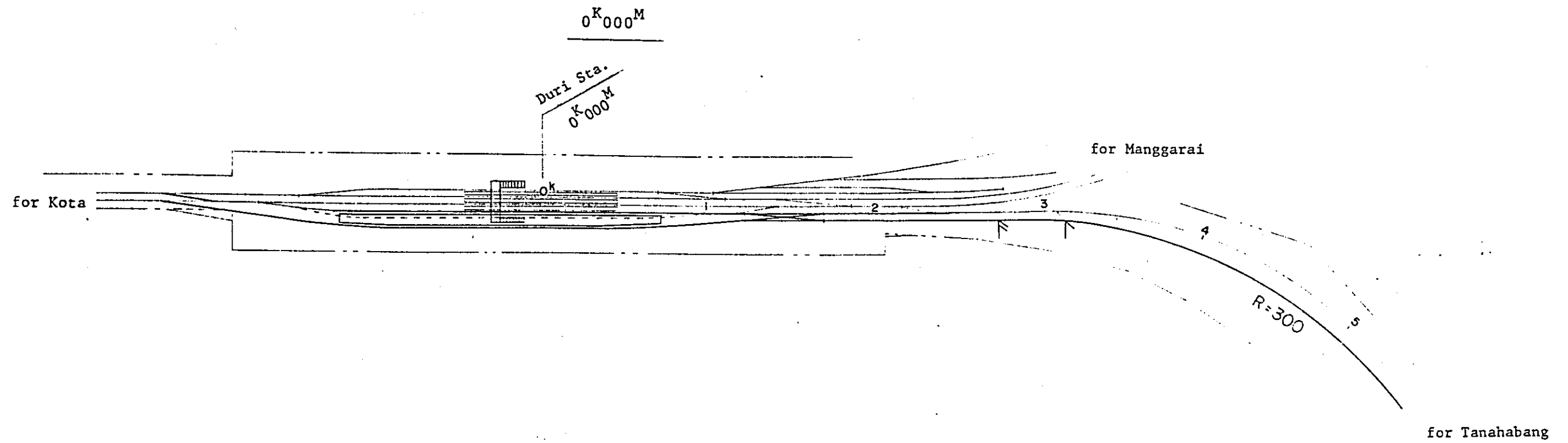
Dwg.2.6 Track Allgnment of Merak Line



Dwg.2.7 Track Allgnment of Merak Line

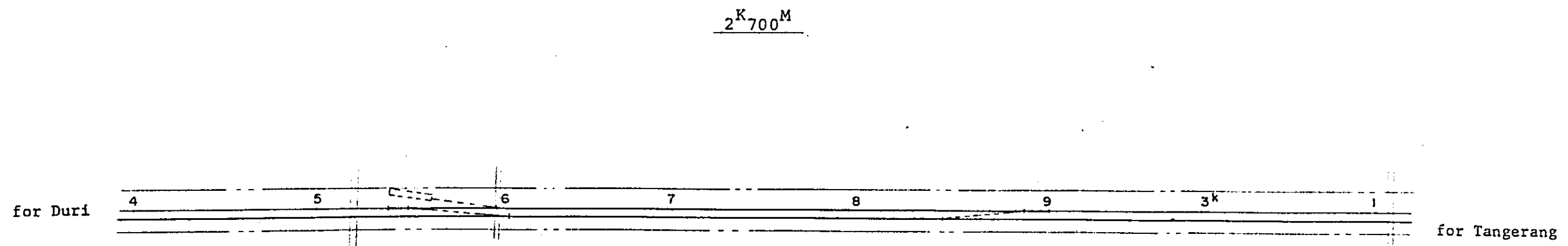
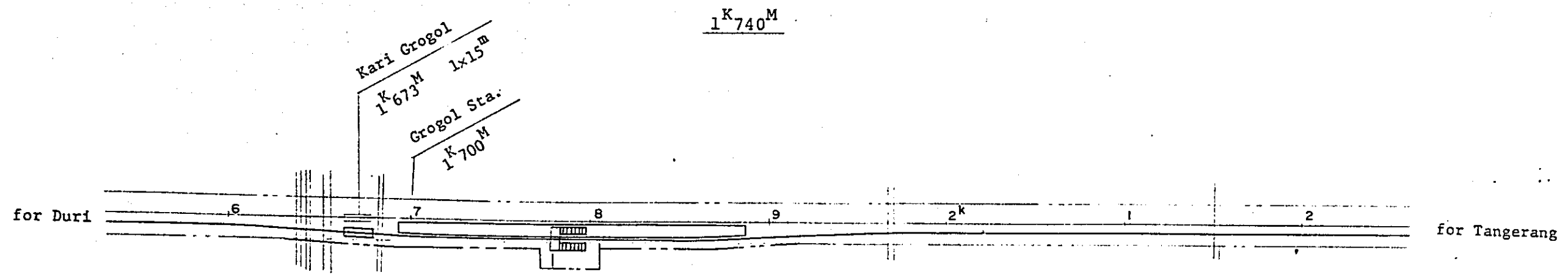


Dwg.2.8 Track Allignment of Merak Line

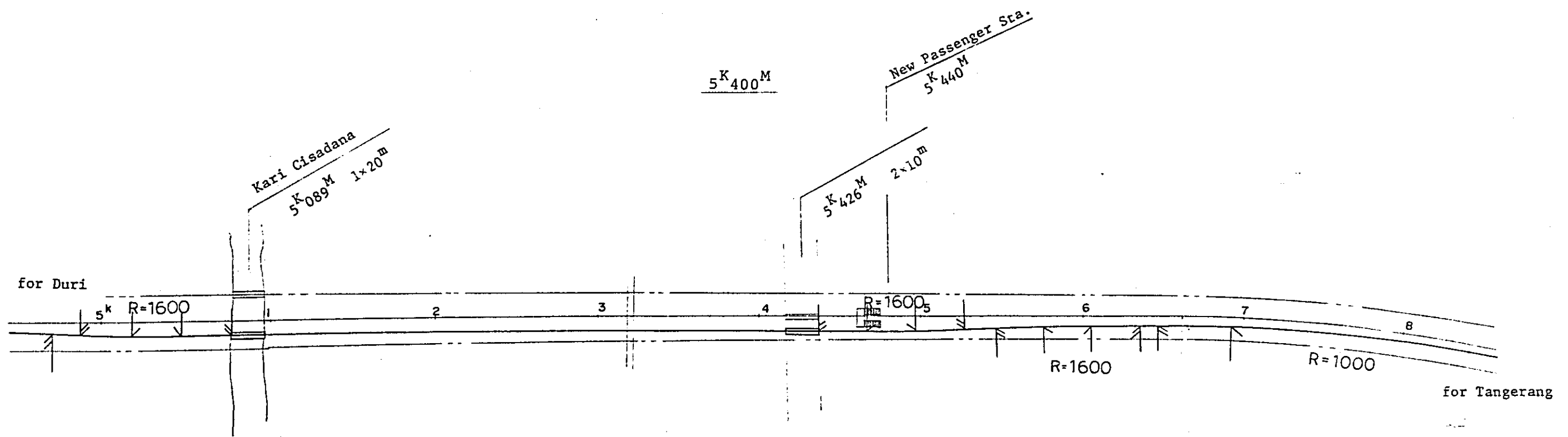
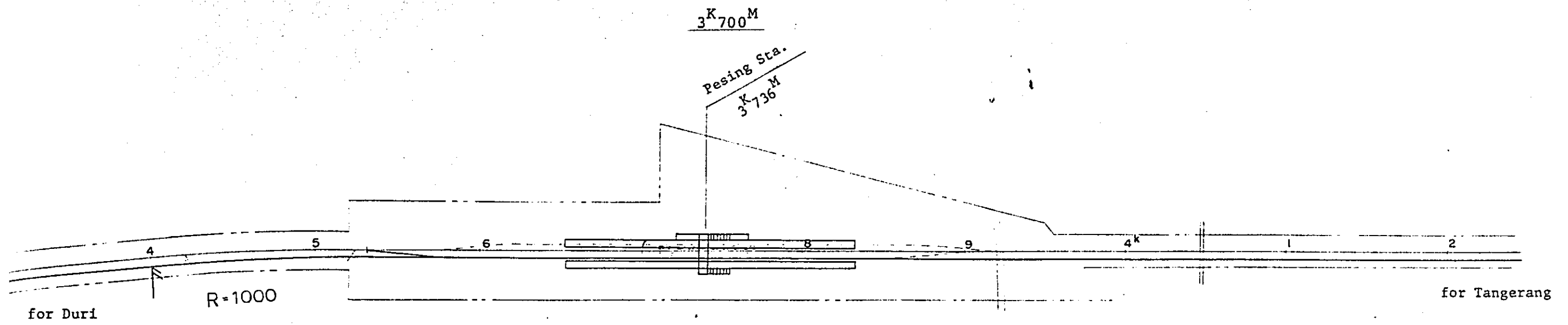


Dwg.3.1 Track Allgnment of Tangerang Line

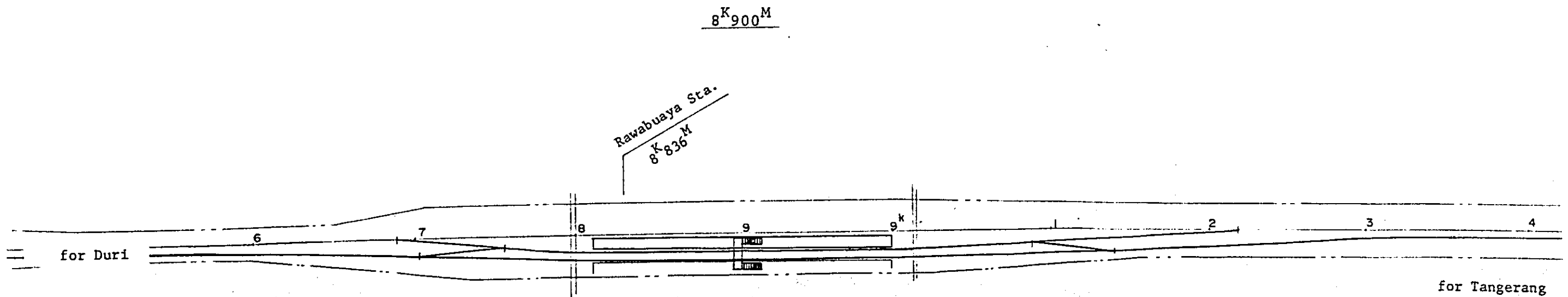
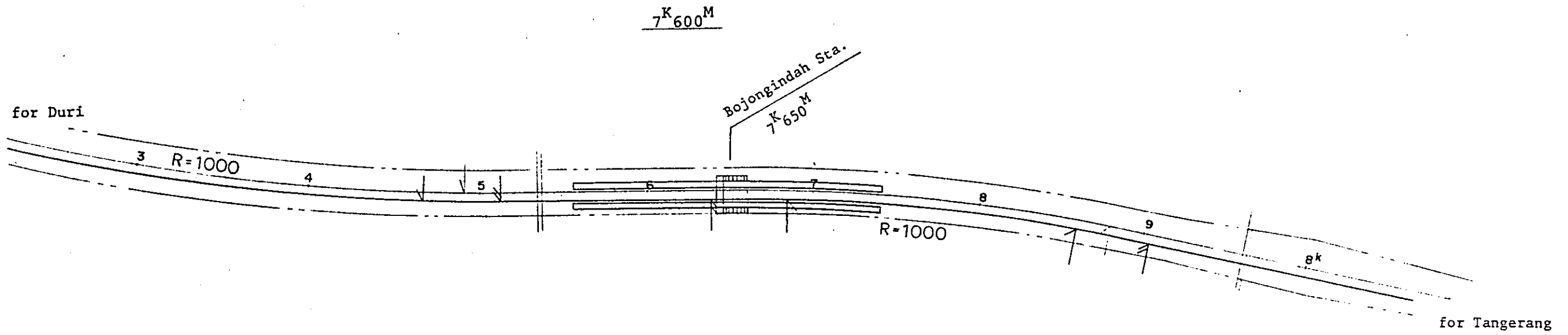
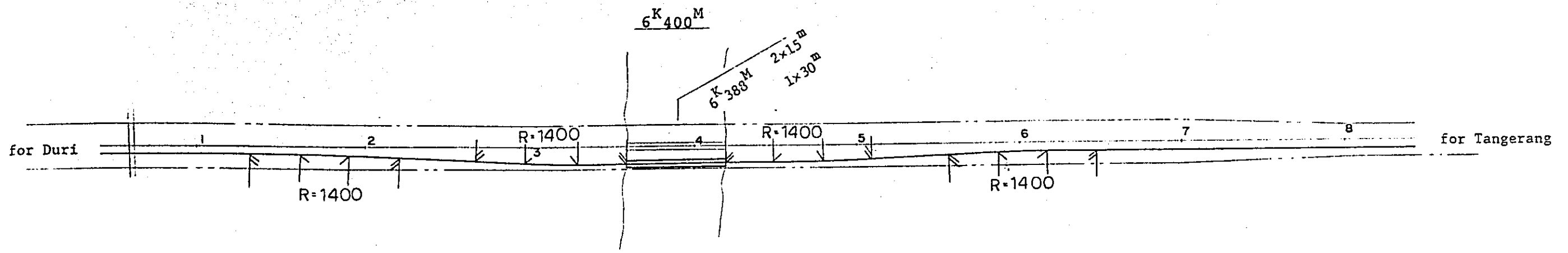




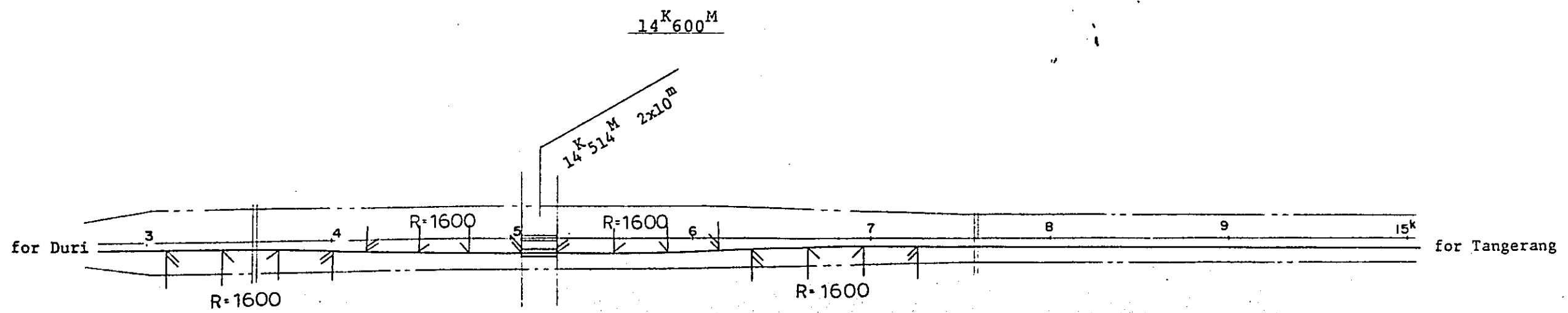
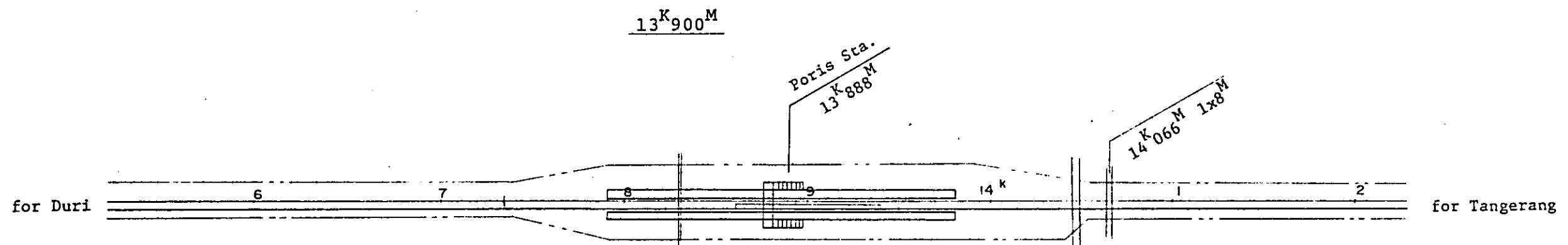
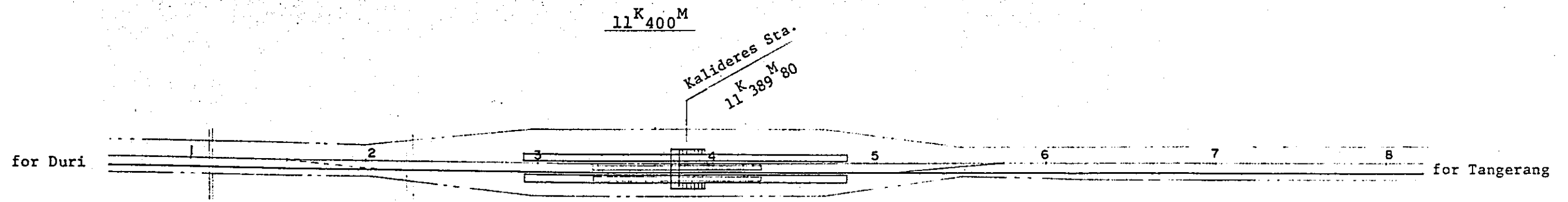
Dwg.3.2 Track Allgnment of Tangerang Line



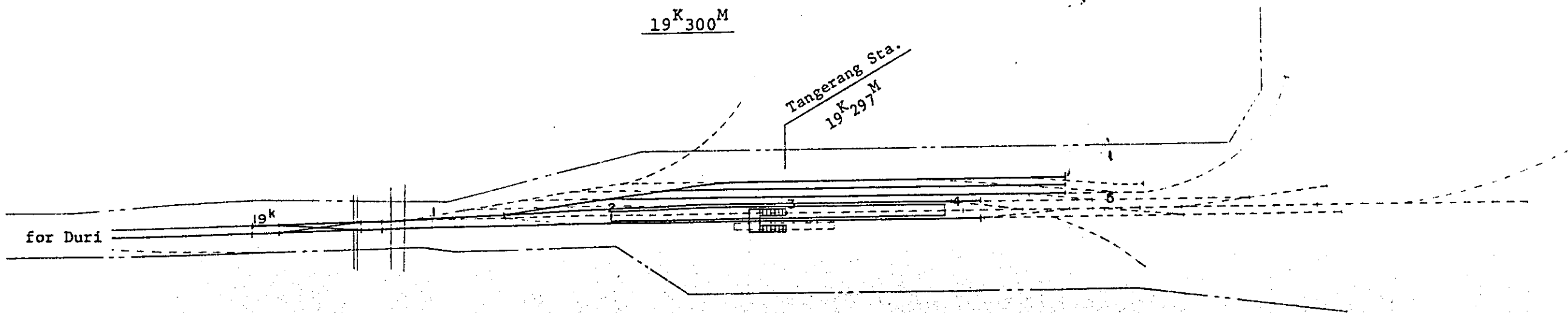
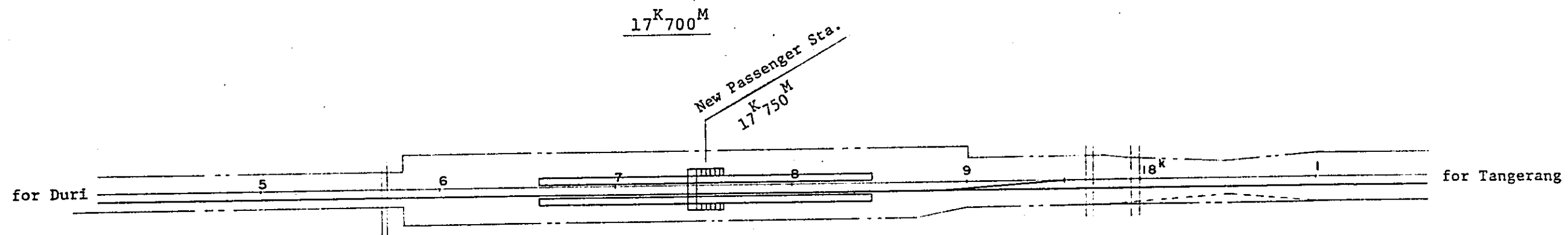
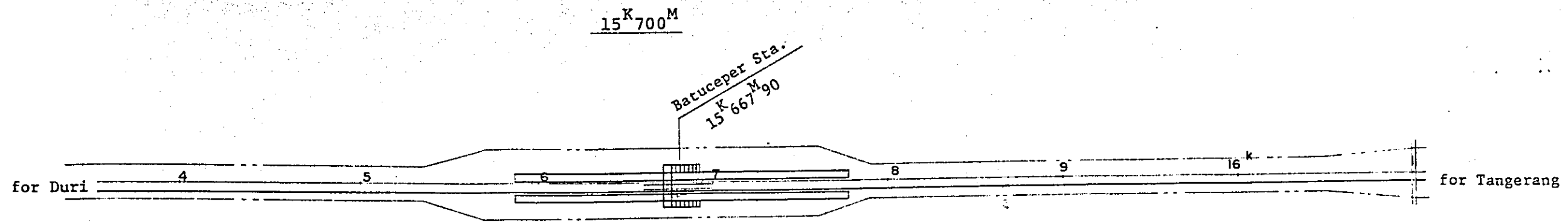
Dwg.3.3 Track Allgnment of Tangerang Line



Dwg.3.4 Track Allgnment of Tangerang Line



Dwg.3.5 Track Alignment of Tangerang Line



Dwg.3.6 Track Alignment of Tangerang Line



