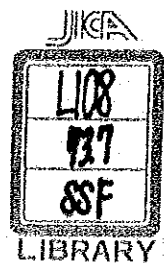


REPUBLIC OF INDONESIA  
DIRECTORATE GENERAL OF HIGHWAYS  
MINISTRY OF PUBLIC WORKS

*Feasibility Study*  
on  
*Surabaya-Mojokerto Toll Road Project*

**FINAL REPORT**  
VOLUME II : DRAWINGS

OCTOBER 1991



**JAPAN INTERNATIONAL COOPERATION AGENCY**

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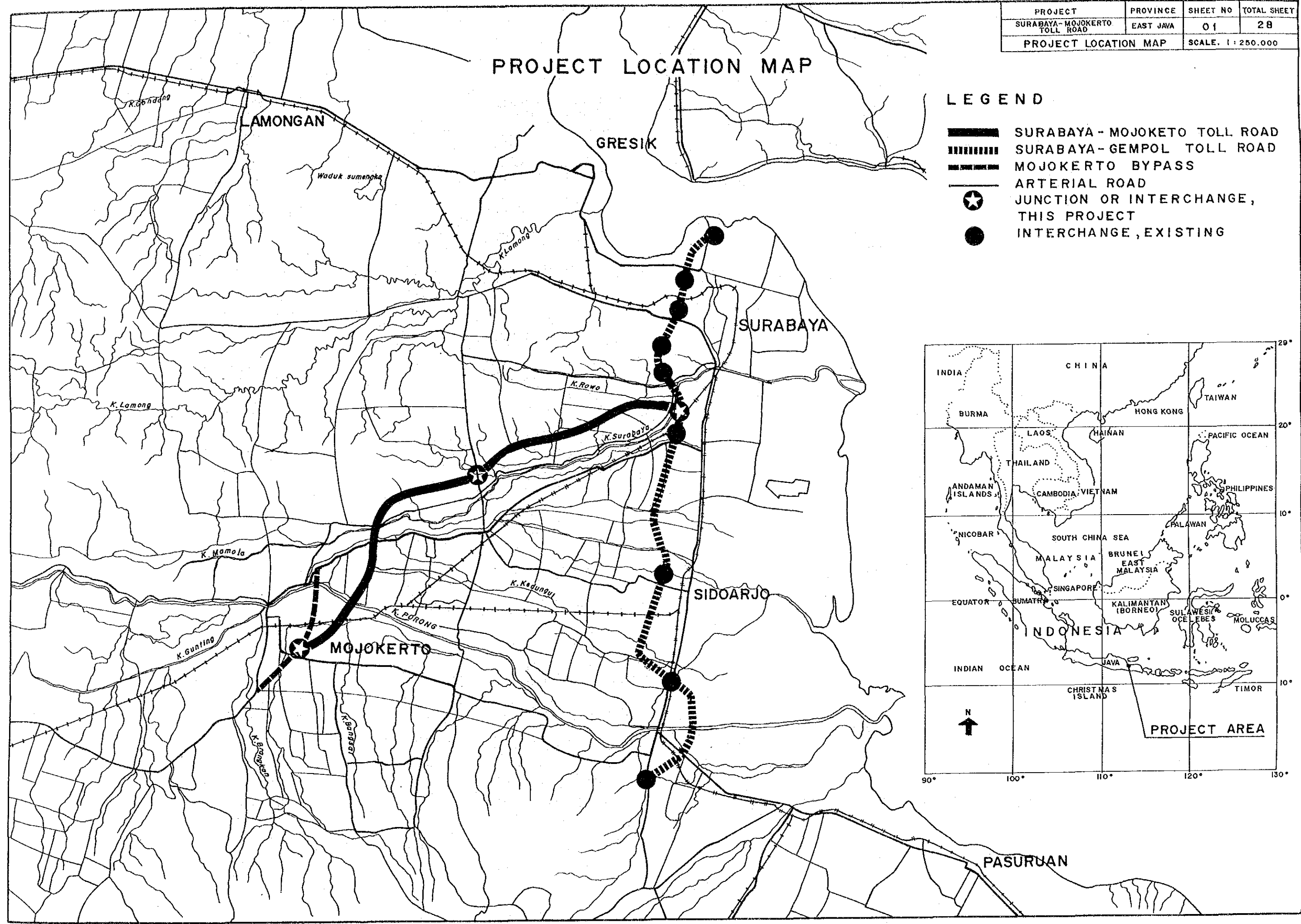
23055

# INDEX OF DRAWINGS







INDEX OF SHEETS	SHEET NO.
PROJECT LOCATION MAP	01
LEGEND	02
TYPICAL CROSS SECTIONS	03 TO 06
PLAN AND PROFILE	07 TO 18
TYPICAL BRIDGE CROSS SECTIONS	19
THROUGHWAY BRIDGES	20 TO 26
OVERPASS BRIDGE CROSS SECTIONS	27
OVERPASS BRIDGE	28

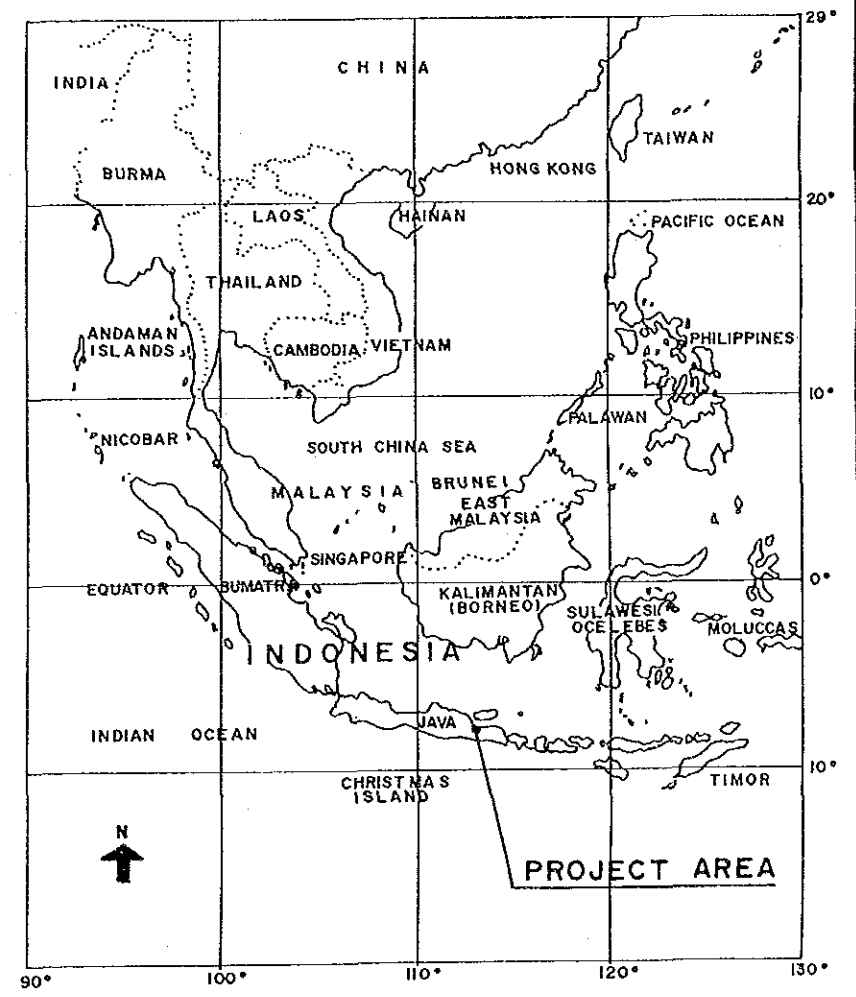
PROJECT	PROVINCE	SHEET NO	TOTAL SHEET
SURABAYA-MOJOKERTO TOLL ROAD	EAST JAVA	01	28
PROJECT LOCATION MAP		SCALE: 1 : 250.000	

# PROJECT LOCATION MAP




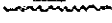







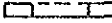

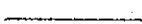

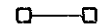











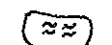











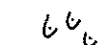











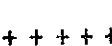



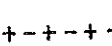



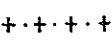























## LEGEND

-  SURABAYA - MOJOKERTO TOLL ROAD
-  SURABAYA - GEMPOL TOLL ROAD
-  MOJOKERTO BYPASS
-  ARTERIAL ROAD
-  JUNCTION OR INTERCHANGE, THIS PROJECT
-  INTERCHANGE, EXISTING



**LEGENDA  
LEGEND**

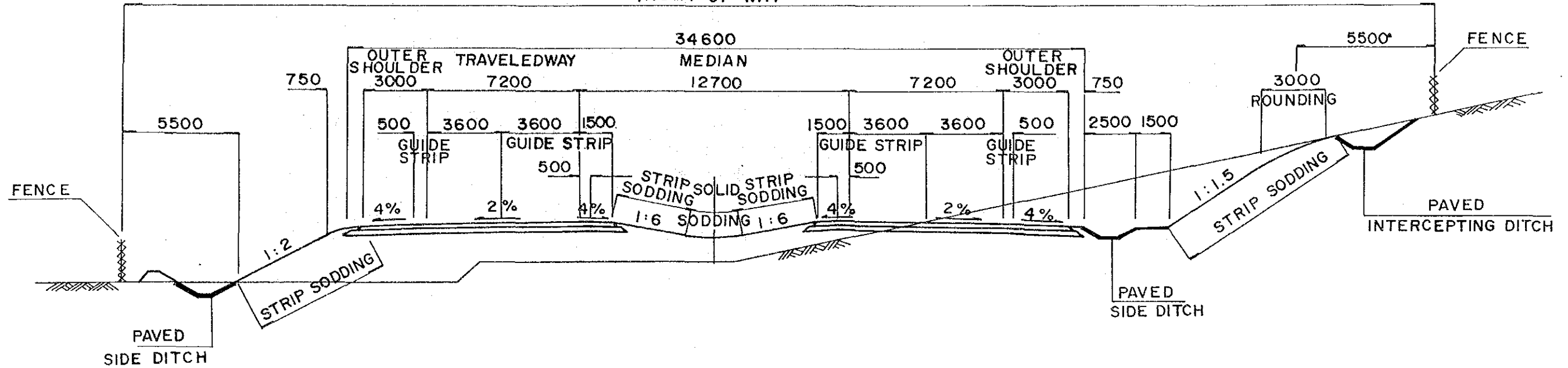
	<u>Titik Doppler</u> Doppler point		<u>Kantor Pemerintah</u> Government Office		<u>Tugu</u> Monument		<u>Saluran</u> Channel
	<u>Titik GPS</u> GPS Point		<u>Hotel</u> Hotel		<u>Kuburan Islam</u> Moslem graves		<u>Tembok penguat besar</u> Large Revetment
	<u>Pilar tinggi TTG</u> Bench mark TTG		<u>Jalan Utama</u> Main surfaced		<u>Kuburan Kristen</u> Cristian cemeneteris		<u>Pintu air</u> Sluice
	<u>Patok tinggi</u> Minor order levelling		<u>Jalan</u> Road		<u>Kuburan Cina</u> Chinese graves		<u>Pintu air / Pintu banjir</u> Water gate (Flood gate)
	<u>Titik tinggi</u> Spot elevation		<u>Jalan sedang dibuat</u> Road under construction		<u>Sawah</u> Rice field		<u>Pasir (a), Garis pantai (b)</u> Sand (a), Shore line (b)
	<u>Pilar tinggi</u> Minor order BM		<u>Jalan setapak</u> Track		<u>Pematang sawah</u> Small dikes		<u>Tambak garam</u> Saltern
	<u>Rumah / Gedung</u> House / Building		<u>Jalur pemisah</u> Median strips		<u>Ladang</u> Farm / Cultivated land		<u>Tambak ikan</u> Fish pond
	<u>Pabrik</u> Factory		<u>Jembatan besi beton</u> Iron and concrete bridge		<u>Kebun tebu</u> Sugar cane		<u>Kolam Danau</u> Pond lake
	<u>Gedung Umum</u> Public Hall		<u>Jembatan kayu</u> Wooden bridge		<u>Kebun kelapa / sawit</u> Palm plantation		<u>Tambang batu / pasir cekungan</u> Quarry, depression
	<u>Kantor Polisi</u> Police Station		<u>Jembatan bambu</u> Foot bridge / bamboo bridge		<u>Kebun karet</u> Rubber plantation		<u>Bukit batu</u> Rocks
	<u>Mesjid</u> Mosque		<u>Jalan kereta api</u> Railroad		<u>Kebun Jati</u> Teak plantation		<u>Tanah longsor</u> Precipice land slide
	<u>Gereja</u> Church		<u>Jembatan keret api</u> Railroad bridge		<u>Kebun kopi</u> Coffee plantation		<u>Garis tinggi</u> Contour
	<u>Wihara</u> Temple		<u>Jalan dan Pohonan</u> Road and free line		<u>Kebun coklat</u> Cacao plantation		<u>Batas provinsi</u> Propinice boundary
	<u>Rumah sakit</u> Hospital		<u>Stasiun</u> Station		<u>Kebun buah-buahan</u> Orchard		<u>Batas Kabupaten</u> Kabupaten boundary
	<u>Pemadam kebakaran</u> Fire Station		<u>Jaringan listrik</u> Electricity power lines		<u>Batas tanaman</u> Boundary of vegetation		<u>Batas Kecamatan</u> Kecamatan boundary
	<u>Kantor Pos</u> Post Office		<u>Pipa air / minyak</u> Water / oil pipe		<u>Pohon - Pohonan</u> Trees		
	<u>Sekolah</u> School		<u>Tangki air / minyak</u> Water / oil tank		<u>Belukar</u> Bush		
	<u>Pasar</u> Market		<u>Galian dan timbunan</u> Cutting and embankment		<u>Padang rumput</u> Grass		
	<u>Gardu listrik</u> Transformen House		<u>Rawa - rawa</u> Swamp		<u>Hutan</u> Fores		
	<u>Bank</u> Bank		<u>Pintu kereta api</u> Intersecting railroad		<u>Tanah kering</u> Dry land		
	<u>Pompa bensin</u> Gasoline station		<u>Pagar tembok / kawat</u> Wall hedge / Fence		<u>Rumpun bambu</u> Bamboo capse		
	<u>Kantor telepon</u> Telephone Office		<u>Gorong - gorong</u> Culvert		<u>Sungai (a), anak sungai (b), arus (c)</u> River (a), rivulet (b), direction (c)		

PROJECT	PROVINCE	SHEET NO	TOTAL SHEET
SURABAYA-MOJOKERTO TOLL ROAD	EAS JAVA	03	28
TYPICAL CROSS SECTION (1)		SCALE: 1 : 200	

## THROUGHWAY

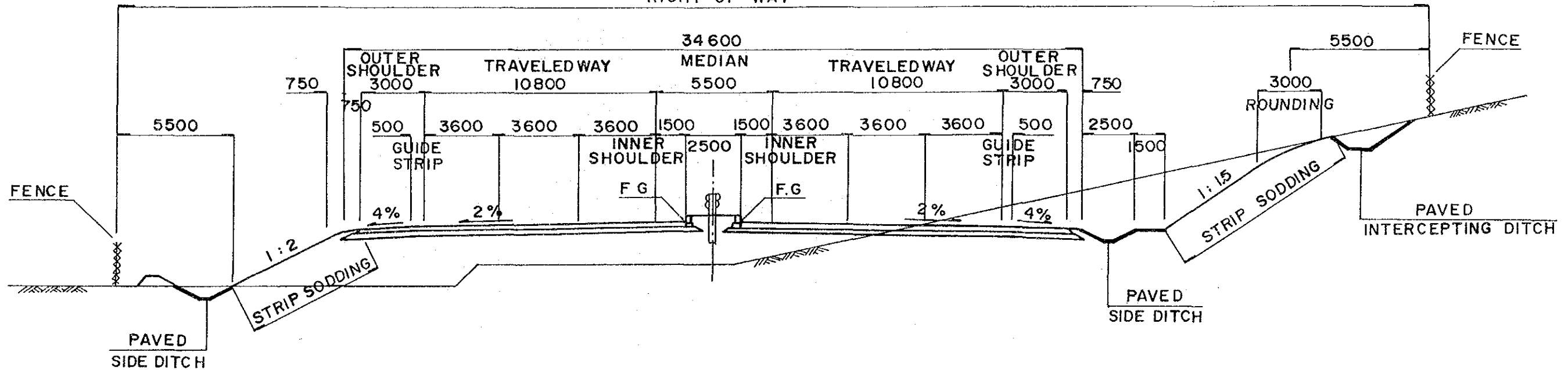
### INITIAL STAGE

#### RIGHT OF WAY



### ULTIMATE STAGE

#### RIGHT OF WAY



NOTE:  
ALL DIMENSIONS ARE IN MILLIMETERS.

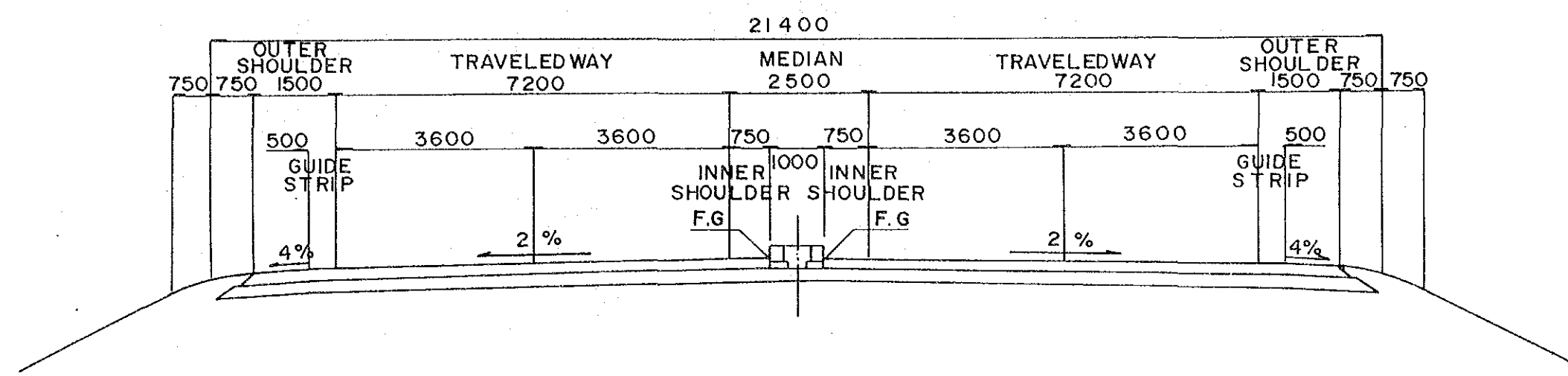


PROJECT	PROVINCE	SHEET NO	TOTAL SHEET
SURABAYA - MOJOKERTO TOLL ROAD	EAST JAVA	04	28
TYPICAL CROSS SECTION (2)		SCALE 1 : 100	

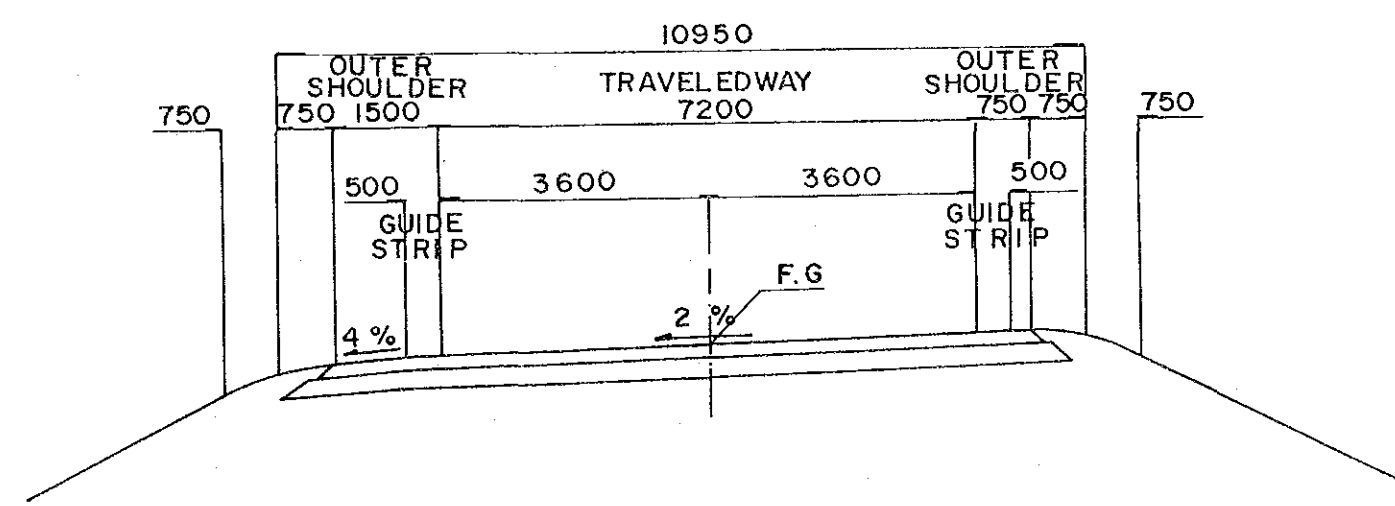
# MOJOKERTO INTERCHANGE RAMPWAY

## SURABAYA JUNCTION RAMPWAY

### TWO-WAY FOUR-LANE



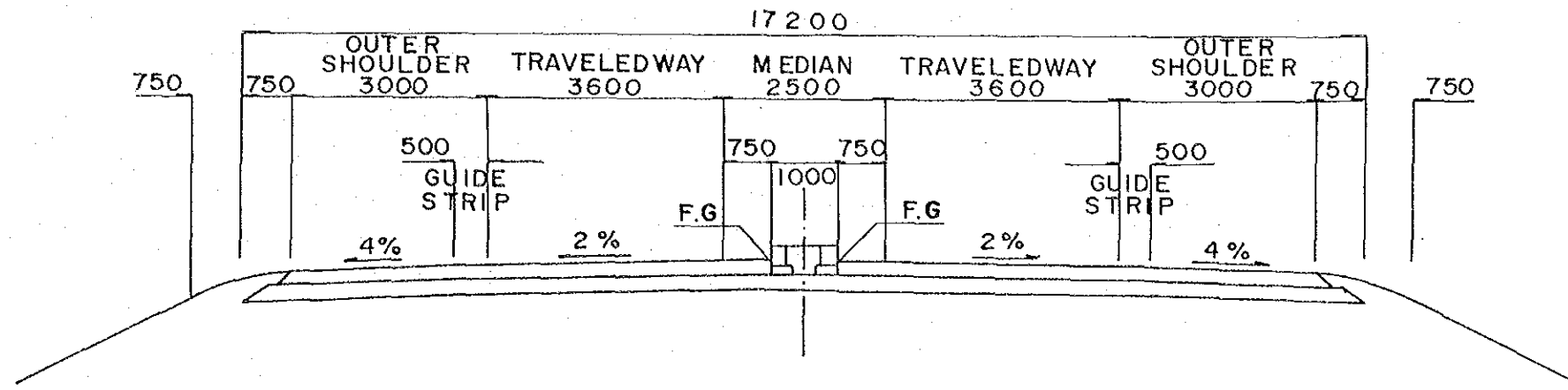
### ONE-WAY TWO-LANE



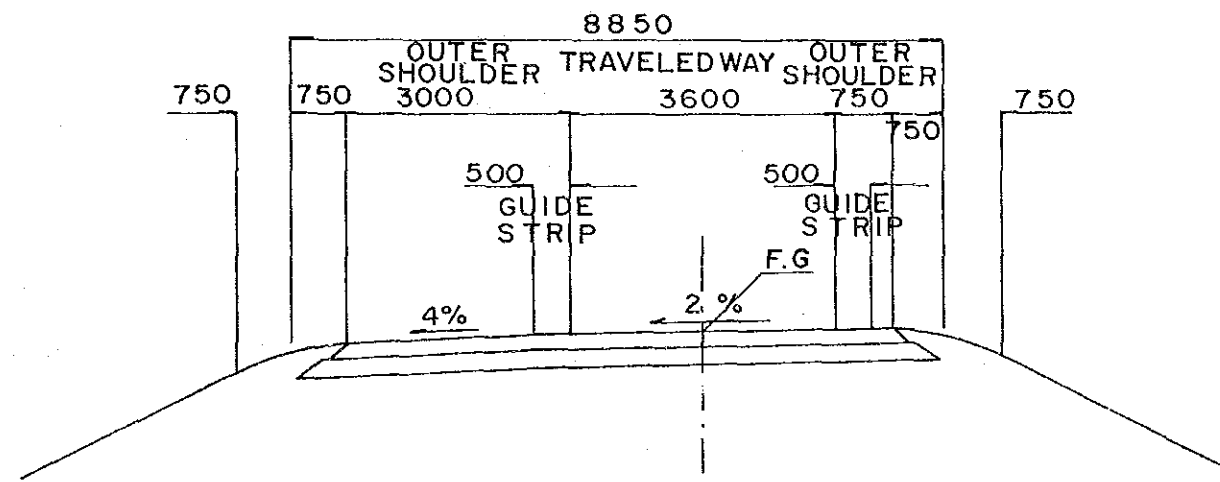
# KRIAN INTERCHANGE RAMPWAY

TWO-WAY TWO-LANE

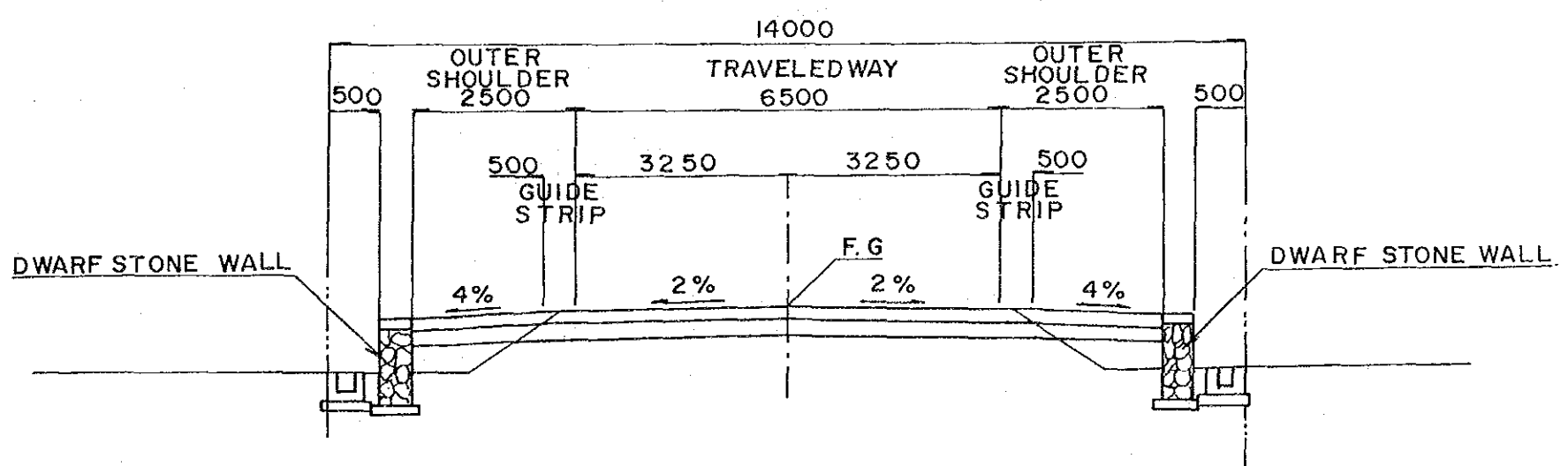
PROJECT	PROVINCE	SHEET NO	TOTAL SHEET
SURABAYA-MOJOKERTO TOLL ROAD	EAST JAVA	05	28
TYPICAL CROSS SECTION ( 3 )		SCALE 1 : 100	



ONE-WAY ONE-LANE



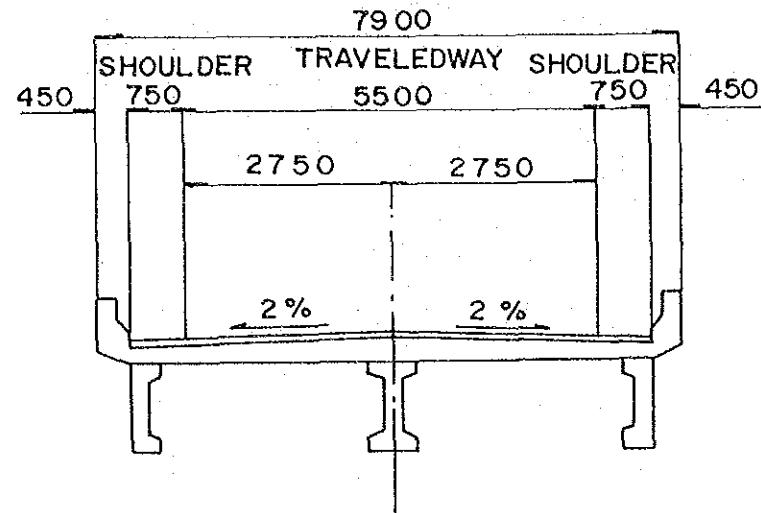
ACCESS ROAD FOR KRIAN INTERCHANGE



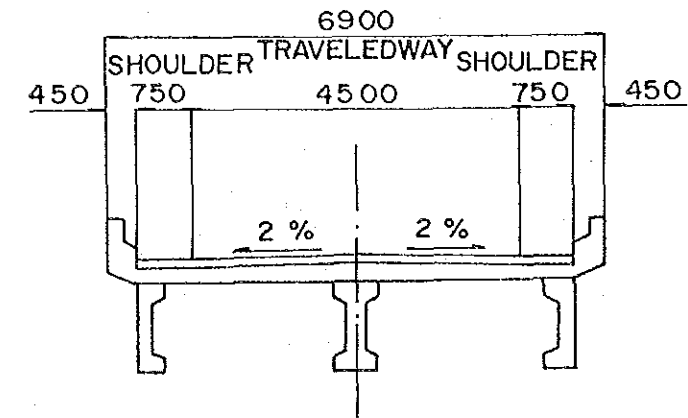
PROJECT	PROVINCE	SHEET NO	TOTAL SHEET
SURABAYA - MOJOKERTO TOLL ROAD	EAST JAVA	08	28
TYPICAL CROSS SECTION (4)		SCALE 1 : 100	

## RELOCATED ROAD

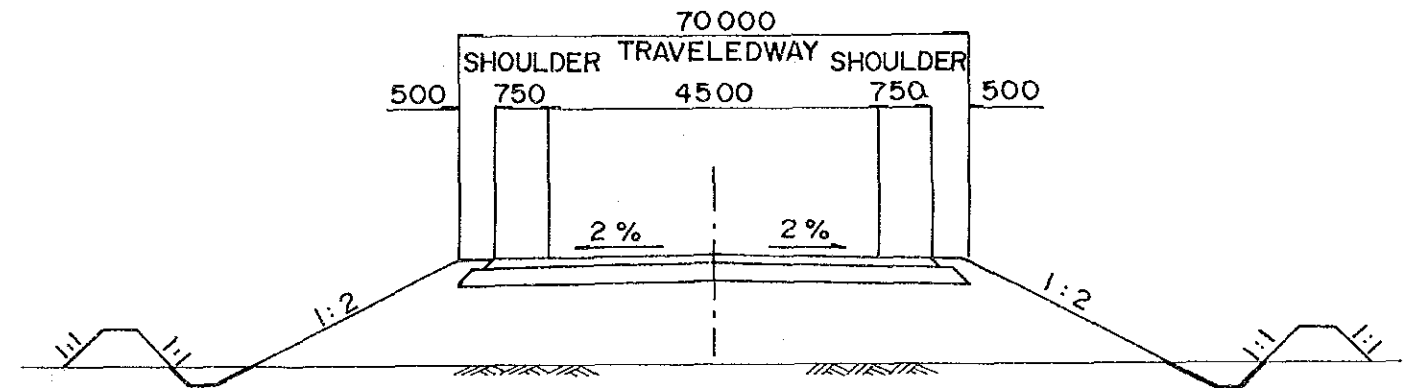
KABUPATEN ROAD  
OVER BRIDGE SECTION



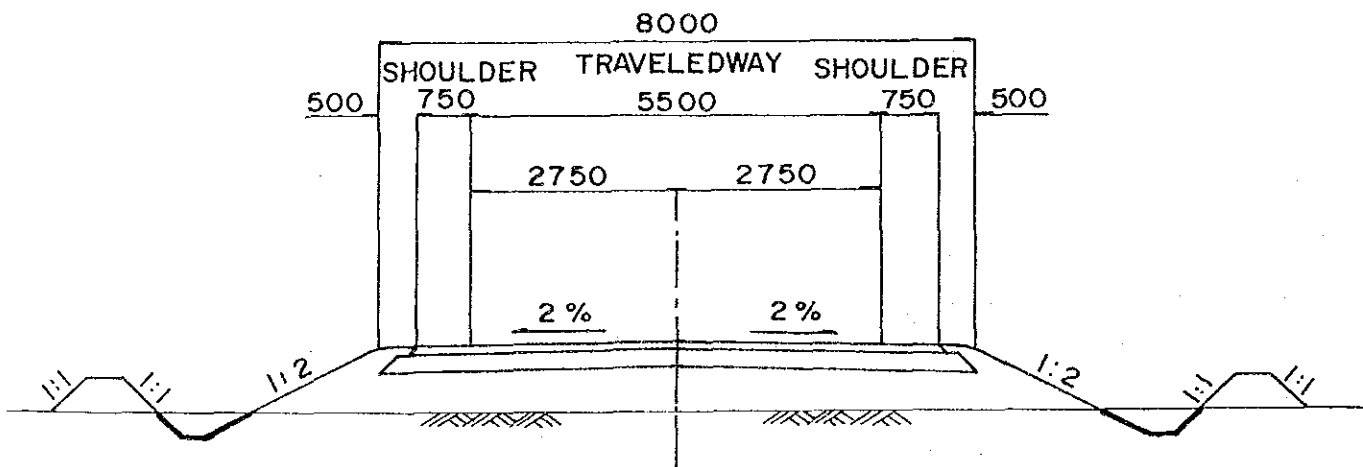
DESA ROAD  
OVER BRIDGE SECTION



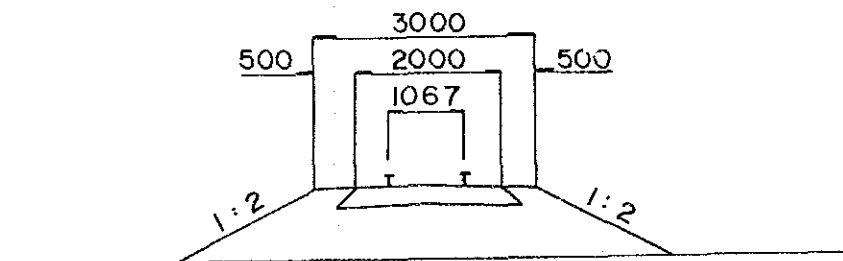
EARTH WORK SECTION



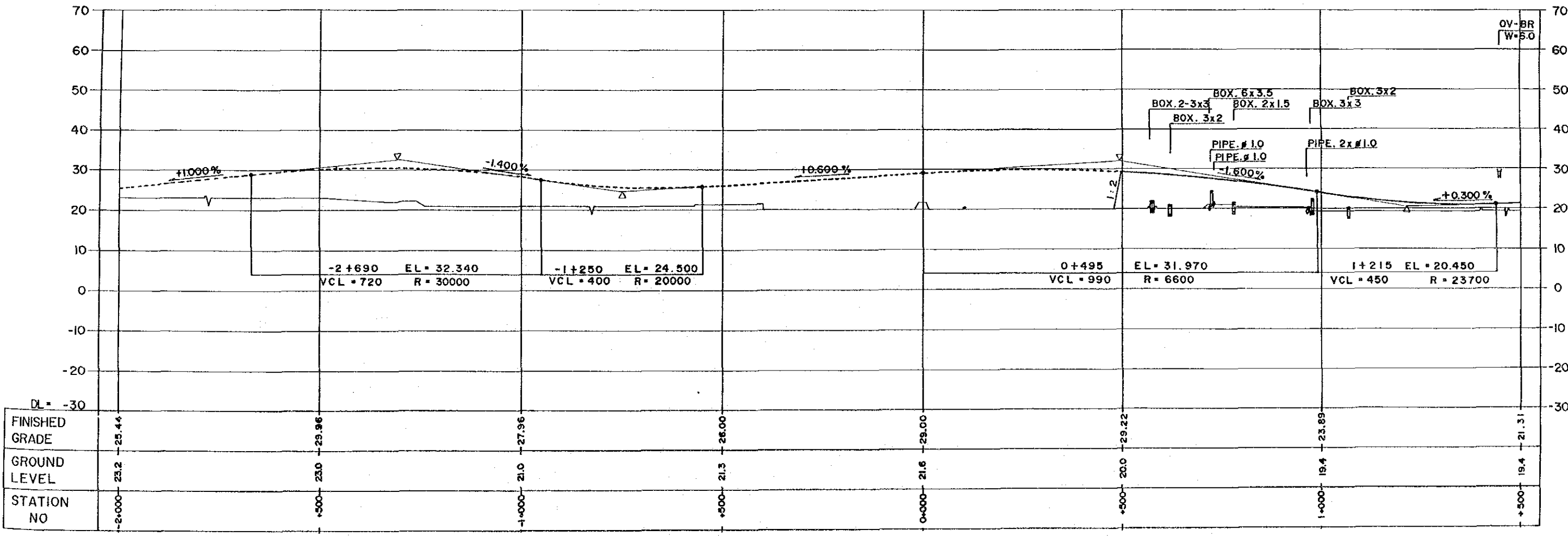
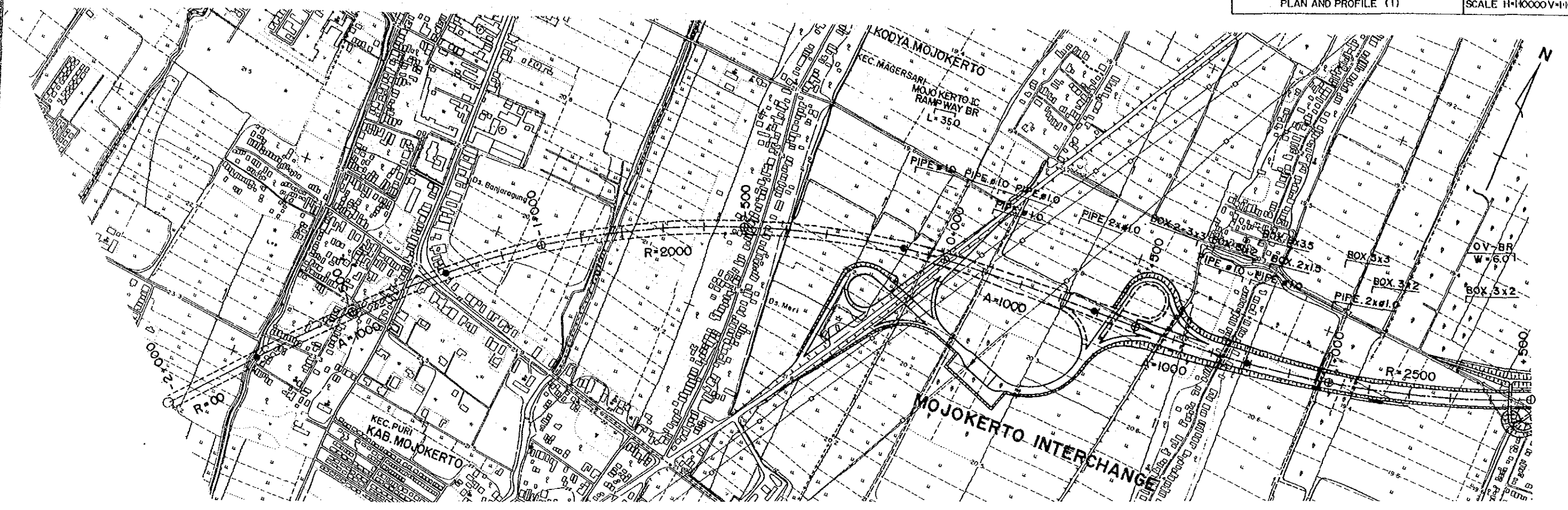
EARTH WORK SECTION



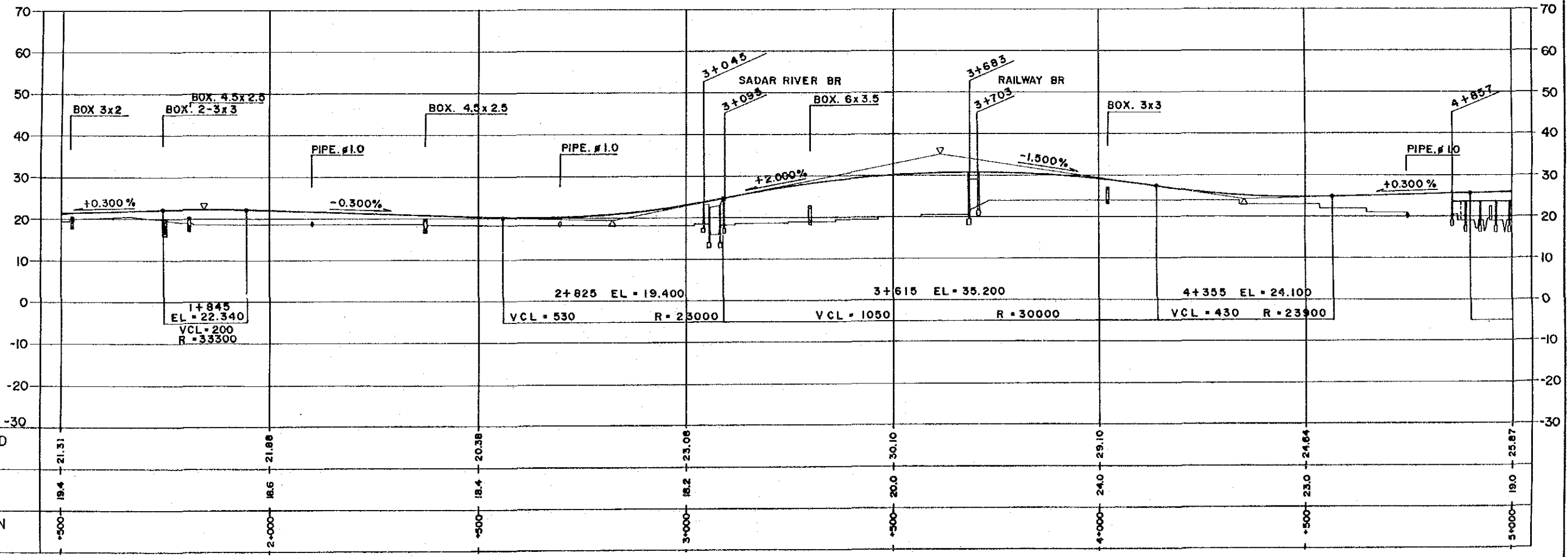
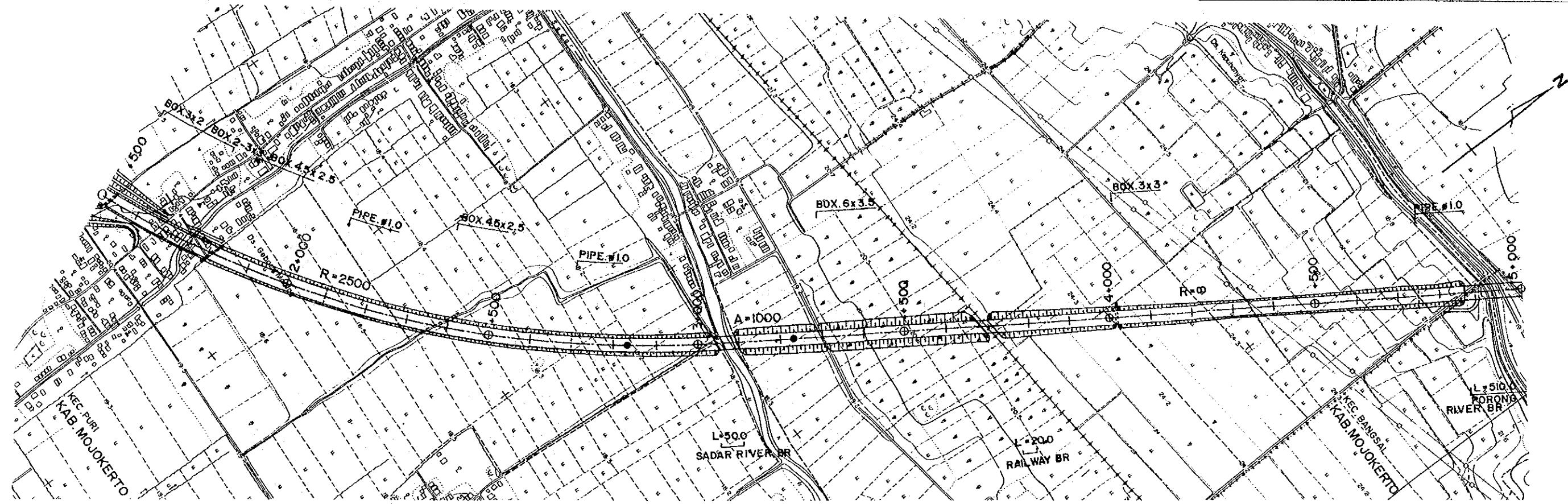
SUGAR CANE RAILWAY



PROJECT	PROVINCE	SHEET NO	TOTAL SHEET
SURABAYA-MOJOKERTO TOLLROAD	EAST JAVA	07	28
PLAN AND PROFILE (1)		SCALE H=1:10000 V=1:1000	

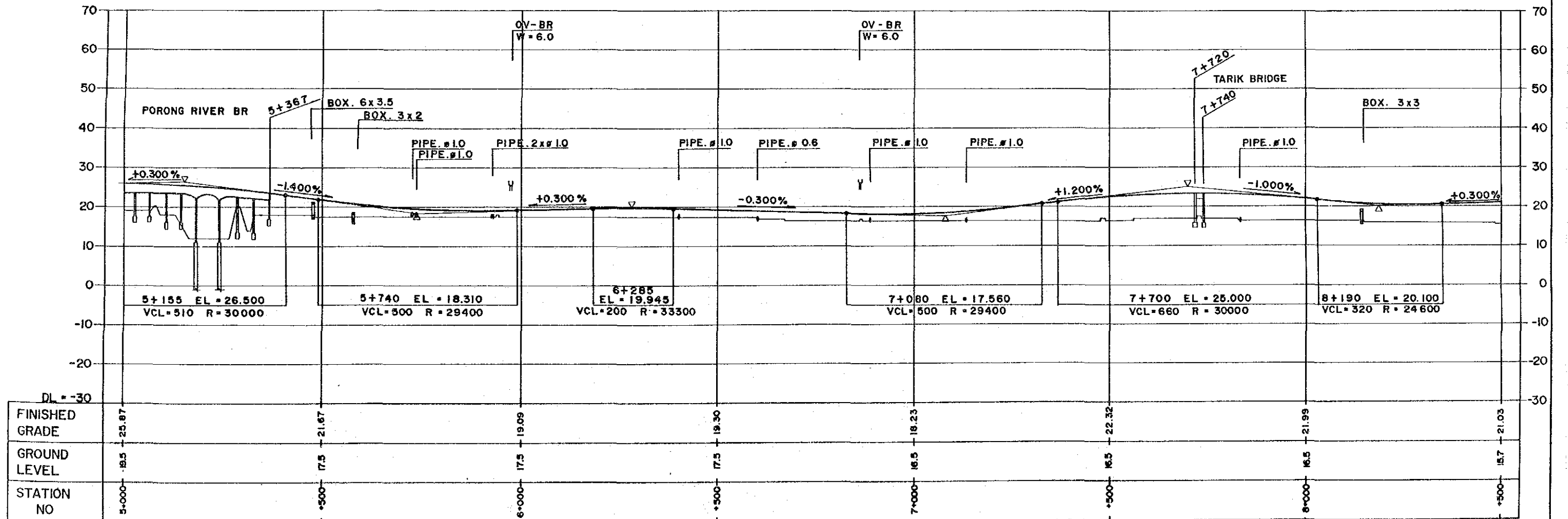
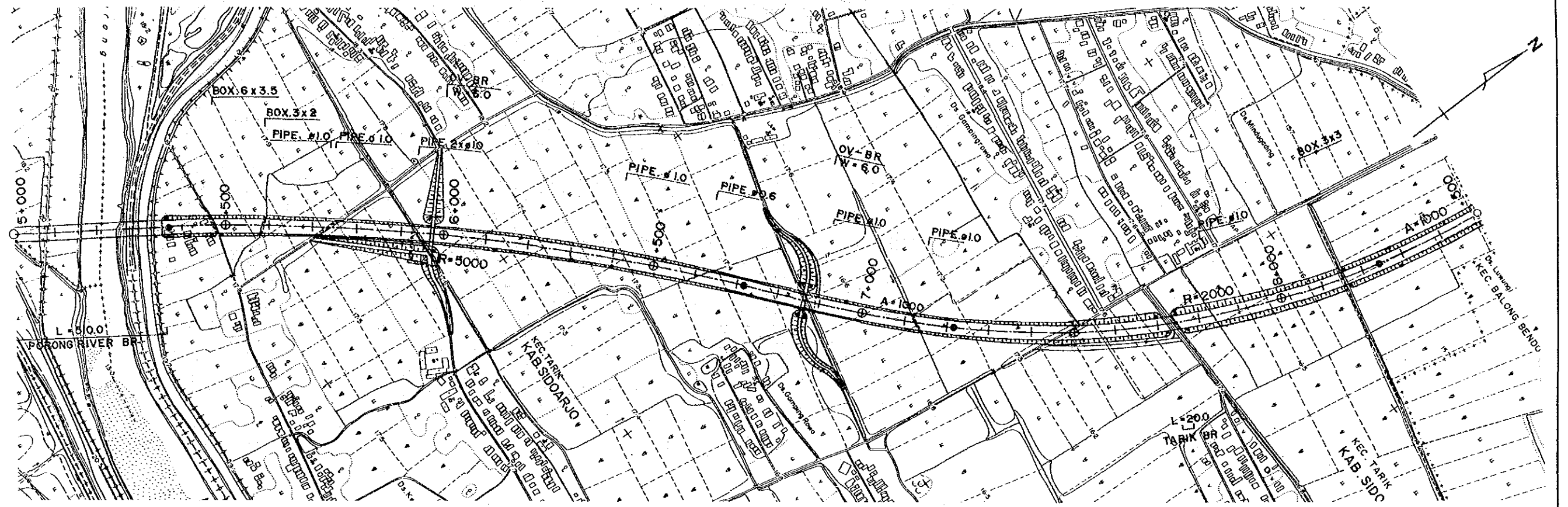


PROJECT	PROVINCE	SHEET NO	TOTAL SHEET
SURABAYA-MOJOKERTO TOLLROAD	EAST JAVA	08	28
PLAN AND PROFILE (2)		SCALE H=1:10000 V=1:1000	

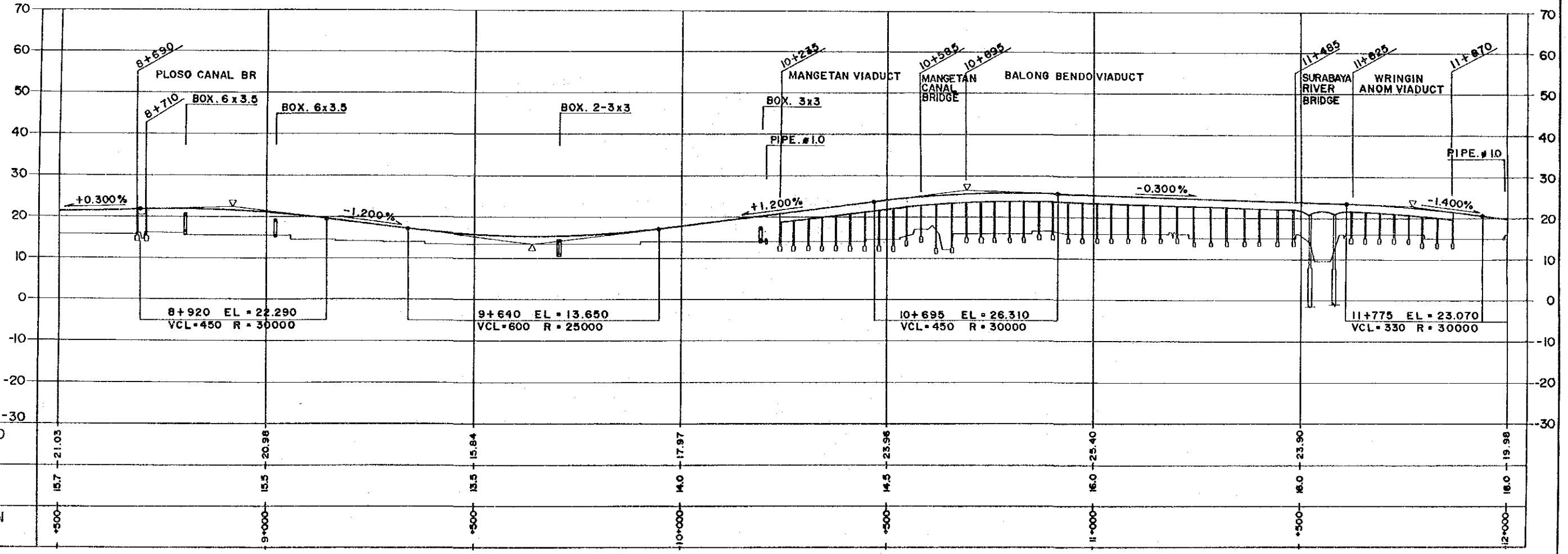
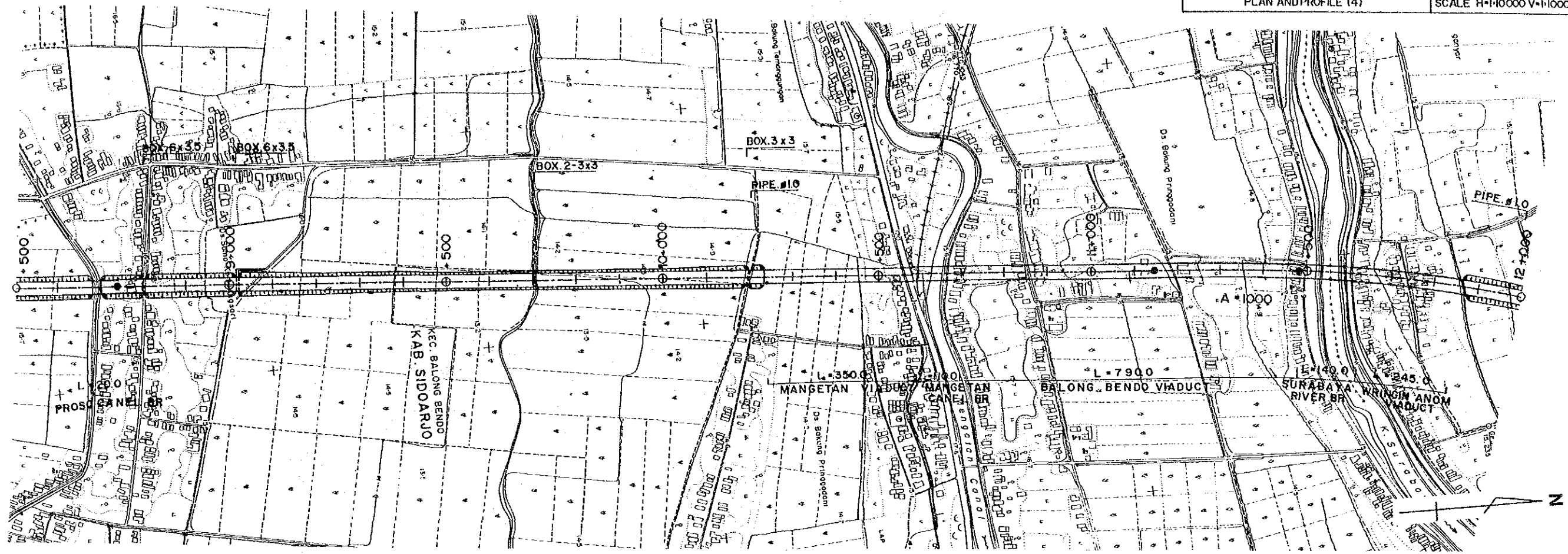


FINISHED GRADE	21.31	21.88	20.38	23.08	30.10	29.10	24.84	25.87
GROUND LEVEL	19.4	18.6	18.4	18.2	20.0	24.0	23.0	19.0
STATION NO	0+500	2+000	3+000	3+000	4+000	4+000	5+000	5+000

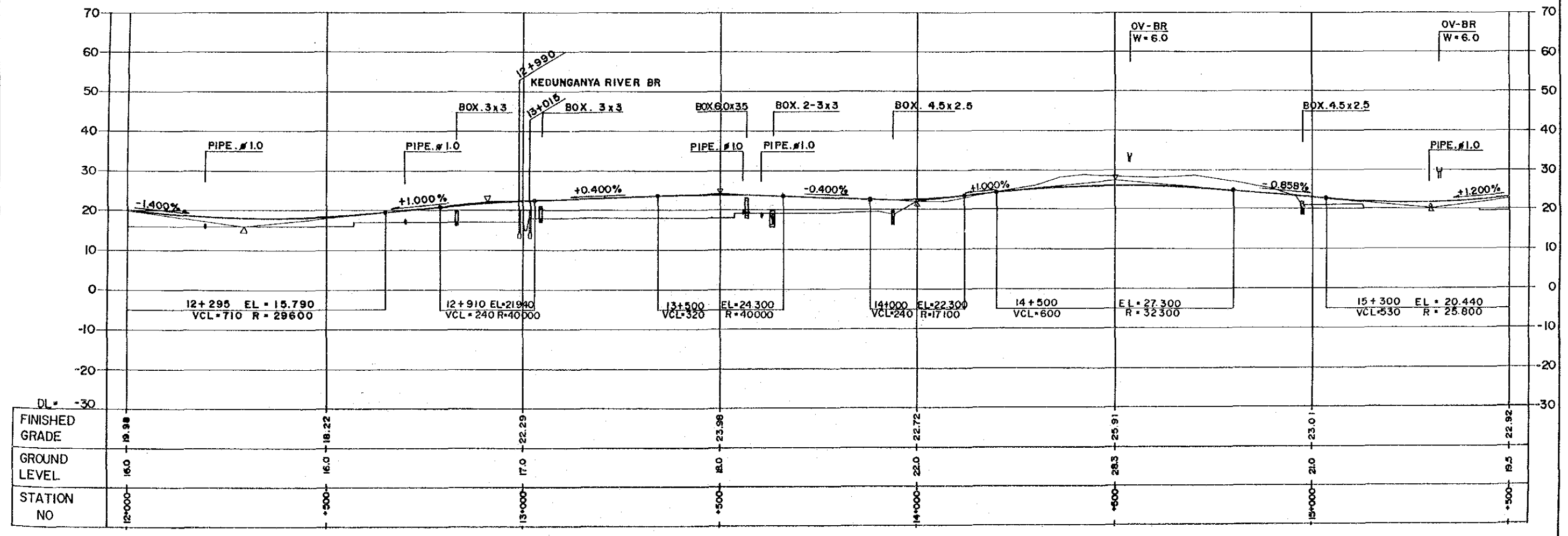
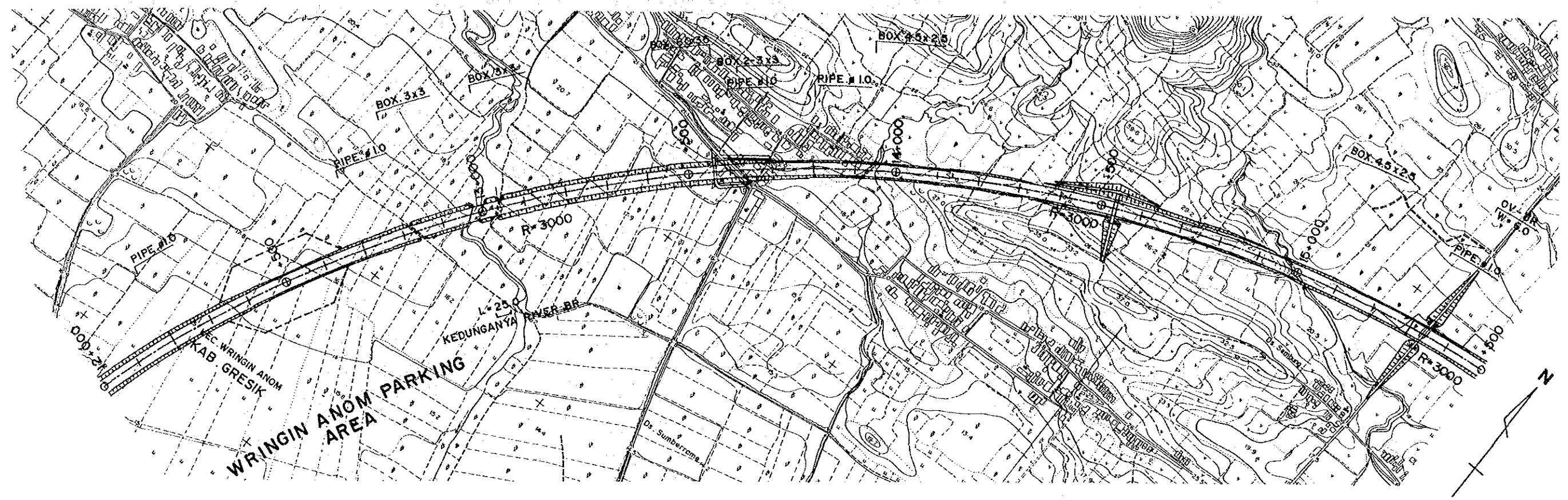
PROJECT	PROVINCE	SHEET NO	TOTAL SHEET
SURABAYA-MOJOKERTO TOLL ROAD	EAST JAVA	09	28
PLAN AND PROFILE (3)		SCALE H=1:10000 V=1:1000	



PROJECT	PROVINCE	SHEET NO	TOTAL SHEET
SURABAYA-MOJOKERTO TOLLROAD	EAST JAVA	10	28
PLAN AND PROFILE (4)		SCALE H=1:10000 V=1:1000	

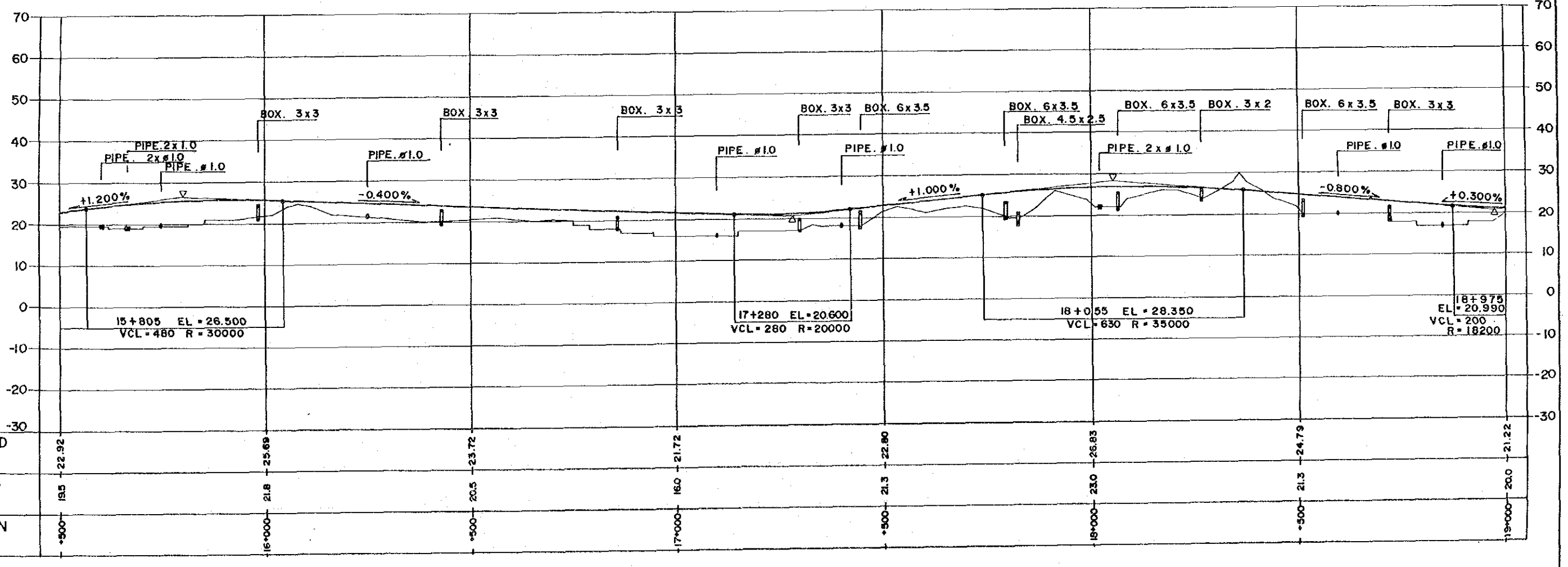


PROJECT	PROVINCE	SHEET NO	TOTAL SHEET
SURABAYA MOJOKERTO TOLLROAD	EAST JAVA	11	28
PLAN AND PROFILE (5)		SCALE H=1:10000 V=1:1000	

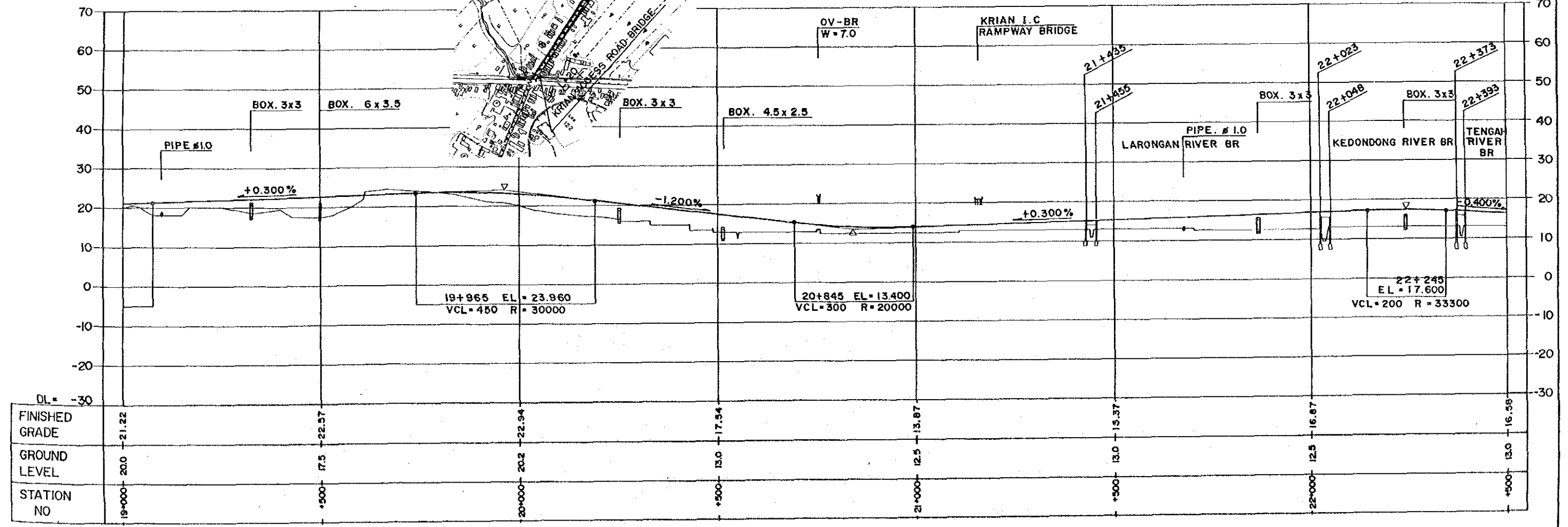
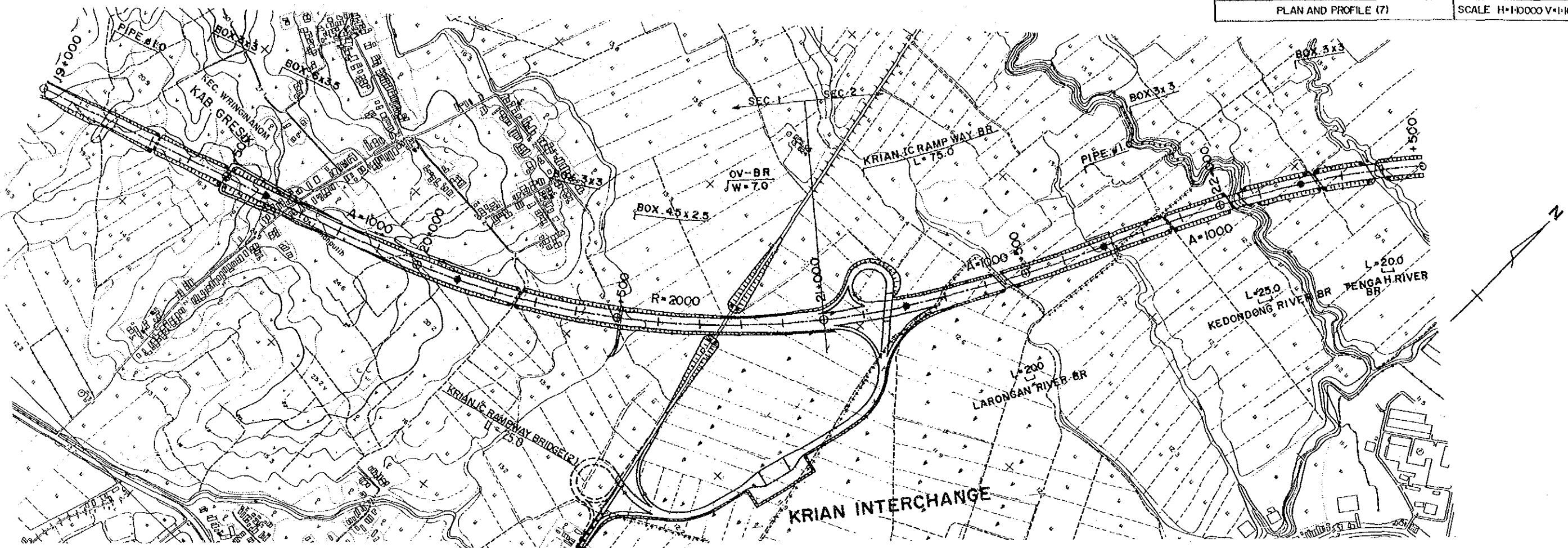




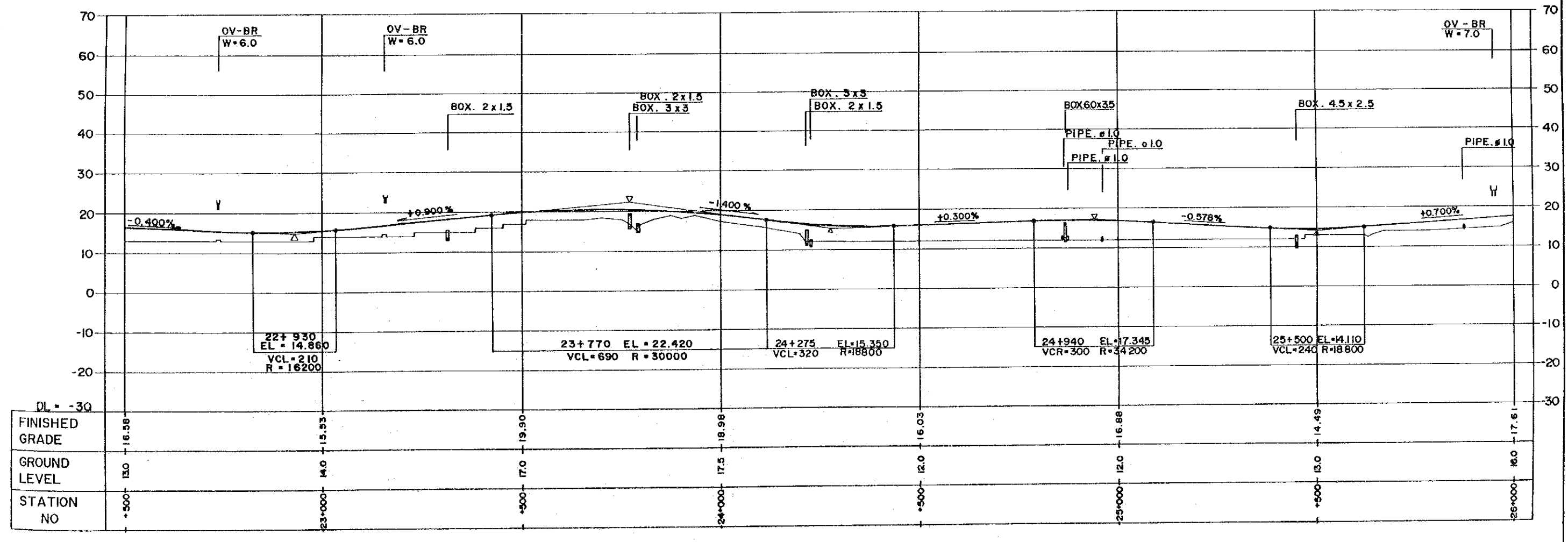
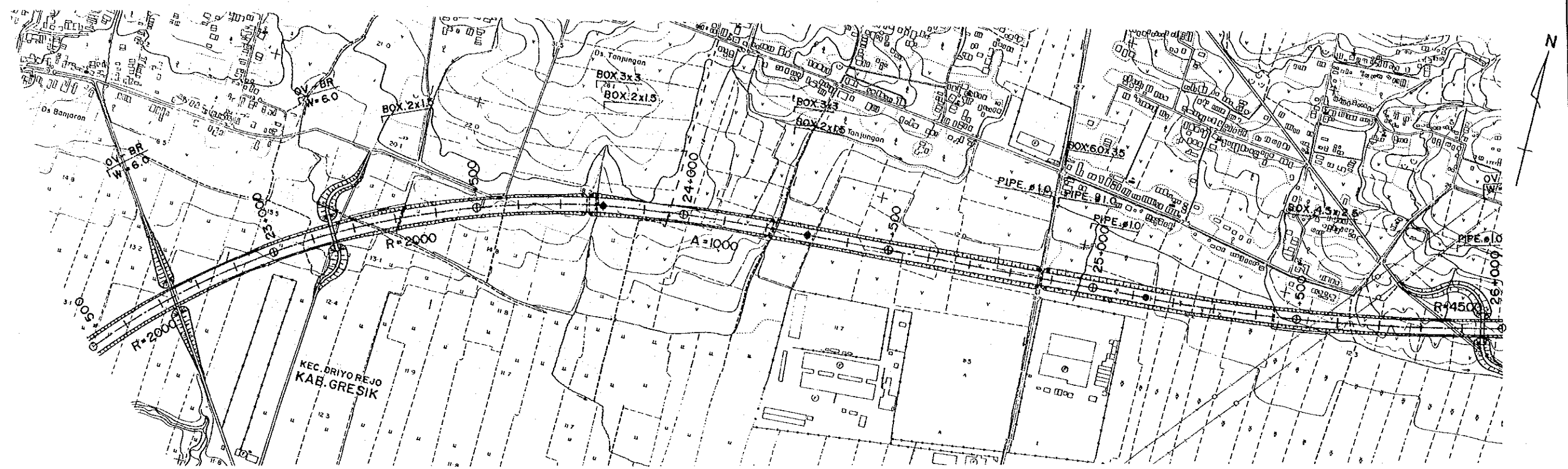
PROJECT	PROVINCE	SHEET NO	TOTAL SHEET
SURABAYA-MOJOKERTO TOLLROAD	EAST JAVA	12	28
PLAN AND PROFILE (6)		SCALE: H:1:40000V:1:1000	



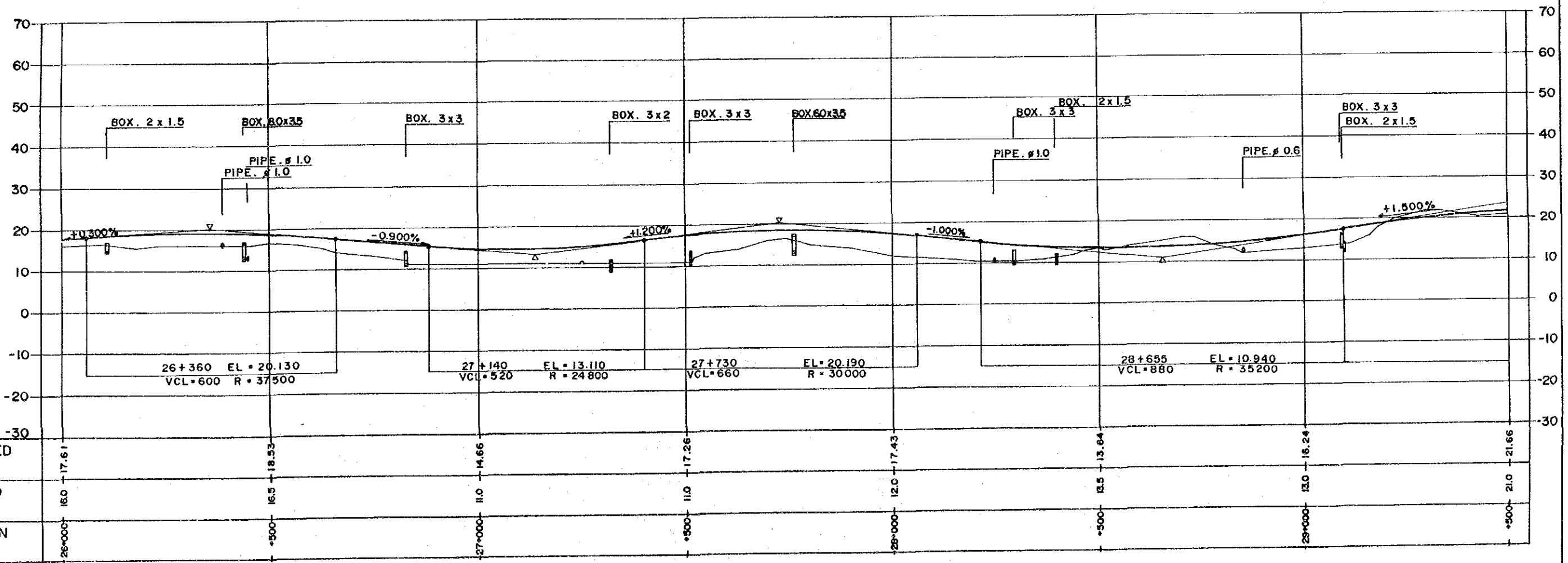
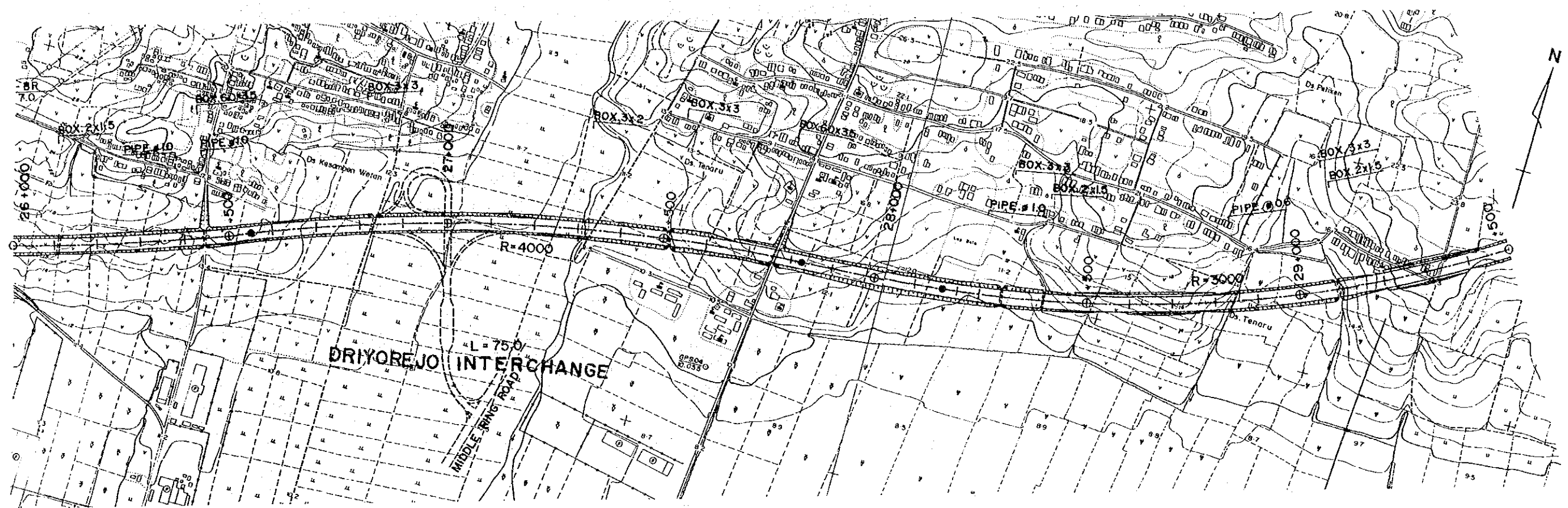
PROJECT	PROVINCE	SHEET NO	TOTAL SHEET
SURABAYA-MOJOKERTO TOLLROAD	EAST JAVA	13	28
PLAN AND PROFILE (7)		SCALE H=1:10000 V=1:1000	



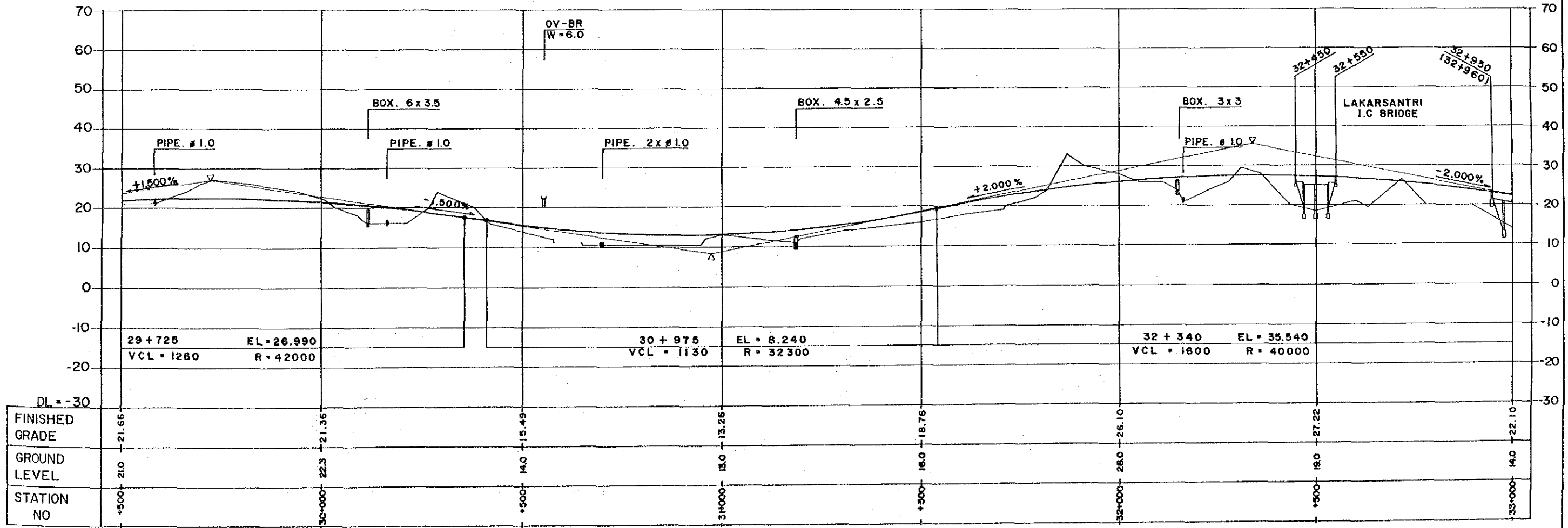
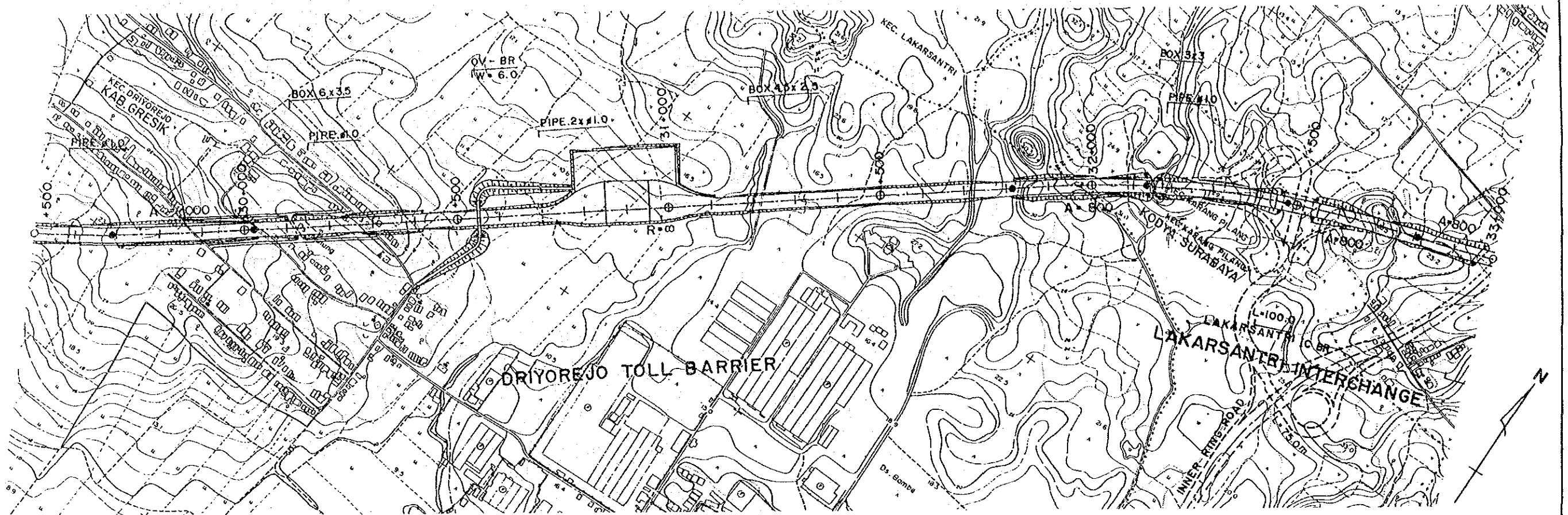
PROJECT	PROVINCE	SHEET NO	TOTAL SHEET
SURABAYA-MOJOKERTO TOLLROAD	EAST JAVA	14	28
PLAN AND PROFILE (B)		SCALE H=1:10000 V=1:1000	



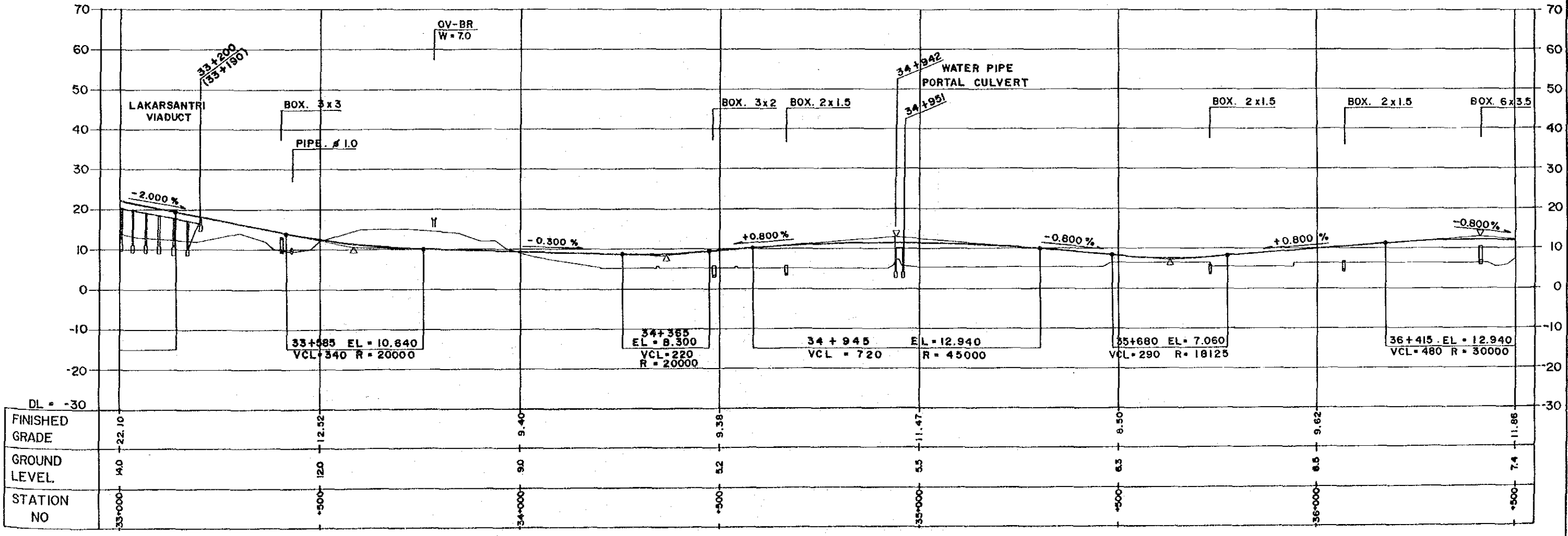
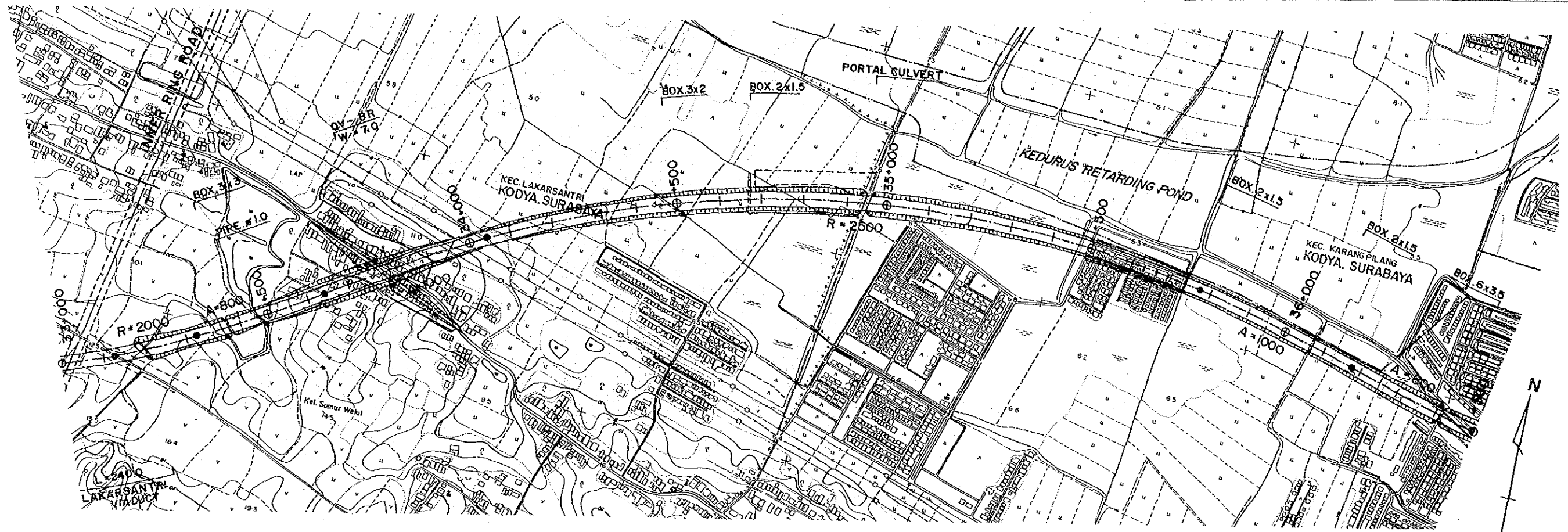
PROJECT	PROVINCE	SHEET NO	TOTAL SHEET
SURABAYA-MOJOKERTO TOLLROAD	EAST JAVA	15	28
PLAN AND PROFILE (9)		SCALE H=1:10000 V=1:1000	



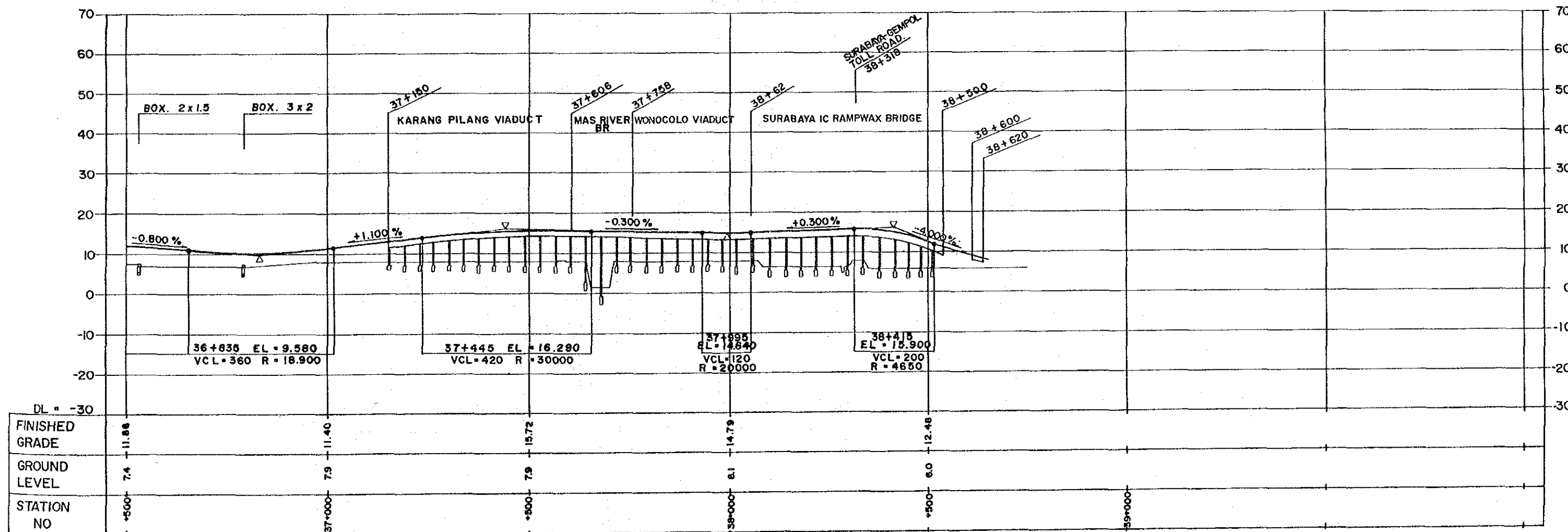
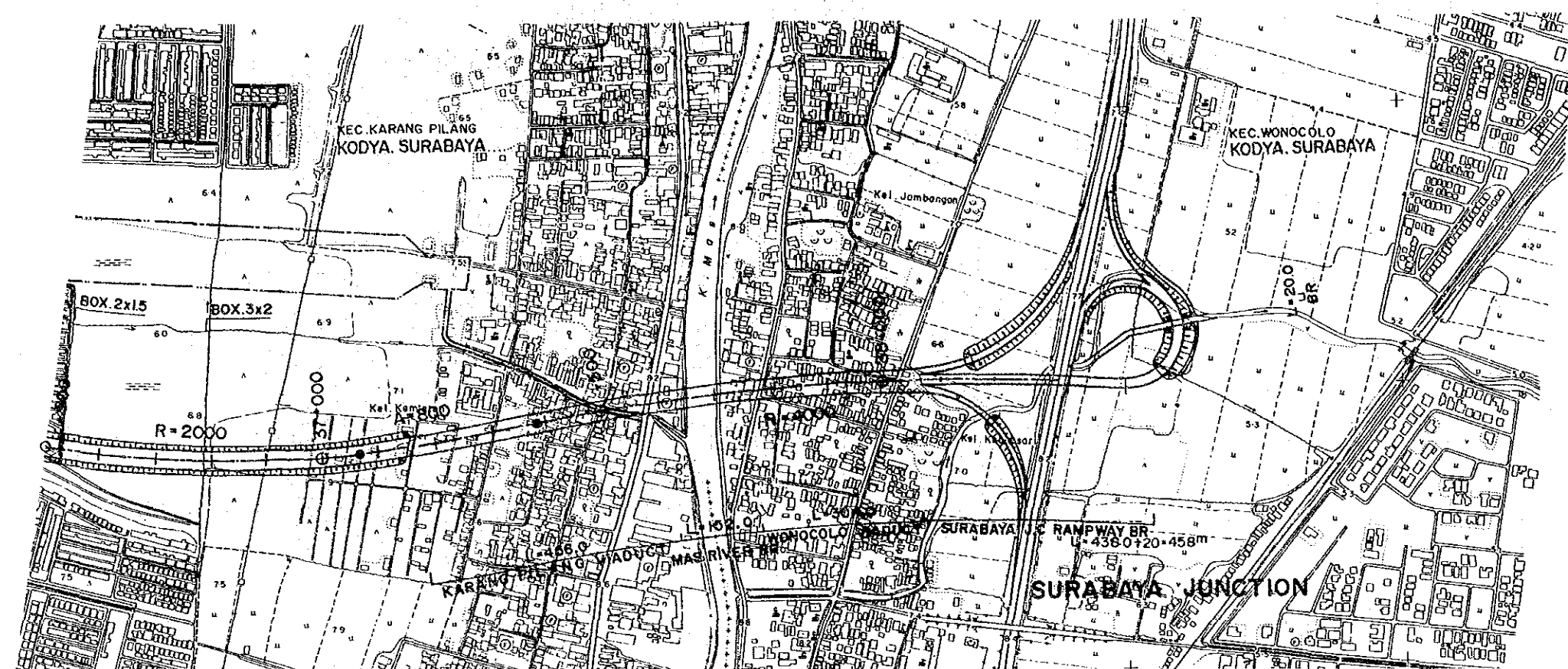
PROJECT	PROVINCE	SHEET NO	TOTAL SHEET
SURABAYA-MOJOKERTO TOLL ROAD	EAST JAVA	16	28
PLAN AND PROFILE (10)		SCALE H=1:40000 V=1:1000	



PROJECT	PROVINCE	SHEET NO	TOTAL SHEET
SURABAYA - MOJOKERTO TOLLROAD	EAST JAVA	17	28
PLAN AND PROFILE (II)		SCALE H=1:10000 V=1:1000	



PROJECT	PROVINCE	SHEET NO	TOTAL SHEET
SURABAYA MOJOKERTO TOLL ROAD	EAST JAVA	18	28
PLAN AND PROFILE (1:2)		SCALE H=1:10000 V=1:1000	

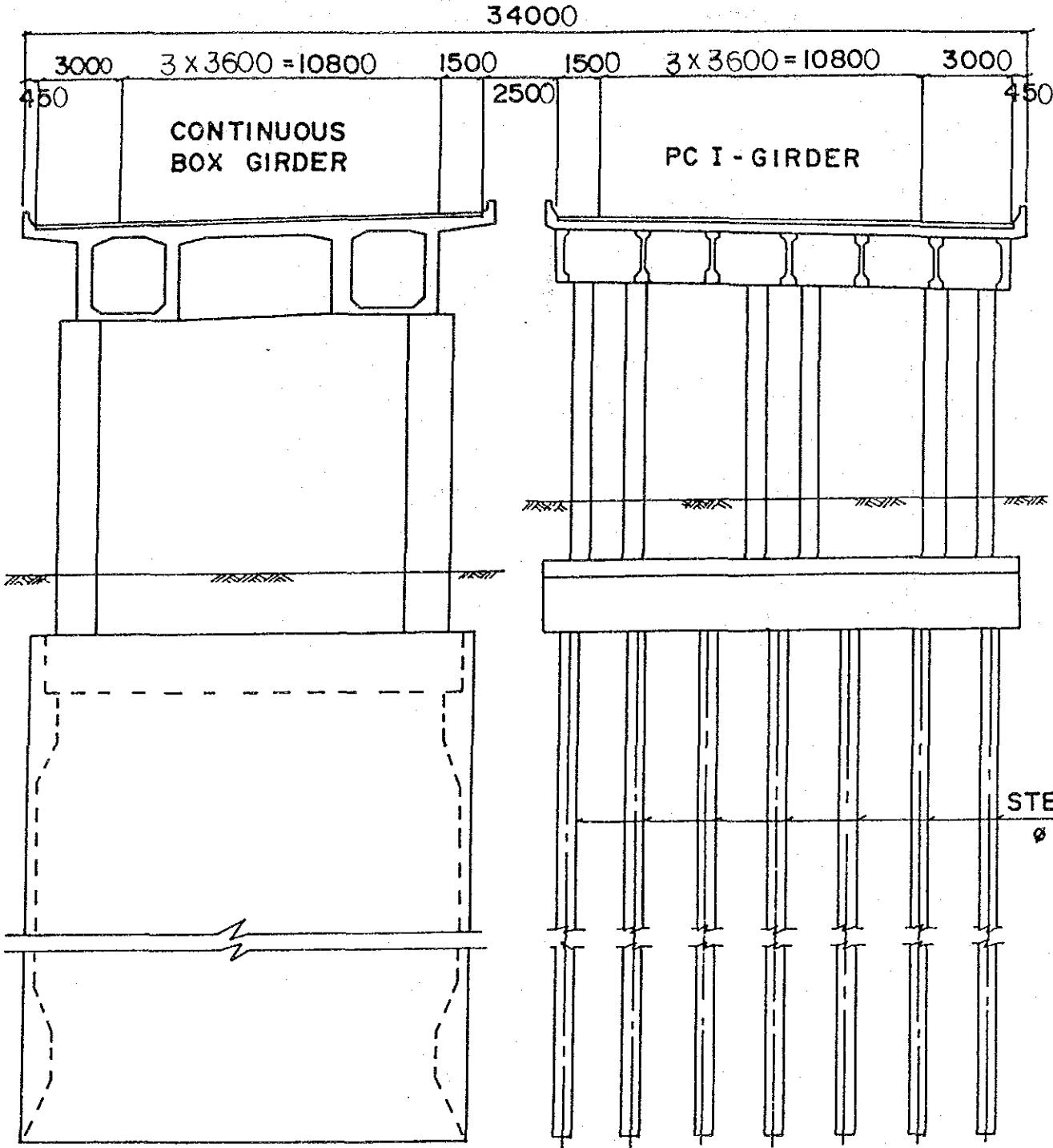


PROJECT	PROVINCE	SHEET NO	TOTAL SHEET
SURABAYA-MOJOKERTO TOLL ROAD	EAST JAVA	19	28
TYPICAL BRIDGE CROSS SECTION		SCALE: 1/200	

# THROUGHWAY

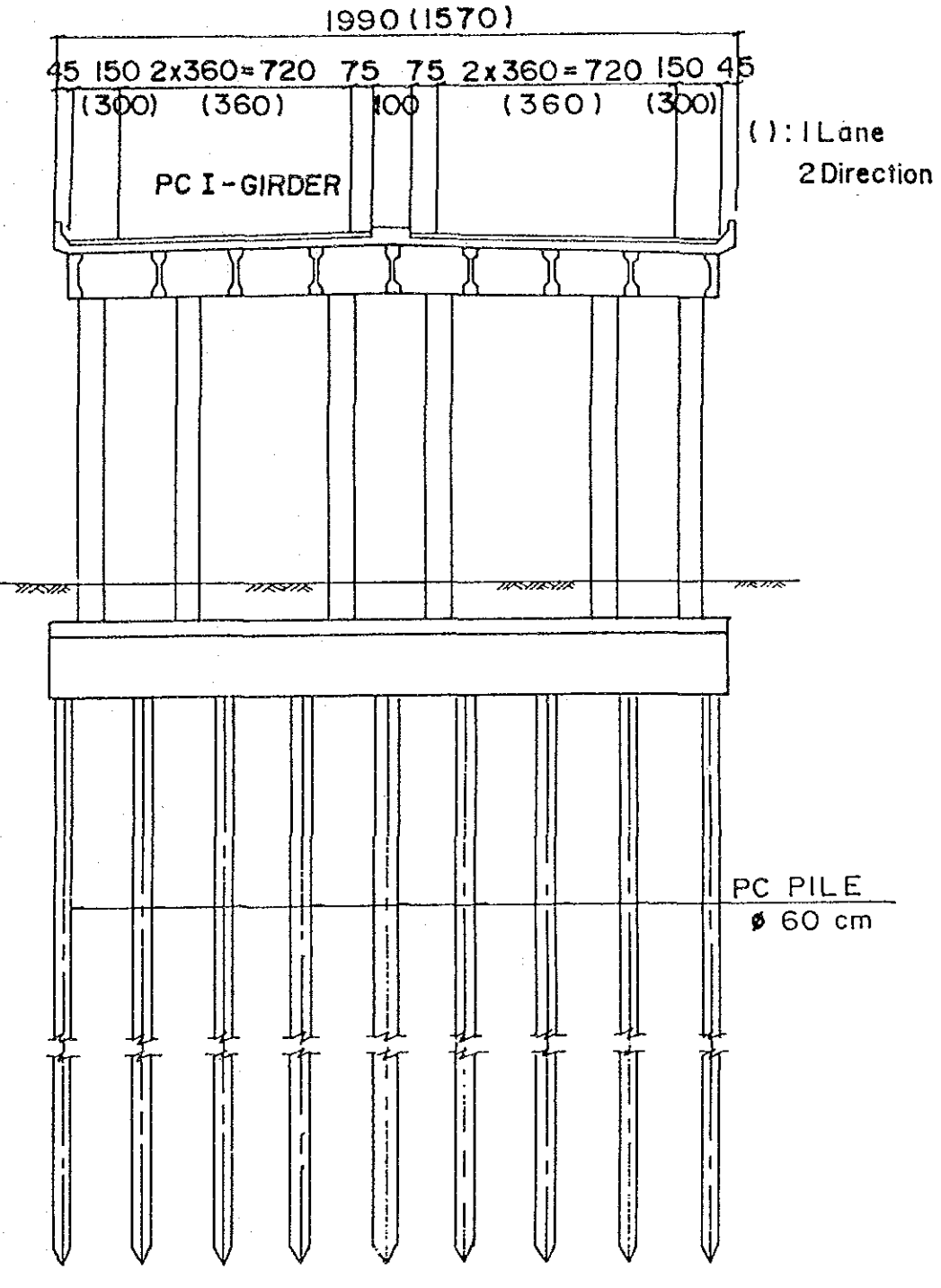
LONG SPAN BRIDGE

MIDDLE/SHORT SPAN BRIDGE



# RAMPWAY

( ): 1 Lane, 2 Direction

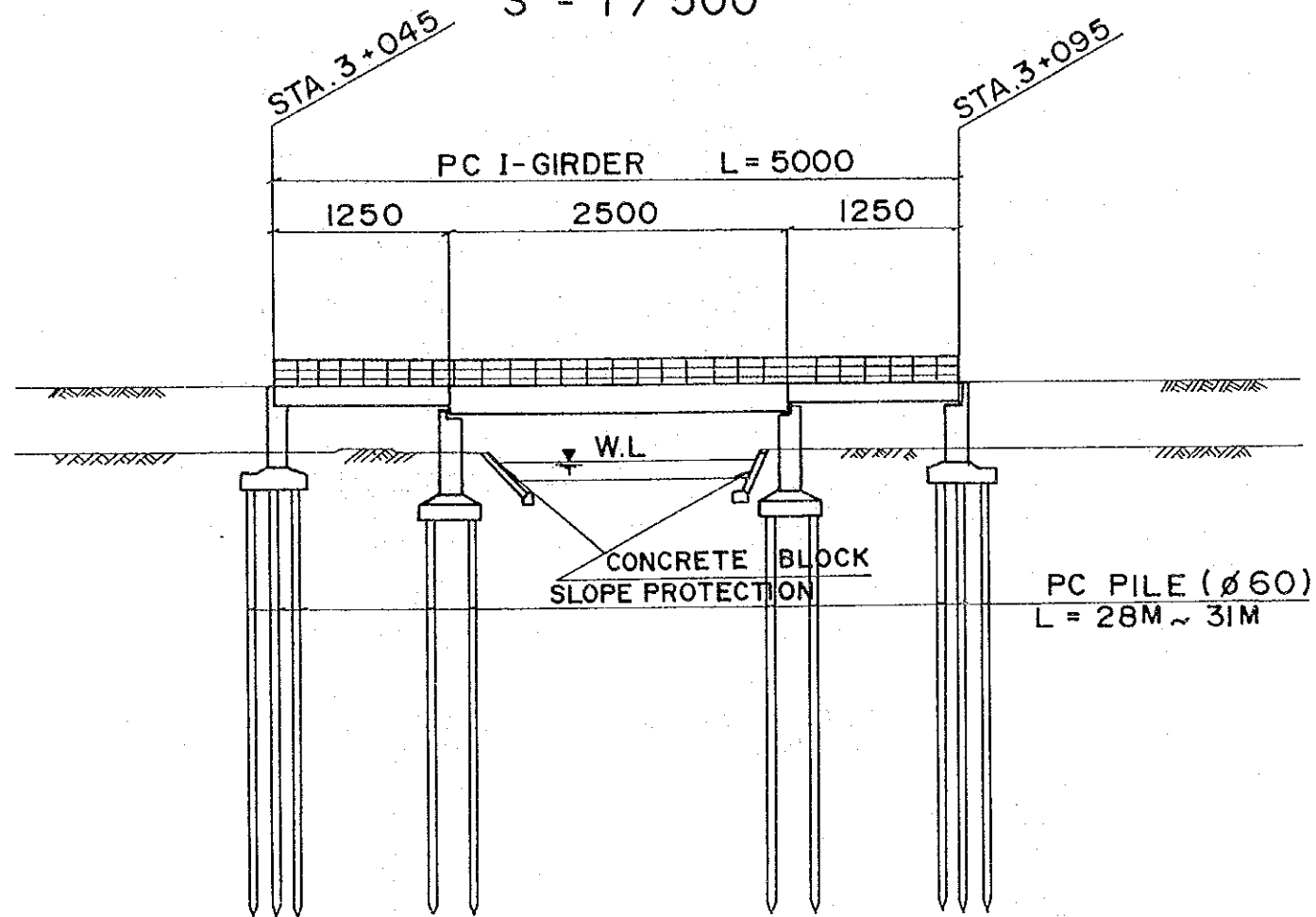




PROJECT	PROVINCE	SHEET NO	TOTAL SHEET
SURABAYA MOJOKERTO TOLL ROAD	EAST JAVA	20	28
THROUGHWAY BRIDGE (1)		SCALE: 1/500	

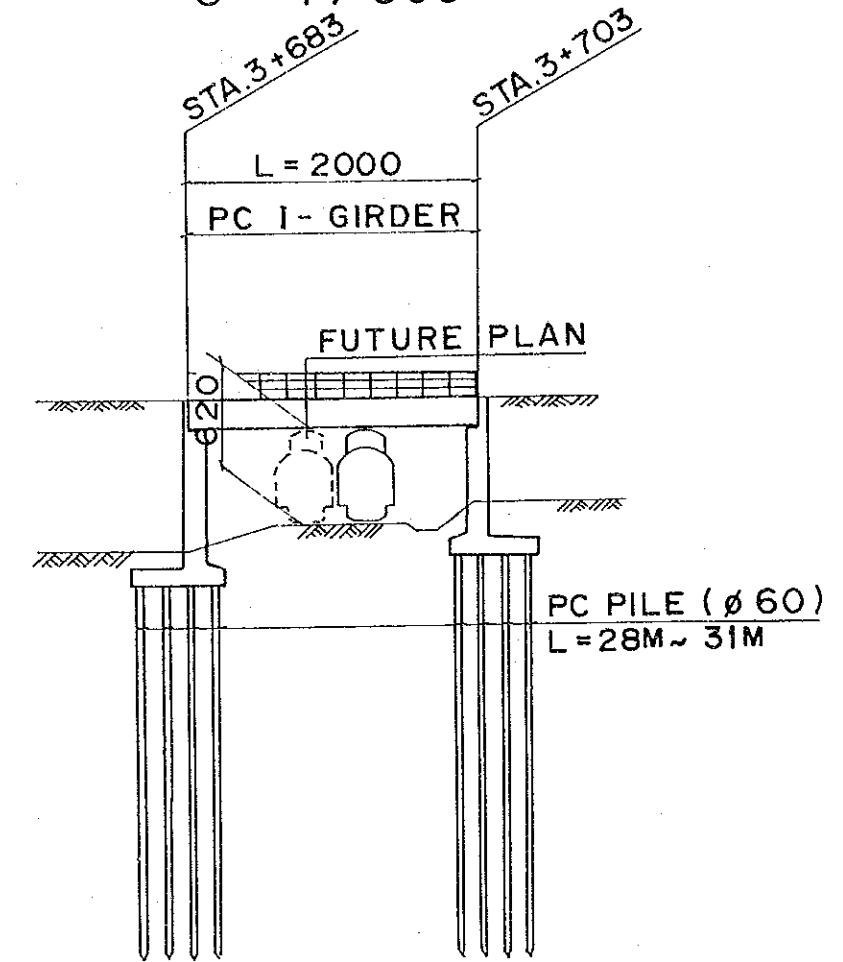
### SADAR RIVER BRIDGE

S = 1 / 500



### RAILWAY BRIDGE

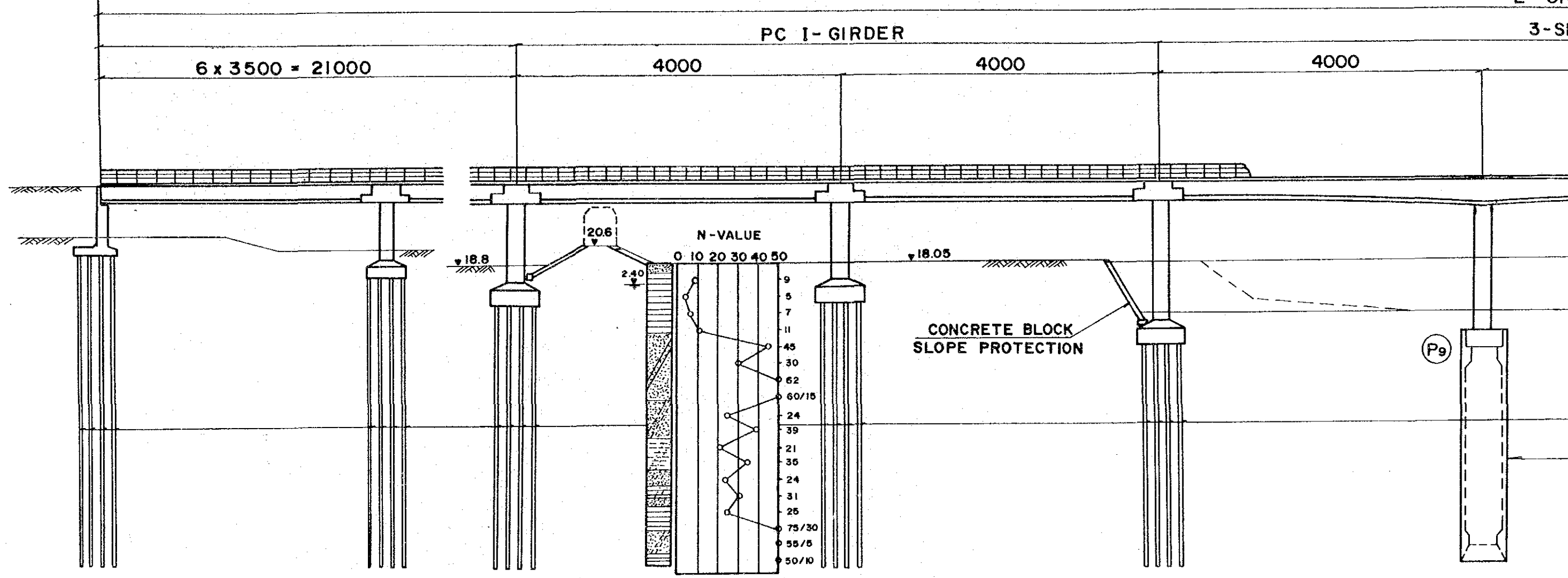
S = 1 / 500



**PORONG RIVER**  
S = 1/50

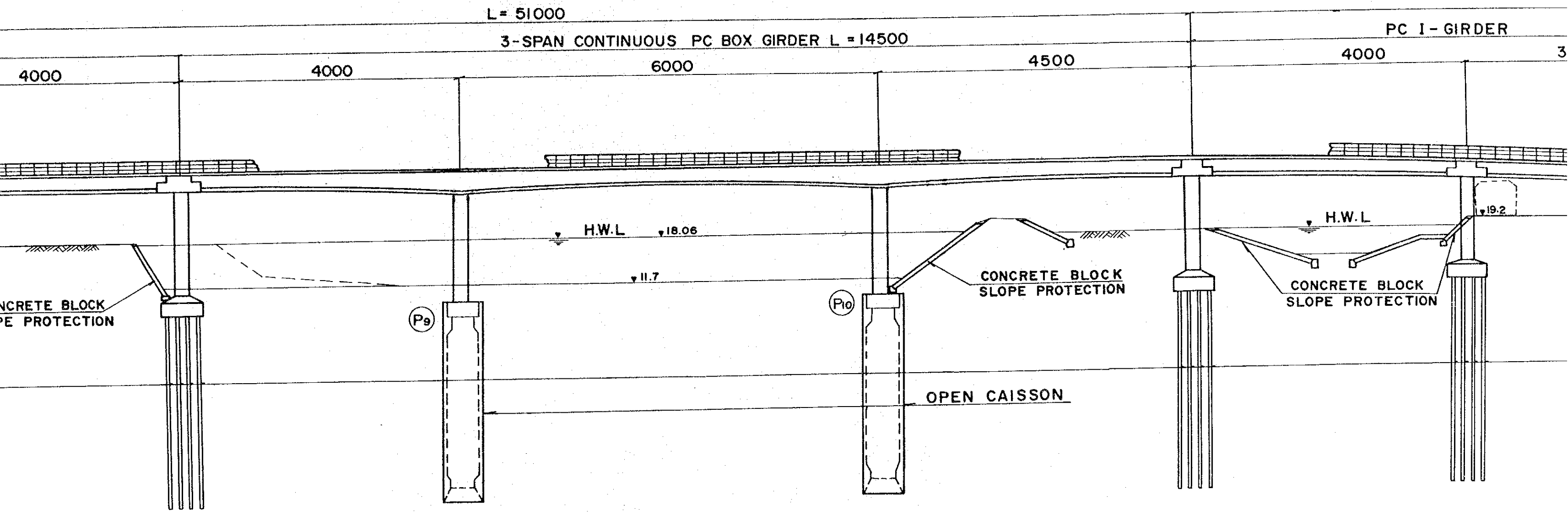
STA. 4+857

L = 510  
3-S



# PORONG RIVER BRIDGE

S = 1/500



PROJECT	PROVINCE	SHEET NO	TOTAL SHEET
SURABAYA-MOJOKERTO TOLL ROAD	EAST JAVA	21	28
THROUGHWAY BRIDGE (2)		SCALE: 1/500	

**RIVER BRIDGE**  
1/500

L = 51000

3-SPAN CONTINUOUS PC BOX GIRDER L = 14500

PC I-GIRDER

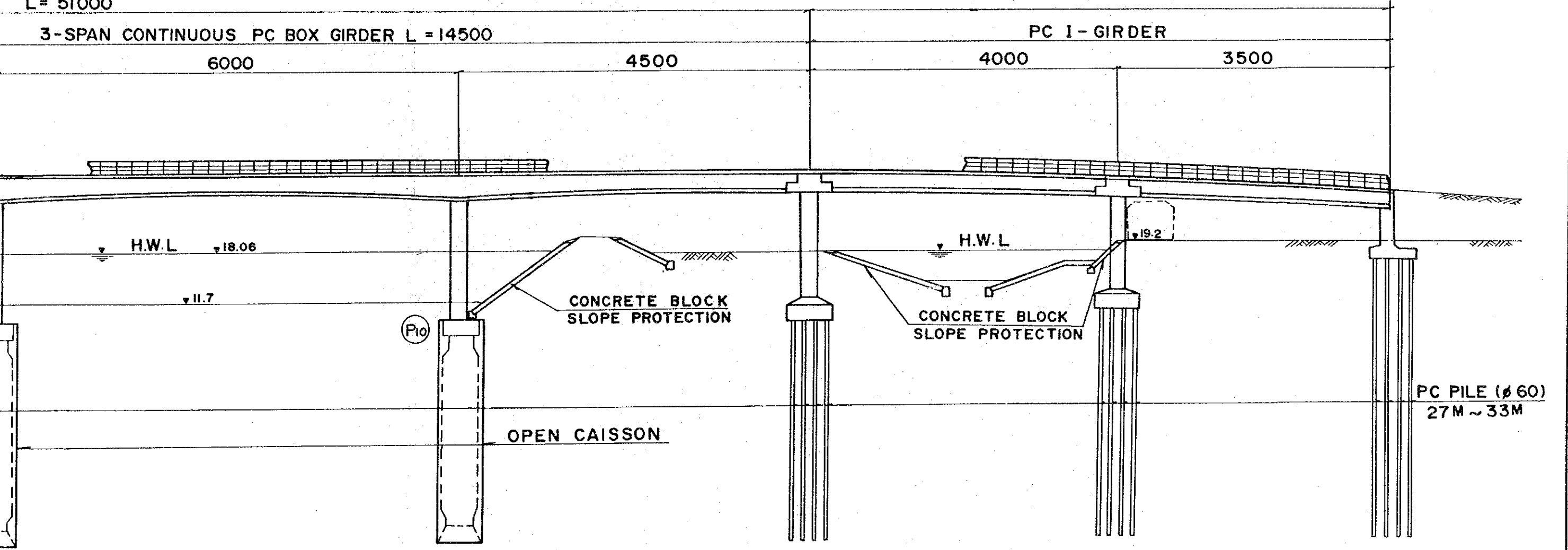
6000

4500

4000

3500

STA. 5+367



Ⓟ P10

CONCRETE BLOCK  
SLOPE PROTECTION

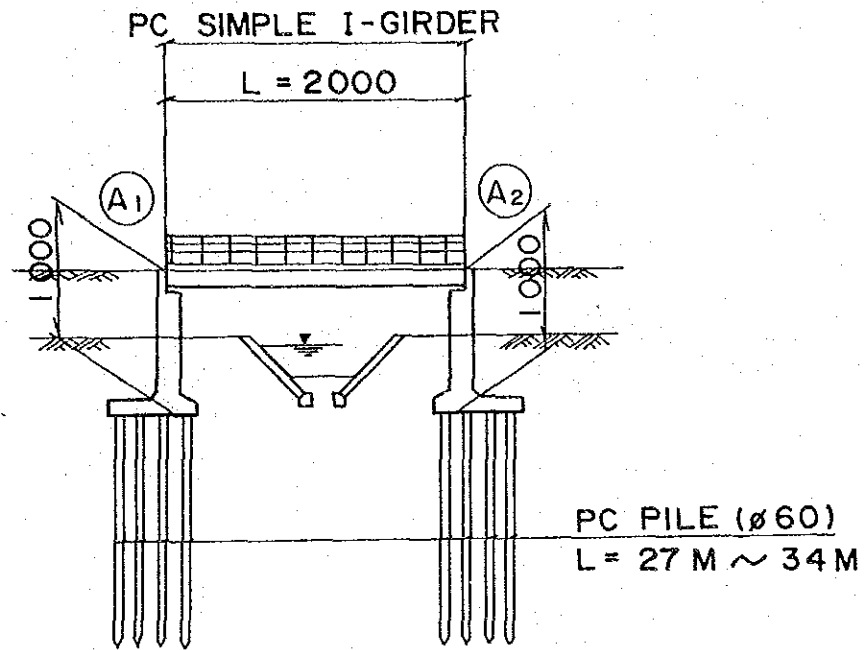
CONCRETE BLOCK  
SLOPE PROTECTION

OPEN CAISSON

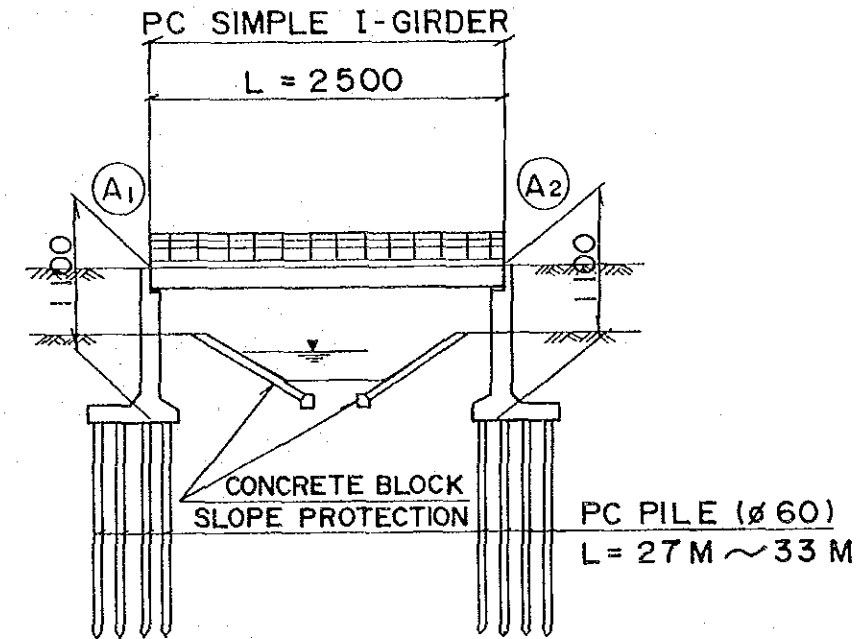
PC PILE (∅ 60)  
27M ~ 33M

PROJECT	PROVINCE	SHEET NO	TOTAL SHEET
SURABAYA-MOJOKERTO TOLL ROAD	EAST JAVA	22	28
THROUGHWAY BRIDGE (3)		SCALE: 1 : 500	

TARIK BRIDGE  
PLOSO CANAL BRIDGE  
LARONGAN RIVER BRIDGE  
TENGAH RIVER BRIDGE  
KRIAN ACCESS ROAD BRIDGE



KEDUNGANYAR RIVER BRIDGE  
KEDONDONG RIVER BRIDGE  
KRIAN IC RAMPWAY BRIDGE (2)  
MOJOKERTO IC RAMPWAY BRIDGE

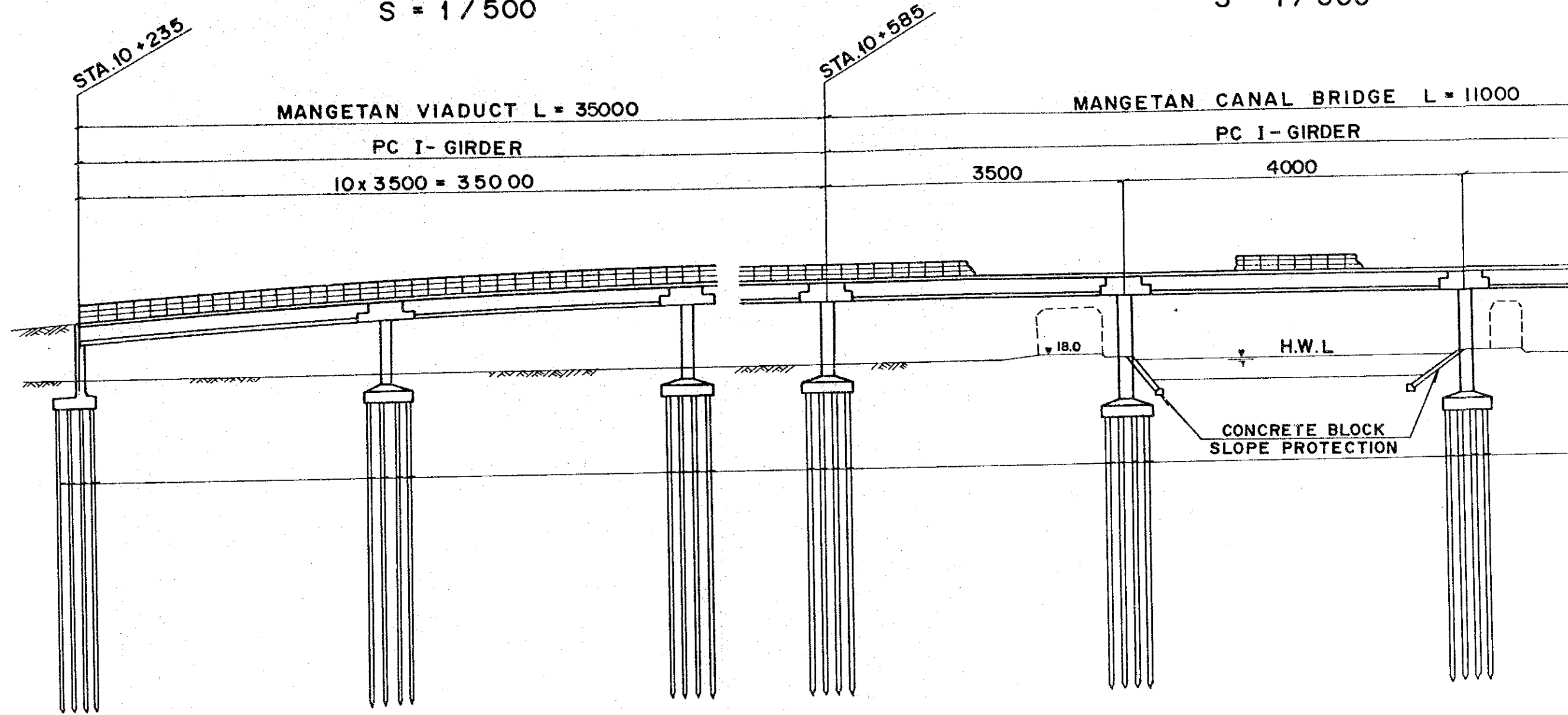


BRIDGE NAME	STATION	PILE LENGTH (M)
TARIK BRIDGE	7 + 720 - 7 + 740	30
PLOSO CANAL BRIDGE	8 + 690 - 8 + 710	34
LARONGAN RIVER BRIDGE	21 + 435 - 21 + 455	29
TENGAH RIVER BRIDGE	22 + 373 - 22 + 393	27
KRIAN ACCESS ROAD BRIDGE	—	30

BRIDGE NAME	STATION	PILE LENGTH (M)
KEDUNGANYAR RIVER BRIDGE	12 + 970 - 12 + 995	33
KEDONDONG RIVER BRIDGE	22 + 023 - 22 + 048	27
KRIAN IC RAMPWAY BRIDGE (2)	—	30
MOJOKERTO IC RAMPWAY BRIDGE	—	30

**MANGETAN VIADUCT**  
S = 1/500

**MANGETAN CANAL BRIDGE**  
S = 1/500



PROJECT	PROVINCE	SHEET NO	TOTAL SHEET
SURABAYA-MOJOKERTO TOLL ROAD	EAST JAVA	23	28
THROUGHWAY BRIDGE (4)		SCALE: 1/500	

MANGETAN VIADUCT  
S = 1/500

# MANGETAN CANAL BRIDGE

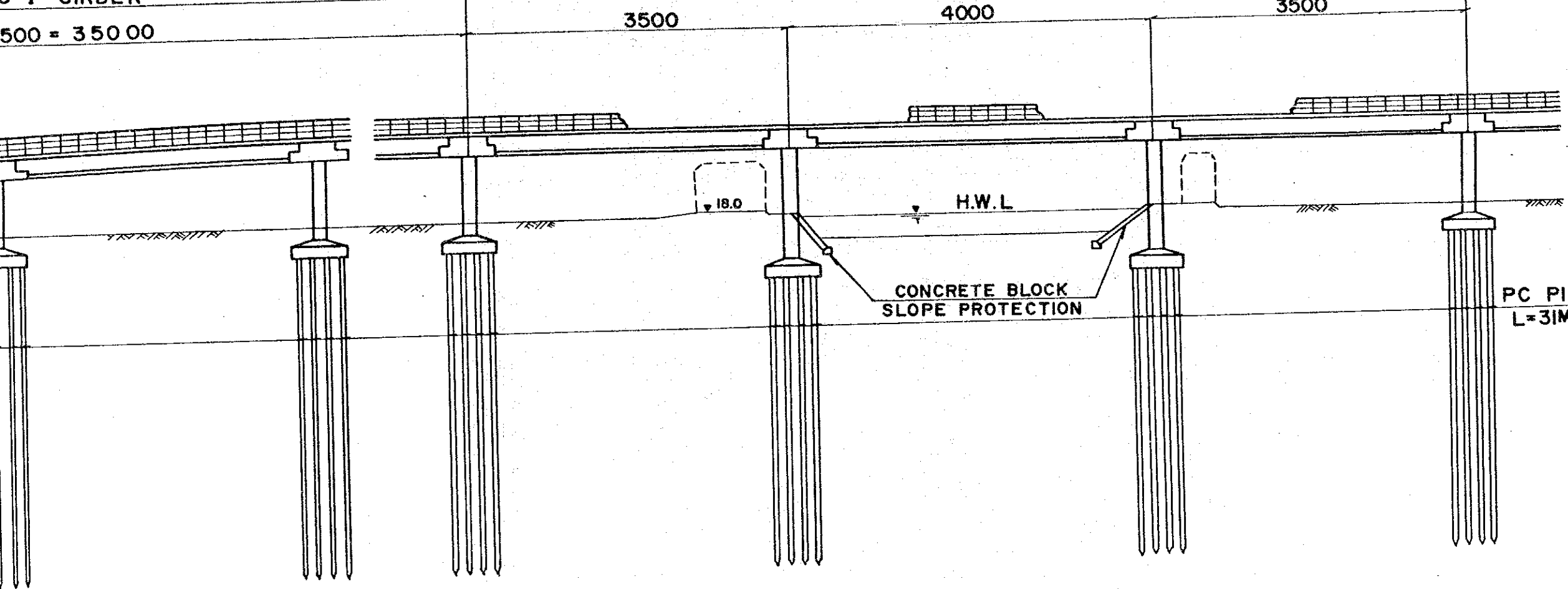
S = 1/500

MANGETAN VIADUCT L = 35000  
PC I-GIRDER  
500 = 35000

MANGETAN CANAL BRIDGE L = 11000  
PC I-GIRDER

STA. 10+585

STA. 10+695



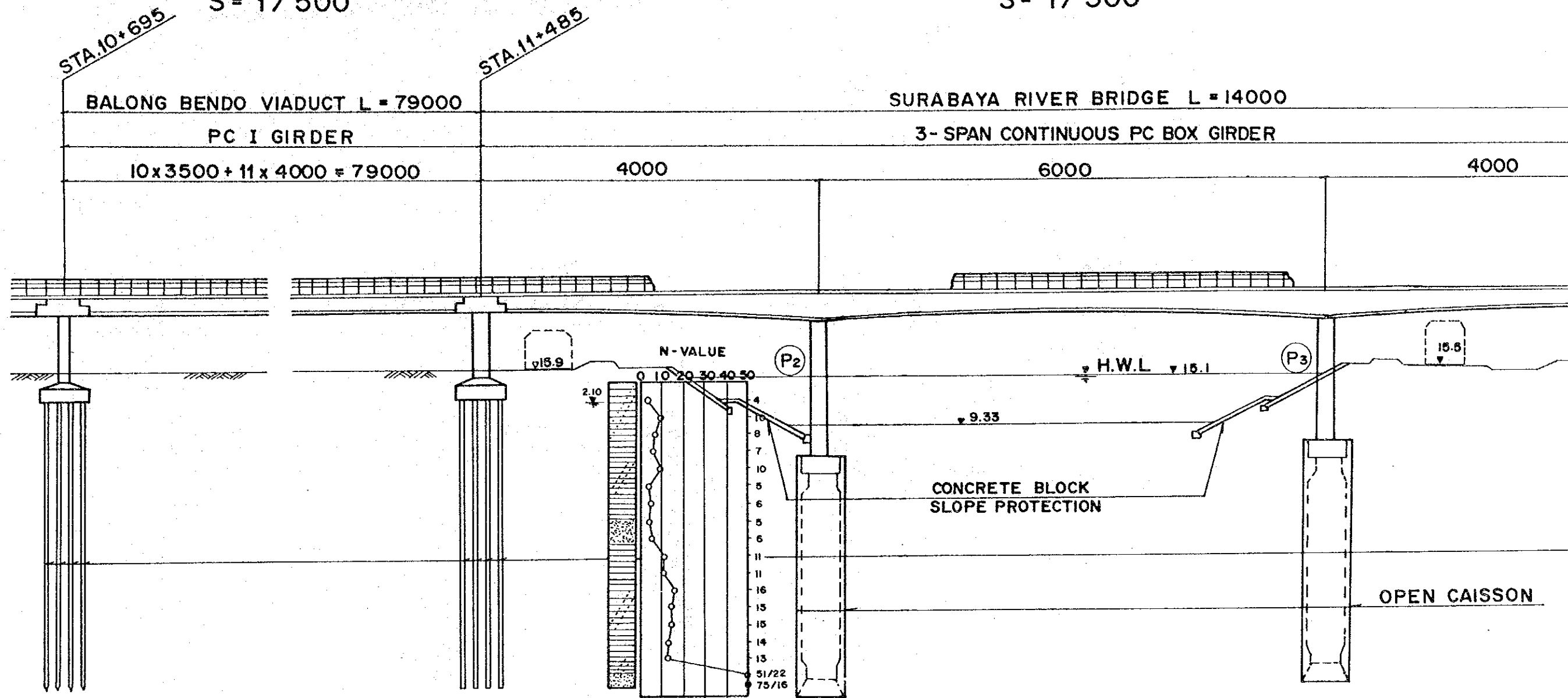
PC PILE (ø 60)  
L=31M~34M

# BALONG BENDO VIADUCT

S = 1/500

# SURABAYA RIVER BRIDGE

S = 1/500





PROJECT	PROVINCE	SHEET NO	TOTAL SHEET
SURABAYA-MOJOKERTO TOLL ROAD	EAST JAVA	24	28
THROUGHWAY BRIDGE (5)		SCALE: 1/500	

# SURABAYA RIVER BRIDGE

S = 1/500

# WRINGIN ANOM VIADUCT

S = 1/500

SURABAYA RIVER BRIDGE L = 14000

WRINGIN ANOM VIADUCT L = 24500

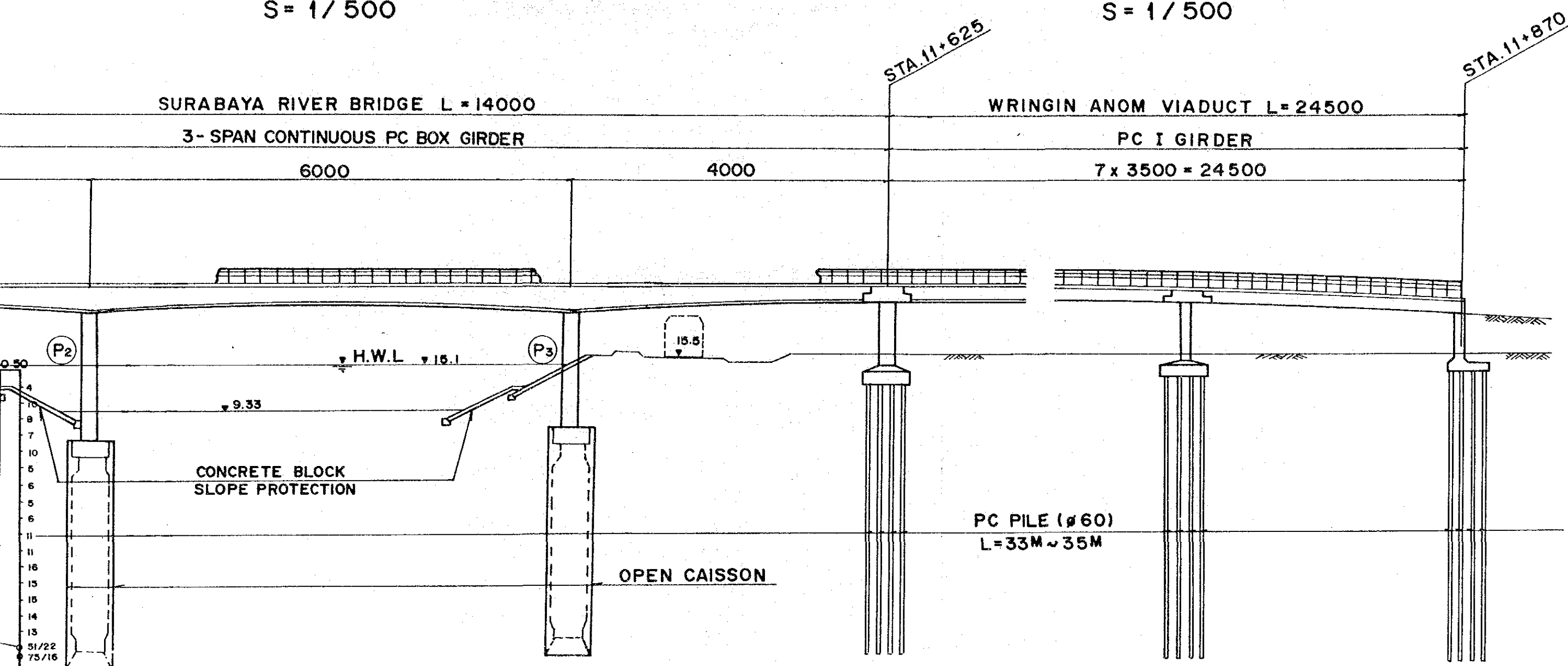
3-SPAN CONTINUOUS PC BOX GIRDER

PC I GIRDER

6000

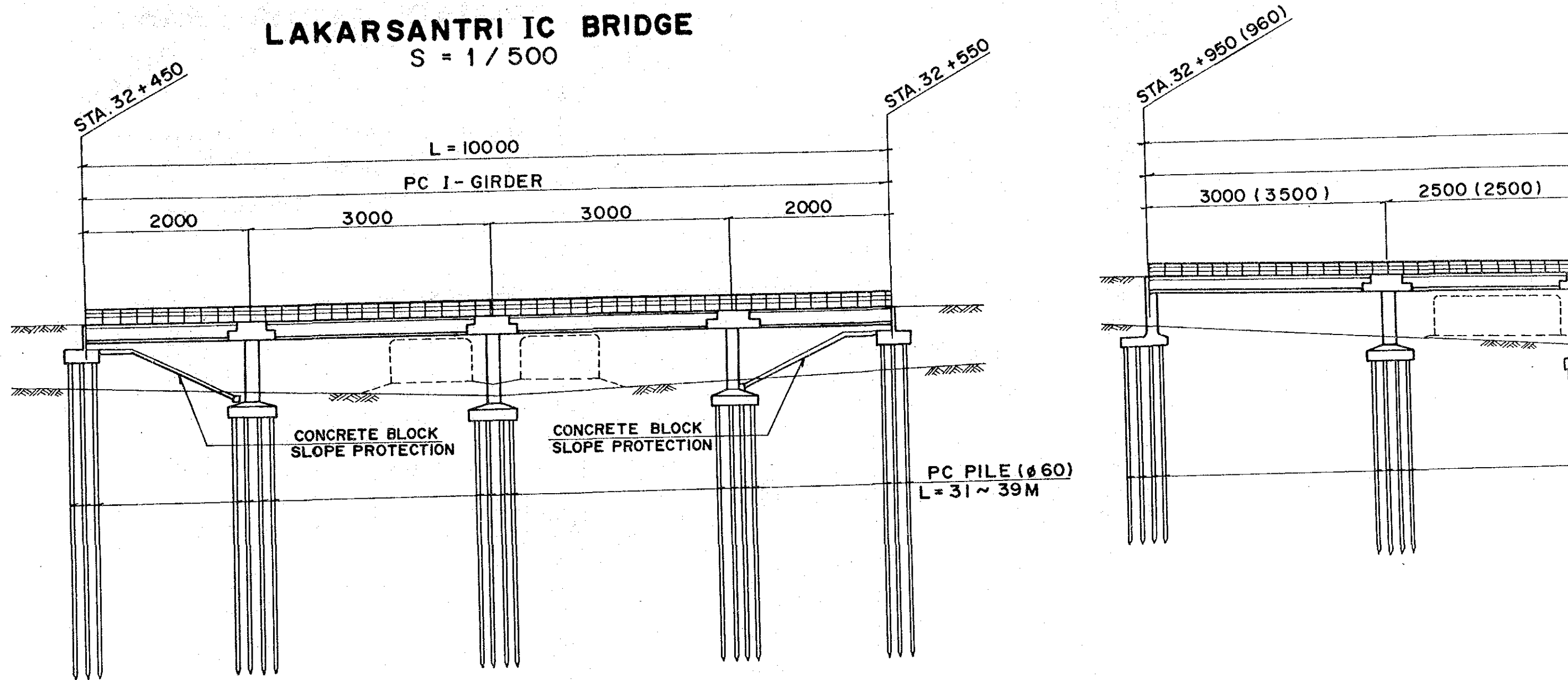
4000

7 x 3500 = 24500



# LAKARSANTRI IC BRIDGE

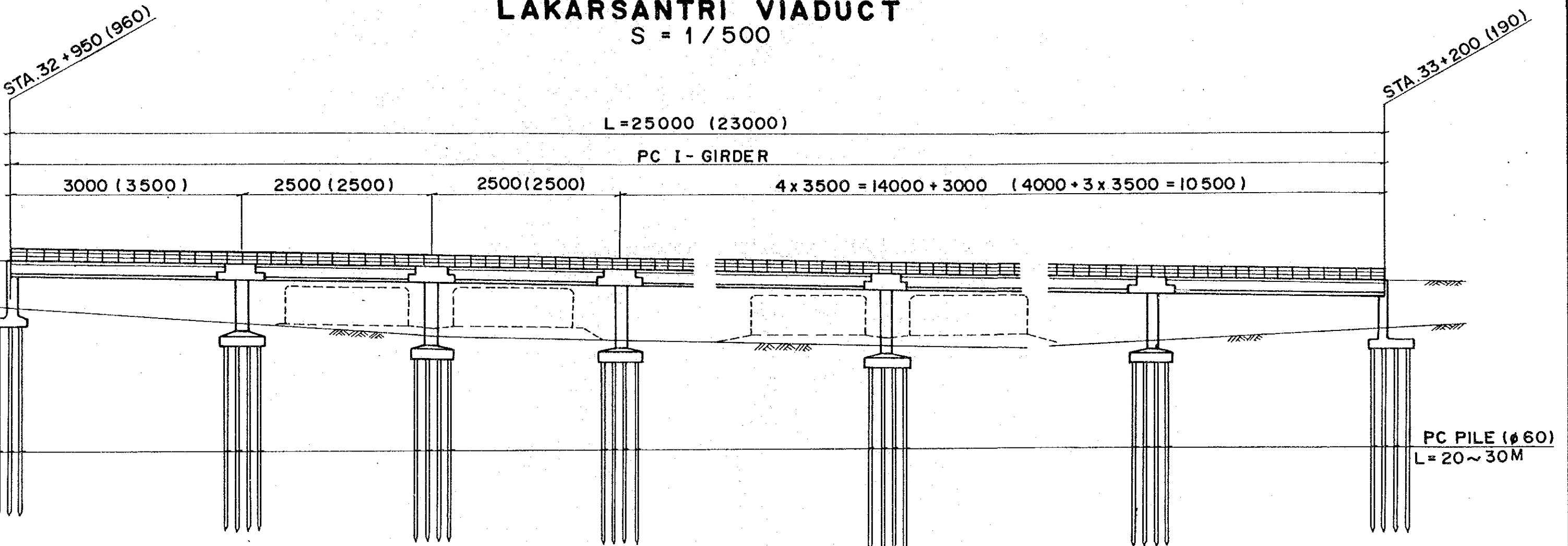
S = 1 / 500



PROJECT	PROVINCE	SHEET NO.	TOTAL SHEET
SURABAYA-MOJOKERTO TOLL ROAD	EAST JAVA	25	28
THROUGHWAY BRIDGE (6)		SCALE: 1/500	

# LAKARSANTRI VIADUCT

S = 1/500



# KARANG PILANG VIADUCT

S = 1/500

# MAS RIVER BRIDGE

S = 1/500

STA. 37+150

STA. 37+606

KARANG PILANG VIADUCT L = 45600

MAS RIVER BRIDGE L = 15200

PC I - GIRDER

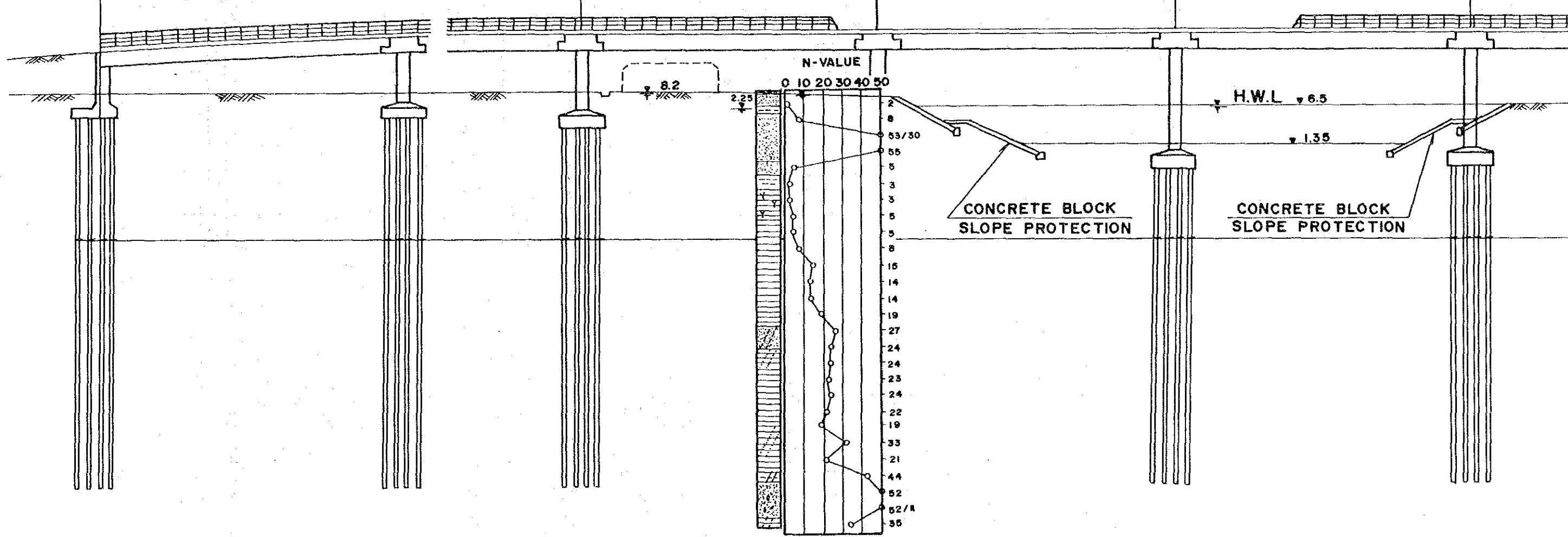
PC I - GIRDER

12 x 3800 = 45600

3800

3800

3800



N-VALUE

0 10 20 30 40 50

H.W.L. 6.5

1.35

8.2

2.25

CONCRETE BLOCK SLOPE PROTECTION

CONCRETE BLOCK SLOPE PROTECTION

53/30

55

5

3

3

5

8

15

14

14

19

27

24

24

23

24

22

19

33

21

44

52

52/R

35

**RIVER BRIDGE**  
S = 1/500

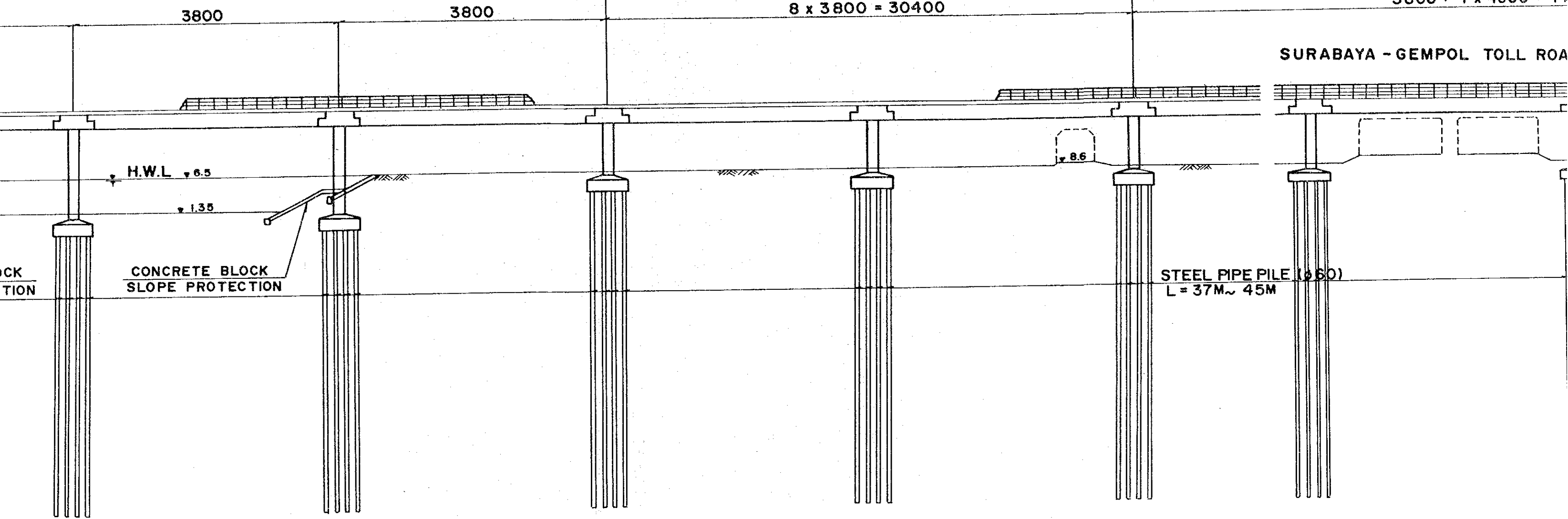
**WONOCOLO VIADUCT**  
S = 1/500

**SURABAYA JC RAMPWAY**  
S = 1/500

RIVER BRIDGE L = 152.00  
PC I - GIRDER

WONOCOLO VIADUCT L = 30400  
PC I - GIRDER  
8 x 3800 = 30400

SURABAYA JC RAMPWAY  
PC I - GIRDER  
3800 + 7 x 4000 + 4000



STA. 37+758

STA. 38+062

SECTION

CONCRETE BLOCK  
SLOPE PROTECTION

STEEL PIPE PILE (ø 60)  
L = 37M ~ 45M

PROJECT	PROVINCE	SHEET NO	TOTAL SHEET
SURABAYA-MOJOKERTO TOLL ROAD	EAST JAVA	26	28
THROUGHWAY BRIDGE (7)		SCALE: 1/500	

**WONOCOLO VIADUCT**  
S = 1/500

**SURABAYA JC RAMPWAY BR**  
S = 1/500

WONOCOLO VIADUCT L = 30400

SURABAYA JC RAMPWAY BR L = 43800

PC I - GIRDER

PC I - GIRDER

8 x 3800 = 30400

3800 + 7 x 4000 + 4 x 3000 = 43800

SURABAYA - GEMPOL TOLL ROAD

STA. 38+062

STA. 38+500

STA. 38+620

STA. 38+600

8.6

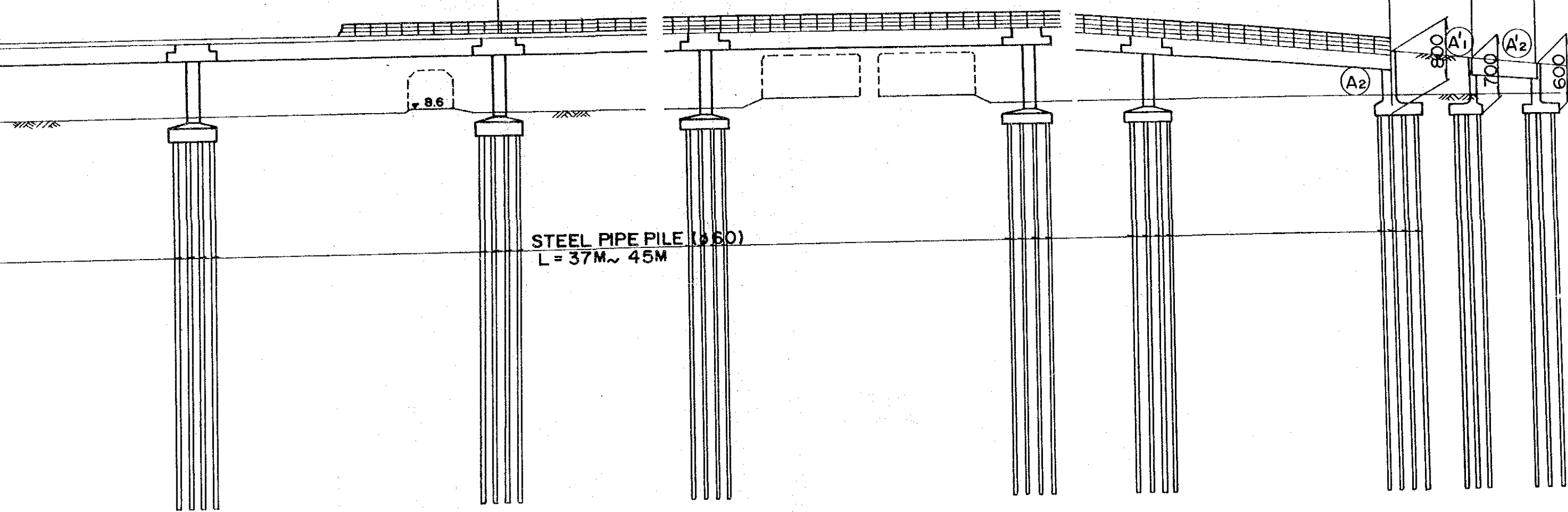
(A2)

(A1)

(A2)

600

STEEL PIPE PILE (ø 60)  
L = 37M ~ 45M

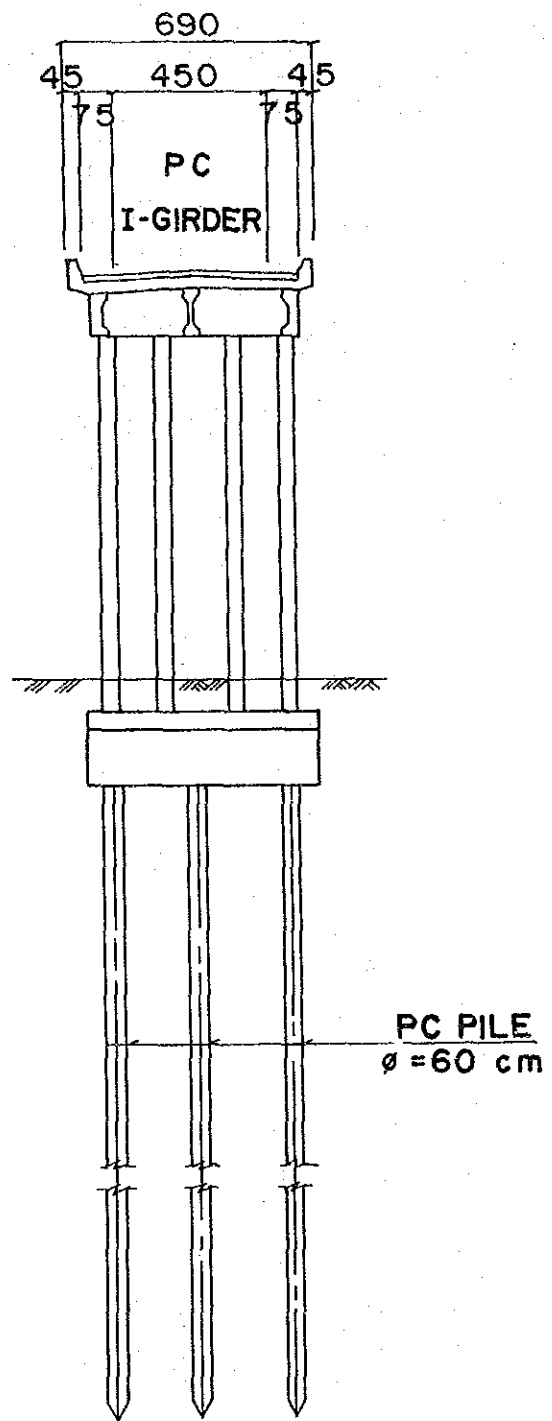
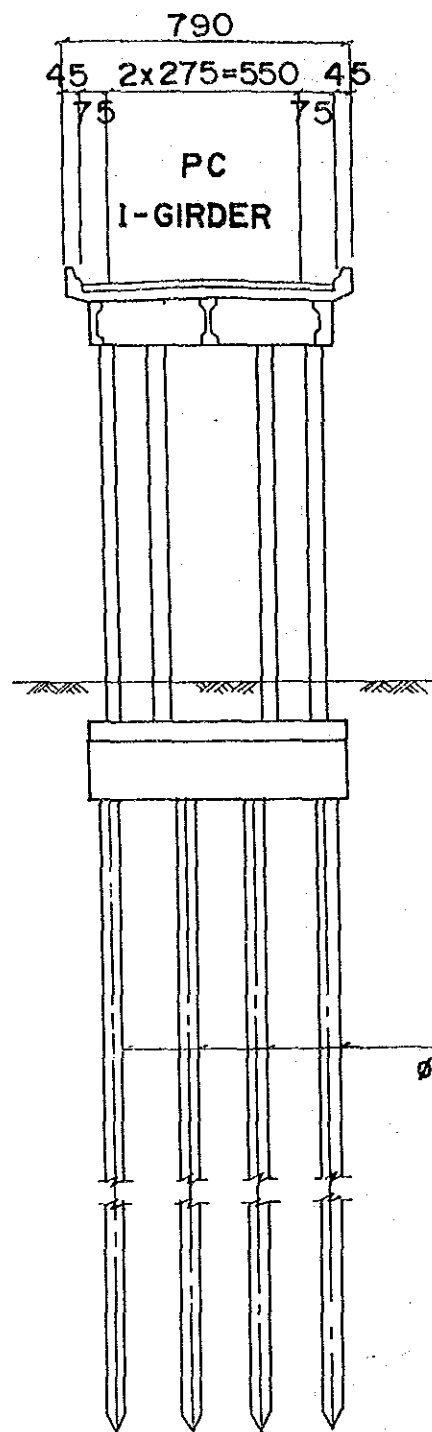


PROJECT	PROVINCE	SHEET NO	TOTAL SHEET
SURABAYA-MOJOKERTO TOLL ROAD	EAST JAVA	27	28
OVERPASS BRIDGE CROSS SECTION		SCALE . 1/200	

# OVERPASS BRIDGE CROSS SECTION

KABUPATEN ROAD

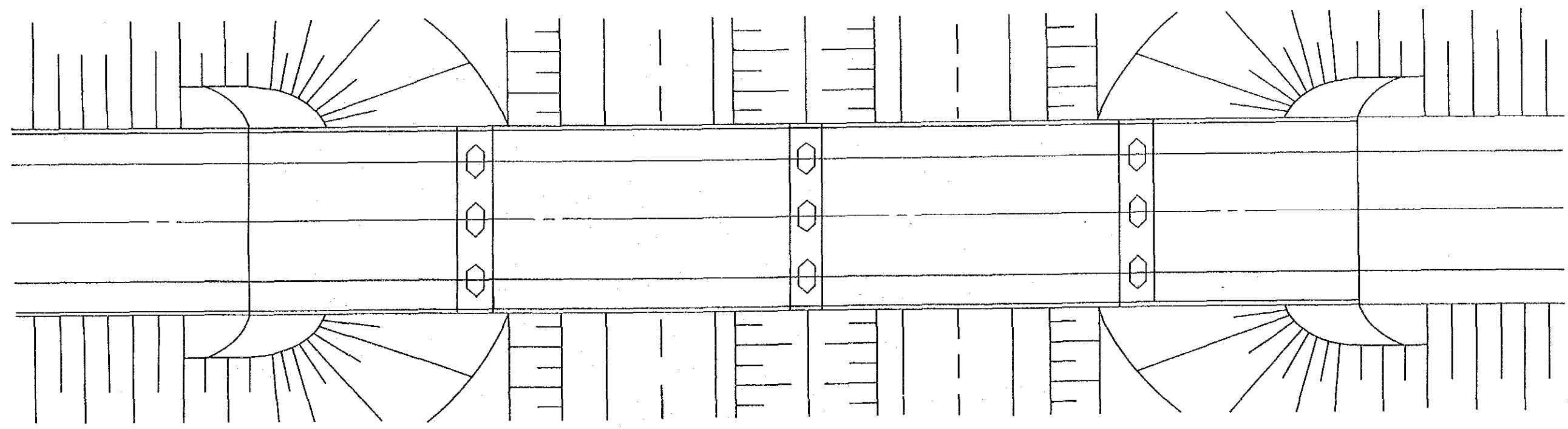
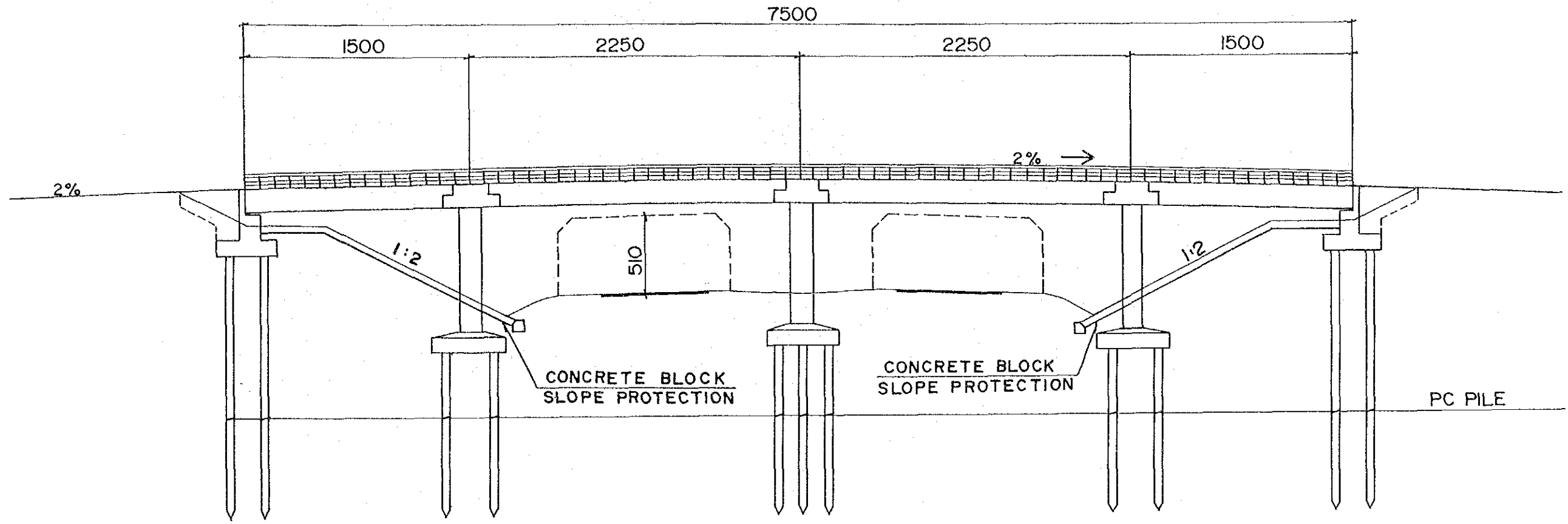
DESA ROAD



# OVERPASS BRIDGE (STANDARD TYPE)

S = 1/300

PROJECT	PROVINCE	SHEET NO	TOTAL SHEET
SURABAYA-MOJOKERTO TOLL ROAD	EAST JAVA	28	28
OVERPASS BRIDGE		SCALE: 1/300	







JICA