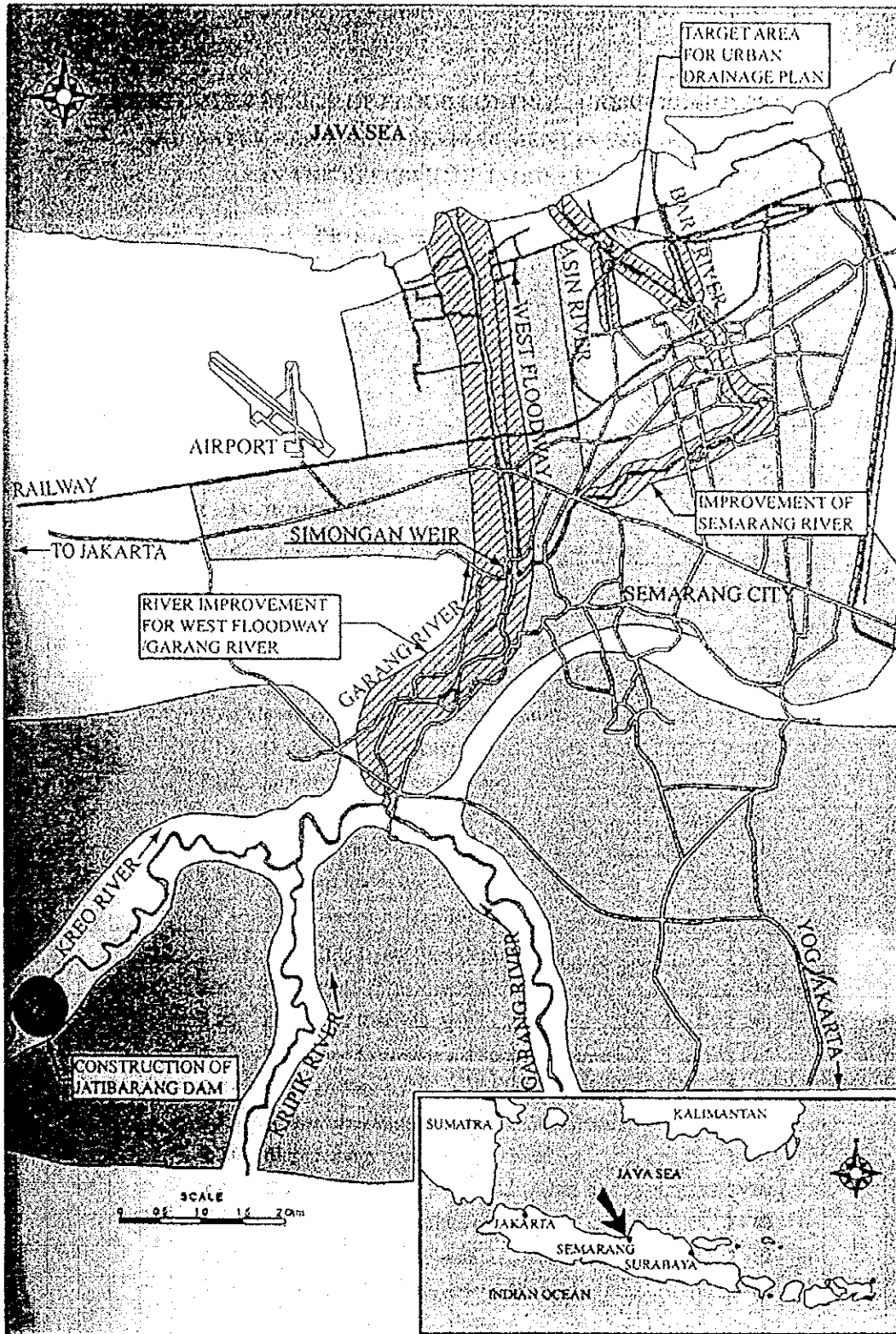


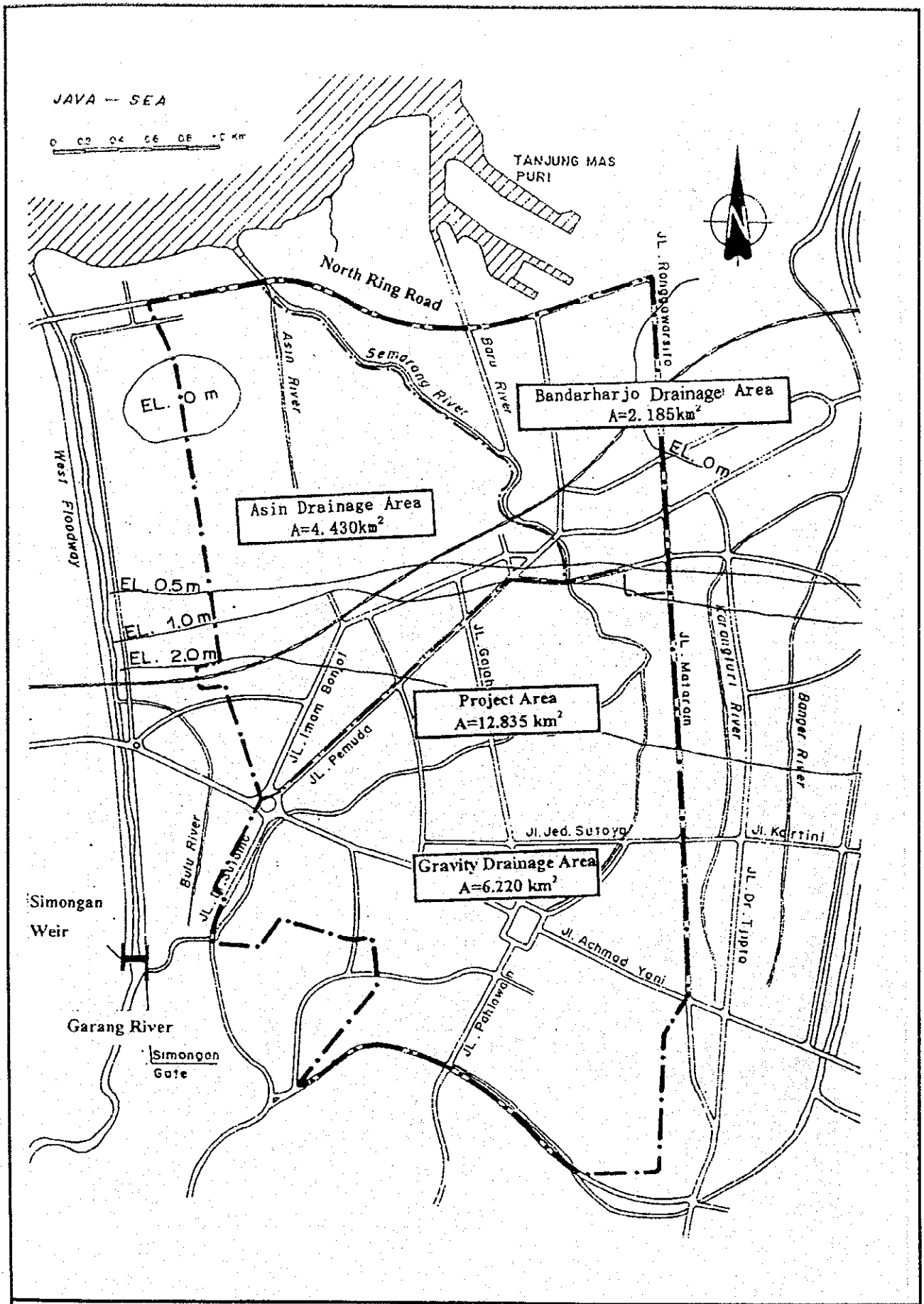
FIGURES



THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA

Fig. 2.1
Location of Project Site

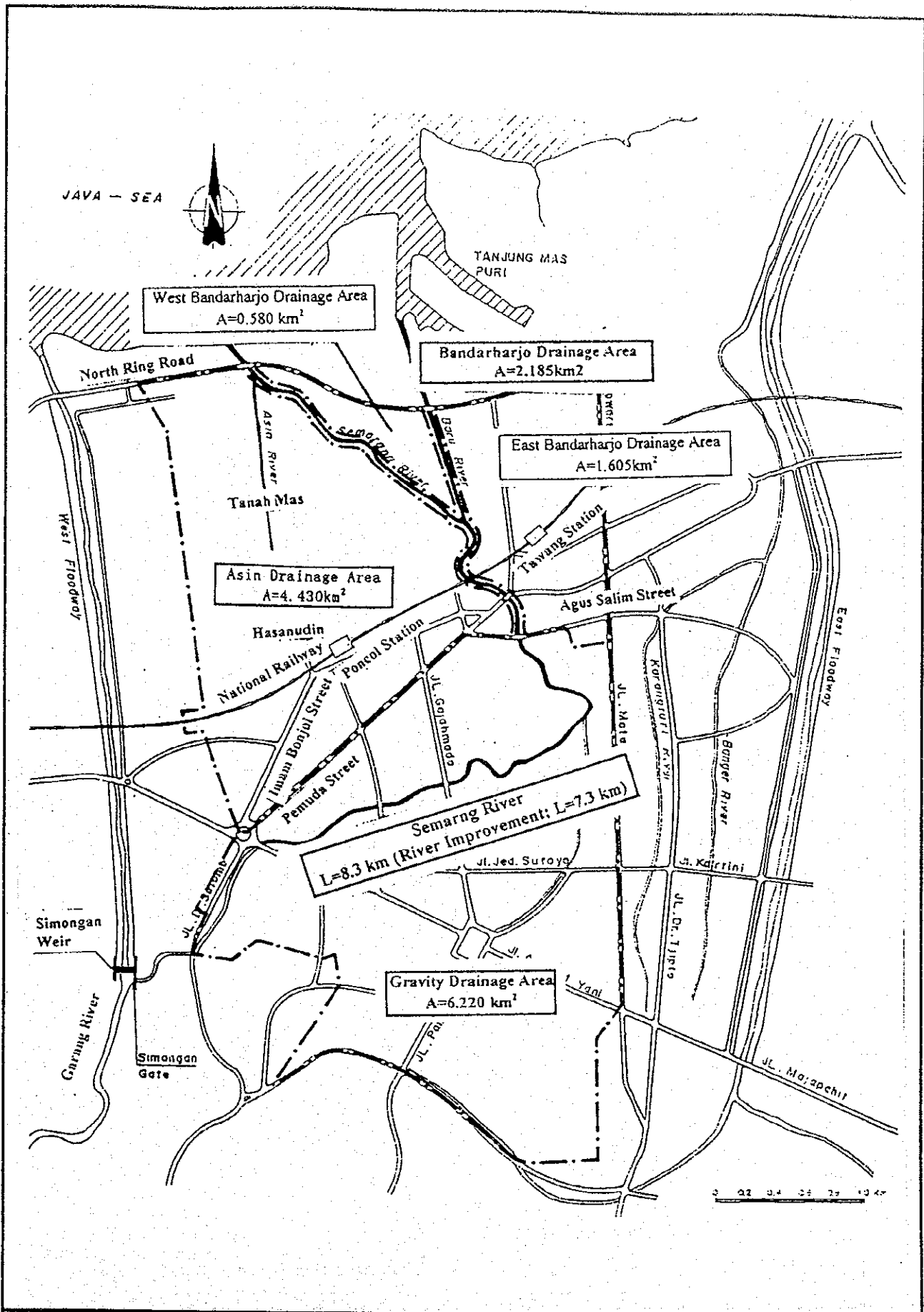
JAPAN INTERNATIONAL COOPERATION AGENCY



THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA

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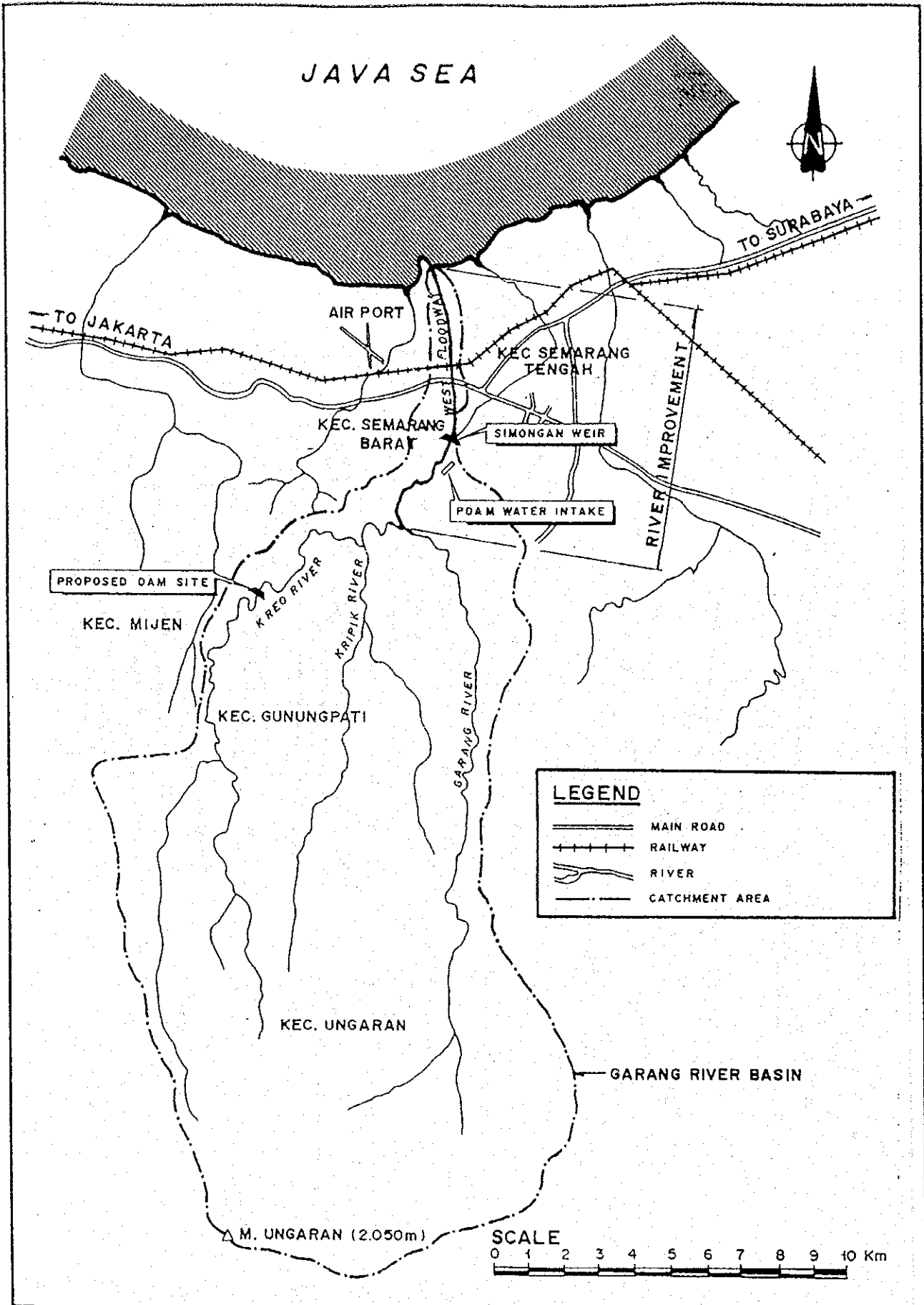
Fig. 2.2
Location of Urban Drainage System Improvement Project



THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA

Fig. 2.3 Project Area of Urban Drainage System Improvement

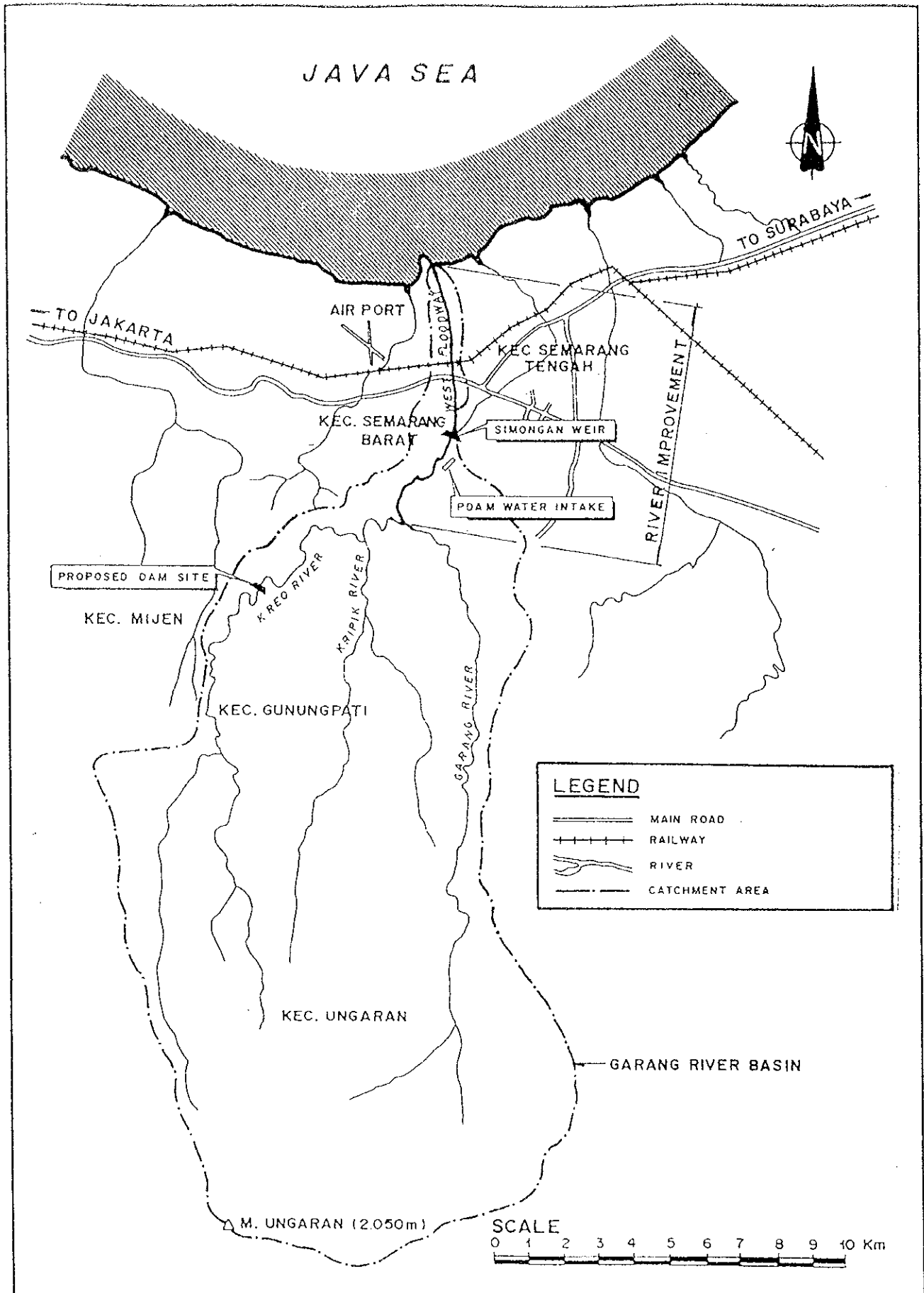
JAPAN INTERNATIONAL COOPERATION AGENCY



THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA

JAPAN INTERNATIONAL COOPERATION AGENCY

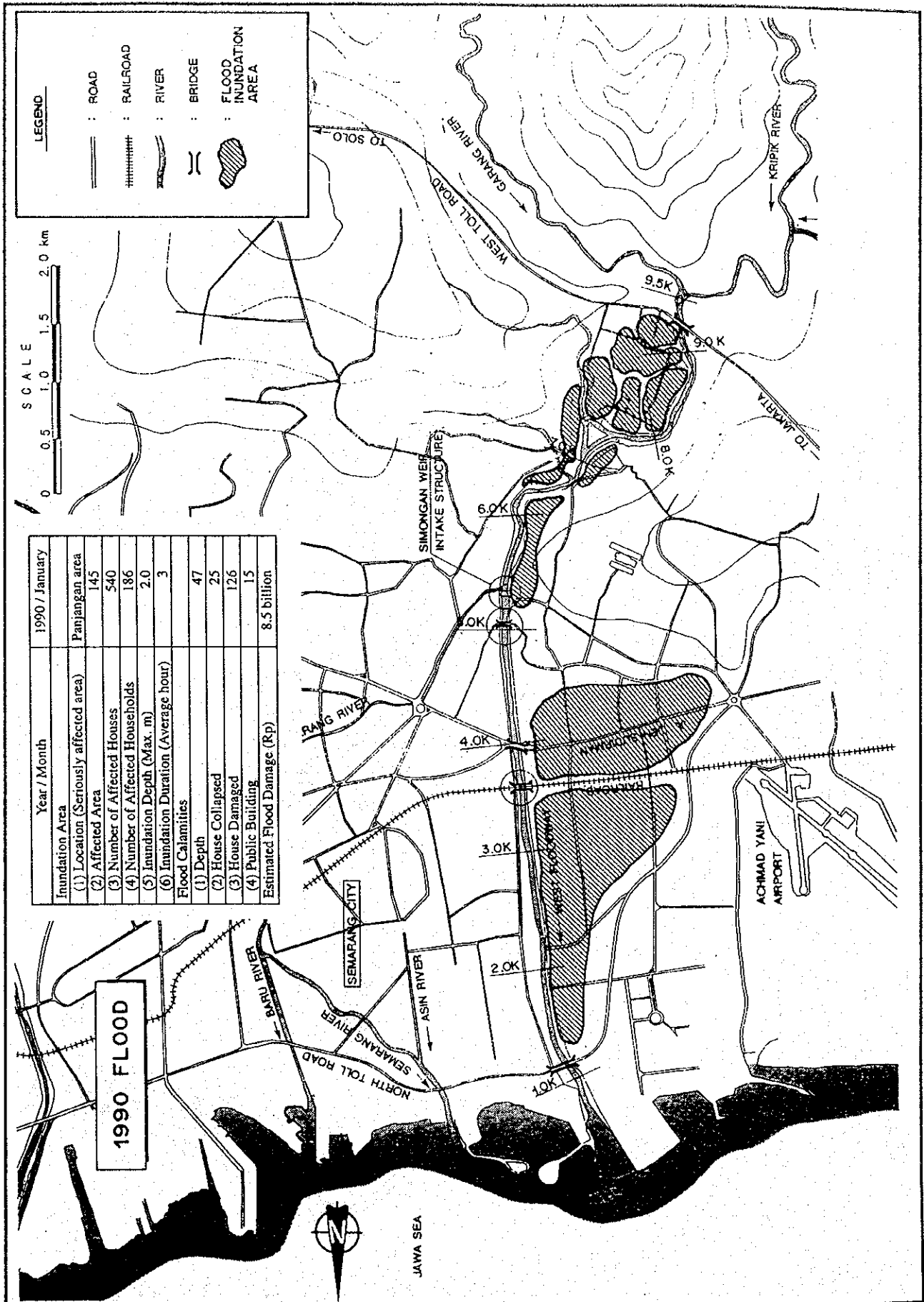
Fig. 2.4 Existing Garang River System



THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA

Fig. 2.4 Existing Garang River System

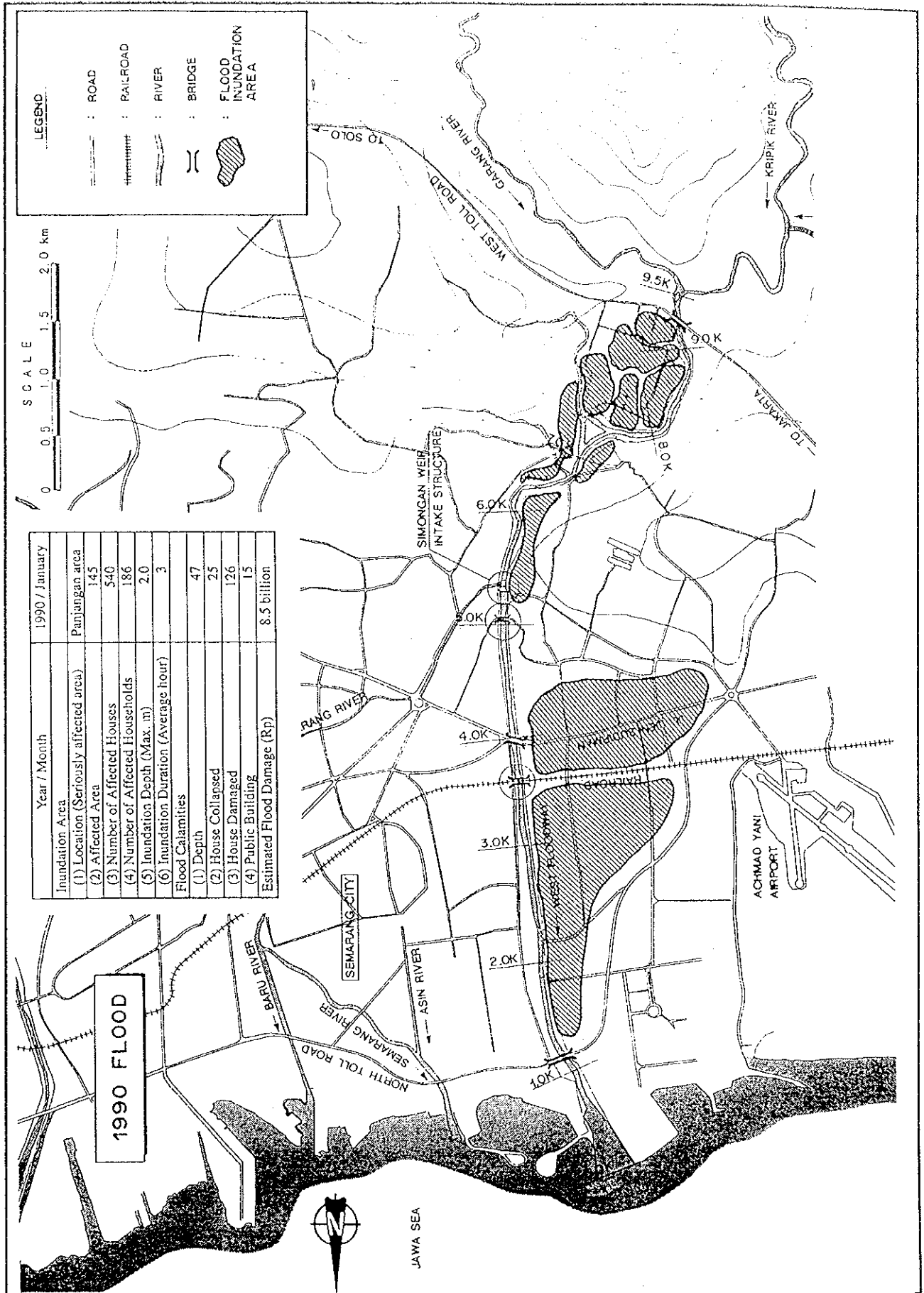
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THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA

JAPAN INTERNATIONAL COOPERATION AGENCY

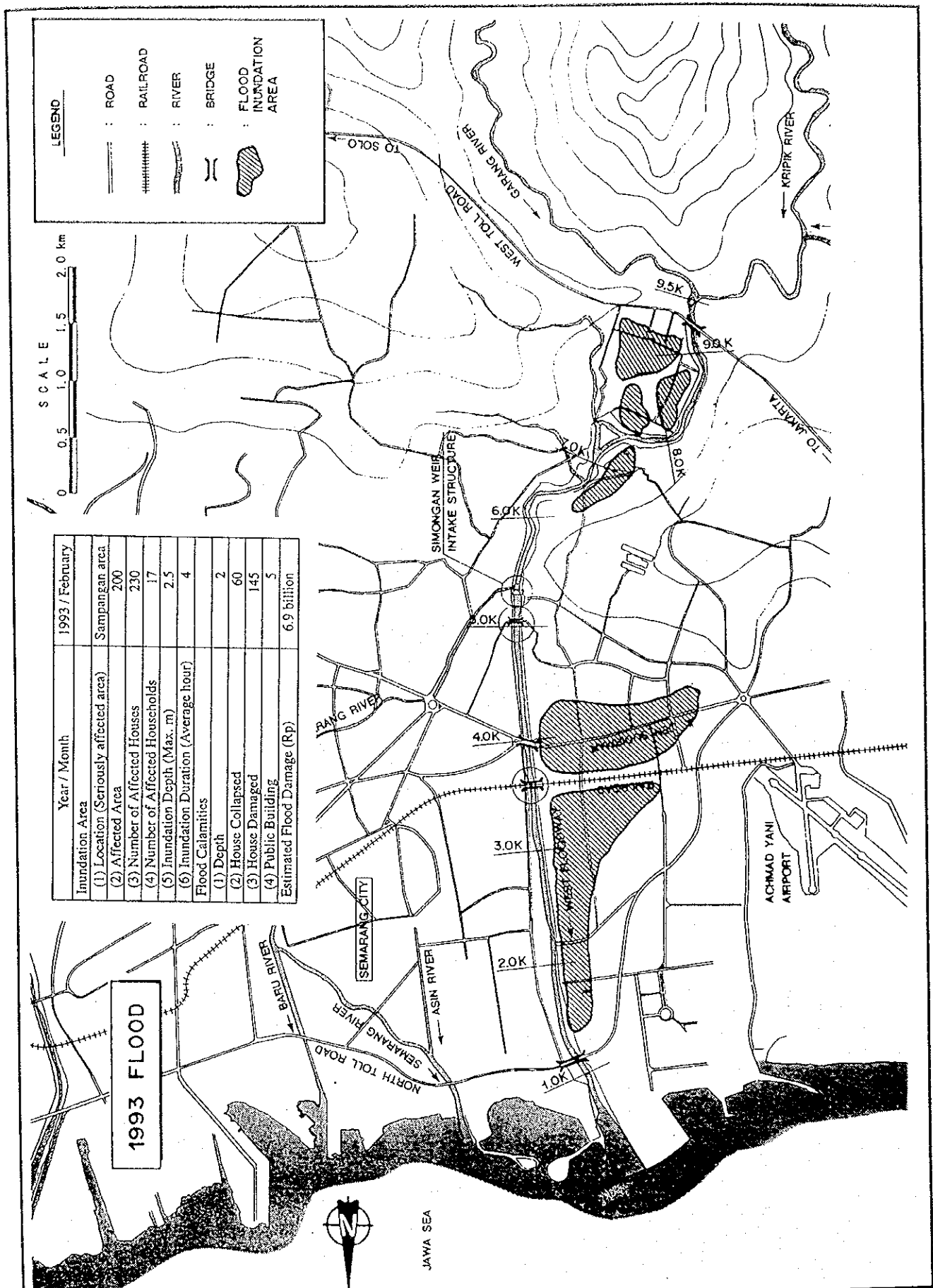
Fig. 2.5 (1/2)
Flood Inundation Area Map (1990 Flood)



THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA

JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 2.5 (1/2)
Flood Inundation Area Map (1990 Flood)



THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA

JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 2.5 (2/2)
Flood Inundation Area Map (1993 Flood)

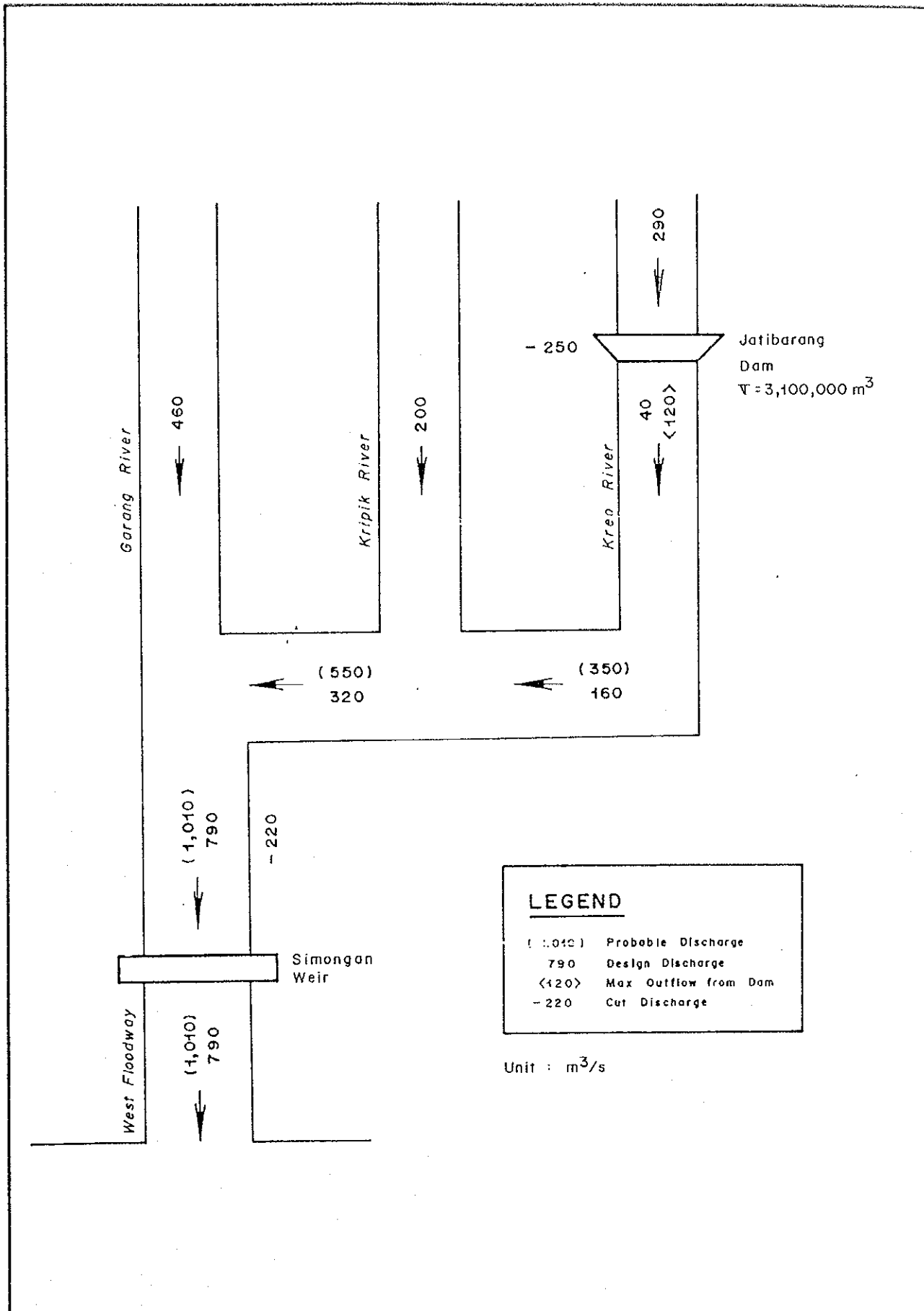
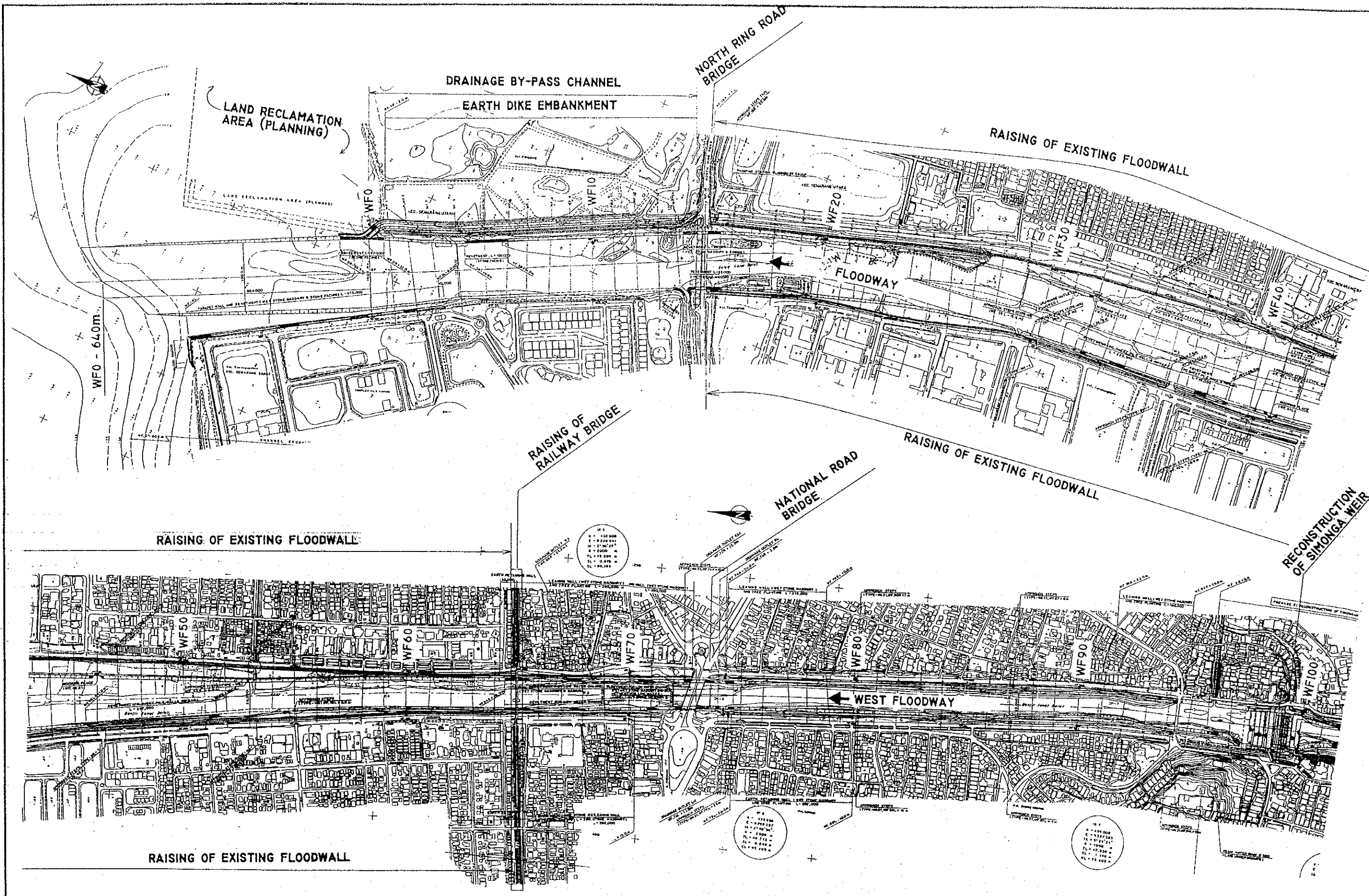


Fig. 2.6
 Distribution of Design Flood Discharge in Garang River

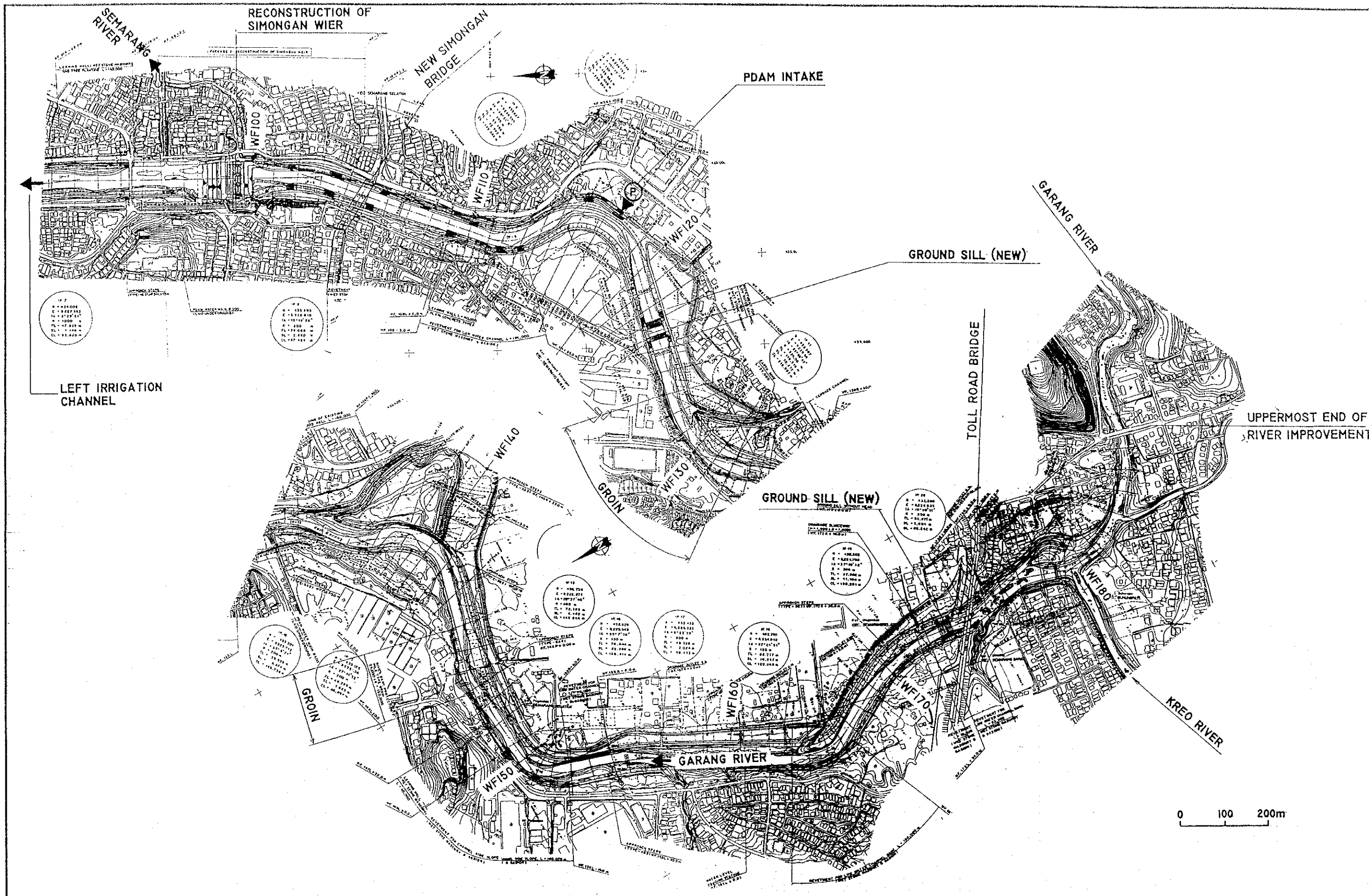


0 100 200m

PLAN OF WEST FLOODWAY

THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
 JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 2.7 (1/2)
 Plan of West Floodway/Garang River Improvement (West Floodway)

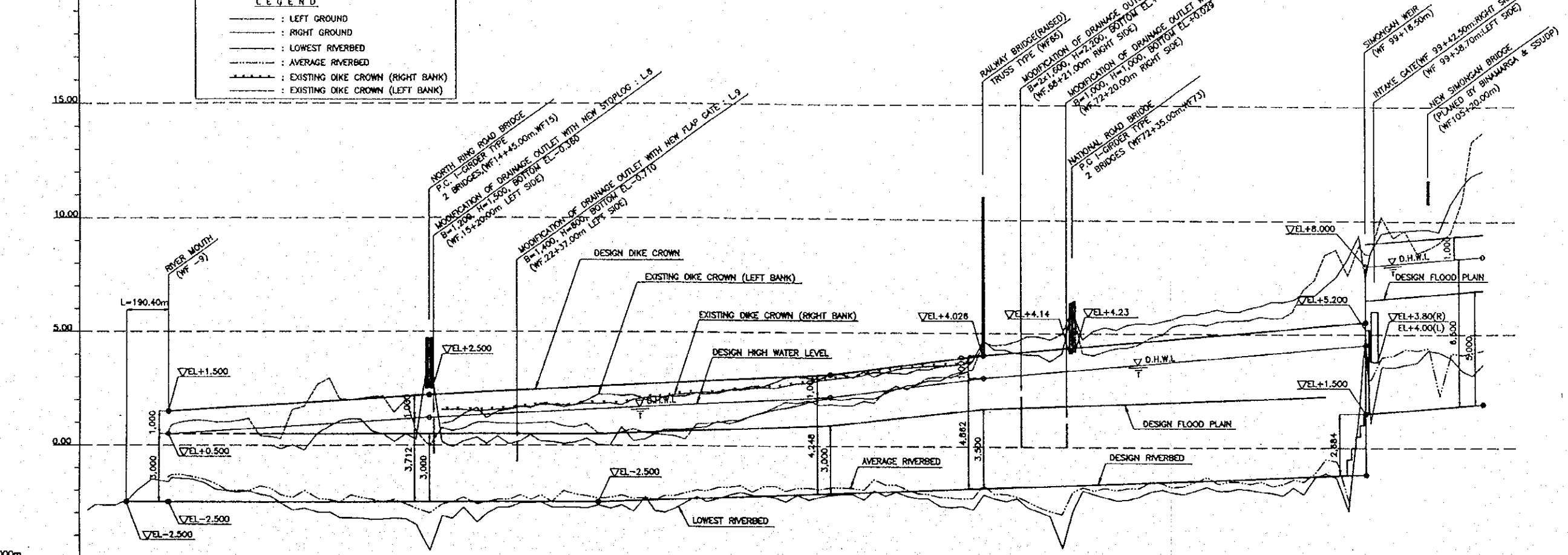


PLAN OF GARANG RIVER

THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
 JAPAN INTERNATIONAL COOPERATION AGENCY

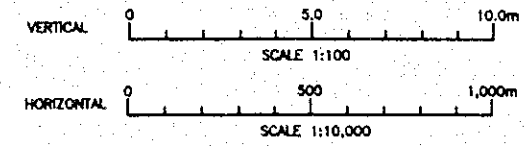
Fig. 2.7 (2/2)
 Plan of West Floodway/Garang River Improvement (Garang River)

(EL. m) 20.00



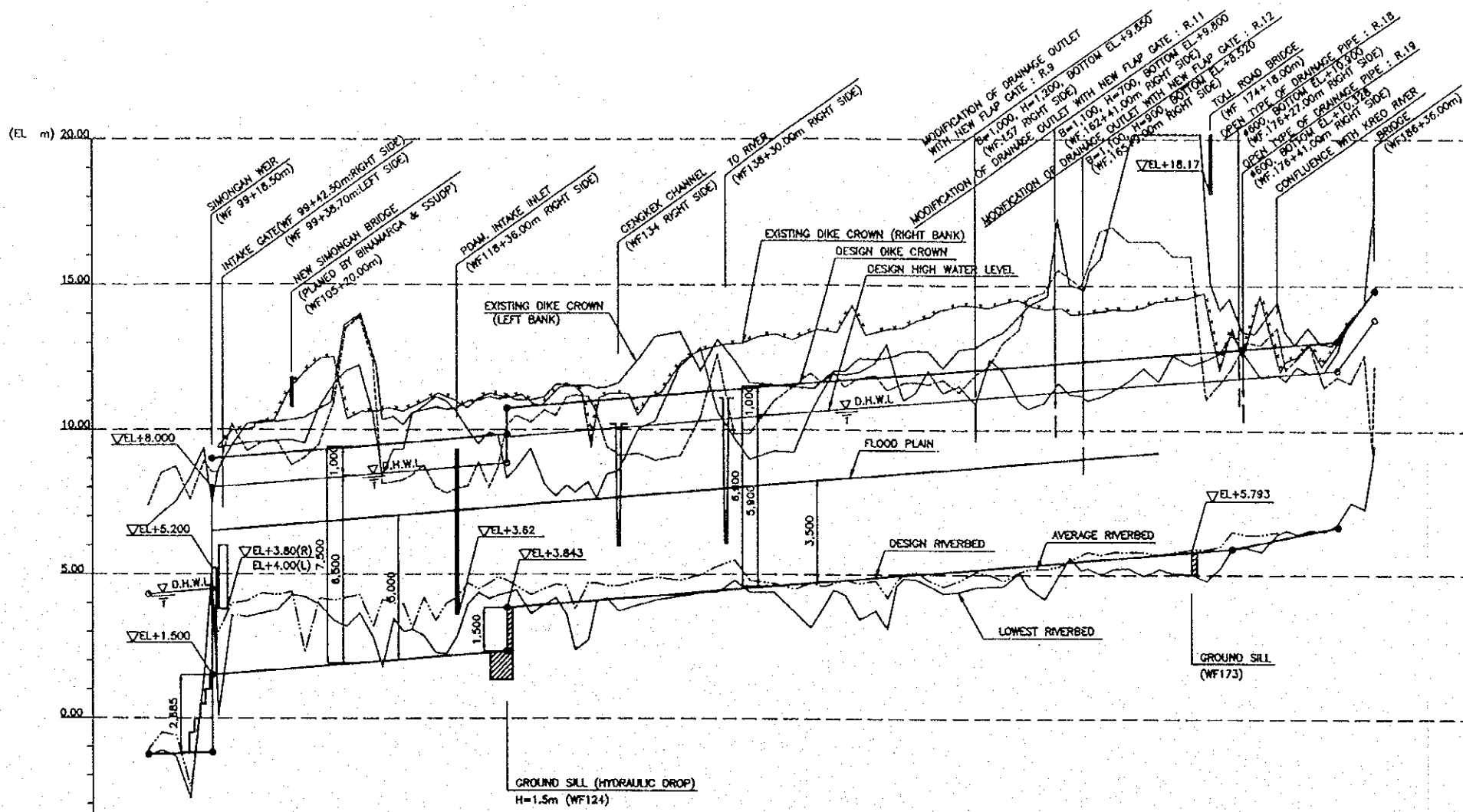
GRADIENT OF DESIGN H.W.L.		0.000	1.212	2.140	3.028	4.530	6.000
GRADIENT OF DESIGN RIVERBED		-2.500	-2.500	-2.500	-2.500	-2.500	-2.500
DESIGN ELEVATION	DIKE CROWN	1.000	1.000	1.000	1.000	1.000	1.000
	HIGH WATER LEVEL	0.000	0.000	0.000	0.000	0.000	0.000
	RIVERBED	-2.500	-2.500	-2.500	-2.500	-2.500	-2.500
EXISTING ELEVATION	RIGHT GROUND	0.00	-0.10	0.00	0.00	0.00	0.00
	LEFT GROUND	0.00	0.00	0.00	0.00	0.00	0.00
	LOWEST RIVERBED	-2.50	-2.50	-2.50	-2.50	-2.50	-2.50
DISTANCE	ACCUMULATED (m)	0.00	1174.38	1822.42	3487.46	4728.00	6000.00
	PARTIAL (m)	0.00	1174.38	658.04	1665.04	1240.54	1271.96
STATION NO.		0+00	1+174.38	2+1822.42	3+847.46	5+088.00	6+359.96

LONGITUDINAL PROFILE OF WEST FLOODWAY



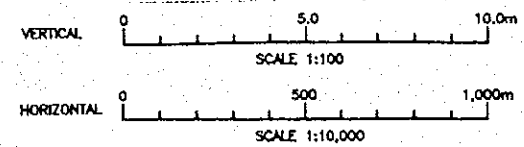
THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 2.8 (1/2)
Longitudinal Profile of West Floodway/Garang River Improvement (West Floodway)



LEGEND	
—	: LEFT GROUND
—	: RIGHT GROUND
—	: LOWEST RIVERBED
—	: AVERAGE RIVERBED
—	: EXISTING DIKE CROWN (RIGHT BANK)
—	: EXISTING DIKE CROWN (LEFT BANK)

DISTANCE		STATION NO.	
ACCUMULATED (m)	PARTIAL (m)		
0.00	0.00	00	00
1.50	1.50	01	01
3.00	1.50	02	02
4.50	1.50	03	03
6.00	1.50	04	04
7.50	1.50	05	05
9.00	1.50	06	06
10.50	1.50	07	07
12.00	1.50	08	08
13.50	1.50	09	09
15.00	1.50	10	10
16.50	1.50	11	11
18.00	1.50	12	12
19.50	1.50	13	13
21.00	1.50	14	14
22.50	1.50	15	15
24.00	1.50	16	16
25.50	1.50	17	17
27.00	1.50	18	18
28.50	1.50	19	19
30.00	1.50	20	20
31.50	1.50	21	21
33.00	1.50	22	22
34.50	1.50	23	23
36.00	1.50	24	24
37.50	1.50	25	25
39.00	1.50	26	26
40.50	1.50	27	27
42.00	1.50	28	28
43.50	1.50	29	29
45.00	1.50	30	30
46.50	1.50	31	31
48.00	1.50	32	32
49.50	1.50	33	33
51.00	1.50	34	34
52.50	1.50	35	35
54.00	1.50	36	36
55.50	1.50	37	37
57.00	1.50	38	38
58.50	1.50	39	39
60.00	1.50	40	40
61.50	1.50	41	41
63.00	1.50	42	42
64.50	1.50	43	43
66.00	1.50	44	44
67.50	1.50	45	45
69.00	1.50	46	46
70.50	1.50	47	47
72.00	1.50	48	48
73.50	1.50	49	49
75.00	1.50	50	50
76.50	1.50	51	51
78.00	1.50	52	52
79.50	1.50	53	53
81.00	1.50	54	54
82.50	1.50	55	55
84.00	1.50	56	56
85.50	1.50	57	57
87.00	1.50	58	58
88.50	1.50	59	59
90.00	1.50	60	60
91.50	1.50	61	61
93.00	1.50	62	62
94.50	1.50	63	63
96.00	1.50	64	64
97.50	1.50	65	65
99.00	1.50	66	66
100.50	1.50	67	67
102.00	1.50	68	68
103.50	1.50	69	69
105.00	1.50	70	70
106.50	1.50	71	71
108.00	1.50	72	72
109.50	1.50	73	73
111.00	1.50	74	74
112.50	1.50	75	75
114.00	1.50	76	76
115.50	1.50	77	77
117.00	1.50	78	78
118.50	1.50	79	79
120.00	1.50	80	80
121.50	1.50	81	81
123.00	1.50	82	82
124.50	1.50	83	83
126.00	1.50	84	84
127.50	1.50	85	85
129.00	1.50	86	86
130.50	1.50	87	87
132.00	1.50	88	88
133.50	1.50	89	89
135.00	1.50	90	90
136.50	1.50	91	91
138.00	1.50	92	92
139.50	1.50	93	93
141.00	1.50	94	94
142.50	1.50	95	95
144.00	1.50	96	96
145.50	1.50	97	97
147.00	1.50	98	98
148.50	1.50	99	99
150.00	1.50	100	100



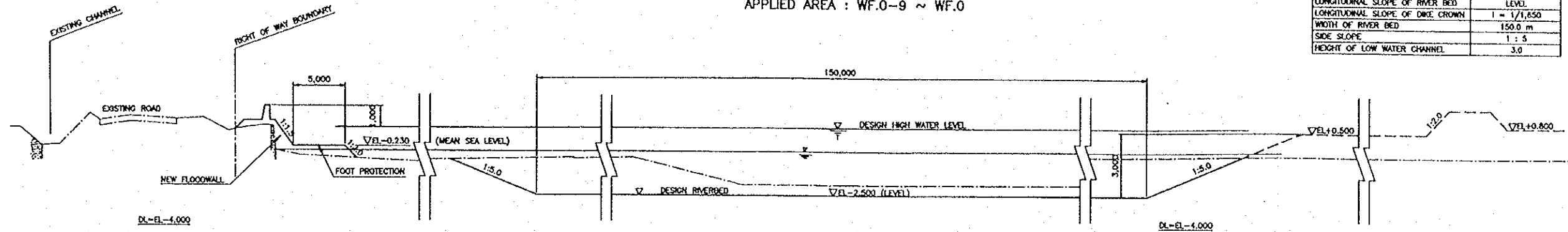
LONGITUDINAL PROFILE OF GARANG RIVER

THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
 JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 2.8 (2/2) Longitudinal Profile of West Floodway/Garang River Improvement (Garang River)

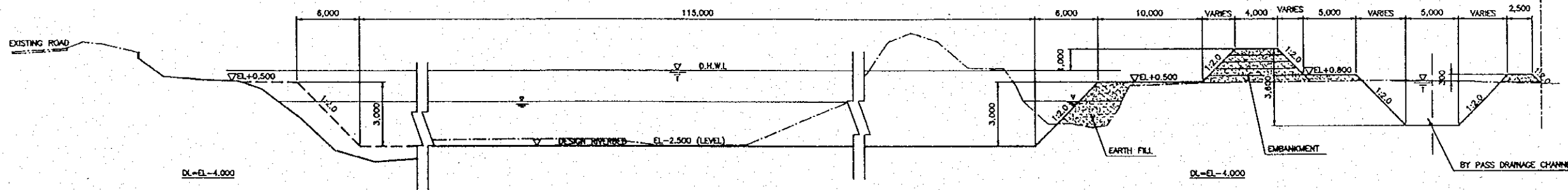
WF.0-3
APPLIED AREA : WF.0-9 ~ WF.0

LENGTH OF RIVER CHANNEL	867.6 m
LONGITUDINAL SLOPE OF RIVER BED	LEVEL
LONGITUDINAL SLOPE OF DIKE CROWN	1 = 1/1,650
WIDTH OF RIVER BED	150.0 m
SIDE SLOPE	1 : 5
HEIGHT OF LOW WATER CHANNEL	3.0



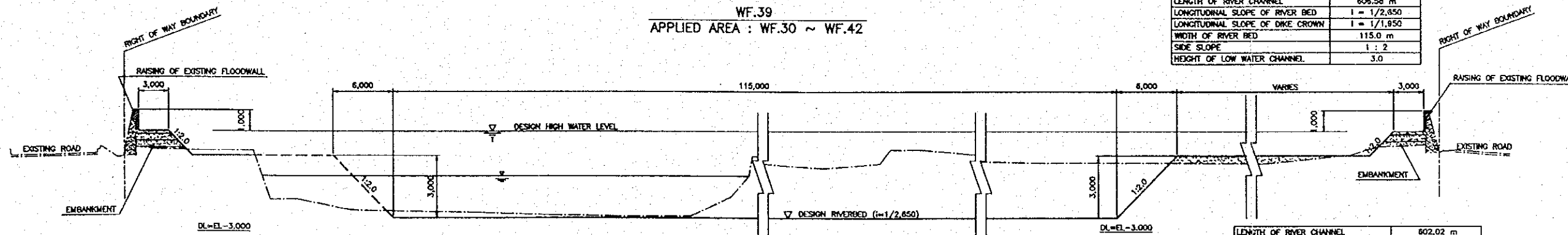
WF.9
APPLIED AREA : WF.4 ~ WF.15

LENGTH OF RIVER CHANNEL	562.53 m
LONGITUDINAL SLOPE OF RIVER BED	LEVEL
LONGITUDINAL SLOPE OF DIKE CROWN	1 = 1/1,650
WIDTH OF RIVER BED	115.0 m
SIDE SLOPE	1 : 2
HEIGHT OF LOW WATER CHANNEL	3.0



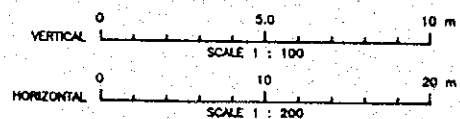
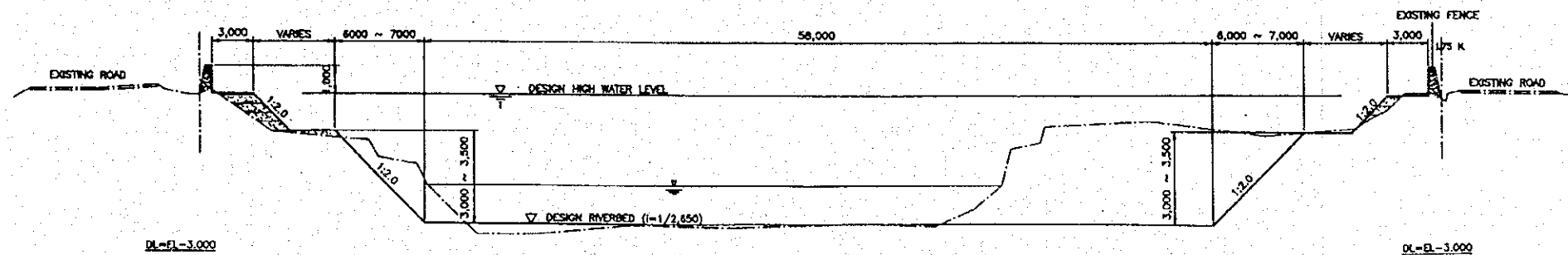
WF.39
APPLIED AREA : WF.30 ~ WF.42

LENGTH OF RIVER CHANNEL	606.58 m
LONGITUDINAL SLOPE OF RIVER BED	1 = 1/2,650
LONGITUDINAL SLOPE OF DIKE CROWN	1 = 1/1,650
WIDTH OF RIVER BED	115.0 m
SIDE SLOPE	1 : 2
HEIGHT OF LOW WATER CHANNEL	3.0



WF.60
APPLIED AREA : WF.53 ~ WF.65

LENGTH OF RIVER CHANNEL	602.02 m
LONGITUDINAL SLOPE OF RIVER BED	1 = 1/2,550
LONGITUDINAL SLOPE OF DIKE CROWN	1 = 1/800
WIDTH OF RIVER BED	56.0 m
SIDE SLOPE	1 : 2
HEIGHT OF LOW WATER CHANNEL	3.0-3.5 m

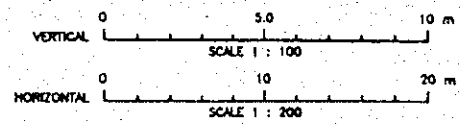
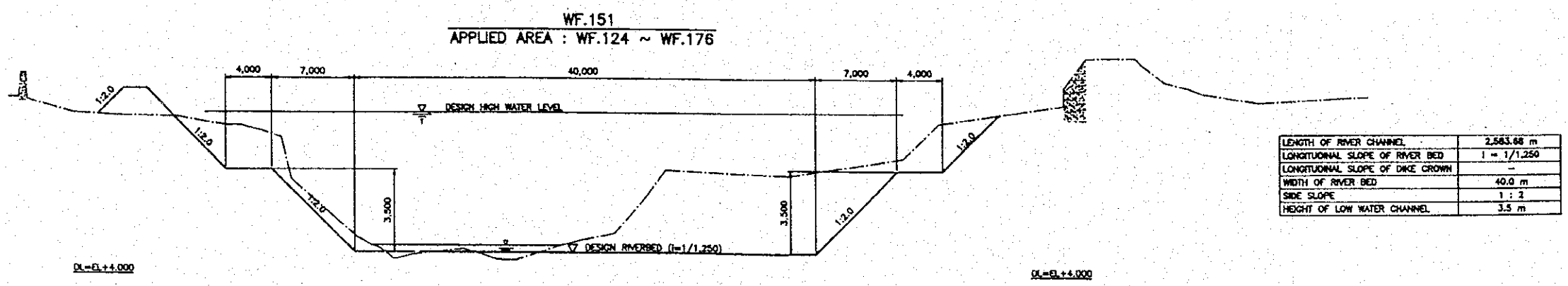
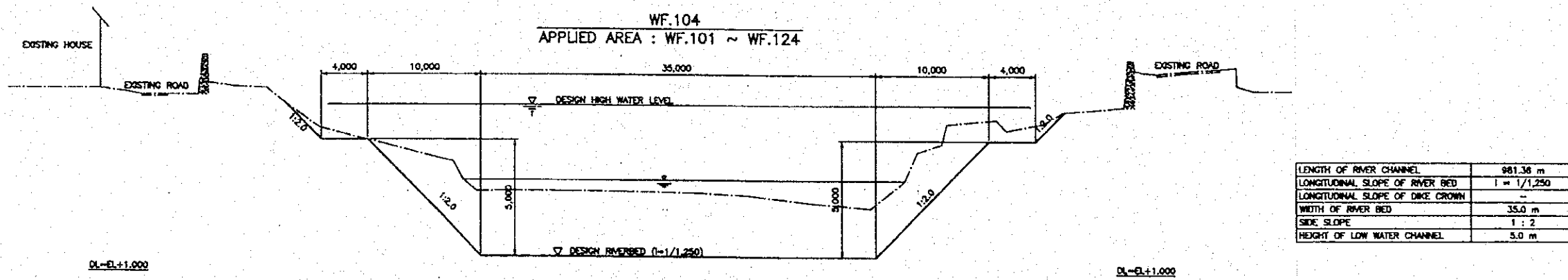
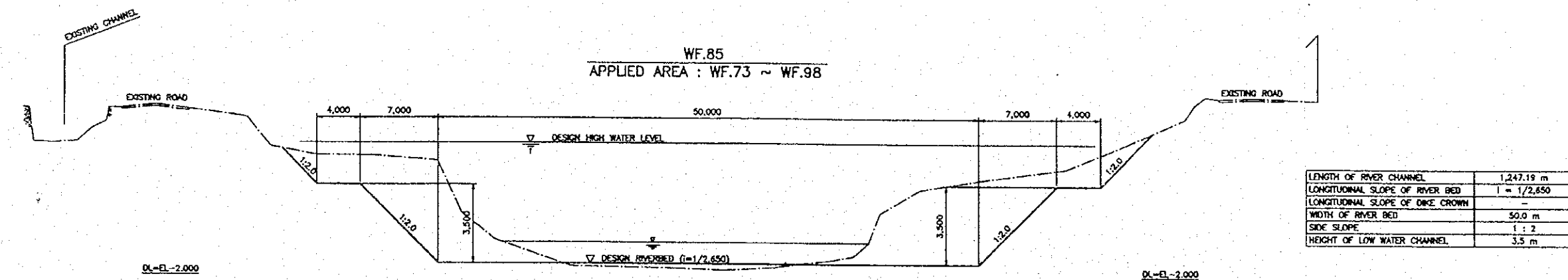
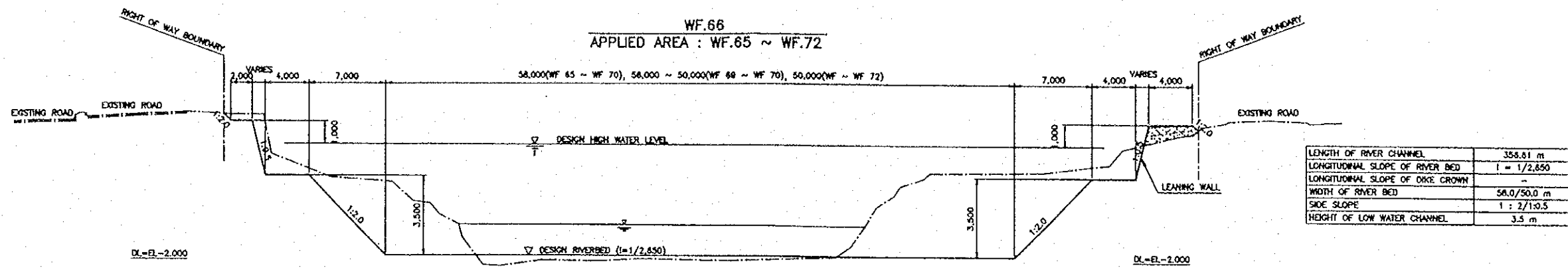


WEST FLOODWAY

THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA

JAPAN INTERNATIONAL COOPERATION AGENCY

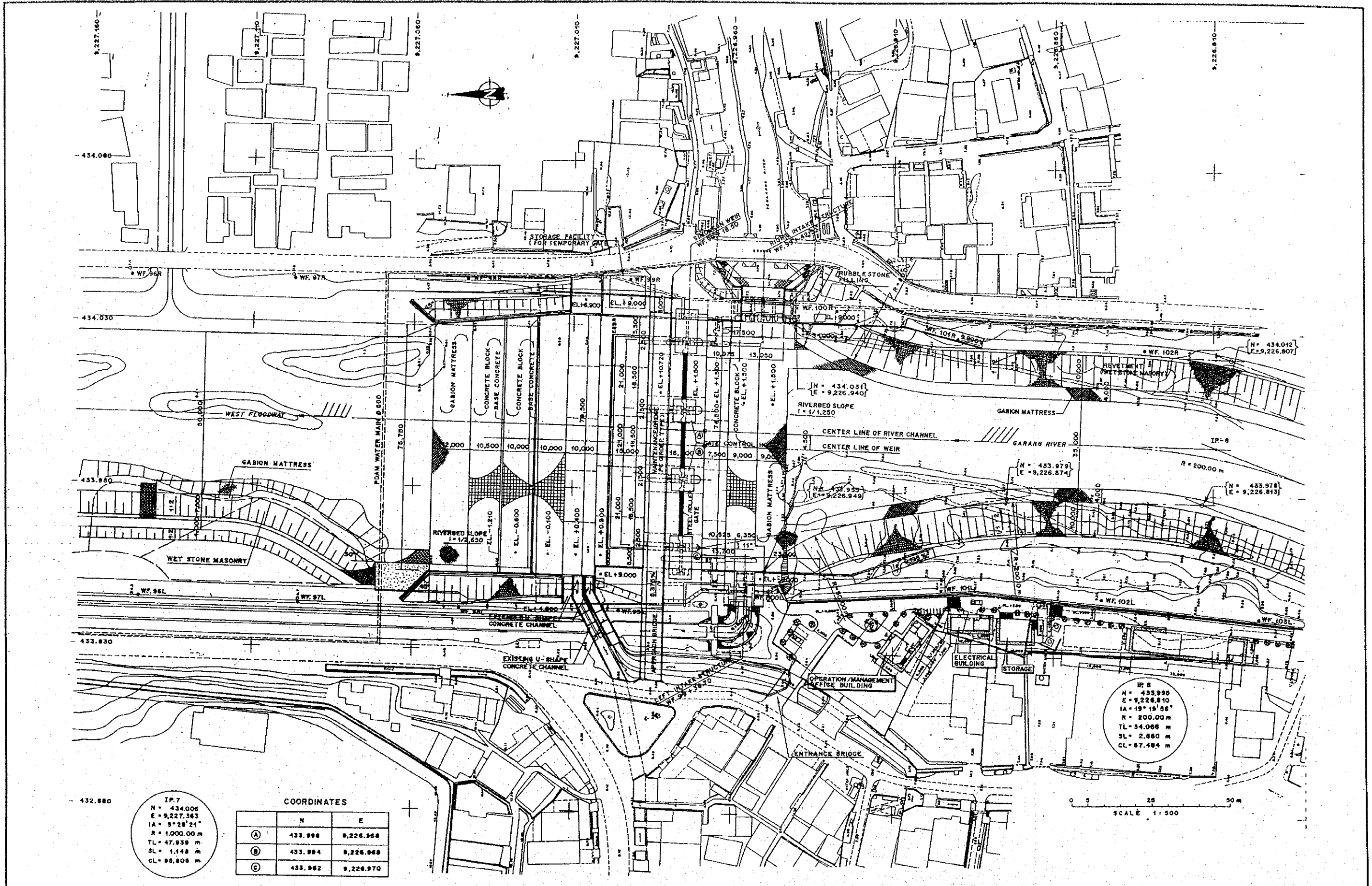
Fig. 2.9 (1/2)
Standard Cross Section of West Floodway/Garang River Improvement (West Floodway)



GARANG RIVER

THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 2.9 (2/2)
Standard Cross Section of West Floodway/Garang River Improvement (Garang River)



IP. 7
 N = 434.006
 E = 9,227.343
 IA = 5° 28' 21"
 R = 1,000.00 m
 TL = 47.939 m
 SL = 1.148 m
 CL = 85.805 m

COORDINATES

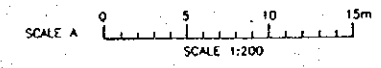
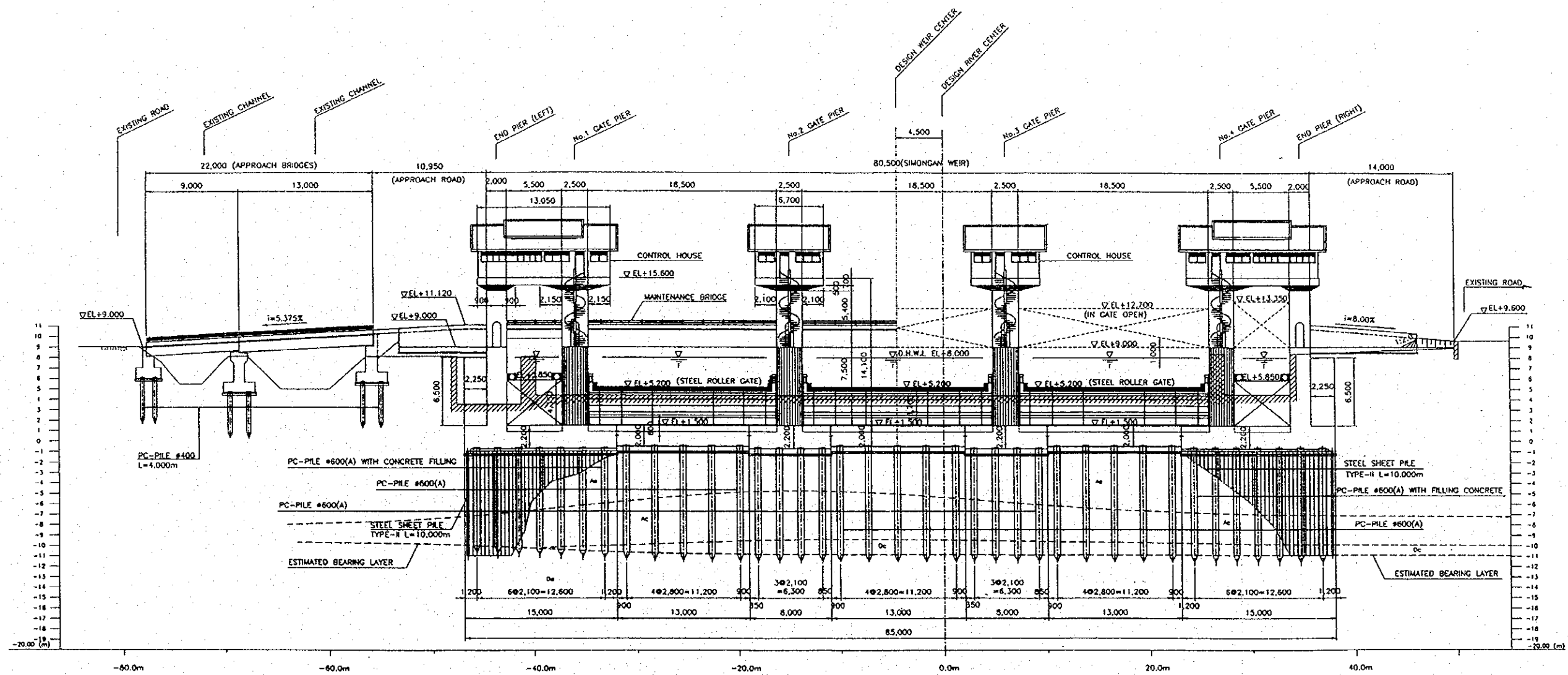
	N	E
(A)	433.998	9,226.968
(B)	433.994	9,226.968
(C)	433.982	9,226.970

IP 8
 N = 433.990
 E = 9,226.810
 IA = 19° 16' 58"
 R = 200.00 m
 TL = 34.066 m
 SL = 2.860 m
 CL = 67.484 m

SCALE 1:500

THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
 JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 2.10 (1/3)
 Standard Design of Simongan Weir (Plan)



NOTE:

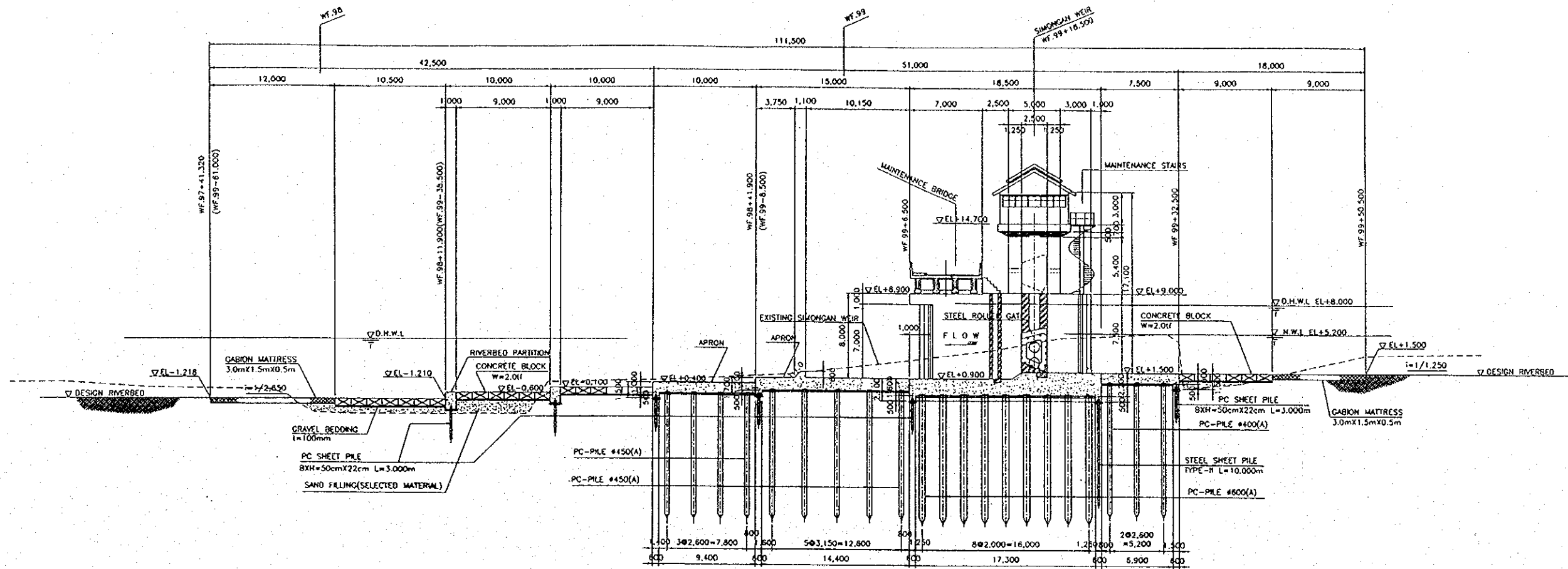
- PILE LENGTH SHOWN ON THIS DRAWING IS TENTATIVE. THE CONTRACTOR SHALL DETERMINE THE LENGTH OF PILE BY TEST PILING.
- THE ESTIMATED FORMATION OF GEOLOGICAL LAYER IS SHOWN ON THE DRAWING FOR REFERENCE.

As, Ac, Dc AND Ds SHOWN ON THE DRAWING INDICATE LAYER'S NAME AND ARE DESCRIBED AS FOLLOWS:

- As : ALLUVIUM SOIL CONSISTING OF FINE GRAIN TO MIDDLE GRAIN SAND, CONTAINING THE INTERCALATED CLAY AND SILT PARTIALLY. N-VALUE OF 15 ~ 30
- Ac : SOFT ALLUVIUM SOIL CONSISTING OF CLAY AND SANDY CLAY. N-VALUE OF 10 ~ 20
- Dc : DILUVIUM SOIL CONSISTING OF HARD CLAY, PARTLY CONTAINING CORAL LIMESTONE. N-VALUE OF 20 ~ 35
- Ds : DAMAR FORMATION (SEDIMENTARY ROCK UNIT) WITH N-VALUE OF MORE THAN 50.

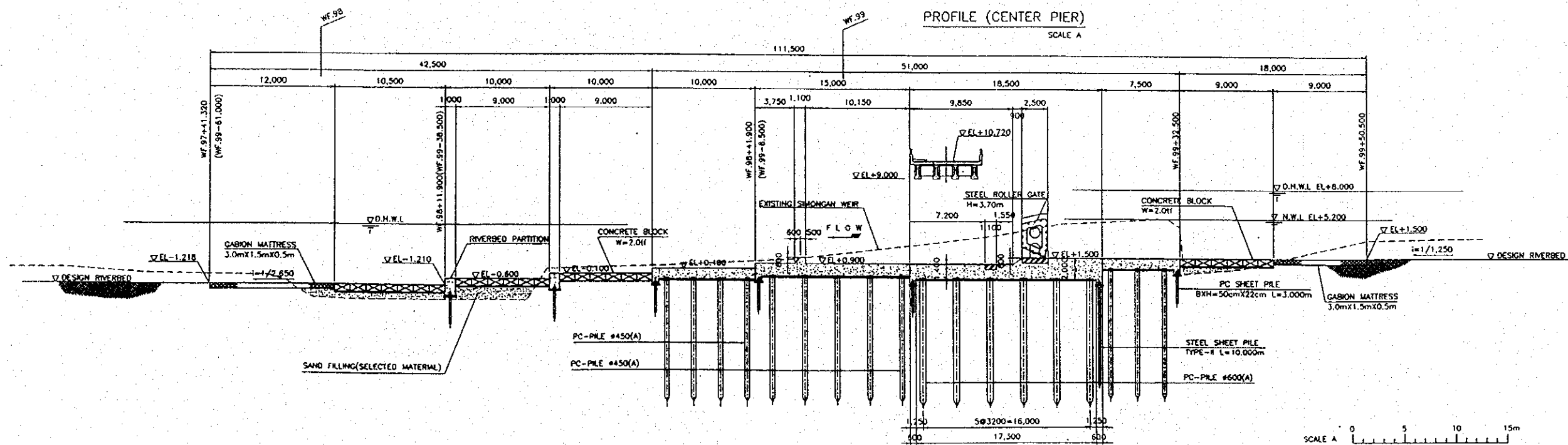
THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
 JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 2.10 (2/3)
 Standard Design of Simongan Weir (Upstream Elevation)



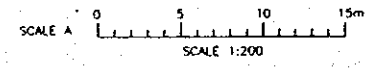
PROFILE (CENTER PIER)

SCALE A



PROFILE (GATE FLOOR SLAB)

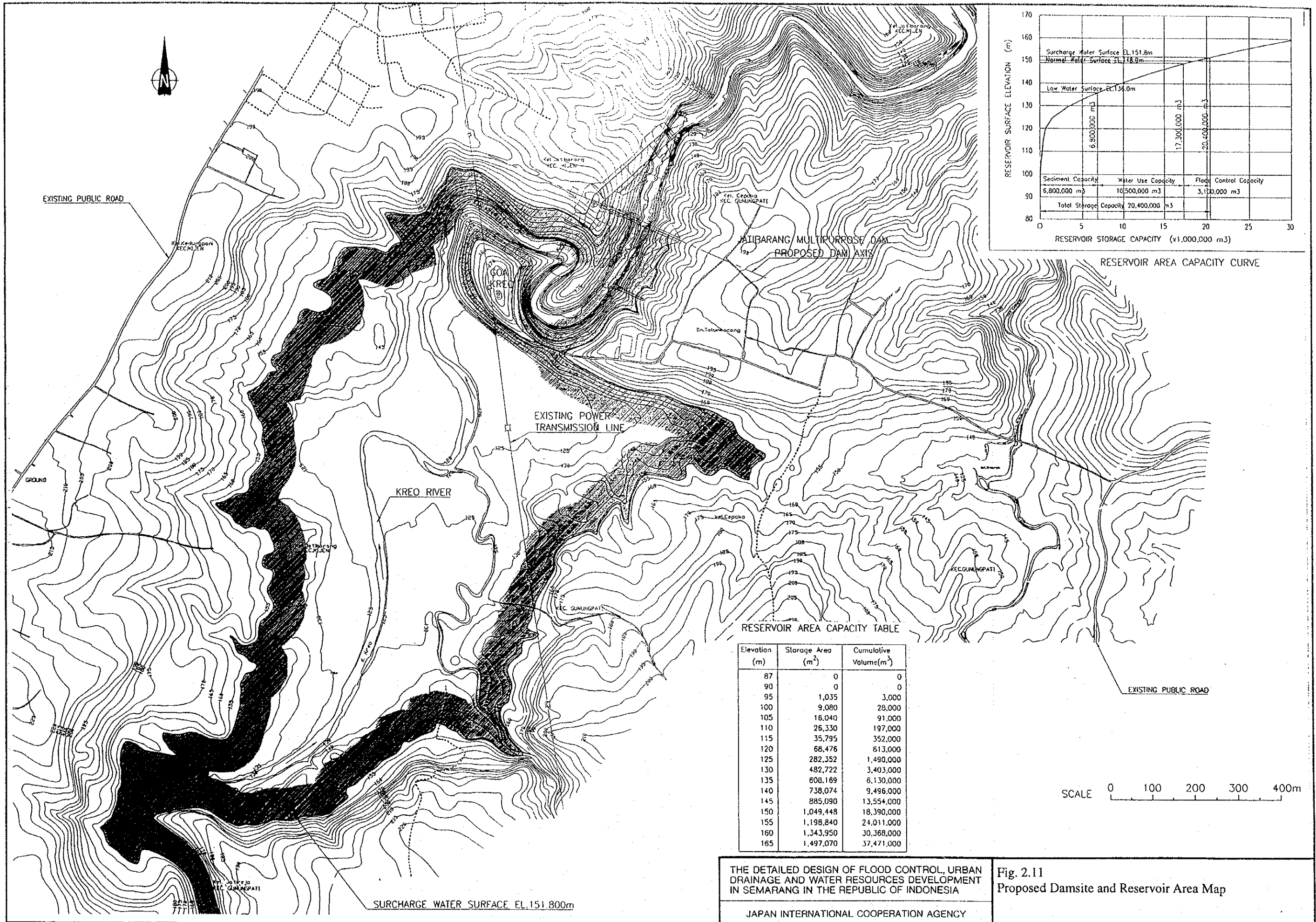
SCALE A



NOTE:
PILE LENGTH SHOWN ON THIS DRAWING IS TENTATIVE.
THE CONTRACTOR SHALL DETERMINE THE LENGTH OF PILE BY TEST PILING.

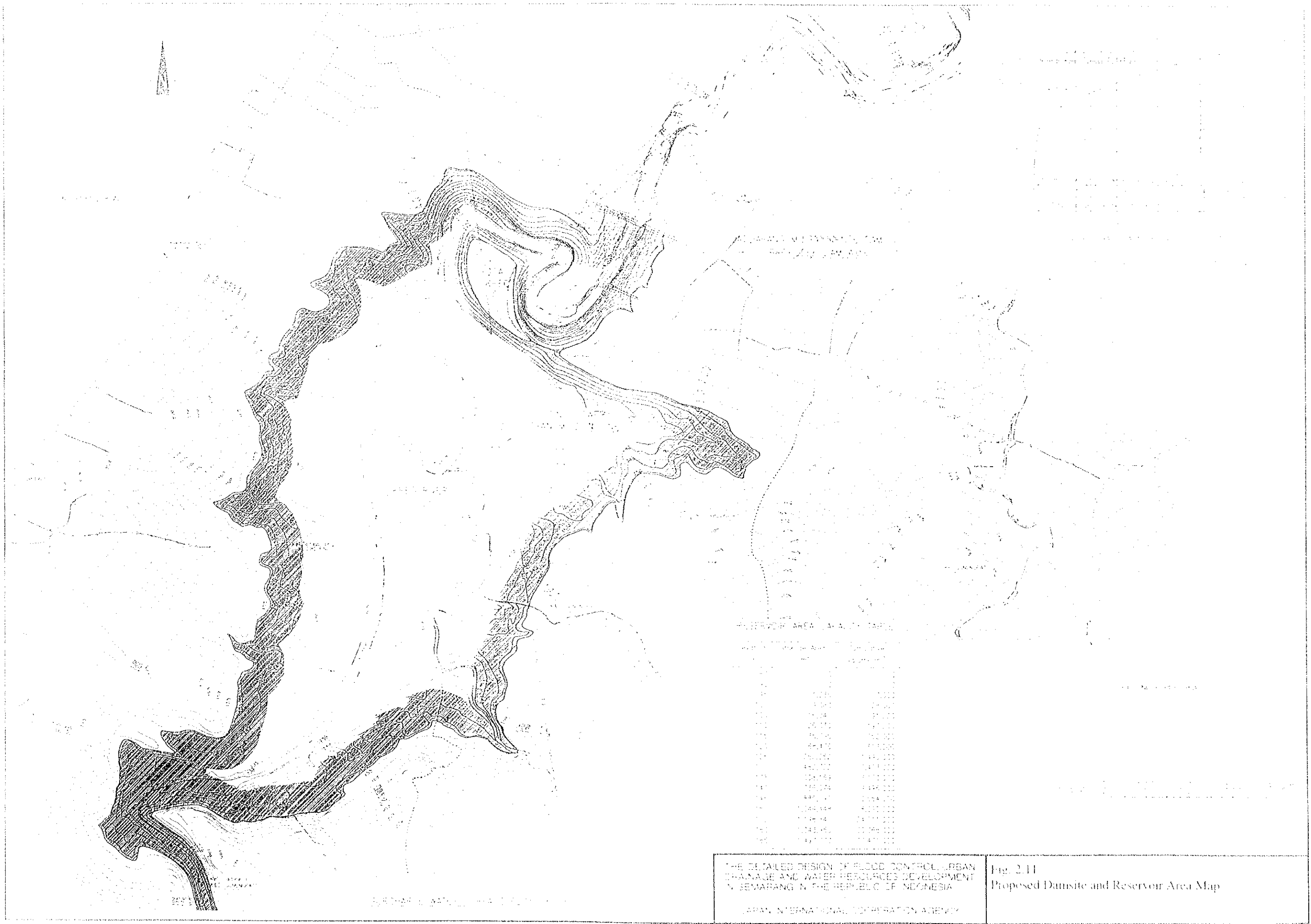
THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 2.10 (3/3)
Standard Design of Simongan Weir (Profile)



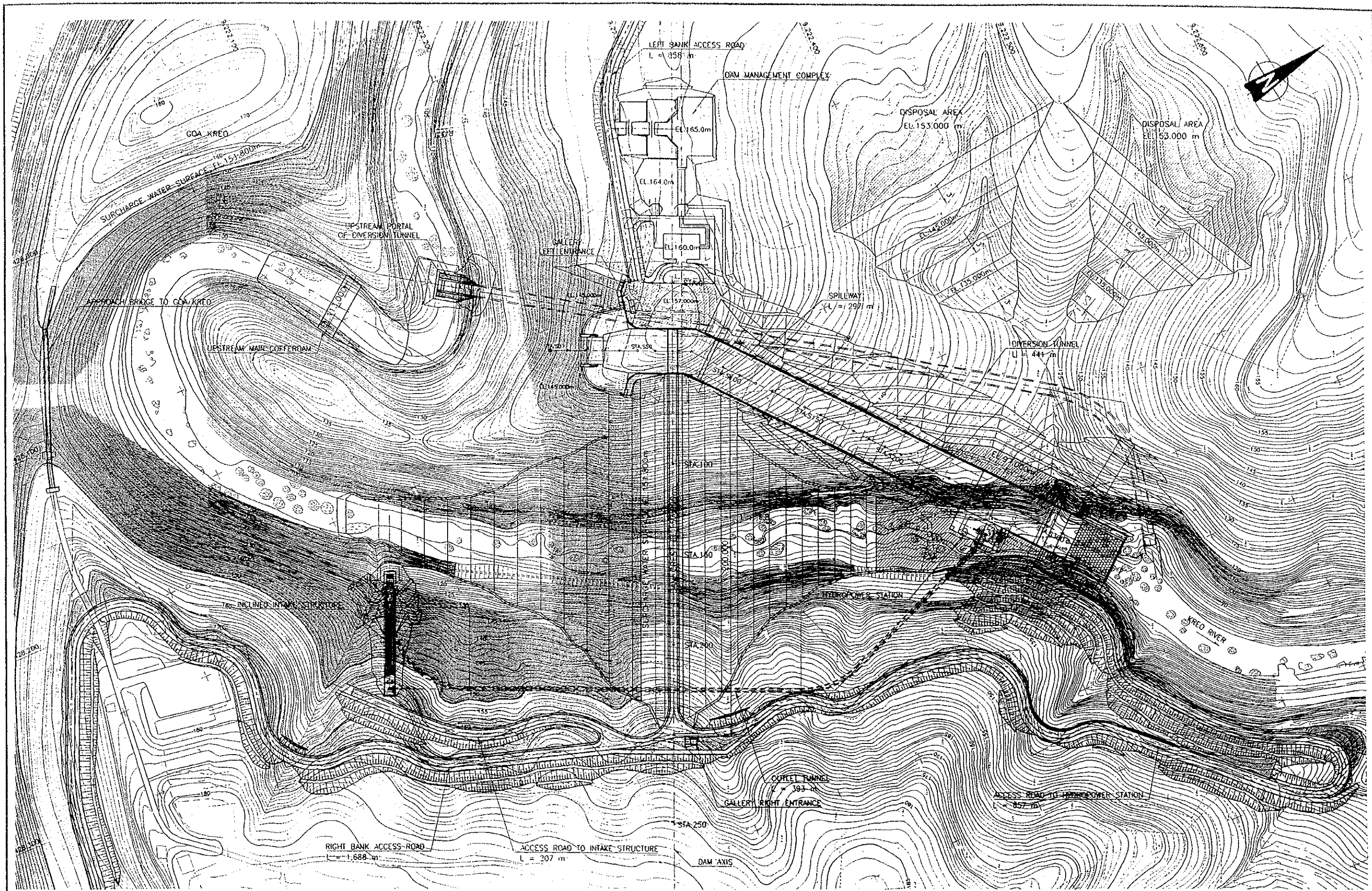
THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
 JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 2.11
 Proposed Damsite and Reservoir Area Map



THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
 JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 2.11
 Proposed Damsite and Reservoir Area Map



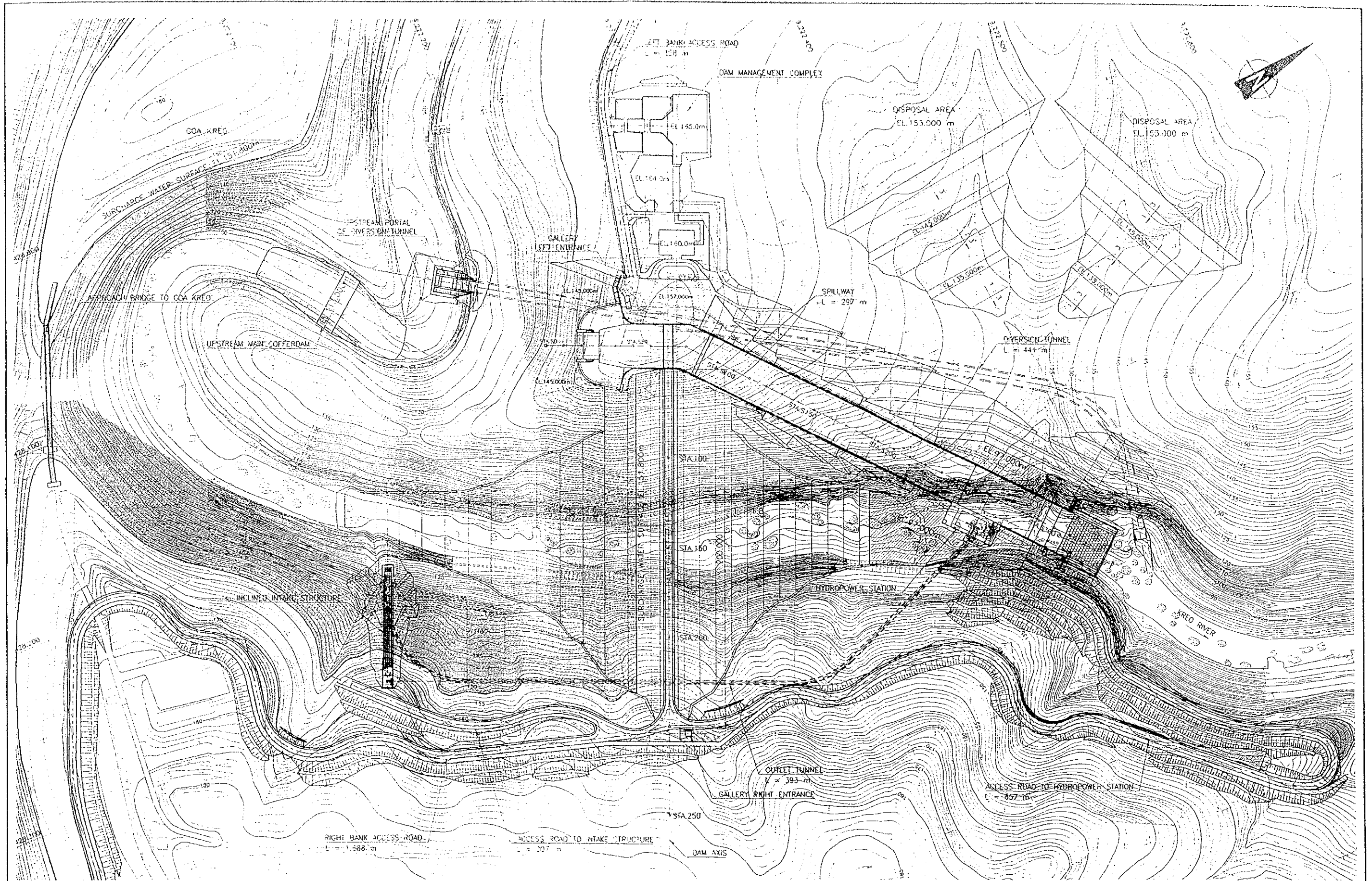
NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS, UNLESS OTHERWISE NOTED.

THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA

JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 2.12
Plan of Jatibarang Multipurpose Dam



NOTES
 1. ALL DIMENSIONS ARE IN MILLIMETERS, UNLESS OTHERWISE NOTED.

THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
 JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 2.12
 Plan of Jatibarang Multipurpose Dam