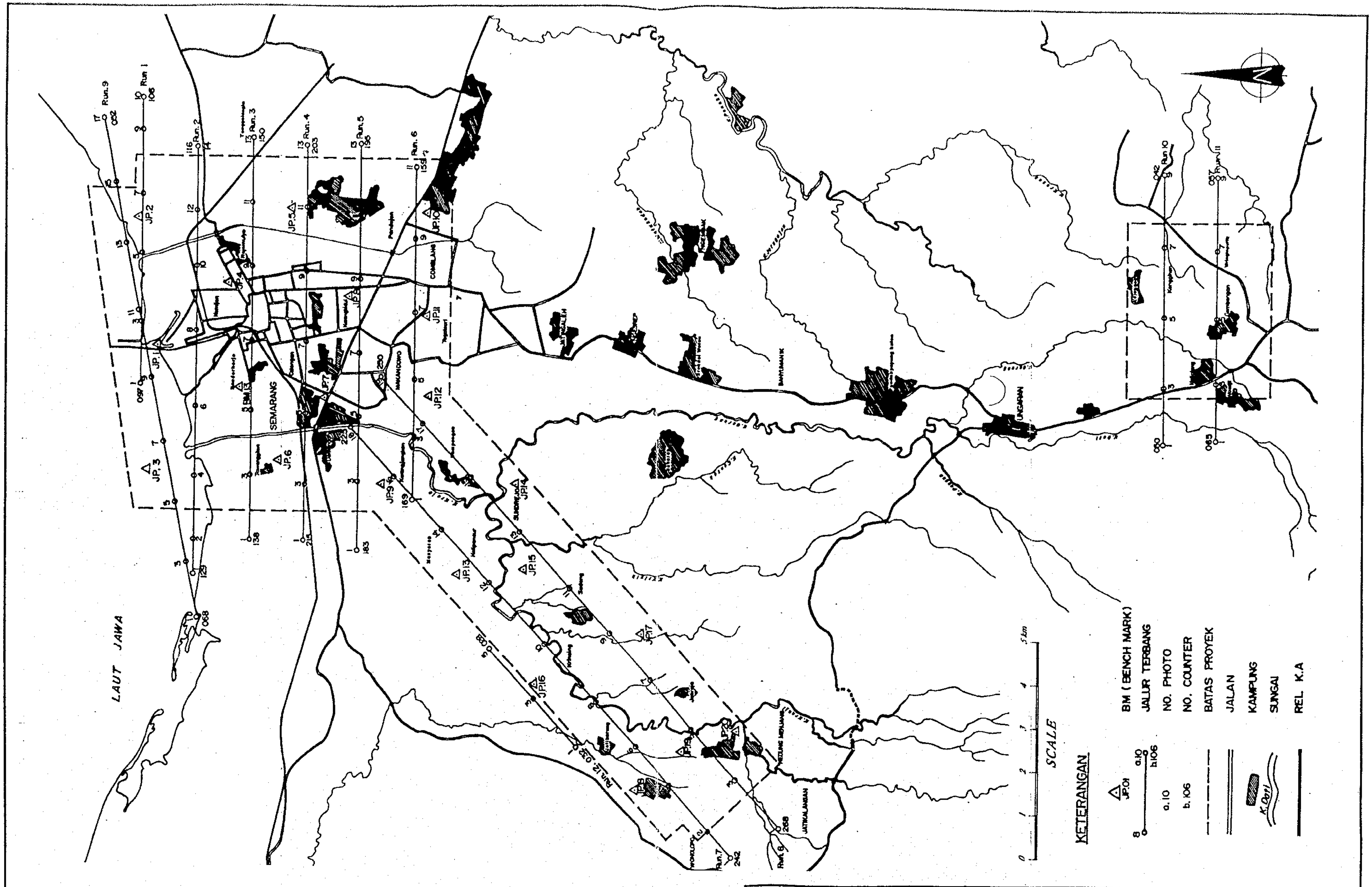
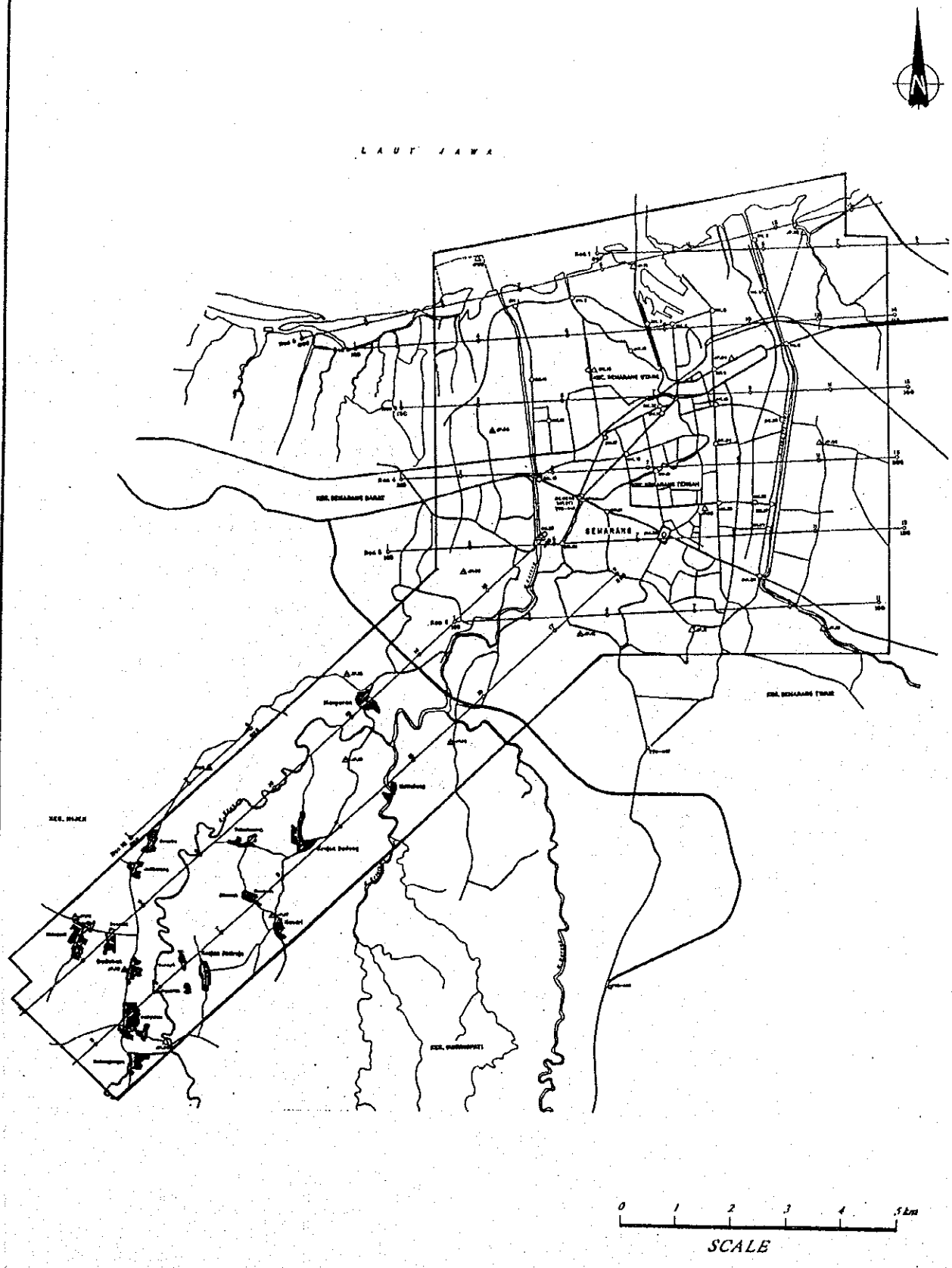
FIGURES

CHAPTER 3

INVESTIGATION AND ANALYSIS



THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA	Fig. 3.1 FLIGHT INDEX MAP
JAPAN INTERNATIONAL COOPERATION AGENCY	

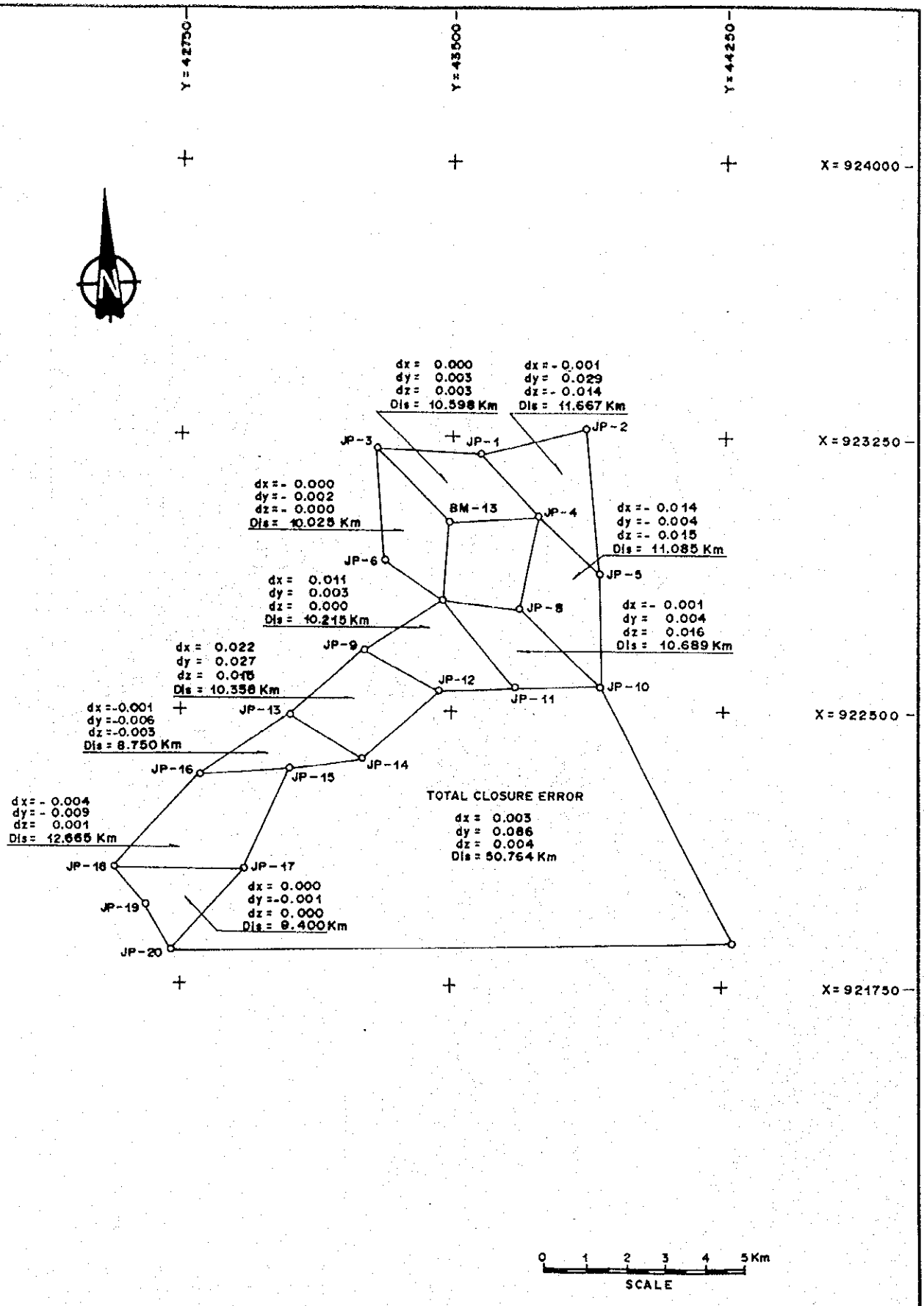


THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA

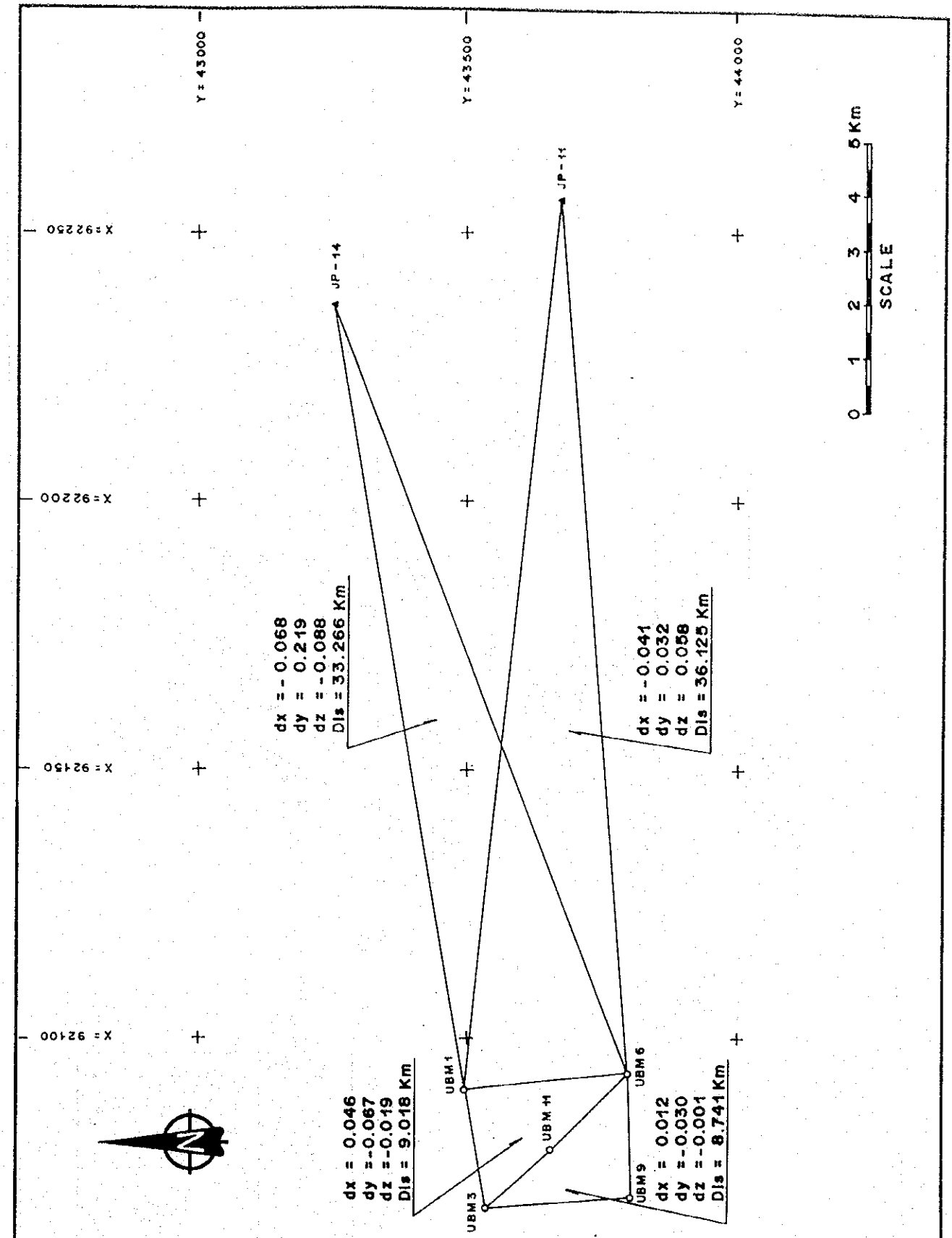
JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 3.1.2

UNCONTROLLED MOSAIC AREA



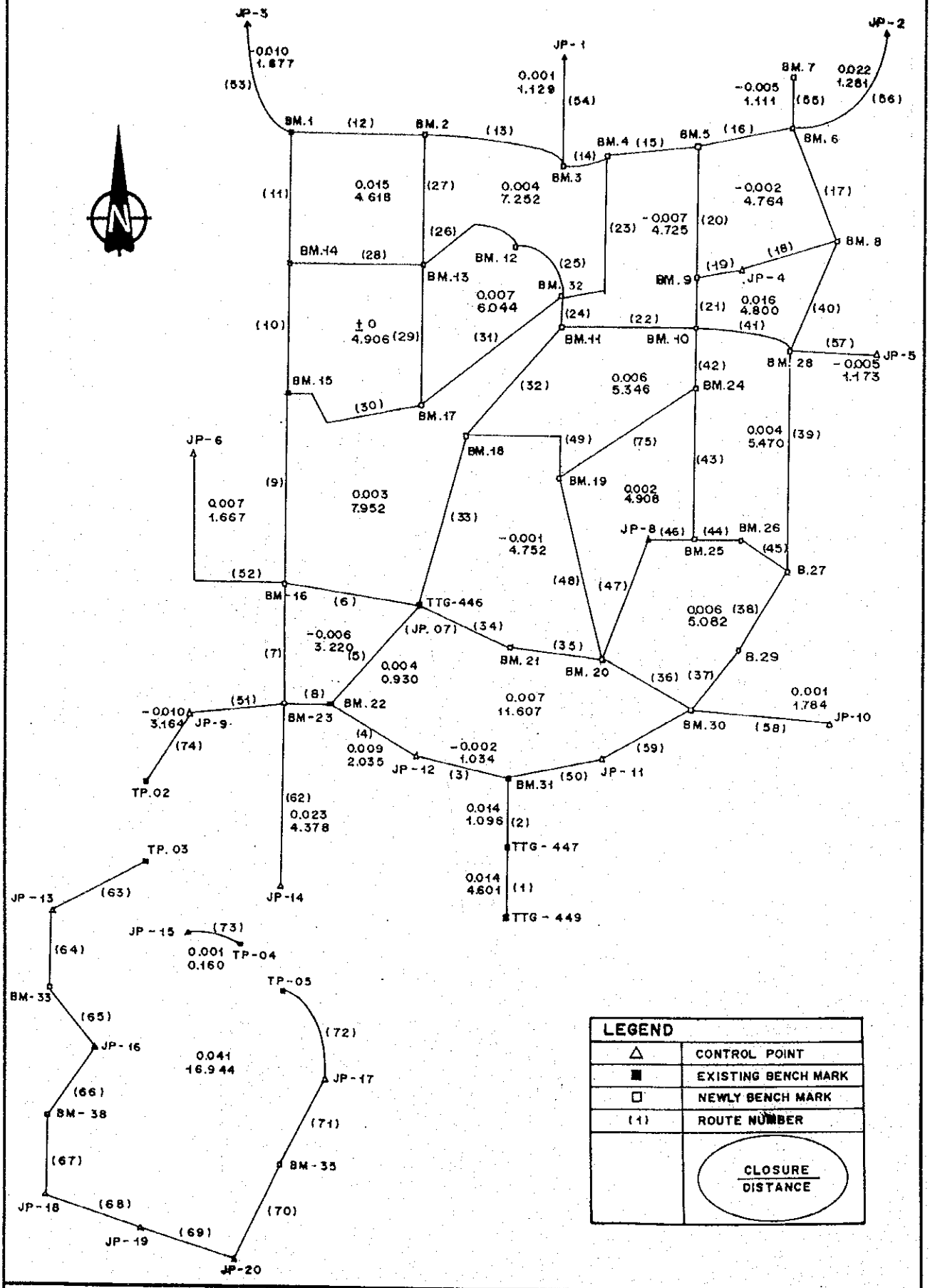
THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA	Fig. 3.1.3 GPS QUALITY CONTROL (SEMARANG AREA)
JAPAN INTERNATIONAL COOPERATION AGENCY	



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

JAPAN INTERNATIONAL COOPERATION AGENCY

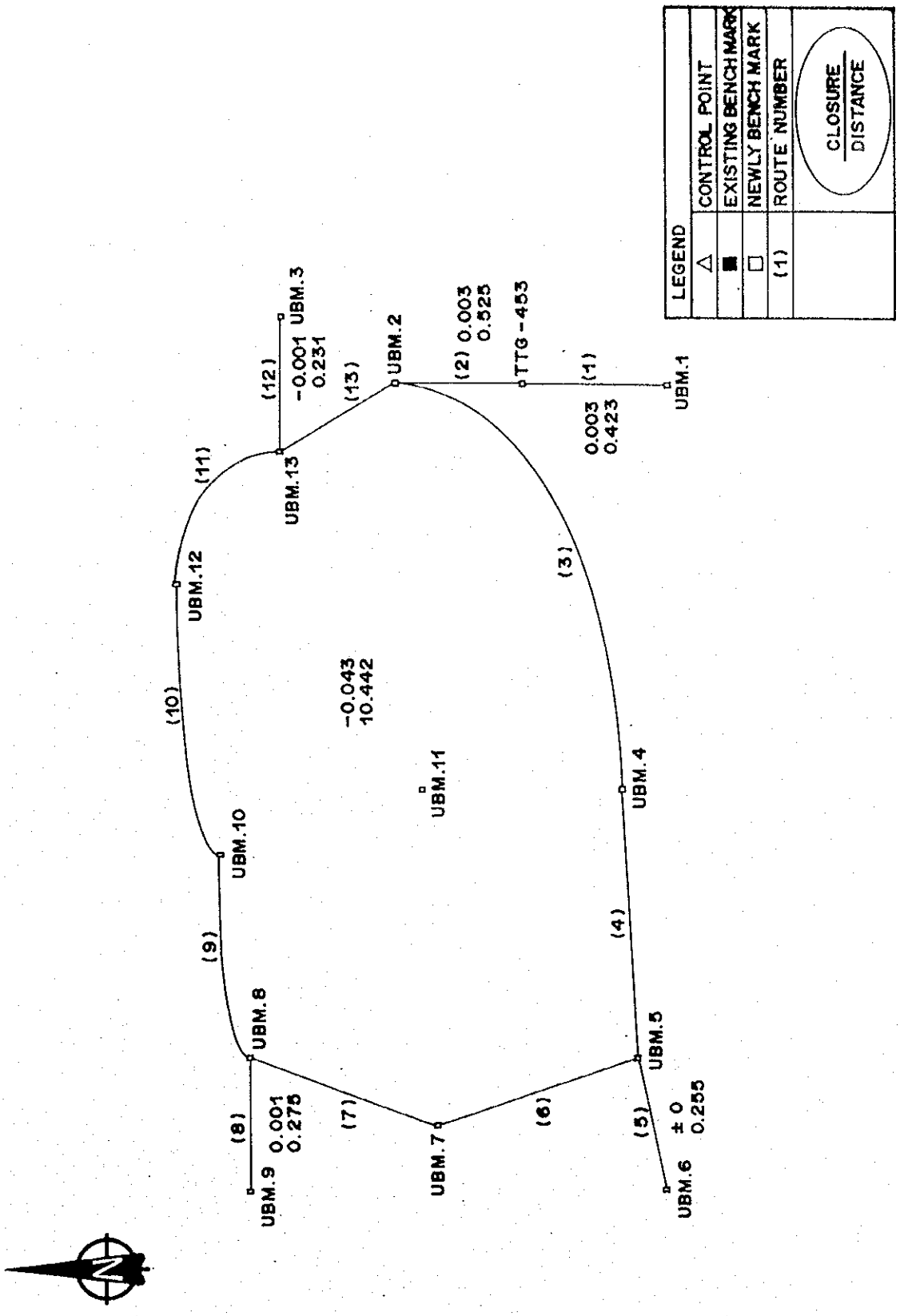
Fig. 3.1.4
GPS QUALITY CONTROL (UNGARAN AREA)



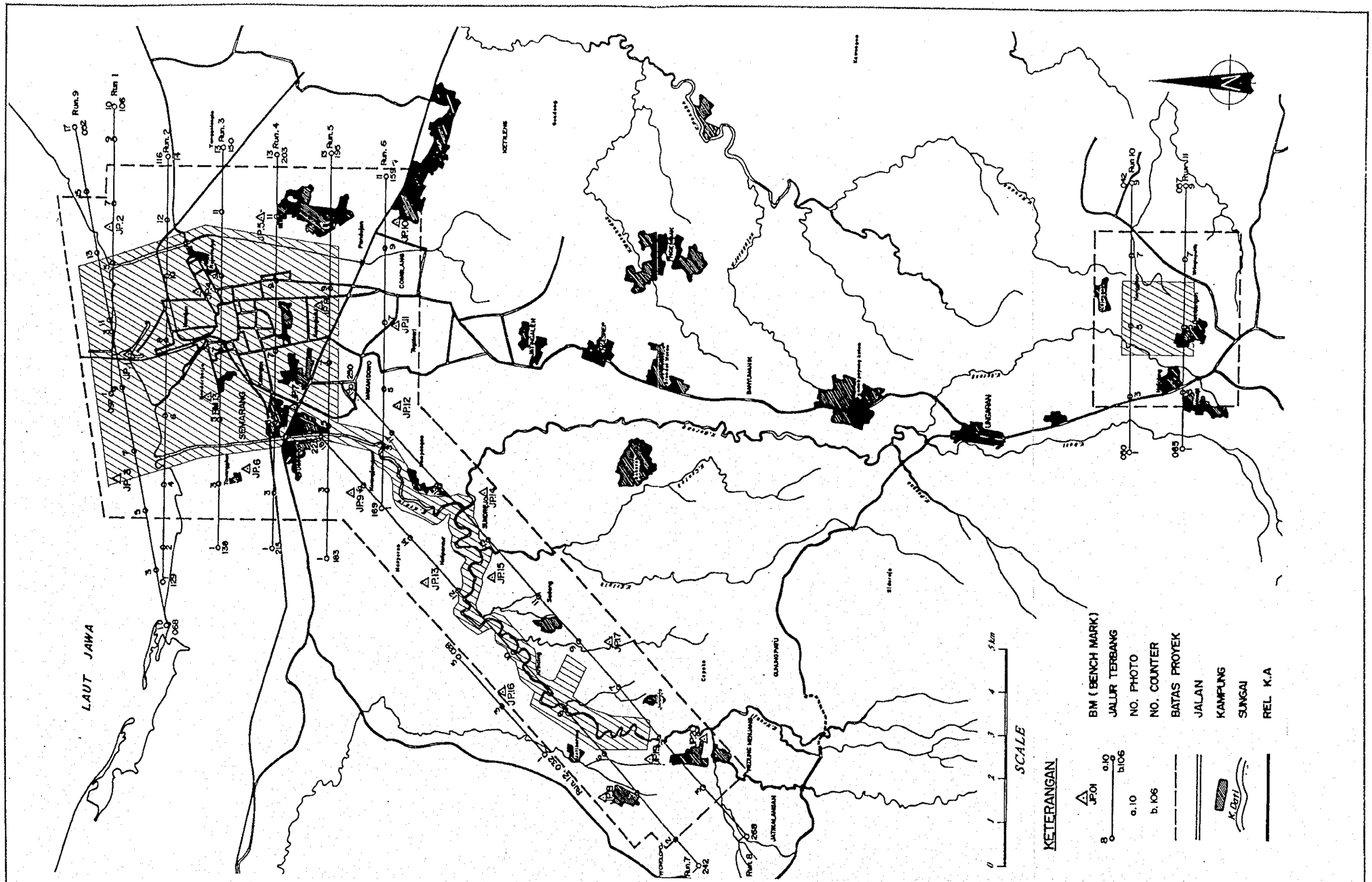
THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA

JAPAN INTERNATIONAL COOPERATION AGENCY

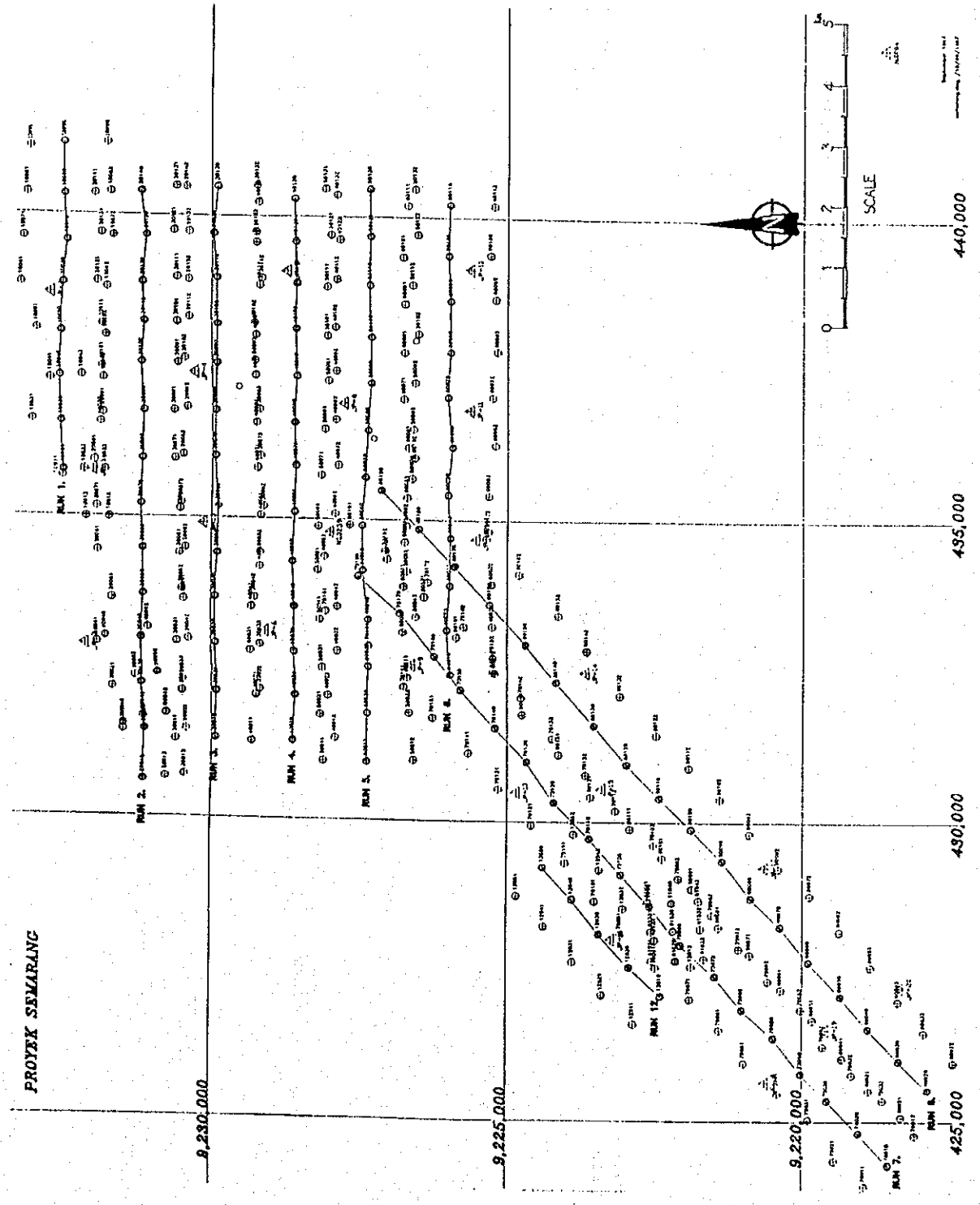
Fig. 3.1.5
LEVELING QUALITY CONTROL (SEMARANG AREA)



THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA	Fig. 3.1.6 LEVELING QUALITY CONTROL (UNGARAN AREA)
JAPAN INTERNATIONAL COOPERATION AGENCY	



THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA	Fig. 3.1.7 FIELD VERIFICATION
JAPAN INTERNATIONAL COOPERATION AGENCY	



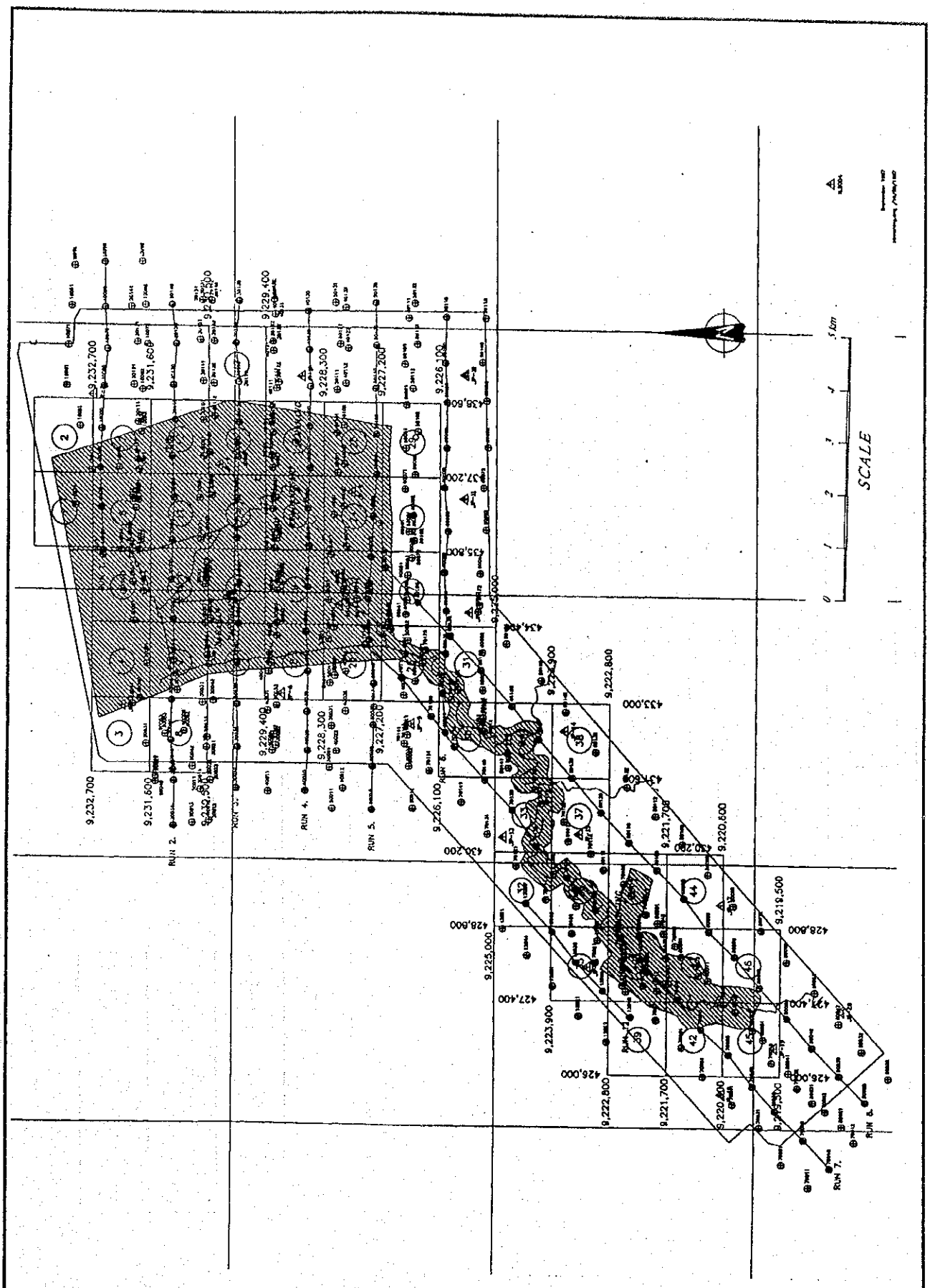
THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA

JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 3.1.8

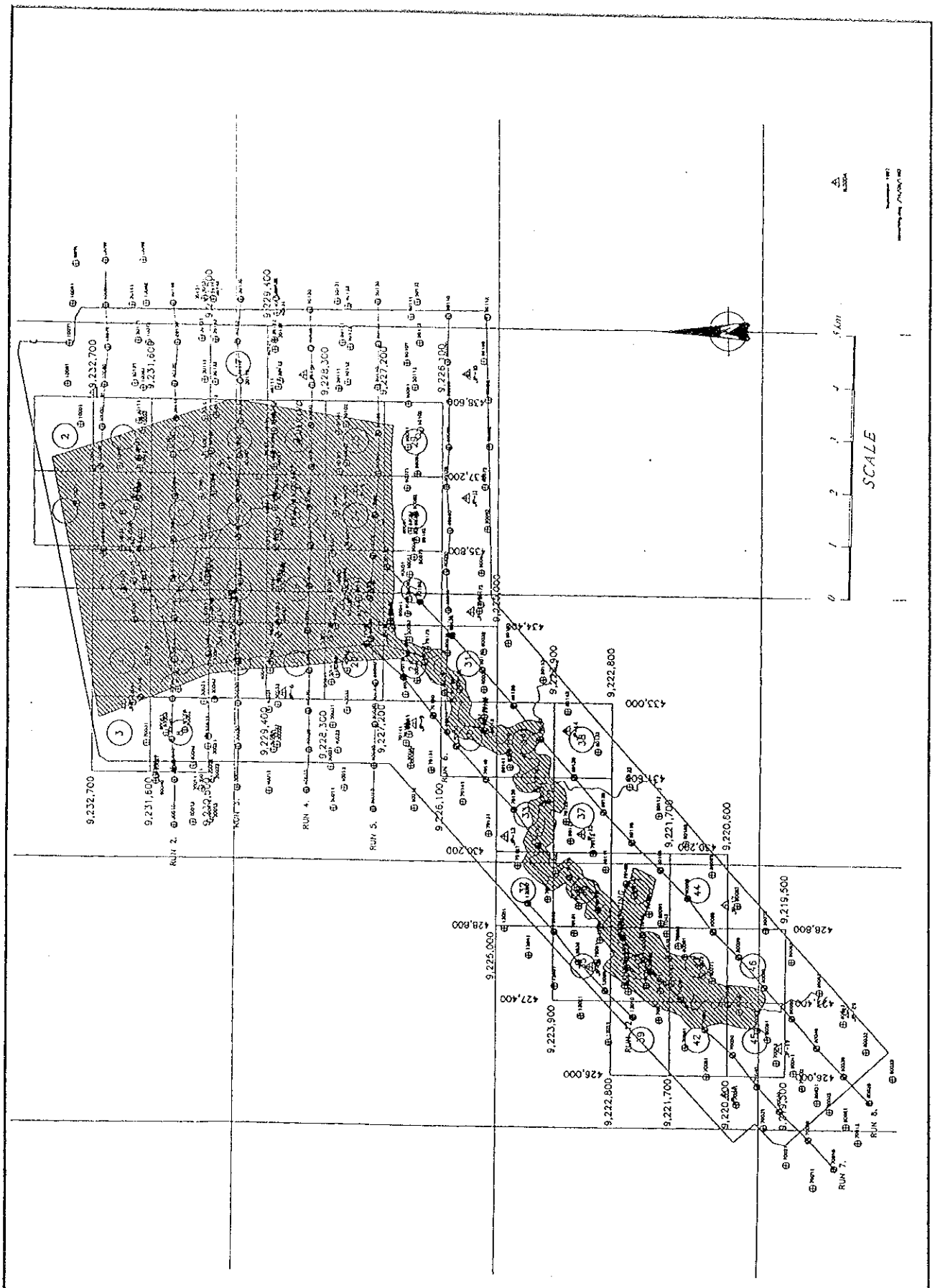
AERIAL TRIANGULATION (SEMARANG AREA)

THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA	Fig. 3.1.9 AERIAL TRIANGULATION (UNGARAN AREA)
JAPAN INTERNATIONAL COOPERATION AGENCY	



THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA	Fig. 3.1.10 SHEET INDEX
JAPAN INTERNATIONAL COOPERATION AGENCY	

THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA	Fig. 3.1.9 AERIAL TRIANGULATION (UNGARAN AREA)
JAPAN INTERNATIONAL COOPERATION AGENCY	

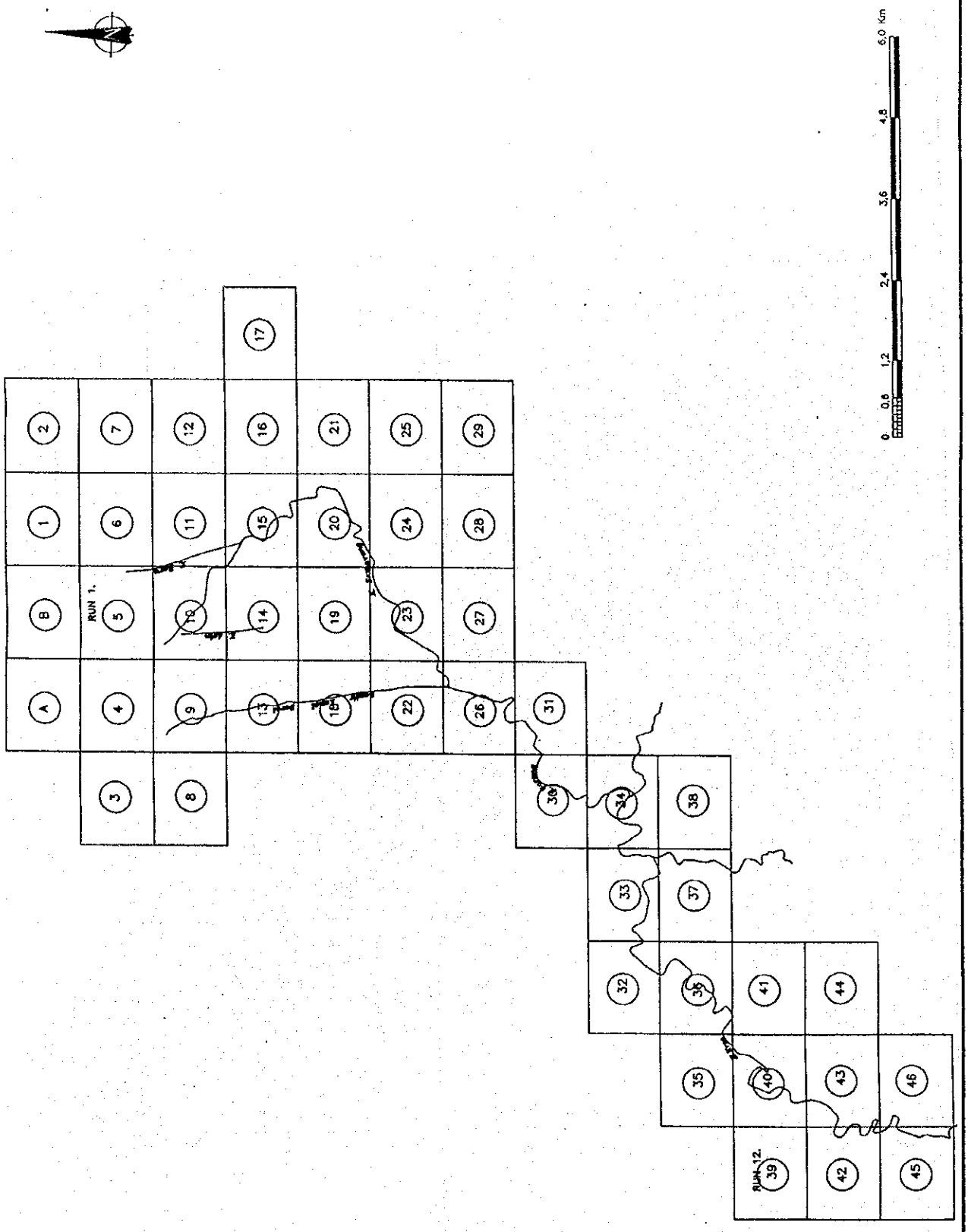


THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA

JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 3.1.10

SHEET INDEX

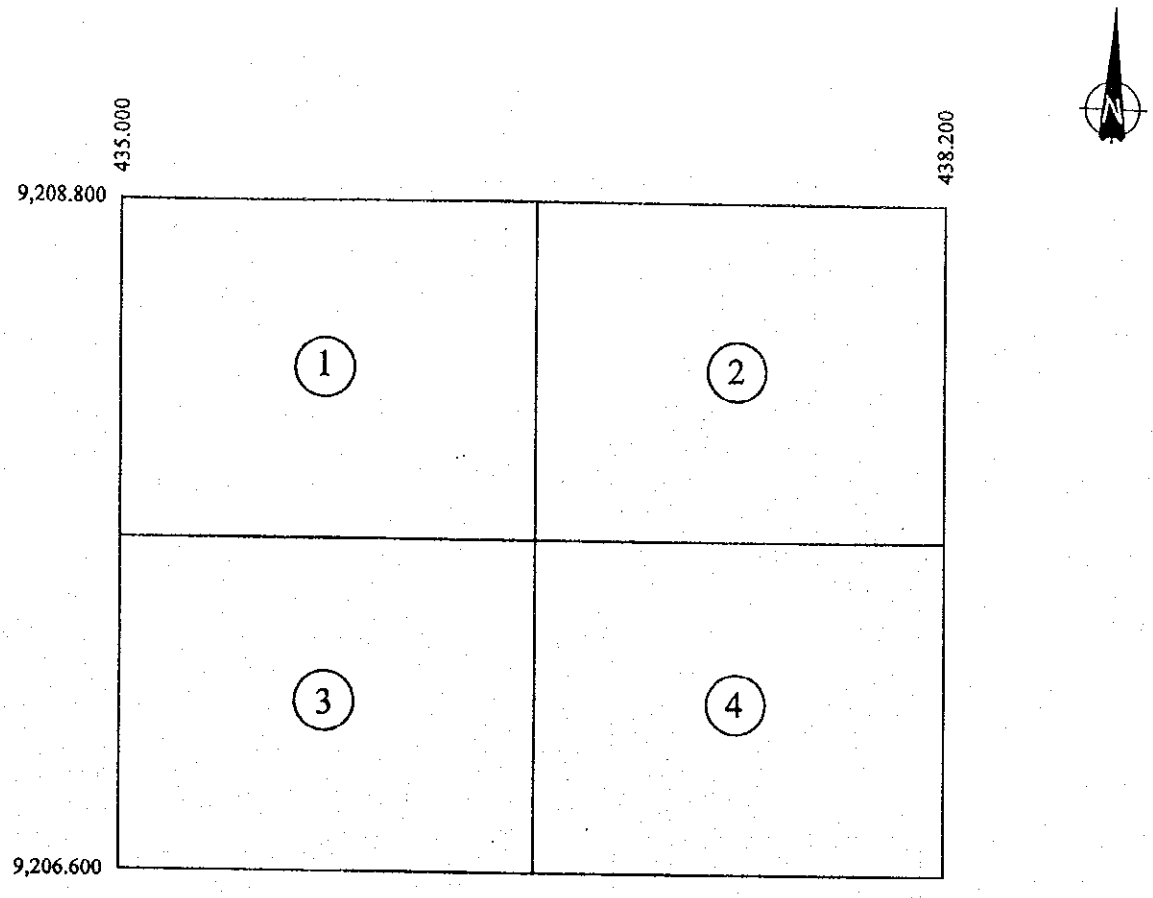


THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA

JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 3.1.11

SHEET INDEX SCALE 1:2,000 (SEMARANG AREA)



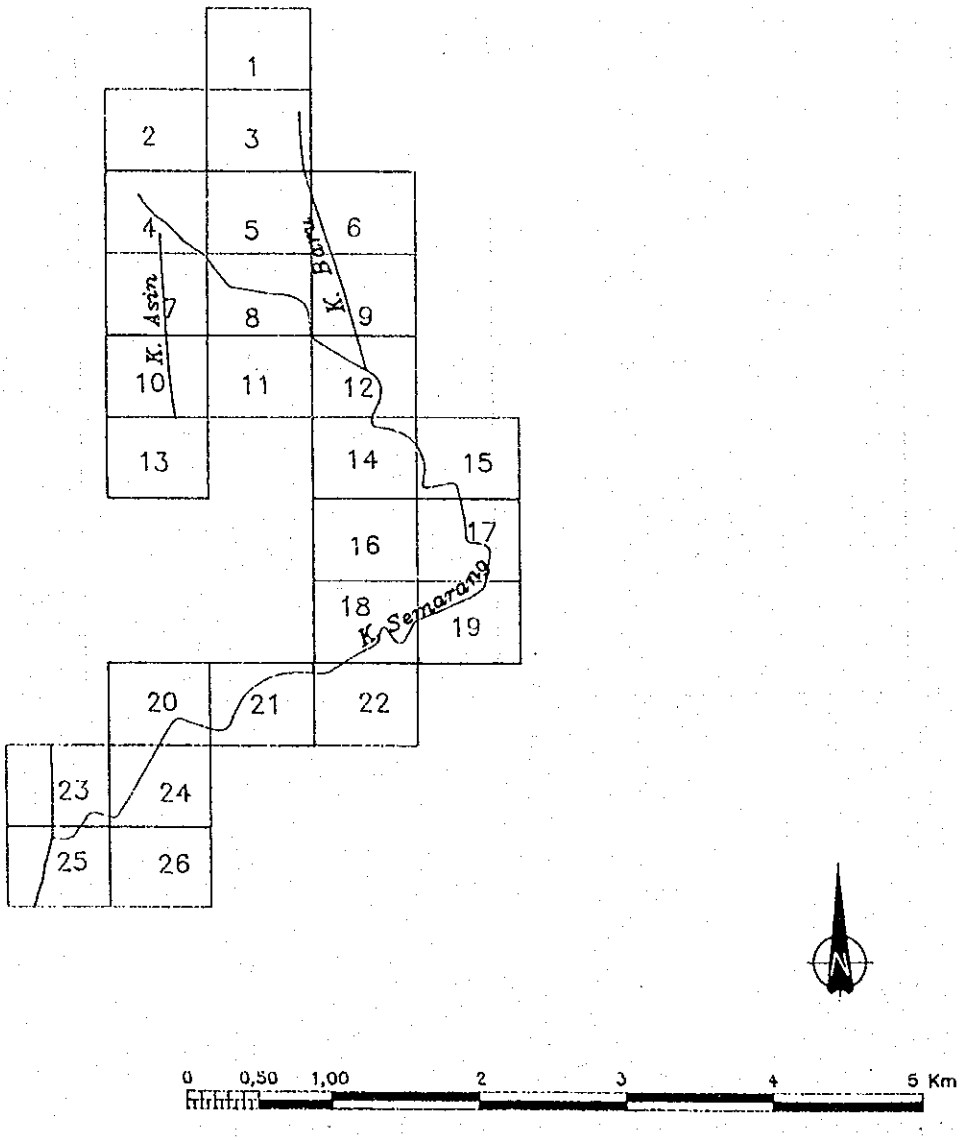
SCALE

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

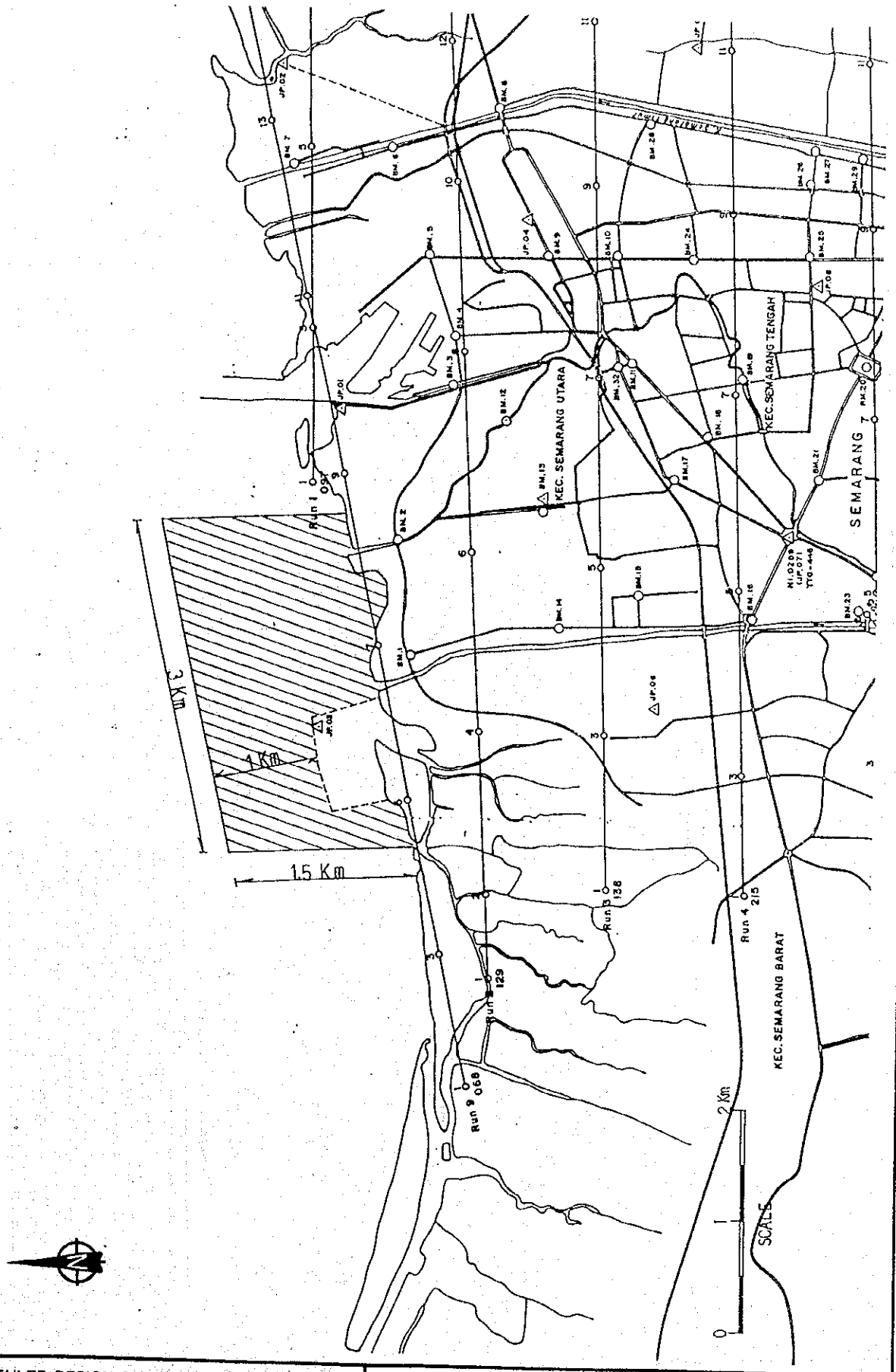
JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 3.1.12

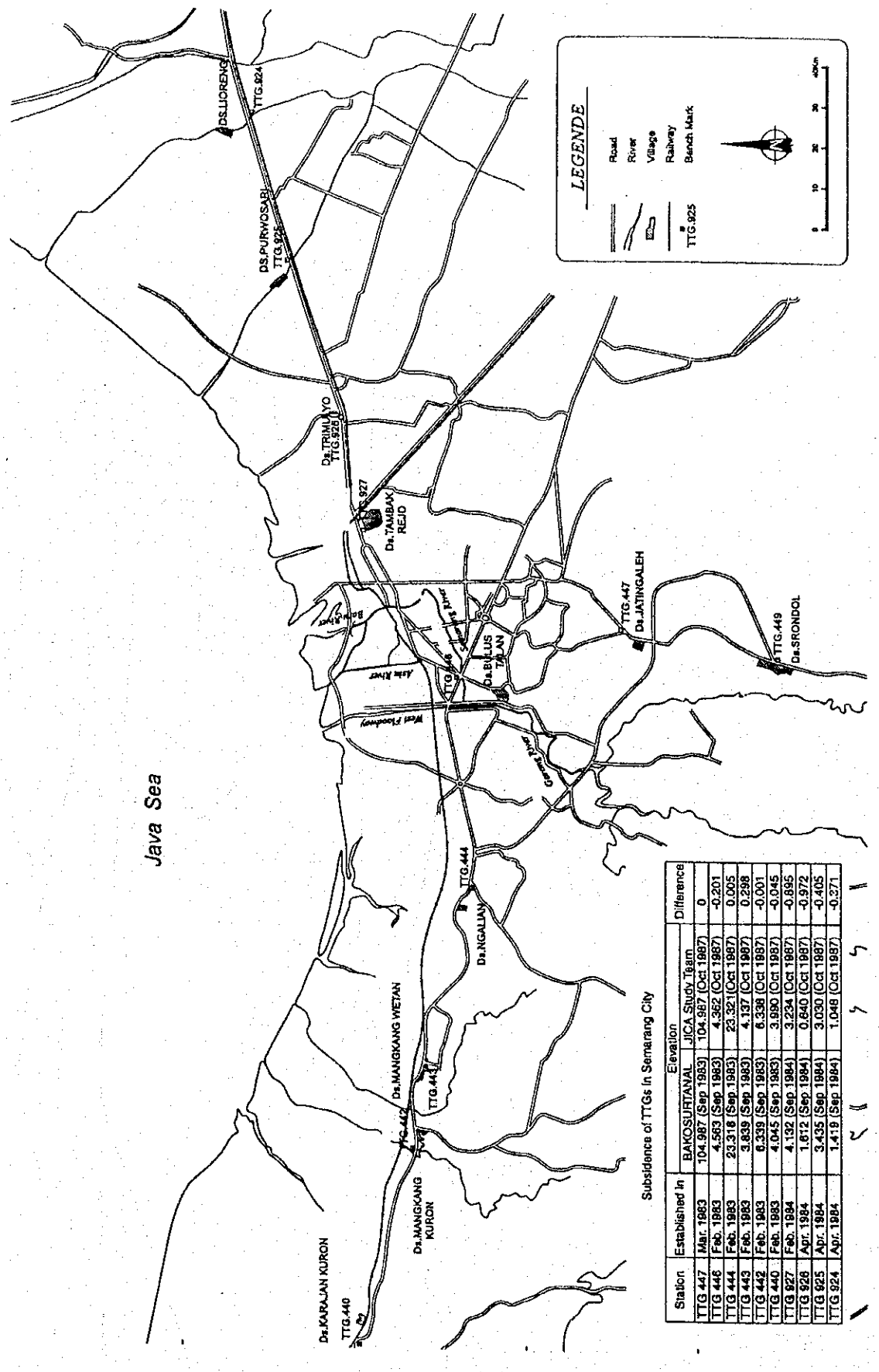
SHEET INDEX SCALE 1:2,000 (UNGARAN AREA)



THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA	Fig. 3.1.13 SHEET INDEX SCALE 1:1,000
JAPAN INTERNATIONAL COOPERATION AGENCY	



THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA	Fig. 3.1.14 SOUNDING SURVEY AREA
JAPAN INTERNATIONAL COOPERATION AGENCY	

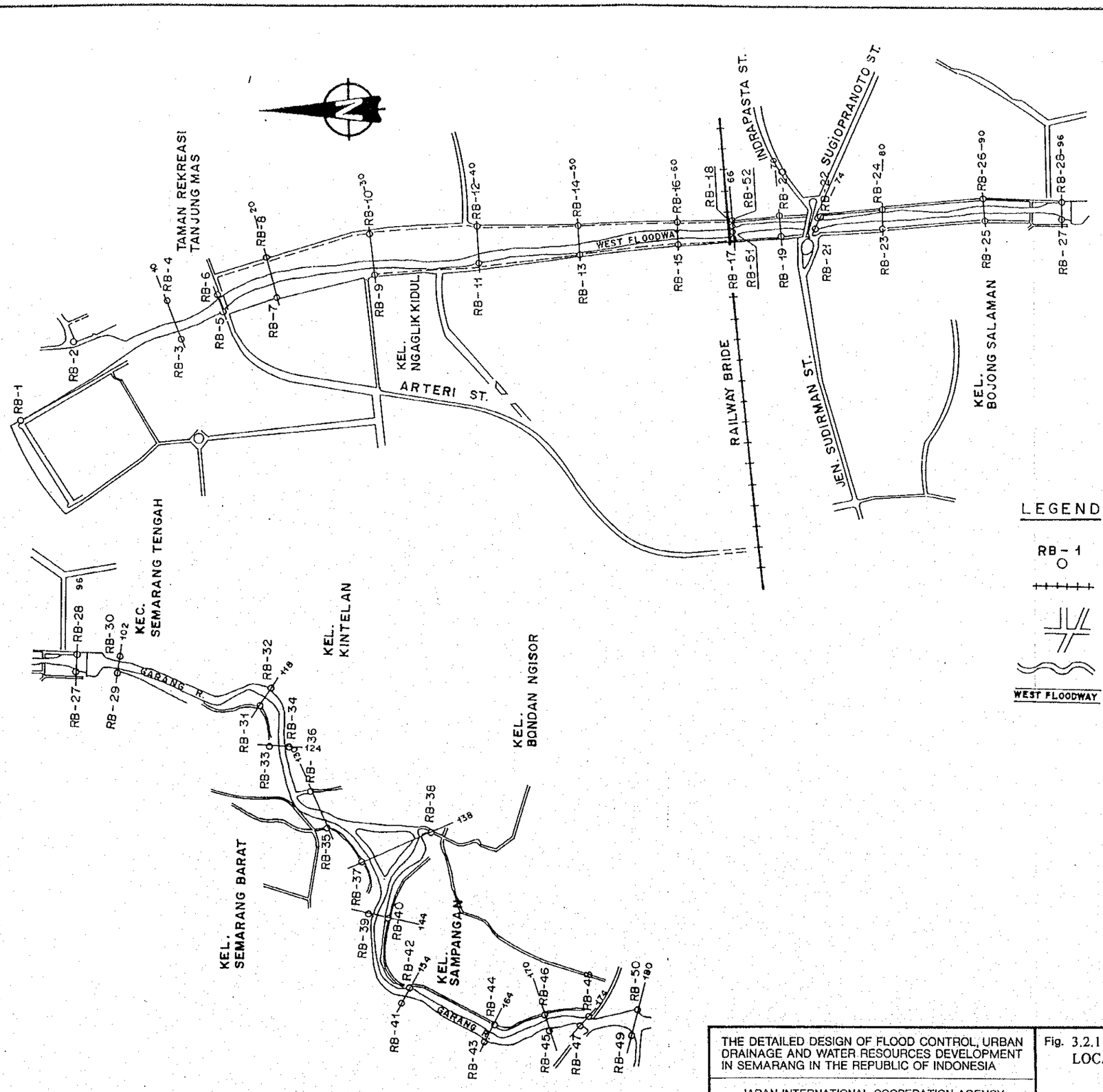


Station	Established in	Elevation		Difference
		BAKOSURTANAL	JICA Study Team	
TTG 447	Mar. 1983	104.987 (Sep 1983)	104.987 (Oct 1987)	0
TTG 446	Feb. 1983	4.563 (Sep 1983)	4.362 (Oct 1987)	-0.201
TTG 444	Feb. 1983	23.318 (Sep 1983)	23.321 (Oct 1987)	0.005
TTG 443	Feb. 1983	3.839 (Sep 1983)	4.137 (Oct 1987)	0.298
TTG 442	Feb. 1983	6.339 (Sep 1983)	6.338 (Oct 1987)	-0.001
TTG 440	Feb. 1983	4.045 (Sep 1983)	3.990 (Oct 1987)	-0.045
TTG 927	Feb. 1984	4.132 (Sep 1984)	3.234 (Oct 1987)	-0.895
TTG 926	Apr. 1984	1.612 (Sep 1984)	0.640 (Oct 1987)	-0.972
TTG 925	Apr. 1984	3.435 (Sep 1984)	3.030 (Oct 1987)	-0.405
TTG 924	Apr. 1984	1.419 (Sep 1984)	1.048 (Oct 1987)	-0.371

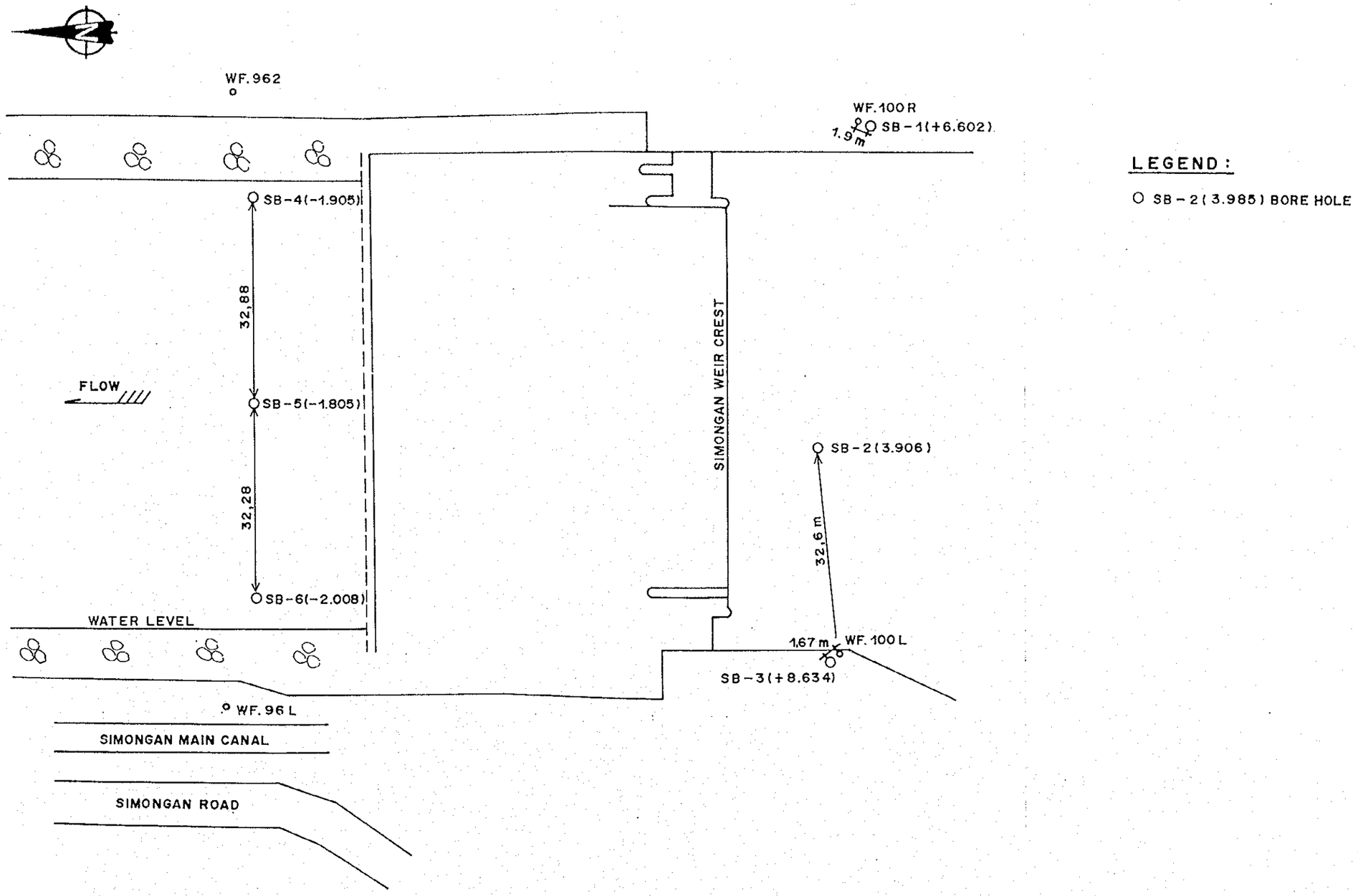
THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA

JAPAN INTERNATIONAL COOPERATION AGENCY

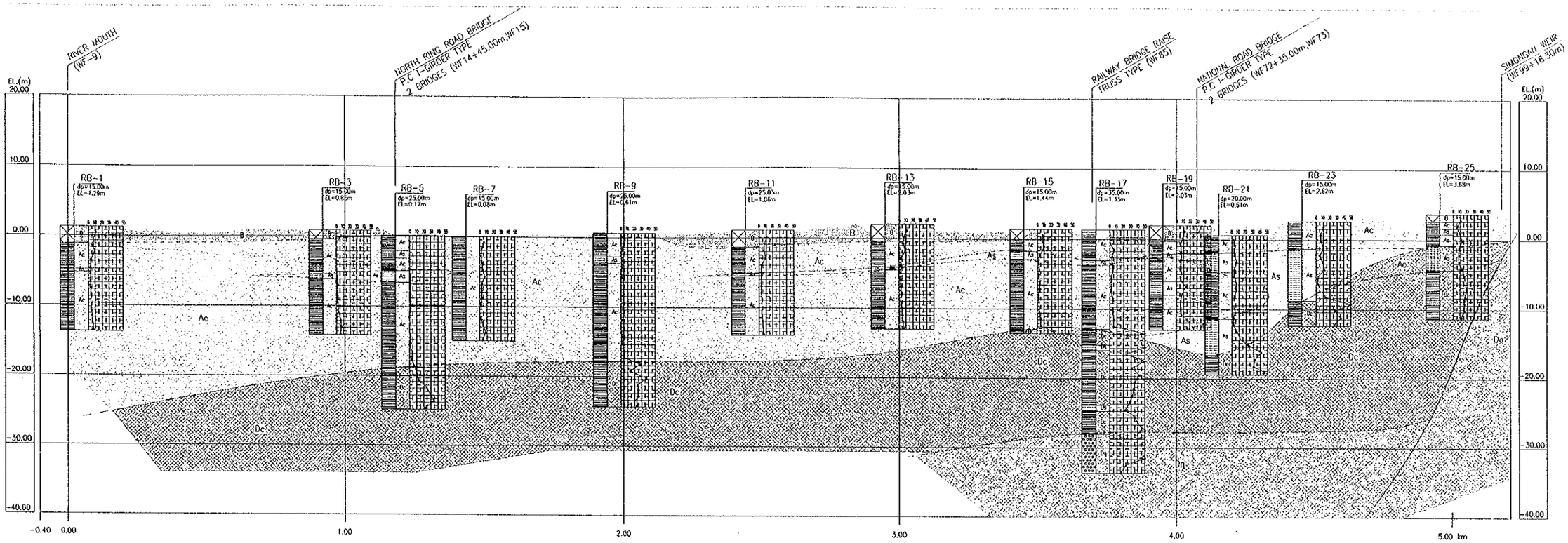
Fig. 3.1.15
SUBSIDENCE



THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA	Fig. 3.2.1 (1/2) LOCATION OF BORINGS
JAPAN INTERNATIONAL COOPERATION AGENCY	



THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA	Fig. 3.2.1 (2/2) LOCATION OF BORINGS
JAPAN INTERNATIONAL COOPERATION AGENCY	

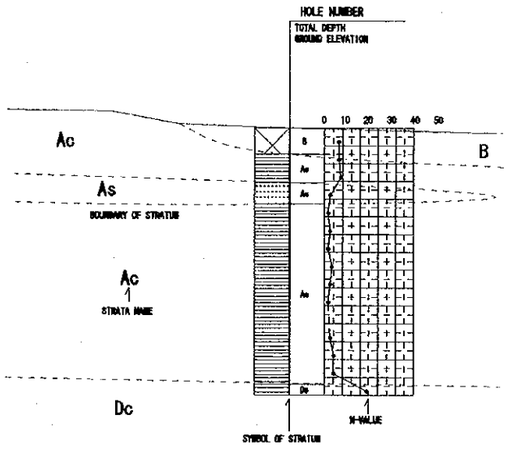


LEGEND

(Geological Strata)

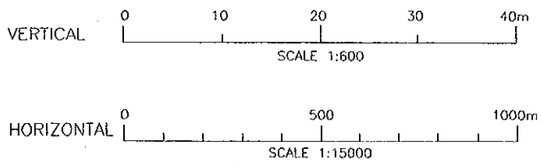
Age		Formation and Strata Name	Symbol	Description
Quaternary	Holocene	Embankment	B	It consists of embankment, filled soil and refuse, and composed of clay, silt, sand and gravel.
		Riverbed deposit	rd	It consists of sand and gravel mainly at the upstream area of Simongan Weir. But it consists of sand and clay mainly at the downstream area.
		Alluvium	Ac	It consists of clay and sandy clay, and shows gray. The sediments are very soft, and contain fragments of shell.
			As	It consists of fine grain sand and middle grain sand mainly, and contains the intercalated clay and silt generally. At the downstream area of Simongan Weir, it contains organic materials and fragments of shell.
			Ao	It consists of organic clay and organic fine grain sand mainly, but continuity as a stratum is poor.
	Pleistocene	Diluvium	Dc	It consists of hard clay, and contains coral limestone partly. The surface part of this stratum is oxidized characteristically, and shows dark brown.
			Ds	It consists of sand mainly, and grain size of sand is from fine to coarse. And it contains many gravel, but diameter of gravel is smaller than 3cm generally.
			Dg	It consists of gravel and clay. The quality of clay is same as Dc stratum, and diameter of gravel is smaller than 20cm.
Tertiary-Quaternary	Pliocene-Pleistocene	Damar Sedimentary Rock Unit	Da	It consists of alternation of conglomerate, sandstone and siltstone mainly, and contains mafic tuff partly. Sandstone and siltstone have tuffaceous quality, and the change of grain size of sandstone is big. The matrix of conglomerate consists of same material of sandstone. The gravel of conglomerate consists of andesite and pumice, and diameter of gravel is smaller than 20cm.
		Damar Pyroclastic Rock Unit	Dp	It consists of volcanic breccia and mafic tuff mainly, and alternation is forming. The volcanic breccia contains fragments of andesite and pumice, and matrix consists of mafic tuff.

(DESCRIPTION ON THE DRAWING)



(SYMBOLS OF SOILS AND ROCKS AT CORE)

B	Embankment
rd	River Deposit
Ac	Clay
As	Sand
Ao	Organic Clay
Dc	Hard Clay
Ds	Sand
Dg	Gravel
Da	Sedimentary Rock
Dp	Pyroclastic Rock

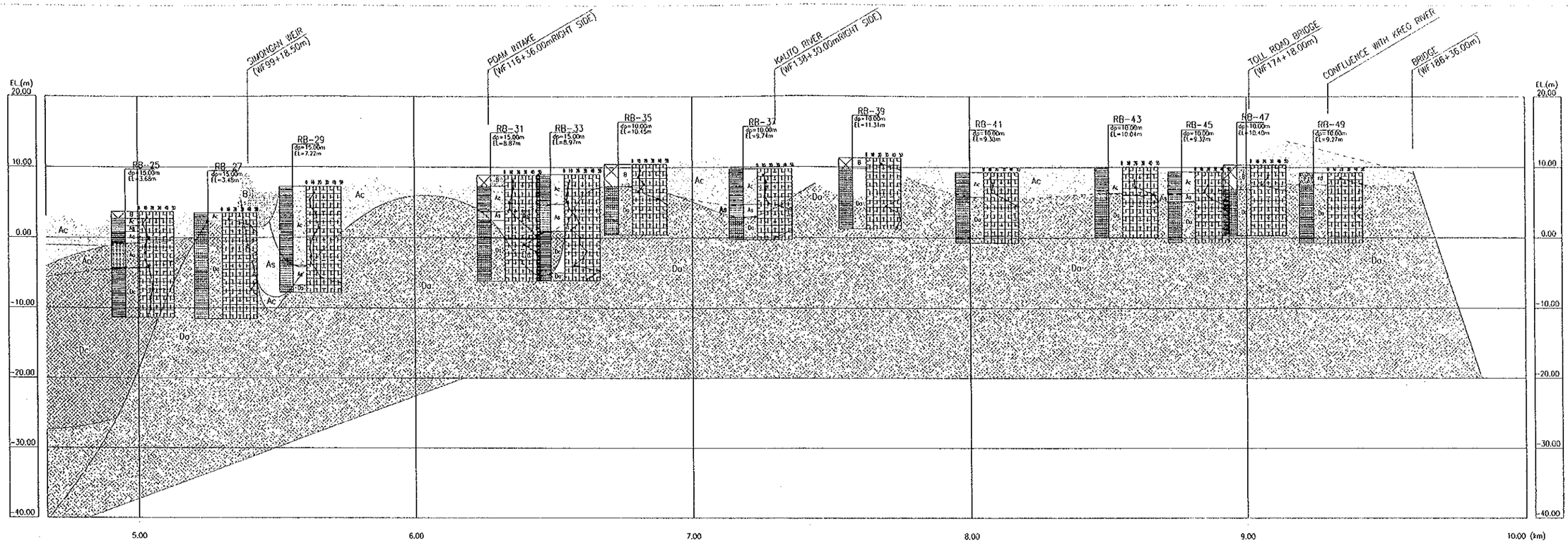


THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA

JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 3.2.2 (1/2)

GEOLOGICAL PROFILE OF WEST FLOODWAY / GARANG RIVER

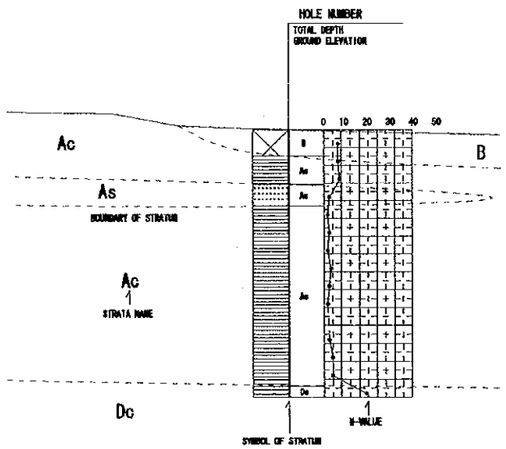


LEGEND

(Geological Strata)

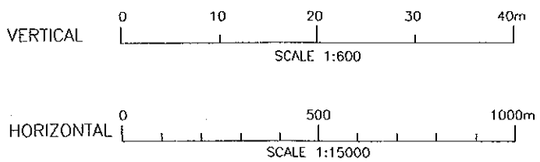
Age		Formation and Strata Name	Symbol	Description
Quaternary	Holocene	Embankment	B	It consists of embankment, filled soil and refuse, and composed of clay, silt, sand and gravel.
		Riverbed deposit	rd	It consists of sand and gravel mainly at the upstream area of Simongan Weir. But it consists of sand and clay mainly at the downstream area.
		Alluvium	Ac	It consists of clay and sandy clay, and shows gray. The sediments are very soft, and contain fragments of shell.
			As	It consists of fine grain sand and middle grain sand mainly, and contains the intercalated clay and silt generally. At the downstream area of Simongan Weir, it contains organic materials and fragments of shell.
			Ao	It consists of organic clay and organic fine grain sand mainly, but continuity as a stratum is poor.
	Pleistocene	Diluvium	Dc	It consists of hard clay, and contains coral limestone partly. The surface part of this stratum is oxidized characteristically, and shows dark brown.
			Ds	It consists of sand mainly, and grain size of sand is from fine to coarse. And it contains many gravel, but diameter of gravel is smaller than 3cm generally.
			Dg	It consists of gravel and clay. The quality of clay is same as Dc stratum, and diameter of gravel is smaller than 20cm.
Tertiary-Quaternary	Pliocene-Pleistocene	Damar	Sedimentary Rock Unit	Da	It consists of alternation of conglomerate, sandstone and siltstone mainly, and contains mafic tuff partly. Sandstone and siltstone have tuffaceous quality, and the change of grain size of sandstone is big. The matrix of conglomerate consists of same material of sandstone. The gravel of conglomerate consists of andesite and pumice, and diameter of gravel is smaller than 20cm.
			Pyroclastic Rock Unit	Dp	It consists of volcanic breccia and mafic tuff mainly, and alternation is forming. The volcanic breccia contains fragments of andesite and pumice, and matrix consists of mafic tuff.

(DESCRIPTION ON THE DRAWING)



(SYMBOLS OF SOILS AND ROCKS AT CORE)

B	Embankment
rd	River Deposit
Ac	Clay
As	Sand
Ao	Organic Clay
Do	Hard Clay
Ds	Sand
Dg	Gravel
Da	Sedimentary Rock
Dp	Pyroclastic Rock

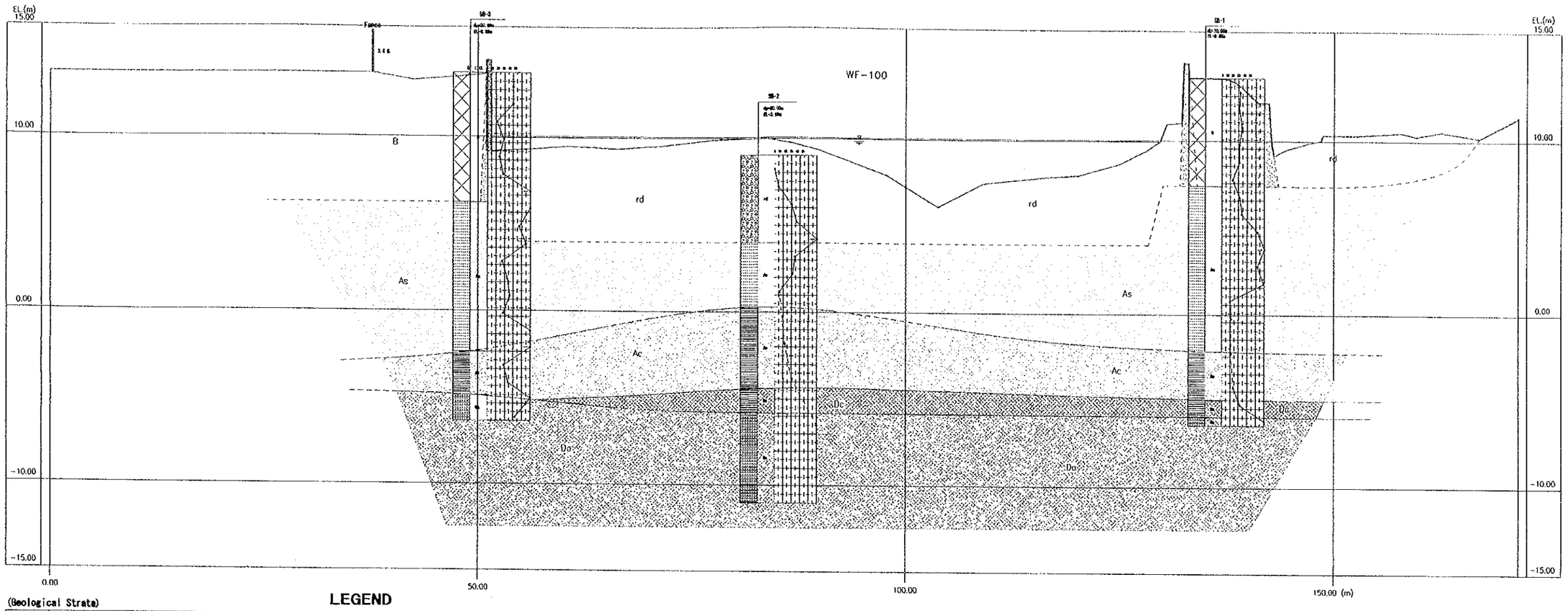


THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA

JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 3.2.2 (2/2)

GEOLOGICAL PROFILE OF WEST FLOODWAY / GARANG RIVER

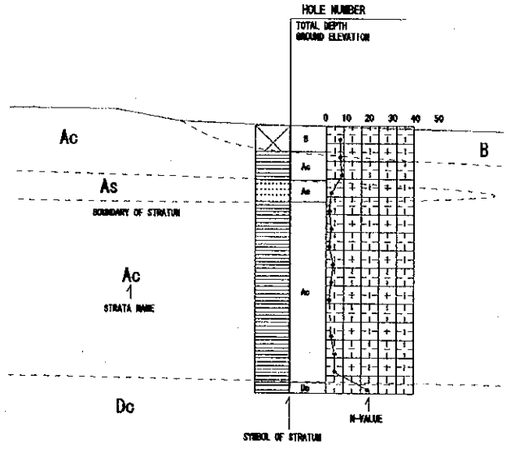


LEGEND

(Geological Strata)

Age		Formation and Strata Name	Symbol	Description
Quaternary	Holocene	Embankment	B	It consists of embankment, filled soil and refuse, and composed of clay, silt, sand and gravel.
		Riverbed deposit	rd	It consists of sand and gravel mainly at the upstream area of Simongan Weir. But it consists of sand and clay mainly at the downstream area.
		Alluvium	Ac	It consists of clay and sandy clay, and shows gray. The sediments are very soft, and contain fragments of shell.
			As	It consists of fine grain sand and middle grain sand mainly, and contains the intercalated clay and silt generally. At the downstream area of Simongan Weir, it contains organic materials and fragments of shell.
			Ao	It consists of organic clay and organic fine grain sand mainly, but continuity as a stratum is poor.
	Pleistocene	Diluvium	Dc	It consists of hard clay, and contains coral limestone partly. The surface part of this stratum is oxidized characteristically, and shows dark brown.
			Ds	It consists of sand mainly, and grain size of sand is from fine to coarse. And it contains many gravel, but diameter of gravel is smaller than 3cm generally.
			Dg	It consists of gravel and clay. The quality of clay is same as Dc stratum, and diameter of gravel is smaller than 20cm.
Tertiary-Quaternary	Pliocene-Pleistocene	Damar Sedimentary Rock Unit	Da	It consists of alternation of conglomerate, sandstone and siltstone mainly, and contains mafic tuff partly. Sandstone and siltstone have tuffaceous quality, and the change of grain size of sandstone is big. The matrix of conglomerate consists of same material of sandstone. The gravel of conglomerate consists of andesite and pumice, and diameter of gravel is smaller than 20cm.
		Damar Pyroclastic Rock Unit	Dp	It consists of volcanic breccia and mafic tuff mainly, and alternation is forming. The volcanic breccia contains fragments of andesite and pumice, and matrix consists of mafic tuff.

(DESCRIPTION ON THE DRAWING)



(SYMBOLS OF SOILS AND ROCKS AT CORE)

	B	Embankment
	rd	River Deposit
	Ac	Clay
	As	Sand
	Ao	Organic Clay
	Dc	Hard Clay
	Ds	Sand
	Dg	Gravel
	Da	Sedimentary Rock
	Dp	Pyroclastic Rock

VERTICAL 0 5 10 12.5 m
SCALE 1:250

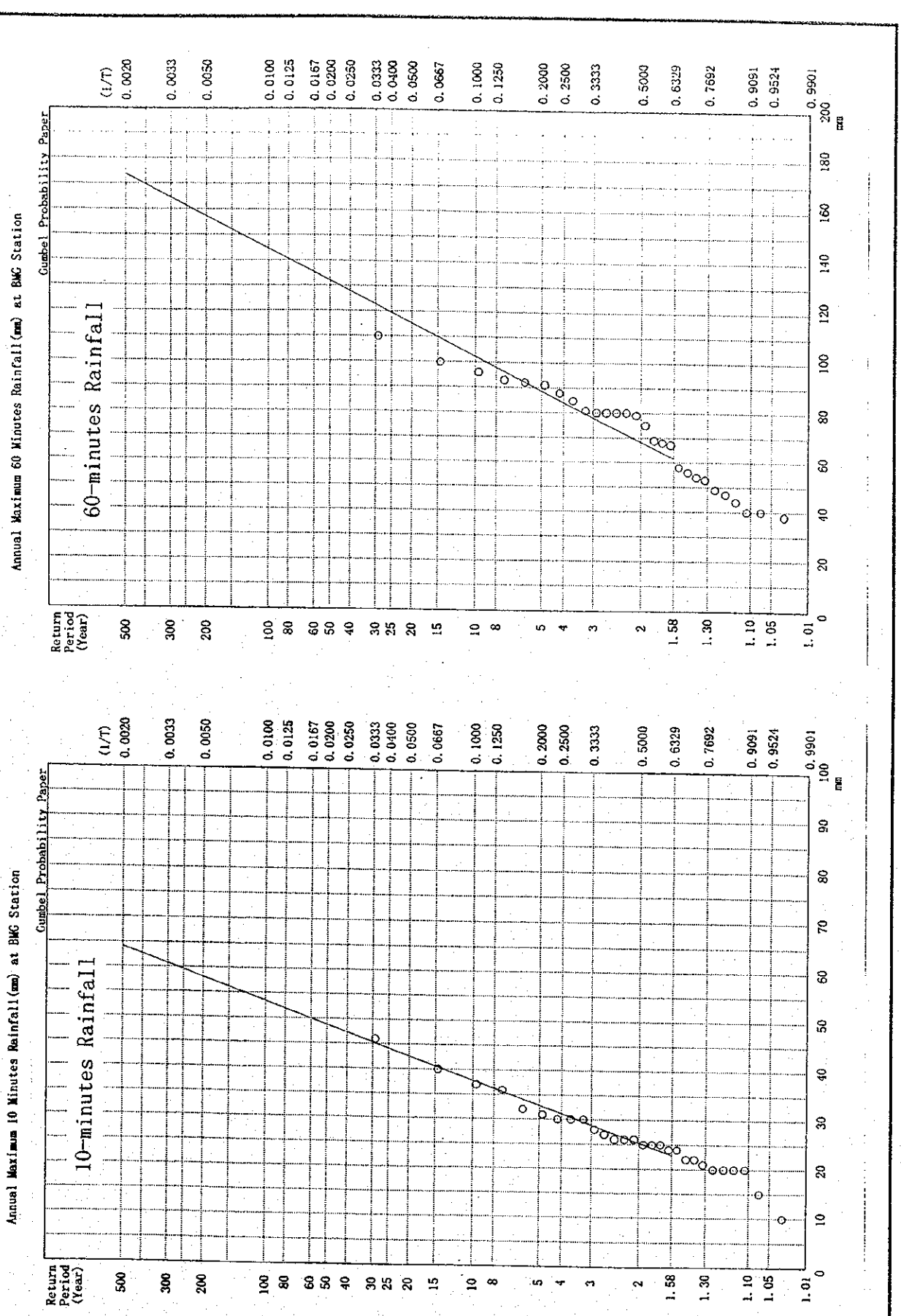
HORIZONTAL 0 12.5 25 m
SCALE 1:500

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

JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 3.2.3

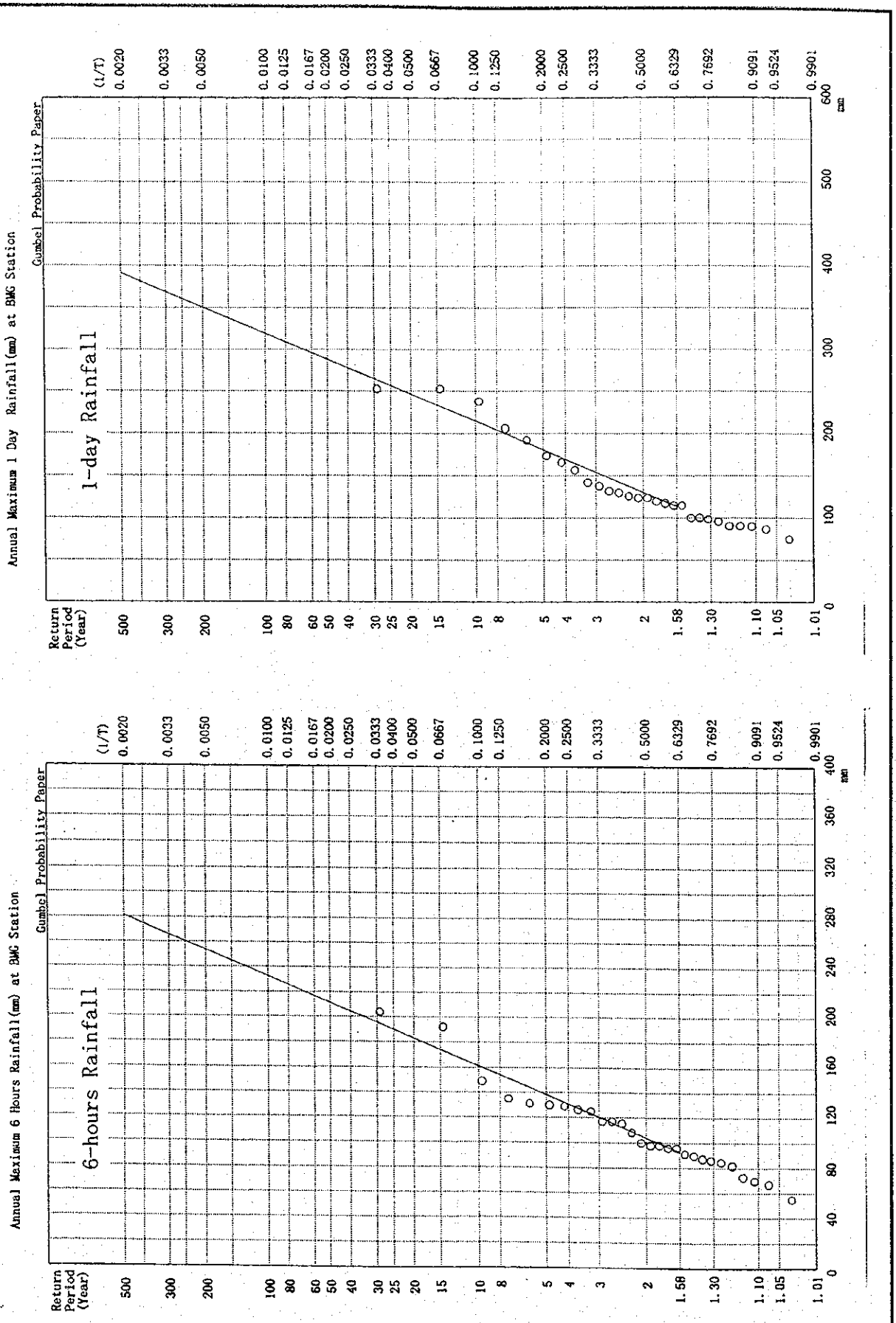
GEOLOGICAL PROFILE OF SIMONGAN WEIR No.100 SECTION



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

JAPAN INTERNATIONAL COOPERATION AGENCY

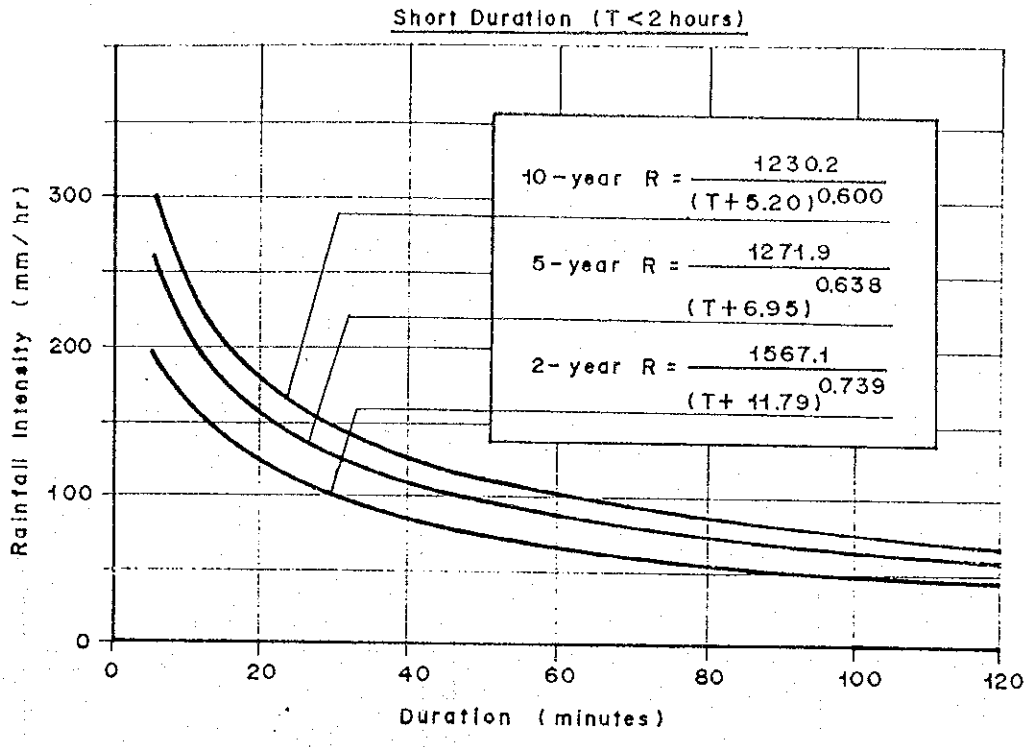
Fig. 3.3.1
PROBABLE RAINFALL IN 10 AND 60 MINUTES

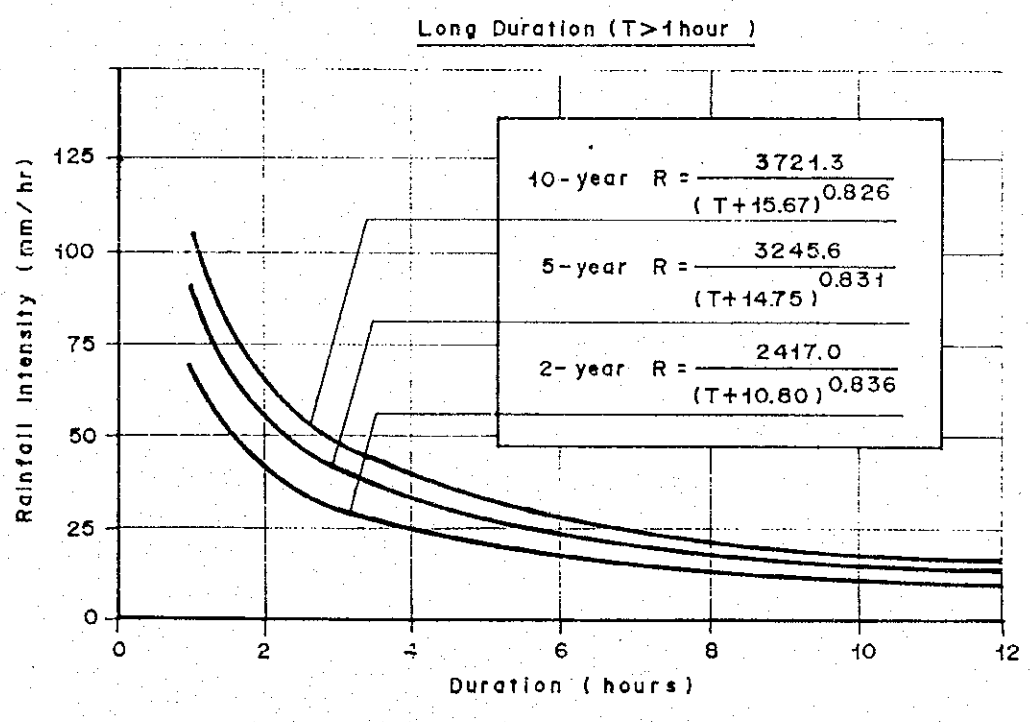


THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA

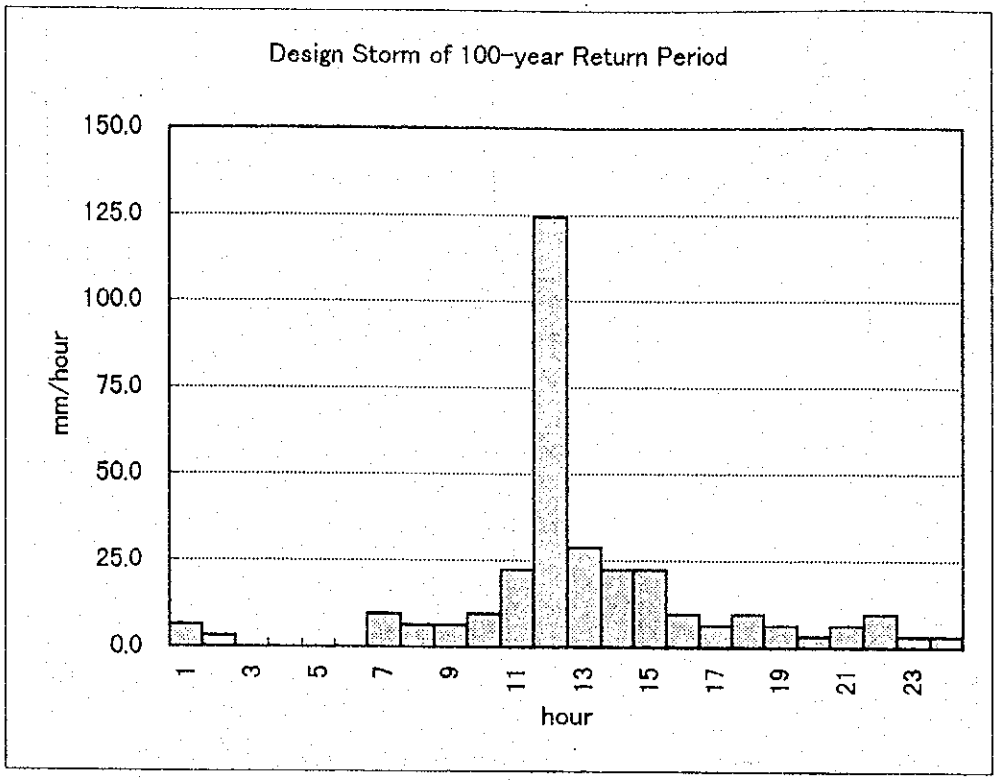
JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 3.3.2
PROBABLE RAINFALL IN 6 HOURS AND 1 DAY

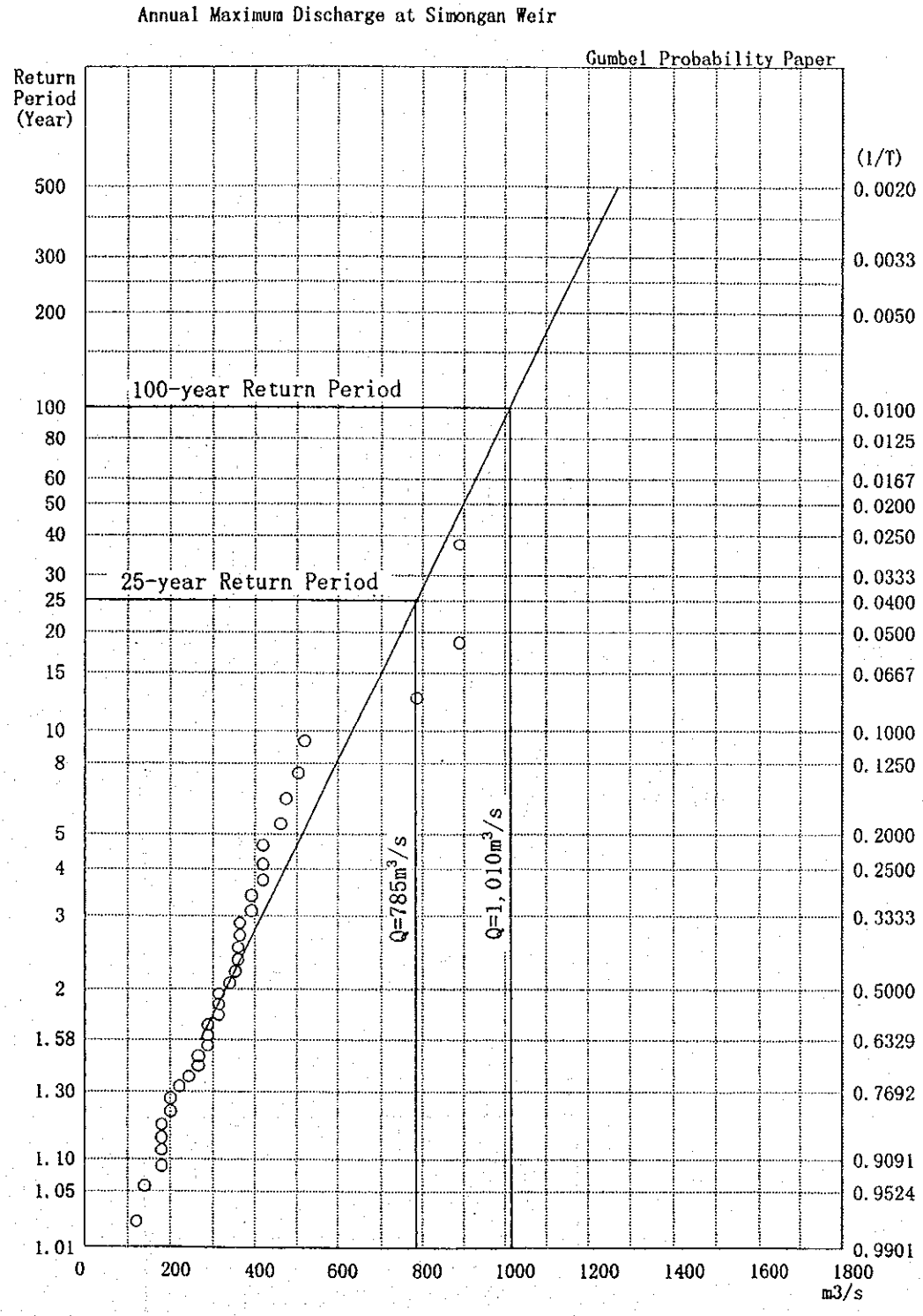




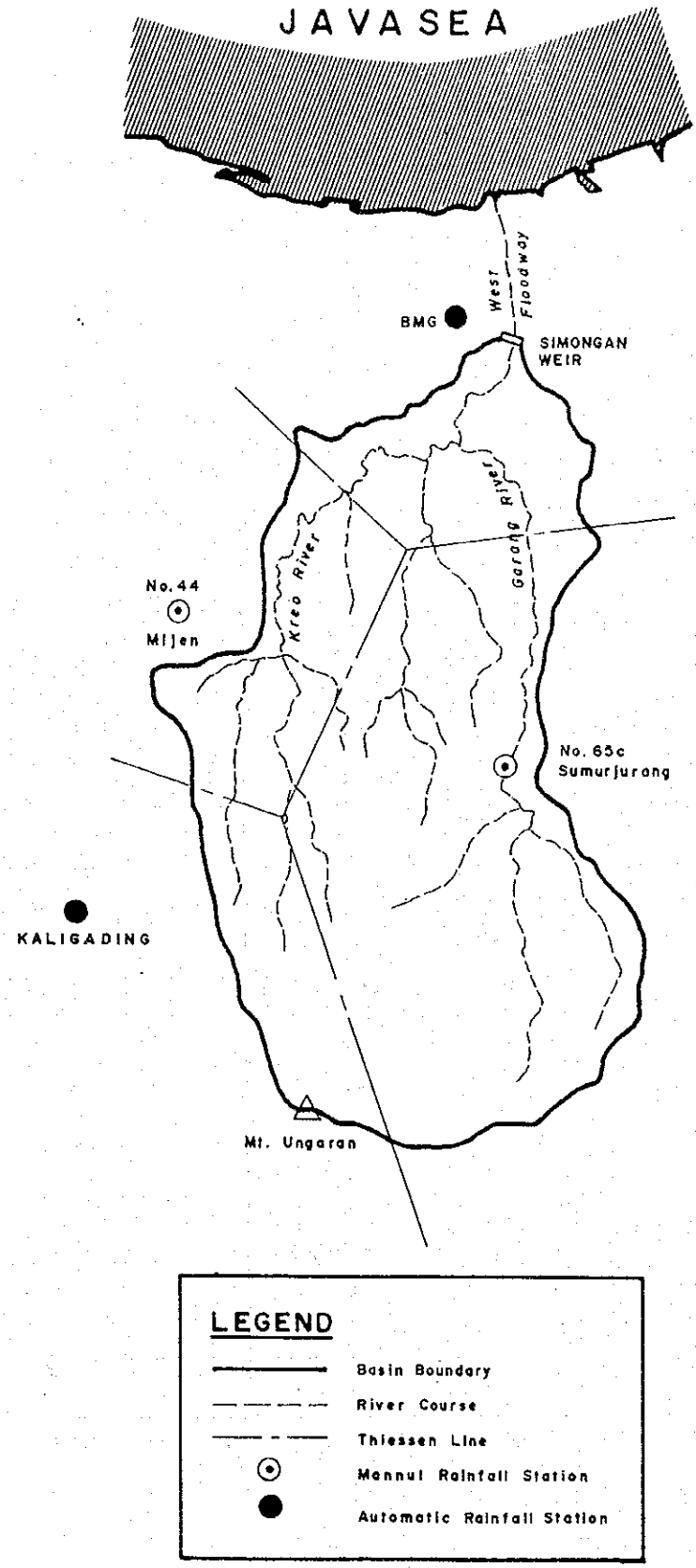
THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA	Fig. 3.3.3 RAINFALL INTENSITY CURVE
JAPAN INTERNATIONAL COOPERATION AGENCY	



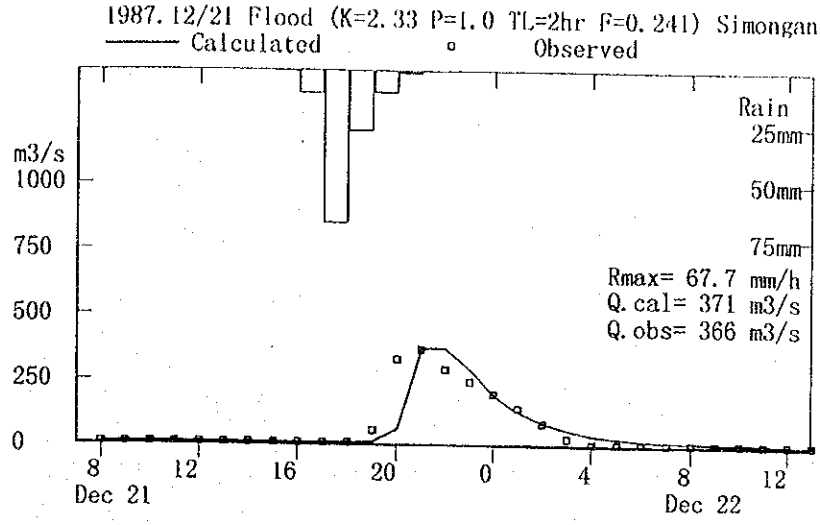
THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA	Fig. 3.3.4 DESIGN STORM OF 100-YEAR RETURN PERIOD
JAPAN INTERNATIONAL COOPERATION AGENCY	

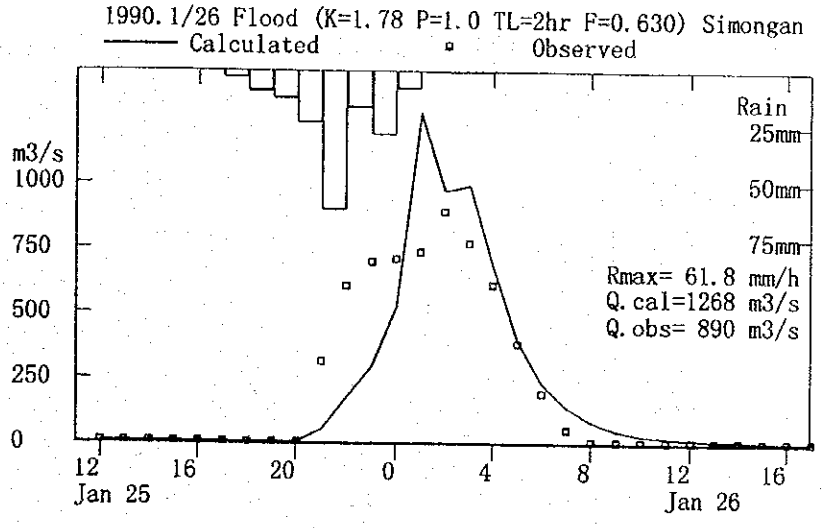


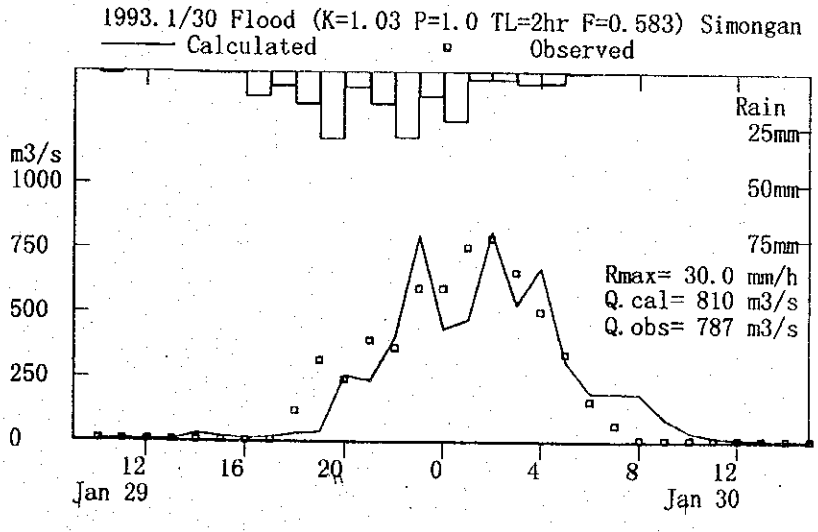
THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA	Fig. 3.3.5 PROBABLE DISCHARGE AT SIMONGAN WEIR
JAPAN INTERNATIONAL COOPERATION AGENCY	



THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA	Fig. 3.3.6 THIESSEN POLYGON FOR FLOOD ANALYSIS
JAPAN INTERNATIONAL COOPERATION AGENCY	



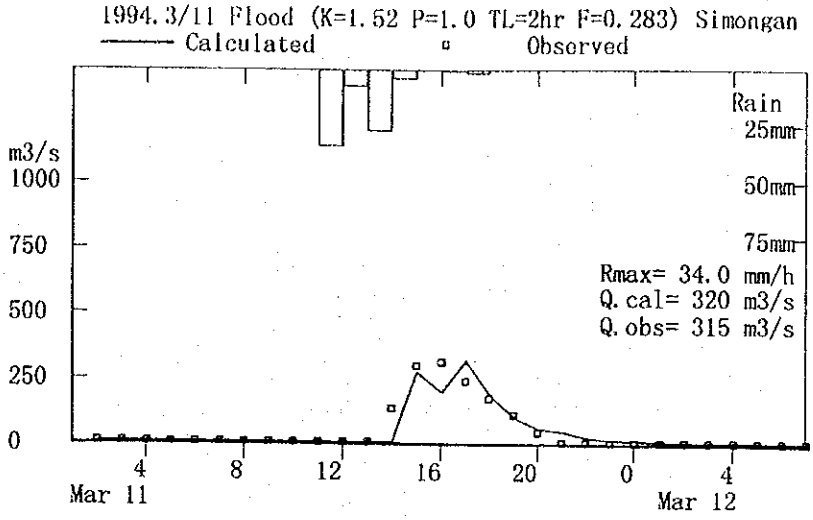


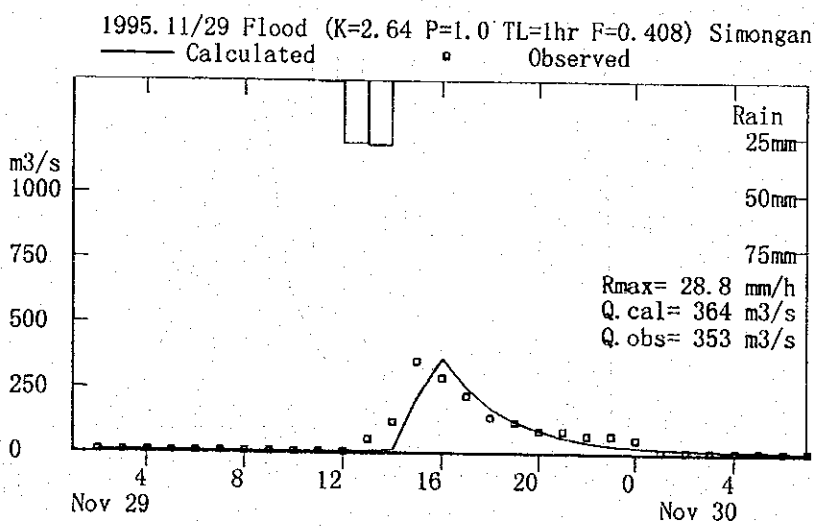


THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA

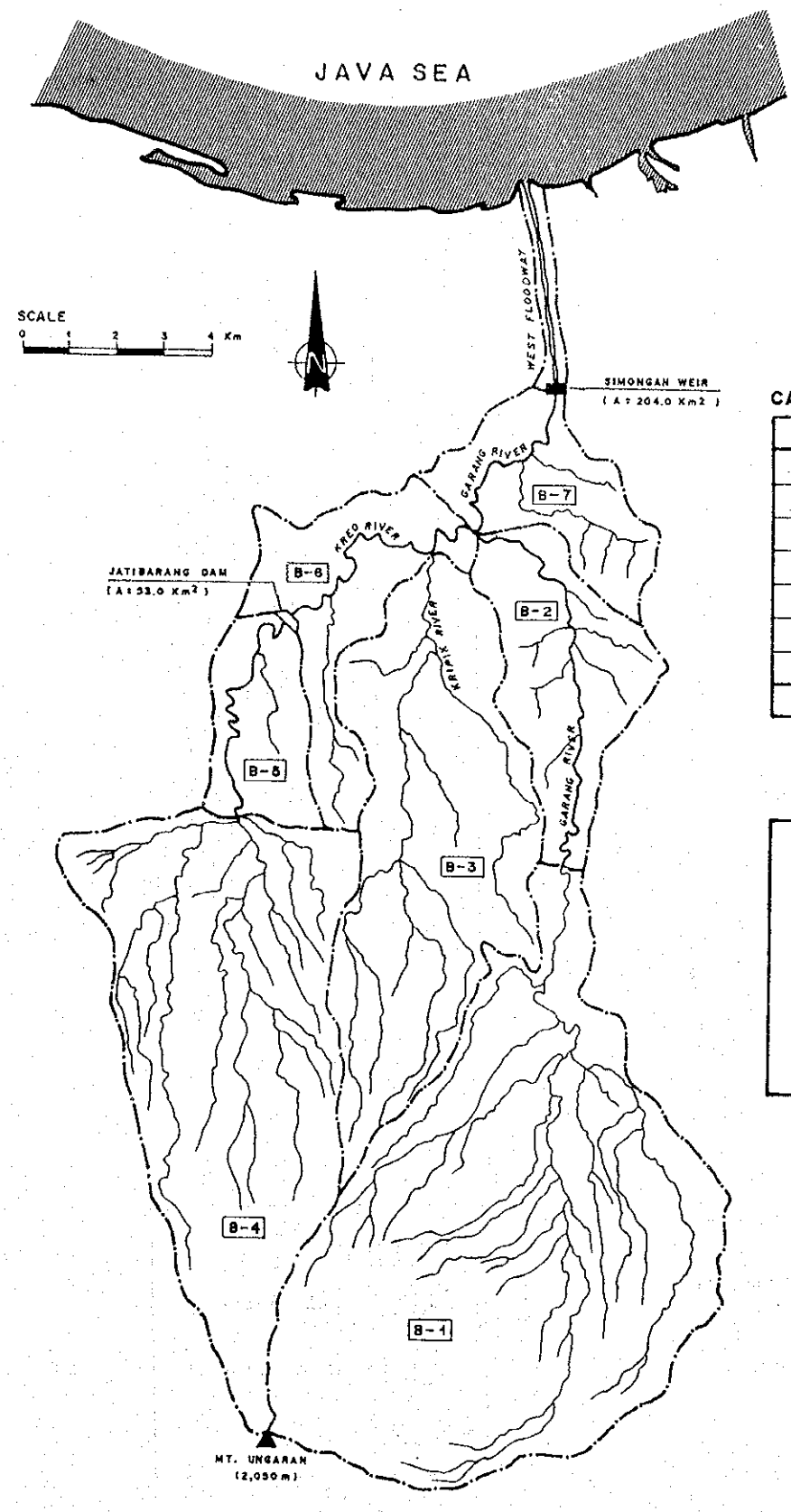
JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 3.3.7 (1/2)
CALIBRATION OF FLOOD MODEL BY STORAGE FUNCTION METHOD





THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA	Fig. 3.3.7 (2/2) CALIBRATION OF FLOOD MODEL BY STORAGE FUNCTION METHOD
JAPAN INTERNATIONAL COOPERATION AGENCY	



CATCHMENT AREA

SUB BASIN	AREA (Km^2)
B - 1	73.5
B - 2	15.1
B - 3	36.6
B - 4	45.7
B - 5	7.3
B - 6	14.4
B - 7	11.4
TOTAL	204.0

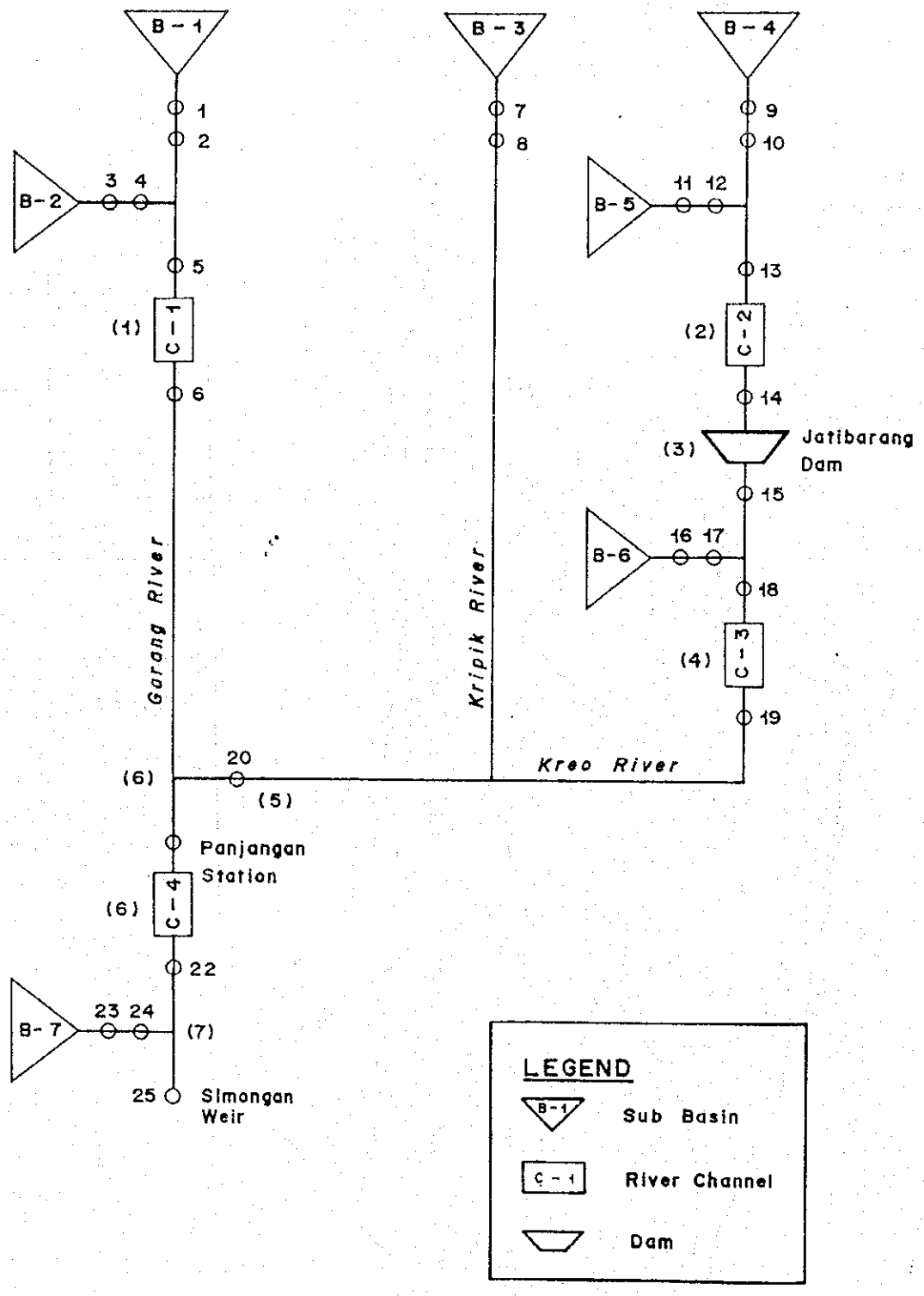
LEGEND

- RIVER
- BOUNDARY
- DAM SITE
- EXISTING WEIR
- B-1 B-7 SUB BASIN

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

JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 3.3.8
SUB-BASIN DIVISION FOR FLOOD MODEL



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

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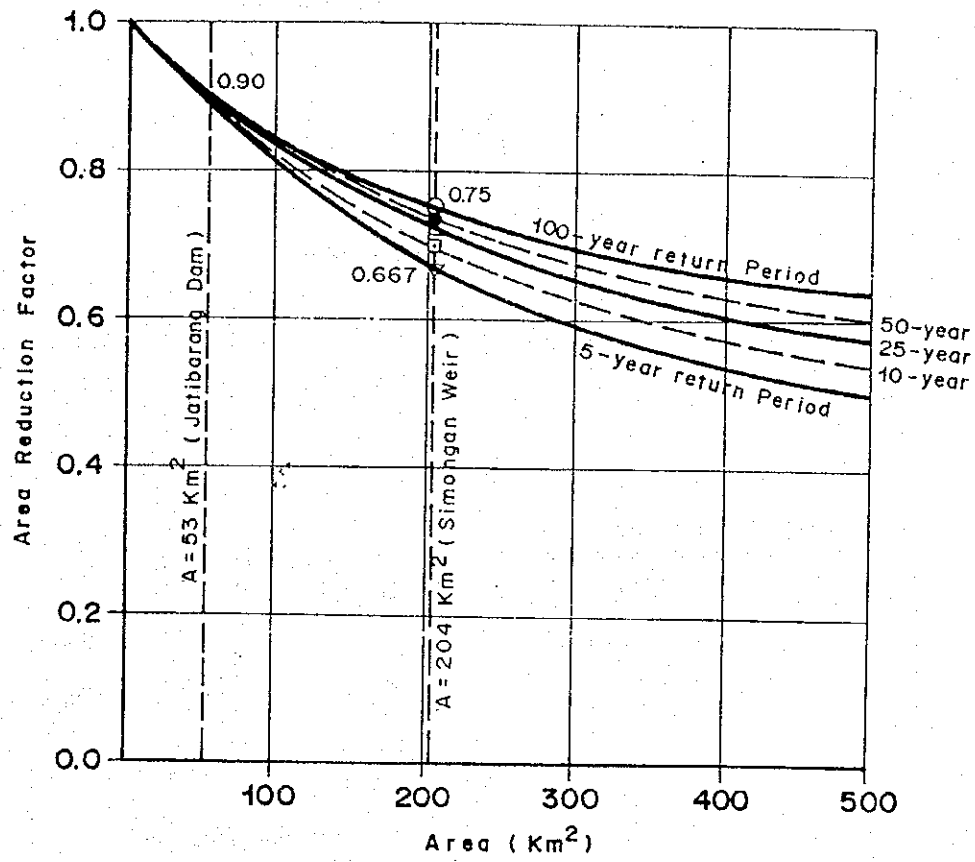
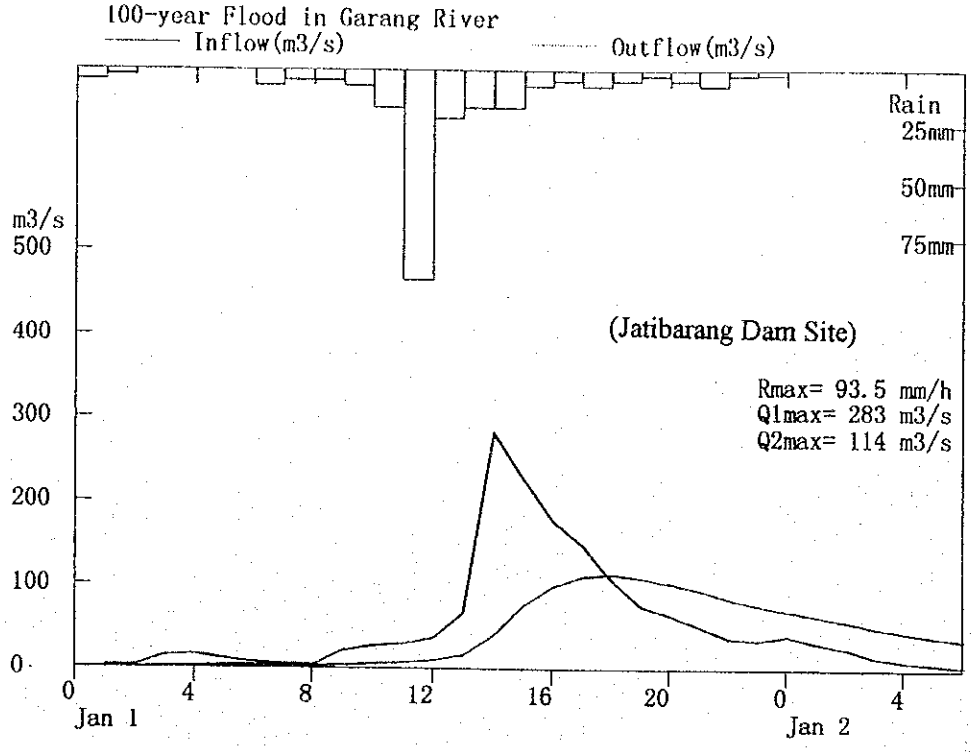
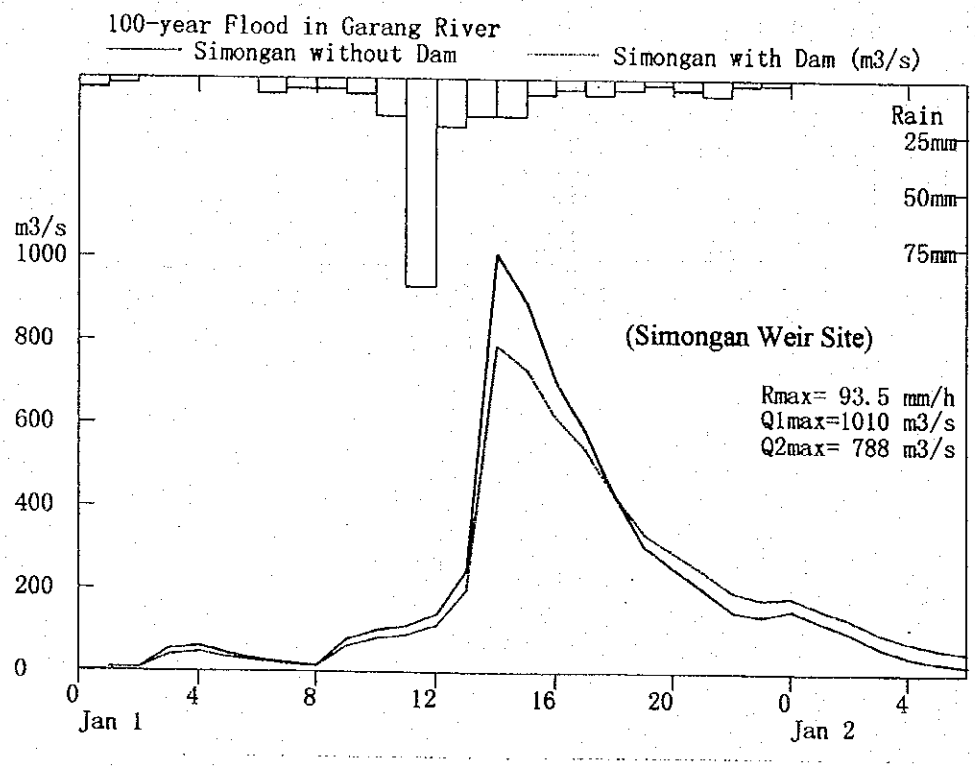
Fig. 3.3.9
MODEL DIAGRAM FOR FLOOD CALCULATION

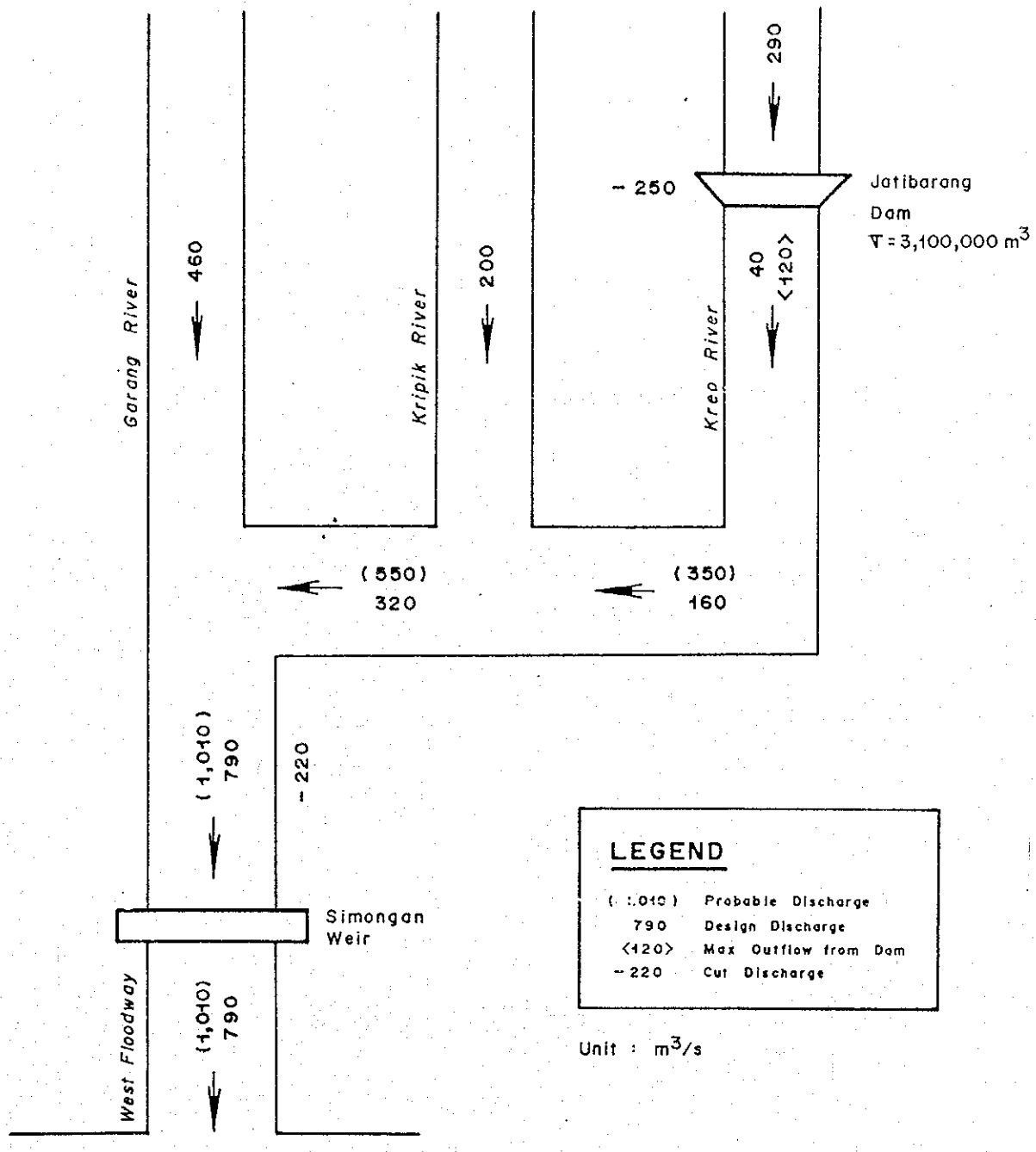


THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA	Fig. 3.3.10 AREA REDUCTION FACTOR FOR GARANG RIVER BASIN
JAPAN INTERNATIONAL COOPERATION AGENCY	





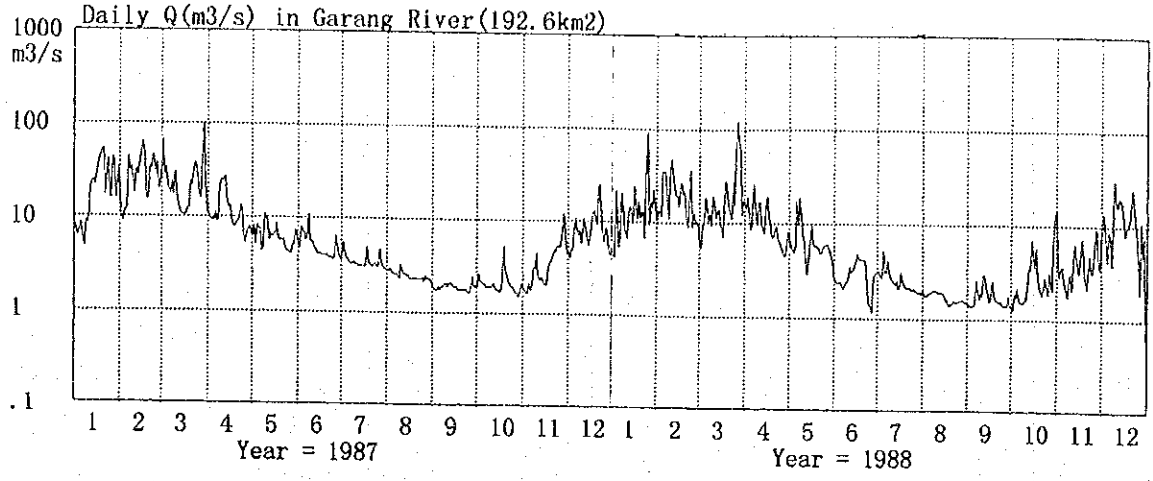
THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA	Fig. 3.3.11 FLOOD CONTROL EFFECT BY JATIBARANG DAM
JAPAN INTERNATIONAL COOPERATION AGENCY	

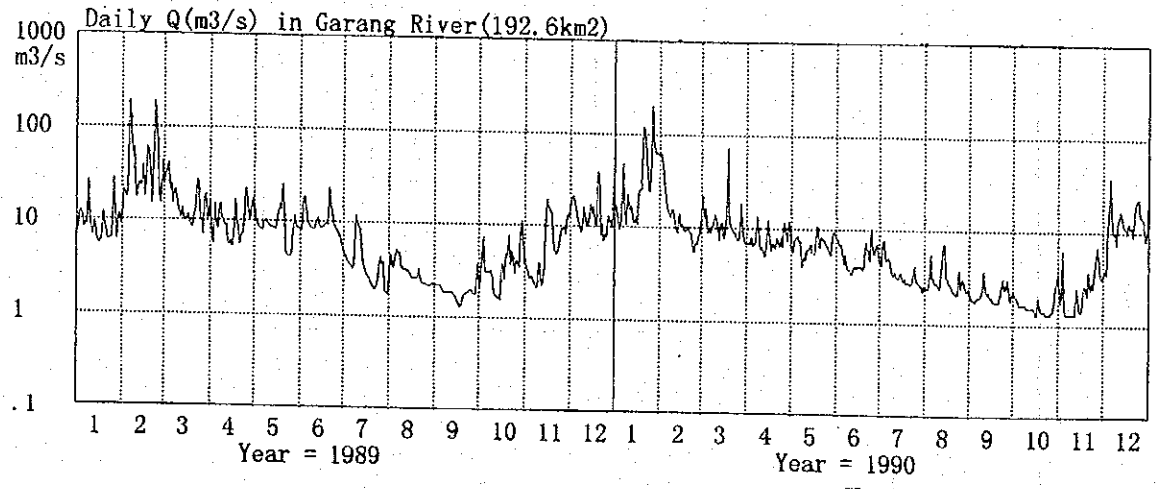


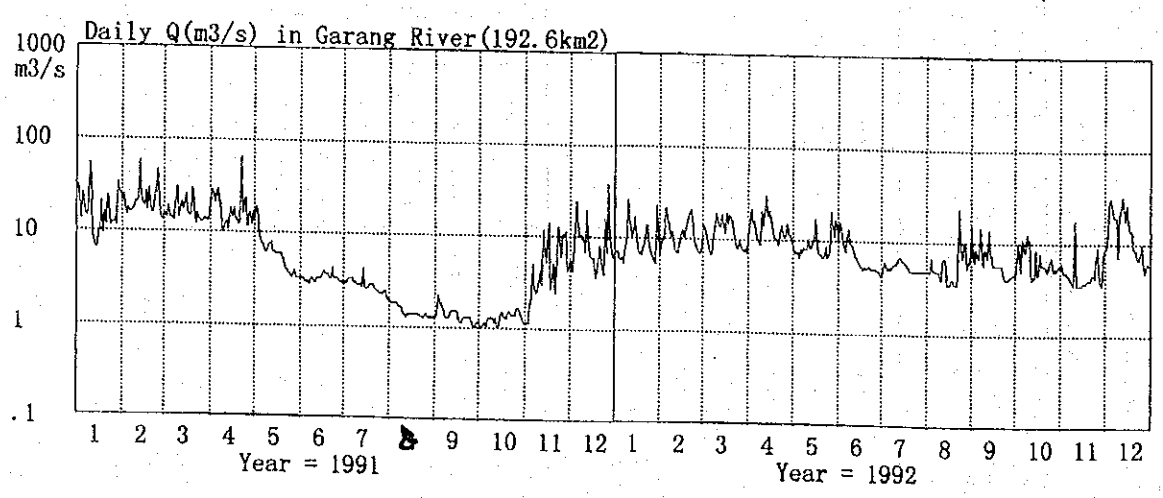
THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA

JAPAN INTERNATIONAL COOPERATION AGENCY

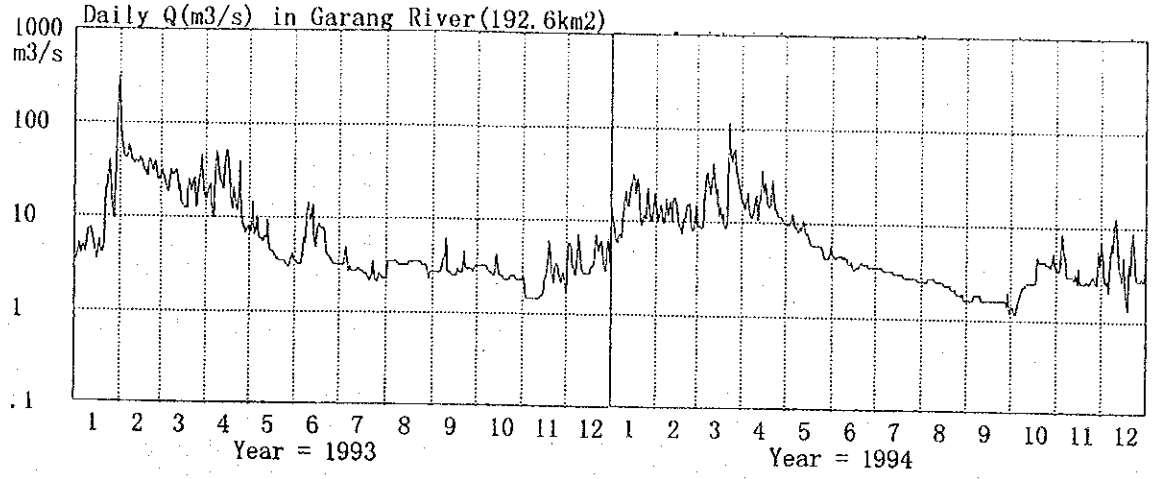
Fig. 3.3.12
DISTRIBUTION OF DESIGN FLOOD DISCHARGE IN GARANG RIVER

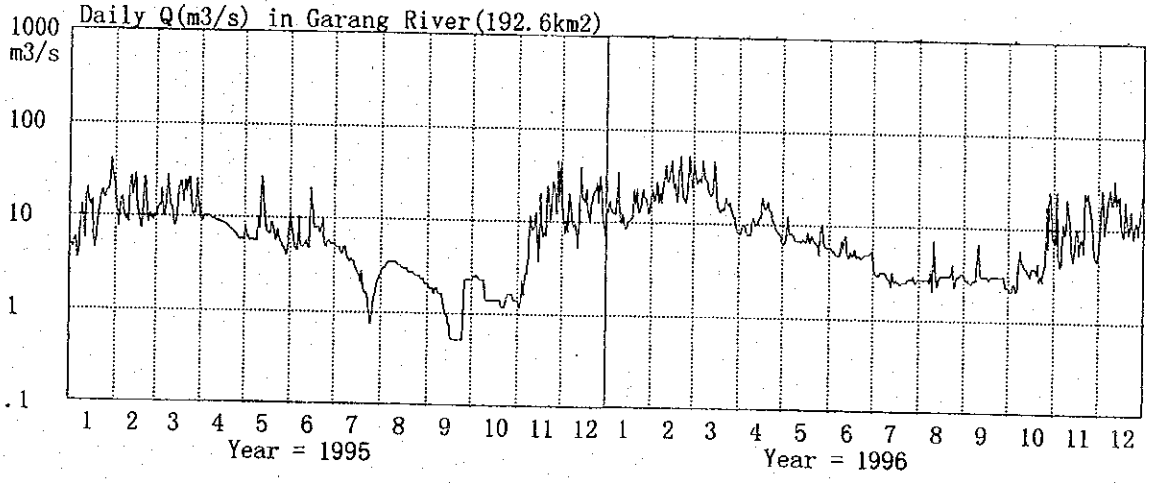






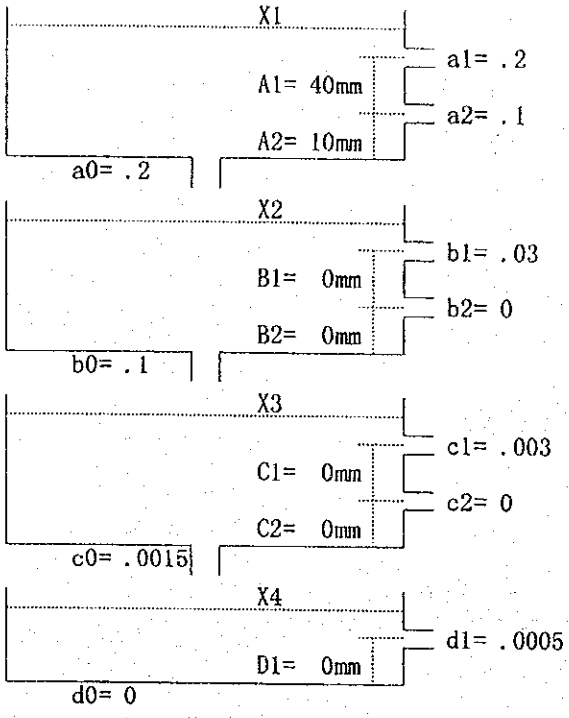
THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA	Fig. 3.3.13 (1/2) DAILY DISCHARGE CHART OBSERVED AT PANJANGAN STATION IN GARANG RIVER
JAPAN INTERNATIONAL COOPERATION AGENCY	





THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA JAPAN INTERNATIONAL COOPERATION AGENCY	Fig. 3.3.13 (2/2) DAILY DISCHARGE CHART OBSERVED AT PANJANGAN STATION IN GARANG RIVER

Tank-Model of Garang River (A=192.6km2)



Catchment Area = 192.6 km2
Lag Time(Rain vs Q) = 0 day

Initial Storage (Year=1967)
X1= 0 mm
X2= 90 mm
X3= 330 mm
X4= 840 mm

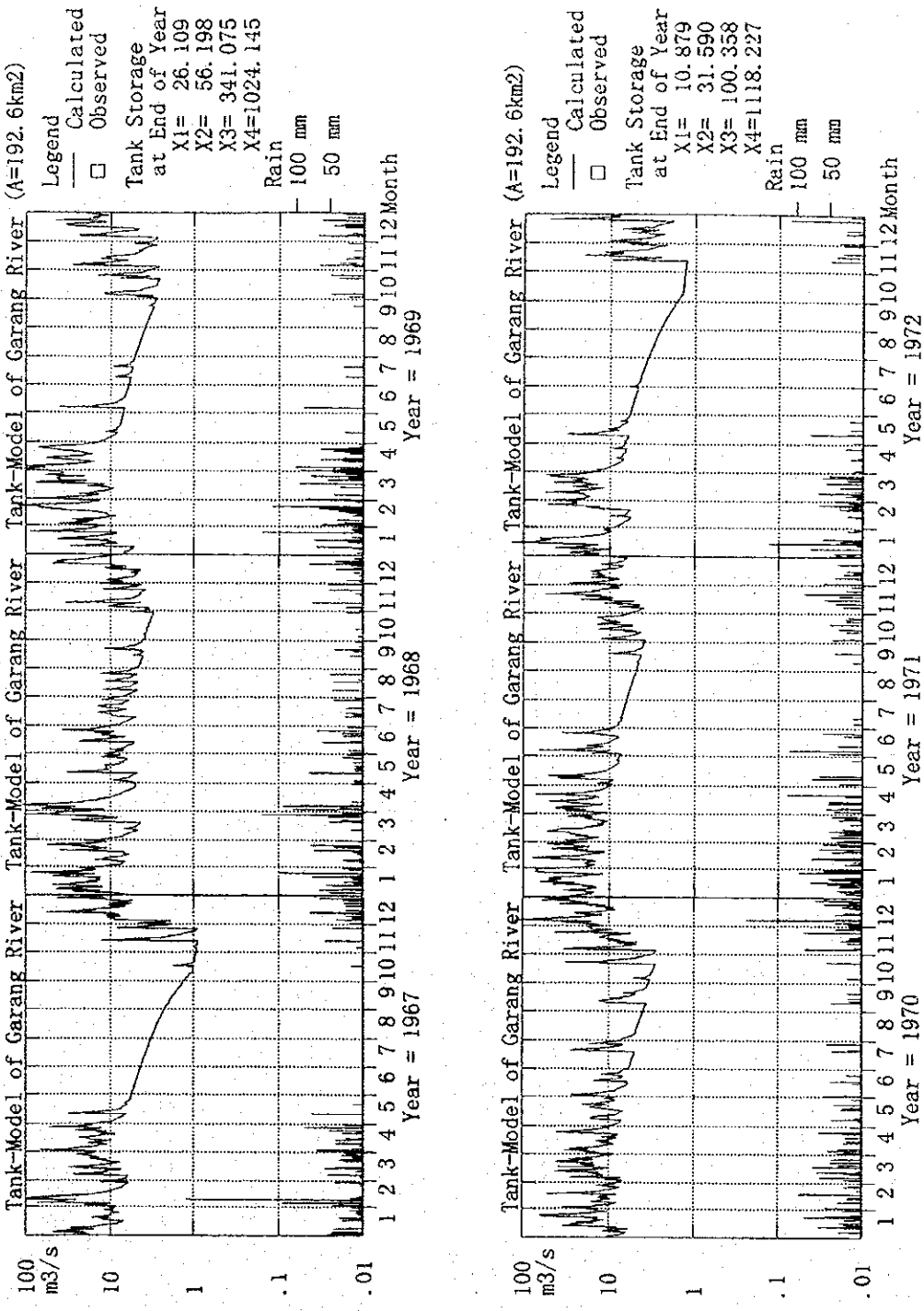
Month	Evaporation
1	2.42 mm/d
2	2.72 mm/d
3	2.79 mm/d
4	2.94 mm/d
5	3.16 mm/d
6	3.30 mm/d
7	3.52 mm/d
8	3.74 mm/d
9	4.18 mm/d
10	4.04 mm/d
11	3.23 mm/d
12	2.79 mm/d

Rainfall = Input * 0.99

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

JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 3.3.14
TANK MODEL PARAMETERS



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

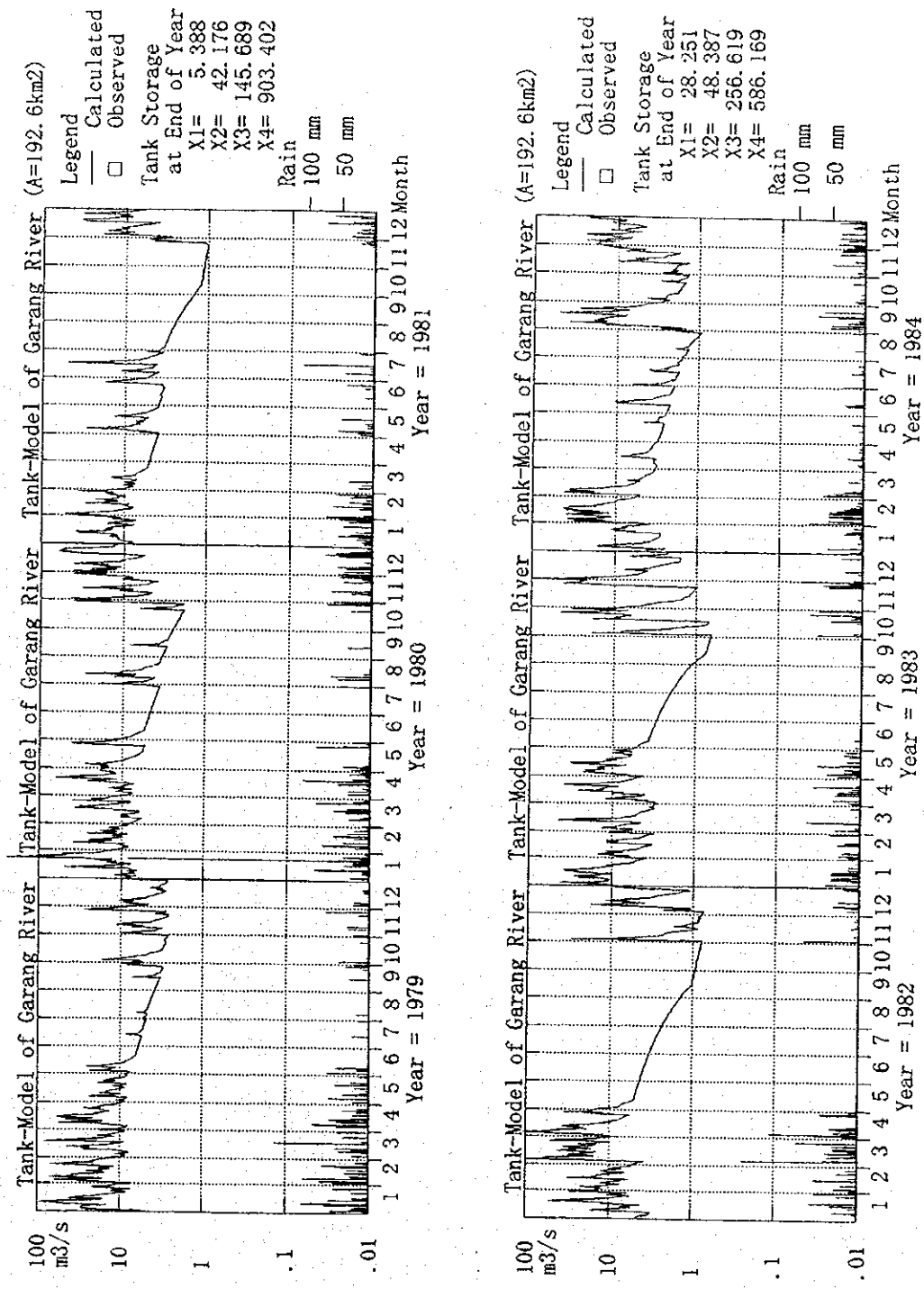
JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 3.3.15 (1/5)
RESULT CHART OF TANK MODEL SIMULATION

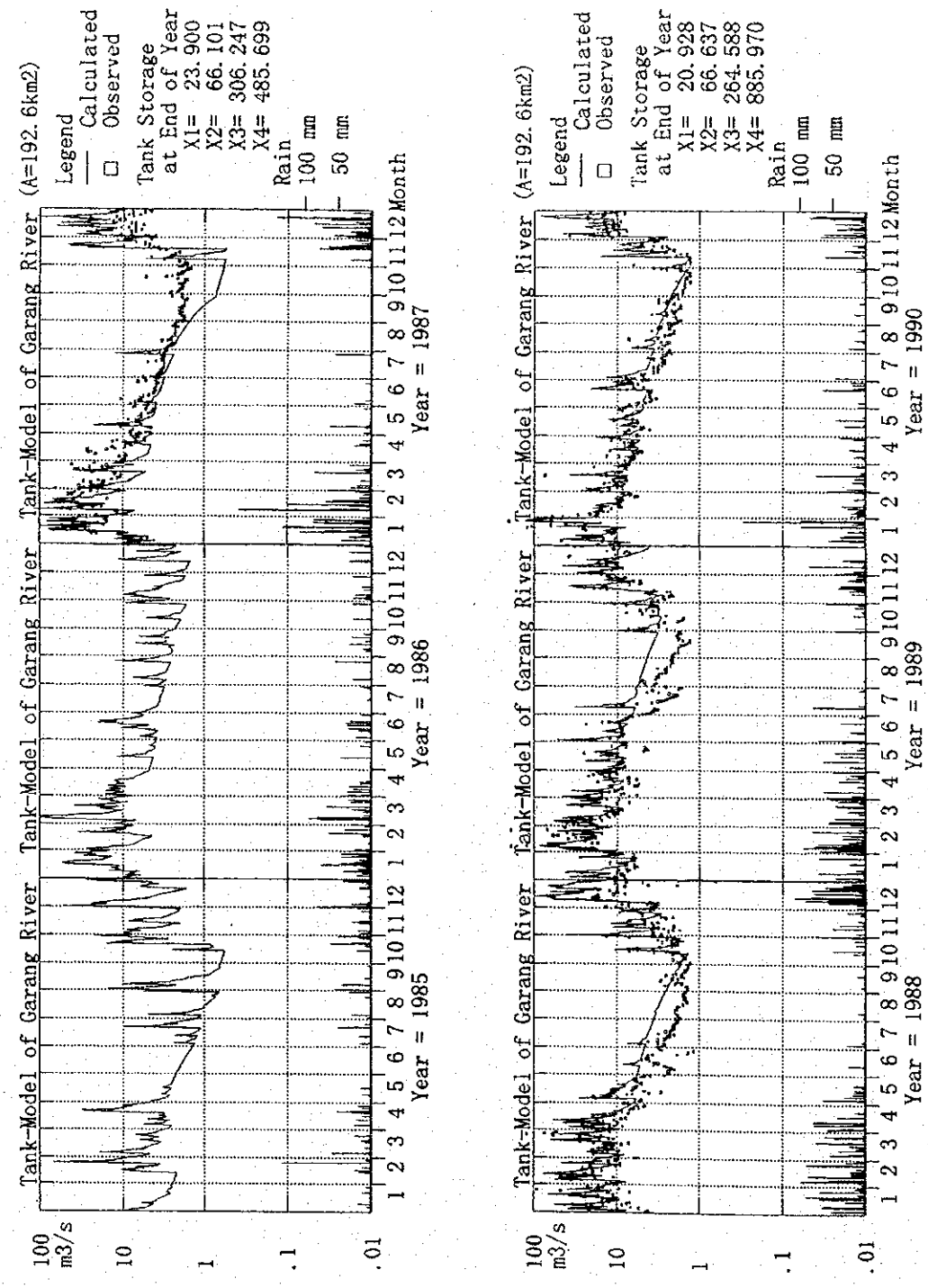
THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA

JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 3.3.15 (2/5)
RESULT CHART OF TANK MODEL SIMULATION



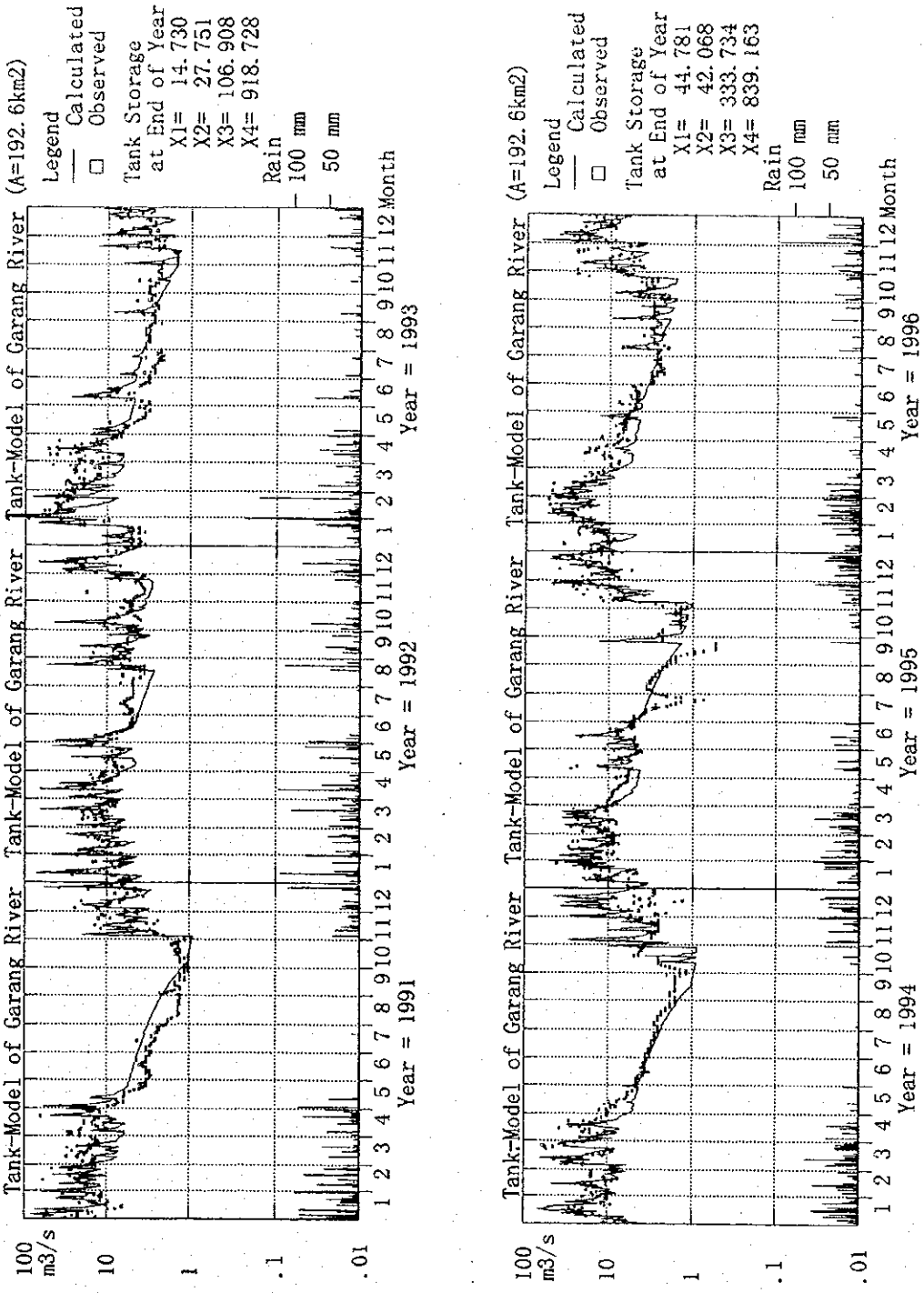
THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA	Fig. 3.3.15 (3/5) RESULT CHART OF TANK MODEL SIMULATION
JAPAN INTERNATIONAL COOPERATION AGENCY	



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

JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 3.3.15 (4/5)
RESULT CHART OF TANK MODEL SIMULATION



THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA	Fig. 3.3.15 (5/5) RESULT CHART OF TANK MODEL SIMULATION
JAPAN INTERNATIONAL COOPERATION AGENCY	