4

IP. 10
N = 433 949
E = 9 226 131
IA = 101°45'49"
R = 130 m
TL = 159.861 m
SL = 76.048 m
CL = 230.894 m

IP. 9
N = 433827
E = 9226360
IA = 48°31' 8"
R = 130 m
TL = 58.586 m
SL = 12.592 m
CL = 110.085 m

IP. 11
N = 433 367
E = 9225 96
IA = 56°56'45"
R = 220.00 m
TL = 119.316 m
SL = 30.272 m
CL = 218.657 m

IP. 12
N = 433 301
E = 9225 742
IA = 33°9'21"
R = 200 m
TL = 59.539 m
SL = 8.674 m
CL = 115.736 m

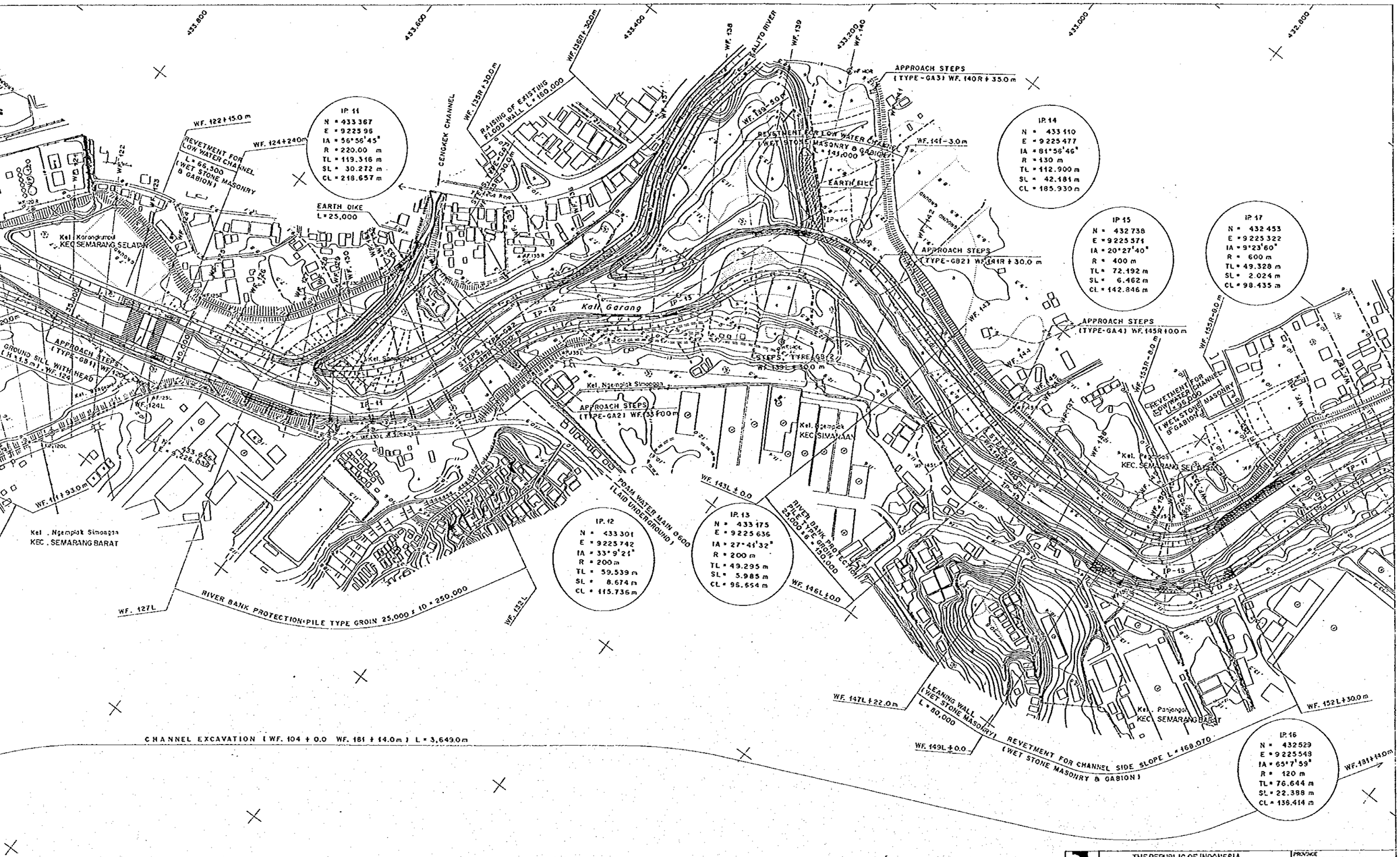
IP. 13
N = 433 175
E = 9225 636
IA = 27°41'32"
R = 200 m
TL = 49.295 m
SL = 5.985 m
CL = 95.654 m

NAME	NORTHING	EASTING	ELEVATION
WF.110L	9,226,465.004	433,839.899	14.000
WF.120L	9,226,200.718	433,650.883	11.122
WF.130L	9,225,971.446	433,360.744	10.450
WF.140L	9,225,606.343	433,048.607	13.213
WF.150L	9,225,585.447	432,570.587	11.190

NAME	NORTHING	EASTING	ELEVATION
WF.110R	9,226,435.572	433,895.695	12.604
WF.120R	9,226,015.528	433,820.669	11.046
WF.130R	9,225,865.354	433,478.656	11.209
WF.140R	9,225,315.852	433,174.392	9.960
WF.150R	9,225,506.446	432,584.507	11.184

0 20 100 200 m
SCALE 1 : 2000

NO.	DATE	REVISION



NAME	NORTHING	EASTING	ELEVATION
WF.110R	9,226,445.572	433,895.695	12.604
WF.120R	9,226,015.528	433,820.669	11.046
WF.130R	9,225,865.354	433,478.656	11.209
WF.140R	9,225,315.852	433,174.392	9.960
WF.150R	9,225,506.446	432,584.507	11.184

0 20 100 200 m
SCALE 1 : 2000

NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

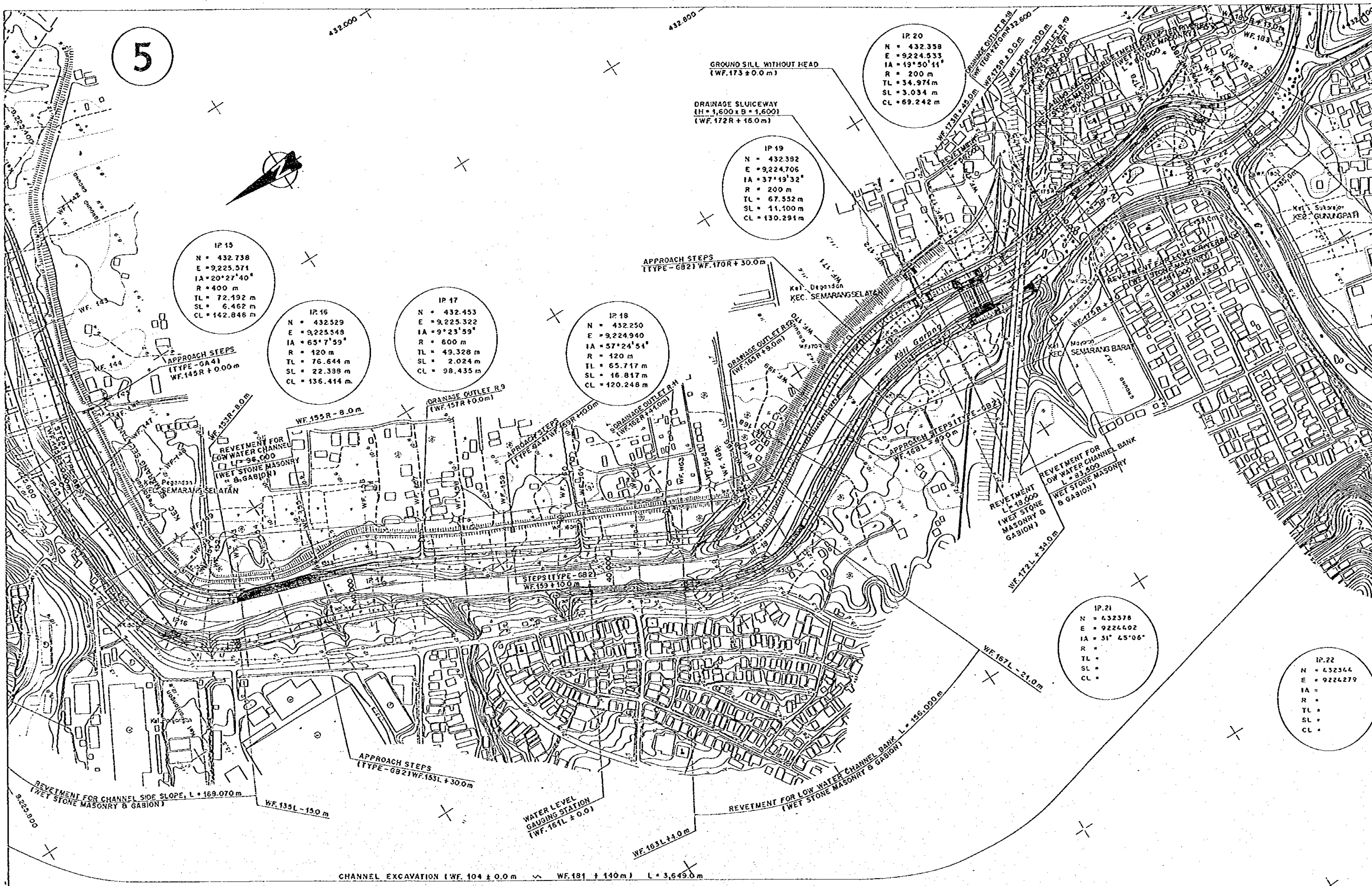
THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY/GARANG RIVER IMPROVEMENT
CHANNEL AND DIKE WORKS
GARANG RIVER
PLAN OF RIVER CHANNEL (5/8)

JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO. LTD IN ASSOCIATION WITH PACIFIC CONSULTANTS INTERNATIONAL & NJAC INTERNATIONAL INC.

DESIGNED | CHECKED | CHIEF OF PLANNING AND DESIGN | APPROVED | PROJECT MANAGER

PROVINCE	CENTRAL JAVA
PROJECT NAME	FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCE S DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
DISTRICT	SEMARANG CITY
DRAWING NO.	W2 - PI - CH - PI - 6
SHEET NO.	8
DATE	CONTRACT NO.



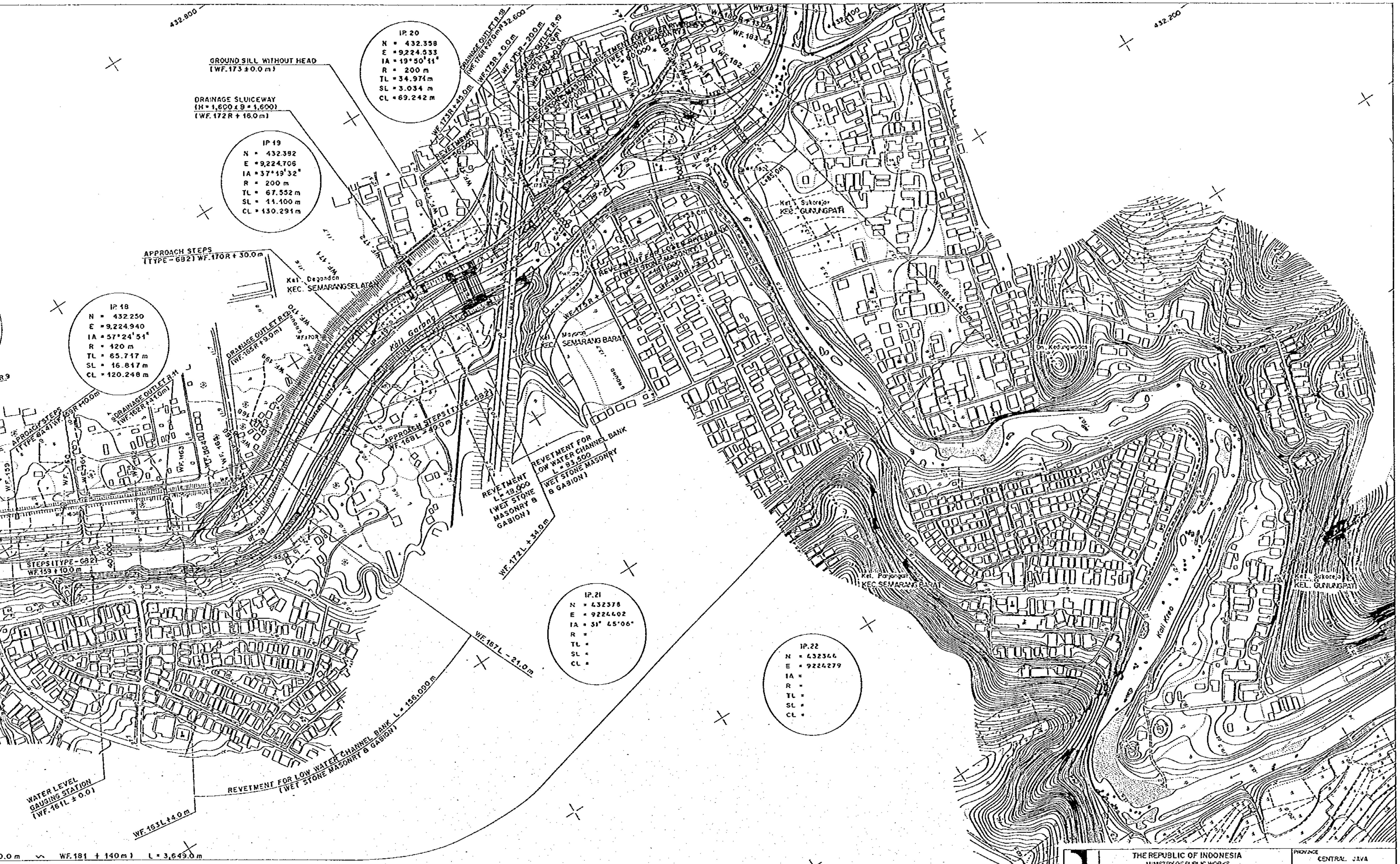
NAME	NORTHING	EASTING	ELEVATION
WF.150L	9,225,585.447	432,570.587	11.190
WF.160L	9,225,164.235	432,336.425	9.321
WF.170L	9,224,736.620	432,329.047	9.475
WF.180L	9,224,250.068	432,311.727	12.149

NAME	NORTHING	EASTING	ELEVATION
WF.150R	9,225,506.446	432,584.507	11.184
WF.160R	9,225,113.825	432,406.006	14.482
WF.170R	9,224,758.219	432,403.999	14.260
WF.180R	9,224,251.145	432,405.201	11.827

0 20 100 200 m

SCALE 1 : 2000

NO.	DATE	REVISIONS



EASTING	ELEVATION
32,584.507	11.184
32,406.006	14.482
32,403.999	14.260
32,405.201	11.827

0 20 100 200 m

SCALE 1 : 2000

431.600

431.600

431.400

NO.	DATE	REVISIONS	DESIGNATED	DESIGNED	APPROVED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT
AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT: WEST FLOODWAY / GARANG RIVER IMPROVEMENT

CHANNEL AND DIKE WORKS
GARANG RIVER
PLAN OF RIVER CHANNEL (6/8)

JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD. IN ASSOCIATION WITH
PACIFIC CONSULTANTS INTERNATIONAL AND
PASCO INTERNATIONAL INC.

DESIGNED
CHECKED
APPROVED
CHIEF OF PLANNING AND DESIGN
PROJECT MANAGER

PROVINCE: CENTRAL JAVA
PROJECT NAME: FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
DISTRICT: SEMARANG CITY
DRAWING NO. WS - P1 - CH - P1 - 7
SHEET NO. 9
DATE
CONTRACT NO.

NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT
AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

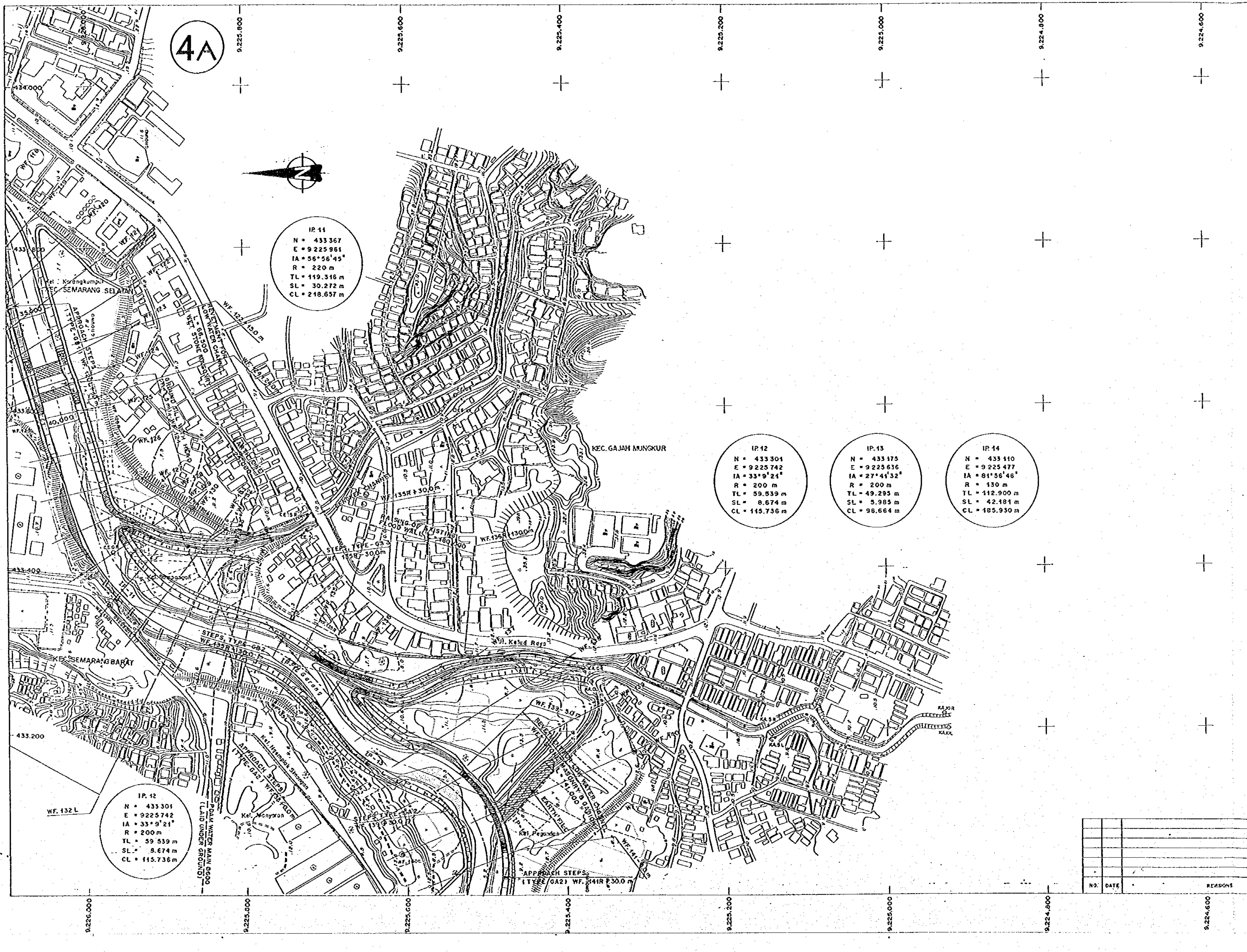
JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT: WEST FLOODWAY/GARANG RIVER IMPROVEMENT

CHANNEL AND DIKE WORKS
GARANG RIVER
PLAN OF RIVER CHANNEL (7/8)

JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO LTD. IN ASSOCIATION WITH
PACIFIC CONSULTANT INTERNATIONAL
PASCO INTERNATIONAL INC.

DESIGNED
CHECKED
APPROVED
CHIEF OF PLANNING AND DESIGN
PROJECT MANAGER

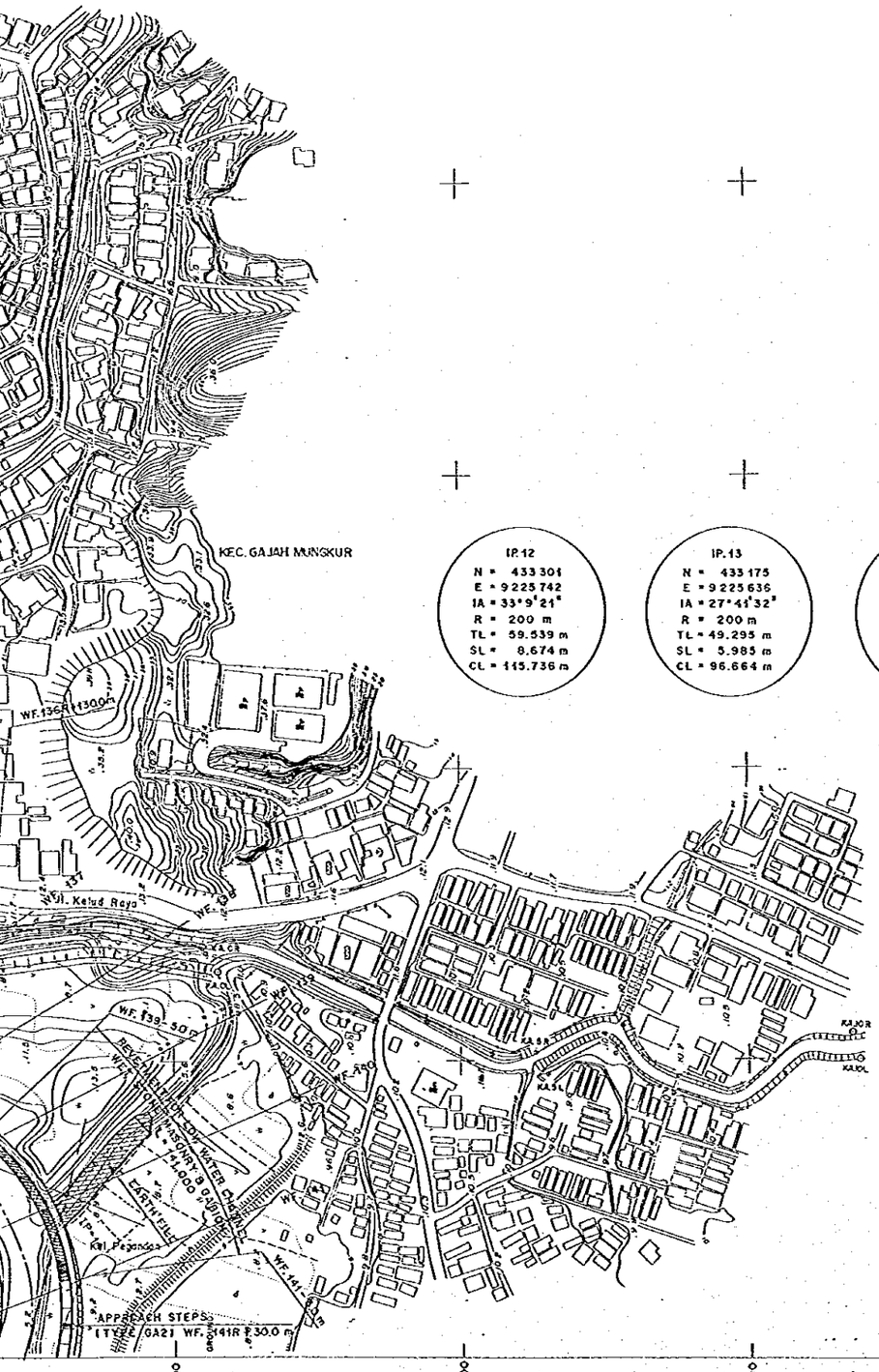
PROVINCE : CENTRAL JAVA
PROJECT NAME : FLOOD CONTROL URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
DISTRICT : SEMARANG CITY
DRAWING NO : WS-P1-CH-P1-8
SHEET NO : 18
DATE
CONTRACT NO :


4A
9.225.800
9.225.600
9.225.400
9.225.200
9.225.000
9.224.800
9.224.600
434.000
433.800
433.400
433.200
IP. 11
N = 433 367
E = 9 225 961
IA = 56°56'45"
R = 220 m
TL = 119.316 m
SL = 30.272 m
CL = 218.657 m
IP. 12
N = 433 301
E = 9 225 742
IA = 33°9'21"
R = 200 m
TL = 59.539 m
SL = 8.674 m
CL = 115.736 m
IP. 13
N = 433 175
E = 9 225 636
IA = 27°41'32"
R = 200 m
TL = 49.295 m
SL = 5.985 m
CL = 96.664 m
IP. 14
N = 433 110
E = 9 225 477
IA = 81°56'46"
R = 130 m
TL = 112.900 m
SL = 42.181 m
CL = 185.930 m
KEC. SEMARANG SELATAN
KEC. GAJAH MUNGKUR
KEC. SEMARANG BARAT
Jl. Kelud Raya
WF. 132 L
APPROACH STEPS (TYPE GA2) WF. 141R P.30.0 m
PDAM WATER MAIN Ø600 (LAID UNDER GROUND)
NO. DATE REVISIONS

9.225.400 | 9.225.200 | 9.225.000 | 9.224.800 | 9.224.600 | 9.224.400 | 9.224.200 | 9.224.000

NAME	NORTHING	EASTING	ELEVATION
KA.0L	9,225,369.666	433,261.624	-
KA.0R	9,225,379.883	433,279.000	-
KA.10L	9,224,922.285	433,200.877	-
KA.10R	9,224,927.549	433,218.797	11.332

NAME	NORTHING	EASTING	ELEVATION
CE.0L	9,225,944.110	433,421.945	-
CE.0R	9,225,966.662	433,424.409	-
CE.10L	9,225,537.985	433,595.944	10.994



IP.12
N = 433 301
E = 9 225 742
IA = 33°9'21"
R = 200 m
TL = 59.539 m
SL = 8.674 m
CL = 115.736 m

IP.13
N = 433 175
E = 9 225 636
IA = 27°41'32"
R = 200 m
TL = 49.295 m
SL = 5.985 m
CL = 96.664 m

IP.14
N = 433 110
E = 9 225 477
IA = 81°56'46"
R = 130 m
TL = 112.900 m
SL = 42.181 m
CL = 185.930 m

NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT
AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT: WEST FLOODWAY / GARANG RIVER IMPROVEMENT

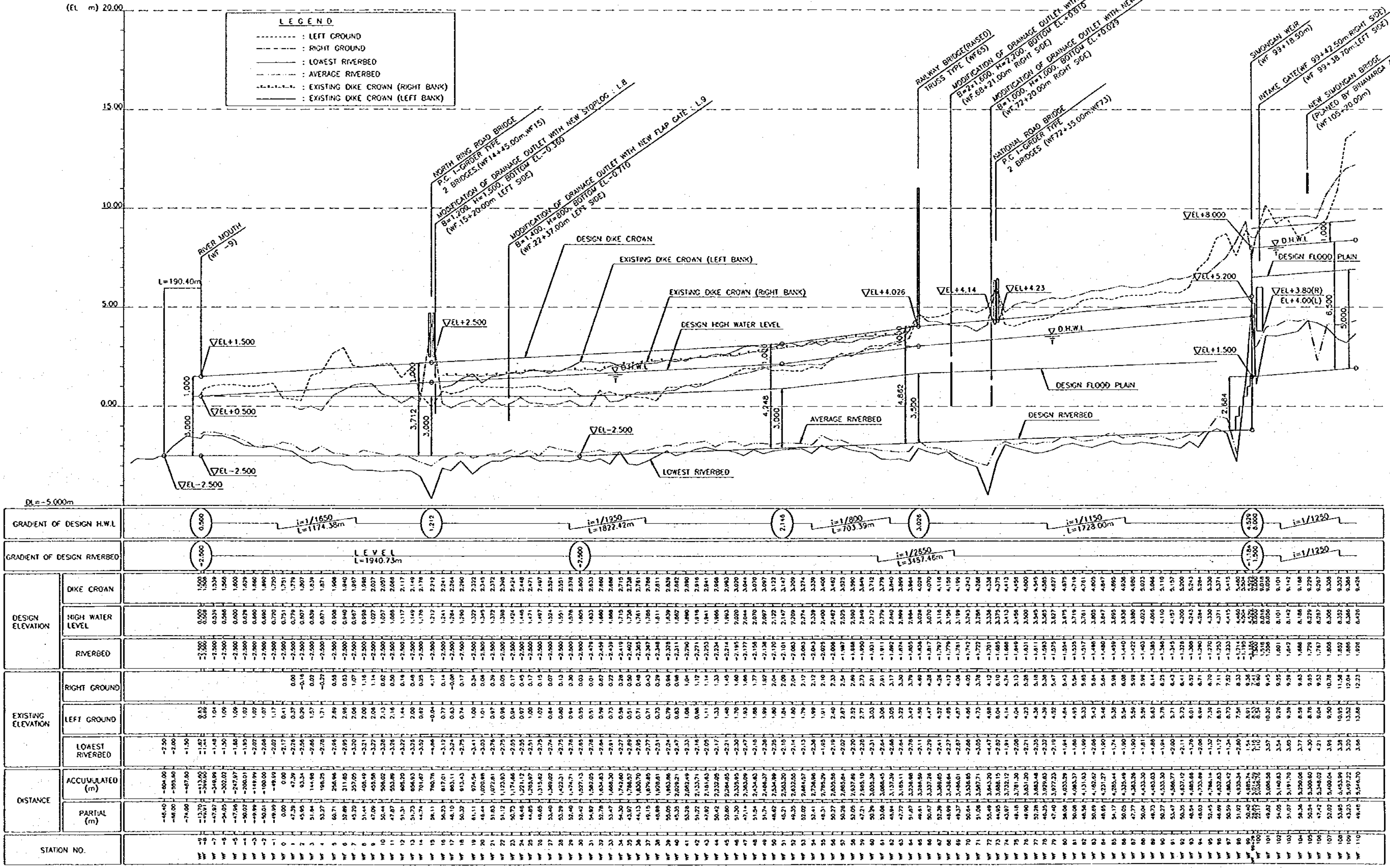
CHANNEL AND DIKE WORKS
TRIBUTARIES
PLAN OF RIVER CHANNEL (8/8)

JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO. LTD. IN ASSOCIATION WITH
PACIFIC CONSULTANTS INTERNATIONAL
PEDECON INTERNATIONAL INC.

DESIGNED | CHECKED | CHIEF OF PLANNING AND DESIGN | APPROVED | PROJECT MANAGER

PROVINCE: CENTRAL JAVA
PROJECT NAME: FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
DISTRICT: SEMARANG CITY
DRAWING NO. W3-P1-CH-P1-9
SHEET NO. 11
DATE | CONTRACT NO.

9.225.400 | 9.225.200 | 9.225.000 | 9.224.800 | 9.224.600 | 9.224.400 | 9.224.200 | 9.224.000



VERTICAL 0 5 10m
SCALE 1:100

HORIZONTAL 0 500 1,000m
SCALE 1:10,000

NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT
AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

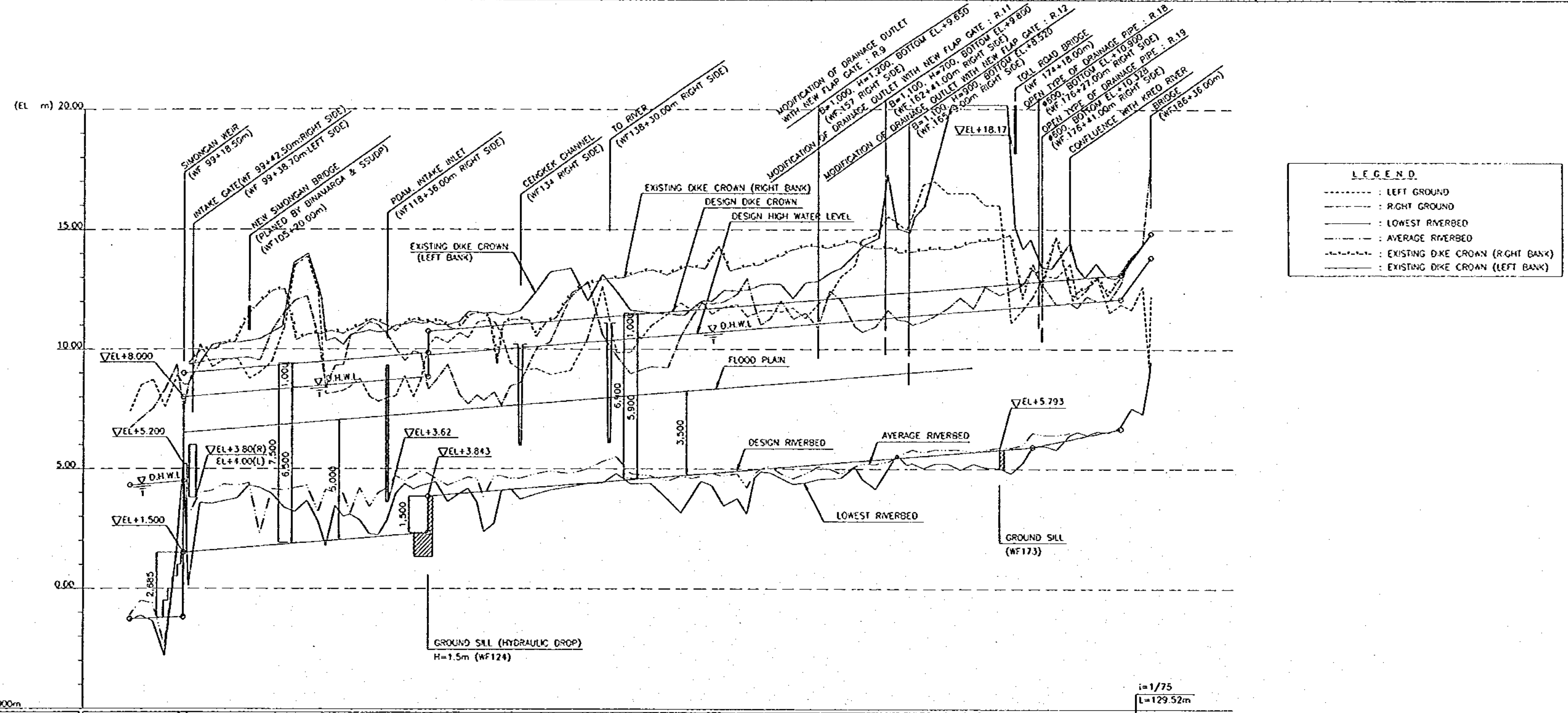
JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT

CHANNEL AND DIKE WORKS
WEST FLOODWAY
LONGITUDINAL PROFILE (1/2)

JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD in association with
PACIFIC CONSULTANTS INTERNATIONAL and
PASCO INTERNATIONAL INC.

DESIGNED
CHECKED
APPROVED
CHIEF OF PLANNING AND DESIGN
PROJECT MANAGER

PROVINCE: CENTRAL JAVA
PROJECT NAME: FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
DISTRICT: SEMARANG CITY
DRAWING NO. WO-P1-CH-LA-10
SHEET NO. 11
DATE
CONTRACT NO.



GRADIENT OF DESIGN H.W.L	4.529 / 8.000	i=1/1250 L=1053.35m	8.843 / 9.743	i=1/1250 L=2959.63m	12.110	i=1/75 L=129.52m	13.837
GRADIENT OF DESIGN RIVERBED	-1.184 / 1.500	i=1/1250 L=1053.35m	2.343 / 3.843	i=1/1250 L=2583.68m	5.910	i=1/500 L=376.00m	6.682

STATION NO.	DESIGN ELEVATION: DIKE CROWN	DESIGN ELEVATION: HIGH WATER LEVEL	DESIGN ELEVATION: RIVERBED	EXISTING ELEVATION: RIGHT GROUND	EXISTING ELEVATION: LEFT GROUND	EXISTING ELEVATION: LOWEST RIVERBED	DISTANCE: ACCUMULATED (m)	DISTANCE: PARTIAL (m)
WF 95	5.330	4.330	-1.270	6.70	7.39	-1.32	4,788.14	52.45
WF 96	5.371	4.371	-1.253	7.11	6.51	-1.12	4,837.83	48.69
WF 97	5.415	4.415	-1.233	7.52	6.73	-1.34	4,883.42	50.59
WF 98	5.460	4.460	-1.214	6.53	7.36	-2.80	4,935.34	51.92
WF 99	5.504	4.504	-1.185	9.36	6.91	1.54	4,985.74	50.40
WF 99+[illegible]	5.529 9.000	4.529 8.000	-1.184 1.500	7.41	6.23	2.10	5,014.77	29.03
WF 100	9.018	8.018	1.518	6.60	6.53	1.10	5,036.76	22.17
WF 101	9.058	8.058	1.558	9.45	10.20	3.57	5,086.58	49.82
WF 102	9.101	8.101	1.601	9.55	9.26	3.54	5,140.63	54.05
WF 103	9.147	8.142	1.642	9.59	9.59	3.85	5,191.70	51.07
WF 104	9.188	8.188	1.688	9.63	8.59	3.77	5,250.06	58.36
WF 105	9.229	8.229	1.729	9.65	8.78	4.30	5,300.60	50.54
WF 106	9.267	8.267	1.767	9.53	9.64	4.21	5,348.02	47.42
WF 107	9.308	8.308	1.808	10.78	9.50	3.96	5,400.04	52.02
WF 108	9.352	8.352	1.852	11.58	10.95	3.38	5,453.99	53.95
WF 109	9.388	8.388	1.888	12.04	13.52	3.20	5,497.22	43.23
WF 110	9.426	8.426	1.926	12.23	13.88	3.68	5,546.70	49.46
WF 111	9.464	8.464	1.964	10.51	12.32	2.80	5,595.02	48.32
WF 112	9.491	8.491	1.991	8.40	8.13	1.78	5,627.95	32.93
WF 113	9.522	8.522	2.022	9.32	8.19	3.45	5,667.40	39.45
WF 114	9.550	8.550	2.050	9.33	8.27	3.02	5,702.32	34.92
WF 115	9.575	8.575	2.075	10.35	8.44	3.09	5,732.86	30.54
WF 116	9.607	8.607	2.107	10.83	8.77	2.87	5,772.97	40.11
WF 117	9.640	8.640	2.140	11.14	8.01	2.29	5,814.35	41.38
WF 118	9.670	8.670	2.170	11.00	7.81	2.25	5,852.70	38.35
WF 119	9.701	8.701	2.201	10.61	7.97	2.85	5,890.38	37.68
WF 120	9.731	8.731	2.231	10.01	8.04	3.96	5,928.56	38.20
WF 121	9.767	8.767	2.262	9.51	8.88	4.37	5,967.02	38.44
WF 122	9.792	8.792	2.292	9.91	8.00	4.15	6,004.80	37.78
WF 123	9.816	8.818	2.318	9.82	8.72	4.29	6,037.07	32.27
WF 124	9.843 10.743	8.843 9.743	2.343 3.843	8.32	10.13	4.38	6,067.94	30.87
WF 125	10.768	9.768	3.868	8.67	10.50	4.45	6,100.74	32.80
WF 126	10.810	9.810	3.910	9.35	10.26	3.63	6,152.37	51.63
WF 127	10.850	9.850	3.950	8.11	10.66	3.96	6,202.28	49.91
WF 128	10.881	9.881	3.981	7.70	10.46	4.16	6,241.37	39.06
WF 129	10.912	9.912	4.012	8.06	11.12	3.61	6,279.75	38.38
WF 130	10.936	9.936	4.036	7.85	11.19	2.38	6,309.25	29.50
WF 131	10.972	9.972	4.072	8.20	11.15	2.72	6,354.74	45.49
WF 132	10.997	9.997	4.097	7.64	10.59	4.06	6,385.47	30.73
WF 133	11.027	10.027	4.127	8.47	9.41	4.17	6,422.85	37.38
WF 134	11.060	10.060	4.160	8.38	9.12	3.73	6,464.59	41.74
WF 135	11.118	10.118	4.218	10.06	9.16	3.95	6,536.56	71.97
WF 136	11.164	10.164	4.264	10.30	8.94	4.11	6,594.76	58.20
WF 137	11.236	10.236	4.336	12.10	9.11	4.25	6,684.44	89.68
WF 138	11.294	10.294	4.394	12.63	10.45	4.37	6,756.92	72.48
WF 139	11.343	10.343	4.443	10.62	12.61	4.40	6,818.67	61.75
WF 140	11.393	10.393	4.493	9.72	9.86	4.60	6,880.62	61.95
WF 141	11.440	10.440	4.540	8.98	9.87	4.38	6,939.69	59.07
WF 142	11.509	10.509	4.609	9.27	10.86	4.39	7,028.08	88.39
WF 143	11.568	10.568	4.668	9.23	11.50	3.71	7,099.14	73.06
WF 144	11.613	10.613	4.713	10.56	11.95	3.16	7,155.38	56.24
WF 145	11.650	10.650	4.750	11.38	11.61	3.89	7,202.27	46.89
WF 146	11.679	10.679	4.779	11.93	12.00	4.48	7,238.45	36.18
WF 147	11.713	10.713	4.813	11.91	11.48	4.31	7,280.89	42.44
WF 148	11.753	10.753	4.853	11.98	11.78	3.45	7,331.20	50.31
WF 149	11.800	10.800	4.900	12.32	11.88	3.76	7,389.16	57.96
WF 150	11.833	10.833	4.933	12.96	11.38	3.12	7,430.69	41.51
WF 151	11.860	10.860	4.960	11.78	11.58	4.63	7,464.12	33.43
WF 152	11.881	10.881	4.981	11.03	11.62	4.67	7,490.65	26.53
WF 153	11.914	10.914	5.014	11.28	11.64	4.64	7,531.57	40.92
WF 154	11.950	10.950	5.050	12.04	11.58	4.62	7,577.38	45.81
WF 155	11.992	10.992	5.092	11.28	11.74	4.38	7,629.14	51.76
WF 156	12.035	11.035	5.135	11.53	11.31	4.42	7,683.68	54.54
WF 157	12.080	11.080	5.180	10.89	11.92	4.57	7,739.75	56.07
WF 158	12.120	11.120	5.220	12.46	12.26	4.60	7,789.98	50.73
WF 159	12.159	11.159	5.259	12.05	13.04	4.62	7,838.56	48.58
WF 160	12.207	11.207	5.307	10.97	13.50	5.08	7,898.12	59.56
WF 161	12.232	11.232	5.332	10.74	14.58	4.58	7,930.13	32.01
WF 162	12.278	11.278	5.378	10.95	14.78	4.16	7,986.50	56.37
WF 163	12.319	11.319	5.419	11.65	15.54	4.96	8,038.85	52.35
WF 164	12.350	11.350	5.450	11.25	15.28	5.61	8,076.84	37.08
WF 165	12.381	11.381	5.481	11.78	14.98	5.17	8,116.43	39.59
WF 166	12.401	11.401	5.501	11.83	15.55	5.23	8,140.37	23.64
WF 167	12.437	11.437	5.537	11.18	16.65	5.03	8,185.43	45.08
WF 168	12.472	11.472	5.572	11.38	17.00	5.21	8,229.96	44.53
WF 169	12.516	11.516	5.616	11.71	16.50	5.23	8,285.05	55.09
WF 170	12.559	11.559	5.659	12.17	16.50	4.97	8,338.49	53.44
WF 171	12.603	11.603	5.703	11.71	16.50	5.21	8,393.47	54.98
WF 172	12.643	11.643	5.743	12.61	16.00	5.06	8,442.96	49.49
WF 173	12.693	11.693	5.793	12.28	16.00	5.03	8,506.03	63.07
WF 174	12.735	11.735	5.835	12.47	11.10	4.61	8,558.61	52.58
WF 175	12.776	11.770	5.876	12.70	11.88	5.26	8,609.68	51.07
WF 176	12.810	11.810	5.910	13.38	12.18	5.91	8,651.62	41.94
WF 177	12.849	11.849	6.009	12.81	13.08	5.86	8,700.95	49.33
WF 178	12.893	11.893	6.119	11.67	13.00	5.61	8,755.95	55.00
WF 179	12.940	11.940	6.235	11.86	13.56	6.42	8,813.97	58.02
WF 180	12.963	11.963	6.294	11.75	12.14	6.54	8,843.62	29.65
WF 181	12.998	11.998	6.377	12.23	12.51	6.42	8,885.02	41.40
WF 182	13.032	12.032	6.465	12.01	12.97	6.56	8,929.15	44.13
WF 183	13.073	12.073	6.568	12.06	11.54	6.51	8,980.49	51.34
WF 184	13.110	12.110	6.682	12.74	11.89	6.78	9,027.62	47.13
WF 185	13.734	12.734		13.88	11.67	7.52	9,074.41	46.79
WF 186	14.299	13.299		14.37	12.85	[illegible]	9,121.81	47.40
WF 186+[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
WF 186+[illegible]	14.837	13.837		[illegible]	12.24	8.46	9,157.14	[illegible]

VERTICAL 0 5 10m
SCALE 1:100

HORIZONTAL 0 500 1,000m
SCALE 1:10,000

NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT
AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT
CHANNEL AND DIKE WORKS
WEST FLOODWAY
LONGITUDINAL PROFILE (2/2)

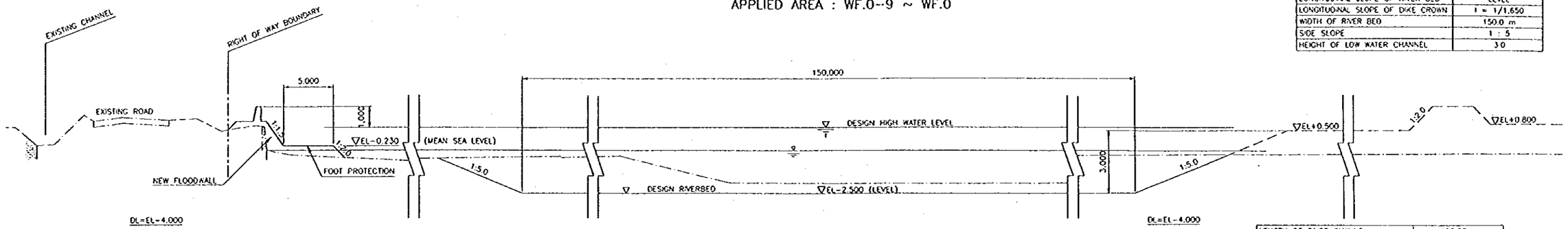
JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD IN ASSOCIATION WITH
PACIFIC CONSULTANTS INTERNATIONAL
PASCO INTERNATIONAL INC

DESIGNED
CHECKED
APPROVED
CHIEF OF PLANNING AND DESIGN
PROJECT MANAGER

PROVINCE: CENTRAL JAVA
PROJECT NAME: FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
DISTRICT: SEMARANG CITY
DRAWING NO. WG - P1 - CH - Lo - 11
SHEET NO. 13
DATE
CONTRACT NO.

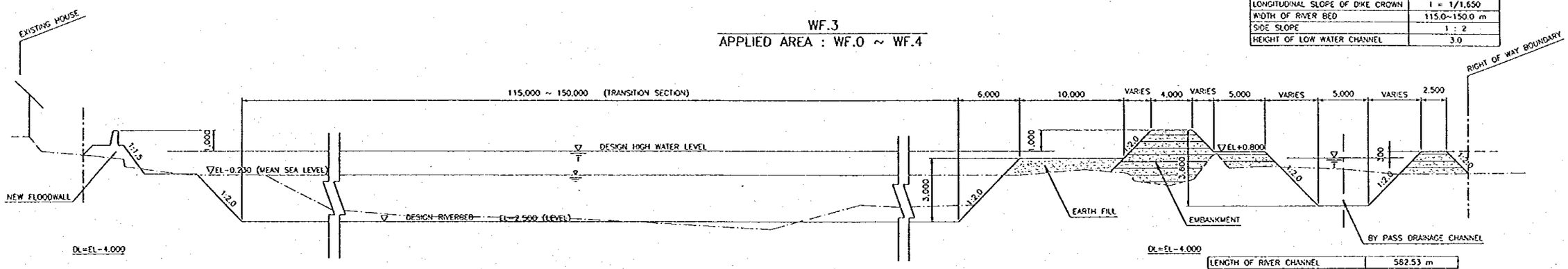
WF.0-3
APPLIED AREA : WF.0--9 ~ WF.0

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



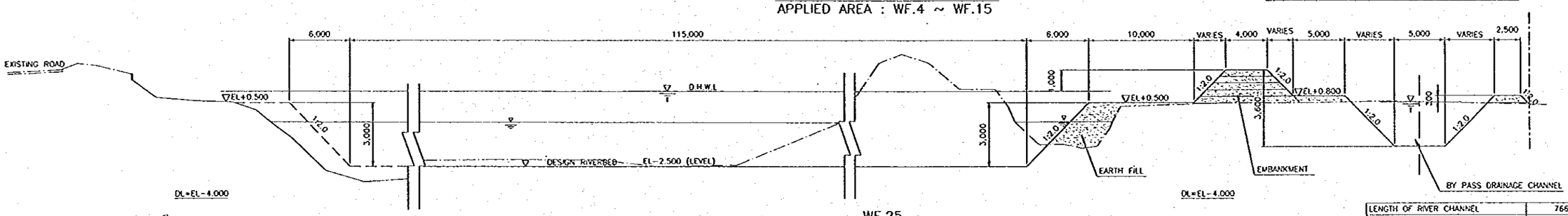
WF.3
APPLIED AREA : WF.0 ~ WF.4

LENGTH OF RIVER CHANNEL	193.25 m
LONGITUDINAL SLOPE OF RIVER BED	LEVEL
LONGITUDINAL SLOPE OF DIKE CROWN	I = 1/1,650
WIDTH OF RIVER BED	115.0~150.0 m
SIDE SLOPE	1 : 2
HEIGHT OF LOW WATER CHANNEL	3.0



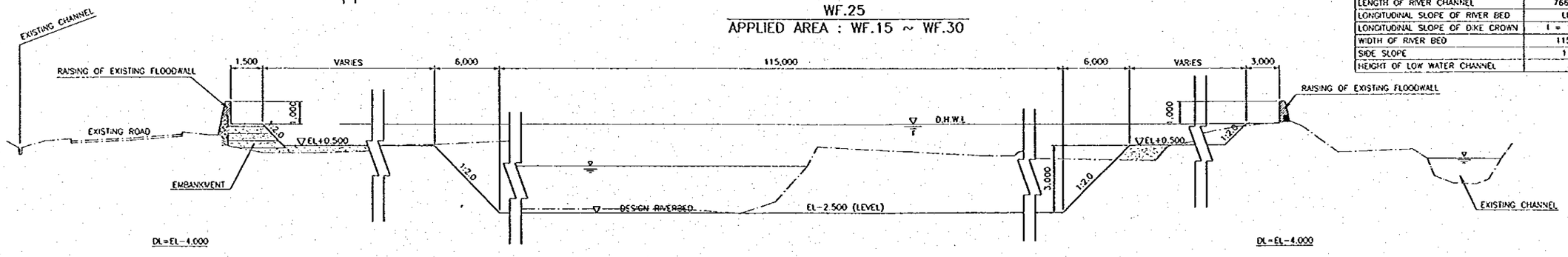
WF.9
APPLIED AREA : WF.4 ~ WF.15

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



WF.25
APPLIED AREA : WF.15 ~ WF.30

LENGTH OF RIVER CHANNEL	766.35 m
LONGITUDINAL SLOPE OF RIVER BED	LEVEL
LONGITUDINAL SLOPE OF DIKE CROWN	I = 1/1,950
WIDTH OF RIVER BED	115.0 m
SIDE SLOPE	1 : 2
HEIGHT OF LOW WATER CHANNEL	3.0



VERTICAL 0 5.0 10 m
SCALE 1 : 100

HORIZONTAL 0 10 20 m
SCALE 1 : 200

NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT
AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT

CHANNEL AND DIKE WORKS
WEST FLOODWAY
STANDARD CROSS SECTION OF RIVER CHANNEL(1/4)

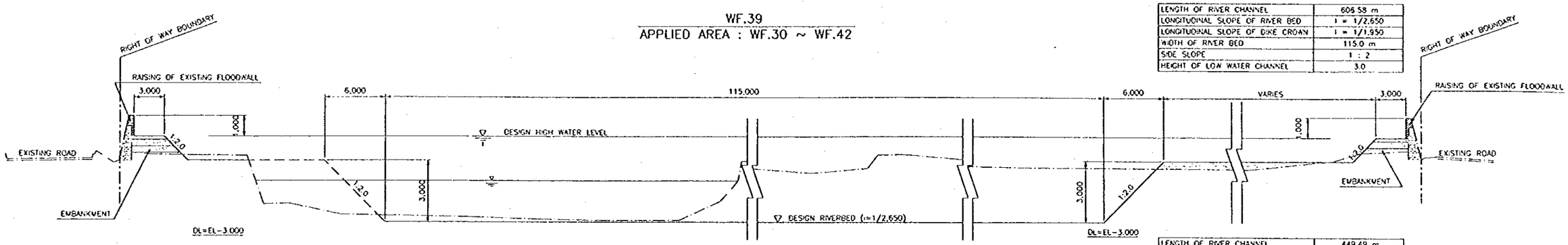
JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD in association with PACIFIC CONSULTANTS INTERNATIONAL and TAISEI INTERNATIONAL INC.

DESIGNED | CHECKED | APPROVED | CHIEF OF PLANNING AND DESIGN | PROJECT MANAGER

PROVINCE: CENTRAL JAVA
PROJECT NAME: FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
DISTRICT: SEMARANG CITY
DRAWING NO. WS-P1-CH-Cr-12
SHEET NO. 14
DATE | CONTRACT NO.

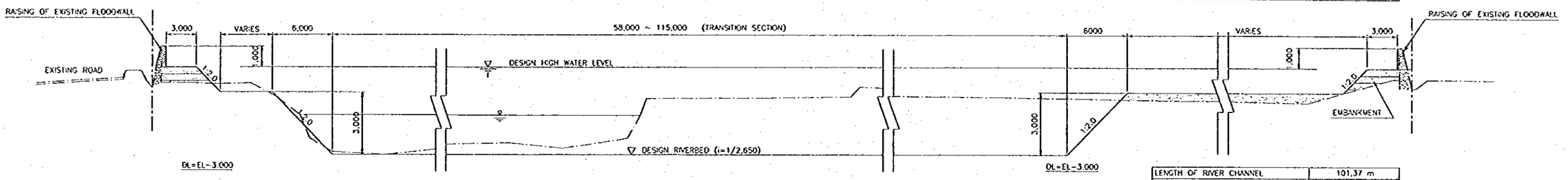
WF.39
APPLIED AREA : WF.30 ~ WF.42

LENGTH OF RIVER CHANNEL	606.58 m
LONGITUDINAL SLOPE OF RIVER BED	I = 1/2,650
LONGITUDINAL SLOPE OF DIKE CROWN	I = 1/1,950
WIDTH OF RIVER BED	115.0 m
SIDE SLOPE	1 : 2
HEIGHT OF LOW WATER CHANNEL	3.0



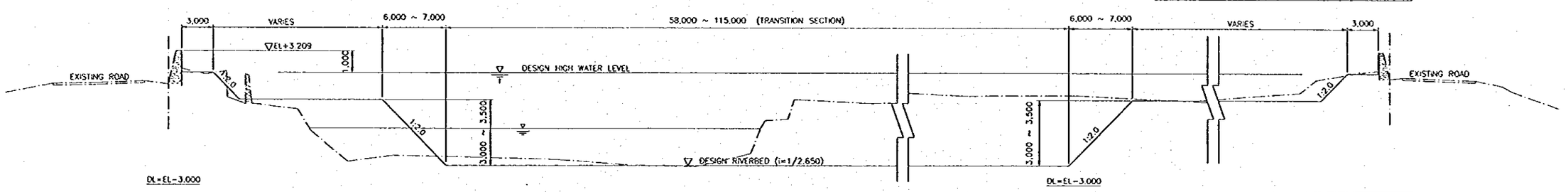
WF.44
APPLIED AREA : WF.42 ~ WF.51

LENGTH OF RIVER CHANNEL	449.49 m
LONGITUDINAL SLOPE OF RIVER BED	I = 1/2,650
LONGITUDINAL SLOPE OF DIKE CROWN	I = 1/1,950
WIDTH OF RIVER BED	58.0~115.0 m
SIDE SLOPE	1 : 2
HEIGHT OF LOW WATER CHANNEL	3.0



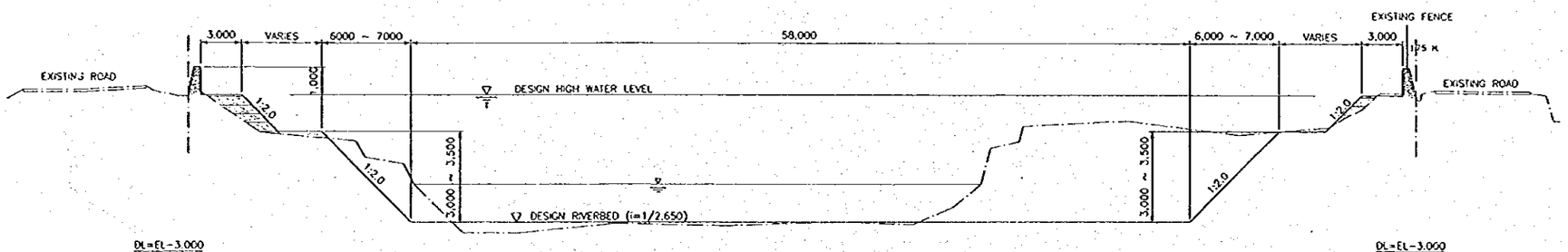
WF.52
APPLIED AREA : WF.51 ~ WF.53

LENGTH OF RIVER CHANNEL	101.37 m
LONGITUDINAL SLOPE OF RIVER BED	I = 1/2,650
LONGITUDINAL SLOPE OF DIKE CROWN	I = 1/800
WIDTH OF RIVER BED	58.0~115.0 m
SIDE SLOPE	1 : 2
HEIGHT OF LOW WATER CHANNEL	3.0~3.5 m



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

LENGTH OF RIVER CHANNEL	602.02 m
LONGITUDINAL SLOPE OF RIVER BED	I = 1/2,650
LONGITUDINAL SLOPE OF DIKE CROWN	I = 1/800
WIDTH OF RIVER BED	58.0 m
SIDE SLOPE	1 : 2
HEIGHT OF LOW WATER CHANNEL	3.0~3.5 m



VERTICAL 0 5.0 10 m
SCALE 1 : 100

HORIZONTAL 0 10 20 m
SCALE 1 : 200

NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSELAMA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT

CHANNEL AND DIKE WORKS
WEST FLOODWAY

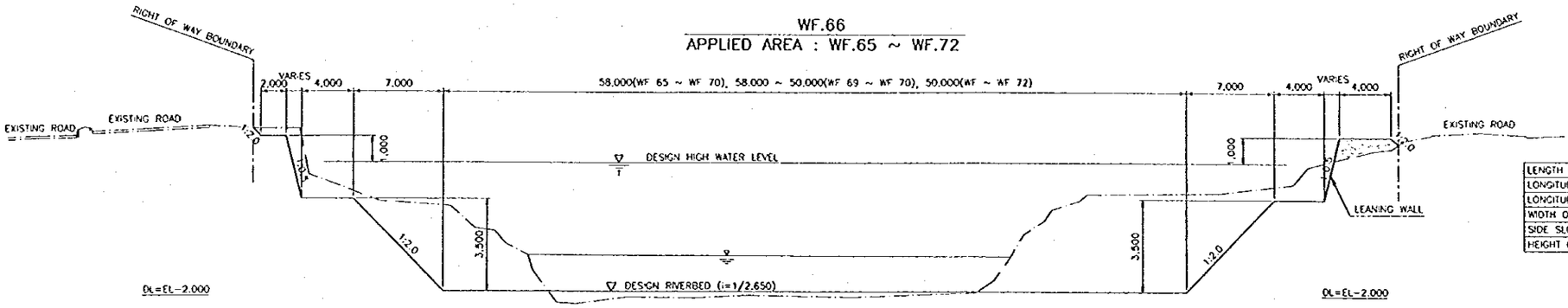
STANDARD CROSS SECTION OF RIVER CHANNEL(2/4)

JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD in association with PACIFIC CONSULTANTS INTERNATIONAL and PACO INTERNATIONAL INC.

DESIGNED | CHECKED | APPROVED — CHIEF OF PLANNING AND DESIGN — PROJECT MANAGER

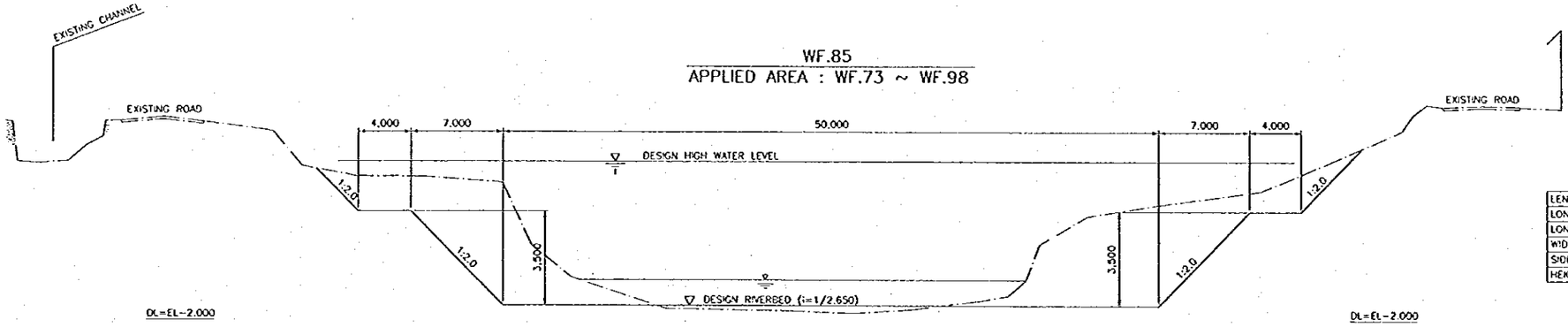
PROVINCE: CENTRAL JAVA
PROJECT NAME: FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
DISTRICT: SEMARANG CITY
DRAWING NO. W9-P1-CH-Cr-13
SHEET NO. 13
DATE | CONTRACT NO.

WF.66
APPLIED AREA : WF.65 ~ WF.72



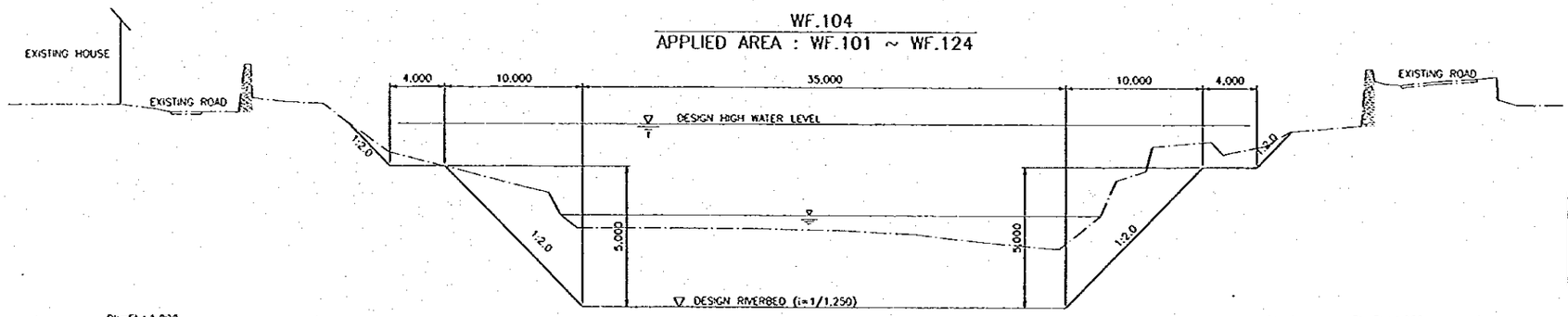
LENGTH OF RIVER CHANNEL	356.61 m
LONGITUDINAL SLOPE OF RIVER BED	I = 1/2,650
LONGITUDINAL SLOPE OF DIKE CROWN	-
WIDTH OF RIVER BED	58.0/50.0 m
SIDE SLOPE	1 : 2/1.0.5
HEIGHT OF LOW WATER CHANNEL	3.5 m

WF.85
APPLIED AREA : WF.73 ~ WF.98



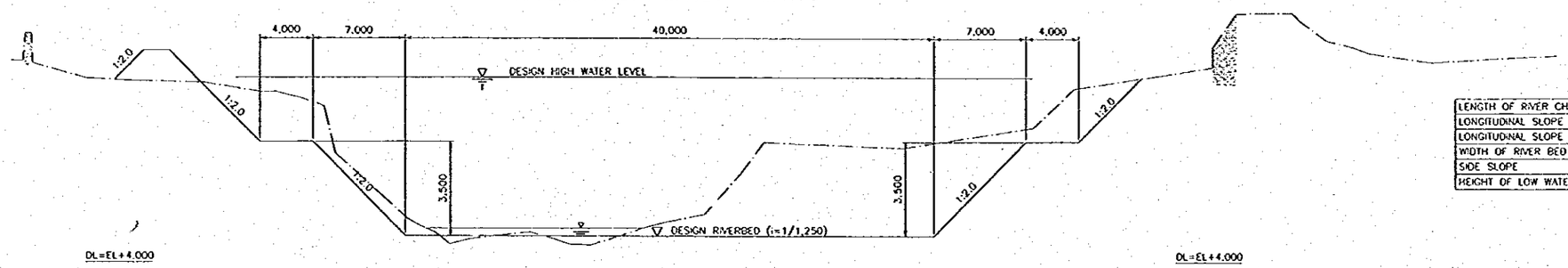
LENGTH OF RIVER CHANNEL	1,247.19 m
LONGITUDINAL SLOPE OF RIVER BED	I = 1/2,650
LONGITUDINAL SLOPE OF DIKE CROWN	-
WIDTH OF RIVER BED	50.0 m
SIDE SLOPE	1 : 2
HEIGHT OF LOW WATER CHANNEL	3.5 m

WF.104
APPLIED AREA : WF.101 ~ WF.124



LENGTH OF RIVER CHANNEL	981.36 m
LONGITUDINAL SLOPE OF RIVER BED	I = 1/1,250
LONGITUDINAL SLOPE OF DIKE CROWN	-
WIDTH OF RIVER BED	35.0 m
SIDE SLOPE	1 : 2
HEIGHT OF LOW WATER CHANNEL	5.0 m

WF.151
APPLIED AREA : WF.124 ~ WF.176



LENGTH OF RIVER CHANNEL	2,583.68 m
LONGITUDINAL SLOPE OF RIVER BED	I = 1/1,250
LONGITUDINAL SLOPE OF DIKE CROWN	-
WIDTH OF RIVER BED	40.0 m
SIDE SLOPE	1 : 2
HEIGHT OF LOW WATER CHANNEL	3.5 m

VERTICAL 0 5.0 10 m — SCALE 1 : 100

HORIZONTAL 0 10 20 m — SCALE 1 : 200

NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT

CHANNEL AND DIKE WORKS
WEST FLOODWAY
STANDARD CROSS SECTION OF RIVER CHANNEL (3/4)

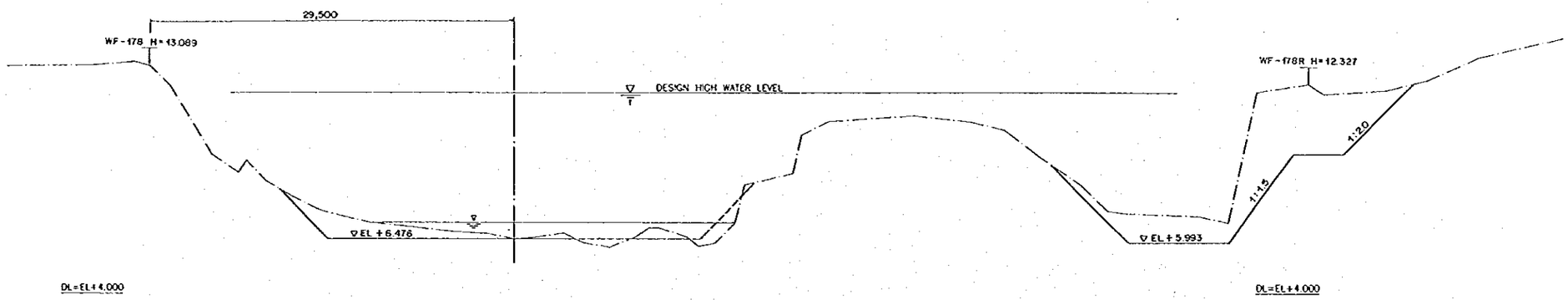
JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD in association with PACIFIC CONSULTANTS INTERNATIONAL and PASCO INTERNATIONAL INC.

DESIGNED | CHECKED | APPROVED | CHIEF OF PLANNING AND DESIGN | PROJECT MANAGER

PROVINCE: CENTRAL JAVA
PROJECT NAME: FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
DISTRICT: SEMARANG CITY
DRAWING NO. W8 - P1 - CH - Cr - 14
SHEET NO. 16
DATE | CONTRACT NO.

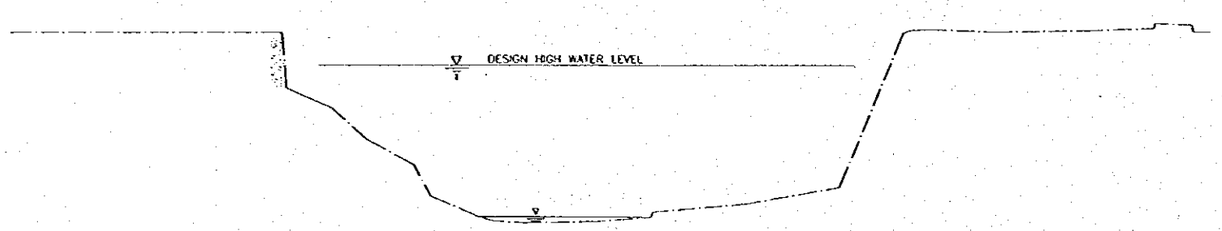
WF.178
APPLIED AREA : WF.176 ~ WF.184

LENGTH OF RIVER CHANNEL	376.0 m
LONGITUDINAL SLOPE OF RIVER BED	I = 1/500
LONGITUDINAL SLOPE OF DIKE CROWN	-
WIDTH OF RIVER BED	30.0~40.0 m
SIDE SLOPE	1 : 2
HEIGHT OF LOW WATER CHANNEL	3.0~3.5 m



WF.185
APPLIED AREA : WF.184 ~ WF.186+36m

LENGTH OF RIVER CHANNEL	129.52 m
LONGITUDINAL SLOPE OF RIVER BED	-
LONGITUDINAL SLOPE OF DIKE CROWN	I = 1/75
WIDTH OF RIVER BED	-
SIDE SLOPE	1 : 2
HEIGHT OF LOW WATER CHANNEL	-



VERTICAL 0 5.0 10 m
SCALE 1 : 100
HORIZONTAL 0 10 20 m
SCALE 1 : 200

NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT
AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT

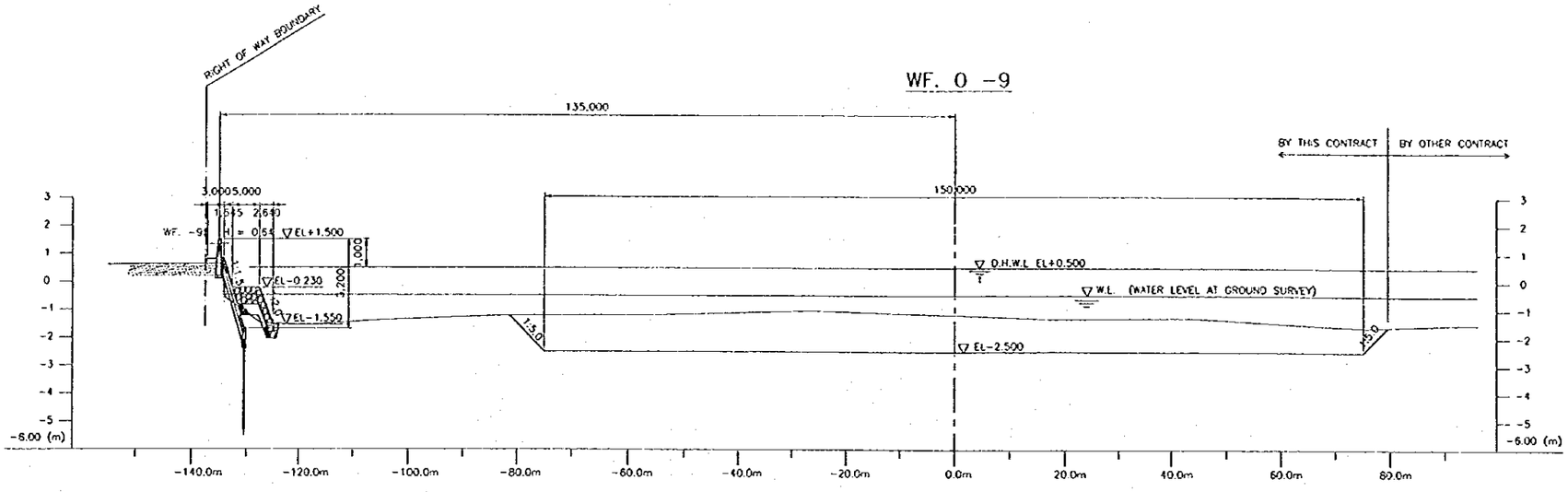
CHANNEL AND DIKE WORKS
GARANG RIVER
STANDARD CROSS SECTION OF RIVER CHANNEL (4/4)

JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD in association with PACIFIC CONSULTANTS INTERNATIONAL and FASCO INTERNATIONAL INC.

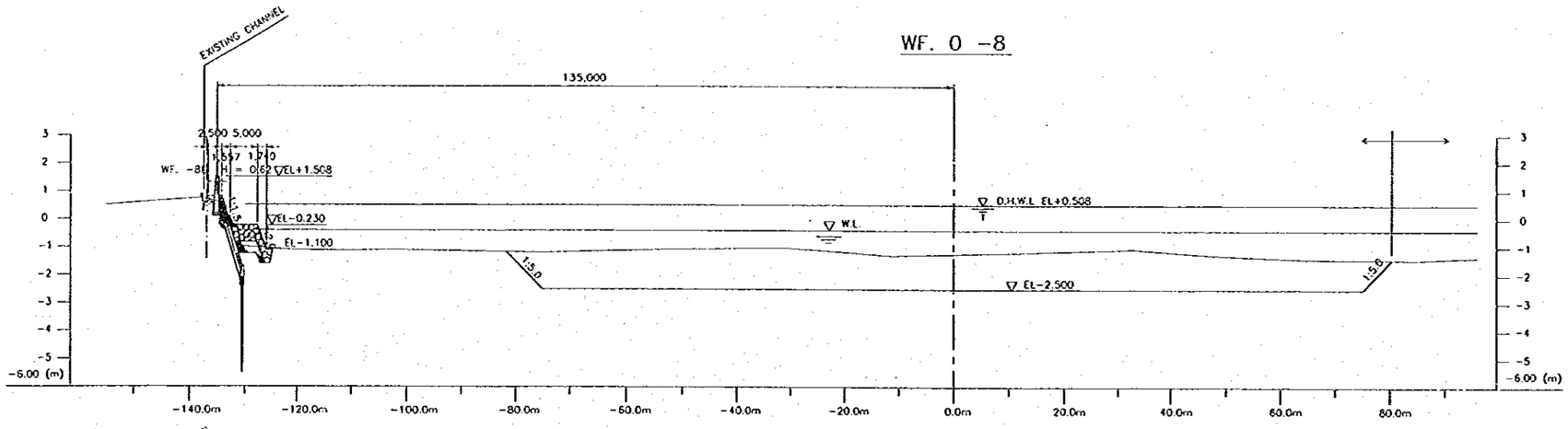
DESIGNED
CHECKED
APPROVED
CHIEF OF PLANNING AND DESIGN
PROJECT MANAGER

PROVINCE: CENTRAL JAVA
PROJECT NAME: FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
DISTRICT: SEMARANG CITY
DRAWING NO. W9-P1-CH-Cr-15
SHEET NO. 17
DATE
CONTRACT NO.

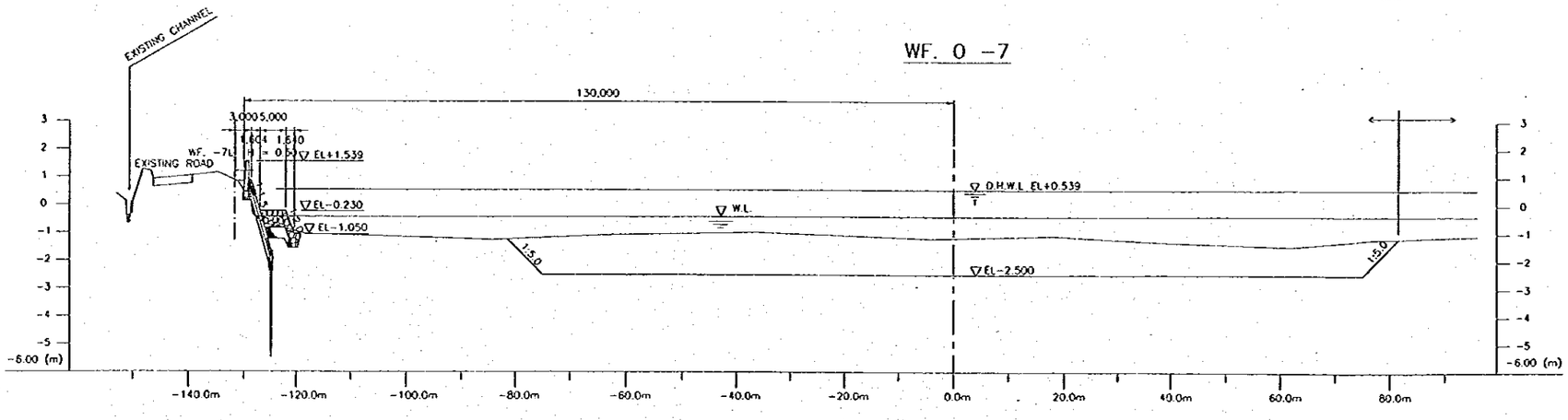
WF. 0 -9



WF. 0 -8



WF. 0 -7



VERTICAL 0 5.0 10 m
SCALE 1 : 100

HORIZONTAL 0 25 50 m
SCALE 1 : 500

NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

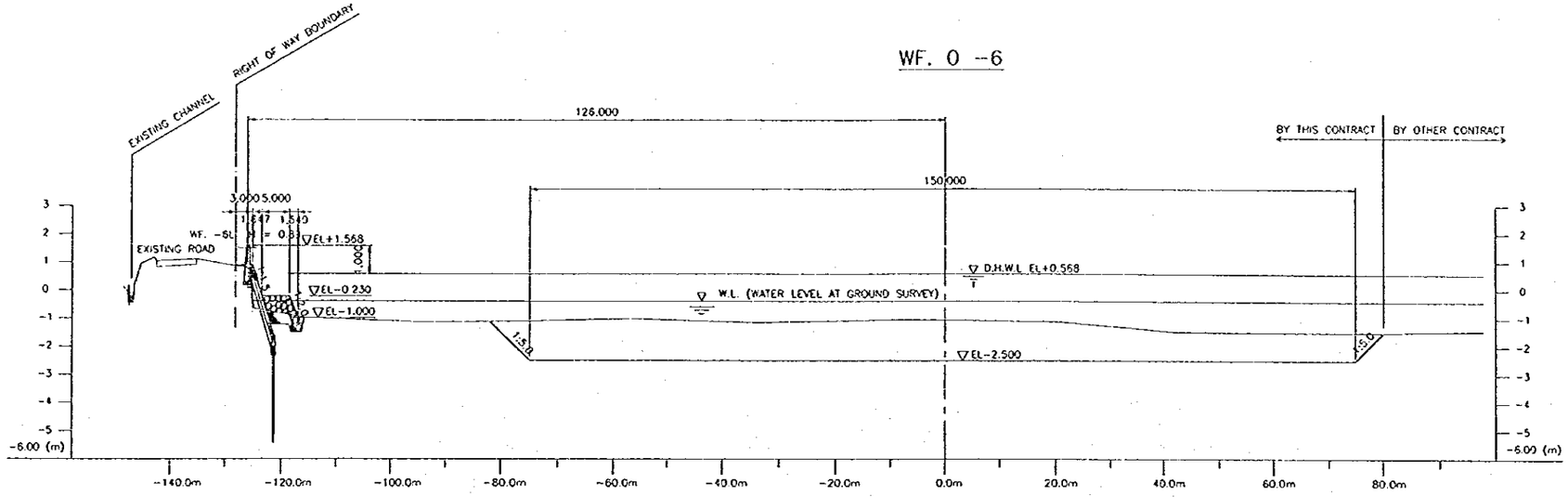
JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT: WEST FLOODWAY / GARANG RIVER IMPROVEMENT
CHANNEL AND DIKE WORKS
WEST FLOOD WAY
CROSS SECTIONS (1/39)

JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD in association with PACIFIC CONSULTANTS INTERNATIONAL and PASCO INTERNATIONAL INC.

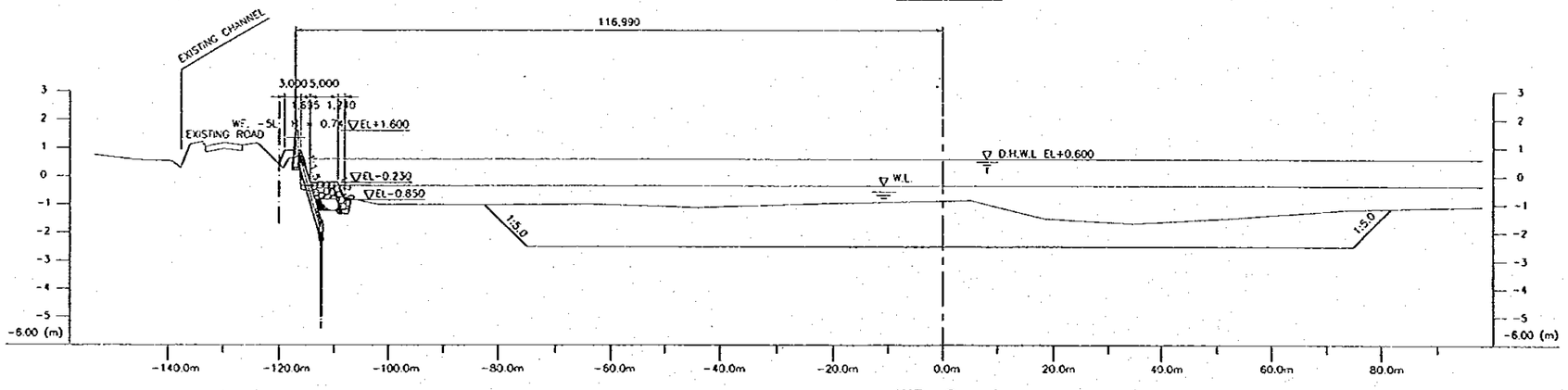
DESIGNED | CHECKED | APPROVED | CHIEF OF PLANNING AND DESIGN | PROJECT MANAGER

PROVINCE: CENTRAL JAVA
PROJECT NAME: FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
DISTRICT: SEMARANG CITY
DRAWING NO. WG-P1-CH-Cr.16
SHEET NO. 18
DATE | CONTRACT NO.

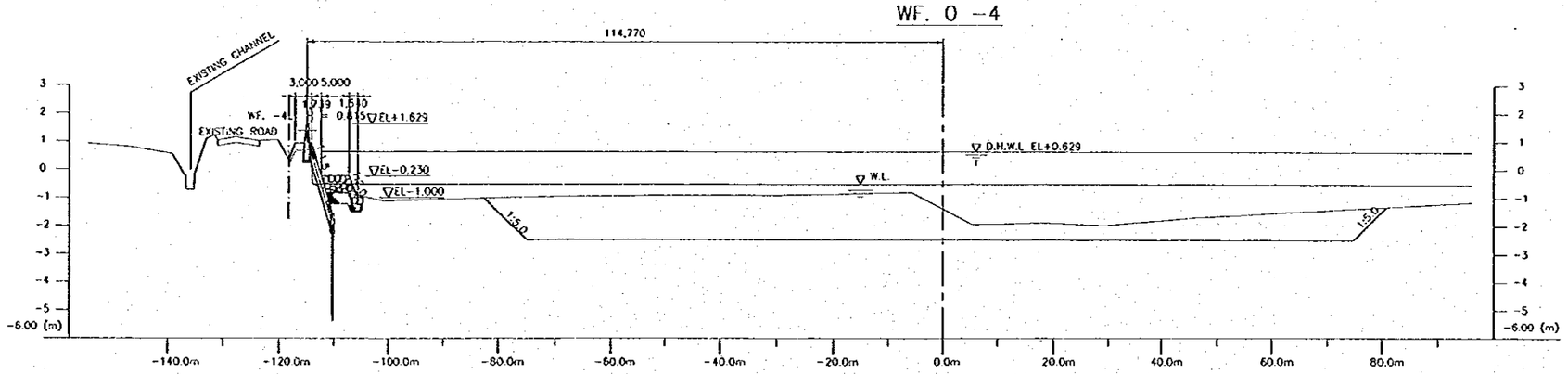
WF. O -6



WF. O -5



WF. O -4



VERTICAL 0 5.0 10 m
SCALE 1 : 100

HORIZONTAL 0 25 50 m
SCALE 1 : 500

NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT: WEST FLOODWAY / GARANG RIVER IMPROVEMENT

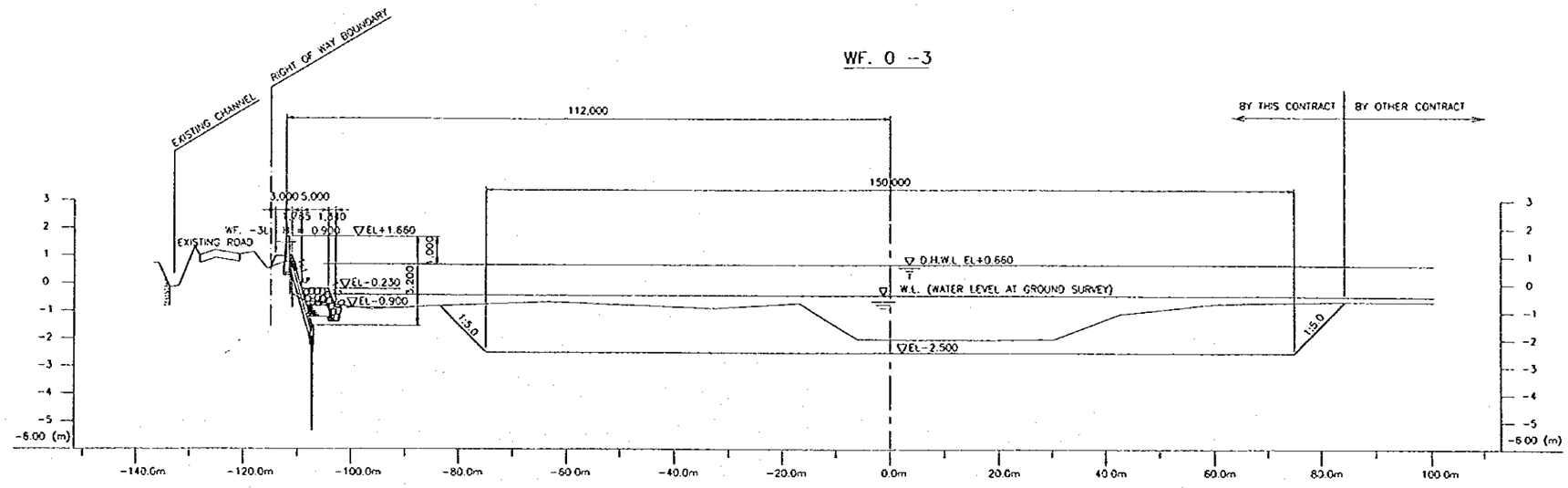
CHANNEL AND DIKE WORKS
WEST FLOOD WAY
CROSS SECTIONS (2/39)

JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD. in association with PACIFIC CONSULTANTS INTERNATIONAL and FASCO INTERNATIONAL INC.

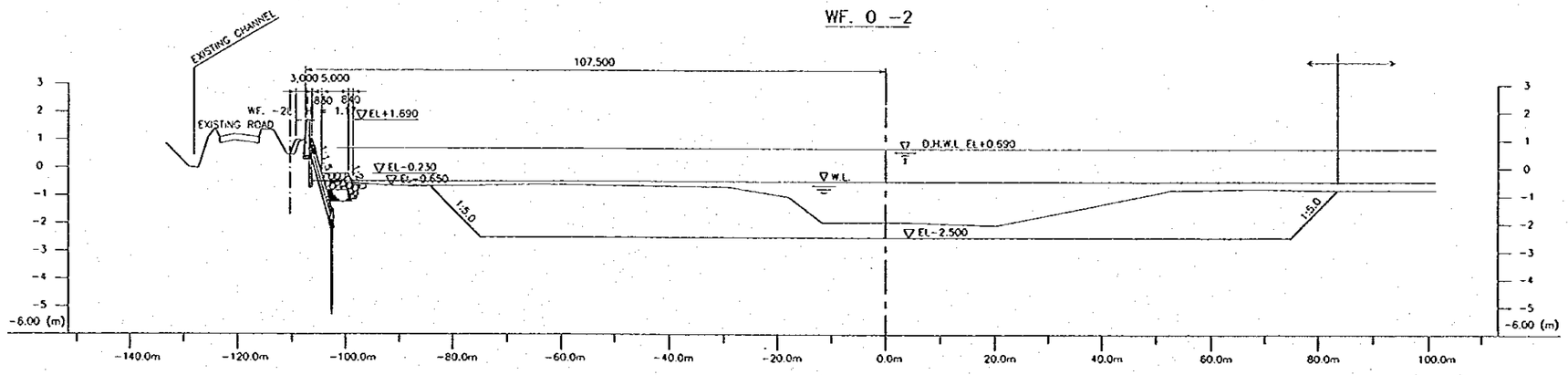
DESIGNED
CHECKED
APPROVED
CHIEF OF PLANNING AND DESIGN
PROJECT MANAGER

PROVINCE: CENTRAL JAVA
PROJECT NAME: FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT OF SEMARANG IN THE REPUBLIC OF INDONESIA
DISTRICT: SEMARANG CITY
DRAWING NO. W8-P4-CH-Cr.17
SHEET NO. 19
DATE
CONTRACT NO.

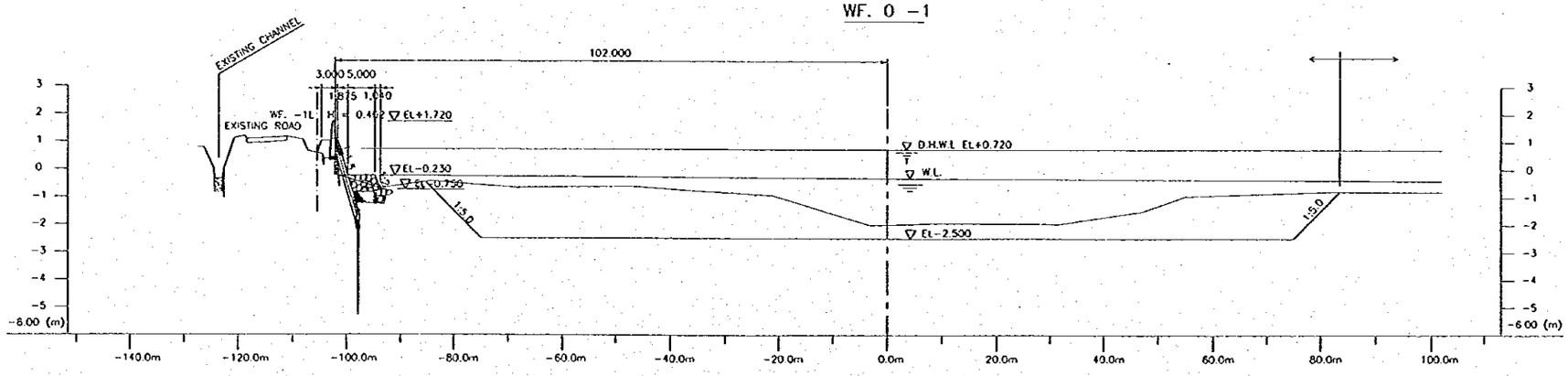
WF. 0 --3



WF. 0 --2



WF. 0 --1



VERTICAL 0 5.0 10 m
SCALE 1 : 100

HORIZONTAL 0 25 50 m
SCALE 1 : 500

NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT: WEST FLOODWAY / GARANG RIVER IMPROVEMENT

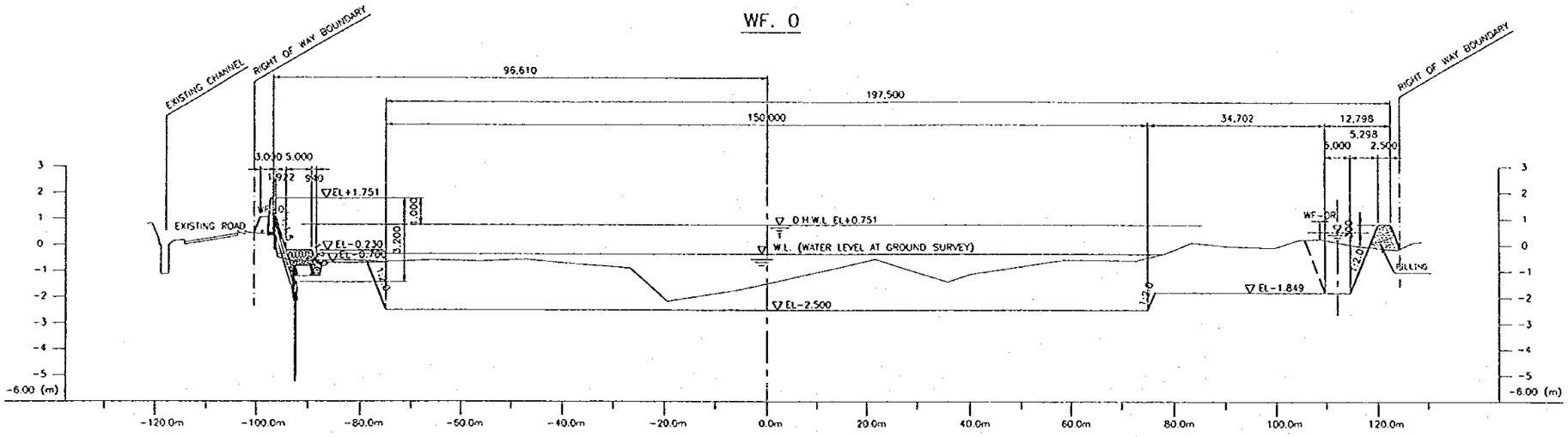
CHANNEL AND DIKE WORKS
WEST FLOOD WAY
CROSS SECTIONS (3/39)

JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD. in association with PACIFIC CONSULTANTS INTERNATIONAL and TAROO INTERNATIONAL INC.

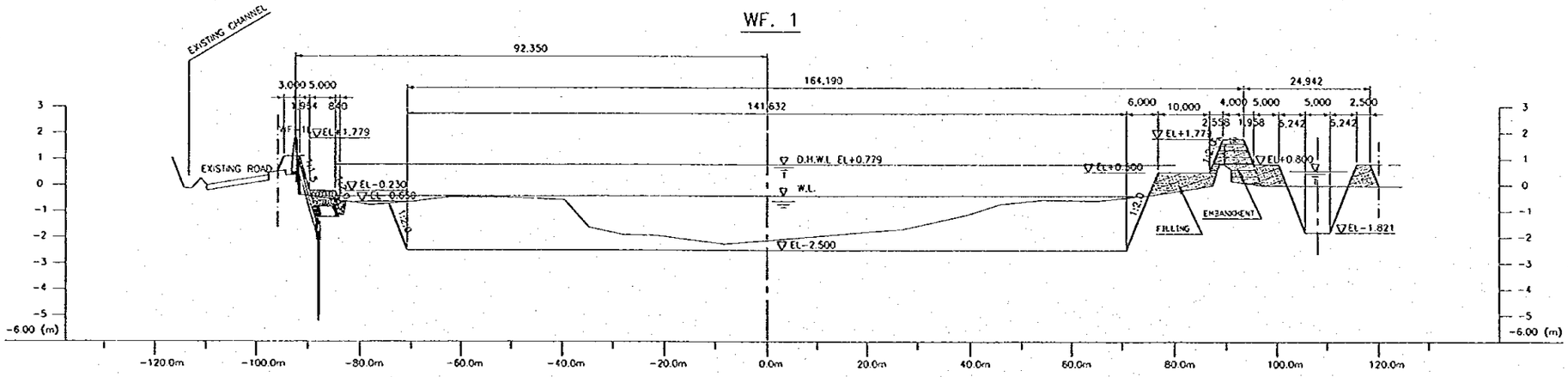
DESIGNED
CHECKED
APPROVED
CHIEF OF PLANNING AND DESIGN
PROJECT MANAGER

PROVINCE: CENTRAL JAVA
PROJECT NAME: FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
DISTRICT: SEMARANG CITY
DRAWING NO. W 0. - P 1 - CH - Cr. 18
SHEET NO. 28
DATE
CONTRACT NO.

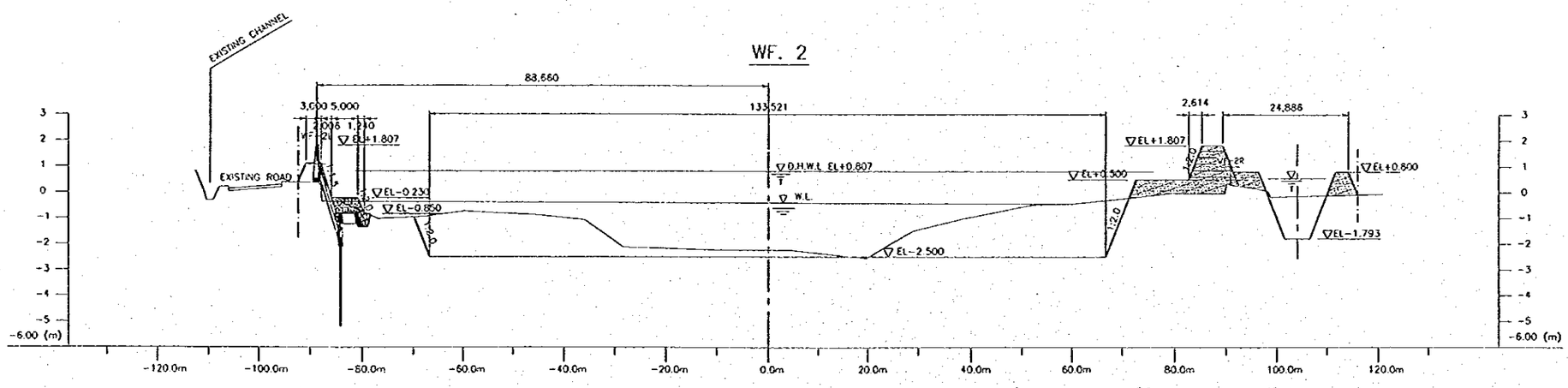
WF. 0



WF. 1



WF. 2



VERTICAL 0 5.0 10 m
SCALE 1 : 100

HORIZONTAL 0 25 50 m
SCALE 1 : 500

NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT
AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT: WEST FLOODWAY / GARANG RIVER IMPROVEMENT

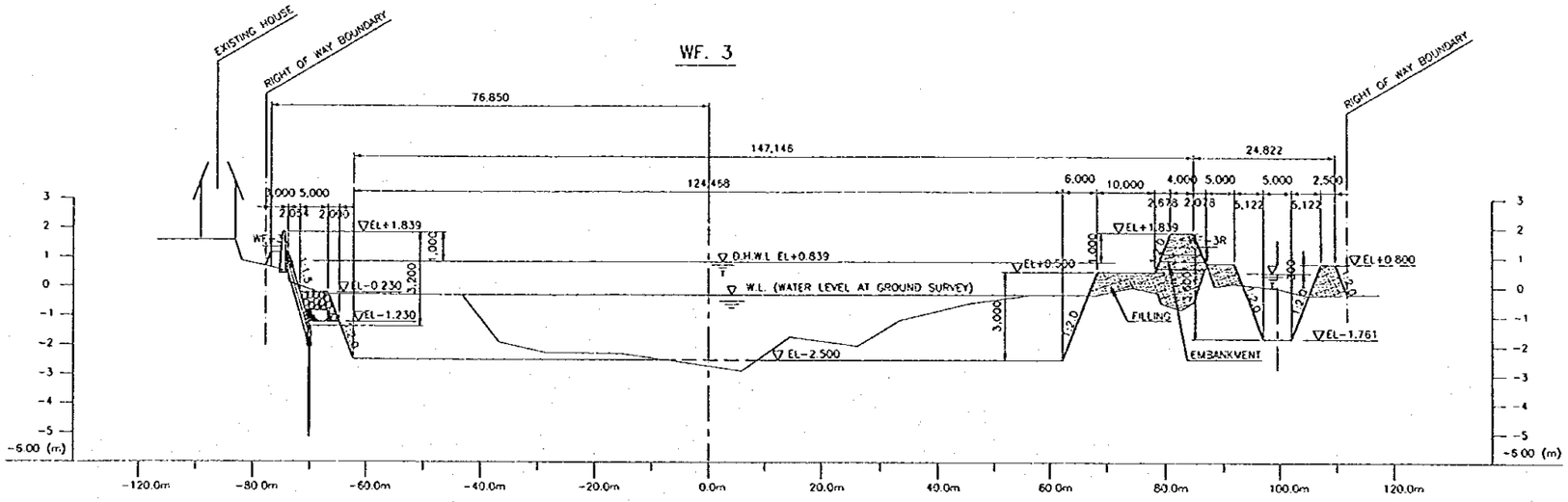
CHANNEL AND DIKE WORKS
WEST FLOOD WAY -
CROSS SECTIONS (4/39)

JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD in ASSOCIATION WITH
PACIFIC CONSULTANTS INTERNATIONAL and
PACO INTERNATIONAL INC.

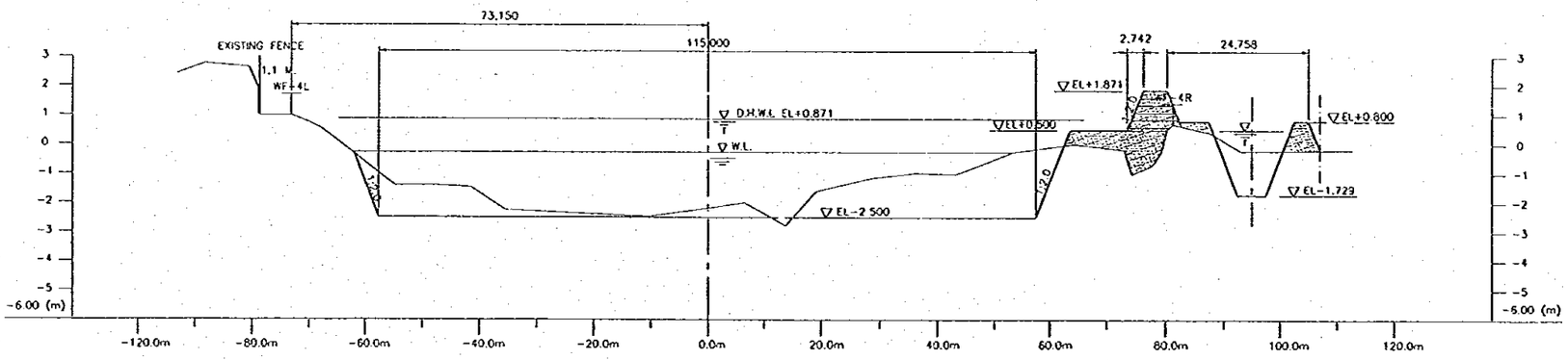
DESIGNED
CHECKED
APPROVED
CHIEF OF PLANNING AND DESIGN
PROJECT MANAGER

PROVINCE: CENTRAL JAVA
PROJECT NAME: FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
DISTRICT: SEMARANG CITY
DRAWING NO. WF. - P4 - CH - Cr. 19
SHEET NO. 31
DATE
CONTRACT NO.

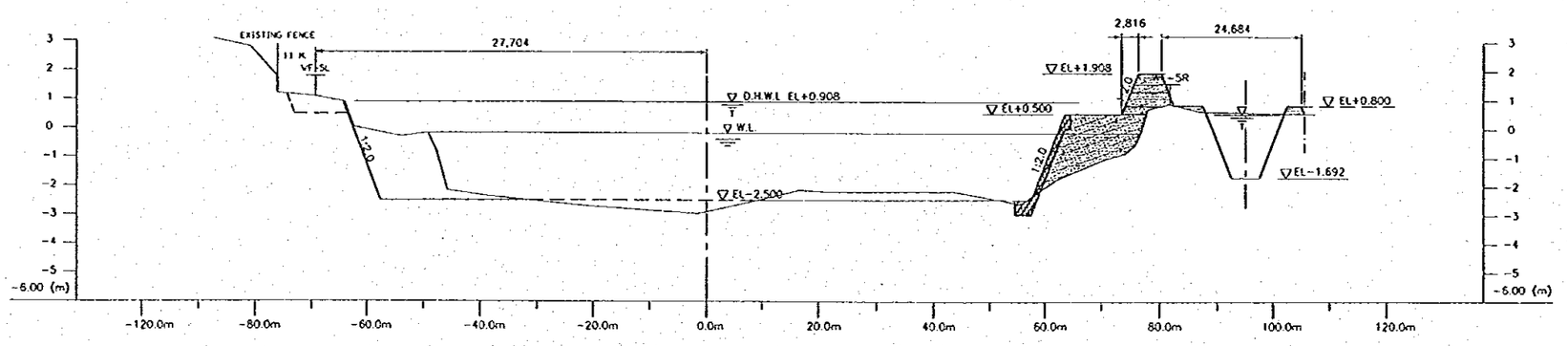
WF. 3



WF. 4



WF. 5



VERTICAL 0 5.0 10 m
SCALE 1 : 100

HORIZONTAL 0 25 50 m
SCALE 1 : 500

NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRA TUNSELUNA FLOOD CONTROL PROJECT
COMPONENT: WEST FLOODWAY / GARANG RIVER IMPROVEMENT
CHANNEL AND DIKE WORKS
WEST FLOOD WAY
CROSS SECTIONS (5/39)

JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD. IN ASSOCIATION WITH PACIFIC CONSULTANTS INTERNATIONAL AND PASCO INTERNATIONAL INC.

DESIGNED
CHECKED
APPROVED
CHIEF OF PLANNING AND DESIGN
PROJECT MANAGER

PROVINCE: CENTRAL JAVA
PROJECT NAME: FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
DISTRICT: SEMARANG CITY
DRAWING NO. WG-PE-CH-Cc 20
SHEET NO. 22
DATE
CONTRACT NO.