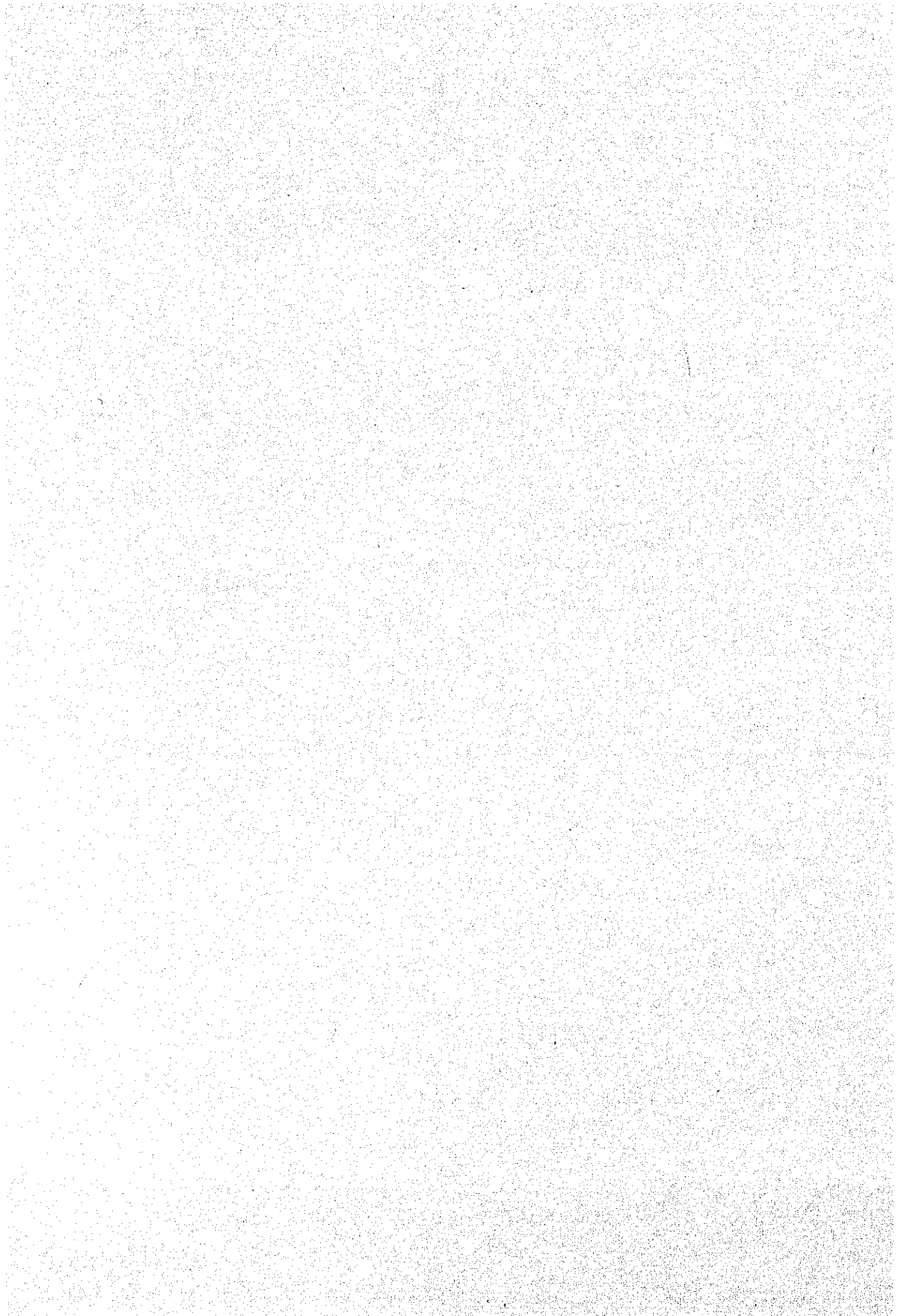


Note :
 Study results in the Feasibility
 Study are also reflected on
 this plan.

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Fig. D 3 . 6
 LAYOUT OF DRAINAGE MASTER PLAN



DIRECTORY BOARD OF
HANOI S & D Co.
 Le Minh Chau-Dz
 Pham Van Cuong-V-Dir
 Nguyen Van Bo-V-Dir

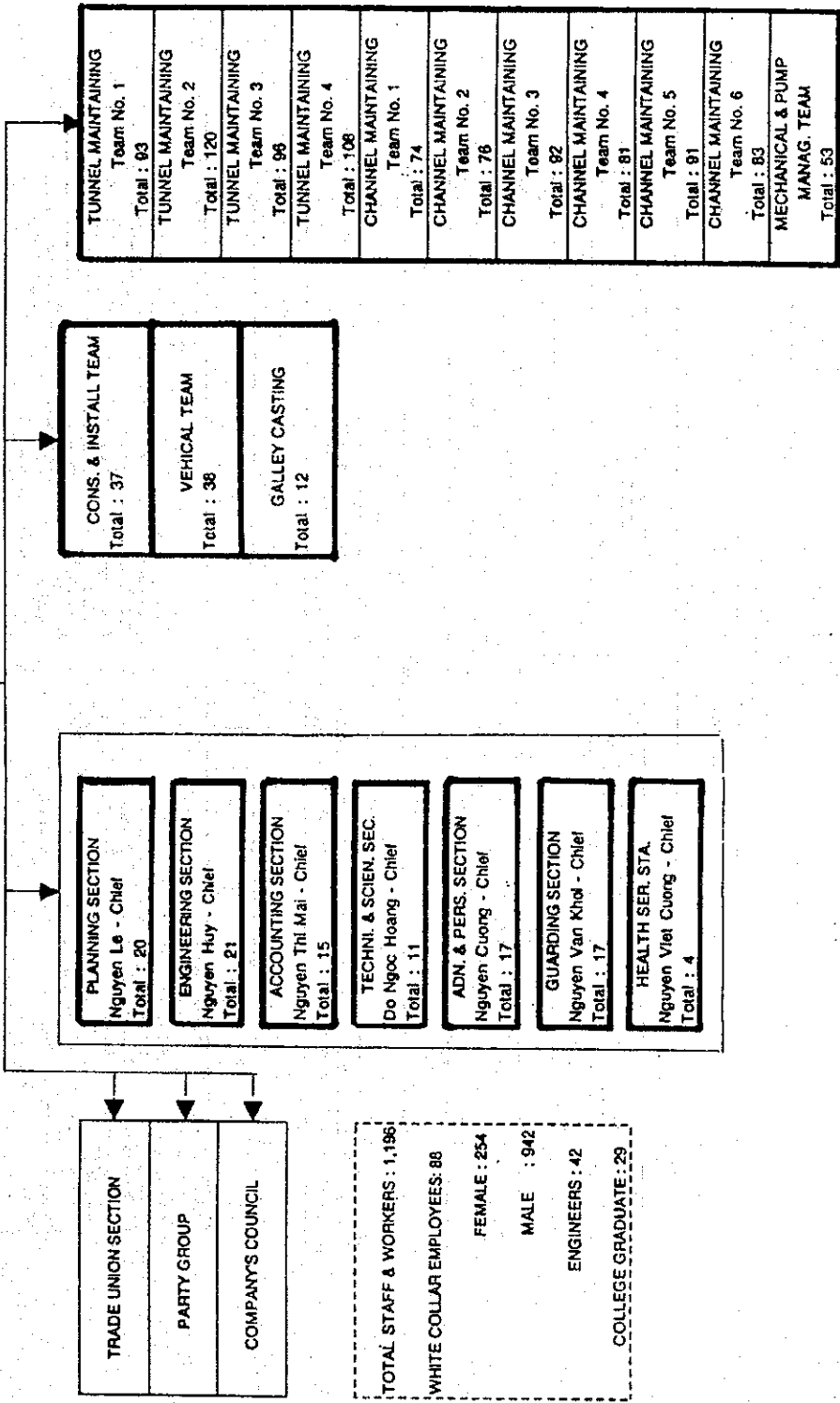
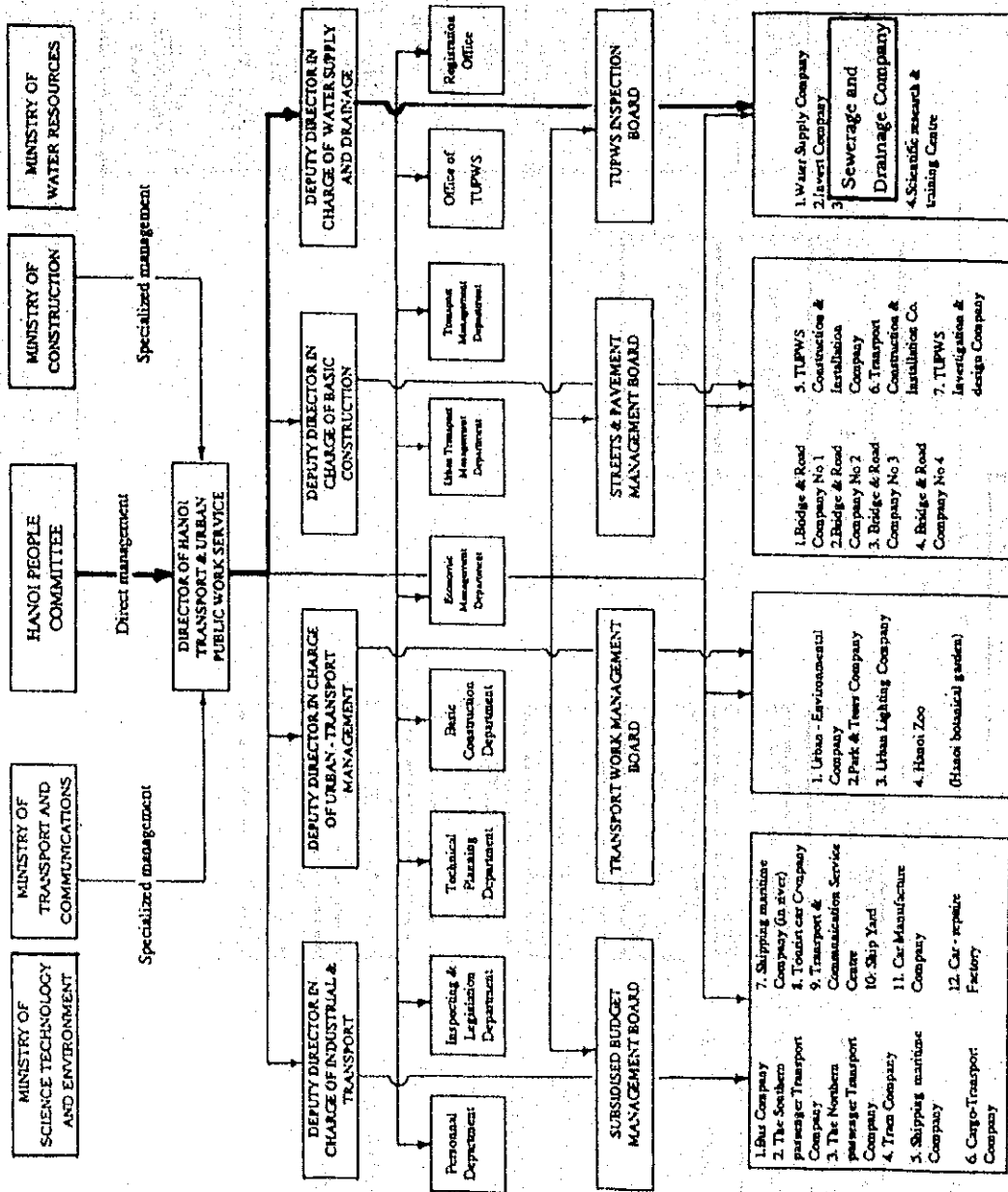


Fig. D 3 . 7
ORGANIZATION CHART OF
HANOI SEWERAGE AND
DRAINAGE COMPANY (HSDC)

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PRODUCTION & BUSINESS GROUP - STATE RUN BUSINESSMENT

Fig. D 3 . 8

ORGANIZATION CHART OF
TRANSPORT AND URBAN PUBLIC
WORK SERVICE (TUPWS)

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DISPOSAL SYSTEM IN HANOI CITY

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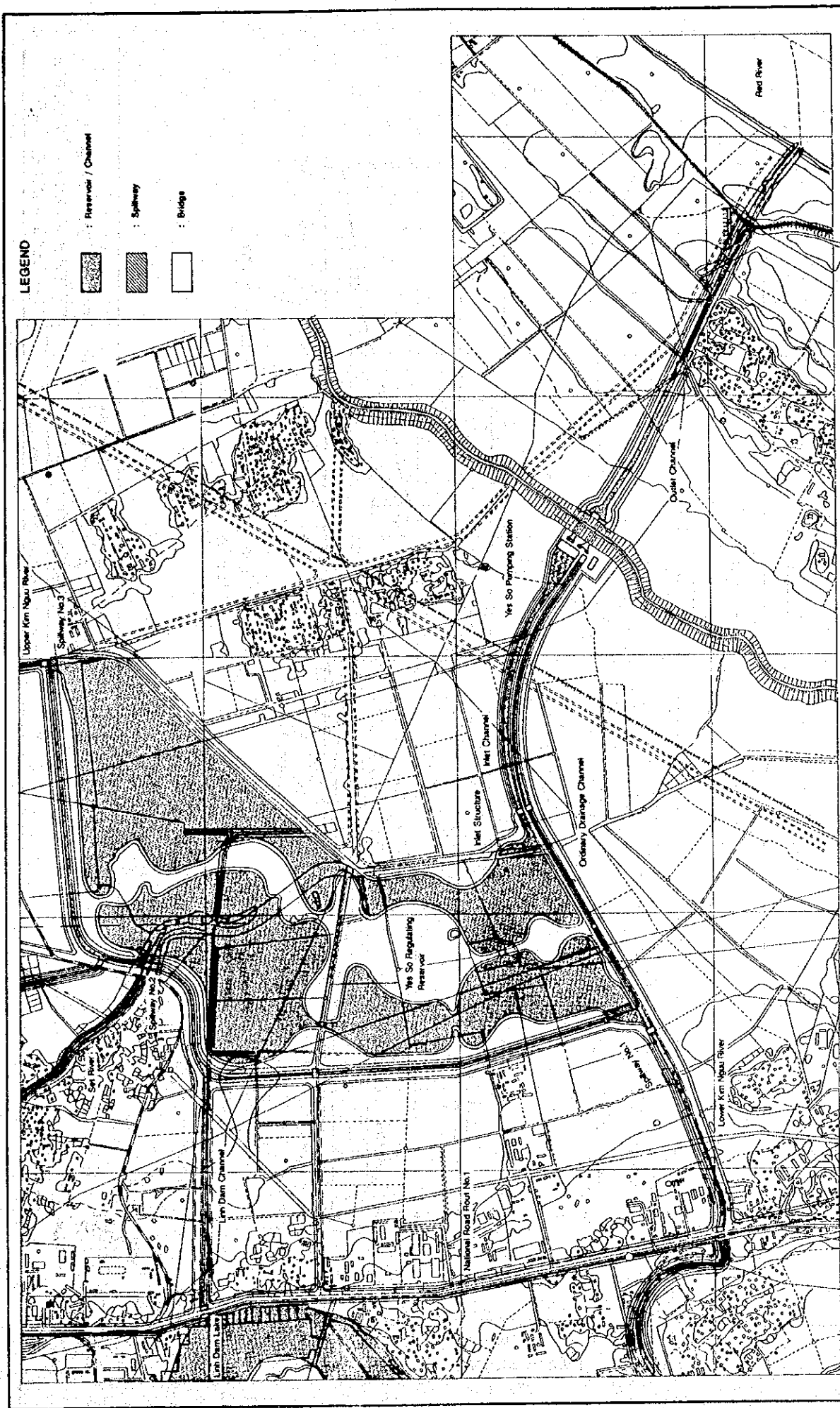
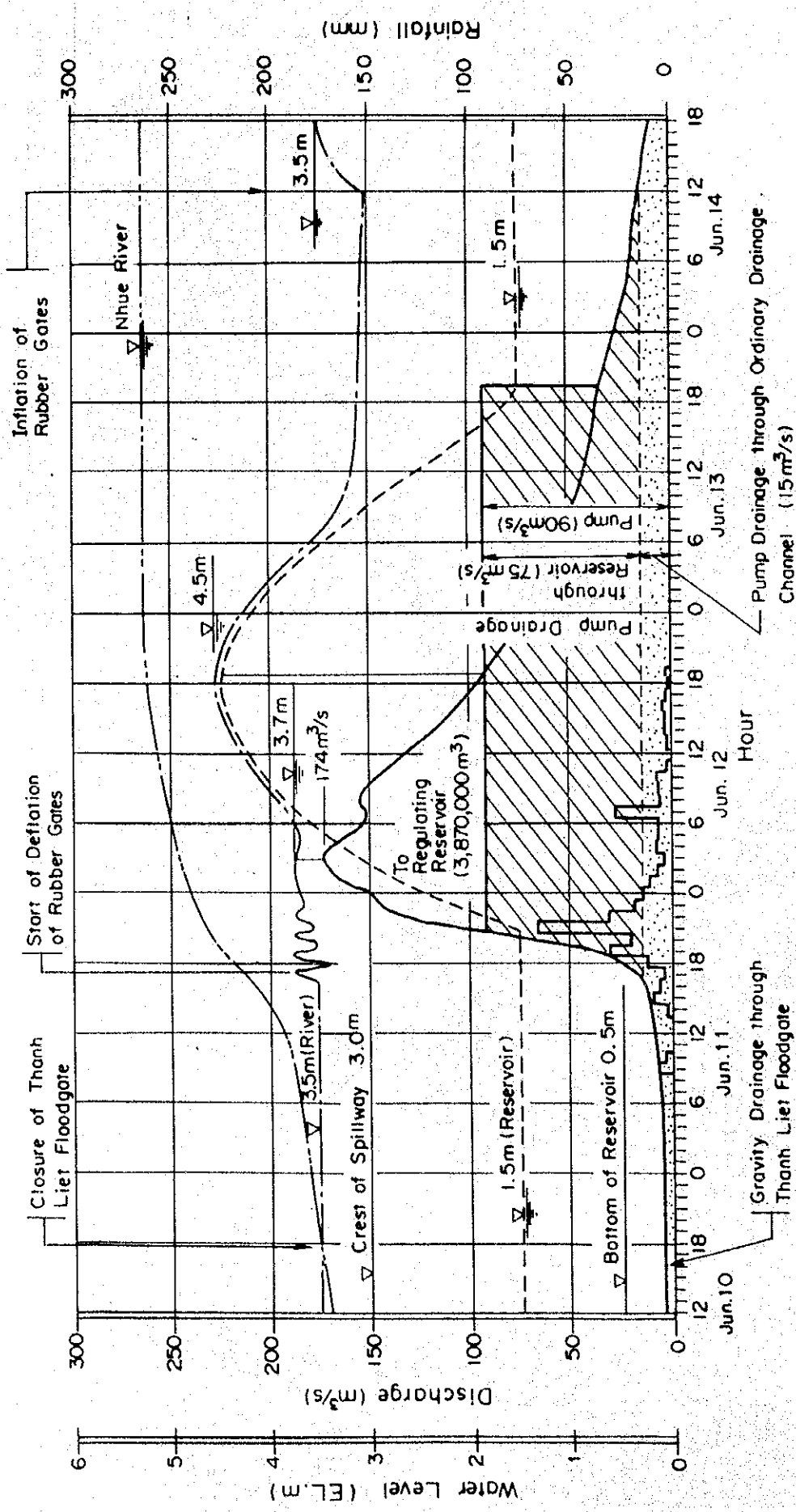


Fig. D 4 . 1
 PLAN OF YEN SO SITE

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Note:

10-Year return period design flood (1989-Flood Type)

- Legend:
- Water Level
 - Discharge
 - ▒ Rainfall

FIG. D 4 . 2
 OPERATION OF PUMPS,
 RESERVOIR AND FLOODGATE
 FOR DESIGN FLOOD

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Water Level of Nhue R. and Discharge of To Lich R. <Alt.6> (1989 pattern)

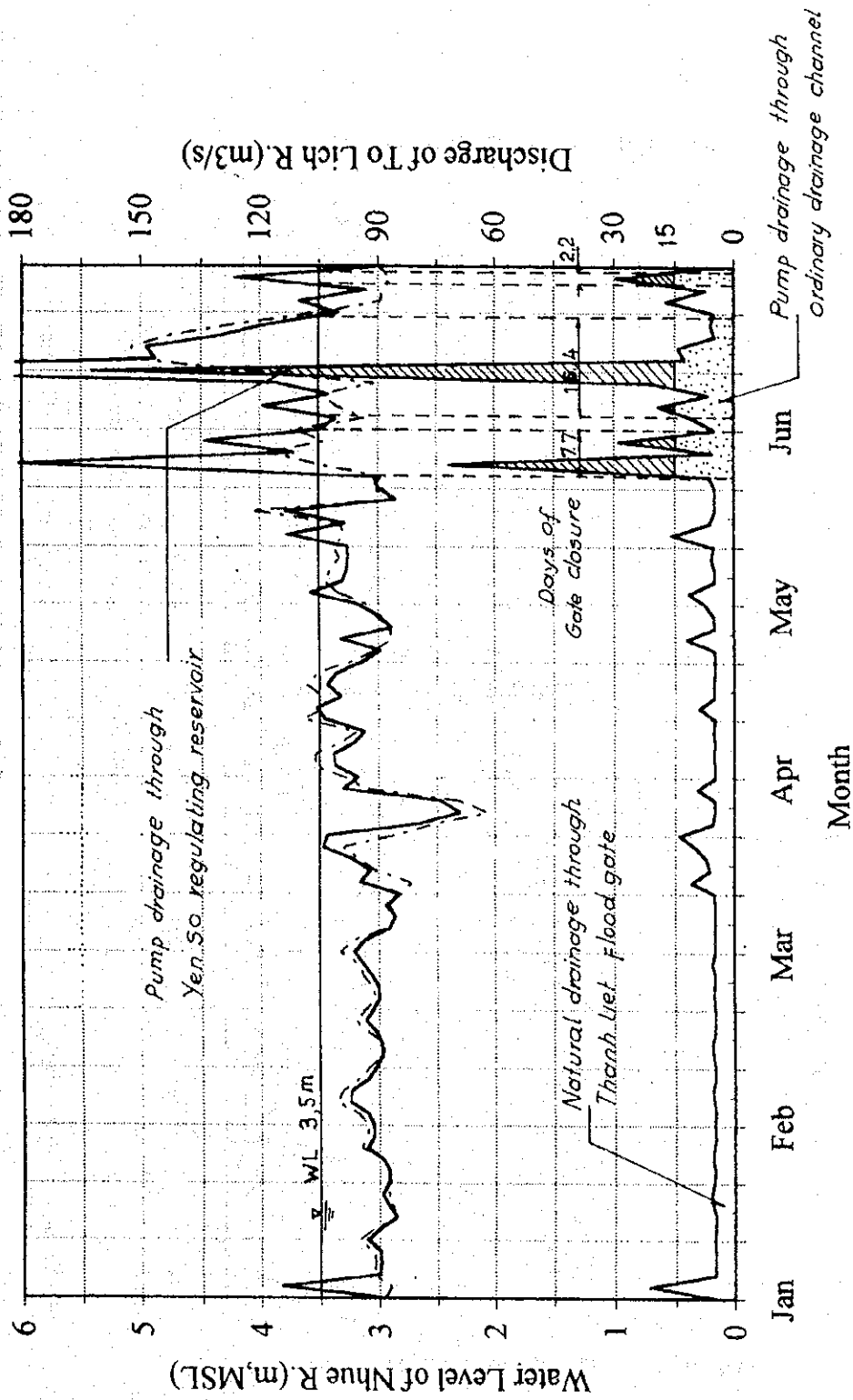
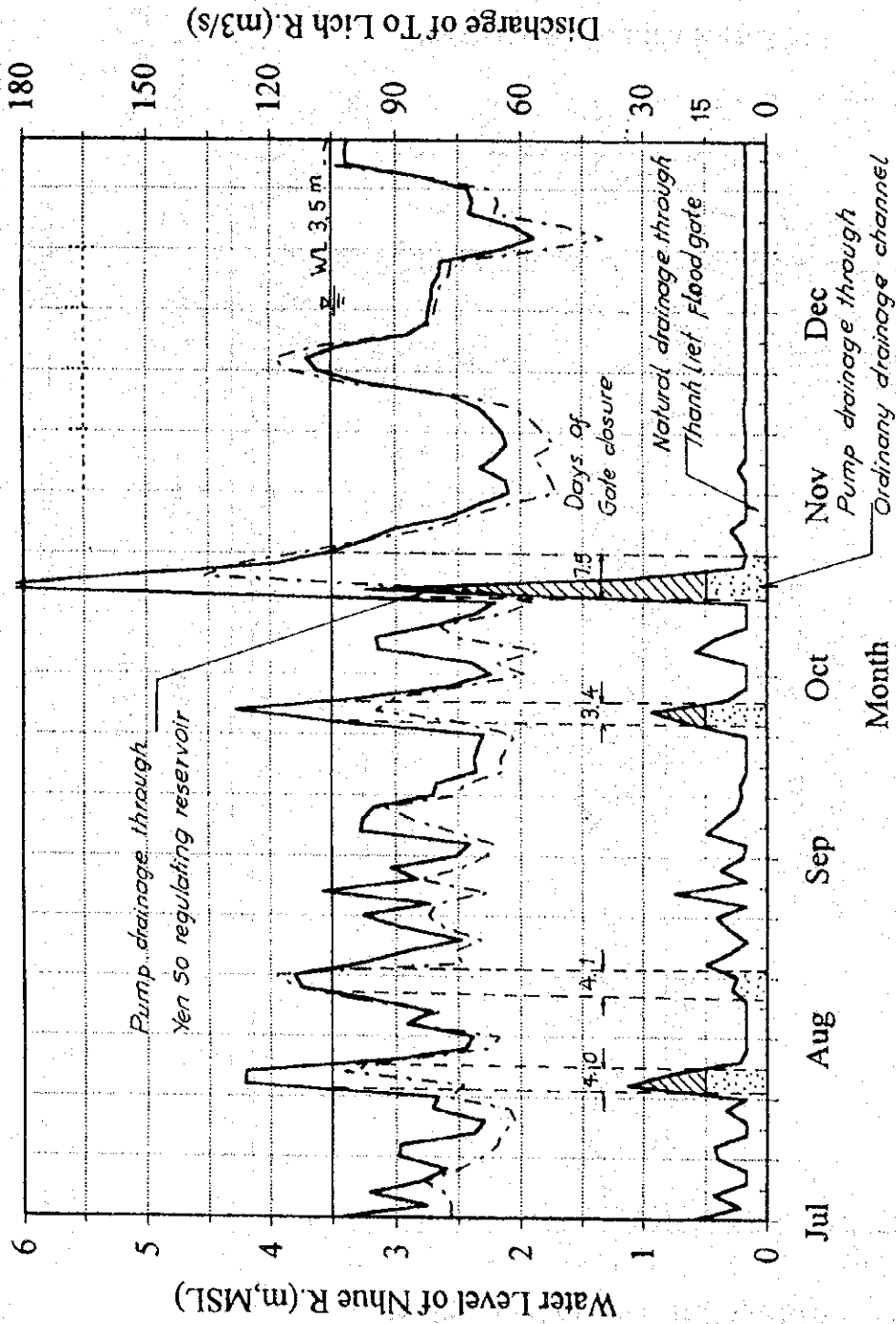


Fig. D 4 . 3 (1)
ANNUAL OPERATION OF PUMPS,
RESERVOIR AND FLOODGATE
(1/2)

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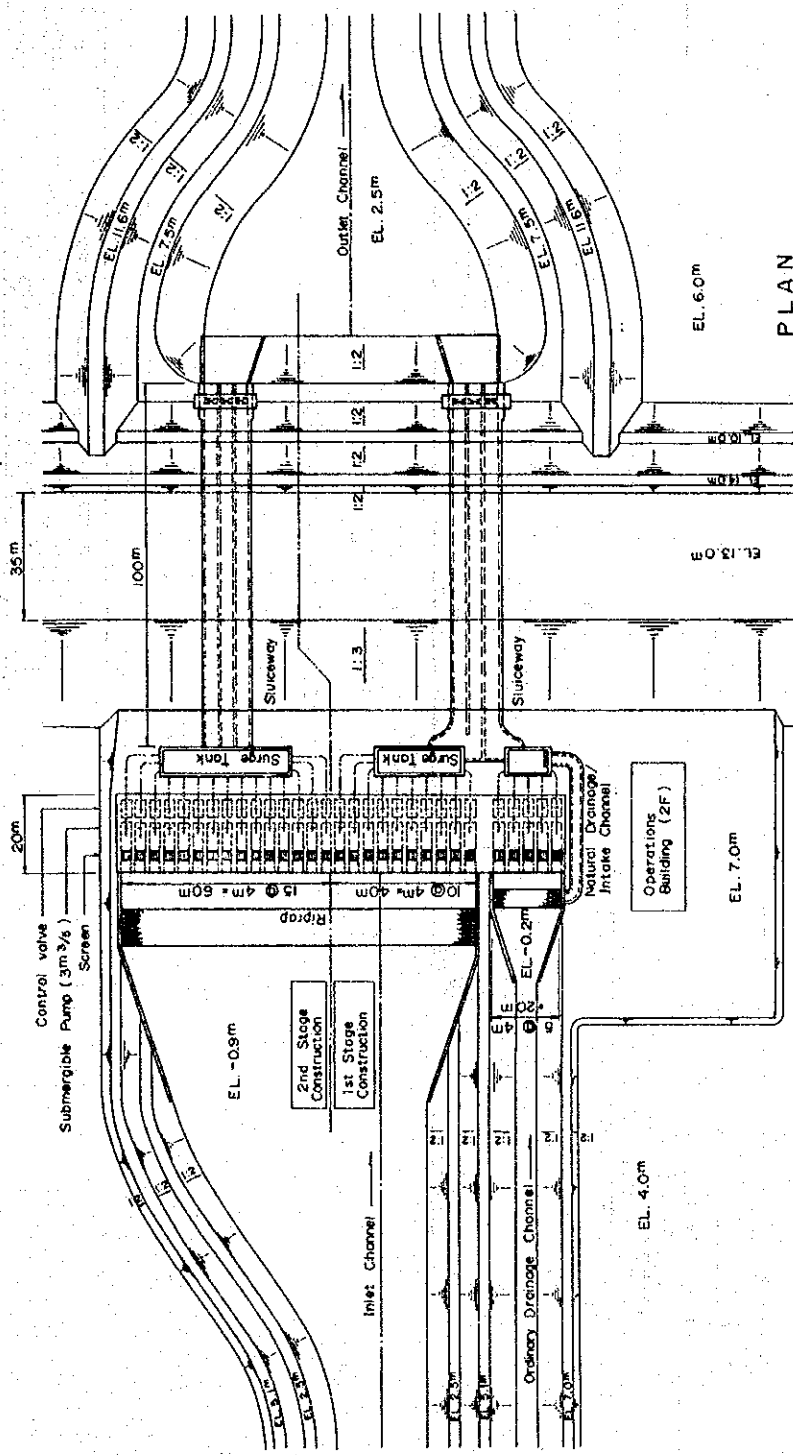
Water Level of Nhue R. and Discharge
of To Lich R. <Alt. 6> (1989 pattern)



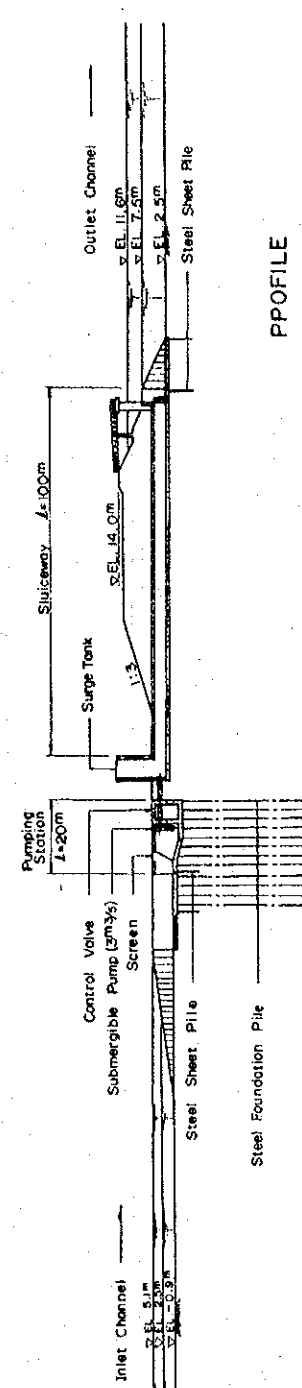
--- Water Level(Present Condition) — Water Level(Future Condition) — Discharge

Fig. D 4 . 3 (2)
ANNUAL OPERATION OF PUMPS,
RESERVOIR AND FLOODGATE
(2/2)

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PLAN



PROFILE

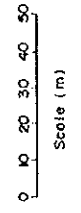


Fig. D 4 . 4
LAYOUT OF YEN SO
PUMPING STATION

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Regulating Reservoir (130 ha)

River

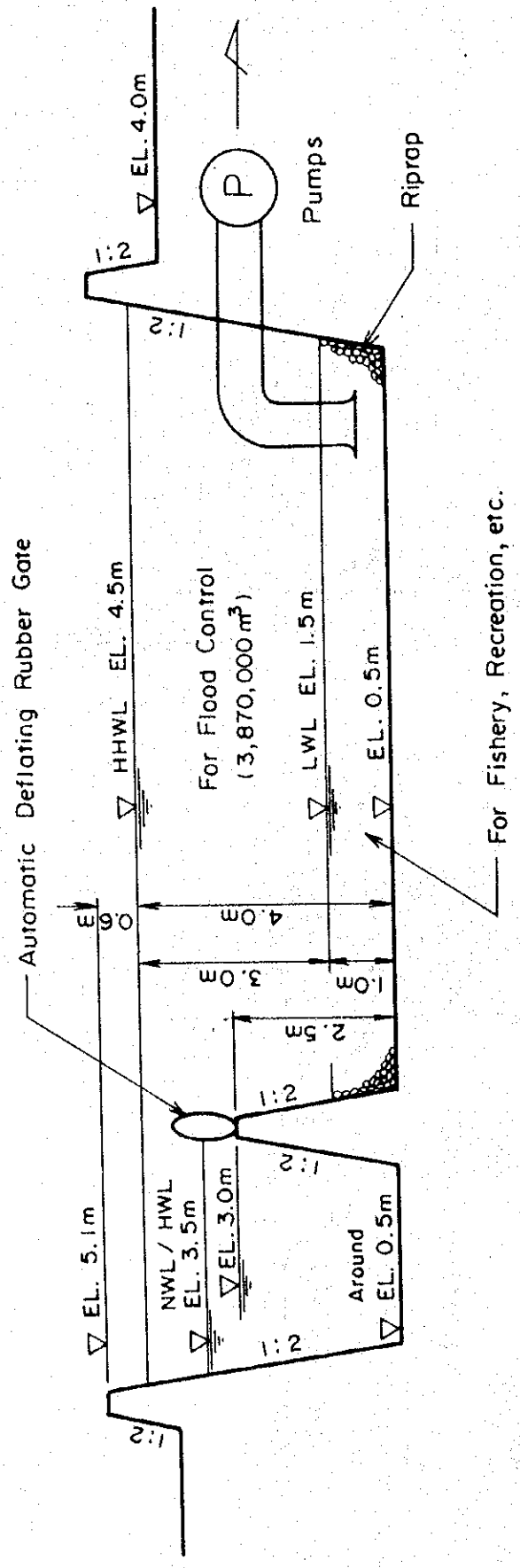
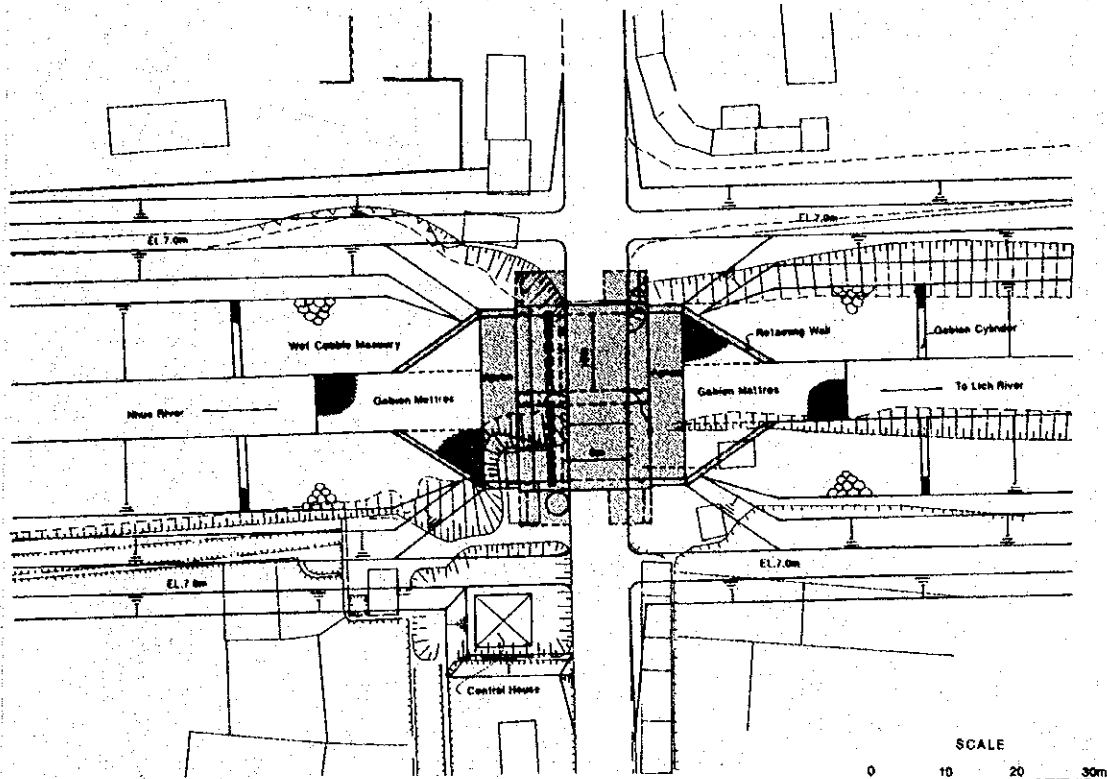


Fig.D 4 . 5
SECTION OF YEN SO
REGULATING RESERVOIR

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DISPOSAL SYSTEM IN HANOI CITY

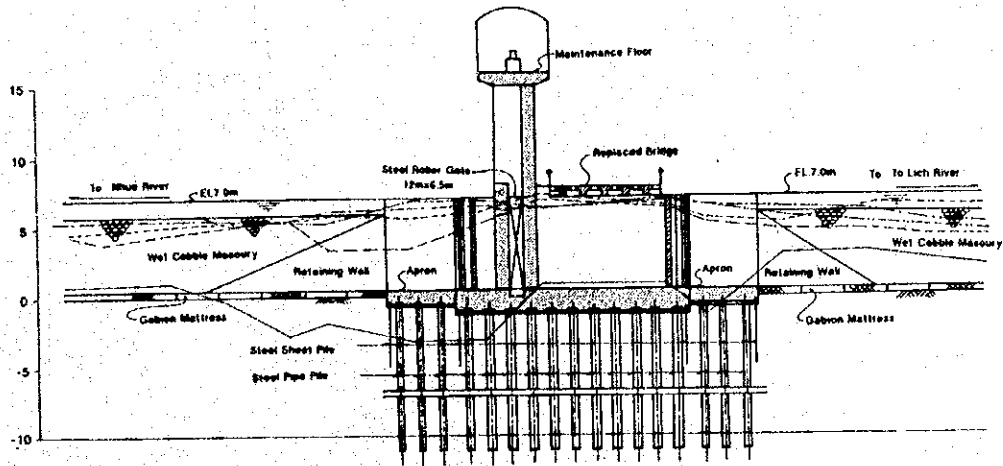
JAPAN INTERNATIONAL COOPERATION AGENCY

PLAN



PROFILE

- Existing Dike Crown (Right)
- Existing Dike Crown (Left)
- Existing Land Side Ground (Right)
- Existing Land Side Ground (Left)
- Existing RiverBed



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Fig. D 4 . 6
 LAYOUT OF THANH LIET
 FLOODGATE

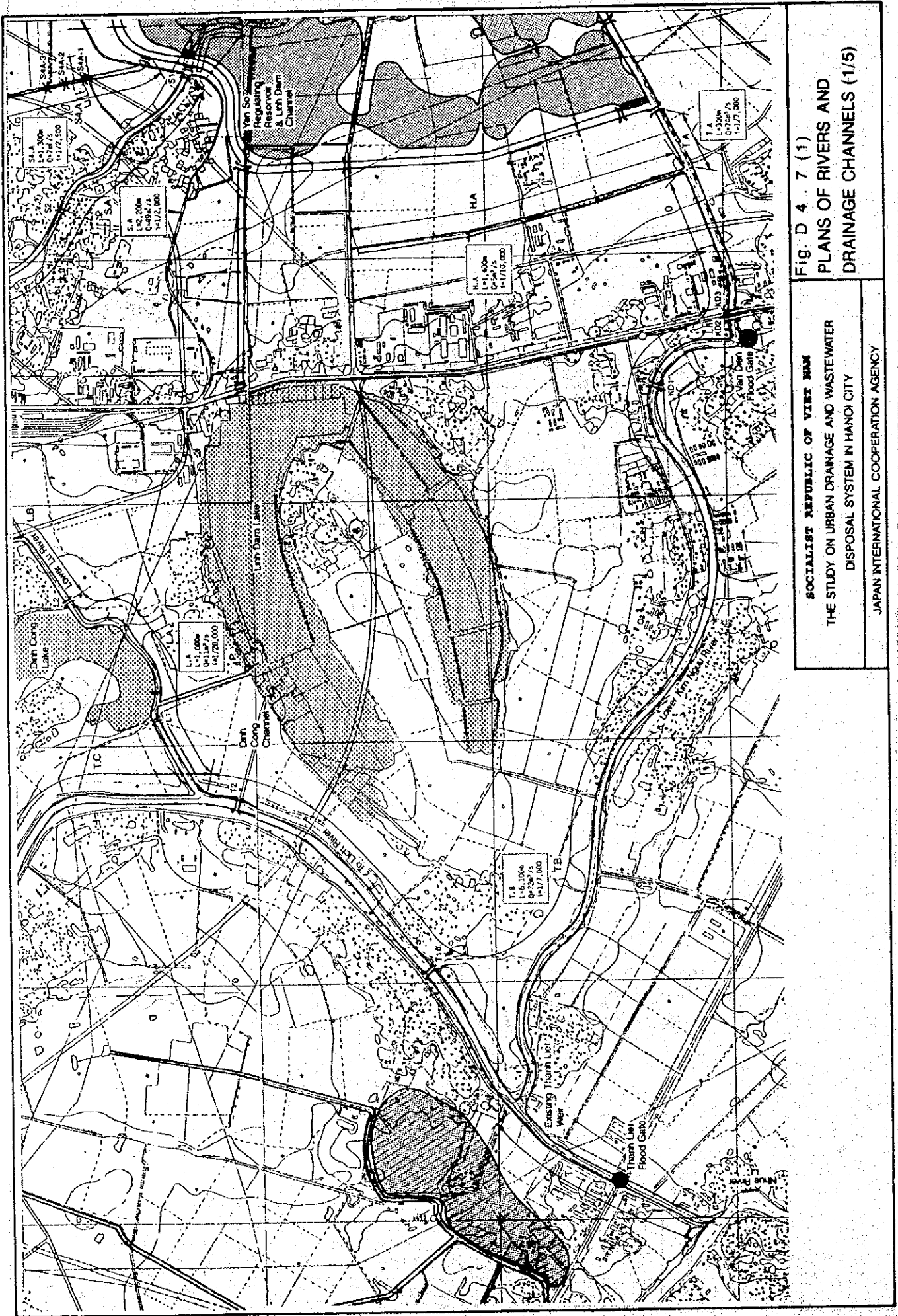


Fig. D 4 . 7 (1)
 PLANS OF RIVERS AND
 DRAINAGE CHANNELS (1 / 5)

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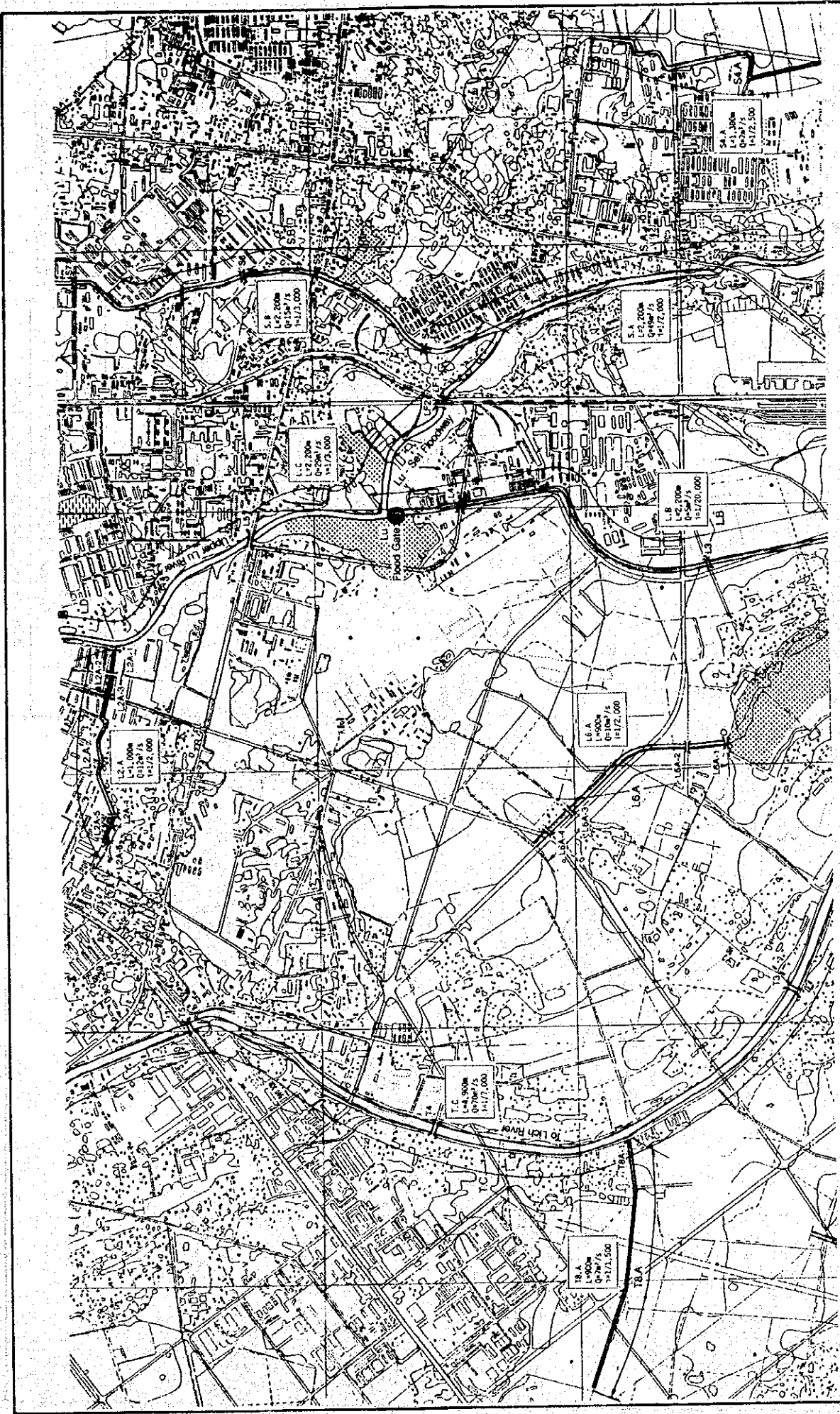


Fig. D 4. 7 (2)
 PLANS OF RIVERS AND
 DRAINAGE CHANNELS (2/5)

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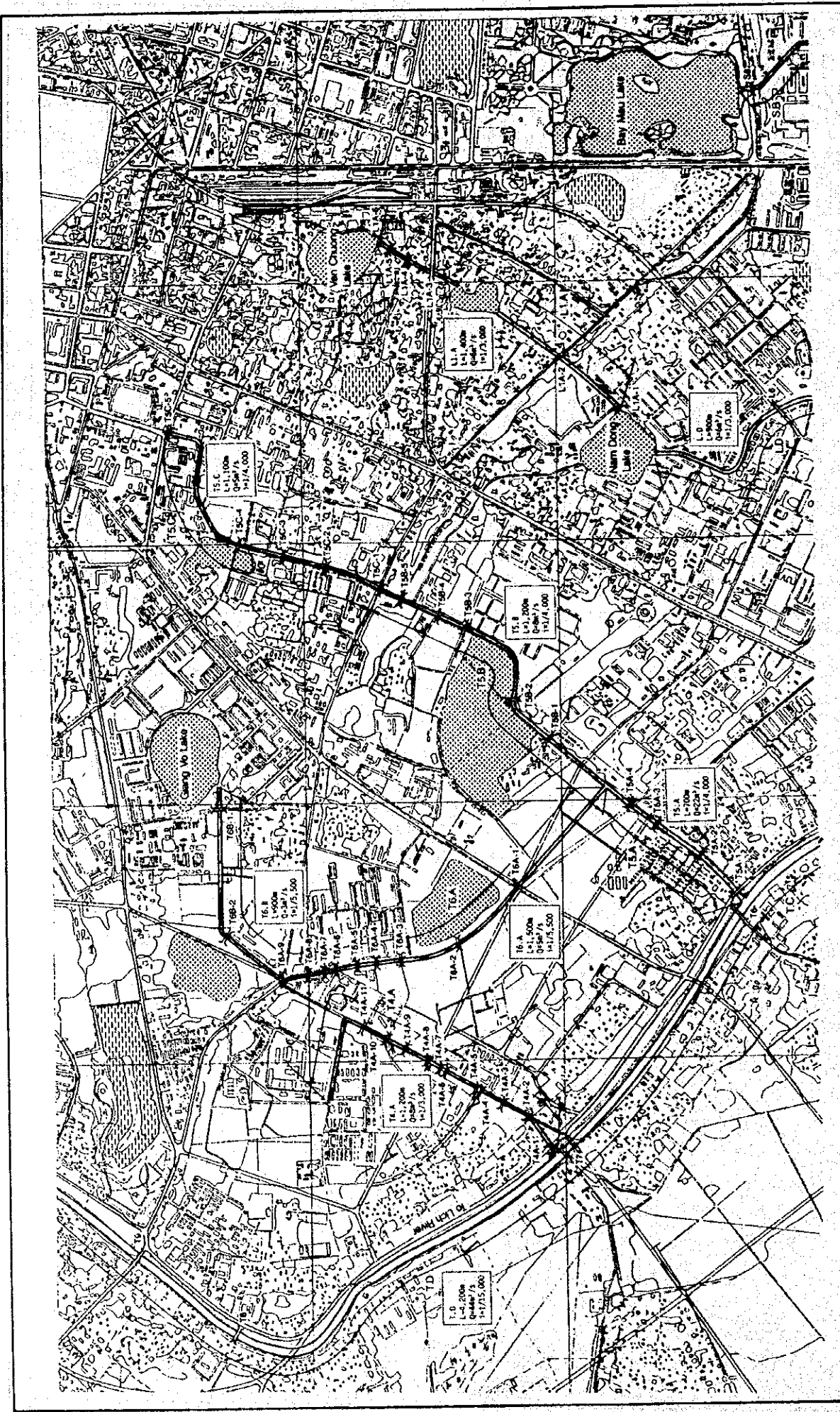


Fig. D 4 7 (3)
 PLANS OF RIVERS AND
 DRAINAGE CHANNELS (3/5)

SOCIALIST REPUBLIC OF VIET NAM
 THE STUDY ON URBAN DRAINAGE AND WASTEWATER
 DISPOSAL SYSTEM IN HANOI CITY
 JAPAN INTERNATIONAL COOPERATION AGENCY

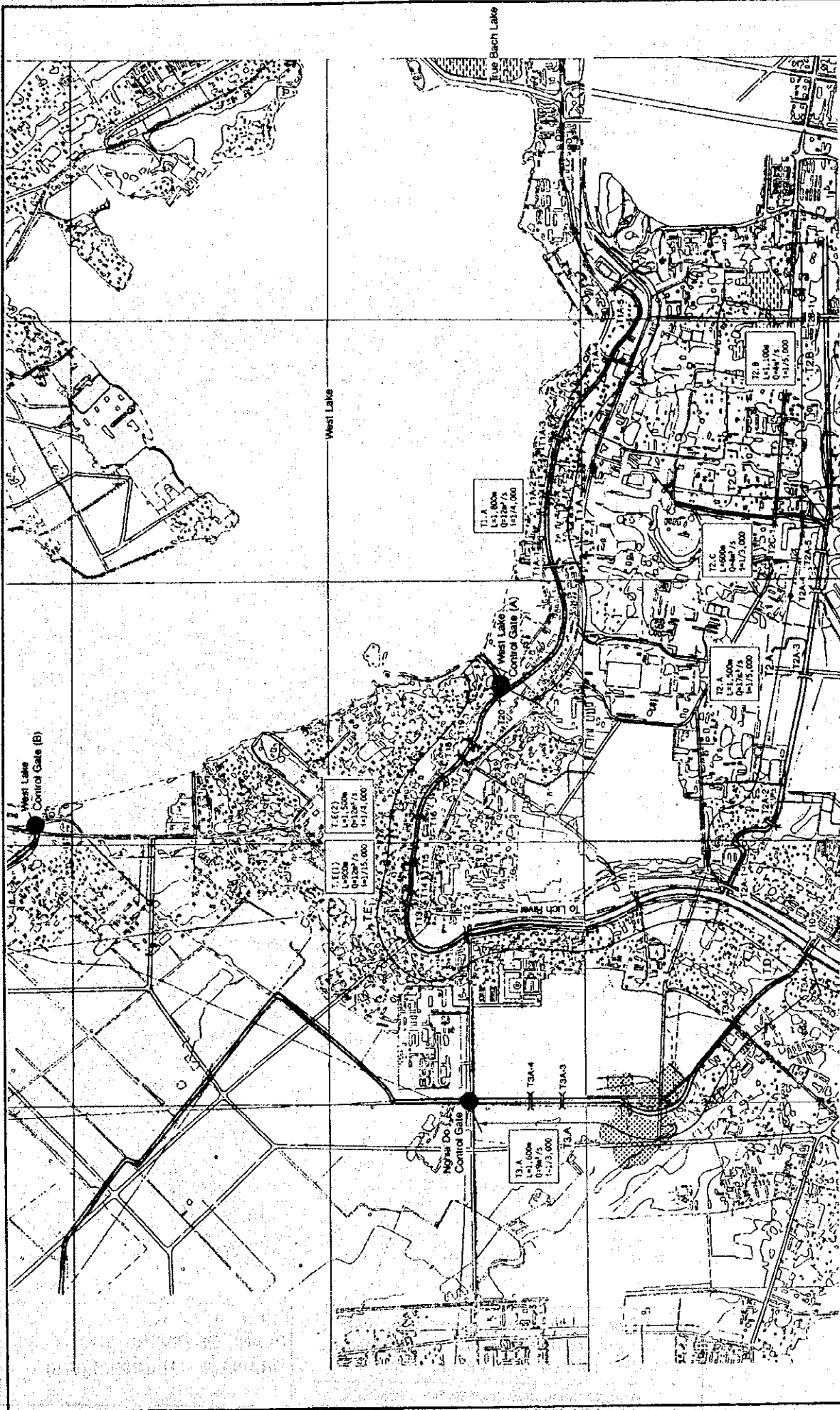


Fig. D 4 . 7 (4)
 PLANS OF RIVERS AND
 DRAINAGE CHANNELS (4/5)

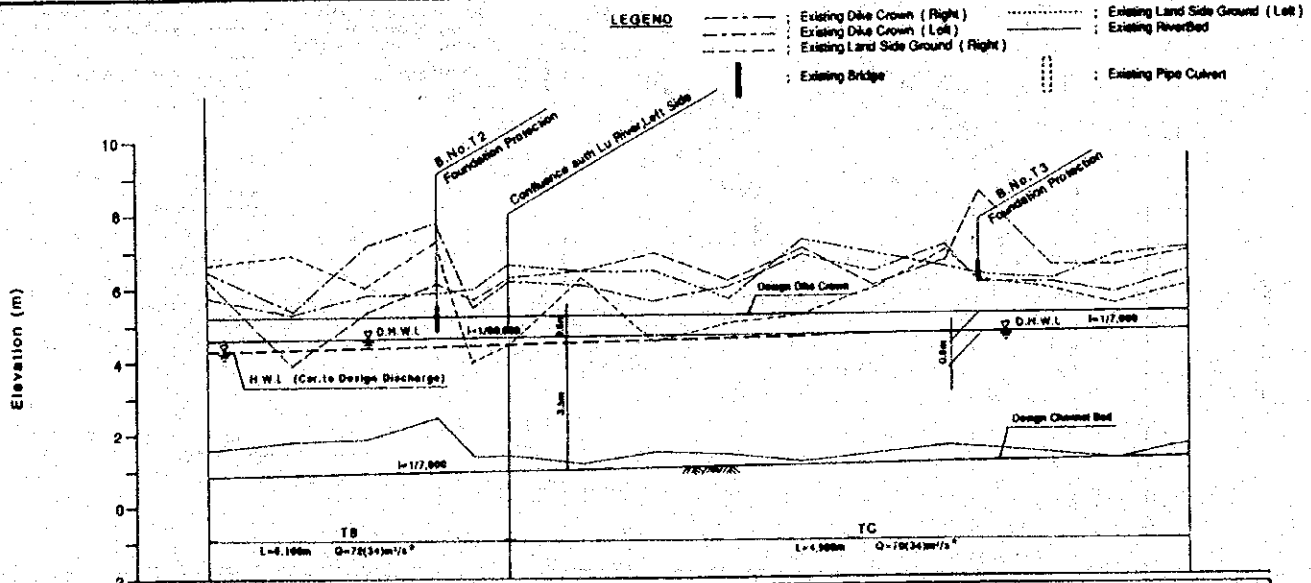
SOCIALIST REPUBLIC OF VIET NAM
 THE STUDY ON URBAN DRAINAGE AND WASTEWATER
 DISPOSAL SYSTEM IN HANOI CITY

JAPAN INTERNATIONAL COOPERATION AGENCY

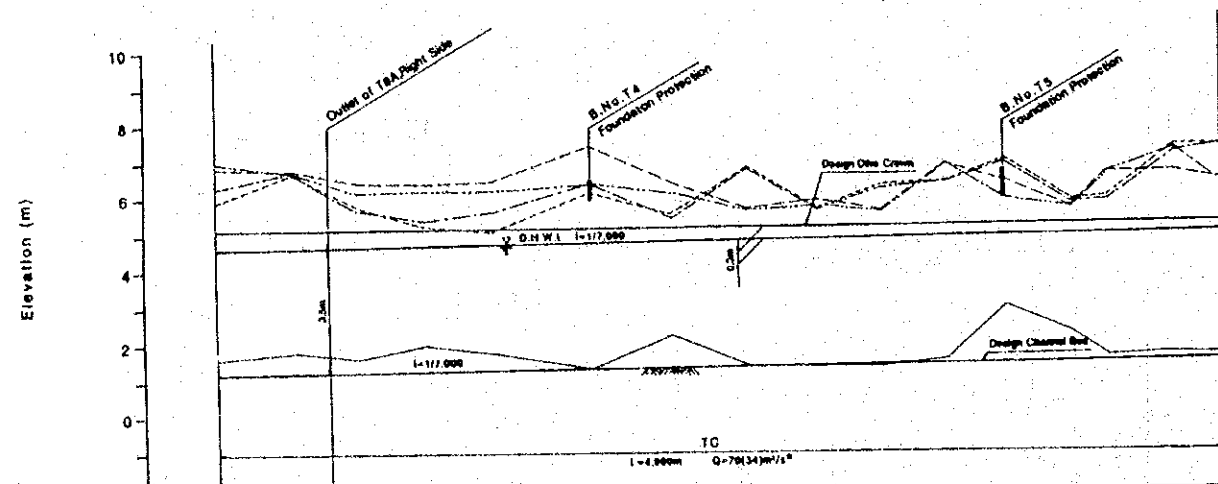


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Fig. D 4 . 7 (5)
 PLANS OF RIVERS AND
 DRAINAGE CHANNELS (5/5)



Design	Station No.														
	7620	7621	7622	7623	7624	7625	7626	7627	7628	7629	7630	7631	7632	7633	7634
Dike Crown	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
High Water Level	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.70
Channel Bed	0.87	0.80	0.80	0.79	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Accumulative Distance	5.0720	4.0720	4.0720	4.0720	4.0720	4.0720	4.0720	4.0720	4.0720	4.0720	4.0720	4.0720	4.0720	4.0720	4.0720
Distance	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
Station No.	7620	7621	7622	7623	7624	7625	7626	7627	7628	7629	7630	7631	7632	7633	7634

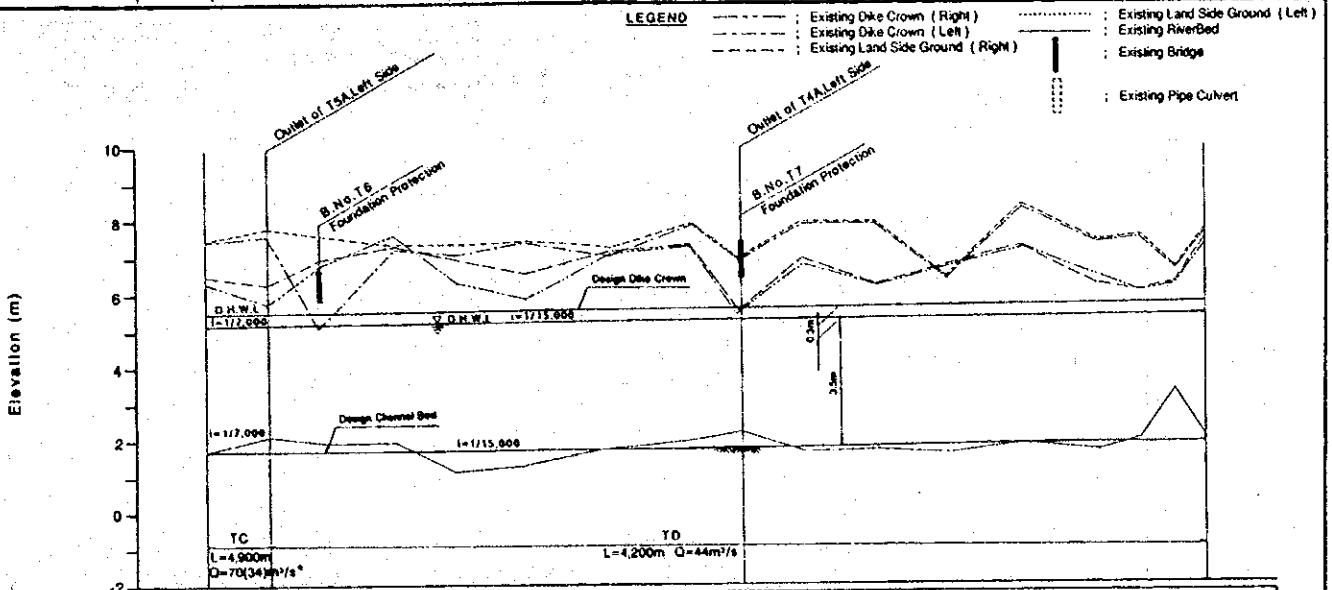


Design	Station No.														
	7644	7645	7646	7647	7648	7649	7650	7651	7652	7653	7654	7655	7656	7657	7658
Dike Crown	5.20	5.20	5.20	5.20	5.20	5.20	5.20	5.20	5.20	5.20	5.20	5.20	5.20	5.20	5.17
High Water Level	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.67
Channel Bed	1.70	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Accumulative Distance	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000
Distance	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
Station No.	7644	7645	7646	7647	7648	7649	7650	7651	7652	7653	7654	7655	7656	7657	7658

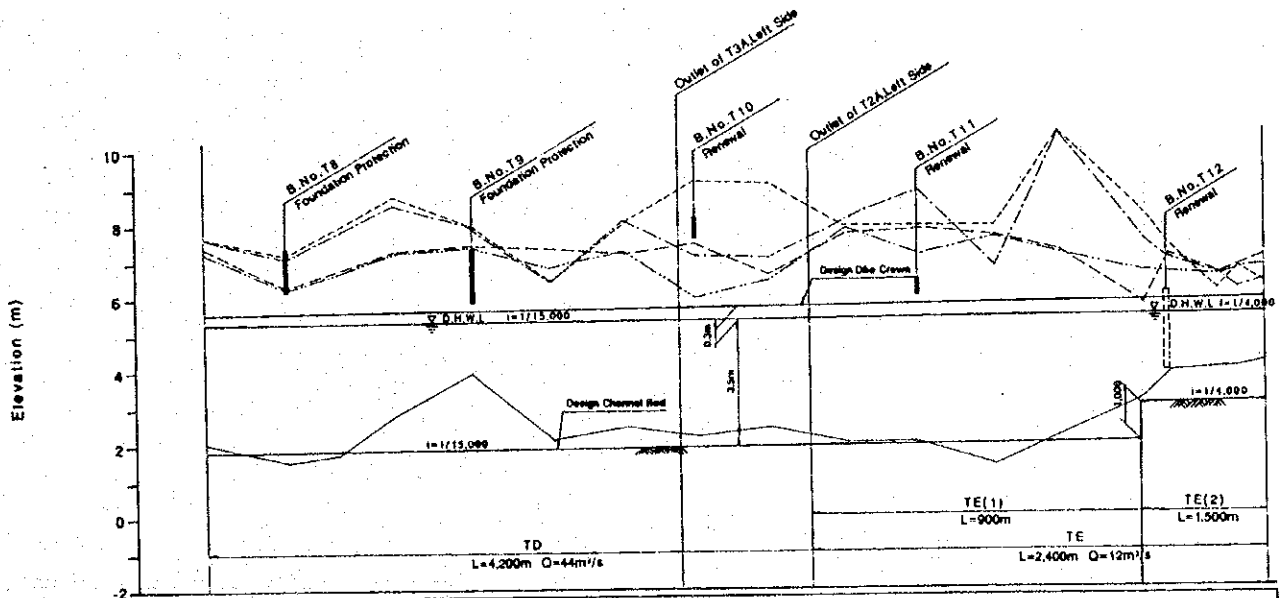
Figures outside () show the design discharges at the flood peak when the water level of Yen So regulating reservoir is EL. 3.5m, while those inside () show the discharges at the high water level of the reservoir which is EL. 4.5m

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 JAPAN INTERNATIONAL COOPERATION AGENCY

Fig.D4.8 (2)
PROFILES OF RIVERS AND DRAINAGE CHANNELS (2/22)



Station No.	Distance	Accumulative Distance	Channel Bed	High Water Level	Dike Crown
TK76	1276	11370.26	1817	5.117	5.471
TK77	1670	11488.86	1842	5.143	5.497
TK78	3346	11823.46	1862	5.188	5.552
TK80	3820	12105.46	1886	5.198	5.566
TK82	4420	12387.46	1875	5.178	5.546
TK84	4826	12669.46	1890	5.190	5.560
TK86	5126	12951.46	1794	5.284	5.654
TK88	5444	13233.46	1791	5.281	5.651
TK90	5846	13515.46	1778	5.258	5.628
TK92	5782	13797.46	1743	5.241	5.611
TK94	5981	14079.46	1756	5.256	5.626
TK96	6126	14361.46	1738	5.238	5.608
TK98	6270	14643.46	1730	5.232	5.602
TK99	6130	14925.46	1736	5.236	5.606
TK100	6177	15207.46	1820	5.300	5.670
TK101	6245	15489.46	1810	5.290	5.660
TK102	6345	15771.46	1816	5.296	5.666

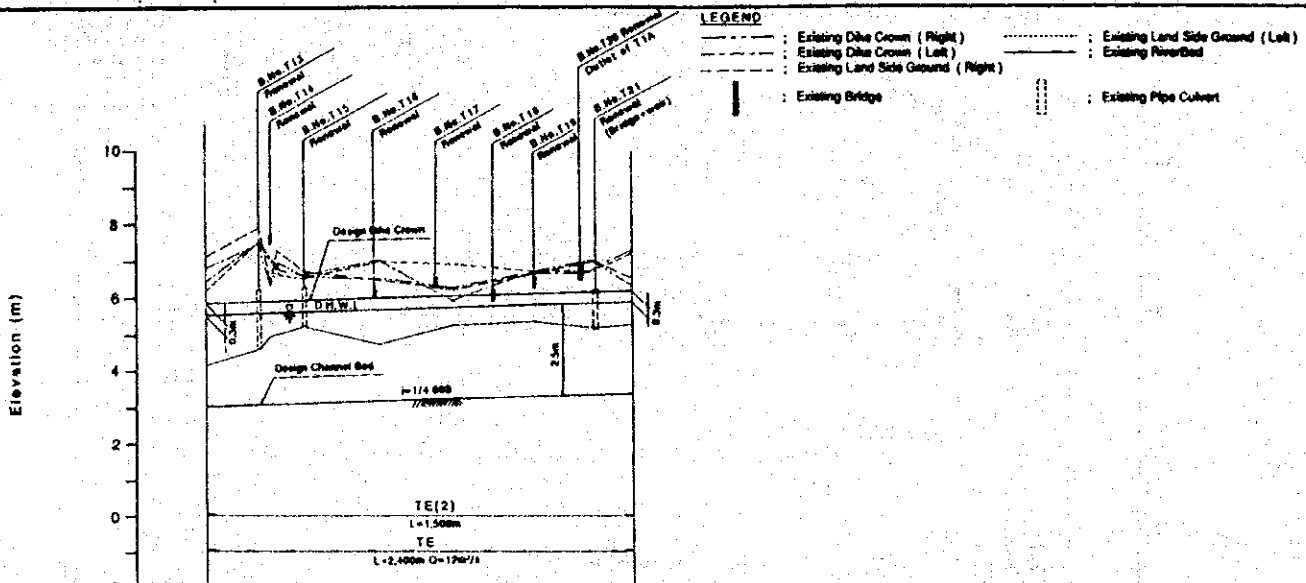


Station No.	Distance	Accumulative Distance	Channel Bed	High Water Level	Dike Crown
TK104	6442	16013.46	1878	5.376	5.876
TK106	6542	16295.46	1837	5.331	5.831
TK108	6640	16577.46	1840	5.348	5.848
TK110	6730	16859.46	1851	5.351	5.851
TK112	6826	17141.46	1860	5.350	5.850
TK114	6922	17423.46	1889	5.368	5.868
TK116	7018	17705.46	1883	5.363	5.863
TK118	7117	17987.46	1858	5.348	5.848
TK120	7216	18269.46	1850	5.345	5.845
TK122	7317	18551.46	1827	5.327	5.827
TK124	7420	18833.46	1834	5.324	5.824
TK126	7526	19115.46	1847	5.347	5.847
TK128	7634	19397.46	1861	5.361	5.861
TK130	7744	19679.46	1872	5.372	5.872
TK132	7856	19961.46	1889	5.389	5.889
TK134	7970	20243.46	1907	5.407	5.907
TK136	8086	20525.46	1926	5.426	5.926
TK138	8204	20807.46	1944	5.444	5.944
TK140	8324	21089.46	1961	5.461	5.961
TK142	8446	21371.46	1972	5.472	5.972
TK144	8570	21653.46	1989	5.489	5.989
TK146	8696	21935.46	2007	5.507	6.007
TK148	8824	22217.46	2026	5.526	6.026
TK150	8954	22500.46	2046	5.546	6.046
TK152	9086	22782.46	2065	5.565	6.065
TK154	9220	23064.46	2085	5.585	6.085

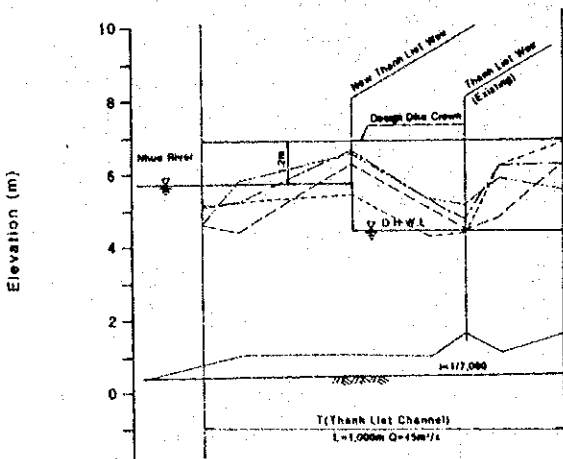
* Figures outside () show the design discharges at the flood peak when the water level of the reservoir is EL. 3.5m, while those inside () show the discharges at the high water level of the reservoir which is EL. 4.5m

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 JAPAN INTERNATIONAL COOPERATION AGENCY

Fig.D4.8 (3)
 PROFILES OF RIVERS AND DRAINAGE CHANNELS (3/22)



Design	Dike Crown	5.87	5.94	5.96	5.98	6.00	6.02	6.04	6.06	6.08	6.10	6.12	6.14	6.16	6.17
	High Water Level	5.57	5.64	5.66	5.68	5.70	5.72	5.74	5.76	5.78	5.80	5.82	5.84	5.86	5.87
Channel Bed	Channel Bed	3.07	3.14	3.16	3.18	3.20	3.22	3.24	3.26	3.28	3.30	3.32	3.34	3.36	3.37
	Accumulative Distance	17,000.00	17,000.00	17,000.00	17,000.00	17,000.00	17,000.00	17,000.00	17,000.00	17,000.00	17,000.00	17,000.00	17,000.00	17,000.00	17,000.00
Distance	Distance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Station No.	TK 134	TK 135	TK 136	TK 137	TK 138	TK 139	TK 140	TK 141	TK 142	TK 143	TK 144	TK 145	TK 146	TK 147



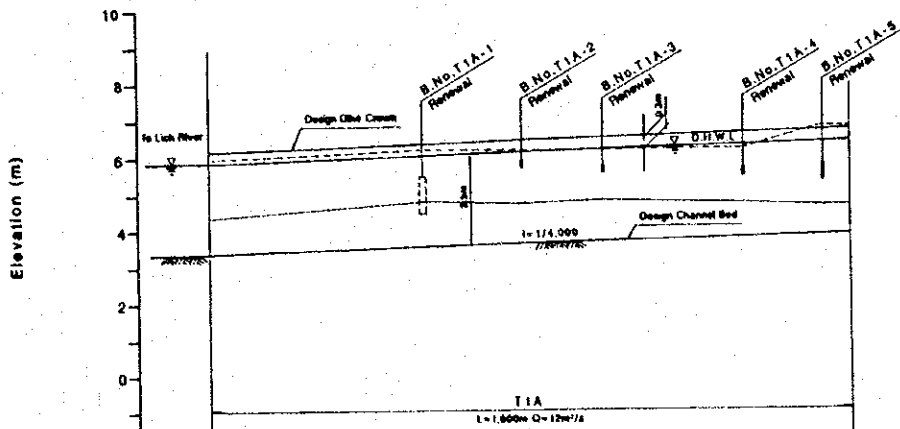
Design	Dike Crown	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
	High Water Level	5.80	5.80	5.80	5.80	5.80	5.80	5.80	5.80	5.80	5.80	5.80	5.80	5.80	5.80
Channel Bed	Channel Bed	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
	Accumulative Distance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Distance	Distance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Station No.	TK 200	TK 201	TK 202	TK 203	TK 204	TK 205	TK 206	TK 207	TK 208	TK 209	TK 210	TK 211	TK 212	TK 213

SOCIALIST REPUBLIC OF VIET NAM
THE STUDY ON URBAN DRAINAGE AND WASTEWATER
DISPOSAL SYSTEM IN HANOI CITY
 JAPAN INTERNATIONAL COOPERATION AGENCY

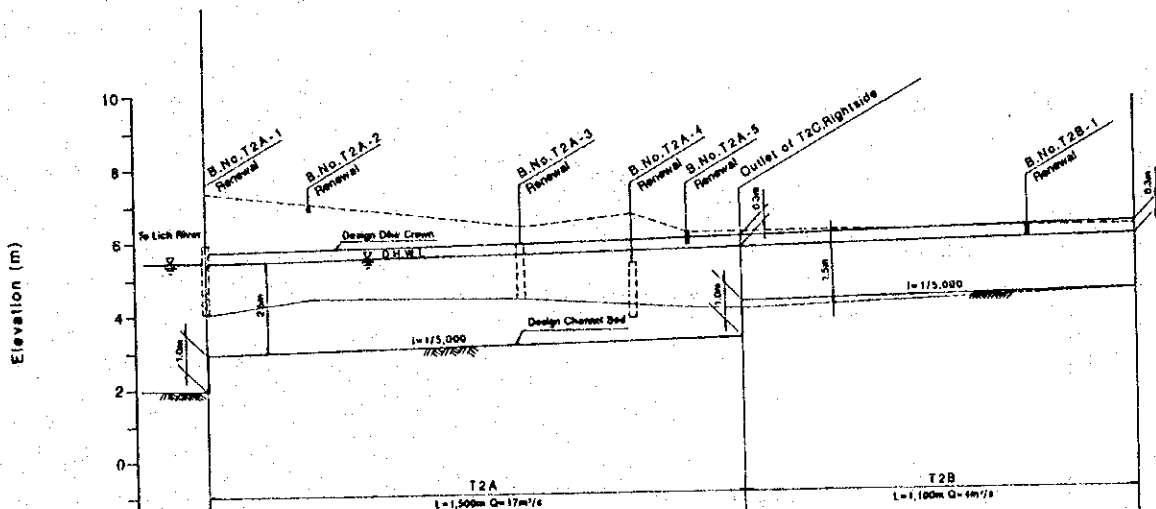
Fig.D4.8 (4)
PROFILES OF RIVERS AND
DRAINAGE CHANNELS (4/22)

LEGEND

- - - - - Existing Ground
- Existing Channel Bed
- Existing Bridge
- Existing Pipe Culvert



Design	Dike Crown	6.177	6.27	6.37	6.42	6.52	6.67	6.27
	High Water Level	5.877	5.977	6.07	6.152	6.252	6.37	6.27
	Channel Bed	3.277	3.67	3.97	3.63	3.752	3.67	3.67
	Accumulative Distance	0.00	60	80	100	150	170	180
	Distance	0.00	60	20	20	40	20	6
Station No.	6	T1A-1	T1A-2	T1A-3	T1A-4	T1A-5	E	



Design	Dike Crown	5.777	5.76	5.90	5.87	5.87	5.87	6.17	6.27
	High Water Level	5.427	5.46	5.60	5.57	5.57	5.77	5.87	5.87
	Channel Bed	2.877	2.86	3.00	3.17	3.19	3.27	3.37	4.47
	Accumulative Distance	0.00	20	60	130	150	150	150	150
	Distance	0.00	20	40	30	20	20	0	30
Station No.	T2A-1	T2A-2	T2A-3	T2A-4	T2A-5	6	T2B-1	E	

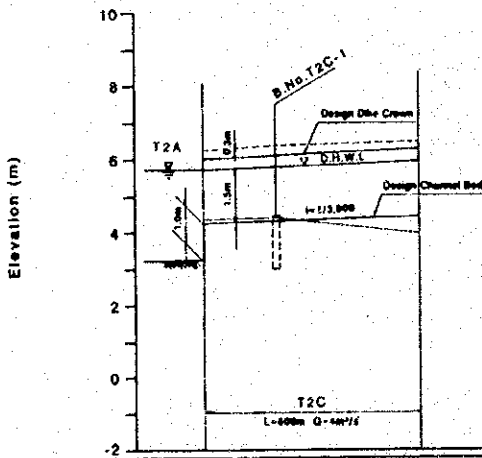
SOCIALIST REPUBLIC OF VIET NAM
 THE STUDY ON URBAN DRAINAGE AND WASTEWATER
 DISPOSAL SYSTEM IN HANOI CITY

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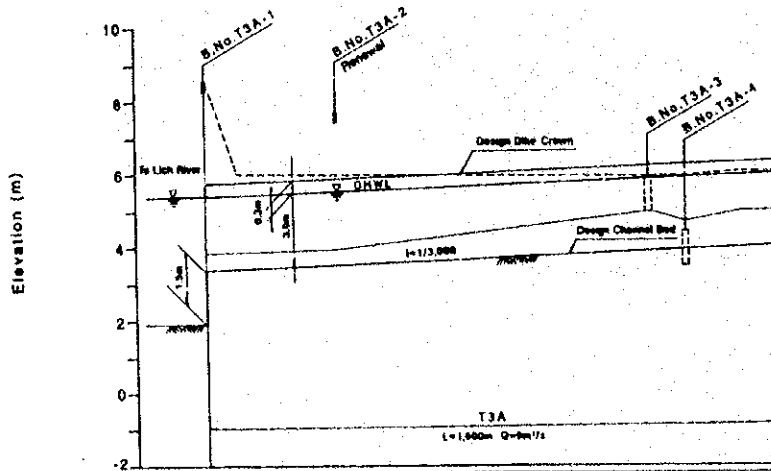
Fig.D4.8 (5)
 PROFILES OF RIVERS AND
 DRAINAGE CHANNELS (5/22)

LEGEND

- - - - - Existing Ground
- - - - - Existing Channel Bed
- Existing Bridge
- ⋮ Existing Pipe Culvert



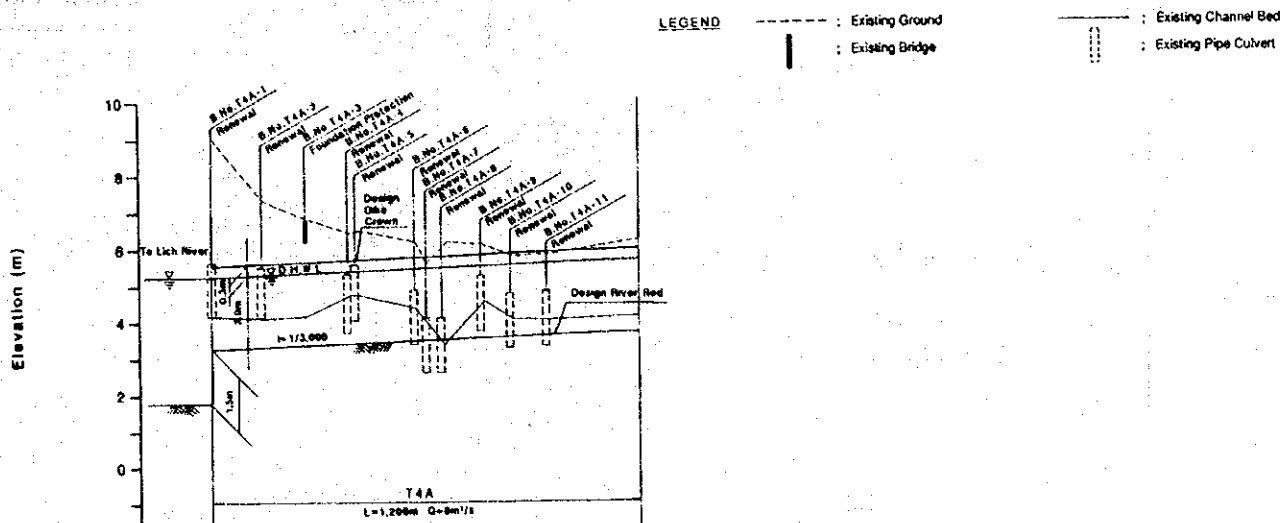
Design	Dike Crown	4.87	5.1	5.87
	High Water Level	5.77	5.5	5.87
	Channel Bed	3.87	3.5	4.87
Accumulative Distance	0.00	0.00	0.00	
Distance	0.00	0.00	0.00	
Station No.	0	T2C	0	



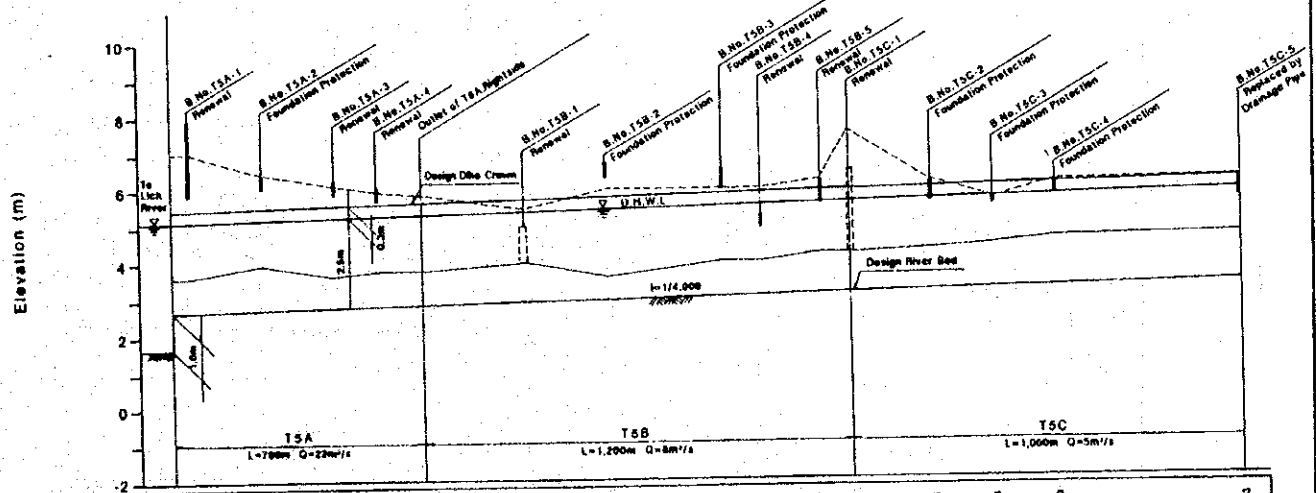
Design	Dike Crown	5.70	5.80	5.70	5.80	5.70	5.80
	High Water Level	5.40	5.50	5.70	5.80	5.70	5.80
	Channel Bed	3.40	3.50	3.70	3.80	3.70	3.80
Accumulative Distance	0.00	370	1,300	1,300	1,300	1,300	
Distance	0.00	370	400	100	50	50	
Station No.	T3A-1	T3A-2	T3A-3	T3A-4	0		

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JAPAN INTERNATIONAL COOPERATION AGENCY

Fig.D4.8 (6)
PROFILES OF RIVERS AND DRAINAGE CHANNELS (6/22)



Design	Station No.										
	T4A-1	T4A-2	T4A-3	T4A-4	T4A-5	T4A-6	T4A-7	T4A-8	T4A-9	T4A-10	T4A-11
Dike Crown	5.88	5.79	5.54	5.52	5.78	5.78	5.78	5.78	5.78	5.78	5.89
High Water Level	5.88	5.79	5.54	5.52	5.78	5.78	5.78	5.78	5.78	5.78	5.89
Channel Bed	3.78	3.79	3.38	3.38	3.48	3.48	3.48	3.48	3.48	3.48	3.48
Accumulative Distance	000	150	276	300	370	400	480	570	640	740	1200
Distance	000	150	176	24	70	30	80	90	70	100	260
Station No.	T4A-1	T4A-2	T4A-3	T4A-4	T4A-5	T4A-6	T4A-7	T4A-8	T4A-9	T4A-10	T4A-11



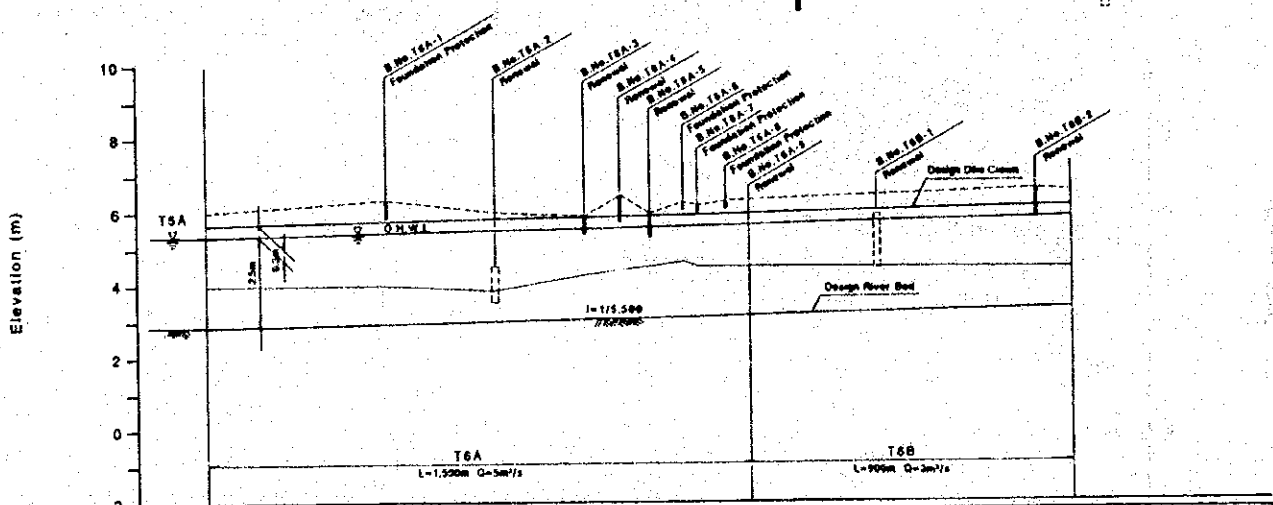
Design	Station No.														
	T5A-1	T5A-2	T5A-3	T5A-4	T5B-1	T5B-2	T5B-3	T5B-4	T5B-5	T5C-1	T5C-2	T5C-3	T5C-4	T5C-5	
Dike Crown	5.40	5.35	5.35	5.35	5.35	5.35	5.35	5.35	5.35	5.35	5.35	5.35	5.35	5.35	
High Water Level	5.10	5.05	5.05	5.05	5.05	5.05	5.05	5.05	5.05	5.05	5.05	5.05	5.05	5.05	
Channel Bed	3.80	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	
Accumulative Distance	000	200	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	
Distance	000	200	200	100	100	100	100	100	100	100	100	100	100	100	
Station No.	T5A-1	T5A-2	T5A-3	T5A-4	T5B-1	T5B-2	T5B-3	T5B-4	T5B-5	T5C-1	T5C-2	T5C-3	T5C-4	T5C-5	

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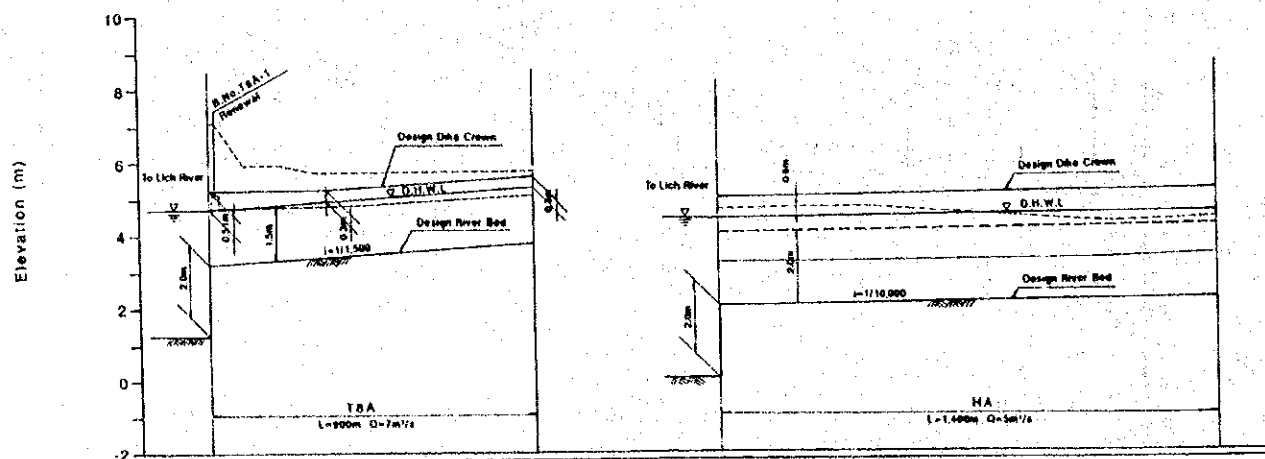
Fig.D4.8 (7)
 PROFILES OF RIVERS AND
 DRAINAGE CHANNELS (7/22)

LEGEND

- - - - - Existing Ground
- - - - - Existing Channel Bed
- - - - - Existing Bridges
- - - - - Existing Pipe Culvert



Design	Dike Crown	5.75	5.75	5.75	5.80	5.87	5.92	5.98	6.04	6.11	6.18	6.25	6.32	6.39
	High Water Level	5.35	5.45	5.55	5.65	5.75	5.85	5.95	6.05	6.15	6.25	6.35	6.45	6.55
	Channel Bed	3.85	3.85	3.85	3.85	3.87	3.92	3.98	4.04	4.11	4.18	4.25	4.32	4.39
Accumulative Distance	0.00	50	100	150	200	250	300	350	400	450	500	550	600	
Distance	0.00	50	100	150	200	250	300	350	400	450	500	550	600	
Station No.	B	T6A-1	T6A-2	T6A-3	T6A-4	T6A-5	T6A-6	T6A-7	T6A-8	T6A-9	T6B-1	T6B-2	E	



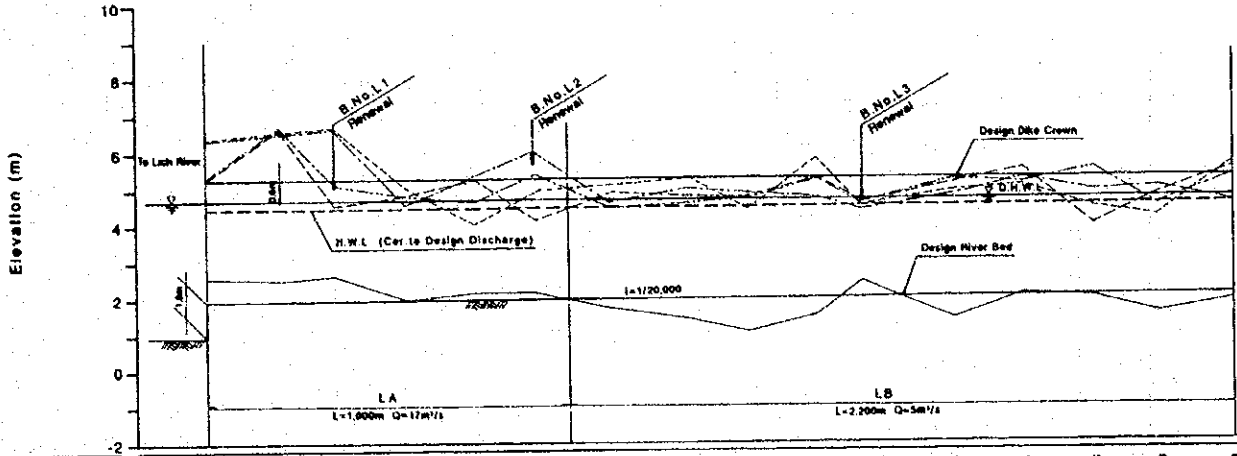
Design	Dike Crown	5.25	5.25	5.25	5.32	5.32
	High Water Level	4.75	4.75	4.75	4.80	4.80
	Channel Bed	3.25	3.25	3.25	3.27	3.32
Accumulative Distance	0.00	50	100	150	200	250
Distance	0.00	50	100	150	200	250
Station No.	B	T6A-1	E	B	E	

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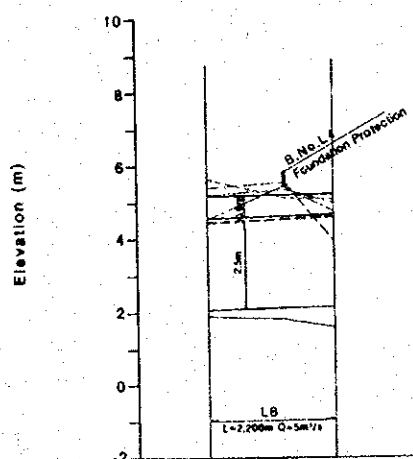
Fig.D4.8 (8)
 PROFILES OF RIVERS AND DRAINAGE CHANNELS (8/22)

LEGEND

- : Existing Dike Crown (Right)
- : Existing Dike Crown (Left)
- : Existing Land Side Ground (Right)
- : Existing Land Side Ground (Left)
- : Existing RiverBed
- : Existing Bridge
- : Existing Pipe Culvert



Design	Dike Crown	5.97	5.98	5.91	5.94	5.98	5.98	5.20	5.25	5.25	5.17	5.19	5.22	5.24	5.26	5.28	5.21
	High Water Level	4.97	4.98	4.91	4.94	4.98	4.98	4.40	4.42	4.41	4.41	4.39	4.42	4.44	4.46	4.48	4.41
	Channel Bed	1.97	1.97	1.95	1.97	1.98	1.98	1.80	1.84	1.84	1.82	1.80	1.81	1.81	1.81	1.80	1.80
	Accumulative Distance	0.00	205.14	345.28	561.77	752.87	911.44	1,077.31	1,328.28	1,585.77	1,848.77	2,118.28	2,393.28	2,680.77	2,980.77	3,293.28	3,621.77
	Distance	0.00	205.14	141.14	216.77	181.10	167.67	165.87	250.87	257.50	263.77	269.77	275.77	281.77	287.77	293.77	299.77
	Station No.	UK 00	UK 01	UK 02	UK 03	UK 04	UK 05	UK 06	UK 07	UK 08	UK 09	UK 10	UK 11	UK 12	UK 13	UK 14	UK 15



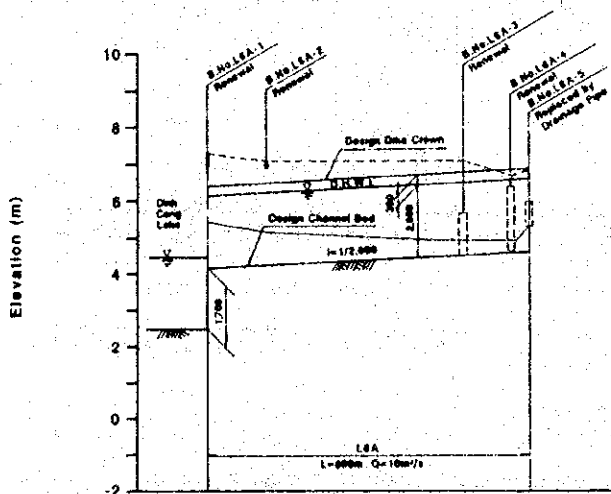
Design	Dike Crown	5.21	5.23	5.26
	High Water Level	4.21	4.23	4.25
	Channel Bed	2.00	2.10	2.10
	Accumulative Distance	3,681.77	3,976.28	4,303.28
	Distance	294.51	294.51	327.00
	Station No.	UK 15	UK 16	UK 17

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Fig.D4.8 (9)
 PROFILES OF RIVERS AND
 DRAINAGE CHANNELS (9/22)

LEGEND

- - - Existing Ground
- Existing Channel Bed
- Existing Bridges
- ⋮ Existing Pipe Culvert



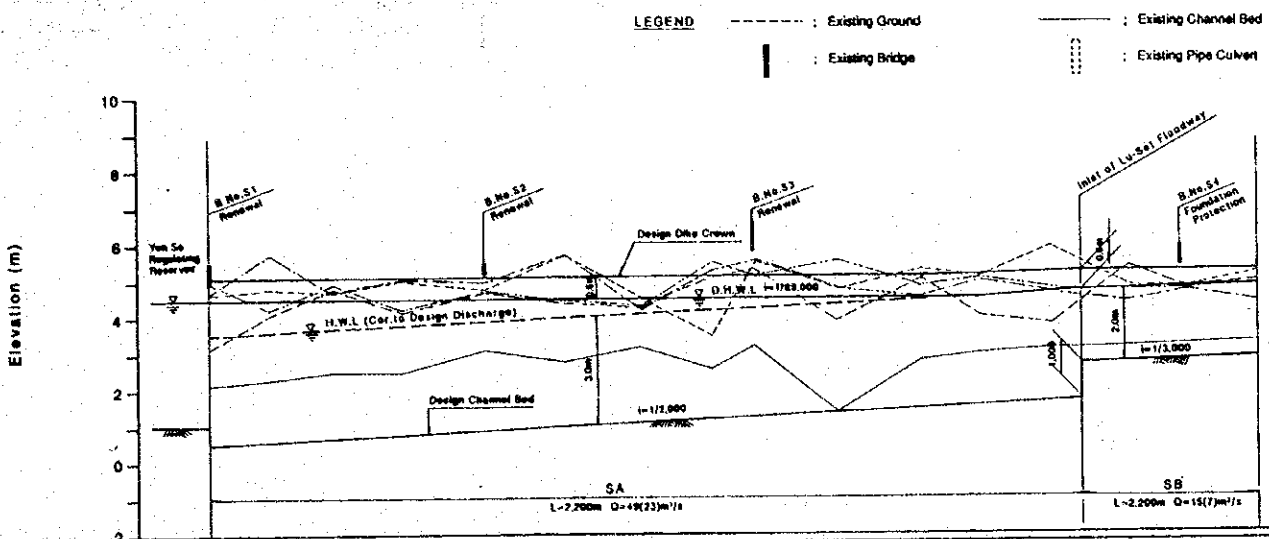
Design	Dike Crown	6.50	6.50	6.50	7.05	6.50
	High Water Level	6.50	6.50	6.50	6.50	6.50
	Channel Bed	3.50 4.00	4.00	4.50	4.00	4.00
Accumulative Distance	0.00	17.00	72.00	200.00	300.00	
Distance	0.00	17.00	55.00	13.00	5.00	
Station No.	LSA-1	LSA-2	LSA-3	LSA-4	LSA-5	

Elevation (m)

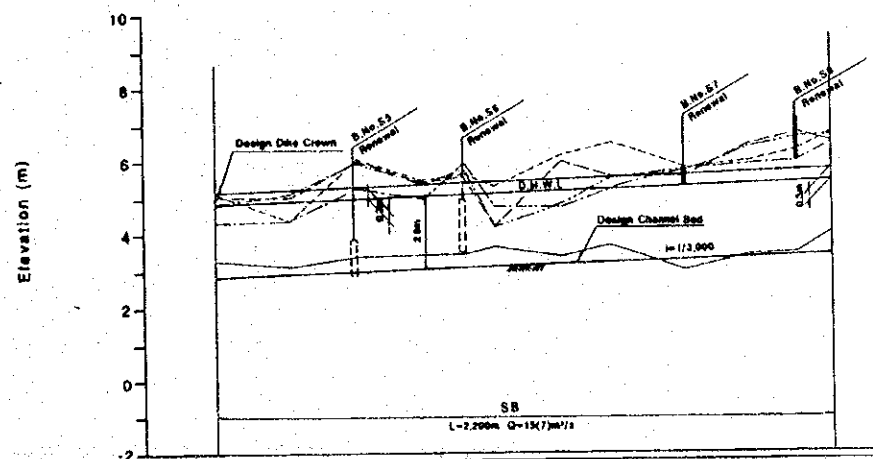
Design	Dike Crown	
	High Water Level	
	Channel Bed	
Accumulative Distance		
Distance		
Station No.		

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Fig.D4.8 (10)
 PROFILES OF RIVERS AND
 DRAINAGE CHANNELS (10/22)



Station No.	Distance	Accumulative Distance	Design		
			Channel Bed	High Water Level	Dike Crown
SK10	00	000	0.00	4.00	5.00
SK13	92.23	92.23	0.04	4.05	5.05
SK14	170.24	307.97	0.09	4.10	5.10
SK18	191.48	589.45	0.70	4.18	5.18
SK19	241.11	770.07	0.85	4.28	5.28
SK20	248.85	868.92	0.99	4.34	5.34
SK22	204.00	1,193.73	1.07	4.41	5.41
SK24	203.65	1,397.41	1.19	4.54	5.49
SK28	177.24	1,574.65	1.27	4.59	5.52
SK28	211.40	1,746.05	1.25	4.60	5.60
SK30	227.23	1,973.28	1.47	4.57	5.67
SK32	188.18	2,161.46	1.57	4.53	5.73
SK34	181.46	2,337.92	1.89	4.89	5.89
SK35 (11/2)	243.76	2,437.68	2.78	4.79	5.319
SK35	299.72	2,583.79	3.91	4.71	5.379
SK38	150.79	2,744.58	3.83	4.53	5.379
SK40	209.79	2,954.37	2.80	4.80	5.319



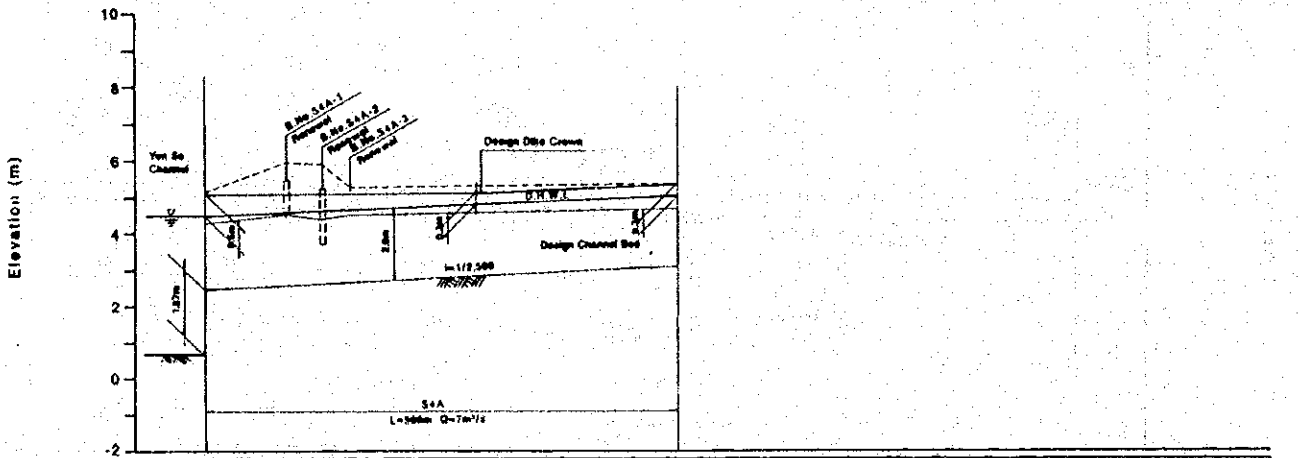
Station No.	Distance	Accumulative Distance	Design		
			Channel Bed	High Water Level	Dike Crown
SK40	00	000	0.00	4.00	5.00
SK42	78.88	78.88	0.06	4.06	5.06
SK44	147.88	226.76	0.20	4.08	5.08
SK45	188.04	414.80	0.22	4.07	5.07
SK47	147.27	562.07	3.11	5.11	6.11
SK48	88.47	650.54	3.28	5.28	6.28
SK50	188.28	838.82	3.20	5.20	6.20
SK52	128.12	966.94	3.87	5.87	6.87
SK54	218.58	1,185.52	3.37	5.37	6.37
SK56	181.21	1,366.73	3.37	5.37	6.37
SK57	134.00	1,500.73	3.42	5.42	6.42
SK58	103.13	1,603.86	3.65	5.65	6.65

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Fig.D4.8 (11)
 PROFILES OF RIVERS AND
 DRAINAGE CHANNELS (11/22)

LEGEND

--- Existing Ground
 --- Existing Channel Bed
 --- Existing Bridge
 --- Existing Pipe Culvert



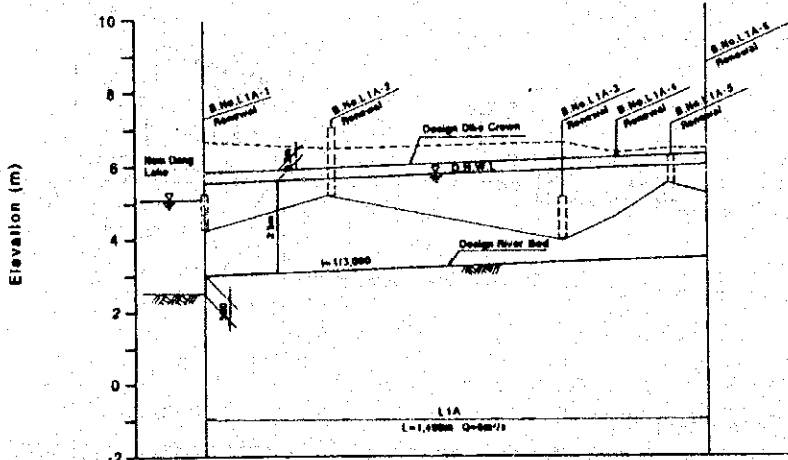
Design	Dike Crown	4.30	4.30	4.30	4.30	4.30
	High Water Level	4.00	4.00	4.00	4.00	4.00
	Channel Bed	2.20	2.20	2.20	2.20	2.20
Accumulative Distance	00	80	160	240	320	400
Distance	00	80	160	240	320	400
Station No.	+	S+4.1	S+4.2	S+4.3		+

Design	Dike Crown					
	High Water Level					
	Channel Bed					
Accumulative Distance						
Distance						
Station No.						

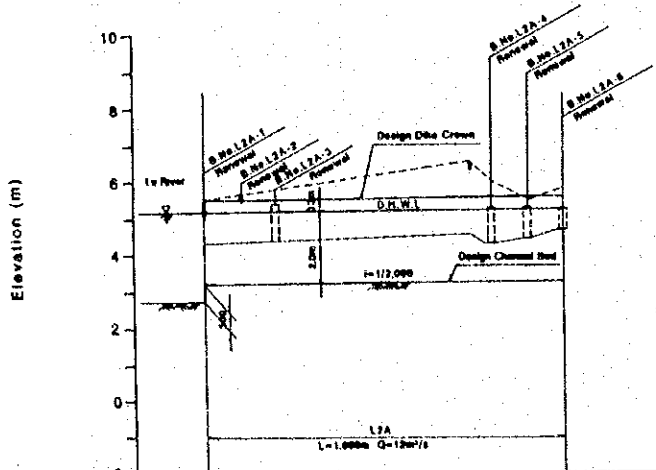
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Fig.D4.8 (12)
 PROFILES OF RIVERS AND
 DRAINAGE CHANNELS (12/22)

LEGEND
 - - - - - : Existing Ground
 - - - - - : Existing Channel Bed
 | : Existing Bridge
 [] : Existing Pipe Culvert



Design	Dike Crown	4.8	5.17	6.33	6.93	6.93	6.97
	High Water Level	5.8	5.17	5.63	5.63	5.63	5.67
	Channel Bed	3.08	3.17	3.33	3.33	3.33	3.47
Accumulative Distance	0	30	180	176	130	140	140
Distance	0	30	65	10	20	10	10
Station No.	L1A-1	L1A-2	L1A-3	L1A-4	L1A-5	L1A-6	



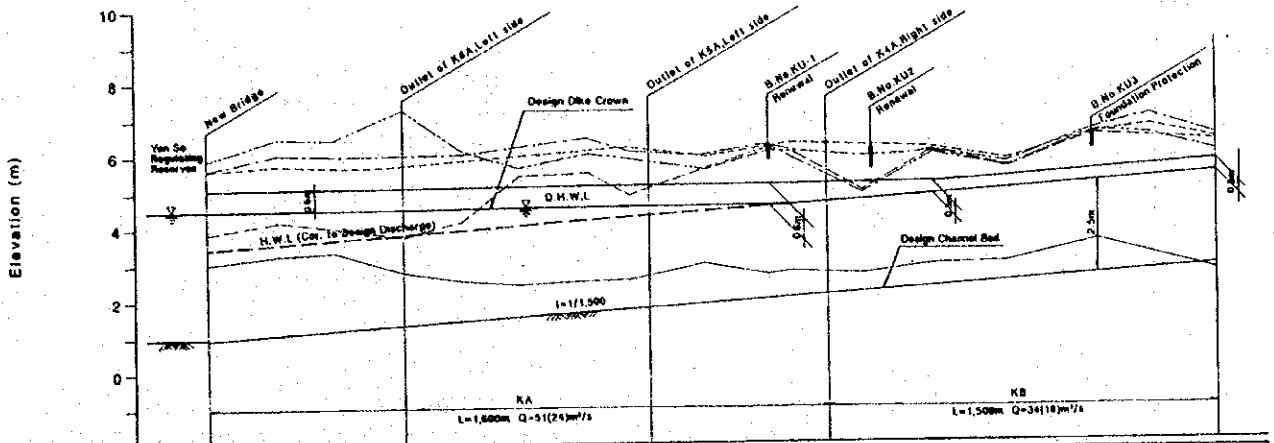
Design	Dike Crown	4.53	4.88	5.17	5.63	6.93
	High Water Level	3.73	4.48	4.13	4.63	5.73
	Channel Bed	2.73	2.73	2.83	2.83	3.73
Accumulative Distance	0	75	80	90	100	100
Distance	0	75	5	10	10	10
Station No.	L2A-1	L2A-2	L2A-3	L2A-4	L2A-5	L2A-6

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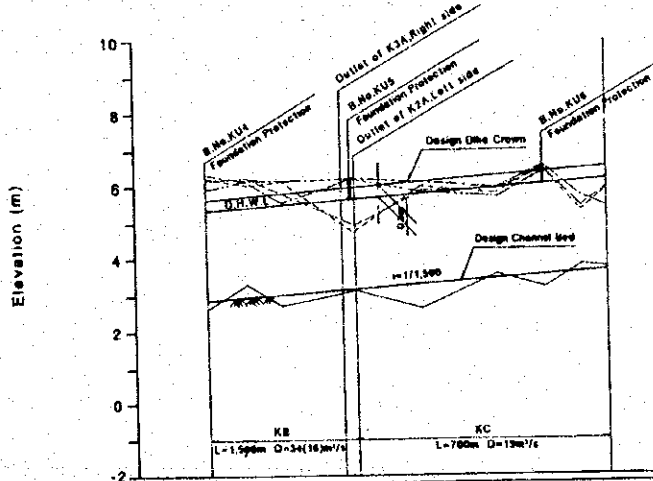
Fig.D4.8 (14)
 PROFILES OF RIVERS AND
 DRAINAGE CHANNELS (14/22)

LEGEND

- Existing Dike Crown (Right)
- Existing Dike Crown (Left)
- Existing Land Side Ground (Right)
- Existing Land Side Ground (Left)
- Existing RiverBed
- Existing Bridge
- Existing Pipe Culvert



Design	KA		KB	
	Station	Elevation (m)	Station	Elevation (m)
Dike Crown	10078	5.100	10118	5.482
High Water Level	10078	4.500	10118	5.196
Channel Bed	10078	1.000	10118	2.862
Accumulative Distance	0.00		2282.71	
Distance	0.00		2282.71	
Station No.	10078		10118	



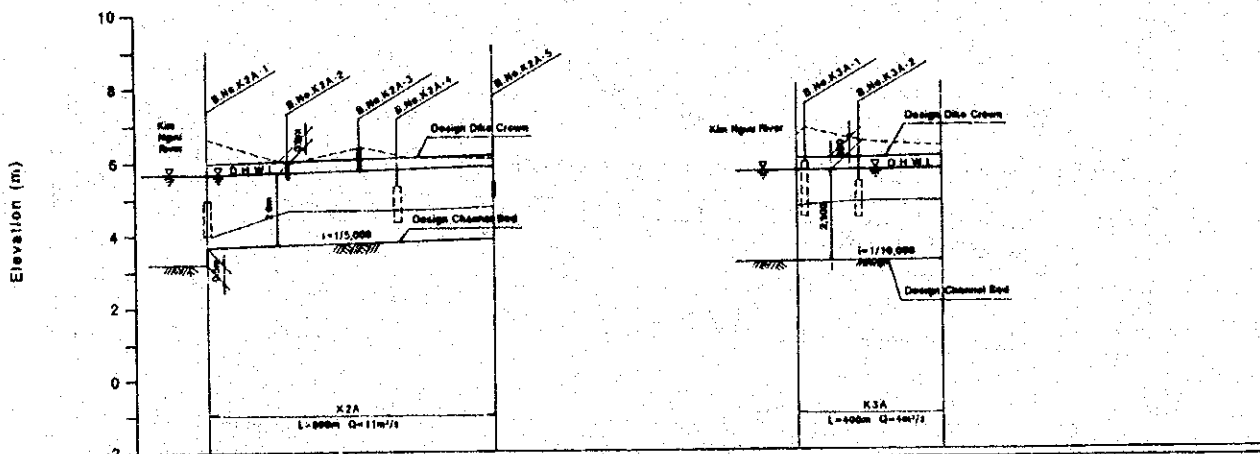
Design	KC	
	Station	Elevation (m)
Dike Crown	10108	5.882
High Water Level	10108	5.456
Channel Bed	10108	2.862
Accumulative Distance	2282.71	
Distance	2282.71	
Station No.	10108	10118

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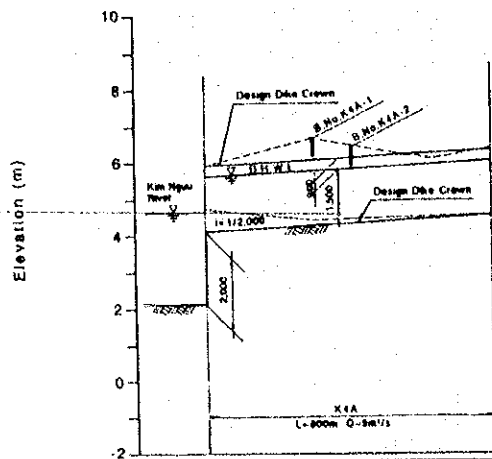
Fig.D4.8 (15)
 PROFILES OF RIVERS AND
 DRAINAGE CHANNELS (15/22)

LEGEND

- - - Existing Ground
- - - Existing Channel Bed
- Existing Bridge
- Existing Pipe Culvert



Design	Dike Crown	5.85	4.00	6.00	6.00	6.15	5.85	5.85	5.85
	High Water Level	5.85	3.70	5.70	3.70	3.70	5.85	5.85	5.85
	Channel Bed	3.15	3.70	3.70	3.70	3.70	3.15	3.15	3.15
Accumulative Distance	0.00	20	40	50	80	0.00	170	0.00	0.00
Distance	0.00	20	20	10	270	0.00	10	20	0.00
Station No.	K2A-1	K2A-2	K2A-3	K2A-4	K2A-5	K3A-1	K3A-2	E	



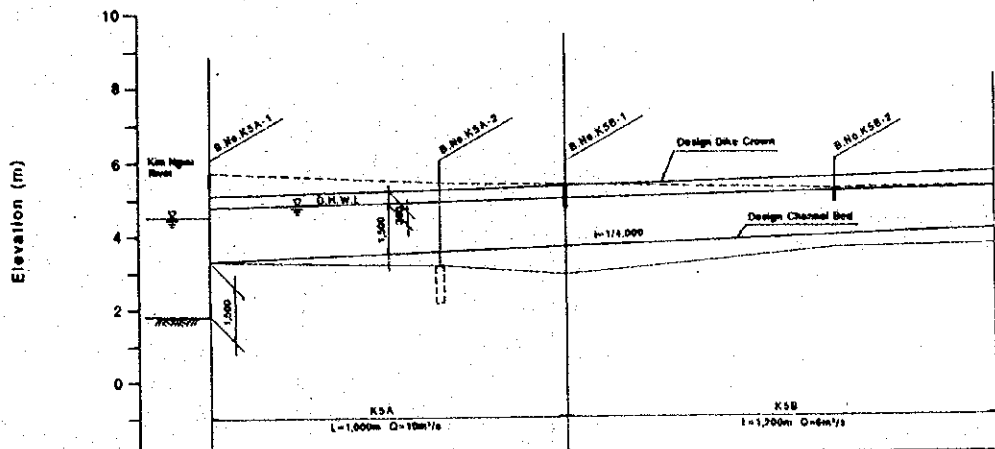
Design	Dike Crown	5.15	6.10	6.10	6.10
	High Water Level	4.85	3.80	3.80	6.07
	Channel Bed	2.15	4.37	4.37	4.37
Accumulative Distance	0.00	30	45	80	
Distance	0.00	30	15	30	
Station No.	B	K4A-1	K4A-2	E	

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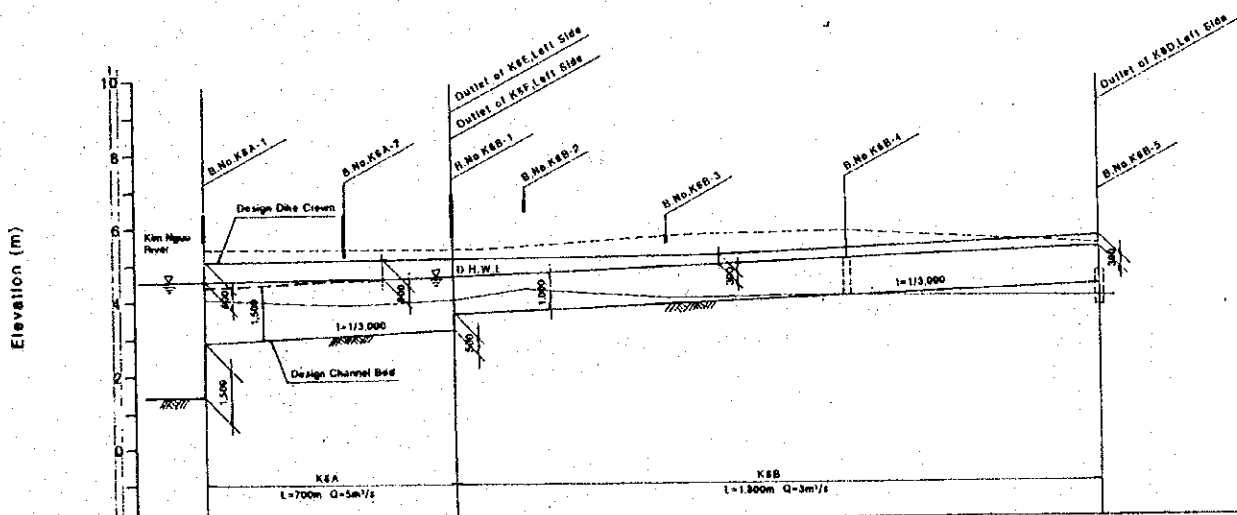
Fig.D4.8 (16)
 PROFILES OF RIVERS AND DRAINAGE CHANNELS (16/22)

LEGEND

- - - Existing Ground
- - - Existing Channel Bed
- - - Existing Bridge
- - - Existing Pipe Culvert



Design	Dike Crown	5.12	5.28	5.37	5.58	5.71
	High Water Level	4.98	4.84	5.07	5.28	5.37
	Channel Bed	3.27	3.14	3.37	3.78	3.87
Accumulative Distance	0.00	100	200	750	1200	
Distance	0.00	100	200	750	450	
Station No.	K5A-1	K5A-2	K5B-1	K5B-2	E	



Design	Dike Crown	5.12	5.12	5.17	5.12	5.12	5.20	5.50
	High Water Level	4.37	4.52	4.80	4.70	4.80	4.70	5.00
	Channel Bed	3.70	3.25	3.30	3.70	3.80	3.70	4.20
Accumulative Distance	0.00	40	70	200	400	1100	1300	
Distance	0.00	40	30	200	400	500	700	
Station No.	K6A-1	K6A-2	K6A-3	K6B-1	K6B-2	K6B-3	K6B-4	K6B-5

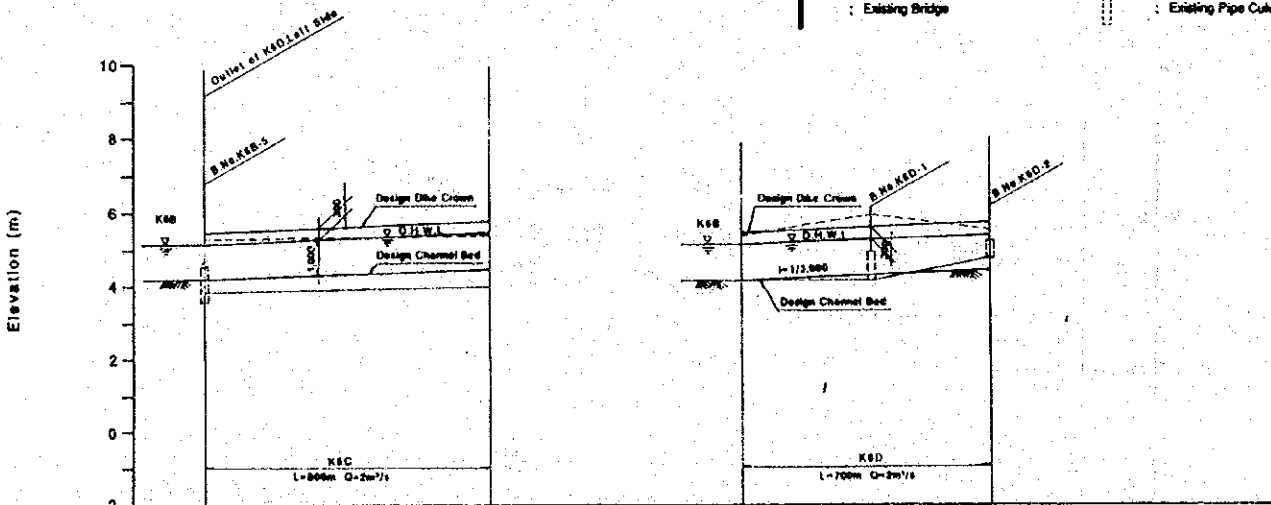
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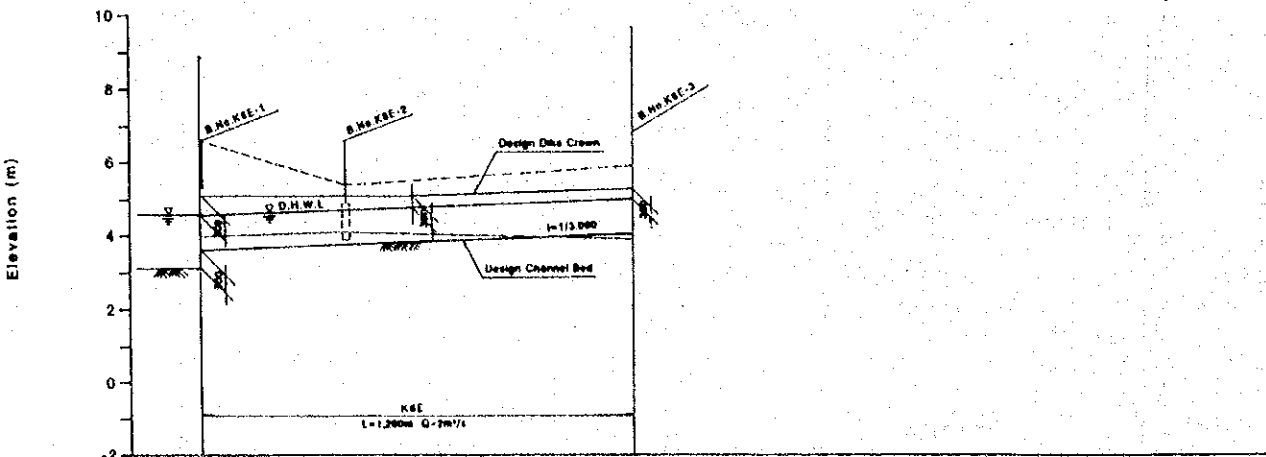
Fig.D4.8 (17)
PROFILES OF RIVERS AND
DRAINAGE CHANNELS (17/22)

LEGEND

- - - - - : Existing Ground
- : Existing Channel Bed
- : Existing Bridge
- : Existing Pipe Culvert



Design	Dike Crown	5.00	5.70	5.00	5.00	5.70
	High Water Level	5.50	5.70	5.00	5.20	5.00
	Channel Bed	4.00	4.00	4.00	4.00	4.00
Accumulative Distance	1000	800	300	700	700	300
Distance	700	100	400	300	300	300
Station No.	K8B-1	E	B	K8D-1	K8D-2	K8D-3



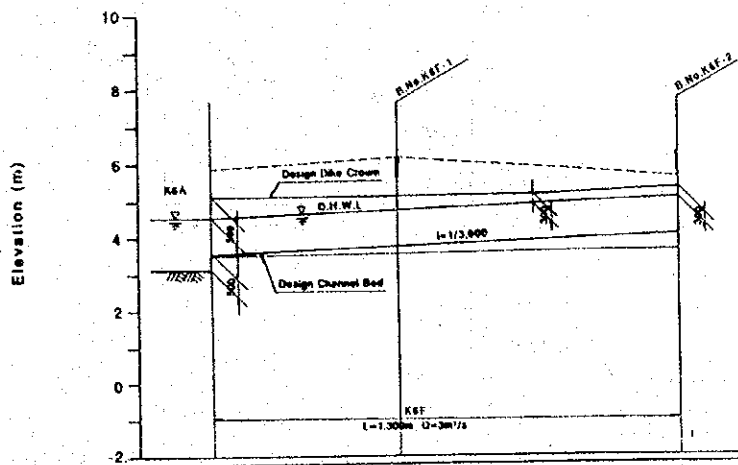
Design	Dike Crown	5.12	5.12	5.00
	High Water Level	4.00	4.20	5.00
	Channel Bed	3.00	3.70	4.00
Accumulative Distance	000	000	1200	
Distance	000	000	000	
Station No.	K8E-1	K8E-2	K8E-3	

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Fig.D4.8 (18)
 PROFILES OF RIVERS AND
 DRAINAGE CHANNELS (18/22)

LEGEND

- - - Existing Ground
- Existing Channel Bed
- Existing Bridge



Design	Dike Crown	5.12	5.12	5.08
	High Water Level	4.80	4.78	5.08
	Channel Bed	3.50	3.78	4.08
Accumulative Distance	0.00	50	130	
Distance	0.00	50	78	
Station No.	0	0+50	0+128	

Elevation (m)

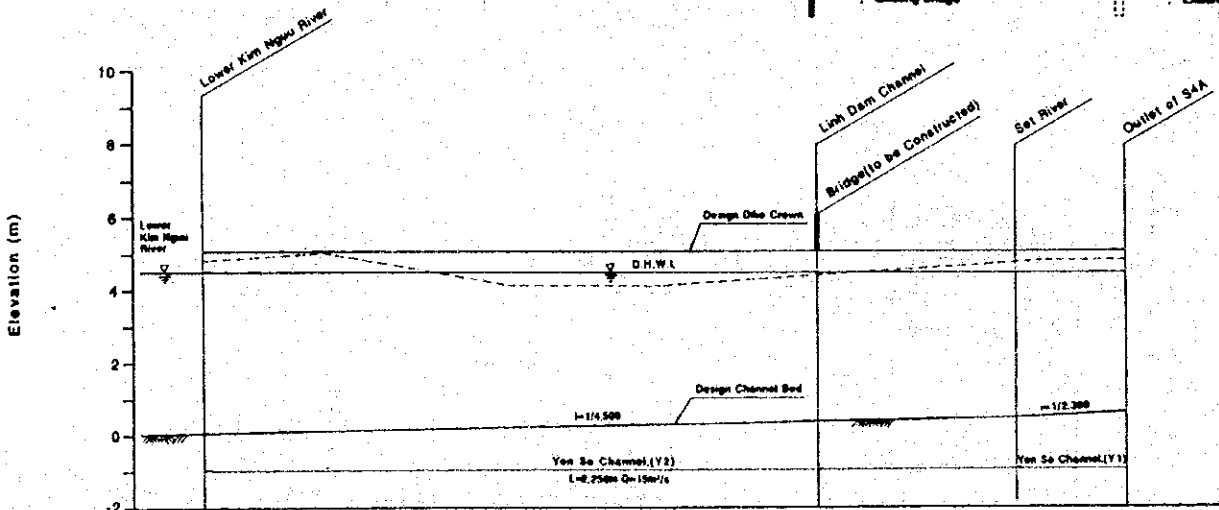
Design	Dike Crown	
	High Water Level	
	Channel Bed	
Accumulative Distance		
Distance		
Station No.		

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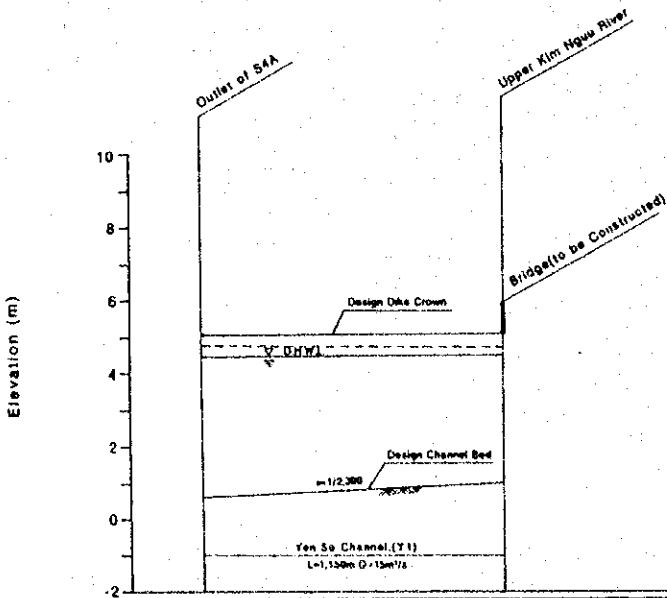
Fig.D4.8 (19)
 PROFILES OF RIVERS AND
 DRAINAGE CHANNELS (19/22)

LEGEND

- - - Existing Ground
- - - Existing Channel Bed
- Existing Bridge
- Existing Pipe Culvert



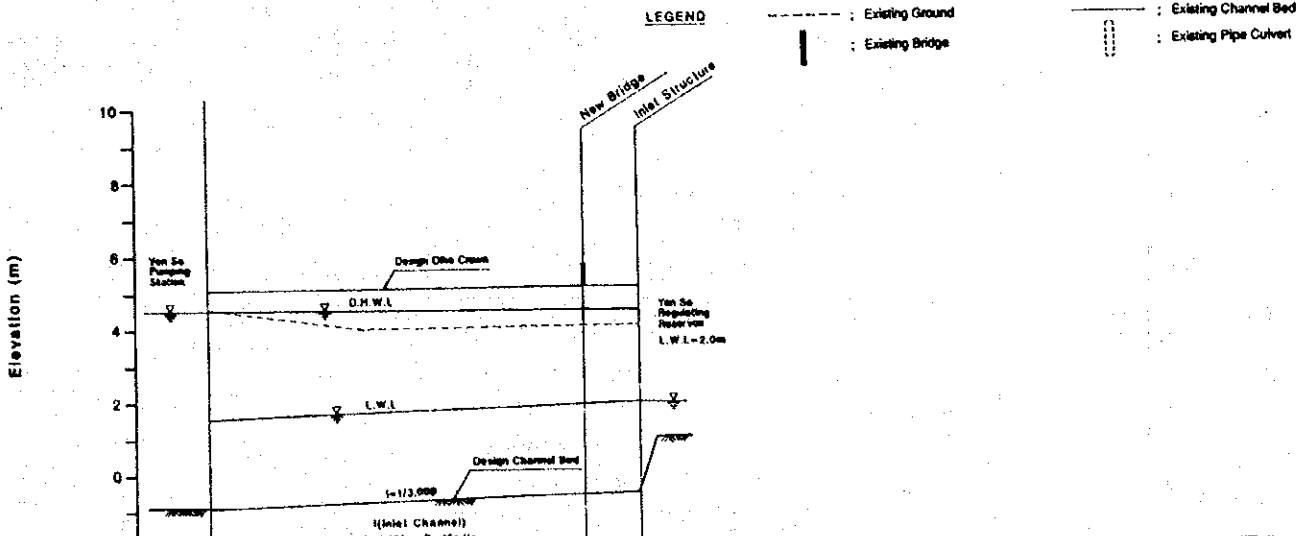
Design	Dike Crown	5.00	5.00	5.00	5.00
	High Water Level	4.50	4.50	4.50	4.50
	Channel Bed	0.50	0.25	0.50	0.50
Accumulative Distance	0.00	1.70	2.20	2.50	
Distance	0.00	1.70	0.50	0.30	
Station No.					



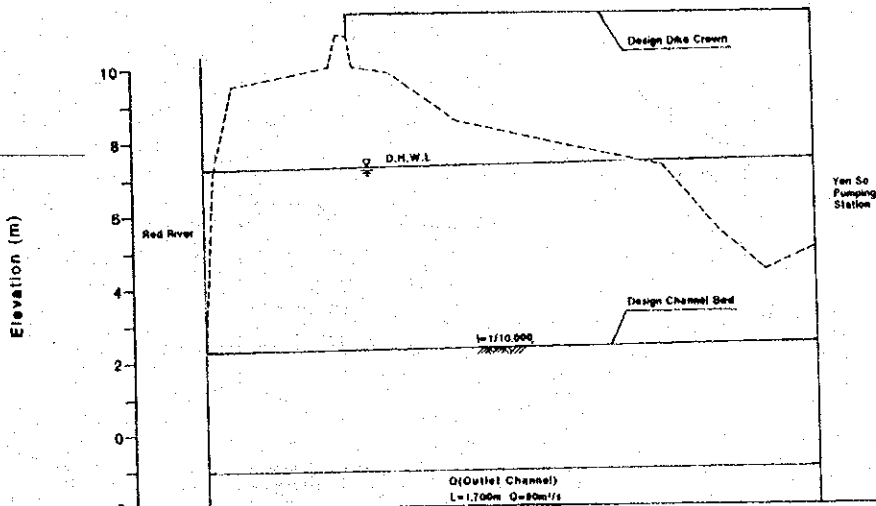
Design	Dike Crown	5.00	5.00
	High Water Level	4.50	4.50
	Channel Bed	0.50	1.00
Accumulative Distance	2.50	3.60	
Distance	0.00	1.10	
Station No.			

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Fig.D4.8 (20)
 PROFILES OF RIVERS AND DRAINAGE CHANNELS (20/22)



Design	Dike Crown	5.00	5.00	5.00
	High Water Level	4.80	4.50	4.50
	Channel Bed	4.00	4.00	4.50
	Accumulative Distance	0.00	800	1,200
	Distance	0.00	800	400
	Station No.	0		14



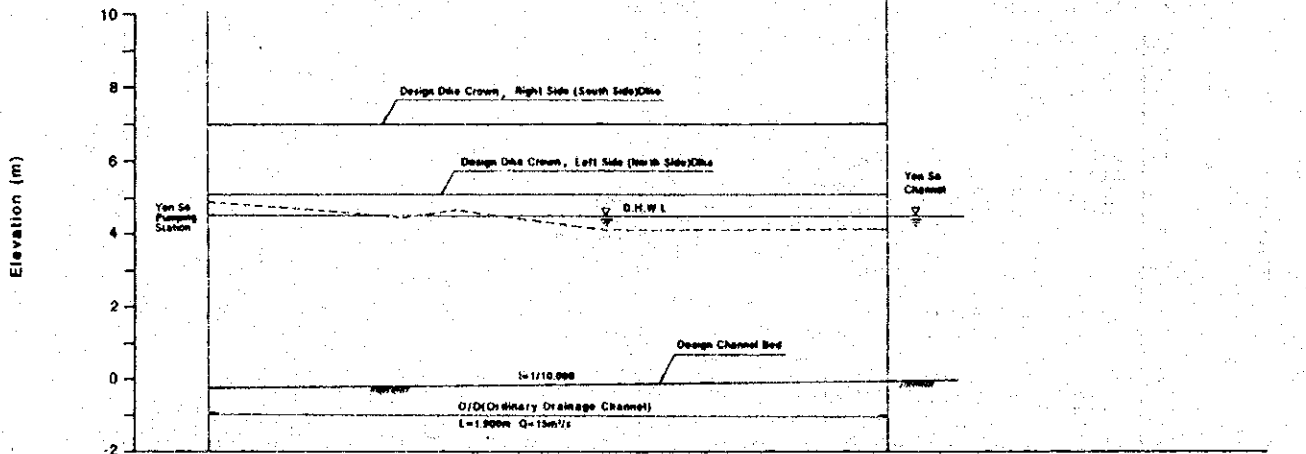
Design	Dike Crown	-	-	-	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
	High Water Level	7.50	7.45	7.37	7.27	7.16	7.03	6.87	6.68	6.46	6.22	5.97	5.71	5.44	5.16
	Channel Bed	2.38	2.34	2.30	2.27	2.24	2.21	2.17	2.13	2.08	2.03	1.98	1.93	1.87	1.81
	Accumulative Distance	0.00	100.00	200.00	300.00	400.00	500.00	600.00	700.00	800.00	900.00	1,000.00	1,100.00	1,200.00	1,300.00
	Distance	0.00	100.00	200.00	300.00	400.00	500.00	600.00	700.00	800.00	900.00	1,000.00	1,100.00	1,200.00	1,300.00
	Station No.	0													

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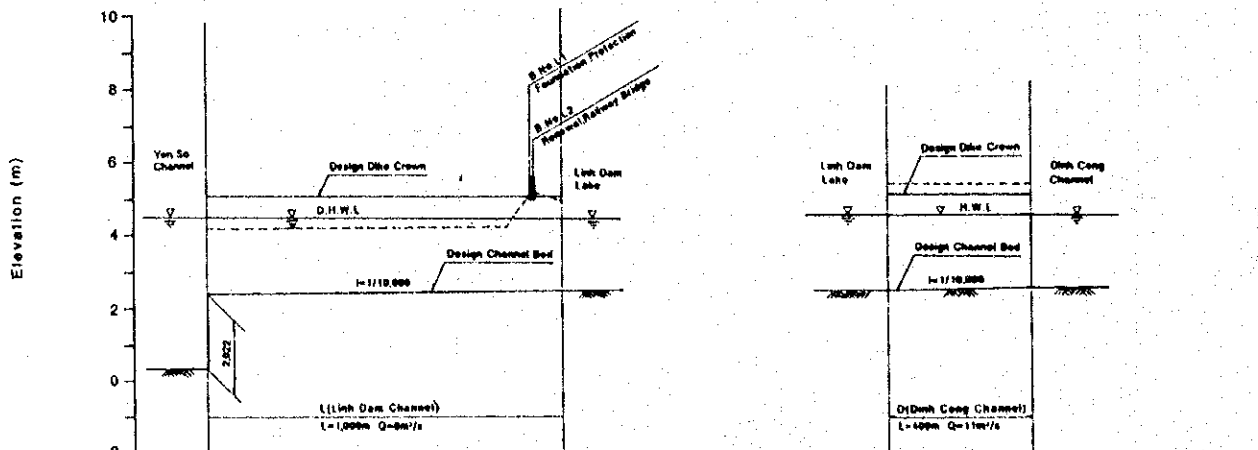
Fig.D4.8 (21)
 PROFILES OF RIVERS AND
 DRAINAGE CHANNELS (21/22)

LEGEND

--- : Existing Ground
 --- : Existing Channel Bed
 --- : Existing Bridge
 --- : Existing Pipe Culvert



Design	Dike Crown	5.00	5.00
	High Water Level	4.50	4.50
	Channel Bed	0.00	0.00
Accumulative Distance	0.00	1000.00	
Distance	0.00	1000.00	
Station No.	0	1	



Design	Dike Crown	5.00	5.00	5.00	5.00
	High Water Level	4.50	4.50	4.50	4.50
	Channel Bed	0.00	0.00	0.00	0.00
Accumulative Distance	0.00	1000.00	1000.00	1100.00	
Distance	0.00	1000.00	100.00	100.00	
Station No.	0	1	2	3	

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Fig.D4.8 (22)
 PROFILES OF RIVERS AND
 DRAINAGE CHANNELS (22/22)

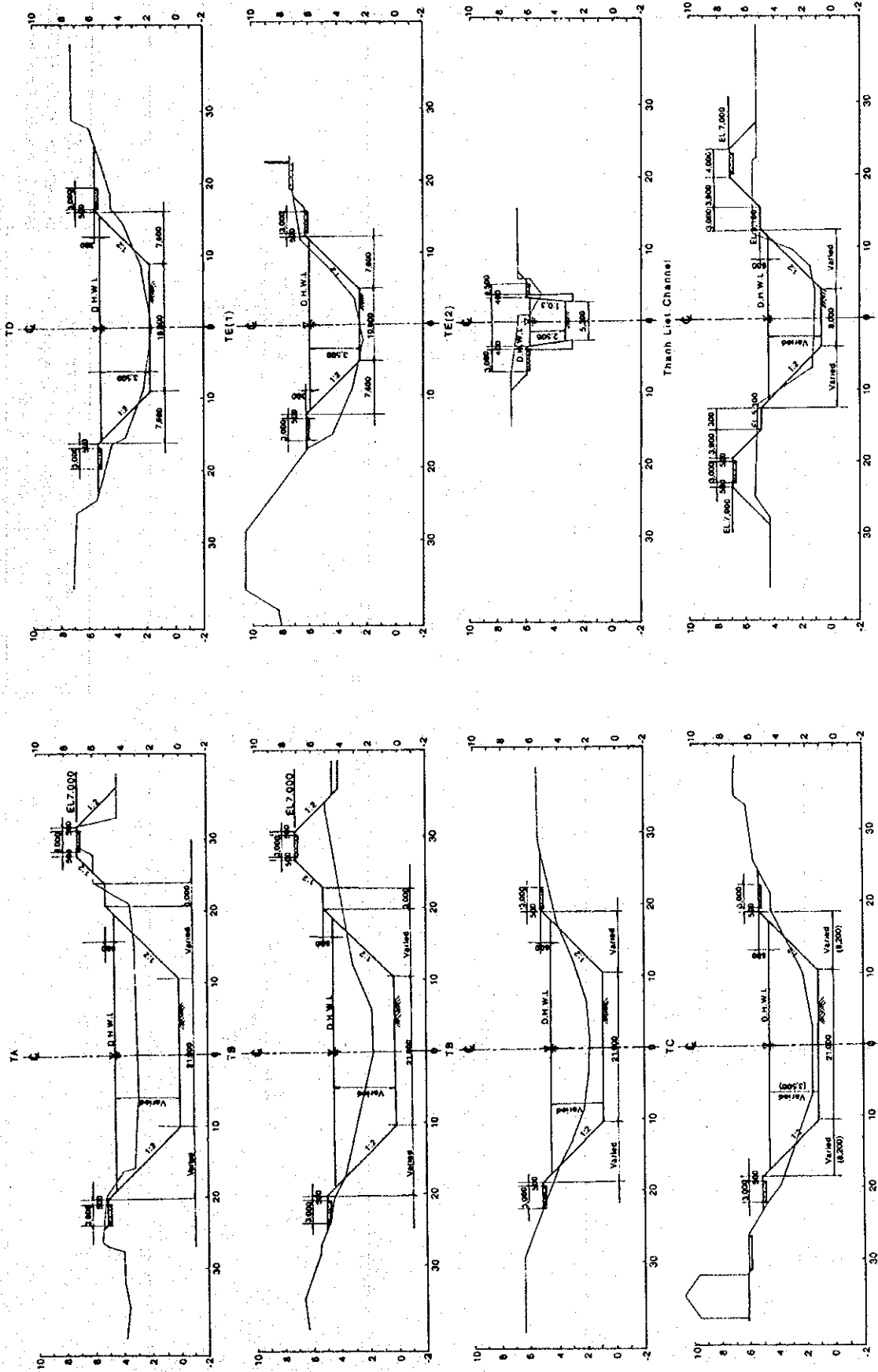


Fig.D4.9 (1)
 STANDARD CROSS-SECTIONS OF RIVERS
 AND DRAINAGE CHANNELS (1/8)

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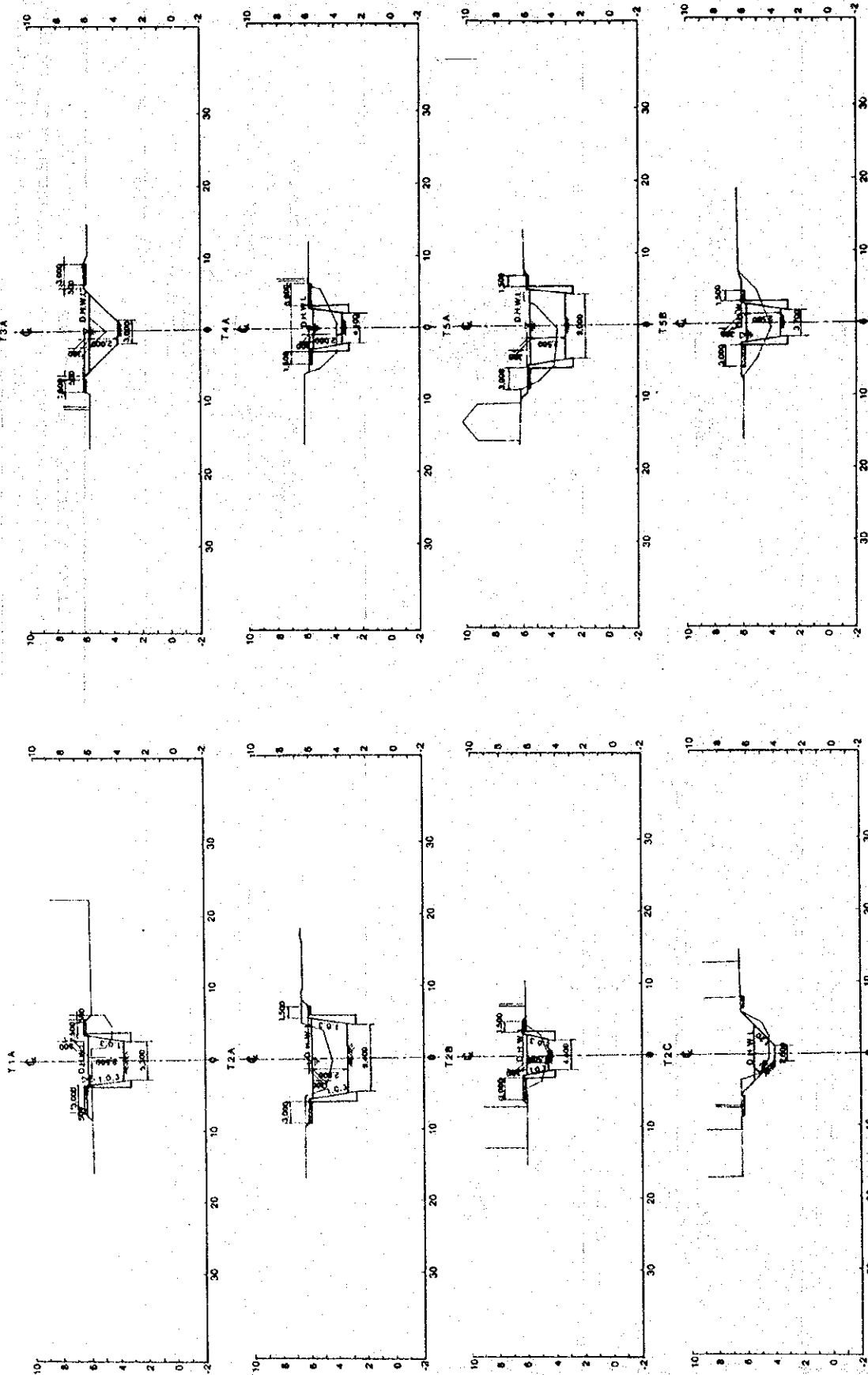


Fig.D4.9 (2)
 STANDARD CROSS-SECTIONS OF RIVERS
 AND DRAINAGE CHANNELS (2/8)

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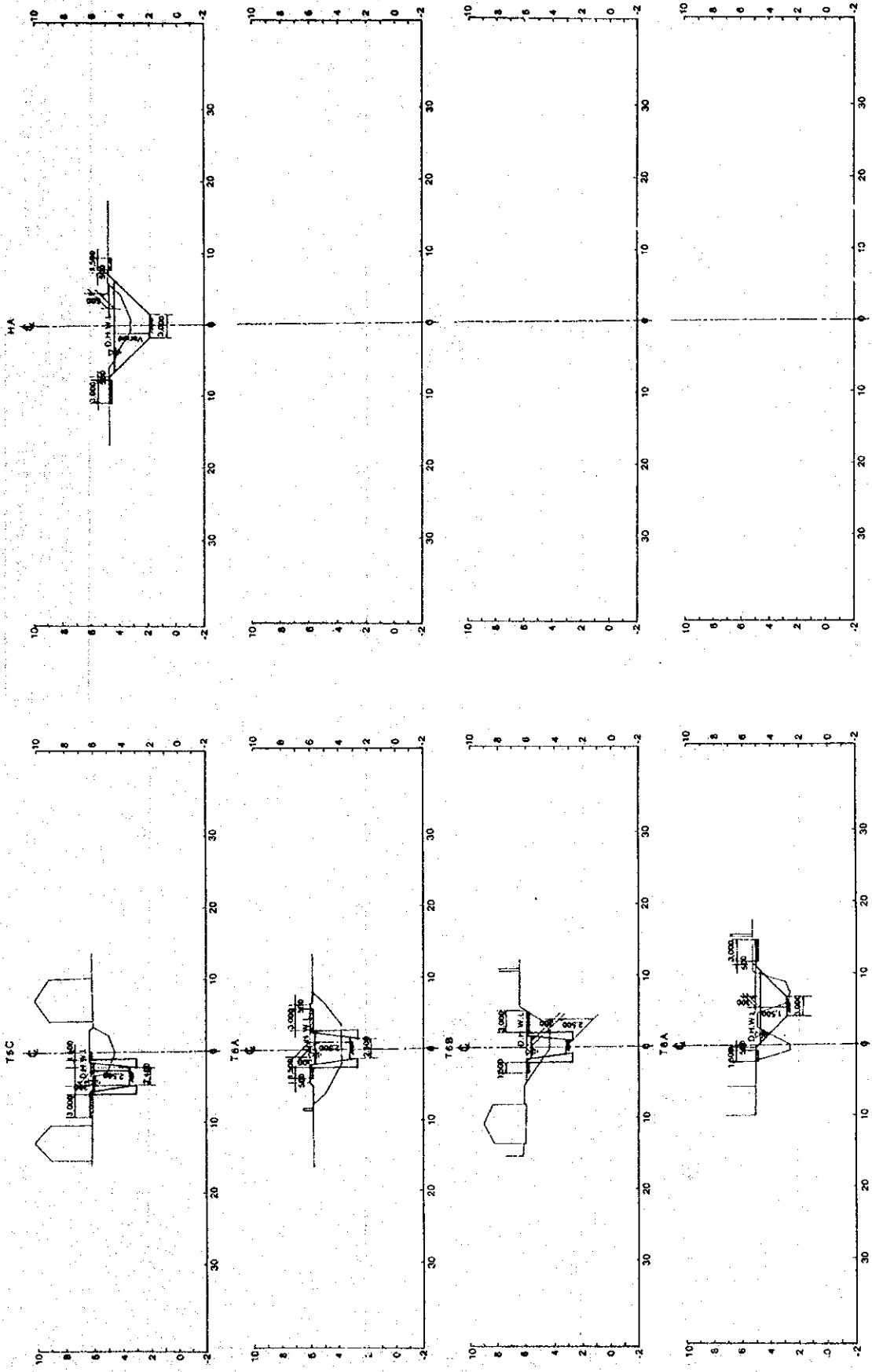


Fig.D4.9 (3)
STANDARD CROSS-SECTIONS OF RIVERS AND DRAINAGE CHANNELS (3/8)

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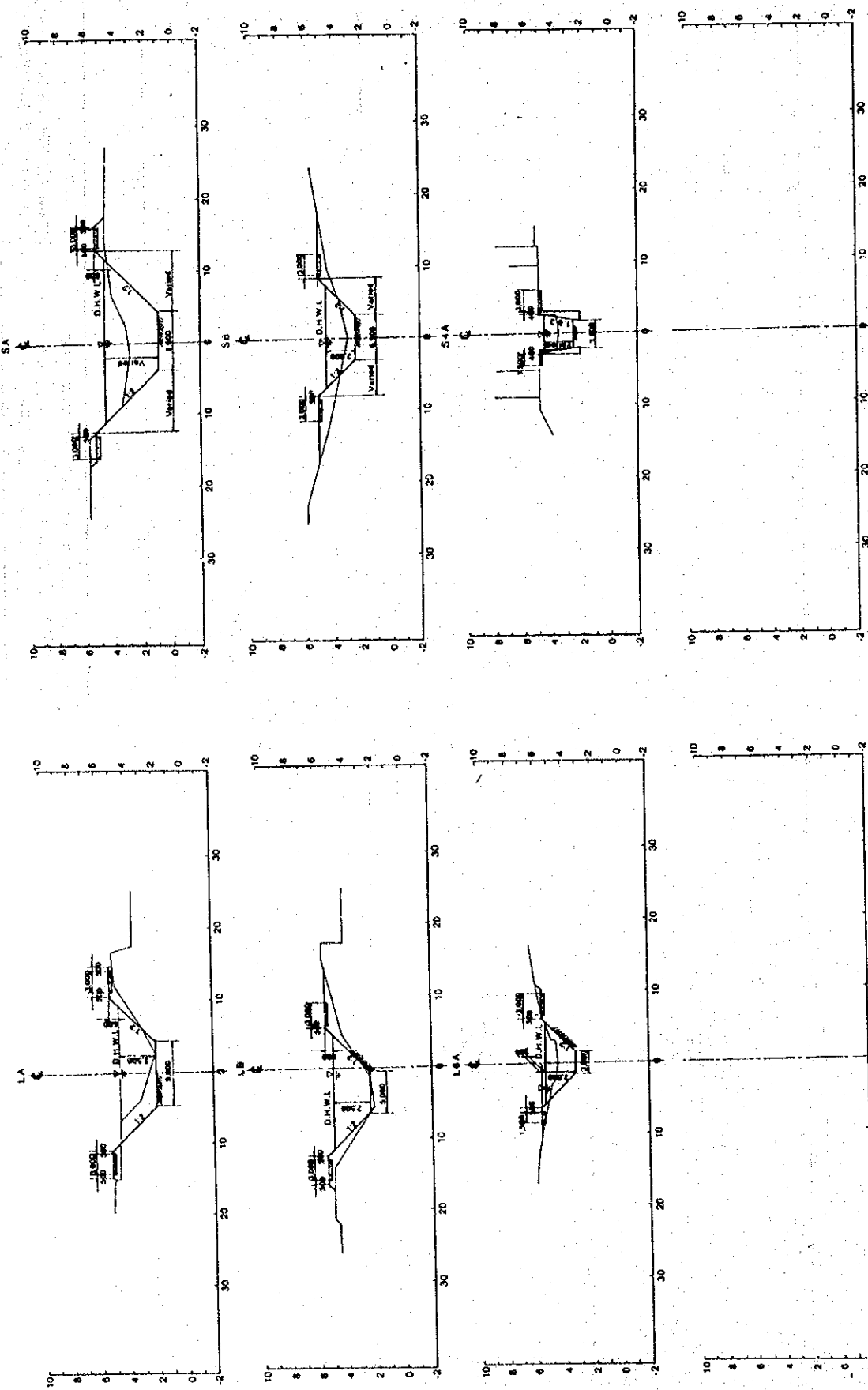


Fig.D4.9 (4)
STANDARD CROSS-SECTIONS OF RIVERS
AND DRAINAGE CHANNELS (4/8)

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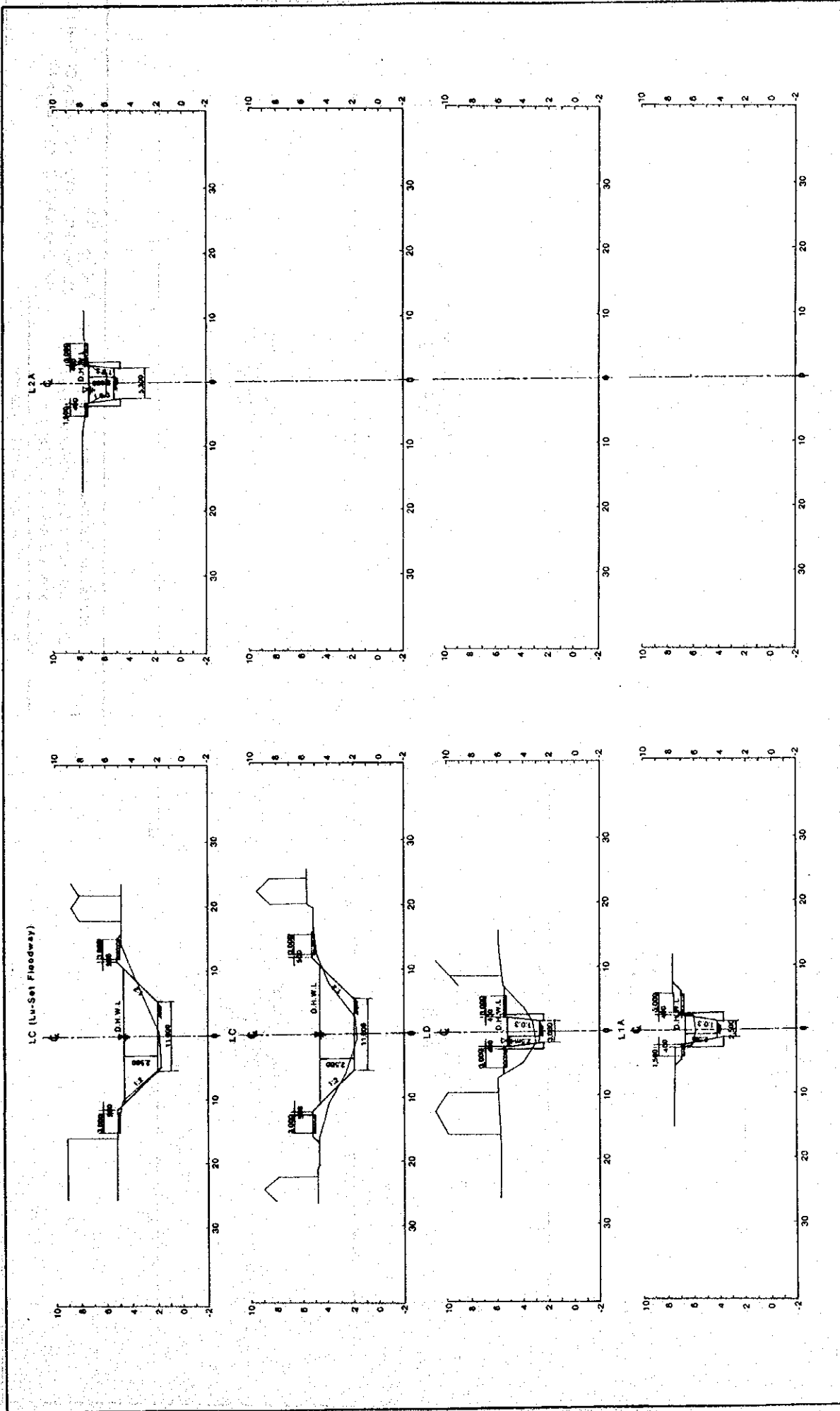


Fig.D4.9 (5)
STANDARD CROSS-SECTIONS OF RIVERS
AND DRAINAGE CHANNELS (5/8)

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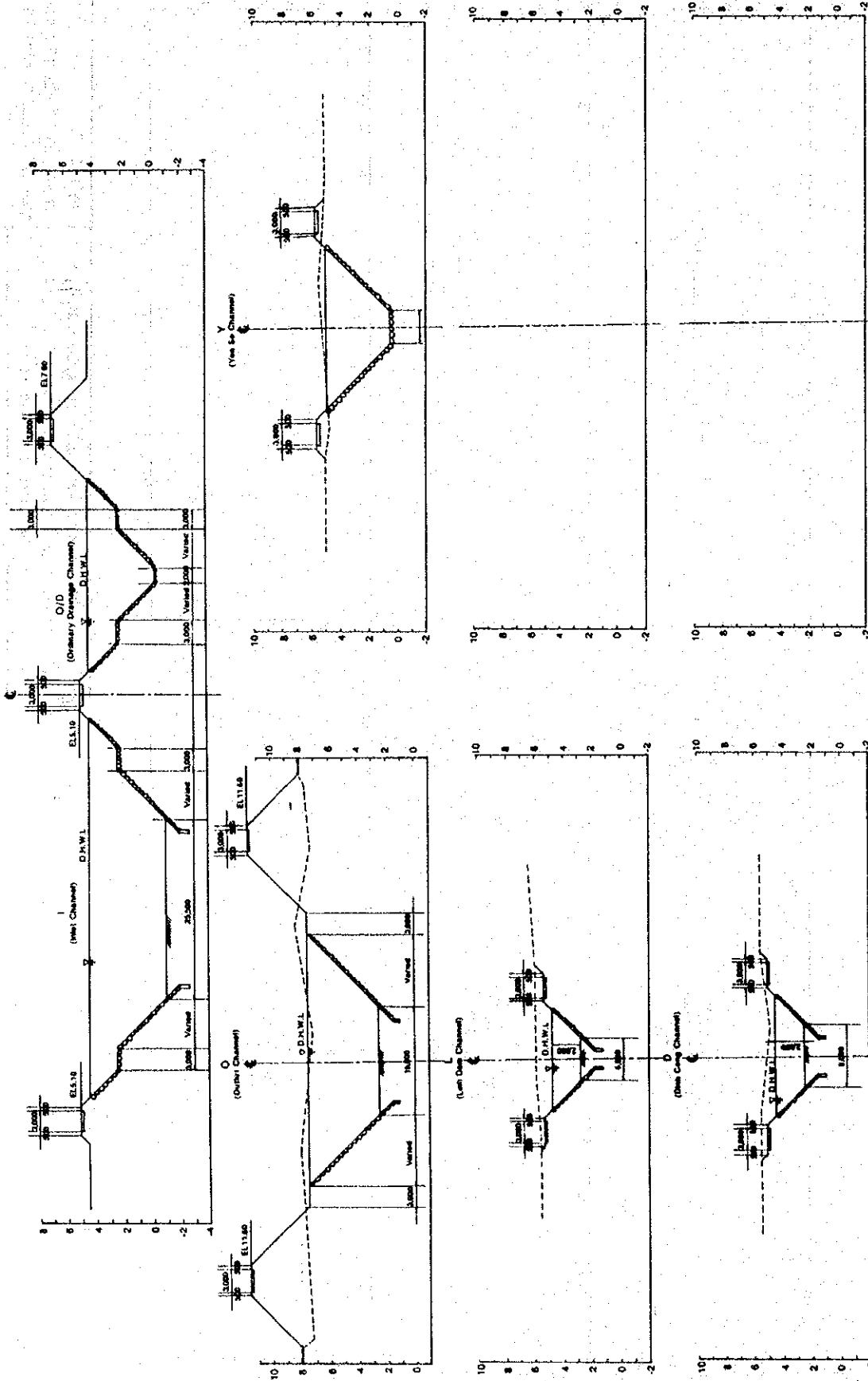
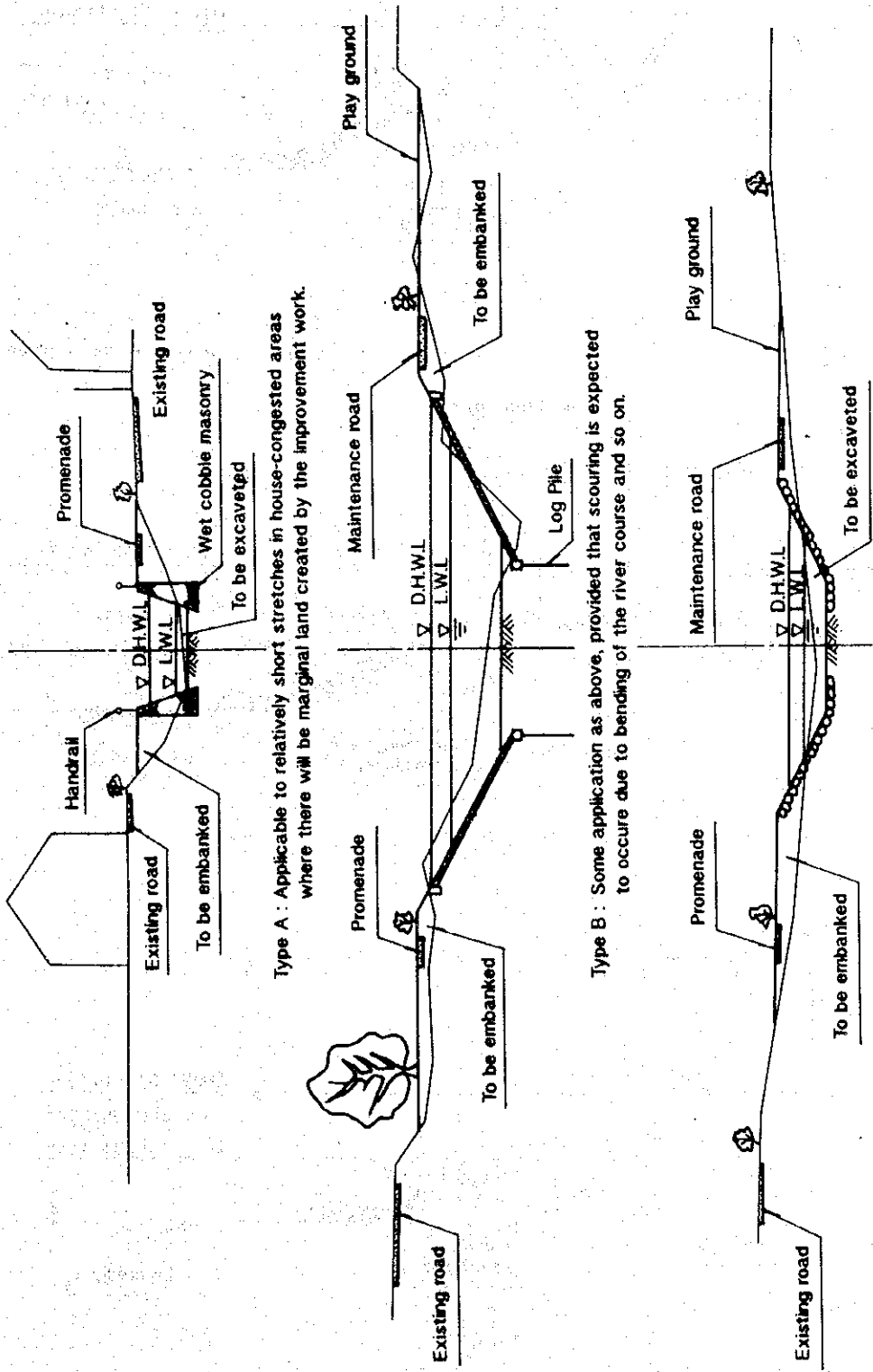


Fig.D4.9 (8)
STANDARD CROSS-SECTIONS OF RIVERS
AND DRAINAGE CHANNELS (8/8)

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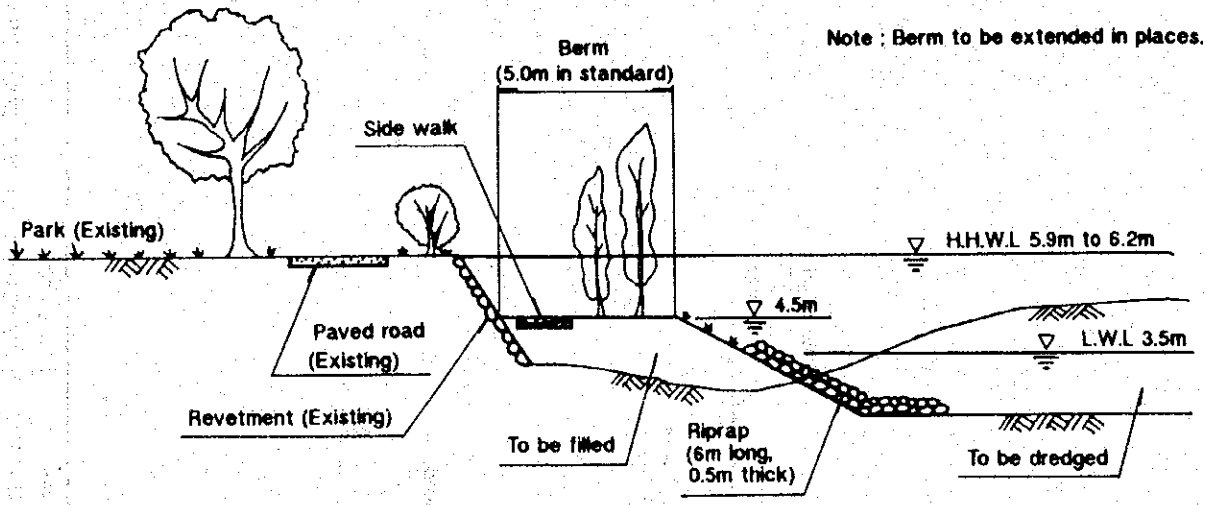


Type A : Applicable to relatively short stretches in house-congested areas where there will be marginal land created by the improvement work.

Type B : Some application as above, provided that scouring is expected to occur due to bending of the river course and so on.

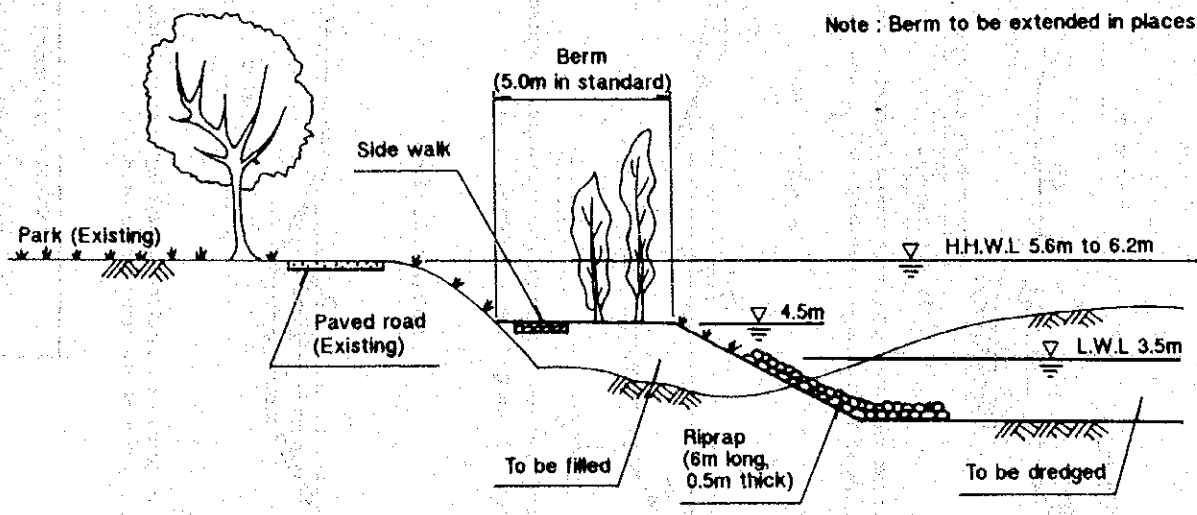
Type C : Applicable to parts of the stretches where high water channels will be provided through the construction work.

SOCIALIST REPUBLIC OF VIET NAM THE STUDY ON URBAN DRAINAGE AND WASTEWATER DISPOSAL SYSTEM IN HANOI CITY JAPAN INTERNATIONAL COOPERATION AGENCY	Fig.D4.10 STANDARD BANK SECTIONS OF RIVERS AND DRAINAGE CHANNELS
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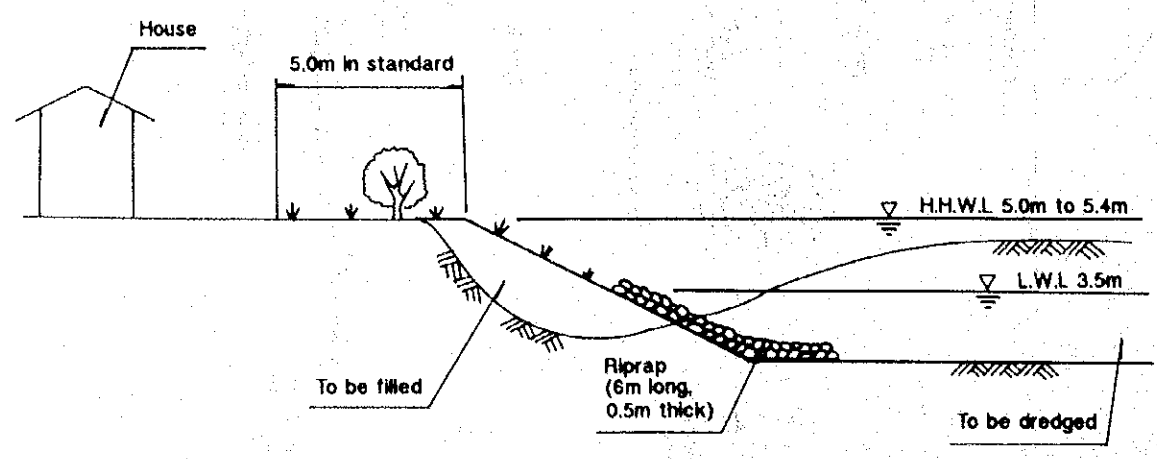
Note : Berm to be extended in places.

Type A



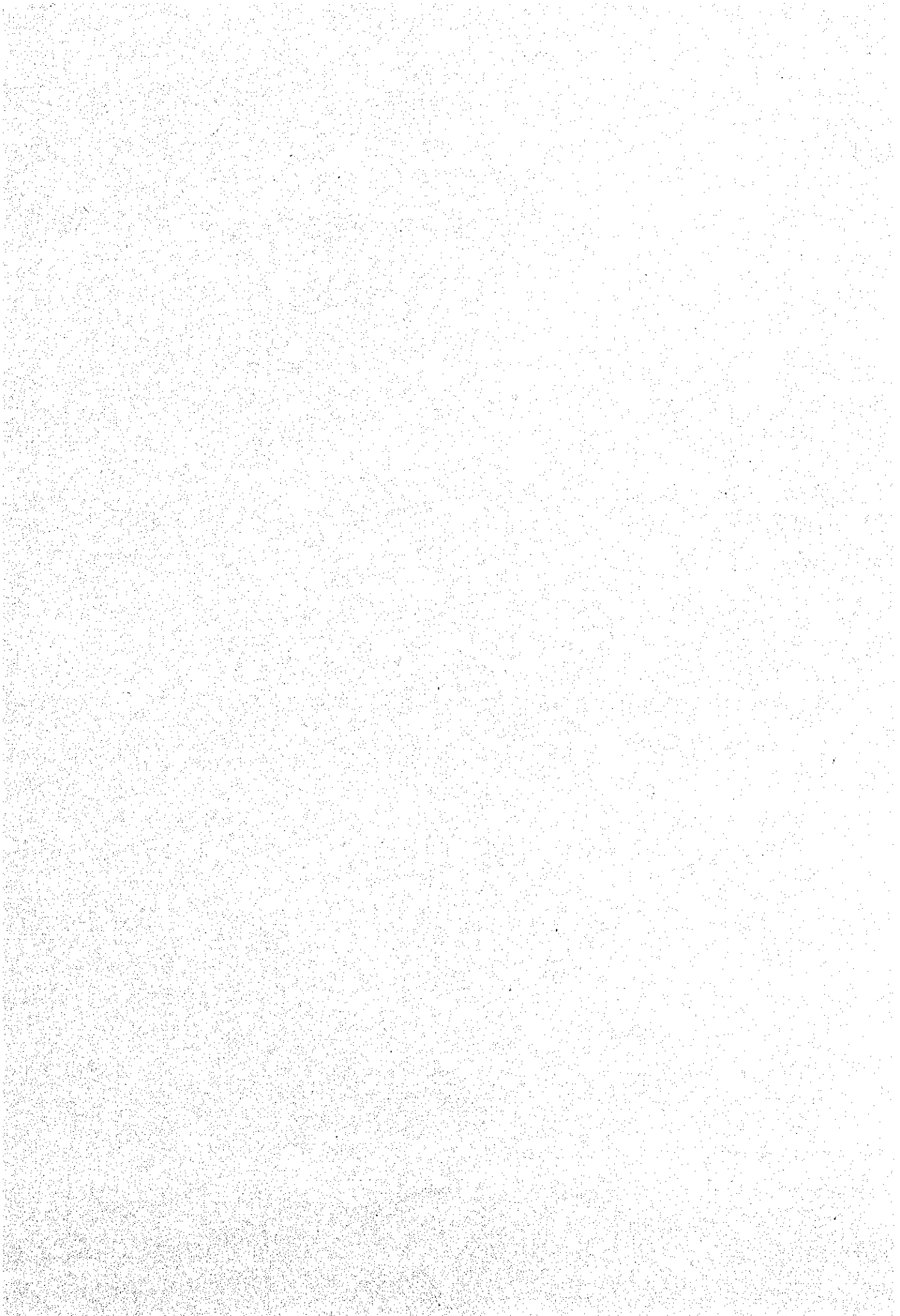
Note : Berm to be extended in places.

Type B



Type C

<p>SOCIALIST REPUBLIC OF VIET NAM THE STUDY ON URBAN DRAINAGE AND WASTEWATER DISPOSAL SYSTEM IN HANOI CITY</p>	<p>Fig.D4.11 STANDARD BANK SECTIONS OF LAKES</p>
<p>JAPAN INTERNATIONAL COOPERATION AGENCY</p>	



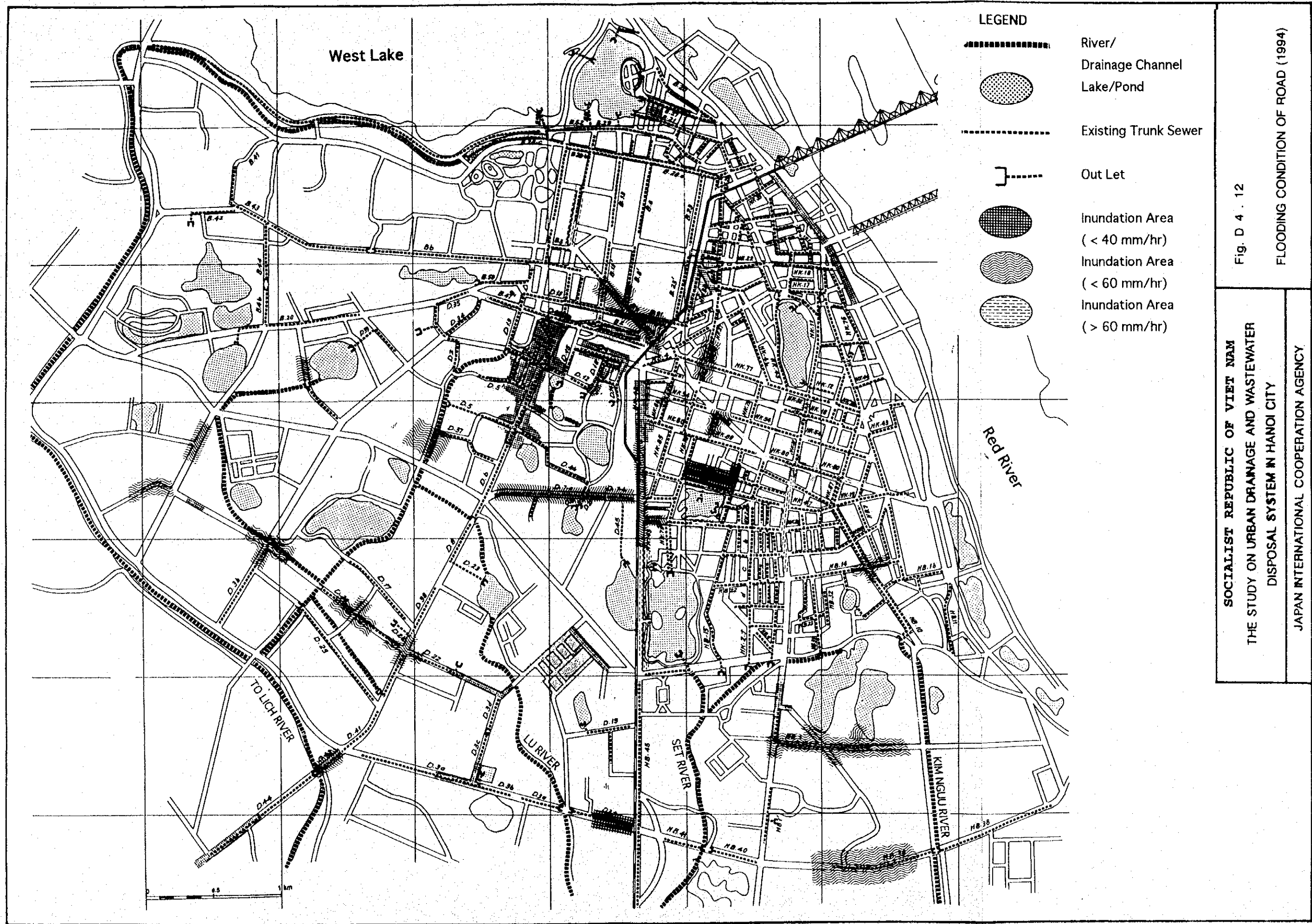


Fig. D 4 . 12

FLOODING CONDITION OF ROAD (1994)

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Fig. D4.13 (1/5)
**LAYOUT PLAN FOR SEWER
 REHABILITATION AND
 CONSTRUCTION (1/5)**