

Table 6.1 SUMMARY OF ECONOMIC COST

(Unit: 10³ US\$)

DESCRIPTION		F.C	L.C	TAX	TOTAL
1. Direct Cost	(1) Base Cost	8,037	4,688	0	12,725
	(2) Price Escalation	0	0	0	0
	(3) Sub-total(1)+(2)	8,037	4,688	0	12,725
Sub-total(A)		8,037	4,688	0	12,725
2. Physical Contingency(10% of (A))		804	469	0	1,273
3. Sub-total(B):(1+2)		8,841	5,157	0	13,998
4. Land Acquisition	(1) Base Cost	0	22,292	0	22,292
	(2) Price Escalation	0	5,006	0	5,006
	(3) Sub-total(1)+(2)	0	27,298	0	27,298
	(4) Physical Contingency (10% of 3(3))	0	819	0	819
	(5) Sub-total(3)+(4)	0	28,117	0	28,117
5. Consulting Service	(1) Base Cost	5,006	2,910	0	7,916
	(2) Price Escalation	0	0	0	0
	(3) Sub-total(1)+(2)	5,006	2,910	0	7,916
	(4) Physical Contingency (10% of 4(3))	501	291	0	792
	(5) Sub-total(3)+(4)	5,507	3,201	0	8,708
6. Administration Cost	(1) Direct Cost(5% of (A))	0	596	0	596
	(2) Land Acquisition (5% of 3(3))	0	0	0	0
	(3) Sub-total(1)+(2)	0	596	0	596
7. Ground Total (3+4+5+6)		14,347	37,071	0	51,418

Exchange Rate: Rupiah/US\$: 2350
 Yen/US\$: 115
 Yen/Rupiah: 0.05

(1) Price escalation rate: 2 %
 (2) Physical contingency: 10 %
 (3) Administration cost: 5 %

Table 6.2 ESTIMATE OF ASSETS IN THE RESIDENTIAL AREAS

(1) Residence

House

	Average Floor area(m2)	Unit/ha	Ratio by Type	Unit/ha by ratio	Unit Value(US\$)	Total Value(US\$/ha)
Permanent	88	68	36.9%	26	7,333	190,667
Semi-permanent	64	101	34.5%	35	3,419	119,658
Simple	49	143	28.6%	41	1,571	61,391
Total						374,716

Household Goods

	Average Floor area(m2)	Unit/ha	Ratio by Type	Unit/ha by ratio	Unit Value(US\$)	Total Value(US\$/ha)
Permanent	88	68	36.9%	26	8,120	211,111
Semi-permanent	64	101	34.5%	35	1,709	59,829
Simple	49	143	28.6%	41	385	15,769
Total						286,709

The average value for housing

661,425

(2) Commercial Sector

Building for Commercial Use

	Average Floor area(m2)	Unit/ha	Ratio by Type	Unit/ha by ratio	Unit Value(US\$)	Total Value(US\$/ha)
Large Shop	1,300	4	44.0%	2	222,222	444,444
Medium/Small Shop	40	150	56.0%	84	2,564	215,385
Total						659,829

Facilities in the Building for Commercial Use

	Average Floor area(m2)	Unit/ha	Ratio by Type	Unit/ha by ratio	Unit Value(US\$)	Total Value(US\$/ha)
Large Shop	1,300	4	44.0%	2	69,231	138,462
Medium/Small Shop	40	150	56.0%	84	513	43,077
Total						181,538

Merchandise

	Average Floor area(m2)	Unit/ha	Ratio by Type	Unit/ha by ratio	Unit Value(US\$)	Total Value(US\$/ha)
Large Shop	1,300	4	44.0%	2	166,667	333,333
Medium/Small Shop	40	150	56.0%	84	1,923	161,538
Total						494,872

The average value for commercial sector

1,336,239

(3) Office

	Average Floor area(m2)	Unit/ha	Ratio by Type	Unit/ha by ratio	Unit Value(US\$)	Total Value(US\$/ha)
Office(Building)	120	50	100.0%	50	10,000	500,000
Facilities	120	50	100.0%	50	7,265	363,248
Total						863,248

(4) Public Buildings

Public Buildings

	Average Floor area(m2)	Unit/ha	Ratio by Type	Unit/ha by ratio	Unit Value(US\$)	Total Value(US\$/ha)
School	550	11	84.0%	10	47,009	470,085
Medical facility	600	10	16.0%	2	51,282	102,564
Total						572,650

Public Buildings (properties)

	Average Floor area(m2)	Unit/ha	Ratio by Type	Unit/ha by ratio	Unit Value(US\$)	Total Value(US\$/ha)
School	550	11	84.0%	10	small	
Medical facility	600	10	16.0%	2	7,692	15,385
Total						15,385

The average value for public sector

588,034

Table 6.3 TOTAL ASSETS IN THE RESIDENTIAL AREAS

	Ratio by Type	Value per Type (US\$/ha)	Value/ratio (US\$/ha)
Residence	95.2%	661,425	629,677
House	95.2%	374,716	356,730
Household goods	95.2%	286,709	272,947
Commercial	2.4%	1,336,239	32,070
Building	2.4%	659,829	15,836
Facilities	2.4%	181,538	4,357
Merchandise	2.4%	494,872	11,877
Office	1.8%	863,248	15,538
Building	1.8%	500,000	9,000
Facility	1.8%	363,248	6,538
Public Building	0.6%	588,034	3,528
Building	0.6%	572,650	3,436
Facility	0.6%	15,385	92
Total	100.0%		680,813

Table 6.4 ESTIMATE OF ASSET IN THE INDUSTRIAL AREA

I. Factory

Building for Factory

	Average Floor Area(m ²)	Unit/ha	Ratio by Type	Unit/ha by Ratio	Unit Value(US\$)	Total Value(US\$/ha)
Large scale	2,520	2	34.10%	1	323,077	323,077
Medium scale	360	16	40.60%	7	30,770	215,390
Small scale	40	150	25.30%	38	2,137	81,206
Total						619,673

Property in Factory Building

	Average Floor Area(m ²)	Unit/ha by Ratio	Unit Value(US\$)	Unit/ha by Ratio	Unit Value(US\$)	Total Value(US\$/ha)
Large scale	2,520	1	34.10%	1	1,861,962	1,861,962
Medium scale	360	7	40.60%	7	258,883	1,812,181
Small scale	40	38	25.30%	38	6,638	252,244
Total						3,926,387

The average value in industrial area

4,546,060

Table 6.5 FLOOD DAMAGE RATE PER HECTARE

(Unit: US\$/ha)

Area	Item	Unit price	Inundation Depth(m)											
			Shallower than 0.2		0.2 to 0.5		0.5 to 1.0		1.0 to 2.0		Deeper than 2.0			
			Damage Rate	Damage	Damage Rate	Damage	Damage Rate	Damage	Damage Rate	Damage	Damage Rate	Damage	Damage Rate	
Residential area	House	356,729	0.03	10,702	0.053	18,907	0.072	25,684	0.109	38,883	0.152	54,223		
	Household goods	272,947		0	0.086	23,473	0.191	52,133	0.331	90,345	0.499	136,201		
	Commercial (building)	15,836		0	0.180	2,850	0.314	4,973	0.419	6,635	0.539	8,536		
	Commercial (facility)	4,357		0	0.180	784	0.314	1,368	0.419	1,826	0.539	2,348		
	Commercial(merchandise)	11,877		0	0.127	1,508	0.276	3,278	0.379	4,501	0.479	5,689		
	Office(building)	9,000		0	0.180	1,620	0.314	2,826	0.419	3,771	0.539	4,851		
	Office(facility)	6,538		0	0.180	1,177	0.314	2,053	0.419	2,739	0.539	3,524		
	Public office(building)	3,436		0	0.180	618	0.314	1,079	0.419	1,440	0.539	1,852		
	Public office(facility)	92		0	0.086	8	0.191	18	0.331	30	0.499	46		
	Total in residential area	680,812		10,702		50,946		93,411		150,172		217,269		
Industrial area	Industry(building)	619,673		0	0.180	111,541	0.314	194,577	0.419	259,643	0.539	334,004		
	Industry(Inventory)	3,926,387		0	0.127	498,651	0.276	1,083,683	0.379	1,488,101	0.479	1,880,739		
	Total	4,546,060		0		610,192		1,278,260		1,747,744		2,214,743		

Table 6.6 DIRECT DAMAGE PER HECTARE WITH INUNDATION DEPTH

Cengkareng west area

Area	Item	Inundation Depth(m)				
		Shallower than 0.2	0.2 to 0.5	0.5 to 1.0	1.0 to 2.0	Deeper than 2.0
Residential	Unit Damage(USS/ha)	10,702	50,946	93,411	150,172	217,269
Area	Area(ha)	196	215	255		
	Direct Damage(USS)	2,096,068	10,976,205	23,784,231	0	0
Industrial	Unit Damage(USS/ha)	0	610,192	1,278,260	1,747,744	2,214,743
area	Area(ha)	5	5	6		
	Direct Damage(USS)	0	3,114,421	7,710,465	0	0
Total		2,096,068	14,090,626	31,494,696	0	0

Meruya Area

Area	Item	Inundation Depth(m)				
		Shallower than 0.2	0.2 to 0.5	0.5 to 1.0	1.0 to 2.0	Deeper than 2.0
Residential	Unit Damage(USS/ha)	10,702	50,946	93,411	150,172	217,269
Area	Area(ha)	11	12	15		
	Direct Damage(USS)	120,396	630,462	1,366,142	0	0
Industrial	Unit Damage(USS/ha)	0	610,192	1,278,260	1,747,744	2,214,743
area	Area(ha)	0	0	0		
	Direct Damage(USS)	0	0	0	0	0
Total		120,396	630,462	1,366,142	0	0

Total project area

Area	Item	Inundation Depth(m)				
		Shallower than 0.2	0.2 to 0.5	0.5 to 1.0	1.0 to 2.0	Deeper than 2.0
Residential	Unit Damage(USS/ha)	10,702	50,946	93,411	150,172	217,269
Area	Area(ha)	206	227	268		
	Direct Damage(USS)	2,208,438	11,564,636	25,059,297	0	0
Industrial	Unit Damage(USS/ha)	0	610,192	1,278,260	1,747,744	2,214,743
area	Area(ha)	14	15	18		
	Direct Damage(USS)	0	9,343,264	23,131,395	0	0

Table 6.7 PROBABLE FLOOD DAMAGE

	Return Period(year)	General Assets		Total of Direct Damage	Indirect Damage	Infrastructure	Other Damage	Total of Probable Damage
		Residence	Industry					
Cengkareng west area	2	2,096,068	1,245,769	3,341,837	200,510	668,367	631,607	4,842,322
	5	12,073,825	2,180,095	14,253,920	855,235	2,850,784	2,693,991	20,653,930
	10	16,648,962	5,397,326	22,046,287	1,322,777	4,409,257	4,166,748	31,945,070
Meruya area	2	120,396	0	120,396	7,224	24,079	22,755	174,454
	5	693,508	0	693,508	41,610	138,702	131,073	1,004,893
Total project area	2	2,208,438	2,802,979	5,011,417	300,685	1,002,283	947,158	7,261,544
	5	3,364,901	4,671,632	8,036,534	482,192	1,607,307	1,518,905	11,644,937
	10	17,541,508	11,565,698	29,107,205	1,746,432	5,821,441	5,501,262	42,176,341

(Unit: US\$)

Table 6.8 ANNUAL AVERAGE FLOOD DAMAGE

	Return Period(year)	Exceedence	Difference of Exceedence	Damage(US\$)		Annual Flood Damage(US\$)	
				Amount	Average	Segment	Cumulative
Cengkareng west area	2	0.5	0.5	4,842,322	2,421,161	1,210,580	1,210,580
	5	0.2	0.3	20,653,930	12,748,126	3,824,438	5,035,018
	10	0.1	0.1	31,945,070	26,299,500	2,629,950	7,664,968
Meruya area	2	0.5	0.5	174,454	87,227	43,613	43,613
	5	0.2	0.3	1,004,893	589,674	176,902	220,516
Total project area	2	0.5	0.5	7,261,544	3,630,772	1,815,386	1,815,386
	5	0.2	0.3	11,644,937	9,453,240	2,835,972	4,651,358
	10	0.1	0.1	42,176,341	26,910,639	2,691,064	7,342,422

Table 6.9 COST BENEFIT FLOW

No.	Year	Const. Cost	OM Cost	Total Cost	Benefits	B-C
1	1997	596		596		-596
2	1998	494	2.98	496.98	77	-419.98
3	1999	1,907	5	1,912	383	-1,529
4	2000	4,710	15	4,725	1,456	-3,269
5	2001	8,232	39	8,271	2,598	-5,673
6	2002	9,132	80	9,212	3,978	-5,234
7	2003	7,214	125	7,339	5,358	-1,981
8	2004	8,556	161	8,717	6,508	-2,209
9	2005	6,273	204	6,477	7,274	797
10	2006	4,304	236	4,540	7,274	2,734
11	2007		257	257	7,886	7,629
12	2008		257	257	7,886	7,629
13	2009		257	257	7,886	7,629
14	2010		257	257	7,886	7,629
15	2011		257	257	7,886	7,629
16	2012		257	257	7,886	7,629
17	2013		257	257	7,886	7,629
18	2014		257	257	7,886	7,629
19	2015		257	257	7,886	7,629
20	2016	1,859	257	2,116	7,886	5,770
21	2017	2,788	266	3,054	7,886	4,832
22	2018	4,279	290	4,569	7,886	3,317
23	2019	9,714	334	10,048	7,886	-2,162
24	2020	4,122	427	4,549	7,886	3,337
25	2021		541	541	7,886	7,345
26	2022		541	541	7,886	7,345
27	2023		541	541	7,886	7,345
28	2024	1,556	541	2,097	7,886	5,789
29	2025	2,335	549	2,884	7,886	5,002
30	2026		568	568	7,886	7,318
31	2027		568	568	7,886	7,318
32	2028		568	568	7,886	7,318
33	2029		568	568	7,886	7,318
34	2030		568	568	7,886	7,318
35	2031		568	568	7,886	7,318
36	2032		568	568	7,886	7,318
37	2033		568	568	7,886	7,318
38	2034		568	568	7,886	7,318
39	2035		568	568	7,886	7,318
40	2036		568	568	7,886	7,318
41	2037		568	568	7,886	7,318
42	2038		568	568	7,886	7,318
43	2039		568	568	7,886	7,318
44	2040		568	568	7,886	7,318
45	2041		568	568	7,886	7,318
46	2042		568	568	7,886	7,318
47	2043		568	568	7,886	7,318
48	2044		568	568	7,886	7,318
49	2045		568	568	7,886	7,318
50	2046		568	568	7,886	7,318
51	2047		568	568	7,886	7,318
52	2048		568	568	7,886	7,318
53	2049		568	568	7,886	7,318
54	2050		568	568	7,886	7,318
55	2051		568	568	7,886	7,318
56	2052		568	568	7,886	7,318
57	2053		568	568	7,886	7,318
58	2054		568	568	7,886	7,318
59	2055		568	568	7,886	7,318
Total		76,981	24,523	101,504	421,243	319,739
IRR						17.9%

Table 7.1 ANNUAL OPERATION AND MAINTENANCE COST

1. Technical and Planning	- Rp	36,000,000
Monitoring and observation	- Rp	36,000,000
(1) Water quality(contract basis)	- Rp	36,000,000
2. Controlling and Supervision	- Rp	970,224,692
(1). Patrol and inspection	- Rp	2,775,600
(2). Operation of metal works	- Rp	37,079,640
46.8 m ² x Rp 792,300 /m ²	- Rp	37,079,640
(3) Maintenance works	- Rp	930,369,452
a. Removal of garbage	- Rp	330,202,345
18,300 m x 19 m x 0.1 m x Rp 36,526 /m ³ x 52 times x 0.005	- Rp	330,202,345
b. Drainage channel	- Rp	20,479,530
18,300 m x 19 m x 0.2 m x Rp 58,900 /m ³ x 1 times x 0.005	- Rp	20,479,530
c. Levee(L = 6,000m, V = 432,000 m ³)	- Rp	59,916,000
Grass cut 366,000 m ² x 2 times x 0.1 /time x Rp 190 /m ²	- Rp	13,908,000
E. Filling 432,000 m ³ x Rp 21,300 x 0.005	- Rp	46,008,000
d. Parapet wall	- Rp	16,725,150
Concrete 12,000 m x 2 m x 0.5 m x Rp 306,870 x 0.005	- Rp	13,809,150
Plastering 12,000 m x 2 m x 2 x Rp 16,200 x 0.005	- Rp	2,916,000
e. Revetment	- Rp	652,867
Wet maso 32.94 km x Rp 2,672,700 x 0.005	- Rp	440,194
Gabion, N 3.66 km x Rp 11,621,500 x 0.005	- Rp	212,673
f. Sluiceway	- Rp	3,238,560
Slide gate 43.2 m ² x Rp 69,200 /m ²	- Rp	2,989,440
Flap gate 3.6 m ² x Rp 69,200 /m ²	- Rp	249,120
g. Bridge structures	- Rp	29,255,000
Removal of sediment		
150 m ³ x Rp 58,900 /m ³	- Rp	8,835,000
Painting 20 m ² x Rp 20,000 /m ²	- Rp	400,000
Maintenance of B. surface		
700 m ² x Rp 28,600 /m ²	- Rp	20,020,000
h. Supervision works	- Rp	11,808,000
Supervision works for turf and weed cutting	- Rp	5,904,000
Supervision works for earth filling and compacting	- Rp	5,904,000
i. Office running cost	- Rp	504,100,000
Staff running cost	- Rp	434,100,000
Running cost for office	- Rp	70,000,000
Total Annual O/M Cost	- Rp	1,006,224,692

Table 8.1 ANALYSIS OF AIR QUALITY

No.	Parameter	Unit	Sampling Location								DKI Air standard *
			A - 1	A - 2	A - 3	A - 4	A - 5	A - 6	A - 7	A - 8	
1	Dust Particles (TSP)	ug/m ³	39	102	58	82	549	116	177	151	0.26 mg/m ³ (260 ug/m ³)
2	Sulfur dioxide (S ₂)	ug/m ³	n/d	n/d	n/d	n/d	n/d	n/d	n/d	n/d	0.1 mg/m ³ (260 ug/m ³)
3	Nitrogen dioxide (N ₂ O ₂)	ug/m ³	13.07	10.59	6.21	7.52	4.52	6.8	9.34	7.27	0.05 PPM (92.5 ug/m ³)
4	Oxidant (O ₃)	ug/m ³	1.56	n/d	0.06	1.39	14.36	3.23	n/d	n/d	0.08 PPM (42 ug/m ³)
5	Carbon monoxide (CO)	PPM	0.5	0.8	2	1.5	1.5	2	1.2	1	20 PPM
6	Hydrocarbon (HC)	PPM	0.0021	0.023	0.025	0.024	0.02	0.023	0.024	0.02	0.24 PPM
7	Plumb	ug/m ³	29	30	29	30	31	30	31	30	0.06 mg/m ³ (1.5 ug/m ³)
8	Temperature	°C	29	30	29	30	31	30	31	30	-
9	Speed of wind	m/knot	0.5-0.9	0.5-2	0.8-1.6	0.5-2	0.8-1.7	1.2-3	0.5-1.8	0.5-1.1	-
10	Humidity	%	72	67	74	79	62	62	68	63	-
11	Noise	dB	50-90	50-90	50-90	50-90	50-90	50-90	50-90	50-90	-

Note: * - According to the Decree of the Governor of DKI Jakarta, No. 587/1980

n/d - Parameters not detected.

Samples of air have been taken during December 1996, the wet season in DKI Jakarta.

Table 8.2 RESULT OF NOISE MEASUREMENT

a. Location: Riverside Area in Kelurahan Kamal (

Date: 13/01/1997

Time	1	2	3	4	5	6	7	8	9	10	Average
10.00	69.1	66.9	68.8	69.5	68.1	69.9	70.9	66.3	66.1	67.6	68.32
13.00	68.5	66.3	68.1	67.7	67.2	66.7	70.1	67.7	68.9	68	67.92
16.00	70.5	72.8	71.7	70.1	71.4	71.8	69.9	68.1	68.6	69.2	70.41
19.30	70.8	66.2	65.5	64.5	73.3	66.5	66.7	68.1	65.3	65.8	67.27
Noise Level: L50 (90 %), range = 50 - 90 dB											Average of the Location
											68.48

b. Location: Industrial Area in Tegal Alur (N - 2)

Date: 13/01/1997

Time	1	2	3	4	5	6	7	8	9	10	Average
10.30	84.4	86.6	79.2	89.9	78.6	67.6	70.1	72.0	86.7	76.2	79.13
13.30	75.5	74.0	74.9	74.3	74.6	74.7	75.5	76.0	78.1	75.2	75.28
16.30	67.5	78.1	73.6	72.9	77.4	81.3	77.1	53.1	85.6	73.4	74
20.00	71.7	69.3	62.8	70.5	68.4	66.1	60.5	66.4	68.1	62.7	66.65
Noise Level: L50 (90 %), range = 50 - 90 dB											Average of the Location
											73.77

c. Location: Mosque in Tegal Alur (N - 32)

Date: 14/01/1997

Time	1	2	3	4	5	6	7	8	9	10	Average
10.00	68.3	76.2	81.5	68.7	77.6	86.8	72.2	69.8	65.3	70.9	73.73
13.00	70.8	70.9	81.3	77.4	71.5	77.3	83.8	77.1	78.9	71.5	76.05
16.30	71.9	69.5	60.8	66.4	62.9	59.5	58.4	61.3	60.5	61.3	63.25
19.30	71.3	69.8	70.4	73.5	75.1	75.3	84.3	72.1	63.7	64.1	71.96
Noise Level: L50 (90 %), range = 50 - 90 dB											Average of the Location
											71.25

d. Location: Jakarta Barat Health Service Office (N - 4)

Date: 14/01/1997

Time	1	2	3	4	5	6	7	8	9	10	Average
10.30	73.1	76.2	74.1	74.3	75.4	74.8	75.4	73.3	76.5	74.3	74.74
13.30	79.4	83.9	79.2	78.6	81.1	80.2	80.2	82.9	80.7	68.1	79.43
16.30	78.0	78.1	79.9	78.6	82.9	81.7	83.1	78.3	79.9	78.9	79.94
20.00	79.7	80.4	73.1	77.3	78.1	79.6	76.5	78.1	79.8	78.3	78.09
Noise L50 (90 %), range = 50 - 90 dB											Average of the Location
											78.05

e. Location: Cengkareng Indah Housing Estate (N - 5)

Date: 15/1/1997

Time	1	2	3	4	5	6	7	8	9	10	Average
10.00	66.8	76.5	63.5	64.3	65.0	65.8	65.7	65.5	64.7	68.0	66.58
13.00	64.7	66.1	65.2	64.4	63.6	64.6	63.7	65.8	65.2	65.7	64.9
16.00	70.1	69.5	74.5	67.2	68.8	69.4	76.8	76.3	72.5	74.4	71.95
19.30	61.3	65.7	63.8	62.8	63.6	63.1	63.1	64.3	65.2	65.7	63.86
Noise L50 (90 %), range = 50 - 90 dB											Average of the Location
											66.82

f. Location: Trigonal Intersection in Kelurahan Kapuk (N-6)

Date: 15/01/1997

Time	1	2	3	4	5	6	7	8	9	10	Average
10.30	80.9	81.2	83.7	75.8	78.3	83.9	76.2	73.5	73.1	77.8	78.44
13.30	76.7	78.1	75.1	76.4	76.9	77.5	84.6	80.7	83.5	76.4	78.59
16.30	77.7	77.8	78.4	77.6	84.6	85.3	85.4	82.8	85.0	83.6	81.82
20.00	83.7	75.4	75.8	83.3	82.5	77.9	79.3	79.9	80.4	74.6	79.28
Noise L50 (90 %), range = 50 - 90 dB											Average of the Location
											79.53

g. Location: Saluran Cengkareng Drain (N-7)

Date: 20/01/1997

Time	1	2	3	4	5	6	7	8	9	10	Average
10.30	64.3	64.7	63.8	72.3	66.9	70.1	64.9	63.1	72.6	73.3	67.6
12.30	74.6	71.0	73.9	64	63.4	63.2	62.9	63.1	61.6	61.8	65.95
15.30	75.3	70.5	71.6	59.8	68.9	70.5	69.4	65.7	64.2	63.7	67.96
19.00	68.1	65.5	63.3	68.9	65.5	70.7	67.5	69.3	64.9	66.9	67.06
Noise L50 (90 %), range = 50 - 90 dB											Average of the Location
											67.14

h. Location: Security Guard Post for R/W 07 in Meruya Uta

Date: 20/01/1997

Time	1	2	3	4	5	6	7	8	9	10	Average
10.00	68.0	66.3	64.6	63.7	68.8	71.6	73.1	69.0	66.4	66.2	67.77
13.00	66.6	62.3	64.4	61.2	61.3	62.3	63.7	67.5	65.9	63.2	63.84
16.00	63.5	59.7	60.4	65.4	65.3	58.8	59.1	58.4	58.8	58.0	60.74
19.30	61.6	63.3	63.9	71.3	67.7	61.5	73.2	64.9	60.6	81.0	66.9
Noise L50 (90 %), range = 50 - 90 dB											Average of the Location
											64.81

Table 8.3 RESULT OF WATER QUALITY ANALYSIS

No.	Parameters	Unit	Sampling Location											
			W-1	W-2	W-3	W-4	W-5	W-6	W-7	W-8	W-9	W-10	W-11	W-12
A	Physical Parameters	°C	28	29	27	28	28	27	27	27	27	29	29	29
1	Temperature	mg/l	734	118	113	252	1696	1040	1433	516	472	2	3	140
B	Chemical Parameters	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1	Mercury (Hg)	mg/l	5.44	1.14	1.33	2.13	7.19	5.83	5.74	3.36	3.05	0.16	0.21	1.41
2	Amonia (NH-N)	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
3	Arsen (As)	mg/l	0.4	0.13	0.12	0.23	0.45	0.42	1.68	0.41	0.35	-	-	0.16
4	Fluoride (F)	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
5	Cadnium (CD)	mg/l	0.02	0.02	0.04	0.06	0.03	0.03	0.02	0.14	0.15	<0.001	<0.01	0.02
6	Free Chlorine (Cl2)	mg/l	<0.01	<0.001	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.001	<0.01	<0.01
7	Cromium (Cr 6 +)	mg/l	0.038	0.101	0.212	<0.005	<0.002	<0.005	<0.005	<0.005	0.091	<0.005	<0.005	<0.005
8	Nitrit (NO2-N)	mg/l	0	2.5	1.7	1.5	0	0	0	0	0	5.6	6.1	2.5
9	Diluted Oxygen (DO)	mg/l	6.5	6.6	6.7	6.8	7.1	6.9	7.2	7	6.8	7.6	7.7	7
10	pH	mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
11	Selentium (Se)	mg/l	0.57	0.01	<0.02	0.04	0.04	0.05	0.03	0.06	0.05	0.05	0.05	0.05
12	Zeng (Zn)	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
13	Cianide (Cn)	mg/l	1.468	<0.002	<0.002	<0.002	1.244	0.308	0.549	<0.002	<0.002	<0.002	<0.002	<0.002
14	Sulfide (H2S)	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
15	Cuprum (Cu)	mg/l	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.01	<0.01	<0.03
16	Plumbum (Pb)	mg/l	<0.001	<0.001	<0.001	<0.001	0.787	0.685	0.85	0.203	0.114	-	-	<0.001
17	Fenol	mg/l	5.2	2	3.2	4.8	6.4	4	2.4	4.8	4.4	2	1.2	2.8
18	Oil and Fat	mg/l	3.42	2.48	1.69	1.31	12.88	7.45	6.22	2.78	2.06	-	-	1.48
19	Detergent	mg/l	35.8	7.6	8.5	19	47	32.8	45.5	15.2	23.8	15.4	12.2	10
20	BOD	mg/l	83.6	17.6	21	46.2	118.8	70.4	96.8	45.1	63.8	41.3	37.5	24.2
21	COD	mg/l												

Note:

1. Fresh water quality analysis is based on the SK.GUB.KDKI Jakarta, No. 582/1995.
2. Sea water quality analysis is based on Kep.02/MENKLH/1988.

Table 8.4 STANDARD OF WATER QUALITY IN DKI JAKARTA (1/2)

No.	Parameter	Unit	MAXIMUM LIMITS			
			A Drinking Water	B Drinking Water Source	C Fishery and Animal Husbandry	D Agriculture and Industry
I	Physical					
1	Odor		Odorless			
2	Total dissolved Solid	mg/l	1000	500		1000
3	Turbidity	NTU	5			
4	Color	TCU	15			
5	Conductivity	μ ms/cm				1000
II	Chemical					
A	Inorganics					
1	Hg	mg/l	0.001	0.0005	0.002	0.0005
2	Al	mg/l	0.2			
3	As	mg/l	0.05	0.05	0.5	0.05
4	Ba	mg/l	1	1		
5	Fe	mg/l	0.3	2		
6	F-	mg/l	0.5	1.5	1.5	
7	Cd	mg/l	0.005	Nil	0.01	0.01
8	CaCO ₃	mg/l	500			
9	Cl-	mg/l	250	250	0.003	
10	Cr ⁺⁶	mg/l		Nil	Nil	0.05
11	Mn	mg/l	0.1	0.05		1
12	Na	mg/l	200			40 μ g/l
13	NO ₃ - N	mg/l	10	5		
14	NO ₂ - N	mg/l	1	0.1	0.06	
15	Ag	mg/l	0.05			
16	pH	units	6.5 - 8.5	6.0 - 8.5	6.0 - 8.5	6.0 - 8.5
17	Se	mg/l	0.01	0.01	0.05	0.05
18	Zn	mg/l	5	1	0.2	1
19	CN-	mg/l	0.1	0.05	0.01	1
20	SO ₄	mg/l	400	50		
21	S - H ₂ S	mg/l	0.05	0.1	0.002	
22	Cu	mg/l	1	0.05	0.03	0.05
23	Pb	mg/l	0.05	0.05	0.03	0.05
24	NH ₄ - N	mg/l		0.5	0.02	
25	Dissolved Oxygen	mg/l		>6	>3	
26	B	mg/l				1
27	Co	mg/l				0.02
28	Ni	mg/l				0.05
29	Residual Sodium Carbonate (RSC)	mg/l				1.25 - 2.5
30	Sodium Absorption Ratio (SAR)	mg/l				10

Table 8.4 STANDARD OF WATER QUALITY IN DKI JAKARTA (2/2)

No.	Parameter	Unit	MAXIMUM LIMITS			
			A Drinking Water	B Drinking Water Source	C Fishery and Animal Husbandry	D Agriculture and Industry
B	Organics					
1	Aldrin & Dieldrin	mg/l	0.0007	0.017		
2	Benzene	mg/l	0.01			
3	Benzo (a) Pyrene	mg/l	0.00001			
4	Chlordane (isomer)	mg/l	0.0003	0.003		
5	Chloroform	mg/l	0.03			
6	2, 4 - D	mg/l	0.1			
7	DDT	mg/l	0.03			
8	Detergent	mg/l	0.5			
9	1,2 Dichloroethane	mg/l	0.01			
10	1,1 Dichloroethane	mg/l	0.0003			
11	Heptachlor and Heptachlor Epoxide	mg/l	0.0003	0.018		
12	Heptachlorobenzene	mg/l	0.00001			
13	Lindane	mg/l	0.004	0.056		
14	Methoxychlor	mg/l	0.03	0.035		
15	Pentachlorophenol	mg/l	0.01			
16	Total Pesticides	mg/l	0.1			
17	2,4,6 Trichloropheno	mg/l	0.01			
18	Organics (KMNO ₄)	mg/l	10			
19	Endrin	mg/l		0.001	0.004	
20	Phenol	mg/l		0.002	0.001	
21	Carbon Chloroform	mg/l		0.5		
22	Oil and Grease	mg/l		Nil	0.5	
23	Organophosphates & Carbamates	mg/l		0.1	0.1	
24	PCB	mg/l		Nil		
25	Methylene Blue	mg/l		0.5	0.2	
26	Toxaphene	mg/l		0.01		
27	BHC	mg/l			0.21	
III	Microbiological					
1	Tinja Coliform	per/100cc	0	2000		
2	Total Coliform	per/100cc	3	10000		
IV	Radioactivity					
1	Alpha Activity	Bq/L	0.1	0.1	0.1	0.1
2	Beta Activity (β)	Bq/L	1	1	1	1

Source : Decree on Water Quality, No. 582 of the Year 1995, DKI Jakarta

Table 8.5 CHARACTERISTICS OF THE POPULATION IN THE PROJECT AREA

a. Administrative Area and the Population

City Region	Kecamatan	Kelurahan	Area (km ²)	Population	Pop.Density (Persons/km ²)
1 Jakarta Utara	Penjaringan	Kamal Muara	10.53	3,193	303
2 Jakarta Barat	Kembangan	Meruya Utara	4.76	25,242	5,303
	Cengkareng	Kapuk	7.18	48,965	6,820
		Cengkareng Timur	4.18	43,568	10,423
		Cengkareng Barat	4.26	41,481	9,737
	Kalideres	Kalideres	4.93	30,366	6,159
		Pegadungan	5.95	19,163	3,221
		Tegal Alur	7.78	33,348	4,286
		Kamal*	2.76	16,568	6,003
Total			52.33	261,894	5,806

Note: * - Not directly affected by the Project

Table 9.1 TOTAL NUMBER OF LOCAL HOUSEHOLDS AND OTHERS SUBJECT TO RELOCATION AND LAND ACQUISITION

Kelurahan	With L/Cffc.* (No.)	Squatters		Factory & Others** (No.)	Market Place (No.)	Govt. Office*** (No.)	Mosque (No.)	School (No.)	Total (No.)	Land Acquisition (m2)
		Type A (No.)	Type B (No.)							
1 Jakarta Utara										
1) Kamal Muara										
a. Kamal Drainage Channel (Main)	2	66	117	4	2	1	-	-	192	54,987
b. Tanjungan Drainage Channel	-	-	-	-	-	-	-	-	-	97,204
Sub-total	2	66	117	4	2	1	0	0	192	152,191
2 Jakarta Barat										
2) Cengkareng Timur										
a. Saluran Cengkareng Drainage Channel	-	4	28	-	-	-	-	-	32	12,855
3) Cengkareng Barat										
a. Kamal Drainage Channel (Branch)	10	152	80	2	-	1	1	3	249	11,602
b. Saluran Cengkareng Drainage Channel	4	18	9	3	-	-	-	-	34	14,128
4) Kapuk										
a. PIK Junction Drainage Channel	-	-	-	-	-	-	-	-	-	-
b. Saluran Cengkareng Drainage Channel	7	61	230	-	-	4	1	-	303	23,513
5) Pegadungan										
a. Gede/Bor Drainage Channel	-	1	26	3	-	-	-	-	30	160
6) Tegal Alur										
a. Kamal Drainage Channel (Main)	121	179	307	13	1	-	1	-	622	75,438
b. Kamal Drainage Channel (Branch)	22	-	66	2	-	1	2	5	98	17,351
c. Tanjungan Drainage Channel	41	10	-	3	-	-	-	-	54	2,722
7) Kalideres										
a. Gede/Bor Drainage Channel	-	43	45	-	-	9	1	-	98	1,009
8) Meruya Utara										
a. Meruya Drainage Channel	4	-	-	-	-	-	-	-	4	10,520
Sub-total	209	468	791	26	1	15	6	8	1524	169,298
Total	211	534	908	30	3	16	6	8	1716	321,489

Note:

* - Holder of Land Certificate.

** - Including warehouse and stockyard

*** - Including public facility/utility/space

Table 9.2 TOTAL COST OF COMPENSATION AND LAND ACQUISITION

(Rp. million)											
Location	With Land Certificate*	Compensation							Land Acquisition	Total	
		Squatters Type A	Squatters Type B	Factory & Others**	Market Place	Govt. Office***	Mosque	School			Total
1 Jakarta Utara											
1) Kamal Muara	67.3	13.2	5.9	1,543.0	169.0	26.9	-	-	1,825.3	9,072.9	10,898.2
a. Kamal Drainage Channel (Main)	-	-	-	-	-	-	-	-	-	16,038.7	16,038.7
b. Tanjungan Drainage Channel	-	-	-	-	-	-	-	-	-	-	-
Sub-total for Jakarta Utara	67.3	13.2	5.9	1,543.0	169.0	26.9	-	-	1,825.3	25,111.5	26,936.8
2 Jakarta Barat											
2) Cengkareng Timur	-	0.8	1.4	-	-	-	-	-	2.2	2,121.1	2,123.3
a. Saluran Cengkareng Drainage Channel	-	-	-	-	-	-	-	-	-	-	-
3) Cengkareng Barat	420.9	30.4	4.0	265.8	-	2.5	51.6	1,301.9	2,077.1	1,914.3	3,991.4
a. Kamal Drainage Channel (Branch)	168.4	3.6	0.5	398.7	-	-	-	-	571.1	2,331.1	2,902.2
b. Saluran Cengkareng Drainage Channel	-	-	-	-	-	-	-	-	-	-	-
4) Kapuk	-	-	-	-	-	-	-	-	-	-	-
a. PIK Junction Drainage Channel	-	-	-	-	-	-	-	-	-	-	-
b. Saluran Cengkareng Drainage Channel	294.6	12.2	11.5	-	-	55.8	46.0	-	420.1	3,879.6	4,299.8
5) Pegadungan	-	-	-	-	-	-	-	-	-	-	-
a. Gede/Bor Drainage Channel	-	0.2	1.3	754.7	-	-	-	-	756.2	26.4	782.6
6) Tegal Alur	5,092.9	35.8	15.4	1,709.1	177.4	-	99.9	-	7,130.4	12,447.3	19,577.8
a. Kamal Drainage Channel (Main)	926.0	-	3.3	262.9	-	47.3	199.7	826.0	2,265.3	2,862.9	5,128.1
b. Kamal Drainage Channel (Branch)	1,725.7	2.0	-	394.4	-	-	-	-	2,122.1	449.1	2,571.2
c. Tanjungan Drainage Channel	-	-	-	-	-	-	-	-	-	-	-
7) Kalidères	-	8.6	2.3	-	-	65.6	29.1	-	105.6	166.5	272.0
a. Gede/Bor Drainage Channel	-	-	-	-	-	-	-	-	-	-	-
8) Meruya Utara	168.4	-	-	-	-	-	-	-	168.4	1,735.8	1,904.2
a. Meruya Drainage Channel	8,796.8	93.6	39.6	3,785.7	177.4	171.2	426.3	2,127.9	15,618.4	27,934.2	43,552.6
Sub-total for Jakarta Barat	8,864.2	106.8	45.4	5,328.7	346.4	198.1	426.3	2,127.9	17,443.7	53,045.7	70,489.4
Total											
Grand Total											

Note:

- * - Holder of Land Certificate.
- ** - Including warehouse and stockyard
- *** - Including public facility/utility/space

Table 9.3 ANNUAL WORK PLAN FOR RELOCATION AND LAND ACQUISITION (1/2)

Drainage Channel													
Packaging Calendar Year	No. of Units Subject to Relocation										Land Acquisition (m2)		
	With Land Certificate*	Squatters Type A	Squatters Type B	Factory & Others**	Market Place	Govt. Office***	Mosque	School	Total (No.)				
1 Kamal Drainage Channel (Main)													
1) Stage I (BP - KM14+23.4m)													
1997	0	0	0	0	0	0	0	0	0	0	0	0	12,120
1998	0	0	0	0	2	1	0	0	0	0	0	3	8,483
1999	0	0	0	0	0	0	0	0	0	0	0	0	8,483
2000	0	0	0	0	0	0	0	0	0	0	0	0	8,483
2001	0	33	57	2	0	0	0	0	0	0	0	92	8,483
2002	2	33	60	0	0	0	0	0	0	0	0	95	7,273
Sub-total	2	66	117	2	2	1	0	0	0	0	0	190	53,325
2) Stage II (KM16+22.8m - KM48 +0m)													
1999	19	0	0	2	0	0	0	0	0	0	0	21	20,358
2000	11	18	64	0	0	0	0	0	0	0	0	93	20,358
2001	24	27	58	3	1	0	1	0	0	0	0	114	20,358
2002	19	36	67	4	0	0	0	0	0	0	0	126	11,818
Sub-total	73	81	189	9	1	0	1	0	0	0	0	354	72,892
3) Stage III (KM48+0m - KM57+0m)													
2000	11	19	35	0	0	0	0	0	0	0	0	65	6,909
2001	24	26	45	0	0	0	0	0	0	0	0	95	6,909
2002	13	53	38	6	0	0	0	0	0	0	0	110	5,455
Sub-total	48	98	118	6	0	0	0	0	0	0	0	270	19,273
2 Kamal Drainage Channel (Branch)													
1) 2000	9	23	37	2	0	0	0	0	0	0	0	71	8,873
2) 2001	12	42	46	2	0	1	2	3	3	1	2	108	8,479
3) 2002	11	87	63	0	0	1	1	5	5	1	1	168	9,876
Sub-total	32	152	146	4	0	2	3	8	8	2	3	347	27,228
3 Tanjung Drainage Channel													
2) 2001	0	0	0	0	0	0	0	0	0	0	0	0	36,358
3) 2002	0	0	0	0	0	0	0	0	0	0	0	0	48,721
4) 2003	41	10	0	3	0	0	0	0	0	0	0	54	2,721
Sub-total	41	10	0	3	0	0	0	0	0	0	0	54	87,800
4 PIK Junction Drainage Channel													
Sub-total	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 9.3 ANNUAL WORK PLAN FOR RELOCATION AND LAND ACQUISITION (2/2)

Drainage Channel/ Fiscal Year of Subdivision	With Land Certificate*	No. of Units Subject to Relocation					Mosque	School	Total	Land Acquisition (m2)
		Squatters Type A	Squatters Type B	Factory & Others**	Market Place	Govt. Office***				
5 Gede/Bor Drainage Channel										
1) 2003	0	1	26	0	0	9	1	0	37	1,649
2) 2004	0	43	45	3	0	0	0	0	91	2,925
Sub-total	0	44	71	3	0	9	1	0	128	4,574
6 Saluran Cengkareng Drainage Channel										
1) 2003	5	33	230	0	0	4	1	0	273	19,136
2) 2004	0	21	9	0	0	0	0	0	30	12,613
3) 2005	6	29	28	3	0	0	0	0	66	14,127
Sub-total	11	83	267	3	0	4	1	0	369	45,876
7 Meruya Utara										
1) 2004	4	0	0	0	0	0	0	0	4	10,521
Sub-total	4	0	0	0	0	0	0	0	4	10,521
Total	21	534	908	30	3	16	6	8	1,716	321,439

Note: * - Holder of Land Certificate. ** - Including warehouse and stocky *** - Including public facility/utility/space

Table 9.4 ANNUAL DISBURSEMENT PLAN FOR THE COST OF COMPENSATION AND LAND ACQUISITION (1/2)

(Rp. million)

Drainage Channel Packaging Calendar Year	With Land Certificate*	Squatters Type A	Squatters Type B	Factory & Others**	Compensation				School	Mosque	Total	Land Acquisition	Total	
					Market Place	Govt. Office***	Govt. Office***	Govt. Office***						
1 Kamal Drainage Channel (Main)														
1) Stage 1 (BP - KM14+23.4m)														
1997	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2,000.0	2,000.0	
1998	0.0	0.0	0.0	0.0	0.0	169.0	26.9	0.0	195.9	0.0	0.0	1,278.4	1,474.4	
1999	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,278.5	1,278.5	
2000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,278.4	1,278.4	
2001	0.0	6.6	2.9	187.6	0.0	0.0	0.0	0.0	197.1	0.0	0.0	1,278.2	1,475.3	
2002	67.3	6.6	3.0	0.0	0.0	0.0	0.0	0.0	76.9	0.0	0.0	1,200.3	1,277.1	
Sub-total	67.3	13.2	5.9	187.6	169.0	26.9	0.0	0.0	469.9	0.0	0.0	8,313.8	8,783.7	
2) Stage II (KM16+22.8m - KM48 +0m)														
1999	799.7	0.0	0.0	508.7	0.0	0.0	0.0	0.0	1,308.4	0.0	0.0	2,859.2	4,167.7	
2000	463.0	3.6	3.2	0.0	0.0	0.0	0.0	0.0	469.8	0.0	0.0	2,859.2	3,329.1	
2001	1,010.2	5.4	2.9	668.3	177.4	0.0	0.0	0.0	1,964.1	0.0	0.0	2,859.2	4,823.2	
2002	799.7	7.2	3.4	569.2	0.0	0.0	0.0	0.0	1,379.5	0.0	0.0	1,950.0	3,329.5	
Sub-total	3,072.6	16.2	9.5	1,746.2	177.4	0.0	0.0	0.0	5,121.8	0.0	0.0	10,527.7	15,649.4	
3) Stage III (KM48+0m - KM57+0m)														
2000	463.0	3.8	1.8	0.0	0.0	0.0	0.0	0.0	468.5	0.0	0.0	889.4	1,358.0	
2001	1,010.2	5.2	2.3	0.0	0.0	0.0	0.0	0.0	1,017.6	0.0	0.0	889.3	1,906.9	
2002	547.2	10.6	1.9	1,318.4	0.0	0.0	0.0	0.0	1,878.1	0.0	0.0	900.0	2,778.0	
Sub-total	2,020.3	19.6	5.9	1,318.4	0.0	0.0	0.0	0.0	3,364.2	0.0	0.0	2,678.7	6,042.9	
2. Kamal Drainage Channel (Branch)														
1) 2000	210.5	4.6	1.9	262.9	0.0	0.0	0.0	0.0	479.8	0.0	0.0	1,464.2	1,944.0	
2) 2001	715.5	8.4	2.3	265.8	0.0	47.3	199.7	826.4	2,065.5	0.0	0.0	1,398.8	3,464.3	
3) 2002	420.9	17.4	3.2	0.0	0.0	2.6	51.6	1,301.5	1,797.0	0.0	0.0	1,914.3	3,711.4	
Sub-total	1,346.9	30.4	7.3	528.7	0.0	49.9	251.3	2,127.9	4,342.4	0.0	0.0	4,777.2	9,119.6	
3. Tanjung Drainage Channel														
2) 2001	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5,999.2	5,999.2	
3) 2002	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8,039.5	8,039.5	
4) 2003	1,725.7	2.0	0.0	394.4	0.0	0.0	0.0	0.0	2,122.1	0.0	0.0	2,449.2	4,571.3	
Sub-total	1,725.7	2.0	0.0	394.4	0.0	0.0	0.0	0.0	2,122.1	0.0	0.0	16,487.8	18,609.9	
4. PIK Junction Drainage Channel														
Sub-total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Table 9.4 ANNUAL DISBURSEMENT PLAN FOR THE COST OF COMPENSATION AND LAND ACQUISITION (2/2)

(Rp. million)

Drainage Channel	Fiscal Year of Subdivision	Compensation								Land Acquisition	Total	
		With Land Certificate*	Squatters Type A	Squatters Type B	Factory & Others**	Market Place	Govt. Office***	Mosque	School			Total
5 Gede/Bor Drainage Channel												
1) 2003		0.0	0.2	1.3	0.0	0.0	65.6	29.1	0.0	96.1	166.5	262.6
2) 2004		0.0	8.6	2.3	754.7	0.0	0.0	0.0	0.0	765.5	26.4	791.9
Sub-total		0.0	8.8	3.6	754.7	0.0	65.6	29.1	0.0	861.6	192.9	1,054.5
6 Saluran Cengkareng Drainage Channel												
1) 2003		294.6	6.6	11.5	0.0	0.0	55.7	46.0	0.0	414.5	3,879.6	4,294.0
2) 2004		0.0	4.2	1.4	0.0	0.0	0.0	0.0	0.0	5.6	2,121.1	2,126.7
3) 2005		168.4	5.9	0.5	398.7	0.0	0.0	0.0	0.0	573.4	2,331.1	2,904.5
Sub-total		463.0	16.6	13.4	398.7	0.0	55.7	46.0	0.0	993.4	8,331.8	9,325.2
7 Meruya Utara												
1) 2004		168.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	168.4	1,735.8	1,904.2
Sub-total		168.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	168.4	1,735.8	1,904.2
Total		8,864.2	106.8	45.4	5,328.7	346.4	198.1	426.3	2,127.9	17,443.7	53,045.7	70,489.4
Grand Total												

Note: * - Holder of Land Certificate. ** - Including warehouse and stocky. *** - Including public facility/utility/space

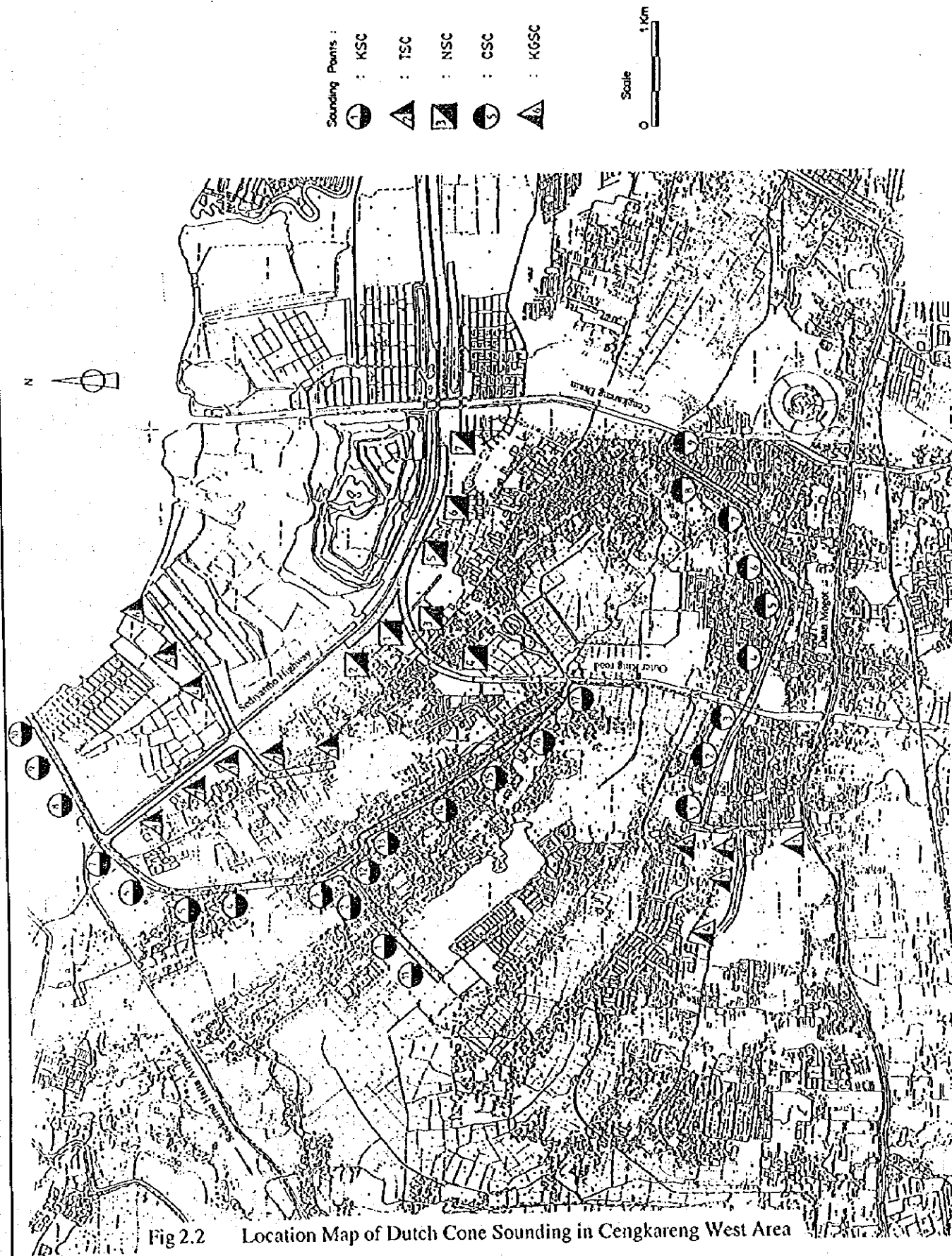
Table 9.5 SUGGESTED ANNUAL DISBURSEMENT PLAN FOR COMPENSATION AND LAND ACQUISITION

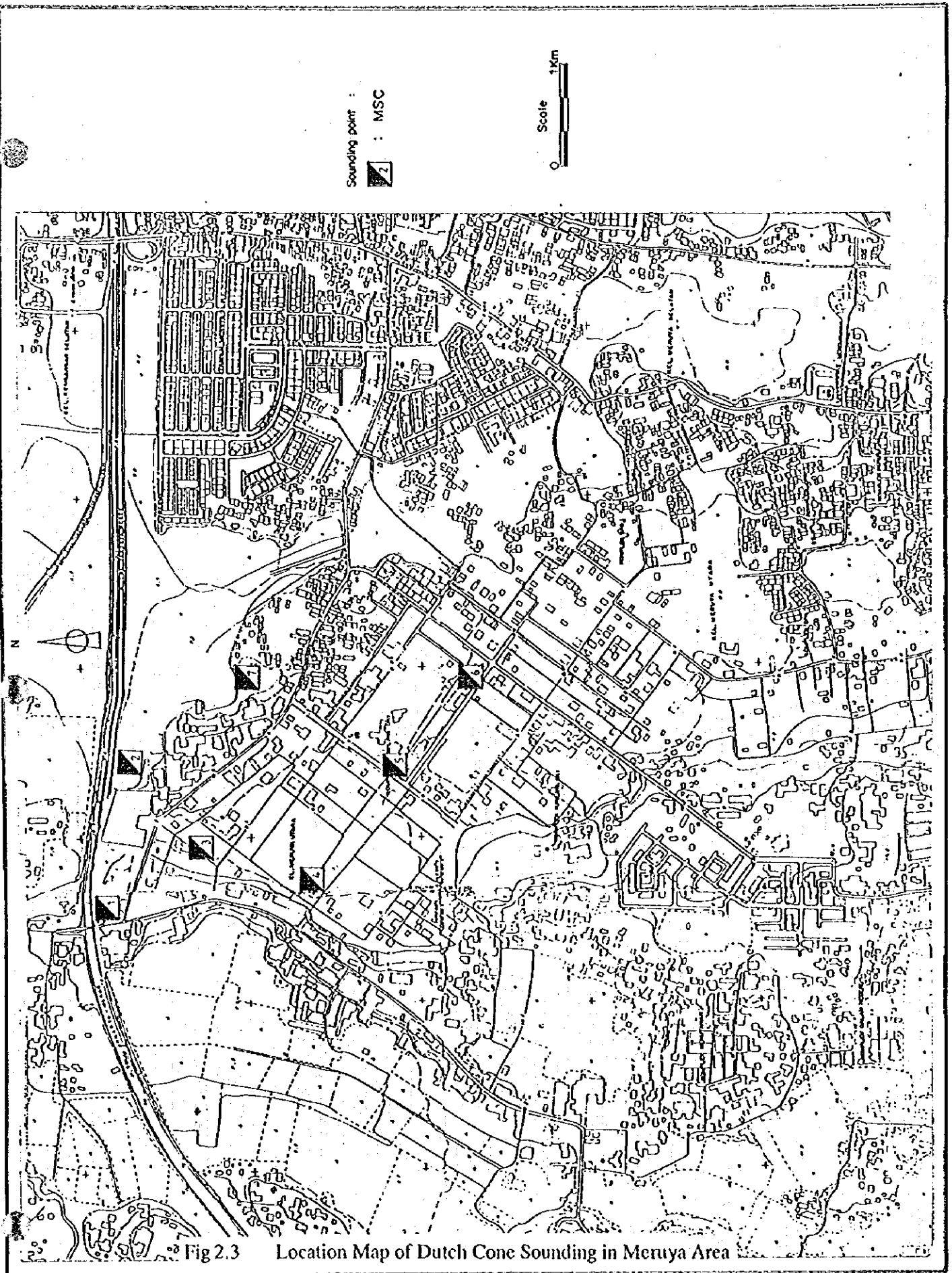
Description	1997		1998		1999		2000		2001		2002		2003		2004		2005		2006	
	J-M	A-J	J-M	A-J	J-M	A-J	J-M	A-J	J-M	A-J	J-M	A-J	J-M	A-J	J-M	A-J	J-M	A-J	J-M	A-J
1 Schedule of Construction Works	<div> <div>Pre-Construction Period</div> <div>Package 1 Construction - 48 months</div> <div>Package 2 Construction - 27 months</div> <div>Package 3 Construction - 36 months</div> </div>																			
2 Construction of Low Cost Apartment	<div> <div>2 Blocks</div> <div>1 Block</div> <div>1 Block</div> </div>																			
1) Design Works/Selection of Contractor																				
2) Construction Works																				
3 Disbursement Plan																				
Package 1																				
Stage I (BP - KM14+23.4m)																				
-ditto- (Schedule of Const. Works)																				
Stage II (KM16+22.8m - KW48 + 0m)																				
-ditto- (Schedule of Const. Works)																				
Stage III (KM48+0m - KM57+0m)																				
-ditto- (Schedule of Const. Works)																				
Stage III (Kamal Branch)																				
-ditto- (Schedule of Const. Works)																				
Package 2																				
-ditto- (Schedule of Const. Works)																				
PIK Junction																				
Package 3																				
Geder/Bor																				
-ditto- (Schedule of Const. Works)																				
Saluran Congkareng																				
-ditto- (Schedule of Const. Works)																				
Menyua																				
-ditto- (Schedule of Const. Works)																				
Total/Fiscal Year (Rp.million)	2,000.0		1,474.4		5,446.2		7,909.5		17,668.9		19,135.5		9,127.9		4,822.8		2,904.5		0	

Note: * The amount already allocated.

Figures







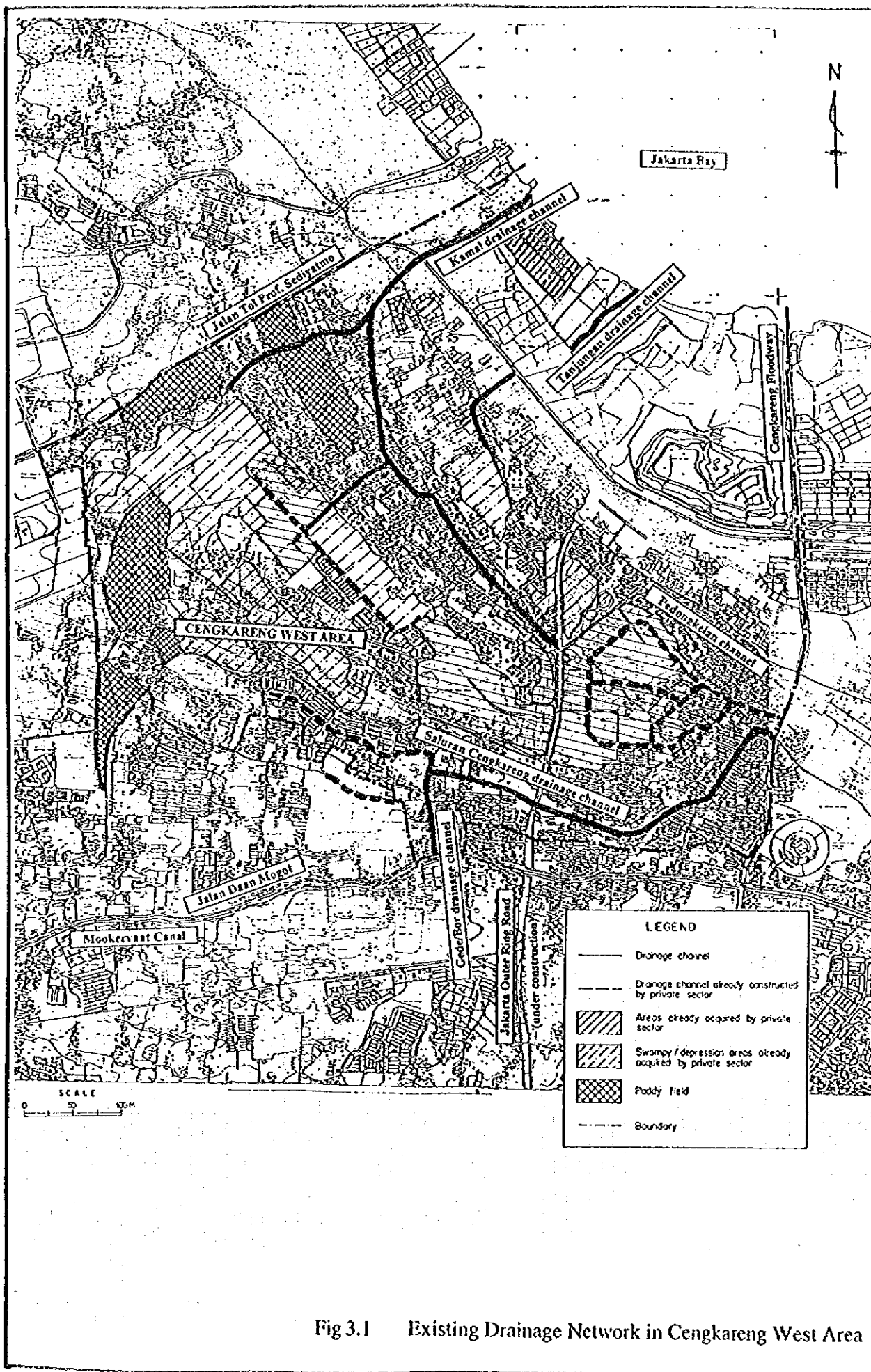


Fig 3.1 Existing Drainage Network in Cengkareng West Area

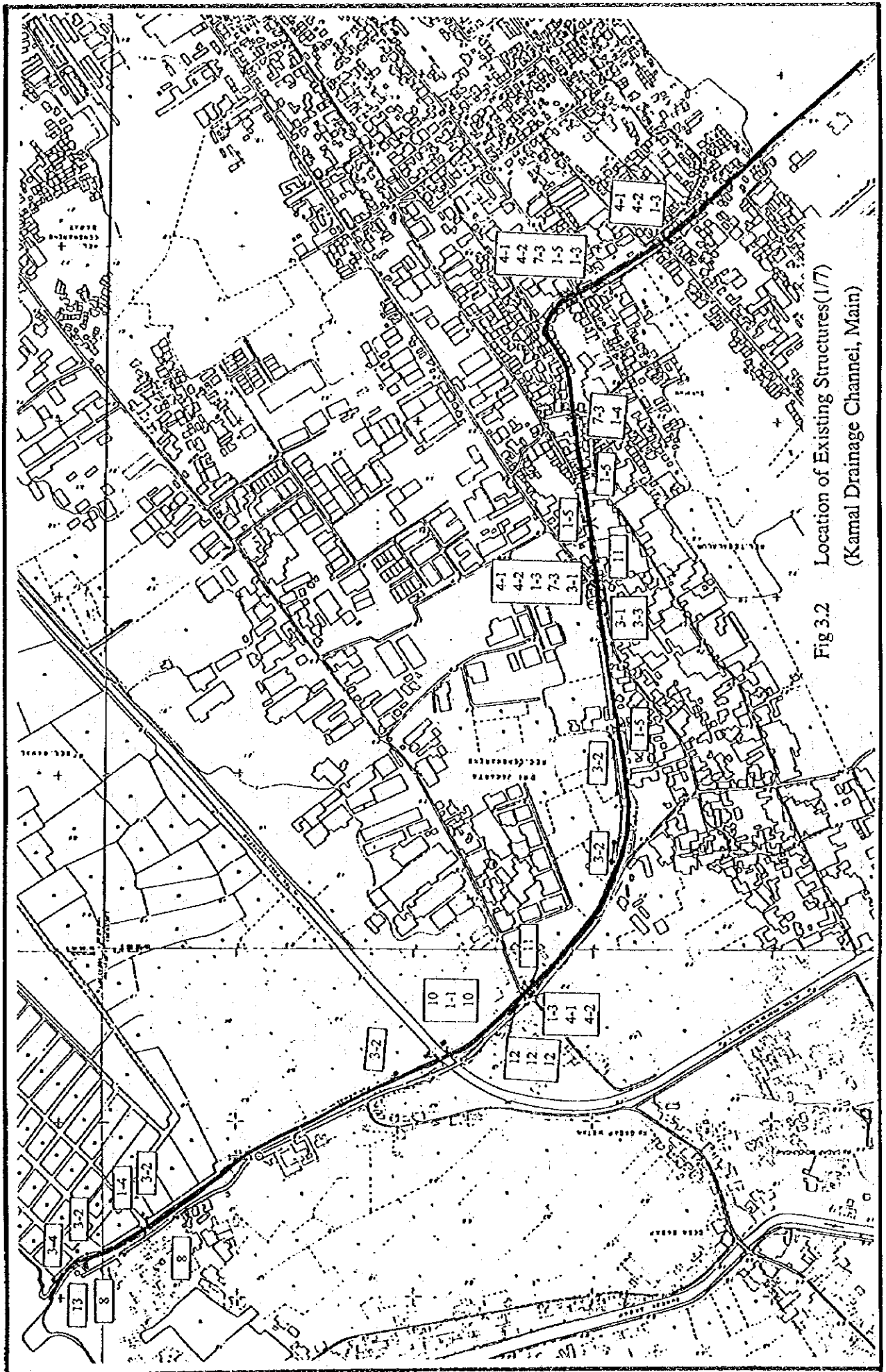


Fig 3.2 Location of Existing Structures(1/7)
(Kamal Drainage Channel, Main)

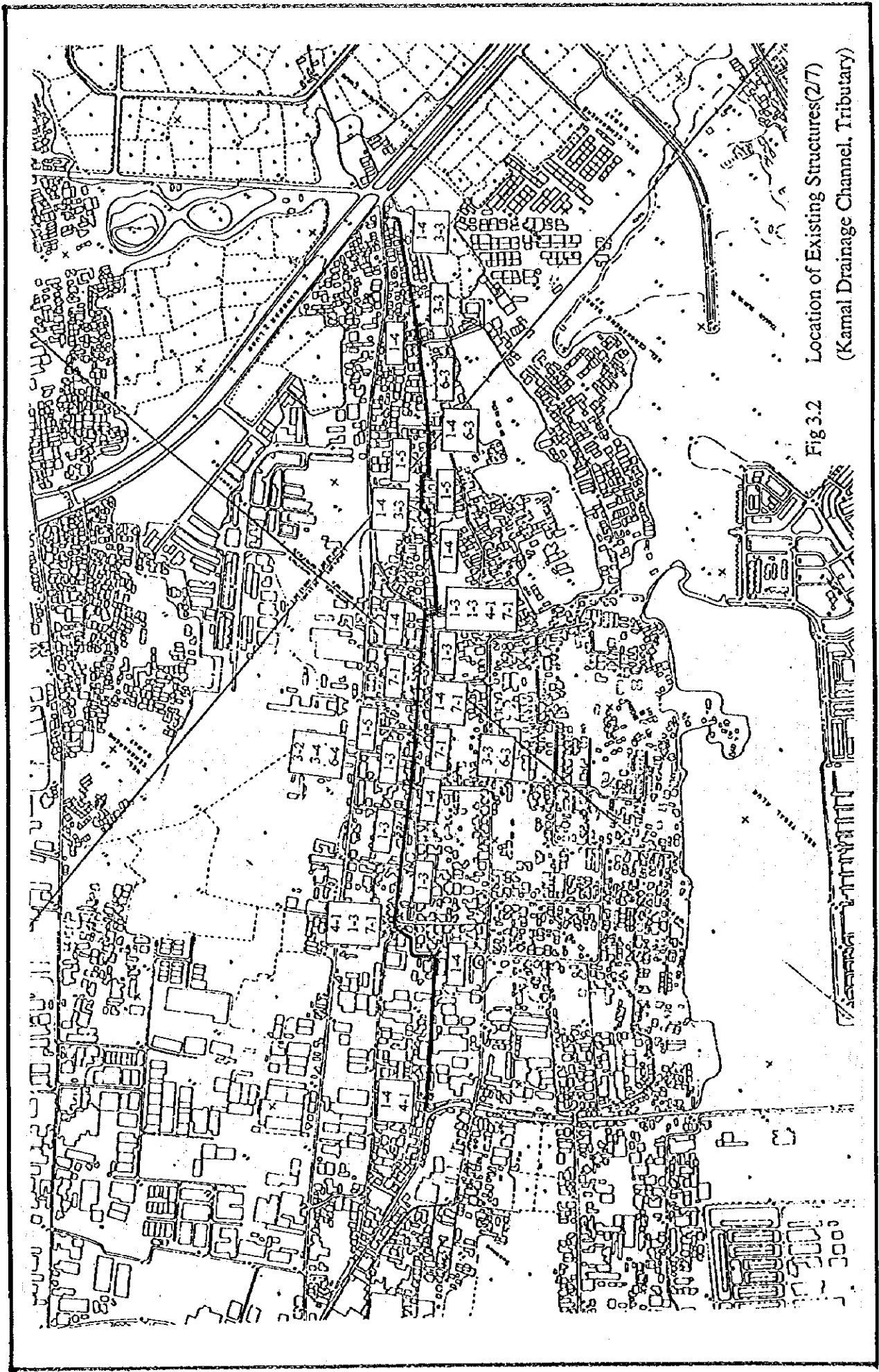


Fig 3.2 Location of Existing Structures(2/7)
(Kamal Drainage Channel, Tributary)

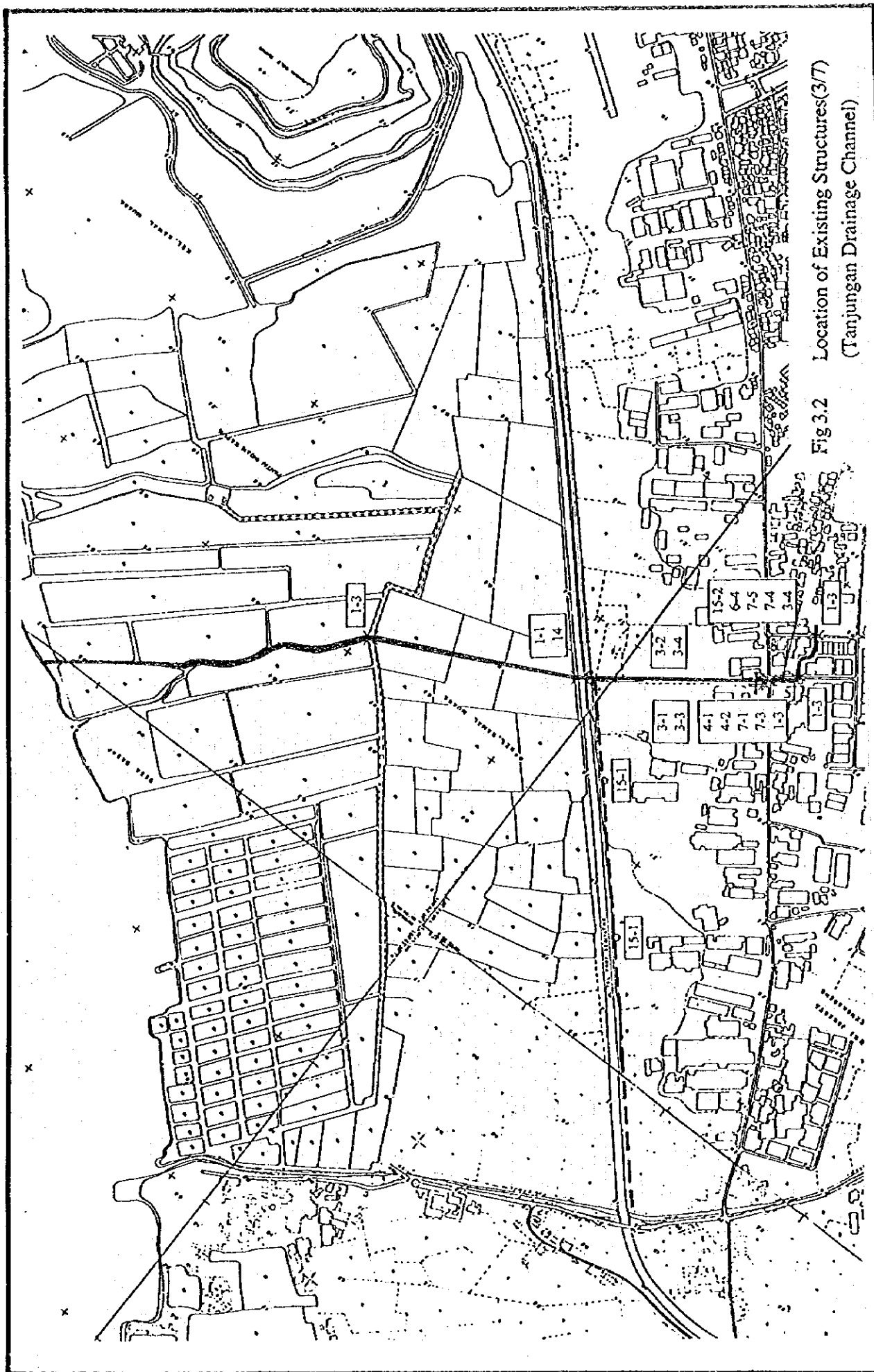


Fig 3.2 Location of Existing Structures(3/7)
(Tanjungan Drainage Channel)

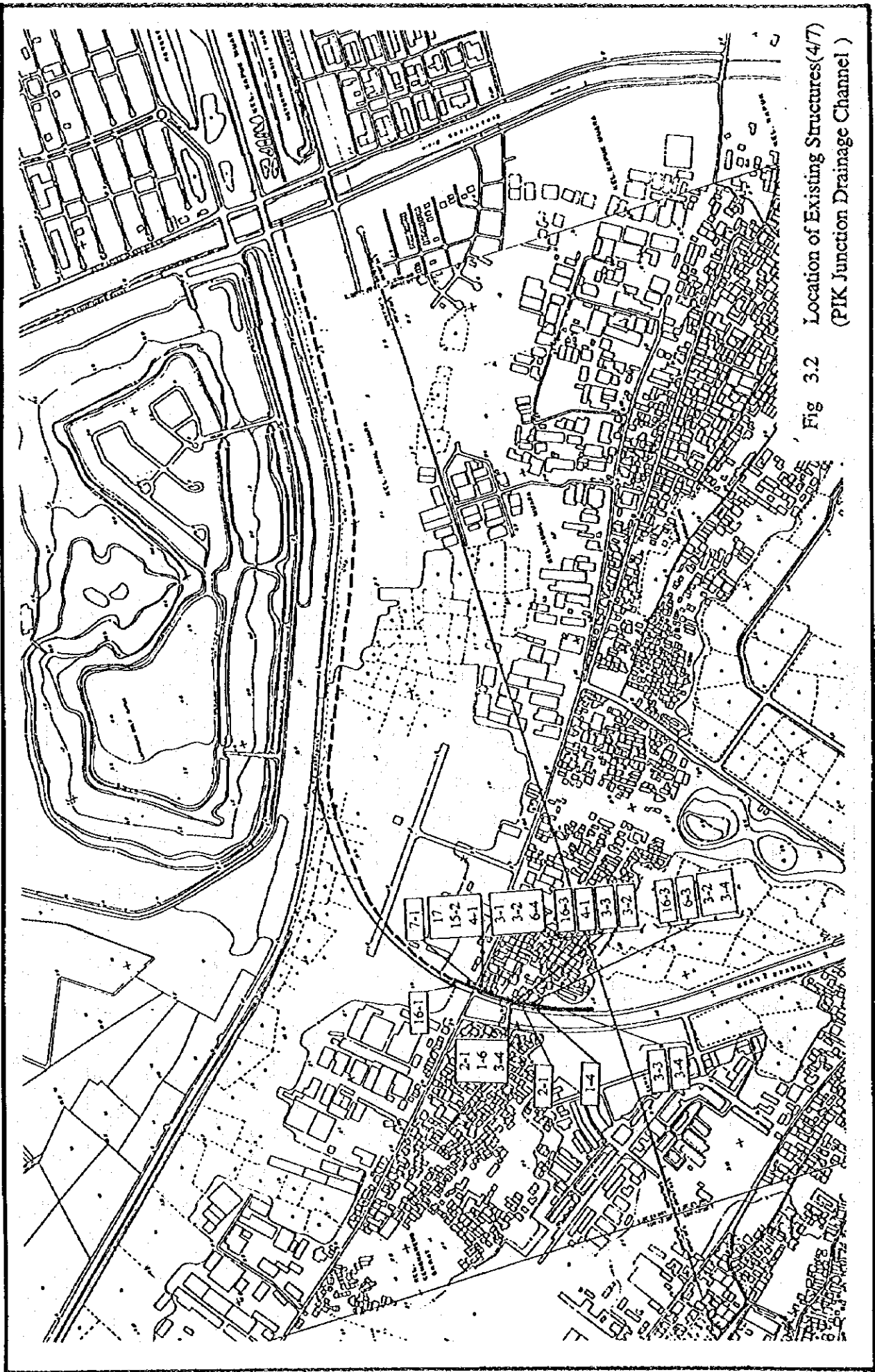


Fig 3.2 Location of Existing Structures(4/7)
(PIK Junction Drainage Channel)

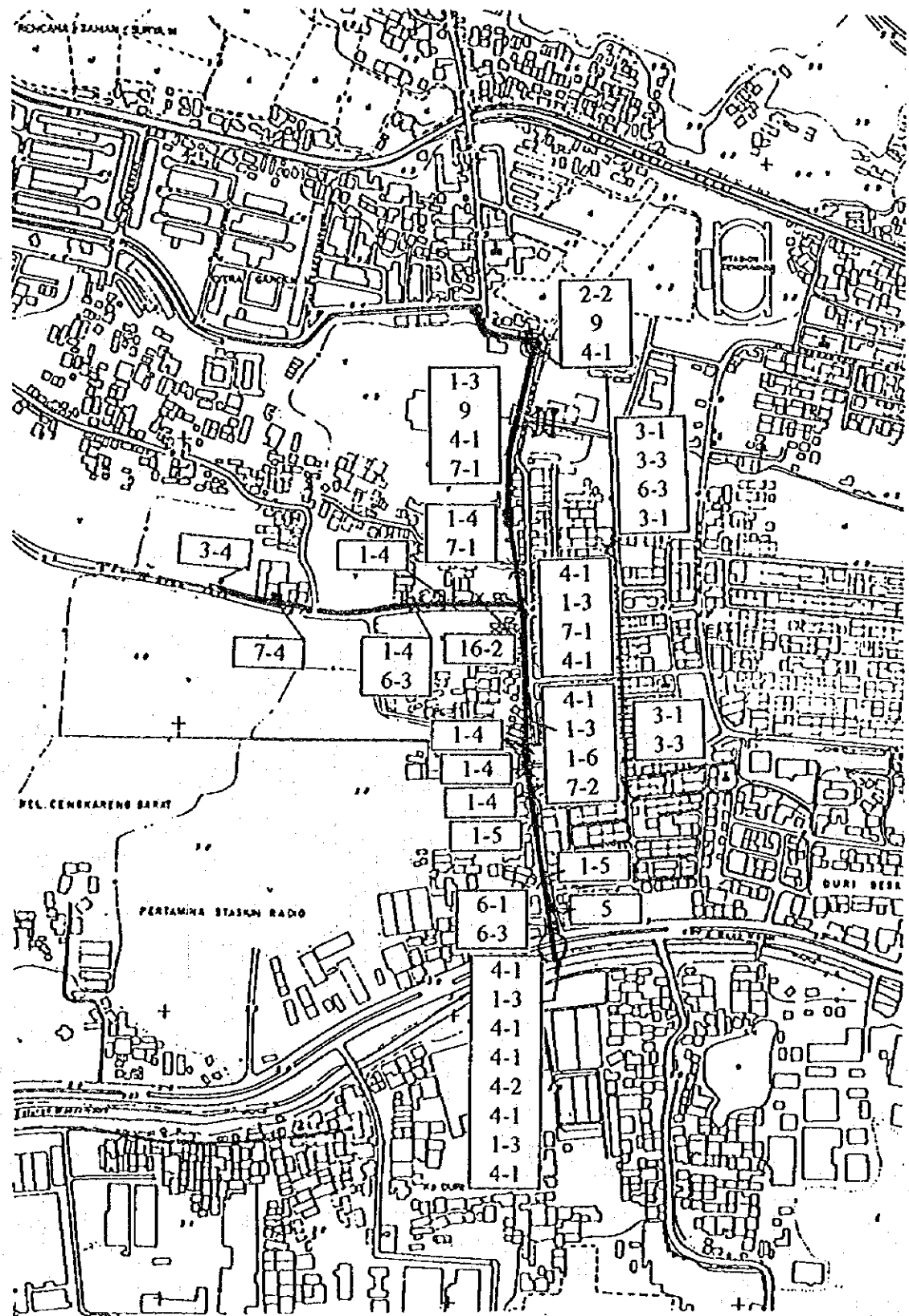
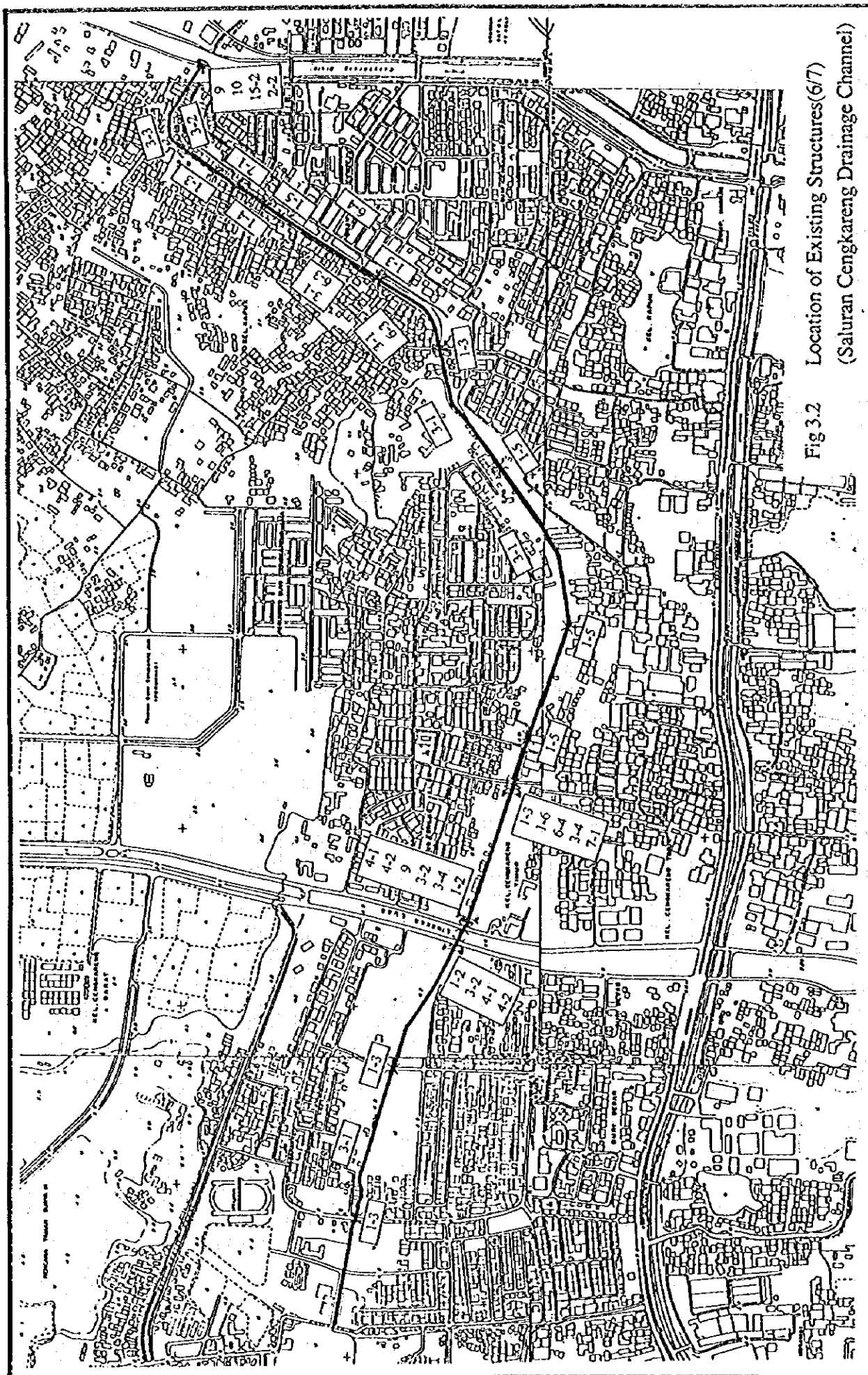


Fig 3.2 Location of Existing Structures(5/7)
(Gede/Bor Drainage Channel)



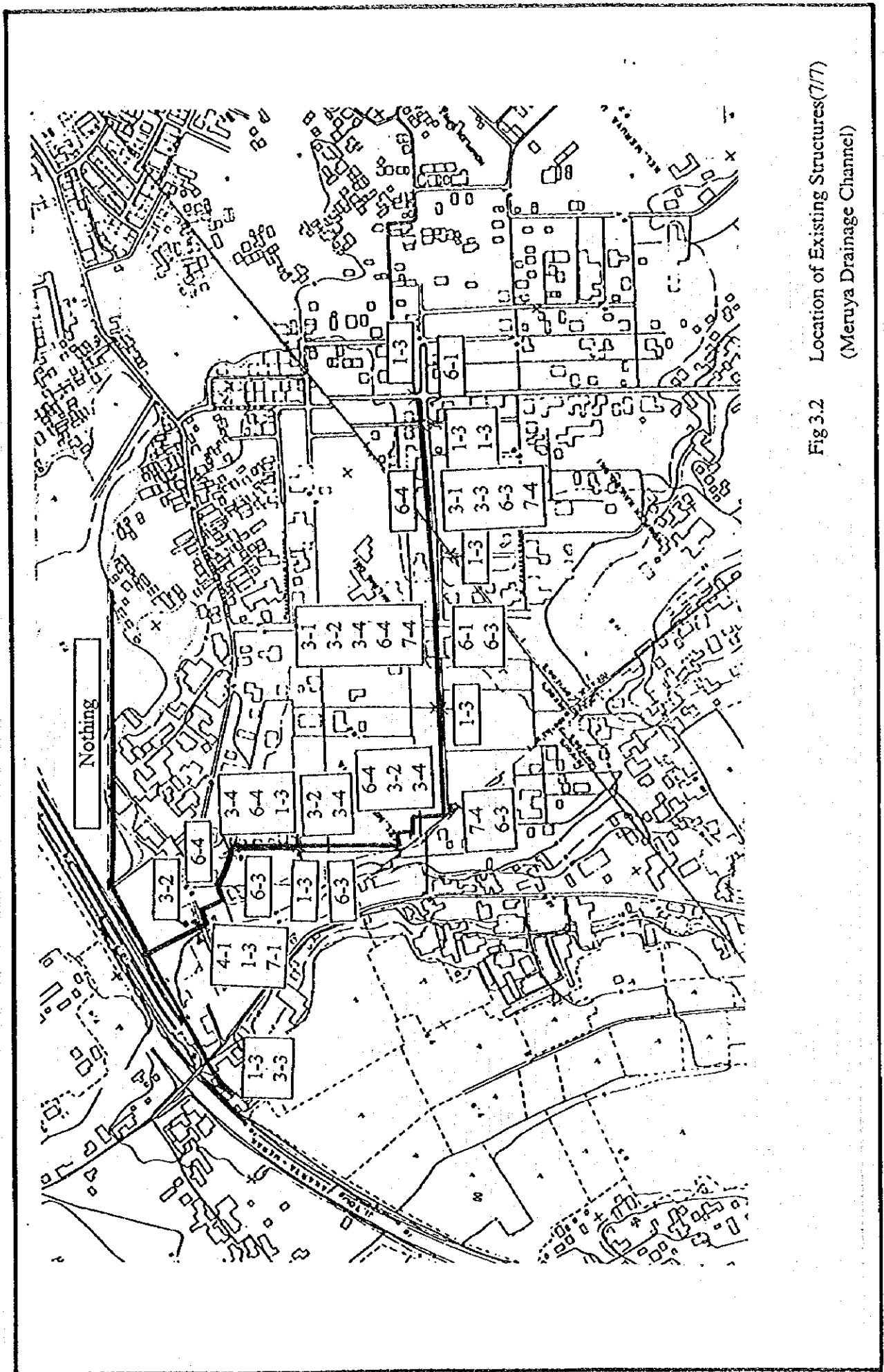


Fig 3.2 Location of Existing Structures(7/7)
(Meruya Drainage Channel)

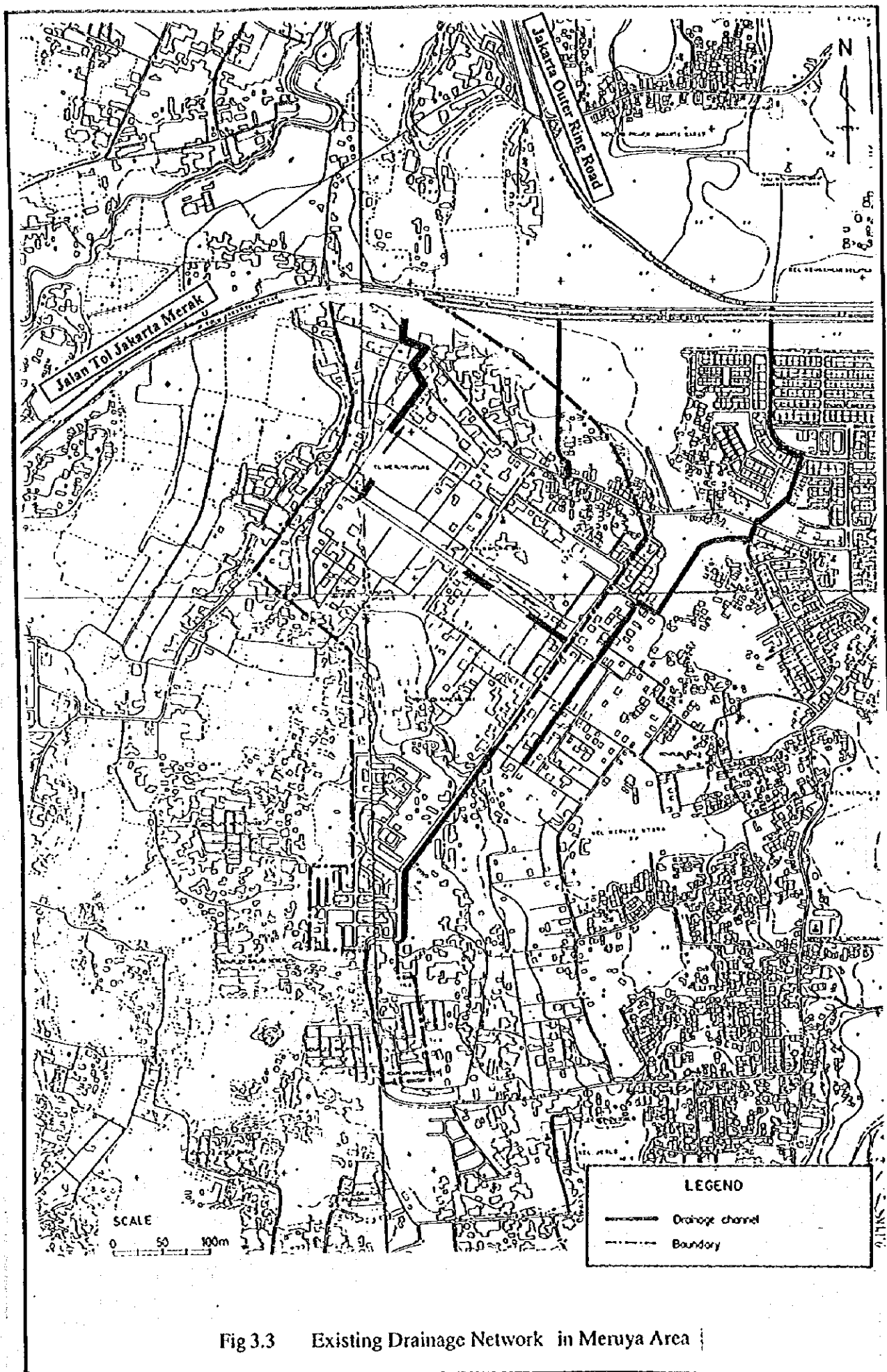


Fig 3.3 Existing Drainage Network in Meruya Area

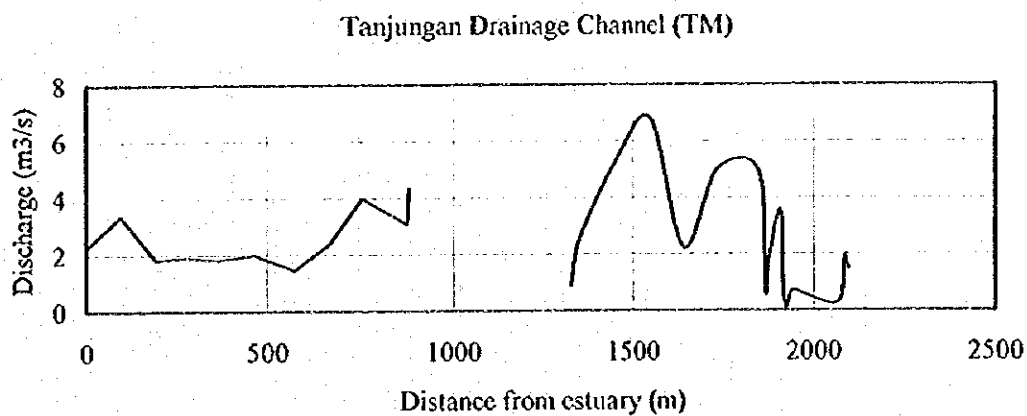
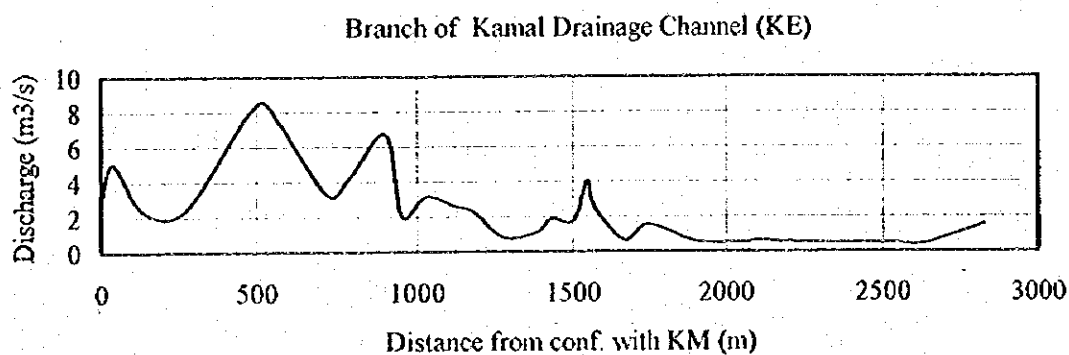
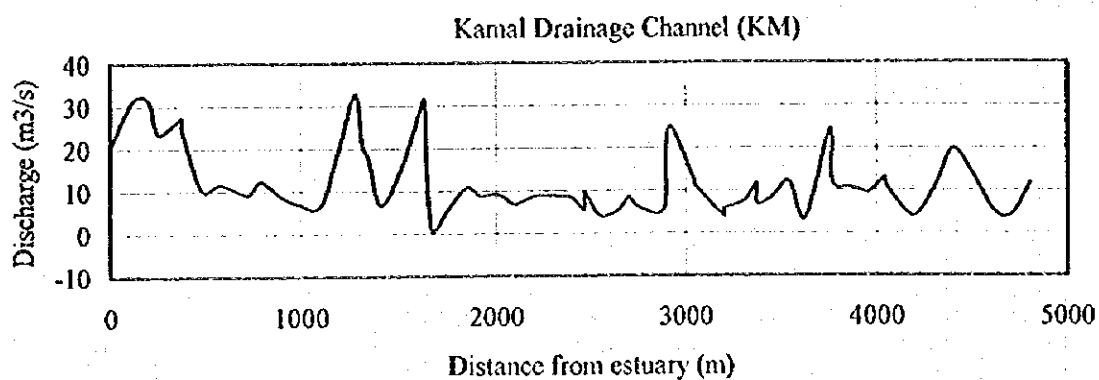


Fig 3.4 Bankful Flow Capacity of Existing Drainage Channels in Cengkareng West Area (1/2)

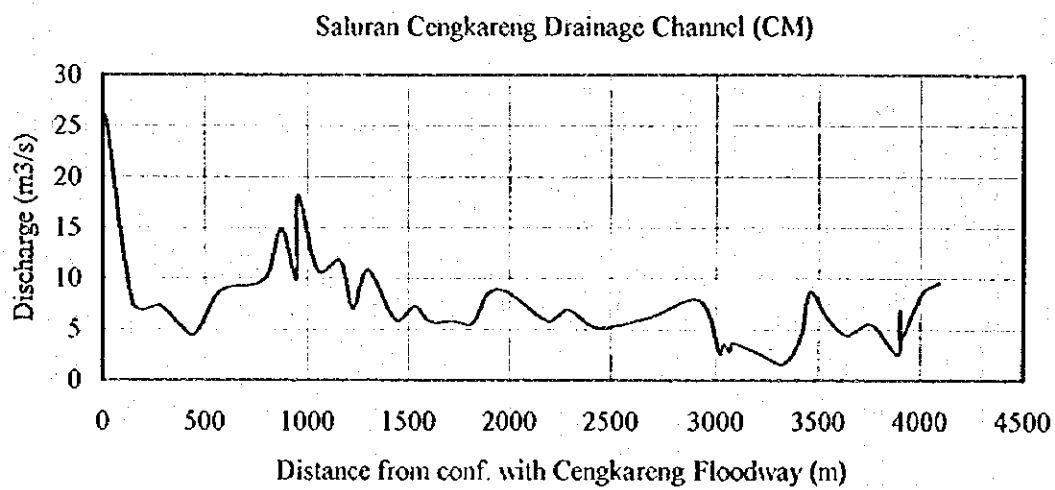
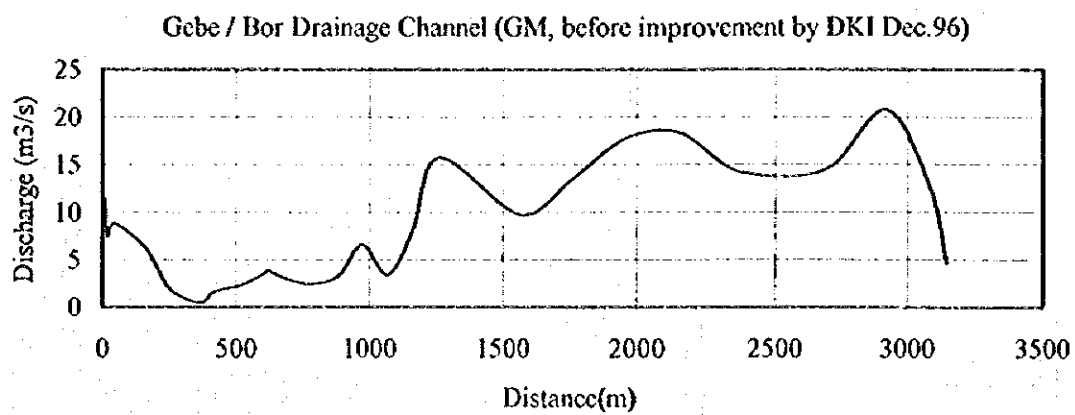


Fig 3.4 Bankful Flow Capacity of Existing Drainage Channels in Cengkareng West Area (2/2)

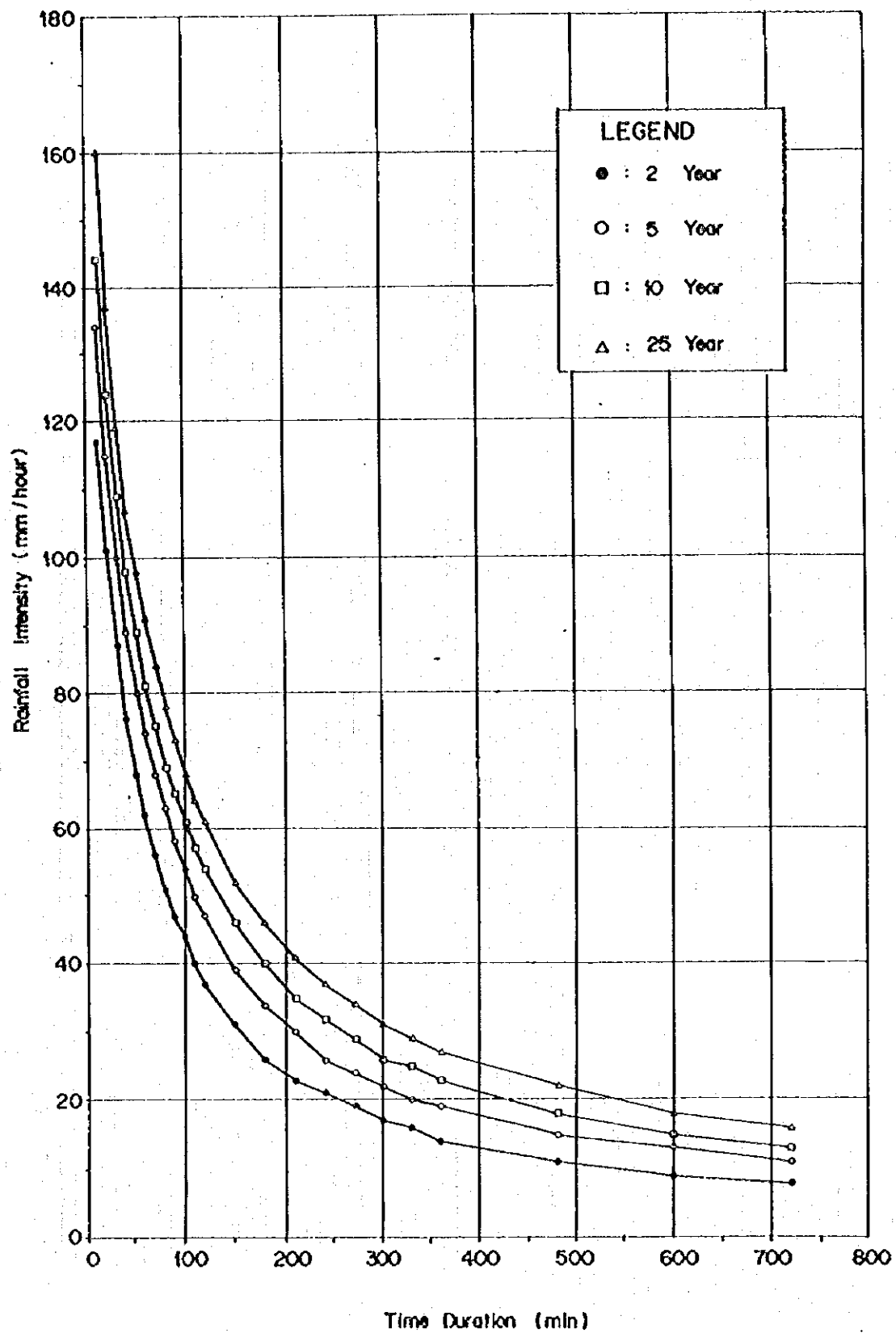


Fig 4.2.1 Rainfall Intensity-Duration Curve

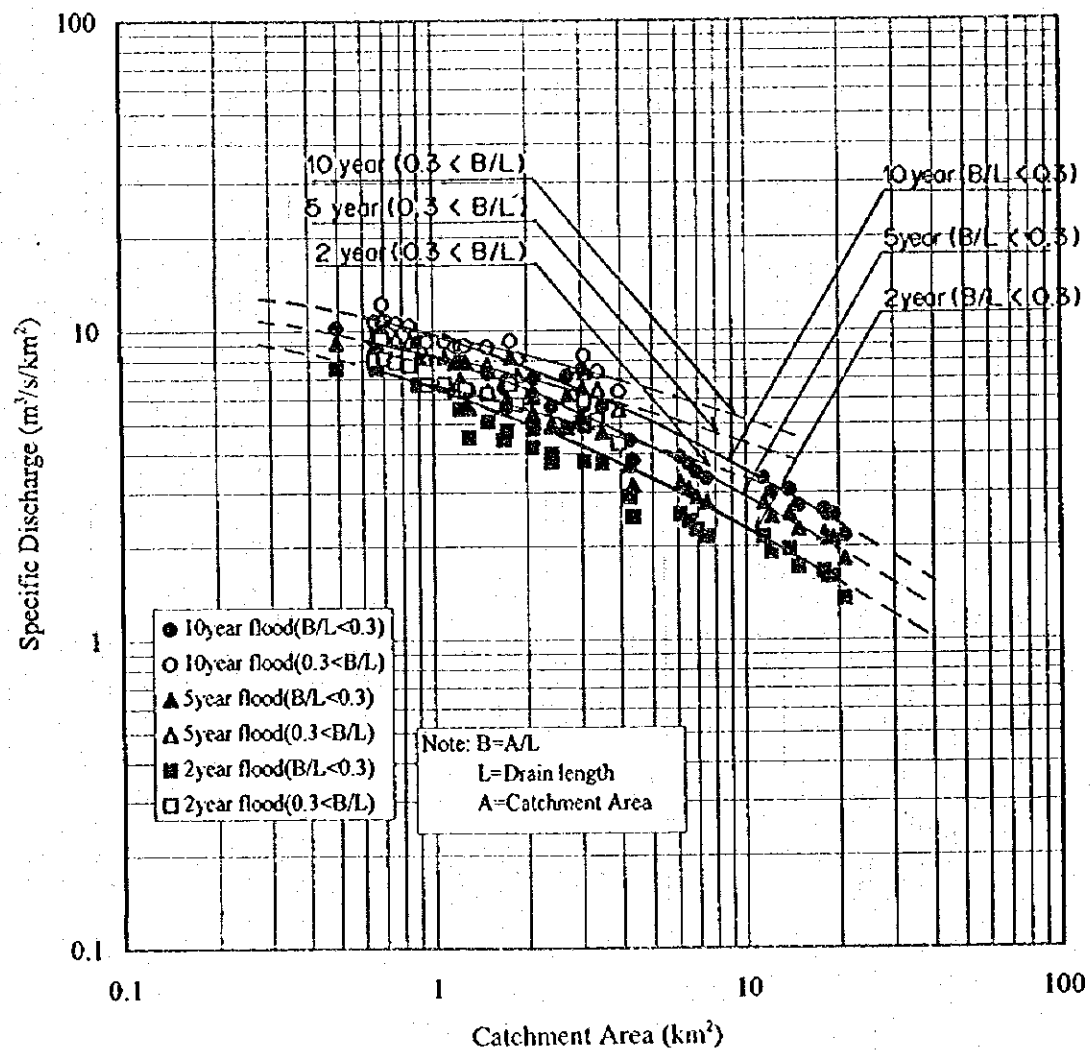
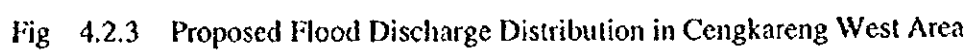
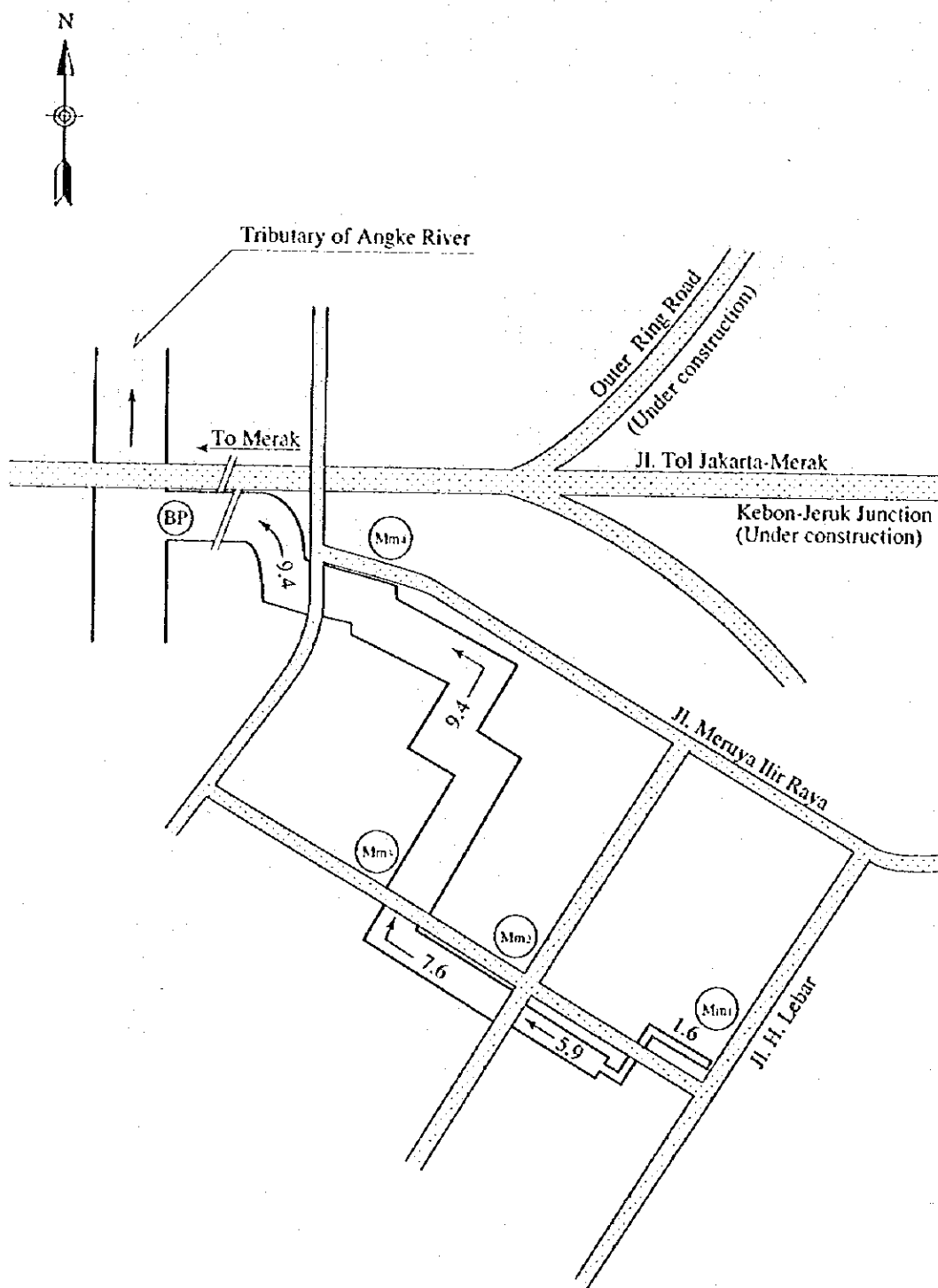


Fig 4.2.2 Specific Discharge-Catchment Area Relationship

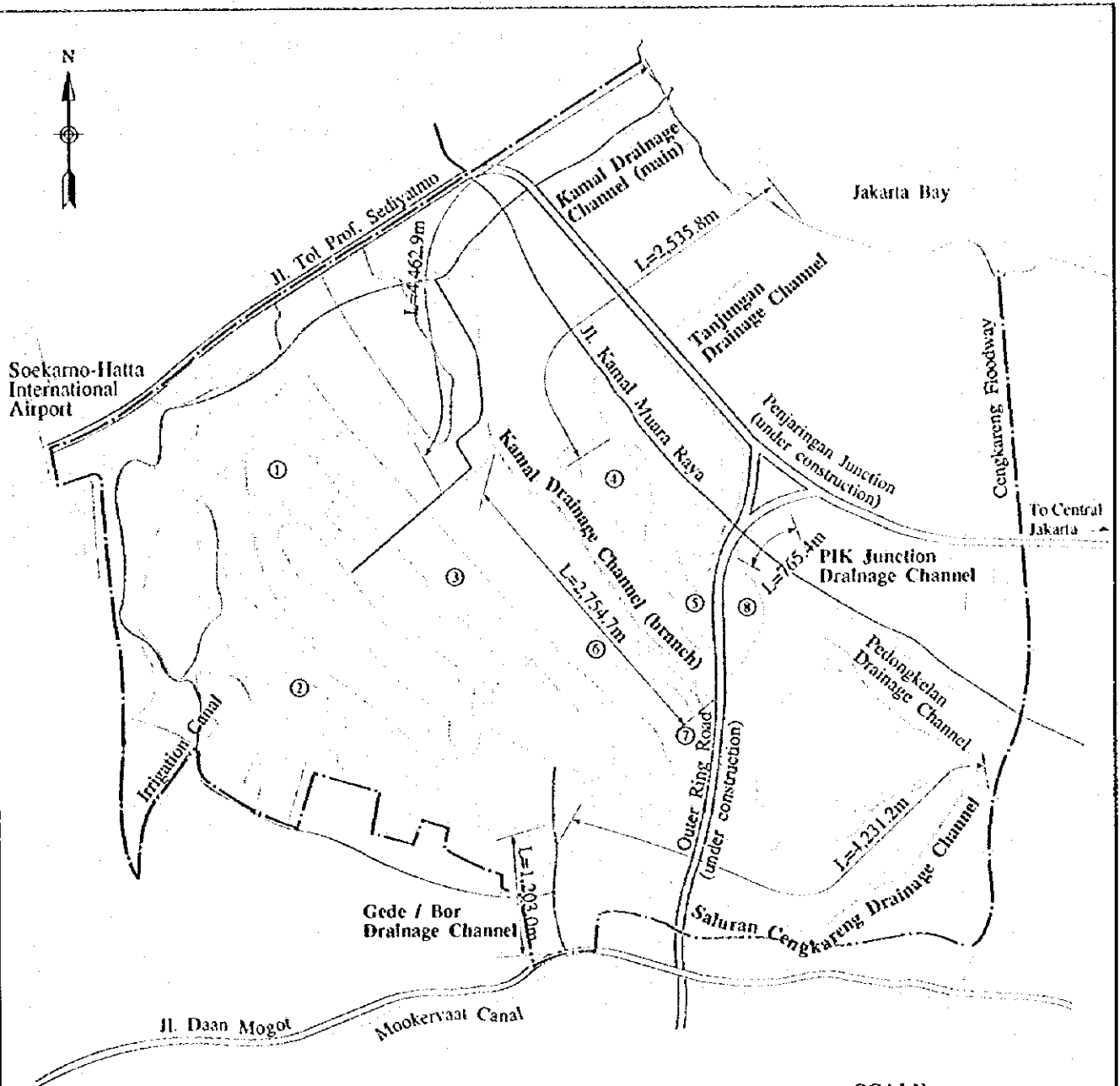




Note: Value : Design Discharge (m^3/s)

(Mm) : Code No.

Fig 4.2.4 Proposed Flood Discharge Distribution in Menuya Area



SCALE
0 0.5 1.0km

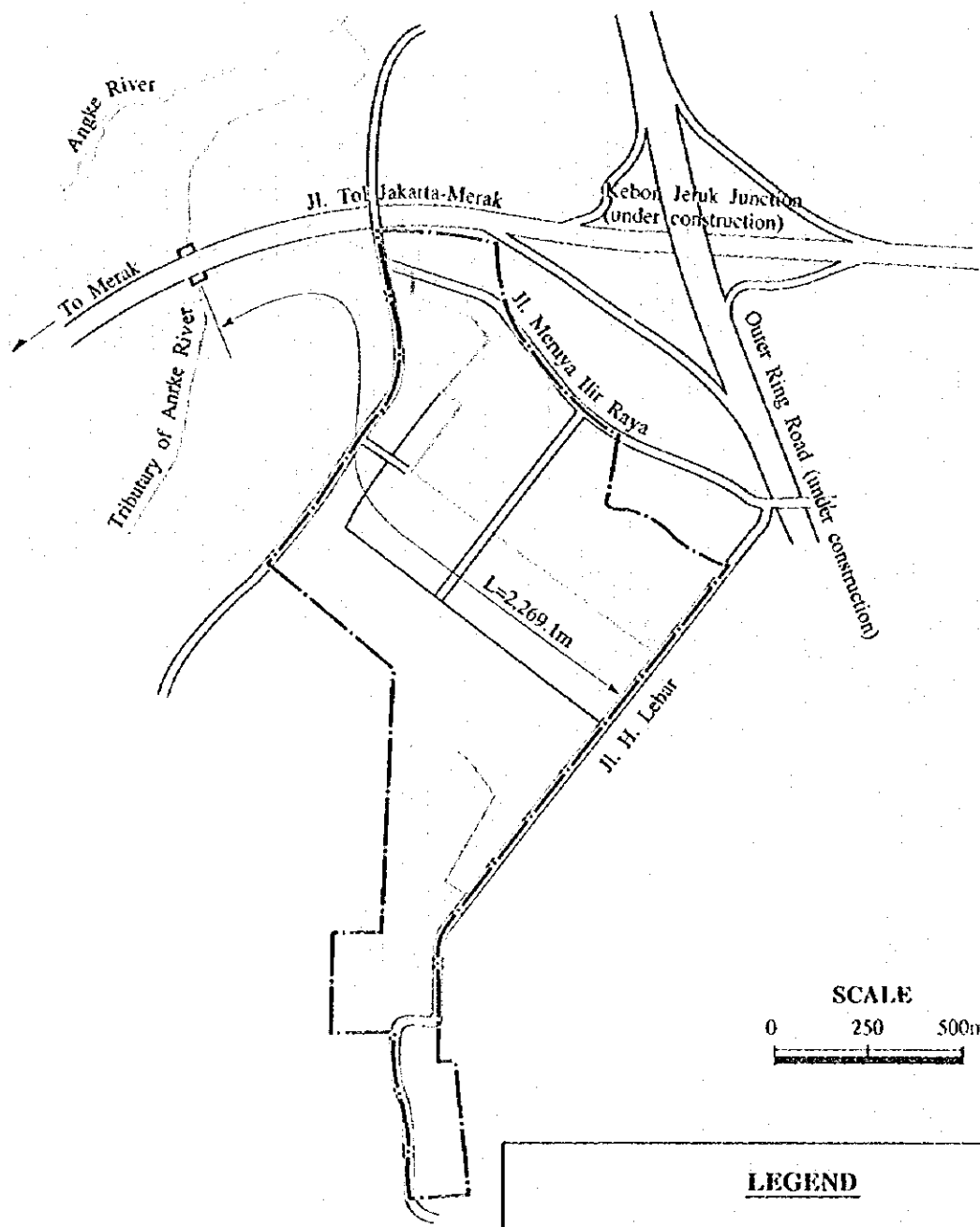
LEGEND

- : Project boundary
- : Drainage channel/design stretch in the project
- : Drainage channel/already constructed
- : Drainage channel/to be constructed by private sector
- : Area already acquired by private sector
- : Swamp/depression area already acquired by private sector
- : Paddy field

Reclamation Level for swamp/depression area

- | | |
|---|-------------|
| 1 | EL. 3 - 4 m |
| 2 | EL. 4 - 5 m |
| 3 | EL. 3 - 4 m |
| 4 | EL. 1 - 2 m |
| 5 | EL. 1 - 2 m |
| 6 | EL. 2 - 3 m |
| 7 | EL. 2 - 3 m |
| 8 | EL. 1 - 2 m |

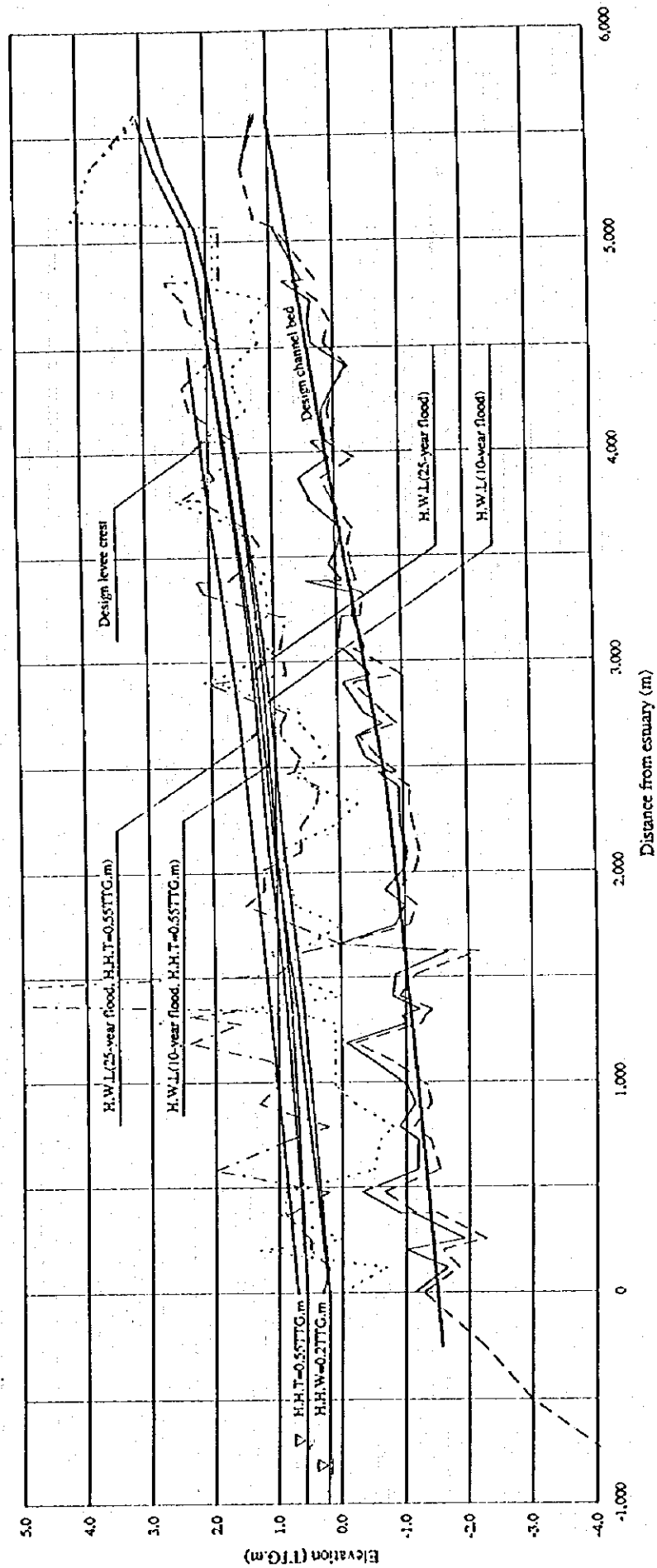
Fig. 4.2.5 Proposed Drainage Channel Alignment in Cengkareng West Area



LEGEND

- : Project boundary
- - - - : Drainage channel/design stretch in the project
- [Hatched Box] : Area already aquired by private sector

Fig. 4.2.6 Proposed Drainage Channel Alignment in Meruya Area

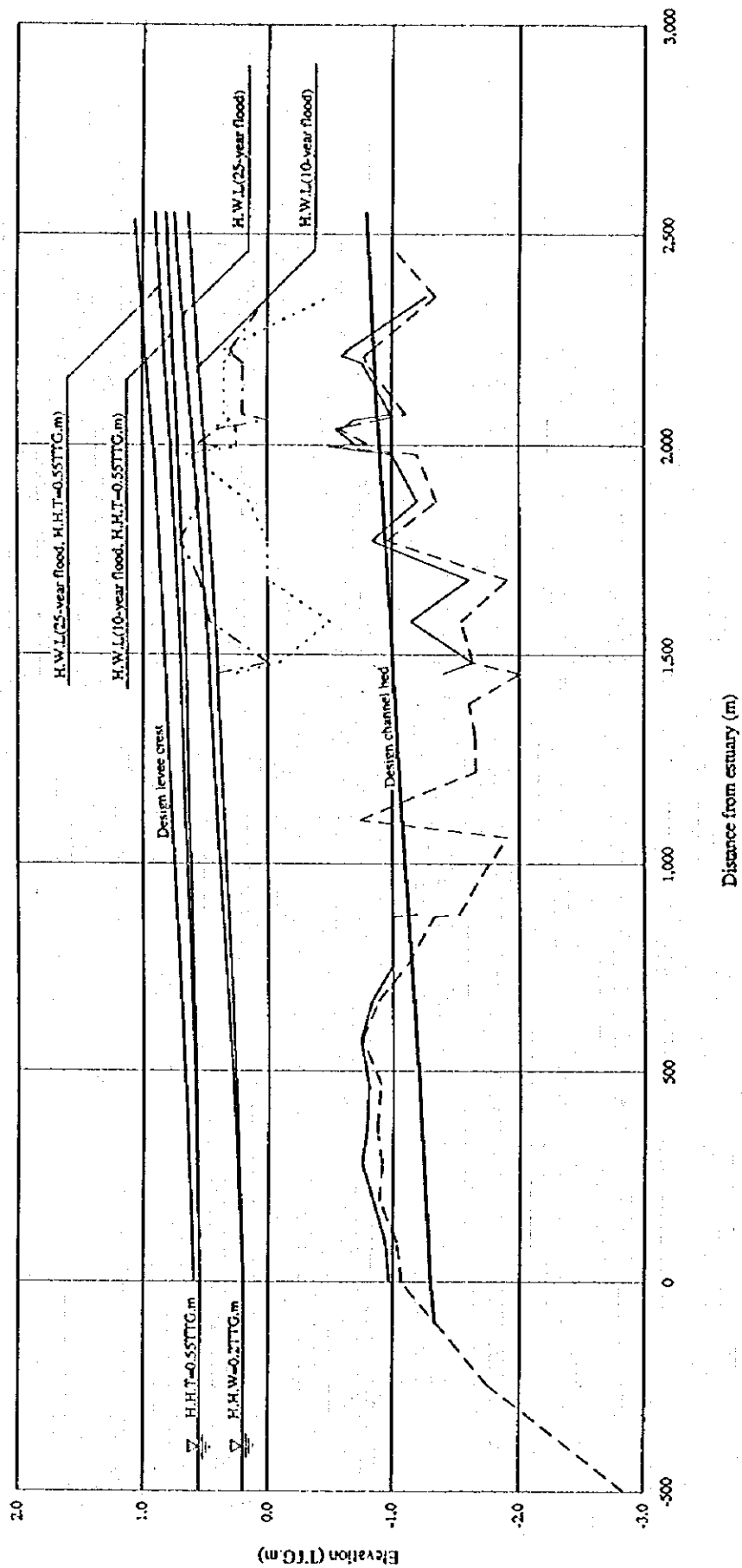


Notes:

H.H.T = past maximum tide (pp=1.54, rounded up at 1.55m)

H.H.W = spring high tide (high high water = PP+1.15m, rounded up at 1.20m)

Fig 4.2.7 Water Surface Profile in Drainage Channel (1/2) Kamal Drainage Channel (Main)



Notes:
H.H.T = past maximum tide (pp=1.54, rounded up at 1.55m)
H.H.W = spring high tide (high high water = PP+1.15m, rounded up at 1.20m)

Fig 4.2.7 Water Surface Profile in Drainage Channel (2/2): Tranjungan Drainage Channel

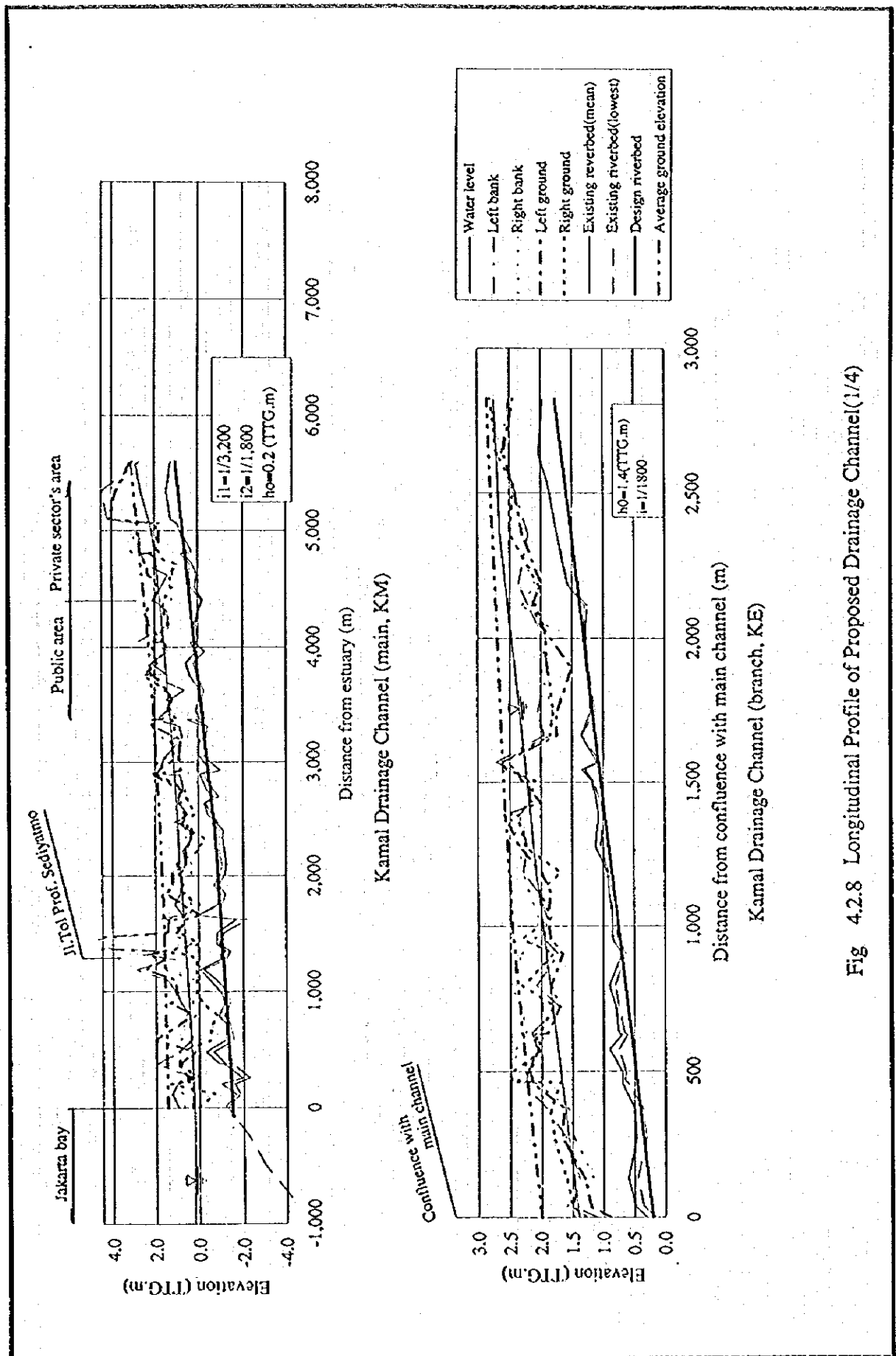


Fig 4.2.8 Longitudinal Profile of Proposed Drainage Channel(1/4)

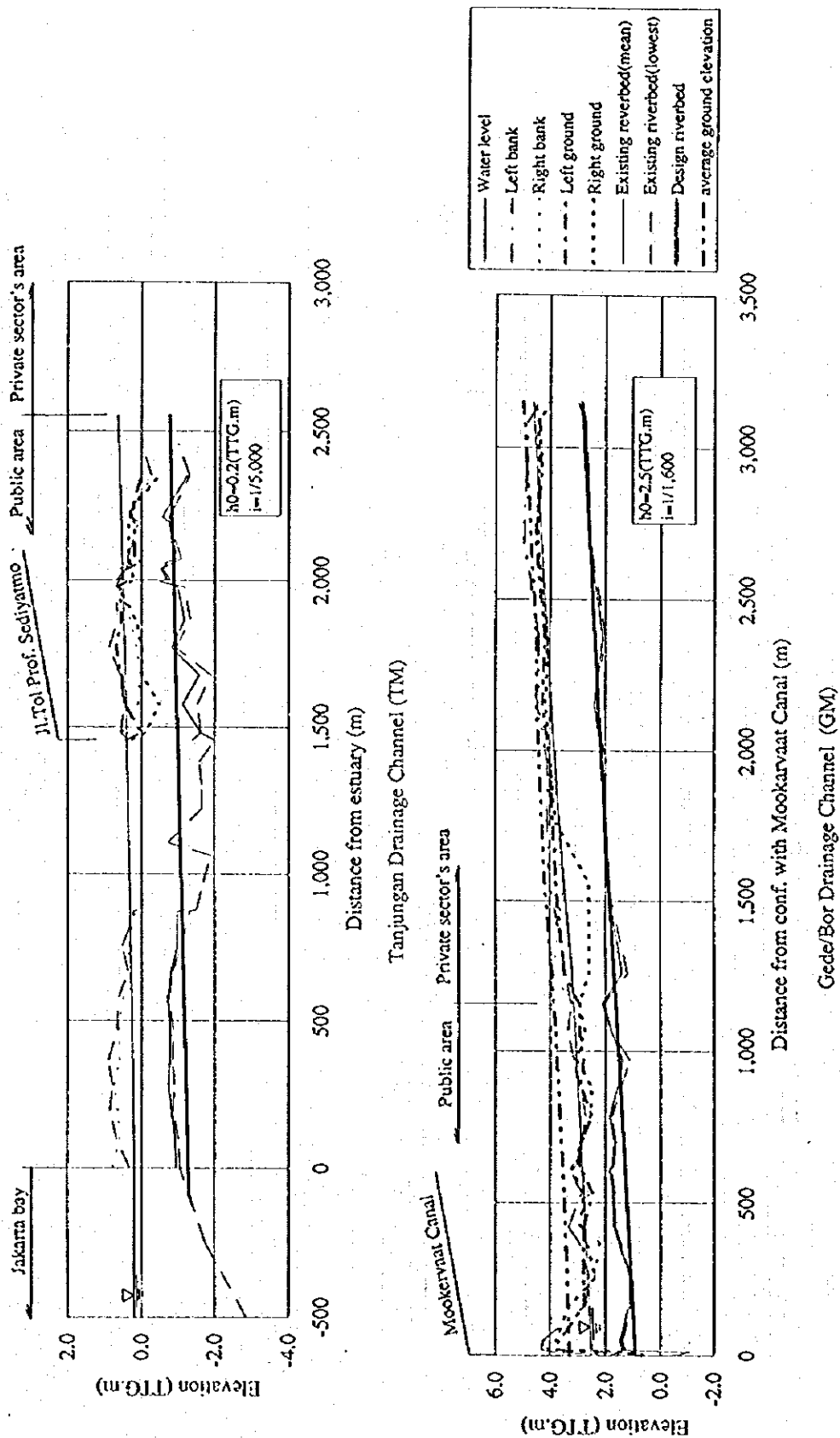


Fig 4.2.8 Longitudinal Profile of Proposed Drainage Channel(2/4)

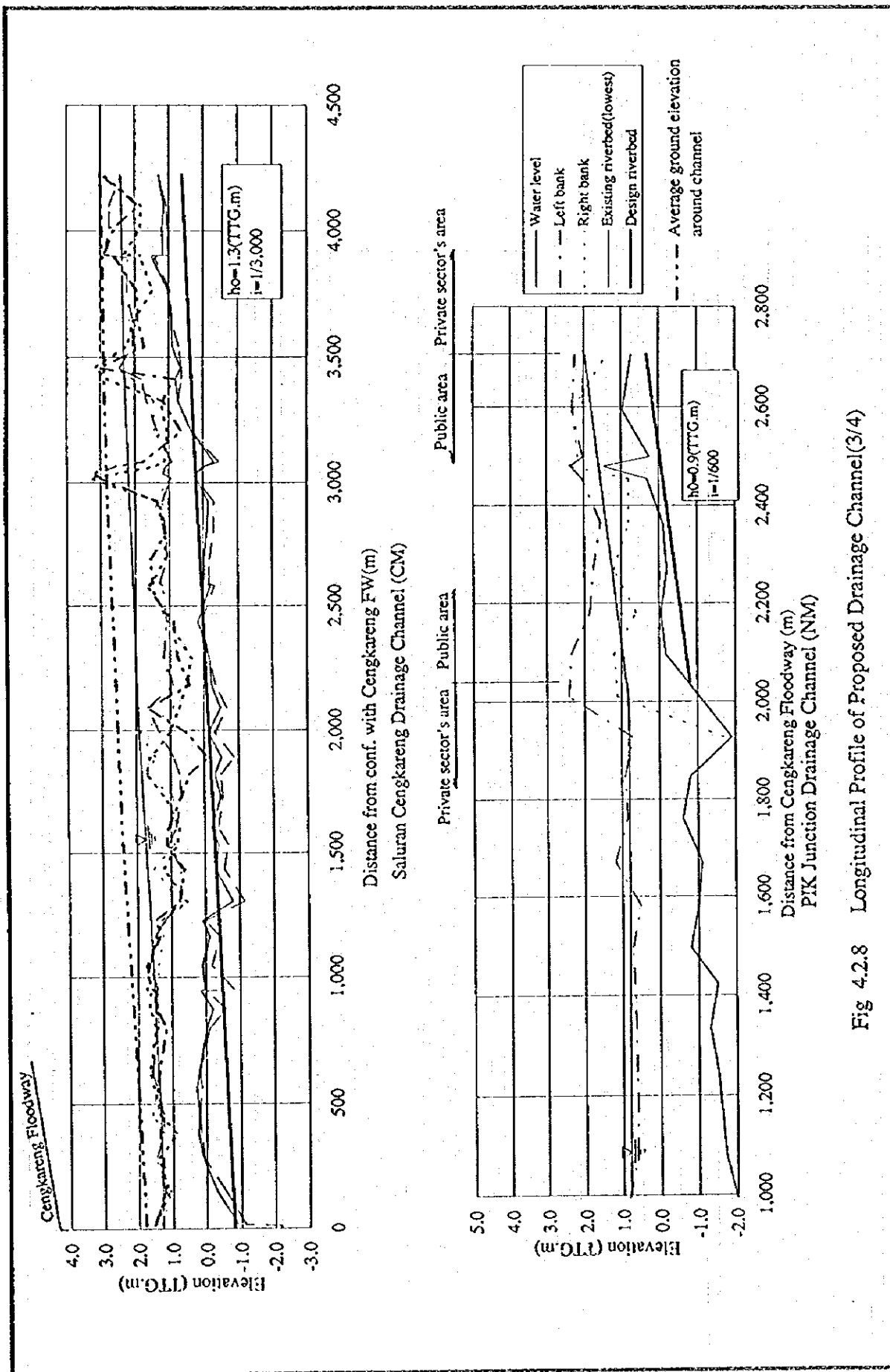


Fig 4.2.8 Longitudinal Profile of Proposed Drainage Channel(3/4)

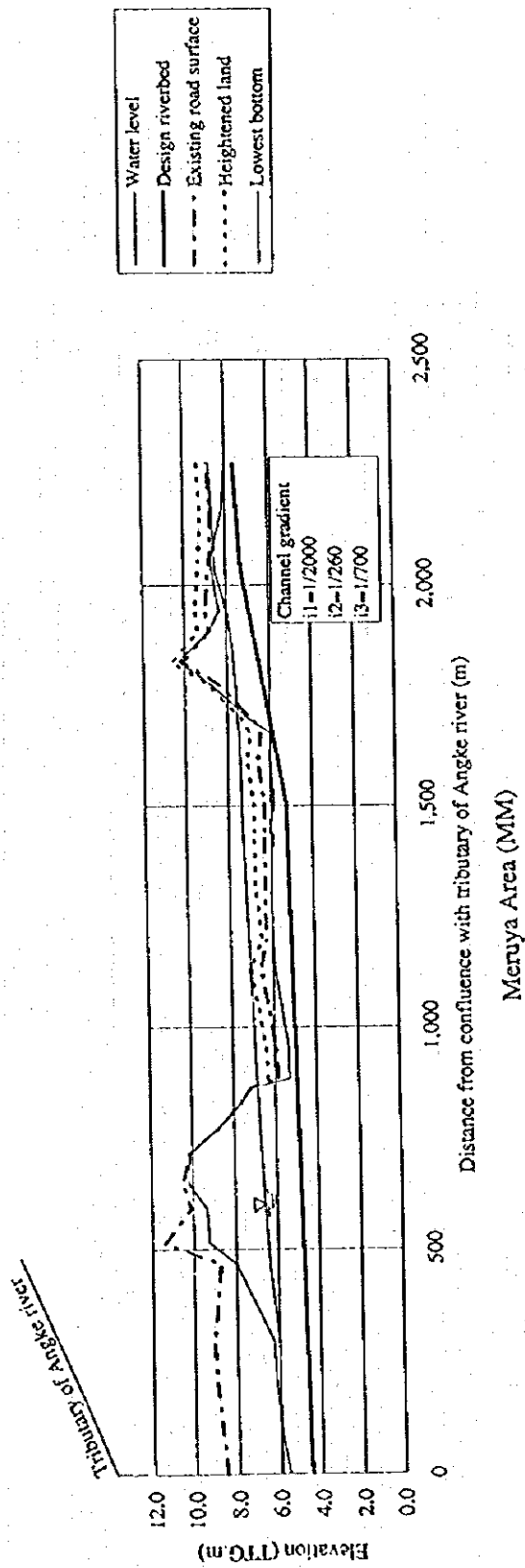
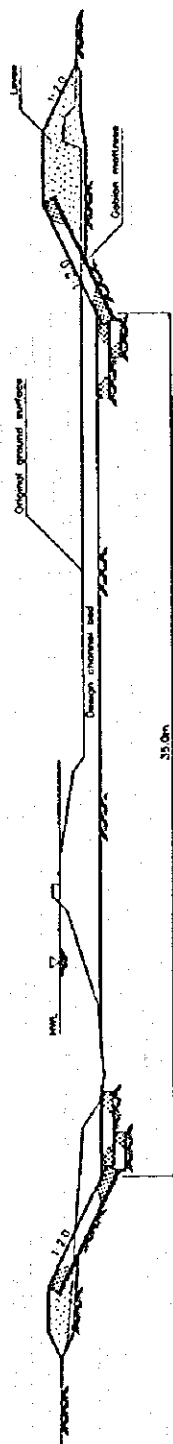
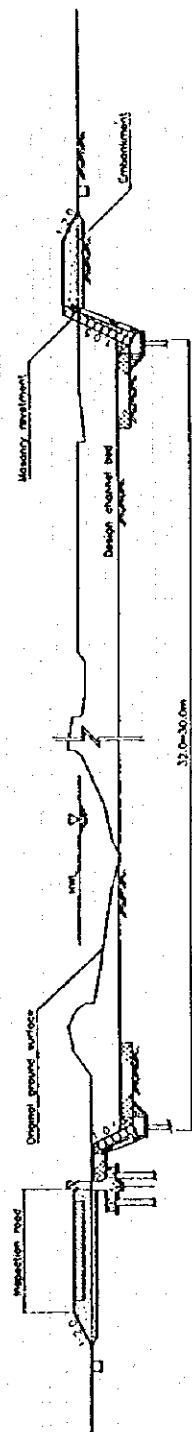


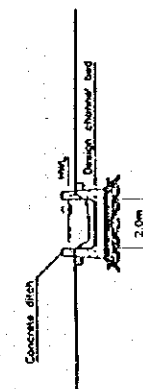
Fig 4.2.8 Longitudinal Profile of Proposed Drainage Channel(4/4)



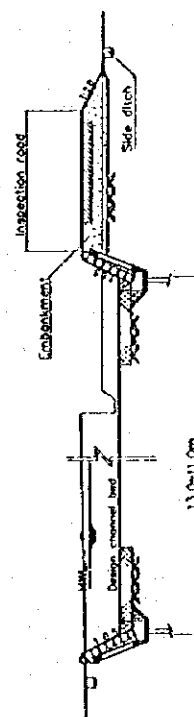
(a) Downstream of Jl. Tol Prof. Sediyatmo



(b) Upstream of Jl. Tol Prof. Sediyatmo
(1) Kamal Drainage Channel (Main)



(b) Upstream Stretch



(a) Downstream Stretch

(2) Kamal Drainage Channel (Branch)

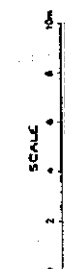
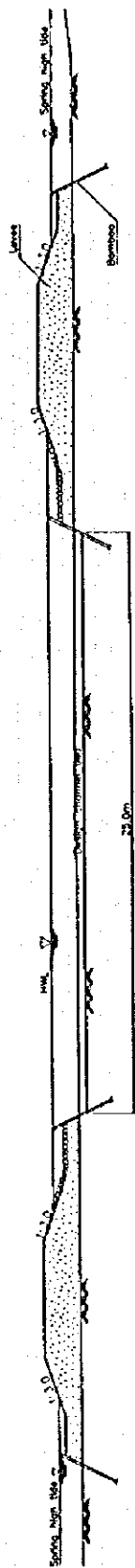
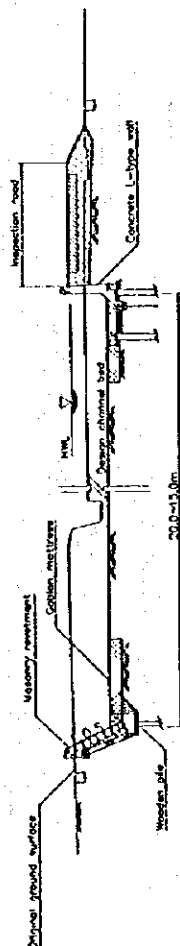


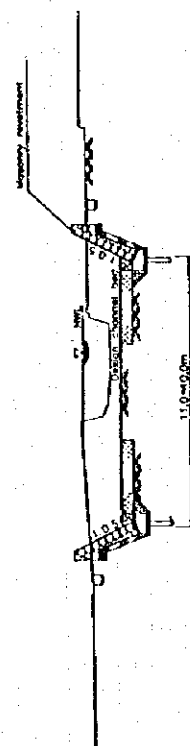
Fig 4.2.9 Typical Cross Sections (1/3)



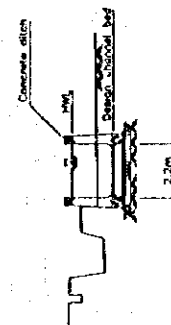
(a) Downstream of JI. Tol Prof. Sediyatmo



(b) Downstream of JI. Tol Prof. Sediyatmo
(3) Tanjung Drainage Channel



(4) Gede/Bor Drainage Channel



(5) PIK Junction Drainage Channel

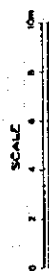
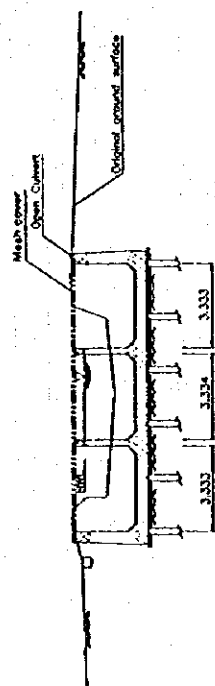
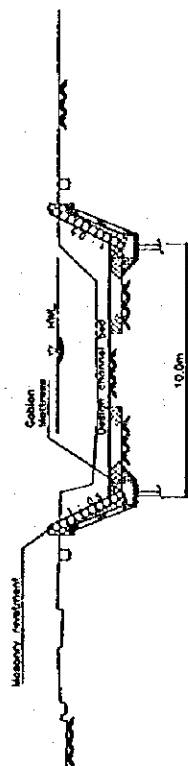


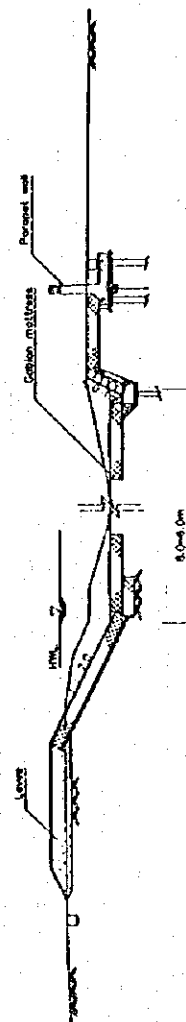
Fig 4.2.9 Typical Cross Sections (2/3)



(a) Open Culvert

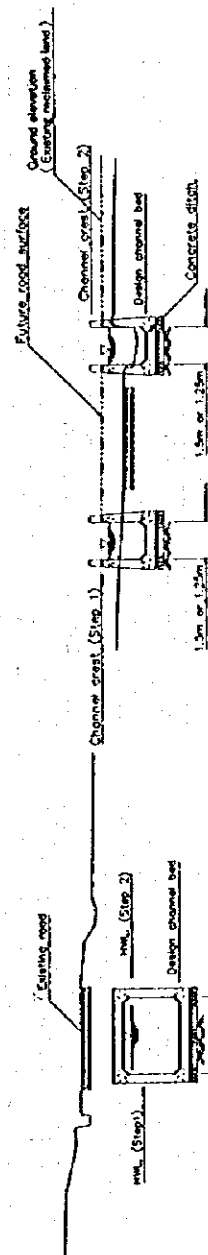


(b) Upstream of Open Culvert



(c) Upstream Stretch

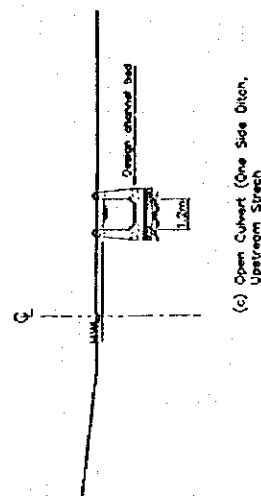
(6) Salaran Cengkong Drainage Channel



(a) Box Culvert

(b) Open Culvert (Both Side Drain, Stepwise Construction)

(7) Meruya Area



(c) Open Culvert (One Side Ditch, Upstream Stretch)

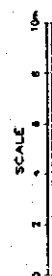


Fig 4.2.9 Typical Cross Sections (3/3)

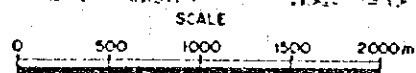
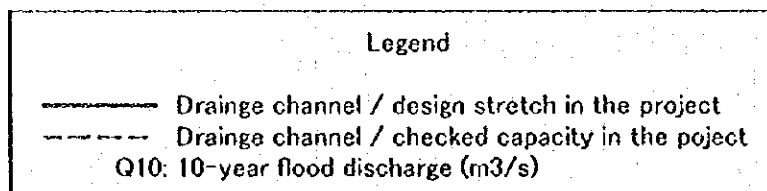
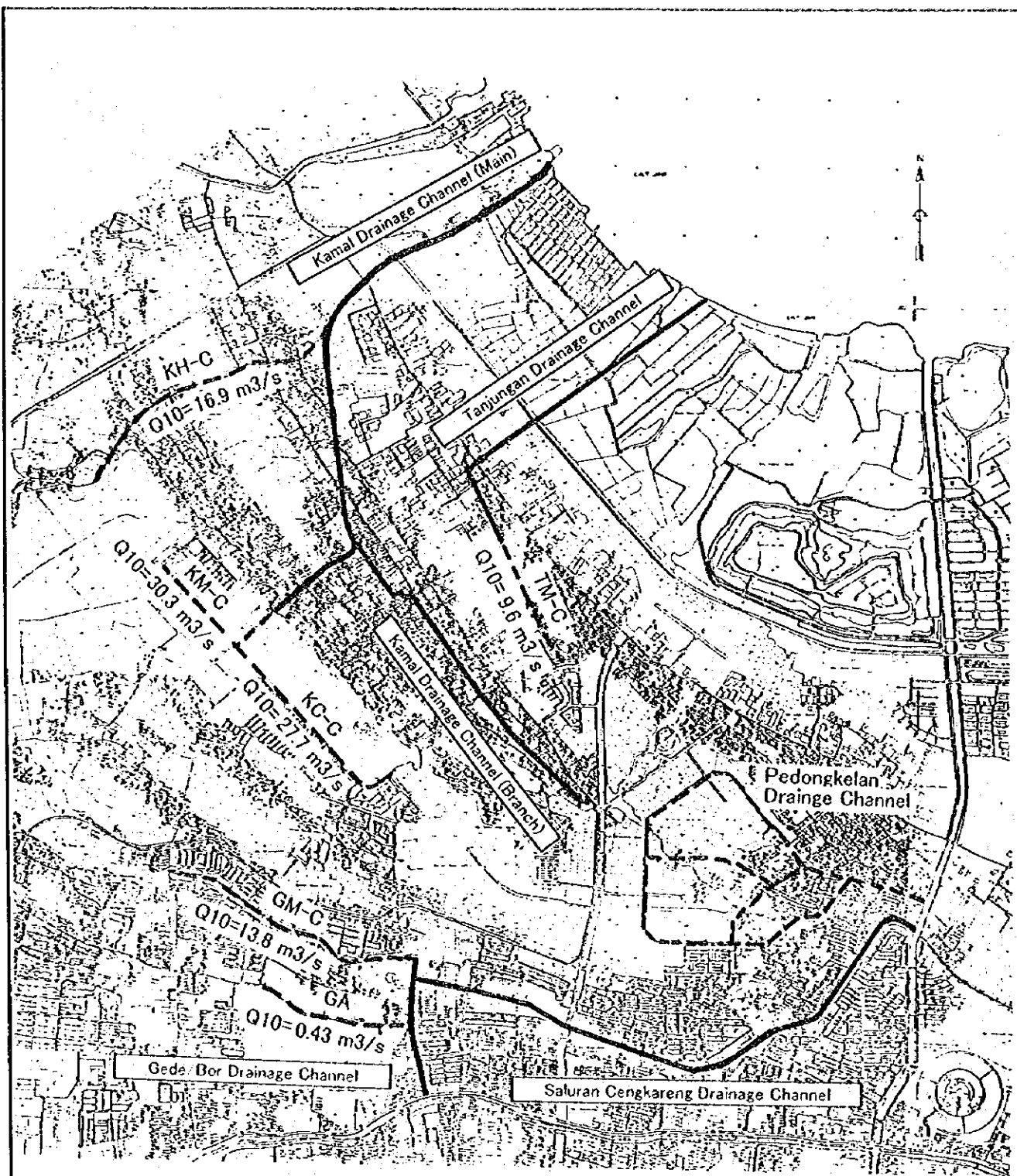


Fig 4.2.10 Locations of Drainage Channels for Capacity Check

