

Table B.1 Main Features of Existing Klong

KLONG NAME	LENGTH (km.)	WIDTH (m.)	WATER SURFACE $125 \times 10^3 \text{ m}^2$
K. PREM PRACHAKORN	10.0	10-15	125
K. BANG SUE	7.4	10-25	130
K. SAM SEN	11.2	10-25	196
K. HUAI KHWANG	5.0	4-8	30
K. SUA NOI	3.9	8-10	35
K. SONG KRATHIAM	3.6	8-10	33
K. BANG KHEN	10.4	10-25	182
K. PHADUNG KRUNGKASEM	5.0	20-30	125
K. BANG LUM PHU	1.5	15-30	34
K. ONG ANG	1.9	10-30	38
K. LOD	1.8	15-25	36
K. SA THORN	3.6	10-20	53
K. CHONG NON SRI	5.0	10-20	74
K. BANG NA	8.2	10-15	103
K. BANG OA	2.8	5-15	28
K. BANG CHAK	2.4	5-10	18
K. TOEY	3.2	10-30	64
K. PHRAKHANONG	11.6	30-45	435
K. BANG NANG CHIN	6.3	10-20	95
K. KHLET	5.4	5-10	41
K. TAN	3.5	20-30	88
K. KACHA	4.4	10-20	66
K. CHIK	1.5	10-15	19
K. HUA MAK	7.5	10-15	94
K. BAN MA	8.6	15-20	151
K. LO LAE	6.5	10-15	78
K. MAHANAK	2.5	20-30	63
K. SAEN SAEP	15.7	20-50	550
K. LAD PHRAO	12.3	30-35	400
K. LAD PLA KHAO	4.1	5-10	31
K. BANG KHUAD	3.6	5-10	27
K. NONG KHAEM	5.4	4-8	33
K. CHAN	9.1	15-25	182
K. BANG TOEY	8.7	10-30	174
K. TANANG	6.3	8-10	57
K. LAM CHIAK	2.7	10-15	34
K. RAHAD	6.5	5-15	65
TOTAL	219.1		3987

Table B.2 Main Features of Existing Pump and Gate on the Chao Phraya River Bank

Name	Owner-ship	Gate				Pump				
		Bottom elevation (m)	Crest elevation (m)	Width (m)	Gate Unit	Top of Suction Pipe E.L. (m)	Discharge Pipe E.L. (m)	Bed elevation (m)	Pump Unit	Capacity (m ³ /s)
1. K. Bang Khen P.S. (Old)	RID	-2.0	+2.3	6.0	1	-1.6	+1.0	-2.0	3	9
2. K. Bang Khen P.S. (New)	RID	-1.7	+2.5	6.0	1	-1.3	+1.8	-2.0	4	12
3. K. Bang Sue P.S.	DDS	-3.5	+2.5	6.0	2	-2.7	+1.82	-3.5	12	36
4. Sam Sen P.S.	DDS	-3.0	+2.5	6.0	2	-2.3	+1.8	-3.0	10	30
5. Tavate P.S.	DDS	-2.0	+2.5	6.0	2	-1.7	+1.8	-2.0	5	5
6. K. Bang Lum Phu Gate	DDS	-2.5	+2.4	2.5	1	-	-	-	-	-
7. Phra Pinklao Gate	DDS	-0.99	+1.97	4.60	1	-	-	-	-	-
8. Pak klong Talad Gate	DDS	-1.35	+2.17	4.4	1	-	-	-	-	-
9. K. Ong Ang Gate	DDS	-2.5	+2.4	2.5	1	-	-	-	-	-
10. K. Krung Kasem P.S.	DDS	-5.03	+3.53	2.75	1	-5.03	-2.03	-2.03	5	25
11. K. Sathorn P.S.	DDS	-2.03	+2.21	2.30	1	-4.33	+0.27	-2.53	2	6
12. K. Chong Non Sri P.S.	DDS	-2.5	+2.4	2.5	1	-2.3	+1.2	-2.5	3	2.5
13. Rama 4 P.S.	DDS	-1.0	-	-	-	-9.13	-4.53	-9.03	4	22
14. K. Toey P.S.	DDS	-	-	-	-	-	-	-	9	2.7
15. K. Phra Khanong P.S.	RID	-2.0	+2.5	6.0	6	-1.3	+2.0	-2.0	35	105
16. K. Chek P.S.	DDS	-1.0	+3.0	4.0	2	-2.33	+0.57	-1.03	2	6
17. K. Bang Chak Gate	DDS	-1.0	+3.0	4.0	2	-	-	-	-	-
18. K. Bang Oa P.S.	DDS	-1.0	+3.0	4.0	2	-2.33	+0.57	-1.13	6	18
19. K. Bang Na P.S.	DDS	-1.0	+3.0	4.0	2	-2.33	+0.57	-1.03	5	15

Note: Datum Elev. = 35.03 m MSL

Table B.3 Location of Rain Gauge

No.	Station	No.	Sation
1	Sanam Thephatsadin	21	Sam Senn Nok School
2	Saowapa	22	Khet Bang Kapi
3	Royal Thai A.F.A.S.	23	Takaeda Co.
4	Mater Dei School	24	Wat Bung Thonglang
5	Dept. of Livestock	25	Klong Kum School
6	Public Relations Sc.	26	Ramkhamhaeng U.
7	Central Hospital	27	Ban Lat Phrao School
8	KuaKarun Nursing C.	28	Wat Ratniyomthum Sc.
9	Min. of Education	29	Lak Si Bkk. Highway
10	Krungthorn Rattanalai	30	Bang Kaen Skin D. C.
11	Ban Manangkhasila	31	Police Aviation Div.
12	Thailand Iron Work	32	Off. of the A.E.O.P.
13	Yannavet Witthayakom	33	M.M.P. Sub Div. C.C.
14	Poh Chang Campus	34	Pin Charcon Village
15	Palace Official Club	39	Khet Rat Burana
16	Bk. Christian College		
17	Center for E. M.		
18	P. A. O. T.		
19	Thung Setthi Village		
20	Dept. of P. C.		

Table B.4 (1) Inflow and Outflow from and to Chao Phraya River

(unit: 10^3 m^3)

Gate and Pump Station	Jan. 28, 88 (12 hrs)				Feb. 3-4, 88 (24 hrs)			
	Inflow		Outflow		Inflow		Outflow	
	Gate	Pump	Gate	Pump	Gate	Pump	Gate	Pump
Bang Khen P.S. (Old)	132	-	0	0	138	-	12	0
Bang Khen P.S. (New)	-	-	-	-	-	-	-	-
Bang Sue P.S.	379	-	95	0	681	-	418	0
Sam Sen P.S.	99	-	57	0	200	-	240	0
Tavate P.S.	101	-	37	0	95	-	15	0
Bang Lum Phu Gate P.S.	212	-	8	-	169	-	15	-
Phra Pinkao Gate	0	-	0	-	0	-	0	-
Pak Klong Tarad Gate	28	-	0	-	103	-	6	-
Ong Ang Gate	108	-	0	0	200	-	0	-
Krung Kasem P.S.	0	-	0	432	0	-	0	806
Sathorn P.S.	0	-	0	0	0	-	0	281
Chong Non Sri P.S.			Not observed					
Rama 4 P.S.	0	-	0	216	0	-	0	234
Toey P.S.			Not observed					
Phra Khanong P.S.	0	-	155	324	0	-	455	454
Check P.S.	0	-	0	10	0	-	0	0
Bang Chak Gate	0	-	0	-	0	-	0	-
Bang Oa P.S.	0	-	0	0	0	-	0	0
Bang Na P.S.	26	-	55	0	92	-	96	0
Klong Toey P.S.	0	-	0	116	0	-	0	405
Sub-Total	1085	-	407	1098	1678	0	1257	2180
Total	1,085		1,505		1,678		3,437	

Table B.4 (2) Inflow and Outflow from and to Chao Phraya River

(unit: 10^3 m^3)

Gate and Pump Station	Feb. 11, 88 (12 hrs)				Feb. 18, 88 (24 hrs)			
	Inflow		Outflow		Inflow		Outflow	
	Gate	Pump	Gate	Pump	Gate	Pump	Gate	Pump
Bang Khen P.S. (Old)	124	-	0	0	155	-	0	0
Bang Khen P.S. (New)	-	-	-	-	-	-	-	-
Bang Sue P.S.	0	-	109	0	0	-	32	475
Sam Sen P.S.	11	-	91	0	0	-	44	302
Tavate P.S.	312	-	22	0	14	-	63	0
Bang Lum Phu Gate P.S.	271	-	30	-	108	-	1	-
Phra Pinkao Gate	0	-	0	-	0	-	0	-
Pak Klong Tarad Gate	39	-	34	-	58	-	0	-
Ong Ang Gate	37	-	55	-	15	-	0	-
Krung Kasem P.S.	0	-	0	484	0	-	0	616
Sathorn P.S.	0	-	0	65	0	-	0	130
Chong Non Sri P.S.			Not observed					
Rama 4 P.S.	0	-	0	216	0	-	0	216
Toey P.S.			Not observed					
Phra Khanong P.S.	0	-	0	540	0	-	0	442
Check P.S.	0	-	0	0	0	-	0	0
Bang Chak Gate	0	-	0	-	0	-	0	-
Bang Oa P.S.	0	-	0	0	0	-	0	0
Bang Na P.S.	37	-	83	0	73	-	-	0
Klong Toey P.S.	0	-	0	92	0	-	0	80
Sub-Total	831	0	424	1397	423	0	140	2262
Total	831		1,824		423		2,402	

Table B.4 (3) Inflow and Outflow from and to Chao Phraya River

(unit: 10^3 m^3)

Gate and Pump Station	Jul. 9-10, 88 (24 hrs)				Jul. 16-17, 88 (24 hrs)			
	Inflow		Outflow		Inflow		Outflow	
	Gate	Pump	Gate	Pump	Gate	Pump	Gate	Pump
Bang Khen P.S. (Old)	139	-	16	0	216	-	9	0
Bang Khen P.S. (New)	-	-	-	-	-	-	-	-
Bang Sue P.S.	11	-	291	0	0	-	256	648
Sam Sen P.S.	12	-	211	0	0	-	139	43
Tavate P.S.	270	-	0	0	0	-	0	0
Bang Lum Phu Gate P.S.	262	-	0	-	1	-	0	-
Phra Pinkao Gate	0	-	0	-	0	-	0	-
Pak Klong Tarad Gate	17	-	0	-	25	-	0	-
Ong Ang Gate	191	-	10	0	0	-	0	-
Krung Kasem P.S.	0	-	0	432	0	-	0	787
Sathorn P.S.	0	-	0	0	0	-	0	0
Chong Non Sri P.S.			Not observed					
Rama 4 P.S.	0	-	0	492	0	-	0	492
Toey P.S.			Not observed					
Phra Khanong P.S.	0	-	216	5076	0	-	317	3921
Check P.S.	0	-	0	0	0	-	0	0
Bang Chak Gate	0	-	0	-	0	-	0	-
Bang Oa P.S.	0	-	0	0	0	-	0	0
Bang Na P.S.	0	-	74	22	0	-	209	0
Klong Toey P.S.	0	-	-	279	0	-	0	203
Sub-Total	902	-	818	6301	242	-	930	6094
Total	902		7,119		242		7,024	

Table B.5 Water Balance Calculation

(Unit: 10^3 m^3)

Season		Dry Season				Rainy Season	
		Jan. 28 24 hrs	Feb. 3-4 24 hrs	Feb. 11 24 hrs	Feb. 18 24 hrs	Jul.9-10 24 hrs	Jul.16-17 24 hrs
Income	Water Supply	980	980	980	980	980	980
	Rainfall	0	0	0	0	0	1,400
	Inflow from Outer Area	691	691	691	691	3,024	3,024
	Inflow from Chao Phraya River	2,170	1,678	1,668	846	902	242
	Sub-Total	3,841	3,349	3,339	2,517	4,906	5,646
Outgo	Evapo-transpiration	697	697	697	697	1,330	1,330
	Outflow to Chao Phraya River	3,010	3,437	3,648	4,804	7,119	7,024
	Sub-Total	3,707	4,134	4,345	5,501	8,449	8,354
Balance		+134	-785	-1,006	-2,984	-3,543	-2,708

Table B.6 Typical Monthly Water Balance

(Unit: million m^3)

Season	Dry Season			Rainy Season		
	Income	Outgo	Remarks	Income	Outgo	Remarks
Water Supply	29			29		
Rainfall	12		31.5 mm/month	82		215 mm/month
Evapo-transpiration		21	55 mm/month		40	105 mm/month
Inflow from Outer Area	26		10 m^3/s	91		35 m^3/s
Inflow from Chao Phraya River	58			7		
Outflow to Chao Phraya River		104			169	
Total	125	125		209	209	

Table B.7 Existing Condition of Klong Embankment

Klong Name	Length of Klong (km)	Length of Revetment (km)	Completion (%)
K. Prem Prachakorn	10.0	12.1	61
K. Bang Sue	7.4	6.4	43
K. Sam Sen	11.2	10.0	44
K. Huai Khwang	5.0	5.7	57
K. Sua Noi	3.9	0	0
K. Song Krathiam	3.6	0.3	4
K. Bang Khen	10.4	0	0
K. Phadung Krungkaset	5.0	10.0	100
K. Bang Lum Phu	1.5	3.0	100
K. Ong Ang	1.9	3.7	97
K. Lod	1.8	3.4	94
K. Sathorn	3.6	7.0	97
K. Chong Non Sri	5.0	3.4	34
K. Bang Na	8.2	0.5	3
K. Bang Oa	2.8	2.2	39
K. Bang Chak	2.4	2.0	42
K. Toey	3.2	0.2	3
K. Phrakhanong	11.6	7.8	34
K. Bang Nang Chin	6.3	1.0	8
K. Khlet	5.4	0.8	7
K. Tan	3.5	2.6	37
K. Kacha	4.4	0.6	5
K. Chik	1.5		
K. Hua Mak	7.5	3.8	25
K. Ban Ma	8.6	0	0
K. Lo Lae	6.5	0	0
K. Mahanak	2.5	3.8	76
K. Saen Saep	15.7	20.7	66
K. Lad Phrao	12.3	1.5	6
K. Lad Pla Khao	4.1	0	0
K. Bang Khuad	3.6	0	0
K. Nong Khaem	5.4	0	0
K. Chan	9.1	0	0
K. Bang Toey	8.7	0	0
K. Tanang	6.3	0	0
K. Lam Chiak	2.7	0	0
K. Rahad	6.5	0	0
Total	219.1	112.5	26

Table B.8 (1) Operation Record of Pump and Gate

No.	Name	Date																
		7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	K. Bang Khen P.S. (Old)	Gate																
2	K. Bang Khen P.S. (New)	Pump																
3	K. Bang Sue P.S.	Gate																
4	K. Sam Sen P.S.	Pump																
5	Tavate P.S.	Gate																
6	K. Bang Lum Phu Gate	Gate																
7	Phra Pinklao Gate	Gate																
8	Pak Klong Talad Gate	Gate																
9	K. Ong Ang Gate	Gate																
10	K. Krung Kasem P.S.	Pump																
11	K. Sathorn P.S.	Gate																
13	Rama 4 P.S.	Pump																
15	K. Phra Khanong P.S.	Gate																
16	K. Chek P.S.	Pump																
17	K. Bang Chak Gate	Gate																
18	K. Bang Oa P.S.	Pump																
19	K. Bang Na P.S.	Pump																

Note: Operation Record of 12, K. Chong Nen Sri P.S. and 14, K. Toey P.S. are not available.

Table B.8 (2) Operation Record of Pump and Gate

No.	Name	9th - 10th July 1988																							
		Date Time	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	1	2	3	4	5	
1	K. Bang Khen P.S. (Old)	Gate																							
		Pump																							
2	K. Bang Khen P.S. (New)	Gate																							
		Pump																							
3	K. Bang Sue P.S.	Gate																							
		Pump																							
4	K. Sam Sen P.S.	Gate																							
		Pump																							
5	Tavate P.S.	Gate																							
		Pump																							
6	K. Bang Lum Phu Gate	Gate																							
7	Phra Pinklao Gate	Gate																							
8	Pak Klong Talad Gate	Gate																							
		Pump																							
9	K. Ong Ang Gate	Gate																							
10	K. Krung Kasem P.S.	Gate																							
		Pump																							
11	K. Sathorn P.S.	Gate																							
		Pump																							
13	Rama 4 P.S.	Gate																							
		Pump																							
15	K. Phra Khanong P.S.	Gate																							
		Pump																							
16	K. Chek P.S.	Gate																							
		Pump																							
17	K. Bang Chak Gate	Gate																							
18	K. Bang Oa P.S.	Gate																							
		Pump																							
19	K. Bang Na P.S.	Gate																							
		Pump																							

Note: Operation Record of 12. K. Chong Non Sri P.S. and 14. K. Toey P.S. are not available.

Table B.8 (3) Operation Record of Pump and Gate

No.	Name	Date	16th - 17th July 1988															
			7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	K. Bang Khen P.S. (Old)	Time																
		Gate																
		Pump																
2	K. Bang Khen P.S. (New)	Gate																
		Pump																
		Gate																
3	K. Bang Sue P.S.	Gate																
		Pump	9 m ³ /s	12 m ³ /s														
		Gate																
4	K. Sam Sen P.S.	Gate																
		Pump	9 m ³ /s	12 m ³ /s														
		Gate																
5	Tavate P.S.	Gate																
		Pump																
		Gate																
6	K. Bang Lum Phu Gate	Gate																
		Pump																
		Gate																
7	Phra Pinklao Gate	Gate																
		Pump																
		Gate																
8	Pak Klom Talad Gate	Gate																
		Pump																
		Gate																
9	K. Ong Ang Gate	Gate																
		Pump																
		Gate																
10	K. Krung Kasem P.S.	Gate																
		Pump																
		Gate																
11	K. Sathorn P.S.	Gate																
		Pump																
		Gate																
13	Rama 4 P.S.	Gate																
		Pump																
		Gate																
15	K. Phra Khanong P.S.	Gate																
		Pump																
		Gate																
16	K. Chek P.S.	Gate																
		Pump																
		Gate																
17	K. Bang Chak Gate	Gate																
		Pump																
		Gate																
18	K. Bang Oa P.S.	Gate																
		Pump																
		Gate																
19	K. Bang Na P.S.	Gate																
		Pump																
		Gate																

Note: Operation Record of 12, K. Chong Non Sri P.S. and 14, K. Toey P.S. are not available.

Table B.9 (1) Questionnaire on Purification of Klong Water

A.Face Items

1. Your Address
 - 1) Dusit 2) Phra Nakhon 3) Pom Prab Sattru Pai 4) Sampanthawong
 - 5) Pathumwan 6) Bang Rak 7) Phya Thai 8) Huai Khwang
 - 9) Phra Khanong 10) Bang Kapi 11) Bang Khen 12) Yan Nawa
2. Your Age: (year)
3. Your Occupation
 - 1) Private Employee 2) Government Employee
 - 3) Private Owner
 - 3.1) Retail Shop Owner 3.4) Owner of Bank
 - 3.2) Restaurant/Hotel Owner 3.5) Owner of Transport Company
 - 3.3) Factory Owner 3.6) Owner/Trader of Real Estates
 - 4) Others (.....)
4. Your Education
 - 1) No Schooling 2) Primary School 3) Middle School
 - 4) High School 5) College & University 6) Others (.....)
5. Number of Household Members : (.....)
6. Monthly Household Income (Baht):
 - 1) less than 1,000 2) 1,001 - 2,000 3) 2,001 - 3,000 4) 3,001 - 4,000
 - 5) 4,001 - 5,000 6) 5,001 - 6,000 7) 6,001 - 7,000 8) 7,001 - 10,000
 - 9) 10,001 - 20,000 10) 20,001 - 50,000 11) over 50,000

B. Questions

1. Importance of Klong Water Purification.

Do you think the purification of klong water is important to you ?

- 1) Yes 2) No

2. Existing Uses of Klongs.

2.1 Uses of Klong

For what purposes does your family now use klongs around your address ?

Also, what are the conditions of the klongs around your address? Please check the pertinent items below.

- (1) Inland Water Transport
- (2) Washing & Bathing
- (3) Drinking
- (4) Irrigation and Agricultural Use
- (5) Recreation Use (Swimming and Fishing)
- (6) Buying from Floating Market
- (7) Sewerage
- (8) Garbage Dumping
- (9) Others (.....)

2.2 Your house is near Klong

2.3 Conditions of the Klong near Your House.

- (1) Natural
- (2) Obnoxious Odour and Eye-Sore (Filthy & Dark-Colored Water)
- (3) Breeding Ground of Mosquitoes & Germs
- (4) Others (.....)

3. Comparative Position of Klong Water Purification Project.

Each of the projects listed below is considered to be important and urgent to enhance basic amenities of the citizens of Bangkok. Please fill out the parentheses with sequential numbers in the order of importance.

- (a) Purification of Klong Water (.....)
- (b) Mitigation of Floods (.....)
- (c) New Construction/Expansion of Water Supply System (.....)
- (d) New Construction/Expansion of Sewerage System (.....)
- (e) New Construction/Improvement of Roads (.....)

4. Overall Effects of Klong Water Purification.

Positive effects of the purification of klong water are estimated as listed below. Please check the items you think important (up to five items.)

- (a) Contribution to the improvement of hygiene/health and to the reduction in diseases for the citizens of Bangkok
- (b) Revival of inland water navigation service on klong network
- (c) Revival of floating market on klong network
- (d) Recovery of ecology (fish & plants) in klong water
- (e) Removal of obnoxious odour
- (f) Disappearance of repulsive dark water and regaining natural scenic beauty
- (g) Regaining the value and position of klongs as tourism resources
- (h) Using klong water for living (drinking, washing, bathing, etc.)
- (i) Using klong water for irrigation
- (j) Revival of inland water fishery
- (k) Regaining the status and functions of klongs as a place for recreational activities (swimming, fishing, playing, etc.)

5. Effect on Transport

5.1 Have you ever travelled along the klongs in Bangkok?

- (1) Yes
- (2) No

5.2 If the answer is "yes", for what purposes?

- (1) Commuting
- (2) Shopping or Others
- (3) Sight-Seeing

5.3 How many times does your family use inland water navigation service on klong network on average per week for commuting, shopping and other purposes ? Please fill out the "existing" columns in the below table.

Transport Means	Times per week			
	Commuting		Shopping/Others	
	Existing	Future	Existing	Future
Inland water navigation service on klong water network.				

5.4 In the event klong water is purified and navigation service on klong network gets busy, how many times will your family use klong navigation service on average per week ? Please fill out the "future" columns in the above table.

5.5 Also, which transport means in the below will be affected most by the revival of klong navigation service ? Check one item.

(1) Inland Water Transportation on Chao Phraya River

(2) Bus (3) Sam Lor (4) See Lor (5) Taxi

(6) Own/Company Car (7) Others (.....)

5.6 For what reasons do you use klong navigation service ? Please fill out the parentheses with sequential numbers in the order of importance.

(a) Accessibility (.....) (b) Low Charge (.....)

(c) Rapidity (.....) (d) Comfortability (.....)

6. Effect on Market

6.1 Have you ever bought fruit and vegetable from floating market?

- (1) Yes, seldom (2) Yes, once in a while (3) No

6.2 How many times does your family buy fruit, vegetables and the like at the floating market on klong network on average per week? Please fill out the "existing" column in the below table.

Place of Fruit/Vegetable	Times per Week	
	Existing	Future
Shopping		
Floating market on klong network		

6.3 In the event klong water is purified and floating market on klong network gets busy how many times will your family buy from klong floating market on average per week? Please fill out the "future" column in the above table.

6.4 For what reasons do you buy from klong floating market? Please fill out the parentheses with sequential numbers in the order of importance.

(a) Accessibility (.....) (b) Low Price (.....)

(c) Fresh Products (.....) (d) Informality (.....)

6.5 Also, which shop in the below will be affected most by the revival of klong floating market? Check one item.

(1) Open - Air Fruit Market (2) Fruit Shop (3) Super Market

(4) Department Store (5) Others (.....)

7. Effect on Land Price

7.1 What is the purchase price of housing lot per square metre around your address? (.....Baht)

7.2 The purification of klong water is expected to contribute to the rise in the purchase price of housing lot. Once klong water is treated and cleaned, do you think the price will be increased?

(1) Yes

(2) No

7.3 If the answer is yes, to what extent will the purchase price of housing lot will rise according to your estimation ? (.....%)

8. Willingness to Pay

BMA will have to invest and spend a lot of money in order to implement and maintain the purification of klong water. In case you have to pay for the purification of klong water as a tax, what will be the maximum amount you are willing to pay per month ? Check the nearest one.

- 1) No 2) 5 Baht 3) 10 Baht 4) 15 Baht 5) 20 Baht
6) 30 Baht 7) 40 Baht 8) 50 Baht 9) 70 Baht 10) 100 Baht
11) Others (.....Baht)

Table B.9 (2) Questionnaire for Tourists

A. Face Items

1. Your Nationality : (.....)
2. Your Age : (.....years)
3. Your Sex : 1) Male 2) Female
4. Purpose of Visit
1) Holiday 2) Business 3) Official 4) Others (.....)
5. Marriage status : 1) Single 2) Married

B. Questions

1. How many times have you come to Bangkok for the last five years including this visit ? (.....times)
2. How many times are you likely to visit Bangkok in the next five years ? (.....times)
3. Have you ever noticed that the water of canals crisscrossing the City of Bangkok is mostly filthy, dark-coloured and stinking ?
1) Yes 2) No
4. If the answer is "1) Yes", do you think this state of affairs is one great setback to the City of Bangkok in attracting foreign visitors ?
a) Yes b) No
5. To the person who answered "a) Yes" : When canal water is made clean and clear, and as a result when natural scenic beauty surrounding canals is restored, and along with it when transport and floating market on canal network are revived, would you like to visit Bangkok oftener than before ?
A) Yes B) No
6. To the person who answered "A) Yes" : Supposing canal water is made clean and clear just now, how many times would you like to visit Bangkok in the next five years ? (.....times)

* Thank you very much for your cooperation.

Table B.10

Summary of Results
of
Questionnaire on Purification of Klong Water

* Total number of samples : 463

A. Face Items			
1. Address (%)	2) Phra Nakhon	3) Pom Prab Sattru Pai	4) Sampantawong
14.5	5.0	1.7	6.7
5) Pathumwan	6) Bang Pak	7) Phya Thai	8) Huai Khwang
6.5	2.4	11.2	3.9
9) Phra Khanong	10) Bang Kapi	11) Bang Khen	12) Yan Nawa
16.2	9.9	10.2	9.7
13) No Answer			
2.1			
2. Age (Average) : 38 Years			
3. Occupation (%)			
1) Private Employee	2) Government Employee	3) Private Owner	4) Others
36.3	9.9	52.7	19.2
5) No Answer			
0.8			

Notes: 1/ = owner of retail shop, hotel, transport company, factory, etc.

2/ = housewife, student or unemployed

- Continued -

4. Education (%)			
1) No Schooling	2) Primary School	3) Middle School	4) High School
5.2	47.7	16.4	9.5
5) College/University 6) Others 7) No Answer			
17.5	1.5	2.2	
5. Number of Household Members (average) : 5.7			
6. Monthly Household Income			
1) Composition by Income Group (%)			
(1) Less than Baht 1,000	(2) Baht 1,001-2,000	(3) Baht 2,001-3,000	(4) Baht 3,001-4,000
3.2	9.7	21.2	11.9
(5) Baht 4,001-5,000	(6) Baht 5,001-6,000	(7) Baht 6,001-7,000	(8) Baht 7,001-10,000
9.7	15.8	6.9	10.6
(9) Baht 10,001-20,000	(10) Baht 20,001-50,000	(11) over Baht 50,000	(12) No Answer
7.8	1.1	0.2	1.9
2) Average : Baht 5,574			
B. Questions			
1. Importance of Klong Water Purification (%)			
1) Yes : 90.3	2) No : 7.8	3) No Answer : 1.9	
2. Existing Uses and Conditions of Klongs (Percentage of Those Who Answered in the Affirmative)			
2.1 Uses of Klongs			
1) Inland water Navigation			:18.4
2) Washing & Bathing			:19.7
3) Drinking			: 7.1
4) Irrigation and Agricultural Use			: 8.2
5) Recreation Use (Swimming and Fishing)			: 9.9
6) Buying from Floating Market			:14.5
7) Sewerage			:52.9
8) Garbage Dumping			: 9.9
9) No Use			:25.5

2) Average Frequency of Use ^{1/}

Transport Means	Times per week	
	Existing	Future
Inland water navigation Service on Klong water network.	4.00	4.32
Commuting	4.80	5.56
Shopping / Others		

Notes : ^{1/} = by regular users, on household basis
^{2/} = when Klong water is purified

3) Effects of Klong Water Purification on Other Transports (Percentage of Those Who Answered That a Particular Transport would Be Affected)

	(1) Transport on Chao Phraya River	(2) Bus	(3) Sam Lor	(4) See Lor
2.2	16.0	0.0	0.2	
(5) Taxi	(6) Own/Company Car	(7) Others		
0.2	2.2	2.6		

Note : ^{1/} = negative effects

4) Reasons for Using Klong Transport

(1) Percentage of Those who Answered : 15.8

(2) Percentage of Those who Answered That a Particular Reason was the Most Important

(a) Accessibility	(b) Low Charge	(c) Rapidity	(d) Comfortability
5.8	19.7	34.3	40.2

2.2 Conditions of Klongs

- 1) Natural : 6.5
- 2) Obnoxious Odour and Eye-Sore (Filthy & Dark-Colored Water) : 83.4
- 3) Breeding Ground of Mosquitoes & Germs : 52.3
- 3. Comparative Positions of Major Projects (Percentage of Those Who Answered That a Particular Project was the Most Important)
 - a) Purification of Klong Water : 25.0
 - b) Mitigation of Floods : 29.2
 - c) New Construction / Expansion of Water Supply System : 17.5
 - d) New Construction / Expansion of Sewerage System : 20.7
 - e) New Construction / Improvement of Roads : 16.6

4. Effects of Klong Water Purification (Percentage of Those Who Answered That a Particular Effect was Important)

- a) Contribution to the improvement of hygiene/health and to the reduction in diseases for the citizens of Bangkok: 70.8
- b) Revival of inland water navigation service on klong network : 21.4
- c) Revival of floating market on klong network : 9.5
- d) Recovery of ecology (fish & plants) in klong water : 41.9
- e) Removal of obnoxious odour : 87.7
- f) Disappearance of repulsive dark water and regaining natural scenic beauty : 55.5
- g) Regaining the value and position of klongs as tourism resources : 8.9
- h) Using klong water for living (drinking, washing, bathing, etc.) : 61.1
- i) Using klong water for irrigation : 16.2
- j) Revival of inland water fishery : 3.0
- k) Regaining the status and functions of klongs as a place for recreational activities (swimming, fishing, playing, etc.) : 39.3

5. Effects on Transport

5.1 Experience of Travelling on Klongs (%)

- 1) Yes : 35.2
- 2) No : 62.6
- 3) No Answer : 2.2

5.2 Purposes of Klong Travelling (%)

- 1) Commuting : 71.5
- 2) Shopping : 8.3
- 3) Sight-Seeing : 20.2

5.3 Frequency of Existing and Future Use of Klong Transport

- 1) Percentage of Regular Users
- (1) Commuting : 6.9
- (2) Shopping / Others : 5.4

6. Effects on Market

6.1 Experience of Buying at Klong Floating Market. (%)

1) Yes : 97.2 2) No : 0.0 3) No Answer : 2.8

6.2 Frequency of Existing and Future Use of Klong Floating Market

1) Percentage of Regular Users : 29.8

2) Average Frequency of Use

Place of Fruit / Vegetable	Times per Week	
	Existing	Future
Shopping		
Floating Market on Klong Network	2.86	3.88

Notes : $\frac{1}{1}$ = by regular users, on household basis
 $\frac{2}{2}$ = when klong water is purified

3) Effects of Klong Water Purification on Other Markets / Shops (Percentage of Those who Answered That a Particular Market / Shop would Be Affected)

(1) Open-Air Fruit Market	83.5
(2) Fruit Shop	11.1
(3) Super Market	0.3
(4) Department Store	0.3
(5) Others	4.8

Note : $\frac{1}{1}$ = negative effects

4) Reasons for Using Klong Floating Market

(1) Percentage of Those Who Answered : 33.1

(2) Percentage of Those Who Answered That a Particular Reason Was the Most Important

(a) Accessibility	59.2
(b) Low Price	15.5
(c) Fresh Products	16.8
(d) Informality	8.5

7. Effects on Land Price

7.1 Purchase Price of Housing Lot per m² (Average) : Baht 2,104

7.2 Do you Think Price of Housing Lot will Rise as a Result of Klong Water Purification ? (%)

1) Yes : 38.9 2) No : 38.0 3) No Answer : 23.1

7.3 Estimated Percentage of Rise in Housing Lot Price after Klong Water Purification

1) Percentage of Those Who Answered : 21.2

2) Average Percentage of Rise : 24.0

8. Willingness to Pay for Purification of Klong Water

1) Are You Willing ? (%)

(1) Yes : 72.4 (2) No : 17.7 (3) No Answer : 9.9

2) Average Amount of Payment per Month : Baht 18 $\frac{1}{2}$

Notes : $\frac{1}{1}$ = on household basis
 $\frac{2}{2}$ = by those who are willing to pay

Table B.11

Summary of Results
of
Questionnaire for Tourists

Total number of samples : 276

A. Face Items

1. Nationality (%)			
1) U.K.	2) U.S.A.	3) France	4) West Germany
18.1	12.7	8.3	8.3

5) Australia	6) Netherlands	7) Japan	8) Switzerland
6.9	6.9	5.8	4.3

9) Canada	10) Israel	11) New Zealand	12) Sweden
4.0	3.3	2.9	2.9

13) Denmark	14) Others		
2.5	13.1		

2. Age (Average) : 30 Years

3. Sex (%)

1) Male : 58.7 2) Female : 41.3

4. Purpose of Visit (%)

1) Holiday	2) Business	3) Official	4) Others	5) No Answer
87.3	6.2	2.9	2.5	1.1

5. Marriage Status (%)

1) Single : 70.6 2) Married : 27.2 3) No Answer : 2.2

B. Questions

1. Frequency of Visits to Bangkok in the Past

1) Percentage of Those Who Answered : 89.3

2) Average Frequency of Visits to Bangkok in the Last 5 Years : 1.67 Times

Note : 1/ = by those who answered

2. Frequency of Visits to Bangkok in Future

1) Percentage of Those Who Answered : 67.0

2) Average Frequency of Visits to Bangkok in the Next 5 Years : 2.04 Times

Note : 1/ = estimation by those who answered

3. Noticing the Filthy, Dark-Coloured, Stinking Water of Klongs(2)

1) Yes : 86.6 2) No : 13.4

4. State of Klong Water is a Setback in Attracting Foreign

1/ Visitors (%)

1) Yes : 44.6 2) No : 55.4

Note : 1/ = to those who answered in affirmative to Q.3

5. Visiting Bangkok Oftener in Future if Klong Water is

1/ Purified (%)

1) Yes : 75.3 2) No : 24.7

Note : 1/ = to those who answered in affirmative to Q.4

6. Revised Frequency of Visits to Bangkok in Future on Condition

1/ Klong Water is Purified : 3.42 Times

Note : 1/ = by those who answered in affirmative to Q.5

Table B.12

Relationship between Present Use for Klongs and Citizen's Choice of Further Projects

- based on questionnaire -

Klong	1. Bang Khen	2. Bang Sue	3. Sam Sen	4. Prom Prachakorn
1/ X	100	64	56	25
2/ Y	65	30	59	38
Klong	5. Phadung Krung Kasem	6. Bang Lum Phu	7. Ong Ang	8. Lod
X	36	120	123	60
Y	49	100	94	50
Klong	9. Mahanak	10. Saen Saep (Fathuman)	11. Saen Saep (Phra Khanong)	12. Saen Saep (Bang Kapi)
X	25	27	25	104
Y	47	42	45	60
Klong	13. Huai Khwang	14. Tha Non	15. Lad Phrao	16. Tan
X	50	39	150	78
Y	25	31	80	40
Klong	17. Phra Khanong	18. Toey	19. Chong Non sri	
X	46	86	78	
Y	40	64	41	

Notes : 1/ = combined percentage of those who use a particular klong for sewerage and of those who use it for a dumping ground.

2/ = combined percentage of those who place the top priority on purification of klong water and of those who place the top priority on new construction / expansion of sewerage system.

Correlation Coefficient = 0.7742

T - Value = 5.0435

Table B.13

Estimated Annual Incremental Rate of Foreign Tourist Visits to Bangkok When Klong Water is Purified

* Annual increase by percentage compared with the 'without' case

1. By Nationality (%)			
1) U.K.	2) U.S.A.	3) France	4) West Germany
2.0	4.8	0.6	3.2
5) Australia			
6) Netherlands	7) Japan	8) Switzerland	
3.2	7.5	3.3	0.7
9) Canada			
10) Israel	11) New Zealand	12) Sweden	
0.5	8.5	2.6	1.0
13) Denmark			
0.0			

2. By Sex (%)

1) Male : 3.1 2) Female : 5.8

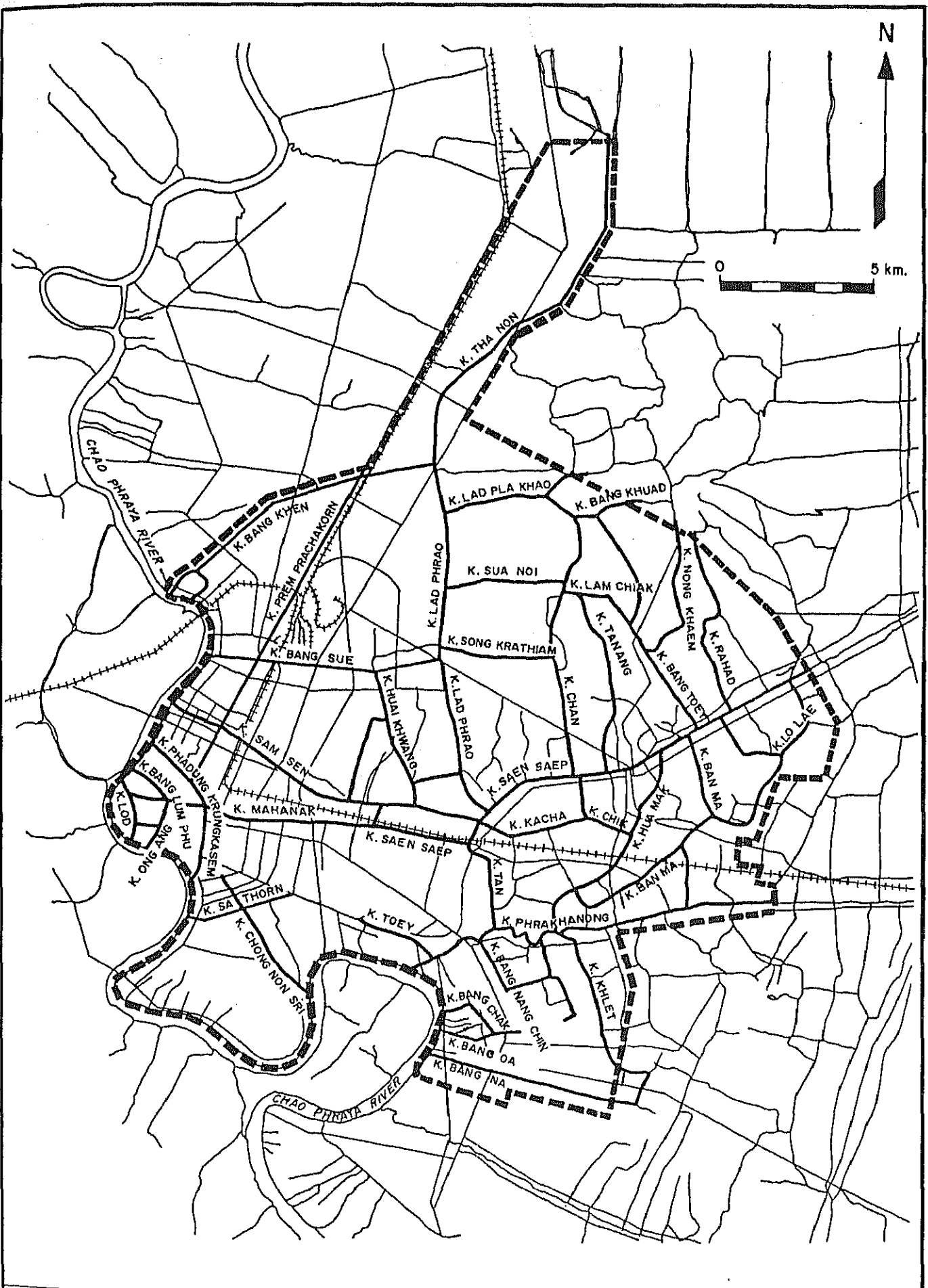


FIG. B.1

SELECTED KLONG NETWORKS OF STUDY

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

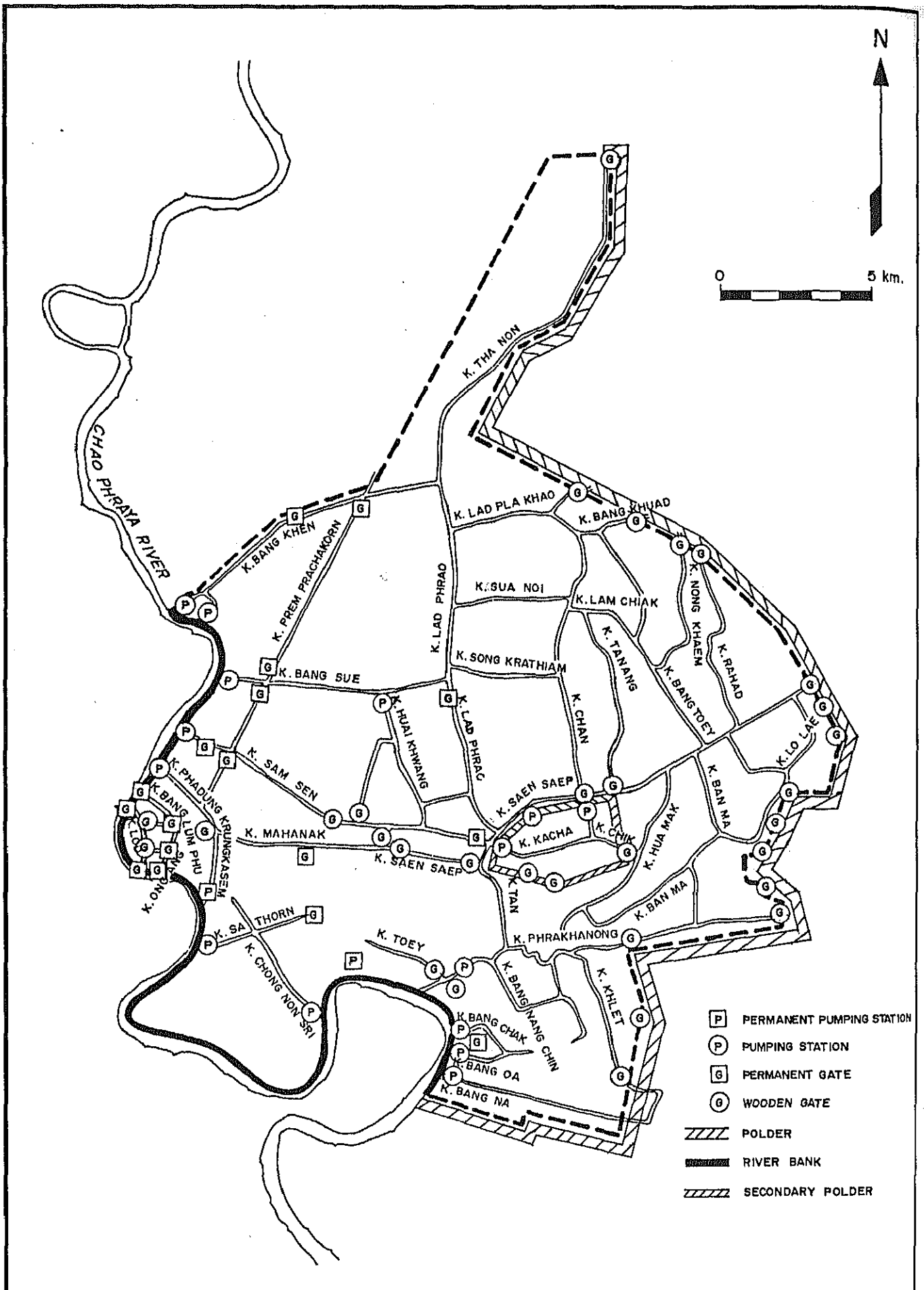


FIG. B.2

LOCATION OF EXISTING DRAINAGE FACILITIES

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

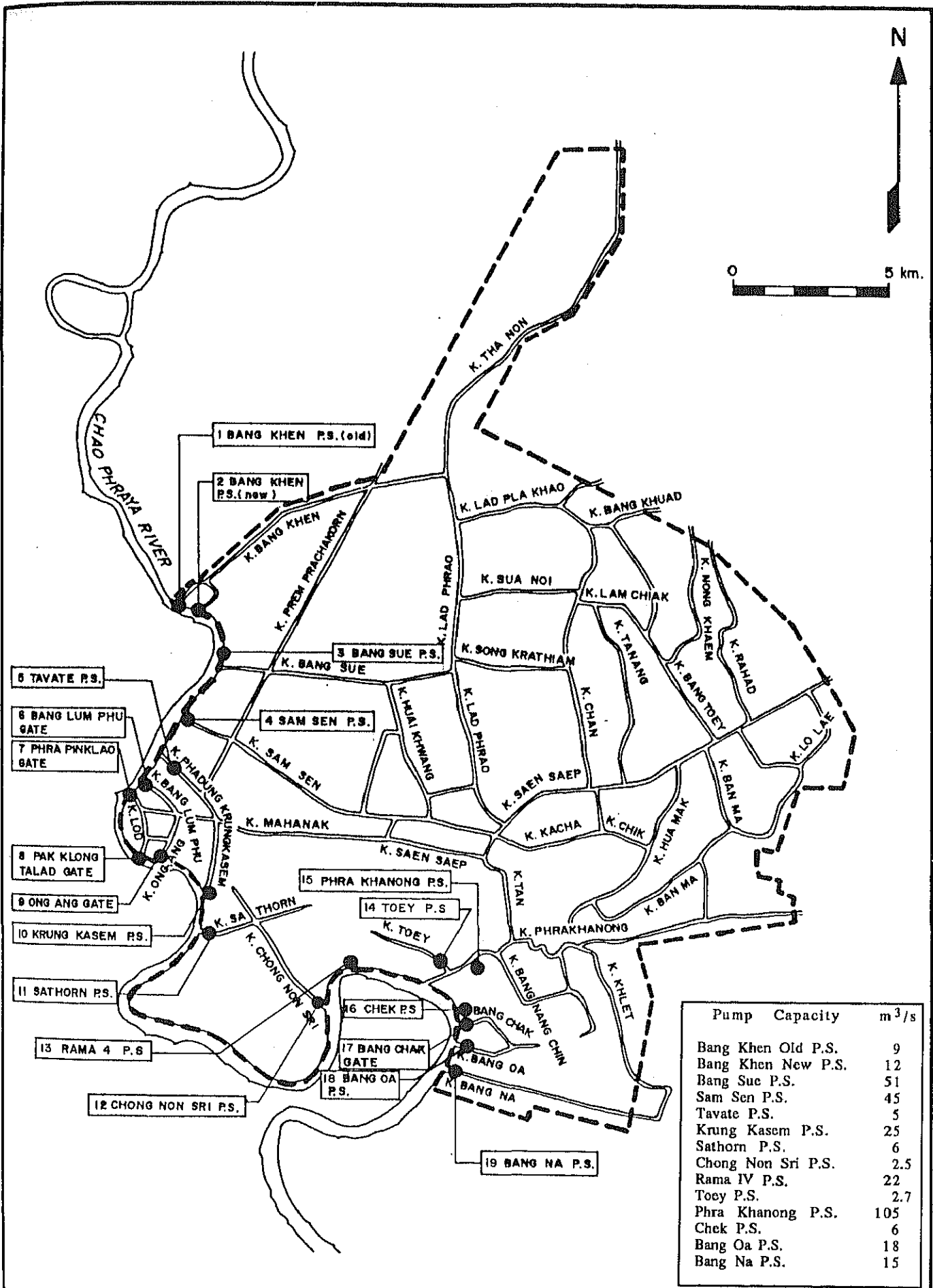


FIG. B.3

LOCATION OF EXISTING PUMP AND GATE
ON THE CHAO PHRAYA RIVER BANK

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

BANG KHEN (Old) (P.S. & GATE)

S = 1:200

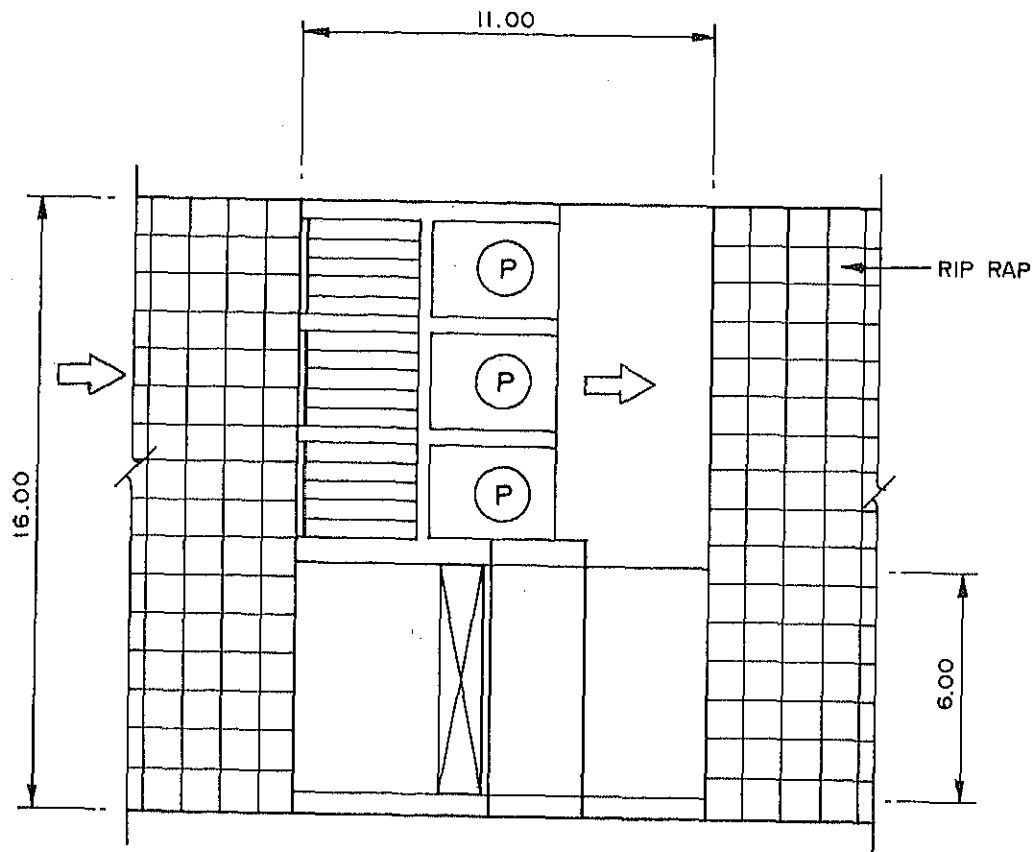


FIG. B.4(1)

LAYOUT OF THE MAJOR GATE AND PUMP STATION

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

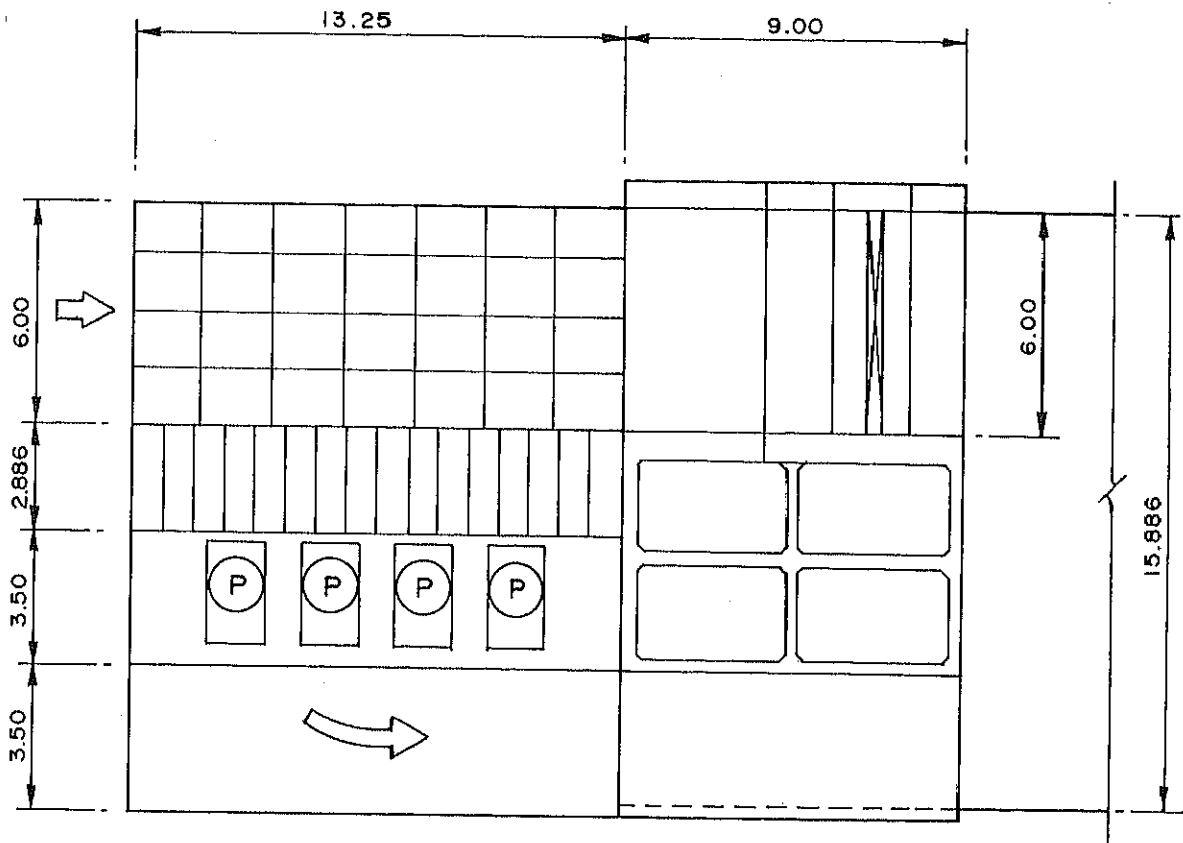


FIG. B. 4 (2)

LAYOUT OF THE MAJOR GATE AND PUMP STATION

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

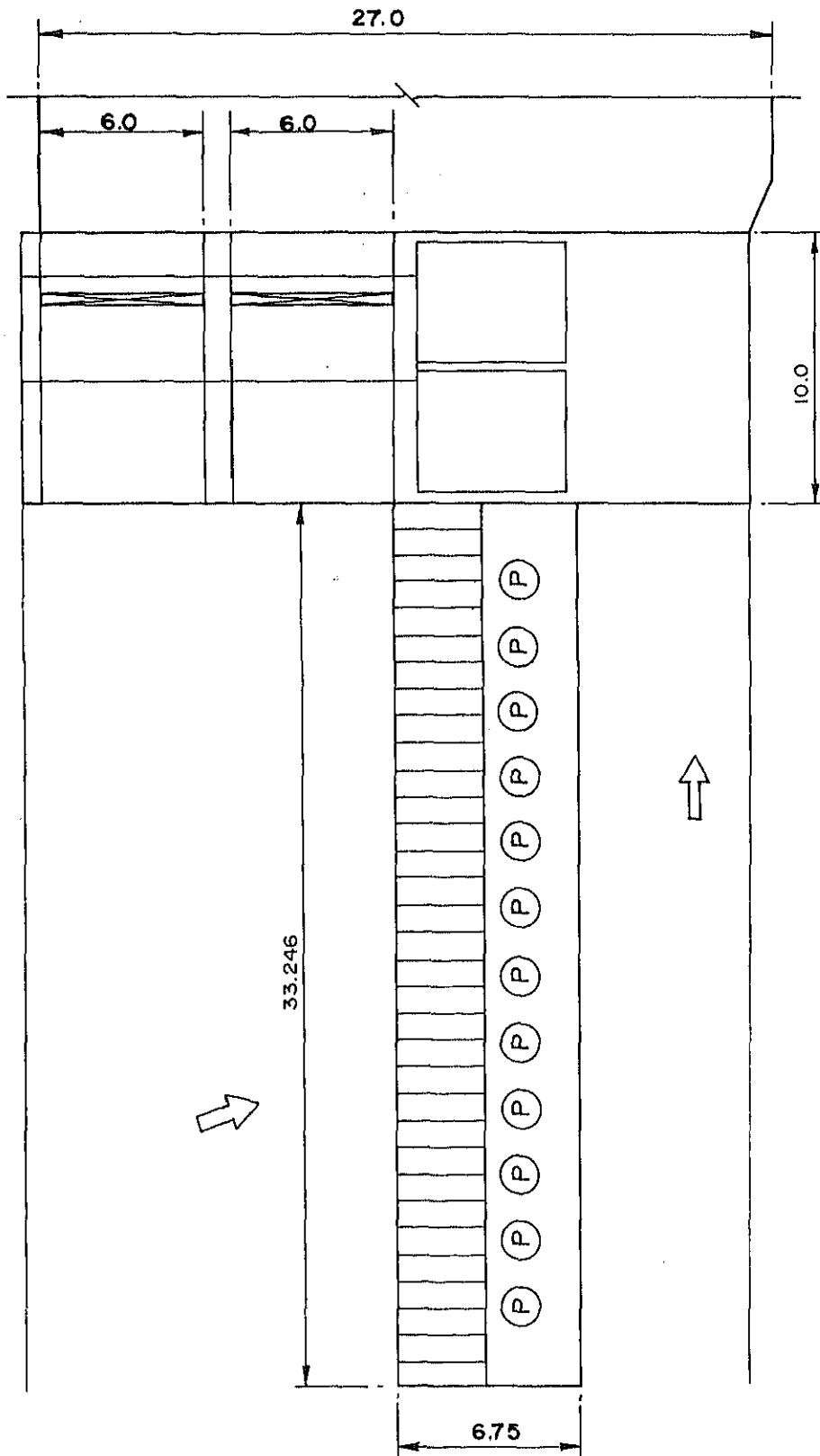


FIG. B.4 (3)

LAYOUT OF THE MAJOR GATE AND PUMP STATION

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

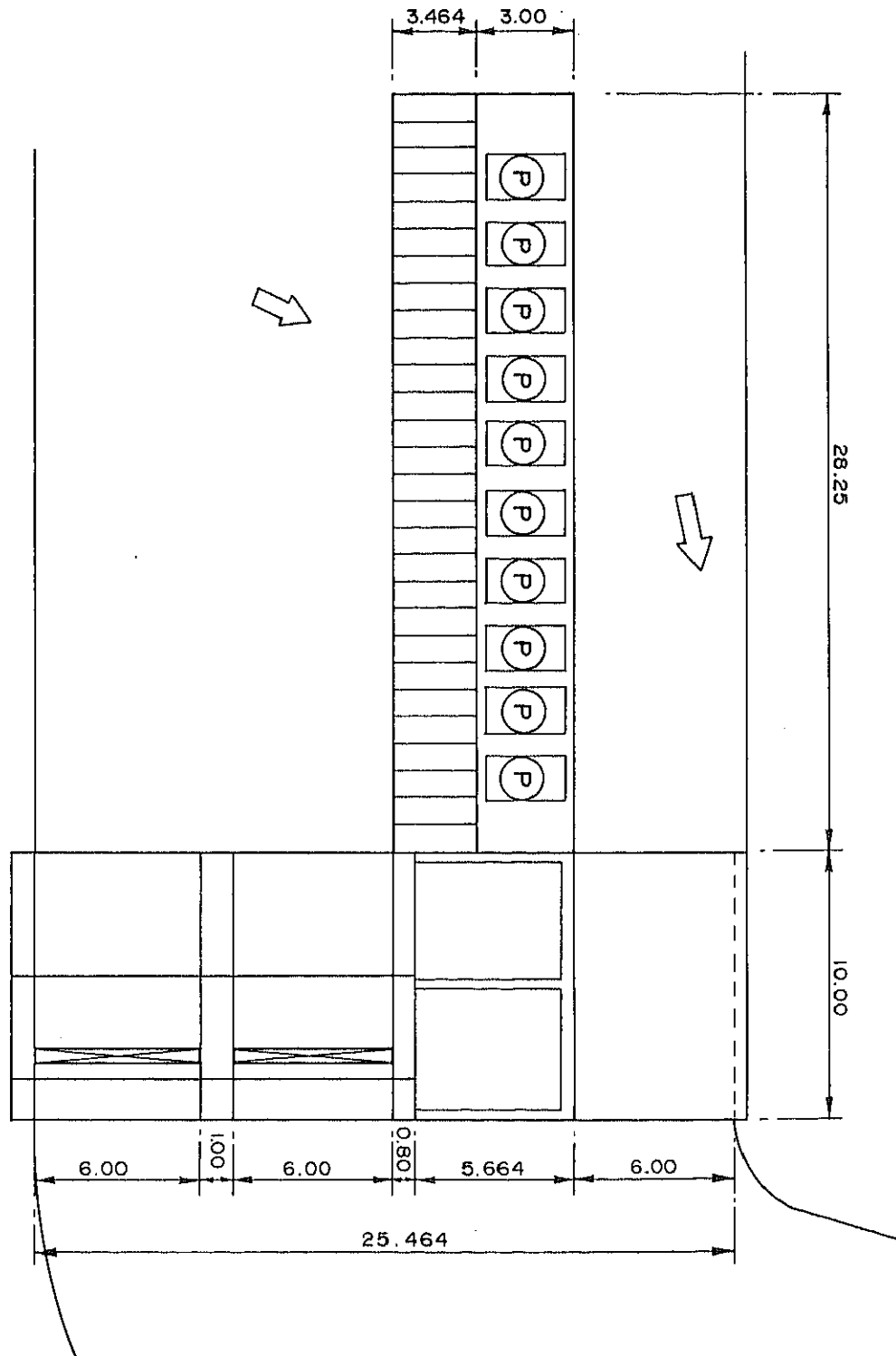


FIG. B. 4 (4)

LAYOUT OF THE MAJOR GATE AND PUMP STATION

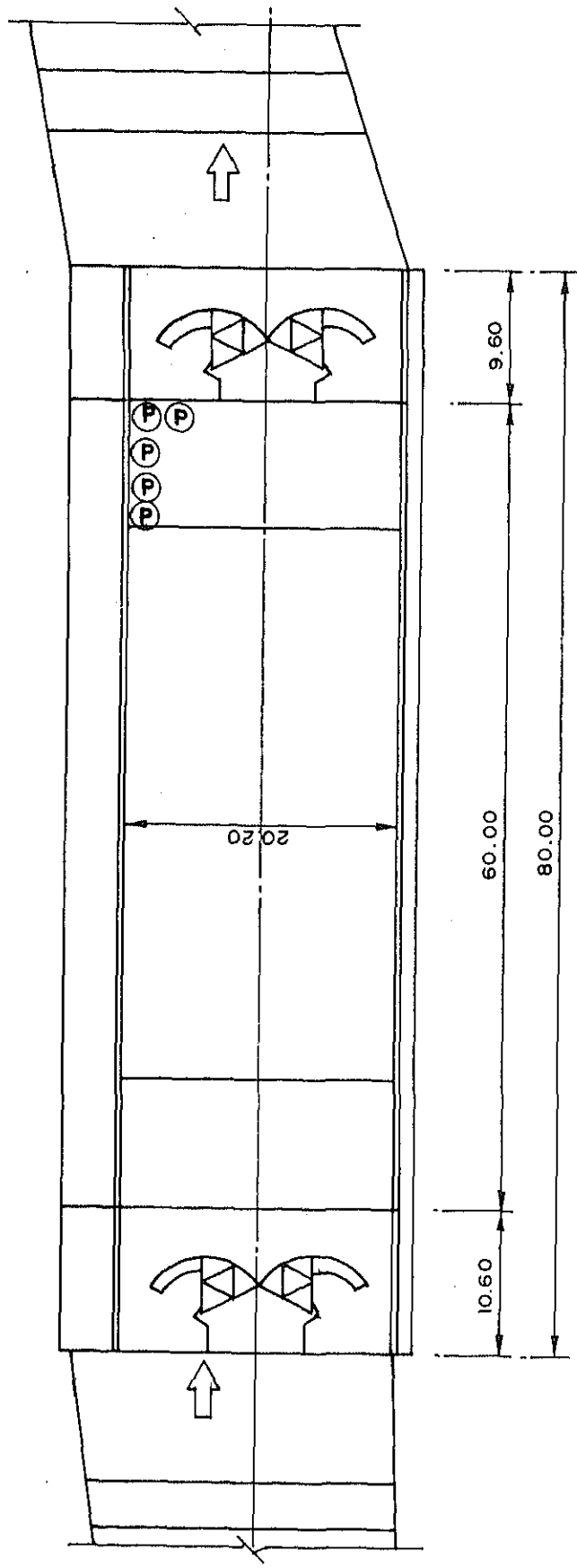


FIG. B.4(5)

LAYOUT OF THE MAJOR GATE AND PUMP STATION

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

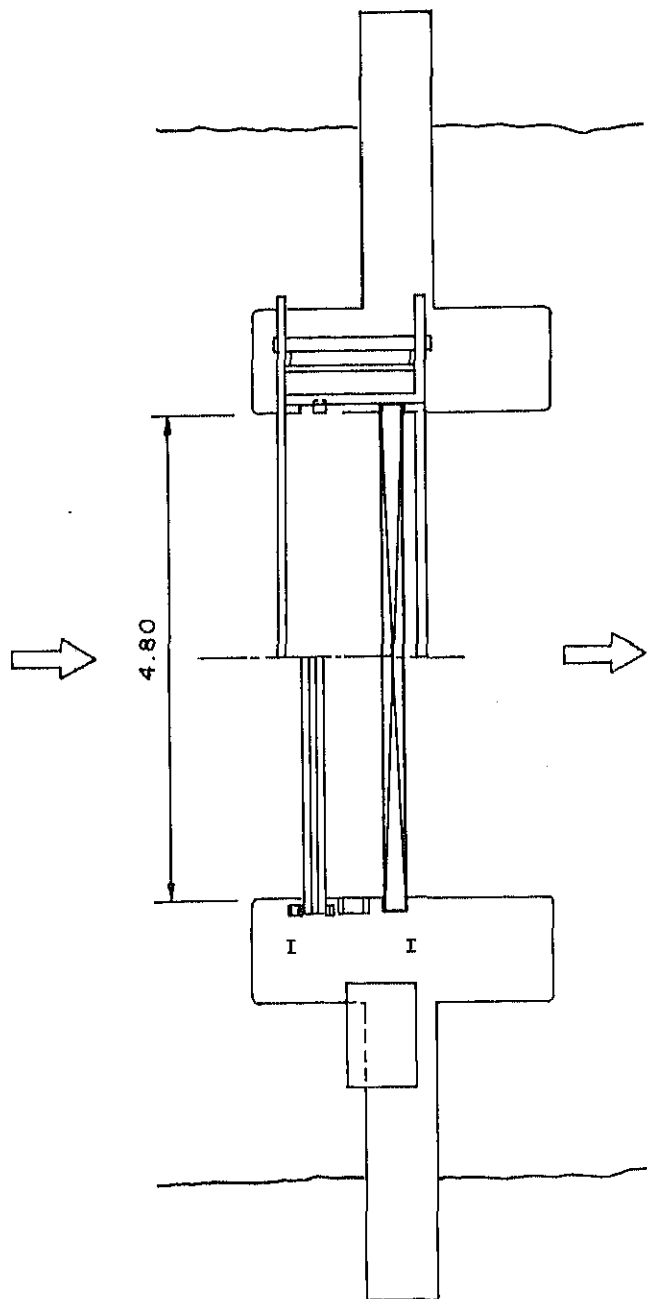


FIG. B.4(6)

LAYOUT OF THE MAJOR GATE AND PUMP STATION

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

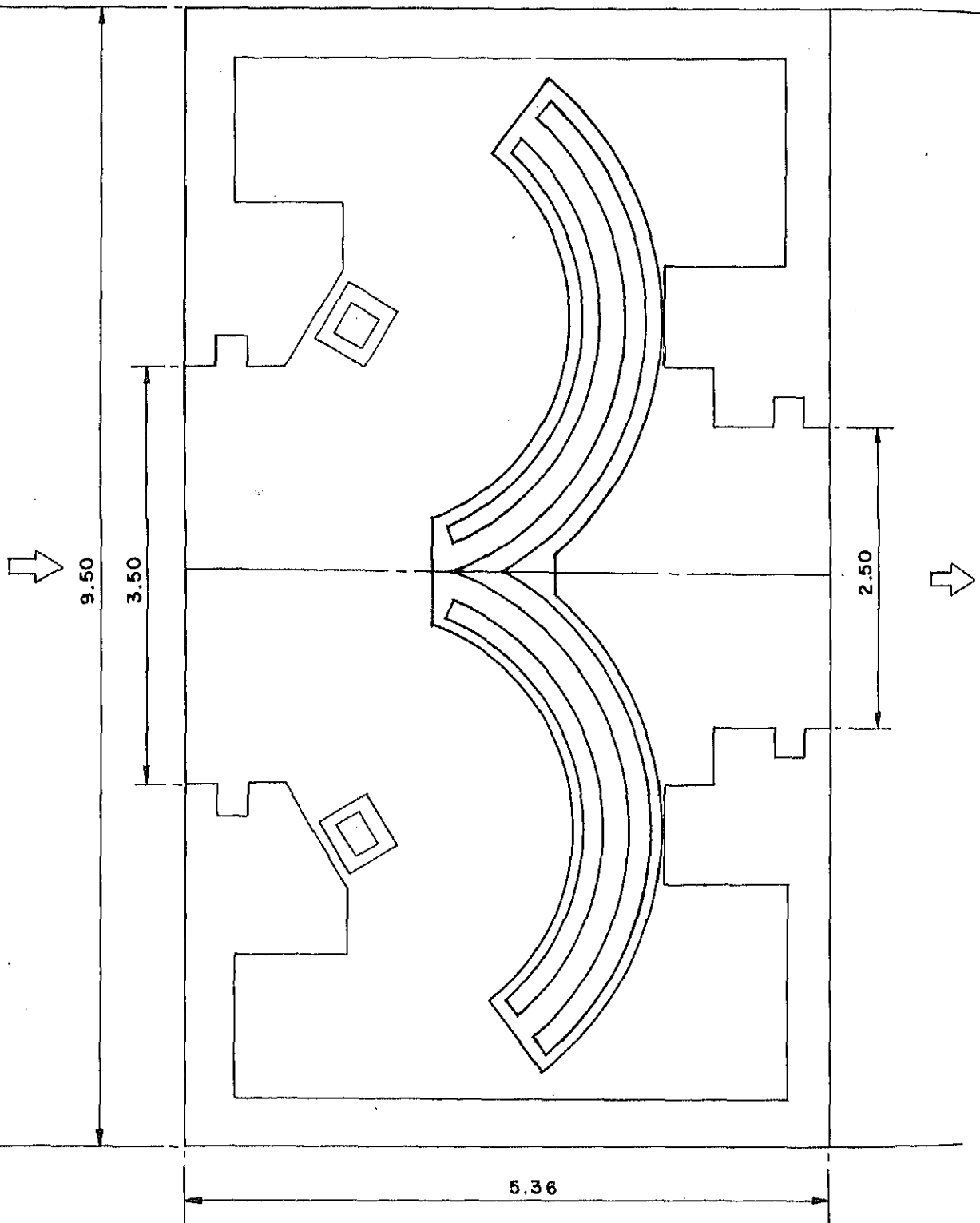


FIG. B.4(7)

LAYOUT OF THE MAJOR GATE AND PUMP STATION

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

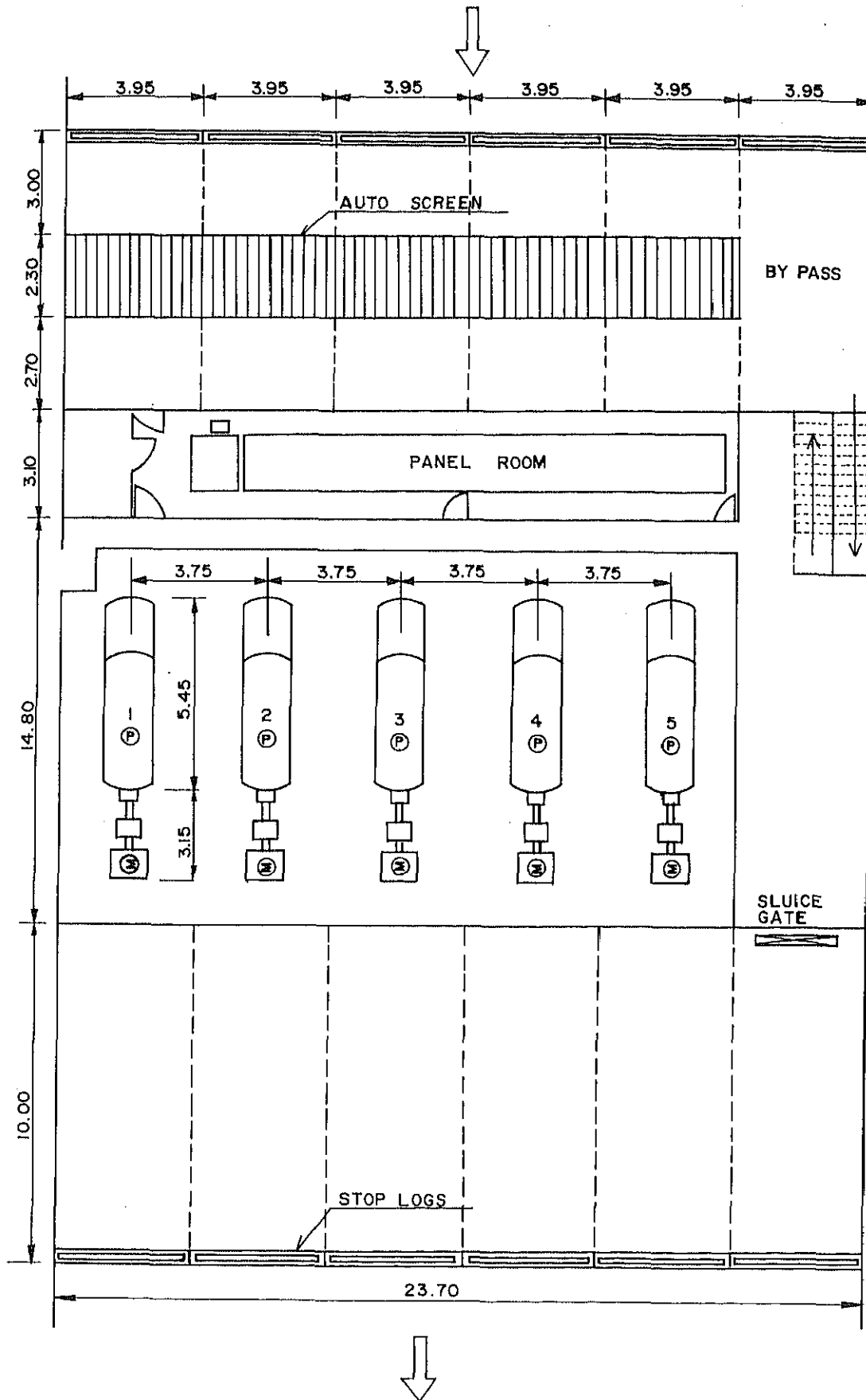


FIG. B.4(8)

LAYOUT OF THE MAJOR GATE AND PUMP STATION

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

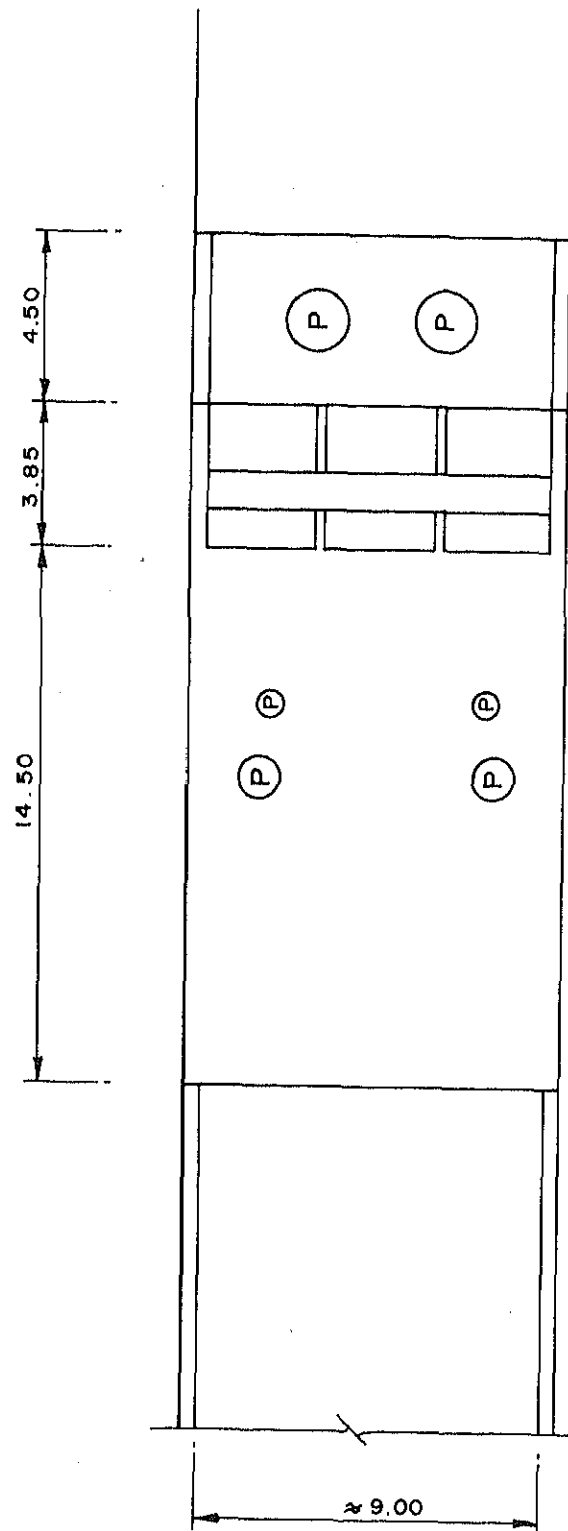


FIG. B. 4 (9)

LAYOUT OF THE MAJOR GATE AND PUMP STATION

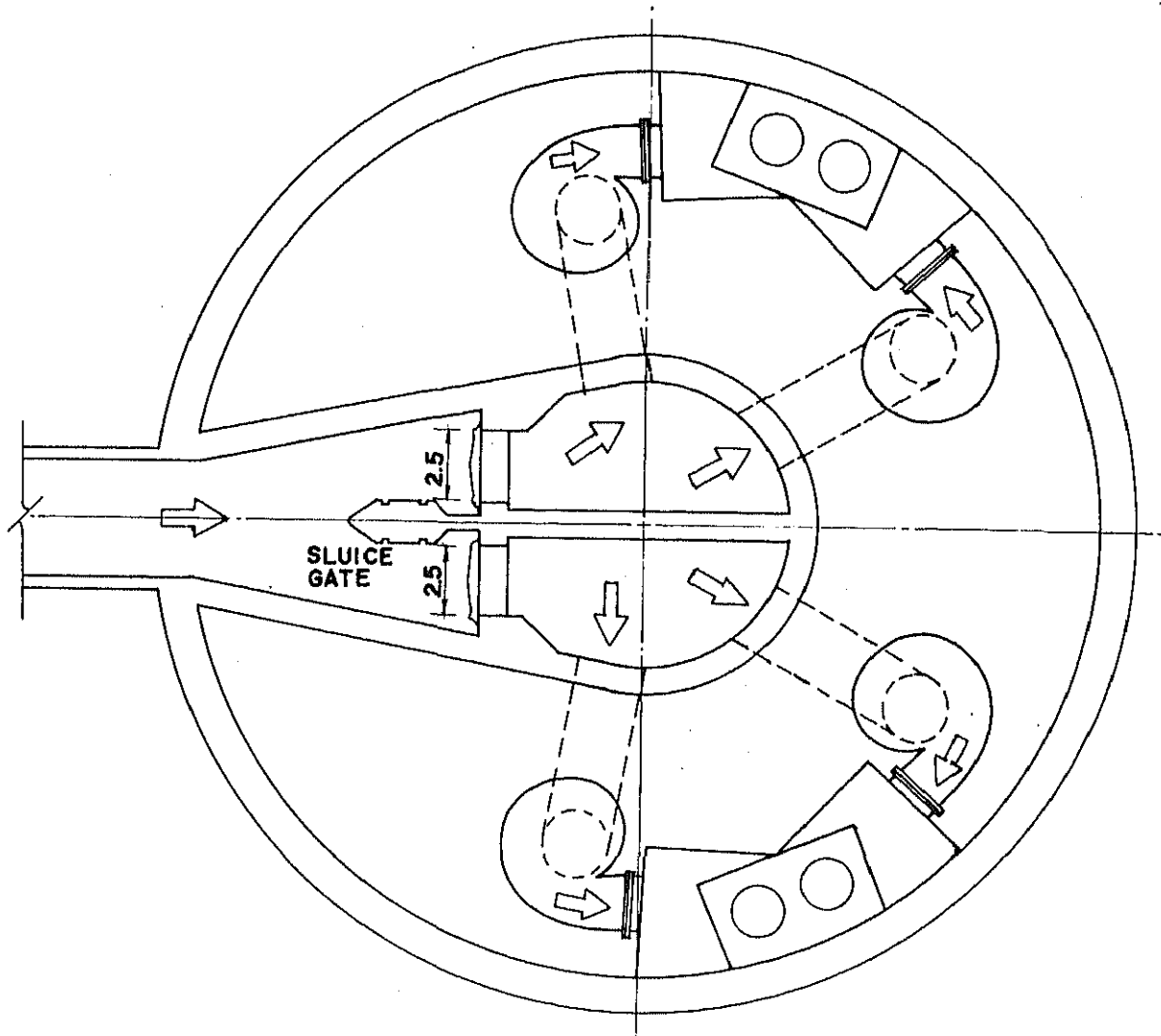


FIG. B. 4 (10)

LAYOUT OF THE MAJOR GATE AND PUMP STATION

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

KLONG TOEY (P.S.) (EXISTING)

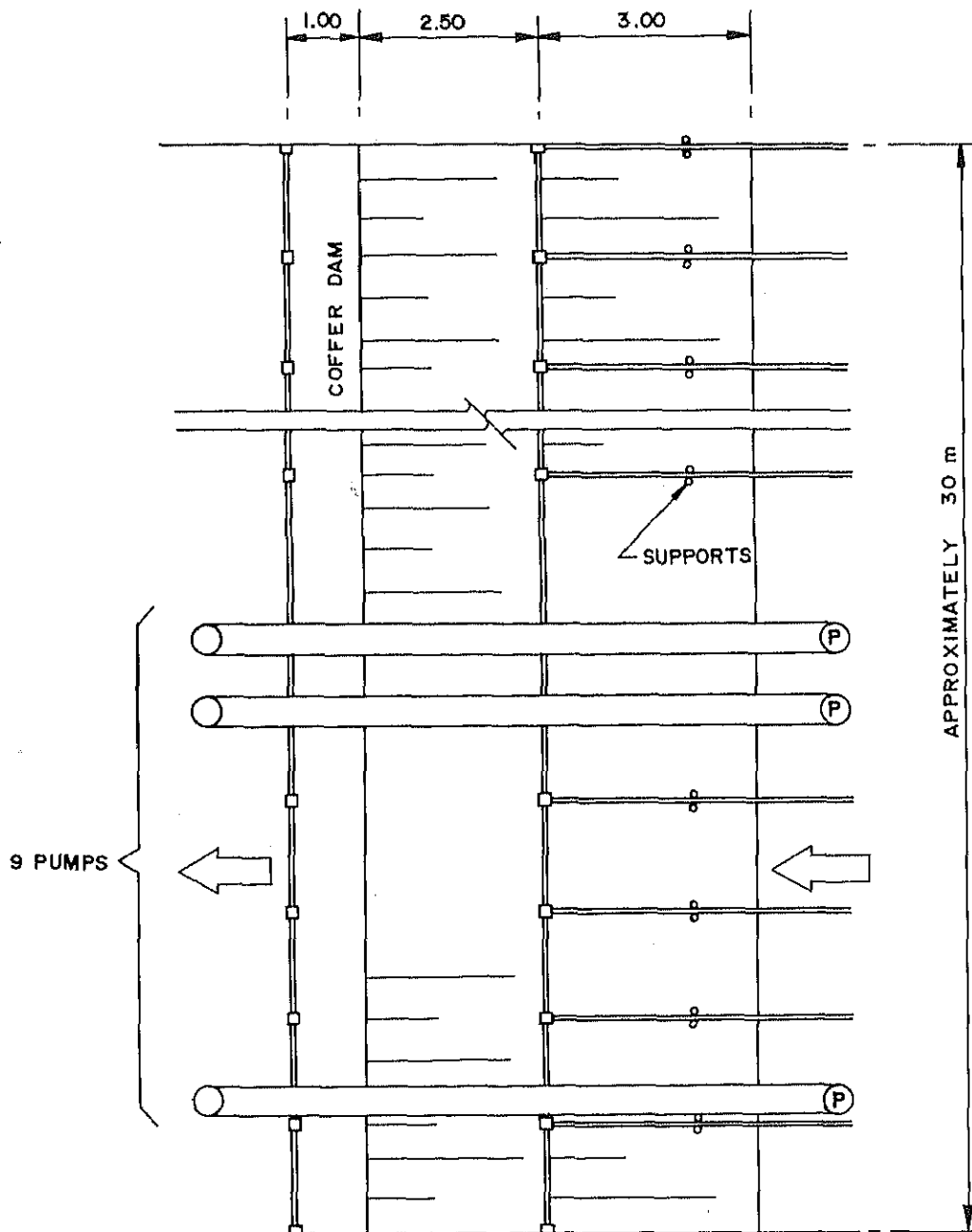


FIG. B.4(11)

LAYOUT OF THE MAJOR GATE AND PUMP STATION

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

K. TOEI (PS & GATE)
(UNDER CONSTRUCTION)

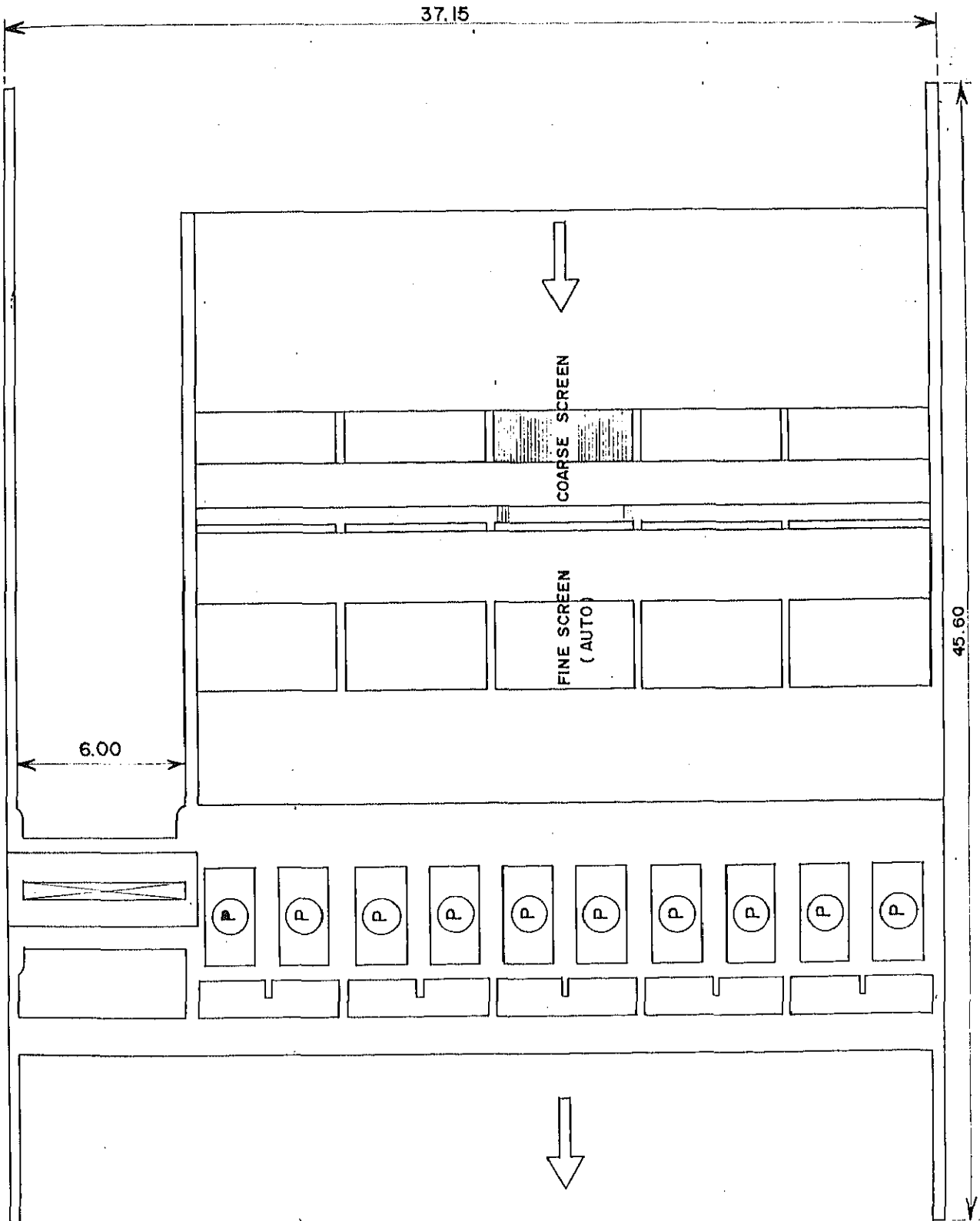


FIG. B. 4 (12)

LAYOUT OF THE MAJOR GATE AND PUMP STATION

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

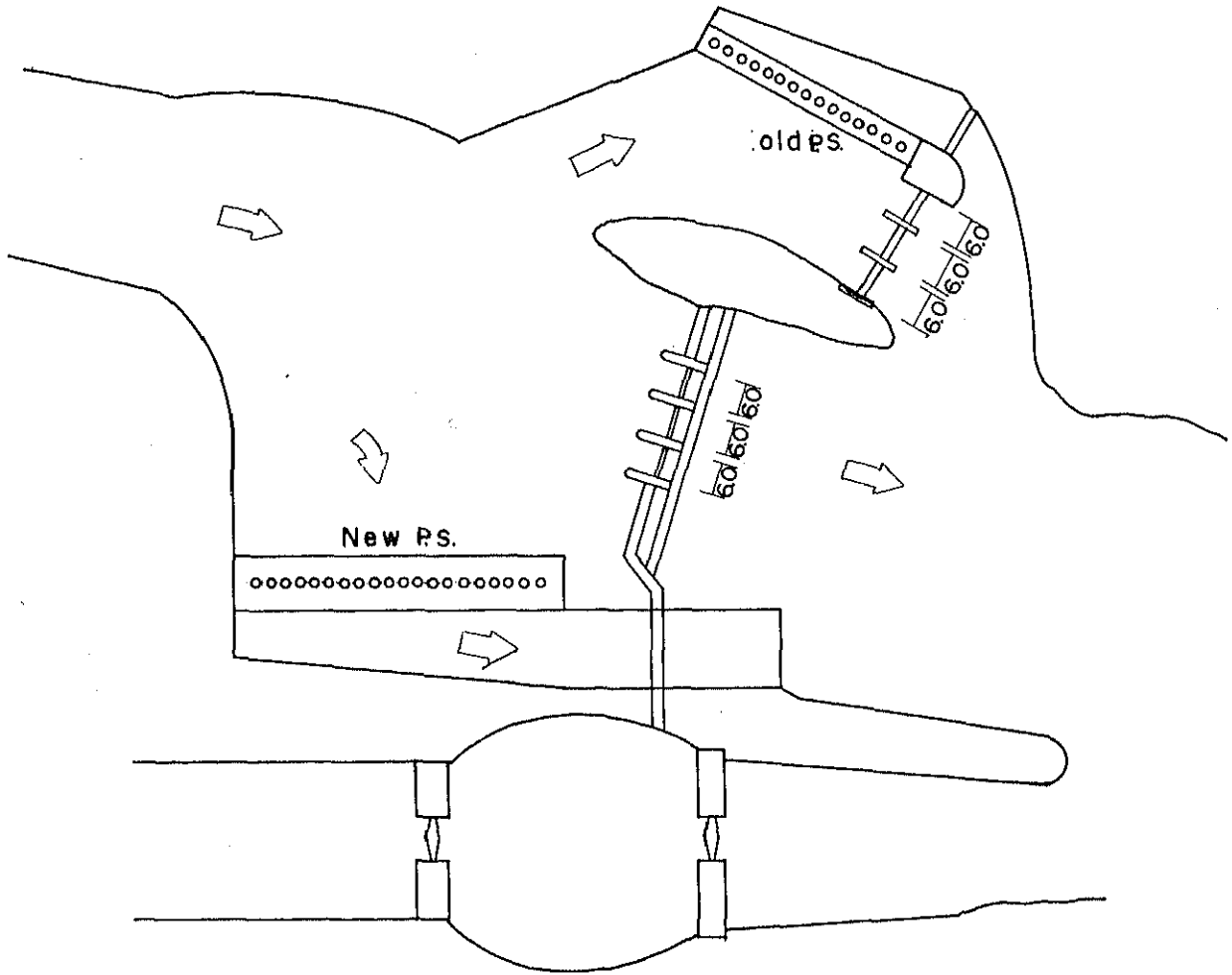


FIG. B.4 (13) LAYOUT OF THE MAJOR GATE AND PUMP STATION

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

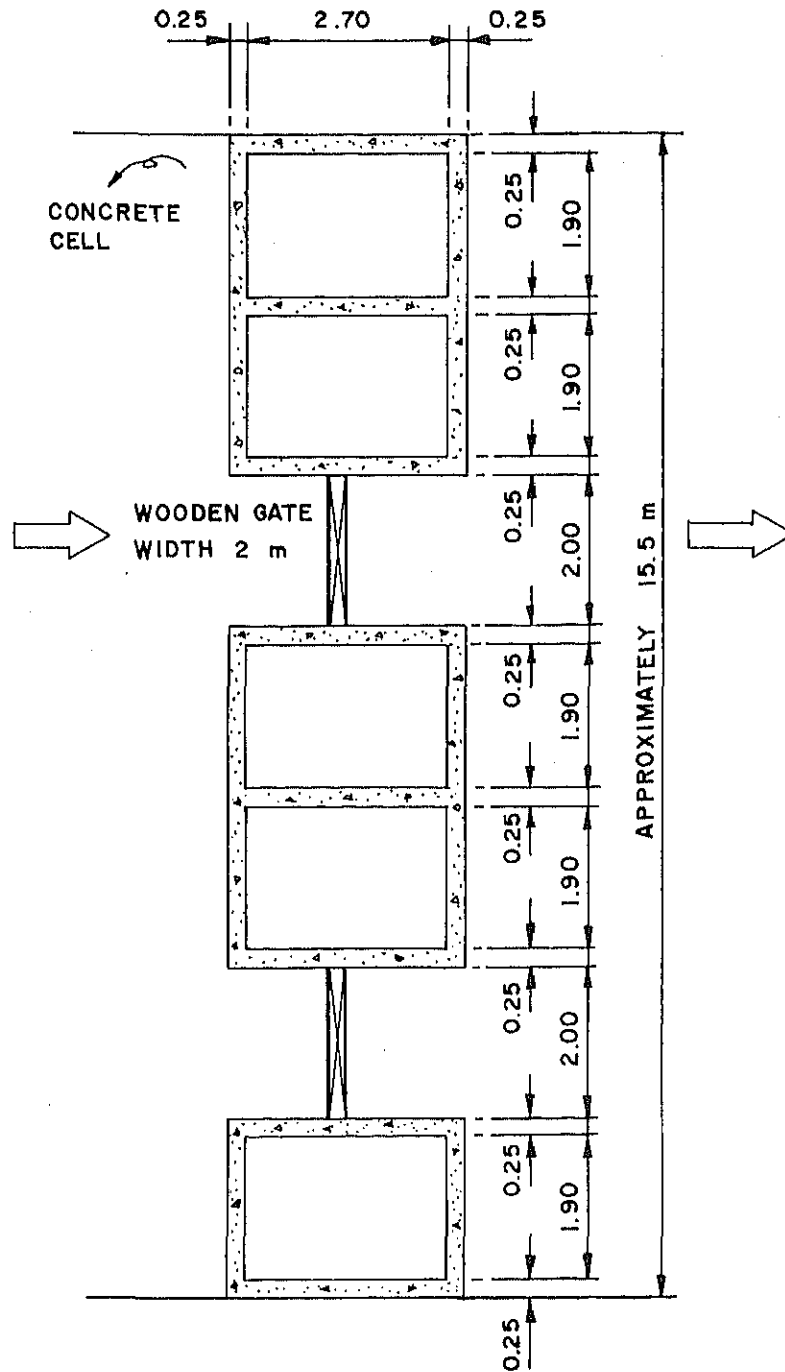


FIG. B.4 (14)

LAYOUT OF THE MAJOR GATE AND PUMP STATION

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

K. CHEK (P.S. & GATE) S = 1 : 100

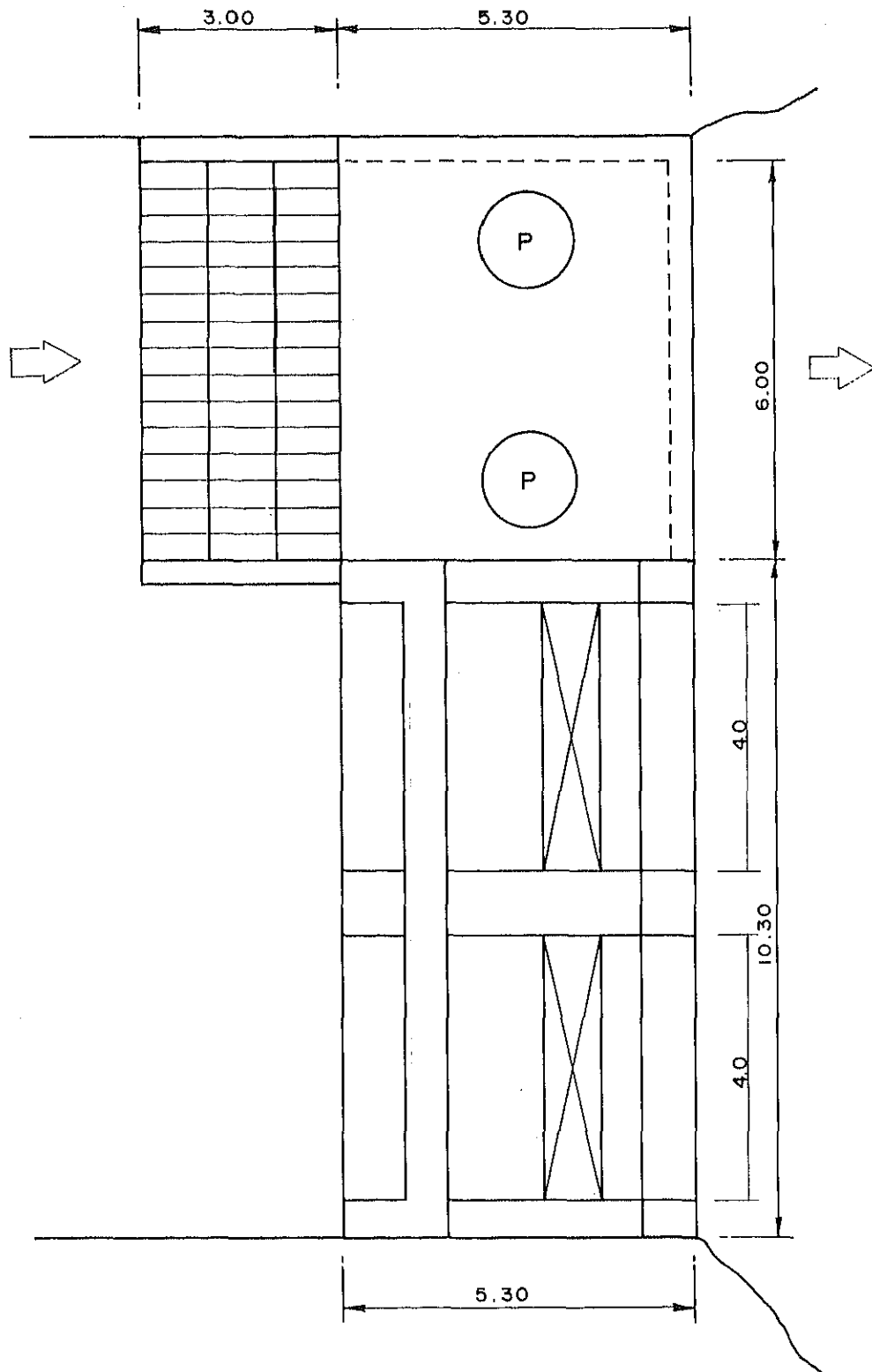


FIG. B.4 (15)

LAYOUT OF THE MAJOR GATE AND PUMP STATION

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

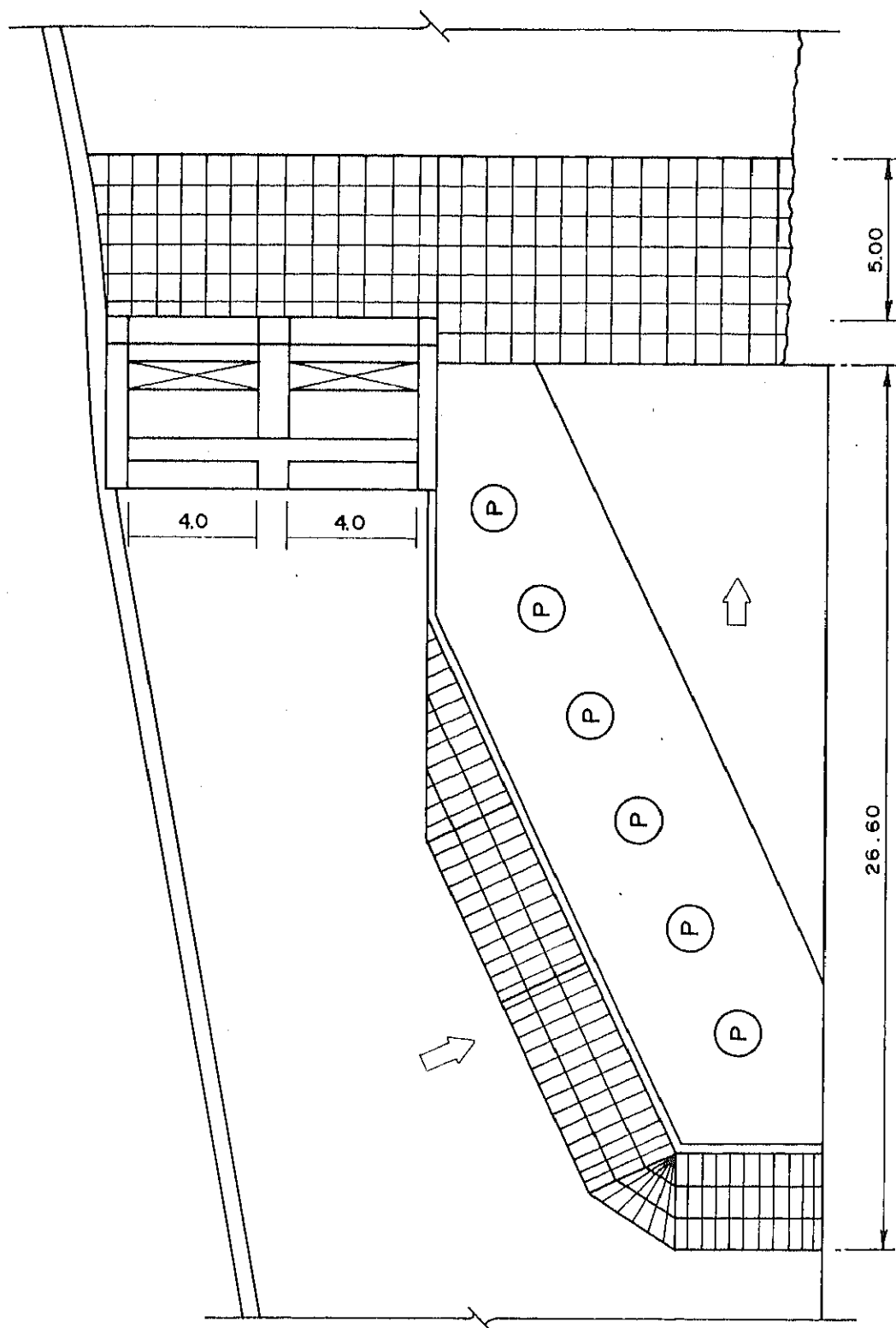


FIG. B. 4(16)

LAYOUT OF THE MAJOR GATE AND PUMP STATION

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

BANG NA (P.S. & GATE) S = 1:200

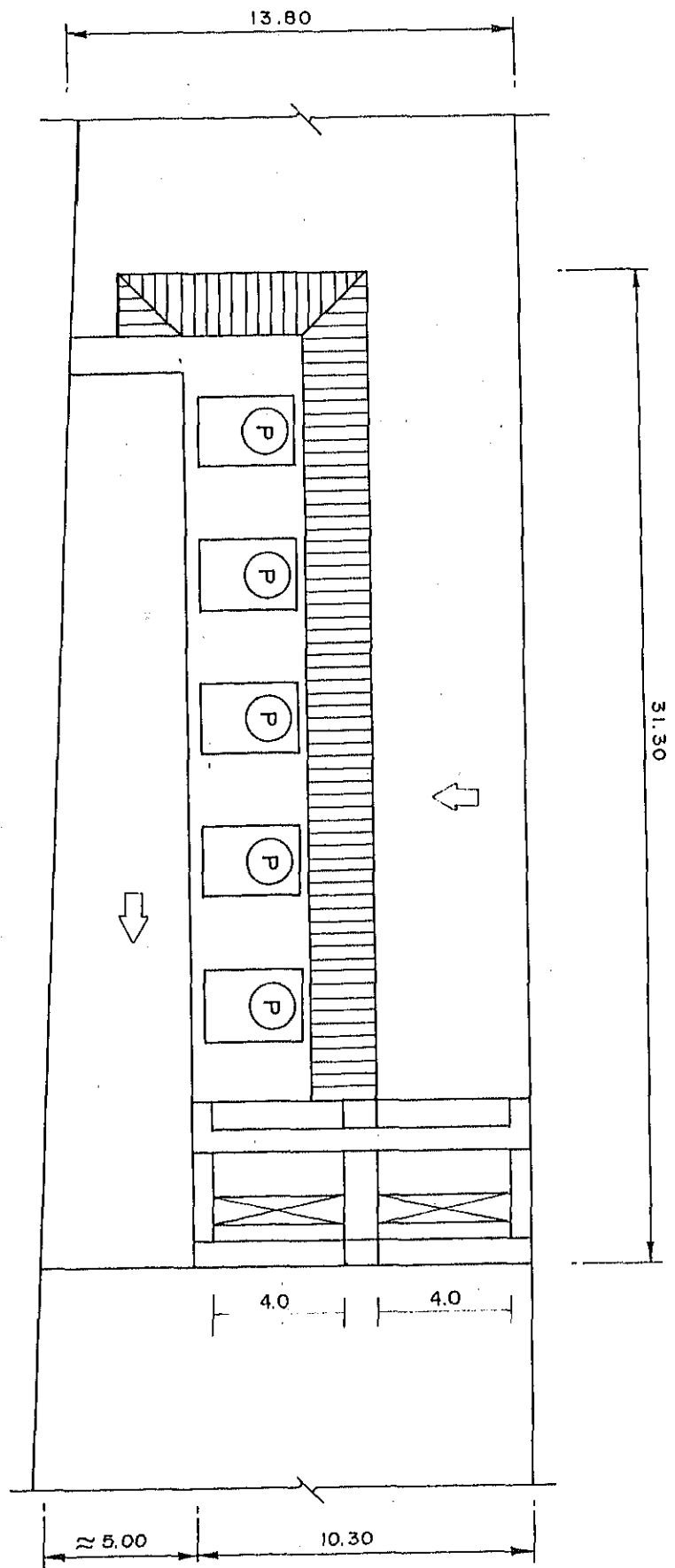


FIG. B.4(17)

LAYOUT OF THE MAJOR GATE AND PUMP STATION

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

PRAVATE (GATE) S = 1:500

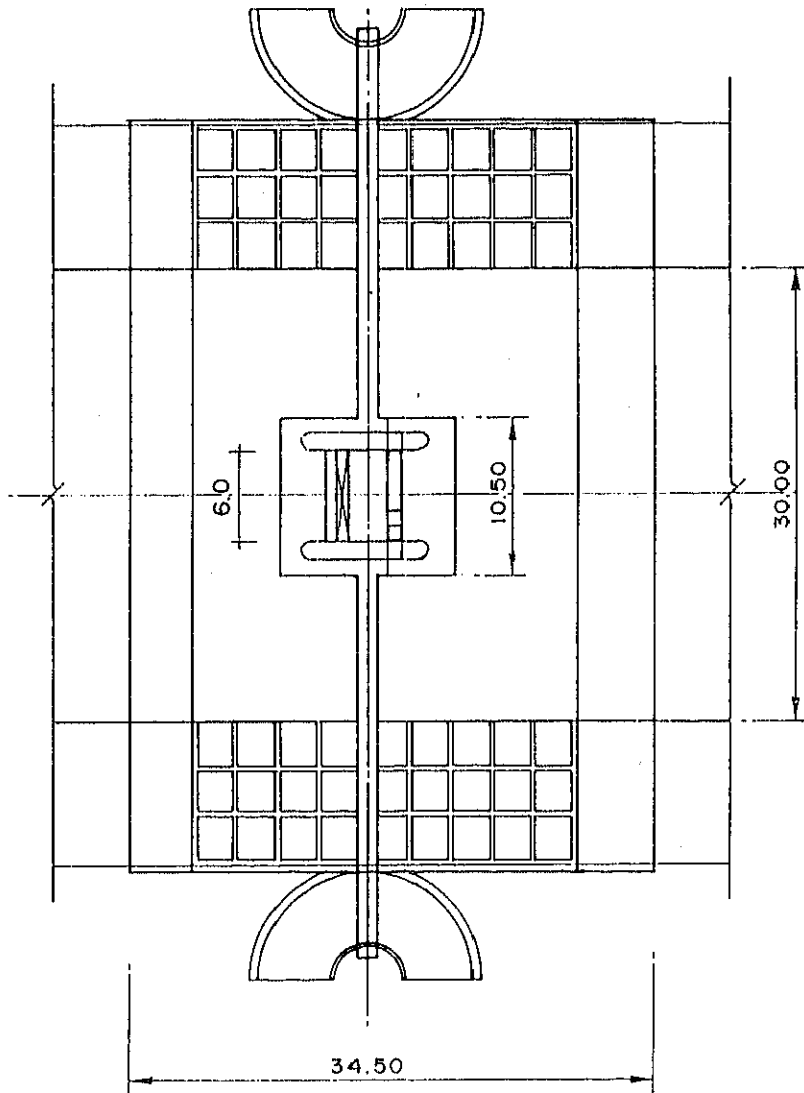


FIG. B.4(18)

LAYOUT OF THE MAJOR GATE AND PUMP STATION

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

SAEN SAEP (GATE) S = 1:500

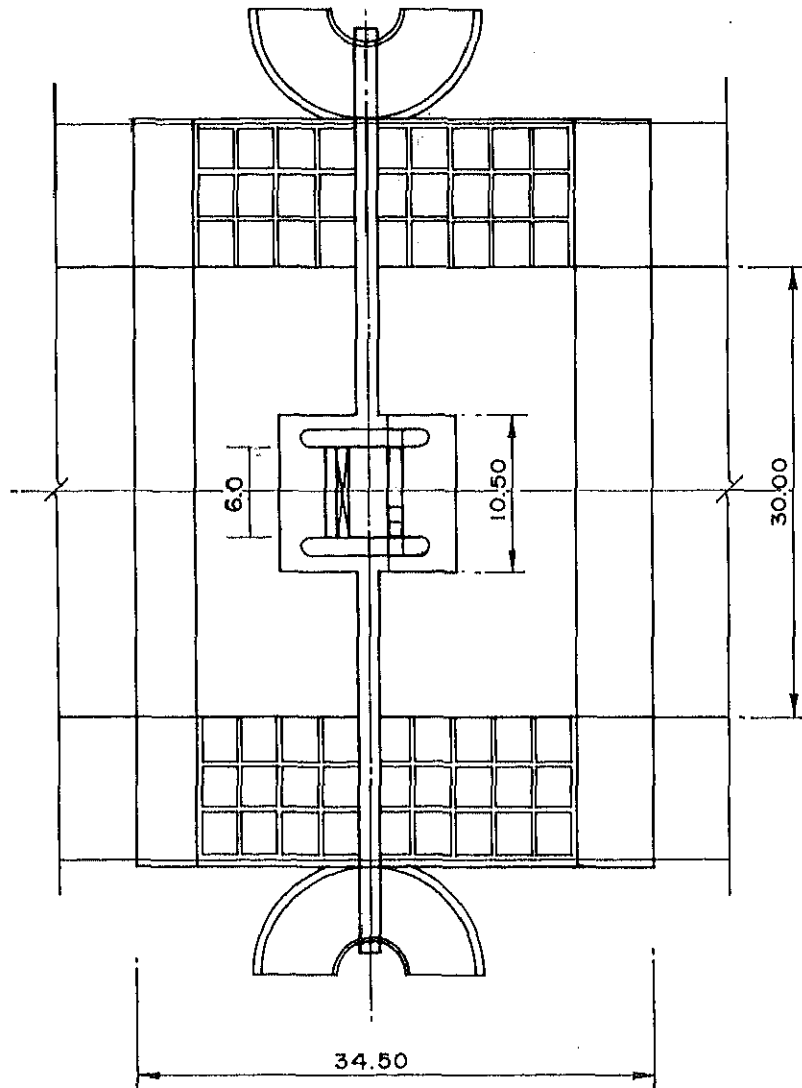


FIG. B.4 (19)

LAYOUT OF THE MAJOR GATE AND PUMP STATION

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

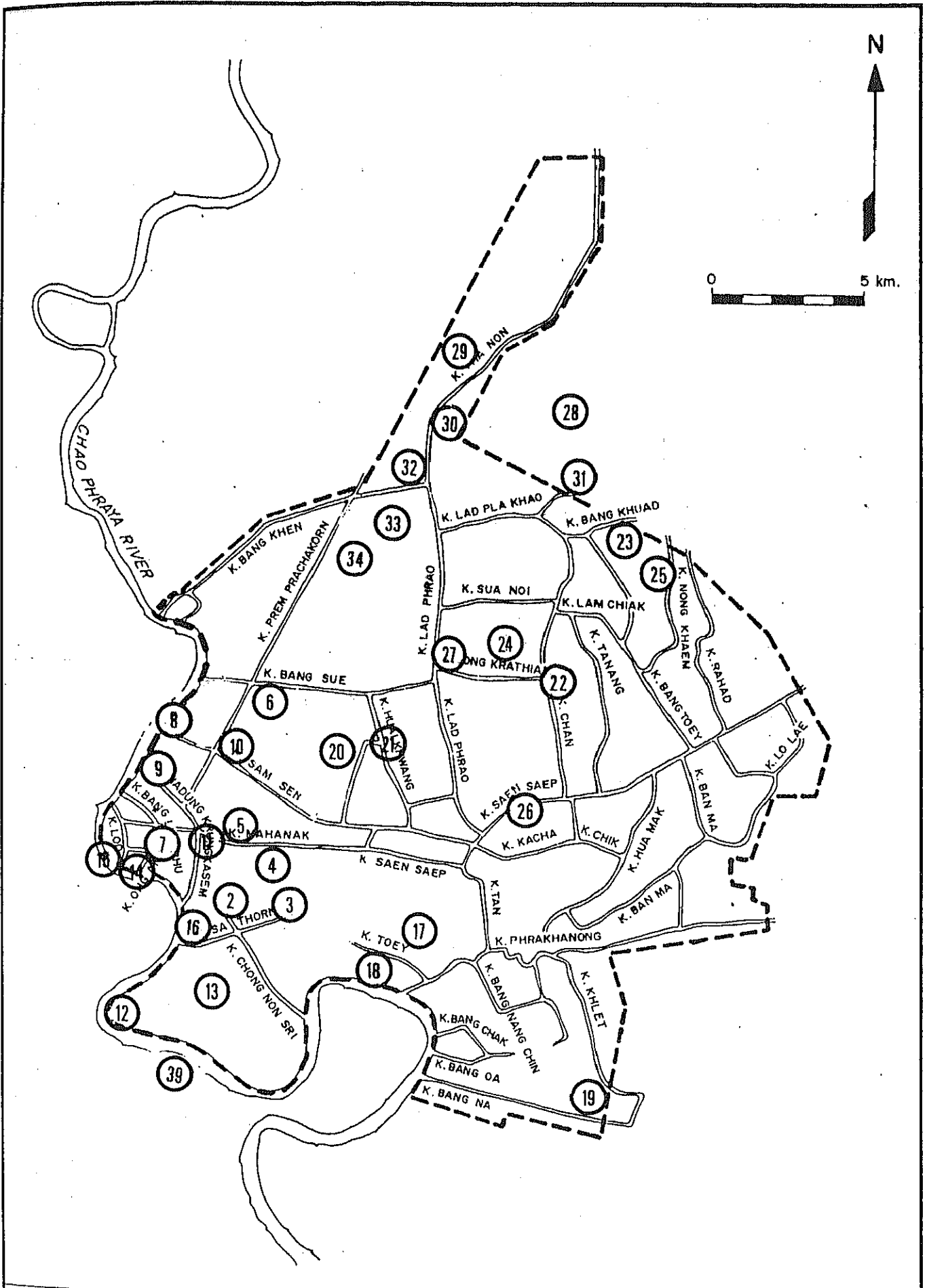


FIG. B.5

LOCATION OF RAIN GAUGES

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

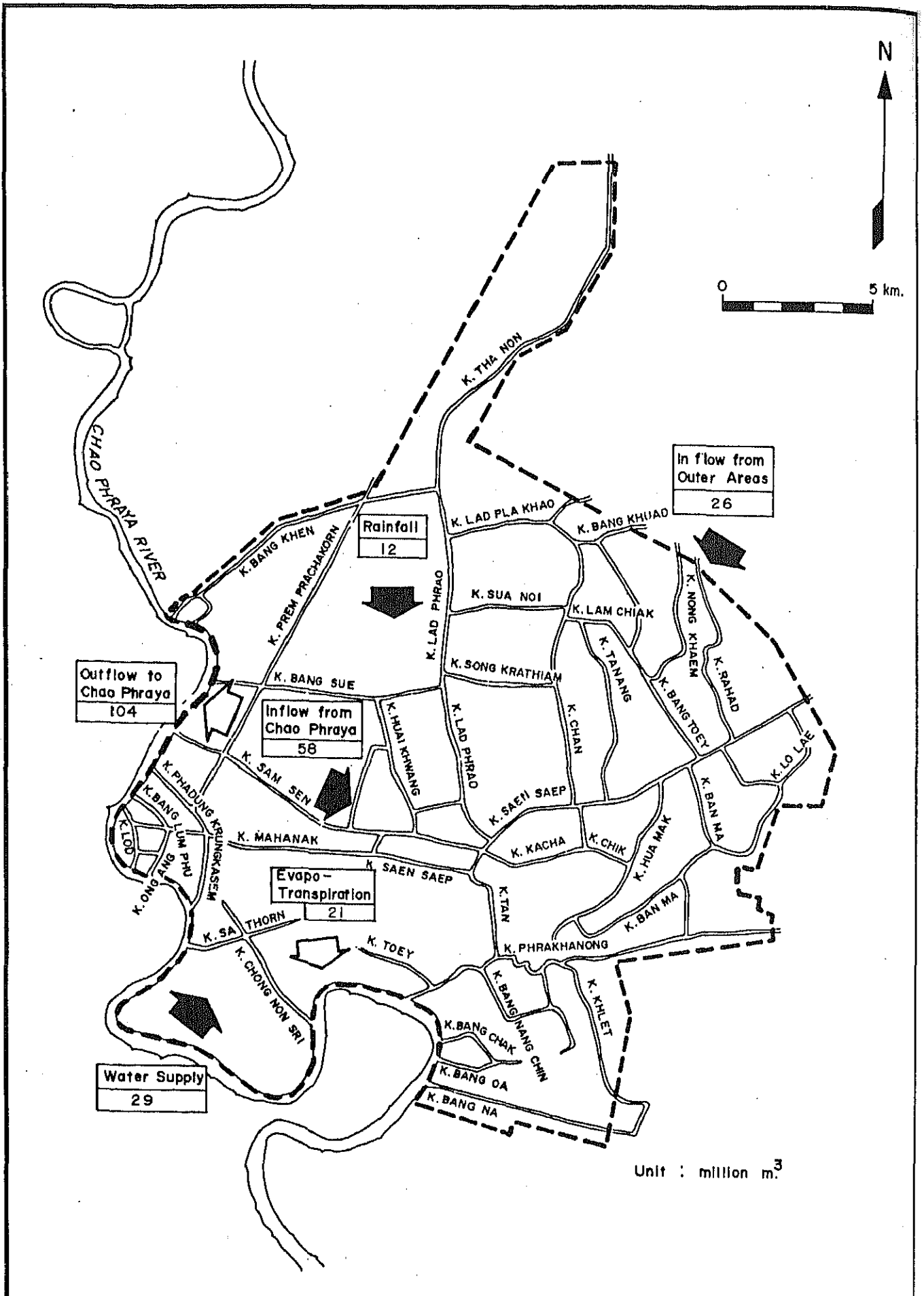


FIG. B.6(1)

MONTHLY WATER BALANCE IN DRY SEASON

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

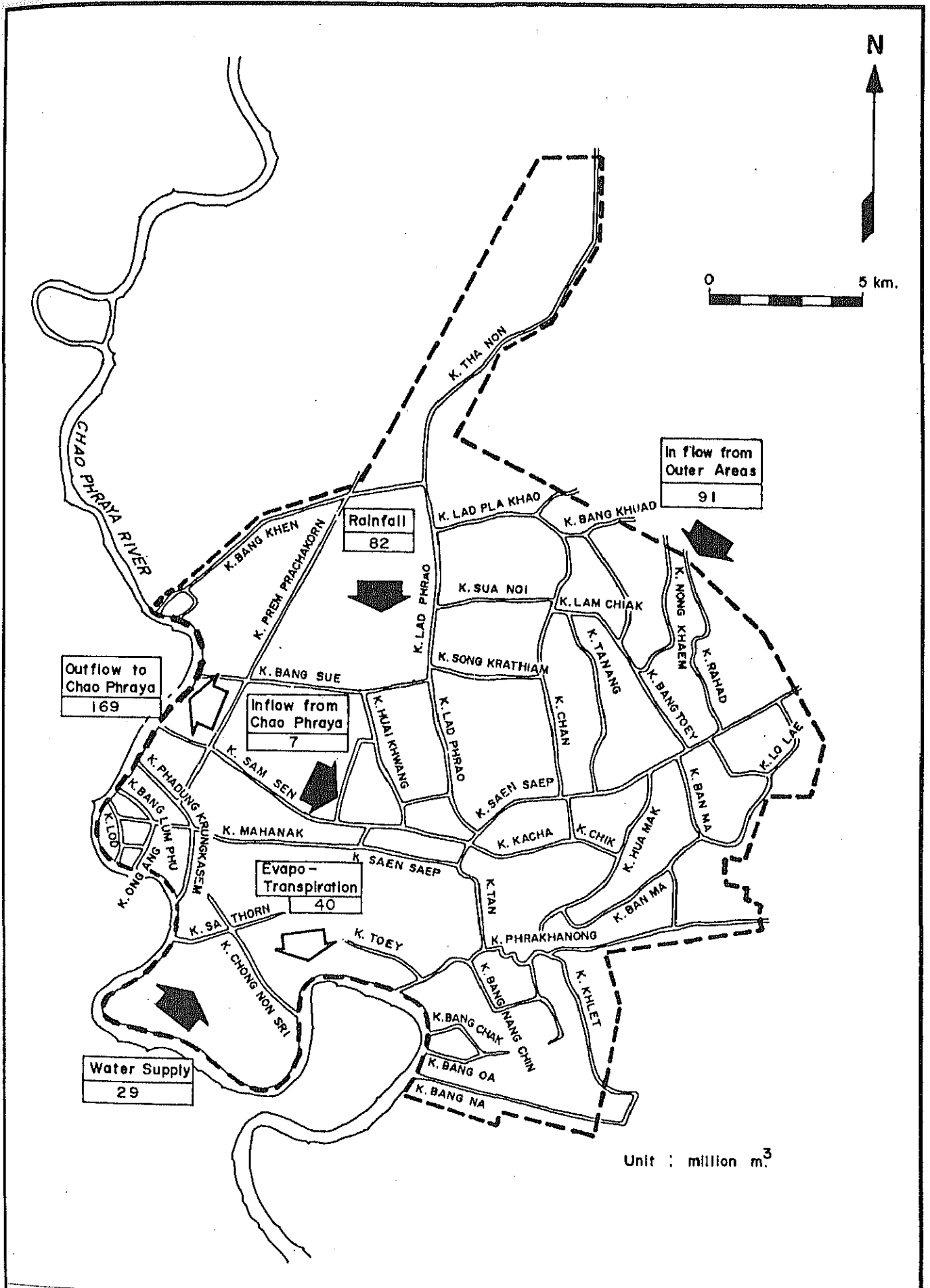


FIG. B.6(2)

MONTHLY WATER BALANCE (IN RAINY SEASON)

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

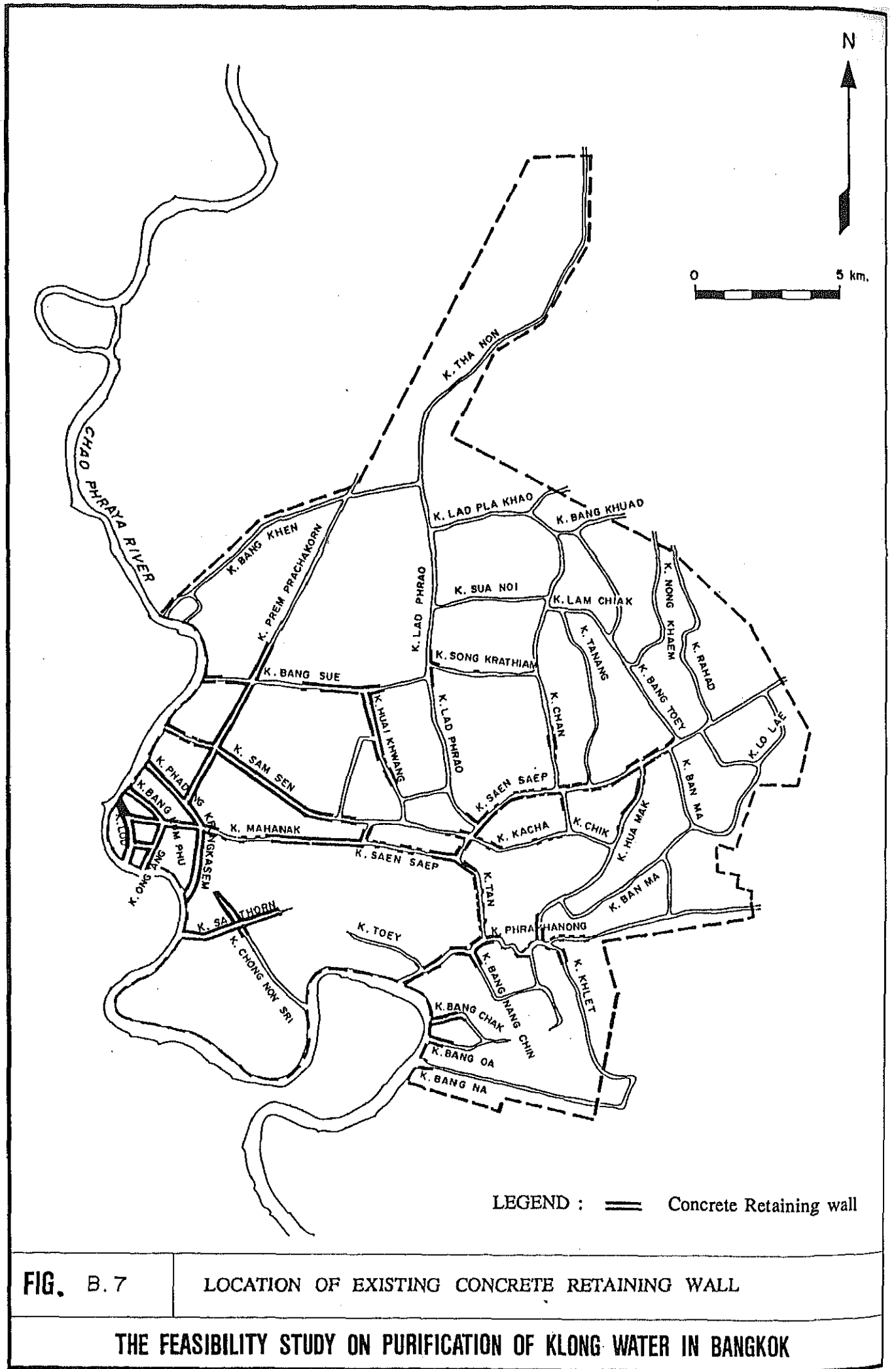


FIG. B.7

LOCATION OF EXISTING CONCRETE RETAINING WALL

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

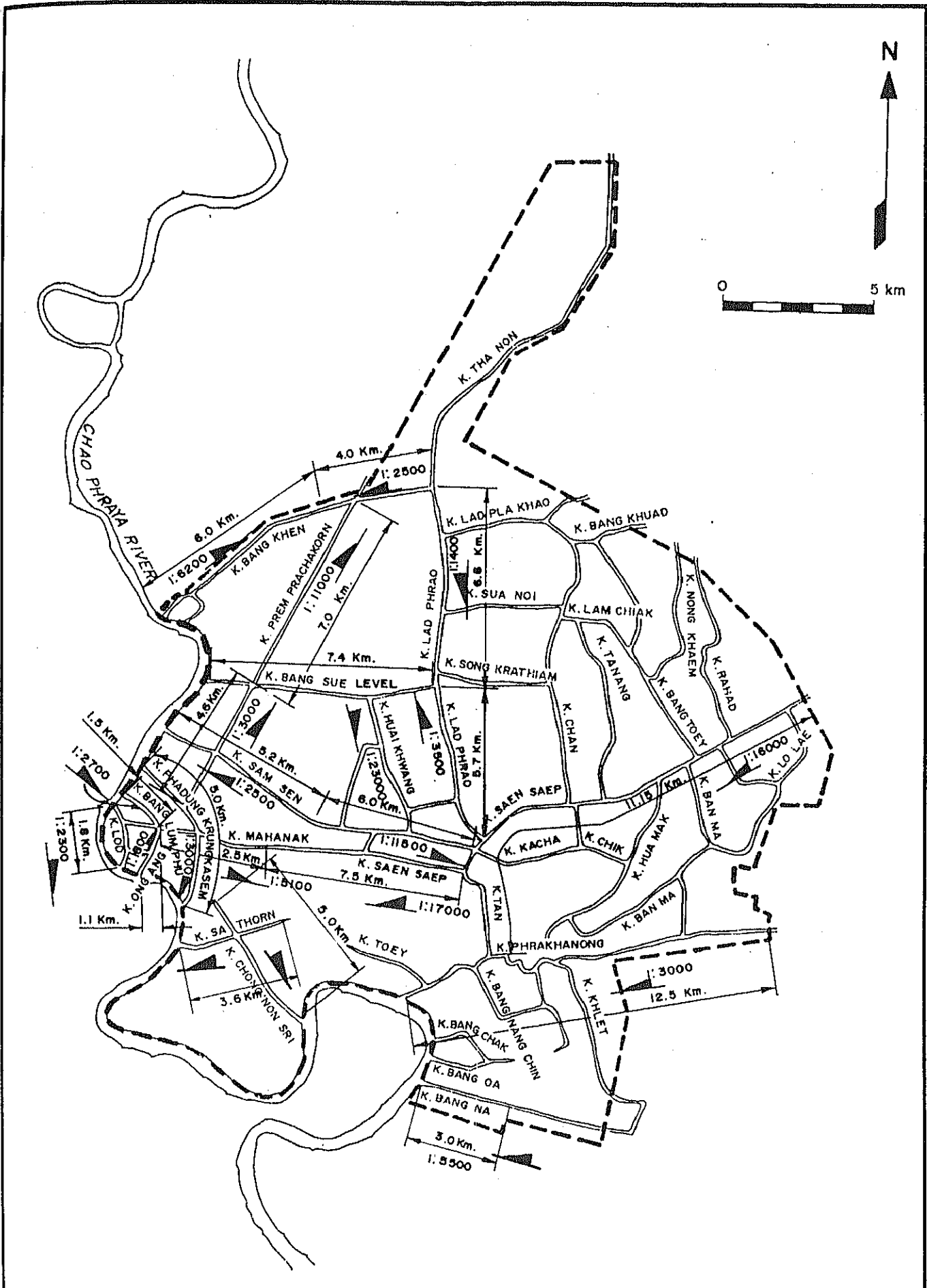


FIG. B.8

EXISTING BED SLOPE OF MAJOR KLONGS

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK



FIG. B.9

CALCULATED MAXIMUM DISCHARGE CAPACITY
OF MAJOR KLONGS

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

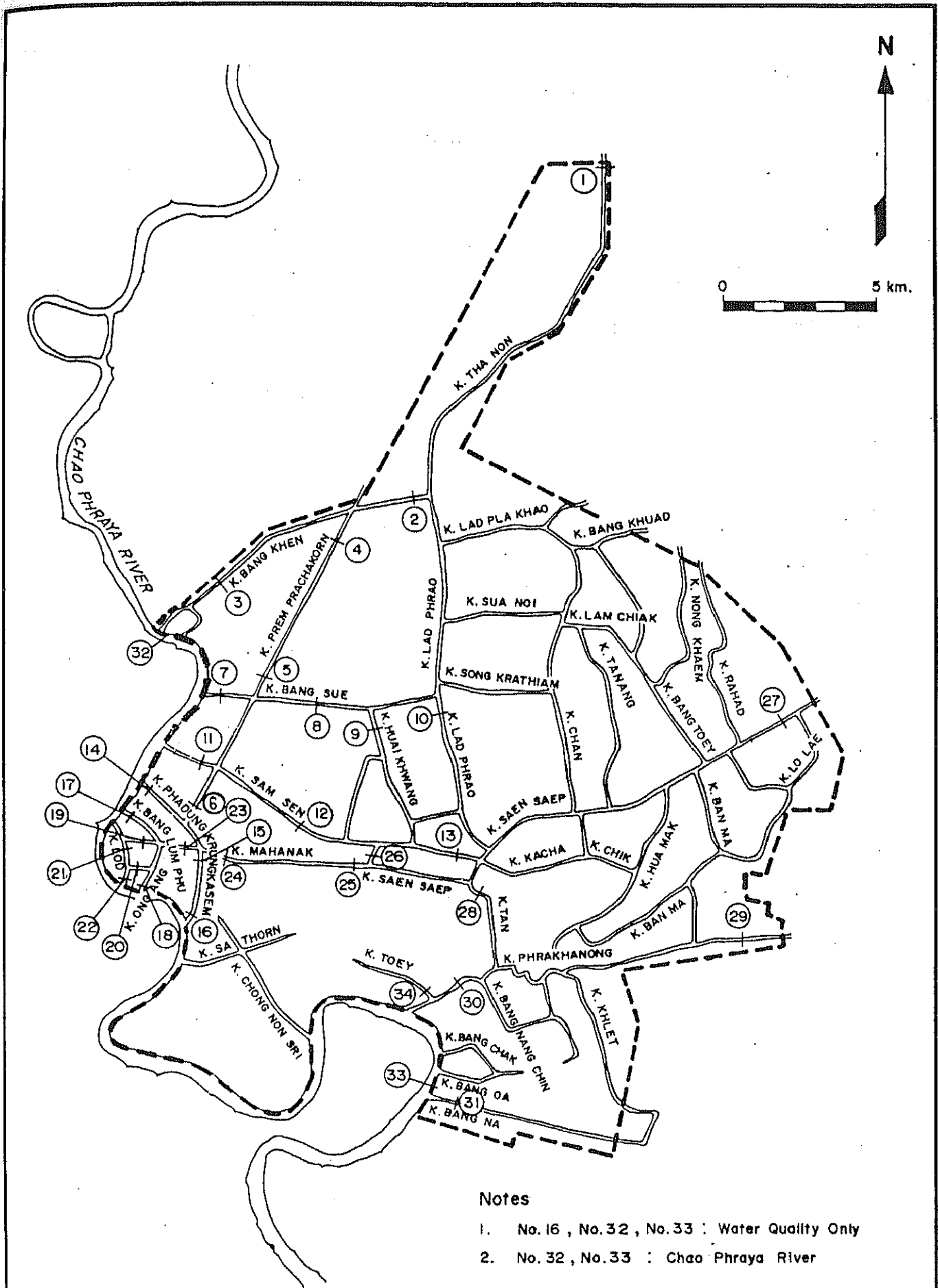
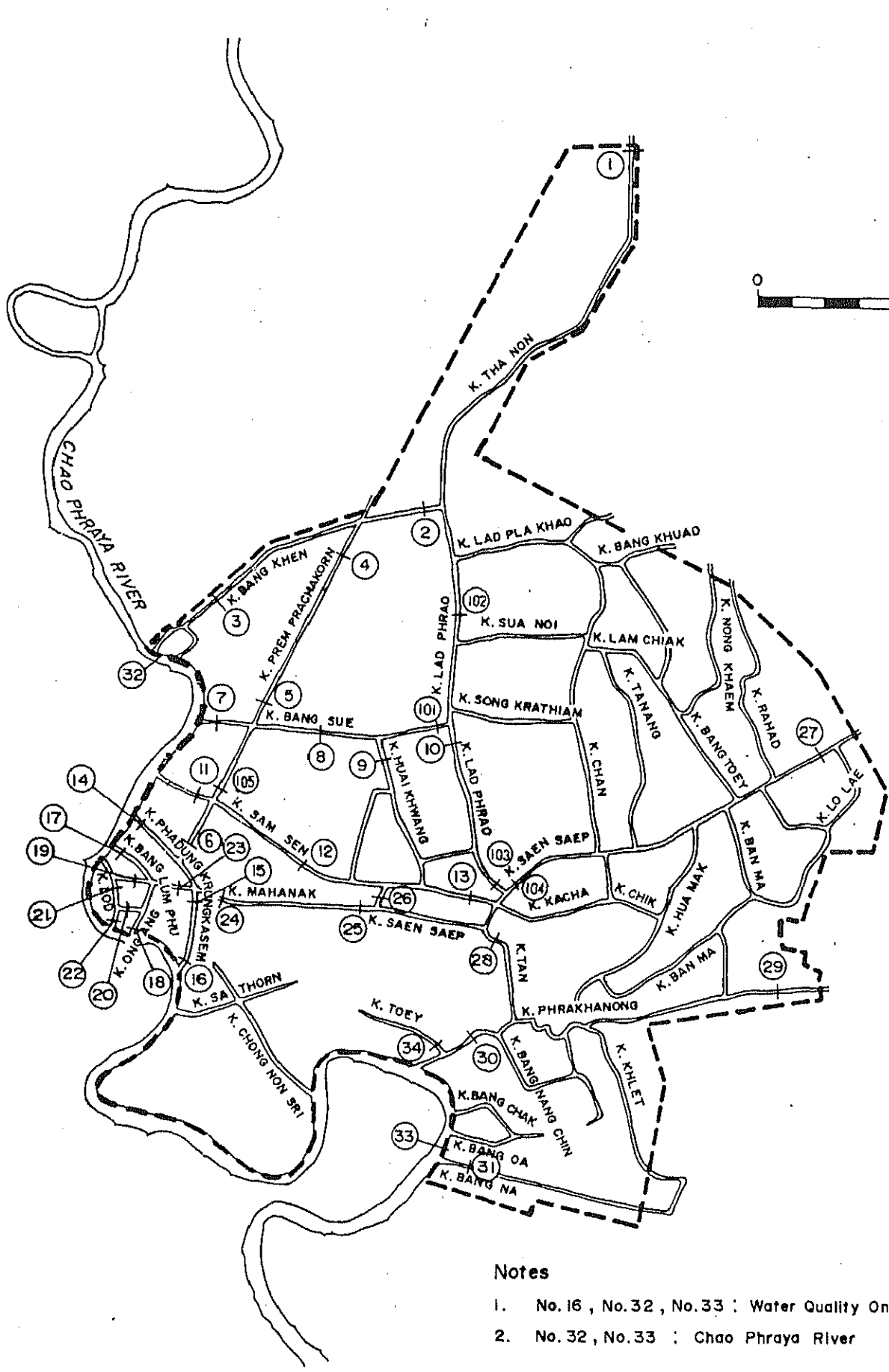


FIG. B.10

LOCATION OF OBSERVATION STATION IN DRY SEASON

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK



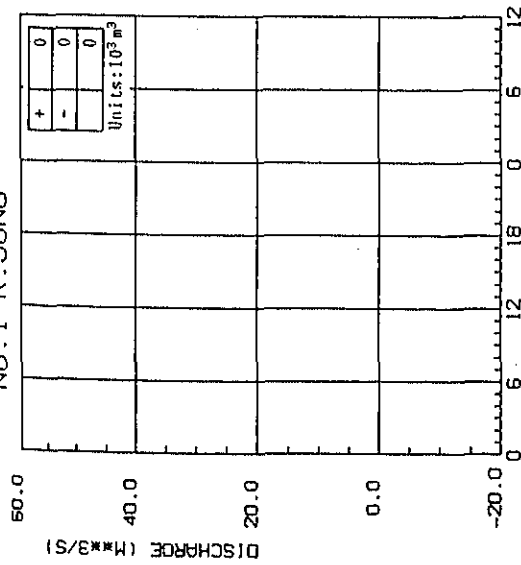
- Notes**
1. No. 16, No. 32, No. 33 : Water Quality Only
 2. No. 32, No. 33 : Chao Phraya River

FIG. B.11 LOCATION OF OBSERVATION STATION IN RAINY SEASON

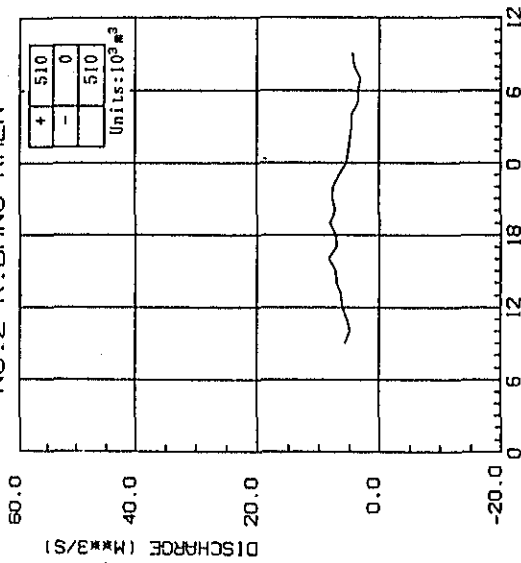
THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

FEBRUARY 3-4, 1988

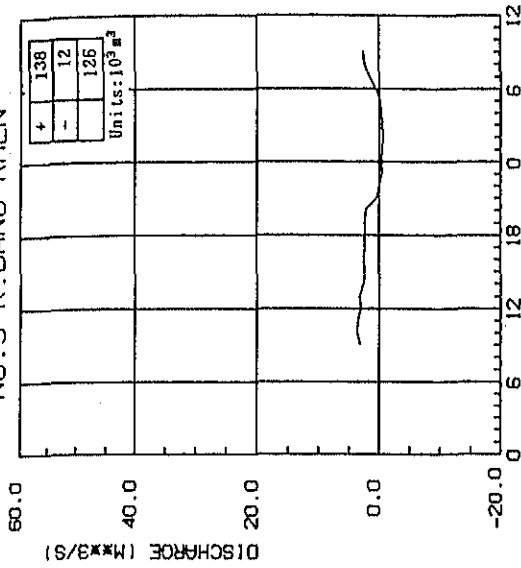
NO.1 K.SONG



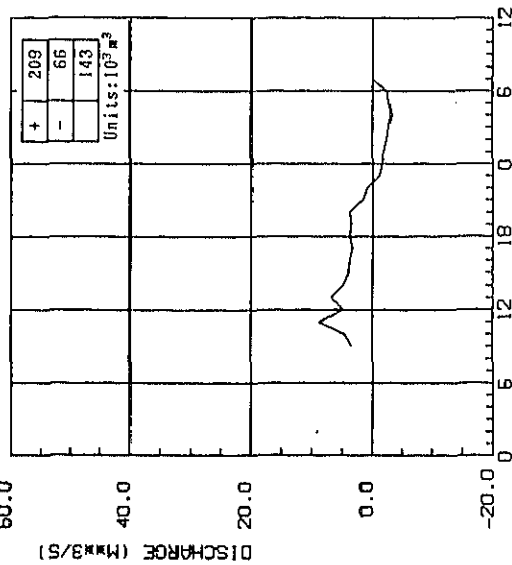
NO.2 K.BANG KHEN



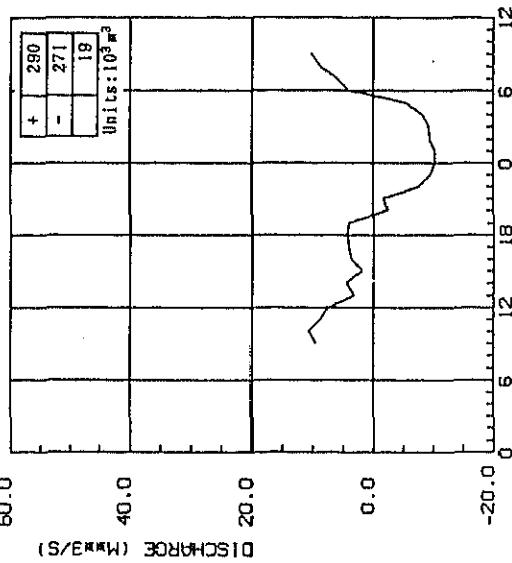
NO.3 K.BANG KHEN



NO.4 K.PREM



NO.5 K.PREM



NO.6 K.PREM

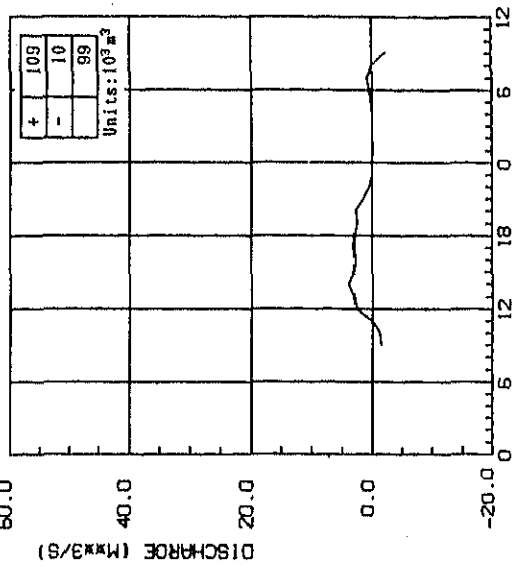


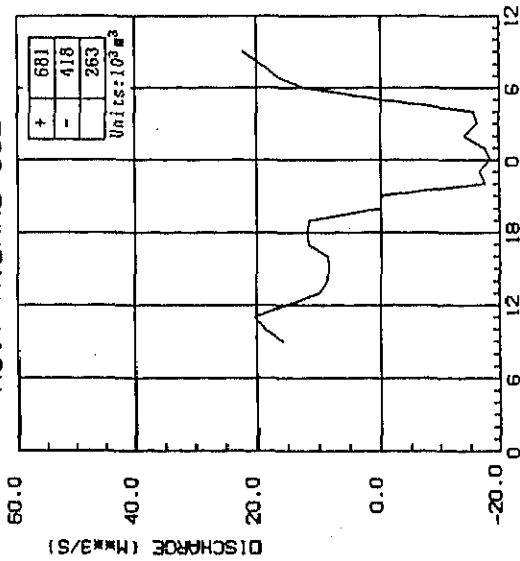
FIG. B.12(1)

OBSERVED DISCHARGE VARIATION

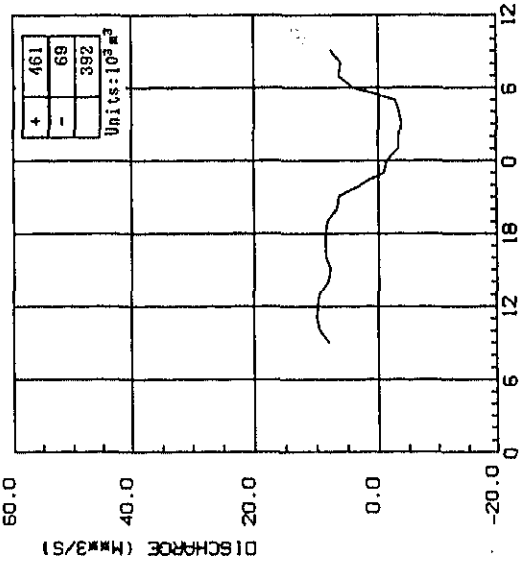
THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

FEBRUARY 3-4, 1988

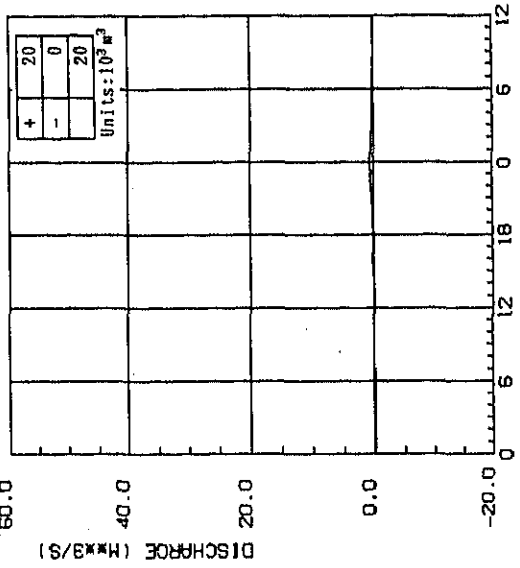
NO.7 K.BANG SUE



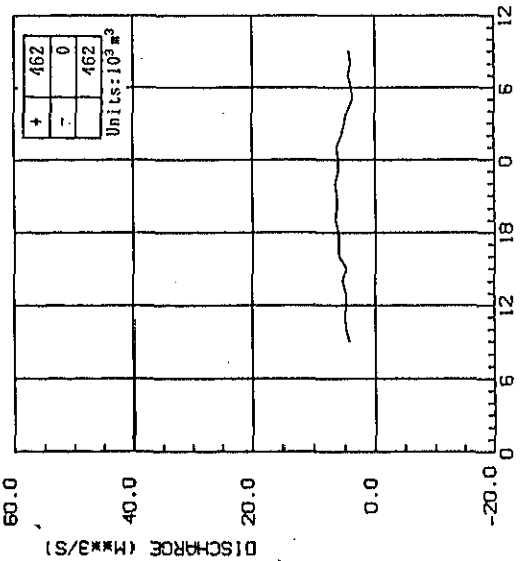
NO.8 K.BANG SUE



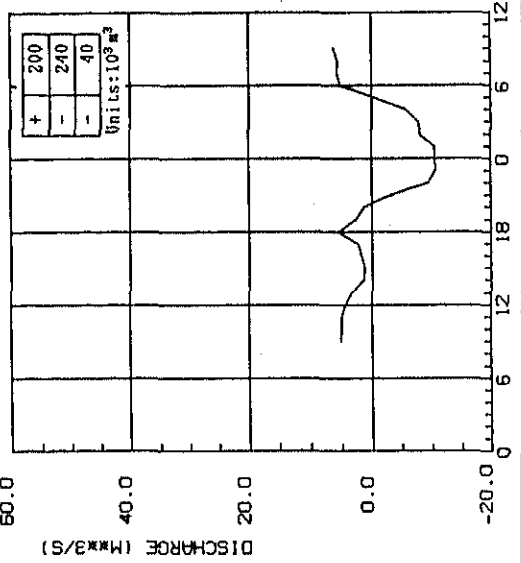
NO.9 K.HUAI KHUANG



NO.10 K.LAD PHRAO



NO.11 K.SAM SEN



NO.12 K.SAM SEN

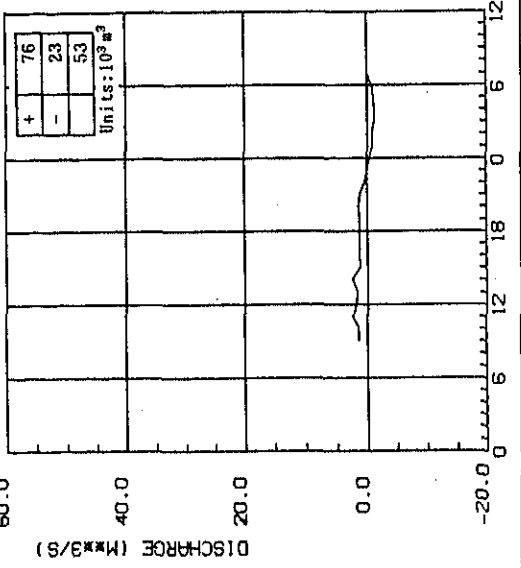


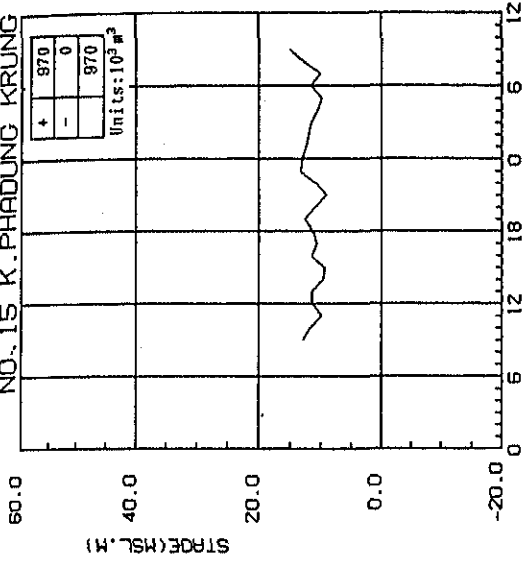
FIG. B.12(2)

OBSERVED DISCHARGE VARIATION

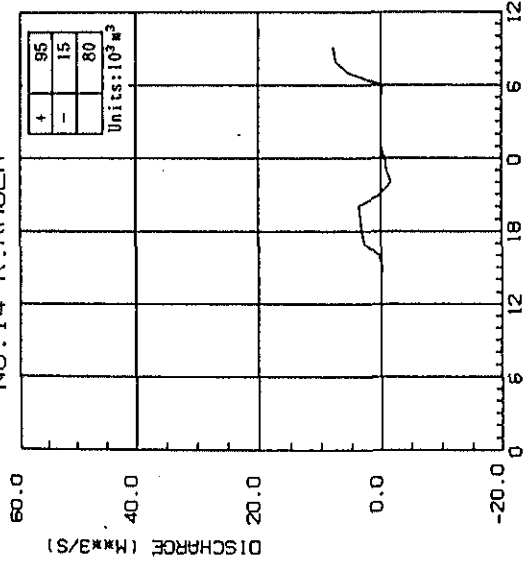
THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

FEBRUARY 3-4, 1988

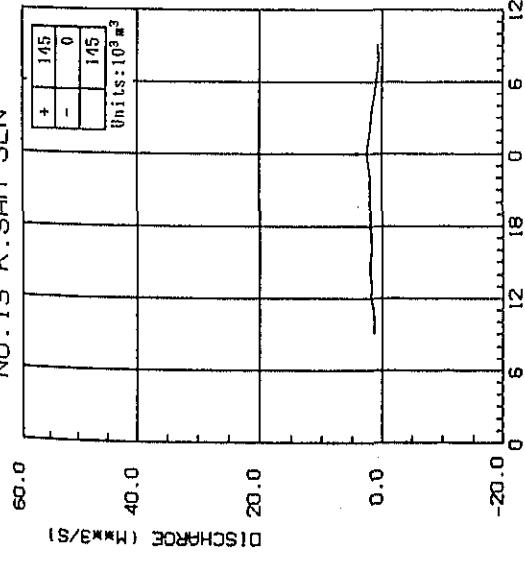
NO. 15 K. PHADUNG KRUNG KASEM



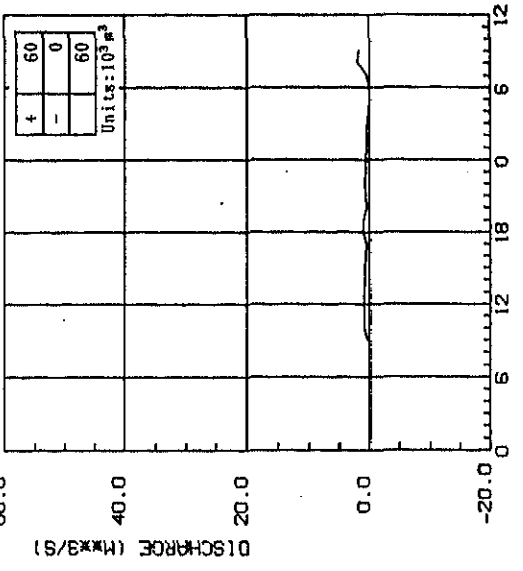
NO. 14 K. KASEM



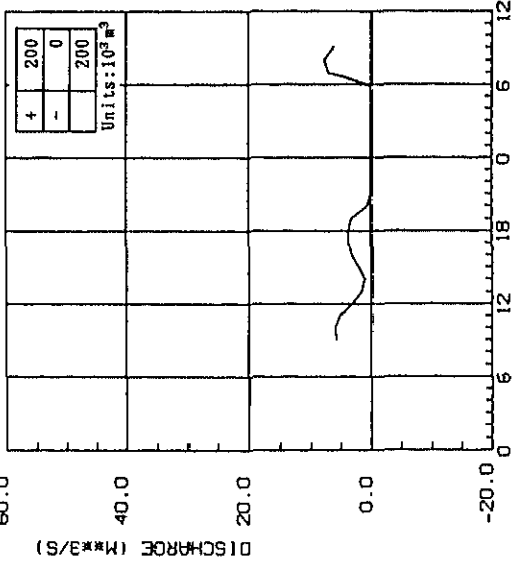
NO. 13 K. SAM SEN



NO. 19 K. WAT TEPTIDA



NO. 18 K. ONG ANG



NO. 17 K. BANG LUM PHU

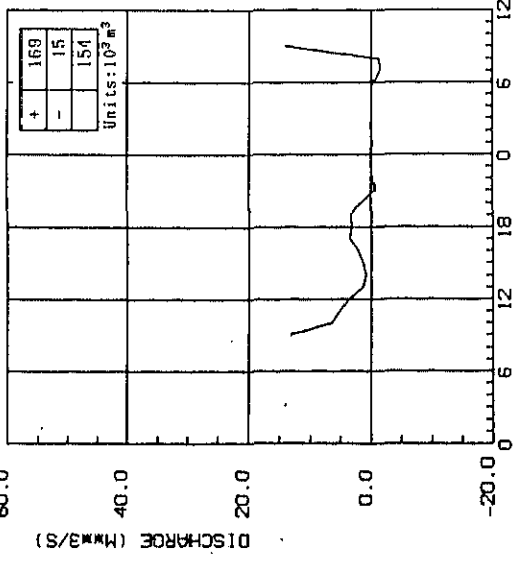
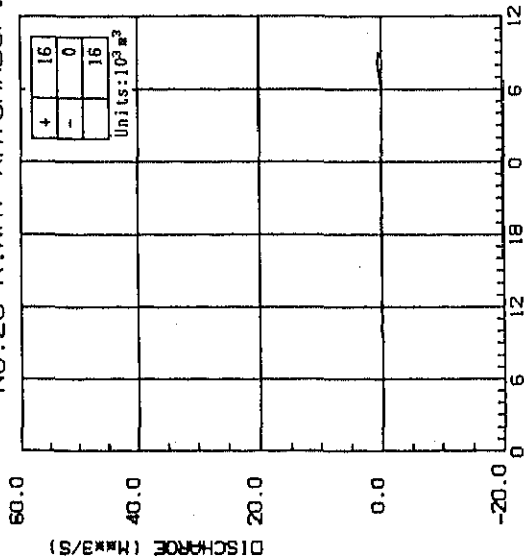


FIG. B. 12(3) OBSERVED DISCHARGE VARIATION

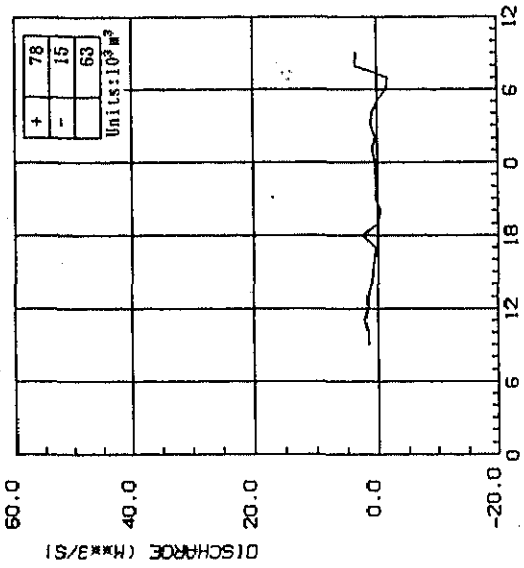
THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

FEBRUARY 3-4, 1988

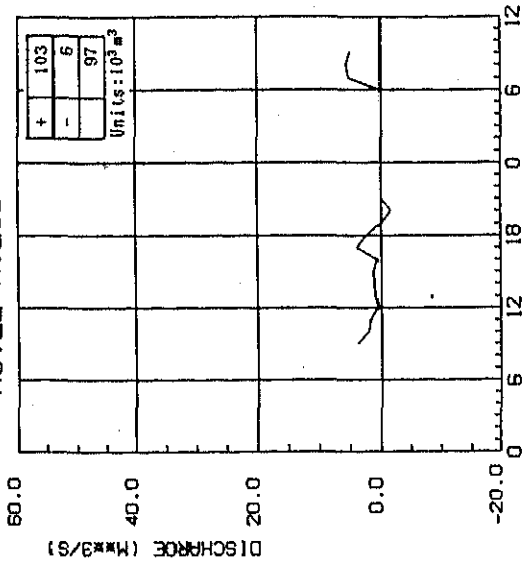
NO.20 K.WAT RATCHABOPHITH



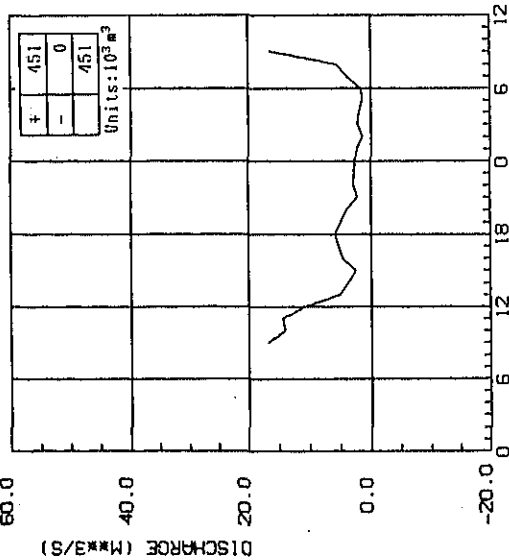
NO.21 K.LOD



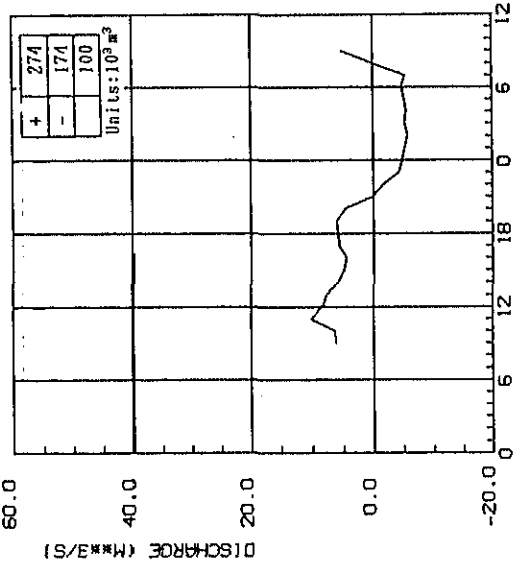
NO.22 K.LOD



NO.23 K.MAHANAK



NO.24 K.MAHANAK



NO.25 K.SAEN SAEP

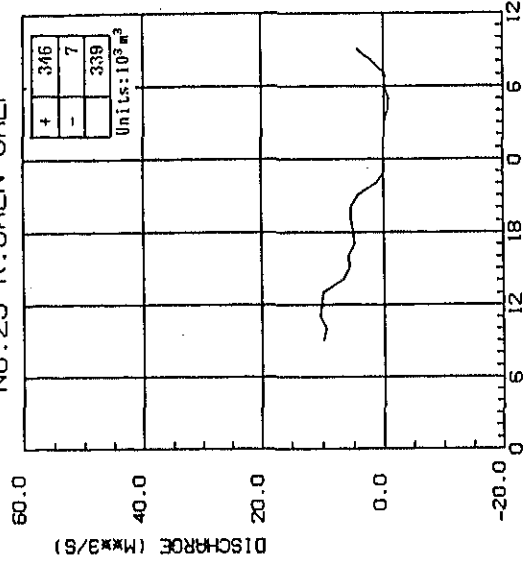
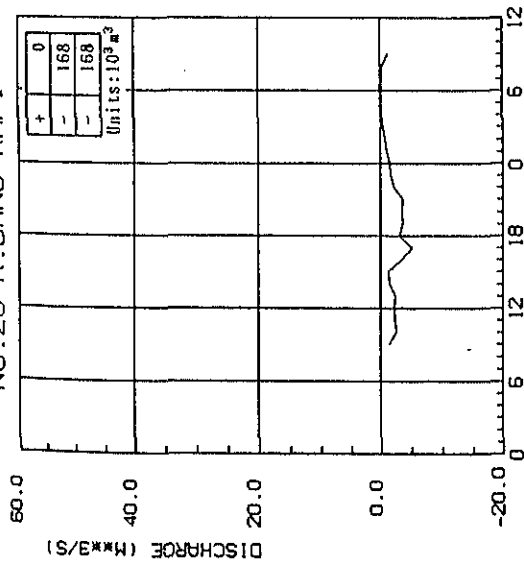


FIG. B.12 (4) OBSERVED DISCHARGE VARIATION

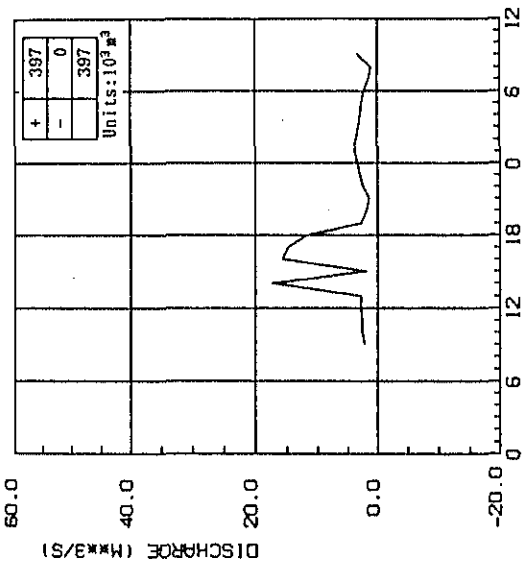
THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

FEBRUARY 3-4, 1988

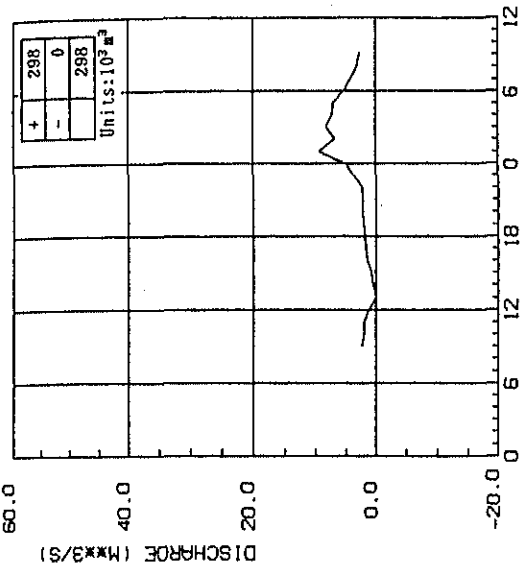
NO.26 K.BANG KAPI



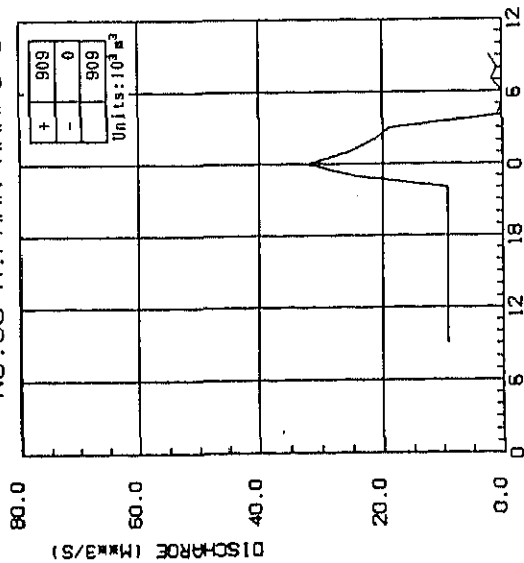
NO.28 K.TAN



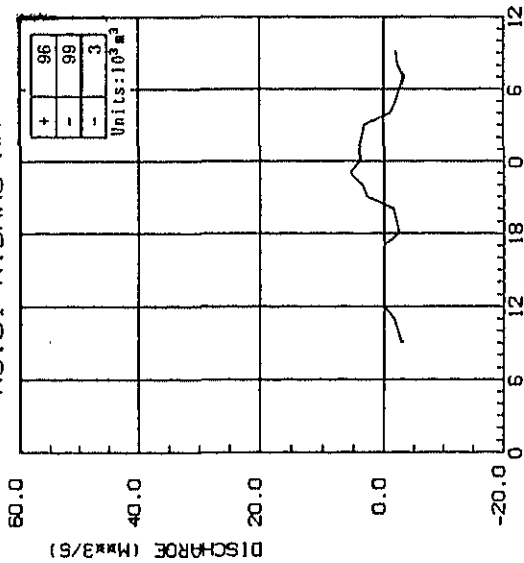
NO.29 K.PHRA KHANONG



NO.30 K.PHRA KHANONG



NO.31 K.BANG NA



NO.34 K.TOEY

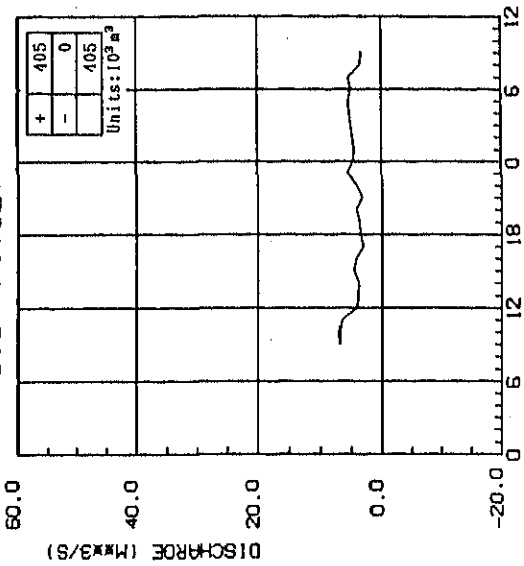


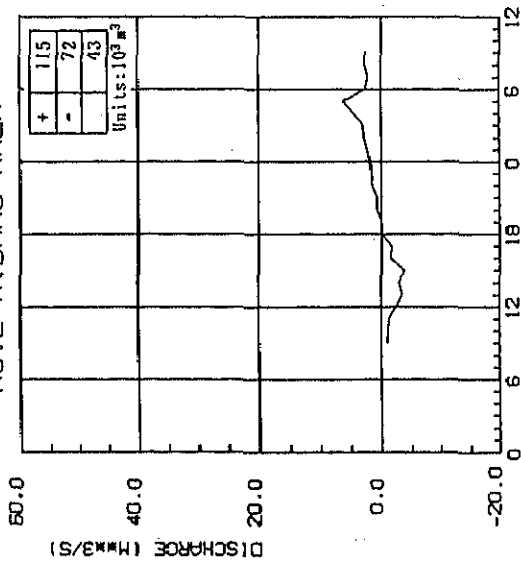
FIG. B.12 (5)

OBSERVED DISCHARGE VARIATION

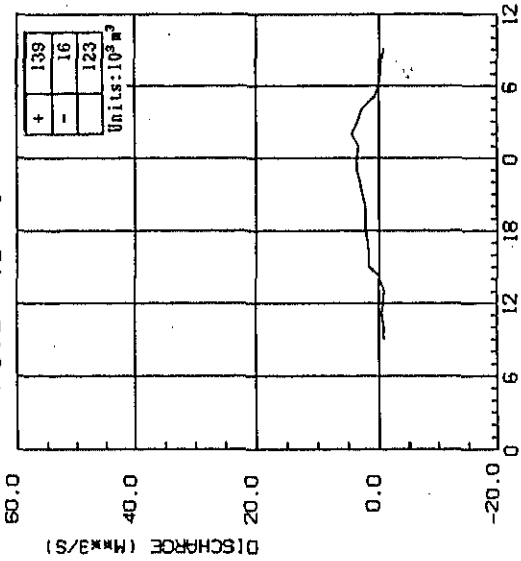
THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

JULY 9-10, 1988

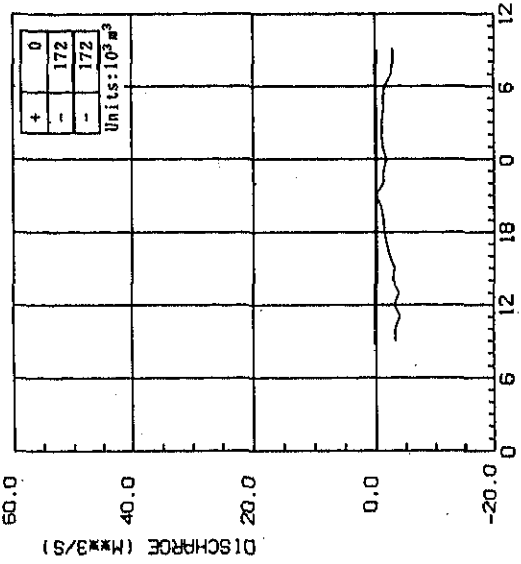
NO.2 K.BANG KHEN



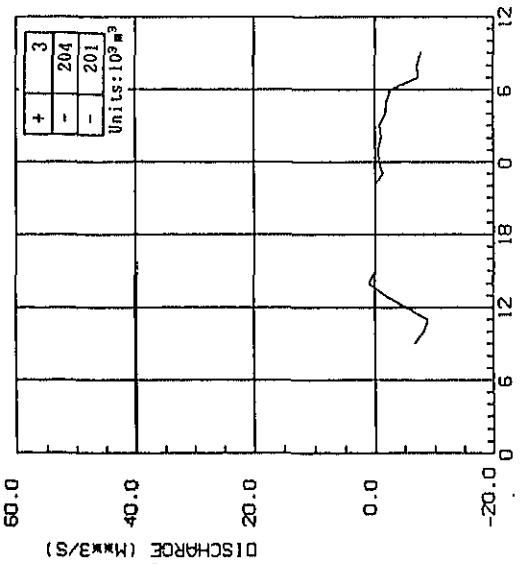
NO.3 K.BANG KHEN



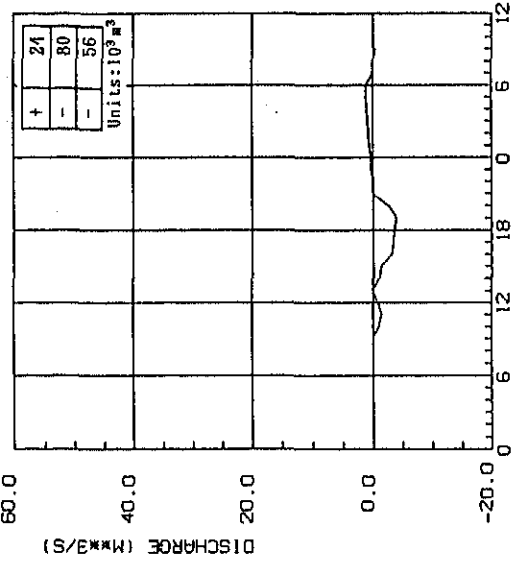
NO.4 K.PREM



NO.5 K.PREM



NO.6 K.PREM



NO.7 K.BANG SUE

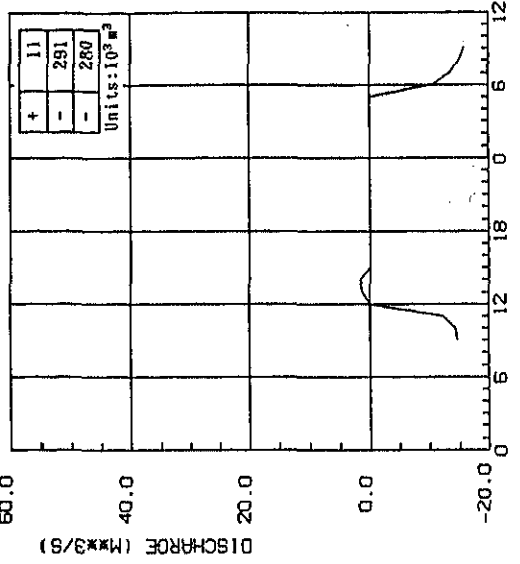


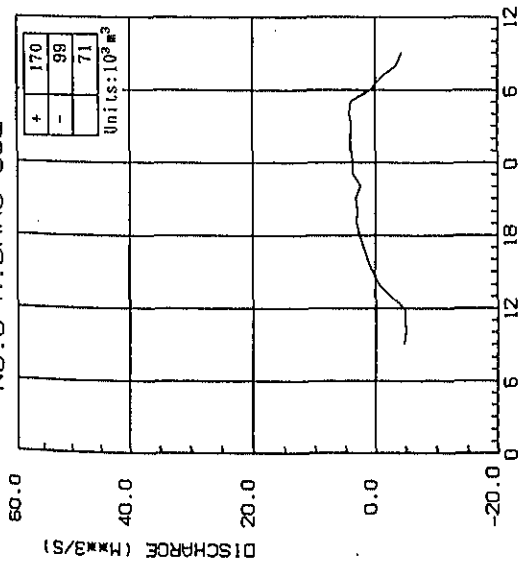
FIG. B.12 (6) OBSERVED DISCHARGE VARIATION

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

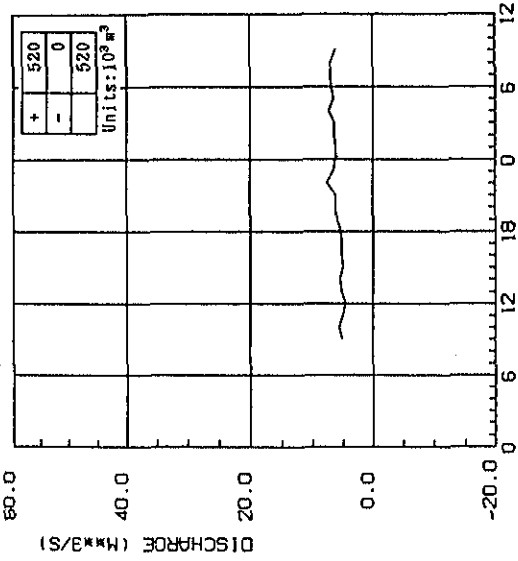


JULY 9-10, 1988

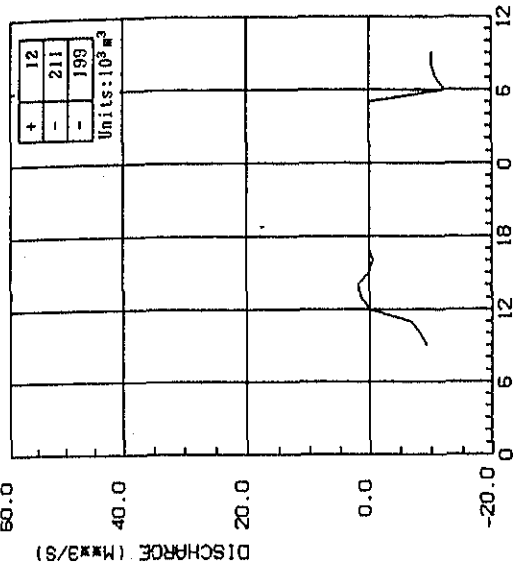
NO. 8 K. BANG SUE



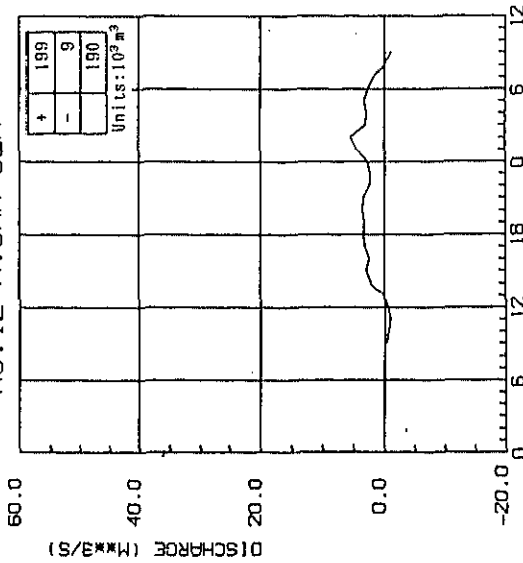
NO. 10 K. LAD PHRAO



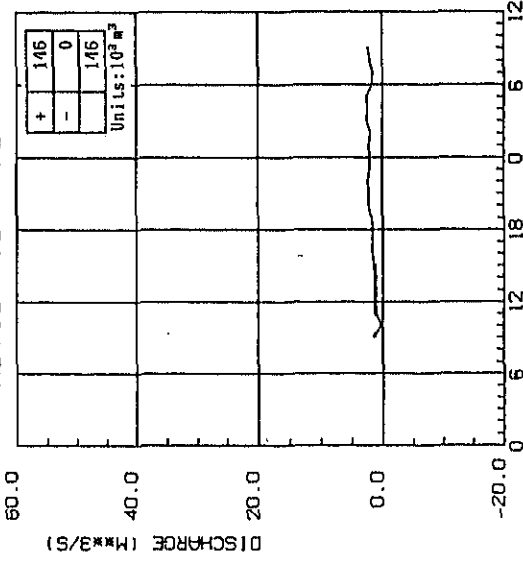
NO. 11 K. SAM SEN



NO. 12 K. SAM SEN



NO. 13 K. SAM SEN



NO. 14 K. KASEM

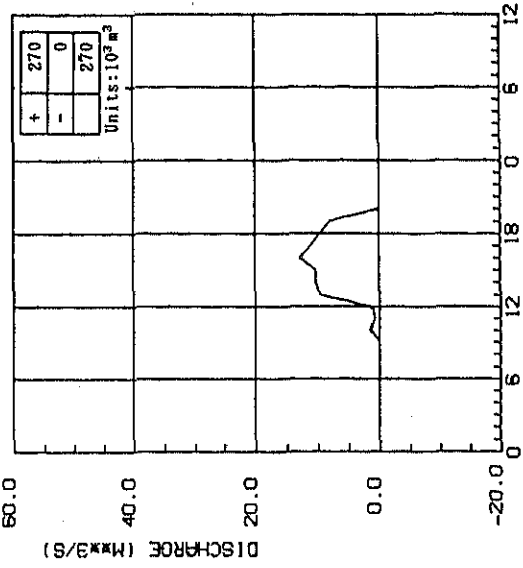


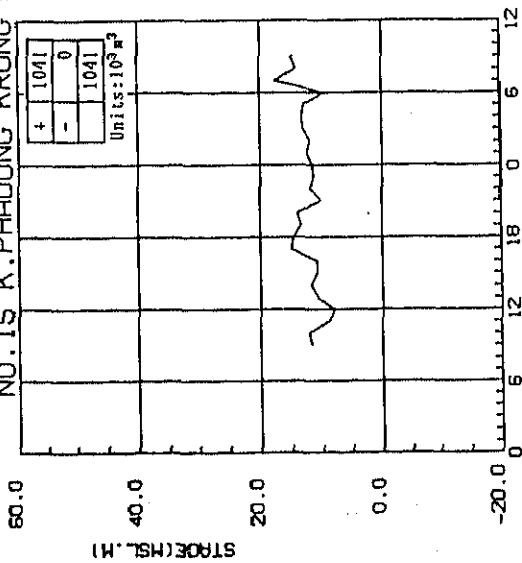
FIG. B. 12 (7)

OBSERVED DISCHARGE VARIATION

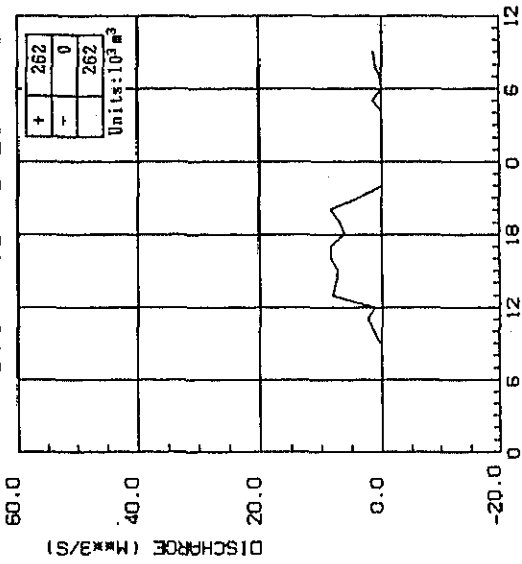
THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

JULY 9 - 10, 1988

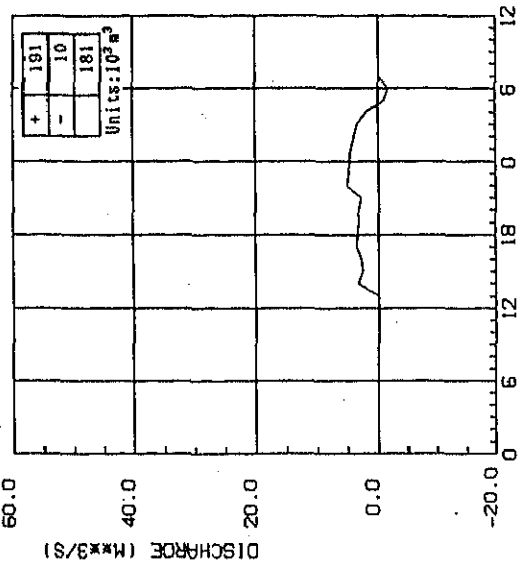
NO. 15 K. PHADUNG KRUNG KASEM



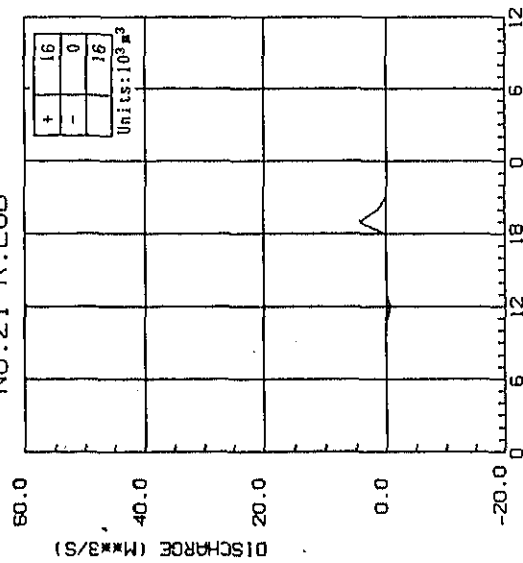
NO. 17 K. BANG LUM PHU



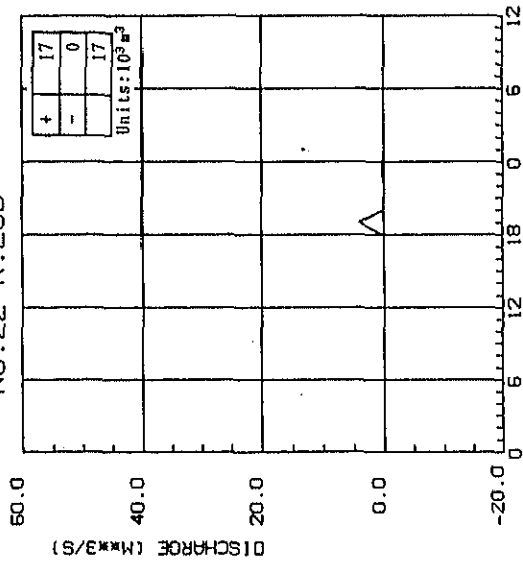
NO. 18 K. ONG ANG



NO. 21 K. LOD



NO. 22 K. LOD



NO. 23 K. MAHANAK

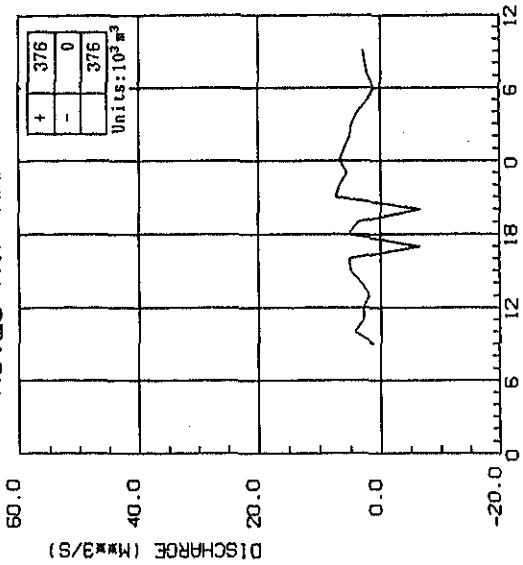
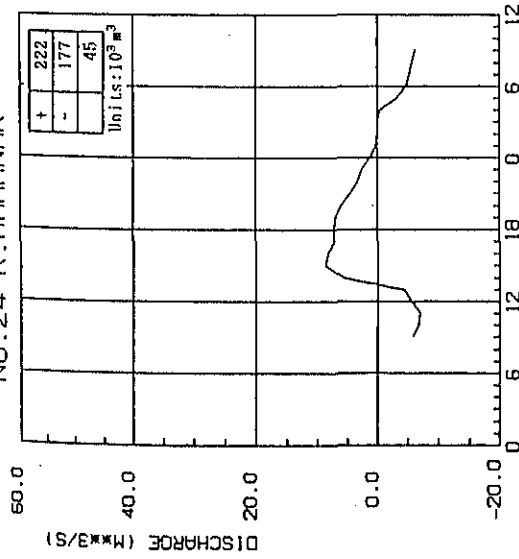


FIG. B. 12 (8) OBSERVED DISCHARGE VARIATION

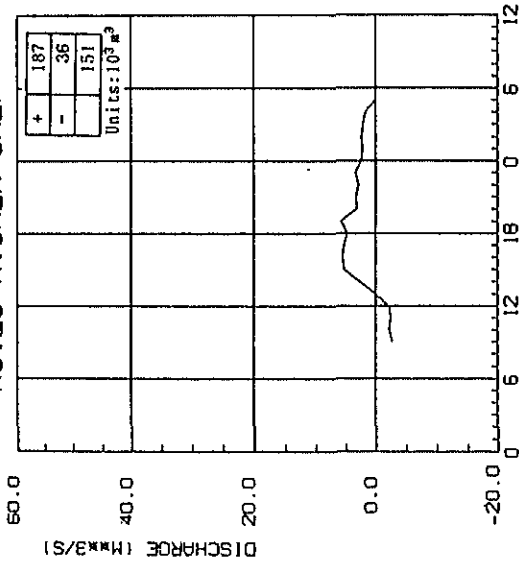
THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

JULY 9 - 10, 1988

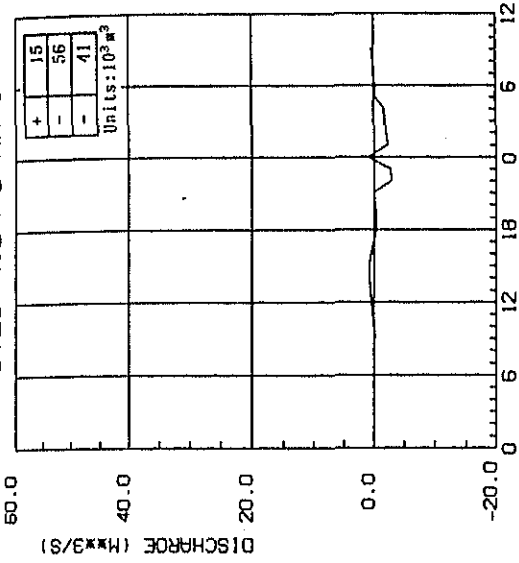
NO. 24 K. MAHANAK



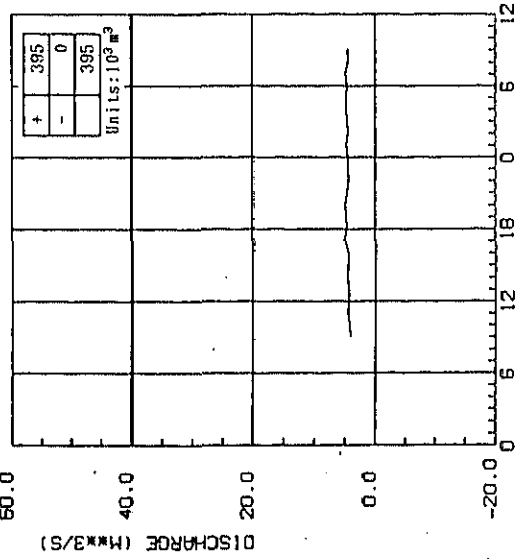
NO. 25 K. SAEN SAEP



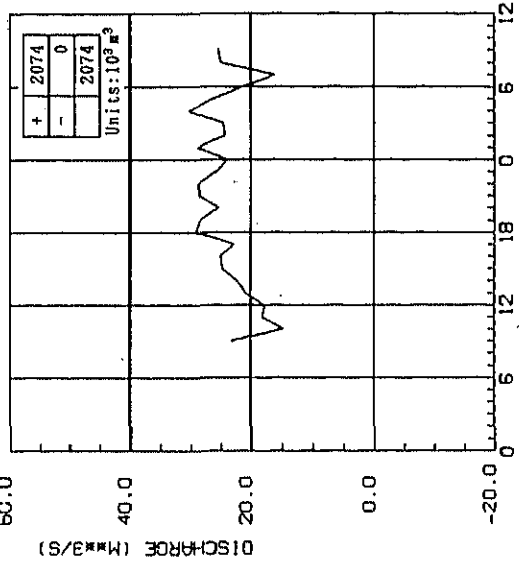
NO. 26 K. BANG KAPI



NO. 27 K. SAEN SAEP



NO. 28 K. TAN



NO. 29 K. PHRA KHANGONG

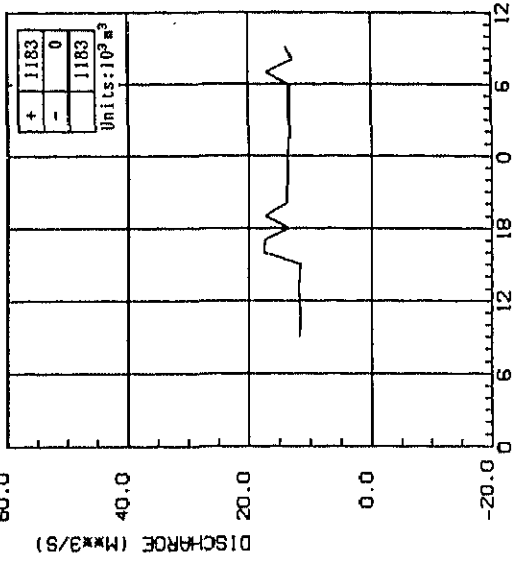


FIG. B. 12 (9) OBSERVED DISCHARGE VARIATION

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

..... Y 9-10, 1988

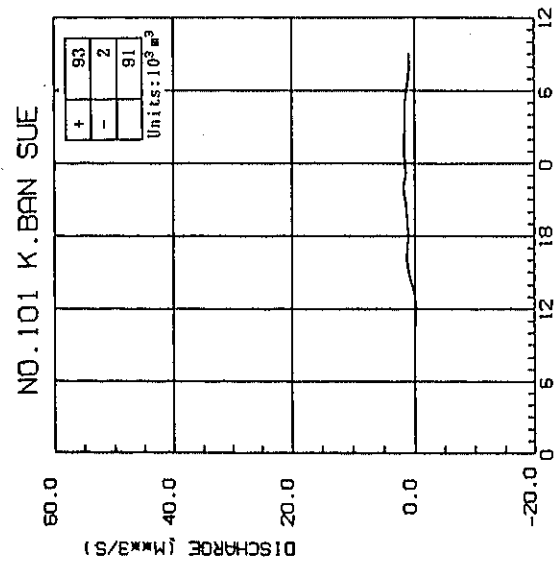
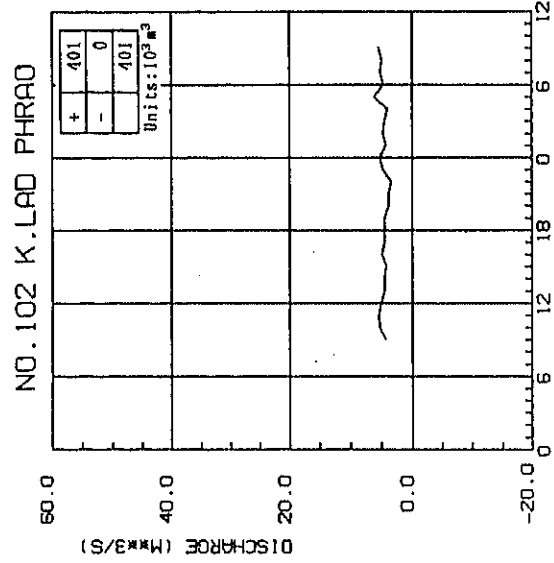
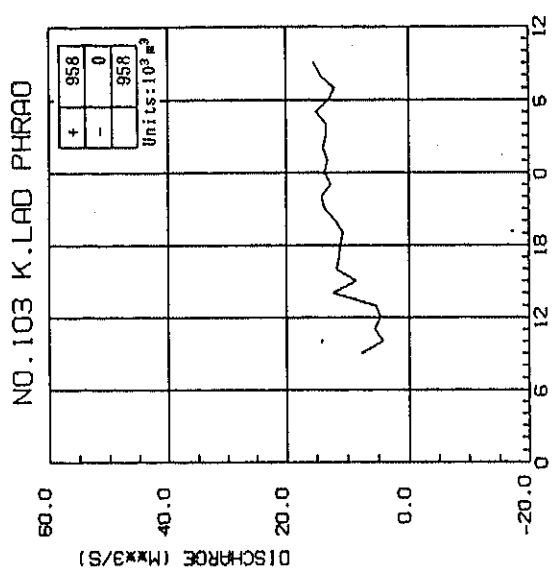
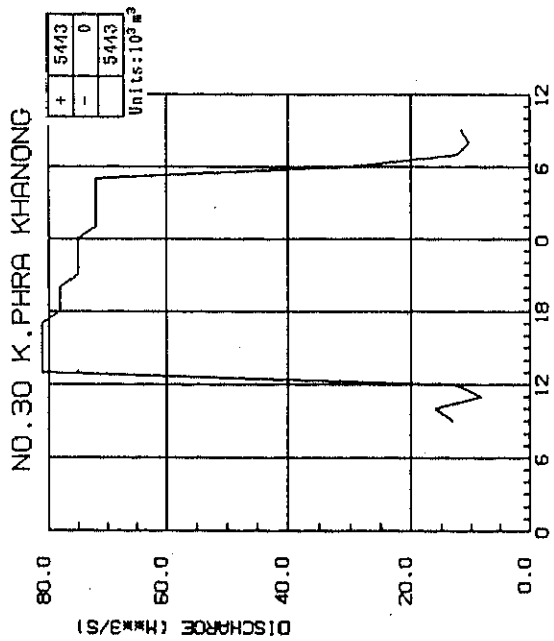
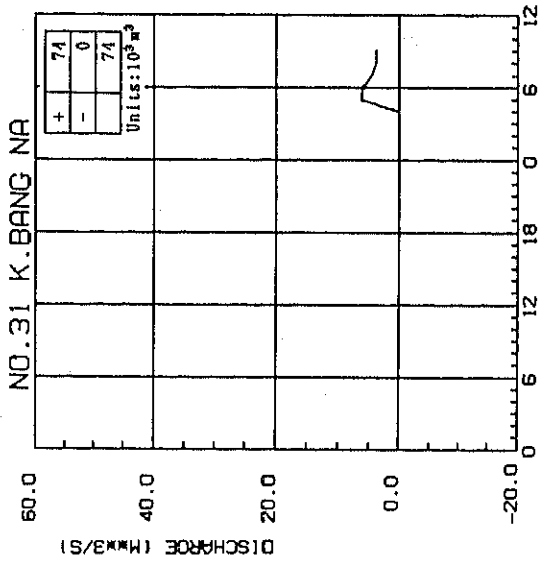
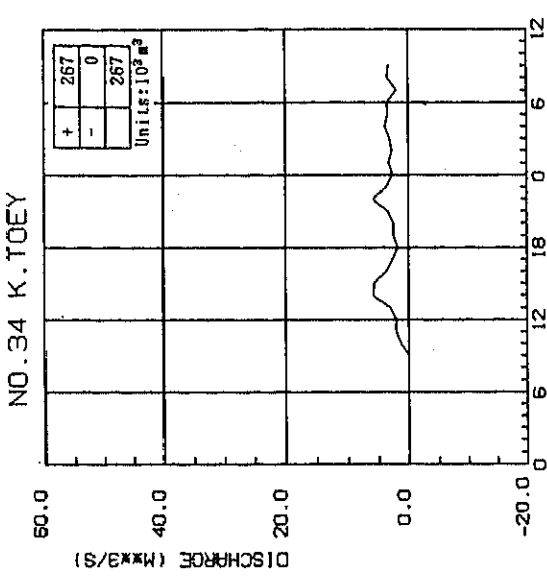


FIG. B.12 (10) OBSERVED DISCHARGE VARIATION

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK



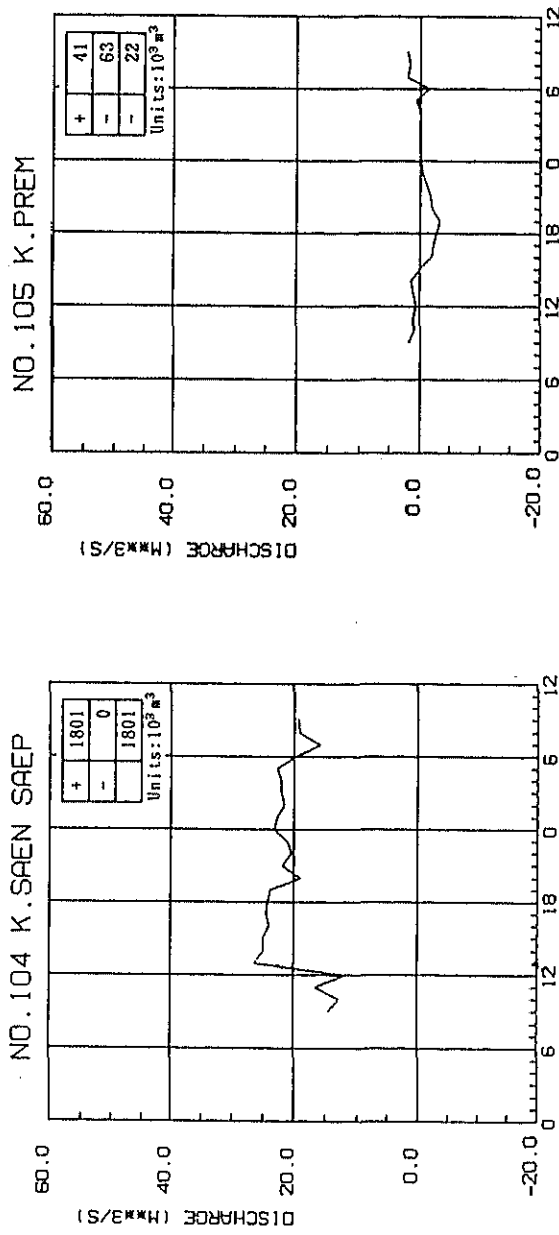
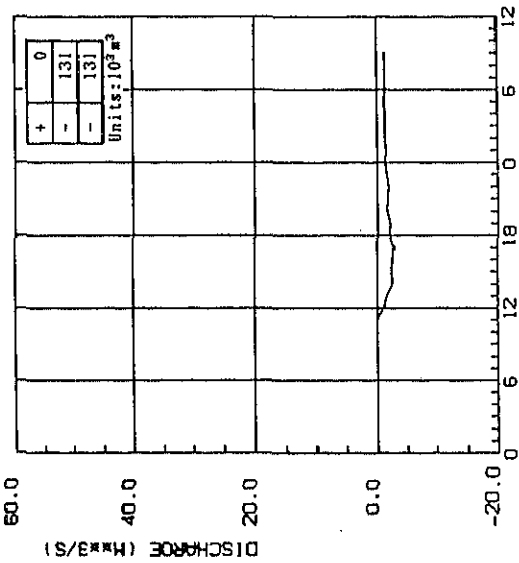


FIG. B.12 (11) OBSERVED DISCHARGE VARIATION

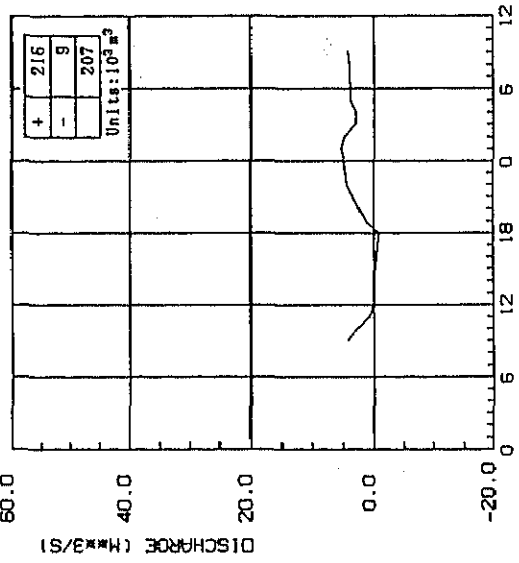
THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

JULY 16-17, 1988

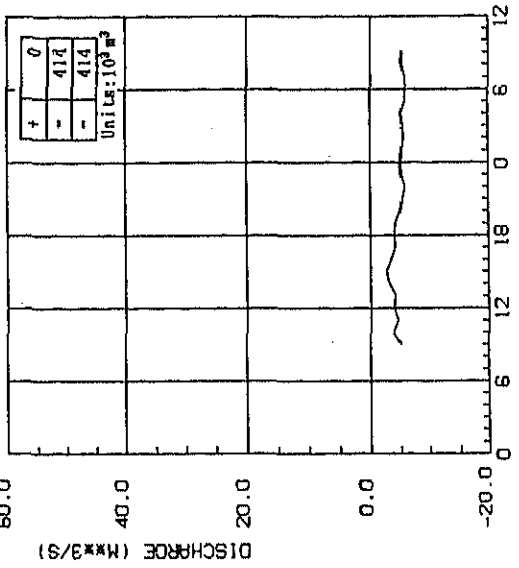
NO.2 K.BANG KHEN



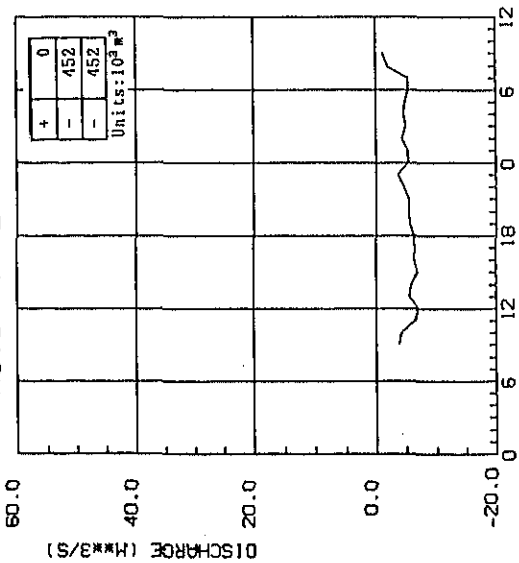
NO.3 K.BANG KHEN



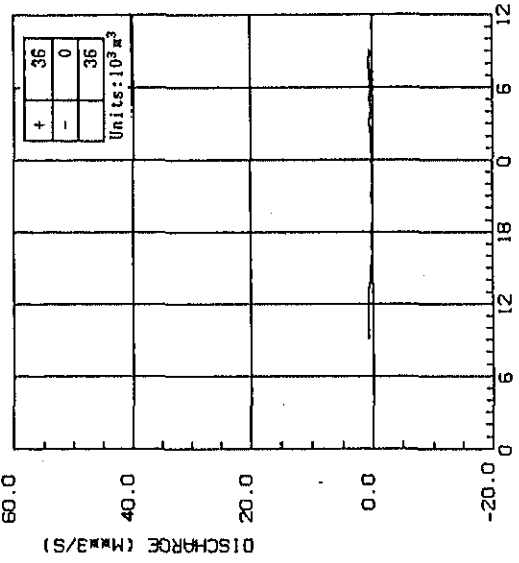
NO.4 K.PREM



NO.5 K.PREM



NO.6 K.PREM



NO.7 K.BANG SUE

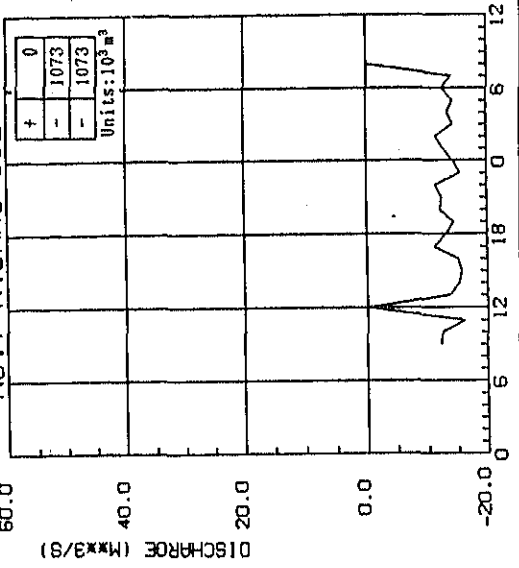
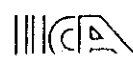


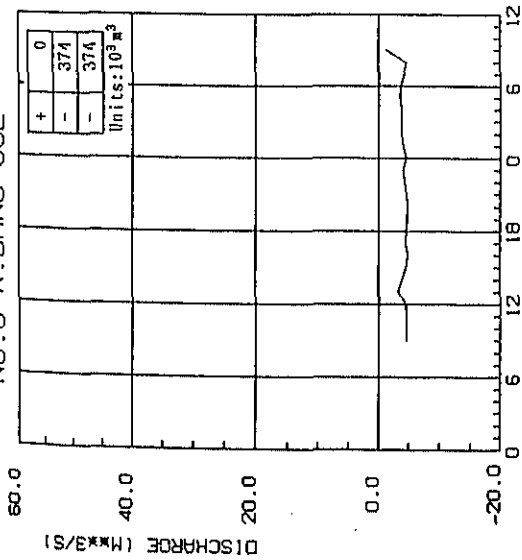
FIG. B.12 (12) OBSERVED DISCHARGE VARIATION

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

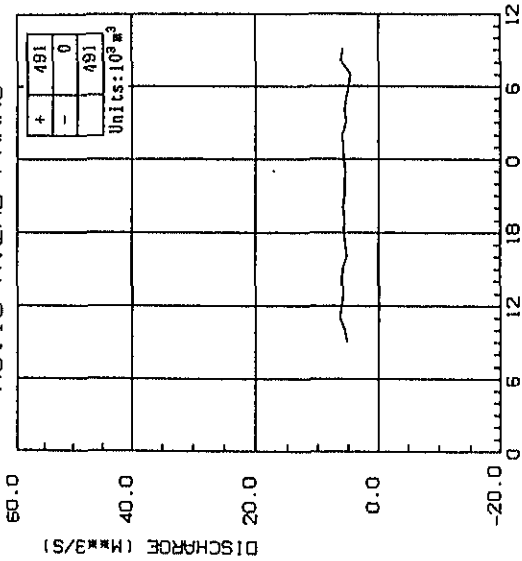


JULY 16-17, 1988

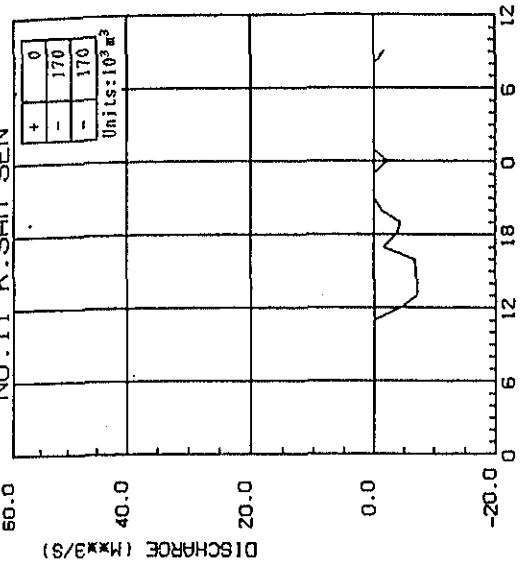
NO. 8 K. BANG SUE



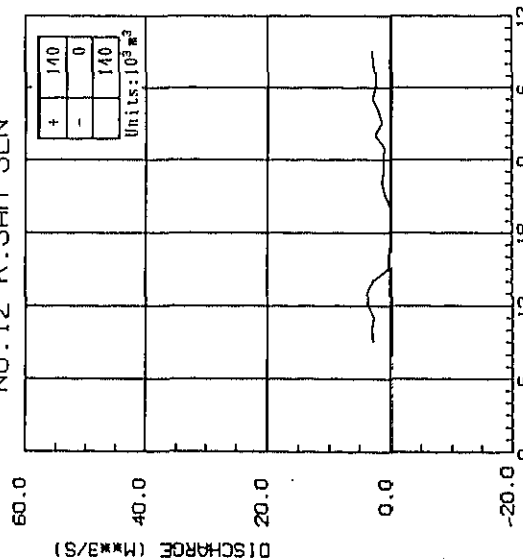
NO. 10 K. LAD PHRAO



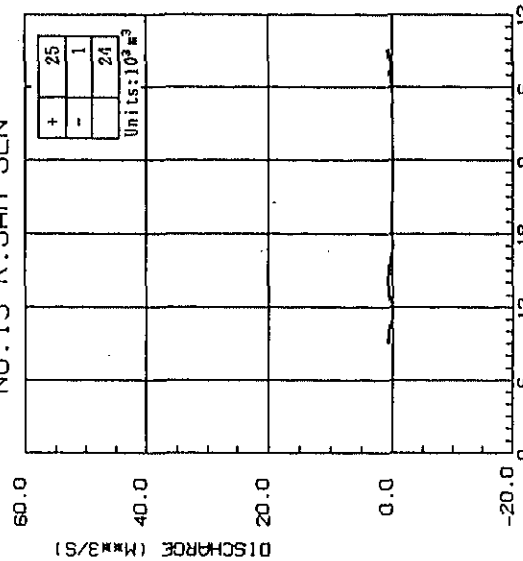
NO. 11 K. SAM SEN



NO. 12 K. SAM SEN



NO. 13 K. SAM SEN



NO. 14 K. KASEM

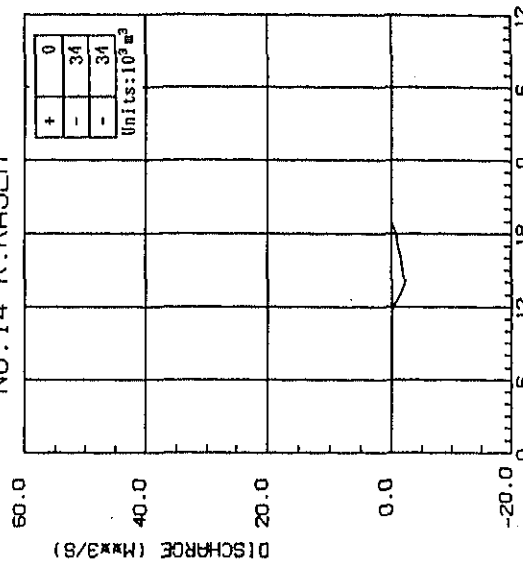
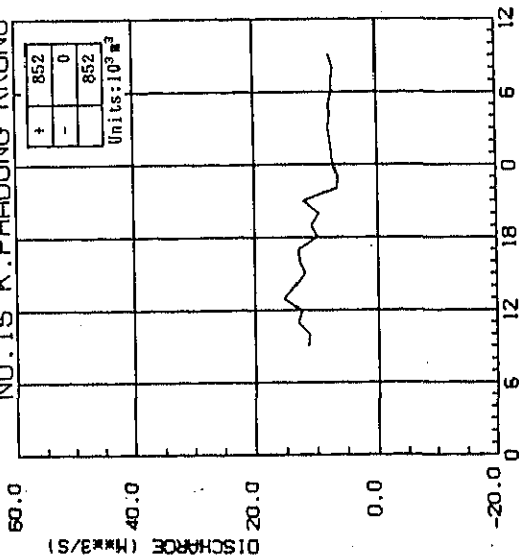


FIG. B. 12 (13) OBSERVED DISCHARGE VARIATION

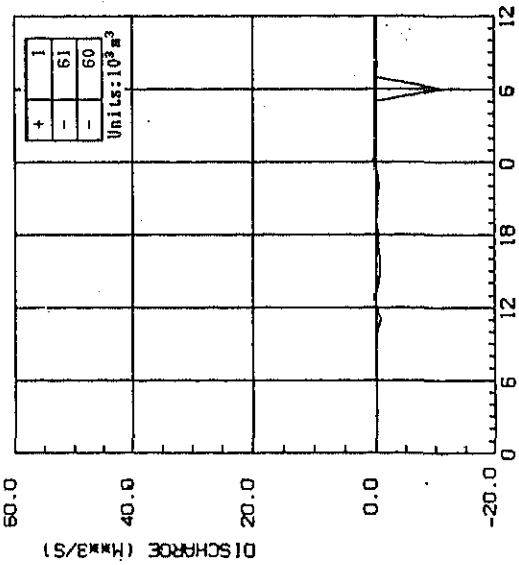
THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

JULY 16-17, 1988

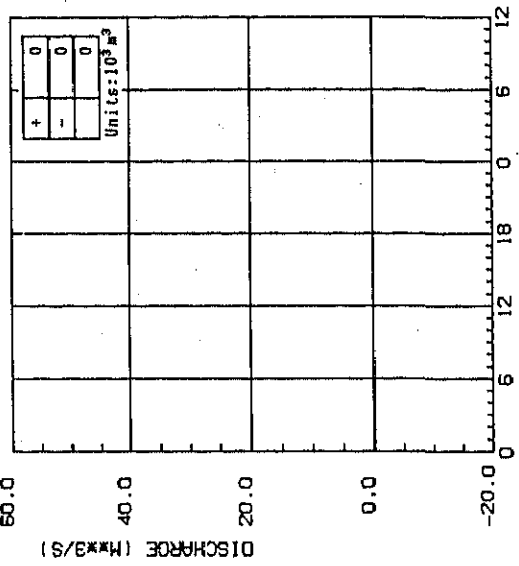
NO.15 K.PHADUNG KRUNG KASEM



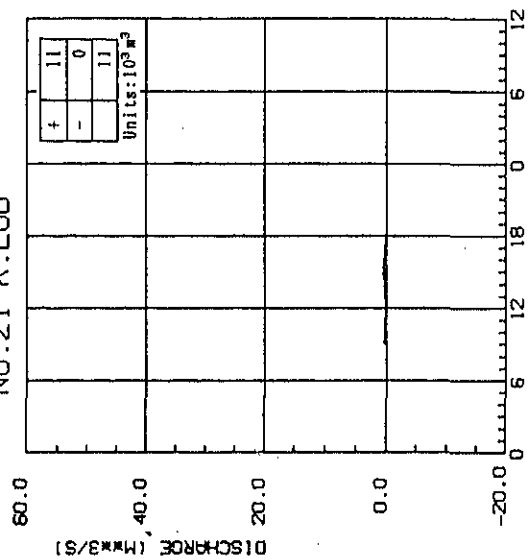
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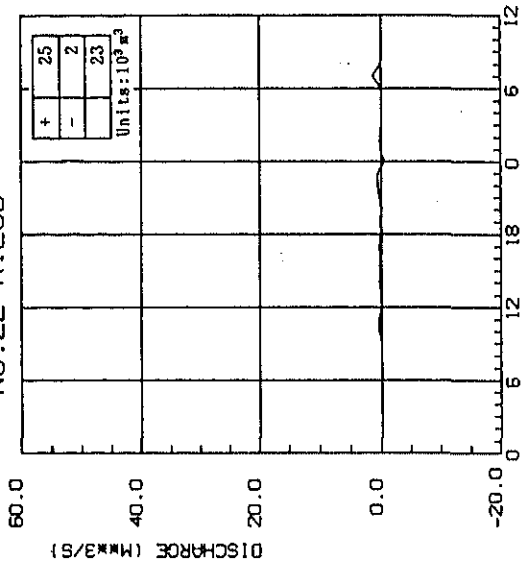
NO.18 K.ONG ANG



NO.21 K.LOD



NO.22 K.LOD



NO.23 K.MAHANAK

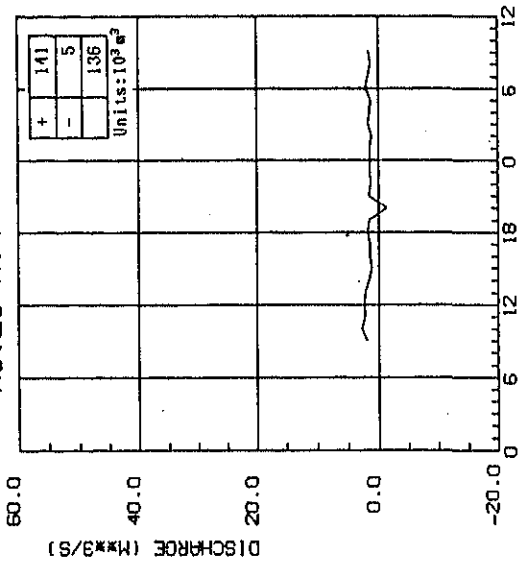


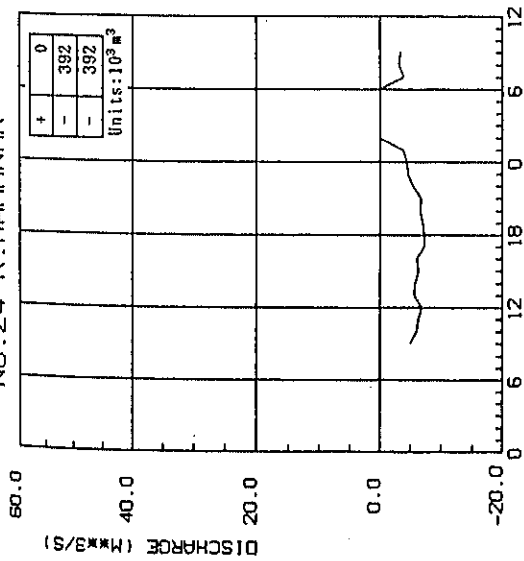
FIG. B.12 (14) OBSERVED DISCHARGE VARIATION

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

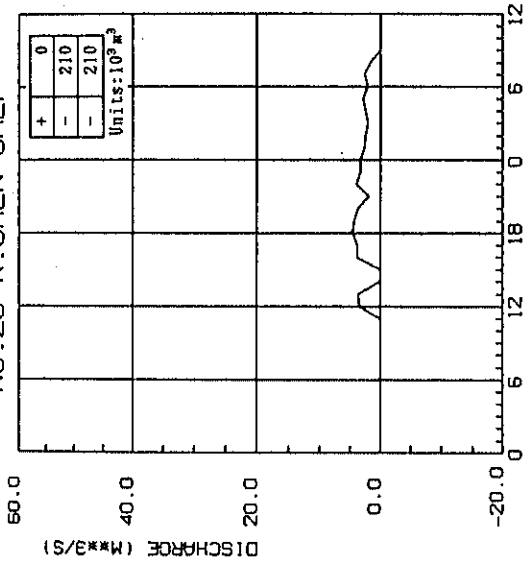


JULY 16-17, 1988

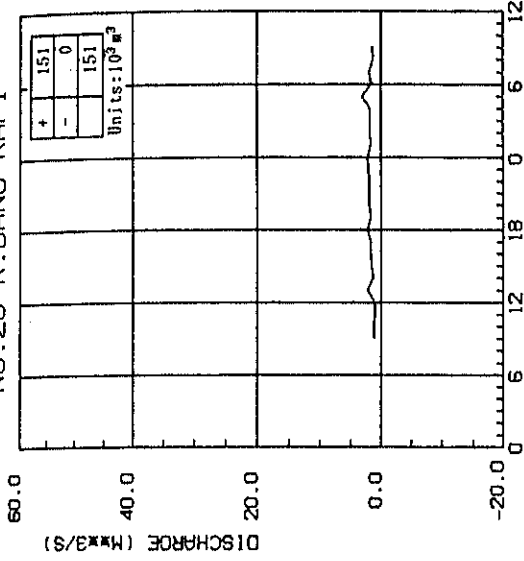
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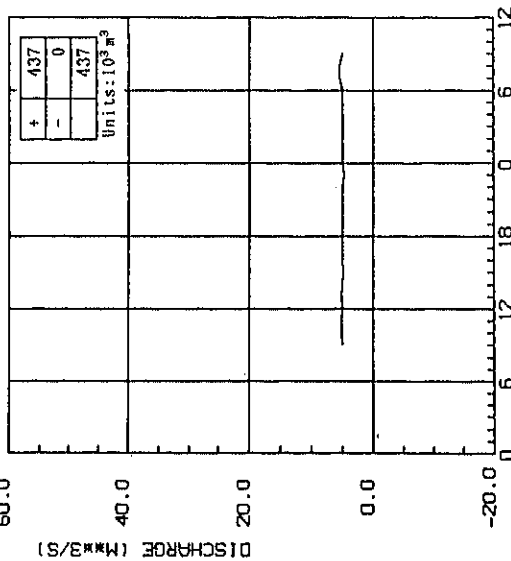
NO. 25 K. SAEN SAEP



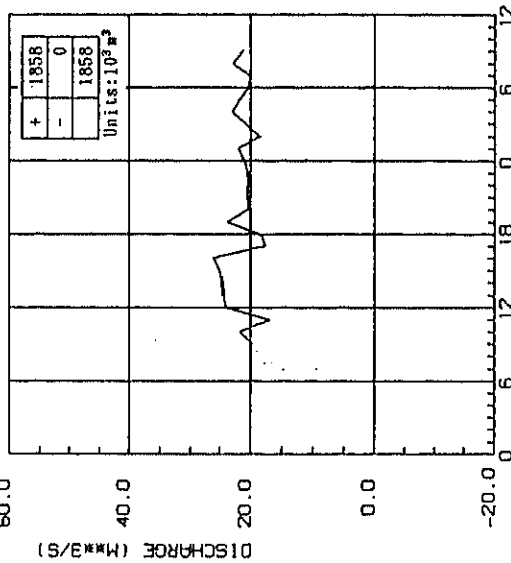
NO. 26 K. BANG KAPI



NO. 27 K. SAEN SAEP



NO. 28 K. TAN



NO. 29 K. PHRA KHANONG

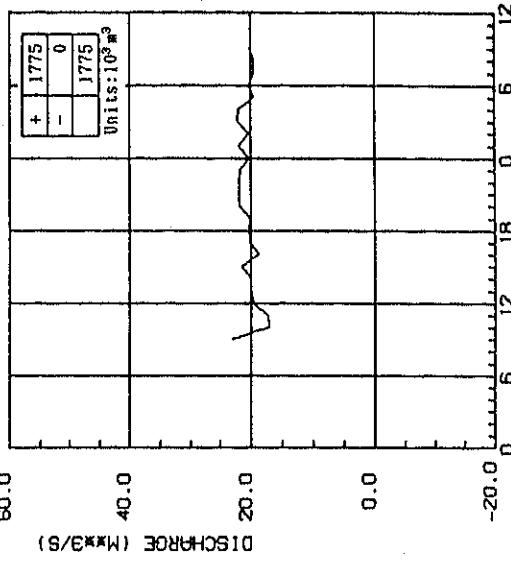
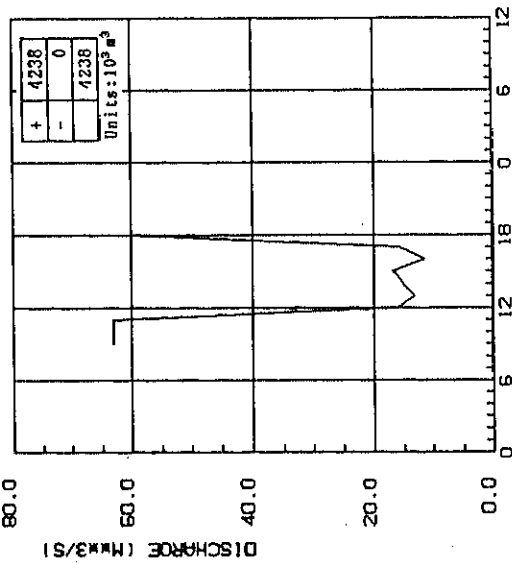


FIG. B. 12 (15) OBSERVED DISCHARGE VARIATION

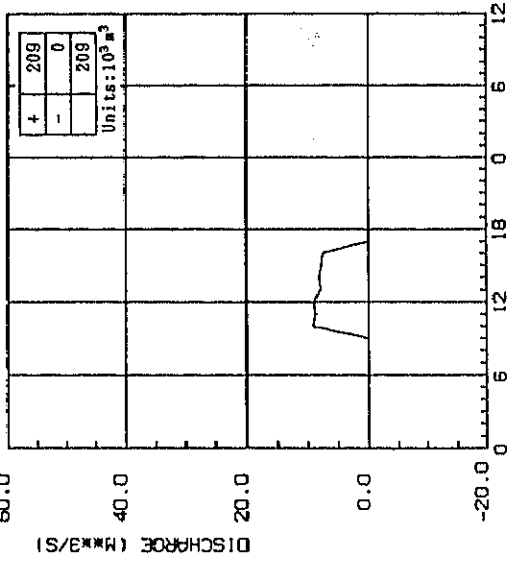
THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

JULY 16-17, 1988

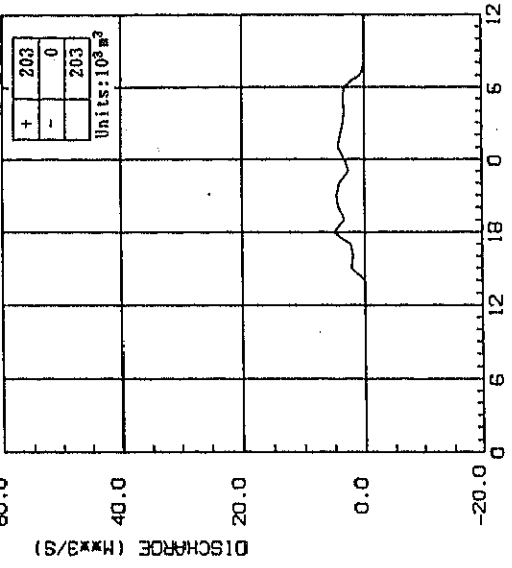
NO.30 K.PHRA KHANONG



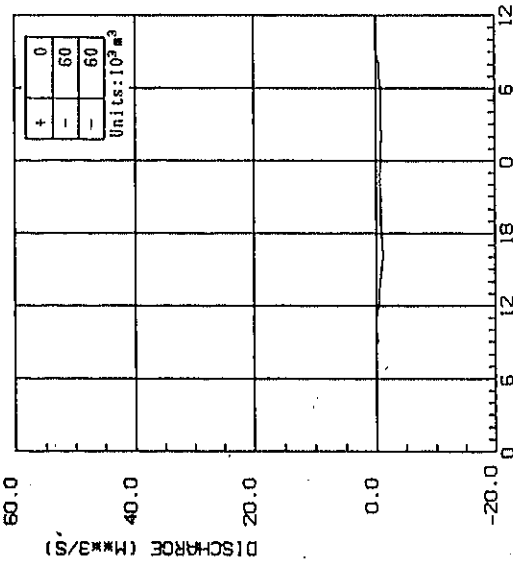
NO.31 K.BANG NA



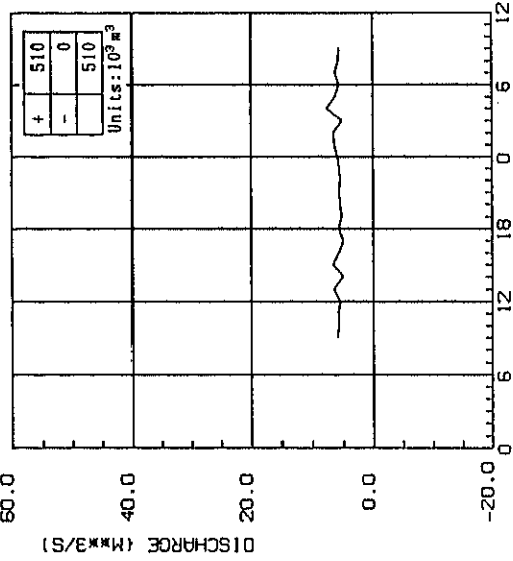
NO.34 K.TOEY



NO.101 K.BAN SUE



NO.102 K.LAD PHRAO



NO.103 K.LAD PHRAO

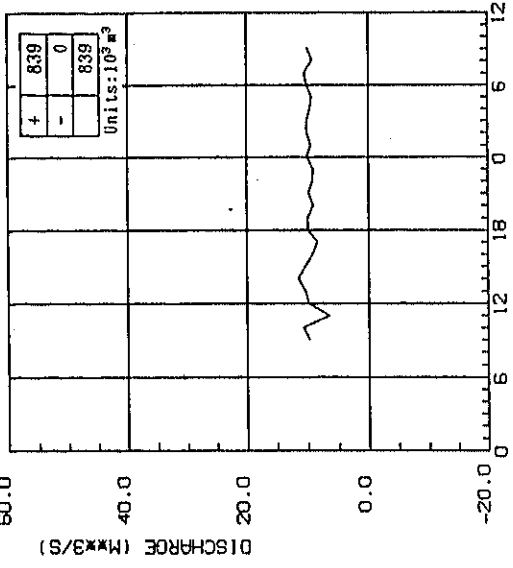


FIG.B.12(16) OBSERVED DISCHARGE VARIATION

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

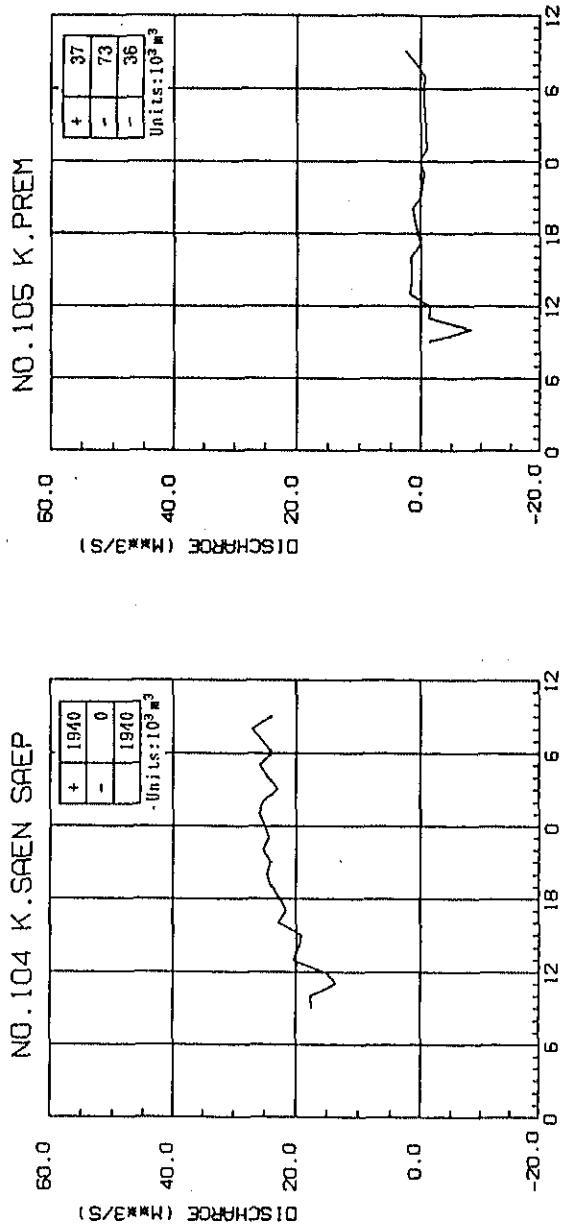
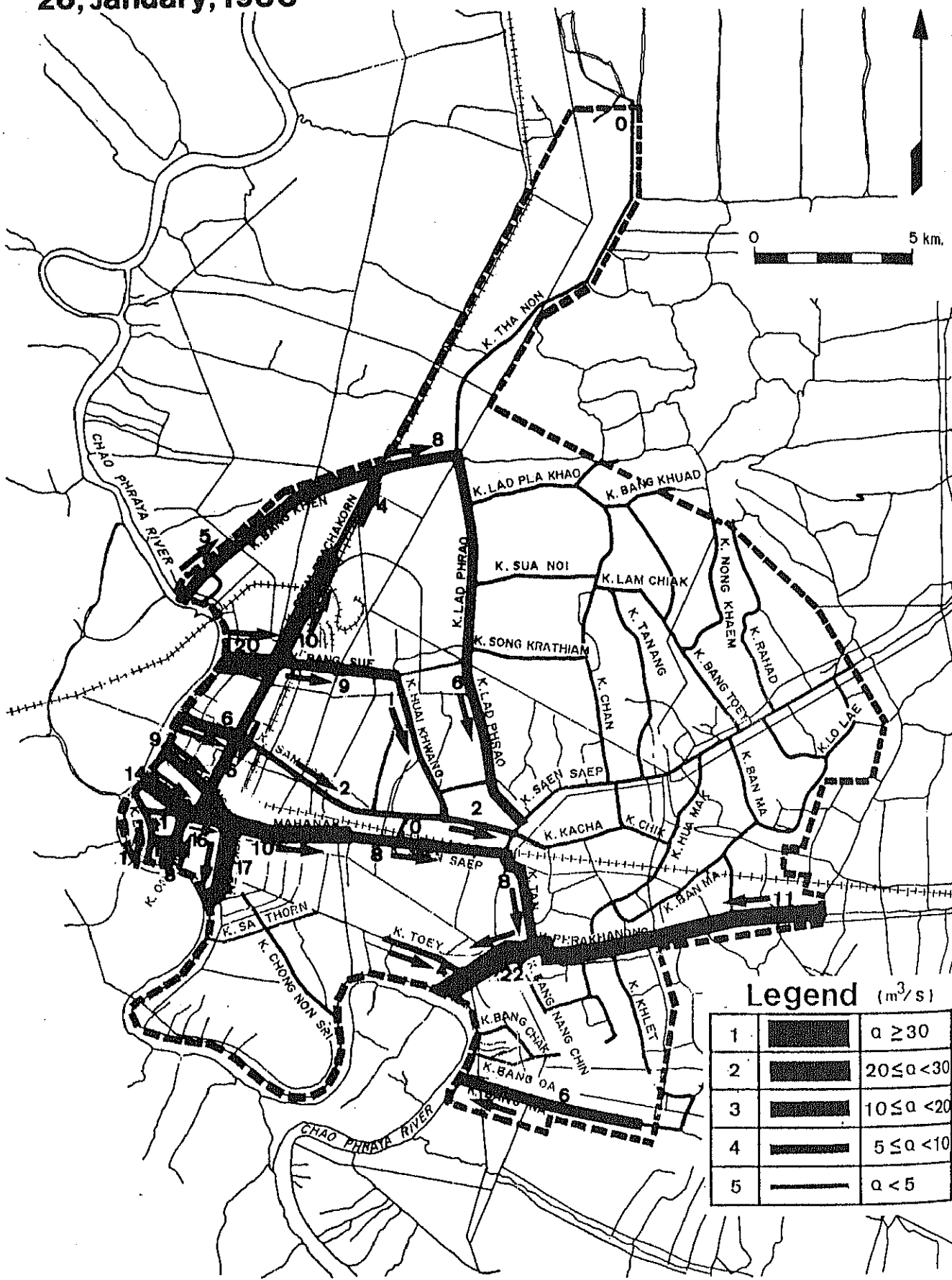


FIG. B. 12 (17) OBSERVED DISCHARGE VARIATION

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

28, January, 1988



Legend (m ³ /s)		
1		$q \geq 30$
2		$20 \leq q < 30$
3		$10 \leq q < 20$
4		$5 \leq q < 10$
5		$q < 5$

FIG. B.13(1)

OBSERVED MAXIMUM DISCHARGE IN TYPICAL DIRECTION OF DRY SEASON

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK



3-4, February, 1988

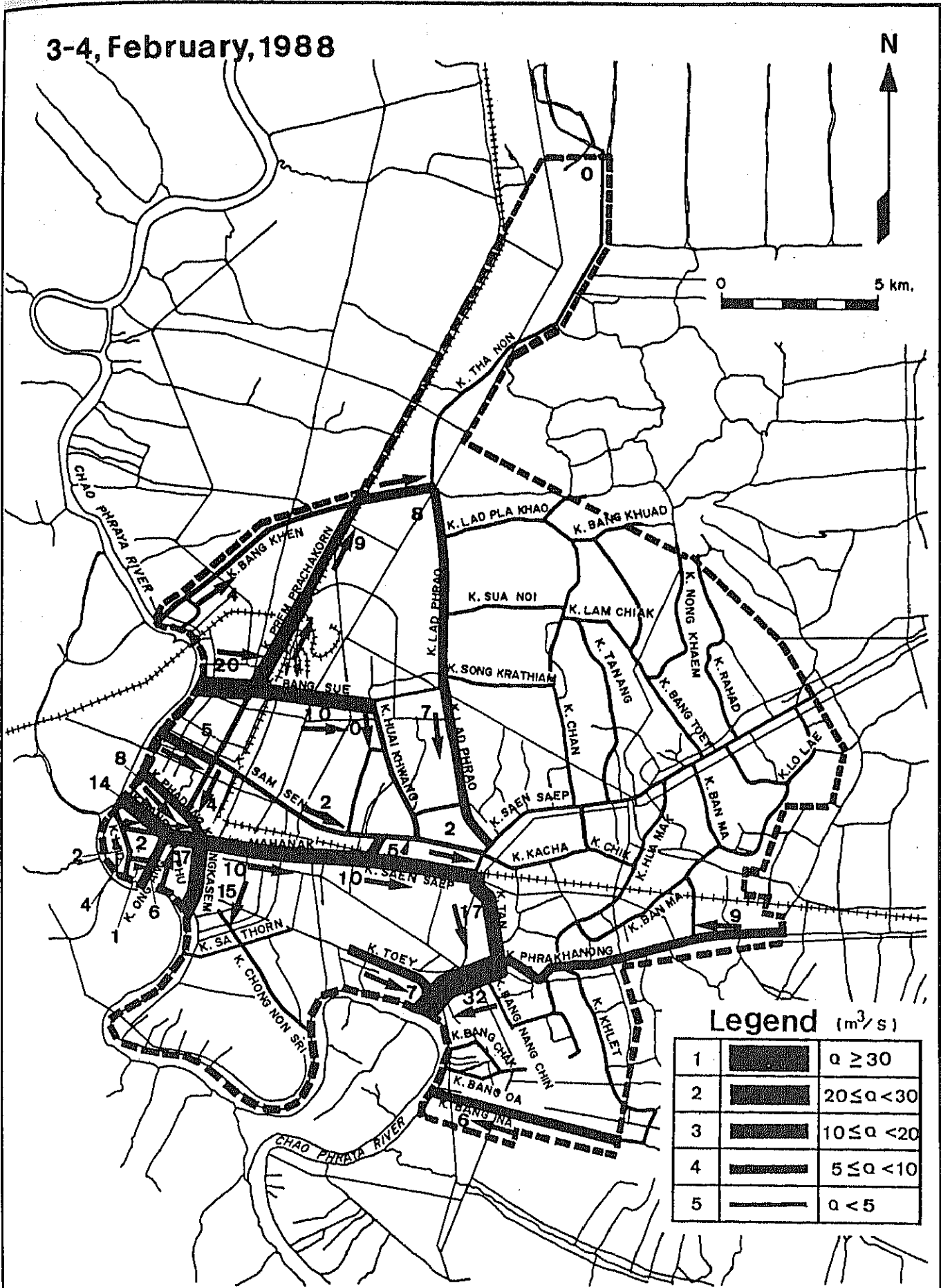


FIG. B. 13 (2)

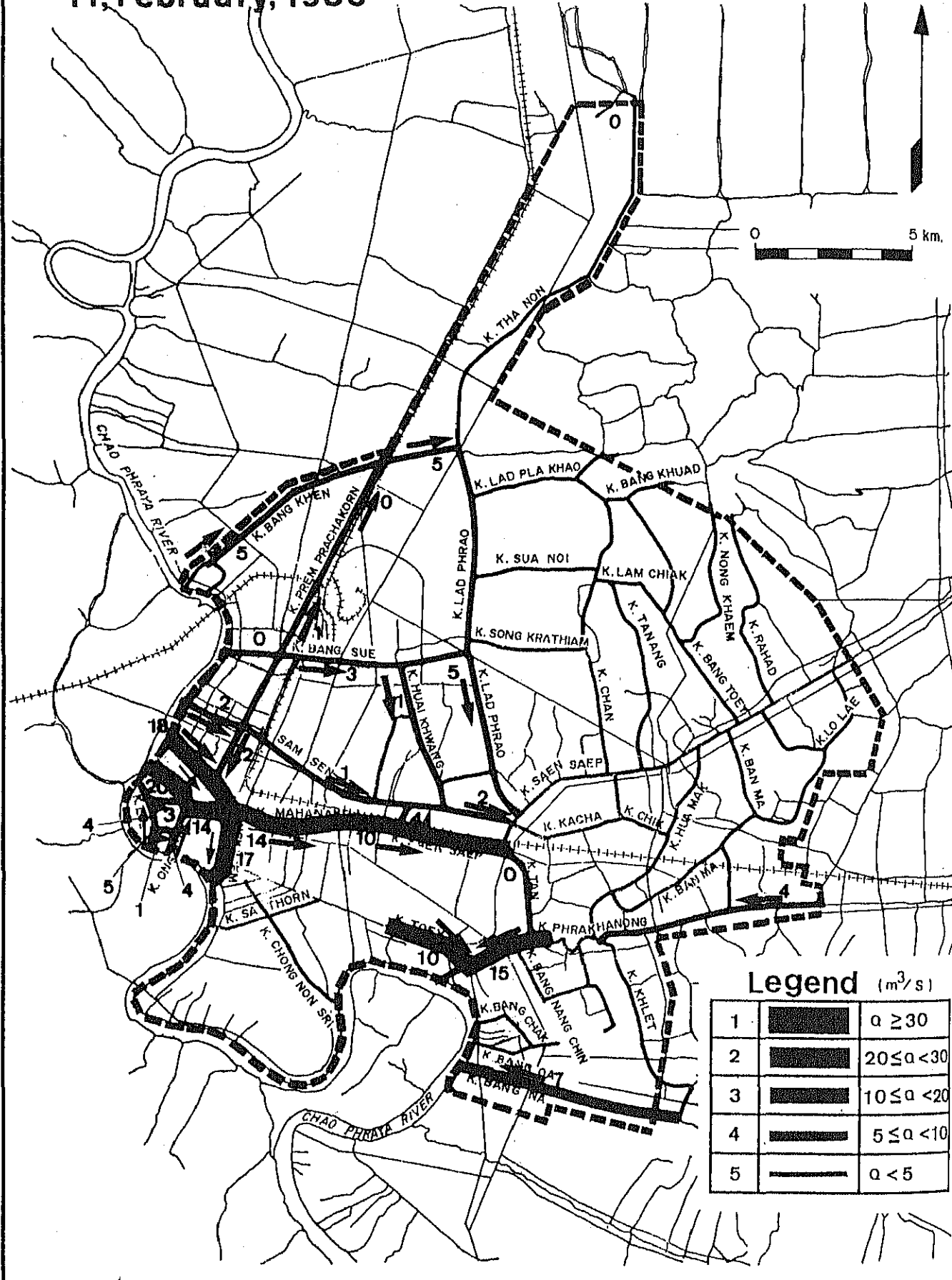
OBSERVED MAXIMUM DISCHARGE IN TYPICAL DIRECTION OF DRY SEASON

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

11, February, 1988

N

5 km



Legend (m^3/s)

1		$q \geq 30$
2		$20 \leq q < 30$
3		$10 \leq q < 20$
4		$5 \leq q < 10$
5		$q < 5$

FIG. B.13(3)

OBSERVED MAXIMUM DISCHARGE IN TYPICAL DIRECTION OF DRY SEASON

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

18, February, 1988

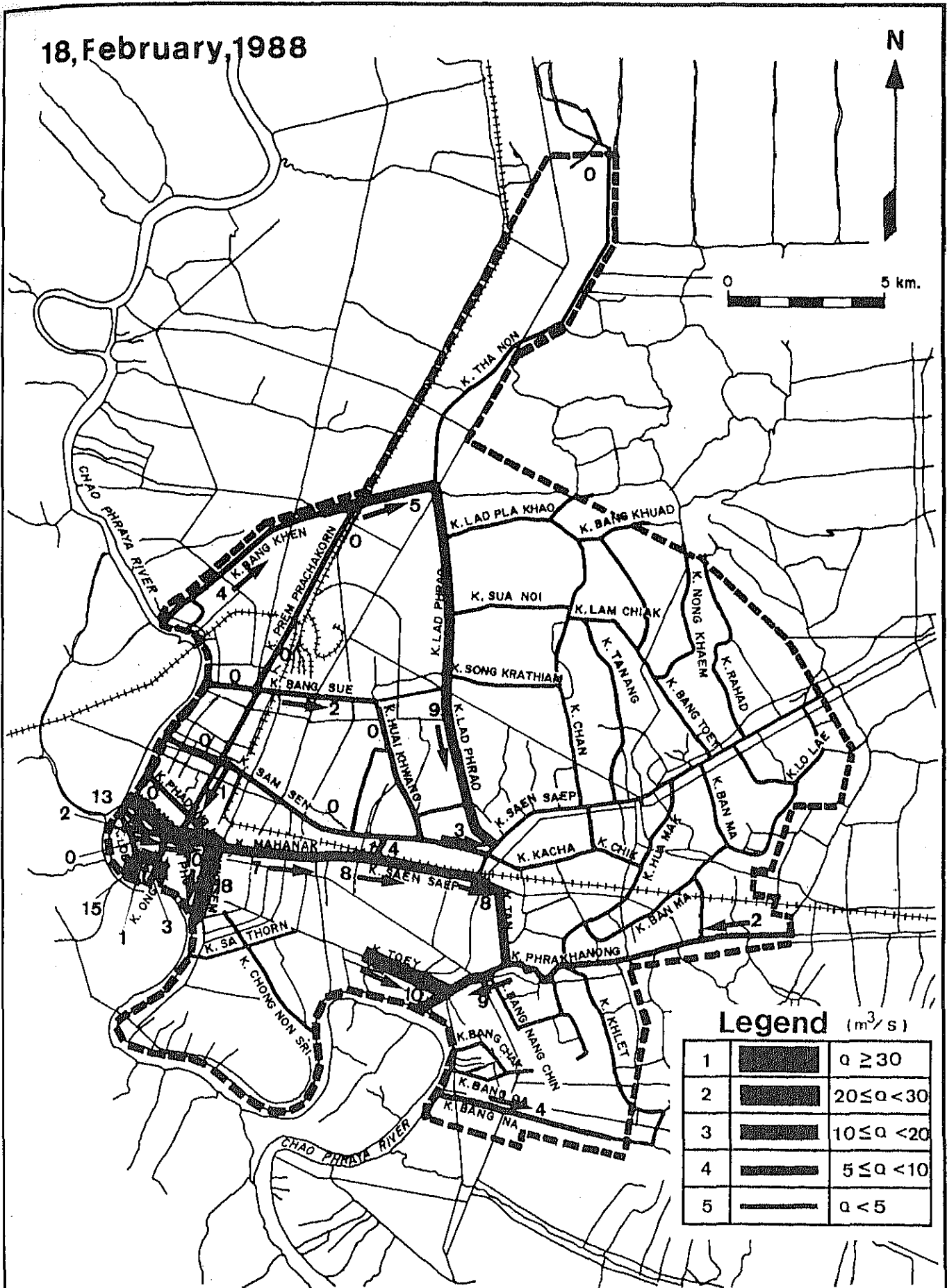


FIG. B.13 (4)

OBSERVED MAXIMUM DISCHARGE IN TYPICAL DIRECTION OF DRY SEASON

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

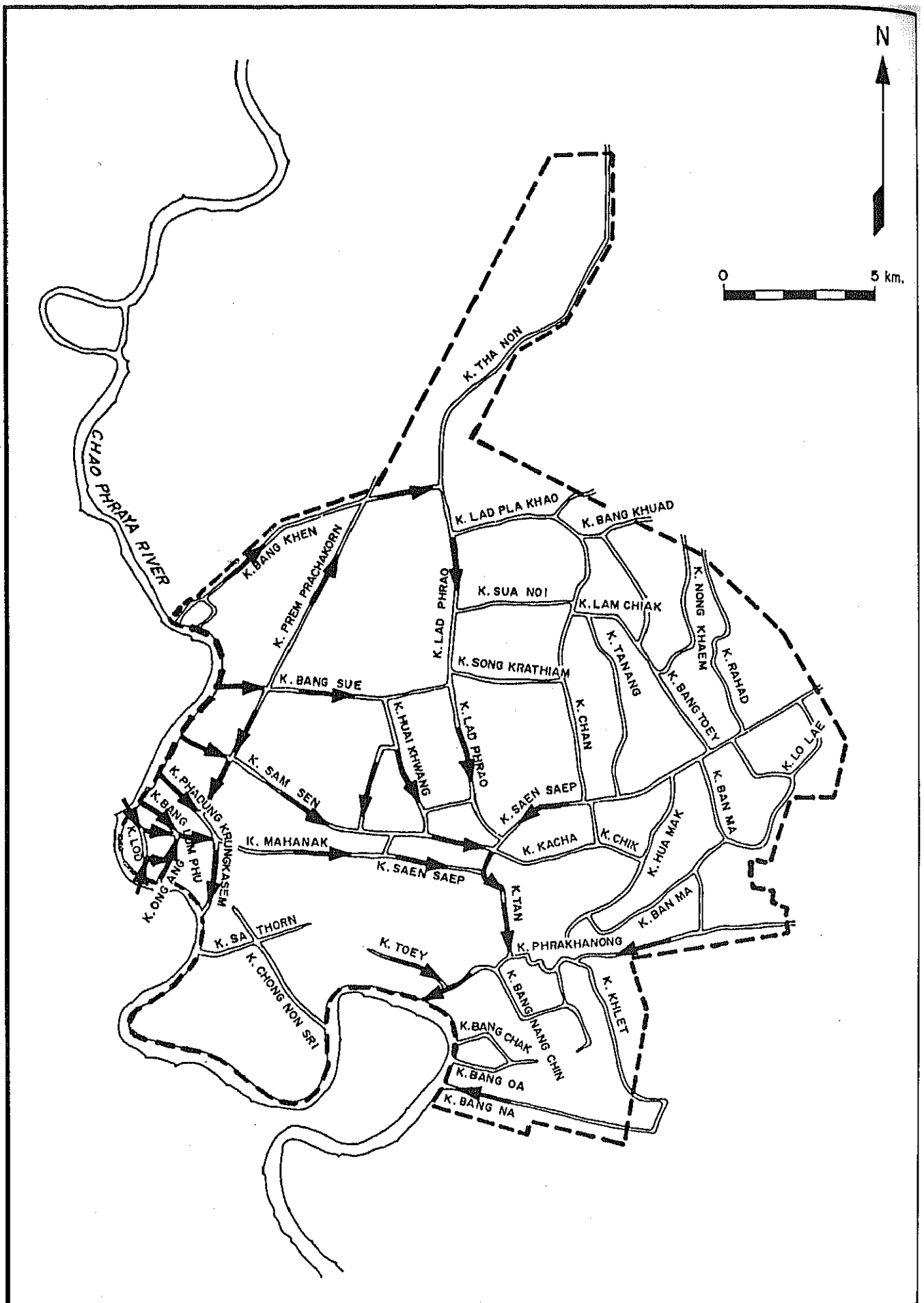


FIG. B.14

DEFINITION OF NORMAL FLOW DIRECTION
FOR FLUSHING PROJECT

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

9-10, July, 1988

N

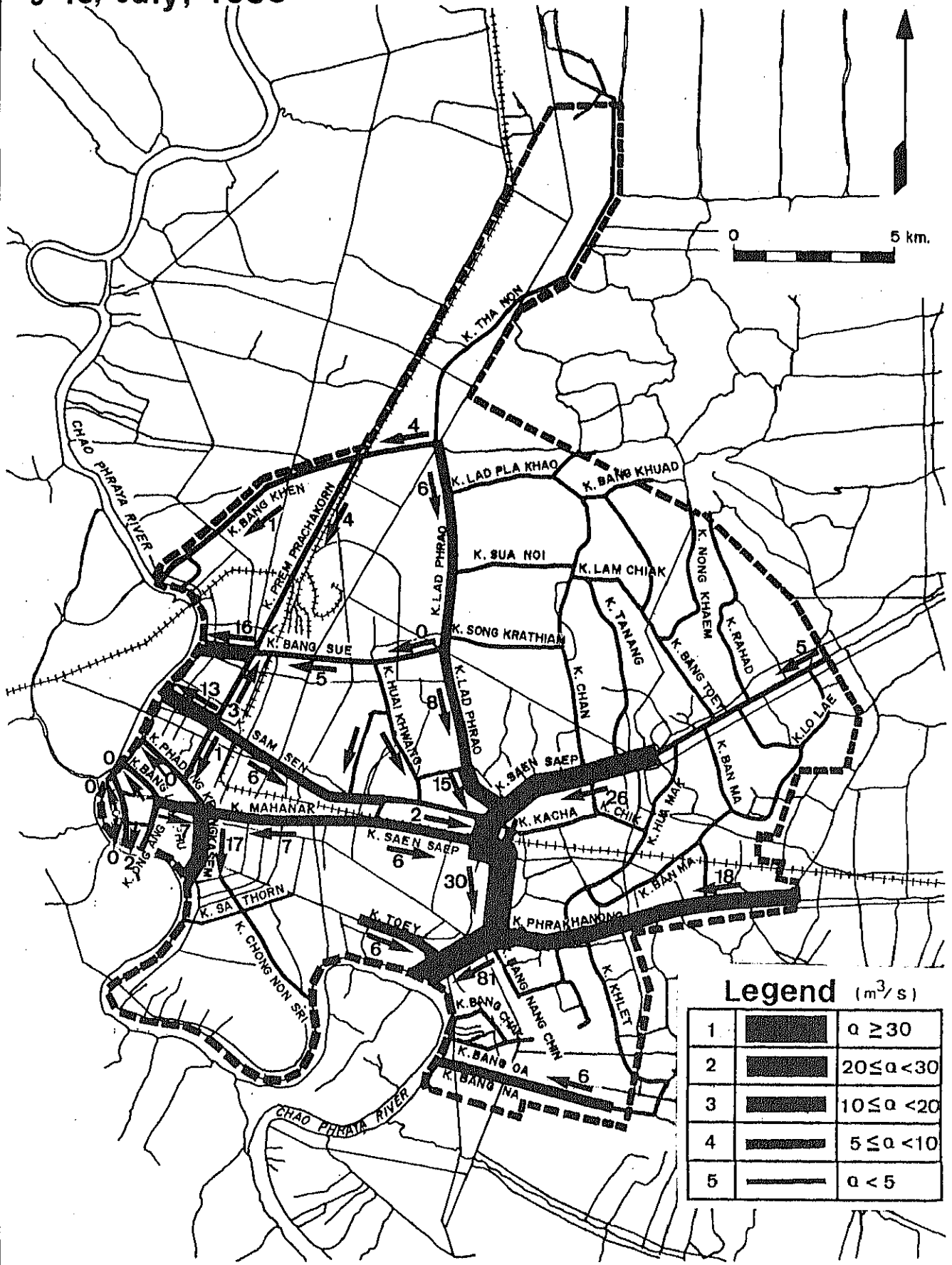


FIG. B.15 (1)

OBSERVED MAXIMUM DISCHARGE IN TYPICAL DIRECTION OF RAINY SEASON

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

16-17, July, 1988

N



0 5 km.

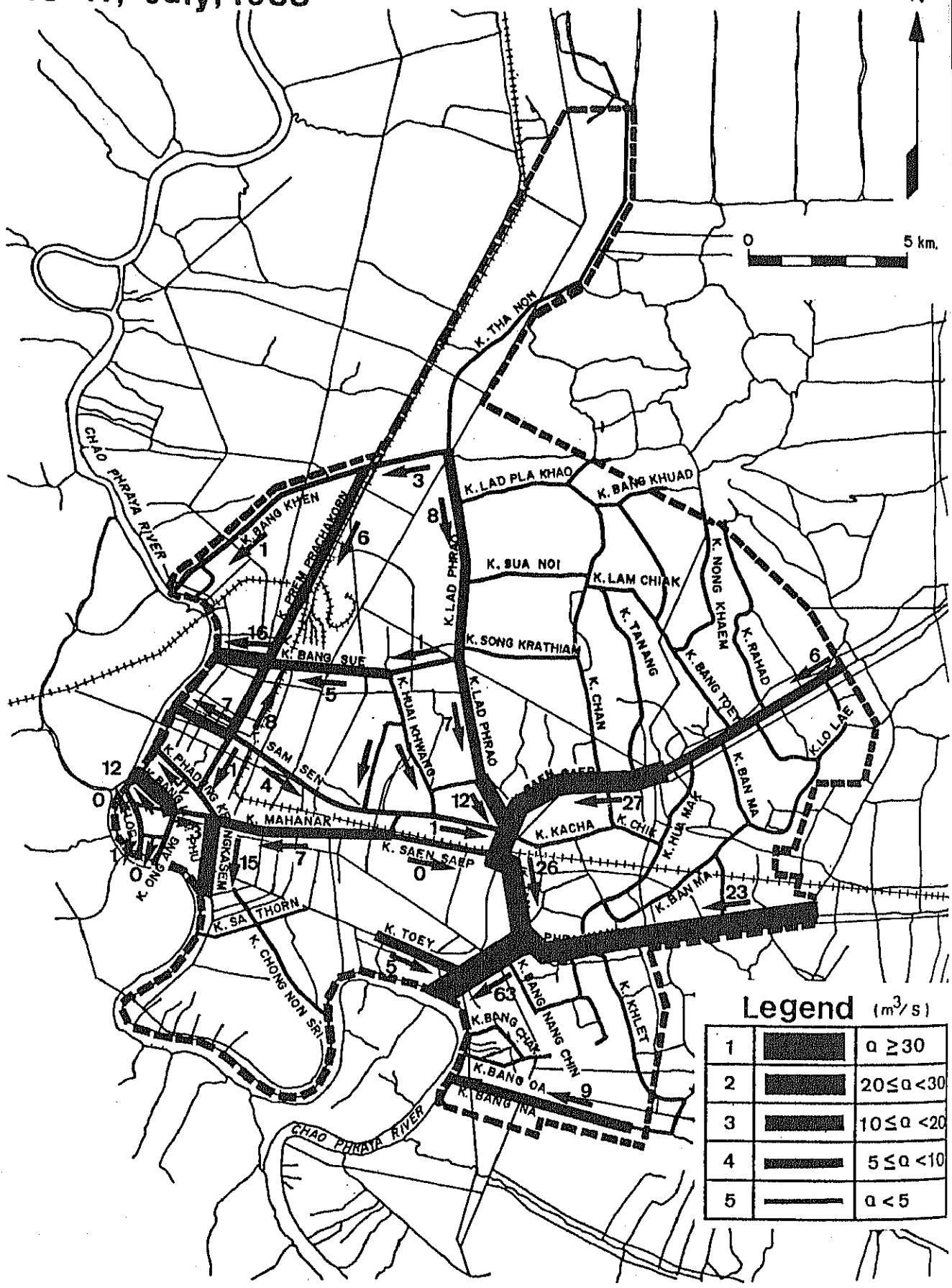


FIG. B.15(2)

OBSERVED MAXIMUM DISCHARGE IN TYPICAL DIRECTION OF RAINY SEASON

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK

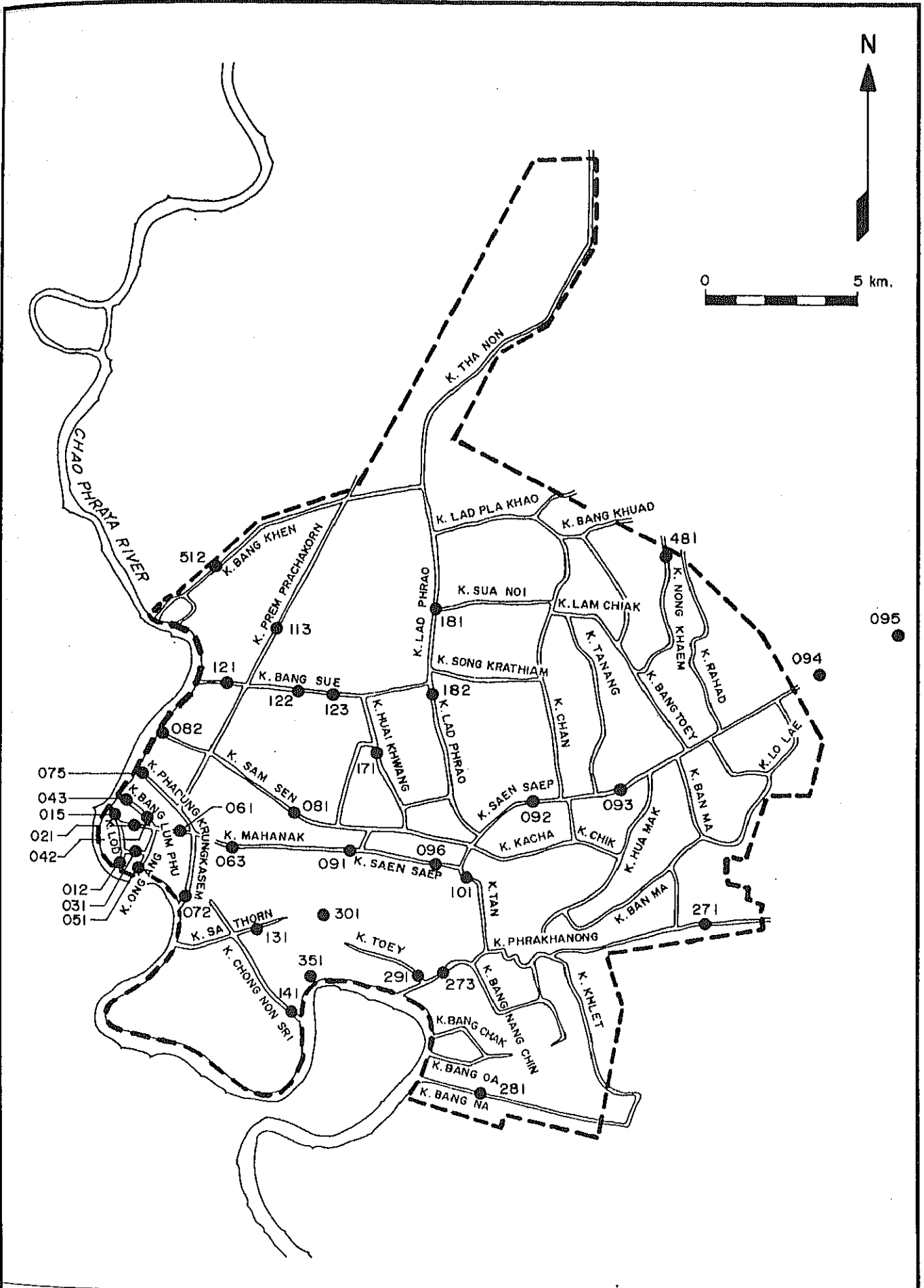


FIG. B.16

LOCATION OF WATER QUALITY MONITORING STATION OF DDS

THE FEASIBILITY STUDY ON PURIFICATION OF KLONG WATER IN BANGKOK