

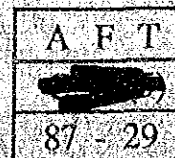
GOVERNMENT OF JAMAICA

FEASIBILITY REPORT
ON
THE MODERNIZATION AND EXPANSION
OF
THE RIO COBRE IRRIGATION SCHEME

VOLUME III
DRAWINGS

JUNE 1987

JAPAN INTERNATIONAL COOPERATION AGENCY



RY

国際協力事業団		
受入 月日	87.7.10	614
登録 No.	16629	833
		AFT

GOVERNMENT OF JAMAICA

FEASIBILITY REPORT
ON
THE MODERNIZATION AND EXPANSION
OF
THE RIO COBRE IRRIGATION SCHEME

JICA LIBRARY



1028926[1]

VOLUME III
DRAWINGS

JUNE 1987

JAPAN INTERNATIONAL COOPERATION AGENCY

**THE MODERNIZATION AND EXPANSION
OF
THE RIO COBRE IRRIGATION SCHEME**

LIST OF VOLUMES

VOLUME I - MAIN REPORT

VOLUME II - ANNEXE REPORT

- A. TOPOGRAPHIC SURVEY
- B. METEOROLOGY AND HYDROLOGY
- C. GEOLOGY AND HYDROGEOLOGY
- D. SOILS AND LAND CAPABILITY CLASSIFICATION
- E. SOIL MECHANICS
- F. SOCIO-ECONOMY
- G. AGRO-ECONOMY
- H. AGRICULTURE
- I. IRRIGATION AND DRAINAGE
- J. ON-FARM DEVELOPMENT
- K. PRELIMINARY DESIGN
- L. PROJECT ORGANIZATION
- M. IMPLEMENTATION PROGRAMME AND PROJECT COST
- N. PROJECT EVALUATION

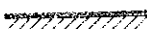



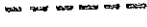

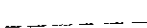



VOLUME III - DRAWINGS

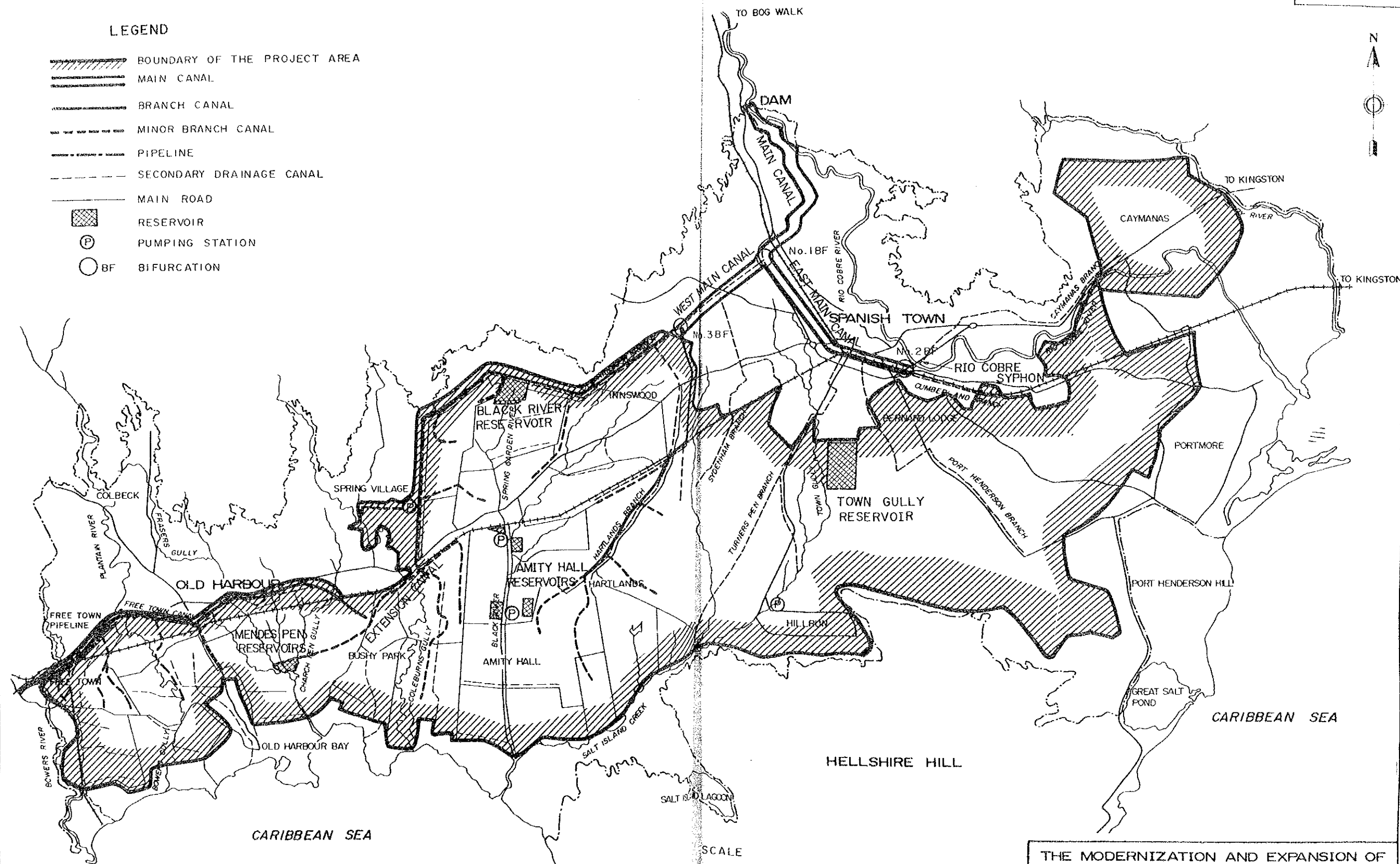
DATA BOOK

LIST OF DRAWINGS

Plate No.	Drawing No.	Title of Drawings
1.	1-1	GENERAL LAYOUT OF IRRIGATION, DRAINAGE AND ROAD SYSTEM
2.	2-1	PROFILE OF MAIN CANAL
3.	2-2	PROFILE OF EAST MAIN CANAL
4.	2-3	PROFILE OF WEST MAIN CANAL
5.	2-4	PROFILE OF HARTLAND BRANCH CANAL
6.	2-5	PROFILE OF OLD HARBOUR BRANCH CANAL (1/2)
7.	2-6	PROFILE OF OLD HARBOUR BRANCH CANAL (2/2)
8.	2-7	PROFILE OF OLD HARBOUR EXTENSION CANAL
9.	2-8	PROFILE OF FREE TOWN PIPELINE
10.	2-9	PROFILE OF FREE TOWN MAIN CANAL
11.	3-1	TOWN GULLY RESERVOIR
12.	3-2	BLACK RIVER RESERVOIR
13.	3-3	LOCATION MAP OF AMITY HALL RESERVOIRS AND MENDES PEN RESERVOIRS
14.	4-1	PLAN AND PROFILE OF HEAD WORKS
15.	4-2	PLAN AND PROFILE OF NO. 1 BIFURCATION
16.	4-3	PLAN AND PROFILE OF NO. 2 AND NO. 3 BIFURCATION
17.	4-4	RIO COBRE SYPHON
18.	5-1	TURNOUT
19.	5-2	CHECK GATE
20.	5-3	DROP
21.	5-4	CULVERT
22.	5-5	BRIDGE
23.	6-1	ON-FARM DEVELOPMENT PLAN (FURROW)
24.	6-2	ON-FARM DEVELOPMENT PLAN (SPRINKLER)
25.	6-3	ON-FARM DEVELOPMENT PLAN (DRIP)
26.	6-4	ON-FARM DEVELOPMENT PLAN (BASIN)

LEGEND

-  BOUNDARY OF THE PROJECT AREA
-  MAIN CANAL
-  BRANCH CANAL
-  MINOR BRANCH CANAL
-  PIPELINE
-  SECONDARY DRAINAGE CANAL
-  MAIN ROAD
-  RESERVOIR
-  PUMPING STATION
-  BIFURCATION

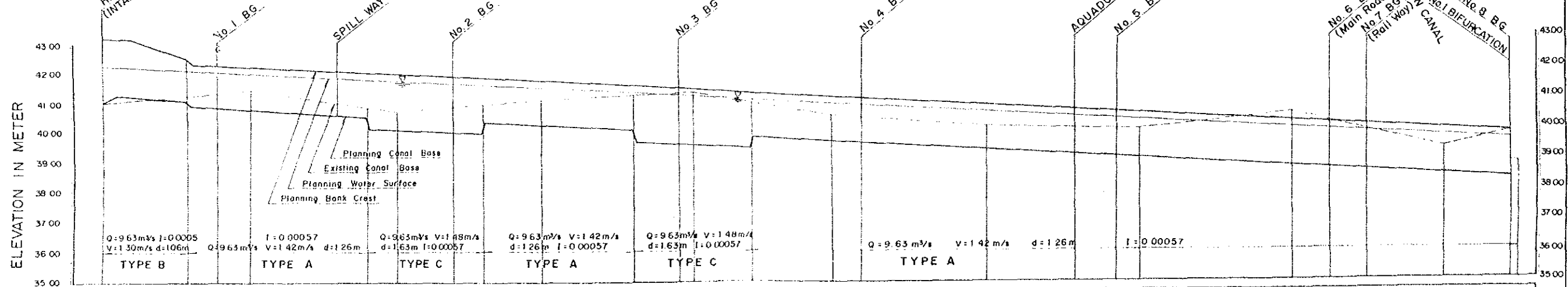
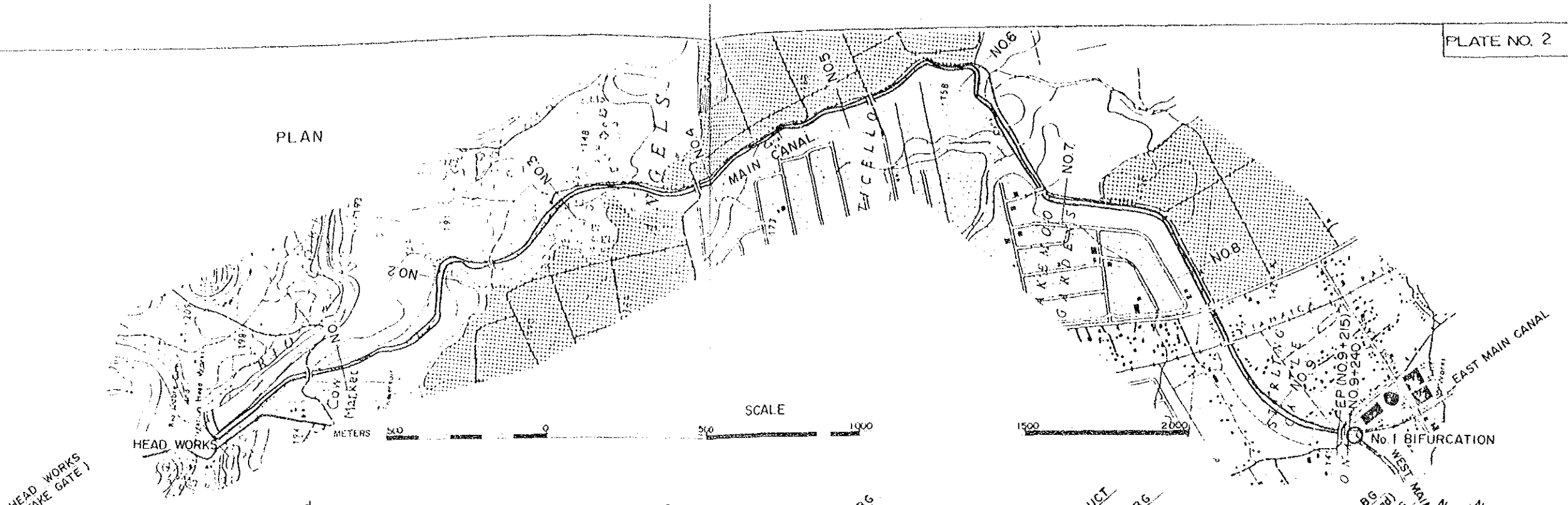


THE MODERNIZATION AND EXPANSION OF
THE RIO COBRE IRRIGATION SCHEME

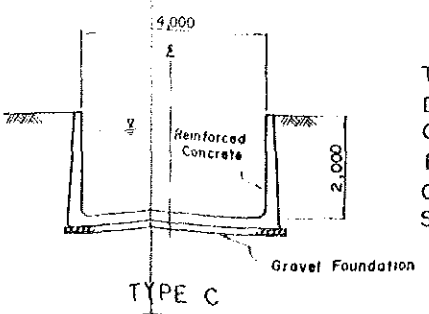
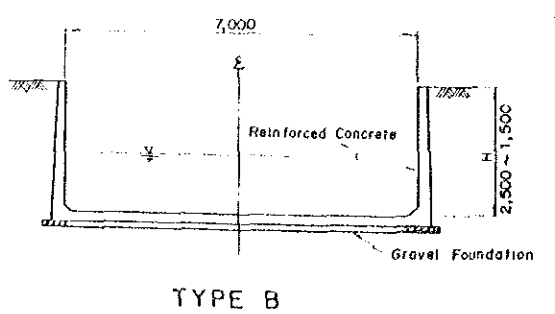
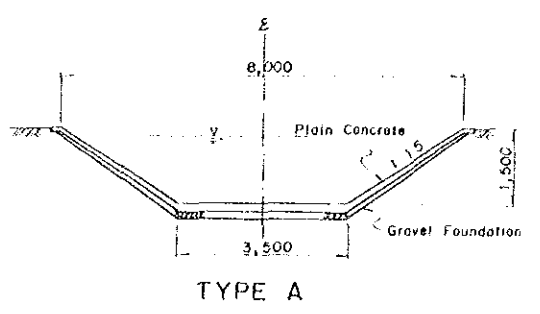
GENERAL LAYOUT OF IRRIGATION, DRAINAGE AND
ROAD SYSTEM

JAPAN INTERNATIONAL COOPERATION AGENCY DRAWING
NO. I-1

PLAN



CANAL BASE ELEVATION	41.10	40.99 40.85	40.77	40.55	39.95	39.89 40.26	39.97 39.60	39.52	39.79	39.52	39.12	39.05	38.65	38.58	38.30										
WATER SURFACE ELEVATION	42.20	42.11 42.03	41.81	41.75	41.58	41.52	41.23	41.15	41.01	40.78	40.38	40.31	39.91	39.84	39.56										
EXISTING CANAL BASE ELEVATION	41.00	41.39	40.61	40.93	41.15	40.37	40.02	39.69	40.43	39.30	39.80 39.80 39.80 39.80	39.30	39.30	39.30	39.30										
REDUCED DISTANCE	0	300	396	500	800	900	1000	1199	1300	1500	1800	1955	2000	2200	2500	2596	3000	3291	3422	3500	4000	4128	4251	4500	4715 4740
STATION NO	NO.0	+300	+396	NO.1	+300	+400	NO.2	+199	+300	NO.3	+300	+455	NO.4	+200	NO.5	+96	NO.6	+291	+422	NO.7	NO.8	+128	+251	NO.9	EP NO.9+215 NO.9+240



- LEGEND
- TO : Turnout
 - DP : Drop
 - CK : Check Gate
 - BG : Bridge
 - CV : Culvert
 - SP : Syphon

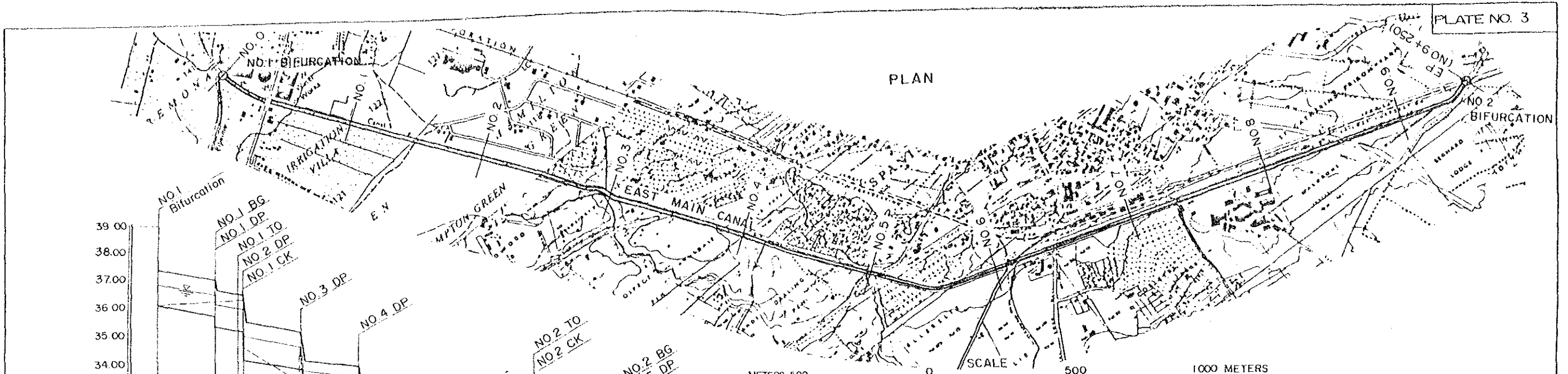
THE MODERNIZATION AND EXPANSION OF
THE RIO COBRE IRRIGATION SCHEME

PROFILE OF MAIN CANAL

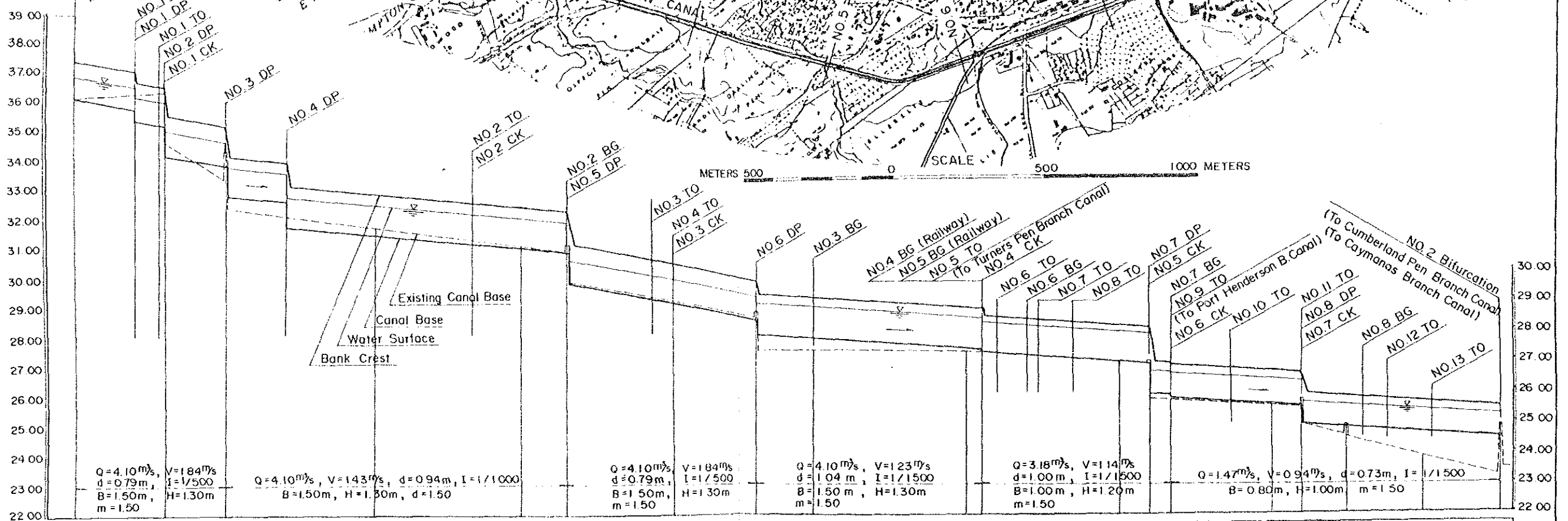
JAPAN INTERNATIONAL COOPERATION AGENCY

DRAWING NO. 2-1

PLAN



ELEVATION IN METER



$Q=4.10\text{m}^3/\text{s}$, $V=184\text{m}^3/\text{s}$, $d=0.79\text{m}$, $I=1/1500$, $B=1.50\text{m}$, $H=1.30\text{m}$, $m=1.50$

$Q=4.10\text{m}^3/\text{s}$, $V=143\text{m}^3/\text{s}$, $d=0.94\text{m}$, $I=1/1000$, $B=1.50\text{m}$, $H=1.30\text{m}$, $d=1.50$

$Q=4.10\text{m}^3/\text{s}$, $V=184\text{m}^3/\text{s}$, $d=0.79\text{m}$, $I=1/1500$, $B=1.50\text{m}$, $H=1.30\text{m}$, $m=1.50$

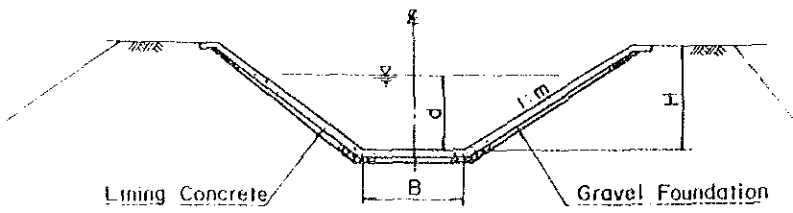
$Q=4.10\text{m}^3/\text{s}$, $V=123\text{m}^3/\text{s}$, $d=1.04\text{m}$, $I=1/1500$, $B=1.50\text{m}$, $H=1.30\text{m}$, $m=1.50$

$Q=3.18\text{m}^3/\text{s}$, $V=114\text{m}^3/\text{s}$, $d=1.00\text{m}$, $I=1/1500$, $B=1.00\text{m}$, $H=1.20\text{m}$, $m=1.50$

$Q=1.47\text{m}^3/\text{s}$, $V=94\text{m}^3/\text{s}$, $d=0.73\text{m}$, $I=1/1500$, $B=0.80\text{m}$, $H=1.00\text{m}$, $m=1.50$

CANAL BASE ELEVATION	35.98	35.59	35.18	34.98	34.77	34.37	33.58	32.38	31.58	31.89	30.95	30.63	29.63	29.07	28.93	28.33	28.94	27.80	27.43	27.33	27.30	27.23	27.21	27.13	26.96	25.96	25.53	24.93	24.80	24.75	24.66	24.5		
WATER SURFACE ELEVATION	36.77	36.37	35.97	35.41	35.77	34.37	33.52	32.52	31.52	31.89	30.95	30.42	29.63	29.86	29.72	28.33	28.94	27.80	28.47	28.33	28.30	27.23	27.21	27.13	27.96	26.96	25.53	24.93	24.80	24.75	24.66	24.5		
EXISTING CANAL BASE ELEVATION	38.60	36.00	36.15	34.50	33.24	32.26	31.55	30.34	30.63	30.08	29.71	29.07	28.93	28.33	27.42	27.37	27.02	26.96	26.96	26.96	25.84	25.84	25.84	25.84	25.55	25.53	25.77	24.93	24.52	24.52	23.88	23.24	24.50	24.50
REDUCED DISTANCE	0	200	280	300	500	700	1000	1830	1500	1650	1930	2000	2300	2500	3000	3050	3100	3200	3230	3350	3500	3600	3675	3870	4000	4100	4250	4300	4380	4500	4520	4750		
STATION NO	NO. 0	+200	+280	+300	NO. 1	+200	NO. 2	+330	NO. 3	+150	+430	NO. 4	+500	NO. 5	NO. 6	+50	+100	+200	+230	+350	NO. 7	+100	+175	+370	NO. 8	+100	+250	+300	+380	NO. 9	+20	+250		

TYPICAL CROSS SECTION OF CANAL

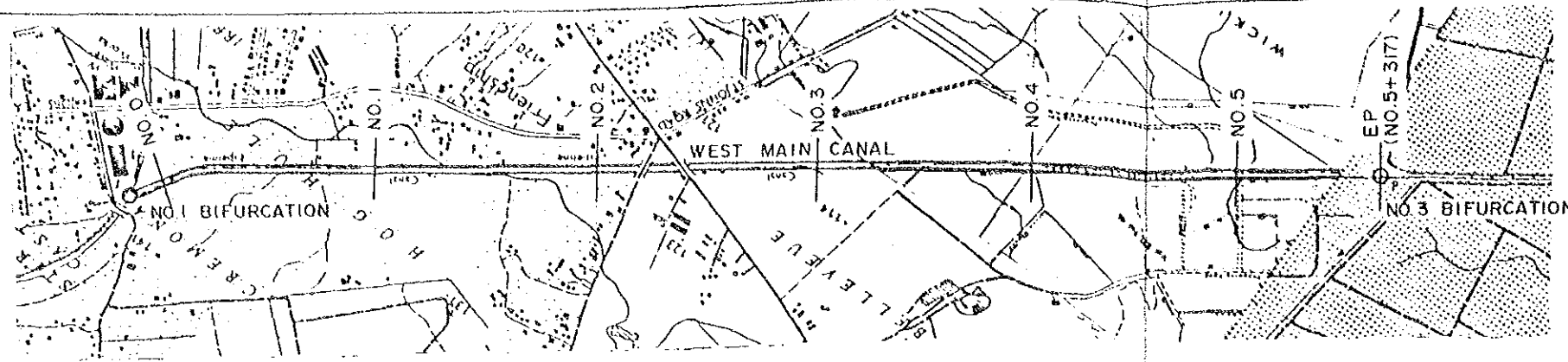


LEGEND

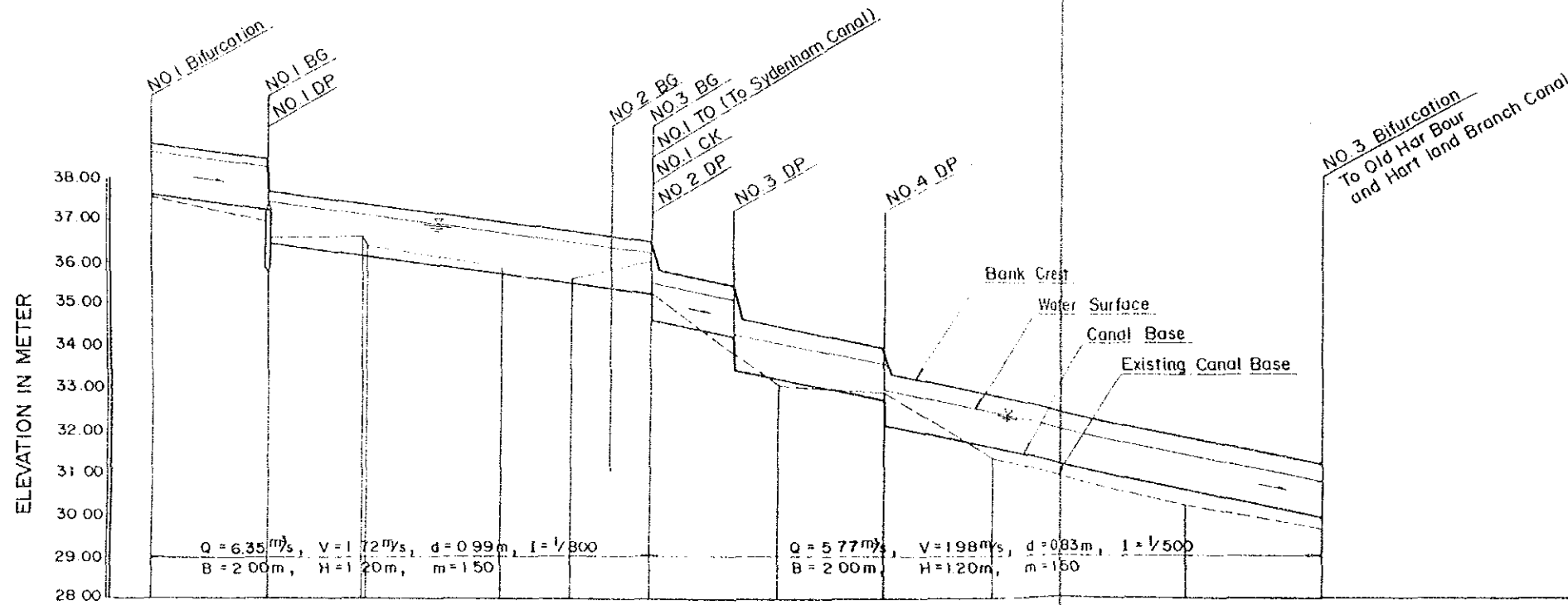
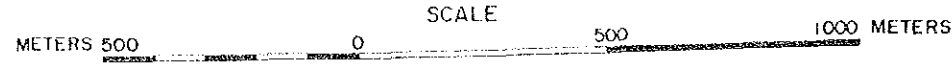
- TO : Turnout
- DP : Drop
- CK : Check Gate
- BG : Bridge
- CV : Culvert
- SP : Syphon

THE MODERNIZATION AND EXPANSION OF THE RIO COBRE IRRIGATION SCHEME

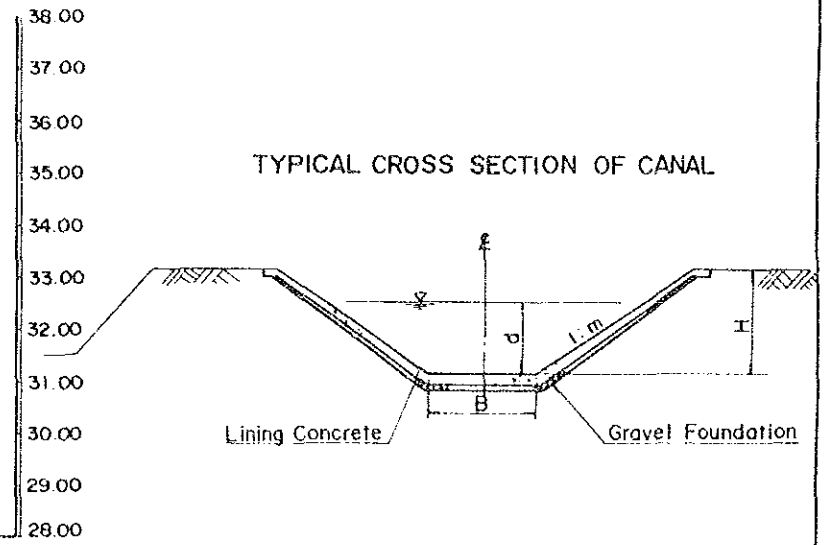
PROFILE OF EAST MAIN CANAL



PLAN



TYPICAL CROSS SECTION OF CANAL



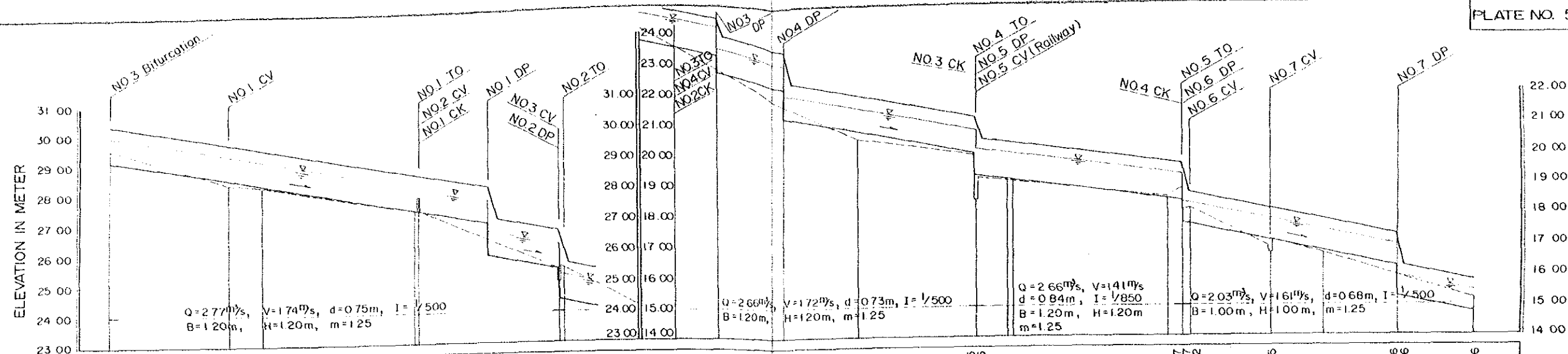
LEGEND

- TO : Turnout
- DP : Drop
- CK : Check Gate
- BG : Bridge
- CV : Culvert
- SP : Syphon

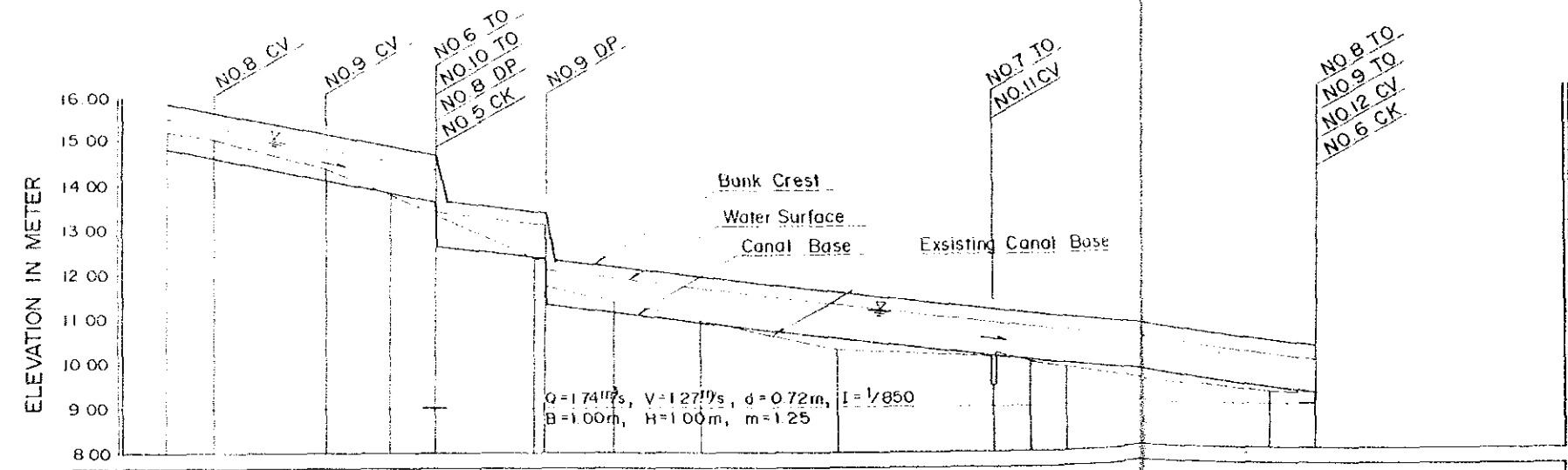
STATION NO.	REDUCED DISTANCE	EXISTING CANAL BASE ELEVATION	WATERSURFACE ELEVATION	CANAL BASE ELEVATION
NO. 0	0	37.50	38.63	37.64
+280	280	36.92	38.28	37.29
NO. 1	500	36.55	37.28	36.25
+337	837	35.78		
NO. 2	1 000	35.52	36.26	35.27
+396	1 096		36.13	35.14
+197	1 197	35.95	35.37	34.54
+397	1 397		34.97	34.14
NO. 3	1 500	33.04	34.17	33.34
+245	1 745	32.84	33.47	32.64
NO. 4	2 000	31.31	32.87	32.04
NO. 5	2 500	30.21		
EP (+317)	2 817	29.64	30.75	29.90

THE MODERNIZATION AND EXPANSION OF THE RIO COBRE IRRIGATION SCHEME.

PROFILE OF WEST MAIN CANAL

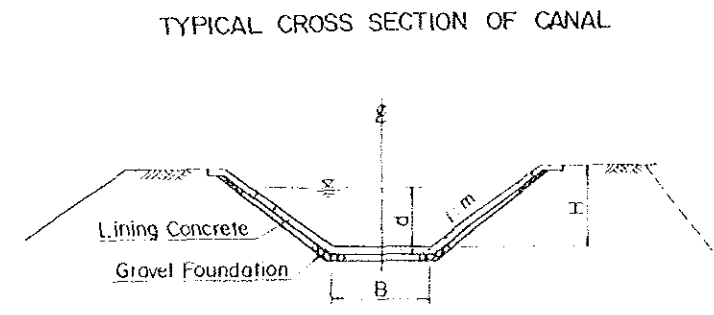


STATION NO	REDUCED DISTANCE (m)	EXISTING CANAL BASE ELEVATION (m)	WATERSURFACE ELEVATION (m)	CANAL BASE ELEVATION (m)
NO. 0	0	29.64 29.54	30.24	29.49
+392	392	28.33	29.46	28.71
NO. 1	500	28.24		
NO. 2	1000	27.38 27.83 27.38	28.22	27.47
+487	1487	25.43 25.00 25.50	26.27 26.17	25.99 25.52 24.42
NO. 3	1500			
+360	1860		24.43	23.70
NO. 4	2000	22.83	24.15 23.55	23.42 22.82
NO. 5	2500			
+385	2885	19.94 18.50 19.21	20.78 20.09	20.05 19.25
NO. 6	3000	19.08		
NO. 7	3500	18.53 18.83 18.13	19.31 17.75 18.30	18.47 17.62
+47	3547			
+71	3571			
+330	3830	16.95 15.70 17.15	17.83	17.15
NO. 8	4000	16.72		
NO. 9	4250			
	4500	15.19 15.94	15.44	14.76



STATION NO	REDUCED DISTANCE (m)	EXISTING CANAL BASE ELEVATION (m)	WATER SURFACE ELEVATION (m)	CANAL BASE ELEVATION (m)
NO. 9	4500	15.19	15.94	14.76
+109	4609	15.03	15.22	14.54
+363	4863	14.39	14.71	14.03
NO. 10	5000	13.78		
+327	5327	12.34	14.24	13.56
+347	5347	12.13	13.28	12.27
NO. 11	5500	11.38	12.99 11.99	11.27
NO. 12	6000	10.29		
+347	6347	10.10 9.50 10.20	10.81	10.09
+428	6428	10.00	10.72	10.00
NO. 13	6500			
NO. 14	7000			
EP	7100	9.20	9.93	9.21

ELEVATION IN METER



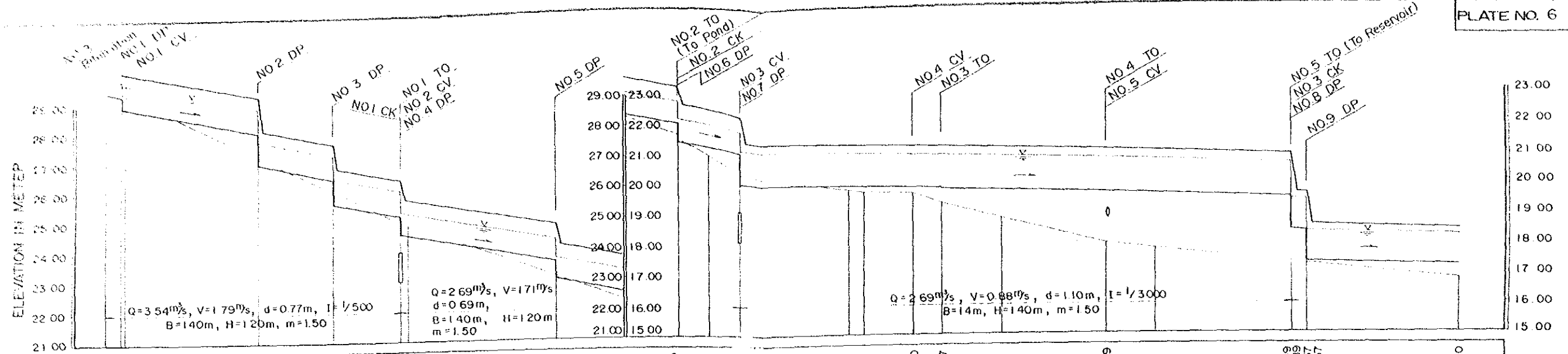
- LEGEND
- TO : Turnout
 - DP : Drop
 - CK : Check Gate
 - BG : Bridge
 - CV : Culvert
 - SP : Syphon

THE MODERNIZATION AND EXPANSION OF
THE RIO COBRE IRRIGATION SCHEME

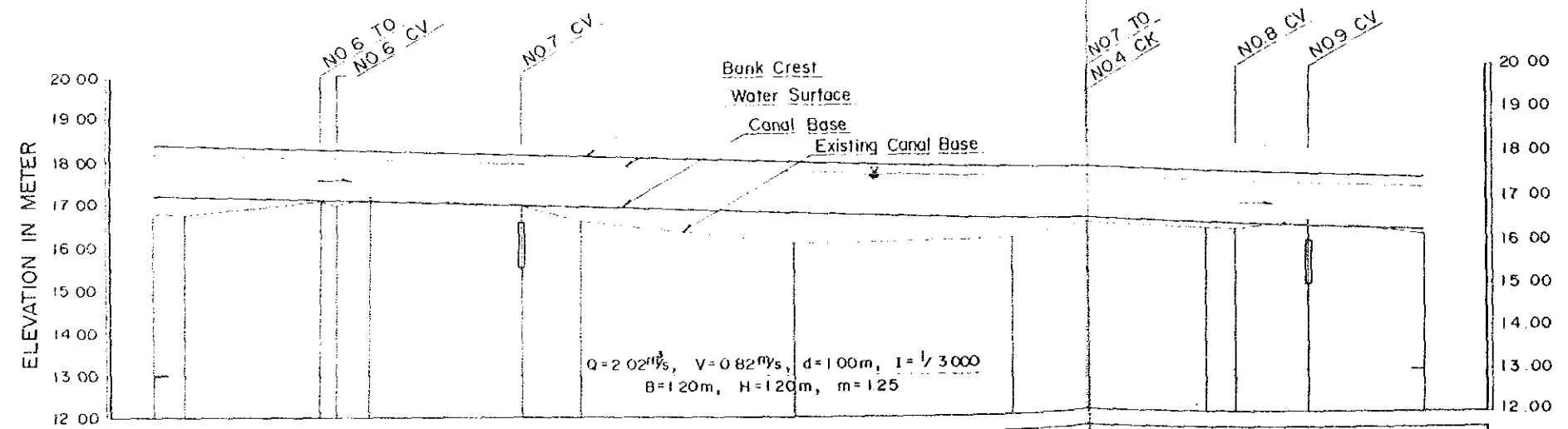
PROFILE OF HARTLAND BRANCH CANAL

JAPAN INTERNATIONAL COOPERATION AGENCY

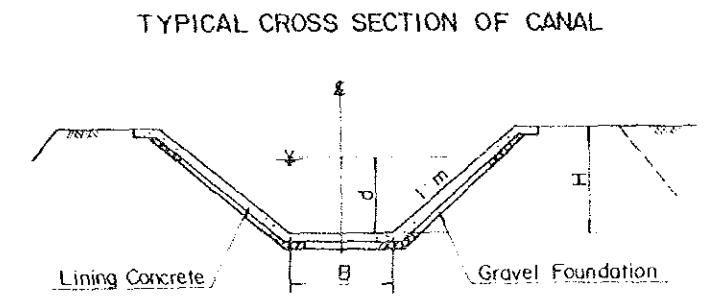
DRAWING NO. 2-4



STATION NO.	REDUCED DISTANCE (m)	EXISTING CANAL BASE ELEVATION (m)	WATER SURFACE ELEVATION (m)	CANAL BASE ELEVATION (m)
NO. 0	0	29.64	30.17	29.40
+	50	29.86	30.08	29.31
+	65	29.40	29.68	28.91
			29.65	28.88
NO. 1	500	27.25	28.78	28.01
+	250		27.78	27.01
+	479		27.28	26.51
NO. 2	979	24.97	26.02	25.25
+	1000	24.93	25.34	24.65
NO. 3	1500	23.14	24.30	23.61
+	404		23.70	23.01
NO. 4	1904	21.69	22.89	22.20
+	2000	21.56	22.20	21.51
+	108		21.79	21.11
			21.20	
NO. 5	2500	19.83	19.90	19.90
+	47		19.76	
+	211		19.70	19.90
NO. 6	2805	19.36	19.36	19.87
+	305		20.97	
NO. 6	3000	18.86	19.69	19.69
+	340		17.98	20.79
NO. 7	3500	17.81	18.20	18.20
NO. 8	3950	17.30	20.58	19.48
+	4000		19.39	18.89
			18.37	18.57
			18.37	17.57
NO. 9	4500	16.79	18.20	17.20



STATION NO.	REDUCED DISTANCE (m)	EXISTING CANAL BASE ELEVATION (m)	WATER SURFACE ELEVATION (m)	CANAL BASE ELEVATION (m)
NO. 9	4500	16.79	18.20	17.20
+	69	16.76		
+	386	17.06	18.07	17.07
+	428	16.95	18.06	17.06
NO. 10	5000	17.15	17.91	16.91
+	366	16.93		
NO. 11	5500	16.54	16.91	16.91
NO. 12	6000	16.02	16.02	16.02
NO. 13	6500	16.10	16.10	16.10
NO. 14	7000	16.28	16.35	16.35
+	67	16.24	17.35	16.35
+	238	16.47	17.26	16.26
NO. 15	7500	16.14	17.20	16.20



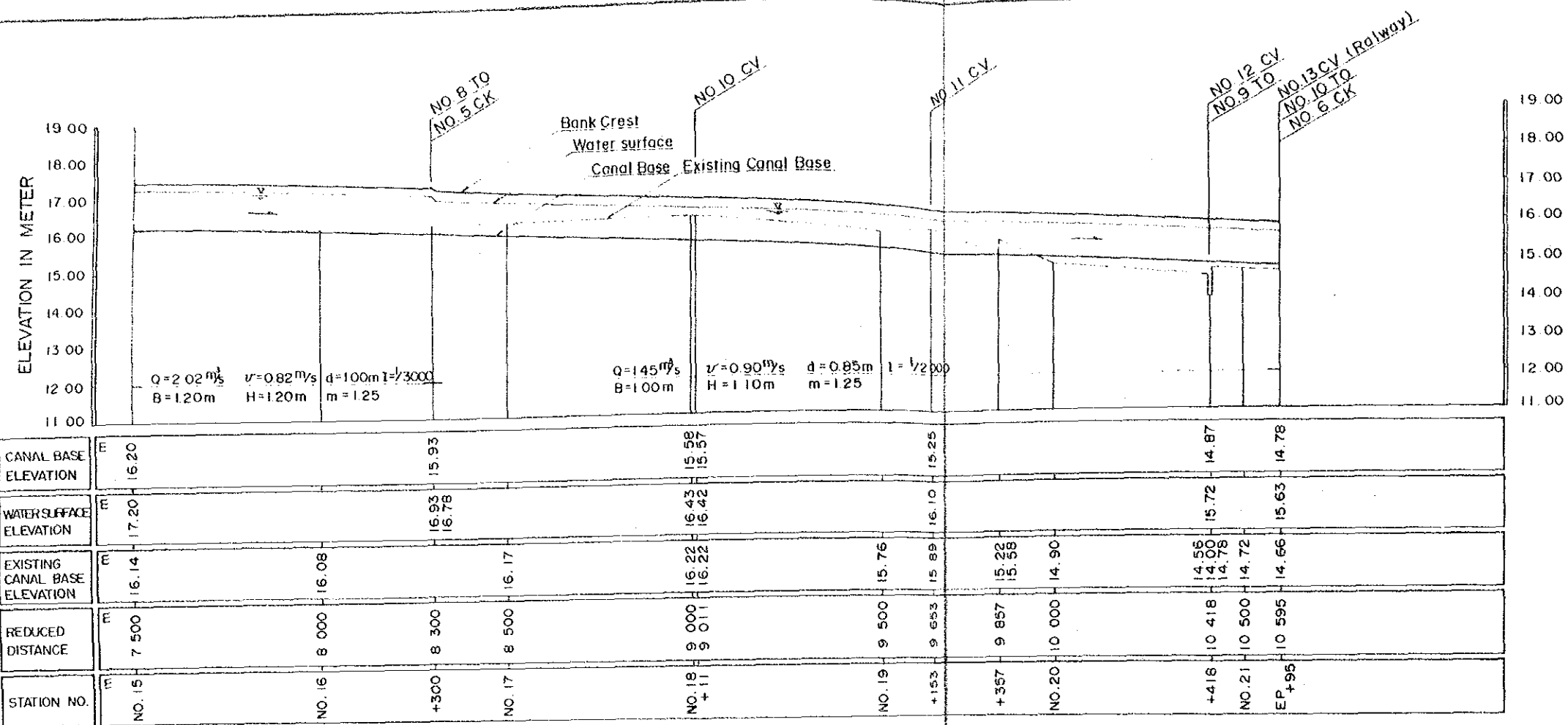
- LEGEND
- TO : Turnout
 - DP : Drop
 - CK : Check Gate
 - BG : Bridge
 - CV : Culvert
 - SP : Syphon

THE MODERNIZATION AND EXPANSION OF
THE RIO COBRE IRRIGATION SCHEME

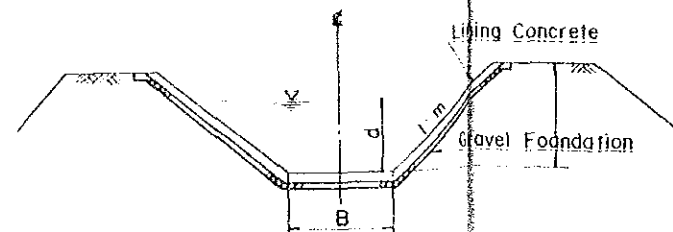
PROFILE OF OLD HARBOUR BRANCH CANAL (1/2)

JAPAN INTERNATIONAL COOPERATION AGENCY

DRAWING NO. 2-5



TYPICAL CROSS SECTION OF CANAL



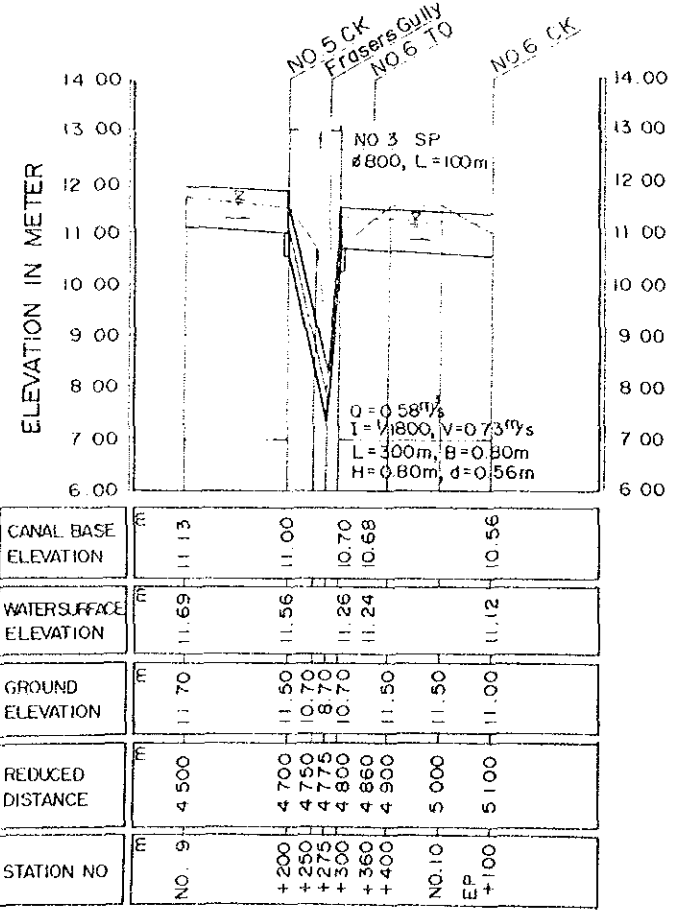
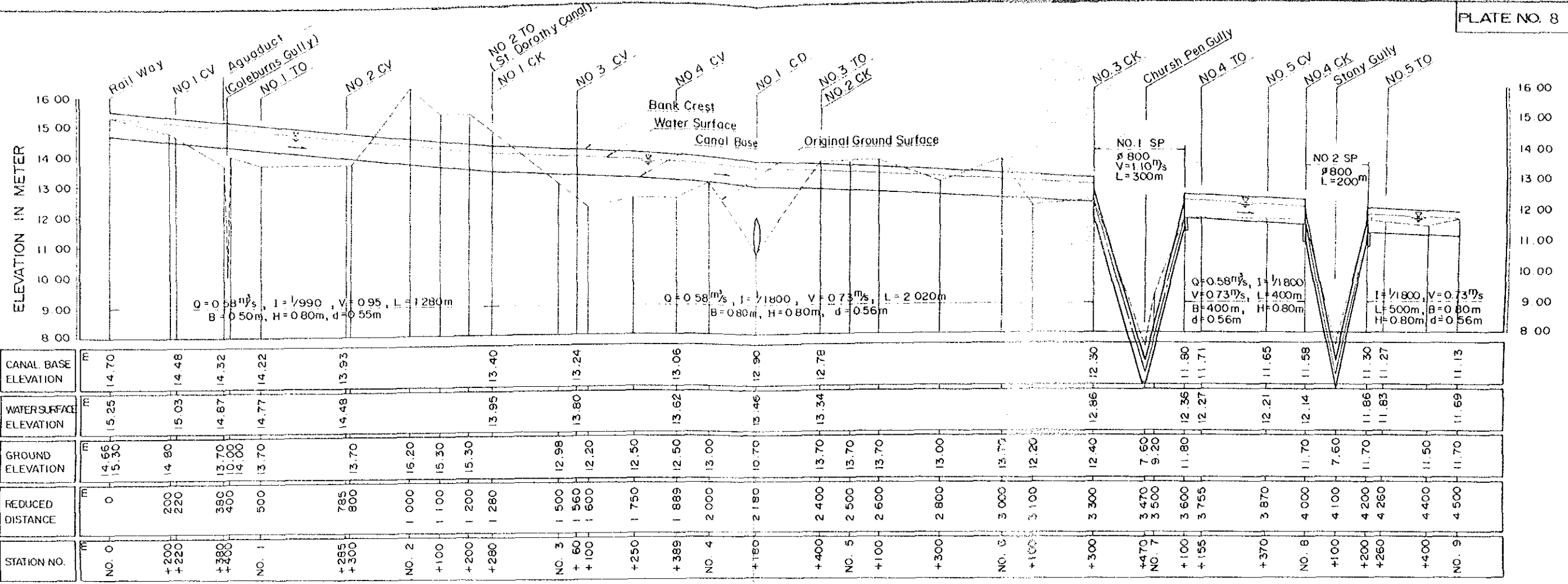
LEGEND

- TO : Turnout
- DP : Drop
- CK : Check Gate
- BG : Bridge
- CV : Culvert
- SP : Syphon

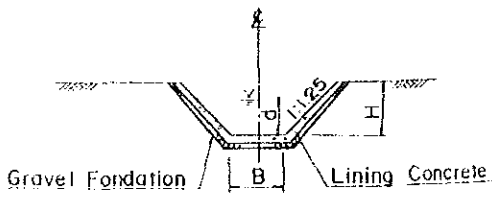
THE MODERNIZATION AND EXPANSION OF
THE RIO COBRE IRRIGATION SCHEME

PROFILE OF OLD HARBOUR BRANCH CANAL (2/2)

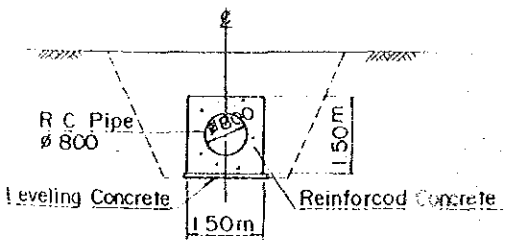
JAPAN INTERNATIONAL COOPERATION AGENCY DRAWING
NO. 2-6



TYPICAL CROSS SECTION OF CANAL



TYPICAL CROSS SECTION OF SYPHON



LEGEND

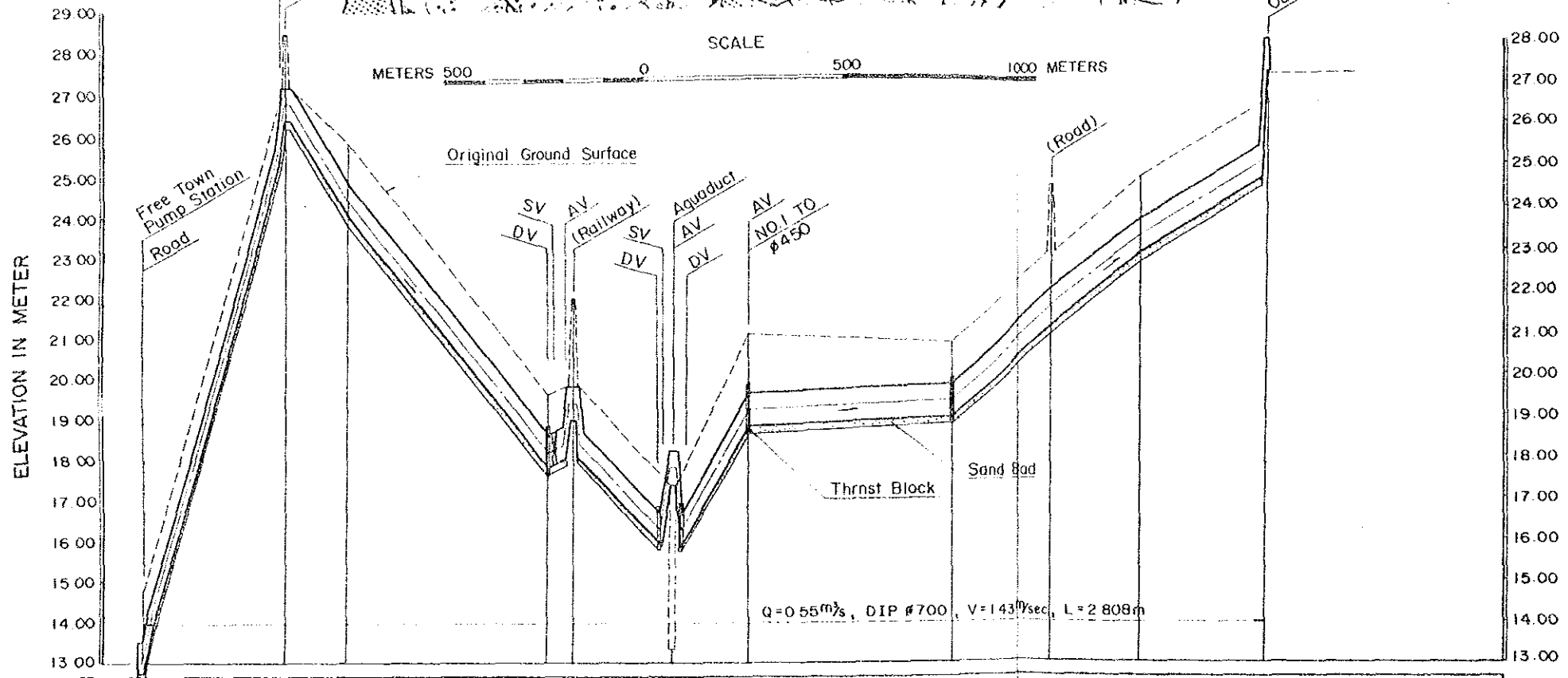
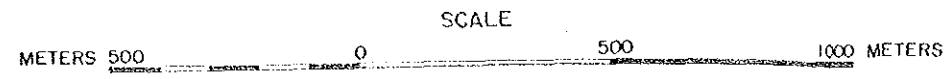
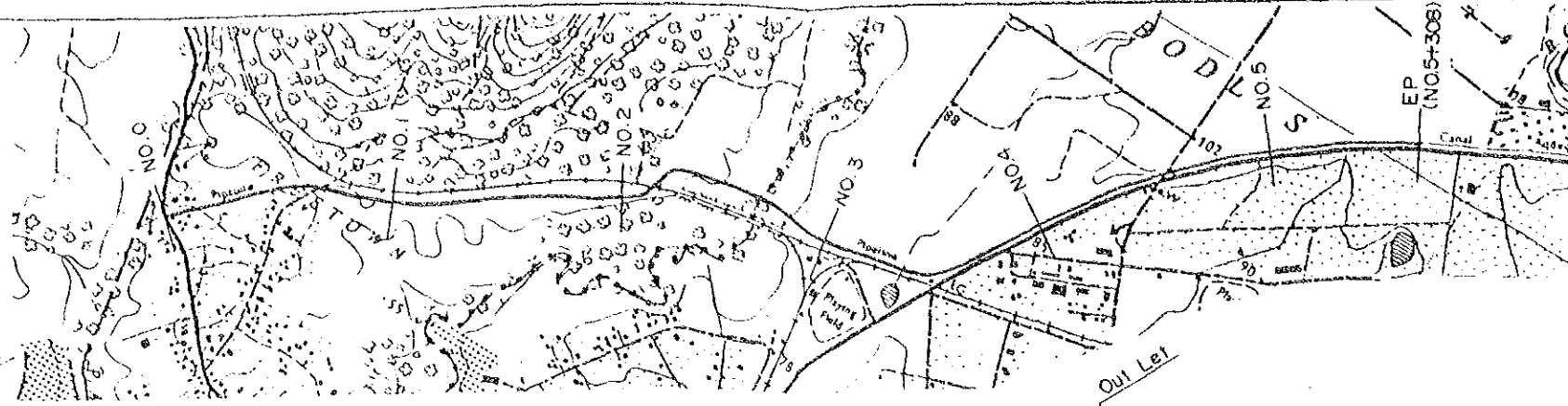
- TO : Turnout
- CK : Check Gate
- CV : Culvert
- SP : Syphon
- CD : Cross Drain

**THE MODERNIZATION AND EXPANSION OF
THE RIO COBRE IRRIGATION SCHEME**

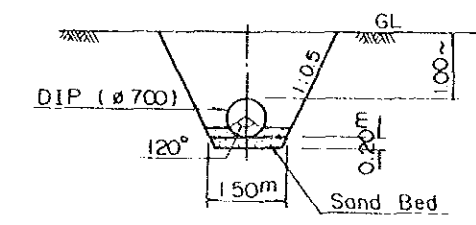
PROFILE OF OLD HARBOUR EXTENSION CANAL

JAPAN INTERNATIONAL COOPERATION AGENCY DRAWING NO. 2-7

PLAN



TYPICAL CROSS SECTION OF PIPELINE



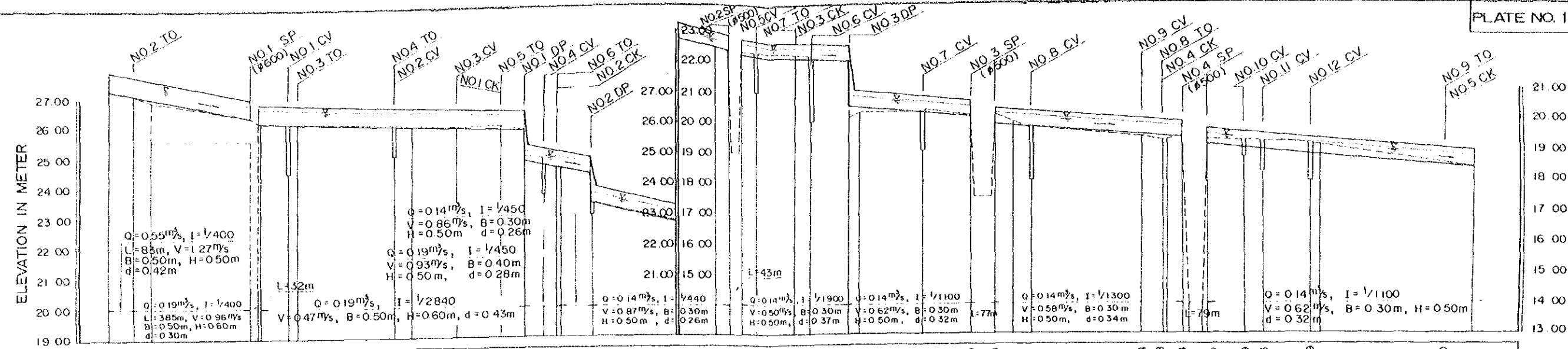
LEGEND

- DIP : Ductile Iron Pipe
- AV : Air Valve
- SV : Sluice Valve
- DV : Drain Valve (Blow Off)

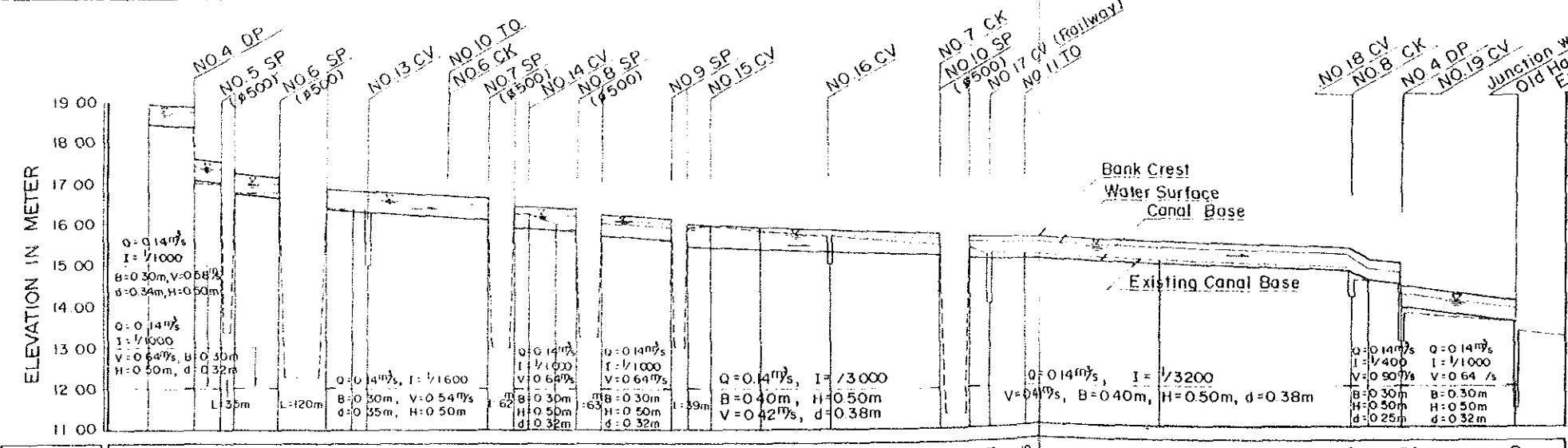
PIPE CENTER ELEVATION	13.20	26.80	24.30	18.20	19.00	17.80	19.20	19.40	21.70	23.30	25.10	27.70
WATERSURFACE ELEVATION												
GROUND ELEVATION	12.99 14.77	27.14 28.44 27.14	25.75	19.56 19.79 21.92 19.79	17.35 13.35 17.35	21.02	20.82	23.00 24.50 23.00	24.77	26.62 (27.27)		
REDUCED DISTANCE	0	350	500	1 000	1 067	1 310	1 500	2 000	2 272	2 500	2 808	
STATION NO.	NO. 0	+350	NO. 1	NO. 2 + 67	+310	NO. 3	NO. 4	+272	NO. 5	EP (+308)		

THE MODERNIZATION AND EXPANSION OF THE RIO COBRE IRRIGATION SCHEME

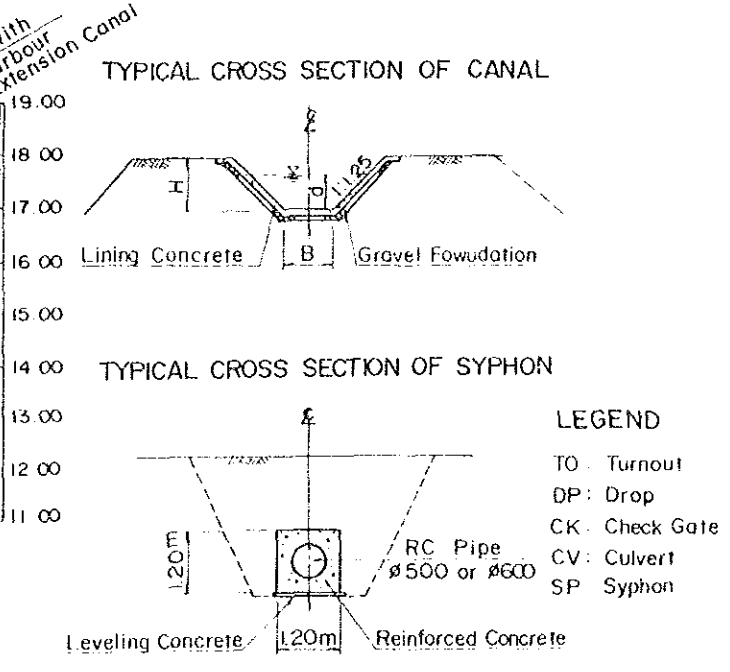
PROFILE OF FREE TOWN PIPELINE



STATION NO	REDUCED DISTANCE	EXISTING CANAL BASE ELEVATION	WATER SURFACE ELEVATION	CANAL BASE ELEVATION
NO. 0	0	26.52	27.69	27.27
+ 83	83	27.07	27.66	27.06
+ 140	140	26.92		
+ 468	468	26.52	26.60	26.30
+ 493	493	26.54	26.56	26.18
NO. 1	500	26.73		
+ 93	593	26.09	26.53	26.10
+ 121	621	26.08	26.52	26.09
+ 449	549	26.00	26.50	25.97
NO. 2	1 000	26.97		
+ 150	1 150	25.92	26.33	25.90
+ 296	1 296	25.94	26.27	25.86
+ 380	1 380	25.82	26.26	25.82
+ 443	1 443	24.92	25.08	24.80
+ 463	1 463	24.92	24.84	24.56
NO. 3	1 500	24.34	24.60	24.34
+ 100	1 600	23.38	23.64	23.38
NO. 4	2 000	22.46	22.61	22.35
+ 48	2 048	22.00	22.57	22.20
+ 91	2 091	22.04	22.49	22.17
+ 148	2 148	22.02	22.42	22.10
+ 285	2 285	22.15	22.39	22.07
+ 339	2 339	22.00	22.37	22.00
+ 468	2 468	20.30	20.82	20.52
NO. 5	2 500	20.30	20.63	20.31
+ 205	2 705	20.34	20.47	20.15
+ 365	2 865	20.15	20.24	19.90
+ 442	2 942	19.50	20.15	19.95
NO. 6	3 000	19.95	20.15	19.81
+ 58	3 058	19.74	20.15	19.74
+ 415	3 415	19.42	19.88	19.54
+ 493	3 493	19.33	19.82	19.48
NO. 7	3 500	19.44	19.78	19.44
+ 54	3 554	19.40	19.52	19.20
+ 118	3 618	19.33	19.41	19.09
+ 133	3 633	19.31	19.35	19.03
+ 256	3 756	19.20	19.21	18.89
+ 318	3 818	19.27	19.21	18.89
+ 470	3 970	19.22	18.82	18.50
NO. 8	4 000	19.17	18.73	18.41
+ 400	4 400	18.40		
NO. 9	4 500			



STATION NO	REDUCED DISTANCE	EXISTING CANAL BASE ELEVATION	WATER SURFACE ELEVATION	CANAL BASE ELEVATION
NO. 9	4 500	18.40	18.73	18.41
+ 115	4 615	18.34	18.63	18.31
+ 177	4 677	18.00	17.44	17.10
+ 212	4 712	17.90	17.34	17.00
+ 319	4 819	16.76	17.07	16.75
+ 439	4 939	16.28	16.97	16.65
NO. 10	5 000	16.35	16.70	16.35
+ 38	5 038	16.34	16.68	16.33
+ 230	5 230	16.17	16.52	16.17
+ 338	5 338	16.10	16.45	16.10
+ 400	5 400	16.23	16.22	15.90
+ 458	5 438	16.19	16.18	15.86
NO. 11	5 500	15.99	16.16	15.84
+ 48	5 548	15.84	16.02	15.70
+ 111	5 611	15.80	15.66	15.28
+ 285	5 785	15.99	15.85	15.53
+ 324	5 824	15.85	15.82	15.40
+ 360	5 880	15.89	15.76	15.38
NO. 12	6 000	15.80	15.67	15.28
+ 171	6 171	15.67	15.66	15.28
+ 430	6 430	15.43	15.62	15.20
NO. 13	6 500	15.34	15.48	15.10
+ 50	6 550	15.33	15.46	15.08
+ 145	6 645	15.21	15.43	15.05
NO. 14	7 000	15.02	15.18	14.80
+ 464	7 464	14.16	14.96	14.71
NO. 15	7 500	14.54	14.75	14.50
+ 83	7 583	14.70	14.19	13.87
+ 362	7 852	13.57	13.92	13.60

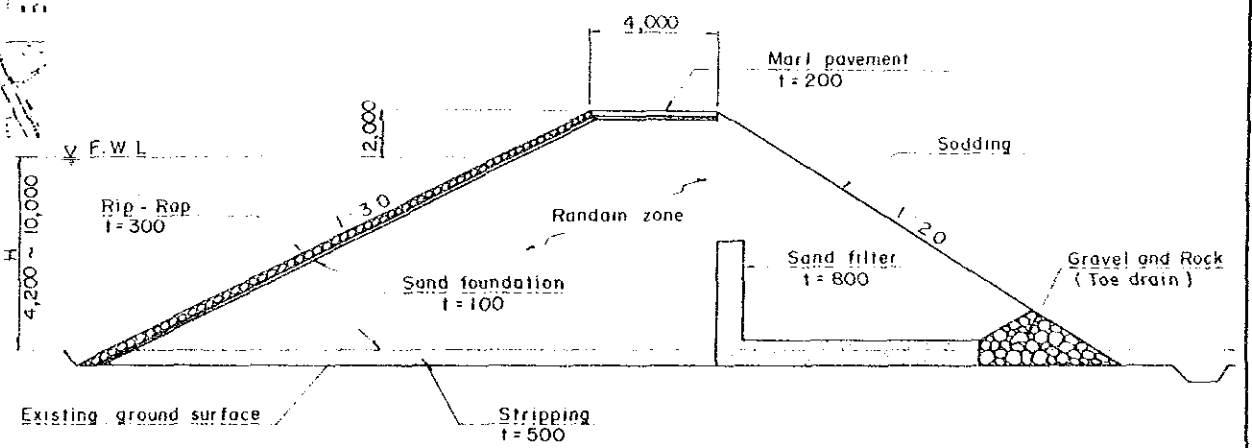
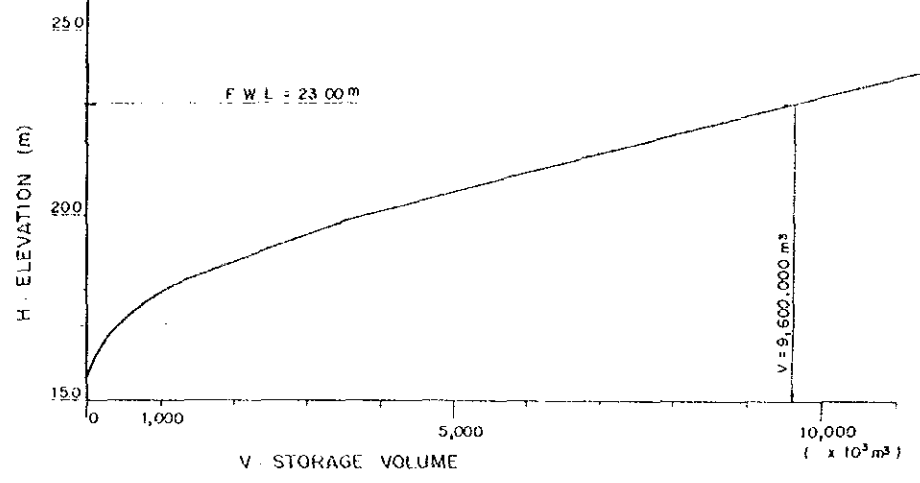
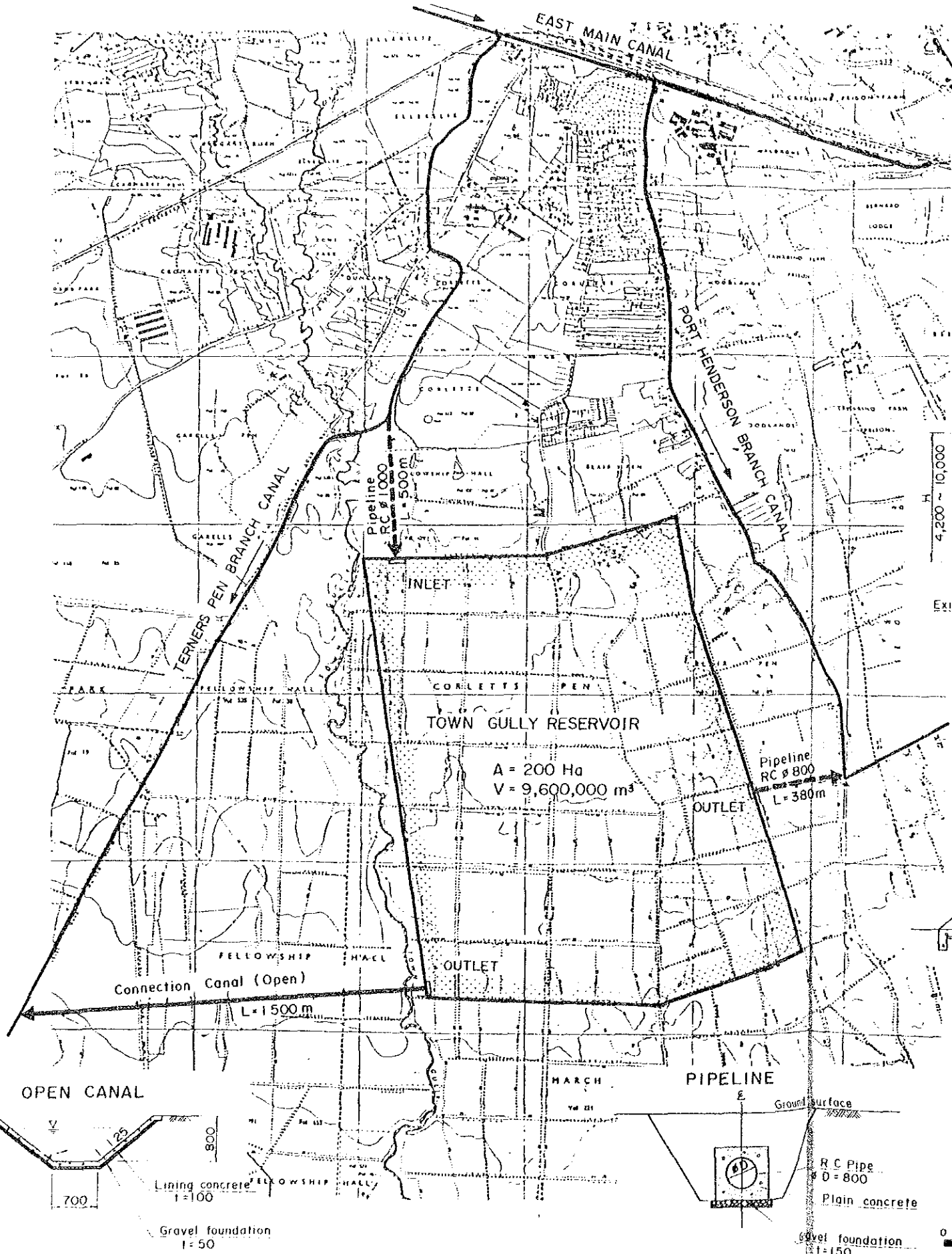


THE MODERNIZATION AND EXPANSION OF THE RIO COBRE IRRIGATION SCHEME.

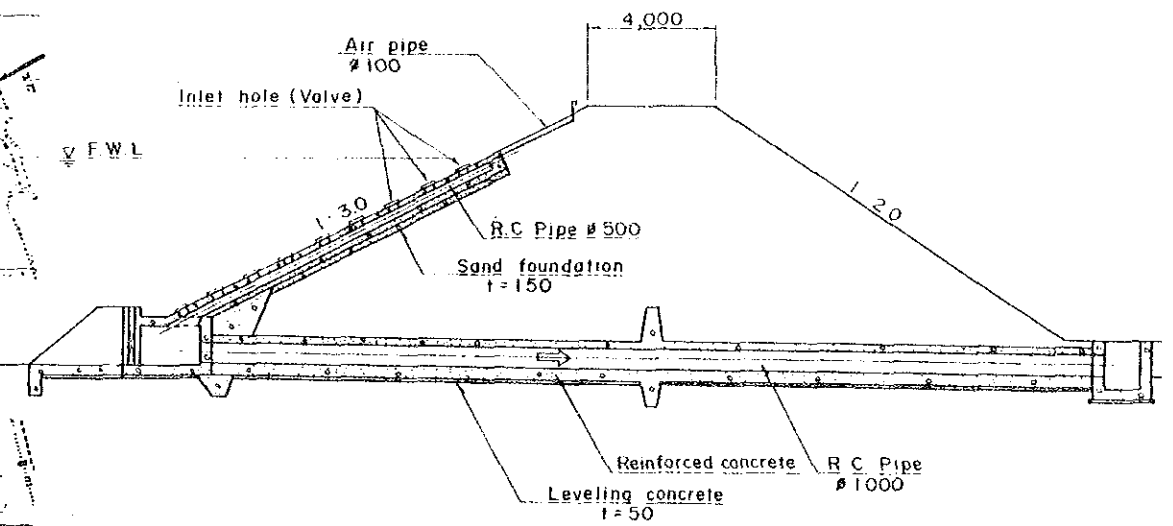
PROFILE OF FREE TOWN MAIN CANAL

GENERAL PLAN (SCALE A)

H-V CURVE



TYPICAL CROSS SECTION OF DIKE

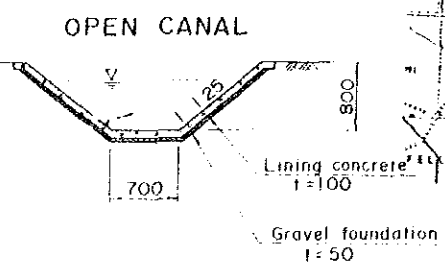
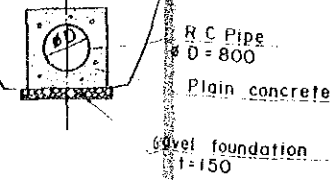
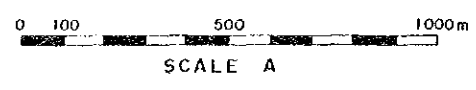


TYPICAL CROSS SECTION OF OUTLET

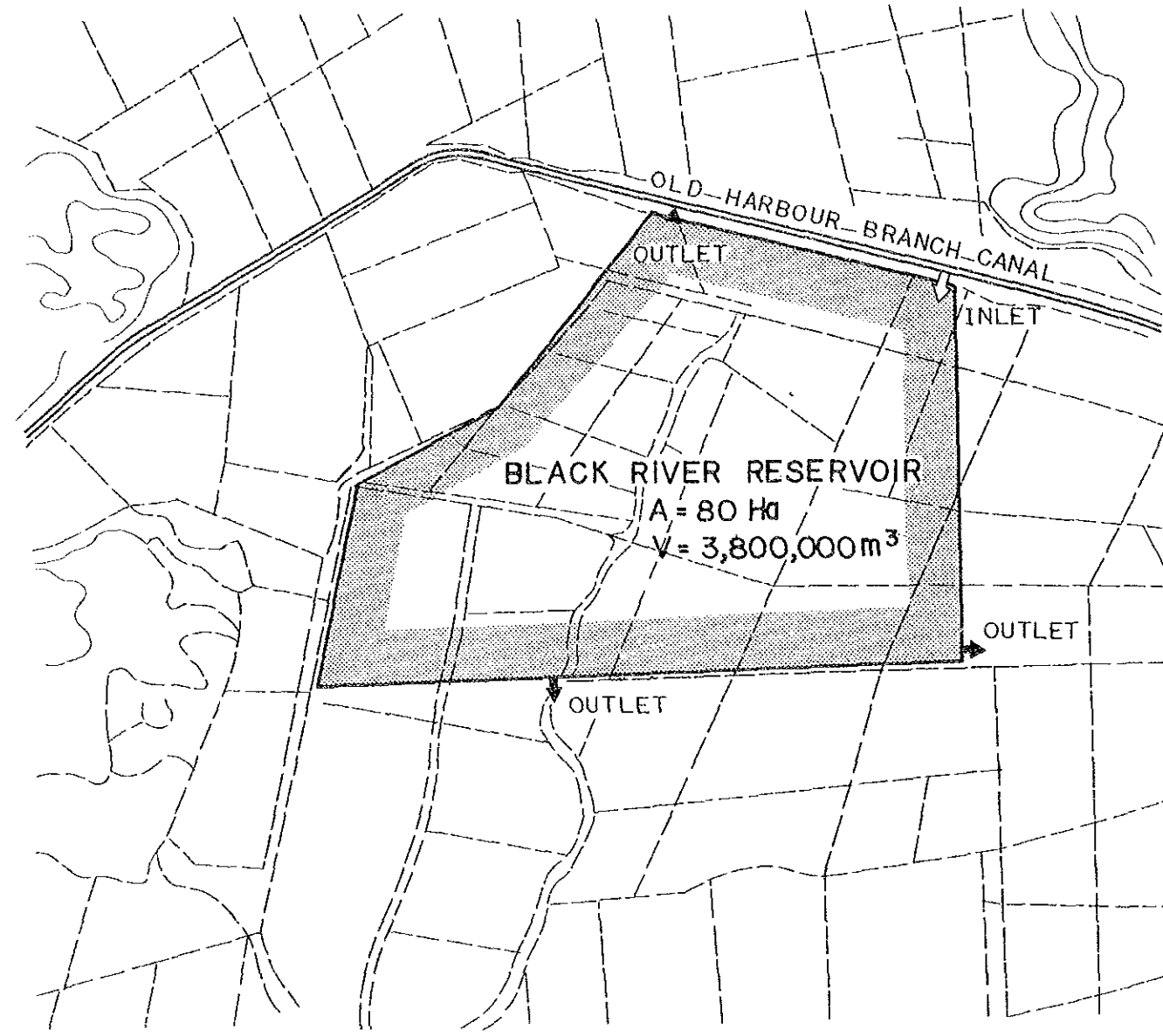
THE MODERNIZATION AND EXPANSION OF
THE RIO COBRE IRRIGATION SCHEME

TOWN GULLY RESERVOIR

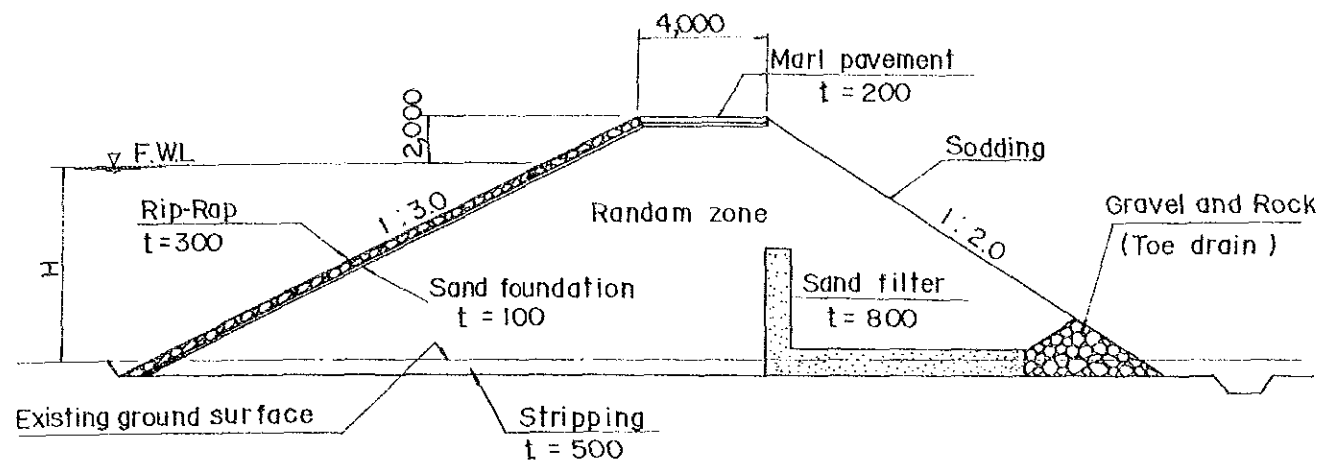
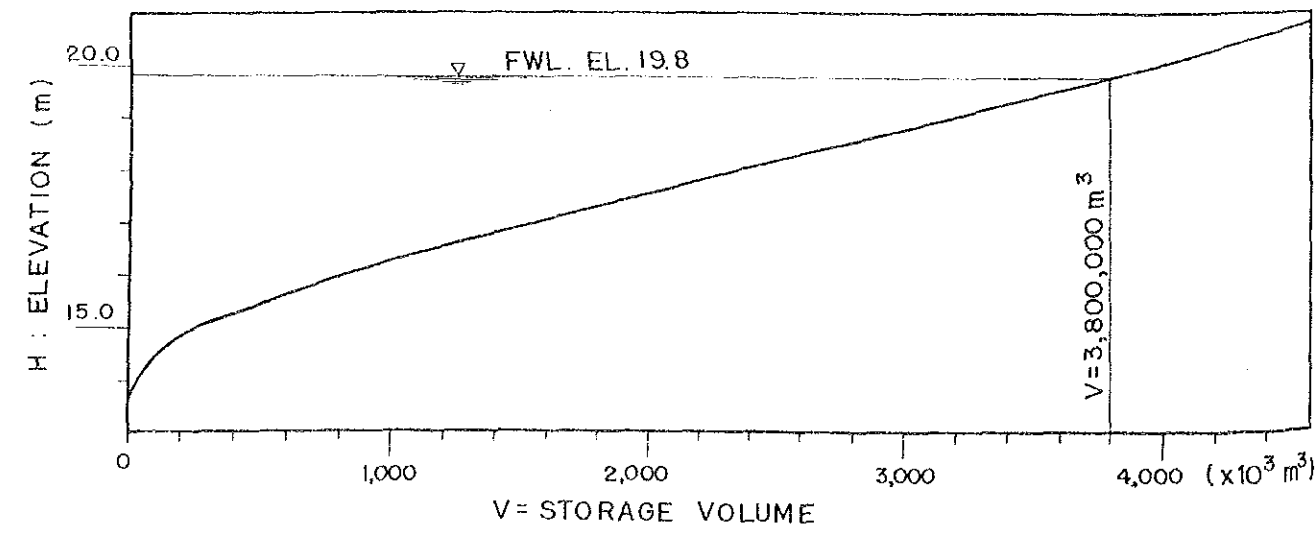
JAPAN INTERNATIONAL COOPERATION AGENCY DRAWING
NO. 3-1



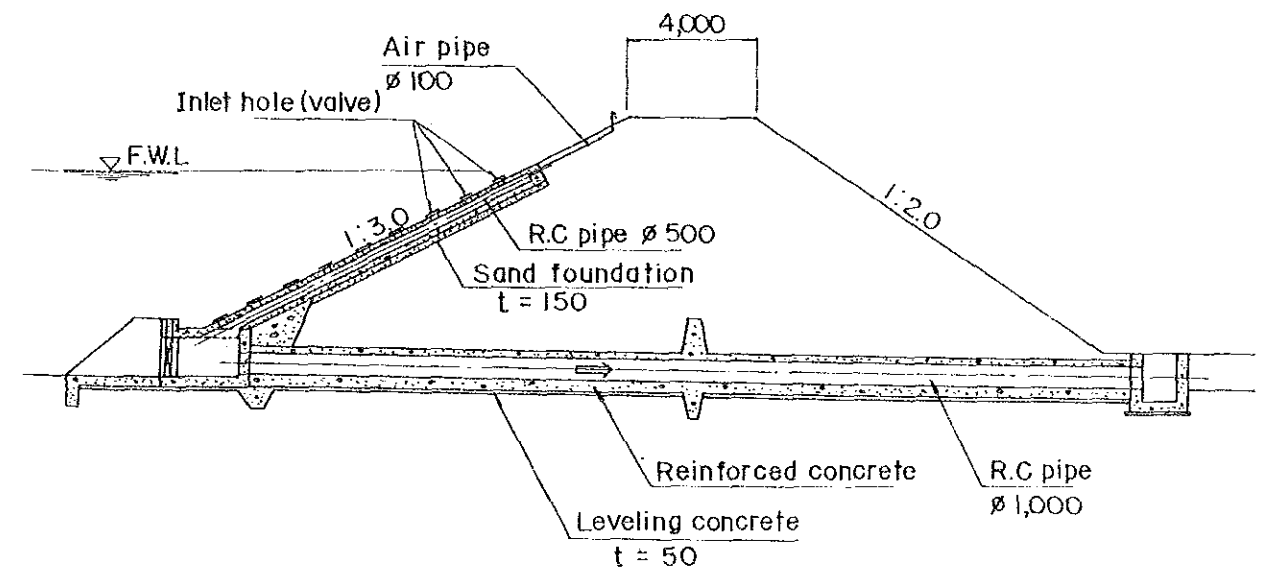
GENERAL PLAN



H - V CURVE



TYPICAL CROSS SECTION OF DIKE



TYPICAL CROSS SECTION OF OUTLET



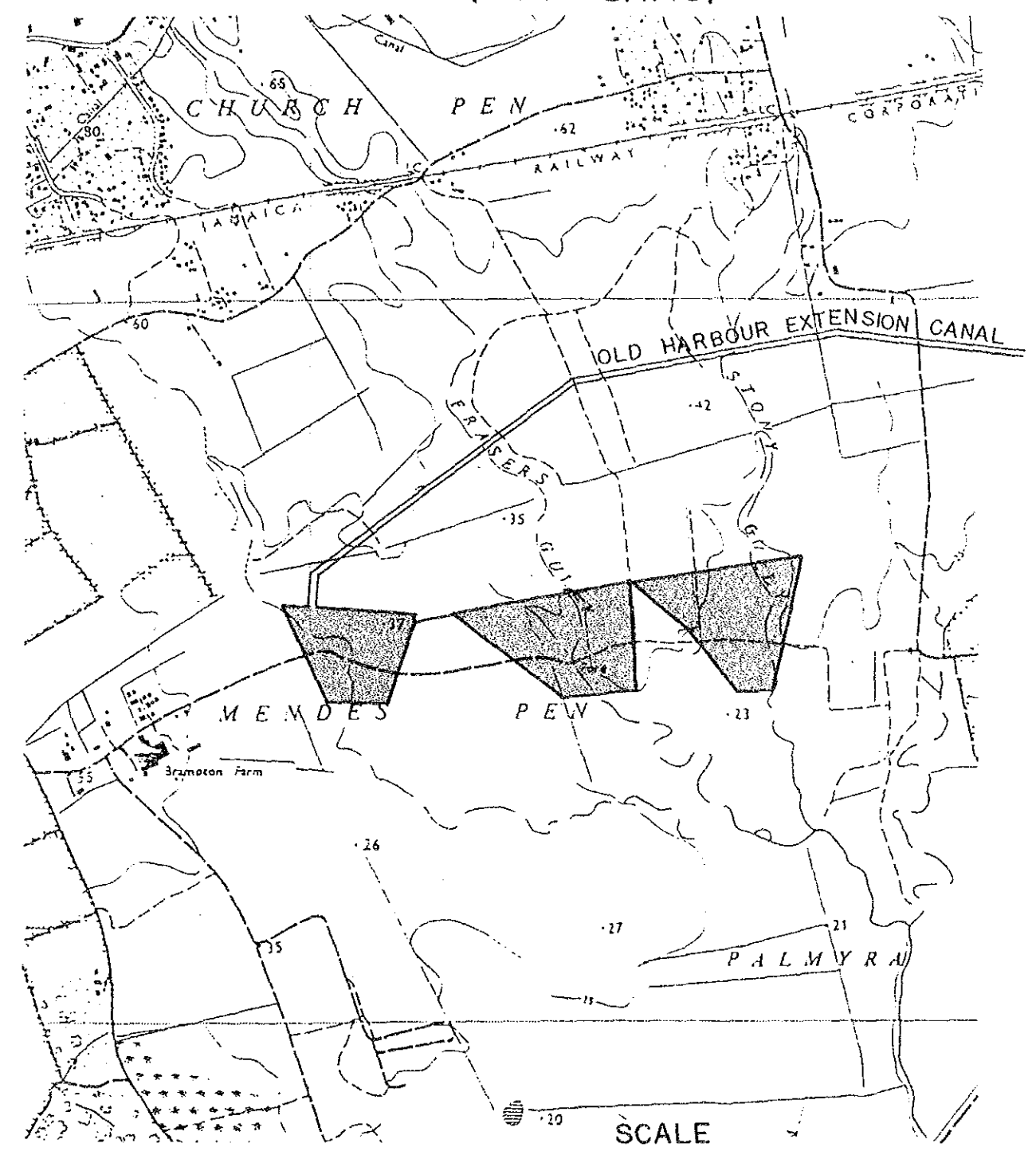
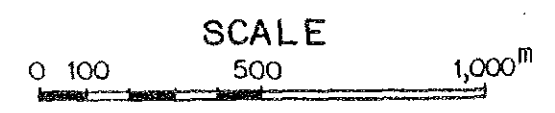
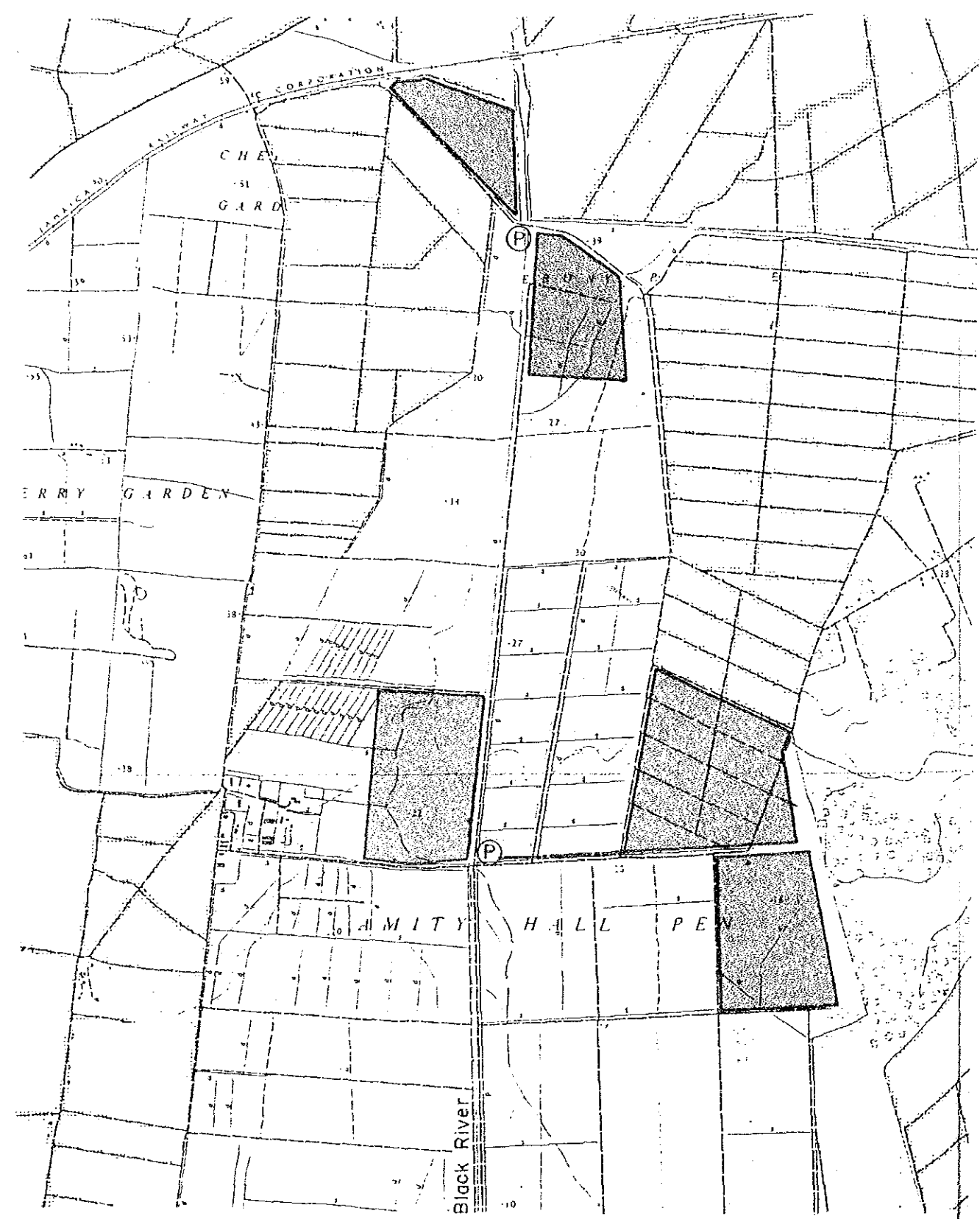
THE MODERNIZATION AND EXPANSION OF
THE RIO COBRE IRRIGATION SCHEME




BLACK RIVER RESERVOIR

JAPAN INTERNATIONAL COOPERATION AGENCY DRAWING NO. 3-2

AMITY HALL RESERVOIRS

MENDES PEN RESERVOIRS (MINI DAMS)



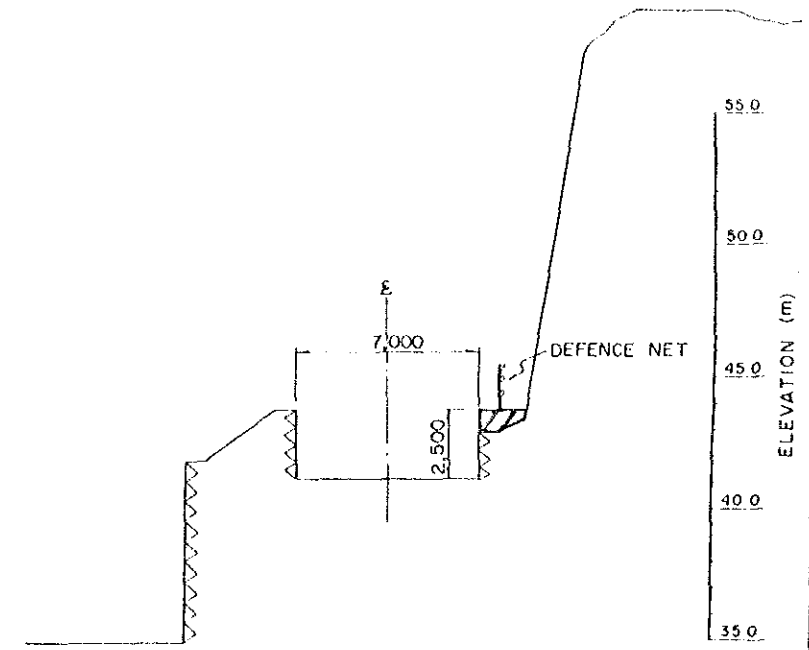
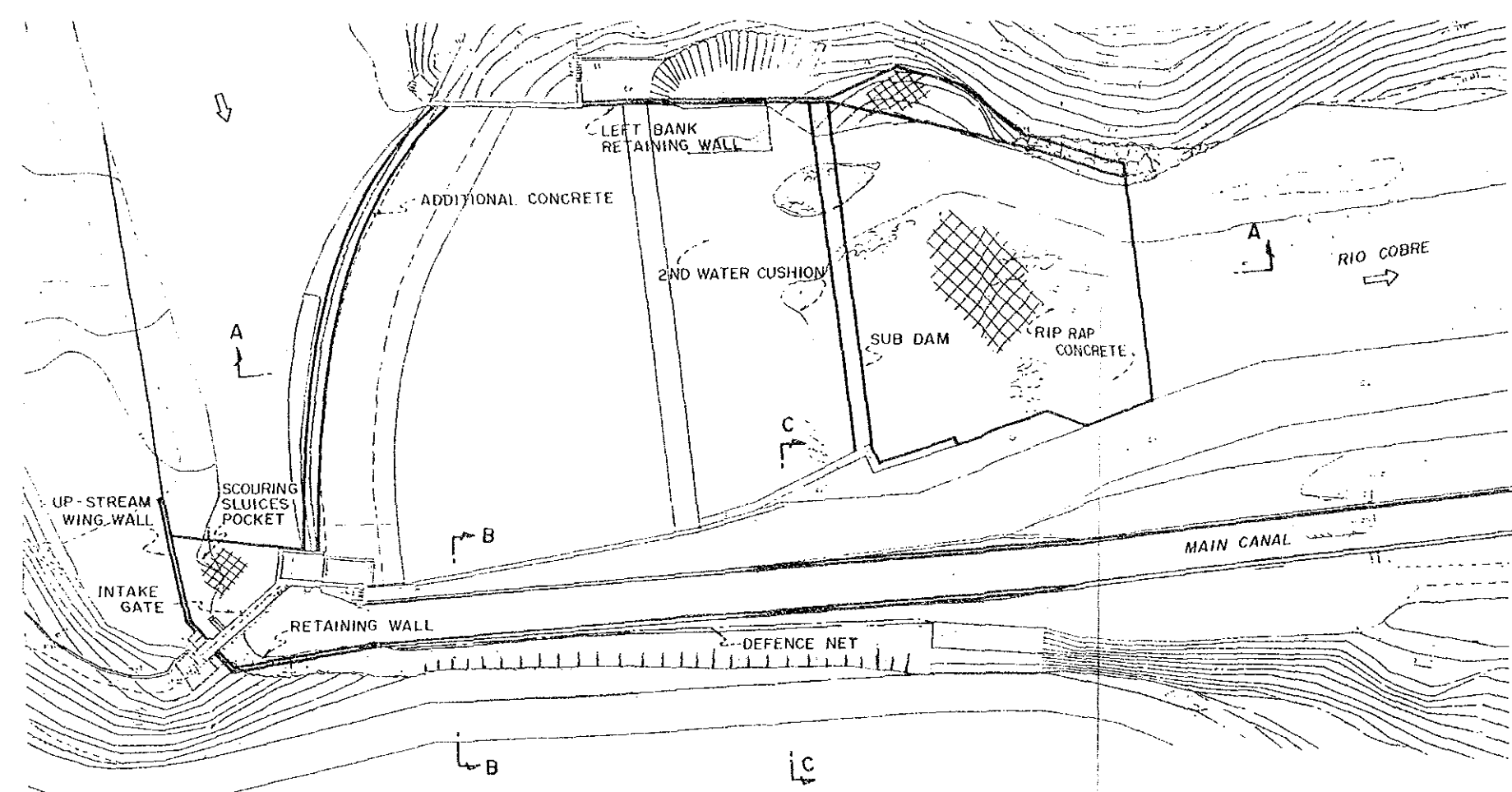
- LEGEND**
-  EXISTING AND UNDER CONSTRUCTION RESERVOIRS
 -  PUNPING STATION
 -  PIPELINE

THE MODERNIZATION AND EXPANSION OF THE RIO COBRE IRRIGATION SCHEME

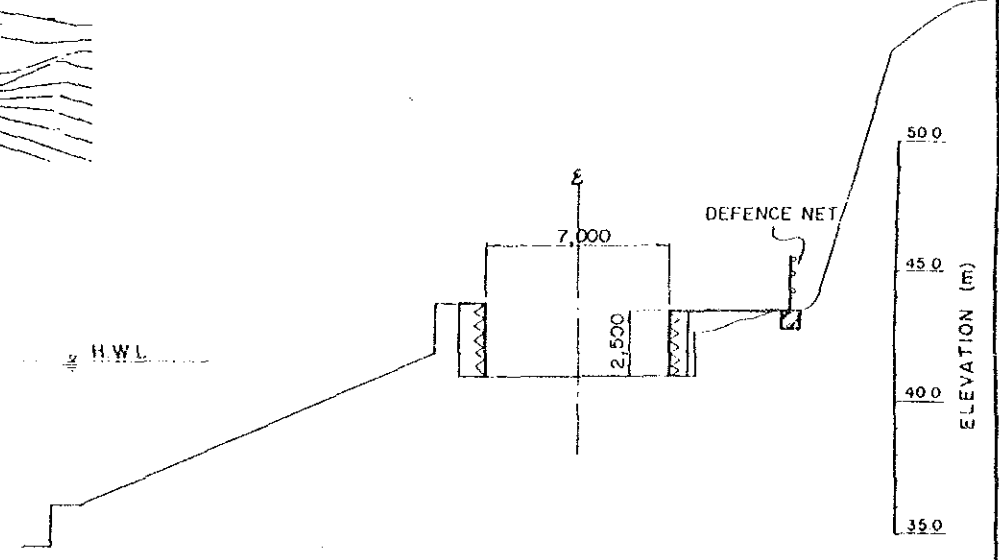
LOCATION MAP OF AMITY HALL RESERVOIRS AND MENDES PEN RESERVOIRS

JAPAN INTERNATIONAL COOPERATION AGENCY DRAWING NO. 3-3

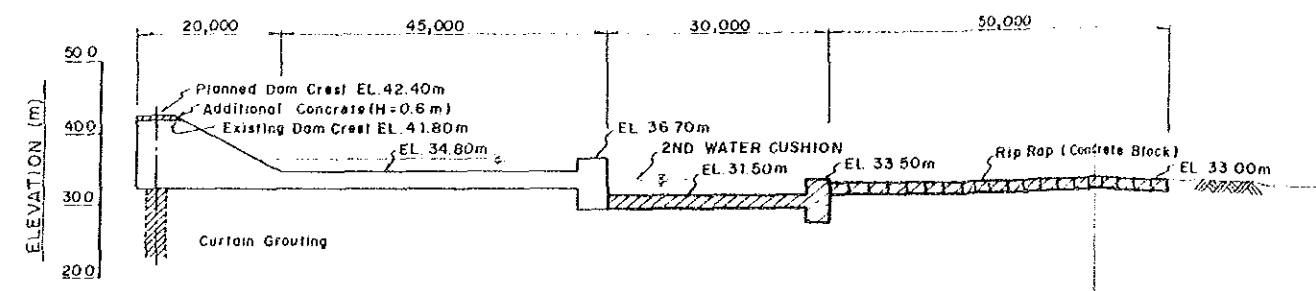
PLAN SCALE A



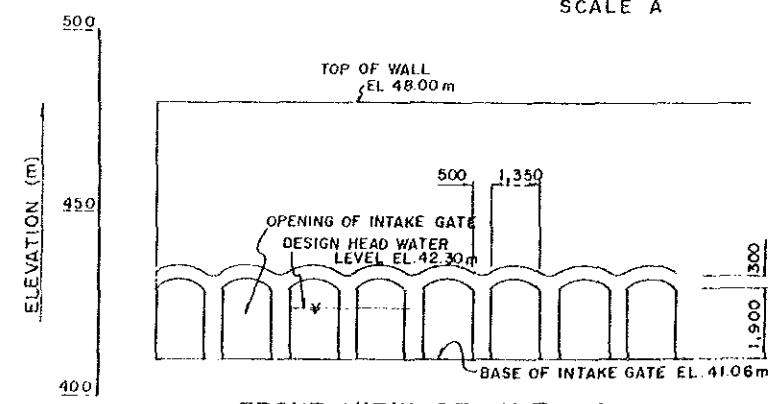
SECTION B - B
SCALE B



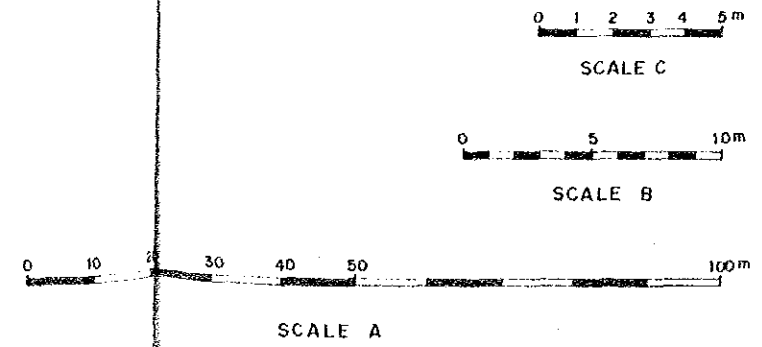
SECTION C - C
SCALE B



SECTION A - A
SCALE A



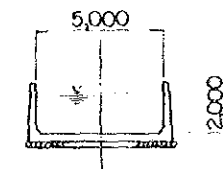
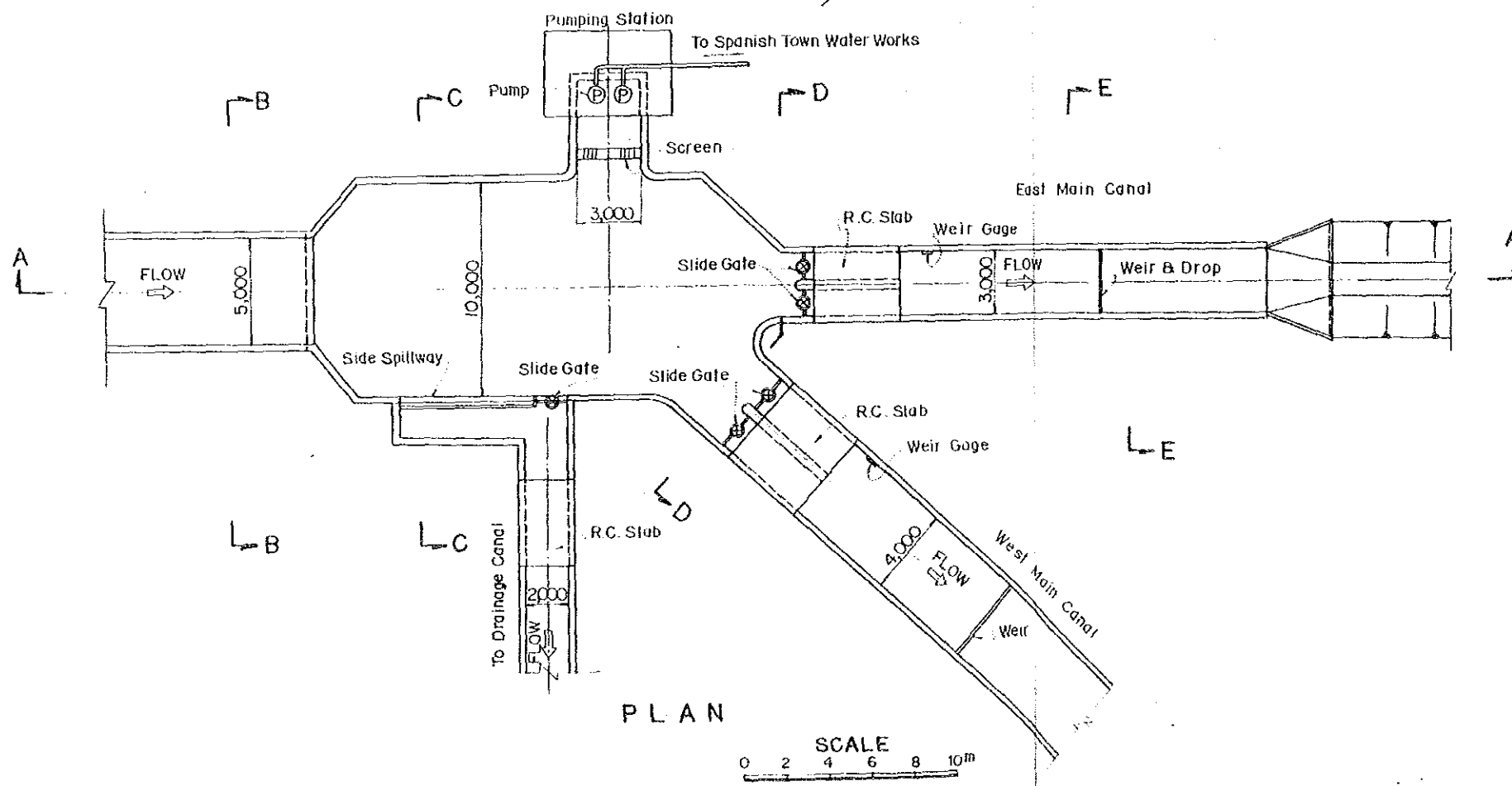
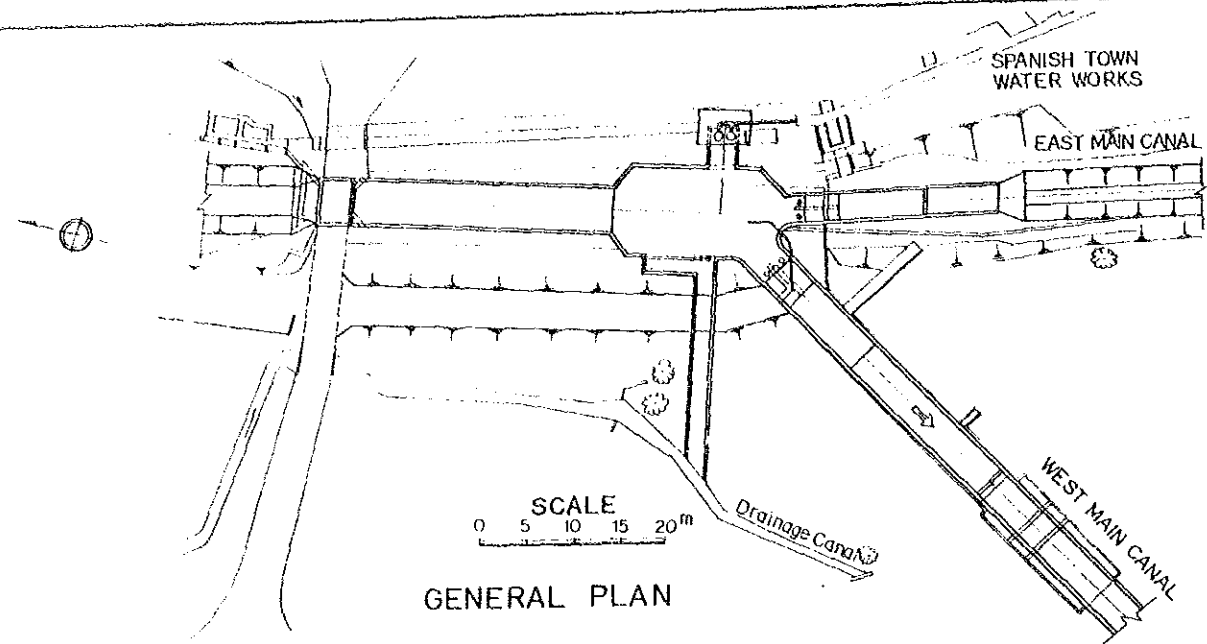
FRONT VIEW OF INTAKE
SCALE C



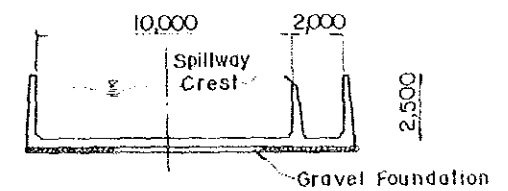
THE MODERNIZATION AND EXPANSION OF
THE RIO COBRE IRRIGATION SCHEME

PLAN AND PROFILE OF HEAD WORKS

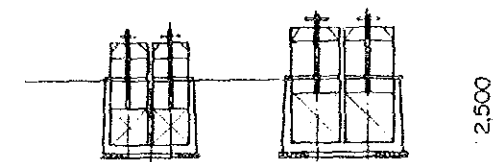
JAPAN INTERNATIONAL COOPERATION AGENCY DRAWING
NO. 4-1



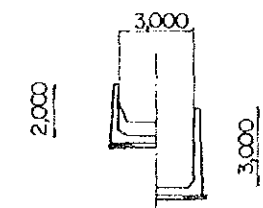
SECTION B-B



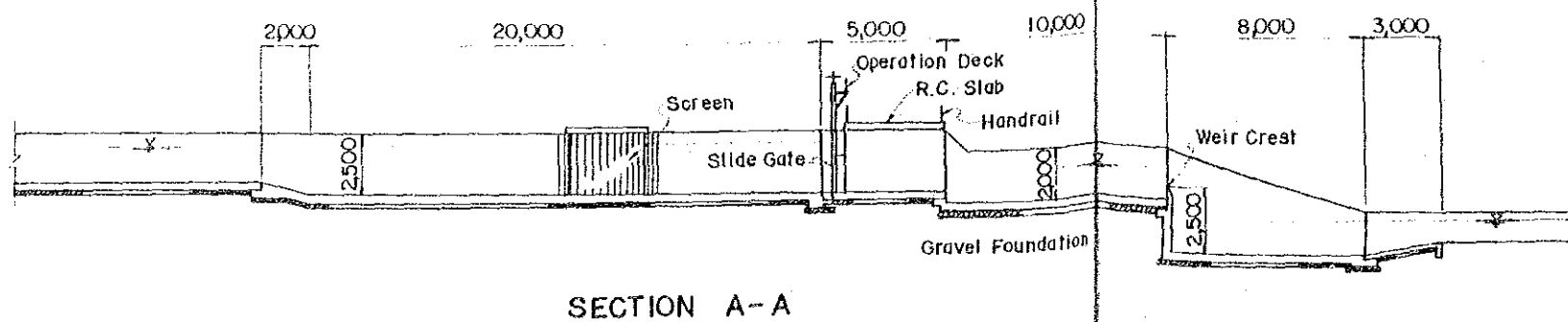
SECTION C-C



SECTION D-D



SECTION E-E

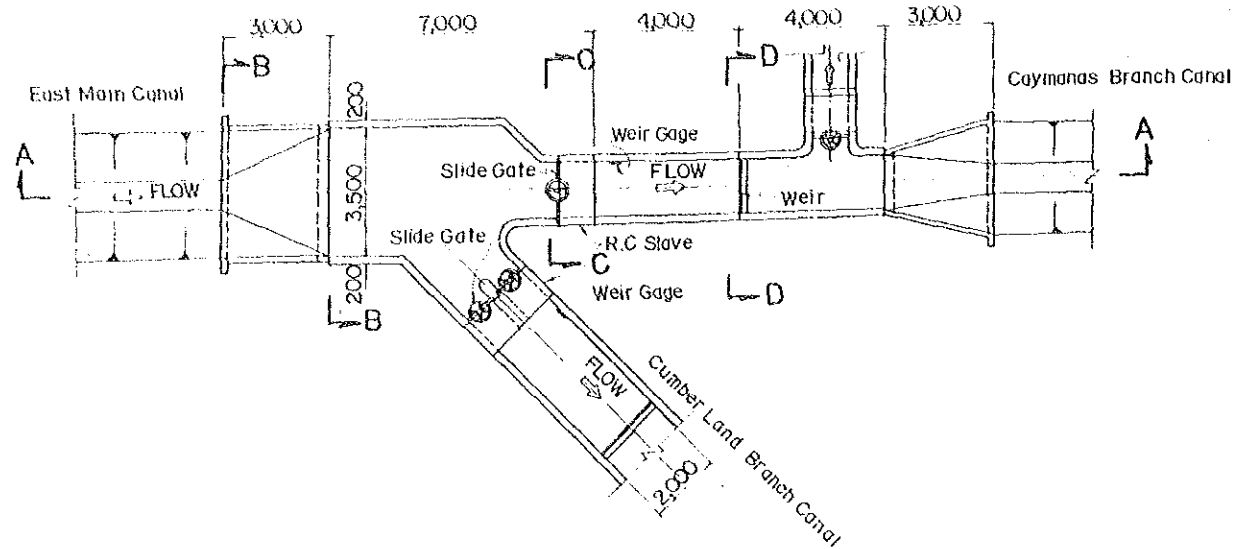


THE MODERNIZATION AND EXPANSION OF
THE RIO COBRE IRRIGATION SCHEME

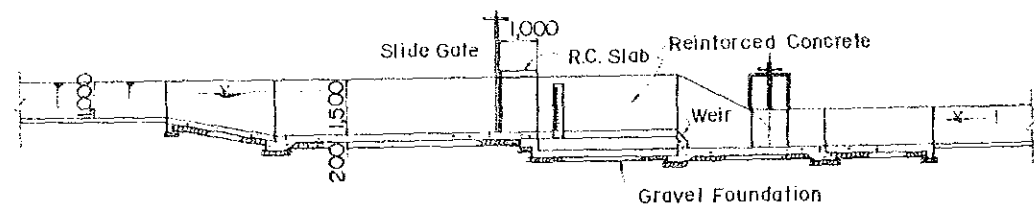
PLAN AND PROFILE OF NO. 1 BIFURCATION

JAPAN INTERNATIONAL COOPERATION AGENCY
DRAWING NO. 4-2

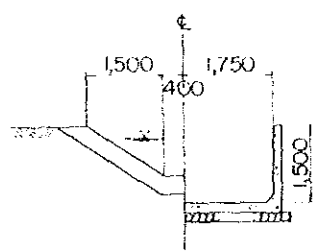
NO. 2 BIFURCATION



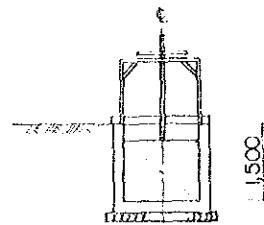
PLAN



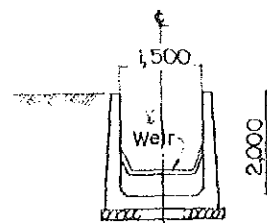
SECTION A-A



SECTION B-B

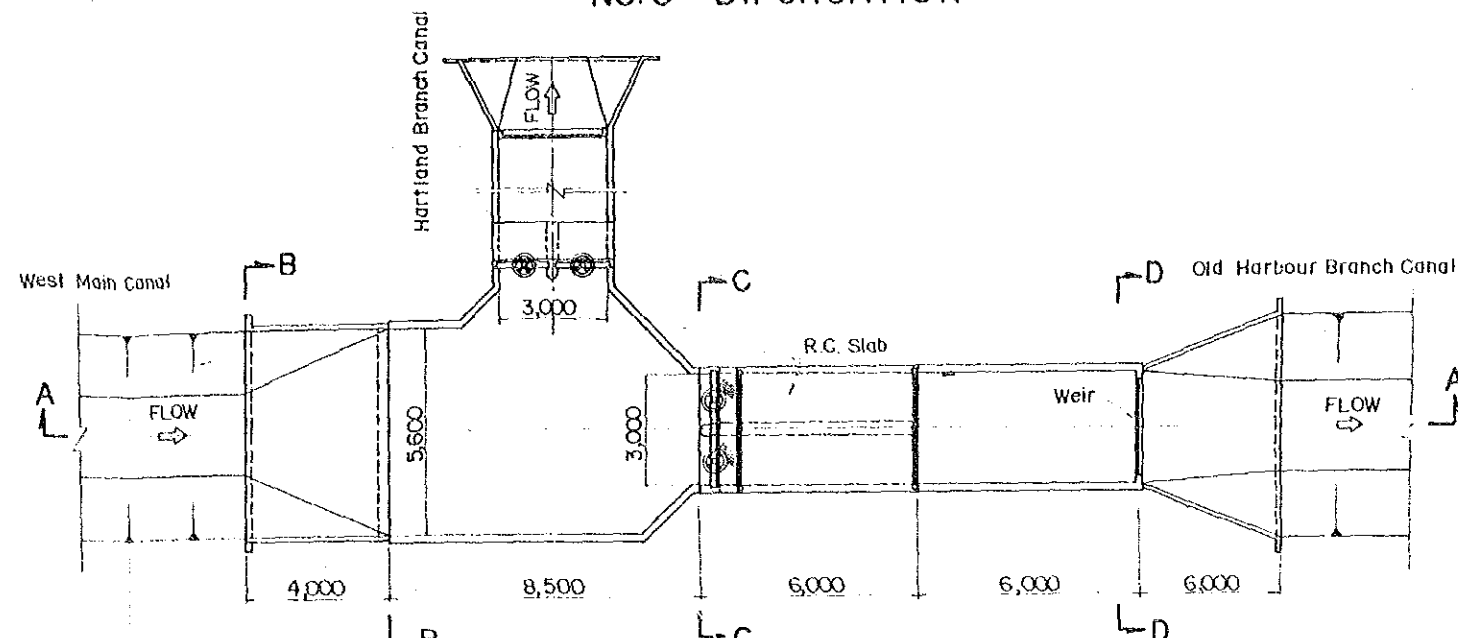


SECTION C-C

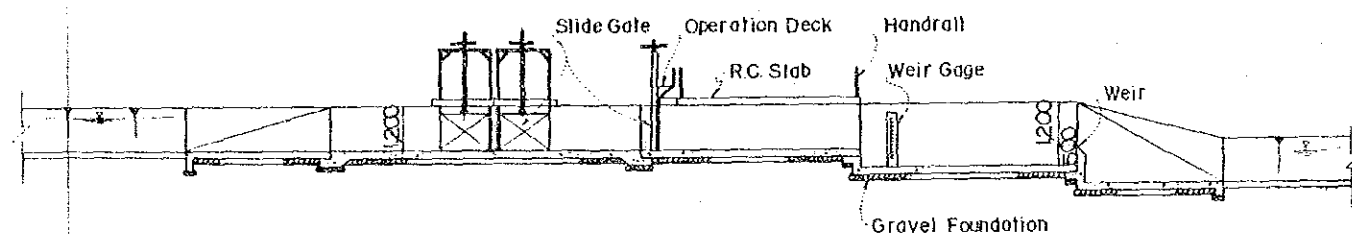


SECTION D-D

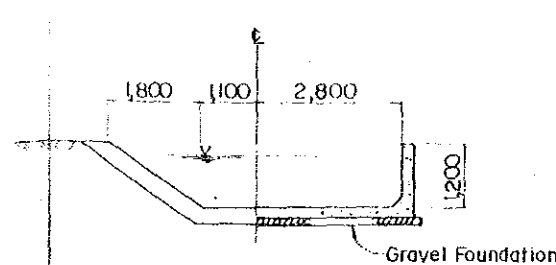
NO. 3 BIFURCATION



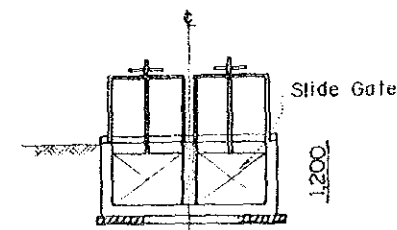
PLAN



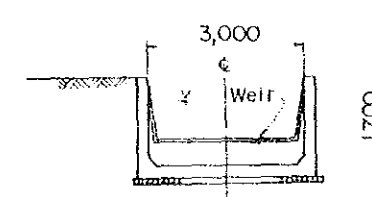
SECTION A-A



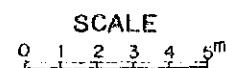
SECTION B-B



SECTION C-C



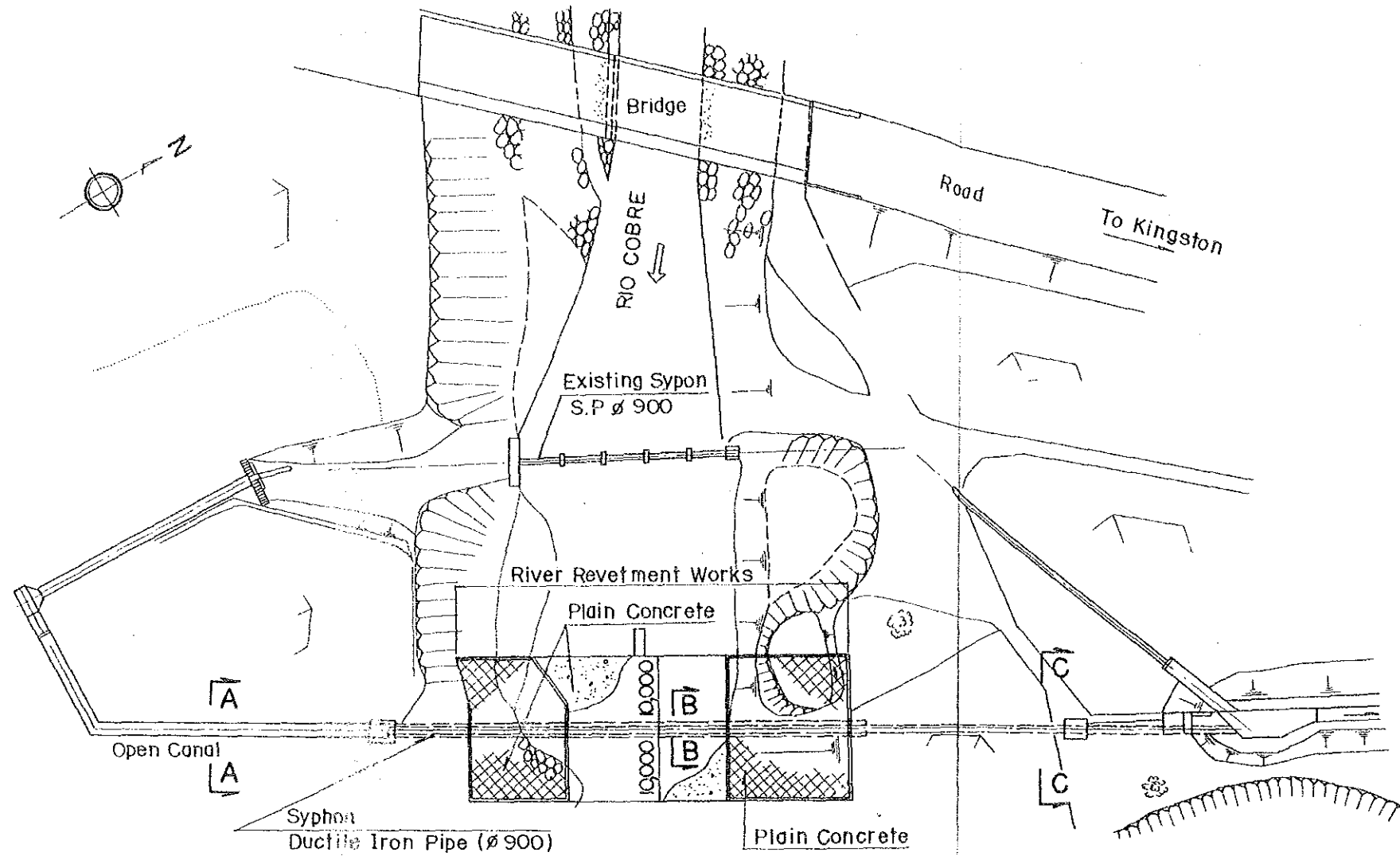
SECTION D-D



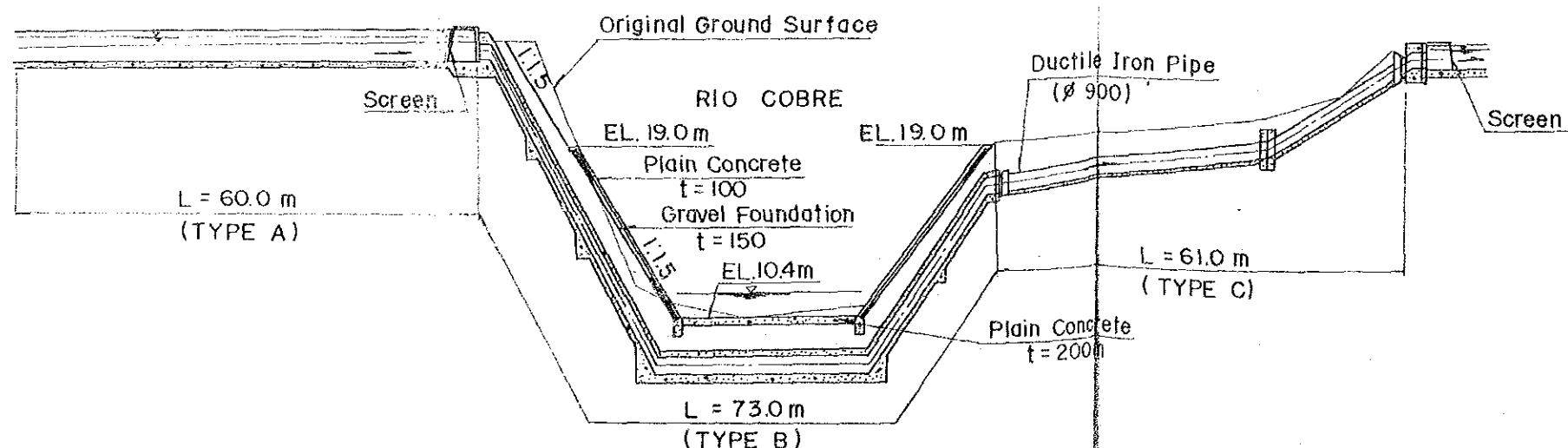
THE MODERNIZATION AND EXPANSION OF
THE RIO COBRE IRRIGATION SCHEME

PLAN AND PROFILE OF NO. 2 AND
NO. 3 BIFURCATION

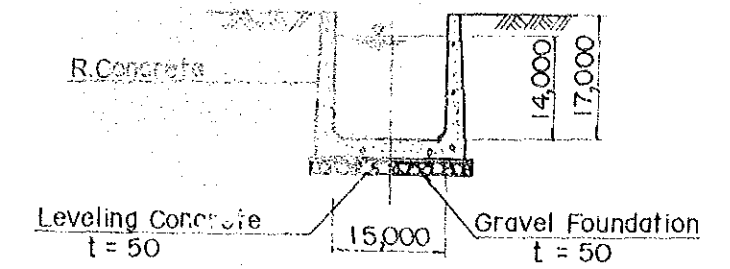
JAPAN INTERNATIONAL COOPERATION AGENCY DRAWING
NO. 4-3



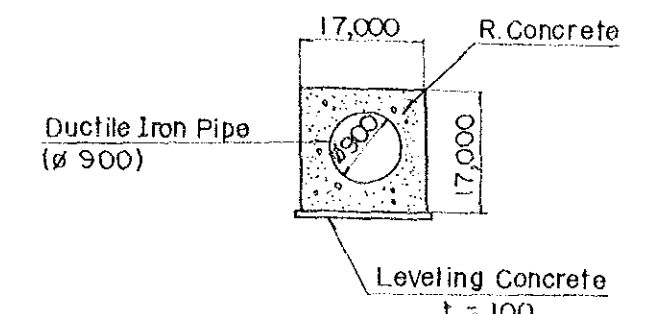
PLAN
SCALE - A



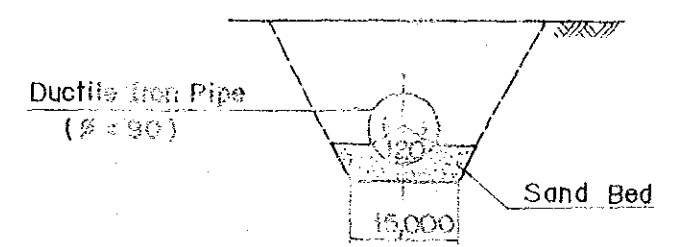
PROFILE
SCALE - A



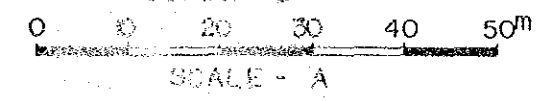
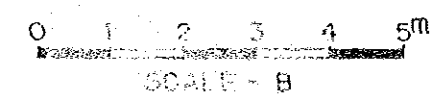
SECTION A-A (TYPE A)
SCALE - B



SECTION B-B (TYPE B)
SCALE - B



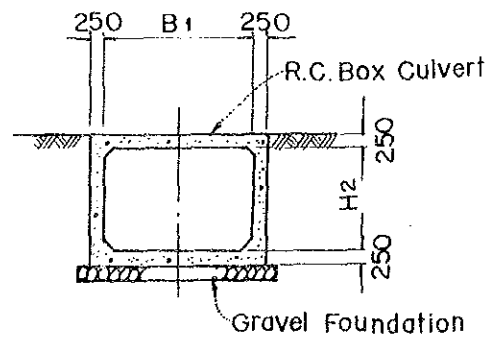
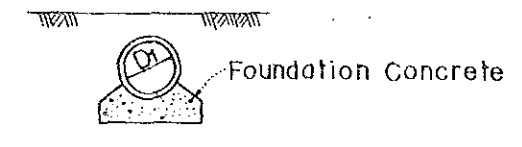
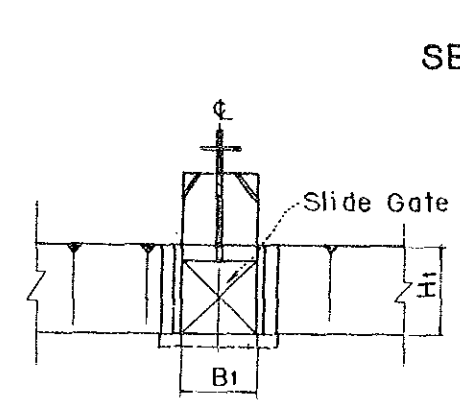
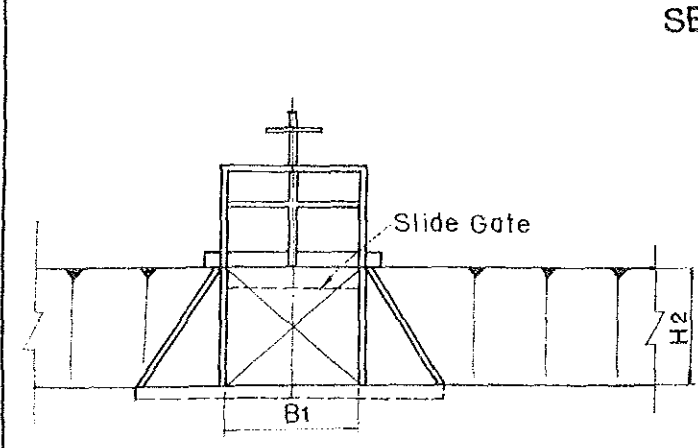
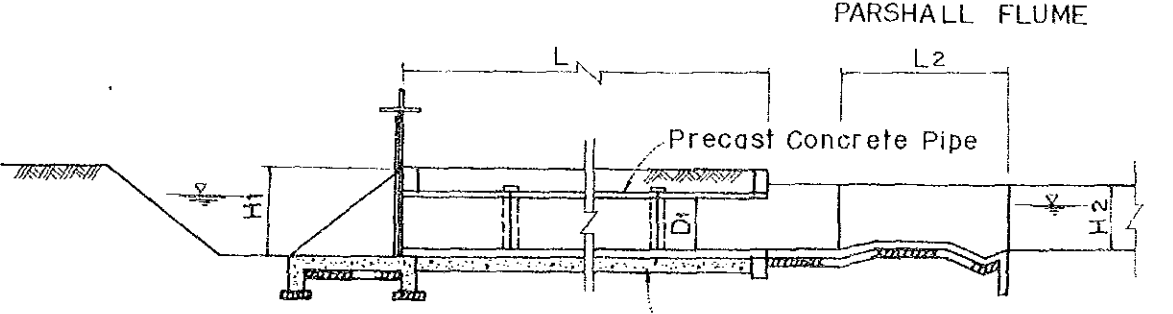
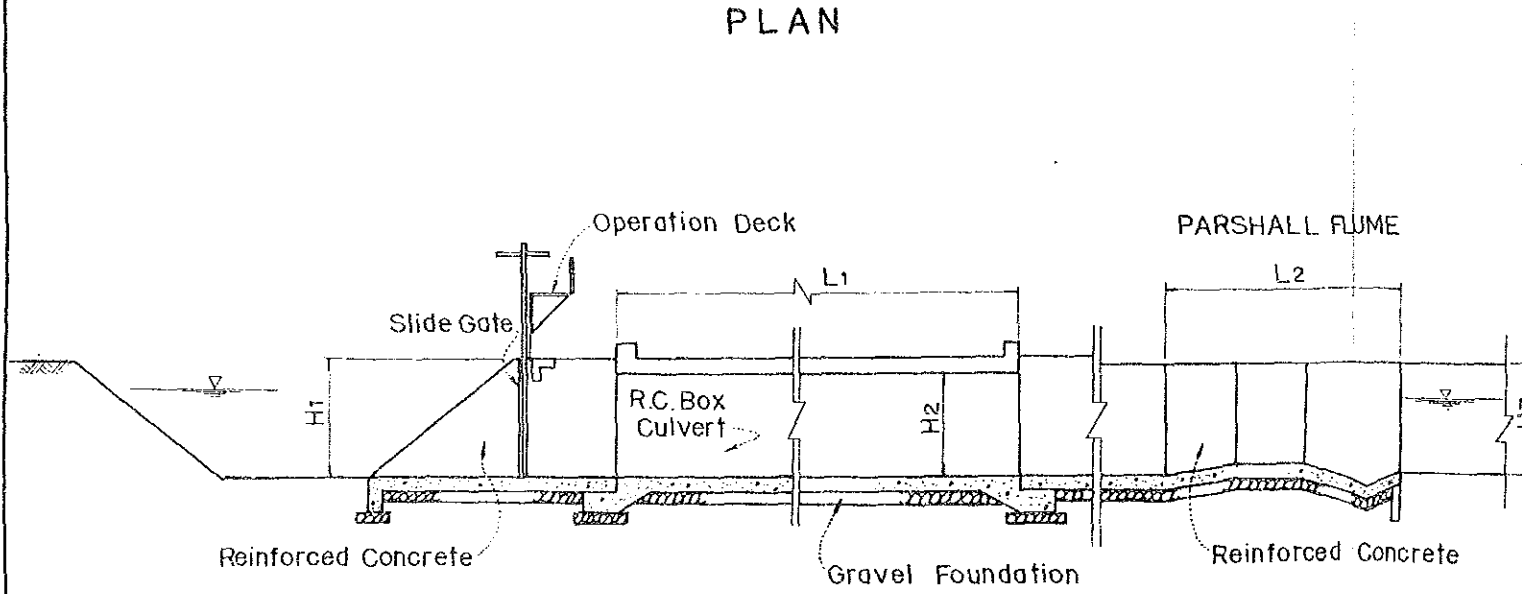
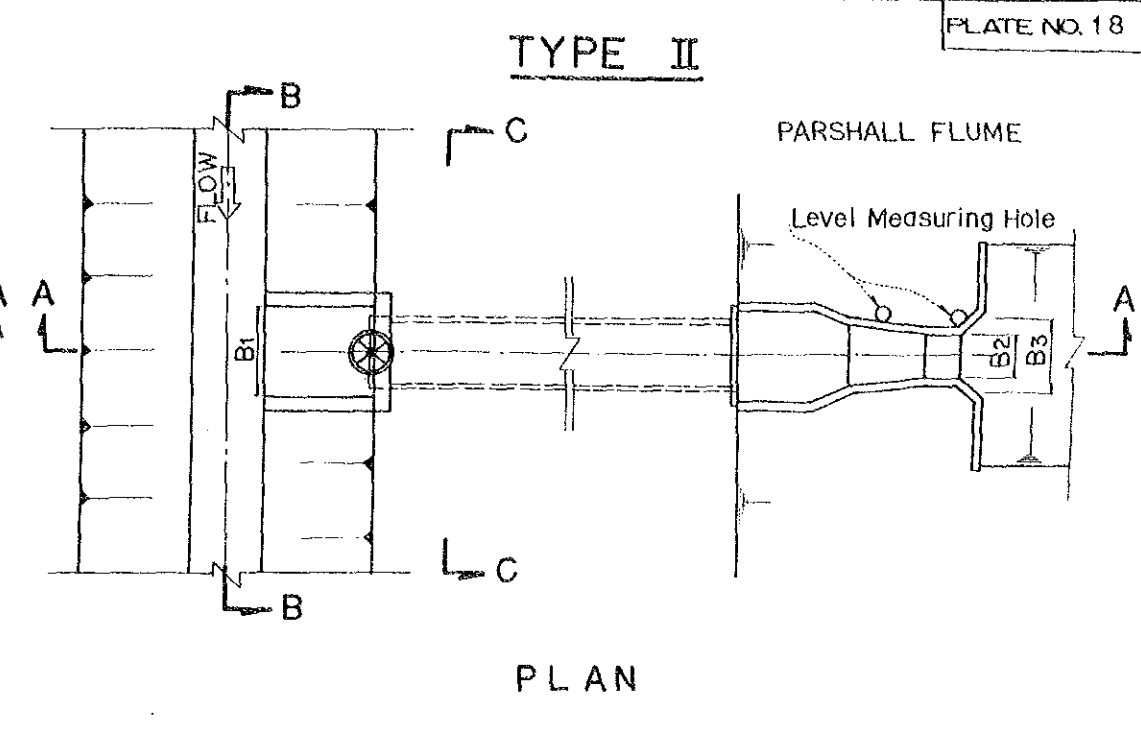
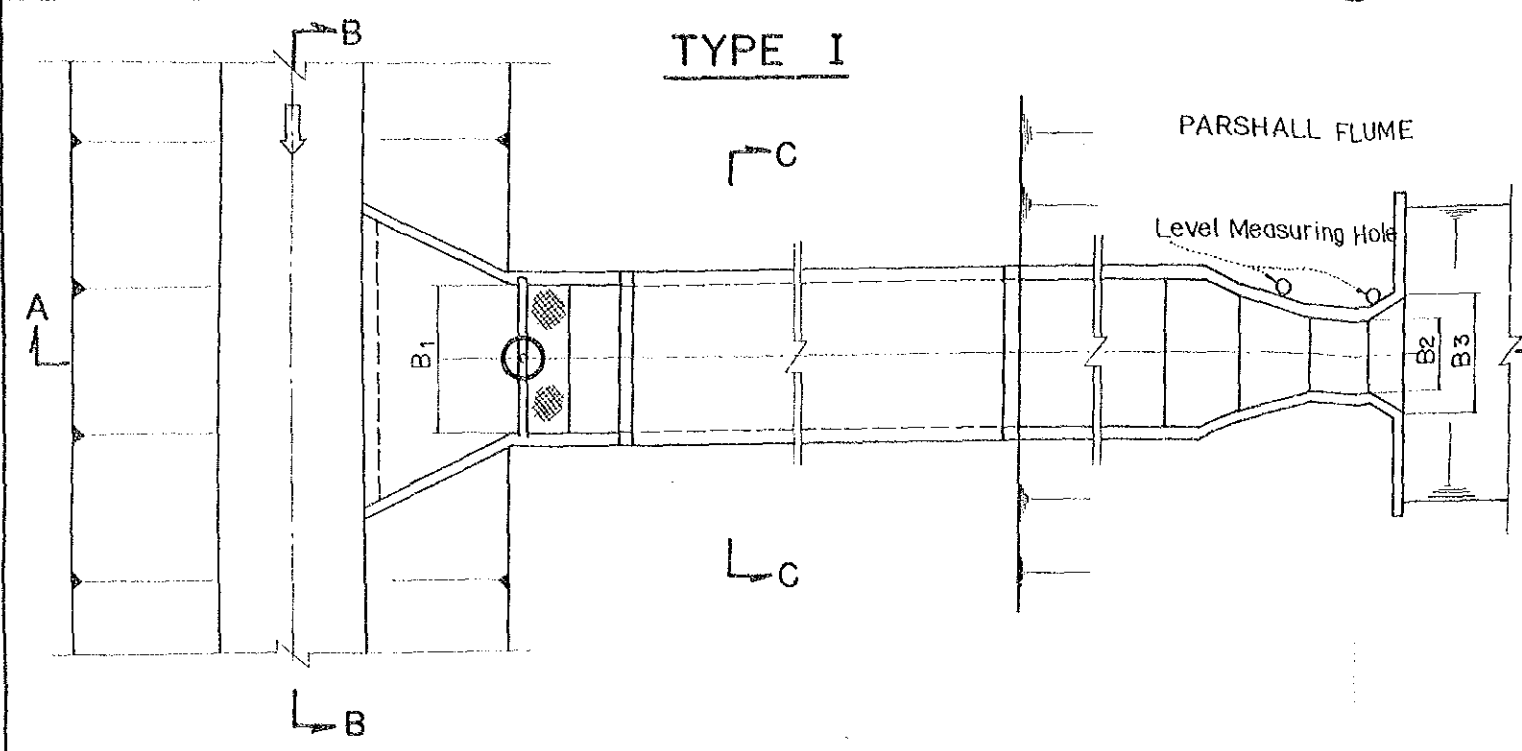
SECTION C-C (TYPE C)
SCALE - B



THE MODERNIZATION AND EXPANSION OF
THE RIO COBRE IRRIGATION SCHEME

RIO COBRE SYPHON

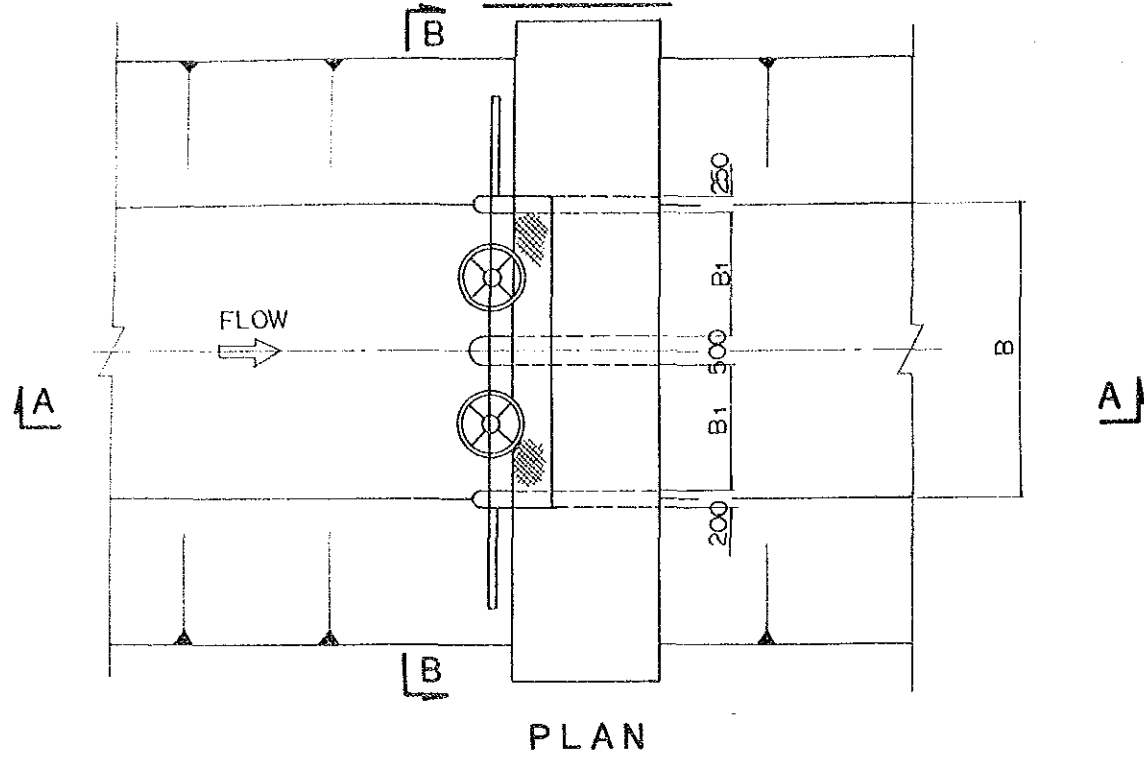
JAPAN INTERNATIONAL COOPERATION AGENCY DRAWING
NO. 4-4



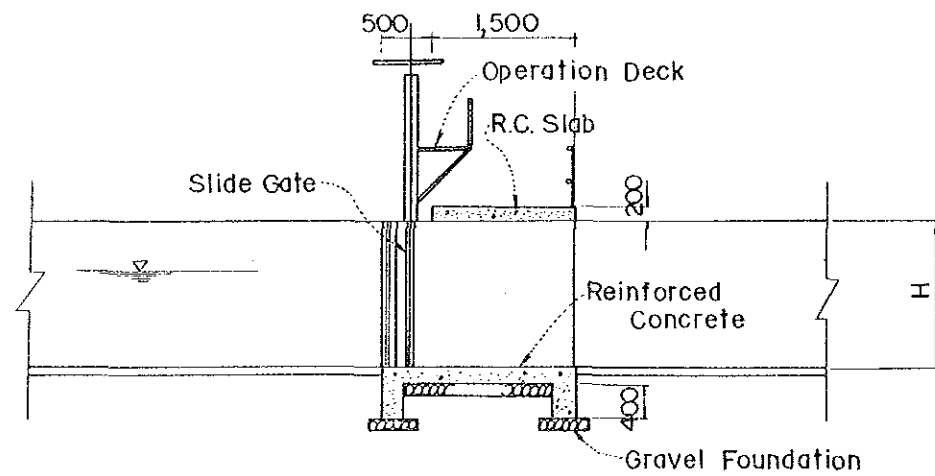
Note: Each dimension shall be decided under consideration of canal size.

THE MODERNIZATION AND EXPANSION OF THE RIO COBRE IRRIGATION SCHEME	
TURNOUT	
JAPAN INTERNATIONAL COOPERATION AGENCY	DRAWING NO. 5-1

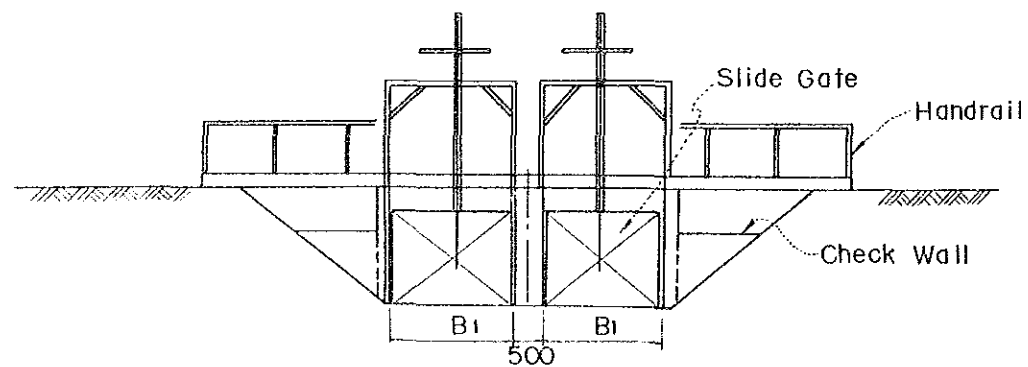
TYPE I



PLAN

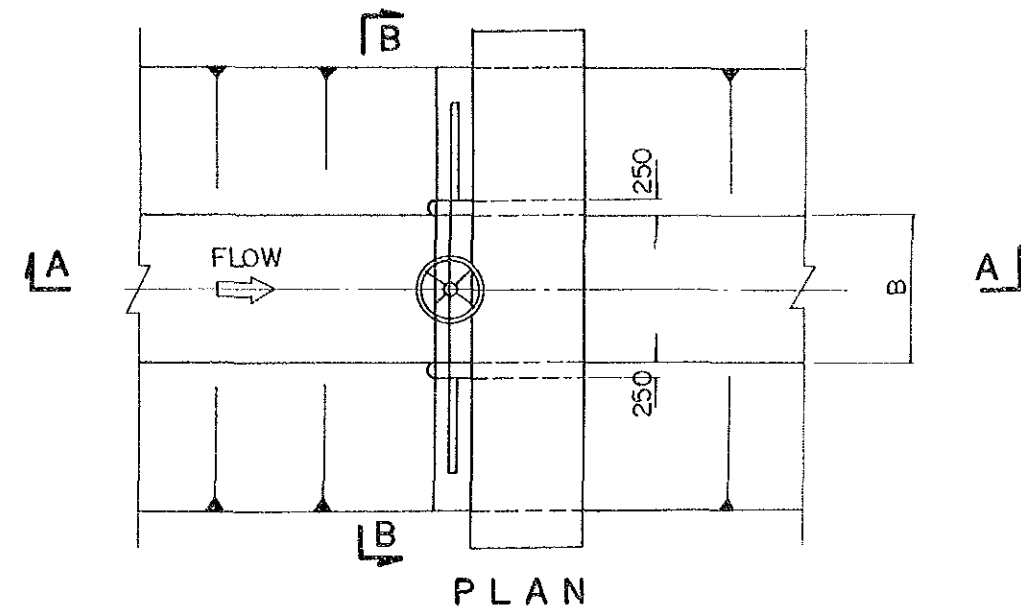


SECTION A-A

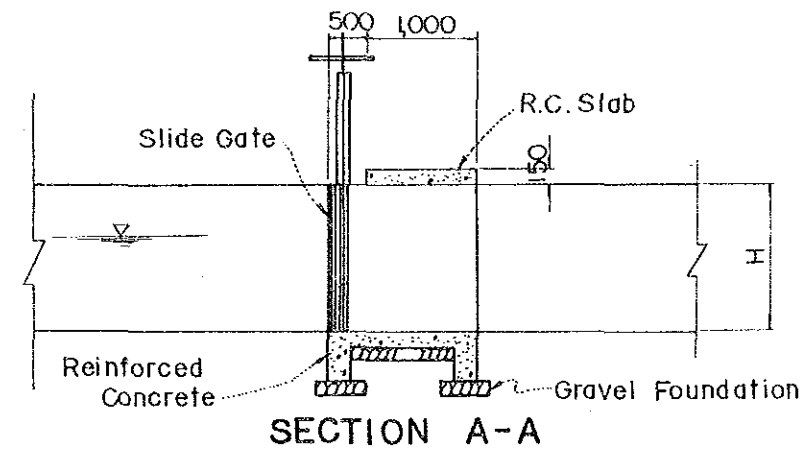


SECTION B-B

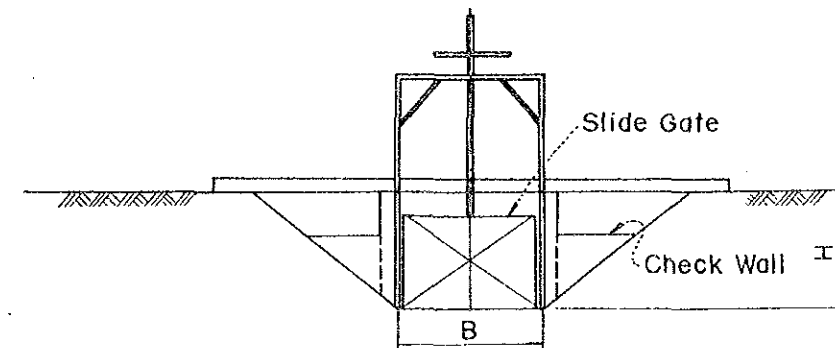
TYPE II



PLAN



SECTION A-A



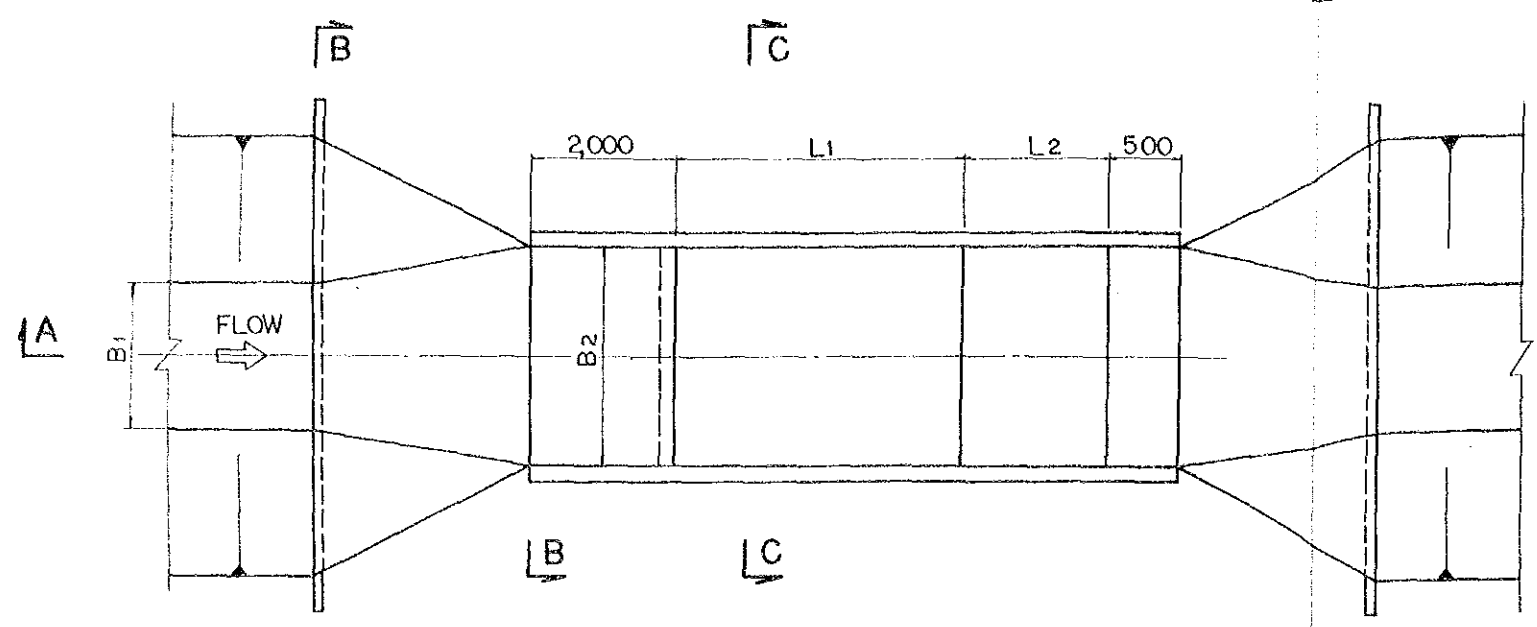
SECTION B-B

Note : Each dimension shall be decided under consideration of canal size.

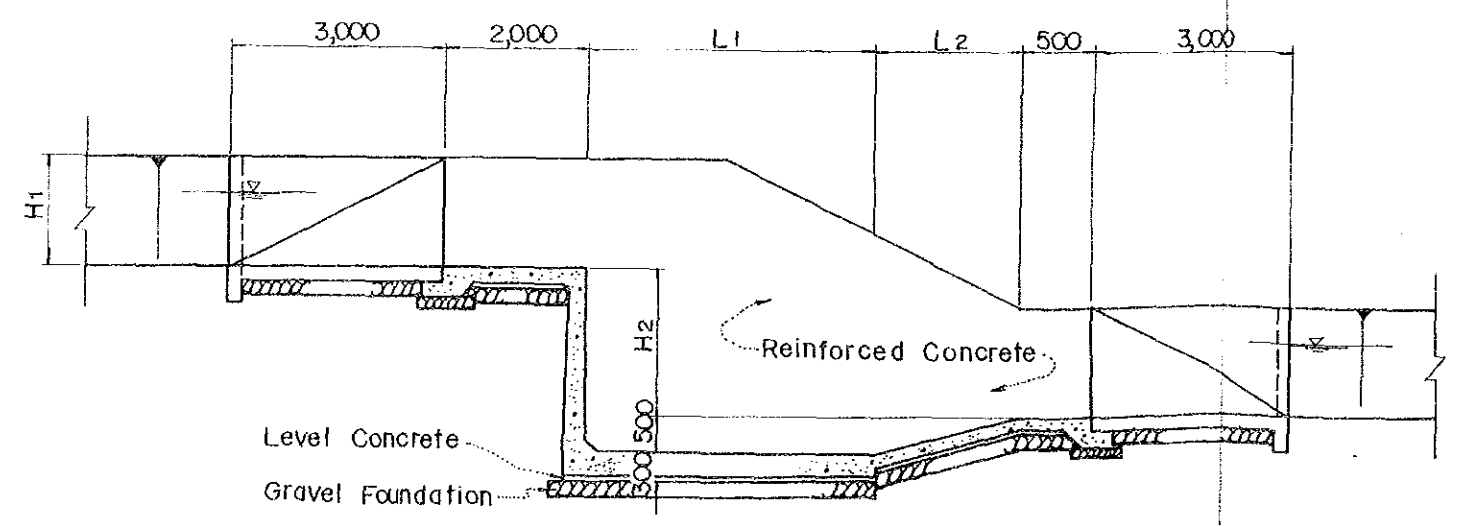
THE MODERNIZATION AND EXPANSION OF
THE RIO COBRE IRRIGATION SCHEME

CHECK GATE

JAPAN INTERNATIONAL COOPERATION AGENCY DRAWING
NO. 5-2

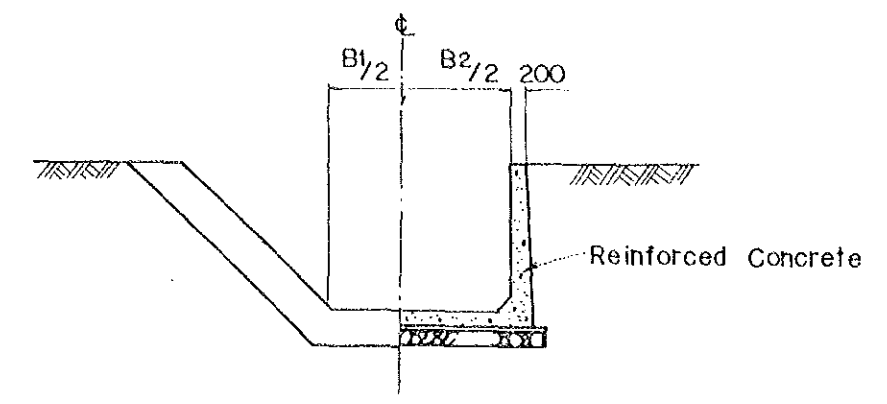


PLAN

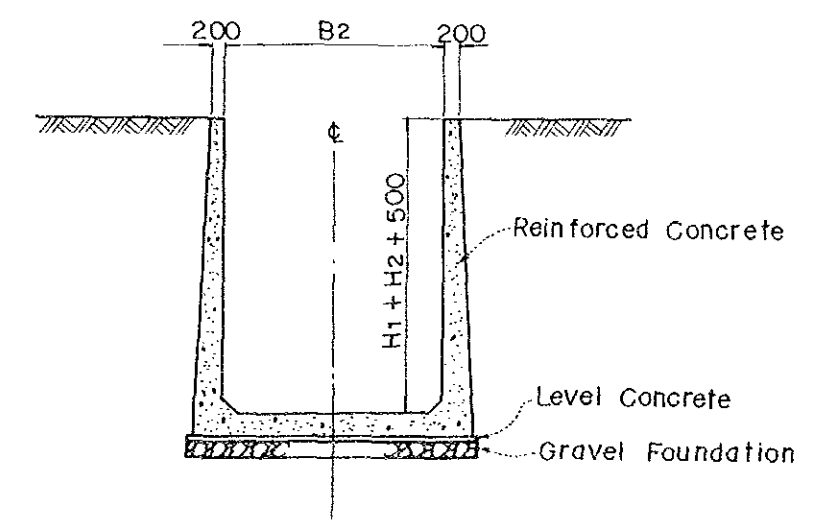


SECTION A-A

Note: Dimension of H_1 , B_1 and B_2 shall be decided under consideration of canal size.



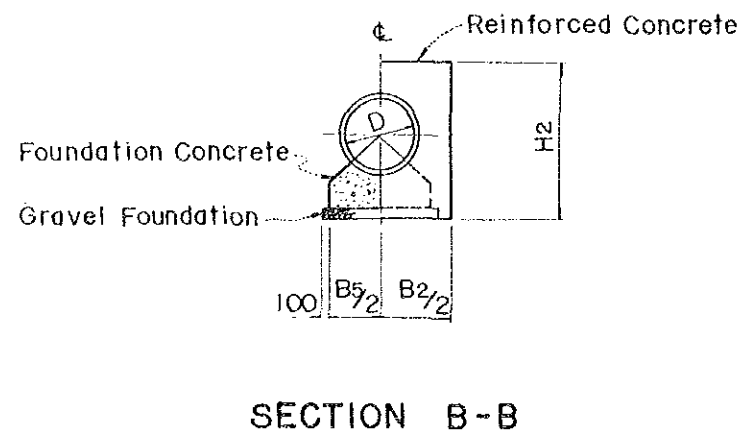
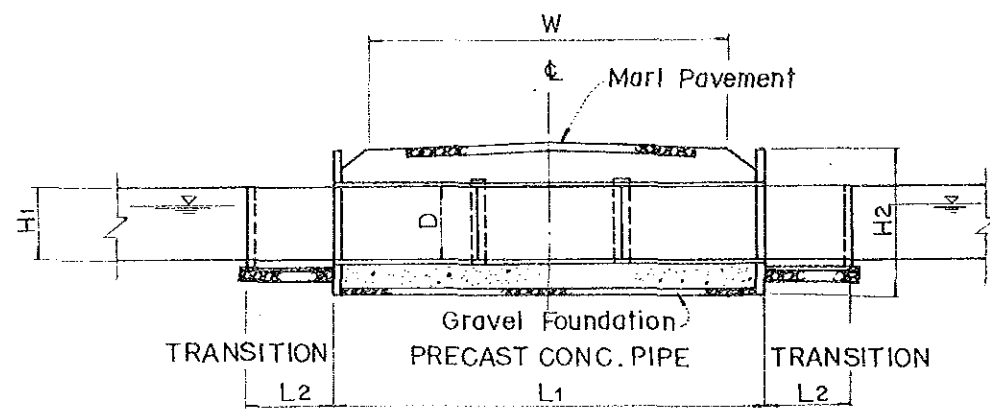
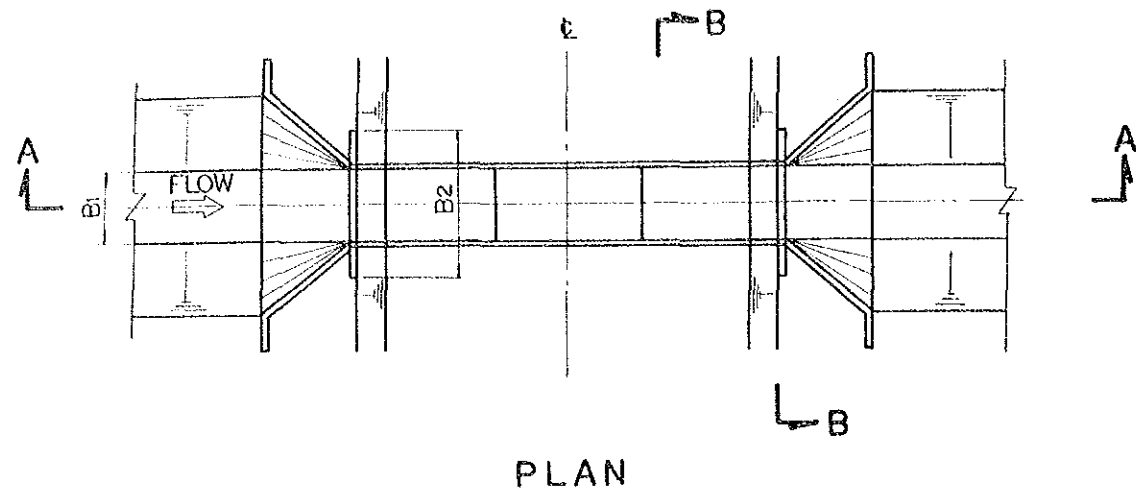
SECTION B-B



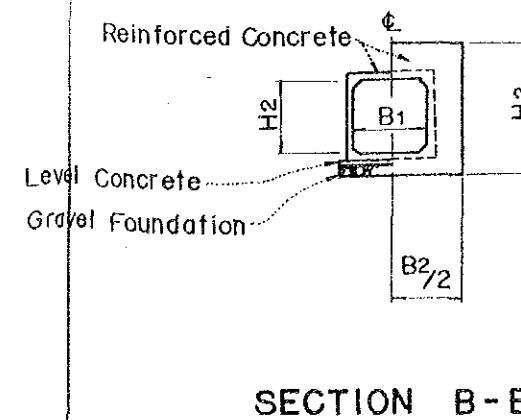
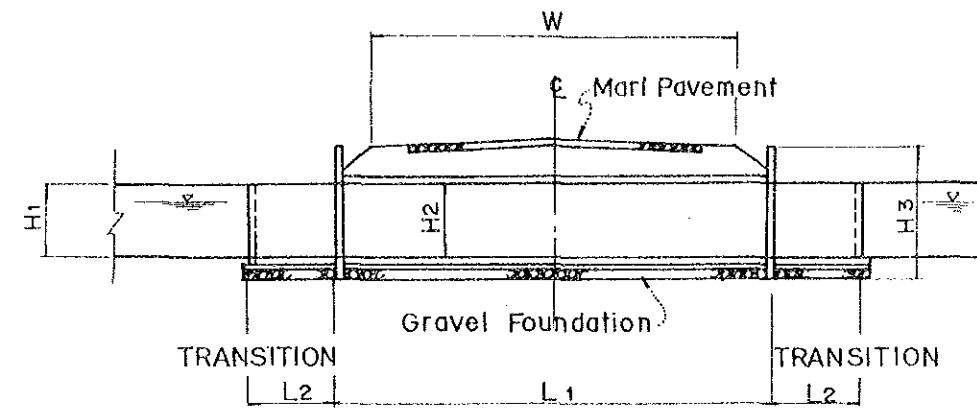
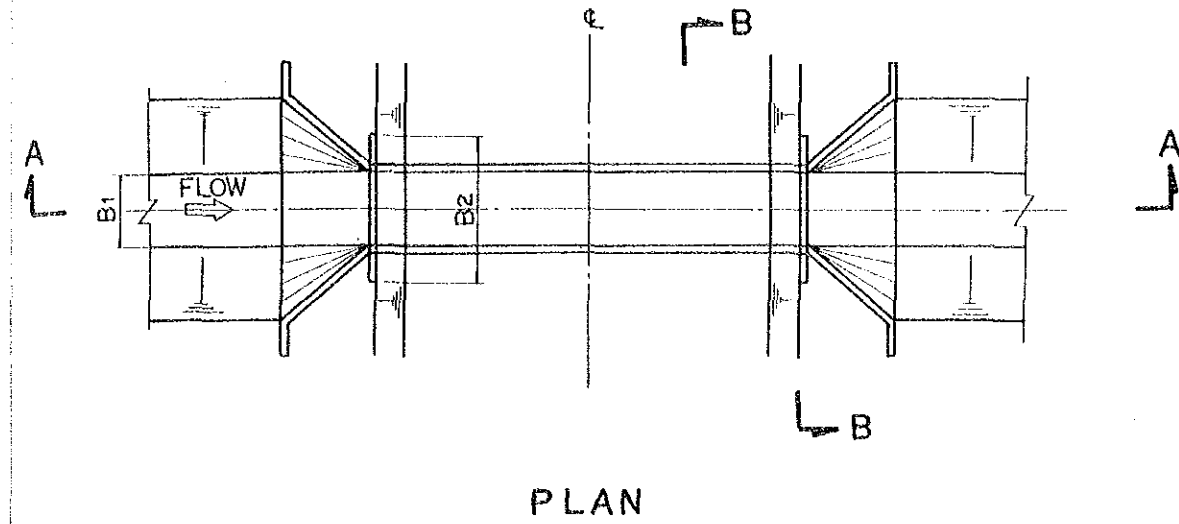
SECTION C-C

THE MODERNIZATION AND EXPANSION OF THE RIO COBRE IRRIGATION SCHEME	
DROP	
JAPAN INTERNATIONAL COOPERATION AGENCY	DRAWING NO. 5-3

TYPE I
(PIPE CULVERT)



TYPE II
(BOX CULVERT)



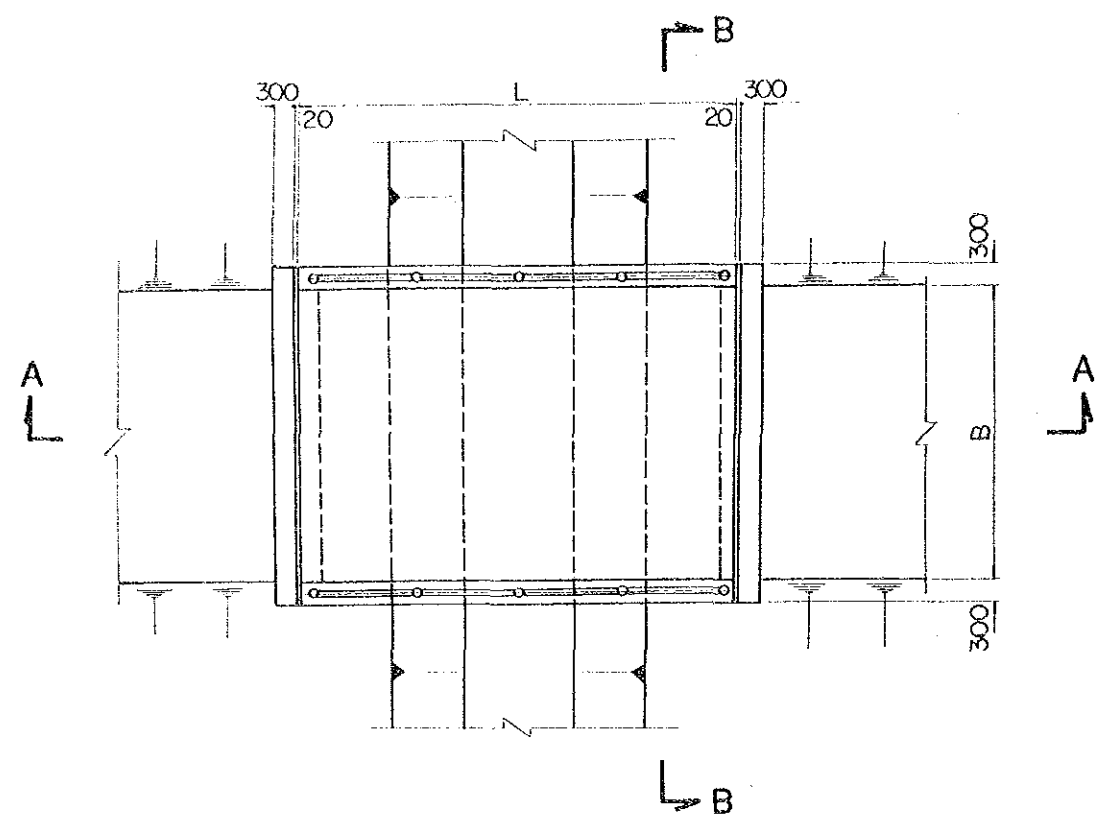
Note : Each dimension shall be decided under consideration of canal size and discharge.

THE MODERNIZATION AND EXPANSION OF
THE RIO COBRE IRRIGATION SCHEME

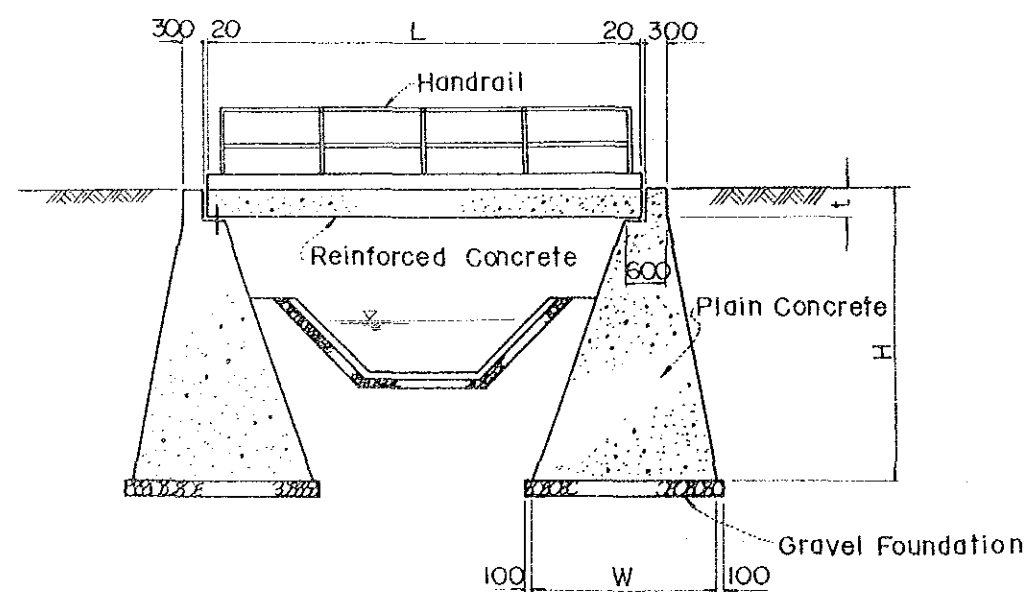
CULVERT

JAPAN INTERNATIONAL COOPERATION AGENCY

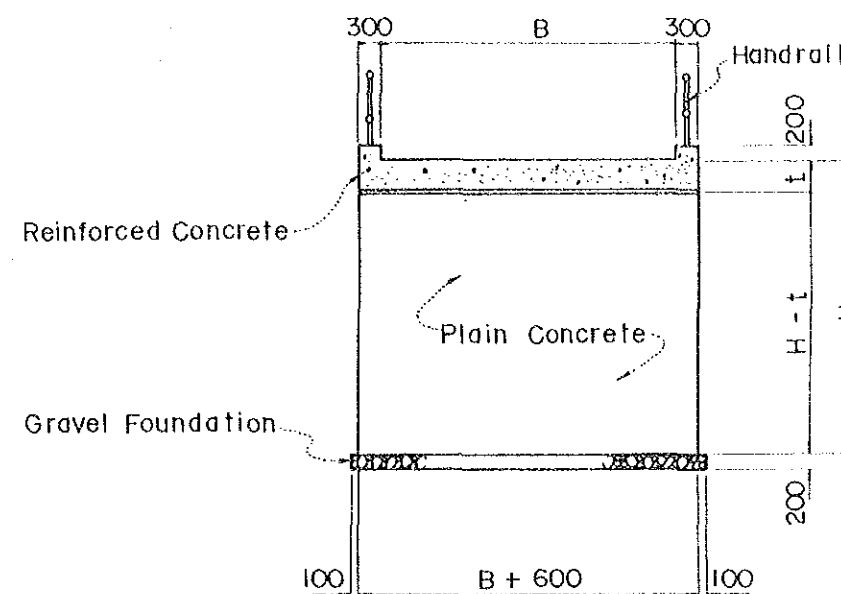
DRAWING
NO. 5-4



PLAN



SECTION A-A



SECTION B-B

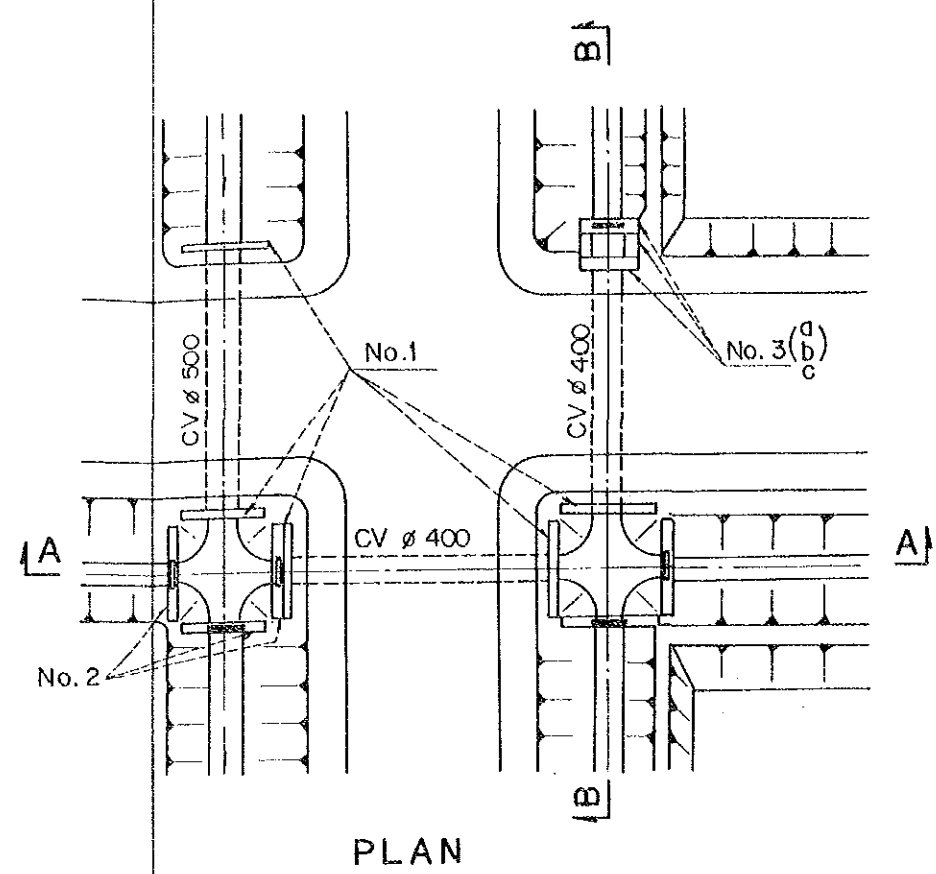
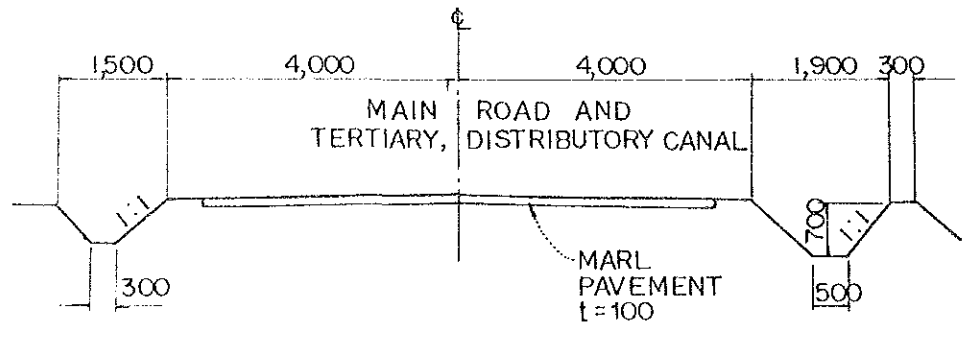
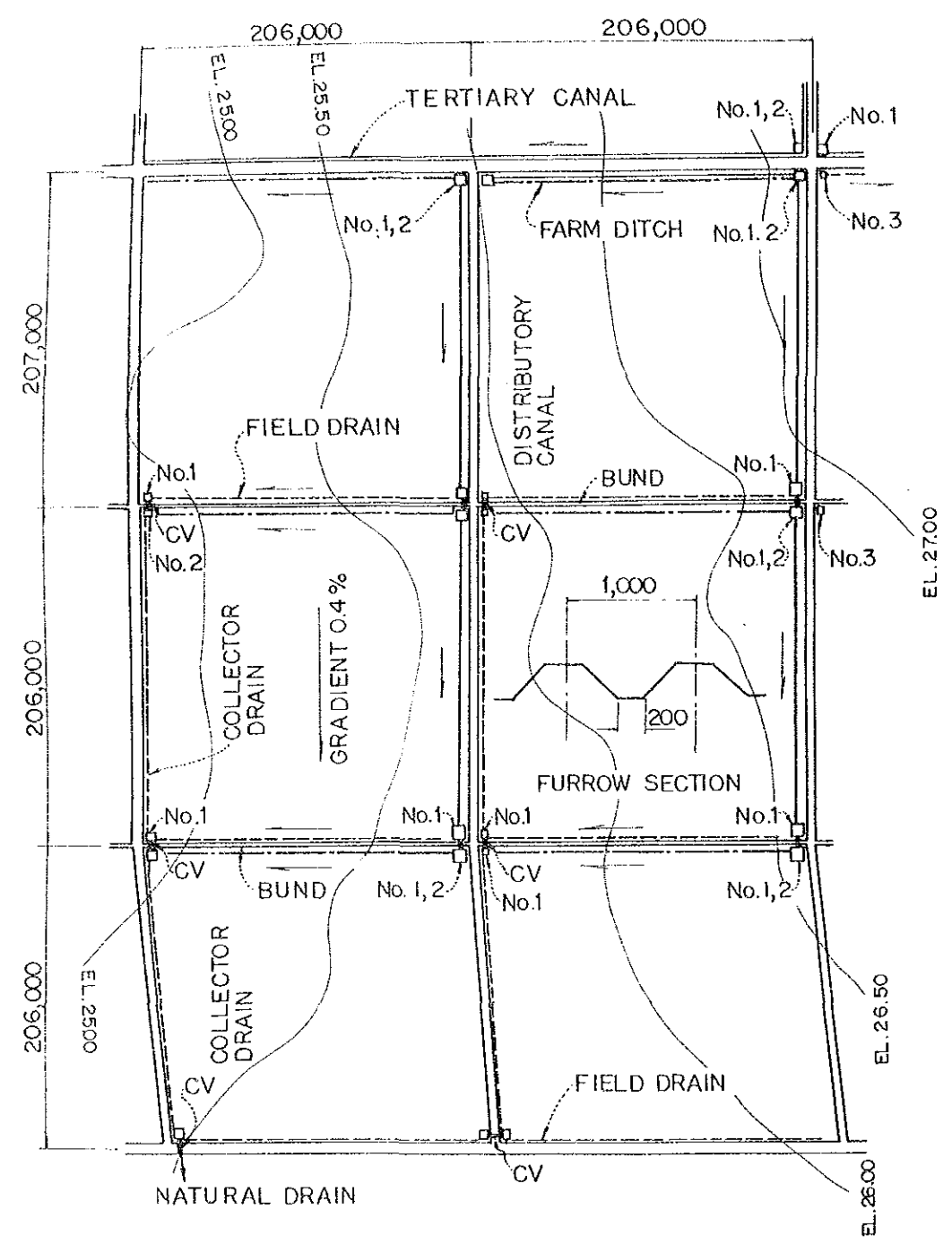
Note : Dimension of L and H shall be decided under consideration of canal size.

THE MODERNIZATION AND EXPANSION OF
THE RIO COBRE IRRIGATION SCHEME

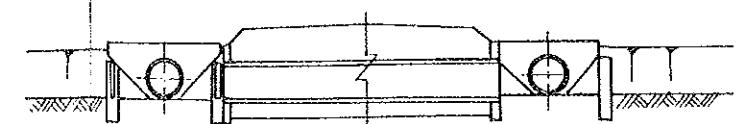
BRIDGE

JAPAN INTERNATIONAL COOPERATION AGENCY DRAWING
NO. 5-5

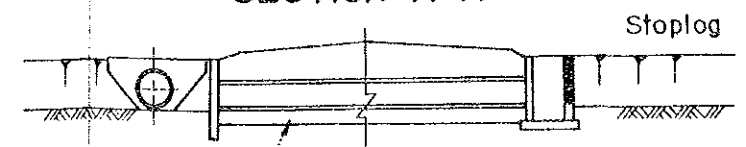
GENERAL PLAN OF ON-FARM DEVELOPMENT



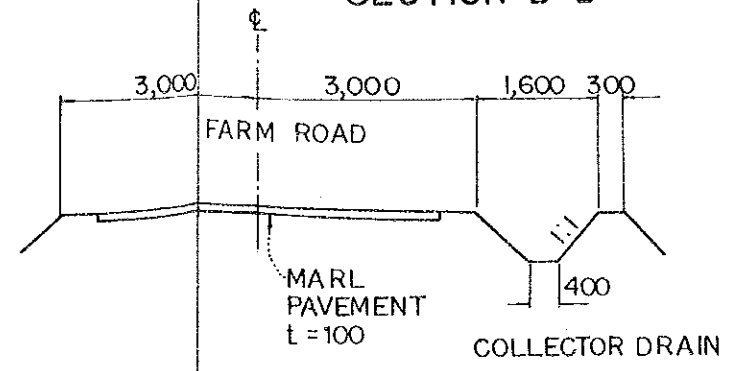
PLAN



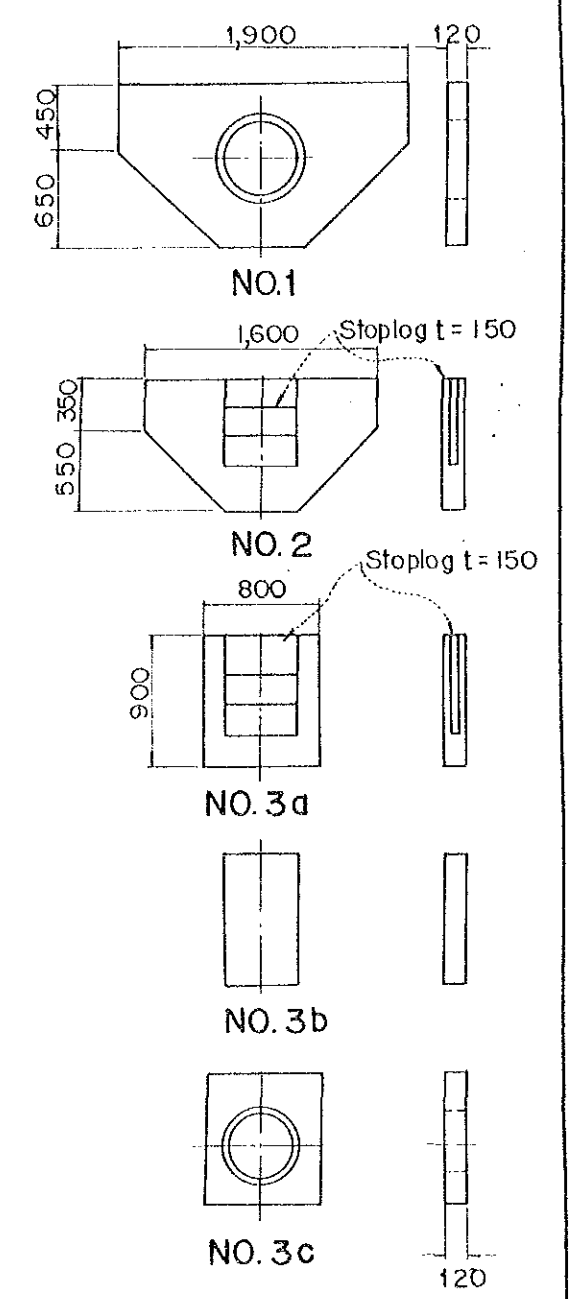
SECTION A-A



SECTION B-B



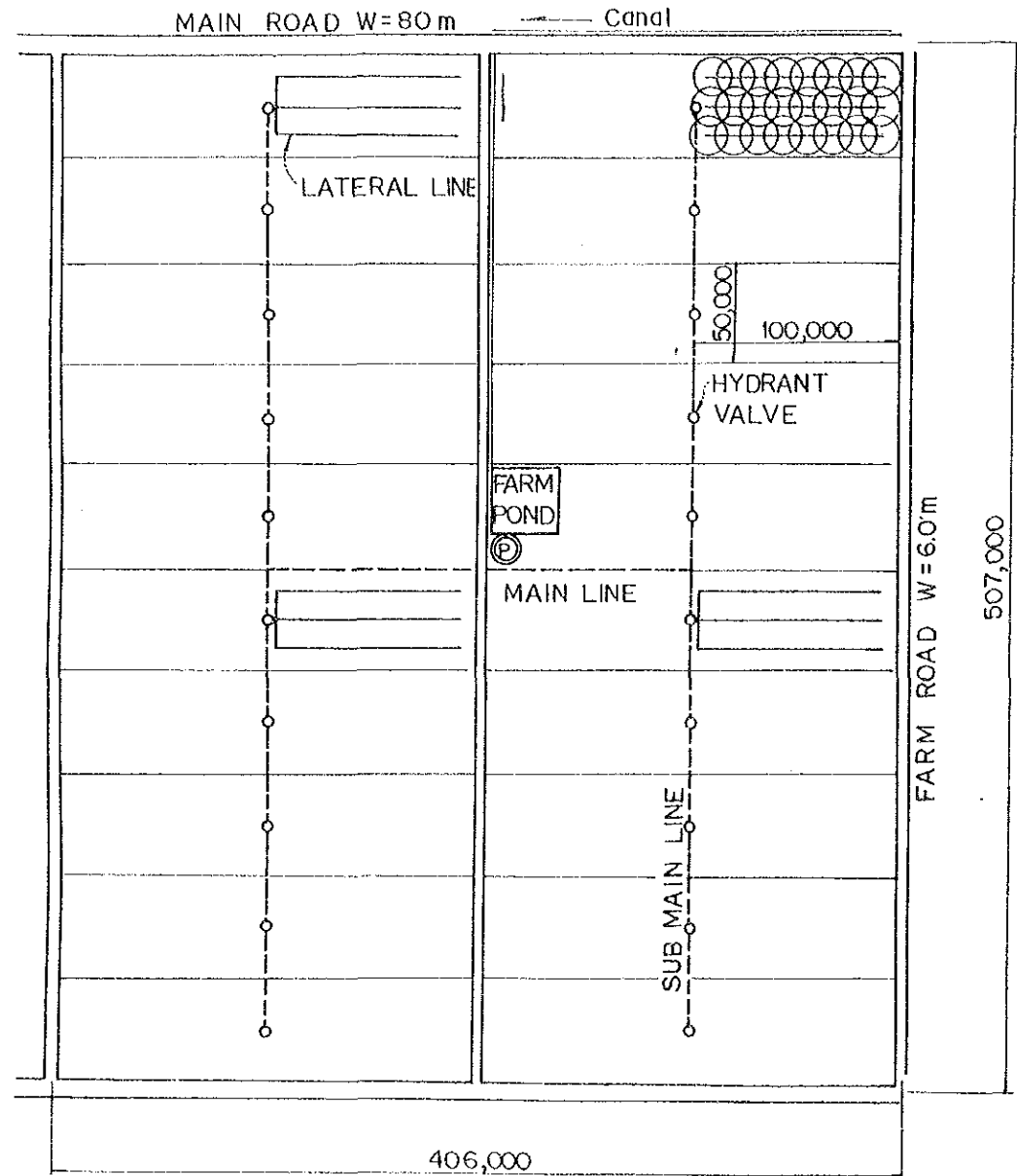
TYPE OF CONCRETE PANEL FOR DIVISION BOX



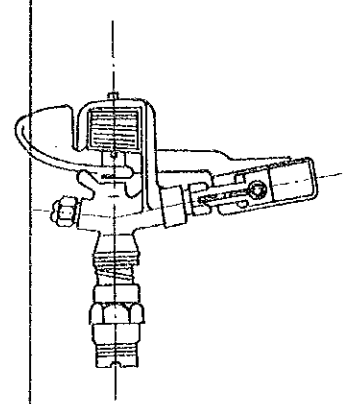
DIMENSION IN m and mm

THE MODERNIZATION AND EXPANSION OF THE RIO COBRE IRRIGATION SCHEME	
ON-FARM DEVELOPMENT PLAN (FURROW)	
JAPAN INTERNATIONAL COOPERATION AGENCY	DRAWING NO. 6-1

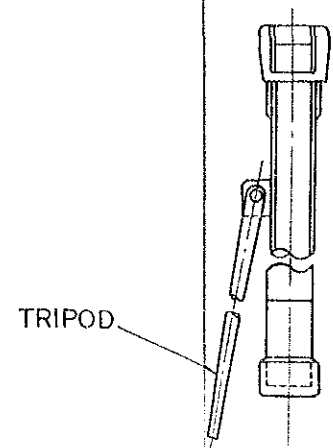
GENERAL PLAN OF ON-FARM DEVELOPMENT



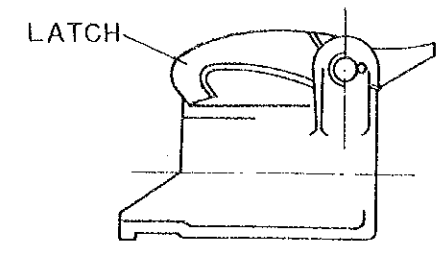
SPLINKLER



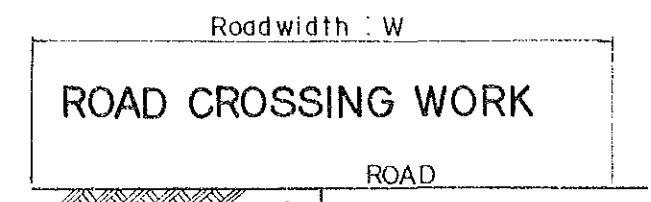
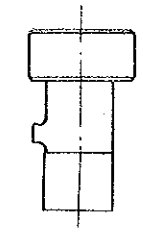
ALMINUM RISER H=1.0 m



TERMINAL PUG



BLIND PUG



TYPICAL SECTION OF PIPE FOUNDATION

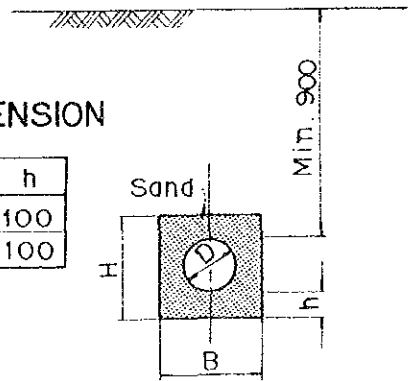
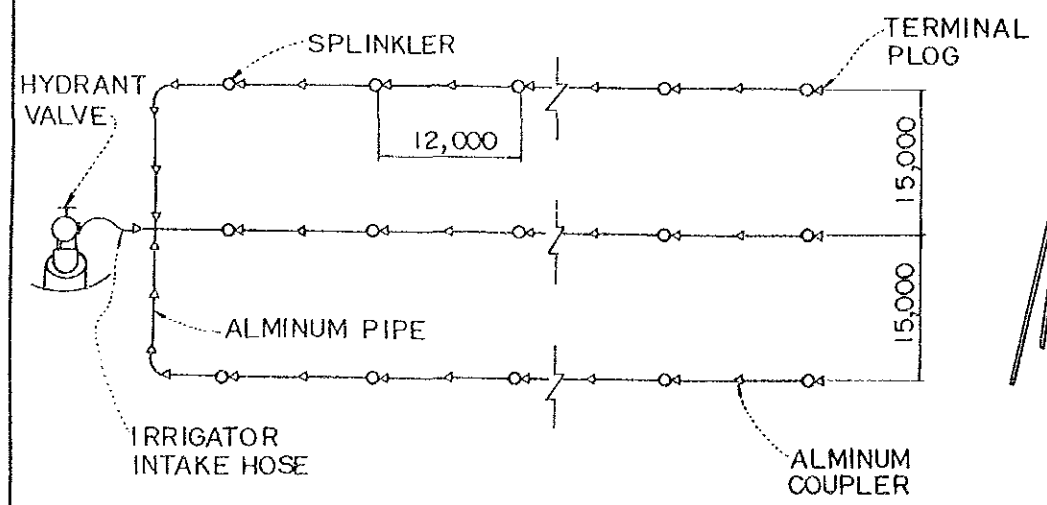
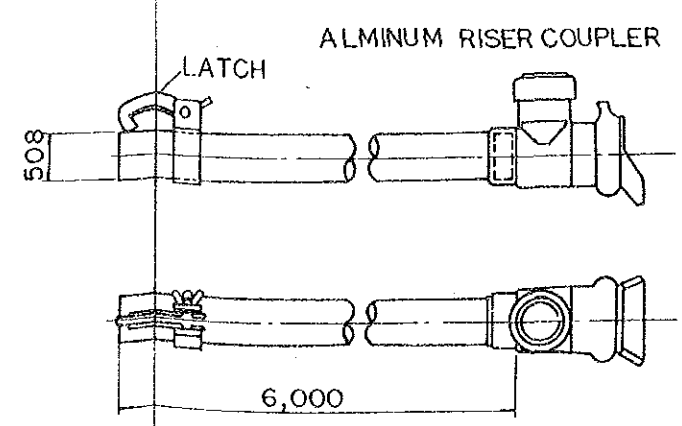


TABLE OF DIMENSION

D	B	H	h
100	500	300	100
125	500	350	100



ALMINUM PIPE Ø 50

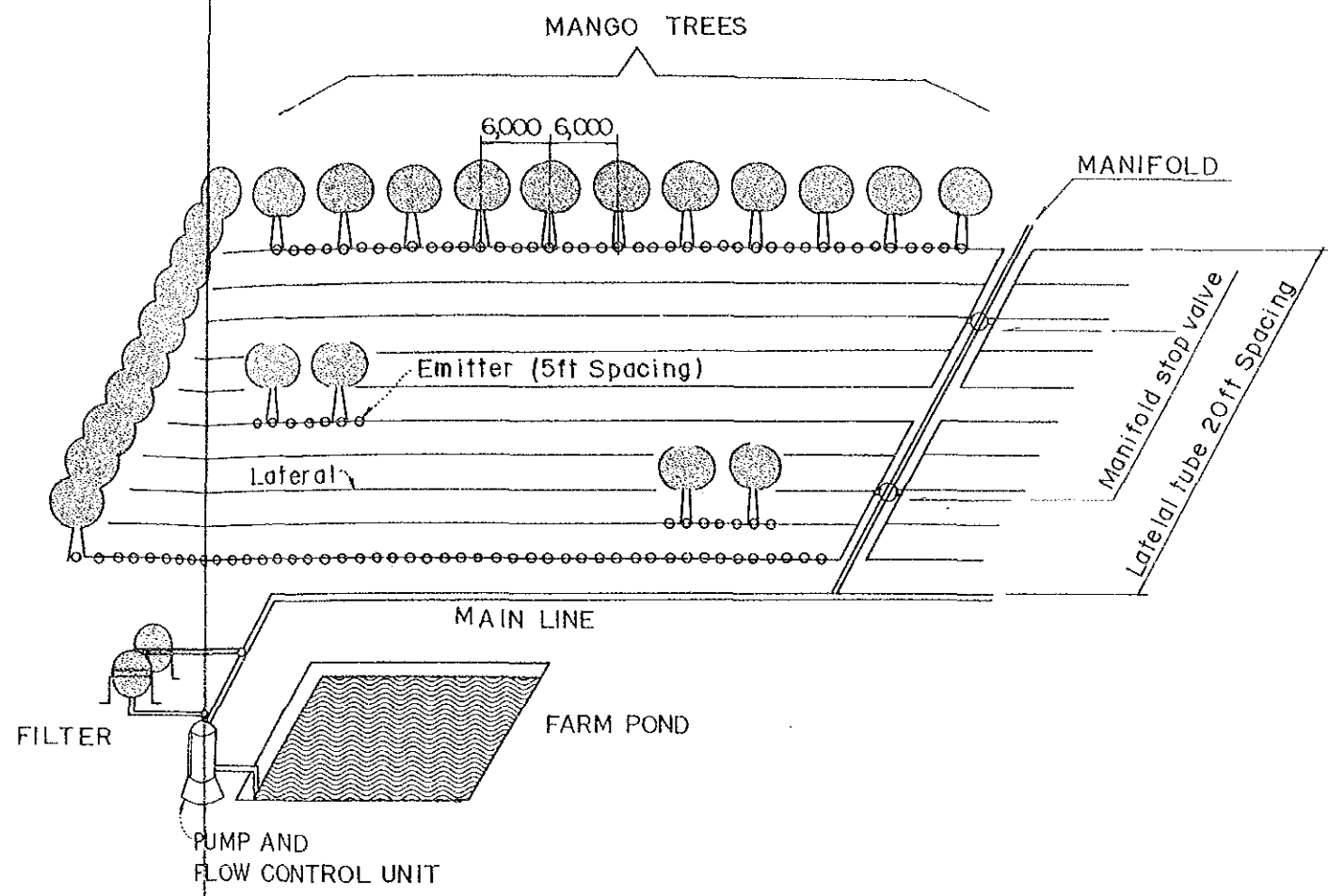
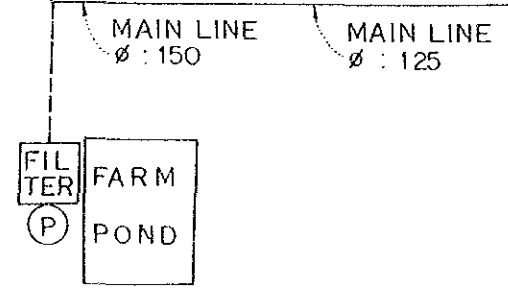
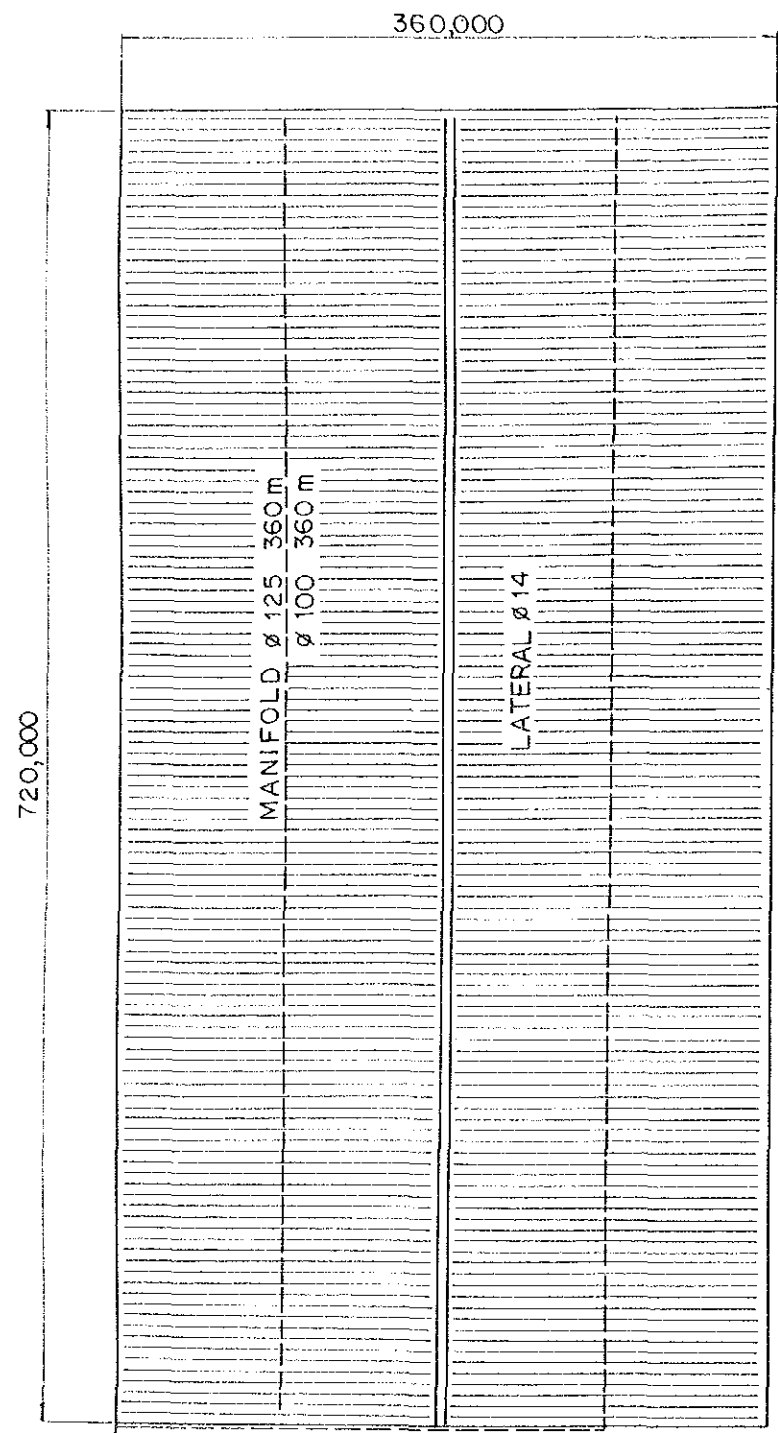


DIMENSION IN ϕ and mm

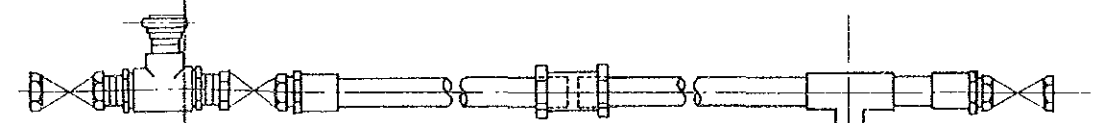
THE MODERNIZATION AND EXPANSION OF THE RIO COBRE IRRIGATION SCHEME

ON-FARM DEVELOPMENT PLAN (SPRINKLER)

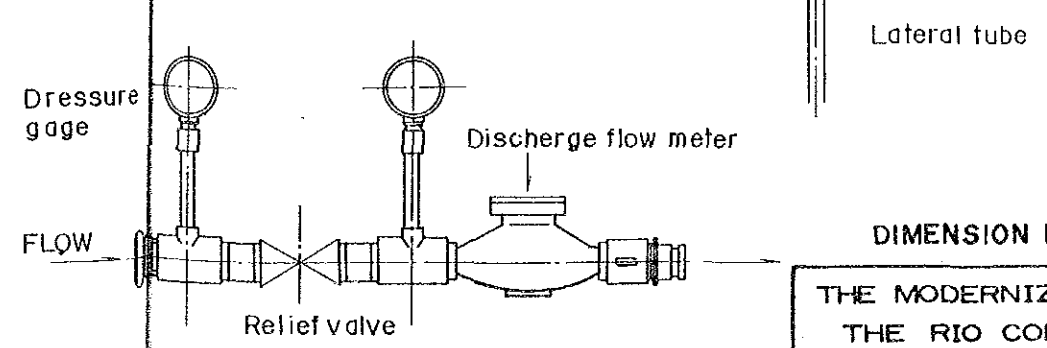
GENERAL PLAN OF ON-FARM DEVELOPMENT



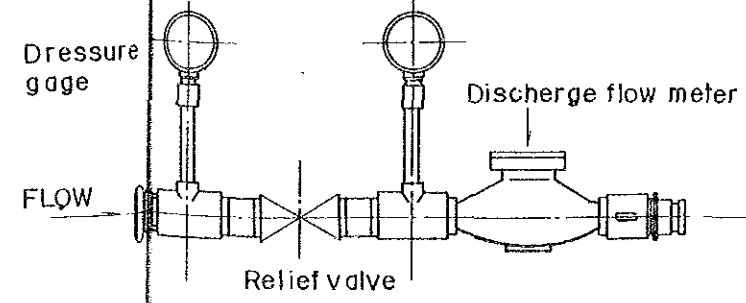
DETAIL MANIFOLD COUPLING



DETAIL, MANIFOLD TEE AND VALVE



DETAIL FLOW CONTROL UNIT



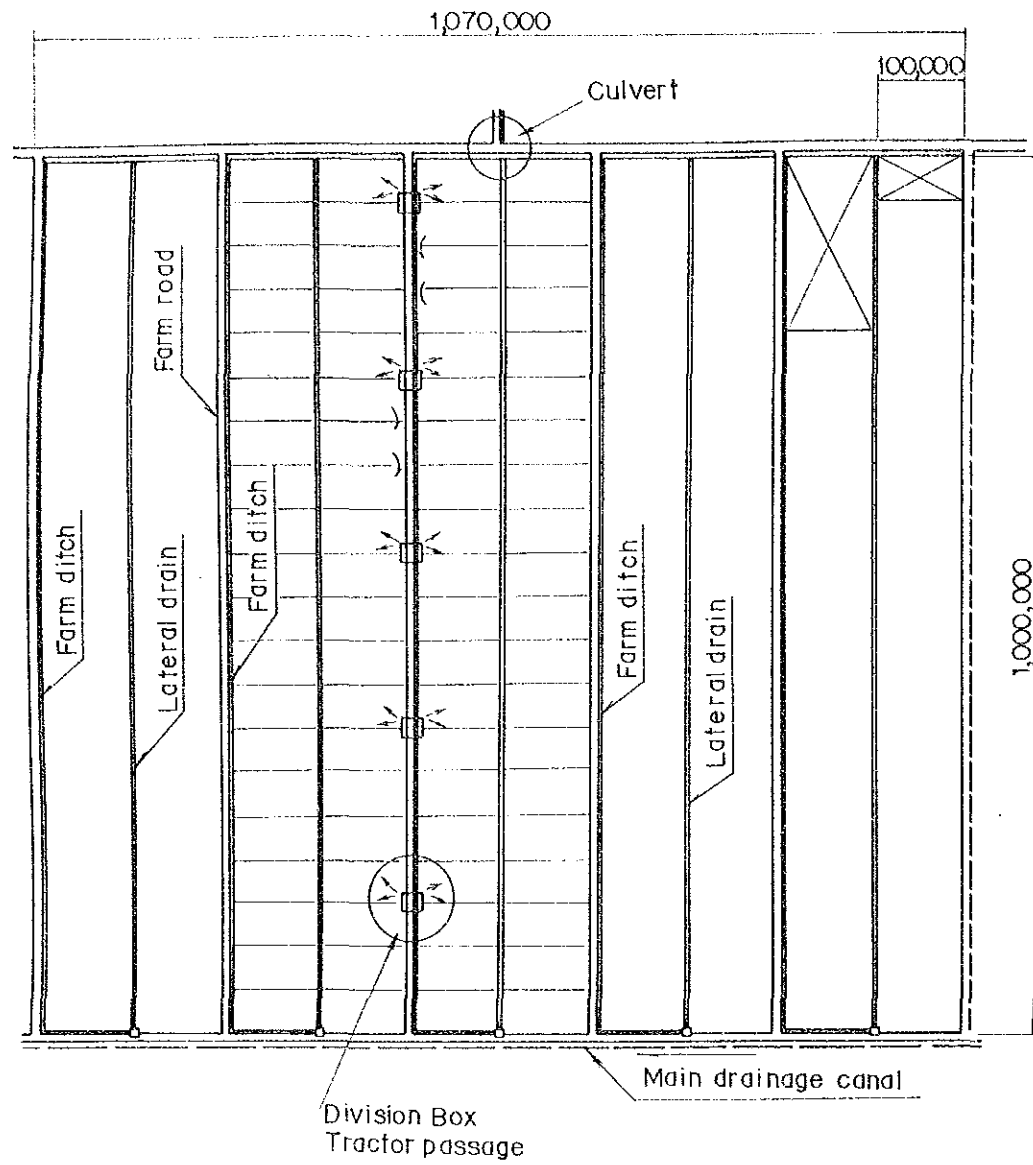
DIMENSION IN m and mm

THE MODERNIZATION AND EXPANSION OF
THE RIO COBRE IRRIGATION SCHEME

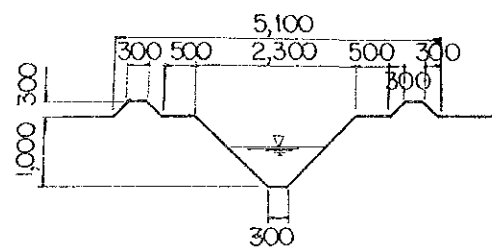
ON-FARM DEVELOPMENT PLAN (DRIP)

JAPAN INTERNATIONAL COOPERATION AGENCY DRAWING
NO. 6-3

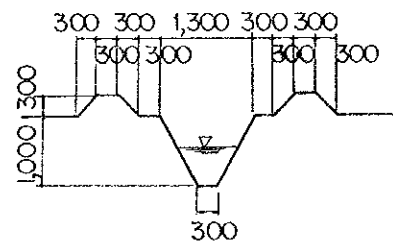
GENERAL PLAN OF ON-FARM DEVELOPMENT



LATERAL DRAIN

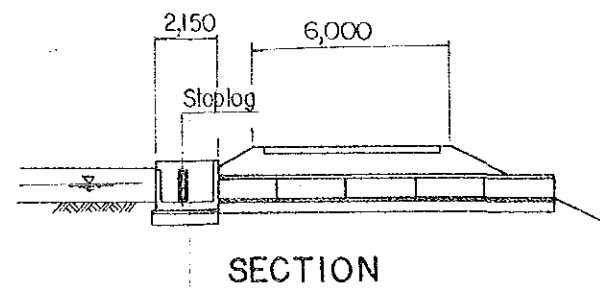
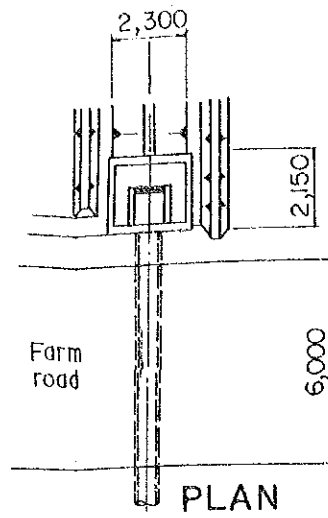


FARM DRAIN

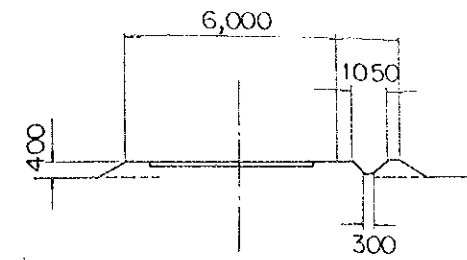
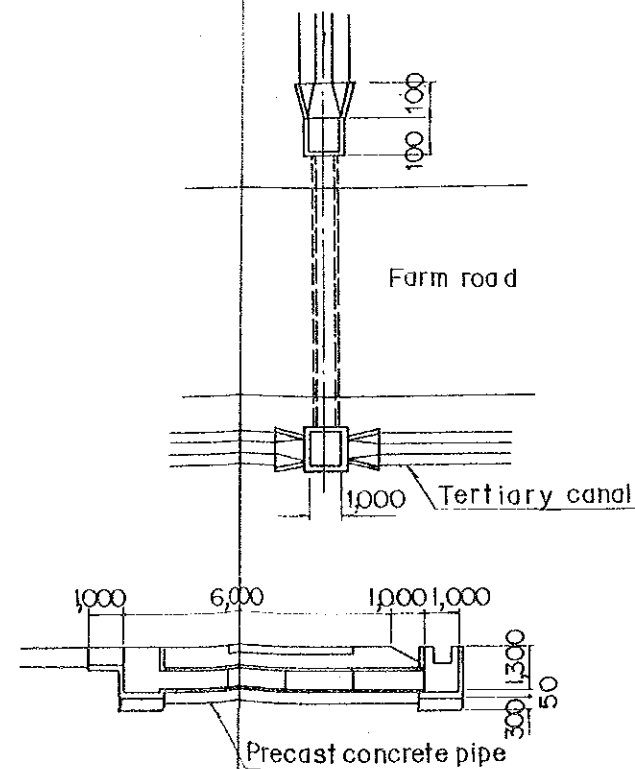


DIMENSION IN m and mm

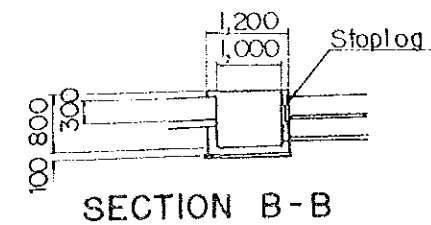
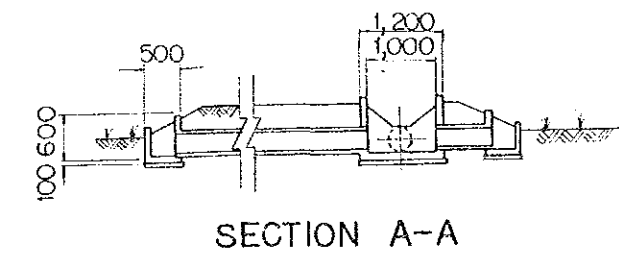
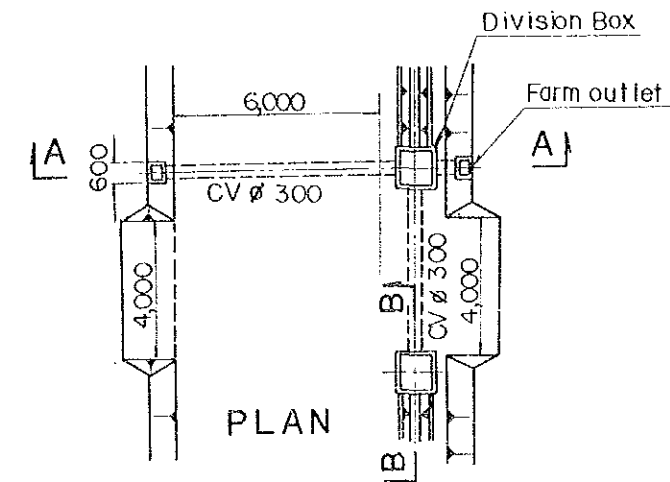
DRAINAGE CHECK



CULVERT OF TERTIARY CANAL



DIVISION BOX AND TRACTOR PASSAGE



THE MODERNIZATION AND EXPANSION OF THE RIO COBRE IRRIGATION SCHEME

ON-FARM DEVELOPMENT PLAN (BASIN)

JAPAN INTERNATIONAL COOPERATION AGENCY DRAWING NO. 6-4

JICA