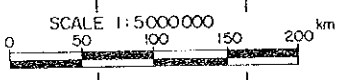
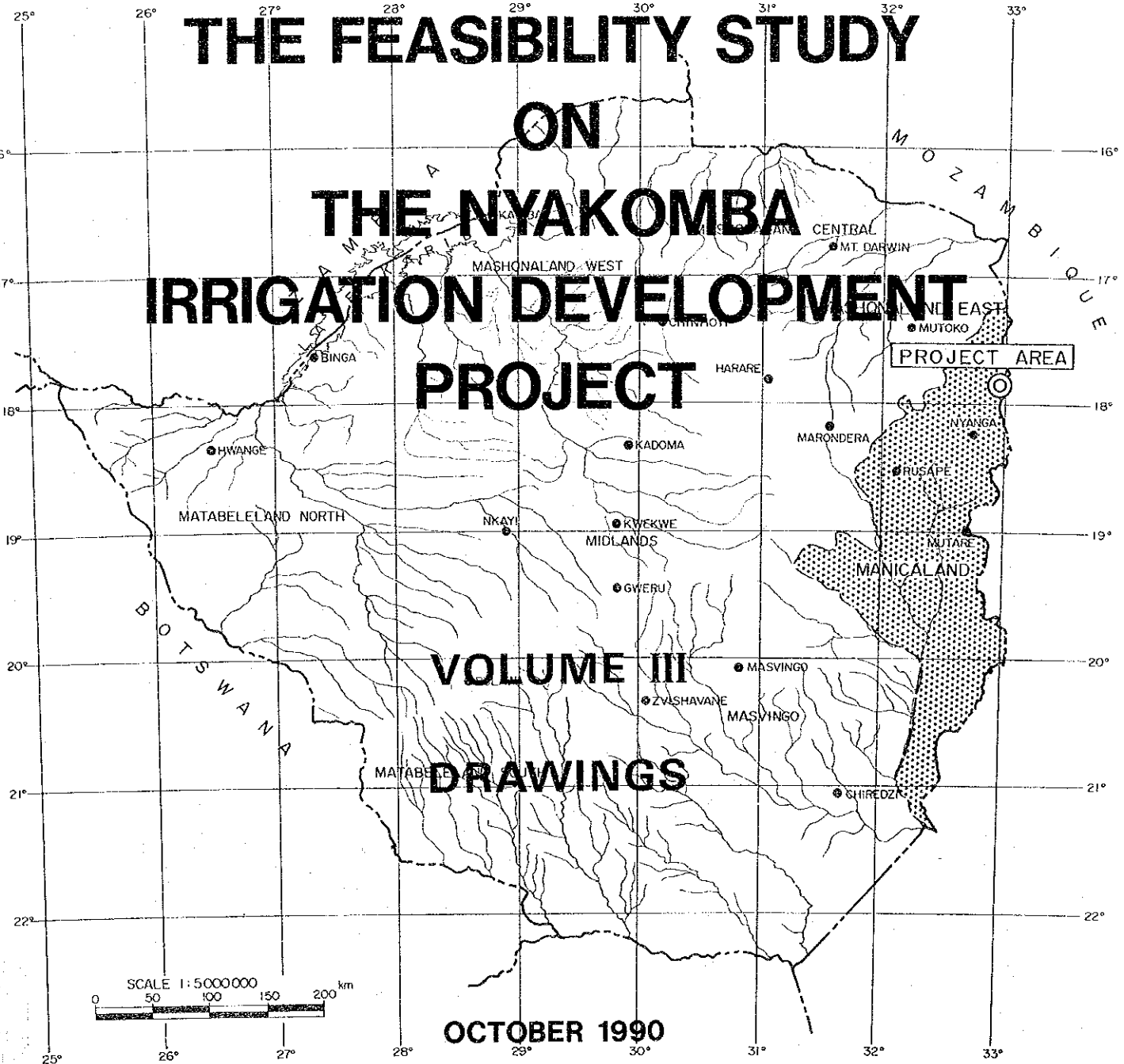


REPUBLIC OF ZIMBABWE

THE FEASIBILITY STUDY
ON
THE NYAKOMBA
IRRIGATION DEVELOPMENT
PROJECT

VOLUME III
DRAWINGS



OCTOBER 1990

JAPAN INTERNATIONAL COOPERATION AGENCY

AFT
90-46

REPUBLIC OF ZIMBABWE THE FEASIBILITY STUDY ON THE NYAKOMBA IRRIGATION DEVELOPMENT PROJECT VOLUME III DRAWINGS OCTOBER 1990



THE FEASIBILITY STUDY
ON
THE NYAKOMBA IRRIGATION DEVELOPMENT PROJECT

LIST OF VOLUME

VOLUME I • MAIN REPORT

VOLUME II • ANNEX REPORT

- A. METEOROLOGY AND HYDROLOGY
- B. SOIL AND LAND CAPABILITY CLASSIFICATION
- C. LAND USE
- D. AGRICULTURE
- E. IRRIGATION AND DRAINAGE
- F. FACILITIES PLANNING
- G. PROJECT MANAGEMENT AND IMPLEMENTATION
- H. COST ESTIMATION
- I. PROJECT JUSTIFICATION
- J. OTHERS

VOLUME III • DRAWINGS

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REPUBLIC OF ZIMBABWE

THE FEASIBILITY STUDY
ON
THE NYAKOMBA IRRIGATION DEVELOPMENT PROJECT

VOLUME III

DRAWINGS

OCTOBER 1990

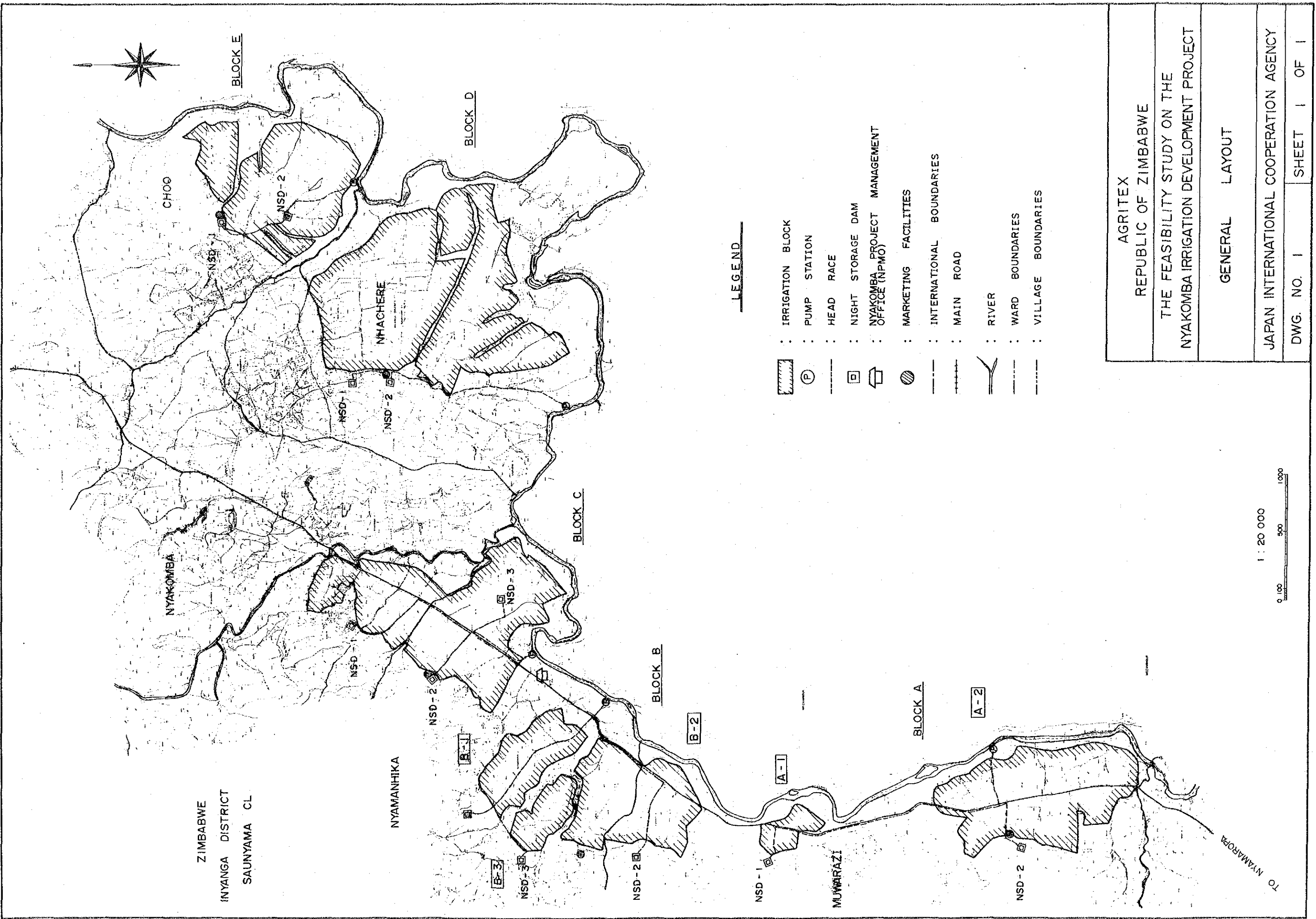
JAPAN INTERNATIONAL COOPERATION AGENCY

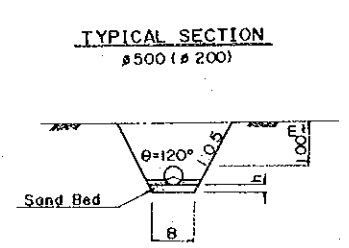
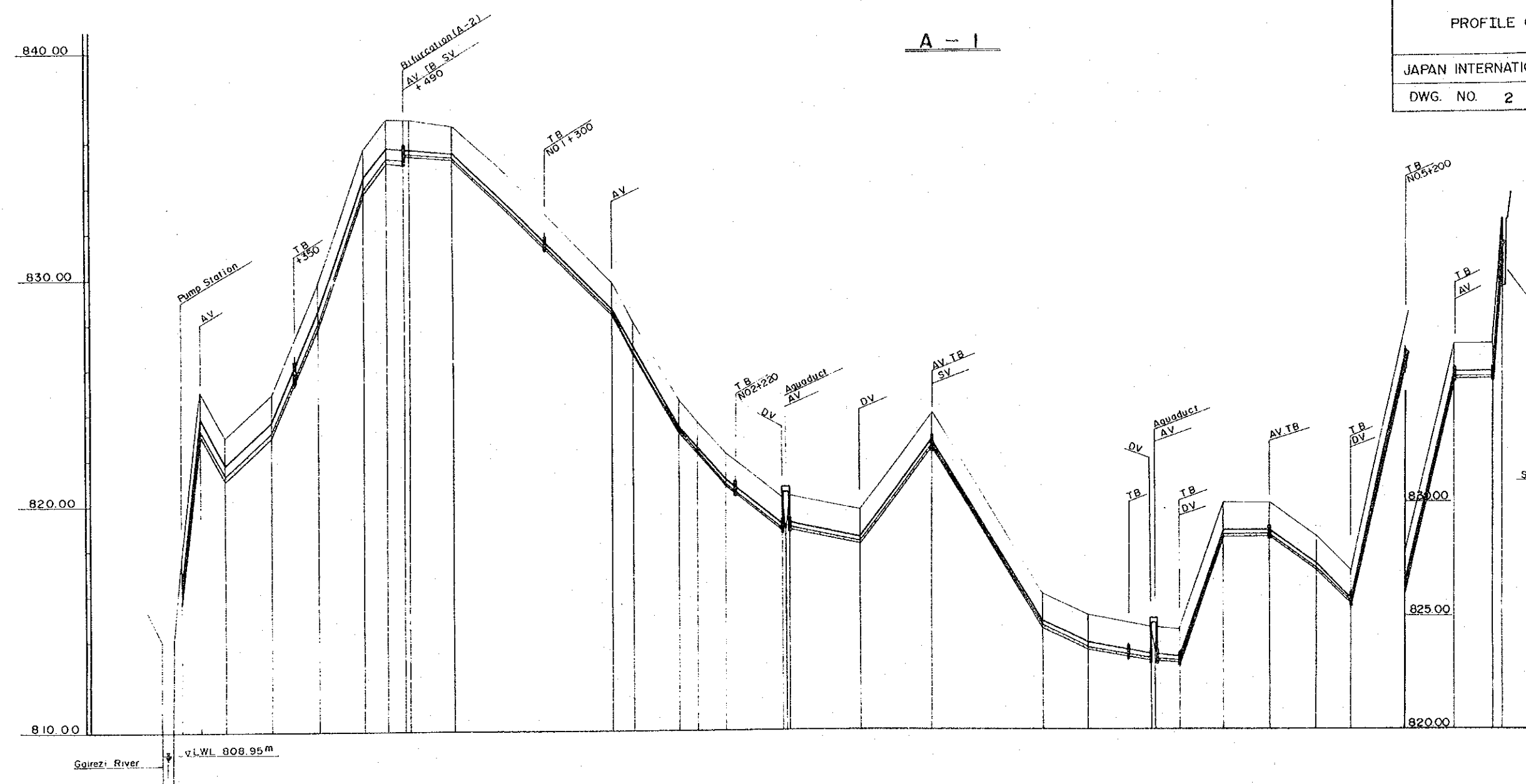
国際協力事業団

21757

LIST OF DRAWINGS

Plate No.	Drawing No.	Title of Drawings
1.	1-1	GENERAL LAYOUT
2.	2-1	PROFILE OF HEAD RACE A-1
3.	2-2	PROFILE OF HEAD RACE B-1
4.	2-3	PROFILE OF HEAD RACE B-2, A-2
5.	2-4	PROFILE OF HEAD RACE B-3
6.	2-5	PROFILE OF HEAD RACE C-1
7.	2-6	PROFILE OF HEAD RACE C-2, C-3
8.	2-7	PROFILE OF HEAD RACE D-1
9.	2-8	PROFILE OF HEAD RACE E-1
10.	3-1	PUMP STATION (BLOCK A)
11.	4-1	GENERATOR HOUSE
12.	5-1	NIGHT STORAGE DAM (VOLUME / V = 1,080m ³)
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18.	7-4	WARE HOUSE
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20.	8-1	OFFICE OF MARKETING FACILITIES
21.	8-2	WARE HOUSE OF MARKETING FACILITIES
22.	8-3	GARAGE OF MARKETING FACILITIES
23.	8-4	PUMP OPERATOR QUARTER
25.	9-1	SOIL MAP
24.	9-2	PRESENT LAND USE MAP
26.	9-3	LAND CAPABILITY CLASSIFICATION MAP



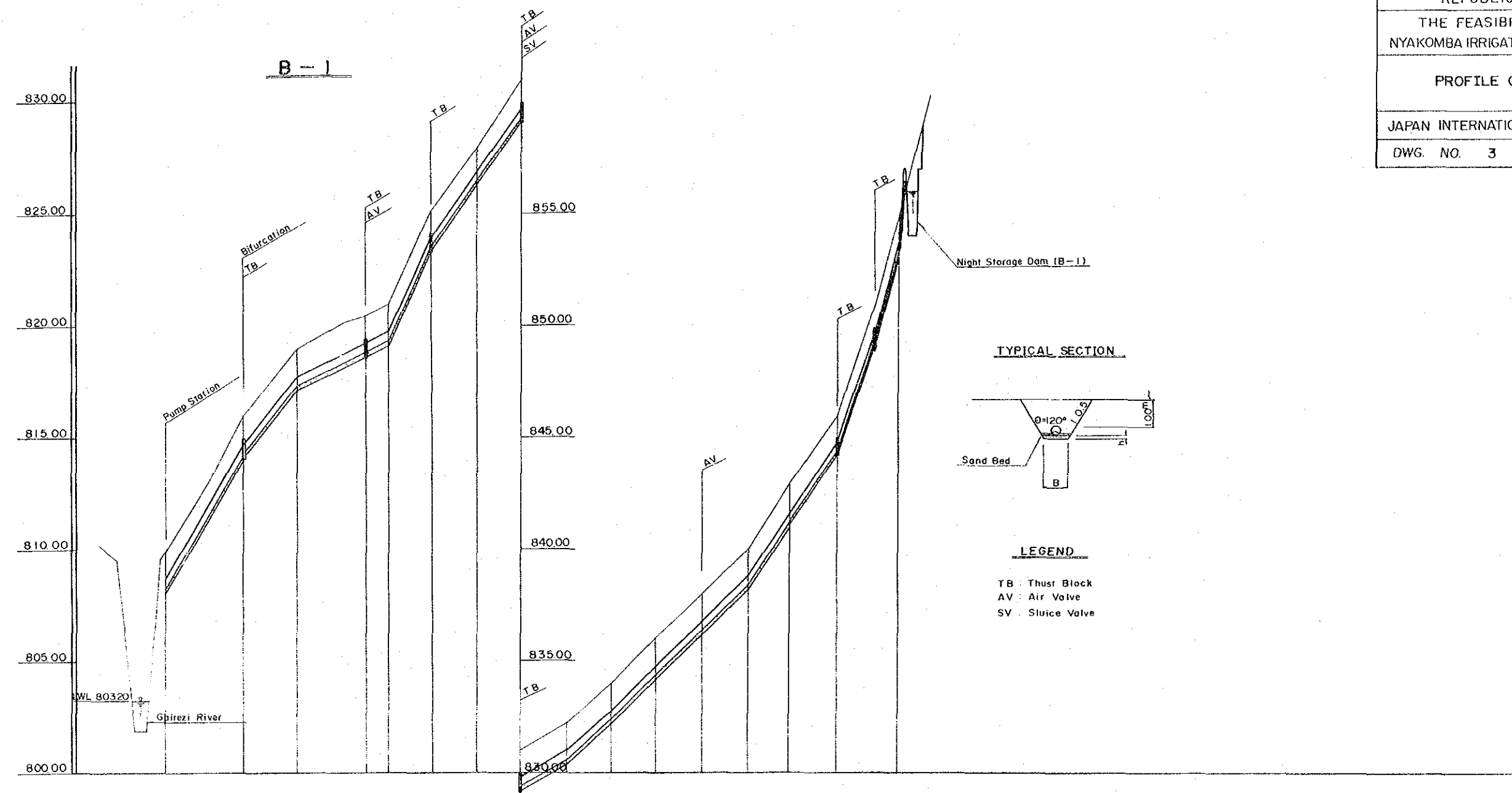


ø	B	h
500mm	1.20m	0.20m
200	1.00	0.10

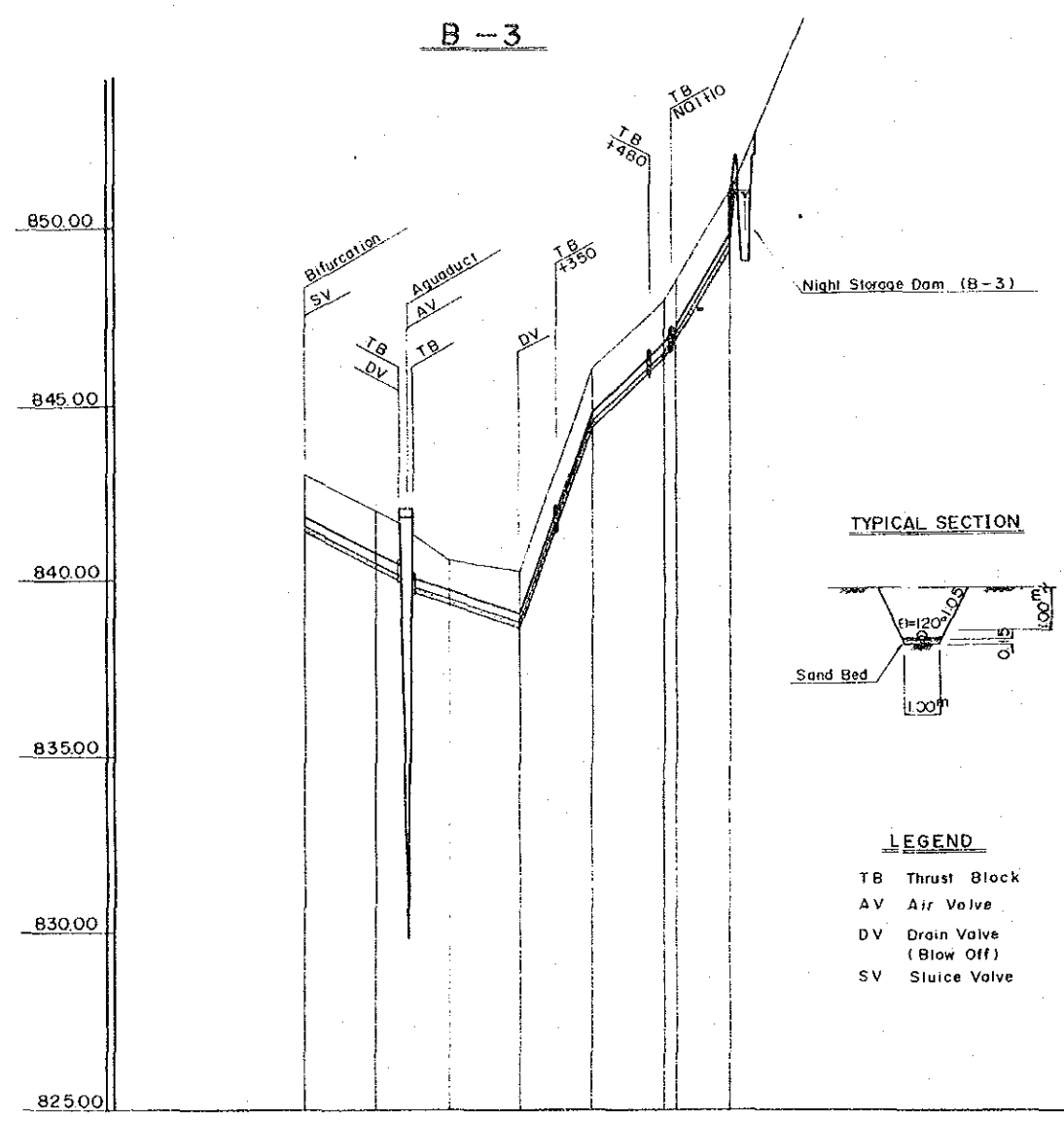
LEGEND

TB Thrust Block
AV Air Valve
SV Sluice Valve
DV Drain Valve
(Blow off)

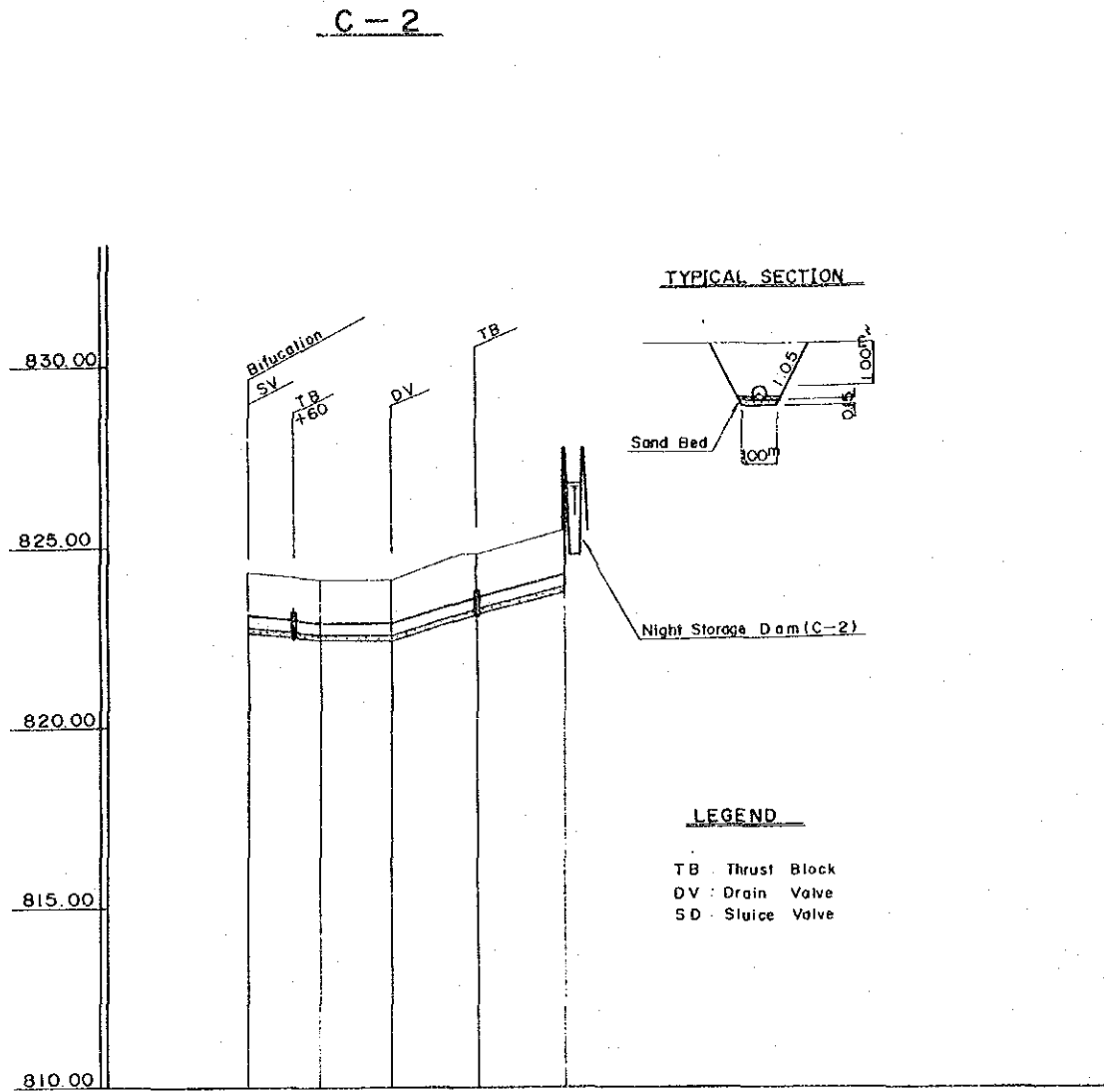
PIPE DIMENSION	IRON PIPE ø 500 L = 490 m										IRON PIPE ø 200 L = 2 920 m																									
WATER SURFACE ELEVATION																																				
PIPE CENTER ELEVATION	81605	82355	82155	82345	82835	83425	83555	83555	83570	83570	83540	82850	82670	82320	82220	82120	81890	81730	81900	81920	82270	81470	81370	81320	81220	81320	81310	81870	81870	81720	81570	83570	83570	83540		
GROUND ELEVATION	8175	8250	8230	8249	8298	8357	8370	8370	8370	8367	8298	8280	8245	8235	8225	8202	8185	8203	8205	8240	8160	8150	8145	8135	8145	8144	8200	8200	8185	8170	8370	8370	8340			
REDUCED DISTANCE	0.0	45.0	100.0	200.0	300.0	400.0	450.0	490.0	500.0	600.0	950.0	1000.0	1100.0	1140.0	1200.0	1330.0	1340.0	1345.0	1500.0	1650.0	1900.0	2000.0	2140.0	2150.0	2155.0	2200.0	2300.0	2400.0	2500.0	2580.0	2810.0	2950.0	2980.0			
STATION NO	NO. 0	+45.0	+100.0	+200.0	+300.0	+400.0	+450.0	+490.0	NO. 1	+1000.0	+4500.0	NO. 2	+1000.0	+1100.0	+1140.0	+1200.0	+1300.0	+1340.0	+1345.0	NO. 3	+1500.0	+1650.0	+1900.0	NO. 4	+2000.0	+2140.0	+2150.0	+2155.0	+2200.0	+3000.0	+4000.0	NO. 5	+800.0	+3100.0	+4000.0	+4200.0



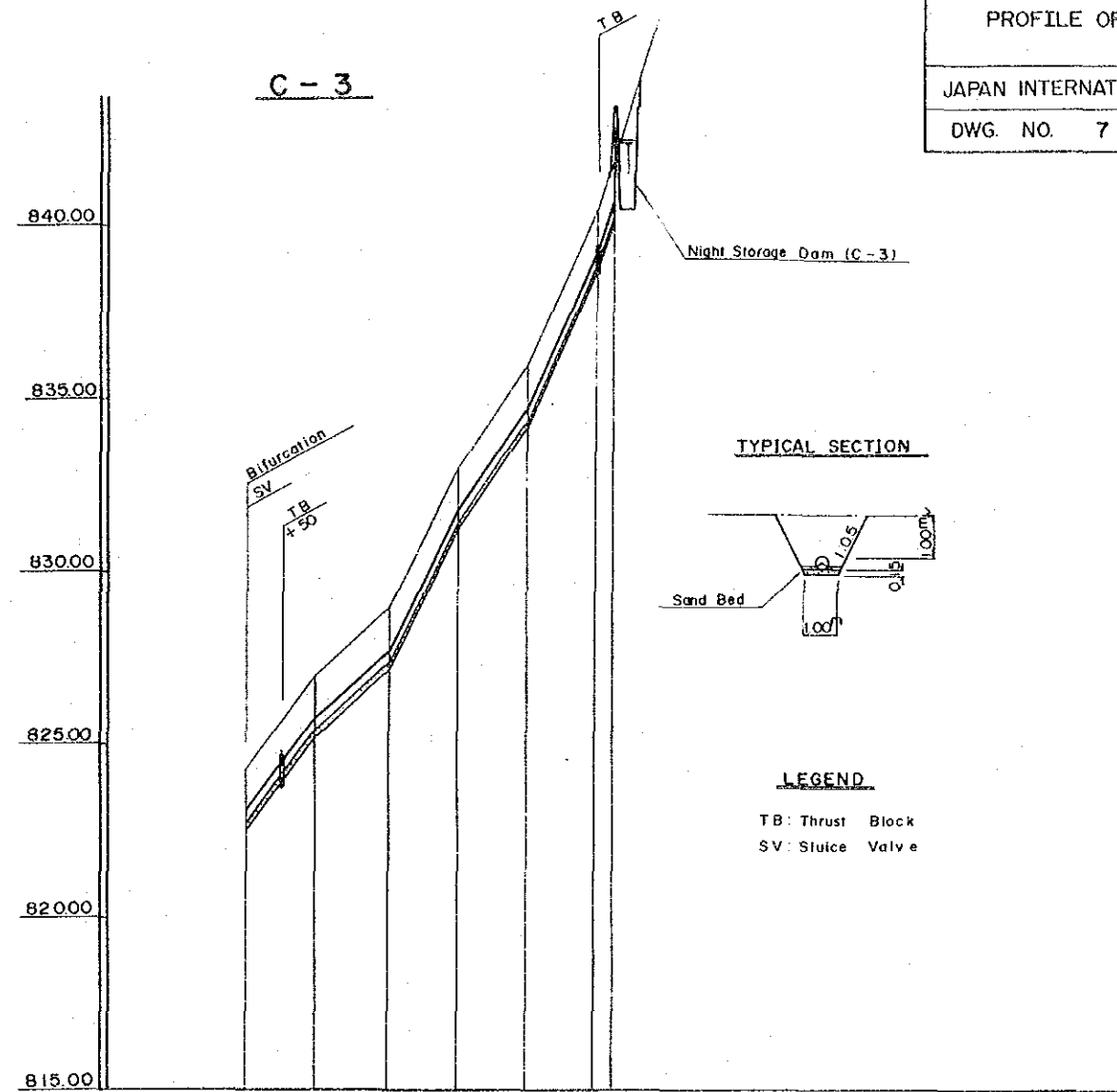
PIPE DIMENSION	IRON PIPE #500 L = 180.0m		IRON PIPE #400 L = 1320.0m							IRON PIPE #350 L = 240.0m						
WATER SURFACE ELEVATION																
PIPE CENTER ELEVATION	808.55	814.95 814.60	817.60	819.10	819.60	823.80	826.60	829.60	830.80	832.90	836.60	838.60	841.60 841.63	844.63	853.63	
GROUND ELEVATION	810.0	816.0	819.0	820.5	821.0	825.2	828.0	831.0	832.2	834.0	836.0	838.0	840.0	843.0	846.0	855.0
REDUCED DISTANCE	0.0	180.0	300.0	450.0	500.0	600.0	700.0	790.0	900.0	1000.0	1100.0	1200.0	1300.0	1390.0	1500.0	1630.0
STATION NO	NO. 0	+180.0	+300.0	+450.0	NO. 1 500.0	+100.0	+200.0	+290.0	+400.0	NO. 2 1000.0	+100.0	+200.0	+300.0	+390.0	NO. 3 1500.0	+130.0



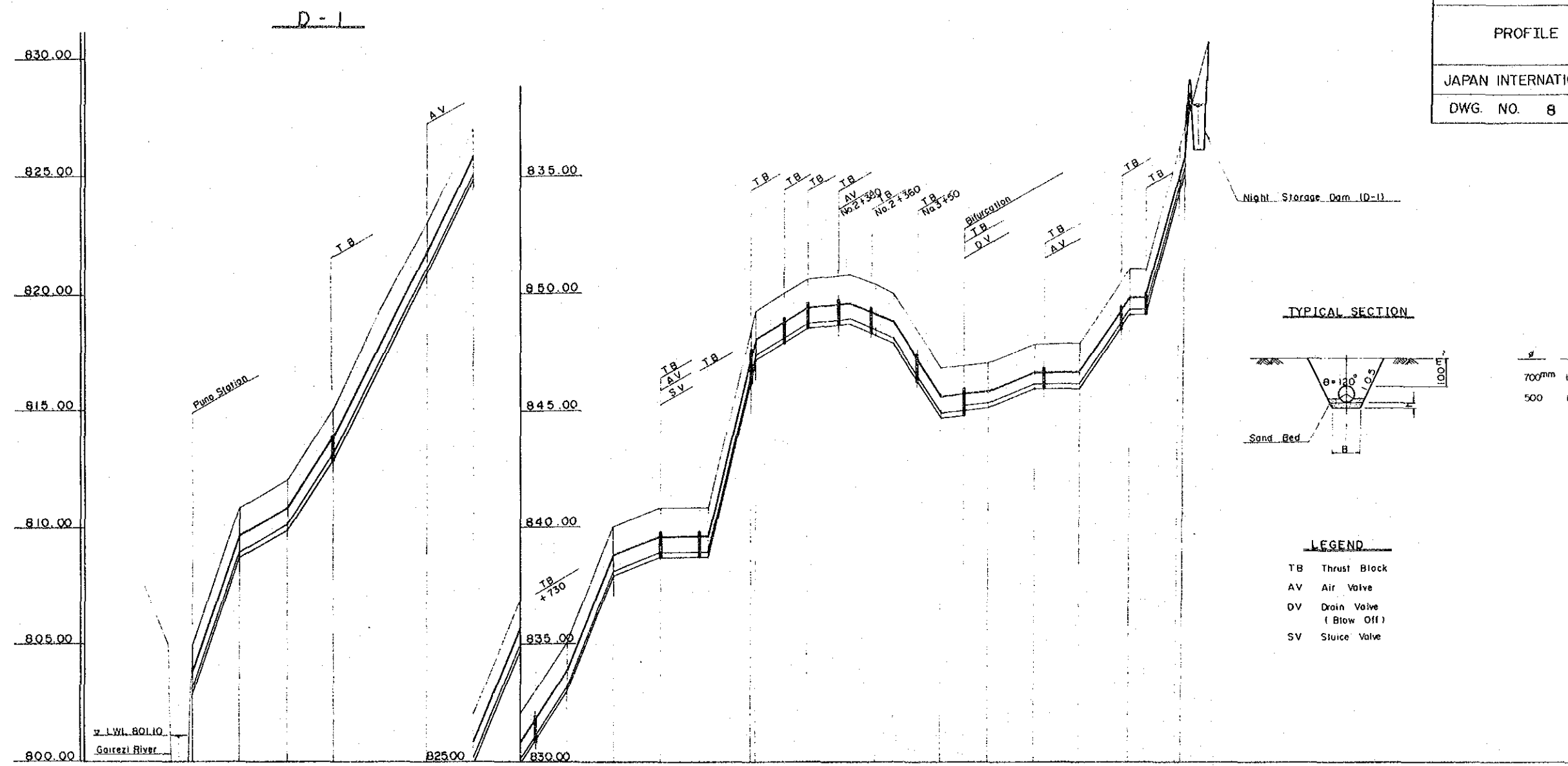
PIPE DIMENSION	IRON PIPE ϕ 250 L=5900m						
WATERSURFACE ELEVATION							
PIPE CENTER ELEVATION	841.69	840.68	840.28	839.98	844.68	845.68	847.18
GROUND ELEVATION	843.0	841.6	841.0	840.6	840.3	846.0	848.5
REDUCED DISTANCE	0.0	100.0	200.0	300.0	400.0	500.0	590.0
STATION NO	NO. 0	+100.0	+200.0	+300.0	+400.0	NO. 1 +20.0	+90.0



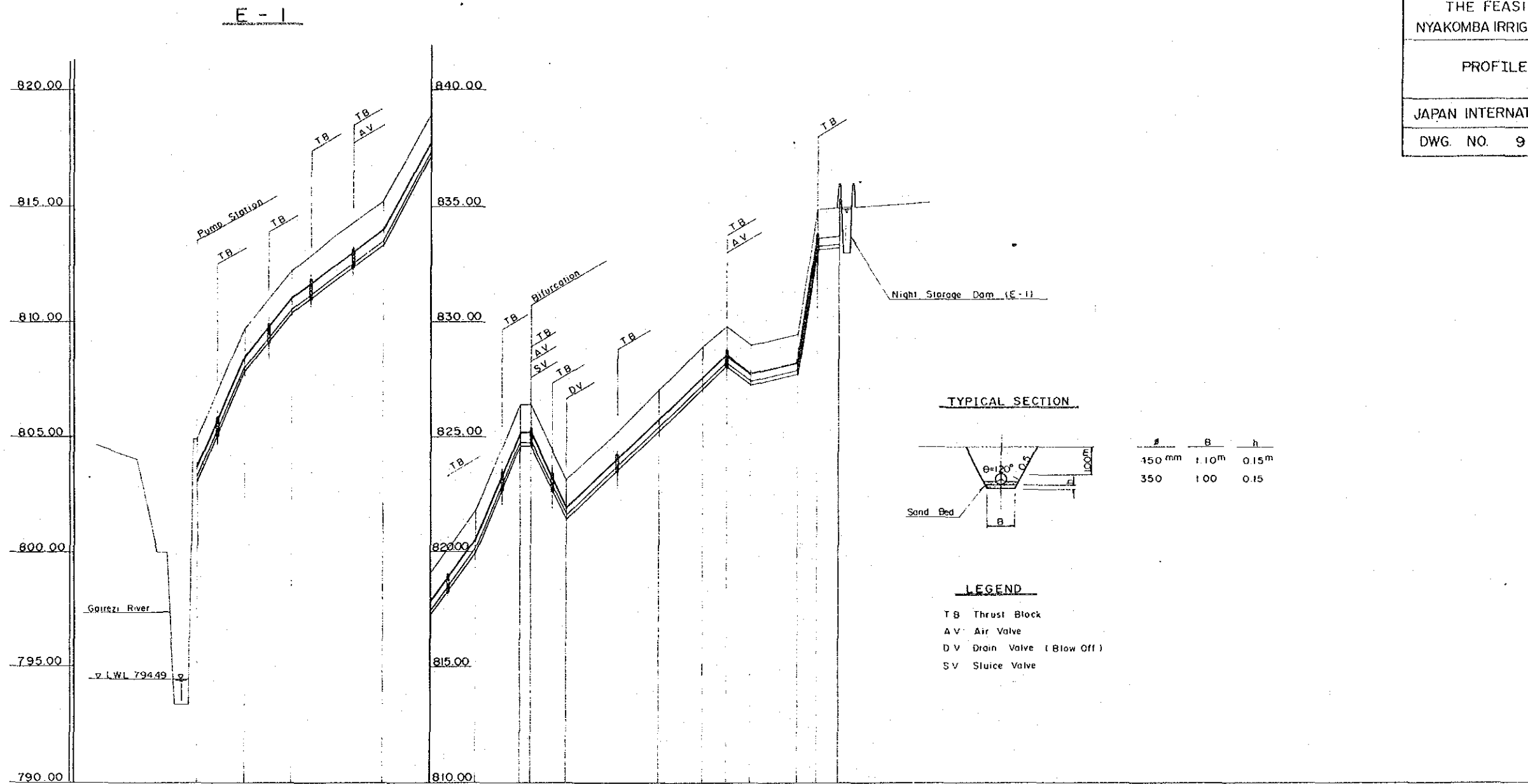
PIPE DIMENSION	IRON PIPE Ø350 L=440m				
WATER SURFACE ELEVATION					
PIPE CENTER ELEVATION	822.93	822.73	822.73	823.43	822.93
GROUND ELEVATION	824.3	824.1	824.1	824.8	824.2
REDUCED DISTANCE	0.0	100.0	200.0	320.0	440.0
STATION NO	NO. 0	+100.0	+200.0	+320.0	+440.0



PIPE DIMENSION	IRON PIPE Ø350 L=225m					
WATER SURFACE ELEVATION						
PIPE CENTER ELEVATION	822.93	825.63	827.63	831.63	834.63	839.13
GROUND ELEVATION	824.3	827.0	829.0	833.0	836.0	840.5
REDUCED DISTANCE	0.0	100.0	200.0	300.0	400.0	500.0
STATION NO	NO. 0	+100.0	+200.0	+300.0	+400.0	NO. 1
						+25.00



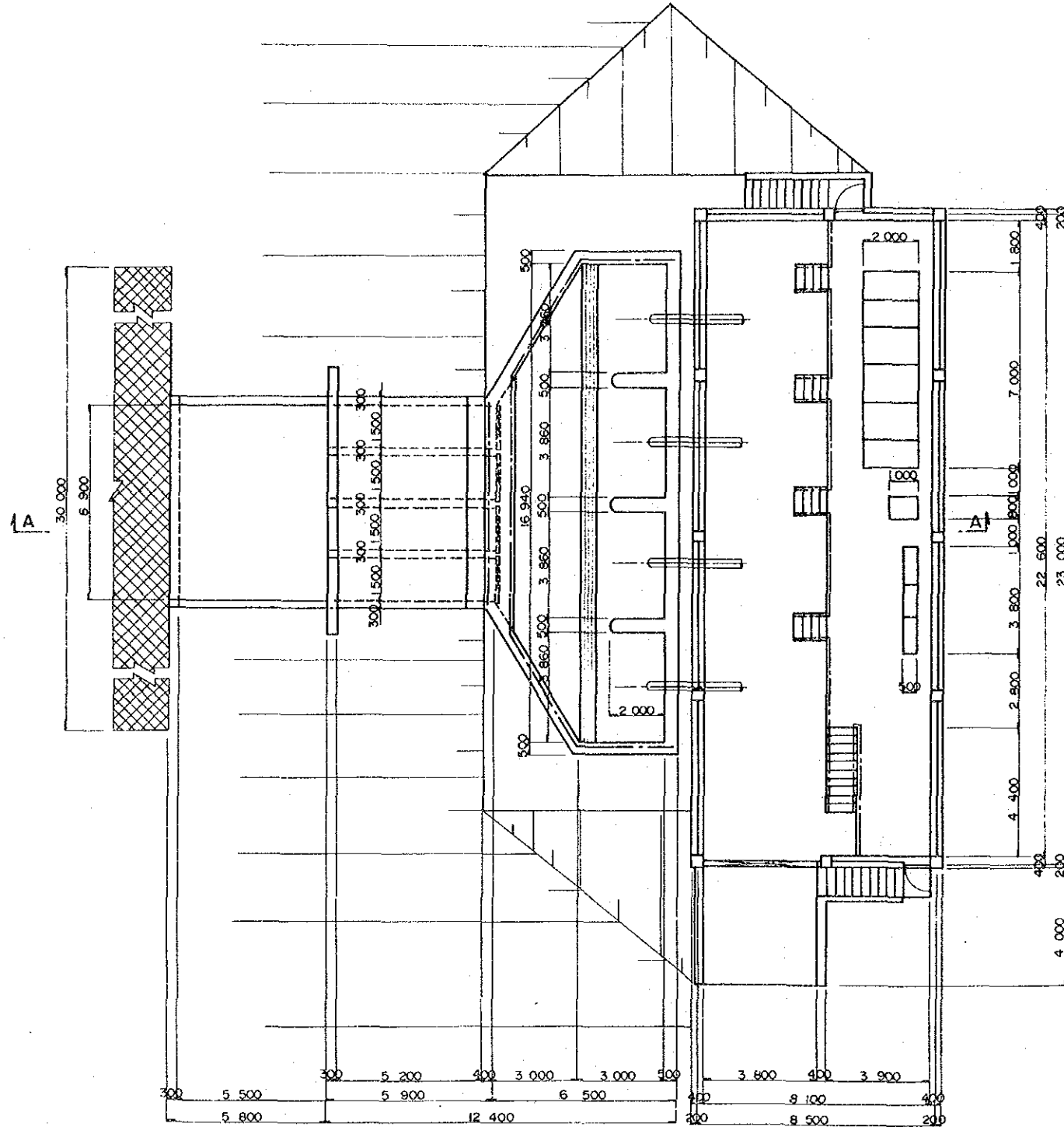
PIPE DIMENSION	IRON PIPE ϕ 700 L = 1.630 m										IRON PIPE ϕ 500 L = 460m																		
WATER SURFACE ELEVATION																													
PIPE CENTER ELEVATION	803.45	809.25	810.45	813.45	817.95	821.45	825.45	830.45	833.45	838.45	840.8	839.25	839.25	839.25	848.5	846.95	847.65	848.45	848.45	848.45	845.25	845.75	845.75	845.55	846.35	846.35	849.55	849.55	855.55
GROUND ELEVATION	805.0	810.8	812.0	815.0	819.4	823.0	827.0	832.0	835.0	840.0	840.8	840.8	840.8	848.5	849.2	850.0	850.6	850.4	850.0	846.8	846.8	846.8	846.9	847.0	847.8	847.8	851.0	851.0	857.0
REDUCED DISTANCE	0.0	100.0	200.0	300.0	400.0	500.0	600.0	700.0	800.0	900.0	1000.0	1080.0	1000.0	1190.0	1200.0	1260.0	1310.0	1460.0	1500.0	1600.0	1650.0	1700.0	1800.0	1900.0	2000.0	2030.0	2110.0		
STATION NO	No. 0	+100.0	+200.0	+300.0	+400.0	No. 2	+100.0	+200.0	+300.0	+400.0	No. 2	+80.0	+100.0	+190.0	+200.0	+260.0	+310.0	+460.0	No. 3	+100.0	+150.0	+200.0	+300.0	+400.0	No. 4	+30.0	+110.0		



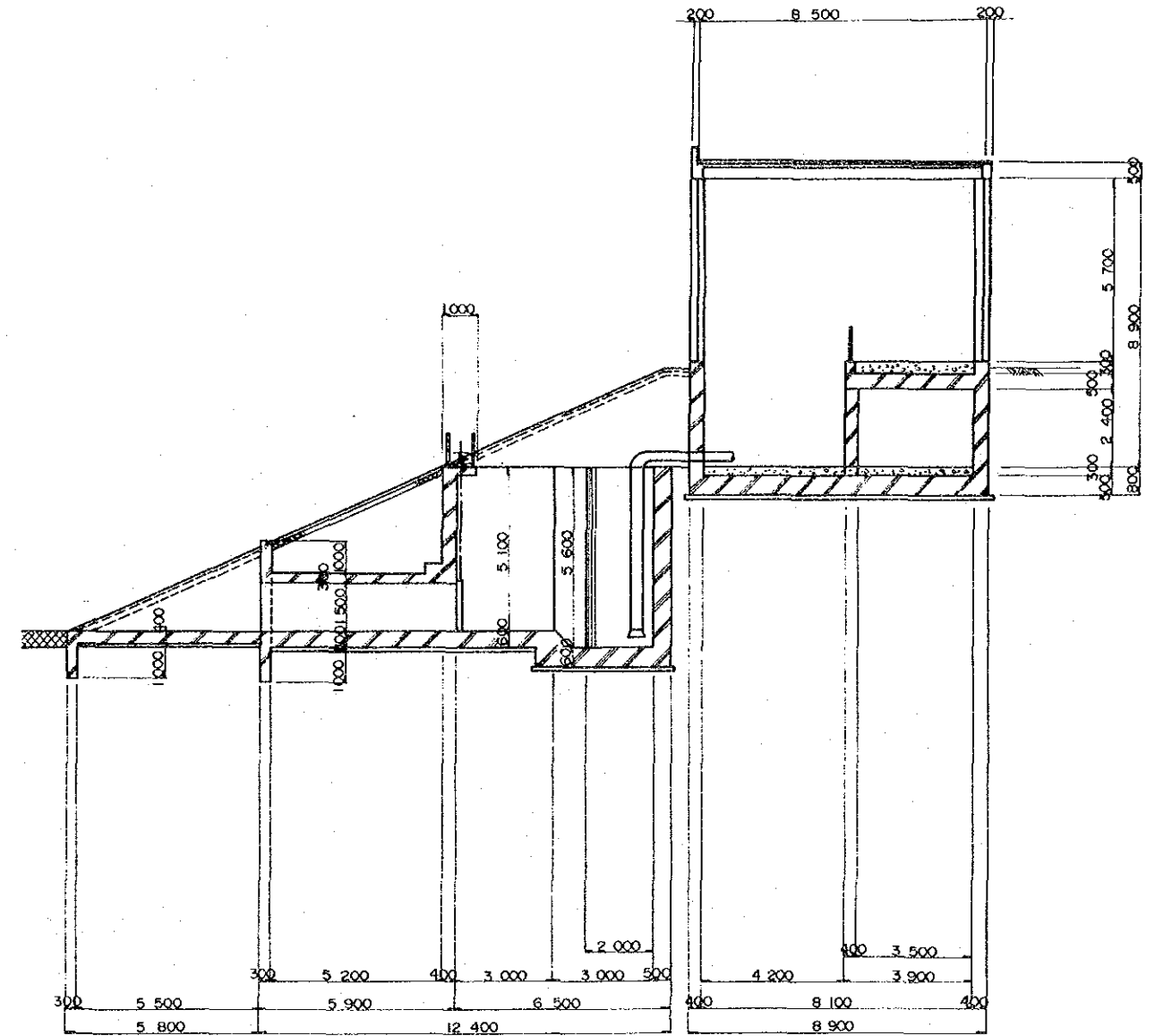
PIPE DIMENSION	IRON PIPE φ450, L = 720m	IRON PIPE φ350, L = 670m
WATER SURFACE ELEVATION		
PIPE CENTER ELEVATION	803.48	808.28
GROUND ELEVATION	804.9	809.7
REDUCED DISTANCE	0.0	100.0
STATION No	No. 0	+100.0
		+200.0
		+400.0
	No. 1	+100.0
		+200.0
		+220.0
		+300.0
	No. 2	+100.0
		+150.0
		+200.0
		+300.0
		+340.0
		+350.0

PUMP STATION S+1:100
(BLOCK A)

PLAN

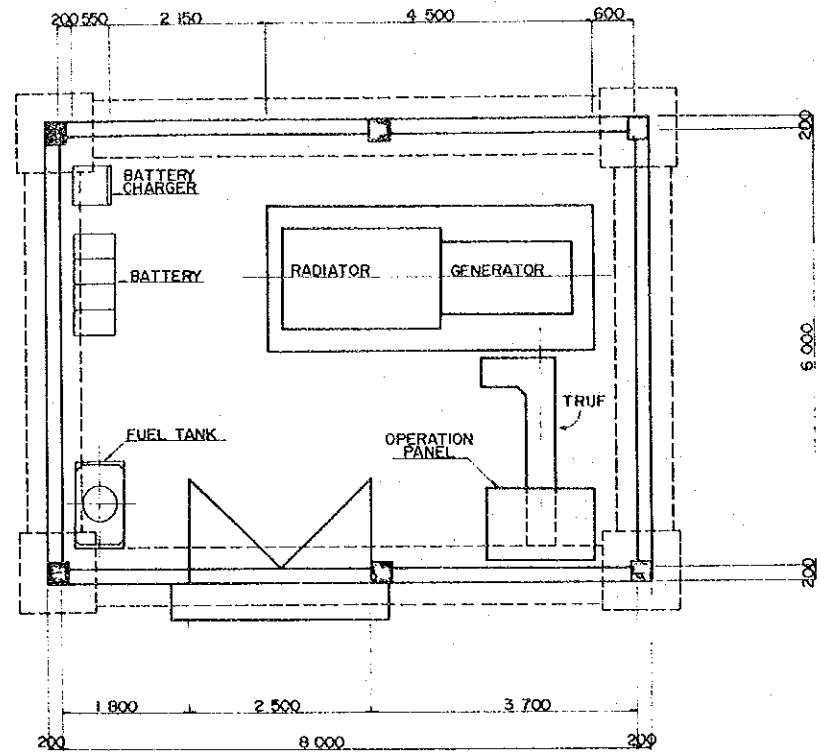


SECTION A-A

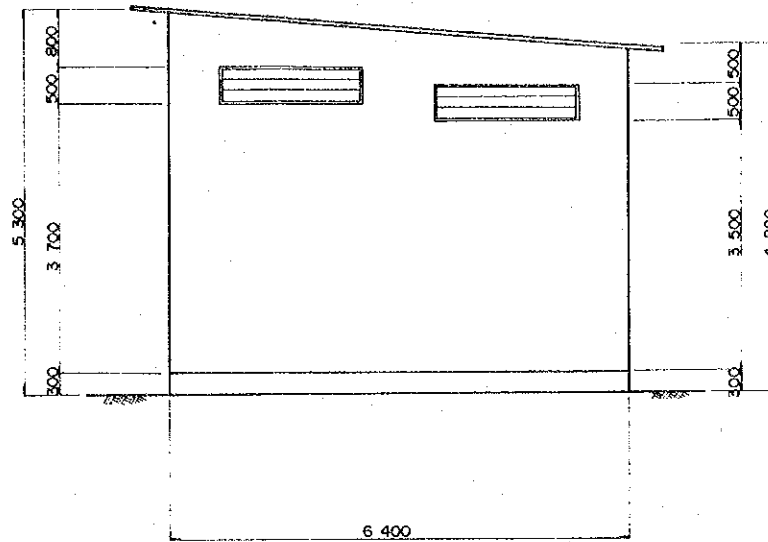


AGRITEX REPUBLIC OF ZIMBABWE	
THE FEASIBILITY STUDY ON THE NYAKOMBA IRRIGATION DEVELOPMENT PROJECT	
PUMP STATION (BLOCK A)	
JAPAN INTERNATIONAL COOPERATION AGENCY	
DWG. NO. 10	SHEET 1 OF 1

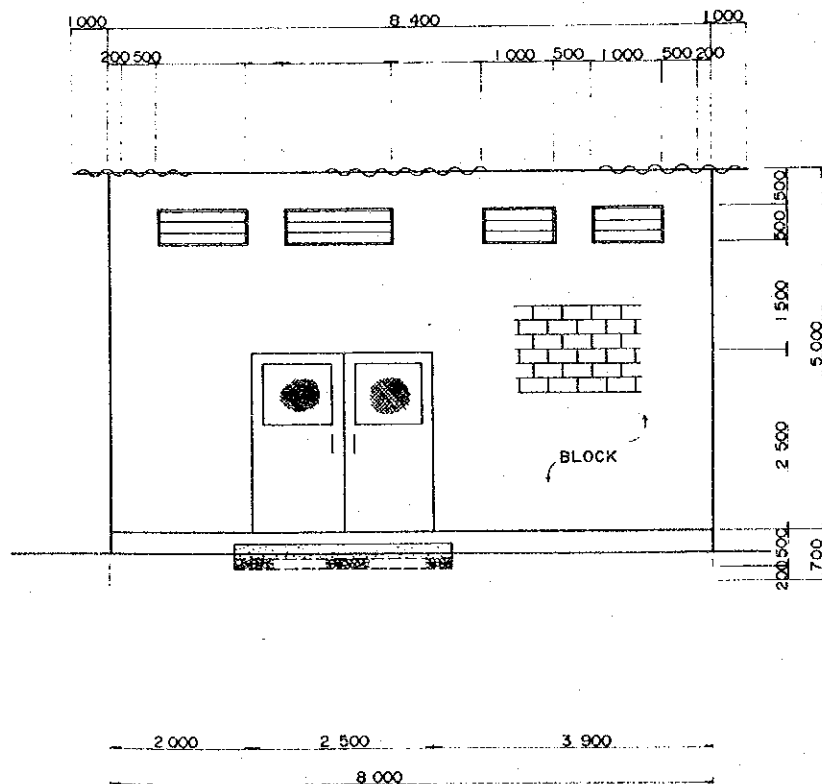
GENERATOR HOUSE S = 1 : 50



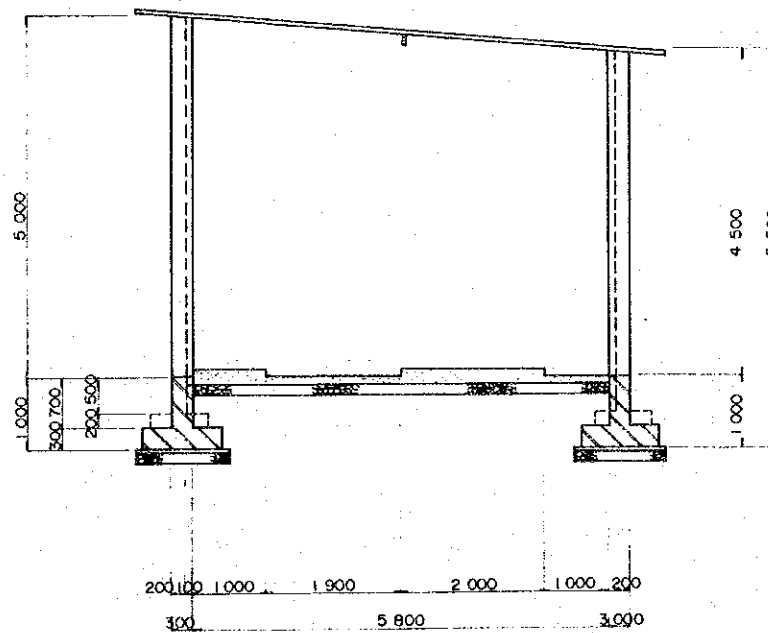
FLOOR PLAN



SIDE ELEVATION



FRONT ELEVATION



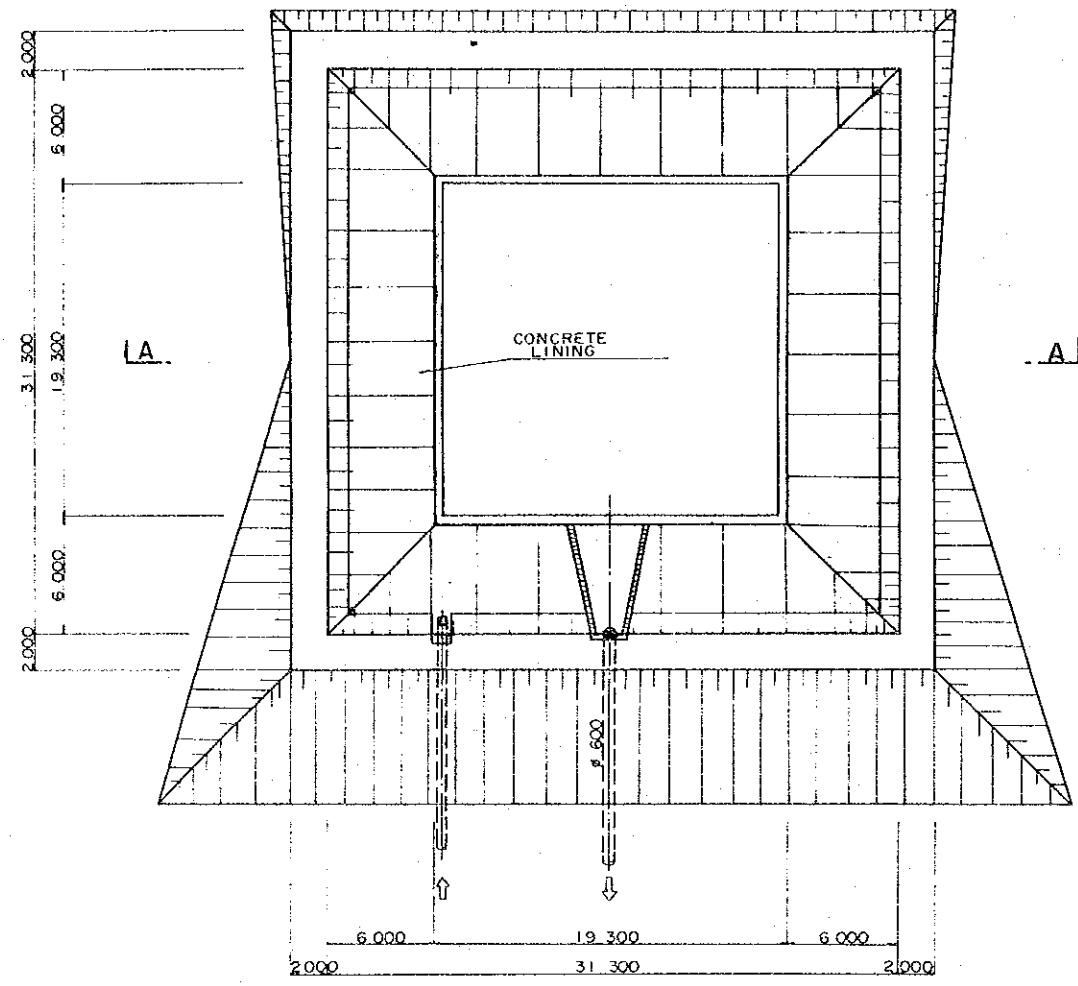
SECTION

AGRITEX REPUBLIC OF ZIMBABWE	
THE FEASIBILITY STUDY ON THE NYAKOMBA IRRIGATION DEVELOPMENT PROJECT	
GENERATOR HOUSE	
JAPAN INTERNATIONAL COOPERATION AGENCY	
DWG. NO. 11	SHEET 1 OF 1

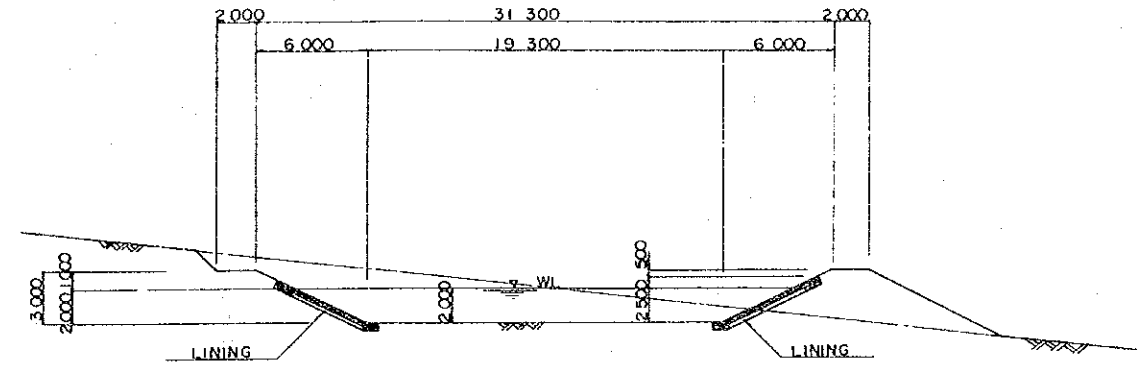
NIGHT STORAGE DAM S = 1/200

FP - A2 V = 1,080 m³

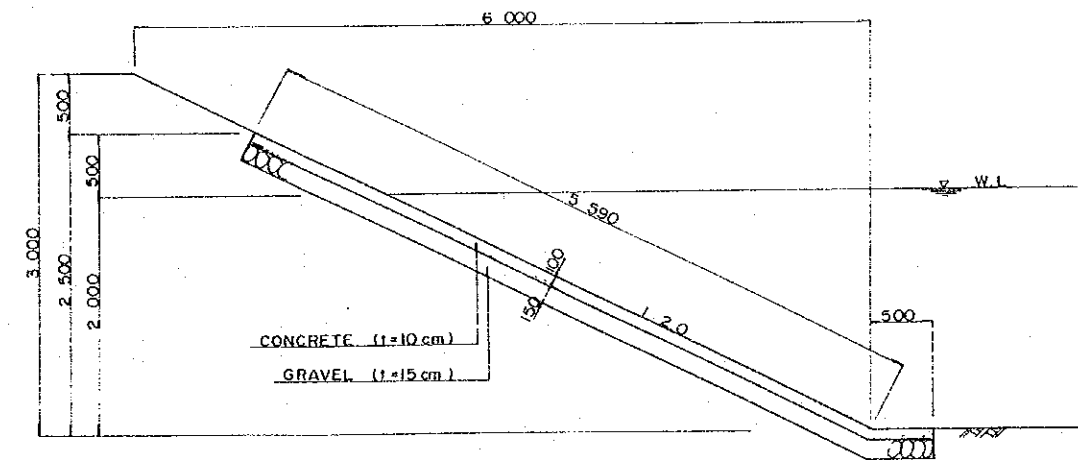
PLAN



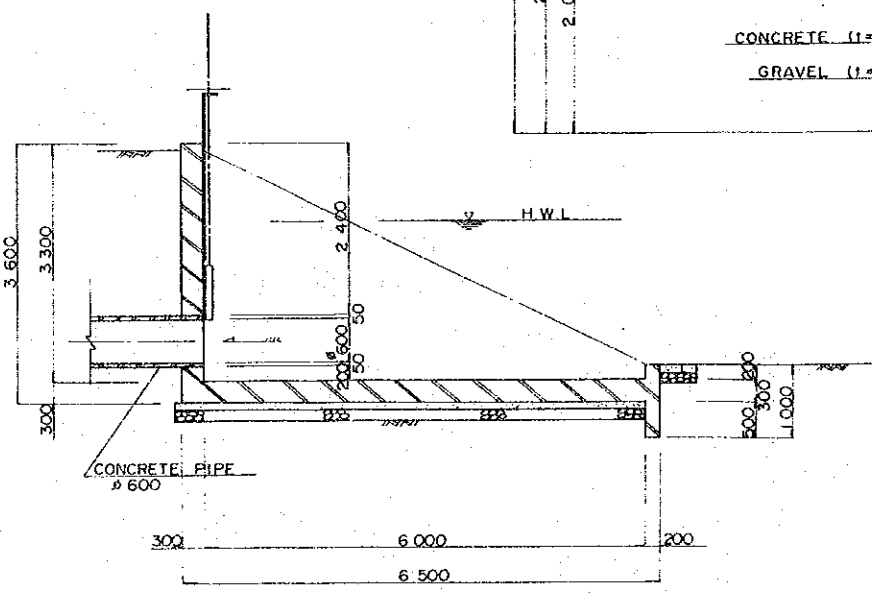
SECTION A - A



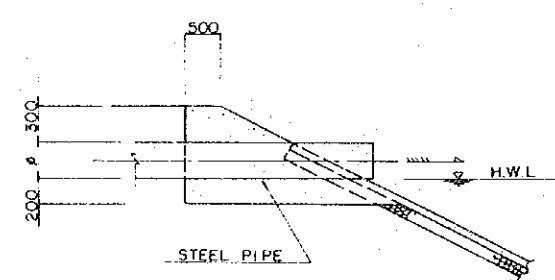
LINING DETAIL S = 1/30



INLET S = 1/30



OUTLET S = 1/50



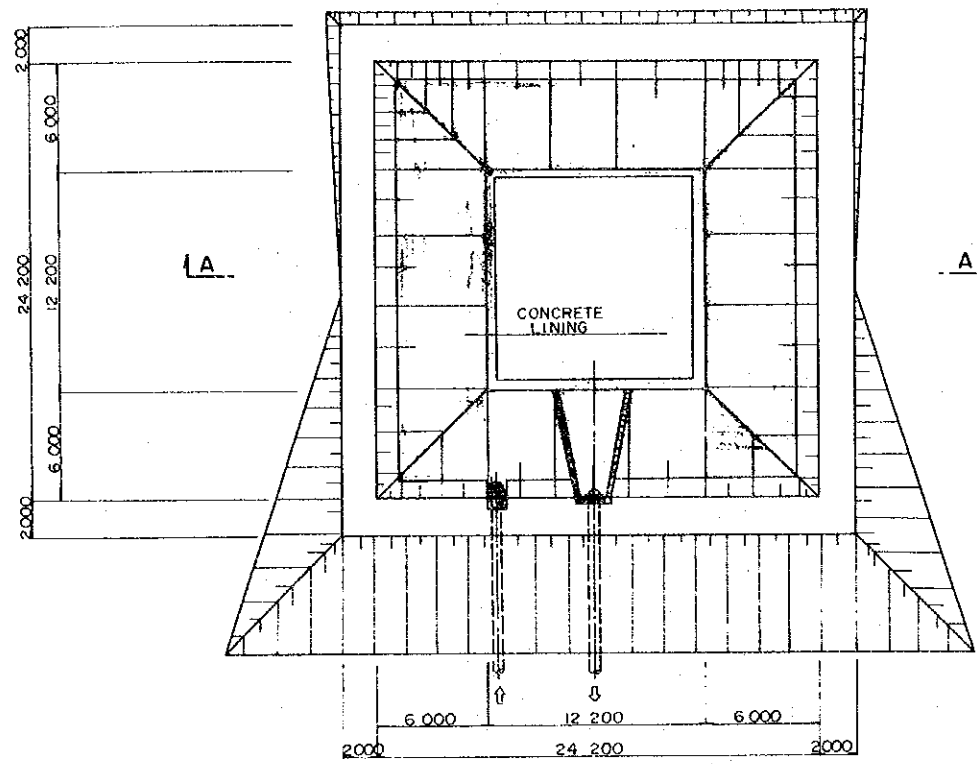
AGRITEX REPUBLIC OF ZIMBABWE	
THE FEASIBILITY STUDY ON THE NYAKOMBA IRRIGATION DEVELOPMENT PROJECT	
NIGHT STORAGE DAM (VOLUME / V = 1,080 m ³)	
JAPAN INTERNATIONAL COOPERATION AGENCY	
DWG. NO. 12	SHEET 1 OF 2

NIGHT STORAGE DAM

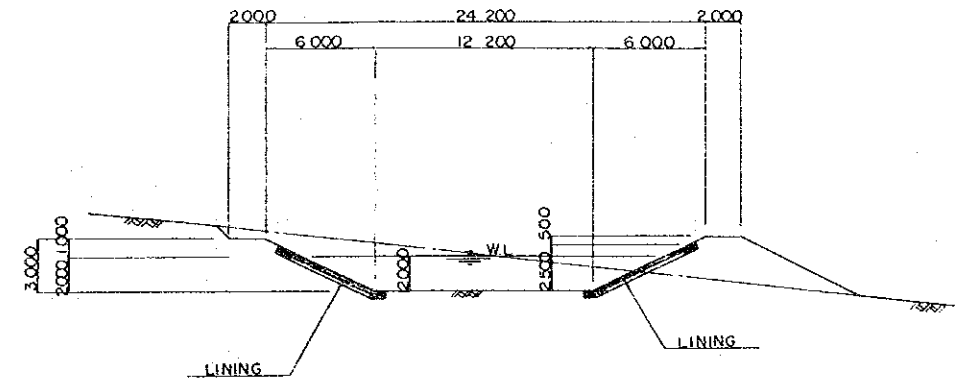
S = 1/200

FP - CI V = 480m³

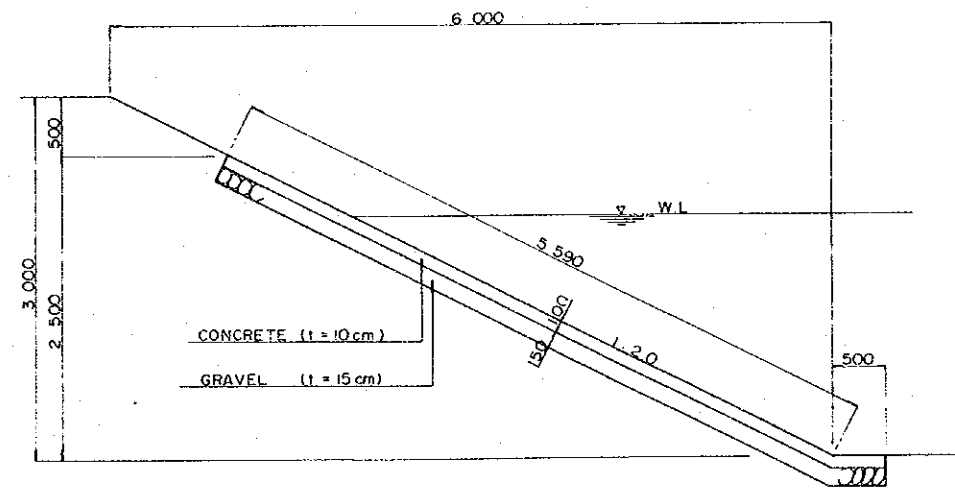
PLAN



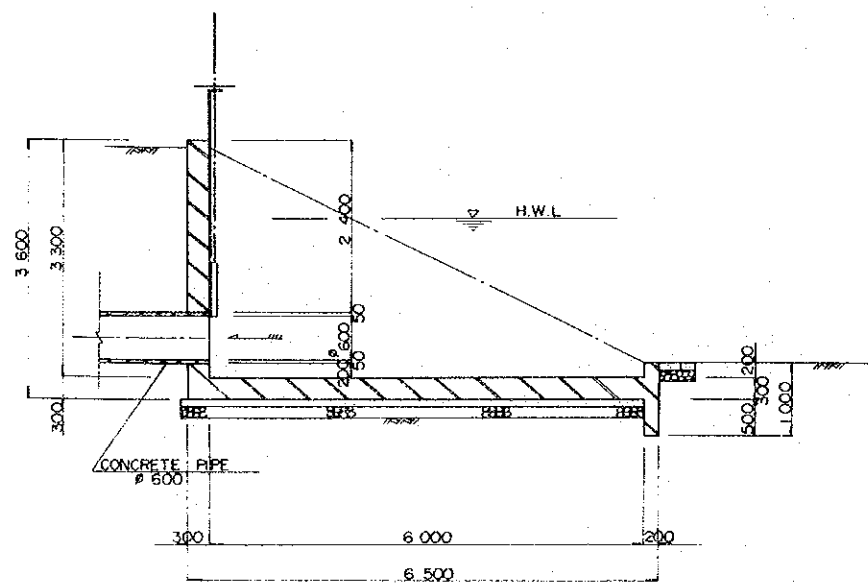
SECTION A - A



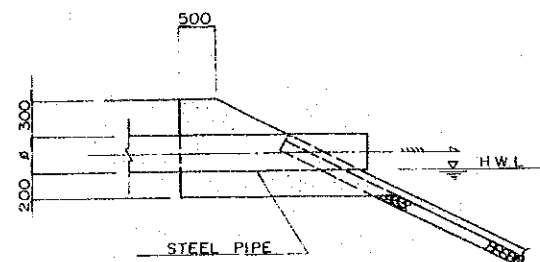
LINING DETAIL S = 1/30



INLET S = 1/50



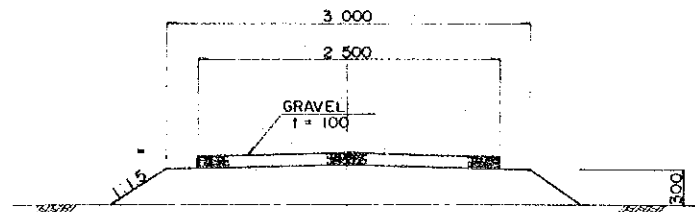
OUTLET S = 1/50



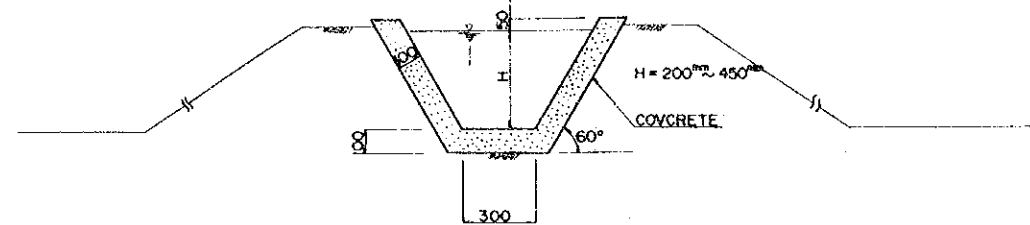
AGRITEX REPUBLIC OF ZIMBABWE	
THE FEASIBILITY STUDY ON THE NYAKOMBA IRRIGATION DEVELOPMENT PROJECT	
NIGHT STORAGE DAM (VOLUME / V = 480m ³)	
JAPAN INTERNATIONAL COOPERATION AGENCY	
DWG. NO. 13	SHEET 2 OF 2

TYPICAL SECTION

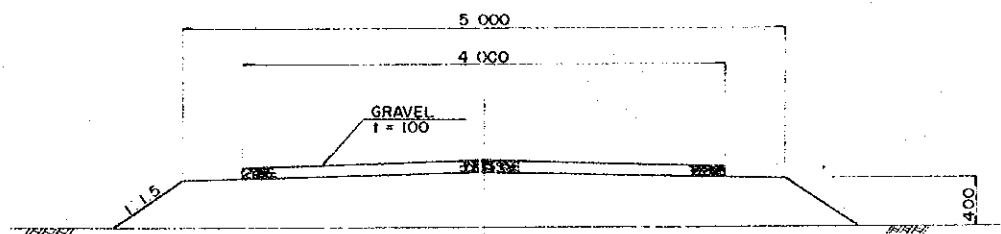
FARM ROAD



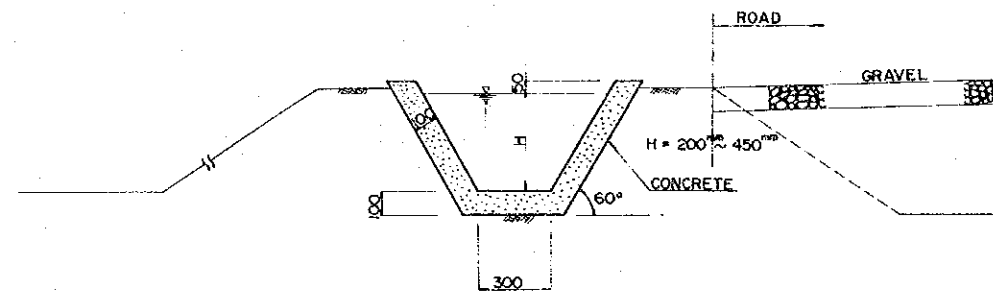
IRRIGATION CANAL



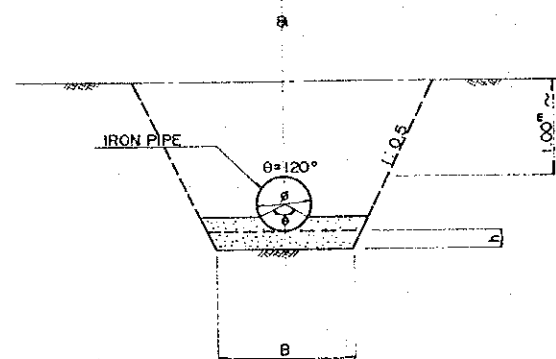
TRUNK ROAD



IRRIGATION CANAL
(WITH FARM ROAD)

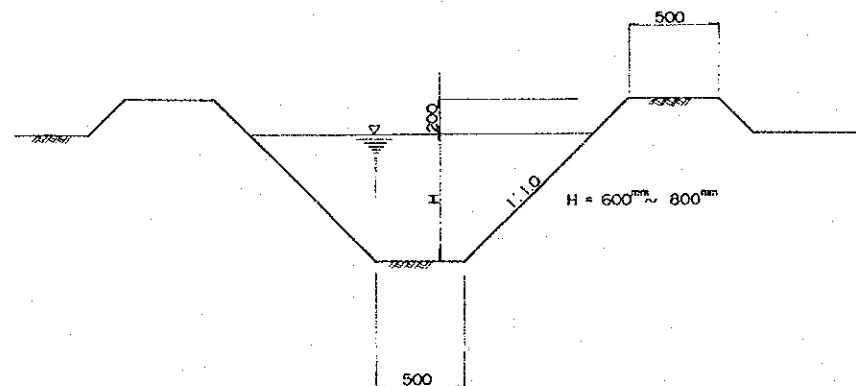


HEAD RACE

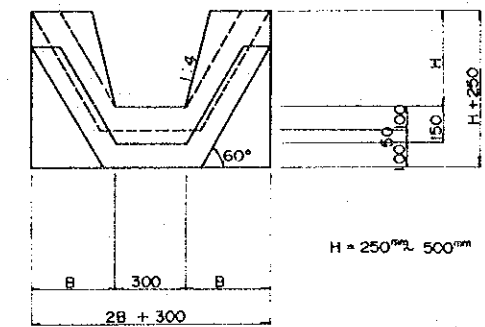


ϕ	B	h
700	1.40	0.20
500	1.20	0.20
450	1.10	0.15
400	1.10	0.15
350	1.00	0.15
250	1.00	0.15
200	1.00	0.10

DRAINAGE CANAL
(EARTH CANAL)

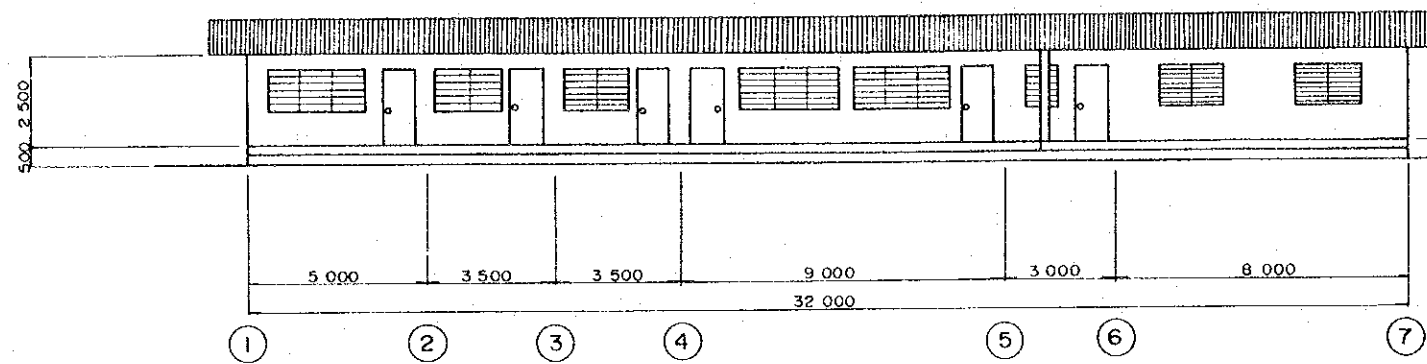


CHECK DROP
(IRRIGATION CANAL) S = 1:150

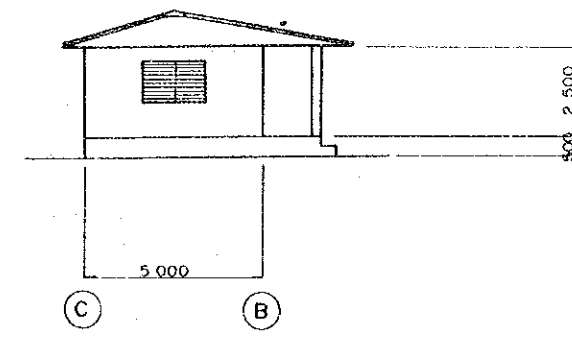


AGRITEX REPUBLIC OF ZIMBABWE	
THE FEASIBILITY STUDY ON THE NYAKOMBA IRRIGATION DEVELOPMENT PROJECT	
TYPICAL SECTION	
JAPAN INTERNATIONAL COOPERATION AGENCY	
DWG. NO. 14	SHEET 1 OF 1

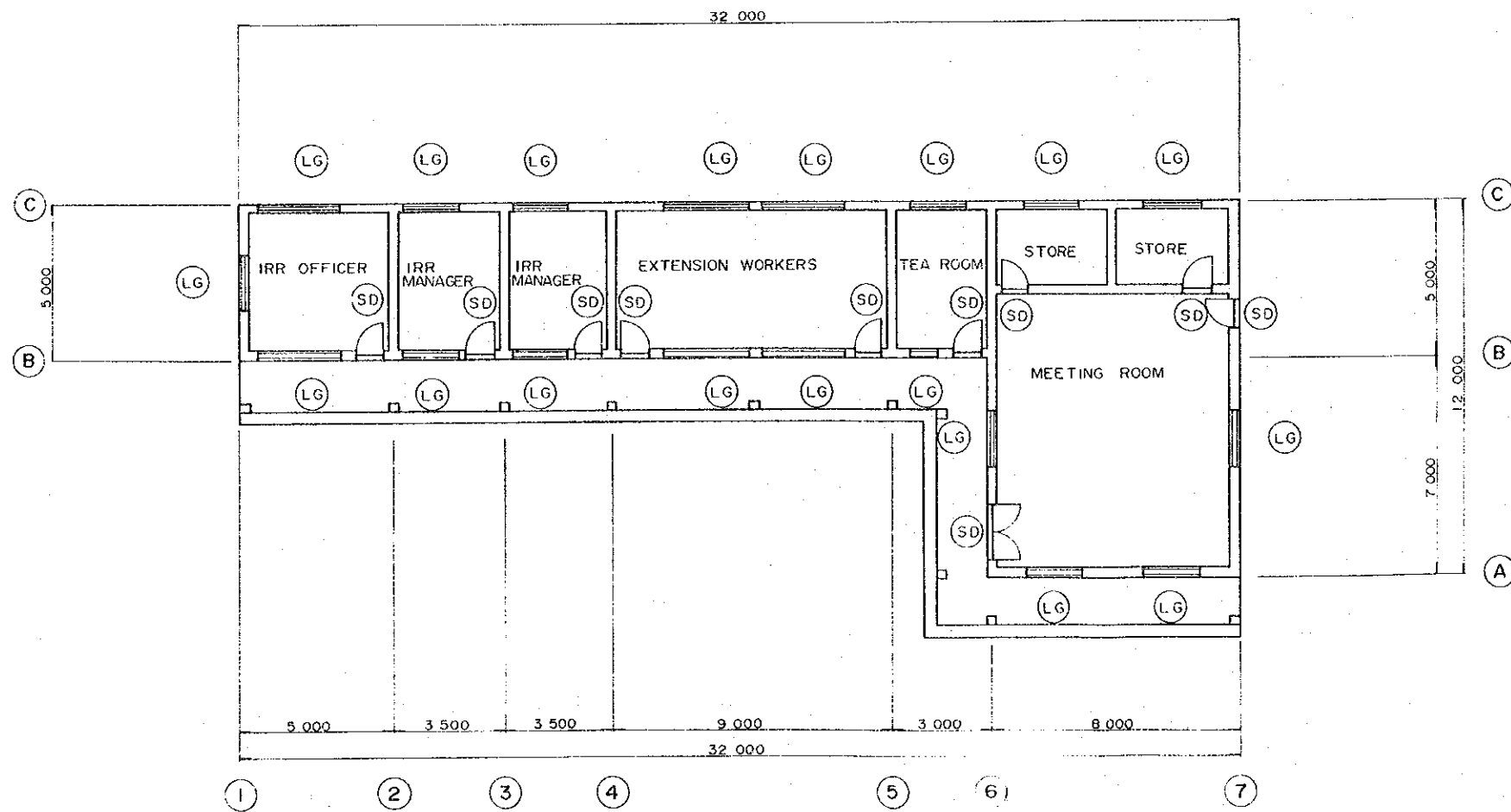
NPMO MAIN OFFICE S = 1:100



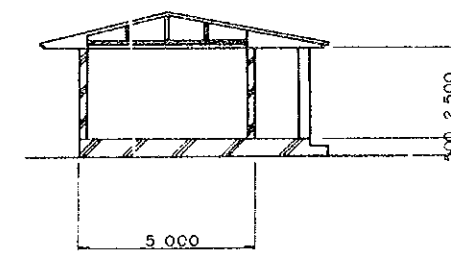
ELEVATION



ELEVATION



P L A N

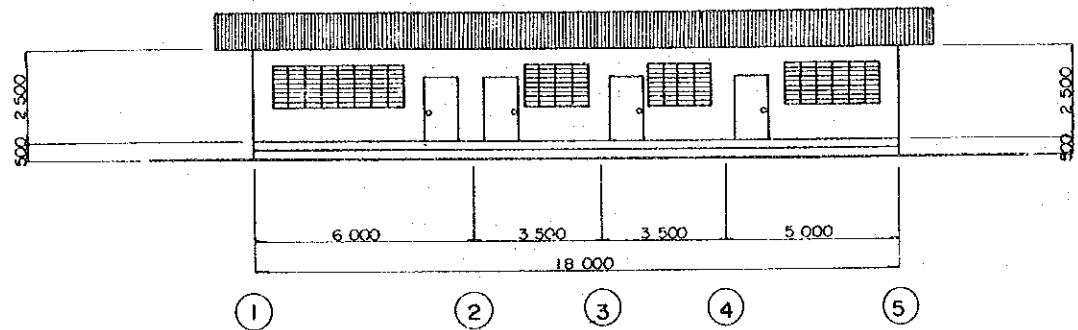


SECTION

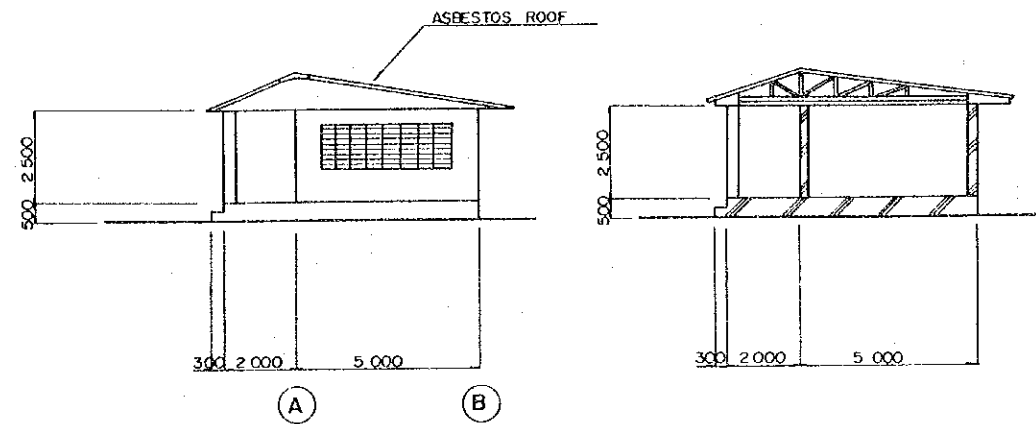
LG GLASS LOUVER

AGRITEX REPUBLIC OF ZIMBABWE	
THE FEASIBILITY STUDY ON THE NYAKOMBA IRRIGATION DEVELOPMENT PROJECT	
NPMO MAIN OFFICE	
JAPAN INTERNATIONAL COOPERATION AGENCY	
DWG. NO. 15	SHEET 1 OF 5

NPMO SUB OFFICE S=1:100

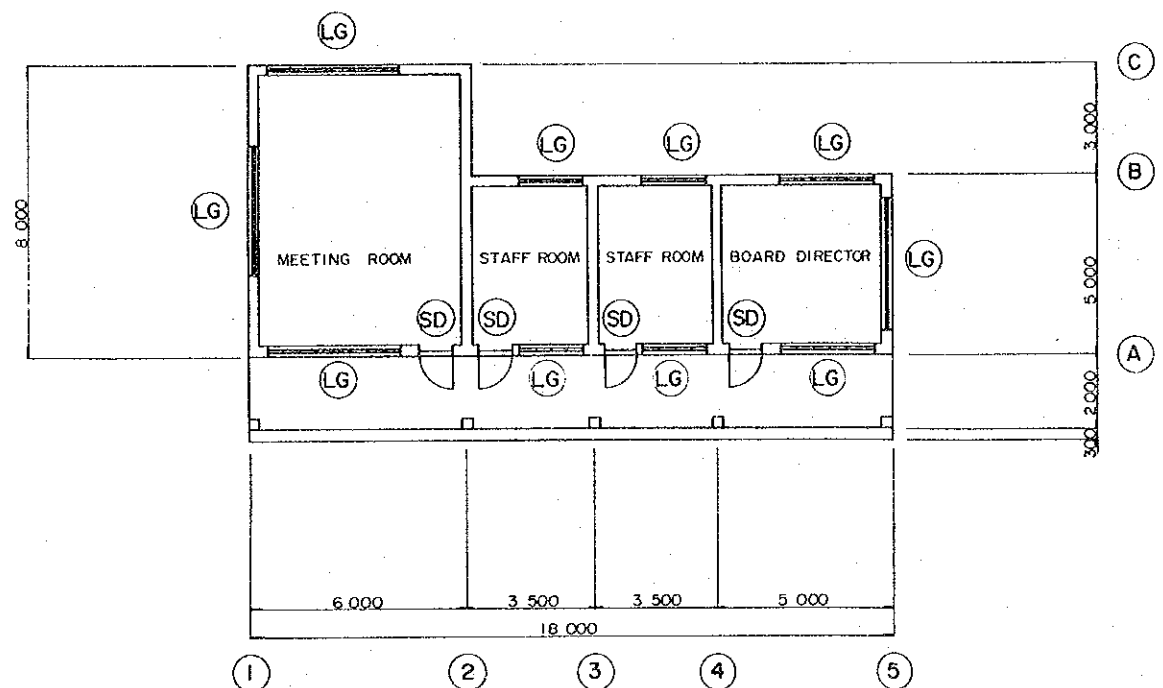


ELEVATION



ELEVATION

SECTION

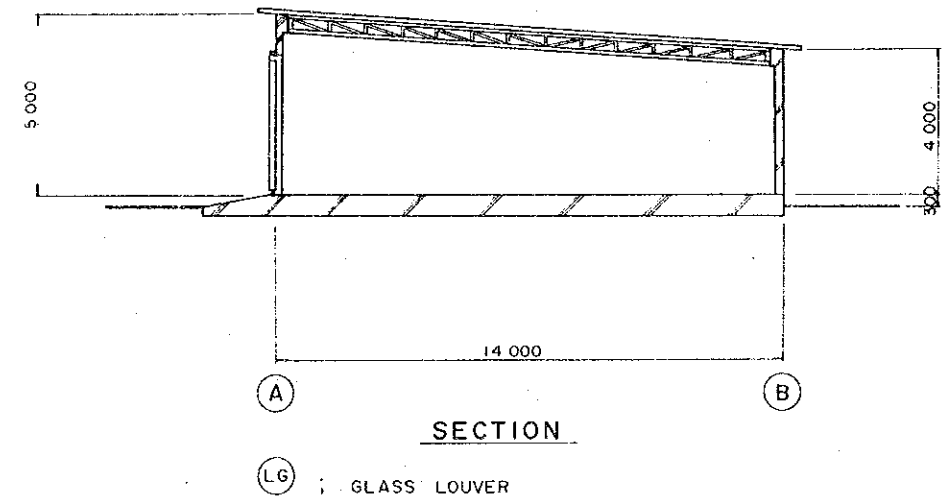
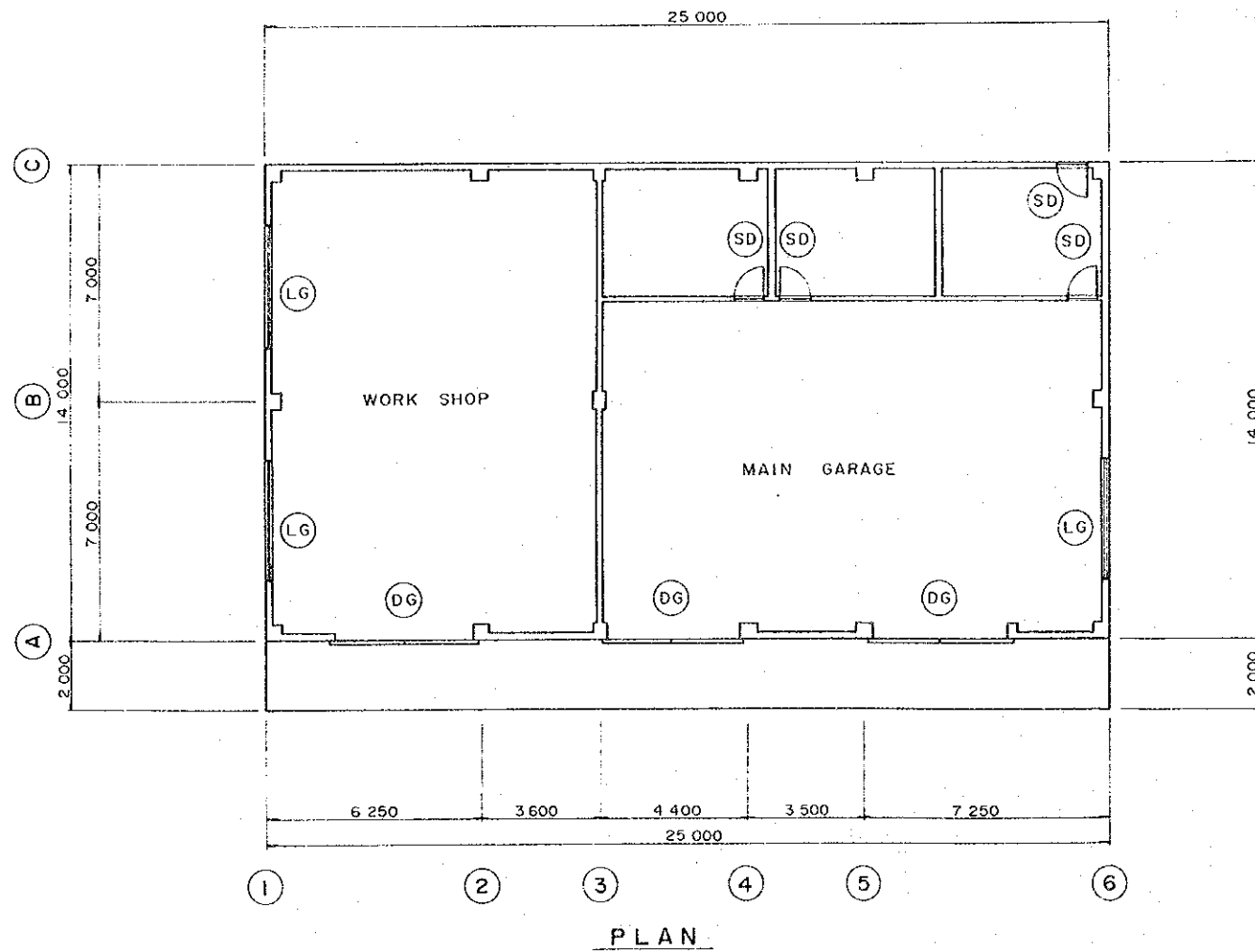
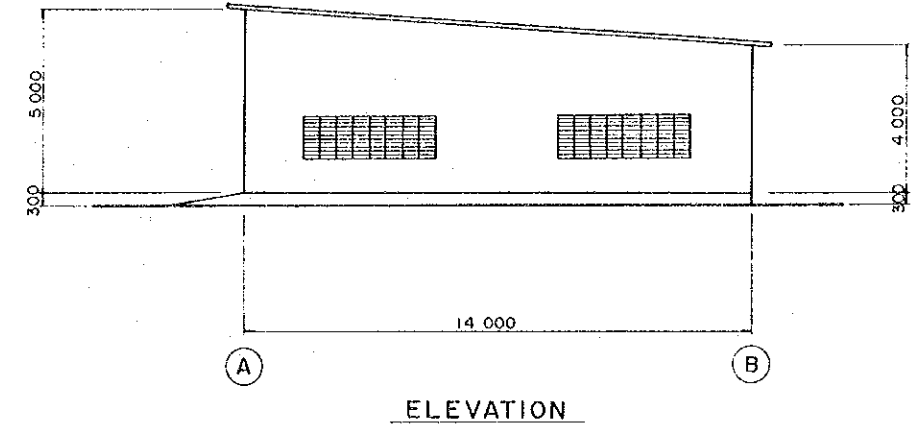
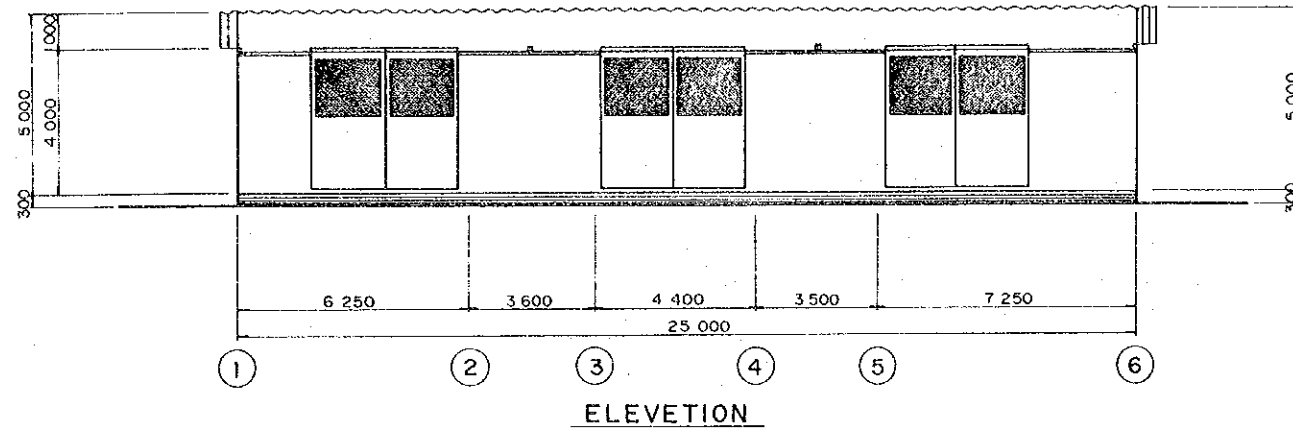


PLAN

- (LG) : GLASS LOUVER
- (SD) : STEEL DOOR

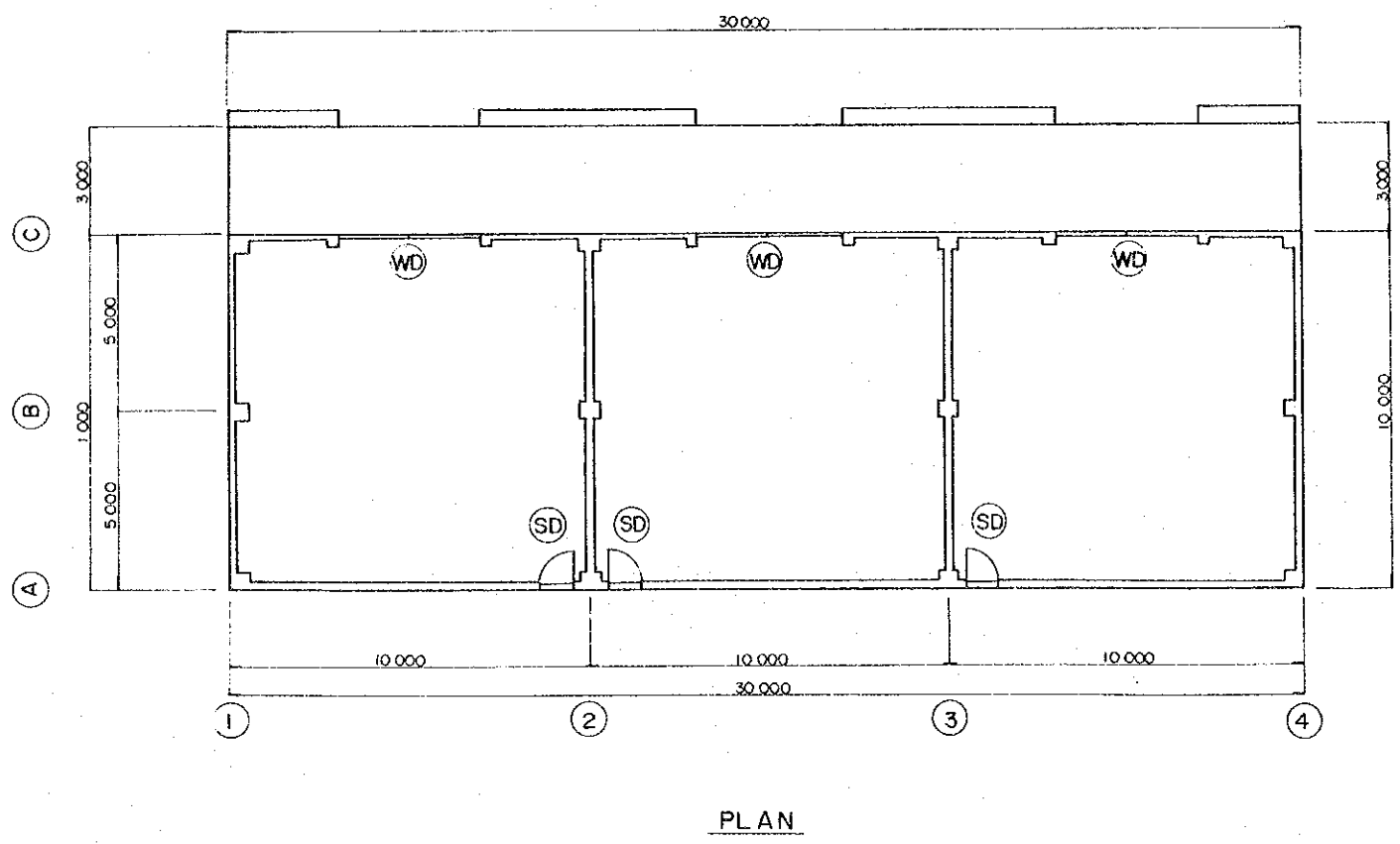
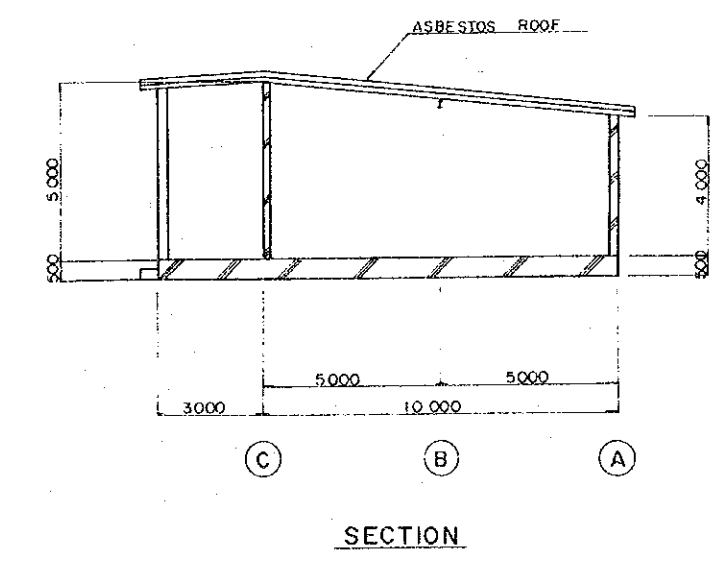
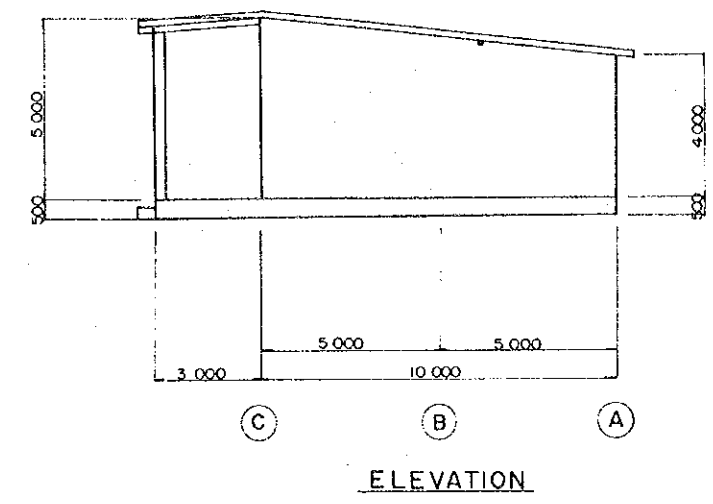
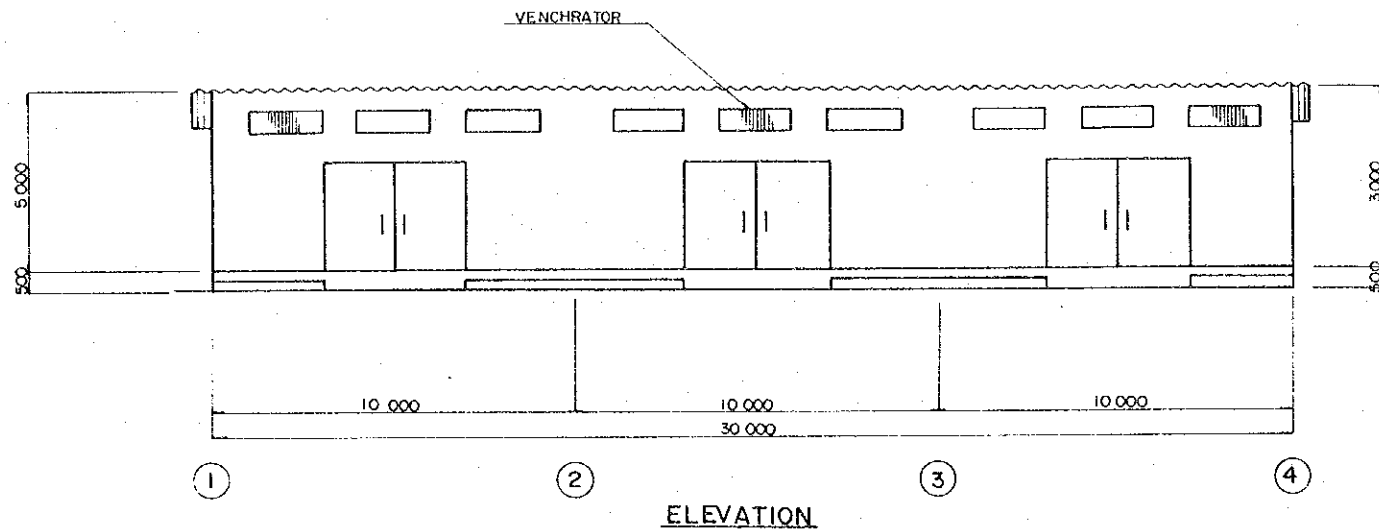
AGRITEX REPUBLIC OF ZIMBABWE	
THE FEASIBILITY STUDY ON THE NYAKOMBA IRRIGATION DEVELOPMENT PROJECT	
NPMO SUB OFFICE	
JAPAN INTERNATIONAL COOPERATION AGENCY	
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MAIN GARAGE AND WORK SHOP S = 1/100



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THE FEASIBILITY STUDY ON THE NYAKOMBA IRRIGATION DEVELOPMENT PROJECT	
MAIN GARAGE AND WORK SHOP	
JAPAN INTERNATIONAL COOPERATION AGENCY	
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WARE HOUSE S=1/100

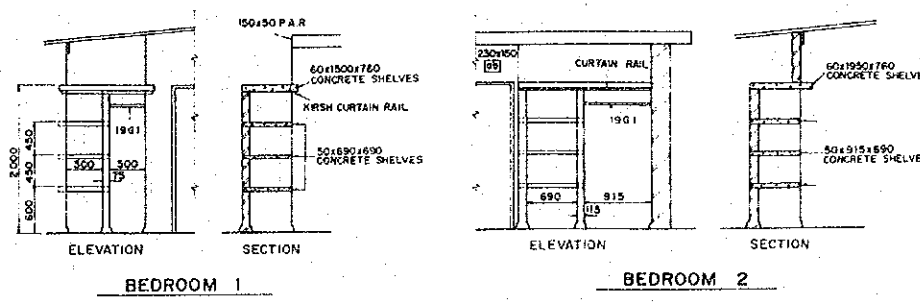
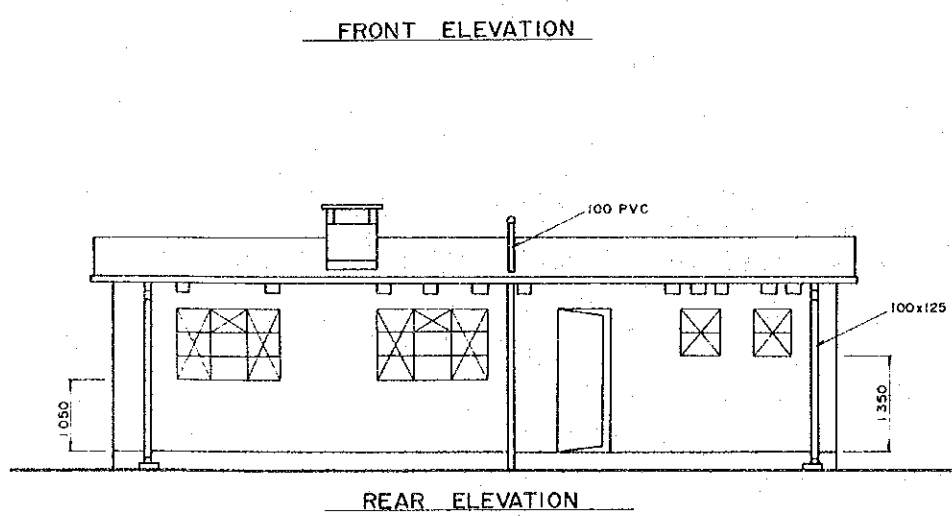
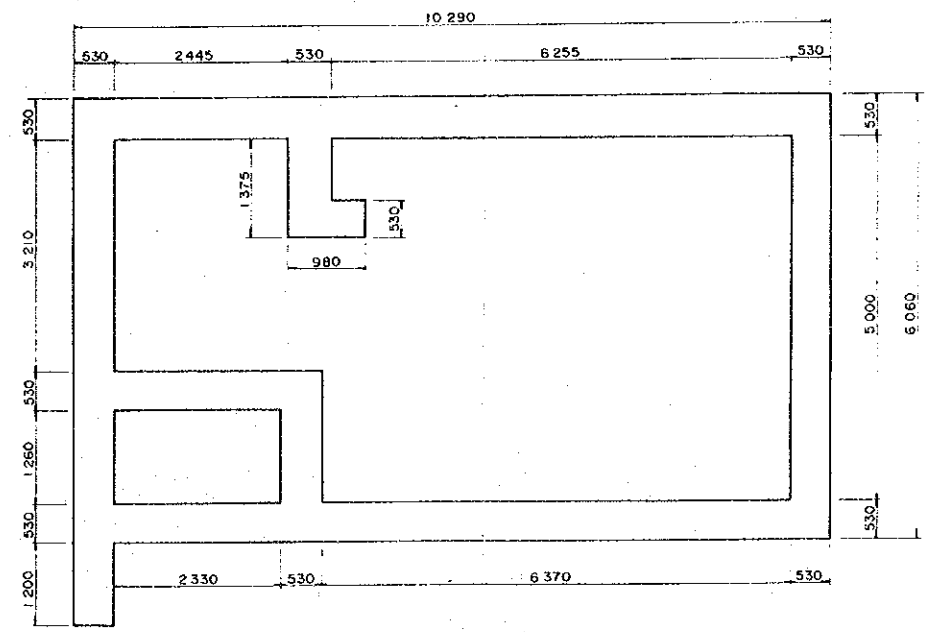
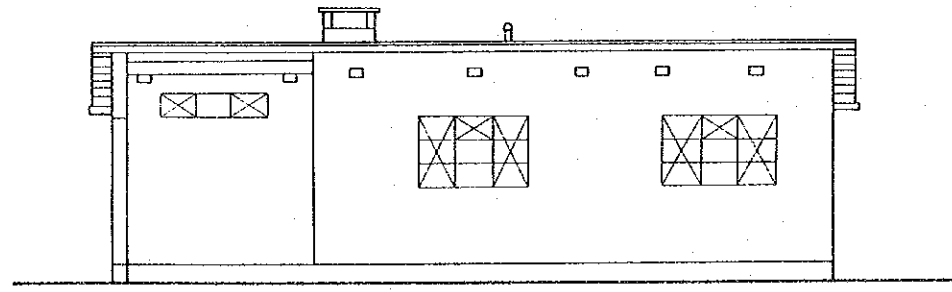
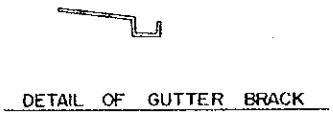
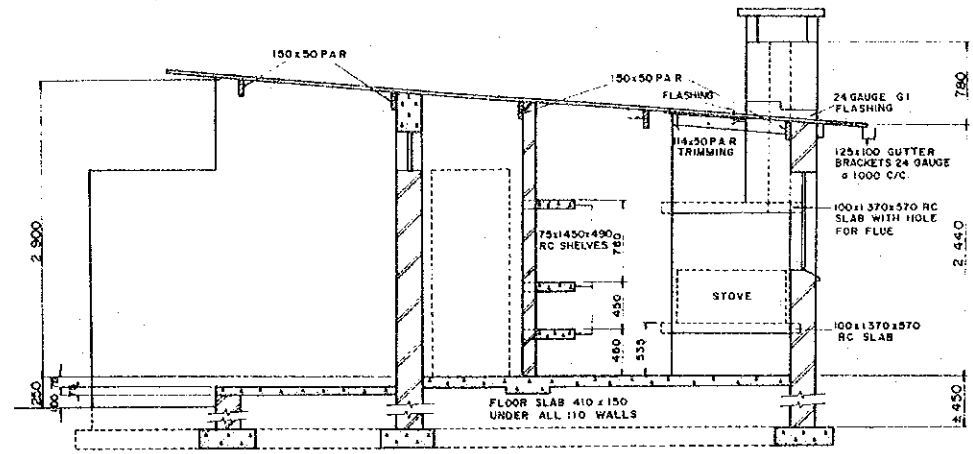
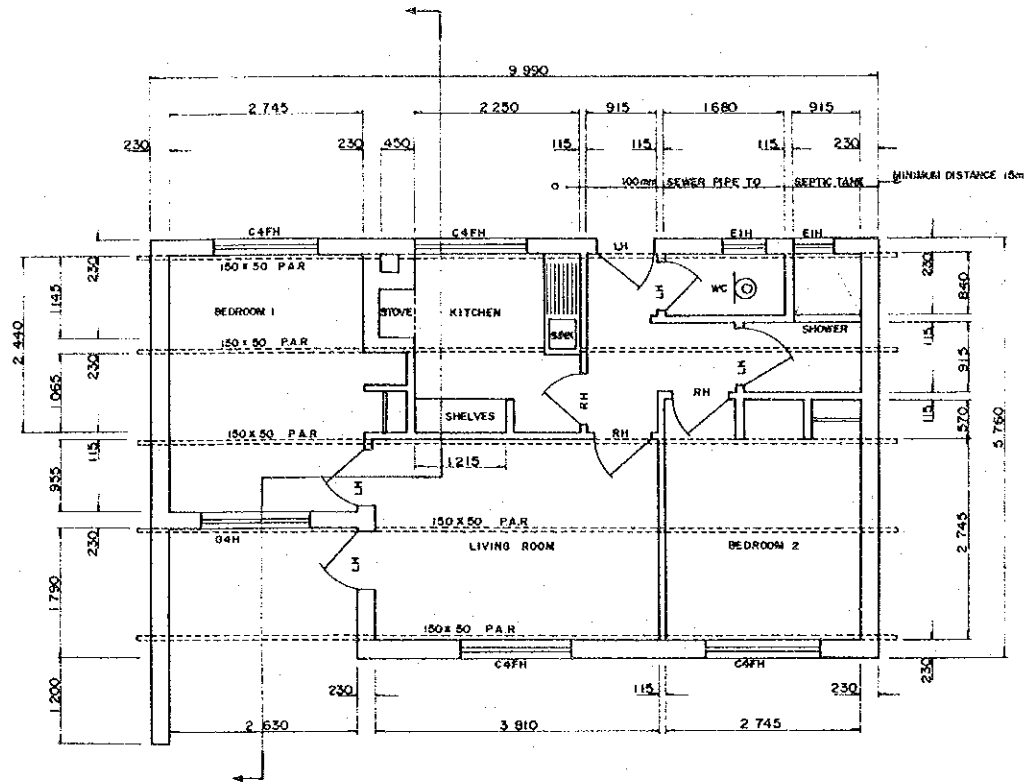


- (SD) ; STEEL DOOR
- (WD) ; WOODEN DOOR

AGRITEX REPUBLIC OF ZIMBABWE	
THE FEASIBILITY STUDY ON THE NYAKOMBA IRRIGATION DEVELOPMENT PROJECT	
WARE HOUSE	
JAPAN INTERNATIONAL COOPERATION AGENCY	
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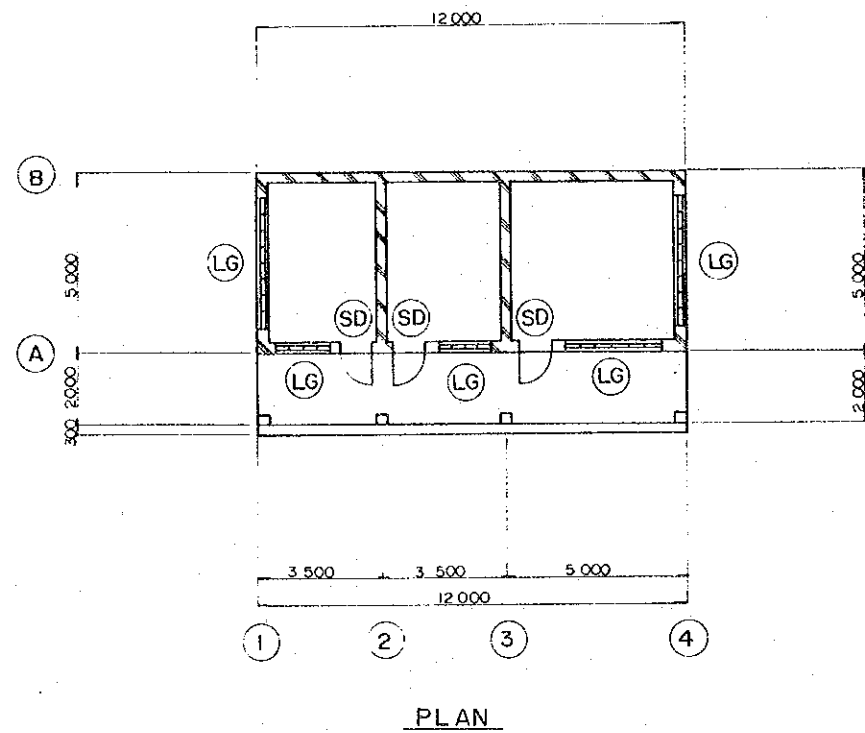
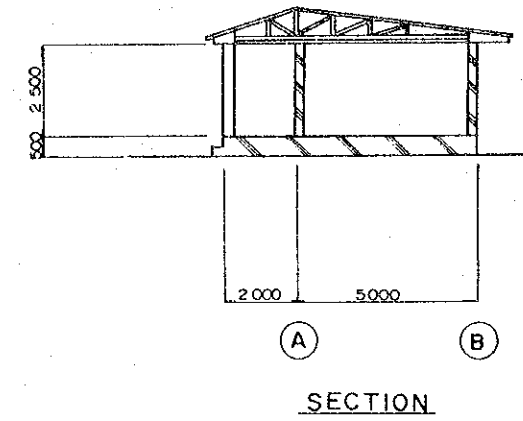
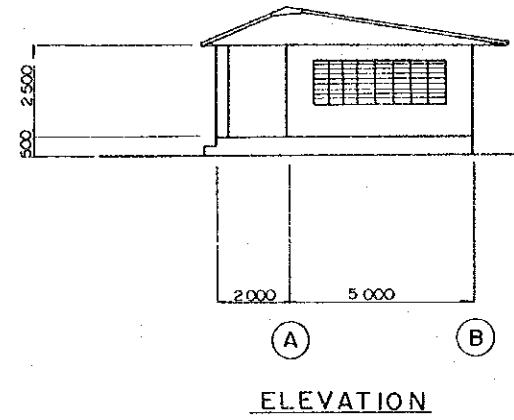
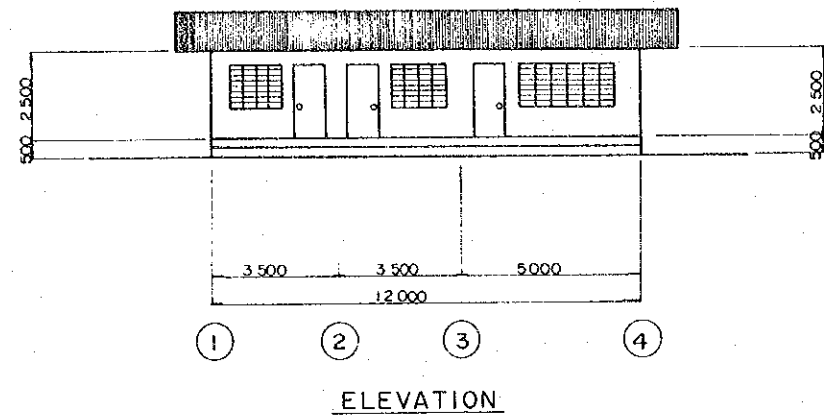
STAFF QUARTER

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AGRITEX REPUBLIC OF ZIMBABWE	
THE FEASIBILITY STUDY ON THE NYAKOMBA IRRIGATION DEVELOPMENT PROJECT	
STAFF QUARTER	
JAPAN INTERNATIONAL COOPERATION AGENCY	
DWG. NO. 19	SHEET 5 OF 5

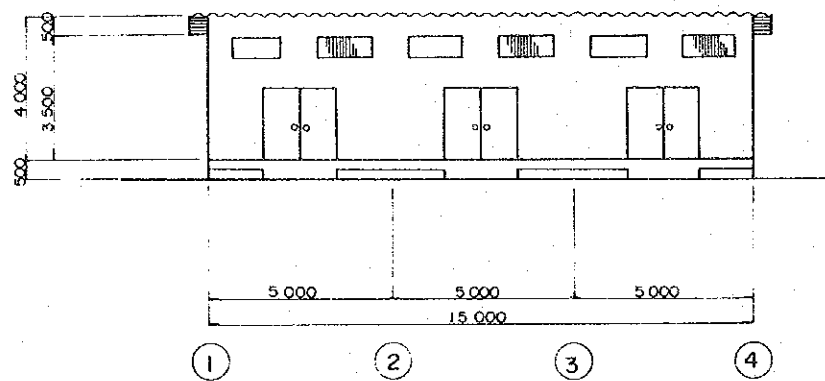
OFFICE OF MARKETING FACILITIES S-17/100



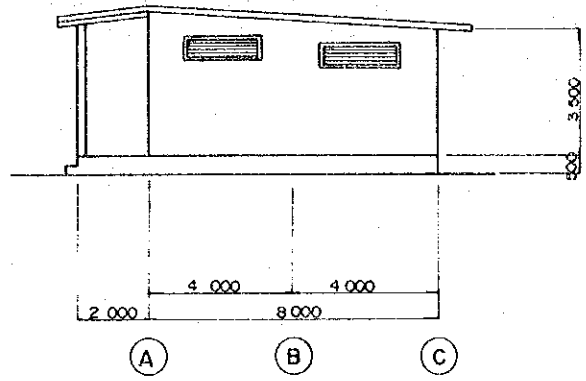
(SD) ; STEEL DOOR
 (LG) ; GLASS LOUVER

AGRITEX REPUBLIC OF ZIMBABWE	
THE FEASIBILITY STUDY ON THE NYAKOMBA IRRIGATION DEVELOPMENT PROJECT	
OFFICE OF MARKETING FACILITIES	
JAPAN INTERNATIONAL COOPERATION AGENCY	
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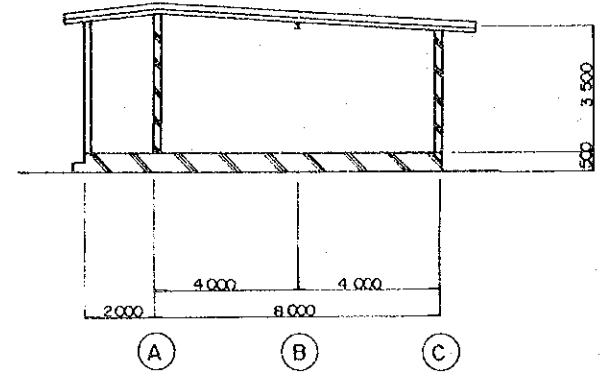
WARE HOUSE OF MARKETING FACILITIES S-1/100



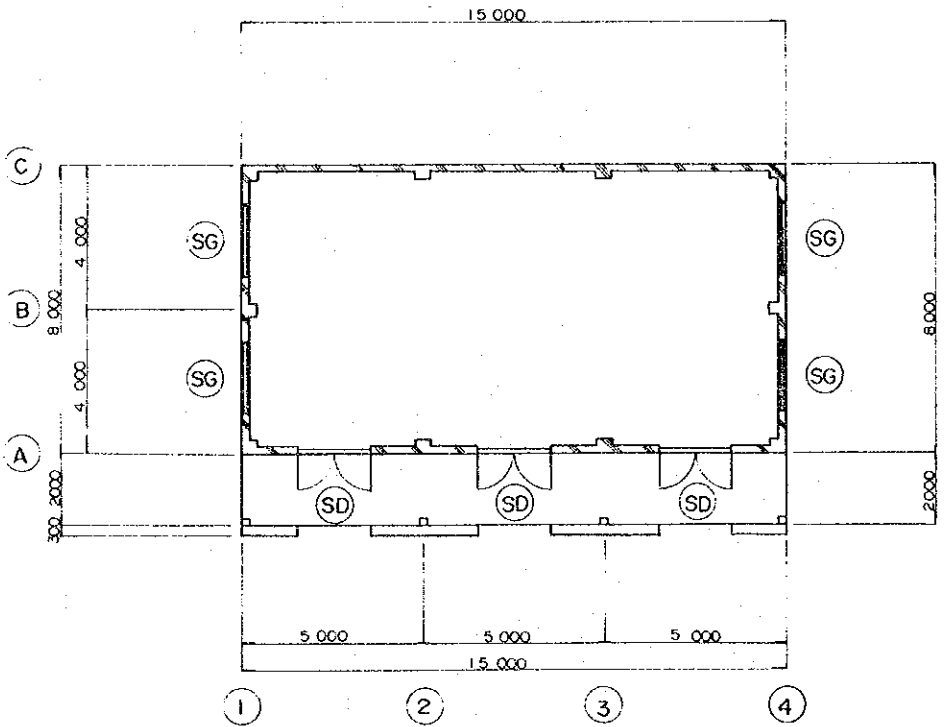
ELEVATION



ELEVATION



SECTION



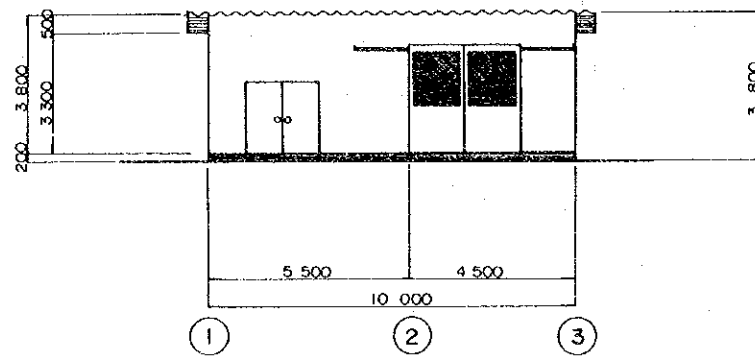
PLAN

(SD) ; STEEL DOOR

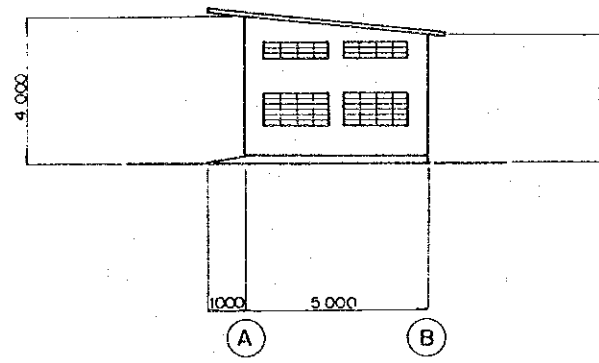
AGRITEX REPUBLIC OF ZIMBABWE	
THE FEASIBILITY STUDY ON THE NYAKOMBA IRRIGATION DEVELOPMENT PROJECT	
WARE HOUSE OF MARKETING FACILITIES	
JAPAN INTERNATIONAL COOPERATION AGENCY	
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GARAGE OF MARKETING FACILITIES

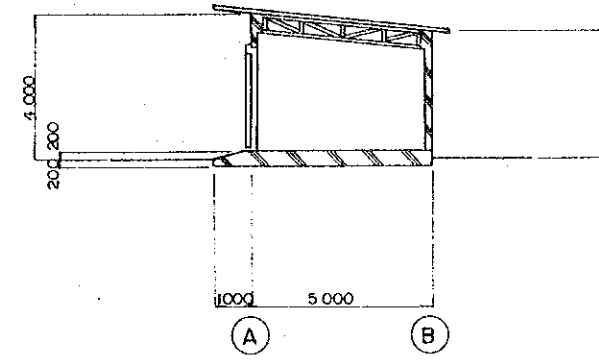
S-17/100



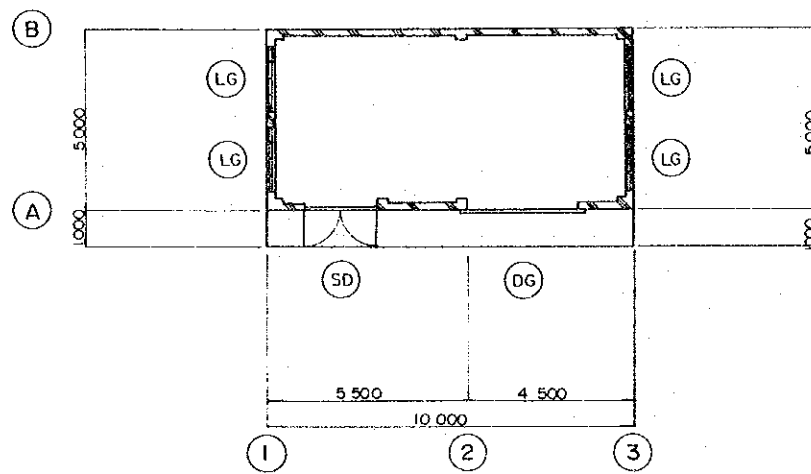
ELEVATION



ELEVATION



SECTION

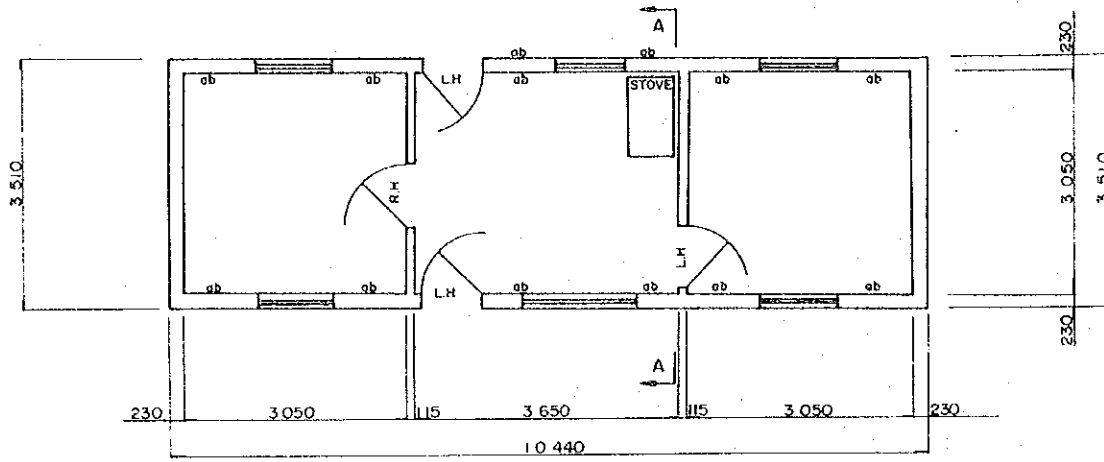


PLAN

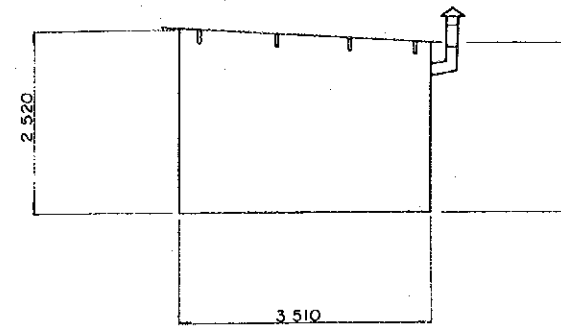
⊙ LG ; GLASS LOUVER
 ⊙ SD ; STEEL DOOR

AGRITEX REPUBLIC OF ZIMBABWE	
THE FEASIBILITY STUDY ON THE NYAKOMBA IRRIGATION DEVELOPMENT PROJECT	
GARAGE OF MARKETING FACILITIES	
JAPAN INTERNATIONAL COOPERATION AGENCY	
DWG. NO. 22	SHEET 3 OF 4

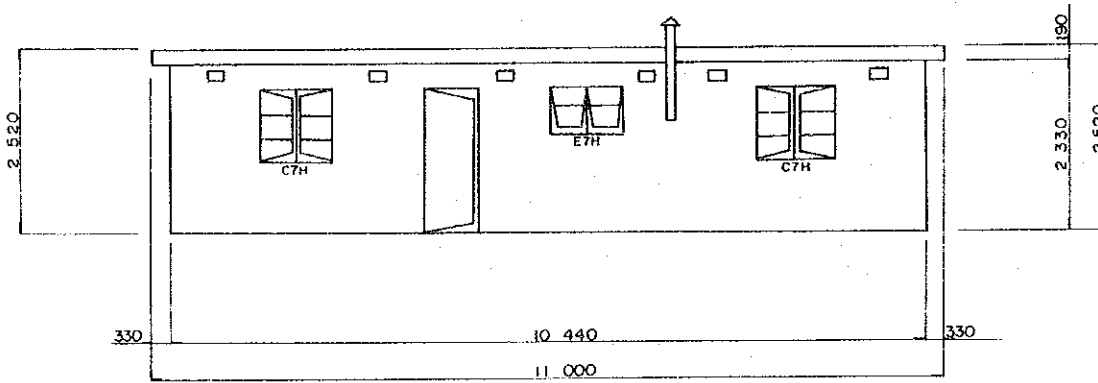
PUMP OPERATOR QUARTER S - 1/50



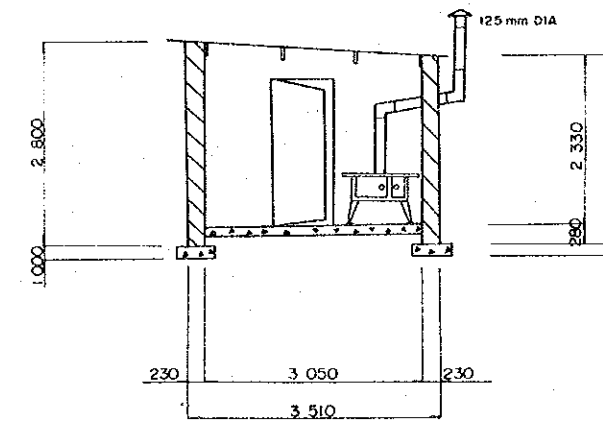
FLOOR PLAN



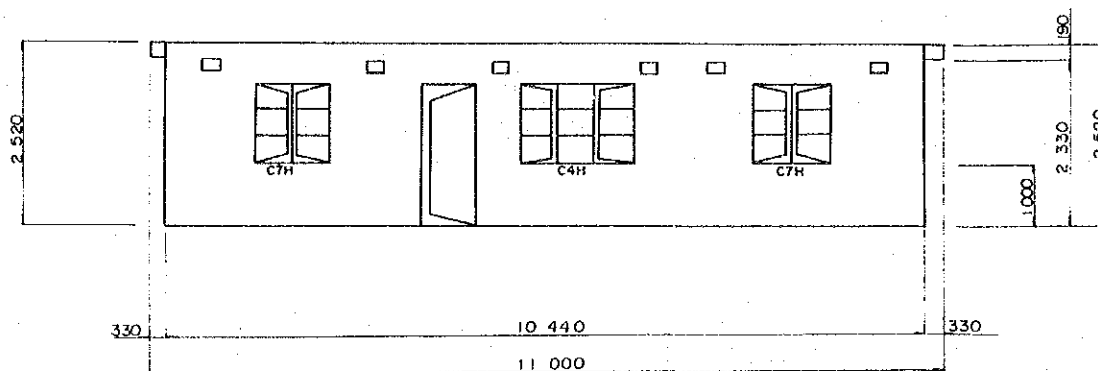
SIDE ELEVATION



BACK ELEVATION



SIDE SECTION A-A



FRONT ELEVATION

AGRITEX REPUBLIC OF ZIMBABWE	
THE FEASIBILITY STUDY ON THE NYAKOMBA IRRIGATION DEVELOPMENT PROJECT	
PUMP OPERATOR QUARTER	
JAPAN INTERNATIONAL COOPERATION AGENCY	
DWG. NO. 23	SHEET 4 OF 4

JICA



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