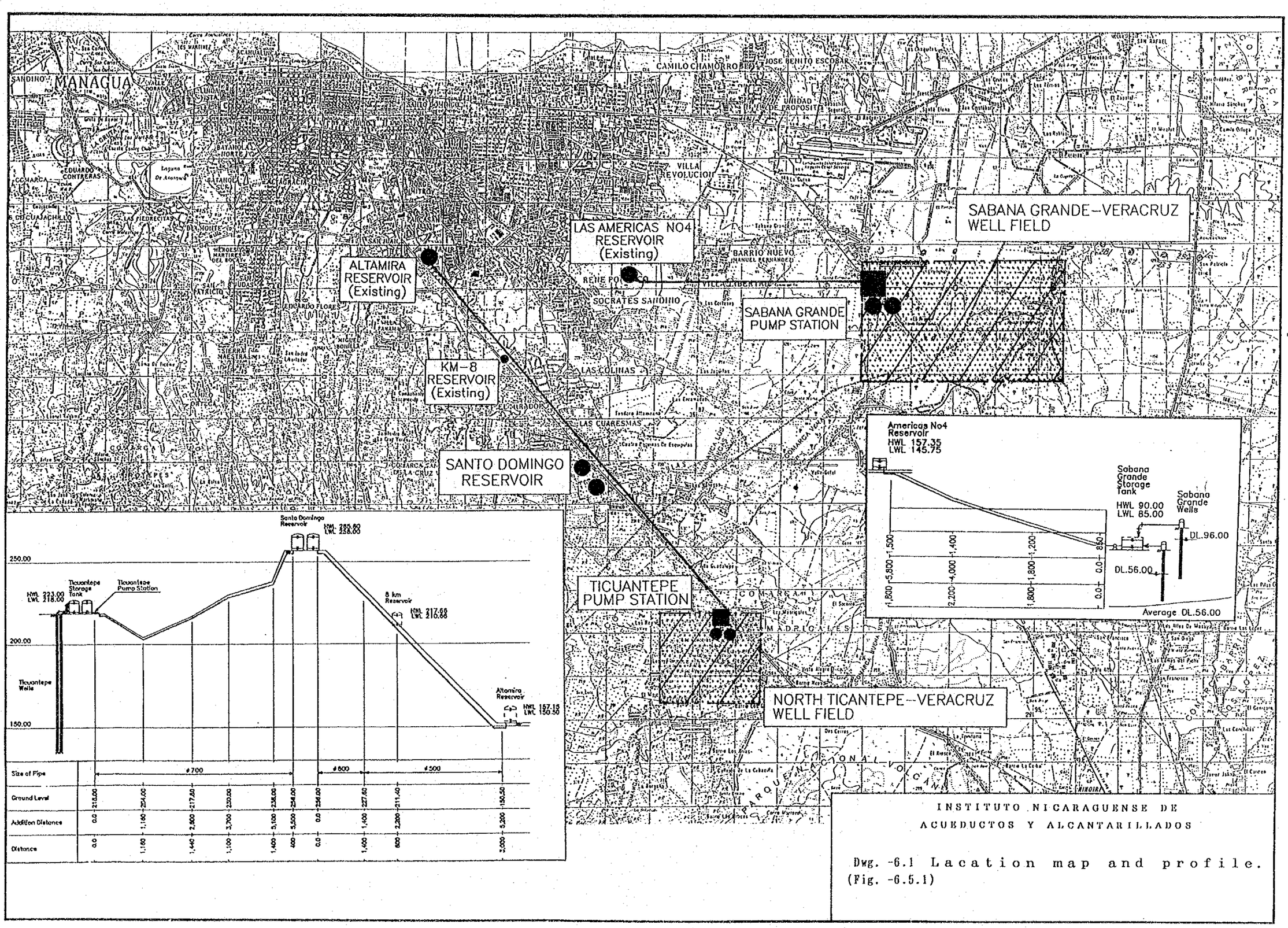
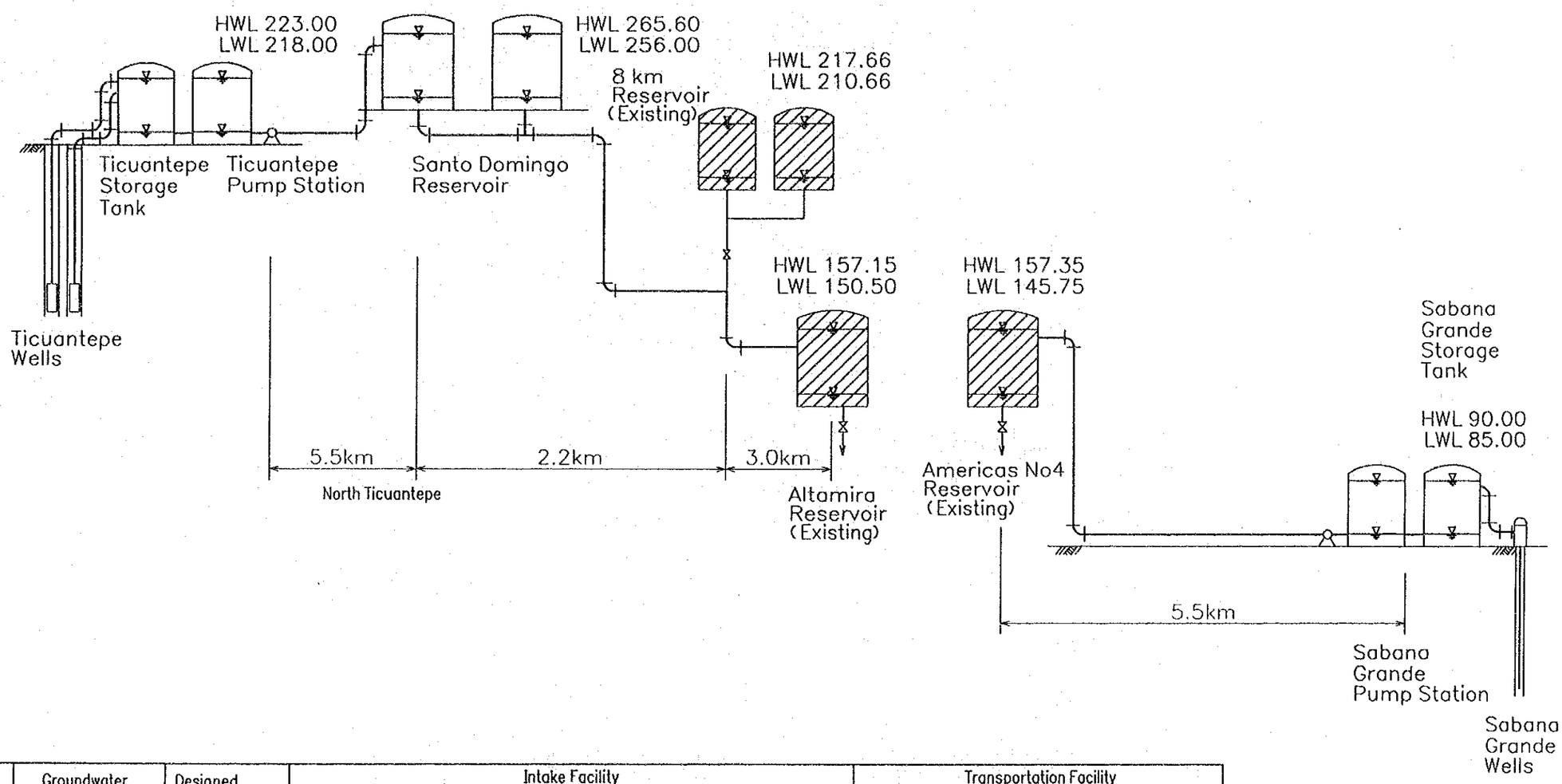
4. DRAWINGS

OF WATER SUPPLY DESIGN



INSTITUTO NICARAGUENSE DE ACUEDUCTOS Y ALCANTARILLADOS

Dwg. -6.1 Lacation map and profile. (Fig. -6.5.1)



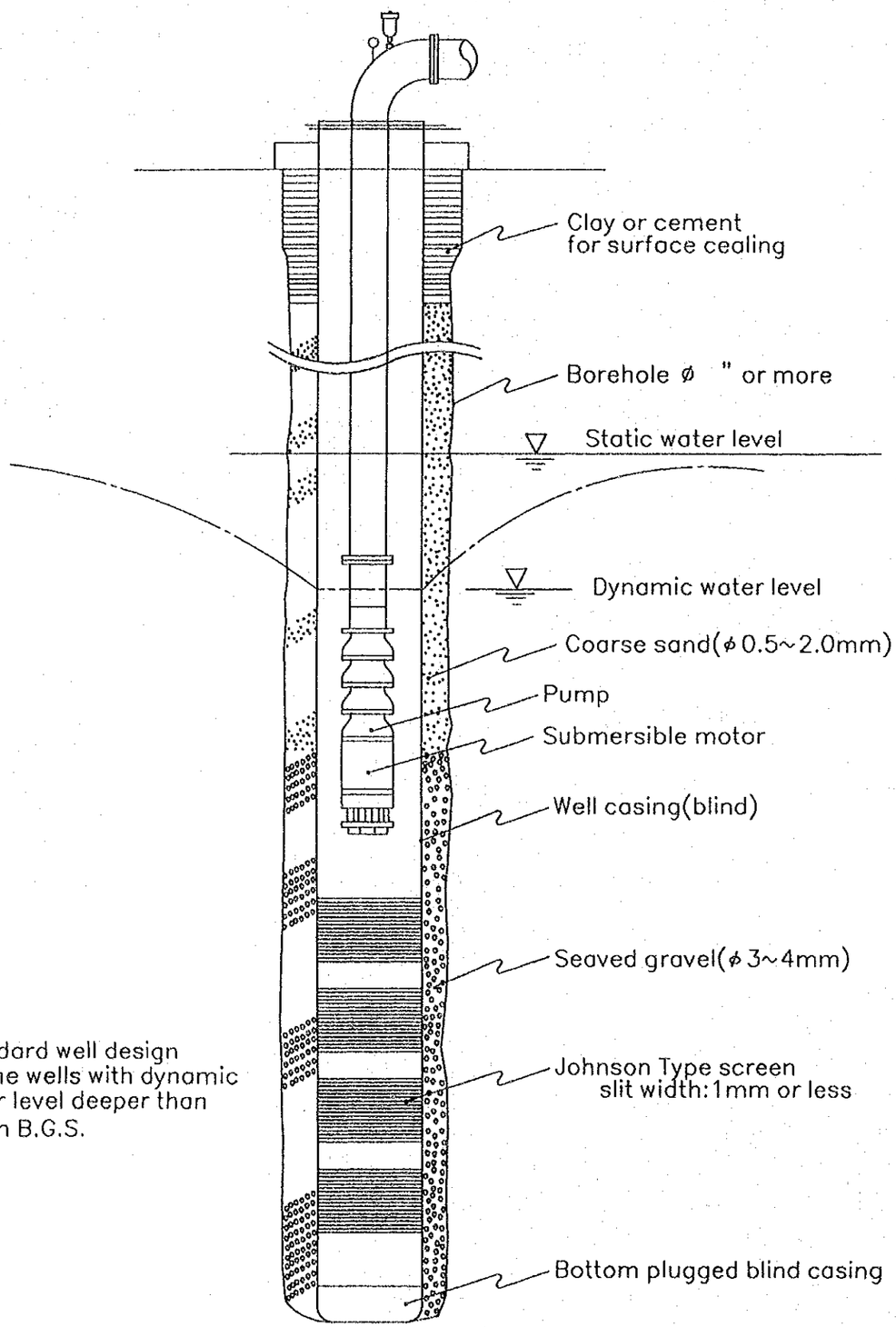
Phase	Groundwater Source	Designed Capacity	Intake Facility			Transportation Facility		
			Pump		Well	Pump	Reservoir	Pipe
I	North Ticuantepe – Veracruz	MGD 18.74	Discharge	3.7 m3/min	(Specific capacity 19,464 m3/d/m)	12.5 m3/min x 82 m	1,500 m3 x 2	300φ 1,300 m
			Head	117.0 m	(Dynamic water level EL.107 m)	1800 rpm x 250 kw	11,000 m3 x 2	500φ 3,800 m
			Pump diameter	8 inch	Well diameter 14"~12 3/4"	Pump House		600φ 1,400 m
			Horse Power	132 kw	Well location arrangement	240 m2 x 1		700φ 5,500 m
			Rotation	3600 rpm	group wells, 250 m depth	40 m2 x 14		total 12,000 m
			Number of Unit	14 unit	Number of well 14 unit	5 unit		
II	Sabana Grande – Veracruz	29.84	Discharge	4.1 m3/min	(Specific capacity 687 m3/d/m)	19.6 m3/min x 90 m	15,000 m3 x 2	300φ 700 m
			Head	45.0 m	(Dynamic water level EL.56-96 m)	1800 rpm x 400 kw		400φ 3,700 m
			Pump diameter	8 inch	Well diameter 14"~12 3/4"	Pump House		450φ 2,000 m
			Horse Power	55 kw	Well location arrangement	490 m2 x 1		500φ 1,000 m
			Rotation	1800 rpm	500 interval, 200 m depth	40 m2 x 19		600φ 1,500 m
			Number of Unit	19 unit	Number of well 19 unit	5 unit		700φ 2,000 m
								800φ 1,000 m
								1000φ 5,800 m
								total 17,700 m

INSTITUTO NICARAGUENSE DE ACUEDUCTOS Y ALCANTARILLADOS

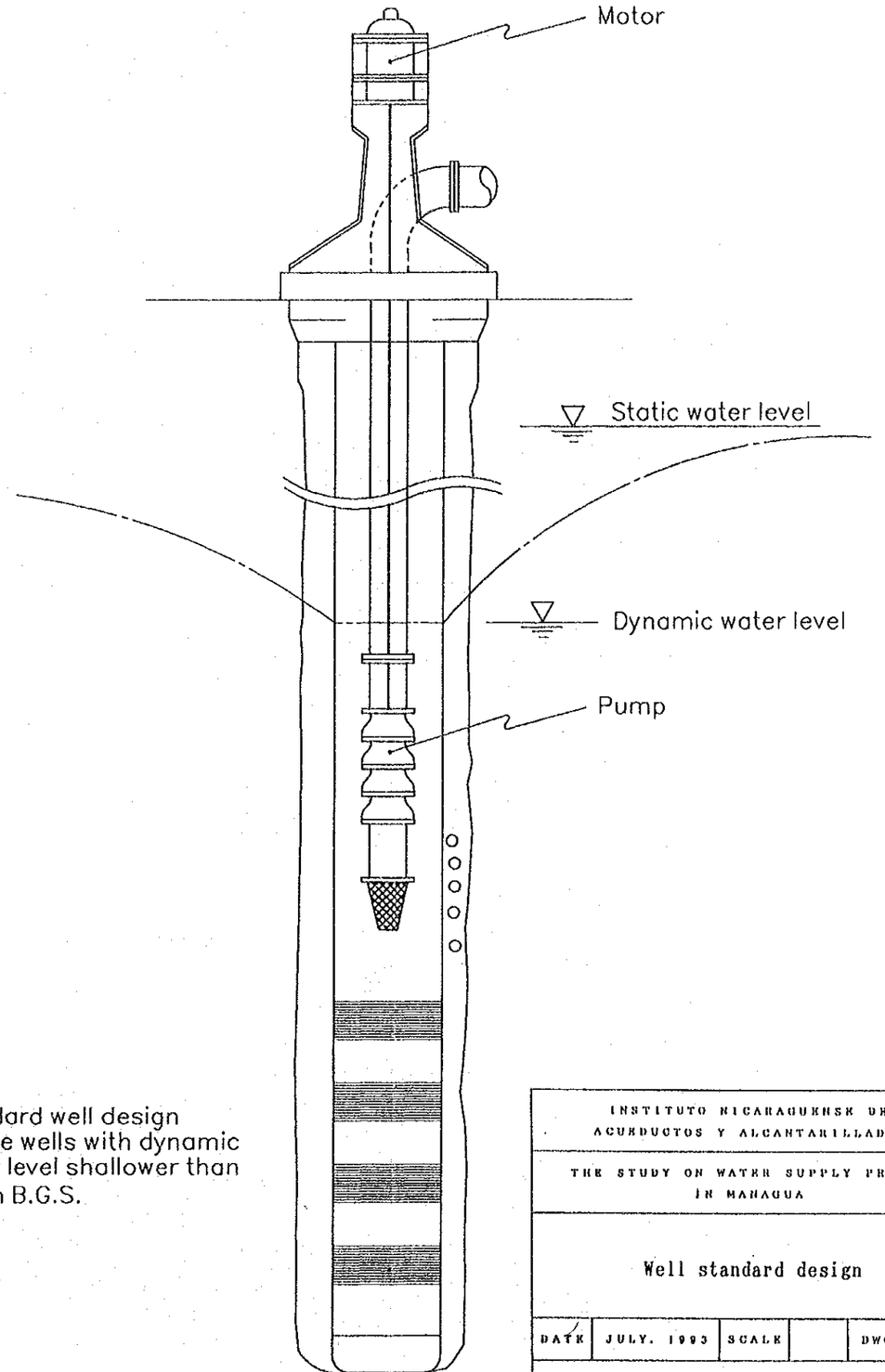
THE STUDY ON WATER SUPPLY PROJECT IN MANAGUA

Total facility plan for phase 1 and 2 of the Project

DATE JULY. 1993 | SCALE | DWG. 6.2

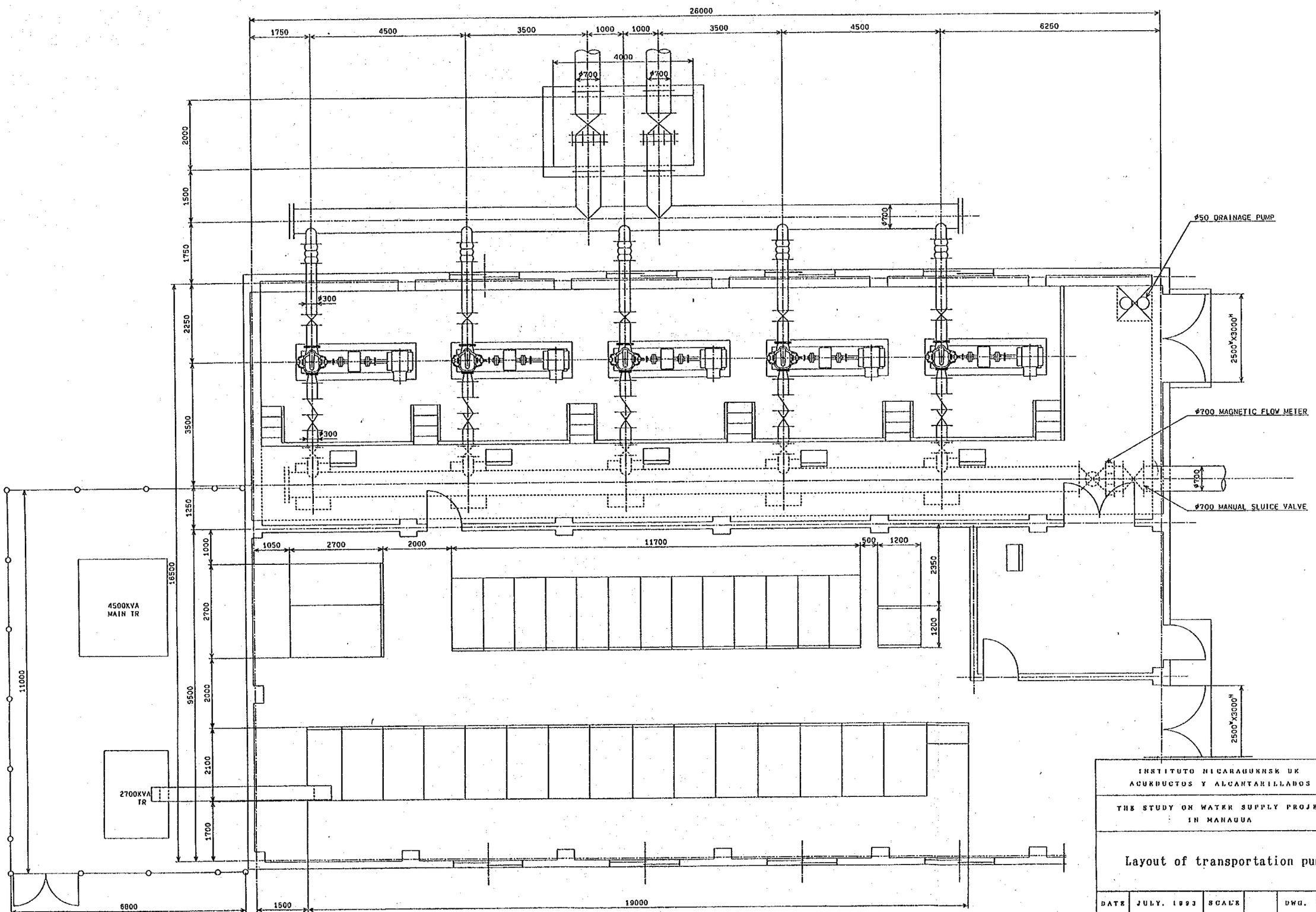


Standard well design
for the wells with dynamic
water level deeper than
100m B.G.S.



Standard well design
for the wells with dynamic
water level shallower than
100m B.G.S.

INSTITUTO NICARAGUENSE DE ACUEDUCTOS Y ALCANTARILLADOS					
THE STUDY ON WATER SUPPLY PROJECT IN MANAGUA					
Well standard design					
DATE	JULY. 1993	SCALE		DWG.	6.3



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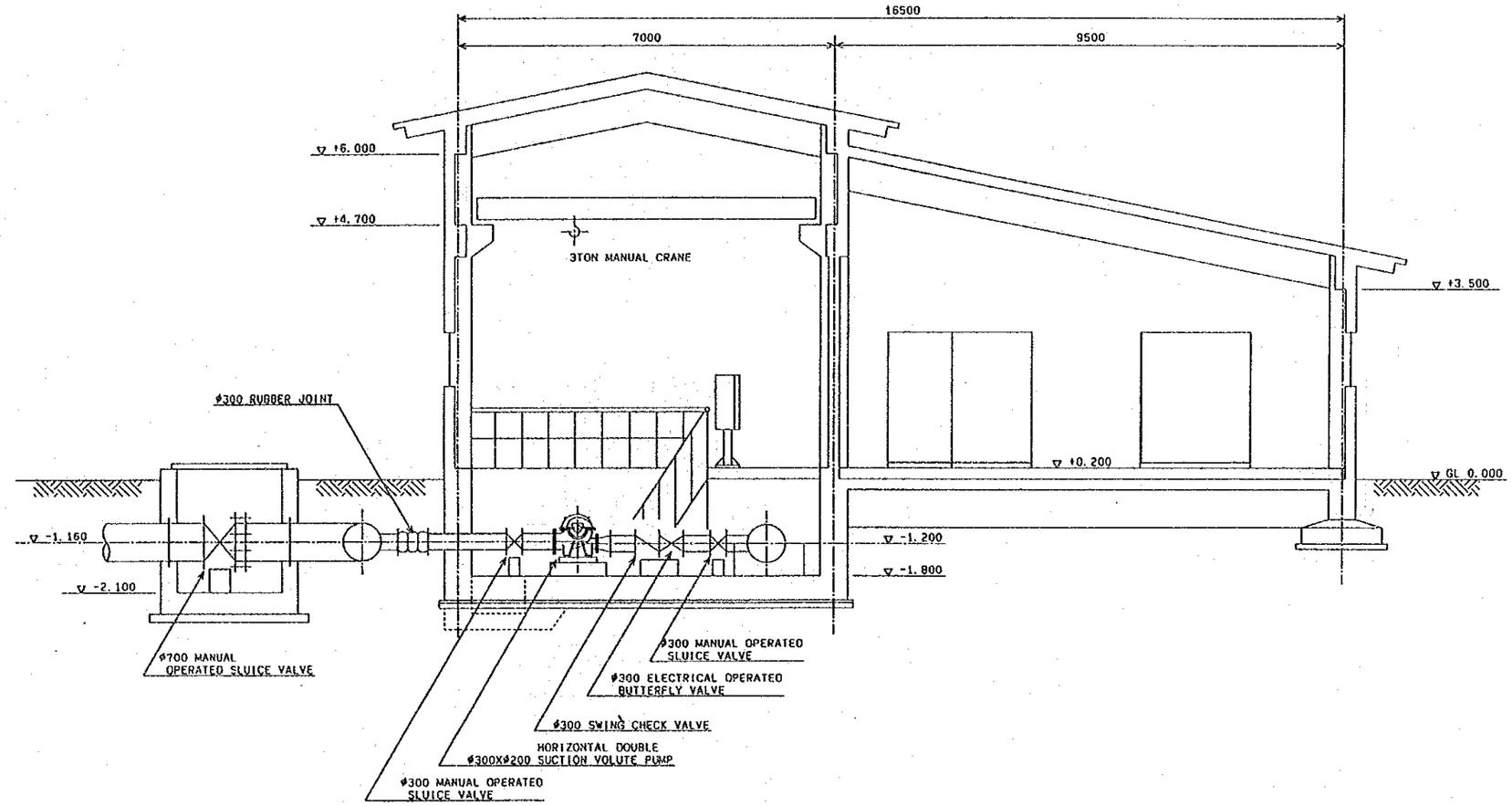
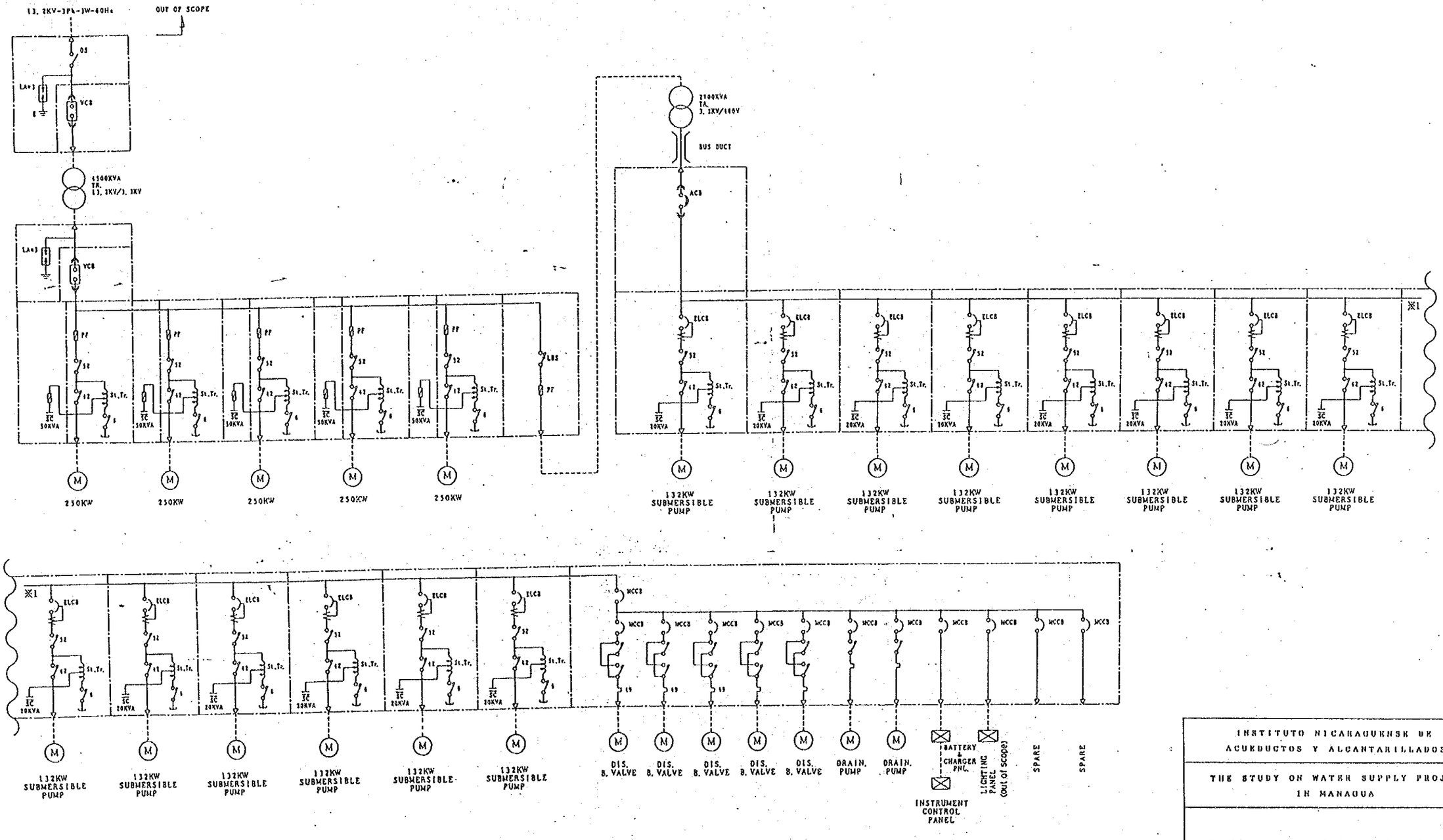
THE STUDY ON WATER SUPPLY PROJECT IN MANAGUA

Layout of transportation pump

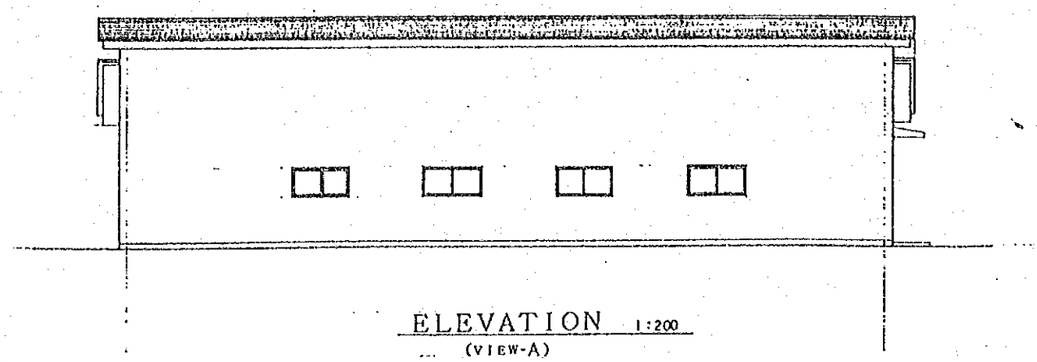
DATE	JULY. 1993	SCALE		DWG.	6.4



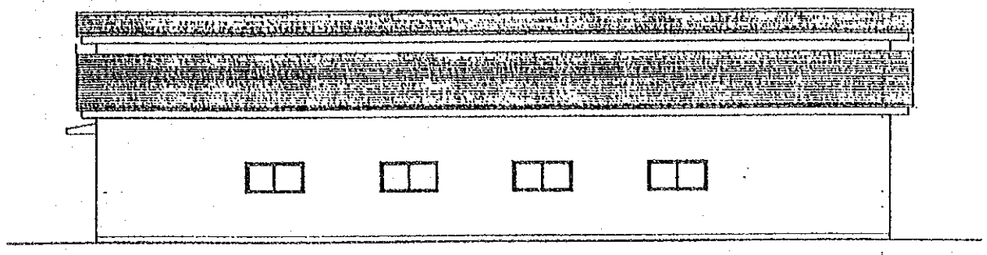
INSTITUTO NICARAGUENSE DE ACUEDUCTOS Y ALCANTARILLADOS					
THE STUDY ON WATER SUPPLY PROJECT IN MANAGUA					
Section of transportation pump					
DATE	JULY, 1993	SCALE		DWG.	6.5



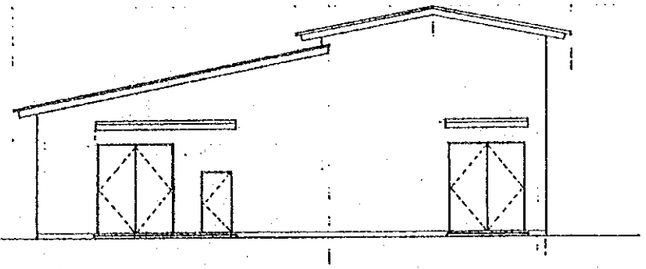
INSTITUTO NICARAGUENSE DE ACUEDUCTOS Y ALCANTARILLADOS					
THE STUDY ON WATER SUPPLY PROJECT IN MANAGUA					
Outline of electric system for pump					
DATE	JULY, 1993	SCALE		DWG.	6.6



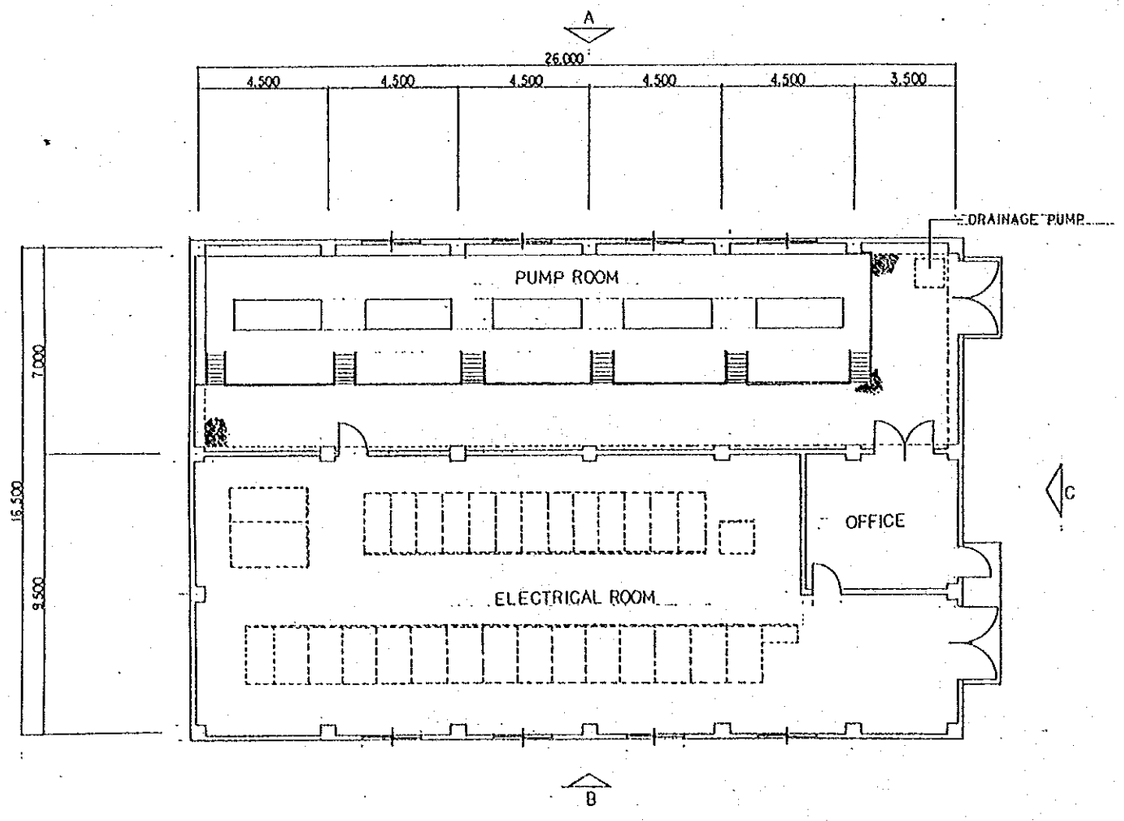
ELEVATION 1:200
(VIEW-A)



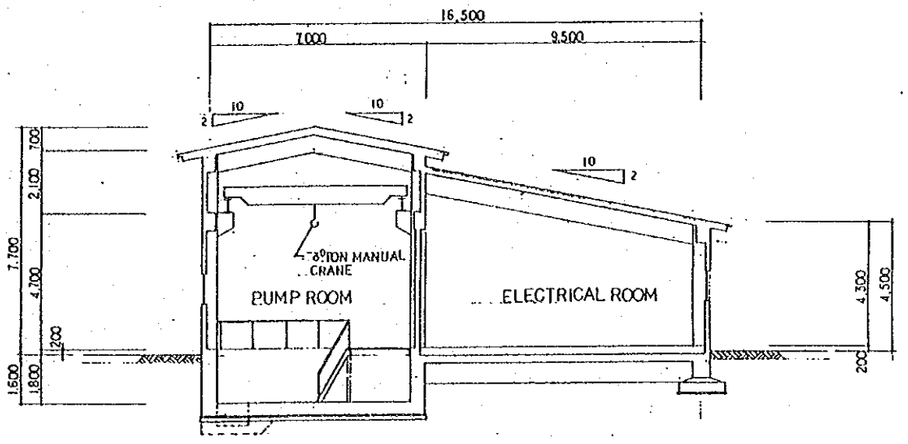
ELEVATION 1:200
(VIEW-B)



(VIEW-C) ELEVATION 1:200

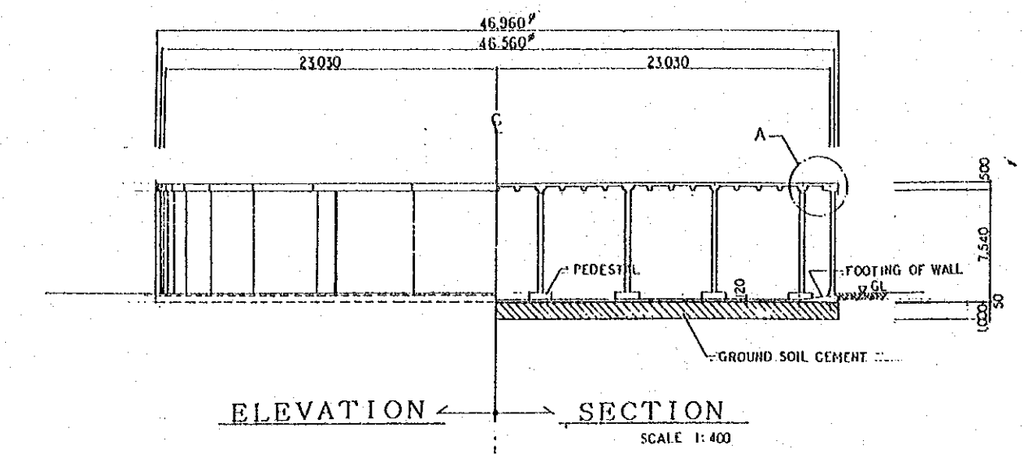


PLAN 1:200



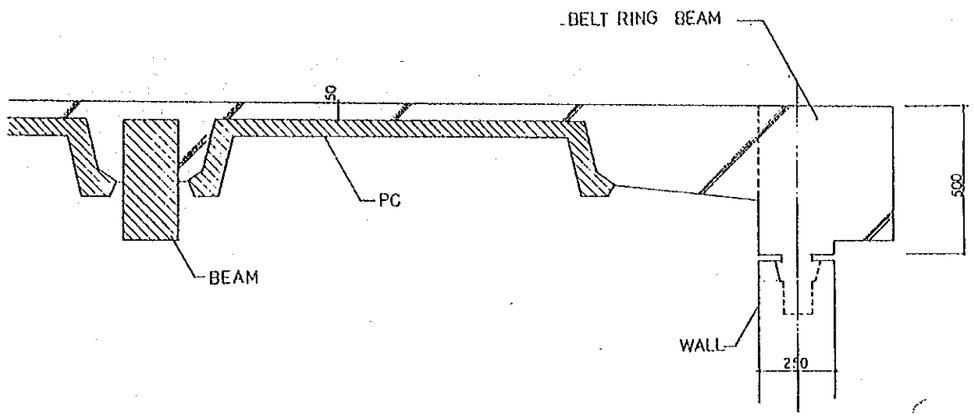
SECTION 1:200

INSTITUTO NICARAGUENSE DE ACUEDUCTOS Y ALCANTARILLADOS					
THE STUDY ON WATER SUPPLY PROJECT IN MANAGUA					
Outline of pump station room					
DATE	JULY. 1993	SCALE		DWG.	6.7

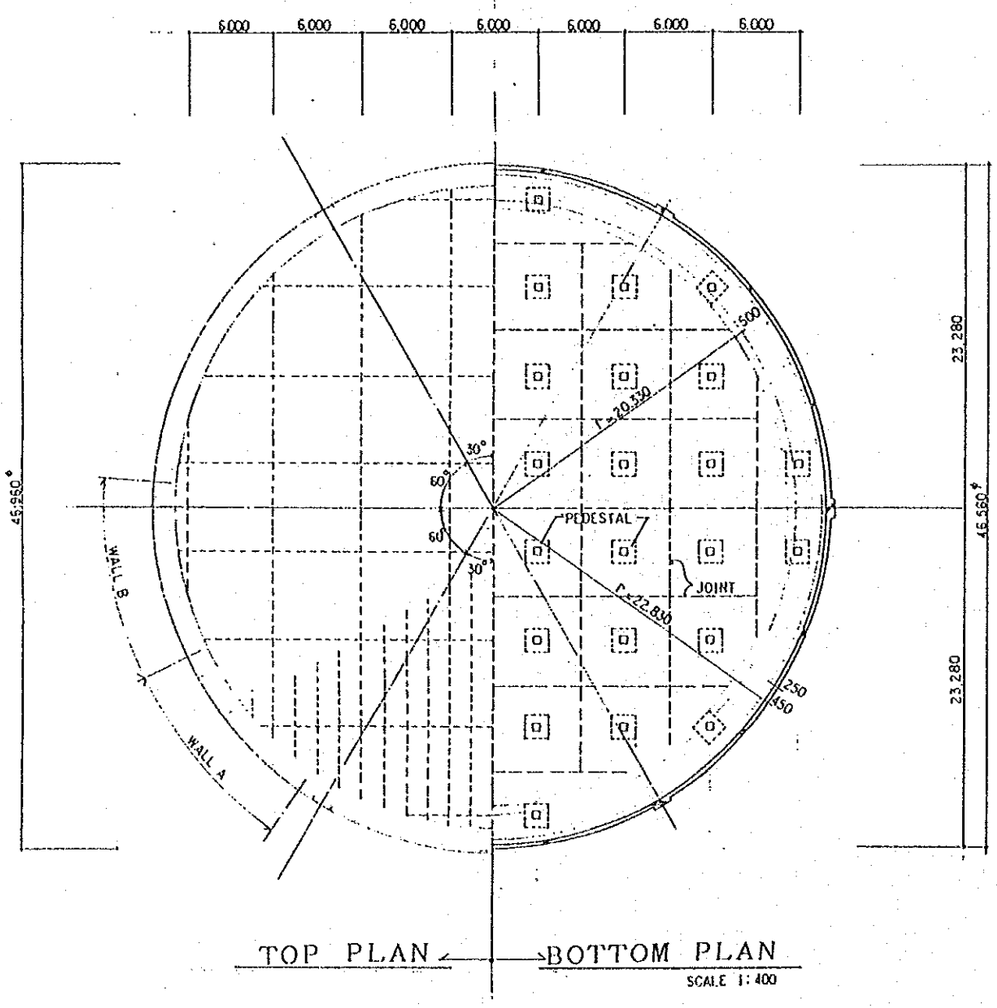


ELEVATION ← → SECTION

SCALE 1:400



DETIAL-A SCALE 1:20



TOP PLAN ← → BOTTOM PLAN

SCALE 1:400

11000 TON PC TANK

MATERIAL	SPECIFICATION	QUANTITY
CONCRETE	f_c = 100 kgf / cm²	165.0 m³
	f_c = 250 kgf / cm²	164.0 m³
	f_c = 350 kgf / cm²	830.0 m³
REINFORCING BAR	GRADE 60	149.5 TON
PRESTRESSING TENDON	ϕ 7 mm	85.0 TON
	ϕ 13 mm	5.5 TON

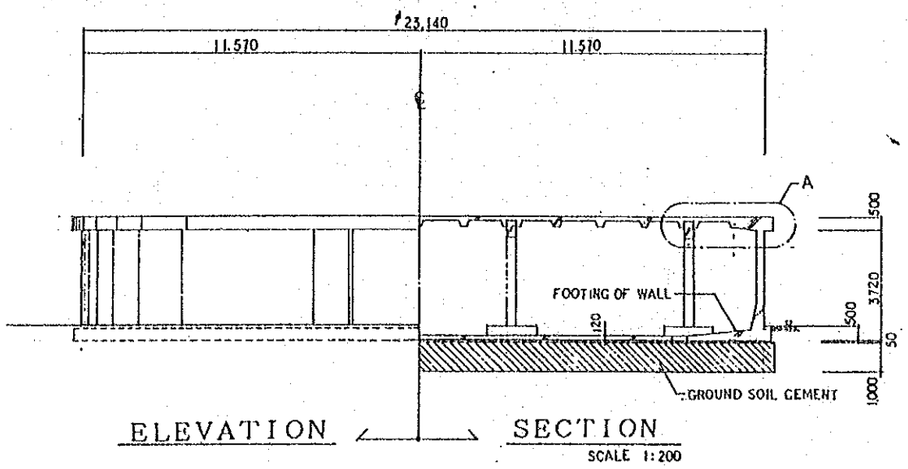
NOTE) f_c : CHARACTERISTIC COMPRESSIVE STRENGTH OF CONCRETE.

INSTITUTO NICARAGUENSE DE ACUEDUCTOS Y ALCANTARILLADOS

THE STUDY ON WATER SUPPLY PROJECT IN MANAGUA

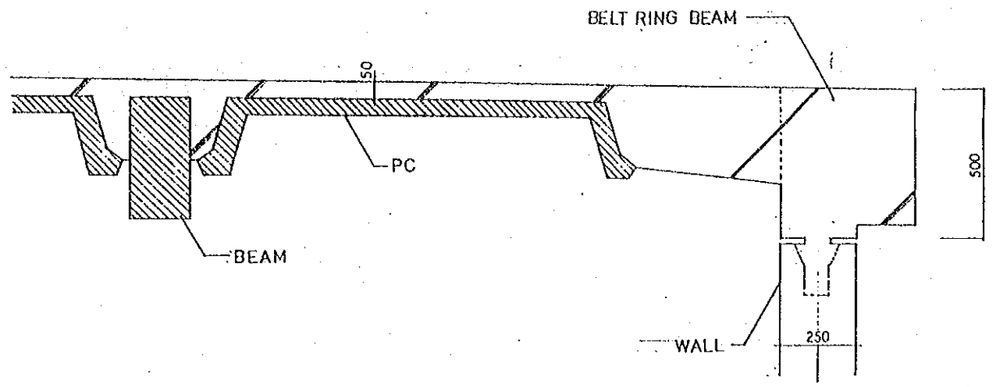
Outline of water tank 11,000m3

DATE	JULY. 1993	SCALE		DWG.	6.8

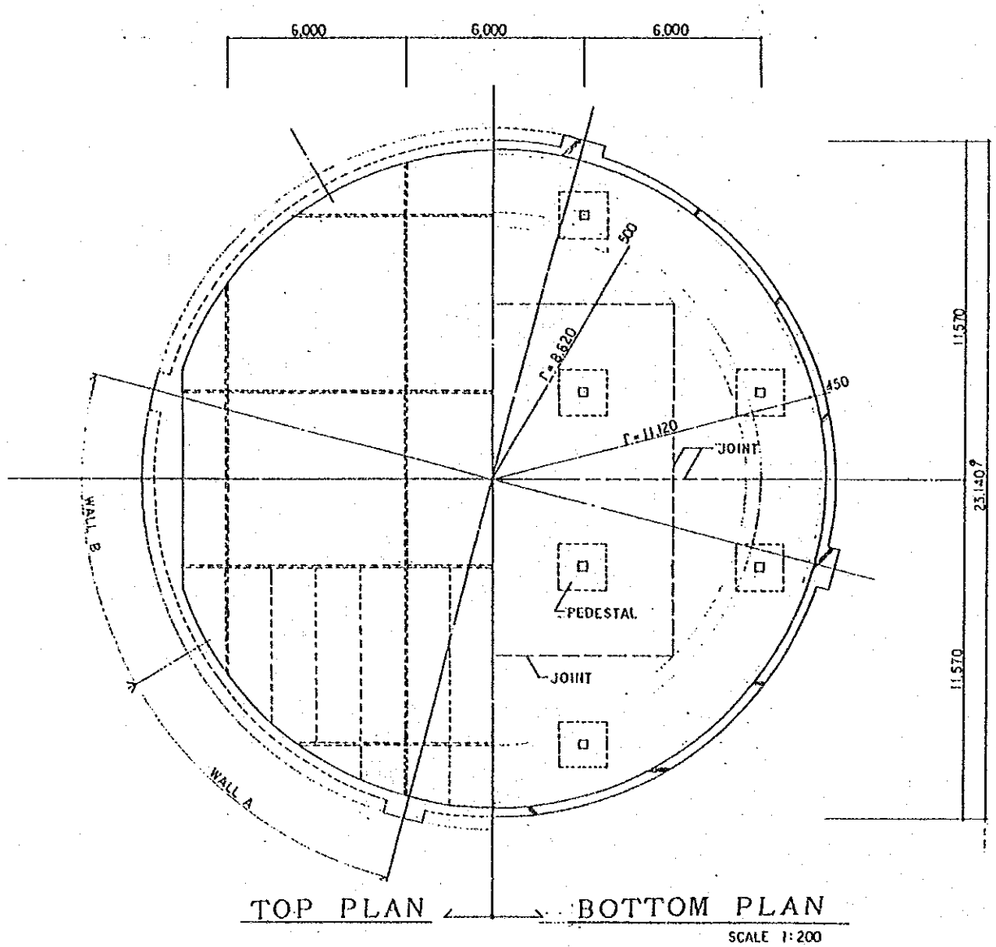


ELEVATION — SECTION

SCALE 1:200



DETIAL - A SCALE 1:20



TOP PLAN — BOTTOM PLAN

SCALE 1:200

1500 TON PC TANK

MATERIAL	SPECIFICATION	QUANTITY
CONCRETE	f_c = 100 kgf/cm²	98.0 m³
	f_c = 250 kgf/cm²	32.0 m³
	f_c = 350 kgf/cm²	290.0 m³
REINFORCING BAR.	GRADE 60	46.8 TON
PRESTRESSING TENDON	φ 7 mm	34.0 TON
	φ 13 mm	1.7 TON

NOTE) f_c : CHARACTERISTIC COMPRESSIVE STRENGTH OF CONCRETE.

INSTITUTO NICARAGUENSE DE ACUEDUCTOS Y ALCANTARILLADOS					
THE STUDY ON WATER SUPPLY PROJECT IN MANAGUA					
Outline of water tank 1,500m3					
DATE	JULY. 1993	SCALE		DWG.	6.9