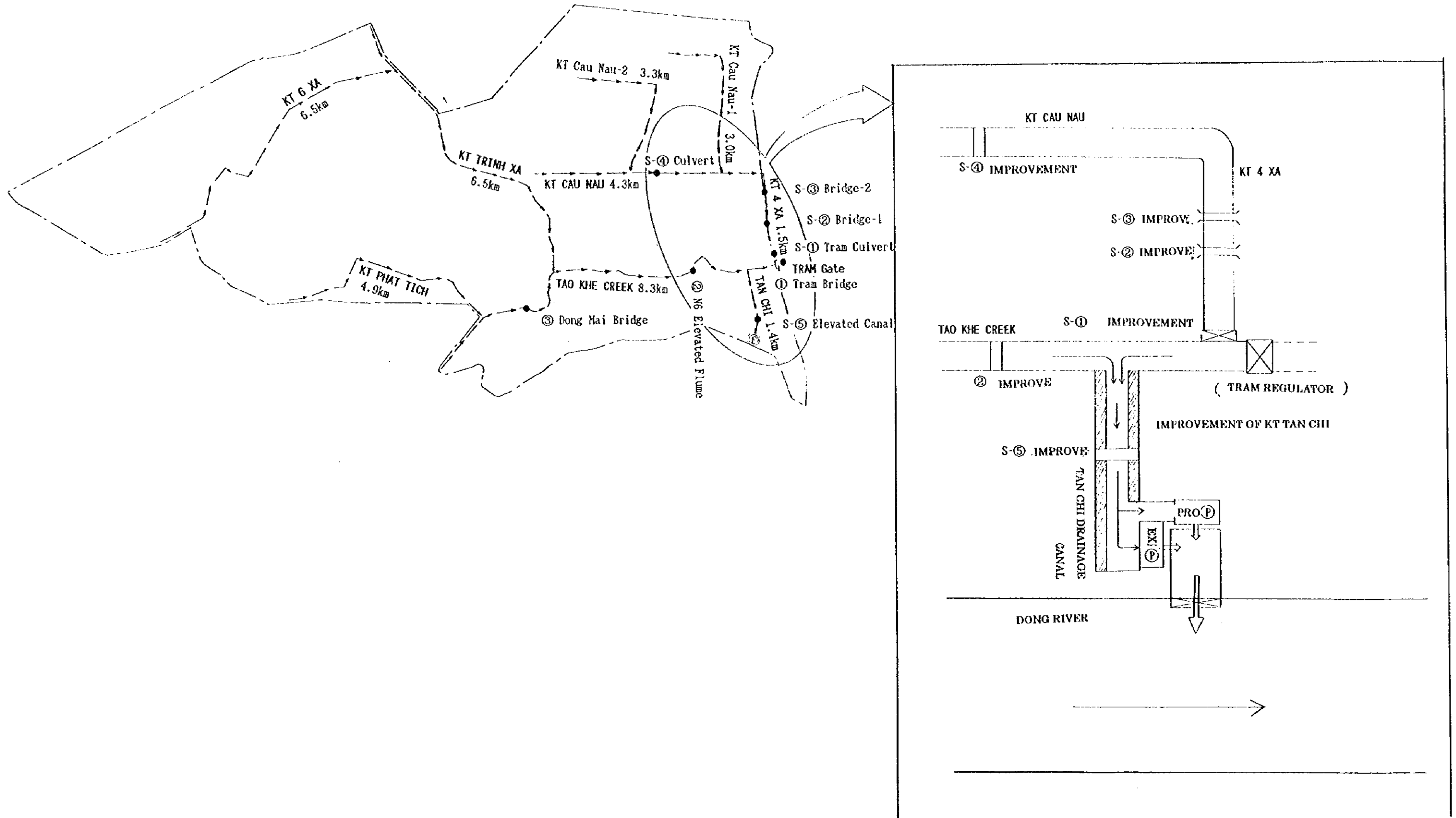
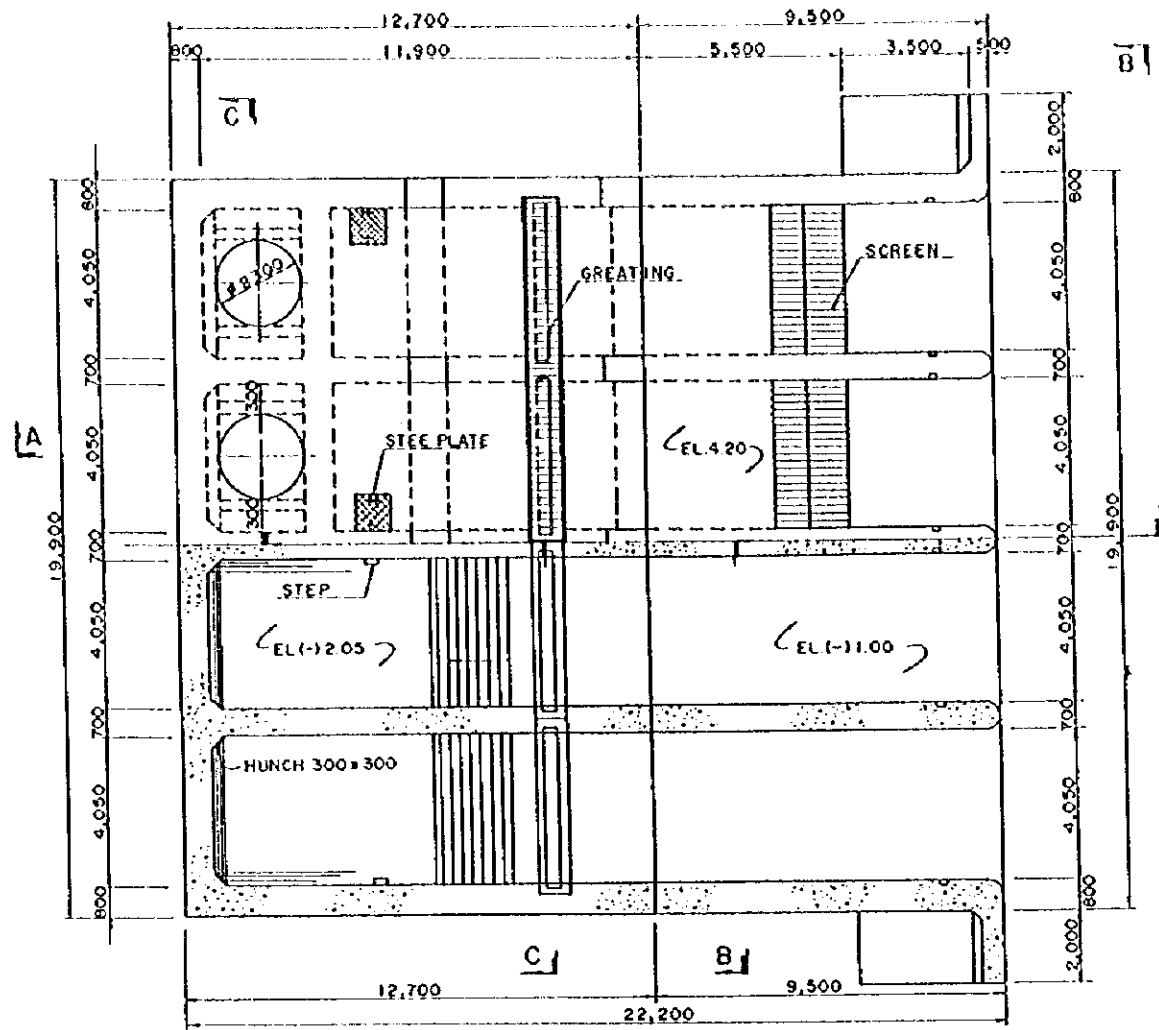


## **DRAWINGS**

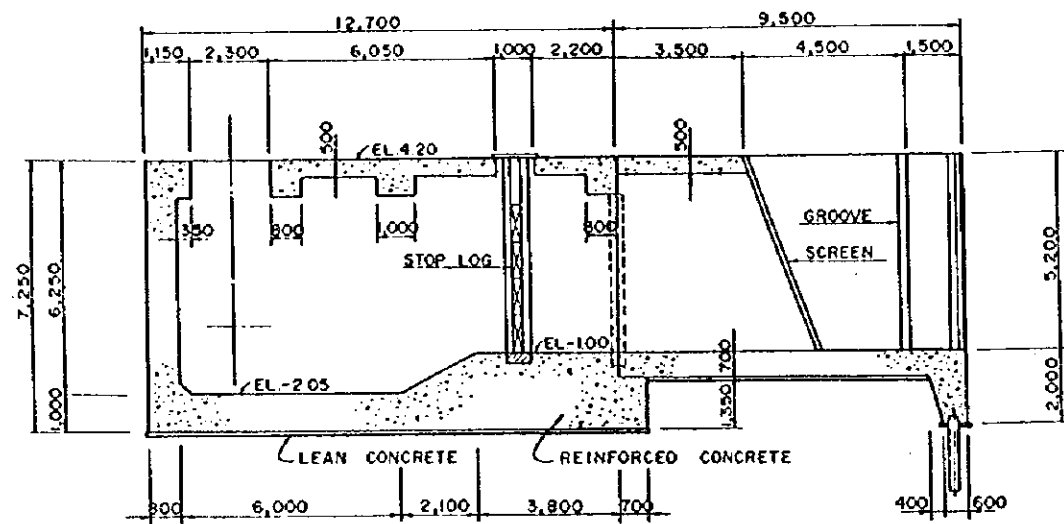
LOCATION MAP FOR THE IMPROVEMENT OF DRAINAGE STRUCTURES  
ON THE TAN CHI AGRICULTURAL AREA



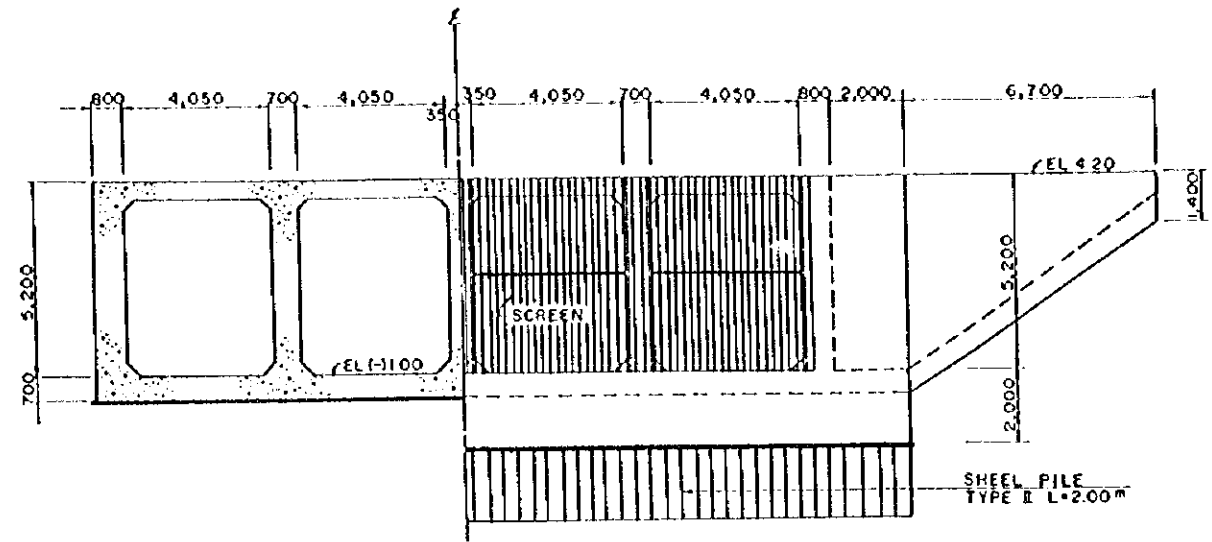




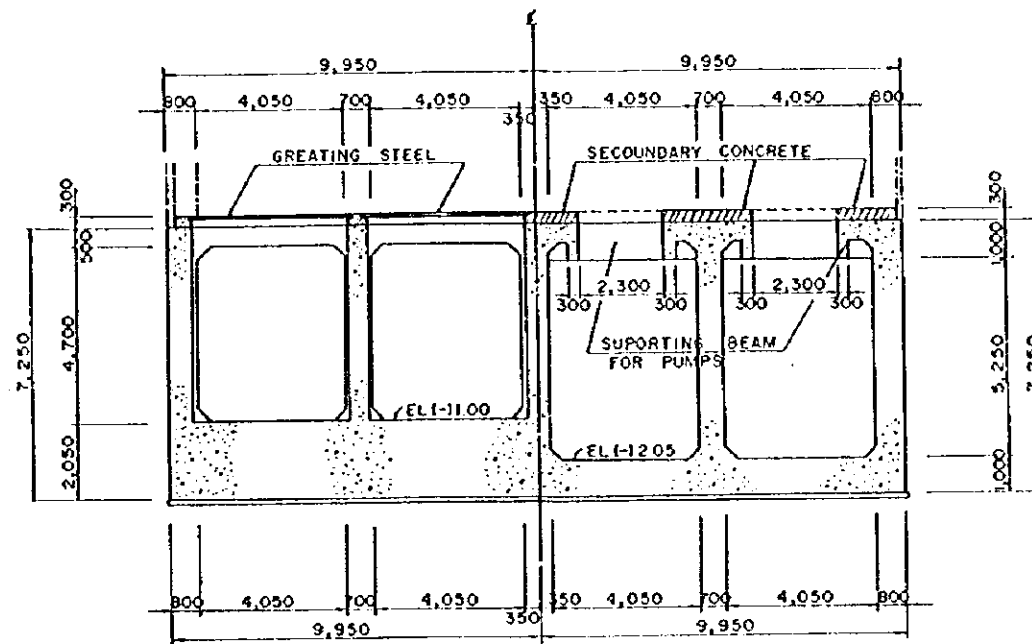
PLAN



SECTION A-A

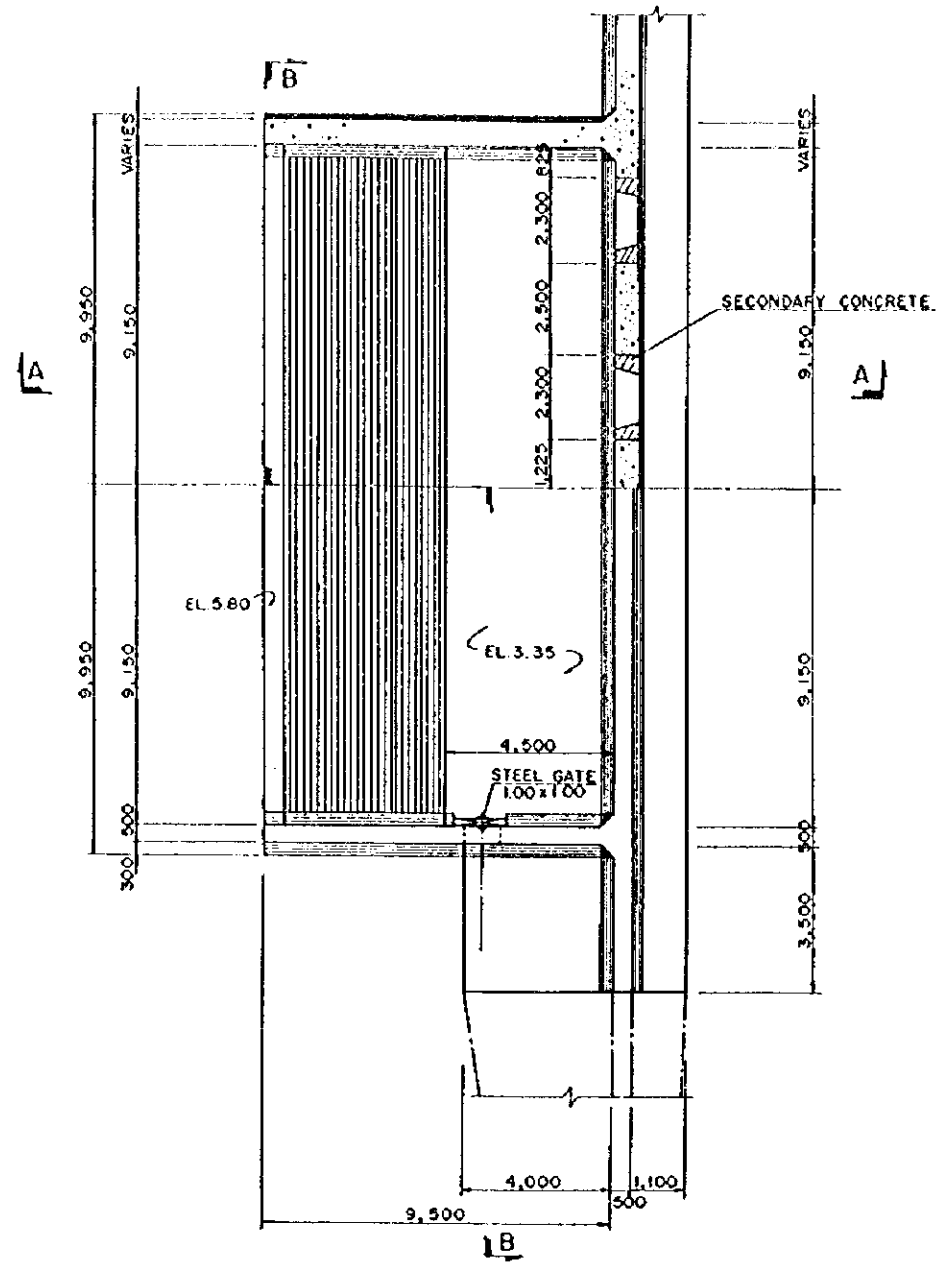


SECTION B-B

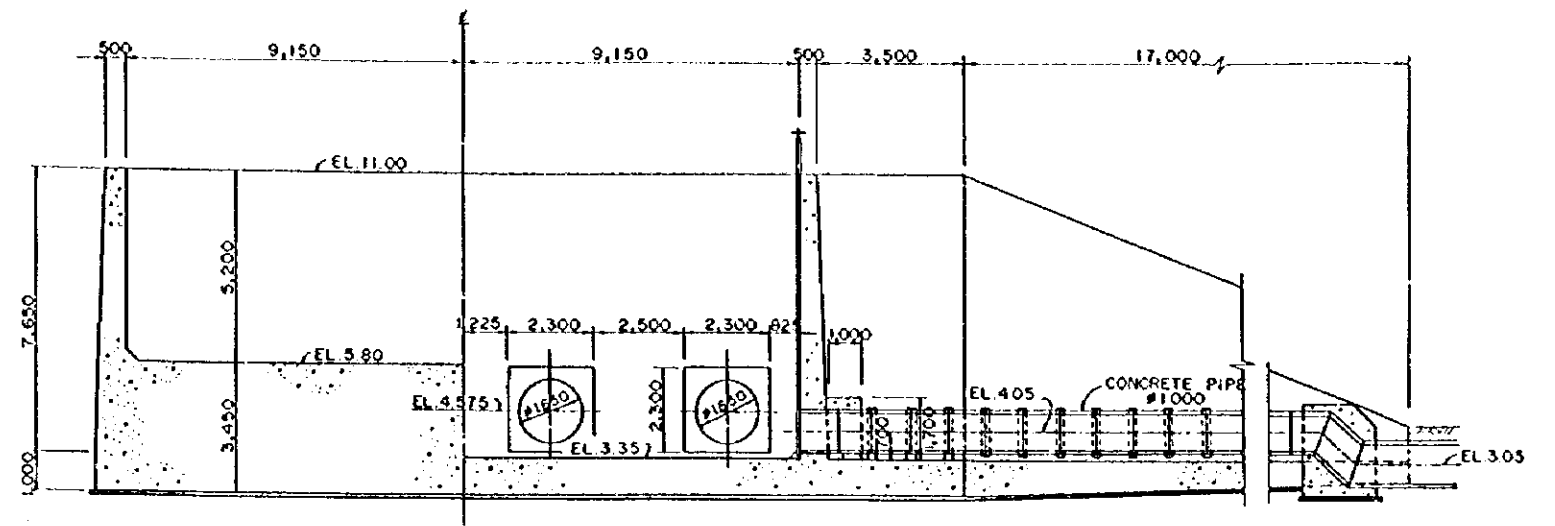


SECTION C-C

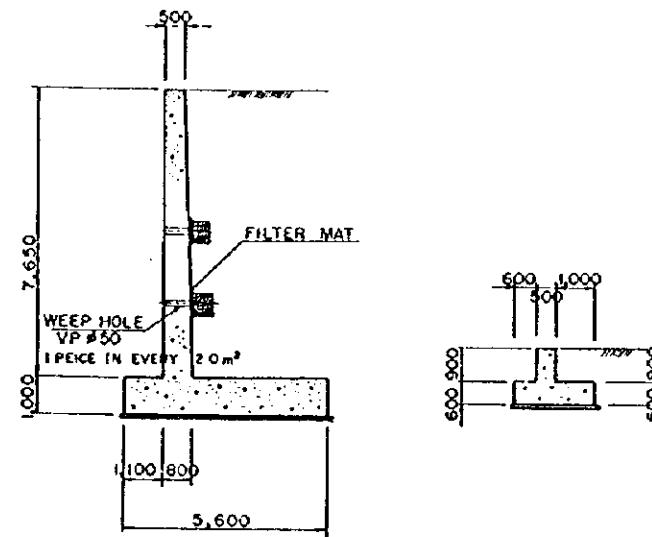
THE SOCIALIST REPUBLIC OF VIETNAM	
THE PROJECT FOR IMPROVEMENT OF DRAINAGE SYSTEM IN TAN CHI AGRICURAL AREA	
PROPOSED TAN CHI PUMP STATION	DRW. NO
INTAKE CANAL & SUCTION SUMP	3.
JAPAN INTERNATIONAL COOPERATION AGENCY	



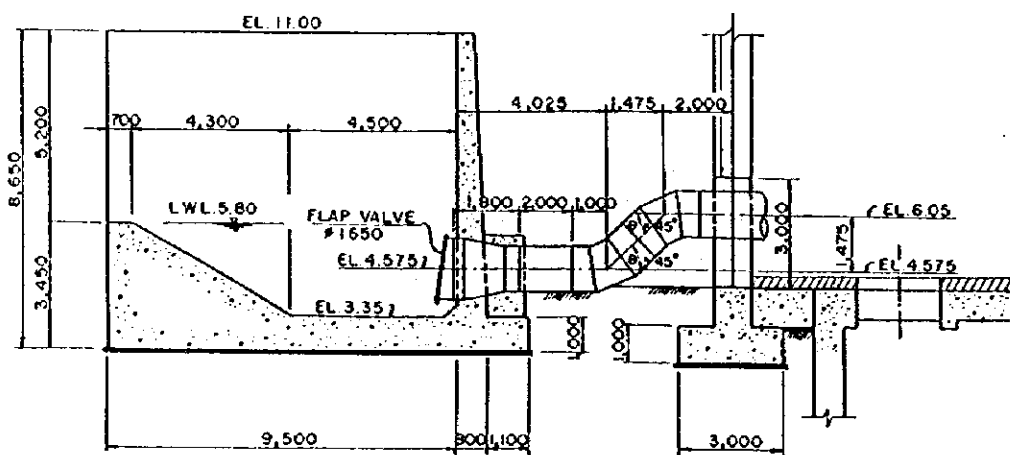
PLAN



SECTION B-B

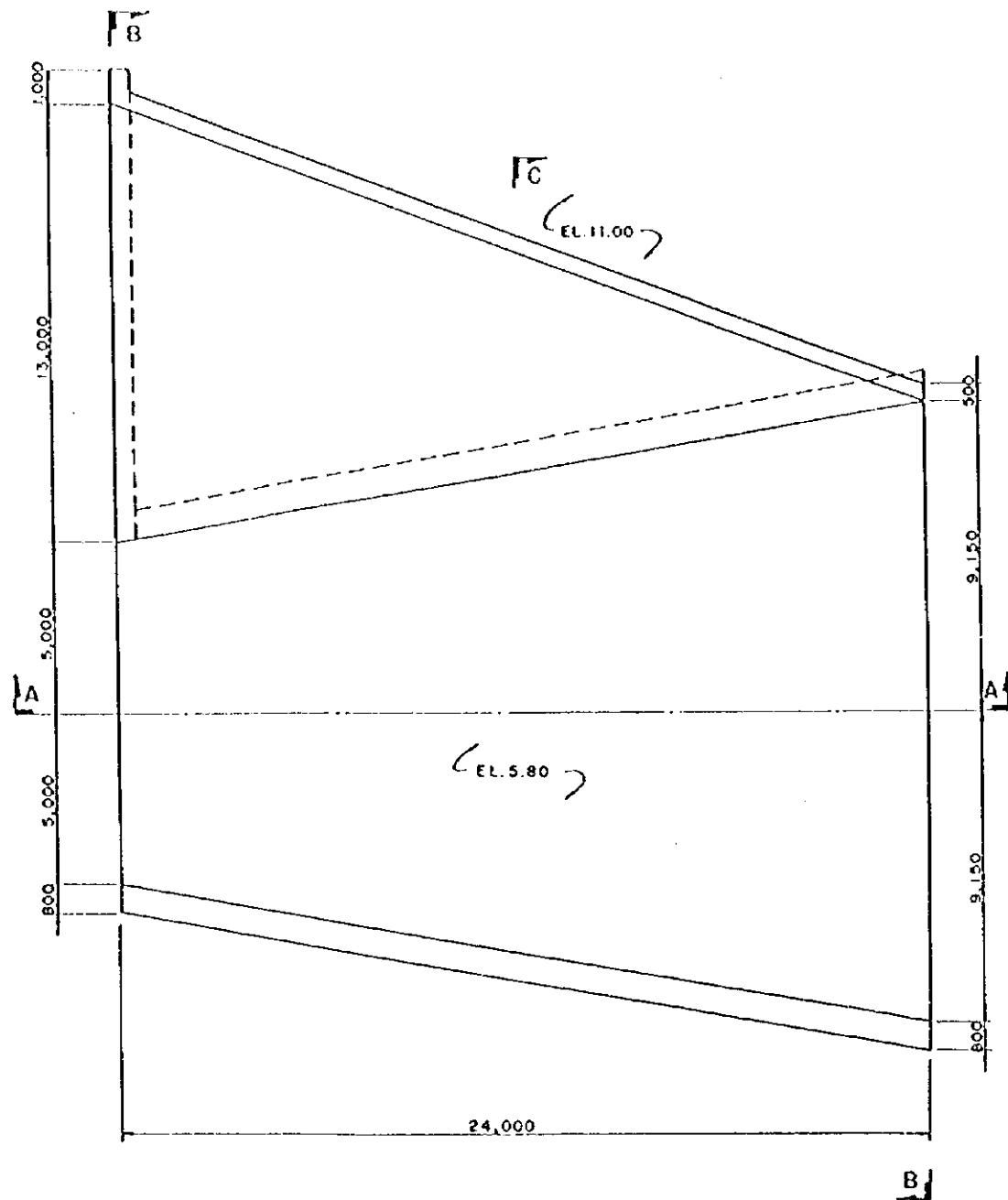


RETAINING WALL

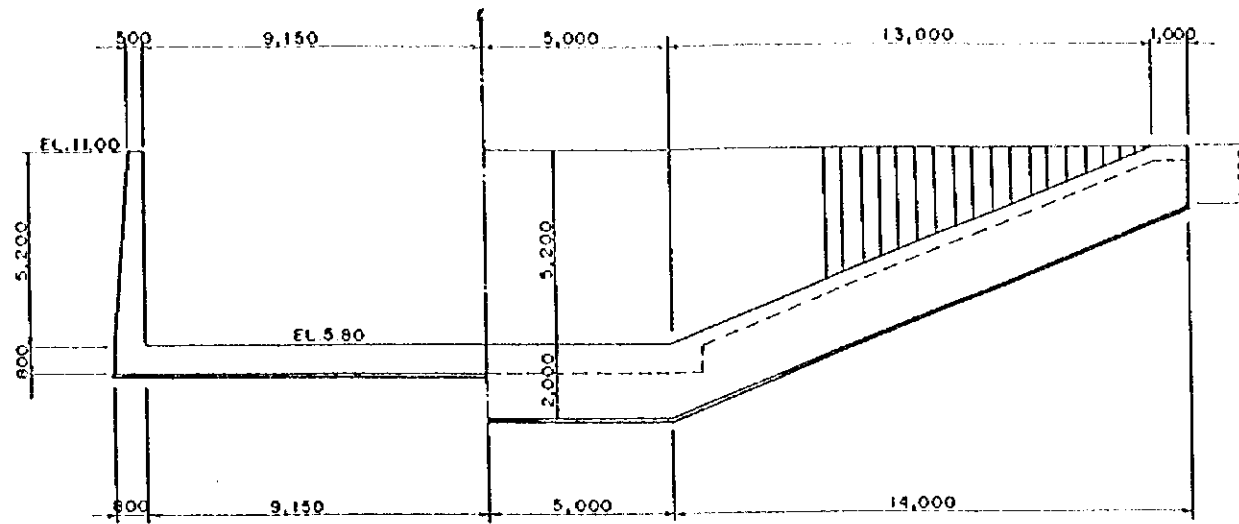


SECTION A-A

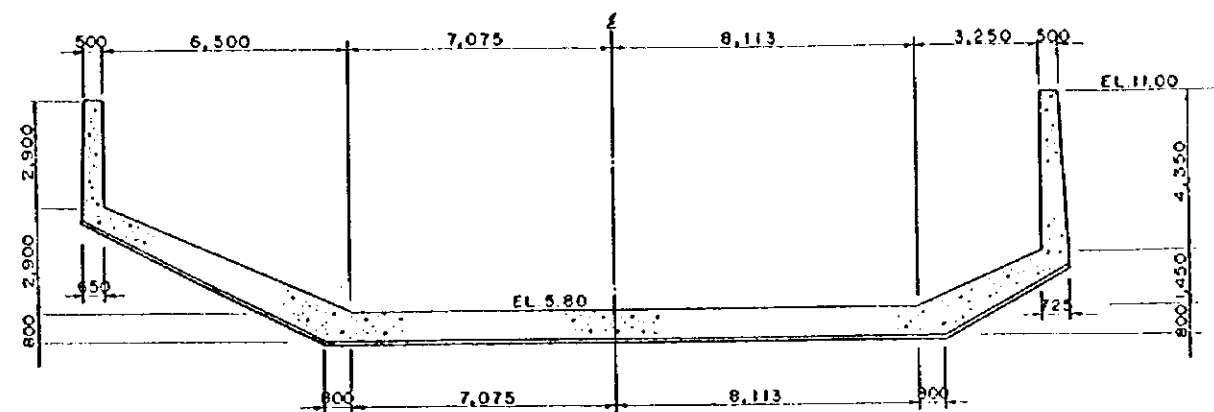
THE SOCIALIST REPUBLIC OF VIETNAM	
THE PROJECT FOR IMPROVEMENT OF	
DRAINAGE SYSTEM IN TAN CHI AGRICURAL AREA	
PROPOSED TAN CHI PUMP STATION	DRW. NO
DISCHARGE SUMP & RETAINING WALL	4
JAPAN INTERNATIONAL COOPERATION AGENCY	



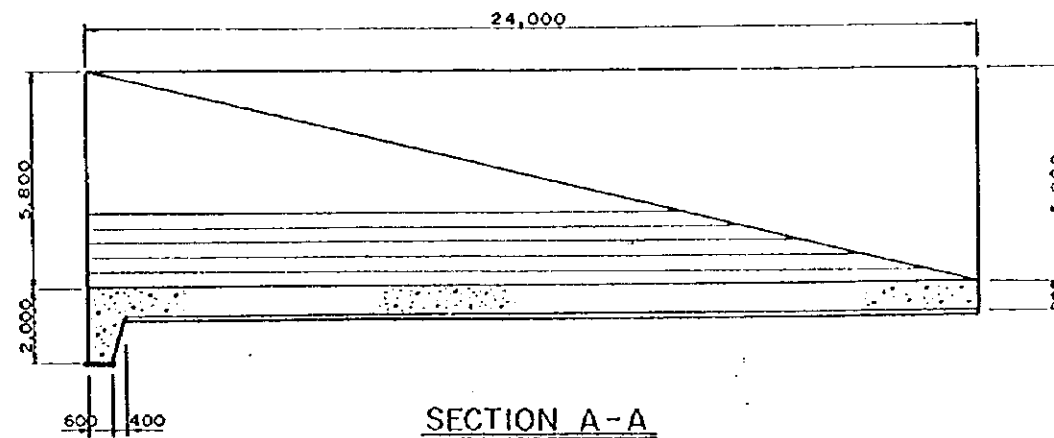
PLAN



SECTION B-B

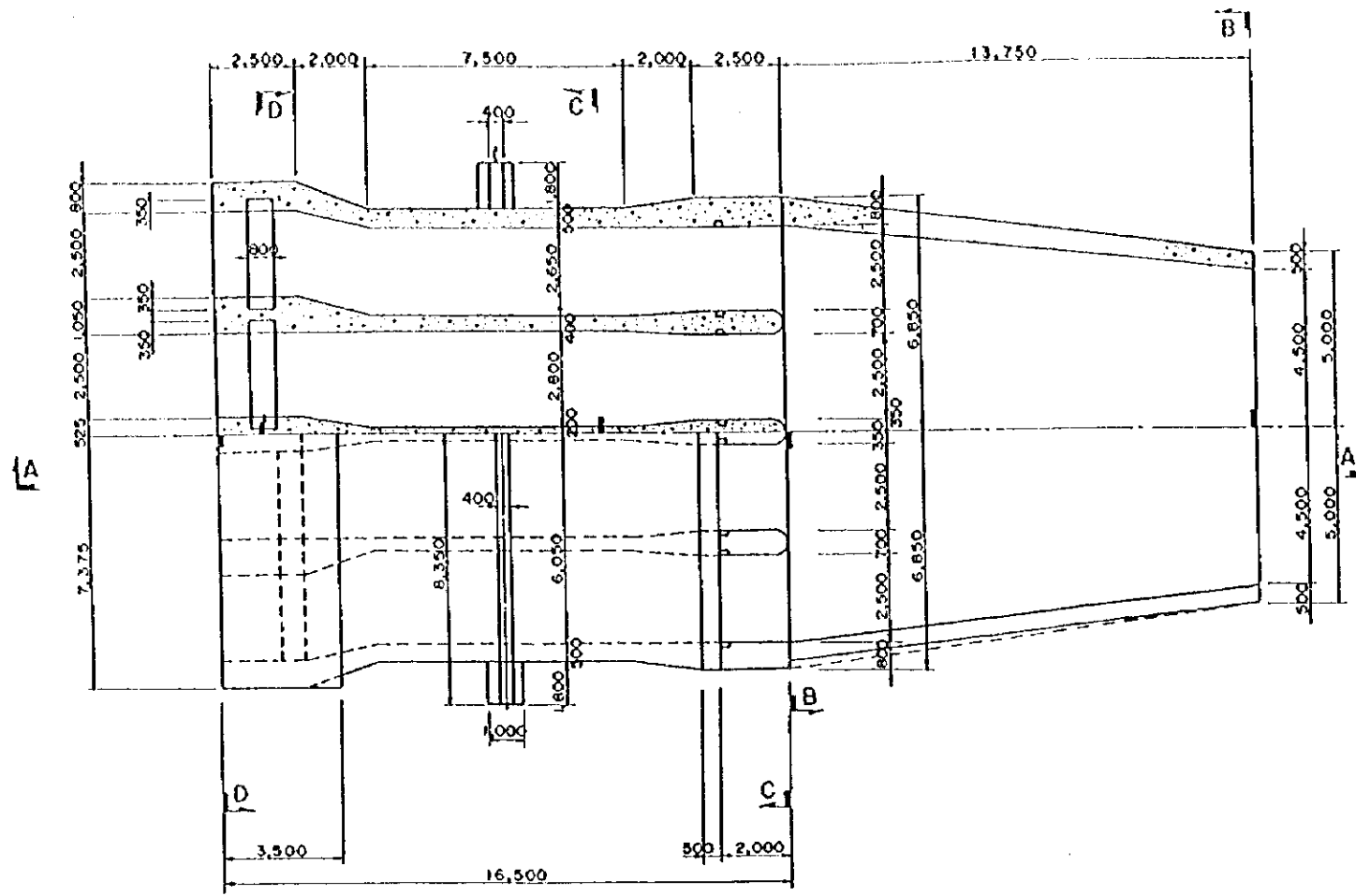


SECTION C-C

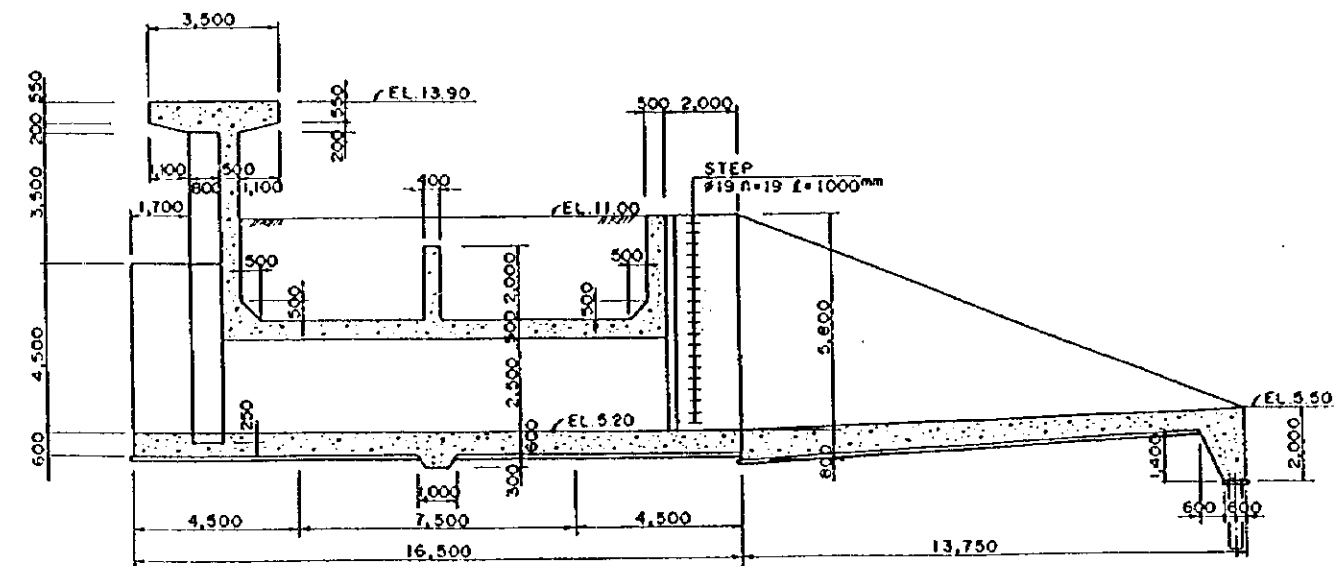


SECTION A-A

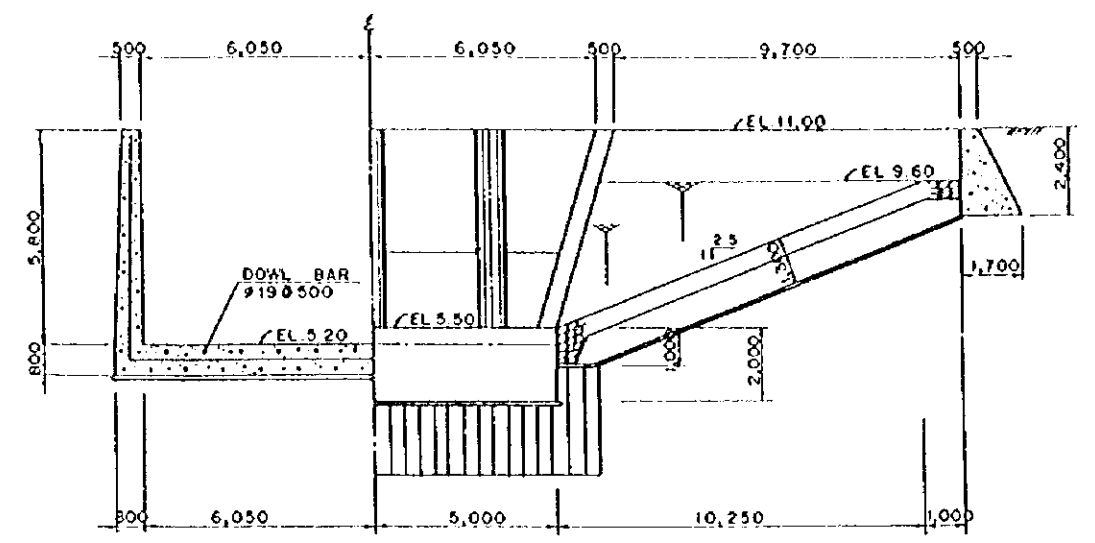
THE SOCIALIST REPUBLIC OF VIETNAM THE PROJECT FOR IMPROVEMENT OF DRAINAGE SYSTEM IN TAN CHI AGRICURAL AREA	
PROPOSED TAN CHI PUMP STATION TRANSITION TO DISCHARGE RESERVOIR	DRW. NO 5
JAPAN INTERNATIONAL COOPERATION AGENCY	



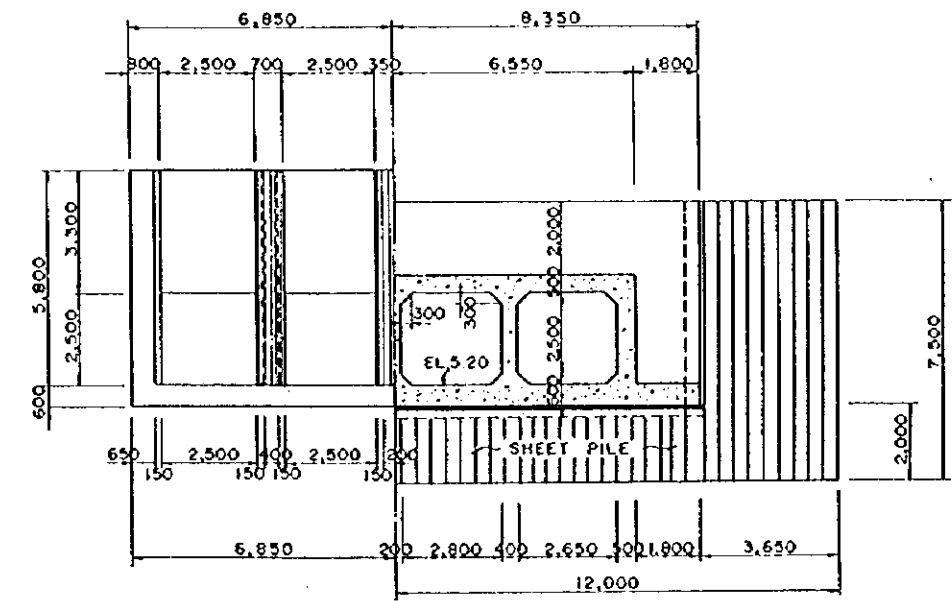
PLAN



SECTION A-A

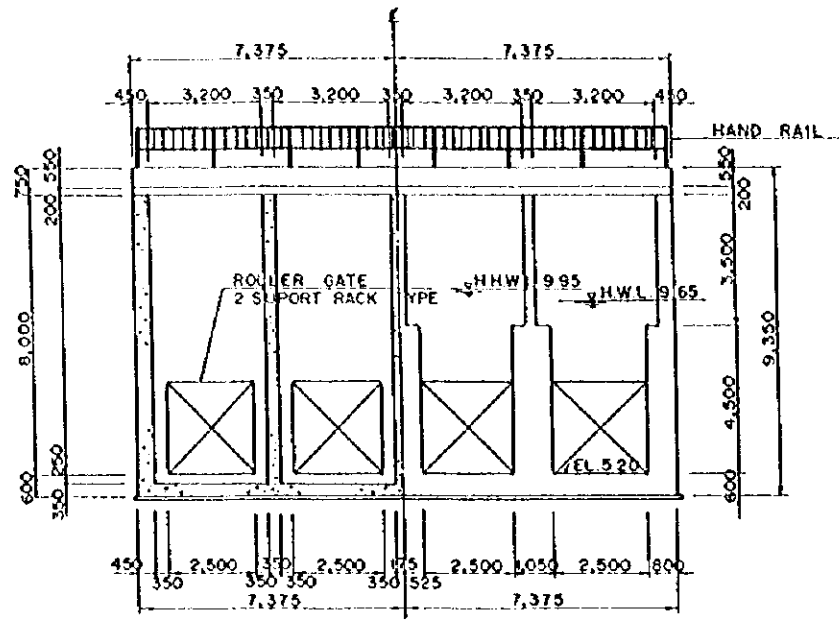


SECTION B-B

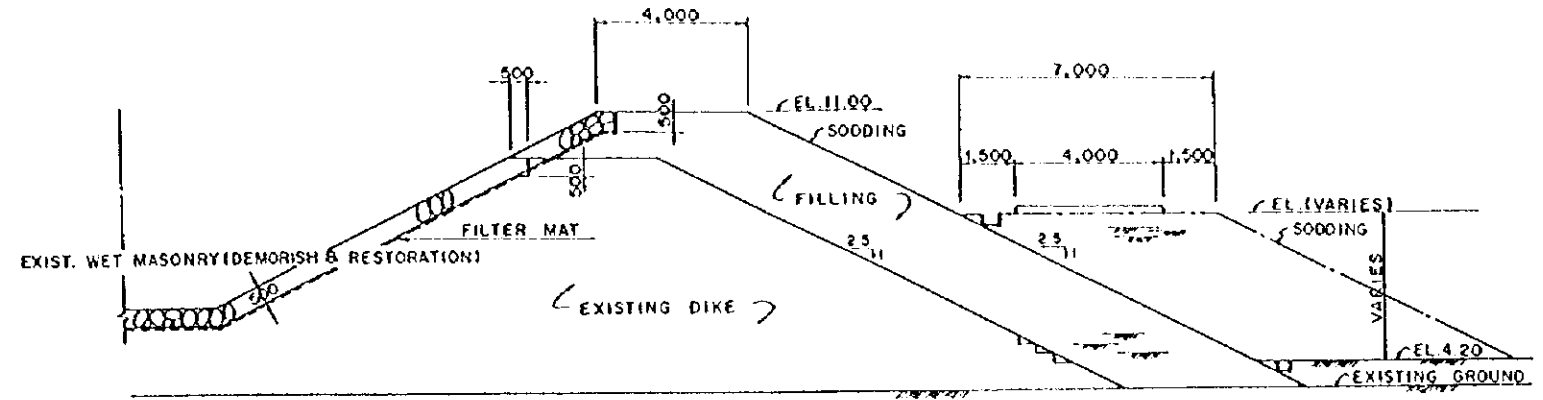


SECTION C-C

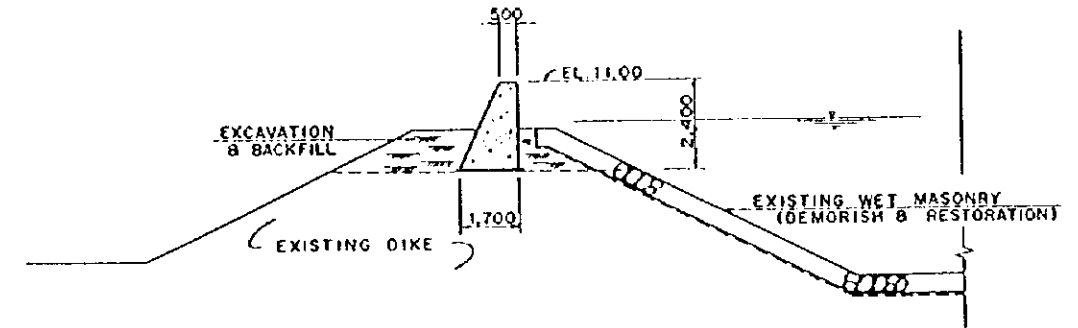
THE SOCIALIST REPUBLIC OF VIETNAM	
THE PROJECT FOR IMPROVEMENT OF DRAINAGE SYSTEM IN TAN CHI AGRICULTURAL AREA	
PROPOSED TAN CHI PUMP STATION	DRW. NO
TANANSION & SLUICE WAY	6
JAPAN INTERNATIONAL COOPERATION AGENCY	



SECTION D-D



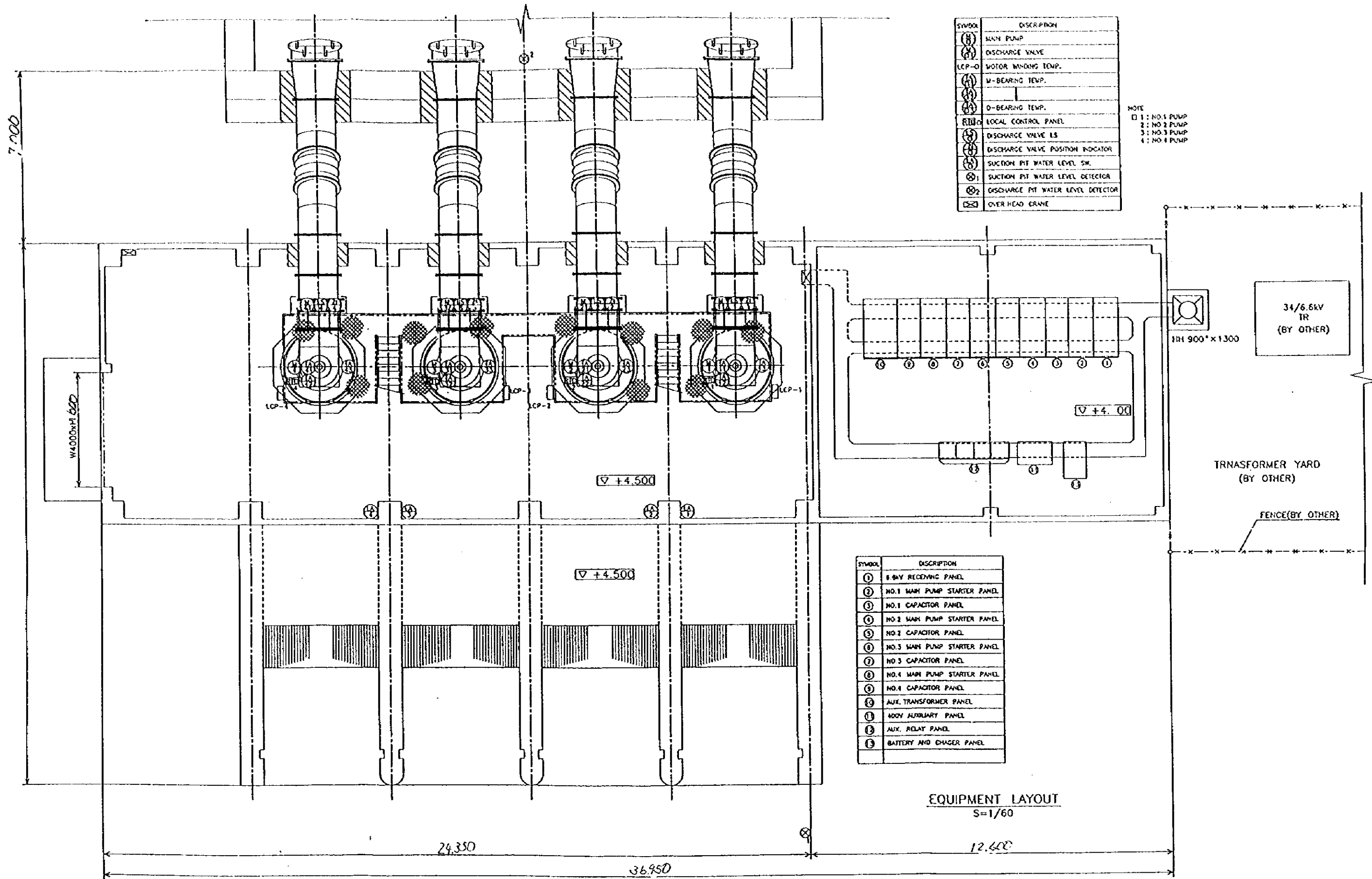
HEIGHTENING EXISTING DIKE



THE SOCIALIST REPUBLIC OF VIETNAM	
THE PROJECT FOR IMPROVEMENT OF	
DRAINAGE SYSTEM IN TAN CHI AGRICURAL AREA	
PROPOSED TAN CHI PUMP STATION	DRW. NO
SLUICE WAY CROSSING SECTION &	7
HEIGHTENING EXISTING DIKE	
JAPAN INTERNATIONAL COOPERATION AGENCY	







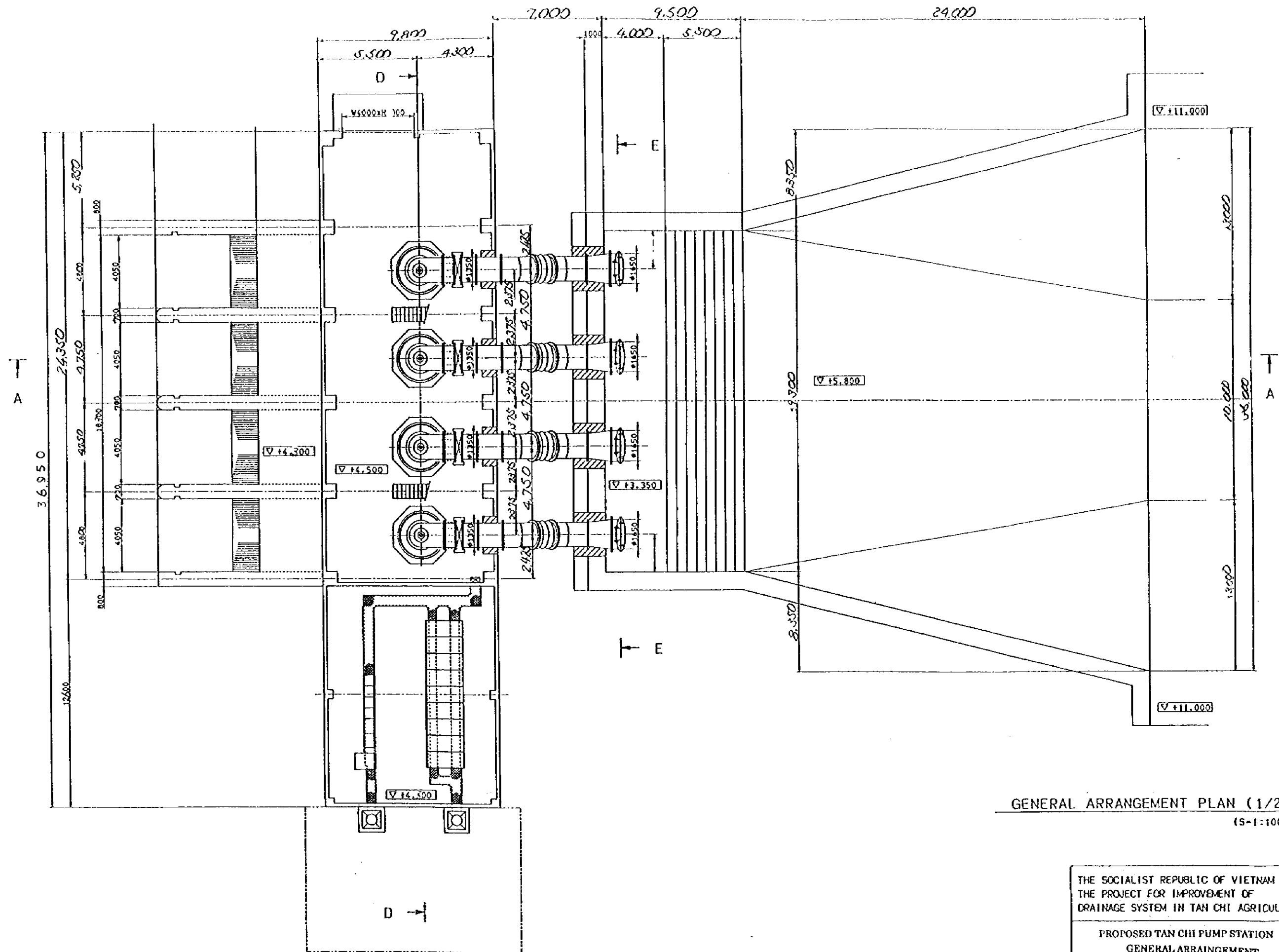
SYMBOL	DESCRIPTION
(P)	MAIN PUMP
(V)	DISCHARGE VALVE
LCP-0	MOTOR WINDING TEMP.
(M)	M-BEARING TEMP.
(D)	D-BEARING TEMP.
RCP-0	LOCAL CONTROL PANEL
(S)	DISCHARGE VALVE LS
(I)	DISCHARGE VALVE POSITION INDICATOR
(W)	SUCTION PIT WATER LEVEL SW.
(D)	SUCTION PIT WATER LEVEL DETECTOR
(D)	DISCHARGE PIT WATER LEVEL DETECTOR
(C)	OVER HEAD CRANE

NOTE  
 □ 1: NO.1 PUMP  
 □ 2: NO.2 PUMP  
 □ 3: NO.3 PUMP  
 □ 4: NO.4 PUMP

SYMBOL	DESCRIPTION
(R)	6.6KV RECEIVING PANEL
(S)	NO.1 MAIN PUMP STARTER PANEL
(C)	NO.1 CAPACITOR PANEL
(S)	NO.2 MAIN PUMP STARTER PANEL
(C)	NO.2 CAPACITOR PANEL
(S)	NO.3 MAIN PUMP STARTER PANEL
(C)	NO.3 CAPACITOR PANEL
(S)	NO.4 MAIN PUMP STARTER PANEL
(C)	NO.4 CAPACITOR PANEL
(T)	AUX. TRANSFORMER PANEL
(A)	400V AUXILIARY PANEL
(R)	AUX. RELAY PANEL
(B)	BATTERY AND CHARGER PANEL

EQUIPMENT LAYOUT  
 S-1/60

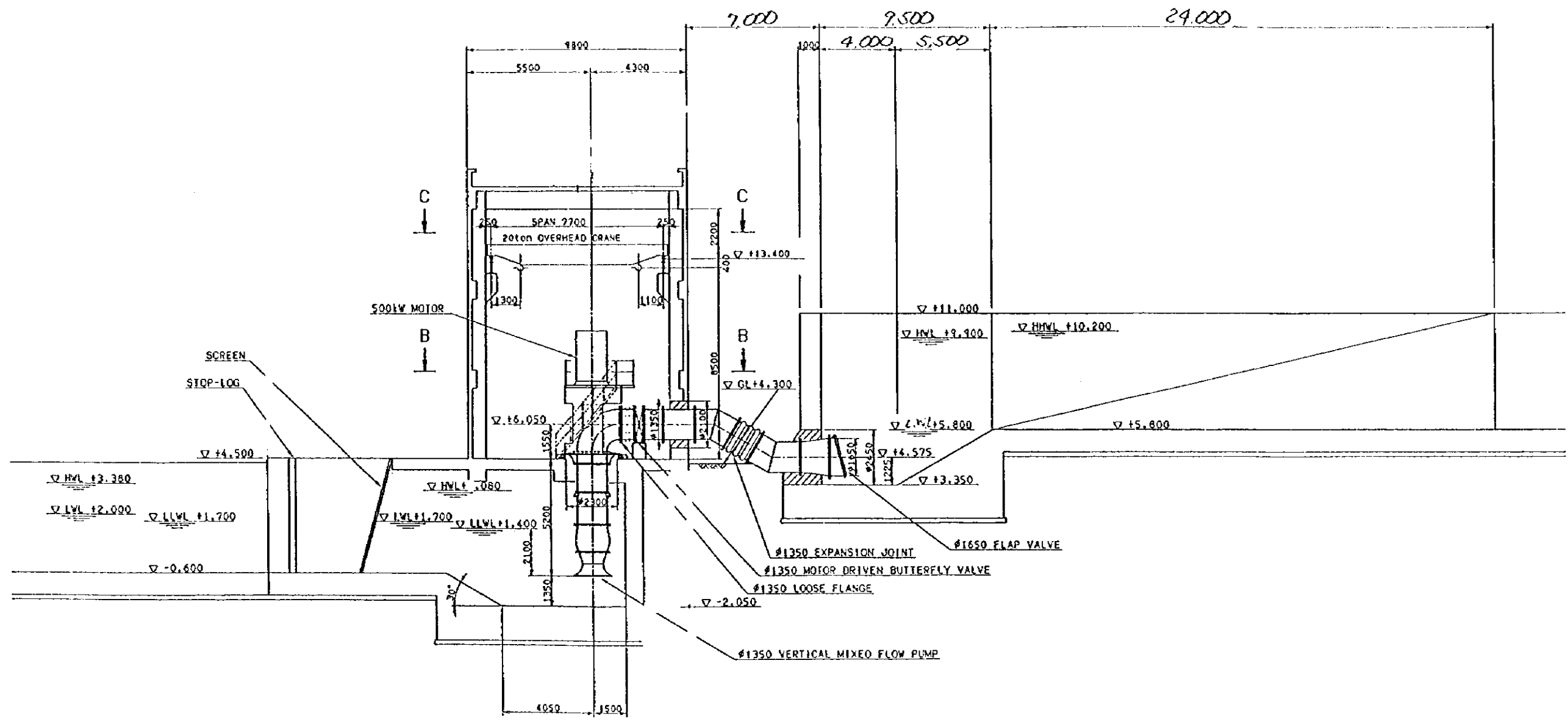
PROPOSED TAN CHI PUMP STATION  
 EQUIPMENT LAYOUT



GENERAL ARRANGEMENT PLAN (1/2)  
(S-1:100)

THE SOCIALIST REPUBLIC OF VIETNAM THE PROJECT FOR IMPROVEMENT OF DRAINAGE SYSTEM IN TAN CHI AGRICULTURAL AREA	
PROPOSED TAN CHI PUMP STATION GENERAL ARRANGEMENT OF PROPOSED PUMPS	DRW. NO 1C
JAPAN INTERNATIONAL COOPERATION AGENCY	



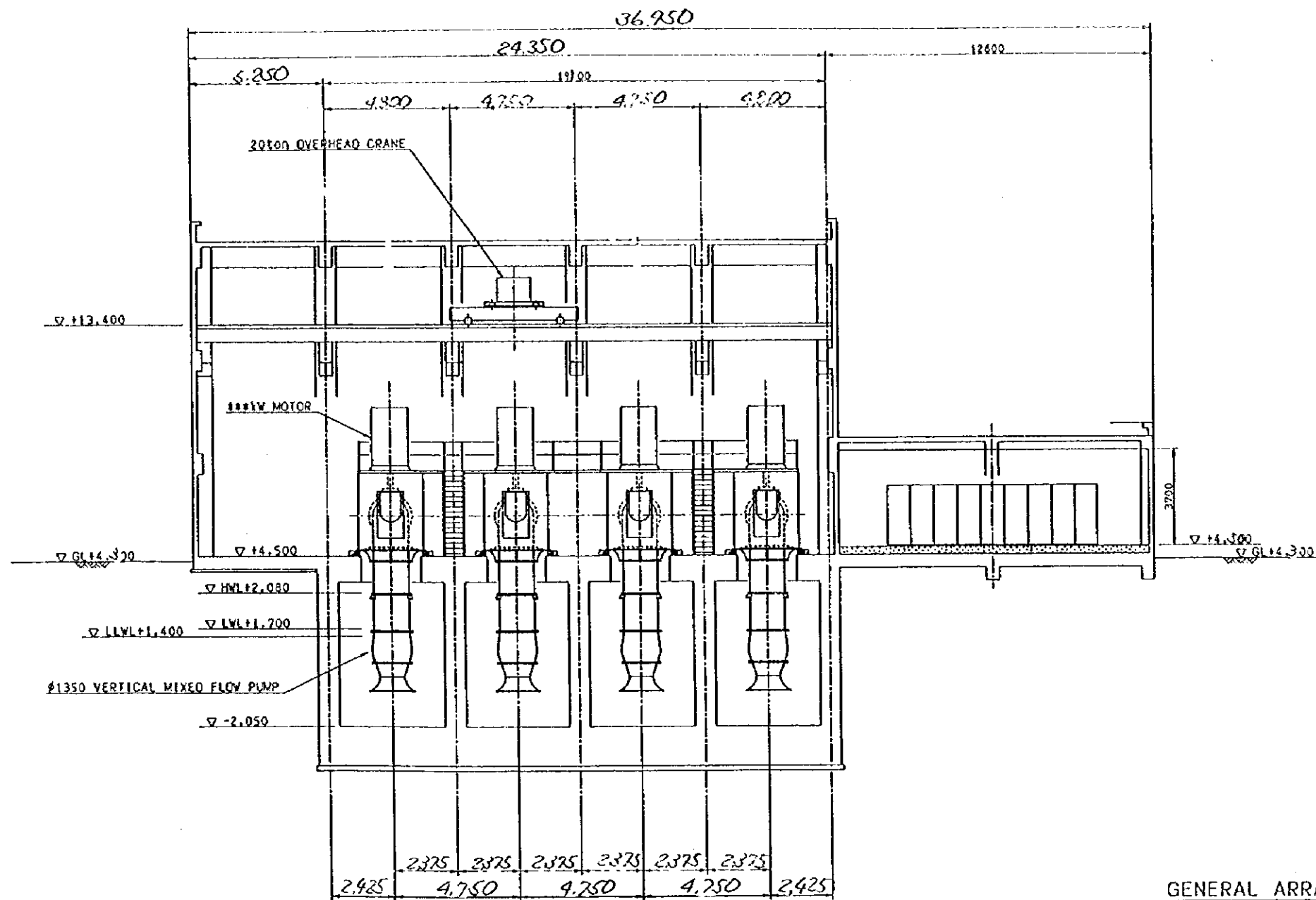


SECTION A - A

GENERAL ARRANGEMENT SECTION (1/3)

(S=1:100)

THE SOCIALIST REPUBLIC OF VIETNAM THE PROJECT FOR IMPROVEMENT OF DRAINAGE SYSTEM IN TAN CHI AGRICULTURAL AREA	
PROPOSED TAN CHI PUMP STATION GENERAL ARRANGEMENT OF PROPOSED PUMPS	GRV. NO 12
JAPAN INTERNATIONAL COOPERATION AGENCY	



GENERAL ARRANGEMENT SECTION (2/3)

(S-1:100)

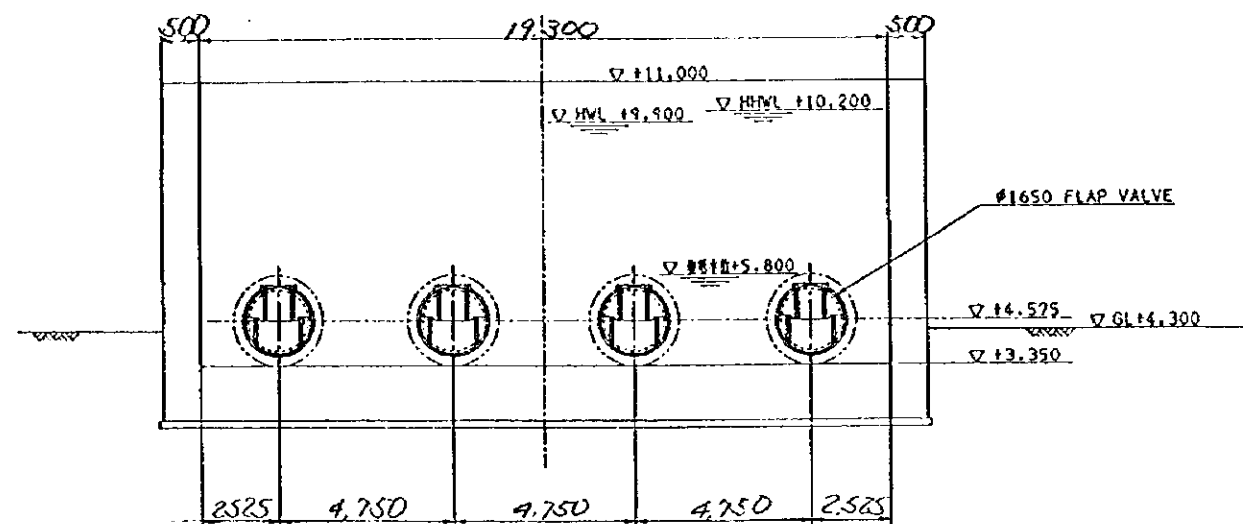
SECTION D - D

THE SOCIALIST REPUBLIC OF VIETNAM  
 THE PROJECT FOR IMPROVEMENT OF  
 DRAINAGE SYSTEM IN TAN CHI AGRICULTURAL AREA

PROPOSED TAN CHI PUMP STATION  
 GENERAL ARRANGEMENT  
 OF PROPOSED PUMPS

DRW. NO  
 13

JAPAN INTERNATIONAL COOPERATION AGENCY



SECTION E - E

GENERAL ARRANGEMENT SECTION (3/3)

(S-1:100)

THE SOCIALIST REPUBLIC OF VIETNAM  
 THE PROJECT FOR IMPROVEMENT OF  
 DRAINAGE SYSTEM IN TAN CHI AGRICULTURAL AREA

DRW. NO

14

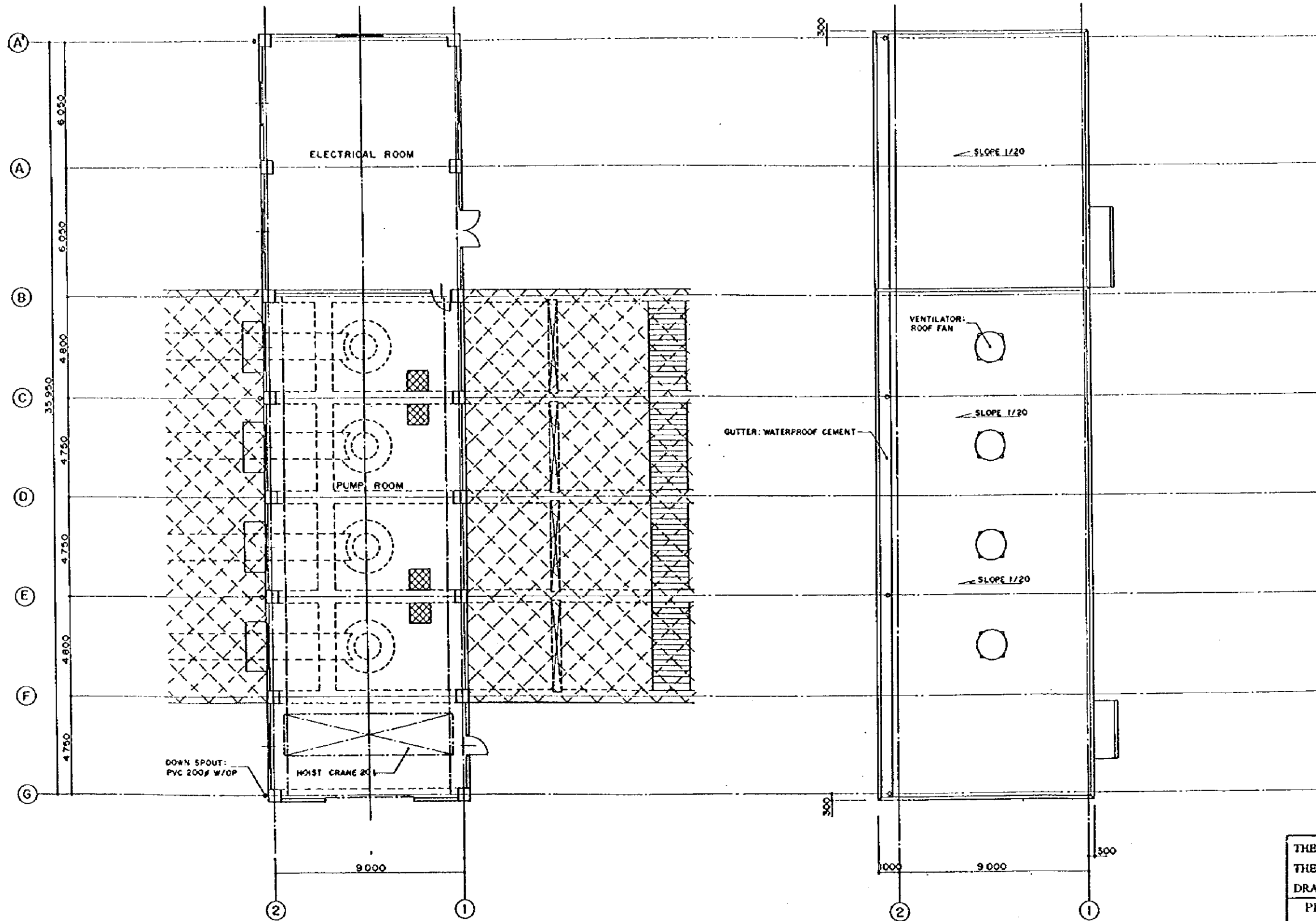
JAPAN INTERNATIONAL COOPERATION AGENCY





FINISHING SCHEDULE PUMP HOUSE

EXTERNAL FINISHING SCHEDULE		INTERNAL FINISHING SCHEDULE				REMARKS
ITEM	FINISH SPECIFICATIONS	ROOM	FLOOR	WALL	CEILING	
ROOF	EXPOSED CONCRETE 150THK STEEL TROWEL (SLOPE 1/20)	PUMP ROOM	STEEL TROWEL FINISHED ON CONCRETE TOPPING 300THK	MORTAR STEEL TROWEL 15THK W/EMULSION PAINT FINISH	EXPOSED CONCRETE	
EXTERIOR WALL	MORTAR STEEL TROWEL 15THK W/EMULSION PAINT FINISH ON CONCRETE BLOCK 100THK	HOIST ROOM	STEEL TROWEL FINISHED ON CONCRETE TOPPING 100THK	DITTO	DITTO	
SKIRTING	MORTAR STEEL TROWEL H=300	ELECTRICAL ROOM	DITTO	DITTO	DITTO	
COPING	MORTAR STEEL TROWEL					
GUTTER	WATERPROOF CEMENT					
DOWN SPOUT	PVC 200# W/OP					



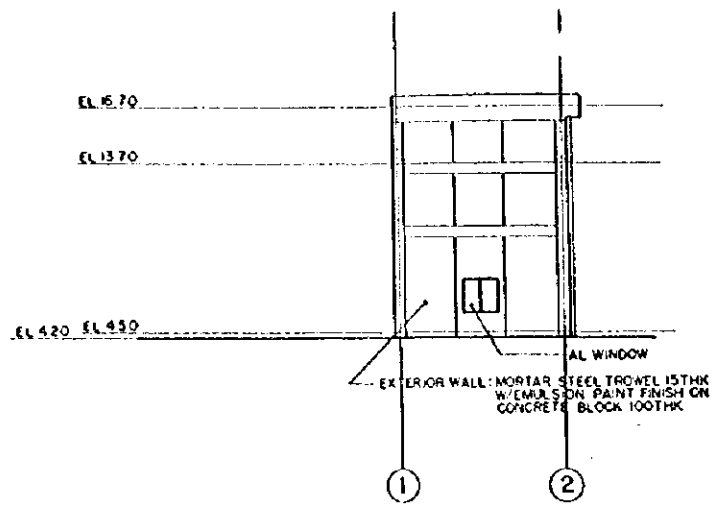
1ST FLOOR PLAN  
S=1:100

ROOF PLAN  
S=1:100

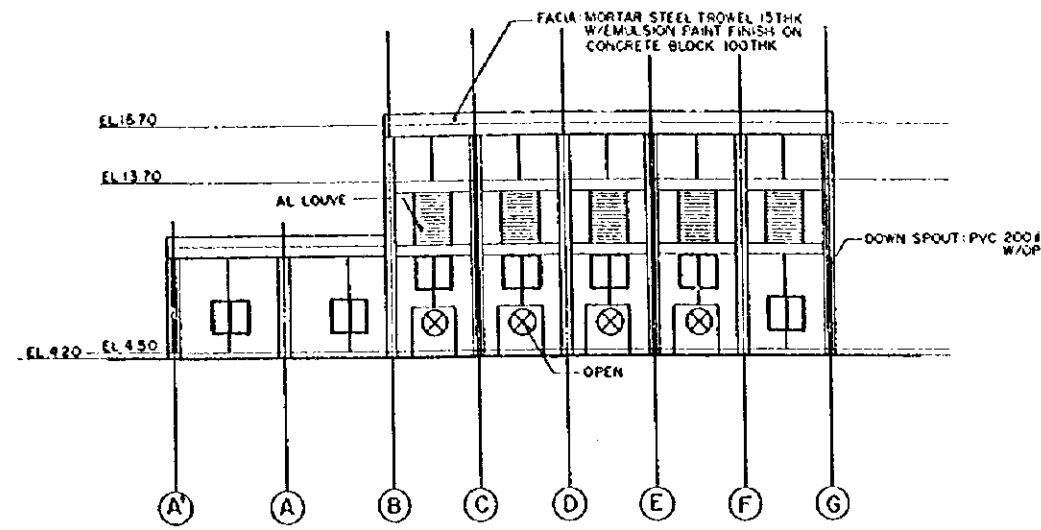
THE SOCIALIST REPUBLIC OF VIETNAM  
 THE PROJECT FOR IMPROVEMENT OF  
 DRAINAGE SYSTEM IN TAN CHI AGRICURURAL AREA  
 PROPOSED TAN CHI PUMP STATION  
 PUMP HOUSE PLAN

DRW. NO  
16

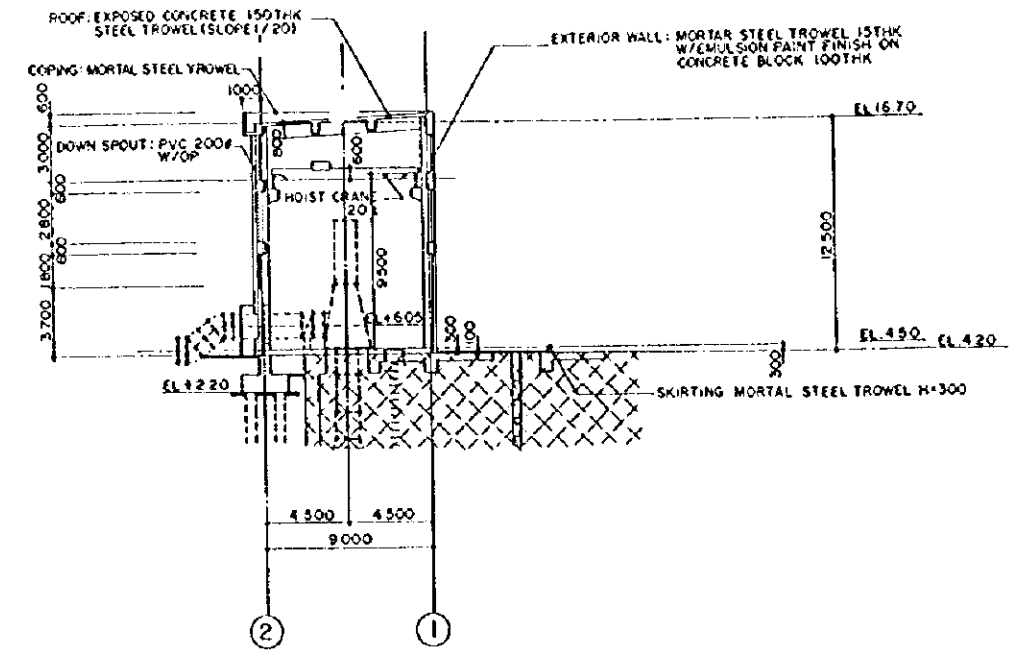
JAPAN INTERNATIONAL COOPERATION AGENCY



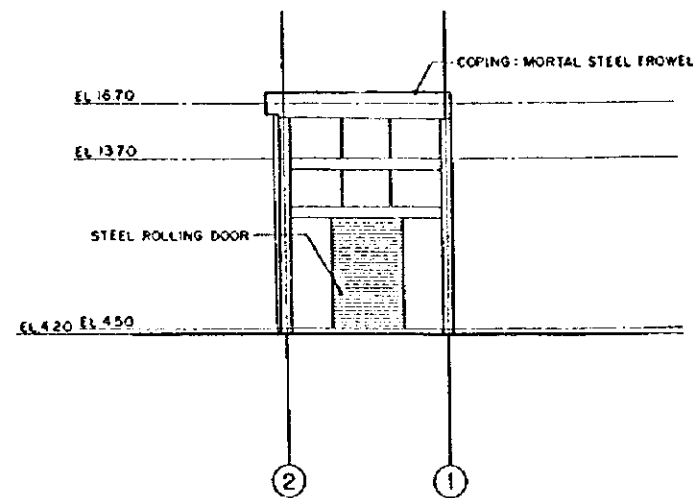
**WEST ELEVATION**  
S = 1:200



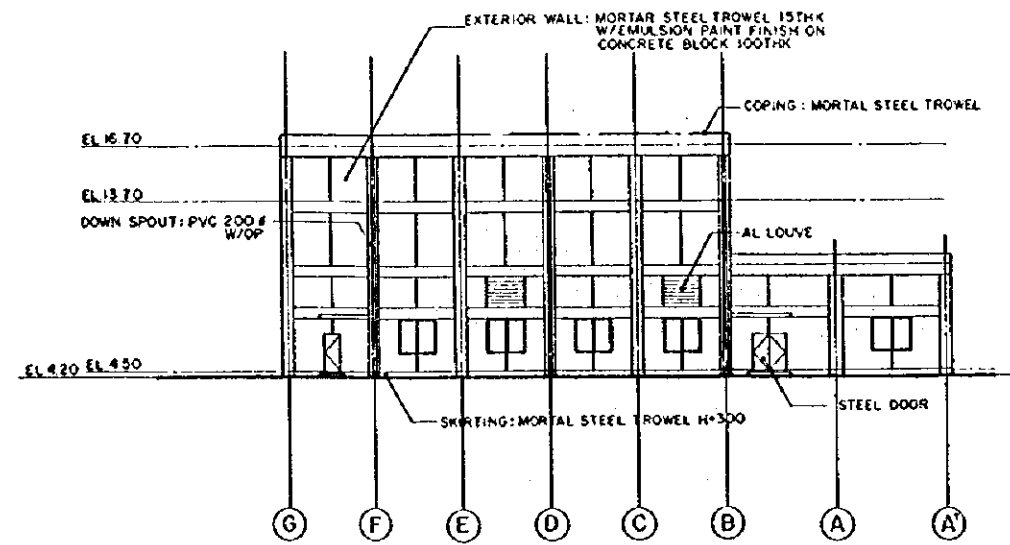
**SOUTH ELEVATION**  
S = 1:200



**SECTION**  
S = 1:200



**EAST ELEVATION**  
S = 1:200

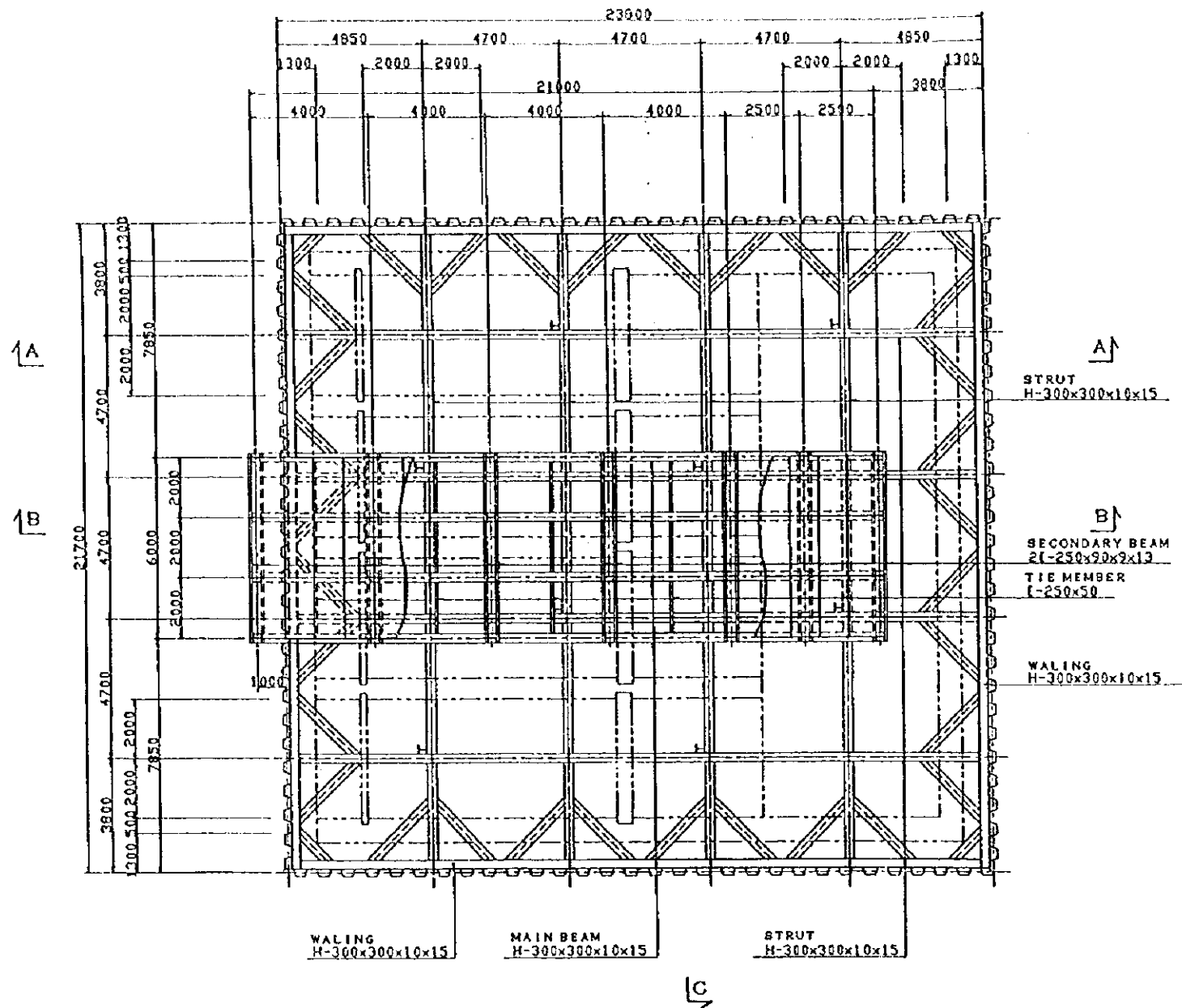


**NORTH ELEVATION**  
S = 1:200

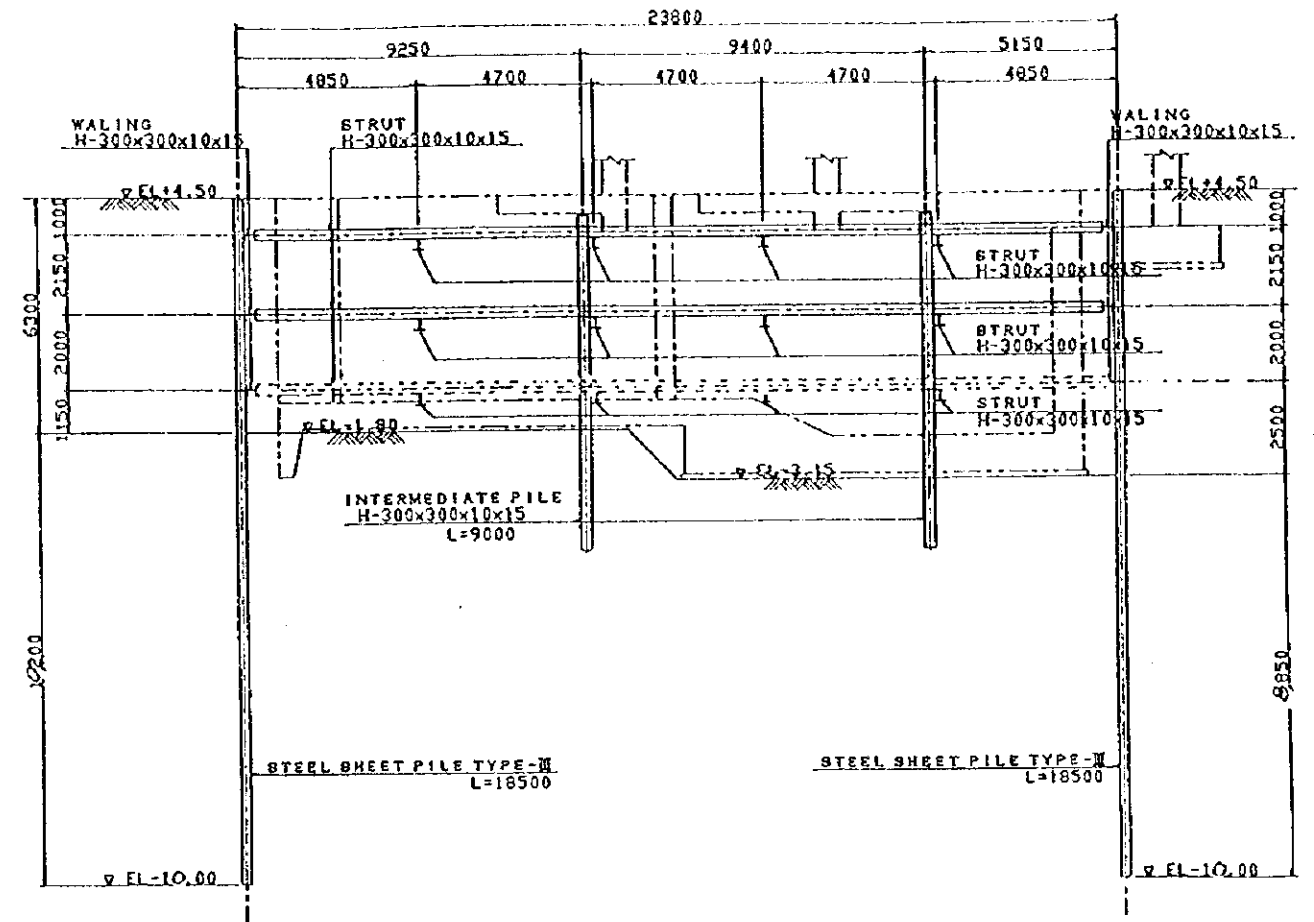
THE SOCIALIST REPUBLIC OF VIETNAM	
THE PROJECT FOR IMPROVEMENT OF	
DRAINAGE SYSTEM IN TAN CHI AGRICULTURAL AREA	
PROPOSED TAN CHI PUMP STATION	DRW. NO
PUMP HOUSE ELEVATION	17
JAPAN INTERNATIONAL COOPERATION AGENCY	

PLAN s=1:100

c



SECTION A-A s=1:100



NOTE

1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE STATED.
2. ALL STRUCTURAL STEEL SECTIONS AND PLATES TO BE S9400 TO JIS G3101 OR EQUIVALENT.
3. STEEL SHEET PILE TO BE S9295 TO JIS A5528 OR EQUIVALENT.
4. CONCRETE MIX FOR TEMPORARY DECK PLATE TO BE DESIGNED MIX HAVING 300K9C AT 28 DAYS.
5. REINFORCEMENT BAR FOR TEMPORARY DECK PLATE TO BE DEFORMED BAR OF GRADE SD295A TO JIS G3112 OR EQUIVALENT.

THE SOCIALIST REPUBLIC OF VIETNAM  
THE PROJECT FOR IMPROVEMENT OF  
DRAINAGE SYSTEM IN TAN CHI AGRICULTURAL AREA

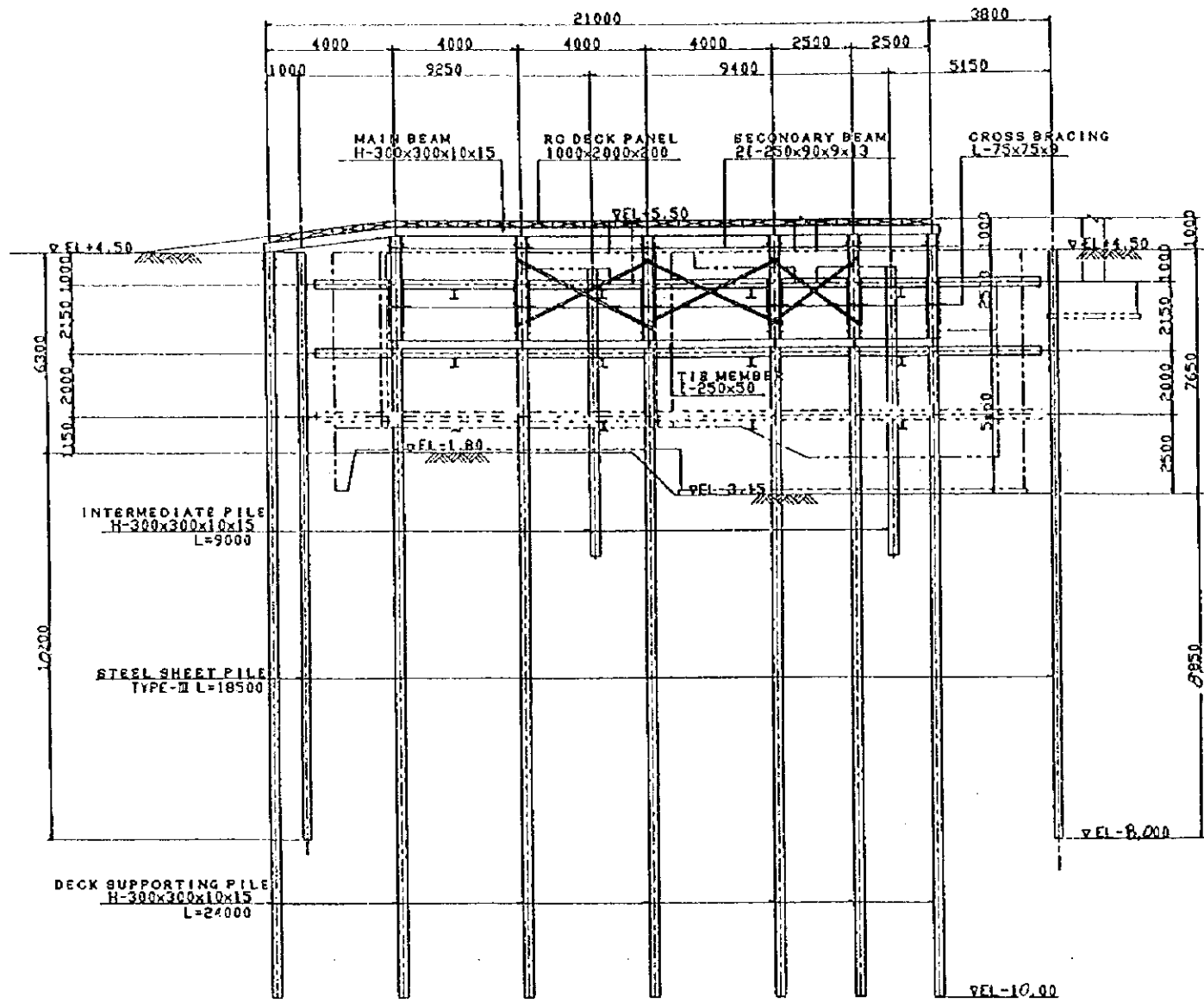
PROPOSED TAN CHI PUMP HOUSE  
TEMPORARY COFFERDAM AND DEC(1)  
PLAN AND SECTION

DRW NO

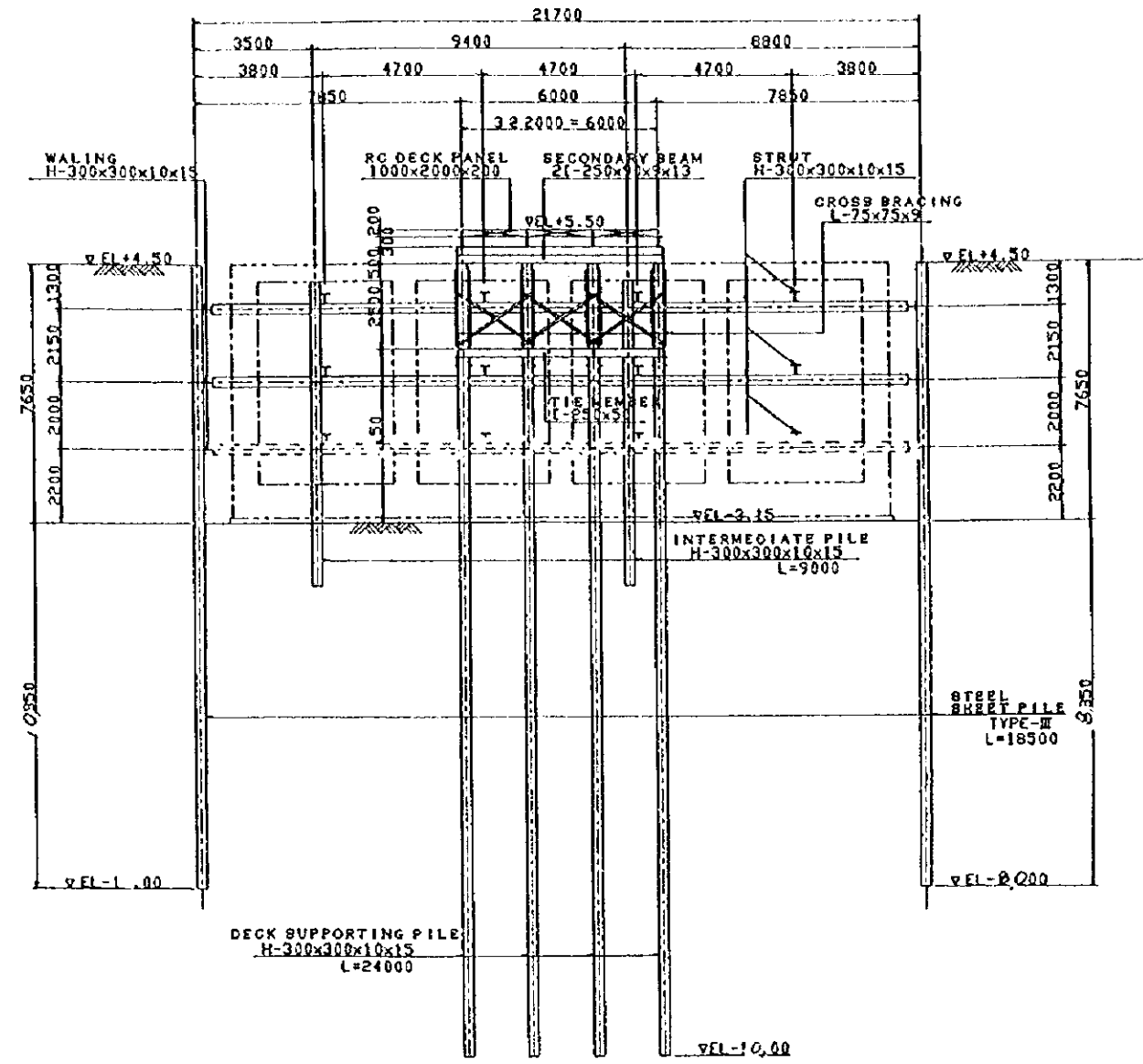
13

JAPAN INTERNATIONAL COOPERATION AGENCY

SECTION B-B S=1:100



SECTION C-C S=1:100



NOTE: REFER TO DRW. No.

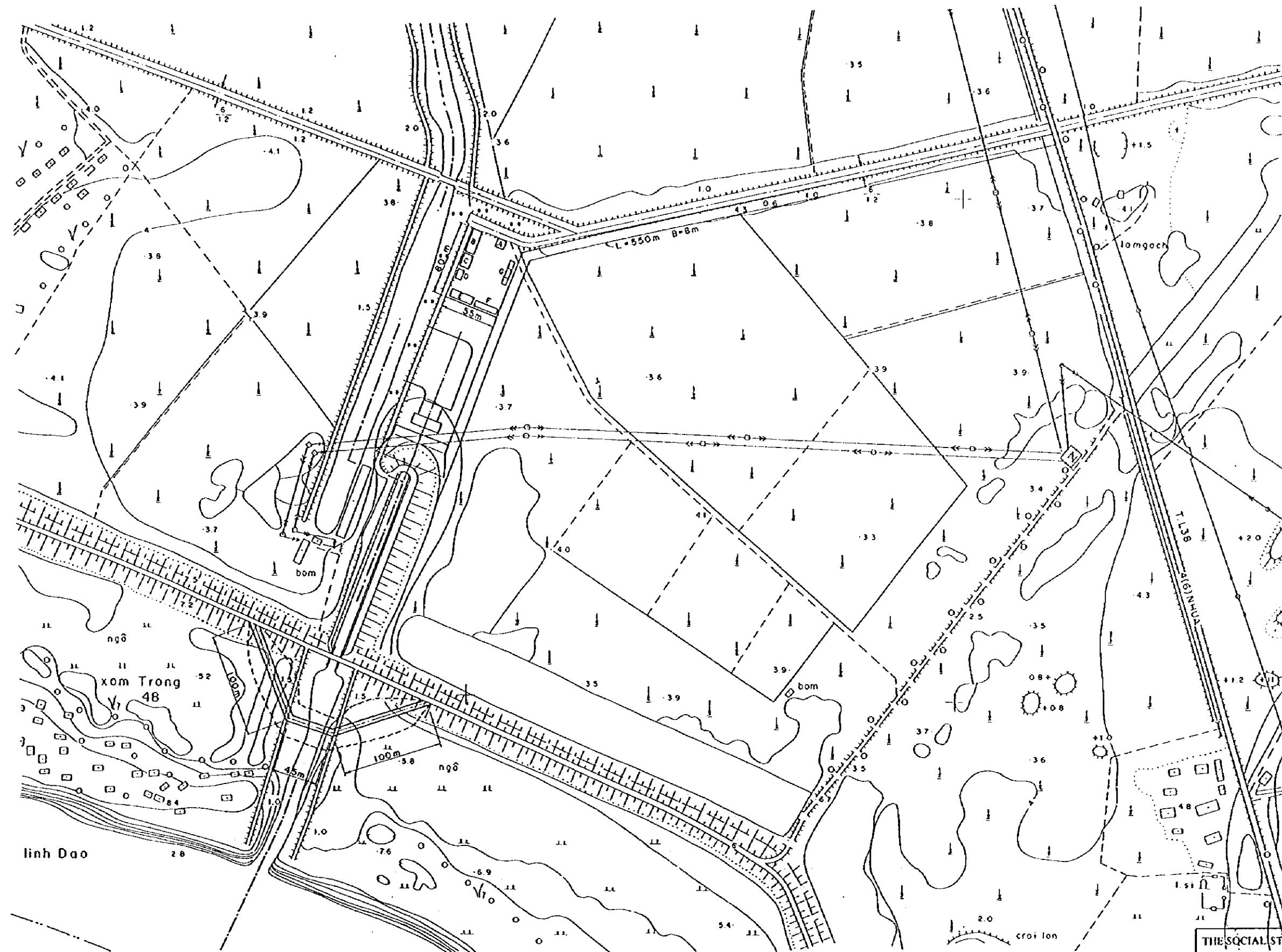
THE SOCIALIST REPUBLIC OF VIETNAM  
THE PROJECT FOR IMPROVEMENT OF  
DRAINAGE SYSTEM IN TAN CHI AGRICULTURAL AREA

PROPOSED TAN CHI PUMP HOUSE  
TEMPORARY COFFERDAM AND DEC(2)  
PLAN AND SECTION

DRW. NO

15

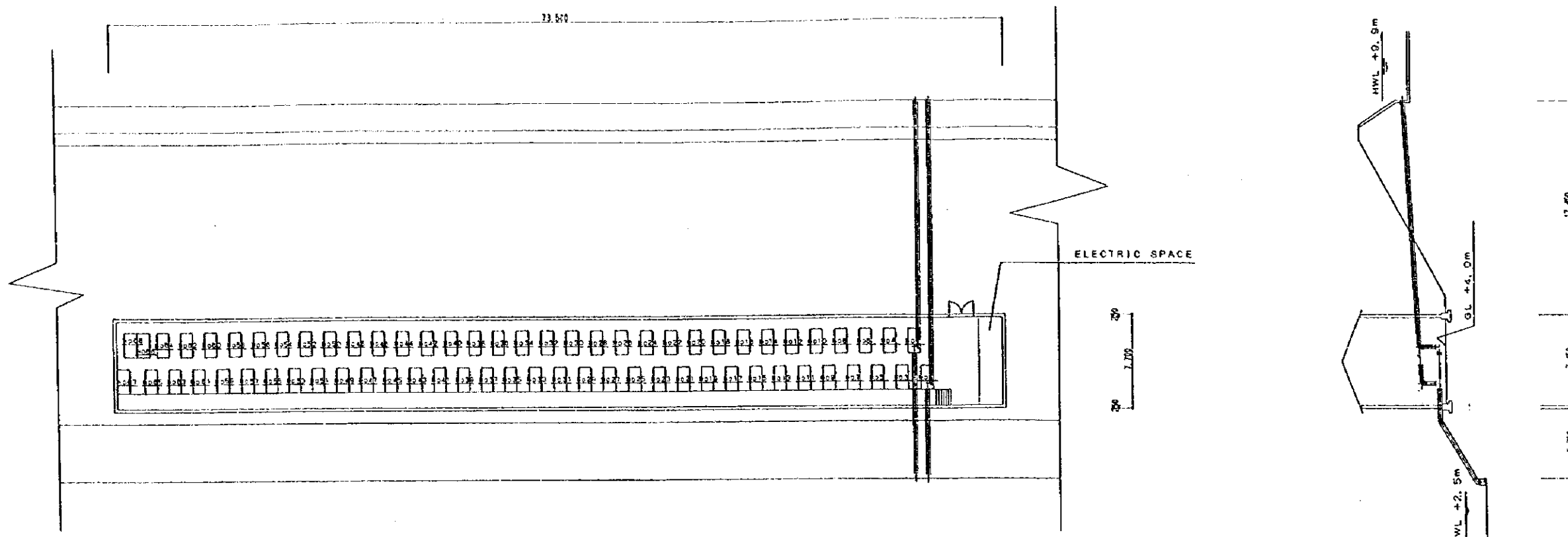
JAPAN INTERNATIONAL COOPERATION AGENCY



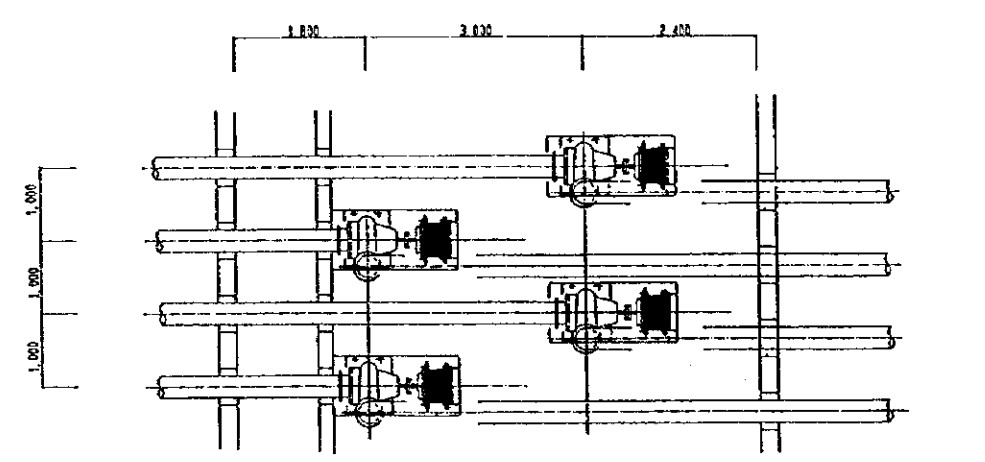
THE SOCIALIST REPUBLIC OF VIETNAM  
 THE PROJECT FOR IMPROVEMENT OF  
 DRAINAGE SYSTEM IN TAN CHI AGRICULTURAL AREA

PROPOSED TAN CHI PUMP STATION TEMPORARY WORKSHOP	DRW. NO 20
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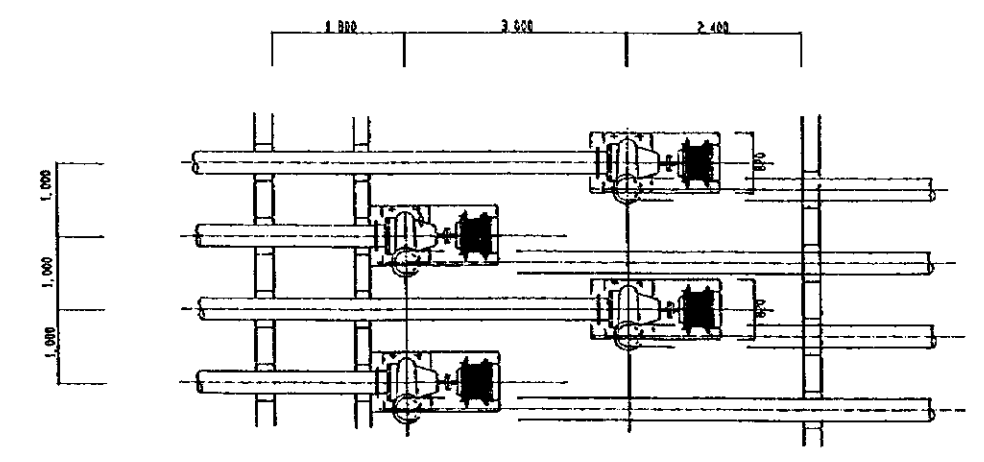
JAPAN INTERNATIONAL COOPERATION AGENCY



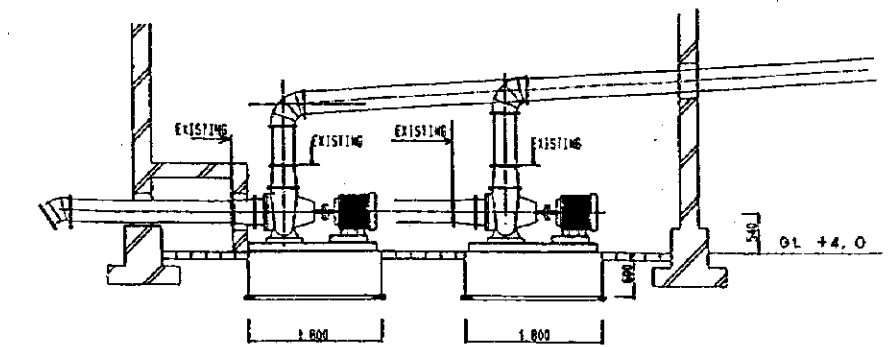
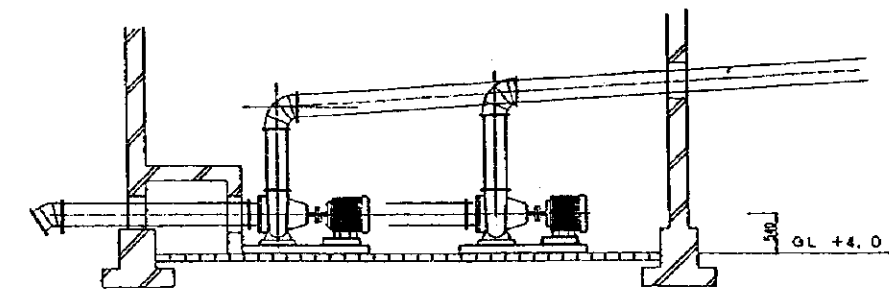
THE EXISTING TAN CHI PUMPING STATION WHOLE DRAWING S=1/200



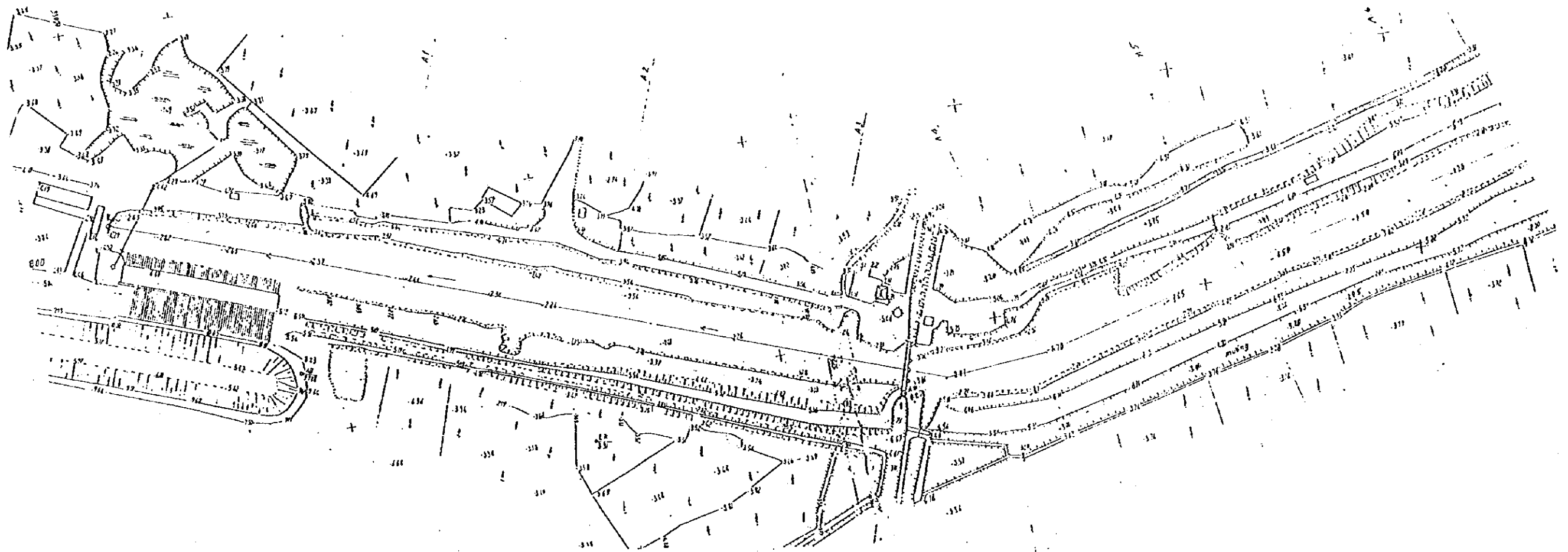
EXISTING PUMPS S=1/50



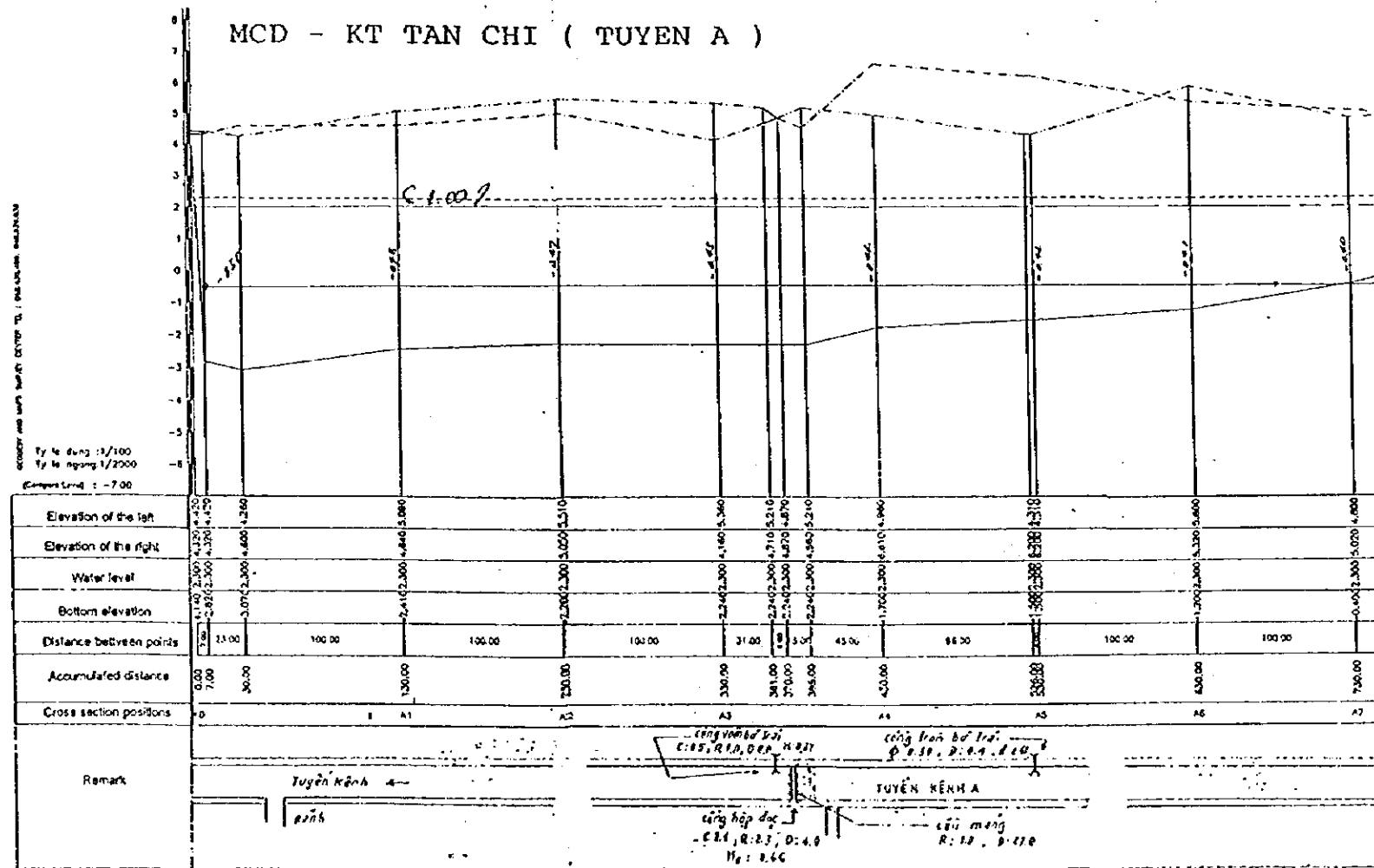
IMPROVED PUMPS S=1/50

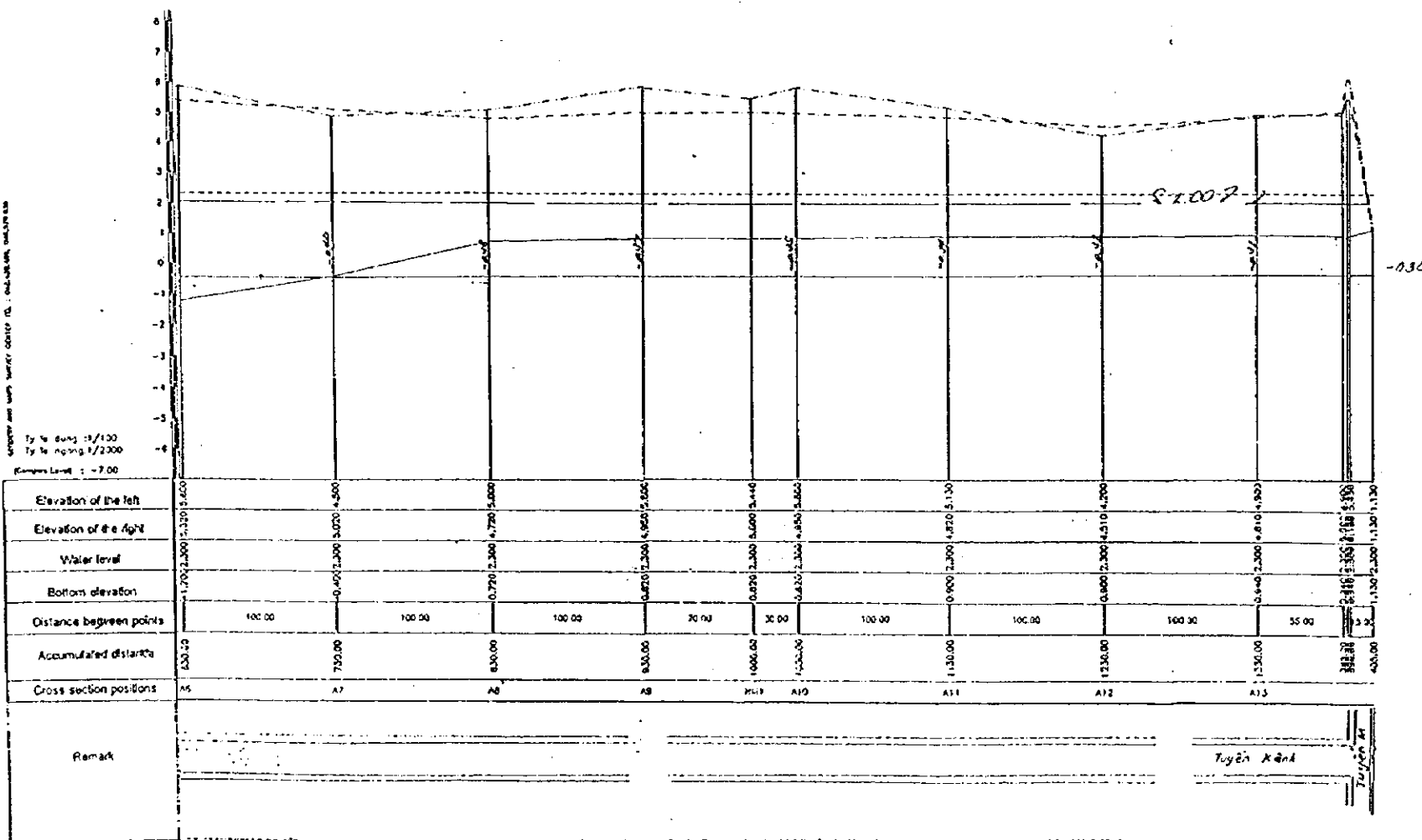
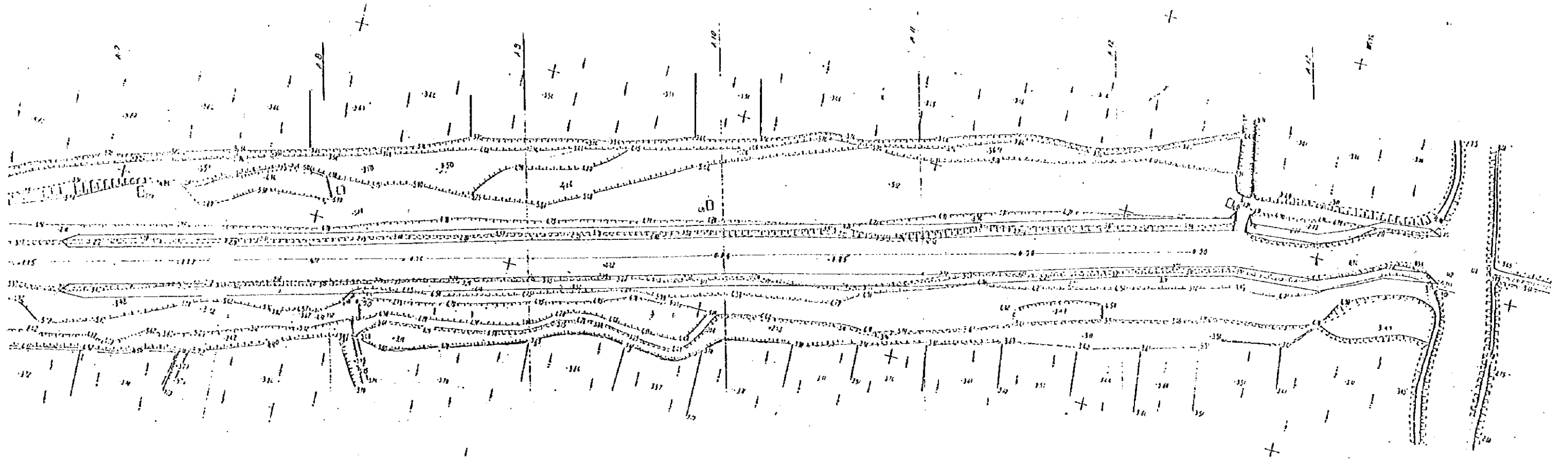


THE SOCIALIST REPUBLIC VIETNAM THE PROJECT FOR IMPROVEMENT OF DRAINAGE SYSTEM IN TAN CHI AGRICURURAL AREA	
THE EXISTING TAN CHI PUMPING STATION INPROVED PLAN	DRW. NO 21
JAPAN INTERNATIONAL COOPERATION AGENCY	



MCD - KT TAN CHI ( TUYEN A )





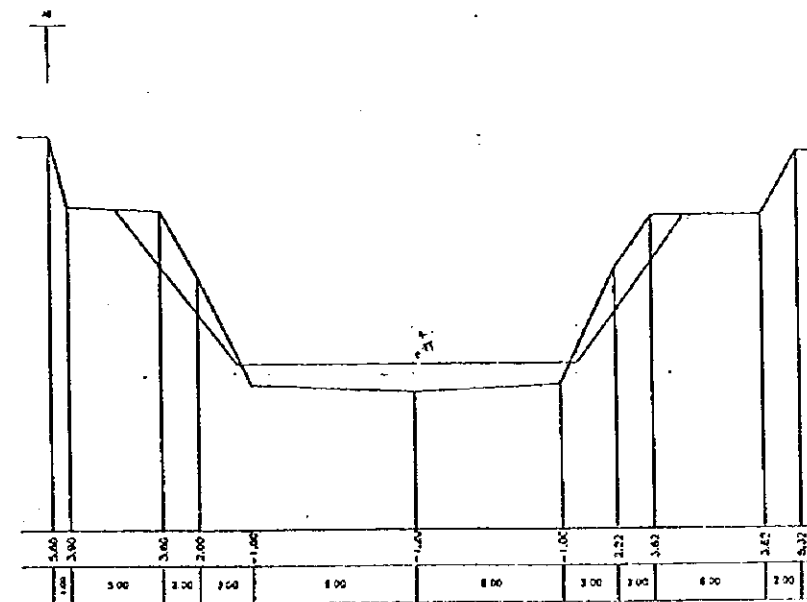
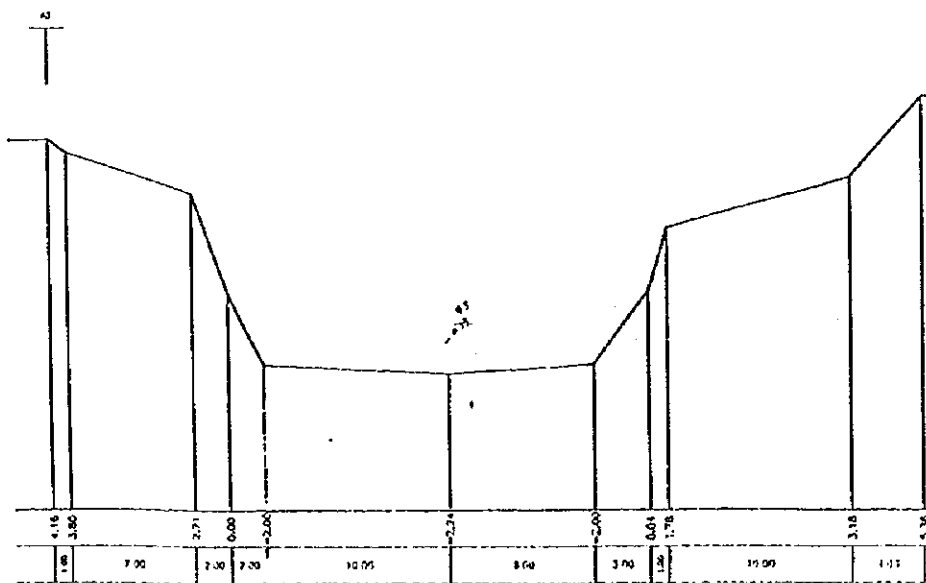
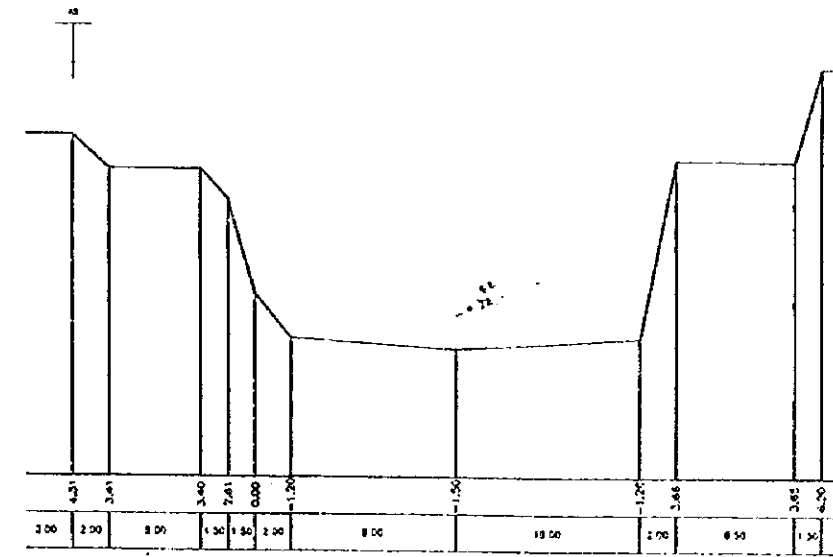
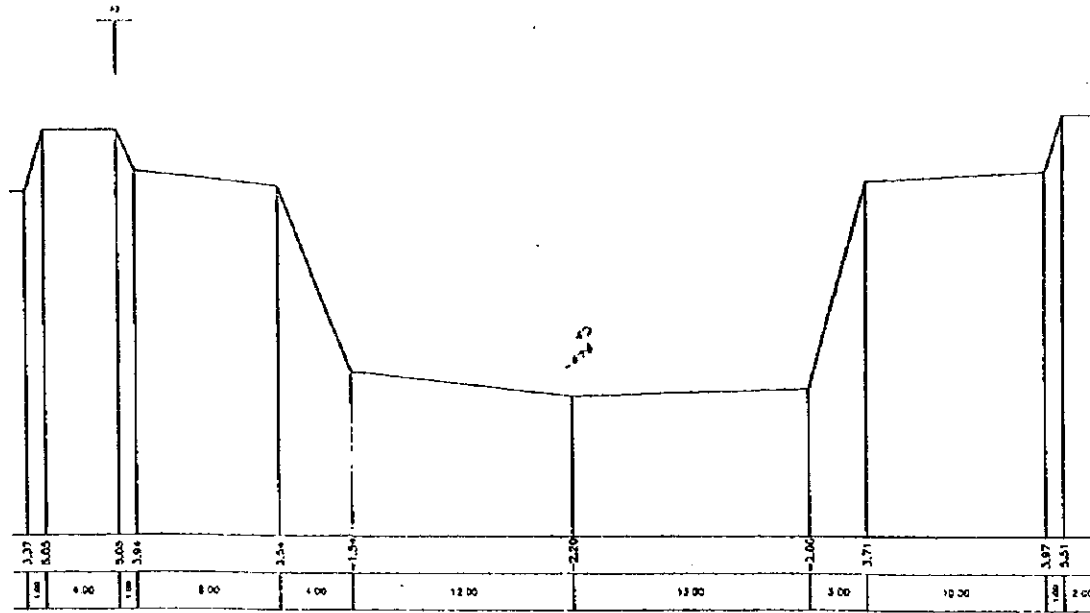
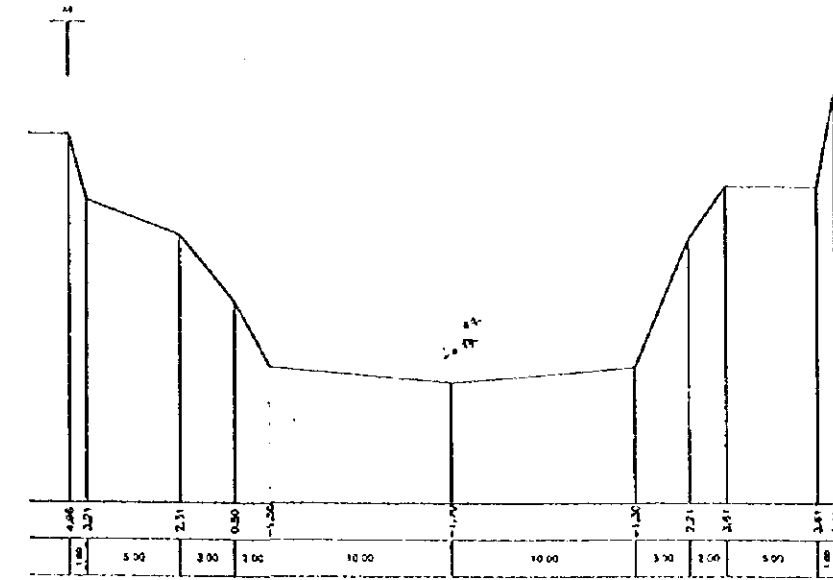
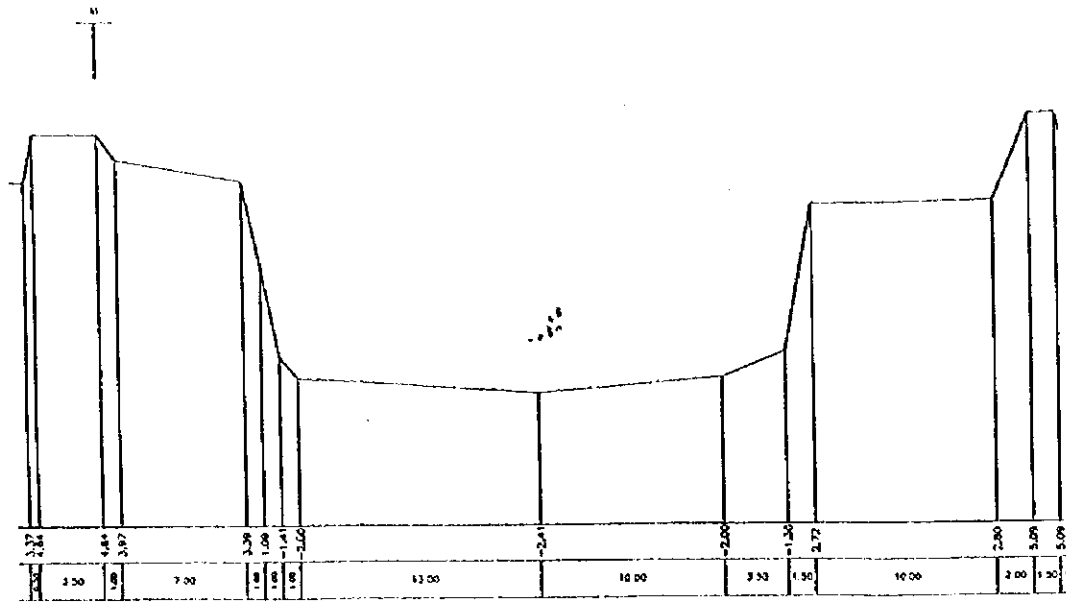
THE SOCIALIST REPUBLIC OF VIETNAM  
 THE PROJECT FOR IMPROVEMENT OF  
 DRAINAGE SYSTEM IN TAN CHI AGRICURURAL AREA

KT TAN CHI  
 PLAN & LONGTUDINAL SECTION

JAPAN INTERNATIONAL COOPERATION AGENCY

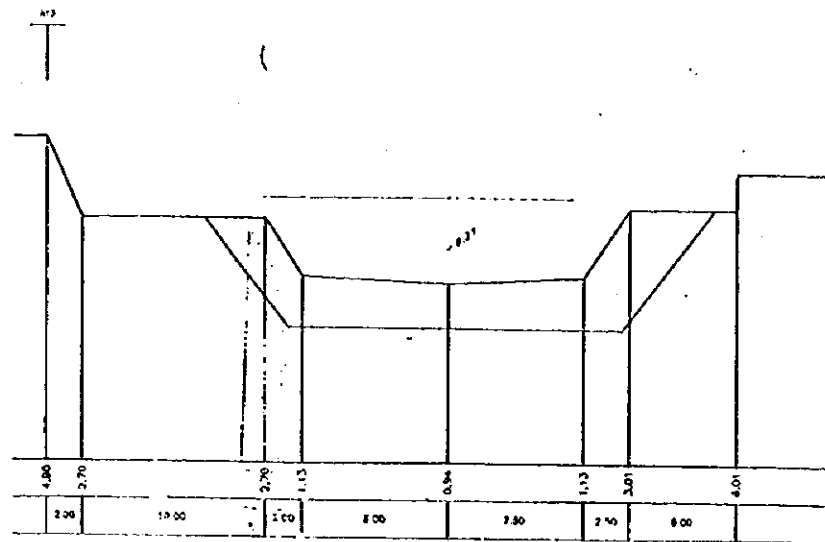
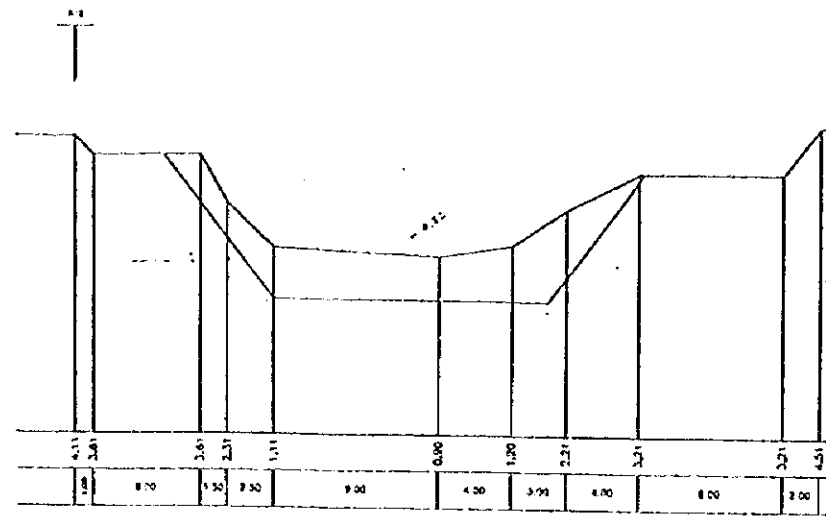
DRW. NO  
 23





THE SOCIALIST REPUBLIC OF VIETNAM	
THE PROJECT FOR IMPROVEMENT OF DRAINAGE SYSTEM IN TAN CHI AGRICULTURAL AREA	
KT TAN CHI	DRW. NO
CROSSING SECTIONS	24
JAPAN INTERNATIONAL COOPERATION AGENCY	

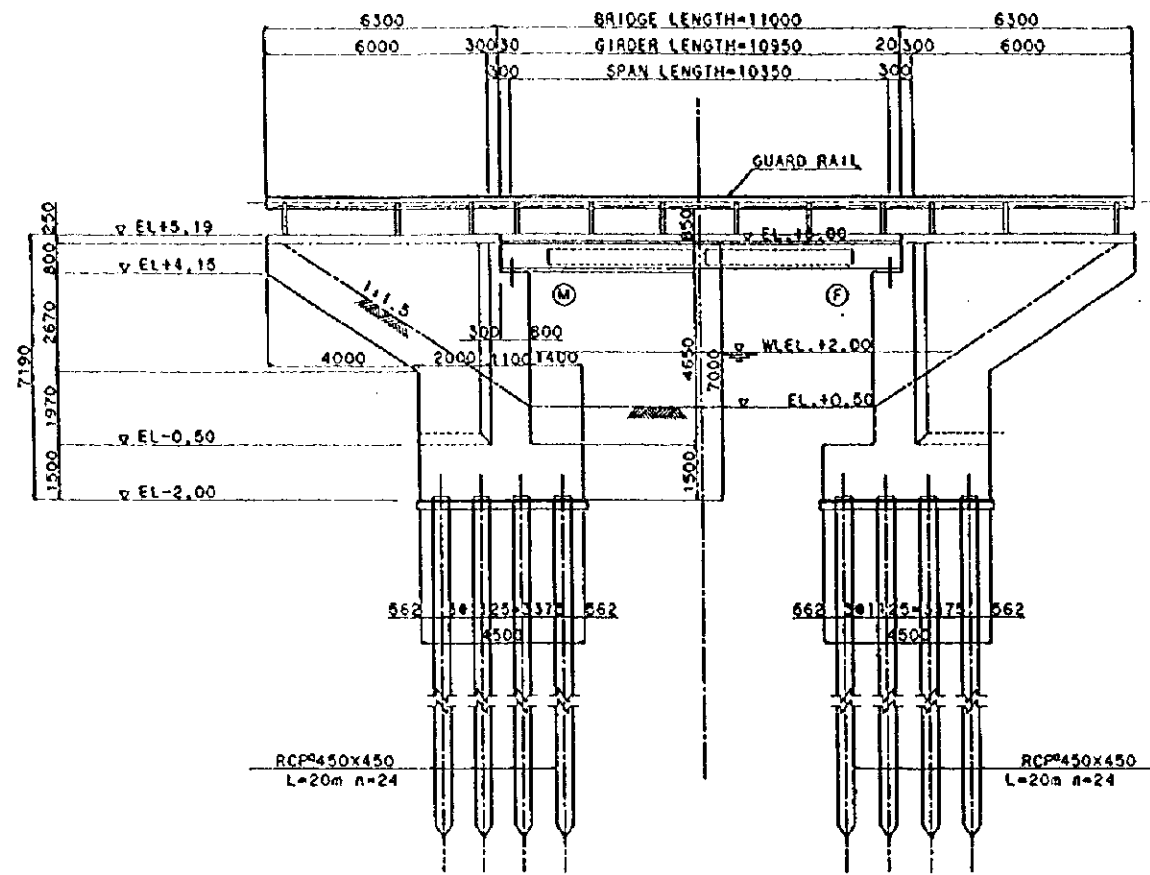




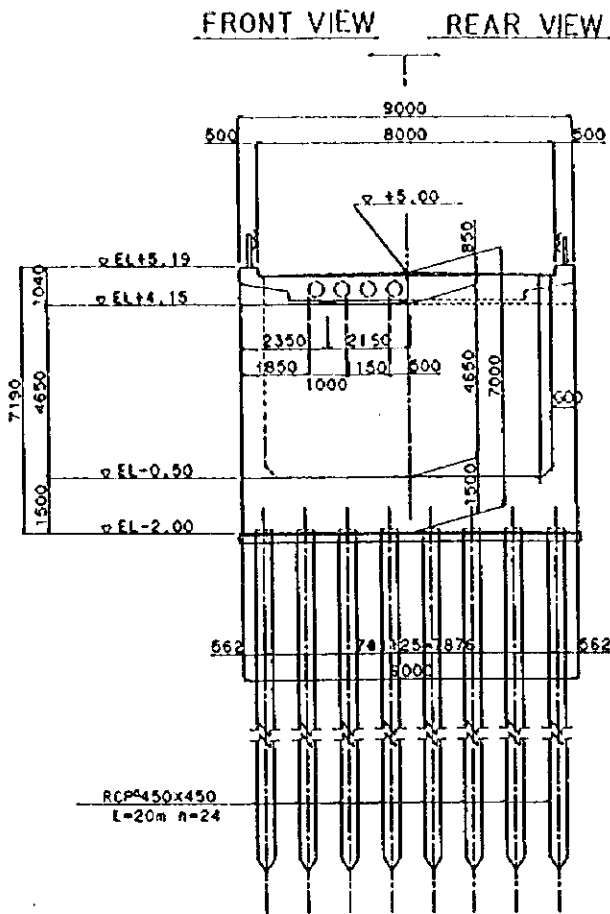
THE SOCIALIST REPUBLIC OF VIETNAM THE PROJECT FOR IMPROVEMENT OF DRAINAGE SYSTEM IN TAN CHI AGRICURURAL AREA	
KT TAN CHI CROSSING SECTIONS	DRW. NO 26
JAPAN INTERNATIONAL COOPERATION AGENCY	

# TRAM BRIDGE

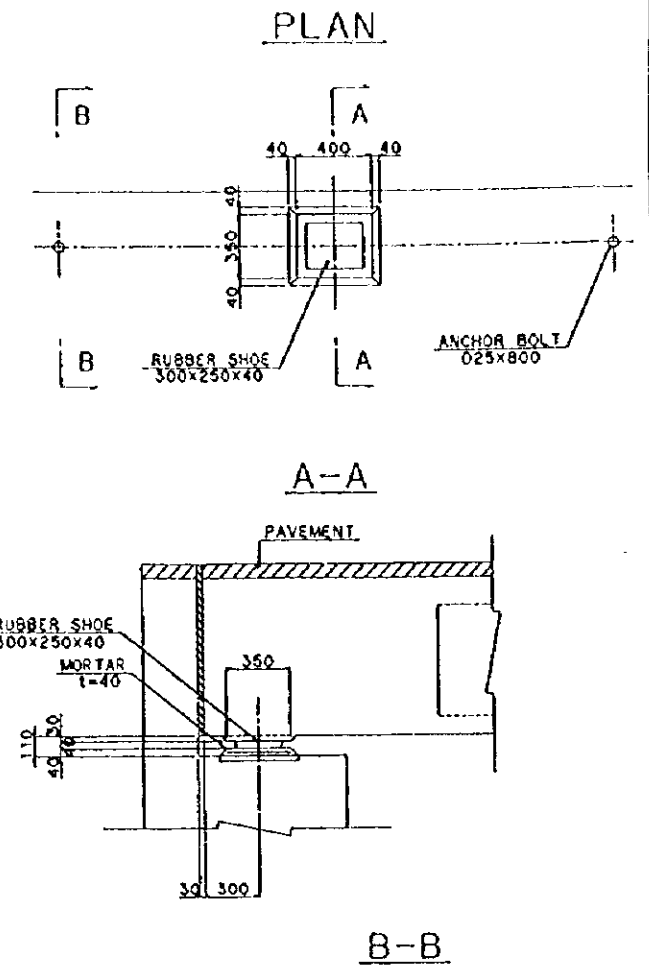
PROFILE S=1:100



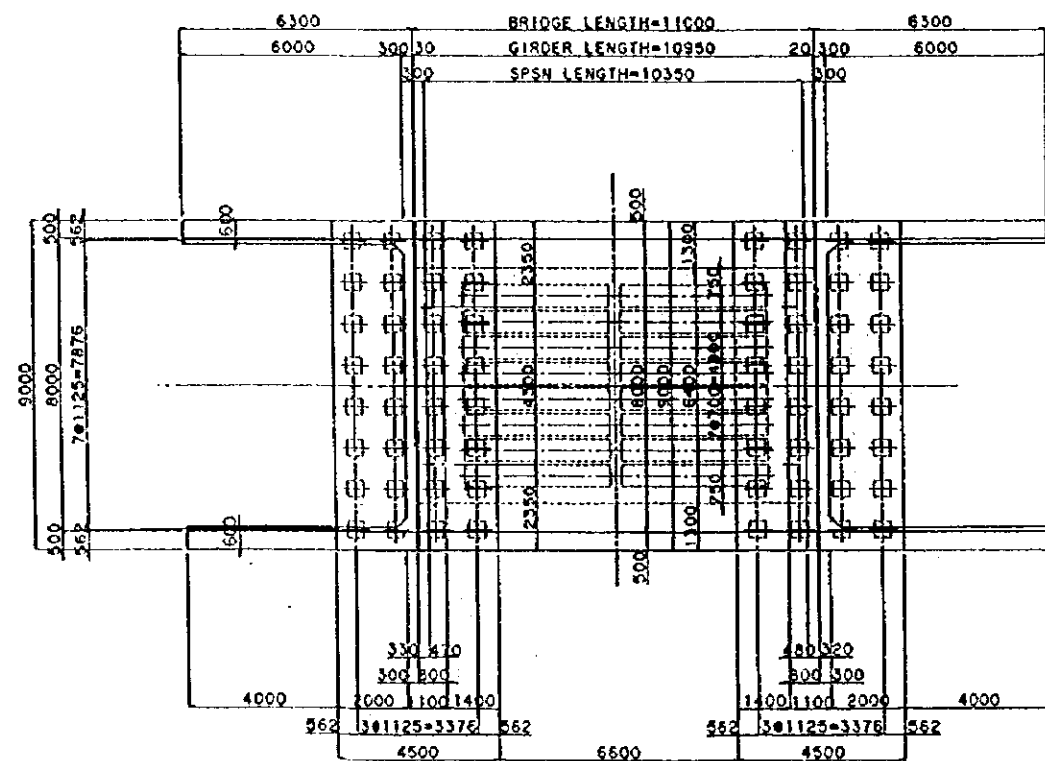
CROSS SECTION S=1:100



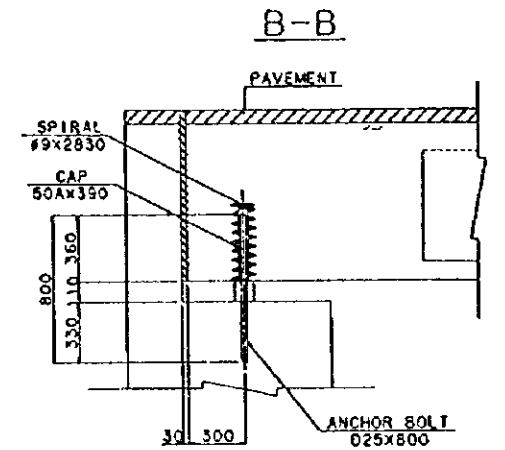
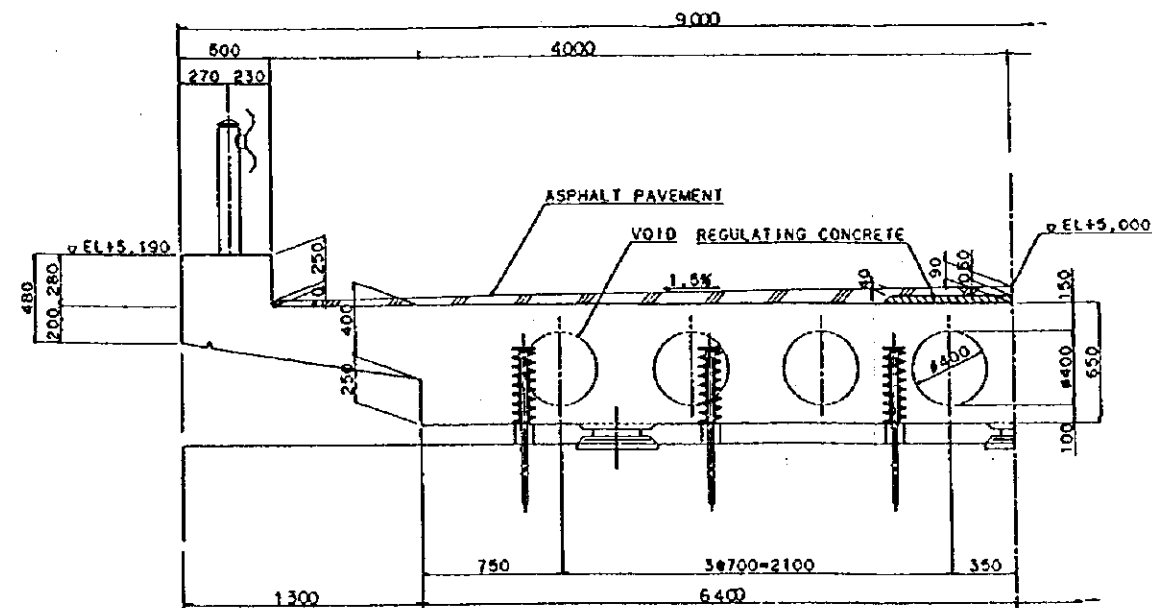
DETAIL OF SHOE S=1:20



PLAN S=1:100



DETAIL OF HOLLOW SLAB S=1:20



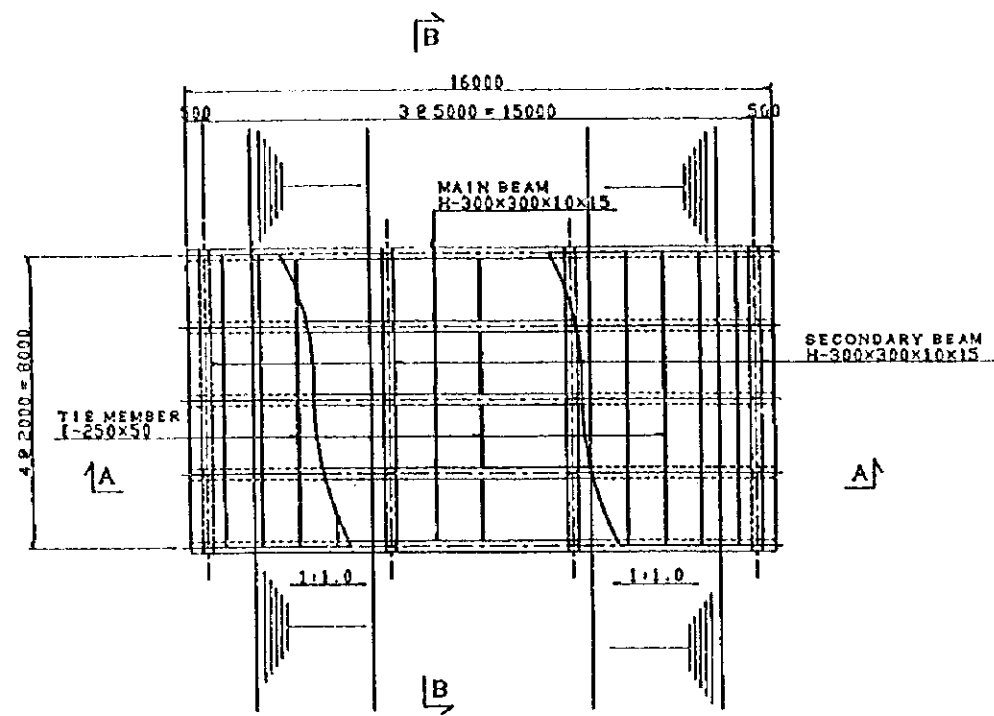
THE SOCIALIST REPUBLIC OF VIETNAM  
THE PROJECT FOR IMPROVEMENT OF  
DRAINAGE SYSTEM IN TAN CHI AGRICULTURAL AREA

TRAM BRIDGE  
PLAN AND SECTION

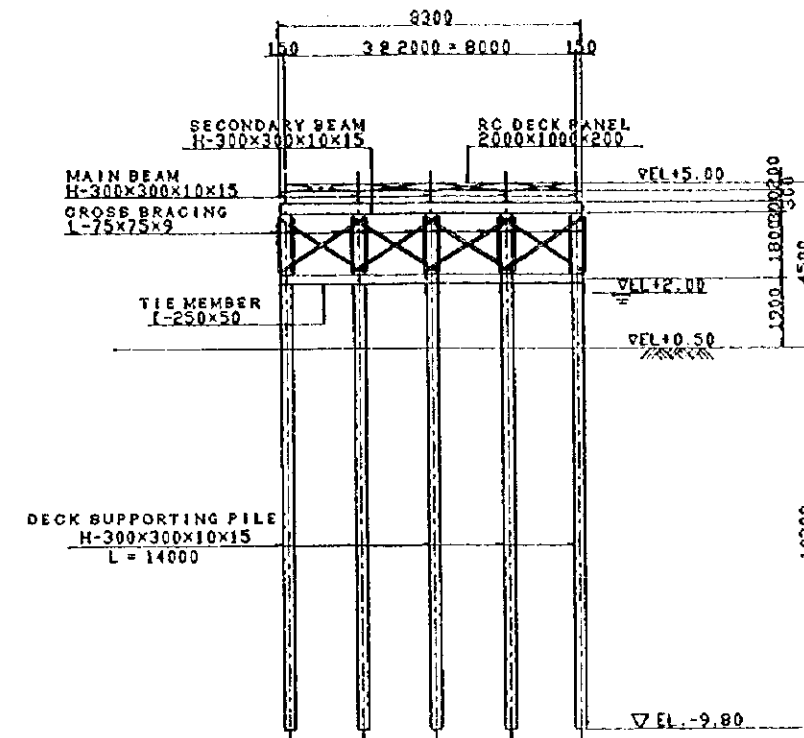
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27

JAPAN INTERNATIONAL COOPERATION AGENCY

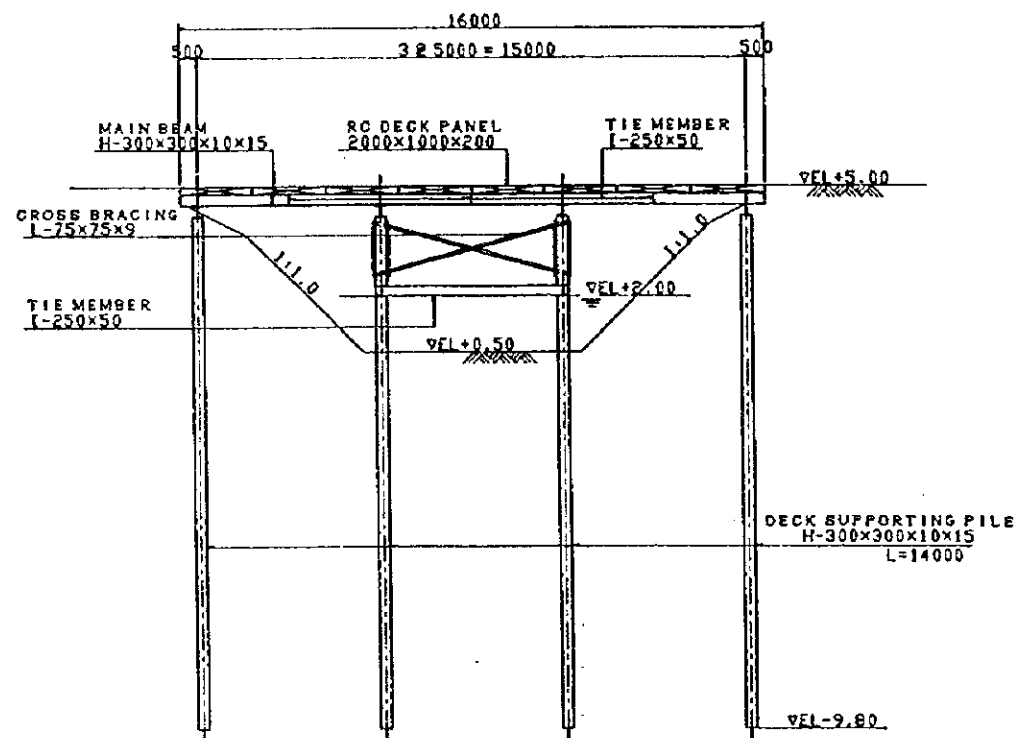
PLAN S=1:100



SECTION B-B S=1:100



SECTION A-A S=1:100



NOTE

1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE STATED.
2. ALL STRUCTURAL STEEL SECTIONS AND PLATES TO BE SS400 TO JIS G3101 OR EQUIVALENT.
3. CONCRETE MIX FOR TEMPORARY DECK PLATE TO BE DESIGNED MIX HAVING 300KSC AT 28 DAYS.
4. REINFORCEMENT BAR FOR TEMPORARY DECK PLATE TO BE DEFORMED BAR OF GRADE SD295A TO JIS G3112 OR EQUIVALENT.

THE SOCIALIST REPUBLIC OF VIETNAM  
THE PROJECT FOR IMPROVEMENT OF  
DRAINAGE SYSTEM IN TAN CHI AGRICULTURAL AREA

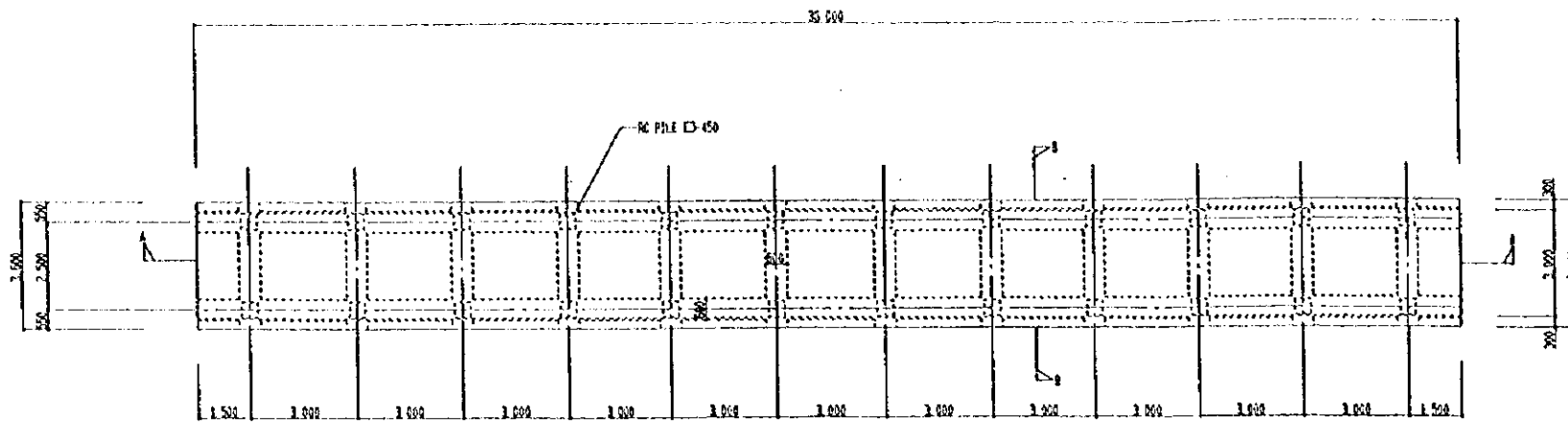
TEMPORARY BRIDGE FOR TRAM BRIDGE  
PLAN AND SECTION

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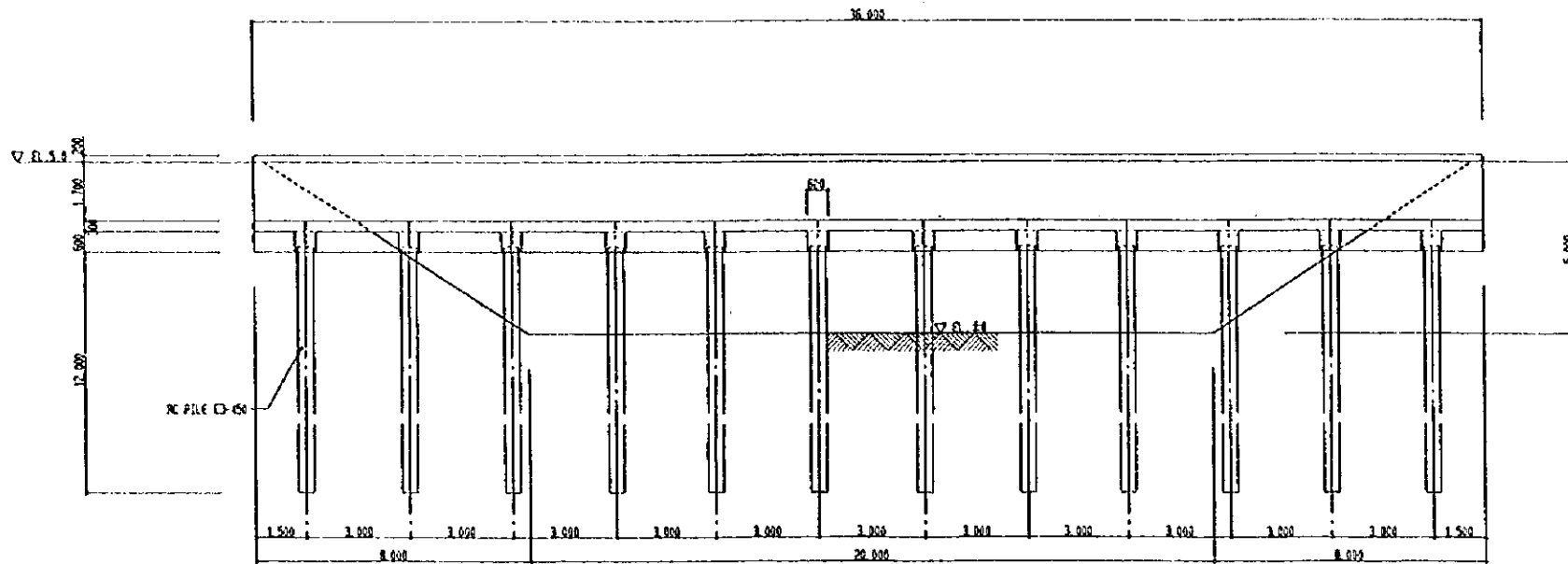
JAPAN INTERNATIONAL COOPERATION AGENCY



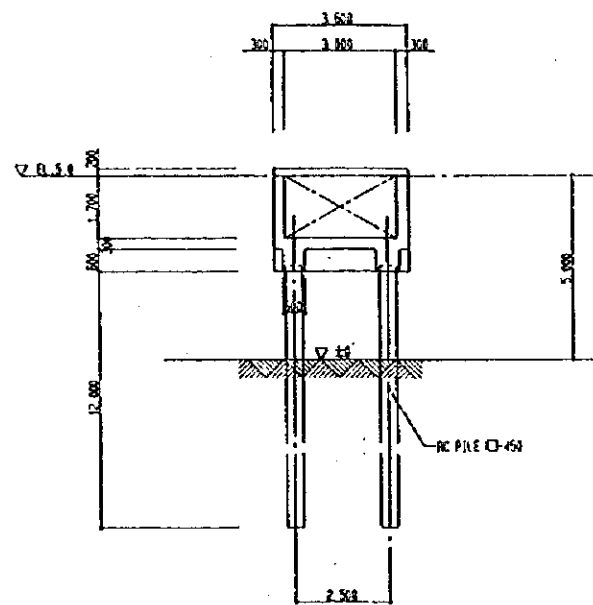
② N.6 ELEVATED FLUME



PLAN 1:100

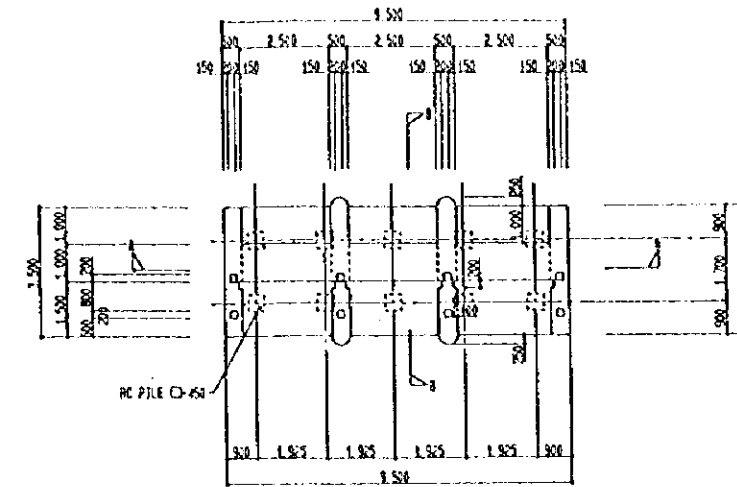


A-A SECTION 1:100

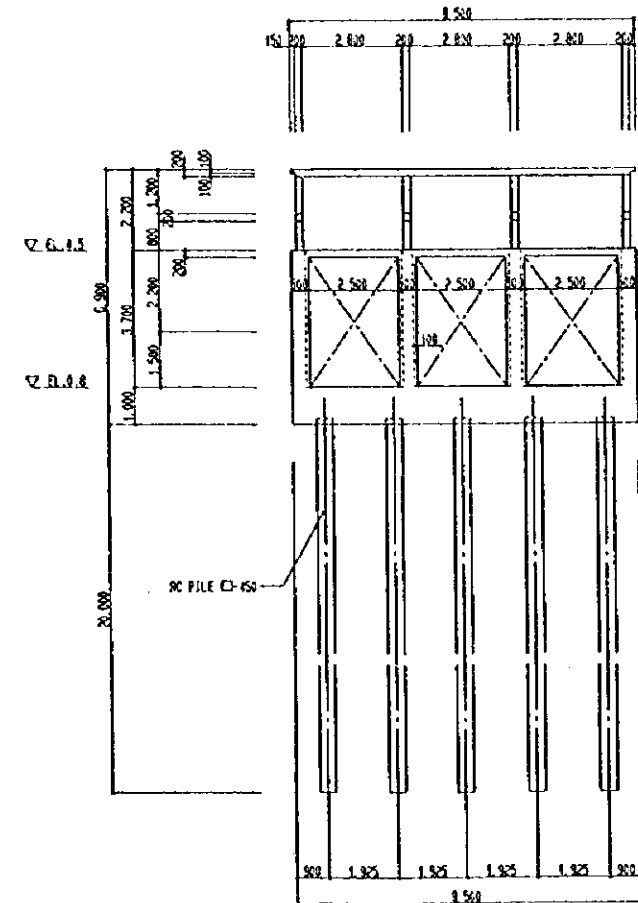


B-B SECTION 1:100

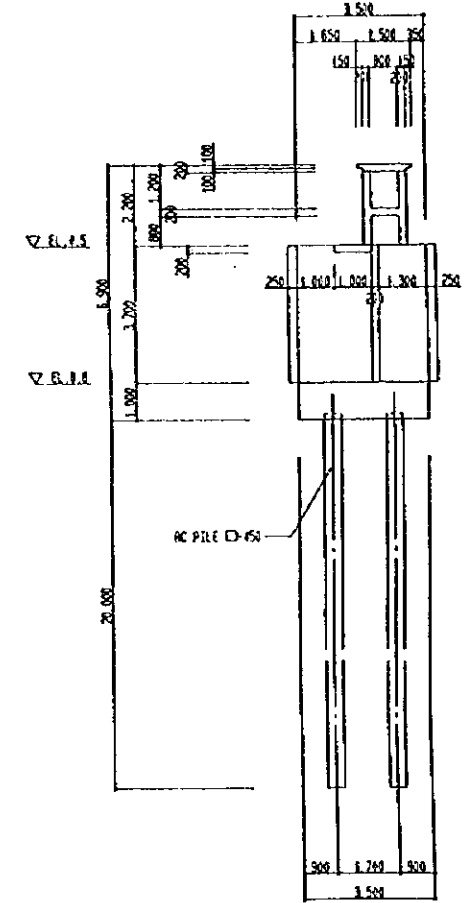
① TRAM BRIDGE (WATER GATE)  
③ DONG MAI BRIDGE (WATER GATE)



PLAN 1:100



A-A SECTION 1:100



B-B SECTION 1:100

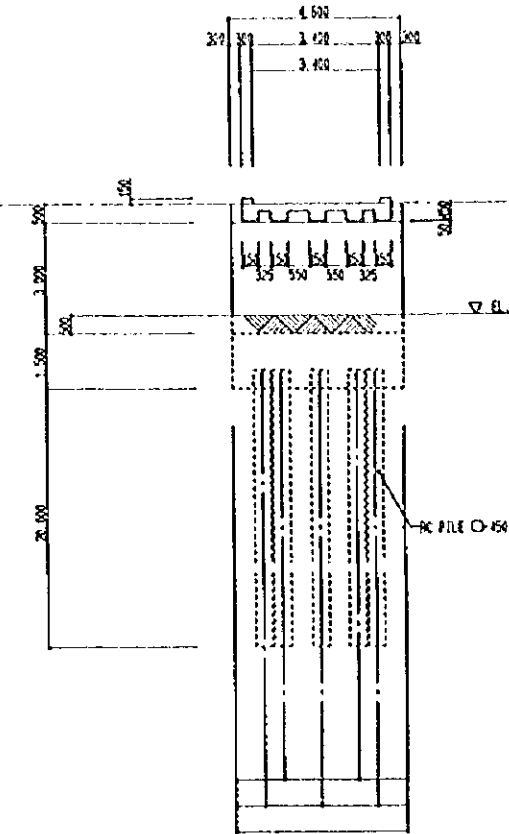
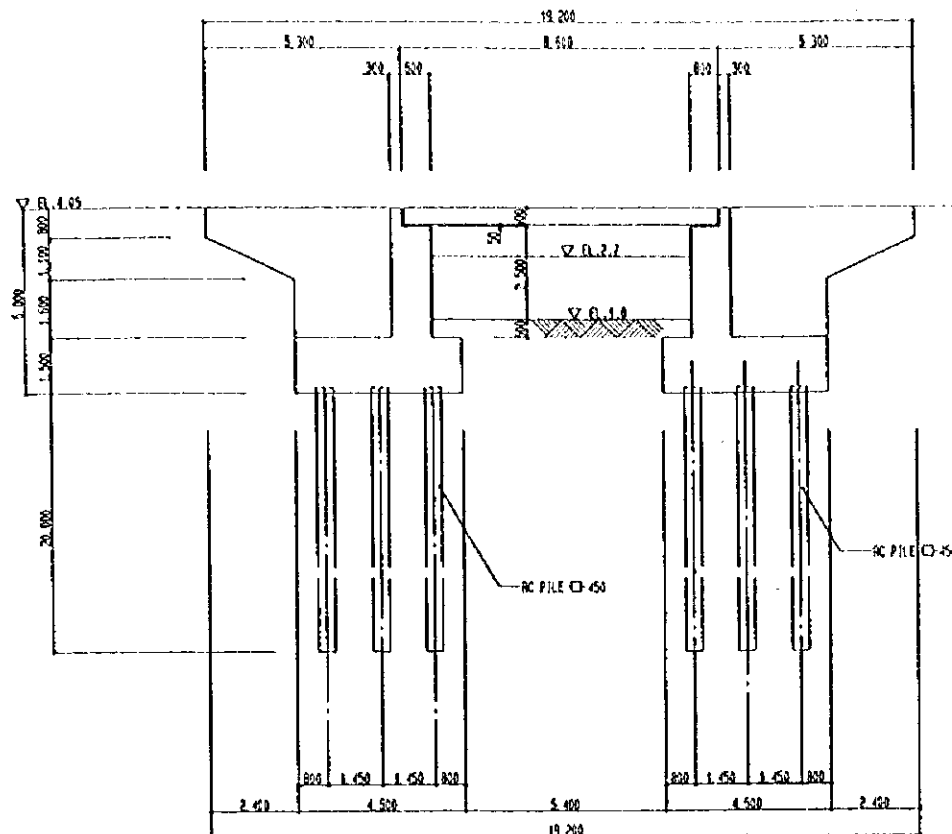
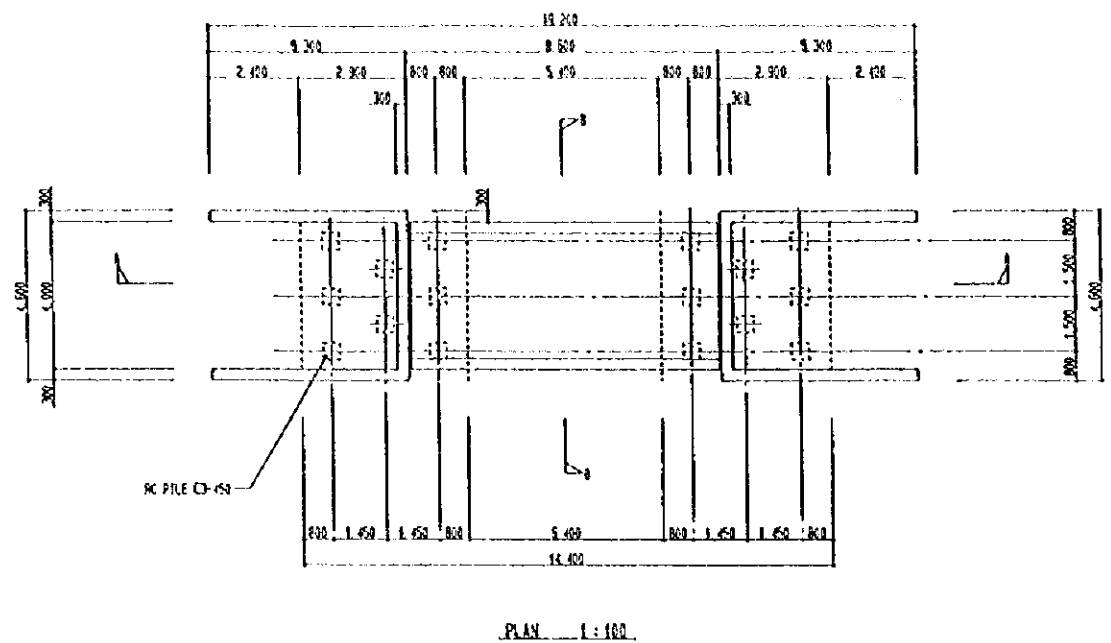
THE SOCIALIST REPUBLIC OF VIETNAM  
THE PROJECT FOR IMPROVEMENT OF  
DRAINAGE SYSTEM IN TAN CHI AGRICULTURAL AREA

IMPROVEMENT FOR IRRIGATION AND DRAINAGE FACILITIES  
IN MAIN CANAL, PLAN AND SECTION OF  
① TRAM BRIDGE, ② N.6 ELEVATED CANAL, ③ DON MAI BRIDGE

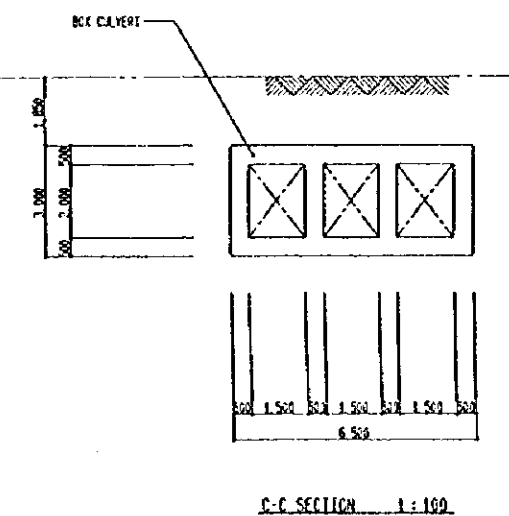
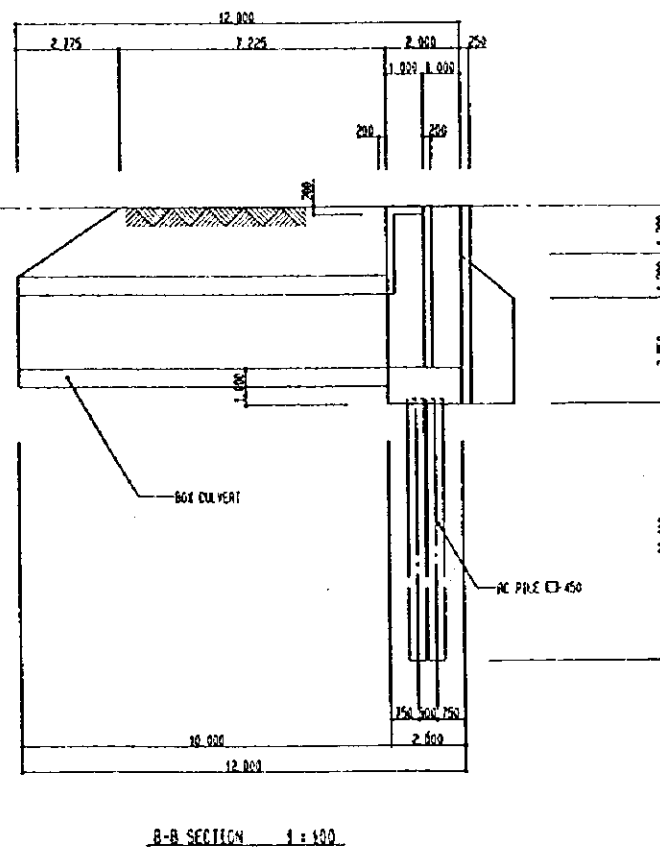
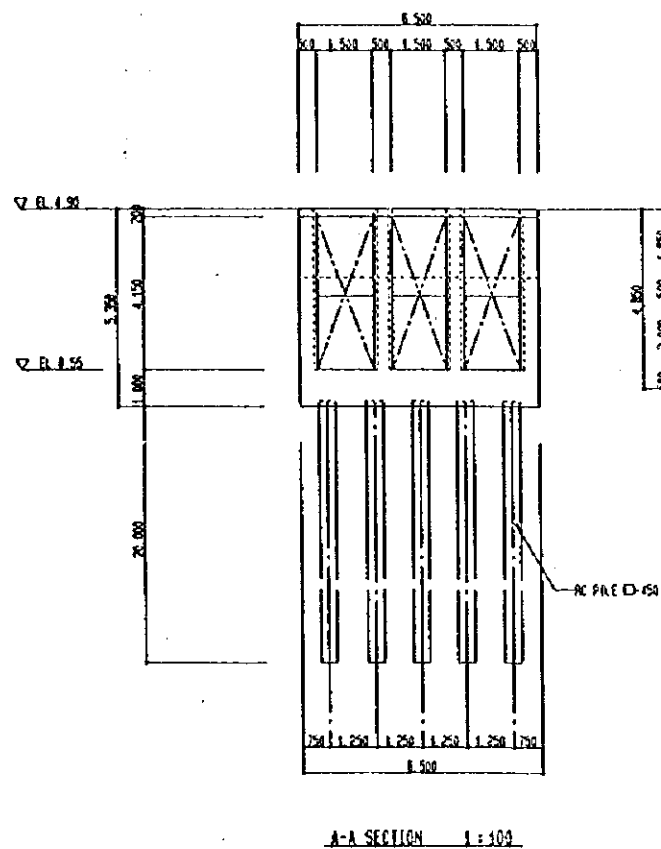
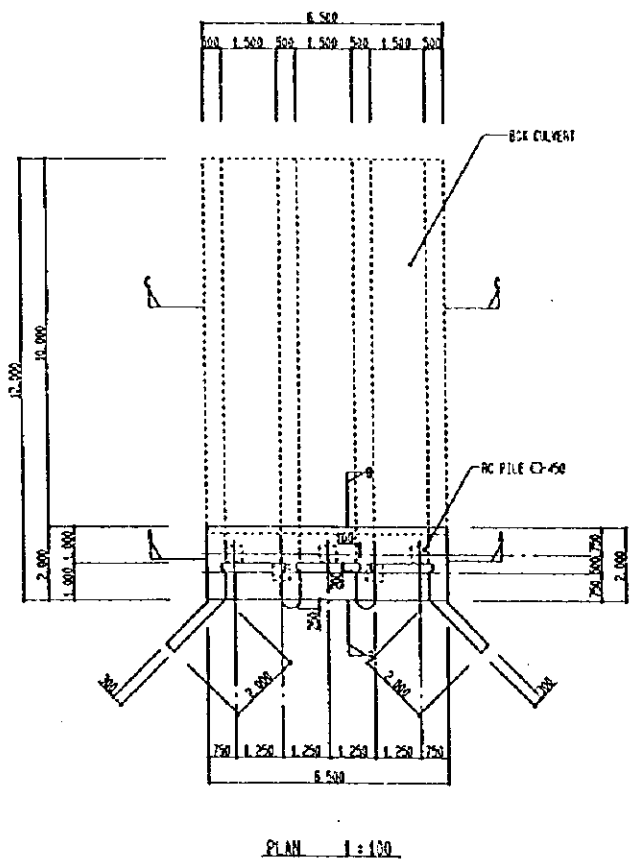
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S-②③ BRIDGE



S-① IRRAWADDI CANAL (WATER GATE)



THE SOCIALIST REPUBLIC OF VIETNAM  
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DRAINAGE SYSTEM IN TAN CHI AGRICULTURAL AREA

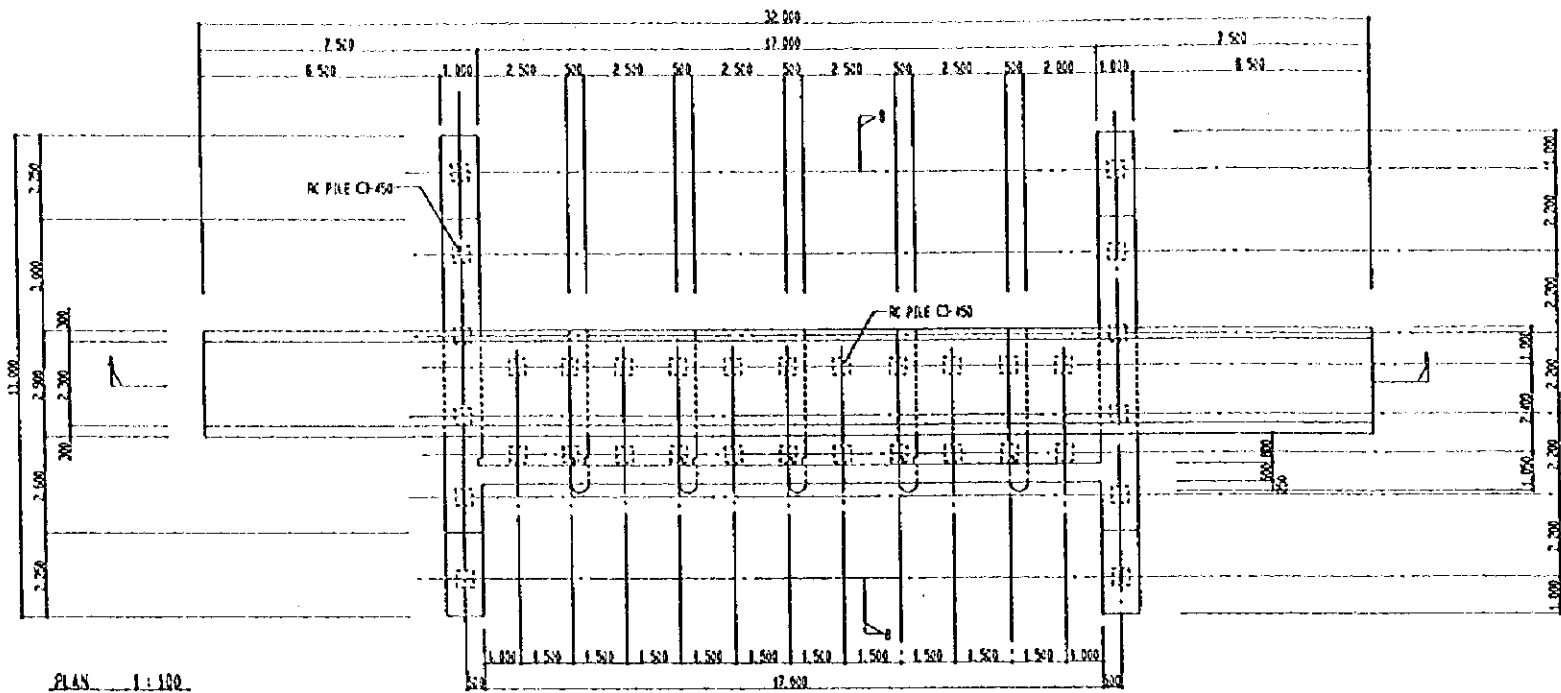
IMPROVEMENT FOR IRRIGATION AND DRAINAGE FACILITIES  
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S-①②③④

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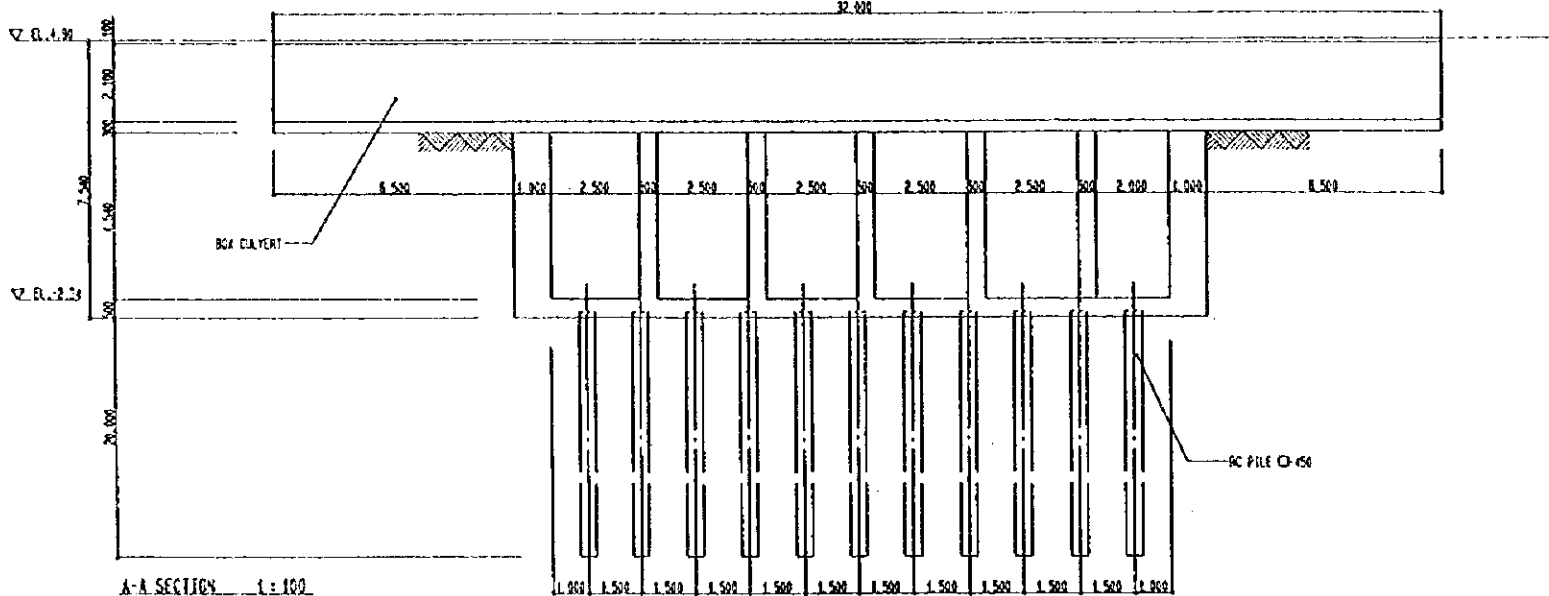
JAPAN INTERNATIONAL COOPERATION AGENCY



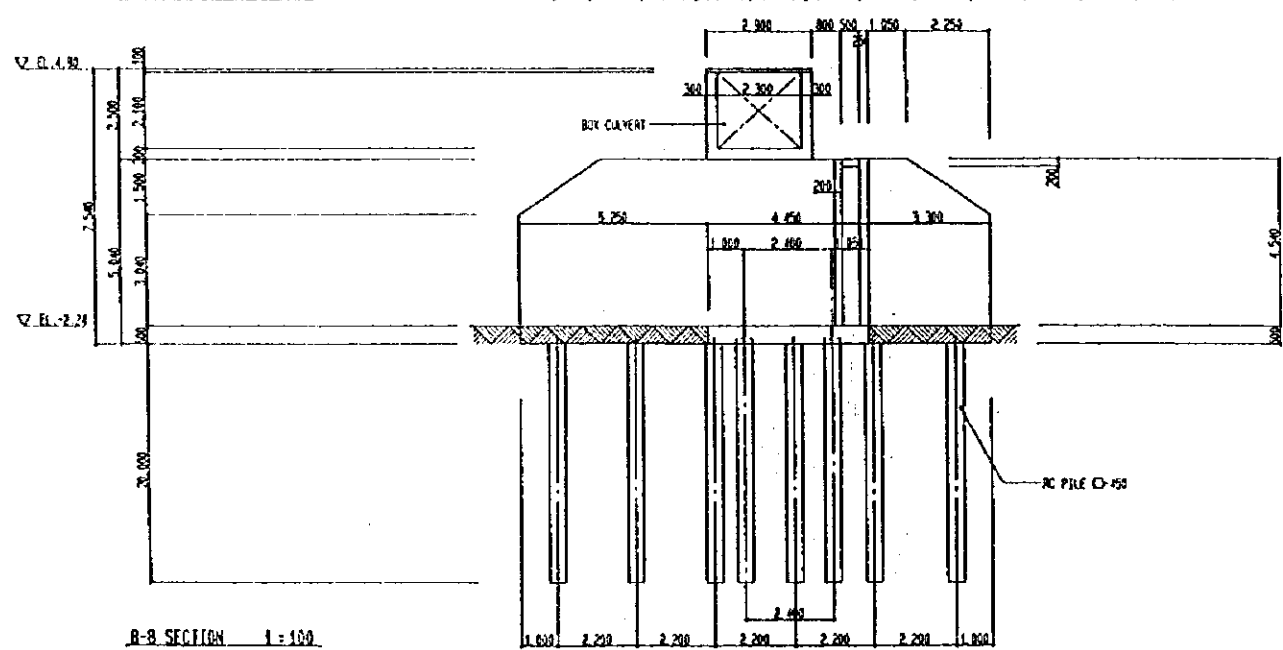
S-⑤ CULVERT WATER GATE



PLAN 1:100

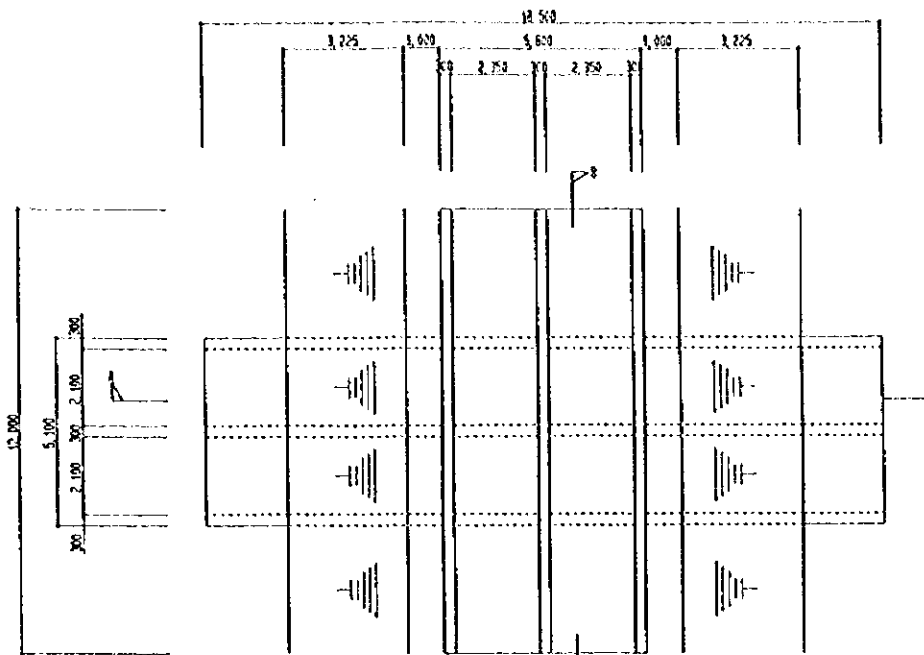


A-A SECTION 1:100

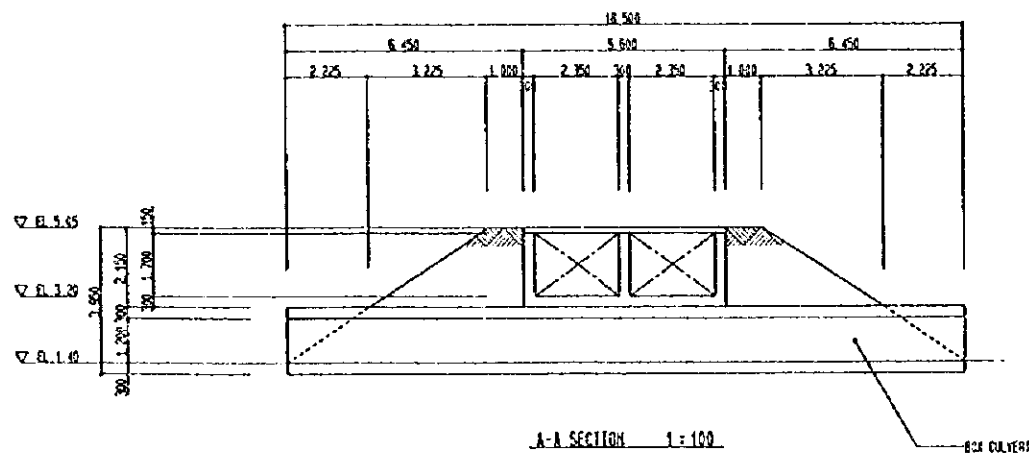


B-B SECTION 1:100

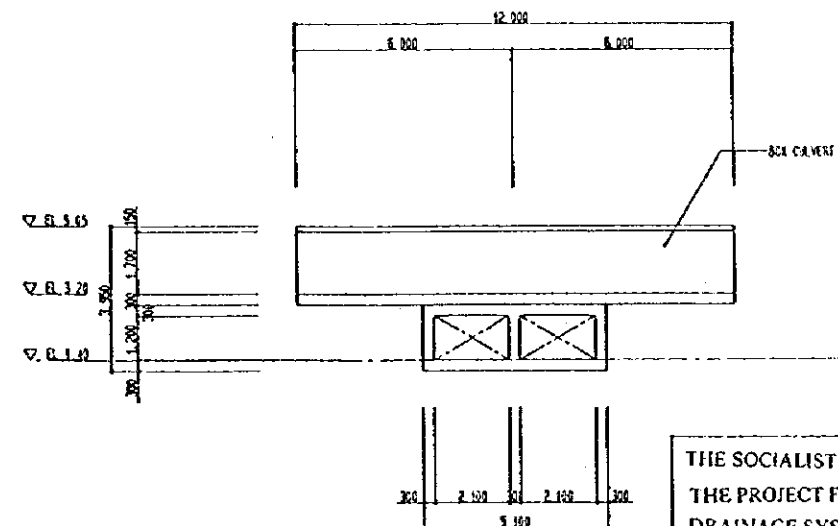
S-④ CULVERT



PLAN 1:100



A-A SECTION 1:100



B-B SECTION 1:100

THE SOCIALIST REPUBLIC OF VIETNAM  
THE PROJECT FOR IMPROVEMENT OF  
DRAINAGE SYSTEM IN TAN CHI AGRICULTURAL AREA

IMPROVEMENT FOR IRRIGATION AND DRAINAGE FACILITIES  
IN SECONDARY CANAL, PLAN AND SECTION OF  
S-⑤ S-④

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JAPAN INTERNATIONAL COOPERATION AGENCY



# APPENDICES

**Appendix 1 Member List of the Survey Team**

**Appendix 2 Survey Schedule**

**Appendix 3 List of Party Concerned in the Receipt Country**

**Appendix 4 Minutes of Meeting**

**4-1 Minutes of Meeting (Inception Report)**

**4-2 Minutes of Meeting (Draft Basic Design)**

**Appendix 5 Cost estimation Borne by the Receipt Country**

**Appendix 6 Other Relevant Data**

**6-1 Geological Condition at the New Pumping Station**

**6-2 Study on Pump Type and Pump Combination Planning**

## **Appendix 1 Member List of the Survey Team**

**Mr. Toshiyuki KUROYANAGI**

**Director, Follow-up Division, Grant Aid Project Management Department, JICA**

**Mr. Takanobu KURODA**

**Grant Aid Advisor, Ministry of Foreign Affairs**

**Mr. Hideyoshi TAKAHASHI**

**Technical Adviser, Construction Department, Ministry of Agriculture, Forestry and Fisheries**

**Mr. Katsumi YAMANOME**

**Project Coordinator, First Project Study Division, Grant Aid Project Study Department, JICA**

**Mr. Fumimichi OBU**

**Chief Engineer / Operation & Maintenance Planner, Sanyu Consultants Inc.**

**Mr. Kazuo OHTSUBO**

**Facility Planner I (Pumping Station), Sanyu Consultants Inc.**

**Mr. Yoshiji SAKEMOTO**

**Facility Planner II (Electricity, Mechanics), Sanyu Consultants Inc.**

**Mr. Toshinobu NAKANO**

**Facility Planner III (Drainage Canal), Sanyu Consultants Inc.**

**Mr. Toshinori KUDO**

**Cost Estimate and Procurement Planner, Sanyu Consultants Inc.**

**Mr. Fuku FUKAWA/Mrs. Yoshiko FUSE**

**Interpreter, Sanyu Consultants Inc.**

Appendix 2(1/2) Survey Schedule (Site Survey for Basic Design)

No.	Date	Day	Activities	Stay at
1.	Sept. 9 <sup>th</sup>	Tue.	Trip to Hanoi, Vietnam	Hanoi
2.	10	Wed.	A, C-E, H, J: Courtesy call on JICA office, Embassy of Japan (EOJ), Ministry of Agriculture And Rural Development (MARD) Ministry of Planning and Investment (MPI)	Hanoi
3.	11	Thu.	A, C-E, H, J: Courtesy call on People's Committee of Bac Ninh Province, Site Survey	Hanoi
4.	12	Fri.	A, C-E, H, J: Site Survey	Hanoi
5.	13	Sat.	A-E, H, J: Team's Meeting	Hanoi
6.	14	Sun.	A, C-E, H, J: Team's Meeting	Hanoi
7.	15	Mon.	A, C-E, H, J: Discussion on Inception Report	Hanoi
8.	16	Tue.	A, C-E, H, J: Discussion on Inception Report	Hanoi
9.	17	Wed.	A, C-E, H, J: Discussion on Minutes of the Meeting	Hanoi
10.	18	Thu.	A, C-E, H, J: Signing of Minutes of the Meeting, Report to EOJ and JICA office	Hanoi
11.	19	Fri.	A,C-D: Leave Hanoi E, H, J: Site Survey	Hanoi
12.	20	Sat.	E, H, J: Site Survey	Hanoi
13.	21	Sun.	E, H, J: Team's Meeting	Hanoi
14.	22	Mon.	E, H, J: Conference with MARD, report to EOJ, JICA office	Hanoi
15.	23	Tue.	E, H, J: Leave Hanoi	Tokyo
16.	Oct. 8	Wed.	Trip to Hanoi, Vietnam	Hanoi
17.	9	Thu.	E, F, H~J: Courtesy call on EOJ, MARD, MPI	Hanoi
18. to 20.	10 to 12	Fri.  Sun.	E, F, H~J: Site Survey	Hanoi
21.	13	Mon.	E, F, H~J: Site Survey G: Arrival at Hanoi	Hanoi
22. to 39.	14 to 31	Tue.  Fri.	E~J: Site Survey	Hanoi
40. to 44.	Nov. 1 To 5	Sat.  Wed.	E~J: Site Survey	Hanoi
45.	6	Thu.	E~J: Trip to Tokyo	Tokyo

Note: A: Leader  
 B: Grant Aid Advisor  
 C: Technical Advisor  
 D: Project Coordinator  
 E: Chief Engineer  
 F: Facility Planner I  
 G: Facility Planner II  
 H: Facility Planner III

**Appendix 2(2/2) Survey Schedule (Explanation for the Draft Basic Design Report)**

No.	Date	Day	Activities	Stay at
1.	Sept. 15 <sup>th</sup>	Thu.	Trip to Hanoi, Vietnam	Hanoi
2.	16	Fri.	Courtesy call on JICA office, Embassy of Japan (EOJ), Ministry of Agriculture And Rural Development (MARD) Ministry of Planning and Investment (MPI)	Hanoi
3.	17	Sat.	Team's Meeting	Hanoi
4.	18	Sun.	Team's Meeting	Hanoi
5.	19	Mon	Discussion on Draft Basic Design Report	Hanoi
6.	20	Tue	Discussion on Draft Basic Design Report	Hanoi
7.	21	Wed.	Discussion on Draft Basic Design Report	Hanoi
8.	22	Thu.	Signing of Minutes of the Meeting, Report to EOJ and JICA office	Hanoi
9.	23	Fri.	Leave Hanoi	Hanoi

Note: A: Leader(Mr. Yamanome)

B: Chief Engineer

C: Facility Planner I

### **Appendix 3 List of Party Concerned in the Recipient Country**

#### **1. Ministry of Planning and Investment**

- Mr. Phan Doanh :Director of Agriculture and Rural Development  
Mr. Tran Tuan Anh :Senior Expert of Foreign Economic Relations Dept.

#### **2. Ministry of Agriculture and Rural Development**

- Dr. Phan Hong Giang :Vice Minister  
Mr. Nguyen Ngoc Thuat :Director of Investment & Construction Department  
Dr. Doan he Uong :Deputy Director of International Cooperation Dep.  
Mr. Nguyen Tiep De :Deputy Director of Planning Dept.  
Mr. Nguyen Trong Sinh :Vice Director, Water Resources Planning Institute  
Mr. Ngo Dien Tuan :Secretary of the Vice Minister  
Ms. Dao Thi Loc :Senior Officer, International Cooperation Dept.  
Mr. Nguyen Van Hanh :Chief of Planning Section of HEC-1  
Mr. Le Van Hoc :Chief of North Water Management Section  
Mr. Tranhuu Dung :Chief of Planning and Economic Section of HEC-1  
Mr. Nguyen Duc Ba :Director of Bac Duong Irrigation Enterprise  
Mr. Nguyen Van Thuc :Director of Bac Ninh Agriculture and Rural  
Development Service  
Mr. Le Van Ngo :Deputy General Director of HEC-1  
Mr. Ngo Van Cuu :Chief of Design Section of HEC-1  
Mr. Bui Nara Sach :Engineer of Water Resources Planning Institute  
Mr. Pham Dinh Thuoc :Senior Officer, Evaluation Section of Investment  
and Construction Dep.  
Mr. Takamichi Iwai :JICA Expert of Irrigation and Drainage

#### **3. People's Committee**

- Mr. Ngo Van Luat :Chairman of Bac Ninh Province People's Committee  
Mr. Ngo Xuan Am :Chairman of Tien Son District People's Committee



**Appendix 4-1 Minutes of Meeting (Inception Report)**

MINUTES OF DISCUSSIONS  
ON  
THE BASIC DESIGN STUDY ON THE PROJECT  
FOR  
IMPROVEMENT OF DRAINAGE SYSTEM IN TAN CHI AGRICULTURAL AREA  
IN  
THE SOCIALIST REPUBLIC OF VIETNAM

In response to the request from the Government of Vietnam, the Government of Japan decided to conduct a Basic Design Study on the Project for Improvement of Drainage System in Tan Chi Agricultural Area (hereinafter referred to as "the Project"), and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to the Socialist Republic of Vietnam a Basic Design Study Team (hereinafter referred to as "the Team"), which is headed by Mr. Toshiyuki Kuroyanagi, Director, Follow-Up Division, Grant Aid Project Management Department, JICA, and is scheduled to stay in the country from September 9 to September 23, 1997.

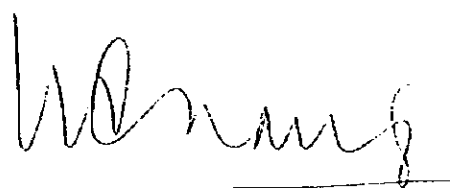
The Team held discussions with the officials concerned of the Government of Vietnam and conducted field surveys at the study area.

In the course of the discussions and field surveys, both parties have confirmed the main items described on the attached sheets. The Team will proceed to further work and prepare the Basic Design Study report.

Hanoi, September 17, 1997



Mr. Toshiyuki Kuroyanagi  
Leader,  
Basic Design Study Team,  
JICA



Dr. Pham Hong Giang  
Vice Minister,  
Ministry of Agriculture and Rural Development,  
The Socialist Republic of Vietnam

1. Objective

The Project objective is to improve and construct drainage facilities to increase and stabilize agricultural production, to upgrade the rural life and to encourage the rural economy.

2. Proposed Project Area

The Project Area is Tan Chi Agricultural Area (6,420ha), in South Bac Duong Area. (See ANNEX-I)

3. Responsible and Executing Agency

Responsible agency and executing agency is the Ministry of Agriculture and Rural Development.

4. Items requested by the Government of Vietnam

The items shown in ANNEX-II were requested by the Government of Vietnam in 1996.

5. Major Points of Discussions

(1) Vietnamese side agreed on holding a public hearing during the 2nd site survey on farmers consent to implement the Project and to bear increasing expenses by means of water fee for operation and maintenance of the Project.

(2) Vietnamese side promised that they will acquire the land for the construction of the Project facilities from farmers having a land using right for smoothly beginning on the Project as soon as possible after necessary procedure following topographical surveying of Basic Design Study and they will arrange necessary preparations to extend a transmission line to the Project site to be able to implement the Project smoothly.

(3) Both sides understood that the contents of the request shown in ANNEX-II might be changed according to the results of the Basic Design Study.

(4) Both side confirmed that it was very important to study and select appropriate pumps (especially its nationality belonging to and capacity) for setting up, operation and maintenance to be easy and cost performance and its selection must be examined and considered including capability of procuring from a third country.

(5) Vietnamese side promised that they will provide the budget for major repairs and replacement of drainage facilities and equipment and improve the organization for operation and maintenance for the Project.

(6) Both sides confirmed that irrigation concerning deeply with drainage is important factor as well as drainage to enhance land productivity and stabilize agricultural production in this area.

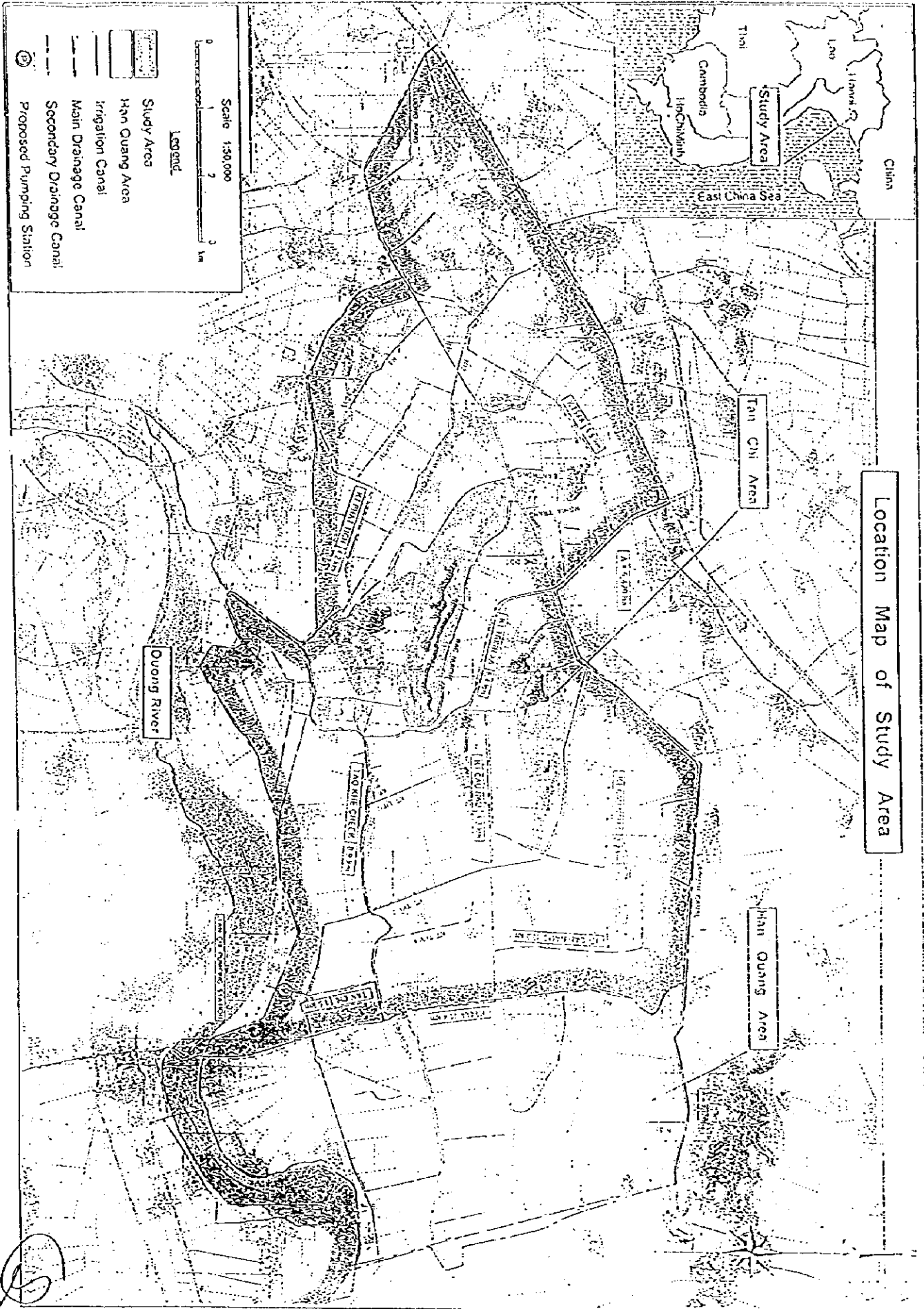
And the Team recommended emphatically that irrigation facilities should be improved to enhance the Project effect to increase and stabilize agricultural production.

(7) The Team requested that Vietnamese side must carry out the environmental procedure following Vietnamese law to implement the Project smoothly and Vietnamese side promised it.

6. Japan's Grant Aid System

(1) The Government of Vietnam has understood the system of Japan's Grant Aid on ANNEX-III as explained by the Team.

(2) The Government of Vietnam will take the necessary measures described in ANNEX-IV for the smooth implementation of the Project, on condition that the Grant Aid Assistance by the Government of Japan is extended to the Project.



Location Map of Study Area

2

## Requested Items

## 1. Pumping Station

## 1) Mechanical Equipment

- a) Pump Capacity : 240m<sup>3</sup>/min each  
 Number : 4 sets  
 Type : Vertical mixed flow pump  
 Size : 1,350mm in diameter
- b) Speed reducing gear : 4 sets
- c) Motor Power : 500w x 4p x 3kv x 50Hz each  
 Number : 4sets
- d) Gates and Valves  
 Trash Rack : 4sets  
 Butterfly valve: 4sets(1350mm each)  
 Flap valve : 4sets(1650mm each)  
 Movable crane: 1set , 15tons  
 Horizontal conveyer: 1set(750mm x 36m)  
 Inclined conveyer : 1set(750mm x 15m)  
 Steel pipe : 4sets

## 2) Electric receiving facilities

- a) 34kv Incoming panel : 1set  
 b) 34kv Metering PT & CT panel  
 Main transformer : 1set  
 Primary panel : 1set

## 3) Distribution and others

- 3kv incoming panel : 1set  
 3kv reactor & capacitor panel : 4sets  
 3kv motor starter panel : 4sets  
 Auxiliary transformer panel : 1set  
 500kv auxiliary feeder transformer : 1set  
 Low voltage panel : 2sets  
 Battery & charger panel : 2sets  
 Local pump control panel : 4sets  
 Auxiliary relay panel : 4sets

Cables : LS

## 4) Replacement of existing pumps

- Pump Number : 20sets (300mm x 33kw each)  
 Type : Horizontal axis-mixed flow volute pump  
 Motor Number : 10sets ( 33kw x 50Hz each)

(Hydraulic conditions):

Suction side low water level : 2.00m  
Delivery side high water level : 9.63m  
Actual Head ( 9.63 - 2.00 ) : 7.63m  
Loss in suction & delivery : 0.58m  
Max. total pump head : 8.50m

5) Pump House(410m<sup>3</sup>)

6) Civil Works

a) Leading Canal

Dredging : 14,000m<sup>3</sup>  
Excavation : 6,000m<sup>3</sup>  
Fill : 2,000m<sup>3</sup>  
Spoiled dike : 4,000m<sup>3</sup>

b) Suction base

Concrete works : 990m<sup>3</sup>  
P.C. pile D450 L=15m : 182pcs  
Excavation : 14,000m<sup>3</sup>  
Fill : 9,200m<sup>3</sup>  
Spoiled dike : 4,800m<sup>3</sup>

c) Suction basin & sluice

Concrete works : 2,430m<sup>3</sup>  
P.VC pile D450 L=15m : 491pcs  
Excavation : 22,100 m<sup>3</sup>  
Fill : 2,200 m<sup>3</sup>  
Spoiled dike : 19,900 m<sup>3</sup>

d) Miscellaneous works : Access road, fencing, landscape, etc.

2. Improvement of Drainage Canal

	Length(km)	Earth works(m <sup>3</sup> )	structural works(m <sup>3</sup> )
1) Main Canal			
a) Tao Khe Creek	<u>8.9</u>	<u>724,000</u>	<u>24,000</u>
2) Secondary Canal			
KT Trinh Xa	6.4	189,000	15,000
KT 6 Xa	6.5	247,000	7,000
KT Phat thich	4.2	124,000	4,000
KT 4 Xa	1.4	99,000	5,000
KT Kau Nau	4.3	86,000	3,000
KT Kau Nau - 1	3.2	85,000	5,000
KT Kau Nau - 2	3.3	82,000	4,000
KT Tan Chi	1.5	73,000	5,000
Total	<u>30.8</u>	<u>985,000</u>	<u>48,000</u>

3. Construction machines ( Dredger )



## ON JAPAN'S GRANT AID PROGRAM

### 1. Japan's Grant Aid Procedures

(1) The Japan's Grant Aid Program is executed by the following procedures.

- Application (request made by a recipient country)
- Study (Preliminary Study / Basic Design Study conducted by JICA)
- Appraisal & Approval (Appraisal by the Government of Japan and Approval by the Cabinet of Japan)
- Determination of Implementation (Exchange of Notes between both Governments)
- Implementation (Implementation of the Project)

(2) Firstly, an application or a request for a project made by the recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to see whether or not it is suitable for Japan's grant Aid. If the request is deemed suitable, the Government of Japan entrusts a study on the request to JICA (Japan International Cooperation Agency).

Secondly, JICA conducts the Study (Basic Design Study), using a Japanese consulting firm. If the background and objective of the requested project are not clear, a Preliminary Study is conducted prior to a Basic design Study.

Thirdly, the Government of Japan appraises to see whether or not the Project is suitable for Japan's Grant Aid Program, based on the Basic Design Study report prepared by JICA and the results are then submitted for approval by the Cabinet.

Fourthly, the Project approved by the Cabinet becomes official when pledged by the Exchange of Notes signed by both Governments.

Finally, for the implementation of the Project, JICA assists the recipient country in preparing contracts and so on.

### 2. Contents of the Study

(1) Contents of the Study

The purpose of the Study (preliminary Study / Basic Design Study) conducted on a project requested by JICA is to provide a basic document necessary for



appraisal of the project by the Japanese Government. The contents of the Study are as follows:

- a) to confirm background, objectives, benefits of the project and also institutional capacity of agencies concerned of the recipient country necessary for project implementation.
- b) to evaluate appropriateness of the Project for the Grant Aid Scheme from a technical, social and economical point of view,
- c) to confirm items agreed on by both parties concerning a basic concept of the project.
- d) to prepare a basic design of the project,
- e) to estimate cost involved in the project.

Final project components are subject to approval by the Government of Japan and therefore may differ from an original request.

Implementing the project, the Government of Japan requests the recipient country to take necessary measures involved which are itemized on Exchange of Notes.

## (2) Selecting (a) Consulting Firm(s)

For smooth implementation of the study, JICA uses (a) consulting firm(s) registered. JICA selects (a) firm(s) through proposals submitted by firms which are interested. The firm(s) selected carry(its) out a Basic Design Study and write(s) a report, based upon terms of reference made by JICA.

The consulting firm(s) used for the study is(are) recommended by JICA to a recipient country after Exchange of Notes, in order to maintain technical consistency and also to avoid possible undue delay in implementation caused if a new selection process is repeated.

## (3) Status of a Preliminary Study in the grant Aid Program

A Preliminary Study is conducted during the second step of a project formulation & preparation as mentioned above.

A result of the study will be utilized in Japan to decide if the Project is to be suitable for a Basic Design Study.

Based on the result of the Basic Design Study, the Government would proceed to the stage of decision making process (appraisal and approval).

It is important to notice that at the stage of Preliminary Study, no commitment is made by the Japanese side concerning the realization of the Project in the scheme of Grant Aid Program.

⑤

11/11

### 3. Japan's Grant Aid Scheme

(1) What is Grant Aid?

The Grant Aid Program provides a recipient country with non reimbursable funds needed to procure facilities, equipment and services for economic and social development of the country under the following principles in accordance with relevant laws and regulations of Japan. The Grant Aid is not in a form of donation or such.

(2) Exchange of Notes (E/N)

The Japan's Grant Aid is extended in accordance with the Exchange of Notes by both Governments, in which the objectives of the Project, period of execution, conditions and amount of the Grant, etc. are confirmed.

(3) "The period of the Grant Aid" means one Japanese fiscal year which the Cabinet approves the Project for. Within the fiscal year, all procedure such as Exchange of Notes, concluding a contract with (a) consulting firm(s) and (a) contractor(s) and a final payment to them must be completed.

(4) Under the Grant, in principle, products and services of origins of Japan or the recipient country are to be purchased.

When the two Governments deem it necessary; the Grant may be used for the purchase of products or services of a third country origin.

However the prime contractors, namely, consulting, contractor and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means Japanese physical persons or Japanese juridical persons controlled by Japanese physical persons.)

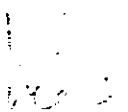
(5) Necessity of the "Verification"

The Government of the recipient country or its designated authority will conclude into contracts in Japanese yen with Japanese nationals. Those contracts shall be verified by the Government of Japan. The "Verification" is deemed necessary to secure accountability to Japanese tax payers.

(6) Undertakings required to the Government of the recipient country

In the implementation of the Grant Aid, the recipient country is required to undertake necessary measures such as the following'

- a) to secure land necessary for the sites of the project and to clear and level the land prior to commencement of the construction work,
- b) to provide facilities for distribution of electricity, water supply and drainage and other incidental facilities in and around the sites.





- c) to secure buildings prior to the installation work in case the Project is providing equipment,
- d) to ensure all expenses and prompt execution for unloading, customs clearance at the port disembarkation and internal transportation of the products purchased under the Grant Aid.
- e) to exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which will be imposed in the recipient country with respect to the supply of the products and services under the Verified Contracts,
- f) to accord Japanese nationals whose services may be required in connection with the supply of the products and services under the Verified Contracts, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.

(7) Proper Use

The recipient country is required to maintain and use facilities constructed and equipment purchased under the Grant Aid properly and effectively and to assign staff necessary for their operation and maintenance as well as to bear all expenses other than those to be borne by the Grant Aid.

(8) Re-export

The products purchased under the Grant Aid shall not be re-exported from the recipient country.

(9) Banking Arrangement (B/A)

- a) The Government of the recipient country or its designated authority shall open an account in the name of the Government of the recipient country in an authorized foreign exchange bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by Government of the recipient country or its designated authority under the contracts verified.
- b) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an Authorization to pay issued by the Government of the recipient country or its designated authority.

①

NECESSARY MEASURES TO BE TAKEN BY THE GOVERNMENT OF VIETNAM IN CASE JAPAN'S GRANT AID IS EXTENDED.

1. To provide data and information necessary for the Project.
2. To secure the site for the Project.
3. To bear two kinds of commissions to the Japanese foreign exchange bank for its banking services based upon the Banking Arrangement (B/A) namely,
  - the advising commission of the "Authorization to Pay (A/P)" and
  - the payment commission.
4. To ensure prompt unloading, tax exemption, and customs clearance at the port of disembarkation in Vietnam and prompt internal transportation therein of the materials and equipment for the project purchased under the Grant Aid.
5. To exempt Japanese nationals or a staff from a third country engaged in the project from customs duties, internal taxes and other fiscal levies which may be imposed in Vietnam with respect to the supply of the products and services under the verified contracts.
6. To accord Japanese nationals or a staff from a third country whose services may be required in connection with supply of the products and services under the verified contracts, such facilities as may be necessary for their entry into Vietnam and stay therein for the performance of their work.
7. To provide necessary permissions, licenses, and other authorization for implementing the Project, if necessary.
8. To assign appropriate budget and staff members for proper and effective operation and maintenance of the facilities constructed under the Project.
9. To maintain and use properly and effectively the facilities constructed and equipment provided under the Project;
10. To bear all the expenses other than those to be borne by the Grant Aid within the scope of the Project.

A

10/2

**Appendix 4-2 Minutes of meeting (Draft Basic Design Report)**

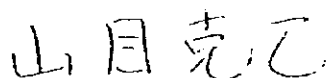
MINUTES OF DISCUSSIONS  
ON  
THE BASIC DESIGN STUDY ON THE PROJECT  
FOR  
IMPROVEMENT OF DRAINAGE SYSTEM IN TAN CHI AGRICULTURAL AREA  
IN  
THE SOCIALIST REPUBLIC OF VIETNAM  
(EXPLANATION ON THE DRAFT BASIC DESIGN)

In September 1997, the Japan International Cooperation Agency (JICA) dispatched the Basic Design Study Team on the Project for Improvement of Drainage System in Tan Chi Agricultural Area (hereinafter referred to as "the Project") to the Socialist Republic of Vietnam. After the assessment of the data and information obtained through the study, JICA has prepared the Draft Basic Design on the Project.

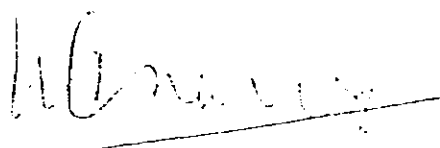
In order to explain and consult with the officials concerned of the Government of Vietnam on the components of the Draft Basic Design, JICA sent to the Socialist Republic of Vietnam a Study Team (hereinafter referred to as "the Team") headed by Mr. Yamanome Katsumi, Grant Aid Project Study Development, JICA, which is scheduled to stay in the country from January 15 to January 23, 1998.

As a result of the discussions held between the Team and the officials concerned of the Government of Vietnam, both parties have confirmed the main items described on the attached sheets.

Hanoi, January 22, 1998



Mr. Yamanome Katsumi  
Leader,  
Basic Design Study Team,  
JICA



Dr. Pham Hong Giang  
Vice Minister,  
Ministry of Agriculture and Rural Development,  
The Socialist Republic of Vietnam

## ATTACHMENT

### 1. Components of the Draft Basic Design

The Government of Vietnam has agreed and accepted in principal the components of the Draft Basic Design proposed by the Team.(FIGURE- I and TABLE- I )

### 2. Japan's Grant Aid System

- (1) The Government of Vietnam has understood the system of Japan's Grant Aid on ANNEX-I as explained by the Team.
- (2) The Government of Vietnam will take necessary measures described in ANNEX-II for the smooth implementation of the Project, on condition that the Grant Aid Assistance by the Government of Japan is extended to the Project.

### 3. Schedule of the Study

JICA will complete the final report in accordance with the confirmed items, and send it to the Government of Vietnam by April in 1998.

### 4. Other Relevant Issues

- (1) The Vietnamese side assured that the Ministry of Agriculture and Rural Development should be responsible for the maintenance of the constructed facilities of the Project.
- (2) The Team confirmed that the Vietnamese side would prepare the needed budget and staff for smooth implementation and maintenance of the Project.
- (3) The Team explained the responsibilities of the Vietnamese side as shown in the TABLE- II, and these responsibilities are to be implemented smoothly not to affect the construction schedule, and the Vietnamese side understood it. Even though of this understanding, the Vietnamese side emphasized on shortage of the Government's budget and requested the Japanese side to procure at least the electric receiving equipment for the Project. The Team agreed in principle to convey this request to the Government of Japan.
- (4) The Vietnamese side agreed that it should be responsible for the Vietnamese side to provide the land to place and manage the spoiled soil which would be produced by excavation and dredging.
- (5) The Vietnamese side requested to cooperate with the Japanese side in the technical field for the works born by Vietnam side within the validity of the E/N, and the Team agreed in principle to convey this request to the Government of Japan.
- (6) The Vietnamese side agreed to take necessary measures to obtain an approval from the Government of Vietnam for the Project and notify the Japanese side of acceptance of the Draft Basic Design, which was adjusted according to the Minutes of Discussions signed on January 22 in 1998, by the end of February in 1998 to facilitate the implementation of the Project.



TABLE - I (1/2)

Contents of Project		Quantity	Result of B/D Study
		Requests by Vietnamese Side	
(1)	Replacement of Existing Pumps		
(a)	Pump	20 sets (300mm x 3.3kw each)	46 sets (350mm x 3.3kw each)
	Number	1	1
	Type	Horizontal axis-mixed flow volute pump.	Horizontal axis-mixed flow volute pump
(b)	Motor	10 sets (3.3kw x 50Hz each)	46 sets (3.3kw x 50Hz each)
	Number	1	1
(2)	Construction of New Pumping Station		
(a)	Mechanical equipment:		
	1. Pump		
	Capacity	240m <sup>3</sup> /min each	240m <sup>3</sup> /min each
	Number	4 sets	4 sets
	Type	Vertical mixed flow pump	Vertical mixed flow pump
	Size	1,350mm in diameter	1,350mm in diameter
	Power	4 sets	Cancel
	3. Motor	500kw x 4P x 3kv x 50Hz each	500kw x 20P x 6.6kv x 50Hz each
	Number	4 sets	4 sets
	4. Gates and Valves		
	Trash Rack Screen	4 sets	4 sets(Screen)
	Butterfly valve	4 sets (1,350mm each)	4 sets (1,350mm each)
	Flap valve	4 sets (1,650mm each)	4 sets (1,650mm each)
	Movable crane	1 set, 15tons	1 set, 20tons
	Horizontal conveyor	1 set (750mm x 36m)	Cancel
	Inclined conveyor	1 set (750mm x 15m)	Cancel
	Steel pipe	4 sets	4 sets
(b)	Electrical Equipment:		
	1. Electric receiving facilities		
	34kv Incoming panel	1 set	Vietnamese Side(1 set)
	34kv Metering PT & CT panel	1 set	Vietnamese Side(1 set)
	Main transformer Primary panel	1 set	Vietnamese Side(2 sets)
	4,500KVA main transformer	1 set	Vietnamese Side(1800KVA 2 sets)
	500KVA auxiliary feeder transformer and Panel	None	Vietnamese Side(35kv, 100KVA Auxiliary feeder transformer and Panel)
	2. Distribution and others		
	3kv Incoming panel	1 set	2 sets(6.6kv Incoming panel)
	3kv Reactor & Capacitor panel	4 sets	4 sets(6.6kv Reactor & Capacitor panel)
	3kv motor starter panel	4 sets	4 sets(6.6kv motor starter panel)
	Auxiliary transformer panel	1 set	Cancel
	500KVA auxiliary feeder transformer	1 set	Cancel
	Low voltage panel	2 sets	2 sets(Low voltage panel)
	Battery & charger panel	2 sets	2 sets(Battery & charger panel)
	Local pump control panel	4 sets	4 sets(Local pump control panel)
	Auxiliary relay panel	4 sets	4 sets(Auxiliary relay panel)
	Cables	L.S	L.S(Cables)

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TABLE -- II

## The Responsibilities of Vietnamese side

Items	Quantities
1. Land Acquisition	2.5ha
• New Pumping Station	1.3ha
• Tan Chi Canal	1.2ha
2. Banking Commission	L.S
3. Rehabilitation of Electric Transmission Line to New Pumping Station	11.7 km
4. Electric Receiving Facilities	L.S
5. Access Road to New Pumping Station	600 m
6. Custom Clearance and Inland Transportation	L.S