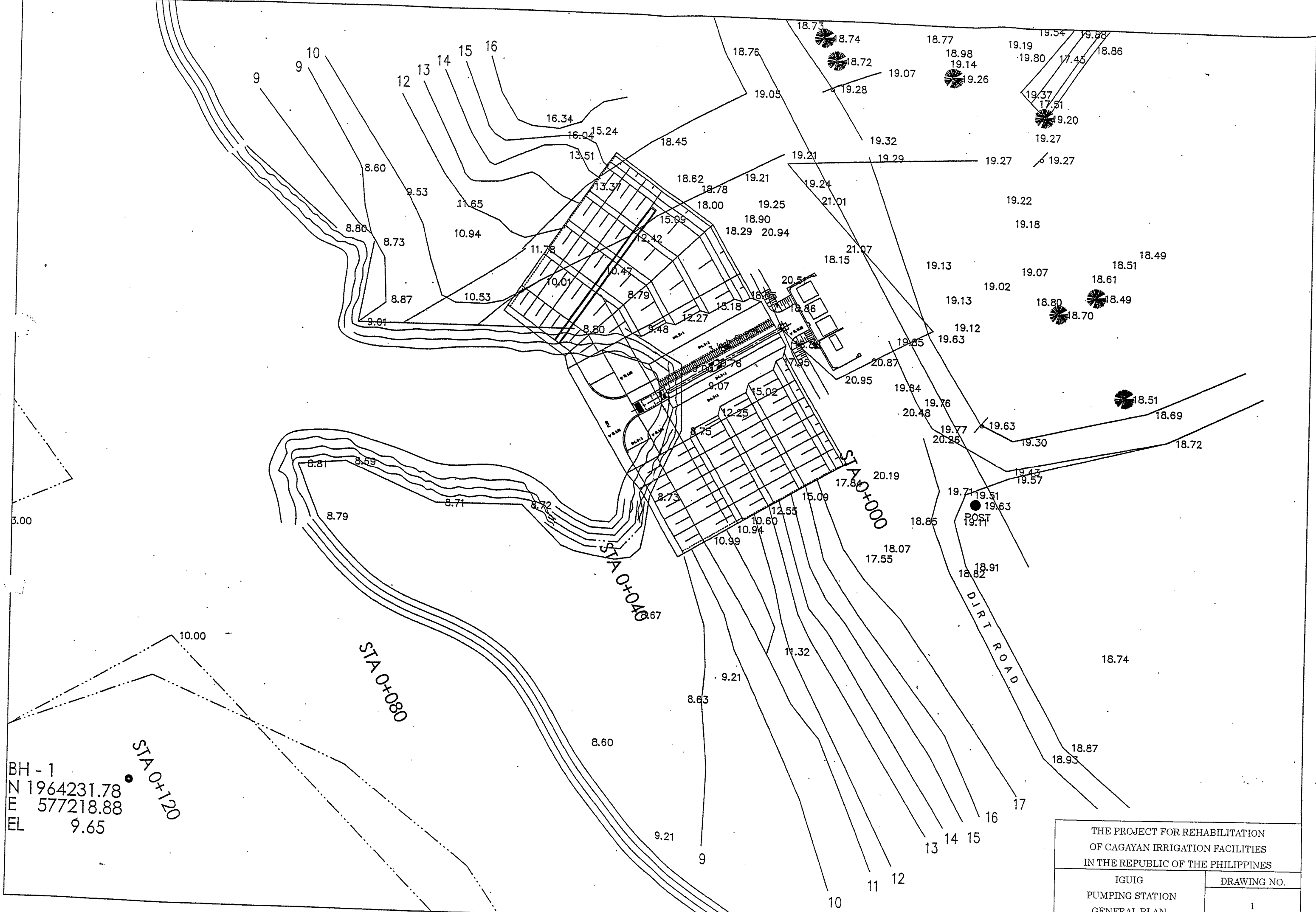


DRAWING LIST

Dwg. No.	Title	
1	Iguigu Pumping Station	General Plan
2	Iguigu Pumping Station	River Bank Protection Works
3	Iguigu Pumping Station	Flow Sheet
4	Iguigu Pumping Station	Single Line Diagram
5	Amulung Pumping Station	General Plan
6	Amulung Pumping Station	River Bank Protection Works
7	Amulung Pumping Station	Flow Sheet
8	Amulung Pumping Station	Single Line Diagram
9	Magapit Pumping Station	Flow Sheet
10	Magapit Pumping Station	Single Line Diagram
11	Iguigu Booster Pumping Station	General Arrangement
12	Iguigu Booster Pumping Station	Single Line Diagram
13	Amulung Substation	Single Line Diagram
14	Magapit Substation	Single Line Diagram



BH - 1
 N 1964231.78
 E 577218.88
 EL 9.65

STA 0+120

STA 0+080

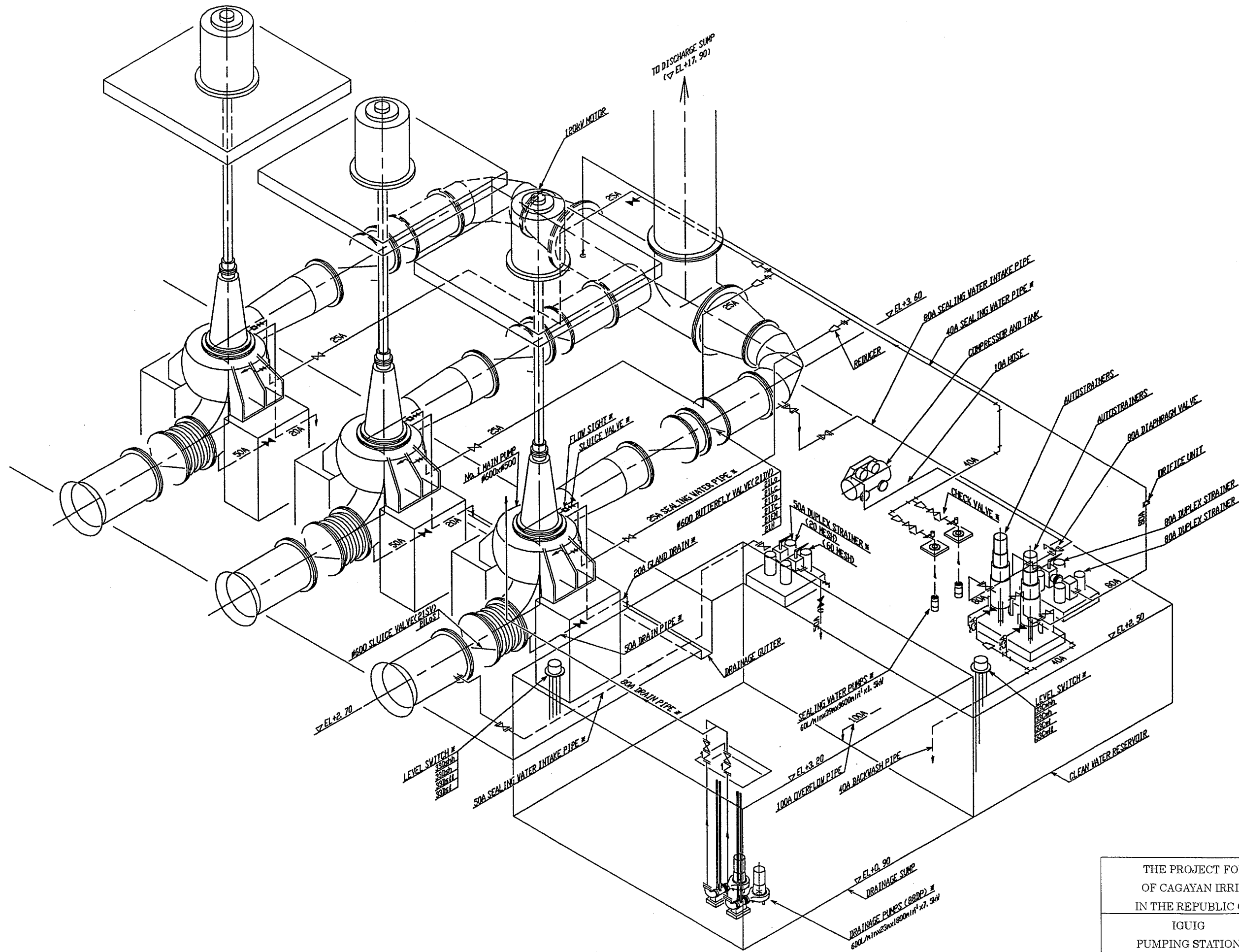
STA 0+040

STA 0+000

DIRT ROAD

POST

THE PROJECT FOR REHABILITATION OF CAGAYAN IRRIGATION FACILITIES IN THE REPUBLIC OF THE PHILIPPINES	
IGUIG PUMPING STATION GENERAL PLAN	DRAWING NO. 1
JAPAN INTERNATIONAL COOPERATION AGENCY	



THE PROJECT FOR REHABILITATION OF CAGAYAN IRRIGATION FACILITIES IN THE REPUBLIC OF THE PHILIPPINES	
IGUIG PUMPING STATION FLOW SHEET	DRAWING NO. 3
JAPAN INTERNATIONAL COOPERATION AGENCY	

ABBREVIATIONS

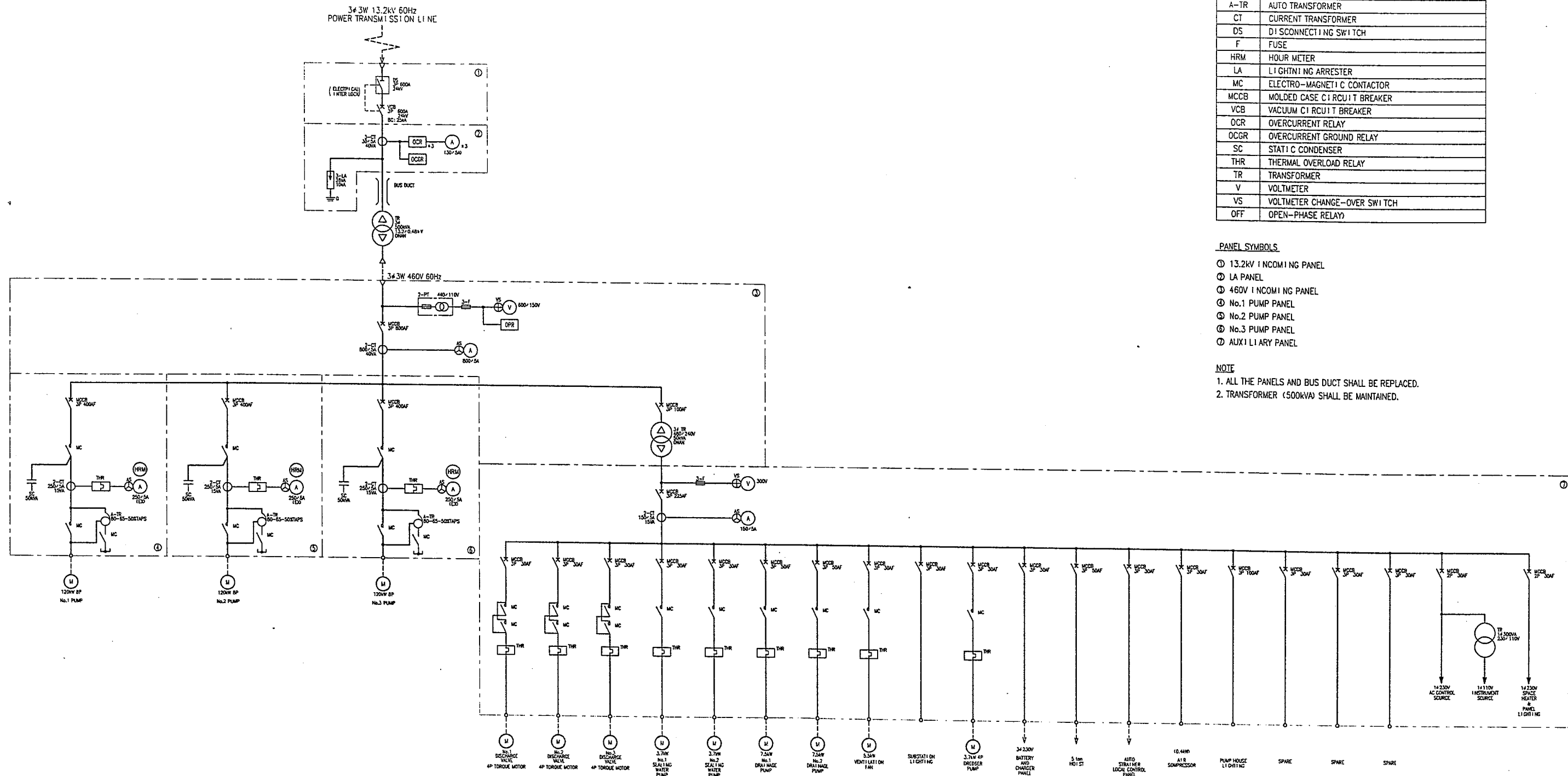
SYMBOLS	NAME
A	AMMETER
AS	AMMETER CHANGE-OVER SWITCH
A-TR	AUTO TRANSFORMER
CT	CURRENT TRANSFORMER
DS	DISCONNECTING SWITCH
F	FUSE
HRM	HOUR METER
LA	LIGHTNING ARRESTER
MC	ELECTRO-MAGNETIC CONTACTOR
MCCB	MOLDED CASE CIRCUIT BREAKER
VCB	VACUUM CIRCUIT BREAKER
OCR	OVERCURRENT RELAY
OCGR	OVERCURRENT GROUND RELAY
SC	STATIC CONDENSER
THR	THERMAL OVERLOAD RELAY
TR	TRANSFORMER
V	VOLTMETER
VS	VOLTMETER CHANGE-OVER SWITCH
OFF	OPEN-PHASE RELAY

PANEL SYMBOLS

- ① 13.2KV INCOMING PANEL
- ② LA PANEL
- ③ 460V INCOMING PANEL
- ④ No.1 PUMP PANEL
- ⑤ No.2 PUMP PANEL
- ⑥ No.3 PUMP PANEL
- ⑦ AUXILIARY PANEL

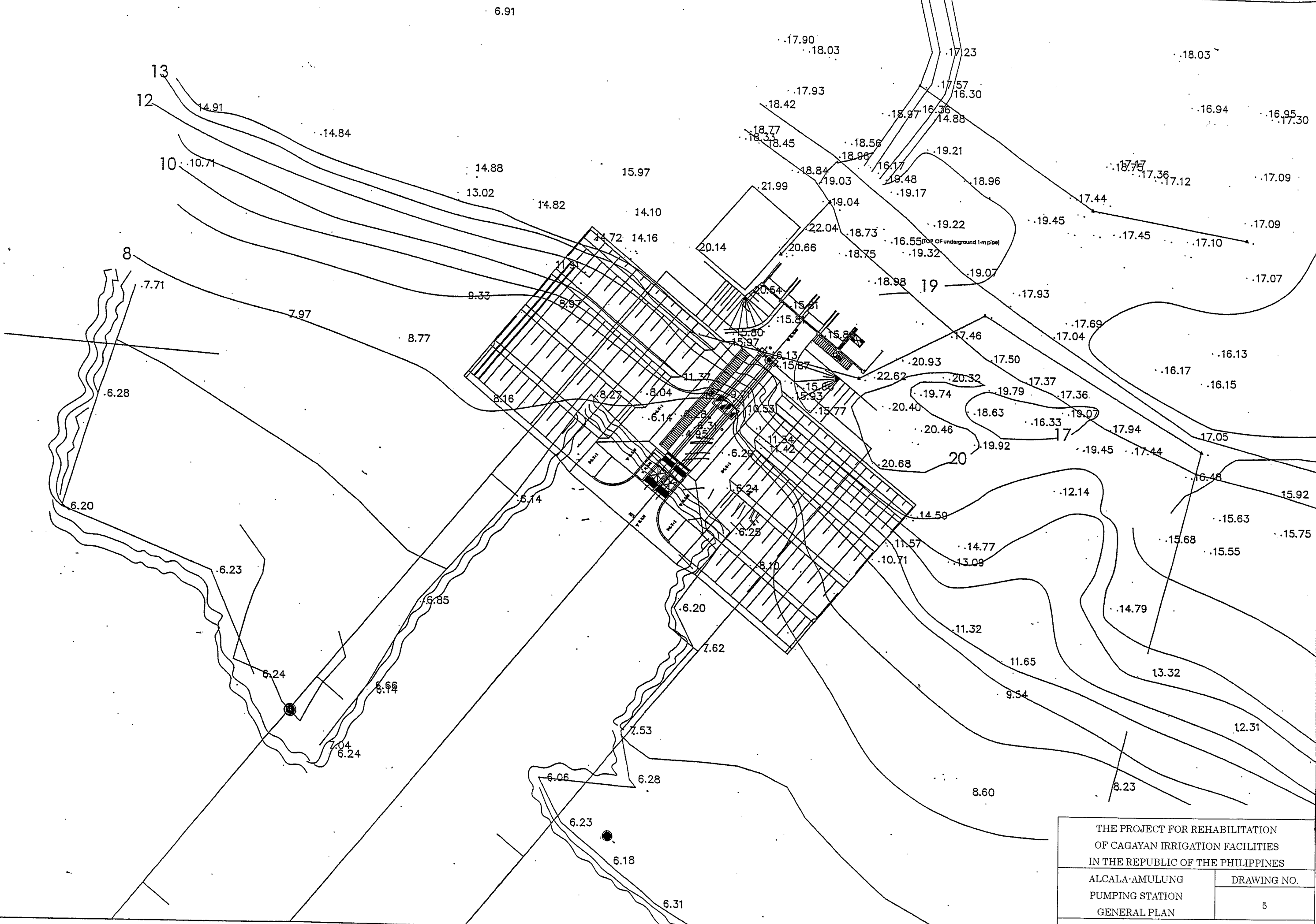
NOTE

1. ALL THE PANELS AND BUS DUCT SHALL BE REPLACED.
2. TRANSFORMER (500KVA) SHALL BE MAINTAINED.



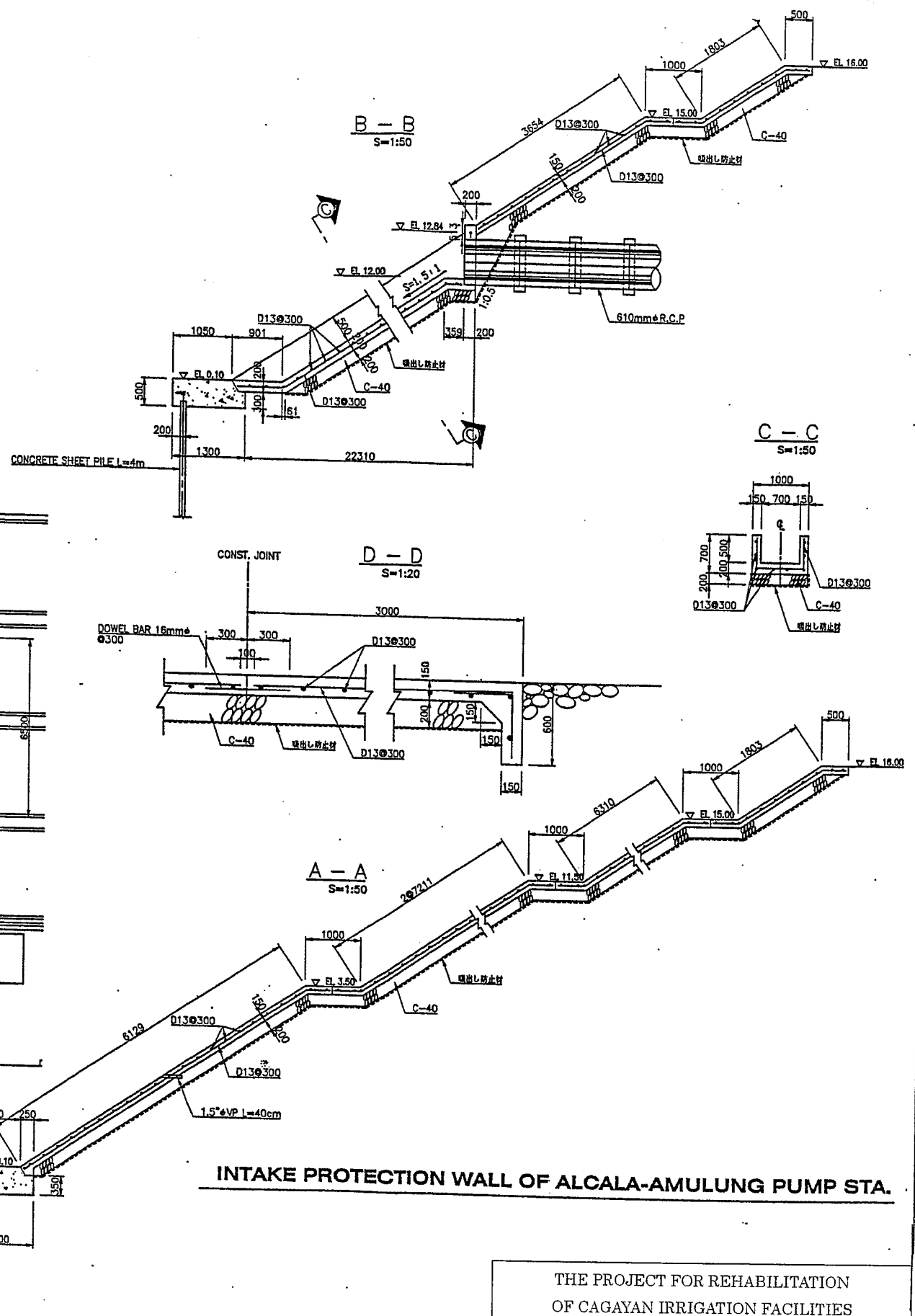
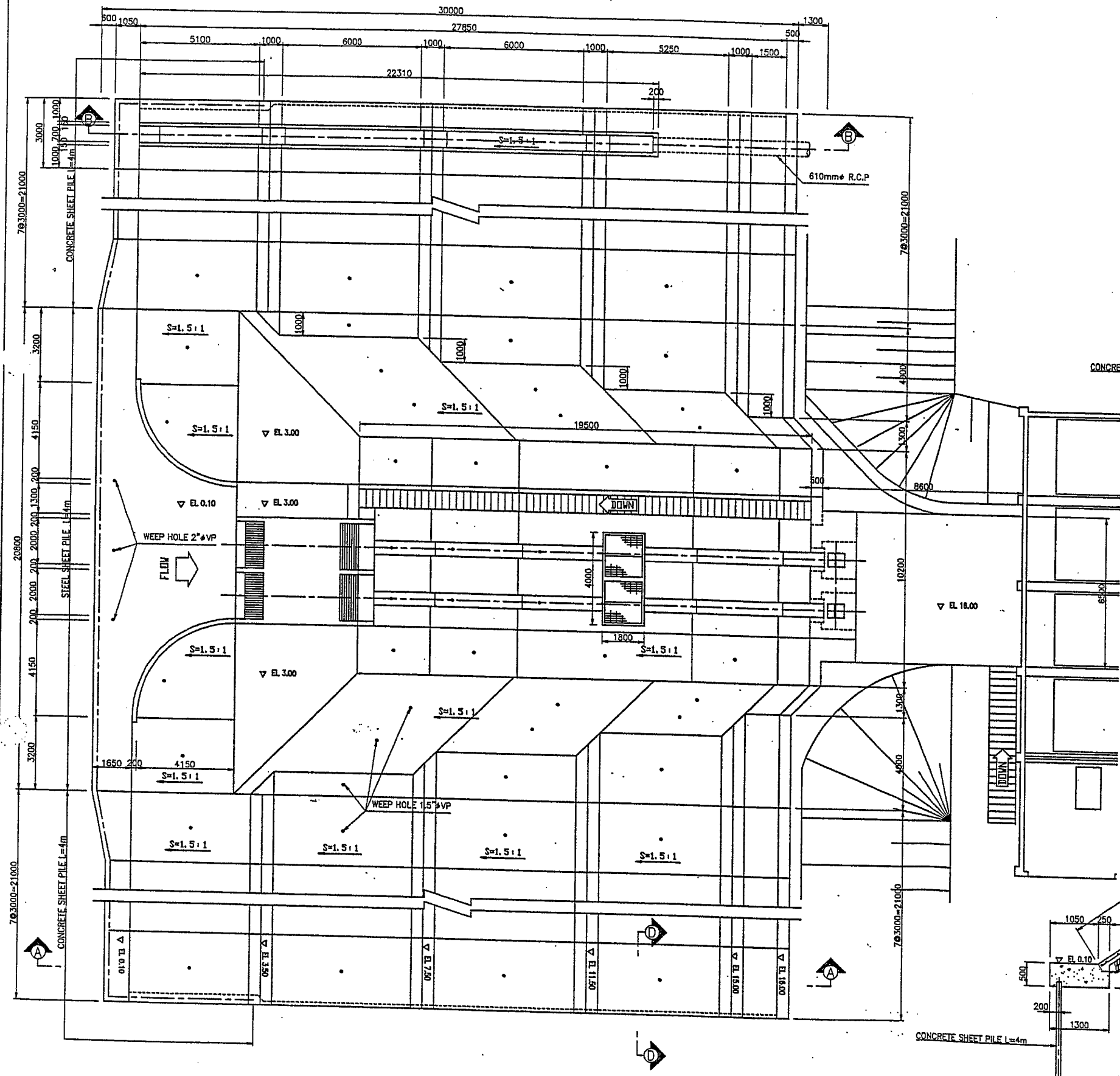
THE PROJECT FOR REHABILITATION OF CAGAYAN IRRIGATION FACILITIES IN THE REPUBLIC OF THE PHILIPPINES	
IGUIG PUMPING STATION SINGLE LINE DIAGRAM	DRAWING NO. 4
JAPAN INTERNATIONAL COOPERATION AGENCY	

6.91



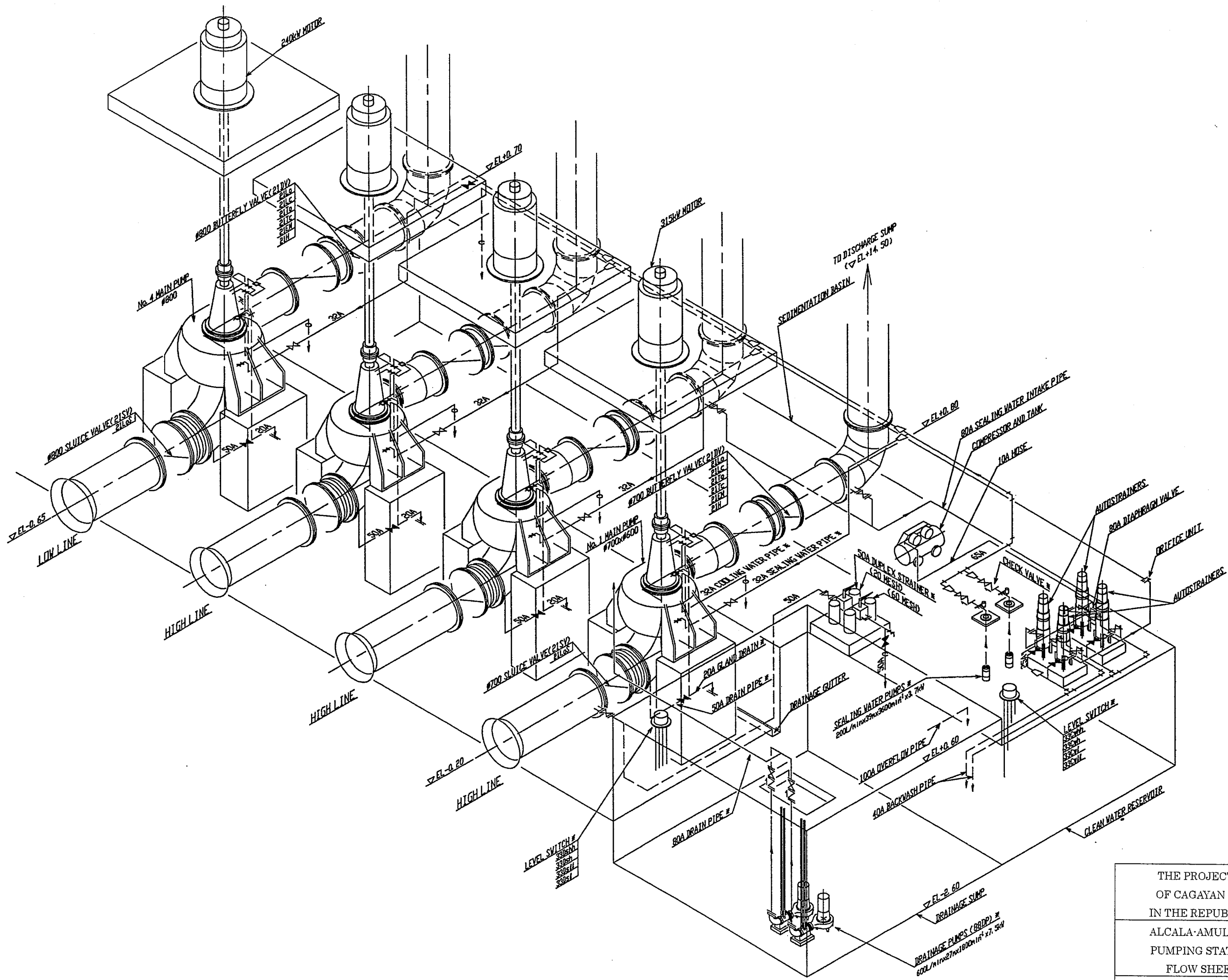
THE PROJECT FOR REHABILITATION OF CAGAYAN IRRIGATION FACILITIES IN THE REPUBLIC OF THE PHILIPPINES	
ALCALA-AMULUNG PUMPING STATION GENERAL PLAN	DRAWING NO. 5
JAPAN INTERNATIONAL COOPERATION AGENCY	

PLAN OF PROTECTION WALL
S=1:100



INTAKE PROTECTION WALL OF ALCALA-AMULUNG PUMP STA.

THE PROJECT FOR REHABILITATION OF CAGAYAN IRRIGATION FACILITIES IN THE REPUBLIC OF THE PHILIPPINES	
ALCALA-AMULUNG PUMPING STATION	DRAWING NO.
RIVER PROTECTION WORKS	6
JAPAN INTERNATIONAL COOPERATION AGENCY	



THE PROJECT FOR REHABILITATION OF CAGAYAN IRRIGATION FACILITIES IN THE REPUBLIC OF THE PHILIPPINES	
ALCALA-AMULUNG PUMPING STATION	DRAWING NO.
FLOW SHEET	7
JAPAN INTERNATIONAL COOPERATION AGENCY	

ABBREVIATIONS

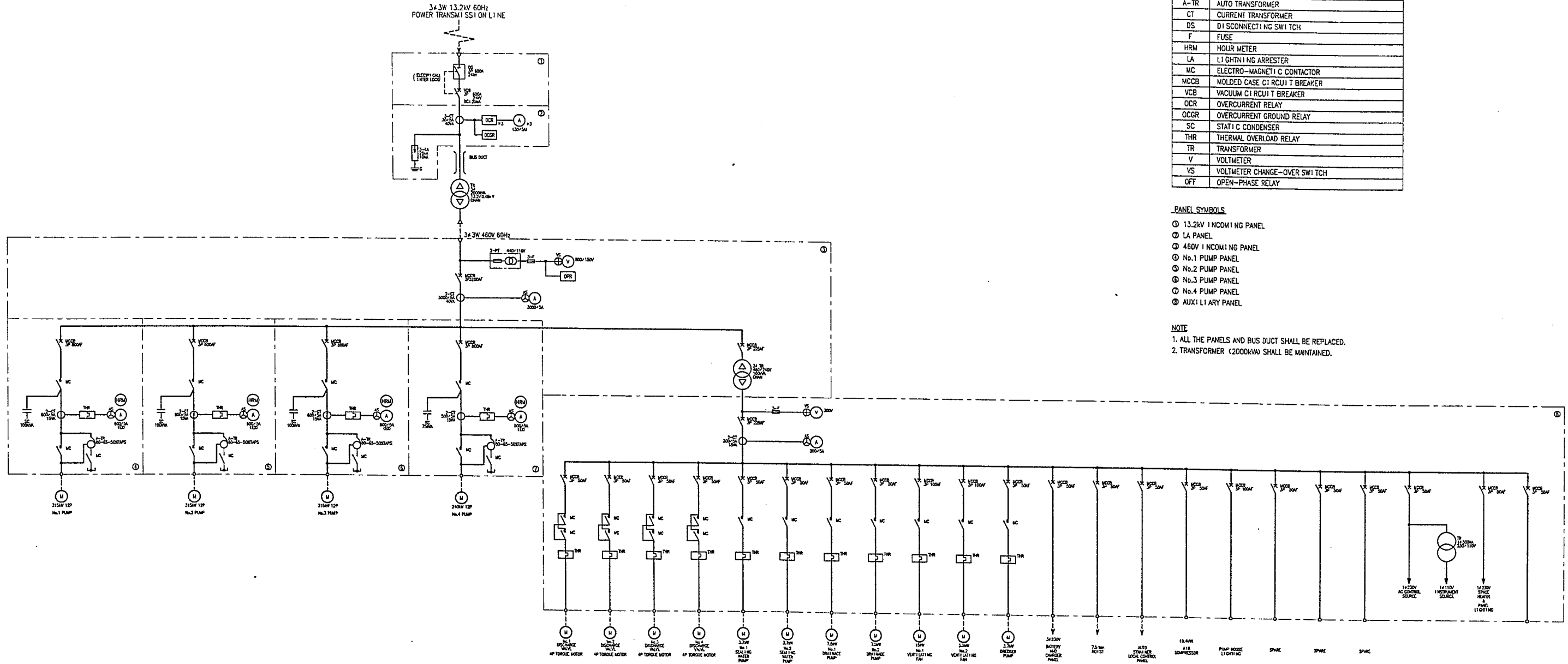
SYMBOLS	NAME
A	AMMETER
AS	AMMETER CHANGE-OVER SWITCH
A-TR	AUTO TRANSFORMER
CT	CURRENT TRANSFORMER
DS	DISCONNECTING SWITCH
F	FUSE
HRM	HOUR METER
LA	LIGHTNING ARRESTER
MC	ELECTRO-MAGNETIC CONTACTOR
MCCB	MOLDED CASE CIRCUIT BREAKER
VCB	VACUUM CIRCUIT BREAKER
OCR	OVERCURRENT RELAY
OCGR	OVERCURRENT GROUND RELAY
SC	STATIC CONDENSER
THR	THERMAL OVERLOAD RELAY
TR	TRANSFORMER
V	VOLTMETER
VS	VOLTMETER CHANGE-OVER SWITCH
OFF	OPEN-PHASE RELAY

PANEL SYMBOLS

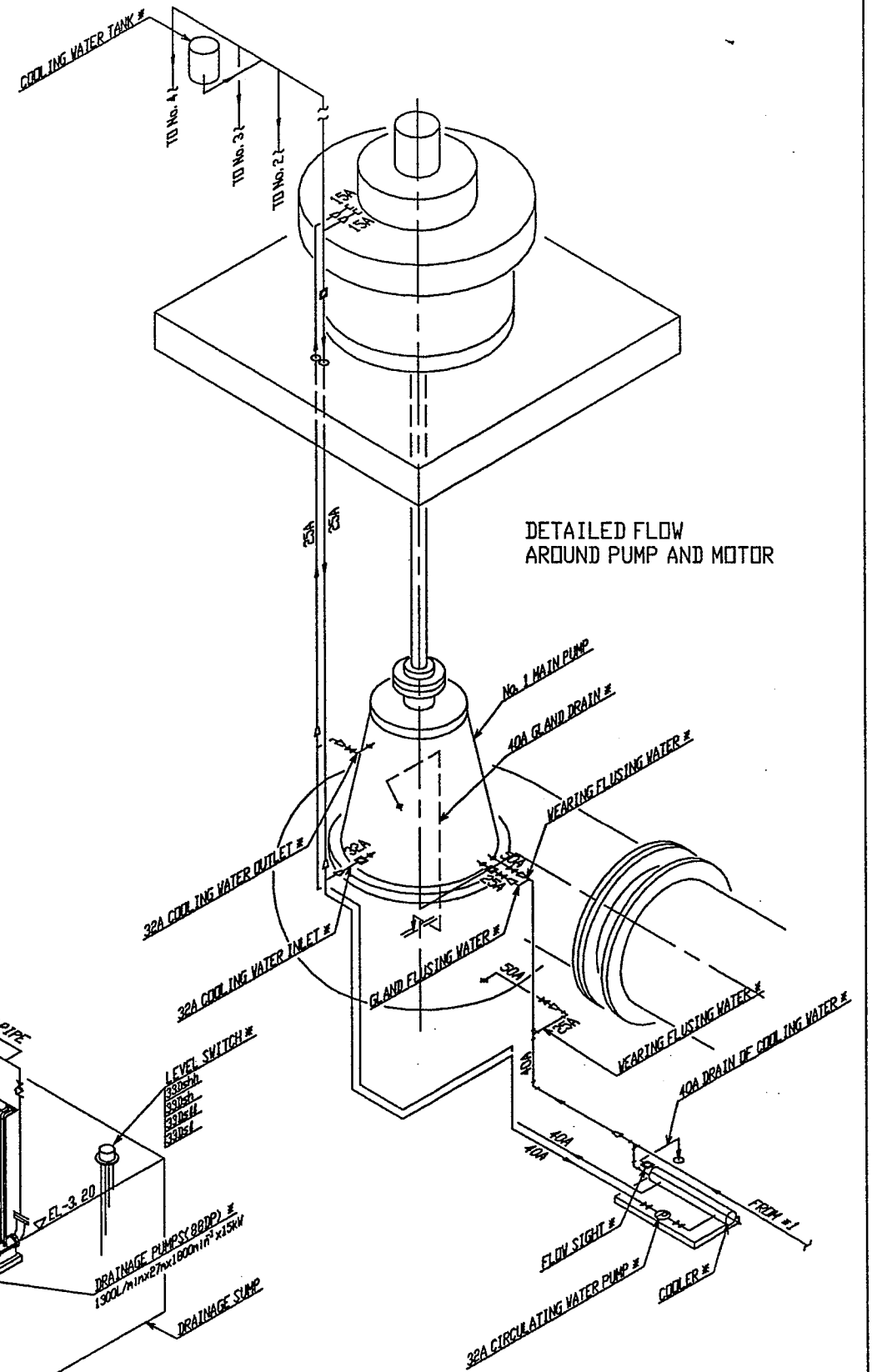
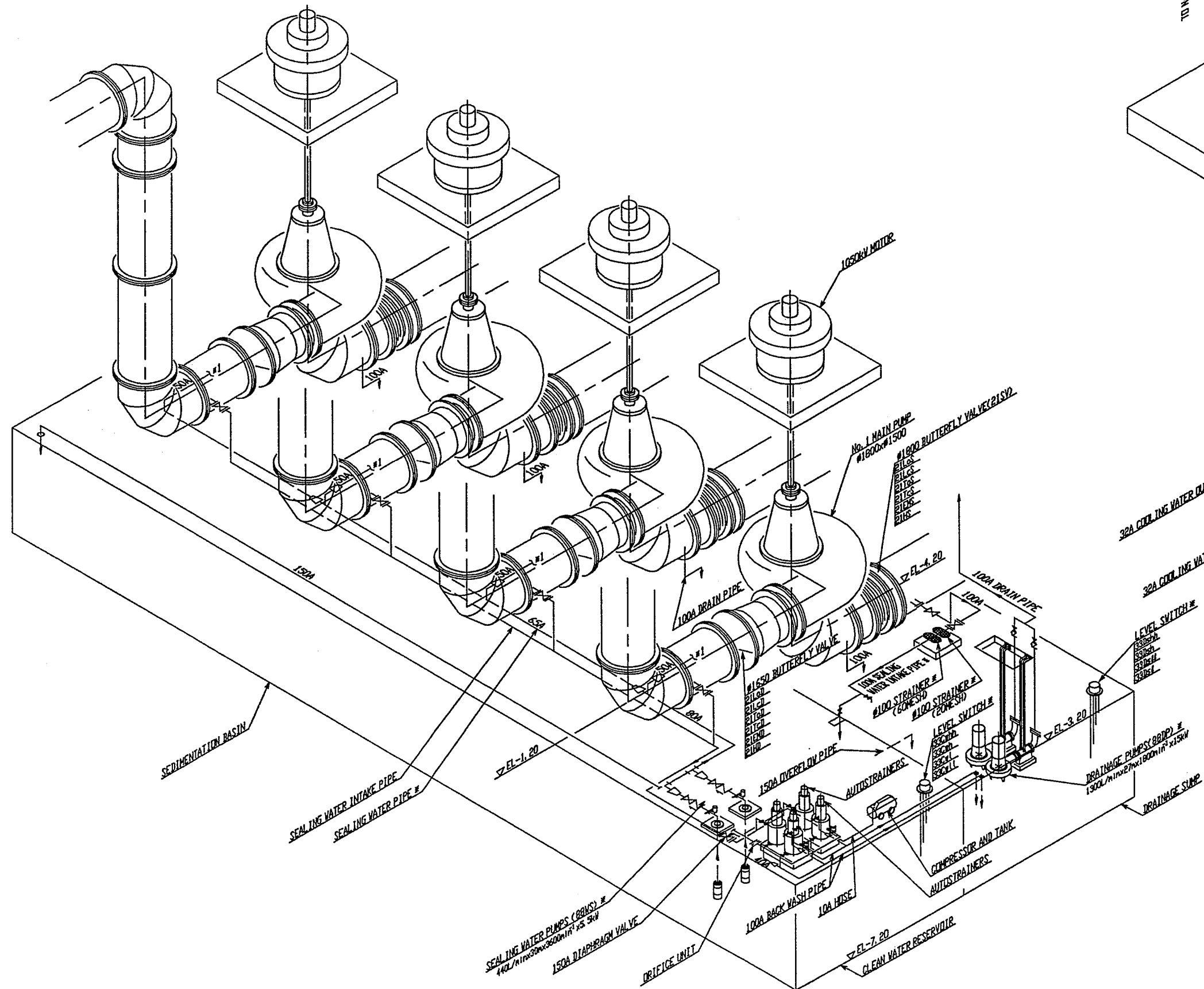
- Ⓐ 13.2kV INCOMING PANEL
- Ⓑ LA PANEL
- Ⓒ 460V INCOMING PANEL
- Ⓓ No.1 PUMP PANEL
- Ⓔ No.2 PUMP PANEL
- ⓫ No.3 PUMP PANEL
- ⓬ No.4 PUMP PANEL
- ⓭ AUXILIARY PANEL

NOTE

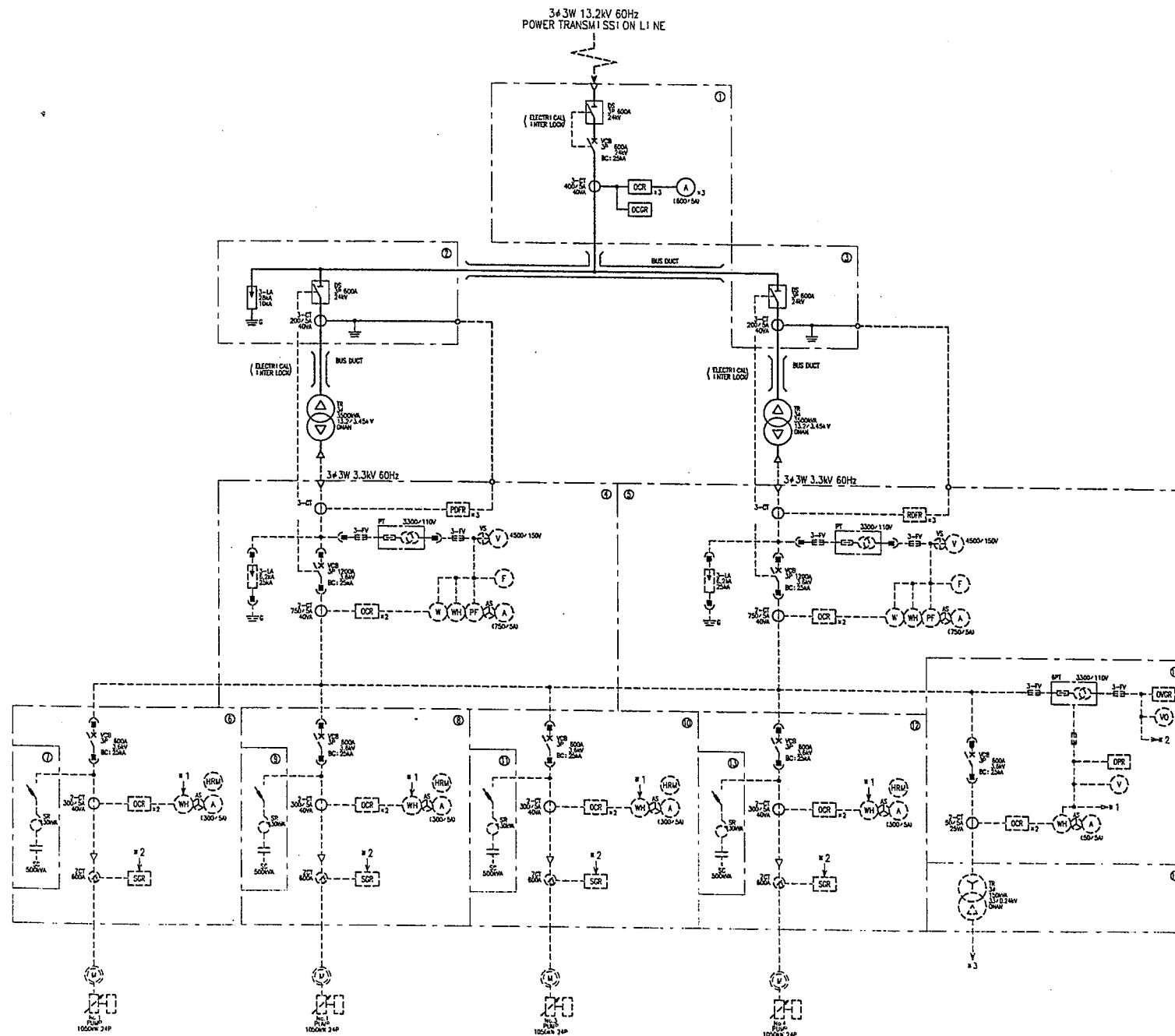
1. ALL THE PANELS AND BUS DUCT SHALL BE REPLACED.
2. TRANSFORMER (2000kVA) SHALL BE MAINTAINED.



THE PROJECT FOR REHABILITATION OF CAGAYAN IRRIGATION FACILITIES IN THE REPUBLIC OF THE PHILIPPINES	
ALCALA-AMULUNG PUMPING STATION SINGLE LINE DIAGRAM	DRAWING NO. 8
JAPAN INTERNATIONAL COOPERATION AGENCY	



THE PROJECT FOR REHABILITATION OF CAGAYAN IRRIGATION FACILITIES IN THE REPUBLIC OF THE PHILIPPINES	
MAGAPIT PUMPING STATION FLOW SHEET	DRAWING NO. 9
JAPAN INTERNATIONAL COOPERATION AGENCY	

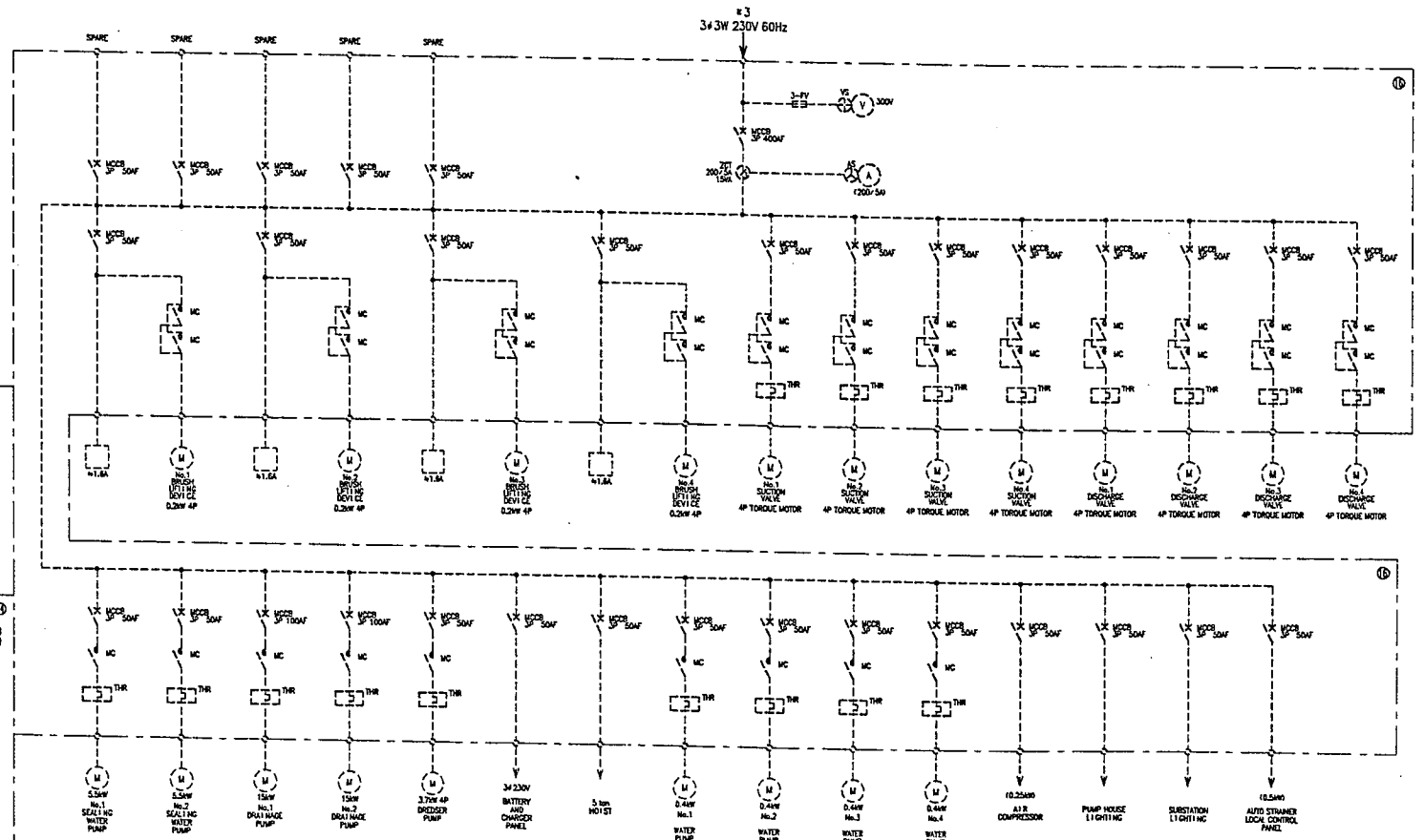


ABBREVIATIONS

SYMBOLS	N A M E	SYMBOLS	N A M E
A	AMMETER	OCR	OVERCURRENT RELAY
AS	AMMETER CHANGE-OVER SWITCH	OVGR	OVERVOLTAGE GROUND RELAY
SR	SERIES REACTOR	PF	POWER FACTOR METER
CT	CURRENT TRANSFORMER	PT	VOLTAGE
SGR	SELECTIVE GROUND RELAY	PDFR	PERCENTAGE DIFFERENTIAL RELAY
DS	DISCONNECTING SWITCH	SC	STATIC CONDENSER
F	FUSE	THR	THERMAL OVERLOAD RELAY
Fv	FREQUENCY METER	TR	TRANSFORMER
GPT	GROUNDING POTENTIAL TRANSFORMER	OPR	OPEN-PHASE RELAY
HRM	HOUR METER	V	VOLTMETER
IM	INDUCTION MOTOR	VO	ZERO-PHASE SEQUENCE VOLTMETER
LA	LIGHTNING ARRESTER	VS	VOLTMETER CHANGE-OVER SWITCH
MC	ELECTRO-MAGNETIC CONTACTOR	W	WATT METER
MCB	MOLDED CASE CIRCUIT BREAKER	WH	WATT-HOUR METER
VCB	VACUUM CIRCUIT BREAKER	ZCT	ZERO-PHASE SEQUENCE CURRENT TRANSFORMER
OCGR	OVERCURRENT GROUND RELAY	CLR	CURRENT LIMITING RESISTOR

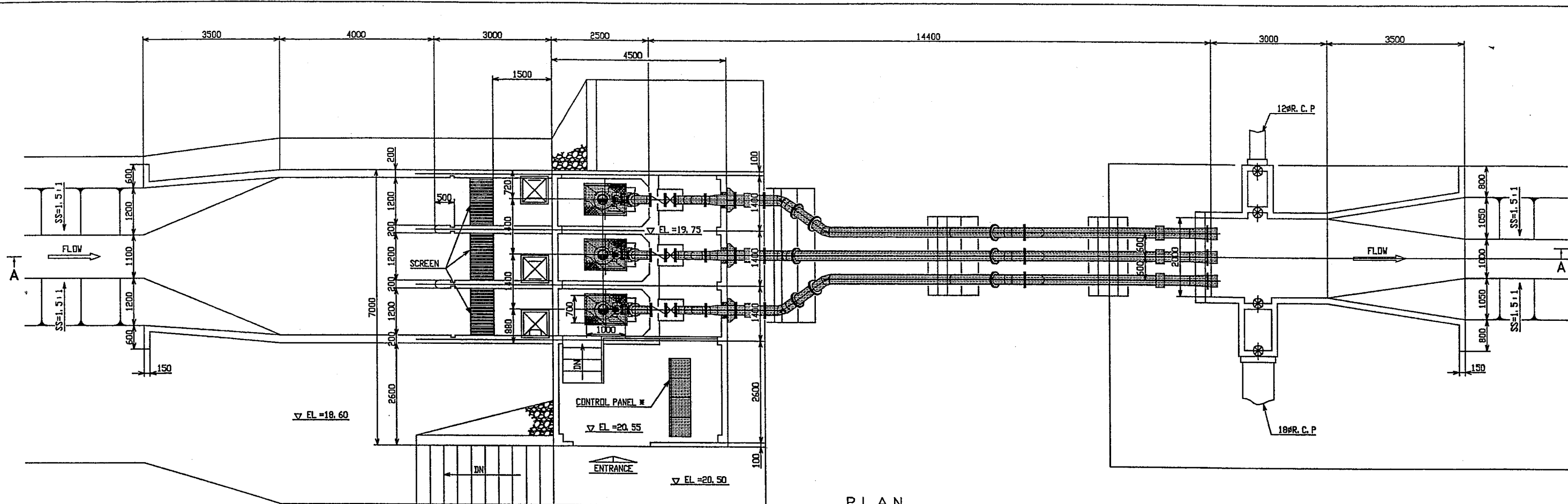
PANEL SYMBOLS

- ① 13.2kV INCOMING PANEL
- ② No.1 TR PRM PANEL
- ③ No.2 TR PRM PANEL
- ④ No.1 3.3kV INCOMING PANEL
- ⑤ No.2 3.3kV INCOMING PANEL
- ⑥ No.1 PUMP PANEL
- ⑦ No.1 SC PANEL
- ⑧ No.2 PUMP PANEL
- ⑨ No.2 SC PANEL
- ⑩ No.3 PUMP PANEL
- ⑪ No.3 SC PANEL
- ⑫ No.4 PUMP PANEL
- ⑬ No.4 SC PANEL
- ⑭ STA TR PRM PANEL
- ⑮ STA TR PANEL
- ⑯ AUXILIARY PANEL

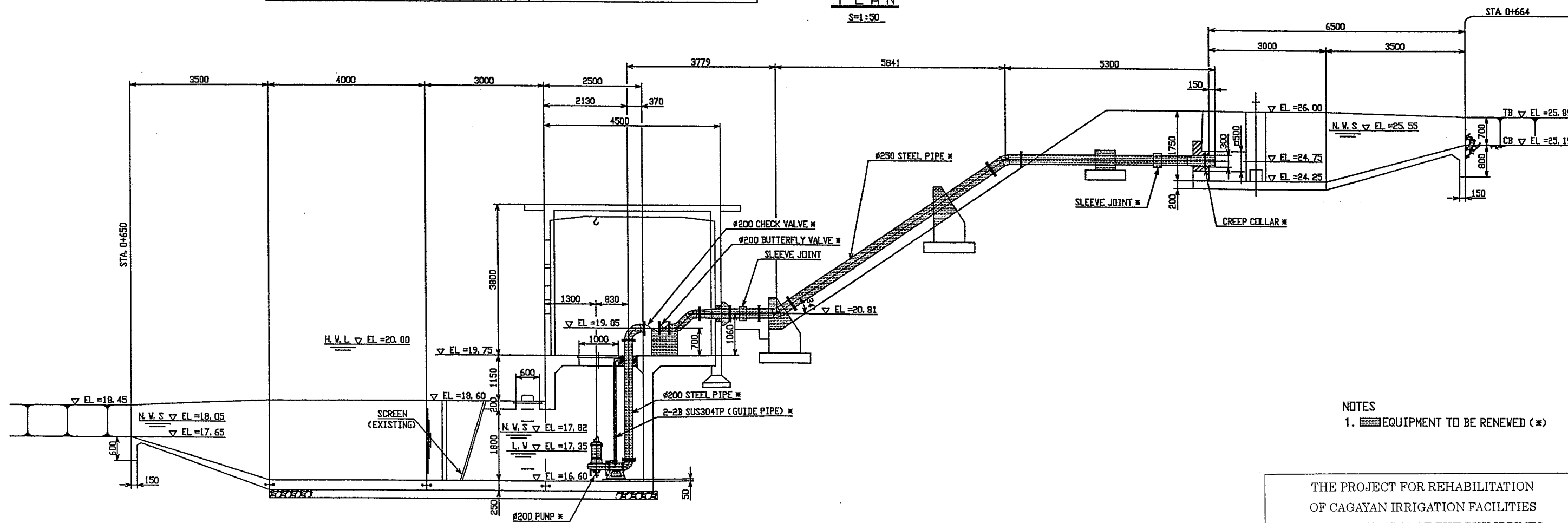


- NOTE
1. ALL THE PANELS AND BUS DUCTS DRAWN IN SOLID LINE SHALL BE REPLACED WITH NEW ONE.
 2. TRANSFORMERS (3500kVA) SHALL BE MAINTAINED.

THE PROJECT FOR REHABILITATION OF CAGAYAN IRRIGATION FACILITIES IN THE REPUBLIC OF THE PHILIPPINES	
MAGAPIT	DRAWING NO.
PUMPING STATION	10
SINGLE LINE DIAGRAM	
JAPAN INTERNATIONAL COOPERATION AGENCY	



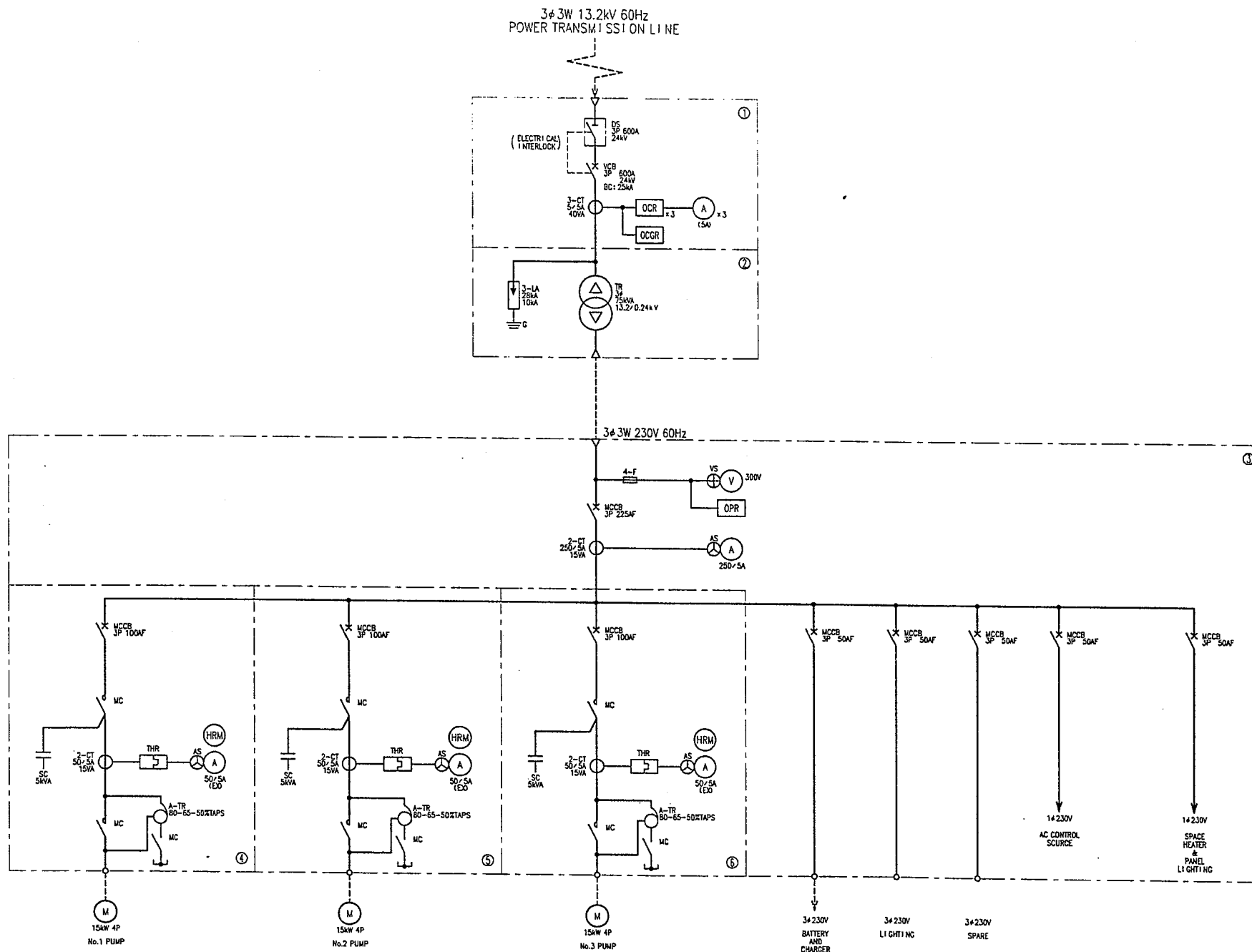
PLAN
S=1:50



SECTION A A
S=1:50

- NOTES
1. EQUIPMENT TO BE RENEWED (*)

THE PROJECT FOR REHABILITATION OF CAGAYAN IRRIGATION FACILITIES IN THE REPUBLIC OF THE PHILIPPINES	
IGUG BOOSTER PUMPING STATION GENERAL ARRANGEMENT	DRAWING NO. 11
JAPAN INTERNATIONAL COOPERATION AGENCY	



ABBREVIATIONS

SYMBOLS	N A M E
A	AMMETER
AS	AMMETER CHANGE-OVER SWITCH
A-TR	AUTO TRANSFORMER
CT	CURRENT TRANSFORMER
DS	DISCONNECTING SWITCH
F	FUSE
HRM	HOUR METER
IM	INDUCTION MOTOR
LA	LIGHTNING ARRESTER
MC	ELECTRO-MAGNETIC CONTACTOR
MCCB	MOLDED CASE CIRCUIT BREAKER
VCB	VACUUM CIRCUIT BREAKER
OCR	OVERCURRENT RELAY
OCGR	OVERCURRENT GROUND RELAY
SC	STATIC CONDENSER
THR	THERMAL OVERLOAD RELAY
TR	TRANSFORMER
V	VOLTMETER
VS	VOLTMETER CHANGE-OVER SWITCH
OPR	OPEN-PHASE RELAY

PANEL SYMBOLS

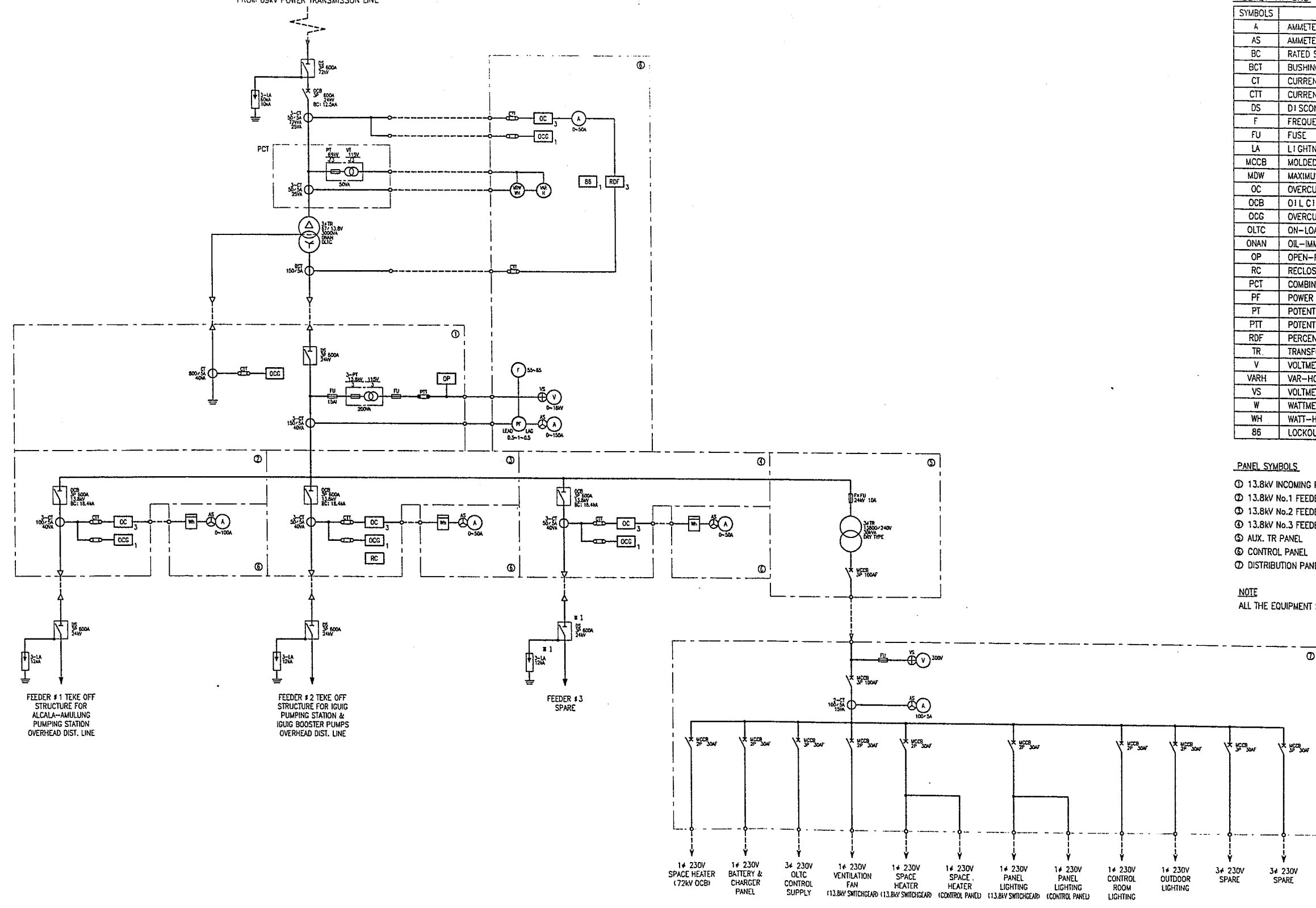
- ① 13.2kV INCOMING PANEL
- ② MAIN TR PANEL
- ③ 230V INCOMING PANEL
- ④ No.1 PUMP PANEL
- ⑤ No.2 PUMP PANEL
- ⑥ No.3 PUMP PANEL

NOTE

ALL THE PANELS SHALL BE REPLACED WITH NEW ONE.

THE PROJECT FOR REHABILITATION OF CAGAYAN IRRIGATION FACILITIES IN THE REPUBLIC OF THE PHILIPPINES	
IGUIG BOOSTER PUMPING STATION SINGLE LINE DIAGRAM	DRAWING NO. 12
JAPAN INTERNATIONAL COOPERATION AGENCY	

3 ϕ 3W 69kV 60Hz
FROM 69kV POWER TRANSMISSION LINE



FEEDER # 1 TEKE OFF
STRUCTURE FOR
ALCALA-AMULUNG
PUMPING STATION
OVERHEAD DIST. LINE

FEEDER # 2 TEKE OFF
STRUCTURE FOR IGUG
PUMPING STATION &
IGUG BOOSTER PUMPS
OVERHEAD DIST. LINE

FEEDER # 3
SPARE

- 1 ϕ 230V SPACE HEATER (72kW OCB)
- 1 ϕ 230V BATTERY & CHARGER PANEL
- 3 ϕ 230V OLTC CONTROL SUPPLY
- 1 ϕ 230V VENTILATION FAN (13.8kV SWITCHGEAR)
- 1 ϕ 230V SPACE HEATER (13.8kV SWITCHGEAR)
- 1 ϕ 230V SPACE HEATER (CONTROL PANEL)
- 1 ϕ 230V PANEL LIGHTING (13.8kV SWITCHGEAR)
- 1 ϕ 230V PANEL LIGHTING (CONTROL PANEL)
- 1 ϕ 230V CONTROL ROOM LIGHTING
- 1 ϕ 230V OUTDOOR LIGHTING
- 3 ϕ 230V SPARE
- 3 ϕ 230V SPARE

ABBREVIATIONS

SYMBOLS	N A M E
A	AMMETER
AS	AMMETER CHANGE-OVER SWITCH
BC	RATED SHORT-CIRCUIT BREAKING CURRENT
BCT	BUSHING CURRENT TRANSFORMER
CT	CURRENT TRANSFORMER
CTT	CURRENT TESTING TERMINAL
DS	DISCONNECTING SWITCH
F	FREQUENCY METER
FU	FUSE
LA	LIGHTNING ARRESTER
MCCB	MOLDED CASE CIRCUIT BREAKER
MDW	MAXIMUM DEMAND WATTMETER
OC	OVERCURRENT RELAY
OCB	OIL CIRCUIT BREAKER
OCG	OVERCURRENT GROUND RELAY
OLTC	ON-LOAD TAP-CHANGER
ONAN	OIL-IMMERSED, SELF-COOLED
OP	OPEN-PHASE RELAY
RC	RECLOSEING RELAY
PCT	COMBINED POTENTIAL CURRENT TRANSFORMER
PF	POWER FACTOR METER
PT	POTENTIAL TRANSFORMER
PIT	POTENTIAL TESTING TERMINAL
RDF	PERCENTAGE DIFFERENTIAL RELAY
TR	TRANSFORMER
V	VOLTMETER
VARH	VAR-HOUR METER
VS	VOLTMETER CHANGE-OVER SWITCH
W	WATTMETER
WH	WATT-HOUR METER
BS	LOCKOUT RELAY

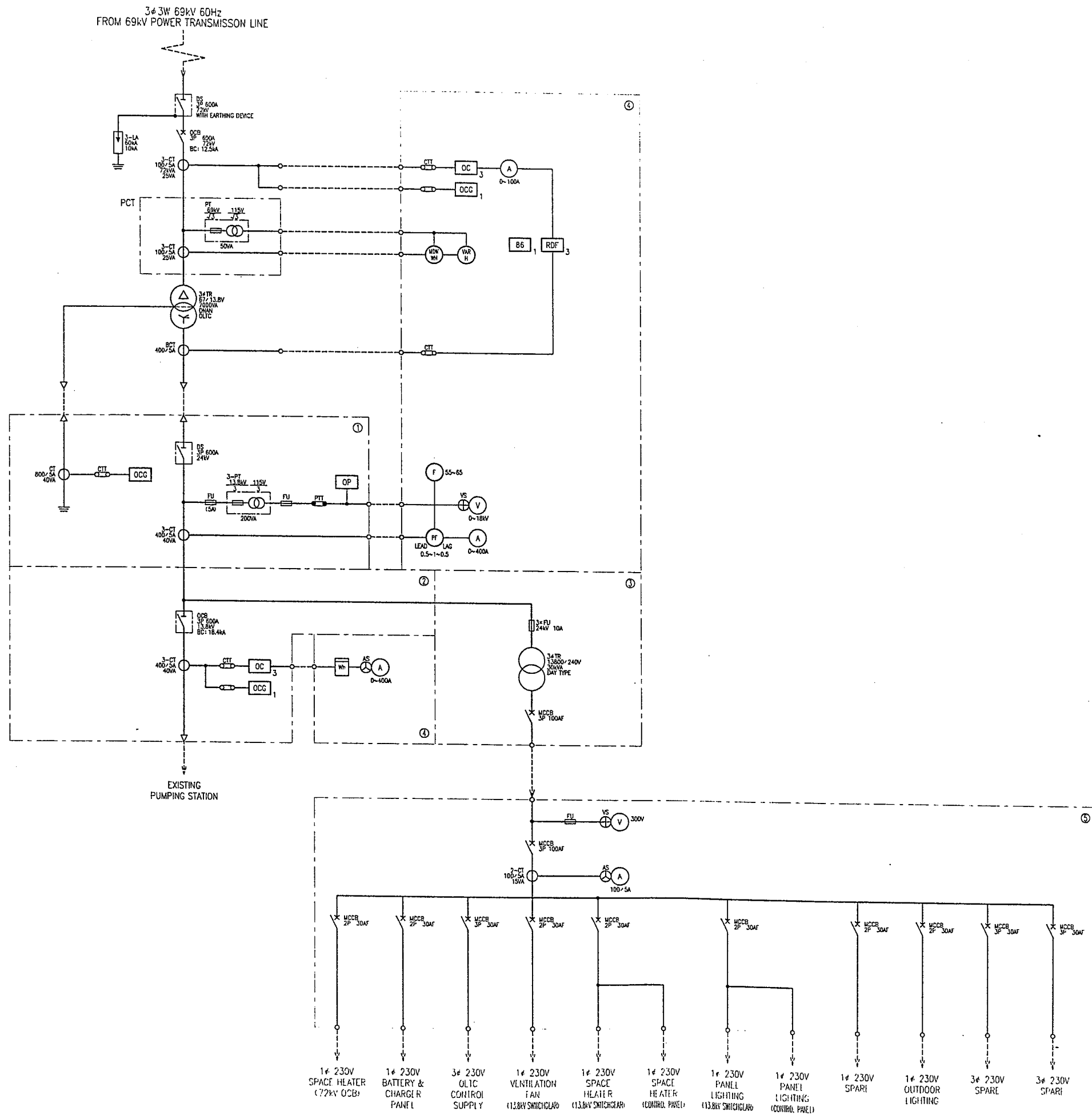
PANEL SYMBOLS

- ① 13.8kV INCOMING PANEL
- ② 13.8kV No.1 FEEDER PANEL
- ③ 13.8kV No.2 FEEDER PANEL
- ④ 13.8kV No.3 FEEDER PANEL
- ⑤ AUX. TR PANEL
- ⑥ CONTROL PANEL
- ⑦ DISTRIBUTION PANEL (INDOOR)

NOTE

ALL THE EQUIPMENT SHALL BE MAINTAINED.

THE PROJECT FOR REHABILITATION OF CAGAYAN IRRIGATION FACILITIES IN THE REPUBLIC OF THE PHILIPPINES	
AMULUNG SUBSTATION SINGLE LINE DIAGRAM	DRAWING NO. 13
JAPAN INTERNATIONAL COOPERATION AGENCY	



ABBREVIATIONS

SYMBOLS	N A M E
A	AMMETER
AS	AMMETER CHANGE-OVER SWITCH
BC	RATED SHORT-CIRCUIT BREAKING CURRENT
BCT	BUSHING CURRENT TRANSFORMER
CT	CURRENT TRANSFORMER
CTT	CURRENT TESTING TERMINAL
DS	DISCONNECTING SWITCH
F	FREQUENCY METER
FU	FUSE
LA	LIGHTNING ARRESTER
MCCB	MOLDED CASE CIRCUIT BREAKER
MDW	MAXIMUM DEMAND WATTMETER
OC	OVERCURRENT RELAY
OCB	OIL CIRCUIT BREAKER
OCG	OVERCURRENT GROUND RELAY
OLTC	ON-LOAD TAP-CHANGER
ONAN	OIL-IMMERSED, SELF-COOLED
OP	OPEN-PHASE RELAY
PCT	COMBINED POTENTIAL CURRENT TRANSFORMER
PF	POWER FACTOR METER
PT	POTENTIAL TRANSFORMER
PTT	POTENTIAL TESTING TERMINAL
RDF	PERCENTAGE DIFFERENTIAL RELAY
TR	TRANSFORMER
V	VOLTMETER
VARH	VAR-HOUR METER
VS	VOLTMETER CHANGE-OVER SWITCH
W	WATTMETER
WH	WATT-HOUR METER
86	LOCKOUT RELAY

PANEL SYMBOLS

- ① 13.8kV INCOMING PANEL
- ② 13.8kV FEEDER PANEL
- ③ AUX. TR PANEL
- ④ CONTROL PANEL
- ⑤ DISTRIBUTION PANEL (INDOOR)

NOTE

ALL THE EQUIPMENT SHALL BE MAINTAINED.

THE PROJECT FOR REHABILITATION OF CAGAYAN IRRIGATION FACILITIES IN THE REPUBLIC OF THE PHILIPPINES	
MAGAPIT SUBSTATION	DRAWING NO. 14
SINGLE LINE DIAGRAM	
JAPAN INTERNATIONAL COOPERATION AGENCY	