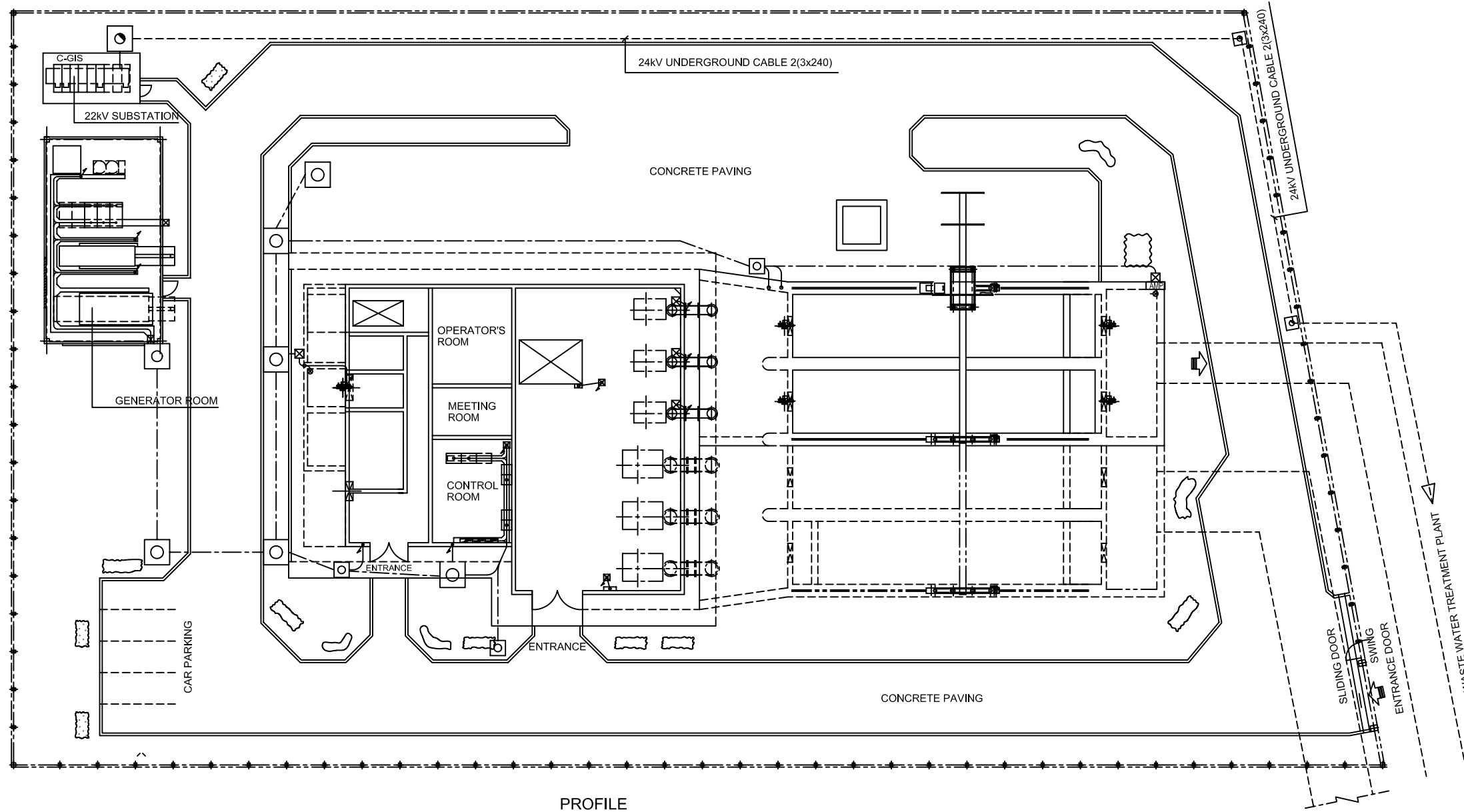
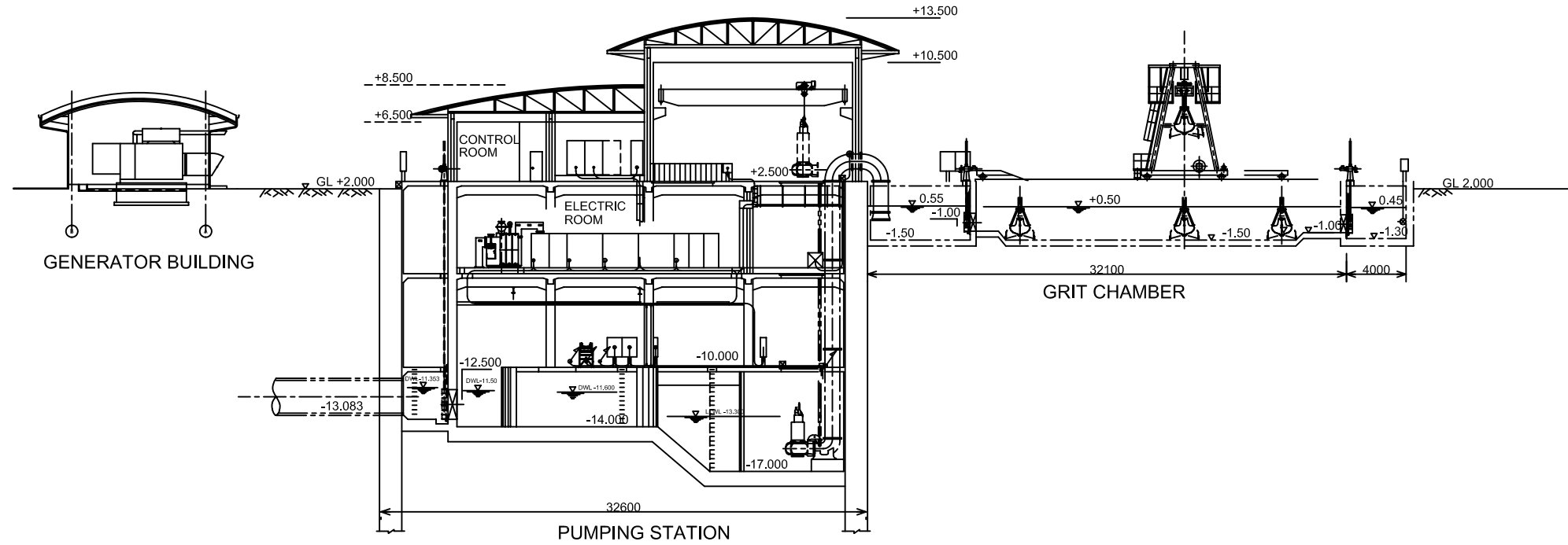


ELECTRICAL WORK

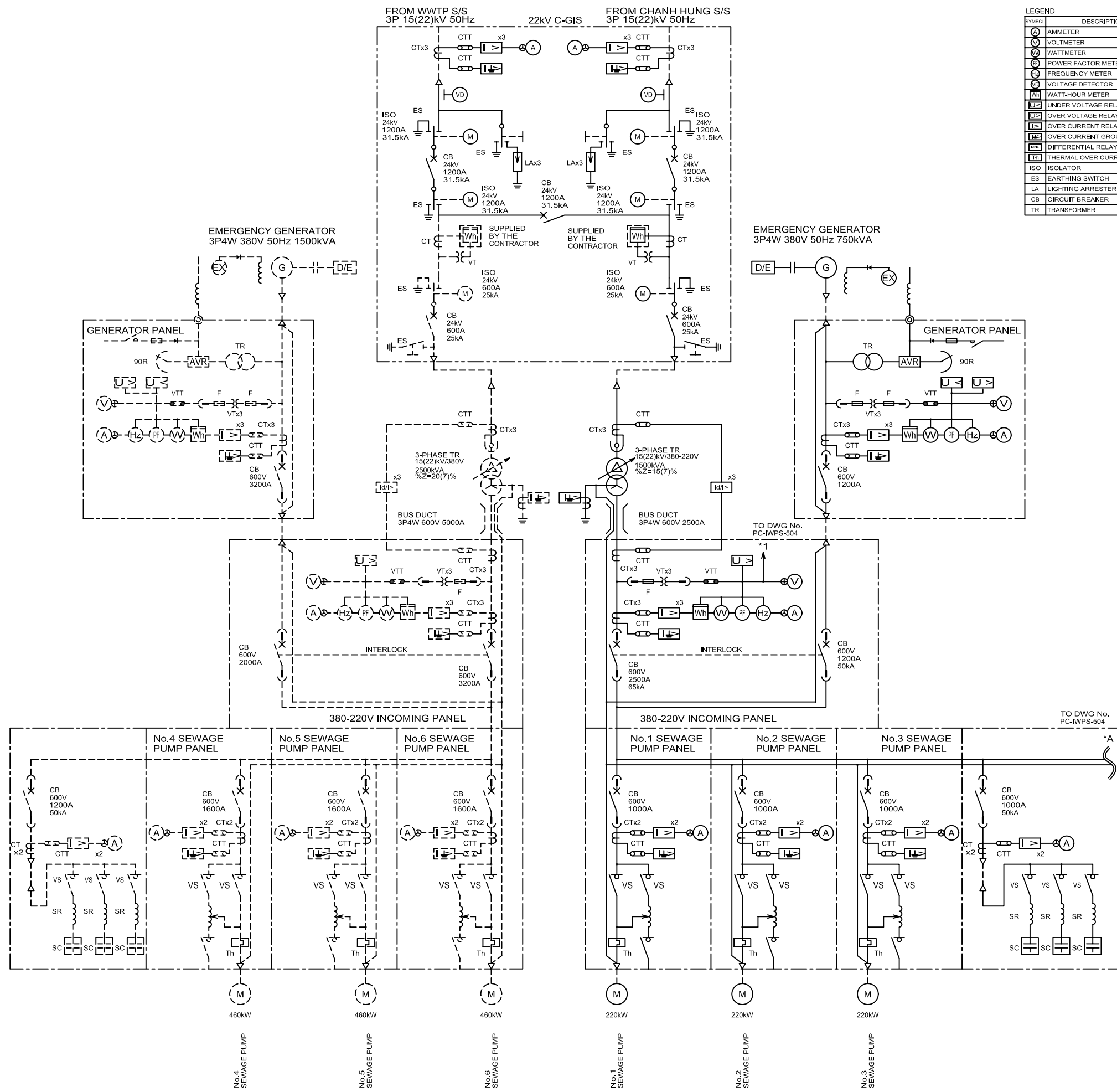
PLAN



PROFILE

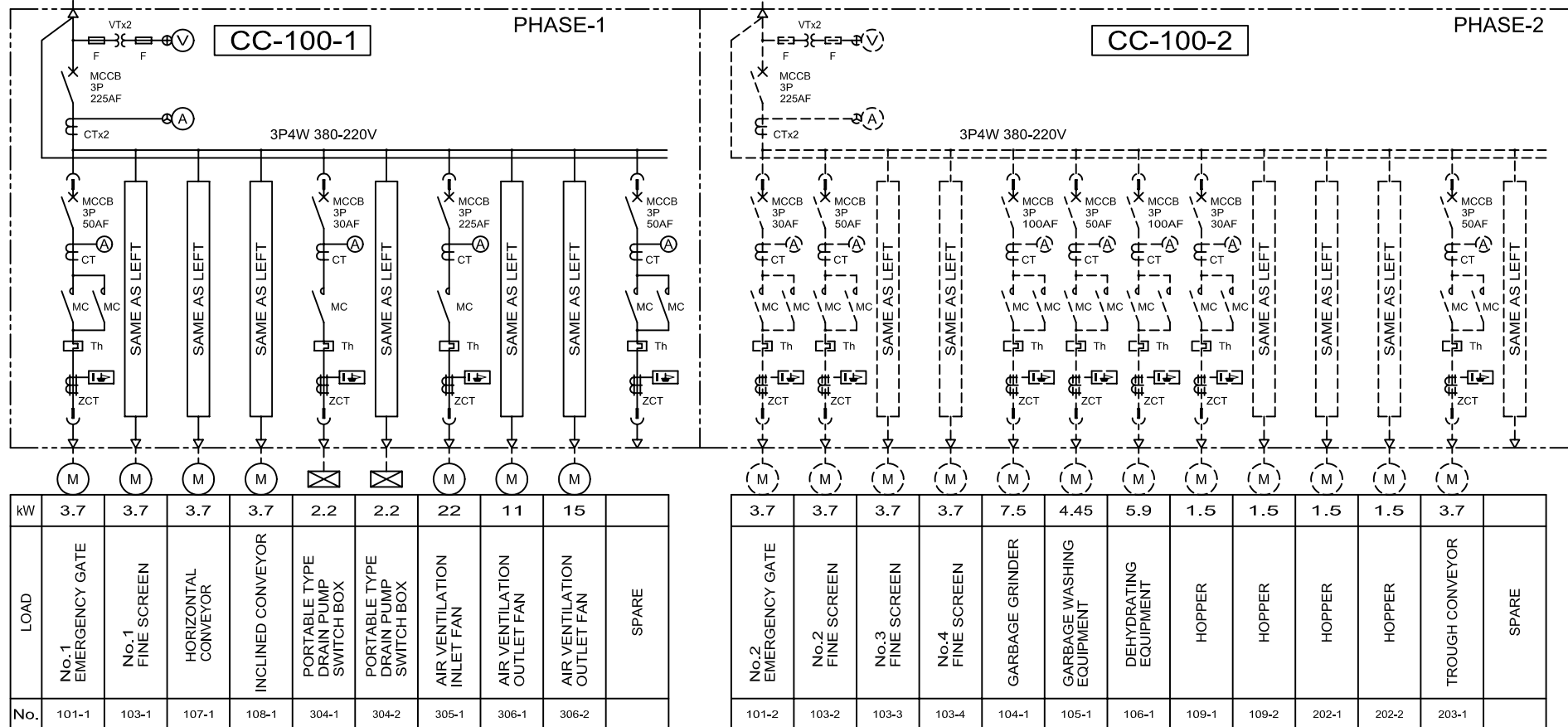
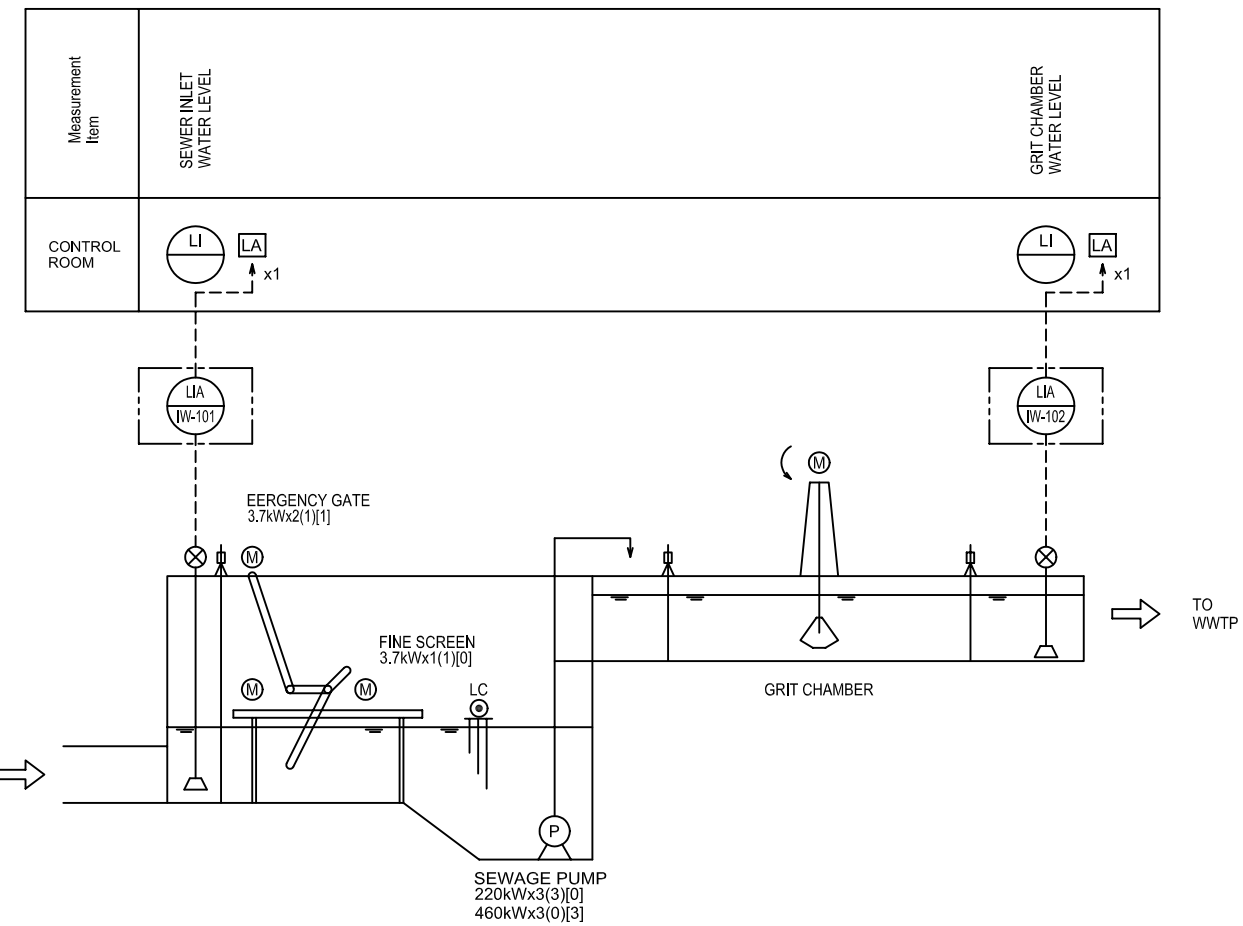
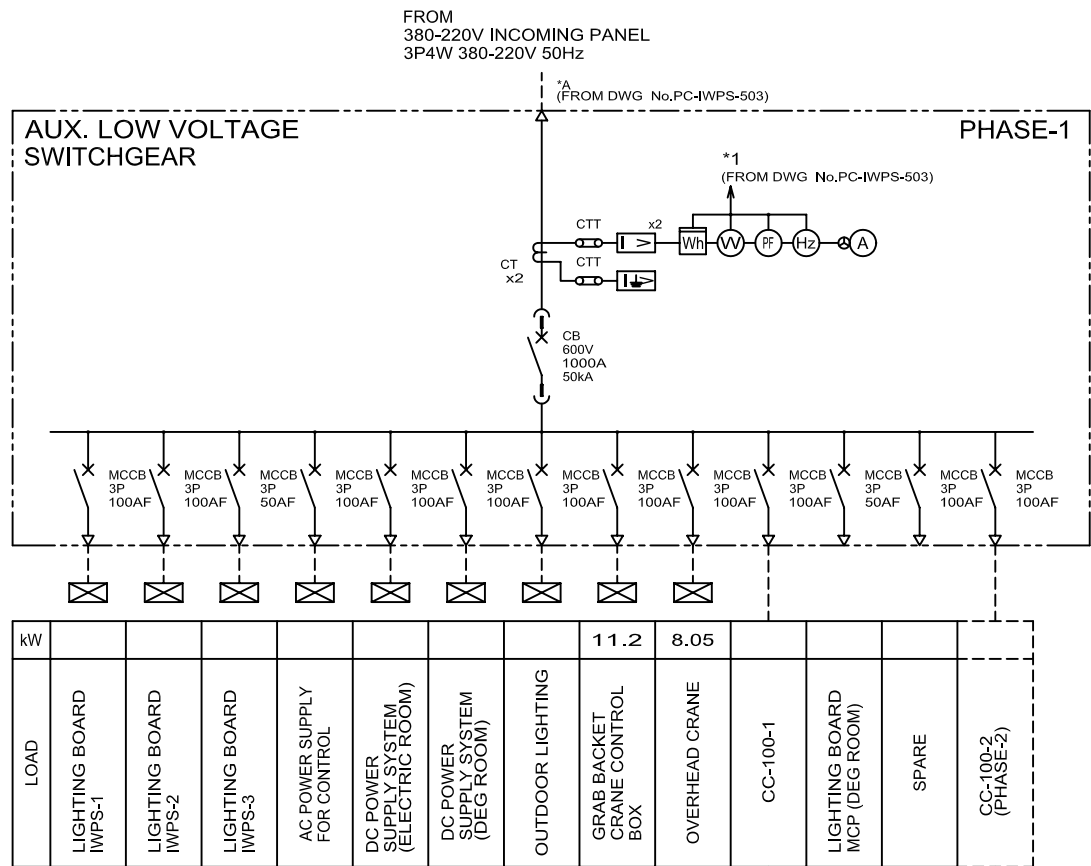


NO.	DATE	DESCRIPTIONS	BY	APRO.
REVISIONS				
PROJECT MANAGEMENT UNIT FOR HO CHI MINH CITY WATER ENVIRONMENT IMPROVEMENT				
THE DETAILED DESIGN ON HO CHI MINH CITY WATER ENVIRONMENT IMPROVEMENT PROJECT IN THE SOCIALIST REPUBLIC OF VIET NAM				
PACKAGE C INTERMEDIATE WASTE WATER PUMPING STATION				
GENERAL LAYOUT OF ELECTRICAL EQUIPMENT				
SCALE : 1/200				
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)				
PACIFIC CONSULTANTS INTERNATIONAL				
DESIGNED KOMIYA NOBUO		CHECKED KONDO MASAMI		
DATE : JUNE 2001		DWG. No. PC - IWPS - 501		

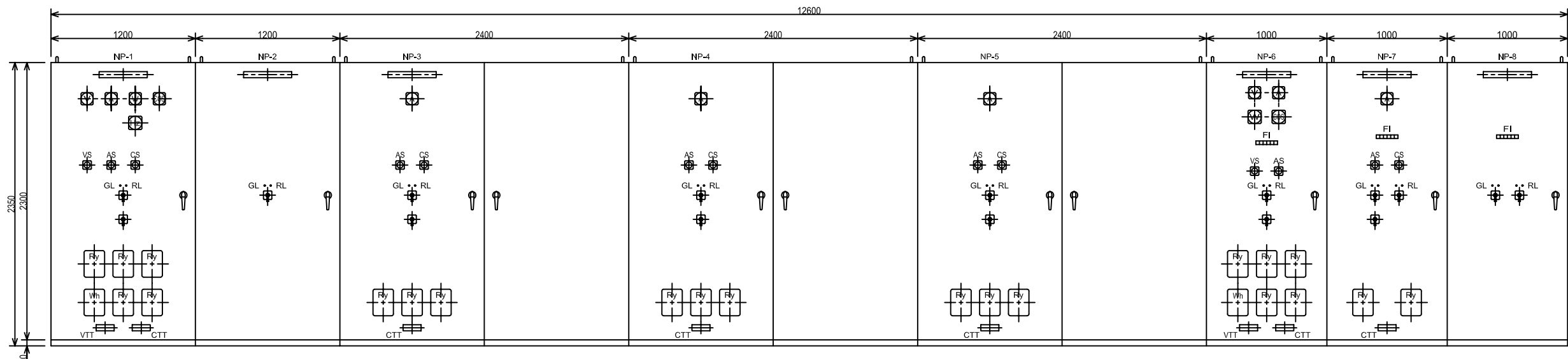


SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
(A)	AMMETER	VT	VOLTAGE TRANSFORMER
(V)	VOLTMETER	CT	CURRENT TRANSFORMER
(W)	WATTMETER	VTT	VOLTAGE TEST TERMINAL
(PF)	POWER FACTOR METER	CTT	CURRENT TEST TERMINAL
(Hz)	FREQUENCY METER	ZCT	ZERO PHASE CURRENT TRANSFORMER
(VD)	VOLTAGE DETECTOR	VS	VACUUM SWITCH
(Wh)	WATT-HOUR METER	MCCB	MOLDED CASE CIRCUIT BREAKER
(U)	UNDER VOLTAGE RELAY	ELCB	EARTH LEAKAGE CIRCUIT BREAKER
(OV)	OVER VOLTAGE RELAY	SC	STATIC CAPACITOR
(OC)	OVER CURRENT RELAY	SR	STATIC REACTOR
(OCGR)	OVER CURRENT GROUND RELAY	M	MOTER
(DR)	DIFFERENTIAL RELAY	AVR	AUTOMATIC VOLTAGE REGULATOR
(TOC)	THERMAL OVER CURRENT RELAY	DE	DIESEL ENGINE
ISO	ISOLATOR	G	GENERATOR
ES	EARTHING SWITCH	(A)	AMMETER CHANGE-OVER SWITCH
LA	LIGHTING ARRESTER	(V)	VOLTMETER CHANGE-OVER SWITCH
CB	CIRCUIT BREAKER		
TR	TRANSFORMER		

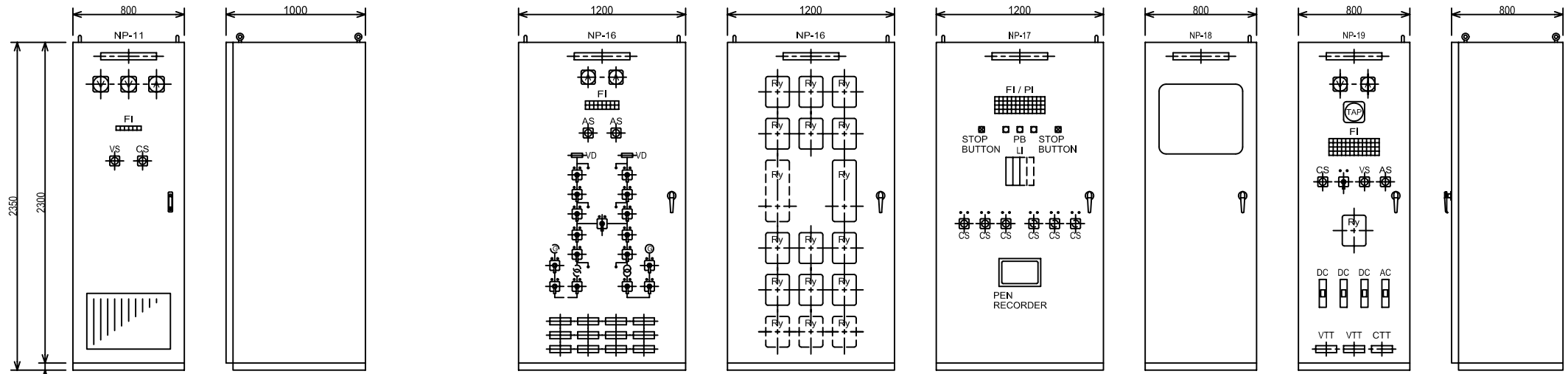
NO.	DATE	DESCRIPTIONS	BY	APPRO.
REVISIONS				
PROJECT MANAGEMENT UNIT FOR HO CHI MINH CITY WATER ENVIRONMENT IMPROVEMENT				
THE DETAILED DESIGN ON HO CHI MINH CITY WATER ENVIRONMENT IMPROVEMENT PROJECT IN THE SOCIALIST REPUBLIC OF VIET NAM				
PACKAGE C INTERMEDIATE WASTE WATER PUMPING STATION				
SINGLE LINE DIAGRAM FOR 22kV SUBSTATION AND ELECTRIC ROOM				
SCALE : N.T.S				
DESIGNED KOMIYA NOBUO			CHECKED KONDO MASAMI	
DATE : JUNE 2001			DWG. No. PC -IWPS - 503	



NO.	DATE	DESCRIPTIONS	BY	APPRO.
REVISIONS				
PROJECT MANAGEMENT UNIT FOR HO CHI MINH CITY WATER ENVIRONMENT IMPROVEMENT				
THE DETAILED DESIGN ON HO CHI MINH CITY WATER ENVIRONMENT IMPROVEMENT PROJECT IN THE SOCIALIST REPUBLIC OF VIET NAM				
PACKAGE C INTERMEDIATE WASTE WATER PUMPING STATION				
SINGLE LINE DIAGRAM FOR MOTOR CONTROL CENTER AND INSTRUMENTATION				
SCALE : N.T.S				
JICA JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)				
PACIFIC CONSULTANTS INTERNATIONAL				
DESIGNED KOMIYA NOBUO		CHECKED KONDO MASAMI		
DATE : JUNE 2001		DWG. No. PC - IWPS - 504		



LOW VOLTAGE SWG



DC POWER SUPPLY SYSTEM

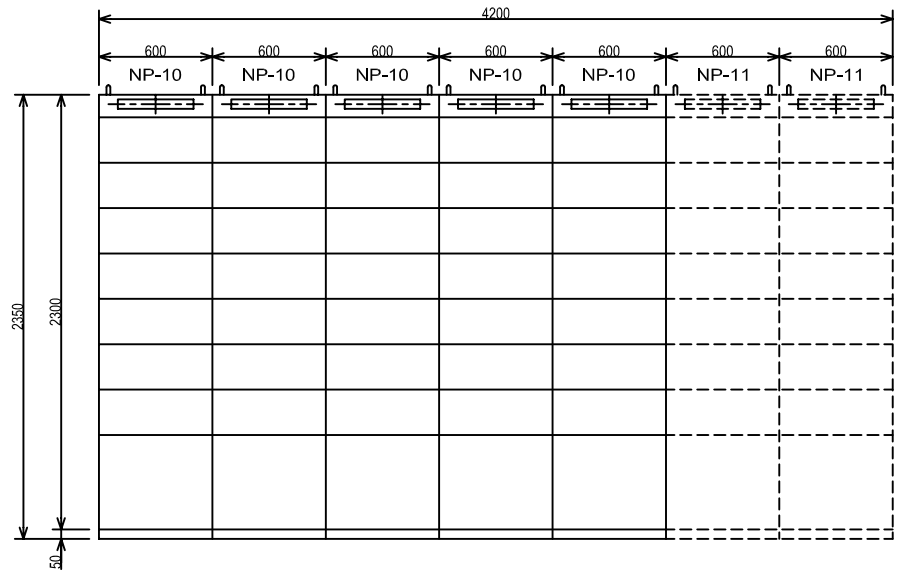
22KV CONTROL & PROTECTION

SUPERVISORY PANEL

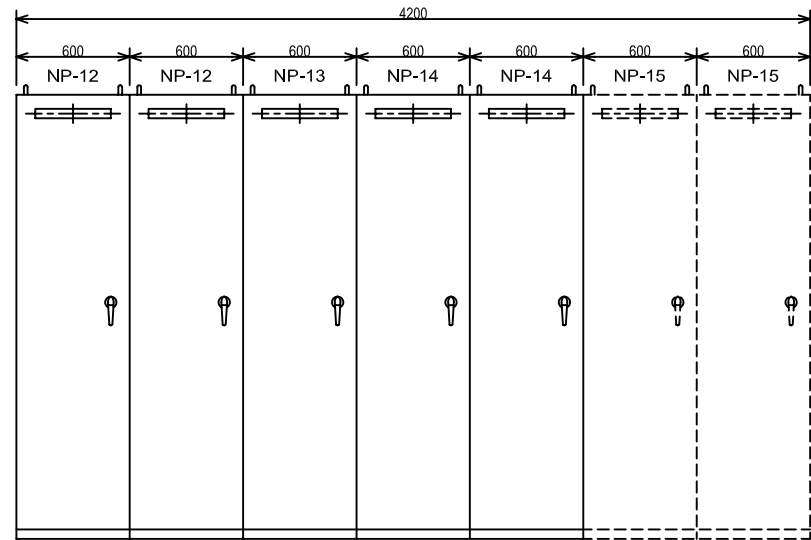
BILLMETERING PANEL

OLTC PANEL

Ry PANEL



CONTROL CENTER



NAME PLATE(NP)	
No.	DESCRIPTION
NP-1	380V INCOMING PANEL(1)
NP-2	SECTION PANEL
NP-3	SEWAGE PUMP STARTING PANEL(1)
NP-4	SEWAGE PUMP STARTING PANEL(2)
NP-5	SEWAGE PUMP STARTING PANEL(3)
NP-6	LOW VOLTAGE SWG
NP-7	CAPACITOR PANEL(1)
NP-8	CAPACITOR PANEL(2)
NP-9	DC POWER SUPPLY SYSTEM
NP-10	CC-100-1
NP-11	CC-100-2
NP-12	SEDIMENTATION BASIN RELAY PANEL
NP-13	METERING PANEL
NP-14	COMMON RELAY PANEL-1
NP-15	COMMON RELAY PANEL-2
NP-16	22KV CONTROL & PROTECTION
NP-17	SUPERVISORY PANEL
NP-18	BILLMETERING PANEL
NP-19	OLTC PANEL

NO.	DATE	DESCRIPTIONS	BY	APRO.

REVISIONS

PROJECT MANAGEMENT UNIT FOR
HO CHI MINH CITY
WATER ENVIRONMENT IMPROVEMENT

THE DETAILED DESIGN ON HO CHI MINH CITY
WATER ENVIRONMENT IMPROVEMENT PROJECT
IN THE SOCIALIST REPUBLIC OF VIET NAM

PACKAGE C
INTERMEDIATE WASTE WATER PUMPING STATION

**DIMENSION OF SWITCHGEARS
AND CONTROL PANELS
IN ELECTRIC ROOM**

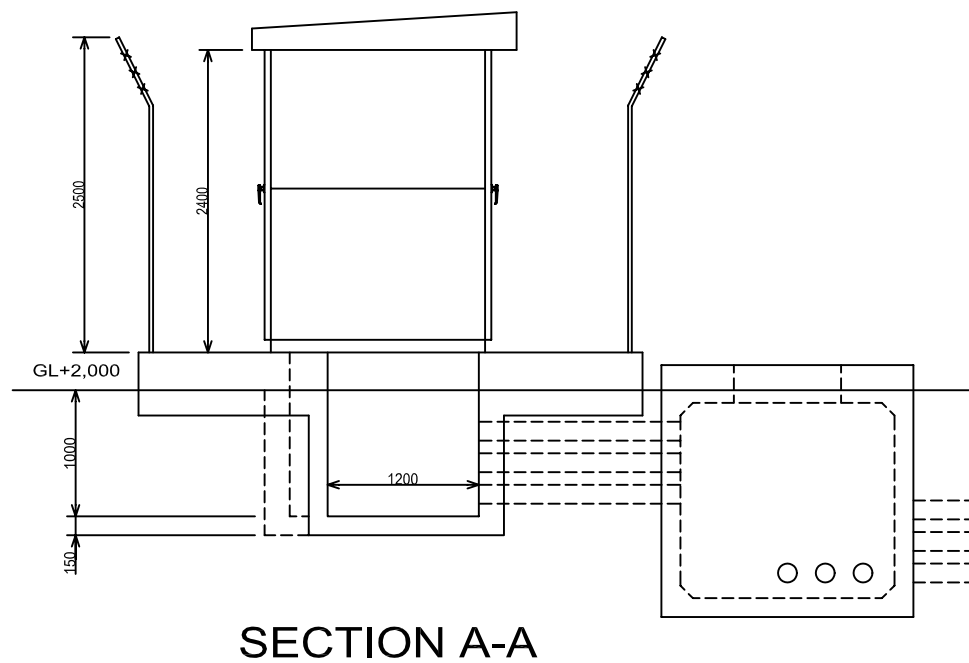
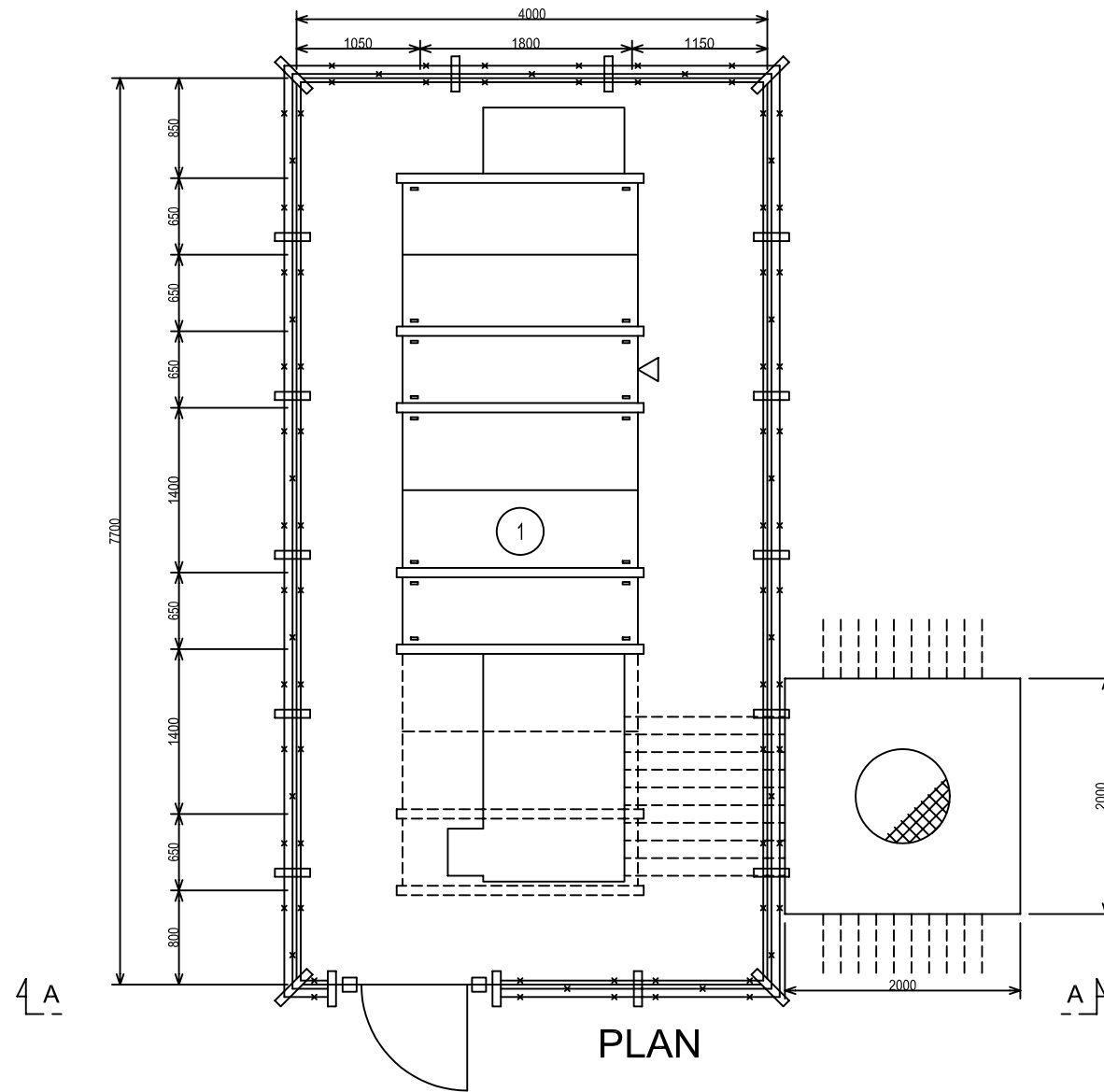
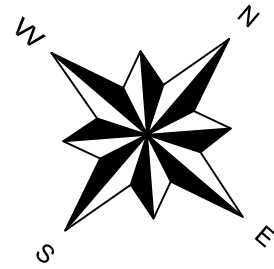
SCALE : 1 / 20

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

PACIFIC CONSULTANTS INTERNATIONAL

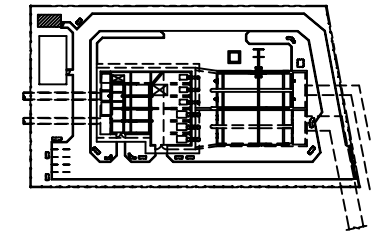
DESIGNED KOMIYA NOBUO	CHECKED KONDO MASAMI
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DATE : JUNE 2001 DWG. No. PC -IWPS - 505



LEGEND

No.	EQUIPMENT NAME & SIZE	WEIGHT(kg)
1	22kV C-GIS W6050xD2200xH2750	16,000



KEY PLAN

NO.	DATE	DESCRIPTIONS	BY	APRO.

REVISIONS

PROJECT MANAGEMENT UNIT FOR
HO CHI MINH CITY
WATER ENVIRONMENT IMPROVEMENT

THE DETAILED DESIGN ON HO CHI MINH CITY
WATER ENVIRONMENT IMPROVEMENT PROJECT
IN THE SOCIALIST REPUBLIC OF VIET NAM

PACKAGE C
INTERMEDIATE WASTE WATER PUMPING STATION

LAYOUT FOR 22kV SUBSTATION

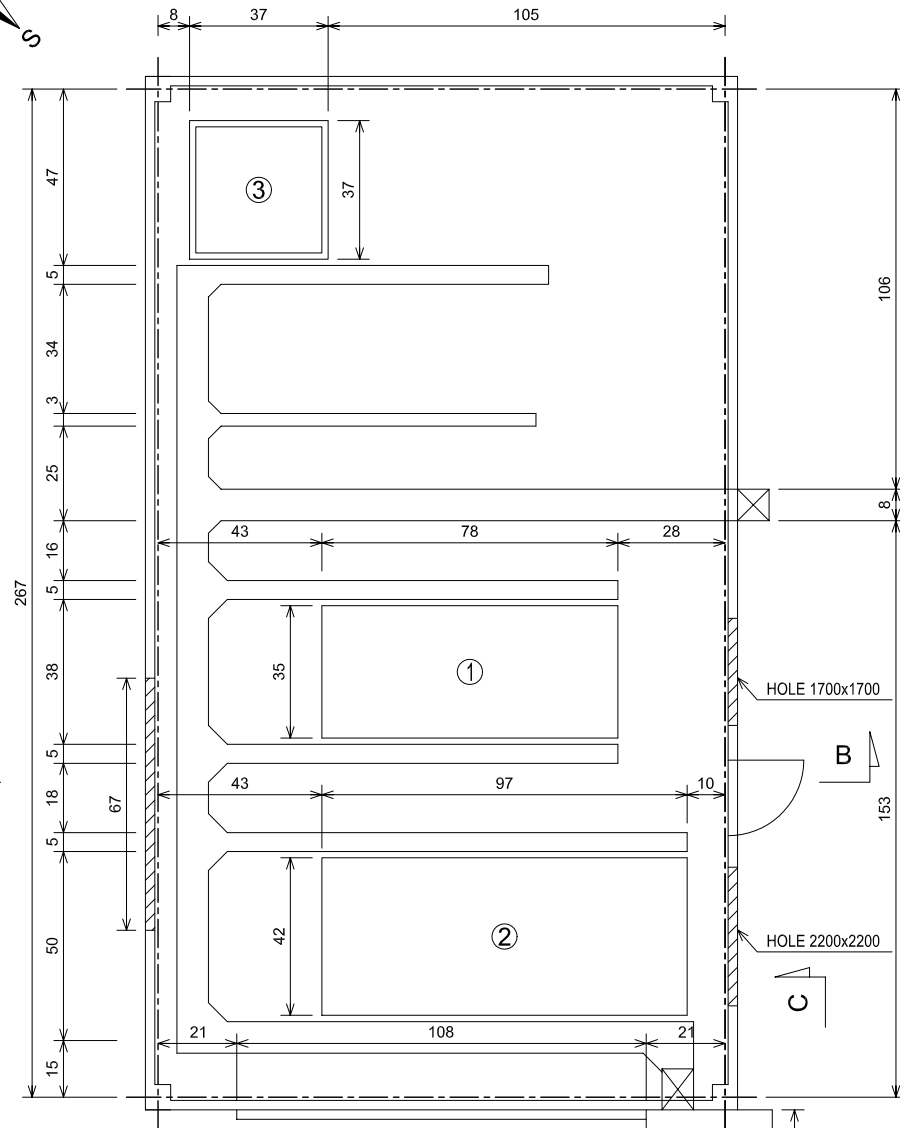
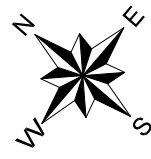
SCALE : 1/30

JAPAN INTERNATIONAL COOPERATION
AGENCY (JICA)

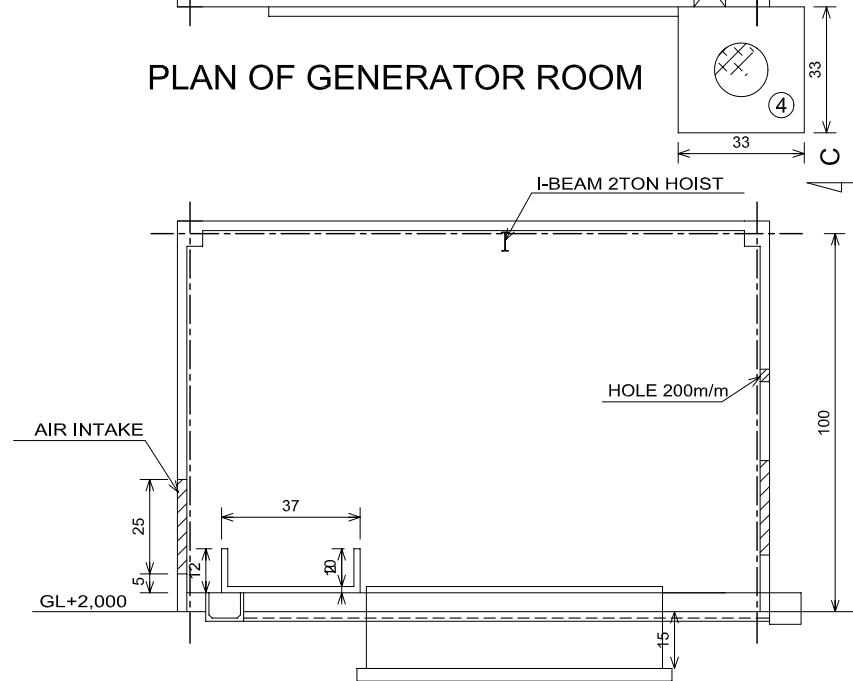
PACIFIC CONSULTANTS INTERNATIONAL

DESIGNED KOMIYA NOBUO	CHECKED KONDO MASAMI
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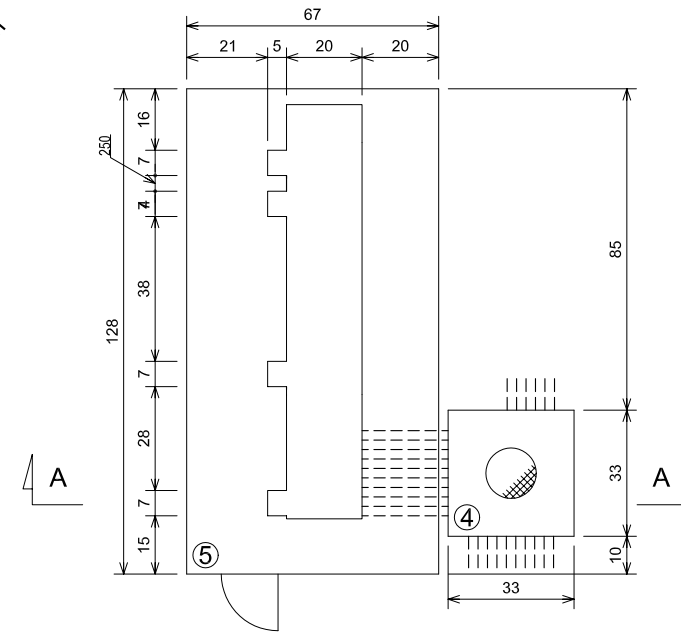
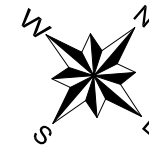
DATE : JUNE 2001 DWG. No. PC -IWPS - 506



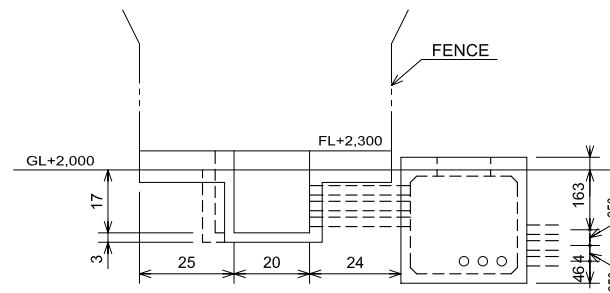
PLAN OF GENERATOR ROOM



SECTION B-B

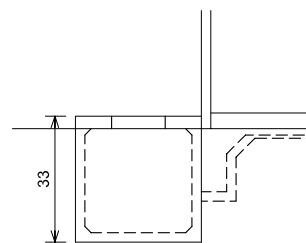


PLAN OF 22KV SUBSTATION

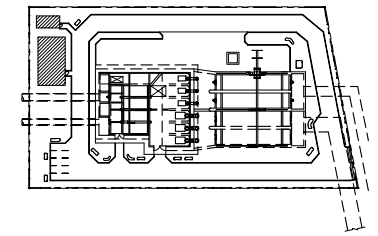


SECTION A-A

No.	FOUNDATION NAME & SIZE
1	750kVA DG FOUNDATION W2100 x L4700 x H1300
2	1500kVA DG FOUNDATION (PHASE-2) W2500 x L5800 x H1700
3	OIL TANK FOUNDATION W2200 x D2200 x H700
4	HAND HOLE W2000 x D2000 x H2000
5	22kV SUBSTATION FOUNDATION W4000 x D7700 x H500



SECTION C-C



KEY PLAN

NO.	DATE	DESCRIPTIONS	BY	APRO.

REVISIONS

PROJECT MANAGEMENT UNIT FOR
HO CHI MINH CITY
WATER ENVIRONMENT IMPROVEMENT

THE DETAILED DESIGN ON HO CHI MINH CITY
WATER ENVIRONMENT IMPROVEMENT PROJECT
IN THE SOCIALIST REPUBLIC OF VIET NAM

PACKAGE C
INTERMEDIATE WASTE WATER PUMPING STATION

EQUIPMENT FOUNDATION FOR
22kV SUBSTATION
AND GENERATOR ROOM

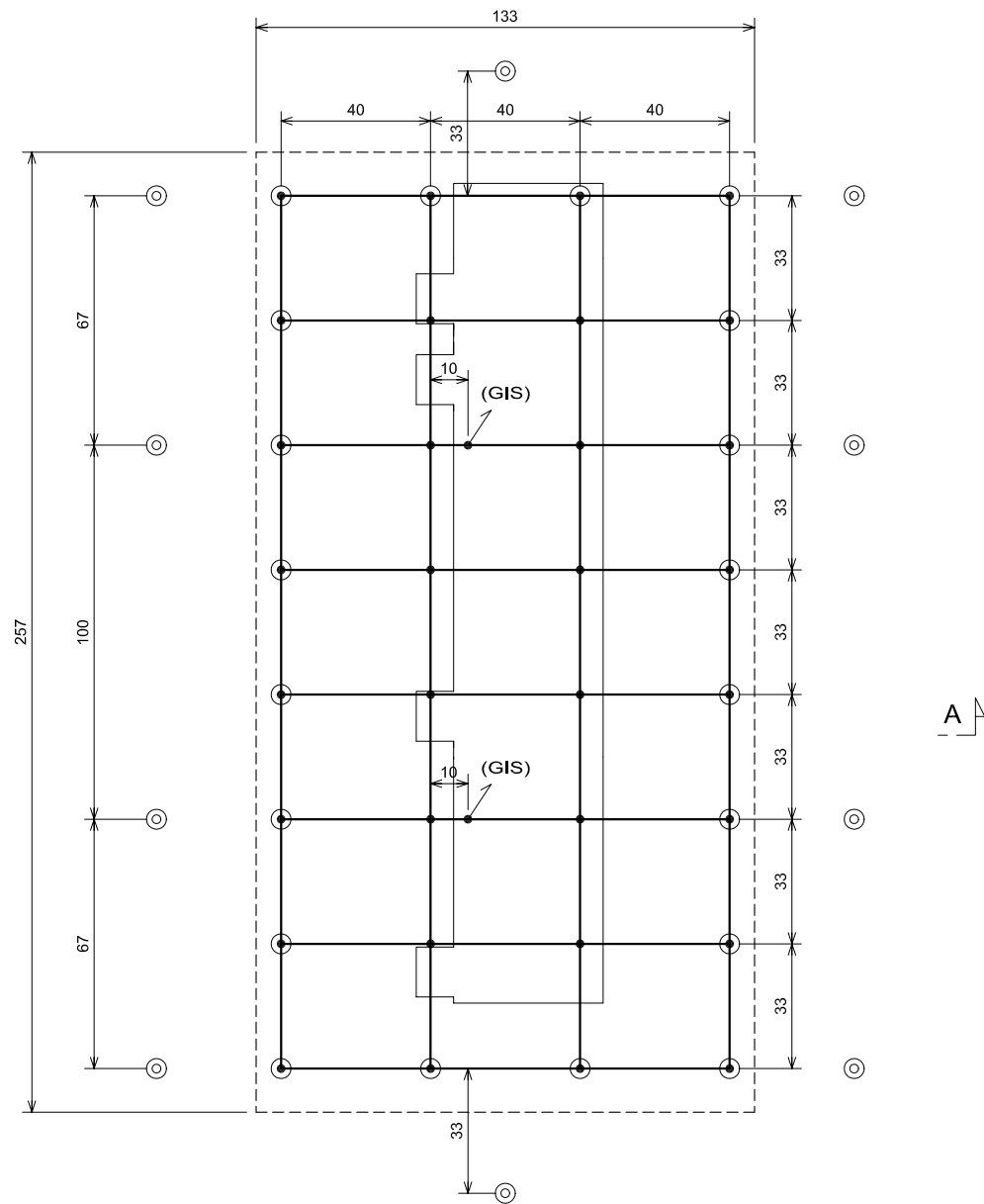
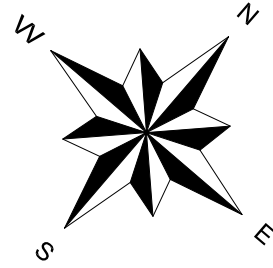
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JICA JAPAN INTERNATIONAL COOPERATION
AGENCY (JICA)

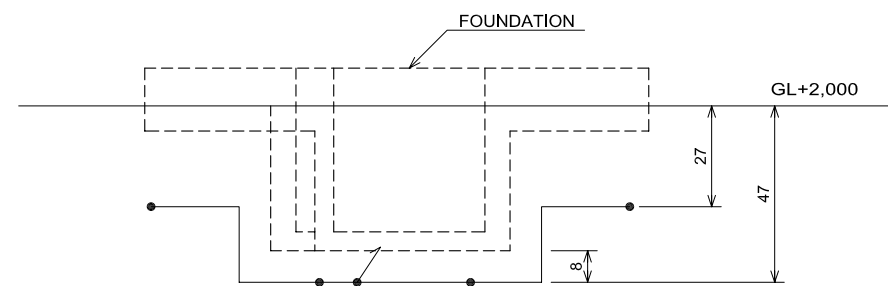
PACIFIC CONSULTANTS INTERNATIONAL

DESIGNED KOMIYA NOBUO	CHECKED KONDO MASAMI
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DATE : JUNE 2001 DWG. No. PC -IWPS - 508



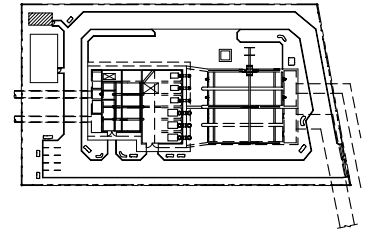
PLAN



SECTION A-A

LEGEND

- ⊙ FENCE EARTH ROD (SINGLE)
- MAIN EARTH ROD (DOUBLE)
- JOINT POINT
- / CONNECTION TO THE EQUIPMENT



KEY PLAN

NO.	DATE	DESCRIPTIONS	BY	APRO.
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REVISIONS

PROJECT MANAGEMENT UNIT FOR
HO CHI MINH CITY
WATER ENVIRONMENT IMPROVEMENT

THE DETAILED DESIGN ON HO CHI MINH CITY
WATER ENVIRONMENT IMPROVEMENT PROJECT
IN THE SOCIALIST REPUBLIC OF VIET NAM

PACKAGE C
INTERMEDIATE WASTE WATER PUMPING STATION

LAYOUT OF EARTHING SYSTEM FOR
22KV SUBSTATION

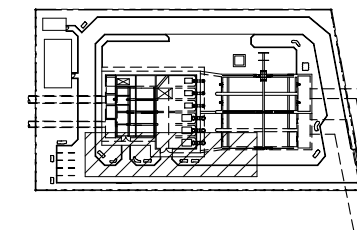
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JICA JAPAN INTERNATIONAL COOPERATION
AGENCY (JICA)

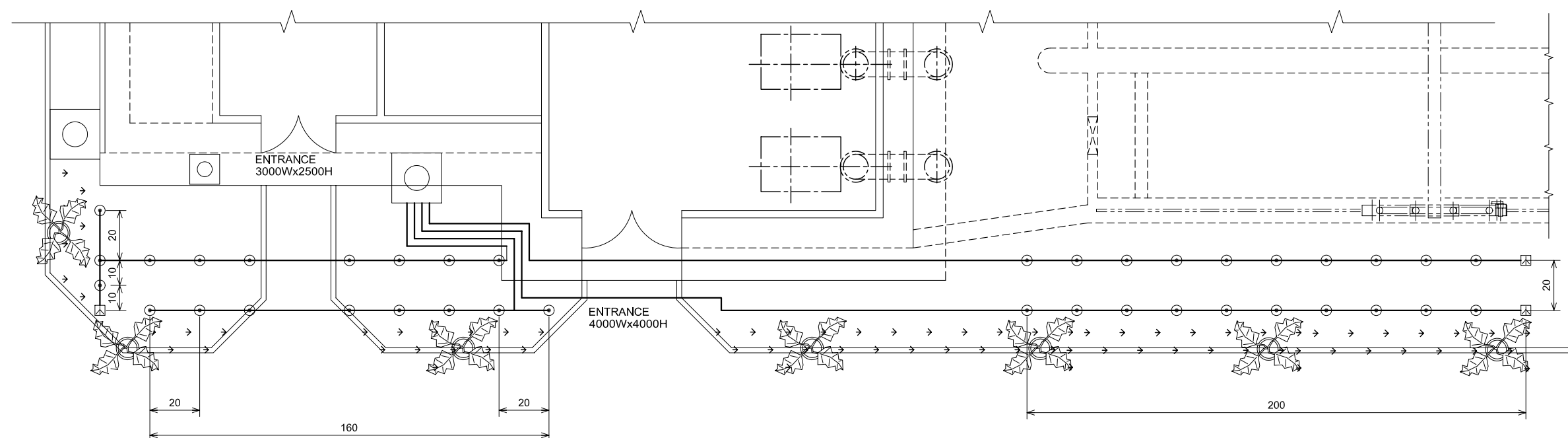
PC PACIFIC CONSULTANTS INTERNATIONAL

DESIGNED KOMIYA NOBUO	CHECKED KONDO MASAMI
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DATE : JUNE 2001 DWG. No. PC -IWPS - 509



KEY PLAN



PLAN

LEGEND

- ⊙ EARTH ROD (DOUBLE)
- △ EARTH PLATE

NO.	DATE	DESCRIPTIONS	BY	APRO.
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REVISIONS

PROJECT MANAGEMENT UNIT FOR
HO CHI MINH CITY
WATER ENVIRONMENT IMPROVEMENT

THE DETAILED DESIGN ON HO CHI MINH CITY
WATER ENVIRONMENT IMPROVEMENT PROJECT
IN THE SOCIALIST REPUBLIC OF VIET NAM

PACKAGE C
INTERMEDIATE WASTE WATER PUMPING STATION

LAYOUT OF EARTHING SYSTEM
FOR ELECTRIC ROOM

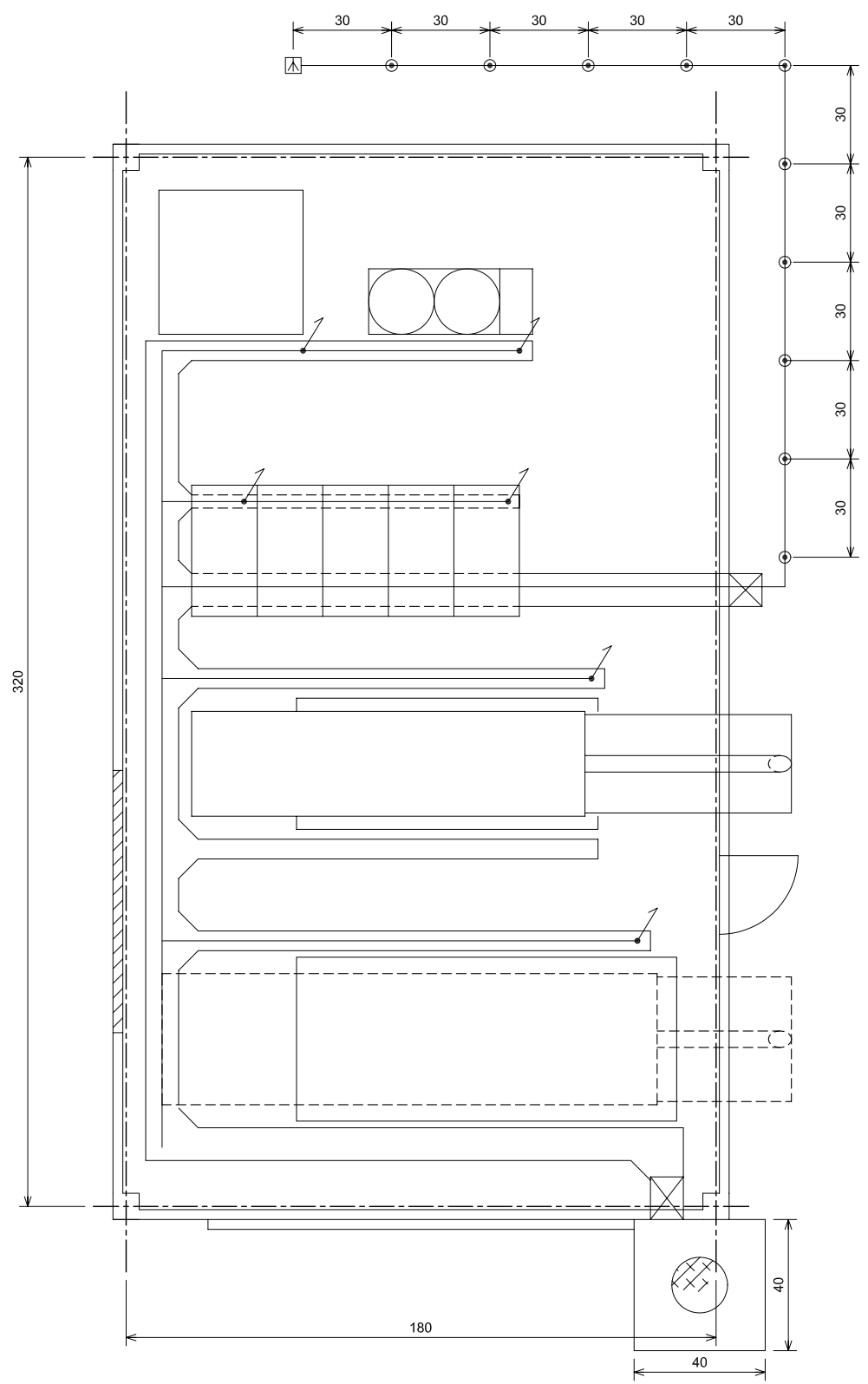
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 JAPAN INTERNATIONAL COOPERATION
AGENCY (JICA)

 PACIFIC CONSULTANTS INTERNATIONAL

DESIGNED KOMIYA NOBUO	CHECKED KONDO MASAMI
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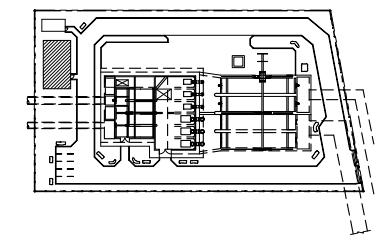
DATE : JUNE 2001 DWG. No. PC -IWPS - 510



PLAN

LEGEND

- ⊙ EARTH ROD (DOUBLE)
- CONNECTION TO THE EQUIPMENT
- ⊠ EARTH PLATE



KEY PLAN

NO.	DATE	DESCRIPTIONS	BY	APRO.

REVISIONS

PROJECT MANAGEMENT UNIT FOR
HO CHI MINH CITY
WATER ENVIRONMENT IMPROVEMENT

THE DETAILED DESIGN ON HO CHI MINH CITY
WATER ENVIRONMENT IMPROVEMENT PROJECT
IN THE SOCIALIST REPUBLIC OF VIET NAM

PACKAGE C
INTERMEDIATE WASTE WATER PUMPING STATION

LAYOUT OF EARTHING SYSTEM
FOR GENERATOR ROOM

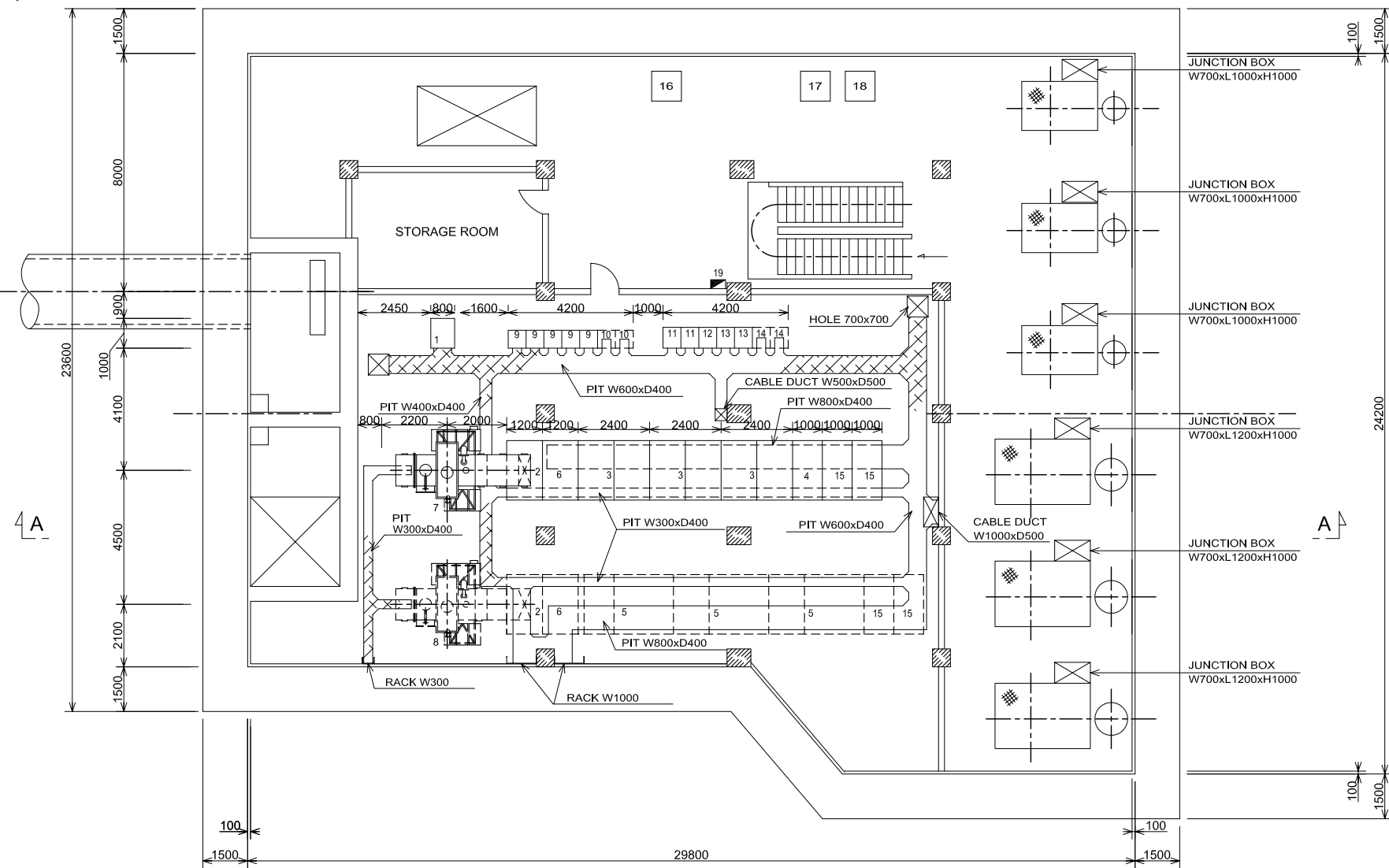
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JICA JAPAN INTERNATIONAL COOPERATION
AGENCY (JICA)

PC PACIFIC CONSULTANTS INTERNATIONAL

DESIGNED KOMIYA NOBUO	CHECKED KONDO MASAMI
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DATE : JUNE 2001 DWG. No. PC -IWPS - 511

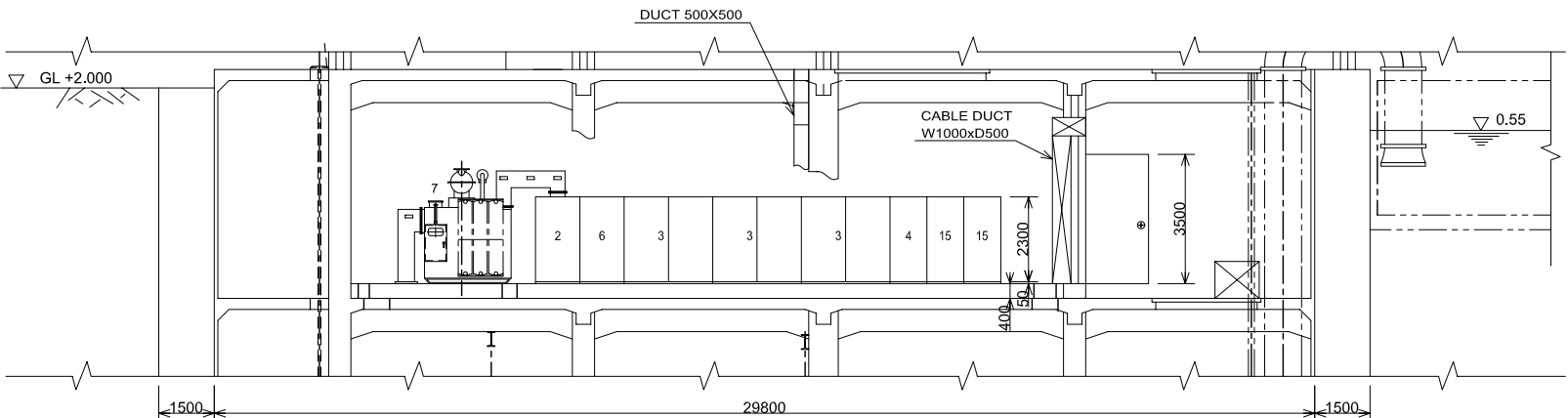
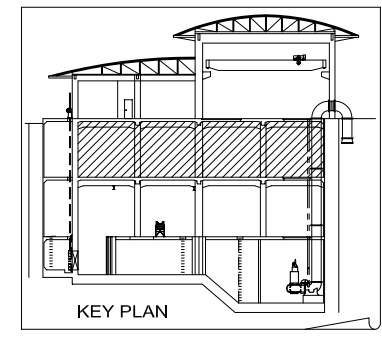


PLAN

LEGEND

No.	EQUIPMENT NAME & SIZE	WEIGHT(kg)
1	DC POWER SUPPLY SYSTEM W800 x D1000 x H2300	800
2	380V INCOMING PANEL W1200 x D2000 x H2300 x 2UNITS	1,600
3	SEWAGE PUMP STARTING PANEL(No.1-3) W2400 x D2000 x H2300 x 3UNITS	18,000
4	AUX. LOW VOLTAGE SWITCHGEAR W1000 x D2000 x H2300	500
5	SEWAGE PUMP STARTING PANEL(No.4-6) W3200 x D2000 x H2300 x 3UNITS	27,000
6	CHANGE OVER SWITCH PANEL W1200 x D2000 x H2300 x 2UNITS	1,600
7	1500kVA TRANSFORMER W3290 x D2200 x H2700	6,300
8	2500kVA TRANSFORMER W3400 x D2600 x H3100	8,300
9	CC-100-1 W600 x D600 x H2300 x 5UNITS	1,000
10	CC-100-2 W600 x D600 x H2300 x 2UNITS	400
11	SEDIMENTATION BASIN RELAY PANEL W600 x D800 x H2300 x 2UNITS	300
12	METERING PANEL W600 x D800 x H2300	150
13	COMMON RELAY PANEL-1 W600 x D800 x H2300 x 2UNITS	300
14	COMMON RELAY PANEL-2 W600 x D800 x H2300 x 2UNITS	300
15	CAPACITOR PANEL W1000 x D2000 x H2300 x 4UNITS	3200
16	AIR VENTILATION INLET FAN	
17	AIR VENTILATION OUTLET FAN	
18	AIR VENTILATION OUTLET FAN	
19	LIGHTING BOARD IWPS-3 (ARCHITECTURE WORK)	

PHASE-2



SECTION A-A

NO.	DATE	DESCRIPTIONS	BY	APRO.

REVISIONS

PROJECT MANAGEMENT UNIT FOR
HO CHI MINH CITY
WATER ENVIRONMENT IMPROVEMENT

THE DETAILED DESIGN ON HO CHI MINH CITY
WATER ENVIRONMENT IMPROVEMENT PROJECT
IN THE SOCIALIST REPUBLIC OF VIET NAM

PACKAGE C
INTERMEDIATE WASTE WATER PUMPING STATION

LAYOUT OF ELECTRICAL EQUIPMENT
IN ELECTRIC ROOM

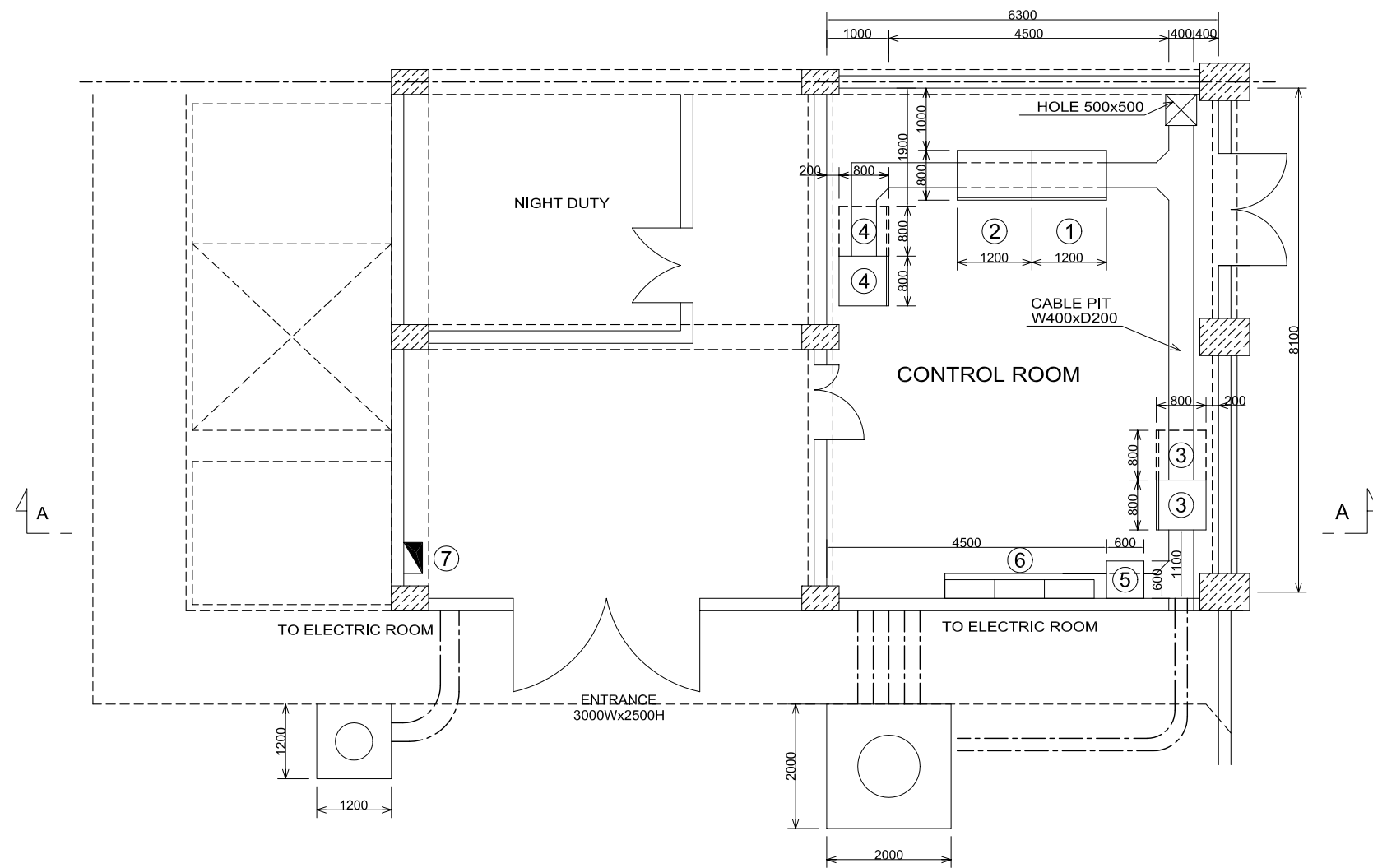
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JICA JAPAN INTERNATIONAL COOPERATION
AGENCY (JICA)

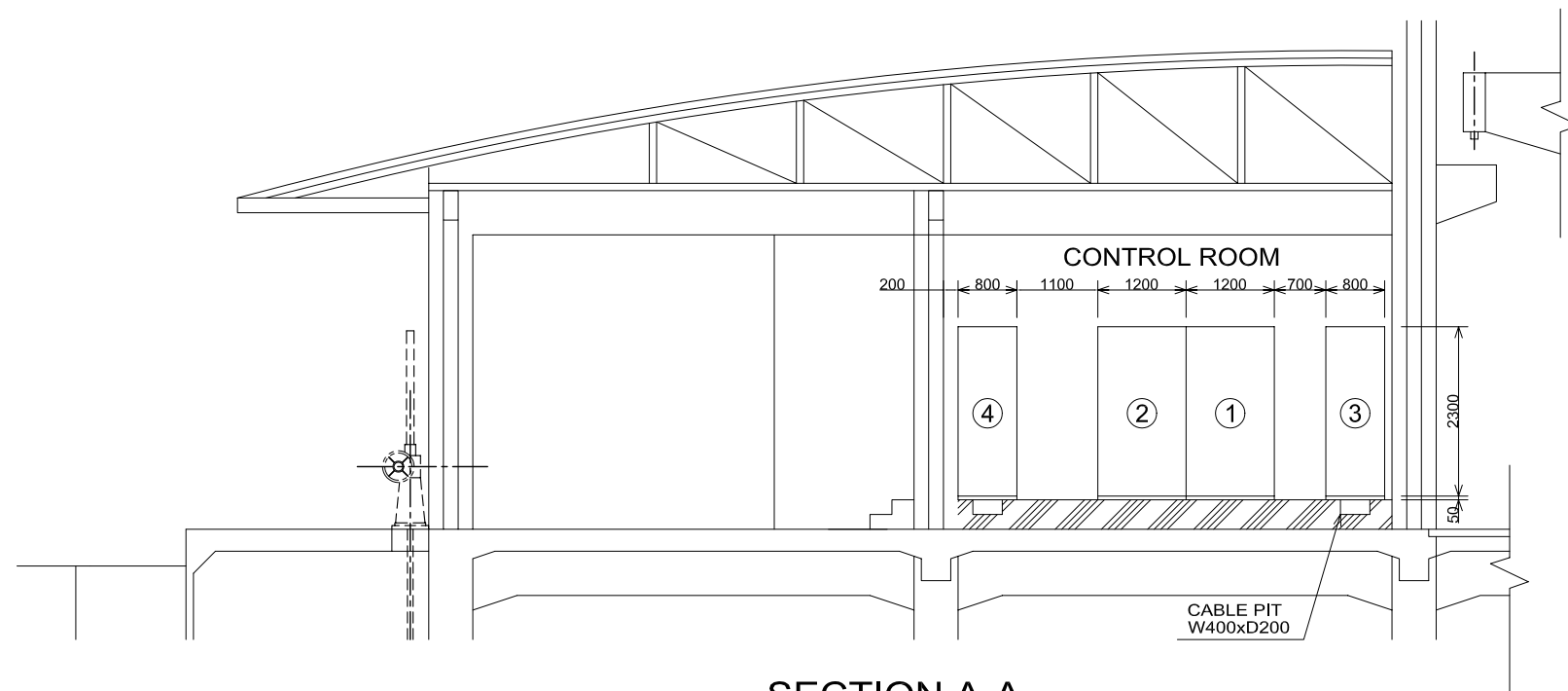
PACIFIC CONSULTANTS INTERNATIONAL

DESIGNED KOMIYA NOBUO	CHECKED KONDO MASAMI
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DATE : JUNE 2001 DWG. No. PC -IWPS -512



PLAN

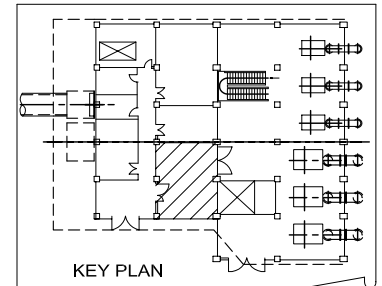


SECTION A-A

LEGEND

No.	EQUIPMENT NAME & SIZE	WEIGHT(kg)
1	22kV CONTROL & PROTECTION PANEL W1200xD800xH2300	300
2	SUPERVISORY PANEL W1200xD800xH2300	300
3	BILLMETERING PANEL W800xD800xH2300x2UNITS	400
4	OLTC PANEL W800xD800xH2300x2UNITS	400
5	COMMUNICATION PANEL W600xD600xH1500	100
6	OUTDOOR LIGHTING BOARD	
7	AC DISTRIBUTION BOARD IWPS-1 (ARCHITECTURE WORK)	

PHASE-2



NO.	DATE	DESCRIPTIONS	BY	APPRO.
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REVISIONS

PROJECT MANAGEMENT UNIT FOR
HO CHI MINH CITY
WATER ENVIRONMENT IMPROVEMENT

THE DETAILED DESIGN ON HO CHI MINH CITY
WATER ENVIRONMENT IMPROVEMENT PROJECT
IN THE SOCIALIST REPUBLIC OF VIET NAM

PACKAGE C
INTERMEDIATE WASTE WATER PUMPING STATION

LAYOUT OF PANELS
IN CONTROL ROOM

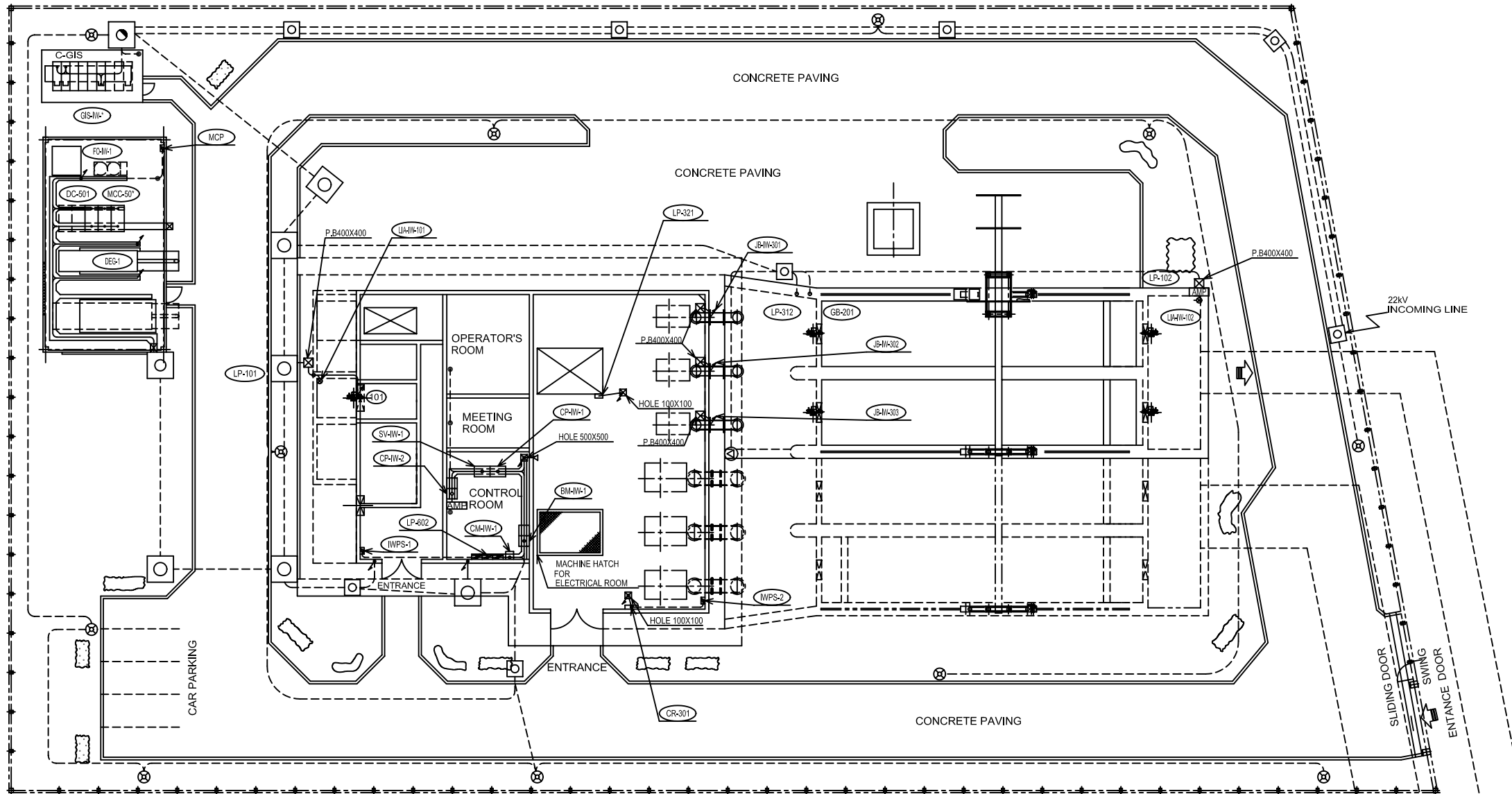
SCALE : 1/ 50

JICA JAPAN INTERNATIONAL COOPERATION
AGENCY (JICA)

PACIFIC CONSULTANTS INTERNATIONAL

DESIGNED KOMIYA NOBUO	CHECKED KONDO MASAMI
--------------------------	-------------------------

DATE : JUNE 2001 DWG. No. PC -IWPS - 513



PLAN

EQUIPMENT LIST

ITEM No.	DESCRIPTION	ITEM No.	DESCRIPTION
SV-W-1	SUPERVISORY PANEL	UM-W-102	LEVEL METER FOR GRID CHAMBER OUT LET PIT
CP-W-1	22KV & 380V DEG CONTROL PANEL	LP-102	LEVEL METER AMP
CP-W-2	1500KVA TR OLTC PANEL	LP-312	No.2 DRAIN PUMP SWITCH BOX
BM-W-1	BILLMETERING PANEL	GB-201	GRAB BUCKET CRANE SWITCH BOX
CM-W-1	COMMUNICATION PANEL	GIS-W-*	GIS PANEL
LP-602	OUTDOOR LIGHTING BOX	DEG-1	750KVA 380V DEG
WPS-1	LIGHTING BOARD	MCC-50*	DEG PANEL
WPS-2	LIGHTING BOARD	DC-501	DC PANEL
CR-301	OVERHEAD CRANE SWITCH BOX	F04W-1	FUEL TANK LEVEL SWITCH
LP-321	AIR INLET FAN SWITCH BOX	JB-W-301	No.1 VACUUM BREAKER
101	No.1 EMERGENCY GATE	JB-W-302	No.2 VACUUM BREAKER
LP-101	No.1 EMERGENCY GATE PANEL	JB-W-303	No.3 VACUUM BREAKER
UM-W-101	LEVEL METER FOR EMERGENCY GATE	MCP	LIGHTING BOARD (DEG ROOM)

LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
()	EQUIPMENT ITEM No.	F ()	FLEXIBLE EMBEDDED PIPE(SIZE)
⊗	MANHOLE	P ()	FLEXIBLE CONDUIT PIPE(SIZE)
⊙	FLOW METER	(R)	CABLE RACK
⊗	LEVEL METER	(P)	CABLE PIT
⊙	LEVEL SWITCH	⊗	OUTDOOR LIGHT(N220)
⊗	PULL BOX	⊙	OUTDOOR SPEAKER
AMP	AMP	▷	INDOOR SPEAKER
↑	RIZER POINT	●	TELEPHONE SET
↓	DOWN POINT	---	WIRING ROUTE (BURIED CONDUIT PIPE)
⊙	LIGHTING PANEL		
⊙	LOCAL PANEL		
G ()	CONDUIT PIPE(SIZE)		

NO.	DATE	DESCRIPTIONS	BY	APPRO.

REVISIONS

PROJECT MANAGEMENT UNIT FOR
HO CHI MINH CITY
WATER ENVIRONMENT IMPROVEMENT

THE DETAILED DESIGN ON HO CHI MINH CITY
WATER ENVIRONMENT IMPROVEMENT PROJECT
IN THE SOCIALIST REPUBLIC OF VIET NAM

PACKAGE C
INTERMEDIATE WASTE WATER PUMPING STATION

WIRING AND PIPING PLAN FOR
GROUND LEVEL AND OUTSIDE

SCALE : 1/200

JICA JAPAN INTERNATIONAL COOPERATION
AGENCY (JICA)

PACIFIC CONSULTANTS INTERNATIONAL

DESIGNED KOMIYA NOBUO	CHECKED KONDO MASAMI
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DATE : JUNE 2001 DWG. No. PC -IWPS - 514