

JAPAN INTERNATIONAL COOPERATION AGENCY
SCIENCE AND TECHNOLOGY COMMISSION OF
SHANGHAI MUNICIPAL PEOPLE'S GOVERNMENT,
PEOPLE'S REPUBLIC OF CHINA

DETAILED DESIGN OF SHANGHAI PUDONG INTERNATIONAL AIRPORT
FINAL REPORT

PART II -3 Fuel Supply System

JANUARY 1997

NIPPON KOEI CO., LTD
NIKKEN SEKKEI LTD.

DETAILED DESIGN OF SHANGHAI PUDONG INTERNATIONAL AIRPORT PROJECT

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




















Fuel Supply System

DWG No.	TITLE	題 目
3-FD01	P&I FLOW DIAGRAM LEGEND	配管計装系統図 記号一覧表
3-FD02	P&I FLOW DIAGRAM (FUEL SUPPLY SYSTEM) (1/4)	配管計装系統図 (燃料給油施設)
3-FD03	P&I FLOW DIAGRAM (FUEL SUPPLY SYSTEM) (2/4)	配管計装系統図 (燃料給油施設)
3-FD04	P&I FLOW DIAGRAM (FUEL SUPPLY SYSTEM) (3/4)	配管計装系統図 (燃料給油施設)
3-FD05	P&I FLOW DIAGRAM (FUEL SUPPLY SYSTEM) (4/4)	配管計装系統図 (燃料給油施設)
3-FD06	P&I FLOW DIAGRAM (FIRE FIGHTING SYSTEM) (1/2)	配管計装系統図 (消火施設)
3-FD07	P&I FLOW DIAGRAM (FIRE FIGHTING SYSTEM) (2/2)	配管計装系統図 (消火施設)
3-FD11	PLOT PLAN (FUEL STORAGE DEPOT)	配置計画図 (燃料貯蔵基地)
3-FD12	PLOT PLAN (FUEL SUPPLY DEPOT)	配置計画図 (燃料給油基地)
3-FD21	10,000m ³ FUEL STORAGE TANK	10,000m ³ 貯蔵タンク外形図
3-FD22	T404,402 100m ³ FUEL SLOP TANK	100m ³ スロップタンク外形図
3-FD23	D401 20m ³ DRAIN DRUM	20m ³ ドレンドラム外形図
3-FD24	D402 5m ³ DRAIN DRUM	5m ³ ドレンドラム外形図
3-FD25A	TANK FOUNDATION 10,000m ³ VIBRO.	10,000m ³ タンク基礎図 (バ'イ'ロ式)
3-FD25B	TANK FOUNDATION 10,000m ³ MIXING	10,000m ³ タンク基礎図 (混合式)
3-FD26A	TANK FOUNDATION 100m ³ VIBRO.	100m ³ タンク基礎図 (バ'イ'ロ式)
3-FD26B	TANK FOUNDATION 100m ³ MIXING	100m ³ タンク基礎図 (混合式)
3-FD31	PIPING LAYOUT (OVER ALL)	配管レイアウト図 (全体)
3-FD32	PIPING LAYOUT (FUEL STORAGE DEPOT)	配管レイアウト図 (燃料貯蔵基地)
3-FD33	PIPING LAYOUT (FUEL SUPPLY DEPOT)	配管レイアウト図 (燃料給油基地)
3-FD34	UNDER GROUND PIPING PROFILE	埋設配管縦断図
3-FD35	WATER SUPPLY (FUEL STORAGE DEPOT)	給水配管レイアウト図 (燃料貯蔵基地)
3-FD36	WATER SUPPLY (FUEL SUPPLY DEPOT)	給水配管レイアウト図 (燃料給油基地)
3-FD37	OILY WATER DRAINAGE	含油水・排水配管レイアウト図 (燃料貯蔵基地)
3-FD38	FIRE WATER	消火配管レイアウト図 (燃料貯蔵基地)
3-FD41	ONE LINE DIAGRAM	単線結線図
3-FD42	MAIN CABLE LAYOUT	主ケーブルレイアウト図
3-FD51	SYSTEM DIAGRAM	システム構成図
















SYMBOL

ABBREVIATION

PIPING

-  GATE VALVE
-  GLOVE VALVE
-  BALL VALVE
-  CHECK VALVE
-  BUTTERFLY VALVE
-  SAMPLE OUT
-  OILY SEWER
-  HYDRANT PIT VALVE
-  FIRE WATER HYDRANT
-  FOAM HYDRANT
-  SELF SEALING COUPLER
-  FIRE TRUCK CONNECTION
-  AIR FOAM CHAMBER
-  FLEXIBLE HOSE OR TUBE
-  EXPANSION JOINT
-  TANK AIRFORM NOZZLE
-  Y TYPE STRAINER
-  BUCKET TYPE STRAINER
-  AUTOMATIC AIR VENT
-  AUTOMATIC DRAIN
-  FLAME ARRESTER
-  BREATHER VALVE
-  SURGE ABSORBER
-  INSULATION FLANGE
I.F.

INSTRUMENT

-  LOCAL INSTRUMENT
-  CONTROL PANEL
-  DCS (DISTRIBUTED CONTROL SYSTEM)
-  CONTROL VALVE
-  MOTOR OPERATED VALVE
-  FLOW RESTRICTION VALVE
-  FLOW METER
-  RESTRICTION ORIFICE
-  SAFETY VALVE
-  PRESSURE REGULATING VALVE
-  MOTOR DRIVEN
-  MILLIPORE TEST POINTS
-  ELECTRICAL SIGNAL
-  SOFTWARE
-  OPTICAL SIGNAL

INSTRUMENT

- FI FLOW INDICATOR
- FC FLOW CONTROLLER
- FIC FLOW INDICATING CONTROLLER
- FICA FLOW INDICATING CONTROLLER WITH ALARM
- FQ FLOW SUMMERIZER
- FIQ FLOW INDICATING SUMMERIZER
- FQS FLOW QUANTITY CONTROLLER
- FS FLOW SWITCH
- FT FLOW TRANSMITTER
- ESS EMERGENCY SHUT DOWN SYSTEM
- ESB EMERGENCY STOP BUTTON
- FCP FIRE CALL POINT
- FFS FIRE FIGHTING SYSTEM
- TI TEMPERATURE INDICATOR
- TE TEMPERATURE ELEMENT
- TS TEMPERATURE SWITCH
- LI LEVEL INDICATOR
- LA LEVEL ALARM
- LC LEVEL CONTROLLER
- LG LEVEL GAUGE
- LIC LEVEL INDICATING CONTROLLER
- LIA LEVEL INDICATOR WITH ALARM
- LHA LEVEL HIGH ALARM
- LLA LEVEL LOW ALARM
- LS LEVEL SWITCH
- LT LEVEL TRANSMITTER
- PI PRESSURE INDICATOR
- PA PRESSURE ALARM
- PC PRESSURE CONTROLLER
- PIC PRESSURE INDICATING CONTROLLER

- PICA PRESSURE INDICATING CONTROLLER WITH ALARM
- PS PRESSURE SWITCH
- PT PRESSURE TRANSMITTER
- PDI DIFFERENTIAL PRESSURE INDICATOR
- PDS DIFFERENTIAL PRESSURE SWITCH
- SG SIGHT GLASS
- XA OIL LEAK DETECTOR
- XI PUMP STATUS
- HS REMOTE OPERATING SWITCH
- ZS POSITION SWITCH (LIMIT SWITCH)

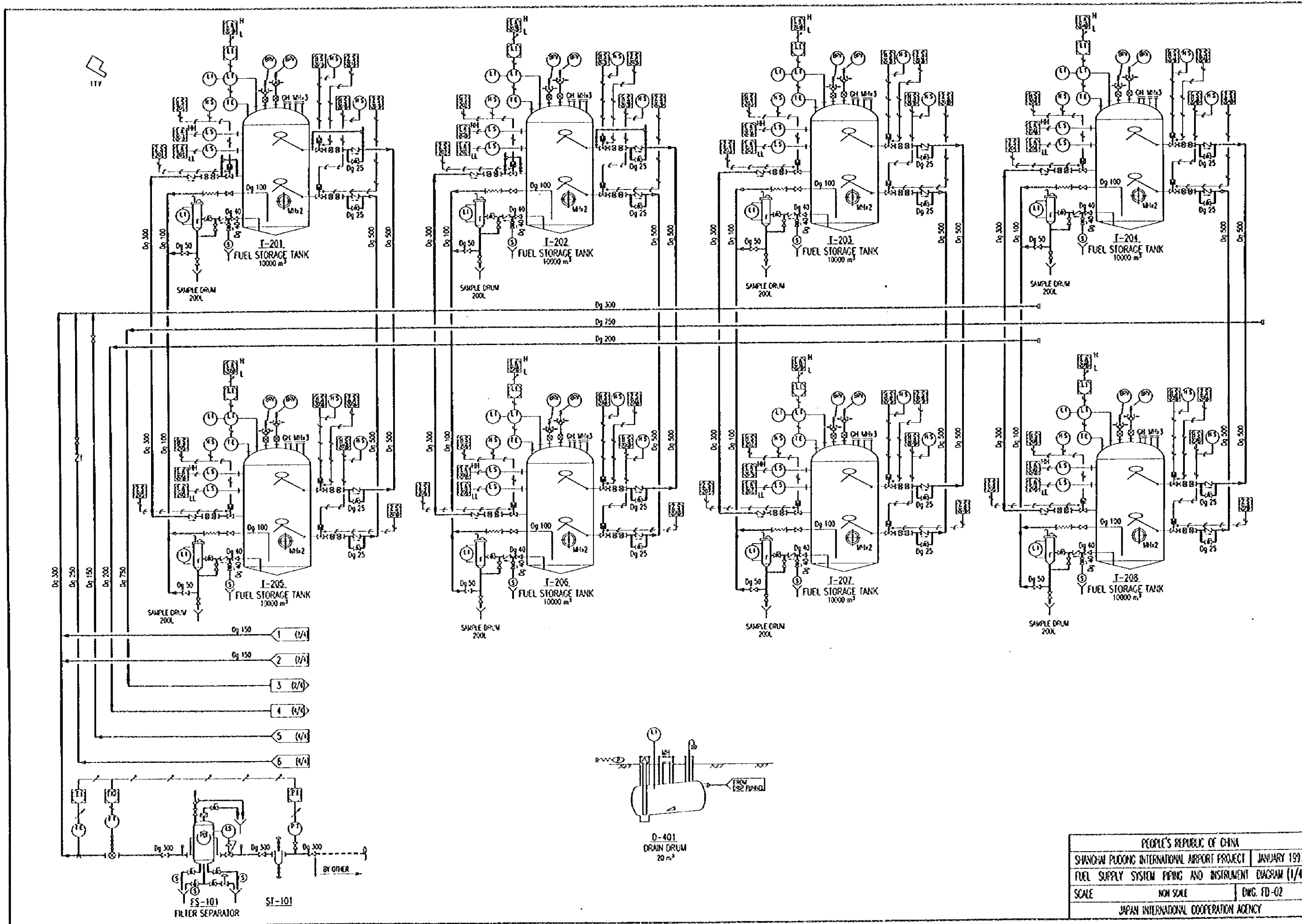
SUBSCRIPTION FOR ALARM

- HH HIGH HIGH ALARM
- H HIGH ALARM
- L LOW ALARM
- LL LOW LOW ALARM

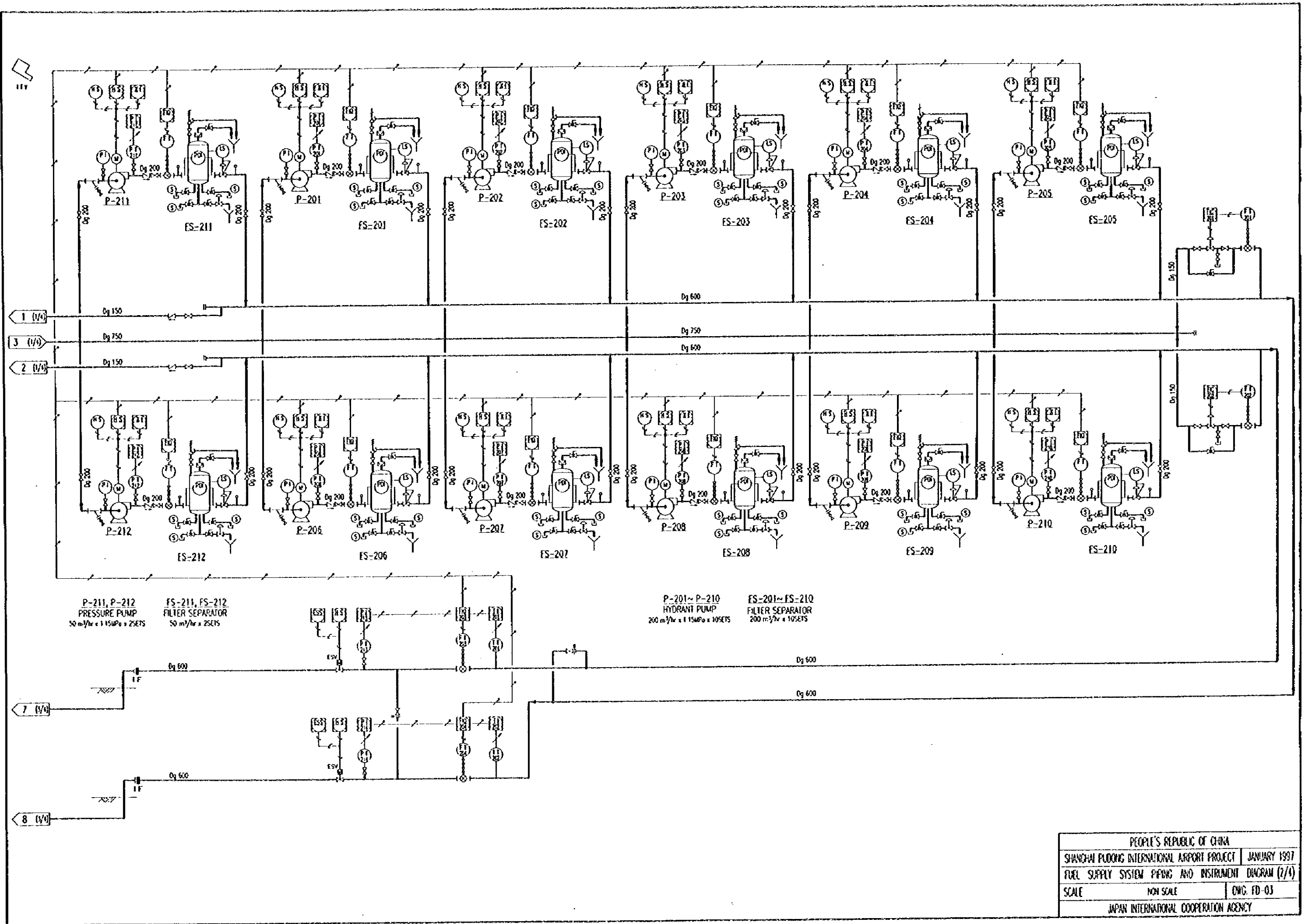
PIPING

- FO FUEL OIL
- DO DIESEL OIL
- FW FIRE WATER
- FF AIR FOAM
- SW SERVICE WATER
- DW DRINKING WATER
- HS HOSE STATION
- IA INSTRUMENT AIR
- SA SERVICE AIR

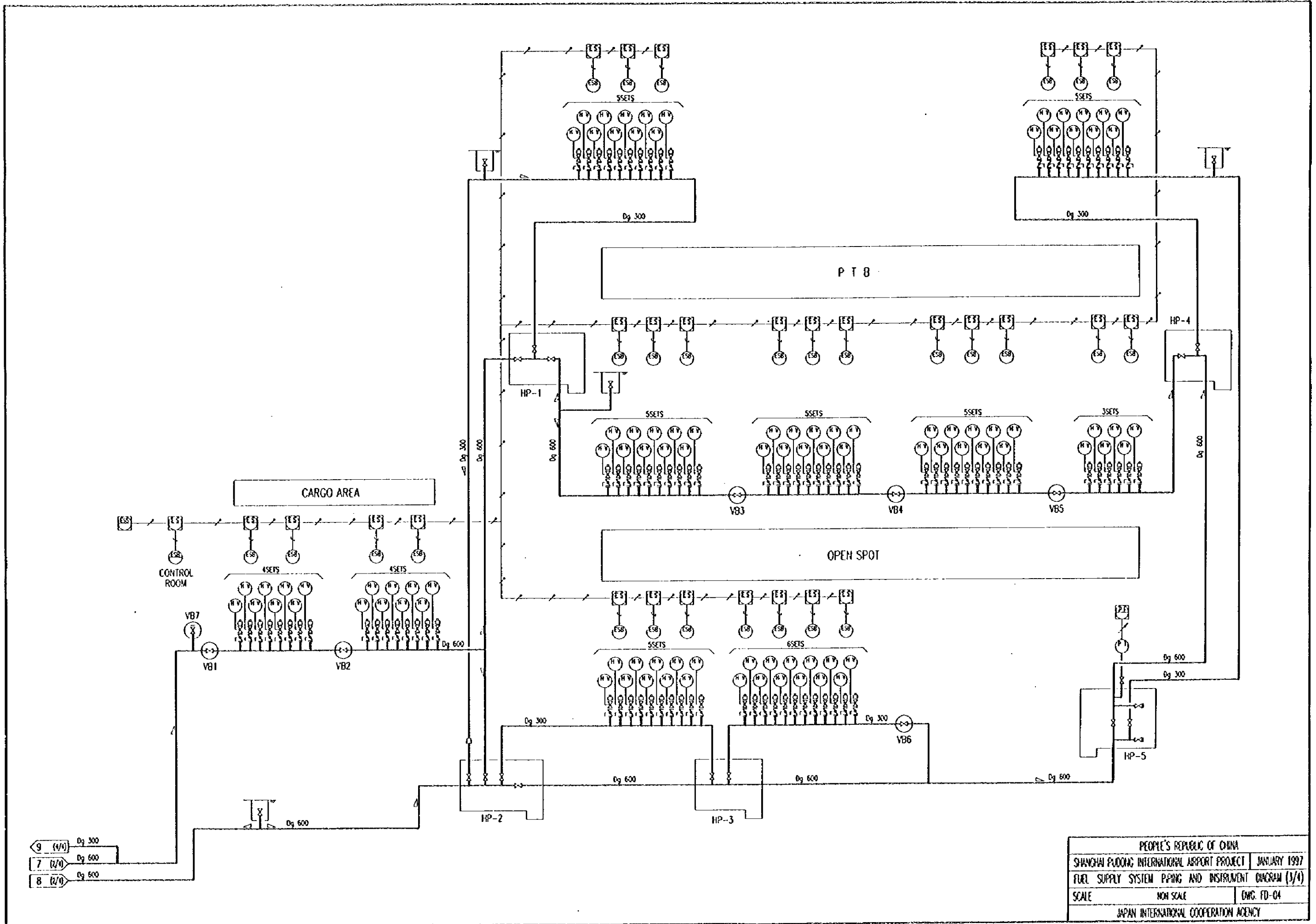
PEOPLE'S REPUBLIC OF CHINA		
SHANGHAI PUDONG INTERNATIONAL AIRPORT PROJECT	JANUARY 1997	
PIPING AND INSTRUMENT LEGEND		
SCALE	NON SCALE	CWS. FD-01
JAPAN INTERNATIONAL COOPERATION AGENCY		



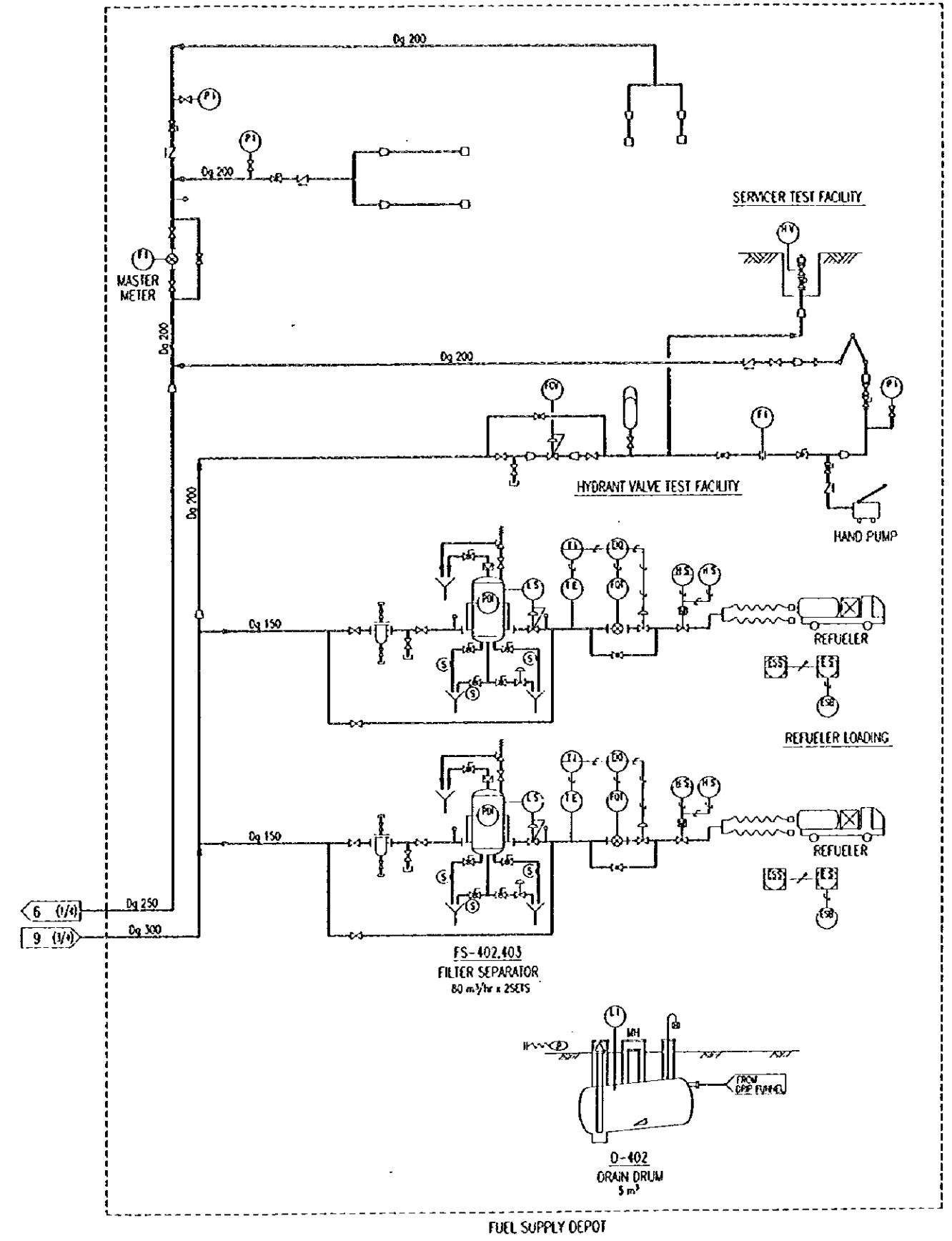
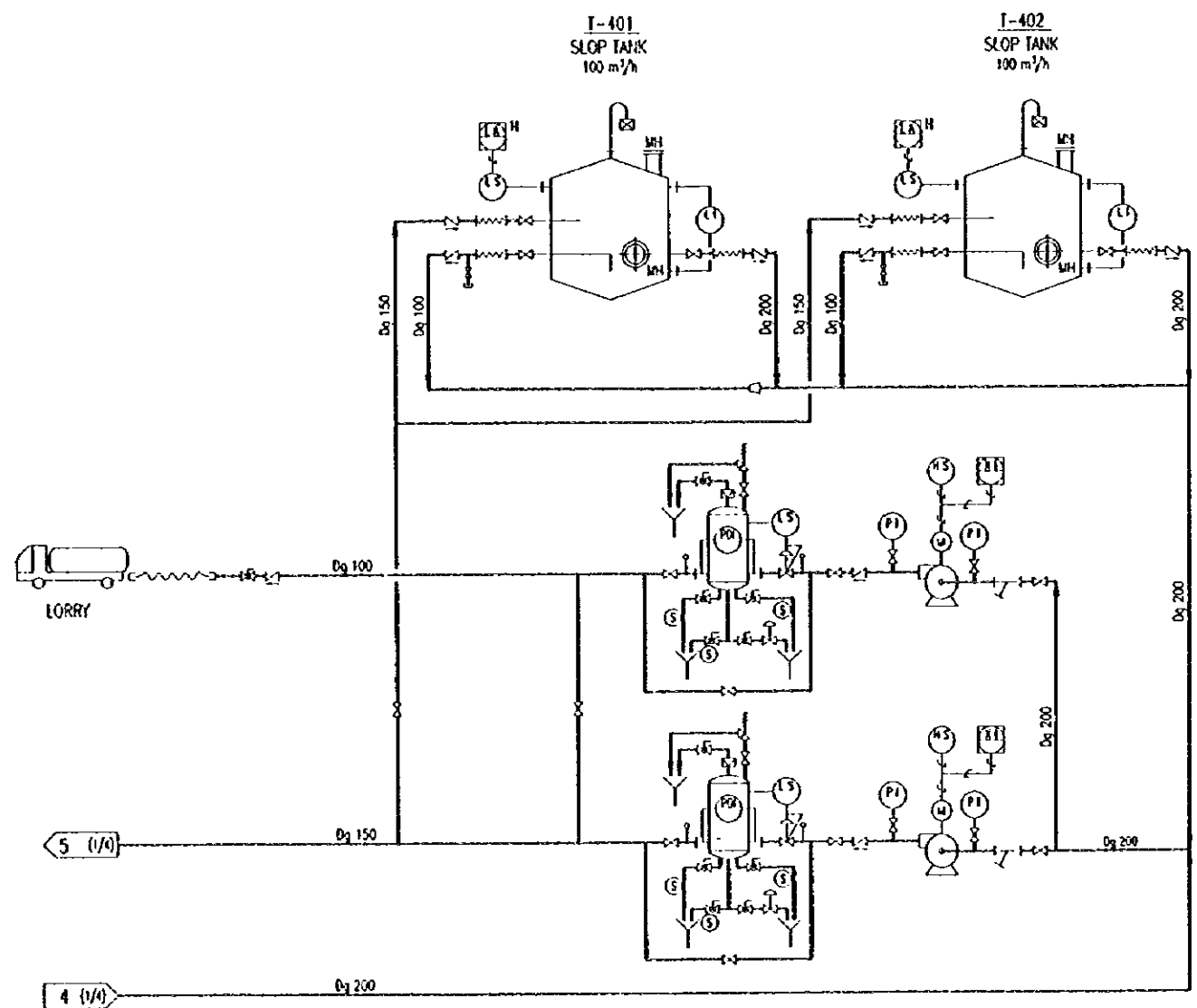
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FUEL SUPPLY SYSTEM PIPING AND INSTRUMENT DIAGRAM (1/4)	
SCALE	NON SCALE
	DWG. FD-02
JAPAN INTERNATIONAL COOPERATION AGENCY	



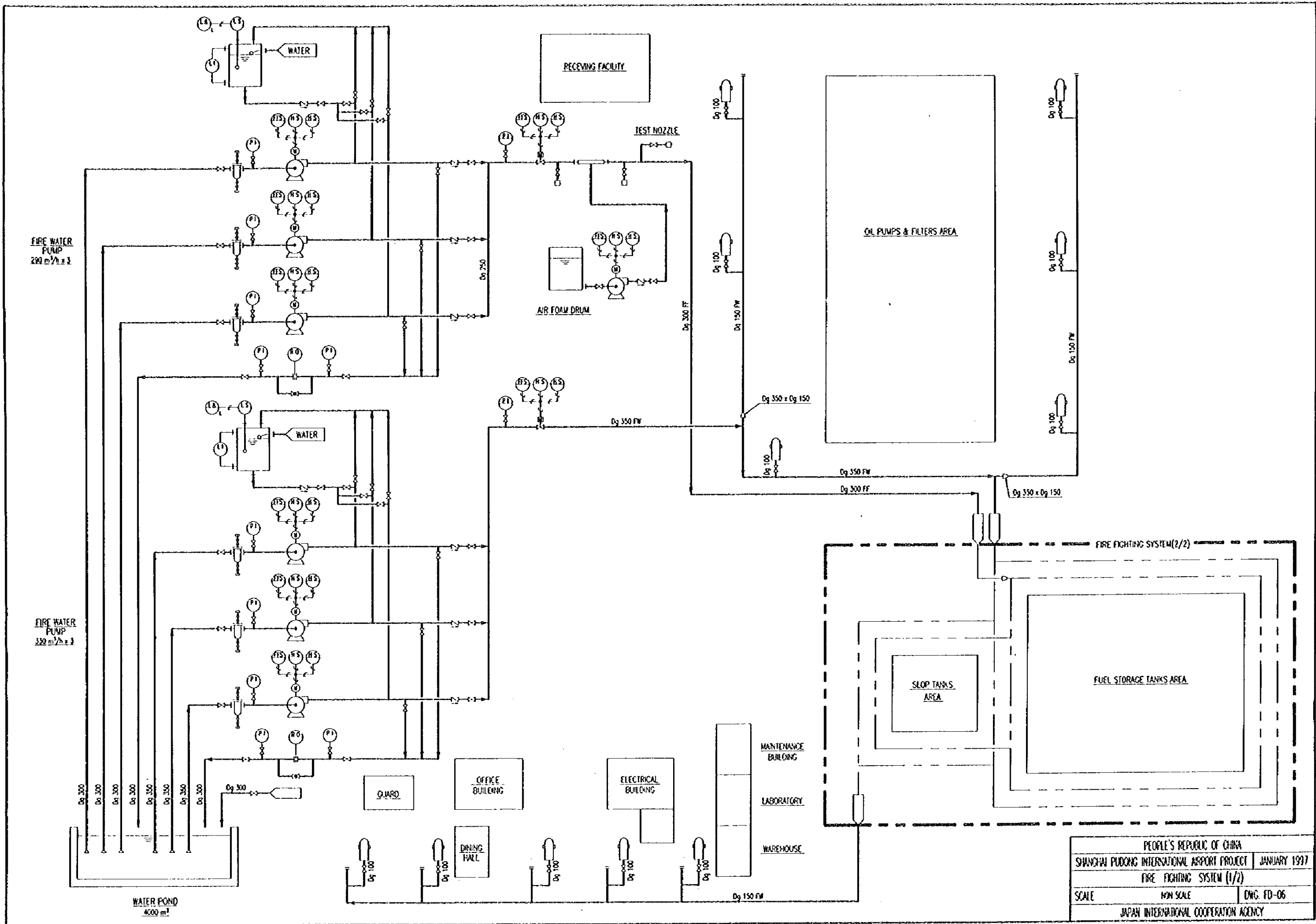
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SHANGHAI PUDONG INTERNATIONAL AIRPORT PROJECT	JANUARY 1997
FUEL SUPPLY SYSTEM PIPING AND INSTRUMENT DIAGRAM (2/4)	
SCALE	NON SCALE
JAPAN INTERNATIONAL COOPERATION AGENCY	



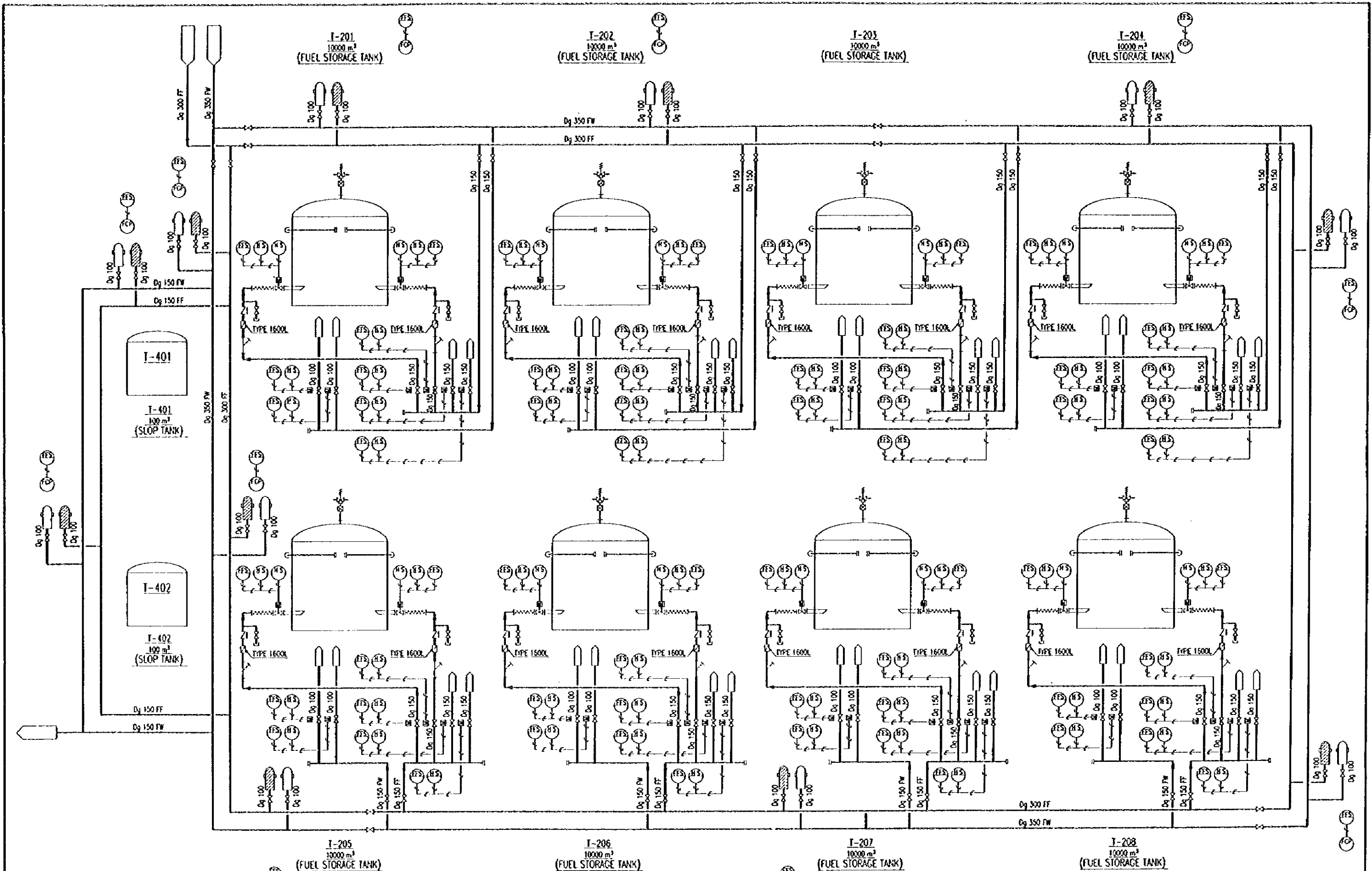
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JAPAN INTERNATIONAL COOPERATION AGENCY		



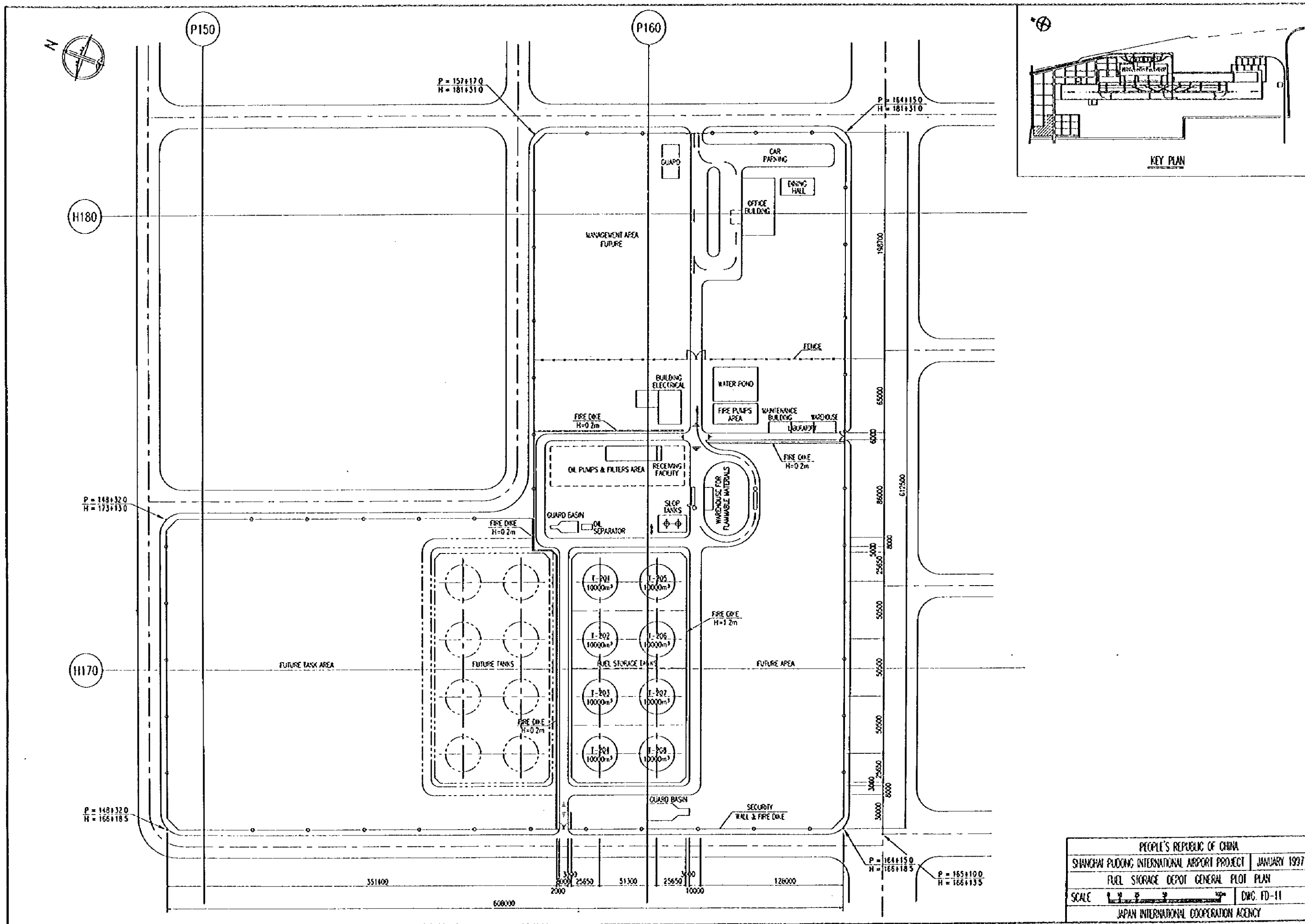
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FUEL SUPPLY SYSTEM PIPING AND INSTRUMENT DIAGRAM (4/4)		
SCALE	NON SCALE	DWG. FD-05
JAPAN INTERNATIONAL COOPERATION AGENCY		



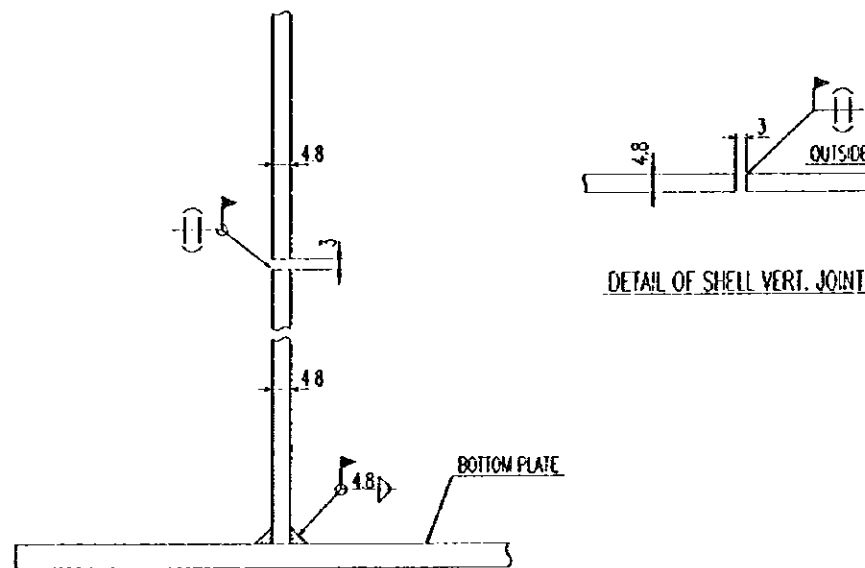
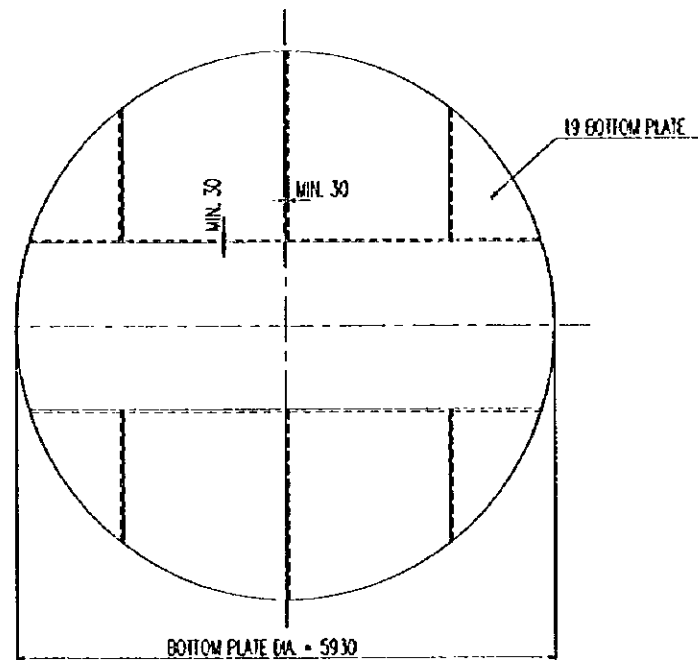
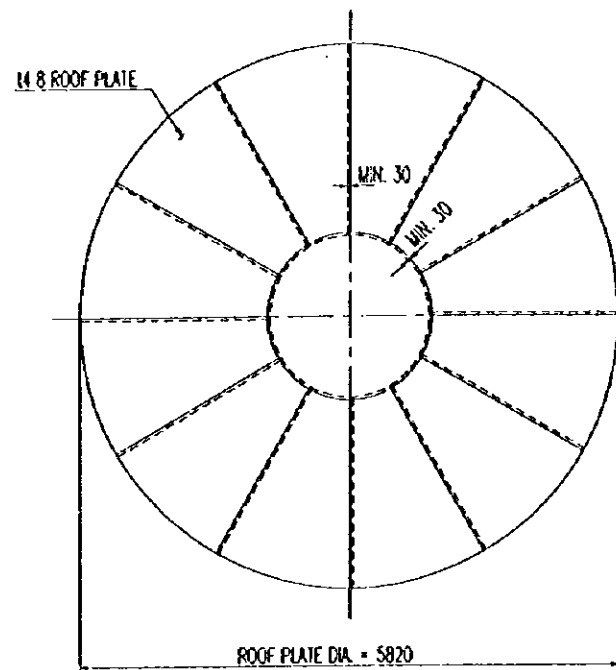
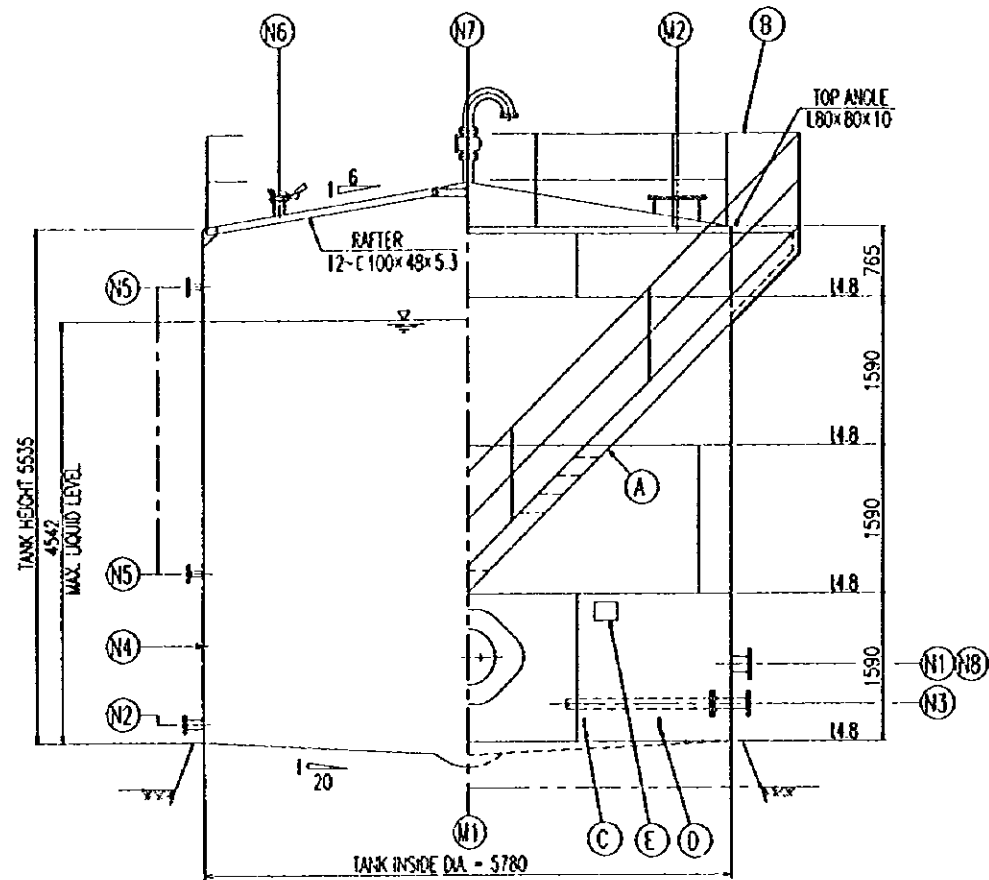
PEOPLE'S REPUBLIC OF CHINA		
SHANGHAI PUDONG INTERNATIONAL AIRPORT PROJECT	JANUARY 1997	
FIRE FIGHTING SYSTEM (1/2)		
SCALE	NON SCALE	DWG. FD-06
JAPAN INTERNATIONAL COOPERATION AGENCY		



PEOPLE'S REPUBLIC OF CHINA		
SHANGHAI PUDONG INTERNATIONAL AIRPORT PROJECT	JANUARY 1997	
FIRE FIGHTING SYSTEM (2/2)		
SCALE	NON SCALE	DWG. FD-07
JAPAN INTERNATIONAL COOPERATION AGENCY		



PEOPLE'S REPUBLIC OF CHINA	
SHANGHAI PUDONG INTERNATIONAL AIRPORT PROJECT	JANUARY 1997
FUEL STORAGE DEPOT GENERAL PLOT PLAN	
SCALE 1:2000	DWG. FD-11
JAPAN INTERNATIONAL COOPERATION AGENCY	



DESIGN CONDITION

CODE	API 650 JAPAN FIRE LAW (ONLY SHELL PLATE)	CORROSION ALLOWANCE	1 mm (ONLY SHELL)
CAPACITY (NET WORKING)	100 m ³	DESIGN PRESSURE	38 mmHg
NO. OF REQ'D	2	DESIGN METAL TEMP.	-1.6 °C
SERVICE(S)	SLOP OIL ()	STORAGE TEMPERATURE	AMB
FLASH POINT	ABOVE 38 °C	PUMPING RATES : IN	60 m ³ /hr
		PUMPING RATES : OUT	60 m ³ /hr

DESIGN LOAD

EARTHQUAKE		WIND	
DESIGN CODE	JAPAN FIRE LAW	DESIGN CODE	API 650
ZONE FACTOR	0.7	WIND VELOCITY	44.7 m/s
SITE FACTOR	2.0 (I-1.1)	SHAPE FACTOR	0.7
		SNOW LOAD	28 kg/m ²
		SAND LOAD	0 kg/m ²

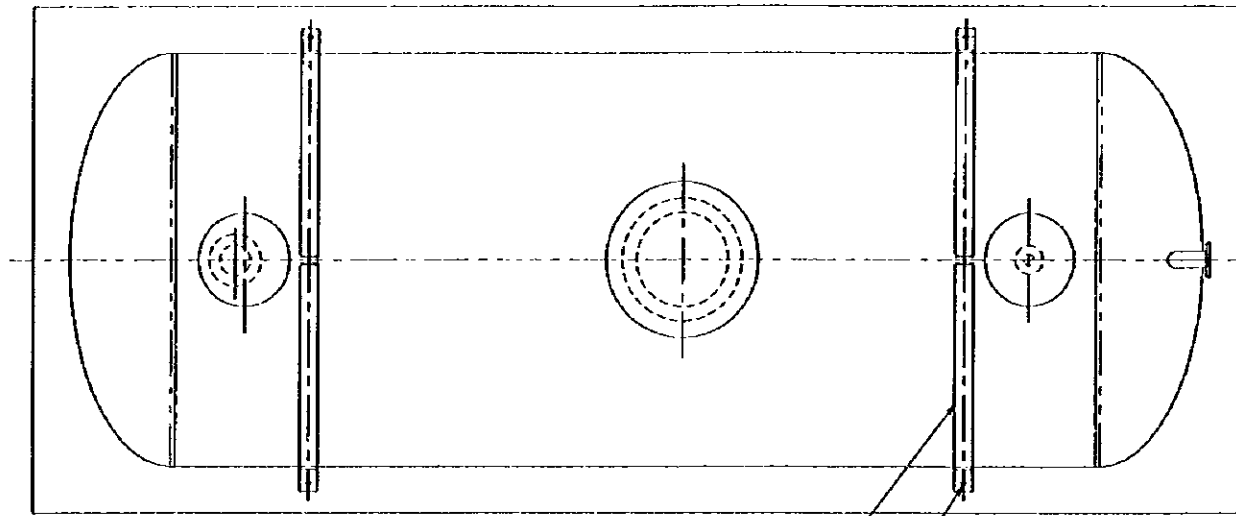
MATERIAL SPECIFICATION

SHELL PLATE	CARBON STEEL	Q235-A-F (GB700) OR ASTM MTL EQ.
ROOF PLATE		Q235-A-F (GB700) OR ASTM MTL EQ.
BOTTOM PLATE		Q235-A-F (GB700) OR ASTM MTL EQ.
STRUCTURE		GB117-88 OR ASTM MTL EQ.
NOZZLE NECK		20 (GB8163) OR ASTM MTL EQ.
INTERNAL PIPE		20 (GB8163) OR ASTM MTL EQ.
FLANGE		
BOLT & NUT	CARBON STEEL	Q235 A (GB700) OR ASTM MTL EQ.
GASKET		ASBESTOS
PIPE		CARBON STEEL
PAINTING (INTERNAL)		EPOXY RESIN (TOTAL MIN. 210 μ)

NOZZLE MANHOLE AND ACCESSORIES TABLE

No.	DESCRIPTION	SIZE	QTY	REMARKS
M1	SHELL MANHOLE	Dg 600	1	
M2	ROOF MANHOLE	Dg 500	1	
N1	INLET	Dg 150	1	
N2	SUCTION	Dg 200	1	
N3	PRODUCT DRAIN	Dg 100	1	W/INNER PIPE
N4	LEVEL SWITCH	Dg 50	1	
N5	GAUGE GLASS	Dg 50	6	
N6	GAUGE HATCH	Dg 200	1	W/COVER
N7	ROOF VENT	Dg 80	1	W/FA
N8	SAMPLING	Dg 50	1	
N9	EMERGENCY VENT	Dg 500	1	W/COVER
A	SPIRAL STAIRWAY		1SET	
B	ROOF HANDRAIL		1SET	ALL AROUND
C	EARTH PIECE		2	
D	SETTLEMENT PIECE		4	
E	NAME PLATE		1	

PEOPLE'S REPUBLIC OF CHINA	
SHANGHAI PUDONG INTERNATIONAL AIRPORT PROJECT	JANUARY 1997
T-401,402 100 m ³ SLOP TANK	
SCALE	DWG. FD-22
JAPAN INTERNATIONAL COOPERATION AGENCY	

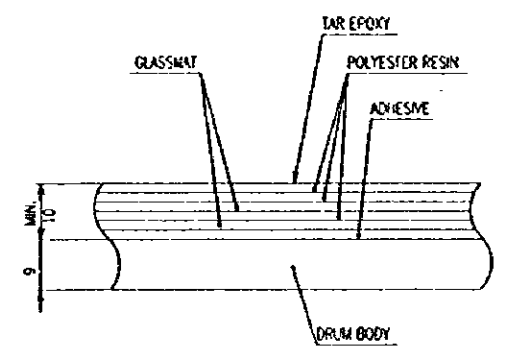


DESIGN CONDITION

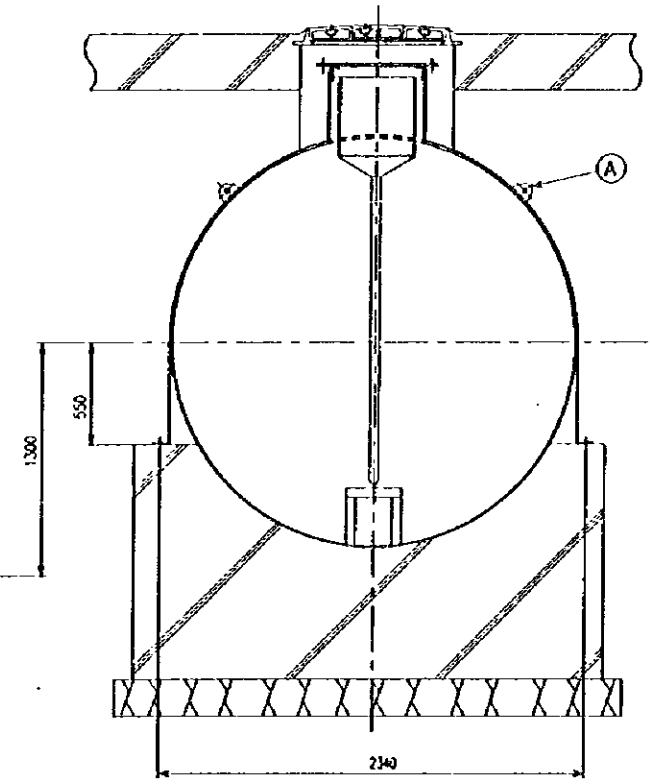
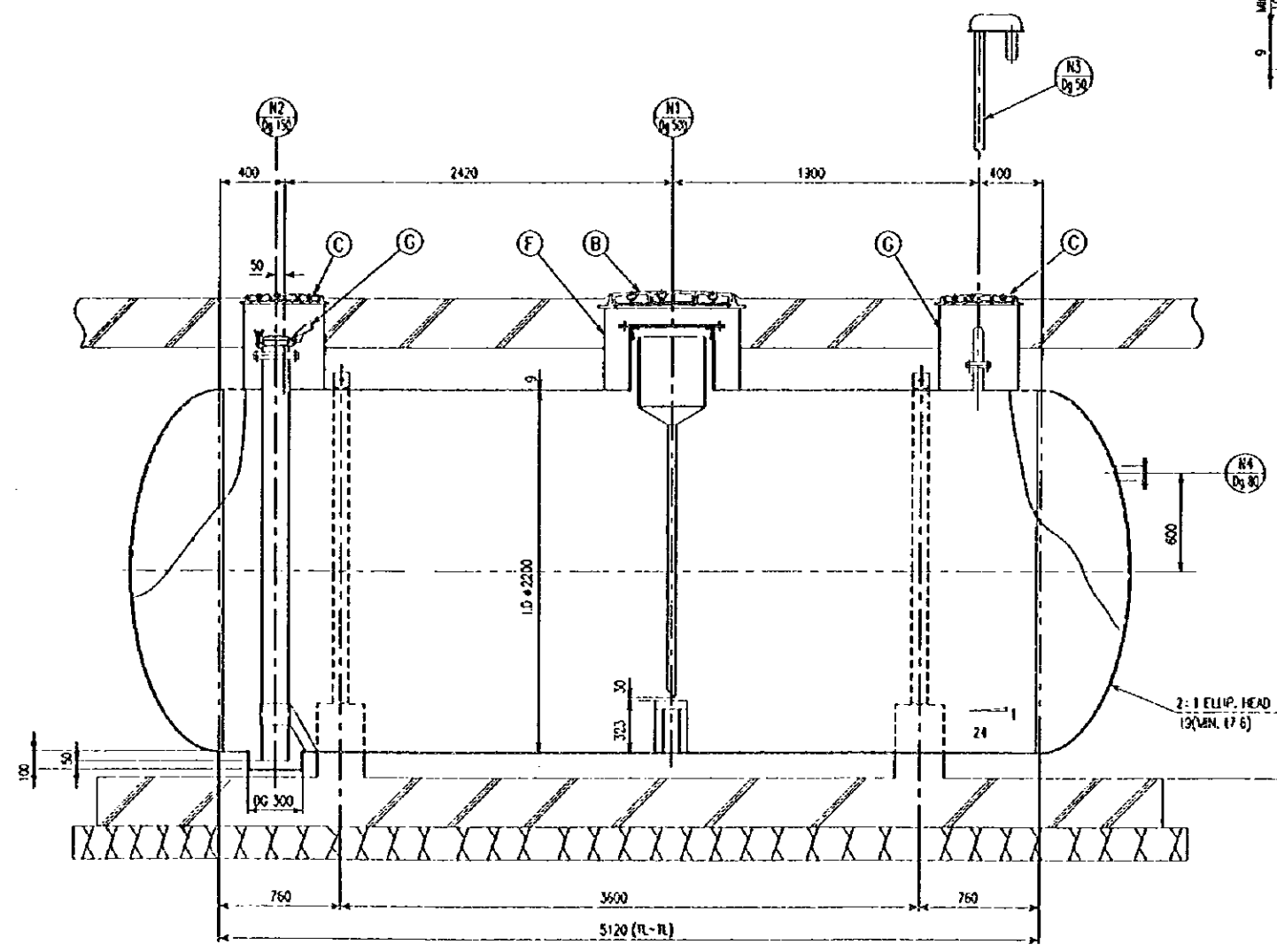
CODE	ASME SEC. VIII
CAPACITY	20 m ³
NO. OF REQ.	1
SERVICE(S)	DRAIN OIL (1.0)
DESIGN PRESS.	ATMOS
DESIGN TEM.	AMB
MATERIAL	CARBON STEEL

NOZZLE, MANHOLE AND ACCESSORIES TABLE

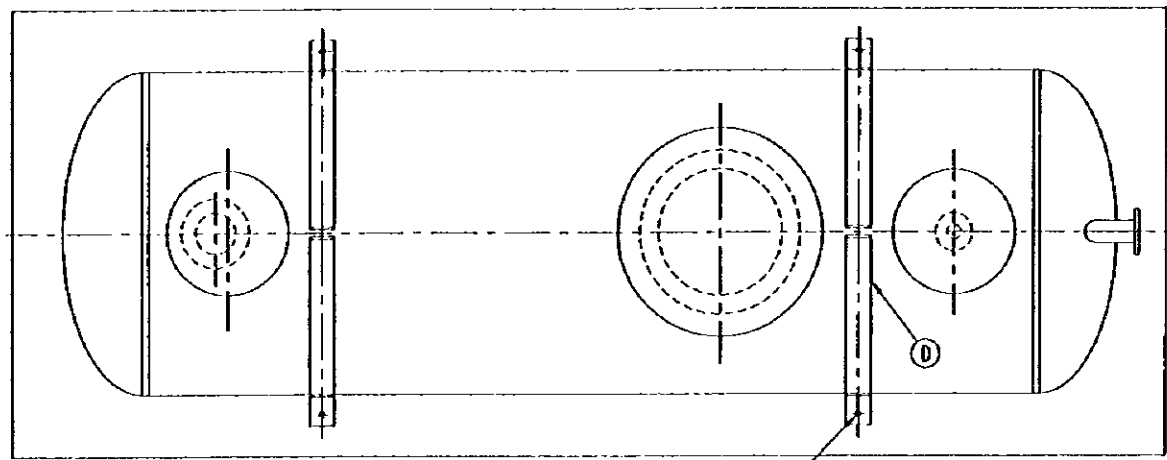
No.	DESCRIPTION	SIZE	QTY	REMARKS
N1	BULLET	Dg 500	1	
N2	GAUGE HATCH	Dg 150	1	
N3	VENT	Dg 50	1	
N4	BULLET	Dg 80	1	
A	LIFTING LUG		4	
B	PROTECTOR	φ800	1	
C	PROTECTOR	φ500	2	
D	BAND		4	W/TEFLON SHIT
E	ANCHOR BOLT		4	M16
F	PROT. BOX	φ840	1	
G	PROT. BOX	φ540	2	



PROTECTION FOR DRUM OUTER SURFACE



PEOPLE'S REPUBLIC OF CHINA	
SHANGHAI PUDONG INTERNATIONAL AIRPORT PROJECT	JANUARY 1997
D-401 20 m ³ DRAIN DRUM	
SCALE	1:20
JAPAN INTERNATIONAL COOPERATION AGENCY	

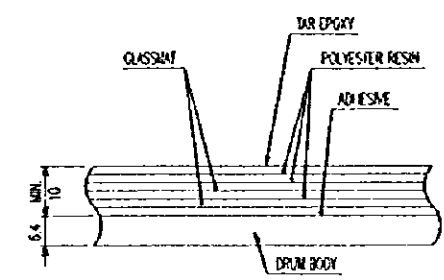


DESIGN CONDITION

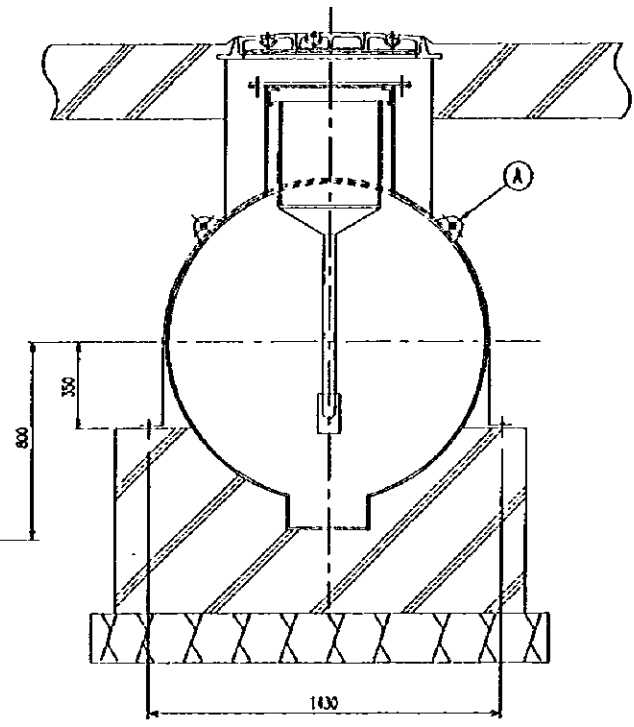
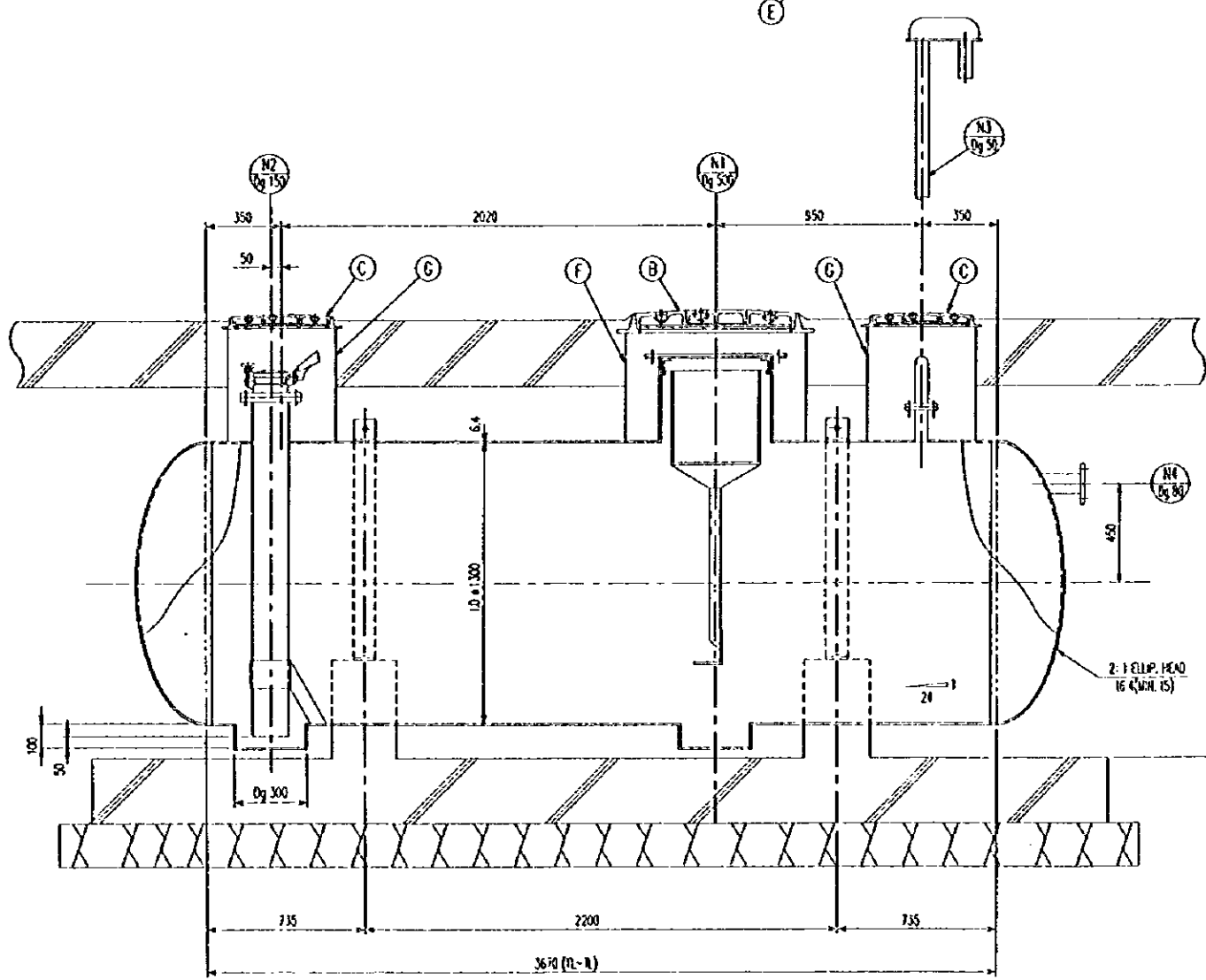
CODE	ASME SEC. VII
CAPACITY	5 m ³
NO. OF REQ'D	2
SERVICE(S)	DRAIN OIL (L.O.)
DESIGN PRESS.	ATMOS
DESIGN TEM.	Amb.
MATERIAL	CARBON STEEL

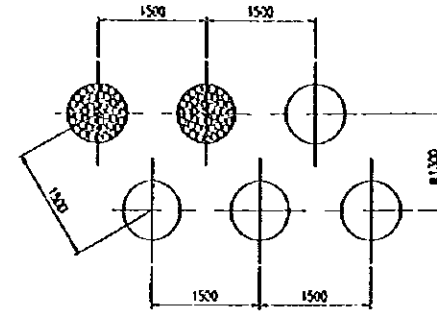
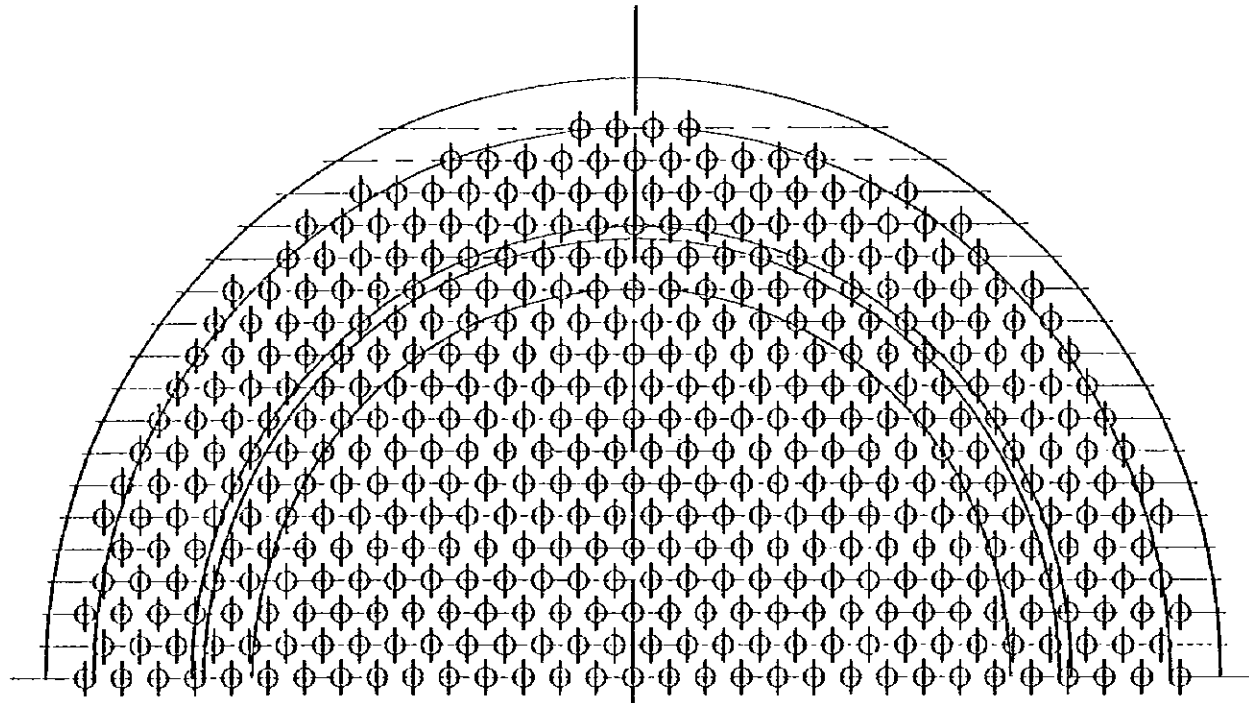
NOZZLE MANHOLE AND ACCESSORIES TABLE

No.	DESCRIPTION	SIZE	QTY	REMARKS
N1	INLET	Øg 500	1	
N2	GAUGE HATCH	Øg 150	1	
N3	VENT	Øg 50	1	
N4	INLET	Øg 80	1	
A	LIFTING LUG		4	
B	PROTECTOR	Ø800	1	
C	PROTECTOR	Ø500	2	
D	BAND		4	W/TEFLON SHEET
E	ANCHOR BOLT		4	M16
F	PROT. BOX	Ø840	1	
G	PROT. BOX	Ø540	2	
H				

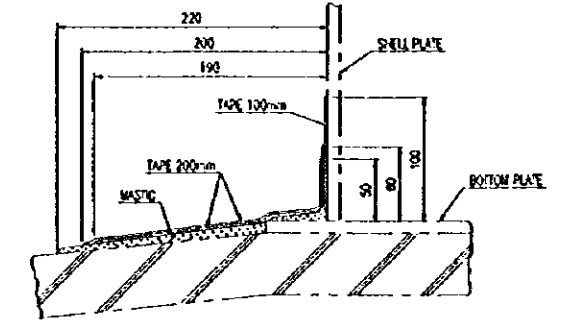


PROTECTION FOR DRUM OUTER SURFACE

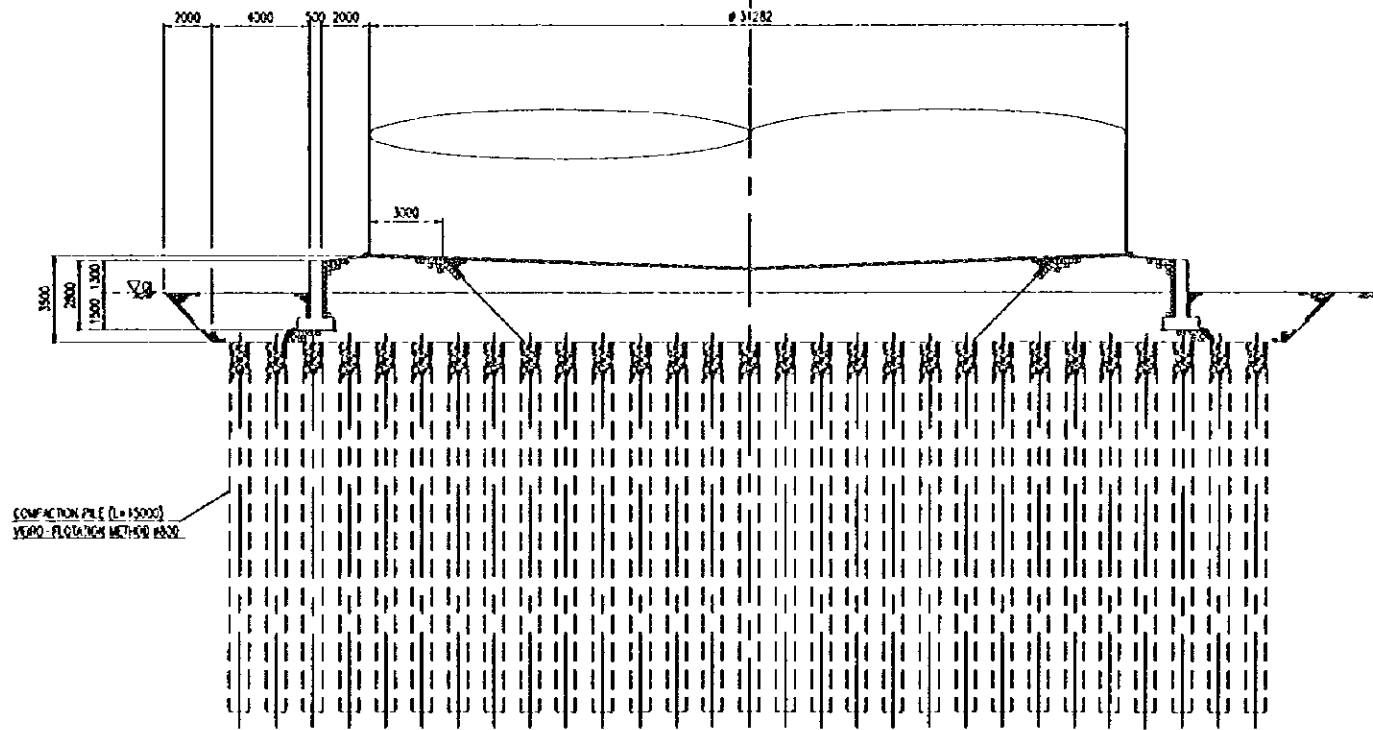




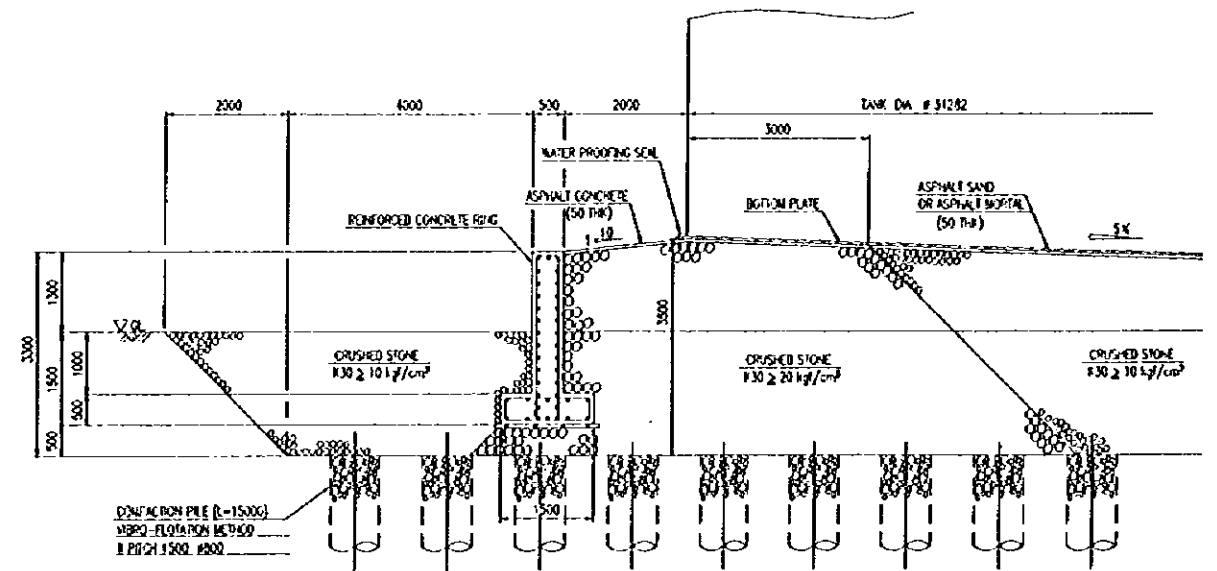
COMPACTION PILE PLAN



DETAIL OF WATER PROOFING SEAL

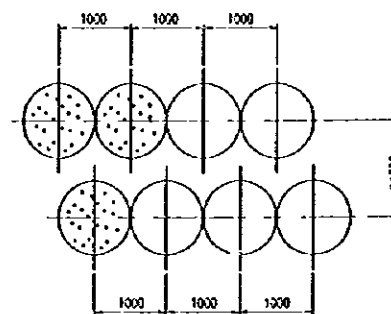
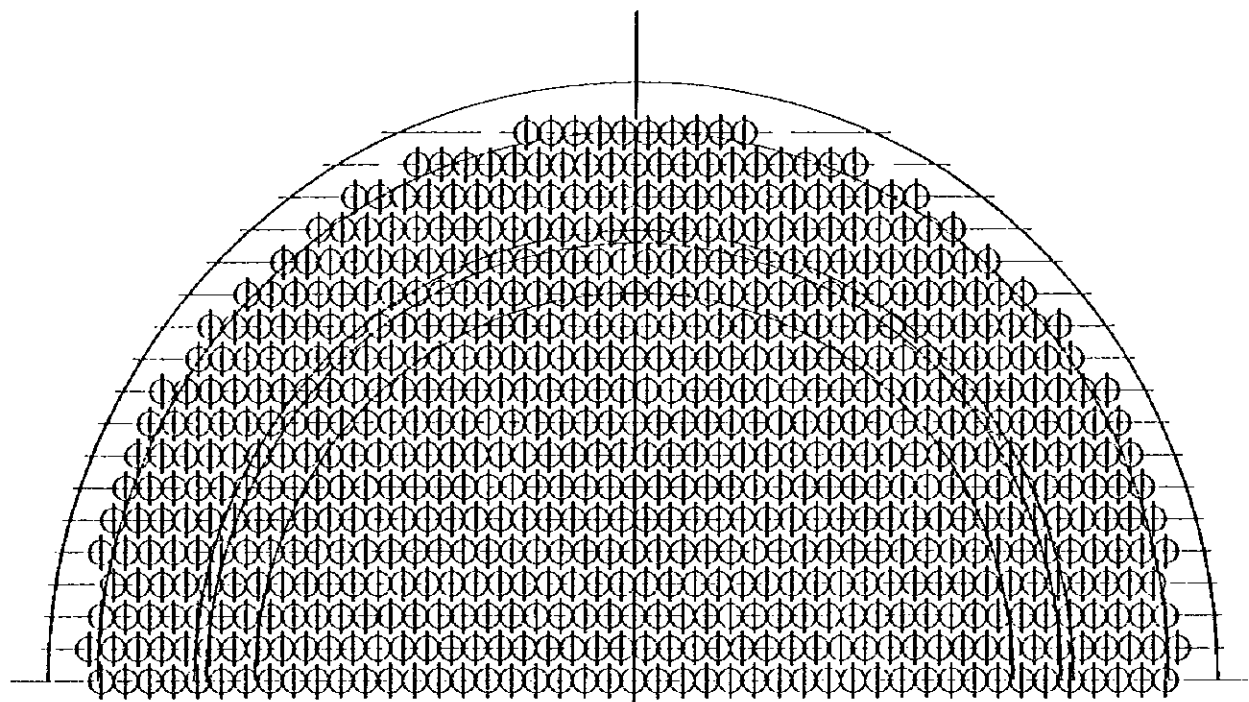


T-201~208 TANK FOUNDATION

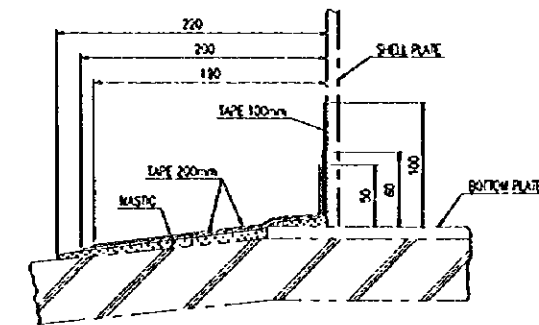


T-201~208 TANK FOUNDATION

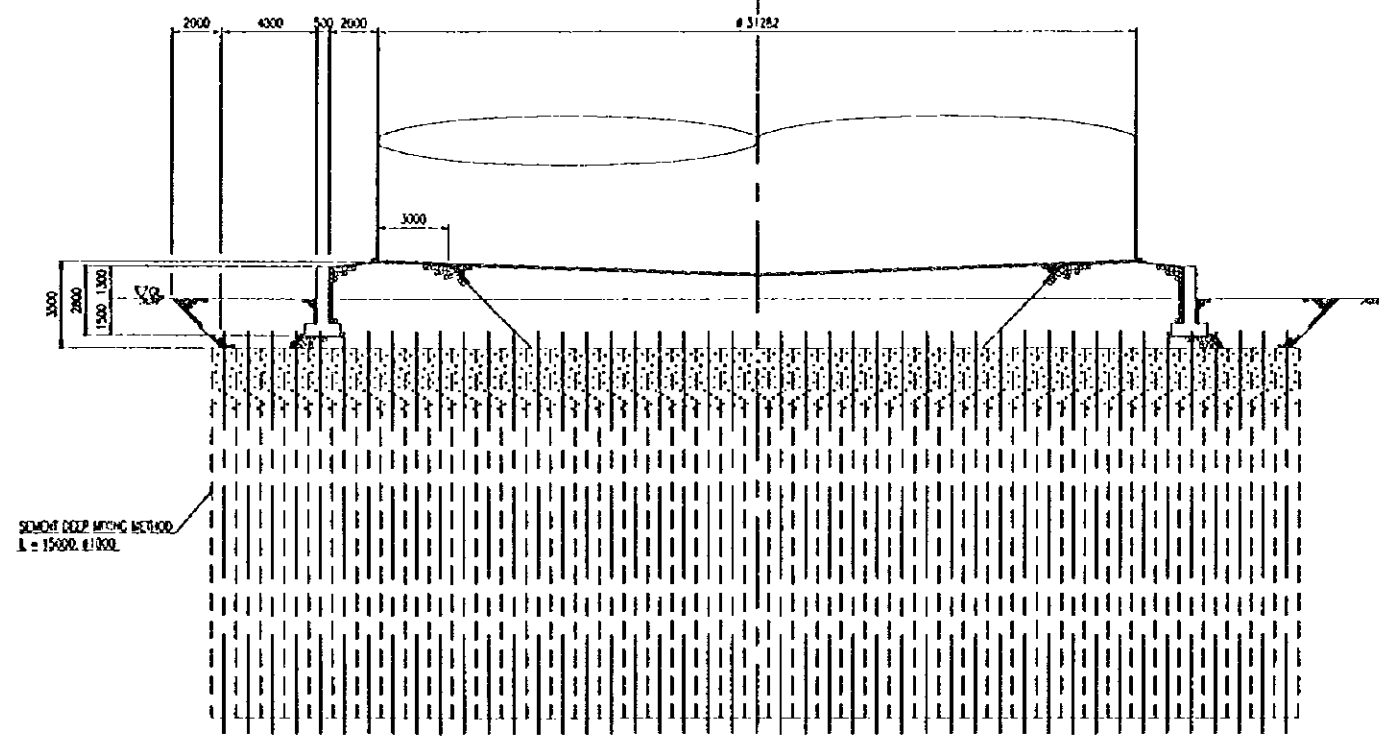
PEOPLE'S REPUBLIC OF CHINA	
SHANGHAI PUDONG INTERNATIONAL AIRPORT PROJECT	JANUARY 1997
T-201~208 TANK FOUNDATION (VIBRO-FLOTATION METHOD)	
SCALE 1:33	DWG. FD-25A
JAPAN INTERNATIONAL COOPERATION AGENCY	



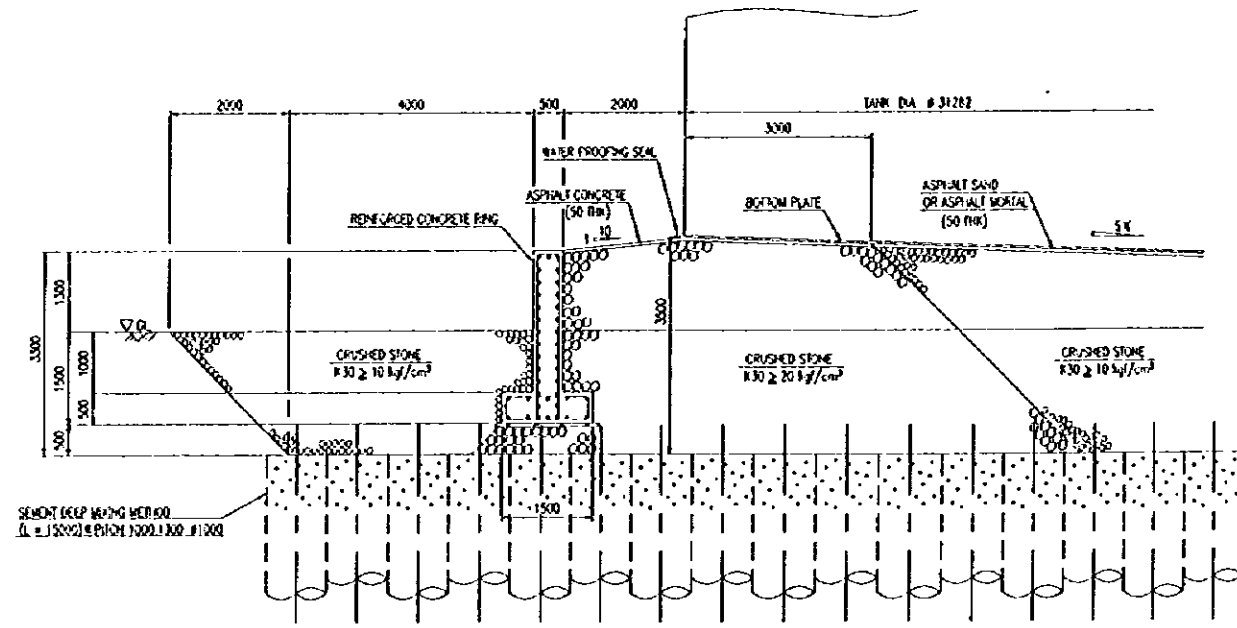
SEMENT DEEP MIXING PLAN



DETAIL OF WATER PROOFING SEAL

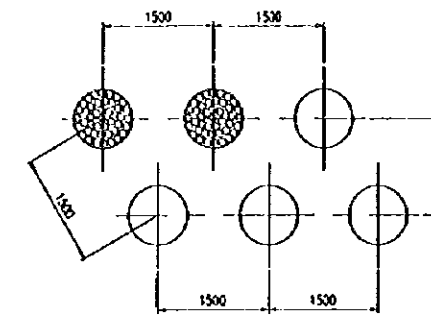
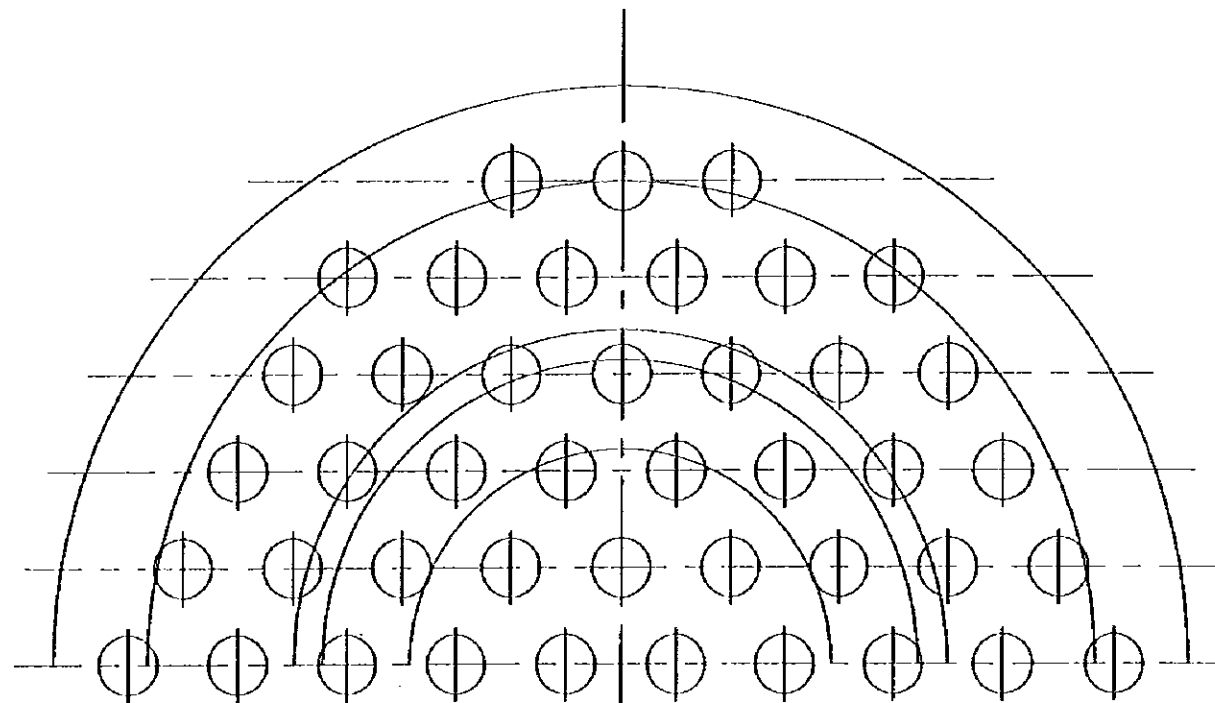


I-201~208 TANK FOUNDATION

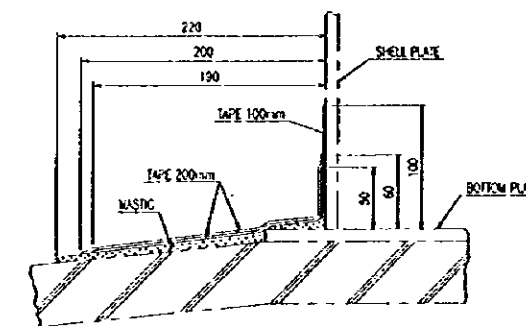
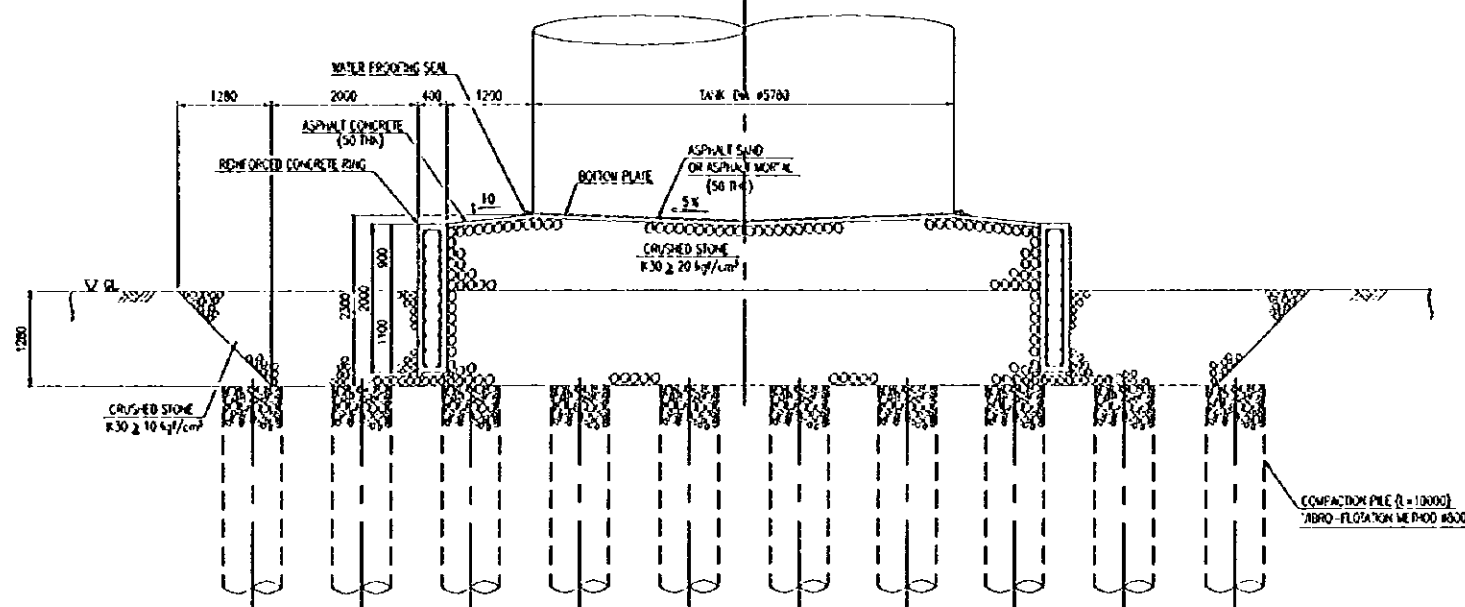


T-201~208 TANK FOUNDATION

PEOPLE'S REPUBLIC OF CHINA	
SHANGHAI PUDONG INTERNATIONAL AIRPORT PROJECT	JANUARY 1997
T-201~208 TANK FOUNDATION (SEMENT DEEP MIXING METHOD)	
SCALE 1:200	DWG. FD-25B
JAPAN INTERNATIONAL COOPERATION AGENCY	



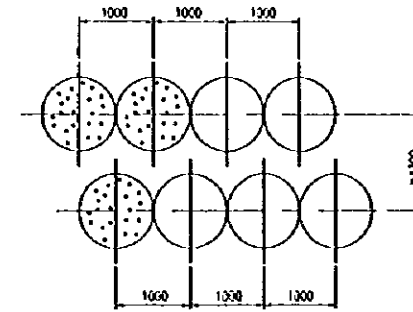
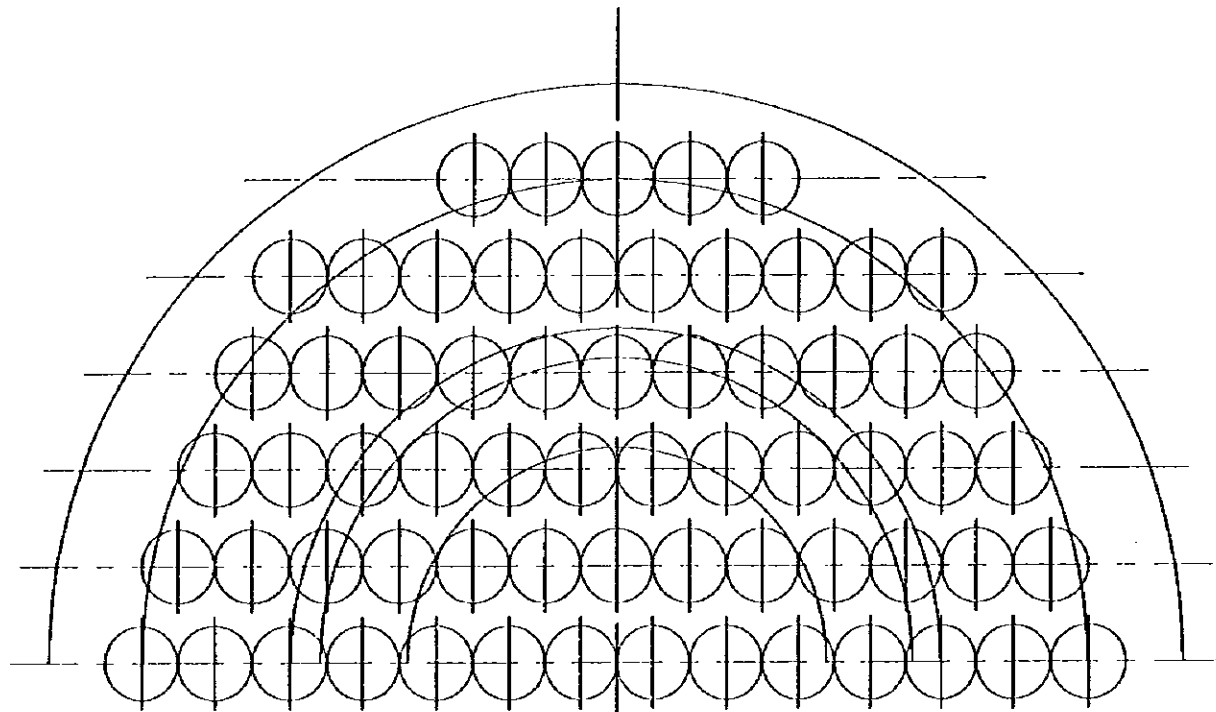
COMPACTION PILE PLAN



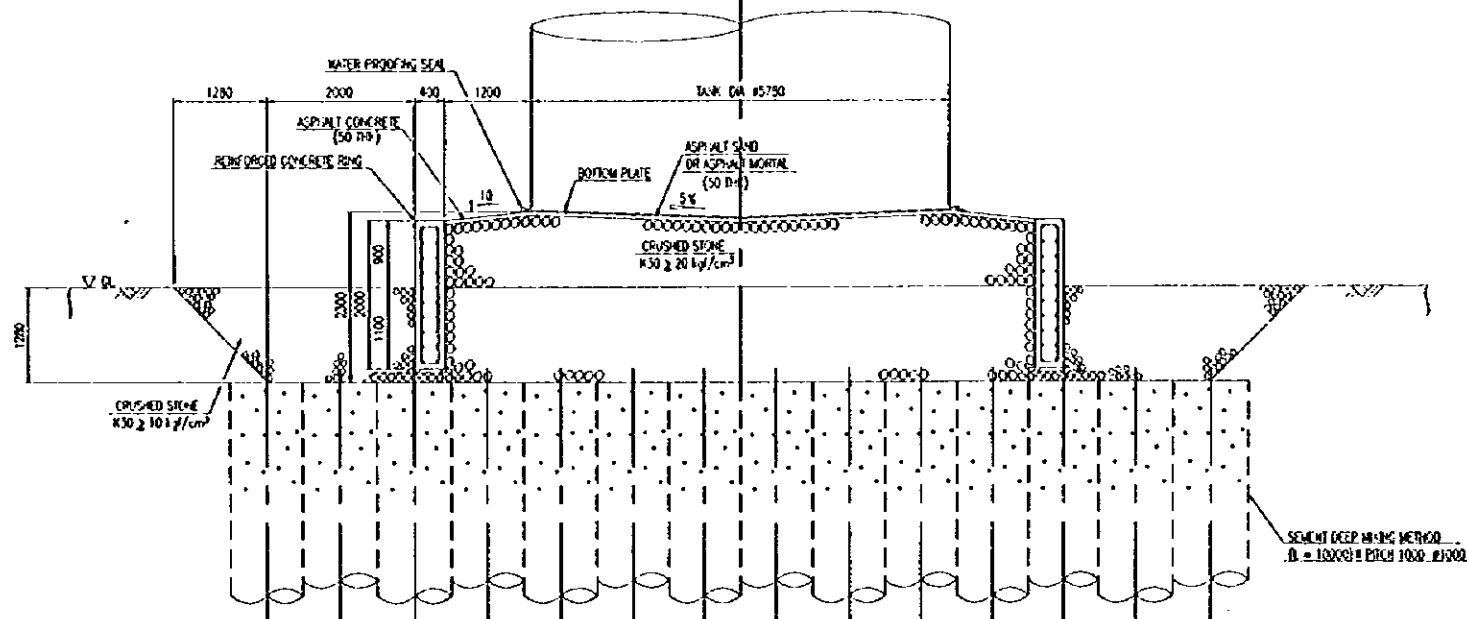
DETAIL OF WATER PROOFING SEAL

T-401, 402 TANK FOUNDATION

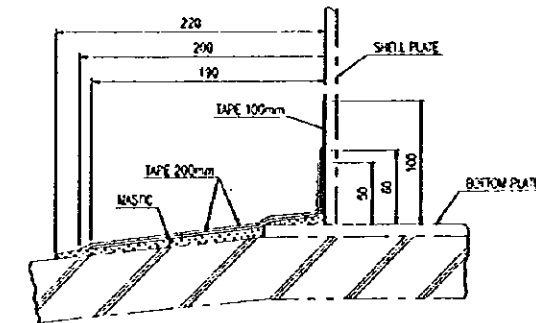
PEOPLE'S REPUBLIC OF CHINA	
SHANGHAI PUDONG INTERNATIONAL AIRPORT PROJECT	JANUARY 1997
T-401, 402 TANK FOUNDATION (VIBRO-FLOTATION METHOD)	
SCALE	1:25
DWG. FD-26A	
JAPAN INTERNATIONAL COOPERATION AGENCY	



SEMENT DEEP MIXING PLAN

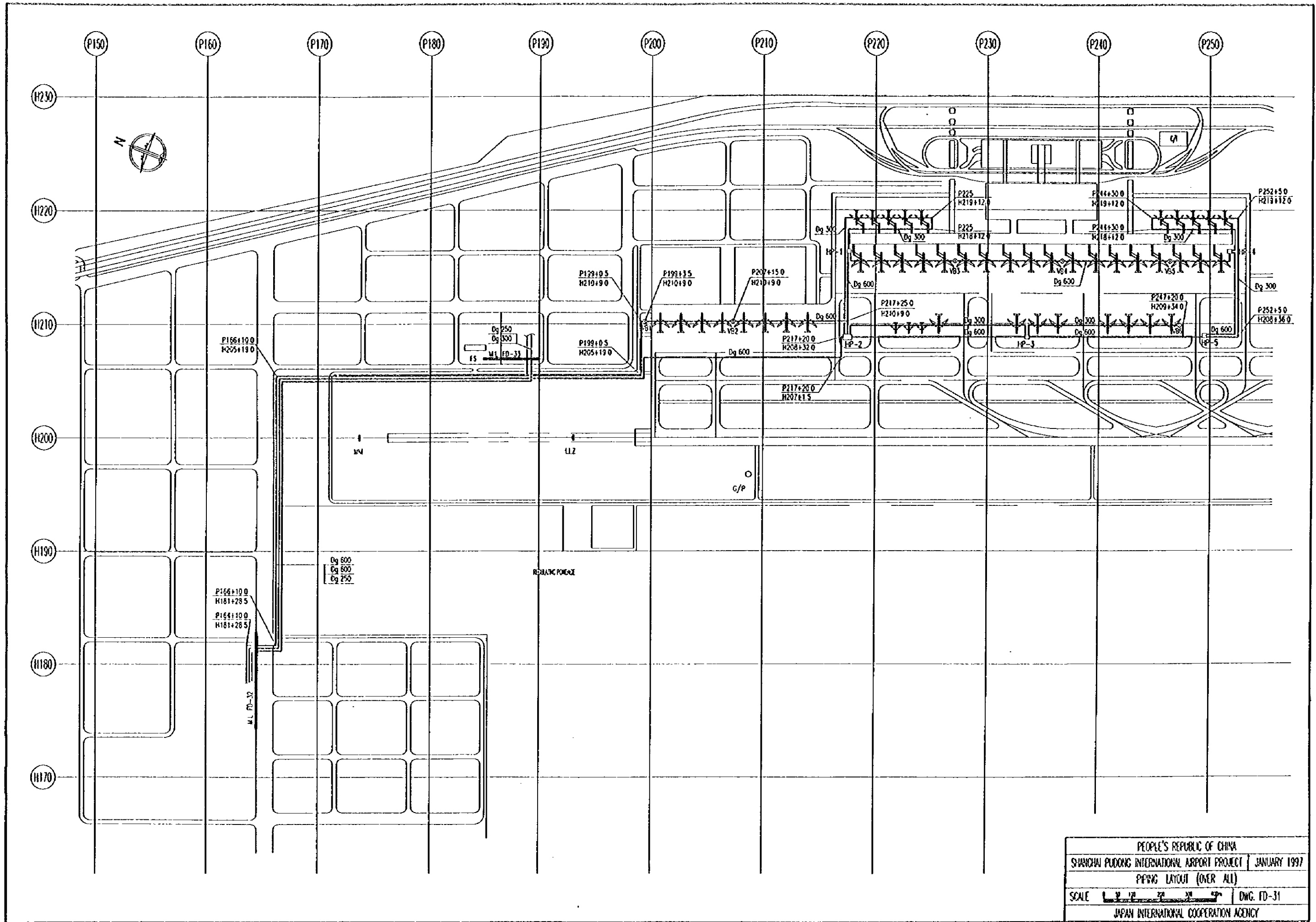


T-401, 402 TANK FOUNDATION

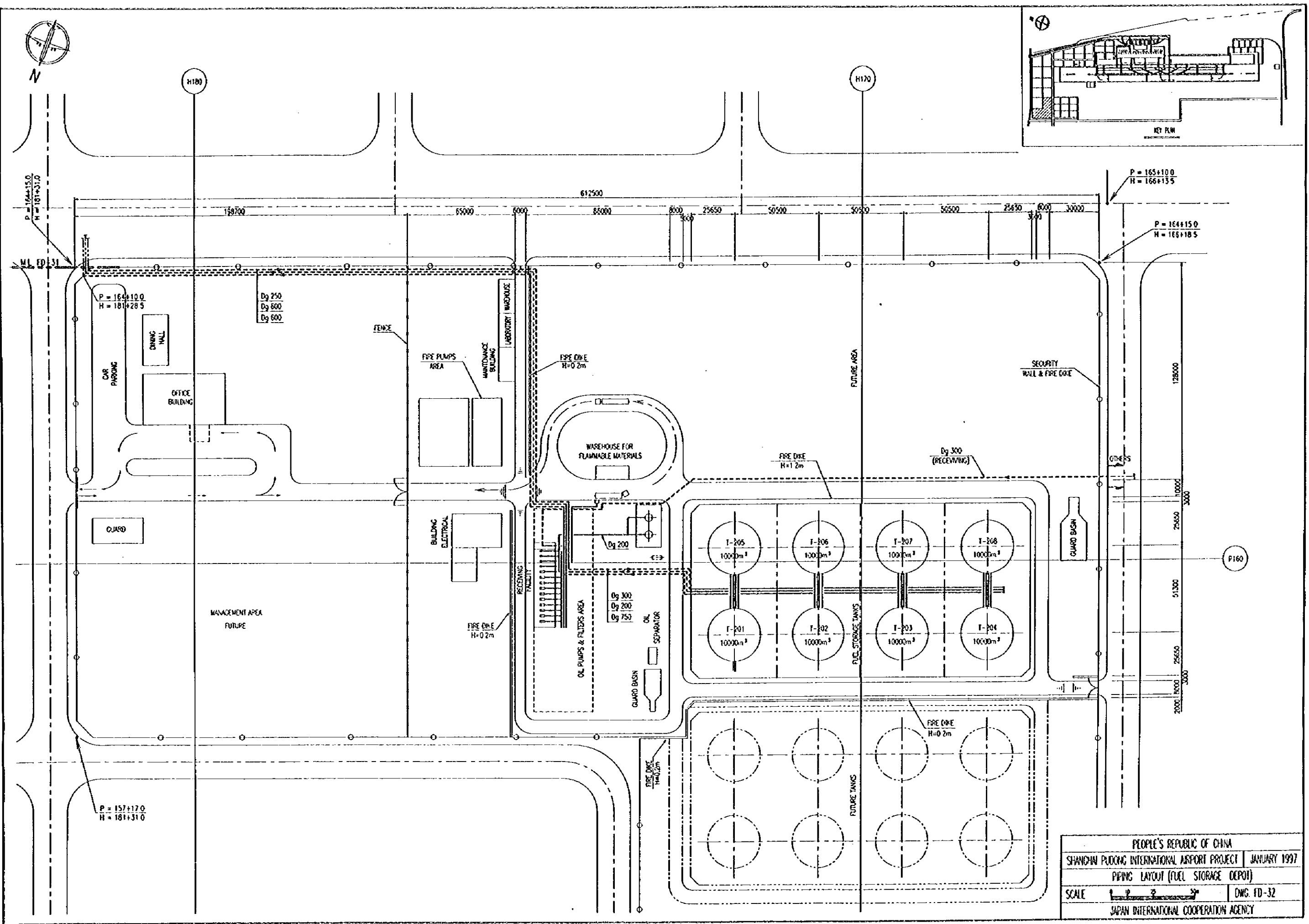
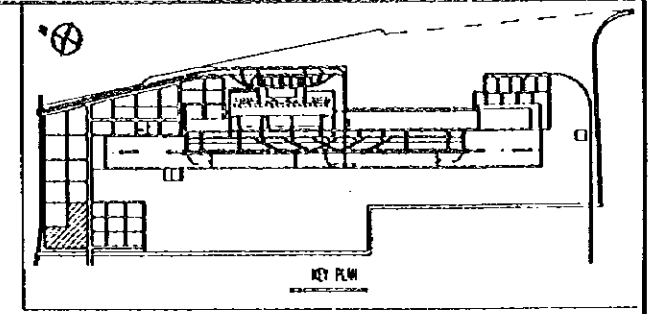


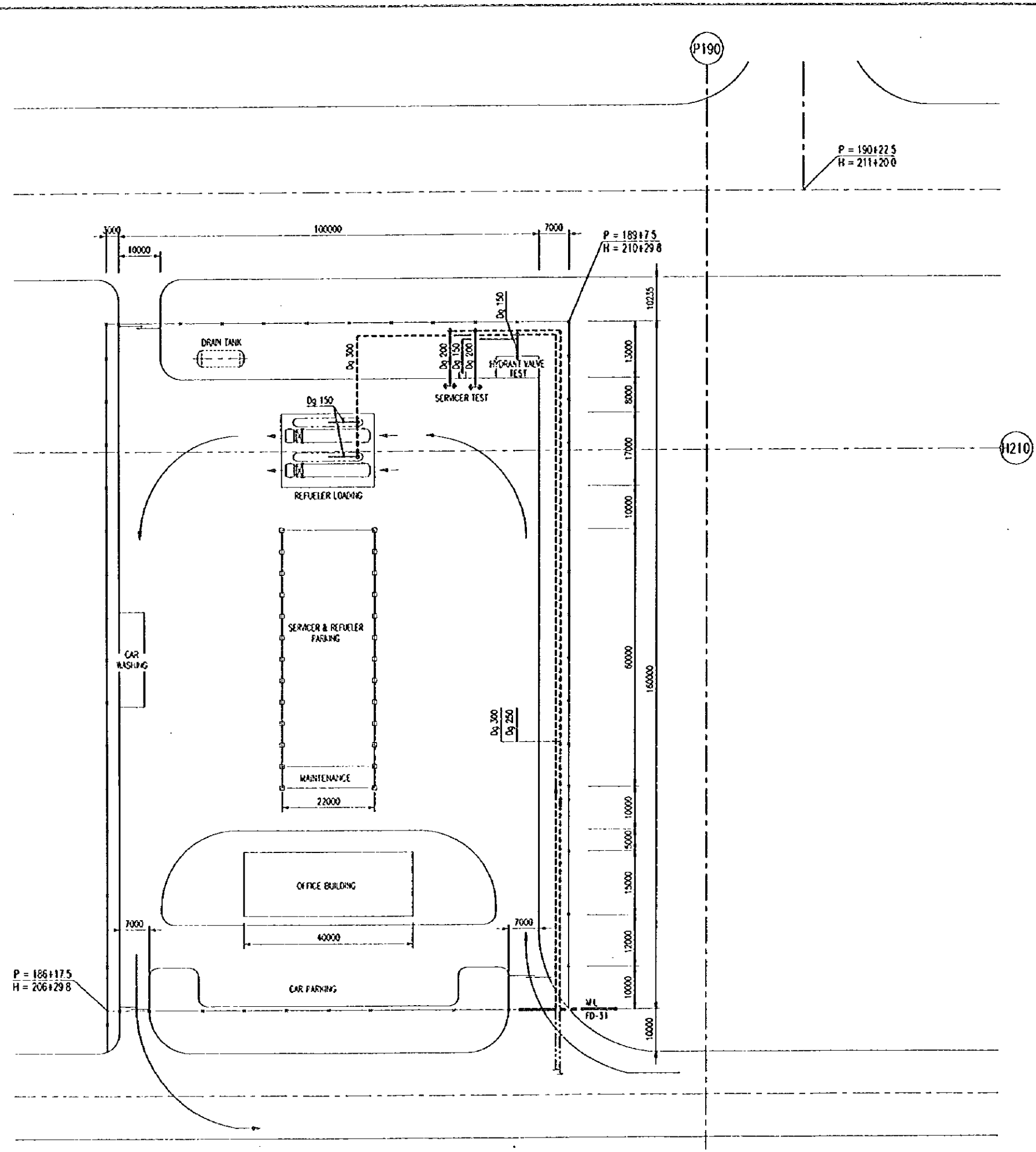
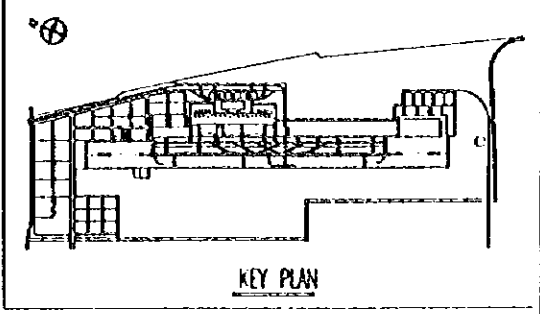
DETAIL OF WATER PROOFING SEAL

PEOPLE'S REPUBLIC OF CHINA	
SHANGHAI PUDONG INTERNATIONAL AIRPORT PROJECT	JANUARY 1997
T-401, 402 TANK FOUNDATION (SEMENT DEEP MIXING METHOD)	
SCALE	DWG. FD-268
JAPAN INTERNATIONAL COOPERATION AGENCY	

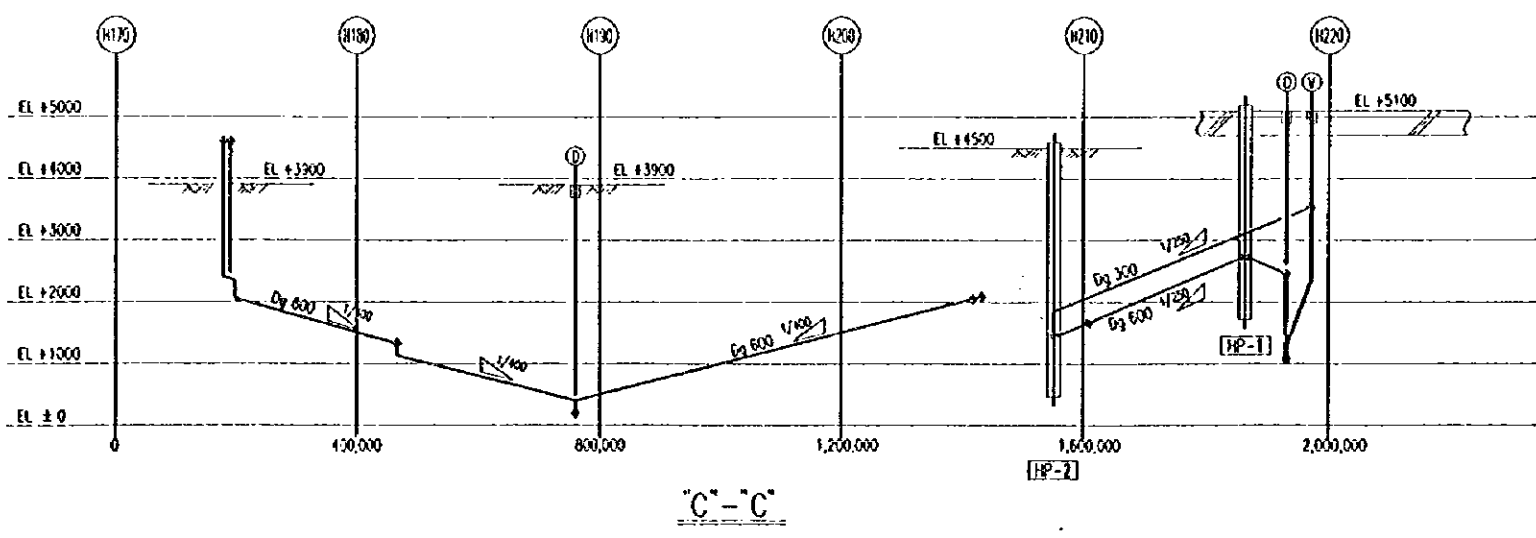
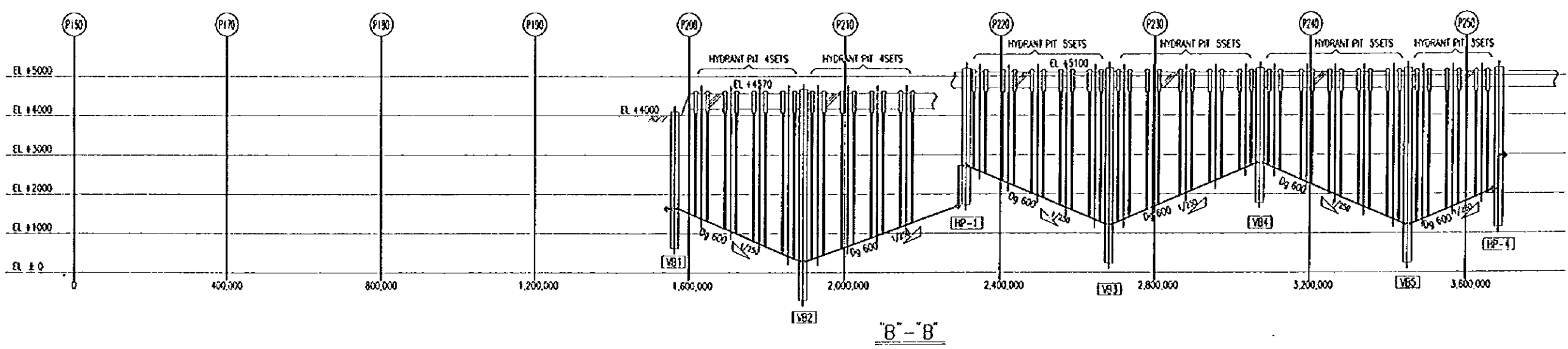
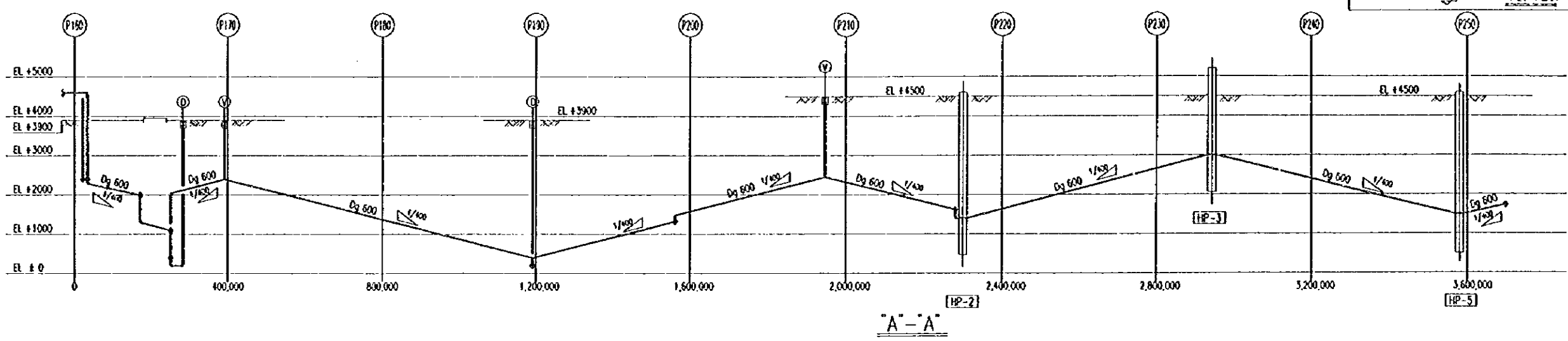
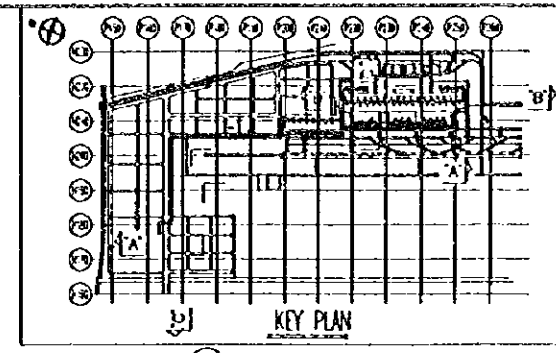


PEOPLE'S REPUBLIC OF CHINA	
SHANGHAI PUDONG INTERNATIONAL AIRPORT PROJECT	JANUARY 1997
PPRBG LAYOUT (OVER ALL)	
SCALE 1:1200	DWG. FD-31
JAPAN INTERNATIONAL COOPERATION AGENCY	



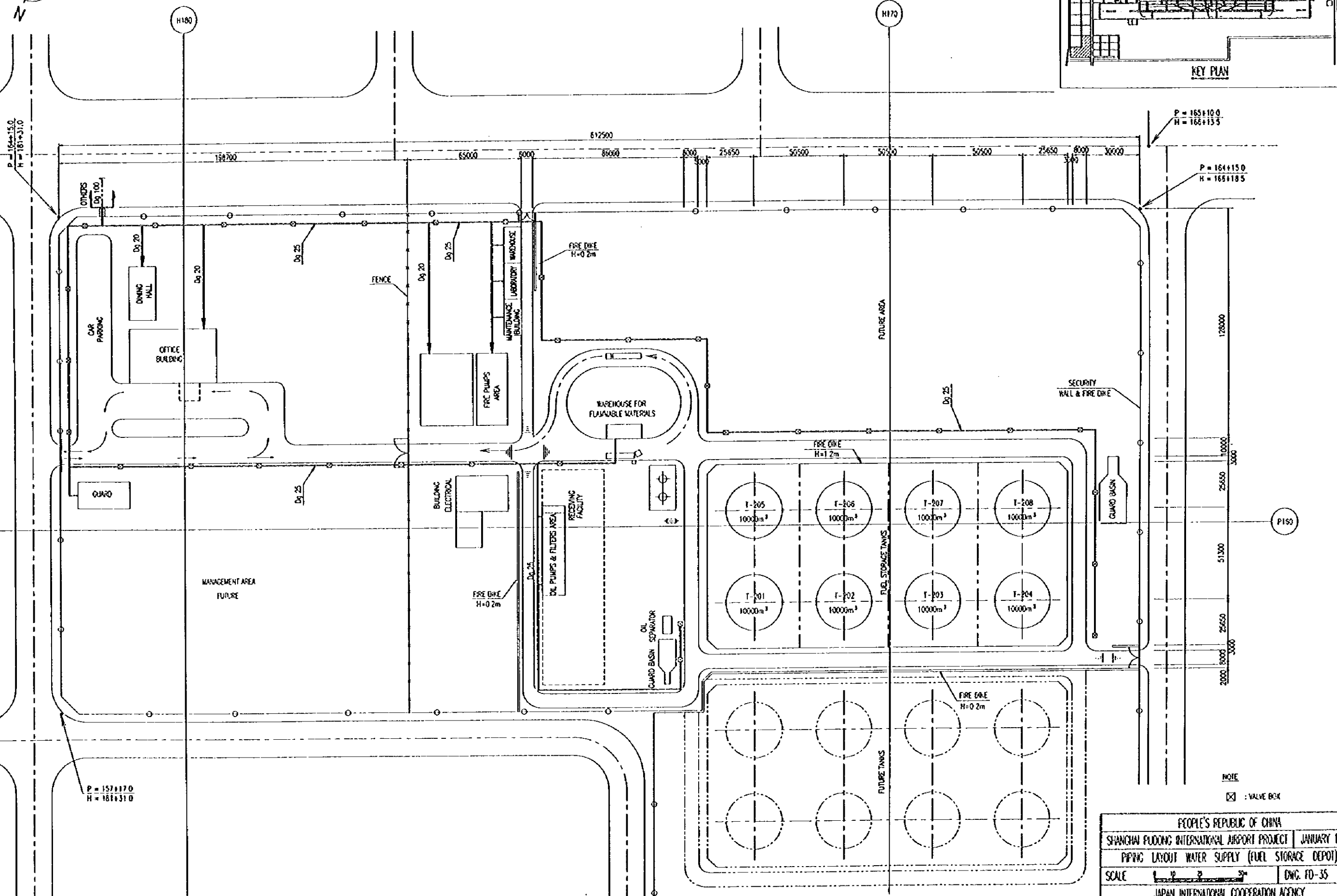
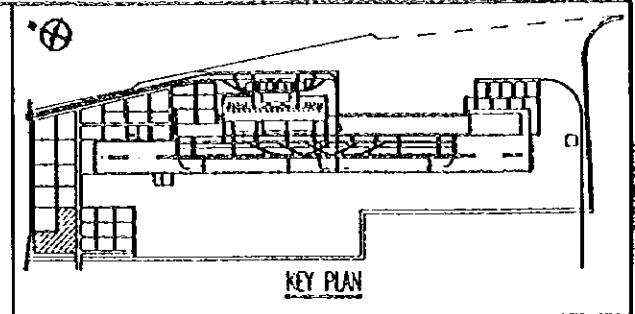


PEOPLE'S REPUBLIC OF CHINA	
SHANGHAI PUDONG INTERNATIONAL AIRPORT PROJECT	JANUARY 1997
PIPING LAYOUT (FUEL SUPPLY DEPOT)	
SCALE	DWG. FD-33
JAPAN INTERNATIONAL COOPERATION AGENCY	



NOTE
 (V) Dg 40: VENT BOX
 (D) Dg 50: DRAIN BOX

PEOPLE'S REPUBLIC OF CHINA	
SHANGHAI PUDONG INTERNATIONAL AIRPORT PROJECT	JANUARY 1997
UNDER GROUND PIPING PROFILE	
SCALE	H-1:12000, V-1:120
JAPAN INTERNATIONAL COOPERATION AGENCY	



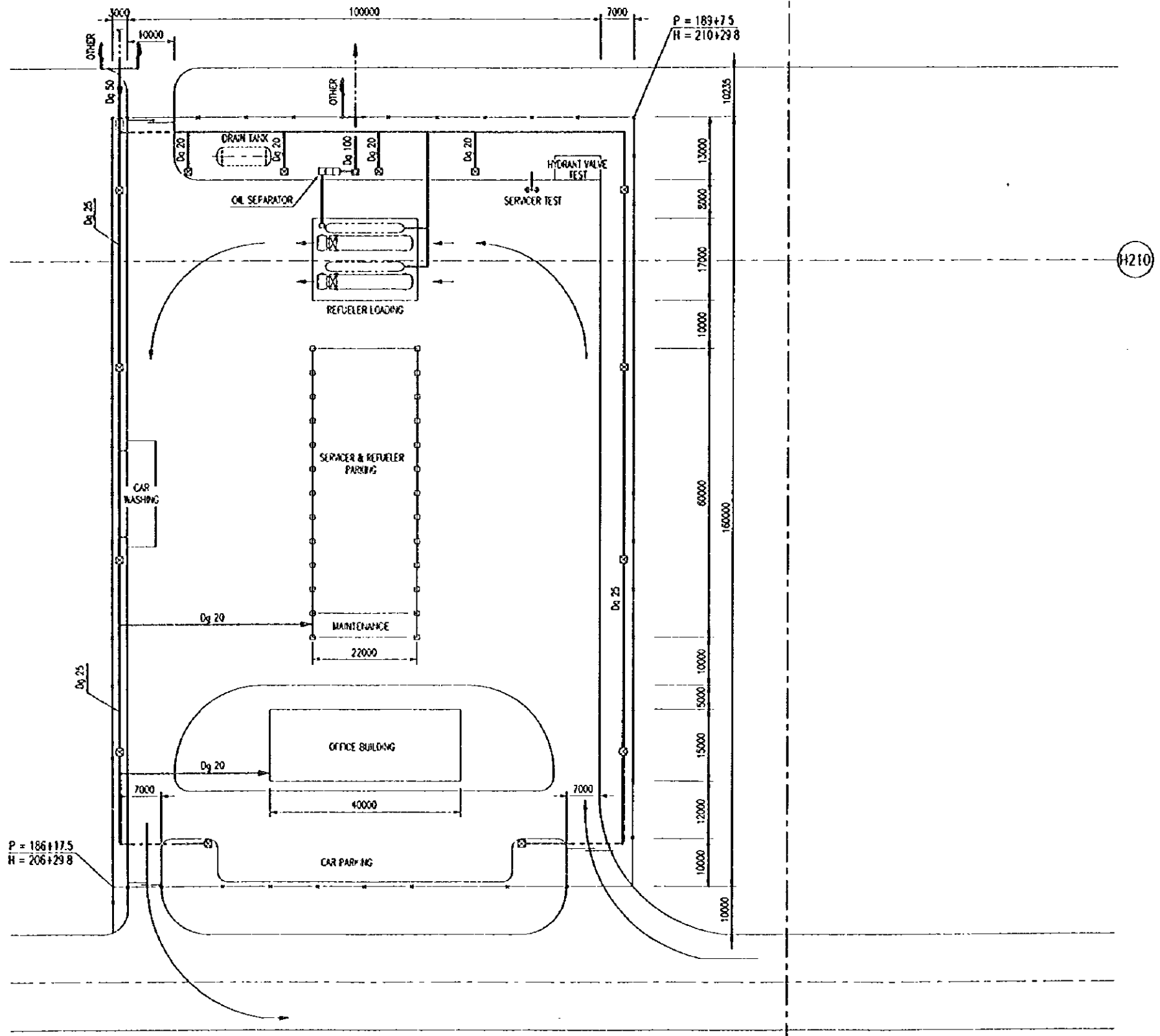
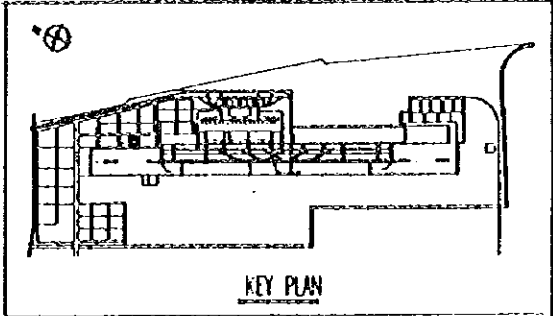
NOTE
☒ : VALVE BOX

PEOPLE'S REPUBLIC OF CHINA	
SHANGHAI PUDONG INTERNATIONAL AIRPORT PROJECT	JANUARY 1997
PIPING LAYOUT WATER SUPPLY (FUEL STORAGE DEPOT)	
SCALE 1:2000	DWG. FD-35
JAPAN INTERNATIONAL COOPERATION AGENCY	



P190

P = 190+22.5
H = 211+20.0



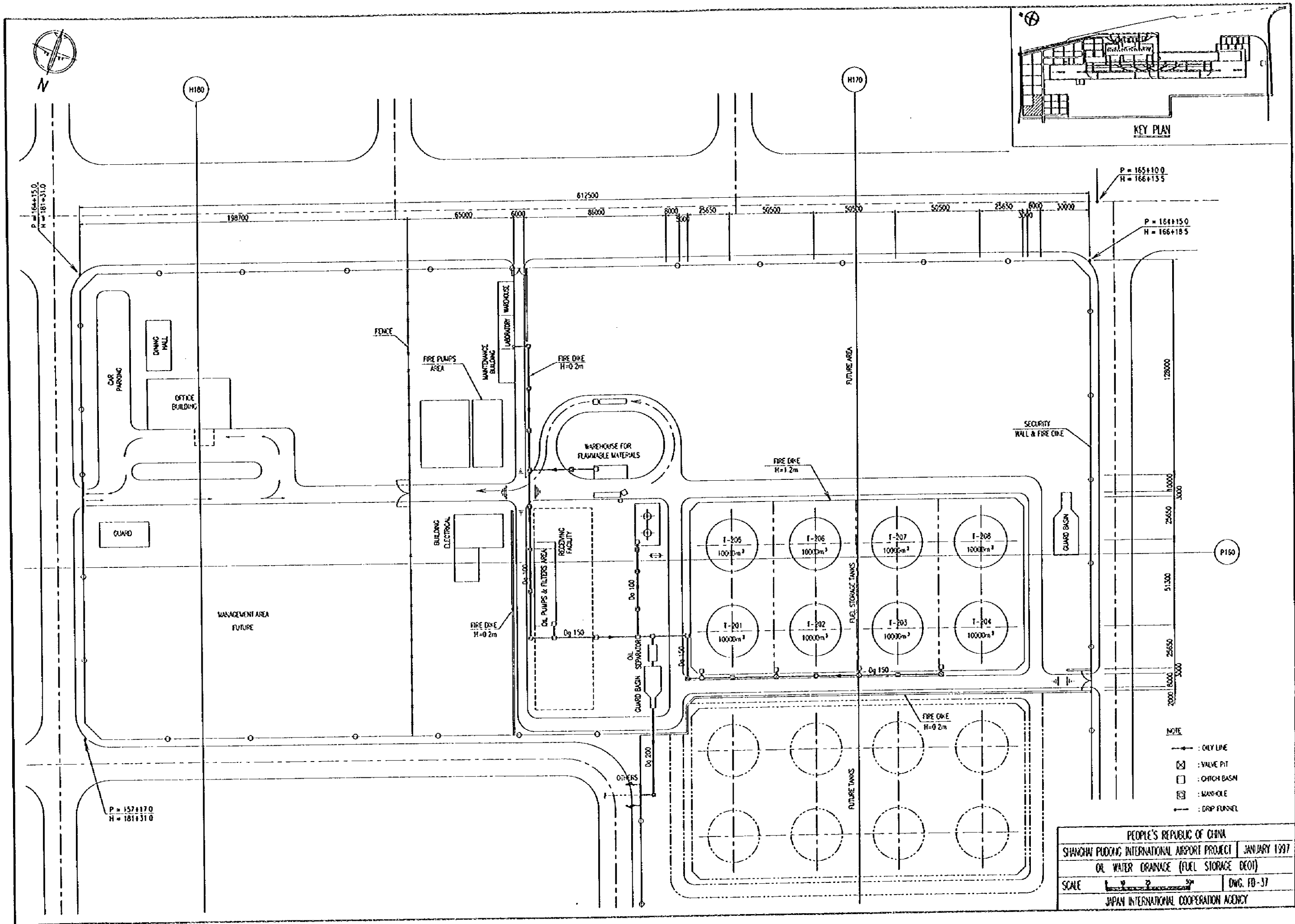
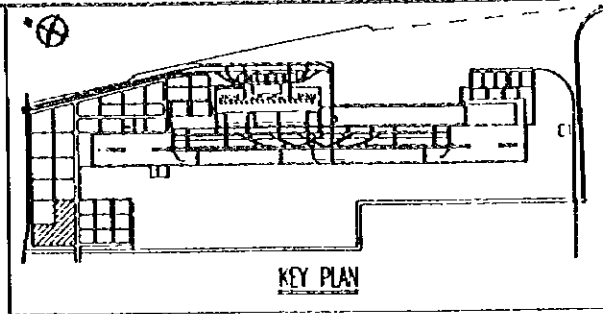
P = 186+17.5
H = 206+29.8

P = 189+7.5
H = 210+29.8

H210

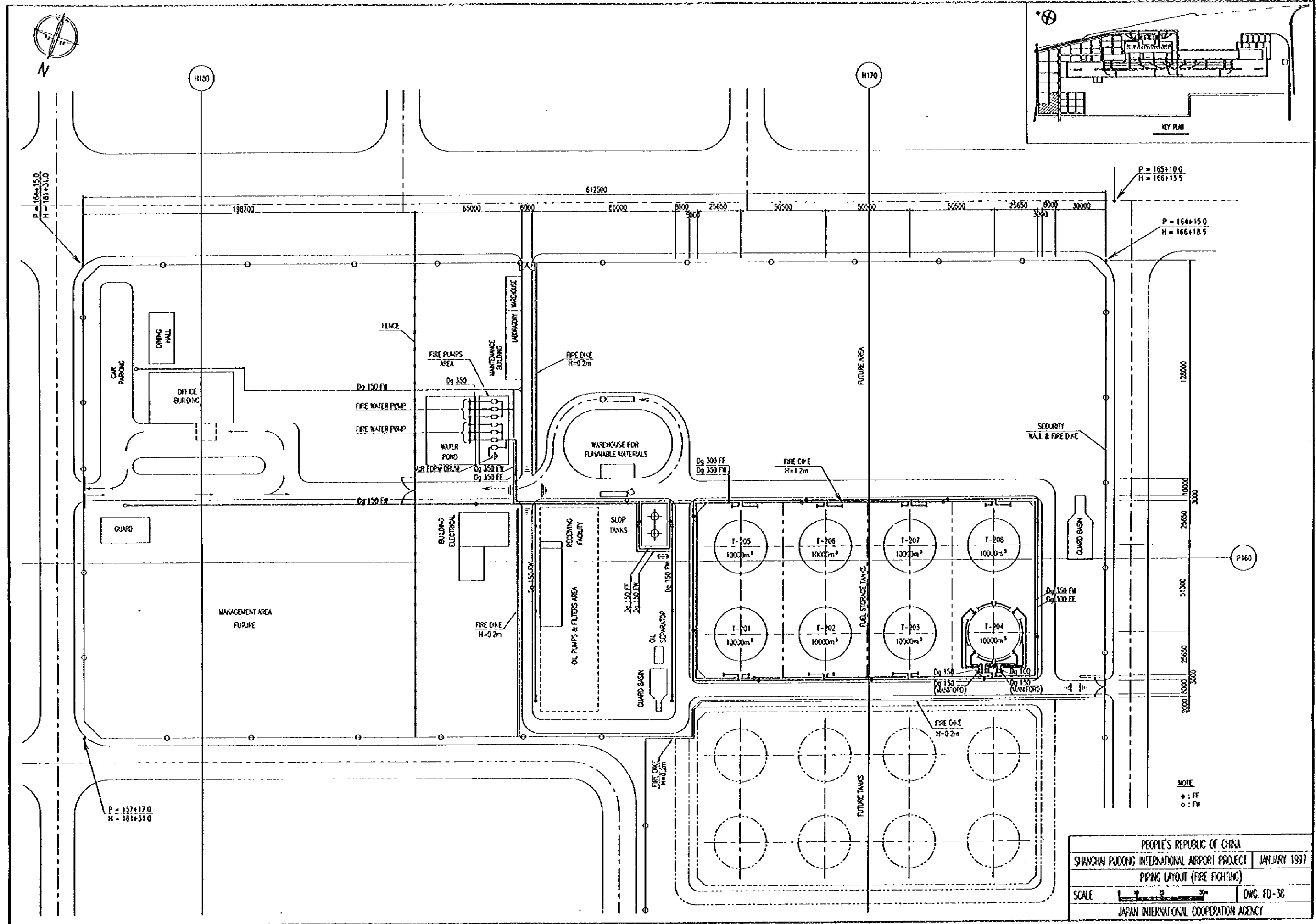
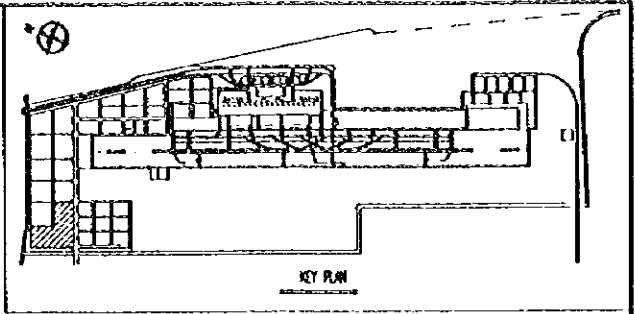
- NOTE
- ☒ : VALVE BOX (WATER SUPPLY)
 - ☐ : MANHOLE (ONLY WATER DRAINAGE)
 - ☐ : CATCH BASIN (ONLY WATER DRAINAGE)

PEOPLE'S REPUBLIC OF CHINA	
SHANGHAI PUDONG INTERNATIONAL AIRPORT PROJECT	JANUARY 1997
PIPING LAYOUT WATER SUPPLY (FUEL SUPPLY DEPOT)	
SCALE	DWG. FD-36
JAPAN INTERNATIONAL COOPERATION AGENCY	



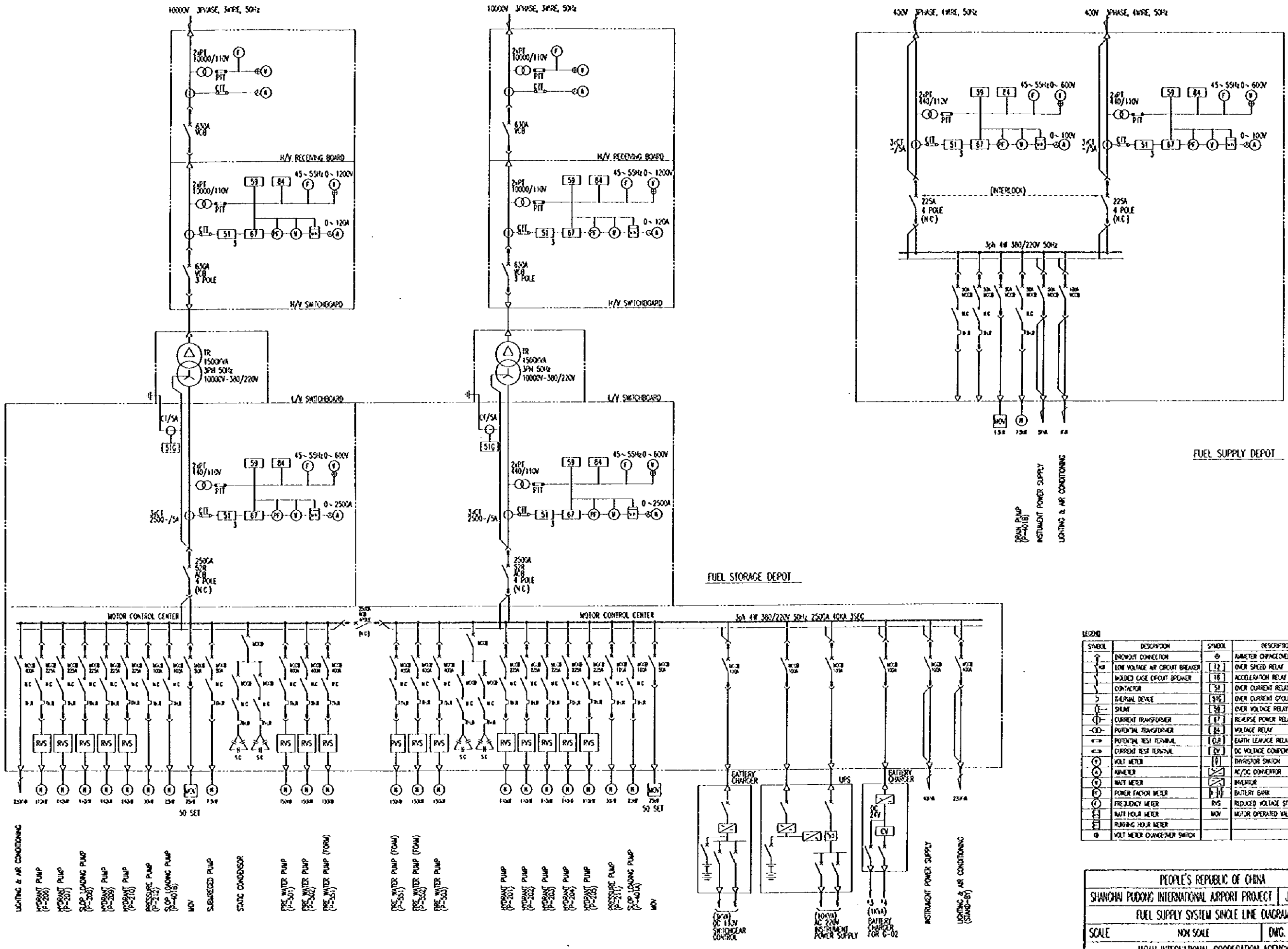
- NOTE
- : OIL LINE
 - ⊠ : VALVE PIT
 - : CATCH BASIN
 - ⊞ : MAN-HOLE
 - : DRIP FUNNEL

PEOPLE'S REPUBLIC OF CHINA
 SHANGHAI PUDONG INTERNATIONAL AIRPORT PROJECT | JANUARY 1997
 OIL WATER DRAINAGE (FUEL STORAGE DECI)
 SCALE 1:500 | DWG. FD-37
 JAPAN INTERNATIONAL COOPERATION AGENCY



NOTE
 ● : FF
 ○ : FW

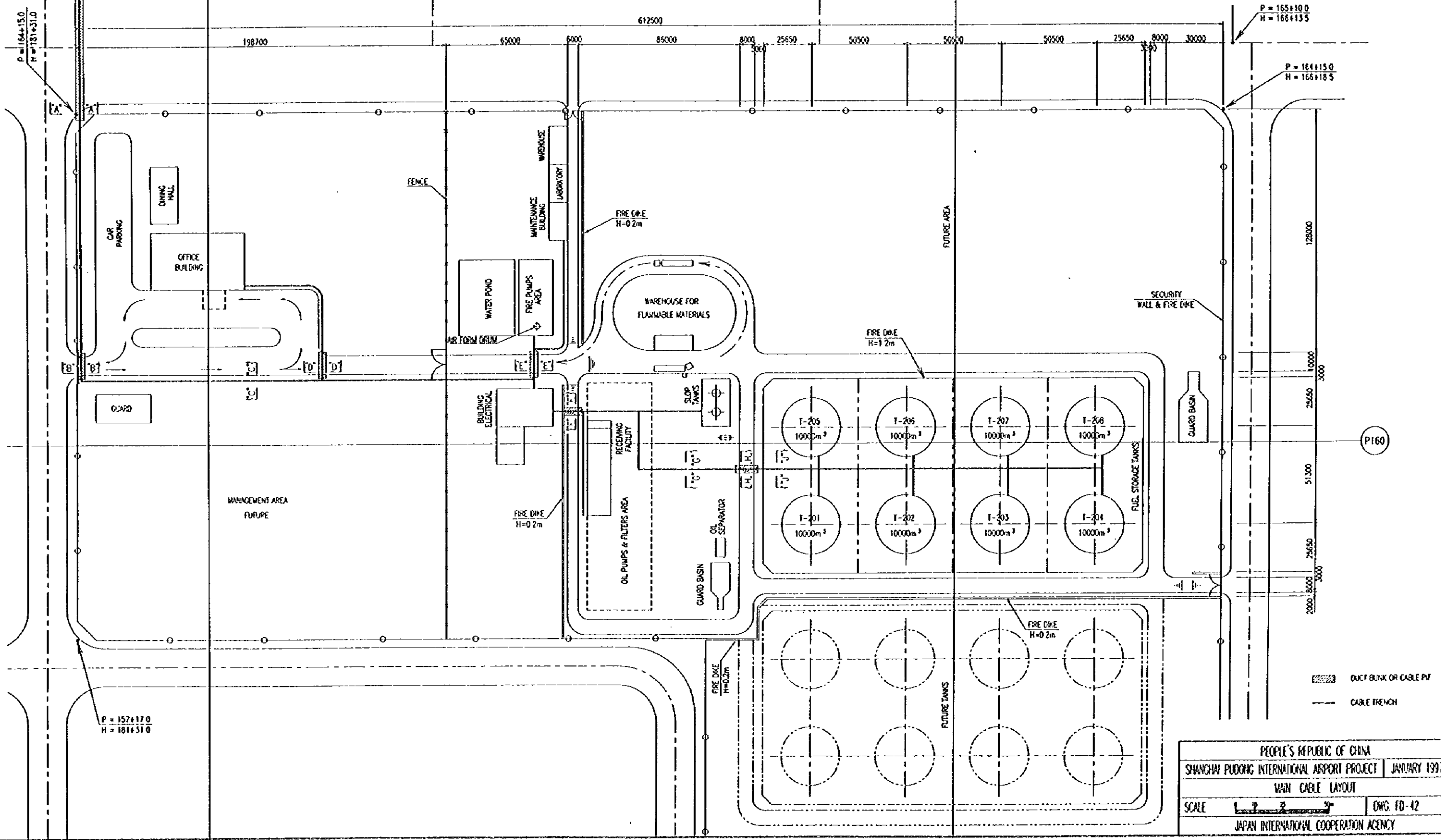
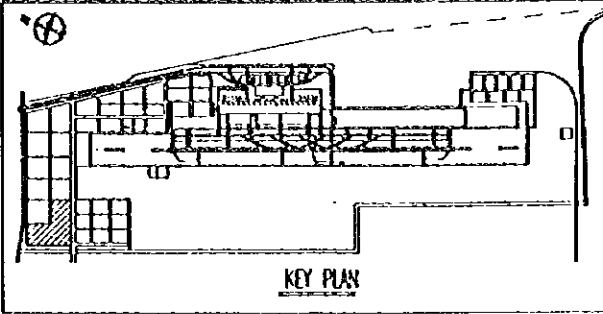
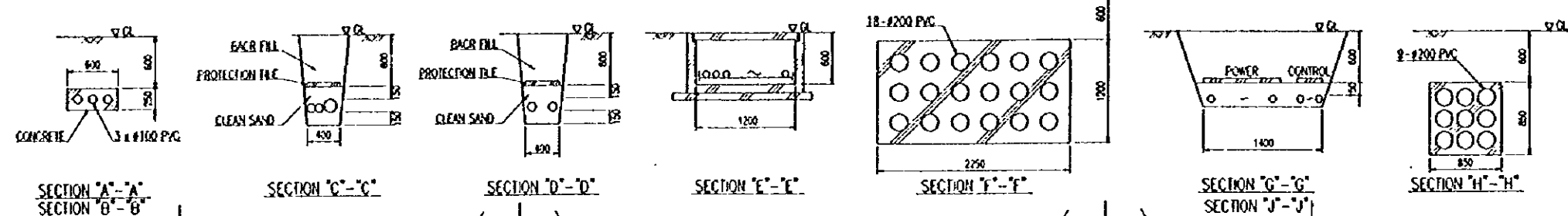
PEOPLE'S REPUBLIC OF CHINA	
SHANGHAI PUDONG INTERNATIONAL AIRPORT PROJECT	JANUARY 1997
PIPING LAYOUT (FIRE FIGHTING)	
SCALE 1:2000	DWG. FD-38
JAPAN INTERNATIONAL COOPERATION AGENCY	



LEGEND

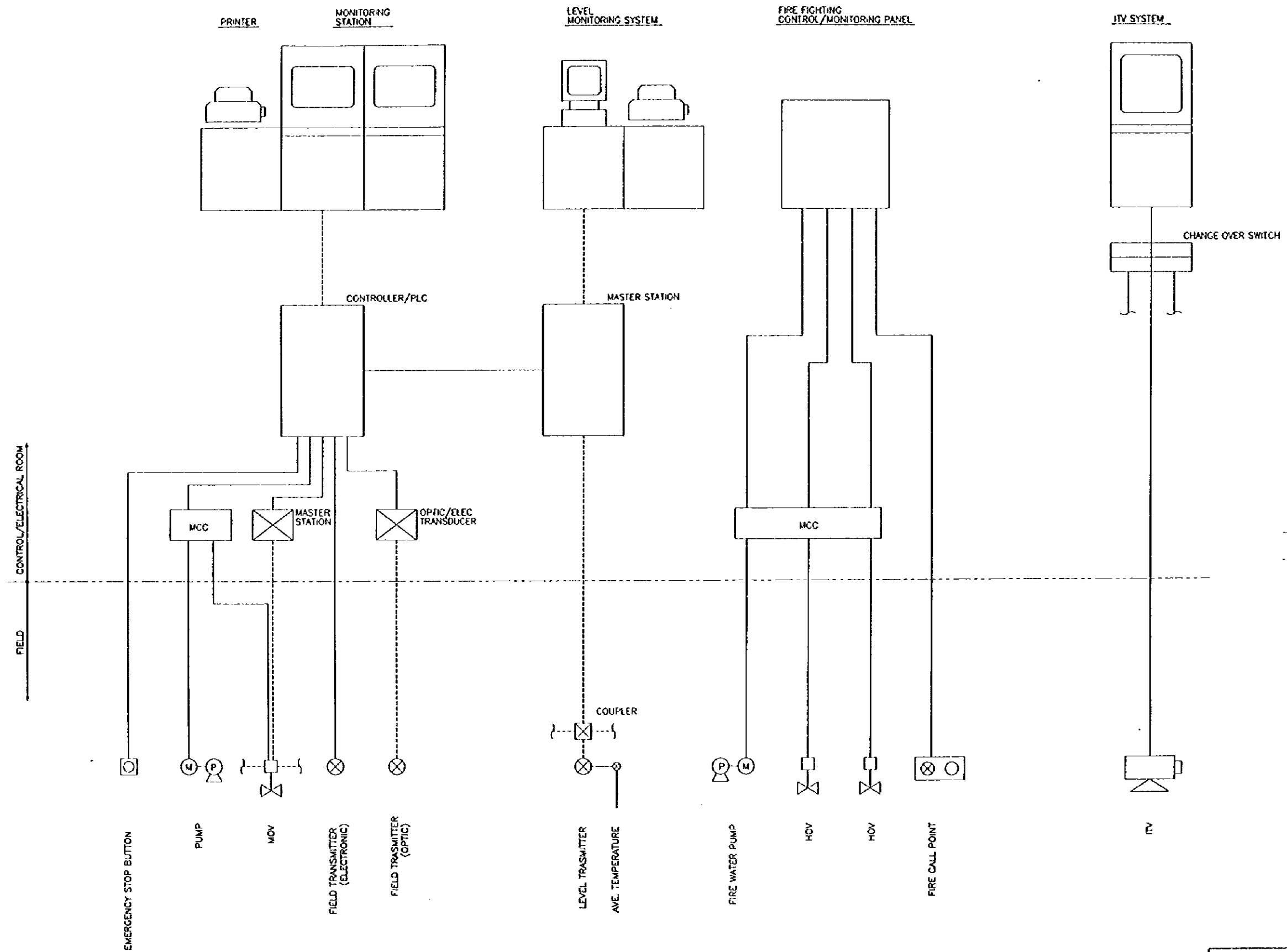
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	BREAKOUT CONNECTION		AMMETER CHANGEOVER SWITCH
	LOW VOLTAGE AIR CIRCUIT BREAKER		OVER SPEED RELAY
	WOUND CASE CIRCUIT BREAKER		ACCELERATION RELAY
	CONTACTOR		OVER CURRENT RELAY
	THERMAL DEVICE		OVER CURRENT GROUND RELAY
	SHUNT		OVER VOLTAGE RELAY
	CURRENT TRANSFORMER		RELEASE POWER RELAY
	POTENTIAL TRANSFORMER		VOLTAGE RELAY
	POTENTIAL TEST TERMINAL		EARTH LEAKAGE RELAY
	CURRENT TEST TERMINAL		DC VOLTAGE COMPENSATING DEVICE
	VOLT METER		INVERTER SWITCH
	AMMETER		AC/DC CONVERTER
	WATT METER		INVERTER
	POWER FACTOR METER		BATTERY BANK
	FREQUENCY METER		REDUCED VOLTAGE STARTER
	WATT HOUR METER		MOTOR OPERATED VALVE
	RUNNING HOUR METER		
	VOLT METER CHANGEOVER SWITCH		

PEOPLE'S REPUBLIC OF CHINA
 SHANGHAI PUDDING INTERNATIONAL AIRPORT PROJECT JANUARY 1997
 FUEL SUPPLY SYSTEM SINGLE LINE DIAGRAM
 SCALE NON SCALE DWG. FD-11
 JAPAN INTERNATIONAL COOPERATION AGENCY



DUCT BANK OR CABLE PIT
 CABLE TRENCH

PEOPLE'S REPUBLIC OF CHINA		
SHANGHAI PUDONG INTERNATIONAL AIRPORT PROJECT	JANUARY 1997	
MAIN CABLE LAYOUT		
SCALE		DWG. FD-42
JAPAN INTERNATIONAL COOPERATION AGENCY		



PEOPLE'S REPUBLIC OF CHINA		
SHANGHAI PUDONG INTERNATIONAL AIRPORT PROJECT	JANUARY 1997	
SYSTEM DIAGRAM		
SCALE	NON SCALE	DWG. FD-51
JAPAN INTERNATIONAL COOPERATION AGENCY		