

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

**NATIONAL WATER SUPPLY AND DRAINAGE BOARD
MINISTRY OF HOUSING AND PLANTATION INFRASTRUCTURE
DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA**

**THE DETAILED DESIGN STUDY
ON
GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT
IN
THE DEMOCRATIC SOCIALIST REPUBLIC
OF
SRI LANKA**

(DRAFT) TENDER DOCUMENTS

**VOLUME IV 4B
(MECHANICAL AND ELECTRICAL FACILITIES)**

MAY 2002

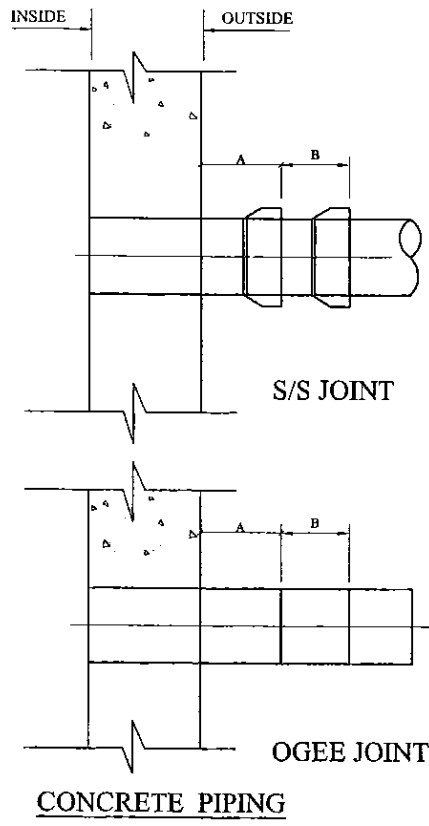
**NJS CONSULTANTS CO., LTD.
NIHON SUIDO CONSULTANTS CO., LTD.**

DRAWING LIST

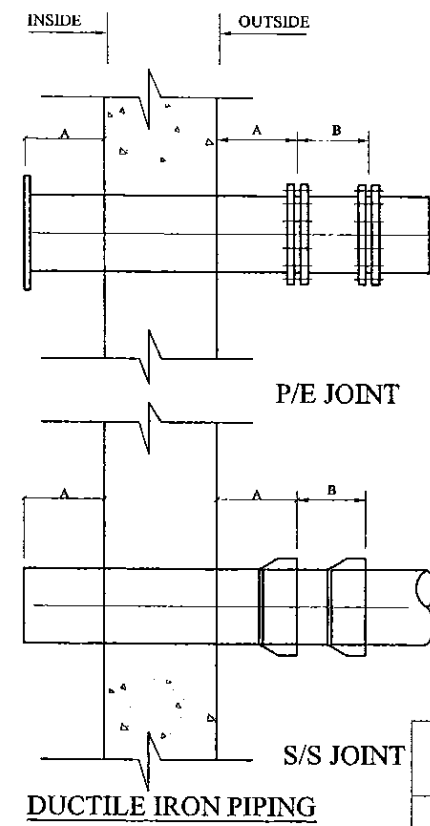
Drawing No.	Drawing Title	Drawing No.	Drawing Title
	<u>Overall Project</u>		<u>Chemical Building</u>
00-STD-M-01	Pipe Details - 2	10-M-01	Chemical Building - Plans
00-STD-M-02	Pipe Details - 2	10-M-02	Chemical Building - Mechanical Arrangement
00-STD-M-03	Pipe Details - 3	10-M-03	Chemical Building - Basement Plan and Sections
00-STD-M-04	Mechanical Standrad Details - 1	10-M-04	Chemical Building - Schematic Diagram
00-STD-M-05	Mechanical Standrad Details - 2	10-M-05	Chemical Building - Clorination Facility
00-STD-M-06	Mechanical Standrad Details - 3	10-M-06	Chemical Building -Dosing Facility
00-STD-M-07	Mechanical Standrad Details - 4		<u>Backwash Water Recovery Facility</u>
00-M-01	Process schematic and Flow Diagram - No -1 (Raw Water Treatment Plant)	11-M-01	Backwash Water Recovery Facility - Piping Arrangement
00-M-02	Process schematic and Flow Diagram - No -2 (Sedimentation and Filtration Facility)		<u>Service Reservoirs and Pump Stations</u>
00-M-03	Process schematic and Flow Diagram - No -1 (Clear Water Pump Facility)		<u>Kahawatta Pump Station</u>
00-M-04	Process schematic and Flow Diagram - No -3 (Chemical Dosing Facility)	30-M-04-01	Kahawatta Pump Station - Piping Arrangement
00-M-05	Process schematic and Flow Diagram - No -4 (Backwash Water and Sludge Facility)	30-M-04-02	Kahawatta Pump Station - Mechanical Arrangement
00-M-06	Process schematic and Flow Diagram - No -1 (Booster Pump Facilities)		<u>Kondadeniya Pumping Station</u>
	<u>Raw Water Intake</u>	30-M-10-01	Kondadeniya Pumping Station - Piping Arrangement
01-M-01	Raw Water Intake - Piping Arrangement		<u>Asgiriya Pump Station</u>
01-M-02	Raw Water Intake - Plan	30-M-15-01	Asgiriya Pump Station - Piping Arrangement
01-M-03	Raw Water Intake - Plan	30-M-15-02	Asgiriya Pump Station - Piping Arrangement
01-M-04	Raw Water Intake - Plan		<u>R2 Pumping Station</u>
	<u>Distribution Chamber</u>	30-M-18-01	R2 Pumping Station - Piping Arrangement
05-M-01	Distribution Chamber - General Arrangement Plans and Sections	30-M-18-02	R2 Pumping Station - Piping Arrangement
	<u>Flocculation Basins and Sedimentation Basins</u>		<u>Heerassagala Low Pump Station</u>
06-M-01	Flocculation Basins and Sedimentation Basins - Top and Bottom Plan	30-M-20-01	Heerassagala Low Pump Station - Piping Arrangement
06-M-02	Flocculation Basins and Sedimentation Basins - Cross Section	30-M-20-02	Heerassagala Low Pump Station - Piping Arrangement
06-M-03	Flocculation Basins and Sedimentation Basins - Cross Section		<u>Heerassagala Middle Pump Station</u>
	<u>Filtration Units</u>	30-M-21-01	Heerassagala Middle Pump Station - Piping Arrangement
07-M-01	Filtration Units - Top Plan		<u>Ampitiya Pump Station</u>
07-M-02	Filtration Units - Middle Plan	30-M-24-01	Ampitiya Pump Station - Piping Arrangement
07-M-03	Filtration Units - Sections	30-M-24-02	Ampitiya Pump Station - Piping Arrangement
07-M-04	Filtration Units - Sections		
07-M-05	Filtration Units - Bottom Plan		<u>Instrumentation</u>
07-M-06	Filtration Units - Bottom Plan	00-I-01	Instrumentation Flow Diagram for Intake & Water Treatment Plant
	<u>Clear Water Pump Station</u>	00-I-02	Instrumentation Flow Diagram for Chemical Dosing
09-M-01	Clear Water Pump Station - Basement Floor Plan	00-I-03	Outline of Instrumentation Panel
09-M-02	Clear Water Pump Station		
09-M-03	Clear Water Pump Station - Ground Floor Plan		

DRAWING LIST

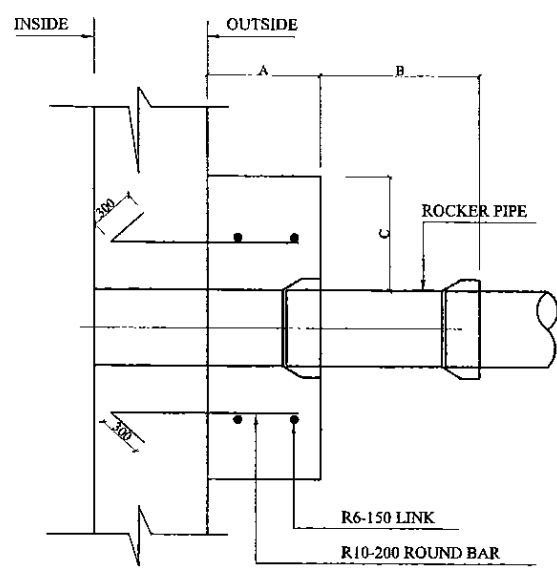
Drawing No.	Drawing Title	Drawing No.	Drawing Title
	<u>Overall Project</u>		<u>Clear Water Pump Station</u>
00-STD-C-06	Transformer Mounted on Meter Cubicle Roof - up tp 1000kVA	09-E-01	Single Line Diagram & Outline of Transmission Pump (A-1) Panel
00-STD-E-01	Electrical Symbols	09-E-02	Single Line Diagram & Outline of Transmission Pump (A-2), (A-4) Panel
00-E-01	Monitoring System Diagram	09-E-03	Single Line Diagram & Outline of Transmission Pump (A-3) Panel
	<u>Raw Water Intake</u>	09-E-04	Clear Water Pump Station - Outline of Local Operation Panel
01-E-01	Intake Single Line Diagram for Power Receiving & Step Down Facility	09-E-05	Clear Water Pump Station - Layout & Wiring Plan
01-E-02	Intake Outline of Power Receiving Facility		<u>Chemical Building</u>
01-E-03	Single Line Diagram & Outline of Raw Water Pump Panel	10-E-01	Chemical Building - Singleline of Diagram & Outline of MCC
01-E-04	Single Line Diagram & Outline of MCC for Intke Facility	10-E-02	Chemical Building - Outline of Local Operation Panel
01-E-05	Outline of Local Operation Panel for Intake Facility	10-E-03	Chemical Building - Layout & Wiring Plan
01-E-06	Intake Standby Generator Process Flow Diagram & Outline		<u>Backwash Water Recovery Facility</u>
01-E-07	Intake Single Line Diagram & Outline of DC Power Source & UPS Equipment	11-E-01	Distribution Chamber & Backwash Water Recovery Facility - Layot & Wiring Plan
01-E-08	Intake Substation & Generator Building Layout & Wiring Plan		<u>Service Reservoirs and Pump Stations</u>
01-E-09	Intake Facility Layout & Wiring Plan		<u>Kahawatta Service Reservoir & Pumping Station</u>
	<u>Overall System of WTP</u>	30-E-04-01	Kahawatta Service Reservoir & Pumping Station - Electrical Facility
04-E-01	Single Line Diagram for Power Receiving & Step Down Facility	30-E-04-02	Kahawatta Service Reservoir & Pumping Station - Layout & Wiring Plan
04-E-02	Outline of Receiving Facility (1/2)		<u>Kondadeniya Pumping Station</u>
04-E-03	Outline of Receiving Facility (2/2)	30-E-10-01	Kondadeniya Pumping Station - Electrical Facility
04-E-04	Standby Generator Proces Flow Diagram & Outline	30-E-10-02	Kondadeniya Pumping Station - Layout & Wiring Plan
04-E-05	Single Line Diagram & Outline of UPS Equipment		<u>Asgiriya Pumping Station</u>
04-E-06	Outline of Monitoring Equipment & PLC Panel	30-E-15-01	Asgiriya Pumping Station - Electrical Facility
04-E-07	WTP - Layout & Wiring Plan	30-E-15-02	Asgiriya Pumping Station - Layout & Wiring Plan
04-E-08	Substation & Generator Room Layout & Wiring Plan		<u>R2 Pumping Station</u>
04-E-09	Monitoring System Layout & Wiring Plan	30-E-18-01	R2 Pumping Station - Electrical Facility
	<u>Flocculation Basins and Sedimentation Basins</u>	30-E-18-02	R2 Pumping Station - Layout & Wiring Plan
06-E-01	Single Line Diagram & Outline of MCC for Backwash Facility		<u>Heerassagala Low Pumping Station & Service Reservoir</u>
06-E-02	Sedimentation Basins - Outline of Local Operation Panelt	30-E-20-01	Heerassagala Low Pumping Station & Service Reservoir - Electrical Facility
06-E-03	Sedimentation Basins -Layout & Wiring Plan	30-E-20-02	Heerassagala Low Pumping Station & Service Reservoir - Layout & Wiring Plan
	<u>Filtration Units</u>		<u>Heerassagala Middle Pumping Station and Service Reservoir</u>
07-E-01	Single Line Diagram & Outline of MCC for Backwash Facility	30-E-21-01	Heerassagala Middle Pumping Station and Service Reservoir - Electrical Layout
07-E-02	Filtration Units - Outline of Local Operation Panel - (1/2)	30-E-21-02	Heerassagala Middle Pumping Station and Service Reservoir - Layout & Wiring Plan
07-E-03	Filtration Units - Outline of Local Operation Panel - (2/2)		<u>Ampitiya Pumping Station</u>
07-E-04	Filtration Units - Layout & Wiring Plan - 1	30-E-24-01	Ampitiya Pumping Station - Electrical Facility
07-E-05	Filtration Units - Layout & Wiring Plan - 2	30-E-24-02	Ampitiya Pumping Station - Layout & Wiring Plan



CONCRETE PIPING



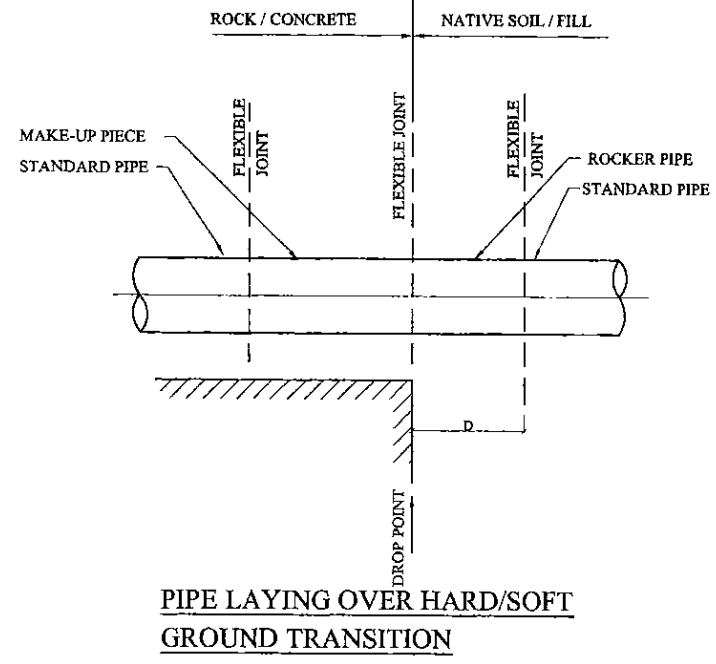
DUCTILE IRON PIPING



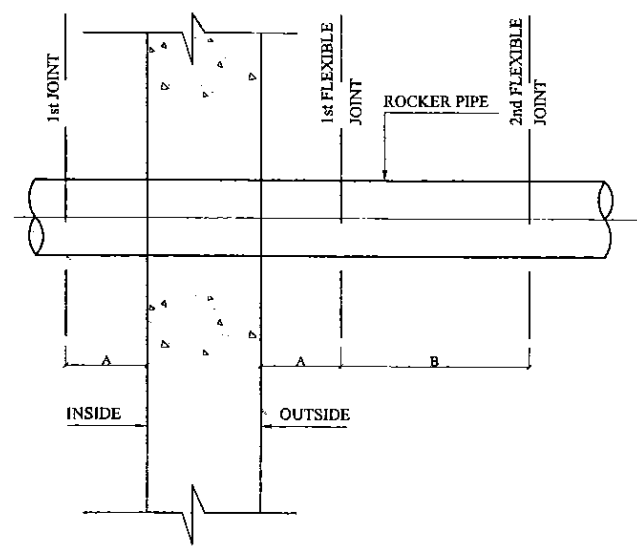
GRP AND uPVC PIPING

PIPE DIAMETER	A	B	C
100	500	1000	300
150	500	1000	300
200	500	1000	300
300	500	1000	300
400	500	1000	300
500	500	1000	300
600	600	1000	500
700	600	1000	500
800	600	1000	500
900	600	1000	500
1000	600	1000	500
1200	600	1200	500

D(max)	SMALLER OF 2m OR 2.0 Ø
D(min)	SMALLER OF 1m OR 1.0 Ø



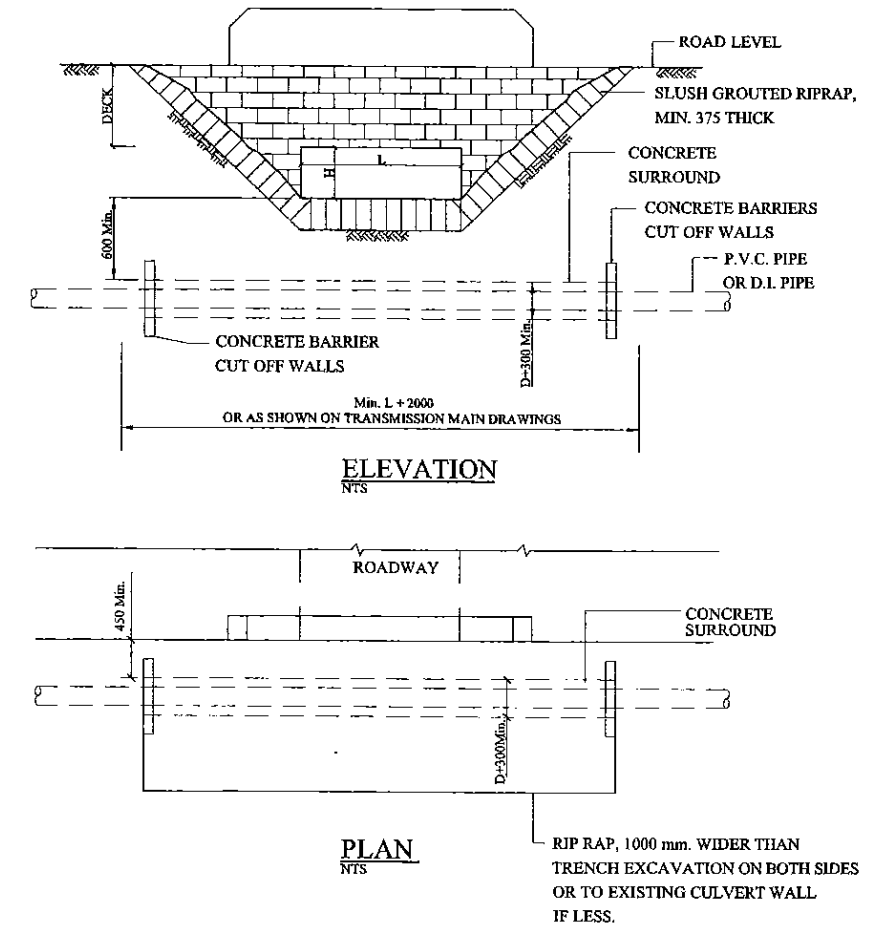
PIPE LAYING OVER HARD/SOFT GROUND TRANSITION



DISTANCE BETWEEN FLEXIBLE JOINT FOR PIPES PASSING THROUGH STRUCTURES

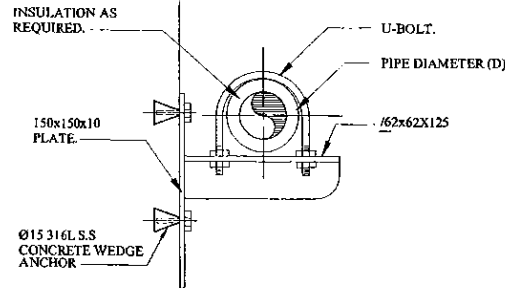
NOTES:

1. LIMITS OF PIPING: THE LIMITS BETWEEN YARD PIPING AND MECHANICAL PROCESS PIPING SHALL BE DEFINED AS THE FIRST JOINT OUTSIDE THE EXTERIOR FACE OF THE STRUCTURE OR AS INDICATED ON THE DRAWINGS. REFER ALSO TO THE CIVIL DETAIL FOR WALL PIPES TO YARD PIPING.
2. REFER TO THE SPECIFICATIONS FOR PIPING MATERIALS REQUIRED FOR A PARTICULAR PROCESS.
3. EXPLANATION OF PIPELINE LABELING:
4. REFER TO DRAWINGS 00-STD-I-01 AND -02 FOR EXPLANATION OF EQUIPMENT SYMBOLS USED FOR MECHANICAL AND P & ID DRAWINGS AND FOR PROCESS ABBREVIATIONS

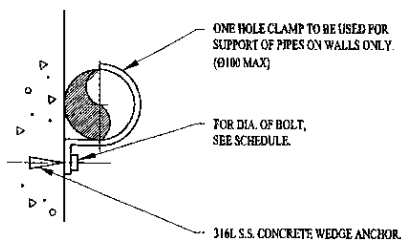


CULVERT CROSSING TYPE-A

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JICA JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: PIPE DETAILS 1								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN: Wannii	PM: (CONSULTANT) Ikuo MIWA	CE: (P&D)	SCALE: Not to Scale
								CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 00-STD-M-01
				DESIGN CHIEF								

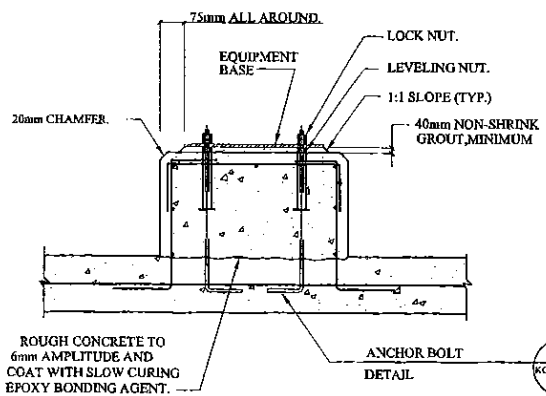


PIPE SUPPORT



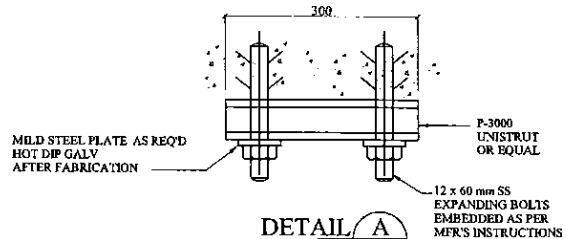
WALL CLAMP DETAIL

PIPE SIZE	BOLT DIA.	PIPE SIZE	BOLT DIA.
Ø10	Ø6	Ø50	Ø15
Ø20	Ø6		
Ø25	Ø6	Ø75	Ø15
Ø30	Ø6		
Ø40	Ø10	Ø100	Ø15

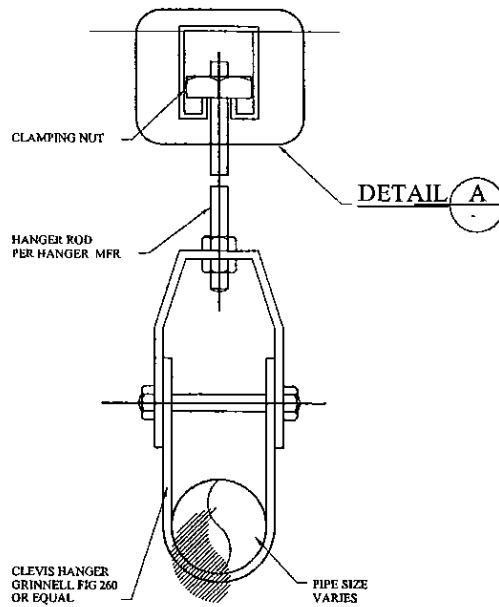


EQUIPMENT BASE DETAIL

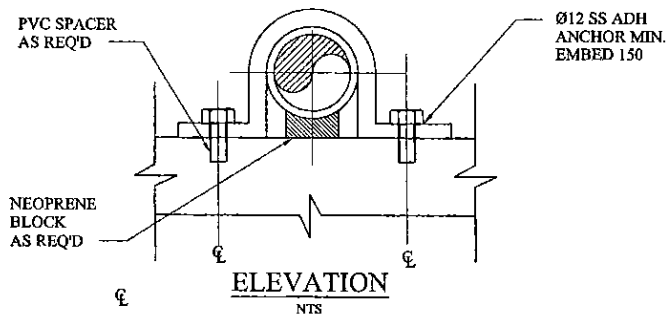
NOTE:
SEE DRAWING KG-S-03 FOR
STRUCTURAL STEEL REQUIREMENTS



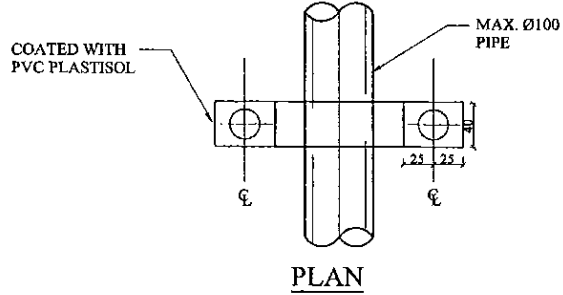
DETAIL A



SURFACE MOUNTED PIPE SUPPORT



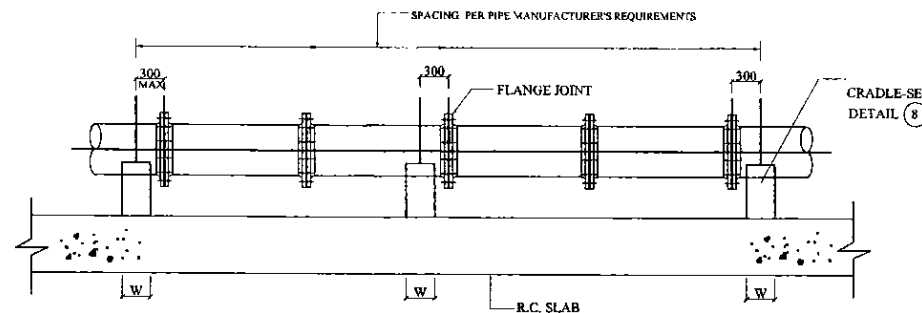
ELEVATION



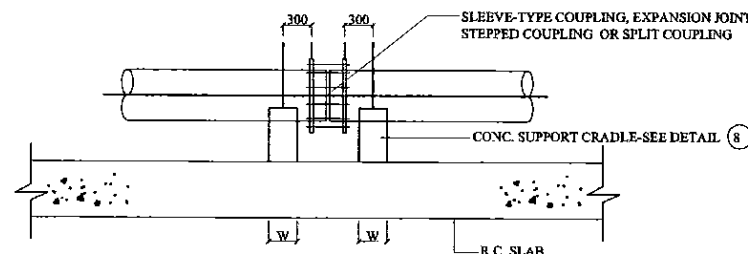
PLAN

NOTES:
IF SUPPORT SUBMERGED OR BELOW TOP OF WALL OF VAULT,
CHANNEL, OR WET WELL, STRAP AND FASTENERS SHALL BE TYPE
316L STAINLESS STEEL.

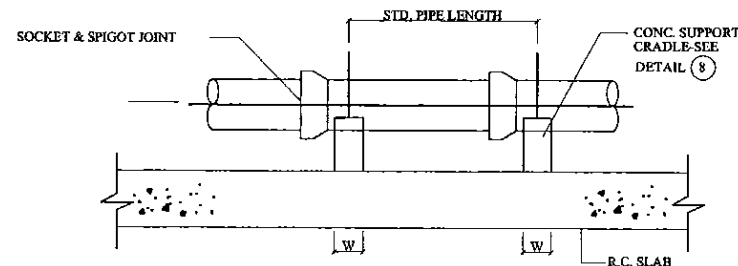
PIPE STRAP DETAIL



DI PIPING WITH FLANGED JOINTS

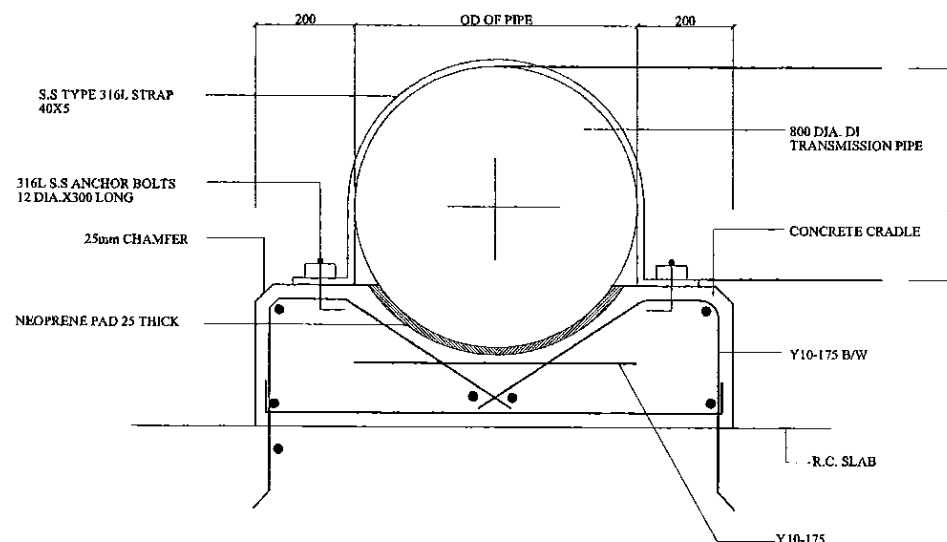


DI PIPING WITH FLEXIBLE JOINTS



DI PIPING WITH PUSH ON JOINTS

PIPE SUPPORT

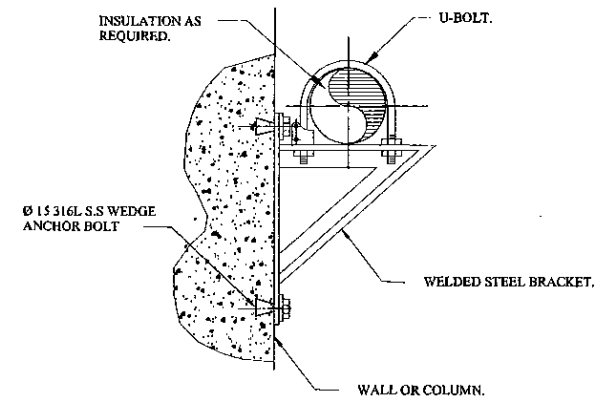


CONCRETE SUPPORT CRADLE DETAIL

NOMINAL PIPE DIAMETER	DIM. 'W'
<Ø 500	200mm
Ø 500 TO Ø 900	300mm
Ø1000 TO Ø1200	400mm
Ø1400 TO Ø1500	500mm
Ø1600	600mm

NOTES:

1. THE CONTRACTOR SHALL SUBMIT DETAILED SHOP DRAWINGS FOR THE PIPE SUPPORT DESIGN FOR ENGINEER'S APPROVAL.
2. PIPE SUPPORTS SHOWN ON THE PLANS AND DETAIL DRAWINGS DO NOT ENTAIL A COMPLETE SUPPORT DESIGN BUT INDICATE A PREFERRED TYPE AND LOCATION FOR SOME SUPPORTS.
3. PIPE SUPPORT TYPE AND SPACING SHALL BE IN ACCORDANCE WITH THE PIPE MANUFACTURER'S REQUIREMENTS AND THE CONTRACT SPECIFICATIONS, AND SHALL SUPERSEDE THE SUPPORT ARRANGEMENTS SHOWN.



ANGLE BRACKET PIPE SUPPORT

PROJECT: **GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT**



JAPAN INTERNATIONAL COOPERATION AGENCY

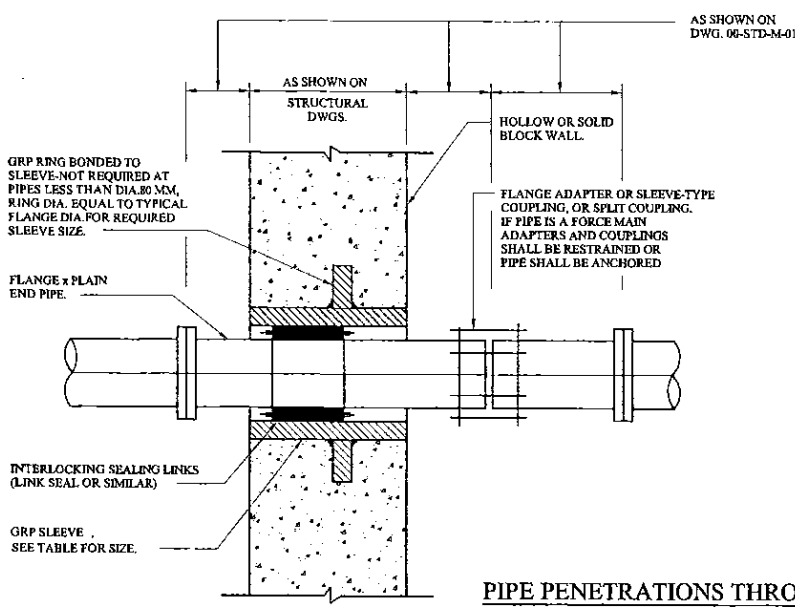
TITLE: **PIPE DETAILS - 2**

CLIENT: **NATIONAL WATER SUPPLY & DRAINAGE BOARD**

CONSULTANTS:
NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

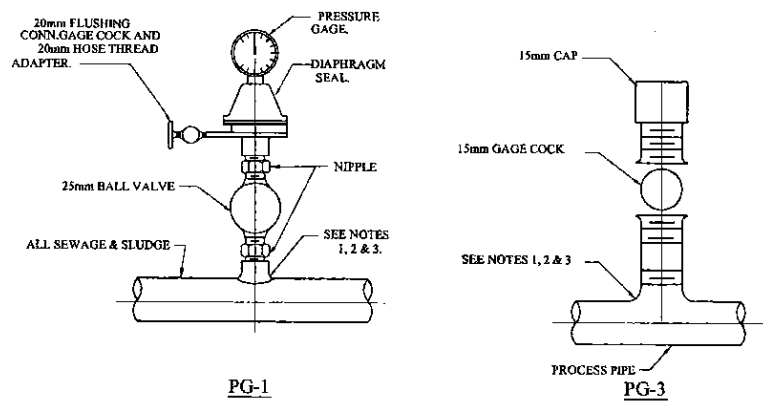
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				CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE:	DRAWING NO.:
				DESIGN CHIEF			31/05/2002	00-STD-M-02

A
B
C
D
E
F
G
H

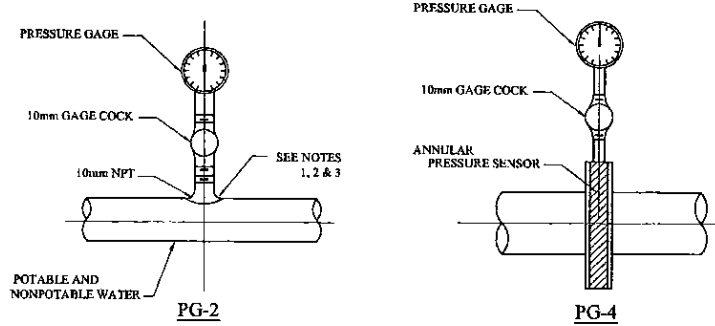


PIPE DIA.	SLEEVE DIA.
20	AS RECOMMENDED
25	BY SEAL MANUFACTURER
40	
50	
75	
80	100
100	150
150	200
250	300
350	400
400	450
450	500
500	600
600	700
700	800
800	900
900	1000
1000	1100
1200	1300

PIPE PENETRATIONS THROUGH INTERIOR WALLS



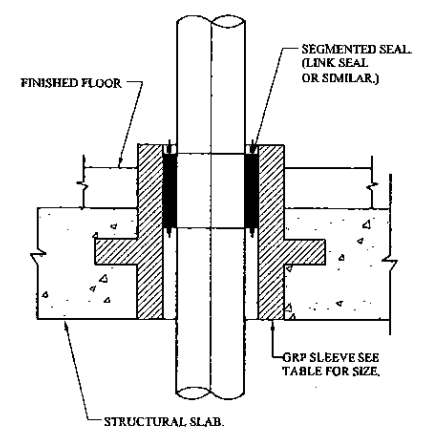
PRESSURE GAGE (PG) AND PRESSURE SWITCH (PSW)



PRESSURE GAUGE

- NOTES:
- 1) FOR STEEL, STAINLESS STEEL & PVC 50mm AND SMALLER, USE A BUSHING IN TEE
 - 2) FOR DI & GRP ALL SIZES, USE PIPE SADDLE W/ BUSHING.
 - 3) FOR STEEL & STAINLESS STEEL PIPES 75mm AND LARGER, & PRESSURE VESSELS, USE THREAD-O-LET OR EQUAL AS SHOWN.
 - 4) DIAPHRAGM SEAL - PRESSURE GAGE ASSEMBLY AND DIAPHRAGM SEAL PRESSURE SWITCH ASSEMBLY TO BE FACTORY ASSEMBLED.
 - 5) ANNULAR TYPE PRESSURE SENSOR SWITCH ASSEMBLY AND ANNULAR TYPE PRESSURE SENSOR PRESSURE ASSEMBLY TO BE FACTORY ASSEMBLED.

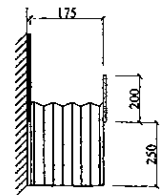
- NOTES:
1. THE CONTRACTOR SHALL SUBMIT DETAILED SHOP DRAWINGS FOR THE PIPE SUPPORT DESIGN FOR ENGINEER'S APPROVAL.
 2. PIPE SUPPORTS SHOWN ON THE PLANS AND DETAIL DRAWINGS DO NOT ENTAIL A COMPLETE SUPPORT DESIGN BUT INDICATE A PREFERRED TYPE AND LOCATION FOR SOME SUPPORTS.
 3. PIPE SUPPORT TYPE AND SPACING SHALL BE IN ACCORDANCE WITH THE PIPE MANUFACTURE'S REQUIREMENTS AND THE CONTRACT SPECIFICATIONS, AND SHALL SUPERSEDE THE SUPPORT ARRANGEMENTS SHOWN.
 4. WHEN INSTALLING WALL OR FLOOR SLEEVE IN LOCATIONS REQUIRING A GAS TIGHT SEAL, THE SEGMENTED SEAL SHOULD BE INSTALLED AT BOTH ENDS OF PIPE SLEEVE.



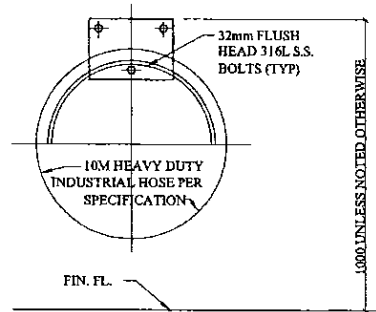
PIPE DIA.	SLEEVE DIA.
20	AS RECOMMENDED
25	BY SEAL MANUFACTURER
40	
50	
75	
80	100
100	150
150	200
250	300
350	400
400	450
450	500
500	600
600	700
700	800
800	900
900	1000
1000	1100
1200	1300

FLOOR SLEEVE

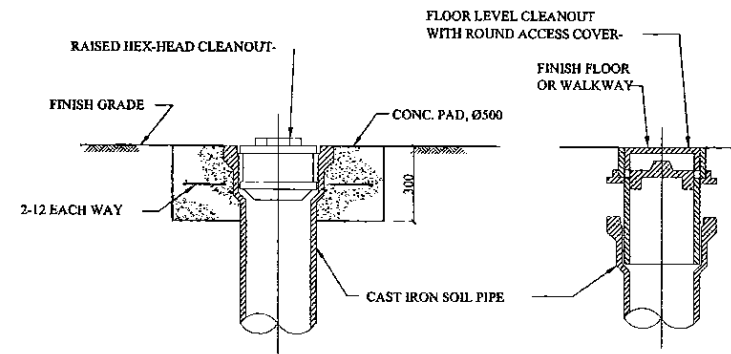
PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JICA JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: PIPE DETAILS - 3								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN: Wannii	PM: (CONSULTANT) Ikuo MIWA	CE: (P&D)	SCALE: Not to Scale
								CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 00-STD-M-03
								DESIGN CHIEF				



- NOTE:**
1. PROVIDE 10M OF FLEXIBLE HOSE WITH EACH HOSE RACK.
 2. PROVIDE STEEL FRAME FOR FREE STANDING HOSE RACK.
 3. PROVIDE HOSE RACK @ EACH HOSE BIB, UNLESS NOTED.
 4. PROVIDE ADJUSTABLE SPRAY NOZZLE FOR EACH HOSE.

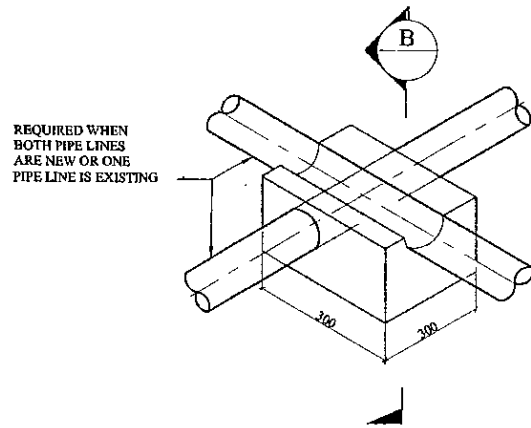


WALL MOUNTED HOSE RACK DETAIL

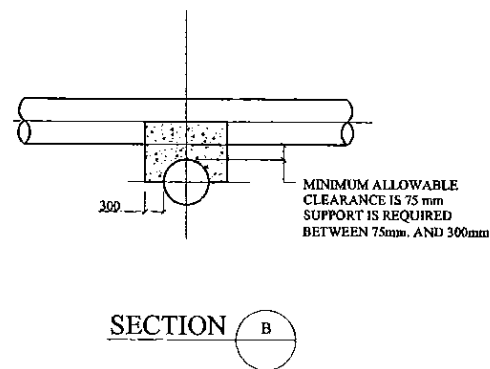


YARD FLOOR OR WALKWAY

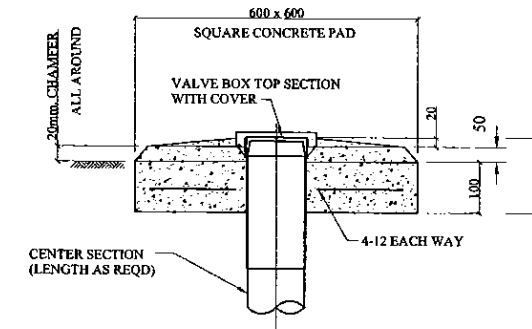
CLEANOUT DETAILS



CONCRETE SUPPORT FOR PIPE CROSSING DETAIL



SECTION B



VALVE BOX PAD DETAIL

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT



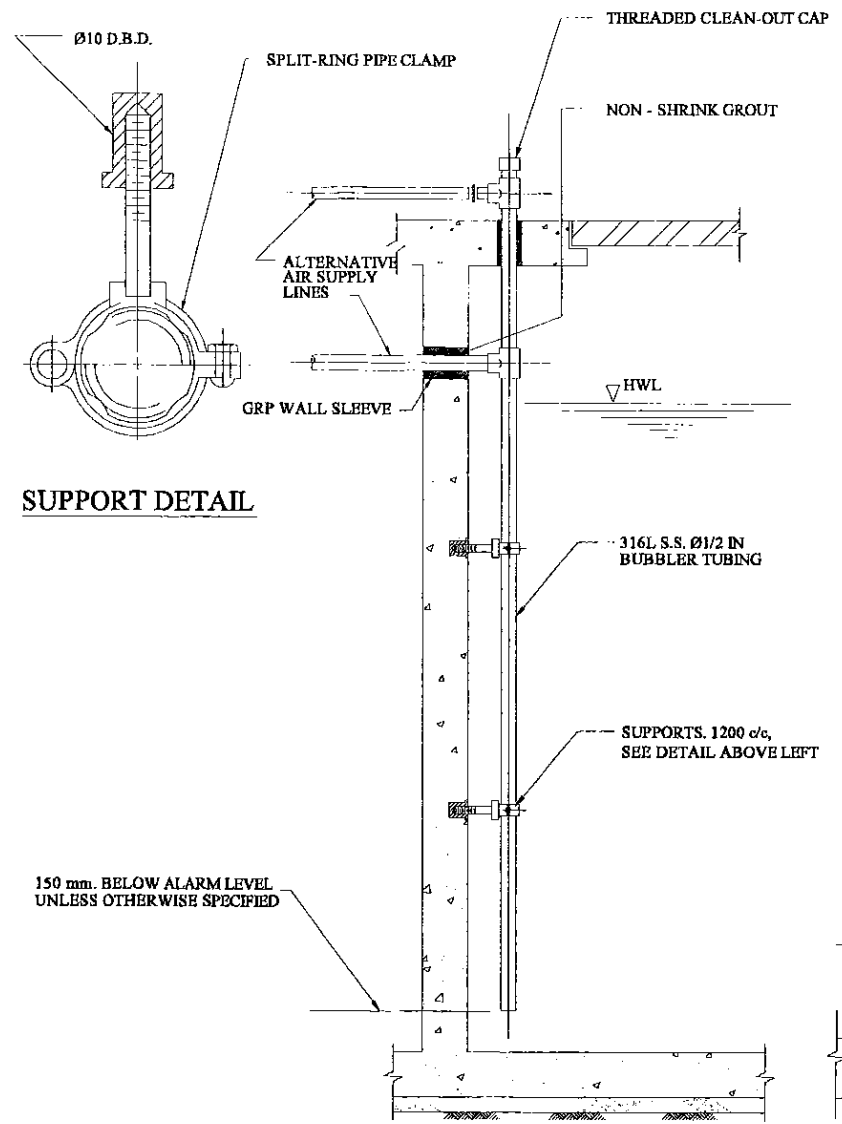
JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: MECHANICAL STANDARD DETAILS -1

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

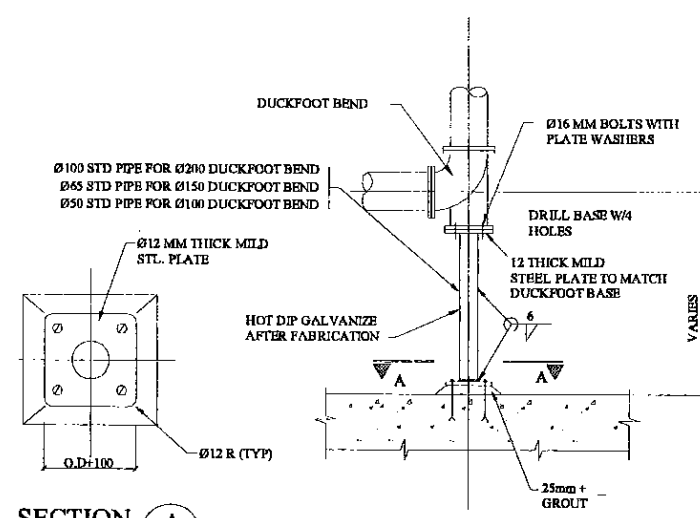
REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	CE: (P&D)	SCALE:
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				DESIGN CHIEF			31/05/2002	00-STD-M-04



NOTES

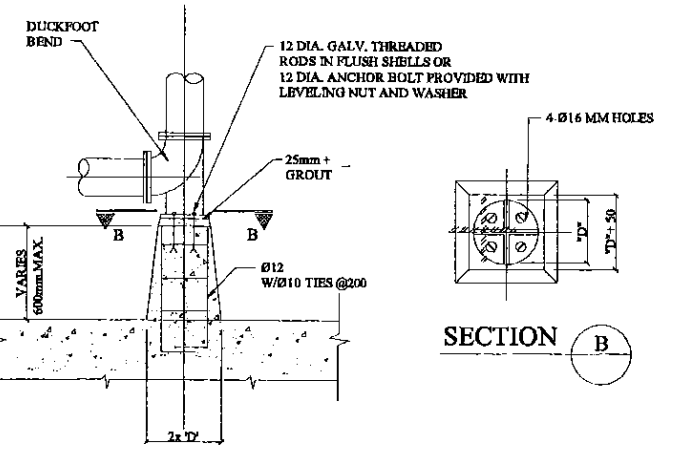
1. FOR BUBBLER AIR SUPPLY ASSEMBLY, SEE MECHANICAL DRAWINGS.
2. WHERE TUBE IS RUN THROUGH GRATING, RATHER THAN TANK SLAB OR WALL, SEALANT NOT REQUIRED.
3. D.B.D. = DEFERRED BOLTING DEVICE.

BUBBLER TUBE INSTALLATION DETAIL



SECTION A

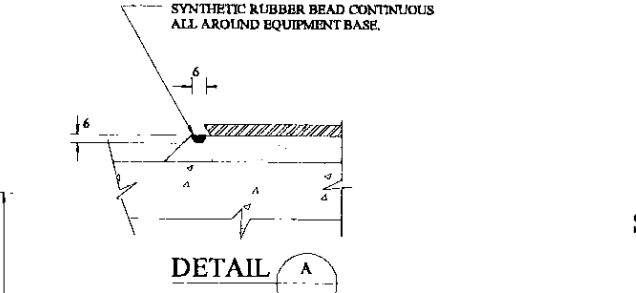
FOR DUCKFOOT BENDS NOT EXCEEDING Ø200



SECTION B

FOR DUCKFOOT BENDS EXCEEDING Ø200

PIPE SUPPORT DETAIL FOR DUCKFOOT BENDS

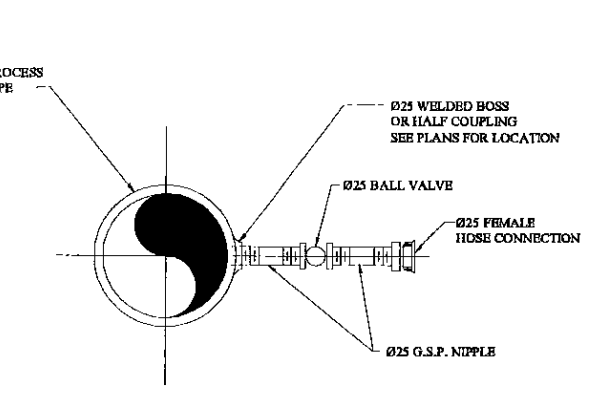
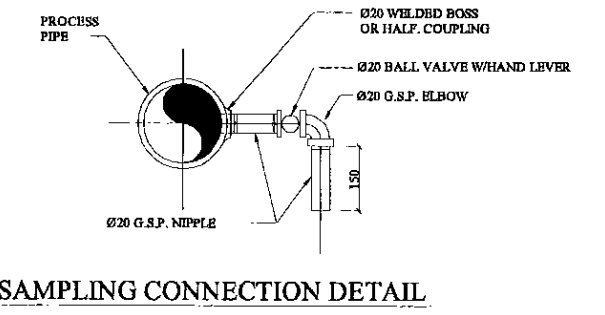


SECTION

ANCHOR BOLT DETAIL

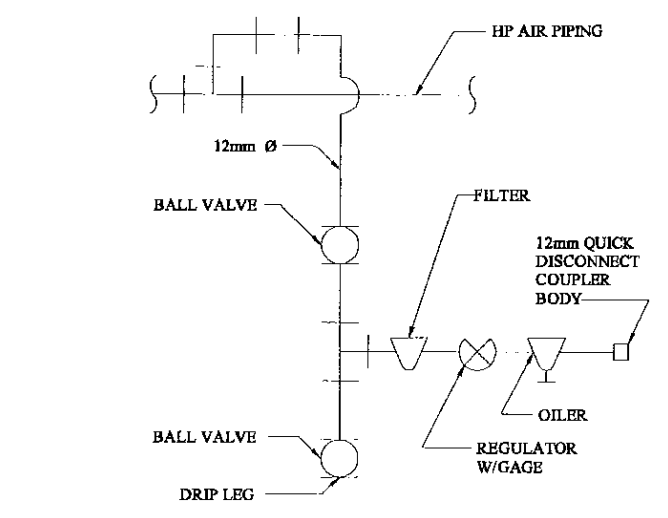
NOTES

ANCHOR BOLT SIZE AND LENGTH AS INDICATED ON THE PLANS. IF SIZE AND LENGTH ARE NOT INDICATED ON THE PLANS, THE ANCHOR BOLT SIZE SHALL BE AS RECOMMENDED BY THE EQUIPMENT MFR.



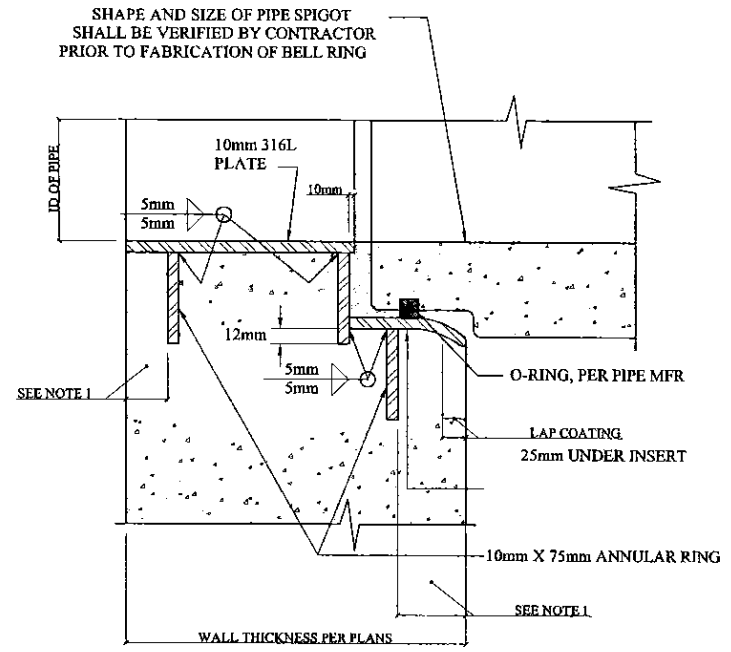
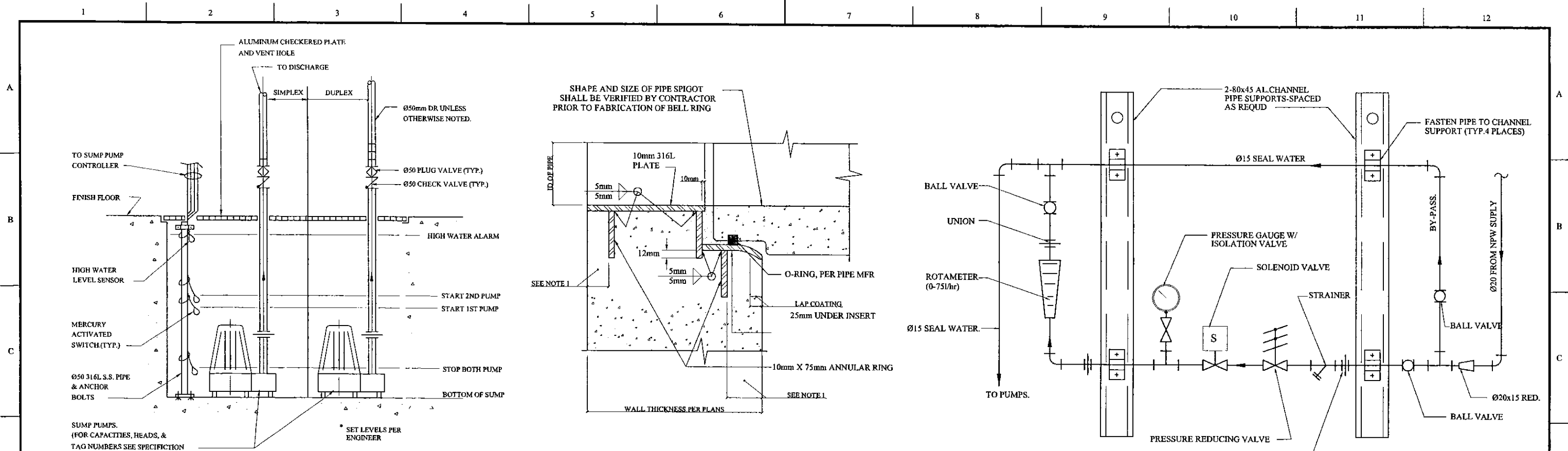
SAMPLING CONNECTION DETAIL

FLUSHING CONNECTION DETAIL



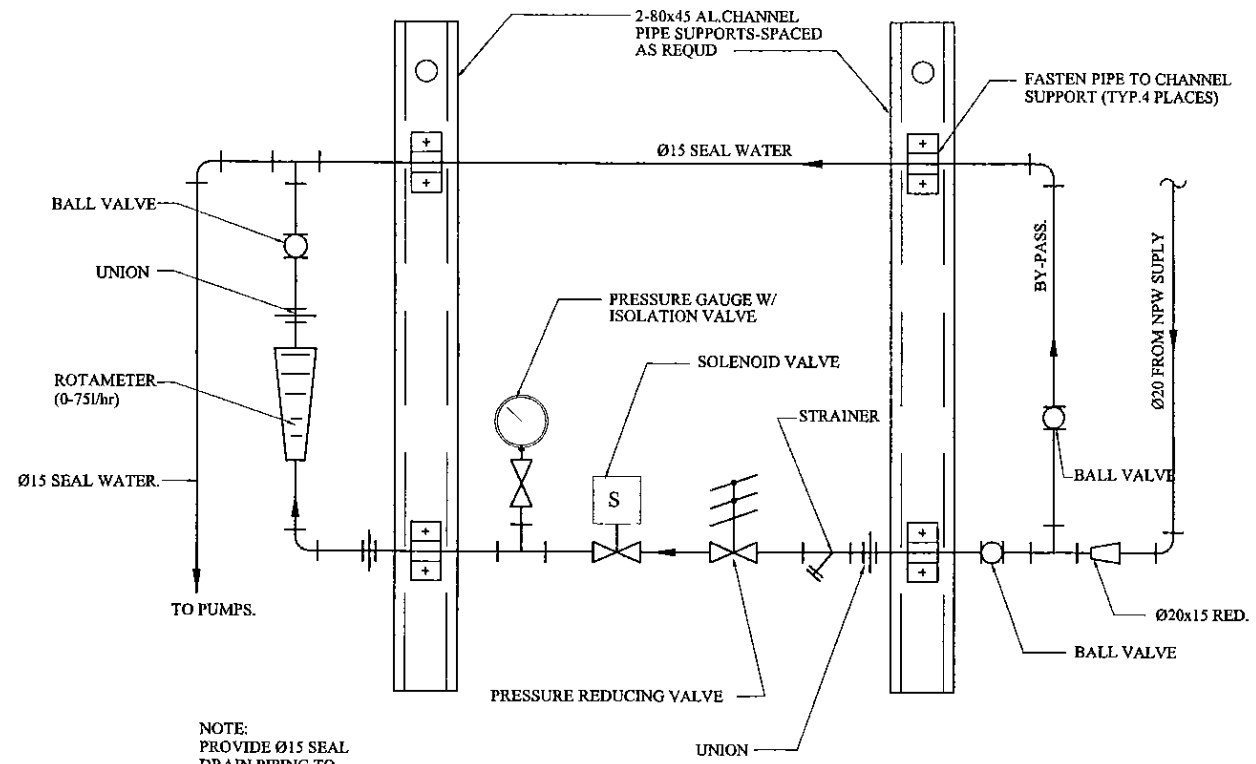
AIR TOOL ASSEMBLY (ATA)

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		TITLE: MECHANICAL STANDARD DETAILS - 2								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN: Wanni	PM: (CONSULTANT) Ikuo MIWA	CE: (P&D)	SCALE: Not to Scale
								CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 00-STD-M-05
								DESIGN CHIEF				



NOTES:
 1. REINFORCING STEEL CLEAR COVER PLUS DIAMETER OF OUTSIDE BARS.
 2. RING SHALL HAVE SPIDER BRACING INSTALLED AT POINT OF MANUFACTURE.

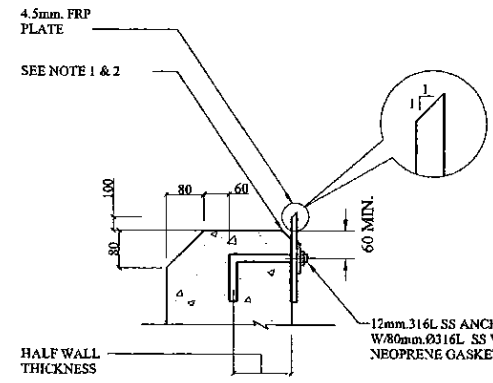
RCP TO R.C. STRUCTURE DETAIL
 NOT TO SCALE



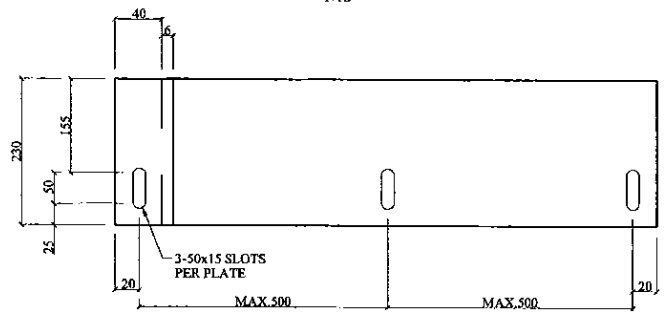
NOTE:
 PROVIDE Ø15 SEAL DRAIN PIPING TO NEAREST FLOOR DRAIN

SEAL WATER PANEL DETAIL
 NOT TO SCALE

SUMP PUMP



SECTION
 NTS



ELEVATION

NOTES:
 1. PROVIDE 20mm CHAMFER AND FILL WITH SILICONE CAULKING
 2. RUN 15mm BEND OF SILICONE CAULKING ALONG BACK EDGE OF WEIR PLATE PRIOR TO INSTALLATION

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JICA JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: MECHANICAL STANDARD DETAILS - 3								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN: Wanni	PM: (CONSULTANT) Ikuo MIWA	CE: (P&D)	SCALE: Not to Scale
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								DESIGN CHIEF				

NOTES:

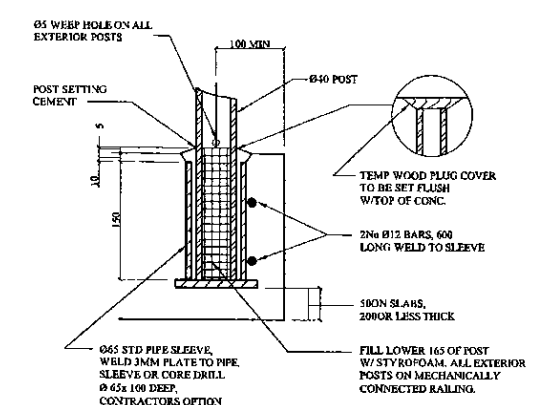
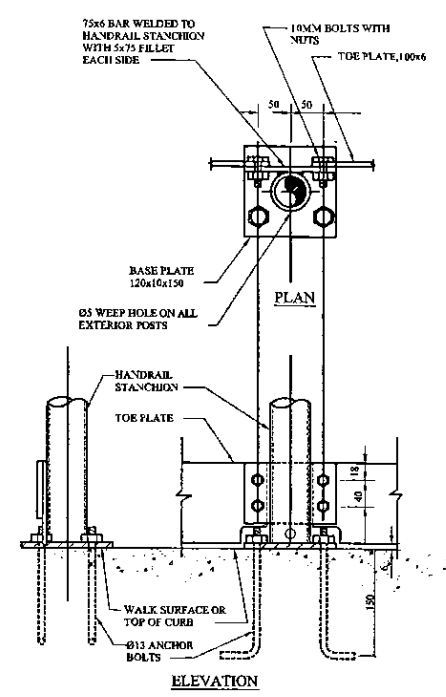
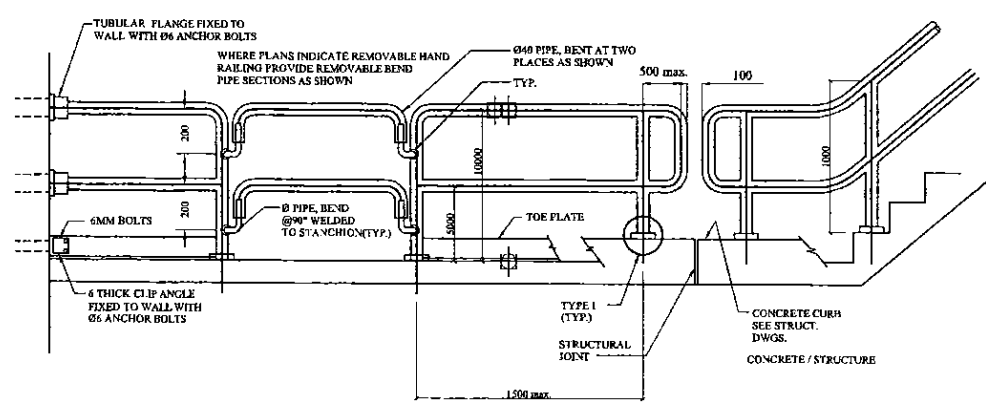
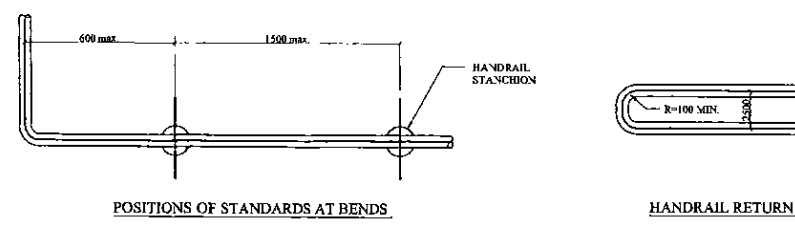
1. ALL RAILINGS SHALL BE FIELD MEASURED BEFORE FABRICATION. NO FIELD CUTTING OR WELDING WILL BE PERMITTED. RAILINGS WHICH DO NOT FIT MOUNTINGS PREVIOUSLY SET IN CONCRETE WILL BE REJECTED
2. HANDRAIL STANCHION FIXING DETAILS SHOWN ARE FOR ALUMINIUM HANDRAILS.
3. FOR ALUMINIUM HANDRAILS ALL BARS, TOE PLATE AND PIPES SHALL BE OF ANODIZED ALUMINIUM AND ALL FASTENERS SHALL BE OF STAINLESS STEEL. ALL ALUMINIUM PARTS SHALL BE ISOLATED FROM CONCRETE SURFACES AND STAINLESS STEEL FASTENERS
4. TOE PLATE IS REQUIRED AT ALL HANDRAILS EXCEPT AT STAIR RUNS AND WHERE THERE IS A CURB

LADDERS:

5. ALL LADDER MATERIAL SHALL BE GALVANISED STEEL UNLESS OTHERWISE INDICATED.

POSTS:

6. ALL GUARD POSTS SHALL BE PAINTED YELLOW
7. ALL MARKER POSTS SHALL BE PAINTED IN ACCORDANCE WITH THE GIVEN TABLE.

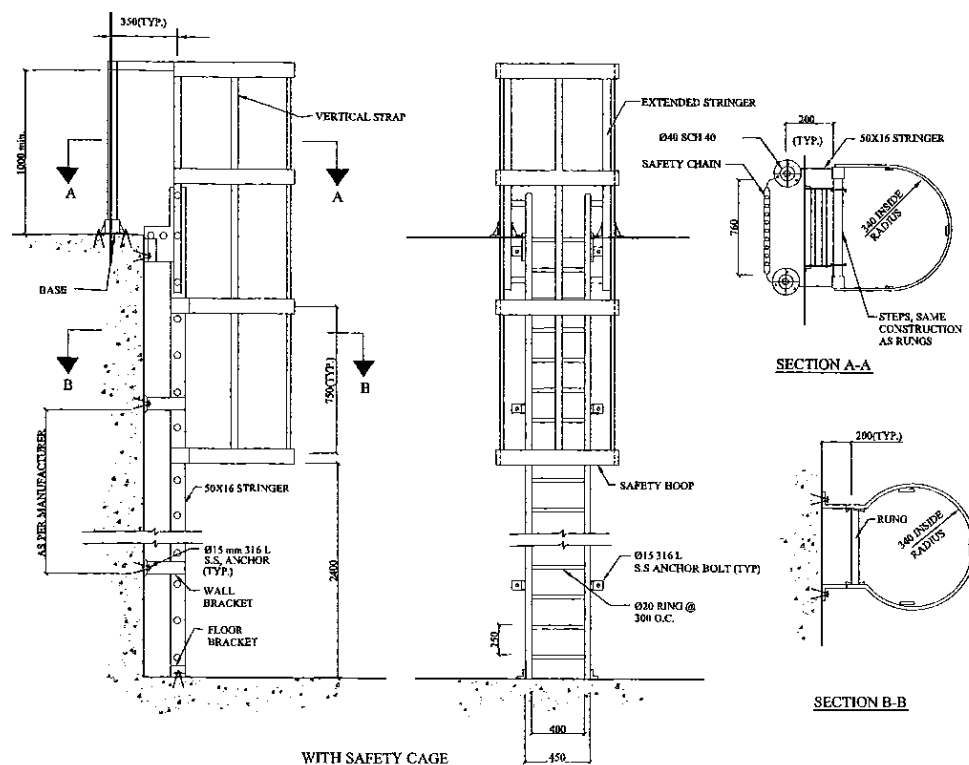


HANDRAIL STANCHION FIXING DETAIL TYPE 2

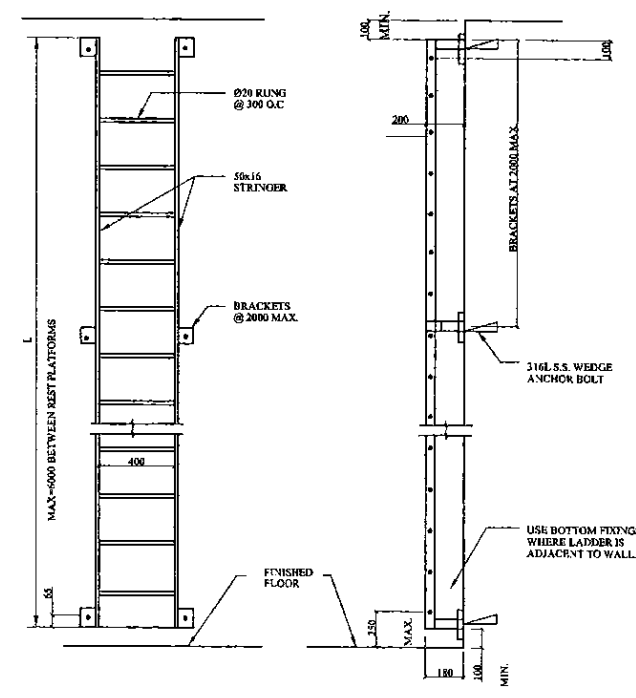
NOTE: ALL HANDRAIL MATERIAL SHALL BE TYPE 316L STAINLESS STEEL.

HAND RAILING DETAILS

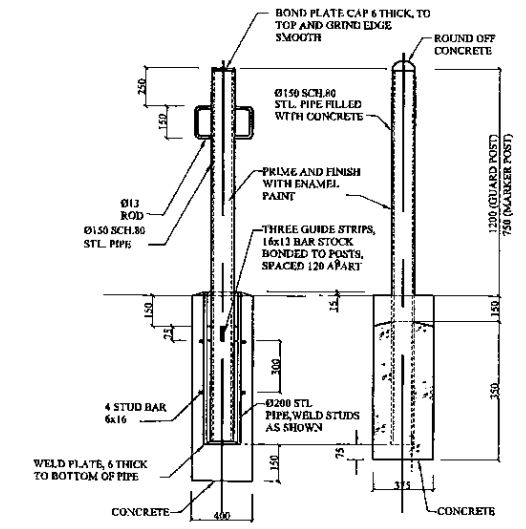
HANDRAIL STANCHION FIXING DETAIL TYPE 1



LADDER DETAILS



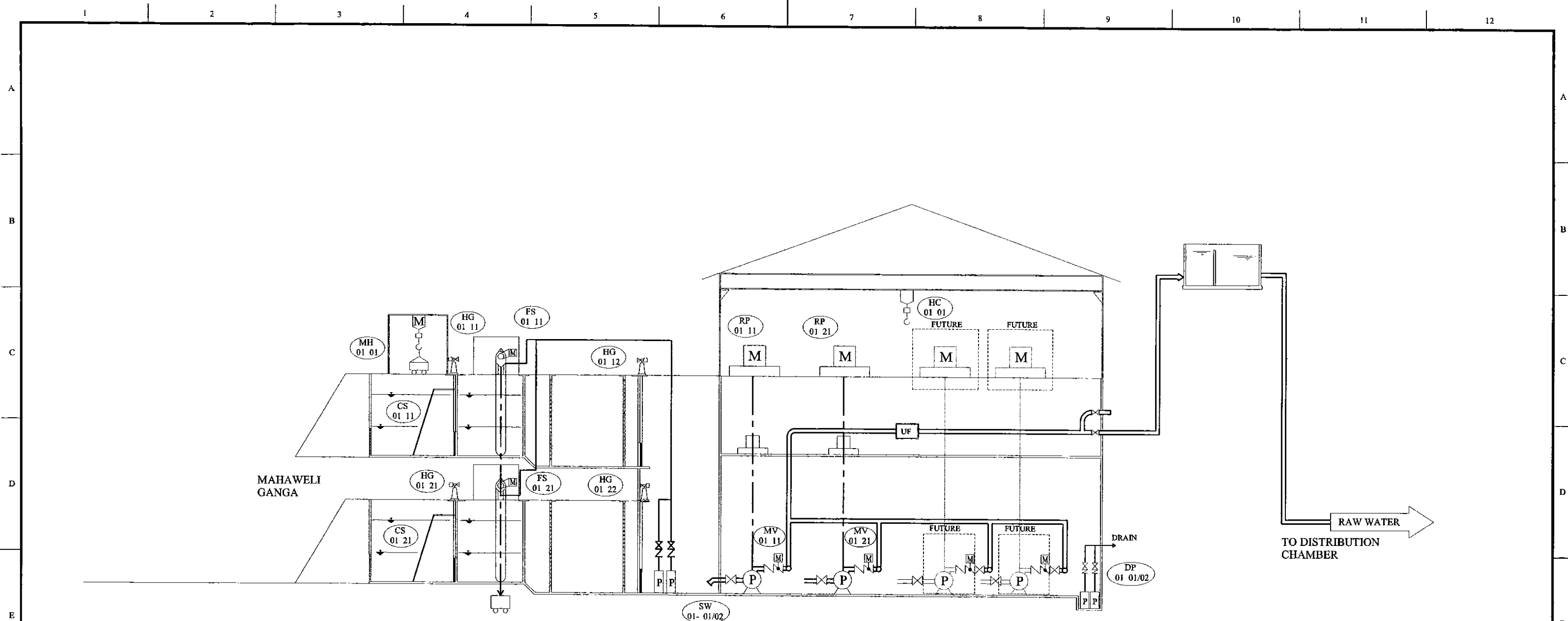
LADDER DETAILS



MARKER POST	COLOUR
SEWERS AND FORCE MAINS	RED
FINAL EFFLUENT	LIGHT GREEN
POTABLE WATER	SEE DWG. KOS-C-02
SIGNAL CABLES	GREEN & WHITE STRIPS
POWER CABLES	RED & WHITE STRIPS

GUARD AND MARKER POST DETAILS

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: MECHANICAL STANDARD DETAILS - 4								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	CE: (P&D)	SCALE:
								Wanni	Ikuo MIWA			1 : 10,000
								DESIGN CHIEF	AGM: (P&D)	DGM: (P&D)	DATE:	DRAWING NO.:
											31/05/2002	00-STD-M-07



01.RAW WATER INTAKE AND BALANCING TANK

01: RAW WATER INTAKE AND BALANCING TANK

TAG NO.	01 CS 11/21	01 MH 01/01	01 HG 11/21	01 FS 11/21	01 SW 01/02
NAME	COARSE SCREEN	SCREENING HOIST	INFLOW GATE	FINE SCREEN	SCREEN WASH PUMP
QTY	2 (0)	1 (0)	2 (0)	2 (0)	2(2)
TYPE	BAR SCREEN	ELECTRICALLY OPERATED	HAND OPERATED SLUICE	MOTORIZED NET SCREEN	SUBMERSIBLE
SPECIFICATION	2.0mW x 5.0mH x 50mm	0.51	1.5mW x 1.5mH, L= 6.2m	2.0mW x 7.0mH x 15mm	0.6m ³ /min x 42.0m
MOTOR OUTPUT(KW)	-	0.8+ 0.4	-	2.2	11
TAG NO.	01 HG 12/22	01 RP 11/21	01 MV 11/21/31	01 DP 01/02	01 HC 01
NAME	OUTFLOW GATE	RAW WATER PUMP	DISCHARGE VALVE	SUMP DRAINAGE PUMP	OVERHEAD HOIST
QTY	2 (0)	2(1)	2(1)	2(1)	1(0)
TYPE	HAND OPERATED SLUICE	VERTICAL CENTRIFUGAL	MOTORIZED BUTTERFLY	SUBMERSIBLE	MANUAL OPERATED
SPECIFICATION	1.5mW x 1.5mH, L=6.2m	26.74m ³ /min x 44.0m	400mmdia	0.1m ³ /min x 15.0m	3.0t x 14mH
MOTOR OUTPUT(KW)	-	250	0.2	1.5	-

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

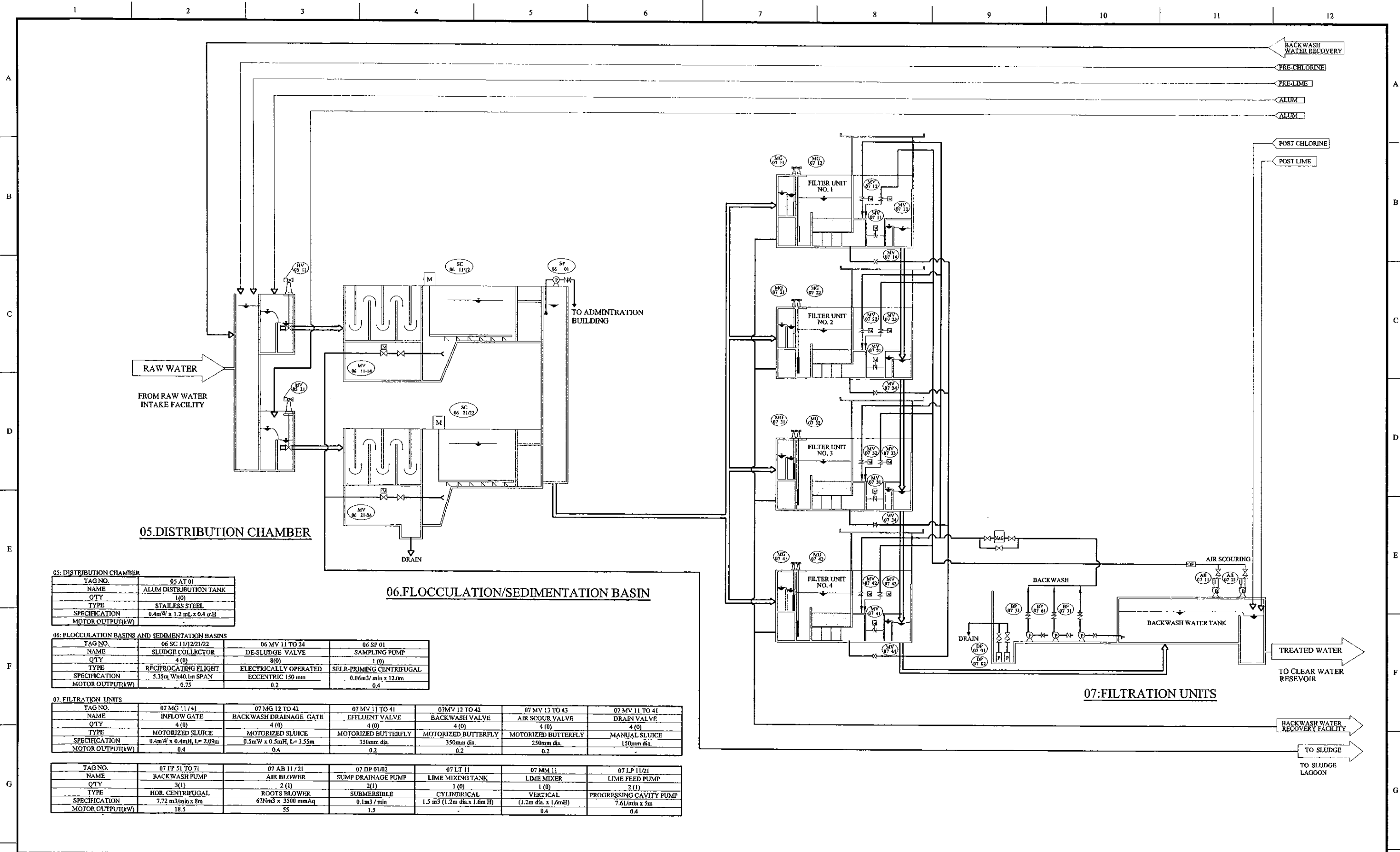
TITLE: PROCESS SCHEMATIC AND FLOW DIAGRAM - NO.1 (RAW WATER INTAKE FACILITY)

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	CE: (P&D)	SCALE:
XX	XXXX	XX	XX	Shinichi OSAKA	lakaml	Ikuo MIWA		Not To Scale
				CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE:	DRAWING NO.:
				DESIGN CHIEF			31/05/2002	00-M-01

DATE: 27/12/2001



05: DISTRIBUTION CHAMBER

TAG NO.	05 AT 01
NAME	ALUM DISTRIBUTION TANK
QTY	1(0)
TYPE	STAINLESS STEEL
SPECIFICATION	0.4mW x 1.2mL x 0.4mH
MOTOR OUTPUT(KW)	

06:FLOCCULATION/SEDIMENTATION BASIN

06: FLOCCULATION BASINS AND SEDIMENTATION BASINS

TAG NO.	06 SC 11/21/22	06 MV 11 TO 24	06 SP 01
NAME	SLUDGE COLLECTOR	DE-SLUDGE VALVE	SAMPLING PUMP
QTY	4 (0)	8 (0)	1 (0)
TYPE	RECIPROCATING FLIGHT	ELECTRICALLY OPERATED	SELF-PRIMING CENTRIFUGAL
SPECIFICATION	5.35m Wx40.1m SPAN	ECCENTRIC 150 mm	0.06m ³ /min x 12.0m
MOTOR OUTPUT(KW)	0.75	0.2	0.4

07: FILTRATION UNITS

TAG NO.	07 MG 11 / 41	07 MG 12 TO 42	07 MV 11 TO 41	07 MV 12 TO 42	07 MV 13 TO 43	07 MV 11 TO 41
NAME	INFLOW GATE	BACKWASH DRAINAGE GATE	EFFLUENT VALVE	BACKWASH VALVE	AIR SCOUR VALVE	DRAIN VALVE
QTY	4 (0)	4 (0)	4 (0)	4 (0)	4 (0)	4 (0)
TYPE	MOTORIZED SLUICE	MOTORIZED SLUICE	MOTORIZED BUTTERFLY	MOTORIZED BUTTERFLY	MOTORIZED BUTTERFLY	MANUAL SLUICE
SPECIFICATION	0.4mW x 0.4mH, L= 2.09m	0.5mW x 0.5mH, L= 3.55m	350mm dia.	350mm dia.	250mm dia.	150mm dia.
MOTOR OUTPUT(KW)	0.4	0.4	0.2	0.2	0.2	-

TAG NO.	07 FP 51 TO 71	07 AB 11 / 21	07 DP 01/02	07 LT 11	07 MM 11	07 LP 11/21
NAME	BACKWASH PUMP	AIR BLOWER	SUMP DRAINAGE PUMP	LIME MIXING TANK	LIME MIXER	LIME FEED PUMP
QTY	3(1)	2(1)	2(1)	1 (0)	1 (0)	2(1)
TYPE	HOR. CENTRIFUGAL	ROOTS BLOWER	SUBMERSIBLE	CYLINDRICAL	VERTICAL	PROGRESSING CAVITY PUMP
SPECIFICATION	7.72 m ³ /min x 8m	62Nm ³ x 3500 mmAq	0.1m ³ / min	1.5 m ³ (1.2m dia. x 1.6m H)	(1.2m dia. x 1.6mH)	7.6l/min x 5m
MOTOR OUTPUT(KW)	18.5	55	1.5	-	0.4	0.4

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT



JAPAN INTERNATIONAL COOPERATION AGENCY

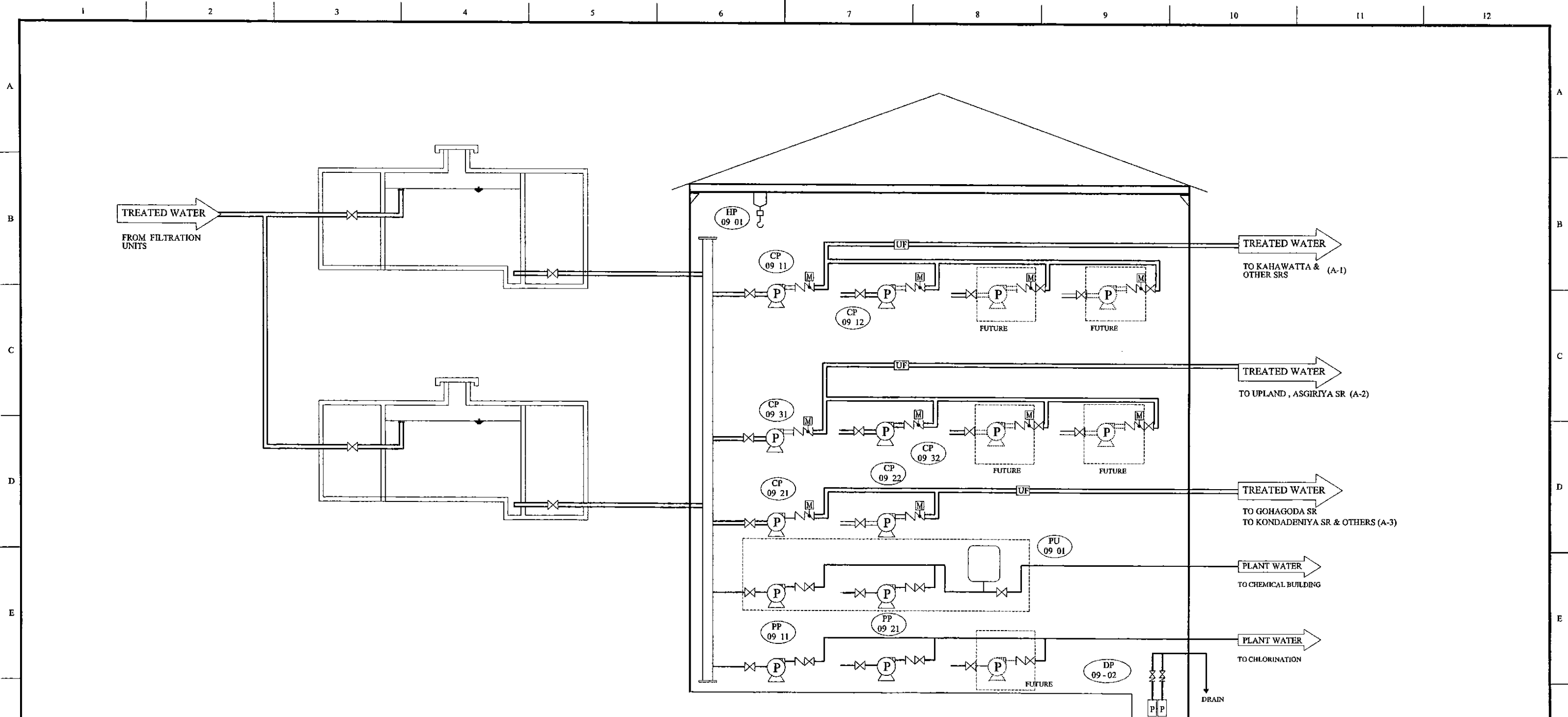
TITLE: PROCESS SCHEMATIC AND FLOW DIAGRAM - NO.2 (SEDIMENTATION AND FILTRATION FACILITY)

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	CE: (P&D)	SCALE:
XX	XXXX	XX	XX	Shinichi OSAKA	Wanni	Ikuo MIWA		1:100
				CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE:	DRAWING NO.:
				DESIGN CHIEF			31/05/2002	00-M-02

DATE: 27/12/2001 W:am



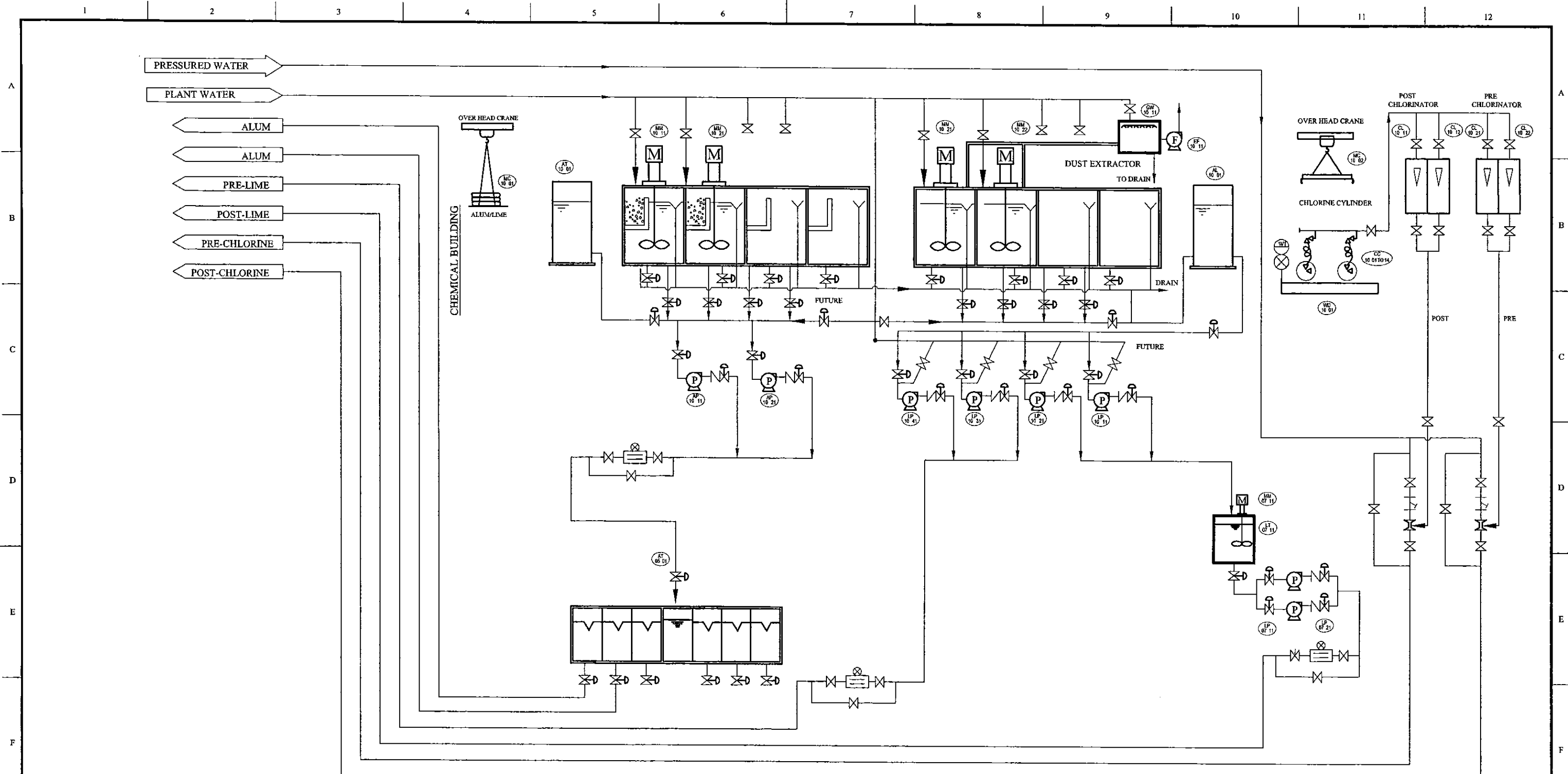
CLEAR WATER PUMP STATION

09: CLEAR WATER PUMP STATION

TAG NO.	09 CP 11/12	09 CP 21/22	09 CP 31/32	09 MV 11/12	09 MV 21/22
NAME	TRANSMISSION PUMP(A-1)	TRANSMISSION PUMP(A-2)	TRANSMISSION PUMP(A-3)	DISCHARGE VALVE (A-1)	DISCHARGE VALVE (A-2)
QTY	2(1)	2(1)	2(1)	2(1)	2(1)
TYPE	HORIZONTAL CENTRIFUGAL	HORIZONTAL MULTI-STAGE	HORIZONTAL CENTRIFUGAL	MOTORIZED BUTTERFLY	MOTORIZED BUTTERFLY
SPECIFICATION	11.83m ³ /min x 137m	4.08m ³ /min x 104m	10.24m ³ /min x 102m	300mmdia	150mmdia
MOTOR OUTPUT(KW)	450	110	250	0.2	0.2

TAG NO.	09 DP 21/22	09 DP 01/02	09 PU 01	09 PP 11/21/31	09 HC 01
NAME	DISCHARGE VALVE (A-3)	SUMP DRAINAGE PUMP	PLANT WATER SUPPLY UNITE	CHLORINATION BOOSTER PUMP	OVERHEAD CRANE
QTY	2(1)	2(1)	1(0)	2(1)	1(0)
TYPE	MOTORIZED BUTTERFLY	SUBMERSIBLE	WATER SUPPLY UNITE	HORIZONTAL CENTRIFUGAL	MANUAL OPERATED
SPECIFICATION	300mmdia	0.1 m ³ / min x 12.0	1.6m ³ / min x 30m	0.26 m ³ / min x 45.0m	7.5t x 9.0 mW
MOTOR OUTPUT(KW)	0.2	1.5	7.5 x 2	5.5	

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD	JAPAN INTERNATIONAL COOPERATION AGENCY CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN	TITLE: PROCESS SCHEMATIC AND FLOW DIAGRAM - NO.3 (CLEAR WATER PUMP FACILITY)																																				
DATE: 27/12/2001		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>REV.</th> <th>DESCRIPTION</th> <th>DATE</th> <th>SIGN.</th> <th>DESIGNED:</th> <th>DRAWN:</th> <th>PM: (CONSULTANT)</th> <th>CE: (P&D)</th> <th>SCALE:</th> </tr> <tr> <td>XX</td> <td>XXXX</td> <td>XX</td> <td>XX</td> <td>Shinichi OSAKA</td> <td>lakmal</td> <td>Ikuo MIWA</td> <td></td> <td>Not To Scale</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>CHECKED:</td> <td>AGM: (P&D)</td> <td>DGM: (P&D)</td> <td>DATE:</td> <td>DRAWING NO.:</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>DESIGN CHIEF</td> <td></td> <td></td> <td>31/05/2002</td> <td>00-M-03</td> </tr> </table>	REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	CE: (P&D)	SCALE:	XX	XXXX	XX	XX	Shinichi OSAKA	lakmal	Ikuo MIWA		Not To Scale					CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE:	DRAWING NO.:					DESIGN CHIEF			31/05/2002	00-M-03
REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	CE: (P&D)	SCALE:																														
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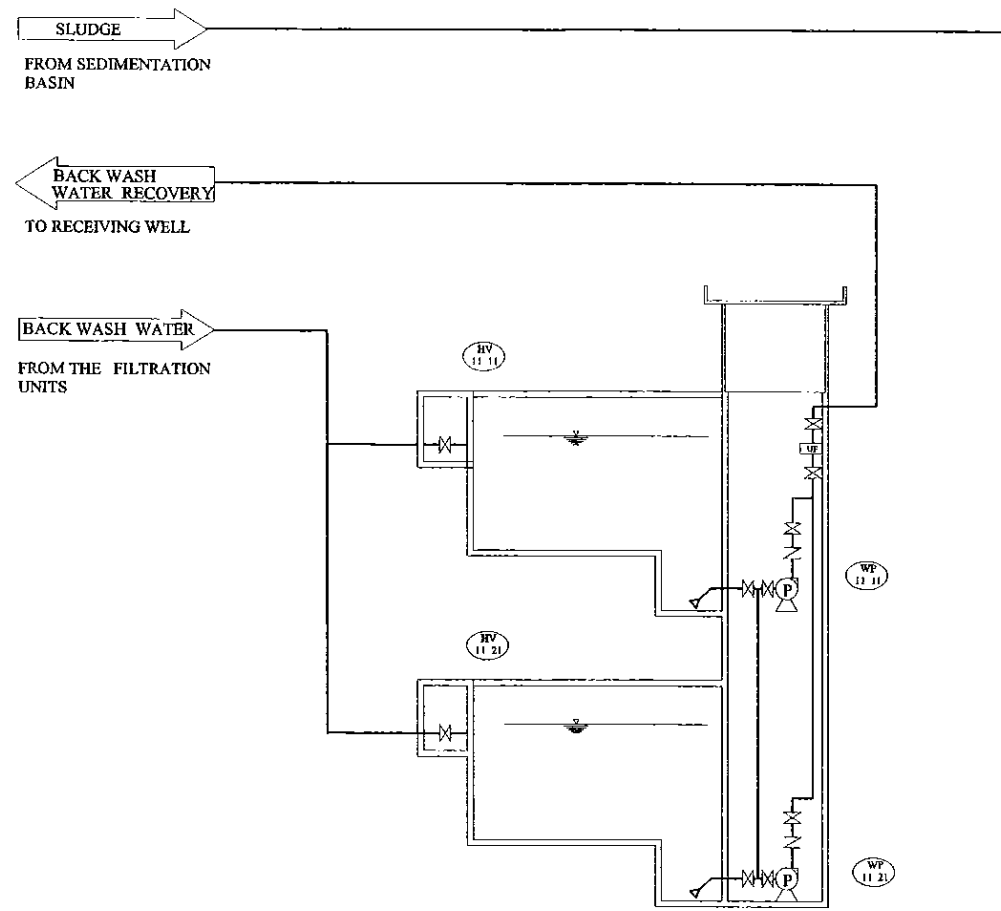


ALUM DOSING SYSTEM				LIME DOSING SYSTEM						
TAG NO	10 MM 11/21	10 AT 01	10 AP 11/21	10 MM 51/61	10 LT 01	10 LP 11/21	10 LP 31/41	10 EF 11	10 GW 11	10 GW 11
NAME	ALUM MIXER	ALUM LEVEL TANK	ALUM PUMP	LIME MIXER	LIME LEVEL TANK	LIME PUMP	LIME FEED PUMP	LIME DUST EXTRACTION FAN	LIME DUST EXTRACTION TANK	CHEMICAL CRANE
Q'TY	2(0)	1(0)	2(1)	2(0)	1(0)	2(1)	2(1)	1(0)	1(0)	1(0)
TYPE	VERTICAL	CYLINDRICAL	PROGRESSING CAVITY PUMP	VERTICAL	CYLINDRICAL	RUBBER LINED CENTRIFUGAL	PROGRESSING CAVITY PUMP	MULTIBLADE FAN	WATER SPRAY	MOTORIZED WITH TROLLEY
SPECIFICATION	2.0 m x 2.0 m x 2.0 mH	500 mm dia	12 l / min x 10 m	2.0 m x 2.0 m x 2.0 mH	500 mm dia	0.2 m ³ / min x 10 m	12 l / min x 10 m	10m ³ min x 50 mm Aq	0.4mW x 1.8mL x 0.4mH	2.0 t
MOTOR OUTPUT(KW)	1.5	-	0.4	2.2	-	5.5	0.4	0.75	-	1.1 + 0.4

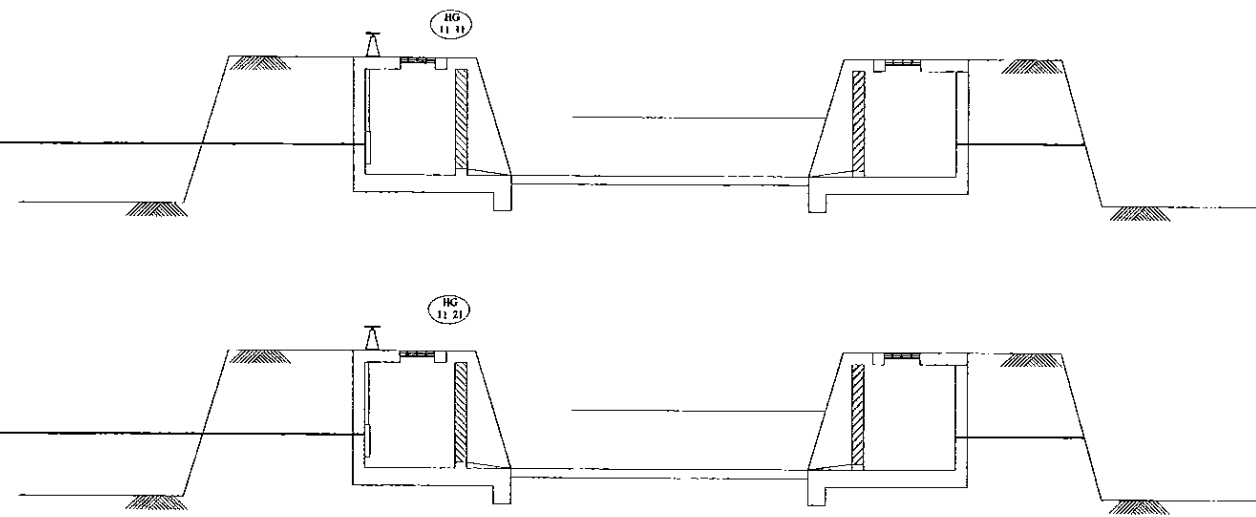
CHLORINATION SYSTEM					
TAG NO	10 CC 01 to 14	10 WD 01	10 CL 11/12	10 CL 21/22	10 MC 02
NAME	CHLORINE CONTAINER	WEIGHING SCALE	CHLORINATOR - PRE	CHLORINATOR - POST	CHLORINE CRANE
Q'TY	2(12)	2(0)	1(1)	1(1)	1(0)
TYPE	STEEL CONTAINER	LOAD CELL	SELF-STAND VACUUM	SELF-STAND VACUUM	MOTORIZED WITH TROLLEY
SPECIFICATION	1.0 t	4.0 t	12Kg / hr	5Kg / hr	2.0 t
MOTOR OUTPUT(KW)	-	-	0.025	0.025	1.1 + 0.4

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD	JAPAN INTERNATIONAL COOPERATION AGENCY CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN	TITLE: PROCESS SCHEMATIC AND PROCESS DIAGRAM NO.04 (CHEMICAL DOSING FACILITY)																
		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>REV.</th> <th>DESCRIPTION</th> <th>DATE</th> <th>SIGN.</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	REV.	DESCRIPTION	DATE	SIGN.												
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		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>DESIGNED: Shimichi OSAKA</td> <td>DRAWN: Wanni</td> <td>PM: (CONSULTANT) Ikuo MIWA</td> <td>CE: (P&D)</td> <td>SCALE: Not To Scale</td> </tr> <tr> <td>CHECKED: DESIGN CHIEF</td> <td>AGM: (P&D)</td> <td>DGM: (P&D)</td> <td>DATE: 31/05/2002</td> <td>DRAWING NO.: 00-M-04</td> </tr> </table>	DESIGNED: Shimichi OSAKA	DRAWN: Wanni	PM: (CONSULTANT) Ikuo MIWA	CE: (P&D)	SCALE: Not To Scale	CHECKED: DESIGN CHIEF	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 00-M-04						
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CHECKED: DESIGN CHIEF	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 00-M-04														

DATE: 27/10/2001 17:43:00



11. BACKWASH WATER RECOVERY FACILITY



12. SLUDGE LAGOONS

11- BACKWASH RECOVERY FACILITY

TAG NO.	11 HV (11/21)	11 WP (11/21)
NAME	RECYCLE INLET VALVE	BACKWASH RECOVERY PUMP
QTY	2(0)	1(1)
TYPE	MANUAL SLUICE	HORIZONTAL SLURRY
SPECIFICATION	700mmdia	4.45m ³ / min x 1.5m
MOTOR OUTPUT(kw)	-	30

12- SLUDGE LAGOONS

TAG NO.	12 HG (11 / 21)
NAME	SLUDGE LAGOON INLET VALVE
QTY	2(0)
TYPE	MANUAL SLUICE
SPECIFICATION	450mmdia , L= 1.4m
MOTOR OUTPUT(kw)	-

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT



JAPAN INTERNATIONAL COOPERATION AGENCY

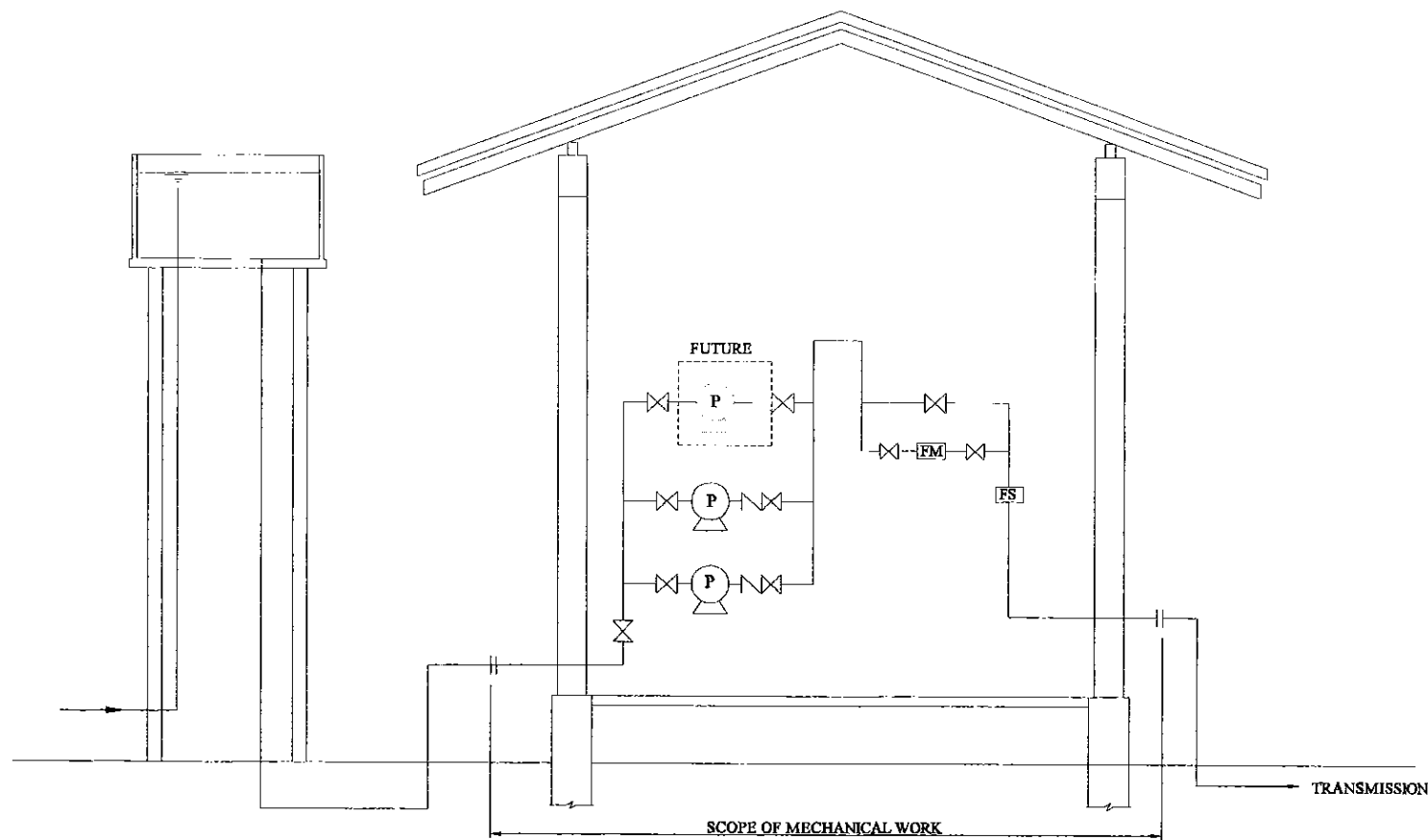
TITLE: PROCESS SCHEMATIC AND FLOW DIAGRAM - NO. 05 (BACKWASH WATER AND SLUDGE FACILITY)

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

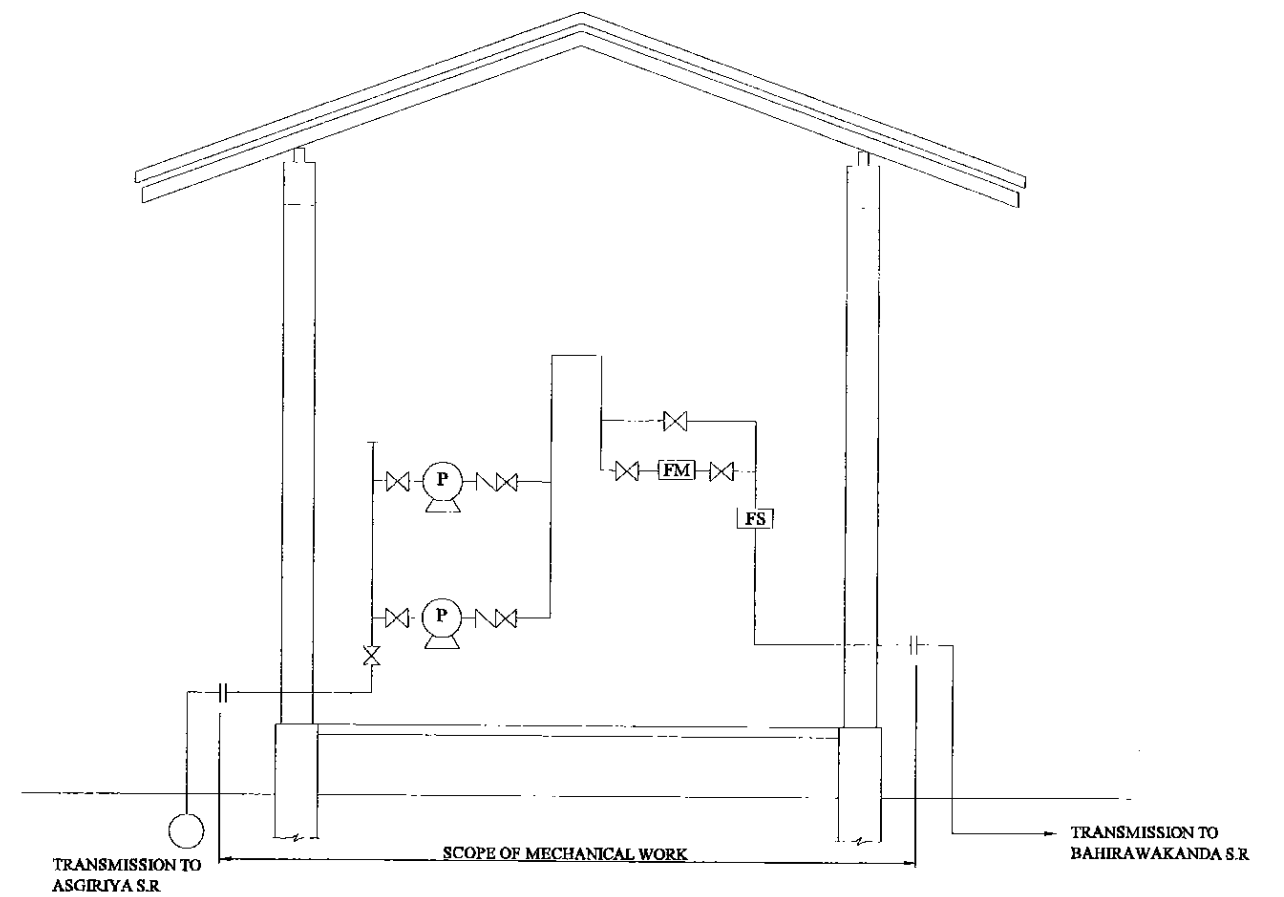
CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	CE: (P&D)	SCALE:
XX	XXXX	XX	XX	Shinichi OSAKA	lakmal	Ikuo MIWA		Scale: 1:100
				CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE:	DRAWING NO.:
				DESIGN CHIEF			31/05/2002	00-M-05

DATE: 27/12/2001



KAHAWATTA BOOSTER PUMP STATION(TYPICAL)



ASGIRIYA IN-LINE BOOSTER PUMP STATION

	304-KAWATTA(E)	310-KONDADINIYA(H)
TAG NO.	304 BP 11/21	310 BP 11/21
NAME	BOOSTER PUMP	BOOSTER PUMP
QTY	2(1)	2(1)
TYPE	HORIZONTAL CENTRIFUGAL	HORIZONTAL CENTRIFUGAL
SPECIFICATION	2.94m ³ /min x 64m	1.11m ³ /min x 64m
MOTOR OUTPUT(kW)	55	30

	315-ASGIRIYA(G)
TAG NO.	315 BP 11/21
NAME	BOOSTER PUMP
QTY	2(1)
TYPE	HORIZONTAL CENTRIFUGAL
SPECIFICATION	1.58m ³ /min x 68m
MOTOR OUTPUT(kW)	30

	318-R2(F)	320-HEERASAGALA LOW(R)	321-HEERASAGALA MIDDLE(C)
TAG NO.	318 BP 11/21	320 BP 11/21	321 BP 11/21
NAME	BOOSTER PUMP	BOOSTER PUMP	BOOSTER PUMP
QTY	2(1)	2(1)	2(1)
TYPE	HORIZONTAL CENTRIFUGAL	HORIZONTAL CENTRIFUGAL	HORIZONTAL CENTRIFUGAL
SPECIFICATION	1.36m ³ /min x 102m	1.90m ³ /min x 68m	0.49m ³ /min x 77m
MOTOR OUTPUT(kW)	55	37	18.5

	324-AMPITIYA(D)	324 BP 11/21	324 BP 11/21
TAG NO.	324 BP 11/21	324 BP 11/21	324 BP 11/21
NAME	BOOSTER PUMP(D 1)	BOOSTER PUMP(D 2)	BOOSTER PUMP(D 3)
QTY	2(1)	2(1)	2(1)
TYPE	HORIZONTAL CENTRIFUGAL	HORIZONTAL CENTRIFUGAL	HORIZONTAL CENTRIFUGAL
SPECIFICATION	0.83m ³ /min x 45m	0.68m ³ /min x 146m	0.49m ³ /min x 73m
MOTOR OUTPUT(kW)	11	37	37

PROJECT: **GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT**



JAPAN INTERNATIONAL COOPERATION AGENCY

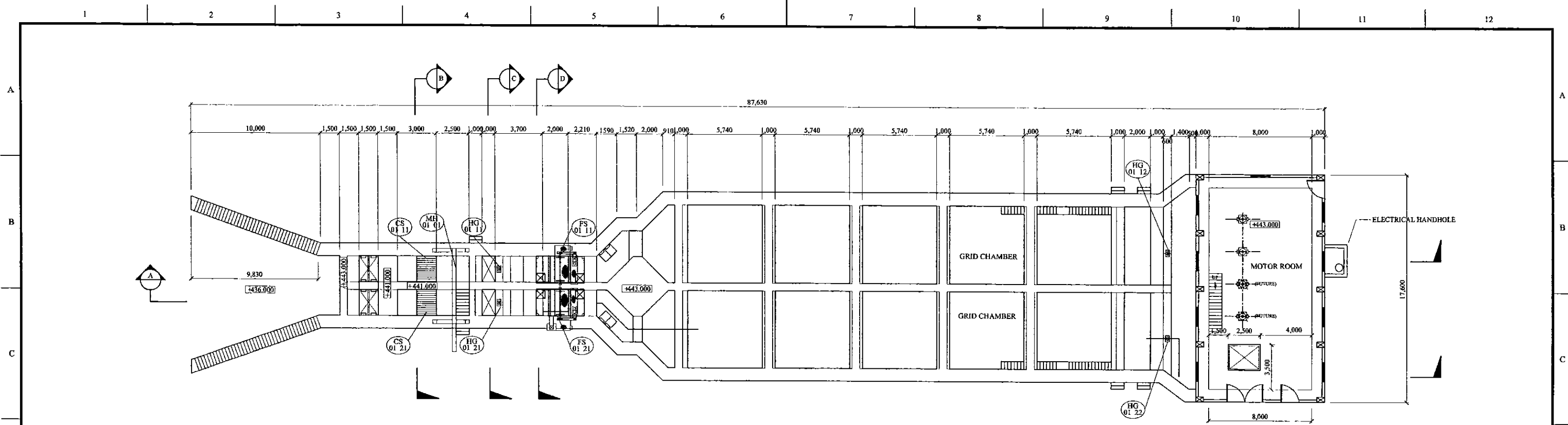
TITLE: **PROCESS SCHEMATIC AND FLOW DIAGRAM NO.6 (BOOSTER PUMP FACILITIES)**

CLIENT: **NATIONAL WATER SUPPLY & DRAINAGE BOARD**

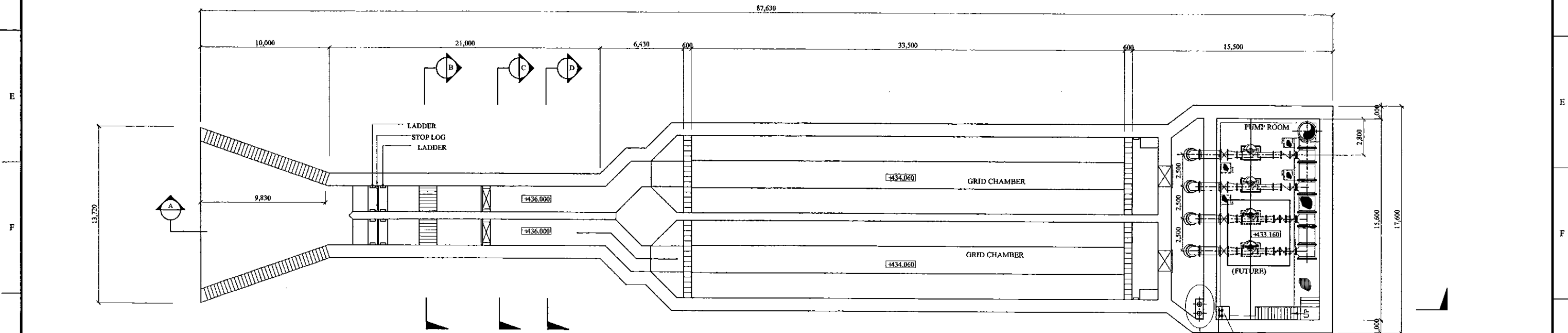
CONSULTANTS: **NJS CONSULTANTS CO., LTD. - JAPAN**
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	CE: (P&D)	SCALE:
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				CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE:	DRAWING NO.:
				DESIGN CHIEF			31/05/2002	00-M-06

DATE: 17/02/2001



TOP PLAN
SCALE: 1:300



BOTTOM PLAN
SCALE: 1:300

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT





JAPAN INTERNATIONAL COOPERATION AGENCY

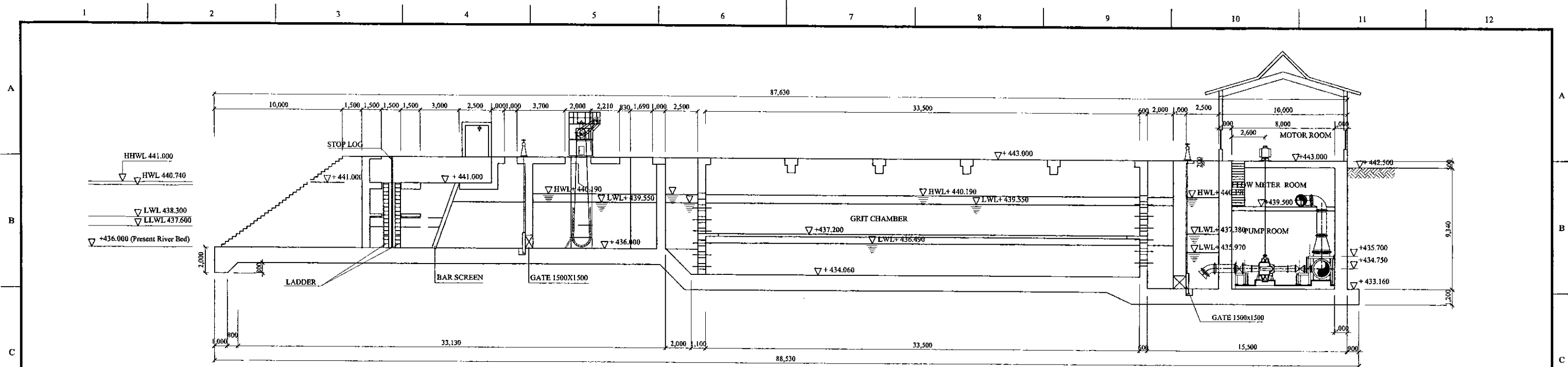
TITLE: RAW WATER INTAKE - PIPING ARRANGEMENT

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

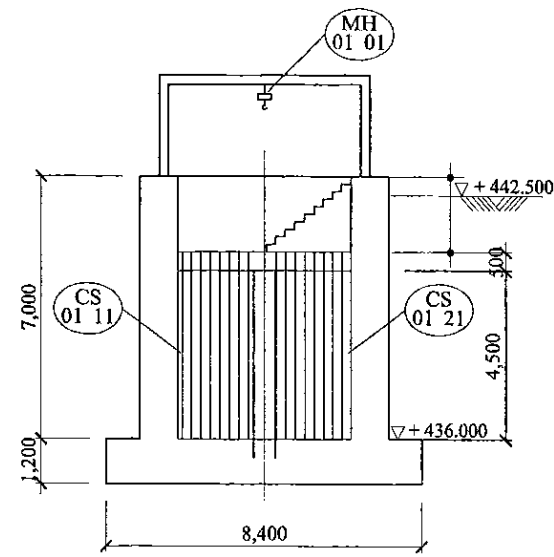


CONSULTANTS:
 NJS CONSULTANTS CO., LTD. - JAPAN
 NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

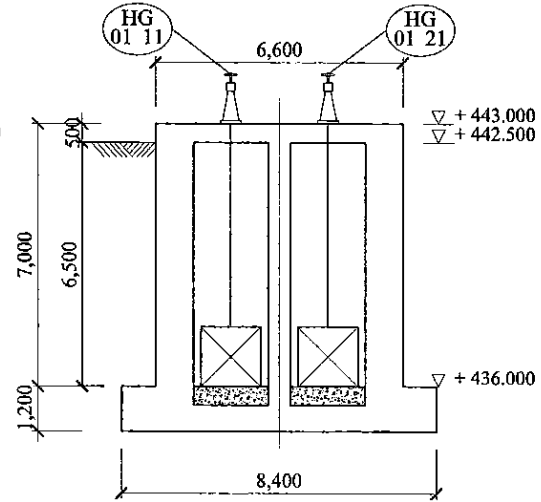
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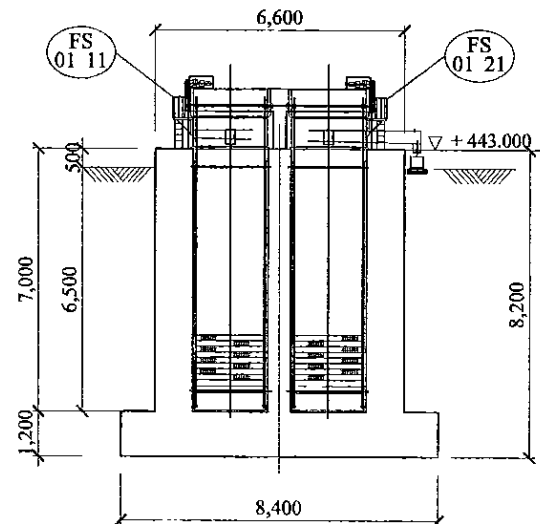
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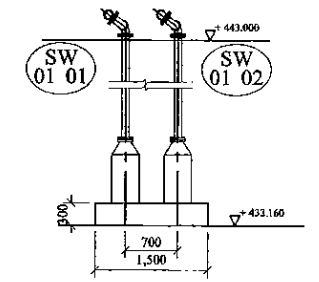
SECTION B
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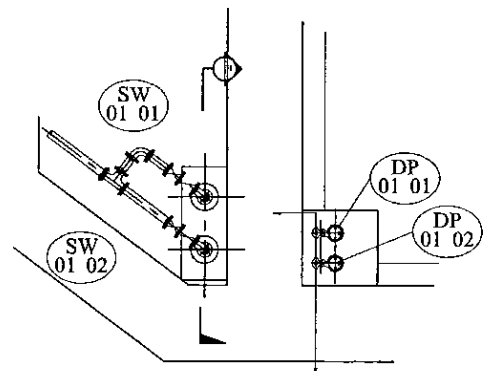
SECTION C
SCALE: 1:100



SECTION D
SCALE: 1:100



SECTION H
SCALE: 1:50



DETAIL G
SCALE: 1:50

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT

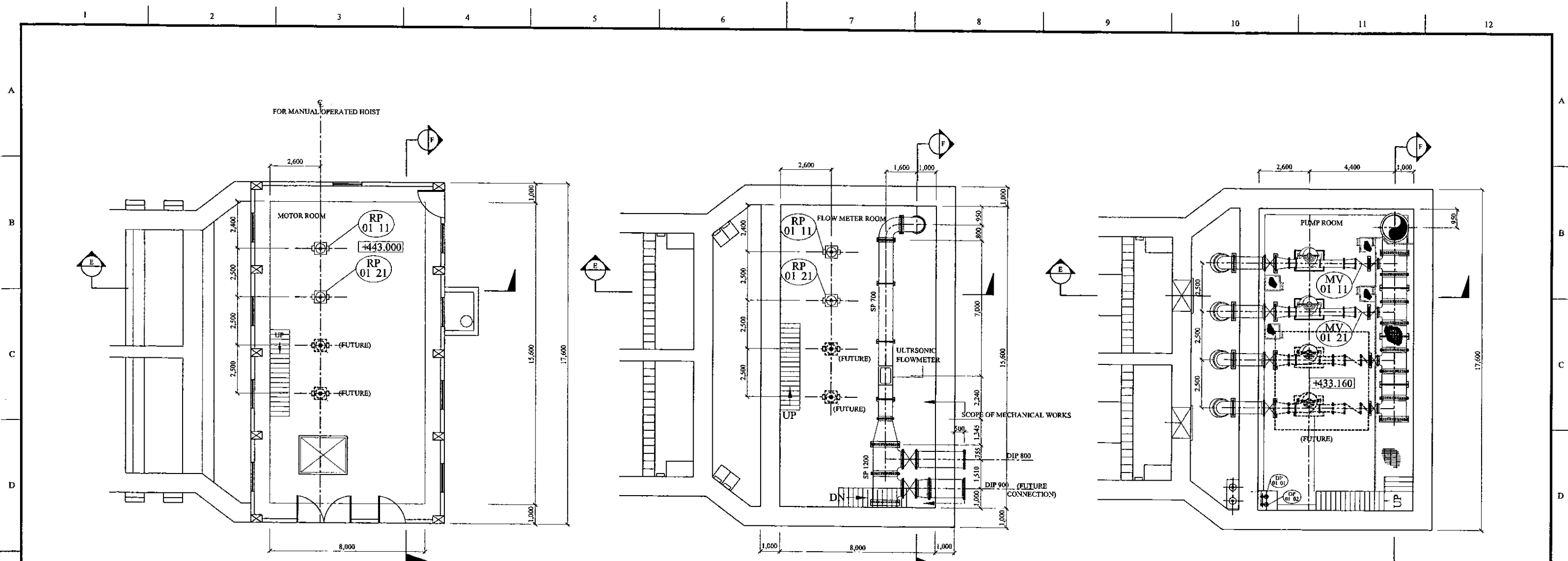
JICA JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: RAW WATER INTAKE - PLAN

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	CE: (P&D)	SCALE:
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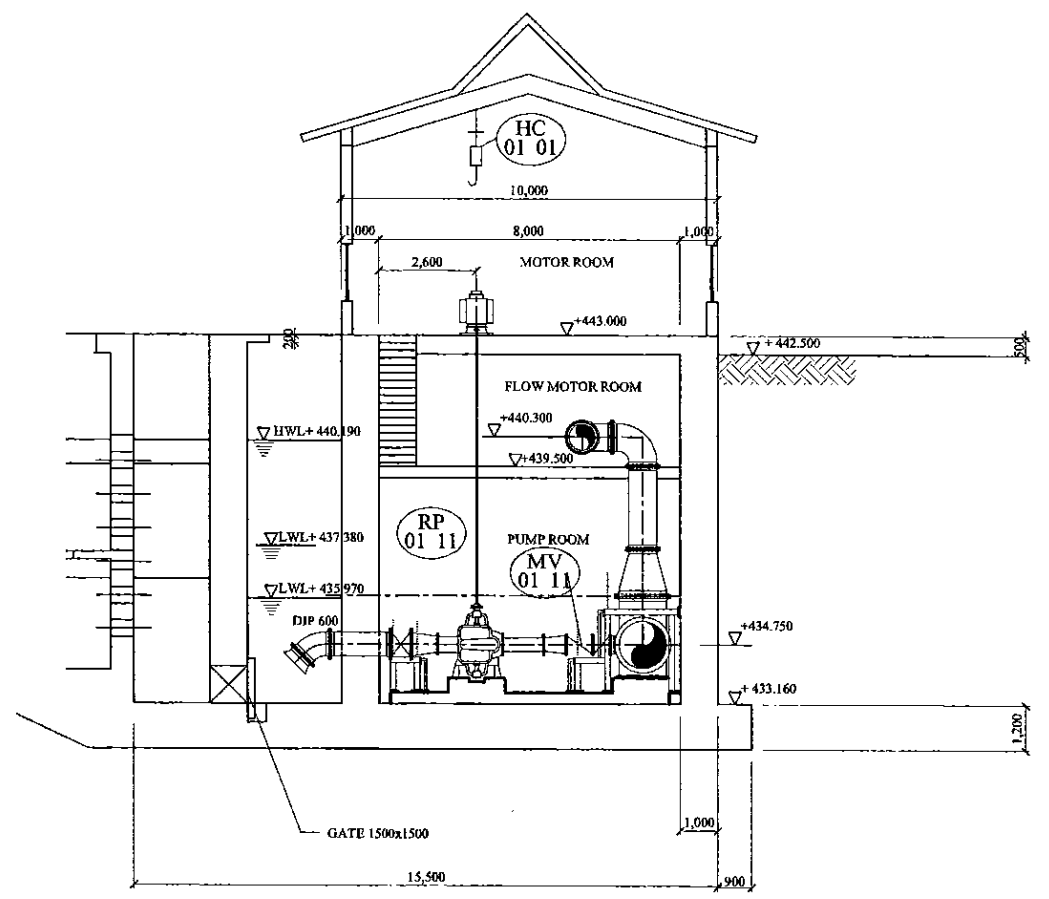


TOP PLAN
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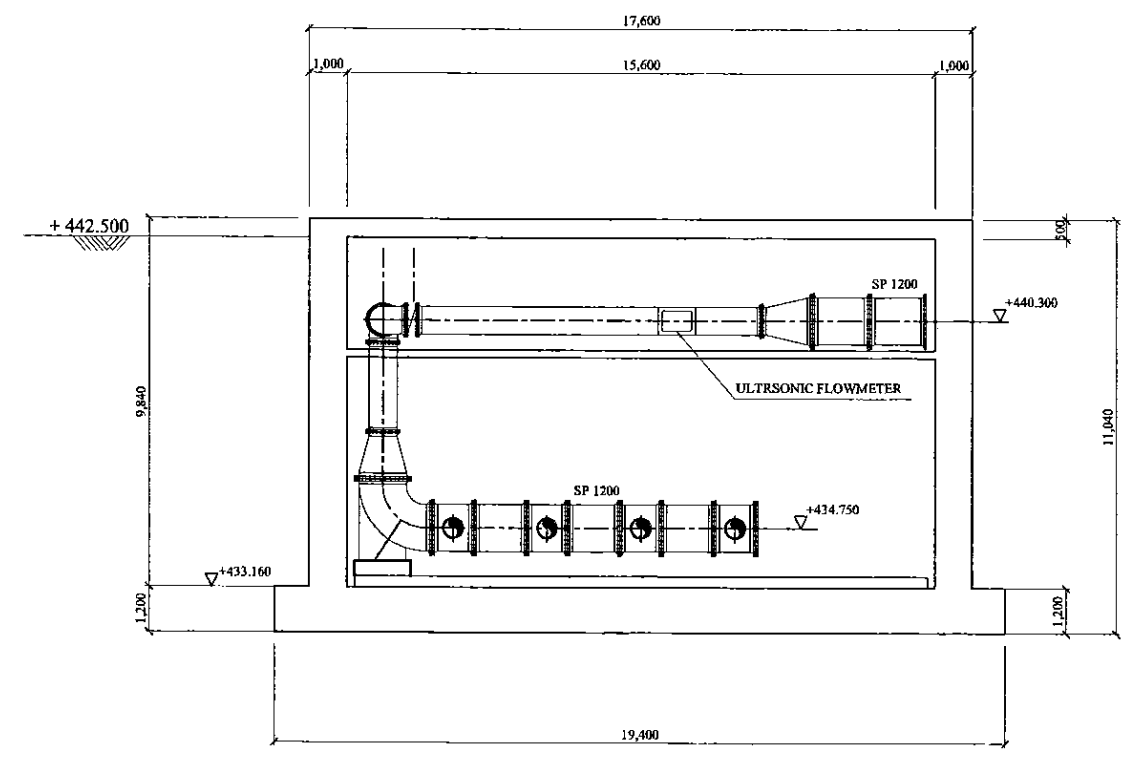
MIDDLE PLAN
SCALE : - 1:100

BOTTOM PLAN
SCALE : - 1:100

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JICA JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: RAW WATER INTAKE - PLAN								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: Shinichi OSAKA	DRAWN: Wannii	PM: (CONSULTANT) Ikuro MIWA	CE: (P&D)	SCALE: 1:100
								CHECKED: DESIGN CHIEF	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 01-M-03



SECTION E
SCALE: 1:100



SECTION F
SCALE: 1:100

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT

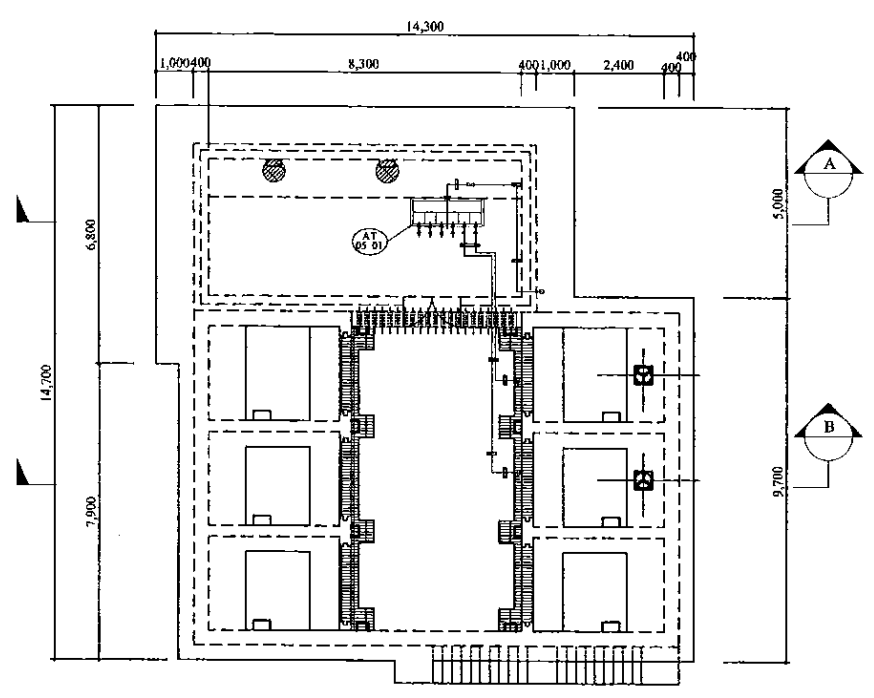
JICA JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: RAW WATER INTAKE - PLAN

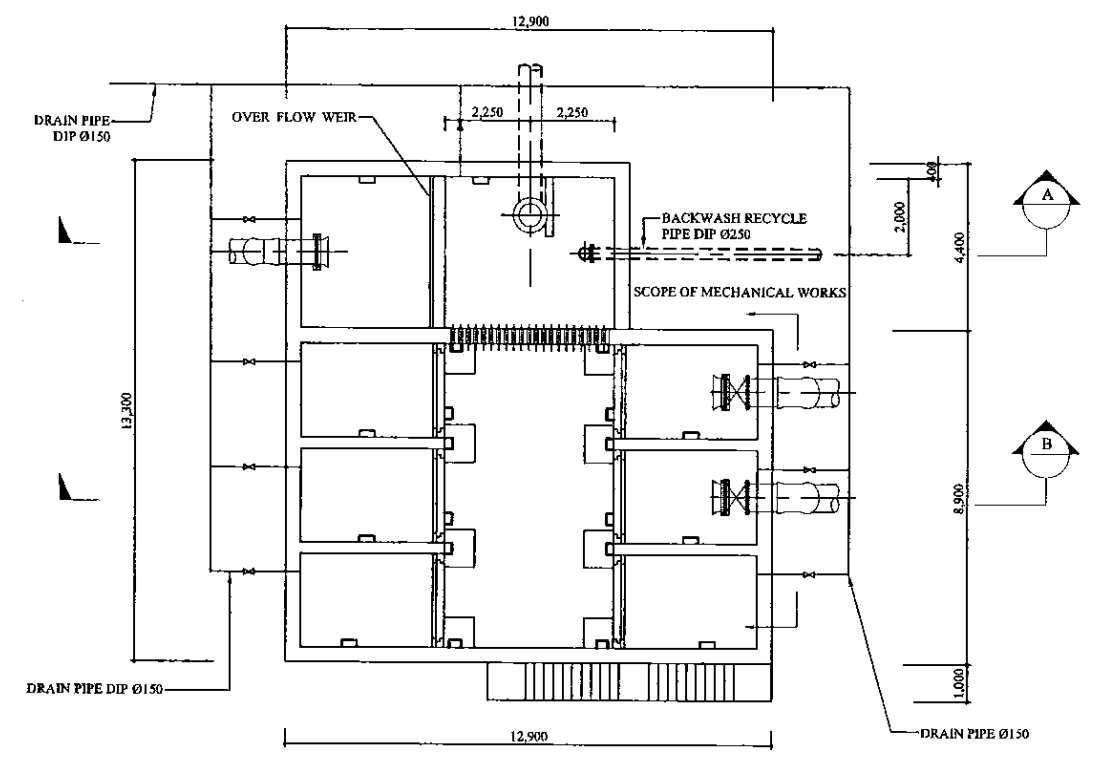
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

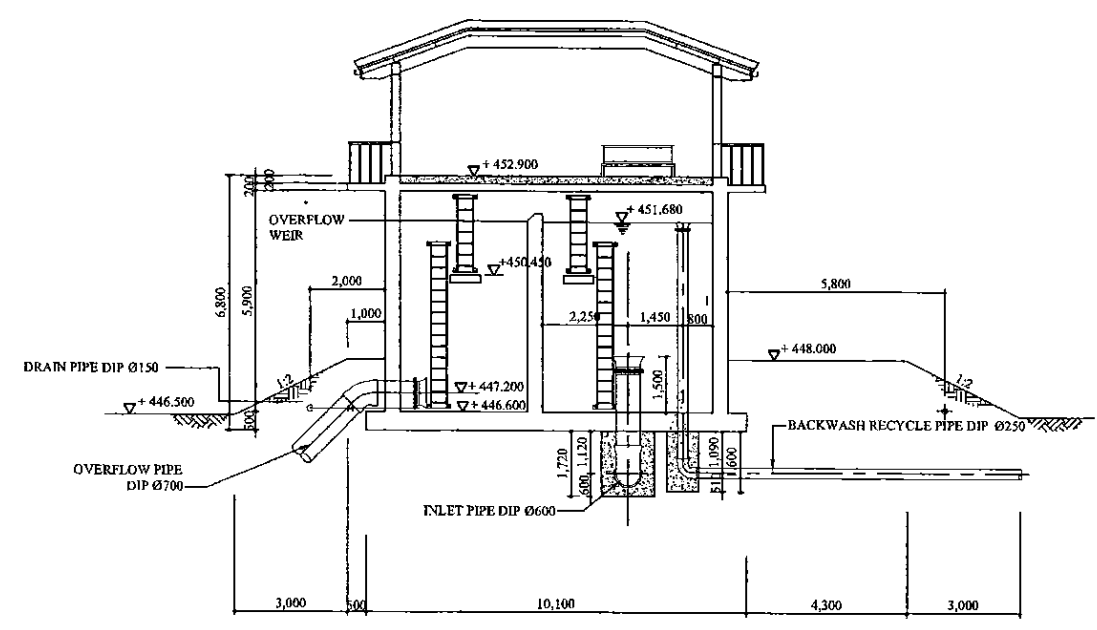
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				DESIGN CHIEF			31/05/2002	01-M-04



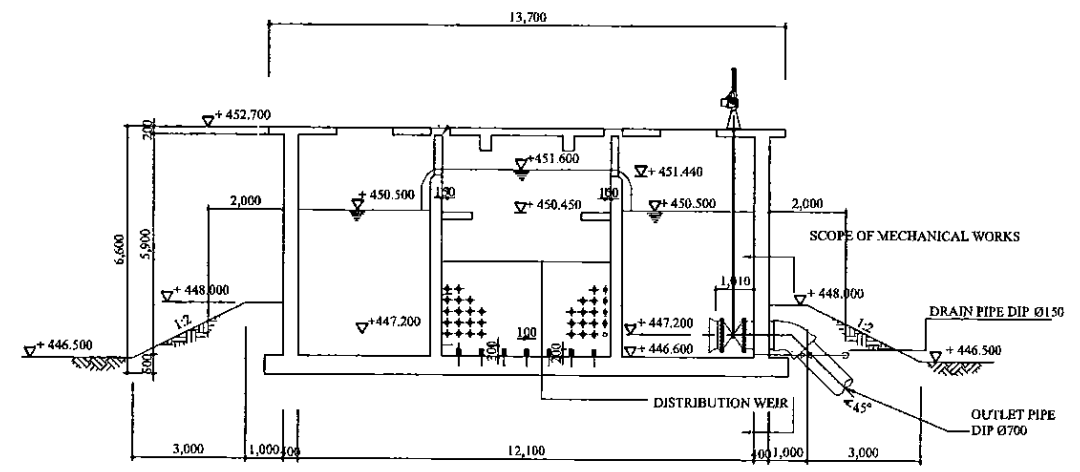
TOP PLAN
SCALE: - 1:100



MIDDLE & BOTTOM PLAN
SCALE: - 1:100

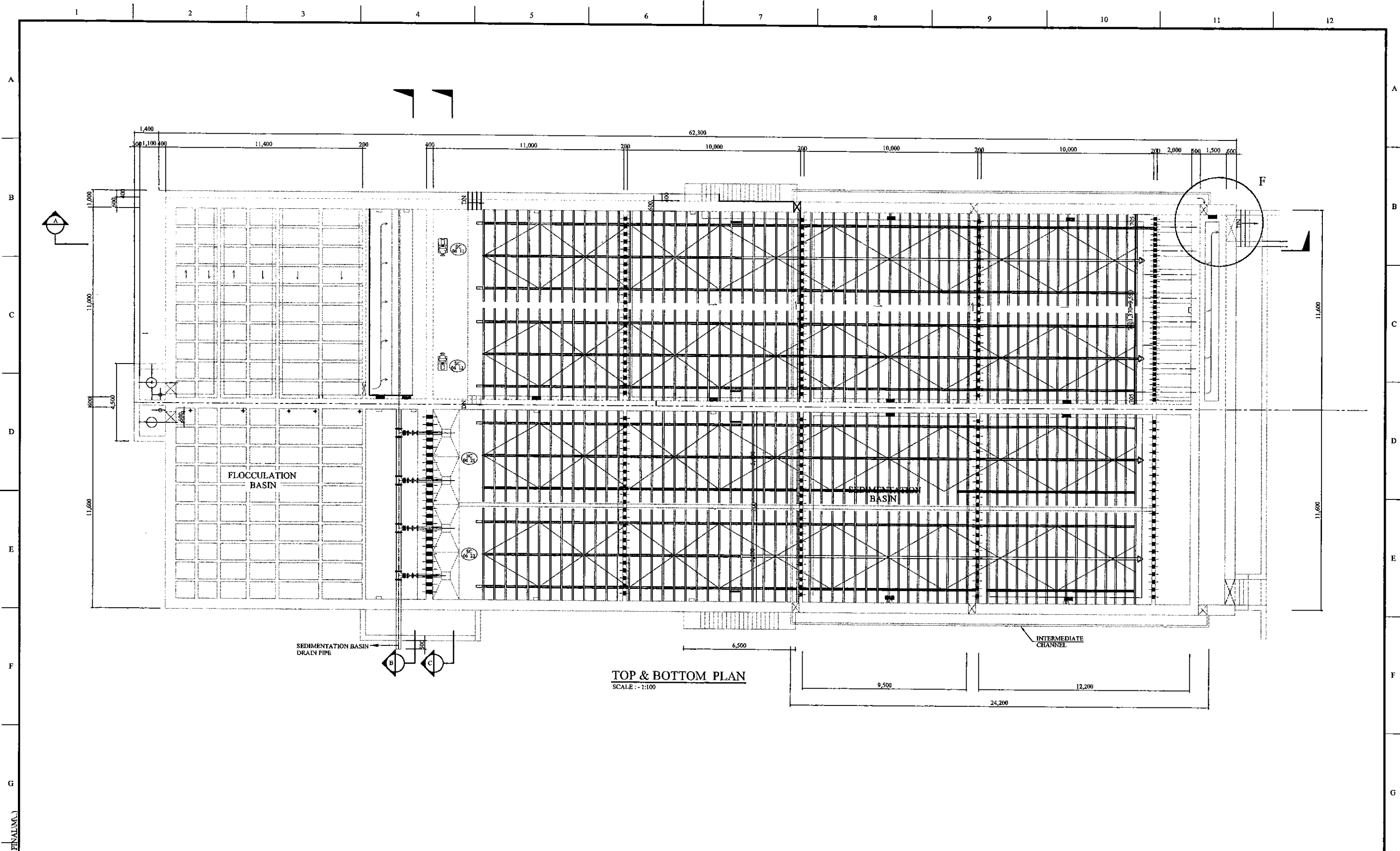


SECTION A
SCALE: - 1:100



SECTION B
SCALE: - 1:100

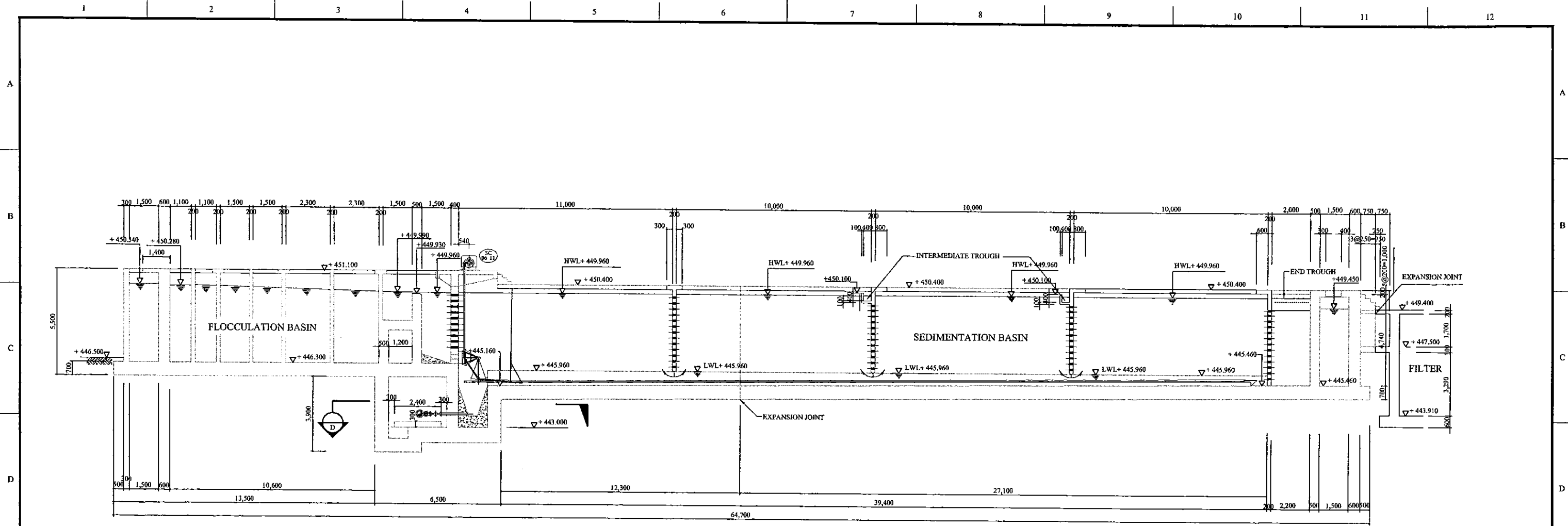
PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: DISTRIBUTION CHAMBER - GENERAL ARRANGEMENT PLANS & SECTIONS								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: Shinichi OSAKA	DRAWN: Muditha	PM: (CONSULTANT) Ikuo MIWA	CE: (P&D)	SCALE: 1:100
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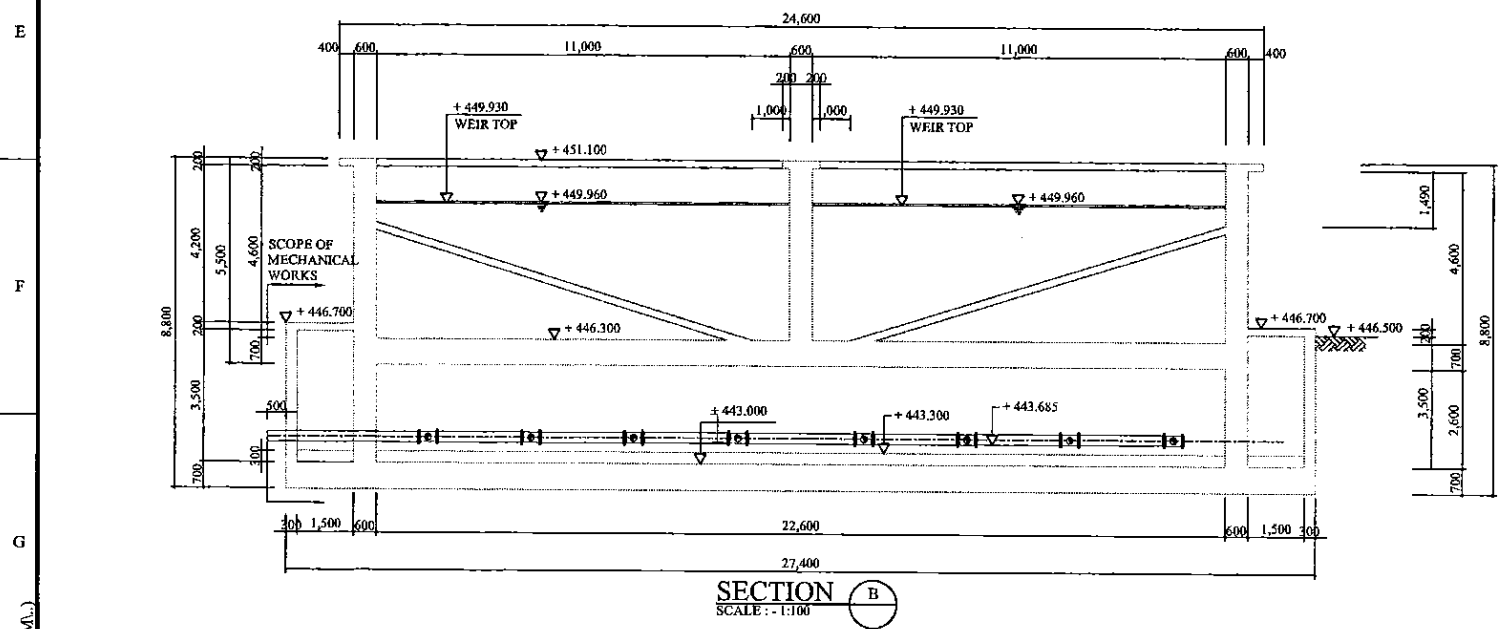
TOP & BOTTOM PLAN
SCALE: 1:100

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: FLOCCULATION BASIN/SEDIMENTATION BASIN - TOP & BOTTOM PLAN								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: Shinichi OSAKA	DRAWN: Wanni	PM: (CONSULTANT) Ikuro MIWA	CE: (P&D)	SCALE: 1:100
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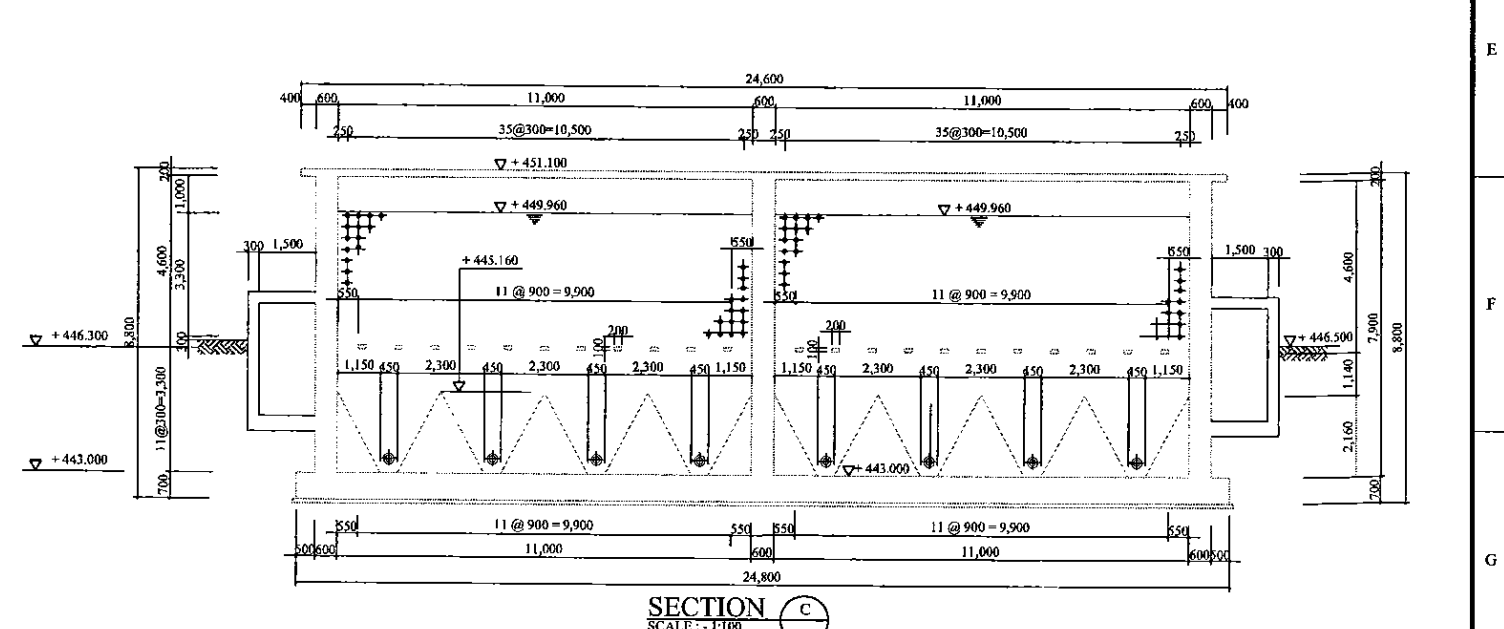
DATE: 27/12/2001 Wanni (D:GKW FINAL/ML)



SECTION A
SCALE: 1:100



SECTION B
SCALE: 1:100



SECTION C
SCALE: 1:100

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

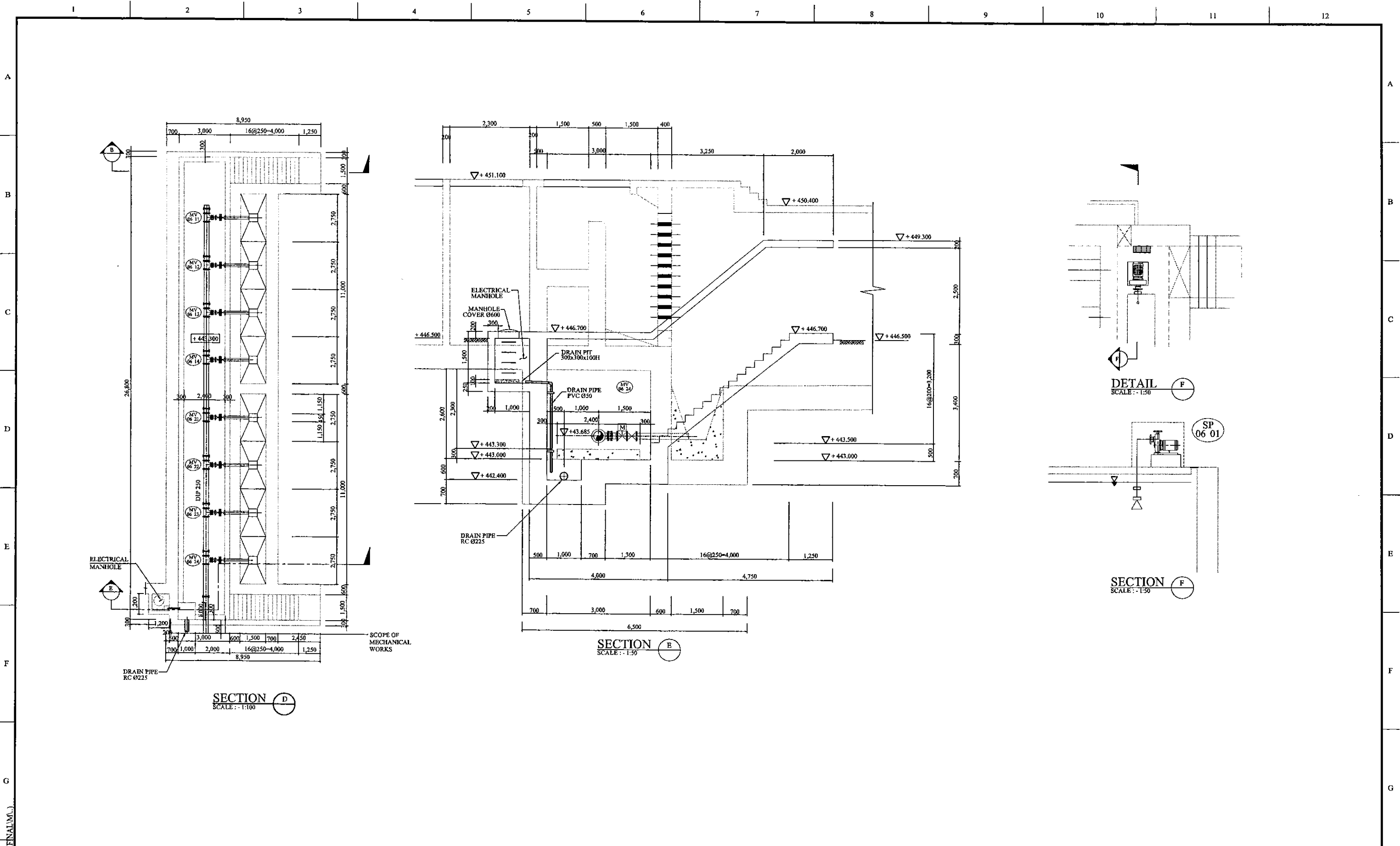
TITLE: FLOCCULATION BASIN/SEDIMENTATION BASIN - CROSS SECTION

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

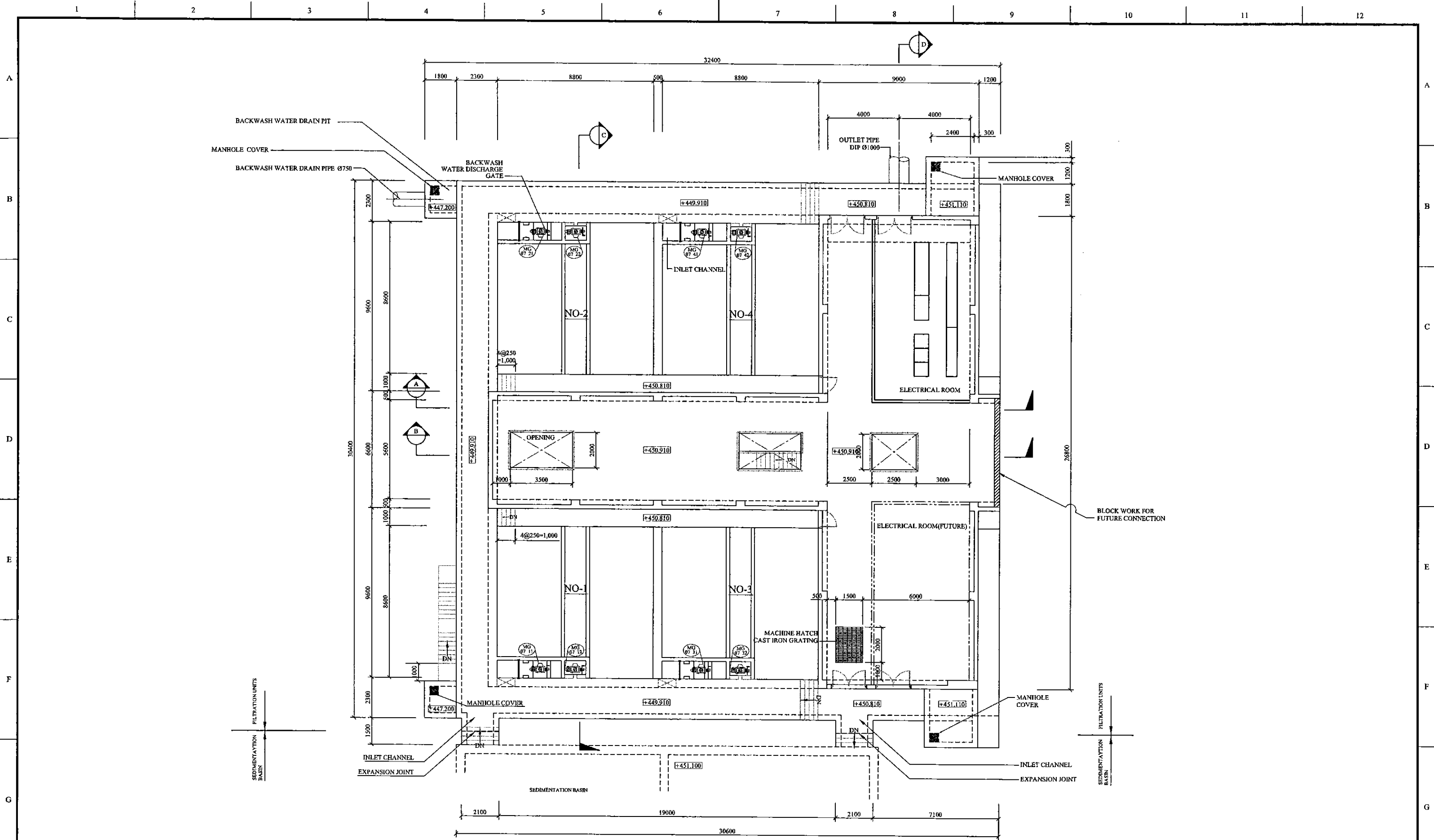
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DATE: 27/12/2001 Wann (D.S.G.K.W.FINAL.M.)



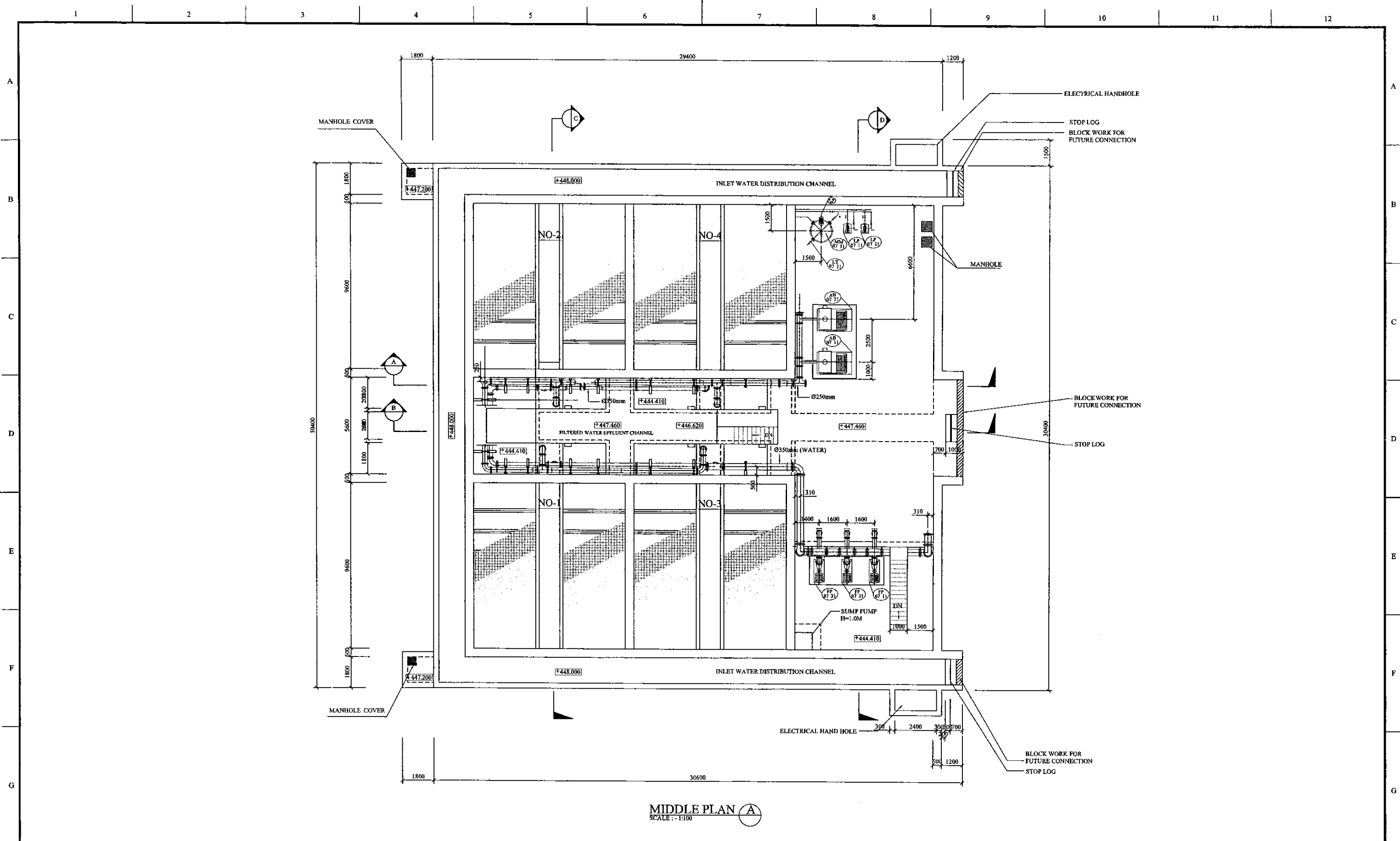
PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		JAPAN INTERNATIONAL COOPERATION AGENCY CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		TITLE: FLOCCULATION BASIN/SEDIMENTATION BASIN - CROSS SECTION								
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DATE: 27/12/2001 Wanni (D:\CKV\FINAL\W.)



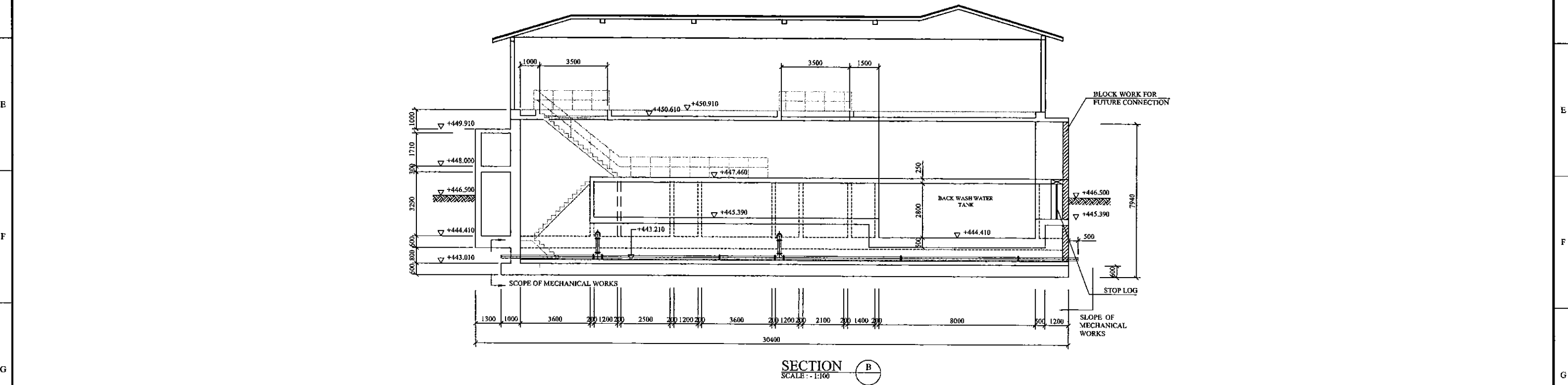
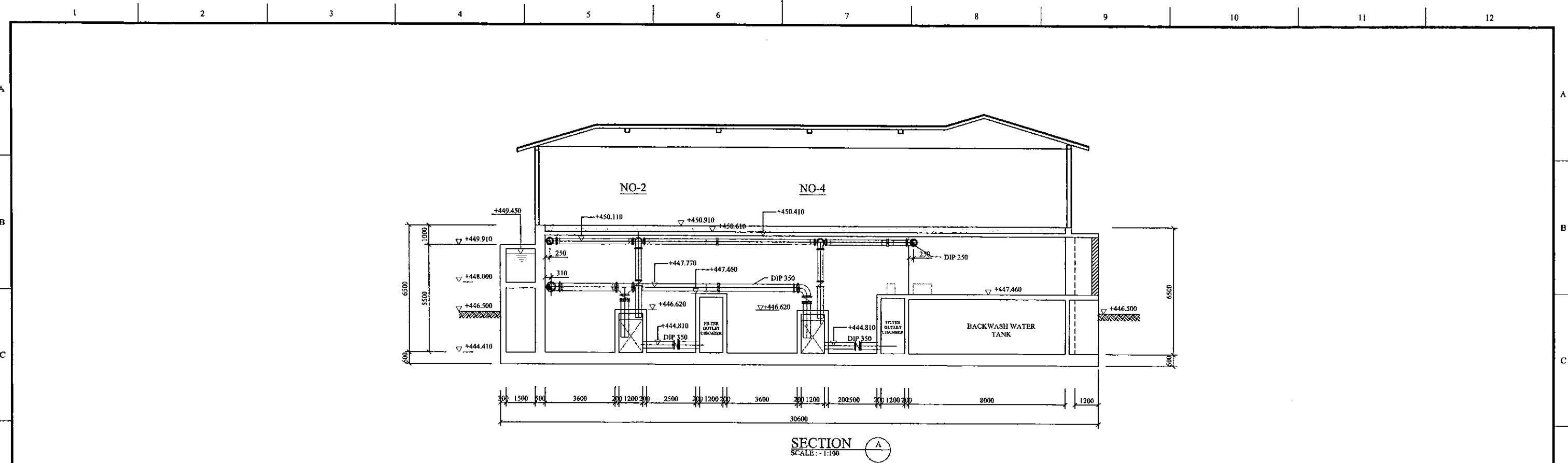
TOP PLAN
SCALE: 1:100

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JICA JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: FILTRATION UNITS - TOP PLAN								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: Shinichi OSAKA	DRAWN: Wanni	PM: (CONSULTANT) Ikuo MIWA	CE: (P&D)	SCALE: 1:100
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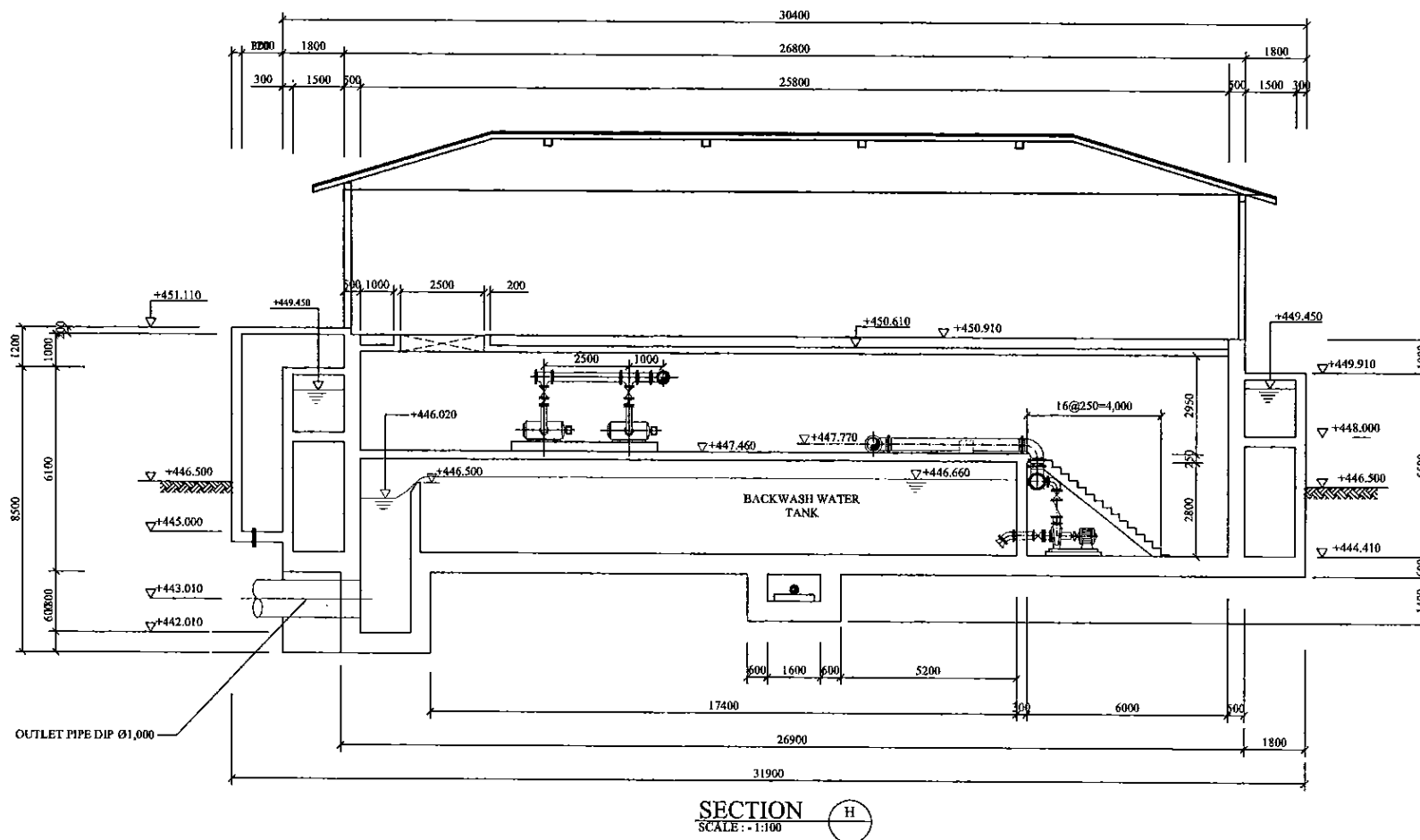
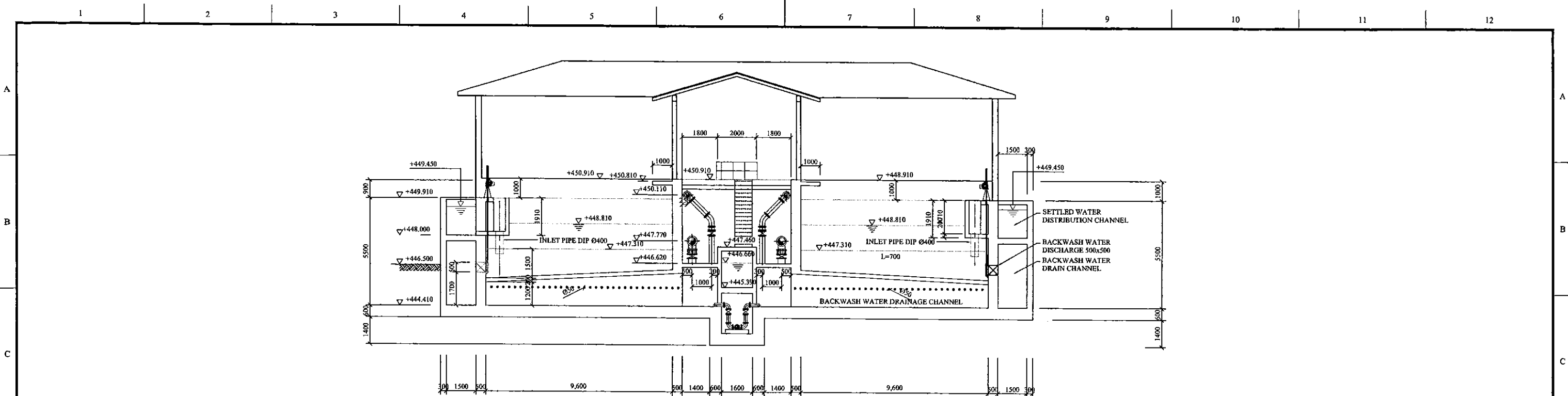


MIDDLE PLAN (A)
SCALE: 1:100

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: FILTRATION UNITS - MIDDLE PLAN								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: Shinichi OSAKA	DRAWN: Wannii	Ikuo MIWA	1:100	
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PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: FILTRATION UNITS - SECTIONS								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: Shinichi OSAKA	DRAWN: Wanni	PM: (CONSULTANT) Ikuo MIWA	CE: (P&D)	SCALE: 1:100
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GREATER KANDY WATER SUPPLY
AUGMENTATION PROJECT



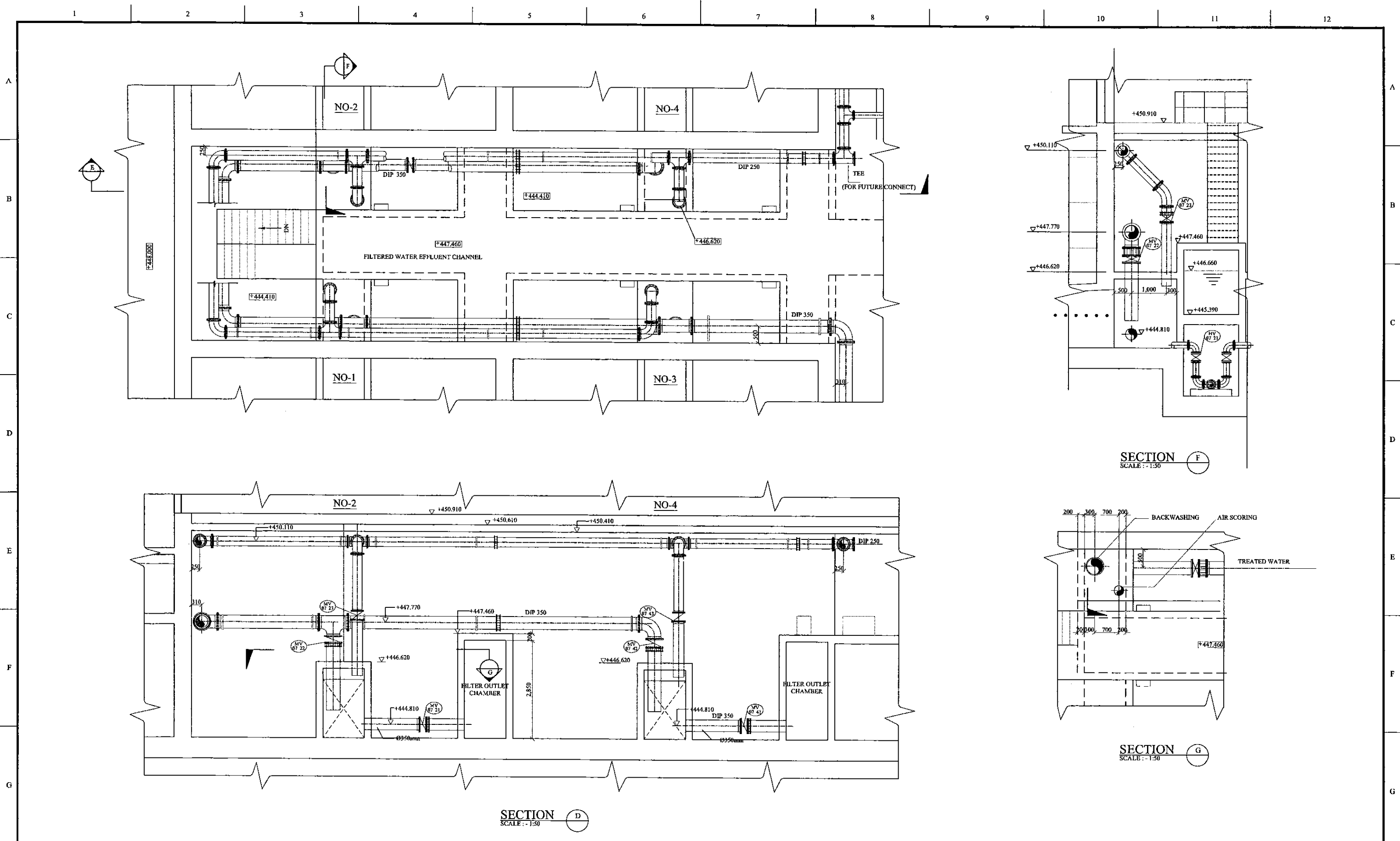
JAPAN INTERNATIONAL
COOPERATION AGENCY

TITLE: FILTRATION UNITS - SECTIONS

NATIONAL WATER SUPPLY
& DRAINAGE BOARD

CONSULTANTS:
 NJS CONSULTANTS CO., LTD. - JAPAN
 NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	CE: (P&D)	SCALE:
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PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

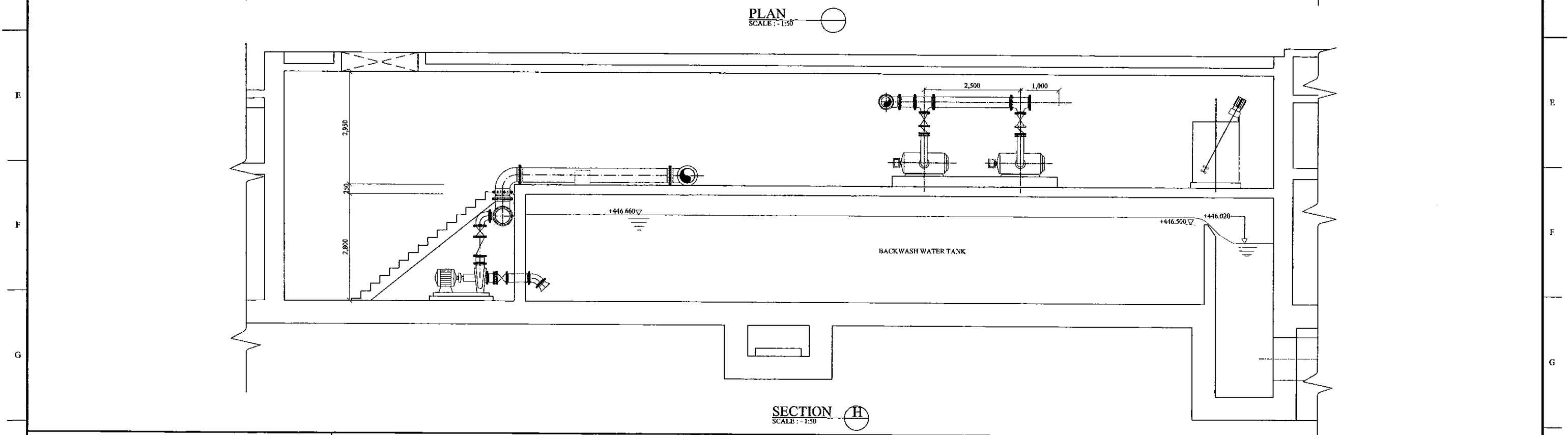
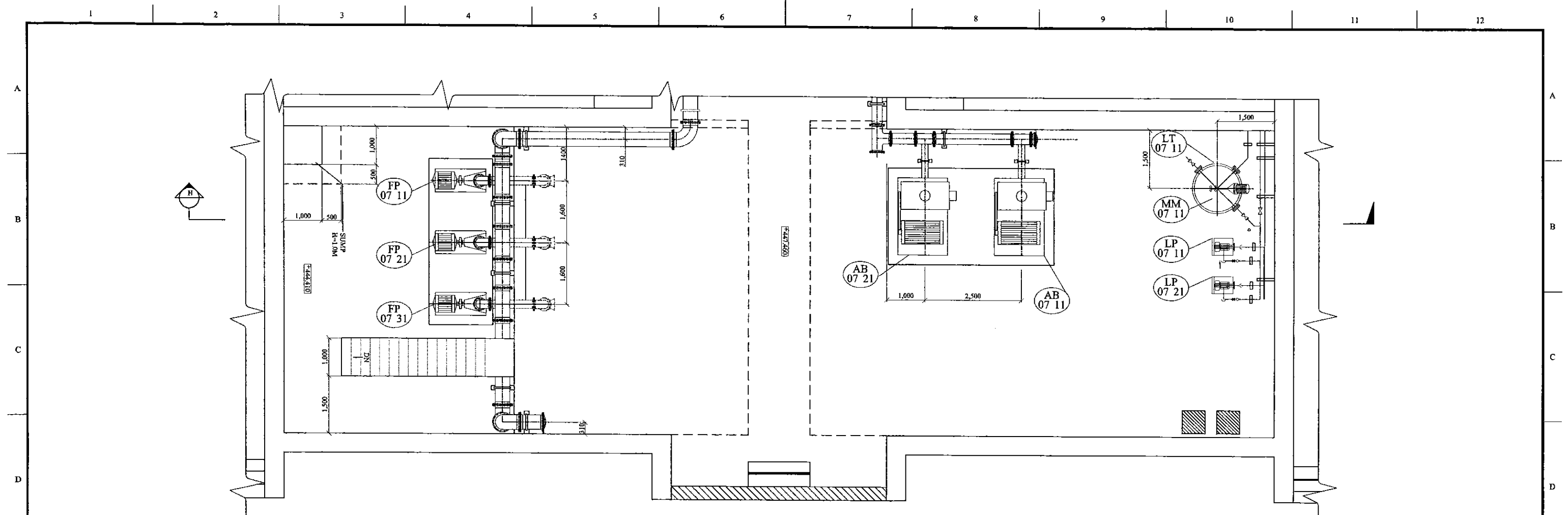
TITLE: FILTRATION UNITS - BOTTOM PLAN

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

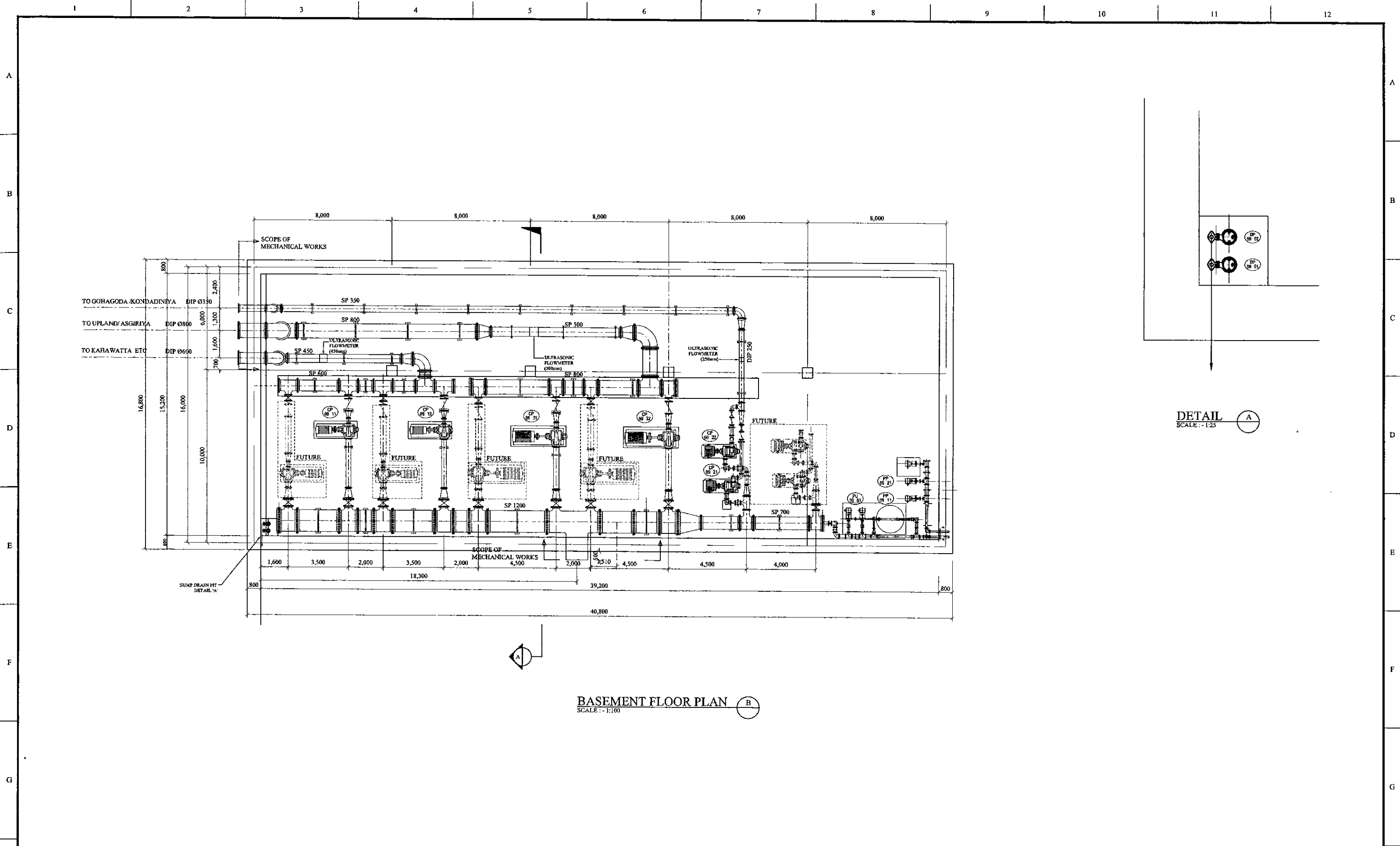
CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

REV.	DESCRIPTION	DATE	SIGN.

DESIGNED: Shinichi OSAKA	DRAWN: Wanni	PM: (CONSULTANT) Ikuo MIWA	CE: (P&D)	SCALE: 1:50
CHECKED: DESIGN CHIEF	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 07-M-05



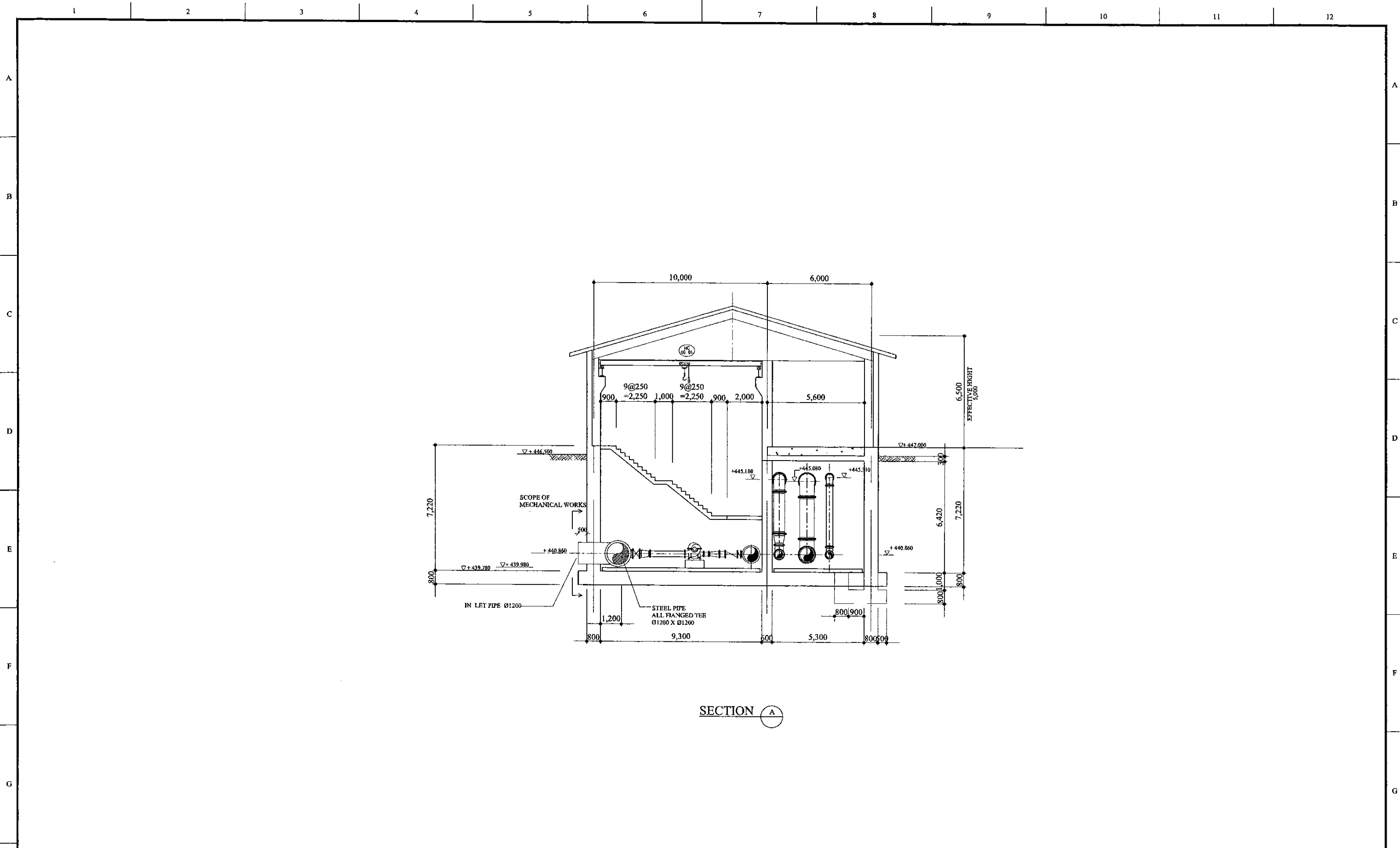
PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JICA JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: FILTRATION UNITS - BOTTOM PLAN								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD	CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN			REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: Shinichi OSAKA	DRAWN: Wanni	PM: (CONSULTANT) Ikuo MIWA	CE: (P&D)	SCALE: 1:50
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BASEMENT FLOOR PLAN (B)
SCALE: - 1:100

DETAIL (A)
SCALE: - 1:25

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: CLEAR WATER PUMP STATION - BASEMENT FLOOR PLAN								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: Shinichi OSAKA	DRAWN: Udita	PM: (CONSULTANT) Ikuo MIWA	CE: (P&D)	SCALE: 1:100
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PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT



JAPAN INTERNATIONAL COOPERATION AGENCY

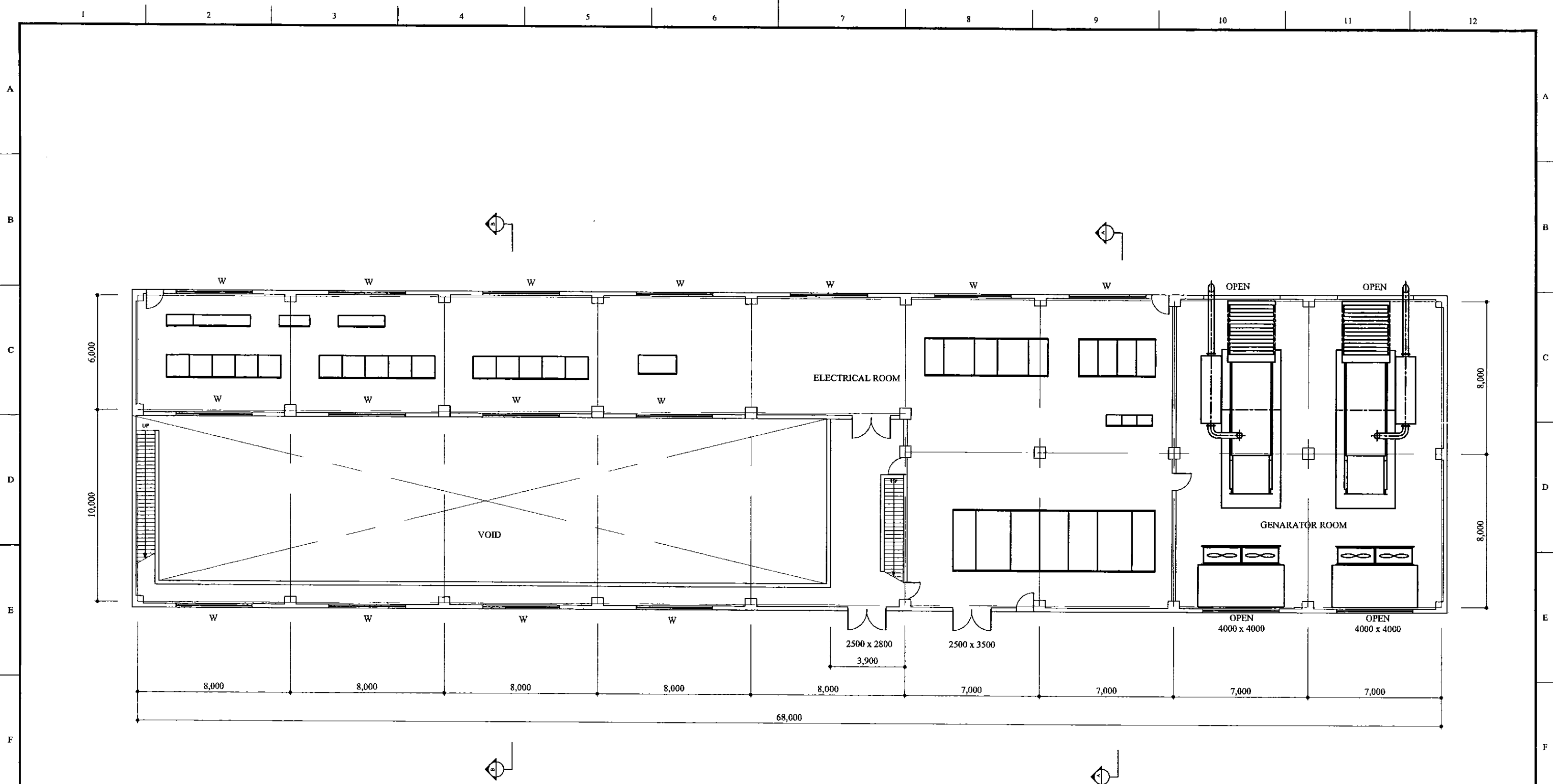
TITLE: CLEAR WATER PUMP STATION

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD







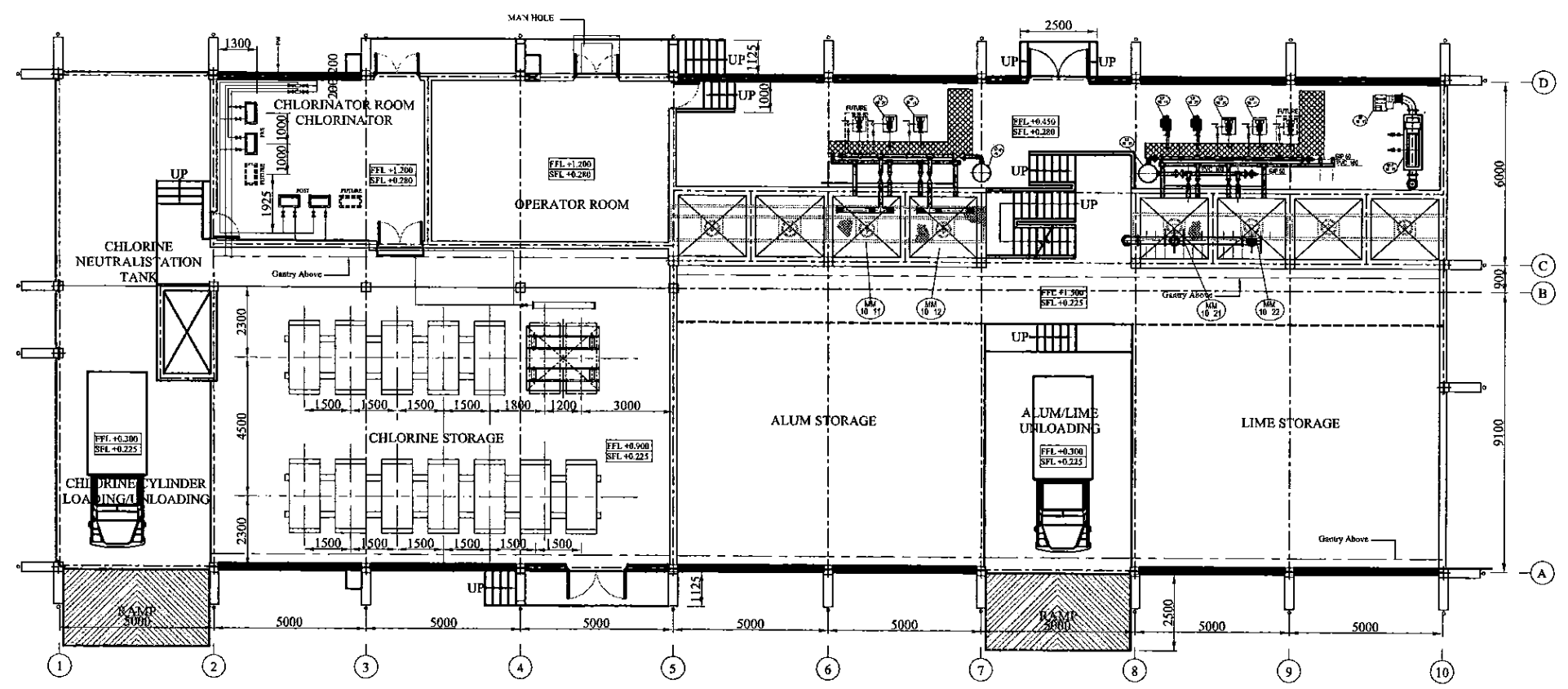
CONSULTANTS:
 NJS CONSULTANTS CO., LTD. - JAPAN
 NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN





REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	CE: (P&D)	SCALE:
				Shinichi OSAKA	Udita	Ikuo MIWA		1:100
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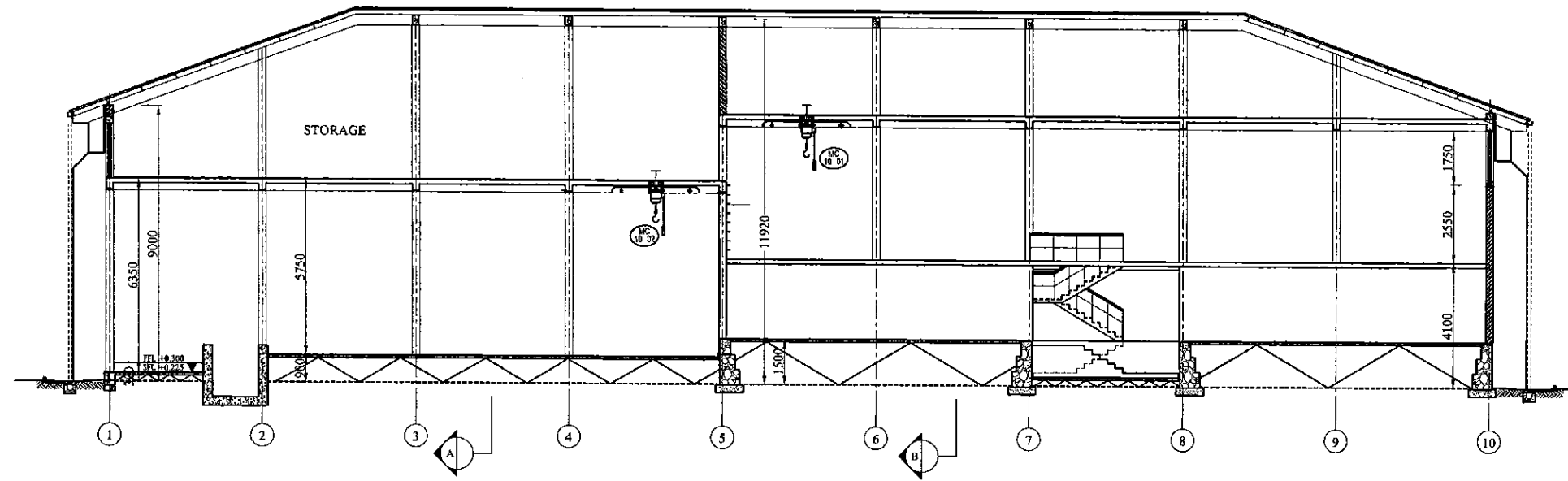
GROUND FLOOR PLAN

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		 JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: CLEAR WATER RESERVOIR - GROUND FLOOR PLAN								
CLIENT:  NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS:  NJS CONSULTANTS CO., LTD. - JAPAN  NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: Shinichi OSAKA	DRAWN: Udita	PM: (CONSULTANT) Ikuo MIWA	CE: (P&D)	SCALE: 1:100
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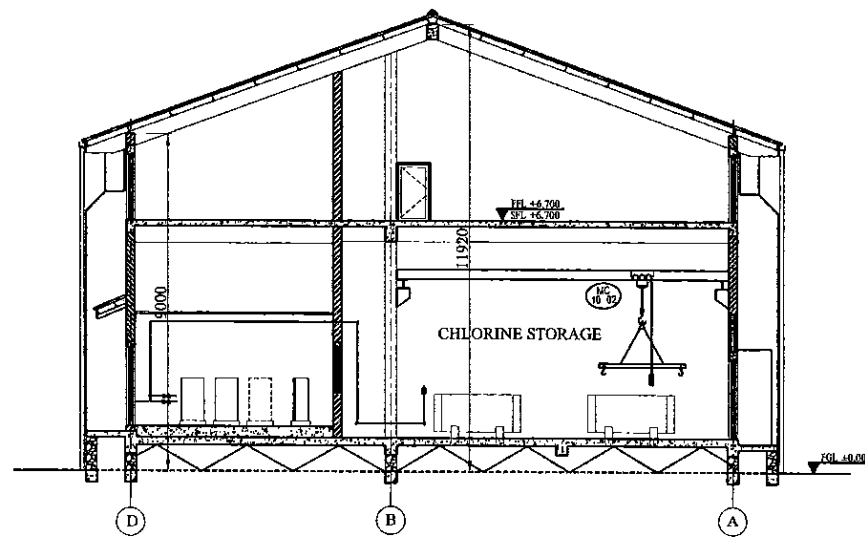


PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		 JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: CHEMICAL BUILDING PLAN								
CLIENT:  NATIONAL WATER SUPPLY & DRAINAGE BOARD	CONSULTANTS:  NJS CONSULTANTS CO., LTD. - JAPAN  NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN			REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: Shinichi OSAKA	DRAWN: Wanni	PM: (CONSULTANT) Ikuo MIWA	CE: (P&D)	SCALE: 1:100
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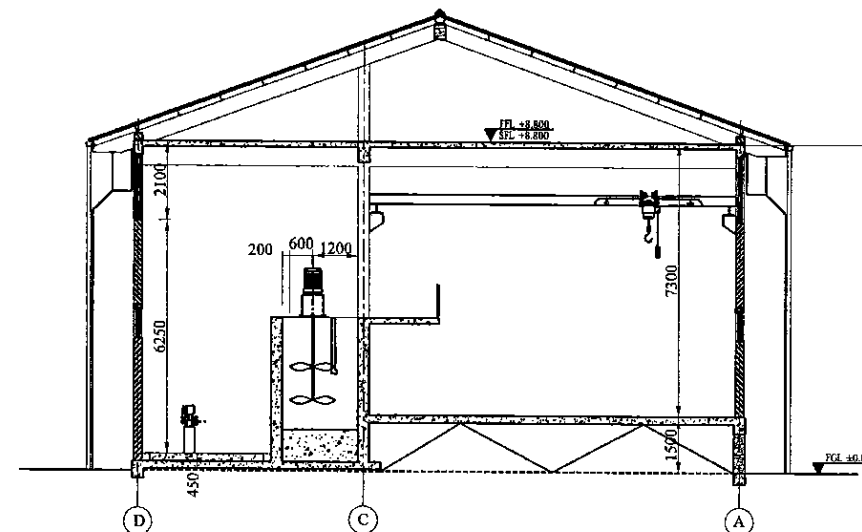
DATE: 17/07/2001 Wanni



LONGITUDINAL SECTION
SCALE: - 1:100



SECTION A-A
SCALE: - 1:100



SECTION B-B
SCALE: - 1:100

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT





JAPAN INTERNATIONAL COOPERATION AGENCY

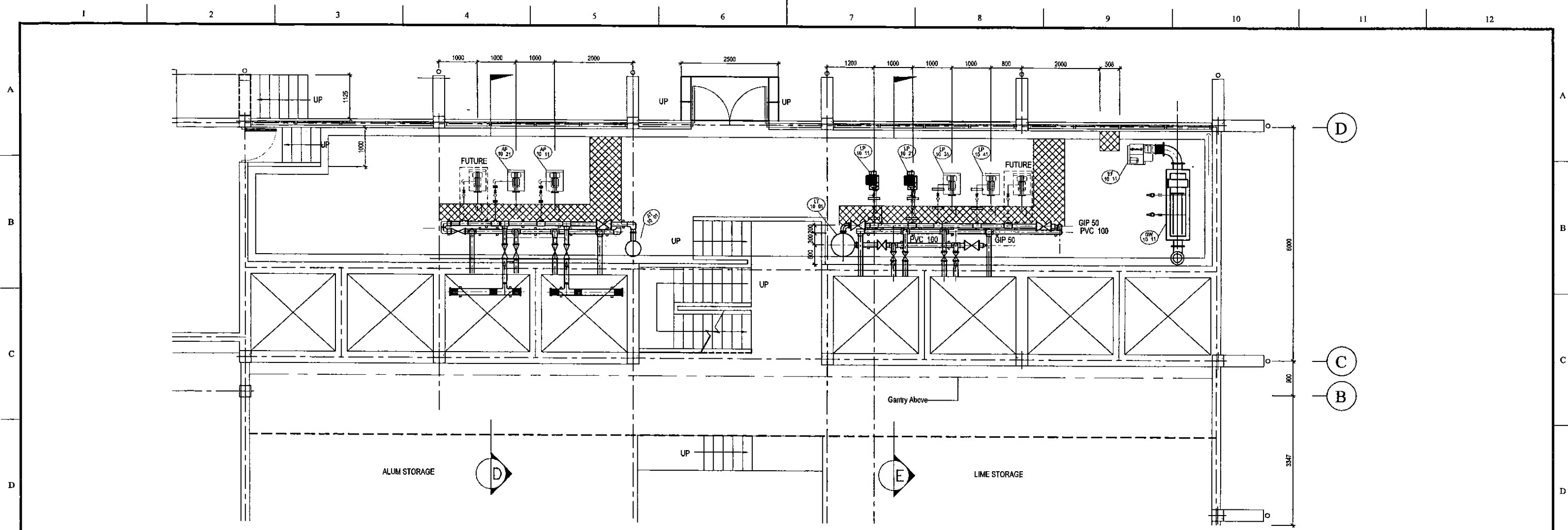
TITLE: CHEMICAL BUILDING - MECHANICAL ARRANGEMENT

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

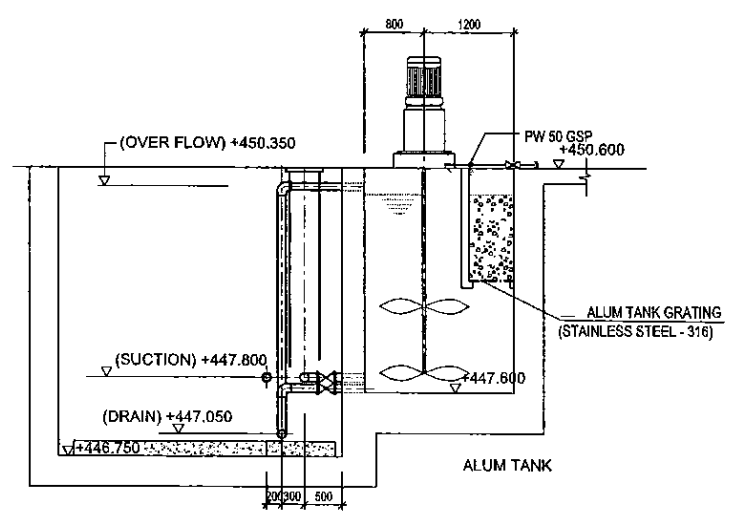


CONSULTANTS:
 NJS CONSULTANTS CO., LTD. - JAPAN
 NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

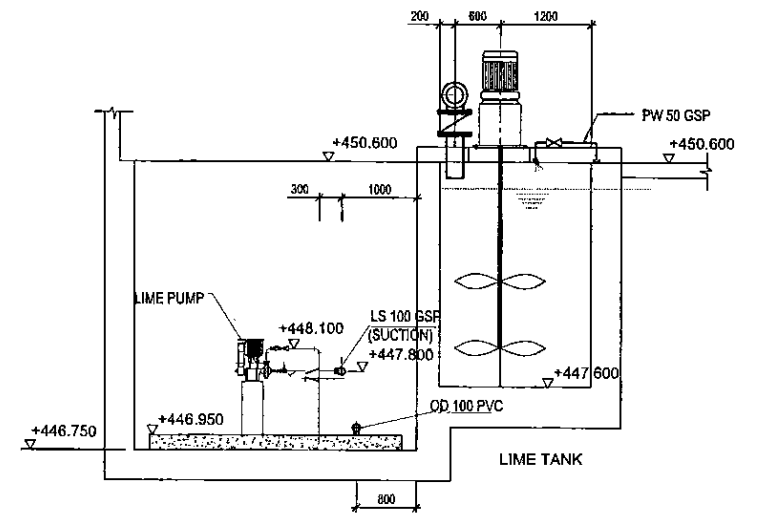
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				DESIGN CHIEF			31/05/2002	10-M-02



BASEMENT PLAN

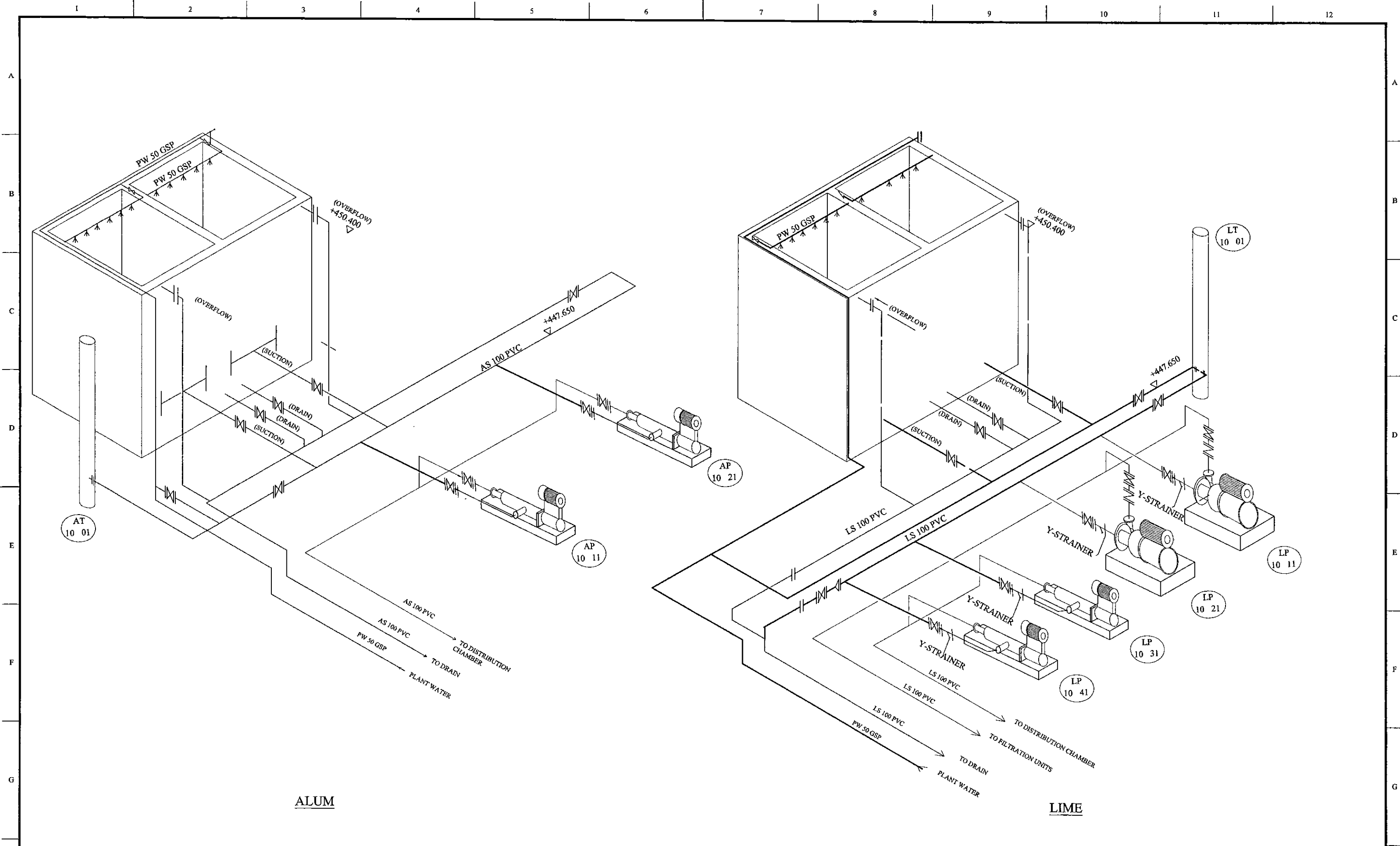


ALUM TANK



LIME TANK

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JICA JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: CHEMICAL BUILDING - PIPING ARRANGEMENT								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: Shinichi OSAKA	DRAWN: Wannii	PM: (CONSULTANT) Ikuro MIWA	CE: (P&D)	SCALE: 1:50
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ALUM

LIME

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT



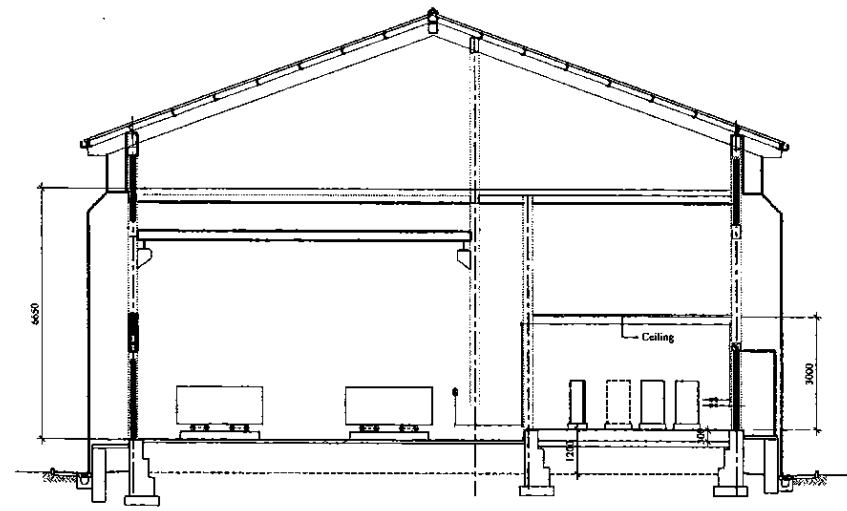
JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: CHEMICAL BUILDING - SCHEMATIC DIAGRAM

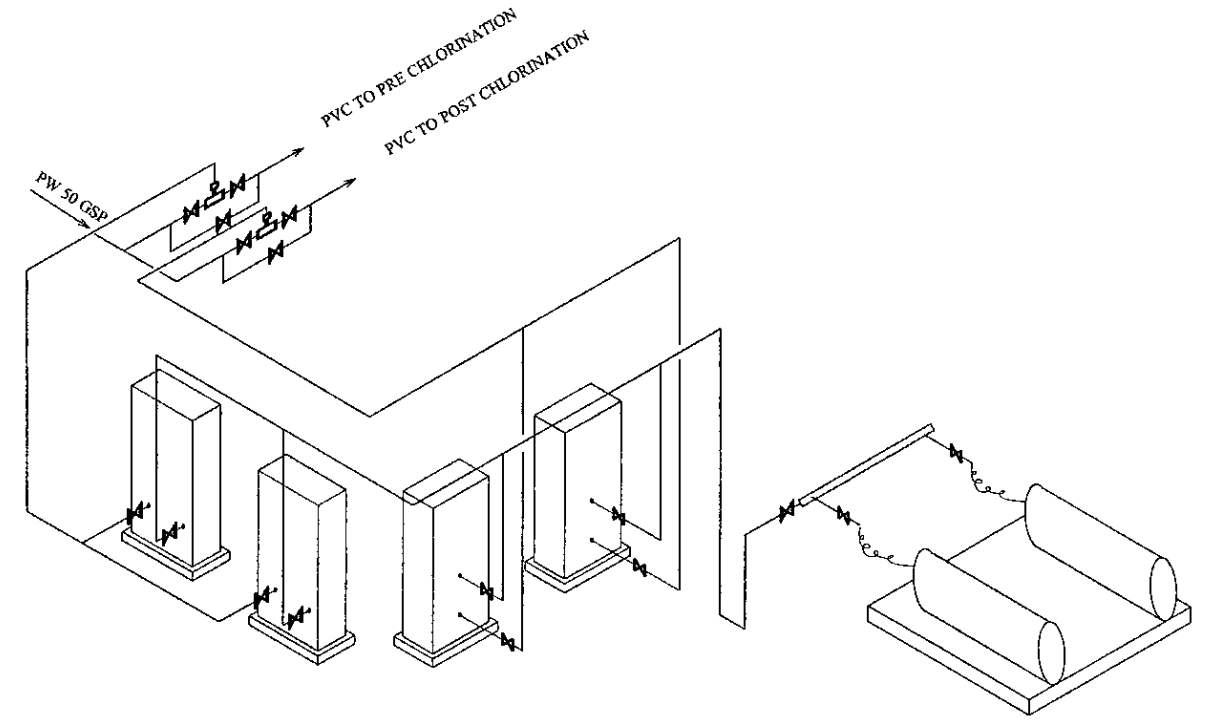
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
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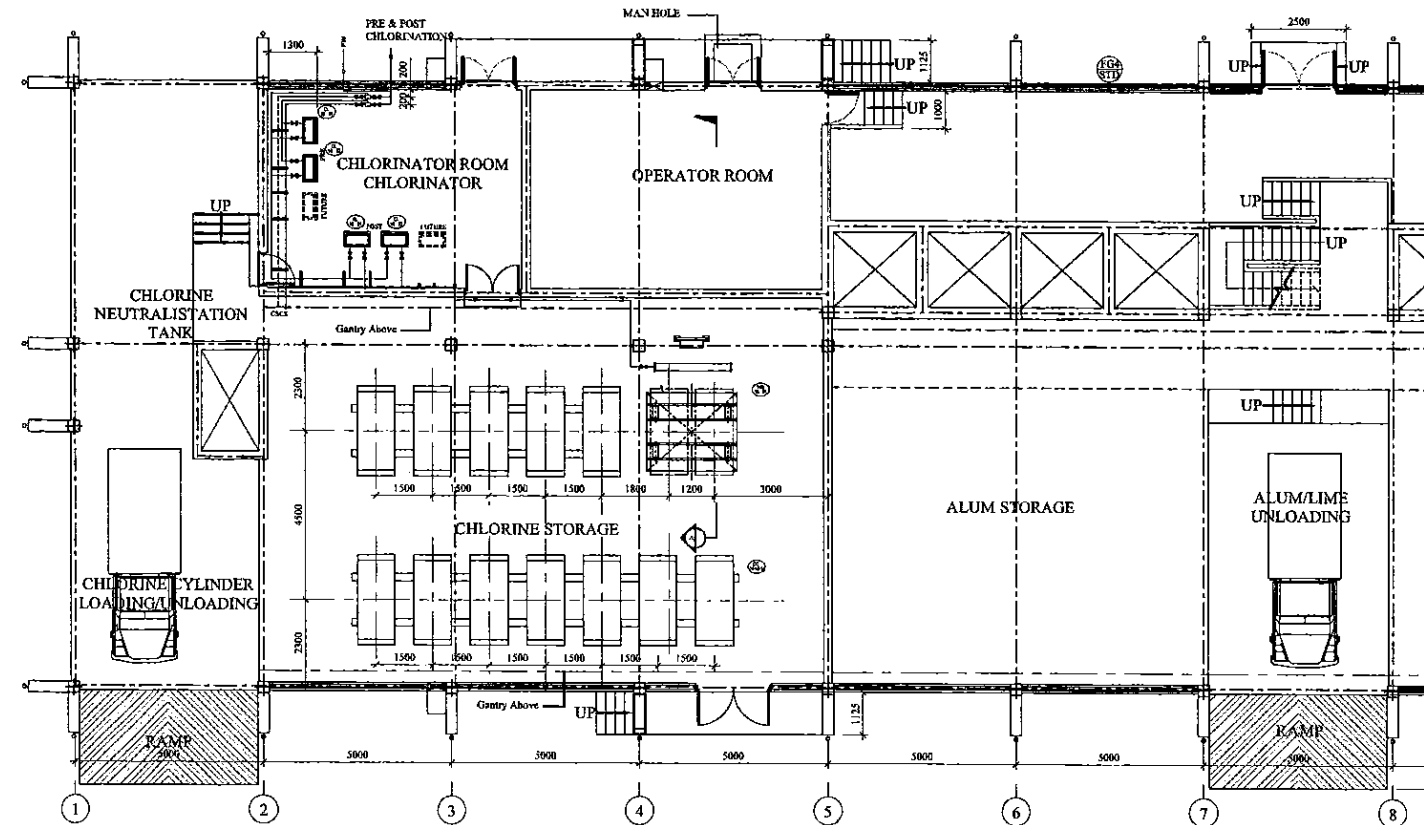
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				DESIGN CHIEF			31/05/2002	10-M-04



SECTION A
SCALE: 1:100



SCHEMATIC DIAGRAM
NO TO SCALE



PLAN
SCALE: 1:100



PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT



JAPAN INTERNATIONAL COOPERATION AGENCY

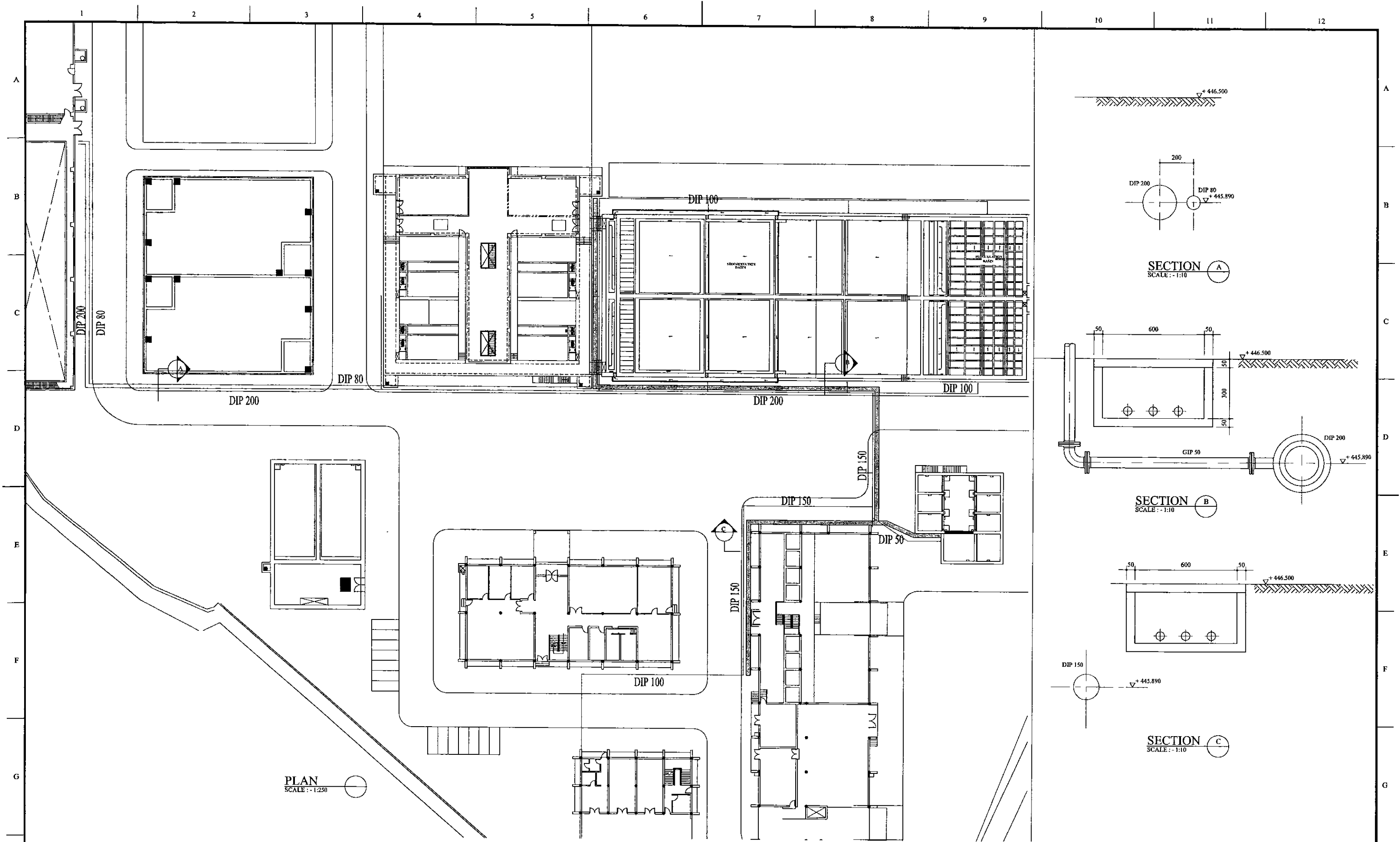
TITLE: CHEMICAL BUILDING - CHLORINATION FACILITY

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

CONSULTANTS:
 NJS CONSULTANTS CO., LTD. - JAPAN
 NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	CE: (P&D)	SCALE:
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PLAN
SCALE: 1:250

SECTION A
SCALE: 1:10

SECTION B
SCALE: 1:10

SECTION C
SCALE: 1:10

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT

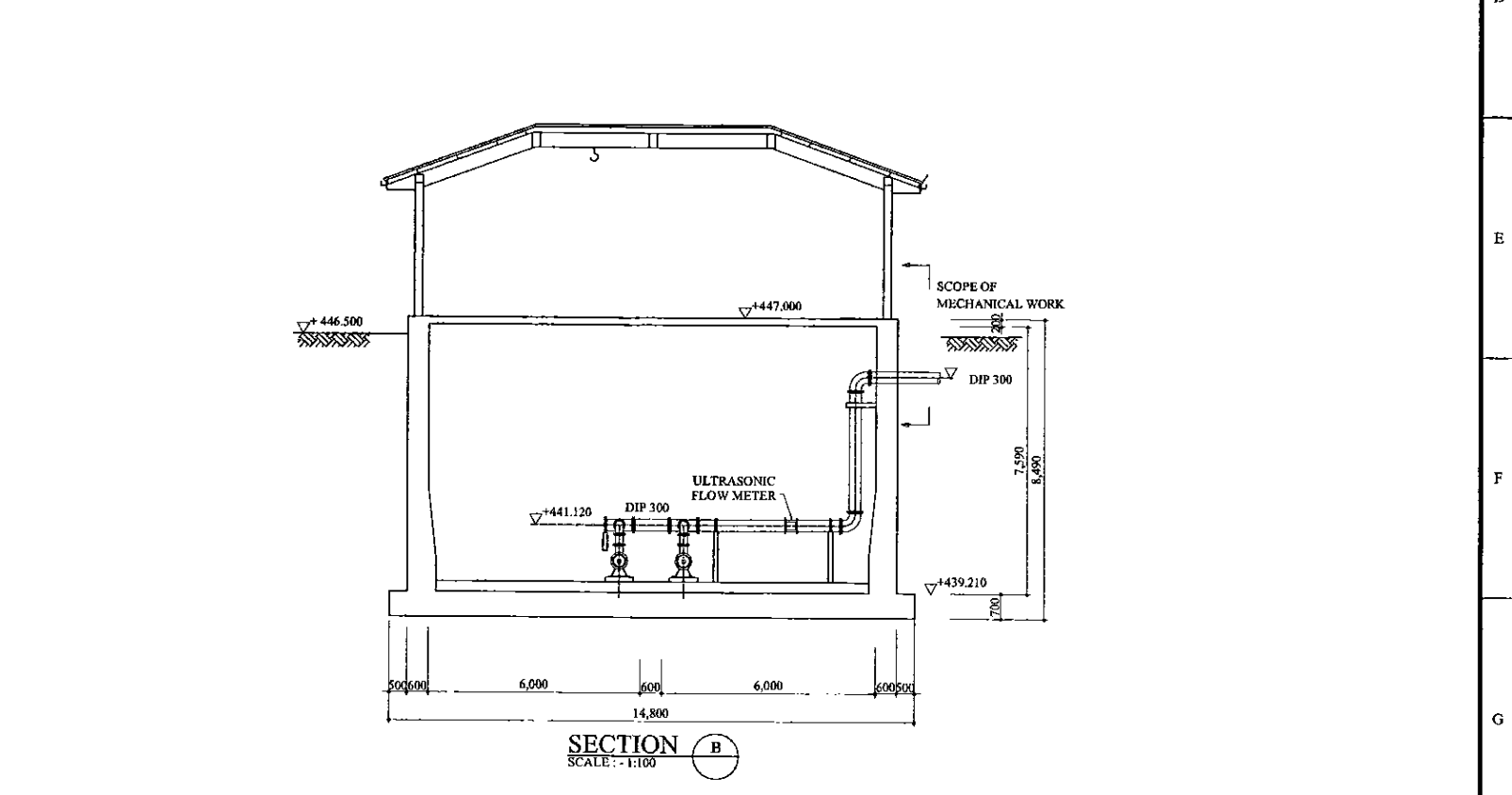
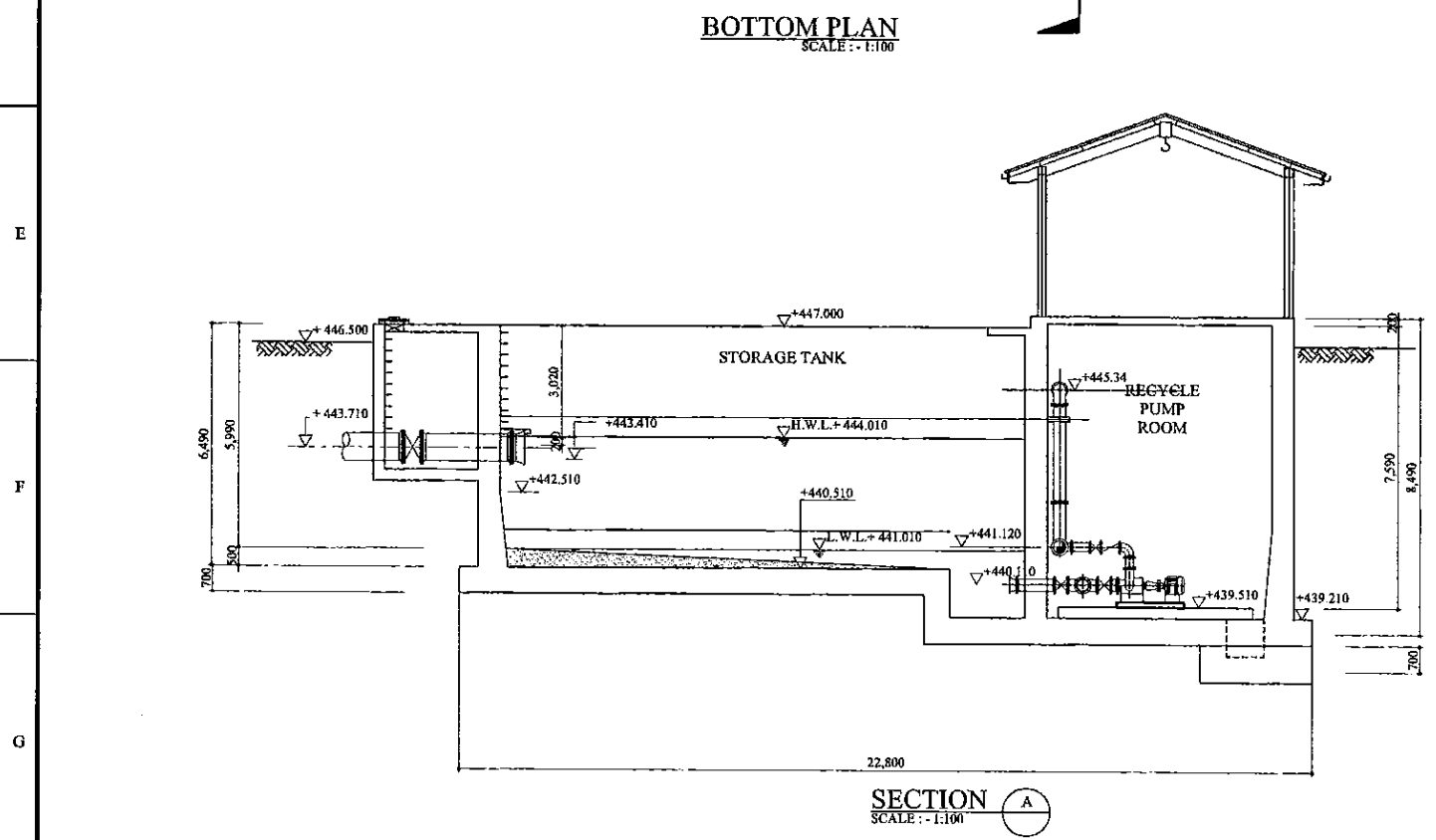
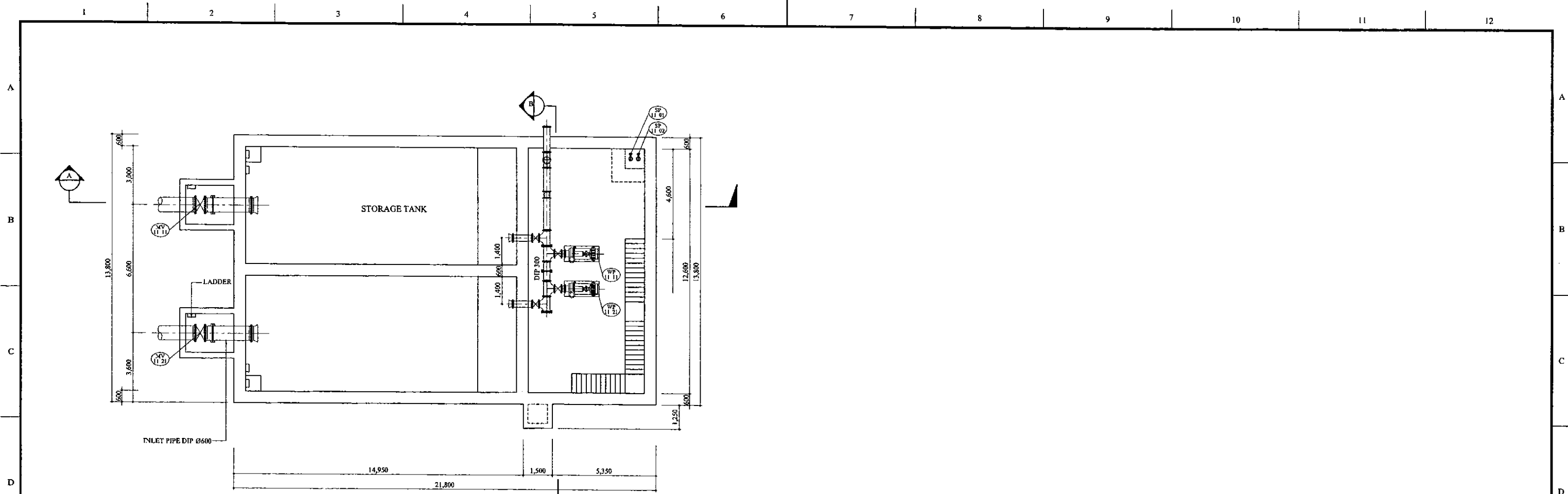
JICA JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: CHAMICAL DOSING PIPE

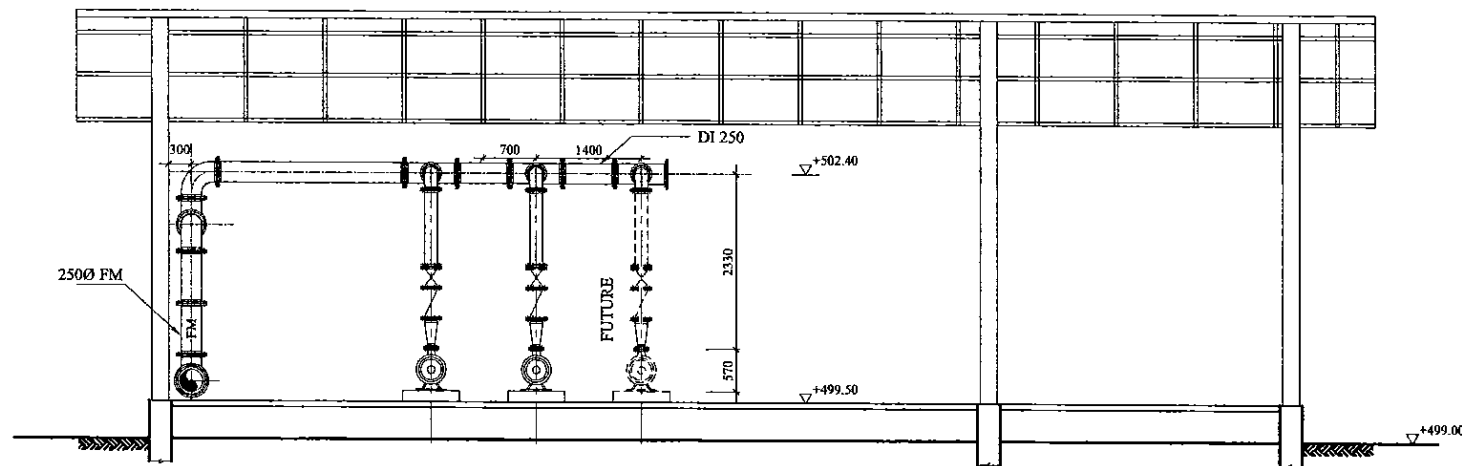
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

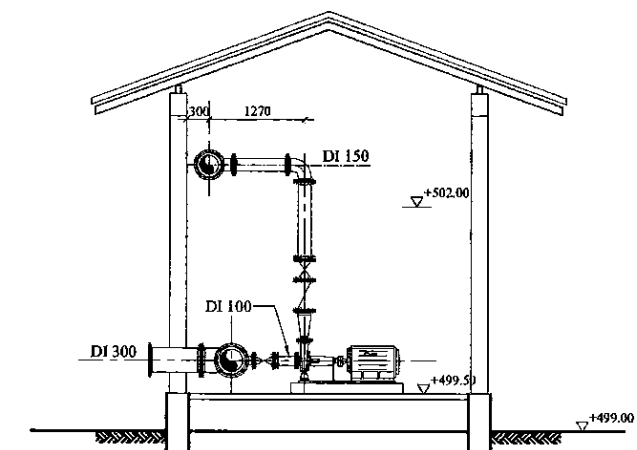
REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	CE: (P&D)	SCALE:
XX	XXXX	XX	XX	OSAKA	Muditha	Ikuo MIWA		AS SHOWN
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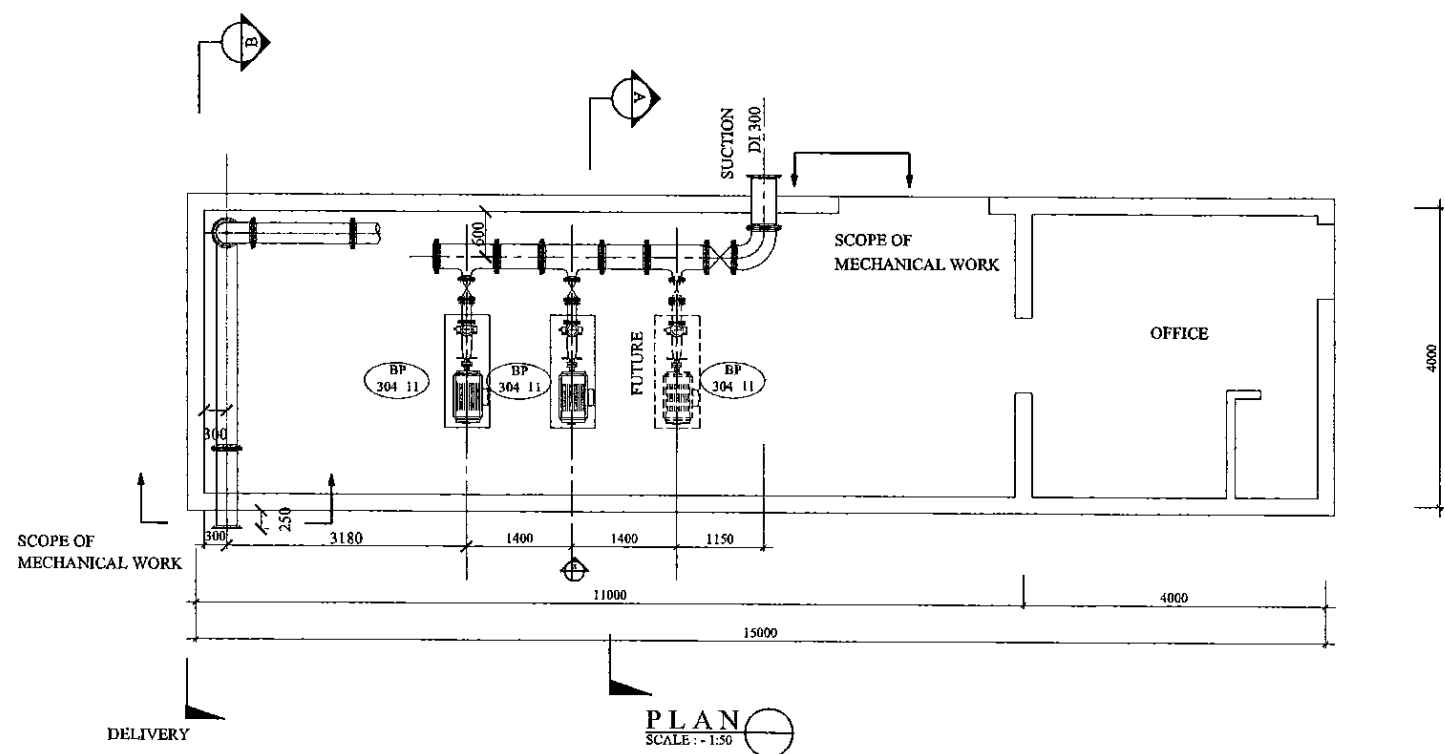
PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: BACK WASH WATER RECOVERY RECOVERY FACILITY - PIPING ARRANGEMENT								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: Shinichi OSAKA	DRAWN: Lakmal	PM: (CONSULTANT) Ikuo MIWA	CE: (P&D)	SCALE: AS SHOWN
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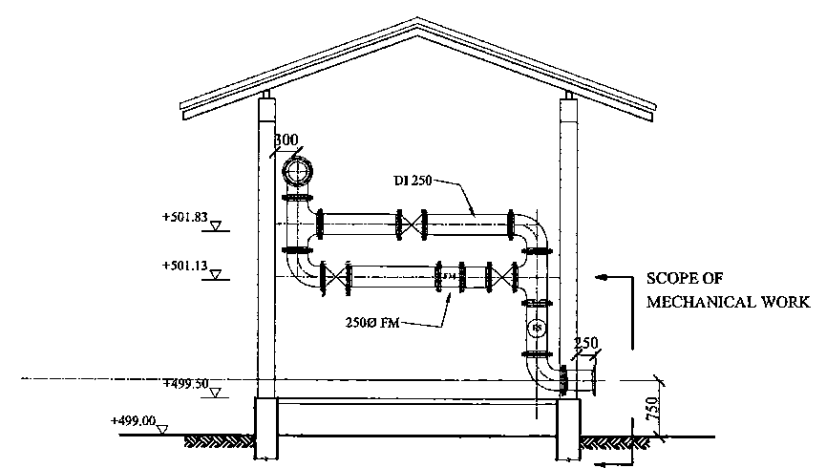
SECTIONAL VIEW X
SCALE: 1:50



SECTION A
SCALE: 1:50



PLAN
SCALE: 1:50

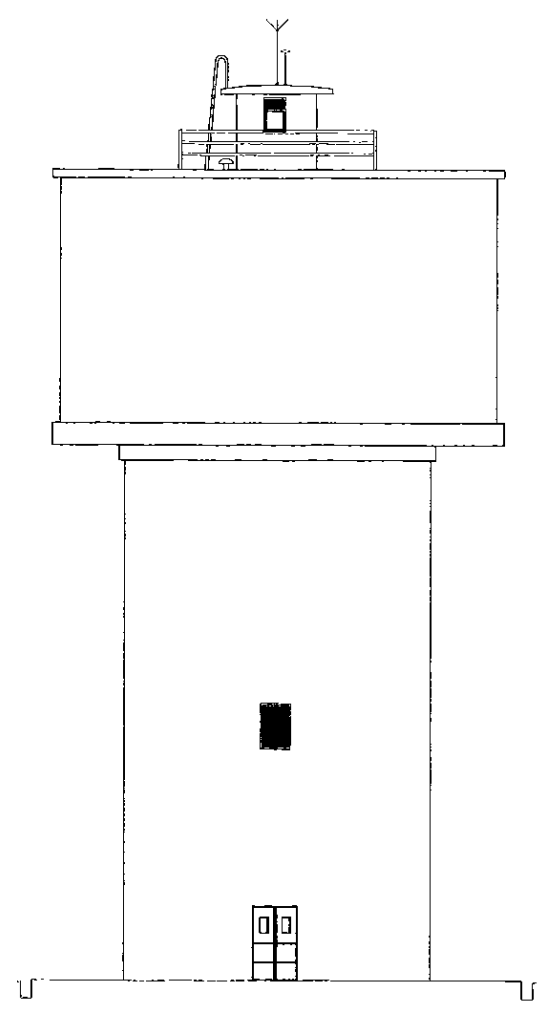


SECTIONAL VIEW B
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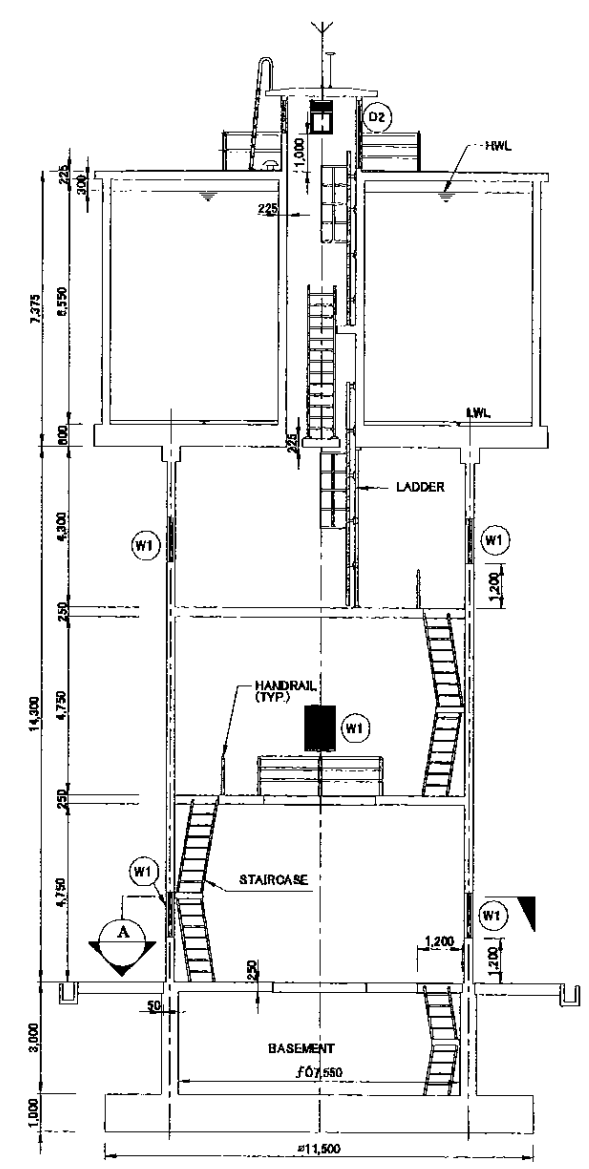
PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JICA JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: KAHAWATTA PUMP STATION - PIPING ARRANGEMENT								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: Shinichi OSAKA	DRAWN: lakmal	PM: (CONSULTANT) Ikuo MIWA	CE: (P&D)	SCALE: 1:50
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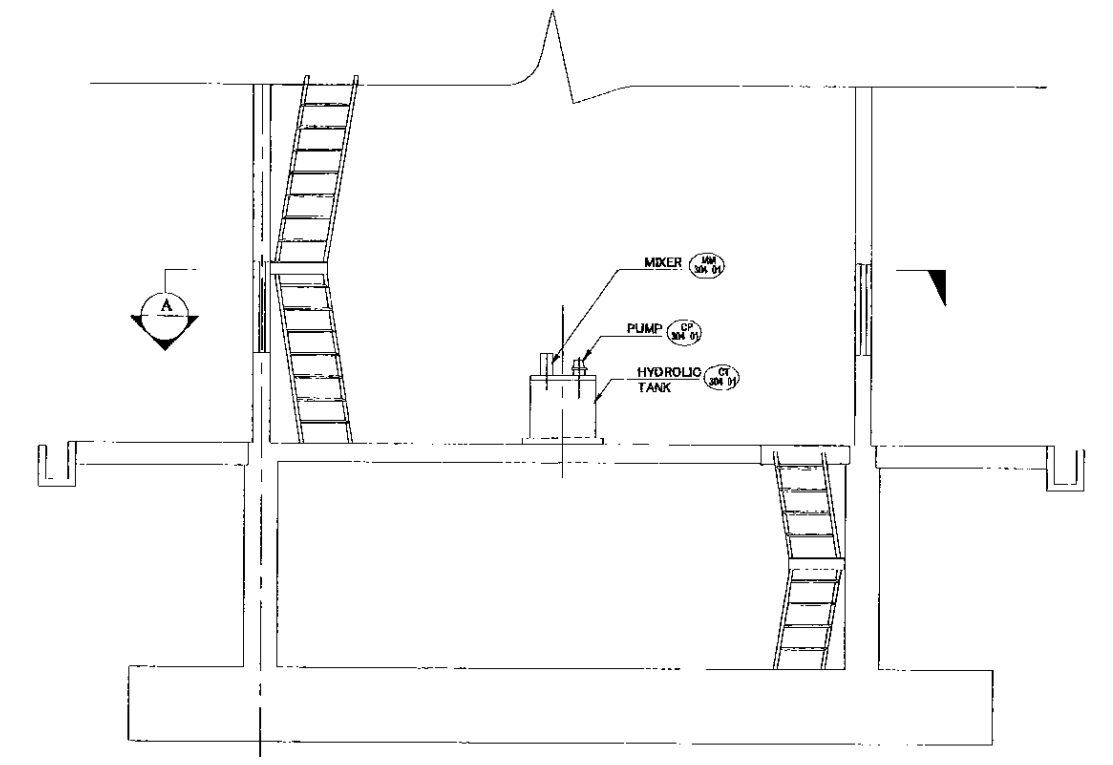
A
B
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H



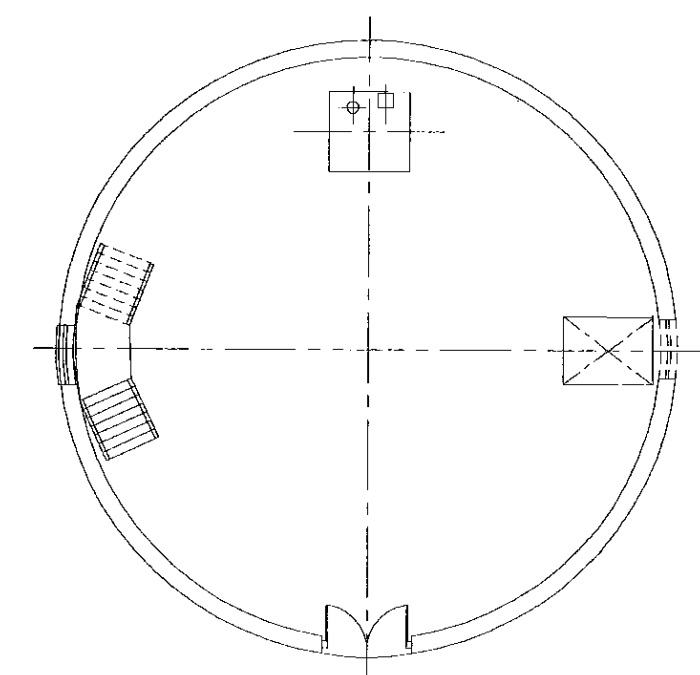
FRONT ELEVATION
SCALE: 1:100



SECTIONAL ELEVATION
SCALE: 1:100



SECTION A
SCALE: 1:50



SECTION A
SCALE: 1:50

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

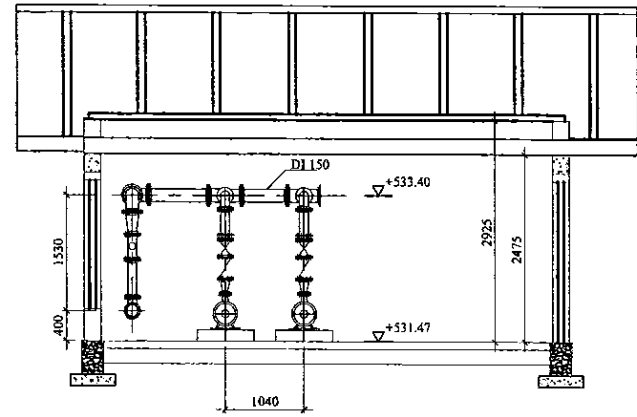
TITLE: KAHAWATTE SERVICE RESERVOIR & PUMPING STATION - MECHANICAL ARRANGEMENT

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

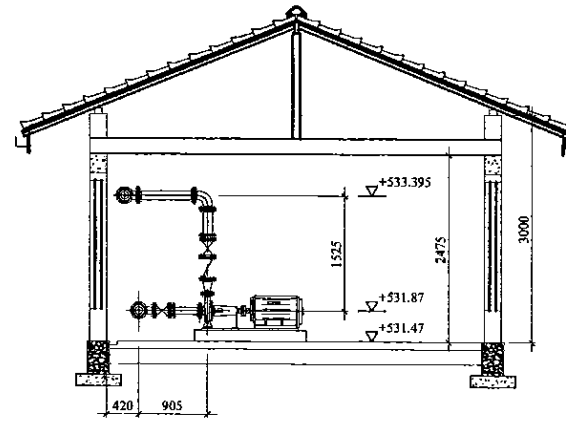
CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	CE: (P&D)	SCALE:
				Shinichi OSAKA	Wanni	Ikuo MIWA		AS SHOWN
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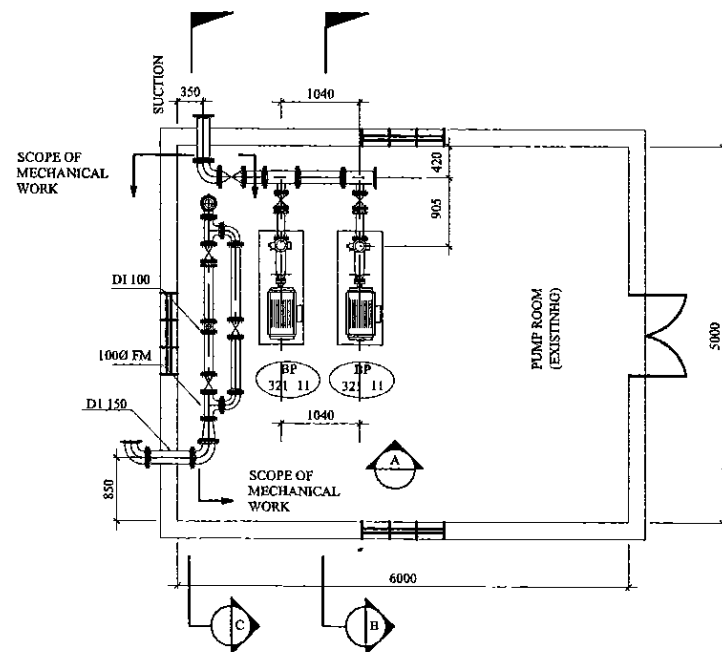
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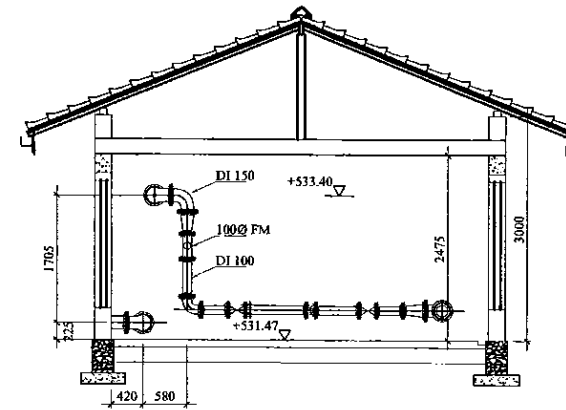
SECTIONAL VIEW A
SCALE: - 1:50



SECTION B
SCALE: - 1:50



PLAN
SCALE: - 1:50



SECTION C
SCALE: - 1:50

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT



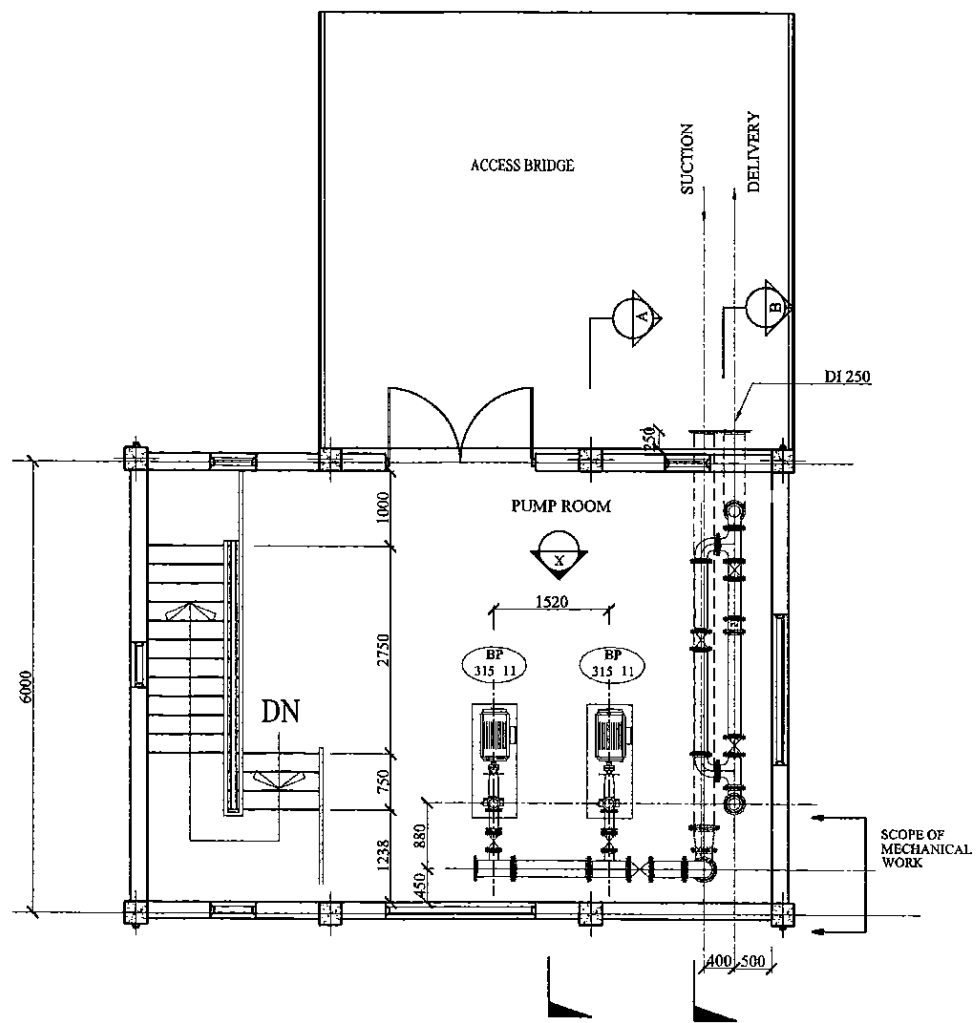
JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: KONDADENIYA PUMPING STATION - PIPING ARRANGEMENT

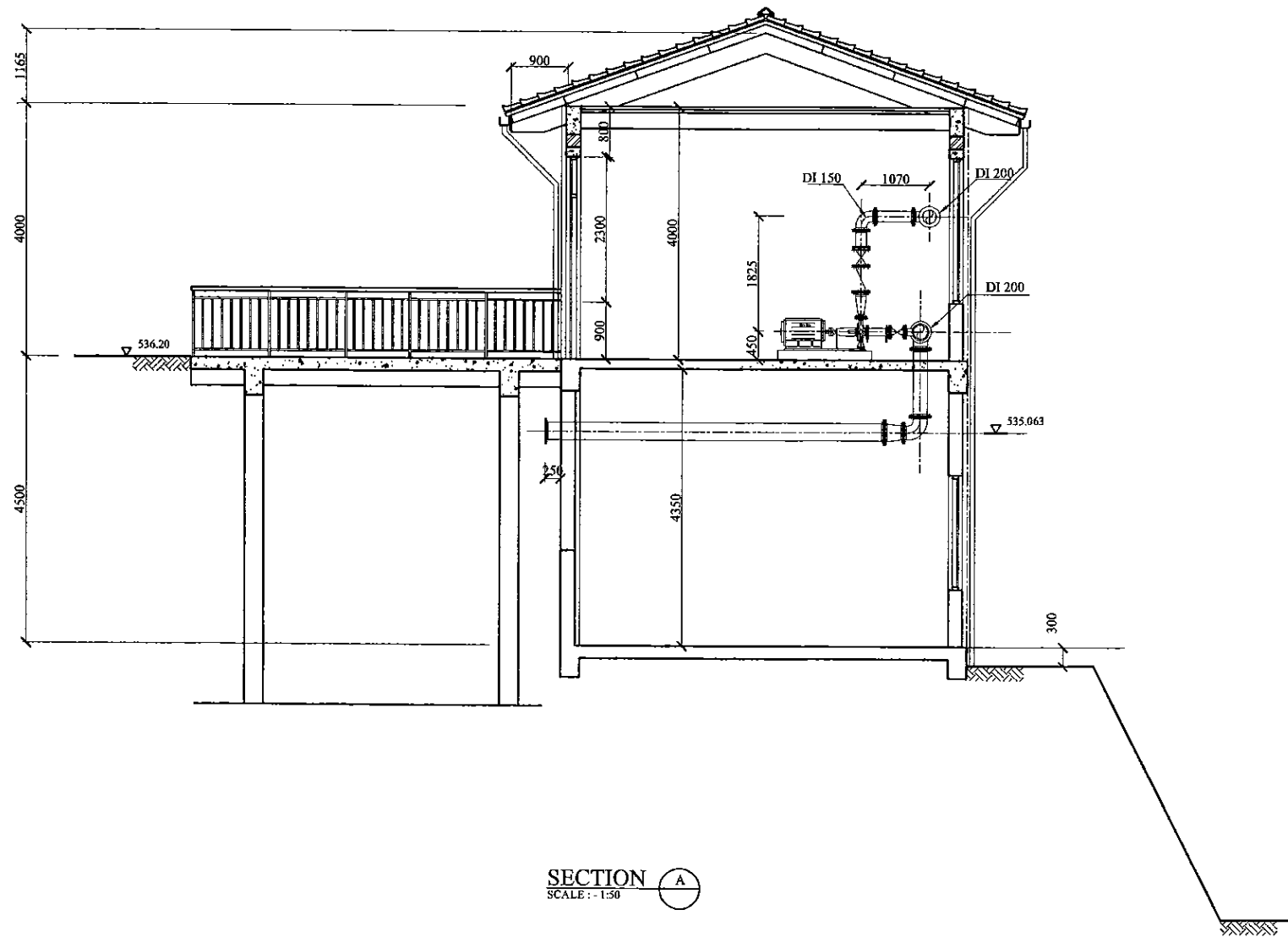
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	CE: (P&D)	SCALE:
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PLAN
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SECTION A
SCALE: 1:50

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT



JAPAN INTERNATIONAL COOPERATION AGENCY

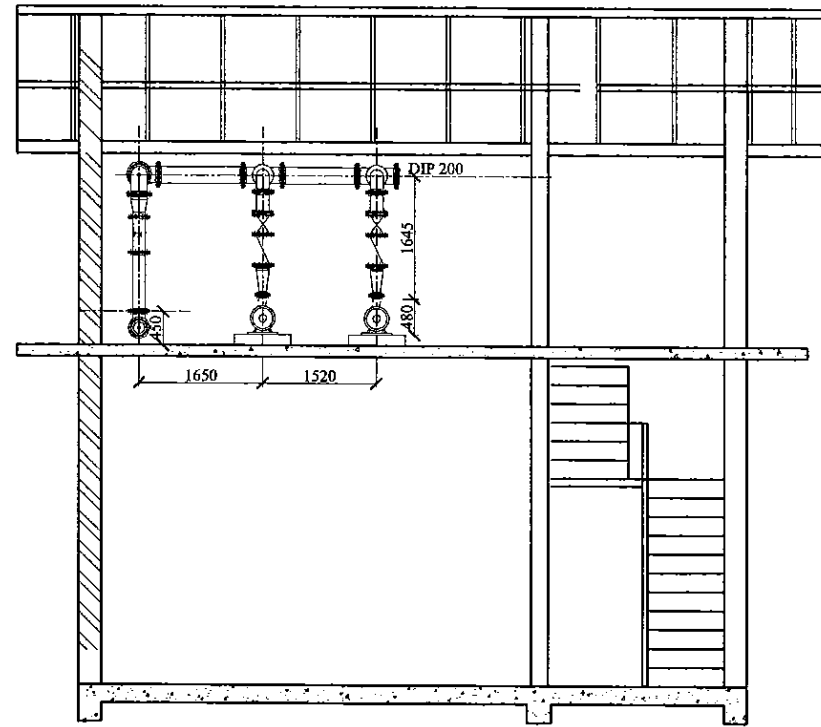
TITLE: ASGIRIYA PUMP STATION - PIPING ARRANGEMENT

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

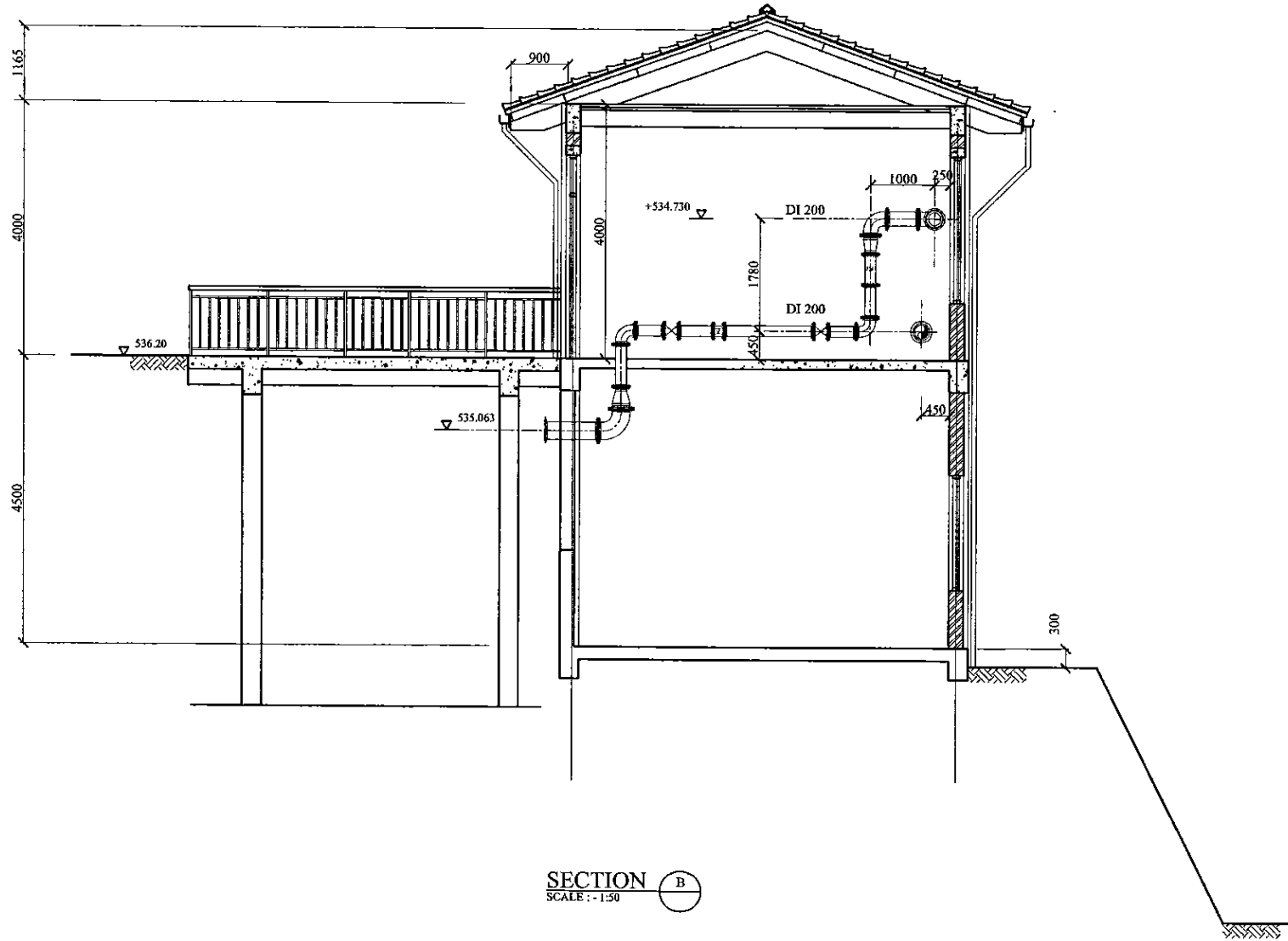


CONSULTANTS:
NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	CE: (P&D)	SCALE:
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SECTIONAL VIEW X
SCALE: 1:50



SECTION B
SCALE: 1:50

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT





JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: ASGIRIYA PUMP STATION - PIPING ARRANGEMENT

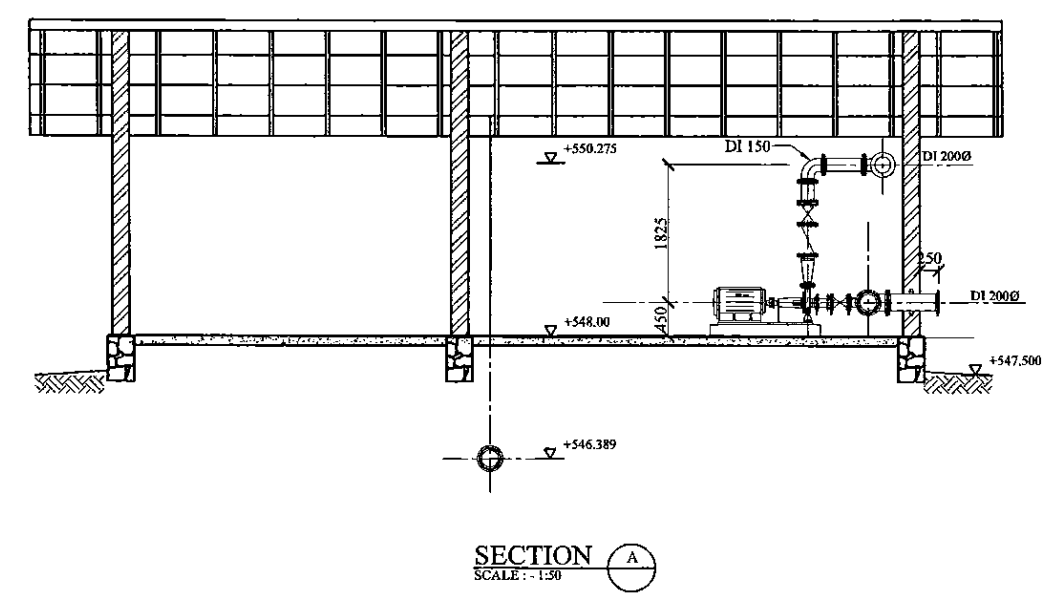
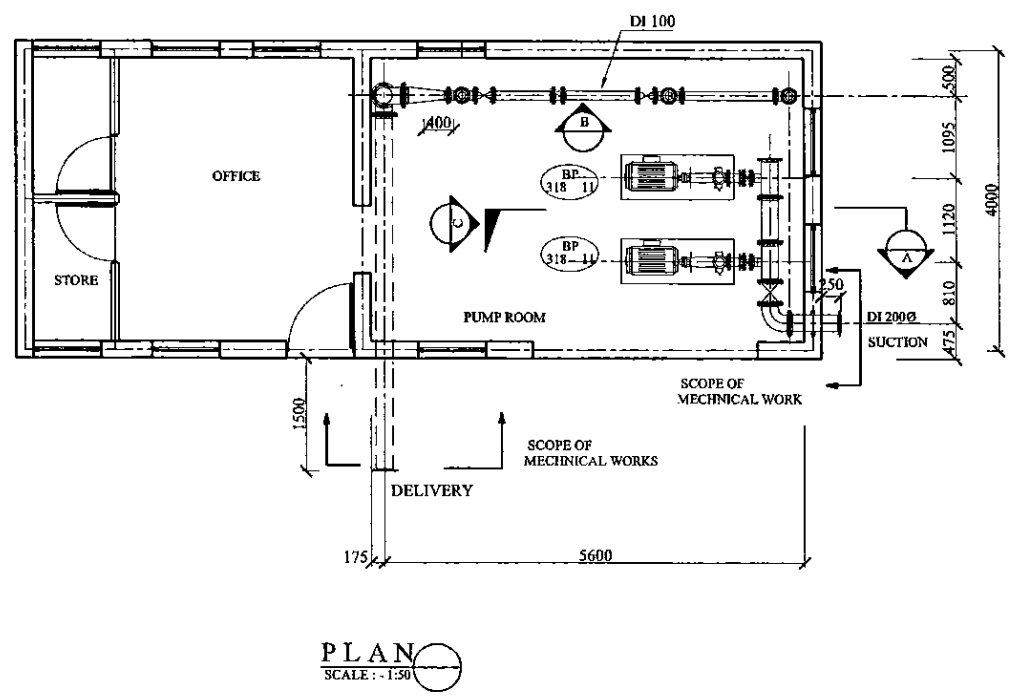
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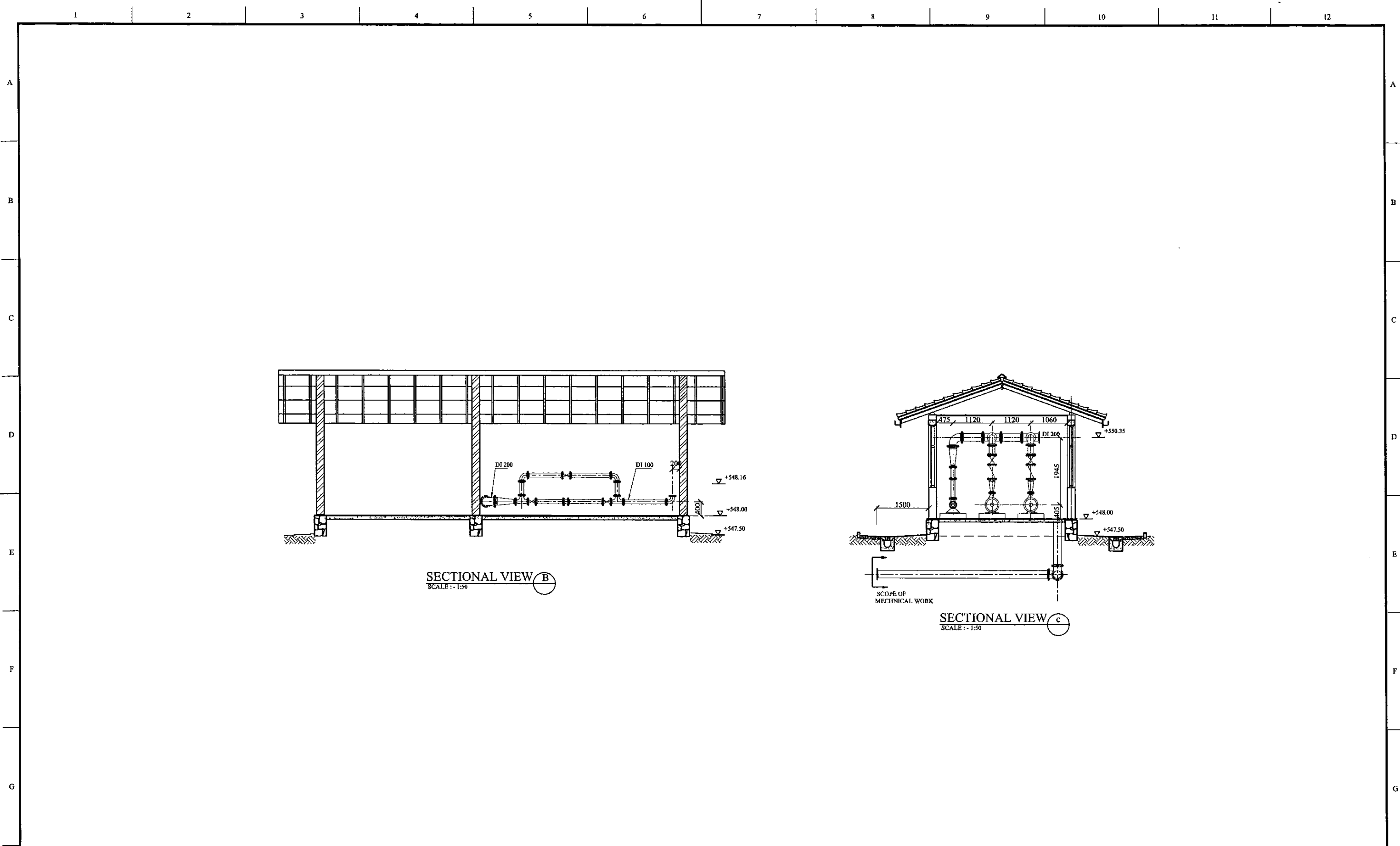
CONSULTANTS:
 NJS CONSULTANTS CO., LTD. - JAPAN
 NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	CE: (P&D)	SCALE:
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DATE: 15/12/2001 17:00:00



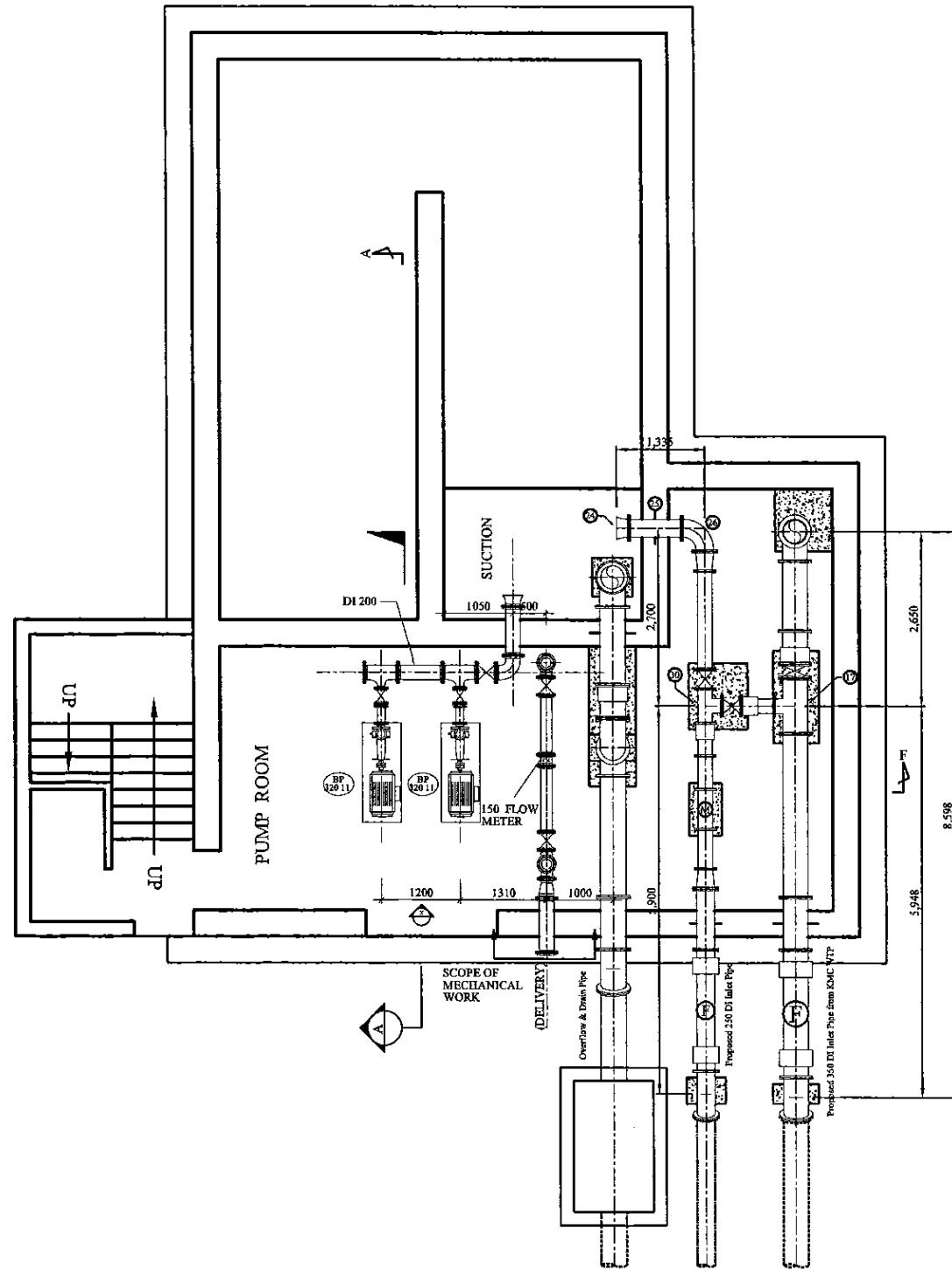
PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JICA JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: KMC R2 PUMP STATION - PIPING ARRANGEMENT								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NSC NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: Shinichi OSAKA	DRAWN: lakmal	PM: (CONSULTANT) Ikuo MIWA	CE: (P&D)	SCALE: 1:50
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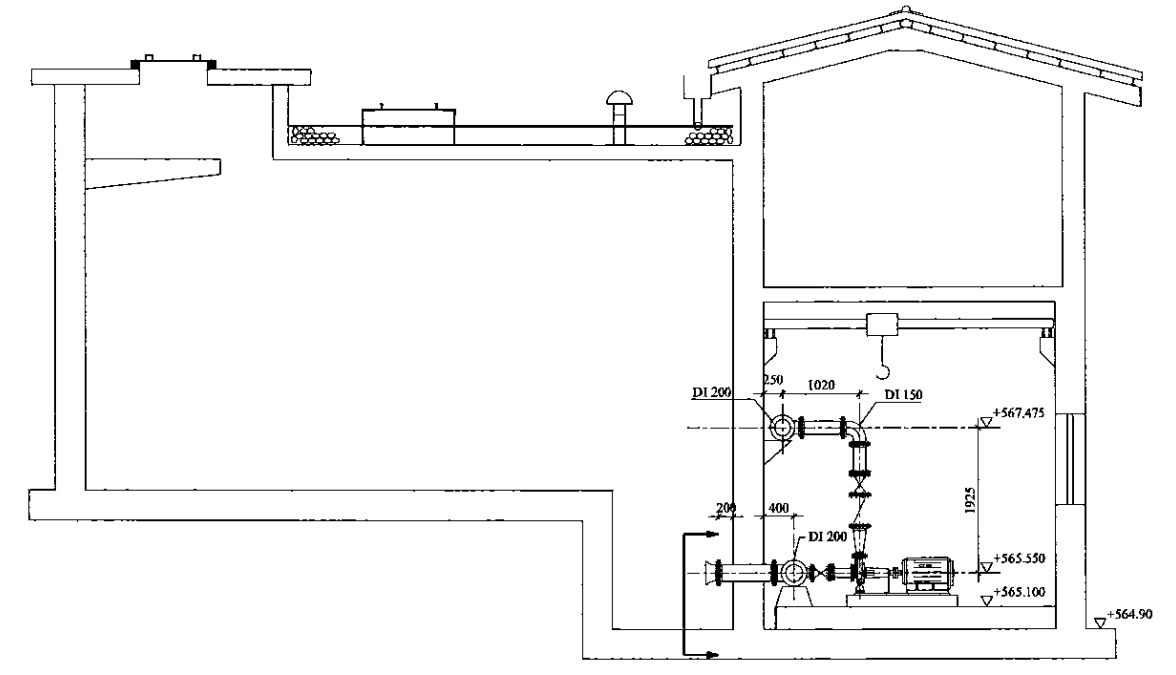
SECTIONAL VIEW B
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SECTIONAL VIEW C
SCALE: 1:50

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: KMC R2 PUMP STATION - PIPING ARRANGEMENT								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: Shinichi OSAKA	DRAWN: Iakmal	PM: (CONSULTANT) Ikuo MIWA	CE: (P&D)	SCALE: 1:50
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PLAN
SCALE: - 1:50

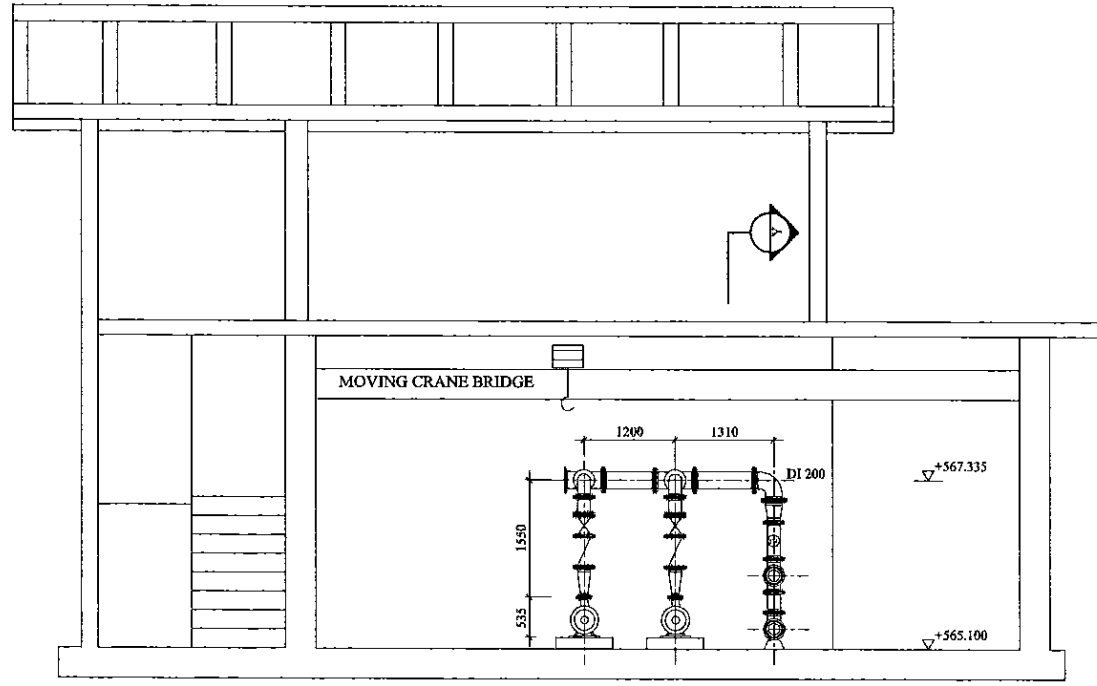


SECTION A
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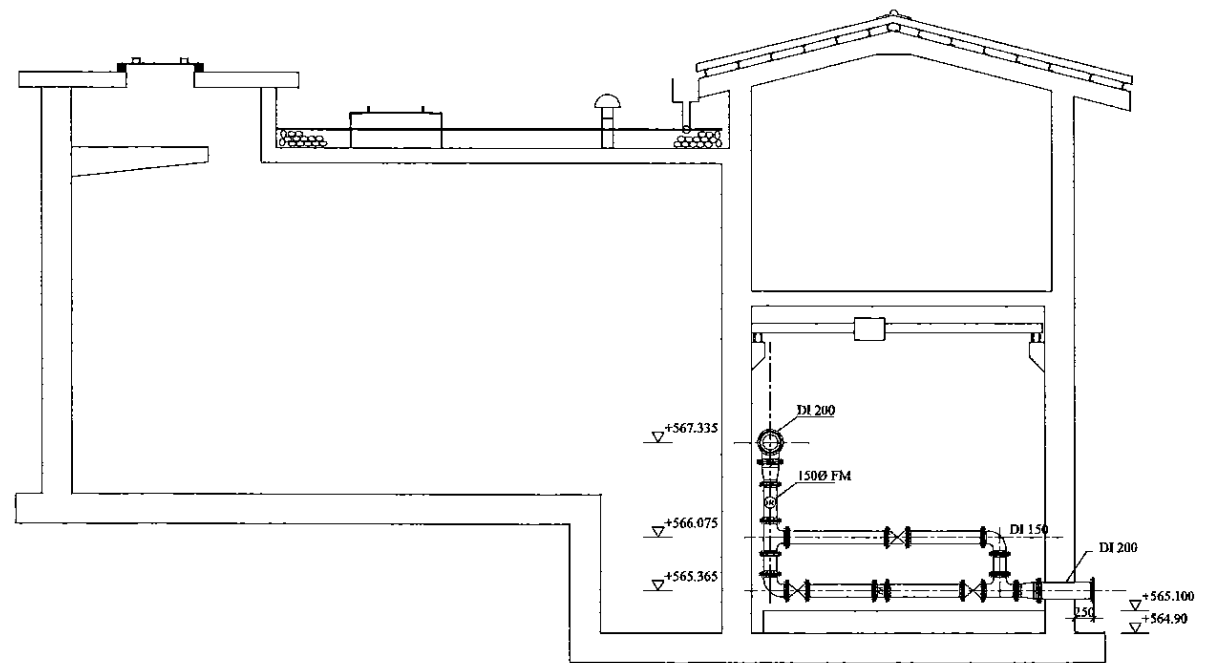
PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JICA JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: HEERESSAGALA LOW PUMP STATION - PIPING ARRANGEMENT								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: Shinichi OSAKA	DRAWN: iakmal	PM: (CONSULTANT) Ikuo MIWA	CE: (P&D)	SCALE: 1:50
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A
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H



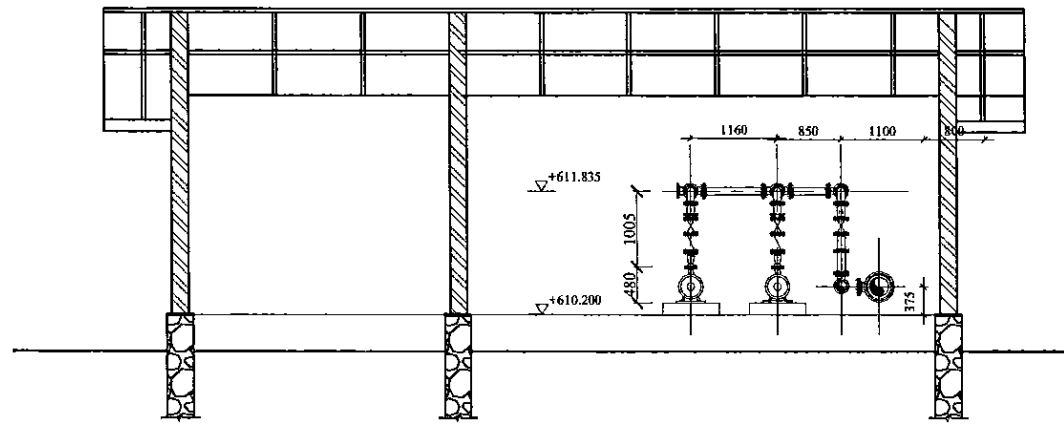
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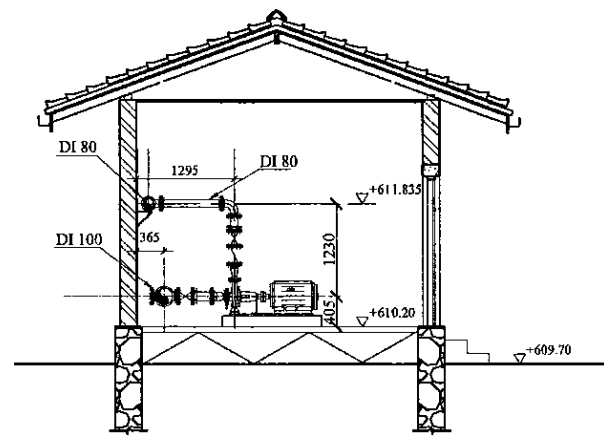
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SCALE: 1:50

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		 JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: HEERESSAGALA LOW PUMP STATION - PIPING ARRANGEMENT								
CLIENT:  NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS:  NJS CONSULTANTS CO., LTD. - JAPAN  NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: Shinichi OSAKA	DRAWN: lakmal	PM: (CONSULTANT) Ikuo MIWA	CE: (P&D)	SCALE: 1:50
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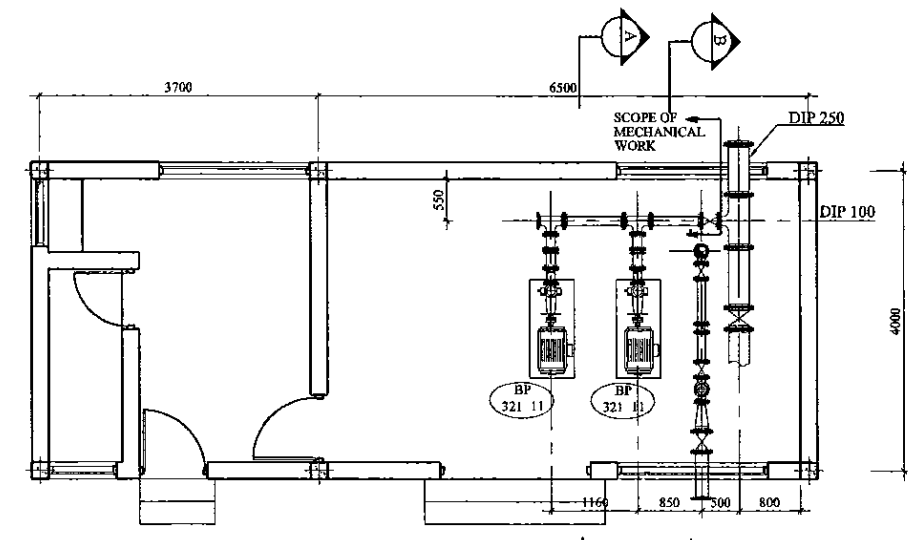
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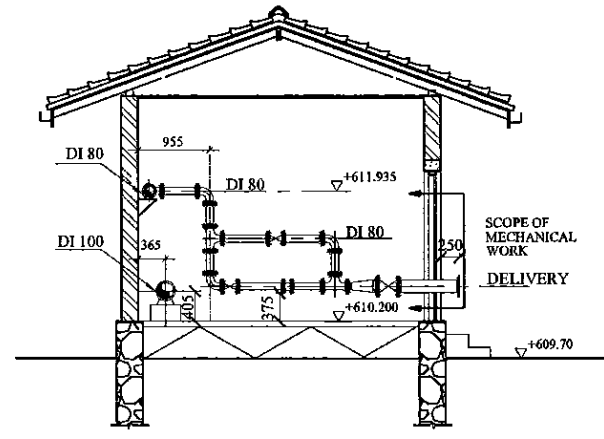
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SECTION A
SCALE: 1:50

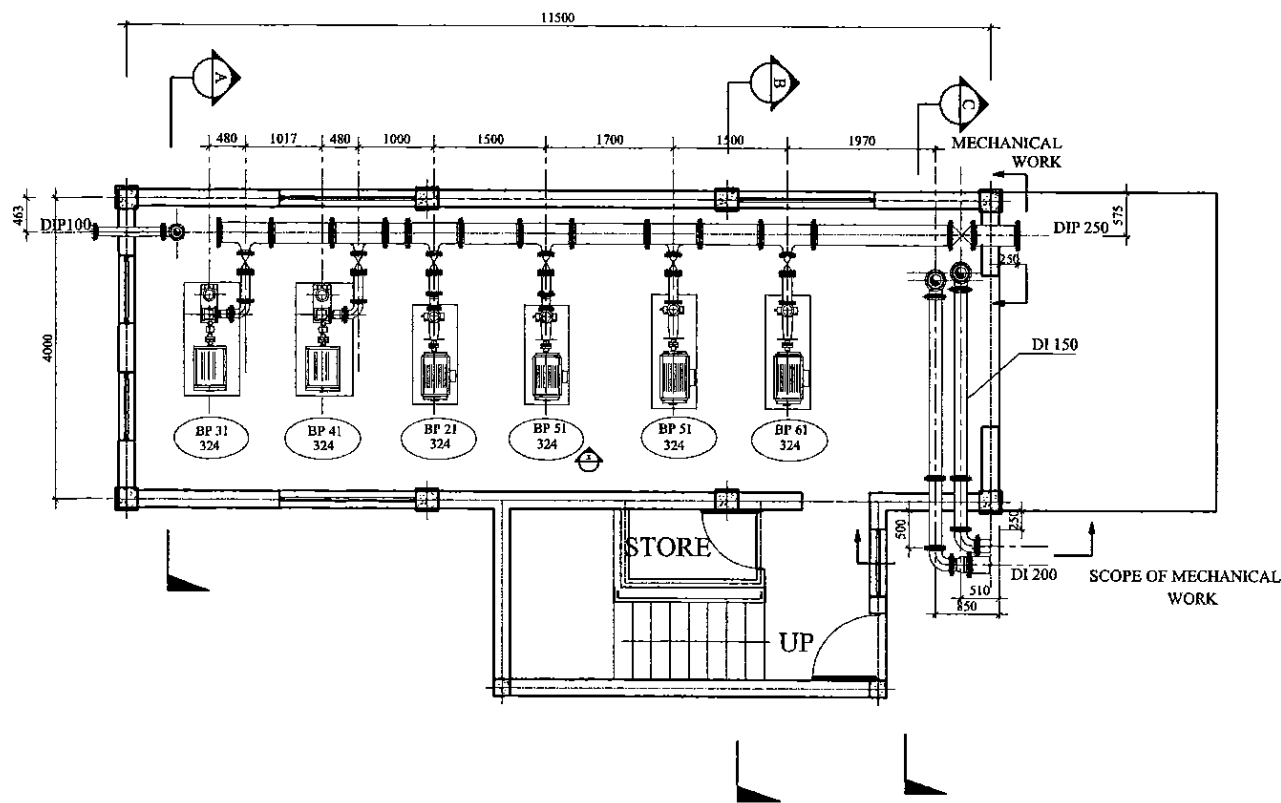


PLAN
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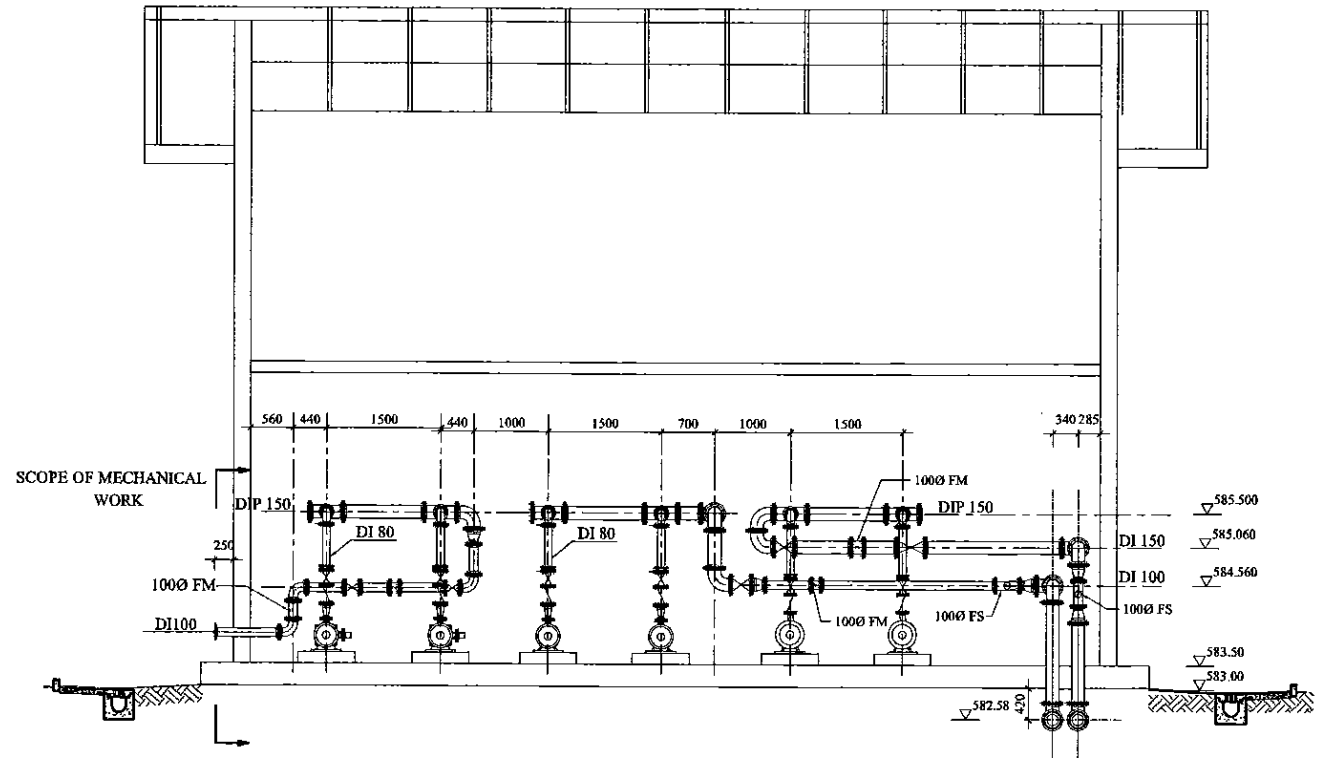


SECTION B
SCALE: 1:50

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JICA JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: HEERASSAGALA MIDDLE PUMP STATION - PIPING ARRANGEMENT								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD	CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN			REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: Shinichi OSAKA	DRAWN: lakmal	PM: (CONSULTANT) Ikuo MIWA	CE: (P&D)	SCALE: 1:50
	NISC NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN							CHECKED: DESIGN CHIEF	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 30-M-21-01

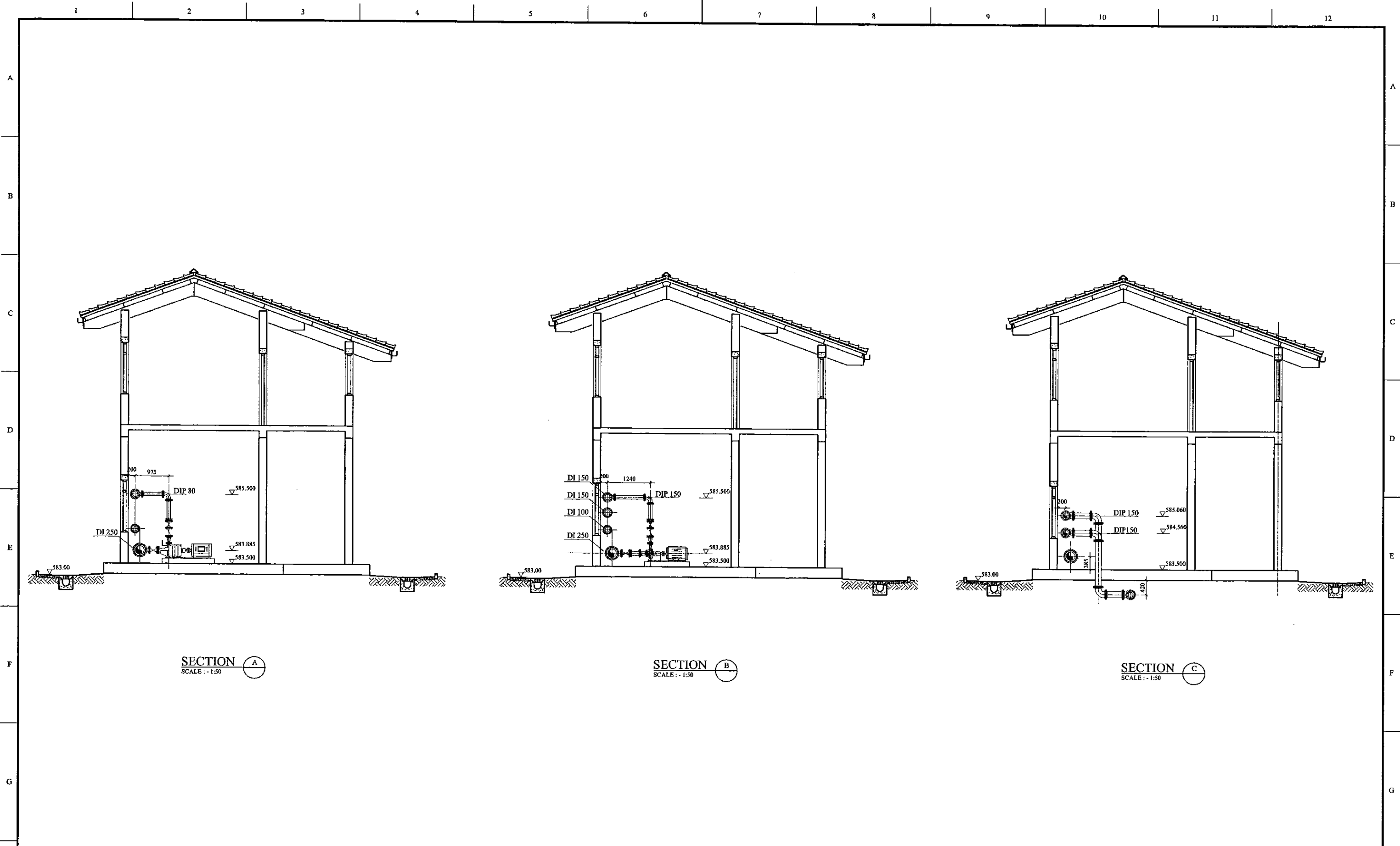


PLAN
SCALE: 1:50



SECTIONAL VIEW (X)
SCALE: 1:50

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: AMPITIYA PUMP STATION - PIPING ARRANGEMENT								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: Shinichi OSAKA	DRAWN: lakmal	PM: (CONSULTANT) Ikuo MIWA	CE: (P&D)	SCALE: 1:50
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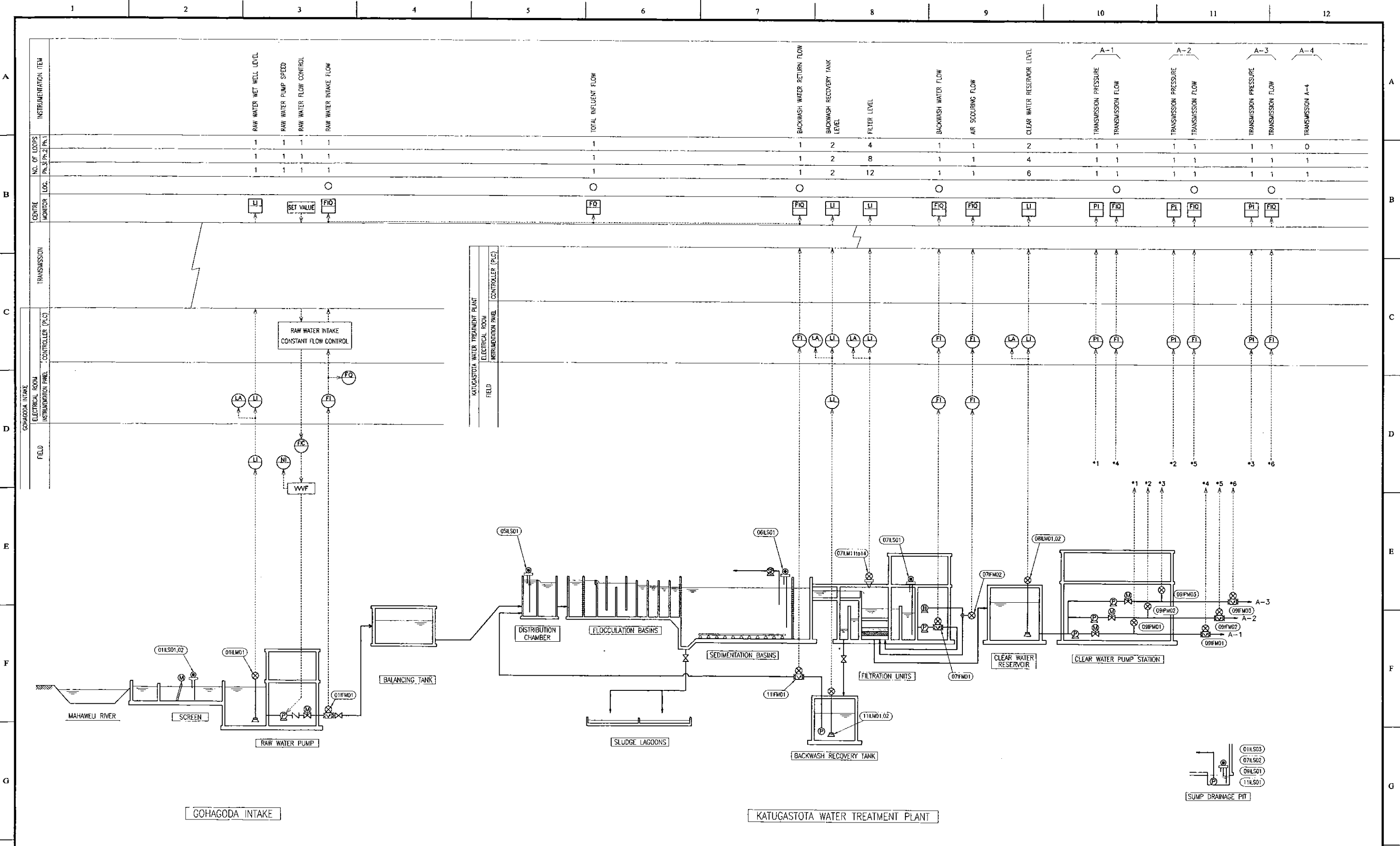


SECTION A
SCALE: 1:50

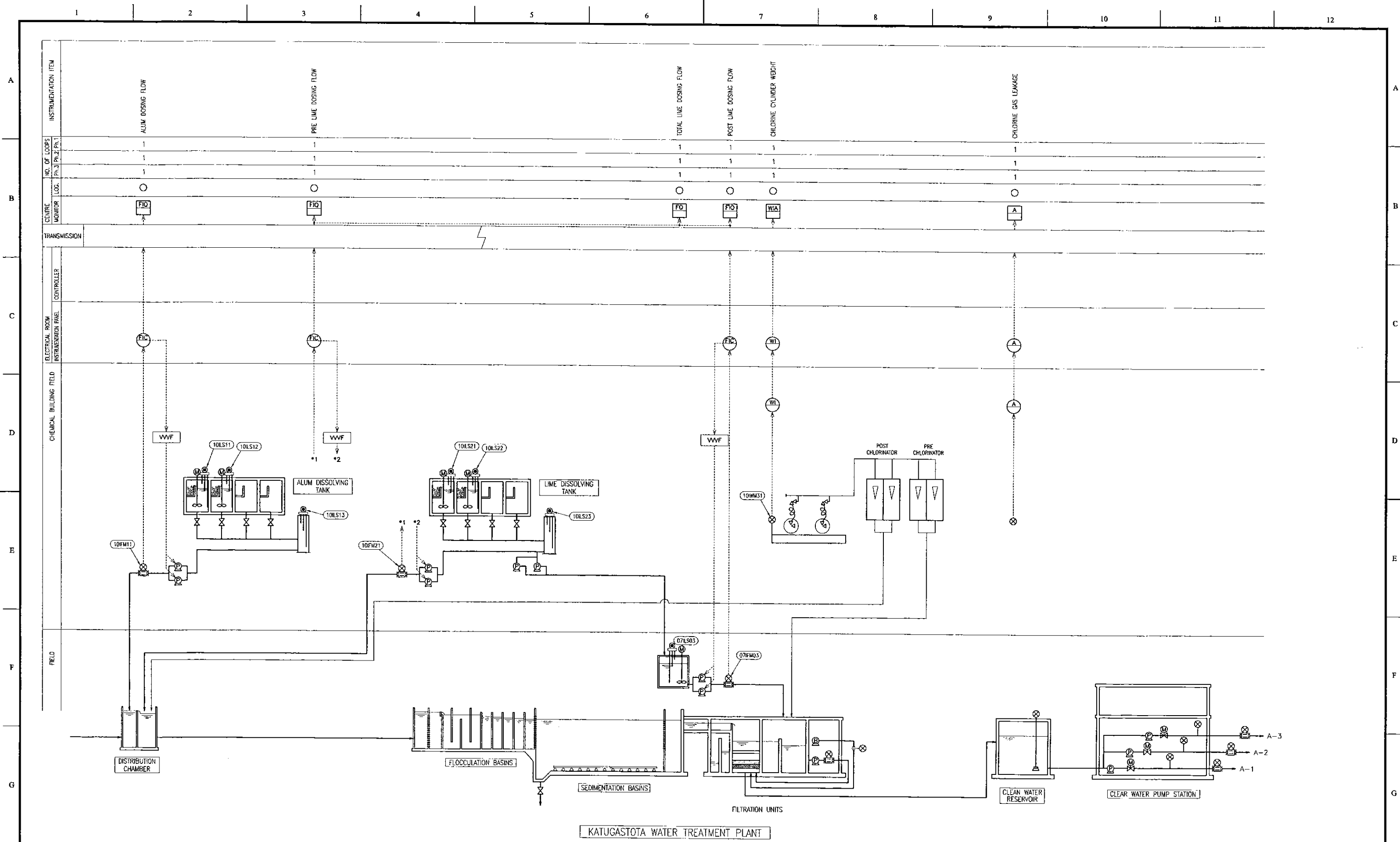
SECTION B
SCALE: 1:50

SECTION C
SCALE: 1:50

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: AMPITIYA PUMP STATION - PIPING ARRANGEMENT								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: Shinichi OSAKA	DRAWN: lakmal	PM: (CONSULTANT) Ikuo MIWA	CE: (P&D)	SCALE: 1:50
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PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JICA JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: INSTRUMENTATION FLOW DIAGRAM FOR INTAKE & WATER TREATMENT PLANT								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: A.Miura	DRAWN: A.Miura	PM: (CONSULTANT) Ikuo MIWA	CE: (P&D)	SCALE: NTS
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KATUGASTOTA WATER TREATMENT PLANT

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT

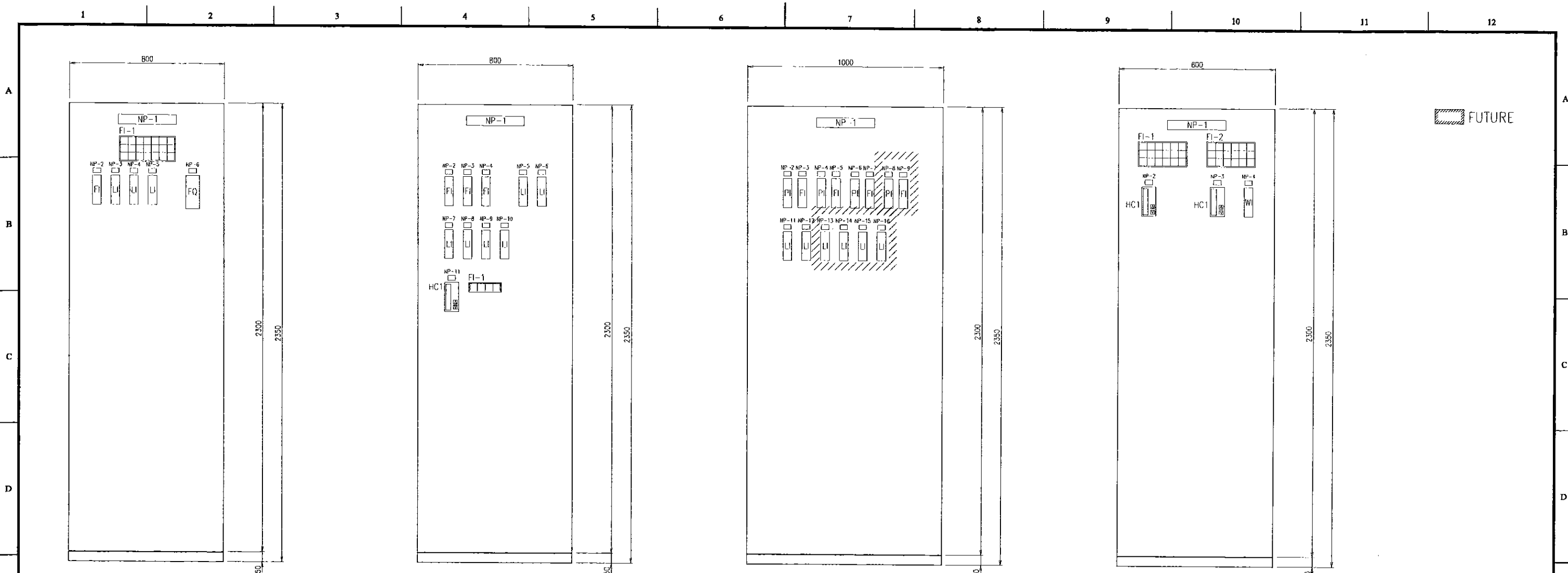
JICA JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: INSTRUMENTATION FLOW DIAGRAM FOR CHEMICAL DOSING

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NISC NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	CE: (P&D)	SCALE:
				A. Miura	A. Miura	Ikuo MIWA		NTS
				CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 00-I-02
				DESIGN CHIEF				



INSTRUMENTATION PANEL FOR INTAKE
01INP01

INSTRUMENTATION PANEL FOR FILTER UNIT
07INP01

INSTRUMENTATION PANEL FOR CLEAR WATER PUMP STATION
09INP01

INSTRUMENTATION PANEL FOR CHEMICAL DOSING
10INP01

NP-1	INSTRUMENTATION PANEL
NP-2	RAW WATER INTAKE FLOW
NP-3	RAW WATER WET WELL LEVEL
NP-4	MAIN FUEL TANK LEVEL
NP-5	FUEL HEAD TANK LEVEL
NP-6	RAW WATER INTAKE FLOW QUANTITY

NP-1	INSTRUMENTATION PANEL
NP-2	BACKWASH WATER FLOW
NP-3	BACKWASH WATER RETURN FLOW
NP-4	AIR SCOURING FLOW
NP-5	NO.1 BACKWASH RECOVERY TANK LEVEL
NP-6	NO.2 BACKWASH RECOVERY TANK LEVEL
NP-7	No.1-1 FILTER LEVEL
NP-8	No.1-2 FILTER LEVEL
NP-9	No.1-3 FILTER LEVEL
NP-10	No.1-4 FILTER LEVEL
NP-11	POST LIME FLOW CONTROL
HC-1	HAND CONTROLLER

NP-1	INSTRUMENTATION PANEL
NP-2	TRANSMISSION (A-1) PRESSURE
NP-3	TRANSMISSION (A-1) FLOW
NP-4	TRANSMISSION (A-2) PRESSURE
NP-5	TRANSMISSION (A-2) FLOW
NP-6	TRANSMISSION (A-3) PRESSURE
NP-7	TRANSMISSION (A-3) FLOW
NP-8	TRANSMISSION (A-4) PRESSURE
NP-9	TRANSMISSION (A-4) FLOW
NP-10	
NP-11	NO.1-1 CLEAN WATER RESERVOIR LEVEL
NP-12	NO.1-2 CLEAN WATER RESERVOIR LEVEL
NP-13	NO.2-1 CLEAN WATER RESERVOIR LEVEL
NP-14	NO.2-2 CLEAN WATER RESERVOIR LEVEL
NP-15	NO.3-1 CLEAN WATER RESERVOIR LEVEL
NP-16	NO.3-2 CLEAN WATER RESERVOIR LEVEL

NP-1	INSTRUMENTATION PANEL
NP-2	ALUM DOSING FLOW
NP-3	PRE LIME DOSING FLOW
NP-4	CHLORINE CYLINDER WEIGHT
HC-1	HAND CONTROLLER

FI-1 DETAIL

NO.1 Screen Pit LEVEL L.L.	NO.2 Screen Pit LEVEL L.L.	RAW WATER WET WELL LEVEL L.L.	SUMP DRAINAGE LEVEL H.H.	INTAKE FLOW DROP	POWER FAILURE	
NO.1 Fine Screen TROUBLE	NO.2 Fine Screen TROUBLE	NO.1 Screen Wash Pump TROUBLE	NO.2 Screen Wash Pump TROUBLE	NO.1 Sump Drainage P. TROUBLE	NO.2 Sump Drainage P. TROUBLE	MAIN FUEL TANK LEVEL L.L.
NO.1 Raw Water Pump TROUBLE	NO.2 Raw Water Pump TROUBLE	NO.3 Raw Water Pump TROUBLE	NO.4 Raw Water Pump TROUBLE	NO.1 Generator TROUBLE	NO.2 Generator TROUBLE	FUEL HEAD TANK LEVEL L.L.

FI-1 DETAIL

NO.1 Lime Feed Pump TROUBLE	NO.2 Lime Feed Pump TROUBLE	Lime Mixer TROUBLE	LIME HEAD TANK LEVEL L.L.
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FI-1 DETAIL

NO.1 Alum Mixing Tank LEVEL H.H.	NO.2 Alum Mixing Tank LEVEL H.H.	NO.3 Alum Mixing Tank LEVEL H.H.	NO.4 Alum Mixing Tank LEVEL H.H.	Alum Level Tank LEVEL L.L.
NO.1 Alum Mixing Tank LEVEL L.L.	NO.2 Alum Mixing Tank LEVEL L.L.	NO.3 Alum Mixing Tank LEVEL L.L.	NO.4 Alum Mixing Tank LEVEL L.L.	
NO.1 Alum Feed Pump TROUBLE	NO.2 Alum Feed Pump TROUBLE	NO.3 Alum Mixer TROUBLE	NO.4 Alum Mixer TROUBLE	NO.3 Alum Mixer TROUBLE
				NO.4 Alum Mixer TROUBLE

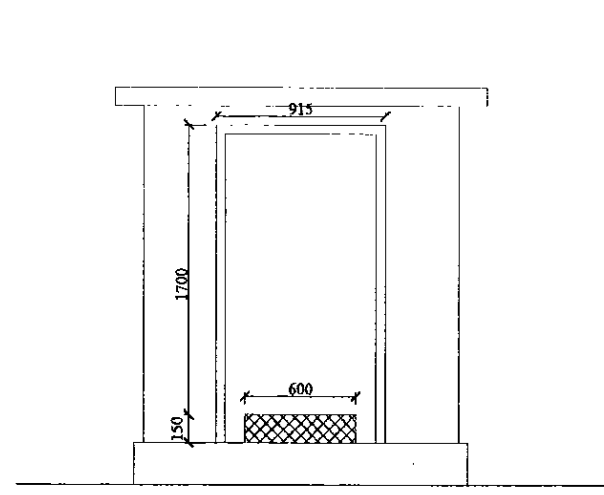
FI-2 DETAIL

NO.1 Lime Mixing Tank LEVEL H.H.	NO.2 Lime Mixing Tank LEVEL H.H.	NO.3 Lime Mixing Tank LEVEL H.H.	NO.4 Lime Mixing Tank LEVEL H.H.	NO.1 Lime Mixer TROUBLE	NO.2 Lime Mixer TROUBLE
NO.1 Lime Mixing Tank LEVEL L.L.	NO.2 Lime Mixing Tank LEVEL L.L.	NO.3 Lime Mixing Tank LEVEL L.L.	NO.4 Lime Mixing Tank LEVEL L.L.	NO.3 Lime Mixer TROUBLE	NO.4 Lime Mixer TROUBLE
NO.1 Lime Pump TROUBLE	NO.2 Lime Pump TROUBLE	NO.1 Lime Feed Pump TROUBLE	NO.2 Lime Feed Pump TROUBLE	Post Lime Head Tank LEVEL H.H.	Lime Level Tank LEVEL L.L.

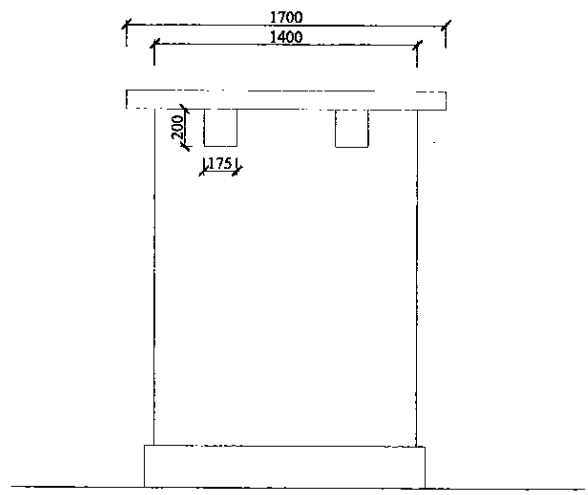
PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JICA JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: OUTLINE OF INSTRUMENTATION PANELS								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: A.Miura	DRAWN: A.Miura	PM: (CONSULTANT) Ikuo MIWA	CE: (P&D)	SCALE: 1:10
								CHECKED: DESIGN CHIEF	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 00-I-03

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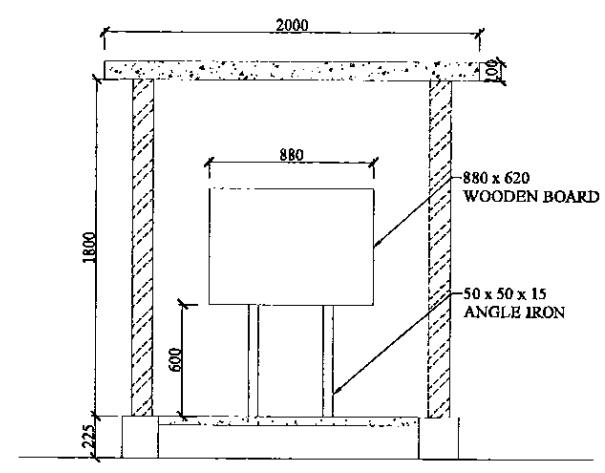
A
B
C
D
E
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H



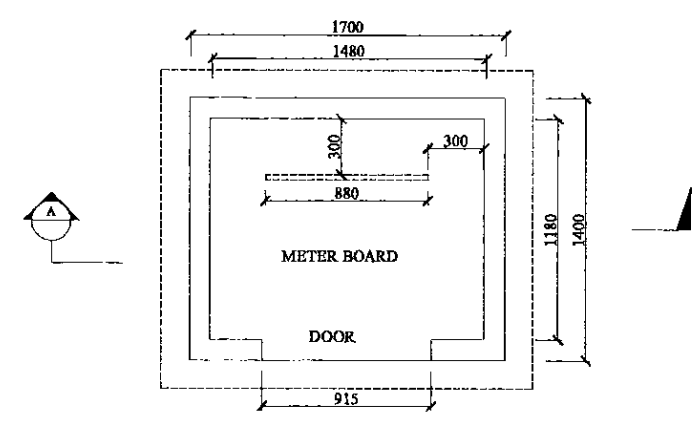
FRONT ELEVATION
SCALE : 1:20



SIDE ELEVATION
SCALE : 1:20



SECTION A
SCALE : 1:20



PLAN
SCALE : 1:20

PROJECT: **GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT**

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: **TRANSFORMER MOUNTED ON METER CUBICLE ROOF - UP TO 1000KVA**

CLIENT: **NATIONAL WATER SUPPLY & DRAINAGE BOARD**

CONSULTANTS: **NJS CONSULTANTS CO., LTD. - JAPAN**
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	CE: (P&D)	SCALE:
				Akira MIURA	Wanni	Ikuo MIWA		1:20
				CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE:	DRAWING NO.:
				DESIGN CHIEF			31/05/2002	00-STD-C-06

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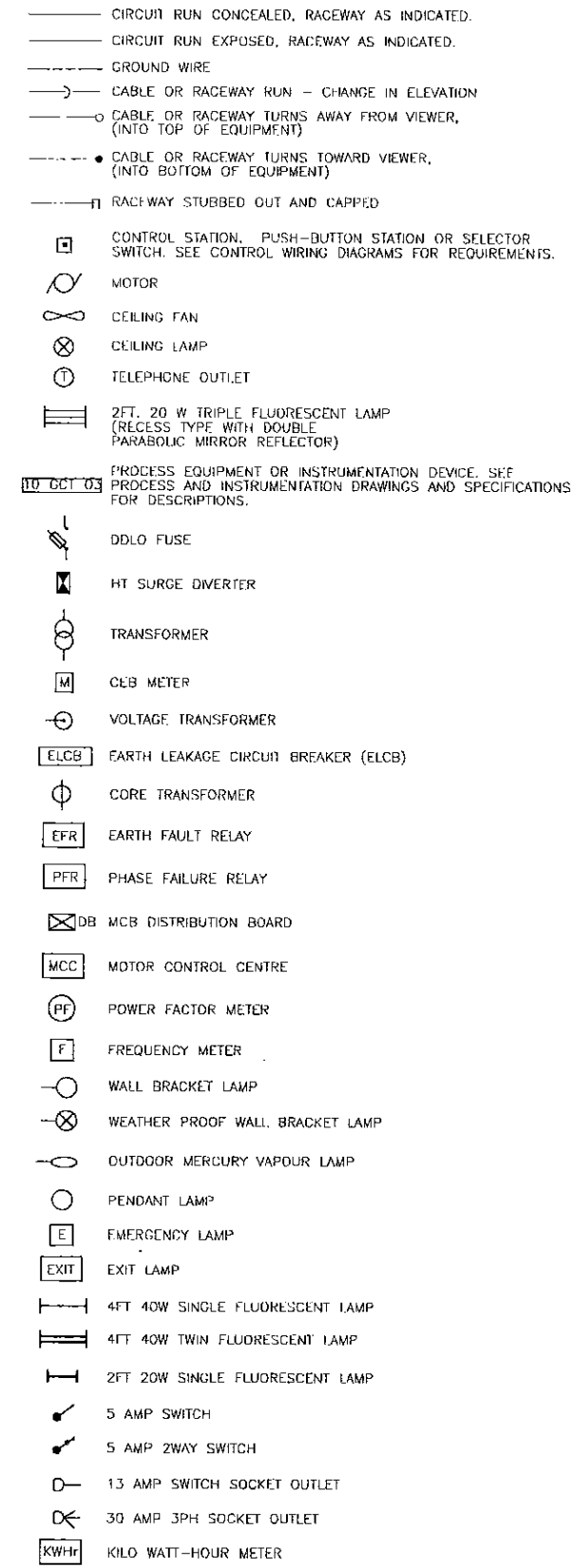
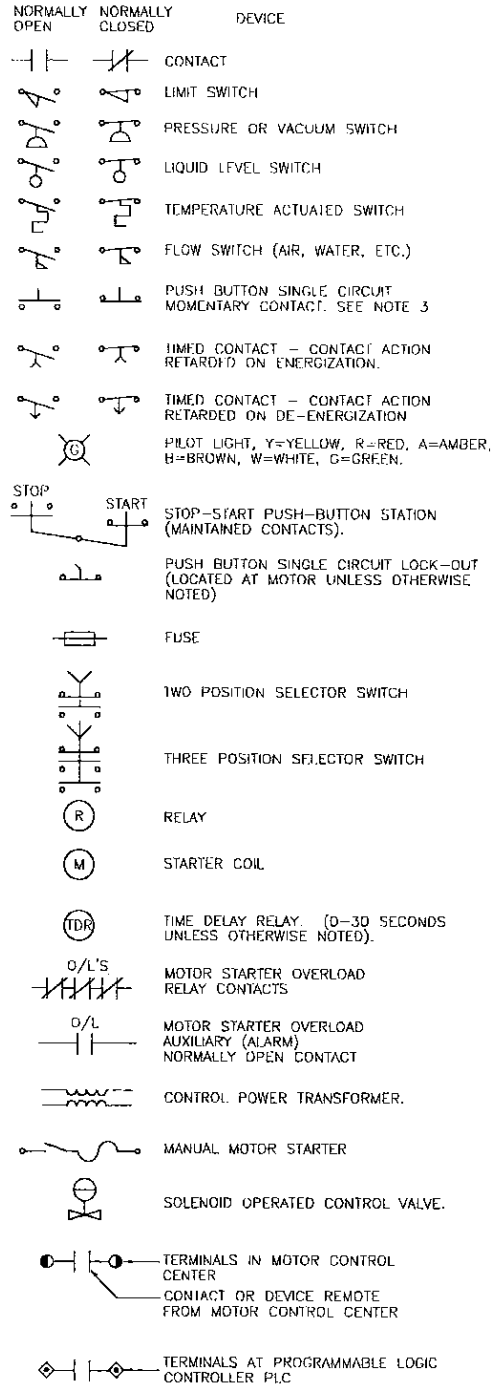
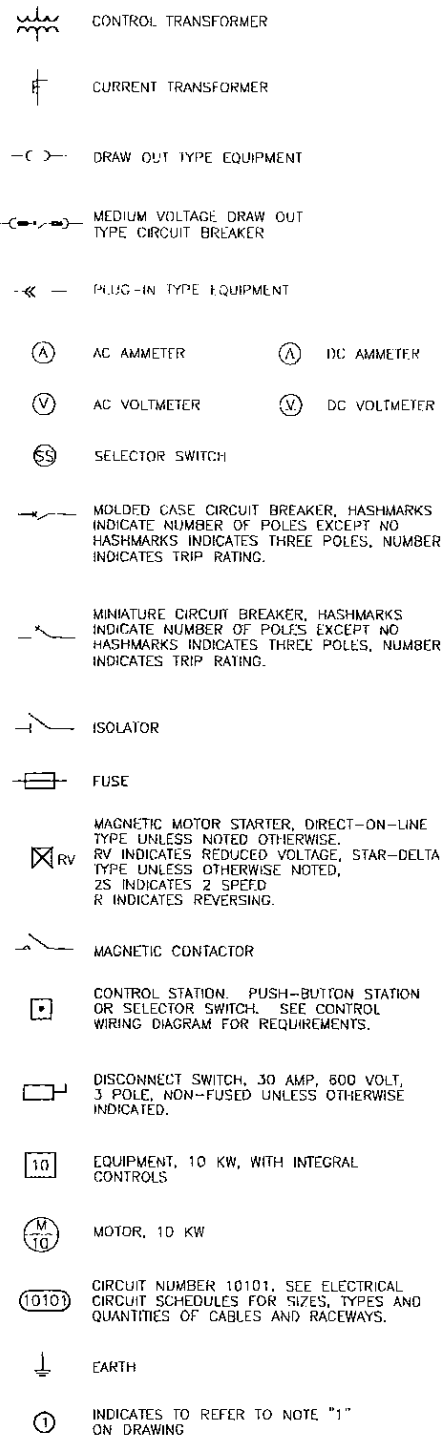
ELECTRICAL SYMBOLS

ABBREVIATIONS

SINGLE LINE DIAGRAMS

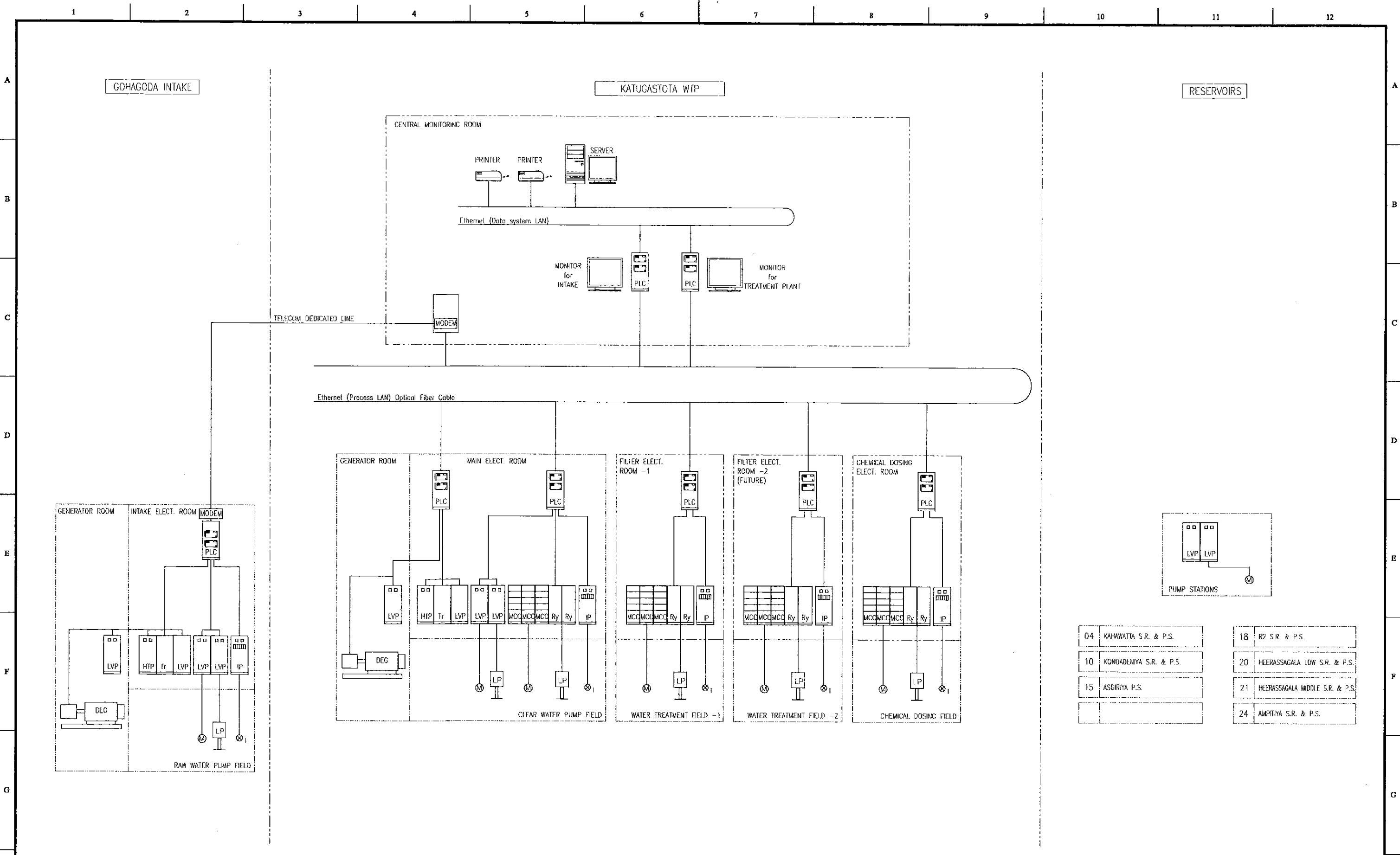
CONTROL WIRING DIAGRAMS

PLANS



A	AMPERE
AWA	ALUMINIUM WIRE ARMOR
AWG	AMERICAN WIRE GAUGE
BKR	BREAKER
CAT	CATALOG
CB	CIRCUIT BREAKER
C.O	CONDUIT ONLY
CKT	CIRCUIT
CP	CONTROL PANEL
DIA	DIAMETER
DWG	DRAWING
EA	EACH
ELECT	ELECTRICAL
FLEV. EL	ELEVATION
EXIST	EXISTING
FLA	FULL LOAD AMPS
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
HPS	HIGH PRESSURE SODIUM
HZ	HERTZ (CYCLES PER SECOND)
IC	INTERRUPTING CAPACITY
KV	KILOVOLTS
KW	KILOWATTS
LCL	LONG CONTINUOUS LOAD
LTG	LIGHTING
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR (ON SINGLE LINE DIAGRAM)
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MTG	MOUNTING
N.C.	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
N.O.	NORMALLY OPEN
NO.	NUMBER
PR	PAIR
PVC	POLYVINYL CHLORIDE
REC	RECEPTACLE
RGS	RIGID GALVANIZED STEEL
RTU	REMOTE TERMINAL UNIT
SPECS	SPECIFICATIONS
SWA	STEEL WIRE ARMOR
TEL	TELEPHONE
TDR	TIME DELAY RELAY
TTB	TELEPHONE TERMINAL BACKBOARD
TYP	TYPICAL
UCP	UNIT CONTROL PANEL
V	VOLTS
VCB	VACUUM CIRCUIT BREAKER
VCT	VOLTAGE CURRENT TRANSFORMER
VFD	VARIABLE FREQUENCY DRIVE
W	WATTS
W.P.	WEATHERPROOF

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: ELECTRICAL SYMBOLS								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: A.MIURA	DRAWN: Wanni	PM: (CONSULTANT) Ikuo MIWA	CE: (P&D)	SCALE:
								CHECKED: DESIGN CHIEF	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 00-STD-E-01



PROJECT: **GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT**

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: **MONITORING SYSTEM DIAGRAM**

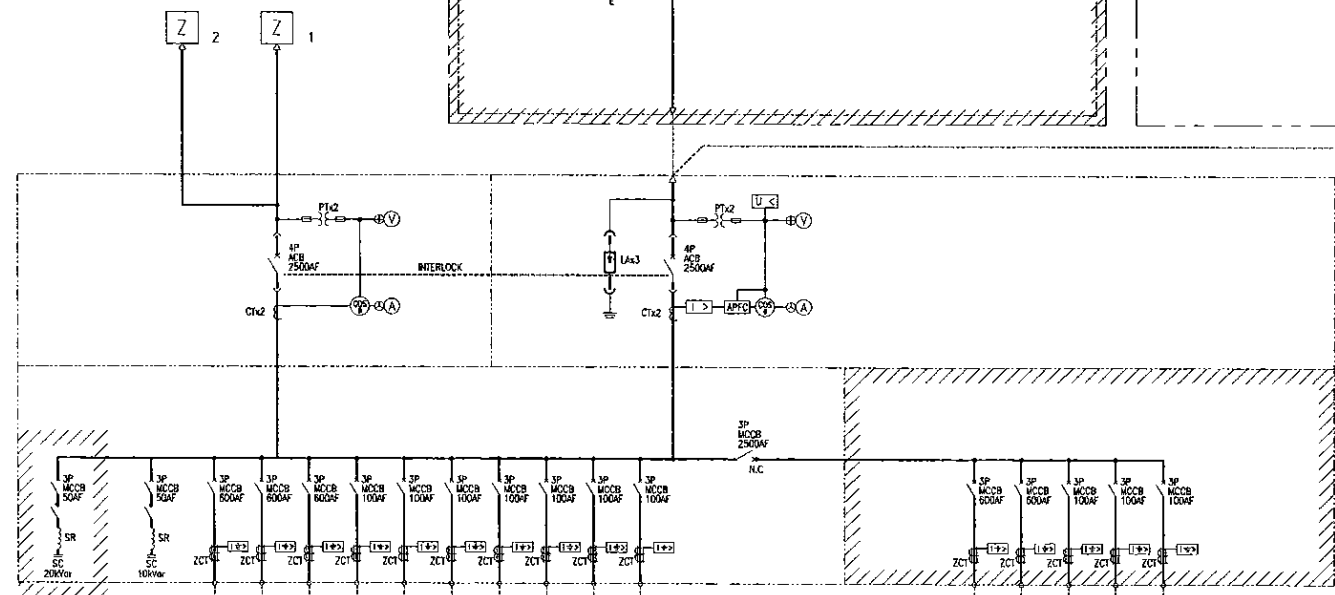
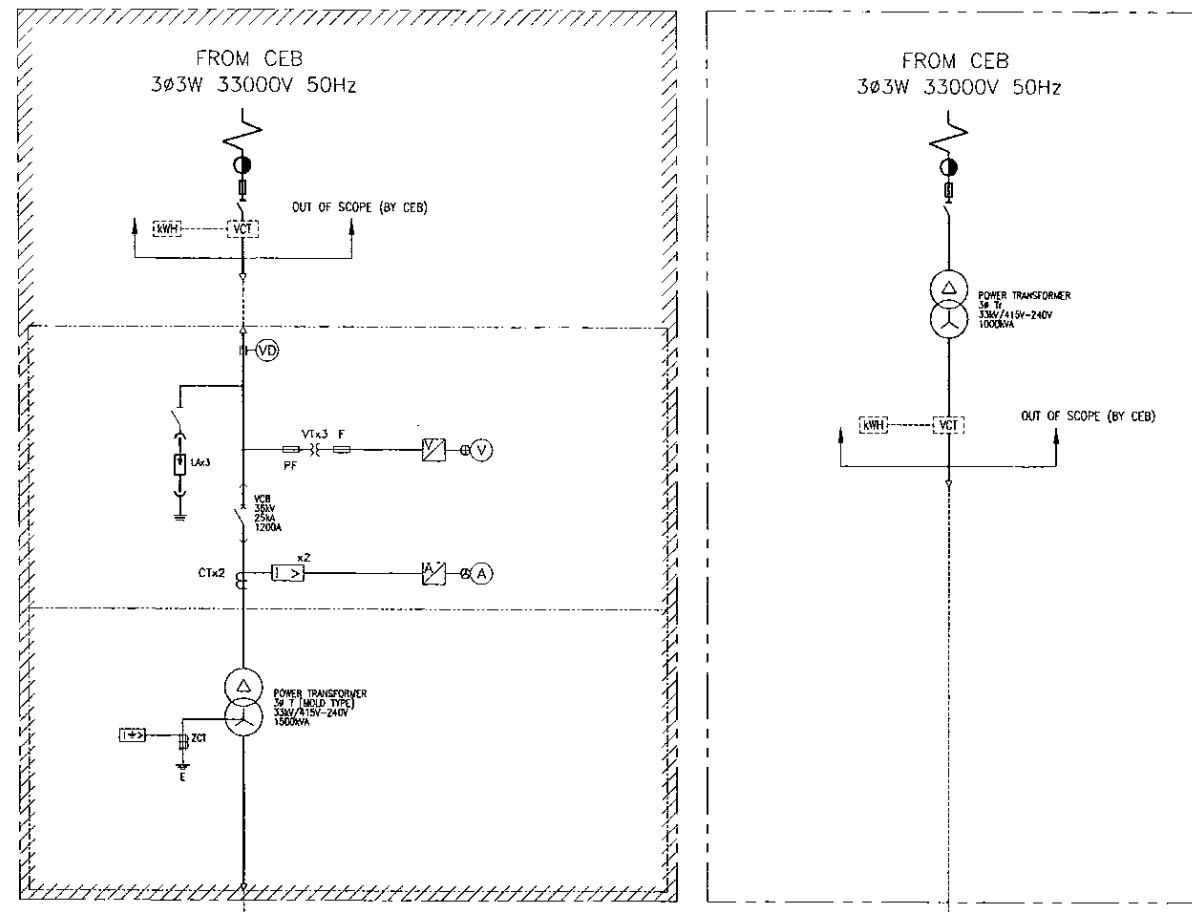
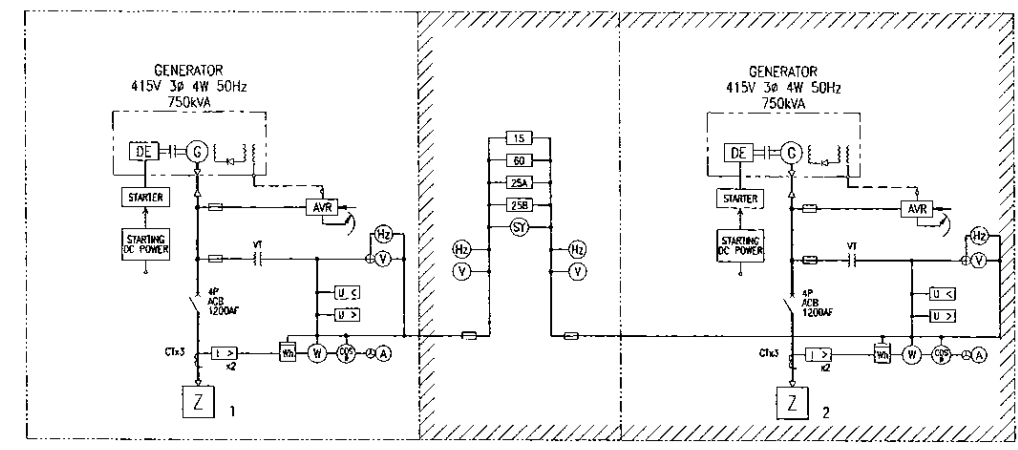
CLIENT: **NATIONAL WATER SUPPLY & DRAINAGE BOARD**

CONSULTANTS: **NJS CONSULTANTS CO., LTD. - JAPAN**
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	CE: (P&D)	SCALE:
				A.Miura	A.Miura			NTS
				CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE:	DRAWING NO.:
				DESIGN CHIEF				00-E-01

SYMBOL	LEGEND
VCT	VOLTAGE CURRENT TRANSFORMER
DS	DISCONNECTING SWITCH
LA	LIGHTNING ARRESTER
PCS	PRIMARY CUTOFF SWITCH
GPT	GROUNDING POTENTIAL TRANSFORMER
VCB	VACUUM CIRCUIT BREAKER
PT	POTENTIAL TRANSFORMER
CT	CURRENT TRANSFORMER
SR	SERIES REACTOR
SC	STATIC CAPACITOR
T	TRANSFORMER
VCS	VACUUM ELECTROMAGNETIC SWITCH
MCCB	MOLDED CASE CIRCUIT BREAKER
PF	POWER FUSE
ZCT	ZERO PHASE CURRENT TRANSFORMER
V	VOLTMETER
A	AMMETER
HZ	FREQUENCY METER
W	WATT METER
Wh	WATT HOUR METER
COSφ	POWER FACTOR METER
APFC	AUTOMATIC PF CONTROLLER
[U >]	AC OVER VOLTAGE RELAY
[U <]	UNDER VOLTAGE RELAY
[I >]	OVER CURRENT RELAY
[I <]	OVER CURRENT GROUNDING RELAY
[D >]	DIRECTIONAL GROUNDING RELAY
[U]	AC VOLTAGE RELAY
[U >]	GROUNDING OVER VOLTAGE RELAY
[15]	SPEED ADJUSTING DEVICE RELAY
[80]	VOLTAGE BALANCE RELAY
[25A]	SYNCHRONIZING RELAY
[90E]	AUTOMATIC VOLTAGE REGULATING RELAY
Ω	TRANSUCER
G	GENERATOR
EX	EXCITER
AVR	AUTOMATIC VOLTAGE REGULATOR
DE	DIESEL ENGINE

FUTURE



APPLICATION	CAPA (kW)	REMARKS
RAW WATER PUMP VWF PANEL	280	
No.1 RAW WATER PUMP PANEL	280	
No.2 RAW WATER PUMP PANEL	280	
INTAKE MCC	16.05	
LIGHTING PANEL	25	
DC POWER SOURCE EQUIPMENT	1.7kVA	
UPS	3kVA	
GENERATOR PANEL		
RESERVE		
RESERVE		
No.1 RAW WATER PUMP PANEL	280	
No.4 RAW WATER PUMP PANEL	280	
GENERATOR PANEL		
RESERVE		
RESERVE		

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT

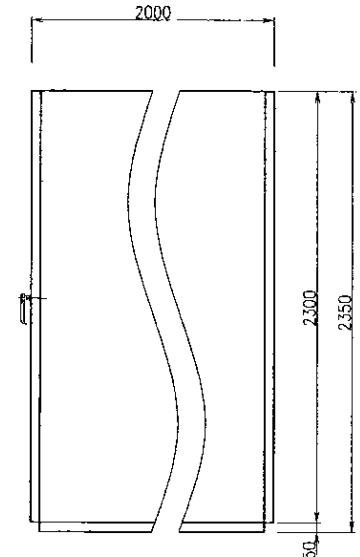
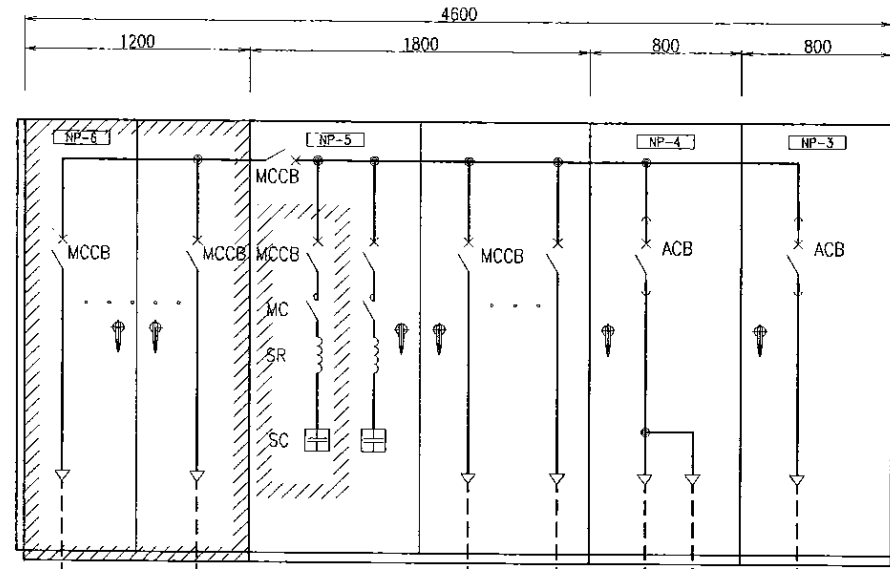
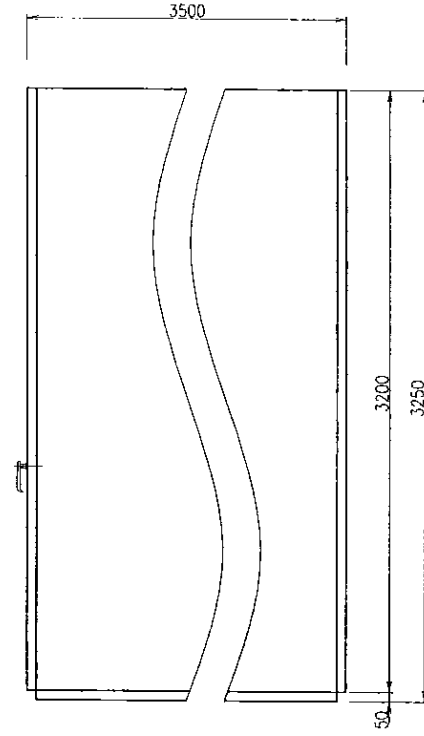
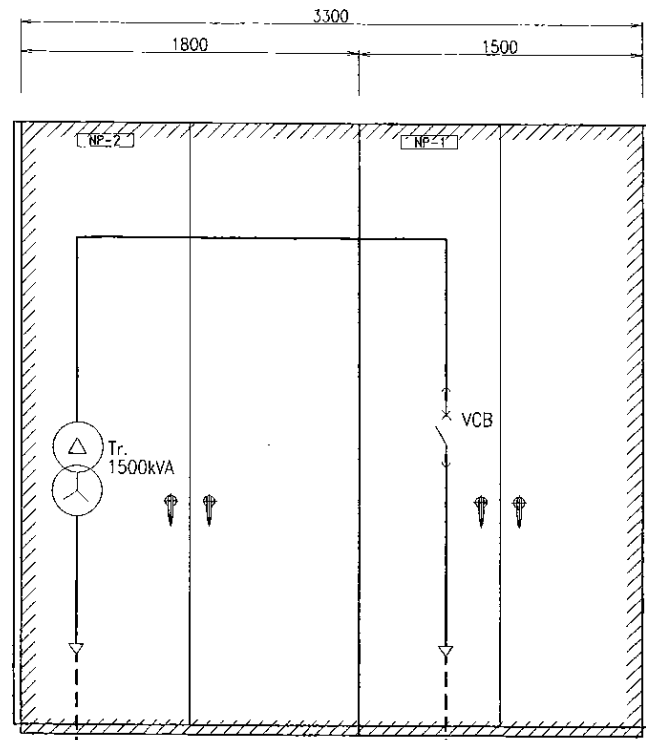
JICA JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: INTAKE SINGLE LINE DIAGRAM FOR POWER RECEIVING & STEP DOWN FACILITY

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	CE: (P&D)	SCALE:
				A.Miura	A.Miura	Ikuo MIWA		NTS
				CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 01-E-01



NP-NO.	NP-2	NP-1
PANEL NAME	TRANSFORMER PANEL	HT POWER RECEIVING PANEL
TAG NO.	FUTURE	FUTURE
METER		V A
C S		1
COS		VSx1, ASx1
P B		LT, AR
PROTECTION RELAY	OCG	OCx2
STATUS	○	○
ALARM	⊕	⊕
REMARKS		

NP-NO.	NP-6	NP-5	NP-4	NP-3
PANEL NAME	NO.2 LV FEEDER PANEL	NO.1 LV FEEDER PANEL	GENERATOR CONNECTION PANEL	LV RECEIVING PANEL
TAG NO.	FUTURE	01LFP01	01GCP01	01LRP01
METER			V A COS	V A COS
C S			1	1
COS				VSx1, ASx1
P B				LT, AR
PROTECTION RELAY	OCGx5	OCGx10		OCx2, UV, APFC
STATUS	○	○	○	○
ALARM	⊕	⊕	⊕	⊕
REMARKS				

LEGEND

SYMBOL	DESCRIPTION
○	INDICATION LAMP
⊕	EACH ALARM INDICATION
LT	LAMP TEST
AR	ALARM RESET
CS	CONTROL SWITCH
COS	CHANGE OVER SWITCH
PB	PUSH BUTTON SWITCH
VS	VOLTMETER SWITCH
AS	AMMETER SWITCH
A/M	AUTO-MANUAL

FUTURE

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT



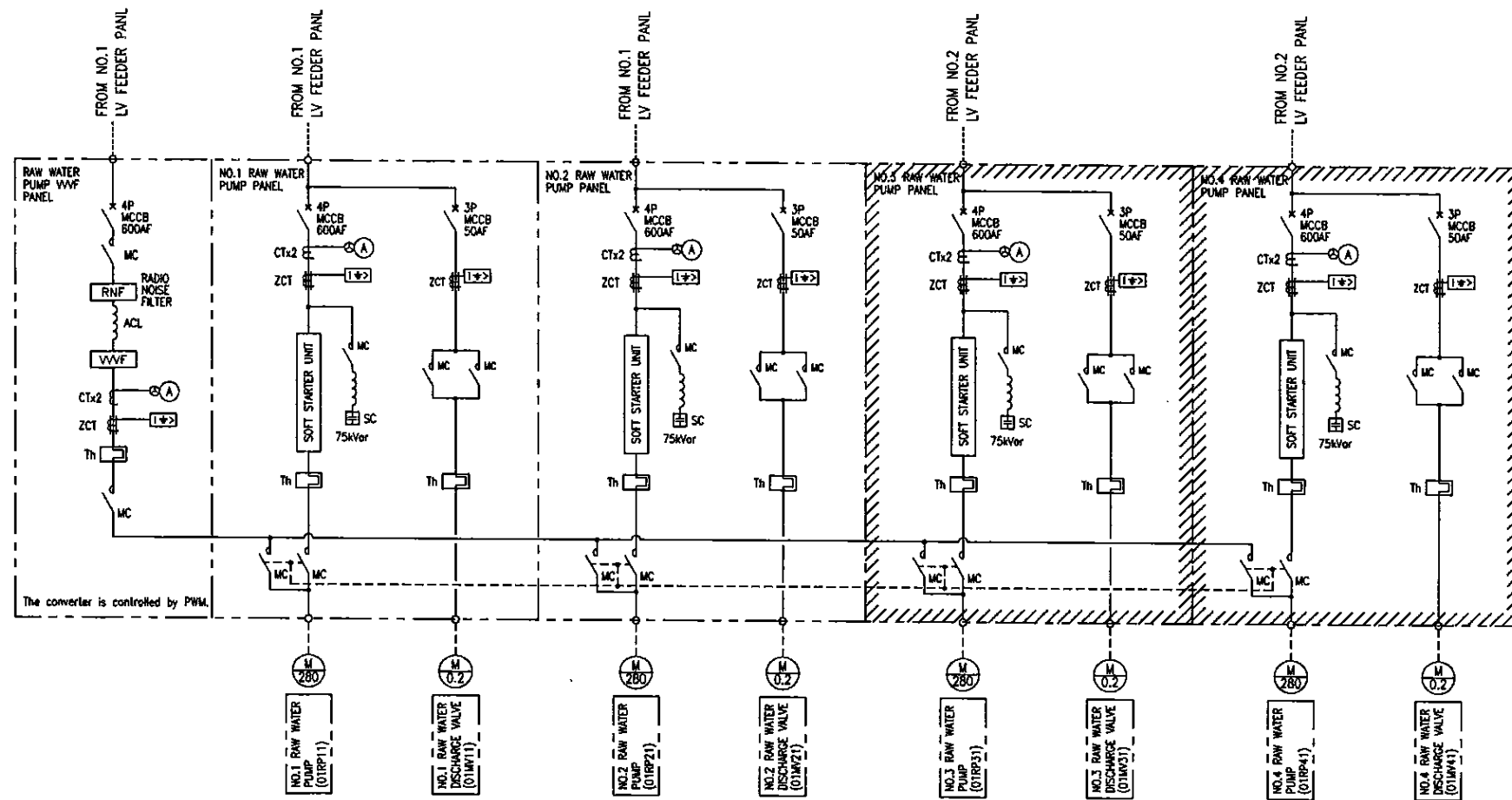
JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: INTAKE OUTLINE OF POWER RECEIVING FACILITY

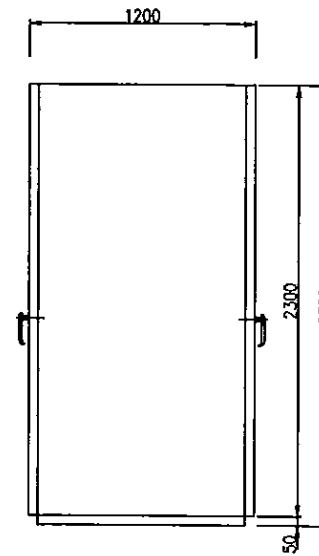
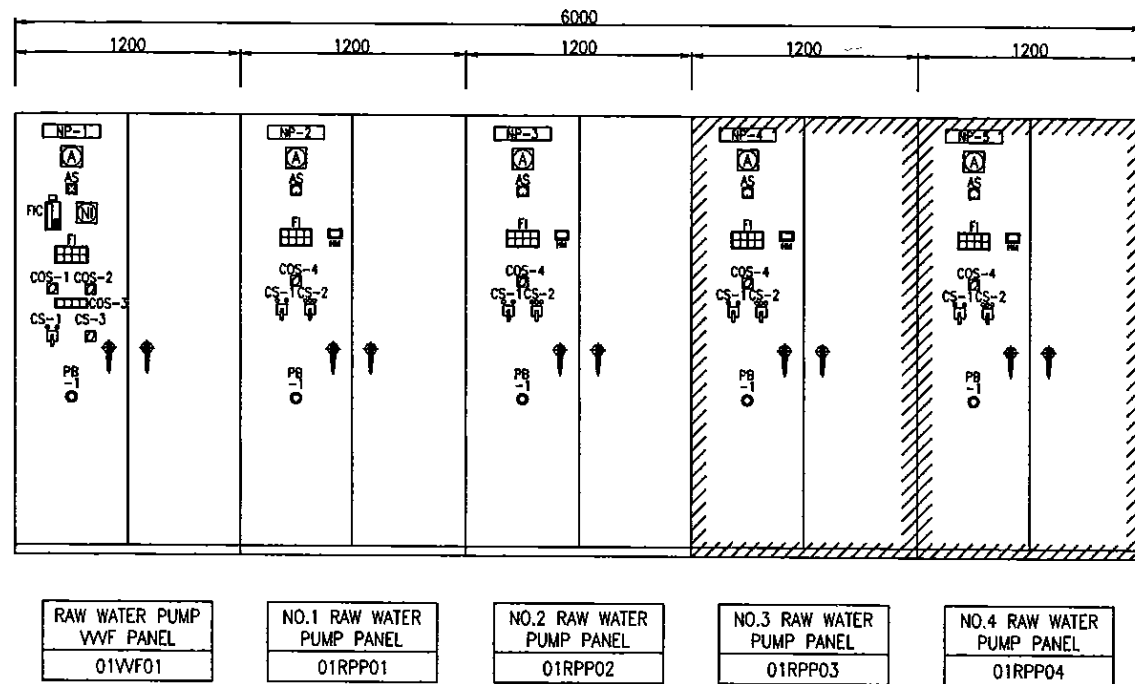
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	CE: (P&D)	SCALE:
				A.Miura	A.Miura	Ikuo-MIWA		1:20
				CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 01-E-02



SYMBOL	LEGEND
CT	CURRENT TRANSFORMER
SR	SERIAL REACTOR
SC	STATIC CAPACITOR
MC	ELECTROMAGNETIC CONTACTOR
MCCB	MOLDED CASE CIRCUIT BREAKER
INV	INVERTER
M	MOTOR
ZCT	ZERO PHASE CURRENT TRANSFORMER
A	AMMETER
[I-2]	OVER CURRENT GROUNDING RELAY
⊕	AMMETER SWITCH
⊕	VOLTMETER SWITCH
Th	THERMAL RELAY



NP-NO.	DESCRIPTION	CS : CONTROL SWITCH
NP-1	RAW WATER PUMP VWF PANEL	CS-1 START - STOP
NP-2	NO.1 RAW WATER PUMP PANEL	CS-2 OPEN - STOP - CLOSE
NP-3	NO.2 RAW WATER PUMP PANEL	CS-3 REV. UP - DOWN
NP-4	NO.3 RAW WATER PUMP PANEL	
NP-5	NO.4 RAW WATER PUMP PANEL	

COS : CHANGE OVER SWITCH	
COS-1	INTAKE - WTP
COS-2	MANU - AUTO
COS-3	NO.1-NO.2-NO.3-NO.4-NON
COS-4	MANU - LINK

PB : PUSH BUTTON SWITCH	
PB-1	EMERGENCY STOP

▨ : FUTURE

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT



JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE:

SINGLE LINE DIAGRAM & OUTLINE OF RAW WATER PUMP PANEL

CLIENT:



NATIONAL WATER SUPPLY & DRAINAGE BOARD

CONSULTANTS :

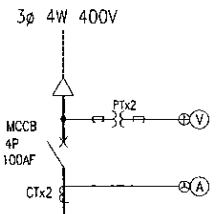


NJS CONSULTANTS CO., LTD. - JAPAN



NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

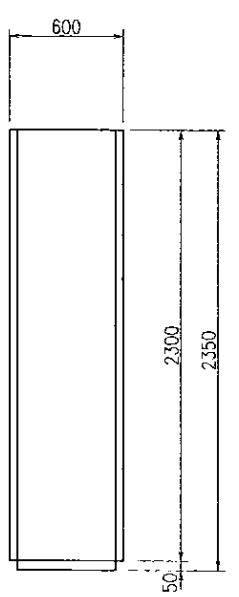
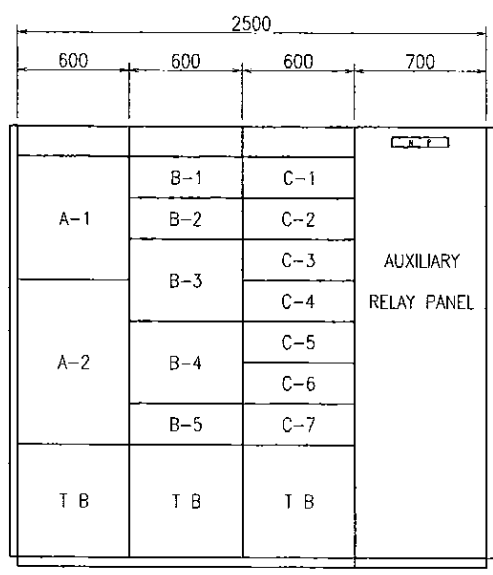
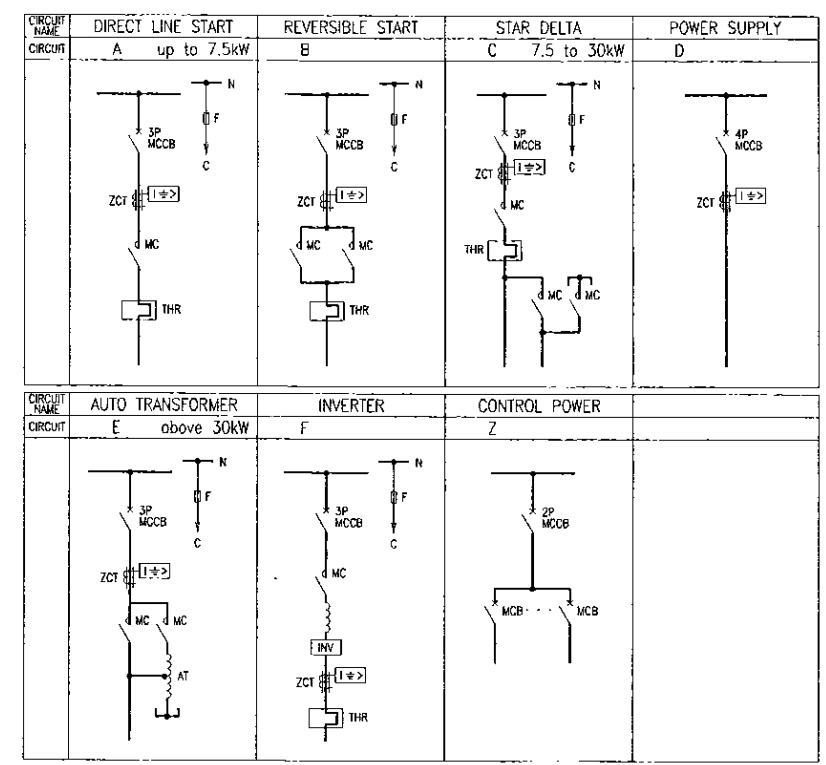
REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	CE: (P&D)	SCALE:
				A.Miura	A.Miura	Ikuo-MIWA		1:20
				CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE:	DRAWING NO.:
				DESIGN CHIEF			31/05/2002	01-E-03



total : 18.1kW

STARTER SYMBOL	A	C	A	D	D				
LOAD NAME	FINE SCREEN	SCREEN WASH PUMP	SUMP DRAINAGE PUMP	SCREENING HOIST	RESERVE				
LOAD TAG NO.	01FS11/21	01SW01/02	01DP01/02	01MH11					
(kW)	2.2	11	1.5	0.8+0.4					
MCCB (AF)	50	50	50	50	50				
NUMBERS	Phase 1	2(1)*	2(1)*	1	2				
	Phase 2	2	2(1)*	2(1)*	1	2			
	Phase 3	2	2(1)*	2(1)*	1	2			
MEASURING DEVICE		Ⓐ Ⓗ	Ⓗ						
PROTECTION RELAY	I<math>\phi>	I<math>\phi>	I<math>\phi>	I<math>\phi>					
REMARKS									

(1)* : FIGURE INSIDE THE ROUND BRACKETS SHOWS NUMBERS OF STANDBY

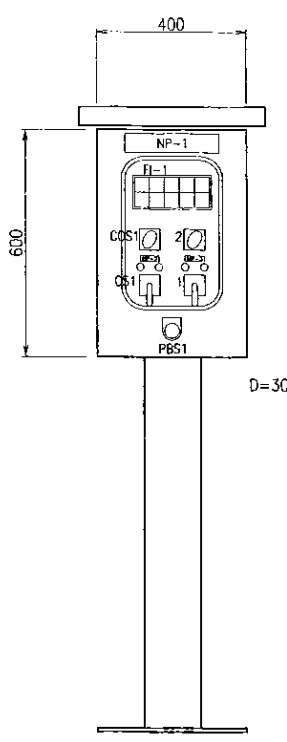


SIDE VIEW

INTAKE MCC	01MCC01
INTAKE AUXILIARY RELAY PANEL	01ARY01

UNIT NO.	LOAD NAME	UNIT NO.	LOAD NAME
A-1	INCOMING UNIT	C-1	NO.1 SUMP DRAINAGE PUMP
A-2	CONTROL POWER UNIT	C-2	NO.2 SUMP DRAINAGE PUMP
		C-3	SCREENING HOIST
		C-4	VACANT
		C-5	VACANT
		C-6	VACANT
		C-7	RESERVE
B-1	NO.1 FINE SCREEN		
B-2	NO.2 FINE SCREEN		
B-3	NO.1 SCREEN WASH PUMP		
B-4	NO.2 SCREEN WASH PUMP		
B-5	RESERVE		
B-6			
B-7			

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: SINGLE LINE DIAGRAM & OUTLINE OF MCC FOR INTAKE FACILITY								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: A.Miura	DRAWN: A.Miura	PM: (CONSULTANT) Ikuo MIWA	CE: (P&D)	SCALE: 1:20
NATIONAL WATER SUPPLY & DRAINAGE BOARD		NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN						CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 01-E-04
								DESIGN CHIEF				

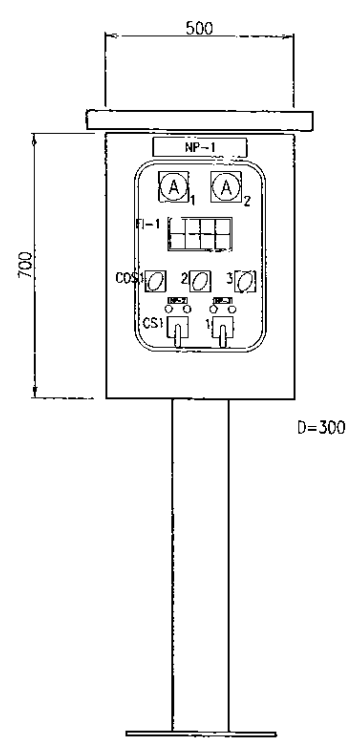


NP-1	Fine Screen LOP
NP-2	NO.1 Fine Screen
NP-3	NO.2 Fine Screen
COS1	ELC.R-SITE
COS2	MANU-AUTO
CS1	STOP-START
PBS1	EMERGENCY STOP

FI-1 DETAIL

NO.1 Fine Screen OVER LOAD	NO.1 Fine Screen EARTH FAULT	NO.1 Fine Screen OVER TORQUE	NO.1 Screen Pit LEVEL LL	EMERGENCY STOP
NO.2 Fine Screen OVER LOAD	NO.2 Fine Screen EARTH FAULT	NO.2 Fine Screen OVER TORQUE	NO.2 Screen Pit LEVEL LL	

FINE SCREEN
LOCAL OPERATION PANEL
01LOP01

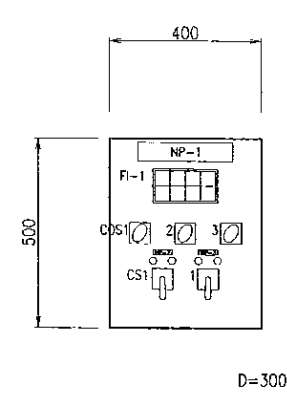


NP-1	Screen Wash Pump LOP
NP-2	NO.1 Screen Wash Pump
NP-3	NO.2 Screen Wash Pump
COS1	ELC.R-SITE
COS2	MANU-AUTO
COS3	NO.1-AUTO-NO.2
CS1	STOP-START
PBS1	EMERGENCY STOP
A1	NO.1 PUMP AMMETER
A2	NO.2 PUMP AMMETER

FI-1 DETAIL

NO.1 Screen Wash Pump OVER LOAD	NO.1 Screen Wash Pump EARTH FAULT	NO.1 Screen Wash Pump OVER-HEAT	RAW WATER WET CELL LEVEL LL
NO.2 Screen Wash Pump OVER LOAD	NO.2 Screen Wash Pump EARTH FAULT	NO.2 Screen Wash Pump OVER-HEAT	EMERGENCY STOP

SCREEN WASH PUMP
LOCAL OPERATION PANEL
01LOP02



NP-1	Sump Drainage Pump LOP
NP-2	NO.1 Sump Drainage Pump
NP-3	NO.2 Sump Drainage Pump
COS1	ELC.R-SITE
COS2	MANU-AUTO
COS3	NO.1-AUTO-NO.2
CS1	STOP-START
PBS1	EMERGENCY STOP

FI-1 DETAIL

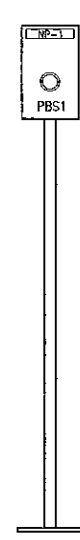
NO.1 Pump OVER LOAD	NO.1 Pump EARTH FAULT	SUMP DRAINAGE LEVEL LL	SUMP DRAINAGE LEVEL H.H.
NO.2 Pump OVER LOAD	NO.2 Pump EARTH FAULT		EMERGENCY STOP

SUMP DRAINAGE PUMP
LOCAL OPERATION PANEL
01LOP05



NP-1	NO.1 Raw Water Pump LOP
PBS1	EMERGENCY STOP

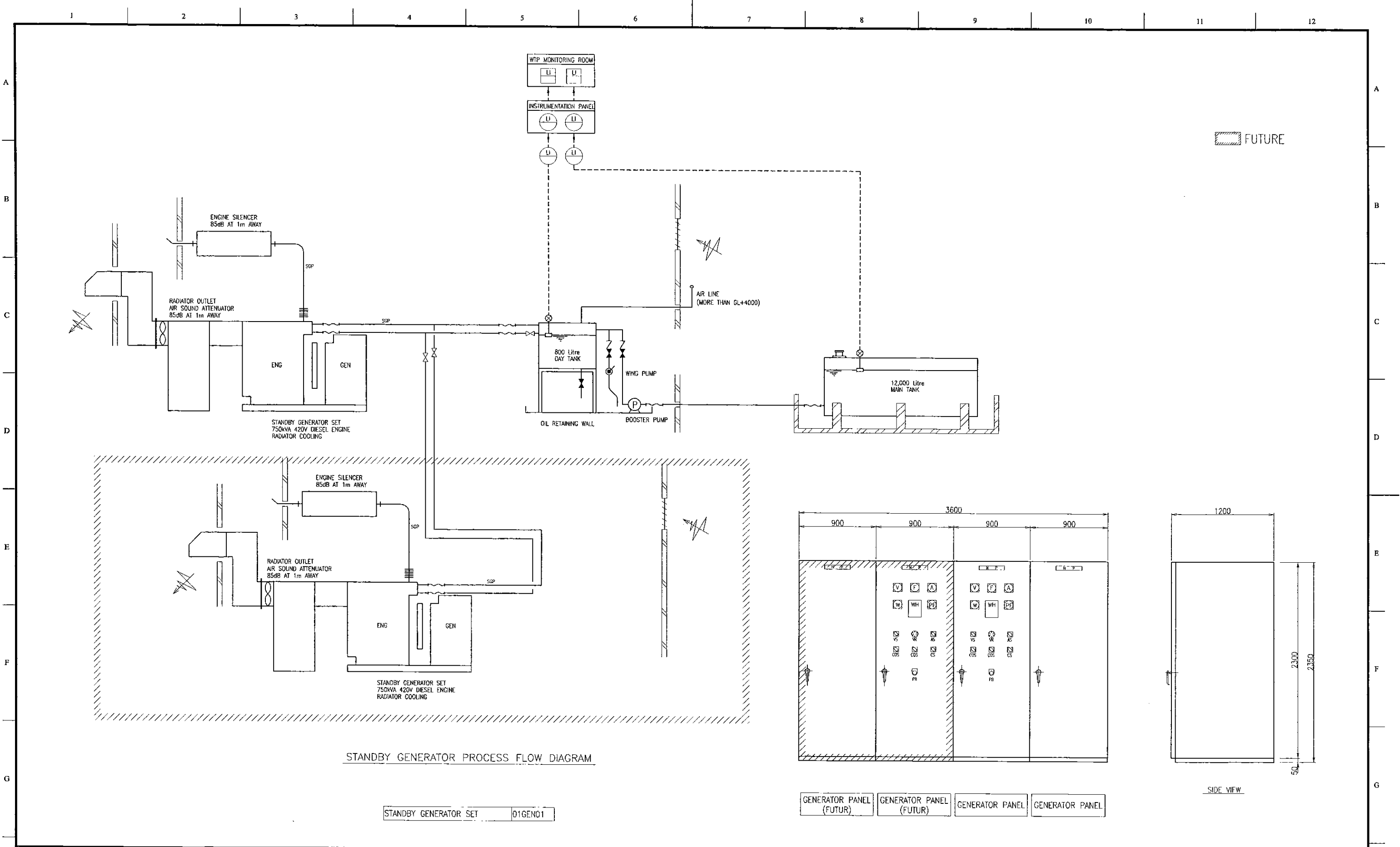
NO.1 RAW WATER PUMP
EMERGENCY STOP BOX
01LOP03



NP-1	NO.2 Raw Water Pump LOP
PBS1	EMERGENCY STOP

NO.2 RAW WATER PUMP
EMERGENCY STOP BOX
01LOP04

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: OUTLINE OF LOCAL OPERATION PANEL FOR INTAKE FACILITY								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: <i>A.Miura</i>	DRAWN: <i>A.Miura</i>	PM: (CONSULTANT) <i>Ikuo MIWA</i>	CE: (P&D)	SCALE: 1:10
								CHECKED: DESIGN CHIEF	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 01-E-05



PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT

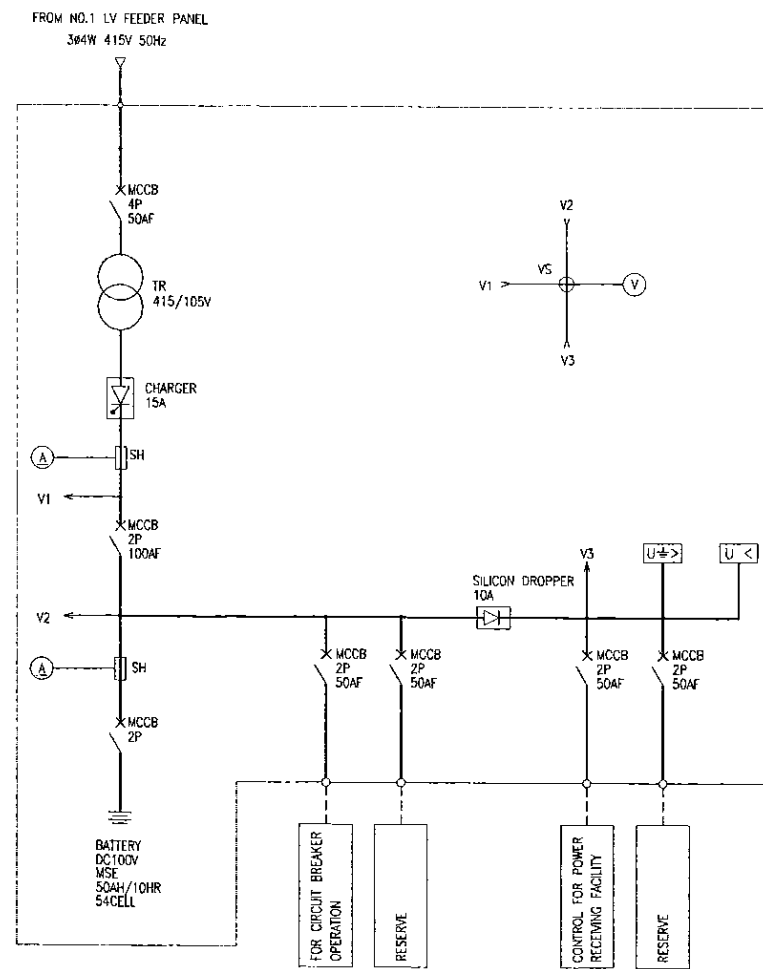
JICA JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: INTAKE STANDBY GENERATOR PROCESS FLOW DIAGRAM & OUTLINE

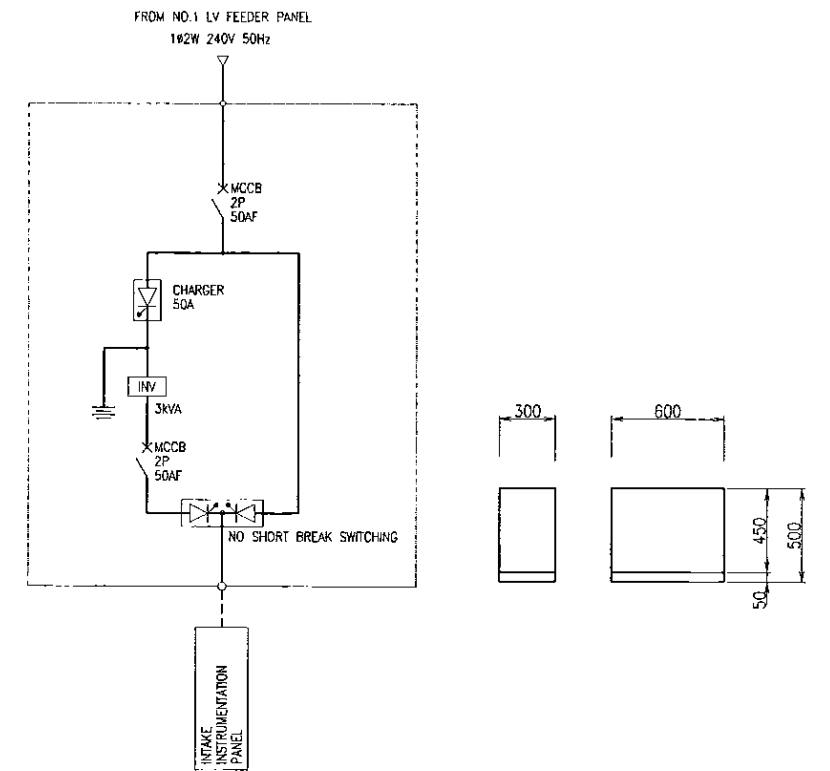
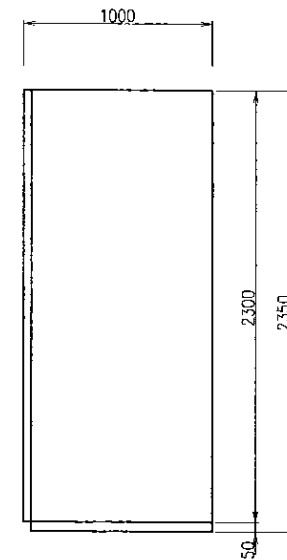
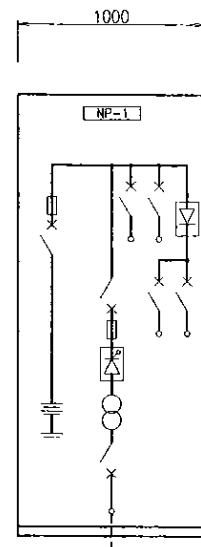
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	CE: (P&D)	SCALE:
				A.Miura	A.Miura	Ikuo MIWA		1:20
				CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE:	DRAWING NO.:
				DESIGN CHIEF			31/05/2002	01-E-06



SINGLE LINE DIAGRAM OF DC POWER EQUIPMENT



SINGLE LINE DIAGRAM OF UPS

UPS EQUIPMENT 01UPS01

NP-NO.	NP-1
PANEL NAME	DC POWER SOURCE EQUIPMENT
TAG NO.	01DCP01
METER	⊕ (V) (A) (A)
C S	1
COS	VSx1
P B	LT,AR
STATUS	○
ALARM	⊕
REMARKS	

LEGEND

SYMBOL	DESCRIPTION
○	INDICATION LAMP
⊕	EACH ALARM INDICATION
LT	LAMP TEST
AR	ALARM RESET
CS	CONTROL SWITCH
COS	CHANGE OVER SWITCH
PB	PUSH BUTTON SWITCH
VS	VOLTMETER SWITCH
AS	AMMETER SWITCH
A/M	AUTO-MANUAL

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT



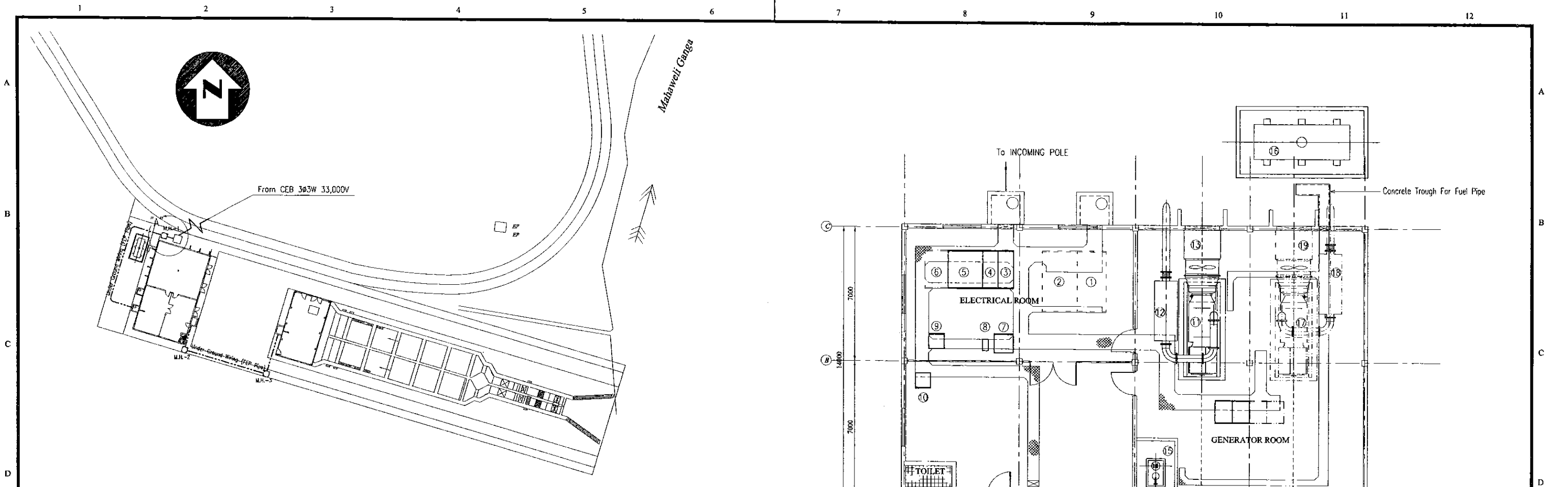
JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: INTAKE SINGLE LINE DIAGRAM & OUTLINE OF DC POWER SOURCE & UPS EQUIPMENT

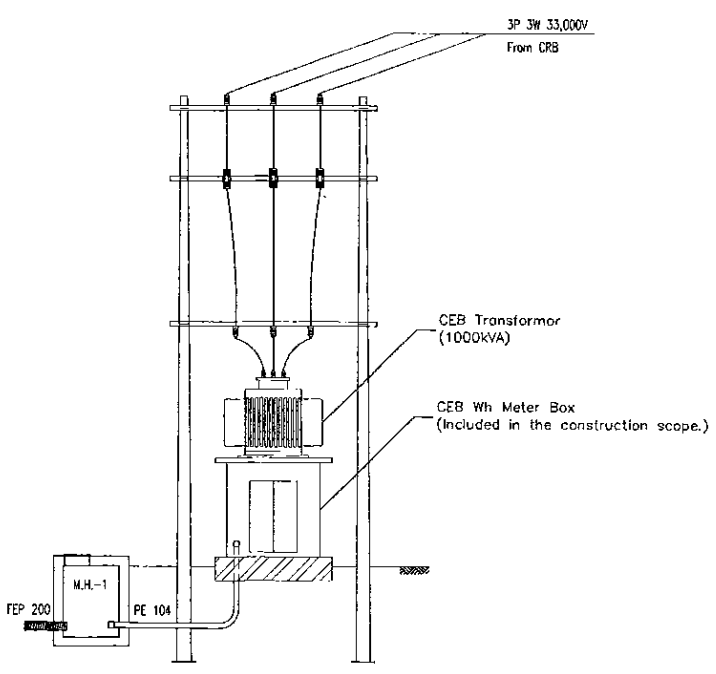
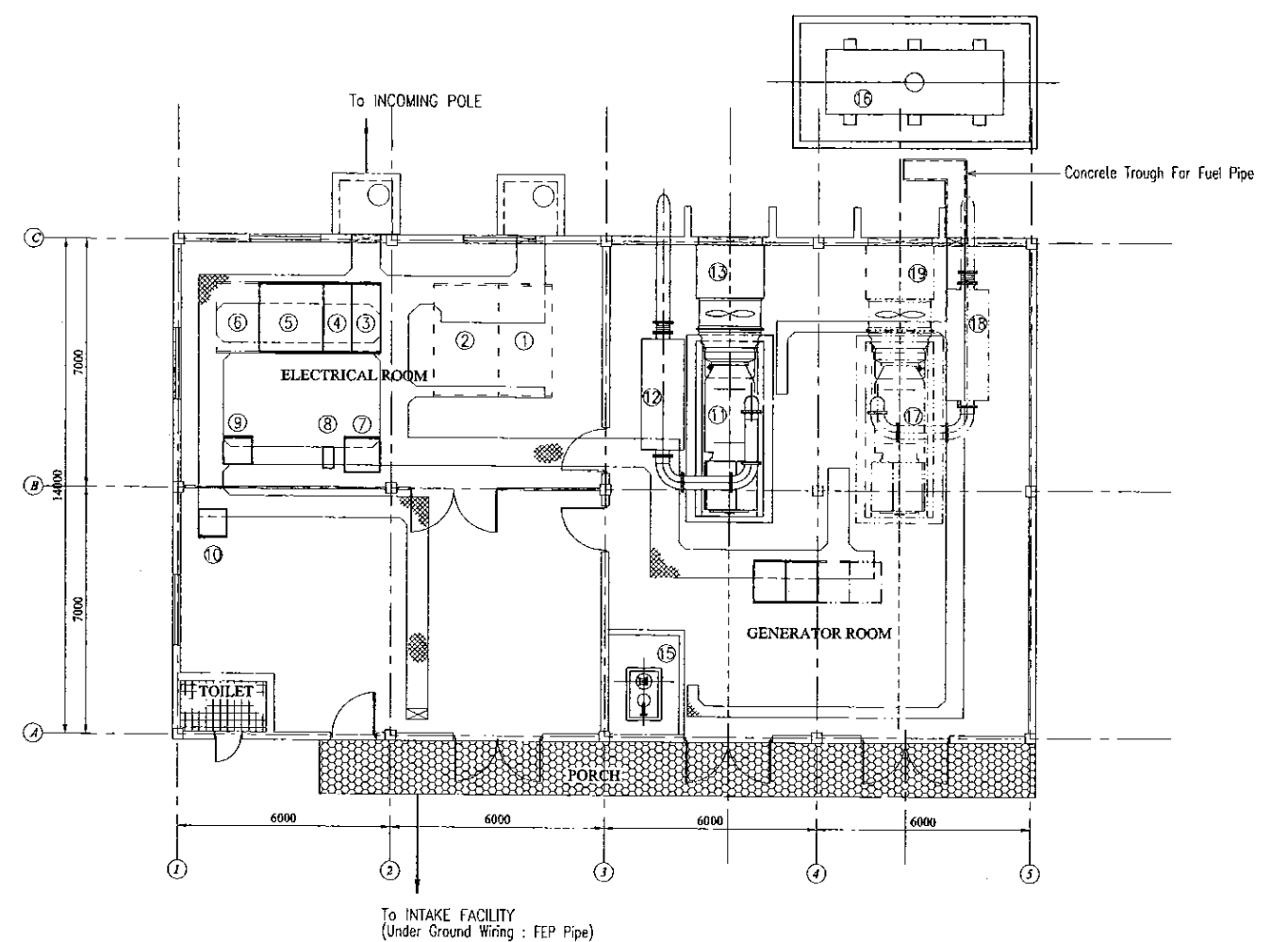
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	CE: (P&D)	SCALE:
				A.Miura	A.Miura	Ikuro-MIWA		1:20
				CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 01-E-07



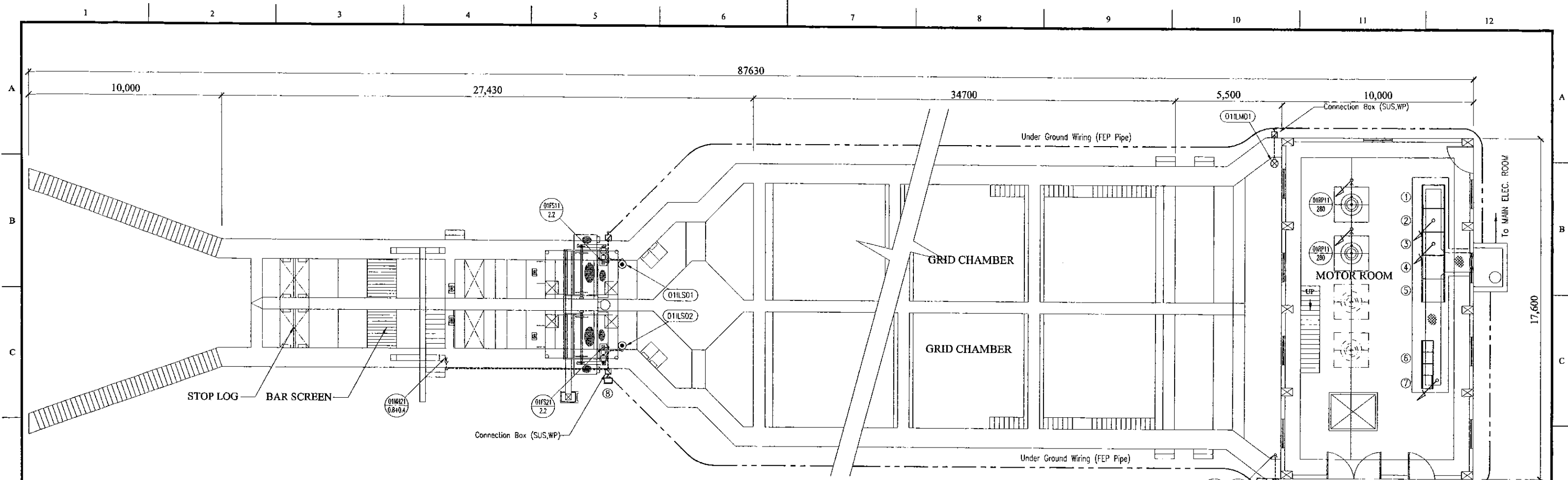
GOHAGODA INTAKE (1:500)



DETIAL "A"

NO.	NAME	Tag NO.
①	HT POWER RECEIVING PANEL	FUTURE
②	TRANSFORMER PANEL	FUTURE
③	LV RECEIVING PANEL	01LRP01
④	GENERATOR CONNECTION PANEL	01GCP01
⑤	NO.1 LV FEEDER PANEL	01LFP01
⑥	NO.2 LV FEEDER PANEL	FUTURE
⑦	DC POWER EQUIPMENT	01DCP01
⑧	UPS	01UPS01
⑨	PLC	01PLC01
⑩	INSTRUMENTATION PANEL	01INP01
⑪	NO.1 GENERATOR	01GEN01
⑫	NO.1 EXHAUST GAS SILENCER	
⑬	NO.1 RADIATOR	
⑭	blank	
⑮	FUEL OIL HEAD TANK	
⑯	FUEL OIL MAIN TANK	
⑰	NO.2 GENERATOR	FUTURE
⑱	NO.2 EXHAUST GAS SILENCER	FUTURE
⑲	NO.2 RADIATOR	FUTURE

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: INTAKE SUBSTATION AND GENERATOR BUILDING WIRING & LAYOUT PLAN								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: <i>A.Miura</i>	DRAWN: <i>A.Miura</i>	PM: (CONSULTANT) <i>Ikuo-MIWA</i>	CE: (P&D)	SCALE: 1:500, 100
								CHECKED: DESIGN CHIEF	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 01-E-08

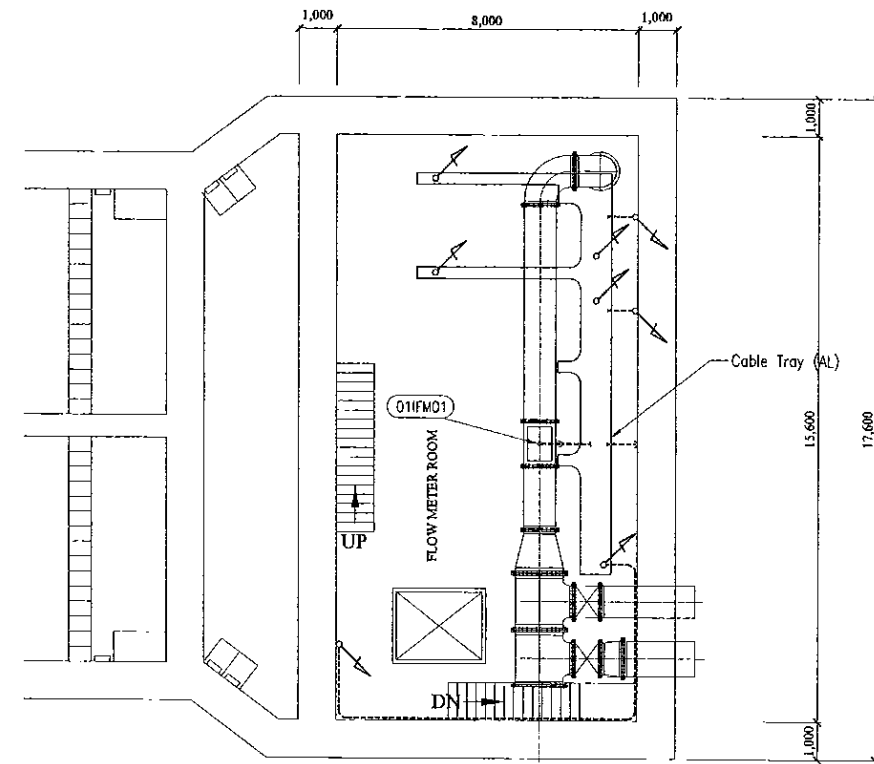


TOP PLAN
SCALE : - 1:100

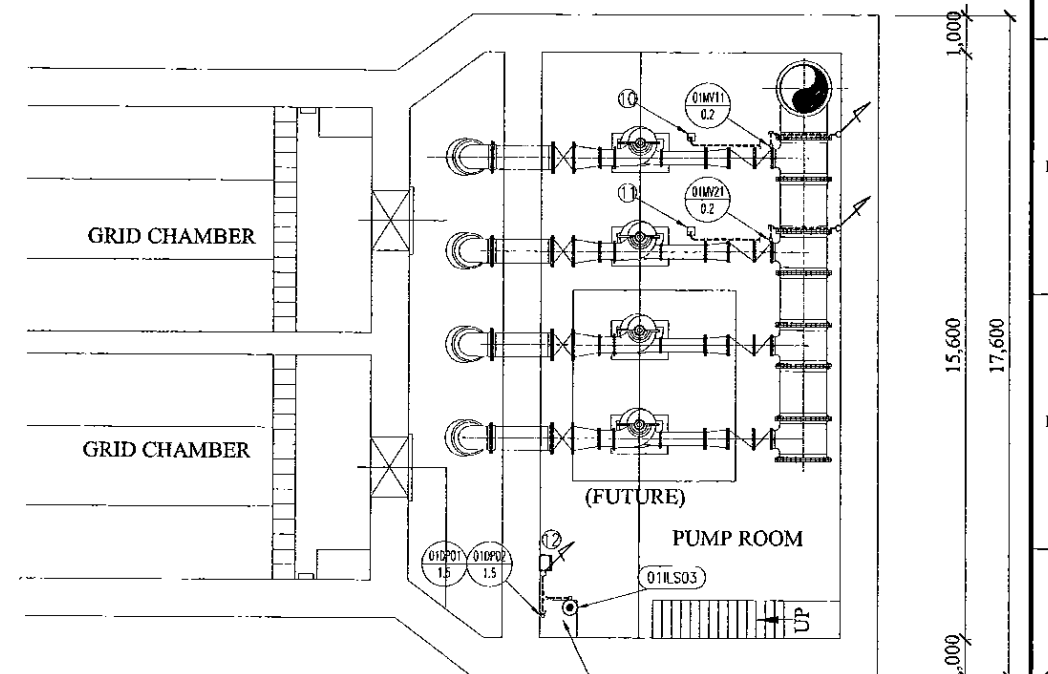
NO.	NAME	Tag NO.
①	RAW WATER PUMP VVVF PANEL	01VVVF01
②	NO.1 RAW WATER PUMP PANEL	01RPP01
③	NO.2 RAW WATER PUMP PANEL	01RPP02
④	NO.3 RAW WATER PUMP PANEL	FUTURE
⑤	NO.4 RAW WATER PUMP PANEL	FUTURE
⑥	INTAKE MCC	01MCC01
⑦	INTAKE RELAY PANEL	01ARY01
⑧	FINE SCREEN LOP	01LOP01
⑨	SCREEN WASH PUMP LOP	01LOP02
⑩	NO.1 RAW WATER PUMP LOP	01LOP03
⑪	NO.2 RAW WATER PUMP LOP	01LOP04
⑫	SUMP DRAINAGE PUMP LOP	01LOP05
⑬		

LOP : LOCAL OPERATION PANEL

- Under Ground Wiring (FEP Pipe)
- Open Pipe Wiring (Conduit Pipe)
- Embed Pipe Wiring (Conduit Pipe)



MIDDLE PLAN
SCALE : - 1:100



BOTTOM PLAN
SCALE : - 1:100

PROJECT: **GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT**

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: **INTAKE FACILITY LAYOUT & WIRING PLAN**

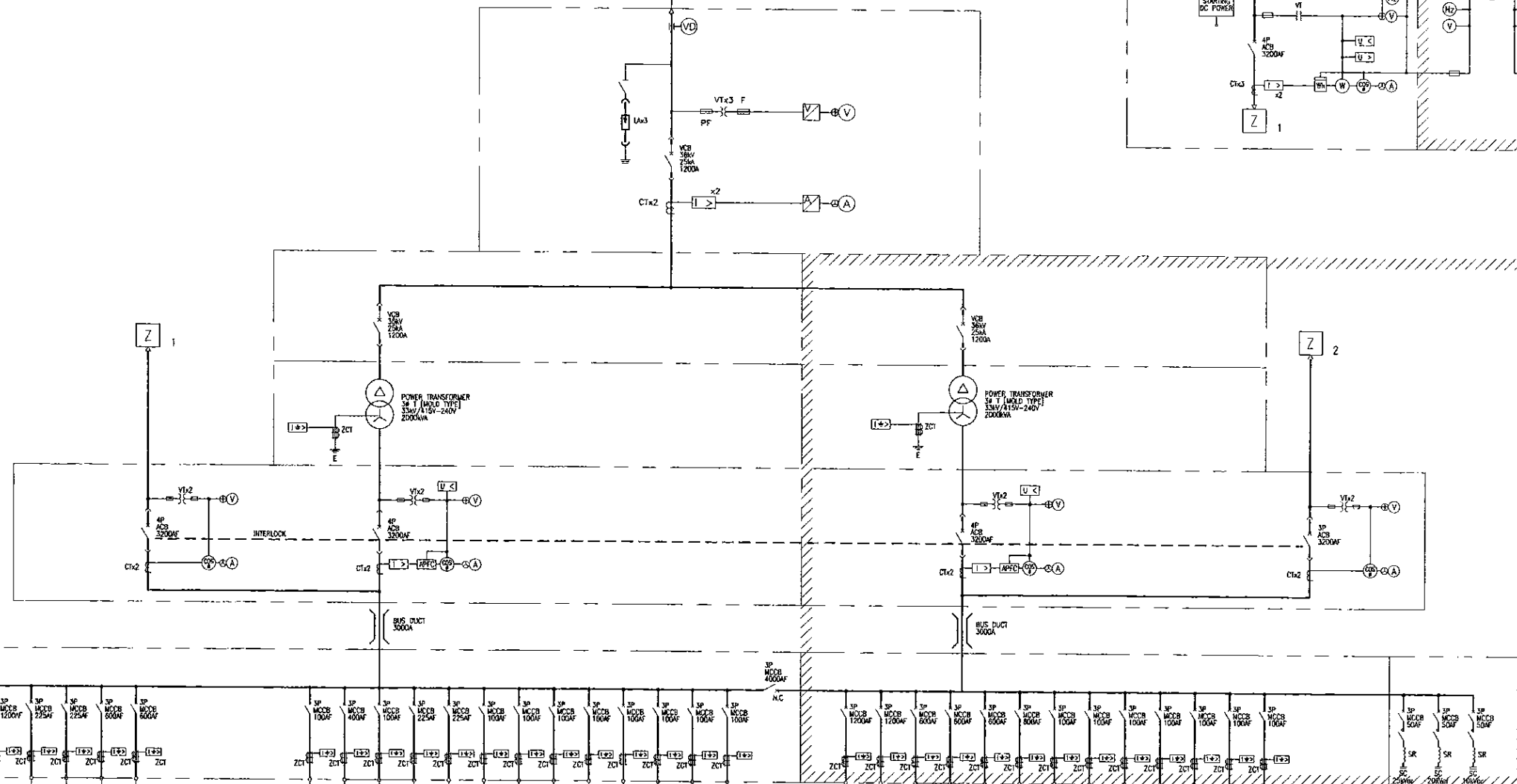
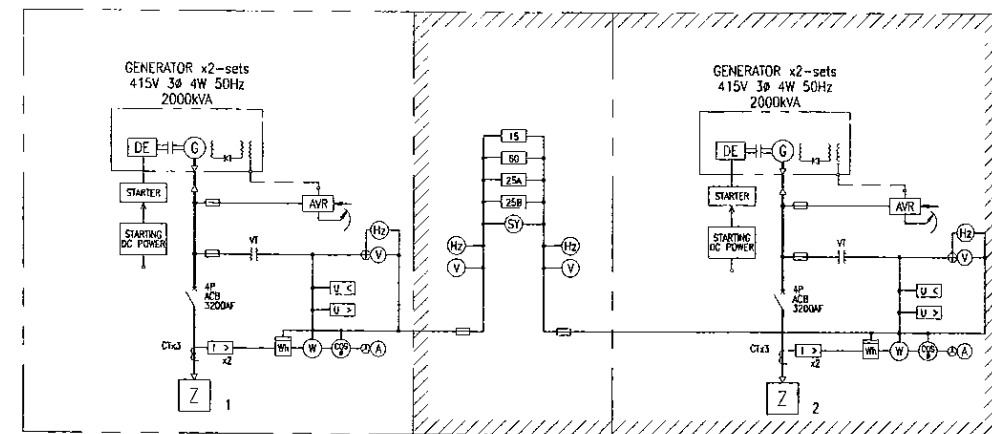
CLIENT: **NATIONAL WATER SUPPLY & DRAINAGE BOARD**

CONSULTANTS :
NJS NJS CONSULTANTS CO., LTD. - JAPAN
NSC NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	CE: (P&D)	SCALE:
				A. Miura	A. Miura	Ikuo-MIWA		1:100
				CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 01-E-09
				DESIGN CHIEF				

FROM CEB
3φ3W 33000V 50Hz

OUT OF SCOPE (BY CEB)



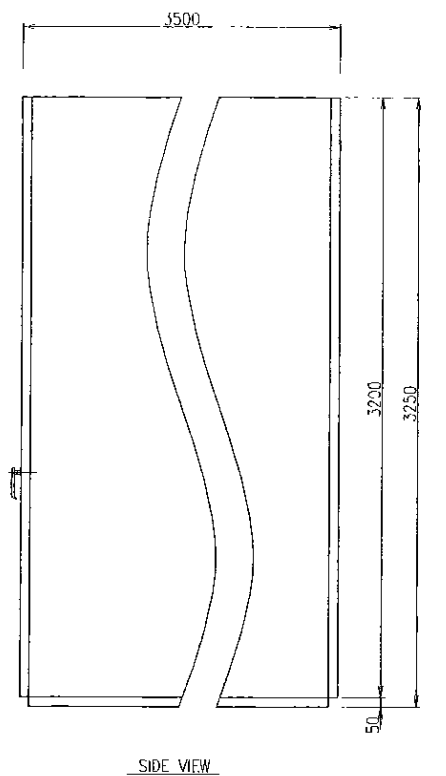
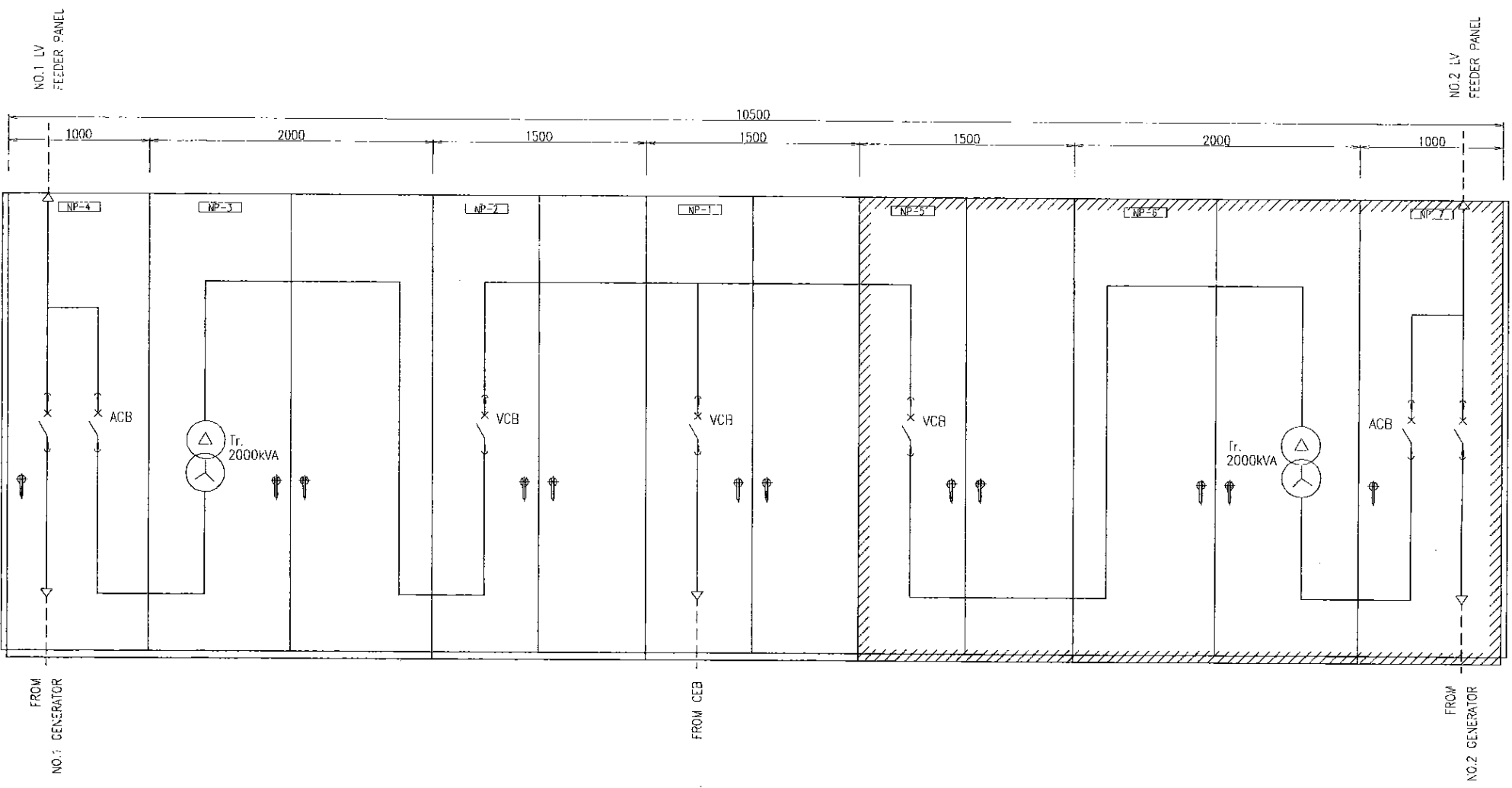
SYMBOL	LEGEND
VCT	VOLTAGE CURRENT TRANSFORMER
DS	DISCONNECTING SWITCH
LA	LIGHTNING ARRESTER
PCS	PRIMARY CUTOFF SWITCH
GPT	GROUNDING POTENTIAL TRANSFORMER
VCB	VACUUM CIRCUIT BREAKER
PT	POTENTIAL TRANSFORMER
CT	CURRENT TRANSFORMER
SR	SERIES REACTOR
SC	STATIC CAPACITOR
T	TRANSFORMER
VCS	VACUUM ELECTROMAGNETIC SWITCH
MCCB	MOLDED CASE CIRCUIT BREAKER
PF	POWER FUSE
ZCT	ZERO PHASE CURRENT TRANSFORMER
V	VOLTMETER
A	AMMETER
H _z	FREQUENCY METER
W	WATT METER
Wh	WATT HOUR METER
COSφ	POWER FACTOR METER
APFC	AUTOMATIC PF CONTROLLER
[U>]	AC OVER VOLTAGE RELAY
[U<]	UNDER VOLTAGE RELAY
[I>]	OVER CURRENT RELAY
[I>G]	OVER CURRENT GROUNDING RELAY
[DGR]	DIRECTIONAL GROUNDING RELAY
[U>G]	AC VOLTAGE RELAY
[GVR]	GROUNDING OVER VOLTAGE RELAY
[SDR]	SPEED ADJUSTING DEVICE RELAY
[VR]	VOLTAGE BALANCE RELAY
[SR]	SYNCHRONIZING RELAY
[AVR]	AUTOMATIC VOLTAGE REGULATING RELAY
[TR]	TRANSDUCER
G	GENERATOR
EX	EXCITER
AVR	AUTOMATIC VOLTAGE REGULATOR
DE	DIESEL ENGINE

: FUTURE

APPLICATION	REMARKS	CAPA (kW)
NO.1 TRANSMISSION PUMP (A-1) PANEL		450
NO.2 TRANSMISSION PUMP (A-1) PANEL		450
NO.1 TRANSMISSION PUMP (A-2) PANEL		90
NO.2 TRANSMISSION PUMP (A-2) PANEL		90
NO.1 TRANSMISSION PUMP (A-3) PANEL		250
NO.2 TRANSMISSION PUMP (A-3) PANEL		250
SEDIMENTATION & FILTER MCC-1		8.6
BACKWASH MCC		125.8
CLEAR WATER PUMP MCC		14.5
CHEMICAL MCC		31.95
LIGHTING PANEL-1 (GENERAL)		80
LIGHTING PANEL-2 (ADMINISTRATION)		30
UPS		33kVA
GENERATOR PANEL		
SUMP DRAINAGE PUMP LOP		1.5
CHLORINATION BOOSTER PUMP LOP		5.5
PLANT WATER SUPPLY UNIT		7.5
RESERVE		
RESERVE		

NO.3 TRANSMISSION PUMP (A-1) PANEL	450
NO.4 TRANSMISSION PUMP (A-1) PANEL	450
NO.3 TRANSMISSION PUMP (A-3) PANEL	250
NO.4 TRANSMISSION PUMP (A-3) PANEL	250
NO.1 TRANSMISSION PUMP (A-4) PANEL	250
NO.2 TRANSMISSION PUMP (A-4) PANEL	250
SEDIMENTATION-2 MCC	12.2
SEDIMENTATION & FILTER MCC-2	4.5
SEDIMENTATION & FILTER MCC-3	4.5
LIGHTING PANEL-3	20
GENERATOR PANEL	
RESERVE	
RESERVE	

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: WTP SINGLE LINE DIAGRAM FOR POWER RECEIVING & STEP DOWN FACILITY								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: A.Miura	DRAWN: A.Miura	PM: (CONSULTANT) Ikuo-MIWA	CE: (P&D)	SCALE: NTS
								CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 04-E-01
								DESIGN CHIEF				



NP-NO.	NP-4	NP-3	NP-2	NP-1	NP-5	NP-6	NP-7
PANEL NAME	NO.1 TRANSFORMER SECONDARY PANEL	NO.1 HT TRANSFORMER PANEL	NO.1 HT FEEDER PANEL	HT POWER RECEIVING PANEL	NO.2 HT FEEDER PANEL	NO.2 HT TRANSFORMER PANEL	NO.2 TRANSFORMER SECONDARY PANEL
TAG NO.	04TSP01	04TRP01	04HTP02	04HTP01	FUTURE	FUTURE	FUTURE
PANEL MOUNTED INSTRUMENT	METER	V A		V A			V A
	C S	1	1	1	1		1
	COS						
	P B		LT,AR	LT,AR	LT,AR		
	PROTECTION RELAY				LV		
INDICATION	STATUS	○	○	○	○	○	○
	ALARM	⊕	⊕	⊕	⊕	⊕	⊕
REMARKS	D=2000						D=2000

LEGEND

SYMBOL	DESCRIPTION
○	INDICATION LAMP
⊕	EACH ALARM INDICATION
LT	LAMP TEST
AR	ALARM RESET
CS	CONTROL SWITCH
COS	CHANGE OVER SWITCH
PB	PUSH BUTTON SWITCH
VS	VOLTMETER SWITCH
AS	AMMETER SWITCH
A/M	AUTO-MANUAL

FUTURE

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

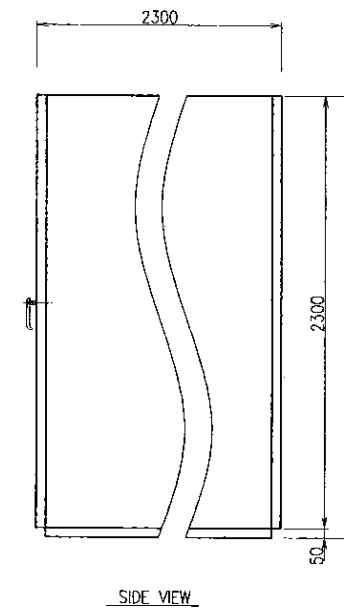
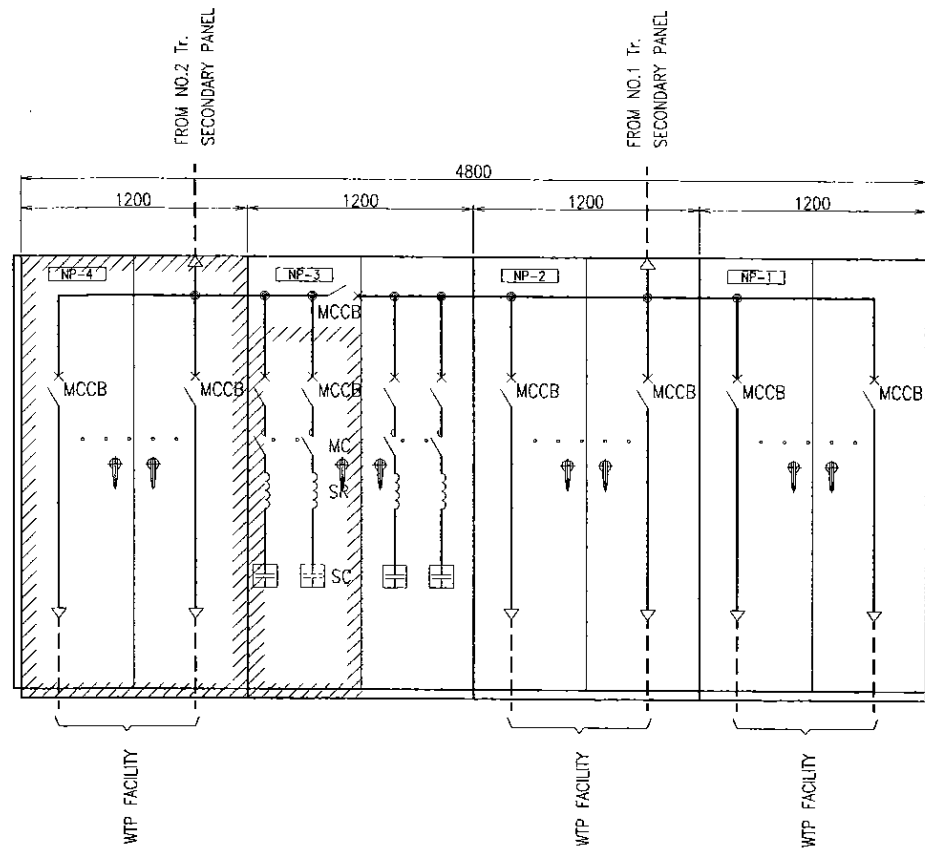
TITLE: WTP OUTLINE OF POWER RECEIVING FACILITY (1/2)

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUDO CONSULTANTS CO., LTD. - JAPAN

REV.	DESCRIPTION	DATE	SIGN.

DESIGNED: A.Miura	DRAWN: A.Miura	PM: (CONSULTANT) Ikuo MIWA	CE: (P&D)	SCALE: 1:20
CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 04-E-02



NP-NO.	NP-4	NP-3	NP-2	NP-1
PANEL NAME	NO.3 LV FEEDER PANEL	STATIC CAPACITOR PANEL	NO.2 LV FEEDER PANEL	NO.1 LV FEEDER PANEL
TAG NO.	FUTURE	04SCP01	04LVP02	04LVP01
PANEL MOUNTED INSTRUMENT	METER			
	C S		3 + 3	
	COS		1	
	P B			
	PROTECTION RELAY	OCGx13		OCGx6
INDICATION	STATUS	○	○	○
	ALARM	⊕	⊕	⊕
REMARKS				

LEGEND

SYMBOL	DESCRIPTION
○	INDICATION LAMP
⊕	EACH ALARM INDICATION
LT	LAMP TEST
AR	ALARM RESET
CS	CONTROL SWITCH
COS	CHANGE OVER SWITCH
PB	PUSH BUTTON SWITCH
VS	VOLTMETER SWITCH
AS	AMMETER SWITCH
A/M	AUTO-MANUAL

▨ FUTURE

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT



JAPAN INTERNATIONAL COOPERATION AGENCY

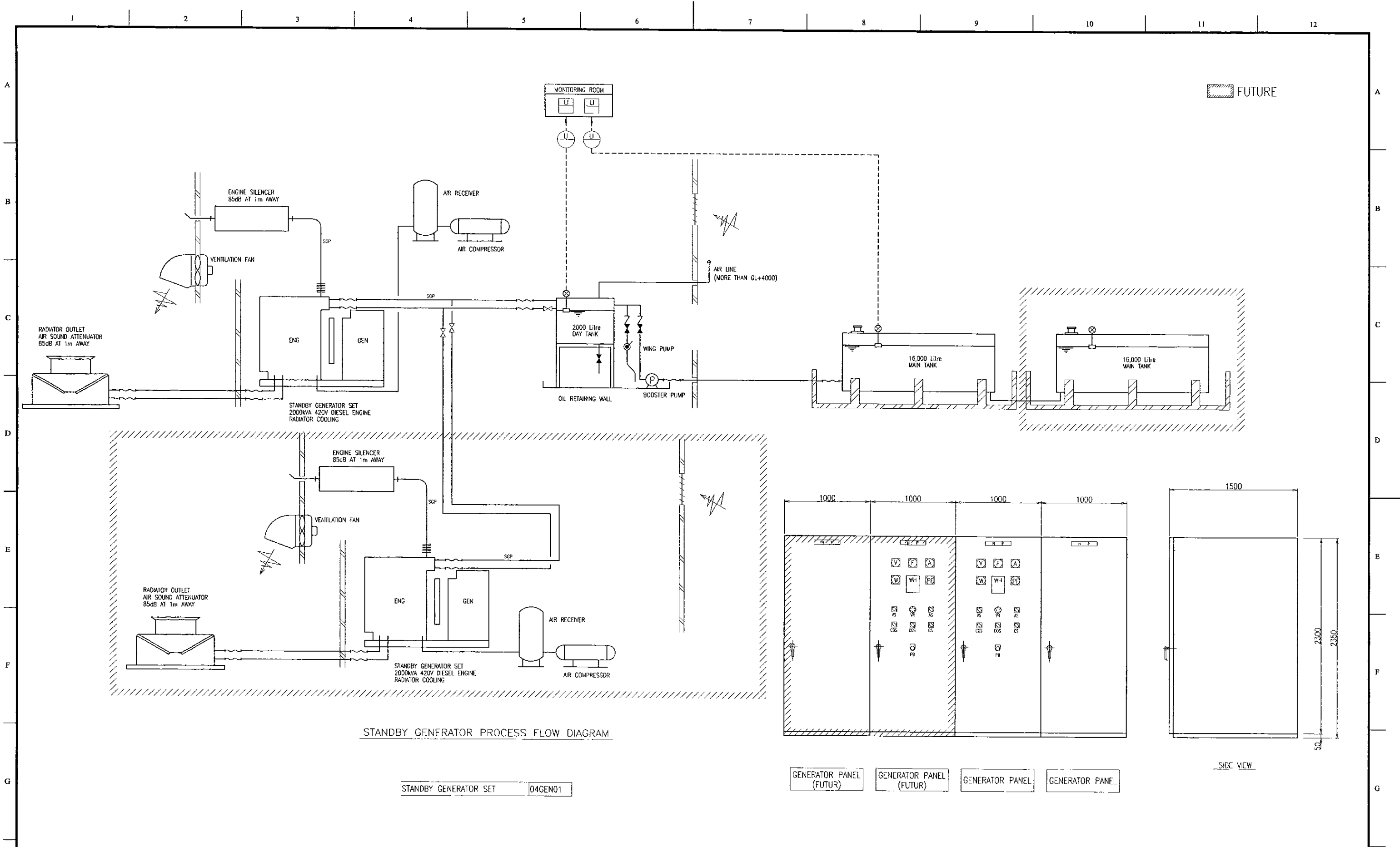
TITLE: WTP OUTLINE OF POWER RECEIVING FACILITY (2/2)

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	FM: (CONSULTANT)	CE: (P&D)	SCALE:
				A.Miura	A.Miura	Ikuo-MIWA		1:20
				CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 04-E-03

DESIGN CHIEF



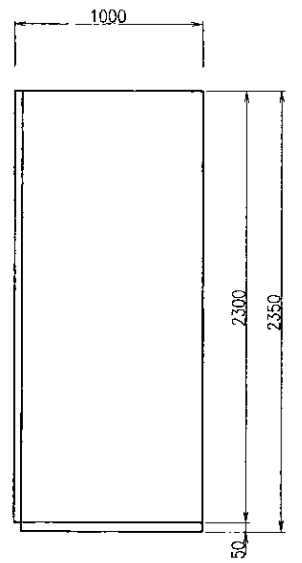
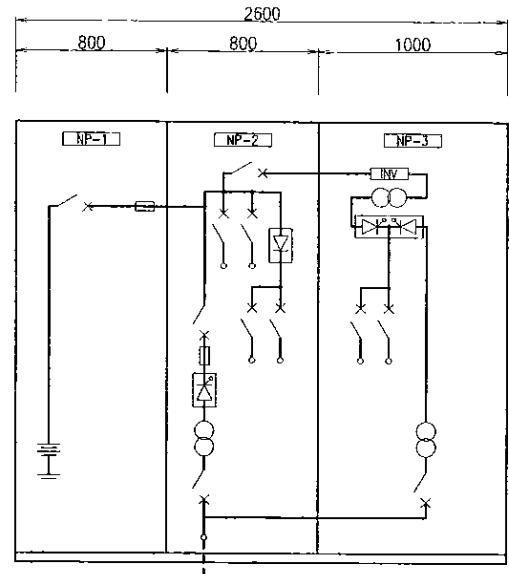
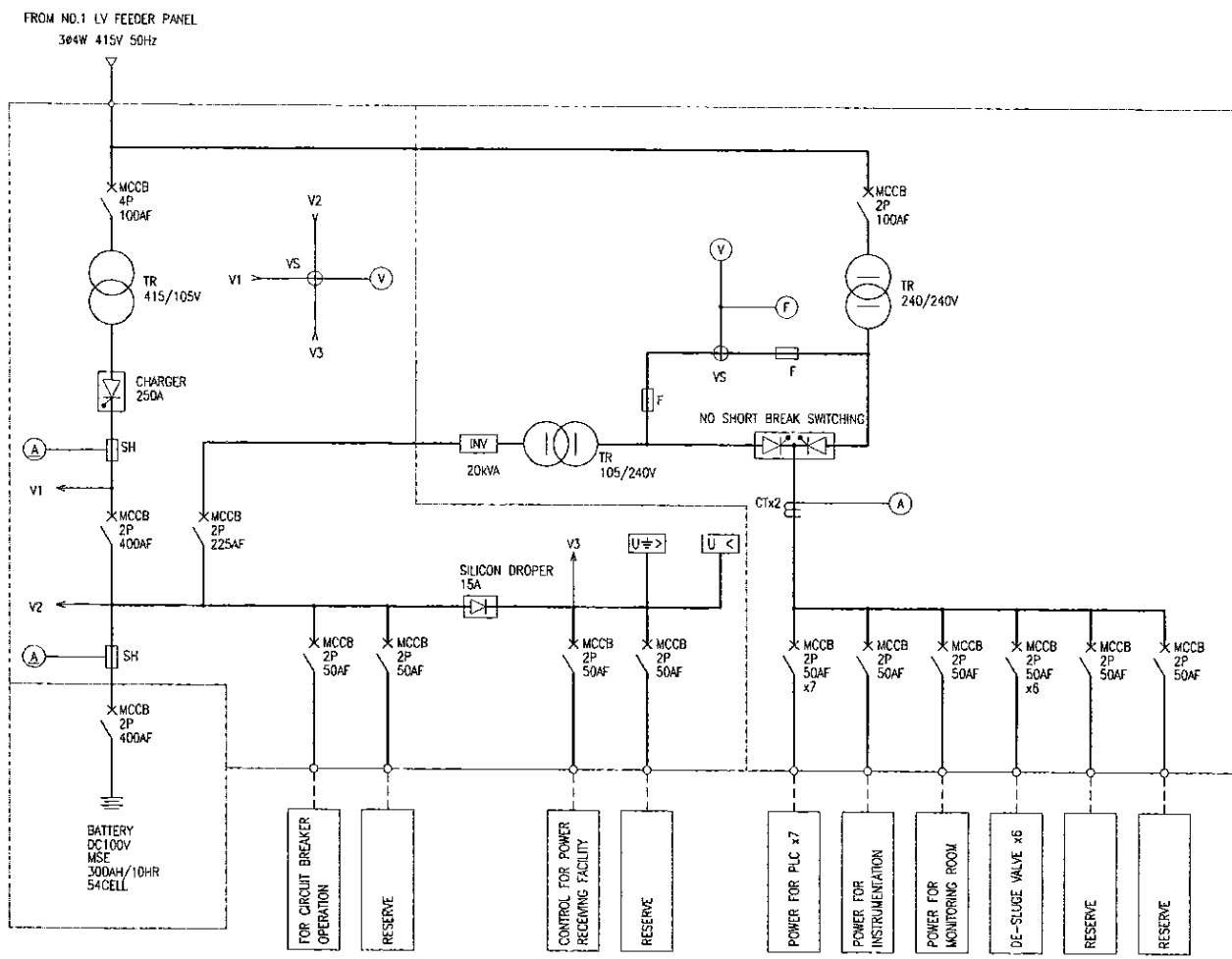
STANDBY GENERATOR PROCESS FLOW DIAGRAM

STANDBY GENERATOR SET 04GEN01

GENERATOR PANEL (FUTUR) GENERATOR PANEL (FUTUR) GENERATOR PANEL GENERATOR PANEL

SIDE VIEW

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JICA JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: WTP STANDBY GENERATOR PROCESS FLOW DIAGRAM & OUTLINE								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: A.Miura	DRAWN: A.Miura	PM: (CONSULTANT) Ikuo-MIWA	CE: (P&D)	SCALE: 1:20
								CHECKED: DESIGN CHIEF	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 04-E-04

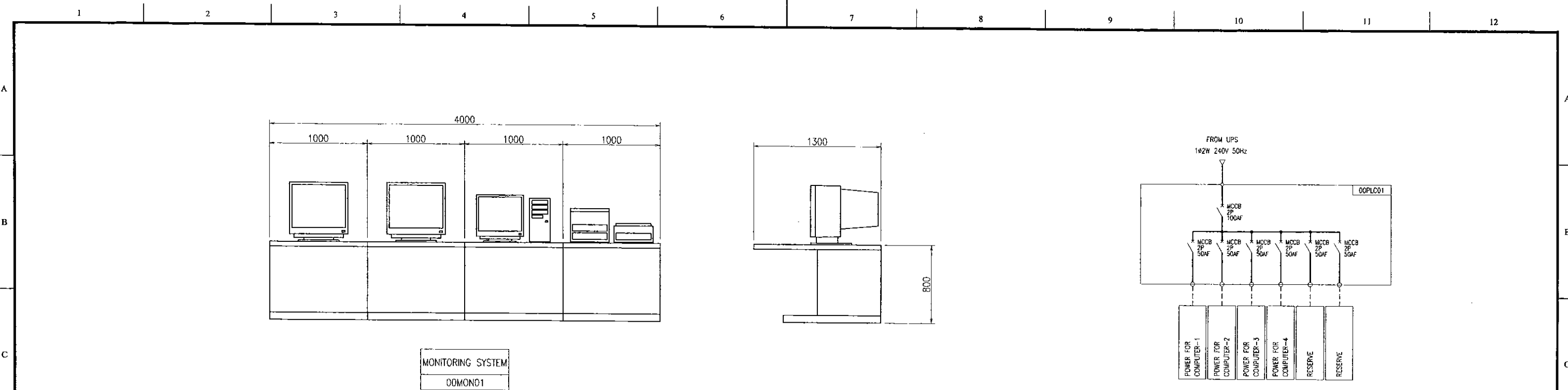


NP-NO.	NP-1	NP-2	NP-3
PANEL NAME	BATTERY PANEL	CHARGER PANEL	INVERTER PANEL
TAG NO.	04UPS01		
PANEL MOUNTED INSTRUMENT	METER	(V) (A) (A)	(V) (F) (A)
	C S	1	1
	COS	VSx1	VSx1
	P B	LT,AR	LT,AR
INDICATION	STATUS	○	○
	ALARM	⊕	⊕
REMARKS			

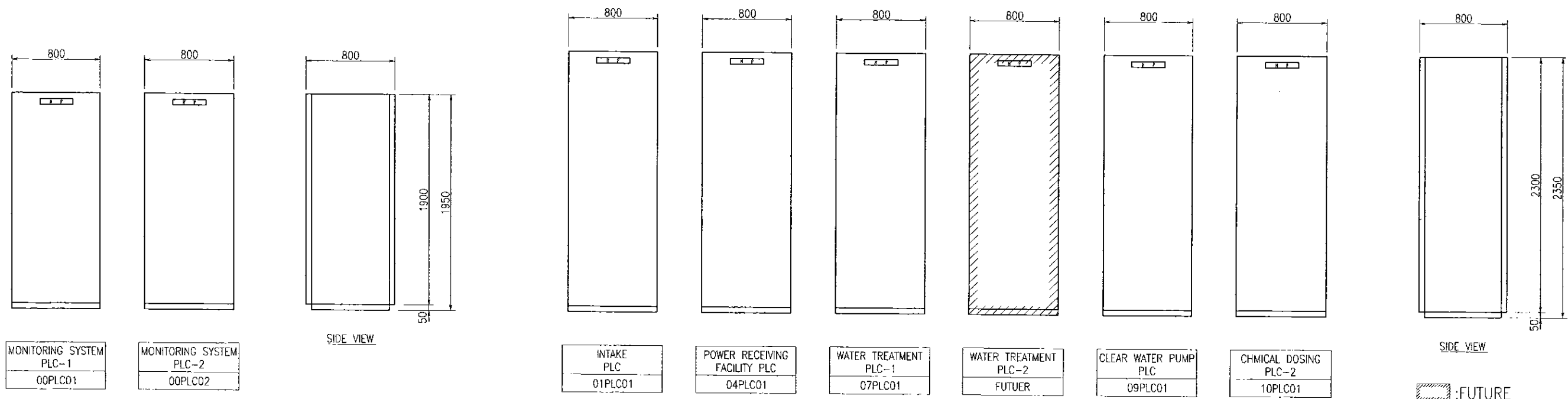
LEGEND

SYMBOL	DESCRIPTION
○	INDICATION LAMP
⊕	EACH ALARM INDICATION
LT	LAMP TEST
AR	ALARM RESET
CS	CONTROL SWITCH
COS	CHANGE OVER SWITCH
PB	PUSH BUTTON SWITCH
VS	VOLTMETER SWITCH
AS	AMMETER SWITCH
A/M	AUTO-MANUAL

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT	JAPAN INTERNATIONAL COOPERATION AGENCY	TITLE: WTP SINGLE LINE DIAGRAM & OUTLINE OF UPS EQUIPMENT								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD	CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN	REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	CE: (P&D)	SCALE:
						<i>A.Miura</i>	<i>A.Miura</i>	<i>Ikuo-MIWA</i>		1:20
						CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE:	DRAWING NO.:
						DESIGN CHIEF			31/05/2002	04-E-05



MONITORING SYSTEM
00MON01



PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

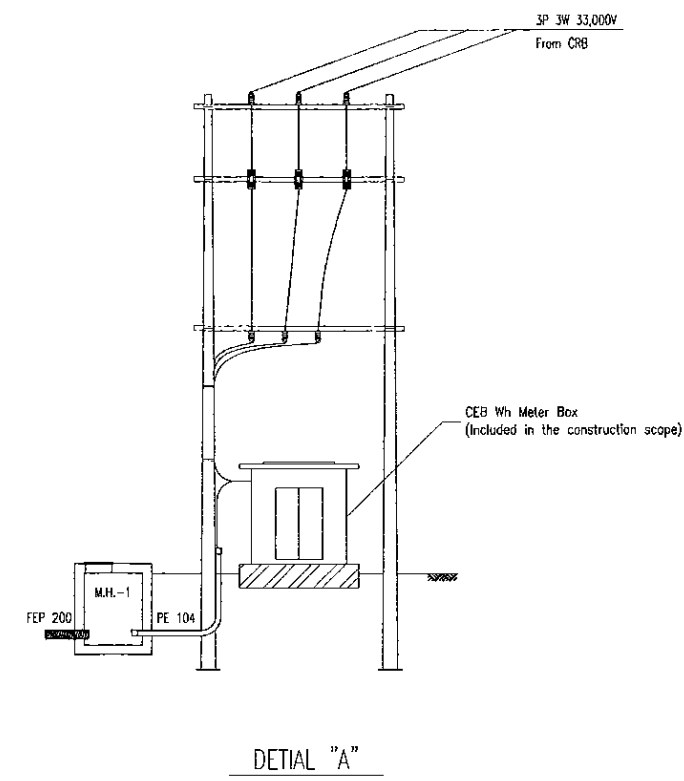
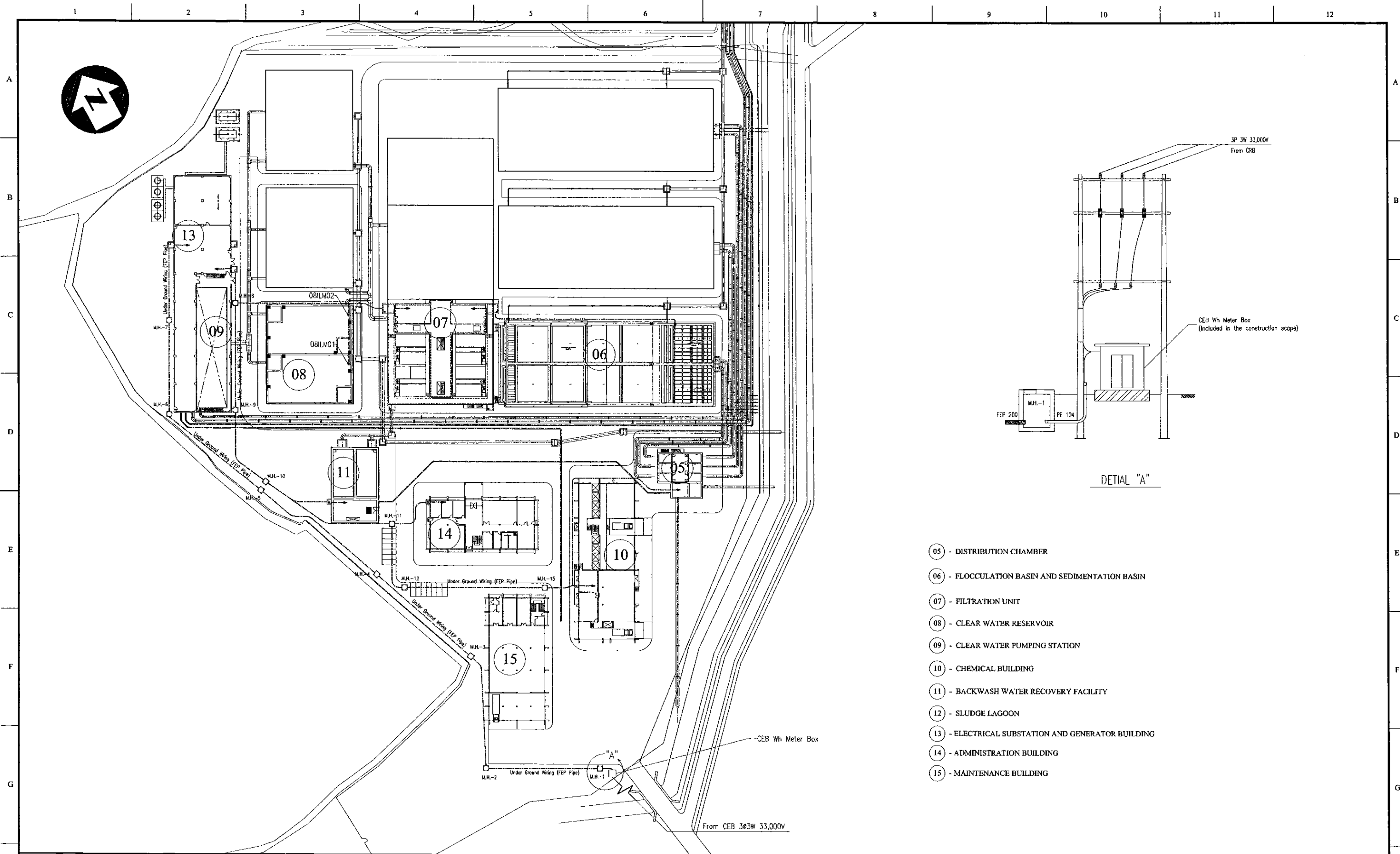
TITLE: OUTLINE OF MONITORING EQUIPMENT & PLC PANEL

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

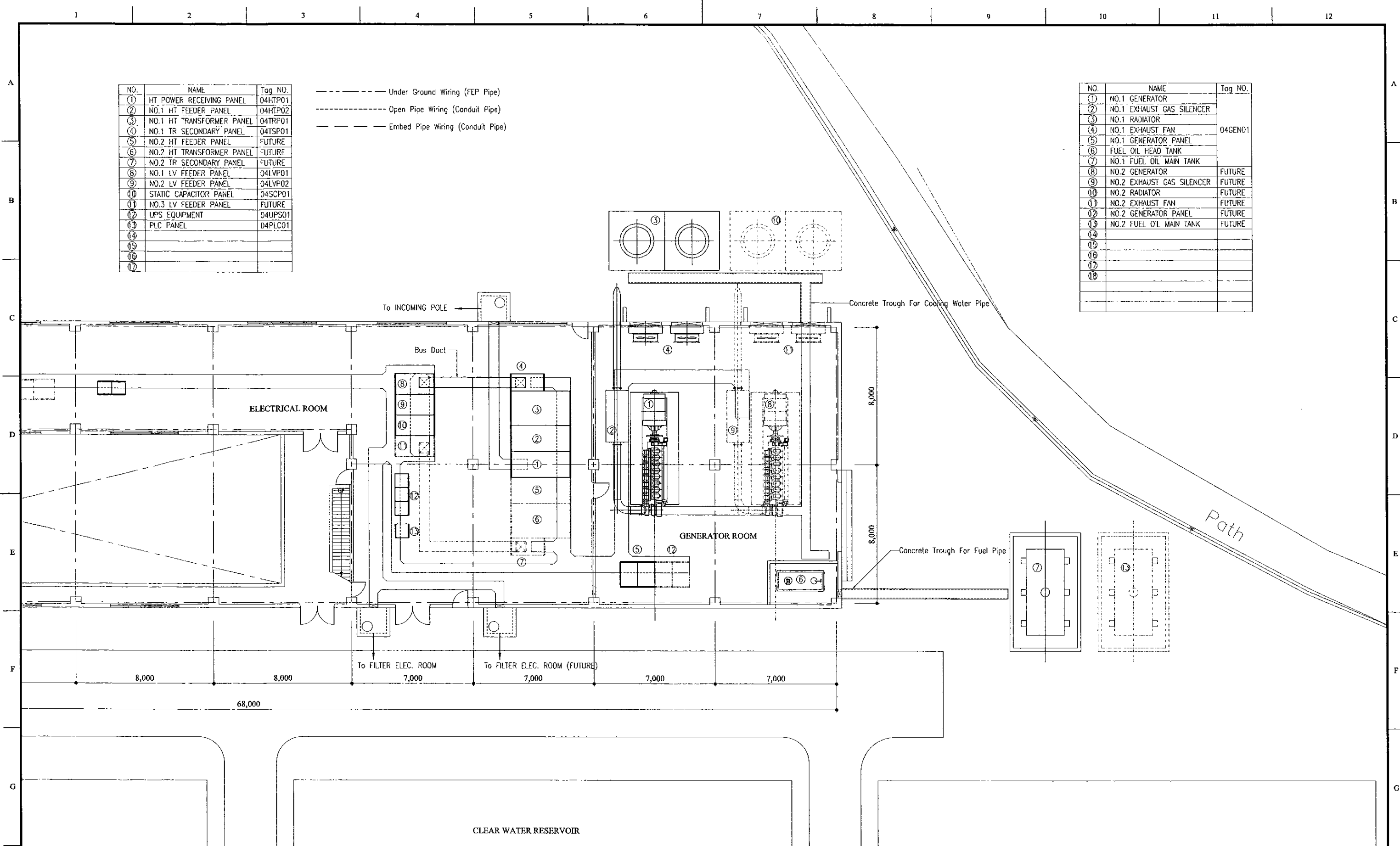
REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	CE: (P&D)	SCALE:
				A.Miura	A.Miura	Ikuo-MIWA		1:20
				CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 04-E-06

DESIGN CHIEF



- 05 - DISTRIBUTION CHAMBER
- 06 - FLOCCULATION BASIN AND SEDIMENTATION BASIN
- 07 - FILTRATION UNIT
- 08 - CLEAR WATER RESERVOIR
- 09 - CLEAR WATER PUMPING STATION
- 10 - CHEMICAL BUILDING
- 11 - BACKWASH WATER RECOVERY FACILITY
- 12 - SLUDGE LAGOON
- 13 - ELECTRICAL SUBSTATION AND GENERATOR BUILDING
- 14 - ADMINISTRATION BUILDING
- 15 - MAINTENANCE BUILDING

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JICA JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: WTP LAYOUT & WIRING PLAN								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NISC NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV. XX	DESCRIPTION XXXX	DATE XX	SIGN. XX	DESIGNED: A. Miura	DRAWN: A. Miura	PM: (CONSULTANT) Ikuro MIWA	CE: (P&D)	SCALE: 1:500
								CHECKED: DESIGN CHIEF	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 04-E-07

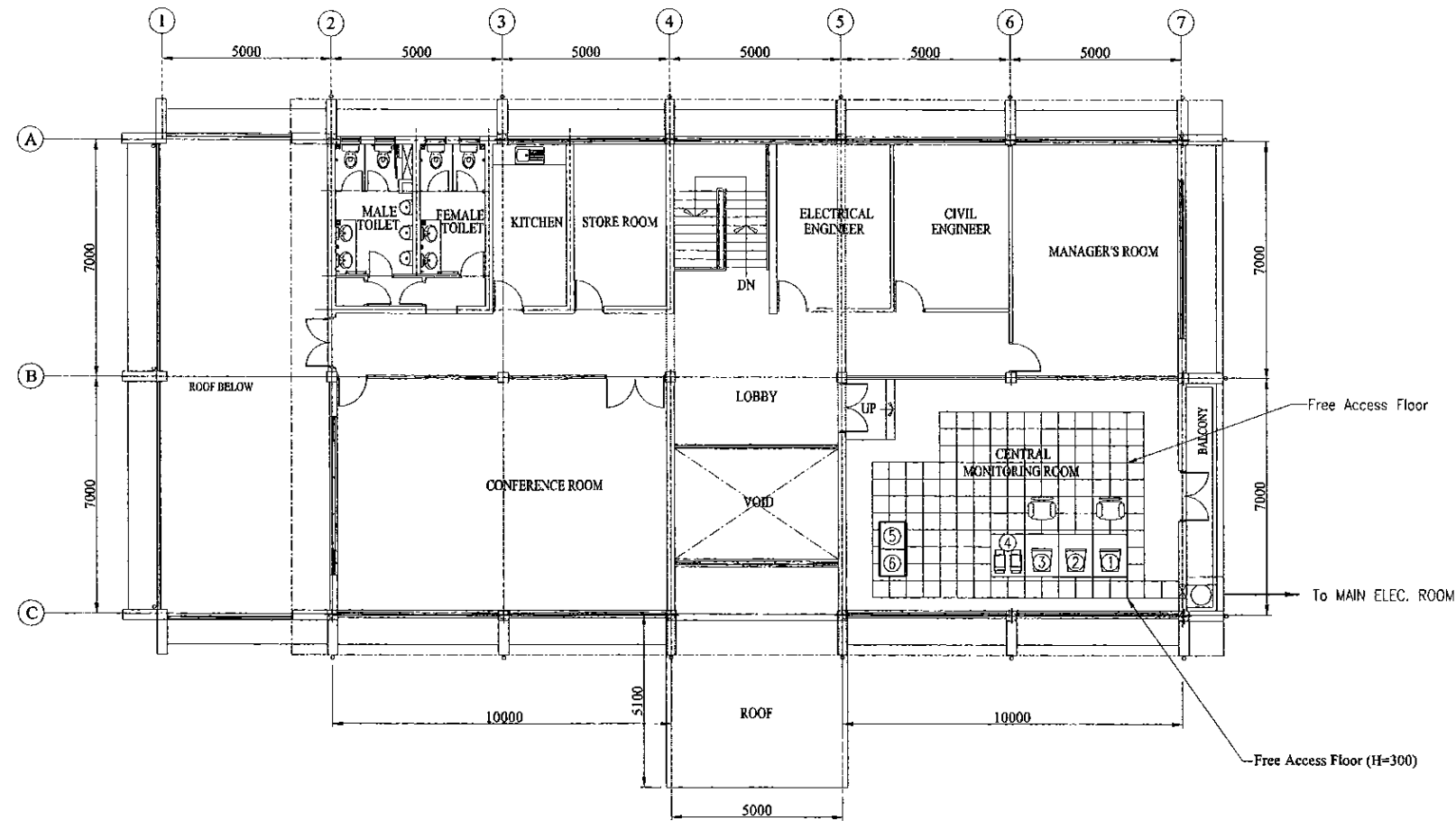


NO.	NAME	Tag NO.
①	HT POWER RECEIVING PANEL	04HTP01
②	NO.1 HT FEEDER PANEL	04HTP02
③	NO.1 HT TRANSFORMER PANEL	04TRP01
④	NO.1 TR SECONDARY PANEL	04TSP01
⑤	NO.2 HT FEEDER PANEL	FUTURE
⑥	NO.2 HT TRANSFORMER PANEL	FUTURE
⑦	NO.2 TR SECONDARY PANEL	FUTURE
⑧	NO.1 LV FEEDER PANEL	04LVP01
⑨	NO.2 LV FEEDER PANEL	04LVP02
⑩	STATIC CAPACITOR PANEL	04SCP01
⑪	NO.3 LV FEEDER PANEL	FUTURE
⑫	UPS EQUIPMENT	04UPS01
⑬	PLC PANEL	04PLC01
⑭		
⑮		
⑯		
⑰		
⑱		

- - - - - Under Ground Wiring (FEP Pipe)
 - - - - - Open Pipe Wiring (Conduit Pipe)
 - - - - - Embed Pipe Wiring (Conduit Pipe)

NO.	NAME	Tag NO.
①	NO.1 GENERATOR	04GEN01
②	NO.1 EXHAUST GAS SILENCER	
③	NO.1 RADIATOR	
④	NO.1 EXHAUST FAN	
⑤	NO.1 GENERATOR PANEL	
⑥	FUEL OIL HEAD TANK	
⑦	NO.1 FUEL OIL MAIN TANK	
⑧	NO.2 GENERATOR	FUTURE
⑨	NO.2 EXHAUST GAS SILENCER	FUTURE
⑩	NO.2 RADIATOR	FUTURE
⑪	NO.2 EXHAUST FAN	FUTURE
⑫	NO.2 GENERATOR PANEL	FUTURE
⑬	NO.2 FUEL OIL MAIN TANK	FUTURE
⑭		
⑮		
⑯		
⑰		
⑱		

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: WTP SUBSTATION & GENERATOR ROOM LAYOUT & WIRING PLAN								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: <i>A.Miura</i>	DRAWN: <i>A.Miura</i>	PM: (CONSULTANT) <i>Ikuo MIWA</i>	CE: (P&D)	SCALE: 1:100
								CHECKED: DESIGN CHIEF	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 04-E-08



NO.	NAME	Tag NO.
①	MONITORING SYSTEM	
②	MONITORING SYSTEM (HOT STANDBY)	COMON01
③	SERVER	
④	PRINTER	
⑤	MONITORING PLC-1	00PLC01
⑥	MONITORING PLC-2	00PLC02
⑦		
⑧		

FIRST FLOOR PLAN

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT



JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: MONITORING SYSTEM LAYOUT & WIRING PLAN

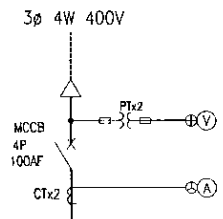
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD



CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

REV.	DESCRIPTION	DATE	SIGN.

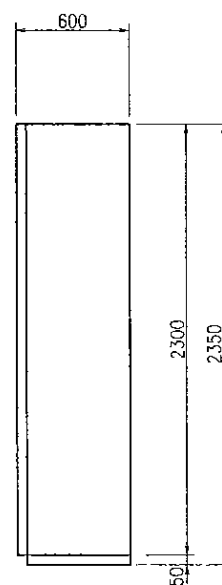
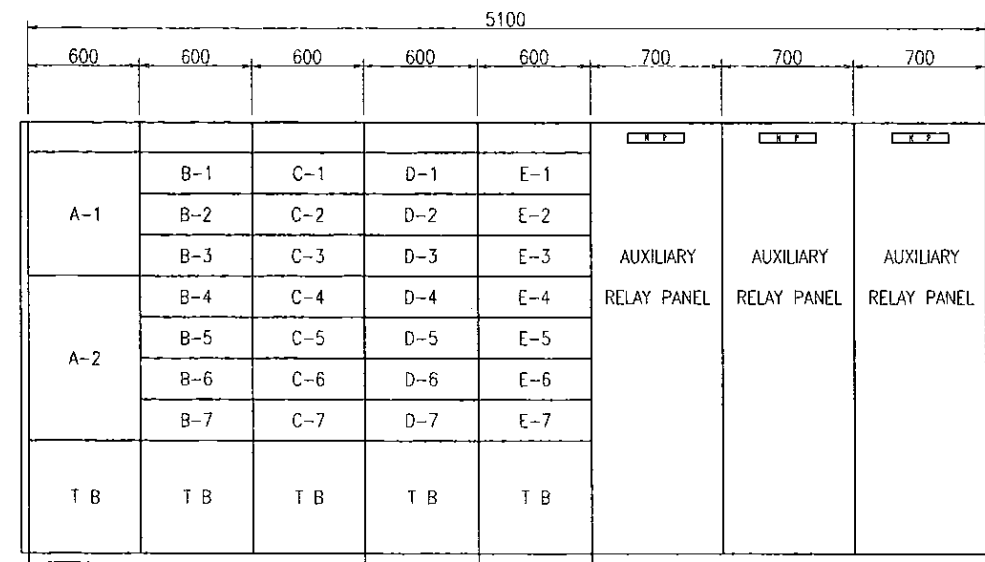
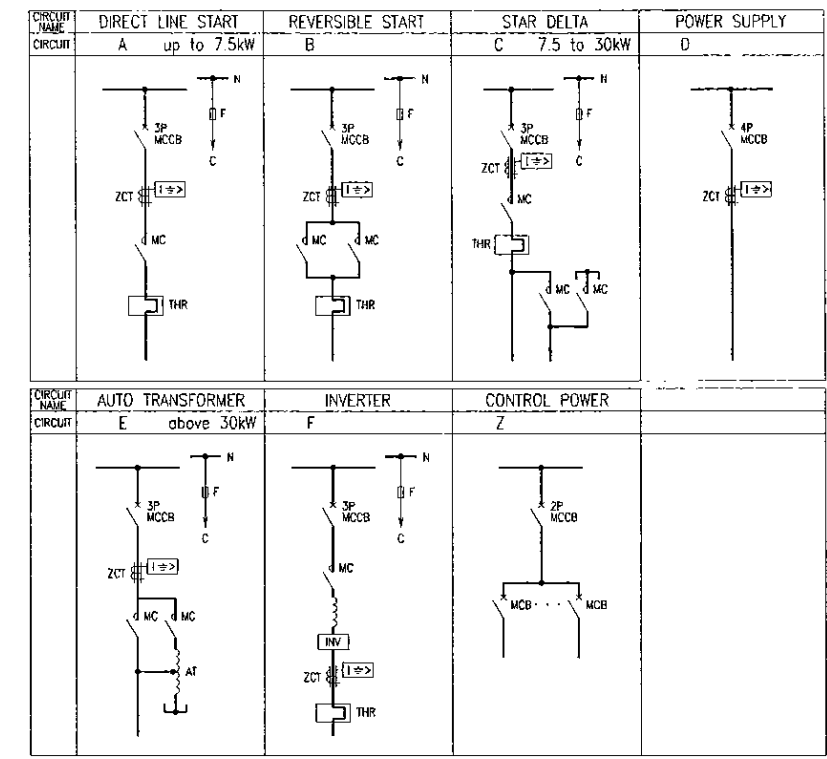
DESIGNED: A.Miura	DRAWN: A.Miura	PM: (CONSULTANT) Ikuo MIWA	CE: (P&D)	SCALE: 1:100
CHECKED: DESIGN CHIEF	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 04-E-09



total : 8.6kW

STARTER SYMBOL	B	B	B	B	B	D	A	D		
LOAD NAME	INFLOW GATE	BACKWASH DRAINAGE GATE	EFFLUENT VALVE	BACKWASH VALVE	AIR SCOUR VALVE	SLUDGE COLLECTOR	SAMPLING PUMP	RESERVE		
LOAD TAG NO.	07MG11to41	07MG12to42	07MV11to41	07MV12to42	07MV13to43	06SC11to22	06SP01			
(kW)	0.4	0.4	0.2	0.2	0.2	0.75x2	0.4			
MCCB (AF)	50	50	50	50	50	50	50	50		
NUMBERS	Phase 1	4	4	4	4	2	1	2		
	Phase 2	4	4	4	4	4	2	2		
	Phase 3	4	4	4	4	4	2	2		
MEASURING DEVICE										
PROTECTION RELAY	(1)➤	(1)➤	(1)➤	(1)➤	(1)➤	(1)➤	(1)➤			
REMARKS										

(1)* : FIGURE INSIDE THE ROUND BRACKETS SHOWS NUMBERS OF STANDBY



SIDE VIEW

UNIT NO.		LOAD NAME	UNIT NO.	LOAD NAME	UNIT NO.	LOAD NAME
A-1		INCOMING UNIT	C-1	NO.1-4 BACKWASH DRAINAGE GATE	E-1	NO.1-1 SLUDGE COLLECTOR PANEL
A-2		CONTROL POWER UNIT	C-2	NO.1-1 EFFLUENT VALVE	E-2	NO.1-2 SLUDGE COLLECTOR PANEL
			C-3	NO.1-2 EFFLUENT VALVE	E-3	Sampling Pump
			C-4	NO.1-3 EFFLUENT VALVE	E-4	RESERVE
			C-5	NO.1-4 EFFLUENT VALVE	E-5	VACANT
			C-6	NO.1-1 BACKWASH VALVE	E-6	VACANT
			C-7	NO.1-2 BACKWASH VALVE	E-7	VACANT
B-1		NO.1-1 INFLOW GATE	D-1	NO.1-3 BACKWASH VALVE		
B-2		NO.1-2 INFLOW GATE	D-2	NO.1-4 BACKWASH VALVE		
B-3		NO.1-3 INFLOW GATE	D-3	NO.1-1 AIR SCOUR VALVE		
B-4		NO.1-4 INFLOW GATE	D-4	NO.1-2 AIR SCOUR VALVE		
B-5		NO.1-1 BACKWASH DRAINAGE GATE	D-5	NO.1-3 AIR SCOUR VALVE		
B-6		NO.1-2 BACKWASH DRAINAGE GATE	D-6	NO.1-4 AIR SCOUR VALVE		
B-7		NO.1-3 BACKWASH DRAINAGE GATE	D-7	RESERVE		

SEDI. & FILTER MCC	06MCC01
SEDI. & FILTER AUXILIARY RELAY PANEL	06ARY01

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JICA JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: SINGLE LINE DIAGRAM & OUTLINE OF MCC FOR SEDIMENTATION & FILTER UNIT FACILITY								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: A.Miura	DRAWN: A.Miura	PM: (CONSULTANT) Ikuo-MIWA	CE: (P&D)	SCALE: 1:20
								CHECKED: DESIGN CHIEF	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 06-E-01

A

B

C

D

E

F

G

H

A

B

C

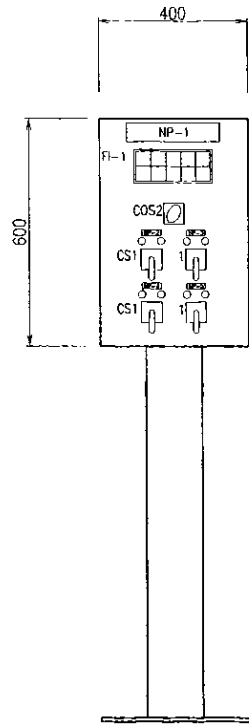
D

E

F

G

H

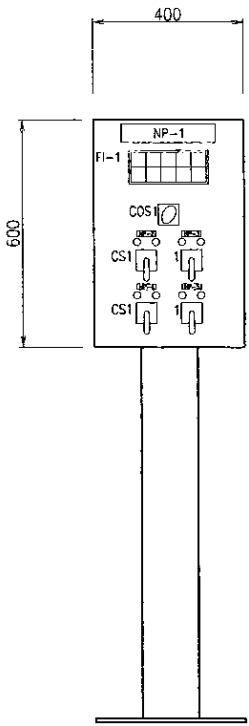


NP-1	De-sludge Valve LOP
NP-2	NO.1-1 De-sludge Valve
NP-3	NO.1-2 De-sludge Valve
NP-4	NO.1-3 De-sludge Valve
NP-5	NO.1-4 De-sludge Valve
COS1	ELC.R-SITE
COS2	MANU-AUTO
CS1	CLOSE-OPEN

FI-1 DETAIL				
NO.1-1	NO.1-1	NO.1-2	NO.1-2	UPS FAILURE
Valve	Valve	Valve	Valve	
OVER LOAD	EARTH FAULT	OVER LOAD	EARTH FAULT	
NO.1-3	NO.1-3	NO.1-4	NO.1-4	
Valve	Valve	Valve	Valve	
OVER LOAD	EARTH FAULT	OVER LOAD	EARTH FAULT	

NO.1 DE-SLUDGE VALVE LOCAL OPERATION PANEL
O6LOP01

D=400

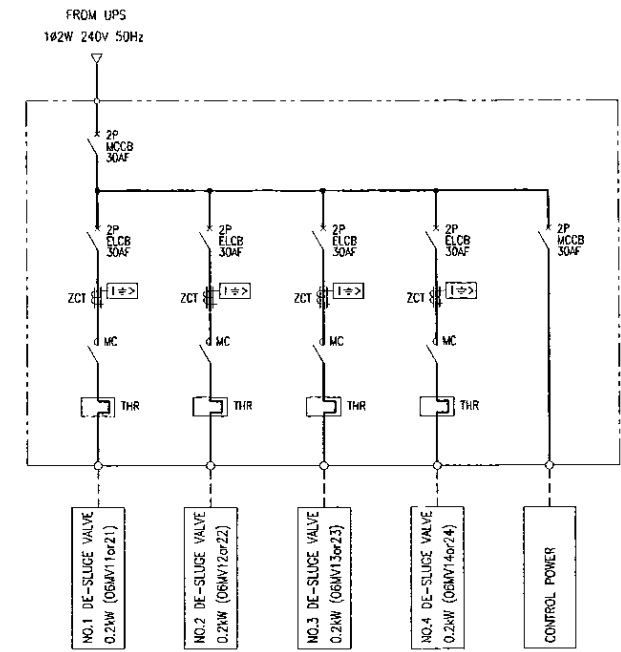


NP-1	De-sludge Valve LOP
NP-2	NO.2-1 De-sludge Valve
NP-3	NO.2-2 De-sludge Valve
NP-4	NO.2-3 De-sludge Valve
NP-5	NO.2-4 De-sludge Valve
COS1	ELC.R-SITE
COS2	MANU-AUTO
CS1	CLOSE-OPEN

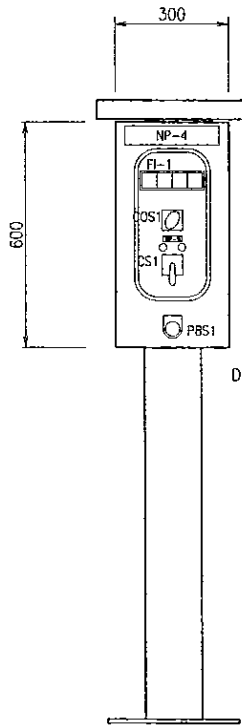
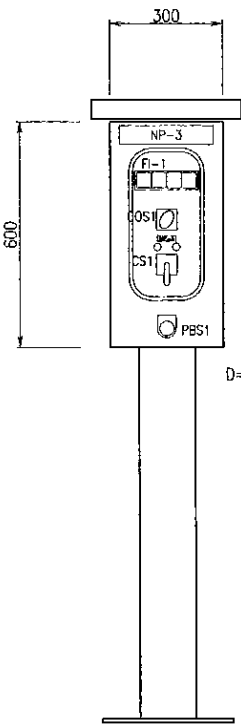
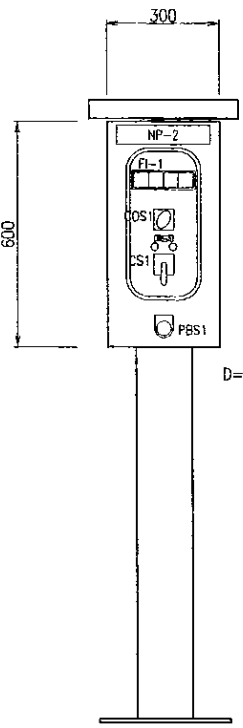
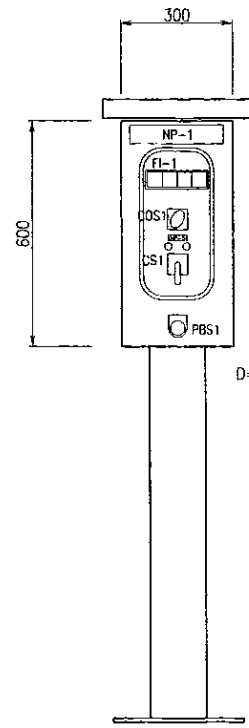
FI-1 DETAIL				
NO.2-1	NO.2-1	NO.2-2	NO.2-2	UPS FAILURE
Valve	Valve	Valve	Valve	
OVER LOAD	EARTH FAULT	OVER LOAD	EARTH FAULT	
NO.2-3	NO.2-3	NO.2-4	NO.2-4	
Valve	Valve	Valve	Valve	
OVER LOAD	EARTH FAULT	OVER LOAD	EARTH FAULT	

NO.2 DE-SLUDGE VALVE LOCAL OPERATION PANEL
O6LOP02

D=400

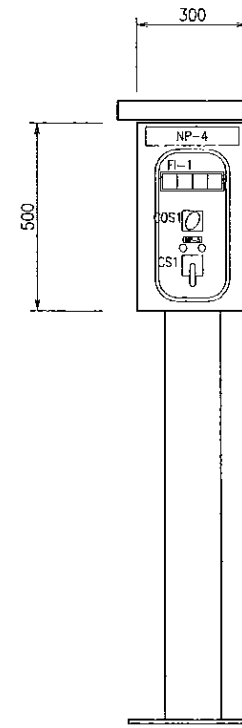


SINGLE LINE DIAGRAM OF DE-SLUDGE VALVE LOP



NP-1	NO.1-1 SLUDGE COLLECTOR LOP
NP-2	NO.1-2 SLUDGE COLLECTOR LOP
NP-3	NO.2-1 SLUDGE COLLECTOR LOP
NP-4	NO.2-2 SLUDGE COLLECTOR LOP
NP-5	Sludge Collector
COS1	ELC.R-SITE
CS1	STOP-START
PBS1	EMERGENCY STOP

FI-1 DETAIL			
Sludge	Sludge	Sludge	EMERGENCY STOP
Collector	Collector	Collector	
OVER LOAD	EARTH FAULT	OVER TRUQE	



NP-1	Sampling Pump LOP
NP-2	Sampling Pump
COS1	ELC.R-SITE
CS1	STOP-START
PBS1	EMERGENCY STOP

FI-1 DETAIL			
Sampling	Sampling	SEDI. BASIN	EMERGENCY STOP
Pump	Pump	WATER	
OVER LOAD	EARTH FAULT	LEVEL L.L.	

SAMPLING PUMP LOCAL OPERATION PANEL
O6LOP07

D=300

NO.1-1 SLUDGE COLLECTOR LOCAL OPERATION PANEL
O6LOP03

NO.1-2 SLUDGE COLLECTOR LOCAL OPERATION PANEL
O6LOP04

NO.2-1 SLUDGE COLLECTOR LOCAL OPERATION PANEL
O6LOP05

NO.2-2 SLUDGE COLLECTOR LOCAL OPERATION PANEL
O6LOP06

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT



JAPAN INTERNATIONAL COOPERATION AGENCY

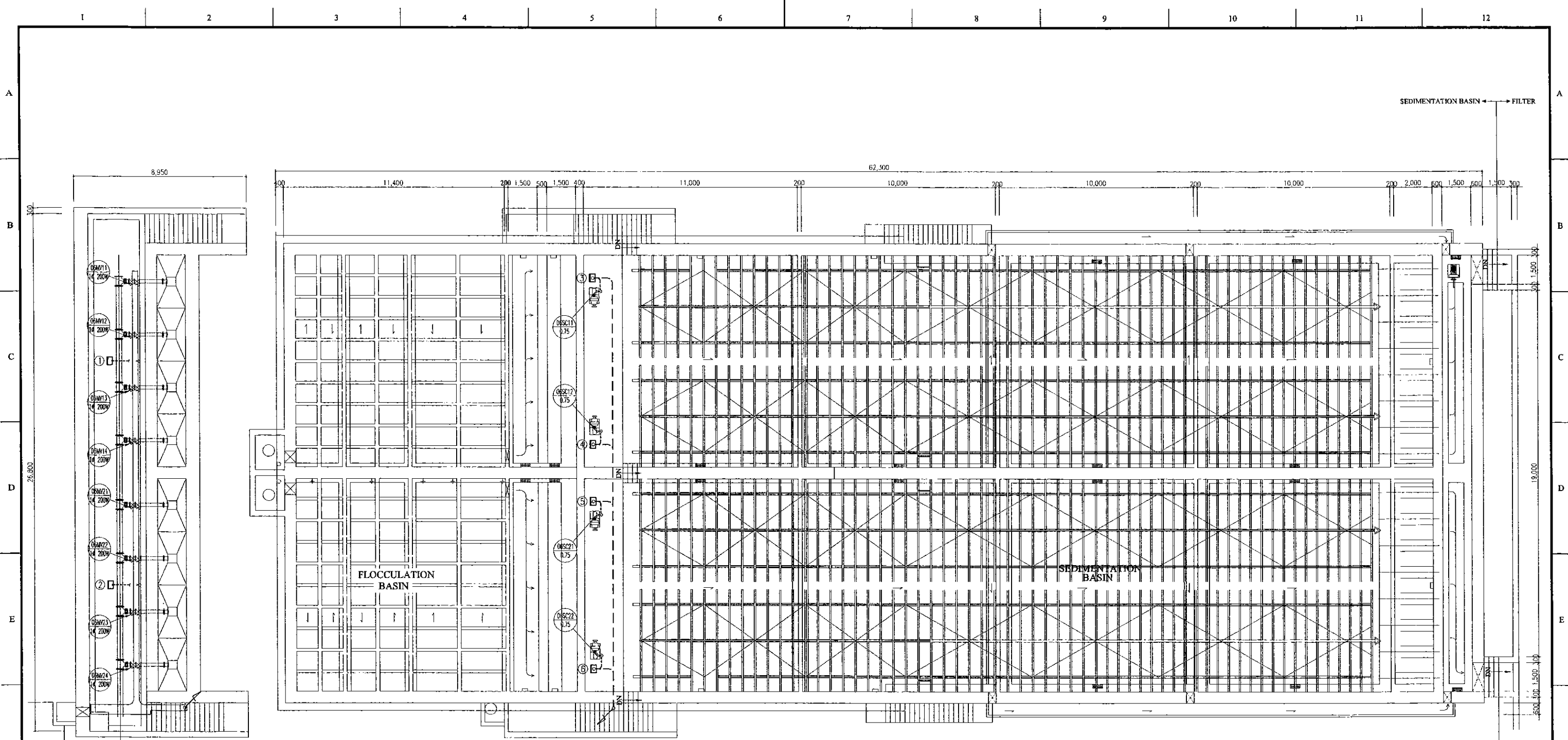
TITLE: OUTLINE OF LOCAL OPERATION PANEL FOR SEDIMENTATION BASIN FACILITY

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

REV.	DESCRIPTION	DATE	SIGN.

DESIGNED: A.Miura	DRAWN: A.Miura	PM: (CONSULTANT) Ikuo MIWA	CE: (P&D)	SCALE: 1:10
CHECKED: DESIGN CHIEF	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: O6-E-02



TOP PLAN
SCALE: 1:100

NO.	NAME	Tag NO.
①	NO.1 DE-SLUDGE VALVE LOP	06LOP01
②	NO.2 DE-SLUDGE VALVE LOP	06LOP02
③	NO.1-1 SLUDGE COLLECTER LOP	06LOP03
④	NO.1-2 SLUDGE COLLECTER LOP	06LOP04
⑤	NO.2-1 SLUDGE COLLECTER LOP	06LOP05
⑥	NO.2-2 SLUDGE COLLECTER LOP	06LOP06
⑦	SAMPLING PUMP LOP	06LOP07
⑧		

LOP : LOCAL OPERATION PANEL

- Under Ground Wiring (FEP Pipe)
- Open Pipe Wiring (Conduit Pipe)
- Embed Pipe Wiring (Conduit Pipe)

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT

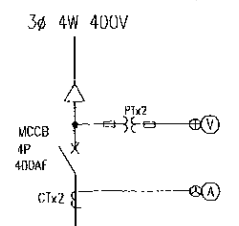
JICA JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: SEDIMENTATION BASIN FACILITY LAYOUT & WIRING PLAN

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

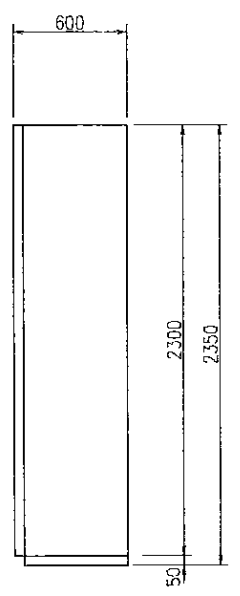
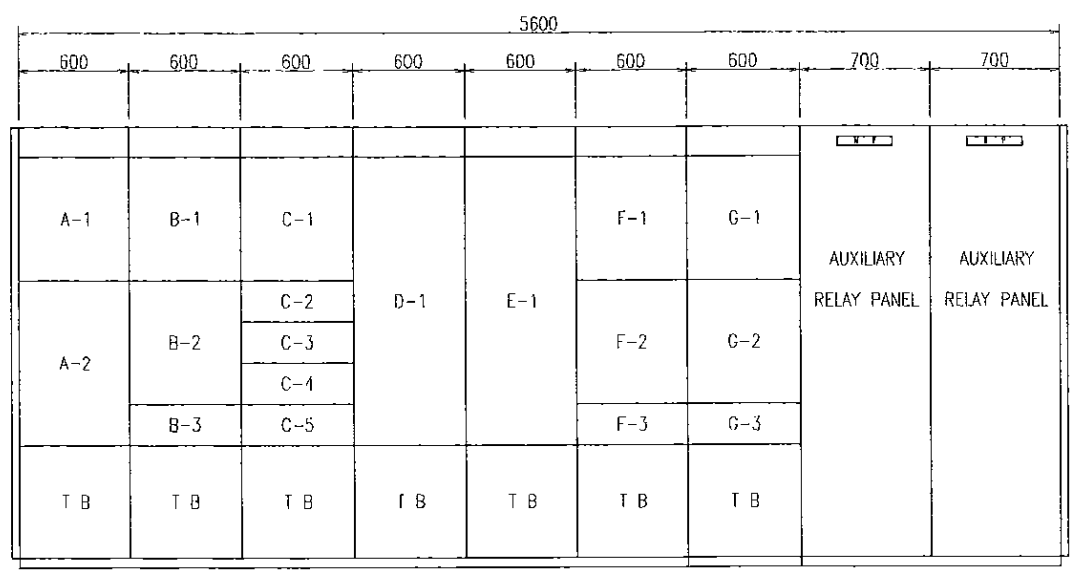
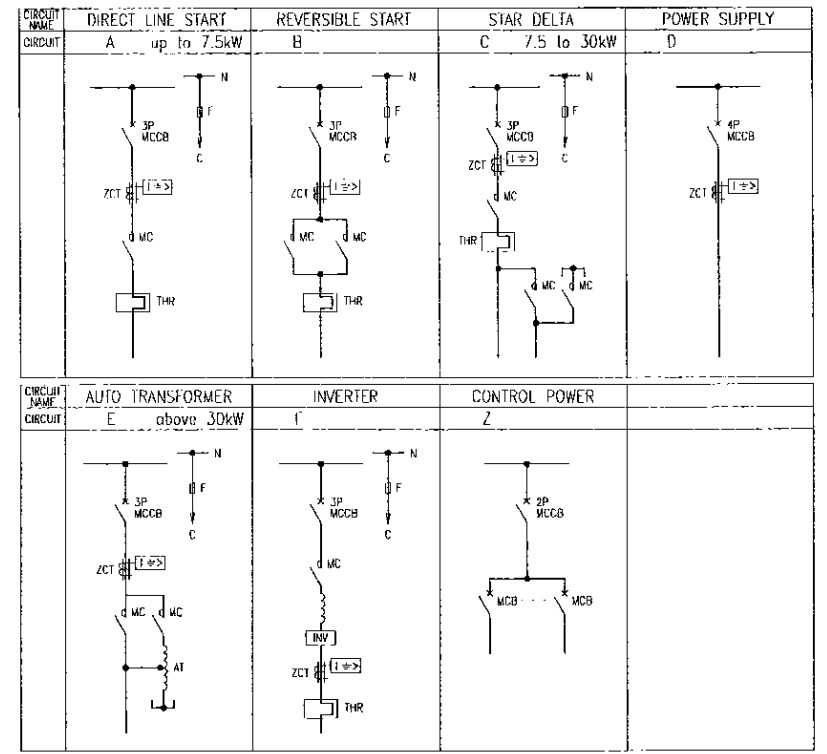
REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	CE: (P&D)	SCALE:
				A.Miura	A.Miura	Ikuo MIWA		1:100
				CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 06-E-03
				DESIGN CHIEF				



total : 125.8kW

STARTER SYMBOL	C	F	A	A	F	C	A	D
LOAD NAME	BACKWASH PUMP	AIR BLOWER	FILTER SUMP DRAINAGE PUMP	LIME MIXER	LIME FEED PUMP	BACKWASH RECOVERY PUMP	B.W. RECOVERY SUMP DRAINAGE PUMP	RESERVE
LOAD TAG NO.	07FP11to31	07AP11to21	07DP01/02	07MM11	07LP11/21	11WP11to21	11DP01/02	
(kW)	18.5	55	1.5	0.4	0.4	30	1.5	
MCCB (AF)	50	225	50	50	50	100	50	50
NUMBERS	Phase 1	3(1)*	2(1)*	2(1)*	1	2(1)*	2(1)*	2(1)*
	Phase 2	3(1)*	2(1)*	2(1)*	1	2(1)*	2(1)*	2(1)*
	Phase 3	3(1)*	2(1)*	2(1)*	1	2(1)*	2(1)*	2(1)*
MEASURING DEVICE	(A) (H)	(A) (H)	(H)		(H)	(A) (H)	(H)	
PROTECTION RELAY	(I=>)	(I=>)	(I=>)	(I=>)	(I=>)	(I=>)	(I=>)	
REMARKS								

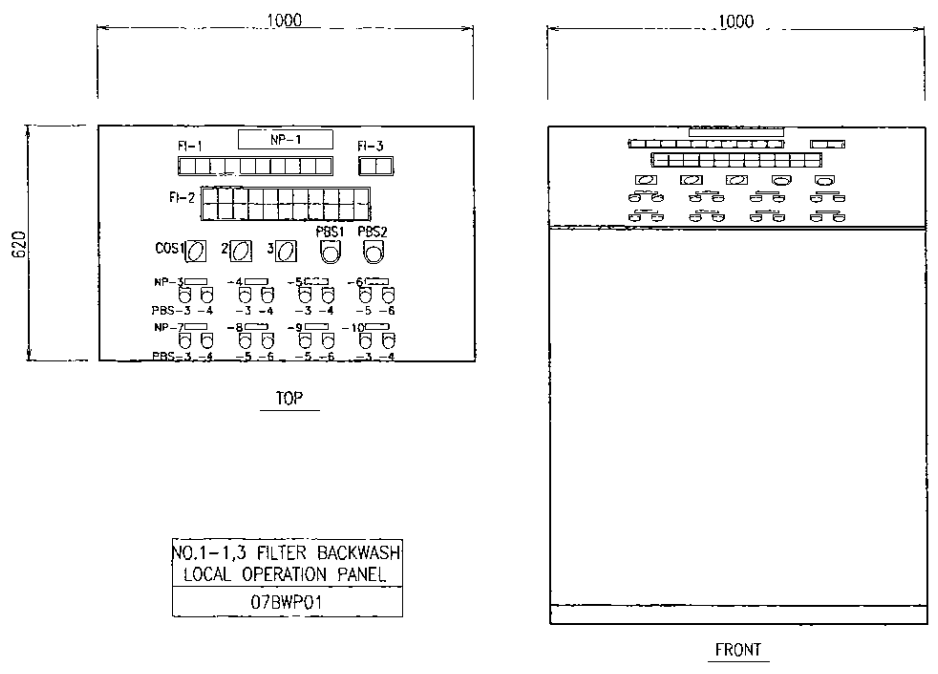
(1)* : FIGURE INSIDE THE ROUND BRACKETS SHOWS NUMBERS OF STANDBY



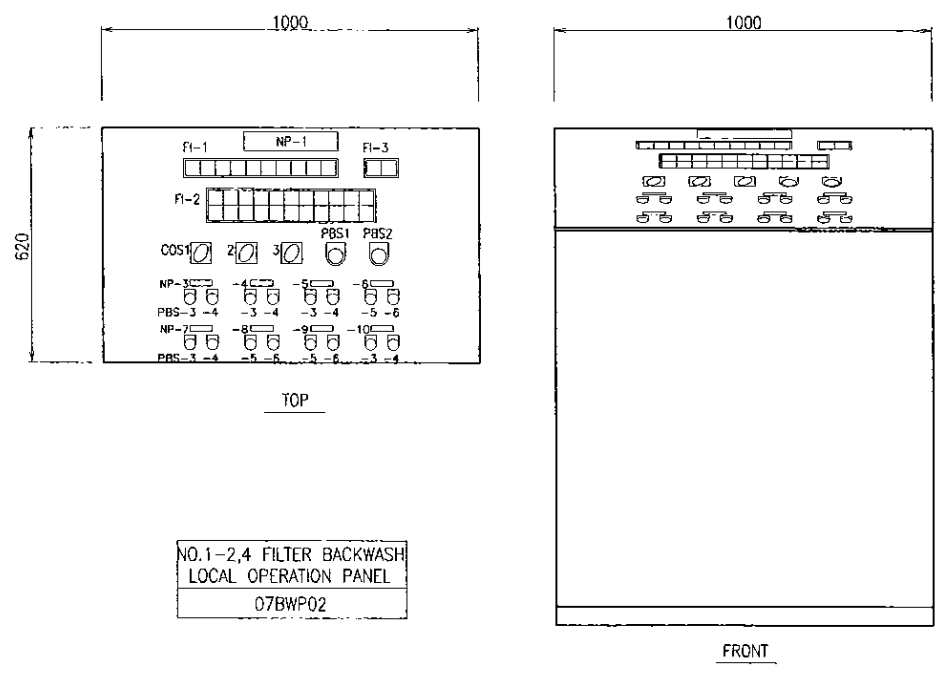
BACKWASH MCC	07MCC01
BACKWASH AUXILIARY RELAY PANEL	07ARY01

UNIT NO.	LOAD NAME	UNIT NO.	LOAD NAME	UNIT NO.	LOAD NAME
A-1	INCOMING UNIT	D-1	NO.1 AIR BLOWER	G-1	NO.1 BACKWASH RECOVERY PUMP
A-2	CONTROL POWER UNIT			G-2	NO.2 BACKWASH RECOVERY PUMP
				G-3	NO.2 B.W. RECOVERY SUMP DRAINAGE PUMP
B-1	NO.1 BACKWASH PUMP	E-1	NO.2 AIR BLOWER		
B-2	NO.2 BACKWASH PUMP				
B-3	RESERVE				
B-4					
B-5					
B-6					
B-7					
C-1	NO.3 BACKWASH PUMP	F-1	NO.1 LIME FEED PUMP		
C-2	NO.1 FILTER SUMP DRAINAGE PUMP	F-2	NO.2 LIME FEED PUMP		
C-3	NO.2 FILTER SUMP DRAINAGE PUMP	F-3	NO.1 B.W. RECOVERY SUMP DRAINAGE PUMP		
C-4	LIME MIXER				
C-5	RESERVE				

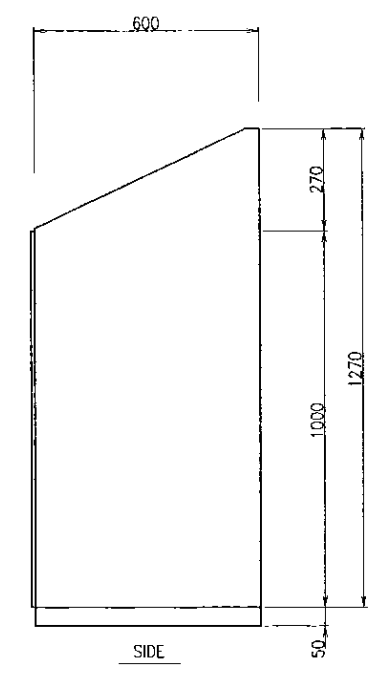
PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JICA JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: SINGLE LINE DIAGRAM & OUTLINE OF MCC FOR BACKWASH FACILITY								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: A.Miura	DRAWN: A.Miura	PM: (CONSULTANT) Ikuo MIWA	CE: (P&D)	SCALE: 1:20
								CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 07-E-01
								DESIGN CHIEF				



NO.1-1,3 FILTER BACKWASH LOCAL OPERATION PANEL
07BWP01



NO.1-2,4 FILTER BACKWASH LOCAL OPERATION PANEL
07BWP02



FI-2 DETAIL

Inflow Gate FAULT	Backwash Valve FAULT	Air Scour Valve FAULT	Effluent Valve FAULT	Backwash Drainage Gate FAULT	Backwash Pump FAULT	Air Blower FAULT	BACKWASH TANK LEVEL LL.	BACKWASH TANK LEVEL H.H.	EMERGENCY STOP
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FI-2 DETAIL

Inflow Gate FULLY CLOSE	Backwash Drainage Gate FULLY CLOSE	Effluent Valve FULLY CLOSE	Air Blower STOP	Air Blower STOP	Air Scour Valve FULLY CLOSE	First BW Pump STOP	Second BW Pump STOP	Backwash Valve FULLY CLOSE
Inflow Gate FULLY OPEN	Backwash Drainage Gate FULLY OPEN	Effluent Valve FULLY OPEN	Air Blower START	Air Blower START	Air Scour Valve FULLY OPEN	First BW Pump START	Second BW Pump START	Backwash Valve FULLY OPEN

NP-1	NO.1-1,2 BACKWASH LOP	COS1	ELC.R-SITE
NP-2	NO.1-3,4 BACKWASH LOP	COS2	LINK-SINGLE
NP-3	Inflow Gate	COS3	NO.1-1 -- NO.1-2
NP-4	Backwash Drainage gate		
NP-5	effluent Valve	PBS1	BACKWASH START
NP-6	Air Blower	PBS2	EMERGENCY STOP
NP-7	Air Scour Valve	PBS3	CLOSE
NP-8	First Backwash Pump	PBS4	OPEN
NP-9	Second Backwash Pump	PBS5	STOP
NP-10	Backwash Valve	PBS6	START

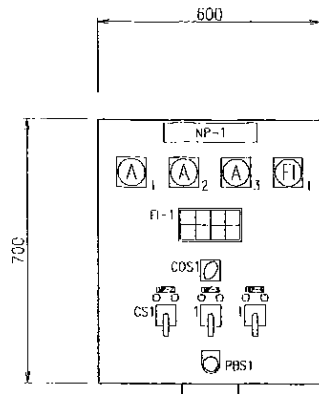
FI-3 DETAIL

NO.1-1 Need Washing	NO.1-2 Need Washing
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FI-4 DETAIL

NO.1-3 Need Washing	NO.1-4 Need Washing
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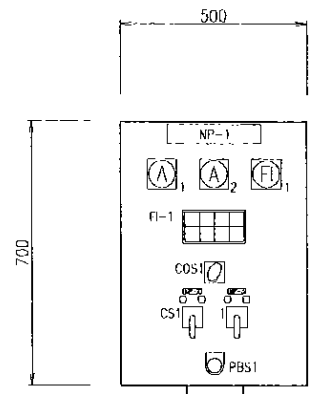
PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JICA JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: OUTLINE OF LOCAL OPERATION PANEL FOR FILTER UNIT FACILITY (1/2)								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: A.Miura	DRAWN: A.Miura	PM: (CONSULTANT) Ikuo MIWA	CE: (P&D)	SCALE: 1:10
								CHECKED: DESIGN CHIEF	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 07-E-02



NP-1	Backwash Pump LOP
NP-2	NO.1 Backwash Pump
NP-3	NO.2 Backwash Pump
NP-4	NO.3 Backwash Pump
COS1	AUTO-NO.1-NO.2-NO.3
CS1	STOP-START
PBS1	EMERGENCY STOP
A1	NO.1 Pump AMMETER
A2	NO.2 Pump AMMETER
A3	NO.3 Pump AMMETER
LI1	BACKWASH WATER FLOW

FI-1 DETAIL			
NO.1 Pump OVER LOAD	NO.1 Pump EARTH FAULT	NO.2 Pump OVER LOAD	NO.2 Pump EARTH FAULT
NO.3 Pump OVER LOAD	NO.3 Pump EARTH FAULT	BACKWASH TANK LEVEL L.L.	EMERGENCY STOP

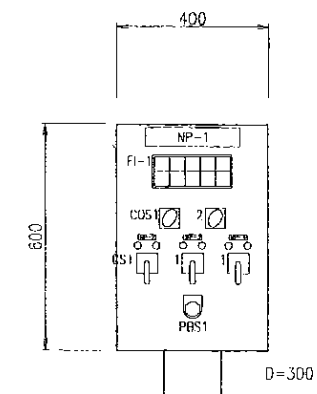
BACKWASH PUMP LOCAL OPERATION PANEL
07LOP05



NP-1	Air Blower LOP
NP-2	NO.1 Air Blower
NP-3	NO.2 Air Blower
COS1	NO.1-AUTO-NO.2
CS1	STOP-START
PBS1	EMERGENCY STOP
A1	NO.1 Blower AMMETER
A2	NO.2 Blower AMMETER
LI1	AIR SCOURING FLOW

FI-1 DETAIL			
NO.1 Blower OVER LOAD	NO.1 Blower EARTH FAULT	NO.1 Blower OVERHEAT	POSSIBLE TO START
NO.2 Blower OVER LOAD	NO.2 Blower EARTH FAULT	NO.2 Blower OVERHEAT	EMERGENCY STOP

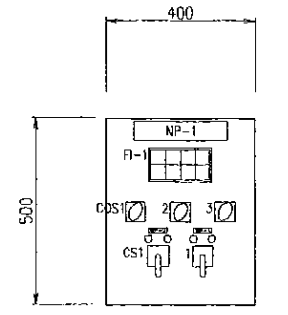
AIR BLOWER LOCAL OPERATION PANEL
07LOP06



NP-1	LIME DOSING LOP
NP-2	NO.1 Lime Feed Pump
NP-3	NO.2 Lime Feed Pump
NP-4	Lime Mixer
COS1	ELC.R-SITE
COS2	NO.1-AUTO-NO.2
CS1	STOP-START
PBS1	EMERGENCY STOP
HC1	HAND CONTROLLER

FI-1 DETAIL				
NO.1 Pump OVER LOAD	NO.1 Pump EARTH FAULT	NO.2 Pump OVER LOAD	NO.2 Pump EARTH FAULT	
Lime Mixer OVER LOAD	Lime Mixer EARTH FAULT	LIME HEAD TANK LEVEL L.L.	LIME HEAD TANK LEVEL H.H.	EMERGENCY STOP

POST LIME DOSING LOCAL OPERATION PANEL
07LOP08

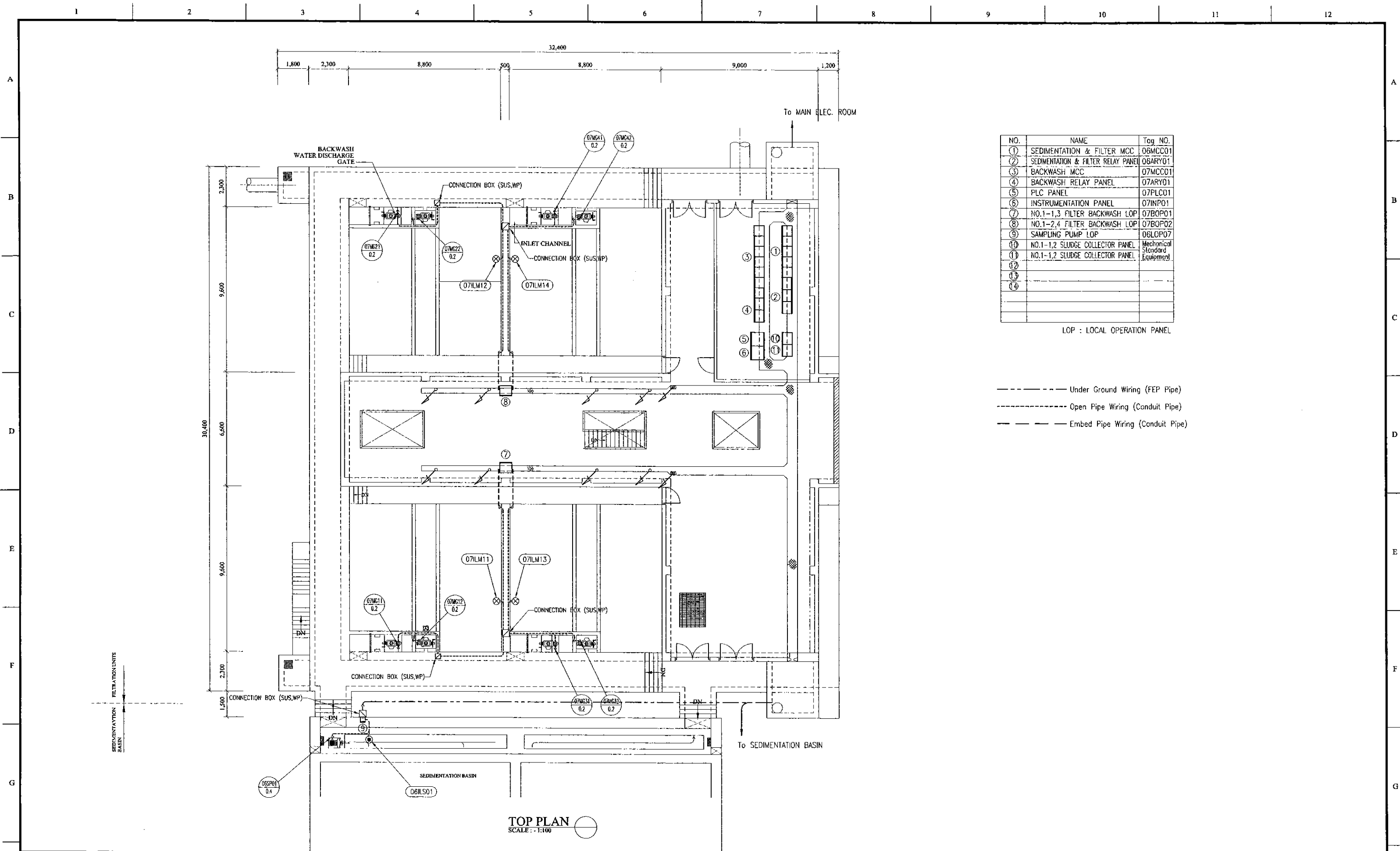


NP-1	Sump Drainage Pump LOP
NP-2	NO.1 Sump Drainage Pump
NP-3	NO.2 Sump Drainage Pump
COS1	ELC.R-SITE
COS2	MANU-AUTO
COS3	NO.1-AUTO-NO.2
CS1	STOP-START
PBS1	EMERGENCY STOP

FI-1 DETAIL			
NO.1 Pump OVER LOAD	NO.1 Pump EARTH FAULT	SUMP DRAINAGE LEVEL L.L.	SUMP DRAINAGE LEVEL H.H.
NO.2 Pump OVER LOAD	NO.2 Pump EARTH FAULT		EMERGENCY STOP

SUMP DRAINAGE PUMP LOCAL OPERATION PANEL
07LOP07

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JICA JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: OUTLINE OF LOCAL OPERATION PANEL FOR FILTER UNIT FACILITY (2/2)								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: A.Miura	DRAWN: A.Miura	PM: (CONSULTANT) Ikuo MIWA	CE: (P&D)	SCALE: 1:10
								CHECKED: DESIGN CHIEF	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 07-E-03



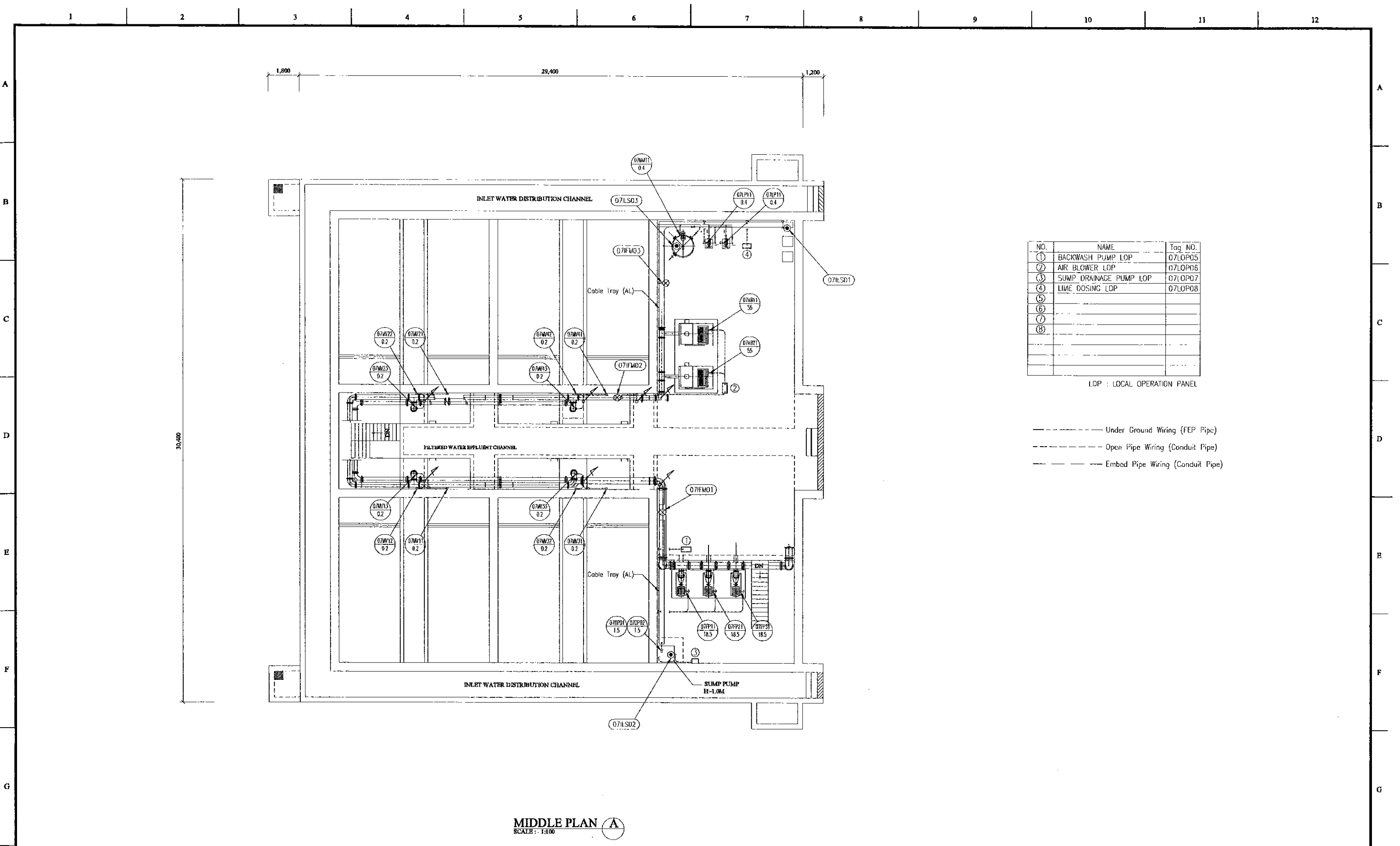
NO.	NAME	Tag NO.
①	SEDIMENTATION & FILTER MCC	06MCC01
②	SEDIMENTATION & FILTER RELAY PANEL	06ARY01
③	BACKWASH MCC	07MCC01
④	BACKWASH RELAY PANEL	07ARY01
⑤	PLC PANEL	07PLC01
⑥	INSTRUMENTATION PANEL	07INPO1
⑦	NO.1-1,3 FILTER BACKWASH LOP	07BOPO1
⑧	NO.1-2,4 FILTER BACKWASH LOP	07BOPO2
⑨	SAMPLING PUMP LOP	06LOPO7
⑩	NO.1-1,2 SLUDGE COLLECTOR PANEL	Mechanical Standard Equipment
⑪	NO.1-1,2 SLUDGE COLLECTOR PANEL	Mechanical Standard Equipment
⑫		
⑬		
⑭		

LOP : LOCAL OPERATION PANEL

- Under Ground Wiring (FEP Pipe)
- Open Pipe Wiring (Conduit Pipe)
- Embed Pipe Wiring (Conduit Pipe)

TOP PLAN
SCALE : - 1:100

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: FILTRATION UNIT FACILITY LAYOUT & WIRING PLAN-1								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: <i>A.Miura</i>	DRAWN: <i>A.Miura</i>	PM: (CONSULTANT) <i>Ikuo MIWA</i>	CE: (P&D)	SCALE: 1:100
								CHECKED: DESIGN CHIEF	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 07-E-04



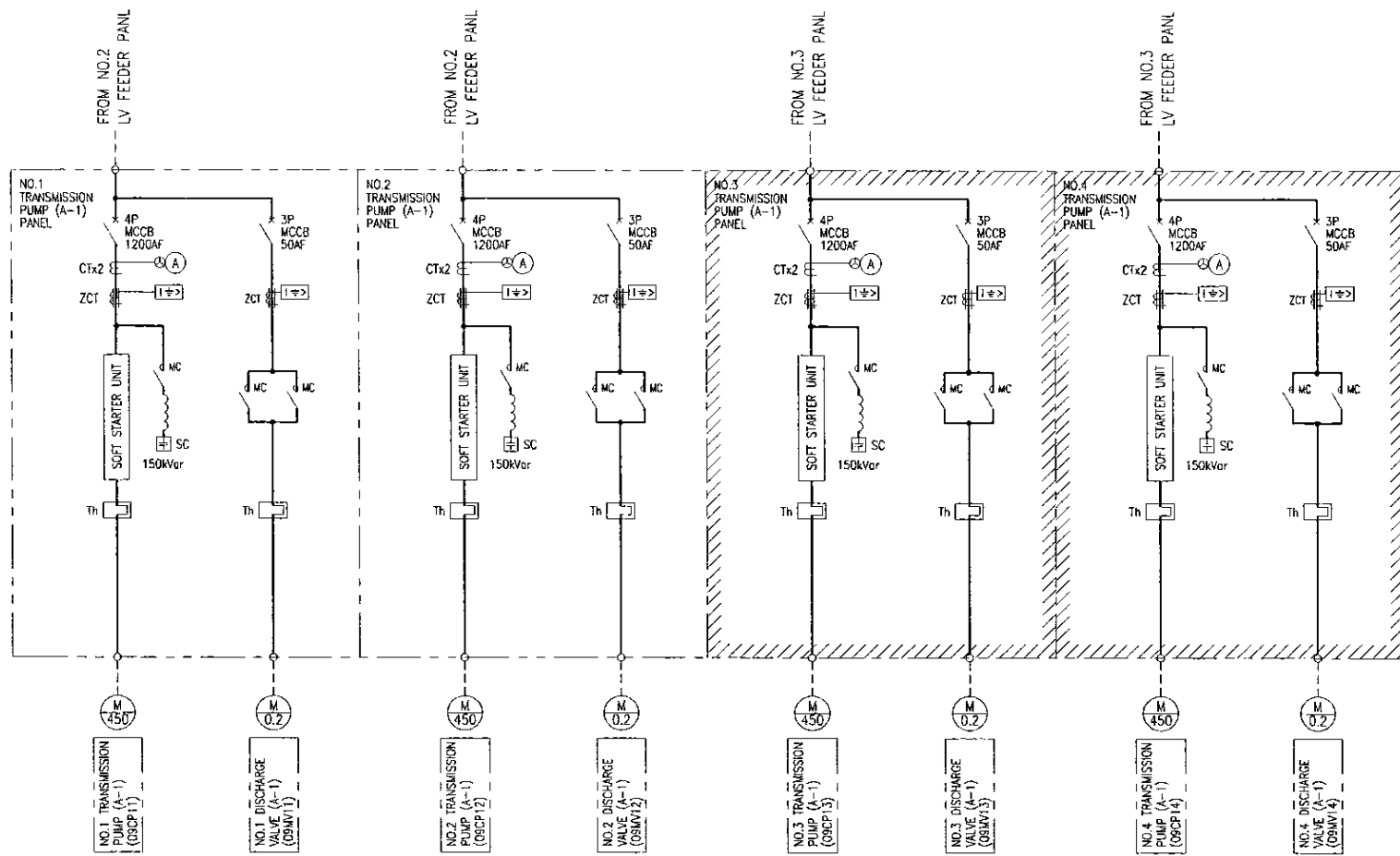
NO.	NAME	Tag NO.
①	BACKWASH PUMP LOP	07LOP05
②	AIR BLOWER LOP	07LOP06
③	SUMP DRAINAGE PUMP LOP	07LOP07
④	LIME DOSING LOP	07LOP08
⑤		
⑥		
⑦		
⑧		

LDP : LOCAL OPERATION PANEL

- Under Ground Wiring (FEP Pipe)
- Open Pipe Wiring (Conduit Pipe)
- Embed Pipe Wiring (Conduit Pipe)

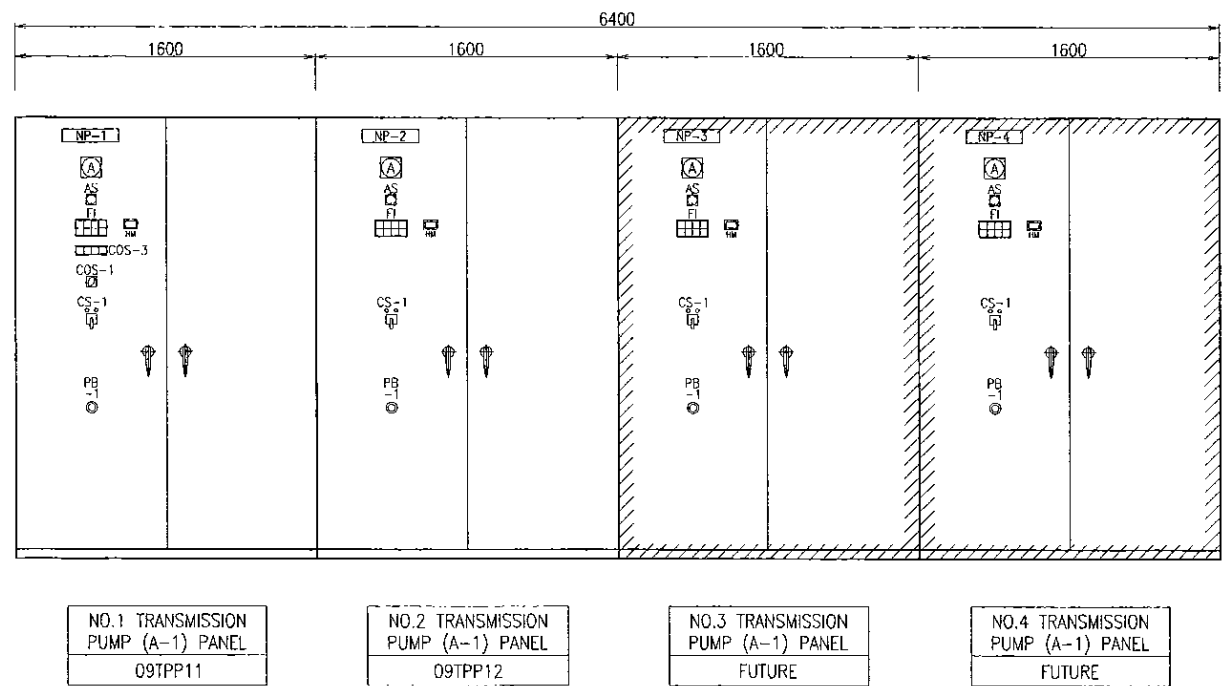
MIDDLE PLAN (A)
SCALE: 1:100

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		CONSULTANTS: JICA JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: FILTRATION UNIT FACILITY LAYOUT & WIRING PLAN-2								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: A.Miura	DRAWN: A.Miura	PM: (CONSULTANT) Ikuo MIWA	CE: (P&D)	SCALE: 1:100
								CHECKED: DESIGN CHIEF	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 07-E-05



SYMBOL	LEGEND
CT	CURRENT TRANSFORMER
SR	SERIAL REACTOR
SC	STATIC CAPACITOR
MC	ELECTROMAGNETIC CONTACTOR
MCCB	MOLDED CASE CIRCUIT BREAKER
INV	INVERTER
M	MOTOR
ZCT	ZERO PHASE CURRENT TRANSFORMER
A	AMMETER
[Symbol]	OVER CURRENT GROUNDING RELAY
[Symbol]	AMMETER SWITCH
[Symbol]	VOLTMETER SWITCH
Th	THERMAL RELAY

[Hatched Box] : FUTURE

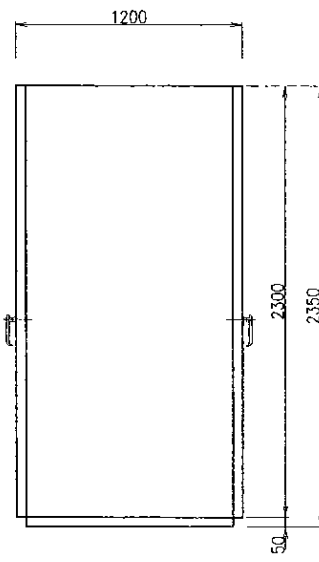


NP-NO.	DESCRIPTION
NP-1	NO.1 TRANSMISSION PUMP (A-1) PANEL
NP-2	NO.2 TRANSMISSION PUMP (A-1) PANEL
NP-3	NO.3 TRANSMISSION PUMP (A-1) PANEL
NP-4	NO.4 TRANSMISSION PUMP (A-1) PANEL

CS : CONTROL SWITCH	
CS-1	START - STOP
CS-2	OPEN - STOP - CLOSE
CS-3	REV. UP - DOWN

COS : CHANGE OVER SWITCH	
COS-1	MANUAL - AUTO - ADM.
COS-2	SINGLE - LINK
COS-3	AUTO-NO.1-NO.2-NO.3-NO.4

PB : PUSH BUTTON SWITCH	
PB-1	EMERGENCY STOP



SIDE VIEW

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

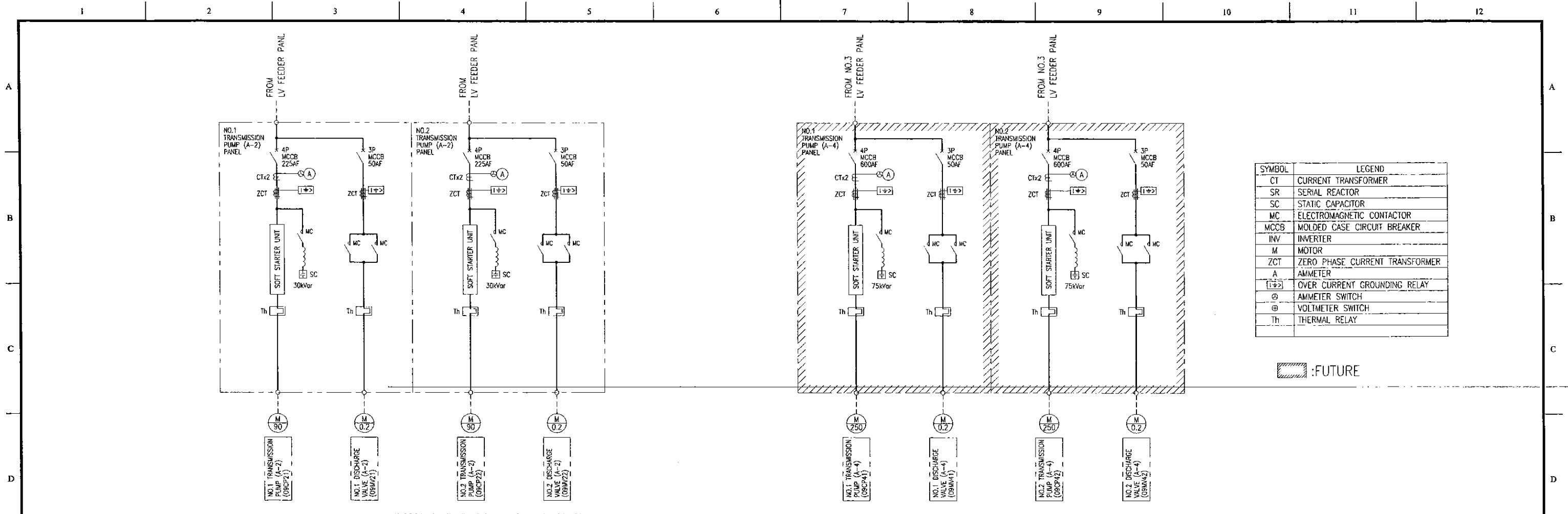
TITLE: SINGLE LINE DIAGRAM & OUTLINE OF TRANSMISSION PUMP (A-1) PANEL

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

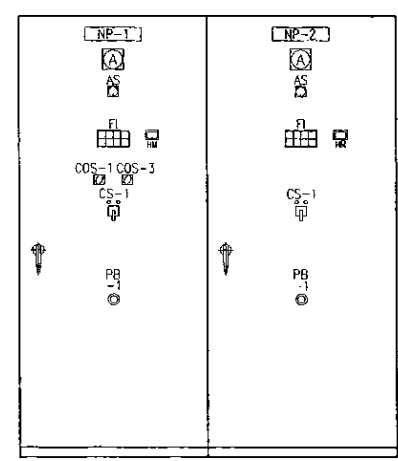
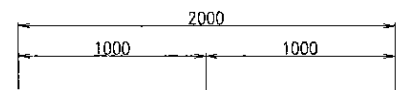
REV.	DESCRIPTION	DATE	SIGN.

DESIGNED: A.Miura	DRAWN: A.Miura	PM: (CONSULTANT) Ikuo-MIWA	CE: (P&D)	SCALE: 1:20
CHECKED: DESIGN CHIEF	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 09-E-01

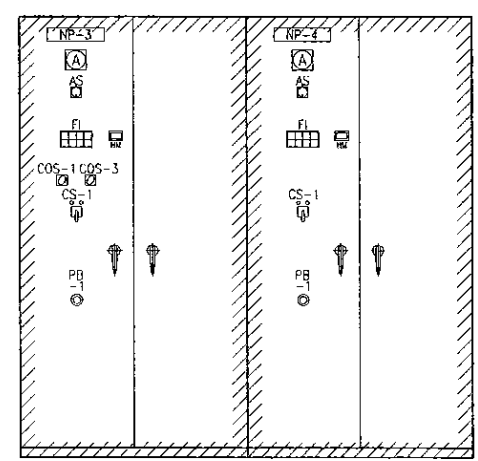
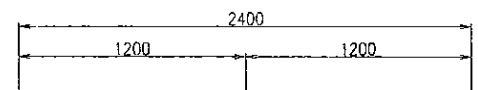


SYMBOL	LEGEND
CT	CURRENT TRANSFORMER
SR	SERIAL REACTOR
SC	STATIC CAPACITOR
MC	ELECTROMAGNETIC CONTACTOR
MCCB	MOLDED CASE CIRCUIT BREAKER
INV	INVERTER
M	MOTOR
ZCT	ZERO PHASE CURRENT TRANSFORMER
A	AMMETER
⊕	OVER CURRENT GROUNDING RELAY
⊙	AMMETER SWITCH
⊕	VOLTMETER SWITCH
Th	THERMAL RELAY

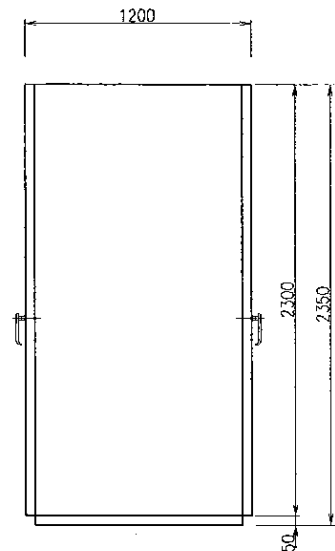
: FUTURE



NO.1 TRANS-MISSION PUMP (A-2) PANEL 09TPP21	NO.2 TRANS-MISSION PUMP (A-2) PANEL 09TPP22
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NO.1 TRANSMISSION PUMP (A-4) PANEL FUTURE	NO.2 TRANSMISSION PUMP (A-4) PANEL FUTURE
--	--



SIDE VIEW

NP-NO.	DESCRIPTION
NP-1	NO.1 TRANSMISSION PUMP (A-2) PANEL
NP-2	NO.2 TRANSMISSION PUMP (A-2) PANEL
NP-3	NO.1 TRANSMISSION PUMP (A-4) PANEL
NP-4	NO.2 TRANSMISSION PUMP (A-4) PANEL
NP-5	
NP-6	

CS : CONTROL SWITCH	
CS-1	START - STOP
CS-2	OPEN - STOP - CLOSE
CS-3	REV. UP - DOWN

COS : CHANGE OVER SWITCH	
COS-1	MANUAL - AUTO - ADM.
COS-2	SINGLE - LINK
COS-3	NO.1-AUTO-NO.2

PB : PUSH BUTTON SWITCH	
PB-1	EMERGENCY STOP

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: SINGLE LINE DIAGRAM & OUTLINE OF TRANSMISSION PUMP (A-2), (A-4) PANEL

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

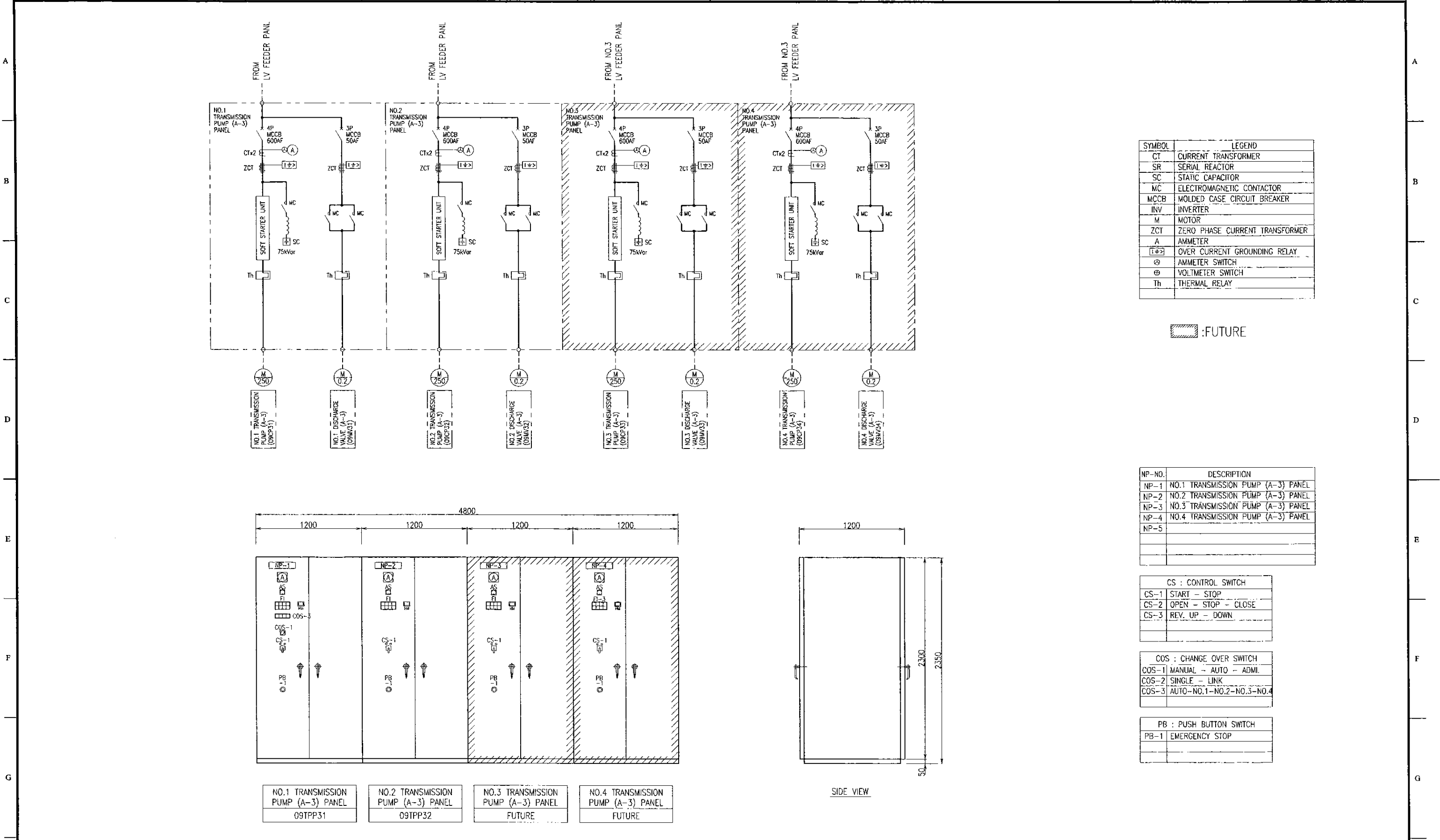
CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

REV.	DESCRIPTION	DATE	SIGN.

DESIGNED: A. Miura
DRAWN: A. Miura
CHECKED: DESIGN CHIEF

PM: (CONSULTANT) Ikuo MIWA
CE: (P&D)
DATE: 31/05/2002

SCALE: 1:20
DRAWING NO.: 09-E-02



PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

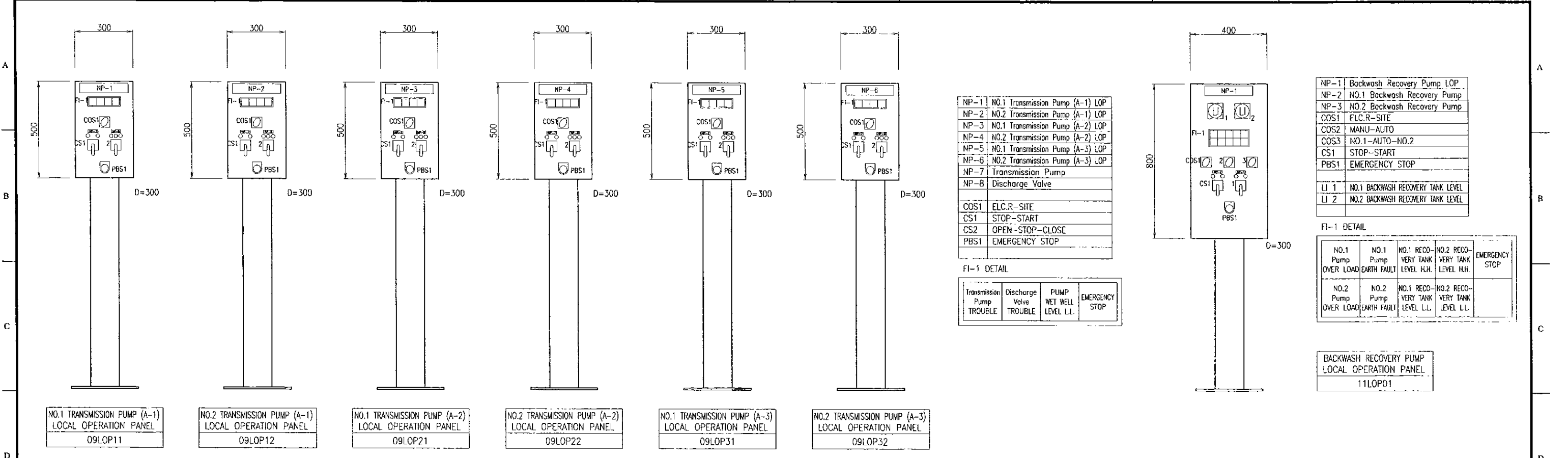
TITLE: SINGLE LINE DIAGRAM & OUTLINE OF TRANSMISSION PUMP (A-3) PANEL

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

REV.	DESCRIPTION	DATE	SIGN.

DESIGNED: A. Miura	DRAWN: A. Miura	PM: (CONSULTANT) Ikuo MIWA	CE: (P&D)	SCALE: 1:20
CHECKED: DESIGN CHIEF	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 09-E-03



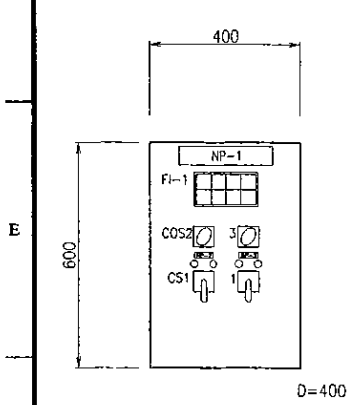
NP-1	NO.1 Transmission Pump (A-1) LOP
NP-2	NO.2 Transmission Pump (A-1) LOP
NP-3	NO.1 Transmission Pump (A-2) LOP
NP-4	NO.2 Transmission Pump (A-2) LOP
NP-5	NO.1 Transmission Pump (A-3) LOP
NP-6	NO.2 Transmission Pump (A-3) LOP
NP-7	Transmission Pump
NP-8	Discharge Valve
COS1	ELC.R-SITE
CS1	STOP-START
CS2	OPEN-STOP-CLOSE
PBS1	EMERGENCY STOP

Transmission Pump TROUBLE	Discharge Valve TROUBLE	PUMP WET WELL LEVEL L.L.	EMERGENCY STOP
---------------------------	-------------------------	--------------------------	----------------

NP-1	Backwash Recovery Pump LOP
NP-2	NO.1 Backwash Recovery Pump
NP-3	NO.2 Backwash Recovery Pump
COS1	ELC.R-SITE
COS2	MANU-AUTO
COS3	NO.1-AUTO-NO.2
CS1	STOP-START
PBS1	EMERGENCY STOP
LI 1	NO.1 BACKWASH RECOVERY TANK LEVEL
LI 2	NO.2 BACKWASH RECOVERY TANK LEVEL

NO.1 Pump OVER LOAD	NO.1 Pump EARTH FAULT	NO.1 RECOVERY TANK LEVEL H.H.	NO.2 RECOVERY TANK LEVEL H.H.	EMERGENCY STOP
NO.2 Pump OVER LOAD	NO.2 Pump EARTH FAULT	NO.1 RECOVERY TANK LEVEL L.L.	NO.2 RECOVERY TANK LEVEL L.L.	

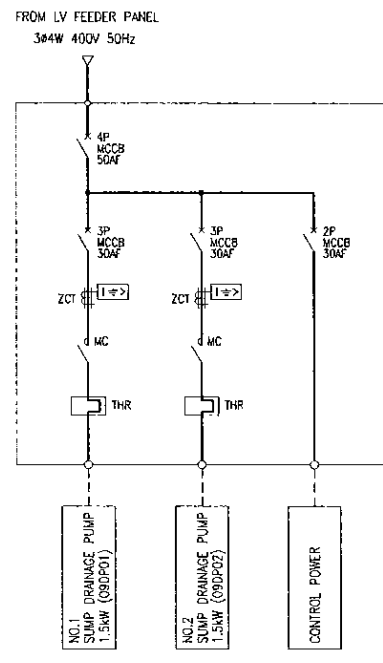
BACKWASH RECOVERY PUMP LOCAL OPERATION PANEL
11LOP01



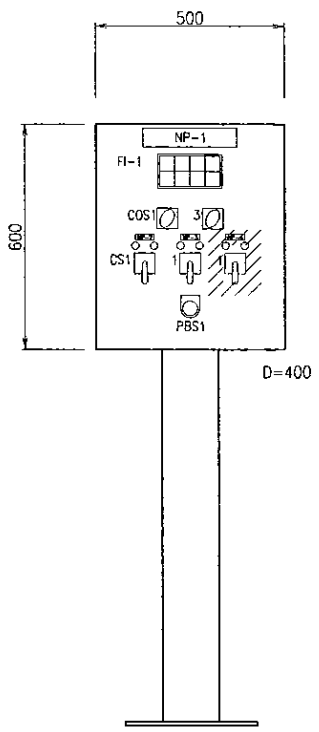
NP-1	Sump Drainage Pump LOP
NP-2	NO.1 Sump Drainage Pump
NP-3	NO.2 Sump Drainage Pump
COS1	ELC.R-SITE
COS2	MANU-AUTO
COS3	NO.1-AUTO-NO.2
CS1	STOP-START
PBS1	EMERGENCY STOP

NO.1 Pump OVER LOAD	NO.1 Pump EARTH FAULT	SUMP DRAINAGE LEVEL L.L.	SUMP DRAINAGE LEVEL H.H.	EMERGENCY STOP
NO.2 Pump OVER LOAD	NO.2 Pump EARTH FAULT			

SUMP DRAINAGE PUMP LOCAL OPERATION PANEL
09LOP01



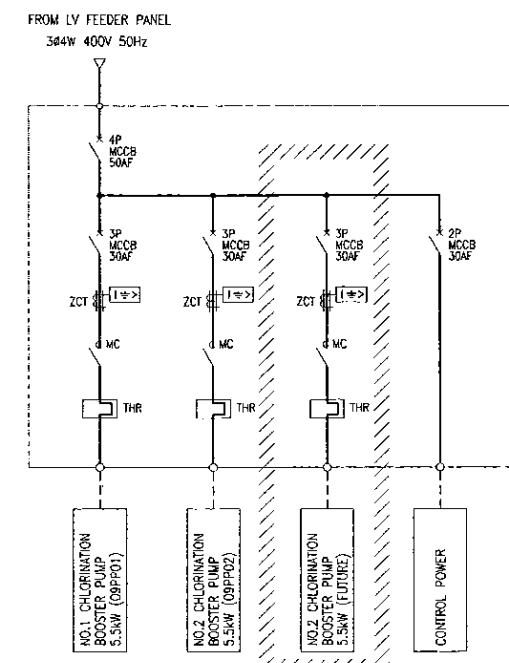
SINGLE LINE DIAGRAM OF SUMP DRAINAGE PUMP LOP



NP-1	Chlorination Booster Pump LOP
NP-2	NO.1 Chlorination Booster Pump
NP-3	NO.2 Chlorination Booster Pump
NP-4	NO.3 Chlorination Booster Pump
COS1	PUMP ST-CHEMICAL
COS2	MANU-AUTO
COS3	AUTO-NO.1-NO.2-NO.3
CS1	STOP-START
PBS1	EMERGENCY STOP

NO.1 Pump OVER LOAD	NO.2 Pump OVER LOAD	NO.3 Pump OVER LOAD	CHLORINATION TANK LEVEL L.L.	EMERGENCY STOP
NO.1 Pump EARTH FAULT	NO.2 Pump EARTH FAULT	NO.3 Pump EARTH FAULT		

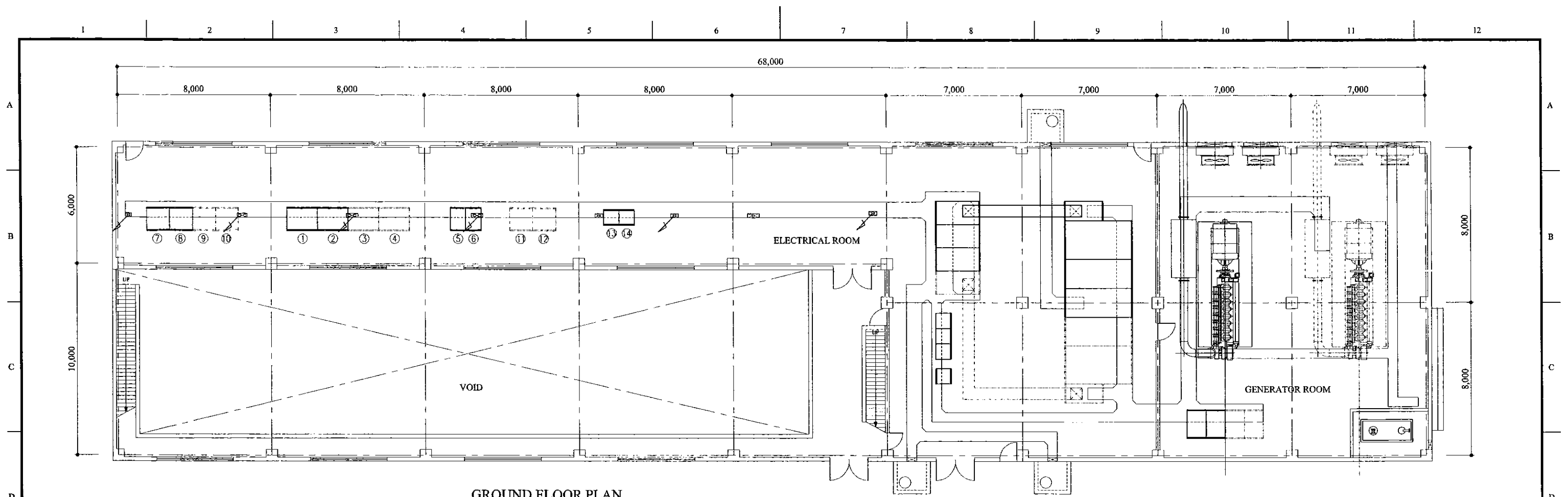
CHLORINATION BOOSTER PUMP LOCAL OPERATION PANEL
09LOP02



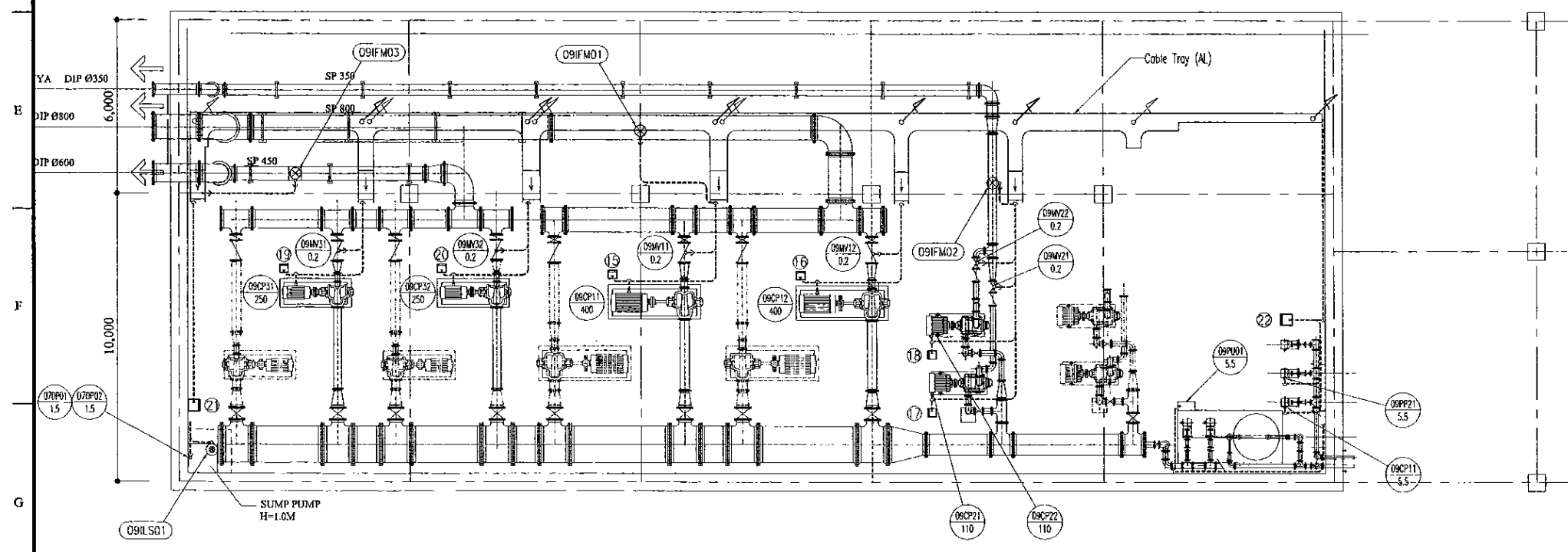
SINGLE LINE DIAGRAM OF CHLORINATION BOOSTER PUMP LOP

▨ FUTURE

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JICA JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: OUTLINE OF LOCAL OPERATION PANEL FOR CLEAR WATER PUMP STATION								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: A.Miura	DRAWN: A.Miura	PM: (CONSULTANT) Ikuo-MIWA	CE: (P&D)	SCALE: 1:10
								CHECKED: DESIGN CHIEF	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 09-E-04



GROUND FLOOR PLAN



BASEMENT FLOOR PLAN

NO.	NAME	Tag NO.
①	NO.1 TRANSMISSION PUMP (A-1) PANEL	09TTP11
②	NO.2 TRANSMISSION PUMP (A-1) PANEL	09TTP12
③	NO.3 TRANSMISSION PUMP (A-1) PANEL	FUTURE
④	NO.4 TRANSMISSION PUMP (A-1) PANEL	FUTURE
⑤	NO.1 TRANSMISSION PUMP (A-2) PANEL	09TTP21
⑥	NO.2 TRANSMISSION PUMP (A-2) PANEL	09TTP22
⑦	NO.1 TRANSMISSION PUMP (A-3) PANEL	09TTP31
⑧	NO.2 TRANSMISSION PUMP (A-3) PANEL	09TTP32
⑨	NO.3 TRANSMISSION PUMP (A-3) PANEL	FUTURE
⑩	NO.4 TRANSMISSION PUMP (A-3) PANEL	FUTURE
⑪	NO.1 TRANSMISSION PUMP (A-4) PANEL	FUTURE
⑫	NO.2 TRANSMISSION PUMP (A-4) PANEL	FUTURE
⑬	PLC PANEL	09PLC01
⑭	INSTRUMENTATION PANEL	09INP01
⑮	NO.1 TRANSMISSION PUMP (A-1) LOP	09LOP11
⑯	NO.2 TRANSMISSION PUMP (A-1) LOP	09LOP12
⑰	NO.1 TRANSMISSION PUMP (A-2) LOP	09LOP21
⑱	NO.2 TRANSMISSION PUMP (A-2) LOP	09LOP22
⑲	NO.1 TRANSMISSION PUMP (A-3) LOP	09LOP31
⑳	NO.2 TRANSMISSION PUMP (A-3) LOP	09LOP32
㉑	SUMP DRAINAGE PUMP LOP	09LOP01
㉒	CHLORINATION BOOSTER PUMP LOP	09LOP02
㉓		
㉔		
㉕		

LOP : LOCAL OPERATION PANEL

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT

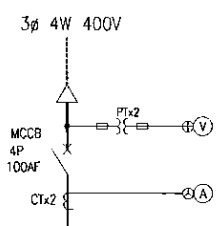
JICA JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: CLEAR WATER PUMP STATION LAYOUT & WIRING PLAN

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

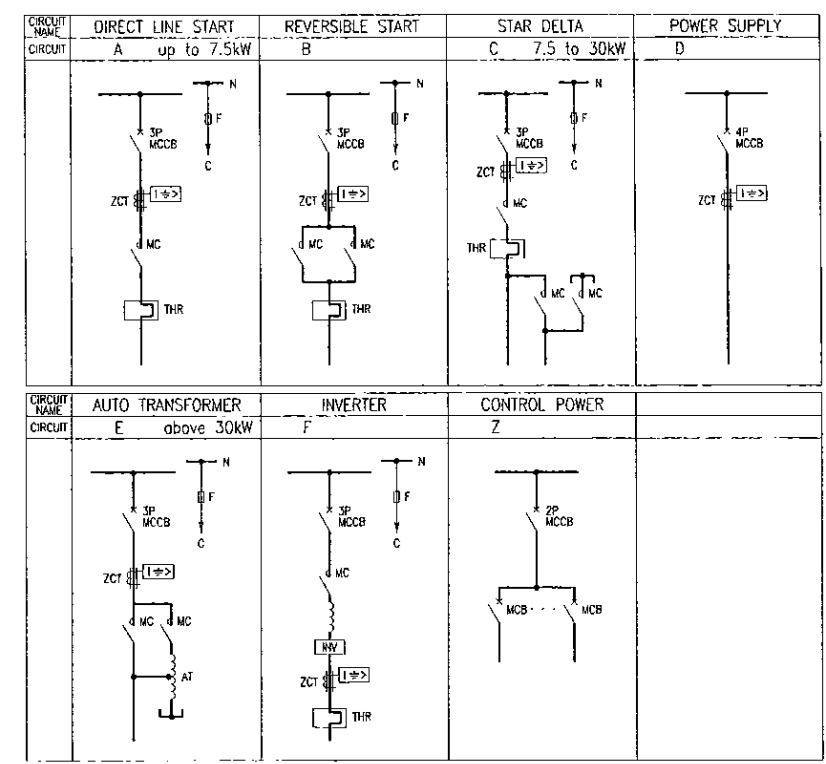
REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	CE: (P&D)	SCALE:
				A.Miura	A.Miura	Ikuo-MIWA		1:100
				CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 09-E-05



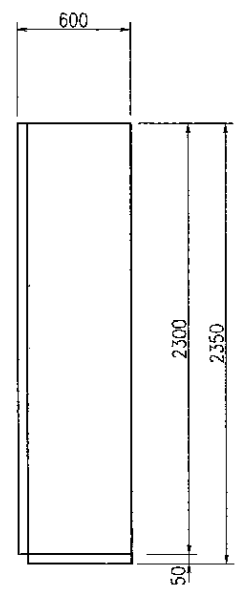
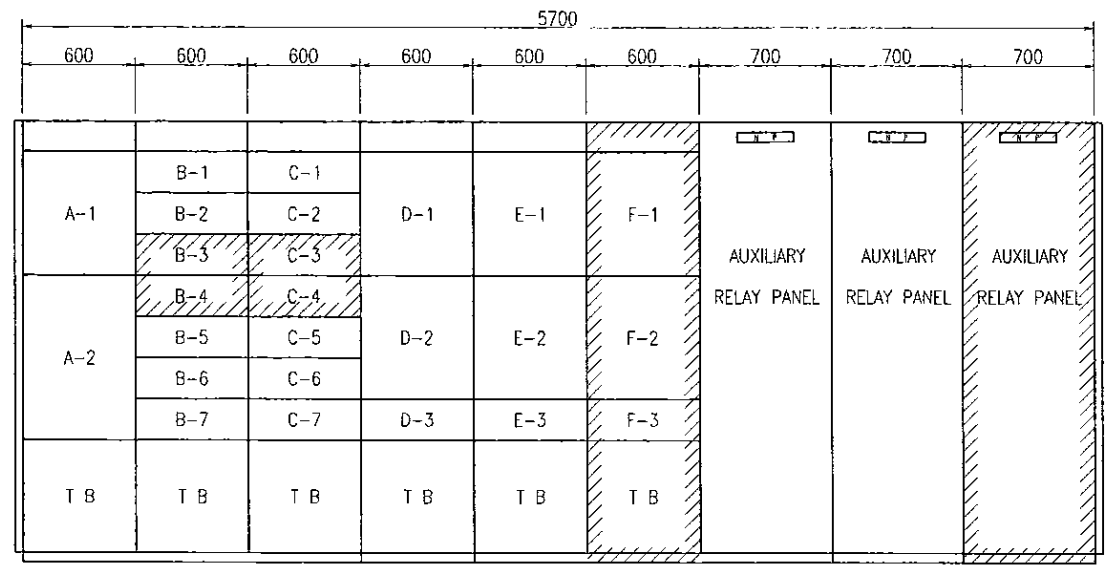
total : 31.95kW

STARTER SYMBOL	A	F	A	A	F	A	D	D		
LOAD NAME	ALUM MIXER	ALUM PUMP	LIME MIXER	LIME PUMP	LIME FEED PUMP	LIME DUST EXTRACT FAN	CHEMICAL CRANE	RESERVE		
LOAD TAG NO.	10MM11/21	10AP11/21	10MM11/21	10LP11/12	10LP21/22	10EF11	10MCC01/02			
(kW)	1.5	0.4	2.2	5.5	0.4	0.75	1.1+0.4			
MCCB (AF)	50	50	50	50	50	50	50	50		
NUMBERS	Phase 1	2	2(1)*	2	2(1)*	2(1)*	1	2	1	
	Phase 2	3	3(1)*	3	2(1)*	3(1)*	1	2	2	
	Phase 3	4	3(1)*	4	2(1)*	3(1)*	1	2	2	
MEASURING DEVICE		Ⓜ		Ⓜ	Ⓜ					
PROTECTION RELAY	Ⓜ	Ⓜ	Ⓜ	Ⓜ	Ⓜ	Ⓜ	Ⓜ			
REMARKS										

(1)* : FIGURE INSIDE THE ROUND BRACKETS SHOWS NUMBERS OF STANDBY



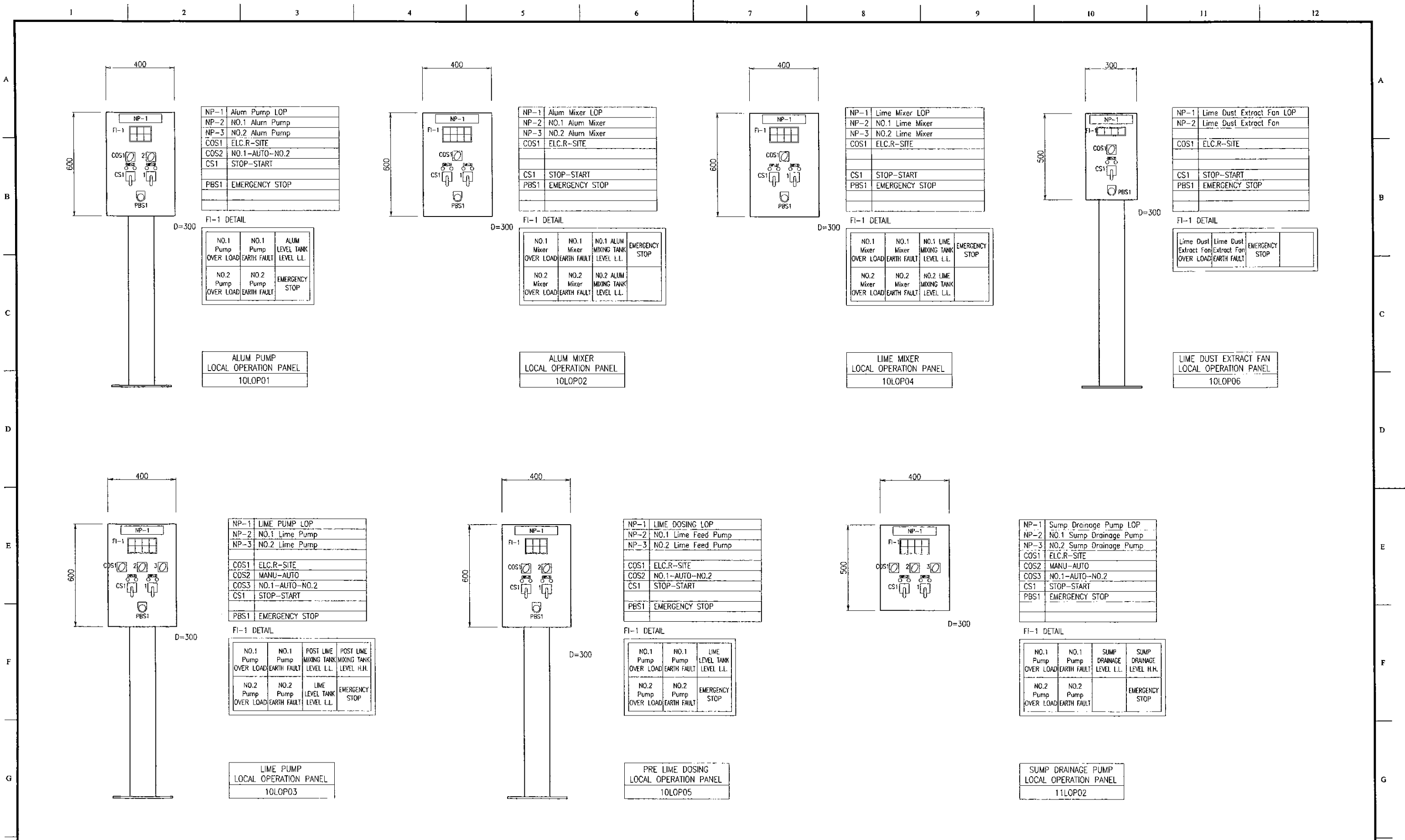
▨ : FUTURE



UNIT NO.	LOAD NAME	UNIT NO.	LOAD NAME	UNIT NO.	LOAD NAME
A-1	INCOMING UNIT	B-1	NO.1 ALUM MIXER	C-1	NO.1 LIME MIXER
A-2	CONTROL POWER UNIT	B-2	NO.2 ALUM MIXER	C-2	NO.2 LIME MIXER
		B-3	NO.3 ALUM MIXER	C-3	NO.3 LIME MIXER
		B-4	NO.4 ALUM MIXER	C-4	NO.4 LIME MIXER
		B-5	NO.1 LIME PUMP	C-5	CHEMICAL CRANE
		B-6	NO.2 LIME PUMP	C-6	CHLORINE CRANE
		B-7	LIME DUST EXTRACT FAN	C-7	RESERVE
D-1	NO.1 ALUM PUMP	E-1	NO.1 LIME FEED PUMP	F-1	NO.3 ALUM PUMP
D-2	NO.2 ALUM PUMP	E-2	NO.2 LIME FEED PUMP	F-2	NO.3 LIME FEED PUMP
D-3	VACANT	E-3	VACANT	F-3	RESERVE

CHEMICAL DOSING MCC	10MCC01
CHEMICAL DOSING AUXILIARY RELAY PANEL	10ARY01

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JICA JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: SINGLE LINE DIAGRAM & OUTLINE OF MCC FOR CHEMICAL DOSING FACILITY						
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD	CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN	REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: A.Miura	DRAWN: A.Miura	PM: (CONSULTANT) Ikuo MIWA	CE: (P&D)	SCALE: 1:20
						CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 10-E-01



PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: OUTLINE OF LOCAL OPERATION PANEL FOR CHEMICAL DOSING FACILITY

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

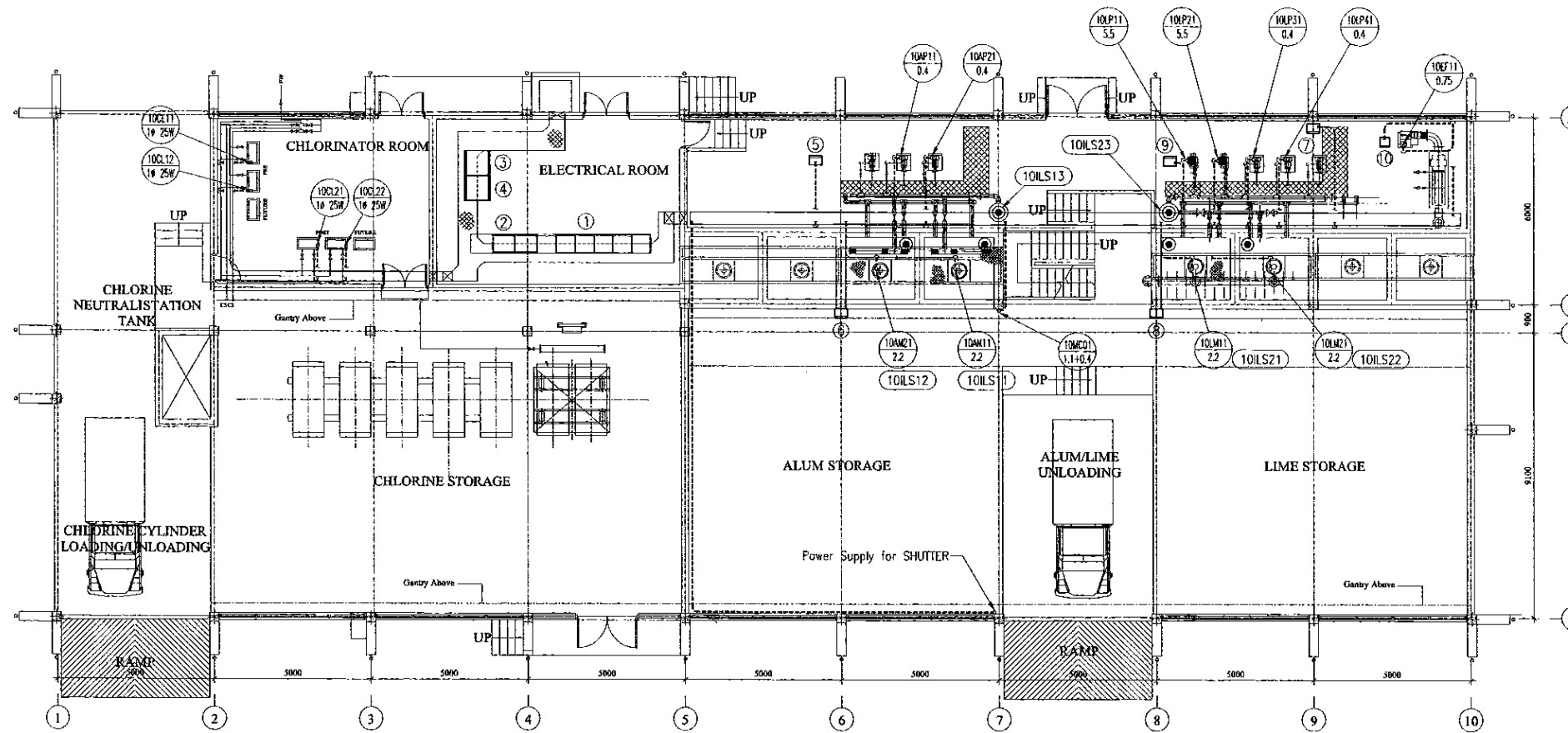
REV.	DESCRIPTION	DATE	SIGN.

DESIGNED: A. Miura
DRAWN: A. Miura
CHECKED: DESIGN CHIEF

PM: (CONSULTANT) Ikuo MIWA
AGM: (P&D)
DGM: (P&D)

CE: (P&D)
DATE: 31/05/2002

SCALE: 1:10
DRAWING NO.: 10-E-02



PLAN
SCALE : 1:100

NO.	NAME	Tag NO.
①	CHEMICAL DOSING MCC	10MCC01
②	CHEMICAL DOSING RELAY PANEL	10ARY01
③	INSTRUMENTATION PANEL	10INP01
④	PLC	10PLC01
⑤	ALUM PUMP LOP	10LOP01
⑥	ALUM MIXER LOP	10LOP02
⑦	LIME PUMP LOP	10LOP03
⑧	LIME MIXER LOP	10LOP04
⑨	LIME DOSING PUMP LOP	10LOP05
⑩	LIME DUST EXTRACT FAN LOP	10LOP06
⑪		
⑫		
⑬		
⑭		

LOP : LOCAL OPERATION PANEL

- Under Ground Wiring (FEP Pipe)
- Open Pipe Wiring (Conduit Pipe)
- Embed Pipe Wiring (Conduit Pipe)

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT



JAPAN INTERNATIONAL COOPERATION AGENCY

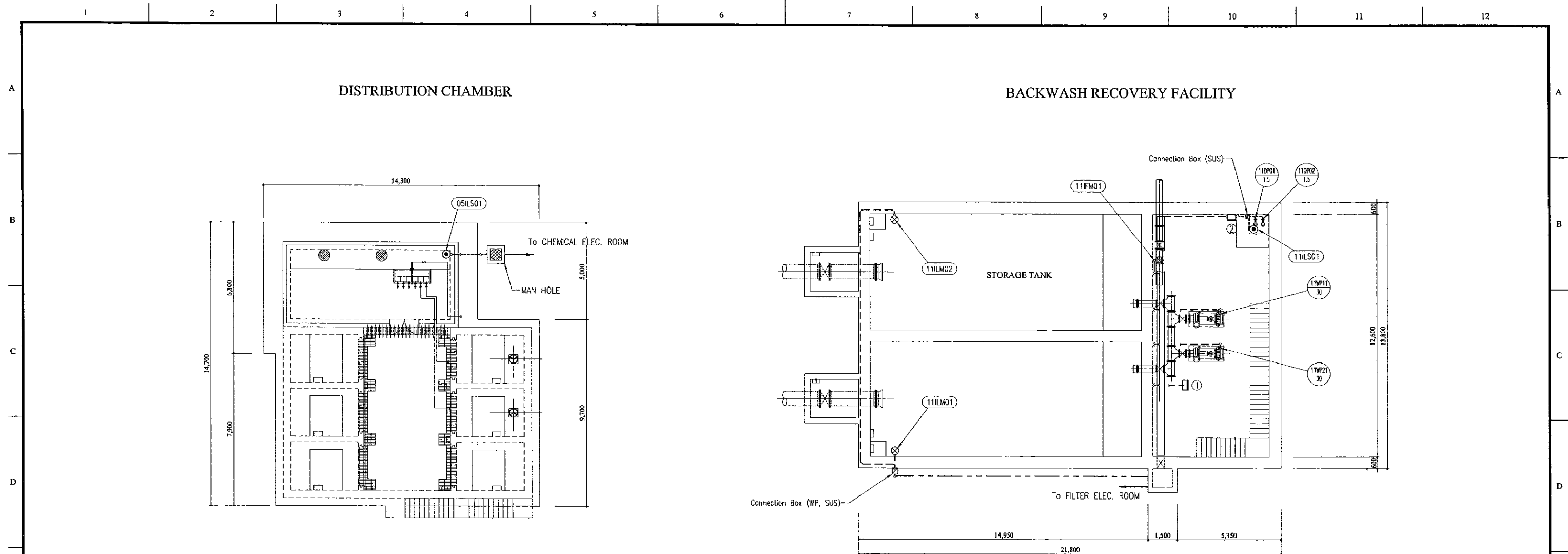
TITLE: CHEMICAL DOSING FACILITY LAYOUT & WIRING PLAN

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

CONSULTANTS :
 NJS CONSULTANTS CO., LTD. - JAPAN
 NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

REV.	DESCRIPTION	DATE	SIGN.

DESIGNED: A.Miura	DRAWN: A.Miura	PM: (CONSULTANT) Ikuo MIWA	CE: (P&D)	SCALE: 1:100
CHECKED: DESIGN CHIEF	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 10-E-03



TOP PLAN
SCALE: 1:100

BOTTOM PLAN
SCALE: 1:100

NO.	NAME	Tag NO.
①	BACKWASH RECOVERY PUMP LOP	11LOP01
②	SUMP DRAINAGE PUMP LOP	11LOP02
③		
④		

LOP : LOCAL OPERATION PANEL

- Under Ground Wiring (FEP Pipe)
- Open Pipe Wiring (Conduit Pipe)
- Embed Pipe Wiring (Conduit Pipe)

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT



JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: DISTRIBUTION CHAMBER & BACKWASH WATER RECOVERY FACILITY LAYOUT & WIRING PLAN

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

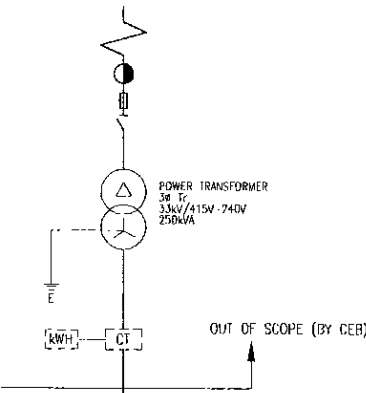
CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

REV.	DESCRIPTION	DATE	SIGN.

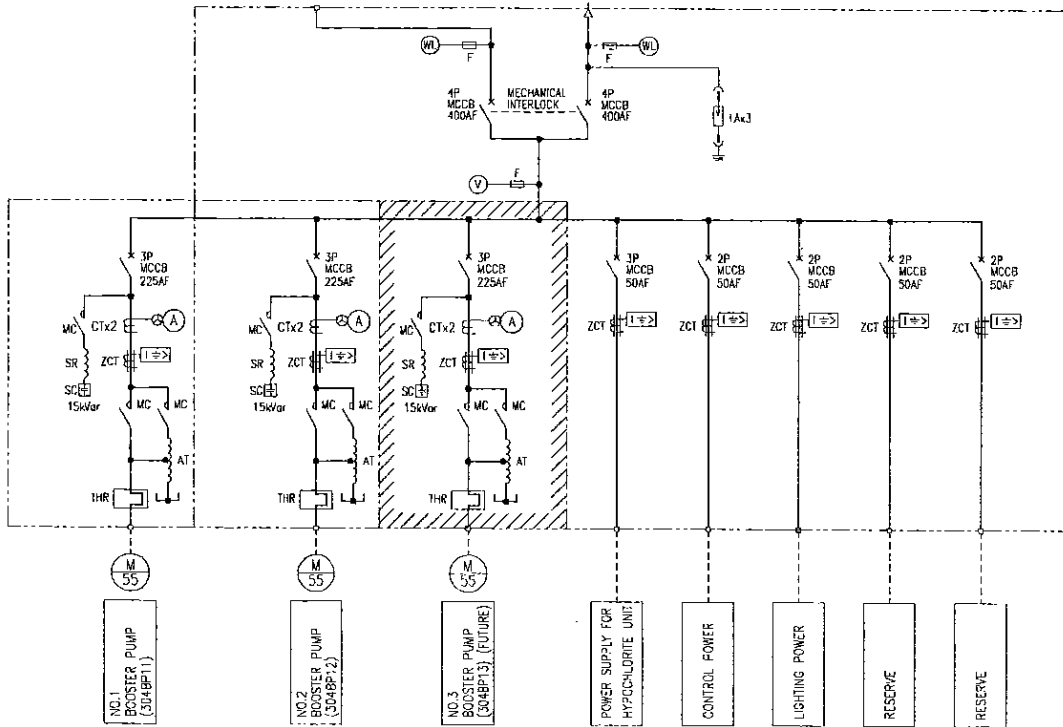
DESIGNED: A. Miura	DRAWN: A. Miura	PM: (CONSULTANT) Ikuo MIWA	CE: (P&D)	SCALE: 1:100
CHECKED: DESIGN CHIEF	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 11-E-01

SYMBOL	LEGEND
CT	CURRENT TRANSFORMER
SR	SERIAL REACTOR
SC	STATIC CAPACITOR
MC	ELECTROMAGNETIC CONTACTOR
MCCB	MOLDED CASE CIRCUIT BREAKER
INV	INVERTER
M	MOTOR
ZCT	ZERO PHASE CURRENT TRANSFORMER
A	AMMETER
	OVER CURRENT GROUNDING RELAY
	AMMETER SWITCH
	VOLTMETER SWITCH
	THERMAL RELAY

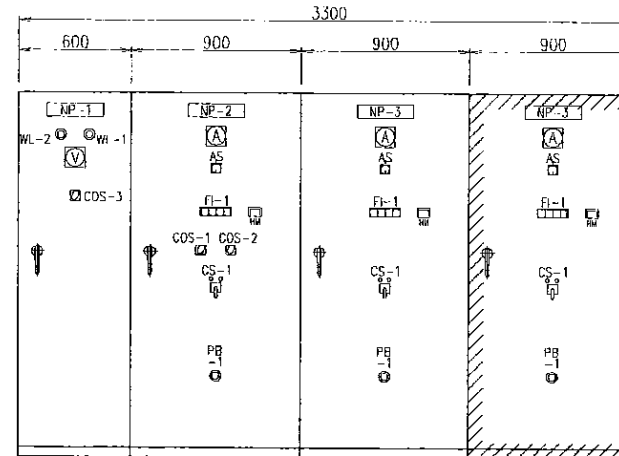
FROM CEB
3Ø3W 33000V 50Hz



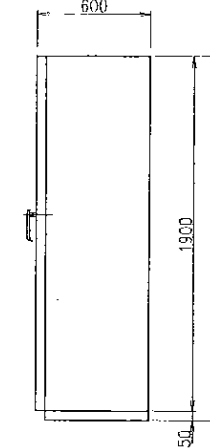
PORTABLE GENERATOR
CONNECTION TERMINAL



SINGLE LINE DIAGRAM



POWER RECEIVING PANEL 304PRP01	NO.1 BOOSTER PUMP PANEL 304BPP01	NO.2 BOOSTER PUMP PANEL 304BPP02	NO.3 BOOSTER PUMP PANEL FUTURE
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SIDE VIEW

CS - CONTROL SWITCH	
CS-1	START - STOP
CS-2	OPEN - STOP - CLOSE
CS-3	REV. UP - DOWN

COS - CHANGE OVER SWITCH	
COS-1	MANUAL - AUTO
COS-2	AUTO-NO.1-NO.2-NO.3
COS-3	CEB-GENERATOR

PB : PUSH BUTTON SWITCH	
PB-1	EMERGENCY STOP

: FUTURE

PROJECT: **GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT**

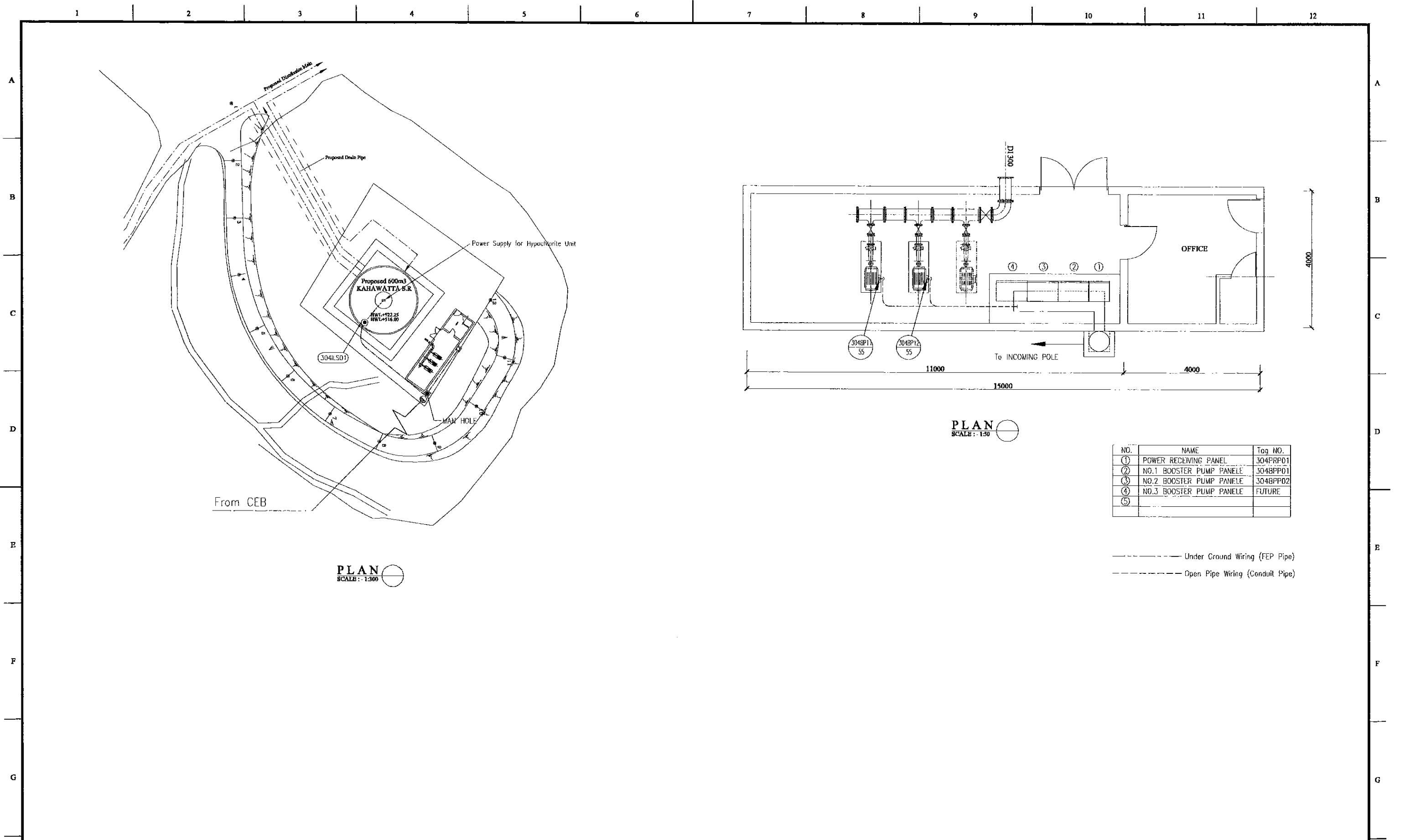
JICA JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: **KAHAWATTA S.R. & P.S. ELECTRICAL FACILITY**

CLIENT: **NATIONAL WATER SUPPLY & DRAINAGE BOARD**

CONSULTANTS: **NJS CONSULTANTS CO., LTD. - JAPAN**
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	CE: (P&D)	SCALE:
				A.Miura	A.Miura			1:20
				CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE:	DRAWING NO.:
				DESIGN CHIEF				30-E-04-01



PLAN
SCALE : 1:300

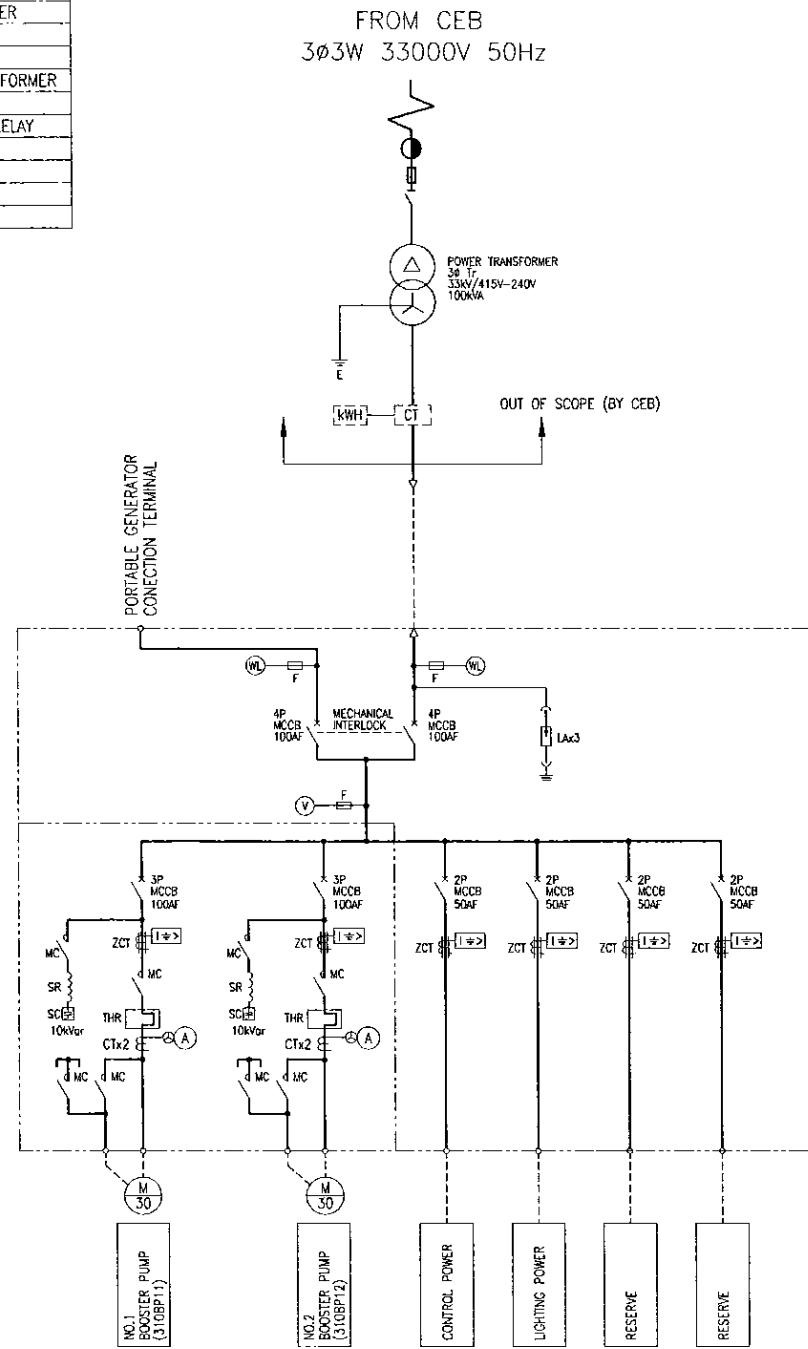
PLAN
SCALE : 1:50

NO.	NAME	Tag NO.
①	POWER RECEIVING PANEL	304FRP01
②	NO.1 BOOSTER PUMP PANELE	304BPP01
③	NO.2 BOOSTER PUMP PANELE	304BPP02
④	NO.3 BOOSTER PUMP PANELE	FUTURE
⑤		

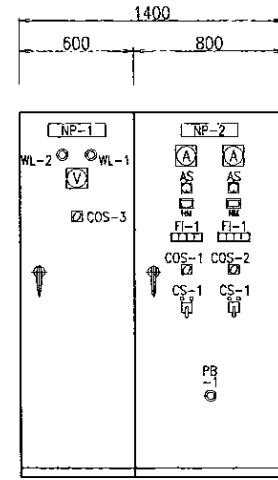
----- Under Ground Wiring (FEP Pipe)
 - - - - - Open Pipe Wiring (Conduit Pipe)

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		CONSULTANTS: JICA JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: KAHAWATTA S.R. & P.S. LAYOUT & WIRING PLAN								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: A.Miura	DRAWN: A.Miura	PM: (CONSULTANT) Ikuo MIWA	CE: (P&D)	SCALE: 1:300, 1:50
								CHECKED: DESIGN CHIEF	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 30-E-04-02

SYMBOL	LEGEND
CT	CURRENT TRANSFORMER
SR	SERIAL REACTOR
SC	STATIC CAPACITOR
MC	ELECTROMAGNETIC CONTACTOR
MCCB	MOLDED CASE CIRCUIT BREAKER
INV	INVERTER
M	MOTOR
ZCT	ZERO PHASE CURRENT TRANSFORMER
A	AMMETER
$\overline{I} \rightarrow$	OVER CURRENT GROUNDING RELAY
\odot	AMMETER SWITCH
\oplus	VOLTMETER SWITCH
Th	THERMAL RELAY

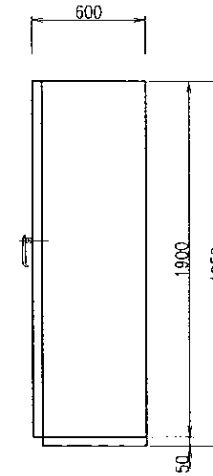


SINGLE LINE DIAGRAM



POWER RECEIVING PANEL
310PRP01

NO.1,2 BOOSTER PUMP PANEL
310BPP01



SIDE VIEW

CS : CONTROL SWITCH	
CS-1	START - STOP
CS-2	OPEN - STOP - CLOSE
CS-3	REV. UP - DOWN

COS : CHANGE OVER SWITCH	
COS-1	MANUAL - AUTO
COS-2	NO.1-AUTO-NO.2
COS-3	CEB-GENERATOR

PB : PUSH BUTTON SWITCH	
PB-1	EMERGENCY STOP

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT



JAPAN INTERNATIONAL COOPERATION AGENCY

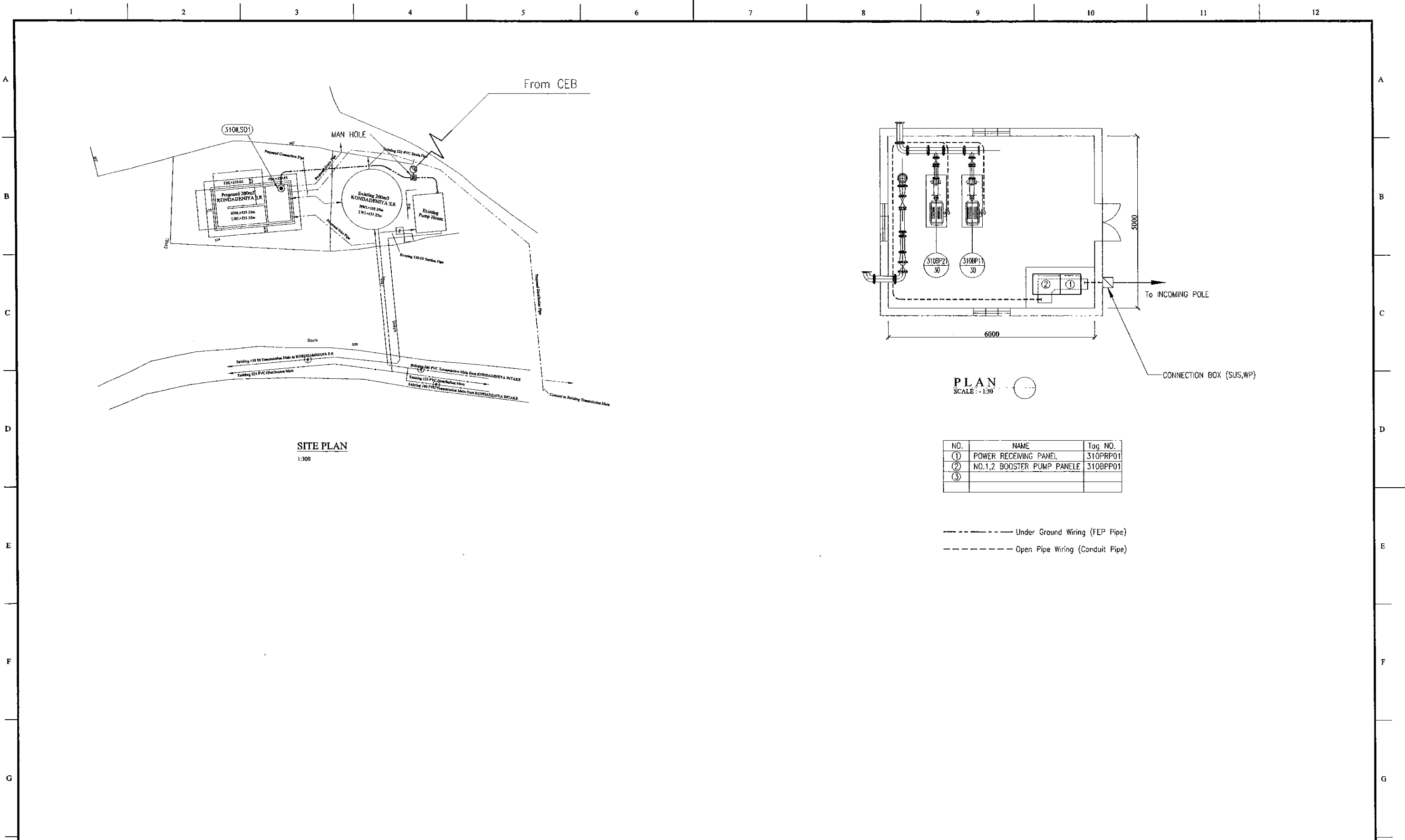
TITLE: KONDADENIYA S.R. & P.S. ELECTRICAL FACILITY

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

REV.	DESCRIPTION	DATE	SIGN.

DESIGNED: A.Miura	DRAWN: A.Miura	PM: (CONSULTANT) Ikuo-MIWA	CE: (P&D)	SCALE: 1:20
CHECKED: DESIGN CHIEF	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 30-E-10-01



SITE PLAN
1:300

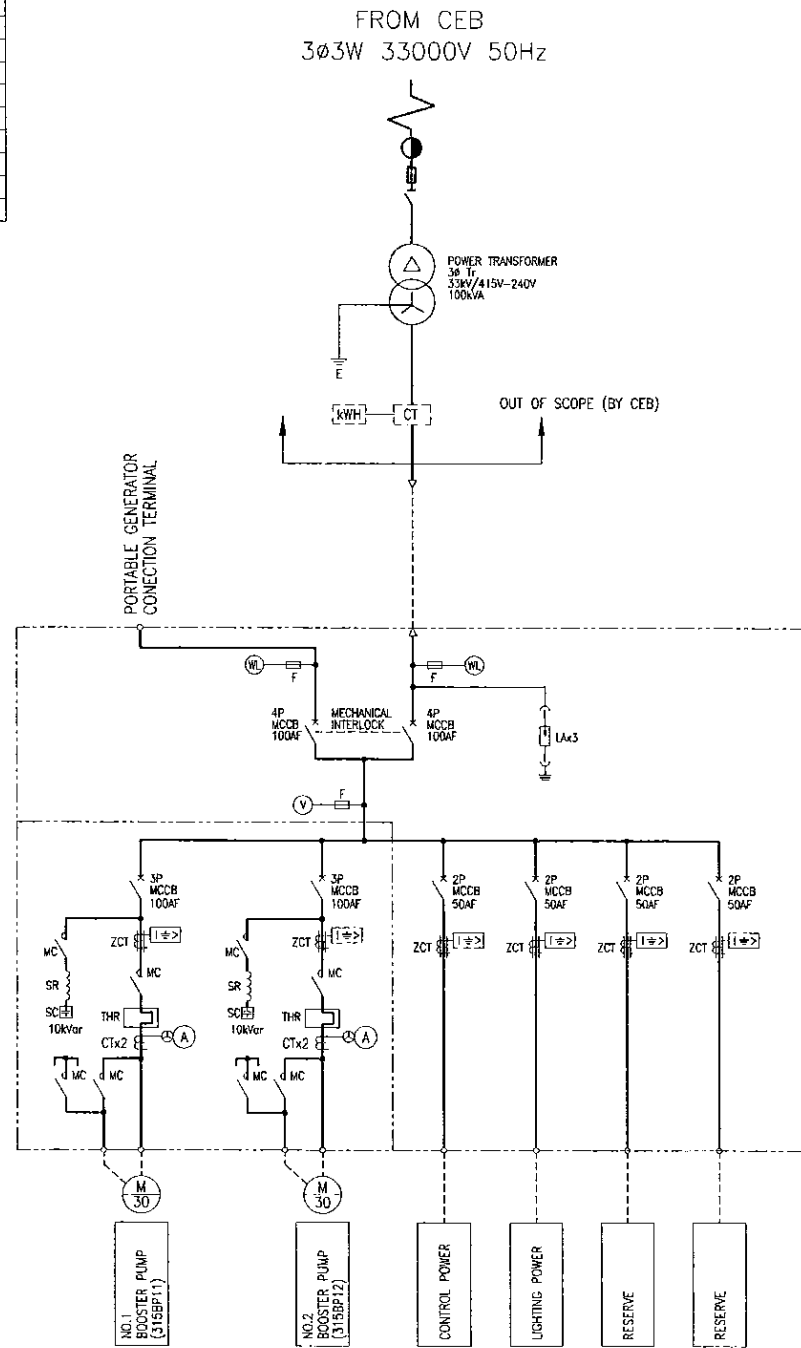
PLAN
SCALE: 1:50

NO.	NAME	Tag NO.
①	POWER RECEIVING PANEL	310PRP01
②	NO.1,2 BOOSTER PUMP PANELE	310BPP01
③		

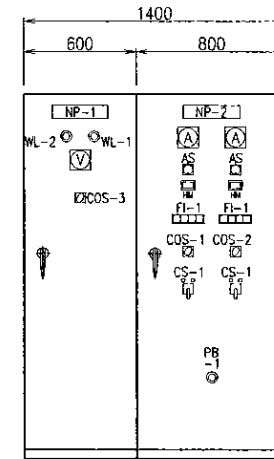
----- Under Ground Wiring (FEP Pipe)
 - - - - - Open Pipe Wiring (Conduit Pipe)

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: KONDADENIYA S.R. & P.S. LAYOUT & WIRING PLAN																					
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>REV.</th> <th>DESCRIPTION</th> <th>DATE</th> <th>SIGN.</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	REV.	DESCRIPTION	DATE	SIGN.													DESIGNED: <i>A. Miura</i>	DRAWN: <i>A. Miura</i>	PM: (CONSULTANT) <i>Ikuo MIWA</i>	CE: (P&D)	SCALE: 1:300, 1:50
REV.	DESCRIPTION	DATE	SIGN.																						
				CHECKED: <small>DESIGN CHIEF</small>	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 30-E-10-02																	

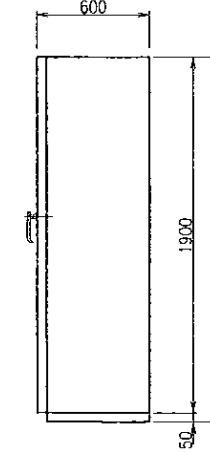
SYMBOL	LEGEND
CT	CURRENT TRANSFORMER
SR	SERIAL REACTOR
SC	STATIC CAPACITOR
MC	ELECTROMAGNETIC CONTACTOR
MCCB	MOLDED CASE CIRCUIT BREAKER
INV	INVERTER
M	MOTOR
ZCT	ZERO PHASE CURRENT TRANSFORMER
A	AMMETER
(I→)	OVER CURRENT GROUNDING RELAY
⊙	AMMETER SWITCH
⊕	VOLTMETER SWITCH
Th	THERMAL RELAY



SINGLE LINE DIAGRAM



POWER RECEIVING PANEL	NO.1,2 BOOSTER PUMP PANEL
315PRP01	315BPP01



SIDE VIEW

CS : CONTROL SWITCH	
CS-1	START - STOP
CS-2	OPEN - STOP - CLOSE
CS-3	REV. UP - DOWN

COS : CHANGE OVER SWITCH	
COS-1	MANUAL - AUTO
COS-2	NO.1-AUTO-NO.2
COS-3	CEB-GENERATOR

PB : PUSH BUTTON SWITCH	
PB-1	EMERGENCY STOP

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT



JAPAN INTERNATIONAL COOPERATION AGENCY

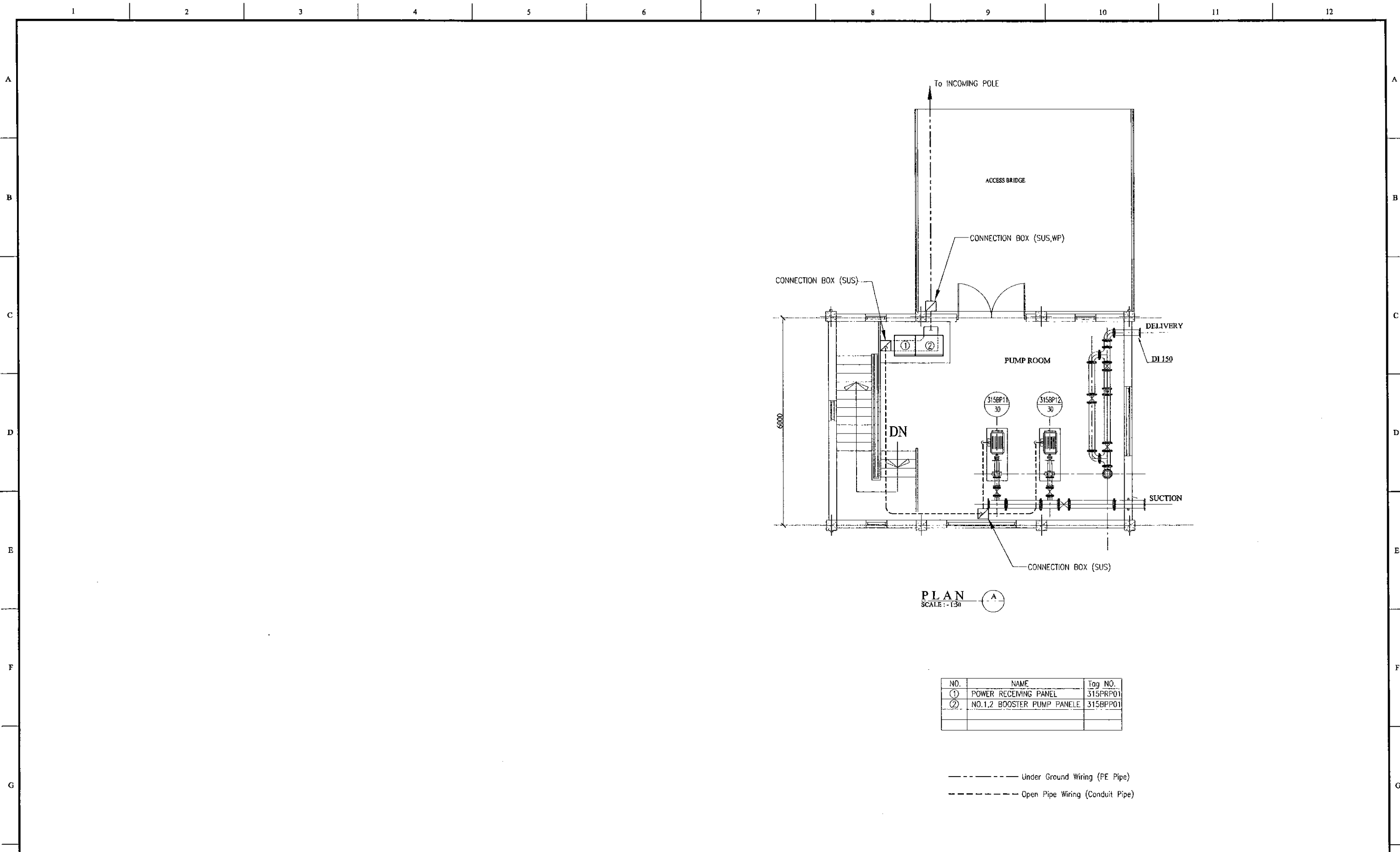
TITLE: ASGIRIYA P.S. ELECTRICAL FACILITY

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

REV.	DESCRIPTION	DATE	SIGN.

DESIGNED: A.Miura	DRAWN: A.Miura	PM: (CONSULTANT) Ikuo-MIWA	CE: (P&D)	SCALE: 1:20
CHECKED: DESIGN CHIEF	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 30-E-15-01

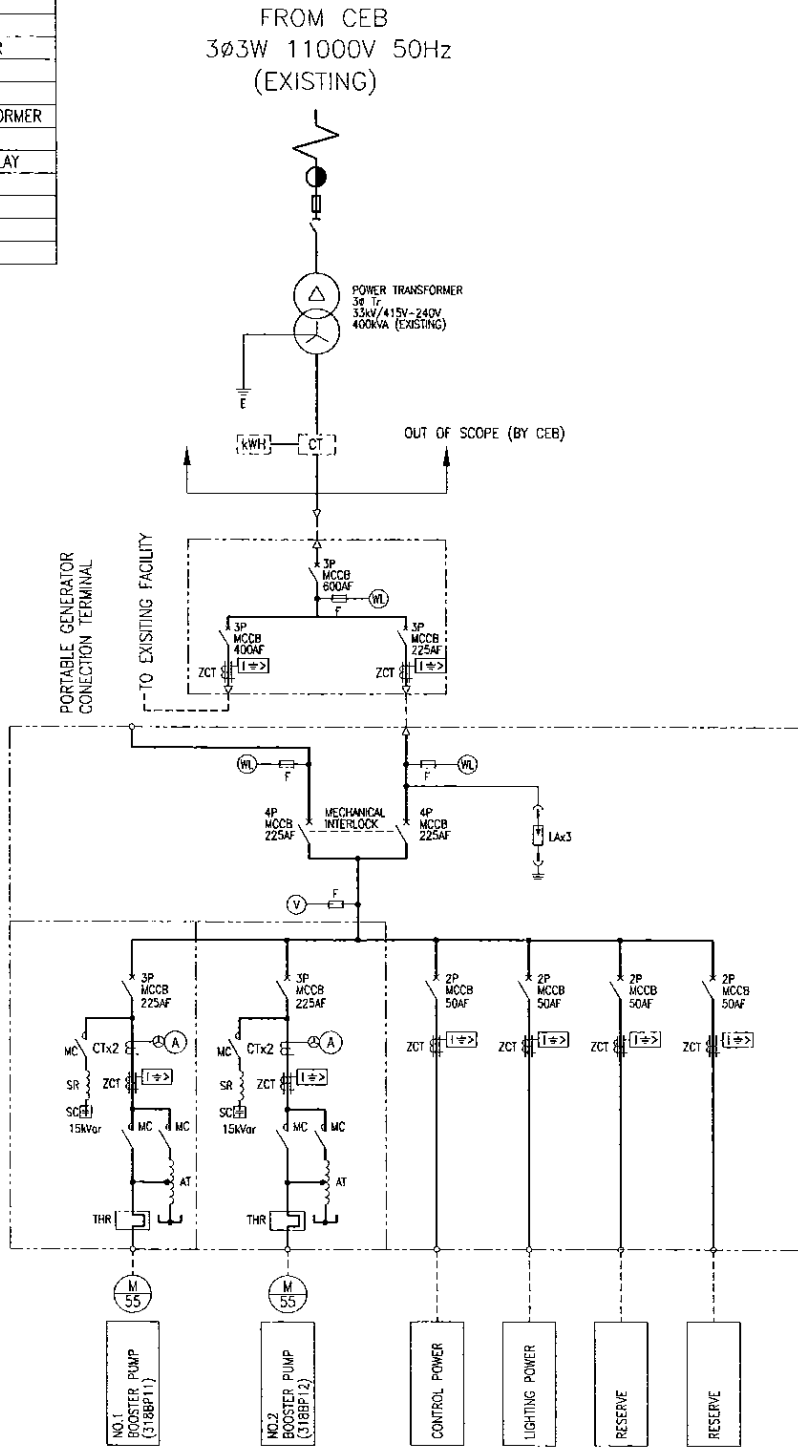


NO.	NAME	Tag NO.
①	POWER RECEIVING PANEL	315PRP01
②	NO.1,2 BOOSTER PUMP PANELE	315BPP01

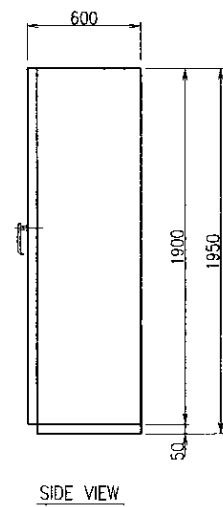
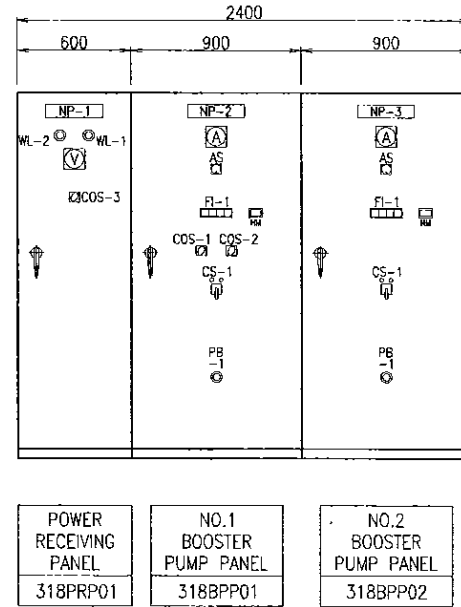
----- Under Ground Wiring (PE Pipe)
 ----- Open Pipe Wiring (Conduit Pipe)

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		CONSULTANTS: JICA JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: ASGIRIYA P.S. LAYOUT & WIRING PLAN								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD	CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN			REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	CE: (P&D)	SCALE:
								<i>A.Miura</i>	<i>A.Miura</i>	<i>Ikuo MIWA</i>		1:200, 1:50
								CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE:	DRAWING NO.:
								DESIGN CHIEF			31/05/2002	30-E-15-02

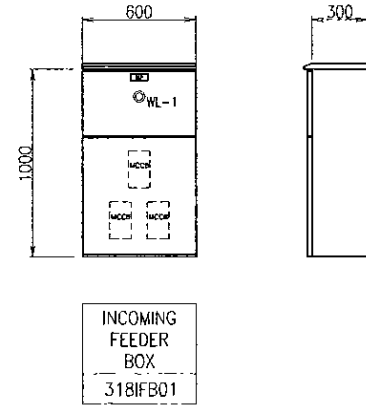
SYMBOL	LEGEND
CT	CURRENT TRANSFORMER
SR	SERIAL REACTOR
SC	STATIC CAPACITOR
MC	ELECTROMAGNETIC CONTACTOR
MCCB	MOLDED CASE CIRCUIT BREAKER
INV	INVERTER
M	MOTOR
ZCT	ZERO PHASE CURRENT TRANSFORMER
A	AMMETER
(I→)	OVER CURRENT GROUNDING RELAY
⊕	AMMETER SWITCH
⊕	VOLTMETER SWITCH
Th	THERMAL RELAY



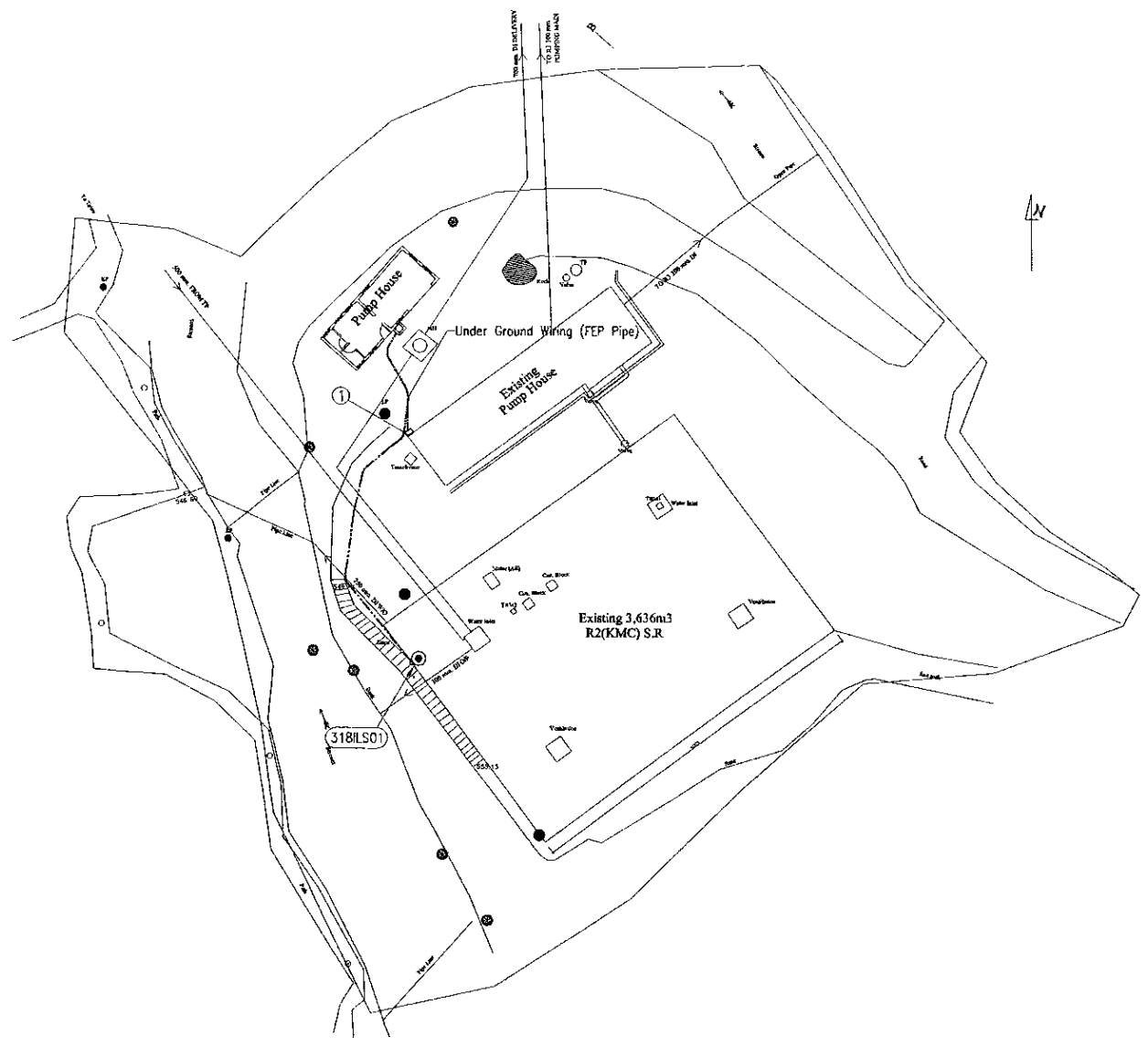
SINGLE LINE DIAGRAM



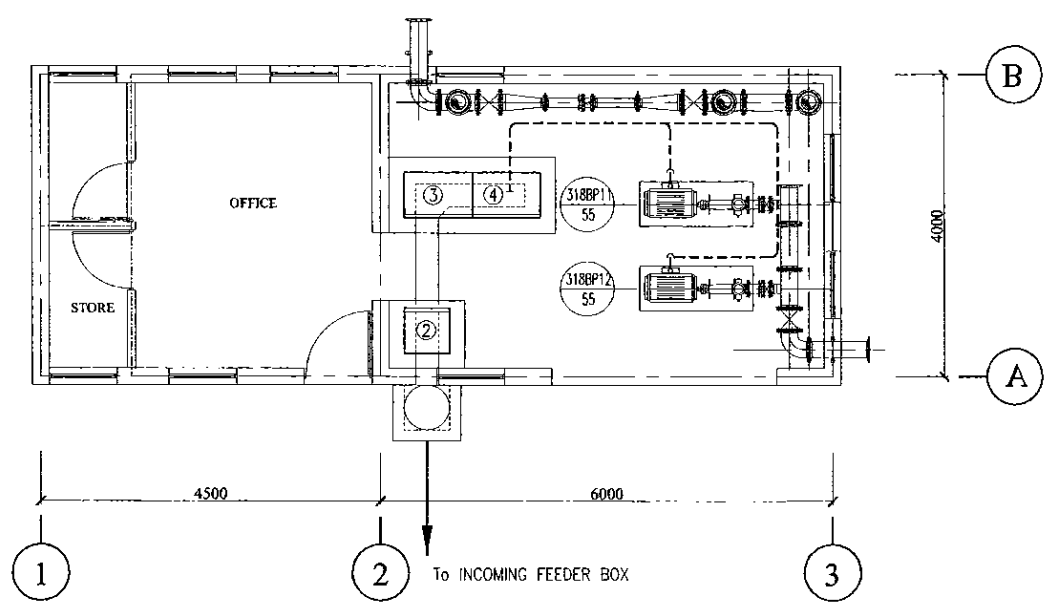
CS : CONTROL SWITCH	
CS-1	START - STOP
CS-2	OPEN - STOP - CLOSE
CS-3	REV. UP - DOWN
COS : CHANGE OVER SWITCH	
COS-1	MANUAL - AUTO
COS-2	AUTO-NO.1-NO.2
COS-3	CEB-GENERATOR
PB : PUSH BUTTON SWITCH	
PB-1	EMERGENCY STOP



PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JICA JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: R2 S.R. & P.S. ELECTRICAL FACILITY								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: A.Miura	DRAWN: A.Miura	PM: (CONSULTANT) Ikuo MIWA	CE: (P&D)	SCALE: 1:20
								CHECKED: DESIGN CHIEF	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 30-E-18-01



SITE PLAN
1:300



PLAN
SCALE: - 1:50

NO.	NAME	Tag NO.
①	INCOMING FEEDER BOX	318IFB01
②	POWER RECEIVING PANEL	318PRP01
③	NO.1 BOOSTER PUMP PANELE	318BPP01
④	NO.2 BOOSTER PUMP PANELE	318BPP02

----- Under Ground Wiring (FEP Pipe)
 - - - - - Open Pipe Wiring (Conduit Pipe)

PROJECT: **GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT**

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

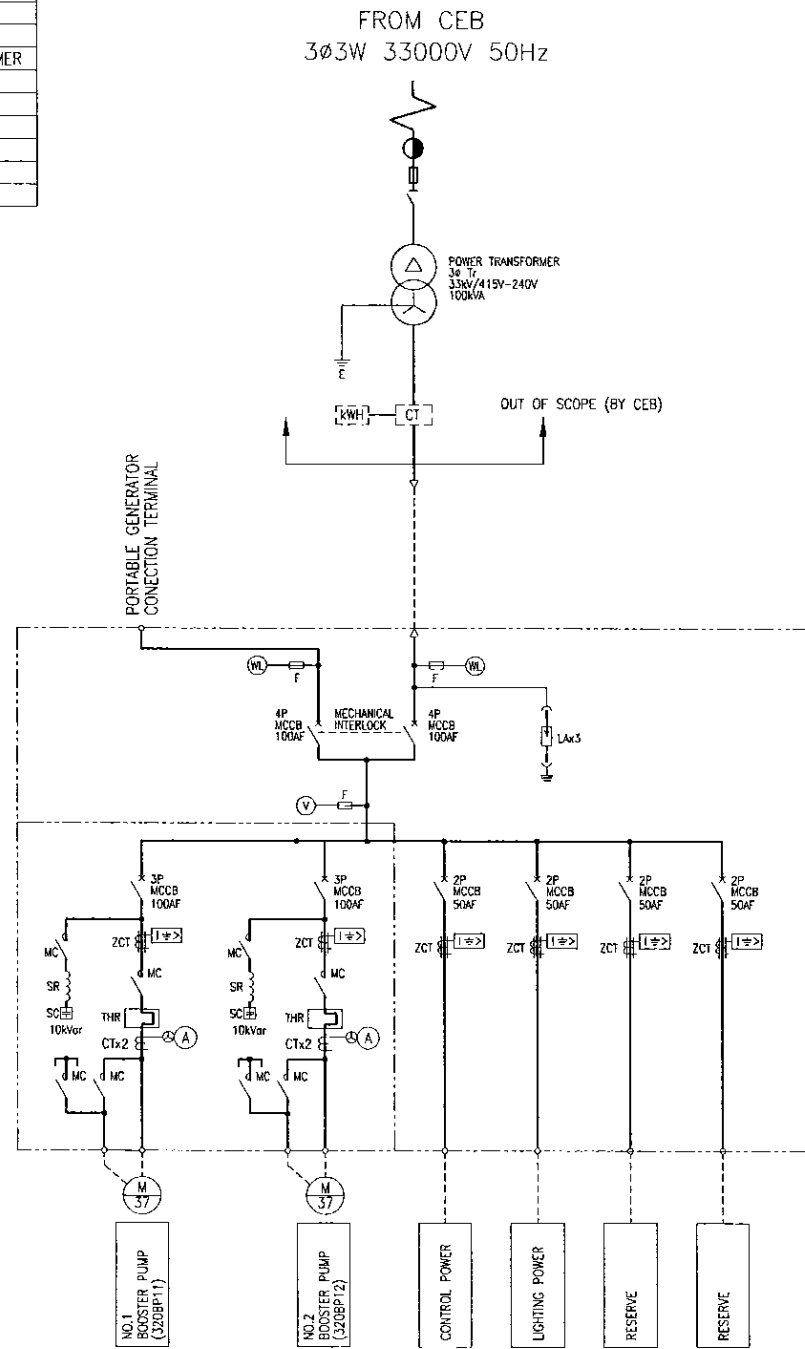
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CLIENT: **NATIONAL WATER SUPPLY & DRAINAGE BOARD**

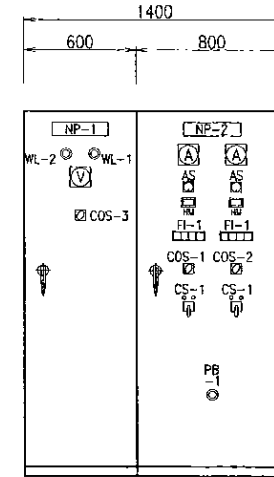
CONSULTANTS: **NJS CONSULTANTS CO., LTD. - JAPAN**
INSC NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	CE: (P&D)	SCALE:
				<i>A.Miura</i>	<i>A.Miura</i>	<i>Ikuo-MIWA</i>		1:300, 1:50
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				DESIGN CHIEF			31/05/2002	30-E-18-02

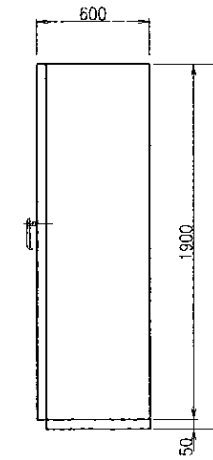
SYMBOL	LEGEND
CT	CURRENT TRANSFORMER
SR	SERIAL REACTOR
SC	STATIC CAPACITOR
MC	ELECTROMAGNETIC CONTACTOR
MCCB	MOLDED CASE CIRCUIT BREAKER
INV	INVERTER
M	MOTOR
ZCT	ZERO PHASE CURRENT TRANSFORMER
A	AMMETER
[I→]	OVER CURRENT GROUNDING RELAY
⊕	AMMETER SWITCH
⊕	VOLTMETER SWITCH
Th	THERMAL RELAY



SINGLE LINE DIAGRAM



POWER RECEIVING PANEL 320PRP01
NO.1,2 BOOSTER PUMP PANEL 320BPP01



SIDE VIEW

CS : CONTROL SWITCH	
CS-1	START - STOP
CS-2	OPEN - STOP - CLOSE
CS-3	REV. UP - DOWN

COS : CHANGE OVER SWITCH	
COS-1	MANUAL - AUTO
COS-2	AUTO-NO.1-NO.2
COS-3	CEB-GENERATOR

PB : PUSH BUTTON SWITCH	
PB-1	EMERGENCY STOP

FI-1 DETAIL

Pump	Pump	RESERVOIR LEVEL	EMERGENCY STOP
OVER LOAD	EARTH FAULT	L.L.	STOP

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT



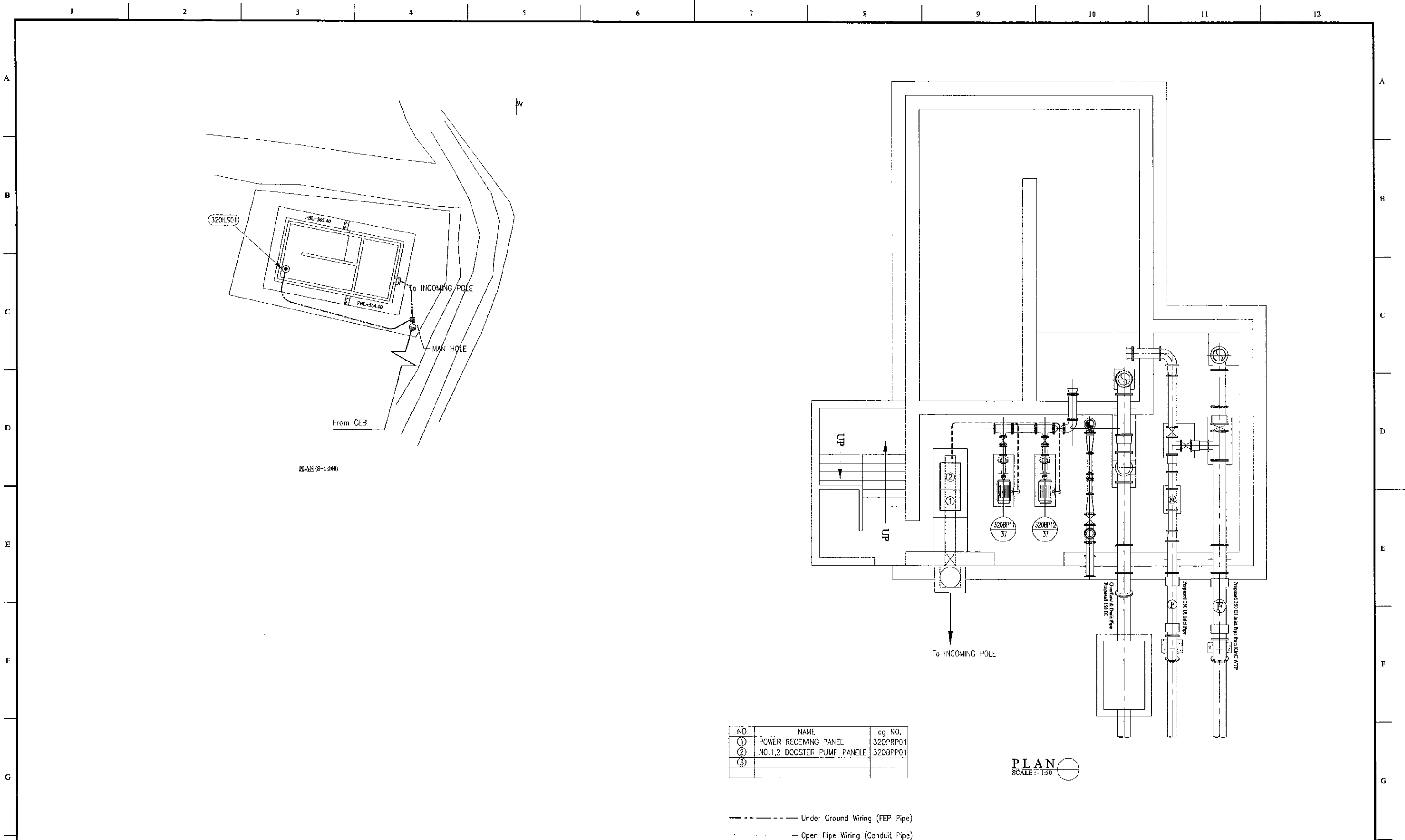
JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: HEERASSAGALA LOW S.R. & P.S. ELECTRICAL FACILITY

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	CE: (P&D)	SCALE:
				A.Miura	A.Miura	Ikuo-MIWA		1:20
				CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 30-E-20-01
				DESIGN CHIEF				



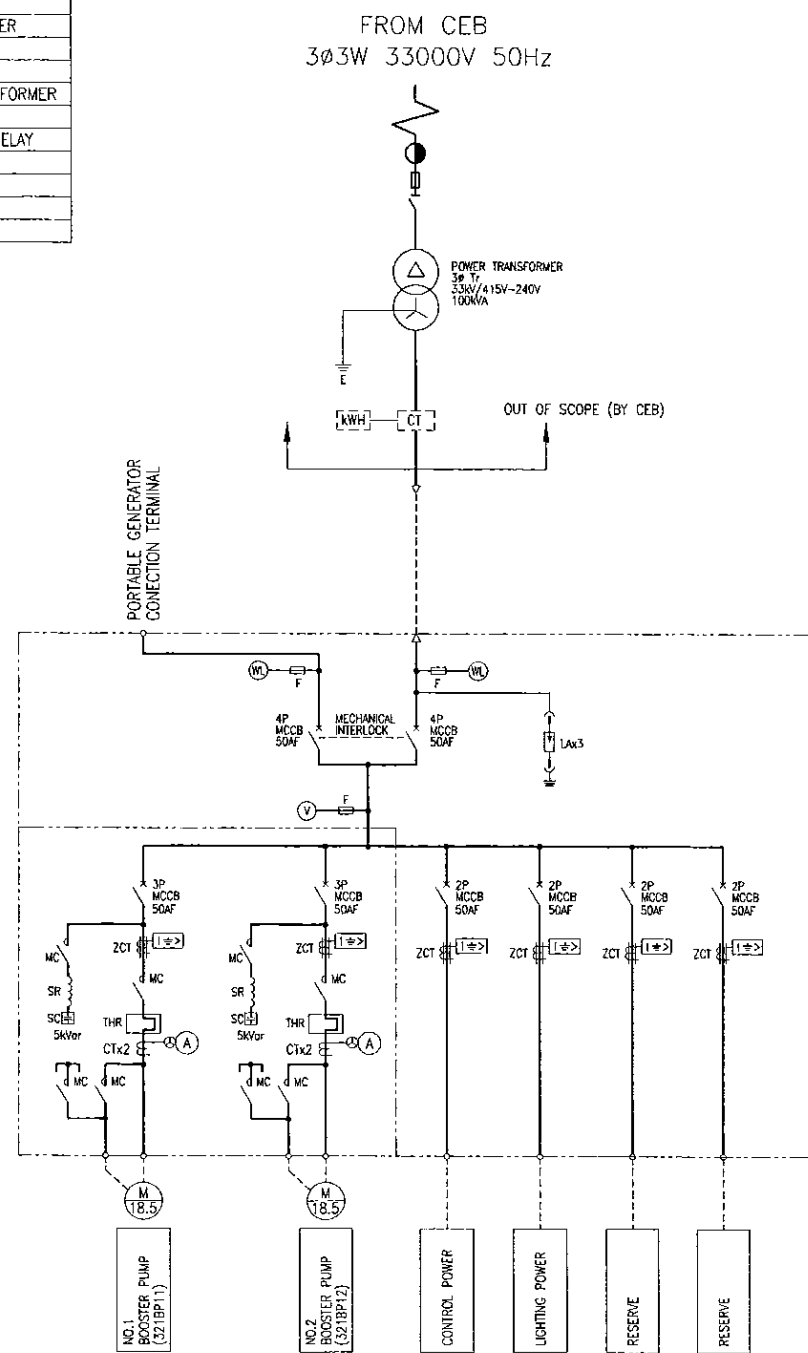
NO.	NAME	Tag NO.
①	POWER RECEIVING PANEL	320PRP01
②	NO.1,2 BOOSTER PUMP PANEL	320BPP01
③		

PLAN
SCALE: 1:50

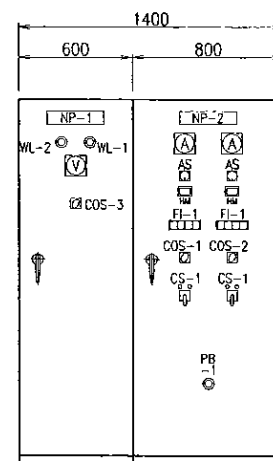
----- Under Ground Wiring (FEP Pipe)
 - - - - - Open Pipe Wiring (Conduit Pipe)

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: HEERASSAGALA LOW S.R. & P.S. LAYOUT & WIRING PLAN								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: <i>A. Miura</i>	DRAWN: <i>A. Miura</i>	PM: (CONSULTANT) <i>Ikuo MIWA</i>	CE: (P&D)	SCALE: 1:300, 1:50
								CHECKED: DESIGN CHIEF	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 30-E-20-02

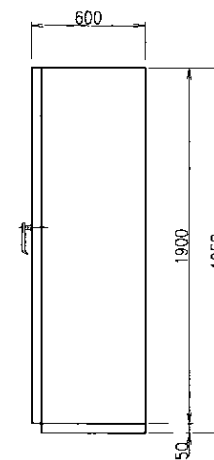
SYMBOL	LEGEND
CT	CURRENT TRANSFORMER
SR	SERIAL REACTOR
SC	STATIC CAPACITOR
MC	ELECTROMAGNETIC CONTACTOR
MCCB	MOLDED CASE CIRCUIT BREAKER
INV	INVERTER
M	MOTOR
ZCT	ZERO PHASE CURRENT TRANSFORMER
A	AMMETER
[I→]	OVER CURRENT GROUNDING RELAY
⊕	AMMETER SWITCH
⊕	VOLTMETER SWITCH
Th	THERMAL RELAY



SINGLE LINE DIAGRAM



POWER RECEIVING PANEL	NO.1,2 BOOSTER PUMP PANEL
321PRP01	321BPP01



SIDE VIEW

CS : CONTROL SWITCH	
CS-1	START - STOP
CS-2	OPEN - STOP - CLOSE
CS-3	REV. UP - DOWN

COS : CHANGE OVER SWITCH	
COS-1	MANUAL - AUTO
COS-2	AUTO-NO.1 - NO.2
COS-3	CEB-GENERATOR

PB : PUSH BUTTON SWITCH	
PB-1	EMERGENCY STOP

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT



JICA JAPAN INTERNATIONAL COOPERATION AGENCY

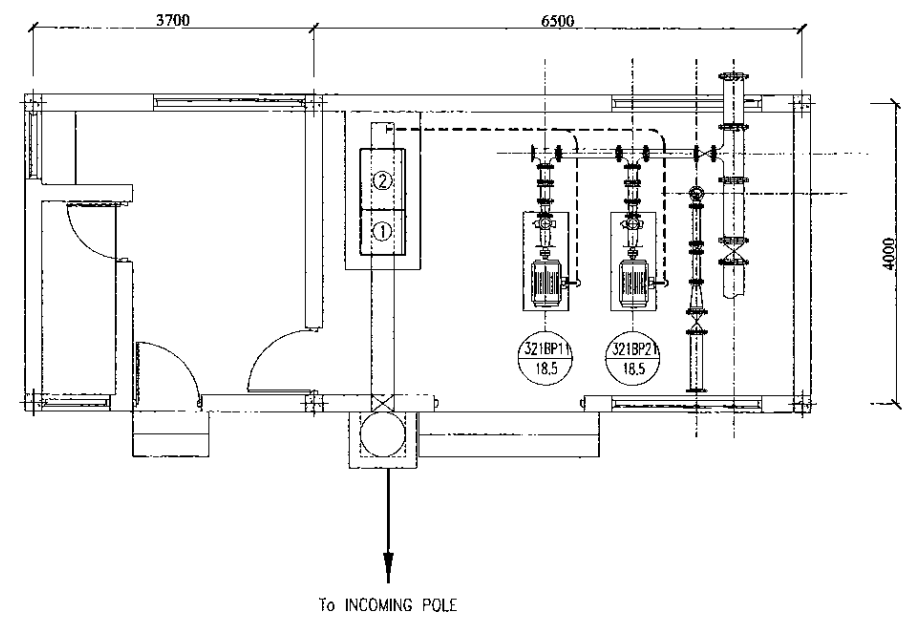
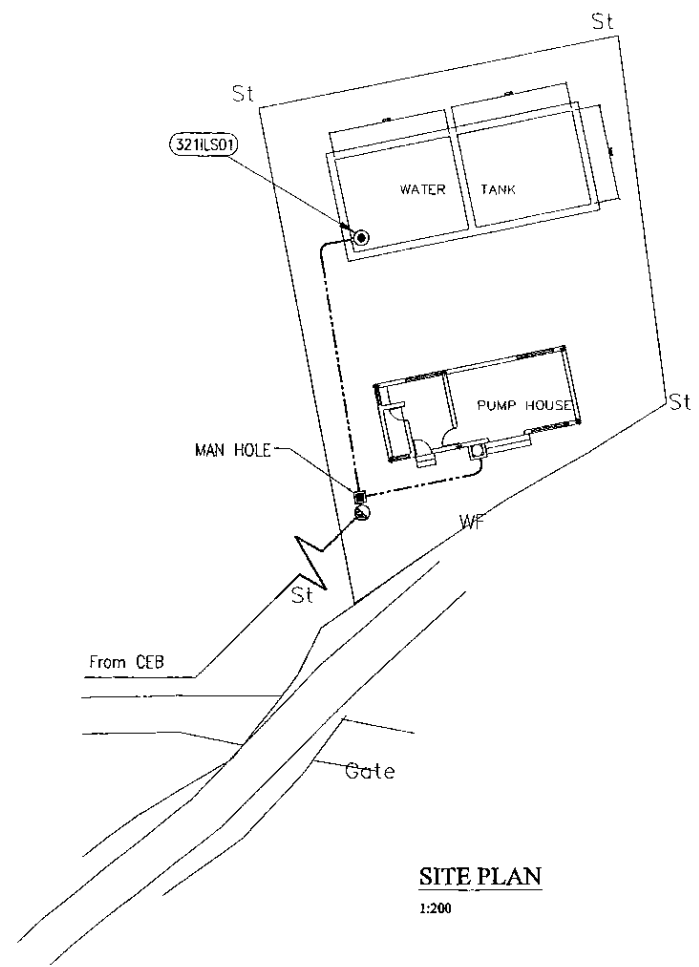
TITLE: HEERASSAGALA MIDDLE S.R. & P.S. ELECTRICAL FACILITY

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

REV.	DESCRIPTION	DATE	SIGN.

DESIGNED: A.Miura	DRAWN: A.Miura	PM: (CONSULTANT) Ikuo-MIWA	CE: (P&D)	SCALE: 1:20
CHECKED: DESIGN CHIEF	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 30-E-21-01



PLAN
SCALE: 1:50

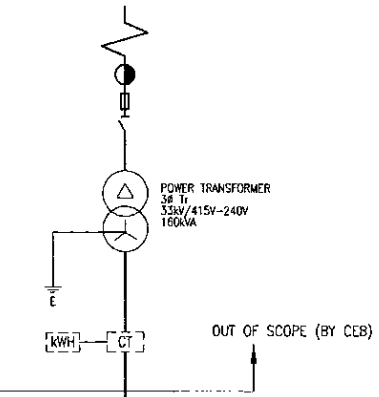
NO.	NAME	Tag NO.
①	POWER RECEIVING PANEL	321PRP01
②	NO.1,2 BOOSTER PUMP PANELE	321BPP01

----- Under Ground Wiring (FEP Pipe)
 - - - - - Open Pipe Wiring (Conduit Pipe)

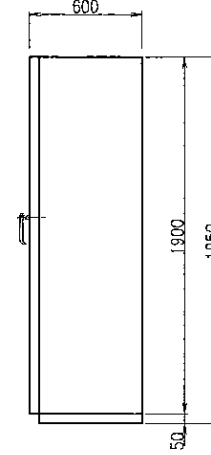
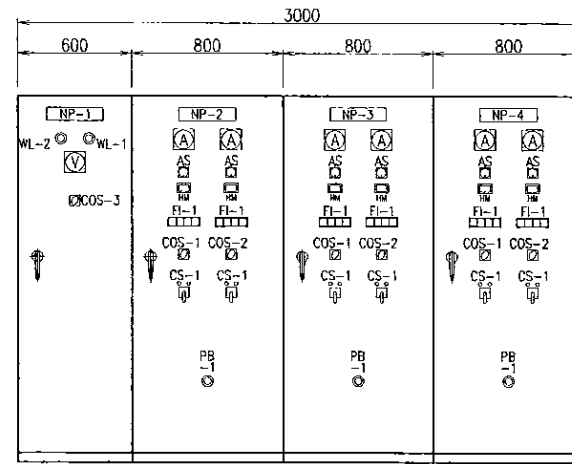
PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: HBERASSAGALA MIDDLE S.R. & P.S. LAYOUT & WIRING PLAN								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: <i>A.Miura</i>	DRAWN: <i>A.Miura</i>	PM: (CONSULTANT) <i>Ikuo-MIWA</i>	CE: (P&D)	SCALE: 1:200, 1:50
								CHECKED: DESIGN CHIEF	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 30-E-21-02

SYMBOL	LEGEND
CT	CURRENT TRANSFORMER
SR	SERIAL REACTOR
SC	STATIC CAPACITOR
MC	ELECTROMAGNETIC CONTACTOR
MCCB	MOLDED CASE CIRCUIT BREAKER
INV	INVERTER
M	MOTOR
ZCT	ZERO PHASE CURRENT TRANSFORMER
A	AMMETER
(I→)	OVER CURRENT GROUNDING RELAY
⊕	AMMETER SWITCH
⊕	VOLTMETER SWITCH
Th	THERMAL RELAY

FROM CEB
3Ø3W 33000V 50Hz



PORTABLE GENERATOR
CONNECTION TERMINAL



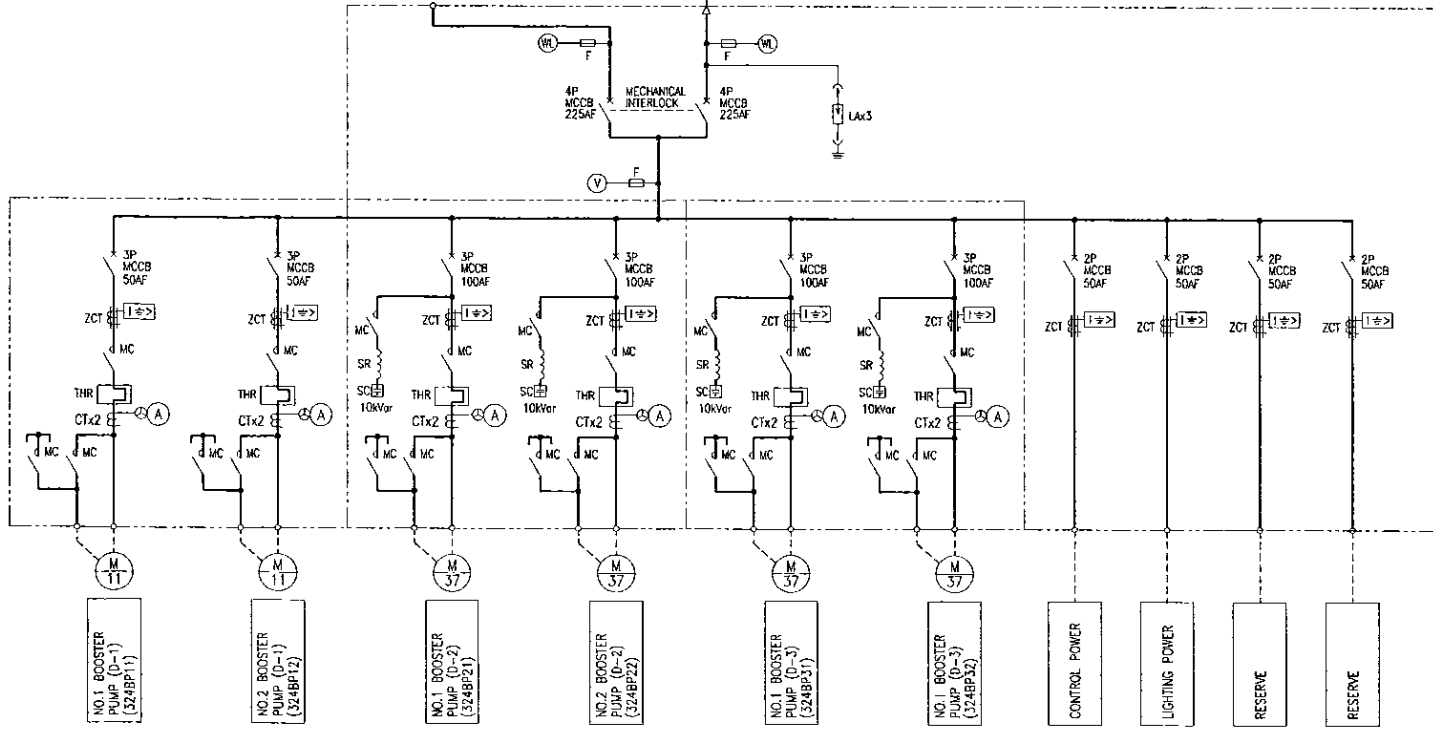
CS : CONTROL SWITCH	
CS-1	START - STOP
CS-2	OPEN - STOP - CLOSE
CS-3	REV. UP - DOWN

COS : CHANGE OVER SWITCH	
COS-1	MANUAL - AUTO
COS-2	NO.1 - AUTO - NO.2
COS-3	CEB - GENERATOR

PB : PUSH BUTTON SWITCH	
PB-1	EMERGENCY STOP

POWER RECEIVING PANEL	BOOSTER PUMP (D-1) PANEL	BOOSTER PUMP (D-2) PANEL	BOOSTER PUMP (D-3) PANEL
324PRP01	324BPP01	324BPP02	324BPP03

SIDE VIEW



SINGLE LINE DIAGRAM



NP-1	Booster Pump LOP
PBS1	EMERGENCY STOP

BOOSTER PUMP EMERGENCY STOP BOX
324LOP01to06

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT



JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: AMPITIYA S.R. & P.S. ELECTRICAL FACILITY

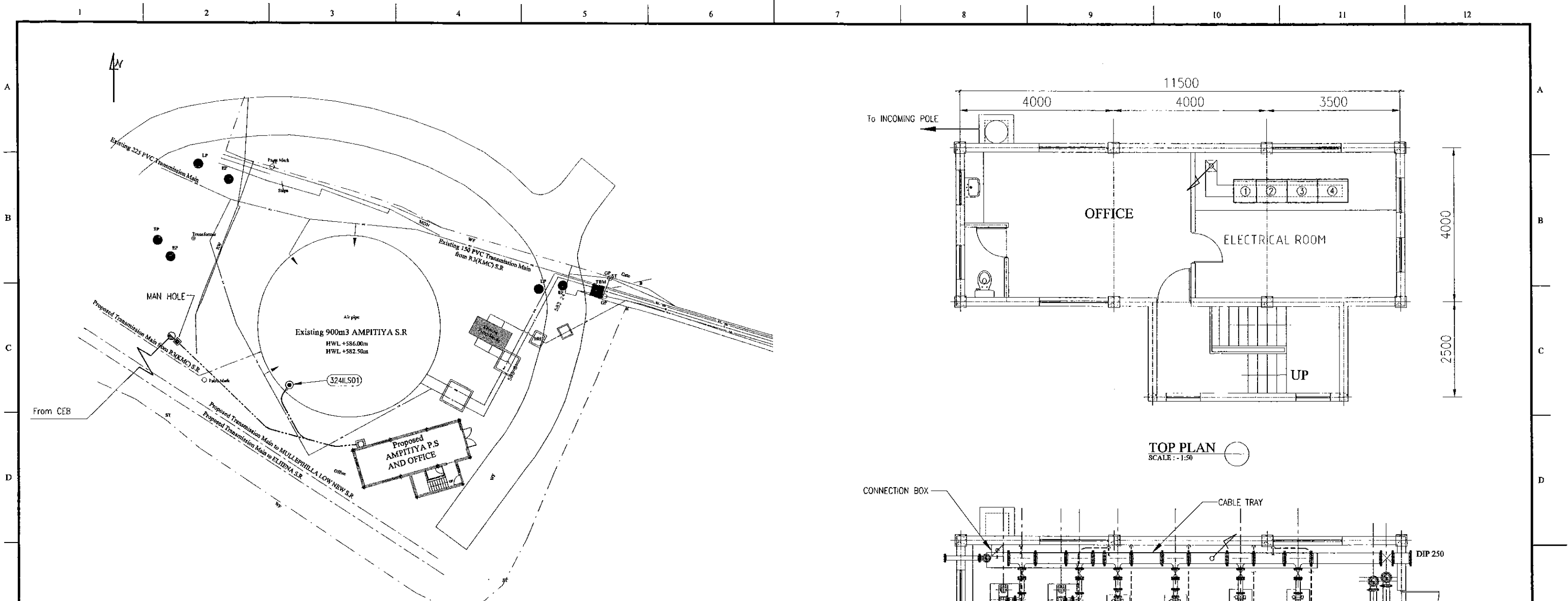
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD



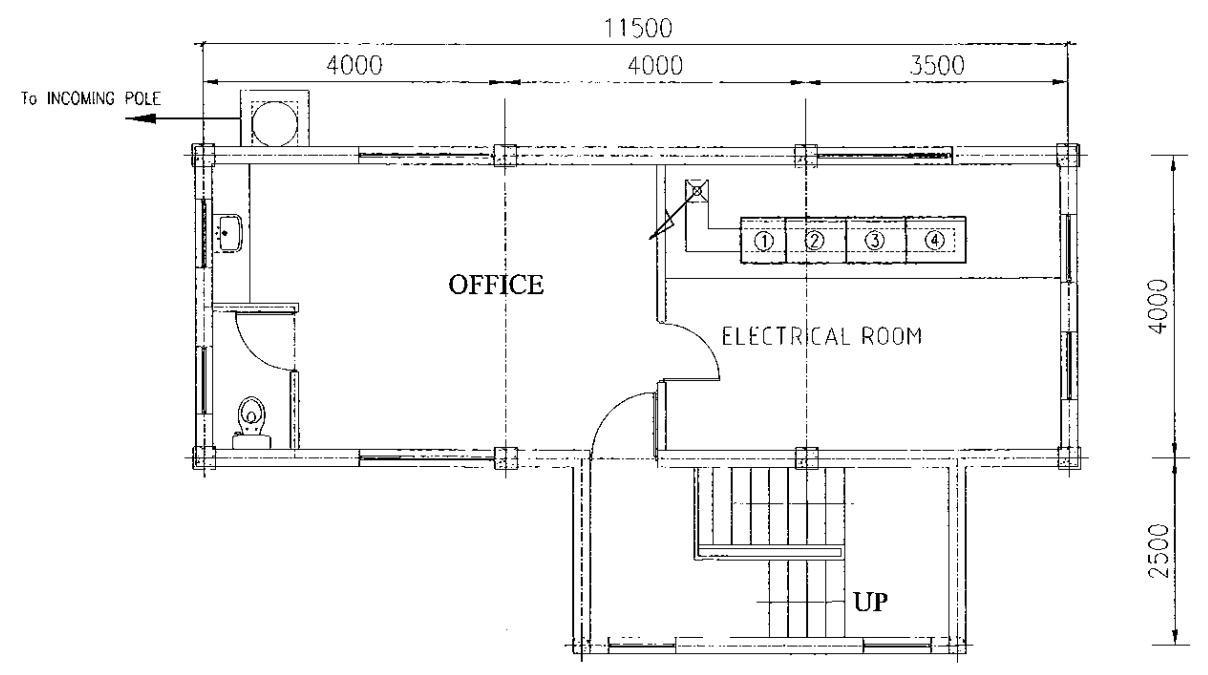
CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

REV.	DESCRIPTION	DATE	SIGN.

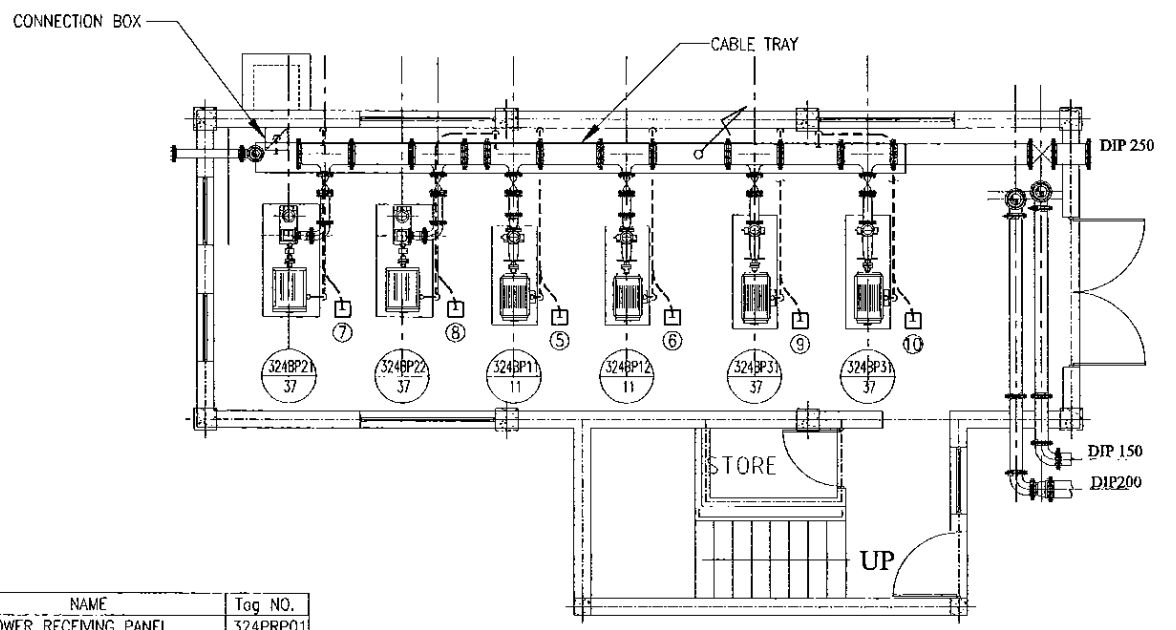
DESIGNED: A.Miura	DRAWN: A.Miura	PM: (CONSULTANT) Ikuo-MIWA	CE: (P&D)	SCALE: 1:20
CHECKED: DESIGN CHIEF	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 30-E-24-01



SITE PLAN
1:200



TOP PLAN
SCALE : 1:50



BOTTOM PLAN
SCALE : 1:50

NO.	NAME	Tag NO.
①	POWER RECEIVING PANEL	324PRP01
②	BOOSTER PUMP (D-1) PANEL	324BPP01
③	BOOSTER PUMP (D-2) PANEL	324BPP02
④	BOOSTER PUMP (D-3) PANEL	324BPP03
⑤	EMERGENCY STOP BOX	324LOP01
⑥	EMERGENCY STOP BOX	324LOP02
⑦	EMERGENCY STOP BOX	324LOP03
⑧	EMERGENCY STOP BOX	324LOP04
⑨	EMERGENCY STOP BOX	324LOP05
⑩	EMERGENCY STOP BOX	324LOP06

PROJECT: GREATER KANDY WATER SUPPLY AUGMENTATION PROJECT		JICA JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: AMPITIYA S.R. & P.S. LAYOUT & WIRING PLAN								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: <i>A. Miura</i>	DRAWN: <i>A. Miura</i>	PM: (CONSULTANT) <i>Ikuo MIWA</i>	CE: (P&D)	SCALE: 1:200, 1:50
								CHECKED: DESIGN CHIEF	AGM: (P&D)	DGM: (P&D)	DATE: 31/05/2002	DRAWING NO.: 30-E-24-02