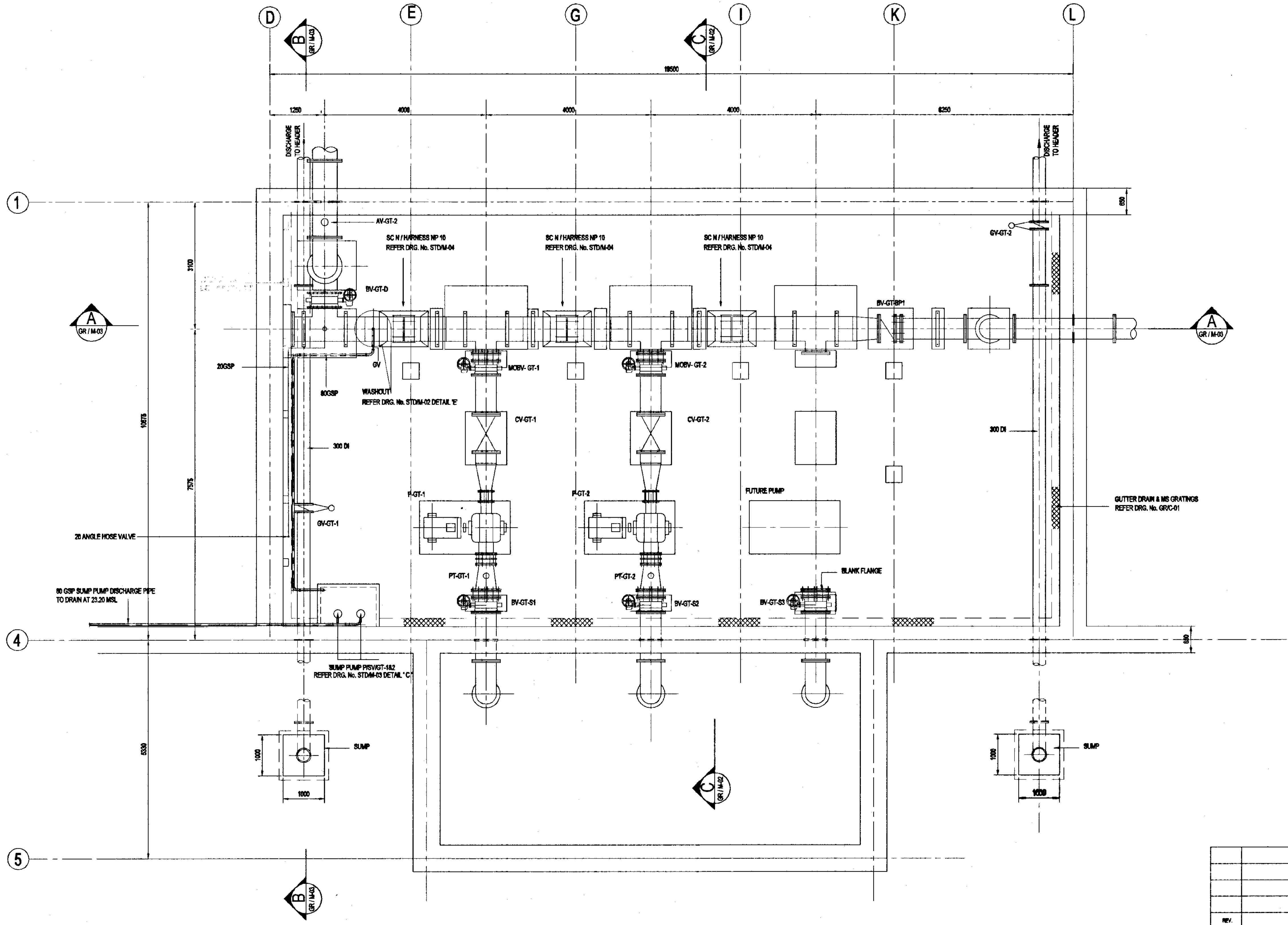


DO NOT SCALE

PLAN

SCALE 1 : 50

REV.	DESCRIPTION

NATIONAL WATER SUPPLY AND DRAINAGE BOARD
THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA

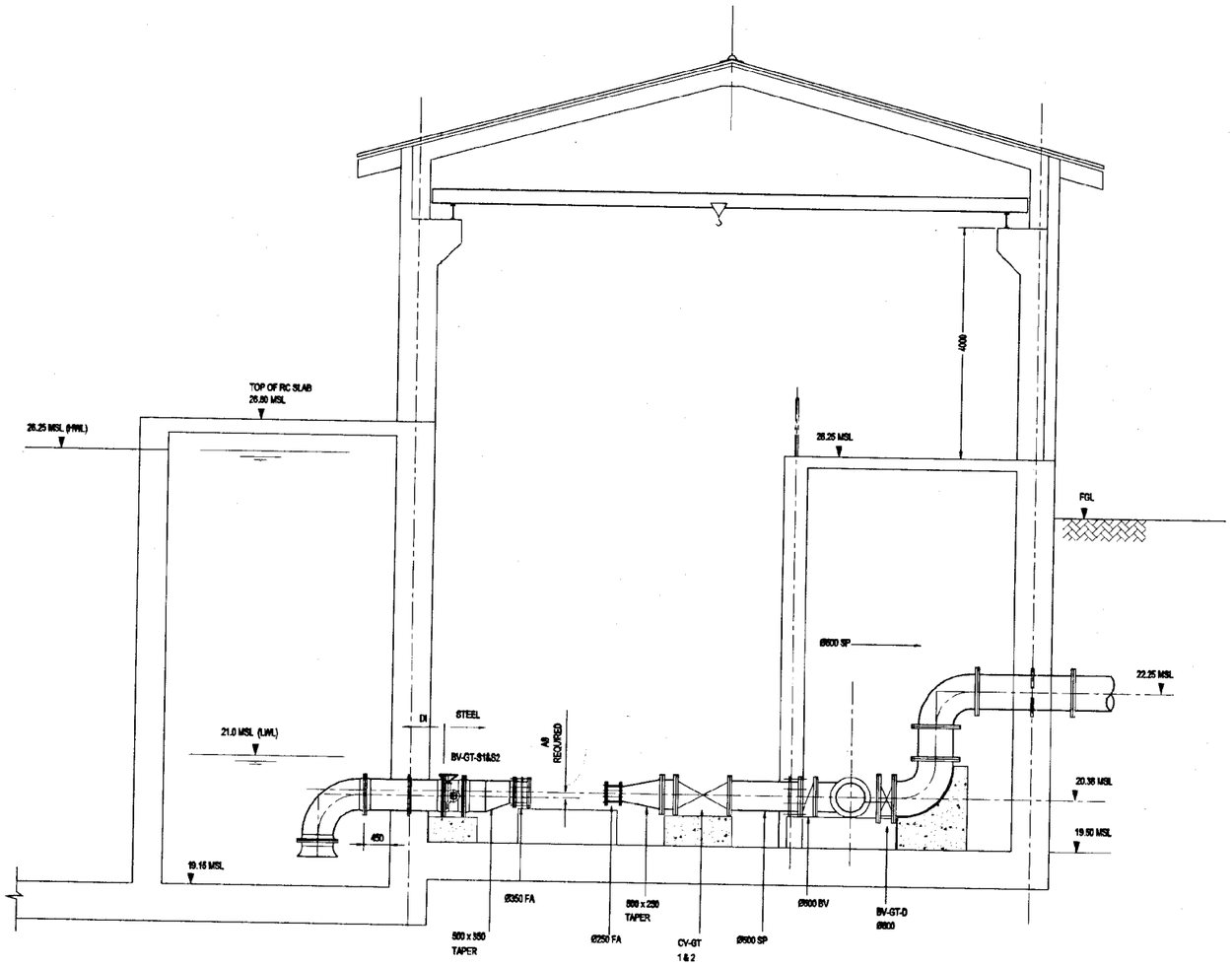
SUB PROJECT: KOTIKAWATTA MULLERIYAWA

TITLE: GOTHATUWA GROUND RESERVOIR PUMP HOUSE PUMP STATION - EQUIPMENT AND PIPING LAYOUT PLAN

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
STUDY TEAM

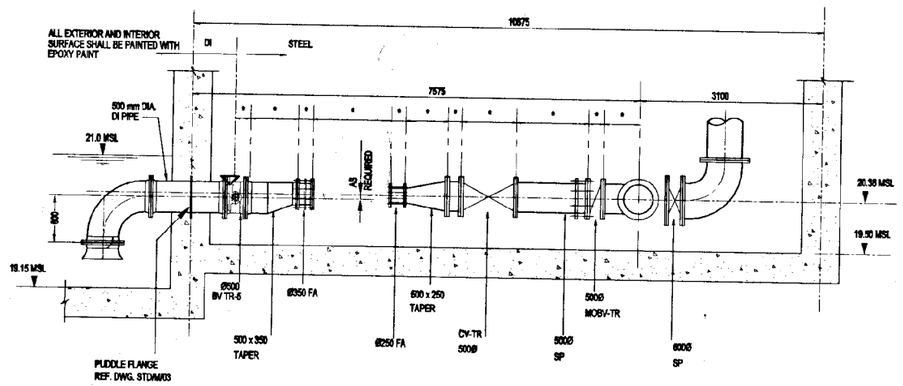
NIHON SUIDO CONSULTANTS CO. LTD.,
TOKYO, JAPAN

DESIGNED:	DRAWN:	DATE: JAN 2001
CHECKED:	PM (NRW/SAPS) NWSDB:	CONTRACT No: NRW / CW
DY. TEAM LEADER:	A.G.M (P&D) NWSDB: R. D. A.	DRG. No: KMU / GR / M -01
TEAM LEADER:	D.G.M (P&D) NWSDB:	



SECTIONAL ELEVATION - C

SCALE 1 : 50



★ LENGTH MAY VARY DEPENDING ON THE MANUFACTURERS STANDARDS

PUMP SUCTION & DISCHARGE PIPE

SCALE 1 : 50

DO NOT SCALE

REV.	DESCRIPTION

NATIONAL WATER SUPPLY AND DRAINAGE BOARD
THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
STUDY TEAM

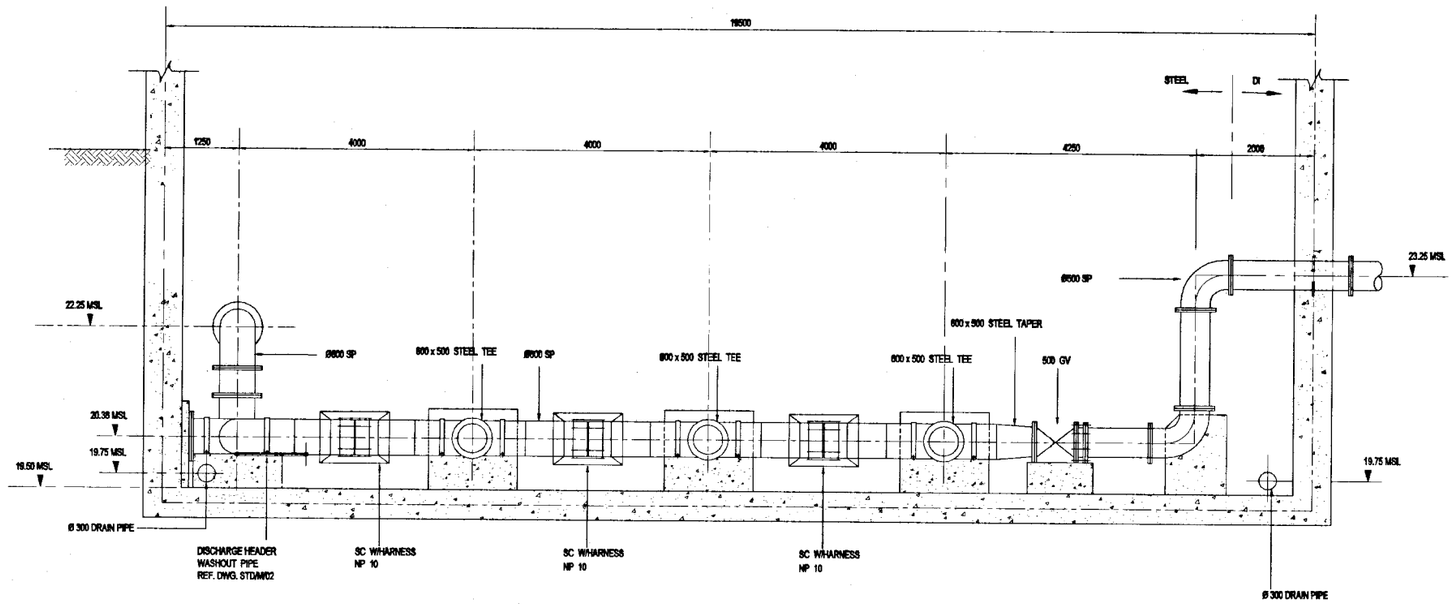
NIHON SUIDO CONSULTANTS CO. LTD.,
TOKYO, JAPAN

SUB PROJECT: KOTIKAWATTA MULLERIYAWA

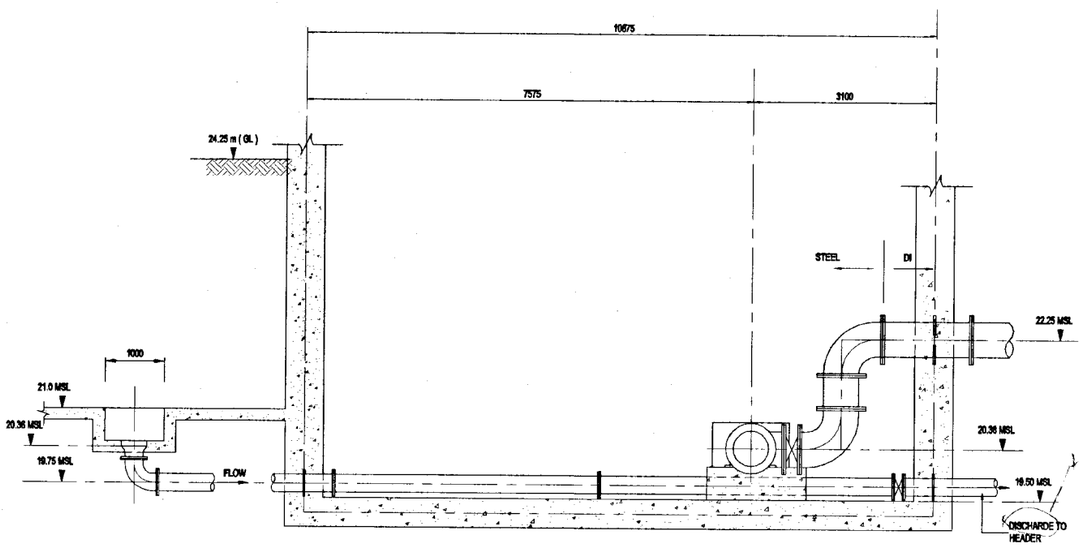
TITLE: GOTHATUWA GROUND RESERVOIR & PUMP HOUSE PUMP STATION - SECTIONS AND PIPING DETAILS

SHEET 1 OF 2

DESIGNED:	DRAWN:	DATE: JAN 2001
CHECKED:	PM (PROVINCIAL) NWSDB:	CONTRACT No: NRW / CW
DY. TEAM LEADER:	A.G.M (PMD) NWSDB:	DRG. No: KMU / GR / M - 02
TEAM LEADER:	D.G.M (PMD) NWSDB:	



SECTION - A



SECTION - B

DO NOT SCALE

REV.	DESCRIPTION

NATIONAL WATER SUPPLY AND DRAINAGE BOARD
THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA

SUB PROJECT: KOTIKAWATTA MULLERIYAWA

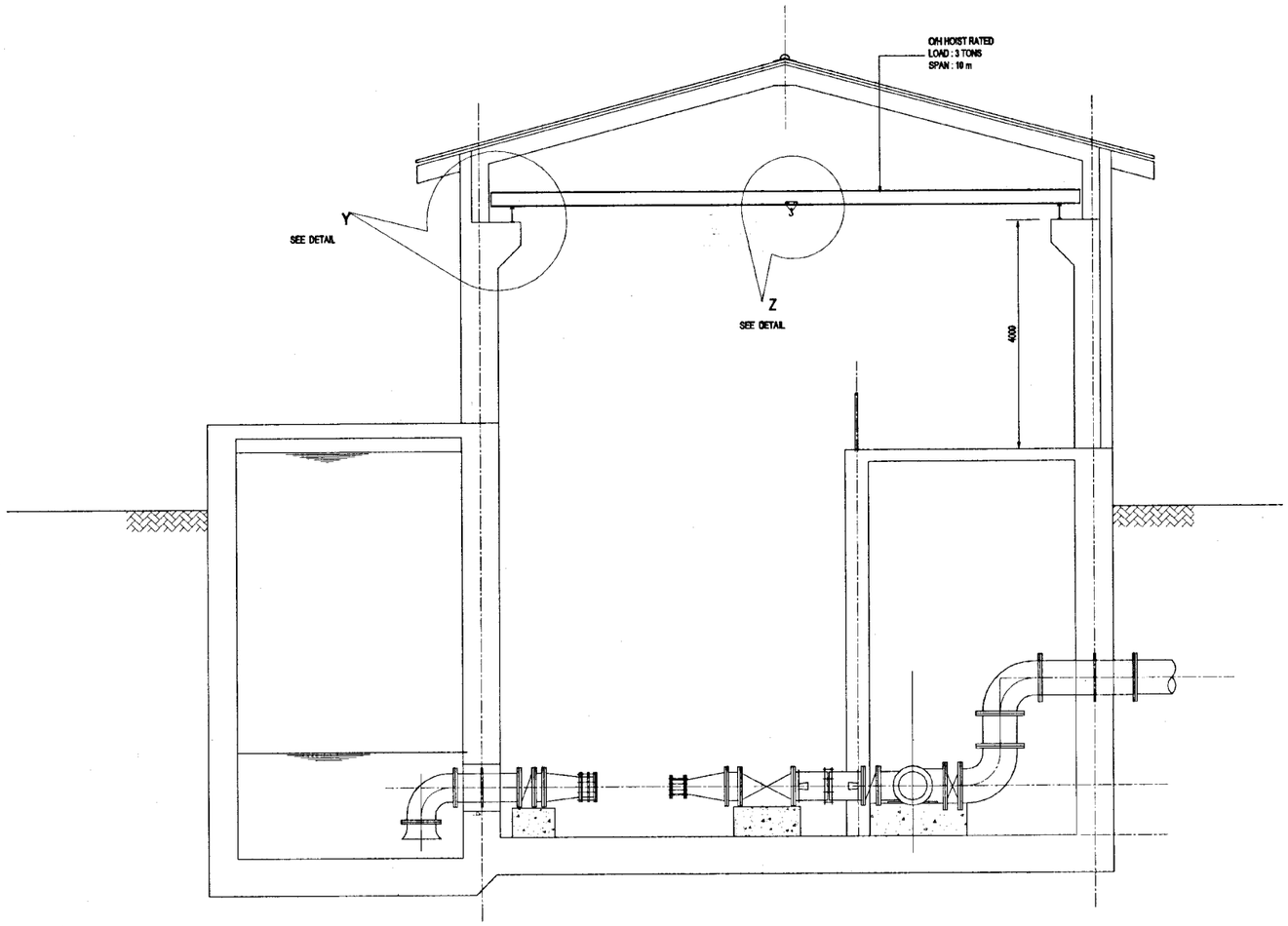
TITLE: GOTHATUWA GROUND RESERVOIR & PUMP HOUSE PUMP STATION - SECTIONS AND PIPING DETAILS

SHEET 2 OF 2

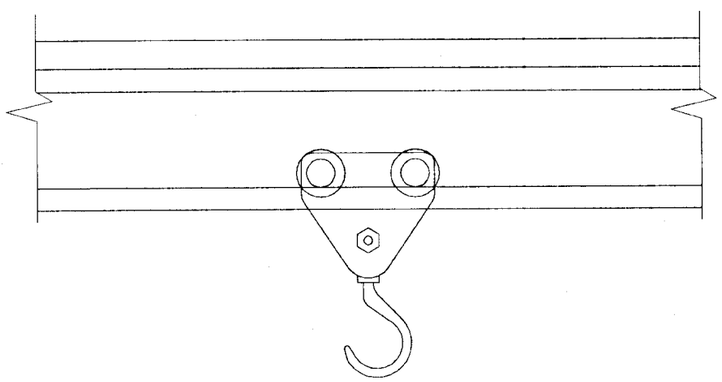
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
STUDY TEAM

NIHON SUIDO CONSULTANTS CO. LTD.,
TOKYO, JAPAN

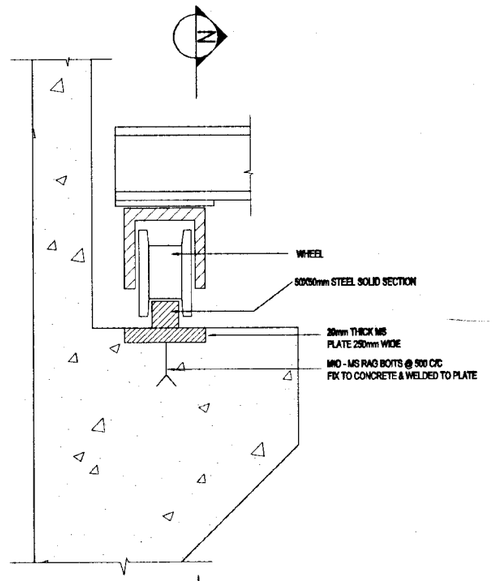
DESIGNED:	DRAWN:	DATE:	JAN 2007
CHECKED:	PM (NIHON SUIDO) MANAGER:	CONTRACT No:	NRW / CW
DY. TEAM LEADER:	A.G.M (PMD) MANAGER:	DRG. No:	KMU / GR / M - 03
TEAM LEADER:	D.G.M (PMD) MANAGER:		



ELEVATION OF OVER HEAD HOIST

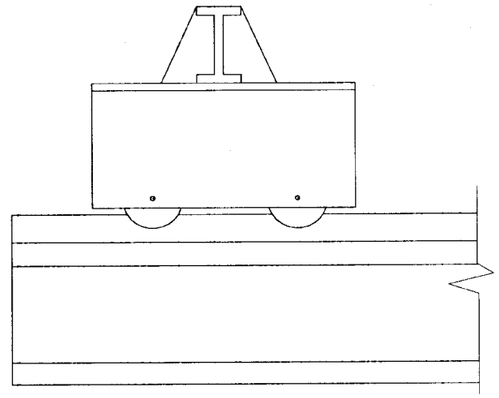


DETAIL AT - Z



* DETAILS MAY VARY AS PER MANUFACTURER'S STANDARDS.

TYPICAL DETAIL AT - Y



SECTION N - N

DO NOT SCALE

REV.	DESCRIPTION

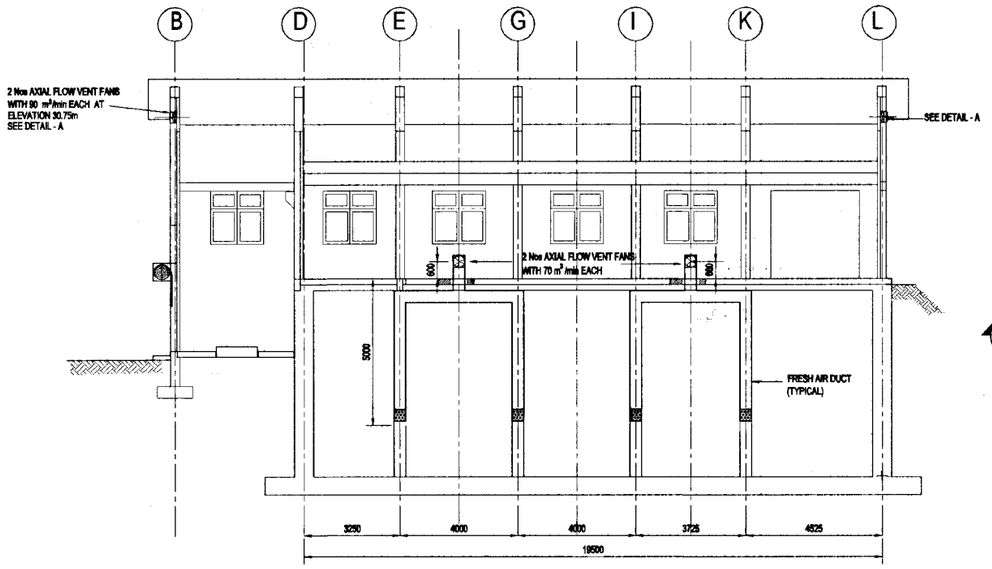
NATIONAL WATER SUPPLY AND DRAINAGE BOARD
THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
STUDY TEAM
NIHON SUIDO CONSULTANTS CO. LTD., TOKYO, JAPAN

SUB PROJECT: KOTIKAWATTA MULLERIYAWA

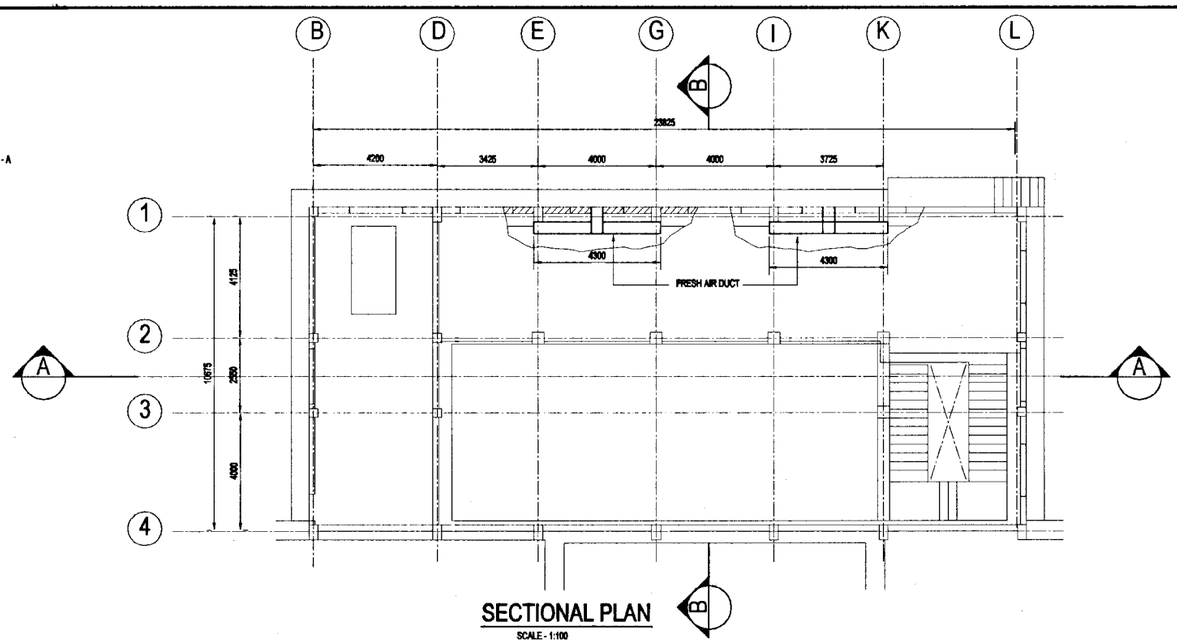
TITLE: GOTHATUWA GROUND RESERVOIR & PUMP HOUSE
DETAILS OF OVERHEAD HOIST

DESIGNED:	DRAWN:	DATE:	JAN 2001
CHECKED:	PM (NRW&WTP) INVEST:	CONTRACT No:	NRW / CW
DY. TEAMLEADER:	A.R.M (P&D) INVEST:	DRG. No:	KMU / GR / M - 04
TEAM LEADER:	D.S.M (P&D) INVEST:		



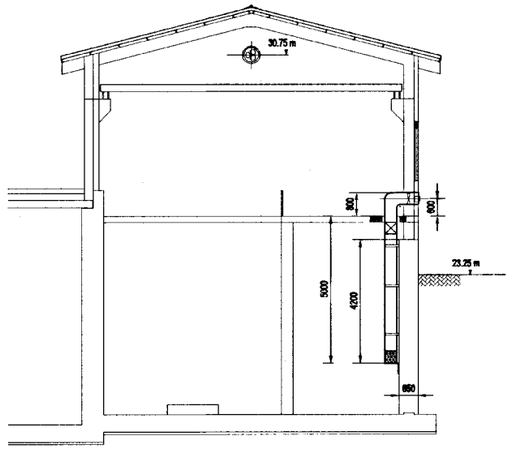
SECTIONAL ELEVATION A-A

SCALE - 1:100



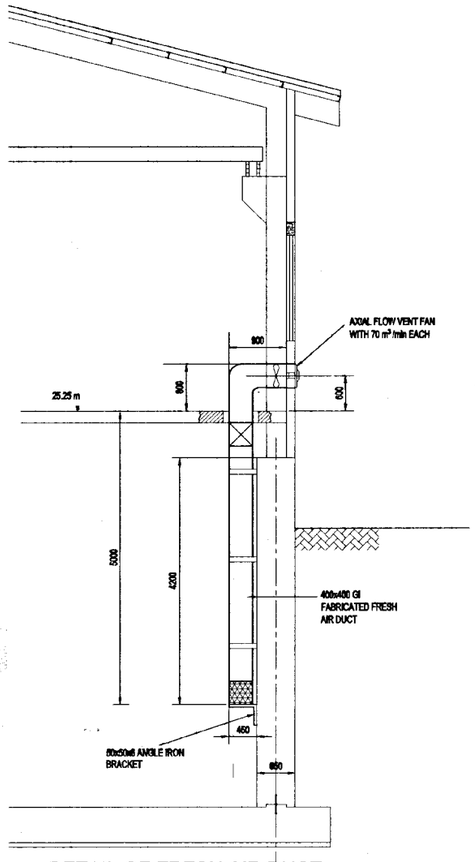
SECTIONAL PLAN

SCALE - 1:100



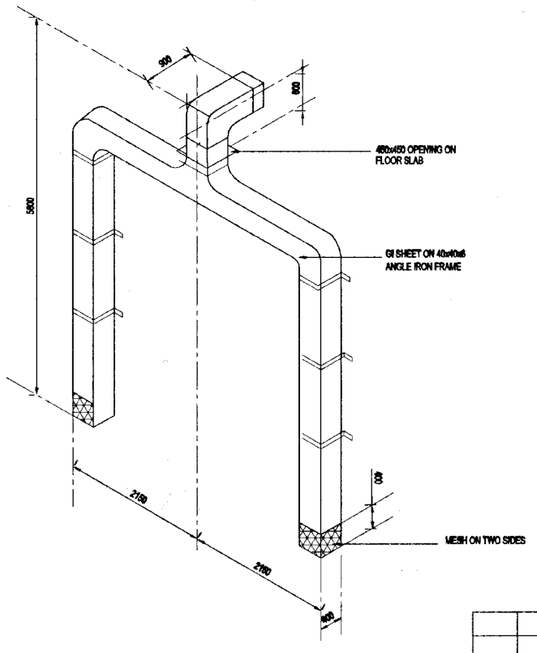
SECTIONAL ELEVATION B-B

SCALE - 1:100

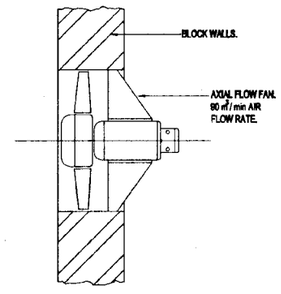


DETAIL OF FRESH AIR DUCT

SCALE - 1:50



ISOMETRIC VIEW (FRESH AIR DUCT)



DETAIL - A

NOT TO SCALE

DO NOT SCALE

REV.	DESCRIPTION

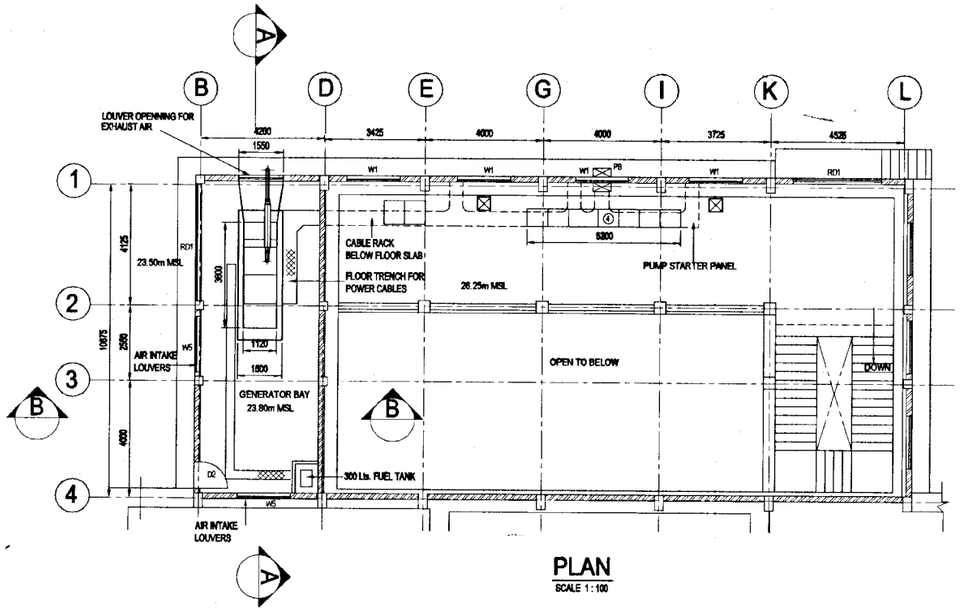
NATIONAL WATER SUPPLY AND DRAINAGE BOARD
THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA

SUB PROJECT: KOTIKAWATTE MULLERIYAWA

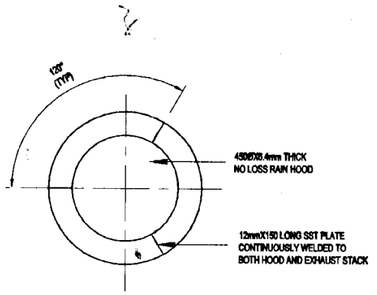
TITLE: GOTHATUWA GROUND RESERVOIR VENTILATION-GOTHATUWA

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
STUDY TEAM
NIHON SUIDO CONSULTANTS CO. LTD., TOKYO, JAPAN

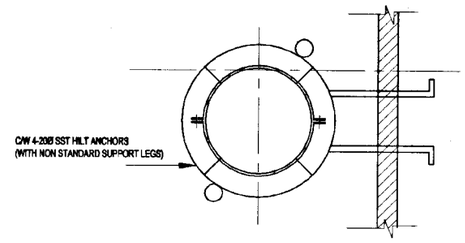
DESIGNED:	DRAWN:	DATE: JAN 2001
CHECKED:	PM (NWS&DB) INVSDR:	CONTRACT No: NRW / CW
DY. TEAM LEADER:	A.G.M (P&D) INVSDR:	DRG. No: KMU/GR/M-05
TEAM LEADER:	D.G.M (P&D) INVSDR:	



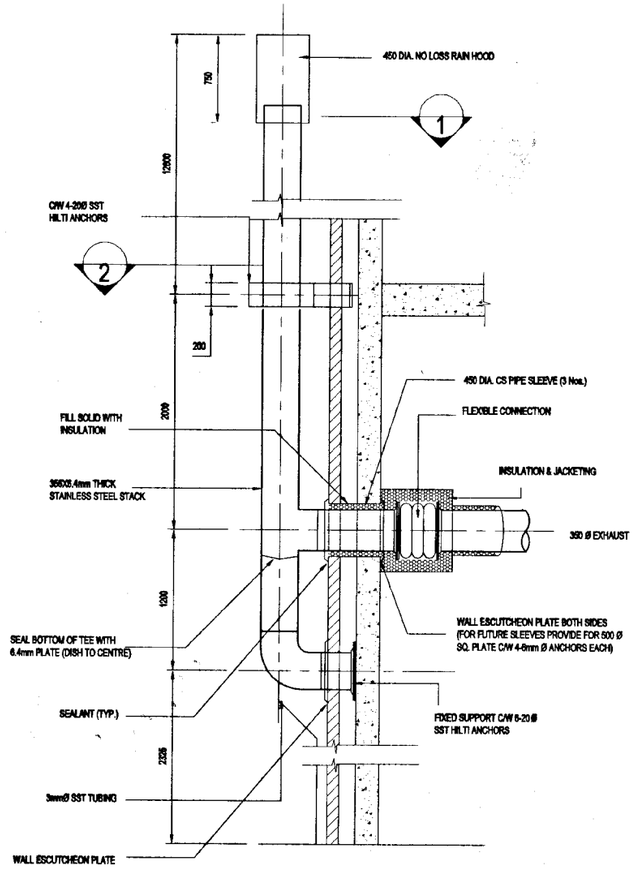
PLAN
SCALE 1 : 100



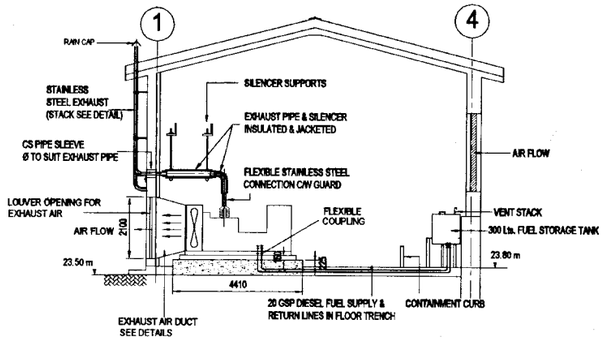
SECTION - 1



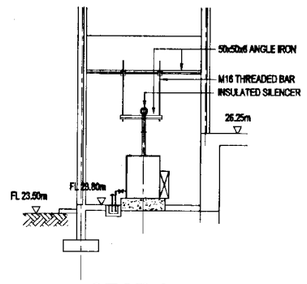
SECTION - 2



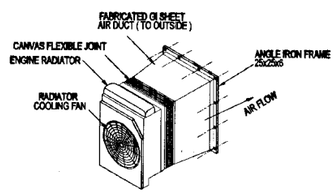
STACK DETAIL
SCALE 1 : 25



SECTION A-A
SCALE 1 : 100



SECTION B-B
SCALE 1 : 100



DETAIL OF EXHAUST AIR DUCT
NOT TO SCALE

DO NOT SCALE

REV.	DESCRIPTION

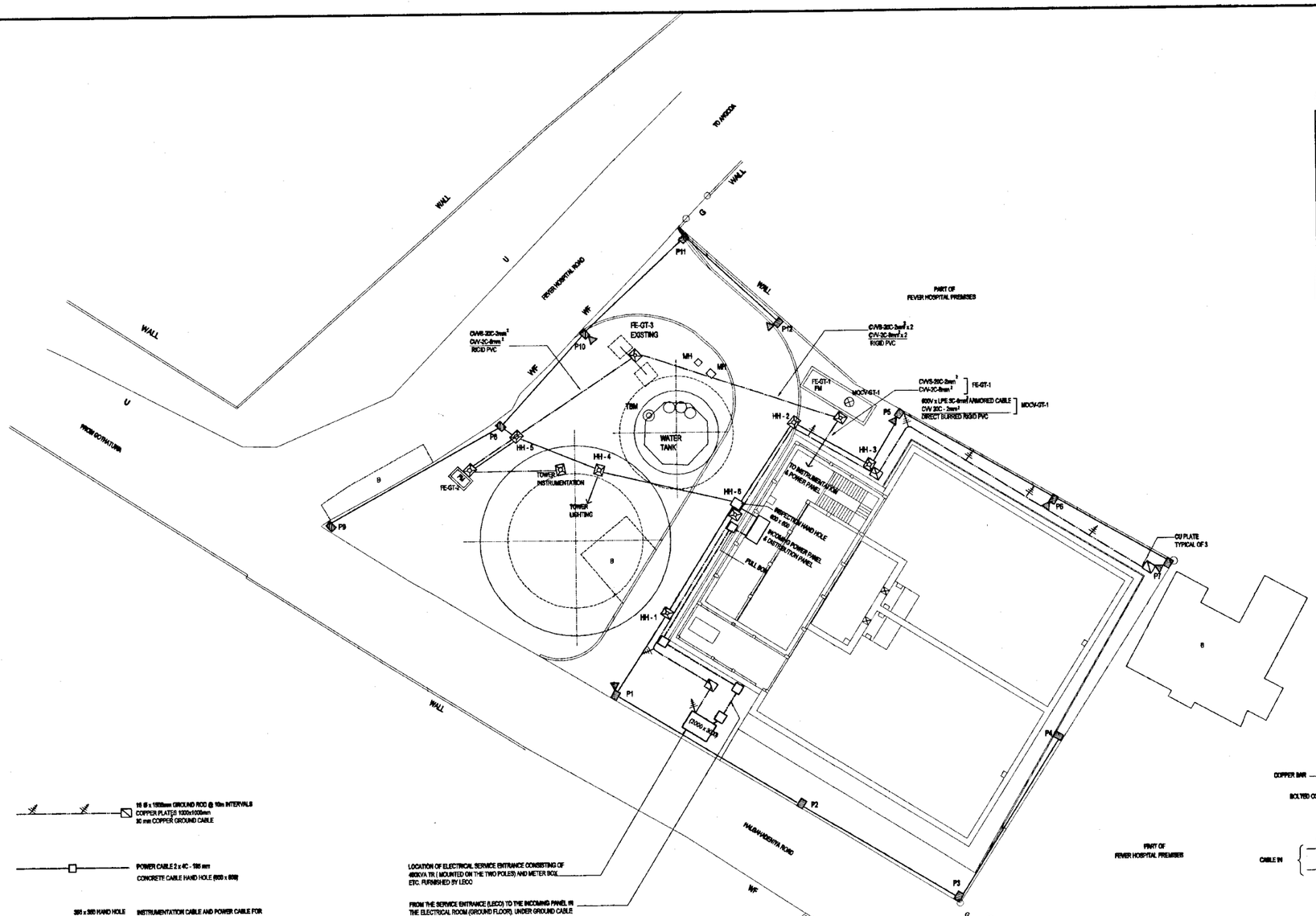
NATIONAL WATER SUPPLY AND DRAINAGE BOARD
THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA

SUB PROJECT: KOTIKAWATTE MULLERIYAWA

TITLE: GOTHATUWA GROUND RESERVOIR & PUMP HOUSE DETAILS OF DIESEL GENERATOR

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) STUDY TEAM
NIHON SUIDO CONSULTANTS CO. LTD., TOKYO, JAPAN

DESIGNED:	DRAWN:	DATE:	JAN 2001
CHECKED:	PM (NWS&DB/PS) NWSDB:	CONTRACT No:	NRW / CW
DY. TEAM LEADER:	A.G.M (P&D) NWSDB:	DRG. No:	KMU/GR/M-06
TEAM LEADER:	D.G.M (P&D) NWSDB:		



CONNECTION BOX

STREET LAMP CABLES

FEEDER NO	ROUTE	SIZE	ROUTE LENGTH
FEEDER 1	MAIN PANEL TO HH5, HH1,P1 P2, P3, P4	4 Sqmm XLPE- 2 CORE ARMOURED.	250 M.
FEEDER 2	MAIN PANEL TO HH6, HH2, HH3 P5, P6, P7	- DO -	185 M.
FEEDER 3	MAIN PANEL TO HH4, HH5, P8 P8 TO P9 P8 TO P10, P11 & P12	- DO -	200 M.

THE THREE STREET LAMPS FEEDERS WILL BE FED FROM DB 2, (VIDE DWG. KMU/GR/E-13)

STREET LAMPS P1, P2, ETC. ALL TYPE 22 ON RC POLES (MIN HEIGHT ABOVE G.L. - 6M)

AT EACH POLE A WEATHER PROOF G.S. CONNECTION BOX SHALL BE MOUNTED 1.5M ABOVE GL, TO HOUSE ITEMS SHOWN BELOW:

DO NOT SCALE

REV.	DESCRIPTION

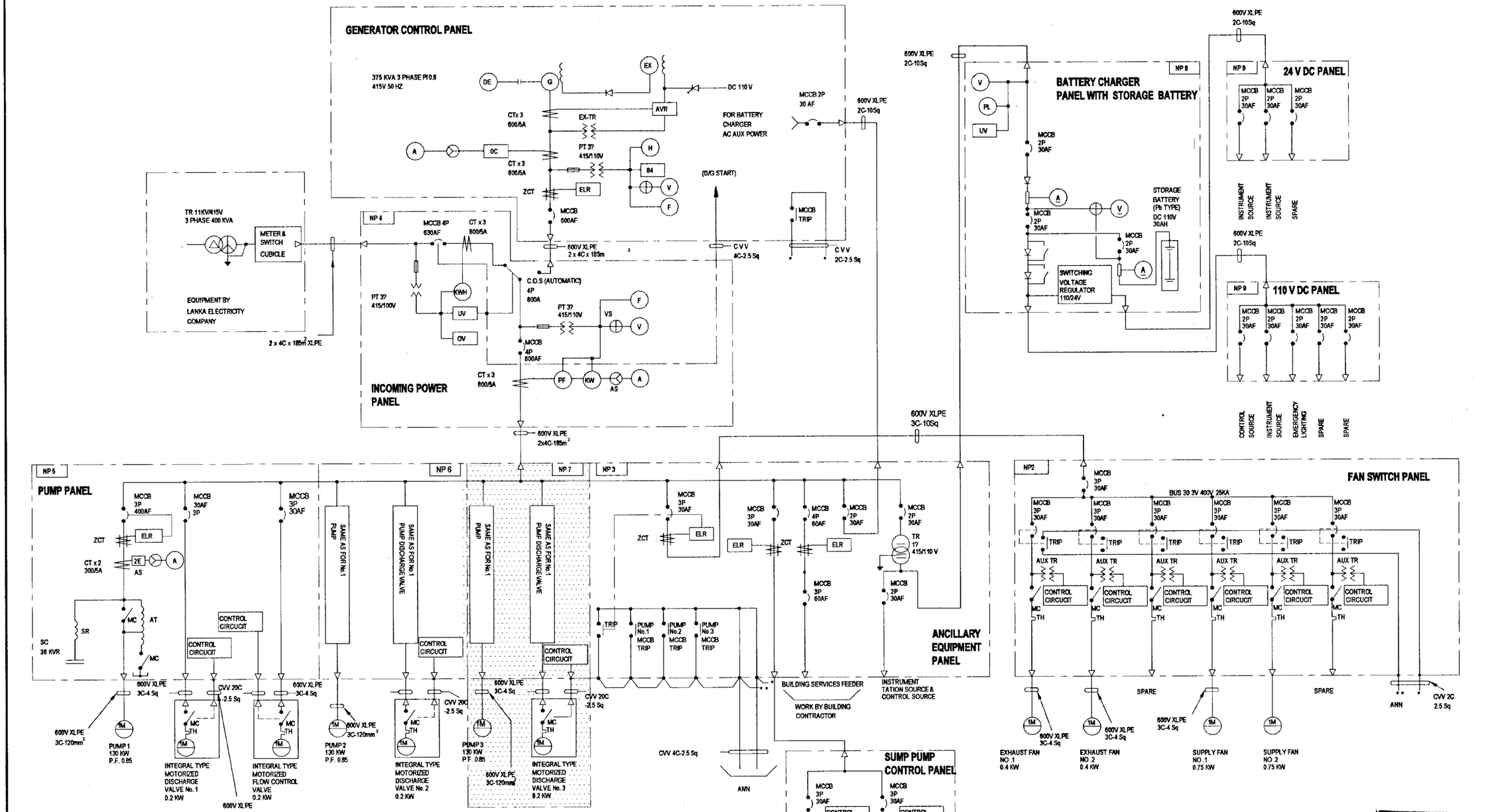
NATIONAL WATER SUPPLY AND DRAINAGE BOARD
THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA

SUB PROJECT: KOTIKAWATTA MULLERIYAWA

TITLE: GOTHATUWA GROUND RESERVOIR & PUMP HOUSE EARTHING, YARD LIGHTING & CABLING

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
STUDY TEAM
NIHON SUIDO CONSULTANTS CO. LTD.,
TOKYO, JAPAN

DESIGNED: H.D. Jayathissa	DRAWN:	DATE: JAN 2001	
CHECKED: H.D. Jayathissa	PM (NIHON SUIDO):	CONTRACT No: NRW / CW	
DY. TEAM LEADER:	A.G.M (P&D) NWSDB: B. D. A. Jayawardena	DRG. No: KMU / GR / E-01	
TEAM LEADER:	G.G.M (P&D) NWSDB:		



PUMP HOUSE MAIN SWITCH BOARD GOTHATUWA						
LOAD DESCRIPTION	R	Y	B	MCCB/MCB		CABLE SIZE
MOV 1	1	1	1	20		3C x 4mm²
MOV 2	1	1	1	20		3C x 4mm²
MOV 3	1	1	1	20		3C x 4mm²
PUMP NO 1	50	50	50	300	DUTY	3C x 120mm²
PUMP NO 2	50	50	50	300	STANDBY	3C x 120mm²
PUMP NO 3	50	50	50	300	FUTURE	3C x 120mm²
INSTRUMANT SUPPLY			2	30	DUTY	2C x 10mm²
EXHAUST FAN	1.5	1.5	1.5	30		3C x 10mm²
TOTAL	177.5	177.5	179.5			
MAIN BREAKER				850		2 x 4C x 185mm²

LEGEND

FUTURE

DO NOT SCALE

REV.	DESCRIPTION

NATIONAL WATER SUPPLY AND DRAINAGE BOARD

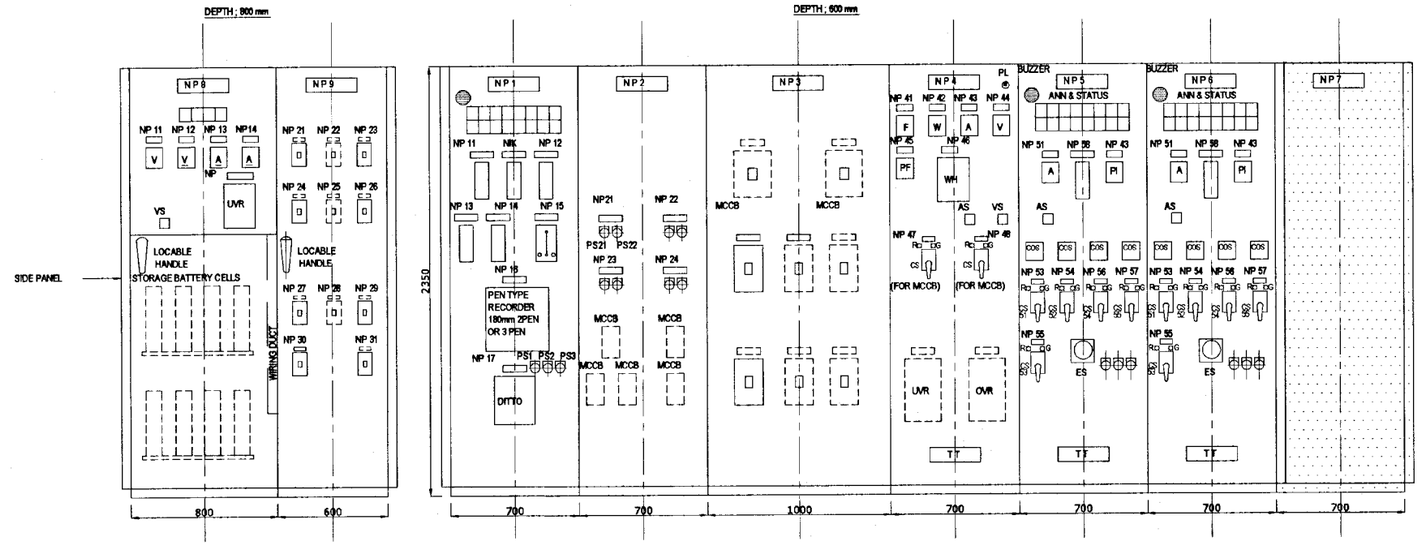
THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
STUDY TEAM
NIHON SUIDO CONSULTANTS CO. LTD.,
TOKYO, JAPAN

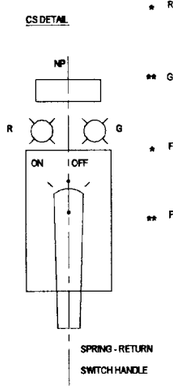
SUB PROJECT: KOTIKAWATTA MULLERIYAWA

TITLE: GOTHATUWA GROUND RESERVOIR & PUMP HOUSE
SINGLE - LINE DIAGRAM

DESIGNED:	DRAWN:	DATE:	JAN 2001
CHECKED:	PM (NRW&GIS) NWSDB:	CONTRACT No:	NRW / CW
DY. TEAM LEADER:	A.G.M (P&D) NWSDB:	DRG. No:	KMU / GR / E-02
TEAM LEADER:	D.G.M (P&D) NWSDB:		



NOTE



* R : RED LAMP (LED) FOR CB CLOSE STATUS INDICATION

** G : GREEN LAMP (LED) FOR CB OPEN / TRIP STATUS INDICATION

* FOR ALSO PUMP "ON" OR VALVE "FULLY OPEN", THIS RED LAMP IS APPLIED

** FOR ALSO PUMP "OFF" OR VALVE "FULLY CLOSE", THIS GREEN LAMP IS APPLIED

NP 1	INSTRUMENT PANEL
NP 11	INFLOW/OUTFLOW m^3/h
NP 12	RESERVOIR/TOWER WL
NP 13	INFLOW ACCUMULATIVE m^3
NP 14	OUTFLOW ACCUMULATIVE m^3
NP 15	FLOPPY DISK DRIVE
NP 16	RECORDER (INFLOW/OUTFLOW/OUTFLOW)
NP 17	RECORDER (RESERVOIR WL/TOWER WL/ EXIST TOWER WL)
NP 18	EXISTING TOWER WL
PS1	PUSH BUTTON SW (LAMP TEST)
PS2	PUSH BUTTON SW (LAMP TEST)
PS3	PUSH BUTTON SW (LAMP TEST)

NP 2	FAN SWITCH PANEL
NP 21	EXHAUST FAN No. 1
NP 22	EXHAUST FAN No. 2
NP 23	SUPPLY FAN No. 1
NP 24	SUPPLY FAN No. 2
PS 21	ON
PS 22	OFF

NP 3	ANCILLARY EQUIPMENT PANEL

NP 4	INCOMING POWER PANEL
NP 41	SYSTEM FREQUENCY
NP 42	SYSTEM POWER
NP 43	SYSTEM CURRENT
NP 44	SYSTEM VOLTAGE
NP 45	SYSTEM POWER FACTOR
NP 46	ENERGY (COMMERCIAL POWER RECEIVING)
NP 47	COMMERCIAL POWER CB
NP 48	SYSTEM CB
AS	AMMETER SELECTOR SW (R-S-T)
VS	VOLTMETER SELECTOR SW (RS-ST-TR)
CS	CONTROL SW (ON-OFF) SPRING RETURN

NP 5	PUMP No. 1 PANEL
NP 51	PUMP CURRENT
NP 52	INFLOW CONTROL VALVE POSITION INDICATOR
NP 53	PUMP INDIVIDUAL OPERATION (FOR CS 51)
NP 54	PUMP/DISCHARGE VALVE LINK UP OPERATION (FOR CS 52)
NP 55	DISCHARGE VALVE INDIVIDUAL OPERATION (FOR CS 53)
NP 56	INFLOW CONTROL VALVE MANUAL OPERATION (FOR CS 54)
NP 57	INFLOW CONTROL VALVE AUTO OPERATION (FOR CS 55)
NP 58	PUMP SUCTION PRESSURE
COS 51	PUMP OPERATION MODE SELECTOR SW (INDIVIDUAL-LINK UP)
COS 52	PUMP SELECTION MODE SW (No.1+No.2-No.2+No.3-No.3+No.1)
COS 53	INFLOW CONTROL VALVE OPERATION MODE SELECTOR SW (MANUAL - AUTO)
COS 54	OVER RIDE SELECTOR SW (OVER RIDE-OFF)
CS 51	CONTROL SW (ON-OFF) SPRING RETURN
CS 52	CONTROL SW (RUN-STOP) SPRING RETURN
CS 53	CONTROL SW (OPEN-CLOSE) SPRING RETURN
CS 54	CONTROL SW (OPEN-CLOSE) SPRING RETURN
CS 55	CONTROL SW (ON-OFF) SPRING RETURN
ES	EMERGENCY STOP SW (PUSH BUTTON)

NP 6	PUMP No. 2 PANEL
NP 51	PUMP CURRENT
NP 52	INFLOW CONTROL VALVE POSITION INDICATOR
NP 53	PUMP INDIVIDUAL OPERATION (FOR CS 51)
NP 54	PUMP/DISCHARGE VALVE LINK UP OPERATION (FOR CS 52)
NP 55	DISCHARGE VALVE INDIVIDUAL OPERATION (FOR CS 53)
NP 56	INFLOW CONTROL VALVE MANUAL OPERATION (FOR CS 54)
NP 57	INFLOW CONTROL VALVE AUTO OPERATION (FOR CS 55)
NP 58	PUMP SUCTION PRESSURE
COS 51	PUMP OPERATION MODE SELECTOR SW (INDIVIDUAL-LINK UP)
COS 52	PUMP SELECTION MODE SW (No.1+No.2-No.2+No.3-No.3+No.1)
COS 53	INFLOW CONTROL VALVE OPERATION MODE SELECTOR SW (MANUAL - AUTO)
COS 54	OVER RIDE SELECTOR SW (OVER RIDE-OFF)
CS 51	CONTROL SW (ON-OFF) SPRING RETURN
CS 52	CONTROL SW (RUN-STOP) SPRING RETURN
CS 53	CONTROL SW (OPEN-CLOSE) SPRING RETURN
CS 54	CONTROL SW (OPEN-CLOSE) SPRING RETURN
CS 55	CONTROL SW (ON-OFF) SPRING RETURN
ES	EMERGENCY STOP SW (PUSH BUTTON)

NP 7	PUMP No. 3 PANEL (FUTURE)

NP 8	BATTERY CHARGER & BATTERY PANEL
NP 11	INPUT AC VOLTAGE
NP 12	CHARGER OUTPUT VOLT/BATTERY TERMINAL
NP 13	BATTERY CHARGE CURRENT
NP 14	BATTERY DISCHARGE CURRENT
VS	DC VOLTMETER SELECTOR SW (CH V - BAT. V)

NP 9	DC (110V/24V) PANEL
NP 21	BATTERY CHARGER INCOMING
NP 22	CHARGER OUT PUT
NP 23	BATTERY / CHARGER INTER CONNECTION
NP 24	DC 24 V FEEDER -1
NP 25	DC 24 V FEEDER -2
NP 26	DC 24 V FEEDER -3
NP 27	DC 110V FEEDER -1
NP 28	DC 110V FEEDER -2
NP 29	DC 110V FEEDER -3
NP 30	DC 110V FEEDER -4
NP 31	DC 110V FEEDER -5

LEGEND :-

NP	NAME PLATE
PS	PUSH BUTTON SWITCH
AS	AMMETER SELECTOR SWITCH
VS	VOLT METER SELECTOR SWITCH
COS	CHANGE OVER SWITCH
CS	CONTROL SWITCH
UVR	UNDER VOLTAGE RELAY
OVR	OVER VOLTAGE RELAY
WH	WATT - HOUR METER
TT	TEST TERMINAL FOR CT OR PT 2RY CIRCUIT

DO NOT SCALE

REV.	DESCRIPTION

NATIONAL WATER SUPPLY AND DRAINAGE BOARD

THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA

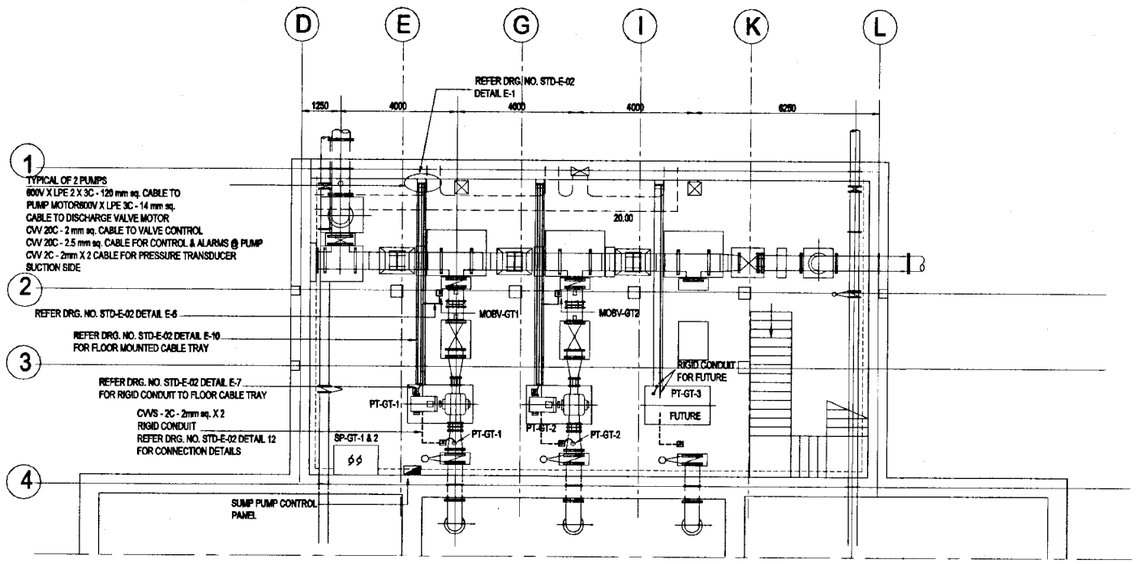
SUB PROJECT: KOTIKAWATTA MULLERIYAWA

TITLE: GOTHATUWA GROUND RESERVOIR & PUMP HOUSE PANEL ARRANGEMENT

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) STUDY TEAM

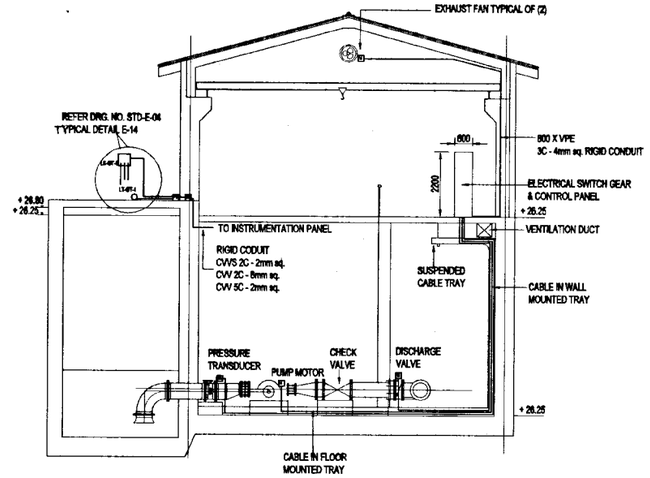
NIHON SUIDO CONSULTANTS CO. LTD., TOKYO, JAPAN

DESIGNED:	DRAWN:	DATE:	JAN 2001
CHECKED:	PM (NRW/WQ) NWSDB:	CONTRACT No:	NRW / CW
DY. TEAM LEADER:	A.G.M (P&D) NWSDB:	DRG. No:	KMU / GR / E-03
TEAM LEADER:	D.G.M (P&D) NWSDB:		



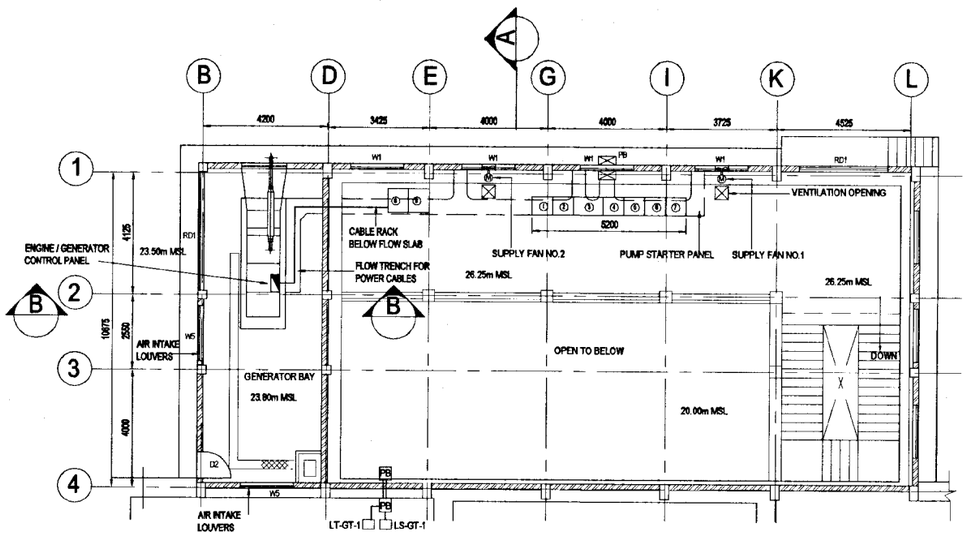
PUMP HOUSE & RESERVOIR PLAN AT 20.00m MSL

SCALE - 1:100



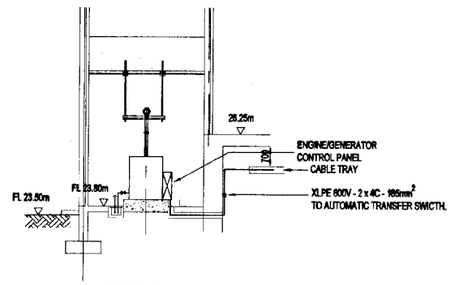
SECTIONAL ELEVATION A

SCALE - 1:100



PLAN

SCALE 1:100



SECTION B-B

SCALE 1:100

DO NOT SCALE

REV.	DESCRIPTION

NATIONAL WATER SUPPLY AND DRAINAGE BOARD

THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA

SUB PROJECT: KOTIKAWATTE MULLERIYAWA

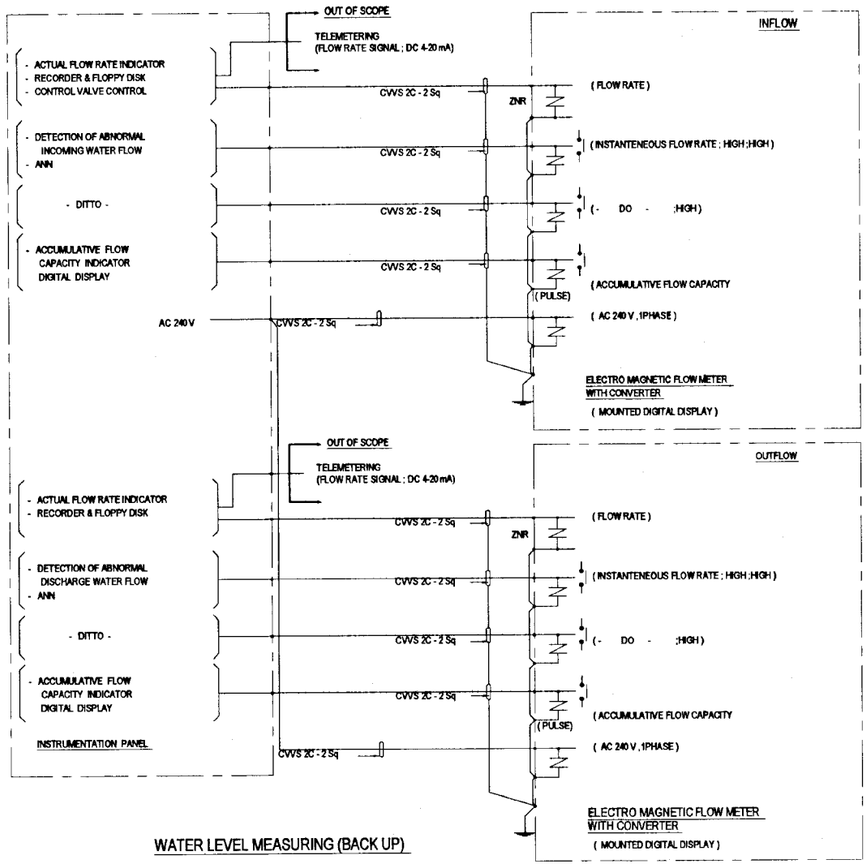
TITLE: GOTHATUWA GROUND RESERVOIR & PUMP HOUSE EQUIPMENT LAYOUT & CABLING

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) STUDY TEAM

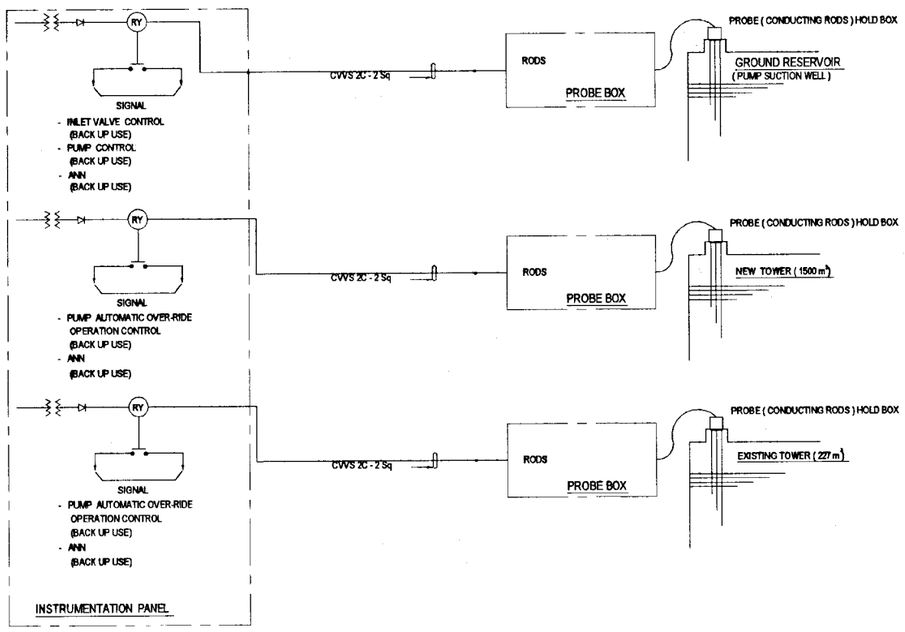
NIHON SUIDO CONSULTANTS CO. LTD., TOKYO, JAPAN

DESIGNED: H.B	DRAWN:	DATE:	JAN 2001
CHECKED: H.B	PM (NRW&SAPS) NWSDB:	CONTRACT No:	NRW / CW
DY. TEAM LEADER:	A.G.M (P&D) NWSDB: R.D.A	DRG. No:	KMU/GR/E-04
TEAM LEADER:	D.G.M (P&D) NWSDB:		

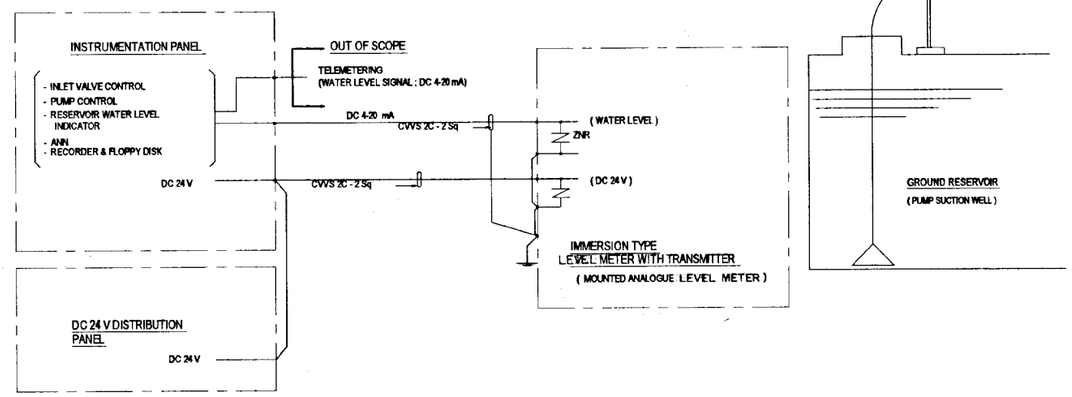
FLOW MEASURING



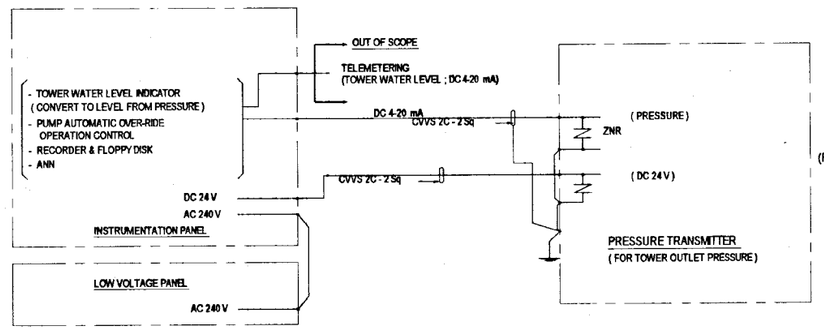
WATER LEVEL MEASURING (BACK UP)



WATER LEVEL MEASURING (MAIN)

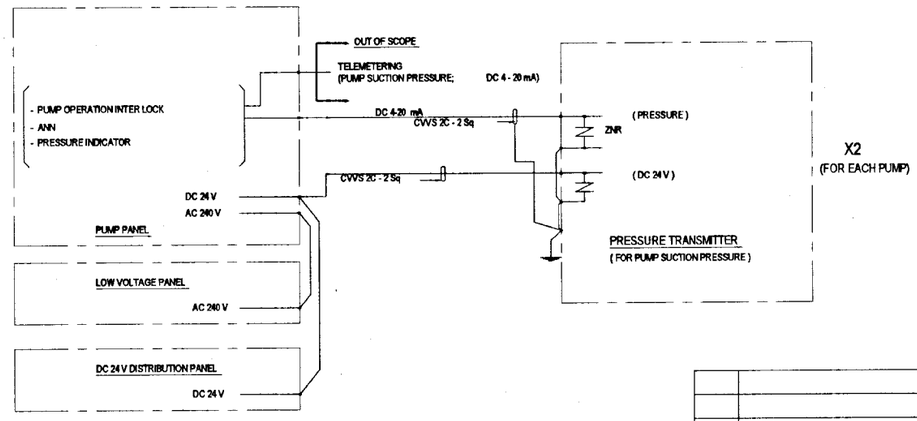


WATER LEVEL MEASURING (MAIN) - PRESSURE METHOD



X2
(FOR EXISTING TOWER AND NEW TOWER)

PUMP SUCTION PRESSURE MEASURING



X2
(FOR EACH PUMP)

DO NOT SCALE

REV.	DESCRIPTION

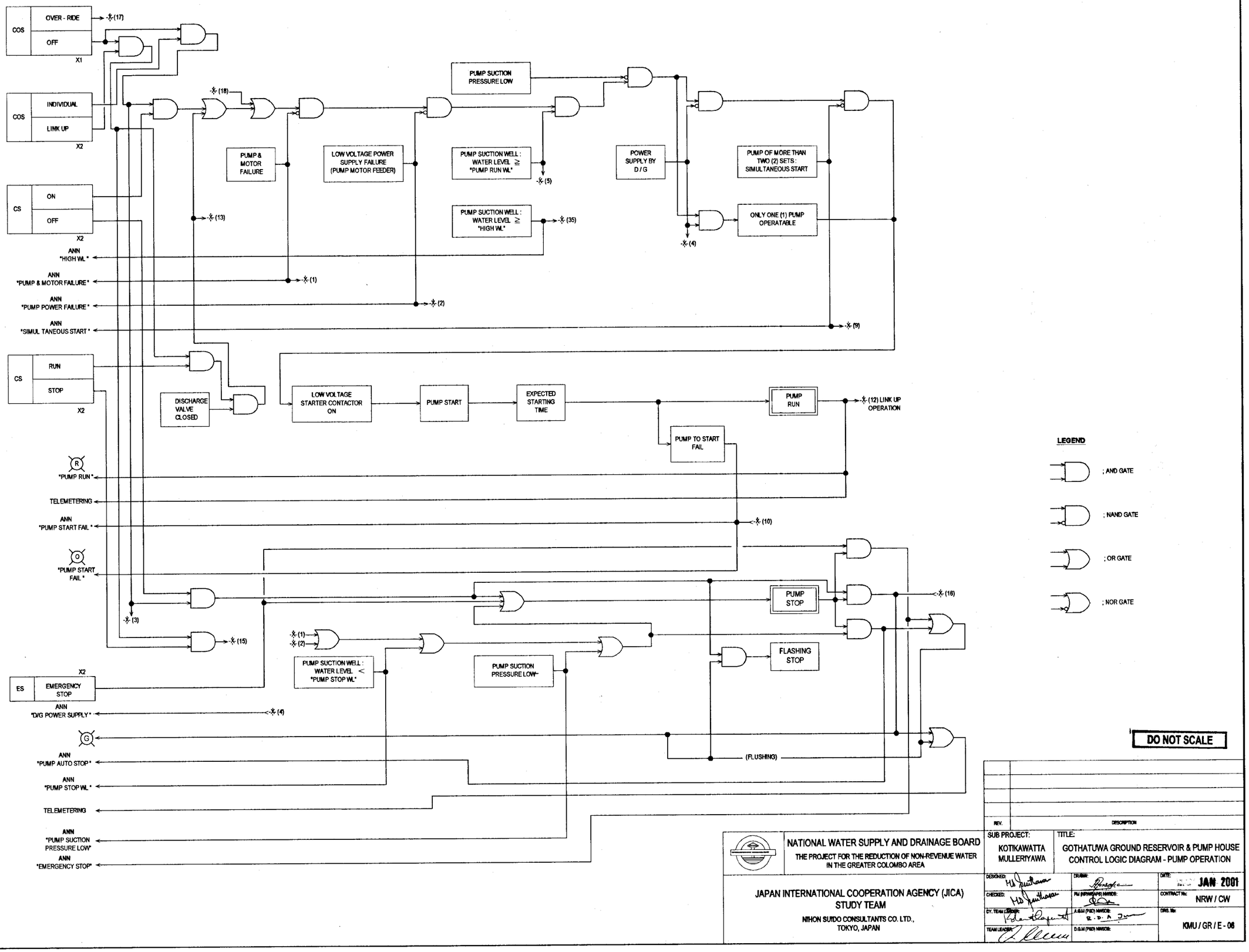
NATIONAL WATER SUPPLY AND DRAINAGE BOARD
THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA

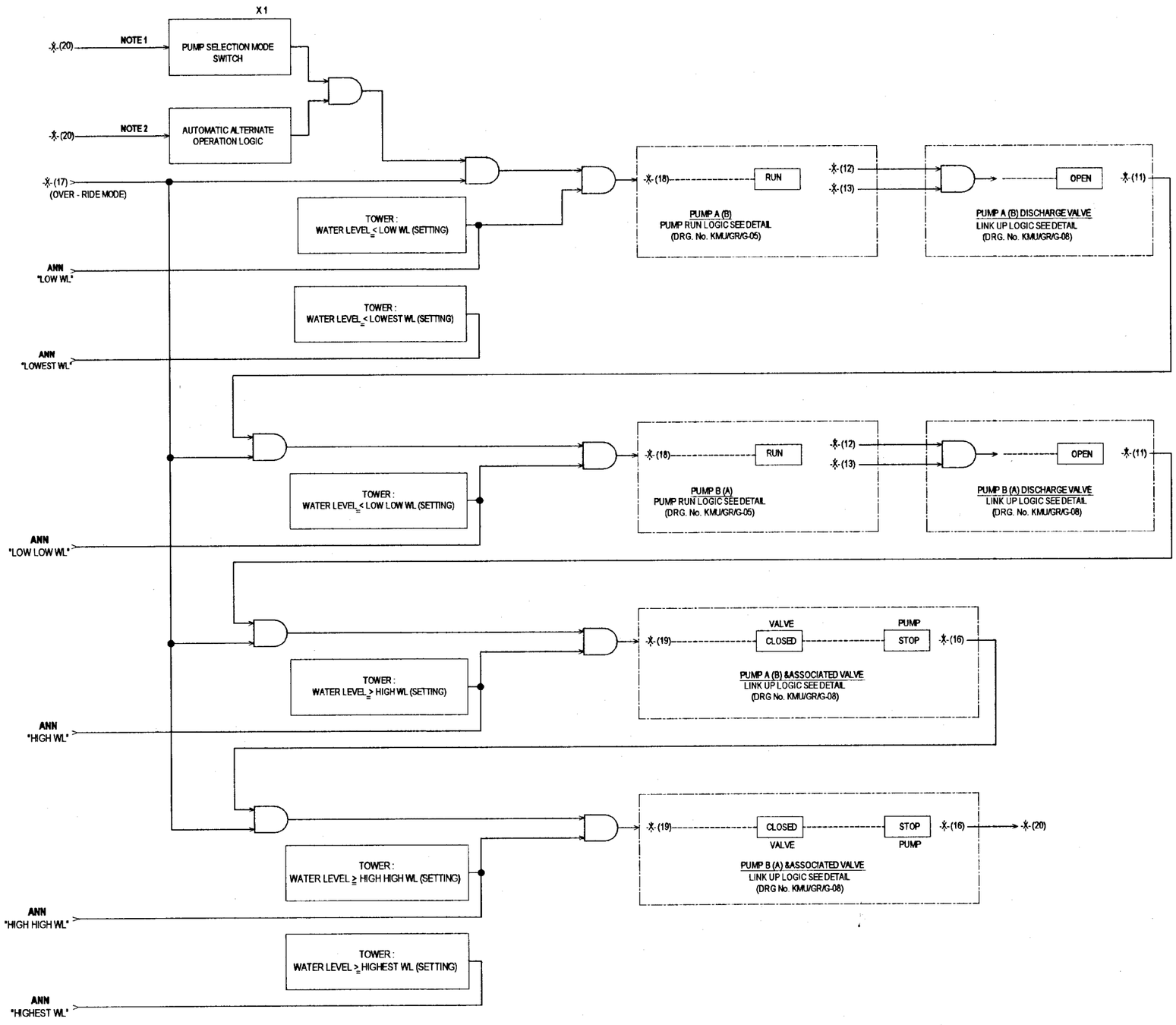
SUB PROJECT: KOTIKAWATTA MULLERIYAWA

TITLE: GOTHATUWA GROUND RESERVOIR & PUMP HOUSE INSTRUMENTATION CONNECTION DIAGRAM

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
STUDY TEAM
NIHON SUIDO CONSULTANTS CO. LTD.,
TOKYO, JAPAN

DESIGNED:	DRAWN:	DATE:	JAN 2001
CHECKED:	PM (NRW&WSS) NWSDB:	CONTRACT No:	NRW / CW
DY. TEAM LEADER:	A.G.M (P&D) NWSDB:	DWG. No:	KMU / GR / E - 05
TEAM LEADER:	D.G.M (P&D) NWSDB:		


COS
OVER - RIDE
OFF
X1
-※(17)
COS
INDIVIDUAL
LINK UP
X2
CS
ON
OFF
X2
CS
RUN
STOP
X2
ES
EMERGENCY STOP
X2
-※(18)
-※(13)
PUMP & MOTOR FAILURE
LOW VOLTAGE POWER SUPPLY FAILURE (PUMP MOTOR FEEDER)
PUMP SUCTION PRESSURE LOW
PUMP SUCTION WELL : WATER LEVEL ≧ "PUMP RUN WL"
-※(5)
PUMP SUCTION WELL : WATER LEVEL ≧ "HIGH WL"
-※(35)
POWER SUPPLY BY D / G
-※(4)
PUMP OF MORE THAN TWO (2) SETS : SIMULTANEOUS START
ONLY ONE (1) PUMP OPERATABLE
-※(9)
ANN "HIGH WL"
ANN "PUMP & MOTOR FAILURE"
-※(1)
ANN "PUMP POWER FAILURE"
-※(2)
ANN "SIMUL TANEOUS START"
DISCHARGE VALVE CLOSED
LOW VOLTAGE STARTER CONTACTOR ON
PUMP START
EXPECTED STARTING TIME
PUMP RUN
-※(12) LINK UP OPERATION
PUMP TO START FAIL
R
"PUMP RUN"
TELEMETERING
ANN "PUMP START FAIL"
-※(10)
O
"PUMP START FAIL"
-※(3)
-※(15)
PUMP STOP
-※(16)
FLASHING STOP
-※(1)
-※(2)
PUMP SUCTION WELL : WATER LEVEL ≦ "PUMP STOP WL"
PUMP SUCTION PRESSURE LOW
ANN "D/G POWER SUPPLY"
-※(4)
G
ANN "PUMP AUTO STOP"
ANN "PUMP STOP WL"
TELEMETERING
ANN "PUMP SUCTION PRESSURE LOW"
ANN "EMERGENCY STOP"
(FLUSHING)
LEGEND
; AND GATE
; NAND GATE
; OR GATE
; NOR GATE
DO NOT SCALE
REV.
DESCRIPTION
NATIONAL WATER SUPPLY AND DRAINAGE BOARD
THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
STUDY TEAM
NIHON SUIDO CONSULTANTS CO. LTD., TOKYO, JAPAN
SUB PROJECT:
KOTIKAWATTA MULLERIYAWA
TITLE:
GOTHATUWA GROUND RESERVOIR & PUMP HOUSE CONTROL LOGIC DIAGRAM - PUMP OPERATION
DESIGNED:
DRAWN:
DATE:
JAN 2001
CHECKED:
PM (NRW&WPS) NWSDB:
CONTRACT No:
NRW / CW
DY. TEAM LEADER:
A.G.M (P&D) NWSDB:
DRG. No:
KMU / GR / E - 06
TEAM LEADER:
D.G.M (P&D) NWSDB:



LEGEND

; AND GATE

; NAND GATE

; OR GATE

; NOR GATE

NOTE 1 PUMP SELECTION MODE (2 OF 3 PUMPS IS OPERATED);
A+B ------No. 1 + No. 2 / No. 2 + No. 3 / No. 3 + No. 1

NOTE 2 AUTOMATIC ALTERNATE OPERATION ;
A (ON) → B (ON) → A (OFF) → B (OFF) → B (ON) A (ON)

DO NOT SCALE

REV.	DESCRIPTION

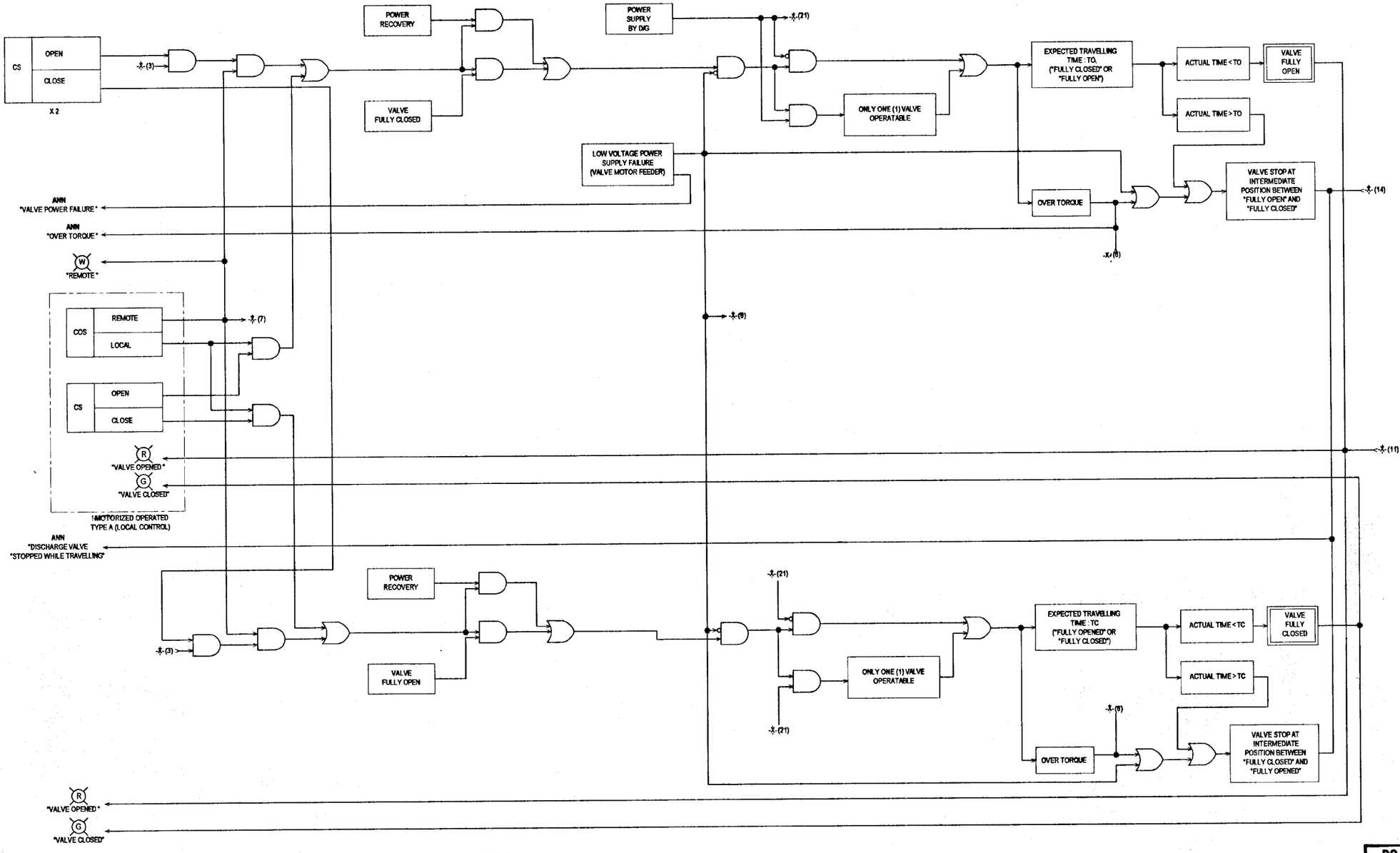
NATIONAL WATER SUPPLY AND DRAINAGE BOARD
THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
STUDY TEAM
NIHON SUIDO CONSULTANTS CO. LTD.,
TOKYO, JAPAN

SUB PROJECT: KOTIKAWATTA MULLERIYAWA

TITLE: GOTHATUWA GROUND RESERVOIR & PUMP HOUSE CONTROL LOGIC DIAGRAM - AUTOMATIC OVERIDE OPERATION

DESIGNED:	DRAWN:	DATE: JAN 2001
CHECKED:	PM (NRW/GR/PS) NWSDB:	CONTRACT No.: NRW / CW
DY. TEAM LEADER:	A.G.M (P&D) NWSDB:	DRG. No.: KMU / GR / E - 07
TEAM LEADER:	D.G.M (P&D) NWSDB:	



LEGEND

; AND GATE

; NAND GATE

; OR GATE

; NOR GATE

DO NOT SCALE

REV.	DESCRIPTION

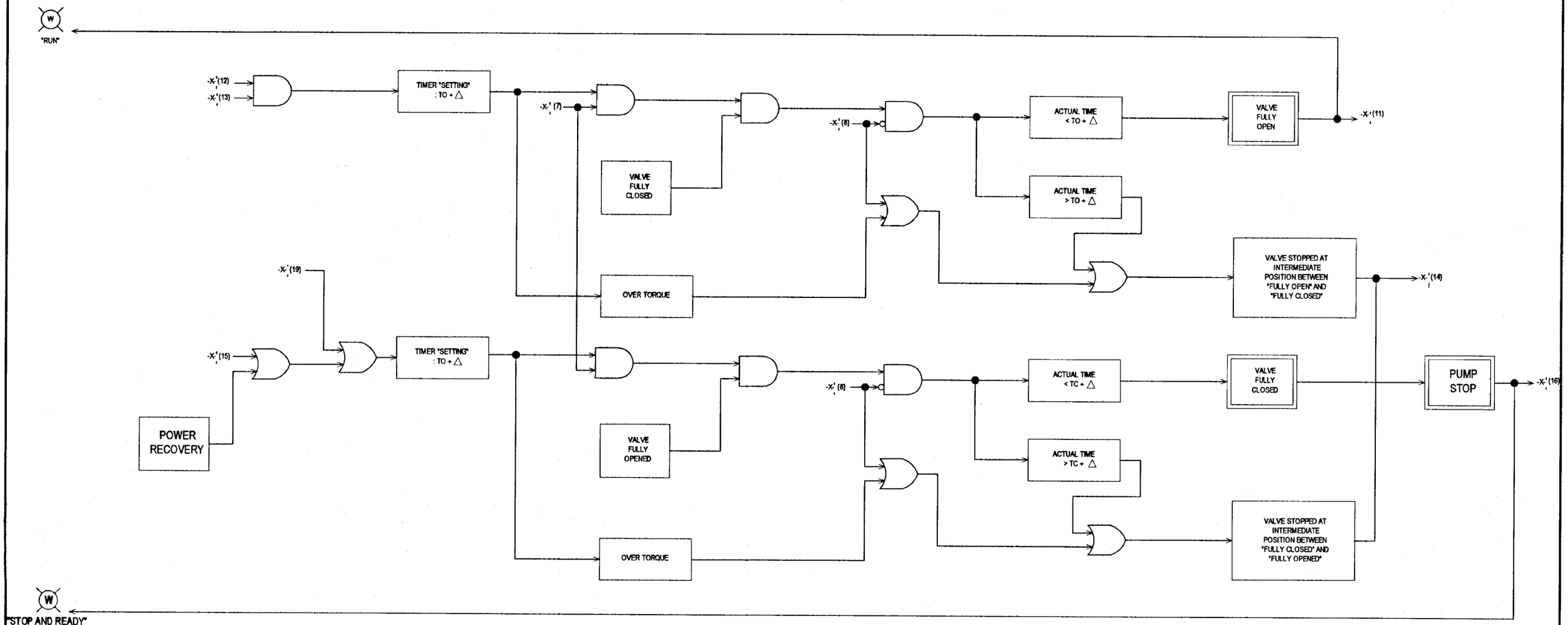
NATIONAL WATER SUPPLY AND DRAINAGE BOARD
THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
STUDY TEAM
NIHON SUIDO CONSULTANTS CO. LTD., TOKYO, JAPAN

SUB PROJECT: KOTIKAWATTA MULLERIYAWA

TITLE: GOTHATUWA GROUND RESERVOIR & PUMP HOUSE CONTROL LOGIC DIAGRAME - DISCHARGE VALVE

DESIGNED:	DRAWN:	DATE:	JAN 2001
CHECKED:	PM (NRW&MIS) NWSDB:	CONTRACT No:	NRW / CW
DY. TEAM LEADER:	A&M (P&D) NWSDB:	DRG. No:	KMU / GR / E - 08
TEAM LEADER:	D.D.M (P&D) NWSDB:		



LEGEND

; AND GATE

; NAND GATE

; OR GATE

; NOR GATE

DO NOT SCALE

REV.	DESCRIPTION

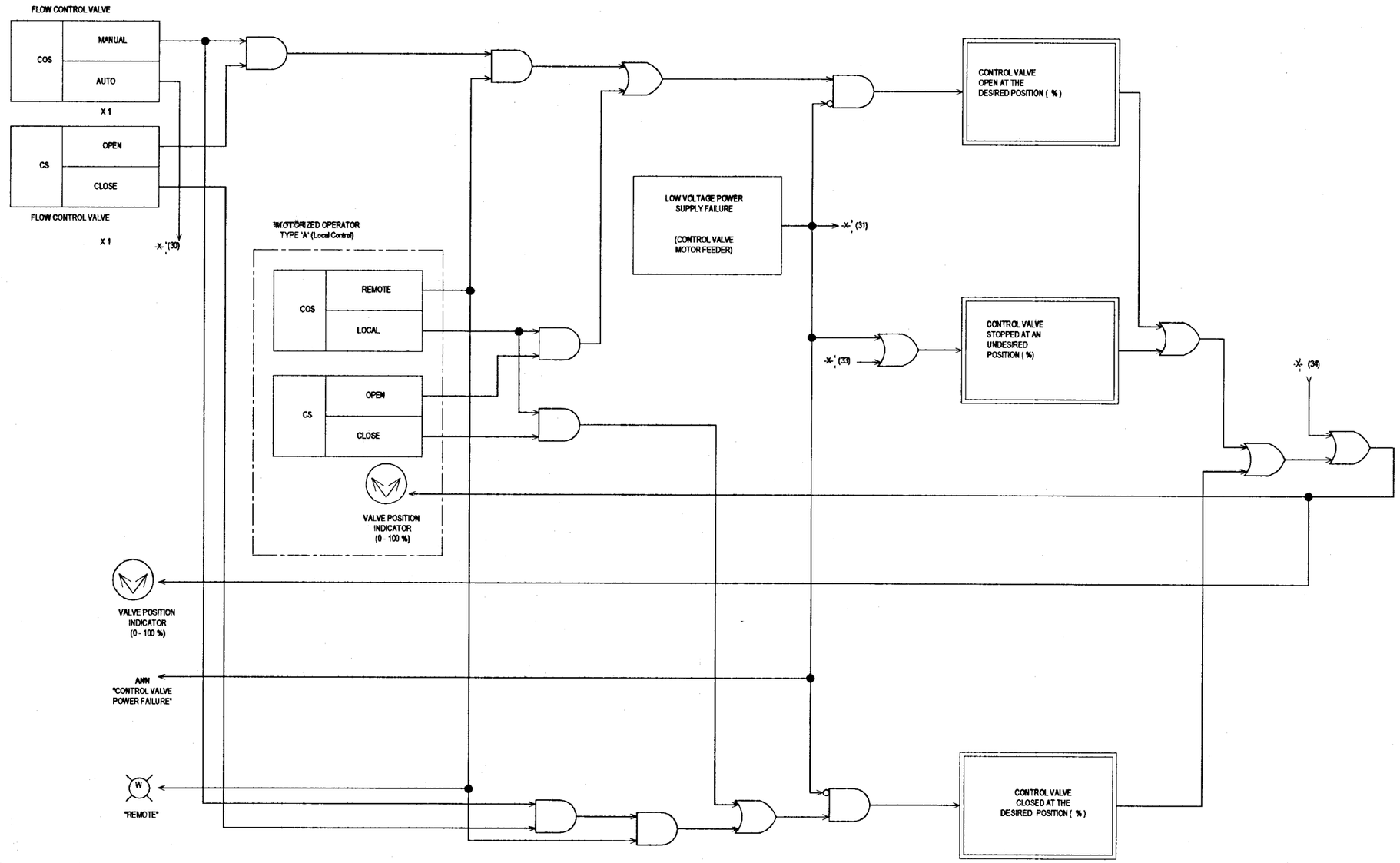
NATIONAL WATER SUPPLY AND DRAINAGE BOARD
THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA

SUB PROJECT: KOTIKAWATTA MULLERIYAWA

TITLE: GOTHATUWA GROUND RESERVOIR & PUMP HOUSE CONTROL LOGIC DIAGRAM - LINK UP OPERATION

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
STUDY TEAM
NIHON SUIDO CONSULTANTS CO. LTD., TOKYO, JAPAN

DESIGNED:	DRAWN:	DATE:	JAN 2001
CHECKED:	PM (NWS&DB) NAME/DB:	CONTRACT No:	NRW / CW
DY. TEAM LEADER:	A.G.M (P&D) NAME/DB:	DRG. No:	KMU / GR / E - 09
TEAM LEADER:	D.G.M (P&D) NAME/DB:		



LEGEND

; AND GATE

; NAND GATE

; OR GATE

; NOR GATE

DO NOT SCALE

REV.	DESCRIPTION

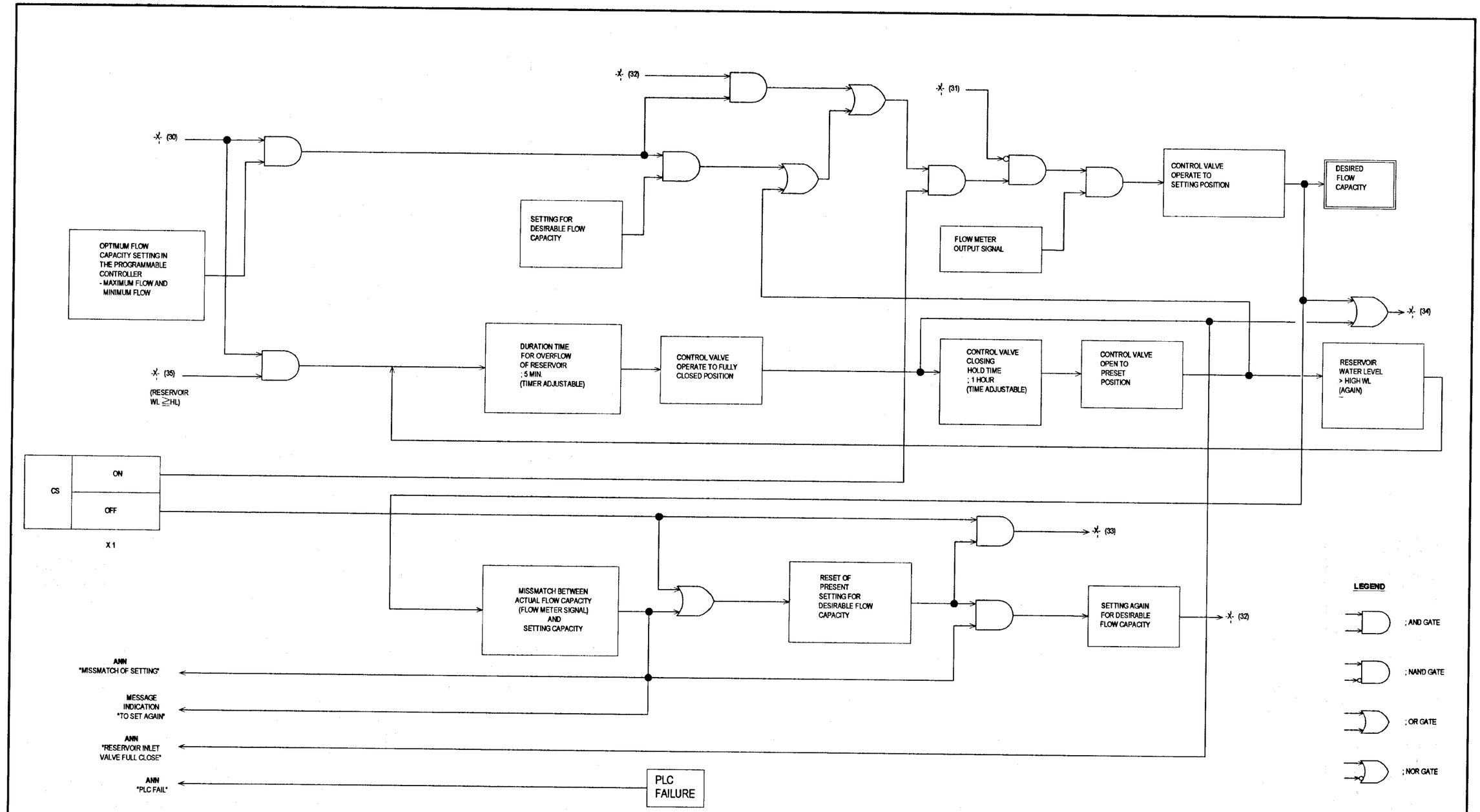
NATIONAL WATER SUPPLY AND DRAINAGE BOARD
THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA

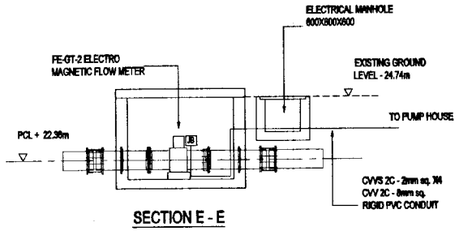
SUB PROJECT: KOTIKAWATTA MULLERIYAWA

TITLE: GOTHATUWA GROUND RESERVOIR & PUMP HOUSE CONTROL LOGIC DIAGRAM - FLOW CONTROL VALVE (MANUAL)

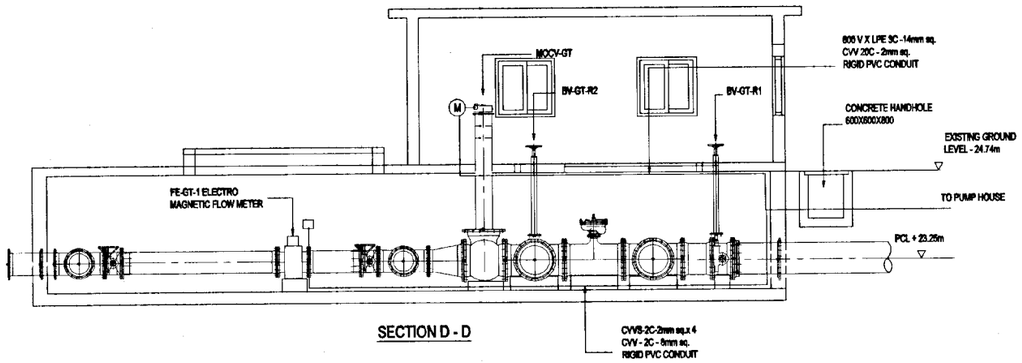
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
STUDY TEAM
NIHON SUIDO CONSULTANTS CO. LTD.,
TOKYO, JAPAN

DESIGNED:	DRAWN:	DATE: JAN 2001
CHECKED:	PM (NWS&DB) INVSOR:	CONTRACT No: NRW / CW
DY. TEAM LEADER:	A.G.M (P&D) INVSOR:	DRG. No: KMU / GR / E - 10
TEAM LEADER:	D.G.M (P&D) INVSOR:	

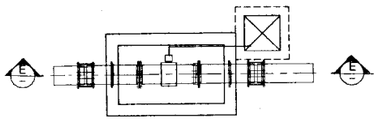

(32)
(31)
(30)
SETTING FOR DESIRABLE FLOW CAPACITY
OPTIMUM FLOW CAPACITY SETTING IN THE PROGRAMMABLE CONTROLLER - MAXIMUM FLOW AND MINIMUM FLOW
FLOW METER OUTPUT SIGNAL
CONTROL VALVE OPERATE TO SETTING POSITION
DESIRED FLOW CAPACITY
(34)
(35)
(RESERVOIR WL ≧HL)
DURATION TIME FOR OVERFLOW OF RESERVOIR ; 5 MIN. (TIMER ADJUSTABLE)
CONTROL VALVE OPERATE TO FULLY CLOSED POSITION
CONTROL VALVE CLOSING HOLD TIME ; 1 HOUR (TIME ADJUSTABLE)
CONTROL VALVE OPEN TO PRESET POSITION
RESERVOIR WATER LEVEL > HIGH WL (AGAIN)
CS
ON
OFF
X 1
(33)
MISSMATCH BETWEEN ACTUAL FLOW CAPACITY (FLOW METER SIGNAL) AND SETTING CAPACITY
RESET OF PRESENT SETTING FOR DESIRABLE FLOW CAPACITY
SETTING AGAIN FOR DESIRABLE FLOW CAPACITY
(32)
ANN "MISSMATCH OF SETTING"
MESSAGE INDICATION "TO SET AGAIN"
ANN "RESERVOIR INLET VALVE FULL CLOSE"
ANN "PLC FAIL"
PLC FAILURE
LEGEND
; AND GATE
; NAND GATE
; OR GATE
; NOR GATE
DO NOT SCALE
REV.
DESCRIPTION
NATIONAL WATER SUPPLY AND DRAINAGE BOARD
THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) STUDY TEAM
NTHON SUIDO CONSULTANTS CO. LTD., TOKYO, JAPAN
SUB PROJECT:
KOTIKAWATTA MULLERIYAWA
TITLE:
GOTHATUWA GROUND RESERVOIR & PUMP HOUSE CONTROL LOGIC DIAGRAM - FLOW CONTROL VALVE (AUTOMATIC)
DESIGNED:
DRAWN:
DATE: JAN 2001
CHECKED:
PM (NRW&RW) NWSDB:
CONTRACT No: NRW / CW
DY. TEAM LEADER:
A.G.M (P&D) NWSDB:
TEAM LEADER:
D.G.M (P&D) NWSDB:
DRG. No: KMU / GR / E - 11



SECTION E - E

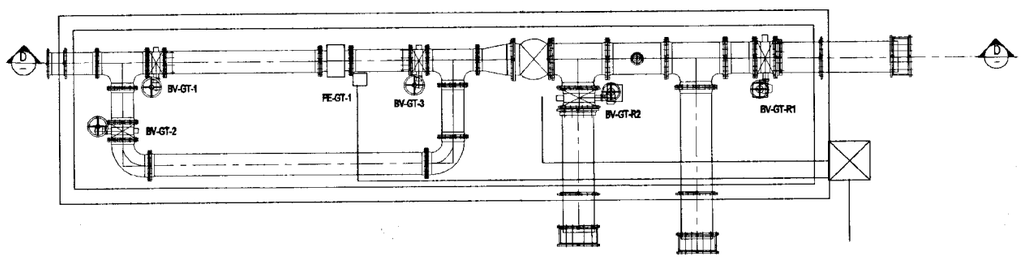


SECTION D - D



PLAN OF TANK OUTLET
FLOW METER CHAMBER

SCALE - 1:50



DETAIL - 1

PLAN OF INLET VALVE CHAMBER

SCALE - 1:50

DO NOT SCALE

REV.	DESCRIPTION

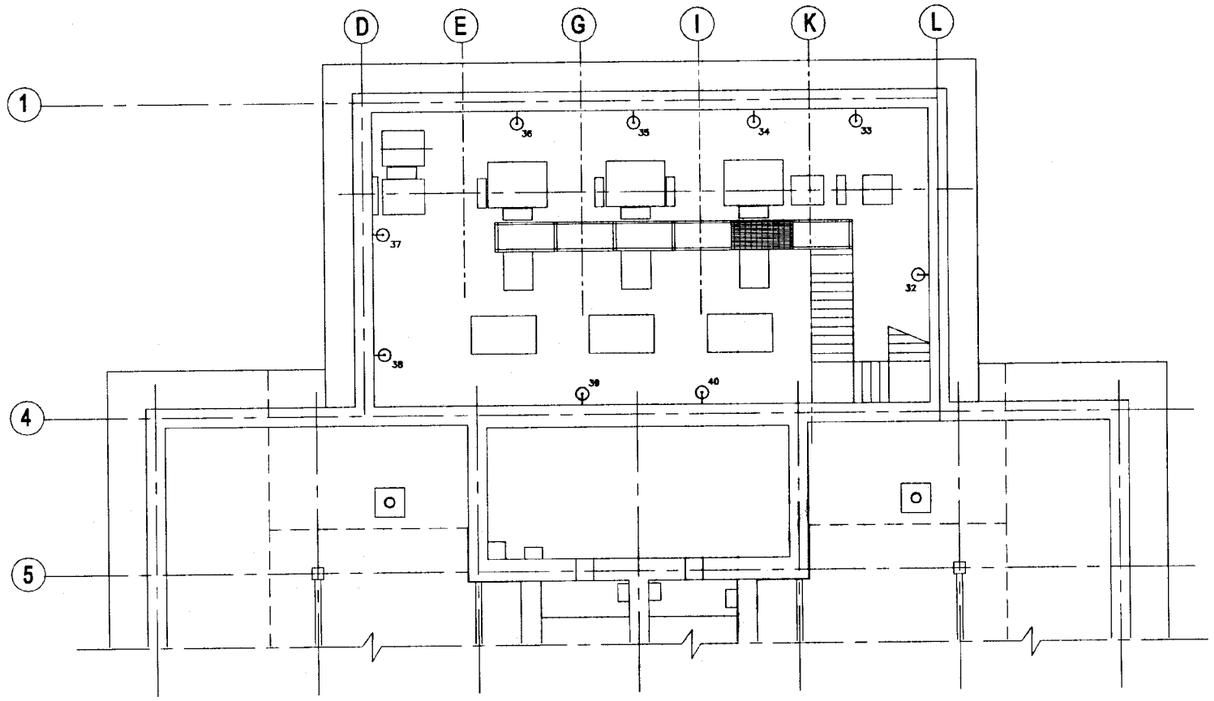
NATIONAL WATER SUPPLY AND DRAINAGE BOARD
THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
STUDY TEAM
NIHON SUIDO CONSULTANTS CO. LTD.,
TOKYO, JAPAN

SUB PROJECT: KOTIKAWATTE/ MULLERIYAWA

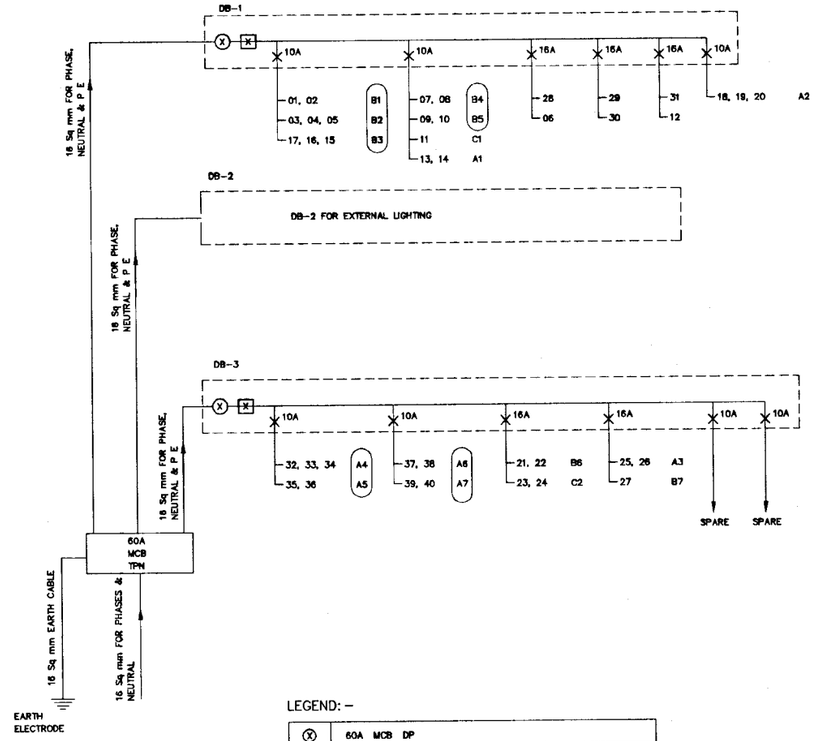
TITLE: GOTHATUWA GROUND RESERVOIR & PUMP HOUSE FLOW METER CHAMBERS ELECTRICAL POWER & INSTRUMENTATION

DESIGNED: H.S. Jayathunga	DRAWN:	DATE: JAN 2001
CHECKED: H.S. Jayathunga	PM (NRW&WTP) NWSDB:	CONTRACT No: NRW / CW
DY. TEAM LEADER:	A.G.M (P&D) NWSDB: R. D. A. Jayasinghe	DRG. No: KMU/GR/E-12
TEAM LEADER:	D.G.M (P&D) NWSDB:	



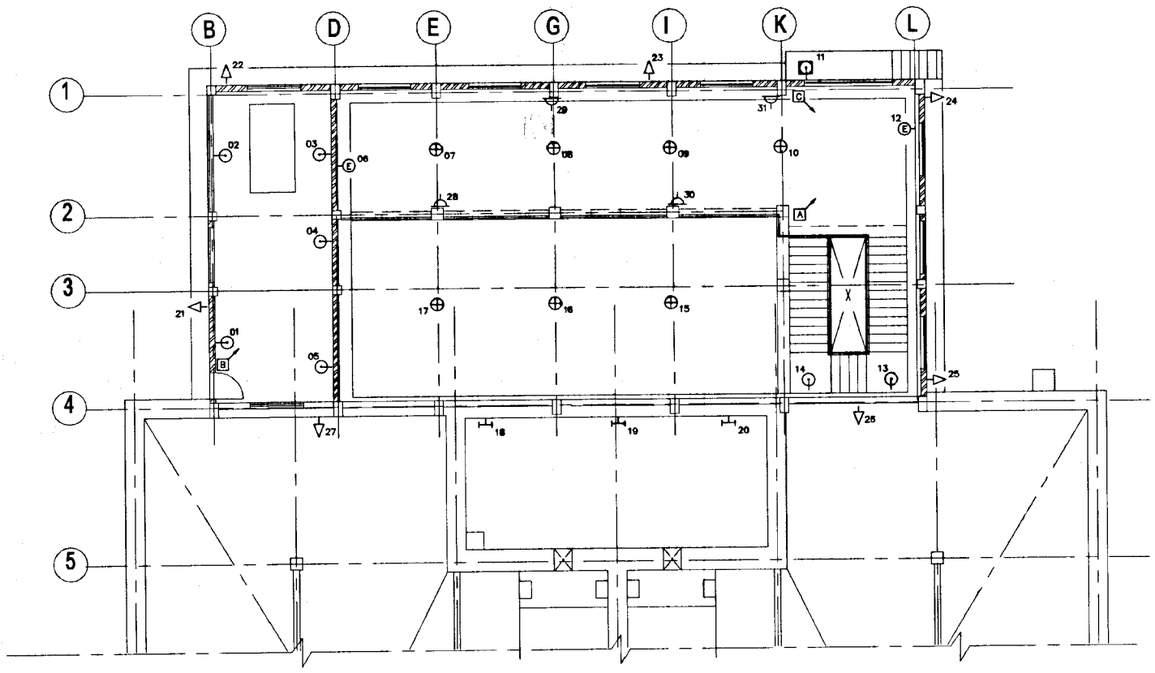
PUMP HOUSE & RESERVOIR PLAN AT 21.00m MSL

SCALE - 1:100



LEGEND: –

⊗	60A MCB DP
⊠	60A RCCB (50 mA)
	MCB'S (S. P.) 10A OR 16A AS MARKED
▷	YARD LAMPS TYPE 22
⊕	WALL MOUNTED FLUORESCENT LUMINAIRE TYPE 19 (MOUNTED VERTICALLY)
⊢	FLUORESCENT LAMP (TYPE 27) MOUNTED HORIZONTALLY ON WALL OR UNDER CONCRETE SLAB
⊕	HIGH BAY LAMP FITTING (TYPE 28) FIXED TO ROOF MEMBER
Ⓔ	EMERGENCY LAMP (TYPE 25) CONNECTED VIA SOCKET OUTLET
▷	SOCKET OUTLET (13A)
A	SWITCH POSITION
⊡	WEATHER PROOF LAMP – TYPE 7



PUMP HOUSE & RESERVOIR PLAN AT 26.25m MSL

SCALE - 1:100

NOTES: –

THE DB ACCOMMODATES THE DOUBLE POLE MCB, THE RCCB AND THE MCB'S PROTECTING THE OUT GOING SUB-CIRCUITS.

60A MCB TPN & THE THREE LDB'S ARE LOCATED ABOVE THE SWITCH POSITION B.

DO NOT SCALE

REV.	DESCRIPTION

NATIONAL WATER SUPPLY AND DRAINAGE BOARD

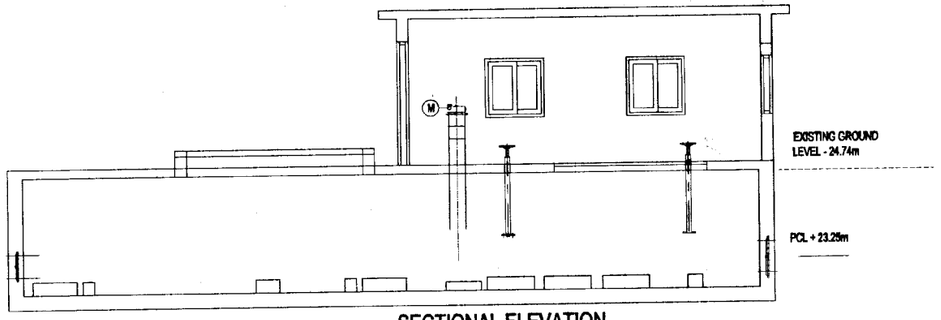
THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
STUDY TEAM
NIHON SUIDO CONSULTANTS CO. LTD.,
TOKYO, JAPAN

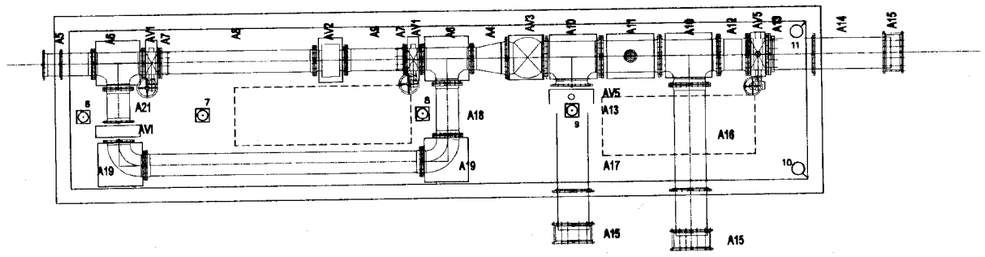
SUB PROJECT: KOTIKAWATTE MULLERIYAWA

TITLE: GOTHATUWA GROUND RESERVOIR & PUMP HOUSE LIGHTING AND SMALL POWER

DESIGNED:	DRAWN:	DATE: JAN 2001
CHECKED:	PM (NRW&SAPS) NWSDB:	CONTRACT No: NRW / CW
DY. TEAM LEADER:	A.G.M (P&D) NWSDB:	DRG. No: KMU / GR / E-13
TEAM LEADER:	D.G.M (P&D) NWSDB:	

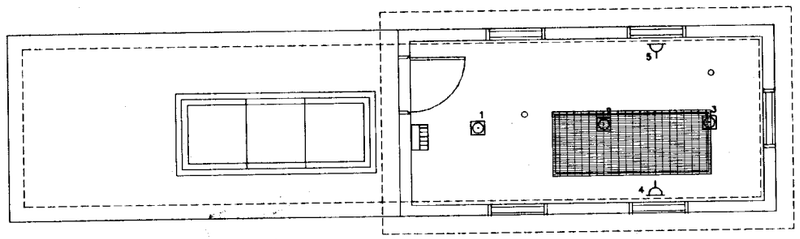


SECTIONAL ELEVATION



DETAIL - 1
PLAN OF INLET VALVE CHAMBER

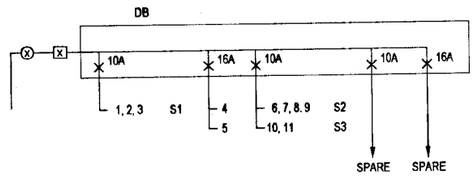
SCALE - 1:200



FLOOR PLAN AT 25.0 MSL

SCALE - 1:50

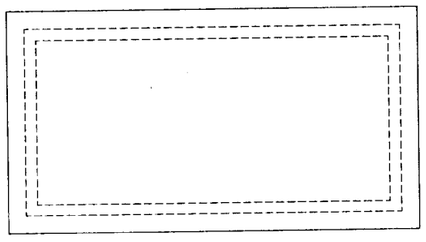
WIRING SCHEME



SWITCHES S1, S2 & S3 ARE LOCATED UNDER DB.

LEGEND:-

⊗	MCB 30A DP
⊠	RCCB 30A DP
×	MCB (SP) RATING AS MARKED
▽	SOCKET OUTLET ON WALLS/COLUMNS
⊡	BULK-HEAD TYPE LUMINAIRE TYPE 7
Q	SUSPENDED LUMINAIRE



ROOF PLAN

SCALE - 1:50

DO NOT SCALE

REV.	DESCRIPTION

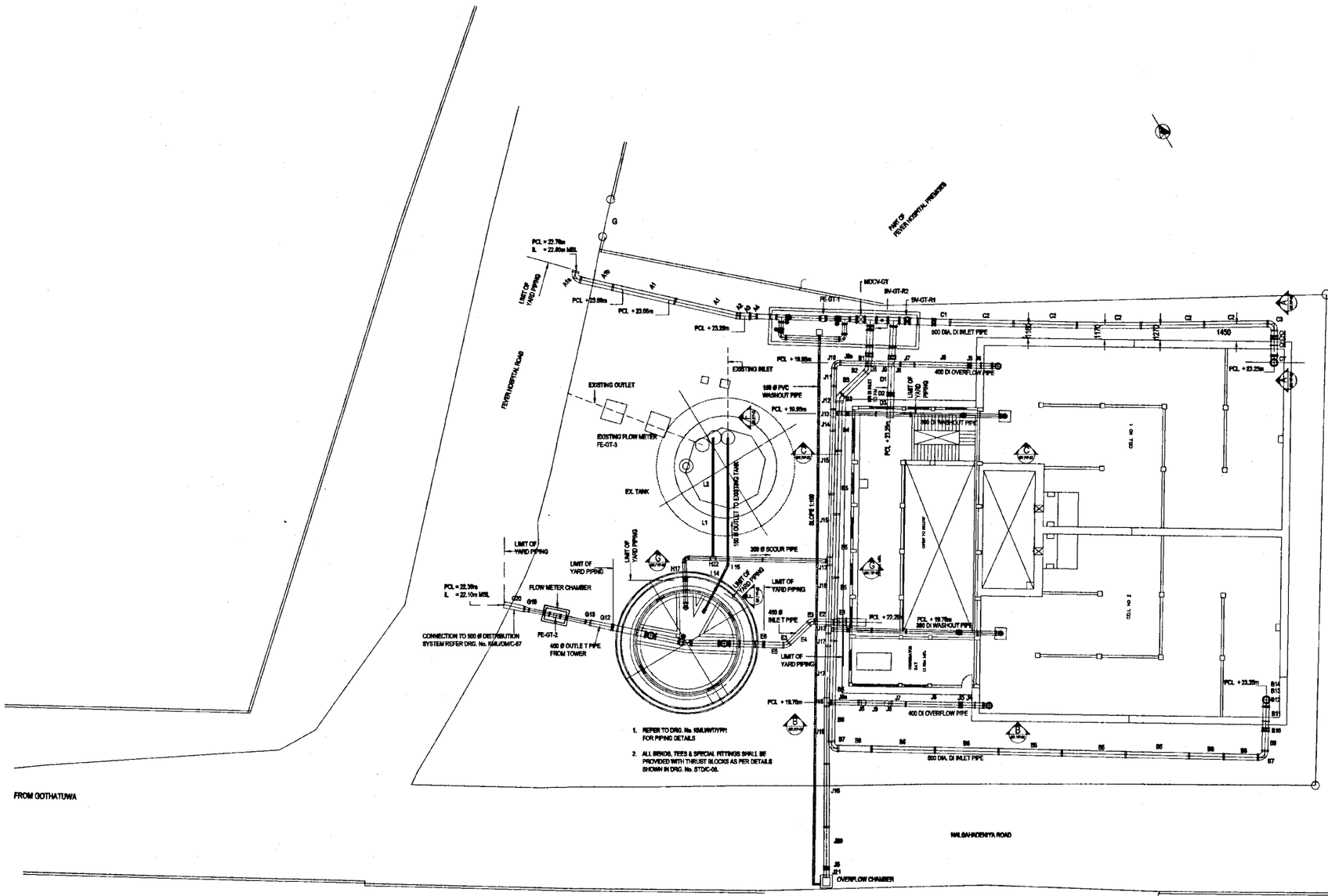
NATIONAL WATER SUPPLY AND DRAINAGE BOARD
THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
STUDY TEAM
NIHON SUIDO CONSULTANTS CO. LTD.,
TOKYO, JAPAN

SUB PROJECT: KOTIKAWATTE/ MULLERIYAWA

TITLE: GOTHATUWA GROUND RESERVOIR
EXTERNAL VALVE CHAMBER & HOUSING
ELECTRICAL LIGHTING

DESIGNED:	DRAWN:	DATE: JAN 2001
CHECKED:	PM (NRW&WDP-S) NWSDB:	CONTRACT No: NRW / CW
DY. TEAM LEADER:	A.G.M (P&D) NWSDB:	DRG. No: KMU / GR / E-14
TEAM LEADER:	D.G.M (P&D) NWSDB:	



PIPING SCHEDULE - From Transmission Main

Pipe No.	ND mm	Description	Length mm	Qty.
A1a	600	90° Socketed Bend		1
A1b	600	P/E Pipe piece	2800	1
A1	600	Socket & Spigot Pipe	5500	2
A2	600	11¼° Socketed Bend		1
A3	600	F/PE Pipe Piece	900	1
A4	600-350	Flanged Taper		2
A5	350	F/PE Pipe piece with Puddle Flange	1725	1
A6	350-350	Flanged Tee		2
A7	350	Flange Adaptor		2
A8	350	F/PE Pipe Piece	2580	1
A9	350	F/PE Pipe Piece	1000	1
A10	600-500	Flanged Tee		2
A11	500-100	Air Valve Tee		1
A12	600	D/F Pipe Piece	600	1
A13	600	Flange Adaptor		2
A14	600	P/E Pipe piece with Puddle Flange	2000	1
A15	600	Coupling		3
A16	600	P/E Pipe piece with Puddle Flange	2000	1
A17	600	F/PE Pipe Piece	2000	1
A18	350	D/F Pipe Piece	880	1
A19	350	Flanged Bend		2
A20	350	D/F Pipe Piece	4700	1
A21	350	D/F Pipe Piece	600	1

PIPING SCHEDULE - Inlet to Reservoir

B1	600	P/E Pipe Piece	1200	1
B2	600	45° Socketed Bend		2
B3	600	P/E Pipe Piece	3000	1
B4	600	P/E Pipe Piece	4400	1
B5	600	Socket & Spigot Pipe	5500	9
B6	600	Socket & Spigot Pipe	3225	1
B7	600	90° Socketed Bend		2
B8	600	P/E Pipe Piece	3000	3
B9	600	P/E Pipe Piece	1800	1
B10	600	Coupling		1
B11	600	F/PE Pipe Piece	1900	1
B12	600	90° Duckfoot Bend		1
B13	600	F/ Pipe Piece	620	1
B14	600	Flanged Bell Mouth		1

PIPING SCHEDULE - Inlet to Reservoir

C1	600	P/E Pipe Piece	1400	1
C2	600	Socket & Spigot Pipe	5500	6
C3	600	90° Socketed Bend		1
C4	600	P/E Pipe Piece	575	1
C5	600	Coupling		1
C6	600	F/PE Pipe piece with Puddle Flange	1300	1
C7	600	90° Duckfoot Bend		1
C8	600	F/ Pipe Piece	620	1
C9	600	Flanged Bell Mouth		1

PIPING SCHEDULE - Inlet to Pump House

D1	500	P/E Pipe Piece	3200	1
D2	500	Coupling		1
D3	500	F/PE Pipe piece with Puddle Flange	2000	1

PIPING SCHEDULE - Inlet to Tower

E1	600-450	Socketed Concentric Taper		1
E2	450	P/E Pipe Piece	1750	1
E3	450	45° Socketed Bend		2
E4	450	P/E Pipe Piece	2625	1
E5	450	P/E Pipe Piece	1750	1
E6	450	Coupling		1

FOR REMAINING SCHEDULE REFER DRG. No. KMU/GR/YP-02
* PIPE LENGTH MAY VARY DEPEND ON SITE CONDITION

PIPING SCHEDULE - Scour from ExistingTower

L1	150	S/PE Pipe Piece	4700	1
L2	150	S/PE Pipe	5500	1

YARD PIPING, RESERVOIR INLET & OUTLET PLAN

SCALE 1 : 200

DO NOT SCALE

REV.	DESCRIPTION

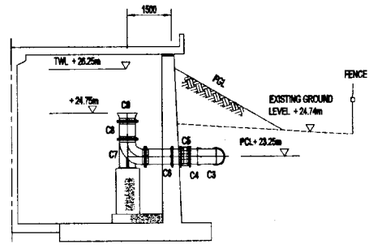
NATIONAL WATER SUPPLY AND DRAINAGE BOARD
THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
STUDY TEAM
NIHON SUIDO CONSULTANTS CO. LTD., TOKYO, JAPAN

SUB PROJECT: KOTIKAWATTA/ MULLERIYAWA

TITLE: GOTHATUWA GROUND RESERVOIR & PUMP HOUSE YARD PIPING - RESERVOIR INLET & OUTLET PLAN

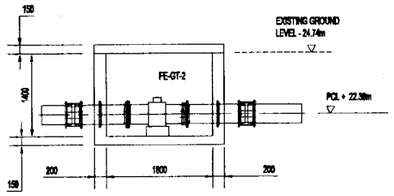
DESIGNED: | DRAWN: | DATE: JAN 2001
CHECKED: | PM (NRW&WSP) NAME/DR: | CONTRACT No: NRW / CW
DY. TEAM LEADER: | A.GM (P&D) NAME/DR: R.D.A Jina | DRG. No: KMU/GR/YP-01
TEAM LEADER: | D.G.M (P&D) NAME/DR:



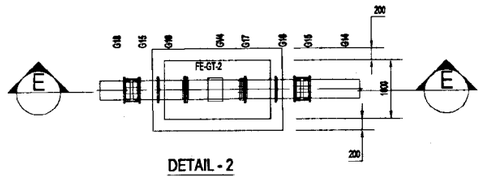
SECTION A - A

DETAILS OF INLET - 500 Ø

SCALE - 1:100



SECTION E - E



DETAIL - 2

PLAN OF TANK OUTLET FLOW METER CHAMBER

SCALE - 1:50

PIPING SCHEDULE - Outlet from Tower

G1 - G11 TOWER				
G12	450	P/E Pipe Piece	2000	1
G13	450-300	Socketed Concentric Taper		1
G14	300	P/E Pipe Piece	1000	1
G15	300	Coupling		2
G16	300	F/PE Pipe piece with Puddle Flange	1000	2
G17	300	Flange Adaptor		1
G18	300	P/E Pipe Piece	600	1
G19	300-500	Socketed Concentric Taper		1
G20	500	P/E Pipe Piece	2000	1

PIPING SCHEDULE - Overflow

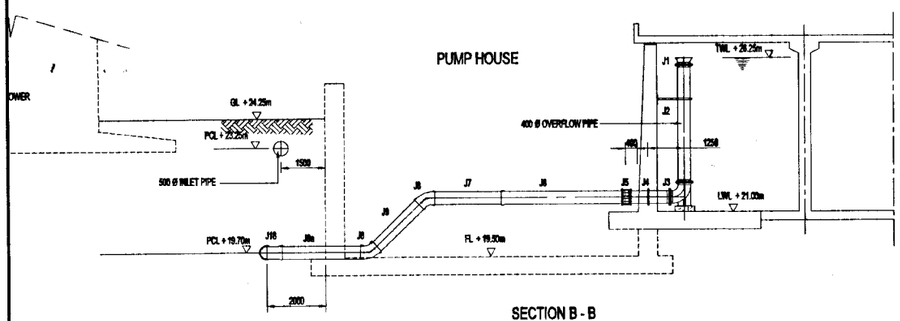
J1	400	Flanged Bell Mouth		2
J2	400	D/F Pipe	4000	2
J3	400	Duckfoot Bend		2
J4	400	F/PE Pipe piece with Puddle Flange	1400	2
J5	400	Coupling		3
J6	400	S/PE Pipe	4000	2
J7	400	P/E Pipe Piece	2400	2
J8	400	45° Socketed Bend		4
J9	400	P/E Pipe Piece	2175	2
J9a	400	P/E Pipe Piece	2840	2
J10	400	90° Socketed Bend		1
J11	400	P/E Pipe Piece	1700	1
J12	400	S/PE Pipe Piece	2000	1
J13	400-300	Socketed Tee		3
J14	400	P/E Pipe Piece	1300	1
J15	400	S/PE Pipe	5500	3
J16	400	P/E Pipe Piece	5350	1
J17	400	P/E Pipe Piece	1200	1
J17a	400	P/E Pipe Piece	4600	1
J18	400-400	Socketed Tee		1
J19	400	P/E Pipe Piece	5000	1
J20	400	S/PE Pipe Piece	3500	1
J21	400	P/E Pipe Piece	800	1

PIPING SCHEDULE - Washout

K1	300	Bell Mouth		2
K2	300	90° Flanged Bend		2
K3	300	F/PE Pipe piece with Puddle Flange	2300	2
K4	300	Coupling		4
K5	300	F/PE Pipe Piece	700	2
K6	300	Flange Adaptor		2
K7	300	F/PE Pipe Piece	4700	2
K8	300	D/F Pipe	3000	2
K9	300	F/PE Pipe piece with Puddle Flange	3000	2
K10	300	P/E Pipe Piece	1165	2

VALVE SCHEDOLE

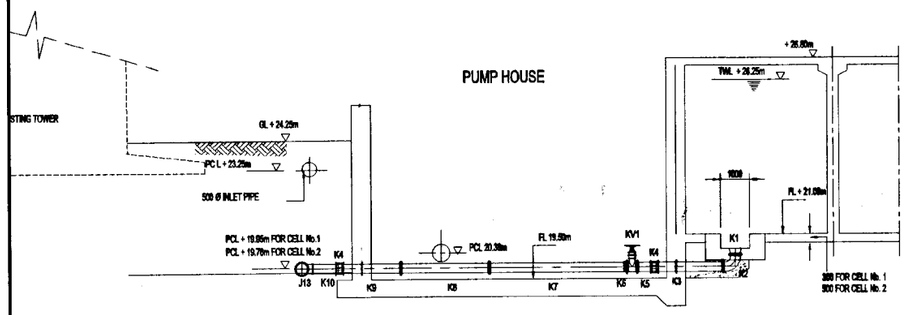
AV1	350	Gate Valve	3
AV2	350	Flow Meter	1
AV3	500	Motor Operated Flow Control Valve	1
AV4	500	Double Orifice Air Valve	1
AV5	500	Butterfly Valve	2
GV1	300	Flow Meter	1
KV1	300	Gate Valve	2



SECTION B - B

DETAILS OF OVER FLOW - 400 Ø

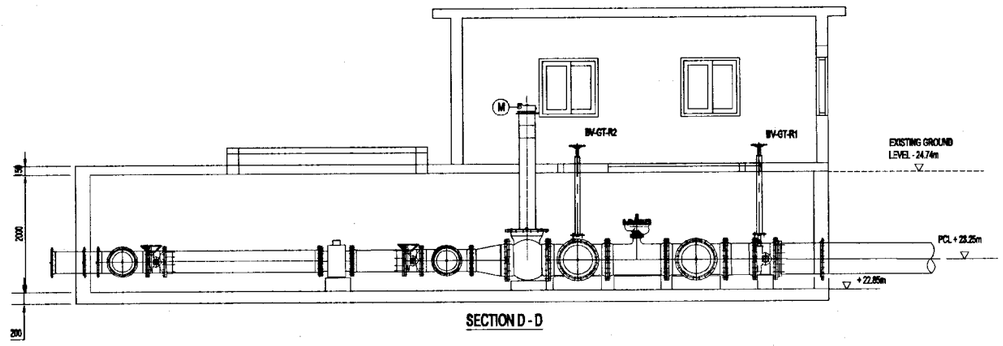
SCALE - 1:100



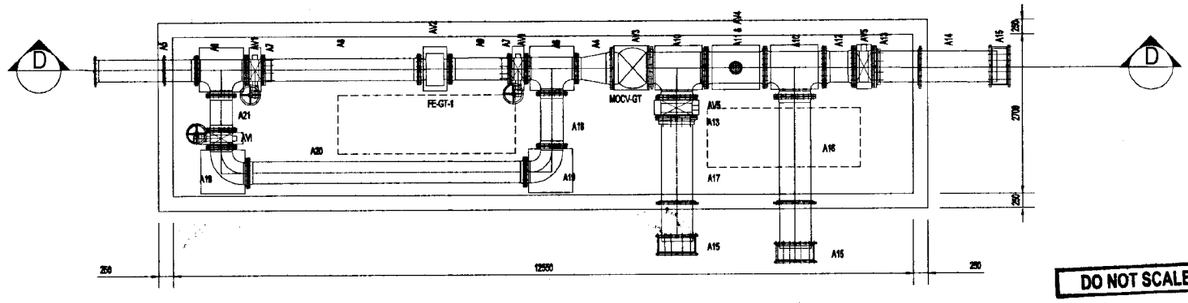
SECTION C - C

DETAILS OF WASHOUT - 300 Ø DI

SCALE - 1:100



SECTION D - D



DETAIL - 1

PLAN OF INLET VALVE CHAMBER

SCALE - 1:50

DO NOT SCALE

REV.	DESCRIPTION

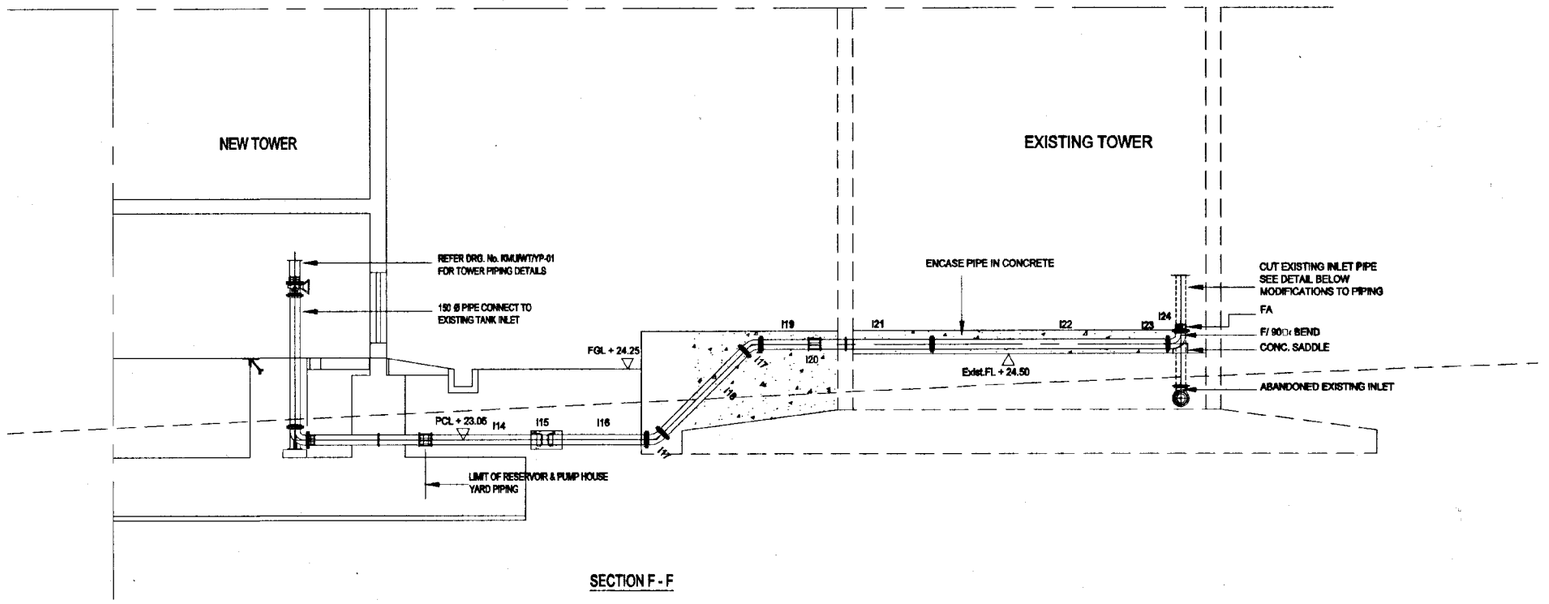
NATIONAL WATER SUPPLY AND DRAINAGE BOARD
THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA

SUB PROJECT: KOTIKAWATTE MULLERIYAWA

TITLE: GOTHATUWA GROUND RESERVOIR & PUMP HOUSE YARD PIPING - RESERVOIR INLET& OUTLET SECTIONS & CHAMBER DETAILS

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
STUDY TEAM
NIHON SUIDO CONSULTANTS CO. LTD., TOKYO, JAPAN

DESIGNED:	DRAWN:	DATE:	JAN 2001
CHECKED:	PM (NRW&WPS) NWSDB:	CONTRACT No:	NRW / CW
DY. TEAM LEADER:	A.G.M (P&D) NWSDB: R. D. A	DRG. No:	KMU/GR/YP-02
TEAM LEADER:	D.G.M (P&D) NWSDB:		



SECTION F - F

CONNECTION FROM NEW WATER TOWER TO EXISTING TOWER

SCALE:- 1:50

PIPING SCHEDULE - Scour from Tower

H1 - H16 TOWER

H17	300	P/E Pipe Piece	1500	1
H18	300	90 ^{0} Socketed Bend		1
H19	300	P/E Pipe Piece	500	1
H20	300	45 ^{0} Socketed Bend		2
H21	300	P/E Pipe Piece	1800	1
H22	300-150	Socketed Tee		1
H23	300	P/E Pipe Piece	2475	1
H24	300	P/E Pipe Piece	2535	1
H25	300	S/PE Pipe	5500	1

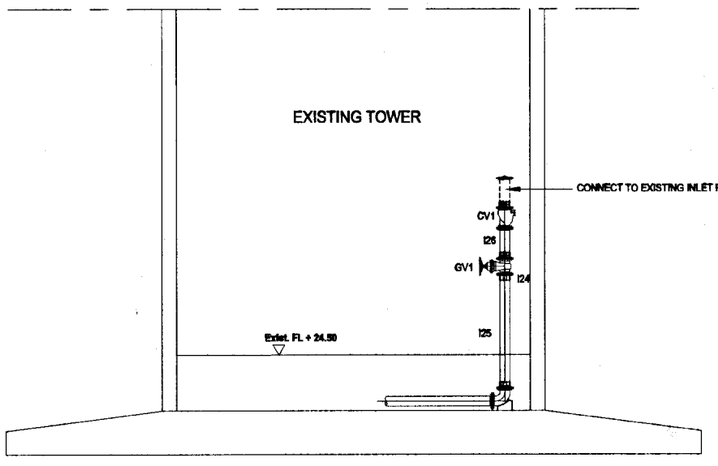
PIPING SCHEDULE - Inlet to Existing Tower

I1 - I13 TOWER

I14	150	P/E Pipe Piece	1900	1
I15	150	22 1/2 ^{0} Socketed Bend		1
I16	150	F/PE Pipe Piece	1675	1
I17	150	45 ^{0} Flanged Bend		2
I18	150	D/F Pipe Piece	1960	1
I19	150	F/PE Pipe Piece	890	1
I20	150	Coupling		1
I21	150	F/PE Pipe Piece with Puddle Flange	1975	1
I22	150	D/F Pipe	4000	1
I23	150	90 ^{0} Flanged Bend		1
I24	150	Flange Adaptor		4
I25	150	P/E Pipe Piece (Length to suit site)	1825	1
I26	150	F/PE Pipe Piece	500	1

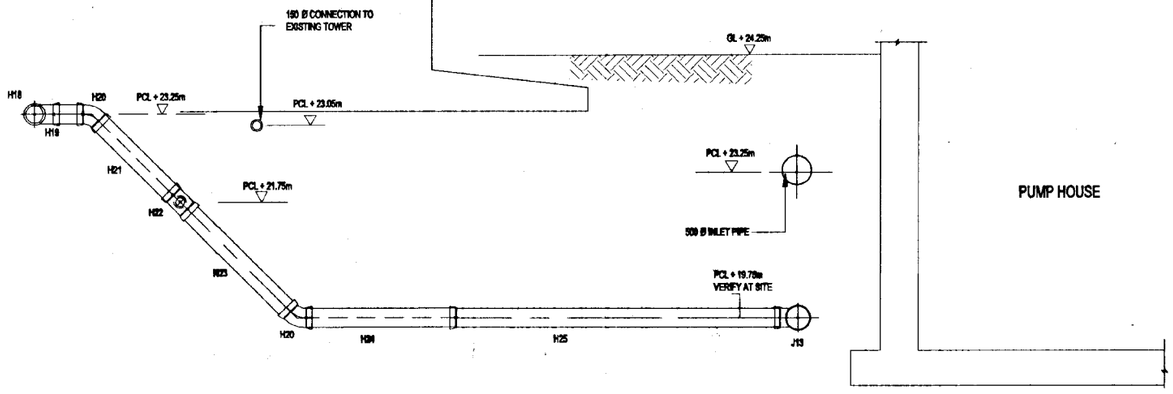
Valve Schedule

GV1	Gate Valve	1
CV1	Check Valve	1



MODIFICATIONS TO PIPING AT EXISTING TOWER

SCALE:- 1:50



SECTION G - G

OVERFLOW AND WASHOUT CONNECTIONS

SCALE:- 1:50

DO NOT SCALE

REV.	DESCRIPTION

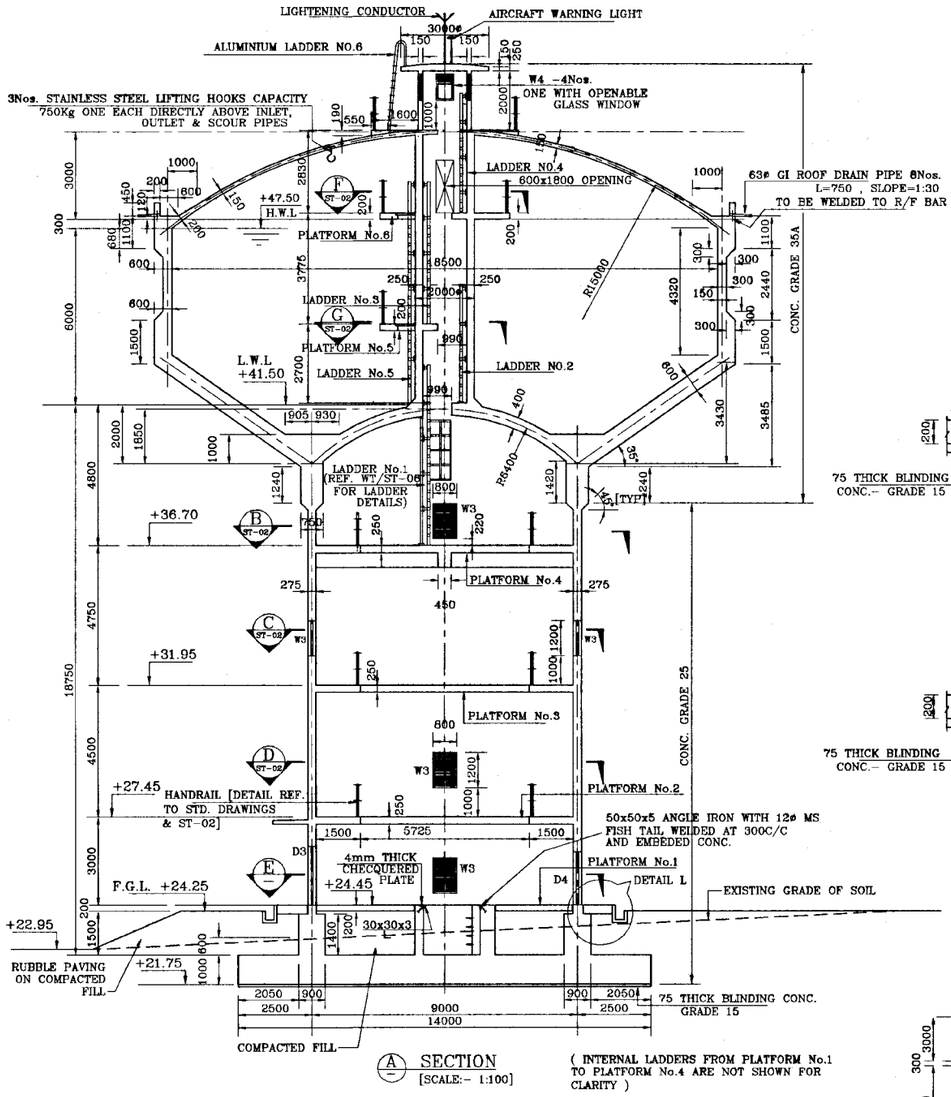
NATIONAL WATER SUPPLY AND DRAINAGE BOARD
THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA

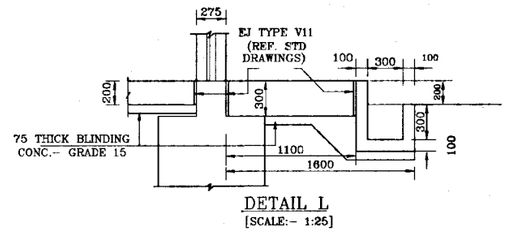
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
STUDY TEAM
NIHON SUIDO CONSULTANTS CO. LTD.,
TOKYO, JAPAN

SUB PROJECT: KOTIKAWATTA/ MULLERIYAWA

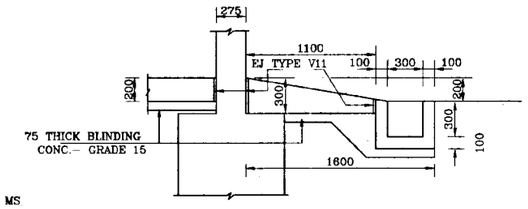
TITLE: GOTHATUWA GROUND RESERVOIR & PUMP HOUSE YARD PIPING - CONNECTION DETAILS OF EXISTING & NEW TOWER

DESIGNED: R.D.
DRAWN:
DATE: JAN 2001
CHECKED: R.D.
PM (NWS&DB) MANDE:
CONTRACT No: NRW / CW
TL / TEAM LEADER:
A.G.M (P&D) MANDE: R. D. A
DRG. No: KMU/GR/YP-03
TEAM LEADER:
D.G.M (P&D) MANDE:

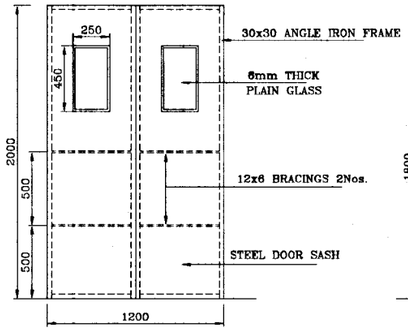




DETAIL L
[SCALE:- 1:25]

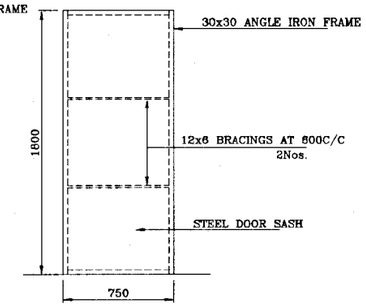


DETAIL X
[SCALE:- 1:25]



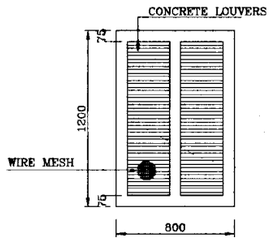
D3 - 1No.

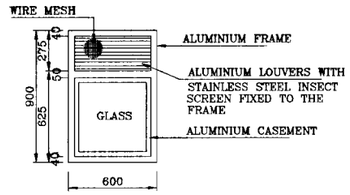
(D3) -1200x2000 STEEL DOOR
3 Nos. STEEL HINGES [TO BE FABRICATED AS RICOURED]
1 No. MORTICE LOCK
2 Nos. TOWER BOLTS

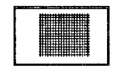


D4 - 1No.

(D4) -750x1600 STEEL DOOR
3 Nos. STEEL HINGES [TO BE FABRICATED AS RICOURED]
1 No. MORTICE LOCK
1 No. TOWER BOLTS

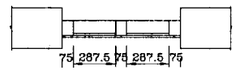






WIRE MESH

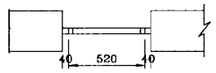
12mmx12mm STAINLESS STEEL (GAUGE 16) WIRE MESH FRAMED ON 10mm x 5mm STAINLESS STEEL FLATS



W3 - 8Nos.

(W3) -800x1200

CONCRETE WINDOW WITH FIXED CONCRETE LOUVERS WITH STAINLESS STEEL WIRE [BSW GAUGE 16] 12x12 MESH OUTER FACE.

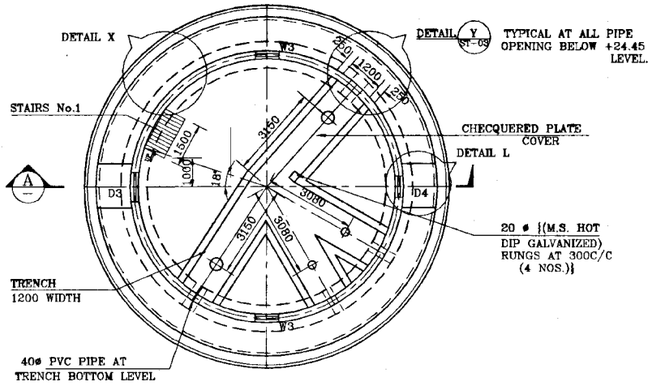


W4 - 4Nos.

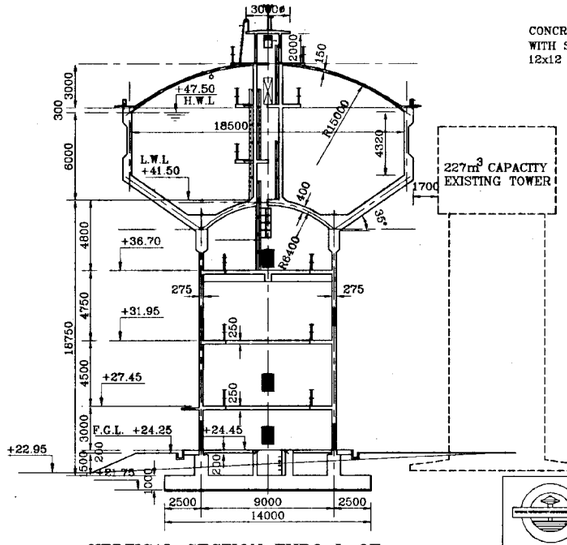
(W4) -600x900

GLAZED ALUMINIUM WINDOW WITH FIXED ALUMINIUM LOUVERS & STAINLESS STEEL WIRE [BSW GAUGE 16] 12x12 MESH ABOVE OUTER FACE. OPENABLE GLASS WINDOW OR FIXED GLASS WINDOW AS SHOWN ON TOWER DWGS.

DETAILS OF DOORS & WINDOWS



E SECTION
[SCALE:- 1:100]



VERTICAL SECTION THRO ℄ OF NEW TOWER & EXISTING TOWER
[SCALE:- 1:200]

NOTES :-

1. FOR STANDARD NOTES AND DETAILS REFER TO STD DRAWINGS.
2. SAFE BEARING PRESSURE - 250kN/m².

DO NOT SCALE

REV.	DESCRIPTION

NATIONAL WATER SUPPLY AND DRAINAGE BOARD
THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA

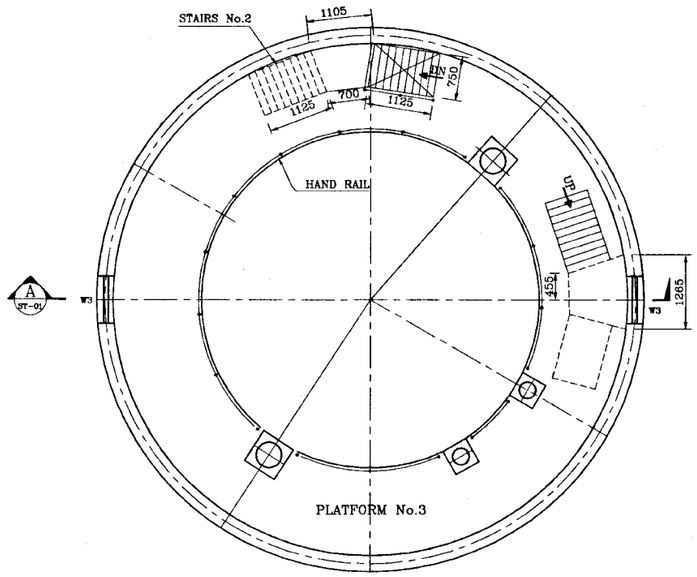
SUB PROJECT: KOTIKAWATTA-MULLERIYAWA

TITLE: TOWER - 1500m³ CAPACITY GENERAL ARRANGEMENT

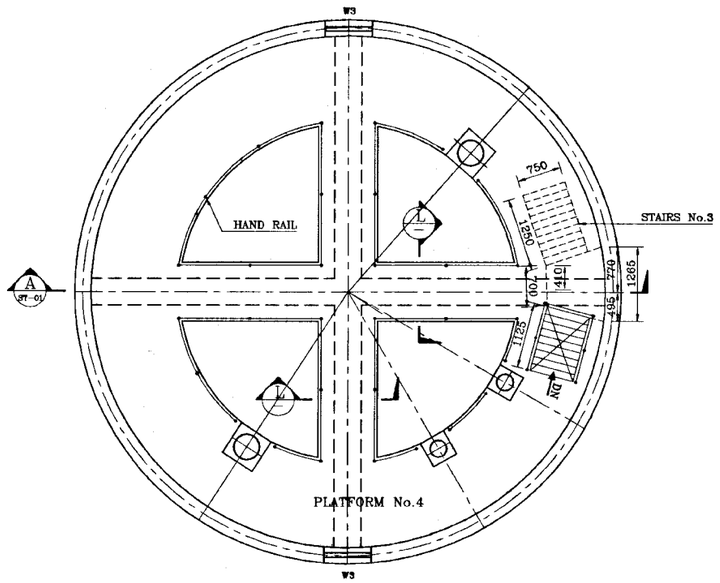
SHEET 1 OF 2

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) STUDY TEAM
NIHON SUIDO CONSULTANTS CO. LTD., TOKYO, JAPAN

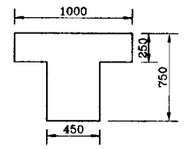
DESIGNED	DRAWN: RUKMANI	DATE: JAN 2001	
CHECKED	PM (NRW/SAP/S NWSDB	CONTRACT No.	
DY. TEAM LEADER	AGM(P&D) NWSDB	DRG. No. KMU/WT/ST-01	
TEAM LEADER	DGM(P&D) NWSDB		



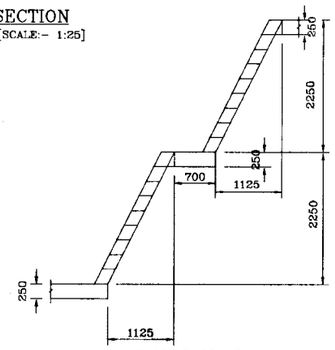
C SECTION
ST-01 [SCALE:- 1:50]



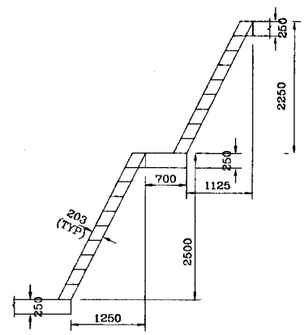
B SECTION
ST-01 [SCALE:- 1:50]



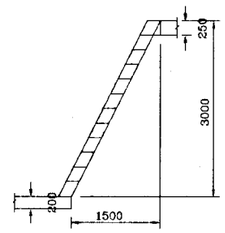
L SECTION
[SCALE:- 1:25]



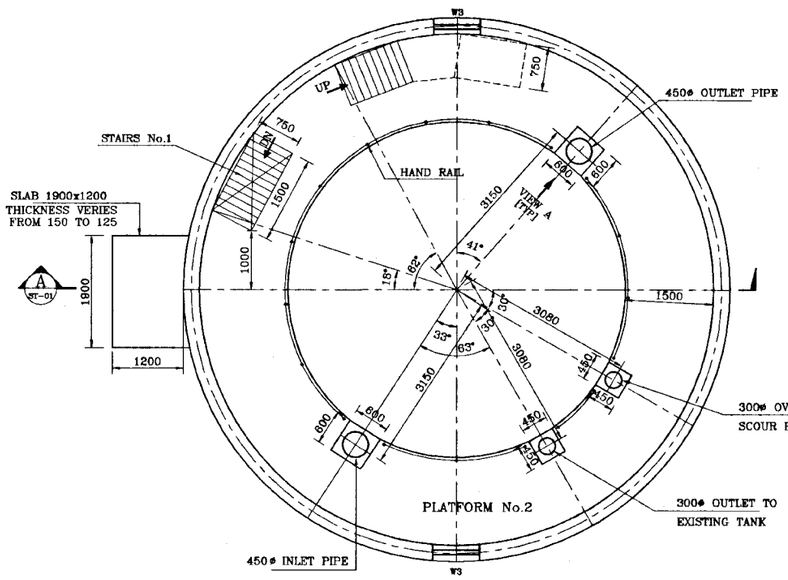
STAIRS No.2



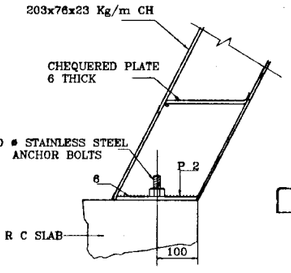
STAIRS No.3



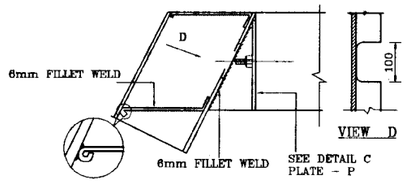
STAIRS No.1



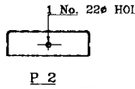
D SECTION
ST-01 [SCALE:- 1:50]



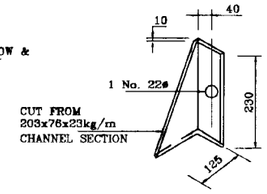
DETAIL B



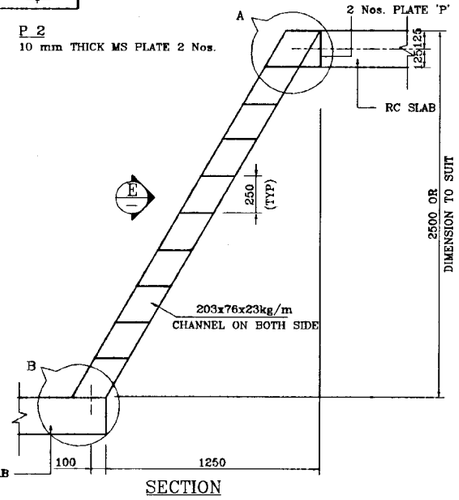
DETAIL A



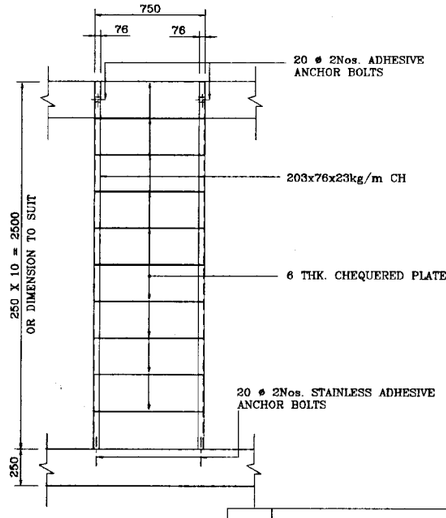
P 2
10 mm THICK MS PLATE 2 Nos.



DETAIL C

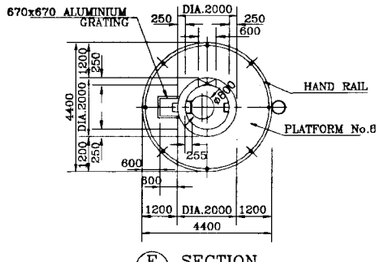


SECTION

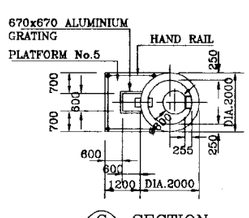


ELEVATION - E

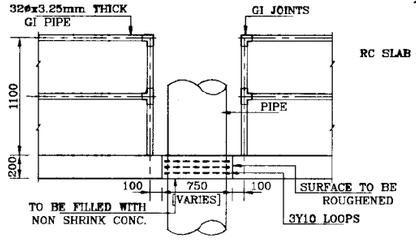
TYPICAL FLIGHT - STAIRS NO.1,2,3 IN TOWERS



F SECTION
ST-01 [SCALE:- 1:100]



G SECTION
ST-01 [SCALE:- 1:100]



VIEW A [TYP]
[SCALE:- 1:25]

DO NOT SCALE

REV	DESCRIPTION

NATIONAL WATER SUPPLY AND DRAINAGE BOARD
THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA

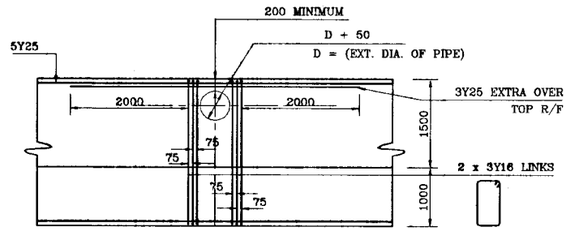
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
STUDY TEAM
NIHON SUIDO CONSULTANTS CO. LTD.,
TOKYO, JAPAN

SUB PROJECT: KOTIKAWATTA-MULLERIYAWA

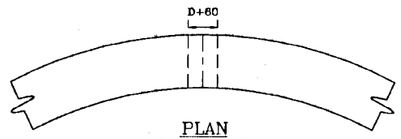
TITLE: TOWER - 1500m^3 CAPACITY GENERAL ARRANGEMENT

SHEET 2 OF 2

DESIGNED	DRAWN: RUKMANI	DATE: JAN 2001	
CHECKED	PM (NRWSAPS) NWSDB	CONTRACT No.	
DY. TEAM LEADER	ASM(PSD) NWSDB	DRG No.	KMU/WT/ST-02
TEAM LEADER	DGM(PSD) NWSDB		

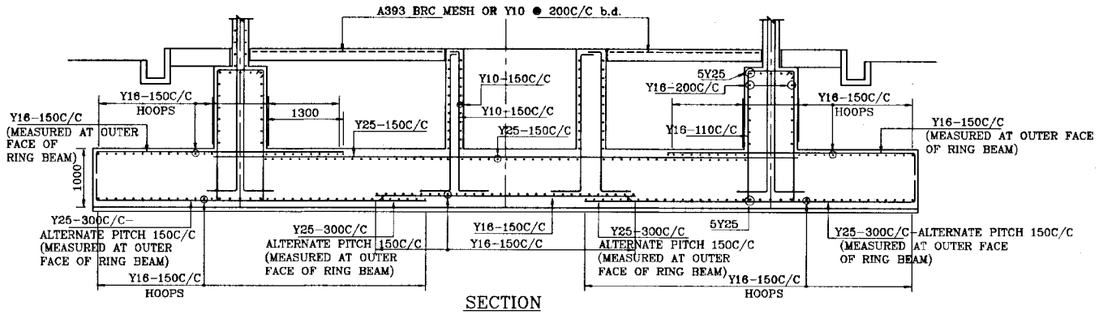


ELEVATION
[SCALE:- 1:50]

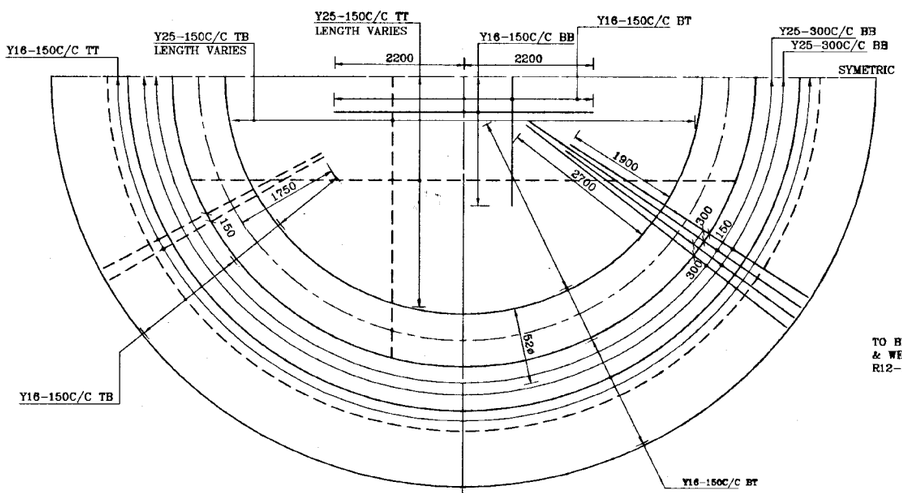


PLAN
[SCALE:- 1:50]

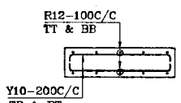
DETAIL Y (ST-01)



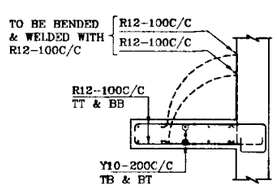
SECTION



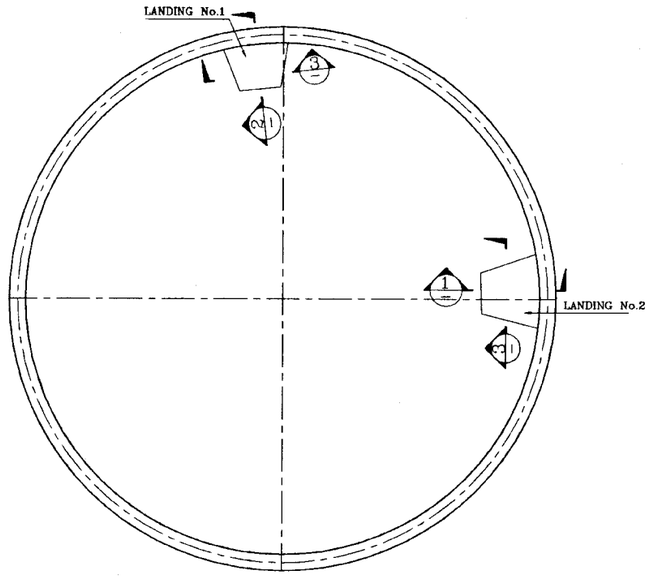
PLAN
FOUNDATION
[SCALE:- 1:50]



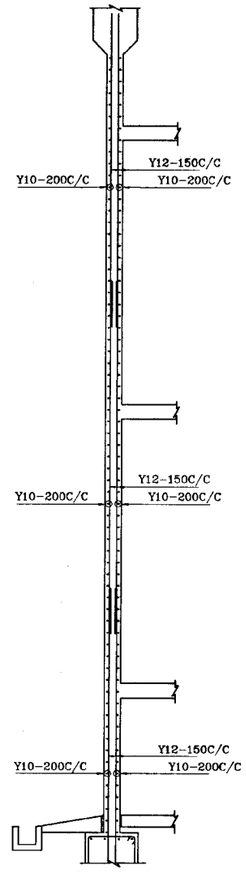
3 SECTION
[LENGTH VERIES]



1 & 2 SECTION
[LENGTH VERIES]



PLAN-SHAFT
[SCALE:- 1:50]



SECTION
[SCALE:- 1:50]

SHAFT

DO NOT SCALE

REV.	DESCRIPTION

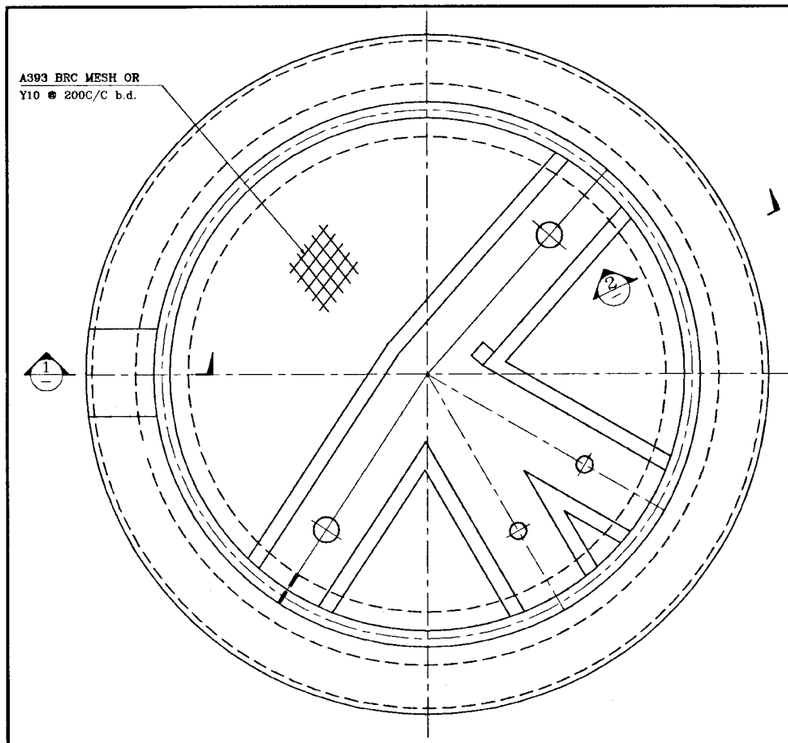
NATIONAL WATER SUPPLY AND DRAINAGE BOARD
THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
STUDY TEAM
NIHON SUIDO CONSULTANTS CO. LTD., TOKYO, JAPAN

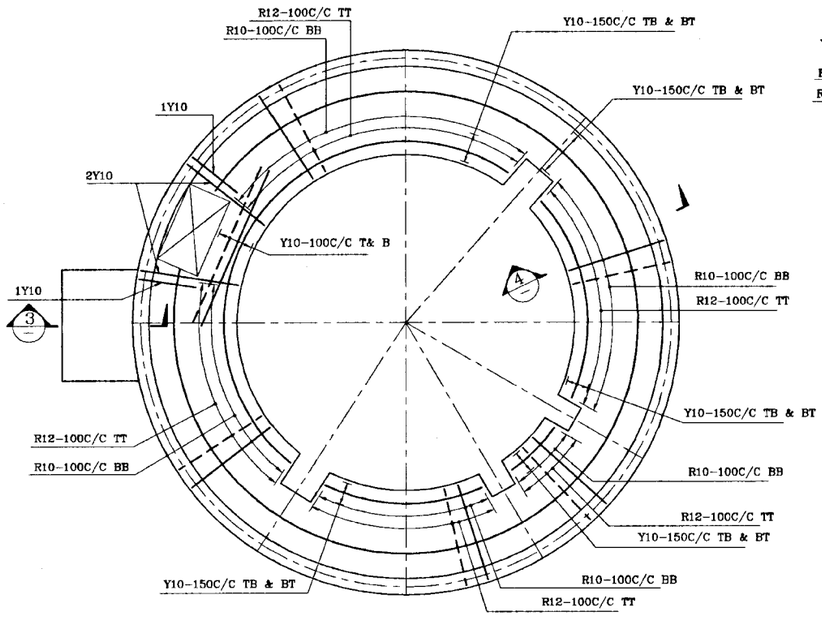
SUB PROJECT: KOTIKAWATTA-MULLERIYAWA

TITLE: TOWER-1500m^3 CAPACITY R/F DETAILS OF FOUNDATIONS & SHAFT

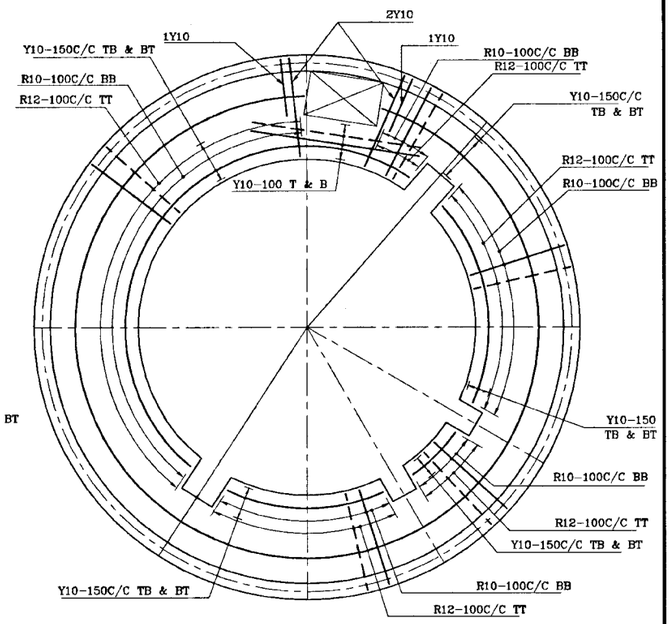
DESIGNED	DRAWN: RUKMANI	DATE: JAN 2001
CHECKED	PM (NRW&SAPS) NWSDB	CONTRACT No.
DY TEAM LEADER	AGM(P&D) NWSDB	DRG. No. KMU/WT/ST-03
TEAM LEADER	DGM(P&D) NWSDB	



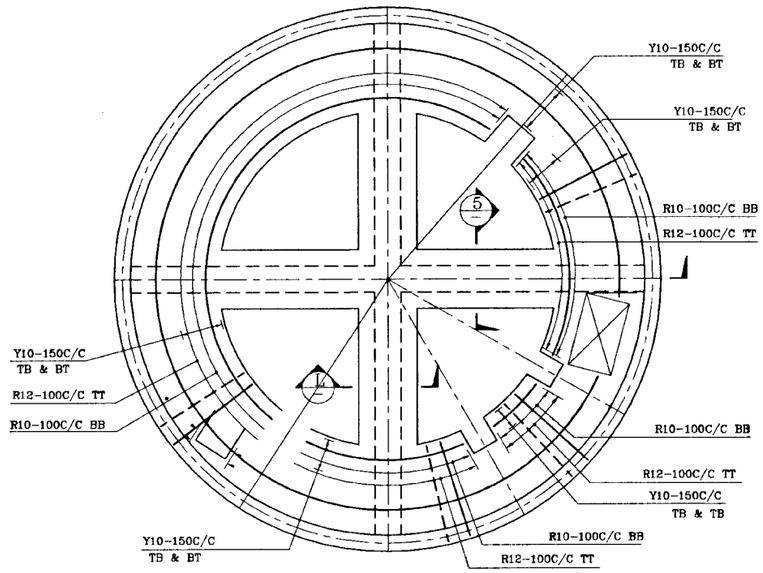
PLATFORM No.1
[SCALE:- 1:50]



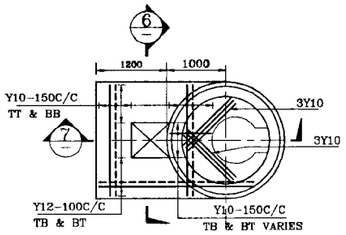
PLATFORM No.2
[SCALE:- 1:50]



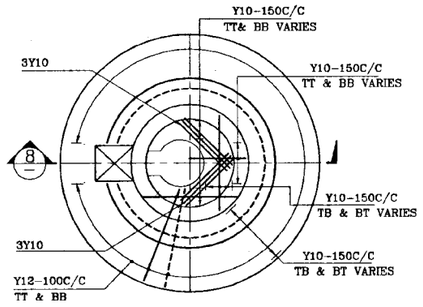
PLATFORM No.3
[SCALE:- 1:50]



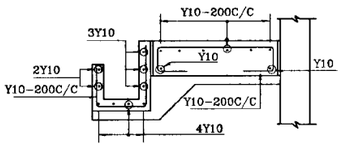
PLATFORM No.4
[SCALE:- 1:50]



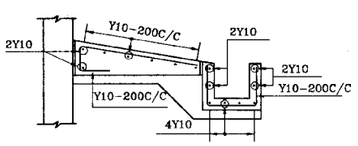
PLATFORM No.5
[SCALE:- 1:50]



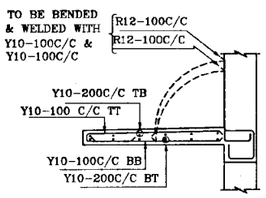
PLATFORM No.6
[SCALE:- 1:50]



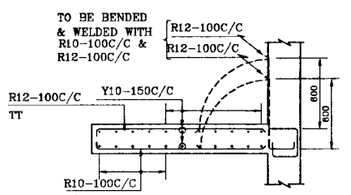
1 SECTION
[SCALE:- 1:25]



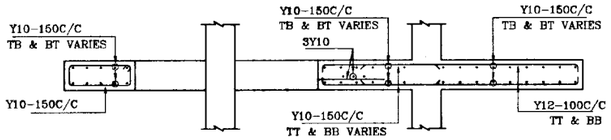
2 SECTION
[SCALE:- 1:25]



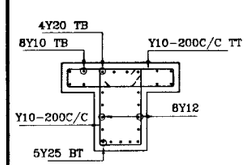
3 SECTION
[SCALE:- 1:25]



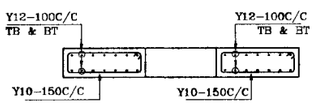
4 SECTION
[SCALE:- 1:25]



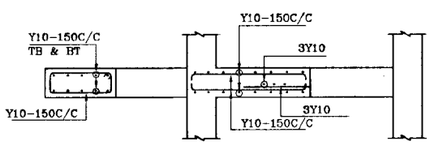
8 SECTION
[SCALE:- 1:25]



5 SECTION
[SCALE:- 1:25]



6 SECTION
[SCALE:- 1:25]



7 SECTION
[SCALE:- 1:25]

DO NOT SCALE

REV	DESCRIPTION

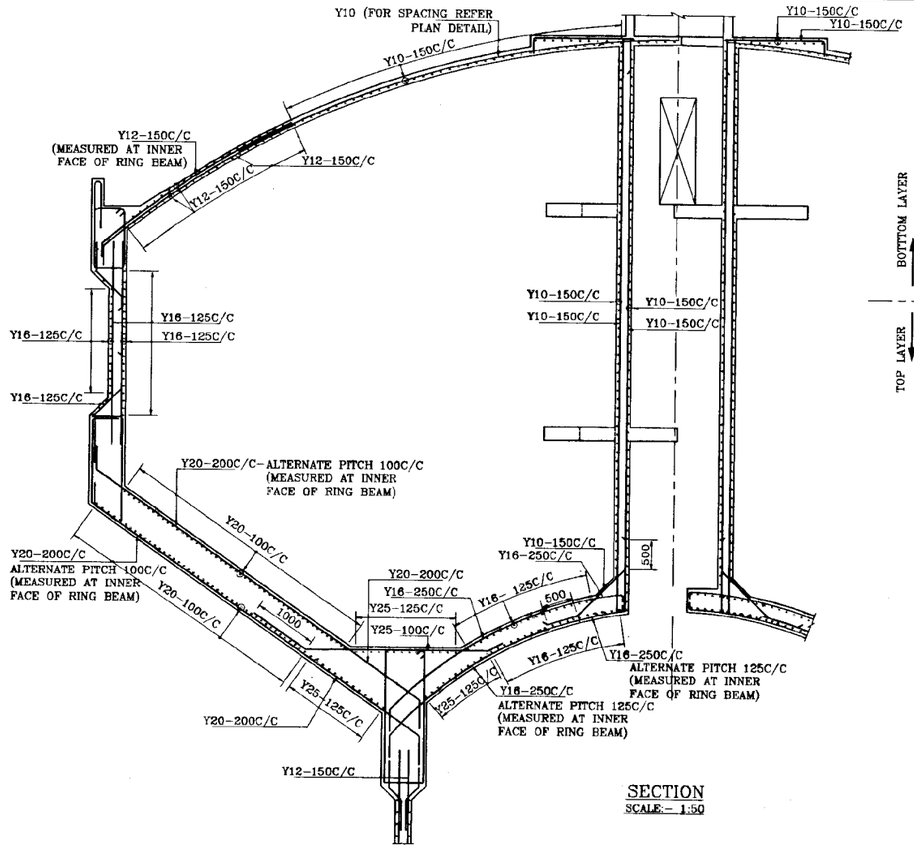
NATIONAL WATER SUPPLY AND DRAINAGE BOARD
THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
STUDY TEAM
NIHON SUIDO CONSULTANTS CO. LTD.,
TOKYO, JAPAN

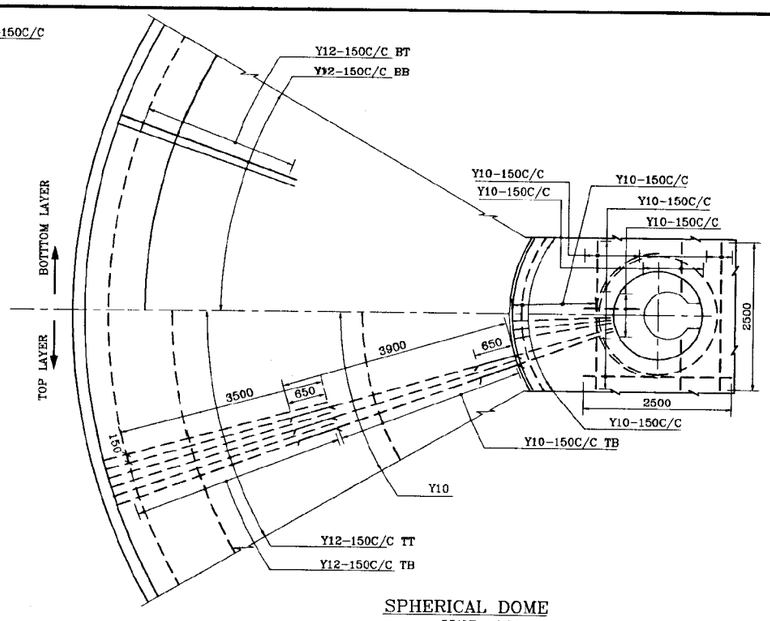
SUB PROJECT: KOTIKAWATTA–MULLERIYAWA

TITLE: TOWER–1500m^3 CAPACITY R/F DETAILS OF PLATFORMS

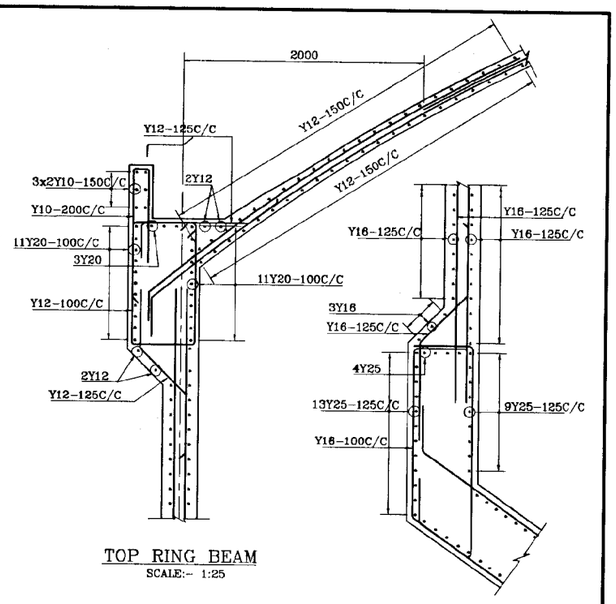
DESIGNED	DRAWN: RUKMANI	DATE: JAN 2001
CHECKED	PM (NRW/SAFS) NWSDB	CONTRACT No
DY. TEAM LEADER	AGM(P&D) NWSDB	DRG. No: KMU/WT/ST–04
TEAM LEADER	DGM(P&D) NWSDB	



SECTION
SCALE:- 1:50

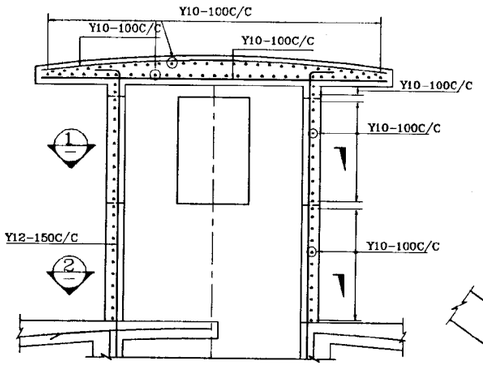


SPHERICAL DOME
SCALE:- 1:50

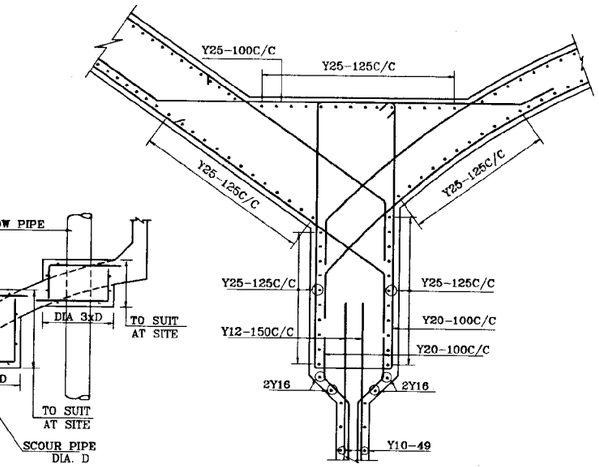


TOP RING BEAM
SCALE:- 1:25

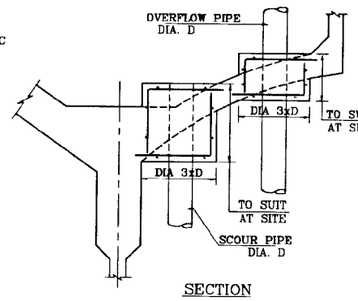
MIDDLE RING BEAM
SCALE:- 1:25



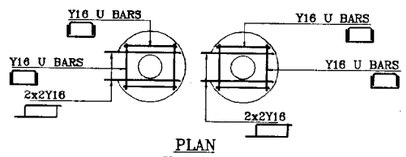
SECTION
LANTERN



BOTTOM RING BEAM
SCALE:- 1:25



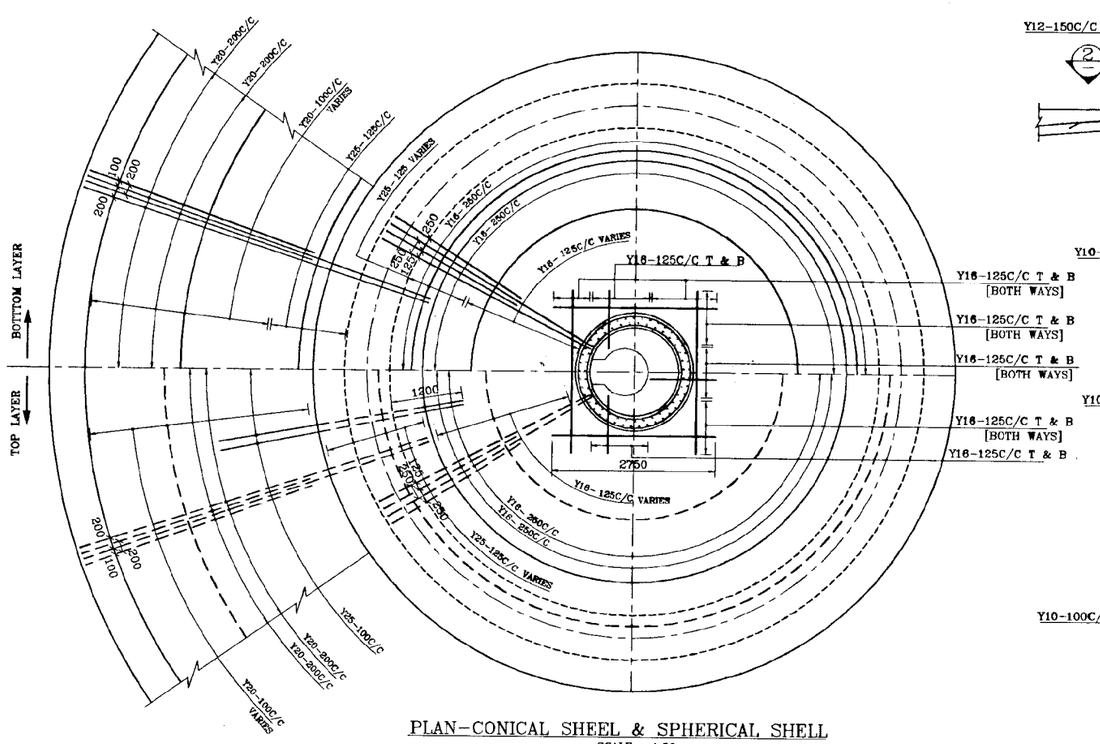
SECTION



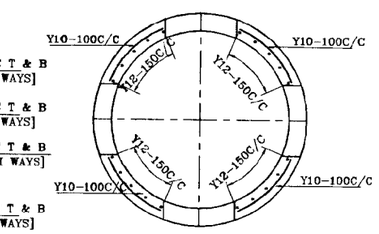
PLAN
SCALE:- 1:50

TYPICAL DETAILS AT OVERFLOW, INLET OR AT SCOUR OUTLETS

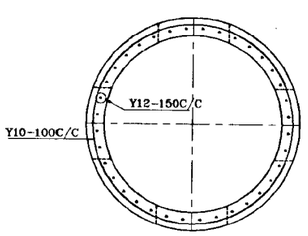
NOTE:-
THE MAIN REINFORCEMENT WHICH GET DISTURBED DUE TO PIPES SHALL BE CUT AT SITE AND EXTRA R/F AS SHOWN SHALL BE ADDED.



PLAN-CONICAL SHEEL & SPHERICAL SHELL
SCALE:- 1:50



1 SECTION
[SCALE:- 1:25]



2 SECTION
[SCALE:- 1:25]

DO NOT SCALE

REV.	DESCRIPTION

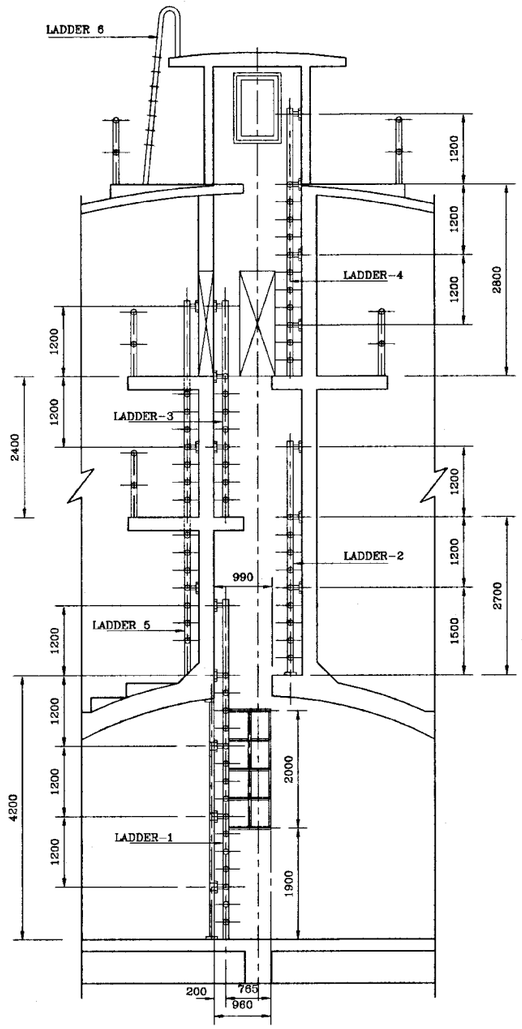
NATIONAL WATER SUPPLY AND DRAINAGE BOARD
THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
STUDY TEAM
NIHON SUIDO CONSULTANTS CO. LTD., TOKYO, JAPAN

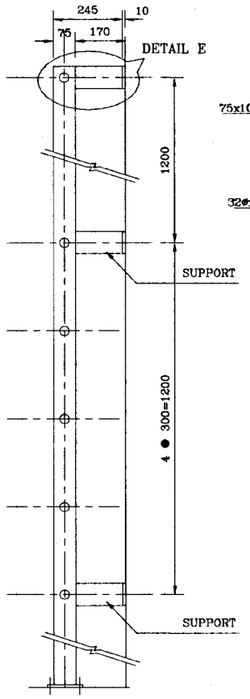
SUB PROJECT: KOTIKAWATTA-MULLERIYAWA

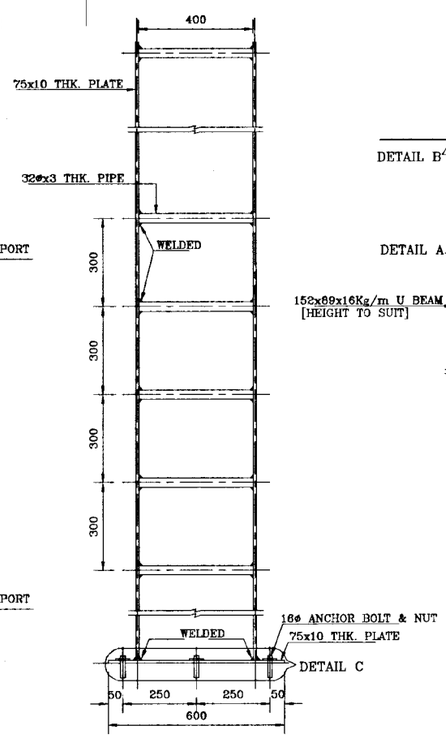
TITLE: TOWER-1500m^3 CAPACITY R/F DETAILS OF TANK

DESIGNED	DRAWN: RUKSHANI	DATE: JAN 2001
CHECKED	P.M (NRW&SAPS) NWSDB	CONTRACT No.
DY. TEAMLEADER	AGM(P&D) NWSDB	DRG. No. KMU/WT/ST-05
TEAMLEADER	DGM(P&D) NWSDB	

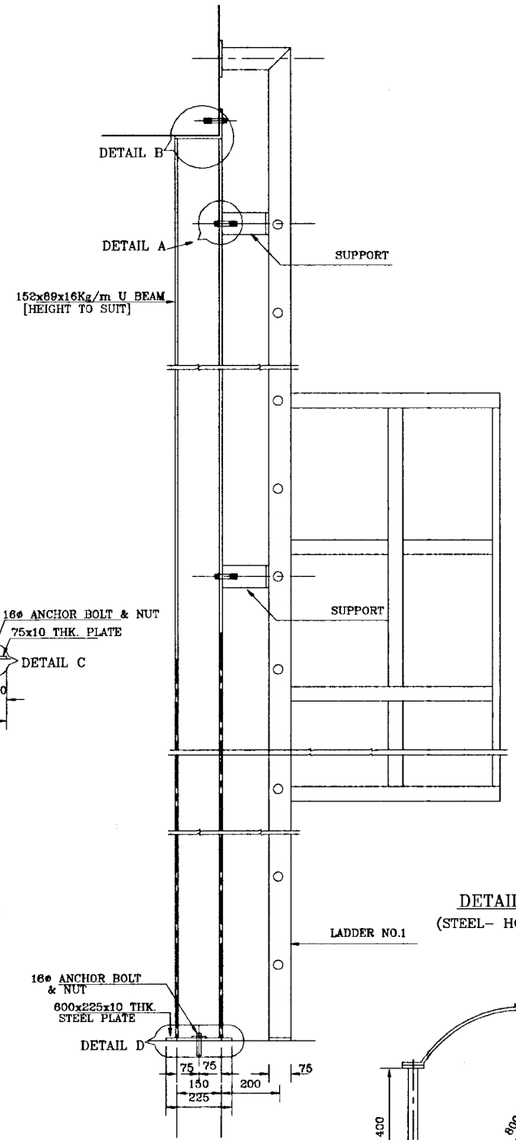


LOCATION OF LADDERS
[SCALE:- 1:50]

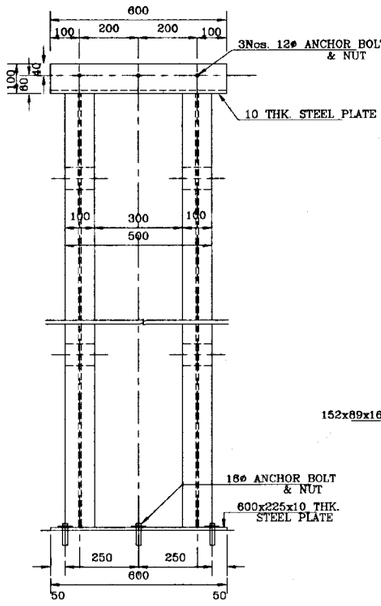


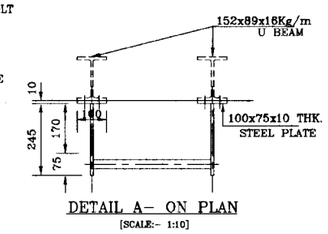


DETAILS OF LADDERS-2, 3, 4 & 5
(STAINLESS STEEL LADDERS)
[SCALE:- 1:10]

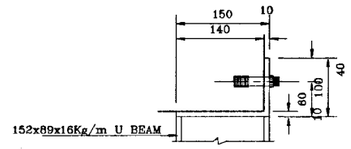


DETAILS OF LADDER 1
(STEEL- HOT DIPPED GALVANIZED)
[SCALE:- 1:10]

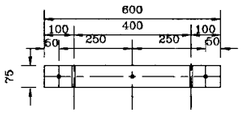




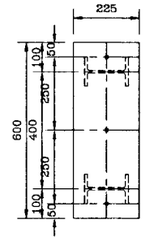
DETAIL A- ON PLAN
[SCALE:- 1:10]



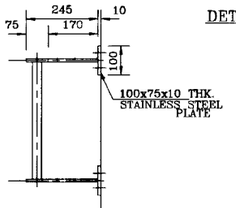
DETAIL B
[SCALE:- 1:5]



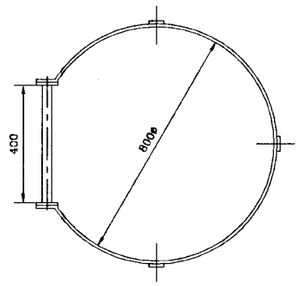
DETAIL C- ON PLAN
[SCALE:- 1:10]



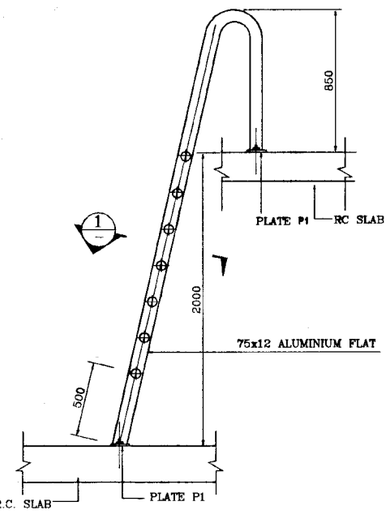
DETAIL D- ON PLAN
[SCALE:- 1:10]



DETAIL E- ON PLAN
[SCALE:- 1:10]



DETAILS OF SAFETY HOOP
[SCALE:- 1:10]



EXTERNAL LADDER 6
TOWER TOP
SCALE - 1 : 20

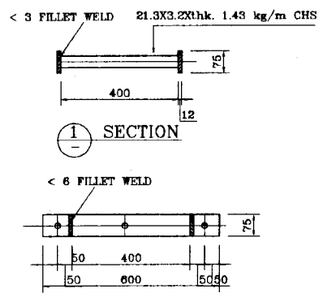


PLATE P1

DO NOT SCALE

REV	DESCRIPTION

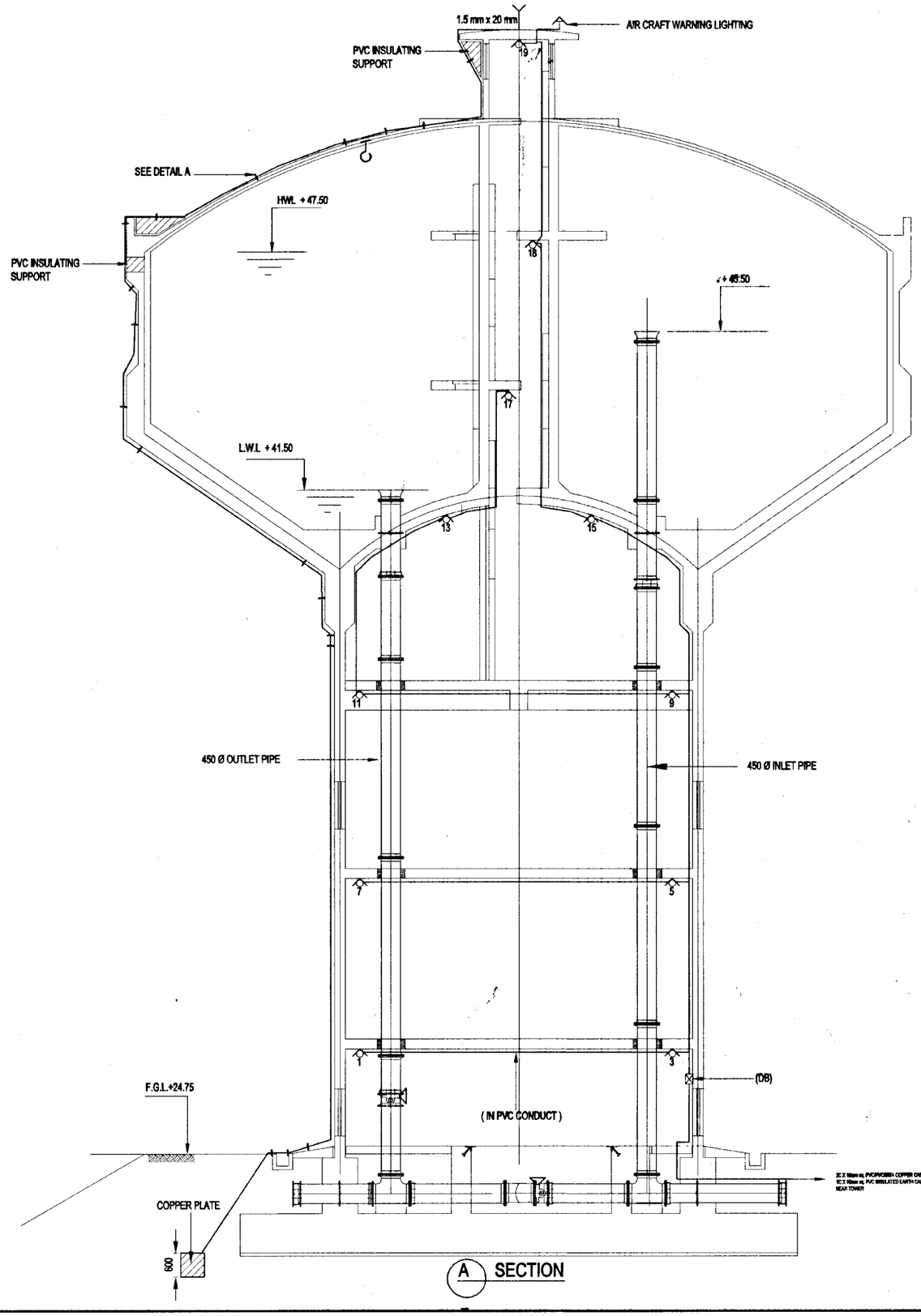
NATIONAL WATER SUPPLY AND DRAINAGE BOARD
THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA

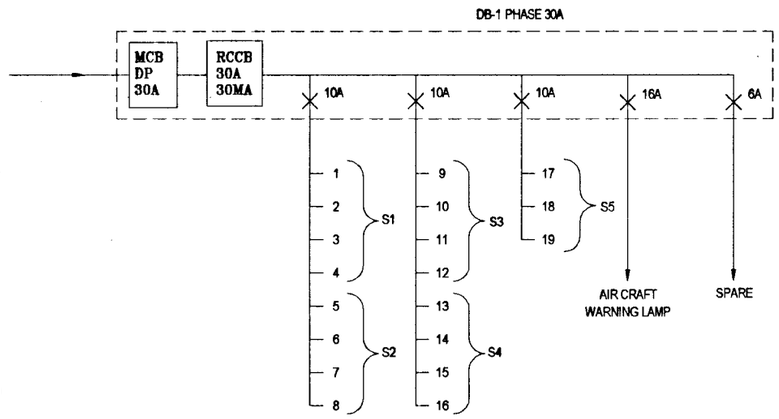
SUB PROJECT: KOTIKAWATTA MULLERIYAWA

TITLE: TOWER-1500m^3 CAPACITY DETAILS OF LADDERS

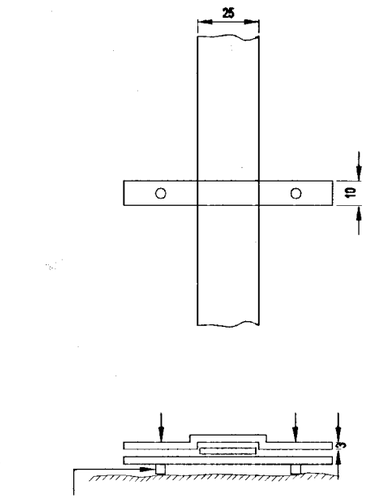
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
STUDY TEAM
NIHON SUIDO CONSULTANTS CO. LTD., TOKYO, JAPAN

DESIGNED	DRAWN: RUKMANI	DATE: JAN 2001
CHECKED	PM (NRW/SAPS) NWSDB	CONTRACT No
DY. TEAM LEADER	AGM(P&D) NWSDB	DRG. No. KMU/WT/ST-06
TEAM LEADER	DGM(P&D) NWSDB	





SWITCHES S1, S2, S3, S4 & S5 ARE LOCATED BELOW DB.



DETAIL A

NOTES

(1) LIGHTING CONDUCTOR AS SPECIFIED.

(2) COPPER PLATE 600 x 600 x 3 mm

(3) 4 No. OF 40 W SINGLE BATTEN TYPE FLUORESCENT LAMP (TYPE 13) FOR EACH PLATFORM

(4) DB IS LOCATED INSIDE, NEAR THE ENTRANCE. SWITCHES ARE LOCATED BELOW THE DB.

DO NOT SCALE

REV.	DESCRIPTION

NATIONAL WATER SUPPLY AND DRAINAGE BOARD

THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA

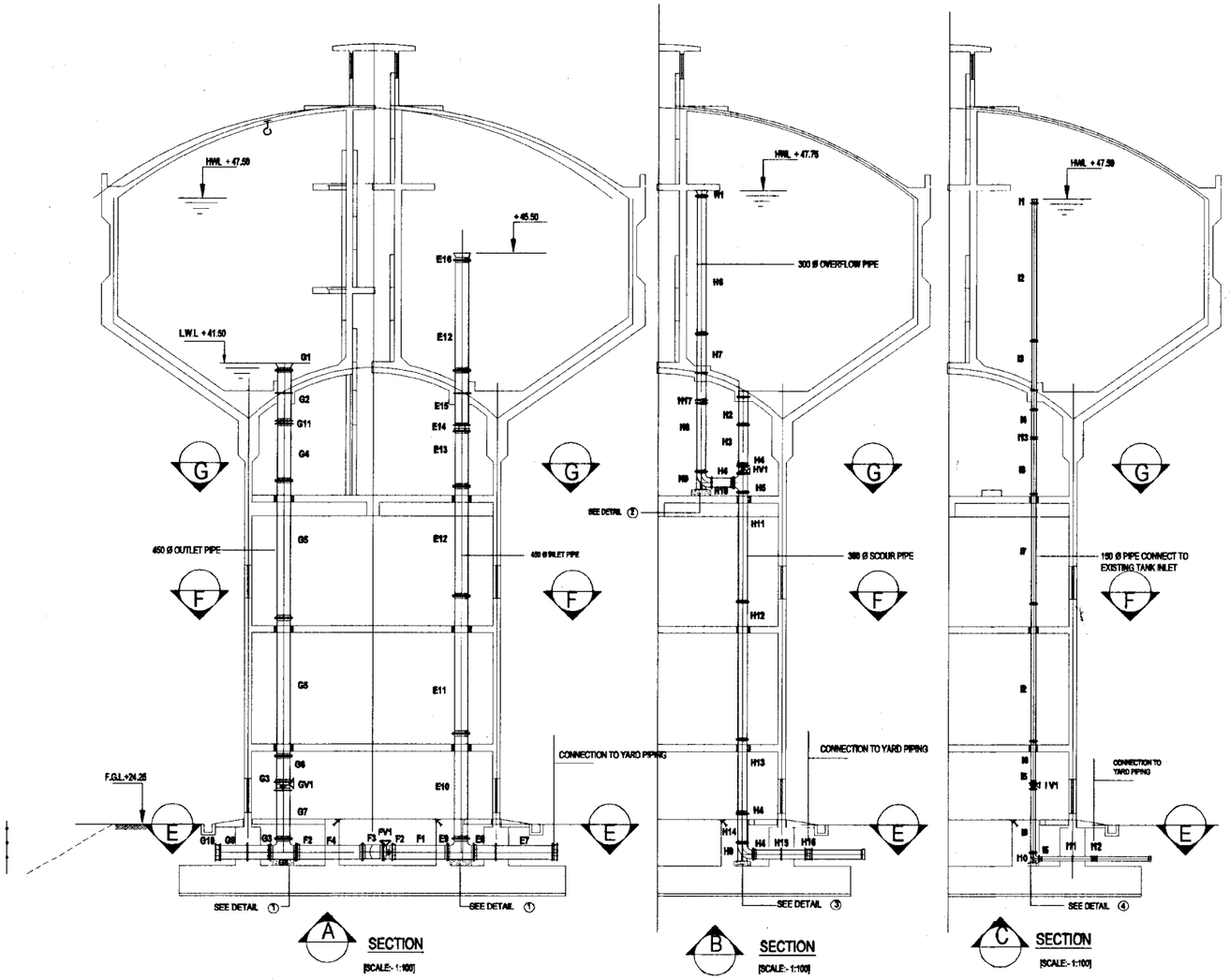
SUB PROJECT: KOTIKAWATTE/ MULLEIYAWA

TITLE: GOTHATUWA NEW WATER TOWER LIGHTING & LIGHTNING PROTECTION

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) STUDY TEAM

NIHON SUIDO CONSULTANTS CO. LTD., TOKYO, JAPAN

DESIGNED:	DRAWN:	DATE: JAN 2001
CHECKED:	PM (NRW/SAPR) NAME/DR:	CONTRACT No.: NRW / CW
DY. TEAM LEADER:	A.G.M (P&C) NAME/DR:	DRG. No.: KMU / WT / E / 01
TEAM LEADER:	D.G.M (P&D) NAME/DR:	



Piping Schedule - Inlet Pipe

Pipe No.	ND mm	Description	Length mm	Qty
E7	450	PE x PE DI pipe with Welded Puddle Flange	2825	1
E8	450	Flange Adaptor	-	1
E9	450×450	Flanged Tee	-	1
E10	450	FL x FL DI pipe	3750	1
E11	450	FL x FL DI pipe	5000	1
E12	450	FL x FL DI pipe	4000	2
E13	450	FL x PE DI pipe	2025	1
E14	450	Slip on Coupling with Harness	-	1
E15	450	FL x PE DI pipe with Welded Puddle Flange	2000	1
E16	450	Flanged Bellmouth	-	1

Piping schedule - Bypass Line

Pipe No.	ND mm	Description	Length mm	Qty
F1	450	FL x PE DI pipe	1900	1
F2	450	Flange Adaptor	-	2
F3	450	FL x FL 11 1/4° DI Bend	-	1
F4	450	FL x PE DI pipe	2300	1

Piping schedule - Outlet Pipe

Pipe No.	ND mm	Description	Length mm	Qty
G1	450	Flanged Bellmouth	-	1
G2	450	FL x PE DI pipe with Welded Puddle Flange	1815	1
G3	450	Flange Adaptor	-	2
G4	450	FL x FL DI Pipe	1945	1
G5	450	FL x FL DI Pipe	5000	2
G6	450	FL x PE DI Pipe	885	1
G7	450	FL x PE DI Pipe	2000	1
G8	450	FI x FL DI Tee	-	1
G9	450	PE x PE DI pipe with Welded Puddle Flange	1800	1
G10	450	Coupling	-	1
G11	450	Slip on Coupling with Harness	-	1

Piping schedule - Overflow and Scour Pipe

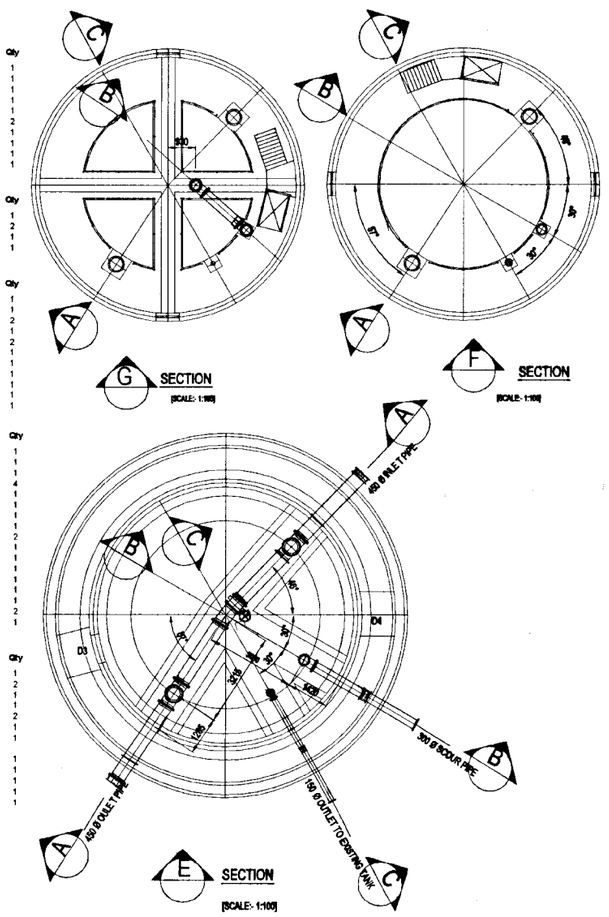
Pipe No.	ND mm	Description	Length mm	Qty
H1	300	Flanged Bellmouth	-	1
H2	300	FL x PE DI Pipe with Welded Puddle Flange	1225	1
H3	300	FL x PE DI pipe	1360	1
H4	300	Flange Adaptor	-	4
H5	300	FL x FL DI Tee	-	1
H6	300	FL x FL Pipe	5000	1
H7	300	FL x PE DI Pipe with Welded Puddle Flange	2375	1
H8	300	FL x FL Pipe	2500	1
H9	300	FL x FL DI Duckfoot 90° Bend	-	2
H10	300	FL x PE DI Pipe	1475	1
H11	300	FL x FL Pipe	4000	1
H12	300	FL x FL Pipe	5000	1
H13	300	FL x PE DI Pipe	2540	1
H14	300	FL x FL Pipe	1050	1
H15	300	PE x PE DI Pipe with Welded Puddle Flange	1875	1
H16	300	Coupling	-	2
H17	300	Slip on Coupling with Harness	-	1

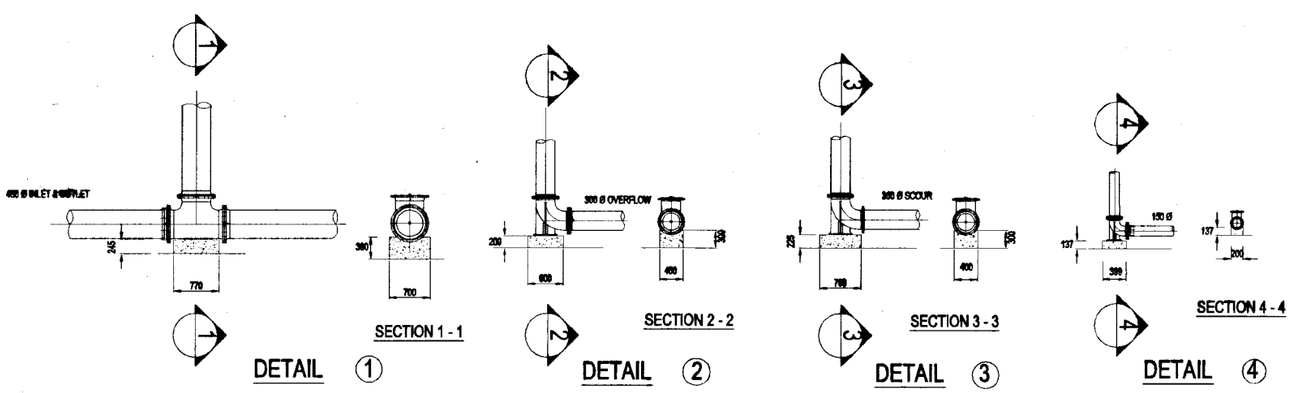
Piping schedule - New Line to Existing Tank

Pipe No.	ND mm	Description	Length mm	Qty
I1	150	Flanged Bellmouth	-	1
I2	150	FL x FL DI Pipe	5000	2
I3	150	FL x FL DI Pipe with Welded Puddle Flange	2500	1
I4	150	FL x PE DI Pipe	1000	1
I5	150	Flange Adaptor	-	2
I6	150	FL x FL DI Pipe	2000	1
I7	150	FL x FL DI Pipe	4000	1
I8	150	FL x PE DI Pipe	1420	1
I9	150	FL x FL DI Pipe	2230	1
I10	150	FL x FL DI Duckfoot 90° Bend	-	1
I11	150	PE x PE DI Pipe with Welded Puddle Flange	1890	1
I12	150	Coupling	-	1
I13	150	Slip on Coupling with Harness	-	1

Valve schedule

FV1	450	Butterfly valve	1	
GV1	450	Butterfly valve	1	
HV1	300	Gate Valve	1	
IV1	150	Gate Valve	1	





DO NOT SCALE

REV.	DESCRIPTION

NATIONAL WATER SUPPLY AND DRAINAGE BOARD
THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA

SUB PROJECT: KOTIKAWATTE/ MULLEIYAWA

TITLE: GOTHATUWA NEW WATER TOWER PIPING SECTION & DETAILS

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
STUDY TEAM
NIHON SUIDO CONSULTANTS CO. LTD.,
TOKYO, JAPAN

DESIGNED:	DRAWN:	DATE:	JAN 2001
CHECKED:	PM (NEWSAPS) MANDB:	CONTRACT No:	NRW / CW
DY. TEAM LEADER:	A.G.M (P&D) MANDB:	DRG. No:	KMU/WT/YP-01
TEAM LEADER:	D.G.M (P&D) MANDB:		

SCALE :- 1:10,000

LEGEND

RESIDENTIA

COMMERCIA

INDUSTRIAL

ADMINISTRA

INSTITUTIO

TRANSPORT

OTHER B
AREA

RECREATION
OPEN SPA

AGRICULTUR

WATER B

MISCELLANE
AREA

KITTAMPAHUWA

KATUPOLELLA JUNCTION

KITTAMPAHUWA JUNCTION

KELANIMULLA JUNCTION

AVISSAWELLA ROAD

MEEGODAMULLA JUNCTION

WELLAMPITIYA

RUWANWELLA HOUSING SCHEME

GOTHATUWA JUNCTION

ANGODA JUNCTION

BAIMMA JUNCTION

AMBATALE JUNCTION

MULLERIYAWA TREATMENT PLANT

WELIWITA

KOLONNAWA

GOTATUWA

MADINNAGODA

AMBAGAHA JUNCTION

TO KOSWATTA

MEEGODAMULLA WATER TOWER
CAP. - 2000 m³
T.W.L.- 35.7 m
B.W.L.- 29.8 m

GOTHATUWA WATER TOWER
CAP. - 818 m³
T.W.L.- 44.8 m
B.W.L.- 29.8 m

MULLERIYAWA RESERVOIR
CAP. - 2727 m³
T.W.L.- 44.8 m
B.W.L.- 29.8 m

NOTE : UPDATED AND MODIFIED NWSDB DRAWING
TITLED " KOLONNAWA, KOTIKAWATTA, MULLERIYAWA
KEY PLAN.".DATED 07.04.1995.

DO NOT SCALE

NATIONAL WATER SUPPLY AND DRAINAGE BOARD

THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
STUDY TEAM

NIHON SUIDO CONSULTANTS CO. LTD.,
TOKYO, JAPAN

REV.	DESCRIPTION

SUB PROJECT: KOTIKAWATTA MULLERIYAWA

TITLE: EXISTING DISTRIBUTION MAINS

DESIGNED: [illegible]
DRAWN:
DATE: JAN 2001
CHECKED: [illegible]
CONTRACT No: NRW / CW
DR. No: KMU / DM / G - 01

LEGEND

- Section Valve (GV up to 300, BV for 400 & 500)
- Fire Hydrant
- Major Pipeline Nodes
- Interconnection to Existing Pipeline
- 300 Diameter, mm
- Pipeline Route
- A Air Valve
- W Washout

DO NOT SCALE

REV.	DESCRIPTION

NATIONAL WATER SUPPLY AND DRAINAGE BOARD

THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) STUDY TEAM

NIHON SUIDO CONSULTANTS CO. LTD., TOKYO, JAPAN

SUB PROJECT: KOTIKAWATTE MULLERIYAWA

TITLE: DISTRIBUTION MAIN KEY MAP - PROPOSED

DESIGNED:

DRAWN:

DATE: JAN 2001

CHECKED:

PW (WATER SUPPLY) MANAGER:

CONTRACT No: NRW/CW

DY. TEAM LEADER:

A.G.M (P&D) MANAGER:

Dwg. No: KMU/DM/G/02

TEAM LEADER:

D.G.M (P&D) MANAGER: