

LEGEND

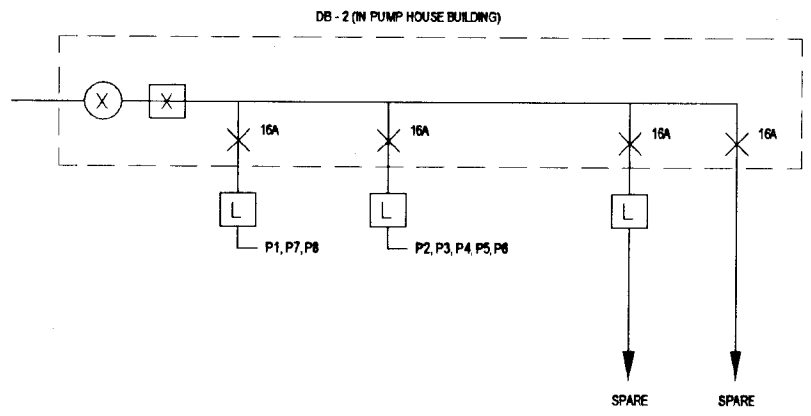
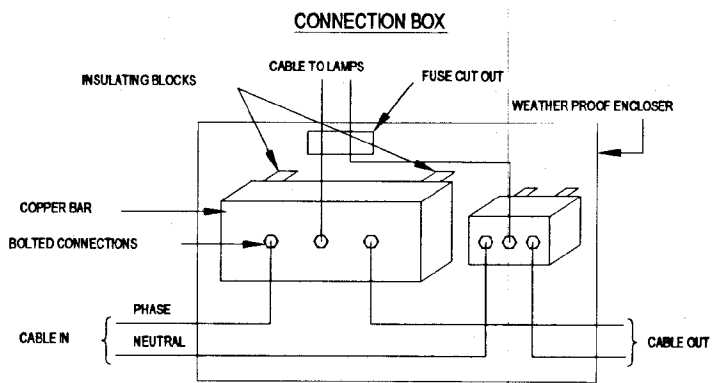
- — CU PLATE 1000 x 1000 mm
- 2 x 40 W FLUORESCENT LAMP EXTERIOR WEATHER PROOF ENCLOSURE
- ⊗ — 800 x 600 HAND HOLE FOR TESTING GROUNDING SYSTEM

SCHEDULE OF CABLES

FEEDER No.	FROM - TO	SIZE OF CABLES	REMARKS
1	DB - P1, P7 & P8	2.25 Sq. mm	IN HARD PVC CONDUITS RUN ON SURFACE OF WALLS
2	DB - P2, P3 & P4	4.0 Sq. mm	AS ABOVE & BURIED UNDER GROUND
	P5 & P6	2.25 Sq. mm	- DO -

LEGEND:-

□	RC LAMP POSTS
⊥	MCB'S (S.P.)
L	PHOTO ELECTRIC LAMP CONTROL SWITCH
⊗	RCCB 30A DP
⊕	MCB 30A DP



NOTES:-

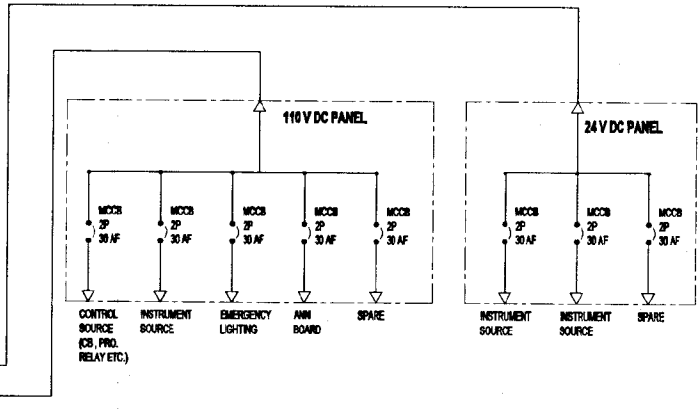
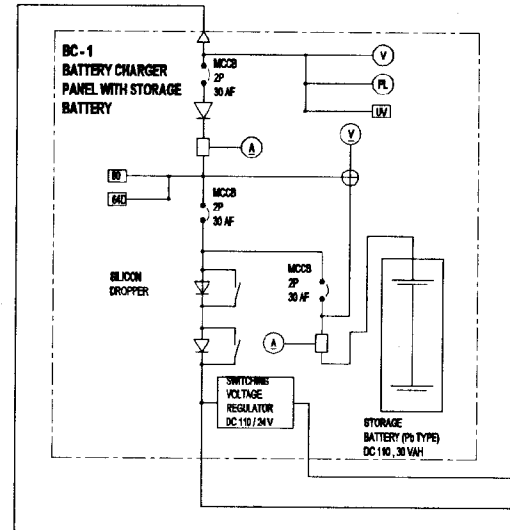
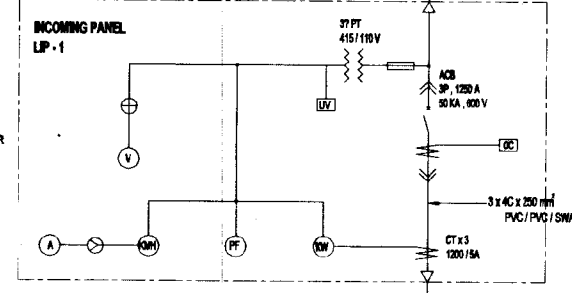
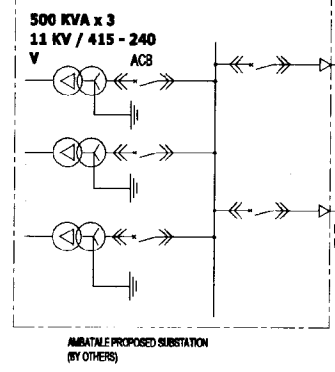
1. THESE CONNECTION BOXES TO BE MOUNTED ON WALLS OR ON RC LAMP POSTS.
2. LAMPS TYPE Z3 USED AT ALL LOCATIONS

DO NOT SCALE

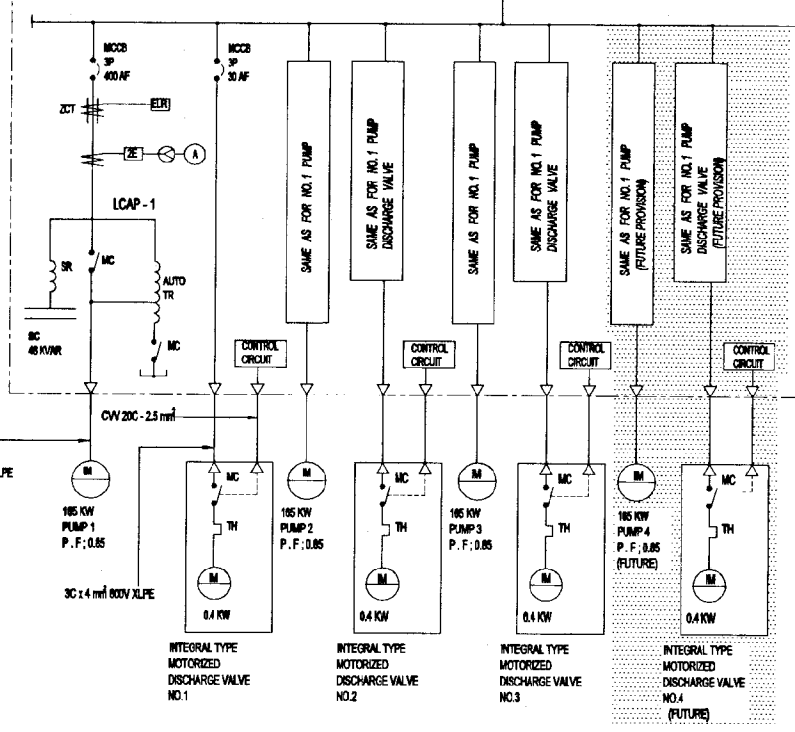
<p>NATIONAL WATER SUPPLY AND DRAINAGE BOARD THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA</p>	<p>SUB PROJECT: KOTIKAWATTE/ MULLERIYAWA</p>	<p>TITLE: GOTHATUWA KOLONNAWA PUMP HOUSE SITE LIGHTING, CABLING AND GROUNDING</p>
	<p>JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) STUDY TEAM</p> <p>NIHON SUDO CONSULTANTS CO. LTD., TOKYO, JAPAN</p>	<p>DESIGNED: <i>[Signature]</i></p> <p>CHECKED: <i>[Signature]</i></p> <p>DT. TEAM LEADER: <i>[Signature]</i></p> <p>TEAM LEADER: <i>[Signature]</i></p>

LEGEND

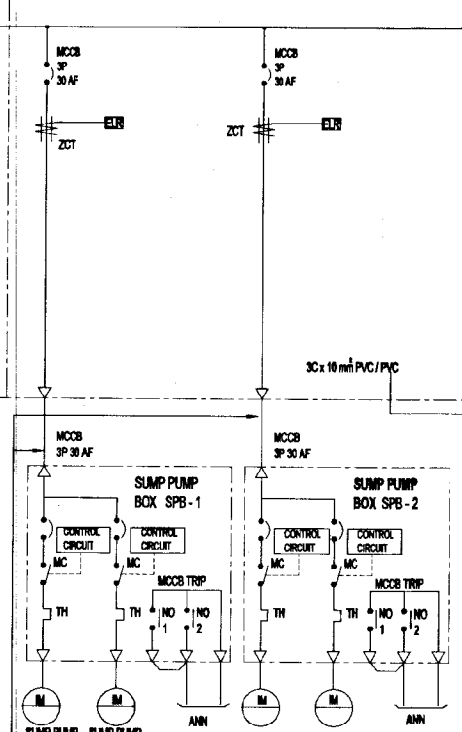
FUTURE



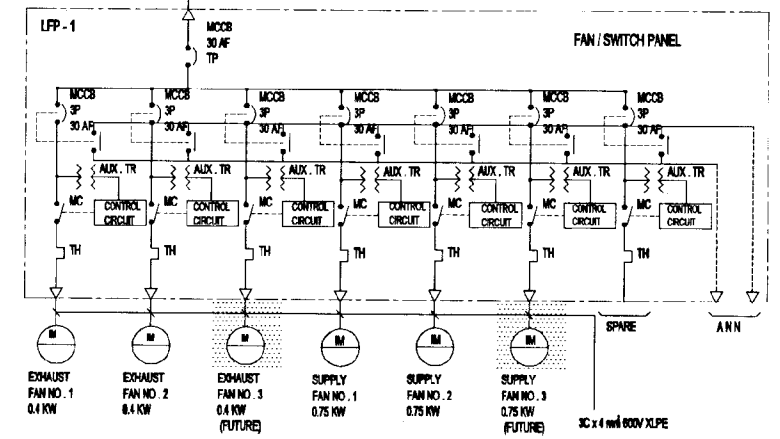
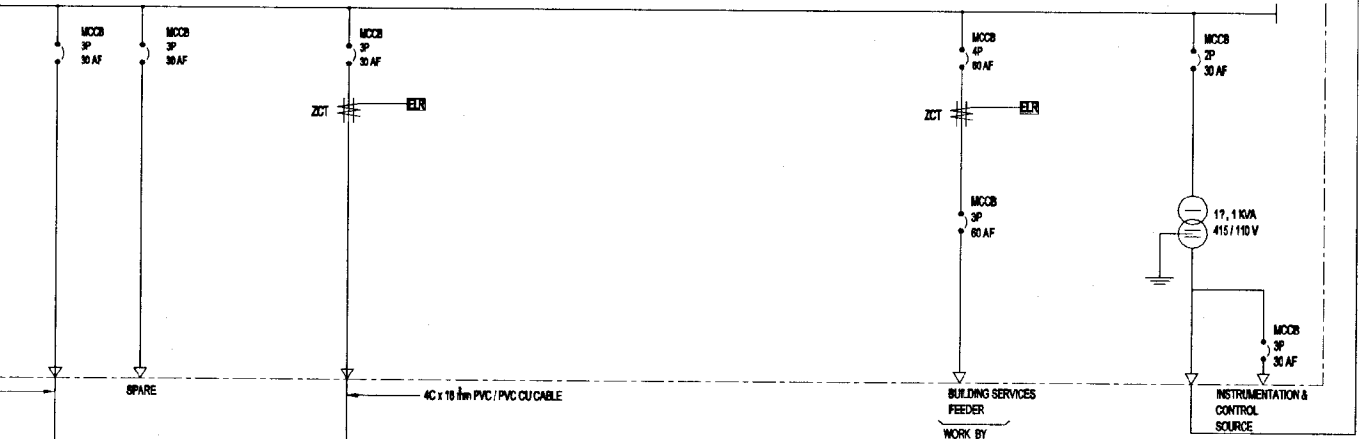
LMP-1 LOW VOLTAGE MOTOR CONTROL PANEL



BUS (3 PHASE 4 WIRE , 415 V , 1200 A , 50 KA)



BUS (3 PHASE 4 WIRE , 415 V , 1200 A , 50 KA)

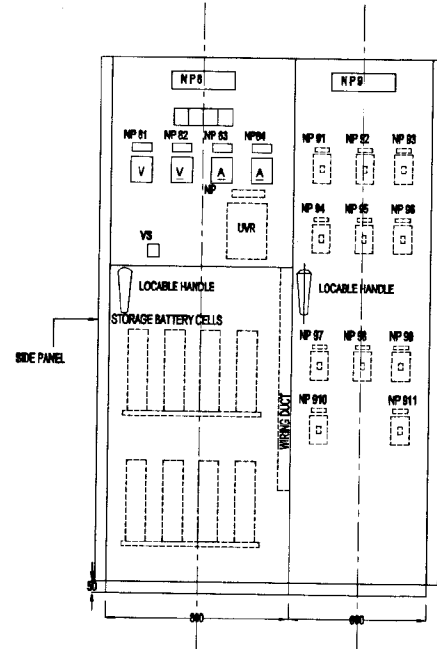


NOTE: COORDINATE CABLE, WIRE SIZES WITH FLOOR PLANS.

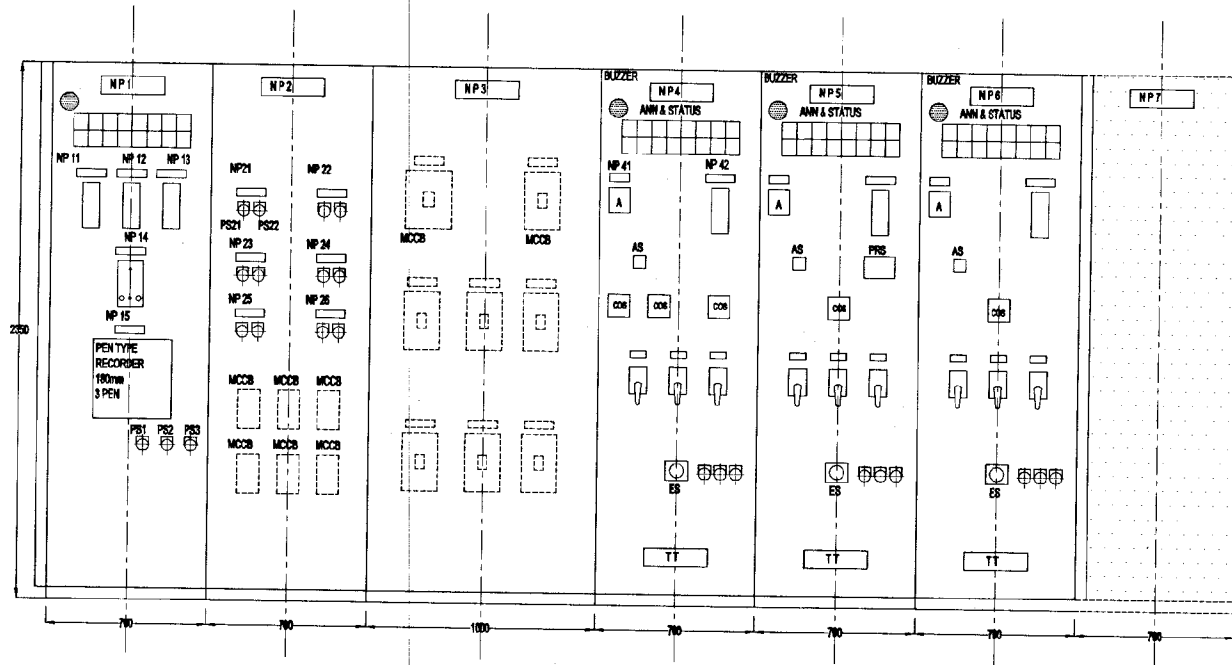
PUMP HOUSE MAIN SWITCH BOARD GOTHATUWA KOLONNAWA					
LOAD DESCRIPTION	R	Y	B	MCCB/MCB	CABLE SIZE
MOBV 01	1	1	1	20	3C x 4mm ²
MOBV 02	1	1	1	20	3C x 4mm ²
MOBV 03	1	1	1	20	3C x 4mm ²
MOBV 04	1	1	1	20	FUTURE
PUMP P-TR-1	55	55	55	400	DUTY 2 x 3C x 95mm ²
PUMP P-TR-2	55	55	55	400	DUTY 2 x 3C x 95mm ²
PUMP P-TR-3	55	55	55	400	STANDBY 2 x 3C x 95mm ²
PUMP P-TR-4	55	55	55	400	FUTURE
BUILDING SERVICES	5	5	5	30	4C x 6mm ²
SPARE	10	10	10	30	
TOTAL	338	338	338		
MAIN BREAKER				1400	3 x 4C x 300mm ²

DO NOT SCALE

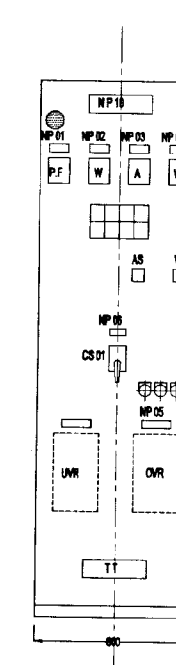
<p>NATIONAL WATER SUPPLY AND DRAINAGE BOARD THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA</p>	<p>SUB PROJECT: KOTIKAWATTA MULLERIYAWA</p>	<p>TITLE: GOTHATUWA - KOLONNAWA PUMP HOUSE SINGLE - LINE DIAGRAM</p>
	<p>JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) STUDY TEAM</p> <p>NIHON SUDO CONSULTANTS CO. LTD., TOKYO, JAPAN</p>	<p>DESIGNED: <i>[Signature]</i></p> <p>CHECKED: <i>[Signature]</i></p> <p>BY TEAM LEADER: <i>[Signature]</i></p> <p>TEAM LEADER: <i>[Signature]</i></p>



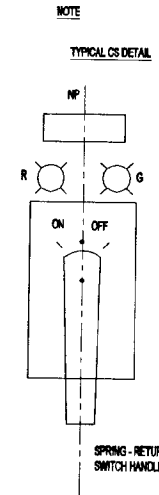
DEPTH : 800 mm



DEPTH : 600 mm



DEPTH : 1200 mm



- NOTE
- TYPICAL CS DETAIL
 - R : RED LAMP (LED) FOR CB CLOSE STATUS INDICATION
 - G : GREEN LAMP (LED) FOR CB OPEN/TRIP STATUS INDICATION
 - THIS RED LAMP IS ALSO APPLIED, FOR PUMP 'ON' OR VALVE 'FULLY OPEN'
 - THIS GREEN LAMP IS ALSO APPLIED, FOR PUMP 'OFF' OR VALVE 'FULLY CLOSE'

NP 1	INSTRUMENT PANEL
NP 11	OUTFLOW (IN) / TRAND PRESSURE
NP 12	RESERVOIR WL
NP 13	OUTFLOW ACCUMULATIVE m ³
NP 14	FLOPPY DISK DRIVE
NP 16	RECORDER (RESERVOIR WL / OUTFLOW / TRANSMISSION PRESSURE)
PS1	PUSH BUTTON SW (LAMP TEST)
PS2	PUSH BUTTON SW (ACKNOWLEDGE)
PS3	PUSH BUTTON SW (ANN RESET)

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	ANCLLARY EQUIPMENT PANEL
NP 4	PUMP No. 1 PANEL
NP 41	PUMP CURRENT
NP 42	PUMP SUCTION PRESSURE
NP 43	PUMP INDIVIDUAL OPERATION (FOR CS 41)
NP 44	PUMP DISCHARGE VALVE LINK UP OPERATION (FOR CS 42)
NP 45	DISCHARGE VALVE INDIVIDUAL OPERATION (FOR CS 43)
CS 41	PUMP OPERATION MODE SELECTOR SW (INDIVIDUAL-LINK UP)
CS 42	PUMP SELECTION MODE SW (No.1+No.2 / No.2+No.3 / No.3+No.1)
CS 43	AUTO OPERATION SELECTOR SW (AUTO - OFF)
CS 41	CONTROL SW (ON-OFF) SPRING RETURN
CS 42	CONTROL SW (RUN-STOP) SPRING RETURN
CS 43	CONTROL SW (OPEN-CLOSE) SPRING RETURN
ES	EMERGENCY STOP SW (PUSH BUTTON)

NP 5	PUMP No. 2 PANEL
PS5	24 HOURS SCHEDULE PROGRAM FOR PUMP UNIT OPERATION (LCD INDICATOR WITH SETTER)

NP 6	PUMP No. 3 PANEL
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NP 7	PUMP No. 4 PANEL (FUTURE)
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NP 9	DC (110/24V) PANEL
NP 91	DC 110V FEEDER - 1
NP 92	DC 110V FEEDER - 2
NP 93	DC 110V FEEDER - 3
NP 94	DC 110V FEEDER - 4
NP 95	DC 110V FEEDER - 5
NP 96	DC 110V FEEDER - 6
NP 97	DC 24V FEEDER - 1
NP 98	DC 24V FEEDER - 2
NP 99	DC 24V FEEDER - 3
NP 910	DC 24V FEEDER - 2
NP 911	DC 24V FEEDER - 3

NP 8	BATTERY CHARGER & BATTERY PANEL
NP 81	INPUT AC VOLTAGE
NP 82	CHARGER OUTPUT VOLT/BATTERY TERMINAL
NP 83	BATTERY CHARGE CURRENT
NP 84	BATTERY DISCHARGE CURRENT
VS	DC VOLT/METER SELECTOR SW (CH V - BAT. V)

NP 18	INCOMING POWER PANEL
NP 01	POWER FACTOR
NP 02	POWER (KW)
NP 03	CURRENT
NP 04	VOLTAGE
NP 05	ENERGY (KWH)
NP 06	INCOMING CB
AS	AMMETER SELECTOR SW (R-S-T)
VS	VOLTMETER SELECTOR SW (RS-ST-TR)
CS 01	CONTROL SW (ON-OFF) SPRING RETURN

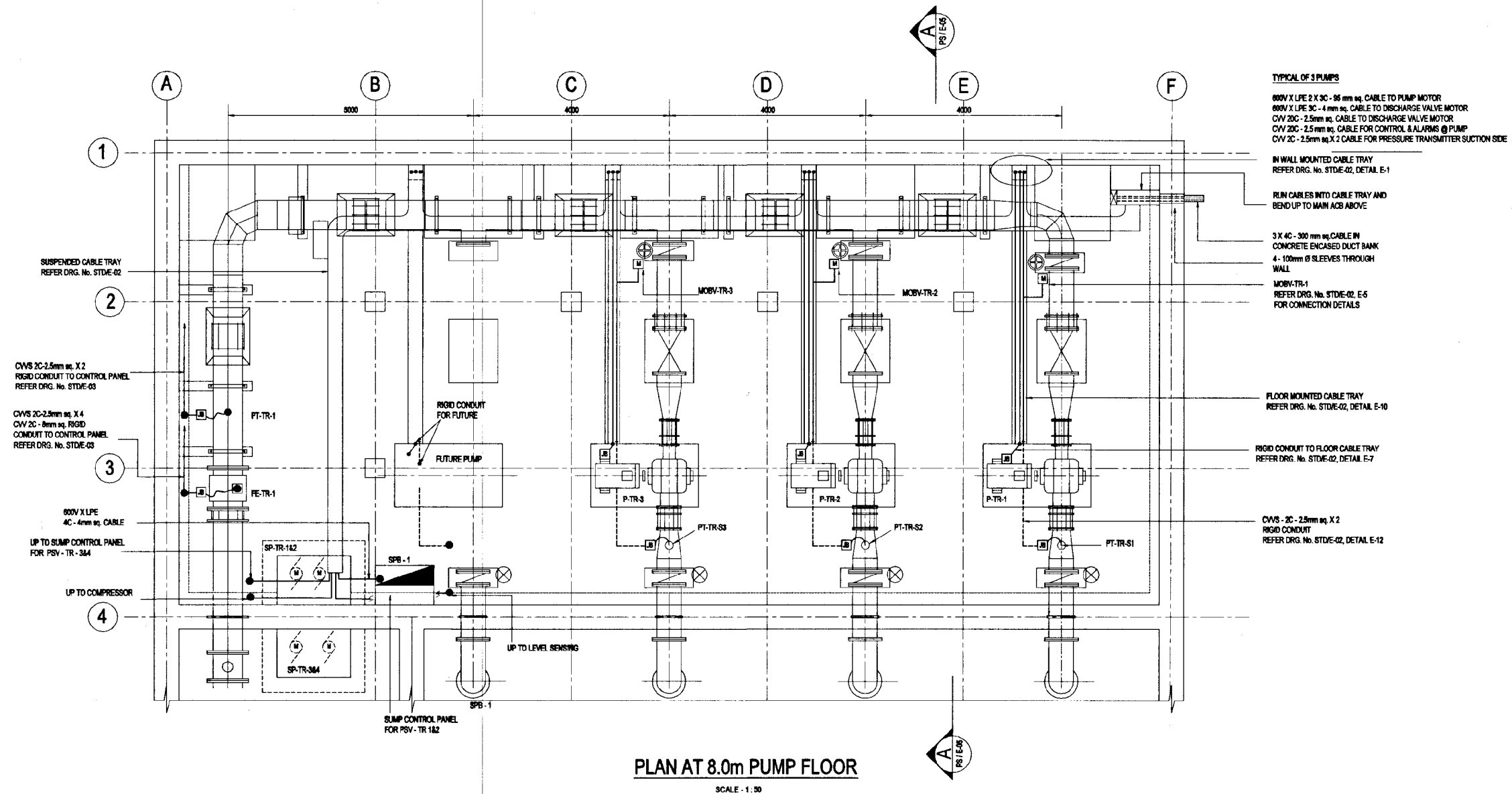
LEGEND :

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

DO NOT SCALE

FOR TENDER PURPOSES ONLY

<p>NATIONAL WATER SUPPLY AND DRAINAGE BOARD THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA</p>	<p>SUB PROJECT: KOTIKAWATTE MULLERIYAWA</p>		<p>TITLE: GOTHATUWA - KOLONNAWA PUMP HOUSE PANEL ARRANGEMENT</p>	
	<p>JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) STUDY TEAM</p>		<p>DATE: JAN 2001</p>	
<p>NIHON SUDO CONSULTANTS CO. LTD., TOKYO, JAPAN</p>		<p>CONTRACT No: NRW / CW</p>		<p>DRG No: KMU / PS / E - 03</p>



TYPICAL OF 3 PUMPS
 60V X LPE 2 X 90 - 95 mm sq. CABLE TO PUMP MOTOR
 60V X LPE 90 - 4 mm sq. CABLE TO DISCHARGE VALVE MOTOR
 CVV 20C - 2.5mm sq. CABLE TO DISCHARGE VALVE MOTOR
 CVV 20C - 2.5mm sq. CABLE FOR CONTROL & ALARMS @ PUMP
 CVV 20C - 2.5mm sq. X 2 CABLE FOR PRESSURE TRANSMITTER SUCTION SIDE

1 SUSPENDED CABLE TRAY
REFER DRG. No. STD/E-02

2 60V X LPE 2 X 90 - 95 mm sq. CABLE TO PUMP MOTOR
60V X LPE 90 - 4 mm sq. CABLE TO DISCHARGE VALVE MOTOR
CVV 20C - 2.5mm sq. CABLE TO DISCHARGE VALVE MOTOR
CVV 20C - 2.5mm sq. CABLE FOR CONTROL & ALARMS @ PUMP
CVV 20C - 2.5mm sq. X 2 CABLE FOR PRESSURE TRANSMITTER SUCTION SIDE

3 CWS 2C-2.5mm sq. X 2 RIGID CONDUIT TO CONTROL PANEL REFER DRG. No. STD/E-03
CWS 2C-2.5mm sq. X 4 CVV 20C - 8mm sq. RIGID CONDUIT TO CONTROL PANEL REFER DRG. No. STD/E-03

4 80V X LPE 4C - 4mm sq. CABLE UP TO SUMP CONTROL PANEL FOR PSV - TR - 384 UP TO COMPRESSOR

IN WALL MOUNTED CABLE TRAY REFER DRG. No. STD/E-02, DETAIL E-1

RUN CABLES INTO CABLE TRAY AND BEND UP TO MAIN ACB ABOVE

3 X 4C - 300 mm sq. CABLE IN CONCRETE ENCASED DUCT BANK 4 - 100mm Ø SLEEVES THROUGH WALL


MOB-TR-1 REFER DRG. No. STD/E-02, E-5 FOR CONNECTION DETAILS

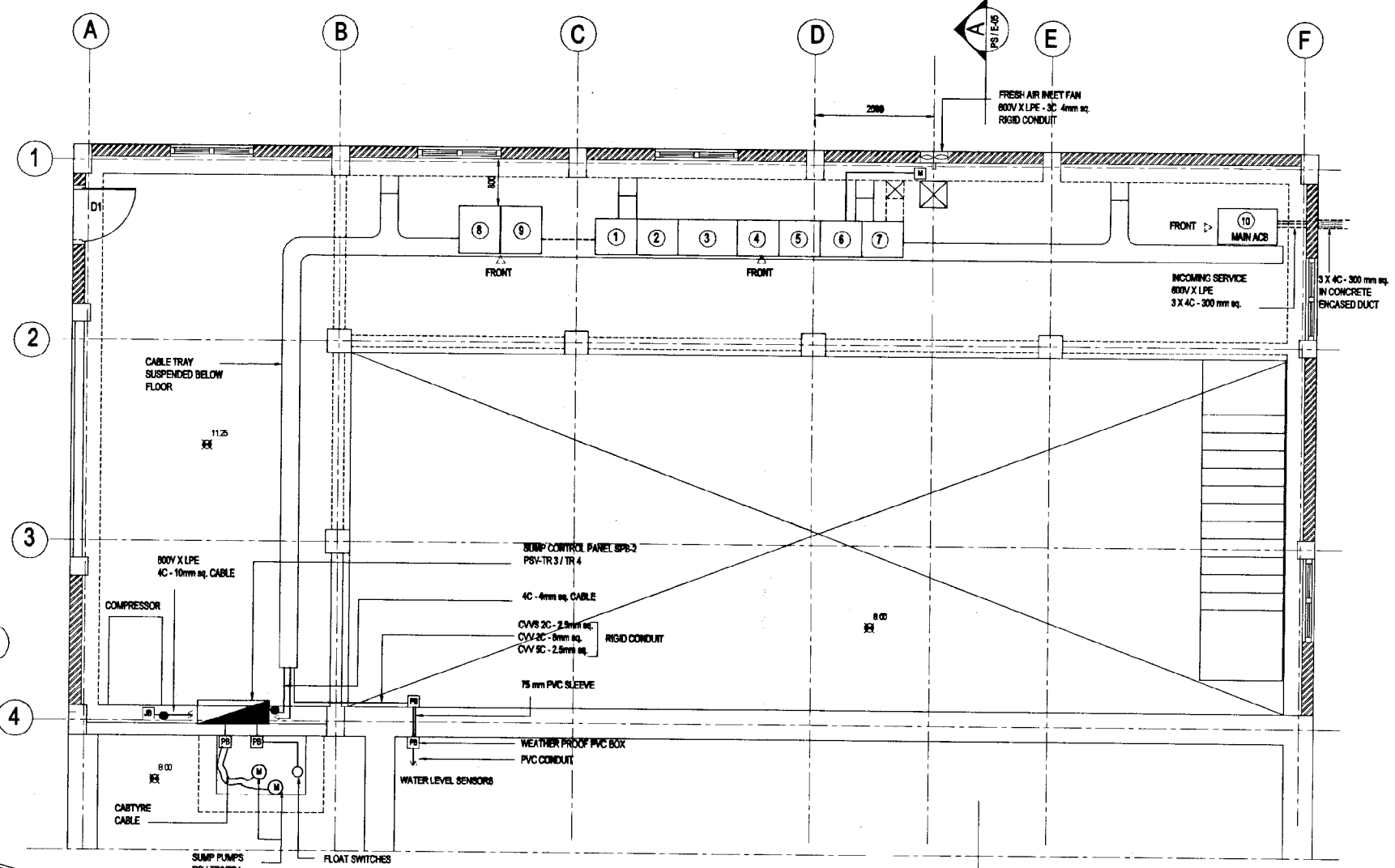
FLOOR MOUNTED CABLE TRAY REFER DRG. No. STD/E-02, DETAIL E-10

RIGID CONDUIT TO FLOOR CABLE TRAY REFER DRG. No. STD/E-02, DETAIL E-7

CWS - 2C - 2.5mm sq. X 2 RIGID CONDUIT REFER DRG. No. STD/E-02, DETAIL E-12

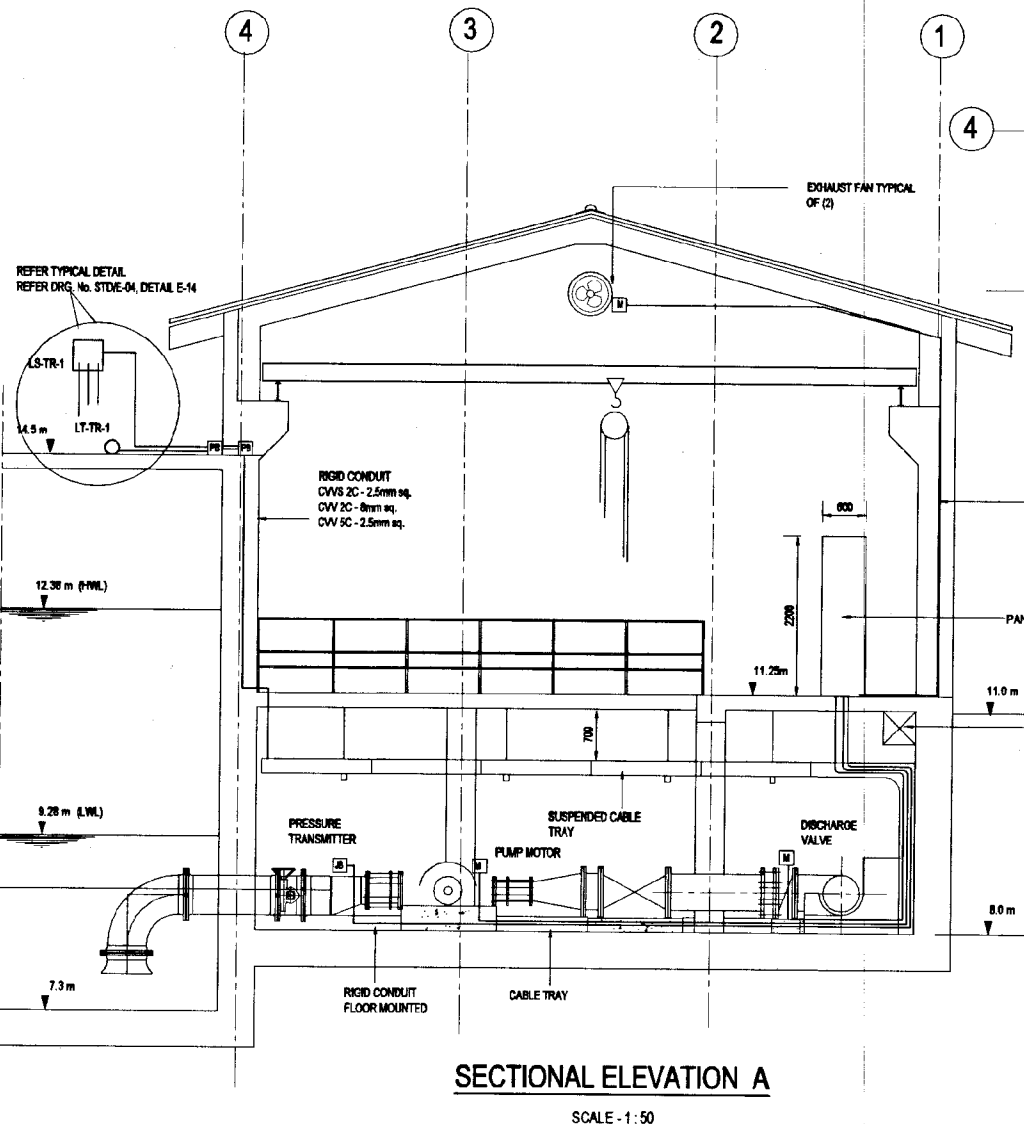
DO NOT SCALE

 <p>NATIONAL WATER SUPPLY AND DRAINAGE BOARD THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA</p>	<p>SUB PROJECT: KOTIKAWATTE MULLERIYAWA</p>		<p>TITLE: GOTHATUWA - KOLONNAWA PUMP HOUSE ELECTRICAL PLAN AT 8.0m MSL</p>
	<p>JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) STUDY TEAM</p> <p>NIHON SUIDO CONSULTANTS CO. LTD., TOKYO, JAPAN</p>		<p>DESIGNED: <i>[Signature]</i> CHECKED: <i>[Signature]</i> DRY TEAM LEADER: <i>[Signature]</i> TEAM LEADER: <i>[Signature]</i></p>
<p>DATE: JAN 2001</p>		<p>CONTRACT NO: NRW / CW</p>	<p>DRG. NO: KMU / PS / E-04</p>



PLAN AT 11.25m GROUND FLOOR


SCALE - 1:30



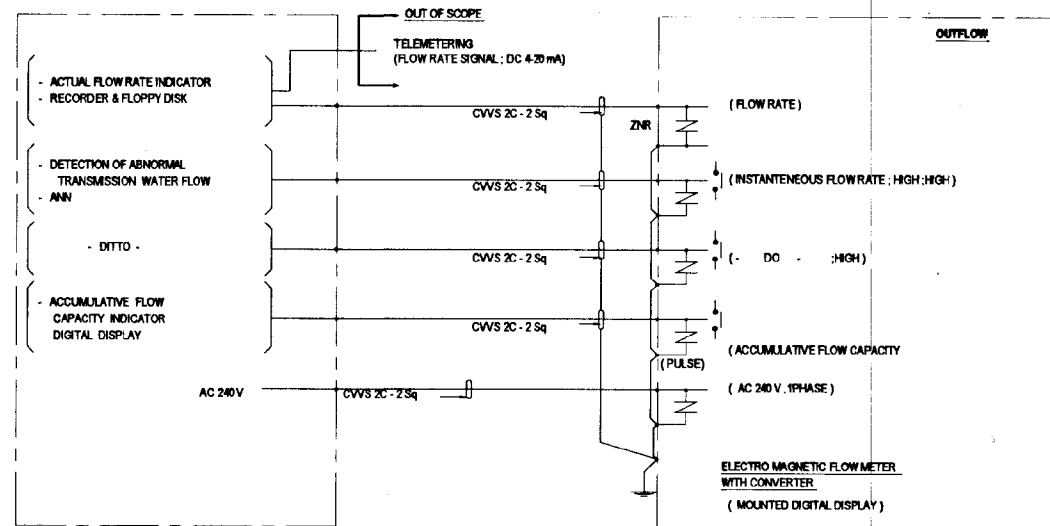
SECTIONAL ELEVATION A

SCALE - 1:50

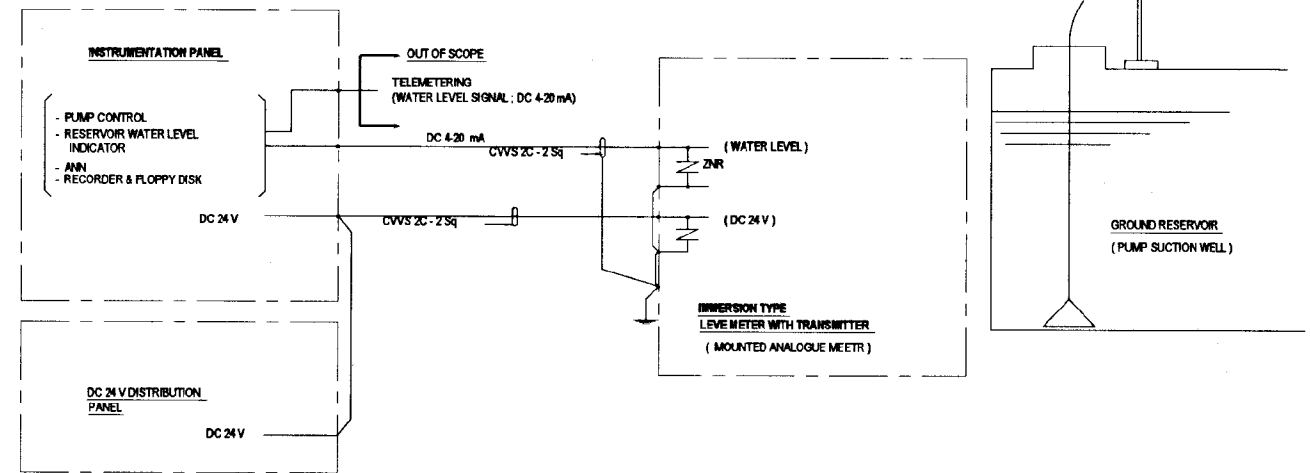
DO NOT SCALE

 <p>NATIONAL WATER SUPPLY AND DRAINAGE BOARD THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA</p>	<p>SUB PROJECT: KOTIKAWATTE MULLERIYAWA</p>	<p>TITLE: GOTHATUWA - KOLONNAWA PUMP HOUSE ELECTRICAL PLAN AT 11.25m MSL AND SECTION</p>
	<p>DESIGNED: <i>H. J. J. Jayasinghe</i></p> <p>CHECKED: <i>H. J. J. Jayasinghe</i></p> <p>BY TEAM LEADER: <i>H. J. J. Jayasinghe</i></p>	<p>DRAWN: <i>D. A. J. Jayasinghe</i></p> <p>BY TEAM LEADER: <i>R. D. A. Jayasinghe</i></p>

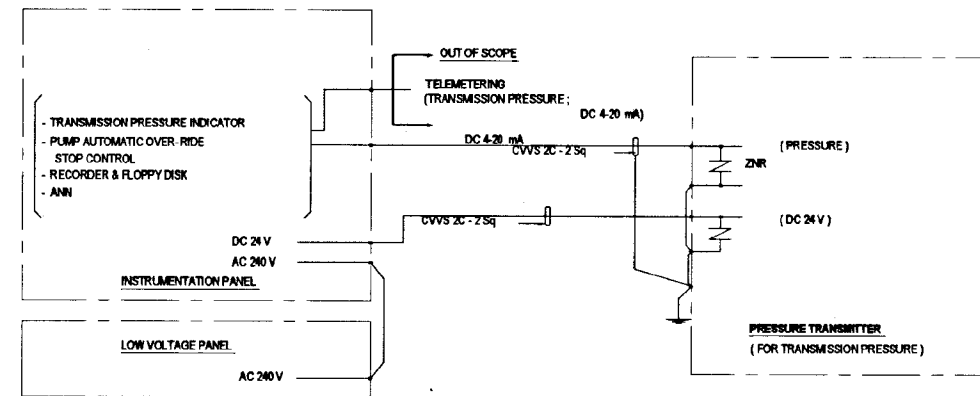
FLOW MEASURING



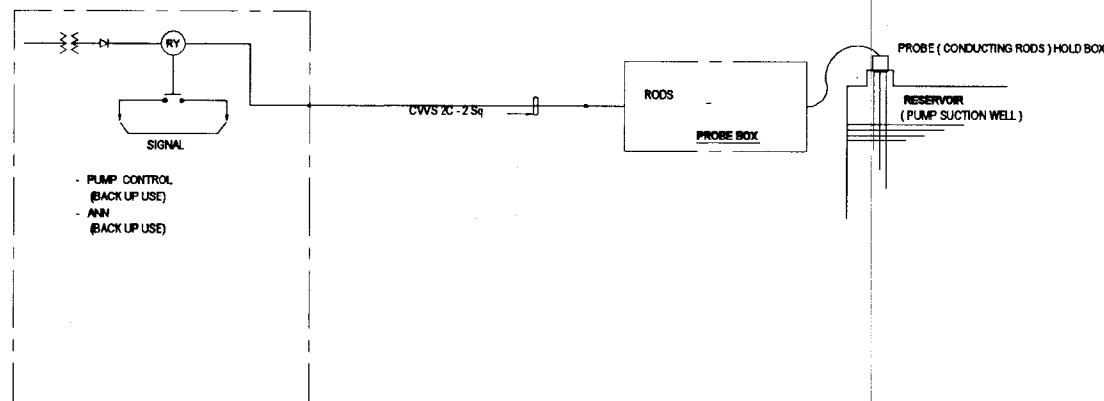
WATER LEVEL MEASURING (MAIN)



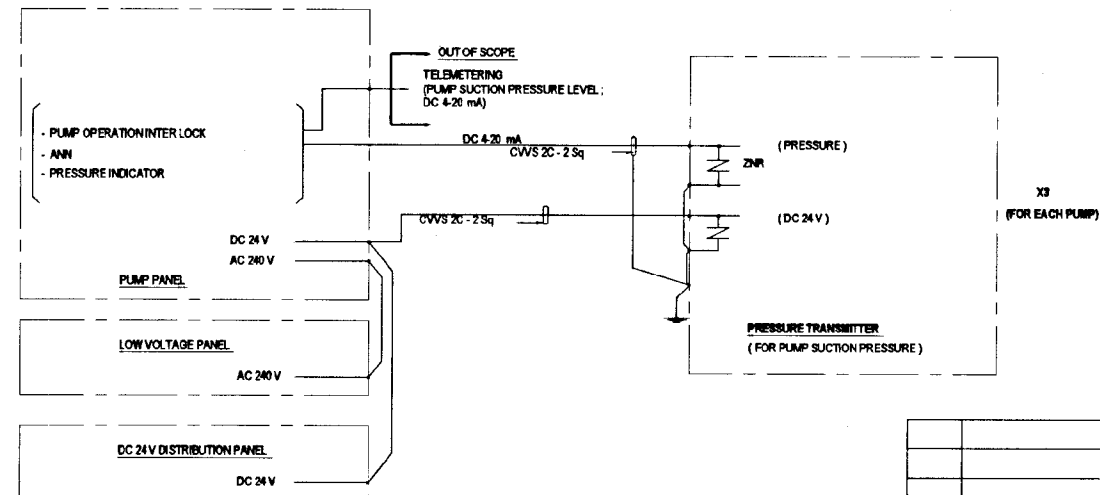
PRESSURE MEASURING




WATER LEVEL MEASURING (BACK UP)

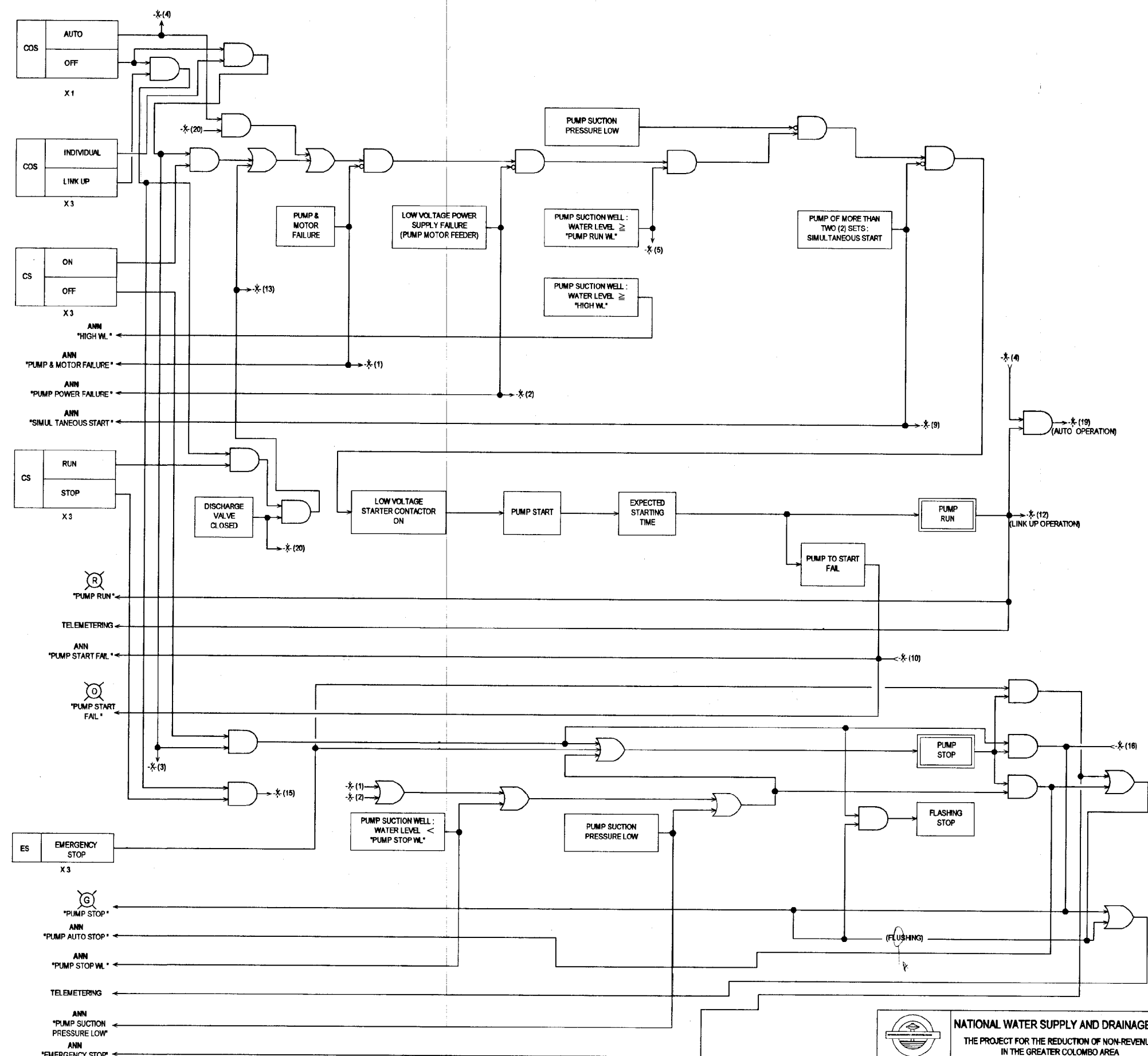


PUMP SUCTION PRESSURE MEASURING



DO NOT SCALE

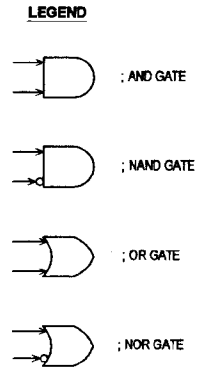
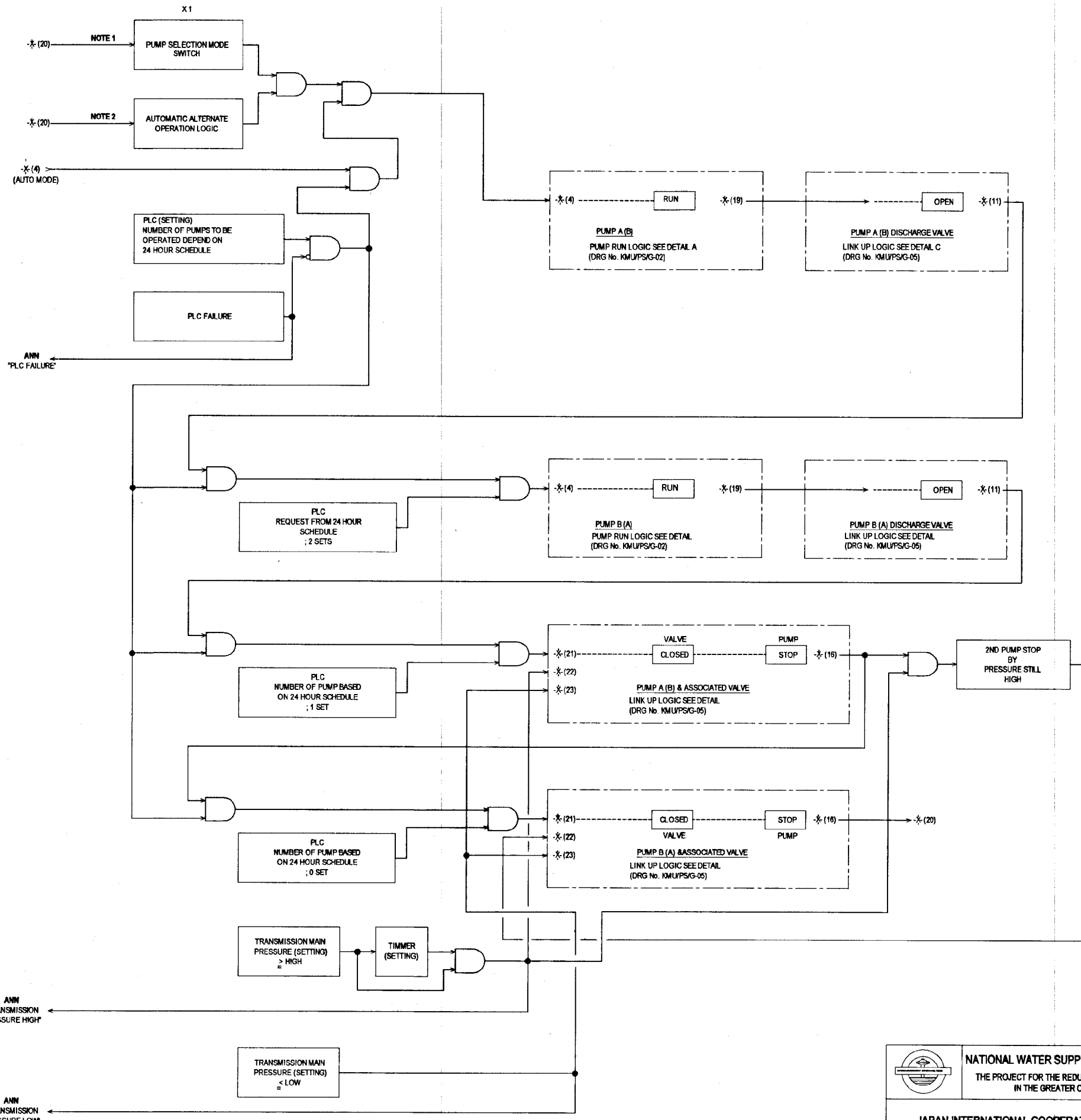
 <p>NATIONAL WATER SUPPLY AND DRAINAGE BOARD THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA</p>	<p>SUB PROJECT: KOTIKAWATTE MULLERIYAWA</p>	<p>TITLE: GOTHATUWA KOLONNAWA PUMP HOUSE INSTRUMENTATION CONNECTION DIAGRAM</p>
	<p>JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) STUDY TEAM NIHON SUDO CONSULTANTS CO. LTD., TOKYO, JAPAN</p>	<p>DESIGNED: <i>[Signature]</i> CHECKED: <i>[Signature]</i> BY TEAM LEADER: <i>[Signature]</i> TEAM LEADER: <i>[Signature]</i></p>



- LEGEND**
- : AND GATE
 - : NAND GATE
 - : OR GATE
 - : NOR GATE

DO NOT SCALE

	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 - KOLONNAWA PUMP HOUSE CONTROL LOGIC DIAGRAM - PUMP OPERATION
	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) STUDY TEAM NIKON SUDO CONSULTANTS CO. LTD., TOKYO, JAPAN		DESIGNED: <i>[Signature]</i> CHECKED: <i>[Signature]</i> BY: TEAM LEADER: <i>[Signature]</i> TEAM LEADER: <i>[Signature]</i>	DATE: JAN 2001 CONTRACT NO: NRW / CW Dwg. No: KMU / PS / E - 07



- NOTE 1** PUMP SELECTION MODE (2 OF 3 PUMPS ARE 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)
- NOTE 3** THE SCHEDULE (24 HOUR) WILL DETERMINE THE NUMBER OF PUMPS THAT SHOULD BE IN OPERATION AT GIVEN TIME OF DAY. THE SCHEDULE IS PROGRAMMED INTO THE PLC BY THE OPERATOR. INPUT SETTING DATA FOR THE SCHEDULE IS INDICATED ON THE LCD (LIQUID CRYSTAL DISPLAY) OF THE PLC.
- NOTE 4** OVER-RIDE OPERATION AS SHOWN ABOVE NOTE 1) AND 2) IS APPLIED FOR AUTOMATIC CONTROL MODE BY PLC.

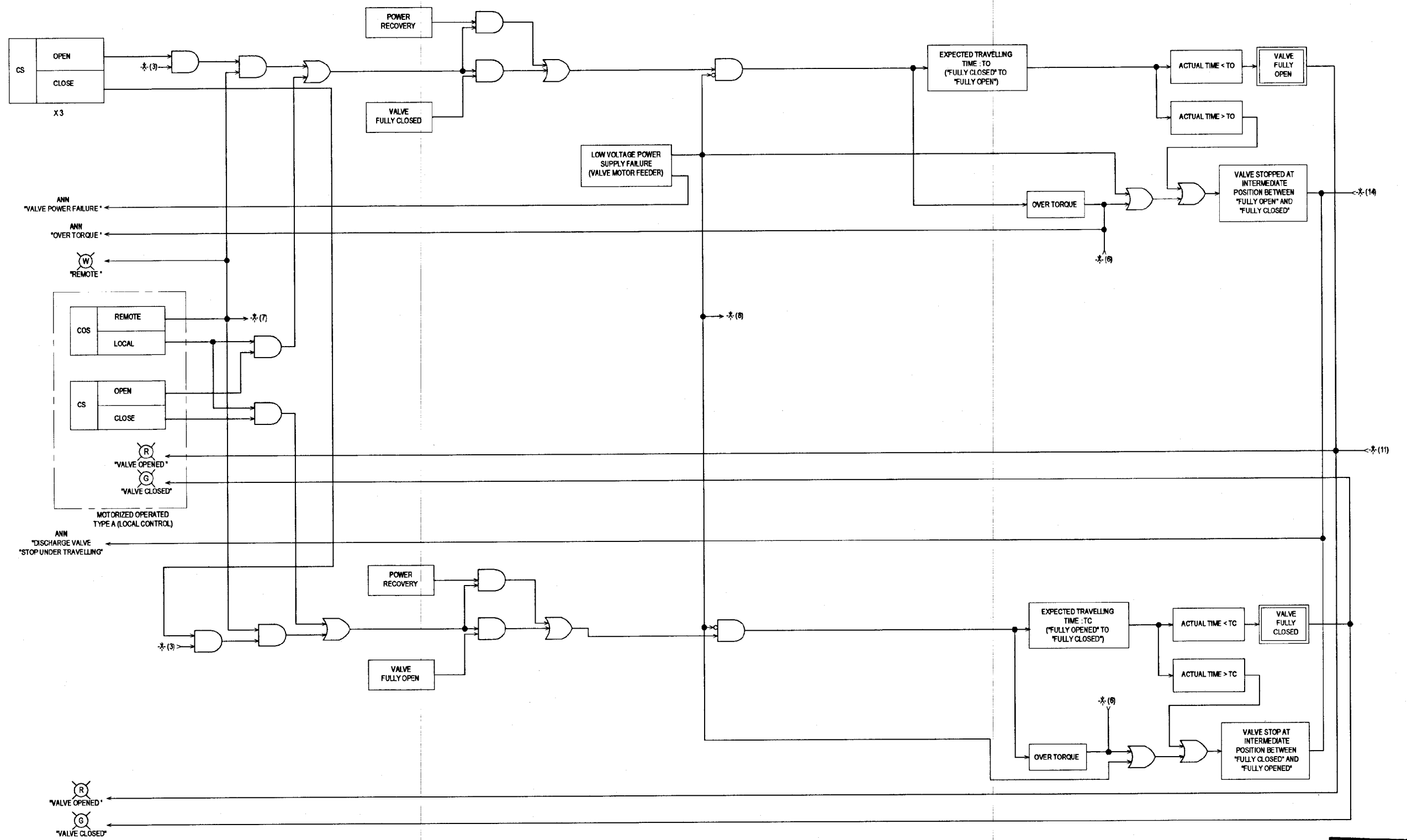
DO NOT SCALE

ANN
TRANSMISSION
PRESSURE HIGH





ANN
TRANSMISSION
PRESSURE LOW


D AUTOMATIC OPERATION

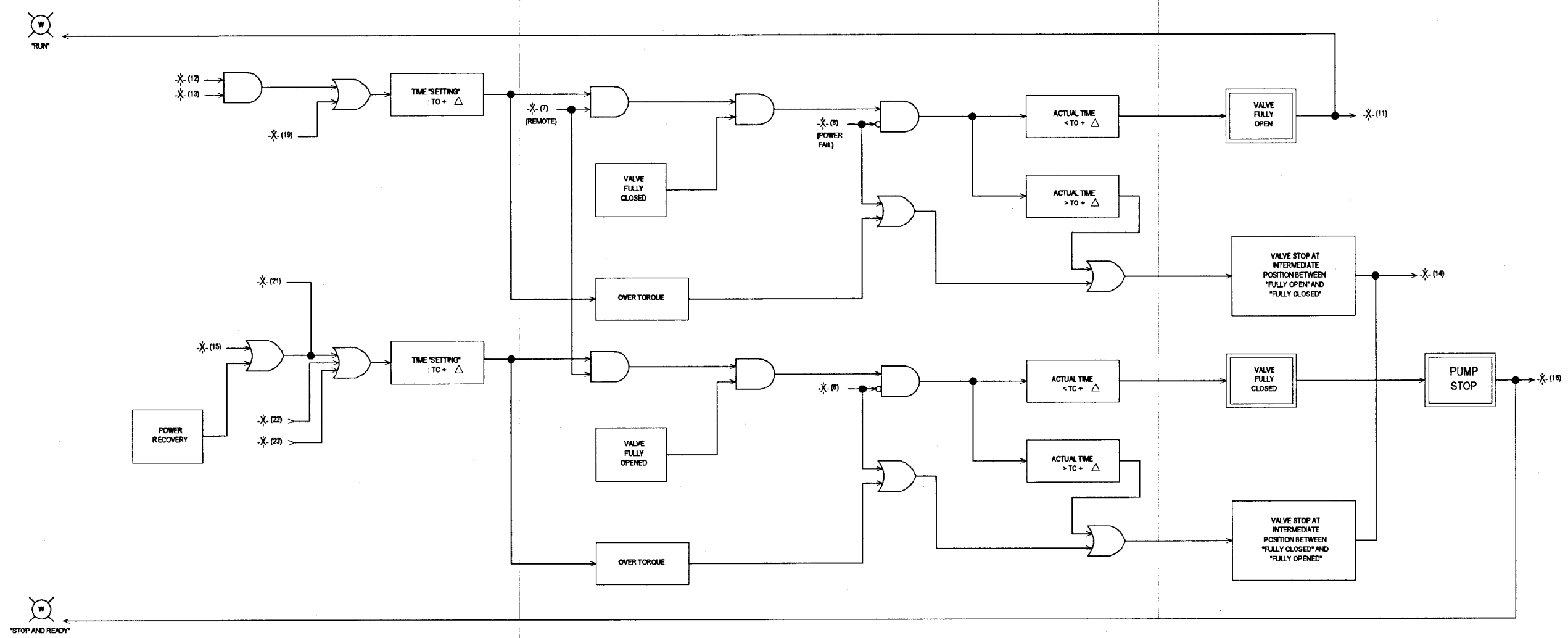
	NATIONAL WATER SUPPLY AND DRAINAGE BOARD THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA		SUB PROJECT: KOTIKAWATTA MULLERIYAWA	TITLE: GOATHUWA - KOLONNAWA PUMP HOUSE CONTROL LOGIC DIAGRAM AUTOMATIC OVERIDE OPERATION
	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) STUDY TEAM NIPPON SURDO CONSULTANTS CO. LTD., TOKYO, JAPAN		DEMONSTRATED: <i>[Signature]</i> CHECKED: <i>[Signature]</i> DIV. TEAM LEADER: <i>[Signature]</i> TEAM LEADER: <i>[Signature]</i>	DRAWN: <i>[Signature]</i> P.M. (P&ID) INCHARGE: <i>[Signature]</i> A.G.M. (P&ID) INCHARGE: <i>[Signature]</i> D.G.M. (P&ID) INCHARGE: <i>[Signature]</i>



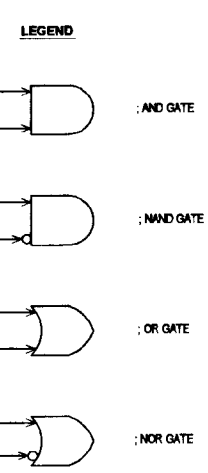
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- LEGEND**
-  : AND GATE
 -  : NAND GATE
 -  : OR GATE
 -  : NOR GATE

 <p>NATIONAL WATER SUPPLY AND DRAINAGE BOARD THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA</p>	<p>SUB PROJECT: KOTIKAWATTA MULLERIYAWA</p>	<p>TITLE: GOTHATUWA - KOLONNAWA PUMP HOUSE CONTROL LOGIC DIAGRAM - DISCHARGE VALVE</p>
	<p>JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) STUDY TEAM NIHON SUIDO CONSULTANTS CO. LTD., TOKYO, JAPAN</p>	<p>REVIEWED: <i>[Signature]</i> CHECKED: <i>[Signature]</i> BY: TEAM LEADER TEAM LEADER: <i>[Signature]</i></p>

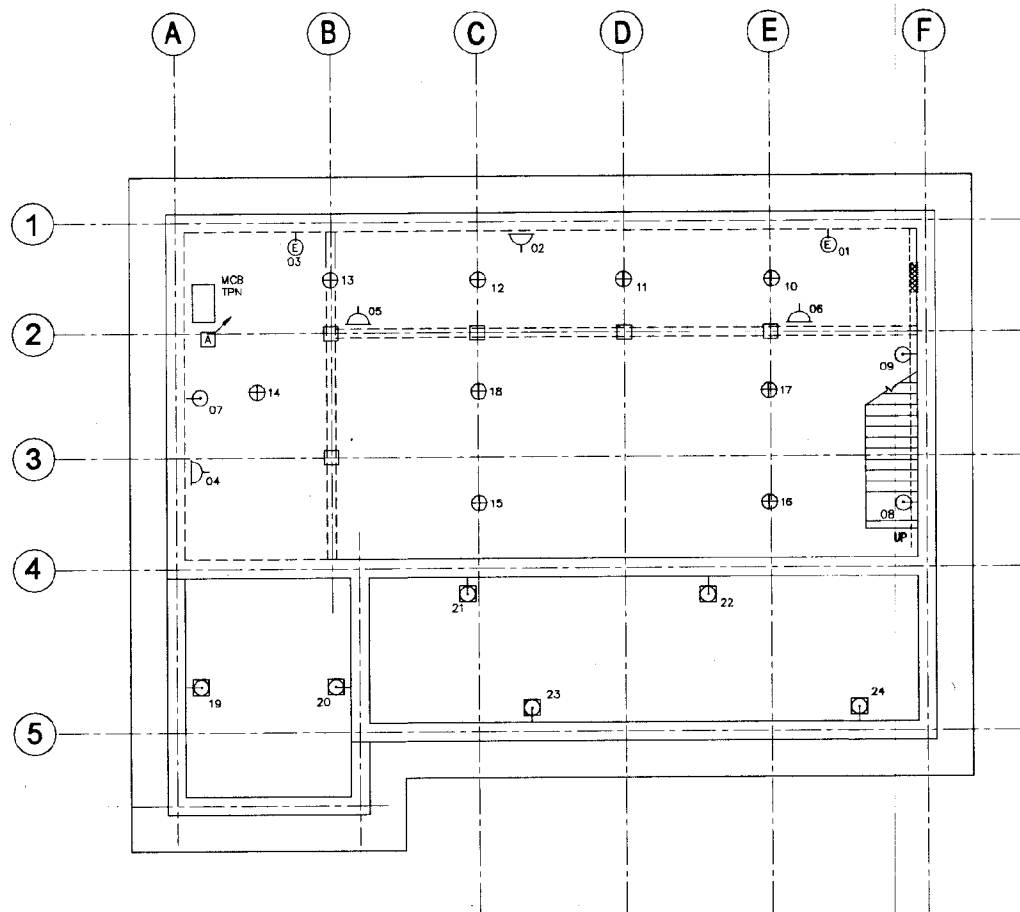


STOP AND READY

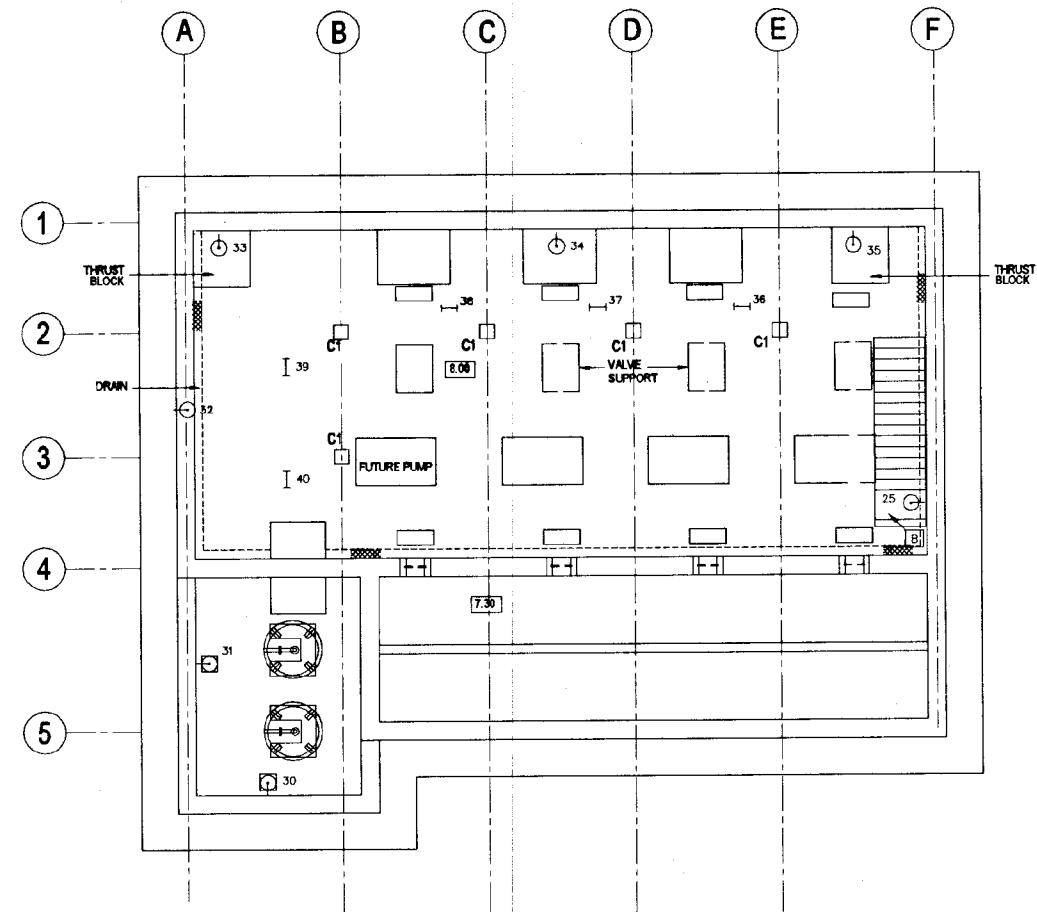


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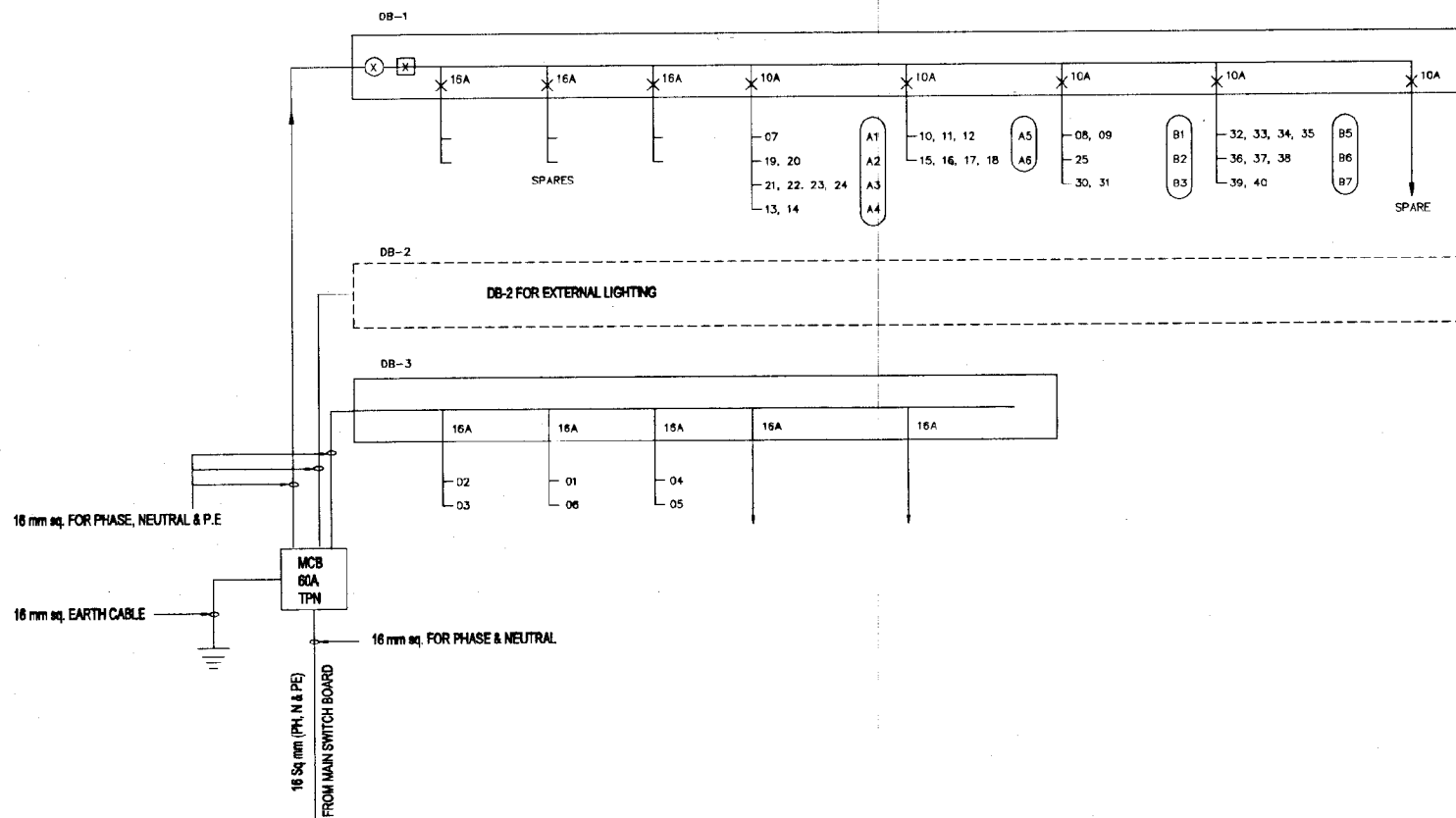
	NATIONAL WATER SUPPLY AND DRAINAGE BOARD THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA		SUB PROJECT: KOTIKAWATTA MULLERIYAWA	TITLE: GOTHATUWA - KOLONNAWA PUMP HOUSE CONTROL LOGIC DIAGRAM - LINK UP OPERATION
	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) STUDY TEAM NIPPON SUIDO CONSULTANTS CO. LTD., TOKYO, JAPAN		DESIGNED: <i>[Signature]</i> CHECKED: <i>[Signature]</i> BY: TEAM LEADER TEAM LEADER: <i>[Signature]</i>	DRAWN: <i>[Signature]</i> PM (NRW/PS) NUMBER: <i>[Signature]</i> A.G.M (P&I) NUMBER: <i>[Signature]</i> D.G.M (P&I) NUMBER: <i>[Signature]</i>
			DATE: JAN 2001	CONTRACT NO: NRW / CW
			Dwg. No: KMU/PS/E-10	



PLAN AT 11.25m MSL
SCALE - 1:100



LAYOUT PLAN AT 8.00m MSL
SCALE - 1:100



LEGEND: -

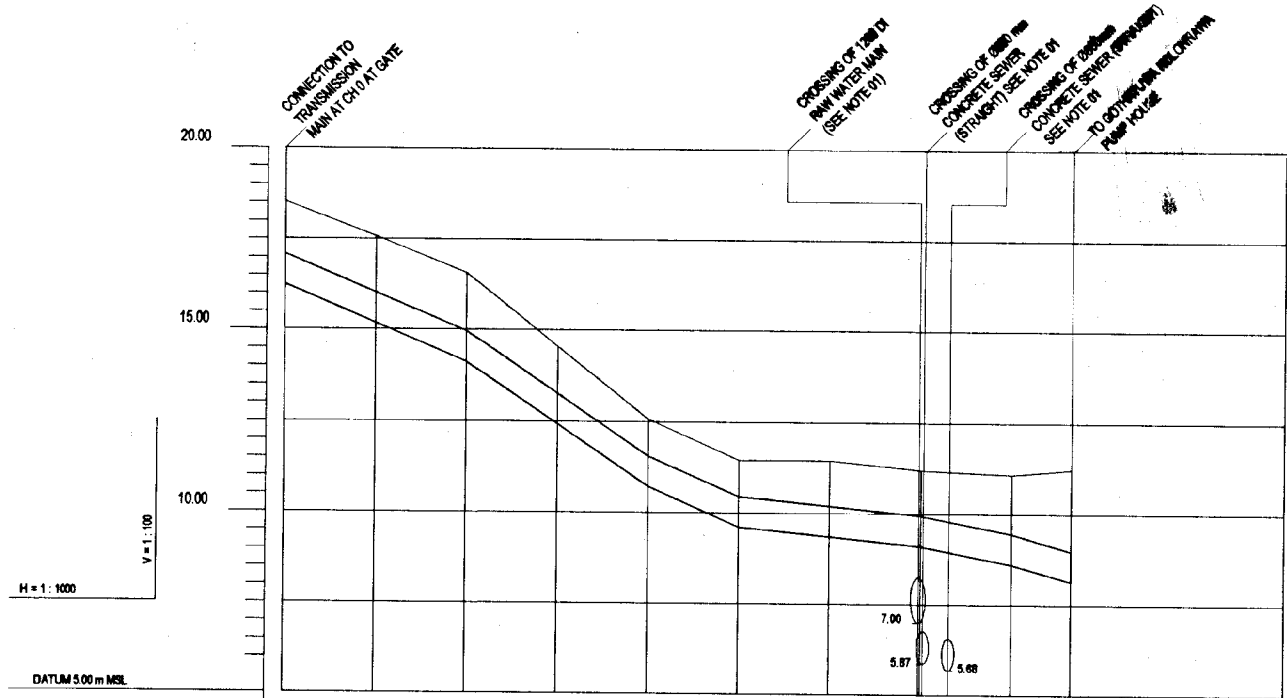
	60A MCB DP
	60A RCCB (50 mA)
	MCB'S (S. P.) 10A OR 15A AS MARKED
	WALL MOUNTED FLUORESCENT LUMINARIES TYPE 19 (MOUNTED VERTICALLY)
	FLUORESCENT LAMP (TYPE 27) MOUNTED HORIZONTALLY ON WALL OR UNDER CONCRETE SLAB
	HIGH BAY LAMP FITTING (TYPE 28) FIXED TO ROOF MEMBER
	EMERGENCY LAMP (TYPE 25) CONNECTED VIA SOCKET OUTLET
	SOCKET OUTLET (13A)
	SWITCH POSITION
	WEATHER PROOF LAMPS TYPE 7

NOTES: -

1. EACH DB ACCOMMODATES A DOUBLE POLE MCB, A RCCB AND THE MCB'S PROTECTING THE OUT GOING SUB-CIRCUITS.
2. THE SWITCH POSITION 'A' IS BELOW THE DB'S
3. THE SWITCH POSITION 'B' IS NEAR TOP OF STAIRCASE
4. MCB TPN IS LOCATED BELOW DB'S (DB'S ARE NEAR MCB TPN)

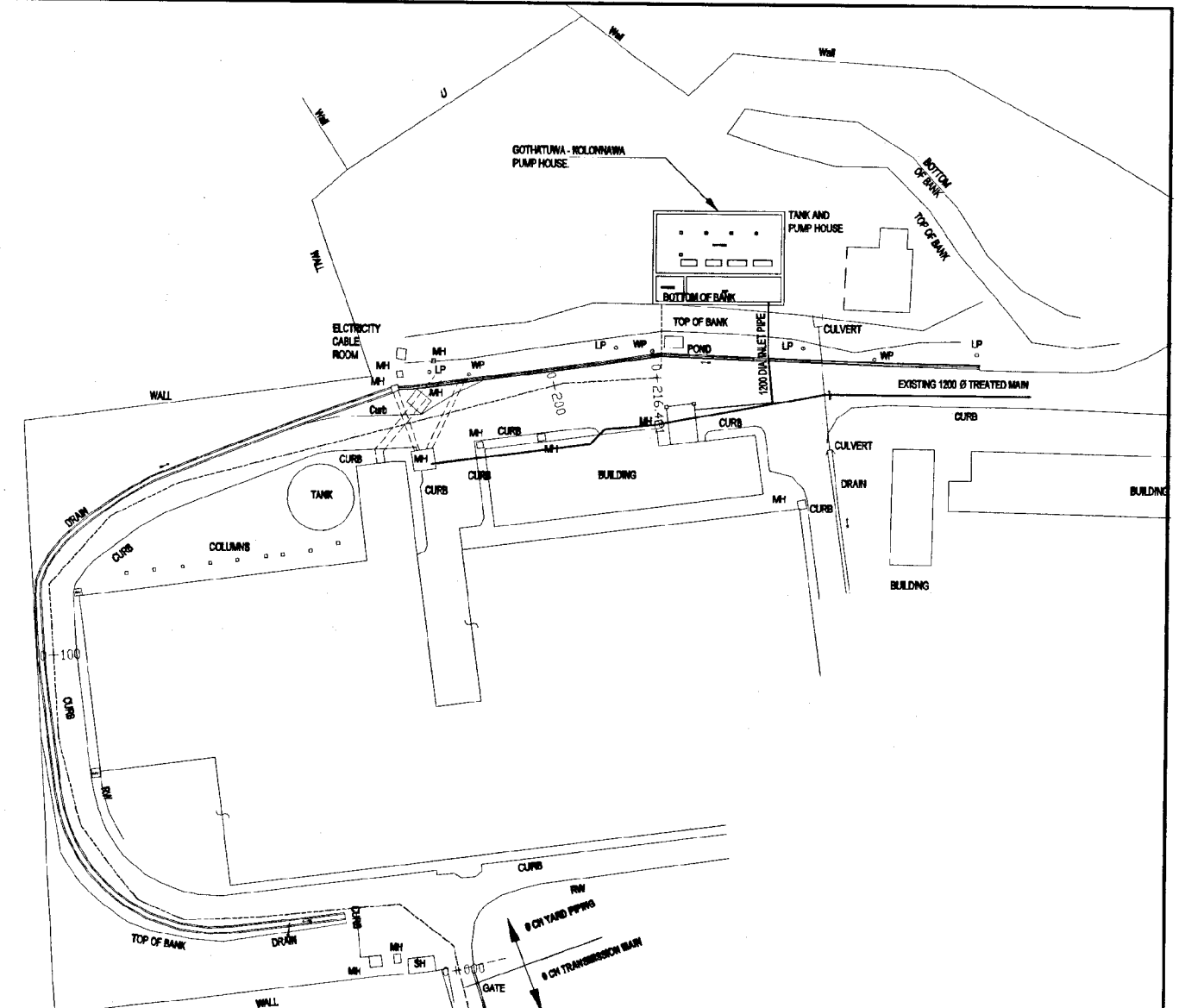
DO NOT SCALE

<p>NATIONAL WATER SUPPLY AND DRAINAGE BOARD THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA</p>	<p>SUB PROJECT: KOTIKAWATTE MULLERIYAWA</p>	<p>TITLE: GOTHATUWA-KOLONNAWA PUMP HOUSE LIGHTING & SMALL POWER</p>
	<p>DESIGNED: <i>[Signature]</i> CHECKED: <i>[Signature]</i> DR. TEAM LEADER: <i>[Signature]</i> TEAM LEADER: <i>[Signature]</i></p>	<p>DRAWN: <i>[Signature]</i> P.N. (NRS/PS) INCHG.: <i>[Signature]</i> A.S.M. (P/E) INCHG.: <i>[Signature]</i> D.G.M. (P/E) INCHG.: <i>[Signature]</i></p>



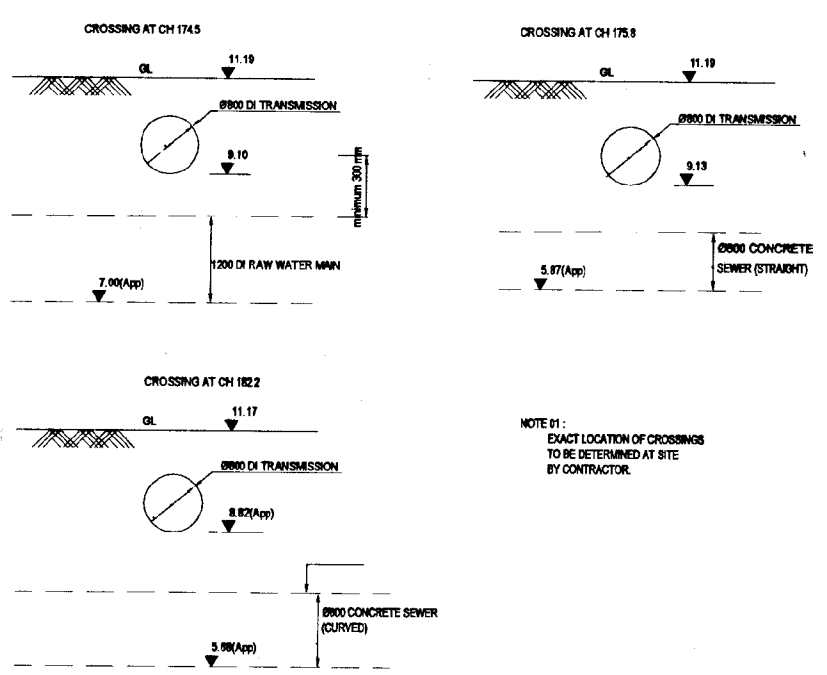
GROUND LEVEL (m)	18.52	17.58	16.57	14.54	12.58	11.45	11.45	11.18	11.08	11.22
INVERT LEVELS (m)	18.24	15.16	14.12	12.42	10.71	9.40	8.35	8.10	8.00	8.13
PIPE DETAILS	800 DI TRANSMISSION RESTRAINED									
DISTANCE (m)	0	25	50	75	100	125	150	174.5	177.5	200
SLOPE	0°	4°	11.25°	22.5°	4°	22.5°	11.25°	11.25°	11.25°	9°
HORIZONTAL ANGLE (°)										

LS OF TRANSMISSION MAIN FROM GATE TO PUMP HOUSE
SCALE: 1:1000

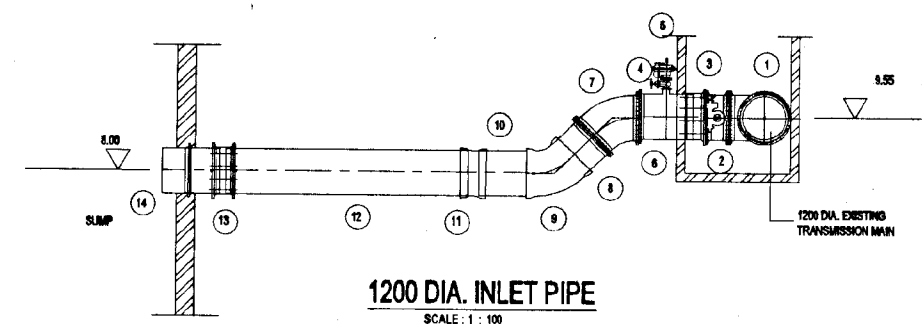


PLAN
SCALE: 1:500

DO NOT SCALE



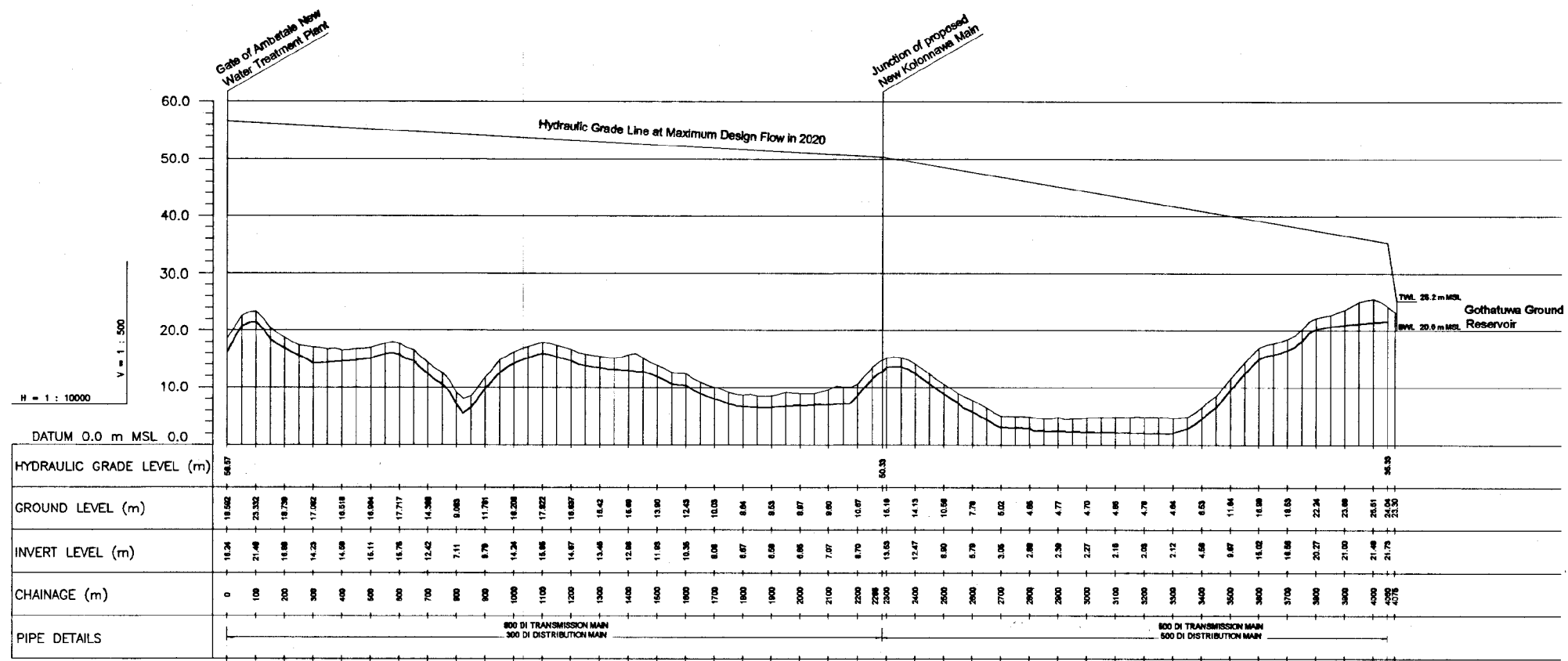
EXISTING PIPE LINE CROSSING
SCALE: 1:1000



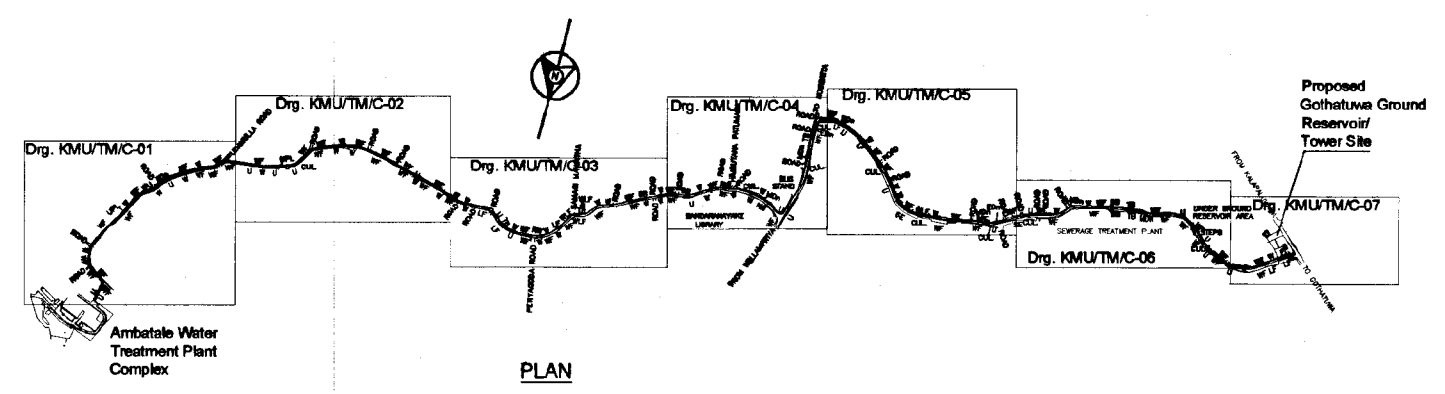
1200 DIA. INLET PIPE
SCALE: 1:100

ITEM	DIA	DESCRIPTION	QTY.
1	1200	ALL FLANGED TEE	1
2	1200	BUTTERFLY VALVE	1
3	1200	FLANGED ADAPTOR FOR STEEL PIPE	1
4	150	GATE VALVE	1
5	150	DOUBLE CRIBICE AIR VALVE	1
6	1200	AIR VALVE TEE	1
7	1200	45° D/F BEND	1
8	1200	PIPE DI PIPE PIECE L=900mm	1
9	1200	45° DI SOCKETED BEND	1
10	1200	PIPE DI PIPE PIECE L=1500mm	1
11	1200	5.50° DI SOCKETED BEND	1
12	1200	PIPE DI PIPE PIECE L=800mm	1
13	1200	SLIP ON COUPLING	1
14	1200	PIPE DI PIPE PIECE WITH FLOODE FLANGE L=1500mm	1

<p>NATIONAL WATER SUPPLY AND DRAINAGE BOARD THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA</p>	<p>SUB PROJECT: KOTIKAWATTE/ MULLERIYAWA</p>	<p>TITLE: GOTHATUWA - KOLONNAWA PUMP HOUSE YARD PIPING - GENERAL LAYOUT, PLAN AND PROFILE</p>
	<p>DATE: JAN 2001</p>	<p>CONTRACT No: NRW / CW</p>
<p>JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) STUDY TEAM NIHON SUIDO CONSULTANTS CO. LTD., TOKYO, JAPAN</p>	<p>DESIGNED: [Signature]</p>	<p>DRAWN: [Signature]</p>
<p>TEAM LEADER: [Signature]</p>	<p>TEAM LEADER: [Signature]</p>	<p>DRG. No: KM/PSYP-01</p>




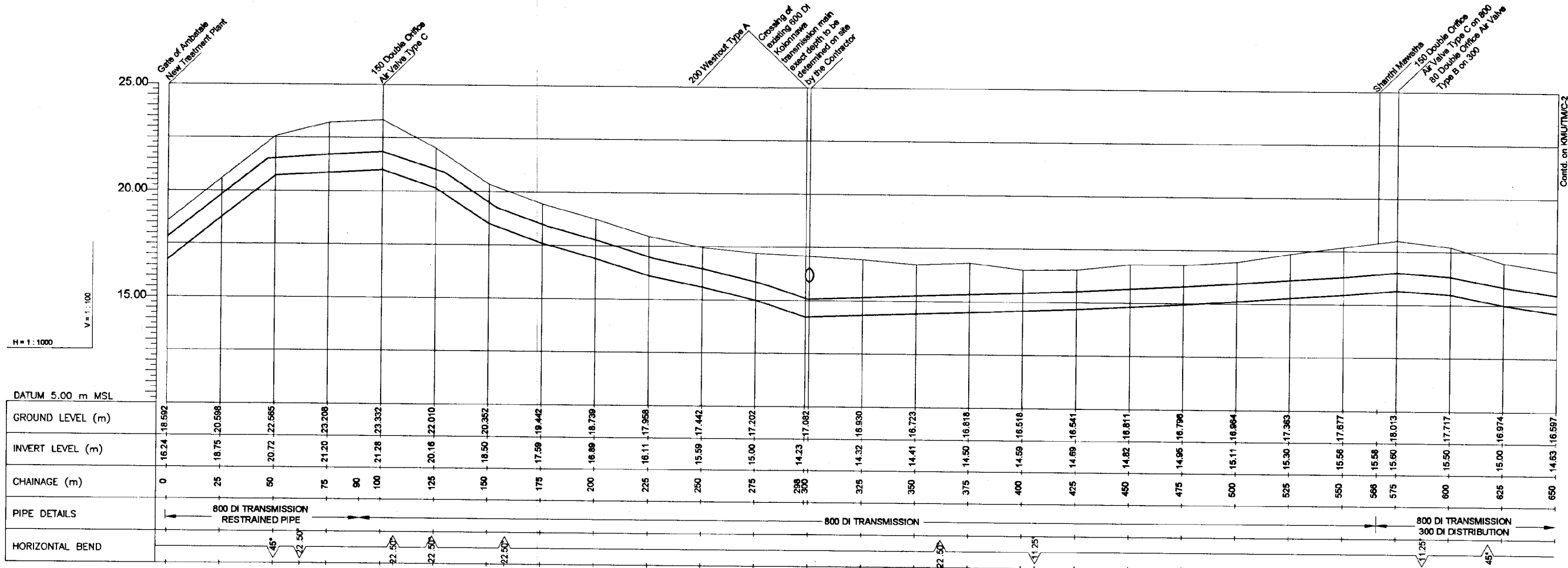
LONGITUDINAL SECTION



PLAN
SCALE - 1 : 10000

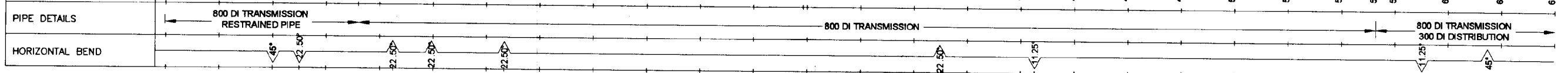
DO NOT SCALE

 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: TRANSMISSION MAIN (WITH DISTRIBUTION MAIN) FROM AMBATALE WATER TREATMENT PLANT TO GOTHATUWA GROUND RESERVOIR - KEY MAP	
	DESIGNED: <i>[Signature]</i>	DRAWN: <i>[Signature]</i>	DATE: JAN 2001	
	CHECKED: <i>[Signature]</i>	IN CHARGE: <i>[Signature]</i>	CONTRACT No: NRW / CW	
	BY TEAM LEADER: <i>[Signature]</i>	A.G.M (P&D) INCHARGE: <i>[Signature]</i>	DRG. No: KMU / TM / G-1	
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) STUDY TEAM NIKON SUDO CONSULTANTS CO. LTD., TOKYO, JAPAN		REVISIONS:		

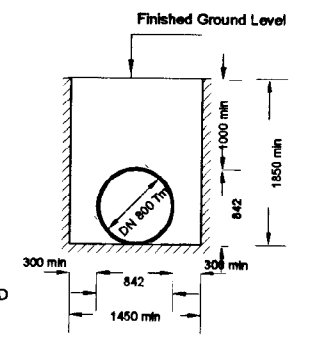
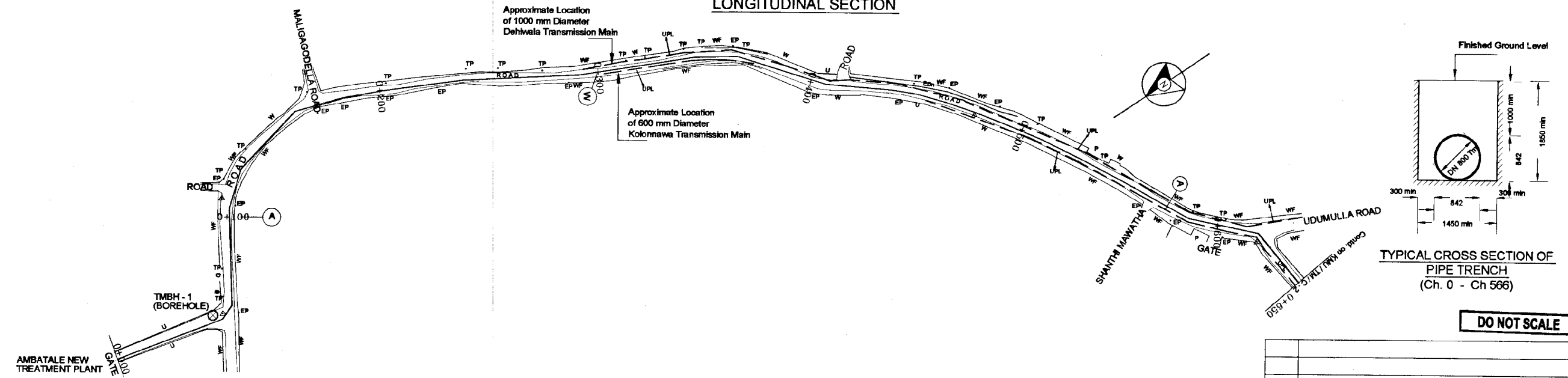


DATUM 5.00 m MSL

H = 1 : 1000
V = 1 : 100



LONGITUDINAL SECTION

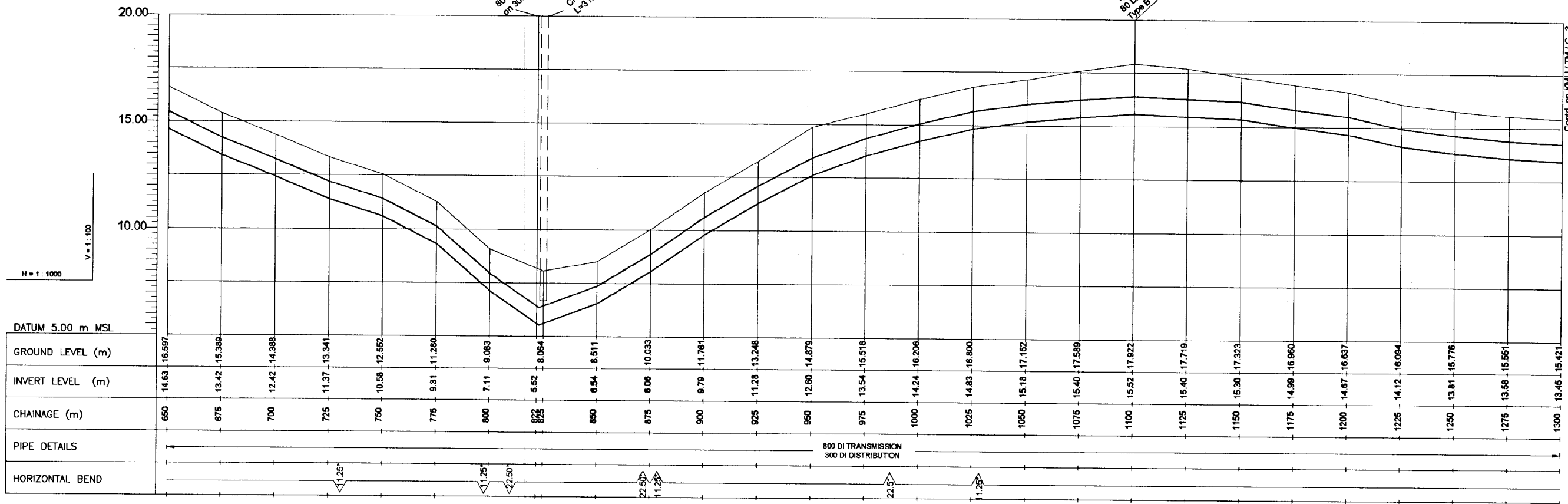


TYPICAL CROSS SECTION OF PIPE TRENCH (Ch. 0 - Ch 566)

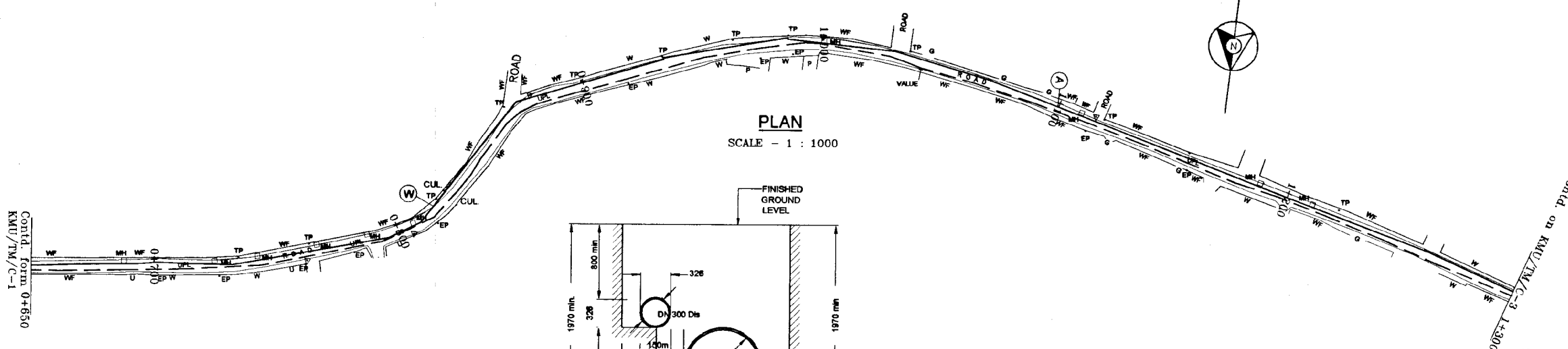
DO NOT SCALE

PLAN

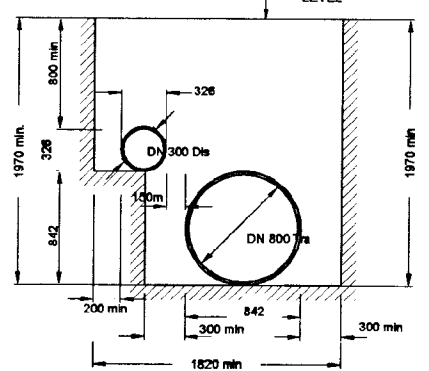
<p>NATIONAL WATER SUPPLY AND DRAINAGE BOARD THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA</p>	SUB PROJECT: KOTIKAWATTA MULLERIYAWA		TITLE: TRANSMISSION MAIN (WITH DISTRIBUTION MAIN) FROM AMBATALE WATER TREATMENT PLANT TO GOTHATUWA GROUND RESERVOIR	
	DESIGNED: <i>[Signature]</i> CHECKED: <i>[Signature]</i> CIVIL ENGINEER: <i>[Signature]</i> TEAM LEADER: <i>[Signature]</i>		DATE: JAN 2001 CONTRACT NO: NRW/CW DRG. NO: KMU/TM/C-1	
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) STUDY TEAM NIHON SUDO CONSULTANTS CO. LTD., TOKYO, JAPAN				



LONGITUDINAL SECTION



PLAN
SCALE - 1 : 1000



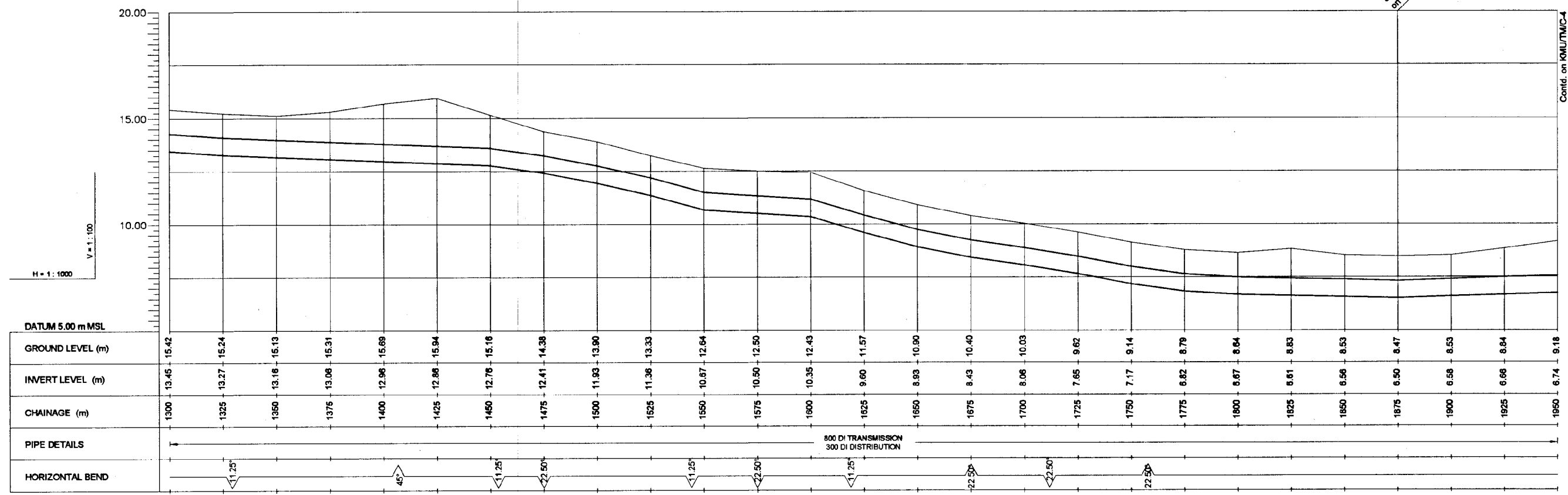
TYPICAL CROSS SECTION OF
PIPE TRENCH
(Ch. 566 - Ch 2285)
DISTRIBUTION PIPE TO BE KEPT AT
THE INNER EDGE OF THE ROAD

DO NOT SCALE

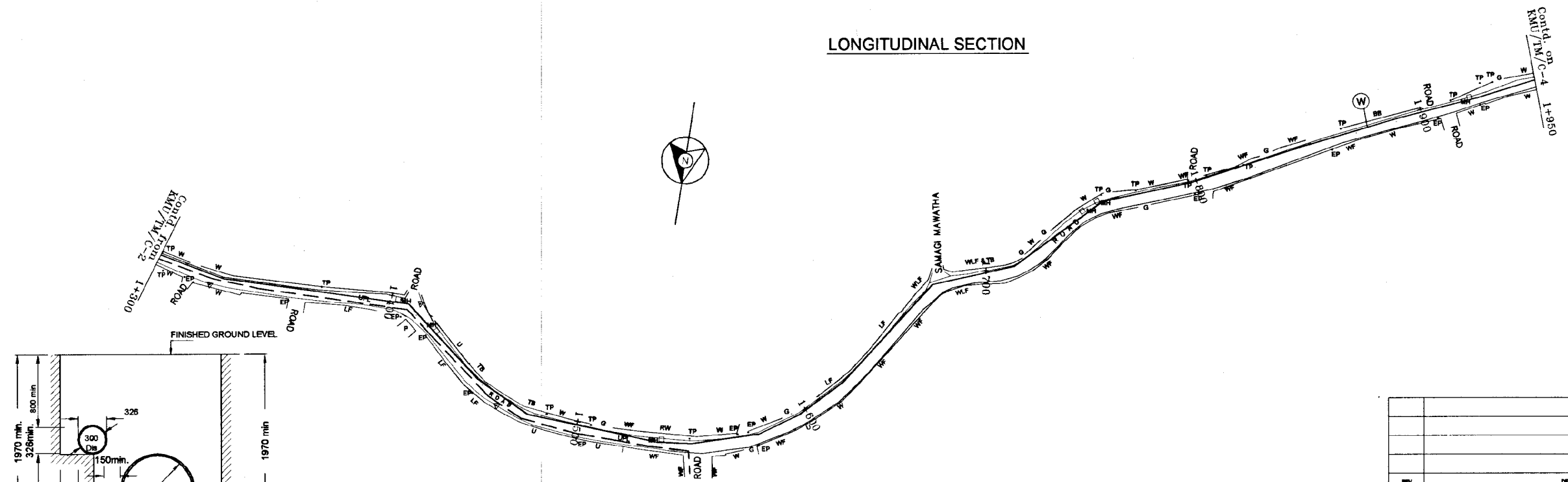
<p>NATIONAL WATER SUPPLY AND DRAINAGE BOARD THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA</p>	<p>SUB PROJECT: KOTIKAWATTA MULLERIYAWA</p>	<p>TITLE: TRANSMISSION MAIN (WITH DISTRIBUTION MAIN) FROM AMBATALE WATER TREATMENT PLANT TO GOTHATUWA GROUND RESERVOIR</p>	<p>SHEET 2 OF 7</p>
	<p>DESIGNED: <i>arshantha</i></p> <p>CHECKED: <i>arshantha</i></p> <p>DY. TEAM LEADER: <i>[Signature]</i></p> <p>TEAM LEADER: <i>[Signature]</i></p>	<p>DRAWN: <i>[Signature]</i></p> <p>PM APPROVAL: <i>[Signature]</i></p> <p>A.R.M. (P.W.) INCHARGE: <i>[Signature]</i></p> <p>D.O.M. (P.W.) INCHARGE: <i>[Signature]</i></p>	<p>DATE: JAN 2001</p> <p>CONTRACT NO: NRW/CW</p> <p>ENG. NO: KMU/TM/C-2</p>

200 Washout - Type A
 on 600 Main
 80 Washout - Type A
 on 300 Main

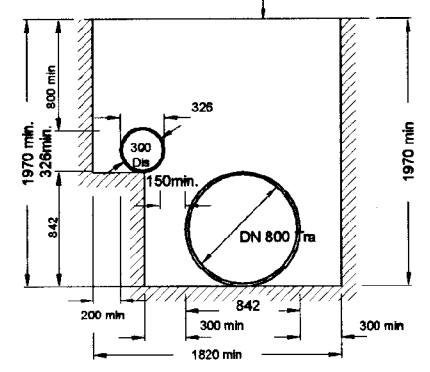
Contd. on KUM/TM/C-4



LONGITUDINAL SECTION



PLAN

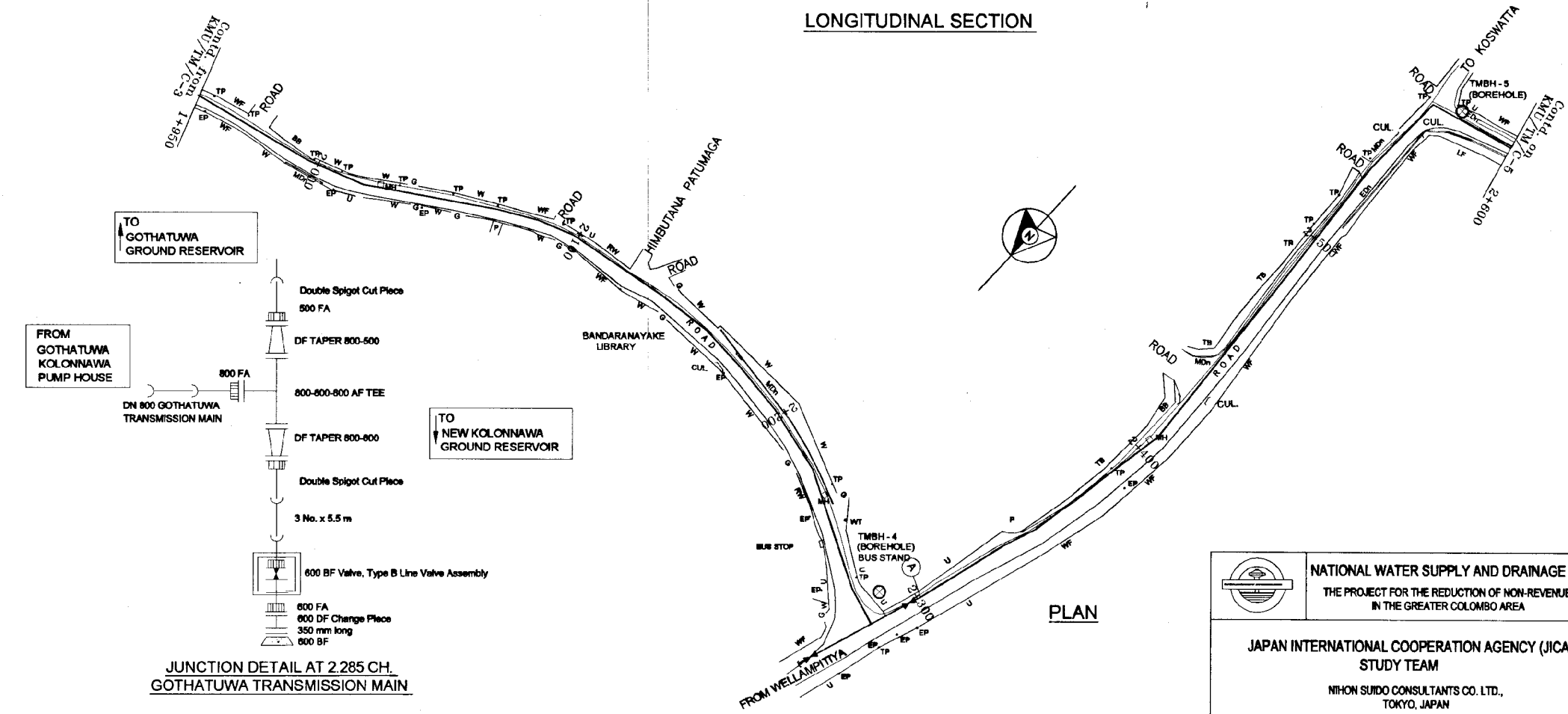
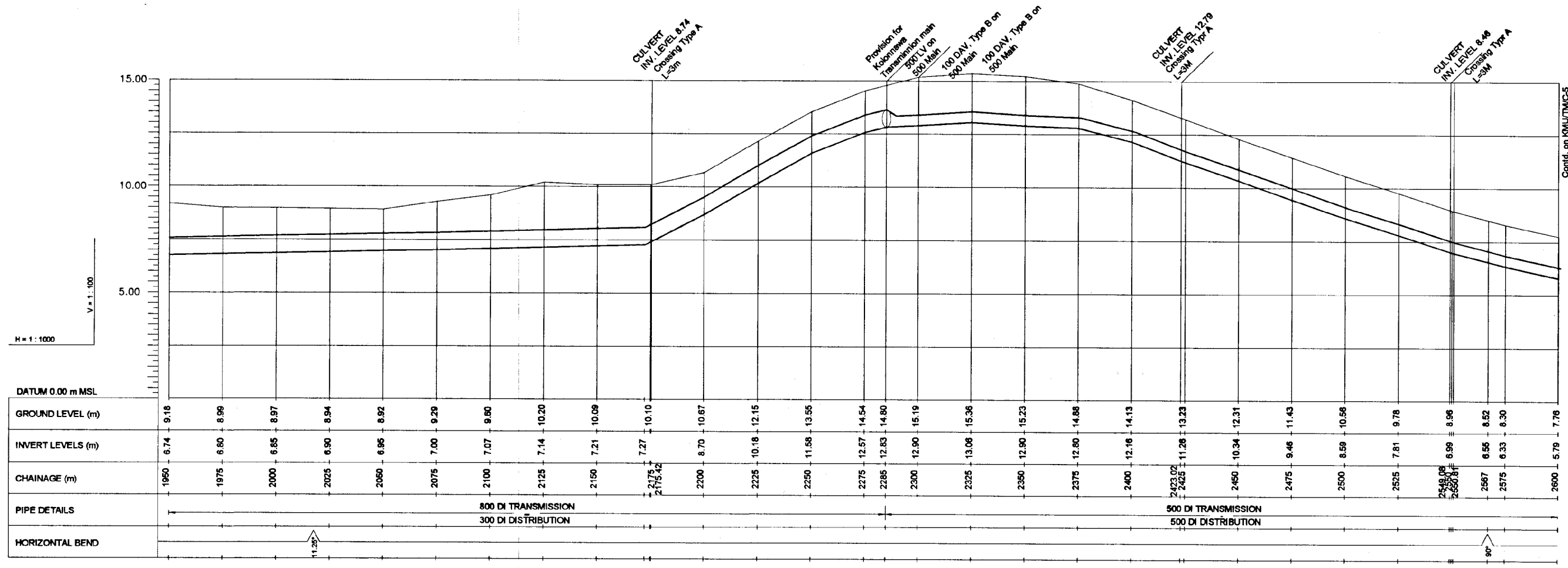


TYPICAL CROSS SECTION OF PIPE TRENCH (Ch. 566 - Ch 2285)

DISTRIBUTION PIPE TO BE KEPT AT THE INNER EDGE OF THE ROAD

DO NOT SCALE

<p>NATIONAL WATER SUPPLY AND DRAINAGE BOARD THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA</p> <p>JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) STUDY TEAM</p> <p>NIHON SUIDO CONSULTANTS CO. LTD., TOKYO, JAPAN</p>	SUB PROJECT: KOTIKAWATTA MULLERIYAWA	TITLE: TRANSMISSION MAIN (WITH DISTRIBUTION MAIN) FROM AMBATALE WATER TREATMENT PLANT TO GOTHATUWA GROUND RESERVOIR	SHEET 3 OF 7
	DESIGNED: <i>[Signature]</i>	DRAWN: <i>[Signature]</i>	DATE: JAN 2001
	CHECKED: <i>[Signature]</i>	PM (PROVISED) INCHARGE: <i>[Signature]</i>	CONTRACT NO.: NRW/CW
	DT. TEAM LEADER: <i>[Signature]</i>	A.G.M (PROV) MEMBER: <i>[Signature]</i> E. D. N. <i>[Signature]</i>	DRG. NO.: KUM/TM/C-3

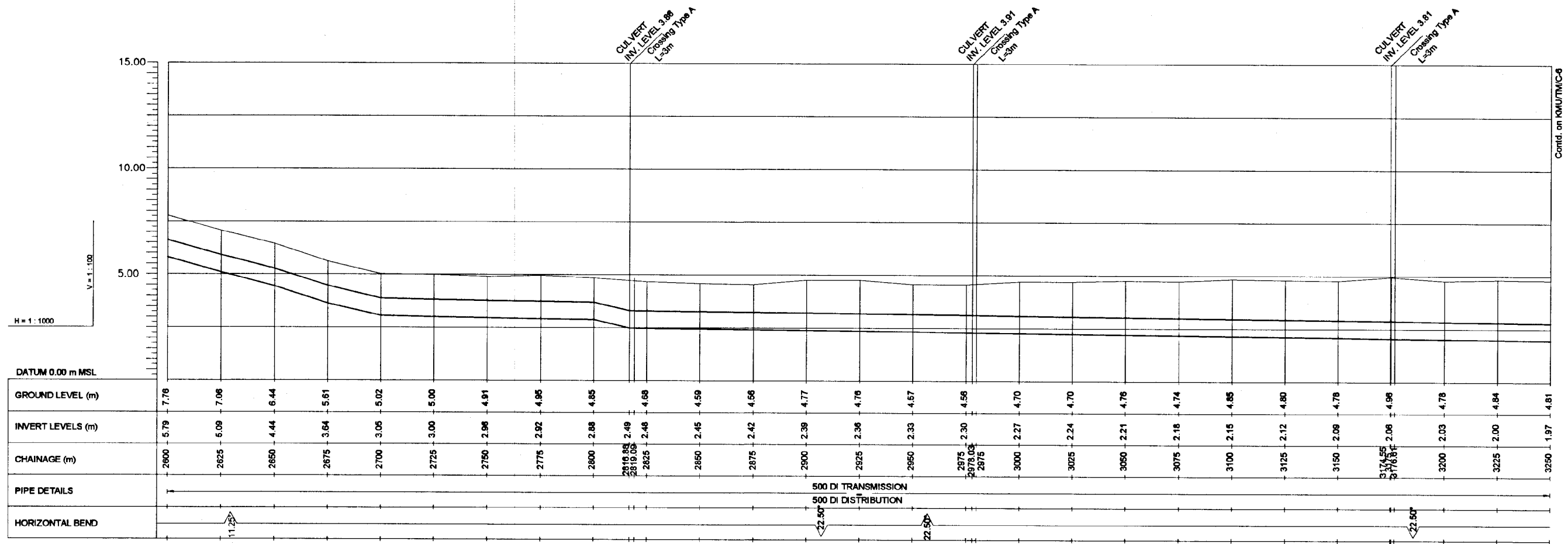


JUNCTION DETAIL AT 2.285 CH. GOTHATUWA TRANSMISSION MAIN

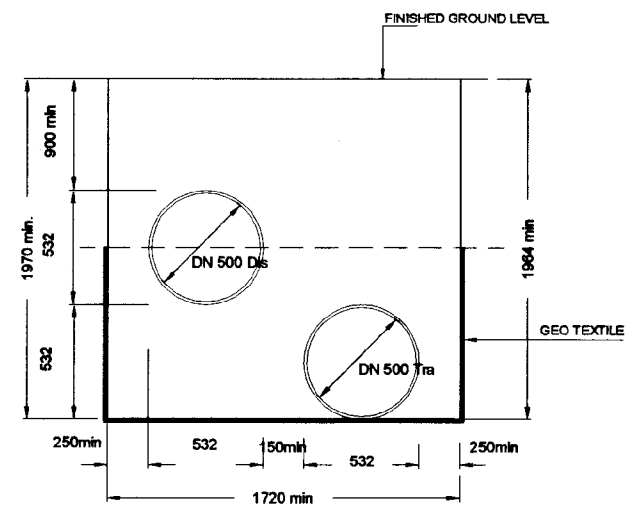
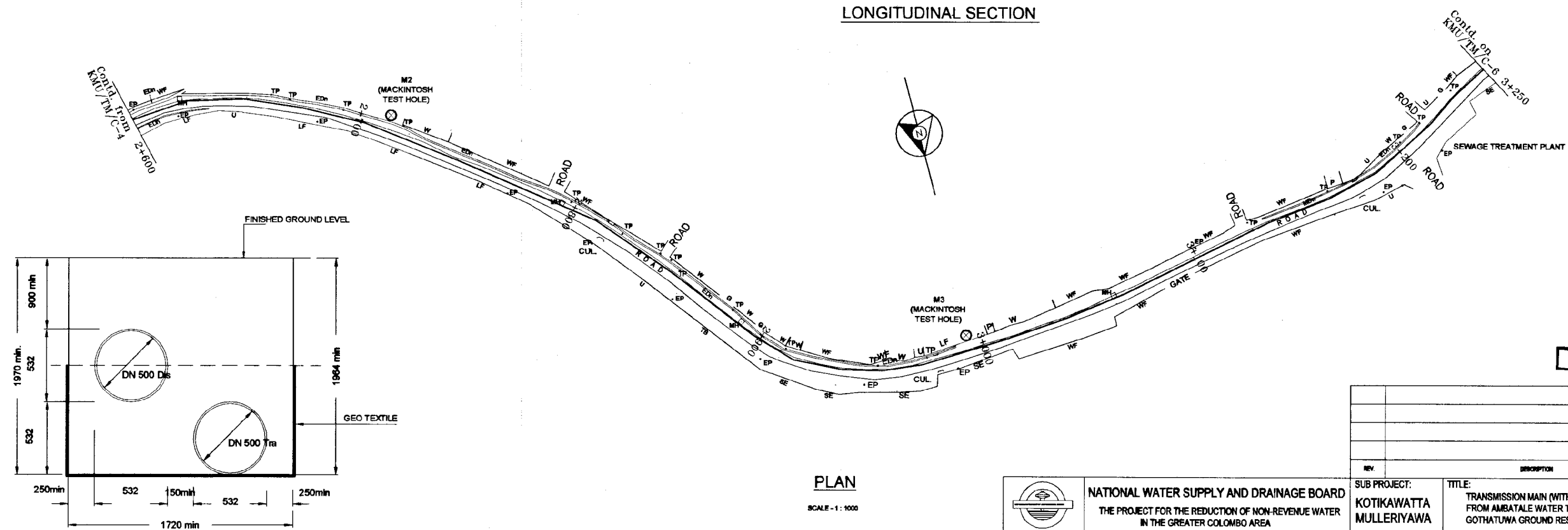
DO NOT SCALE

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: TRANSMISSION MAIN (WITH DISTRIBUTION MAIN) FROM AMBATALE WATER TREATMENT PLANT TO GOTHATUWA GROUND RESERVOIR	SHEET 4 OF 7
DESIGNED: <i>Asdena</i>	DRAWN: <i>Asdena</i>	DATE: JAN 2001	CONTRACT NO: NRW/CW	
CHECKED: <i>Asdena</i>	P.I. APPROVED: <i>Asdena</i>			
DT. TEAM LEADER: <i>[Signature]</i>	A.B.M. P.I. APPROVED: <i>[Signature]</i>			
TEAM LEADER: <i>[Signature]</i>	D.O.M. P.I. APPROVED: <i>[Signature]</i>			

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



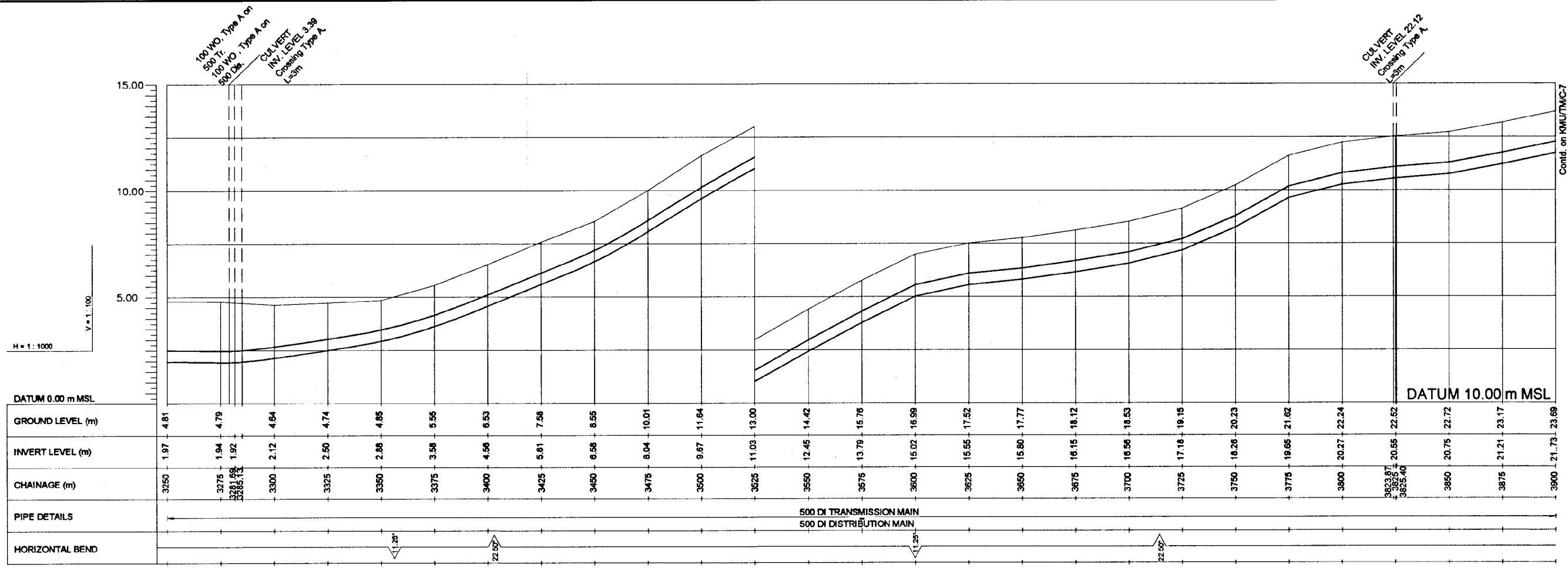
LONGITUDINAL SECTION



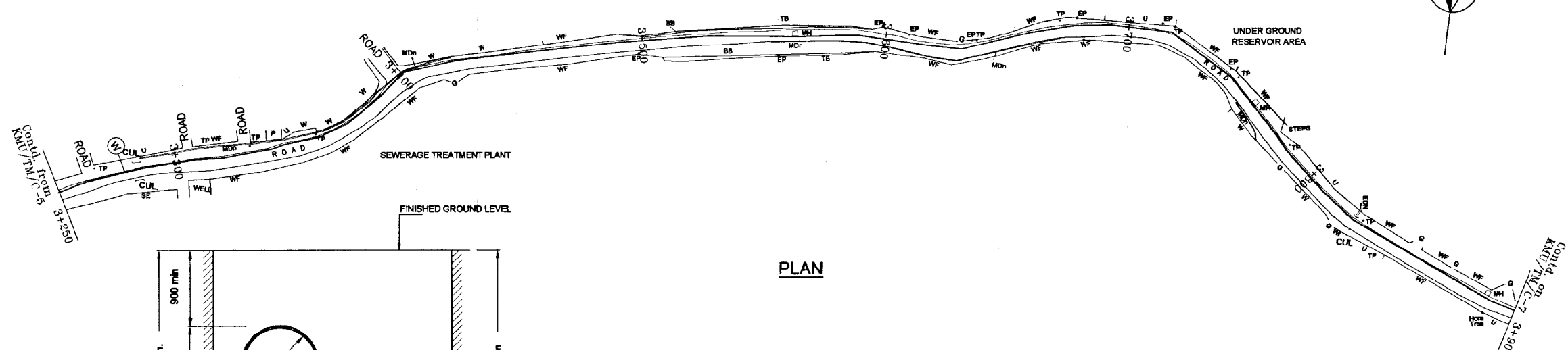
TYPICAL CROSS SECTION OF PIPE TRENCH TO BE USED BETWEEN Ch. 2700 AND Ch. 3360 WHEN INSTRUCTED BY ENGINEER

PLAN SCALE - 1 : 1000

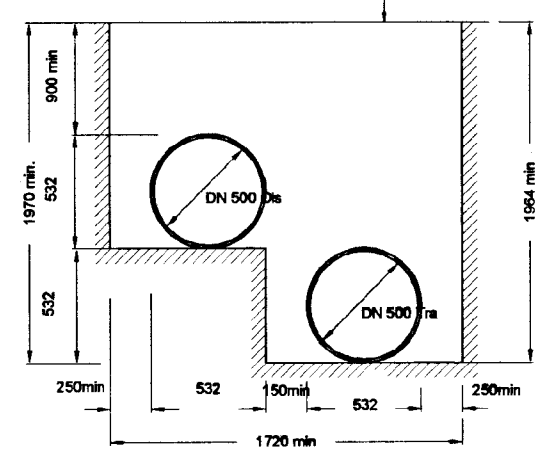
<p>NATIONAL WATER SUPPLY AND DRAINAGE BOARD THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA</p>	<p>SUB PROJECT: KOTIKAWATTA MULLERIYAWA</p>	<p>TITLE: TRANSMISSION MAIN (WITH DISTRIBUTION MAIN) FROM AMBATALE WATER TREATMENT PLANT TO GOTHATUWA GROUND RESERVOIR</p>	<p>SHEET 5 OF 7 DATE: JAN 2001</p>
	<p>DESIGNED: <i>asobantha</i></p>	<p>DRAWN: <i>Dasaka</i></p>	<p>CHECKED: <i>asobantha</i></p>
<p>JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) STUDY TEAM</p>	<p>TY. TEAM LEADER: <i>[Signature]</i></p>	<p>A.S.M (PMD) NUMBER: <i>[Signature]</i></p>	<p>DRG. NO: KMU / TM / C - 5</p>
<p>NIHON SUIDO CONSULTANTS CO. LTD., TOKYO, JAPAN</p>	<p>TEAM LEADER: <i>[Signature]</i></p>	<p>D.O.M (PMD) NUMBER:</p>	



LONGITUDINAL SECTION



PLAN

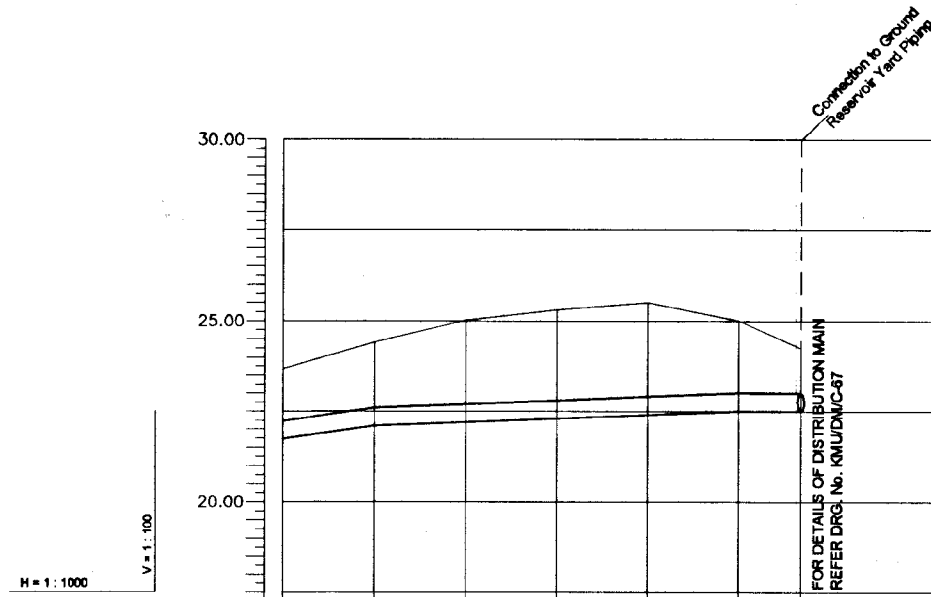


TYPICAL CROSS SECTION OF PIPE TRENCH (Ch. 2285 - Ch. 4042)



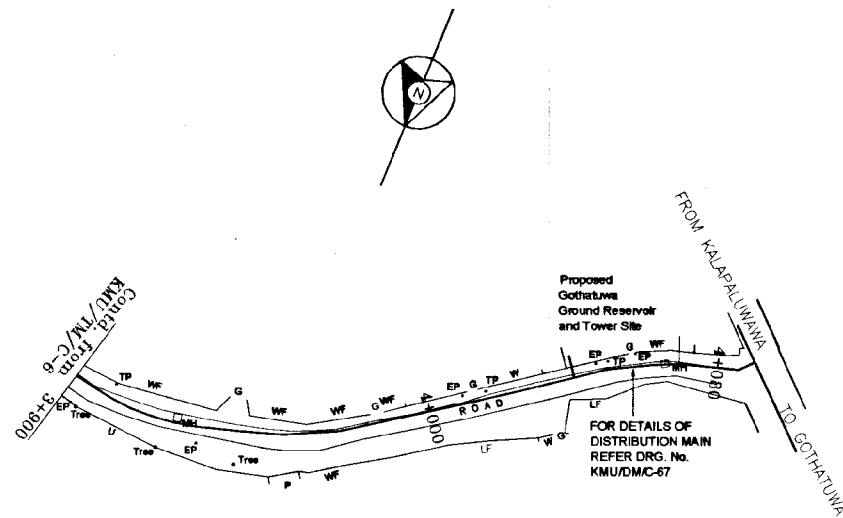
DO NOT SCALE

<p>NATIONAL WATER SUPPLY AND DRAINAGE BOARD THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA</p>	<p>SUB PROJECT: KOTIKAWATTA MULLERIYAWA</p>	<p>TITLE: TRANSMISSION MAIN (WITH DISTRIBUTION MAIN) FROM AMBATALE WATER TREATMENT PLANT TO GOTHATUWA GROUND RESERVOIR</p>
	<p>DESIGNED: [Signature]</p>	<p>DATE: JAN 2001</p>
	<p>CHECKED: [Signature]</p>	<p>CONTRACT NO: NRW / CW</p>
	<p>DR. TEAM LEADER: [Signature]</p>	<p>DR. IN CHARGE: [Signature]</p>
<p>JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) STUDY TEAM</p>	<p>NIHON SUIDO CONSULTANTS CO. LTD., TOKYO, JAPAN</p>	<p>SHEET 6 OF 7 KMU / TM / C - 6</p>

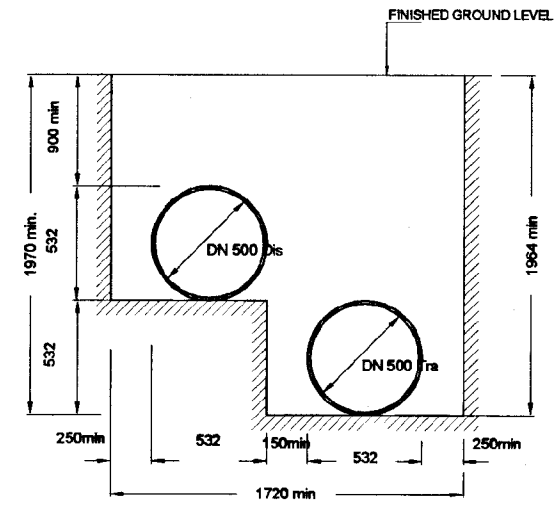


DATUM 15.00 m MSL	
GROUND LEVEL (m)	3900 23.69 3925 24.42 3950 25.02 3975 25.30 4000 25.51 4025 25.00 4042 24.50
INVERT LEVELS (m)	21.73 21.73 22.10 22.10 22.20 22.20 22.30 22.30 22.40 22.40 22.50 22.50 22.50
CHAINAGE (m)	3900 3925 3950 3975 4000 4025 4042
PIPE DETAILS	500 DI TRANSMISSION 500 DI DISTRIBUTION
HORIZONTAL BEND	1:20°

LONGITUDINAL SECTION



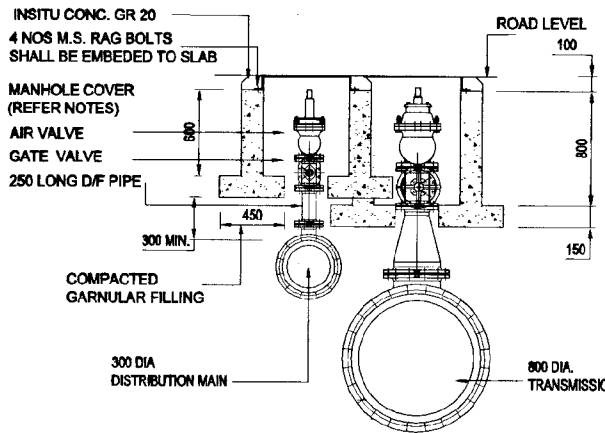
PLAN



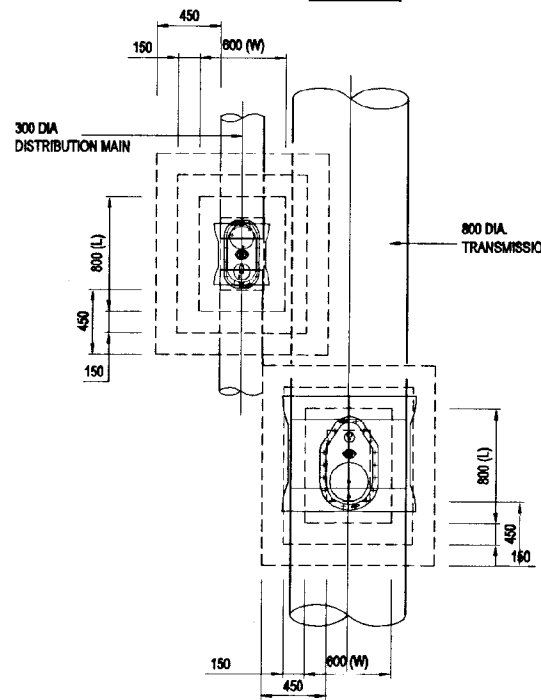
TYPICAL CROSS SECTION OF PIPE TRENCH (Ch. 2285 - Ch. 4042)

DO NOT SCALE

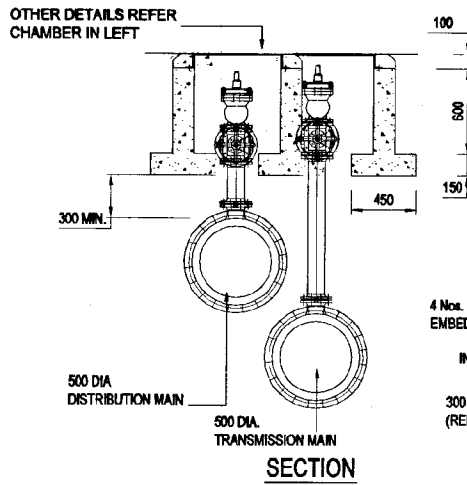
<p>NATIONAL WATER SUPPLY AND DRAINAGE BOARD THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA</p>	<p>SUB PROJECT: KOTIKAWATTA MULLERIYAWA</p>	<p>TITLE: TRANSMISSION MAIN (WITH DISTRIBUTION MAIN) FROM AMBATALE WATER TREATMENT PLANT TO GOTHATUWA GROUND RESERVOIR</p>	<p>SHEET 7 OF 7</p>
	<p>JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) STUDY TEAM</p> <p>NIHON SUIDO CONSULTANTS CO. LTD., TOKYO, JAPAN</p>	<p>DESIGNED: [Signature]</p> <p>CHECKED: [Signature]</p> <p>DRY TEAM LEADER: [Signature]</p> <p>TEAM LEADER: [Signature]</p>	<p>DRAWN: [Signature]</p> <p>FOR APPROVAL: [Signature]</p> <p>D.O.M. (P.W.)/M.S.C.: [Signature]</p> <p>D.O.M. (P.W.)/M.S.C.: [Signature]</p>



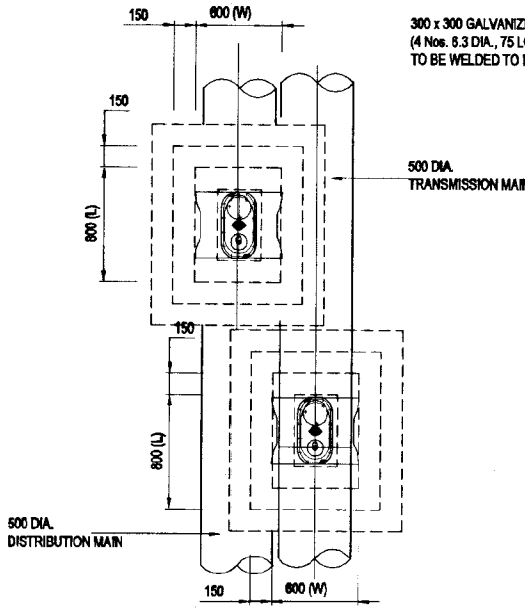
SECTION



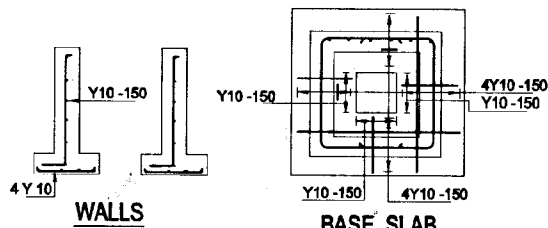
PLAN
AIR VALVE AT CH. 575m & 1100m



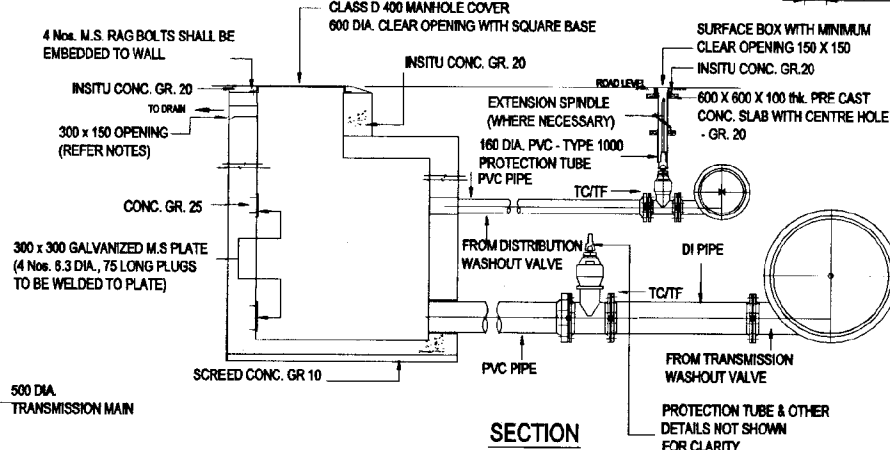
SECTION



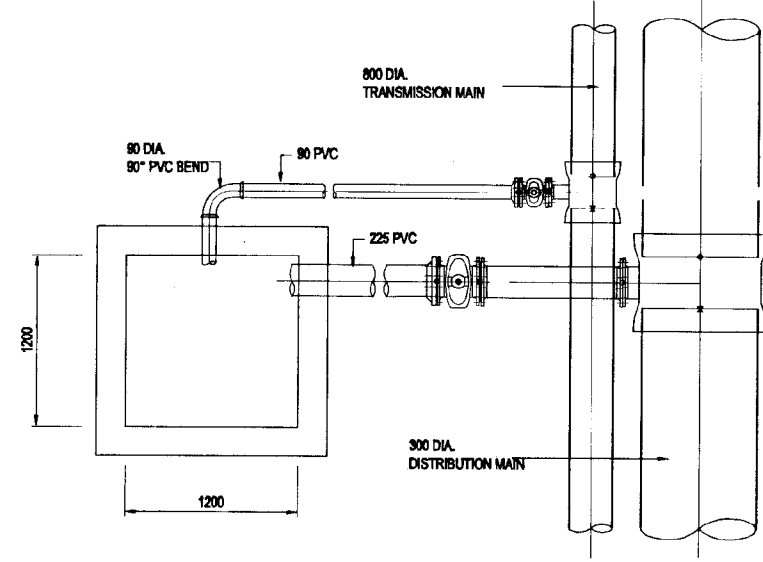
PLAN
AIR VALVE AT CH. 2325m



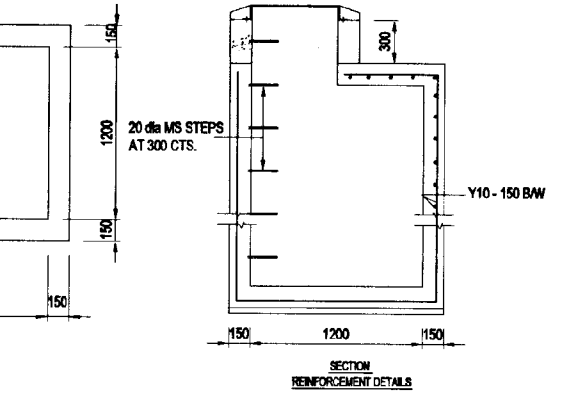
TYPICAL REINFORCEMENT DETAILS



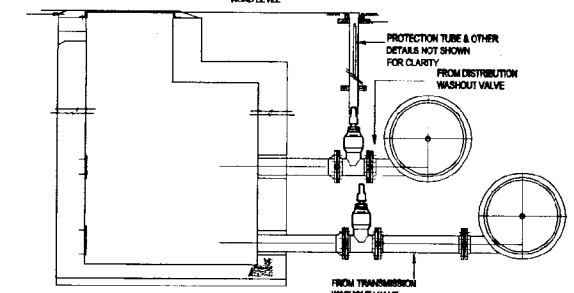
SECTION



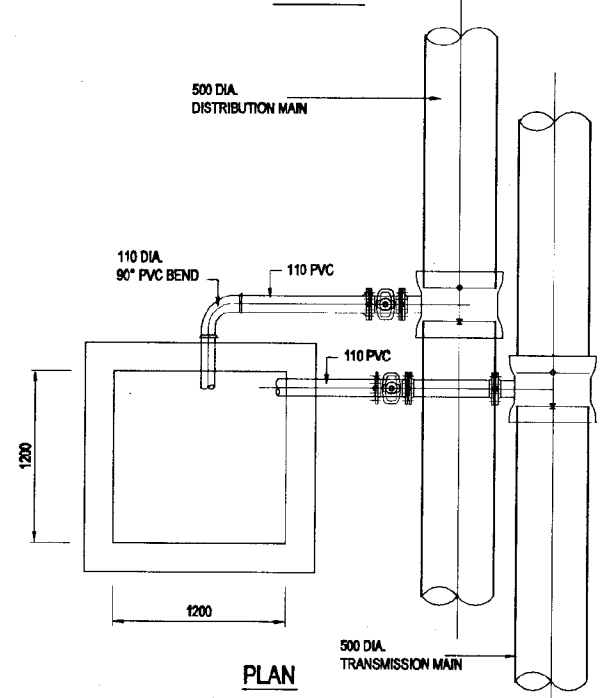
PLAN
WASHOUT AT CH. 822m & 1875m



SECTION REINFORCEMENT DETAILS



SECTION



PLAN
WASHOUT AT CH. 3281m

DO NOT SCALE

- NOTES
- LENGTH OF PIPE FROM THE VALVE TO THE DISCHARGE POINT SHALL BE SUIT THE SITE.
 - FOR TYPE A & TYPE B IF THE LOCATION OF CHAMBER DOES NOT PERMIT DIRECT DISCHARGE TO A NATURAL DRAINAGE, THEN A LEAD PIPE FROM THE CHAMBER SHALL BE USED UPTO A SUITABLE LOCATION.

SIZE OF AIR VALVE ASSEMBLY

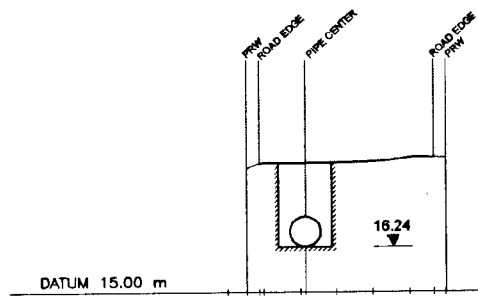
CHAMBER TYPE	DIAMETER OF MAIN PIPE	INTERNAL DIMENSION (mm)			MINIMUM COVER (mm)
		L	W	H	
B	250 - 300 DI	800	600	600	1200
B	400 - 600 DI	800	600	600	1200
C	700 - 800 DI	800	600	800	1500

SIZE OF AIR VALVE ASSEMBLY

DIAMETER OF MAIN PIPE	SIZE OF AIR VALVE (PN 16)	SIZE OF ISOLATING GATE VALVE (HAND WHEEL OPERATED)	SIZE OF FLANGED BRANCH OFF	DISTANCE PIECE
250 - 300 DI	80 DOUBLE ORIFICE AIR VALVE	80 D/F GATE VALVE	80	80 DI, DF 250 LONG
400 - 600 DI	100 DOUBLE ORIFICE AIR VALVE	100 D/F GATE VALVE	100	100 DI, DF 300 LONG
700 - 800 DI	150 DOUBLE ORIFICE AIR VALVE	150 D/F GATE VALVE	200	200 - 150 DI TAPER

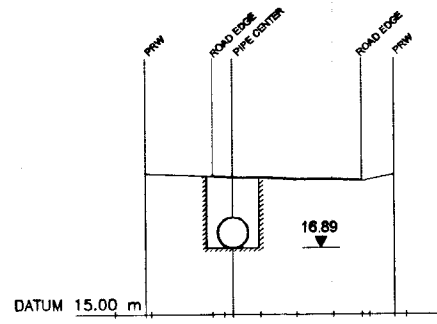
<p>NATIONAL WATER SUPPLY AND DRAINAGE BOARD THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA</p>	<p>SUB PROJECT: KOTIKAWATTE MULLERIYAWA</p>	<p>TITLE: DETAILS OF AIR VALVES & WASHOUTS IN TRANSMISSION MAIN</p>
	<p>DESIGNED: [Signature]</p>	<p>DRAWN: [Signature]</p>
<p>CHECKED: [Signature]</p>	<p>IN CHARGE: [Signature]</p>	<p>CONTRACT No:</p>
<p>DT. TEAM LEADER: [Signature]</p>	<p>A.E.M (P&E) INCHARGE: [Signature]</p>	<p>DWG. No:</p>
<p>TEAM LEADER: [Signature]</p>	<p>D.G.M (P&E) INCHARGE: [Signature]</p>	<p>KMU/TM/C-08</p>

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



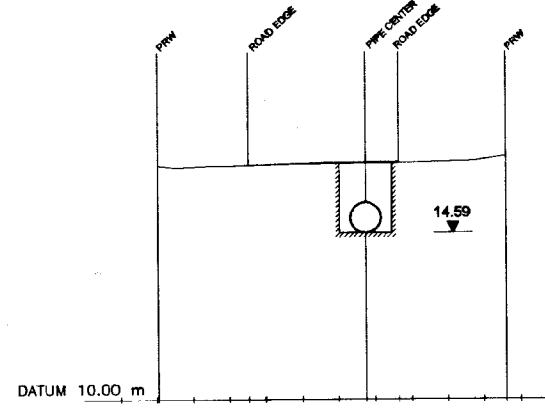
GROUND LEVEL (m)	18.43	18.55	18.59	18.71
DISTANCE (m)	-2.45	-2.13	-0.86	0.0
				3.07
				3.70

Ch 0+000



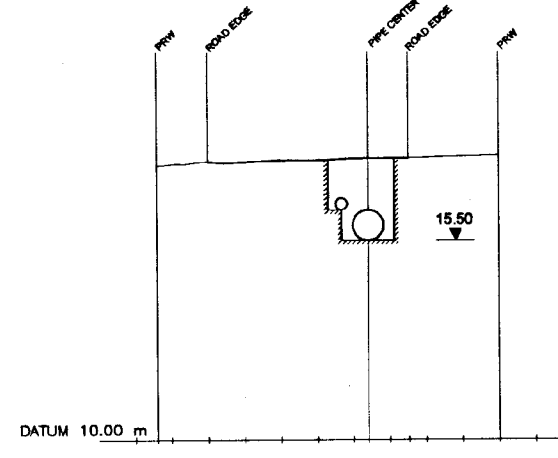
GROUND LEVEL (m)	16.94	16.82	16.74	16.71
DISTANCE (m)	-4.0	-2.3	-1.75	0.0
				1.79
				3.0

Ch 0+200



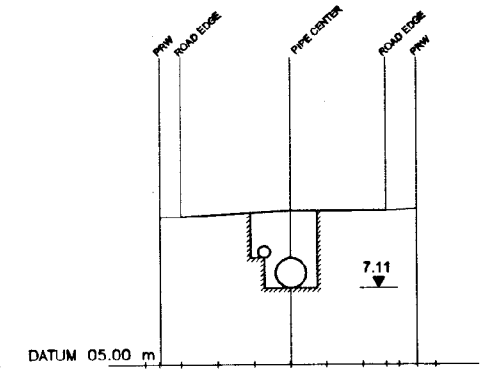
GROUND LEVEL (m)	16.45	16.46	16.52	16.53
DISTANCE (m)	-4.96	-2.45	0.0	0.75
				1.65
				4.00

Ch 0+400



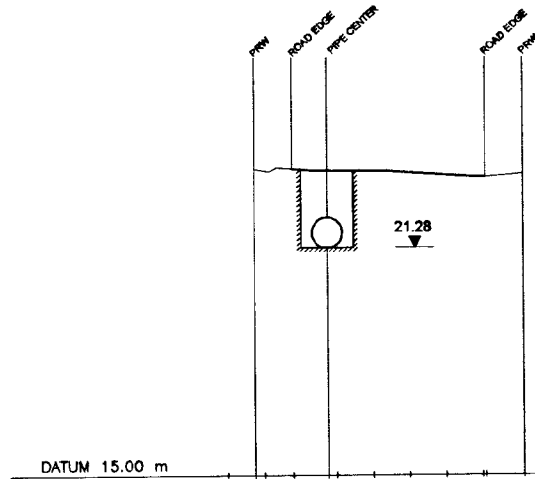
GROUND LEVEL (m)	17.57	17.67	17.71	17.78
DISTANCE (m)	-4.40	-3.0	0.0	2.52
				5.0
				17.85

Ch 0+600



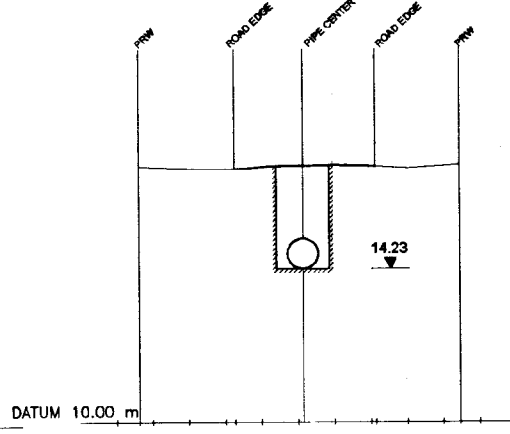
GROUND LEVEL (m)	9.07	9.08	9.26	9.30
DISTANCE (m)	-0.60	0.0	3.02	5.64
				6.0
				9.30

Ch 0+800



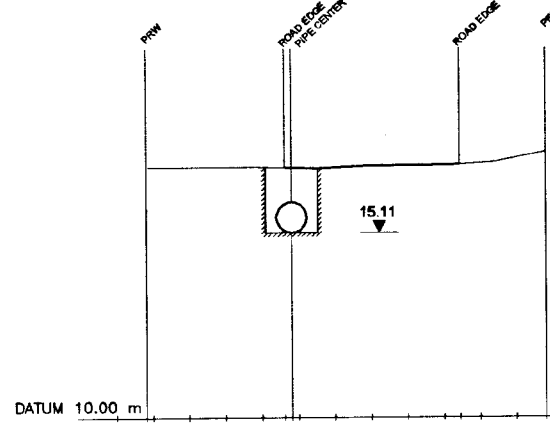
GROUND LEVEL (m)	23.45	23.44	23.33	23.22
DISTANCE (m)	-4.25	-3.20	-2.25	0.0
				2.10
				3.13

Ch 0+100



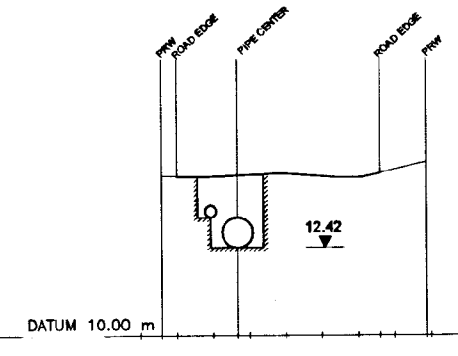
GROUND LEVEL (m)	17.06	17.00	17.08	17.06
DISTANCE (m)	-4.0	-1.74	0.0	2.13
				5.0
				17.11

Ch 0+300



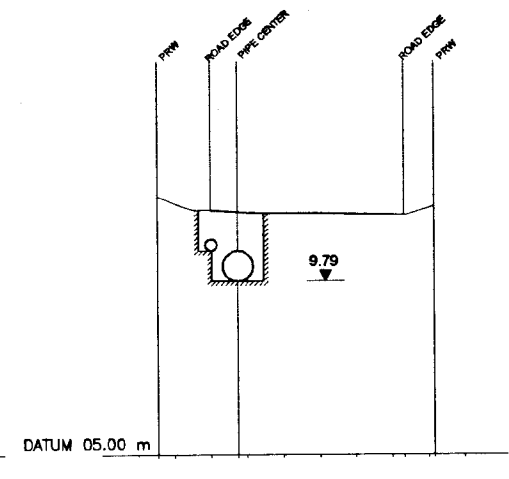
GROUND LEVEL (m)	16.95	16.91	16.96	16.96
DISTANCE (m)	-6.18	-2.98	0.0	2.44
				4.80
				17.32

Ch 0+500



GROUND LEVEL (m)	14.41	14.36	14.49	14.76
DISTANCE (m)	-0.43	0.0	1.67	5.6
				6.87
				14.76


Ch 0+700

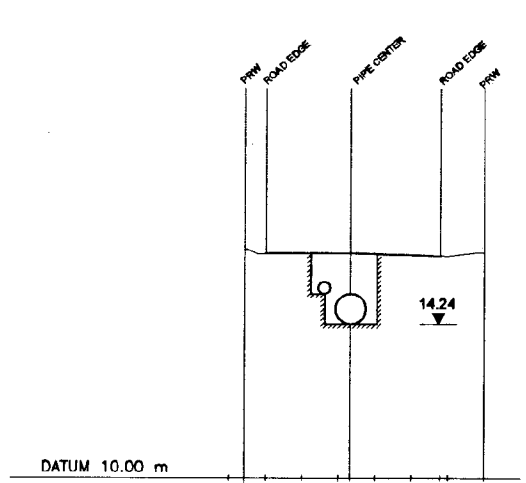


GROUND LEVEL (m)	12.12	11.76	11.62	11.86
DISTANCE (m)	-1.00	0.0	0.75	5.34
				6.27
				11.86

Ch 0+900

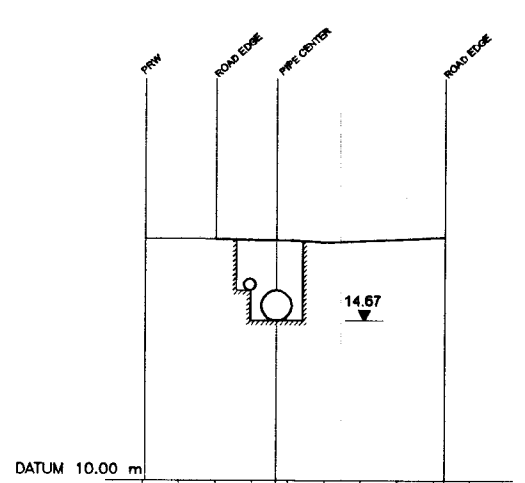
DO NOT SCALE

 <p>NATIONAL WATER SUPPLY AND DRAINAGE BOARD THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA</p>	<p>SUB PROJECT: KOTIKAWATTA MULLERIYAWA</p>	<p>TITLE: TRANSMISSION MAIN (WITH DISTRIBUTION MAIN) FROM AMBATALE WATER TREATMENT PLANT TO GOTHATUWA GROUND RESERVOIR - CROSS SECTIONS SHEET 1 OF 5</p>
	<p>DESIGNED: <i>[Signature]</i></p> <p>CHECKED: <i>[Signature]</i></p> <p>CV. TEAM LEADER: <i>[Signature]</i></p> <p>TEAM LEADER: <i>[Signature]</i></p>	<p>DRAWN: <i>[Signature]</i></p> <p>PM (PROVISED) INCHARGE: <i>[Signature]</i></p> <p>A.O.M (P&E) INCHARGE: <i>[Signature]</i></p> <p>D.O.M (P&E) INCHARGE: <i>[Signature]</i></p>



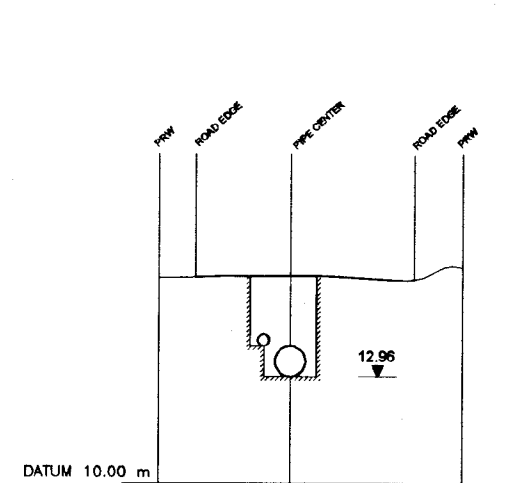
GROUND LEVEL (m)	-0.563	16.33	16.21	16.12	16.21
DISTANCE (m)	0.0	2.32	5.0	6.0	6.0

Ch 1+000



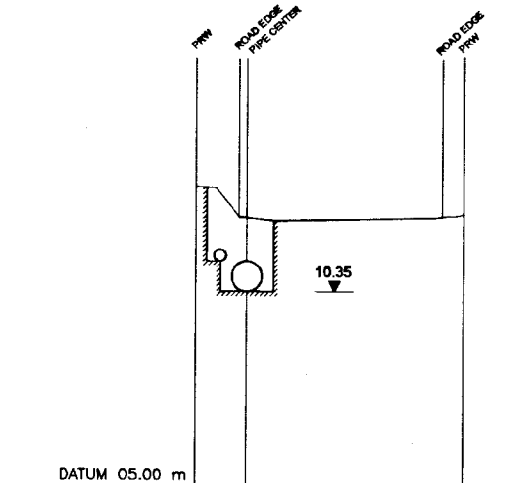
GROUND LEVEL (m)	-2.0	16.93	16.64	16.70	16.70
DISTANCE (m)	0.0	1.06	6.3	6.3	6.3

Ch 1+200



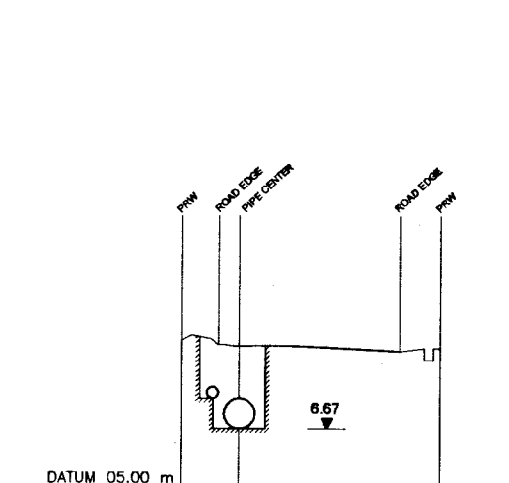
GROUND LEVEL (m)	-1.0	15.68	15.68	15.60	15.94
DISTANCE (m)	0.0	2.6	6.0	7.0	7.0

Ch 1+400



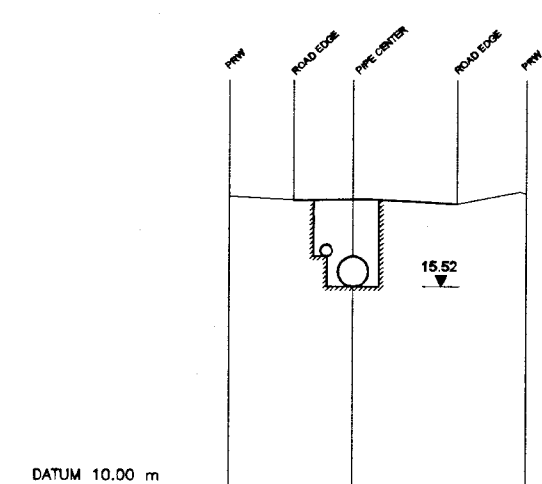
GROUND LEVEL (m)	-1.18	13.25	12.43	12.43	12.50
DISTANCE (m)	0.0	0.21	5.9	6.19	6.19

Ch 1+600



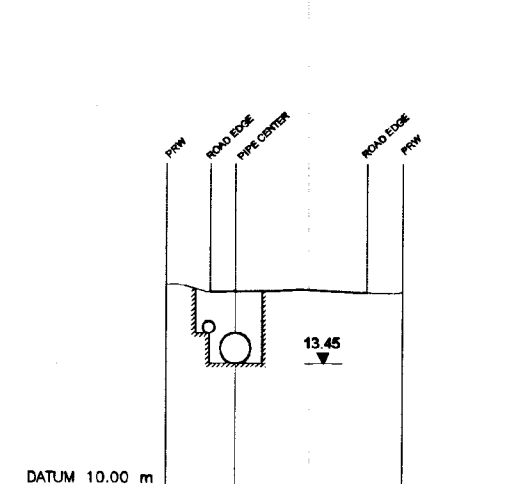
GROUND LEVEL (m)	-1.1	9.10	8.97	8.79	8.87
DISTANCE (m)	0.0	0.57	5.0	6.1	6.1

Ch 1+800



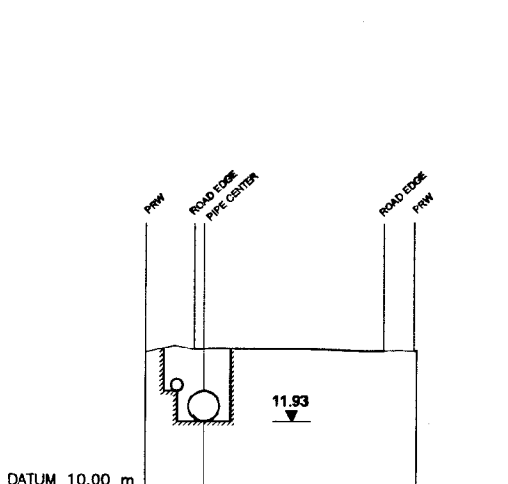
GROUND LEVEL (m)	-1.76	16.02	17.92	17.91	18.08
DISTANCE (m)	0.0	1.64	5.0	6.39	6.39

Ch 1+100



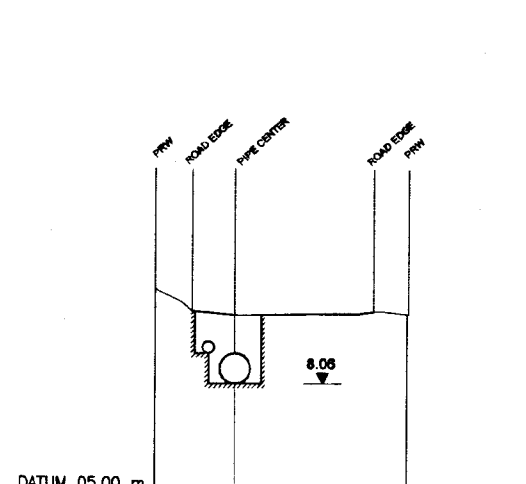
GROUND LEVEL (m)	-1.2	15.63	15.42	15.41	15.44
DISTANCE (m)	0.0	0.7	4.31	5.0	5.0

Ch 1+300



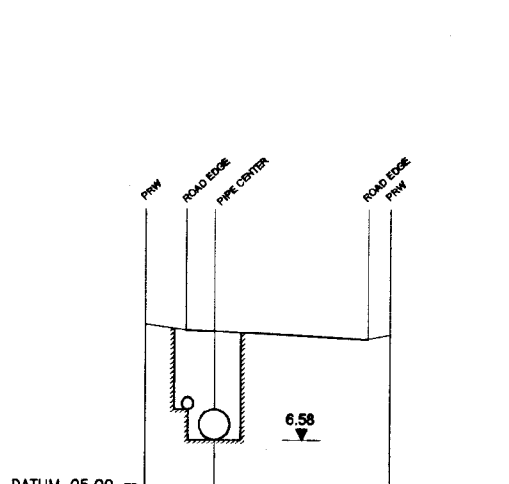
GROUND LEVEL (m)	-1.34	13.94	13.90	13.871	13.882
DISTANCE (m)	0.0	0.26	5.2	6.11	6.11

Ch 1+500



GROUND LEVEL (m)	-1.02	10.67	10.03	10.028	9.97
DISTANCE (m)	0.0	1.17	5.0	5.93	5.93


Ch 1+700

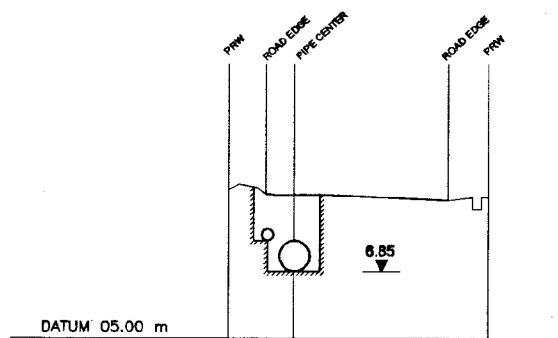


GROUND LEVEL (m)	-1.13	9.75	9.60	9.47	9.47
DISTANCE (m)	0.0	0.77	5.61	5.61	5.61

Ch 1+900

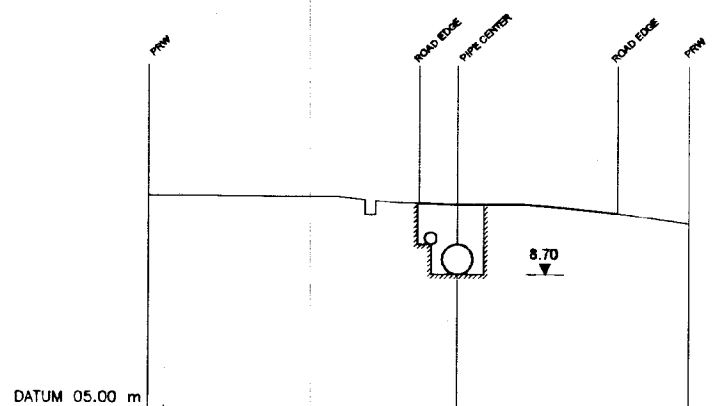
DO NOT SCALE

 <p>NATIONAL WATER SUPPLY AND DRAINAGE BOARD THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA</p>	<p>SUB PROJECT: KOTIKAWATTA MULLERIYAWA</p>	<p>TITLE: TRANSMISSION MAIN (WITH DISTRIBUTION MAIN) FROM AMBATALE WATER TREATMENT PLANT TO GOTHATUWA GROUND RESERVOIR - CROSS SECTIONS SHEET 2 OF 5</p>
	<p>DESIGNED: <i>[Signature]</i></p>	<p>DATE: JAN 2001</p>
<p>JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) STUDY TEAM</p>	<p>CHECKED: <i>[Signature]</i></p>	<p>CONTRACT No: NRW / CW</p>
<p>NIHON SUDO CONSULTANTS CO. LTD., TOKYO, JAPAN</p>	<p>DT. TEAM LEADER: <i>[Signature]</i></p>	<p>DWG. No: KMJ / TM / C - 10</p>



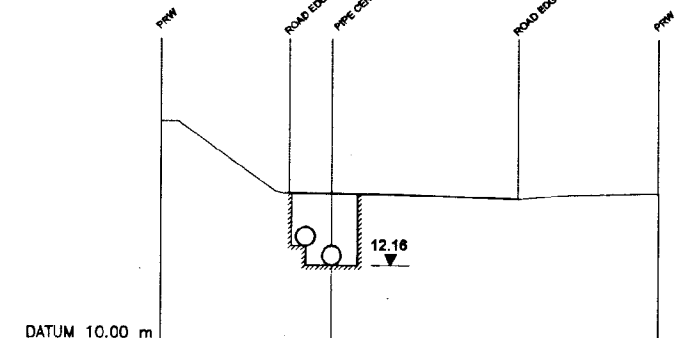
GROUND LEVEL (m)	9.10	8.97	8.79	8.87
DISTANCE (m)	-1.1	0.0	5.0	6.1

Ch 2+000



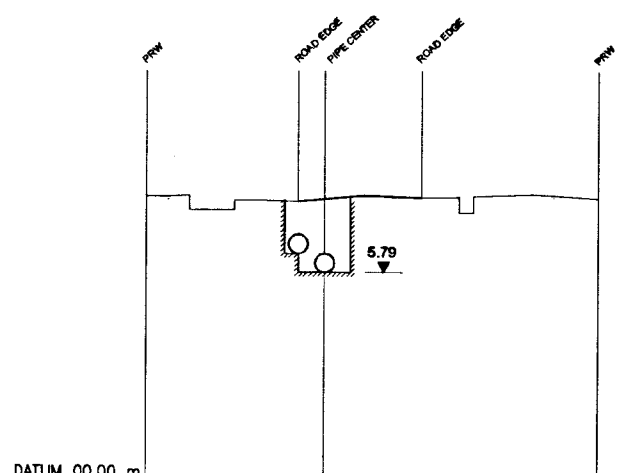
GROUND LEVEL (m)	10.87	10.87	10.40	10.12
DISTANCE (m)	-7.44	0.0	5.46	7.43

Ch 2+200



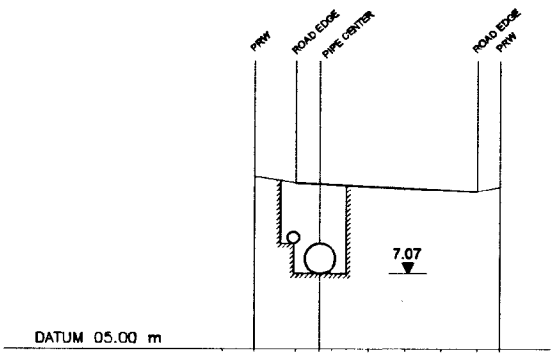
GROUND LEVEL (m)	16.13	14.13	14.01	14.17
DISTANCE (m)	-3.53	0.0	6.28	10.16

Ch 2+400



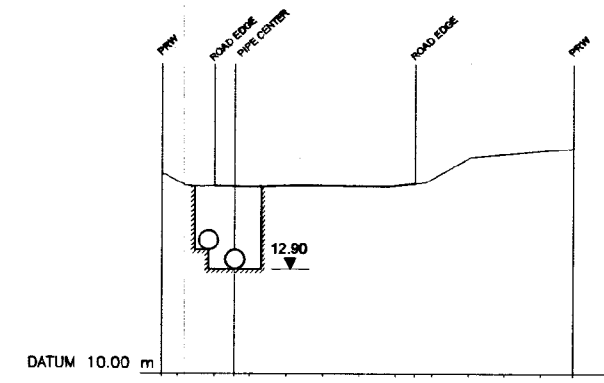
GROUND LEVEL (m)	7.89	7.76	7.85	7.85
DISTANCE (m)	-4.17	0.0	3.4	8.27

Ch 2+600



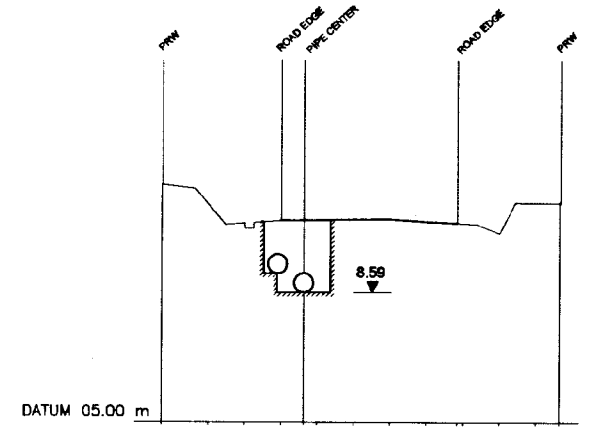
GROUND LEVEL (m)	9.75	9.60	9.35	9.47
DISTANCE (m)	-1.13	0.0	5.0	5.81

Ch 2+100



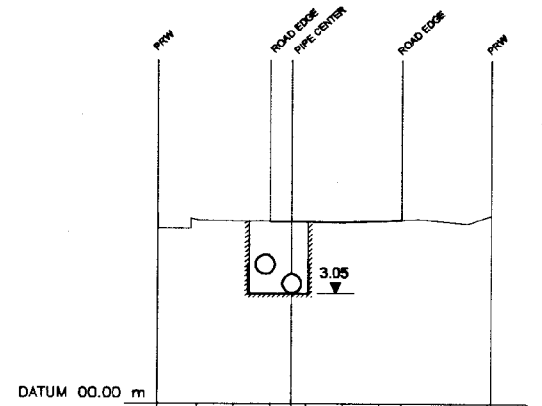
GROUND LEVEL (m)	15.52	15.19	15.26	16.22
DISTANCE (m)	-1.43	0.0	5.52	9.88

Ch 2+300



GROUND LEVEL (m)	11.57	10.56	10.50	11.07
DISTANCE (m)	-3.28	0.0	4.85	7.87


Ch 2+500

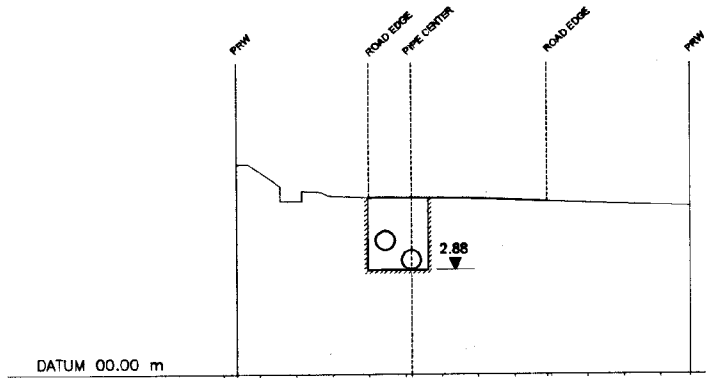


GROUND LEVEL (m)	5.25	5.02	5.10	5.21
DISTANCE (m)	-3.11	0.0	3.63	6.10

Ch 2+700

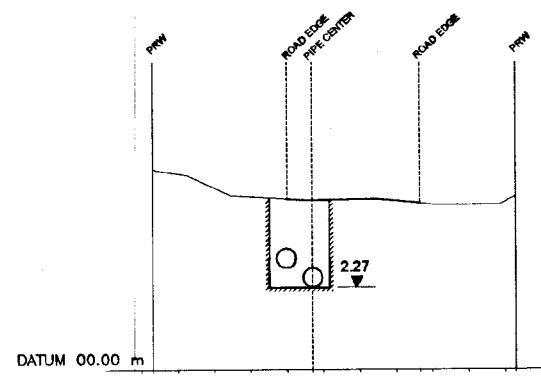
DO NOT SCALE

 <p>NATIONAL WATER SUPPLY AND DRAINAGE BOARD THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA</p>	SUB PROJECT: KOTIKAWATTA MULLERIYAWA		TITLE: TRANSMISSION MAIN (WITH DISTRIBUTION MAIN) FROM AMBATALE WATER TREATMENT PLANT TO GOTHATUWA GROUND RESERVOIR - CROSS SECTIONS	
	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) STUDY TEAM		DATE: JAN 2001	SHEET 3 OF 5
	NIHON SUDO CONSULTANTS CO. LTD., TOKYO, JAPAN		CONTRACT NO: NRW / CW	DWG. NO: KMU / TM / C - 11
	DESIGNED: <i>[Signature]</i> CHECKED: <i>[Signature]</i> DT. TEAM LEADER: <i>[Signature]</i> TEAM LEADER: <i>[Signature]</i>	DRAWN: <i>[Signature]</i> PM (PW/S/P) INCHARGE: <i>[Signature]</i> A.S.M (PW) INCHARGE: <i>[Signature]</i> D.O.M (PW) INCHARGE: <i>[Signature]</i>		



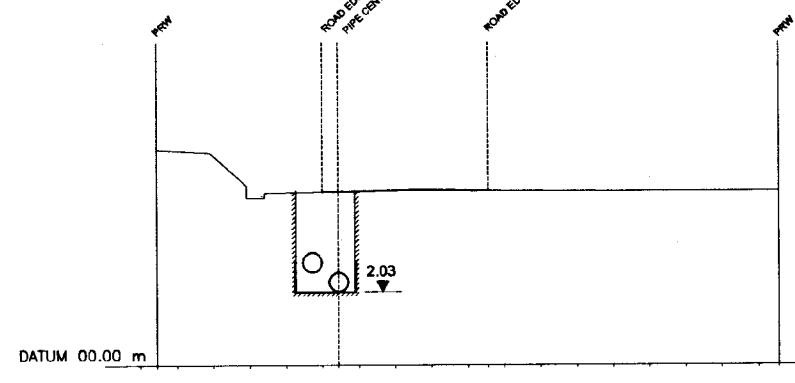
GROUND LEVEL (m)	3.64	5.76	0.0	4.85	1.16	4.88	4.75	8.83	4.81
DISTANCE (m)									

Ch 2+800



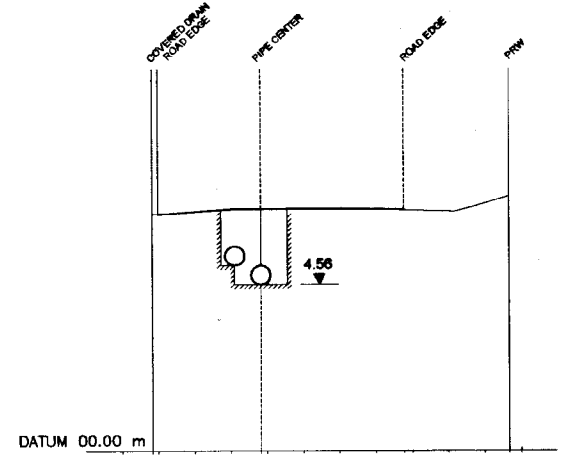
GROUND LEVEL (m)	-3.70	5.54	0.0	4.70	0.7	3.6	4.80	6.43	4.80
DISTANCE (m)									

Ch 3+000



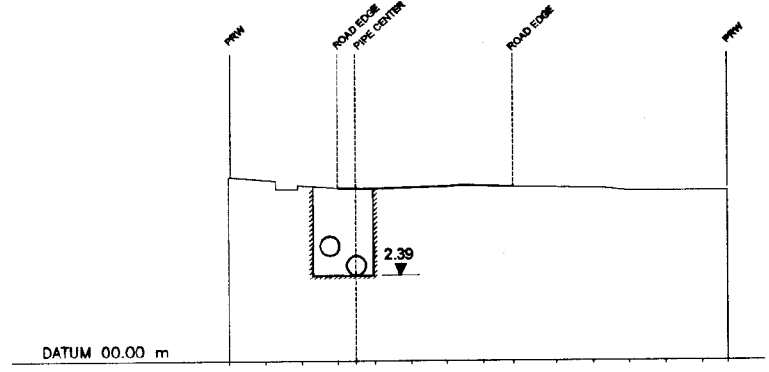
GROUND LEVEL (m)	-4.58	5.95	0.0	4.78	0.44	4.55	4.80	12.54	4.78
DISTANCE (m)									

Ch 3+200



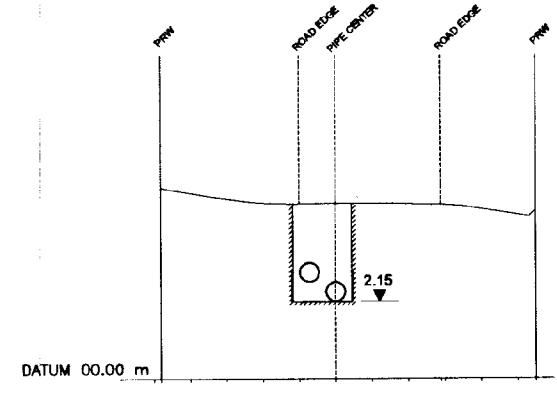
GROUND LEVEL (m)	-0.17	6.53	2.83	6.65	6.78	9.88	7.02
DISTANCE (m)							

Ch 3+400



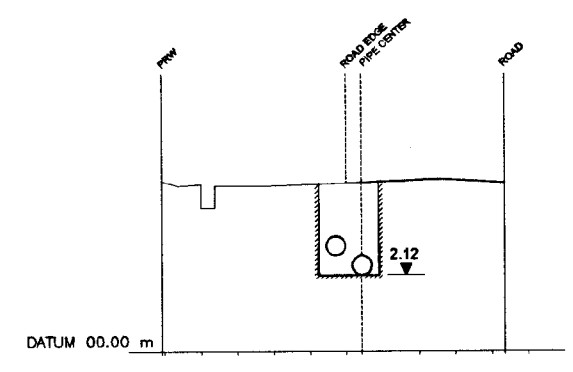
GROUND LEVEL (m)	-3.0	5.08	0.0	4.77	0.5	4.82	4.81	10.71	4.69
DISTANCE (m)									

Ch 2+900



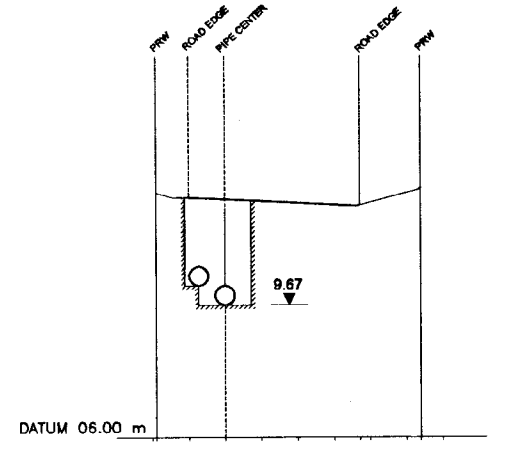
GROUND LEVEL (m)	-3.80	5.28	0.0	4.81	1.0	3.88	4.80	6.50	4.70
DISTANCE (m)									

Ch 3+100



GROUND LEVEL (m)	-5.08	4.71	0.0	4.64	0.92	4.38	4.86
DISTANCE (m)							

Ch 3+300

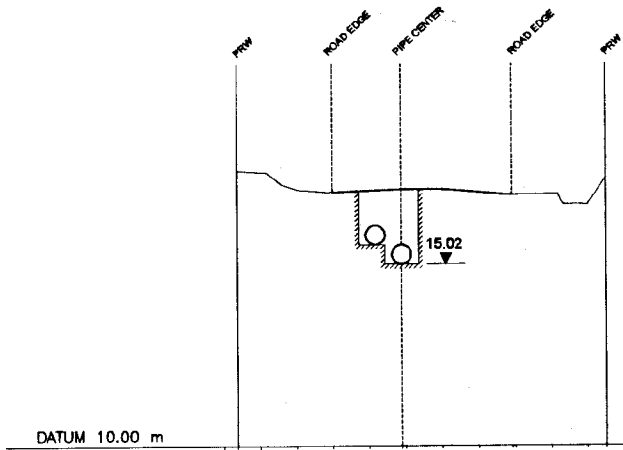


GROUND LEVEL (m)	-0.91	12.77	0.0	11.84	1.0	4.72	11.42	6.4	12.91
DISTANCE (m)									

Ch 3+500

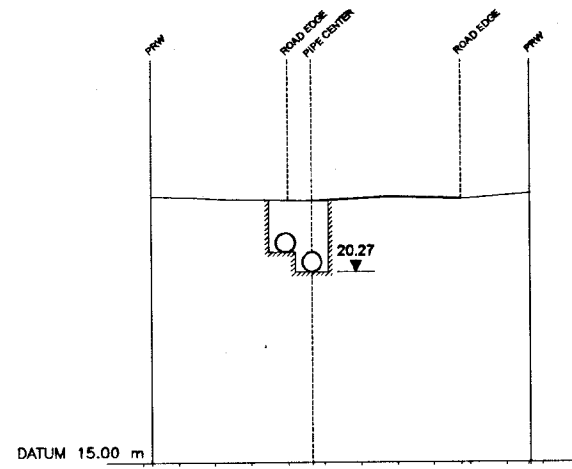
DO NOT SCALE

<p>NATIONAL WATER SUPPLY AND DRAINAGE BOARD THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA</p>	SUB PROJECT:		TITLE:	
	KOTIKAWATTA MULLERIYAWA		TRANSMISSION MAIN (WITH DISTRIBUTION MAIN) FROM AMBATALE WATER TREATMENT PLANT TO GOTHATUWA GROUND RESERVOIR - CROSS SECTIONS	
	DESIGNED: <i>[Signature]</i>		DATE: JAN 2007	
	CHECKED: <i>[Signature]</i>		CONTRACT NO: NRW / CW	
<p>JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) STUDY TEAM</p> <p>NIHON SUIDO CONSULTANTS CO. LTD., TOKYO, JAPAN</p>		DRINK: <i>[Signature]</i> PM INCHARGE: <i>[Signature]</i> J.A.M INCHARGE: <i>[Signature]</i> D.A.M INCHARGE: <i>[Signature]</i>	DRG. NO: KMU / TM / C - 12	



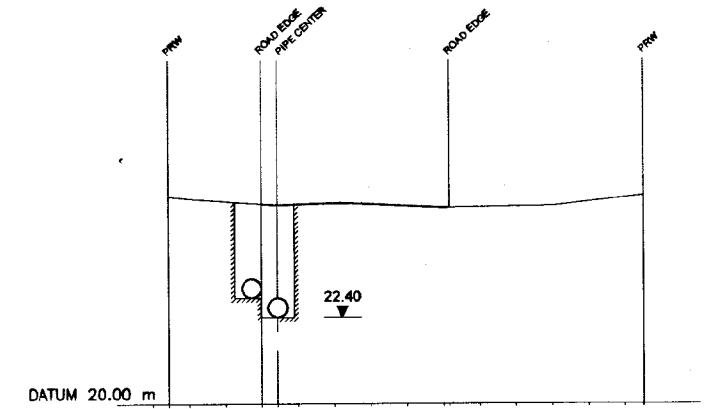
GROUND LEVEL (m)	2.81	17.61	0.0	16.09	1.88	2.0	5.0	16.93	7.50	17.39
DISTANCE (m)										

Ch 3+600



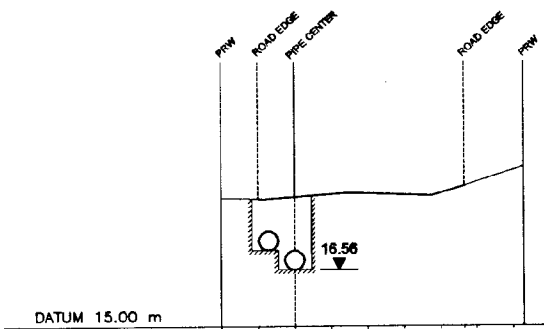
	3.741	22.36	0.0	22.24	0.65	4.46	22.28	6.61	22.42
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Ch 3+800



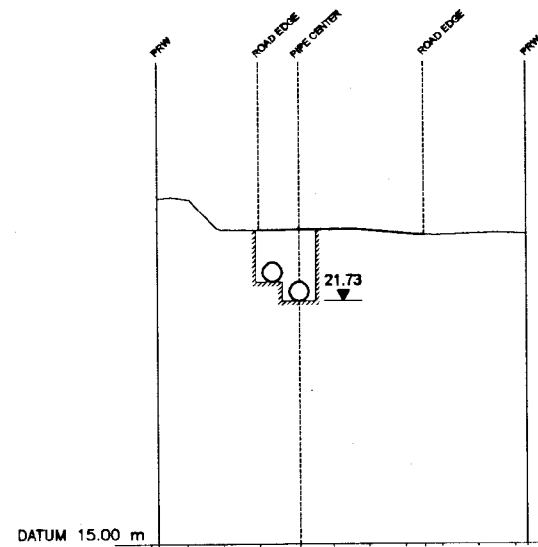
	-2.56	25.72	0.0	25.51	0.43	5.16	25.41	10.53	25.75
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Ch 4+000



GROUND LEVEL (m)	-1.01	18.53	0.0	18.53	1.0	5.66	18.87	7.3	19.4
DISTANCE (m)									

Ch 3+700



	2.81	24.56	0.0	23.69	1.08	4.52	23.55	7.35	23.57
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Ch 3+900

DO NOT SCALE

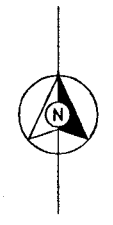
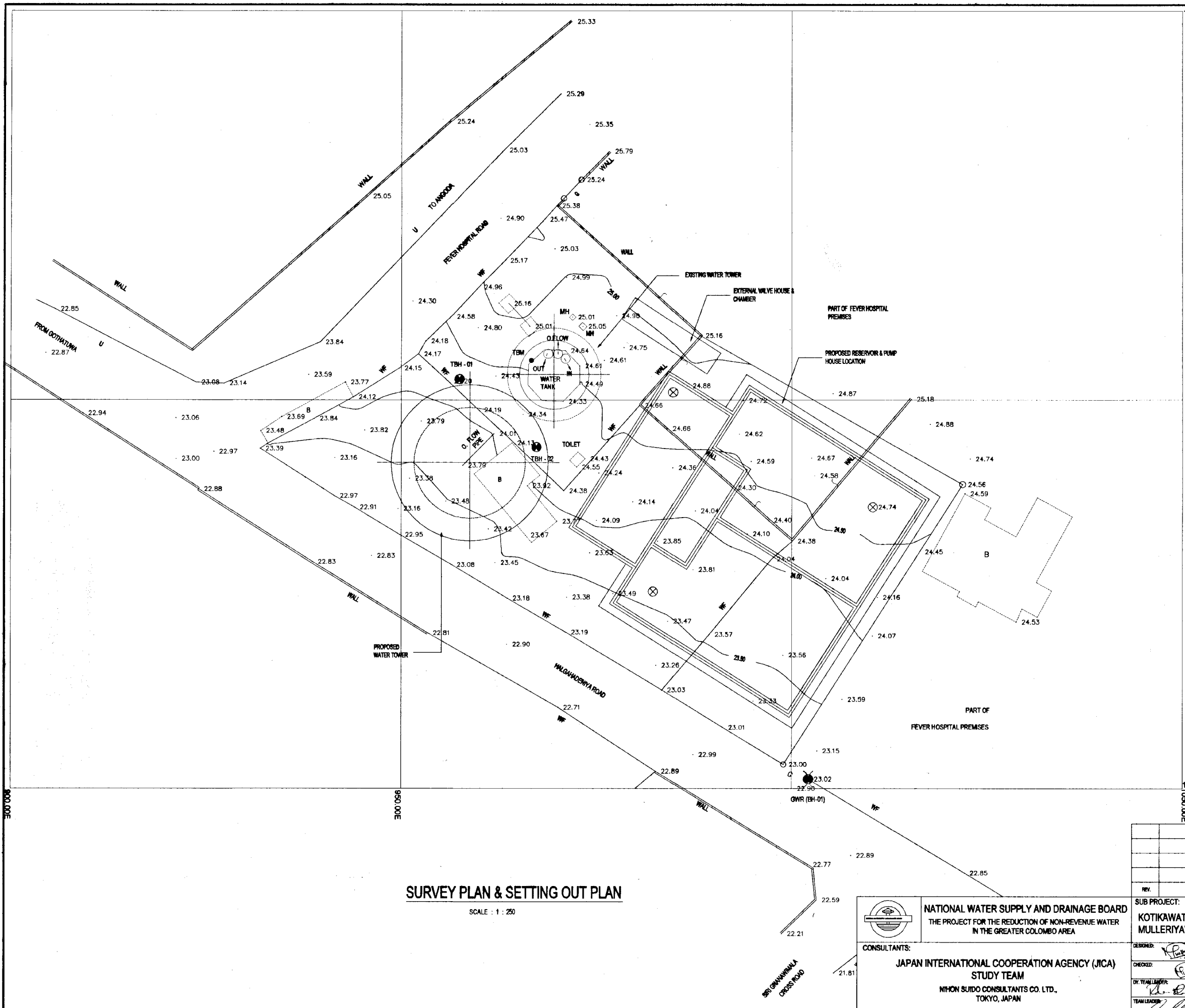


NATIONAL WATER SUPPLY AND DRAINAGE BOARD
THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER
IN THE GREATER COLOMBO AREA

SUB PROJECT: KOTIKAWATTA MULLERIYAWA
TITLE: TRANSMISSION MAIN (WITH DISTRIBUTION MAIN) FROM AMBATALE WATER TREATMENT PLANT TO GOTHATUWA GROUND RESERVOIR - CROSS SECTIONS
SHEET 3 OF 3

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

DESIGNED: <i>[Signature]</i>	DRAWN: <i>[Signature]</i>	DATE: JAN 2004
CHECKED: <i>[Signature]</i>	IN CHARGE: <i>[Signature]</i>	CONTRACT NO: NRW / CW
BY: <i>[Signature]</i>	A.I.M. PWD NUMBER: R. D. A. <i>[Signature]</i>	DRG. NO: KMU / TM / C - 13
TEAM LEADER: <i>[Signature]</i>	D.I.M. PWD NUMBER:	



- REFERENCE
- B BUILDING
 - G GATE
 - MH MANHOLE
 - O.FLOW OVER FLOW
 - U UNDEFINED
 - WF WIRE FENCE

CONTOUR INTERVAL 0.5m


- NOTE:
1. ELEVATIONS ARE BASED ON MSL DATUM
 2. ELEVATIONS ARE IN METERS.
 3. TBM = 24.54m MSL
CO-ORDINATE WITH RESPECT TO SURVEY GRIDS
N = 985.101
E = 096.630
BASED ON SURVEY GRIDS

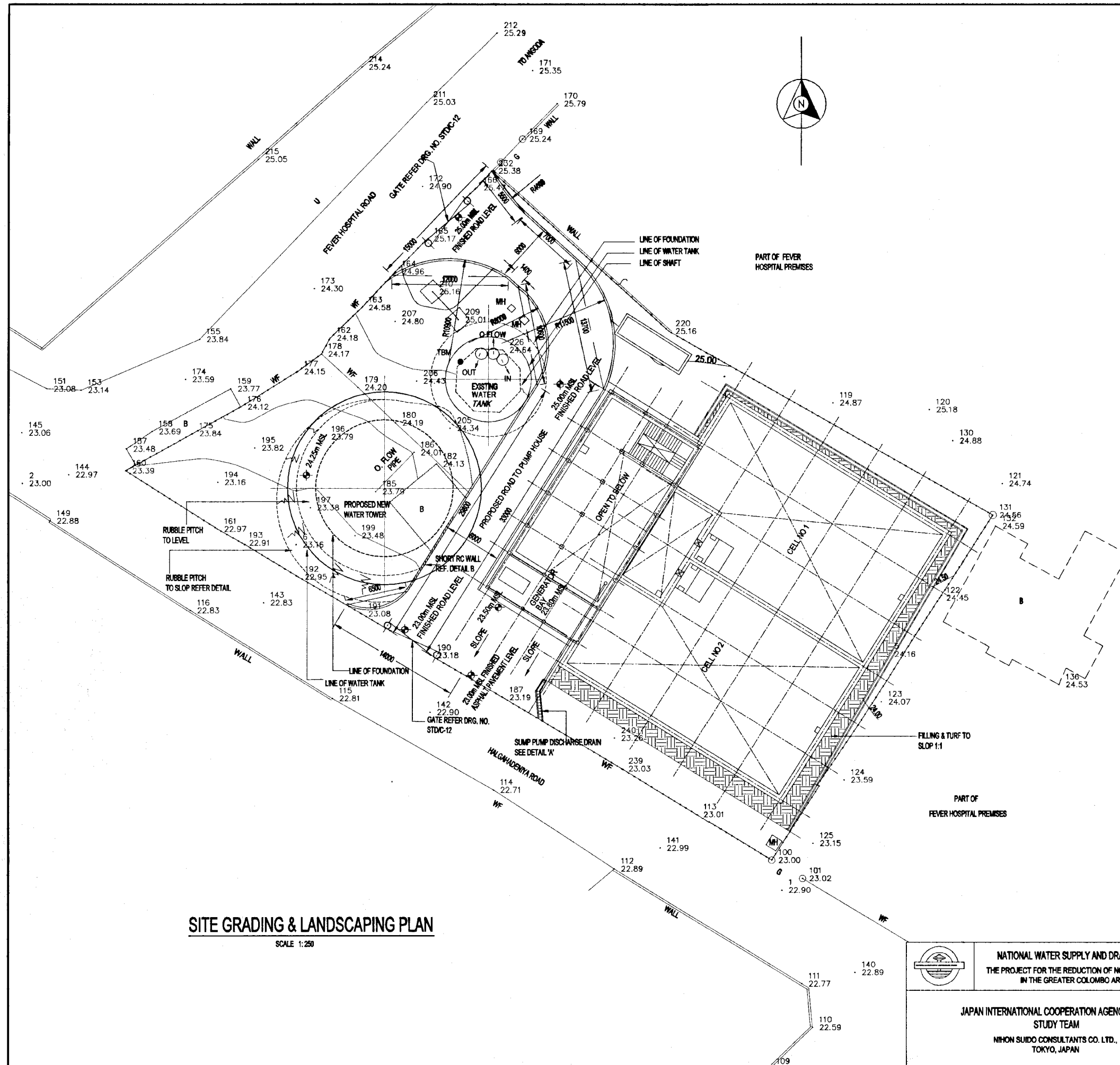
- ⊗ PROPOSED BOREHOLES
- EXISTING BOREHOLES

DO NOT SCALE

SURVEY PLAN & SETTING OUT PLAN

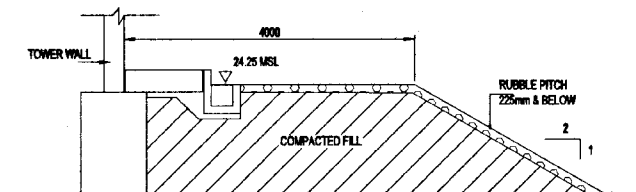
SCALE : 1 : 250

 <p>NATIONAL WATER SUPPLY AND DRAINAGE BOARD THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA</p>	<p>SUB PROJECT: KOTIKAWATTA MULLERIYAWA</p>	<p>TITLE: GOTHATUWA GROUND RESERVOIR & PUMP HOUSE GROUND RESERVOIR - SURVEY PLAN</p>
	<p>CONSULTANTS: JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) STUDY TEAM NIHON SUIDO CONSULTANTS CO. LTD., TOKYO, JAPAN</p>	<p>DESIGNED: [Signature] CHECKED: [Signature] DR. TEAM LEADER: [Signature] TEAM LEADER: [Signature]</p>



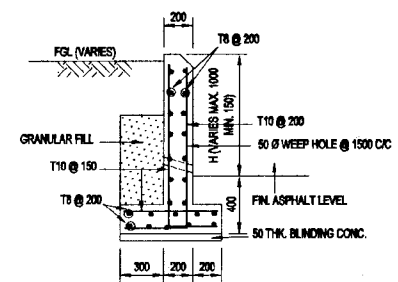
SITE GRADING & LANDSCAPING PLAN

SCALE 1:250



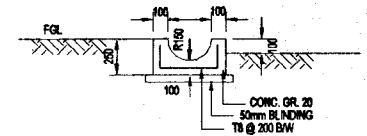
DETAIL OF RUBBLE PITCHING

SCALE - 1:50



DETAIL "B" OF SHORT RC WALL


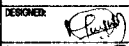
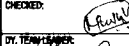

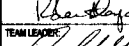
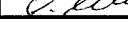
SCALE - 1:25

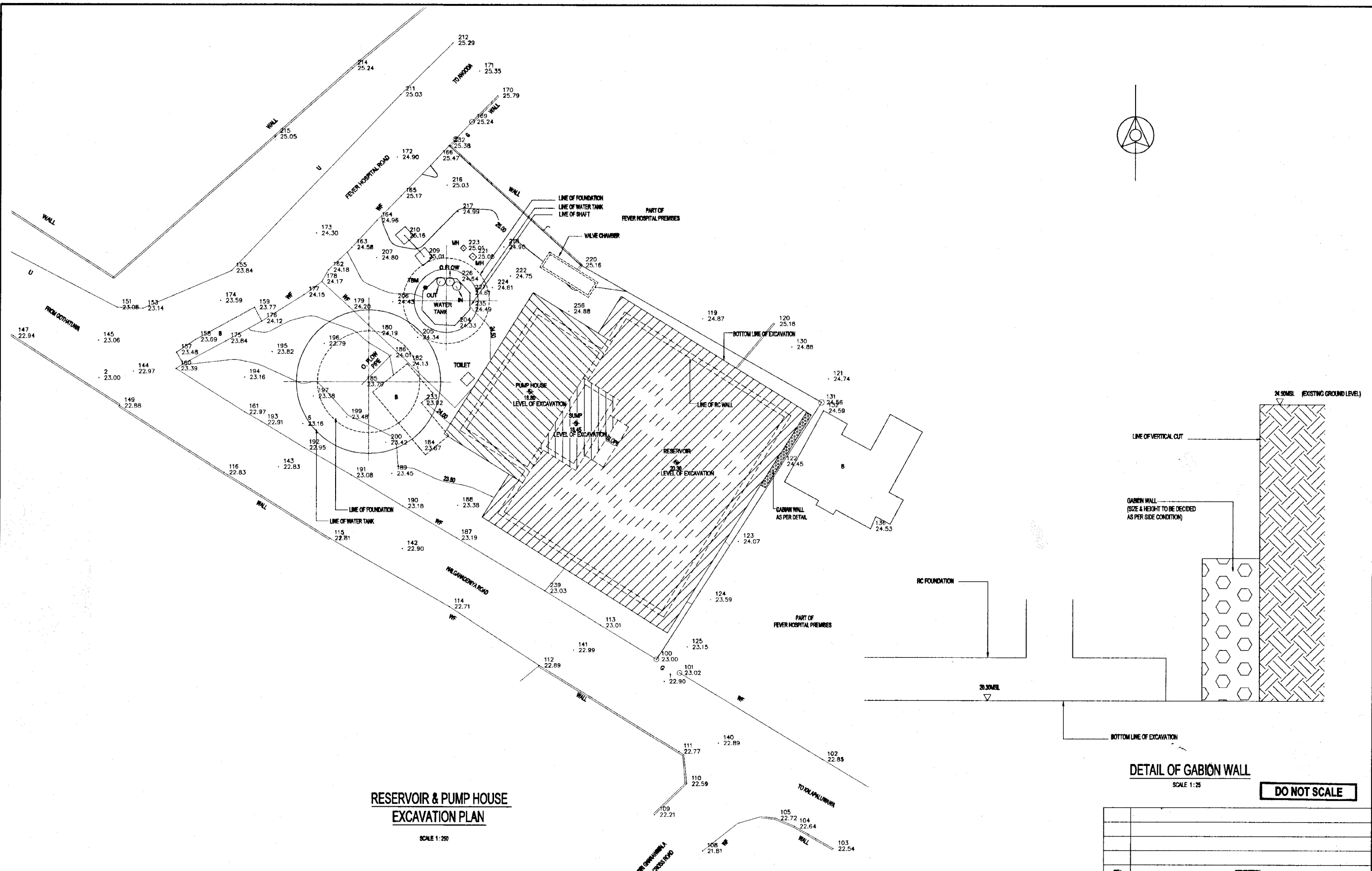


CROSS SECTION DETAIL 'A' OF SUMP DISCHARGE DRAIN

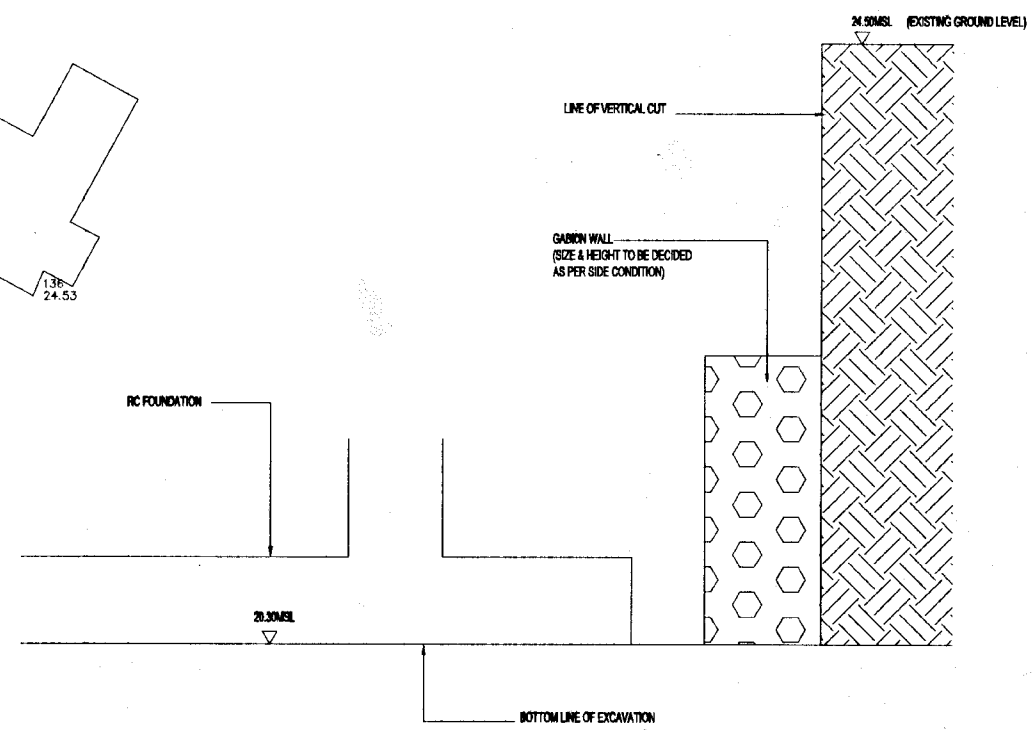
SCALE - 1:25

DO NOT SCALE


 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 SITE GRADING & LANDSCAPING
	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) STUDY TEAM NIKON SUDO CONSULTANTS CO. LTD., TOKYO, JAPAN		
	DESIGNER: 	DATE: JAN 2001	CONTRACT NO.: NRW / CW
	CHECKED: 	DRAWN: 	DRAWN BY: R. D. A. J.
DR. TECHNICAL: 	A.S.M. (P.M.) NUMBER: R. D. A. J.	DRAWN BY: R. D. A. J.	
TEAM LEADER: 	D.S.M. (P.M.) NUMBER: R. D. A. J.	DRAWN BY: R. D. A. J.	

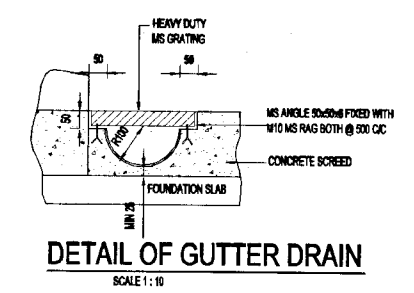
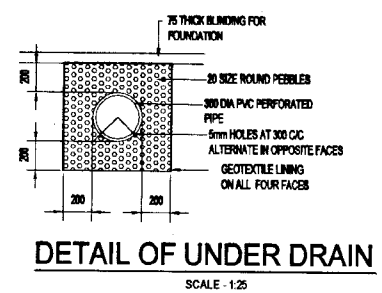
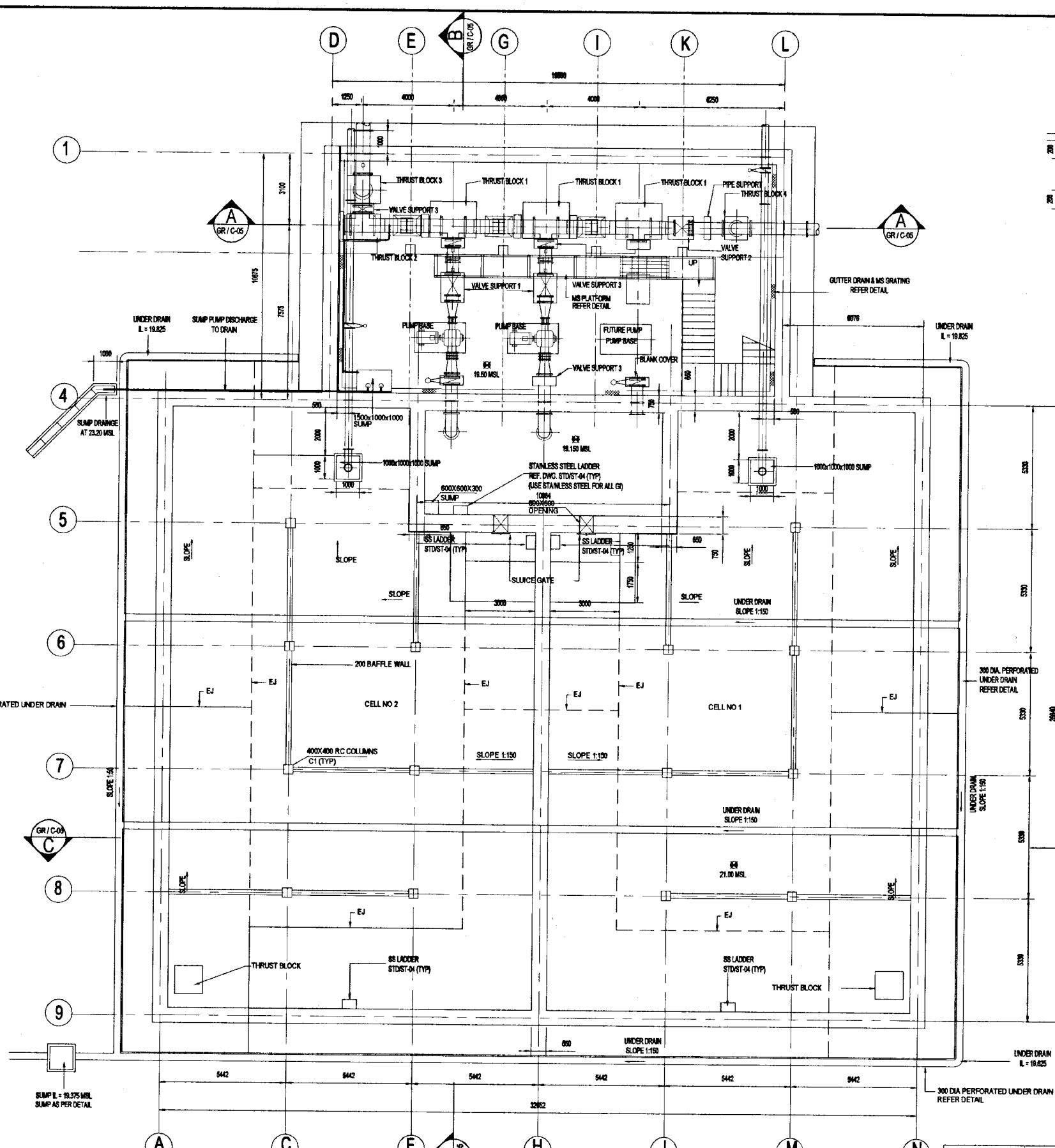


**RESERVOIR & PUMP HOUSE
EXCAVATION PLAN**
SCALE 1:250



DETAIL OF GABION WALL
SCALE 1:25
DO NOT SCALE

 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 EXCAVATION PLAN
	DESIGNED: <i>[Signature]</i> CHECKED: <i>[Signature]</i> DR. TEAM LEADER: <i>[Signature]</i> TEAM LEADER: <i>[Signature]</i>	DRAWN: <i>[Signature]</i> IN CHARGE: <i>[Signature]</i> A. R. P. (PND) NUMBER: <i>[Signature]</i> D.O.M. (PND) NUMBER:



- NOTES:
- Sluice Gate Specification
 - Well mounted type
 - To have Standard Invert
 - To have non rising system
 - To have thrust direct on frame
 - Size of opening 600x600 mm clear
 - To have floor pillar with bevel gear box
 - All the stainless steel ladders inside the reservoir & pump house shall be fabricated using the detail given in Grg. No. STD/ST-04. For internal ladders and all GI to be changed to stainless steel.

DO NOT SCALE

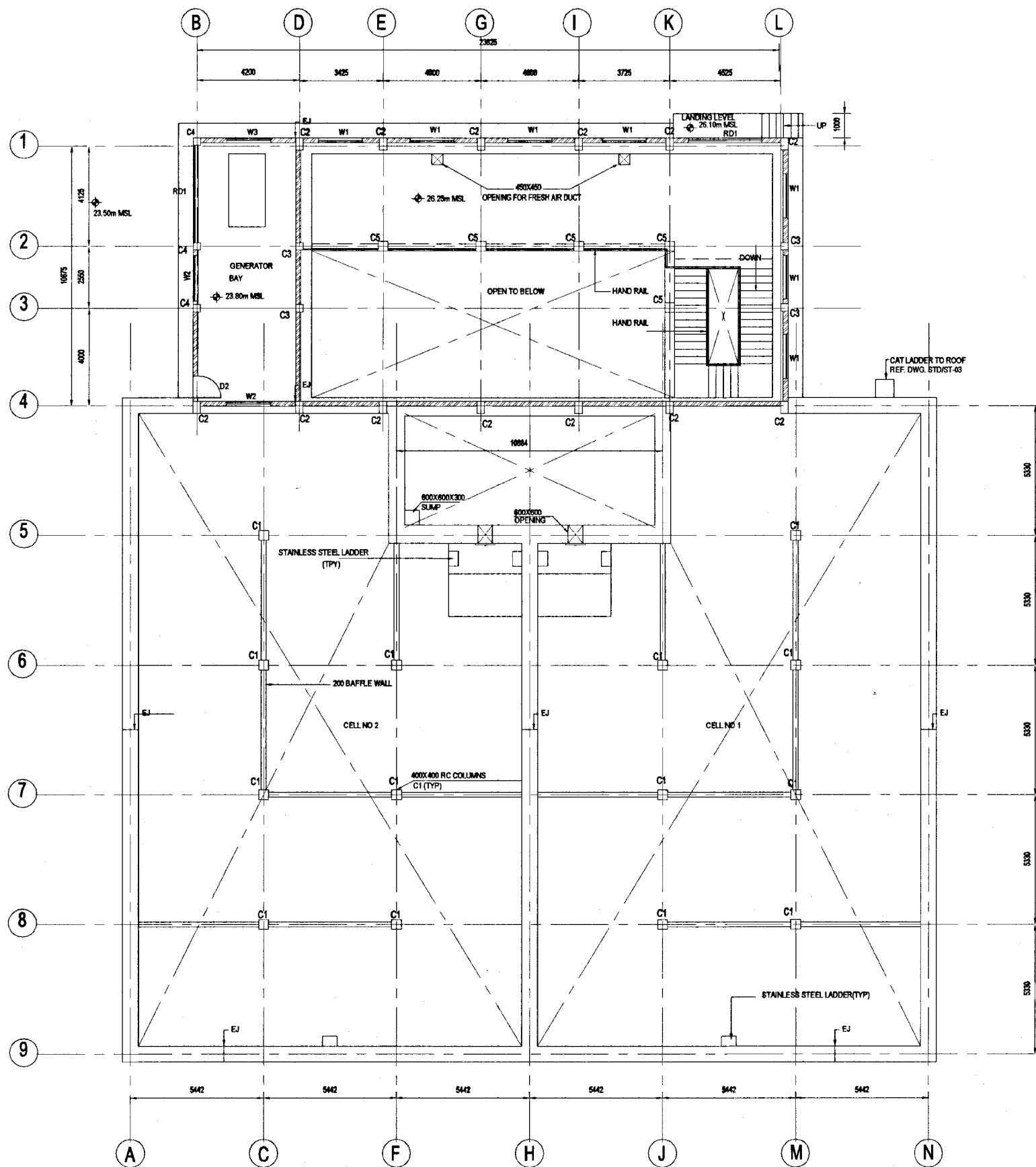
PUMP HOUSE & RESERVOIR PLAN AT 21.00m MSL
SCALE - 1:100

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:	TITLE:
KOTIKAWATTE MULLERIYAWA	GOTHATHUWA GROUND RESERVOIR & PUMP HOUSE GENERAL LAYOUT
DESIGNED:	DATE: JAN 2001
CHECKED:	CONTRACT NO: NRW / CW
DR. TEAM LEADER:	DRG. NO: KMU/GR/C-01




SCHEDULE OF DOORS & WINDOWS

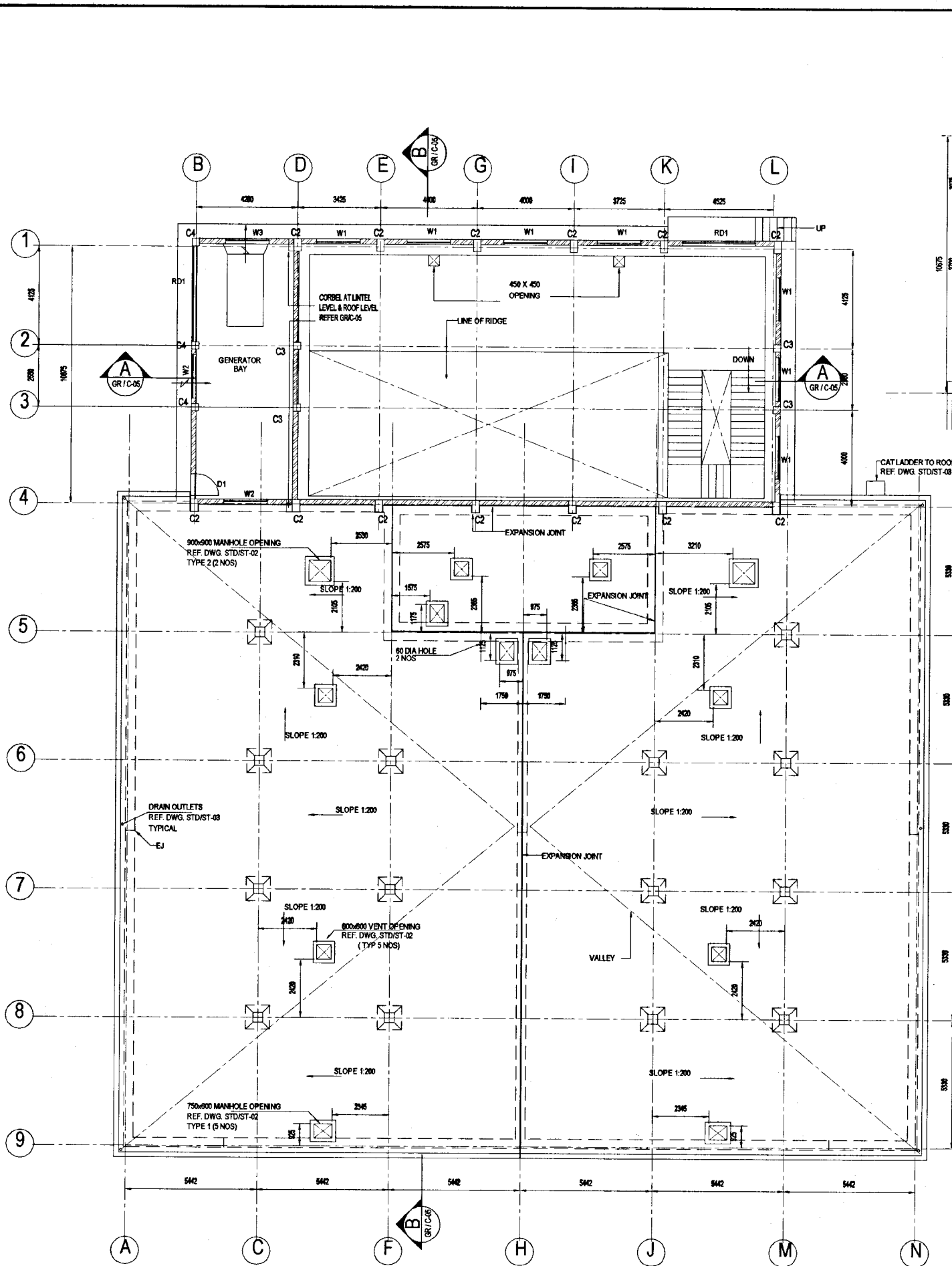
TYPE	SIZE IN mm		DESCRIPTION	QUANTITY
	WIDTH	HEIGHT		
DOOR D1	1000	2200	BRONZE ANODIZED ALUMINUM DOOR WITH GLAZED PANELS	01
WINDOW W1	1800	1800	BRONZE ANODIZED ALUMINUM FRAMES & PANELS WITH GLASS	07
WINDOW W2	1800	1800	BRONZE ANODIZED ALUMINUM FRAMES & LOUVER PANELS	02
LOUVER W3	1500	2100	BRONZE ANODIZED ALUMINUM LOUVER	01
ROLLER DOOR RD1	3000	3000	ALUMINUM ROLLER DOOR	01
ROLLER DOOR RD2	4000	3000	ALUMINUM ROLLER DOOR	01

PUMP HOUSE & RESERVOIR PLAN AT 26.25m MSL

SCALE: 1:100

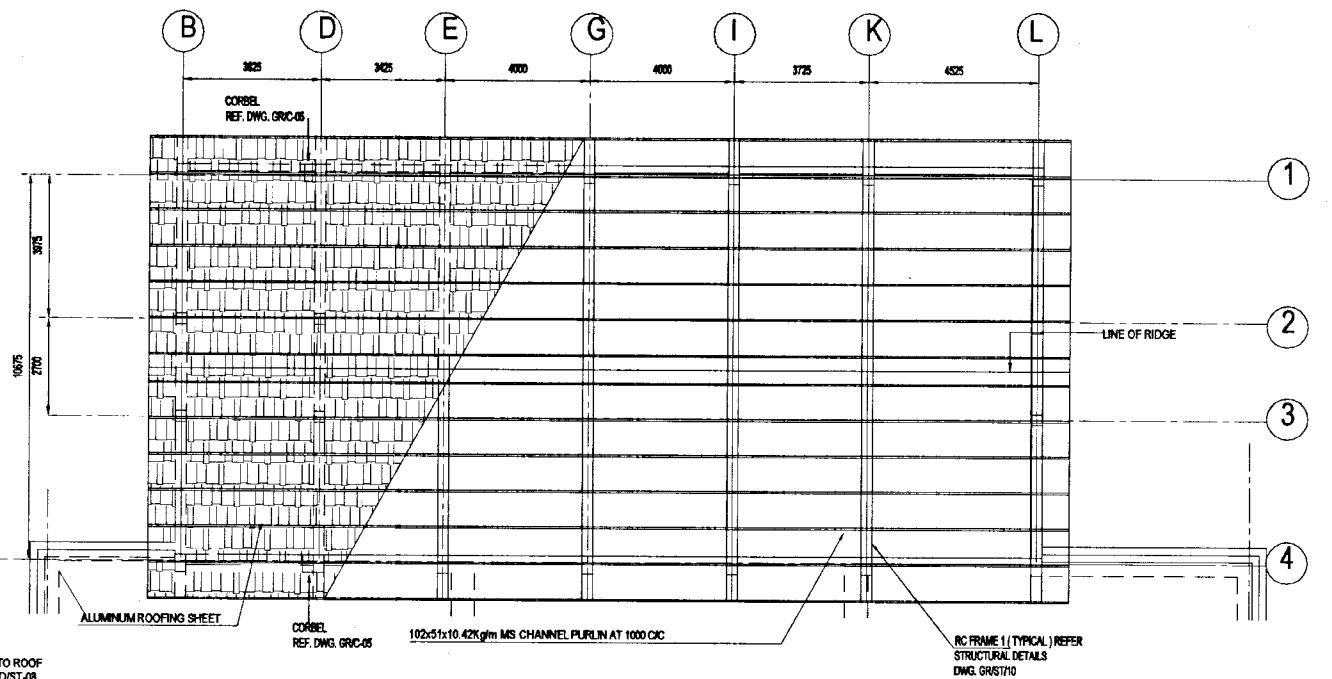
DO NOT SCALE

 <p>NATIONAL WATER SUPPLY AND DRAINAGE BOARD THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA</p>	<p>SUB PROJECT: KOTIKAWATTE MULLERIYAWA</p>	<p>TITLE: GOTHATHUWA GROUND RESERVOIR & PUMP HOUSE PLAN AT 26.25m MSL</p>
	<p>DESIGNED: [Signature]</p>	<p>DRAWN: [Signature]</p>
<p>JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) STUDY TEAM</p>	<p>CHECKED: [Signature]</p>	<p>CONTRACT NO:</p>
<p>NIHON SUDO CONSULTANTS CO. LTD., TOKYO, JAPAN</p>	<p>DR. TEAM LEADER: [Signature]</p>	<p>DRG. NO.: KMU/GR/C/02</p>



RESERVOIR ROOF PLAN AT 26.80m MSL


SCALE - 1:100

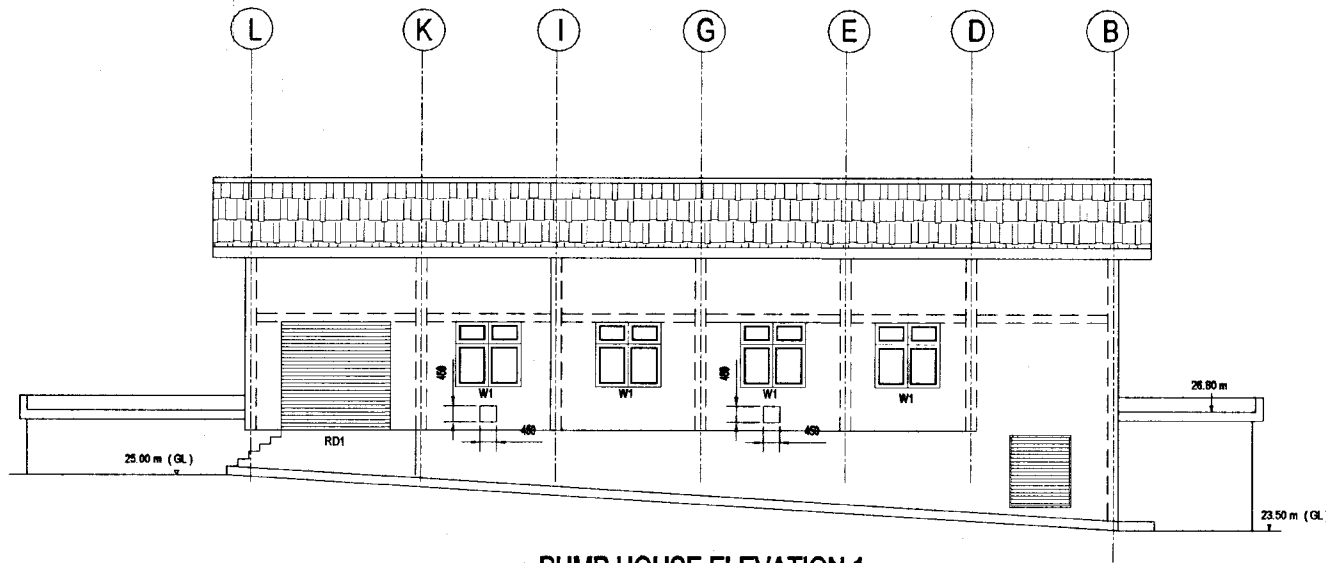


PUMP HOUSE ROOF PLAN

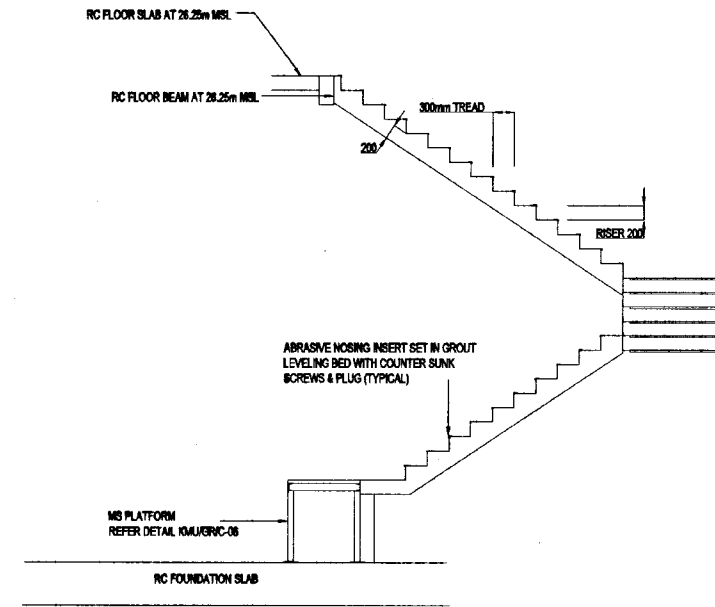
SCALE - 1:100

DO NOT SCALE

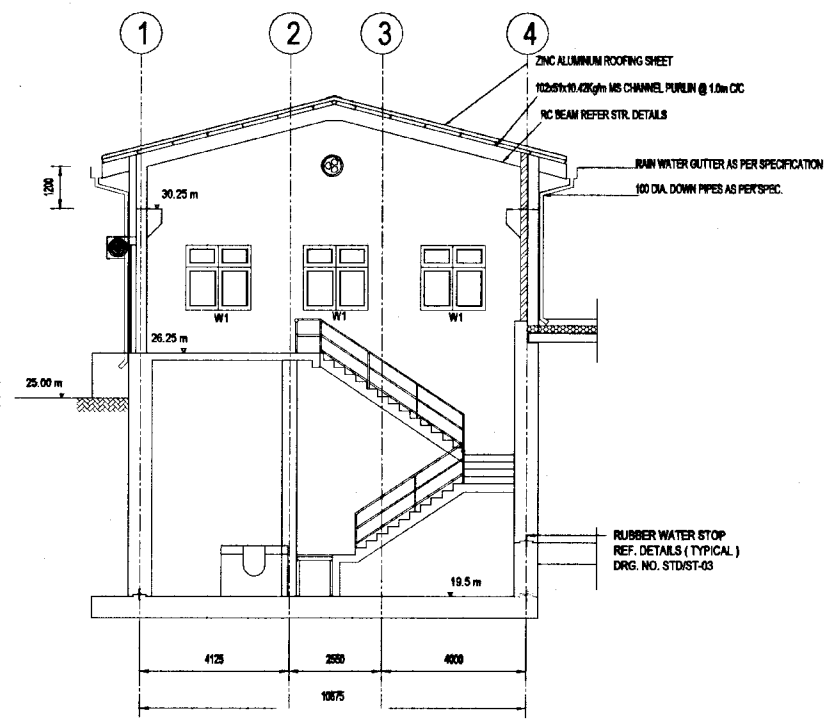
 NATIONAL WATER SUPPLY AND DRAINAGE BOARD THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA	SUB PROJECT:		TITLE:	
	KOTIKAWATTE MULLERIYAWA		GOTHATUWA GROUND RESERVOIR & PUMP HOUSE ROOF PLAN OF RESERVOIR & PUMP HOUSE	
	DESIGNED:	DRAWN:	DATE:	JAN 2001
	CHECKED:	PM (PROVISION) NUMBER:	CONTRACT No.:	NRW / CW
BY TEAM LEADER:	A.O.M (P&I) NUMBER:	DWG. No.:	KMU/GR/C-03	
TEAM LEADER:	C.O.M (P&I) NUMBER:			



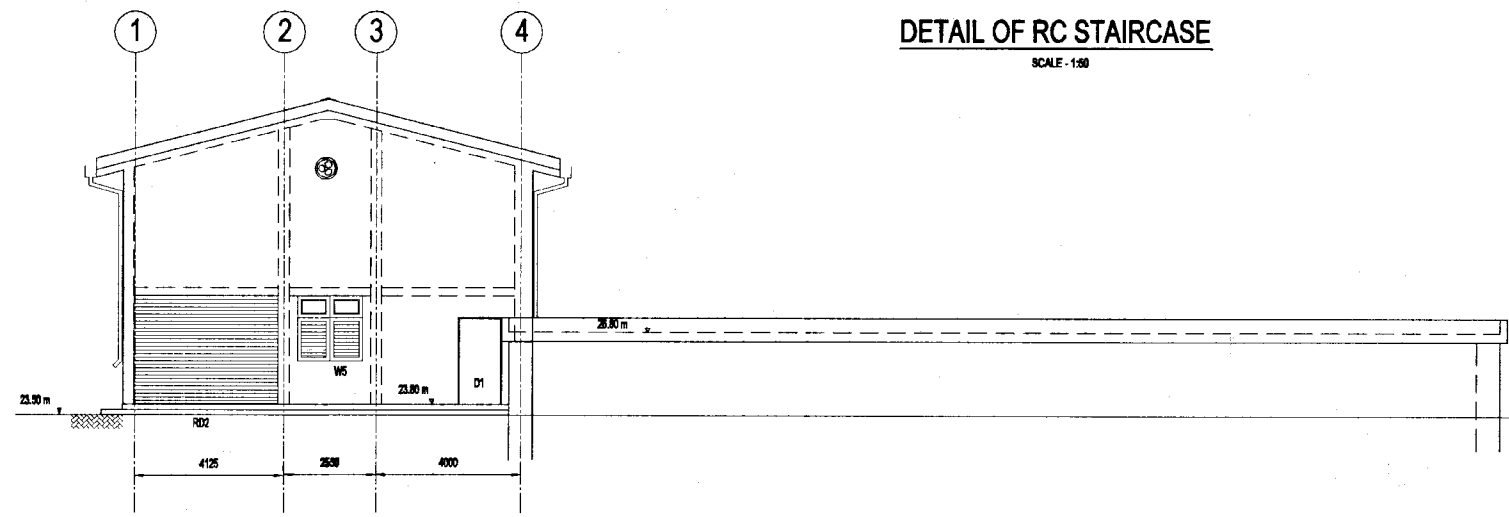
PUMP HOUSE ELEVATION 1
SCALE - 1:100



DETAIL OF RC STAIRCASE
SCALE - 1:50




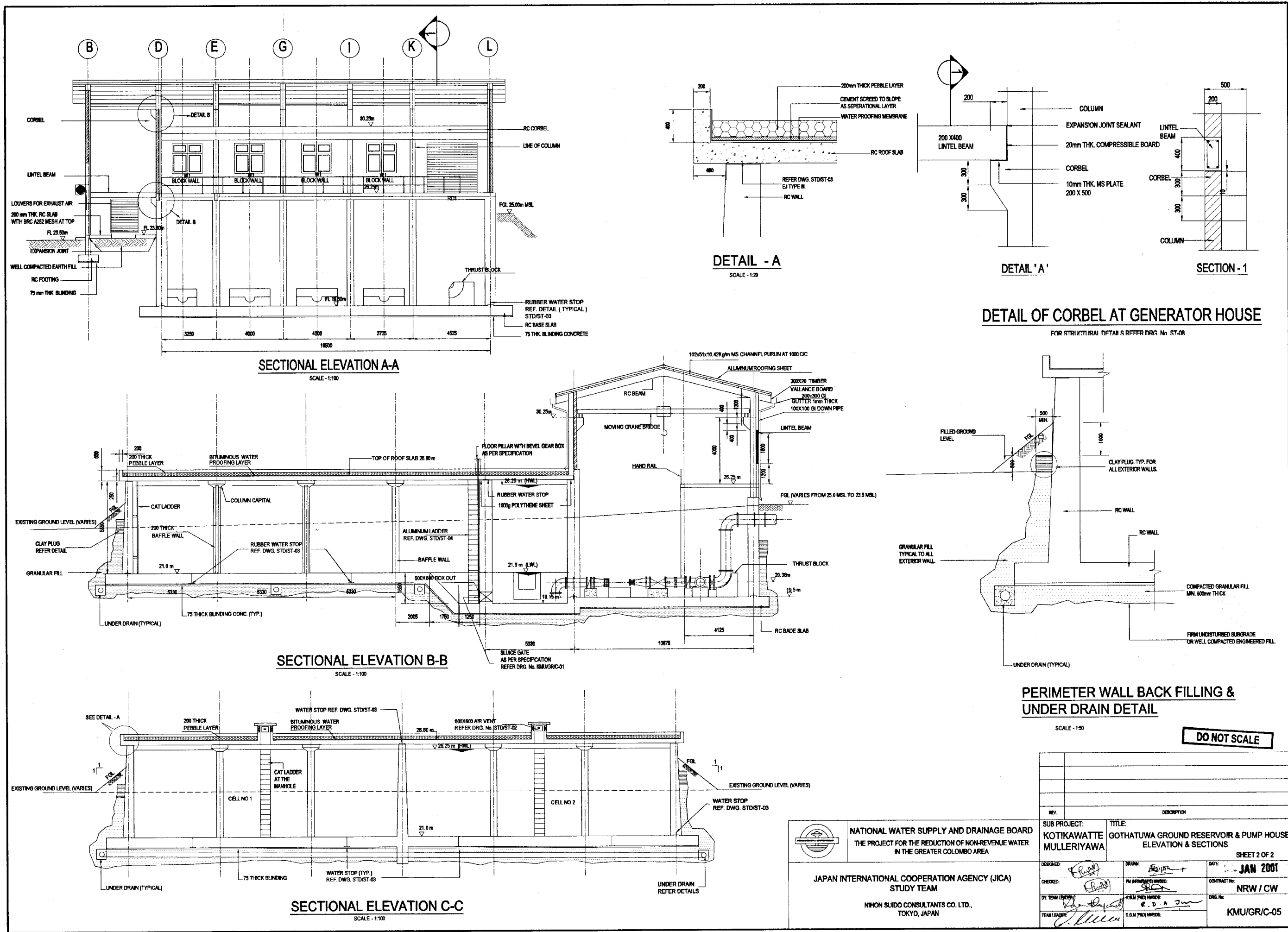
SECTIONAL ELEVATION 1
SCALE - 1:50



PUMP HOUSE END ELEVATION
SCALE - 1:100

DO NOT SCALE

 <p>NATIONAL WATER SUPPLY AND DRAINAGE BOARD THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA</p> <p>JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) STUDY TEAM NIHON SUIDO CONSULTANTS CO. LTD., TOKYO, JAPAN</p>	<p>SUB PROJECT: KOTIKAWATTE MULLERIYAWA</p>	<p>TITLE: GOTHATUWA GROUND RESERVOIR & PUMP HOUSE ELEVATIONS & SECTIONS SHEET 1 OF 2</p>
	<p>DESIGNED: <i>[Signature]</i></p>	<p>DATE: JAN 2001</p>
	<p>CHECKED: <i>[Signature]</i></p>	<p>CONTRACT No:</p>
	<p>DR. TEAM LEADER: <i>[Signature]</i></p>	<p>DRG. No: KMU/GR/C/04</p>



SECTIONAL ELEVATION A-A

SCALE - 1:100

SECTIONAL ELEVATION B-B

SCALE - 1:100

SECTIONAL ELEVATION C-C

SCALE - 1:100

DETAIL - A

SCALE - 1:20

DETAIL 'A'

SECTION - 1


DETAIL OF CORBEL AT GENERATOR HOUSE

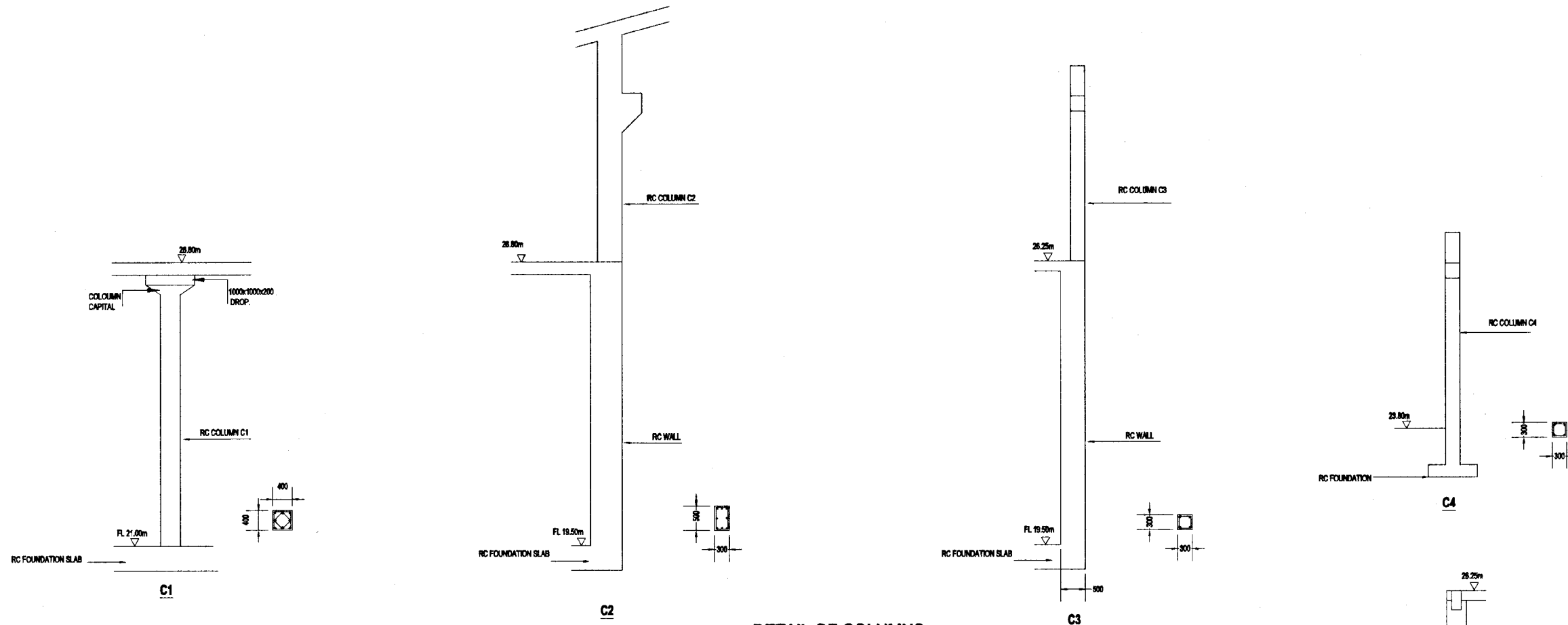
FOR STRUCTURAL DETAIL REFER DRG. No. ST-08

PERIMETER WALL BACK FILLING & UNDER DRAIN DETAIL

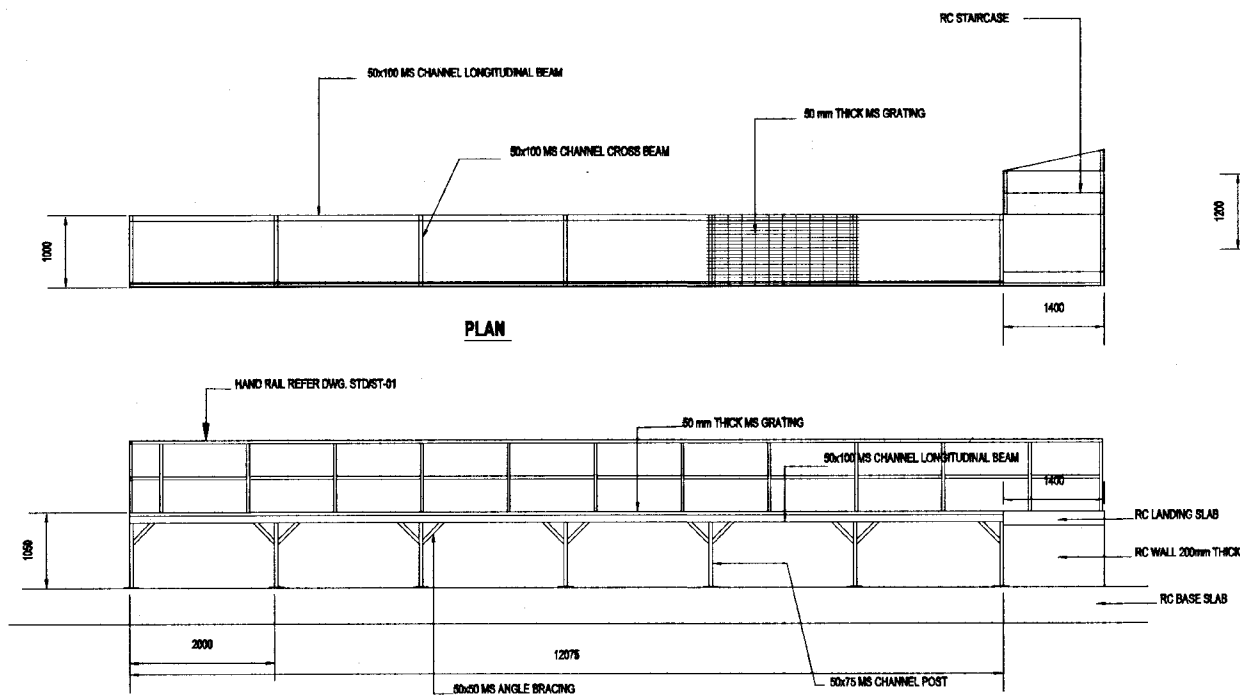
SCALE - 1:50

DO NOT SCALE

 <p>NATIONAL WATER SUPPLY AND DRAINAGE BOARD THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA</p>	<p>SUB PROJECT: KOTIKAWATTE MULLERIYAWA</p>		<p>TITLE: GOTHATUWA GROUND RESERVOIR & PUMP HOUSE ELEVATION & SECTIONS</p>	
	SHEET 2 OF 2			
<p>DESIGNED: <i>[Signature]</i></p>	<p>DRAWN: <i>[Signature]</i></p>	<p>DATE: JAN 2001</p>		
<p>CHECKED: <i>[Signature]</i></p>	<p>IN CHARGE: <i>[Signature]</i></p>	<p>CONTRACT NO: NRW / CW</p>		
<p>DR. TEAM LEADER: <i>[Signature]</i></p>	<p>PROJECT MANAGER: <i>[Signature]</i></p>	<p>DRG. NO: KMU/GR/C-05</p>		
<p>JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) STUDY TEAM</p> <p>NIHON SUIDO CONSULTANTS CO. LTD., TOKYO, JAPAN</p>				

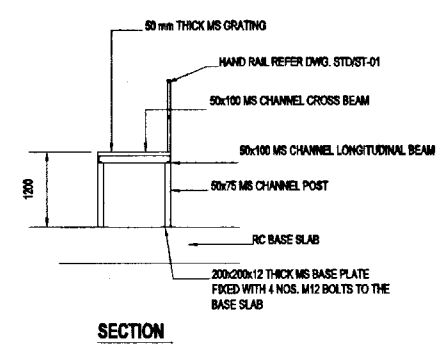


DETAIL OF COLUMNS
SCALE - 1:50

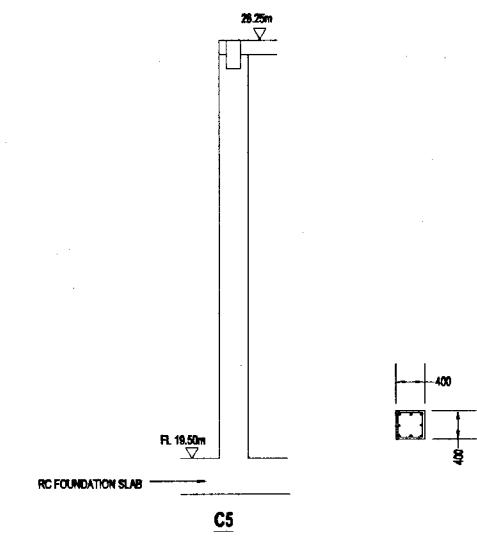


DETAIL OF MS PLATFORM
SCALE - 1:50

NOTE - ALL THE CONNECTION SHALL BE OF FILLET WELD OF 6mm LEG LENGTH



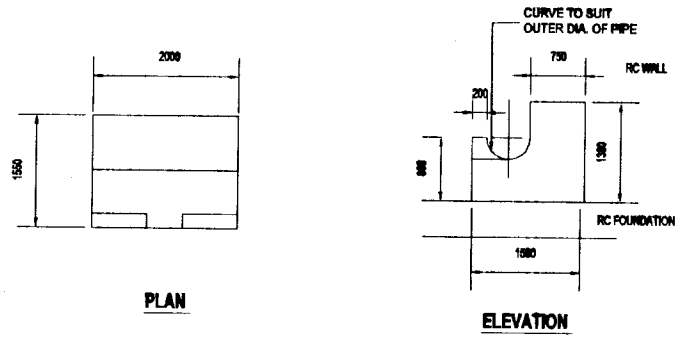
SECTION



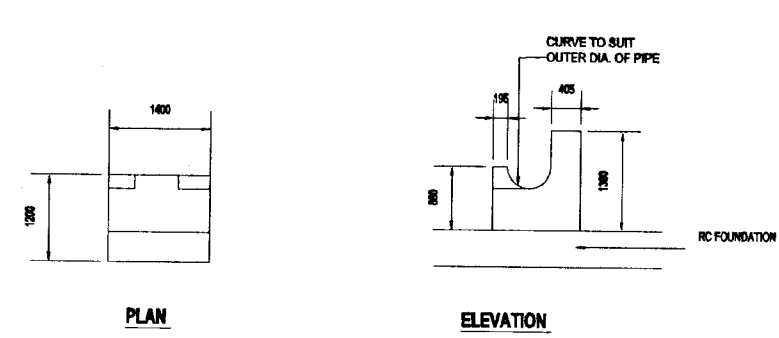
DO NOT SCALE

REV.	DESCRIPTION

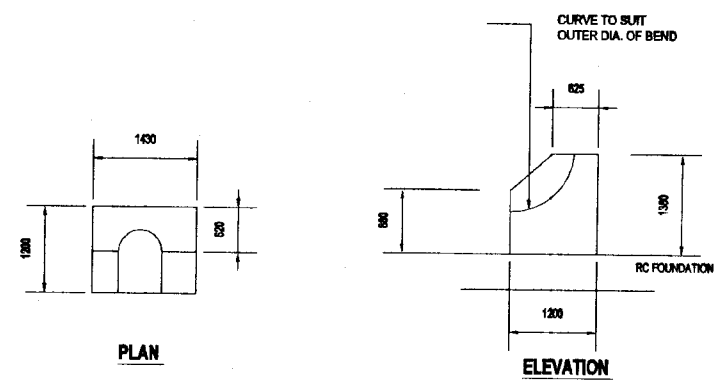
NATIONAL WATER SUPPLY AND DRAINAGE BOARD THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA		SUB PROJECT: KOTIKAWATTE MULLERIYAWA	TITLE: GOTHATUWA GROUND RESERVOIR & PUMP HOUSE COLUMNS & MS PLATFORM DETAIL
DESIGNED: <i>[Signature]</i> CHECKED: <i>[Signature]</i> BY TEAM LEADER: <i>[Signature]</i> TEAM LEADER: <i>[Signature]</i>	DRAWN: <i>[Signature]</i> PM (PROJ) INCHARGE: <i>[Signature]</i> A.E.M (PRO) INCHARGE: <i>[Signature]</i> O.G.M (PRO) INCHARGE: <i>[Signature]</i>	DATE: JAN 2001 CONTRACT NO: NRW / CW DREL NO: KMU/GR/C-06	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) STUDY TEAM NIHON SUIDO CONSULTANTS CO. LTD., TOKYO, JAPAN



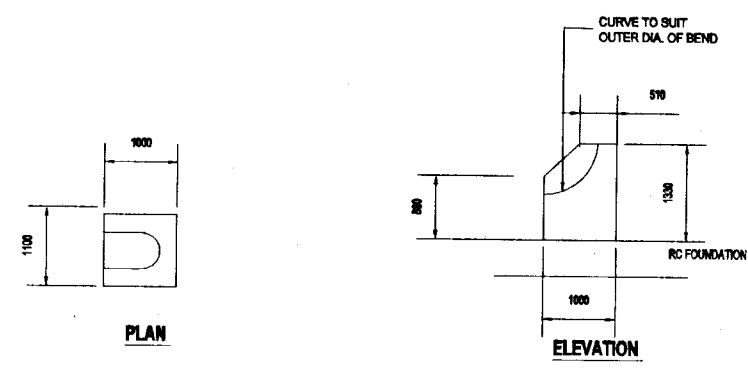
THRUST BLOCK 1
SCALE - 1:50



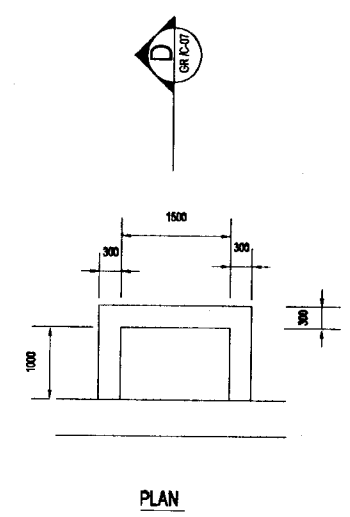
THRUST BLOCK 2
SCALE - 1:50



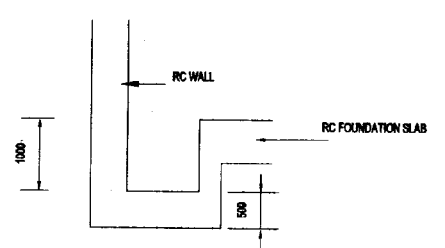
THRUST BLOCK 3
SCALE - 1:50



THRUST BLOCK 4
SCALE - 1:50




SUMP DETAIL
SCALE - 1:50



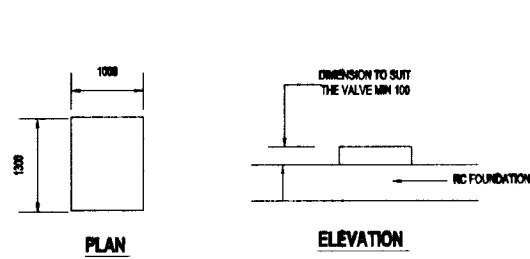
SECTION D-D

DO NOT SCALE

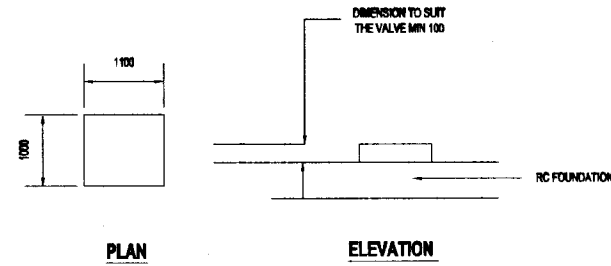
REV.	DESCRIPTION

 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 THRUST BLOCKS
	DESIGNED: <i>[Signature]</i> CHECKED: <i>[Signature]</i> BY TEAM LEADER: <i>[Signature]</i> TEAM LEADER: <i>[Signature]</i>	DATE: JAN 2001 CONTRACT No: NRW / CW DWG. No: KMU/GR/C-07

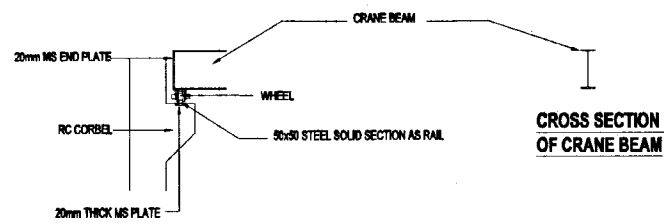
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
STUDY TEAM
NIHON SUDO CONSULTANTS CO. LTD.,
TOKYO, JAPAN



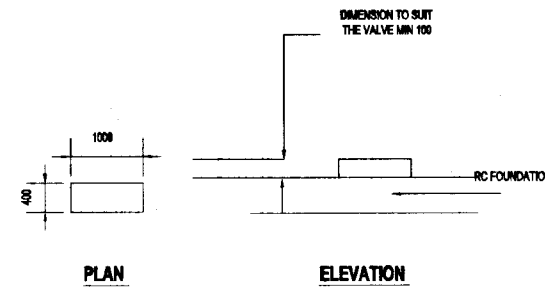
VALVE SUPPORT 1
SCALE - 1:50



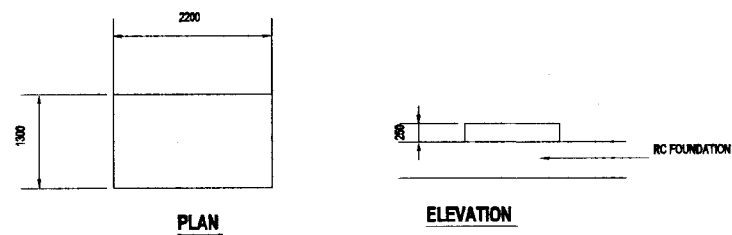
VALVE SUPPORT 2
SCALE - 1:50



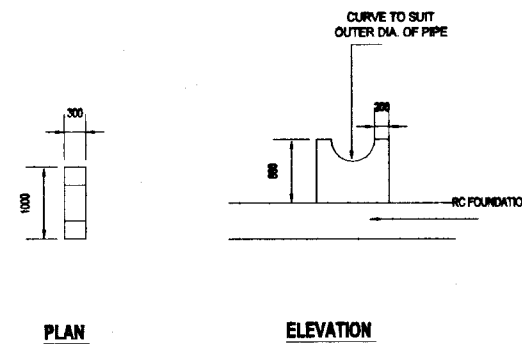
GANTRY CRANE SUPPORT DETAIL
SCALE - 1:50



VALVE SUPPORT 3
SCALE - 1:50




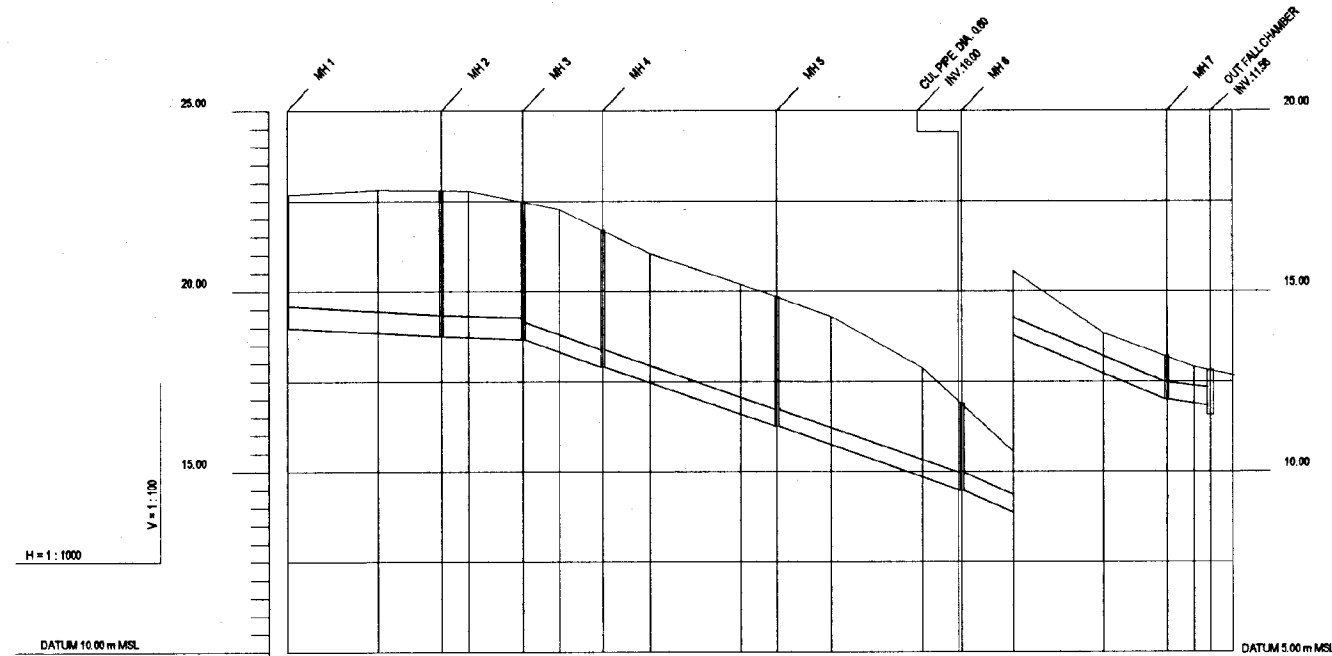
PUMP BASE
SCALE - 1:50



PIPE SUPPORT
SCALE - 1:50

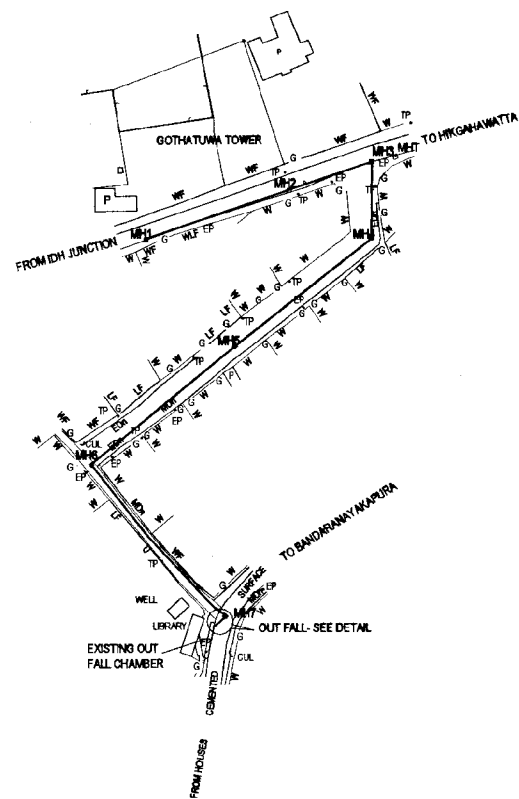
DO NOT SCALE

 <p>NATIONAL WATER SUPPLY AND DRAINAGE BOARD THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA</p> <p>JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) STUDY TEAM</p> <p>NIHON SUIDO CONSULTANTS CO. LTD., TOKYO, JAPAN</p>	<p>SUB PROJECT: KOTIKAWATTE MULLERIYAWA</p>	<p>TITLE: GOTHATUWA GROUND RESERVOIR & PUMP HOUSE MISCELLANEOUS DETAILS</p>	
	<p>DESIGNED: <i>(Signature)</i></p>	<p>DRAWN: <i>(Signature)</i></p>	<p>DATE: JAN 2001</p>
	<p>CHECKED: <i>(Signature)</i></p>	<p>PM APPROVED: <i>(Signature)</i></p>	<p>CONTRACT NO: NRW / CW</p>
	<p>DR. TEAM LEADER: <i>(Signature)</i></p>	<p>A.S.M. (PUB) INCH: <i>(Signature)</i></p>	<p>DWG. No: KMU/GR/C-08</p>

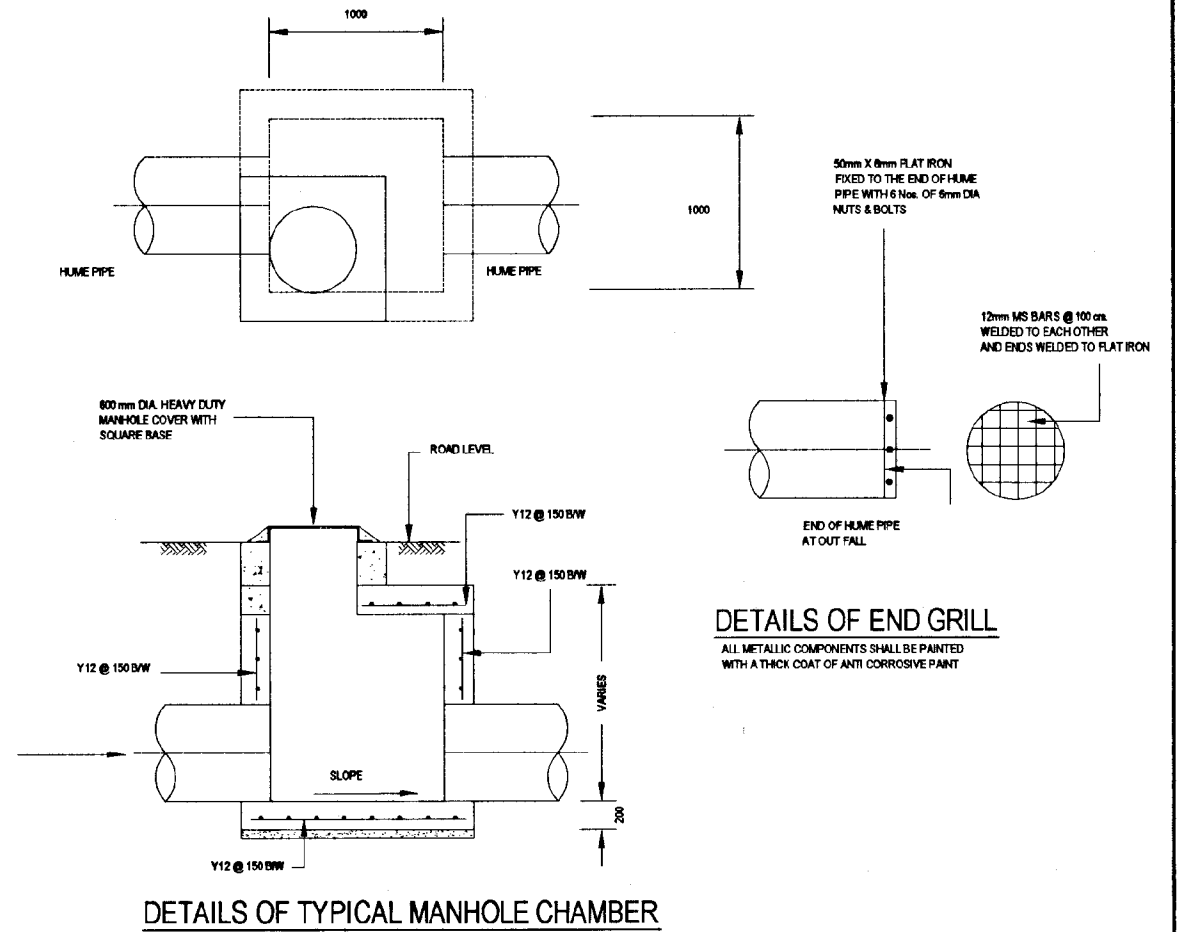


GROUND LEVEL (m)	22.08	22.80	22.78	22.27	21.04	20.19	19.30	17.89	15.99	15.95	13.83	12.91	12.85
INVERT LEVELS (m)	16.00	18.76	18.87	17.91	16.25	14.48	13.87	12.90	11.92	11.92	11.92	11.92	11.92
PIPE DETAILS	600 Ø HUME PIPE						450 Ø HUME PIPE				500 Ø HUME PIPE		
DISTANCE (m)	0	23	42.3	50	65	67	100	123	125	140	242.5	254.30	261.13
SLOPE	0.002		0.0346						0.042		0.015		
HORIZONTAL ANGLE (°)													

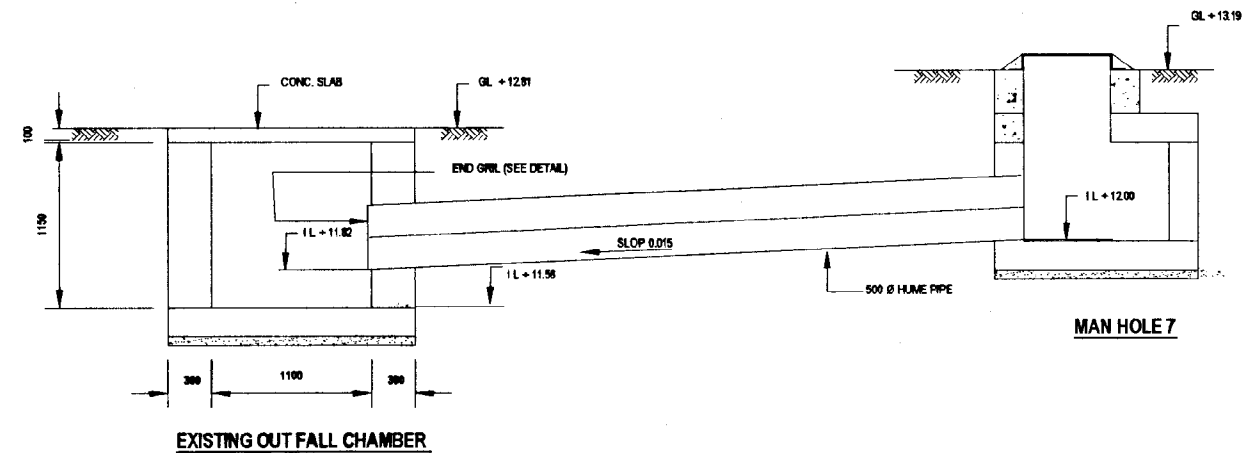
L.S. FOR WASHOUT FROM GOTHATUWA TOWER



PLAN
SCALE - 1:1000



DETAILS OF TYPICAL MANHOLE CHAMBER



EXISTING OUT FALL CHAMBER

CONNECTION TO OUT FALL CHAMBER

DO NOT SCALE

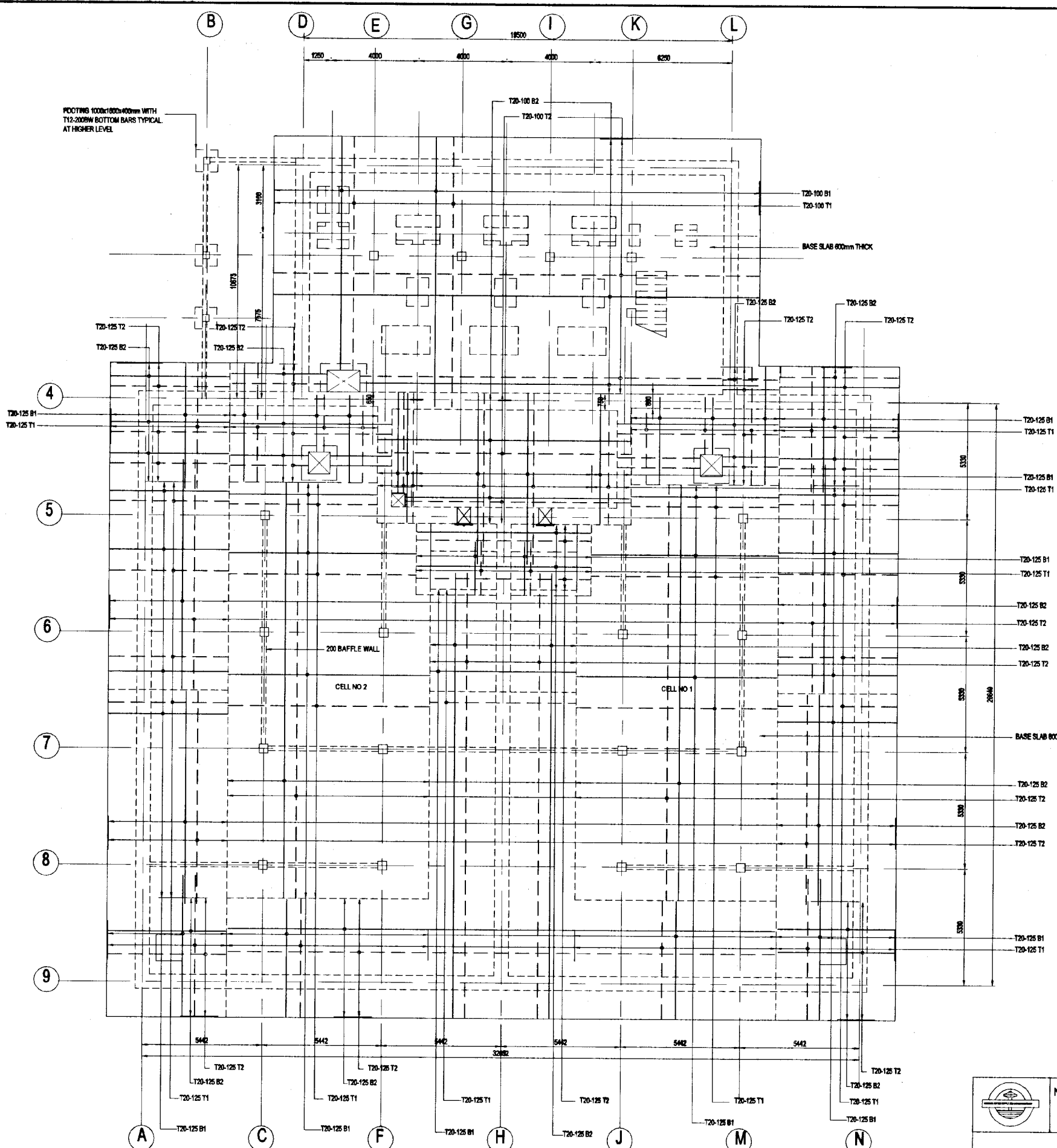


NATIONAL WATER SUPPLY AND DRAINAGE BOARD
THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER
IN THE GREATER COLOMBO AREA

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

SUB PROJECT: KOTIKAWATTE/ MULLERIYAWA
TITLE: GOTHATUWA GROUND RESERVOIR & PUMP HOUSE WASHOUT DRAIN - PLAN, PROFILE & DETAILS

DESIGNED: JYTH/01	DRAWN: DL	DATE: JUN 2001
CHECKED: [Signature]	PM (NWSDB) NWSDB: [Signature]	CONTRACT No: NRW / CW
BY: TEAM LEADER: [Signature]	A.G.M (PM) NWSDB: [Signature]	DRG No: KMU / GR / C-09
TEAM LEADER: [Signature]	D.G.M (PM) NWSDB: [Signature]	



FOOTING 1000x1800x400mm WITH T12-200mm BOTTOM BARS TYPICAL AT HIGHER LEVEL

T20-100 B1
T20-100 T1

BASE SLAB 800mm THICK

T20-125 B2
T20-125 T2

T20-125 B1
T20-125 T1

T20-125 B1
T20-125 T1

T20-125 B1
T20-125 T1

T20-125 B2
T20-125 T2

T20-125 B2
T20-125 T2

BASE SLAB 800mm THICK

T20-125 B2
T20-125 T2

T20-125 B2
T20-125 T2

T20-125 B1
T20-125 T1

A

C

F

H

J

M

N

FOUNDATION PLAN

SCALE - 1:100

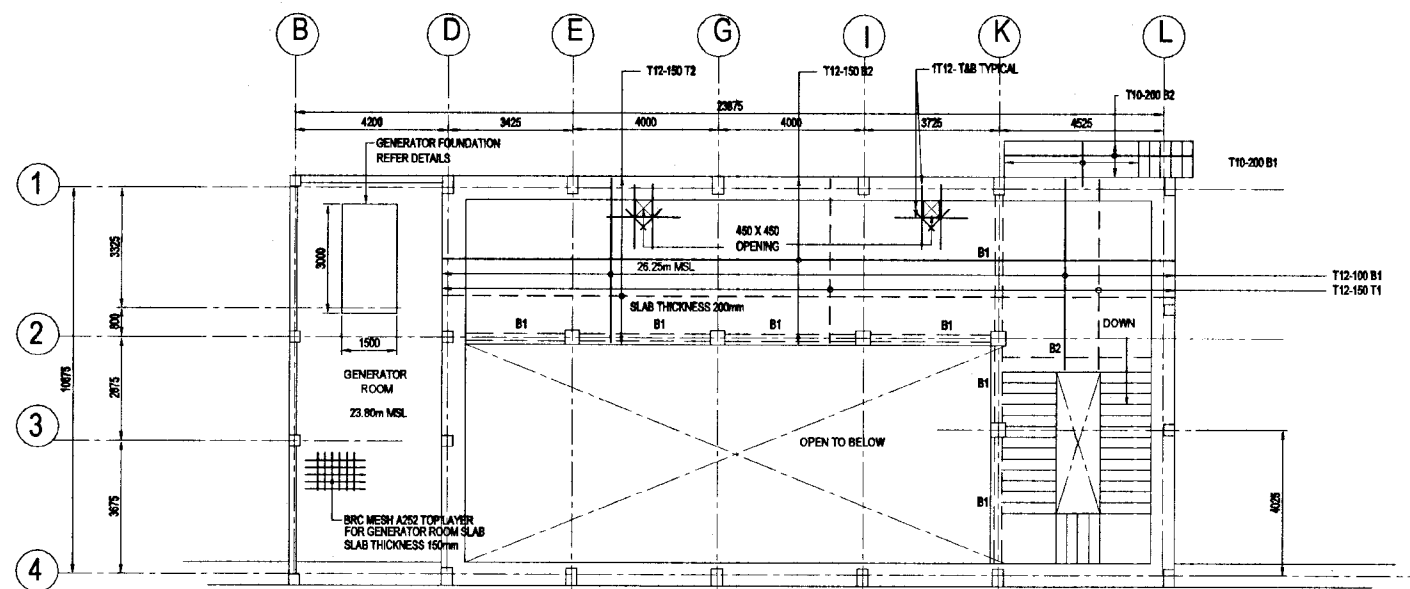
NOTES:-

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED. ALL LEVELS ARE IN METRES ABOVE MSL.
2. MINIMUM CLEAR COVER TO REINFORCEMENT FOR BEAMS & SLABS 40mm FOR FOUNDATION & WALLS 50mm & FOR COLUMNS 40mm
3. USE GRADE 35 (20) CONCRETE FOR ALL THE WALLS, BASE SLAB, ROOF SLABS, COLUMNS & BEAMS.
4. USE GRADE 20 (40) FOR SCREED & BLINDING CONCRETE.
5. BAR NOTATION IS AS FOLLOWS:-

TYPE OF STEEL	BAR LOCATION
T - TOR STEEL	T - TOP, B - BOTTOM
R - MILD STEEL	EF - EACH FACE, NF - NEAR FACE
BAR DIAMETER mm	FF - FAR FACE
BAR MARK	BAR SPACING
6. LAP / ANCHORAGE LENGTH 500
7. CHARACTERISTIC STRENGTH OF HIGH YIELD STEEL (T) 480N/mm² & MILD STEEL (R) 250N/mm²
8. SAFE BEARING CAPACITY OF SOIL 250KN/m²
9. FOR INFORMATION - LIVE LOADS ON FLOOR SLAB 100KN/m², ON PUMP HOUSE ROOF 1.0KN/m², ON RESERVOIR ROOF 2.9KN/m², WIND SPEED 34m/s, SOIL DENSITY 20.0KN/m³, K_α=333 & K_β=3.0
10. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL STRUCTURAL, ARCHITECTURAL, ELECTRICAL, MECHANICAL CIVIL DRAWINGS & ALL STANDARD DRAWINGS.

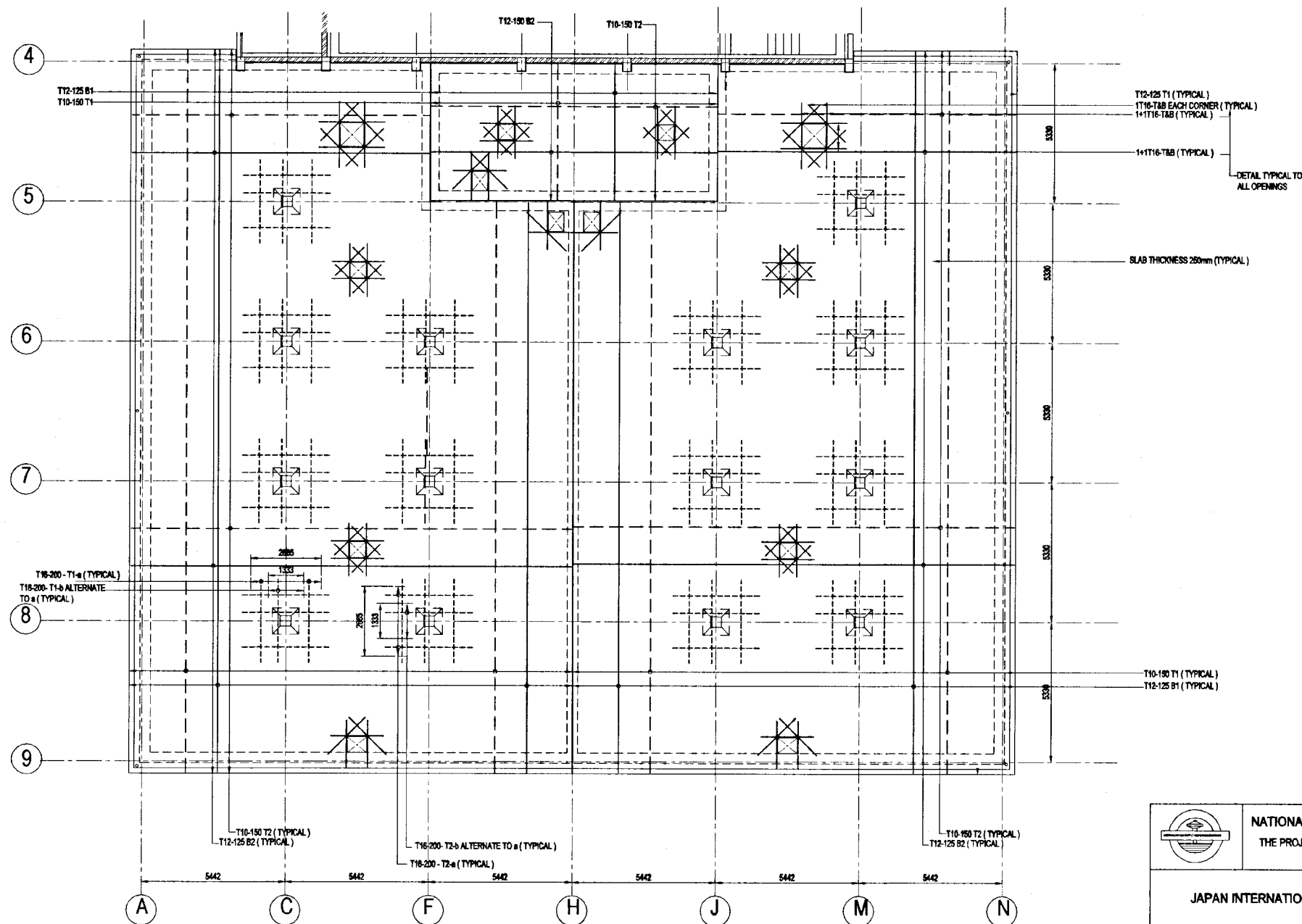
DO NOT SCALE

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 FOUNDATION PLAN	
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) STUDY TEAM NIHON SUDO CONSULTANTS CO. LTD., TOKYO, JAPAN		DESIGNED: <i>[Signature]</i> CHECKED: <i>[Signature]</i> BY TEAM LEADER: <i>[Signature]</i> TEAM LEADER: <i>[Signature]</i>	DATE: JAN 2001 CONTRACT NO: NRW / CW DRG. NO: KMU/GR/ST/01



FLOOR SLAB REINFORCEMENT PLAN AT 26.25m MSL


SCALE - 1:100

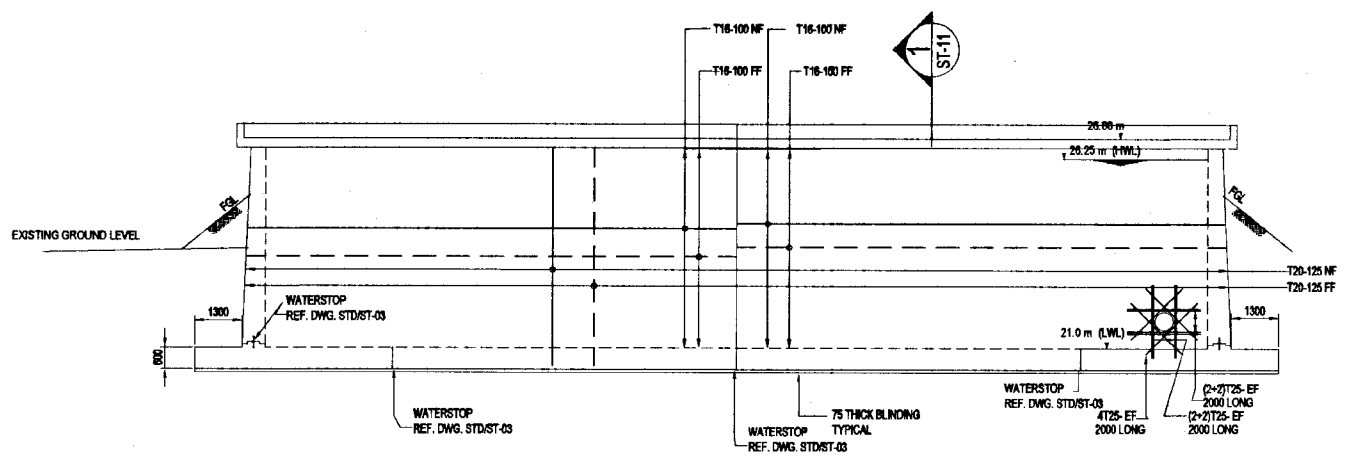


RESERVOIR ROOF SLAB REINFORCEMENT PLAN

SCALE - 1:100

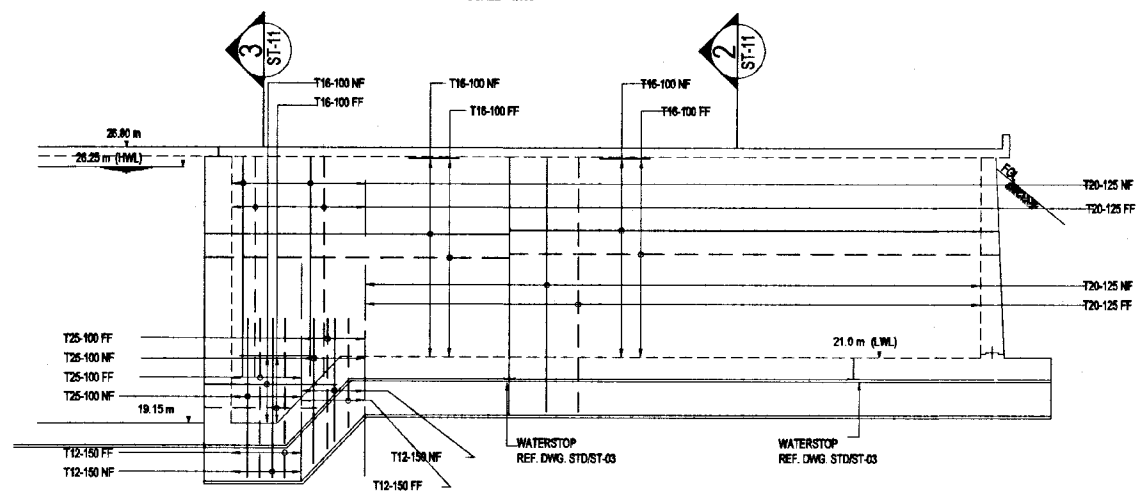
DO NOT SCALE

 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 FLOOR SLAB AT 26.25m AND RESERVOIR ROOF SLAB
DESIGNED: <i>[Signature]</i> CHECKED: <i>[Signature]</i> DR. TEAM LEADER: <i>[Signature]</i> TEAM LEADER: <i>[Signature]</i>	DRAWN: <i>[Signature]</i> P.M. (NWS&DB) INCHARGE: <i>[Signature]</i> A.S.M. (P&D) INCHARGE: <i>[Signature]</i> D.S.M. (P&D) INCHARGE: <i>[Signature]</i>	DATE: JAN 2001	CONTRACT NO.: NRW / CW DRL NO.: KMU/GR/ST-02



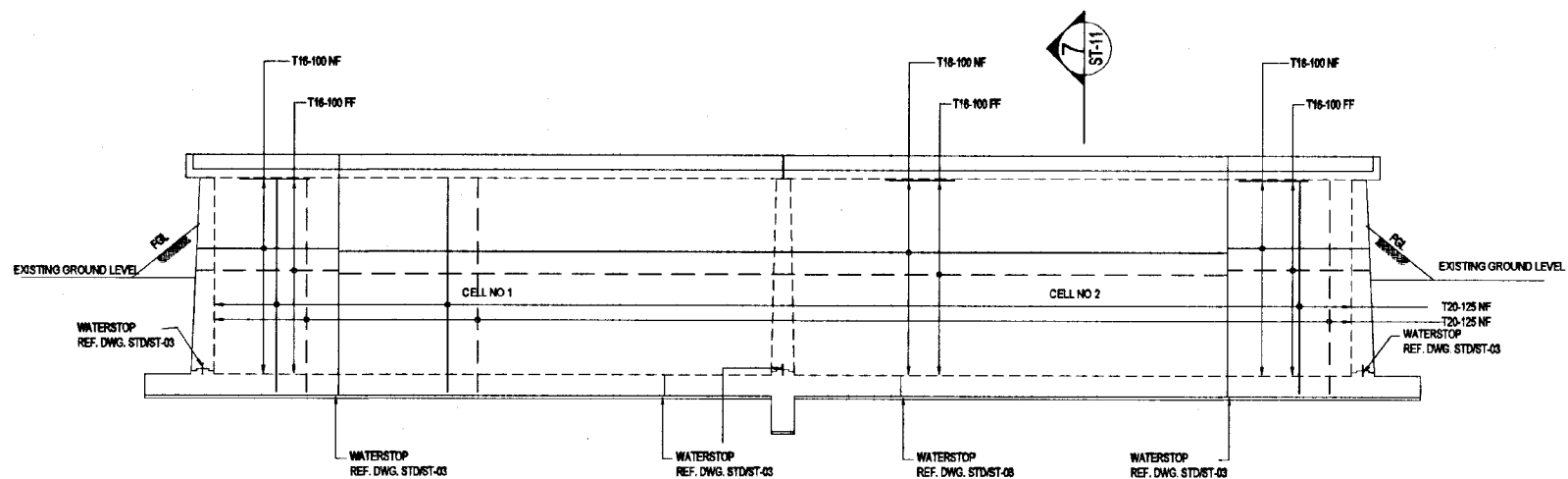
WALL 1 & 3 ELEVATION

SCALE - 1:100



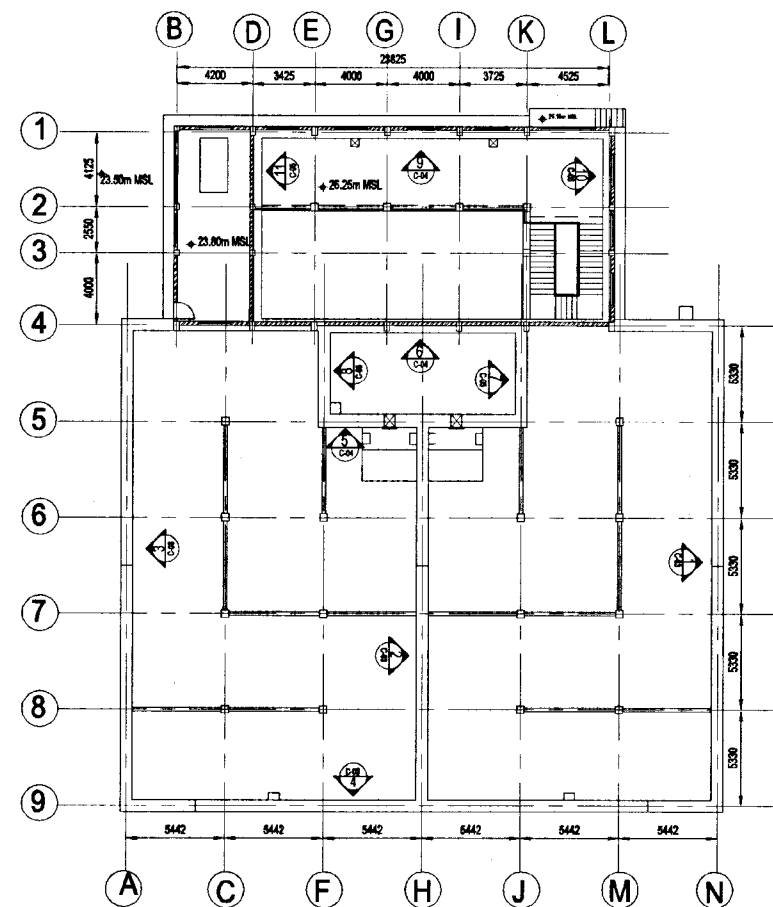
WALL 2 ELEVATION

SCALE - 1:100



WALL 4 ELEVATION

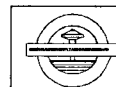
SCALE - 1:100



KEY PLAN FOR WALLS

SCALE - 1:200

DO NOT SCALE



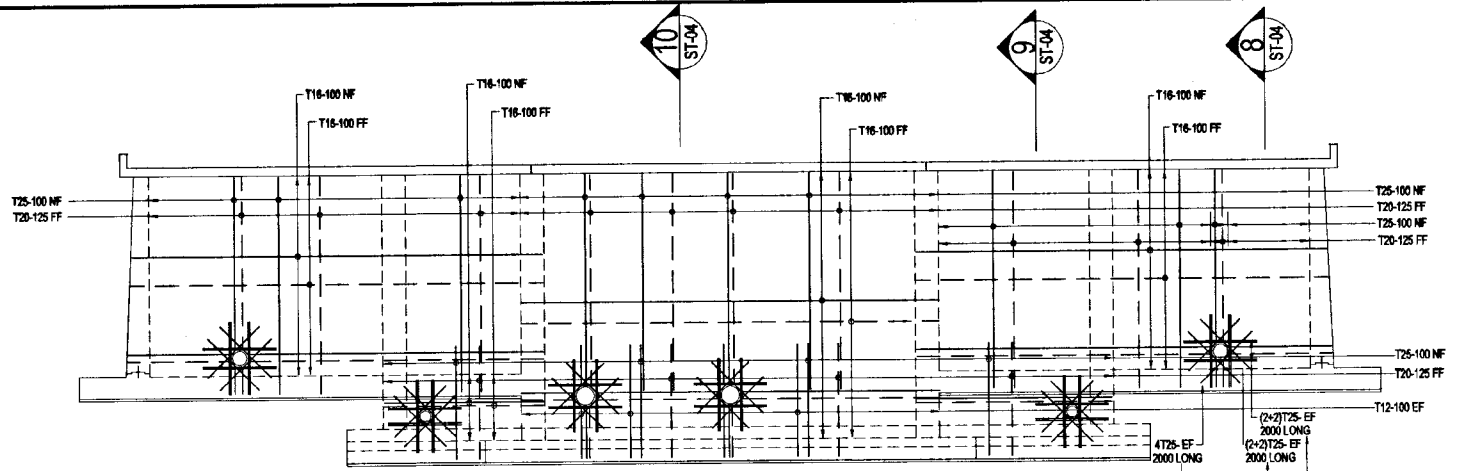
NATIONAL WATER SUPPLY AND DRAINAGE BOARD
THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER
IN THE GREATER COLOMBO AREA

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
STUDY TEAM

NIHON SUDO CONSULTANTS CO. LTD.,
TOKYO, JAPAN

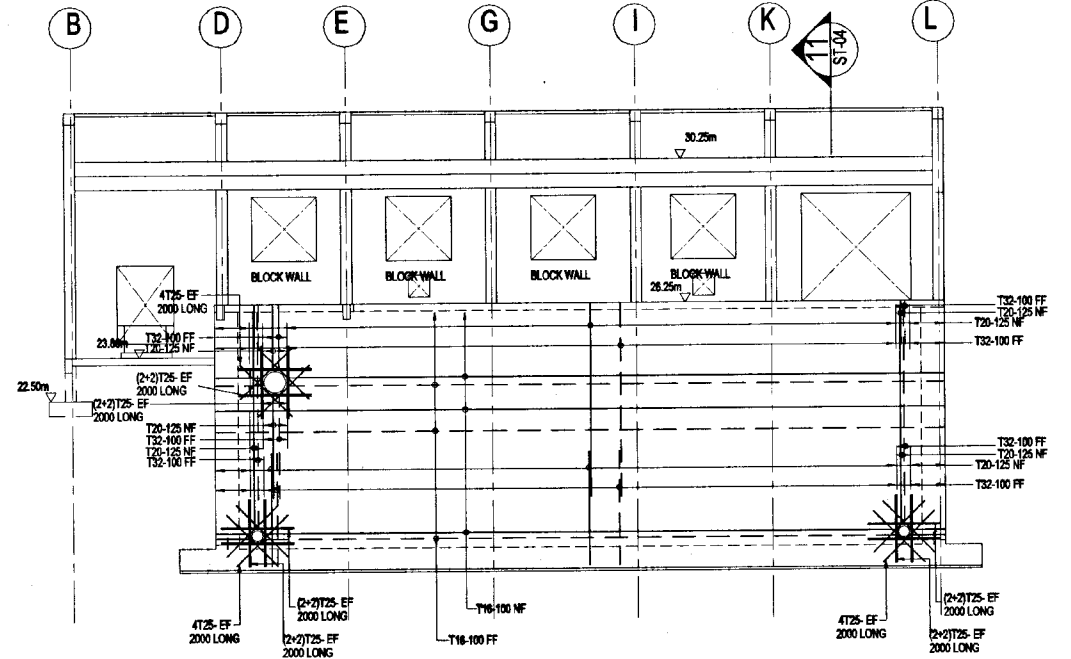
SUB PROJECT: KOTIKAWATTE MULLERIYAWA
TITLE: GOTHATUWA GROUND RESERVOIR & PUMP HOUSE
DETAILS OF WALLS 1,2,3 & 4

DESIGNED: <i>[Signature]</i>	DRAWN: <i>[Signature]</i>	DATE: 12 JAN 2001
CHECKED: <i>[Signature]</i>	FW (PROVISED) INCHOR: <i>[Signature]</i>	CONTRACT NO: NRW / CW
DR. TECHNICAL: <i>[Signature]</i>	A.B.M (PROV) INCHOR: <i>[Signature]</i>	DWG. NO: KMU/GR/ST-03
TEAM LEADER: <i>[Signature]</i>	C.B.M (PROV) INCHOR: <i>[Signature]</i>	

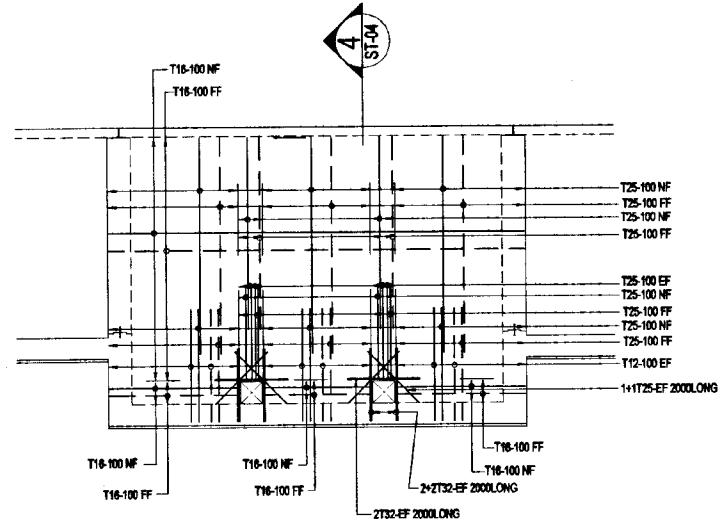


WALL 6 ELEVATION
SCALE - 1:100

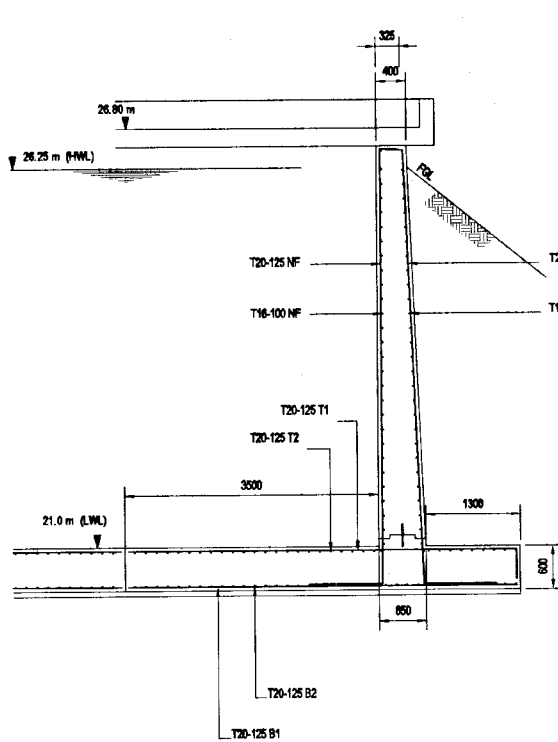
REINFORCEMENT & DETAIL
TYPICAL TO ALL OPENINGS



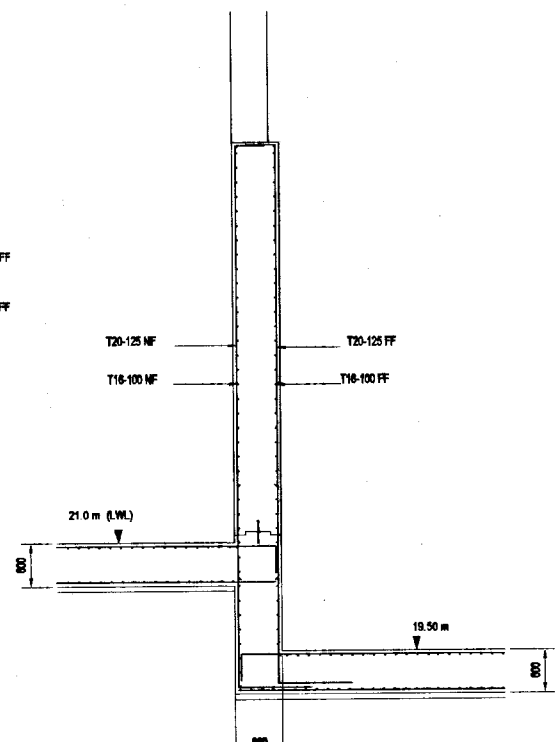
WALL 9 ELEVATION
SCALE - 1:100



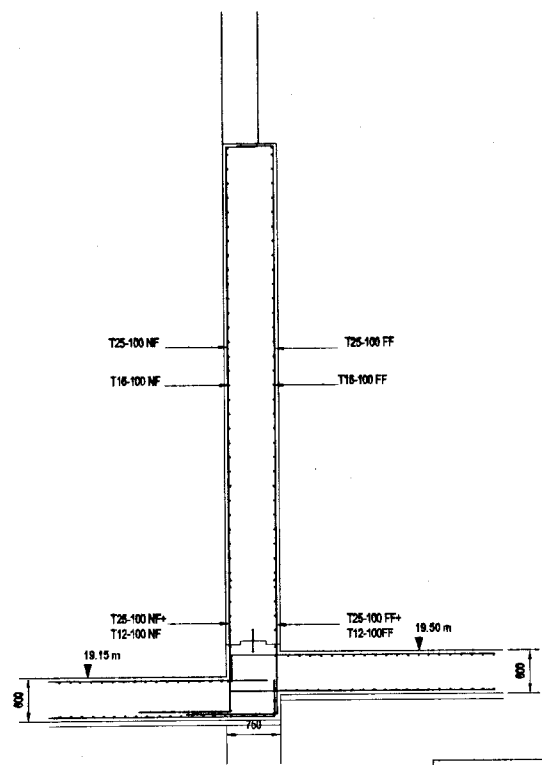
WALL 5 ELEVATION
SCALE - 1:100



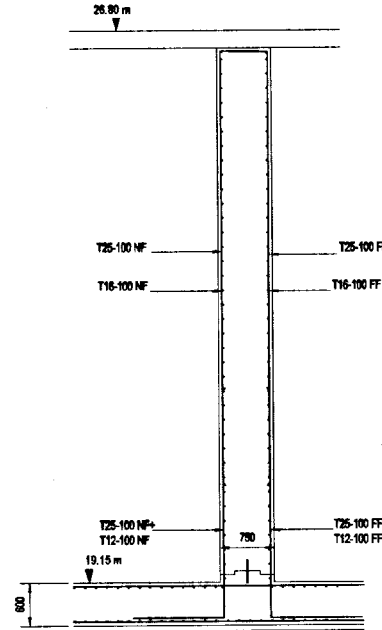
SECTION 8
SCALE - 1:50



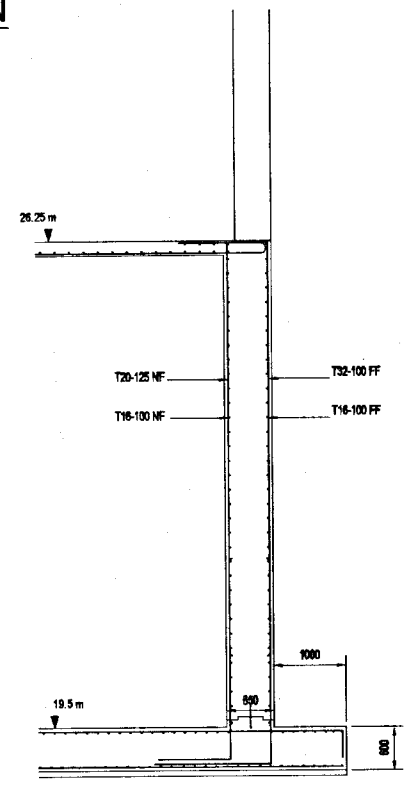
SECTION 9
SCALE - 1:50



SECTION 10
SCALE - 1:50



SECTION 4
SCALE - 1:50

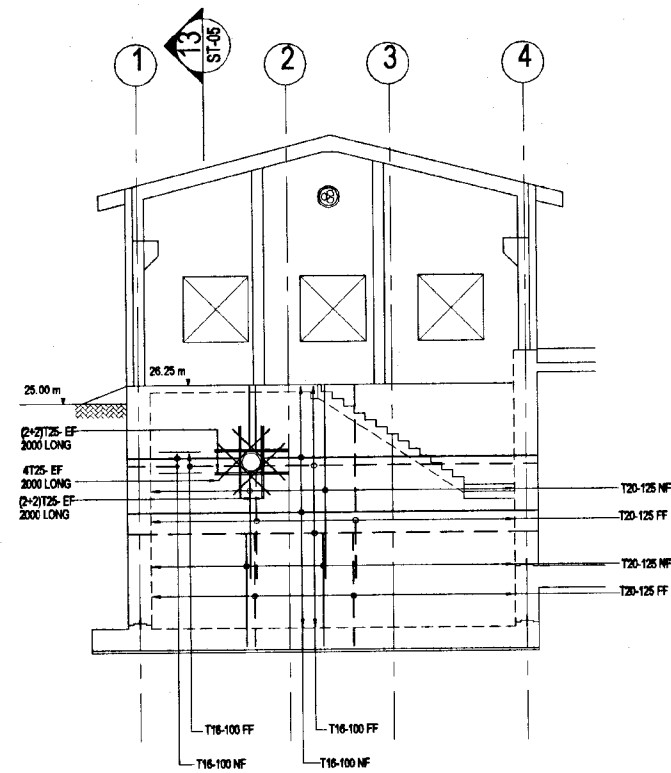


SECTION 11
SCALE - 1:50

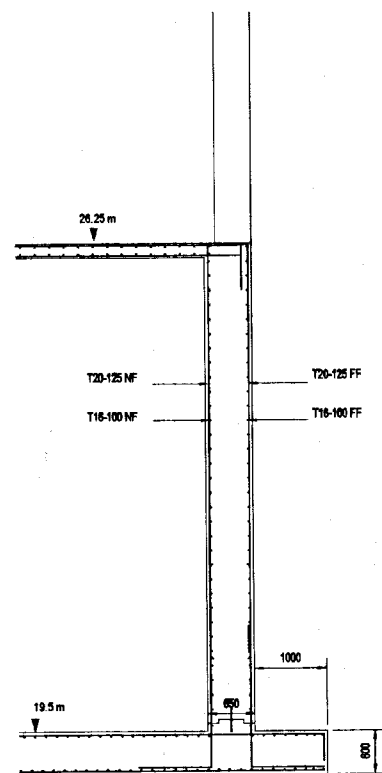
DO NOT SCALE

<p>NATIONAL WATER SUPPLY AND DRAINAGE BOARD THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA</p>	<p>SUB PROJECT: KOTIKAWATTE MULLERIYAWA</p>		<p>TITLE: GOTHATUWA GROUND RESERVOIR & PUMP HOUSE DETAILS OF WALLS 5, 6, & 9</p>	
	<p>DESIGNED: <i>[Signature]</i></p>	<p>DRAWN: <i>[Signature]</i></p>	<p>DATE: JAN 2007</p>	
<p>CHECKED: <i>[Signature]</i></p>	<p>IN CHARGE: <i>[Signature]</i></p>	<p>CONTRACT NO: NRW / CW</p>		
<p>DR. TEAM LEADER: <i>[Signature]</i></p>	<p>A.S.M (P.M) NUMBER: R. D. A. 2</p>	<p>DRG. NO: KMU/GR/ST-04</p>		
<p>TEAM LEADER: <i>[Signature]</i></p>	<p>D.S.M (P.M) NUMBER:</p>			

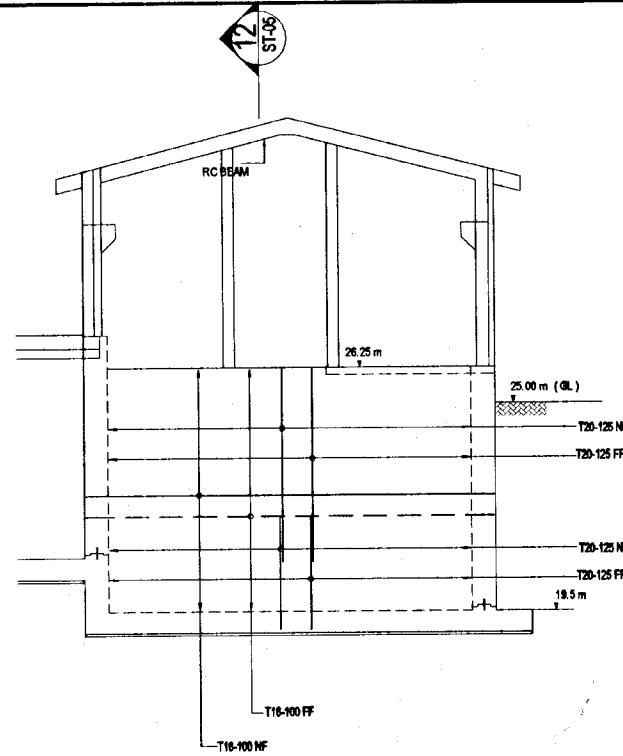
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
STUDY TEAM
NIHON SUDO CONSULTANTS CO. LTD.,
TOKYO, JAPAN



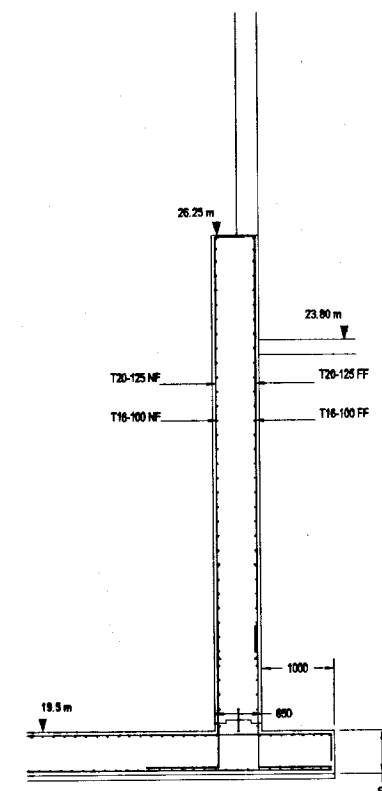
WALL 10 ELEVATION
SCALE - 1:100



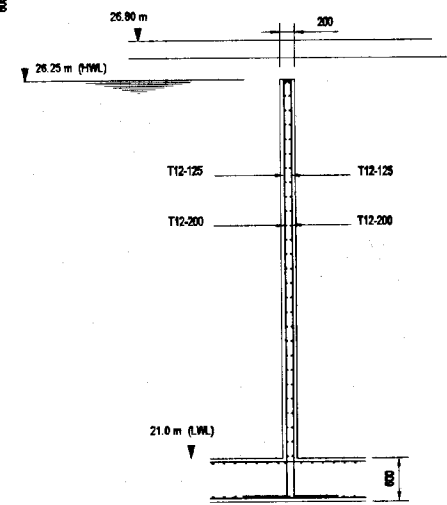
SECTION 13
SCALE - 1:50



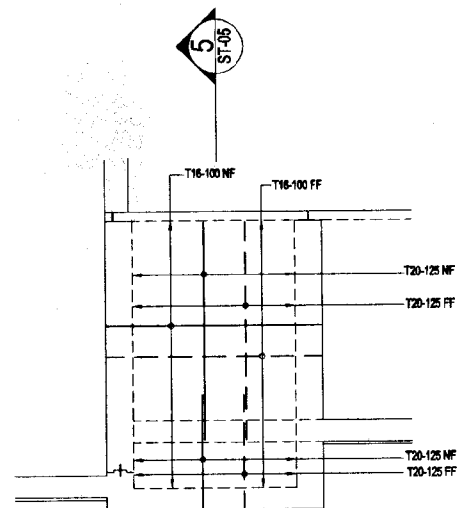
WALL 11 ELEVATION
SCALE - 1:100



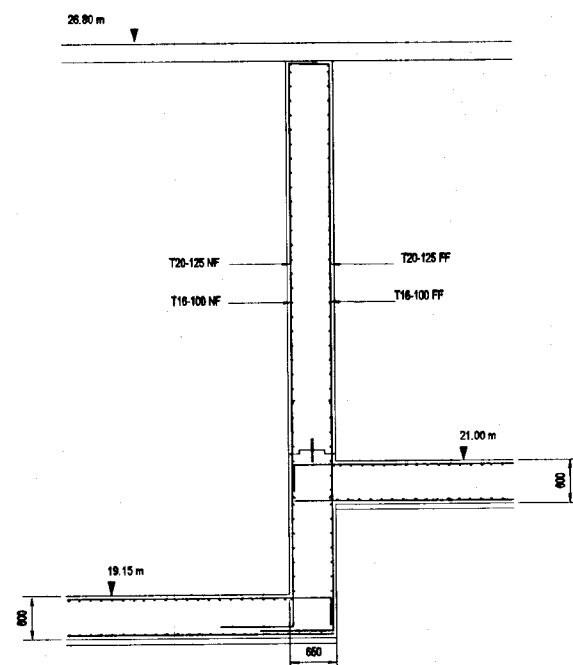
SECTION 12
SCALE - 1:50



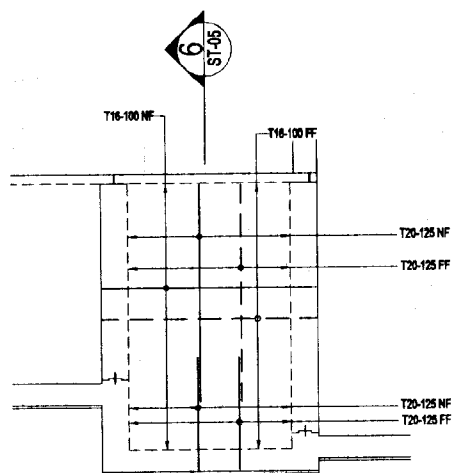
SECTION OF BAFFLE WALL
SCALE - 1:50



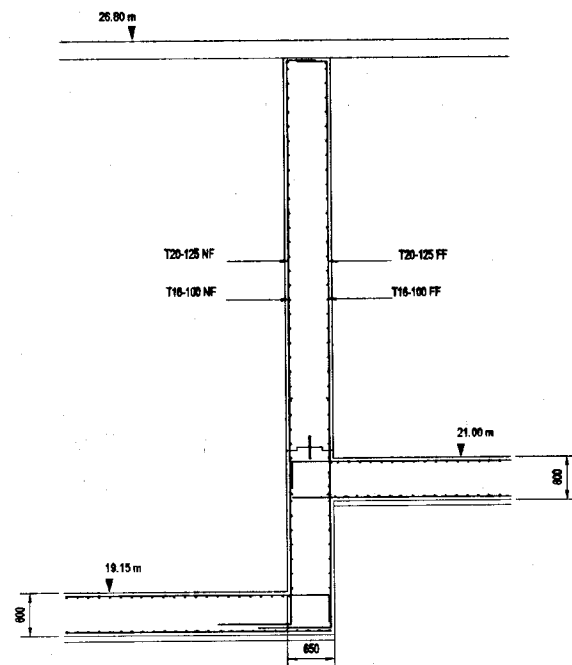
WALL 7 ELEVATION
SCALE - 1:100



SECTION 5
SCALE - 1:50



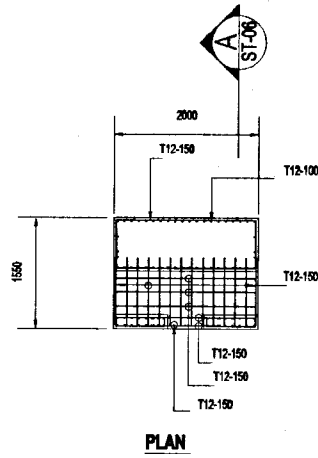
WALL 8 ELEVATION
SCALE - 1:100



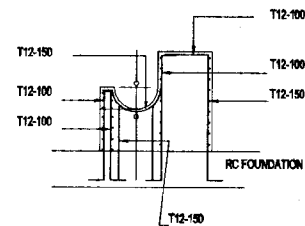
SECTION 6
SCALE - 1:50

DO NOT SCALE

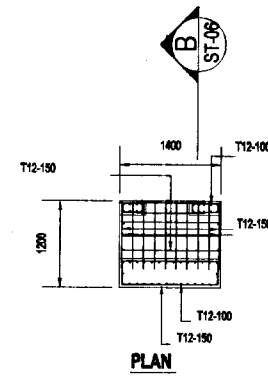
<p>NATIONAL WATER SUPPLY AND DRAINAGE BOARD THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA</p> <p>JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) STUDY TEAM</p> <p>NIHON SUDO CONSULTANTS CO. LTD., TOKYO, JAPAN</p>	<p>SUB PROJECT: KOTIKAWATTE MULLERIYAWA</p>	<p>TITLE: GOTHATUWA GROUND RESERVOIR & PUMP HOUSE DETAILS OF WALL 10,11 & BAFFEL WALL</p>	
	<p>DESIGNER: <i>[Signature]</i></p>	<p>DRAWN: <i>[Signature]</i></p>	<p>DATE: JAN 2001</p>
	<p>CHECKED: <i>[Signature]</i></p>	<p>PM (PROVIDER) NUMBER: <i>[Signature]</i></p>	<p>CONTRACT NO: NRW / CW</p>
	<p>DR. TEAM LEADER: <i>[Signature]</i></p>	<p>A.G.M (P.W) NUMBER: <i>[Signature]</i></p>	<p>DRG. NO: KMU/GR/ST-05</p>



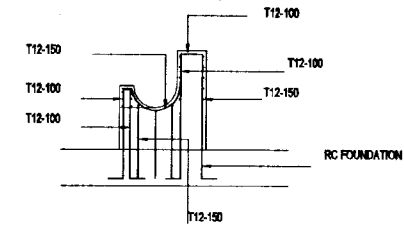
PLAN



SECTION A



PLAN



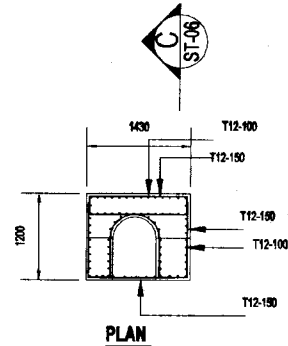
SECTION B

THRUST BLOCK 1

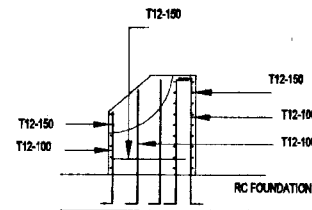
SCALE - 1:50

THRUST BLOCK 2

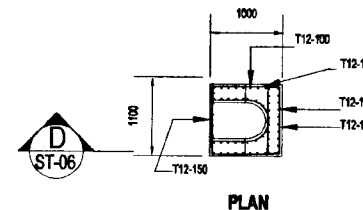
SCALE - 1:50



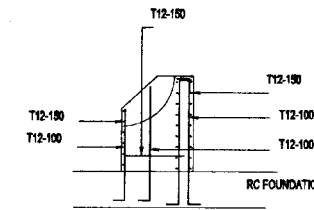
PLAN



SECTION C



PLAN



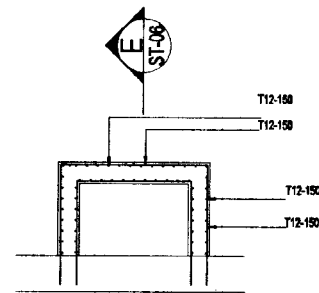
SECTION D

THRUST BLOCK 3

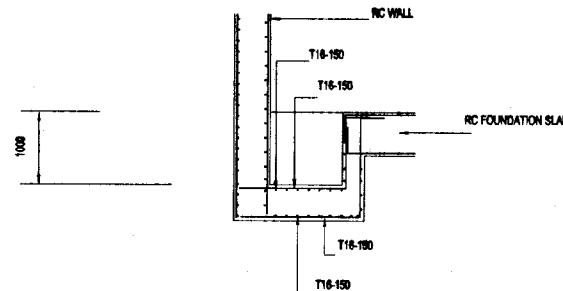
SCALE - 1:50

THRUST BLOCK 4

SCALE - 1:50



PLAN




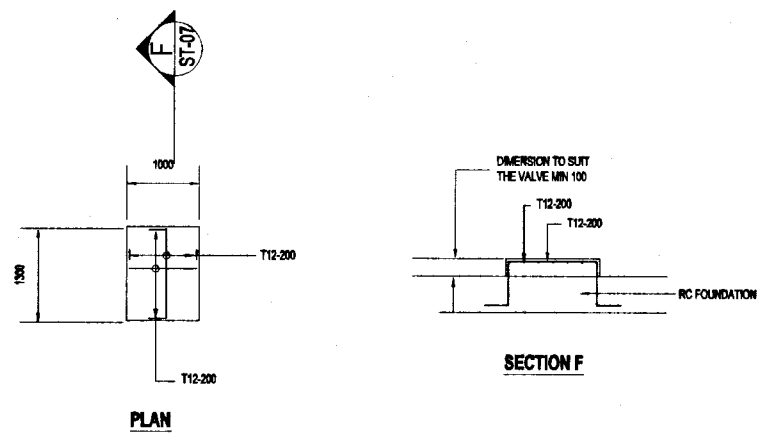
SECTION E-E

SUMP DETAIL

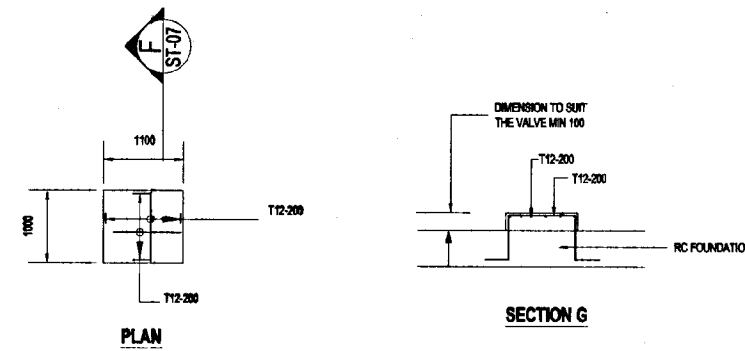
SCALE - 1:50

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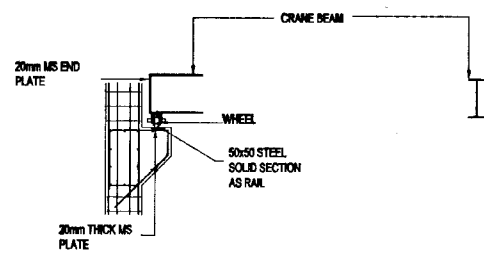
 <p>NATIONAL WATER SUPPLY AND DRAINAGE BOARD THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA</p> <p>JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) STUDY TEAM</p> <p>NIHON SUIDO CONSULTANTS CO. LTD., TOKYO, JAPAN</p>	<p>SUB PROJECT: KOTIKAWATTE MULLERIYAWA</p>	<p>TITLE: GOTHATUWA GROUND RESERVOIR & PUMP HOUSE DETAILS OF THRUST BLOCKS & SUMP</p>	
	<p>DESIGNED: <i>[Signature]</i></p>	<p>DESIGN: <i>[Signature]</i></p>	<p>DATE: JAN 2001</p>
	<p>CHECKED: <i>[Signature]</i></p>	<p>PI APPROVAL NUMBER: <i>[Signature]</i></p>	<p>CONTRACT NO.: NRW / CW</p>
	<p>DR. TEAM LEADER: <i>[Signature]</i></p>	<p>TEAM LEADER: <i>[Signature]</i></p>	<p>DWG. NO.: KMU/GR/ST-06</p>



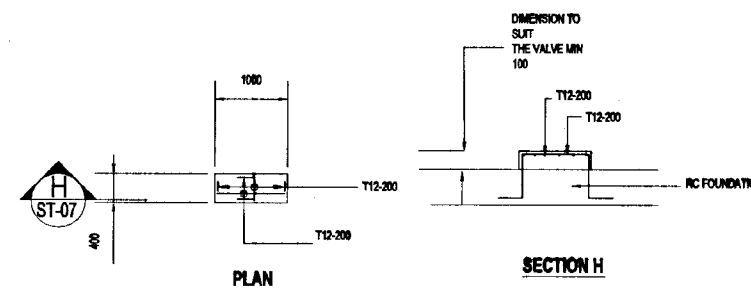
VALVE SUPPORT 1
SCALE - 1:50



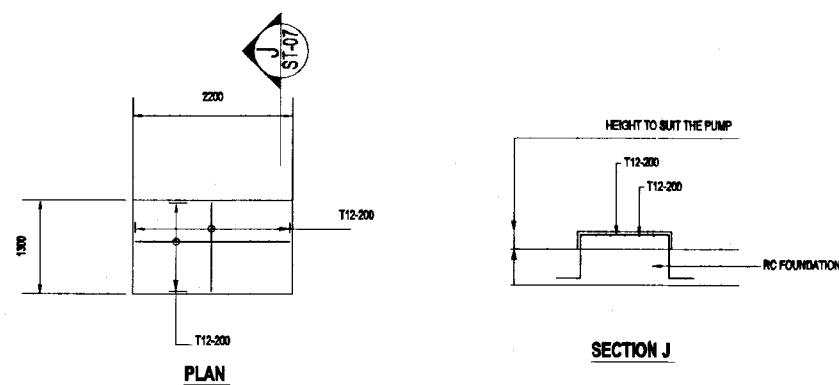
VALVE SUPPORT 2
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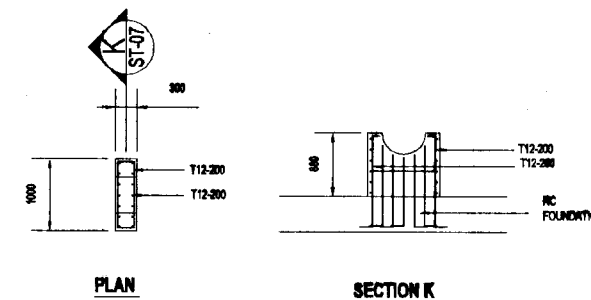
GANTRY CRANE BEAM DETAIL
SCALE - 1:50



VALVE SUPPORT 3
SCALE - 1:50




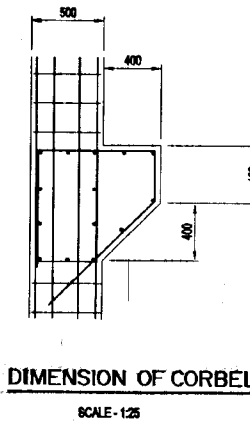
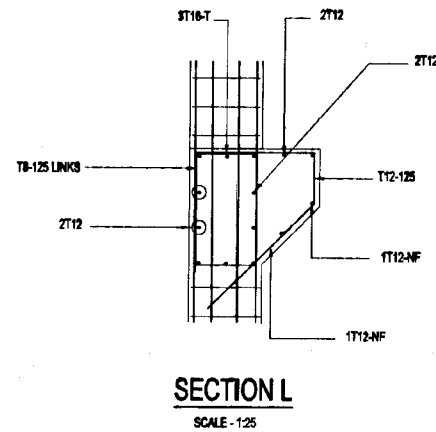
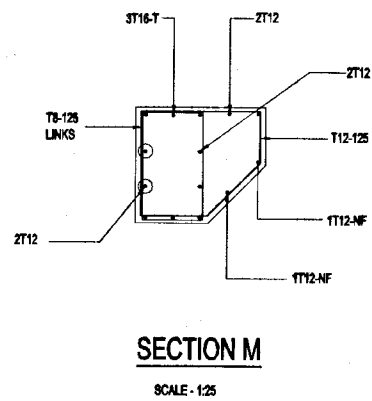
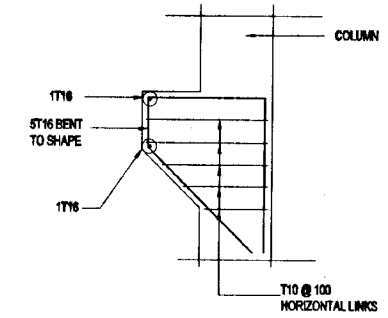
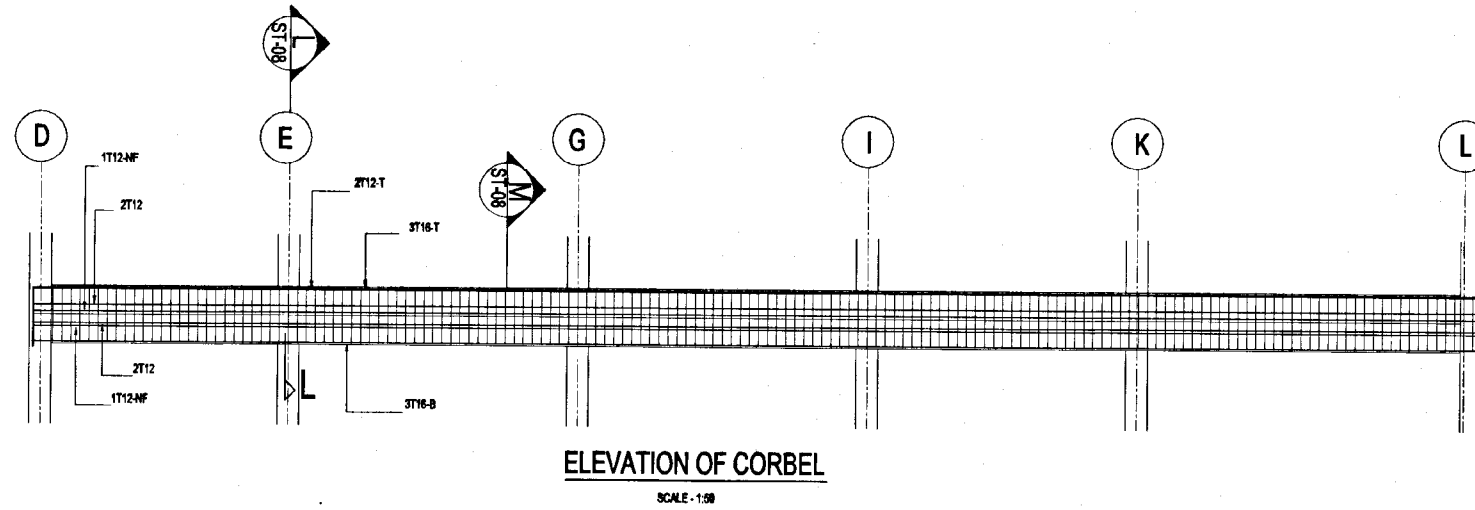
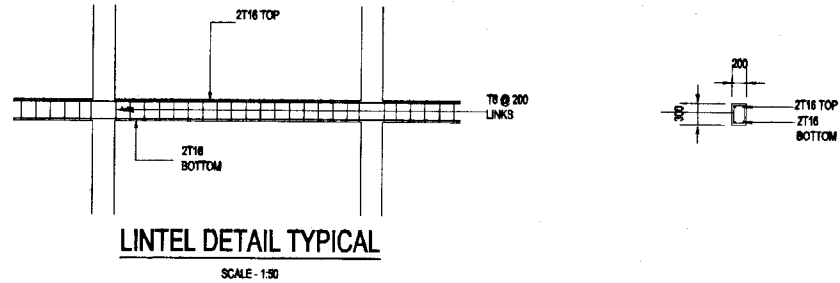
PUMP BASE
SCALE - 1:50




PIPE SUPPORT
SCALE - 1:50

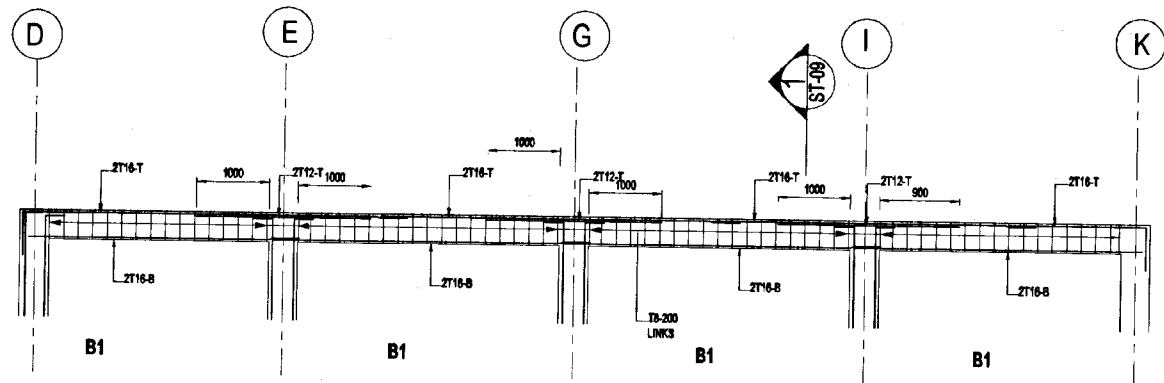
DO NOT SCALE

	NATIONAL WATER SUPPLY AND DRAINAGE BOARD THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA	SUB PROJECT:	TITLE:
		KOTIKAWATTE MULLERTYAWA	GOTHATUWA GROUND RESERVOIR & PUMP HOUSE MISCELLANEOUS DETAILS
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) STUDY TEAM		DESIGNED:	DATE: JAN 2001
NIHON SUIDO CONSULTANTS CO. LTD., TOKYO, JAPAN		CHECKED:	CONTRACT NO: NRW / CW
		DR. TEAM LEADER:	DWG. NO: KMU/GR/ST-07
		TEAM LEADER:	



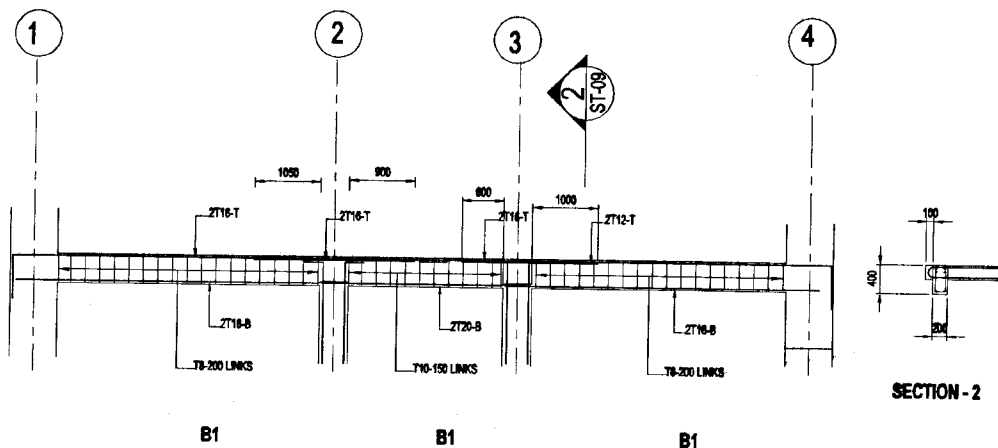
DO NOT SCALE

 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 MISCELLANEOUS DETAILS
	SHEET 2 OF 4 JAN 2001	
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) STUDY TEAM NIHON SUIDO CONSULTANTS CO. LTD., TOKYO, JAPAN	DESIGNED: <i>[Signature]</i> CHECKED: <i>[Signature]</i> CIV. TEAM LEADER: <i>[Signature]</i> TEAM LEADER: <i>[Signature]</i>	DRAWN: <i>[Signature]</i> P.M. (PROVISIONAL NUMBER): <i>[Signature]</i> S.A.M. (P.M. NUMBER): <i>[Signature]</i> C.O.M. (P.M. NUMBER): <i>[Signature]</i>
		CONTRACT No: NRW / CW DWA No: KMU/GR/ST-08



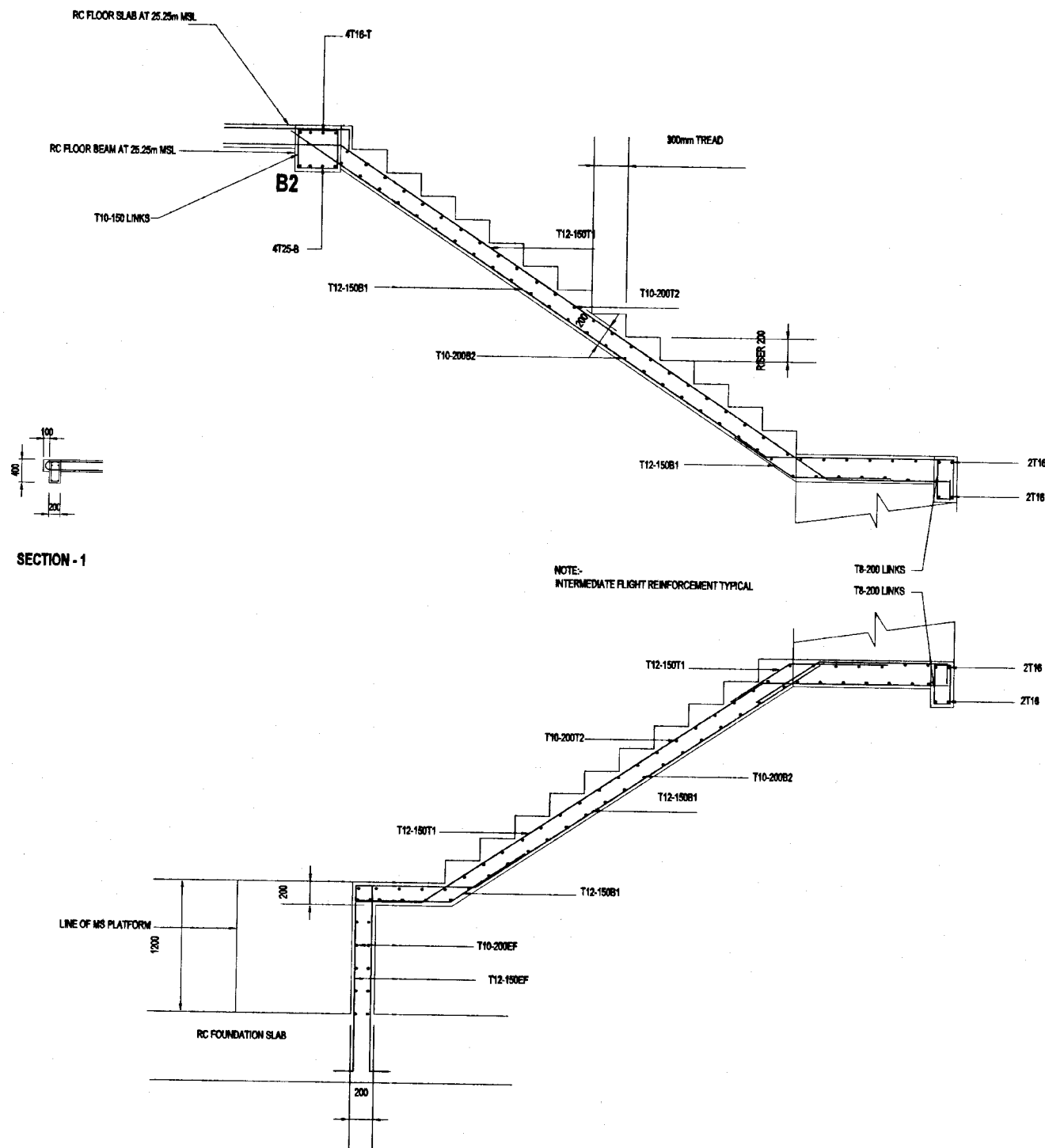
RC BEAMS ON GRID ② AT 26.25m LEVEL

SCALE - 1:50



RC BEAMS ON GRID ① K AT 26.25m LEVEL

SCALE - 1:50



DETAIL OF RC STAIRCASE

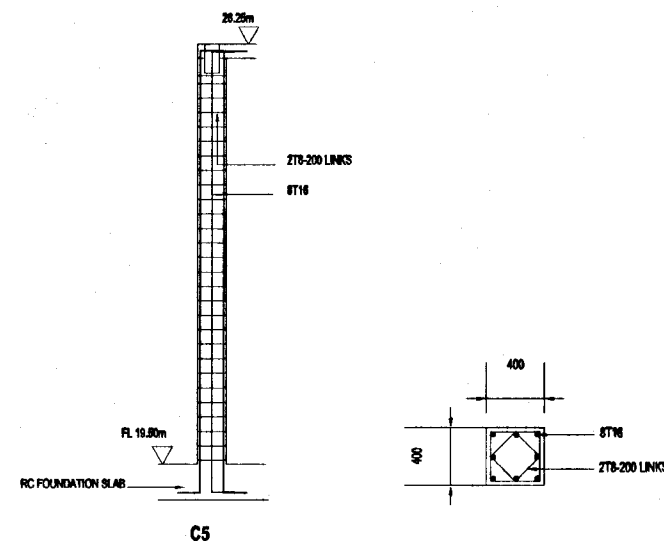
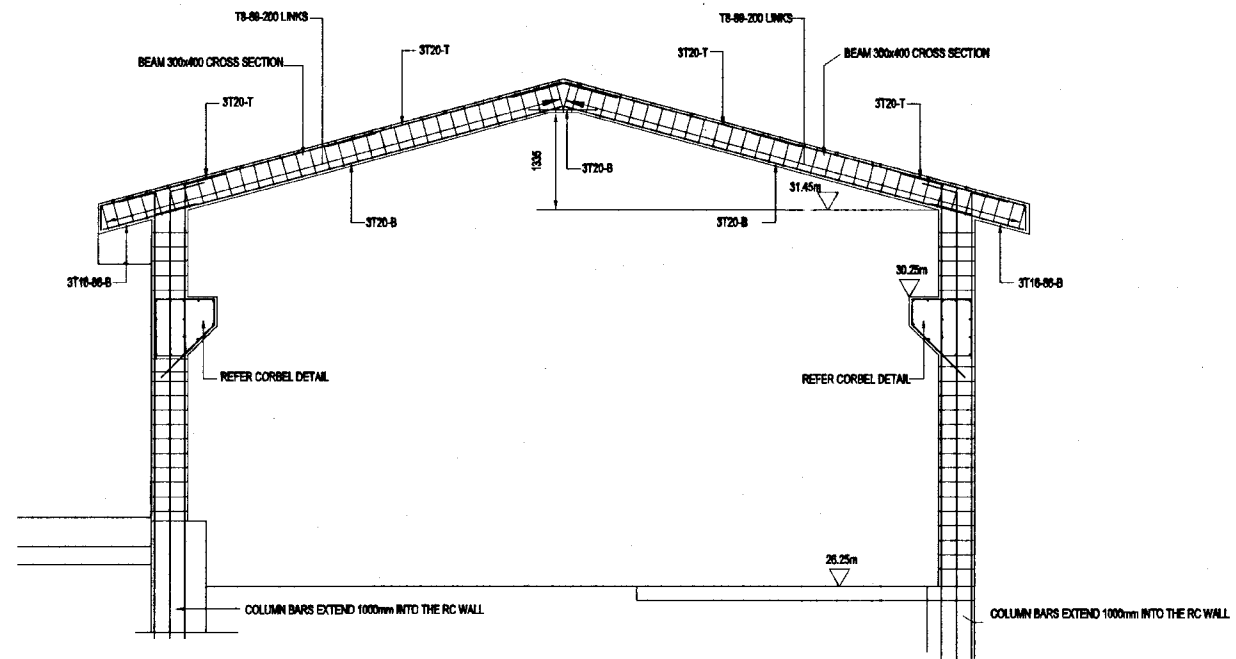
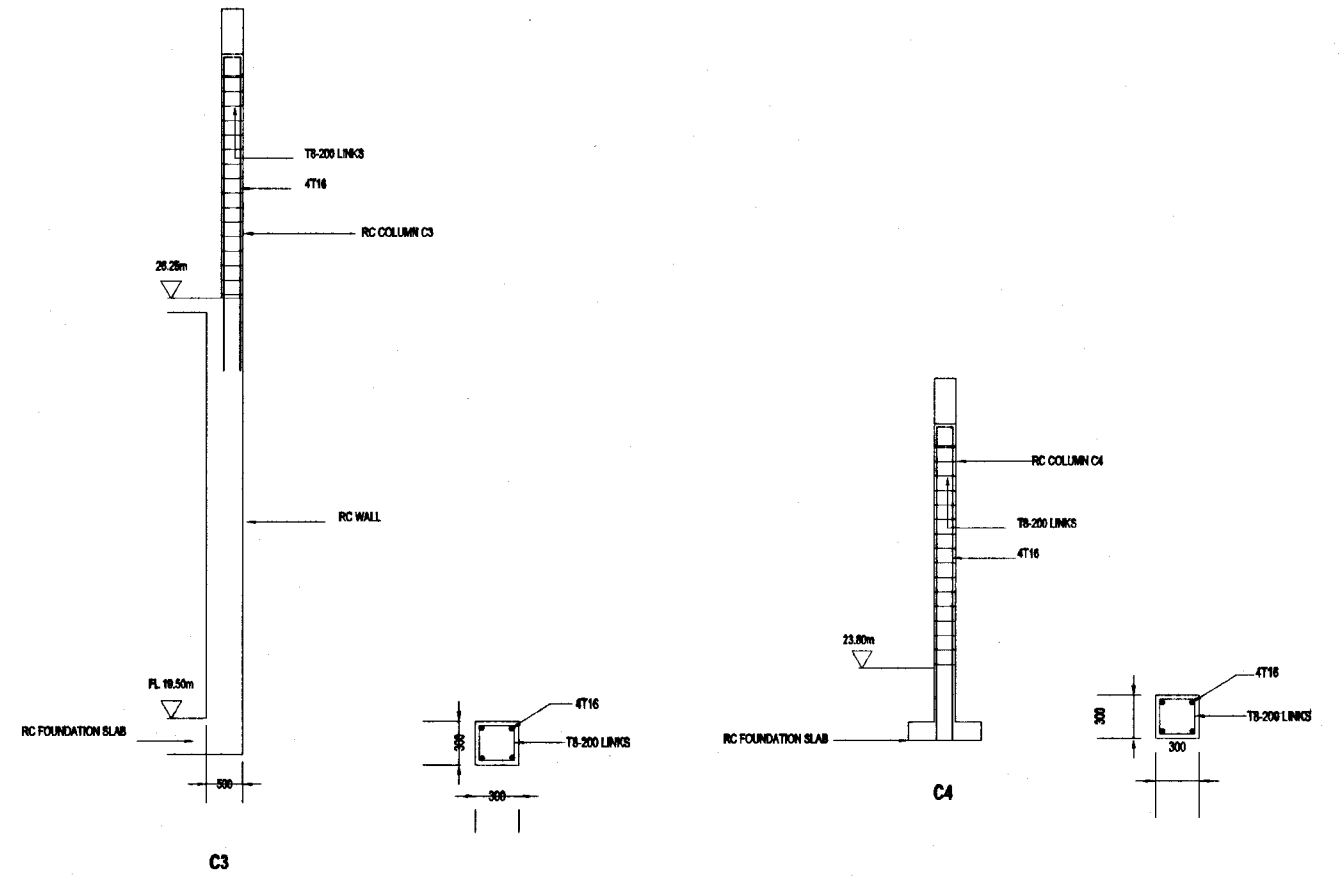
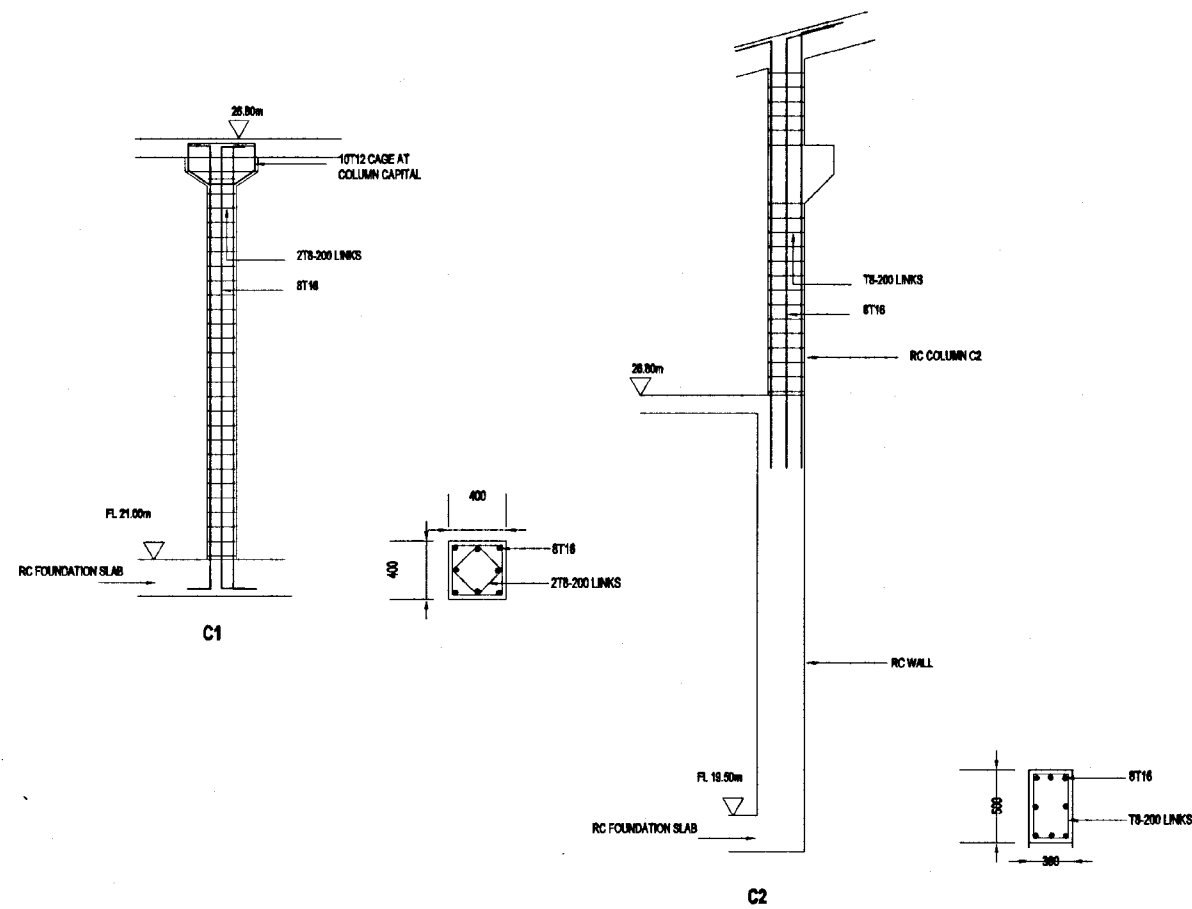
SCALE - 1:25

DO NOT SCALE

REV.	DESCRIPTION

<p>NATIONAL WATER SUPPLY AND DRAINAGE BOARD THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA</p>	<p>SUB PROJECT: KOTIKAWATTE MULLERIYAWA</p>	<p>TITLE: GOTHATUWA GROUND RESERVOIR & PUMP HOUSE MISCELLANEOUS DETAILS</p>	<p>DATE: JAN 2001</p>
	<p>DESIGNED: <i>[Signature]</i></p>	<p>DRAWN: <i>[Signature]</i></p>	<p>CHECKED: <i>[Signature]</i></p>
<p>BY TEAM LEADER: <i>[Signature]</i></p>	<p>APPROVED BY: <i>[Signature]</i></p>	<p>TEAM LEADER: <i>[Signature]</i></p>	<p>DRG. NO.: KMU/GR/ST-09</p>


SHEET 3 OF 4

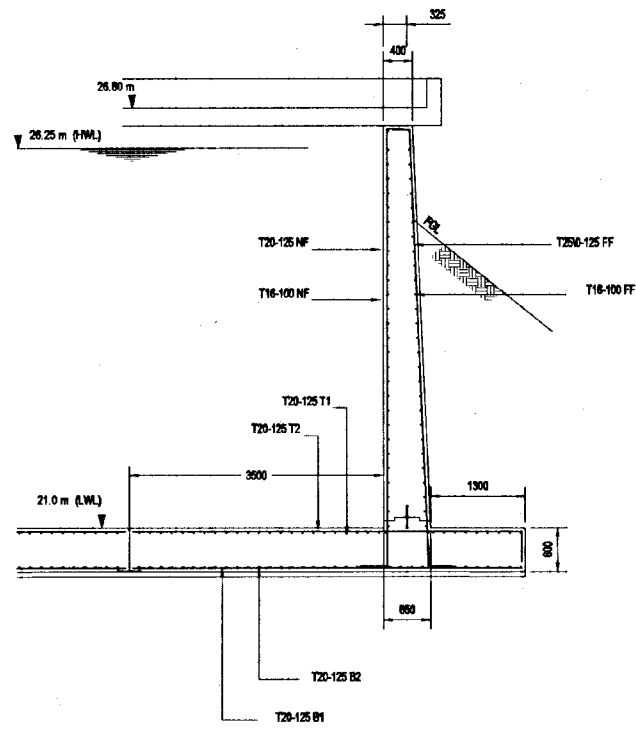


DETAIL OF ROOF
FRAME F1
SCALE - 1:50

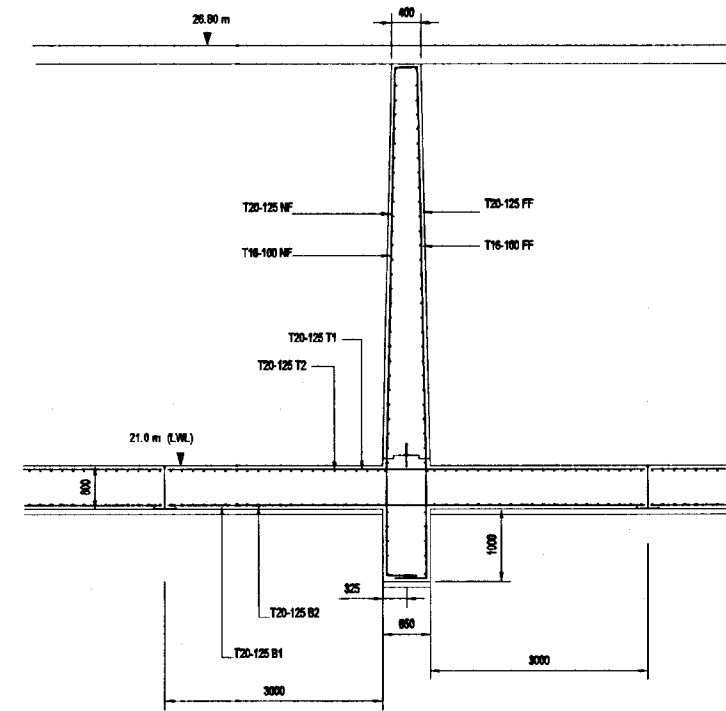
DETAIL OF COLUMNS
SCALE - 1:50

DO NOT SCALE

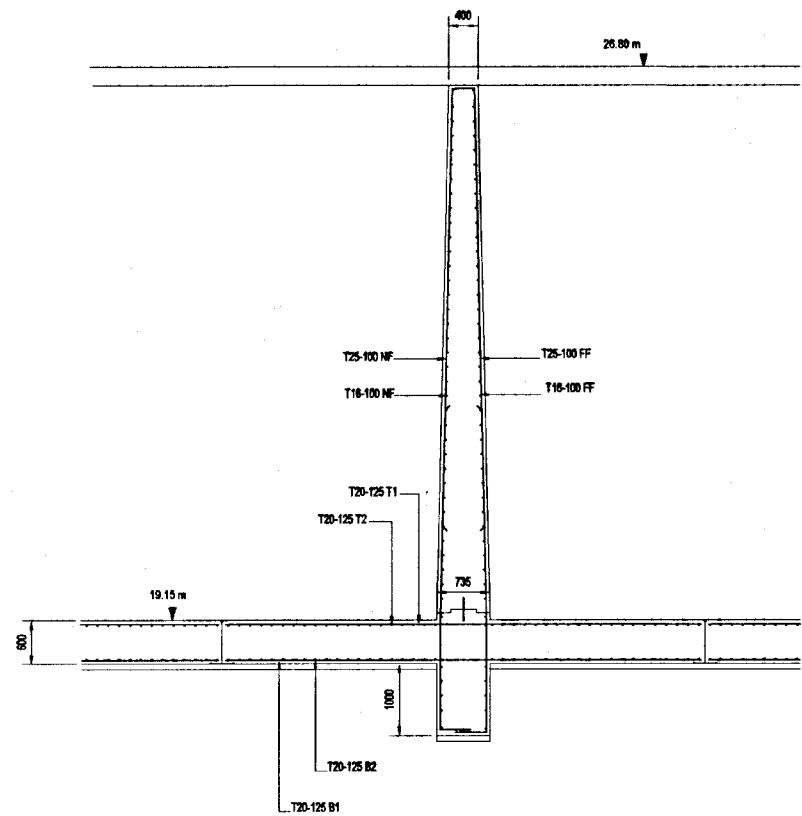
 <p>NATIONAL WATER SUPPLY AND DRAINAGE BOARD THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA</p>	<p>SUB PROJECT: KOTIKAWATTE MULLERIYAWA</p>	<p>TITLE: GOTHATUWA GROUND RESERVOIR & PUMP HOUSE MISCELLANEOUS DETAILS</p>	<p>DATE: JAN 2001</p>
	<p>DESIGNED: <i>[Signature]</i></p>	<p>DRAWN: <i>[Signature]</i></p>	<p>CONTRACT NO: NRW / CW</p>
<p>JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) STUDY TEAM</p>	<p>DT. TEAM LEADER: <i>[Signature]</i></p>	<p>A.B.M (P.M.) INCH: <i>[Signature]</i></p>	<p>DRG. INCH: <i>[Signature]</i></p>
<p>NIHON SUIDO CONSULTANTS CO. LTD., TOKYO, JAPAN</p>	<p>TEAM LEADER: <i>[Signature]</i></p>	<p>D.B.M (P.M.) INCH: <i>[Signature]</i></p>	



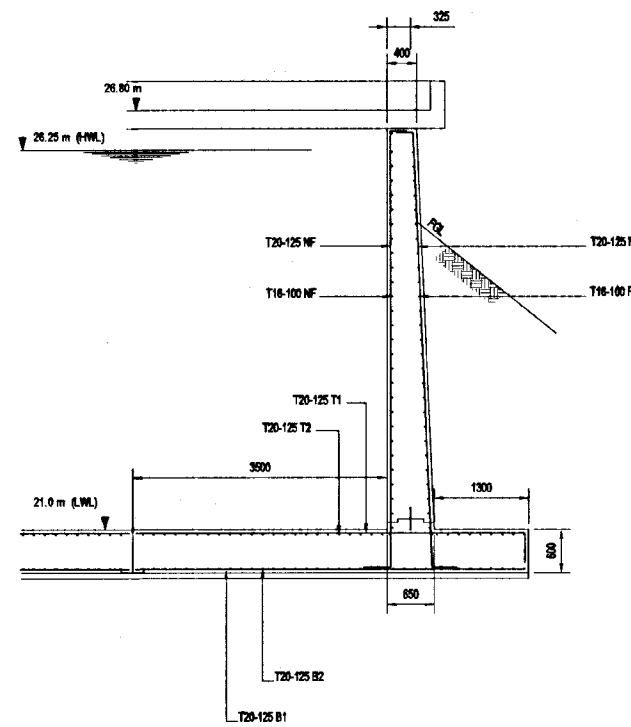
SECTION 1
SCALE - 1:50



SECTION 2
SCALE - 1:50




SECTION 3
SCALE - 1:50



SECTION 7
SCALE - 1:50

DO NOT SCALE

 NATIONAL WATER SUPPLY AND DRAINAGE BOARD THE PROJECT FOR THE REDUCTION OF NON-REVENUE WATER IN THE GREATER COLOMBO AREA	SUB PROJECT:		TITLE:	
	KOTIKAWATTE MULLERIYAWA		GOTHATUWA GROUND RESERVOIR & PUMP HOUSE DETAILS OF WALL SECTIONS	
	DESIGNED:	DRAWN:	DATE:	
	CHECKED:	IN CHARGE:	JAN 2001	
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) STUDY TEAM		DR. TEAM LEADER:	A.S.M.P/D/INCHG:	CONTRACT NO.:
NIHON SUDO CONSULTANTS CO. LTD., TOKYO, JAPAN		TEAM LEADER:	D.S.M/P/D/INCHG:	NRW / CW
				DRG. No.
				KMU/GR/ST-11

