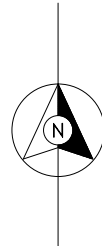
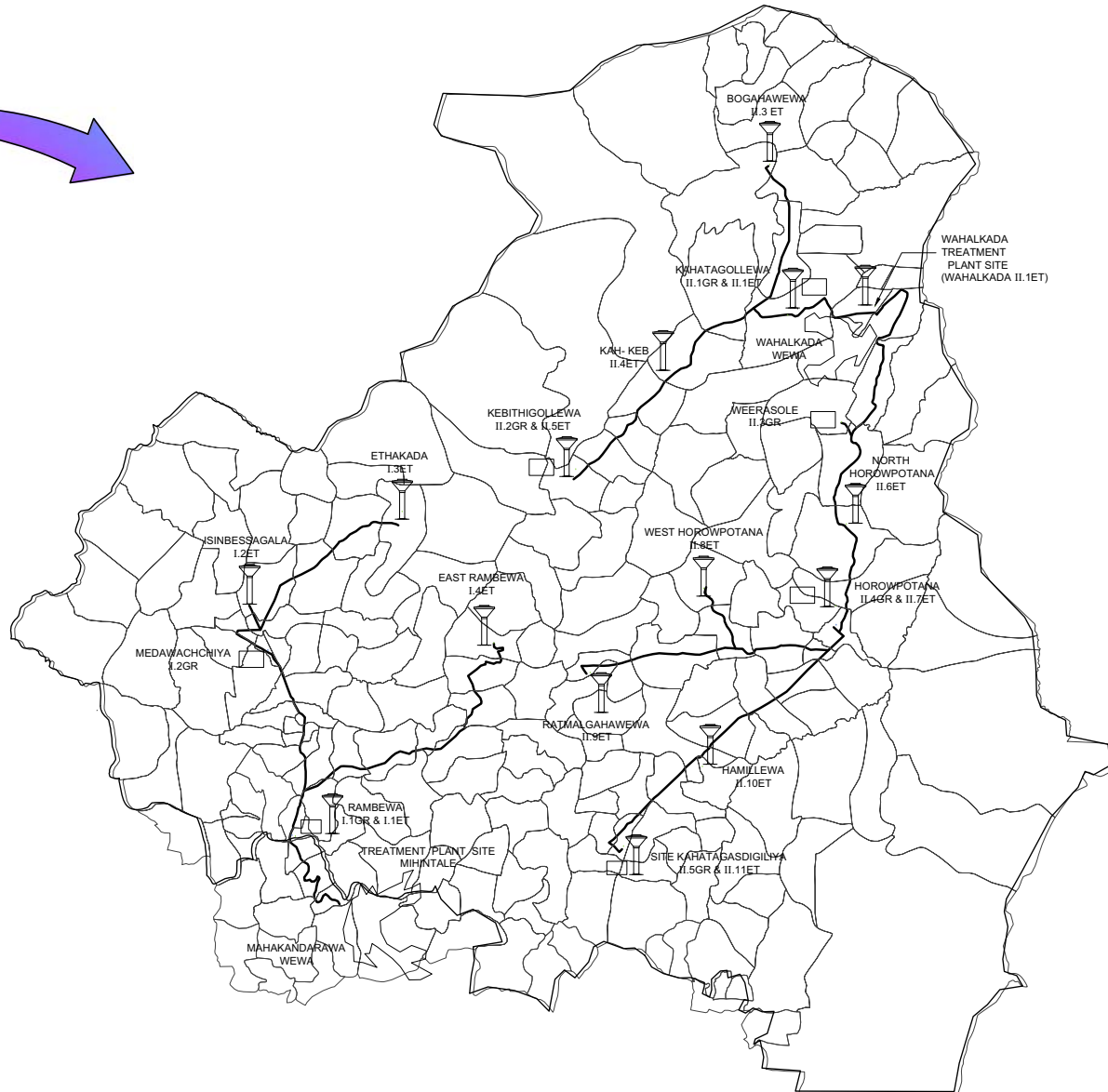
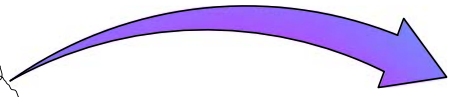
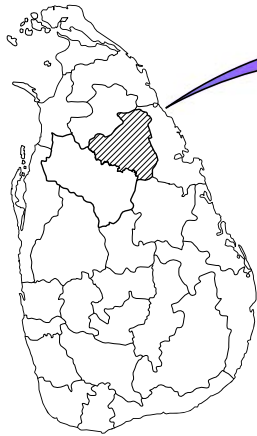
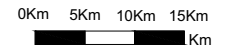


SRI LANKA



G.R. - SUMP
E.T. - TOWER



PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project

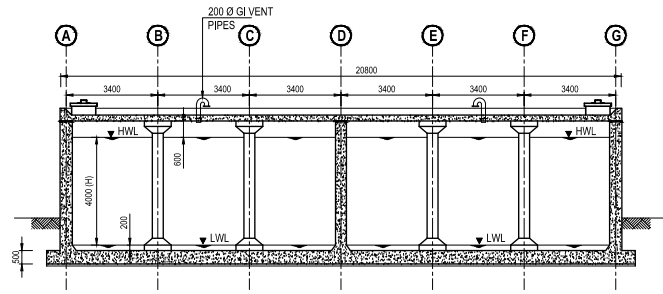
JICA JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: LOCATION MAP OF ANURADHAPURA NORTH INTEGRATED WATER SUPPLY PROJECT

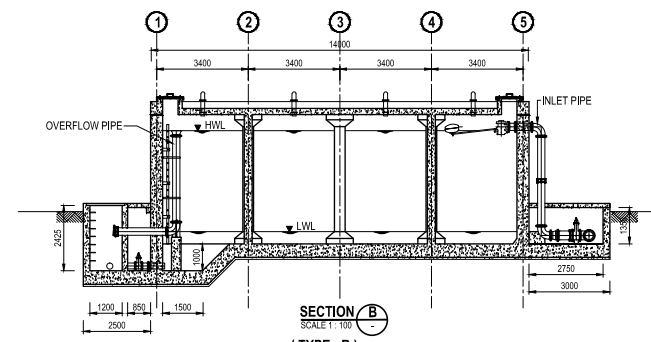
CLIENT:  NATIONAL WATER SUPPLY & DRAINAGE BOARD

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

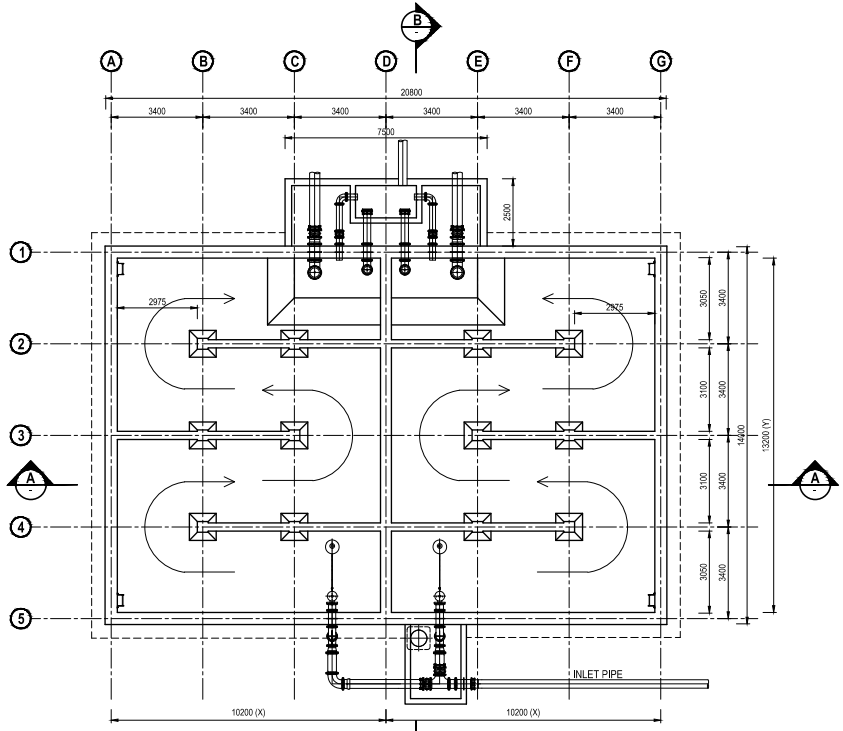
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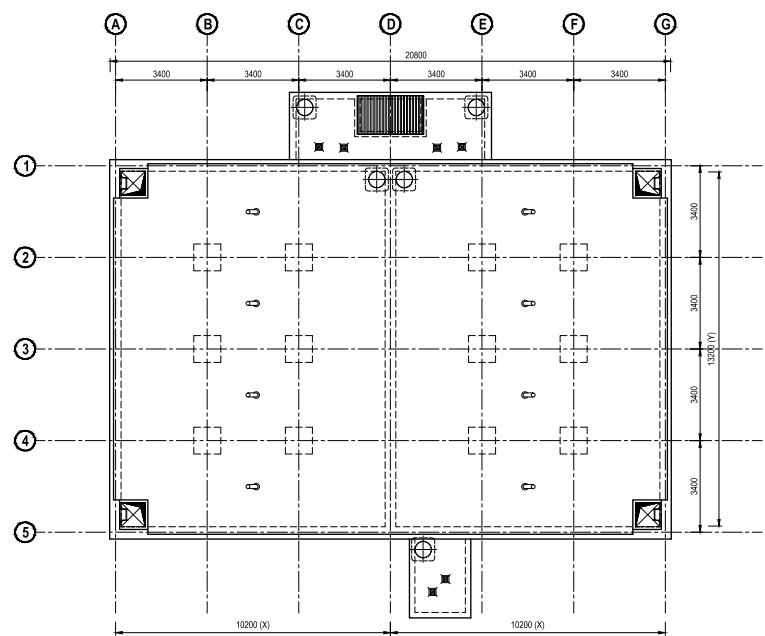
SECTION A
SCALE 1:100
(TYPE - B)



SECTION B
SCALE 1:100
(TYPE - B)



PLAN
SCALE 1:100
(TYPE - B)



ROOF PLAN
SCALE 1:100
(TYPE - B)

STANDARD DIMENSION OF GROUND RESERVOIR

TYPE	CAPACITY (m ³)	X (m)	Y (m)	H (m)
A	500	7.3	9.7	4
B	1000	10.2	13.2	4
C	1500	12.4	16.3	4


NOTE :- 01. ALL DIMENSIONS ARE IN MILLIMETERS.

**PRELIMINARY DRAWING
NOT FOR CONSTRUCTION**

PROJECT: Preparatory Study for Anuradhapura North
Integrated Water Supply Project

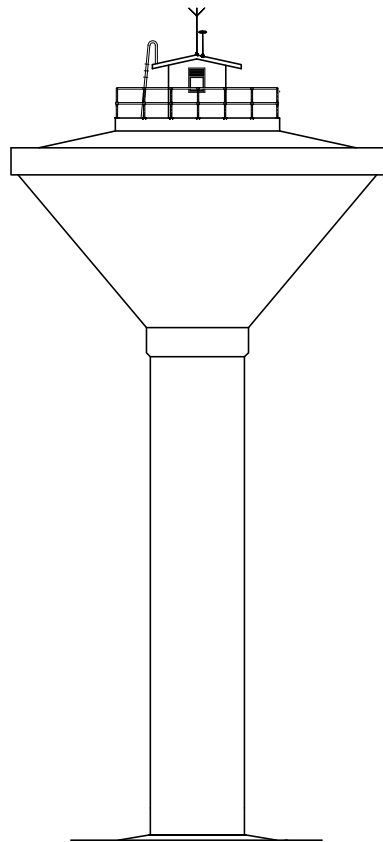
JICA JAPAN INTERNATIONAL
COOPERATION AGENCY

TITLE: STANDARD DRAWING - GROUND RESERVOIR

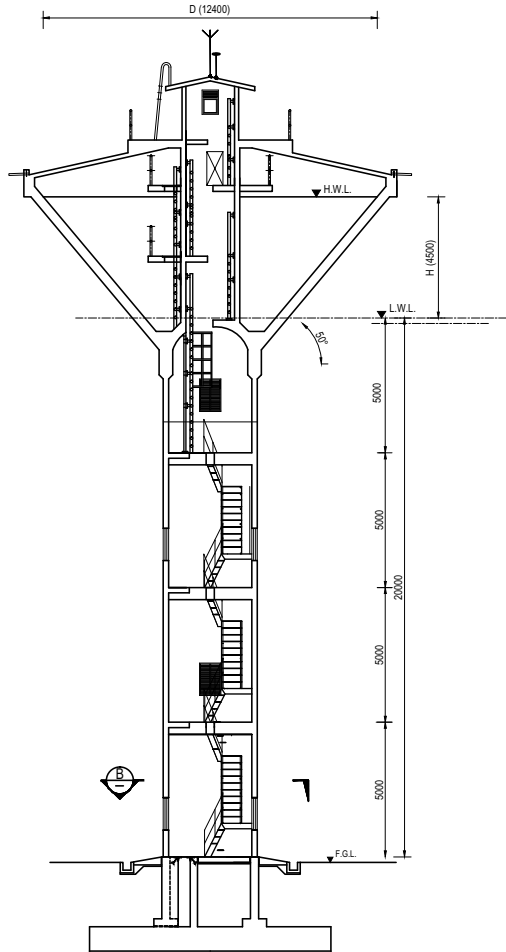
CLIENT:  NATIONAL WATER SUPPLY
& DRAINAGE BOARD

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

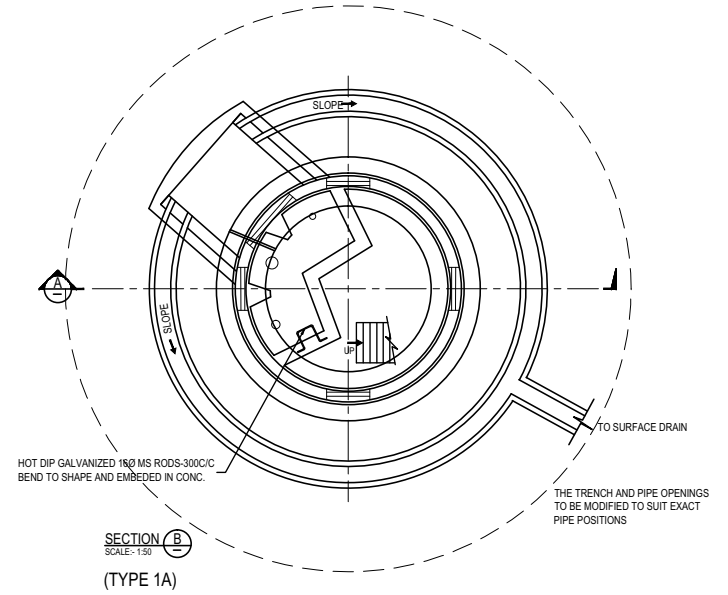
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							SCALE: AS SHOWN



ELEVATION
(TYPE 1A)



SECTION A
SCALE: 1:100
(TYPE 1A)



SECTION B
SCALE: 1:50
(TYPE 1A)

STANDARD DIMENSION OF WATER TOWER

TYPE 1	VOLUME (m ³)	D (m)	H (m)
1A	250	12.4	4.5
1B	500	15.4	5.5

- NOTE :- 01. ALL PIPES MATERIAL ARE DI.
02. STRUCTURE MEMBERS ARE R/F CONCRETE.
03. ALL DIMENSIONS ARE IN MILLIMETERS.

**PRELIMINARY DRAWING
NOT FOR CONSTRUCTION**

PROJECT: Preparatory Study for Anuradhapura North
Integrated Water Supply Project



JAPAN INTERNATIONAL
COOPERATION AGENCY

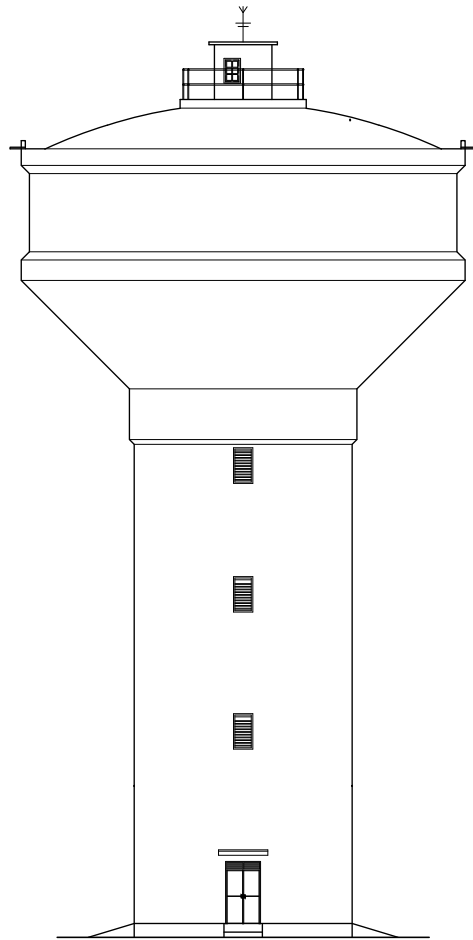
TITLE: STANDARD DRAWING - WATER TOWER 250m³ & 500m³

CLIENT: NATIONAL WATER SUPPLY
& DRAINAGE BOARD

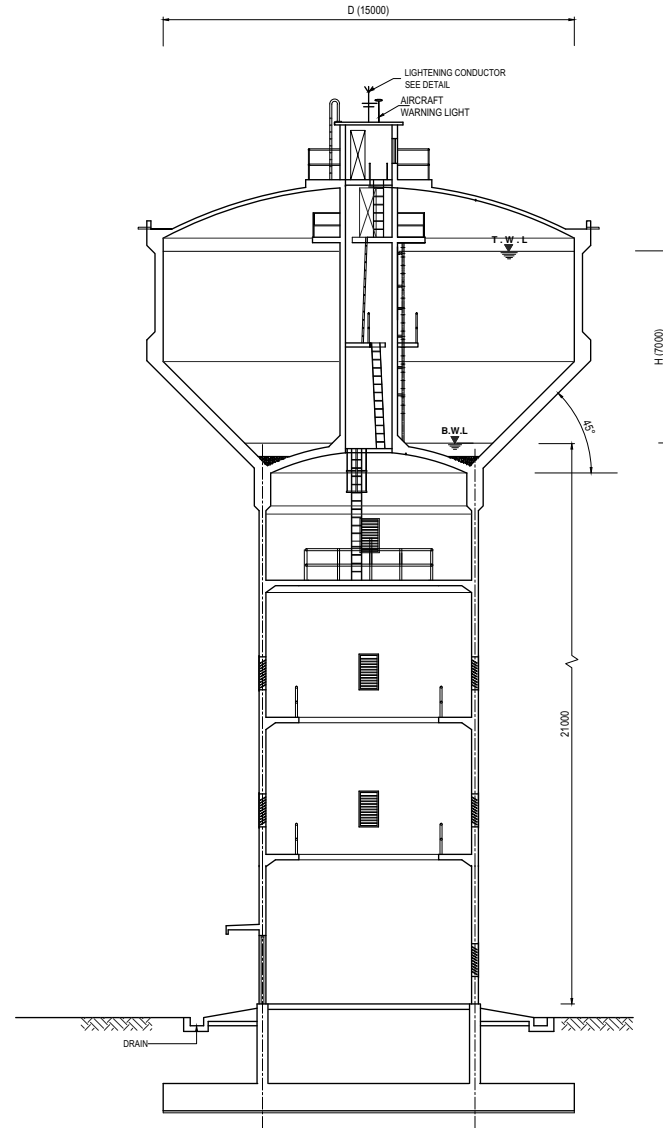


CONSULTANTS :
NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD.-
JAPAN

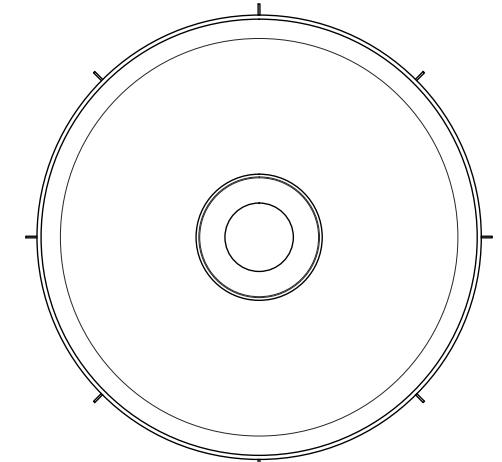
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							SCALE: AS SHOWN



ELEVATION
SCALE 1:200
(TYPE 2B)



SECTION A
SCALE 1:200
(TYPE 2B)



TOP PLAN
SCALE 1:200
(TYPE 2B)

STANDARD DIMENSION OF WATER TOWER

TYPE 2	VOLUME (m ³)	D (m)	H (m)
2A	750	14.0	6.0
2B	1000	15.0	7.0
2C	1250	15.0	7.0
2D	1500	16.6	7.0
2E	2000	19.0	7.0

- NOTE :- 01. ALL PIPES MATERIAL ARE DI.
02. STRUCTURE MEMBERS ARE R/F CONCRETE.
03. ALL DIMENSIONS ARE IN MILLIMETERS.


**PRELIMINARY DRAWING
NOT FOR CONSTRUCTION**

PROJECT: Preparatory Study for Anuradhapura North
Integrated Water Supply Project



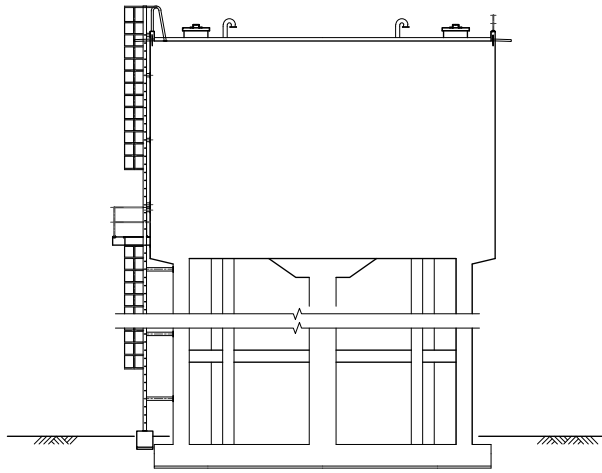
JAPAN INTERNATIONAL
COOPERATION AGENCY

TITLE: STANDARD DRAWING - WATER TOWER 750m³ / 1000m³ / 1250m³

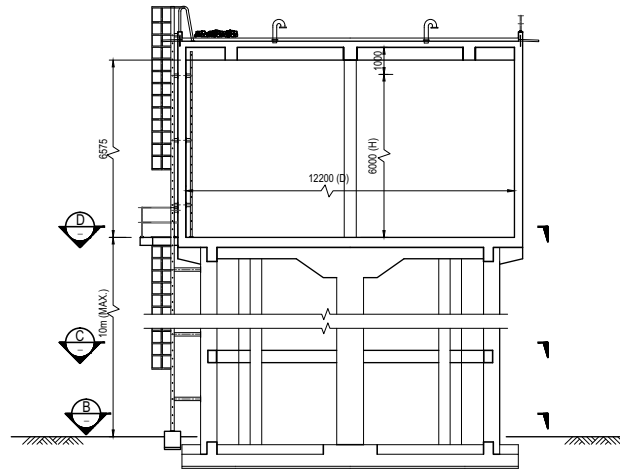
CLIENT:
 NATIONAL WATER SUPPLY
& DRAINAGE BOARD

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

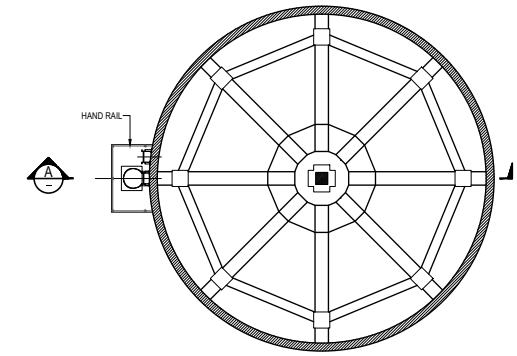
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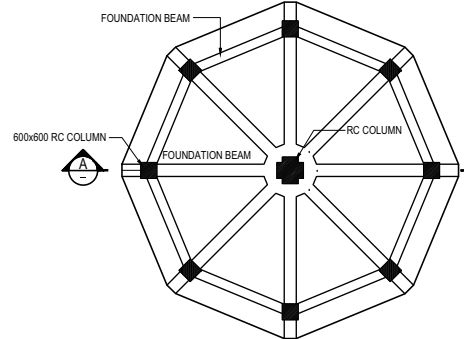
ELEVATION
[SCALE: 1:100]
TYPE 3B



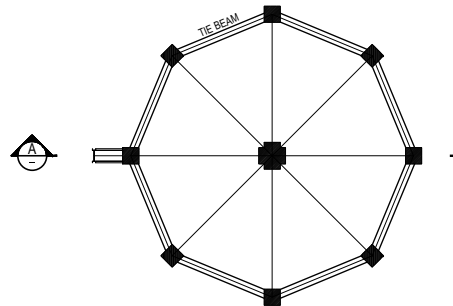
SECTION A-A
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TYPE 3B



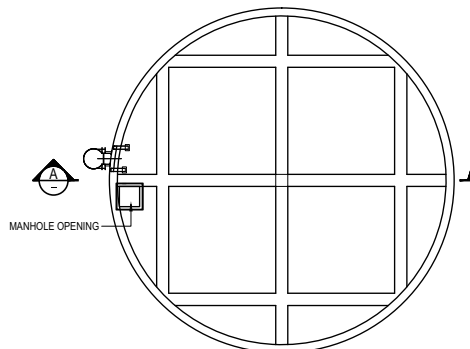
SECTION D-D
[SCALE: 1:100]
TYPE 3B



SECTION B-B
[SCALE: 1:100]
TYPE 3B



SECTION C-C
[SCALE: 1:100]
TYPE 3B



ROOF PLAN
[SCALE: 1:100]
TYPE 3B

STANDARD DIMENSION OF WATER TOWER

TYPE 3	VOLUME (m ³)	D (m)	H (m)
3A	500	10.8	5.5
3B	750	12.2	6.0

- NOTE :- 01. ALL PIPES MATERIAL ARE DI.
02. STRUCTURE MEMBERS ARE R/F CONCRETE.
03. ALL DIMENSIONS ARE IN MILLIMETERS.

PRELIMINARY DRAWING
NOT FOR CONSTRUCTION

PROJECT: Preparatory Study for Anuradhapura North
Integrated Water Supply Project



JAPAN INTERNATIONAL
COOPERATION AGENCY

TITLE: STANDARD DRAWING - WATER TOWER 500m³ / 750m³ (LAW HIGH)

CLIENT:



NATIONAL WATER SUPPLY
& DRAINAGE BOARD

CONSULTANTS :

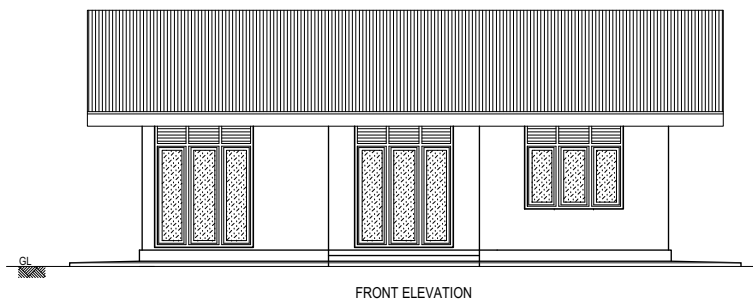


NJS CONSULTANTS CO., LTD. - JAPAN

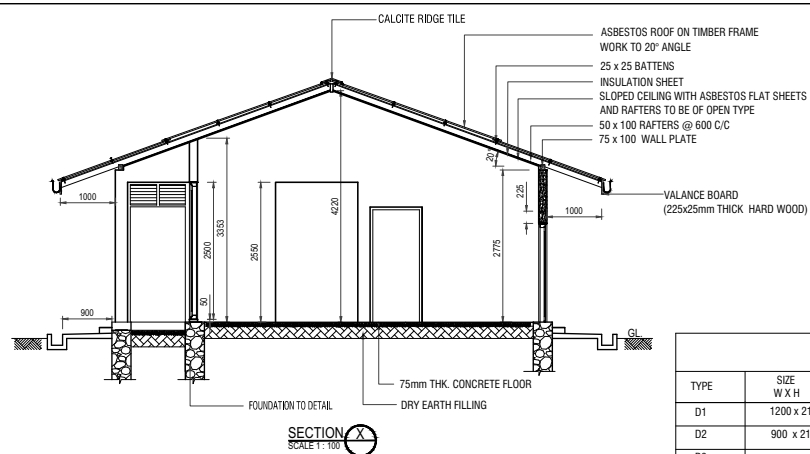


NIHON SUIDO CONSULTANTS CO., LTD.-
JAPAN

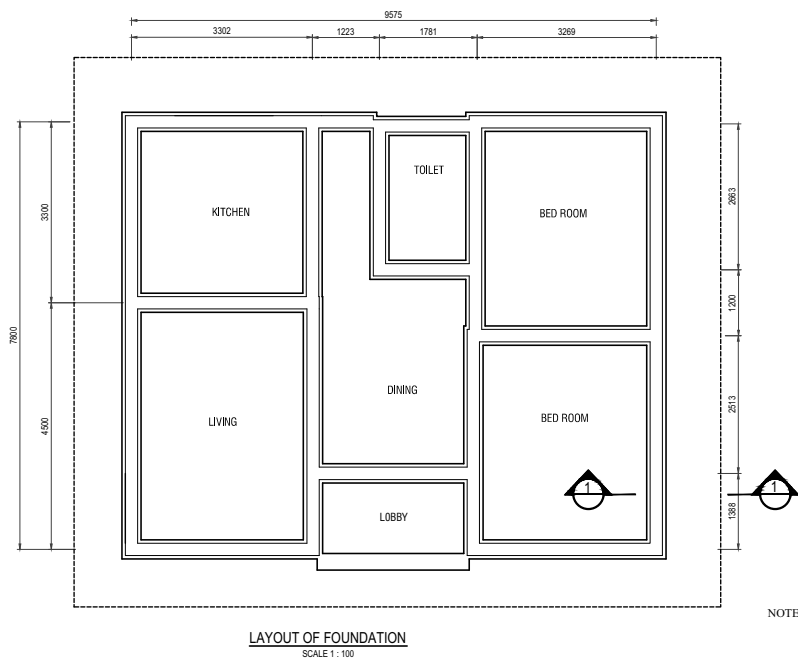
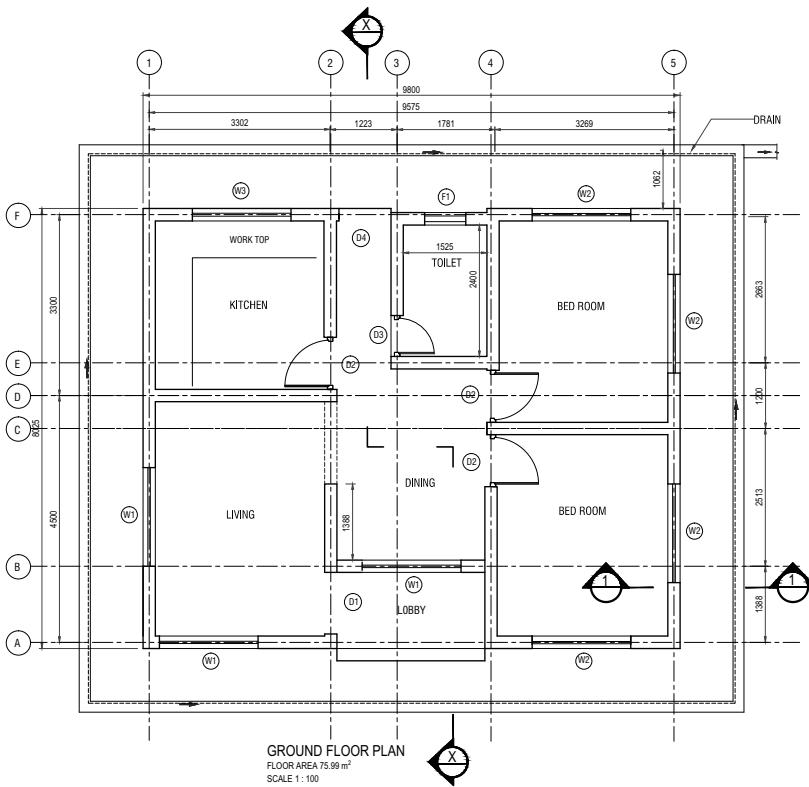
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							26-09-2012	AS SHOWN



FRONT ELEVATION



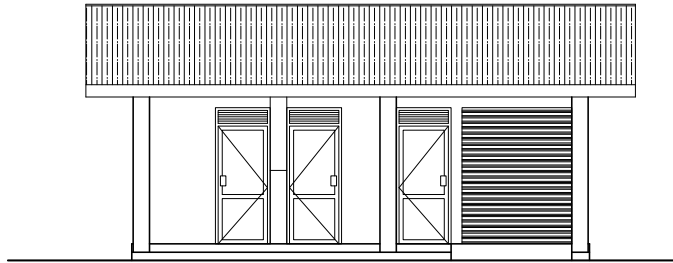
SCHEDULE OF DOORS AND WINDOWS				
TYPE	SIZE W X H	SILL HGT.	DISCRIPTION	NOS.
D1	1200 x 2100	—	TIMBER PANELLED DOOR WTH LOUVERS ON TOP	01
D2	900 x 2100	—	PLYWOOD DOOR	03
D3	750 x 2100	—	P.V.C. DOOR	01
D4	900 x 1800	—	TIMBER PANELLED DOOR	01
W1	2400 x 2500	50	THREE SASHES ALUMINUM GLAZED WINDOW WITH LOUVERS ON TOP	03
W2	1800 x 1800	750	- DO -	03
W3	2400 x 1575	975	- DO -	01
F1	750 x 550	2000	ALUMINUM GLAZED FAN LIGHT WITH LOUVERS ON TOP	01



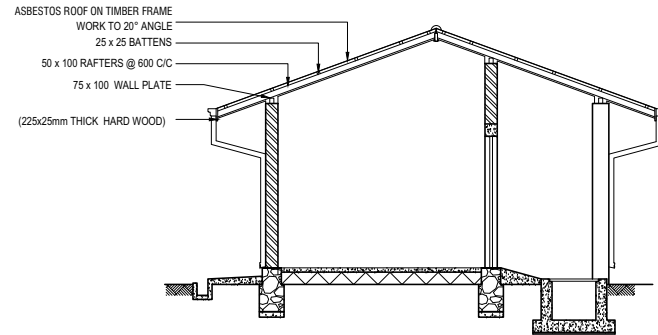
NOTE :- 01. ALL DIMENSIONS ARE IN MILLIMETERS.

PRELIMINARY DRAWING
NOT FOR CONSTRUCTION

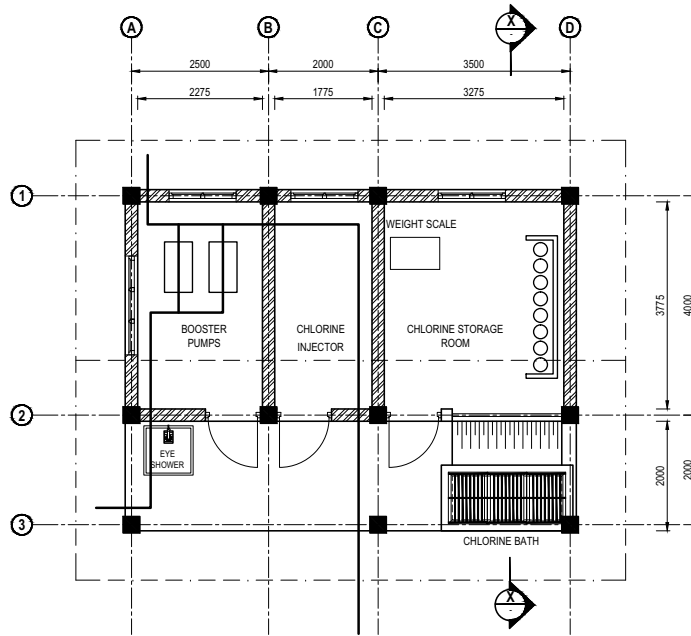
PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project		JICA JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: STANDARD DRAWING - OPERATOR / CARE TAKER'S QUARTERS							
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD	CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN	REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	DRAWING NO.: MWT&D/BDG/A/01		
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FRONT ELEVATION
SCALE 1 : 100



SECTION X-X
SCALE 1 : 100



PLAN
SCALE 1 : 100

NOTE :- 01. ALL PIPES MATERIAL ARE DI.
02. ALL DIMENSIONS ARE IN MILLIMETERS.


PRELIMINARY DRAWING
NOT FOR CONSTRUCTION

PROJECT: Preparatory Study for Anuradhapura North
Integrated Water Supply Project



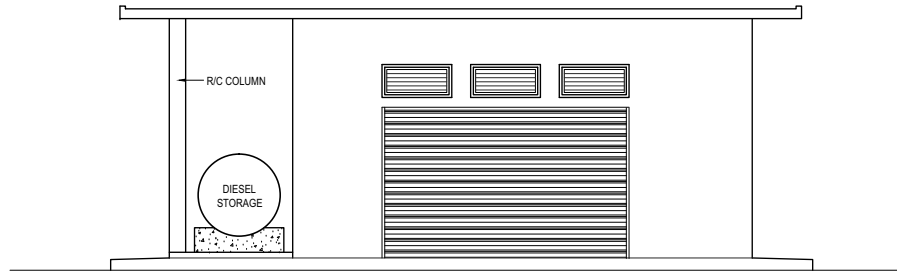
JAPAN INTERNATIONAL
COOPERATION AGENCY

TITLE: STANDARD DRAWING - CHLORINATION HOUSE

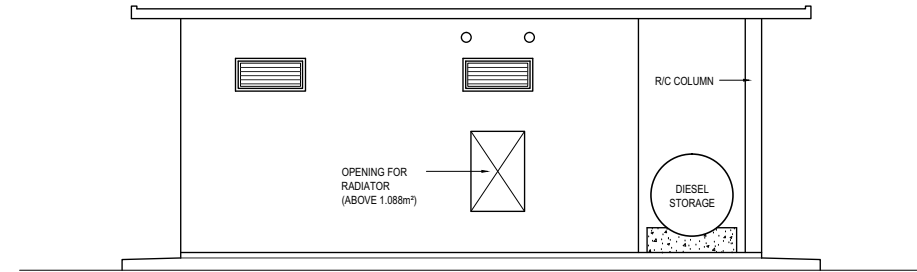
CLIENT:
 NATIONAL WATER SUPPLY
& DRAINAGE BOARD

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

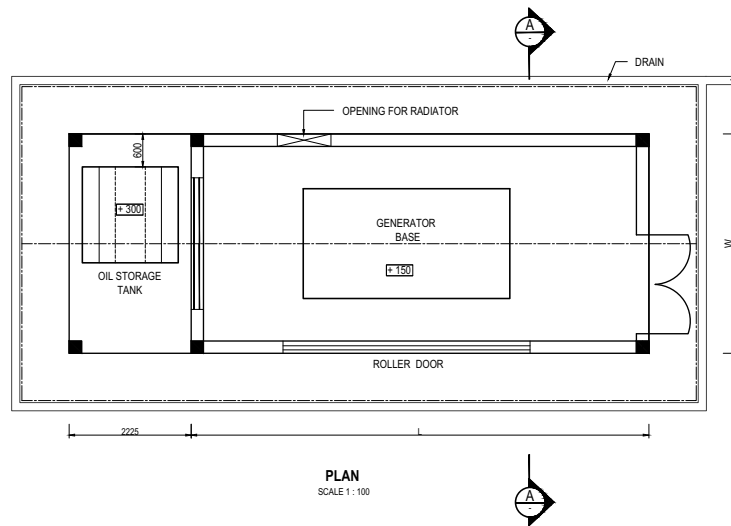
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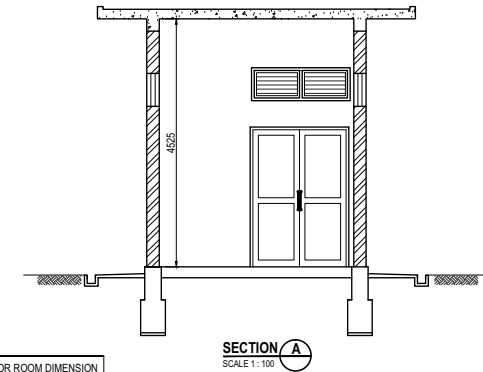
FRONT ELEVATION
SCALE 1:100



REAR ELEVATION
SCALE 1:100



PLAN
SCALE 1:100



SECTION A-A
SCALE 1:100

LOCATION	GENERATOR ROOM DIMENSION	
	L (mm)	W (mm)
01. MAKAHANADARAWA WATER TREATMENT PLANT AND WATER INTAKE	6700	3800
02. RAMBEWA GROUND RESERVOIR	6900	3800
03. MEDAWACHCHIYA GROUND RESERVOIR	6400	3700
04. WAHALKADA WATER INTAKE	8280	4000
05. KAHATAGOLLEWA GROUND RESERVOIR	6400	3700
06. KEBITHIGOLLEWA GROUND RESERVOIR	4750	3280
07. WEERASOLE GROUND RESERVOIR	6900	3800
08. HOROWPATHANA GROUND RESERVOIR	8280	4000
09. KAHATAGASDILILIYA GROUND RESERVOIR	4750	3280

NOTE :- 01. ALL DIMENSIONS ARE IN MILLIMETERS.

PRELIMINARY DRAWING
NOT FOR CONSTRUCTION

PROJECT: Preparatory Study for Anuradhapura North
Integrated Water Supply Project



JAPAN INTERNATIONAL
COOPERATION AGENCY

TITLE: STANDARD DRAWING - GENERATOR HOUSE

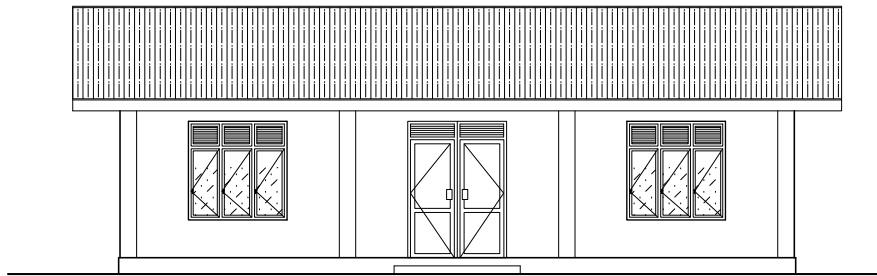
CLIENT:
NATIONAL WATER SUPPLY
& DRAINAGE BOARD



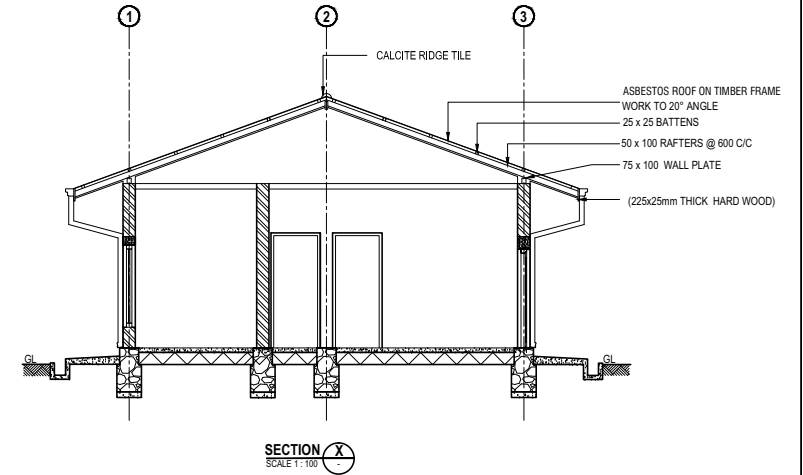
CONSULTANTS :
NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD.-
JAPAN



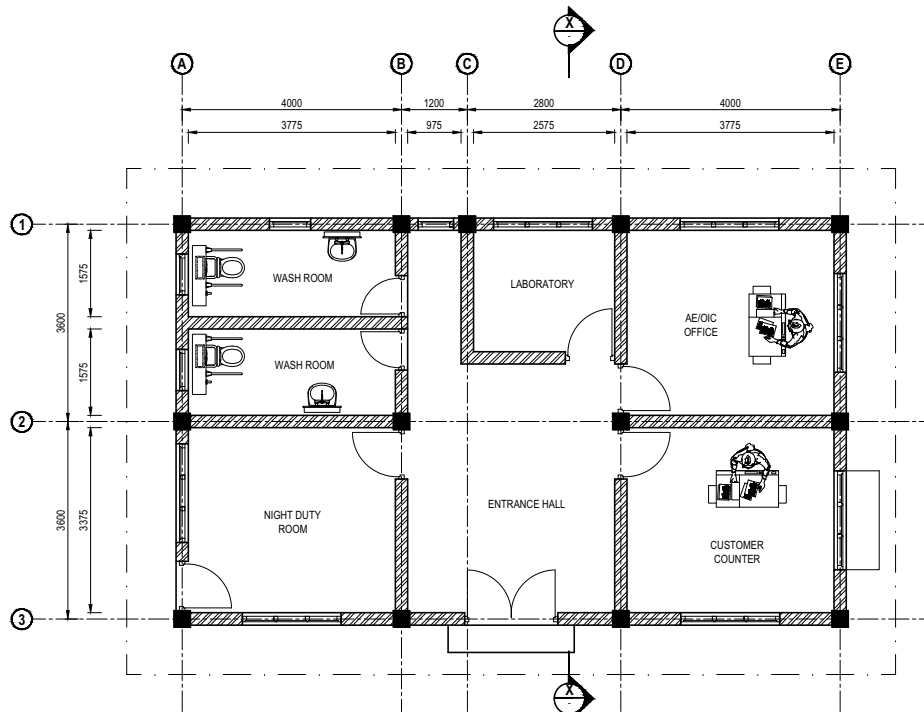
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							26-09-2012	AS SHOWN



FRONT ELEVATION
SCALE 1 : 100



SECTION X-X
SCALE 1:100



PLAN
SCALE 1 : 100

NOTE :- 01. ALL DIMENSIONS ARE IN MILLIMETERS.

PRELIMINARY DRAWING
NOT FOR CONSTRUCTION

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project



JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: STANDARD DRAWING - OPERATIONAL COMPLEX (AE / OIC OFFICE)

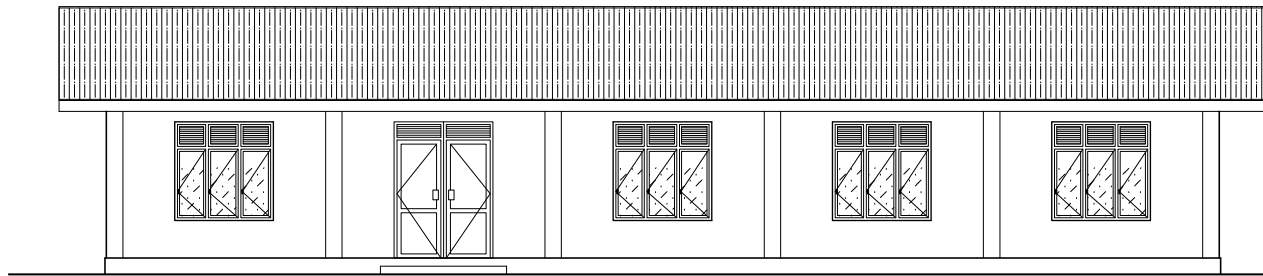
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD



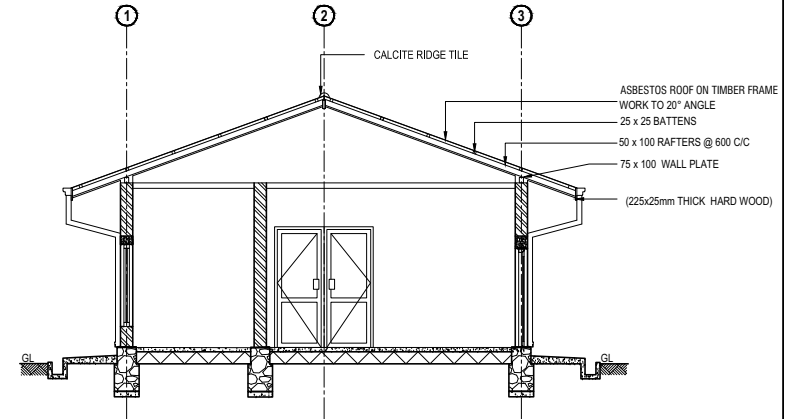
CONSULTANTS :
NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD.- JAPAN



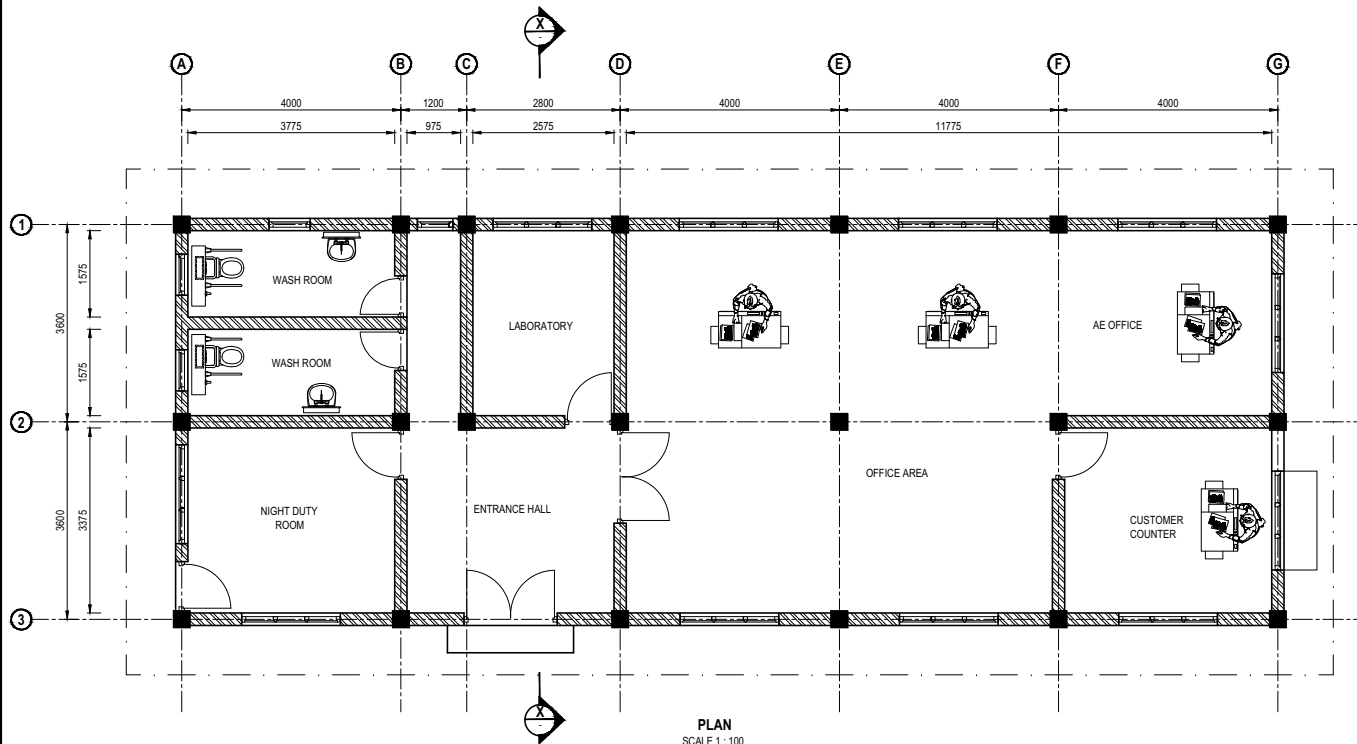
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							SCALE: AS SHOWN



FRONT ELEVATION
SCALE 1 : 100



SECTION X-X
SCALE 1 : 100



PLAN
SCALE 1 : 100

NOTE :- 01. ALL DIMENSIONS ARE IN MILLIMETERS.

PRELIMINARY DRAWING
NOT FOR CONSTRUCTION

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project



JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: STANDARD DRAWING - OPERATIONAL COMPLEX (AE OFFICE, MEDAWACHCHIYA)

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD



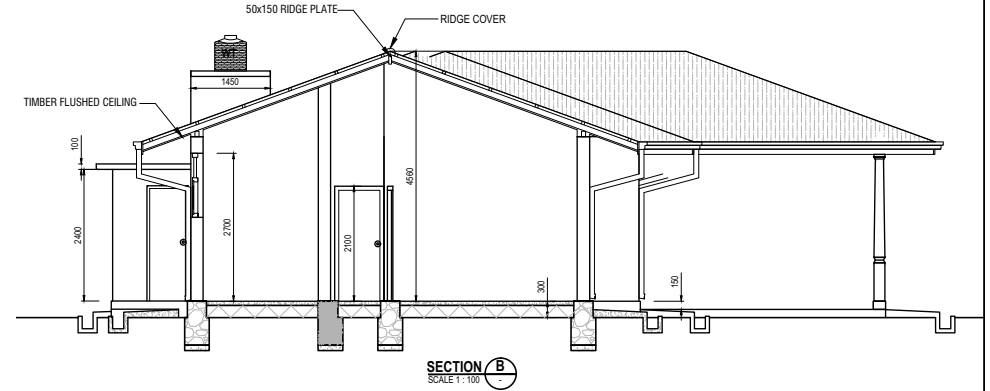
CONSULTANTS :
NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD.- JAPAN



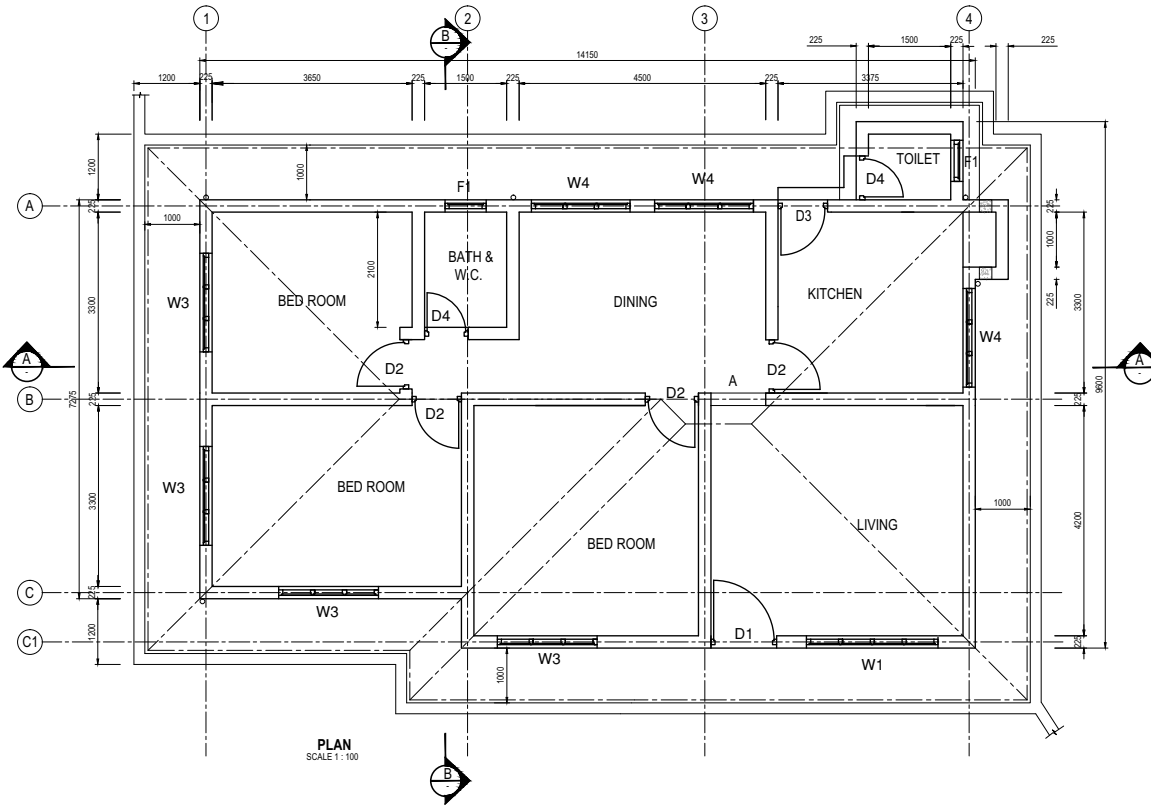
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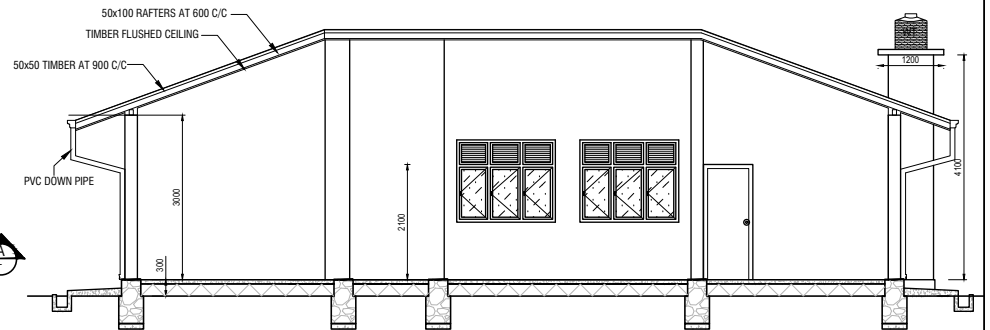
ELEVATION
SCALE 1:100



SECTION B
SCALE 1:100



PLAN
SCALE 1:100



SECTION A
SCALE 1:100

SCHEDULE OF DOORS AND WINDOWS

TYPE	SIZE		QTY.
	W	H	
D1	1200	2550	1
D2	950	2100	4
D3	950	2100	1
D4	750	2100	2
W1	2400	2250	1
W3	1800	1800	4
W4	1800	1050	3
F1	750	1200	2
A	1000	2100	1

NOTE :- 01. ALL DIMENSIONS ARE IN MILLIMETERS.

PRELIMINARY DRAWING
NOT FOR CONSTRUCTION

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project



JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: STANDARD DRAWING - STAFF'S QUARTERS

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD



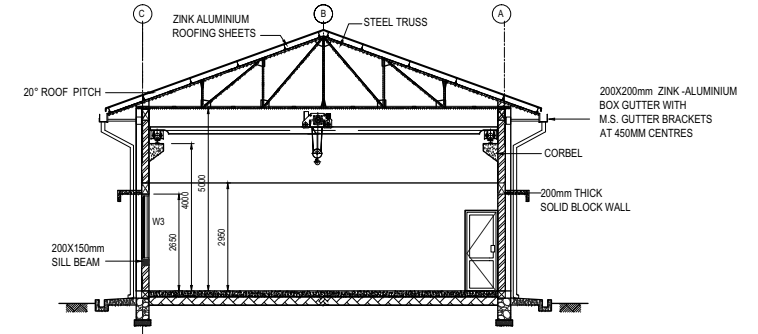
CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN



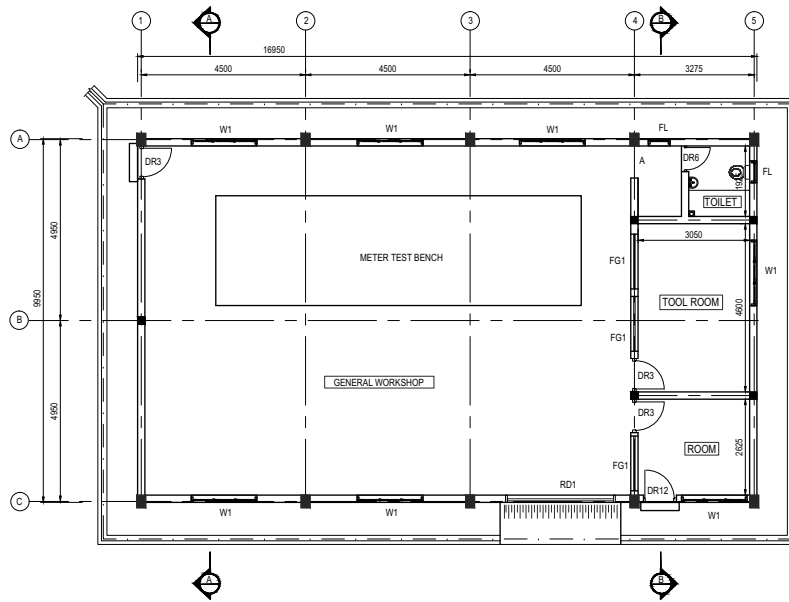
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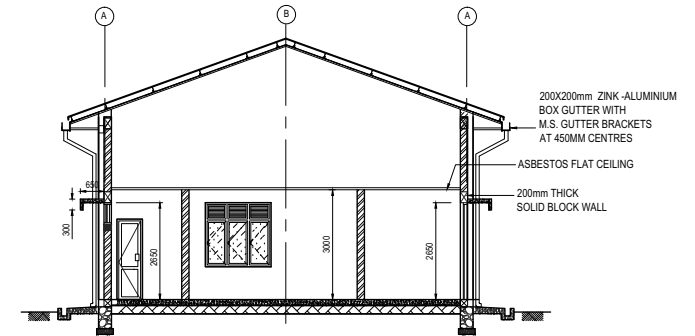
FRONT ELEVATION



SECTION A
SCALE 1:150



PLAN
SCALE 1:150



SECTION B
SCALE 1:150

NOTE :- 01. ALL DIMENSIONS ARE IN MILLIMETERS.


PRELIMINARY DRAWING
NOT FOR CONSTRUCTION

PROJECT: Preparatory Study for Anuradhapura North
Integrated Water Supply Project



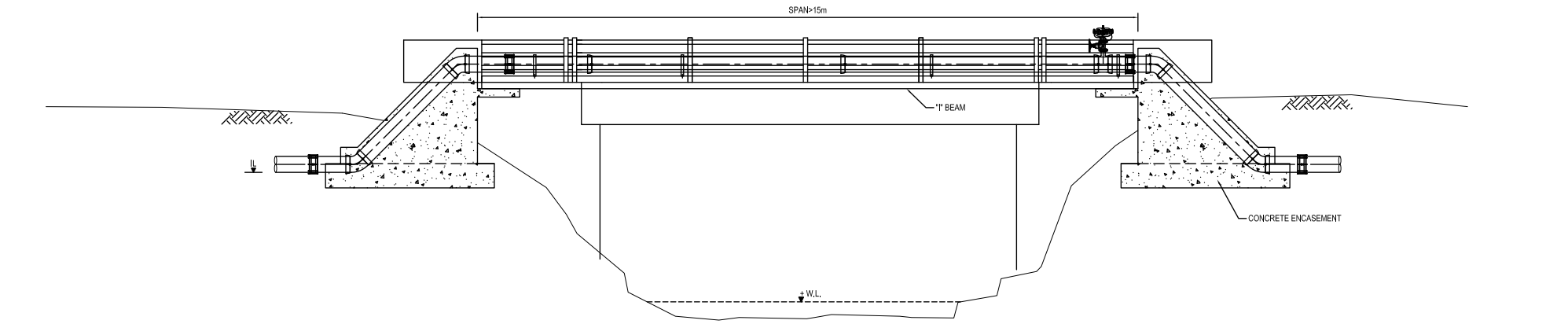
JAPAN INTERNATIONAL
COOPERATION AGENCY

TITLE: STANDARD DRAWING - WORK SHOP

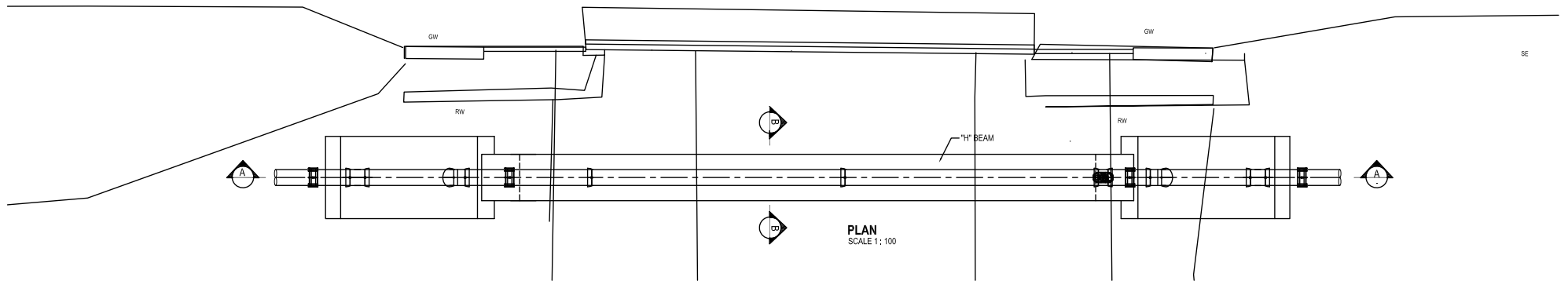
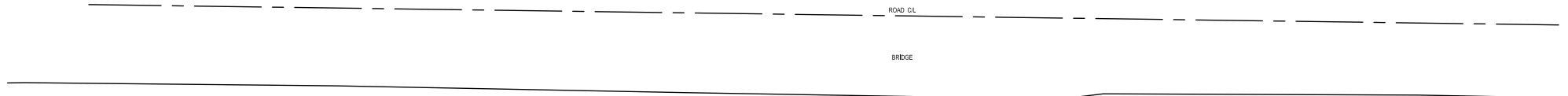
CLIENT:
 NATIONAL WATER SUPPLY
& DRAINAGE BOARD

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

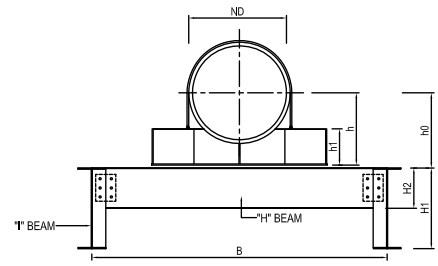
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SECTION A
SCALE 1:100



PLAN
SCALE 1:100

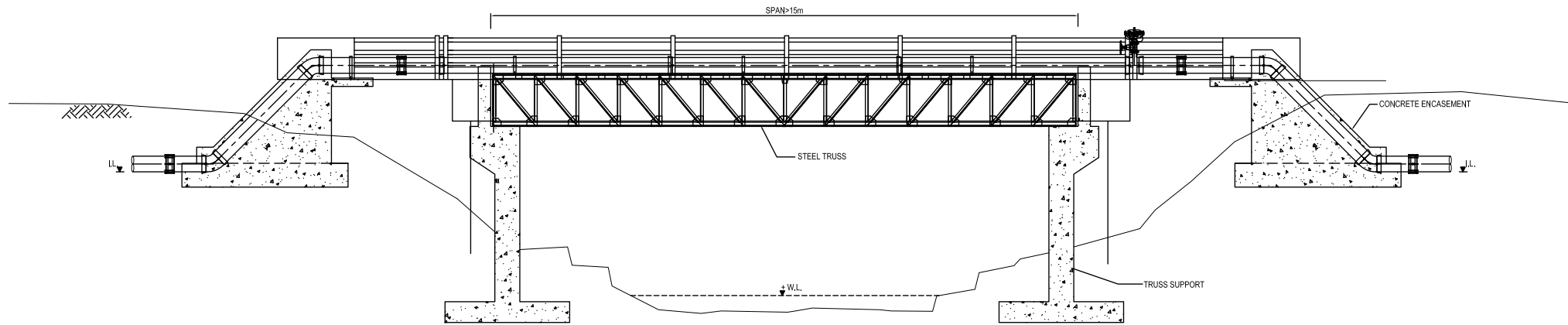


SECTION B
SCALE 1:500

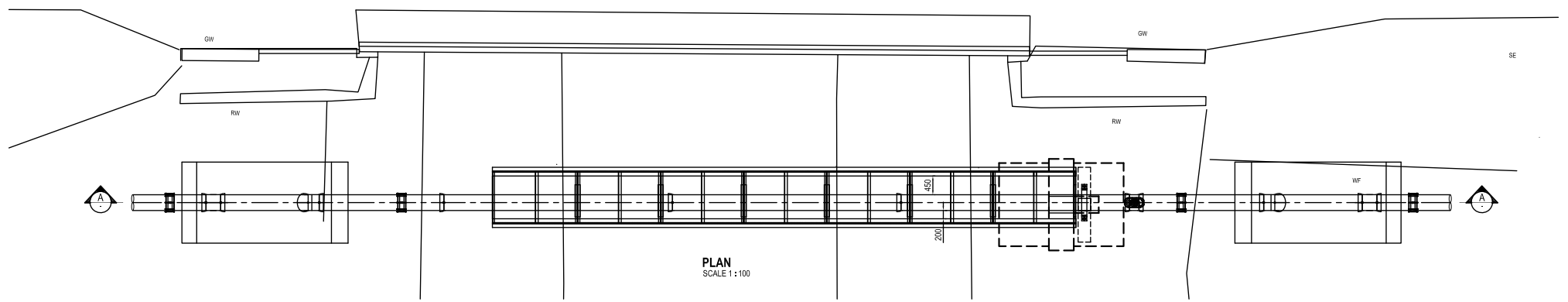
- GENERAL NOTE :
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. NO OBSTRUCTION TO FLOW SHALL OCCUR DUE TO THE PIPE CROSSING
 3. ALL DIMENSIONS AND LEVELS SHALL BE CHECKED AT DETAILS DESIGN.
 4. FOR OTHER GENERAL DETAILS REFER STANDARD DRAWINGS.
 5. FOUNDATION OF THE TWO SUPPORTS ARE TO BE PLACED ON FIRM GROUND AND THE BEARING CAPACITY TO BE CONFIRMED AT DETAIL DESIGN.

**PRELIMINARY DRAWING
NOT FOR CONSTRUCTION**

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project		JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: STANDARD DRAWING - BRIDGE CROSSING SPAN < 15m								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS : NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD.- JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	DRAWING NO.: MWT&D/STD/C/01	
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SECTION A
SCALE 1 : 100



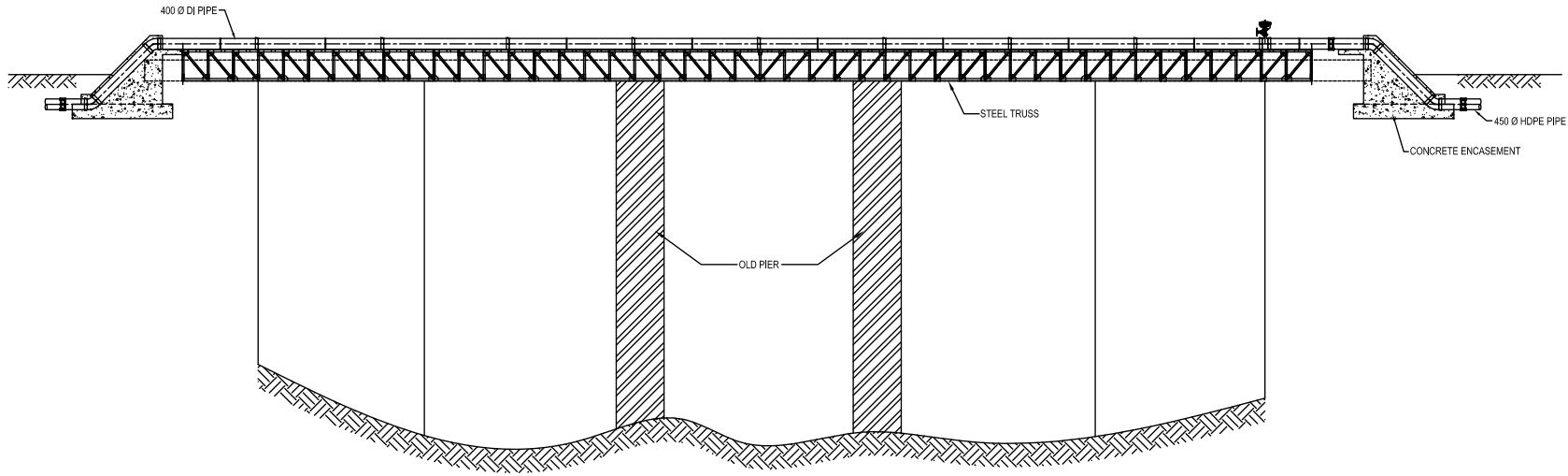
PLAN
SCALE 1 : 100

GENERAL NOTE :

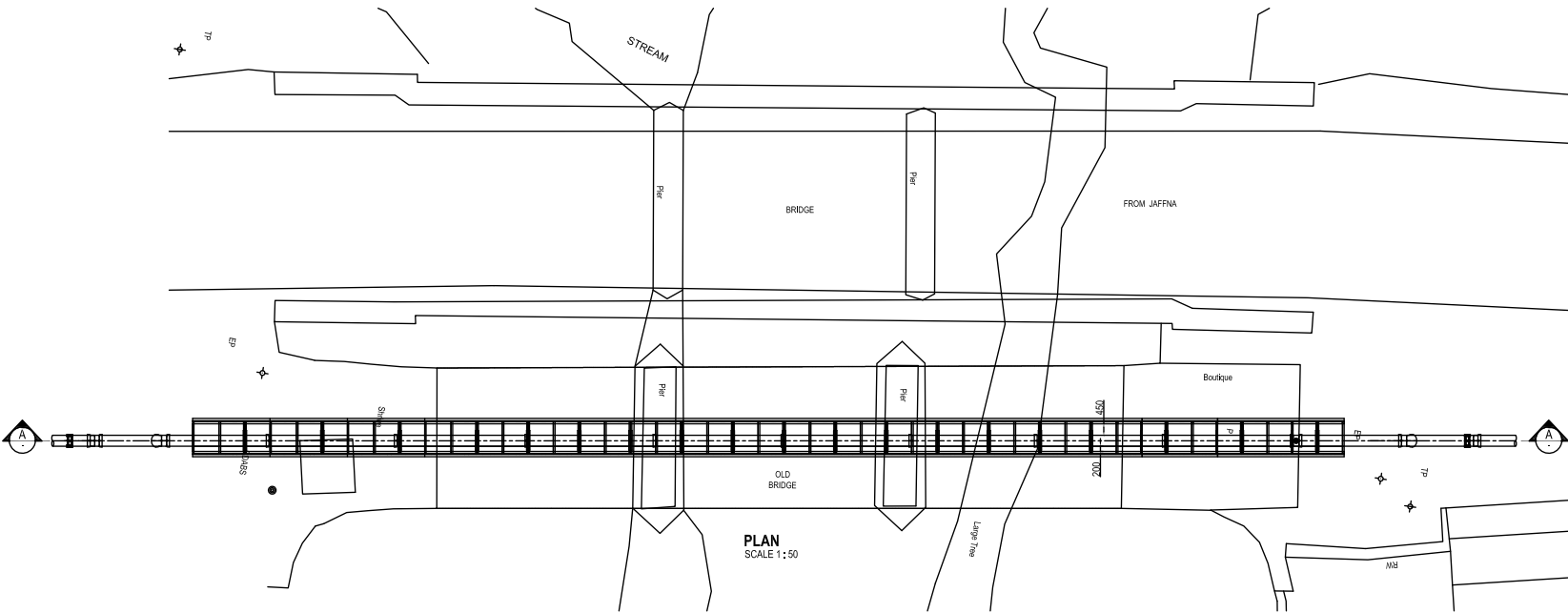
1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. NO OBSTRUCTION TO FLOW SHALL OCCUR DUE TO THE PIPE CROSSING
3. ALL DIMENSIONS AND LEVELS SHALL BE CHECKED AT DETAILS DESIGN.
4. FOR OTHER GENERAL DETAILS REFER STANDARD DRAWINGS.
5. FOUNDATION OF THE TWO SUPPORTS ARE TO BE PLACED ON FIRM GROUND AND THE BEARING CAPACITY TO BE CONFIRMED AT DETAIL DESIGN.

**PRELIMINARY DRAWING
NOT FOR CONSTRUCTION**

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project		JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: STANDARD DRAWING - BRIDGE CROSSING SPAN > 15m								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS : NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	DRAWING NO.:	
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											18-09-2012	AS SHOWN



SECTION A
SCALE 1:50



PLAN
SCALE 1:50

GENERAL NOTE :

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. NO OBSTRUCTION TO FLOW SHALL OCCUR DUE TO THE PIPE CROSSING
3. ALL DIMENSIONS AND LEVELS SHALL BE CHECKED AT DETAILS DESIGN.
4. FOR OTHER GENERAL DETAILS REFER STANDARD DRAWINGS.
5. FOUNDATION OF THE TWO SUPPORTS ARE TO BE PLACED ON FIRM GROUND, AND THE BEARING CAPACITY TO BE CONFIRMED AT DETAIL DESIGN.

**PRELIMINARY DRAWING
NOT FOR CONSTRUCTION**

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project



JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: STANDARD DRAWING - BRIDGE CROSSING DETAIL BRIDGE No. 149/4

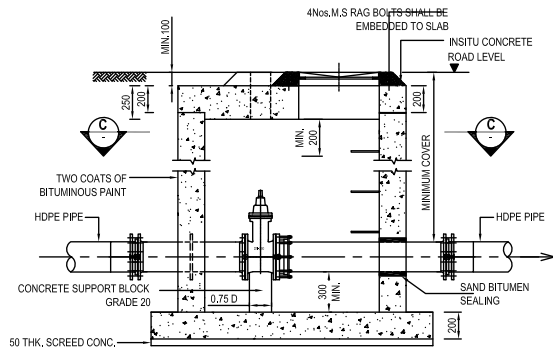
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD



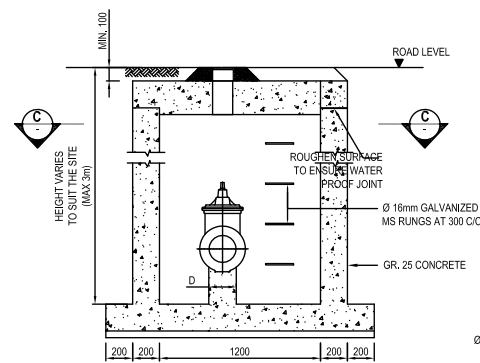
CONSULTANTS :
NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN



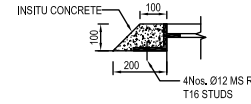
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							18-09-2012	AS SHOWN



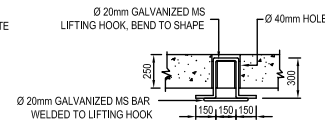
SECTION A
SCALE 1:20



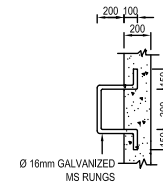
SECTION B
SCALE 1:20



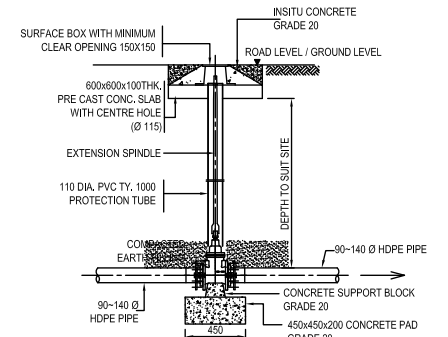
FIXING DETAIL OF MANHOLE COVER DETAIL 'A'



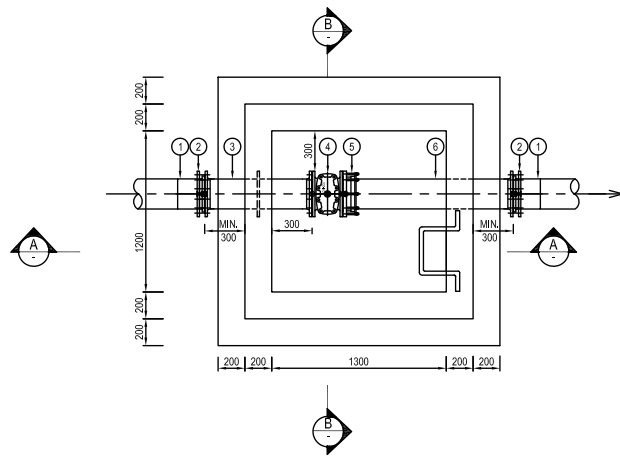
DETAILS OF LIFTING HOOK
SCALE 1:20



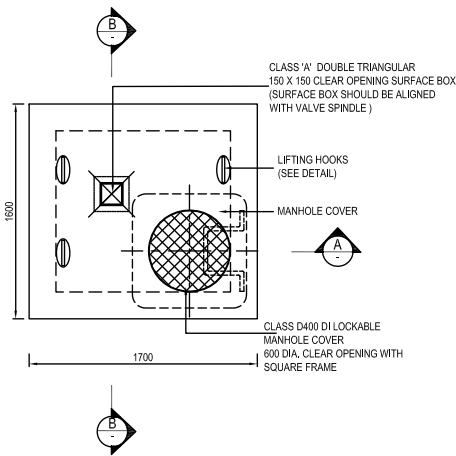
DETAILS OF MS RUNGS
SCALE 1:20



FOR PIPES OF OD 90 TO OD 140
SCALE 1:20



SECTIONAL PLAN - C
SCALE 1:20



PLAN (COVER SLAB)
SCALE 1:20

FOR HDPE PIPES OD 150 TO OD 280

SCHEDULE OF PIPES AND FITTINGS FOR HDPE PIPES OD 150 TO OD 250		
No.	DESCRIPTION	QTY.
1	STUB FLANGE	2
2	STEEL BACKING FLANGE	2
3	DI DOUBLE FLANGE PIPE WITH PUDDLE FLANGE 400mm AWAY FROM ONE END	1
4	DOUBLE FLANGE SOFT SEALING GATE VALVE WITH STEM CAP	1
5	FLANGE ADAPTOR	1
6	DI FLANGE & SPIGOT PIPE	1

NOTES:

- MANHOLE COVERS SHALL BE OF HINGED HEAVY-DUTY LOCKABLE TYPE (CLASS-D 400) WITH 600DIA. MINIMUM CLEAR OPENING.
- MANHOLE FRAME SHALL BE FIRMLY FIXED TO THE CHAMBER WITH 4 NOS. RAG BOLTS OR SIMILAR MANNER.
- SURFACE BOX SHOULD BE FIXED TO THE FRAME WITH A STEEL CHAIN.
- MARKER POST SHALL BE INSTALLED AT VERY VALVE LOCATION.

PRELIMINARY DRAWING
NOT FOR CONSTRUCTION

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project



JAPAN INTERNATIONAL COOPERATION AGENCY

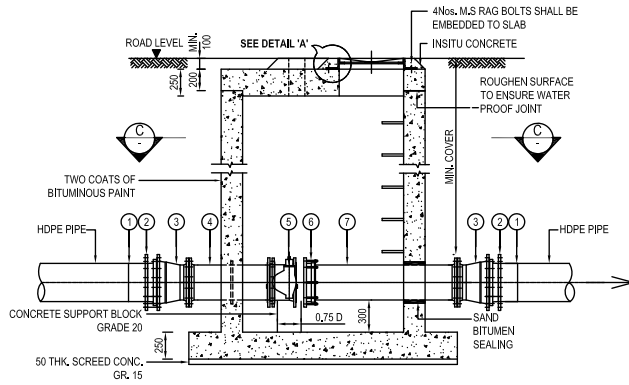
TITLE: STANDARD DRAWING - SECTION VALVE CHAMBER FOR OD 90 TO 280 HDPE PIPES

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

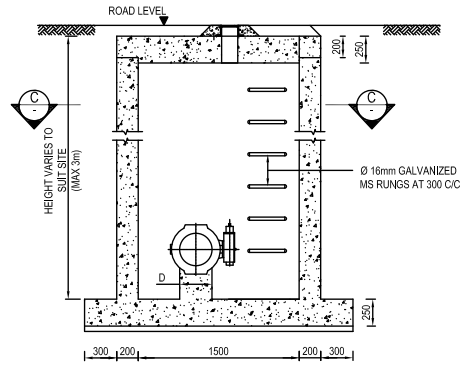


CONSULTANTS:
NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	DRAWING NO.:	
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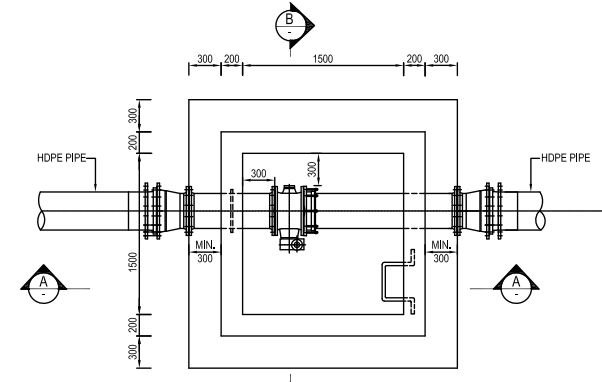
SECTION A
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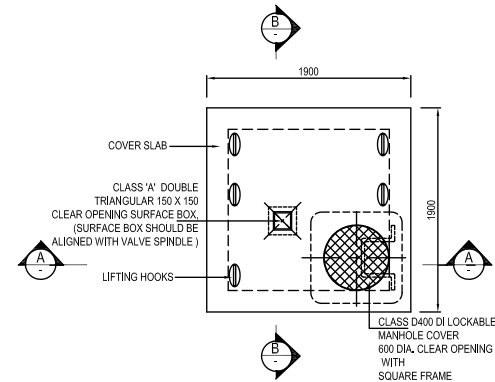
SECTION B
SCALE 1:25

SCHEDULE OF PIPES AND FITTINGS FOR SECTION VALVE ASSEMBLY

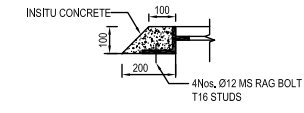
No.	DESCRIPTION	QTY.
1	STUB FLANGE	2
2	STEEL BACKING FLANGE	2
3	DI FLANGED TAPER FOR HDPE PIPE	2
4	DI DOUBLE FLANGE PIPE WITH PUDDLE FLANGE 400mm AWAY FROM ONE END	1
5	BUTTERFLY VALVE - KEY OPERATED	1
6	FLANGE ADAPTOR	1
7	DI FLANGED & SPIGOT PIPE WITH PUDDLE FLANGE 400mm AWAY FROM FLANGE END	1



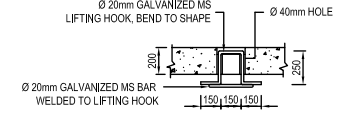
SECTIONAL PLAN - C
SCALE 1:25



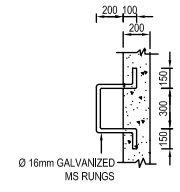
PLAN (COVER SLAB)
SCALE 1:25



FIXING DETAIL OF MANHOLE COVER DETAIL 'A'
SCALE 1:10



DETAILS OF LIFTING HOOK
SCALE 1:20



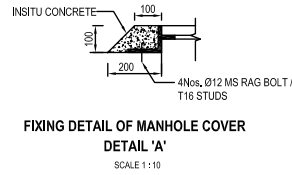
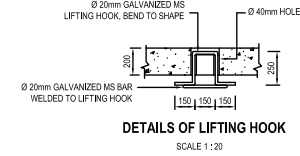
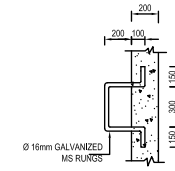
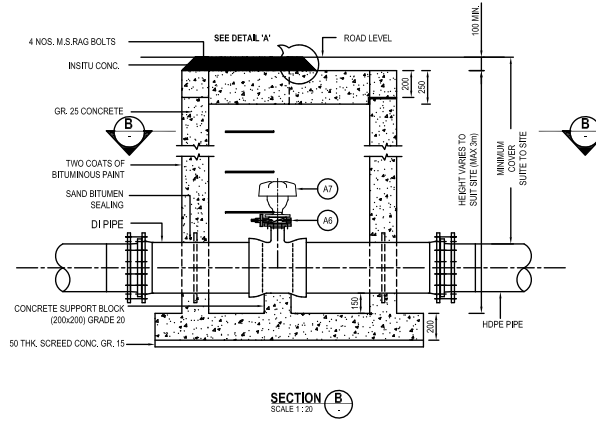
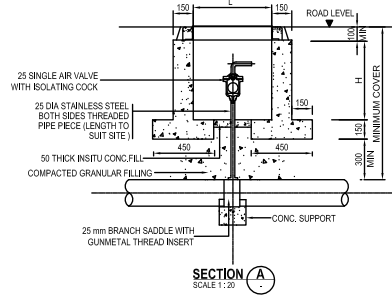
DETAILS OF MS RUNGS
SCALE 1:20

- NOTES:**
- MANHOLE COVERS SHALL BE OF HINGED HEAVY-DUTY LOCKABLE TYPE (CLASS-D 400) WITH 600DIA, MINIMUM CLEAR OPENING.
 - MANHOLE FRAME SHALL BE FIRMLY FIXED TO THE CHAMBER WITH 4 NOS. RAG BOLTS OR SIMILAR MANNER.
 - SURFACE BOX SHOULD BE FIXED TO THE FRAME WITH A STEEL CHAIN.
 - VALVE DIAMETER TO BE ADJUSTED TO INNER DIAMETER, (355 TO 500)
 - MARKER POST SHALL BE INSTALLED AT VERY VALVE LOCATION.

STANDARD DRAWING - SECTION VALVE CHAMBER FOR OD 355 TO 500 HDPE PIPE

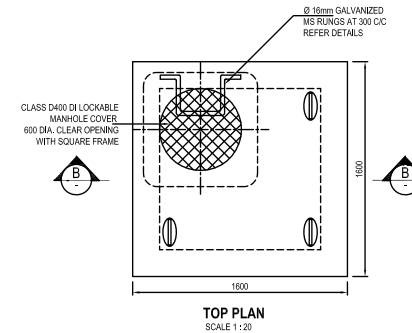
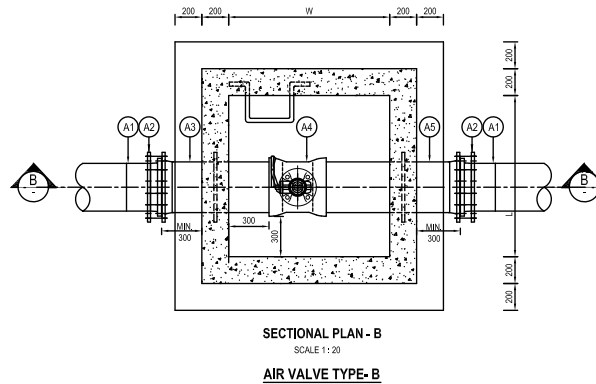
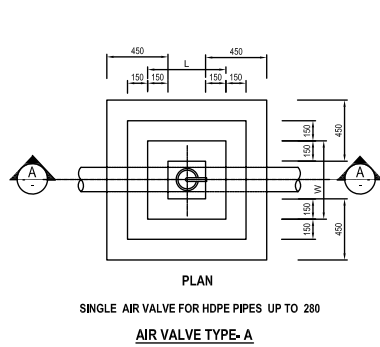
**PRELIMINARY DRAWING
NOT FOR CONSTRUCTION**

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project		JICA JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: STANDARD DRAWING - SECTION VALVE CHAMBER FOR OD 355 TO 500 HDPE PIPES								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	DRAWING NO.: MWT&D/STD/C/04_B	
								CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE: 18-09-2012	SCALE: AS SHOWN



SCHEDULE OF PIPES & FITTINGS FOR DOUBLE AIR VALVE ASSEMBLY		
No.	DESCRIPTION	QTY.
A1	STUB FLANGE	2
A2	BACKING FLANGE	2
A3	DI FLANGE & SPIGOT PIPE WITH PUDDLE FLANGE 400mm AWAY FROM FLANGE END	1
A4	SOCKET TEE WITH FLANGE BRANCH TEE (50 Ø / 80Ø)	1
A5	DI FLANGE & SPIGOT PIPE WITH PUDDLE FLANGE 400mm AWAY FROM FLANGE END	1
A6	DOUBLE FLANGE GATE VALVE WITH NOTCHED HAND LEVER	1
A7	DOUBLE ORIFICE AIR VALVE	1

* AIR VALVE AT TRANSMISSION MAIN AS STATED IN DRAWING.



- NOTES:
- MANHOLE COVER SHALL BE HINGED, HEAVY DUTY (CLASS D 400) VENTILATED TYPE WITH 600 DIA. MINIMUM CLEAR OPENING.
 - MANHOLE FRAME SHALL BE FIRMLY FIXED TO THE CHAMBER WITH 4 NOS. RAG BOLTS OR SIMILAR MANNER.
 - FOR PIPES IN COMMON TRENCH, AIR VALVE LOCATION TO BE STAGGERED TO ALLOW SPACE FOR THE VALVE CHAMBERS.
 - MARKER POST SHALL BE INSTALLED AT VERY VALVE LOCATION.

PRELIMINARY DRAWING
NOT FOR CONSTRUCTION

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project

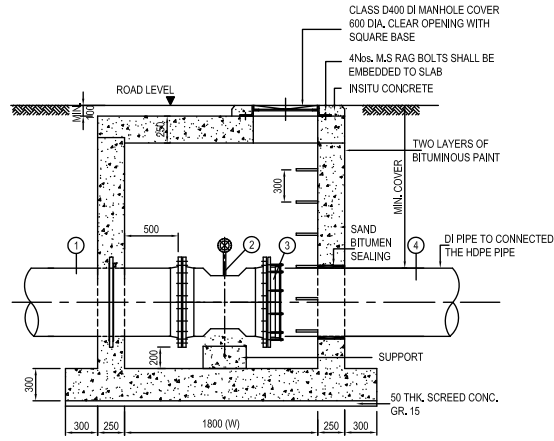
JICA
JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: STANDARD DRAWING - AIR VALVE AND CHAMBERS FOR HDPE PIPES

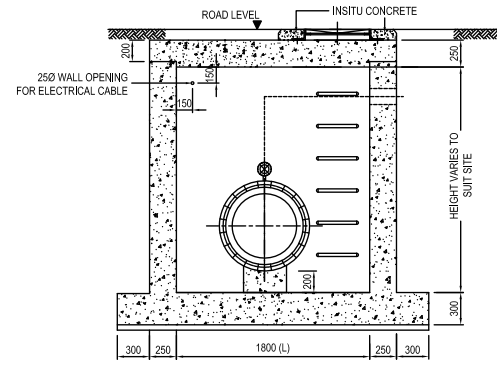
CLIENT:
NATIONAL WATER SUPPLY & DRAINAGE BOARD

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

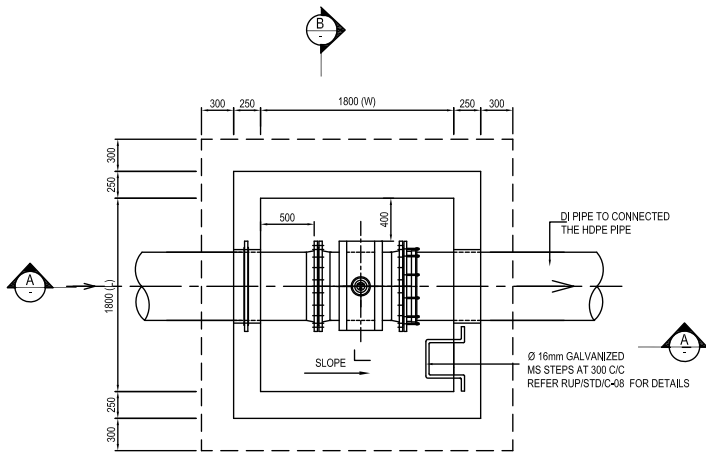
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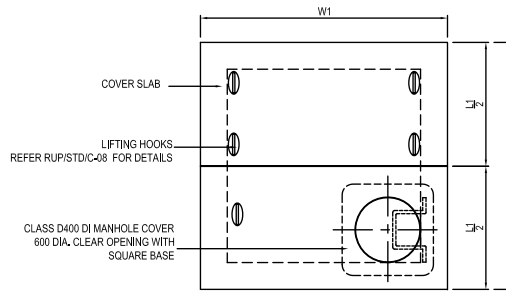
SECTION A
SCALE 1:50



SECTION B
SCALE 1:50



PLAN
SCALE 1:50



PLAN (COVER SLAB)
SCALE 1:50

NOTES:

1. MANHOLE COVERS SHALL BE OF HINGED HEAVY-DUTY (CLASS-D 400) WITH 600DIA. MINIMUM CLEAR OPENING.
2. MANHOLE FRAME SHALL BE FIRMLY FIXED TO THE CHAMBER WITH RAG BOLTS OR SIMILAR MANNER.
3. STRUCTURAL CONCRETE SHALL BE GRADE 25.
4. ALL INSITU CONCRETE SUPPORTS AND THRUST RESTRAINTS SHALL BE GRADE 20 UNLESS OTHERWISE STATED.
5. CHAMBER TOP LEVEL TO BE MATCHED WITH FINAL ROAD FORMATION LEVEL.
6. MARKER POST SHALL BE INSTALLED AT VERY VALVE LOCATION.

PRELIMINARY DRAWING
NOT FOR CONSTRUCTION

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project



JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: STANDARD DRAWING - FLOW METER CHAMBER FOR HDPE PIPES

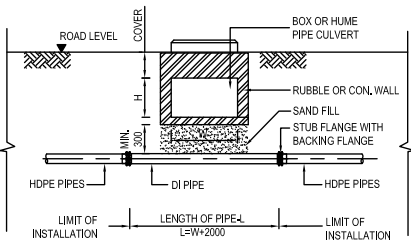
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD



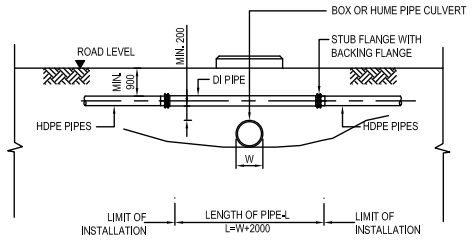
CONSULTANTS:
NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN



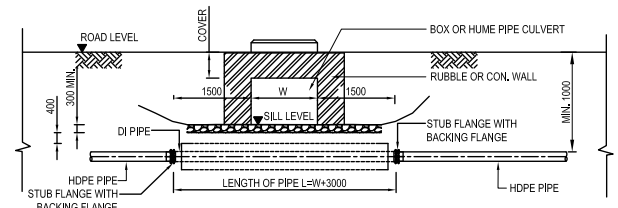
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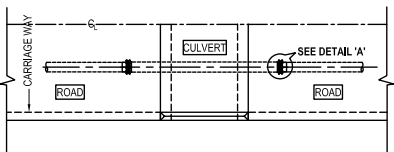
ELEVATION



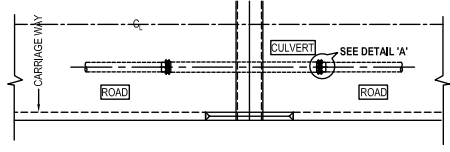
ELEVATION



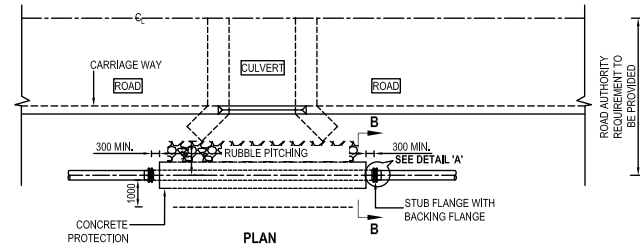
ELEVATION



PLAN
CULVERT CROSSING TYPE-A
INSIDE THE CARRIAGE WAY AND BELOW THE OPENING
SCALE 1: 100



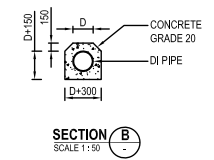
PLAN
CULVERT CROSSING TYPE-B
INSIDE THE CARRIAGE WAY AND ABOVE THE
CULVERT OPENING
SCALE 1: 100



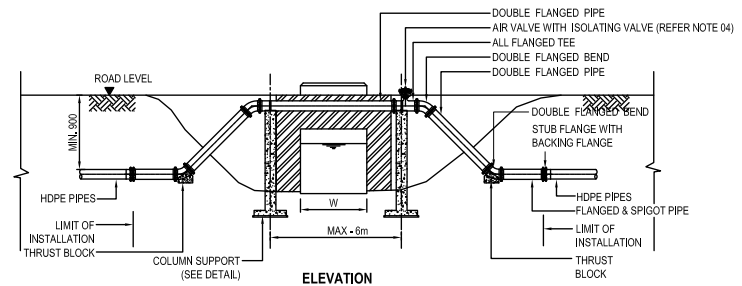
PLAN
CULVERT CROSSING TYPE-C
OUT SIDE CARRIAGE WAY AND BELOW THE OPENING
SCALE 1: 100

DETAIL OF PIPE SUPPORT						
PIPE (D Ø)	(A)	(C)	(R)	(S)	(B)	(t)
DN ≤ 300	225	200	150	50	1000	250
350 - 400	300	250	200	75	1200	350

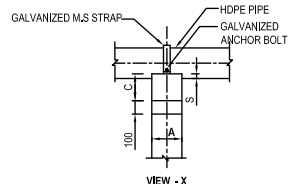
DETAILS OF STRAP					
PIPE SIZE (mm)	T (mm)	W (mm)	L (mm)	C (mm)	SIZE OF BOLT
80-150	6	40	50	30	M12
200-300	8	50	60	35	M16
350-400	8	65	65	40	M20



SECTION B
SCALE 1:50

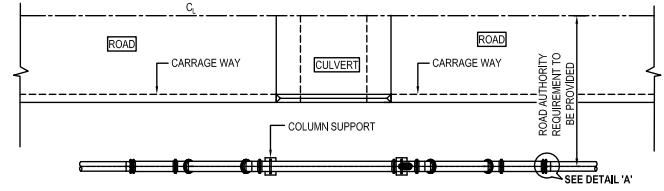


ELEVATION

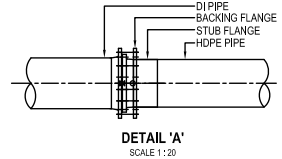


VIEW - X

VIEW - Y



PLAN
CULVERT CROSSING TYPE-D
SCALE 1:100

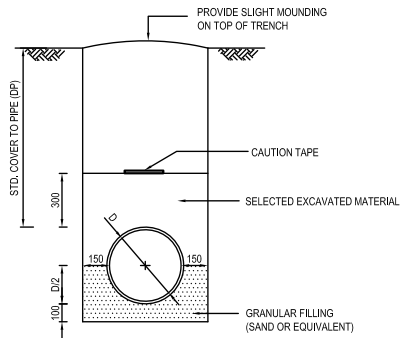


DETAIL 'A'
SCALE 1:20

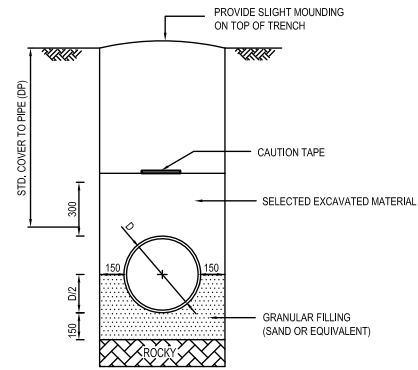
- NOTES
1. THE RUBBLE PITCHING TO BE PROVIDED ONLY WHEN W2 ≤ 1500
 2. NO OBSTRUCTION TO THE FLOW THROUGH THE CULVERT SHALL OCCUR DUE TO THE PIPE CROSSING.
 3. WHERE APPLICABLE, THE WASHOUT TEE, PROVIDE AT A MINIMUM DISTANCE OF 2x DIAMETER AWAY FROM THE COUPLING.
 4. SIZE OF THRUST BLOCK TO BE DECIDED BY THRUST CALCULATION.

PRELIMINARY DRAWING
NOT FOR CONSTRUCTION

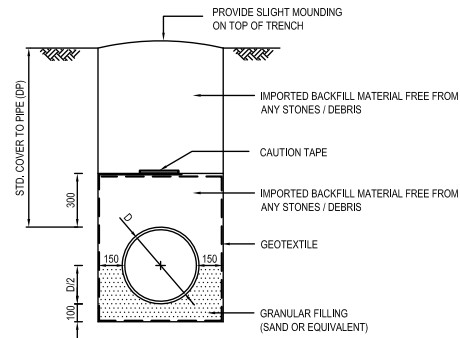
PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project		JICA JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: STANDARD DRAWING - CULVERT CROSSING FOR HDPE							
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD	CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN	REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	DRAWING NO.: MWT&D/STD/C/08		
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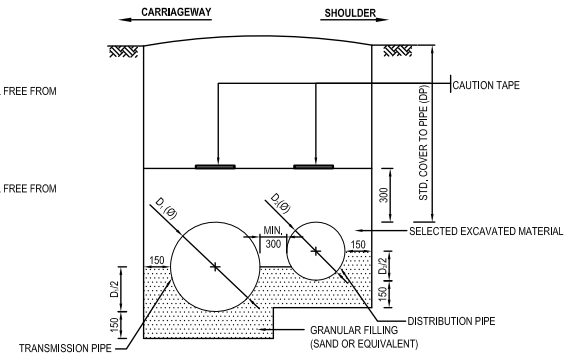
**BEDDING TYPE - A
FOR NORMAL GROUND**



**BEDDING TYPE - B
FOR ROCKY TRENCH BOTTOM**

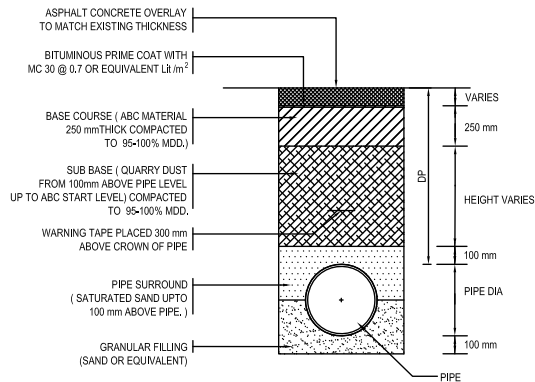


**BEDDING TYPE - C
FOR SOFT / MARSHY GROUND**

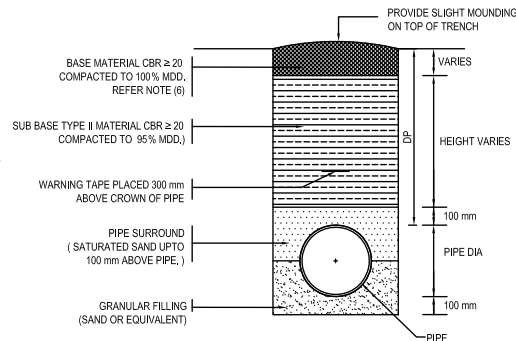


**TYPICAL SECTION FOR PIPES IN
COMMON TRENCH**

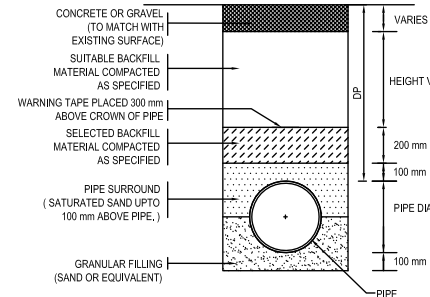
TYPES OF PIPE BEDDING



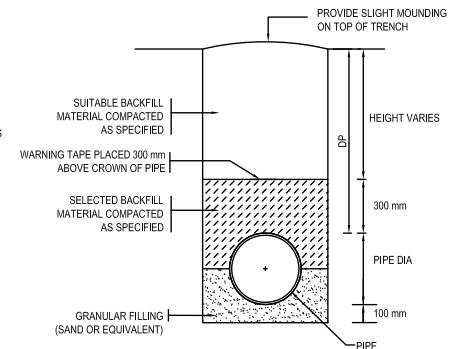
TYPE A - CARRIAGEWAY (RDA/PRDA ROADS)



TYPE B - ROAD SHOULDER (RDA/PRDA ROADS)



**TYPE C - CARRIAGEWAY
(LOCAL AUTHORITY / PS ROADS)**



**TYPE D - ROAD SHOULDER
(LOCAL AUTHORITY / PS ROADS)**

TYPES OF ROAD REINSTATEMENT

NOTES:

- CONSTRUCTION OF SUB BASE, BASE, SURFACE TREATMENT MATERIALS & COMPACTION SHALL BE SUBJECT TO SUPERVISION & APPROVAL OF ENGINEER OR RELEVANT AUTHORITY.

**PRELIMINARY DRAWING
NOT FOR CONSTRUCTION**

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project



JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE:

STANDARD DRAWING - PIPE BEDDING AND ROAD REINSTATEMENT

CLIENT:



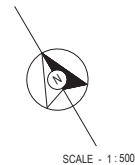
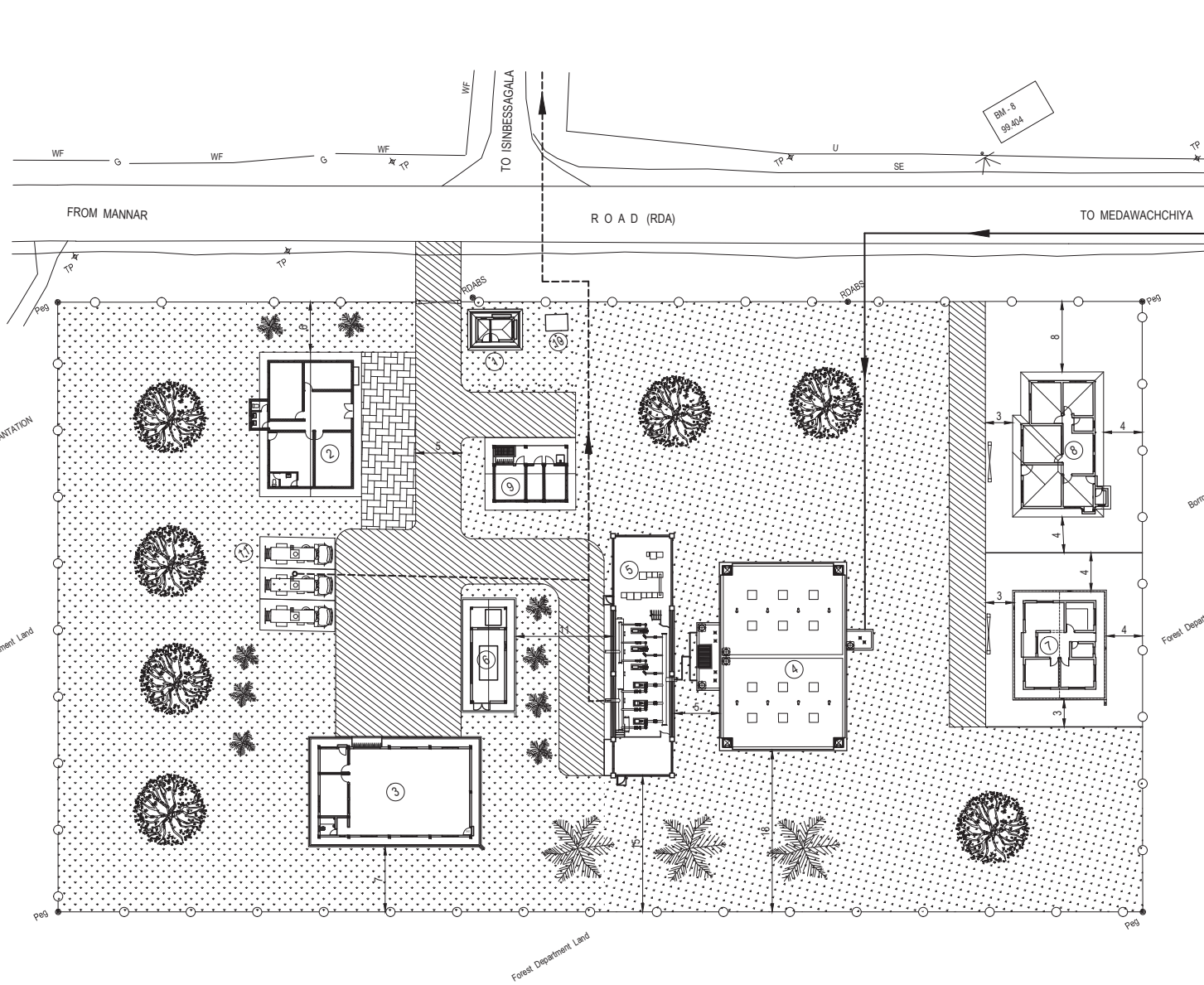
NATIONAL WATER SUPPLY & DRAINAGE BOARD

CONSULTANTS:



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

REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	DRAWING NO.:
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				CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE: 18-09-2012
							SCALE: AS SHOWN

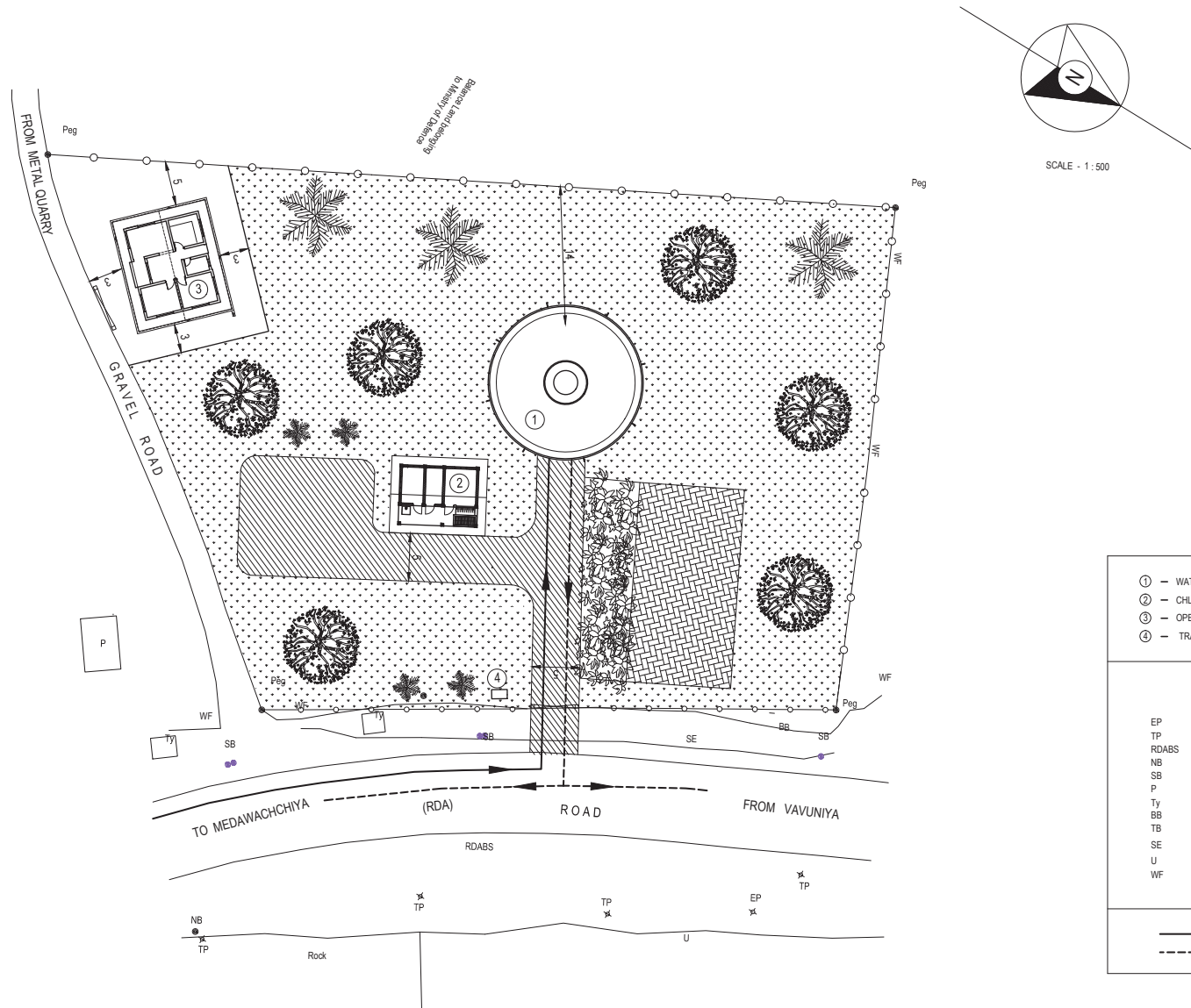


①	—	GUARD HOUSE
②	—	OIC OFFICE
③	—	WORKSHOP
④	—	GROUND RESERVOIR
⑤	—	PUMP HOUSE
⑥	—	GENERATOR ROOM
⑦	—	OPERATOR / CARE TAKER QUARTERS
⑧	—	STAFF'S QUARTERS
⑨	—	CHLORINATION HOUSE
⑩	—	TRANSFORMER ROOM
⑪	—	BOWSER POINT

REFERENCE	
TP	..... Telephone Post
RDABS	..... RDA Boundary Stone
G	..... Gate
LF	..... Live Fence
U	..... Undefined
SE	..... Shoulder Edge
WF	..... Wire Fence

—	INLET PIPE LINE
- - - -	OUTLET PIPE LINE

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project		JICA JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: MEDAWACHCHIYA SUMP SITE LAYOUT								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	DRAWING NO.: MT&D/GL/G/1.2PS	
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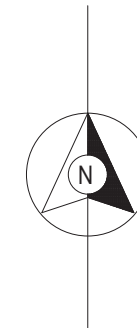
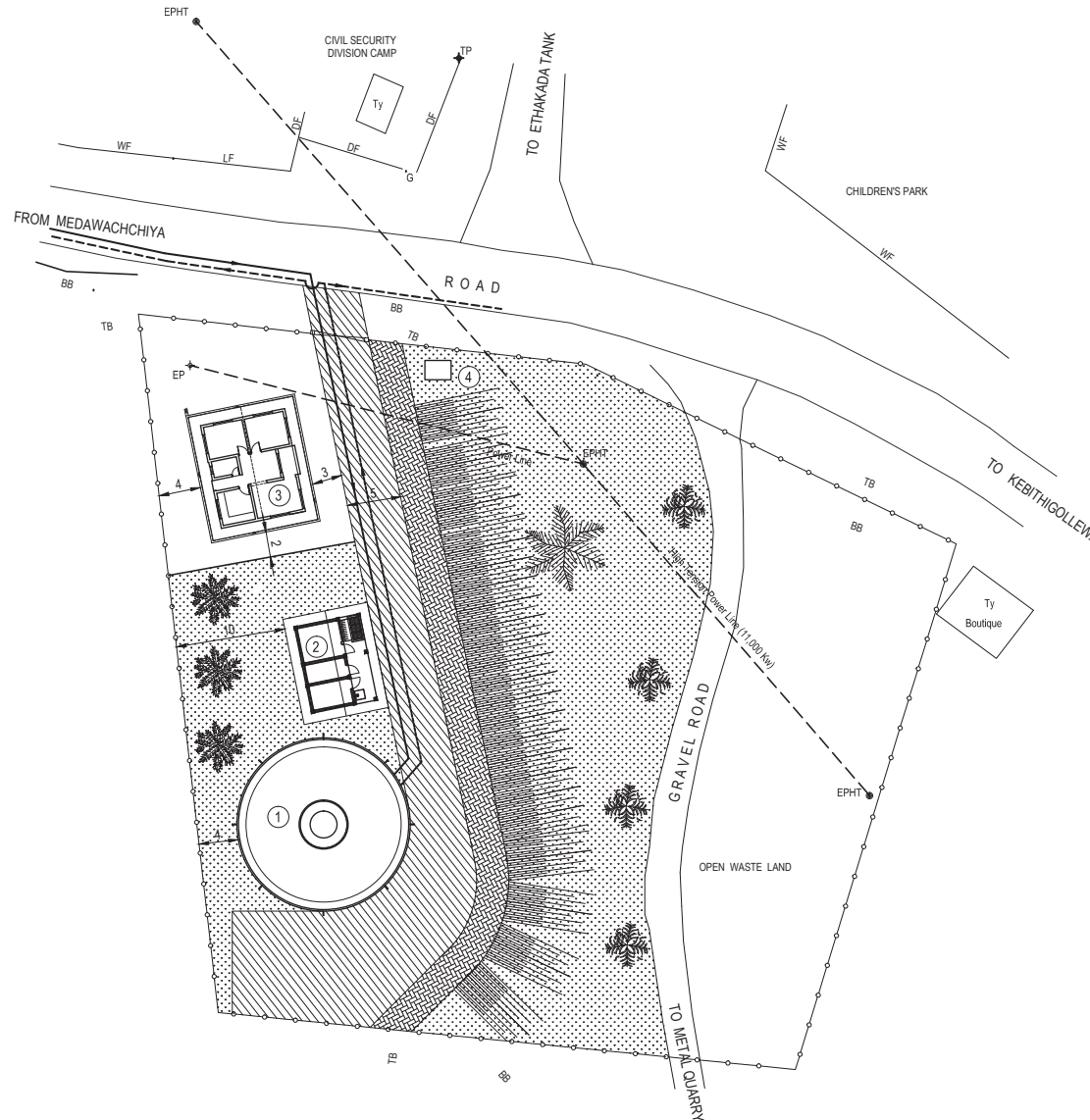


①	— WATER TOWER
②	— CHLORINATION HOUSE
③	— OPERATOR / CARE TAKER QUARTERS
④	— TRANSFORMER ROOM

REFERENCE	
EP	..... Electric Post
TP	..... Telephone Post
RDABS	..... RDA Boundary Stone
NB	..... Name Board
SB	..... Sign Board
P	..... Permanent Building
Ty	..... Temporary Building
BB	..... Bank Bottom
TB	..... Bank Top
SE	..... Shoulder Edge
U	..... Undefined
WF	..... Wire Fence

— — — — —	INLET PIPE LINE
- - - - -	OUTLET PIPE LINE

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project		CONSULTANTS: JICA JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: ISSINBESSAGALA TOWER SITE LAYOUT								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	DRAWING NO.: WT&D/GL/G/1.2ET	
								CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE: 26-09-2012	SCALE: AS SHOWN



SCALE - 1 : 500
 CONTOUR INTERVAL 0.25m.

- ① - WATER TOWER
- ② - CHLORINATION HOUSE
- ③ - OPERATOR / CARE TAKER QUARTERS
- ④ - TRANSFORMER ROOM

REFERENCE

- EP Electric Post
- EPHT High Tension Power Pole
- G Gate
- Ty Temporary Building
- BB Bank Bottom
- DF Dry Fence
- LF Live Fence
- TB Bank Top
- U Undefined
- WF Wire Fence

- INLET PIPE LINE
- - - - - OUTLET PIPE LINE

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project



JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: ETHAKADA TOWER SITE LAYOUT

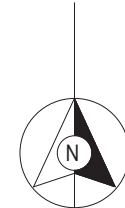
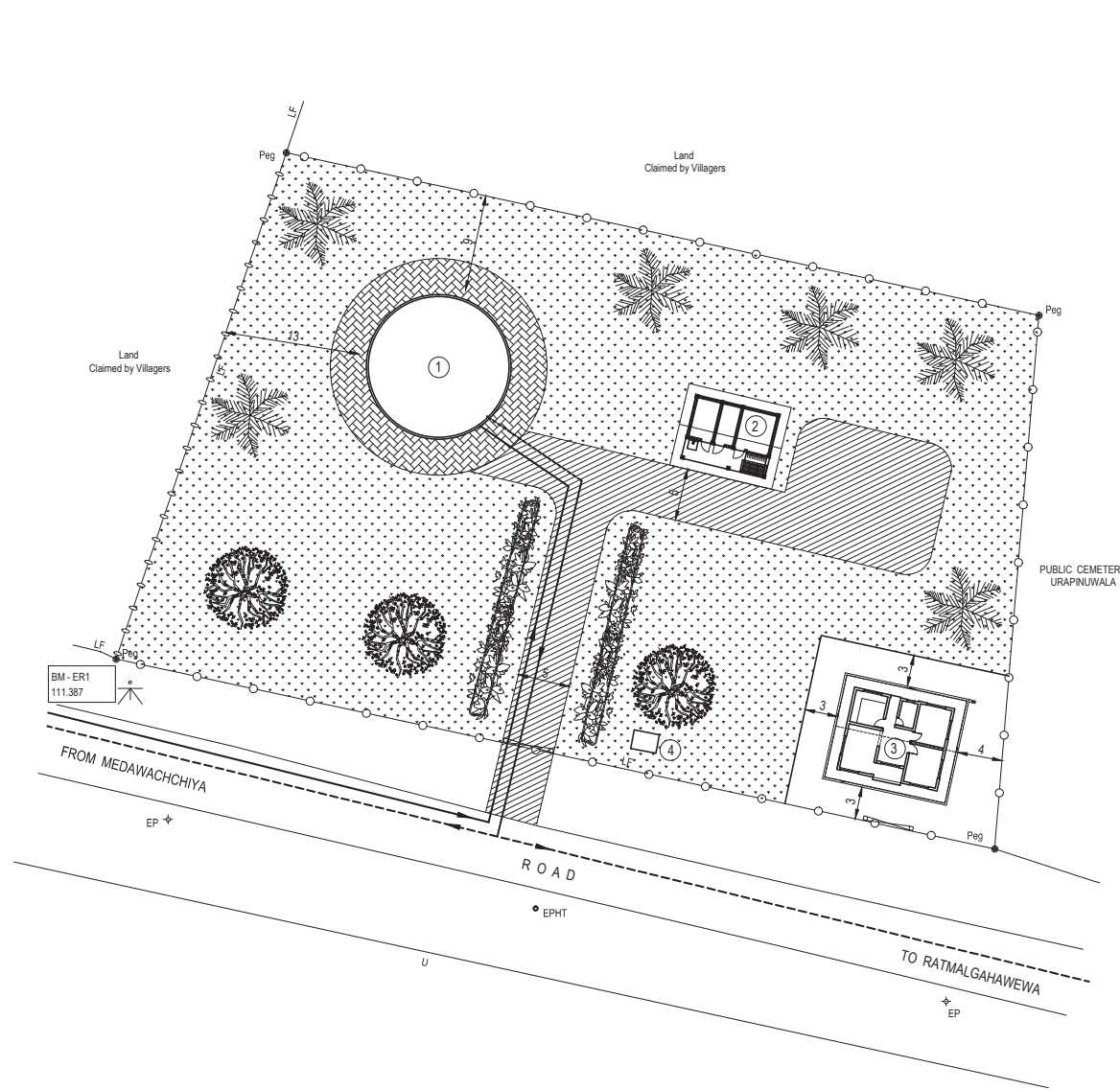
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD



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



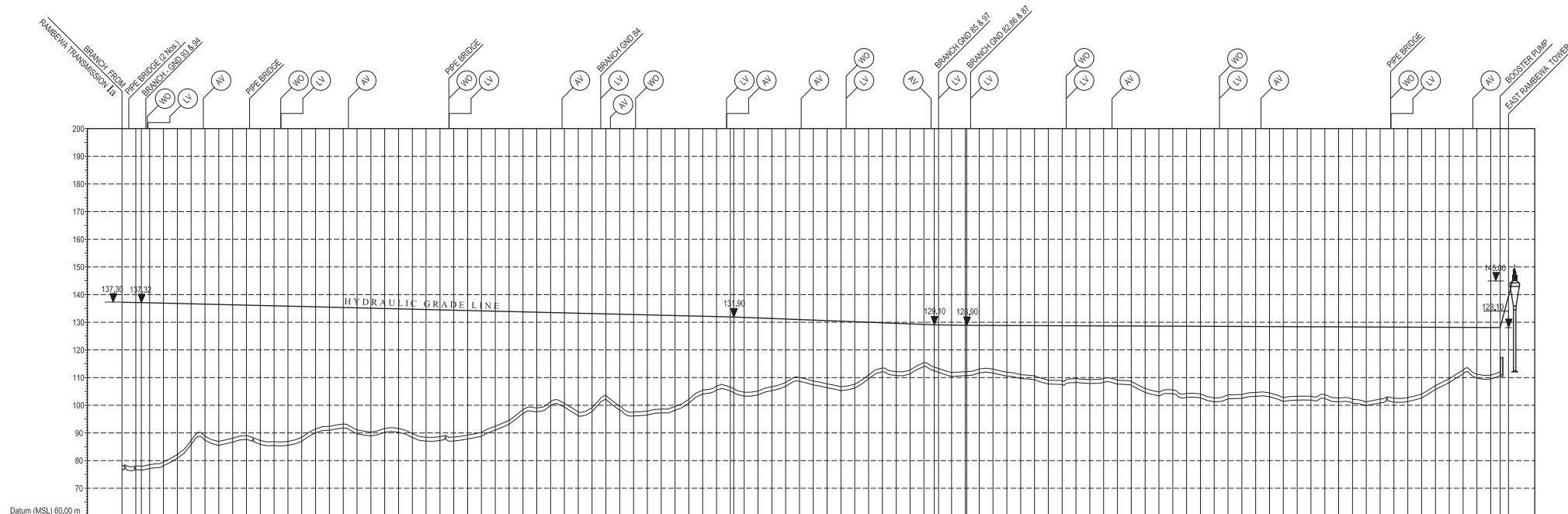
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							SCALE: AS SHOWN



SCALE - 1 : 500

①	—	WATER TOWER
②	—	CHLORINATION HOUSE
③	—	OPERATOR / CARE TAKER QUARTERS
④	—	TRANSFORMER ROOM
REFERENCE		
AB	....	Abandoned
EP	....	Electric Post
BS	....	Boundary Stone
LF	....	Live Fence
W	....	Wall
WLF	....	Wire Live Fence
WF	....	Wire Fence
木	....	Benchmark
INLET PIPE LINE OUTLET PIPE LINE		

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project		JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: EAST RAMBEWA TOWER SITE LAYOUT								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	DRAWING NO.: WT&D/GL/G/1.4ET	
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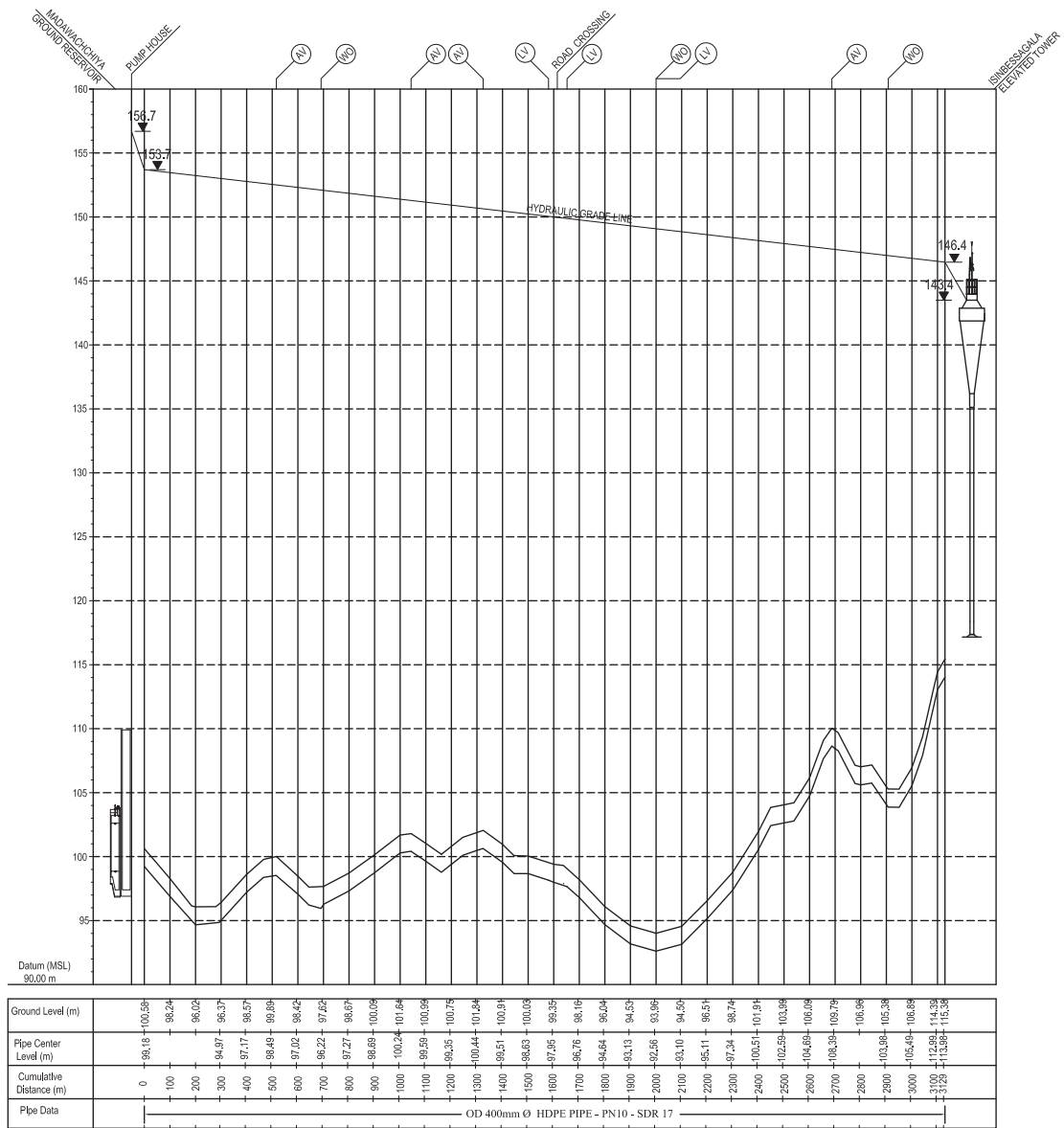


Cumulative Distance (m)	Ground Level (m)	Pipe Centre Level (m)	Pipe Data
0	76.96	76.38	OD 180mm Ø HDPE PIPE - PN10 - SDR 17
200	76.88	76.08	
400	77.13	76.55	OD 225mm Ø HDPE PIPE - PN10 - SDR 17
600	78.15	76.95	
800	80.78	82.18	OD 180mm Ø HDPE PIPE - PN10 - SDR 17
1000	85.78	87.18	
1200	87.97	88.77	OD 225mm Ø HDPE PIPE - PN10 - SDR 17
1400	85.52	86.52	
1600	86.08	86.08	OD 180mm Ø HDPE PIPE - PN10 - SDR 17
1800	87.89	89.09	
2000	85.82	87.22	OD 225mm Ø HDPE PIPE - PN10 - SDR 17
2200	85.42	86.82	
2400	85.50	86.90	OD 180mm Ø HDPE PIPE - PN10 - SDR 17
2600	87.01	88.41	
2800	90.06	91.46	OD 225mm Ø HDPE PIPE - PN10 - SDR 17
3000	92.37	92.37	
3200	91.84	92.24	OD 180mm Ø HDPE PIPE - PN10 - SDR 17
3400	89.63	91.03	
3600	88.92	90.38	OD 225mm Ø HDPE PIPE - PN10 - SDR 17
3800	90.24	91.64	
4000	90.20	91.60	OD 180mm Ø HDPE PIPE - PN10 - SDR 17
4200	88.35	89.75	
4400	87.00	88.40	OD 225mm Ø HDPE PIPE - PN10 - SDR 17
4600	87.22	88.62	
4800	87.06	88.46	OD 180mm Ø HDPE PIPE - PN10 - SDR 17
5000	87.79	89.19	
5200	88.80	90.20	OD 225mm Ø HDPE PIPE - PN10 - SDR 17
5400	91.03	92.43	
5600	93.14	94.54	OD 180mm Ø HDPE PIPE - PN10 - SDR 17
5800	97.05	98.45	
6000	97.62	99.02	OD 225mm Ø HDPE PIPE - PN10 - SDR 17
6200	97.85	99.25	
6400	99.32	100.72	OD 180mm Ø HDPE PIPE - PN10 - SDR 17
6600	98.55	97.65	
6800	97.71	96.11	OD 225mm Ø HDPE PIPE - PN10 - SDR 17
7000	102.08	103.48	
7200	98.18	99.98	OD 180mm Ø HDPE PIPE - PN10 - SDR 17
7400	96.13	97.53	
7600	96.47	97.87	OD 225mm Ø HDPE PIPE - PN10 - SDR 17
7800	97.23	98.63	
8000	98.18	99.58	OD 180mm Ø HDPE PIPE - PN10 - SDR 17
8200	100.76	102.16	
8400	104.07	105.47	OD 225mm Ø HDPE PIPE - PN10 - SDR 17
8600	105.49	106.89	
8800	105.21	106.61	OD 180mm Ø HDPE PIPE - PN10 - SDR 17
9000	103.29	104.69	
9200	103.71	105.11	OD 225mm Ø HDPE PIPE - PN10 - SDR 17
9400	105.31	106.71	
9600	106.83	108.23	OD 180mm Ø HDPE PIPE - PN10 - SDR 17
9800	108.64	110.04	
10000	107.33	108.73	OD 225mm Ø HDPE PIPE - PN10 - SDR 17
10200	108.32	107.72	
10400	105.28	106.68	OD 180mm Ø HDPE PIPE - PN10 - SDR 17
10600	106.17	107.57	
10800	108.54	110.84	OD 225mm Ø HDPE PIPE - PN10 - SDR 17
11000	112.07	113.47	
11200	110.74	112.14	OD 180mm Ø HDPE PIPE - PN10 - SDR 17
11400	111.34	112.74	
11600	113.98	115.38	OD 225mm Ø HDPE PIPE - PN10 - SDR 17
11800	111.98	113.38	
12000	110.40	111.80	OD 180mm Ø HDPE PIPE - PN10 - SDR 17
12200	110.69	112.09	
12400	111.72	113.12	OD 225mm Ø HDPE PIPE - PN10 - SDR 17
12600	111.69	113.06	
12800	110.53	111.93	OD 180mm Ø HDPE PIPE - PN10 - SDR 17
13000	106.64	111.04	
13200	109.23	110.63	OD 225mm Ø HDPE PIPE - PN10 - SDR 17
13400	107.69	109.09	
13600	107.50	108.90	OD 180mm Ø HDPE PIPE - PN10 - SDR 17
13800	108.20	109.60	
14000	107.67	108.27	OD 225mm Ø HDPE PIPE - PN10 - SDR 17
14200	108.29	108.89	
14400	107.69	108.06	OD 180mm Ø HDPE PIPE - PN10 - SDR 17
14600	107.19	108.59	
14800	104.65	106.05	OD 225mm Ø HDPE PIPE - PN10 - SDR 17
15000	103.38	104.78	
15200	104.20	105.60	OD 180mm Ø HDPE PIPE - PN10 - SDR 17
15400	102.86	104.26	
15600	102.70	104.10	OD 225mm Ø HDPE PIPE - PN10 - SDR 17
15800	101.25	102.65	
16000	102.94	103.74	OD 180mm Ø HDPE PIPE - PN10 - SDR 17
16200	102.51	103.91	
16400	103.23	104.63	OD 225mm Ø HDPE PIPE - PN10 - SDR 17
16600	103.07	104.47	
16800	101.38	102.78	OD 180mm Ø HDPE PIPE - PN10 - SDR 17
17000	101.86	103.26	
17200	101.86	103.26	OD 225mm Ø HDPE PIPE - PN10 - SDR 17
17400	102.46	103.86	
17600	101.22	103.22	OD 180mm Ø HDPE PIPE - PN10 - SDR 17
17800	100.74	102.74	
18000	99.88	101.28	OD 225mm Ø HDPE PIPE - PN10 - SDR 17
18200	100.85	102.25	
18400	101.14	102.54	OD 180mm Ø HDPE PIPE - PN10 - SDR 17
18600	101.36	102.76	
18800	102.64	104.04	OD 225mm Ø HDPE PIPE - PN10 - SDR 17
19000	105.71	107.11	
19200	108.18	109.58	OD 180mm Ø HDPE PIPE - PN10 - SDR 17
19400	111.37	112.87	
19600	108.79	111.49	OD 225mm Ø HDPE PIPE - PN10 - SDR 17
19800	105.69	111.69	
19800	110.73	112.13	OD 180mm Ø HDPE PIPE - PN10 - SDR 17

- LEGEND :
- AV - Air valve
 - LV - Line valve
 - WO - Wash-out

NOTE • 01.PEPE DATA IS SHOWN IN OUTER DIAMETER.
 02.HYDRAULIC GRADE LINE IS BASED ON THE HYDRAULIC ESTIMATE IN 2034.

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project	JAPAN INTERNATIONAL COOPERATION AGENCY	TITLE: TRANSMISSION PROFILE SECTION MAH - 3 (1a - 1.4ET)																																	
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD	CONSULTANTS : NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>REV.</th> <th>DESCRIPTION</th> <th>DATE</th> <th>SIGN.</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	REV.	DESCRIPTION	DATE	SIGN.																	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>DESIGNED:</td> <td>DRAWN:</td> <td>PM: (CONSULTANT)</td> <td>DRAWING NO.: MT&D/PIP/C/03</td> </tr> <tr> <td>CHECKED:</td> <td>AGM: (P&D)</td> <td>DGM: (P&D)</td> <td>DATE: 26-09-2012</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td>SCALE: NTS</td> </tr> </table>	DESIGNED:	DRAWN:	PM: (CONSULTANT)	DRAWING NO.: MT&D/PIP/C/03	CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE: 26-09-2012				SCALE: NTS
REV.	DESCRIPTION	DATE	SIGN.																																
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CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE: 26-09-2012																																
			SCALE: NTS																																



LEGEND :
 AV - Air valve
 LV - Line valve
 WO - Wash-out

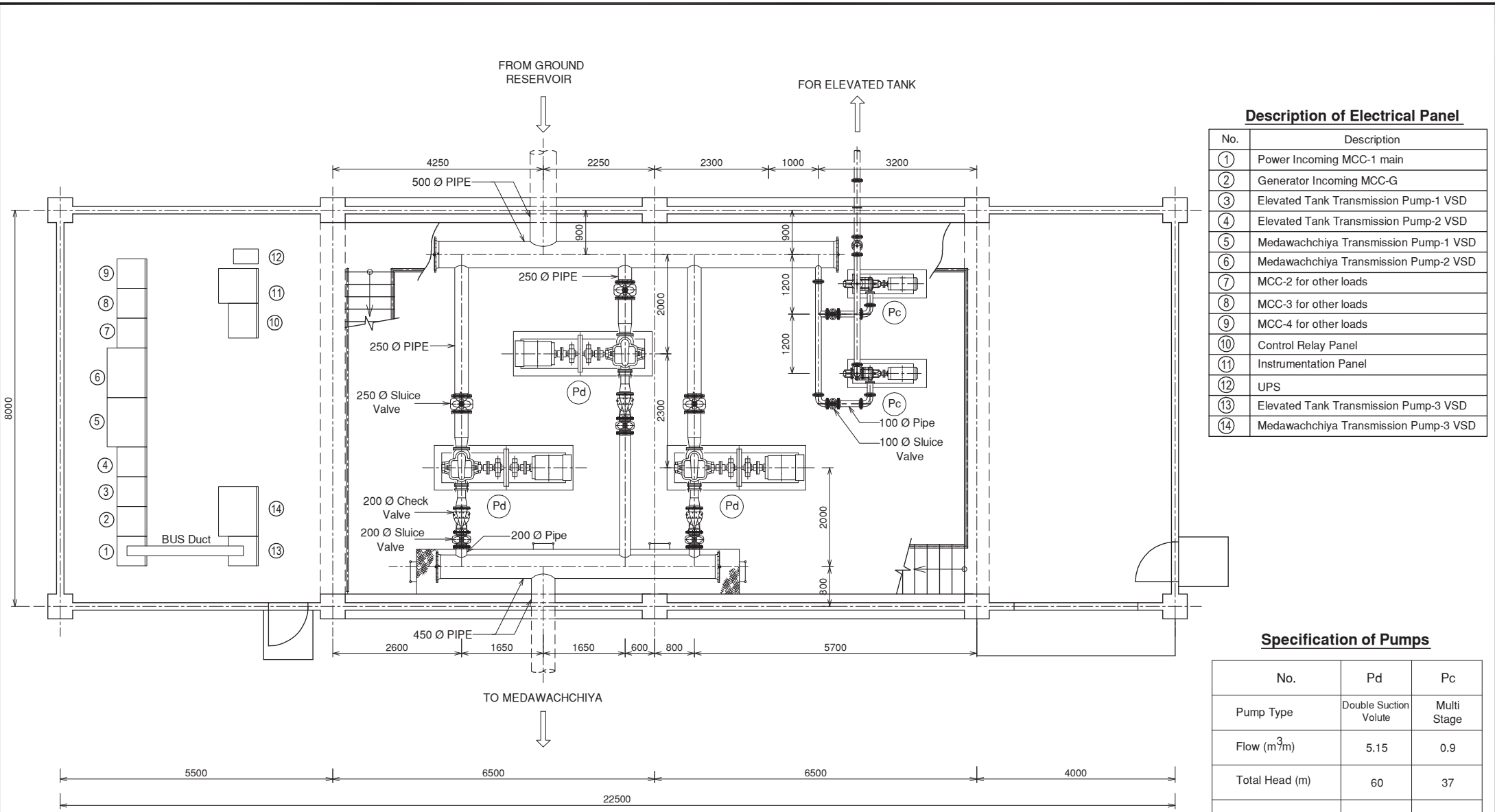
NOTE > 01.PPIPE DATA IS SHOWN IN OUTER DIAMETER.
 02.HYDRAULIC GRADE LINE IS BASED ON THE HYDRAULIC ESTIMATE IN 2034.

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

CONSULTANTS :
 JICA JAPAN INTERNATIONAL COOPERATION AGENCY
 NJS CONSULTANTS CO., LTD. - JAPAN
 NISC NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

TITLE: TRANSMISSION PROFILE SECTION MAH - 4 (I.2PS - I.2ET)		DESIGNED:	DRAWN:	PM: (CONSULTANT)	DRAWING NO.: MT&D/PIP/C/04
REV.	DESCRIPTION	DATE	SIGN.	CHECKED:	AGM: (P&D)
					DGM: (P&D)
					DATE: 26-09-2012
					SCALE: AS SHOWN



Description of Electrical Panel

No.	Description
①	Power Incoming MCC-1 main
②	Generator Incoming MCC-G
③	Elevated Tank Transmission Pump-1 VSD
④	Elevated Tank Transmission Pump-2 VSD
⑤	Medawachchiya Transmission Pump-1 VSD
⑥	Medawachchiya Transmission Pump-2 VSD
⑦	MCC-2 for other loads
⑧	MCC-3 for other loads
⑨	MCC-4 for other loads
⑩	Control Relay Panel
⑪	Instrumentation Panel
⑫	UPS
⑬	Elevated Tank Transmission Pump-3 VSD
⑭	Medawachchiya Transmission Pump-3 VSD

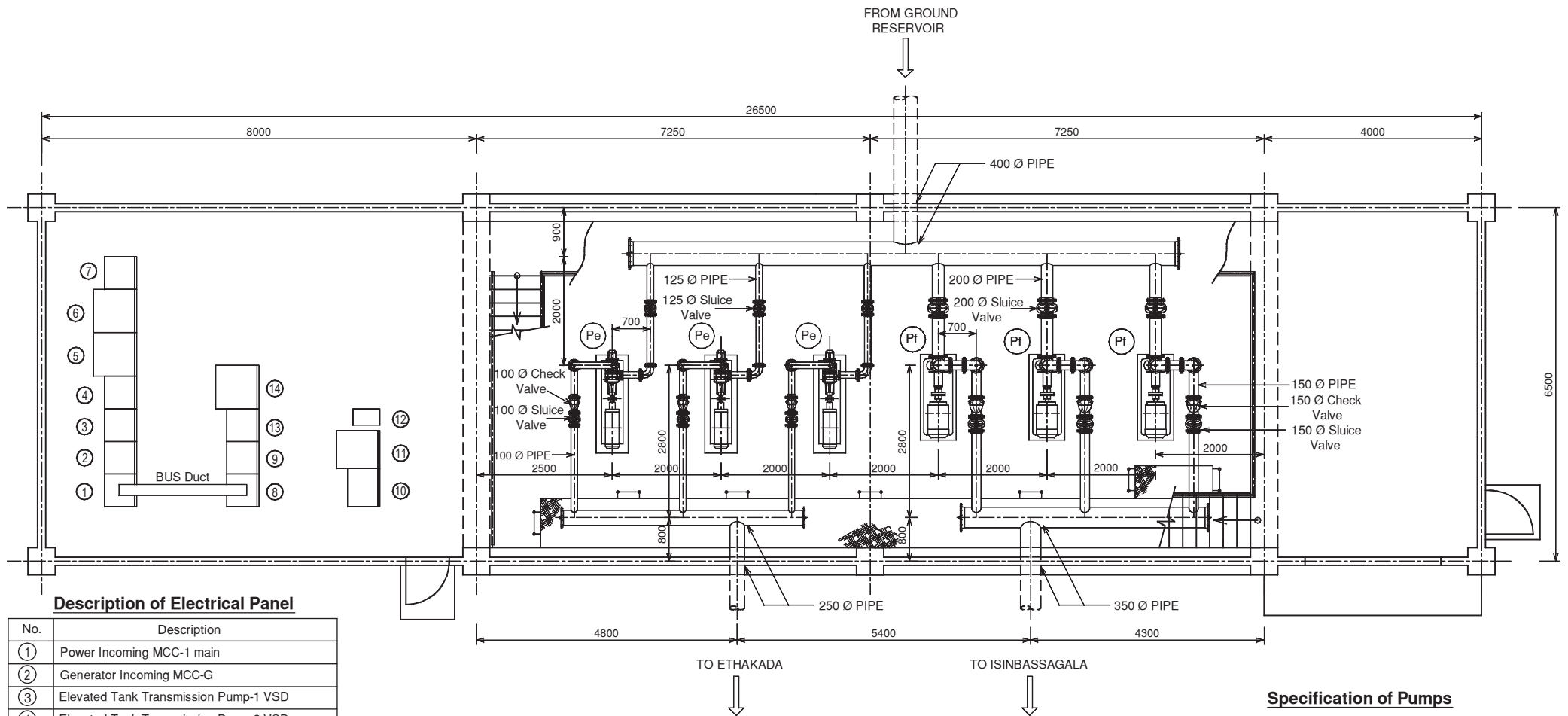
Specification of Pumps

No.	Pd	Pc
Pump Type	Double Suction Volute	Multi Stage
Flow (m ³ /m)	5.15	0.9
Total Head (m)	60	37
Motor kW (kW)	90	11

NOTE:-
All Dimensions Are in Millimeters

PLAN
Scale:- 1:75

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project	JAPAN INTERNATIONAL COOPERATION AGENCY	TITLE: RAMBEWA PUMP STATION							
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD	CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN	REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	DRAWING NO.:
						THARAKA	AGM: (P&D)	DGM: (P&D)	MT&D/PHM/01
						CHECKED:			DATE: 03/09/2012
									SCALE: As Given



Description of Electrical Panel

No.	Description
①	Power Incoming MCC-1 main
②	Generator Incoming MCC-G
③	Elevated Tank Transmission Pump-1 VSD
④	Elevated Tank Transmission Pump-2 VSD
⑤	Etakada Transmission Pump-1 VSD
⑥	Etakada Transmission Pump-2 VSD
⑦	MCC-2 for other loads
⑧	MCC-3 for other loads
⑨	MCC-4 for other loads
⑩	Control Relay Panel
⑪	Instrumentation Panel
⑫	UPS
⑬	Elevated Tank Transmission Pump-3 VSD
⑭	Etakada Transmission Pump-3 VSD

Specification of Pumps

No.	Pe	Pf
Pump Type	Multi Stage	End Suction
Flow (m ³ /m)	1.11	2.64
Total Head (m)	91	48
Motor kW (kW)	30	37

NOTE:-

All Dimensions Are in Millimeters

PLAN

Scale:- 1:75

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project



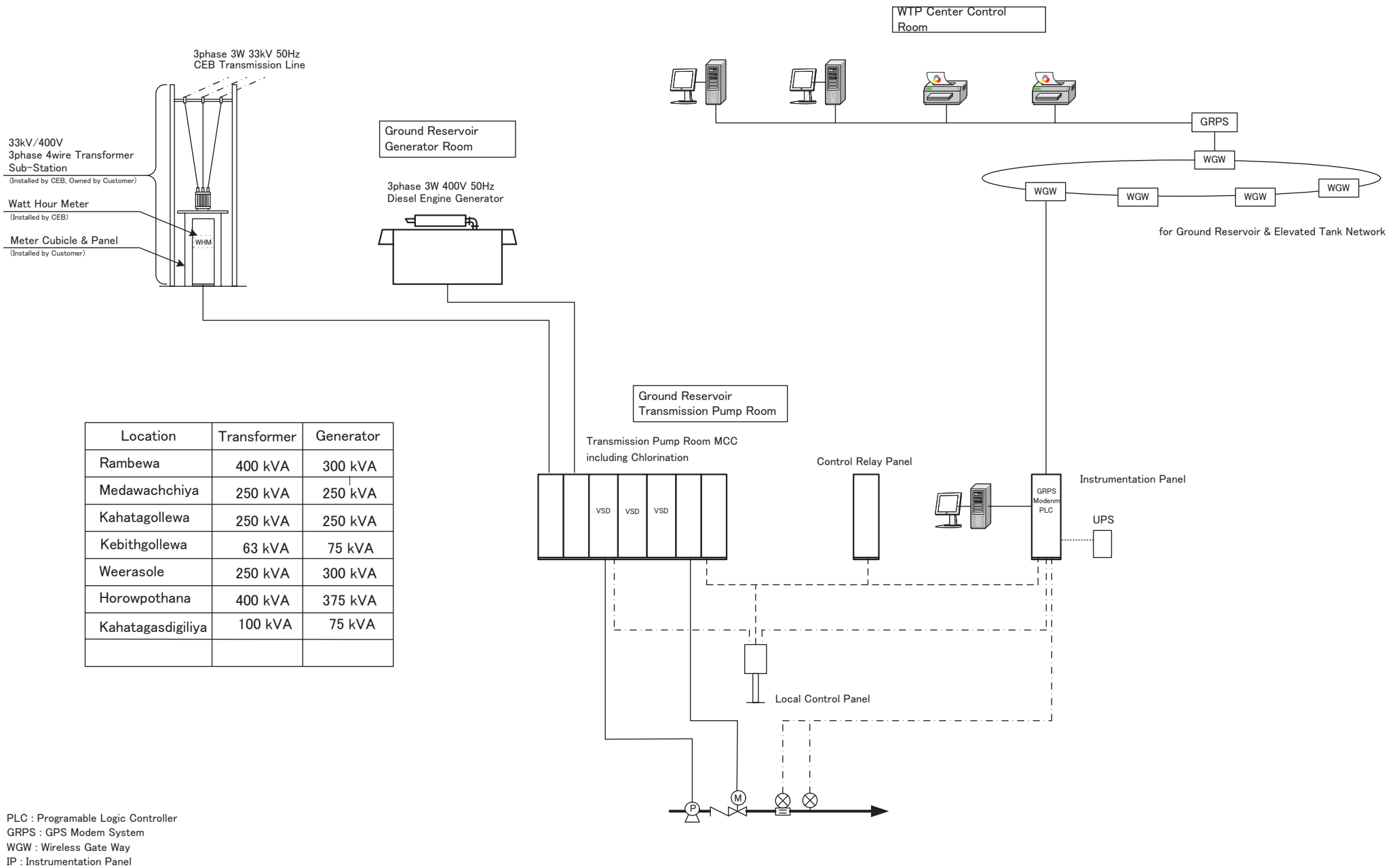
JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: MEDAWACHCHIYA PUMP STATION

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

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

REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	DRAWING NO.:
					THARAKA		MT&D/PH/M/02
				CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE: 03/09/2012
							SCALE: As Given

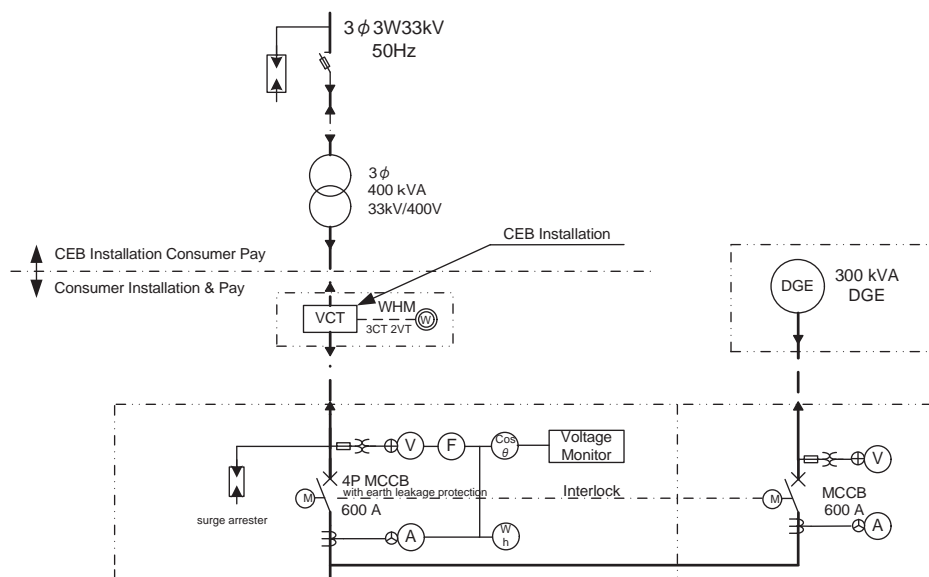


Location	Transformer	Generator
Rambewa	400 kVA	300 kVA
Medawachchiya	250 kVA	250 kVA
Kahatagollewa	250 kVA	250 kVA
Kebithgollewa	63 kVA	75 kVA
Weerasole	250 kVA	300 kVA
Horowpothana	400 kVA	375 kVA
Kahatagasdigiya	100 kVA	75 kVA

PLC : Programmable Logic Controller
 GRPS : GPS Modem System
 WGW : Wireless Gate Way
 IP : Instrumentation Panel

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project		JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: TYPICAL GROUND RESERVOIR SYSTEM CONFIGURATION DIAGRAM								
NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: Akiyama	DRAWN: Akiyama	PM: (CONSULTANT) Miwa	DRAWING NO.: MWT&D/STD/E/01	
								CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE: 15/09/2012	SCALE: NON

From CEB Transmission Line



Load	Rambewa ET Transmission Pump	Discharge Valve for Rambewa	Medawachchiya ET Transmission Pump	Discharge Valve for Medawachchiya	Chlorination Booster Pump	Exhaust Fan	Ventilation	Lighting	For GGE				For Control
Output (kW)	22	0.4	90	0.4	5.5	0.25	0.2	2	1				3
Starting Method	SS	R	VSD	R	NR	NR	NR	F	F				F
MCCB (AF)	50	50	225	50	50	50	50	50	50				50
Earth Fault Protection	Install	Install	Install	Install	Install	Install	Install						
Ammeter	Install		Install		Install		Install						
Run Hour Meter	Install		Install		Install		Install						
Capacitor (kVar)													
Qty	1st Stage	2	2	2	2	2	2	1	1				1
	Final	3	3	3	3	2	2	2	1	1			1

Legend

NR	Direct On Line Starter
R	Reversible Starter
VSD	Variable Speed Driver
SS	Soft Starter
RSD	Closed Transition Star Delta Starter
F	MCCB Feeder

Voltage monitor shall be provided with the following features and interlocked with all motor starters.

1. Phase failure protection
2. Supply voltage imbalance (adjustable)
3. Under and over voltage (adjustable)
4. Phase revers

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project



JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE:

RAMBEWA GROUND RESERVOIR SINGLE LINE DIAGRAM

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD



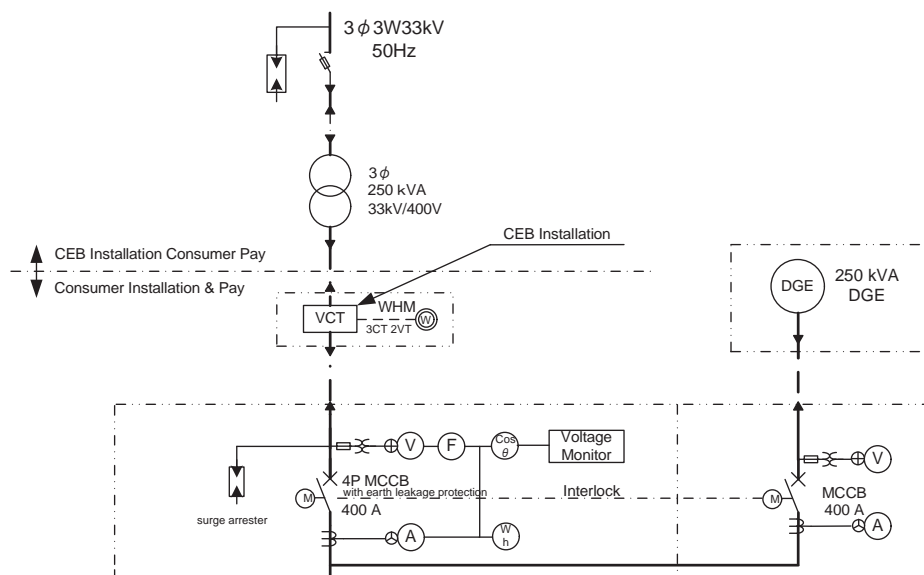
CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN



REV.	DESCRIPTION	DATE	SIGN.

DESIGNED: AKIYAMA	DRAWN: AKIYAMA	PM: (CONSULTANT) MIWA	DRAWING NO.: MT&D/GR/E/01
CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE: 15/09/2012
			SCALE: NON

From CEB Transmission Line



Load	Ishinbassagala ET Transmission Pump	Discharge Valve for Ishinbassagala	Etakada ET Transmission Pump	Discharge Valve for Etakada	Chlorination Booster Pump	Exhaust Fan	Ventilation	Lighting	For GGE				For Control
Output (kW)	37	0.4	30	0.4	5.5	0.25	0.2	2	1				3
Starting Method	VSD	R	VSD	R	NR	NR	NR	F	F				F
MCCB (AF)	100	50	50	50	50	50	50	50	50				50
Earth Fault Protection	Install	Install	Install	Install	Install	Install	Install						
Ammeter	Install		Install		Install		Install						
Run Hour Meter	Install		Install		Install		Install						
Capacitor (kVar)													
Qty	1st Stage	2	2	2	2	2	2	1	1				1
	Final	3	3	3	3	2	2	1	1				1

Legend

NR	Direct On Line Starter
R	Reversible Starter
VSD	Variable Speed Driver
SS	Soft Starter
RSD	Closed Transition Star Delta Starter
F	MCCB Feeder

Voltage monitor shall be provided with the following features and interlocked with all motor starters.

1. Phase failure protection
2. Supply voltage imbalance (adjustable)
3. Under and over voltage (adjustable)
4. Phase revers

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project



JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE:

MEDAWACHCHIYA GROUND RESERVOIR SINGLE LINE DIAGRAM

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

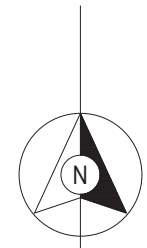
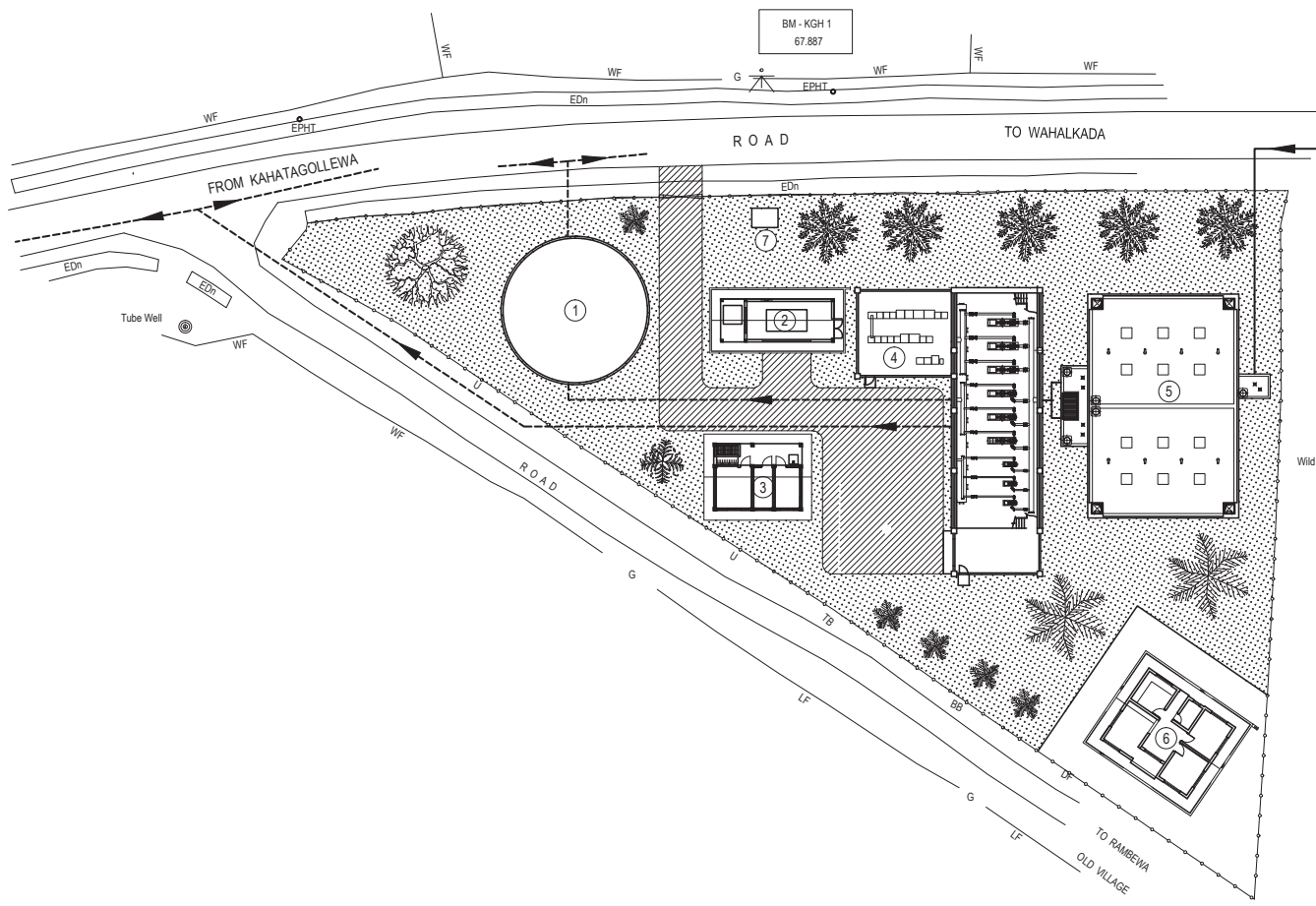


CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN



REV.	DESCRIPTION	DATE	SIGN.

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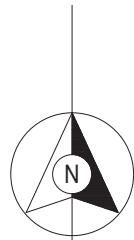


SCALE - 1 : 500

①	— WATER TOWER
②	— GENERATOR ROOM
③	— CHLORINATION HOUSE
④	— PUMP HOUSE
⑤	— GROUND RESERVOIR
⑥	— OPERATOR / CARE TAKER QUARTERS
⑦	— TRANSFORMER ROOM
REFERENCE	
AB	.... Abandoned
EP	.... Electric Post
BS	.... Boundary Stone
LF	.... Live Fence
W	.... Wall
WLF	.... Wire Live Fence
WF	.... Wire Fence
⚓	.... Benchmark
<p>—— INLET PIPE LINE</p> <p>----- OUTLET PIPE LINE</p>	

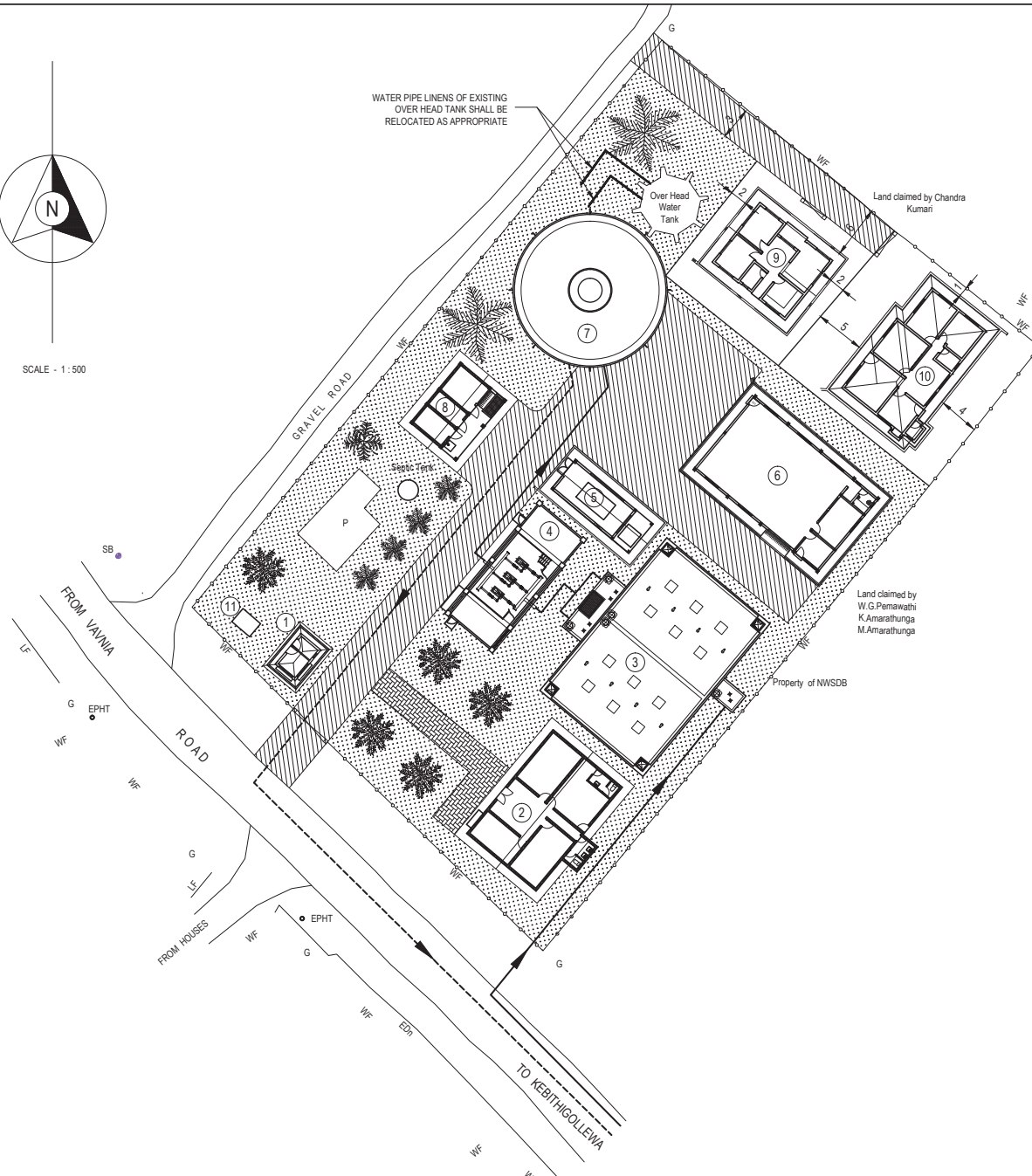
NOTE :- LAND HAS TO BE ENLARGED UP TO 20m FOR EAST SIDE.

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project		JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: KAHATAGOLLEWA SUMP AND TOWER SITE LAYOUT								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	DRAWING NO.:	
											WT&D/GL/G/II.1PS	
								CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE:	SCALE:
											26-09-2012	AS SHOWN



SCALE - 1:500

WATER PIPE LINES OF EXISTING OVER HEAD TANK SHALL BE RELOCATED AS APPROPRIATE



- ① - GUARD HOUSE
- ② - AE OFFICE
- ③ - GROUND RESERVOIR
- ④ - PUMP HOUSE
- ⑤ - GENERATOR ROOM
- ⑥ - WORKSHOP
- ⑦ - WATER TOWER
- ⑧ - CHLORINATION HOUSE
- ⑨ - OPERATOR / CARE TAKER QUARTERS
- ⑩ - STAFFS QUARTERS
- ⑪ - TRANSFORMER ROOM

REFERENCE

- BS Boundary Stone
- EP Electric Post
- TP Telecome Pole
- EPHT High Tension Power Pole
- SB Sign Board
- P Permanent Building
- G Gate
- GP Gate Post
- WV Water Valve
- EDn Earth Drain
- LF Live Fence
- RW Retaining Wall
- WF Wire Fence

- INLET PIPE LINE
- - - - OUTLET PIPE LINE
- EXISTING PIPE LINE

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project



JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: KEBITHIGOLLEWA SUMP AND TOWER SITE LAYOUT

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD



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

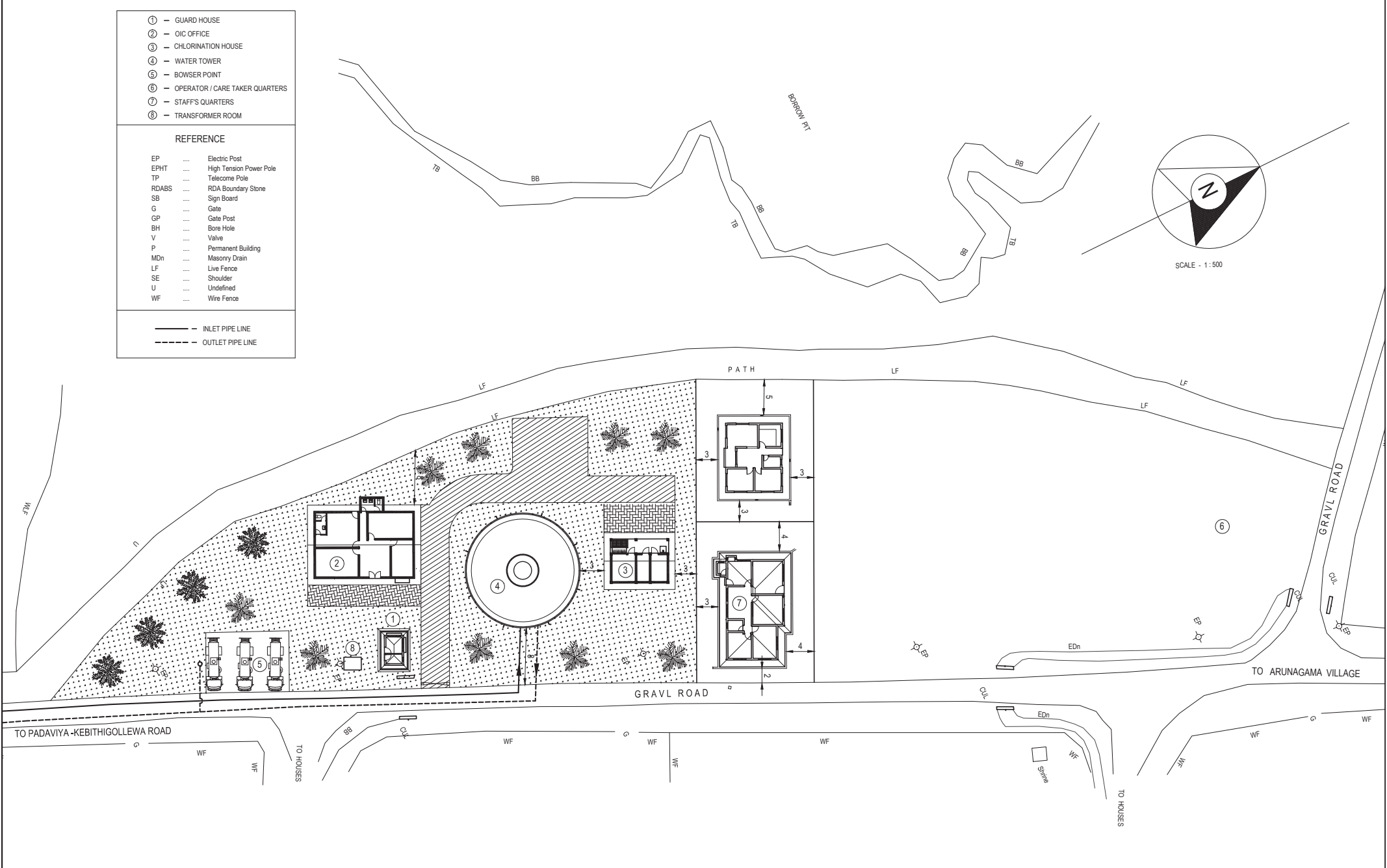
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				CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE:	SCALE:
							26-09-2012	AS SHOWN

- ① - GUARD HOUSE
- ② - OIC OFFICE
- ③ - CHLORINATION HOUSE
- ④ - WATER TOWER
- ⑤ - BOWSER POINT
- ⑥ - OPERATOR / CARE TAKER QUARTERS
- ⑦ - STAFF'S QUARTERS
- ⑧ - TRANSFORMER ROOM

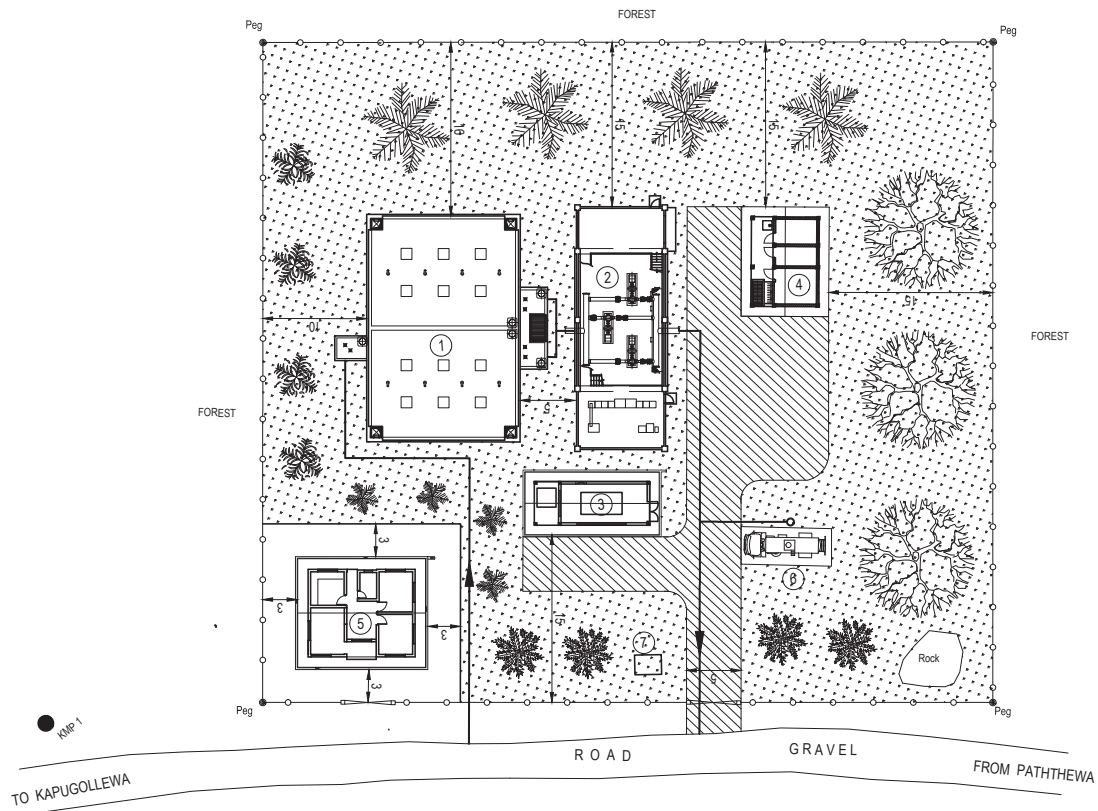
REFERENCE

- EP Electric Post
- EPHT High Tension Power Pole
- TP Telecom Pole
- RDABS RDA Boundary Stone
- SB Sign Board
- G Gate
- GP Gate Post
- BH Bore Hole
- V Valve
- P Permanent Building
- MDn Masonry Drain
- LF Live Fence
- SE Shoulder
- U Undefined
- WF Wire Fence





- INLET PIPE LINE
- - - - OUTLET PIPE LINE

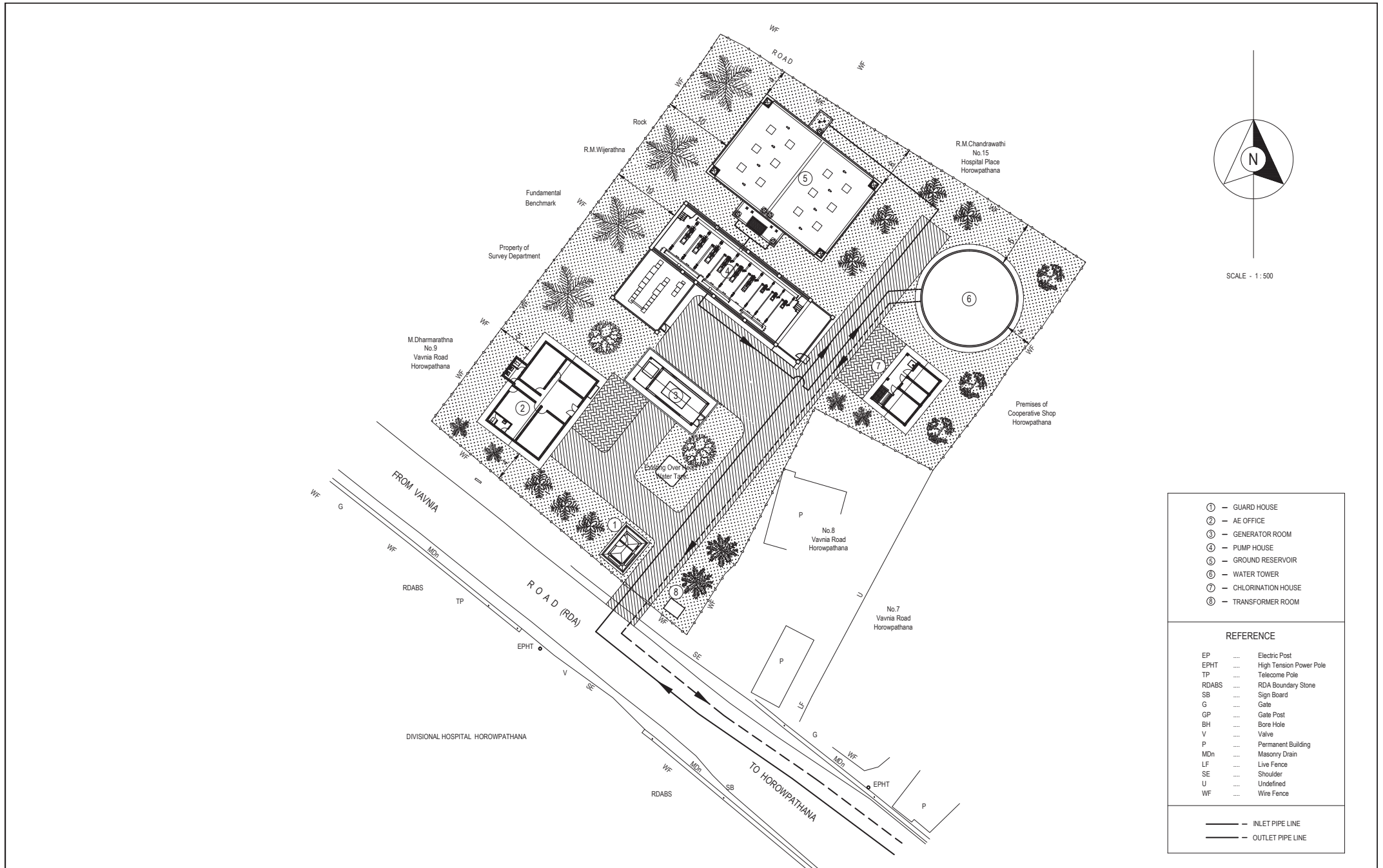


PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project		JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: BOGAHAWEDA TOWER SITE LAYOUT								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	DRAWING NO.: WT&D/GL/G/IL3ET	
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- ① - GROUND RESERVOIR
 - ② - PUMP HOUSE
 - ③ - GENERATOR ROOM
 - ④ - CHLORINATION HOUSE
 - ⑤ - OPERATOR/CARE TAKER QUARTERS
 - ⑥ - BOUSER POINT
 - ⑦ - TRANSFORMER ROOM
-
- INLET PIPE LINE
 - OUTLET PIPE LINE

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project		 JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: WEERASOLE SUMP SITE LAYOUT								
CLIENT:  NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS:  NJS CONSULTANTS CO., LTD. - JAPAN  NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	DRAWING NO.: WT&D/GL/G/II.3PS	
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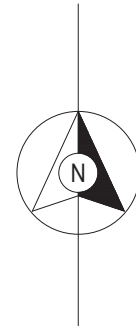
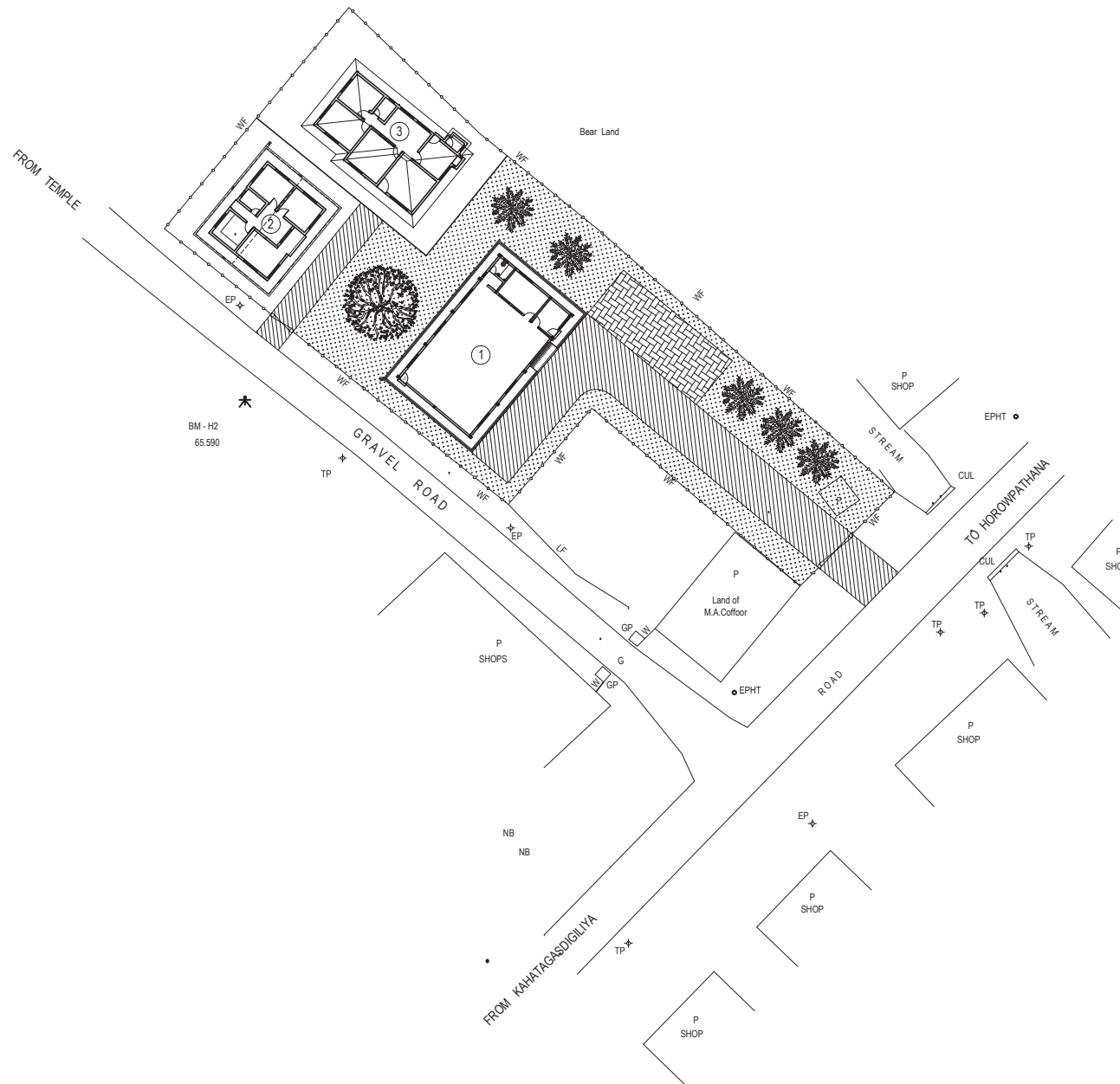


①	— GUARD HOUSE
②	— AE OFFICE
③	— GENERATOR ROOM
④	— PUMP HOUSE
⑤	— GROUND RESERVOIR
⑥	— WATER TOWER
⑦	— CHLORINATION HOUSE
⑧	— TRANSFORMER ROOM

REFERENCE	
EP	..... Electric Post
EPHT	..... High Tension Power Pole
TP	..... Telecom Pole
RDABS	..... RDA Boundary Stone
SB	..... Sign Board
G	..... Gate
GP	..... Gate Post
BH	..... Bore Hole
V	..... Valve
P	..... Permanent Building
MDn	..... Masonry Drain
LF	..... Live Fence
SE	..... Shoulder
U	..... Undefined
WF	..... Wire Fence

——	— INLET PIPE LINE
——	— OUTLET PIPE LINE

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project		JICA JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: HOROWPATHANA SUMP AND TOWER SITE LAYOUT								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	DRAWING NO.: WT&D/GL/G/IL4PSa	
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SCALE - 1 : 500

①	WORKSHOP
②	OPERATOR/CARE TAKER QUARTERS
③	STAFF'S QUARTERS

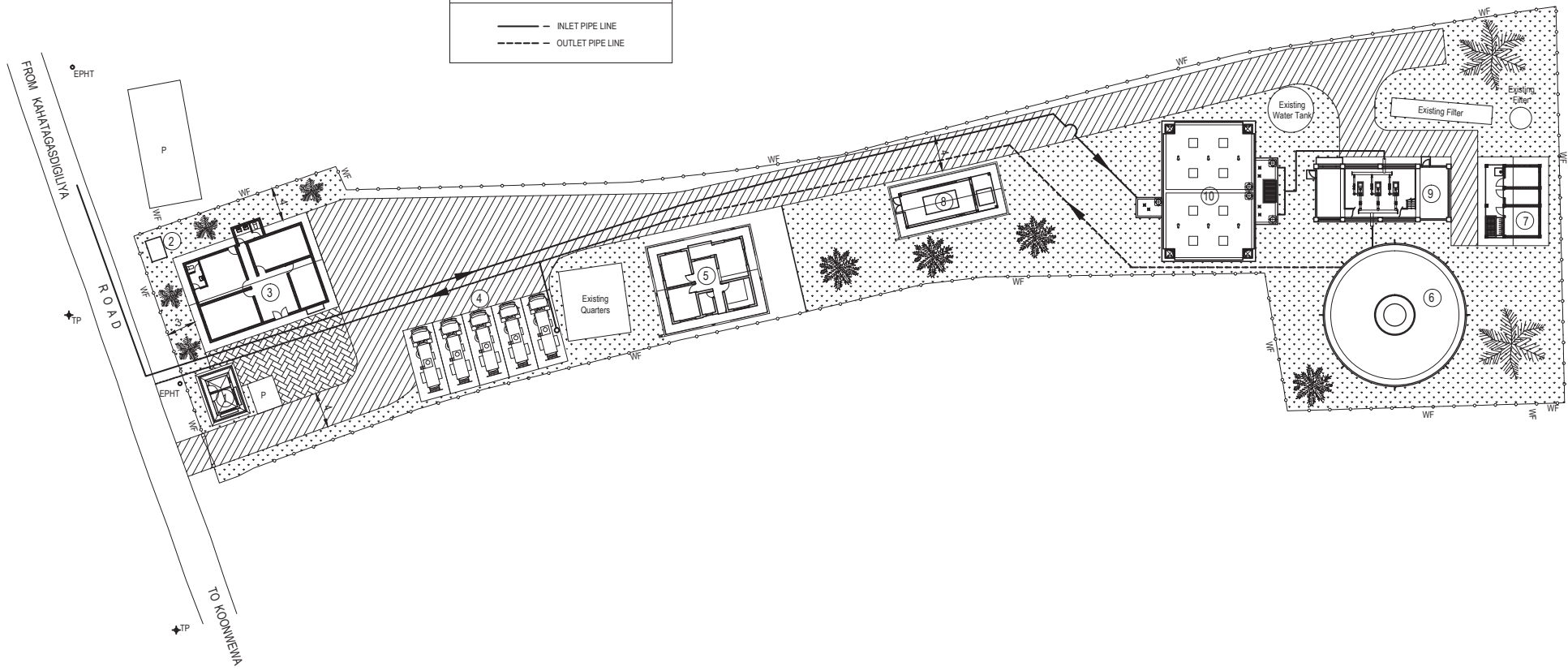
REFERENCE	
EP	Electric Post
EPHT	High Tension Power Pole
TP	Telecom Pole
RDABS	RDA Boundary Stone
SB	Sign Board
G	Gate
GP	Gate Post
BH	Bore Hole
V	Valve
P	Permanent Building
MDn	Masonry Drain
LF	Live Fence
SE	Shoulder
U	Undefined
WF	Wire Fence

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project		JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: HOROWPOTHANA ENGINEERING OFFICE SITE LAYOUT								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	DRAWING NO.: WT&D/GL/G/IL4PSb	
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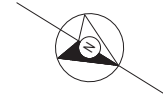
①	-	GUARD HOUSE
②	-	TRANSFORMER ROOM
③	-	OIC OFFICE
④	-	BOWSER POINT
⑤	-	OPERATOR / CARE TAKER QUARTERS
⑥	-	WATER TOWER
⑦	-	CHLORINATION HOUSE
⑧	-	GENERATOR ROOM
⑨	-	PUMP HOUSE
⑩	-	GROUND RESERVOIR

REFERENCE	
AB	..... Abandoned
EP	..... Electric Post
BS	..... Boundary Stone
LF	..... Live Fence
W	..... Wall
WLF	..... Wire Live Fence
WF	..... Wire Fence

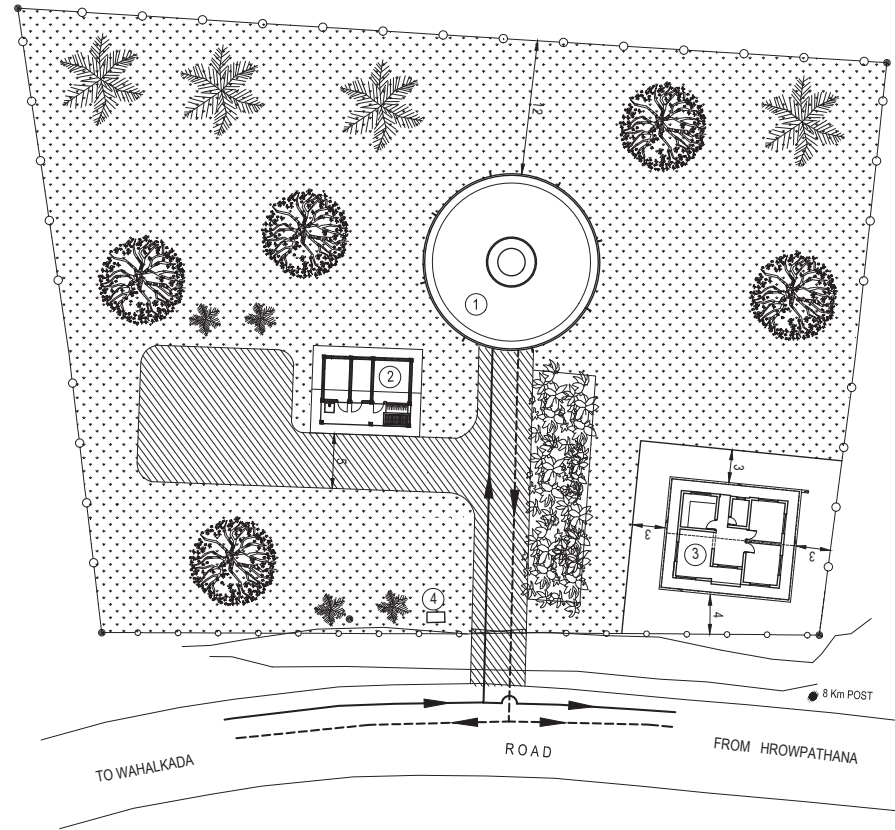
	INLET PIPE LINE
	OUTLET PIPE LINE



PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project		CONSULTANTS: JICA JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: KAHATAGASDIGILIYA SUMP AND TOWER SITE LAYOUT								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	DRAWING NO.: WT&D/GL/G/II.5PS	
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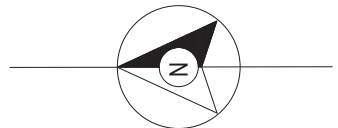


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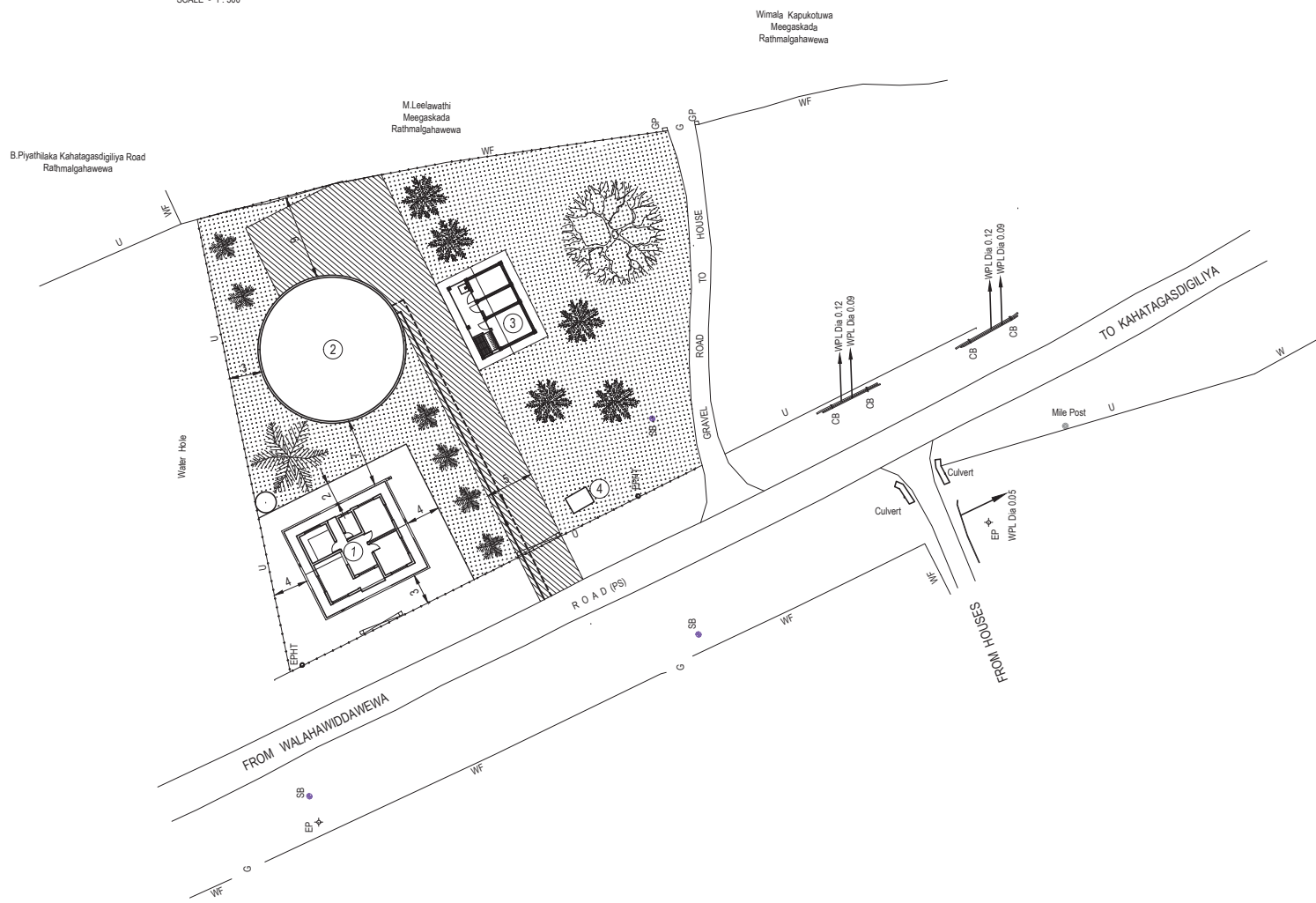
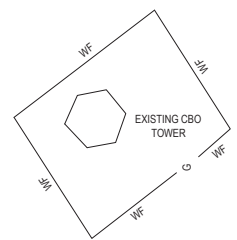


- ① - WATER TOWER
 - ② - CHLORINATION HOUSE
 - ③ - OPERATOR / CARE TAKER QUARTERS
 - ④ - TRANSFORMER ROOM
-
- INLET PIPE LINE
 - - - - OUTLET PIPE LINE

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project		JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: NORTH HOROWPATHANA TOWER SITE LAYOUT								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	DRAWING NO.: WT&D/GL/G/II.6ET	
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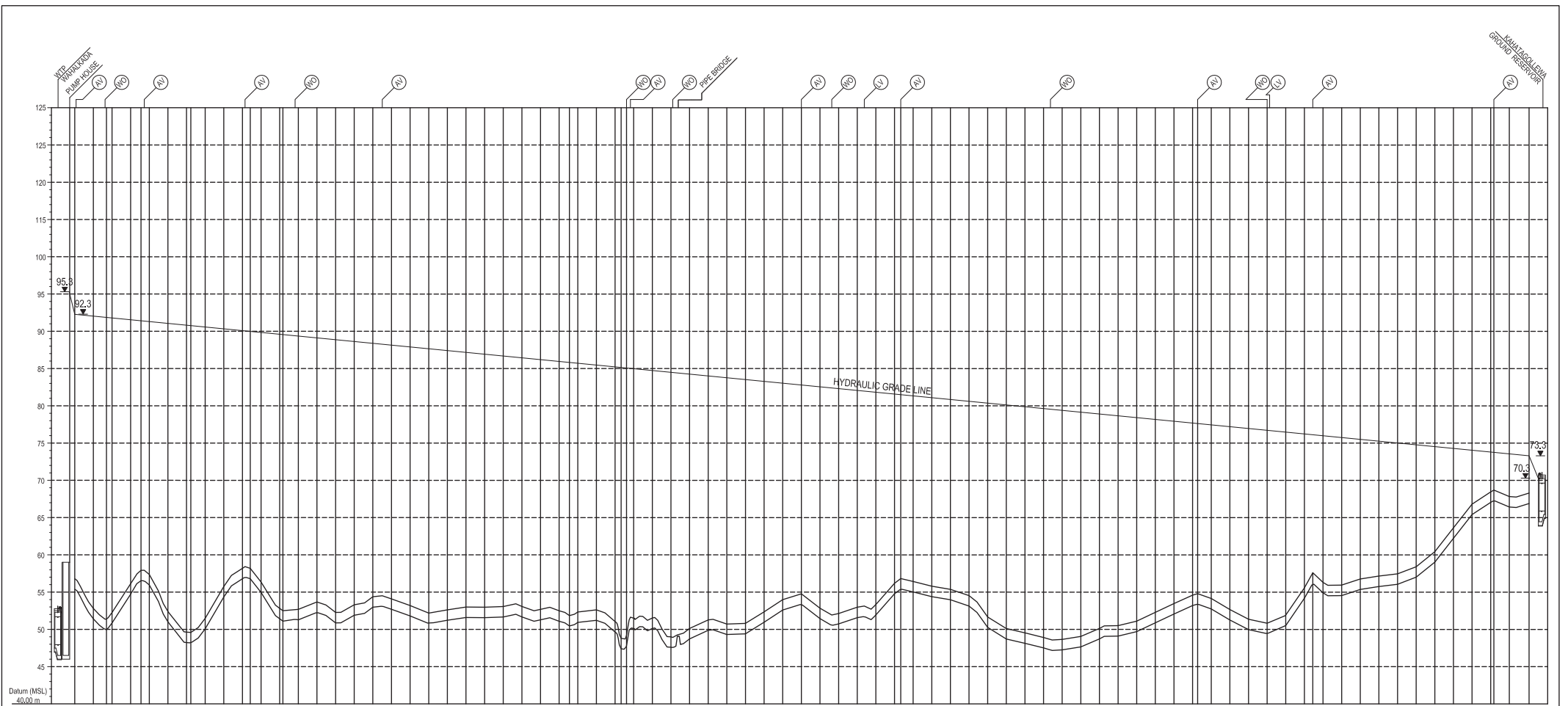


①	—	OPERATOR / CARE TAKER QUARTERS
②	—	WATER TOWER
③	—	CHLORINATION HOUSE
④	—	TRANSFORMER ROOM

REFERENCE	
EP	.... Electric Post
EPHT	.... High Tension Power Pole
SB	.... Sign Board
G	.... Gate
GP	.... Gate Post
CB	.... Concrete Base
U	.... Undefined
WF	.... Wire Fence
WPL	.... Water Pipe Line
(PS)	.... Pradesheya Sabha

— — — — —	INLET PIPE LINE
- - - - -	OUTLET PIPE LINE

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project		JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: RATHMALGAHAWEWA TOWER SITE LAYOUT								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	DRAWING NO.: WT&D/GL/G/IL9ET	
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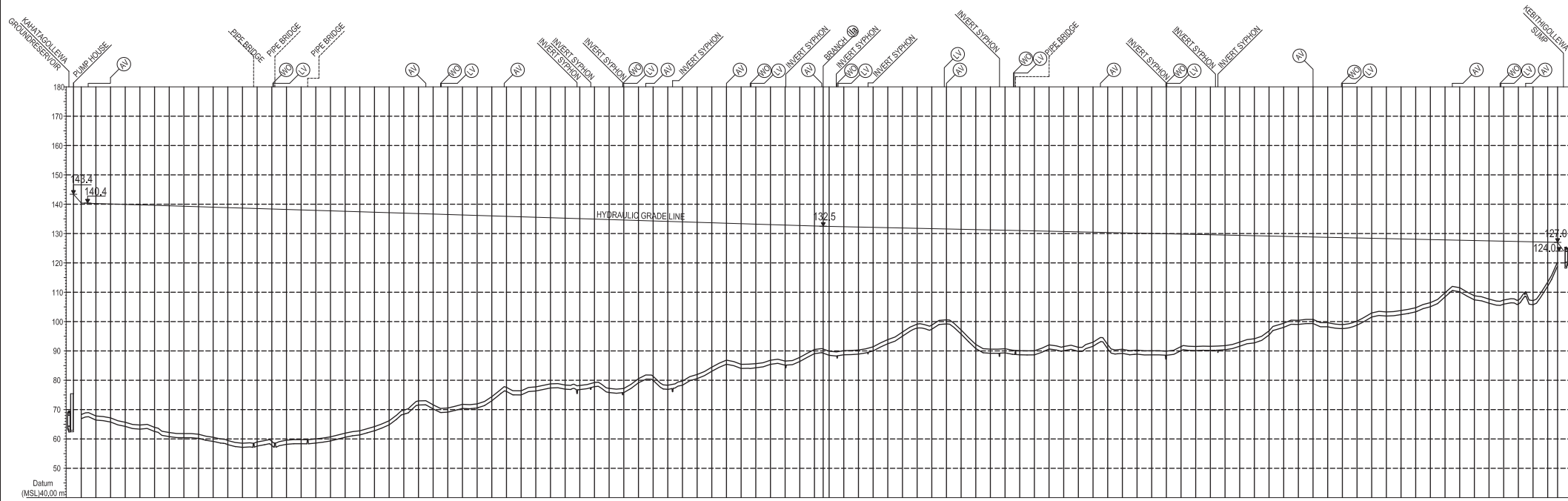


Ground Level (m)	Pipe Center Level (m)	Cumulative Distance (m)	Pipe Data
56.78	55.36	0	OD 450mm Ø HDPE PIPE - PN10 - SDR 17
52.81	51.41	100	
52.38	49.98	200	
56.12	54.72	300	
57.36	55.96	400	
52.41	51.01	500	
48.63	48.23	600	
51.48	50.08	700	
55.74	54.34	800	
58.19	56.79	900	
56.35	54.65	1000	
52.68	51.42	1100	
52.68	51.28	1200	
53.67	53.67	1300	
52.27	50.87	1400	
53.29	51.89	1500	
54.09	52.89	1600	
53.20	51.80	1700	
52.18	50.80	1800	
52.62	51.22	1900	
52.99	51.59	2000	
52.97	51.57	2100	
53.06	51.66	2200	
53.07	51.67	2300	
52.68	51.28	2400	
52.49	51.09	2500	
52.33	50.93	2600	
52.61	51.21	2700	
51.54	49.84	2800	
51.50	49.80	2900	
51.50	49.80	3000	
51.52	49.81	3100	
46.00	47.60	3200	
50.12	48.72	3300	
51.27	49.87	3400	
50.81	49.41	3500	
52.38	50.98	3600	
54.00	52.60	3700	
54.78	54.78	3800	
52.85	51.45	3900	
52.14	50.74	4000	
52.98	51.58	4100	
53.34	51.94	4200	
56.19	54.79	4300	
56.32	54.84	4400	
56.43	55.03	4500	
55.80	54.40	4600	
55.38	53.98	4700	
54.54	53.14	4800	
51.67	50.27	4900	
50.12	48.72	5000	
46.54	45.14	5100	
46.86	47.26	5200	
46.06	47.66	5300	
50.13	48.73	5400	
50.51	49.11	5500	
51.11	49.71	5600	
52.29	50.89	5700	
53.47	52.07	5800	
54.60	53.20	5900	
54.15	52.75	6000	
52.67	51.27	6100	
51.37	49.97	6200	
50.83	50.83	6300	
51.92	50.92	6400	
55.39	55.39	6500	
57.00	57.00	6600	
56.31	54.91	6700	
55.95	54.55	6800	
56.77	55.37	6900	
57.16	55.76	7000	
57.46	56.06	7100	
58.41	57.01	7200	
60.43	59.03	7300	
63.63	62.23	7400	
66.81	65.41	7500	
68.45	67.05	7600	
67.83	66.43	7700	
68.30	66.81	7800	

- LEGEND:
- AV • Air valve
 - LV • Line valve
 - WO • Wash-out

NOTE -> 01.PPIPE DATA IS SHOWN IN OUTER DIAMETER.
02.HYDRAULIC GRADE LINE IS BASED ON THE HYDRAULIC ESTIMATE IN 2034.

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project	JAPAN INTERNATIONAL COOPERATION AGENCY	TITLE: TRANSMISSION PROFILE SECTION WAH - 1 (II - II.1PS)	
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD	CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN	REV. | DESCRIPTION | DATE | SIGN.	DESIGNED: | DRAWN: | PM: (CONSULTANT) | DRAWING NO.: WT&D/PIP/C/01
		CHECKED:	AGM: (P&D) | DGM: (P&D) | DATE: 26-09-2012 | SCALE: AS SHOWN

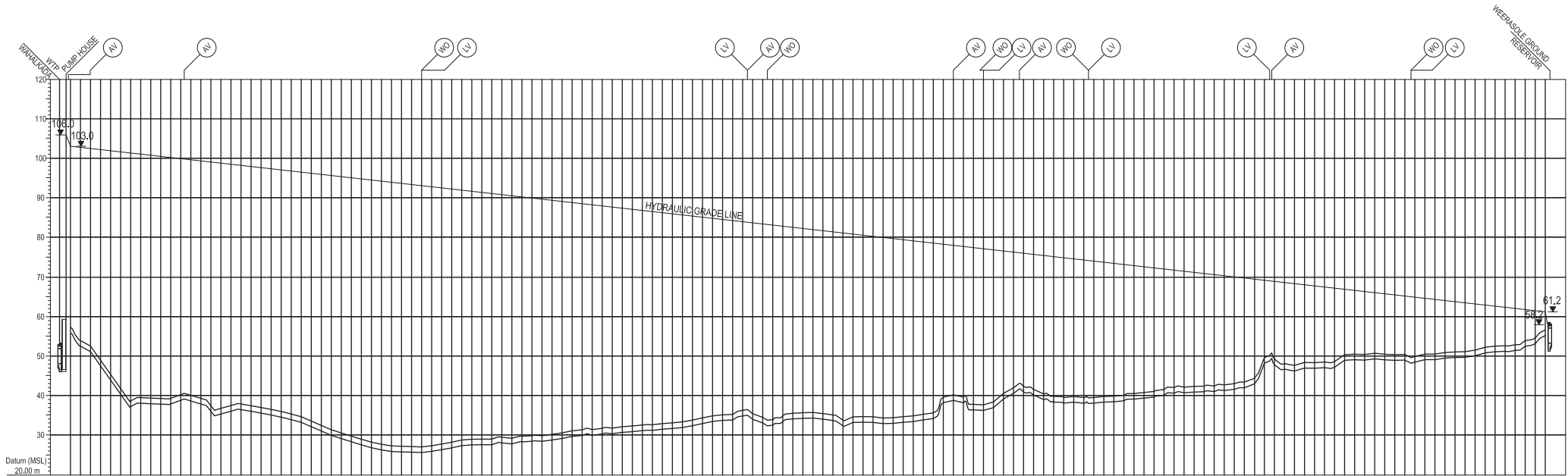


Ground Level (m)	Pipe Center Level (m)	Cumulative Distance (m)	Pipe Data
68.31	66.91	0	OD 400mm Ø HDPE PIPE - PN10 - SDR 17
67.82	66.42	200	
67.16	65.76	400	
66.69	64.29	600	
64.75	63.35	800	
63.95	62.55	1000	
62.21	60.81	1200	
61.84	60.44	1400	
61.59	60.19	1600	
60.59	59.19	1800	
59.45	58.05	2000	
58.36	56.96	2200	
58.36	56.96	2400	
57.58	56.18	2600	
57.73	56.33	2800	
56.16	54.76	3000	
56.37	54.97	3200	
56.99	55.61	3400	
56.71	55.33	3600	
61.97	60.57	3800	
62.76	61.36	4000	
62.79	61.39	4200	
64.81	63.41	4400	
68.83	67.43	4600	
72.98	71.58	4800	
71.62	70.22	5000	
70.53	69.13	5200	
71.80	70.40	5400	
71.95	70.55	5600	
74.39	72.99	5800	
77.59	76.19	6000	
76.40	75.00	6200	
77.73	76.33	6400	
78.76	77.36	6600	
78.37	76.97	6800	
78.22	76.82	7000	
79.22	77.82	7200	
77.24	75.84	7400	
77.21	75.81	7600	
80.53	79.13	7800	
81.33	79.93	8000	
78.30	76.90	8200	
79.71	78.31	8400	
81.97	80.57	8600	
84.45	83.05	8800	
86.86	85.46	9000	
85.43	84.03	9200	
86.66	84.28	9400	
86.82	85.42	9600	
86.54	85.14	9800	
87.80	86.40	10000	
89.46	88.06	10200	
89.92	88.52	10400	
90.09	88.69	10600	
90.32	88.92	10800	
91.40	90.00	11000	
92.46	91.06	11200	
86.42	85.02	11400	
86.13	84.73	11600	
86.81	85.41	11800	
100.61	98.21	12000	
97.15	95.75	12200	
92.19	90.79	12400	
90.39	88.89	12600	
90.74	89.34	12800	
90.09	88.69	13000	
90.07	88.67	13200	
92.07	90.67	13400	
91.48	89.08	13600	
91.22	88.82	13800	
92.96	91.56	14000	
92.10	90.70	14200	
90.58	88.98	14400	
90.29	88.69	14600	
90.05	88.65	14800	
89.91	88.91	15000	
91.49	90.09	15200	
91.51	90.11	15400	
91.57	90.17	15600	
91.81	90.41	15800	
92.99	91.59	16000	
94.13	92.73	16200	
96.32	95.42	16400	
98.43	98.03	16600	
100.44	99.04	16800	
100.73	99.33	17000	
99.63	98.23	17200	
98.01	97.61	17400	
100.24	98.81	17600	
102.35	101.55	17800	
103.29	102.09	18000	
103.76	102.36	18200	
104.71	103.31	18400	
106.45	105.05	18600	
109.63	108.43	18800	
111.55	110.15	19000	
108.81	107.41	19200	
107.67	106.27	19400	
107.35	105.95	19600	
107.13	105.73	19800	
113.46	112.06	20000	
120.12	118.72	20440	

LEGEND:
 AV - Air valve
 LV - Line valve
 WO - Wash-out

NOTE- 01.PIPE DATA IS SHOWN IN OUTER DIAMETER.
 02.HYDRAULIC GRADE LINE IS BASED ON THE HYDRAULIC ESTIMATE IN 2034.

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project		JICA JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: TRANSMISSION PROFILE SECTION WAH - 3 (II.IPS - II.2PS)								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	DRAWING NO.: WT&D/PIP/C/03	
								CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE: 26-09-2012	SCALE: NTS

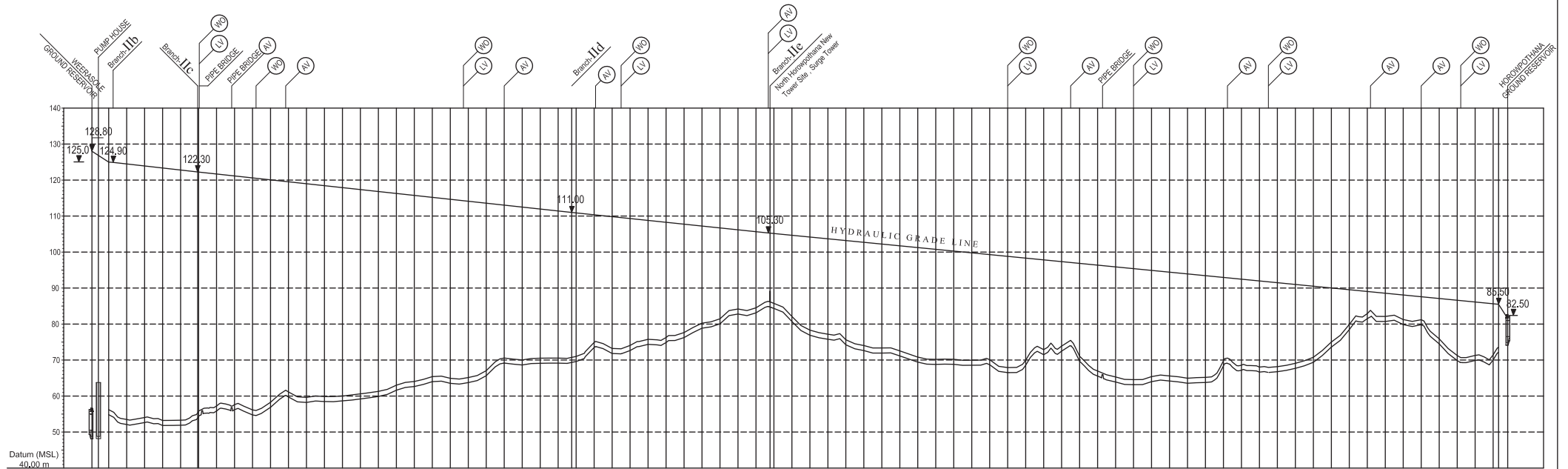


Ground Level (m)	Pipe Center Level (m)	Cumulative Distance (m)	Pipe Data
66.76	55.96	0.00	OD 500mm Ø HDPE PIPE - PN10 - SDR 17
53.52	52.12	100	
52.15	50.75	200	
48.82	47.22	300	
45.09	43.69	400	
43.52	42.15	500	
41.15	39.72	600	
39.30	37.94	700	
39.19	37.79	800	
38.08	37.68	900	
38.12	37.72	1000	
38.05	37.65	1100	
38.67	38.27	1200	
38.13	37.73	1300	
36.17	35.68	1400	
36.63	36.23	1500	
37.33	36.93	1600	
37.26	36.86	1700	
35.45	35.05	1800	
36.85	36.45	1900	
36.40	36.00	2000	
35.81	35.41	2100	
35.21	34.81	2200	
35.21	34.81	2300	
34.66	34.26	2400	
33.98	33.58	2500	
32.38	31.98	2600	
31.30	30.90	2700	
30.49	30.09	2800	
29.63	29.23	2900	
28.63	28.23	3000	
28.21	27.81	3100	
27.67	27.27	3200	
27.27	26.87	3300	
27.18	26.78	3400	
27.01	26.61	3500	
27.01	26.61	3600	
27.31	26.91	3700	
27.73	27.33	3800	
28.18	27.78	3900	
28.44	28.04	4000	
28.56	28.16	4100	
28.96	28.56	4200	
28.95	28.55	4300	
28.42	28.02	4400	
28.17	27.77	4500	
28.17	27.77	4600	
28.28	27.88	4700	
28.92	28.52	4800	
28.75	28.35	4900	
30.15	29.75	5000	
30.52	30.12	5100	
31.04	30.64	5200	
31.29	30.89	5300	
31.64	31.24	5400	
31.64	31.24	5500	
31.72	31.32	5600	
32.05	31.65	5700	
32.72	32.32	5800	
32.54	32.14	5900	
32.83	32.43	6000	
33.01	32.61	6100	
33.25	32.85	6200	
33.41	33.01	6300	
33.41	33.01	6400	
33.35	32.95	6500	
34.75	34.35	6600	
35.12	34.72	6700	
35.13	34.73	6800	
34.78	34.38	6900	
34.78	34.38	7000	
33.84	33.44	7100	
33.83	33.43	7200	
35.23	34.83	7300	
35.40	35.00	7400	
35.53	35.13	7500	
35.53	35.13	7600	
34.89	34.49	7700	
33.71	33.31	7800	
34.52	34.12	7900	
34.52	34.12	8000	
34.52	34.12	8100	
34.22	33.82	8200	
34.29	33.89	8300	
34.55	34.15	8400	
34.74	34.34	8500	
35.14	34.74	8600	
35.14	34.74	8700	
38.44	38.04	8800	
38.61	38.21	8900	
38.42	38.02	9000	
36.24	35.84	9100	
36.24	35.84	9200	
36.81	36.41	9300	
36.95	36.55	9400	
40.35	39.95	9500	
41.77	41.37	9600	
42.11	41.71	9700	
41.36	40.96	9800	
39.59	39.19	9900	
39.24	38.84	10000	
39.24	38.84	10100	
39.57	39.17	10200	
39.32	38.92	10300	
38.19	37.79	10400	
38.67	38.27	10500	
38.91	38.51	10600	
38.91	38.51	10700	
40.59	40.19	10800	
41.38	40.98	10900	
41.38	40.98	11000	
41.82	41.42	11100	
41.91	41.51	11200	
42.10	41.70	11300	
42.10	41.70	11400	
42.10	41.70	11500	
42.48	42.08	11600	
42.78	42.38	11700	
43.16	42.76	11800	
44.12	43.72	11900	
44.12	43.72	12000	
44.12	43.72	12100	
46.35	45.95	12200	
47.24	46.84	12300	
48.03	47.63	12400	
48.03	47.63	12500	
48.30	47.90	12600	
48.30	47.90	12700	
50.09	49.69	12800	
50.14	49.74	12900	
50.14	49.74	13000	
50.37	49.97	13100	
50.37	49.97	13200	
50.01	49.61	13300	
50.07	49.67	13400	
49.56	49.16	13500	
49.56	49.16	13600	
50.16	49.76	13700	
50.16	49.76	13800	
50.70	50.30	13900	
50.70	50.30	14000	
51.15	50.75	14100	
51.15	50.75	14200	
51.85	51.45	14300	
52.74	52.34	14400	
52.74	52.34	14500	
53.50	53.10	14600	
54.15	54.75	14700	

LEGEND:
 AV - Air valve
 LV - Line valve
 WO - Washout

NOTE - 01: PIPE DATA IS SHOWN IN OUTER DIAMETER,
 02: HYDRAULIC GRADE LINE IS BASED ON THE HYDRAULIC ESTIMATE IN 2034.

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project		JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: TRANSMISSION PROFILE SECTION WAH - 4 (II - IL3PS)								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	DRAWING NO.: WT&D/PIP/C/04	
								CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE: 26-09-2012	SCALE: NTS

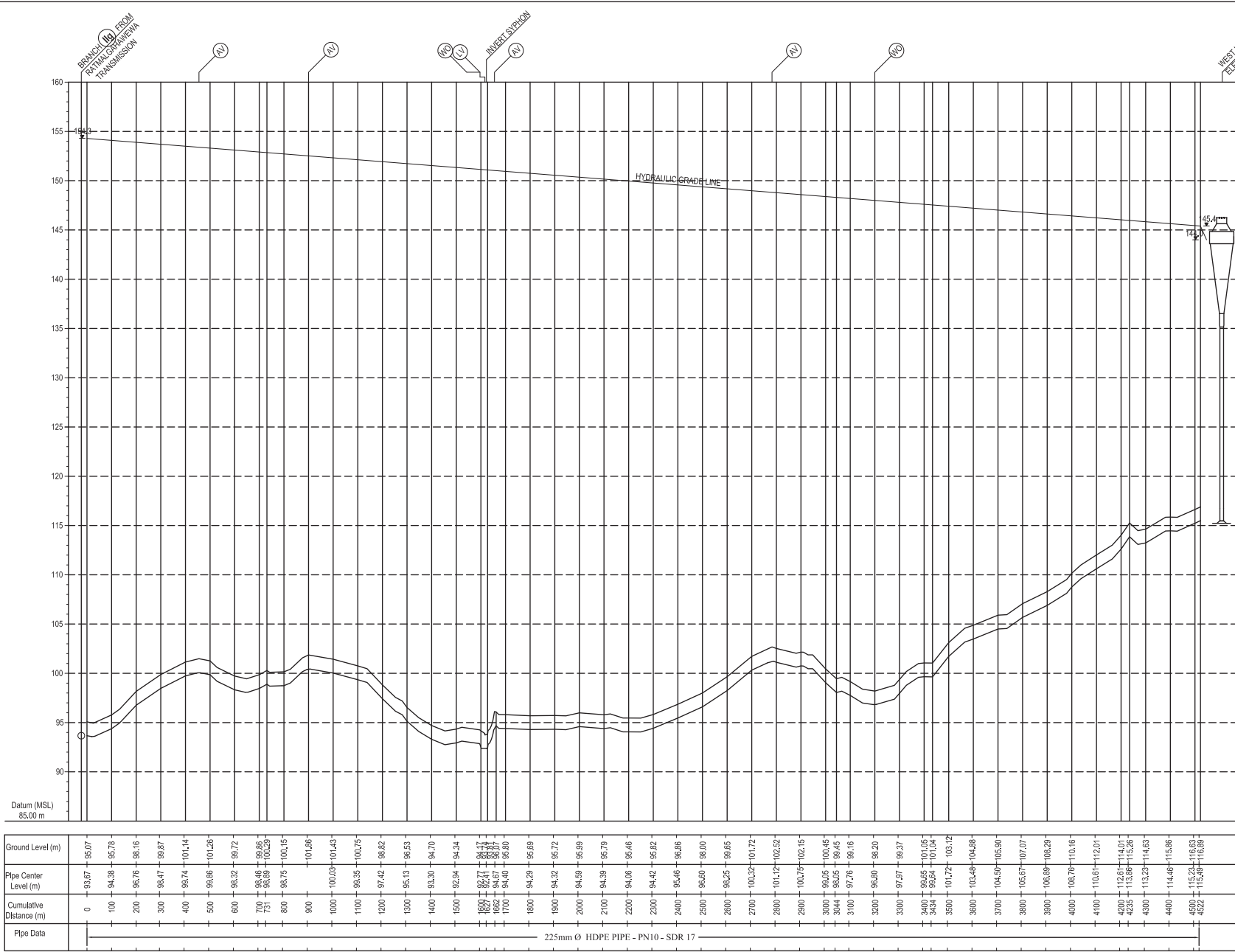


Ground Level (m)	54.83	56.23	52.11	53.51	52.83	54.03	51.82	53.22	51.89	53.29	55.83	57.23	54.75	56.15	56.88	58.28	59.73	61.13	59.63	59.49	59.89	58.86	60.06	59.20	60.80	59.89	61.20	61.62	63.02	62.84	64.04	63.54	64.94	63.74	65.14	65.86	67.86	69.17	70.57	68.54	70.04	69.14	70.51	69.60	71.00	73.50	74.90	71.83	73.23	72.05	74.05	74.37	75.77	74.08	76.28	76.24	77.64	78.26	80.25	80.06	81.46	82.78	84.19	83.12	84.52	84.34	85.74	80.72	82.12	76.51	78.31	75.78	77.18	74.25	76.05	72.63	74.03	71.95	73.35	72.54	89.42	70.82	68.80	70.20	68.82	70.22	68.57	69.97	88.71	70.11	67.92	69.27	69.97	71.50	72.90	72.48	73.88	69.68	71.08	65.55	66.95	63.90	65.30	63.15	64.55	63.99	65.39	64.19	65.59	63.55	64.95	63.78	65.18	68.39	69.79	67.17	68.57	66.65	68.05	66.75	68.17	67.70	69.10	68.37	70.77	73.61	75.01	78.46	79.86	81.51	82.91	80.71	82.11	79.85	81.25	79.81	81.21	74.50	75.90	69.86	71.26	68.89	71.29	64.00	70.44	72.00	73.43
Pipe Center Level (m)	54.83	56.23	52.11	53.51	52.83	54.03	51.82	53.22	51.89	53.29	55.83	57.23	54.75	56.15	56.88	58.28	59.73	61.13	59.63	59.49	59.89	58.86	60.06	59.20	60.80	59.89	61.20	61.62	63.02	62.84	64.04	63.54	64.94	63.74	65.14	65.86	67.86	69.17	70.57	68.54	70.04	69.14	70.51	69.60	71.00	73.50	74.90	71.83	73.23	72.05	74.05	74.37	75.77	74.08	76.28	76.24	77.64	78.26	80.25	80.06	81.46	82.78	84.19	83.12	84.52	84.34	85.74	80.72	82.12	76.51	78.31	75.78	77.18	74.25	76.05	72.63	74.03	71.95	73.35	72.54	89.42	70.82	68.80	70.20	68.82	70.22	68.57	69.97	88.71	70.11	67.92	69.27	69.97	71.50	72.90	72.48	73.88	69.68	71.08	65.55	66.95	63.90	65.30	63.15	64.55	63.99	65.39	64.19	65.59	63.55	64.95	63.78	65.18	68.39	69.79	67.17	68.57	66.65	68.05	66.75	68.17	67.70	69.10	68.37	70.77	73.61	75.01	78.46	79.86	81.51	82.91	80.71	82.11	79.85	81.25	79.81	81.21	74.50	75.90	69.86	71.26	68.89	71.29	64.00	70.44	72.00	73.43
Pipe Data	OD 500mm Ø HDPE PIPE - PN10 - SDR 17																																																																																																																																																		
Cumulative Distance (m)	0.00	200	400	600	800	1000	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	3200	3400	3600	3800	4000	4200	4400	4600	4800	5000	5200	5400	5600	5800	6000	6200	6400	6600	6800	7000	7200	7400	7600	7800	8000	8200	8400	8600	8800	9000	9200	9400	9600	9800	10000	10200	10400	10600	10800	11000	11200	11400	11600	11800	12000	12200	12400	12600	12800	13000	13200	13400	13600	13800	14000	14200	14400	14600	14800	15000	15200	15400	15600																																																																				

LEGEND :
 AV - Air valve
 LV - Line valve
 WO - Wash-out

NOTE -> 01.PPIPE DATA IS SHOWN IN OUTER DIAMETER.
 02.HYDRAULIC GRADE LINE IS BASED ON THE HYDRAULIC ESTIMATE IN 2034.

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project		JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: TRANSMISSION PROFILE SECTION WAH -5 (II.3PS - II.4PS)								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS : NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	DRAWING NO.: WT &D/PIP/C/05	
								CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE: 26/09/2012	SCALE: NTS



LEGEND :
 AV - Air valve
 LV - Line valve
 WO - Washout

NOTE - 01.PEPE DATA IS SHOWN IN OUTER DIAMETER. 02.HYDRAULIC GRADE LINE IS BAS

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project

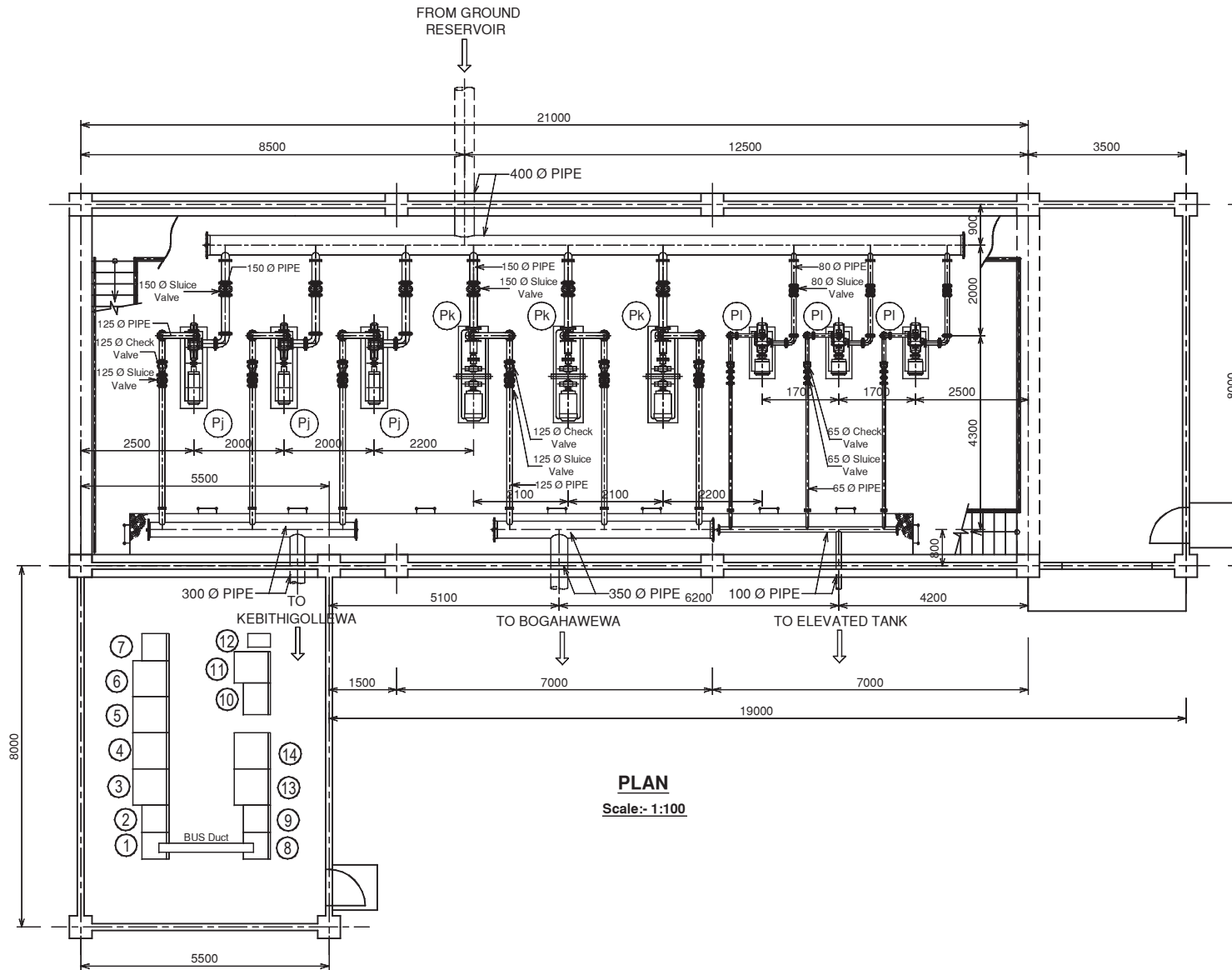
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

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

TITLE: TRANSMISSION PROFILE SECTION WAH - 8 (II.g - II.8ET)

REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	DRAWING NO.:
							WT&D/PIP/C/08
				CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE: 26-09-2012
							SCALE: AS SHOWN



PLAN
Scale:- 1:100

Description of Electrical Panel

No.	Description
①	Power Incoming MCC-1 main
②	Generator Incoming MCC-G
③	Kebithgollewa Transmission Pump-1 VSD
④	Kebithgollewa Transmission Pump-2 VSD
⑤	Bogahawewa Transmission Pump-1 VSD
⑥	Bogahawewa Transmission Pump-2 VSD
⑦	MCC-2 for other loads
⑧	MCC-3 for other loads
⑨	MCC-4 for other loads
⑩	Control Relay Panel
⑪	Instrumentation Panel
⑫	UPS
⑬	Kebithgollewa Transmission Pump-3 VSD
⑭	Bogahawewa Transmission Pump-3 VSD

Specification of Pumps

No.	Pj	Pk	Pl
Pump Type	Multi Stage	End Suction Volute	Multi Stage
Flow (m ³ /m)	1.57	2.02	0.2
Total Head (m)	95	50	35
Motor kW (KW)	45	30	3.7

NOTE:-

All Dimensions Are in Millimeters

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project



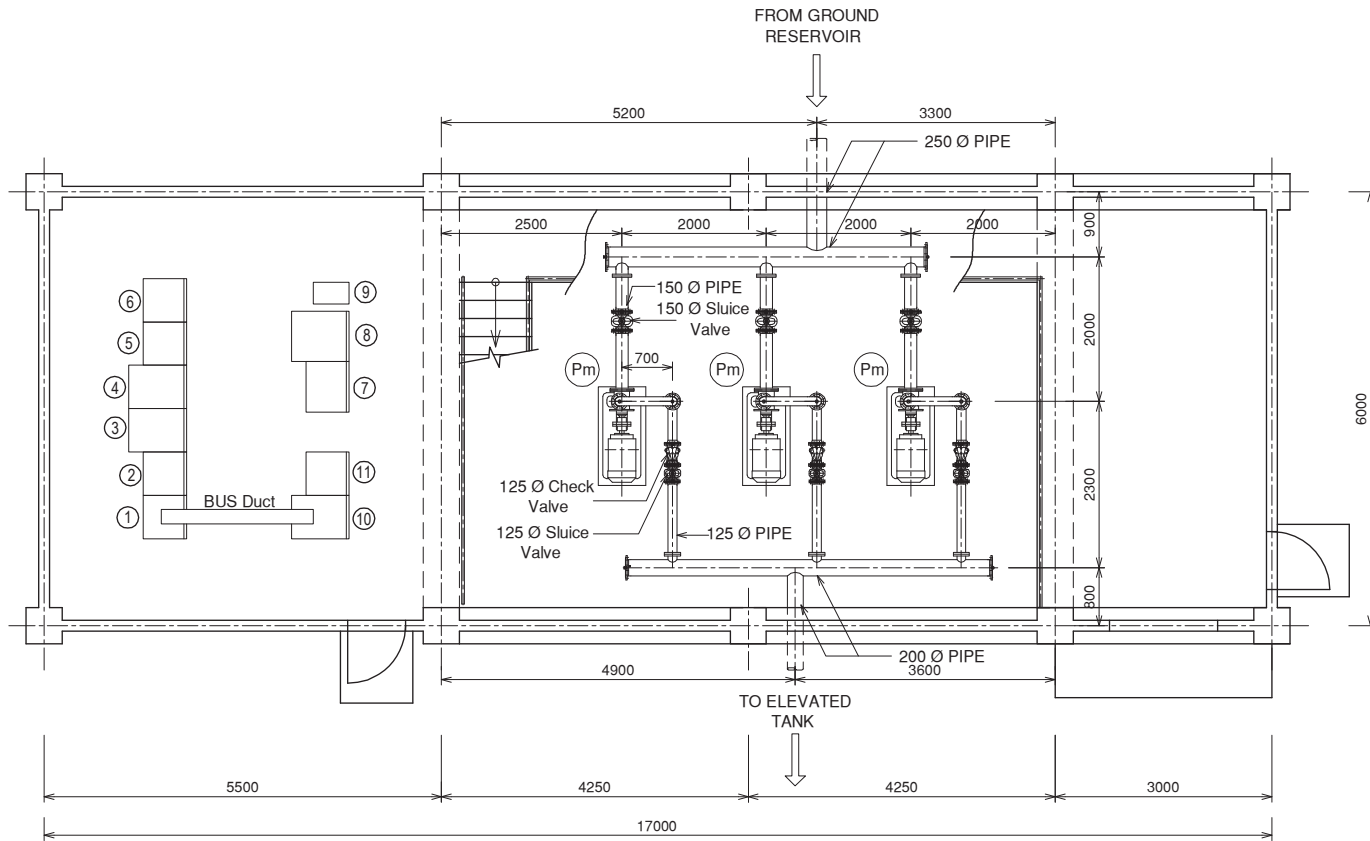
JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: KAHATAGOLLEWA PUMP STATION

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

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

REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	DRAWING NO.:
					THARAKA		WT&D/PH/M/01
				CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE: 26/09/2012
							SCALE: As Given



PLAN
Scale:- 1:75

Description of Electrical Panel

No.	Description
①	Power Incoming MCC-1 main
②	Generator Incoming MCC-G
③	Elevated Tank Transmission Pump-1 VSD
④	Elevated Tank Transmission Pump-2 VSD
⑤	MCC-2 for other loads
⑥	MCC-3 for other loads
⑦	Control Relay Panel
⑧	Instrumentation Panel
⑨	UPS
⑩	Elevated Tank Transmission Pump-2 VSD
⑪	MCC-4 for other loads

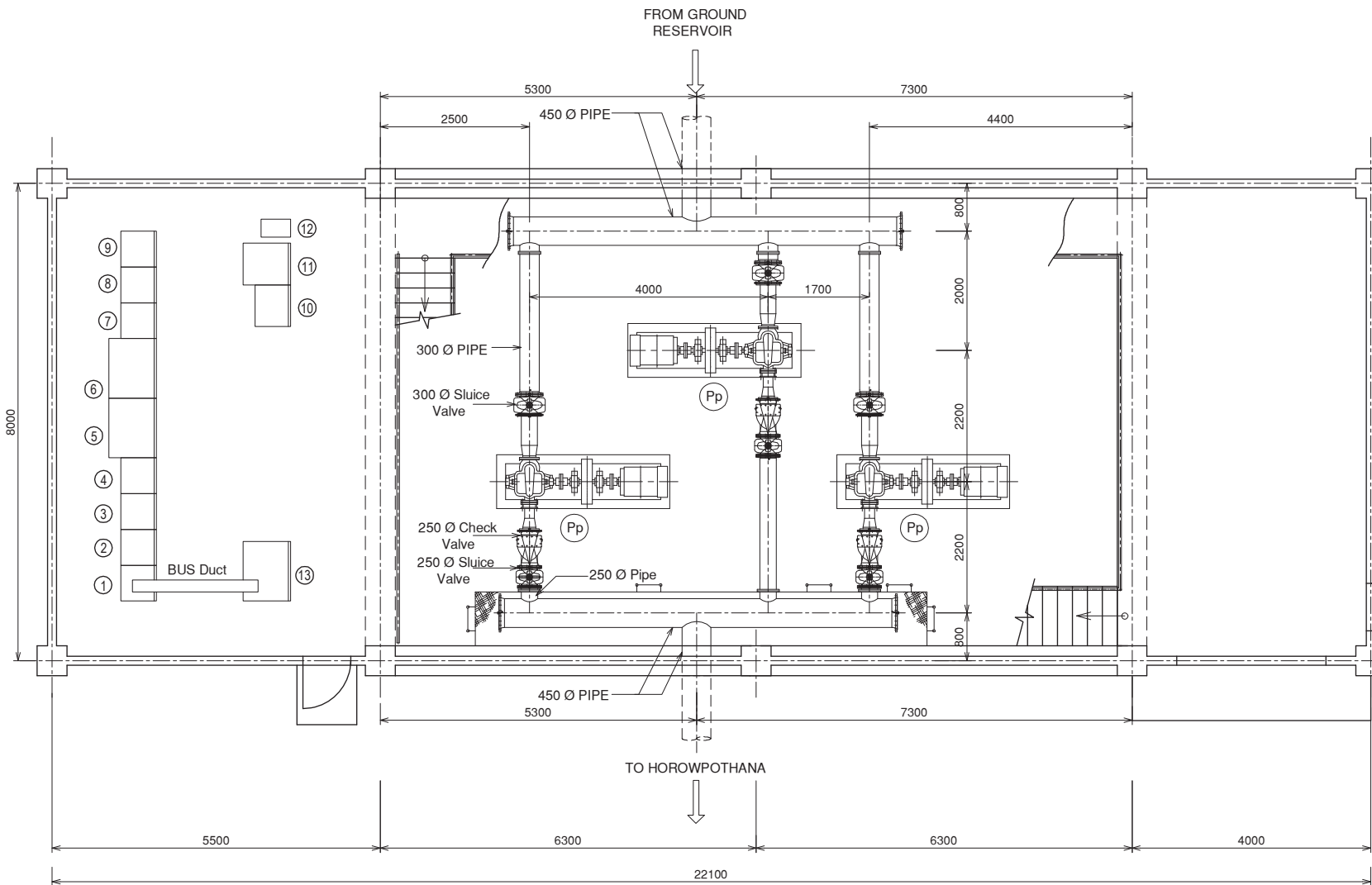
Specification of Pumps

No.	Pm
Pump Type	End Suction
Flow (m ³ /m)	1.12
Total Head (m)	36
Motor kW (kW)	15

NOTE:-

All Dimensions Are in Millimeters

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project		CONSULTANTS: JICA JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: KEBITHIGOLLEWA PUMP STATION						
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD	CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN	REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN: THARAKA	PM: (CONSULTANT)	DRAWING NO.: WT&D/PHM/02	
						CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE: 05/09/2012	SCALE: As Given



PLAN
Scale:- 1:75

Description of Electrical Panel

No.	Description
①	Power Incoming MCC-1 main
②	Generator Incoming MCC-G
③	Weerasole Transmission Pump-1 VSD
④	Weerasole Transmission Pump-2 VSD
⑤	Horowpothana Transmission Pump-1 VSD
⑥	Horowpothana Transmission Pump-2 VSD
⑦	MCC-2 for other loads
⑧	MCC-3 for other loads
⑨	MCC-4 for other loads
⑩	Control Relay Panel
⑪	Instrumentation Panel
⑫	UPS
⑬	Horowpothana Transmission Pump-3 VSD

Specification of Pumps

No.	Pp
Pump Type	Double Suction
Flow (m ³ /m)	5.24
Total Head (m)	62
Motor kW (kW)	90

NOTE:-

All Dimensions Are in Millimeters

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project



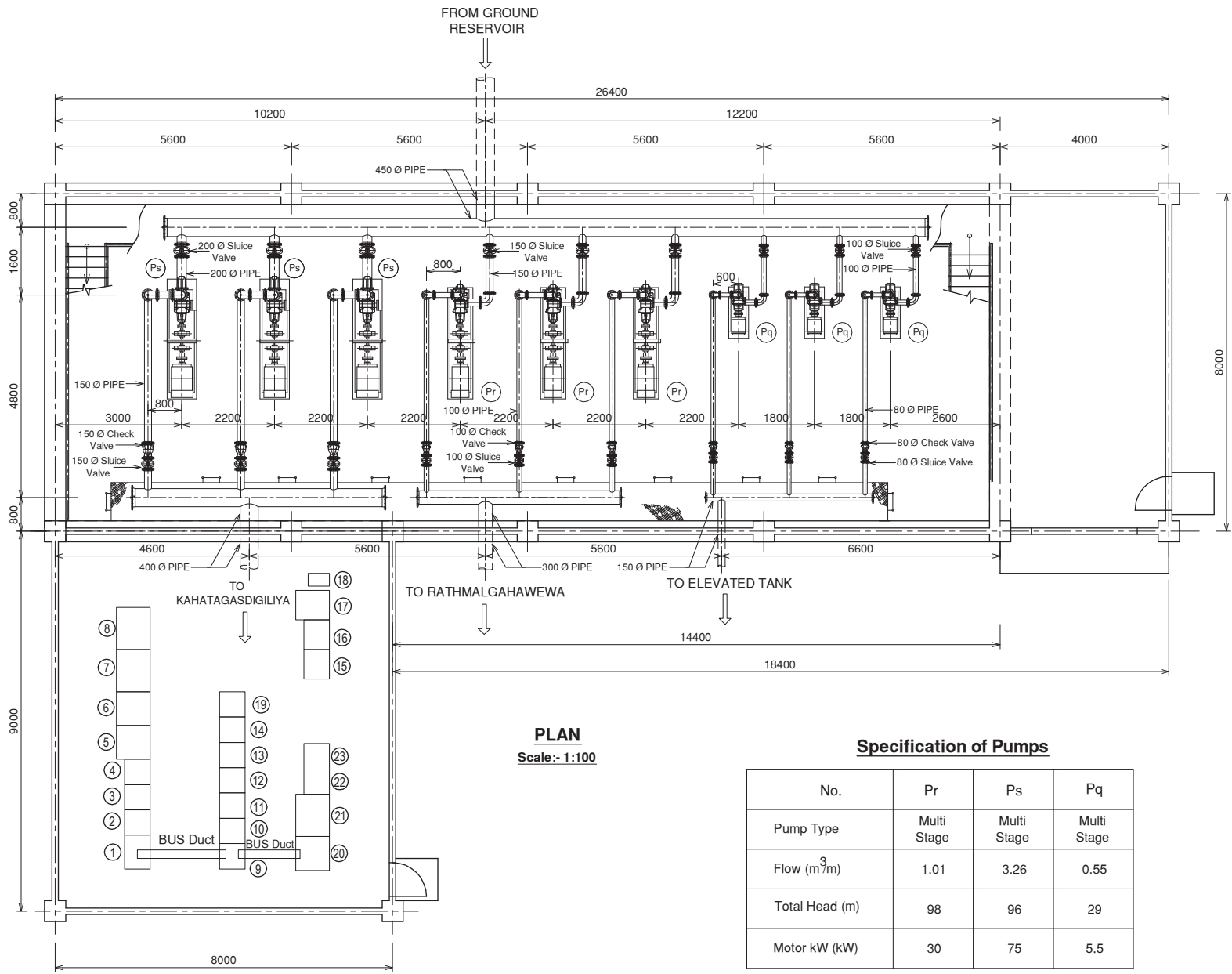
JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: WEERASOLE PUMP STATION

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

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

REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	DRAWING NO.:
					THARAKA		WT&D/PH/M/03
				CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE: 06/09/2012
							SCALE: As Given



PLAN
Scale:- 1:100

Description of Electrical Panel

No.	Description
①	Power Incoming MCC-1 main
②	Generator Incoming MCC-G
③	Horowpothana Transmission Pump-1 VSD
④	Horowpothana Transmission Pump-2 VSD
⑤	Rathmalgahawewa Transmission Pump-1 VSD
⑥	Rathmalgahawewa Transmission Pump-2 VSD
⑦	Kahatagasdigiliya Transmission Pump-1 VSD
⑧	Kahatagasdigiliya Transmission Pump-2 VSD
⑨	Puliyankadawala Transmission Pump-1 VSD
⑩	Puliyankadawala Transmission Pump-2 VSD
⑪	MCC-2 for other loads
⑫	MCC-3 for other loads
⑬	MCC-4 for other loads
⑭	MCC-5 for other loads
⑮	Control Relay Panel-1
⑯	Control Relay Panel-2
⑰	Instrumentation Panel
⑱	UPS
⑲	Horowpothana Transmission Pump-3 VSD
⑳	Rathmalgahawewa Transmission Pump-3 VSD
㉑	Kahatagasdigiliya Transmission Pump-3 VSD
㉒	Puliyankadawala Transmission Pump-2 VSD
㉓	MCC-9 for other loads

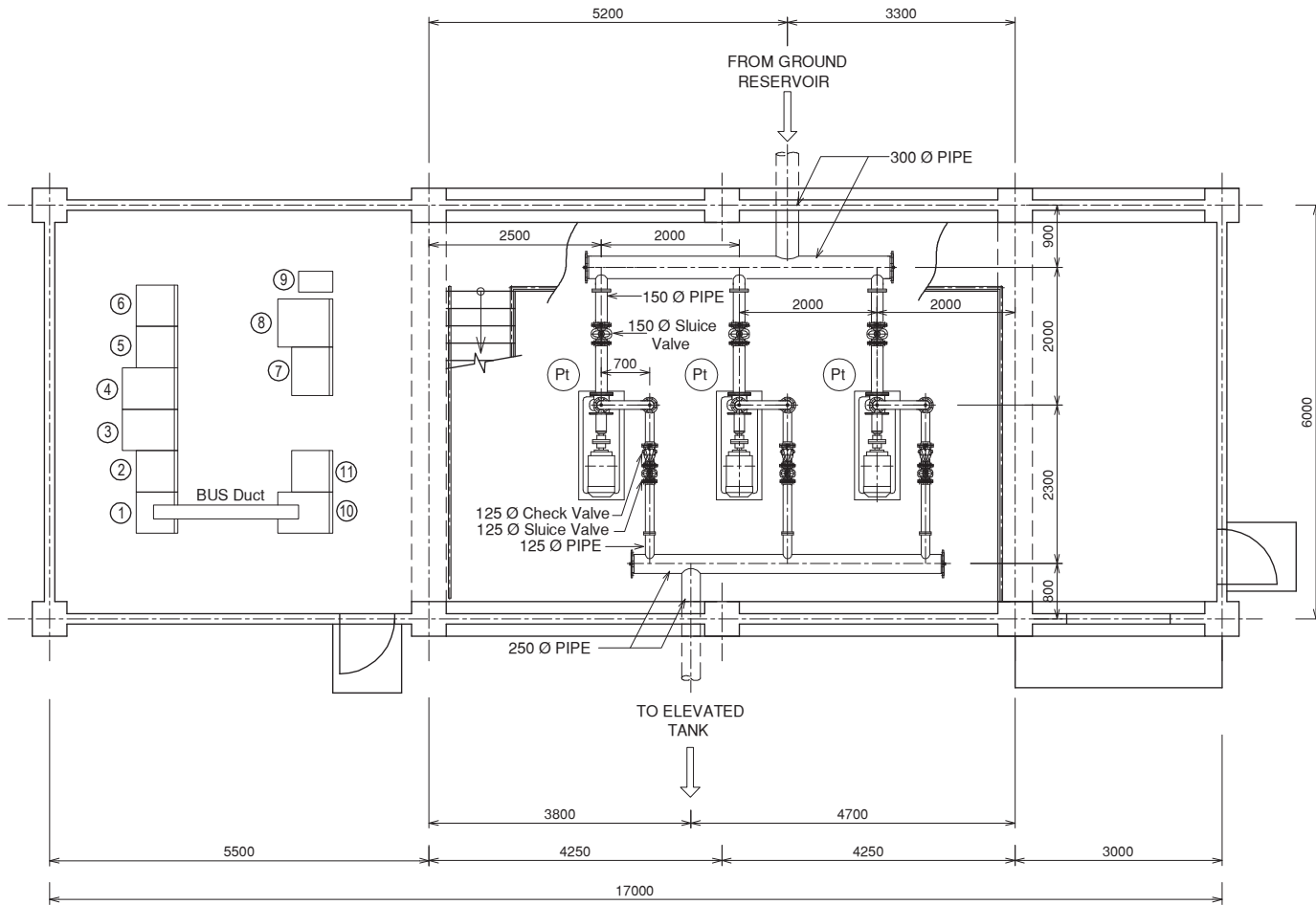
Specification of Pumps

No.	Pr	Ps	Pq
Pump Type	Multi Stage	Multi Stage	Multi Stage
Flow (m ³ /m)	1.01	3.26	0.55
Total Head (m)	98	96	29
Motor kW (kW)	30	75	5.5

NOTE:-

All Dimensions Are in Millimeters

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project	JAPAN INTERNATIONAL COOPERATION AGENCY	TITLE: HOROWPOTHANA PUMP STATION																								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD	CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN	<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>REV.</th> <th>DESCRIPTION</th> <th>DATE</th> <th>SIGN.</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	REV.	DESCRIPTION	DATE	SIGN.																	DESIGNED:	DRAWN: THARAKA	PM: (CONSULTANT)	DRAWING NO.: WT&D/PH/M/04
REV.	DESCRIPTION	DATE	SIGN.																							
		CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE: 26/09/2012	SCALE: As Given																				



PLAN
Scale:- 1:75

Description of Electrical Panel

No.	Description
①	Power Incoming MCC-1 main
②	Generator Incoming MCC-G
③	Elevated Tank Transmission Pump-1 VSD
④	Elevated Tank Transmission Pump-2 VSD
⑤	MCC-2 for other loads
⑥	MCC-3 for other loads
⑦	Control Relay Panel
⑧	Instrumentation Panel
⑨	UPS
⑩	Elevated Tank Transmission Pump-3 VSD
⑪	MCC-4 for other loads

Specification of Pumps

No.	Pt
Pump Type	End Suction
Flow (m ³ /m)	1.88
Total Head (m)	36
Motor kW (kW)	22

NOTE:-

All Dimensions Are in Millimeters

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project



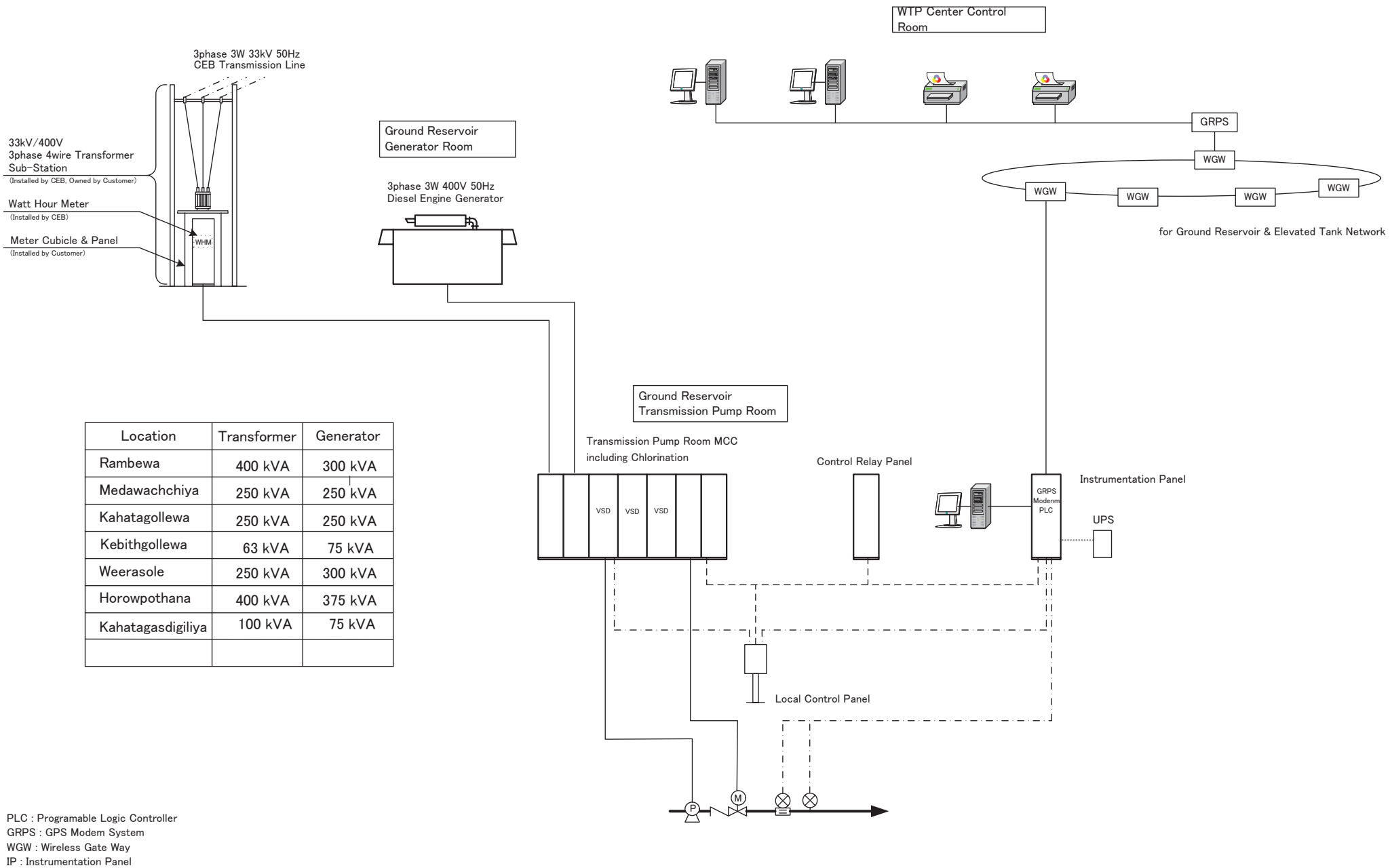
JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: KAHATAGASDIGILIYA PUMP STATION

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

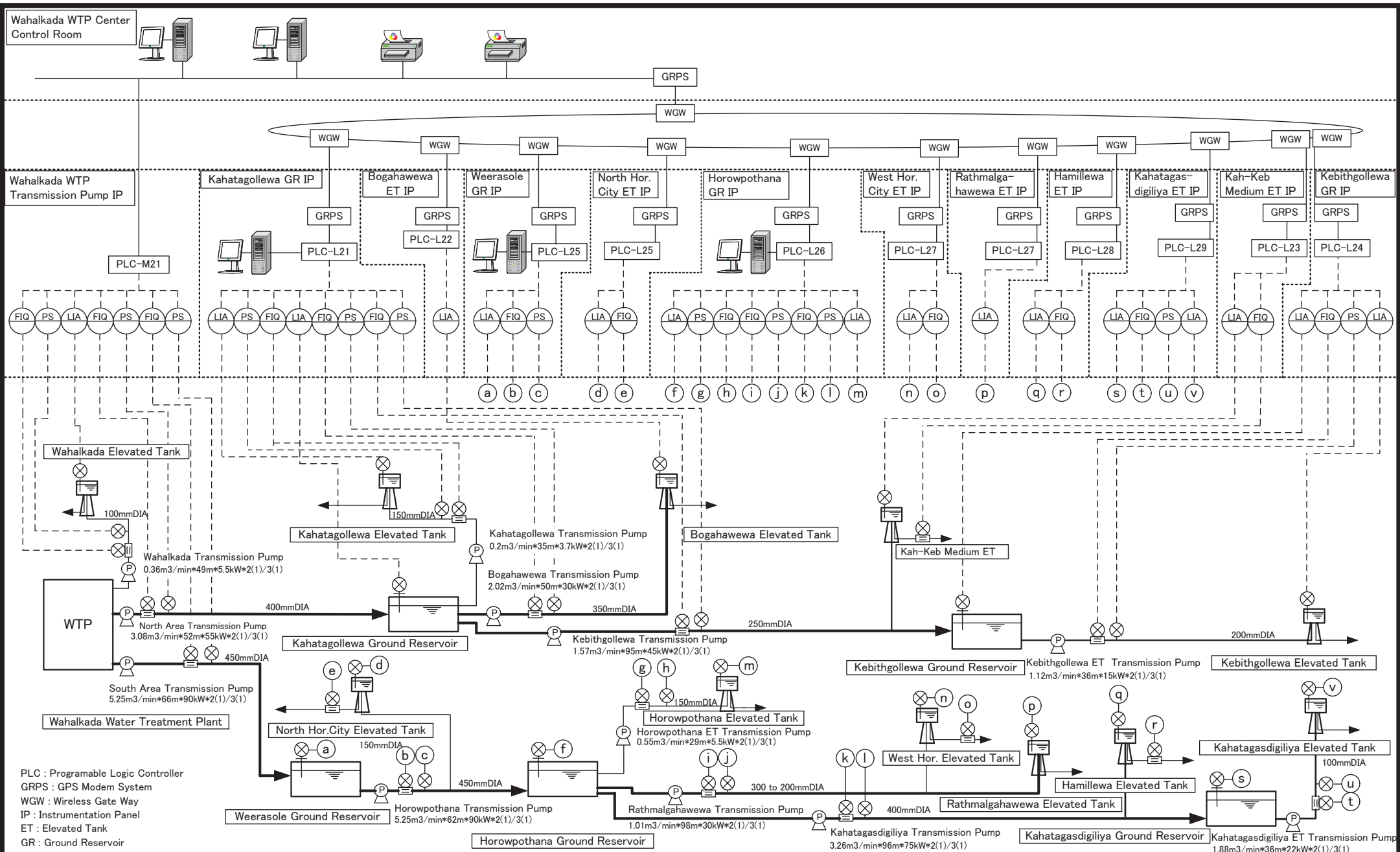
CONSULTANTS:
NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

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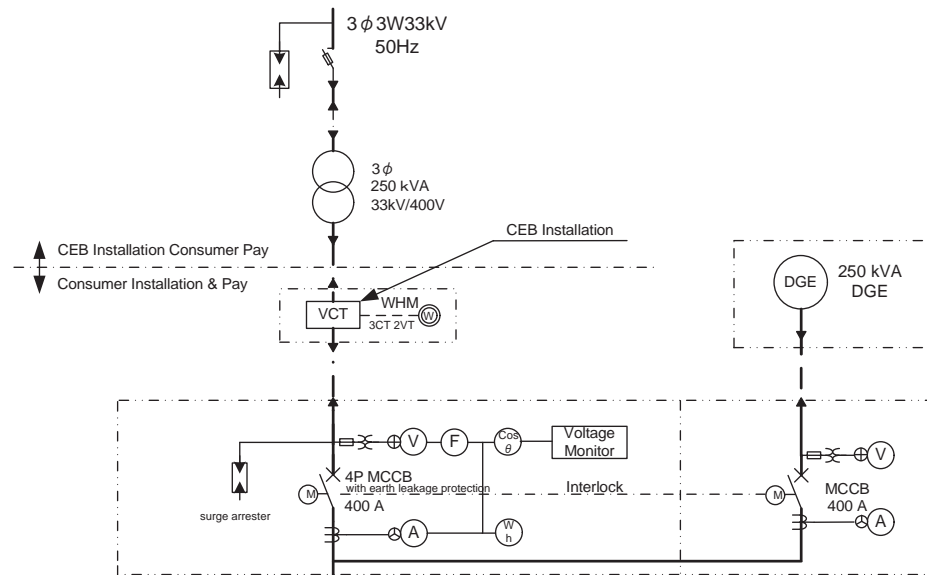
PLC : Programmable Logic Controller
 GRPS : GPS Modem System
 WGW : Wireless Gate Way
 IP : Instrumentation Panel

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project		CONSULTANTS: JICA JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: TYPICAL GROUND RESERVOIR SYSTEM CONFIGURATION DIAGRAM					
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD	CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN	REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: Akiyama	DRAWN: Akiyama	PM: (CONSULTANT) Miwa	DRAWING NO.: MWT&D/STD/E/01
						CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE: 15/09/2012	SCALE: NON



PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project		JICA JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: WAHALKADA INSTRUMENTATION FLOW DIAGRAM								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED: AKIYAMA	DRAWN: AKIYAMA	PM: (CONSULTANT) MIWA	DRAWING NO.: WT&D/STDE/01	
								CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE: 15/09/2012	SCALE: NON

From CEB Transmission Line



Load	Kebithigollewa GR Transmission Pump	Discharge Valve for Kebithigollewa	Bogahawewa ET Transmission Pump	Discharge Valve for Begehewa	Kahatagollewa ET Transmission Pump	Discharge Valve for Kahatagollewa	Chlorination Booster Pump	Exhaust Fan	Ventilation	Lighting	For GGE	For Control
Output (kW)	45	0.4	30	0.4	3.7	0.4	5.5	0.25	0.2	2	1	3
Starting Method	VSD	R	VSD	R	RSD	R	NR	NR	NR	F	F	F
MCCB (AF)	100	50	50	50	50	50	50	50	50	50	50	50
Earth Fault Protection	Install	Install	Install	Install	Install	Install	Install	Install	Install			
Ammeter	Install		Install		Install		Install		Install			
Run Hour Meter	Install		Install		Install		Install		Install			
Capacitor (kVar)												
Qty	1st Stage	2	2	2	2	2	2	2	2	1	1	1
	Final	3	3	3	3	3	2	2	2	1	1	1

Legend

NR	Direct On Line Starter
R	Reversible Starter
VSD	Variable Speed Driver
SS	Soft Starter
RSD	Closed Transition Star Delta Starter
F	MCCB Feeder

Voltage monitor shall be provided with the following features and interlocked with all motor starters.

1. Phase failure protection
2. Supply voltage imbalance (adjustable)
3. Under and over voltage (adjustable)
4. Phase revers

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project



JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE:

KAHATAGOLLEWA GROUND RESERVOIR SINGLE LINE DIAGRAM

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD



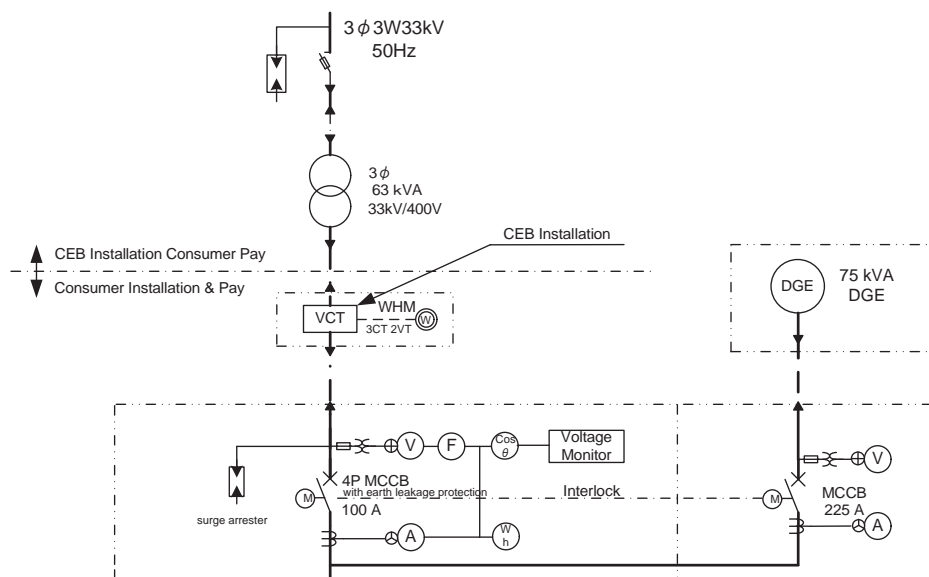
CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN



REV.	DESCRIPTION	DATE	SIGN.

DESIGNED: AKIYAMA	DRAWN: AKIYAMA	PM: (CONSULTANT) MIWA	DRAWING NO.: WT&D/GR/E/01
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			SCALE: NON

From CEB Transmission Line



Load	Kebithgollewa ET Transmission Pump	Discharge Valve for Kebithgollewa	Chlorination Booster Pump	Exhaust Fan	Ventilation	Lighting	For GGE					For Control
Output (kW)	15	0.4	5.5	0.25	0.2	2	1					3
Starting Method	SS	R	NR	NR	NR	F	For GGE					F
MCCB (AF)	50	50	50	50	50	50	50					50
Earth Fault Protection	Install	Install	Install	Install	Install							
Ammeter	Install		Install		Install							
Run Hour Meter	Install		Install		Install							
Capacitor (kVar)												
Qty	1st Stage	2	2	2	2	2	1	1				1
	Final	3	3	2	2	2	1	1				1

Legend

NR	Direct On Line Starter
R	Reversible Starter
VSD	Variable Speed Driver
SS	Soft Starter
RSD	Closed Transition Star Delta Starter
F	MCCB Feeder

Voltage monitor shall be provided with the following features and interlocked with all motor starters.

1. Phase failure protection
2. Supply voltage imbalance (adjustable)
3. Under and over voltage (adjustable)
4. Phase revers

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project



JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE:

KEBITHGOLLEWA GROUND RESERVOIR SINGLE LINE DIAGRAM

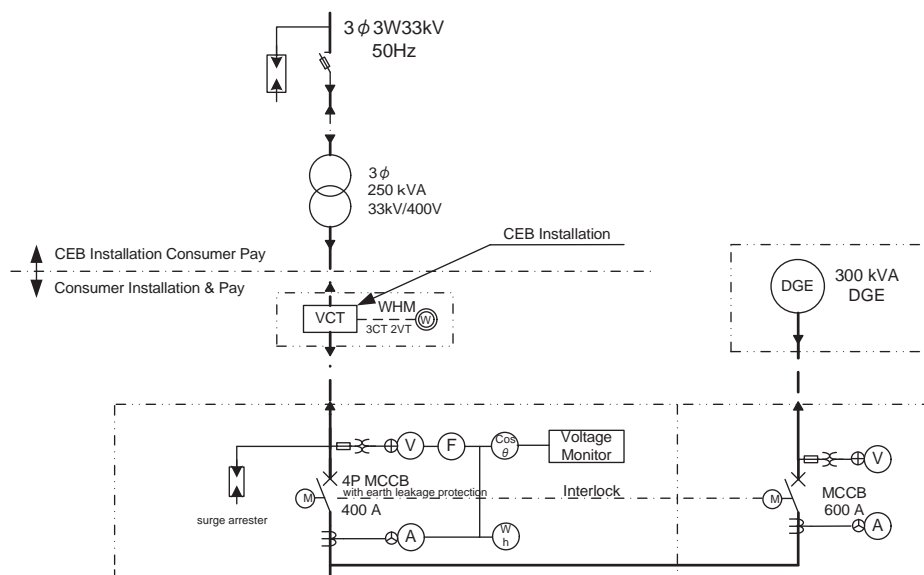
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

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

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			SCALE: NON

From CEB Transmission Line



Load	Horowpothana Transmission Pump	Discharge Valve for Horowpothana	Chlorination Booster Pump	Exhaust Fan	Ventilation	Lighting	For GGE					For Control
Output (kW)	90	0.4	5.5	0.25	0.2	2	1					3
Starting Method	VSD	R	NR	NR	NR	F	For GGE					F
MCCB (AF)	225	50	50	50	50	50	50					50
Earth Fault Protection	Install	Install	Install	Install	Install							
Ammeter	Install		Install		Install							
Run Hour Meter	Install		Install		Install							
Capacitor (kVar)												
Qty	1st Stage	2	2	2	2	2	1	1				1
	Final	3	3	2	2	2	1	1				1

Legend

NR	Direct On Line Starter
R	Reversible Starter
VSD	Variable Speed Driver
SS	Soft Starter
RSD	Closed Transition Star Delta Starter
F	MCCB Feeder

Voltage monitor shall be provided with the following features and interlocked with all motor starters.

1. Phase failure protection
2. Supply voltage imbalance (adjustable)
3. Under and over voltage (adjustable)
4. Phase revers

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project



JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE:

WEERASOLE GROUND RESERVOIR SINGLE LINE DIAGRAM

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD



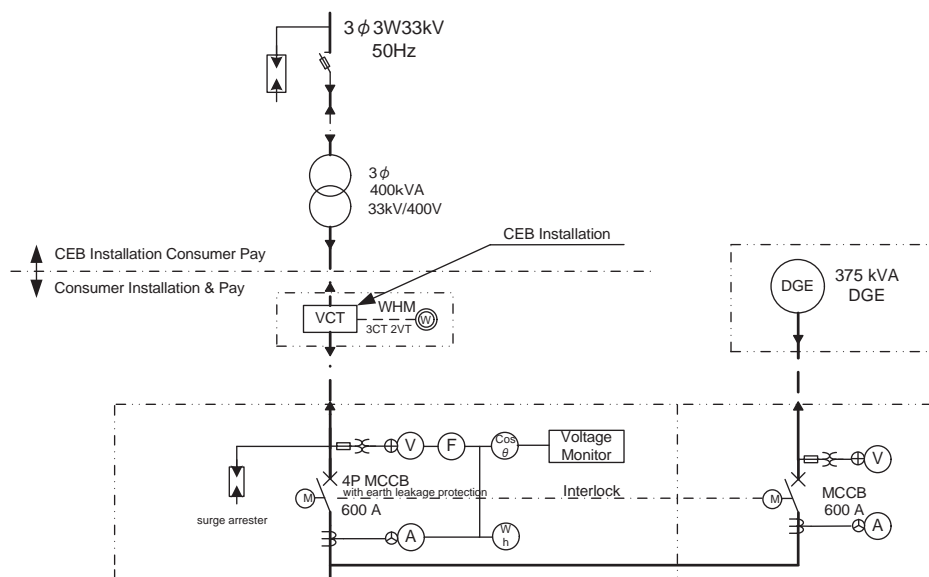
CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN



REV.	DESCRIPTION	DATE	SIGN.

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			SCALE: NON

From CEB Transmission Line



Load	Horowpothana ET Transmission Pump	Discharge Valve for Horowpothana	Rathmalgahawewa ET Transmission Pump	Discharge Valve for Rathmalgahawewa	Kahatagasdigiliya Transmission Pump	Discharge Valve for Kathmalgahawewa	Chlorination Booster Pump	Exhaust Fan	Ventilation	Lighting	For GGE	For Control
Output (kW)	5.5	0.4	30	0.4	75	0.4	5.5	0.25	0.2	2	1	3
Starting Method	RSD	R	VSD	R	VSD	R	NR	NR	NR	F	F	F
MCCB (AF)	50	50	50	50	225	50	50	50	50	50	50	50
Earth Fault Protection	Install	Install	Install	Install	Install	Install	Install	Install	Install			
Ammeter	Install		Install		Install		Install		Install			
Run Hour Meter	Install		Install		Install		Install		Install			
Capacitor (kVar)												
Qty	1st Stage	2	2	2	2	2	2	2	2	1	1	1
	Final	3	3	3	3	3	2	2	2	1	1	1

Legend

NR	Direct On Line Starter
R	Reversible Starter
VSD	Variable Speed Driver
SS	Soft Starter
RSD	Closed Transition Star Delta Starter
F	MCCB Feeder

Voltage monitor shall be provided with the following features and interlocked with all motor starters.

1. Phase failure protection
2. Supply voltage imbalance (adjustable)
3. Under and over voltage (adjustable)
4. Phase revers

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project



JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE:

HOROWPOTHANA GROUND RESERVOIR SINGLE LINE DIAGRAM

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD



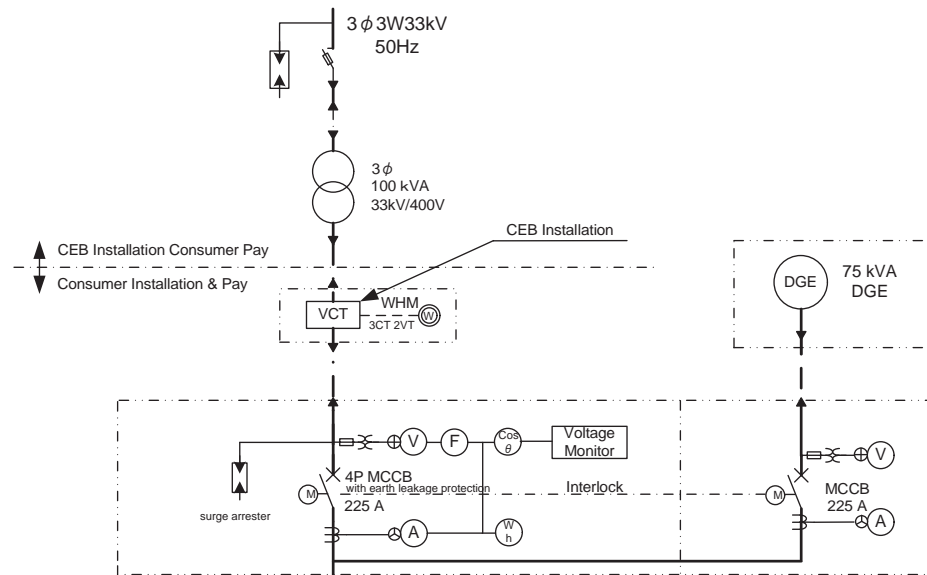
CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN



REV.	DESCRIPTION	DATE	SIGN.

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			SCALE: NON

From CEB Transmission Line



Load	Kahatagasdigiya ET Transmission Pump	Discharge Valve for Kahatagasdigiya	Chlorination Booster Pump	Exhaust Fan	Ventilation	Lighting	For GGE					For Control
Output (kW)	22	0.4	5.5	0.25	0.2	2	1					3
Starting Method	SS	R	NR	NR	NR	F	F					F
MCCB (AF)	50	50	50	50	50	50	50					50
Earth Fault Protection	Install	Install	Install	Install	Install							
Ammeter	Install		Install		Install							
Run Hour Meter	Install		Install		Install							
Capacitor (kVar)												
Qty	1st Stage	2	2	2	2	2	1	1				1
	Final	3	3	2	2	2	1	1				1

Legend

NR	Direct On Line Starter
R	Reversible Starter
VSD	Variable Speed Driver
SS	Soft Starter
RSD	Closed Transition Star Delta Starter
F	MCCB Feeder

Voltage monitor shall be provided with the following features and interlocked with all motor starters.

1. Phase failure protection
2. Supply voltage imbalance (adjustable)
3. Under and over voltage (adjustable)
4. Phase revers

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project



JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE:

KAHATAGASDIGIYA GROUND RESERVOIR SINGLE LINE DIAGRAM

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD



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



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