

SERIAL.. NO. 134A

SERIAL No.	L (mm)	B (mm)	uPVC T(mm)	uPVC D(mm)
158	6100	3660	63	40
180	6100	3660	63	50

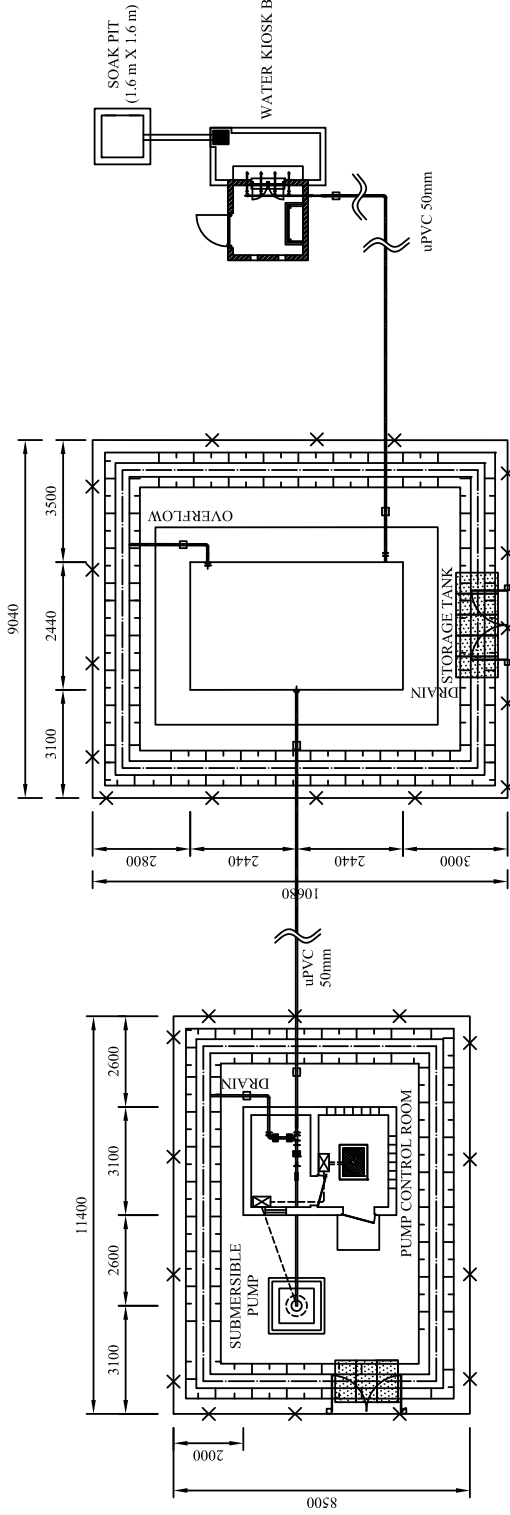
- LEGEND:**
- : PRECAST CONCRETE COVER
 - : GATE
 - : CHAIN-LINK FENCE
 - : CUT SLOPE (GRADIENT 1:0.5)
 - : WATER SUPPLY PIPE
 - : CABLE

- NOTES:**
- FOR DETAILS OF PRECAST CONCRETE COVER, GATE, FENCE AND DRAIN uPVC DITCH, SEE DRAWING No. SP-469 & 070.
 - CONSTRUCTION WORKS FOR 1) FENCES, AND 2) DRAIN OUTLETS ARE DONE BY RURAL COMMUNITY PARTICIPATION BASED ON THE UNDERTAKINGS OF THE GOVERNMENT OF KENYA.

<p>OWNER: THE MINISTRY OF WATER AND IRRIGATION THE REPUBLIC OF KENYA</p>	<p>CONSULTING ENGINEERS: NIPPON KOEI CO.,LTD.</p>	<p>TITLE: CONSTRUCTION OF WATER SUPPLY FACILITIES BY SUBMERSIBLE PUMP</p> <p style="text-align: center;">LAYOUT PLAN OF TYPE S4</p> <p>SCALE: 1:150 DATE: OCT 2010 DRAWING NO. SP-004</p>
---	---	--

NOTES:

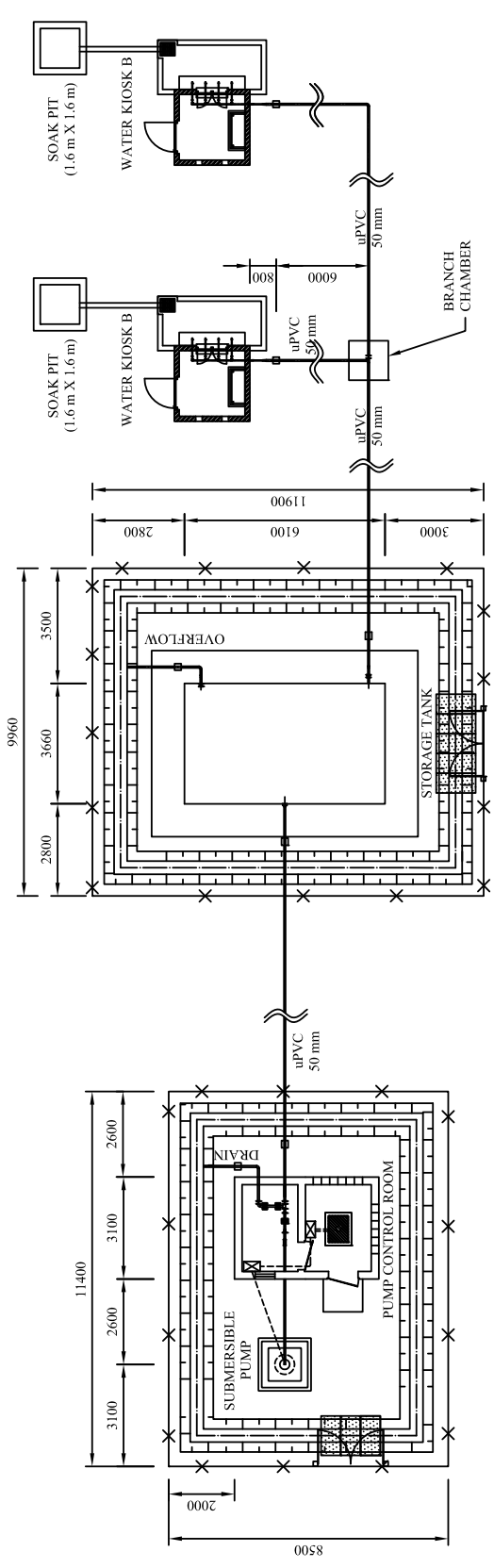
- FOR DETAILS OF PRECAST CONCRETE COVER, GATE, FENCE AND DRAIN uPVC DITCH, SEE DRAWING No. SP-069 & 070.
- CONSTRUCTION WORKS FOR 1) FENCES, AND 2) DRAIN OUTLETS ARE DONE BY RURAL COMMUNITY PARTICIPATION BASED ON THE UNDERTAKINGS OF THE GOVERNMENT OF KENYA.



SERIAL NO. 177

- LEGEND:**
- : PRECAST CONCRETE COVER
 - : GATE
 - : CHAIN-LINK FENCE
 - : CUT SLOPE (GRADIENT 1:0.5)
 - : WATER SUPPLY PIPE
 - : CABLE

OWNER: THE MINISTRY OF WATER AND IRRIGATION THE REPUBLIC OF KENYA	CONSULTING ENGINEERS: NIPPON KOEI CO., LTD.		TITLE: CONSTRUCTION OF WATER SUPPLY FACILITIES BY SUBMERSIBLE PUMP LAYOUT PLAN OF TYPE S6
	PROJECT NAME:	DATE OCT 2010	DRAWING NO. SP-006
	SCALE 1:150		



SERIAL NO. 183

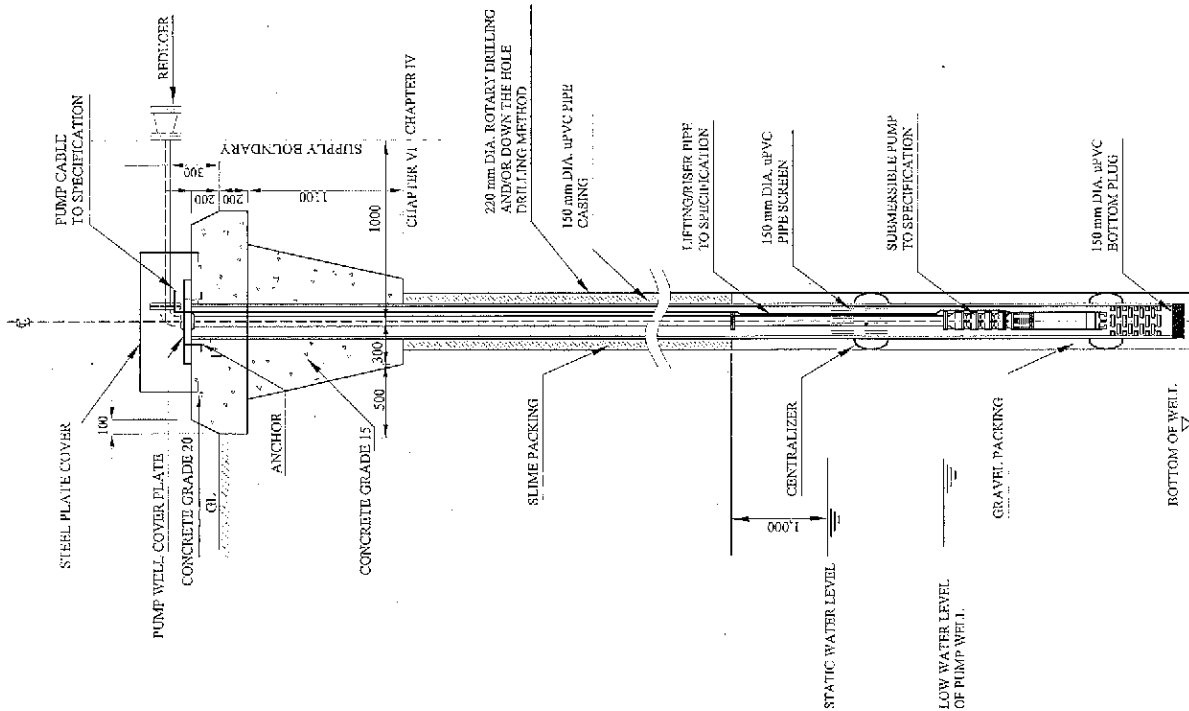
- LEGEND:**
- : PRECAST CONCRETE COVER
 - : GATE
 - : CHAIN-LINK FENCE
 - : CUT SLOPE (GRADIENT 1:0.5)
 - : WATER SUPPLY PIPE
 - : CABLE

- NOTES:**
1. FOR DETAILS OF PRECAST CONCRETE COVER, GATE, FENCE AND DRAIN uPVC DITCH, SEE DRAWING No. SP-069 & 070.
 2. CONSTRUCTION WORKS FOR 1) FENCES AND 2) DRAIN OUTLETS ARE DONE BY RURAL COMMUNITY PARTICIPATION BASED ON THE UNDERTAKINGS OF THE GOVERNMENT OF KENYA.

OWNER: THE MINISTRY OF WATER AND IRRIGATION THE REPUBLIC OF KENYA	THE PROJECT FOR RURAL WATER SUPPLY		CONSULTING ENGINEERS: NIPPON KOEI CO., LTD.	TITLE: CONSTRUCTION OF WATER SUPPLY FACILITIES BY SUBMERSIBLE PUMP LAYOUT PLAN OF TYPE S9
	PROJECT NAME: THE PROJECT FOR RURAL WATER SUPPLY	SCALE: 1:150	DATE: OCT 2010	DRAWING NO. SP-009

DESIGN DATA FOR PUMPS

Serial No.	Discharge (m ³ /day)	Well Depth (m)	Ground Elevation (m)	Static Water Level (OL-ab)	Pipe Dia. (mm)	Length (m)	Transmission Pipe Dia. (mm)	Length (m)	High Water Rise (m)	Power Source	Remarks
96A	4.55	100.0	G.L.	20.0	50	42.8	50	12.3	2.39	Generator	
98A	2.83	100.0	G.L.	20.0	50	30.5	50	12.3	2.39	Generator	Existing Borehole
102	1.02	155.0	1135.0	3.0	32	101.2	40	8.0	2.37	Windmill	Existing Borehole
121	5.17	100.0	1033.0	9.2	30	37.3	50	12.3	3.79	Solar	Existing Borehole
125	0.88	97.0	1144.0	5.3	32	62.3	40	11.9	3.15	Generator	Existing Borehole
127A	2.59	100.0	G.L.	40.0	50	69.6	50	12.3	3.49	Generator	Existing Borehole
133	3.47	120.0	1511.0	16.3	50	57.3	30	12.2	2.39	Mechanical Drive	Existing Borehole
137A	3.17	100.0	1026.0	1.9	30	67.4	40	12.3	3.19	Generator	Existing Borehole
142	0.99	84.0	1016.0	31.1	32	65.3	40	11.9	3.19	Generator	Existing Borehole
151	2.81	54.0	959.0	11.8	30	29.3	40	12.3	3.19	Generator	Existing Borehole
156A	4.00	150.0	G.L.	24.0	50	138.3	50	12.3	3.49	Generator	Existing Borehole
158	4.65	85.0	1119.0	4.7	45	57.3	65	201.2	3.65	Generator	Existing Borehole
162	1.10	140.0	1139.0	44.6	40	108.3	40	11.9	3.15	Generator	Existing Borehole
163	5.78	137.0	1185.0	31.5	30	118.3	40	11.9	3.15	Generator	Existing Borehole
167	2.40	110.0	1453.5	20.2	30	60.3	30	56.6	2.40	Generator	Existing Borehole
172	3.23	92.0	1259.0	4.4	50	28.3	30	12.3	3.50	Generator	Existing Borehole
173A	2.01	95.0	G.L.	33.0	40	48.3	40	15.1	1.58	Generator	Existing Borehole
177	2.97	89.0	1263.4	5.0	30	42.3	50	15.1	1.58	Generator	Existing Borehole
178A	3.05	105.0	G.L.	35.0	50	59.3	50	164.7	3.50	Generator	Existing Borehole
180	4.16	109.0	1354.0	6.4	65	78.7	50	66.7	3.50	Generator	Existing Borehole
183	1.14	172.0	1463.3	9.8	50	111.3	50	101.2	3.50	Generator	Existing Borehole
185	2.05	120.0	1477.0	7.5	50	94.3	50	113.3	3.58	Generator	Existing Borehole
189A	2.14	100.0	G.L.	20.0	50	48.3	50	124.3	3.58	Generator	Existing Borehole
189	3.60	92.0	1270.3	11.3	50	52.6	50	48.0	1.58	Mechanical Drive	Existing Borehole
192A	3.09	100.0	G.L.	30.0	50	50.6	50	160.0	3.50	Generator	Existing Borehole
195A	3.30	100.0	G.L.	30.0	50	50.6	50	113.3	3.50	Generator	Existing Borehole
197	5.32	60.0	1093.0	6.0	50	51.3	50	11.3	3.50	Generator	Existing Borehole
200	0.20	150.0	1438.0	44.7	40	129.3	40	19.8	2.15	Solar	Existing Borehole



NOTE:
 1. PIPELINE LENGTH: FROM THE SUPPLY BOUNDARY (10 m FROM THE CENTERLINE OF "P") TO THE STORAGE TANK, ACCORDING TO THE DIAMETER OF PIPING IS FOR TRANSMISSION PIPELINE.
 2. ALL DIMENSIONS IN MM.
 3. SCREENS "M" OR "B" ARE REFERENCED ONLY, AND THESE SCREENS SHALL BE RESET AFTER COMPLETION OF PAVEMENT ROADS AND SHALL BE CONFIRMED AT PUMPING TEST.
 4. WORK UNDER THE IRON FILTER SHALL BE CHANGED BASED ON THE CHEMICAL ANALYSIS.

OWNER: THE MINISTRY OF WATER AND IRRIGATION THE REPUBLIC OF KENYA

PROJECT NAME: THE PROJECT FOR RURAL WATER SUPPLY

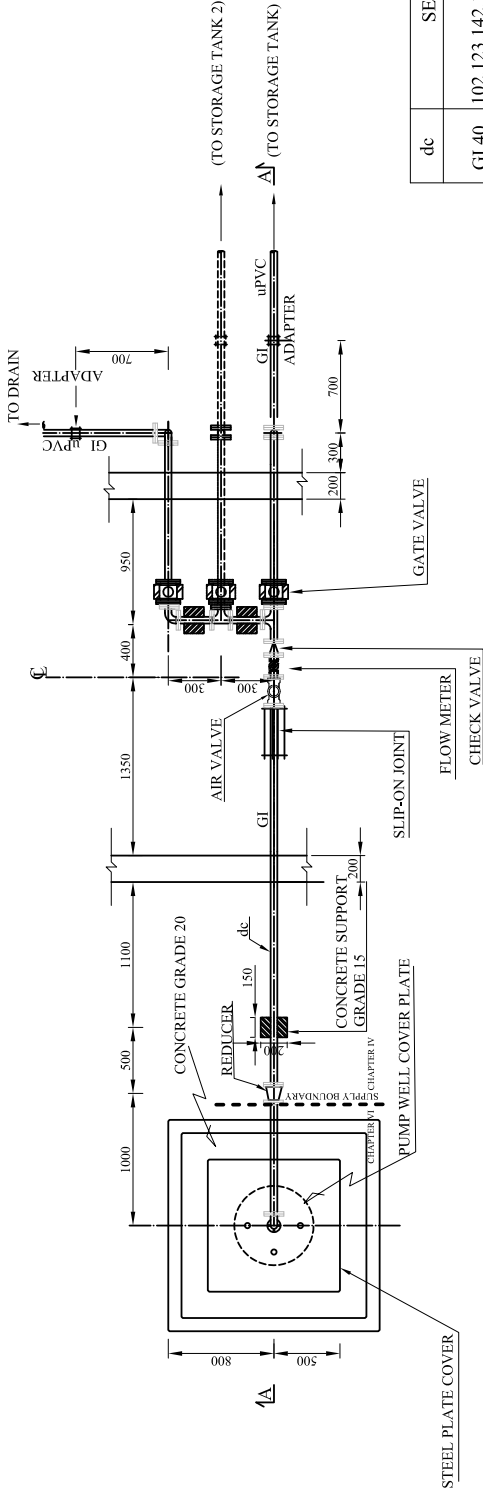
CONSULTING ENGINEER: NIPPON KOEI CO., LTD.

TITLE: CONSTRUCTION OF WATER SUPPLY FACILITIES BY SUBMERSIBLE PUMP SUBMERSIBLE MOTOR PUMP

SCALE: NONE

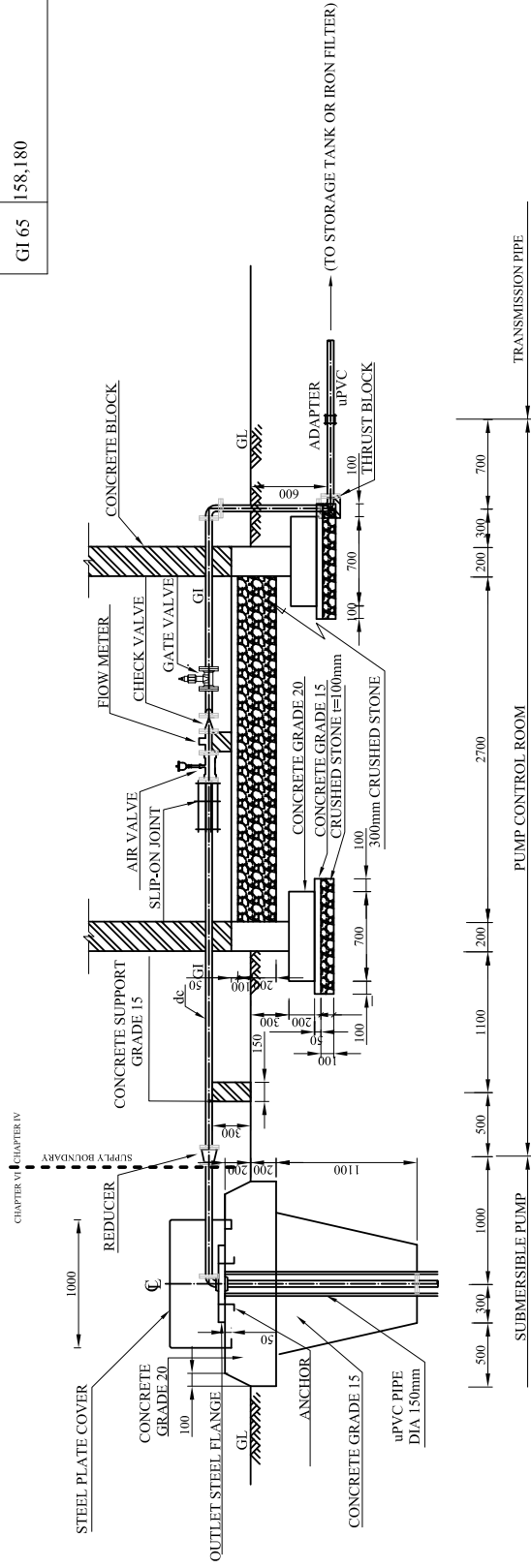
DATE: JAN 2010

DRAWING NO: SP-042



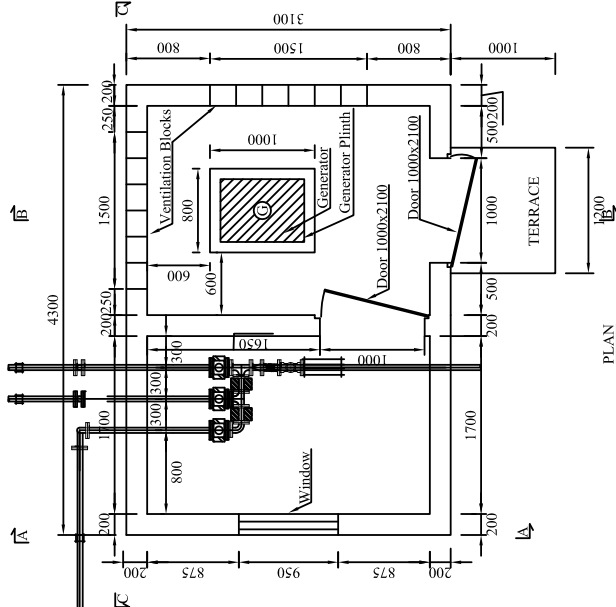
PLAN OF CONTROL ROOM

dc	SERIAL No.
GI 40	102,123,142,162,173A,186,200
GI 50	96A,98A,121,127A,133,137A,151,156A,163,167,172 177,178A,183,187A,188A,189,191A,195A,197
GI 65	158,180

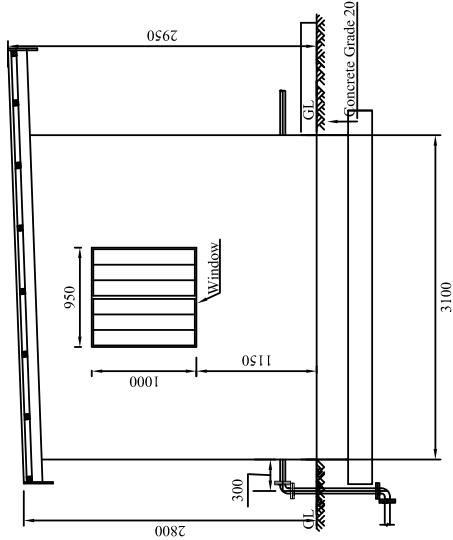


SECTION A-A

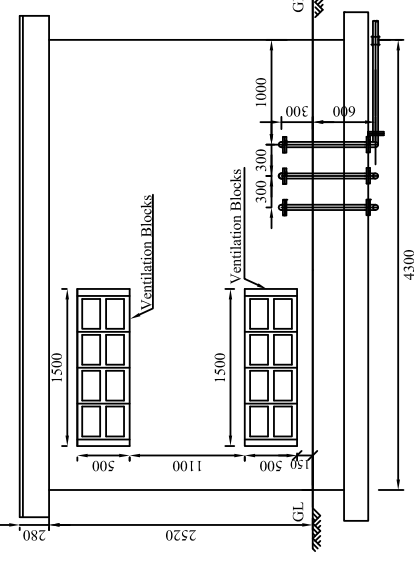
<p>OWNER:</p> <p>THE MINISTRY OF WATER AND IRRIGATION</p> <p>THE REPUBLIC OF KENYA</p>	<p>PROJECT NAME:</p> <p>THE PROJECT FOR</p> <p>RURAL WATER SUPPLY</p>	<p>CONSULTING ENGINEERS:</p> <p style="text-align: center;">NIPPON KOEI CO., LTD.</p>	
		<p>TITLE:</p> <p>CONSTRUCTION OF WATER SUPPLY FACILITIES BY SUBMERSIBLE PUMP</p> <p>PIPEWORK OF PUMP CONTROL ROOM</p>	
<p>SCALE</p> <p>1:40</p>		<p>DATE</p> <p>OCT 2010</p>	<p>DRAWING NO.</p> <p>SP-043</p>



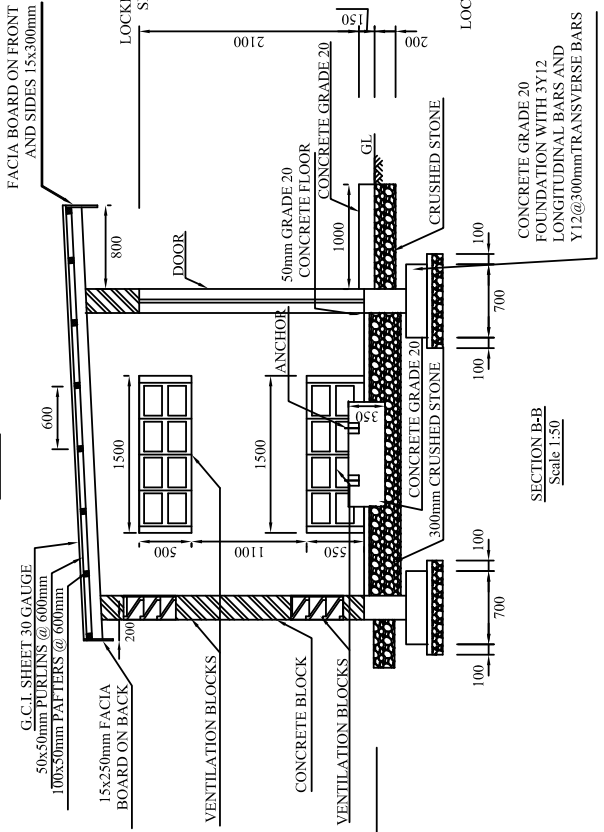
PLAN
Scale 1:50



VIEW A-A
Scale 1:50

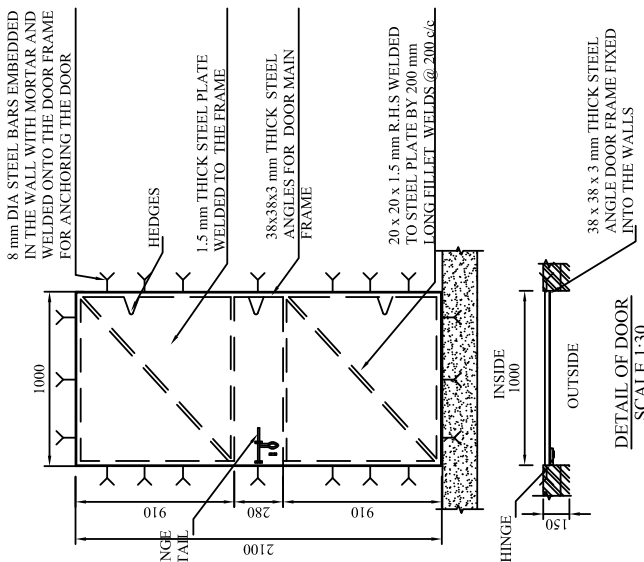


VIEW C-C
Scale 1:50



SECTION B-B
Scale 1:50

VIEW B-B
Scale 1:50



DETAIL OF DOOR
SCALE 1:50

NOTE:

1. THIS LAYOUT PLAN SHALL BE APPLIED TO TYPE S2, S3, S4, S6 AND S9 AS SHOWN IN DRAWINGS NO SP-002 TO SP-009
2. IN THE EVENT OF ELECTRICAL LINE FOR POWER SOURCE, GENERATOR SHALL BE CANCELED
3. FOR DETAILS OF LOCKING HINGE AND WINDOW SEE DRAWING NO SP-468B
4. FOUNDATION LEVEL DEPENDS ON SITE CONDITIONS

CONSULTING ENGINEERS:

PROJECT NAME:

TITLE:

THE PROJECT FOR
RURAL WATER SUPPLY

LAYOUT PLAN OF CONTROL ROOM

OWNER:

THE MINISTRY OF WATER AND IRRIGATION
THE REPUBLIC OF KENYA



DRAWING NO.

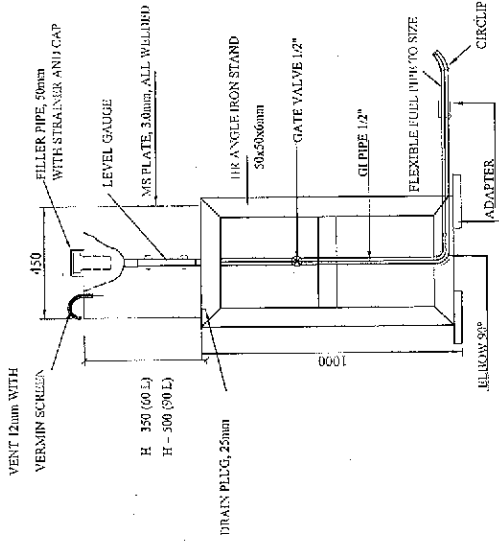
DATE

SCALE

SP-044A

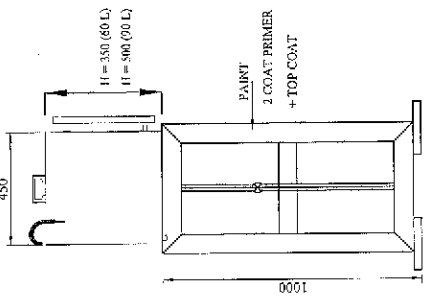
OCT 2010

1:30
1:50



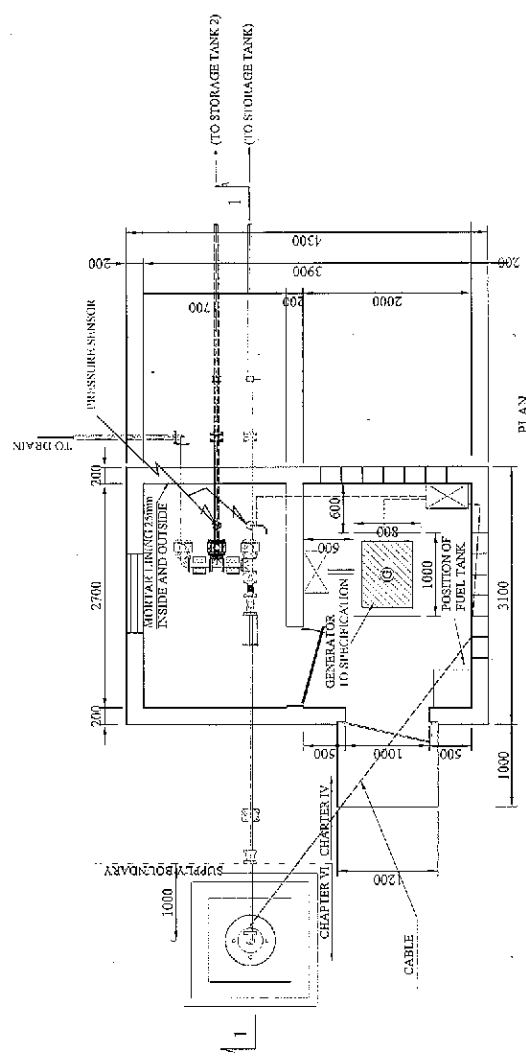
RUBBL TANK - FRONT VIEW
Scale 1:20

FUEL TANK - SIDE VIEW
Scale 1:20

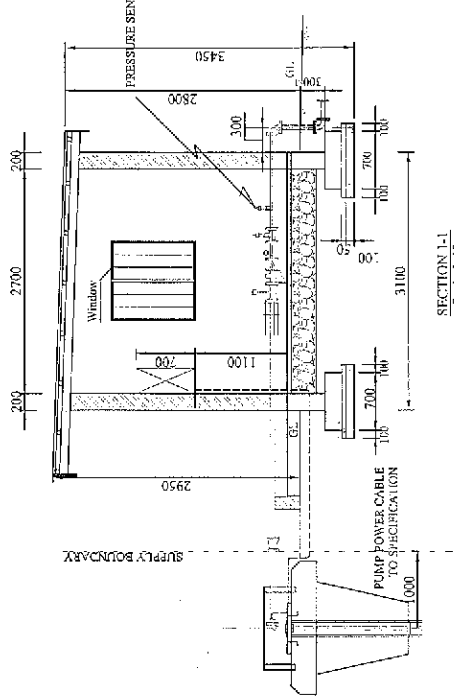


RUBBL TANK - FRONT VIEW
Scale 1:20

FUEL TANK - SIDE VIEW
Scale 1:20



PLAN
Scale 1:50



SECTION 1-1
Scale 1:50

POWER SOURCE	SERIAL NO.
GENERATOR	96A, 97A, 97A, 1VA, 151, 156A, 158, 163, 164, 172, 173, 177, 178A, 180, 181, 186, 187A, 188A, 191A, 195A, 197,
ELECTRICAL LINE	135, 189

NOTE

- THIS DRAWING TO BE READ IN CONNECTION WITH DRAWING Nos. SP-043 TO SP-047.
- POWER SOURCE SHALL BE SELECTED TO MATCH THE TABLE
- IN THE EVENT OF ELECTRICAL LINE FOR POWER SOURCE, GENERATOR AND FUEL TANK SHALL BE CANCELED

TITLE:
CONSTRUCTION OF WATER SUPPLY FACILITIES BY SUBMERSIBLE PUMP
LAYOUT OF DIESEL CABLE SYSTEM
SCALE
DATE
DRAWING NO.

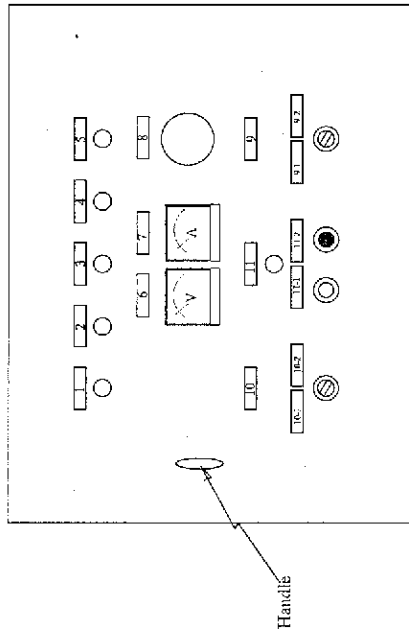
CONSULTING ENGINEERS:
NIPPON KOEI CO., LTD.

PROJECT NAME:
THE PROJECT FOR
RURAL WATER SUPPLY

GWSER:
THE MINISTRY OF WATER AND IRRIGATION
THE REPUBLIC OF KENYA

SCALE
DATE
DRAWING NO.

CONTROL PANEL FRONT VIEW



LEGEND

No.	Device	Name plate Indication
1	STATUS INDICATOR	POWER
2	STATUS INDICATOR	RUN
3	STATUS INDICATOR	OVER LOAD
4	STATUS INDICATOR	WELL LEVEL LOW
5	STATUS INDICATOR	TANK FULL
6	VOLTAGH METER	SUPPLY POW
7	AMMETER	LOAD CURRENT
8	BZZZER	BZZZER
9	CHANGE OVER SWITCH	NO USE
9-1		USE
9-2		PUMP AUTO STOP
10	CHANGE OVER SWITCH	USE
10-1		NO USE
10-2		STOP
8-2		
11	STATUS INDICATOR	PUMP RUN
11-1	PUSH BUFTON SWITCH	STOP
11-2	PUSH BUFTON SWITCH	START

OWNER:

THE MINISTRY OF WATER AND IRRIGATION
THE REPUBLIC OF KENYA

PROJECT NAME:

THE PROJECT FOR
RURAL WATER SUPPLY

CONSULTING ENGINEERS:



NIPPON KOEI CO., LTD.

TITLE:

CONSTRUCTION OF WATER SUPPLY FACILITIES BY SUBMERSIBLE PUMP

AC ELECTRIC PUMP-I

SCALE

NONE

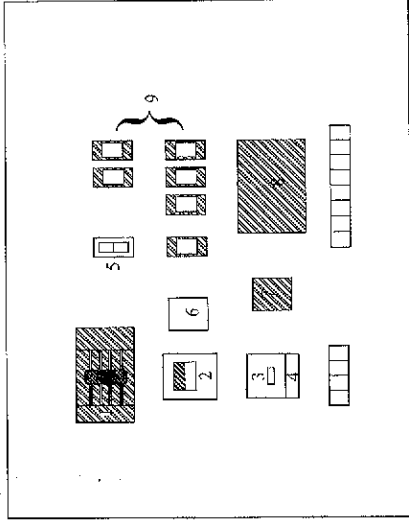
DATE

JAN 2010

DRAWING NO.

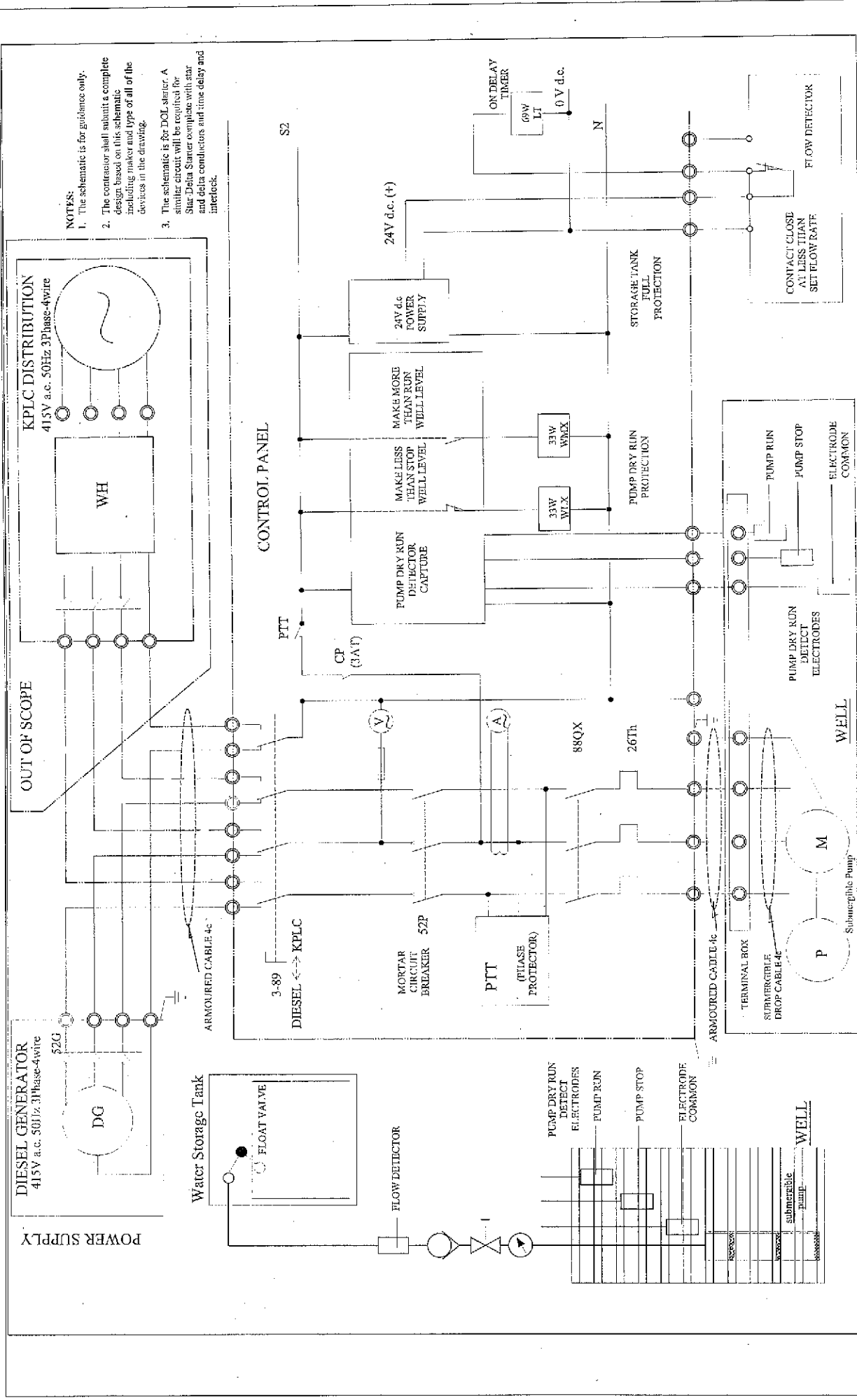
SP-046A

CONTROL PANEL INSIDE VIEW



PANEL DESIGN
CASTING SHEET METAL
THICKNESS:2MM
PROTECTION: IP54
PAINT: RAL7032, GREEN
DEPTH:200MM

No.	Device	Name plate Indication
1	3-89: CHANGE OVER SWITCH	POW SELECT
1-1		KPLC
1-2		DIESEL
2	52:MORTER CIRCUIT BREAKER	POWER SWITCH
3	88Q: MAGNETIC CONTACTOR	88Q
4	26Th: THERMAL RELAY	26Th
5	CP (CIRCUIT PROTECTOR)	CONTROL POWER
6	24V d.c POWER SUPPLY	DC 24V
7	PIT: PHASE PROTECTIONRY	29th
8	WATER LEVEL DETECTOR	PUMP DRY RUN DETECT
9	AUXILIARY RELAYS	33WLX, 33WMX, 33WLY, 69WX, 69WY, 26ThX



- NOTES:**
1. The schematic is for guidance only.
 2. The contractor shall submit a complete design based on this schematic including make and type of all of the devices in the drawing.
 3. The schematic is for DOL starter. A similar circuit will be required for Star-Delta Starter compatible with star and delta conductors and time delay and interlock.

OWNER:
THE MINISTRY OF WATER AND IRRIGATION
THE REPUBLIC OF KENYA

PROJECT NAME:
THE PROJECT FOR RURAL WATER SUPPLY

CONSULTING ENGINEERS:
NIPON KOEI CO., LTD.

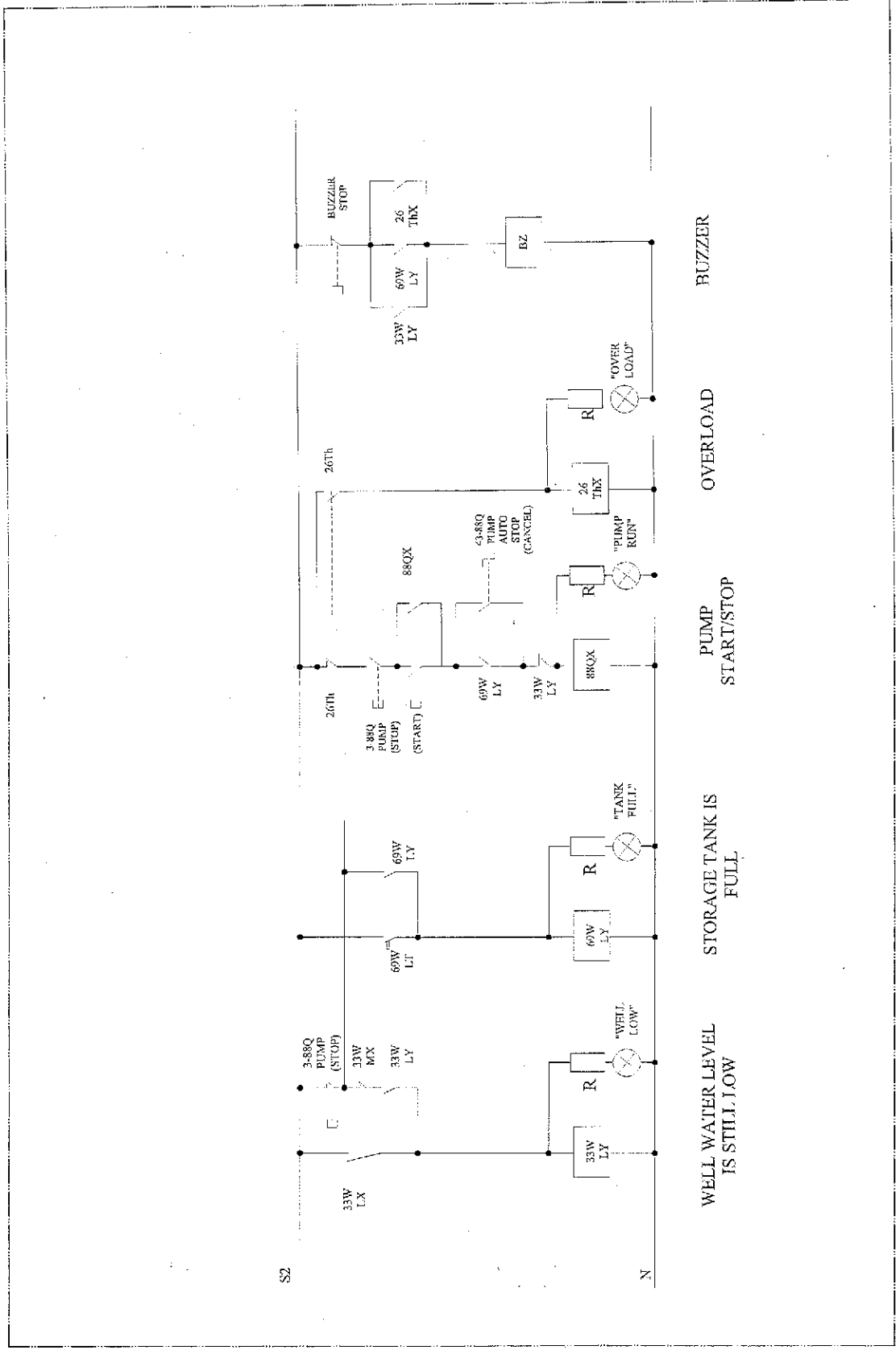
TITLE:
CONSTRUCTION OF WATER SUPPLY FACILITIES BY SUBMERSIBLE PUMP

AC ELECTRIC PUMP-2

SCALE: NONE

DATE: JAN 2010

DRAWING NO.: ST-046B



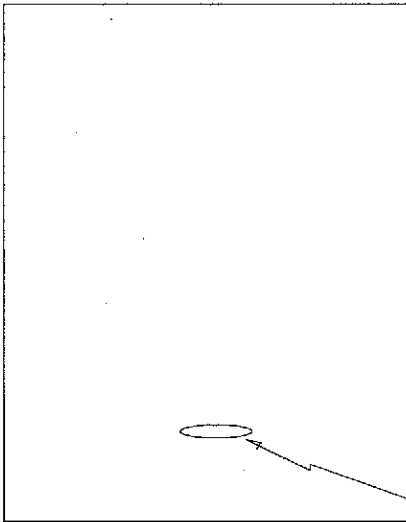
OWNER:
THE MINISTRY OF WATER AND IRRIGATION
THE REPUBLIC OF KENYA

PROJECT NAME:
THE PROJECT FOR
RURAL WATER SUPPLY

CONSULTING ENGINEERS
NIPPON KOEI CO., LTD.

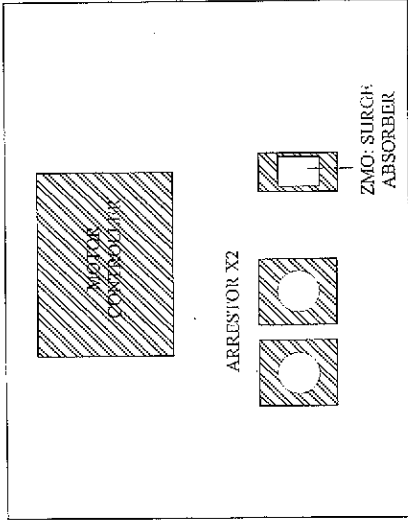
TITLE:
CONSTRUCTION OF WATER SUPPLY FACILITIES BY SUBMERSIBLE PUMP
AC ELECTRIC PUMP-3
SCALE: NONE
DATE: JAN 2010
DRAWING NO: SP-046C

CONTROL PANEL FRONT VIEW



HANDLE

CONTROL PANEL INSIDE VIEW



OWNER:

THE MINISTRY OF WATER AND IRRIGATION
THE REPUBLIC OF KENYA

PROJECT NAME:

THE PROJECT FOR
RURAL WATER SUPPLY

CONSULTING ENGINEERS:



NIPPON KOEI CO., LTD.

TITLE:

CONSTRUCTION OF WATER SUPPLY FACILITIES BY SUBURBIRIE MWP.

SOLAR PUMP-1

SCALE

NONF.

DATE

JAN 2010

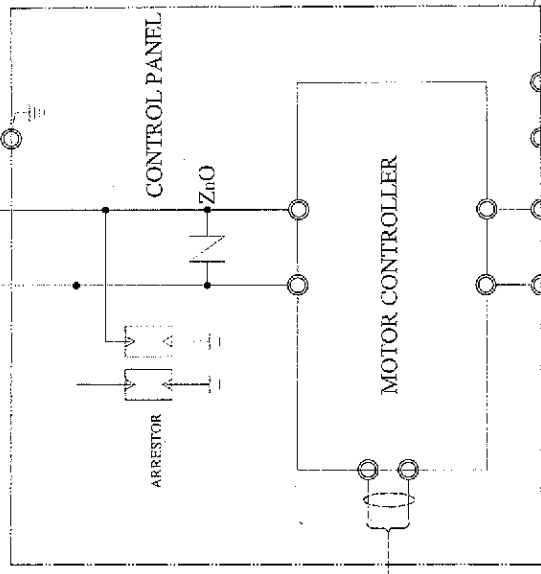
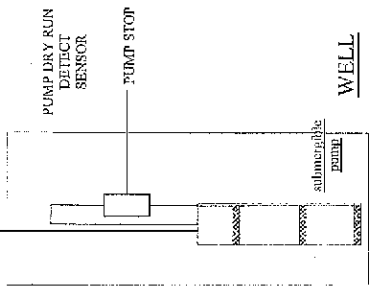
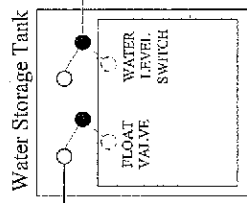
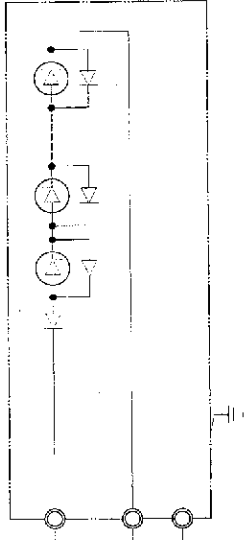
DRAWING NO.

SP-047A

PV ARRAY: Consist of String_ V_ W x _ Modules

[PANELS]
 [V d.c.]
 [V d.c.]
 [V d.c.]
 [V d.c.]

Nos of MODULE:
 OPEN VOLTAGE :
 RATED VOLTAGE :
 RATED POWER :
 RATED VOLTAGE :



CONTROLLER FUNCTION	
CONTROL	STATUS MONITOR
PUMP MANUAL STOP	GENERATED SOLAR POWER
PUMP AUTO START	OVER VOLTAGE
PUMP AUTO STOP	UNDER VOLTAGE
TANK WATER LEVEL	PUMP CURRENT
	OVER CURRENT

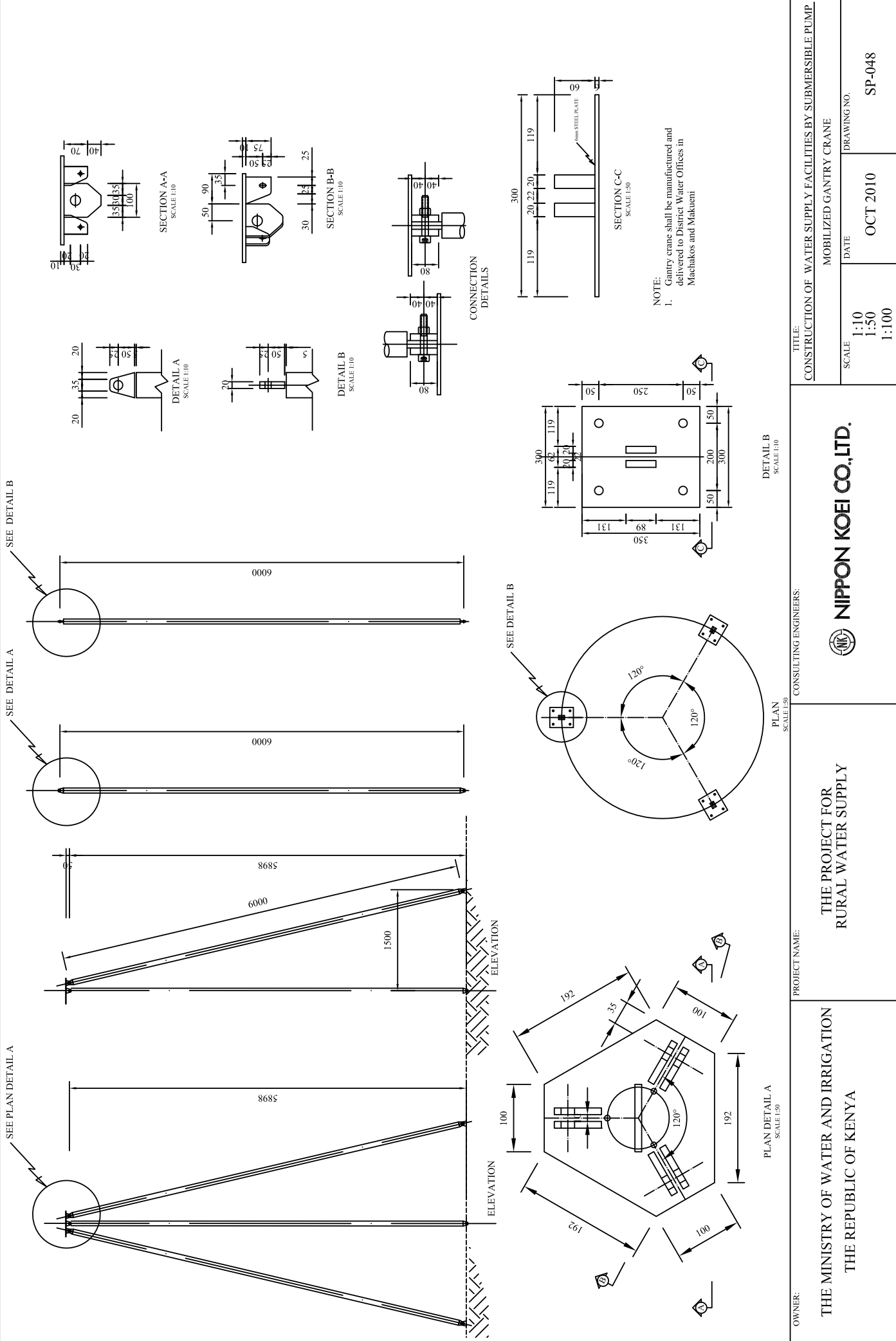
NOTE:
 1. The schematic is for guidance only.
 2. The Contractor shall submit a complete design based on this schematic including Maker and Type of all of the devices in the drawing.

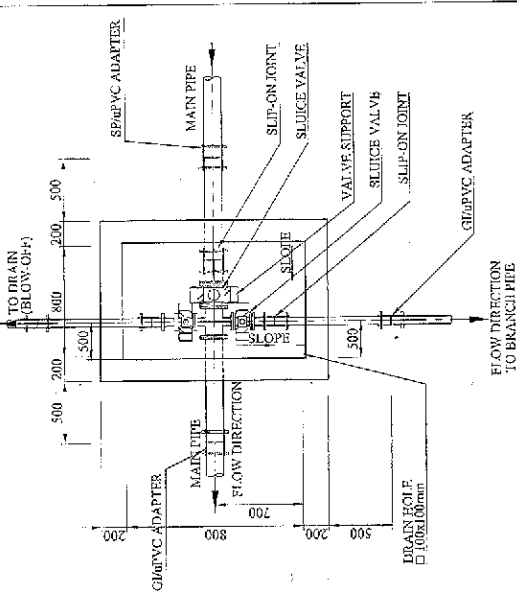
TITLE:	
CONSTRUCTION OF WATER SUPPLY FACILITIES BY SUBMERSIBLE PUMP.	
SCALE	SOLAR PUMP-2
DATE	JAN 2010
DRAWING NO.	ST-047B

PROJECT NAME:
 THE PROJECT FOR
 RURAL WATER SUPPLY

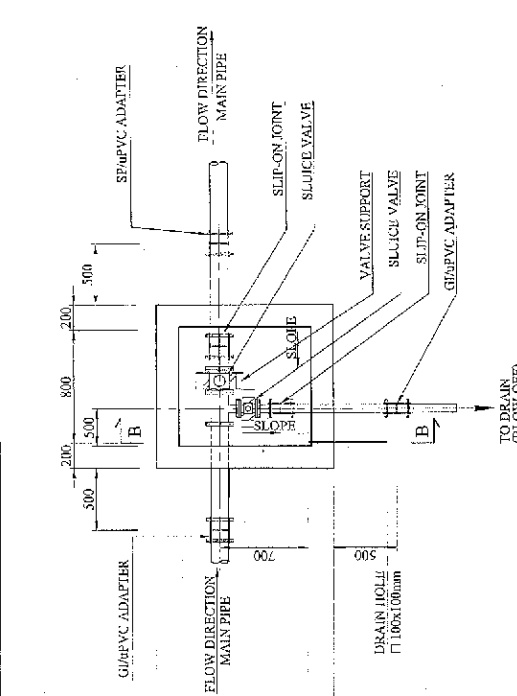
CONSULTING ENGINEERS:
NIPPON KOEI CO., LTD.

OWNER:
 THE MINISTRY OF WATER AND IRRIGATION
 THE REPUBLIC OF KENYA

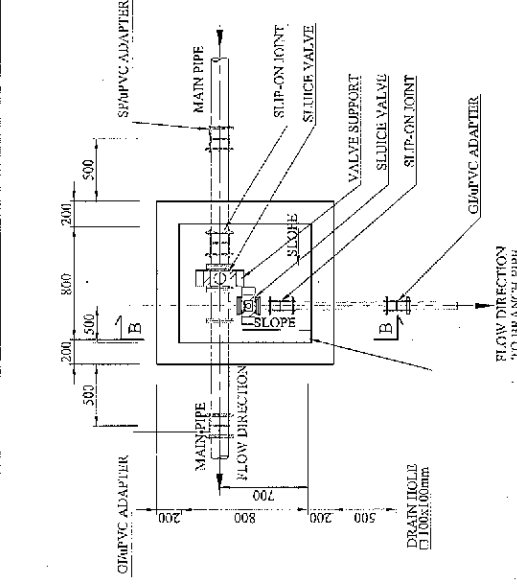




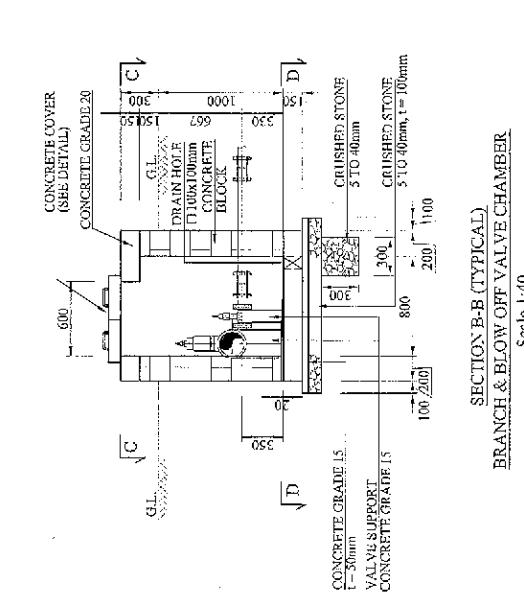
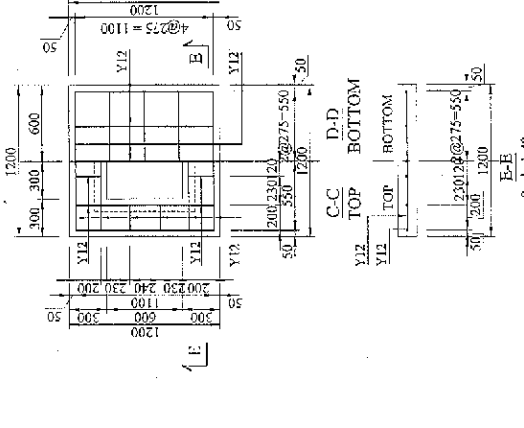
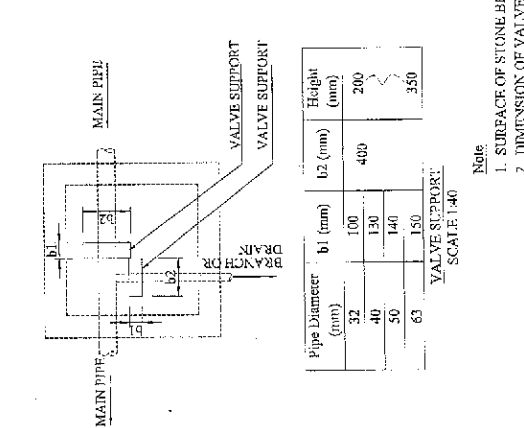
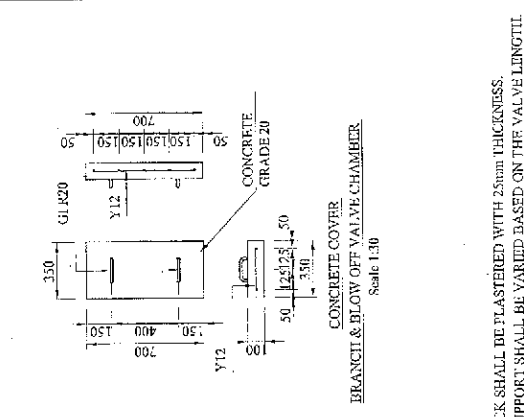
PLAN
BRANCH CHAMBER WITH BLOW OFF VALVE
 Scale 1:40



PLAN
BLOW-OFF VALVE CHAMBER
 Scale 1:40



PLAN
BRANCH CHAMBER
 Scale 1:40



SECTION B-B (TYPICAL)
BRANCH & BLOW OFF VALVE CHAMBER
 Scale 1:40

Pipe Diameter (mm)	b1 (mm)	b2 (mm)	Height (mm)
32	100	400	200
40	130	440	230
50	140	450	240
63	150	460	250

VALVE SUPPORT
SCALE 1:40

Note

1. SURFACE OF STONE BLOCK SHALL BE PLASTERED WITH 25mm THICKNESS.
2. DIMENSION OF VALVE SUPPORT SHALL BE VARIED BASED ON THE VALVE LENGTH.

OWNER: THE MINISTRY OF WATER AND IRRIGATION THE REPUBLIC OF KENYA

PROJECT NAME: RURAL WATER SUPPLY

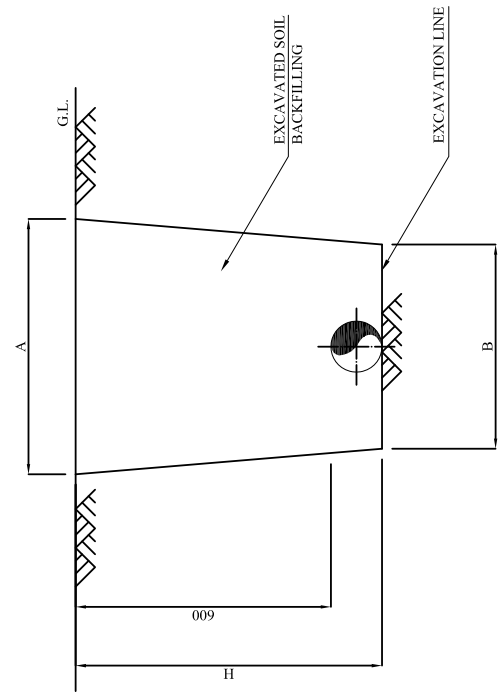
TITLE: CONSTRUCTION OF WATER SUPPLY FACILITIES BY SUBMERSIBLE PUMP BRANCH, BLOW OFF & AIR VALVE CHAMBER (1/2)

DATE: NOV 2007

DRAWING NO: ST-049

SCALE: 1:40 1:30

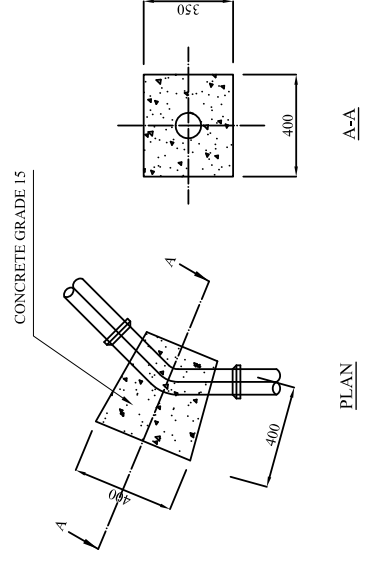
CONSULTING ENGINEERS: NIPPON KOEI CO., LTD.



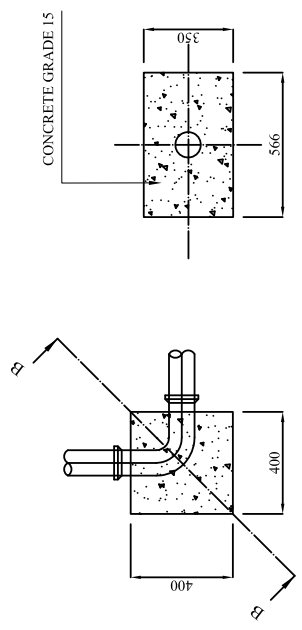
EXCAVATION

Pipe Diameter (mm)	Excavation Width (m)		Excavation Depth: H (m)
	A	B	
50 ≤	Manual	0.60 0.50	0.65
	Machine	0.50 0.50	
>50	Manual	0.60 0.50	0.70
	Machine	0.65 0.65	

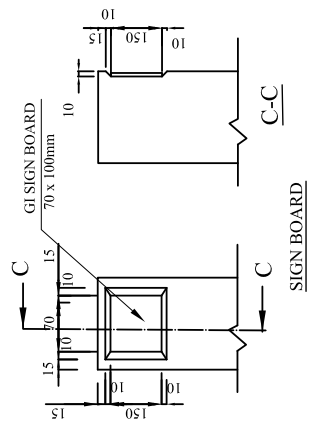
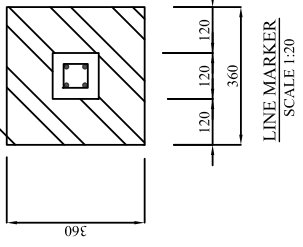
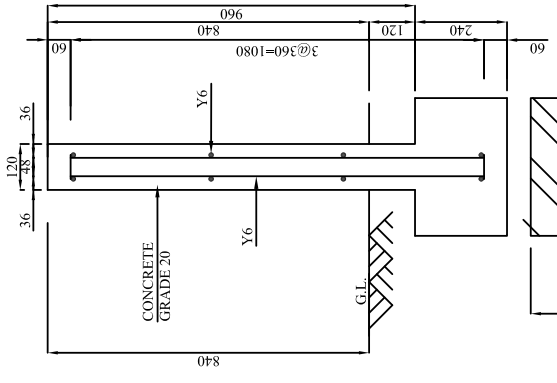
Note: Excavated soil shall be used for backfilling
 : Surplus soil shall be spoiled.
 : Sand with 100mm in thickness shall be bedded below the pipe in case of hard ground formation such as rock, stone and etc.
 : Line marker shall be installed at valve chambers and at all changes of horizontal alignment and of transmission and distribution pipeline at 200m intervals
 : Thrust block shall be installed at all changes of vertical and horizontal alignment of transmission and distribution pipeline



THRUST BLOCK FOR DEGREE OF BEND (LESS 45°)
SCALE 1:20



THRUST BLOCK FOR DEGREE OF BEND (45° - 90°)
SCALE 1:20



OWNER: THE MINISTRY OF WATER AND IRRIGATION THE REPUBLIC OF KENYA

PROJECT NAME: THE PROJECT FOR RURAL WATER SUPPLY

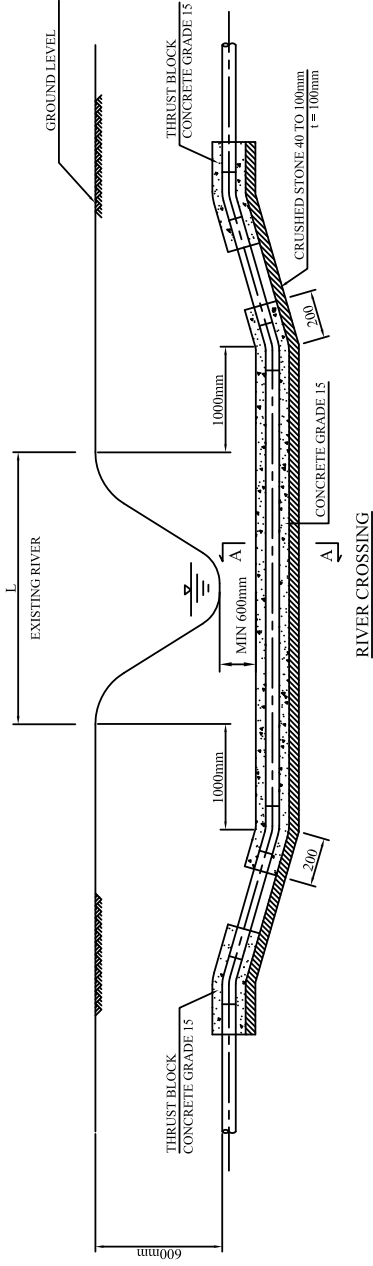
CONSULTING ENGINEERS: NIPPON KOEI CO., LTD.

TITLE: CONSTRUCTION OF WATER SUPPLY FACILITIES BY SUBMERSIBLE PUMP PIPE INSTALLATION, LINE MARKER AND THRUST BLOCK

SCALE: 1:15
1:20
NONE

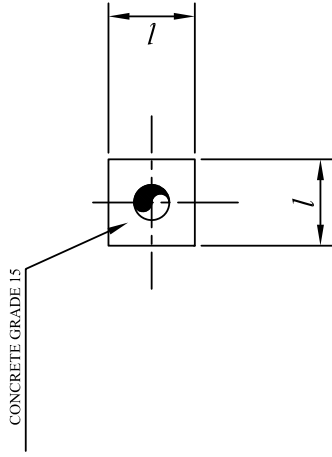
DATE: NOV 2007

DRAWING NO. SP-051

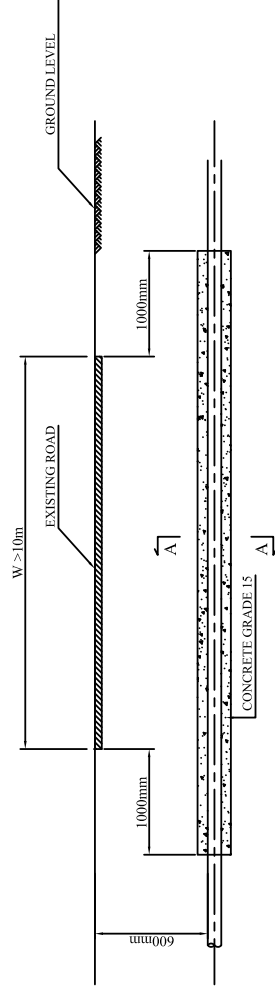


Note: "L" should be indicated in Profile Drawings.

PIPE DIAMETER (mm)	l (mm)
50 ≤	260
50 >	300




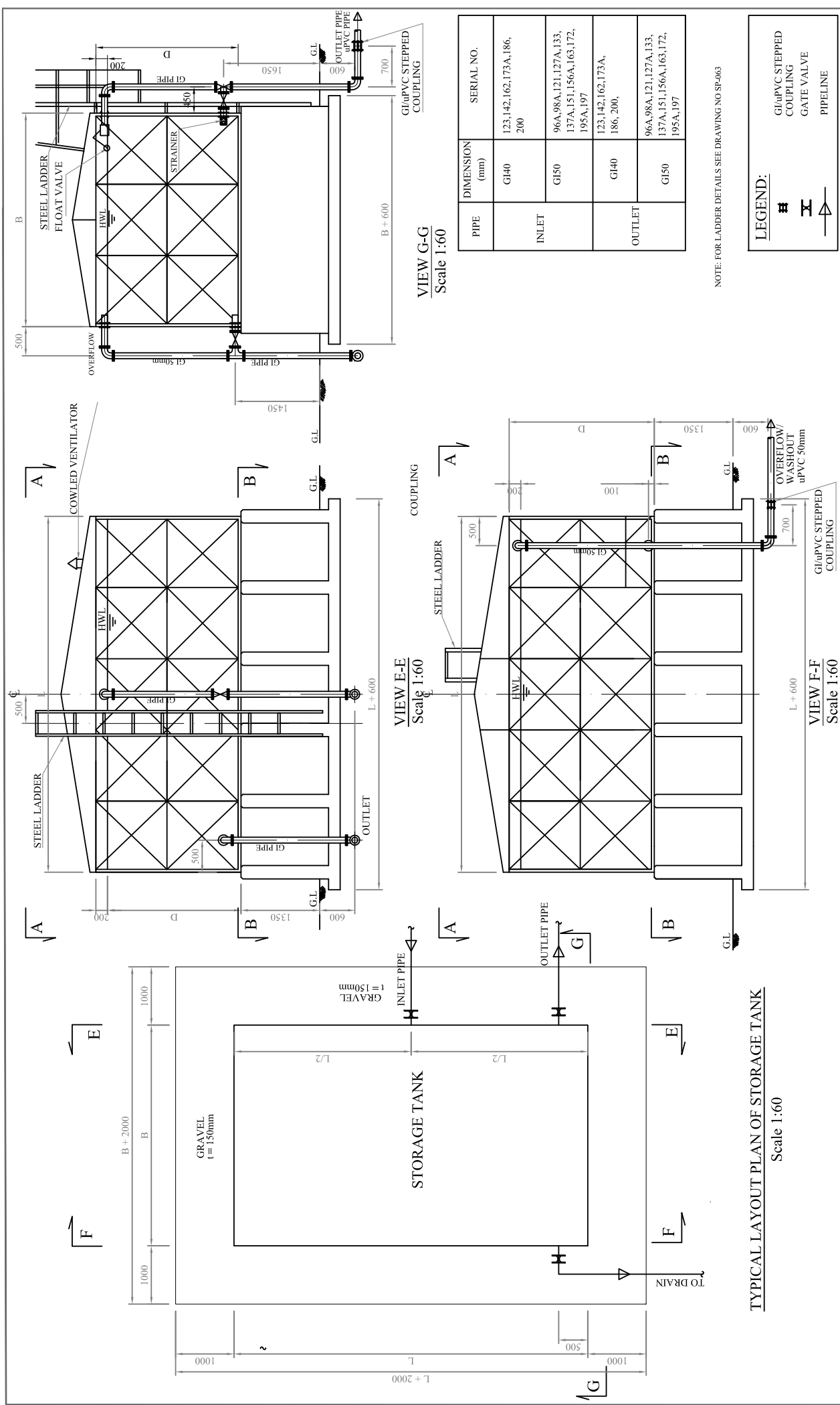
SECTION A-A



ROAD CROSSING

Note: "W" should be indicated in Profile Drawings.

OWNER: THE MINISTRY OF WATER AND IRRIGATION THE REPUBLIC OF KENYA	PROJECT NAME: THE PROJECT FOR RURAL WATER SUPPLY	CONSULTING ENGINEERS:  NIPPON KOEI CO., LTD.	
		TITLE: CONSTRUCTION OF WATER SUPPLY FACILITIES BY SUBMERSIBLE PUMP	RIVER AND ROAD CROSSING OF PIPE
	SCALE: NONE	DATE: NOV 2007	DRAWING NO: SP-052



TYPICAL LAYOUT PLAN OF STORAGE TANK
Scale 1:60

VIEW E-E
Scale 1:60

VIEW F-F
Scale 1:60

VIEW G-G
Scale 1:60

PIPE	DIMENSION (mm)	SERIAL NO.
INLET	G140	123,142,162,173A,186,200
	G150	96A,98A,121,127A,133,137A,151,156A,163,172,195A,197
OUTLET	G140	123,142,162,173A,186,200
	G150	96A,98A,121,127A,133,137A,151,156A,163,172,195A,197

NOTE: FOR LADDER DETAILS SEE DRAWING NO SP-063

LEGEND:

#	GI/UPVC STEPPED COUPLING
⌋	GATE VALVE
— —	PIPELINE

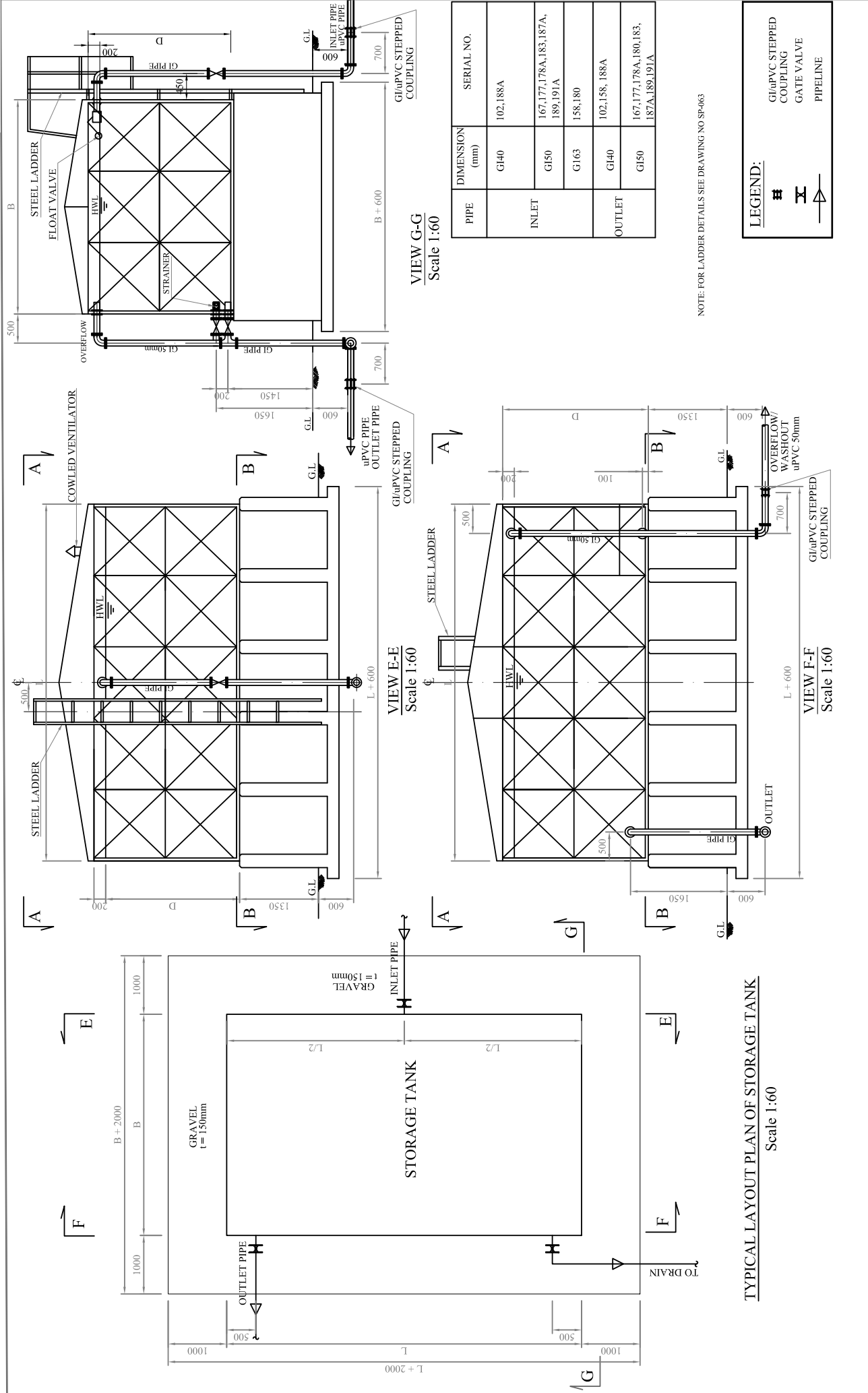
OWNER: THE MINISTRY OF WATER AND IRRIGATION
THE REPUBLIC OF KENYA

PROJECT NAME: THE PROJECT FOR RURAL WATER SUPPLY

CONSULTING ENGINEERS: NIPPON KOEI CO.,LTD.

TITLE: CONSTRUCTION OF WATER SUPPLY FACILITIES BY SUBMERSIBLE PUMP

STORAGE TANK (1/2)	
SCALE	DATE
1:60	OCT 2010
DRAWING NO.	SP-062A



PIPE	DIMENSION (mm)	SERIAL NO.
INLET	G140	102,188A
	G150	167,177,178A,183,187A,189,191A
	G163	158,180
OUTLET	G140	102,158, 188A
	G150	167,177,178A,180,183,187A,189,191A

LEGEND:

- GI/pPVC STEPPED COUPLING
- GATE VALVE
- PIPELINE

NOTE: FOR LADDER DETAILS SEE DRAWING NO SP-063

OWNER:
THE MINISTRY OF WATER AND IRRIGATION
THE REPUBLIC OF KENYA

PROJECT NAME:
THE PROJECT FOR
RURAL WATER SUPPLY

CONSULTING ENGINEERS:
 NIPPON KOEI CO., LTD.

CONSTRUCTION OF WATER SUPPLY FACILITIES BY SUBMERSIBLE PUMP
STORAGE TANK (2/2)

SCALE: 1:60

DATE: OCT 2010

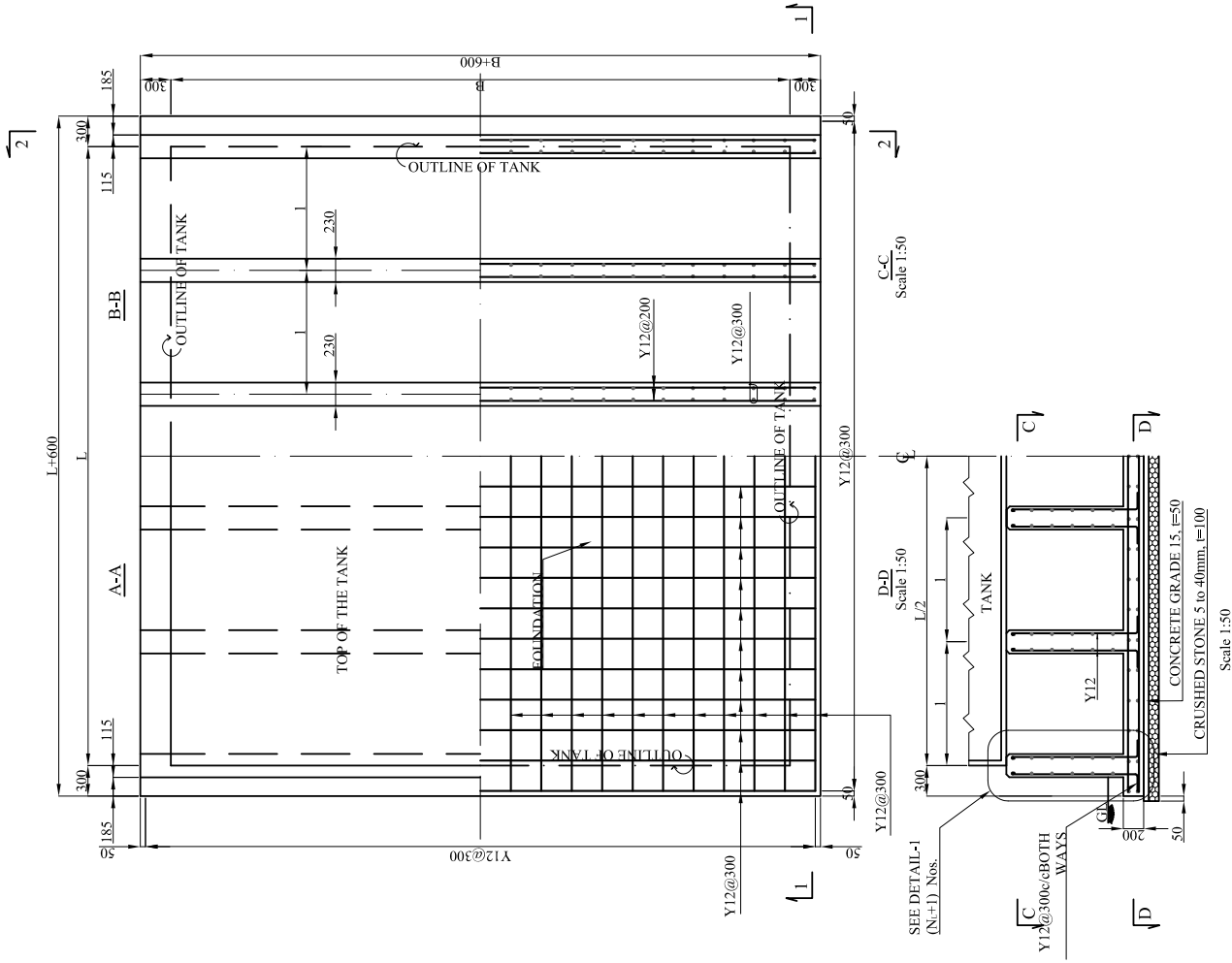
DRAWING NO.: SP-062B

TYPICAL LAYOUT PLAN OF STORAGE TANK
Scale 1:60

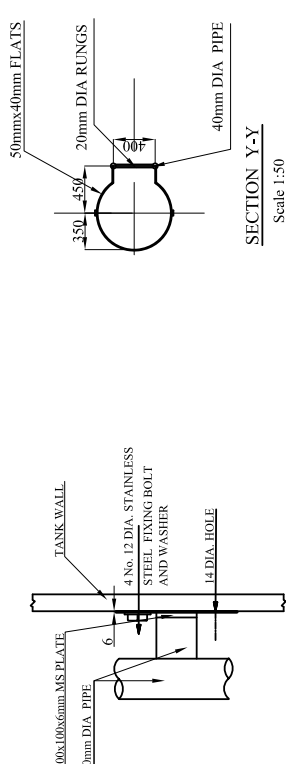
VIEW E-E
Scale 1:60

VIEW F-F
Scale 1:60

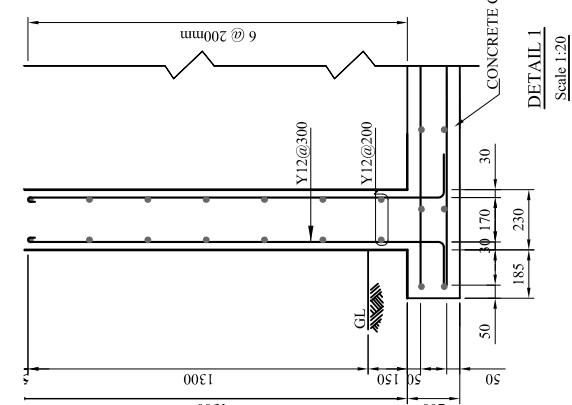
VIEW G-G
Scale 1:60



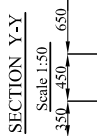
Tank Type	Storage Tank Vol		Dimension & Number					Weight & Tank		SERIAL No.
	Class (m ³)	Actual (m ³)	L (m)	B (m)	No (nos.)	D (m)	No (nos.)	Empty (t)	Full Water Height (m)	
V4	4.0	4.0	2.00	2.00	2	1.00	1	0.7	4.7	200
V8	8.0	8.0	2.00	2.00	2	2.00	2	1.2	9.2	123,142,162
V15	15.0	16.3	1.22	3.66	3	1.22	1	2.4	18.7	102
V24	24.0	29.1	1.22	4.88	4	2.44	2	3.1	32.2	98A,127A,151,163,167,177,178A,186,187A,188A,191A,195A
V50	50.0	54.5	1.22	6.10	5	3.66	3	4.8	59.2	96A,121,131,137A,156A,188,172,180,183,189,197



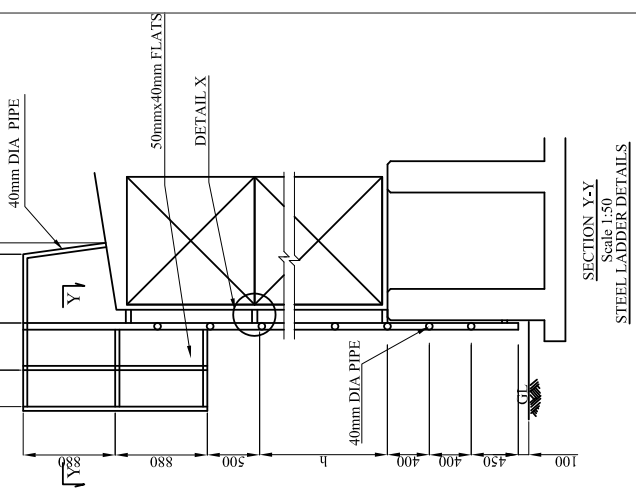
DETAIL X
Scale 1:5



DETAIL 1
Scale 1:20



SECTION Y-Y
Scale 1:50



SECTION Y-Y
Scale 1:50

OWNER: THE MINISTRY OF WATER AND IRRIGATION
THE REPUBLIC OF KENYA

PROJECT NAME: THE PROJECT FOR RURAL WATER SUPPLY

CONSULTING ENGINEERS: NIPPON KOEI CO., LTD.

CONSTRUCTION OF WATER SUPPLY FACILITIES BY SUBMERSIBLE PUMP
STORAGE TANK

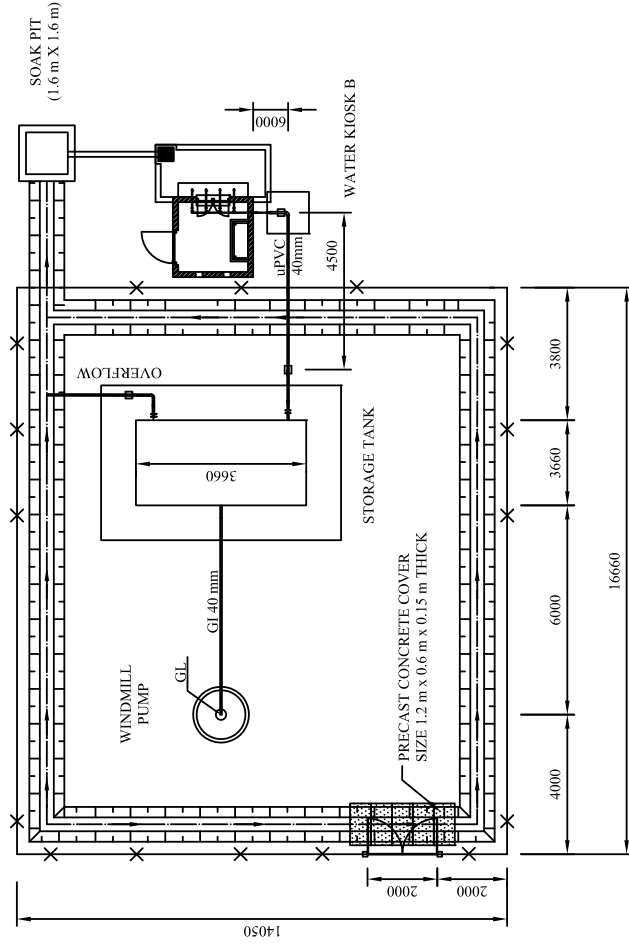
SCALE: 1:5
1:20
1:50

DATE: OCT 2010

DRAWING NO: SP-063

NOTES:

1. FOR DETAILS OF PRECAST CONCRETE COVER, GATE, FENCE AND DRAIN UPVC DITCH, SEE DRAWING No. SP-069 & 070.
2. FOR DETAILS OF STORAGE TANK, SEE DRAWING No. SP-062A TO 063.
3. CONSTRUCTION WORKS FOR 1) FENCES, AND 2) DRAIN OUTLETS ARE DONE BY RURAL COMMUNITY PARTICIPATION BASED ON THE UNDERTAKINGS OF THE GOVERNMENT OF KENYA.



SERIAL NO. 102

- LEGEND:**
- : PRECAST CONCRETE COVER
 - : GATE
 - : CHAIN-LINK FENCE
 - : CUT SLOPE (GRADIENT 1:0.5)
 - : WATER SUPPLY PIPE

CONSULTING ENGINEERS:

 **NIPPON KOEI CO., LTD.**

PROJECT NAME:

**THE PROJECT FOR
RURAL WATER SUPPLY**

OWNER:

**THE MINISTRY OF WATER AND IRRIGATION
THE REPUBLIC OF KENYA**

TITLE: **CONSTRUCTION OF WATER SUPPLY FACILITIES BY WINDMILL PUMP**

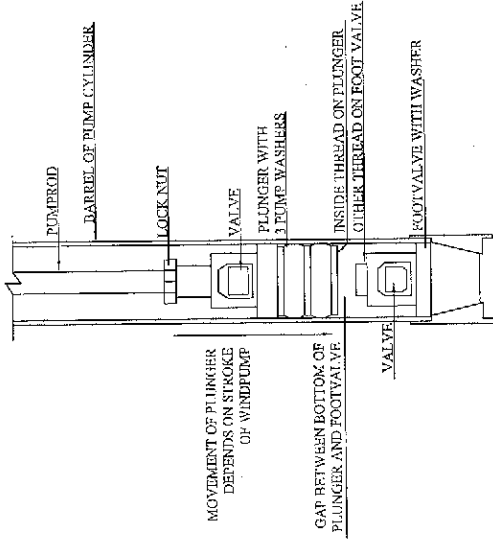
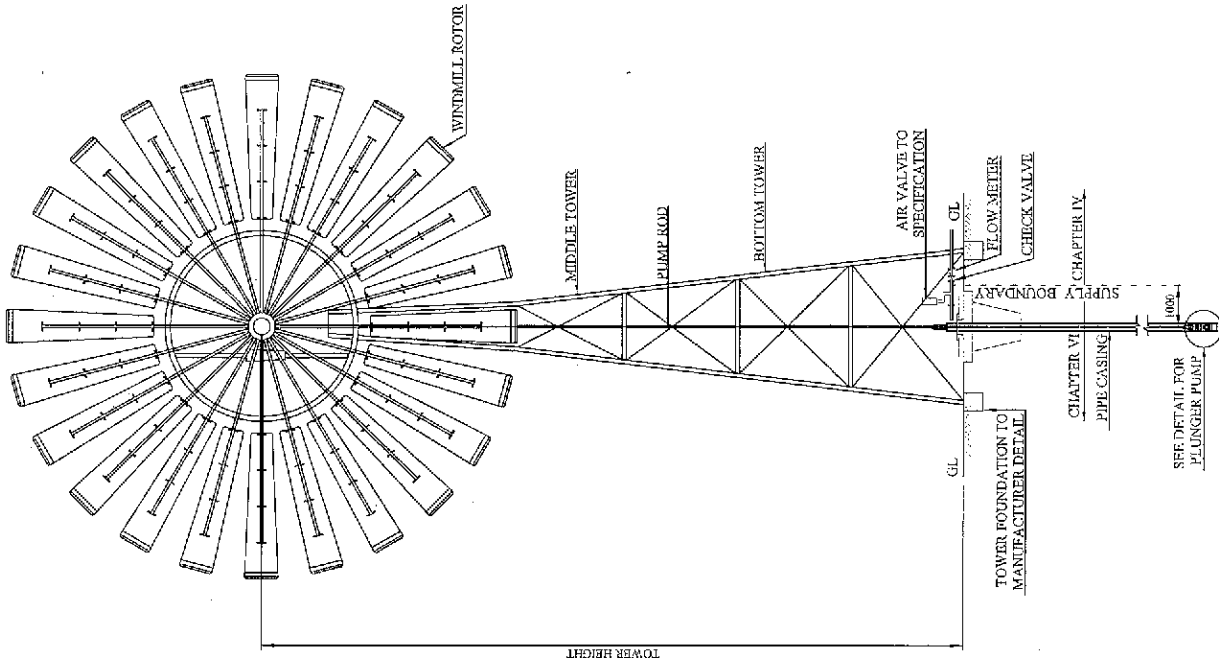
LAYOUT PLAN OF TYPE W1

SCALE: **1:150**

DATE: **OCT 2010**

DRAWING NO.

WP-001



DETAIL OF PLUNGER PUMP

DESIGN DATA FOR PUMPS

Serial No.	Discharge (m ³ /d)	Well Depth (m)	Ground Elevation (m.)	Static Water level (GL-m.)	Low Water Level of Pump Well (GL-m.)	Water Level of Storage Tank (GL+m.)	Dia. of Windmill Rotor (m)	Height of Tower (m)
102	12.6	155	G.L.	5.00	137.0	2.37	7.9	9.1

OWNER: THE MINISTRY OF WATER AND IRRIGATION
THE REPUBLIC OF KENYA

PROJECT NAME: THE PROJECT FOR RURAL WATER SUPPLY

CONSULTING ENGINEERS: NIPPON KOEI CO., LTD.

TITLE: CONSTRUCTION OF WATER SUPPLY FACILITIES BY WINDMILL PUMP

SCALE: NONE

DATE: OCT 2010

DRAWING NO.: WP-402

8.12

Baseline data by Social survey

No.	Section-A Questionnaire information panel						Section-B Village information and infrastructure						
	1. Location of village						1. Population of Village				2. Access from Paved Road	3. Power Line	
	Lager District	District	Division	Location	Sub-location	Village	Total Pop.	Male	Female	Household	Distance (km)	Installed	Planned
96	Makueni	Makueni	Wote	Kikumini	Kambimawe	Muambani	1533	667	867	120	2.5	no	no
98		Makueni	Wote	Muvau	Muvau	Nguumo	470	200	270	72	0.5	no	yes
98		Makueni	Wote	Muvau	Muvau	Nguumo	934	307	628	74	1	yes	-
100		Makueni	Wote	Kako	Kako	Kyaume	2010	810	1200	200	1	no	no
102		Makueni	Kaiti	Ukea	Kilala	Kithunzi	767	327	441	95	0.001	yes	-
107		Mbooni east	Kisau	Waia	Usalala	Kyang'onda Primary	1467	600	867	167	0.25	yes	-
108		Mbooni east	Kisau	Kisau	Usalala	Kisau Health Centre	1867	693	1173	246	0.3	no	no
110		Nzau	Matiliku	Kilili	Wee	Kanzili	400	150	250	66	1.5	no	no
111		Nzau	Matiliku	Kilili	Kilili	Syaolwe	723	350	363	55	15	no	yes
112		Nzau	Matiliku	Kilili	Mulenyu	Loyal turban	1259	814	1003	510	18	no	yes
113		Nzau	Matiliko	Kilili	Mulenyu	Mboani	450	180	270	45	4	no	no
114		Nzau	Mbitini	Mulala	Ng'ethe	Kitandi	2725	1075	1650	647	2	no	yes
118		Nzau	Kalamba	Kithumba	Kithumba	Mathanguni	431	209	222	140	14	no	no
121		Mbooni east	Kalawa	Katengine	Ititu	Ititu	6000	2000	4000	600	1	no	no
123		Mbooni east	Kalawa	Kawala	Mbukoni	Ngunini	870	370	500	68	0.2	no	no
124		Mbooni east	Kalawa	Athi	Miangeni	Kyamutuku	775	260	515	123	1.5	no	no
127		Mukaa	Mailili	Ngaamba	Itumbule	Kalembwani (Uvunye)	1550	650	900	144	0.5	no	yes
128		Mukaa	Kiome	Mukaa	Mukaa	Enzae-Maiani	1900	800	1100	230	1	yes	no
130		Mukaa	Kiou	Kwalee	Kwalee	Ndivo	1700	733	967	283	5	no	-
131		Mukaa	Kiou	Kiou	Lumu	Lumu	2100	900	1233	307	1	no	no
133		Mukaa	Kasikeu	Kasikeu	Wathini	Mangala	3500	1800	2367	340	0.25	yes	-
134		Mukaa	Kiou	Muani	Muani	Nguuni	1003	515	654	243	5	no	no
137		Nzau	Nguu	Kikulumi	Ndunguni	Mbulutini	1000	407	593	300	3	no	yes
140		Nzau	Nguu	Wolma	Wolma	Ilingoni	424	140	284	33	5	no	no
142		Kibwezi	Mito Adei	Nthunguni	Nthunguni	Utu	413	200	213	53	15	no	yes
145		Kibwezi	Mito Adei	Ngawate	Mukange	Yongoni	506	194	312	49	17	no	yes
146		Kibwezi	Mito Andei	Kambu	Kitengei	Kitengei/Nguuswini	637	277	360	124	14	no	yes
148		Masinga	Masinga	Kangonde	Kangonde	Kangonde	933	333	600	133	0.5	yes	yes
151		Masinga	Masinga	Kivaa	Kivaa	Kamunyu	633	233	400	200	3	no	no
152		Masinga	Masinga	Kivaa	Kivaa	City Cotton	317	133	183	50	0.3	no	no
156	Yatta	Kithimani	Kithimani	Kithimani	Nguumo	1433	633	800	277	1	no	no	
158	Yatta	Yatta	Mavoloni	Kisiiki	Kisiiki Centre	1533	550	983	333	1	yes	no	
162	Yatta	Katangi	Kyua	Kyua	Kikeneani	3000	1467	1533	417	1.5	no	no	
163	Yatta	Katangi	Kyua	Syo Kisinga	Kiamani	1233	500	733	140	3	yes	no	
164	Yatta	Katangi	Kyua	Syo Kisinga	Yumbuni	2833	1033	1800	483	0.5	no	yes	
165	Yatta	Yatta	Ndalani	Ndalani	Ndalani Centre	2833	1400	1433	433	1	yes	-	
166	Kathiani	Kathiani	Mitaboni	Miumbuni	Kwale	2600	1000	1600	453	0.02	no	-	
167	Kangundo	Kakuyuni	Kaawethe	Kathaana	Mukukuni	2667	961	1367	324	1	no	-	
172	Mwala	Masii	Makutano	Embui	Mumbuni	2833	1300	1533	467	3	yes	no	
173	Machakos	Mwala	Kathama	Kwa Mutula	Katitu	2167	800	1367	250	0.5	no	yes	
175	Mwala	Masii	Mango	Wetaa	Mango	3500	1467	2033	442	1.5	yes	-	
177	Mwala	Mwala	Kathama	Muthwani	Masaua	1267	533	733	243	2	no	yes	
178	Machakos	Mwala	Kyawango	Kyawango	Mutiuku	1300	500	800	93	1	yes	no	
180	Kangundo	Kakuyuni	Kakuyuni	Kyevaluki	Kamwanyani	1533	600	933	257	1.5	no	yes	
183	Mwala	Yathui	Miu	Makuhimo	Miu	2000	967	1200	267	1	yes	no	
184	Mwala	Yathui	Yathui	Kyamatula	Kikaso	3000	1167	1833	160	3	yes	-	
185	Mwala	Yathui	Miu	Kikulumi	Kikulumi	3167	1367	1800	633	3	no	-	
186	Mwala	Yathui	Yathui	Kyamatula	Yathui	2000	833	1167	150	0.5	yes	-	
187	Mwala	Yathui	Wamunyu	Kilembwa	Ilingile	1667	700	967	433	9	yes	-	
188	Masinga	Ndithine	Muthesya	Kikule	Muambani	633	273	360	150	0.1	no	-	
189	Masinga	Ndithine	Ndithini	Ndithini	Ndithini	1533	600	933	180	0.2	yes	-	
190	Masinga	Muthesya	Muthesya	Muthesya	Munyiiki	597	367	350	133	0.1	no	-	
191	Masinga	Ndithini	Mananja	Mananja	Mananja	2500	1000	1500	300	1.5	no	yes	
195	Machakos	Ndithini	Mananja	Mananja	Ndela	1367	567	800	190	0.1	no	no	
196	Masinga	Ndithini	Ndithini	Milaani	Milaani	1667	810	1190	493	0.01	no	no	
197	Masinga	Ndithini	Ndithini	Milaani	Kamaimba	2267	1067	1200	367	0.007	no	no	
198	Machakos	Kalama	Kombo	Muumandu	Kyawalia	1767	767	1000	250	1	no	yes	
199	Machakos	Kalama	Kola	Iiyuni	Iiyuni	2500	1000	1500	200	0.03	no	no	
200	Machakos	Central	Kahtekakai	Kitanga	Kyamutheke	2500	967	1533	377	0.5	no	no	

No.	Section-C Village Economics									Section-D Water Supply Conditions	
	1. Amount of average Income	2. Amount of average Expenditure	3. Number of Livestock in Village (Heads)			4. Number of Livestock in Household (Heads)			5. Production Cooperative	1. Average Water Use per day*	
	Ksh/Mon-HH		Cattle	Sheep	Goat	Cattle	Sheep	Goat		Rainy Season	Dry Season
96	2,500	2,500	150	180	170	2	2	2	no	4 jr/day	8 jr/day
98	3,330	3,330	190	50	1170	2	3	5	no	5 jr/day	3 jr/day
98	2,700	2,700	80	50	150	2	1	2	no	6 jr/day	8 jr/day
100	2,330	2,330	120	130	240	3	3	7	no	4 jr/day	3 jr/day
102	2,330	2,330	180	230	120	2	2	3	no	6 jr/day	9 jr/day
107	2,330	2,330	60	30	80	2	1	2	no	10 jr/day	8 jr/day
108	3,000	3,000	120	40	170	1	3	2	no	4 jr/day	6 jr/day
110	3,000	3,000	340	20	1500	5	1	21	no	6 jr/day	9 jr/day
111	3,000	3,000	450	970	1870	3	4	6	no	10 jr/day	7 jr/day
112	3,230	3,230	710	590	2000	2	2	8	no	3 jr/day	4 jr/day
113	3,000	3,000	140	50	200	3	1	4	no	8 jr/day	10 jr/day
114	3,670	3,670	800	340	1190	5	7	10	no	4 jr/day	6 jr/day
118	2,000	1,730	1070	1100	1600	4	3	2	no	4 jr/day	6 jr/day
121	3,000	3,000	1270	480	1930	2	1	3	no	10 jr/day	9 jr/day
123	2,500	2,500	30	50	70	1	1	3	no	4 jr/day	4 jr/day
124	2,670	2,500	70	70	280	2	3	15	no	3 jr/day	4 jr/day
127	2,330	2,830	260	300	570	2	2	4	no	4 jr/day	5 jr/day
128	1,770	1,770	190	190	240	1	2	4	no	6 jr/day	8 jr/day
130	2,500	3,170	1130	170	2470	4	3	5	no	4 jr/day	6 jr/day
131	2,170	2,670	1100	370	1570	3	1	5	no	12 jr/day	8 jr/day
133	3,030	3,030	480	430	380	3	4	6	no	6 jr/day	9 jr/day
134	2,500	2,670	940	2120	1600	3	6	9	no	6 jr/day	7 jr/day
137	3,000	2,100	970	530	2830	2	4	10	no	6 jr/day	10 jr/day
140	2,000	2,000	70	150	230	3	5	7	no	6 jr/day	8 jr/day
142	3,170	3,170	300	140	720	4	3	13	no	10 jr/day	8 jr/day
145	2,430	2,600	40	90	210	2	4	6	no	6 jr/day	6 jr/day
146	2,830	2,830	70	90	170	3	5	9	no	4 jr/day	5 jr/day
148	6,000	5,330	230	200	370	3	2	8	no	11 jr/day	5 jr/day
151	7,670	6,000	200	150	400	4	3	8	no	10 jr/day	5 jr/day
152	5,670	5,670	100	120	270	3	2	7	no	19 jr/day	9 jr/day
156	6,670	8,000	90	100	530	2	1	6	no	8 jr/day	4 jr/day
158	1,870	7,000	260	30	470	2	3	6	no	9 jr/day	4 jr/day
162	1,500	5,000	80	100	620	1	2	5	no	8 jr/day	5 jr/day
163	1,670	3,830	420	820	1830	3	3	10	no	13 jr/day	7 jr/day
164	1,670	3,500	1430	1570	4670	5	9	15	no	10 jr/day	6 jr/day
165	7,670	7,000	380	130	6330	3	1	5	no	12 jr/day	5 jr/day
166	4,330	7,330	1170	1430	2070	2	3	5	no	9 jr/day	4 jr/day
167	5,840	6,170	280	150	500	4	4	6	no	8 jr/day	4 jr/day
172	4,330	6,330	700	630	1770	2	1	6	no	14 jr/day	7 jr/day
173	3,500	6,000	300	230	450	2	1	4	no	13 jr/day	9 jr/day
175	5,000	4,670	920	350	5920	3	1	5	no	14 jr/day	12 jr/day
177	4,500	3,670	610	250	1430	3	1	6	no	14 jr/day	7 jr/day
178	3,170	3,500	900	120	600	5	1	12	no	16 jr/day	15 jr/day
180	6,670	6,000	250	200	350	1	1	2	no	13 jr/day	10 jr/day
183	10,670	7,000	150	150	420	1	1	4	no	12 jr/day	5 jr/day
184	5,330	7,000	300	510	830	1	3	4	no	15 jr/day	8 jr/day
185	2,500	6,000	1150	530	1700	2	1	3	yes	14 jr/day	5 jr/day
186	3,670	4,670	230	150	730	2	2	5	no	13 jr/day	6 jr/day
187	3,000	4,500	430	220	880	2	1	4	no	14 jr/day	6 jr/day
188	5,500	5,670	230	80	250	2	1	5	no	8 jr/day	4 jr/day
189	10,000	8,000	2100	600	1730	6	3	9	no	11 jr/day	6 jr/day
190	7,000	6,330	270	60	400	2	1	4	no	10 jr/day	5 jr/day
191	1,830	3,170	210	80	300	3	1	5	no	8 jr/day	4 jr/day
195	5,330	8,170	650	220	550	8	4	7	no	10 jr/day	6 jr/day
196	2,330	4,330	2450	700	1760	3	2	10	no	8 jr/day	7 jr/day
197	5,670	4,330	930	420	1670	3	1	4	no	8 jr/day	7 jr/day
198	3,670	6,670	60	20	730	2	1	5	no	10 jr/day	8 jr/day
199	4,000	6,000	280	120	500	3	1	5	no	5 jr/day	5 jr/day
200	3,500	5,670	30	120	320	1	3	4	no	10 jr/day	5 jr/day

* jr/day : jerrycan per day

No.	Section-D Water Supply Conditions													
	2. Available Water Source						3. Fetching Water				4. Water Fee			
	Rainy Season			Dry Season			Rainy Season		Dry Season		Rainy Season		Dry Season	
	Source	Distance	Quality***	Source	Distance	Quality***	Time	Fetcher****	Time	Fetcher****				
96	River	2m	M	Borehole/Earth dam	1, 1.5km	G/B	3minutes	W	3 hours	C		Free	10 Ksh	jerrycan
98	Shallowwell/Earth dam	1/1km	M/B	Borehole	2km	G	2hours	C	2hours	W	3Ksh	Jerry can	5Ksh	jerrycan
98	River/Shallow well	3.2/1km	M	River/Shallow well	4/3km	M/M	2hours	W/C	3hours	W/C		Free	3Ksh	jerrycan
100	River	200m	M	River/Shallow well	3km	M/B	20minutes	C	2hours	C		Free	3ksh	jerrycan
102	Borehole	0.5km	M	River	1km	B	15minutes	W	1hour	C	5ksh	jerrycan	5ksh	jerrycan
107	River/R.catchment	200m/10m	M/G	River/Earthdam	3/1km	M/B	15minutes	W	2hours	O/C	4ksh	jerrycan	5ksh	jerrycan
108	River/R.catchment	1km	B/M	River	1km	B	2.5hours	W	2.5hours	C		Free	5ksh	jerrycan
110	Pipedwater	2km	M	Shallowwell/Pipedwater	1.5/2km	M/M	1.5hours	W/C	2hours	W/C	3ksh	jerrycan	5ksh	jerrycan
111	River/Spring	3/3km	M/M	River/Spring	3/3km	M/M	1hour	buy	2hours	B	fixed 12,000ksh	house/year	fixed 12,000ksh	house/year
112	River	5km	M	River	8km	M	1hour	W	3hours	W		Free	3ksh	jerrycan
113	River	2km	M	River/Pipedwater	8/3km	M/G	1hour	W/C	4hours	S/W/C	3ksh	jerrycan	5ksh	jerrycan
114	River	3.5km	B	River	5.5km	B	1hour	W	2hours	W		Free		Free
118	R.catchment	0	M	River	5km	B	20minutes	W	2hours	W		Free	3ksh	jerrycan
121	River/R.catchment	3km	B/B	River	3km	B	2.5hours	W	2.5hours	W	5ksh	jerrycan	5ksh	jerrycan
123	Earthdam	2km	B	River	4km	B	2.5hours	C	2.5hours	C		Free	20ksh	jerrycan
124	River/R.catchment	1km	M/M	River	5km	B	30minutes	S/W	2hours	S/W		Free	40ksh	jerrycan
127	River/Water hole	1.5/1.5km	B/M	River/Waterhole	1.5/1.5km	M/M	1hour	S/W/C	1.5hours	S/W/C	2ksh	jerrycan	2ksh	jerrycan
128	River	3km	B	River	4km	B	1hour	W/C	3hours	W		Free	2ksh	jerrycan
130	River	2km	B	Borehole	4km	M	1hour	S/W/C	1hour	S/W/C/B	2ksh	jerrycan	2ksh	jerrycan
131	R.catchment	-	M	Kiosk	3km	M	30minutes	W/C	3hours	W/C	3ksh	jerrycan	3ksh	jerrycan
133	River/Pipedwater	2/3km	B/G	River	3km	B	1hour	W/C	2hours	W/C	2ksh	jerrycan	5ksh	jerrycan
134	River/Borehole/Shallow well	4/5/6km	B/M/B	Borehole/Shallow well	5/6km	M/B	3hours	S/W/C	6hours	S/W/C	3ksh	jerrycan	5ksh	jerrycan
137	River/Borehole/R.catch.	5/5/-km	B/B/G	River/Borehole	5/5km	G/G	2hours	W/C	8hours	W/C	2ksh	jerrycan	2ksh	jerrycan
140	River	5km	M	River	5km	M	3hours	W/C	3hours	W/C/B	20ksh	jerrycan	30ksh	jerrycan
142	Shallow well	2km	M	River	3km	B	2hours	S/C	3hours	C		Free	3ksh	jerrycan
145	Spring	3km	M	Kiosk	17km	G	5hours	W	7hours	O/B		Free	2ksh	jerrycan
146	Sshallow well	4km	M	River	5.5km	B	2hours	W	3.5km	W		Free	4ksh	jerrycan
148	River	0.5km	M	Dam	0.5km	G / M / B	0.5hours	S / W / C / O / B	0.5	S / W / C / O / B		Free		Free
151	River	7km	B	River	7km	B	3hours	W/C	3hours	W/C		Free	20Ksh	Lt /jr /Fix /Free
152	River	3km	B	River	3km	B	2hours	W/C	2hours	W/C		Free		Free
156	Yatta Canal	3km	B	Yatta Canal	3km	B	1.5hours	W/C	1.5hours	W/C		Free		Free
158	River	2km	M	River	2km	M	1hours	W/C	1hours	W/C		Free		Free
162	Dam	5km	B	Borehole	8km	G	3hours	W/C	5hours	W/C		Free	4Ksh	Fix
163	Dam	2km	B	Borehole	4km	g	1hours	W/C	3hours	W/C		Free	4Ksh	Fix
164	River	5km	M	River	5km	M	3hours	W/C	3hours	W/C		Free		Free
165	River	2km	B	River	2km	M	2hours	W/C	2hours	W/C		Free		Free
166	River	1.5km	B	River	1.5km	M	1hours	W/C	1hours	W/C	3Ksh	Fix	3Ksh	Fix
167	River	1km	B	River	1km	M	1hours	W/C	1hours	W/C		Free		Free
172	Dam	3km	B	Dam	3km	B	2hours	W/C	2hours	W/C		Free	10Ksh	Fix
173	River	0.5km	M	River	15km	M	1hours	W/C	4hours	W/C		Free		Free
175	River/Borehole/Spring	6km	M	River/Borehole	6km	M	3hours	W/C	6hours	W/C	2Ksh	Fix	3Ksh	Fix
177	River	1km	B	River	1km	B	2hours	W/C	3hours	W/C		Free		Free
178	Dam	2km	B	River	4km	M	1hours	W/C	5hours	W/C		Free	3Ksh	Fix
180	River	3km	B	River	3km	B	2hours	S/W/C	2hours	S/W/C		Free		Free
183	River	3km	B	River	3km	B	2hours	S/W/C	2hours	S/W/C		Free		Free
184	River	4km	M	River	4km	M	5hours	W/C	5hours	W/C		Free		Free
185	River	6km	B	River	6km	B	1hours	S/W/C	3hours	S/W/C		Free		Free
186	River	5km	B	River	5km	B	1.5hours	W/C	1.5hours	W/C		Free		Free
187	River	4km	M	River	4km	M	6hours	W/C	6hours	W/C		Free		Free
188	River	5km	M	River	5km	M	3hours	W/C	3hours	W/C		Free		Free
189	River	1km	M	River	3km	M	0.5hours	W/C	2hours	W/C		Free		Free
190	River	2km	M	Well	1km	M	1hours	W/C	1hours	W/C		Free		Free
191	River	0.5km	M	River	6km	M	0.5hours	W/C	3.5hours	W/C		Free		Free
195	Well	1km	M	River	2km	M	1hours	W/C	2hours	W/C		Free		Free
196	River	1km	M	River	3km	M	1hours	W/C	3hours	W/C		Free		Free
197	Dam	2km	B	Dam	2km	B	3hours	W/C	3hours	W/C		Free		Free
198	spring	10km	G	Spring	10km	G	4hours	W/C	4hours	W/C	20Ksh	Fix	20Ksh	Fix
199	Dam	0.5km	B	Dam	0.5km	B	0.5hours	W/C	0.5hours	W/C		Free		Free
200	Dam	0.5km	B	Borehole	2km	G	0.2hours	W/C	1hours	W/C		Free	3Ksh	Fix

*** G : Good
M : Medium
B : Bad

**** S : the said person
W : Wife
C : Children
O : Others
B : Buy brought water

No.	Section-E Hygiene and Sanitation			Section-F Management, Operation and Maintenance of Water Supply				Section-G Borehole and Nearby Area			
	1. Name of Water Borne Disease occurring in the village****	2. Health Center		3. Affordable fee for Water Per jerry-can (Ksh)	4. Affordable fee for Water per household per month and HH	5. Establishment of WUA	6. How to Establish WUA?*****	1. Radius of 2km from Proposed Borehole Site			
		Name	Distance (km)					Household	People/HH	Population	Livestock
96	Ty	Makueni District Hospital	2	1.7	140	no	Vi	99	7	695	-
98	Ma /Ty	Kambi-mawe	3	1.8	233	no	Vi	72	7	504	-
98	Di /Ma /Ty /Wo	Makueni district hospital	13	1.7	203	no	Vi	38	9	351	-
100	Ty	kako	3	2.3	157	no	Vi	200	8	1667	-
102	Ty /Am	inlaak	0.5	2	183	yes	Vi	95	8	793	-
107	Ty	kiscu	9	1.7	127	yes	Vi	180	8	1440	-
108	Ma /Ty	kiscu	3	2	450	no	Vi	200	6	1200	-
110	Ma /Ty /Wo	killii h. center	3	1	207	no	Vi	100	7	700	-
111	Ma /Ty /Am	killii	3	2	367	no	Sc	42	8	333	1122
112	Ma /Ty	killii h. center	6	1.7	233	no	Vi	247	6	1480	1413
113	Ma /Ty /Wo	killii health center	3	1.3	183	no	Vi	98	7	688	1699
114	Di /Ma /Ty /Wo	matiliku	4.5	1.8	250	yes	Vi	174	8	1392	570
118	Ma /Ty	mutyambua	1	2	167	yes	Vi	533	8	4100	11700
121	Am	katangi/kalawa	0.1	2	383	no	Vi	200	8	1600	1563
123	Ty / Am / Br	kalawa	3	2	500	no	Vi	52	6	310	160
124	Di /Ty	kalawa	8	2.3	300	no	Vi	100	6	600	230
127	Ty /Wo /Am	Kiu AIC Dispensery	2	1.7	250	no	Vi	407	7	2980	10100
128	Ma /Ty	Mutiluni	9	1.7	250	yes	Vi	304	8	2435	950
130	Di /Ma /Ty /Wo /Am	Kwale Health Centre	4	1.7	217	no	Vi	263	6	2313	6667
131	Ma /Ty	Kwale Health Centre	8	1.3	207	no	Vi	283	5	1493	7564
133	Di /Ma /Ty /Am	kasikeu health center	6	2	283	no	Vi	333	7	1750	8550
134	Di /Dy /Ty /Am	sultan hamud, kasikeu	15	1.7	783	no	Vi	618	4	2473	11534
137	Di /Ma /Ty /Wo	Kikumini Health Centre	5	1	183	yes	Vi	400	4	1600	1920
140	Di /Ma /Ty /Wo	simba health center	5	1	233	no	Vi	45	5	225	1200
142	Ma /Ty	nzereni	2.5	2	117	no	Vi	39	8	312	930
145	Ma /Ty /Wo /Am	ngwata	17	1.7	200	no	Vi	34	8	275	248
146	Ty /Wo /Am	ngwata	20	2	187	no	Vi	60	6	340	240
148	Di /Ma /Ty	Kangonde	0.8	2	140	no	Sc	167	7	1117	900
151	Di /Ma /Ty	Kivaa	11	2	200	no	Sc	200	7	1433	550
152	Di /Ch /Dy /Ma /Ty	Kivaa	9	2	200	no	Vol	83	7	553	460
156	Di /Ch /Dy /Ma /Ty /Wo	Kithimani	1.5	2	233	no	Sc	350	7	2767	750
158	Di /Ch /Dy /Ty	Kisiki	3	1.7	217	no	Vol	300	9	2700	680
162	Di /Ch /Dy /Ty	Katangi	4.8	1.7	170	no	Sc	433	7	2867	1050
163	Di /Ch /Dy /Ty	Katangi	3.8	1.7	203	no	Vol	200	7	1400	3000
164	Di /Ch /Dy /Ty	Katangi	6.7	2	187	no	Sc	387	8	2807	9900
165	Di /Ch /Dy /Ty	Ndarani	1.2	1.8	217	no	Sc	367	6	2400	1500
166	Di /Ch /Dy /Ty	Mitaboni	4.7	1.5	157	no	Vol	400	6	2467	4000
167	Di /Ch /Dy /Ty	Kangundo	7.7	1.5	107	no	Vi	533	6	3200	1150
172	Di /Ch /Dy /Ty	Wamunyu	3.3	1.7	190	no	New	400	7	2633	3500
173	Di /Ch /Dy /Ty	Kathama	3	2	183	no	Vi	217	7	1583	900
175	Ch /Dy /Ty	Mango	4.3	1.7	207	no	Vi	233	8	1900	2400
177	Di /Ch /Dy /Ty	Kathama	4	1.7	140	no	Vi	217	8	1500	1000
178	Di /Ma /Ty	Kyawango	6.3	1.7	127	no	New	233	8	1867	2450
180	Di /Ch /Dy /Ma /Ty	Kathiani	6.7	2.3	203	no	Vol	350	6	2100	2200
183	Di /Ch /Dy /Ty	Wamunyu	3.7	2.7	337	no	Sc	250	6	1583	1450
184	Dy /Ma /Ty /Wo	Miu	4	3	450	no	Vi	283	6	1700	2250
185	Di /Ma /Ty	Miu	2	2.7	373	no	Vi	483	7	3567	3200
186	Di /Ma /Ty	Wamunyu	3.7	2.7	223	no	Sc	170	8	1367	1480
187	Di /Ma /Ty	Wamunyu	7.7	2.7	207	no	Vi	183	8	1533	4000
188	Di /Ma /Ty	Kikule	10	3.3	233	no	Vi	173	6	1080	430
189	Di /Ma /Ty	Ndithini	3	3	383	no	Vi	883	7	2250	5300
190	Di /Ma /Ty	Mutesya	3.3	3	367	no	Vi	233	6	1500	900
191	Di /Ma /Ty	Mananja	5.3	2.3	350	no	Vi	400	7	2733	850
195	Di /Ma /Ty	Makuyu	17.7	2.3	250	no	Vi	237	7	1633	910
196	Di /Ma /Ty	Ekalakala	16.1	2	233	no	Sc	550	7	1100	650
197	Di /Ma /Ty	Ekalakala	8.7	2	233	no	Vi	383	7	2683	4000
198	No	-	0.8	2	200	no	Vi	300	7	2017	260
199	No	Kola	3	2	183	no	Vol	300	7	2000	550
200	No	-	-	2.3	233	no	Vi	333	7	2233	390

**** Di : Diarrhoea , Ch : Cholera
Dy : Dysentery, Ma : Malaria
Ty : Typhoid, W : Woems
Am : Amoebiasis,
Br : Brucellosis

***** Vi : Use village administration
Sc : Use school committee
Co : Use product cooperation
Vol : Use other voluntarily
association
New : Establish new association
No : I have no idea about it