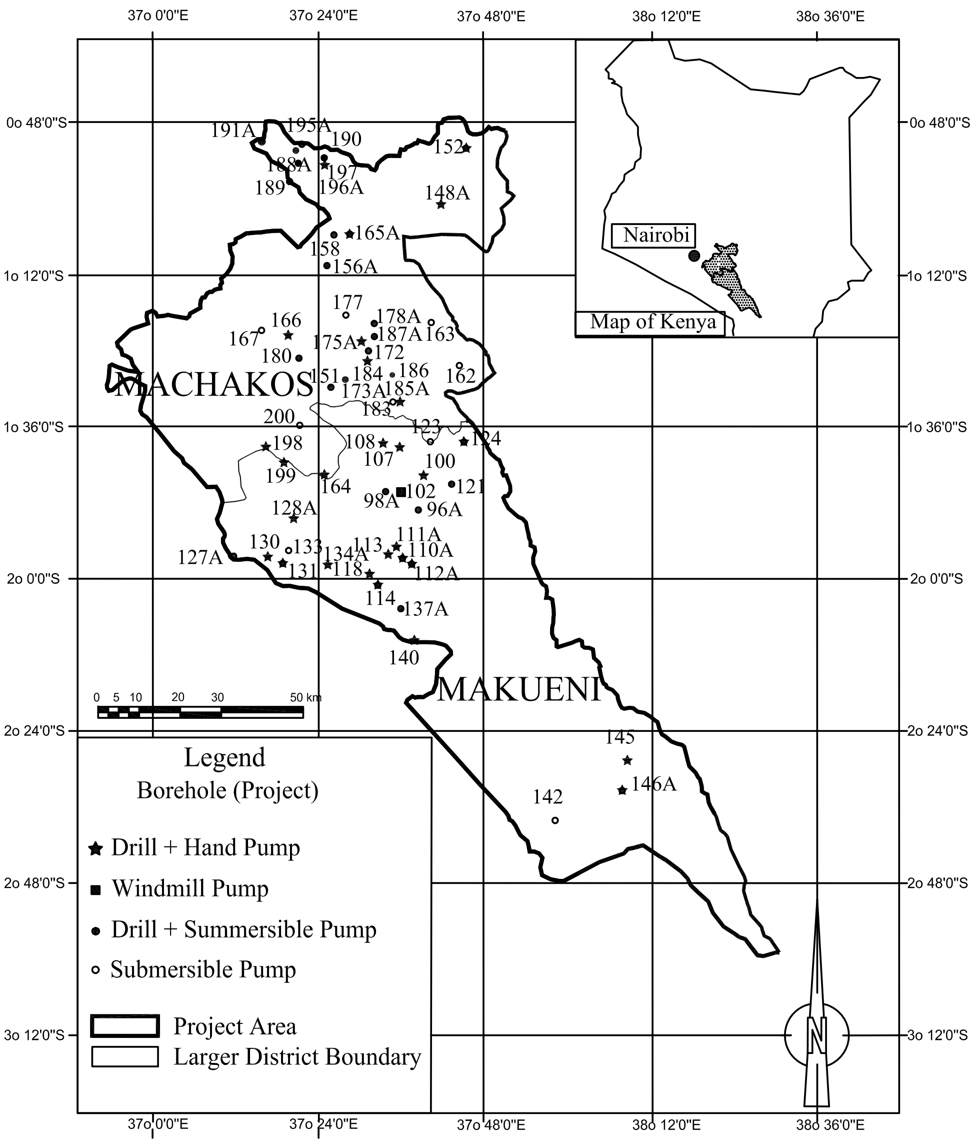
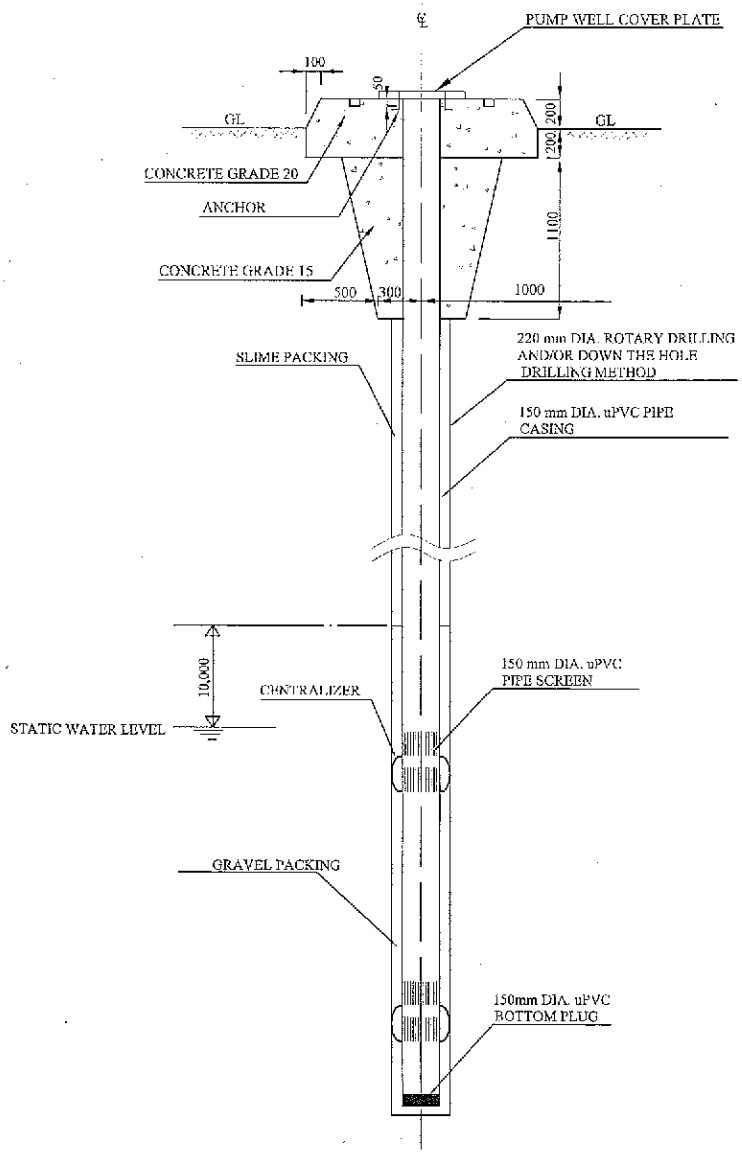
8. 11
概略設計図面集



Major Information on Target Site

No	Administrative Information							
	Larger District	Particular District	Division	Location	Sub-location	Village/Community	Provisional Coordinate (WGS 84) S	E
96A	Makueni	Makueni	Wote	Kaumuni	Kambimawe	Muambani	1°48'33.5"	37°39'43.8"
98A				Muvau	Muvau	Nguumo	1°53'58"	37°39'09"
100				Kako	Kako	Kyaume	1°43'05.6"	37°39'51.6"
102			Kaiti	Ukea	Kilala	Kithunzi	1°45'50.4"	37°33'25.1"
107		Mbooni west	Kisau	Waia	Usalala	Kyang'ondu Primary	1°37'54.2"	37°35'31.9"
108				Kisau	Usalala	Kisau Health Centre	1°37'52.9"	37°33'46.9"
110A		Nzaui	Matiliku	Kilili	Wee	Kanzili	1°55'36.9"	37°35'36.2"
111A					Kilili	Syaolwe	1°53'44.9"	37°35'16.2"
112A					Mulenyu	Loyal turban	1°57'12.7"	37°37'48.4"
113						Mboani	1°55'16.1"	37°34'42.7"
114			Mbitini	Mulala	Ng'ethe	Kitandi	1°58'19.8"	37°31'06.9"
118			Kalamba	Kathumba	Kathumba	Mathangauni	1°58'04.7"	37°31'06.5"
121		Mbooni east	Kalawa	Katenguine	Itutu	Itutu	1°44'22.5"	37°43'35.3"
123				Kawala	Mbukoni	Ngunini	1°37'34.0"	37°40'17.6"
124				Athi	Miangeni	Kyamutuluni	1°37'32.9"	37°44'56.2"
127A		Mukaa	Mutili	Kiima-Kiu	Nzaamba	Kwekolya	1°54'10.9"	37°10'02.6"
128A			Kilome	Mukaa	Mukaa	Enzae-Muunu	1°50'16.7"	37°19'13.2"
130			Kiou	Kwale	Kwale	Kima	1°57'25"	37°15'35"
131				Kiou	Sultan Hamud	Kiou Village	1°59'37.4"	37°19'45.1"
133			Kasikeu	Kasikeu	Wathini	Mangala	1°54'59.6"	37°19'58.7"
134A			Kiou	Muani	Muani	Nguuni	1°57'46.9"	37°24'20.2"
137A		Nzaui	Nguu	Nguu	Tharigui	Muangeni	2°04'37.7"	37°36'09.1"
140				Wdwa	Wolwa	Mbukani	2°09'21.4"	37°38'15.3"
142		Kibwezi	Mtito Adei	Nthunguni	Nthunguni	Utu	2°36'43.5"	37°58'12.7"
145				Ngnata	Mukange	Katulie S Help Group	2°28'26.6"	38°09'24.3"
146A				Kambu	Kitengei	Kitengei	2°32'50.1"	38°09'01.6"
148A	Machakos	MASINGA	MASINGA	KANGONDE	KANGONDE	Kangonde-Iiyaani	1°04'07.6"	37°38'56.1"
151				KIVAA	KIVAA	Kamuyu Pri. School	0°50'36.4"	37°44'33.5"
152						CITY COTTON	0°50'32.9"	37°45'36.8"
156A		YATTA	YATTA	KITHIMANI	KITHIMANI	NGUUMO	0°10'22.6"	37°25'32.9"
158				MAVOLONI	KISIIKI	Mavoloni-Kiambi	1°04'46.8"	37°26'52.0"
162			KATANGI	KYUA	KYUA	KIKENEANI	1°25'58.2"	37°45'18.2"
163					IVOKISINI	MATINGA	1°26'42.2"	37°42'04.1"
164					Kyua	Ituluni Pri. School	1°28'08.5"	37°43'59.1"
165A			YATTA	NDALANI	NDALANI	Ndalani (Sec. School)	1°05'56.1"	37°29'10.9"
166		KATHIANI	KATHIANI	MITABONI	MIUMBUNI	Miwani	1°20'58.2"	37°16'18.1"
167		KANGUNDO	KAKUYUNI	KAWETHEI	KATHAANA	MUKUKENI	1°20'11.8"	37°16'30.8"
172		MWALA	MASII	MASII	KIBUI	MBELE	1°23'29.6"	37°31'33.2"
173A			MWALA	MASII	MBAANI	KATHAMA	1°12'10.6"	37°22'38.8"
175A			MASII	MANGO	VETAA	Mango Sec. School	1°23'38.9"	37°25'26.5"
177			MWALA	MWALA	Miyanyani	Kwendana SHG	1°13'52.2"	37°23'04.0"
178A				Kyawango	Kyawango	Kyawango	1°18'58.7"	37°29'10.1"
180		KANGUNDO	KAKUYUNI	KAKUYUNI	KYEVALUKI	Kyamanyanii (Mika)	1°24'23.9"	37°20'40.9"
183		MWALA	MWALA	MIU	MAKUHINI	Miu Sec. School	1°31'29.0"	37°34'51.5"
184			YATHUI	YATHUI	WAMUNYU	MUNYUNI	1°30'25.9"	37°35'12.4"
185A				MIU	KIKULUMI	Kikuluni	1°31'38.0"	37°35'12.1"
186				YATHUI	KYAMATULA	Lema Girls Sec. School	1°27'23.7"	37°34'36.5"
187A				WAMUNYU	KILEMBWA	Kilembwa	1°20'31.9"	37°32'03.0"
188A		MASINGA	NDITHINI	MUTHESYA	KIKULE	MUAMBANI	0°57'58.2"	37°25'46.5"
189				NDITHINI	NDITHINI	Ndithini Sec. School	0°56'39.1"	37°20'03.5"
190			NDITHINI	MUTHESYA	MUTHESYA	MUNYIIKI	0°58'33.7"	37°22'49.6"
191A			NDITHINI	MANANJA	MANANJA	Mananja-Ndala	0°51'02.6"	37°17'17.3"
195A						Thayu wa Ndala	0°51'30.5"	37°16'38.2"
196A				NDITHINI	MILAANI	Milaani-Ngeeyo	0°52'44.7"	37°23'05.3"
197						Militani	0°52'47.7"	37°24'35.8"
198		MACHAKOS	Kalama	Kombo	Muumandu	Kavete	1°40'45.2"	37°16'42.3"
199			KALAMA	KOLA	IIYUNI	IIYUNI	1°41'04.8"	37°19'55.8"
200			CENTRAL	KATHEKAKAI	KITANGA	KYEMUTHEKE	1°32'08.5"	37°10'12.6"

OWNER:	PROJECT NAME:	CONSULTING ENGINEERS:	TITLE:		
THE MINISTRY OF WATER AND IRRIGATION THE REPUBLIC OF KENYA	THE PROJECT FOR RURAL WATER SUPPLY	NIPPON KOEI CO.,LTD.	GENERAL LOCATION MAP		
			SCALE NONE	DATE OCT 2010	DRAWING NO. GE-001



STANDARD FIGURE OF BOREHOLE STRUCTURE

Boreholes to be drilled and installed

Serial No.	Well depth (m)	Water Supply Facilities
96A	90	Submersible Pump by Generator
98A	100	Submersible Pump by Generator
100	110	Hand Pump
107	55	Hand Pump
108	55	Hand Pump
110A	100	Hand Pump
111A	100	Hand Pump
112A	100	Hand Pump
113	110	Hand Pump
114	100	Hand Pump
118	90	Hand Pump
124	55	Hand Pump
127A	80	Submersible Pump by Generator
128A	100	Hand Pump
130	100	Hand Pump
131	70	Hand Pump
134A	100	Hand Pump
137A	110	Submersible Pump by Generator
140	55	Hand Pump
145	110	Hand Pump
146A	120	Hand Pump
148A	150	Hand Pump
152	110	Hand Pump
156A	160	Submersible Pump by Generator
164	90	Hand Pump
165A	145	Hand Pump
166	185	Hand Pump
173A	55	Submersible pump by Generator
175A	90	Hand Pump
178A	100	Submersible Pump by Generator
184	130	Hand Pump
185A	100	Hand Pump
187A	130	Submersible Pump by Generator
188A	110	Submersible Pump by Generator
190	70	Hand Pump
191A	100	Submersible Pump by Generator
195A	90	Submersible Pump by Generator
196A	120	Hand Pump
198	80	Hand Pump
199	110	Hand Pump

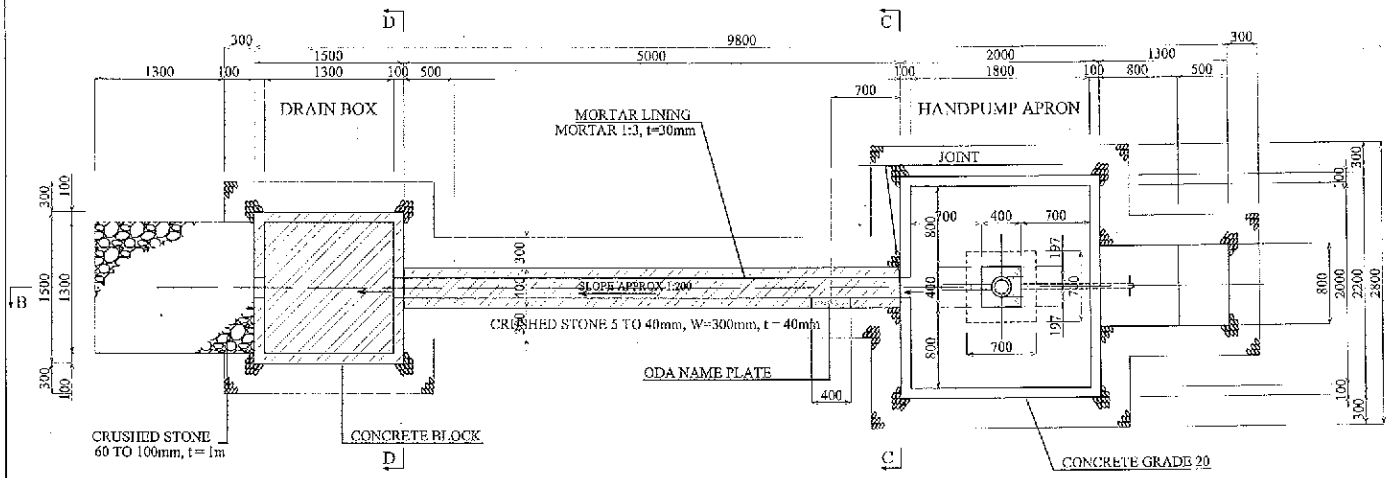
Note: Well depth in the above table is estimated depth.

Drilled Boreholes to be installed

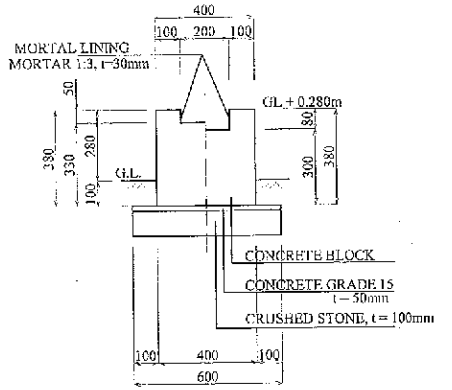
Serial No.	Borehole Depth (GL-m)	Statistic Water Level (GL-m)	Dinamic Water Level (GL-m)	Discharge/Yield (m3/hr)	Water Supply Facilities
102	155	5.0	137.3	2.70	Windmill pump
123	87	51.3	65.2	1.70	Submersible Pump by Solar
133	120	16.3	48.0	9.00	Submersible Pump by Electrical Line
142	84	31.4	52.2	1.70	Submersible Pump by Solar
162	141	44.6	85.1	1.10	Submersible Pump by Solar
163	137	81.5	105.9	10.90	Submersible Pump by Generator
167	110	20.2	33.7	2.00	Submersible Pump by Generator
177	38	5.0	16.5	5.00	Submersible Pump by Generator
183	128	38.1	88.6	7.20	Submersible Pump by Generator
200	150	44.7	90.7	0.60	Submersible Pump by Solar
121	100	9.2	13.1	15.0	Submersible Pump by solar
151	54	11.8	38.2	4.5	Submersible Pump by Generator
158	80	4.7	35.7	4.7	Submersible Pump by Generator
172	92	4.4	50.8	18.0	Submersible Pump by Generator
180	100	6.4	24.0	14.4	Submersible Pump by Generator
186	120	7.3	80.8	2.0	Submersible Pump by Generator
189	92	11.1	36.8	3.6	Submersible Pump by Electrical Line
197	60	6.9	33.7	6.7	Submersible Pump by Generator

Note: Above data are reference only

OWNER:	PROJECT NAME:	CONSULTING ENGINEERS:	TITLE:		
THE MINISTRY OF WATER AND IRRIGATION THE REPUBLIC OF KENYA	THE PROJECT FOR RURAL WATER SUPPLY	NIPPON KOEI CO.,LTD.	GENERAL DETAILS OF BOREHOLE STRUCTURE		
			SCALE NONE	DATE OCT 2010	DRAWING NO. BW-001

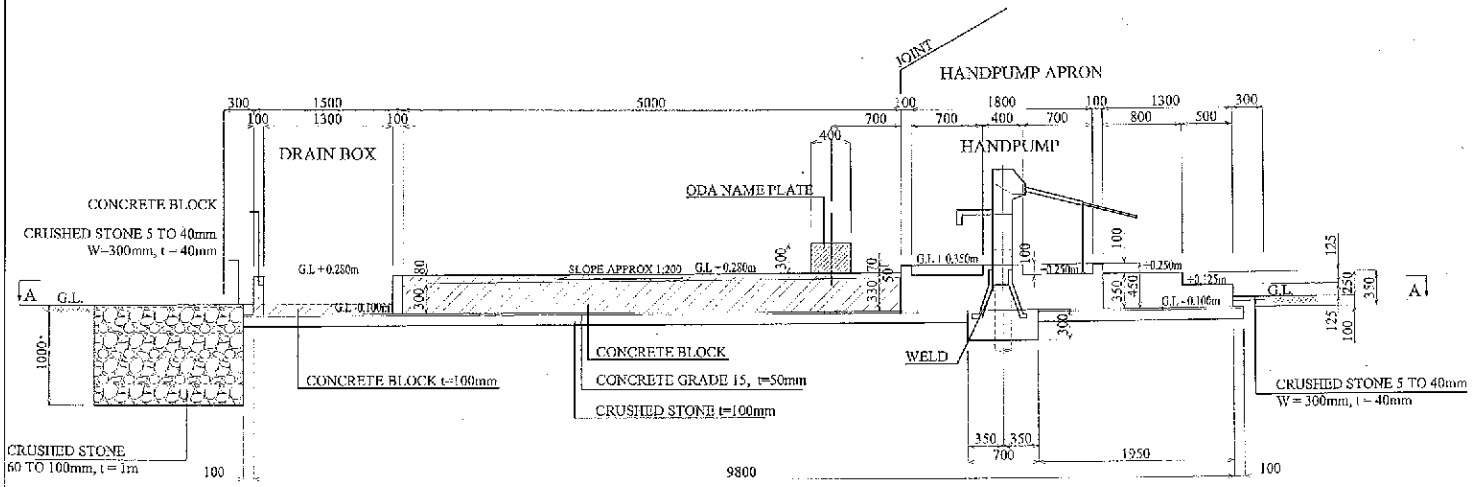


A-A
SCALE 1:50

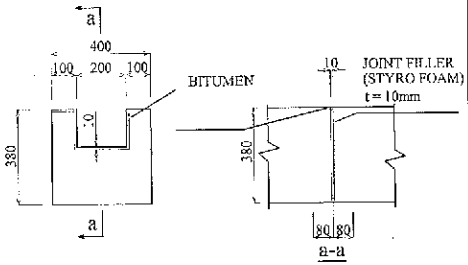


C-C
SCALE 1:20

D-D
SCALE 1:20



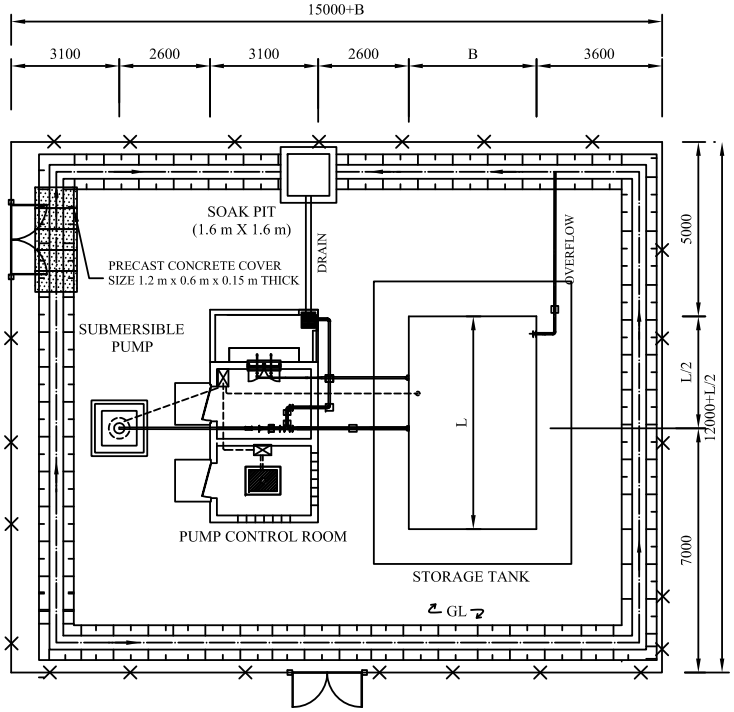
B-B
SCALE 1:50



a-a

JOINT DETAIL
SCALE 1:20

OWNER:	PROJECT NAME:	CONSULTING ENGINEERS:	TITLE: CONSTRUCTION OF BOREHOLE WATER SUPPLY FACILITIES HAND PUMP		
THE MINISTRY OF WATER AND IRRIGATION THE REPUBLIC OF KENYA	THE PROJECT FOR RURAL WATER SUPPLY	NIPPON KOEI CO.,LTD.	SCALE 1:50 1:20	DATE JAN 2010	DRAWING NO. BW-002



SERIAL No.	L (mm)	B (mm)	TYPE
121	6100	3660	S0
123	2000	2000	
142	2000	2000	
162	2000	2000	
200	2000	2000	

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.
3. THE NUMBER OF WATER TAP SHALL BE REQUIRED 4 FOR THE SERIAL NO. 121 AND 2 FOR THE OTHERS.

LEGEND:

: PRECAST CONCRETE COVER

: GATE

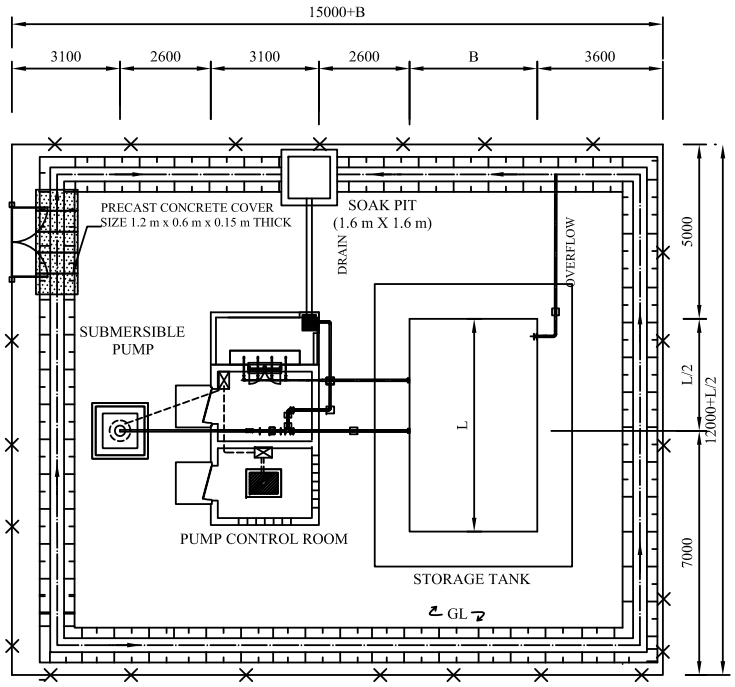
: CHAIN-LINK FENCE

: CUT SLOPE (GRADIENT 1:0.5)

: WATER SUPPLY PIPE

----- : CABLE

OWNER:	PROJECT NAME:	CONSULTING ENGINEERS:	TITLE: CONSTRUCTION OF WATER SUPPLY FACILITIES BY SUBMERSIBLE PUMP LAYOUT PLAN OF TYPE S0 AND S1		
THE MINISTRY OF WATER AND IRRIGATION THE REPUBLIC OF KENYA	THE PROJECT FOR RURAL WATER SUPPLY	NIPPON KOEI CO.,LTD.	SCALE 1:150	DATE OCT 2010	DRAWING NO. SP-001A



SERIAL No.	L (mm)	B (mm)	TYPE
96A	6100	3660	S1
98A	4880	2440	
127A	4880	2440	
133	6100	3660	
137A	6100	3660	
151	4880	2440	
156A	6100	3660	
163	4880	2440	
172	6100	3600	
173A	4880	2440	
186	4880	2440	
195A	4880	2440	
197	6100	3660	

LEGEND:

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

NOTES:

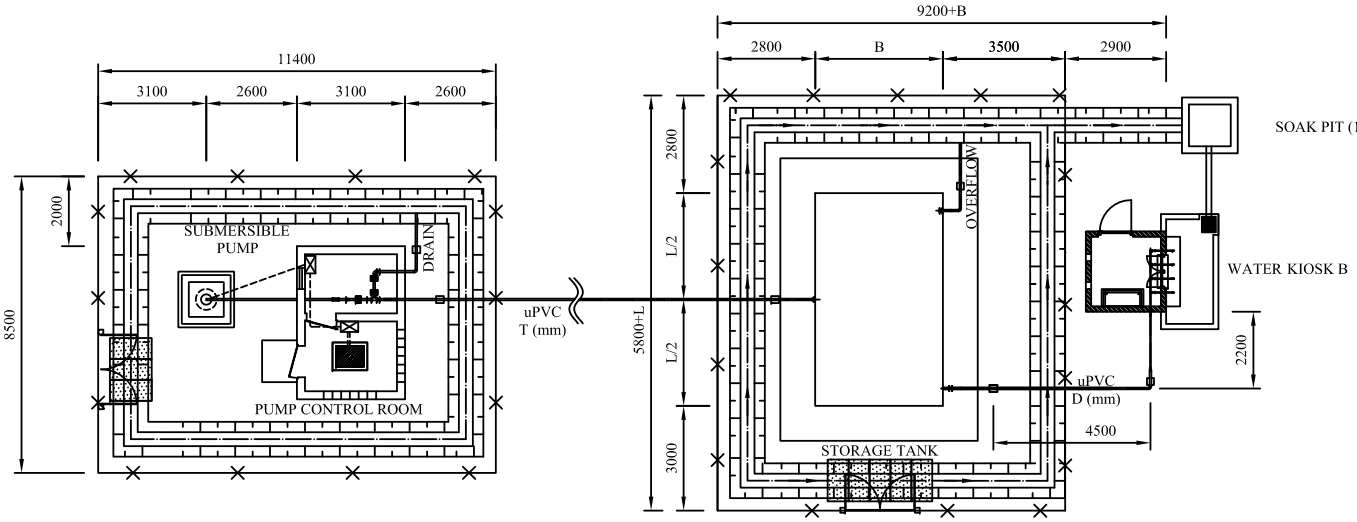
1. FOR DETAILS OF PRECAST CONCRETE COVER, GATE, FENCE AND DRAIN uPVC DITCH, SEE DRAWING No. SP-069 & 070.
2. CONSTRUCTION WORKS FOR ; (1.) FENCES AND (2.) DRAIN OUTLETS ARE DONE BY RURAL COMMUNITY PARTICIPATION BASED ON THE UNDERTAKINGS OF THE GOVERNMENT OF KENYA.

OWNER:	PROJECT NAME:	CONSULTING ENGINEERS:	TITLE: CONSTRUCTION OF WATER SUPPLY FACILITIES BY SUBMERSIBLE PUMP LAYOUT PLAN OF TYPE S0 AND S1		
THE MINISTRY OF WATER AND IRRIGATION THE REPUBLIC OF KENYA	THE PROJECT FOR RURAL WATER SUPPLY	NIPPON KOEI CO.,LTD.	SCALE 1:150	DATE OCT 2010	DRAWING NO. SP-001B

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.

SERIAL No.	L (mm)	B (mm)	uPVC T (mm)	uPVC D (mm)
167	4880	2440	50	50
178A	4880	2440	50	50
187A	4880	2440	50	50
188A	4880	2440	50	50
191A	4880	2440	50	50



LEGEND:

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

OWNER:	PROJECT NAME:	CONSULTING ENGINEERS:	TITLE: CONSTRUCTION OF WATER SUPPLY FACILITIES BY SUBMERSIBLE PUMP LAYOUT PLAN OF TYPE S2		
THE MINISTRY OF WATER AND IRRIGATION THE REPUBLIC OF KENYA	THE PROJECT FOR RURAL WATER SUPPLY	NIPPON KOEI CO.,LTD.	SCALE 1:150	DATE OCT. 2010	DRAWING NO. SP-002

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.

LEGEND:

: PRECAST CONCRETE COVER

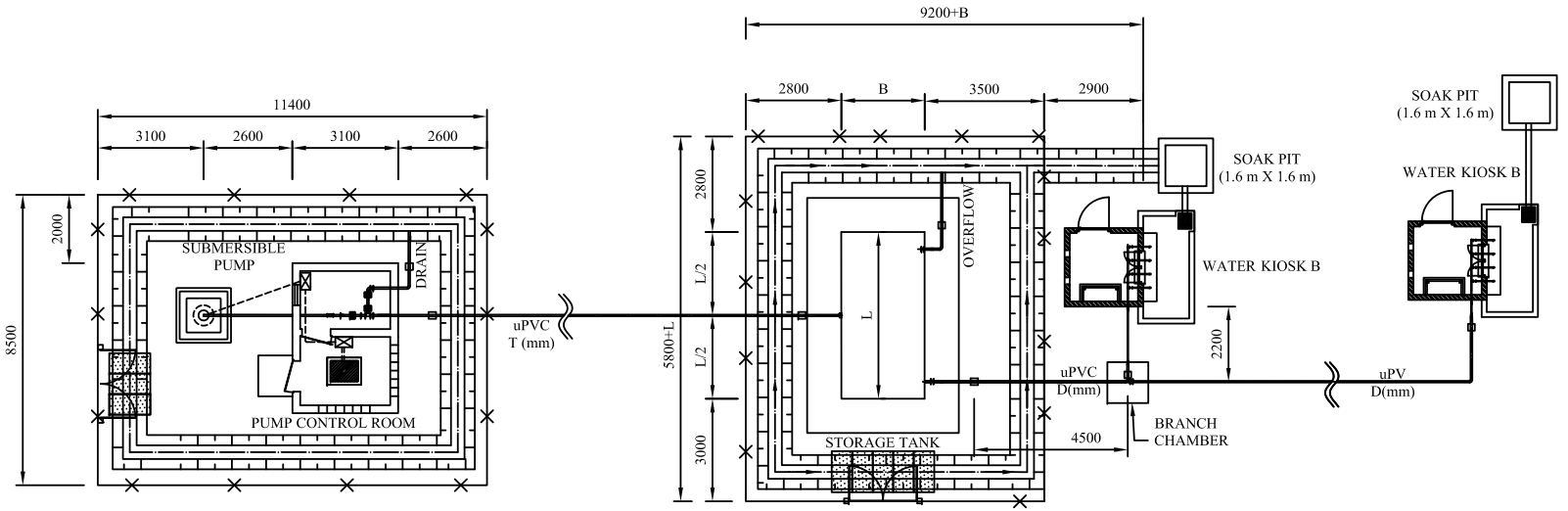
: GATE

: CHAIN-LINK FENCE

: CUT SLOPE (GRADIENT 1:0.5)

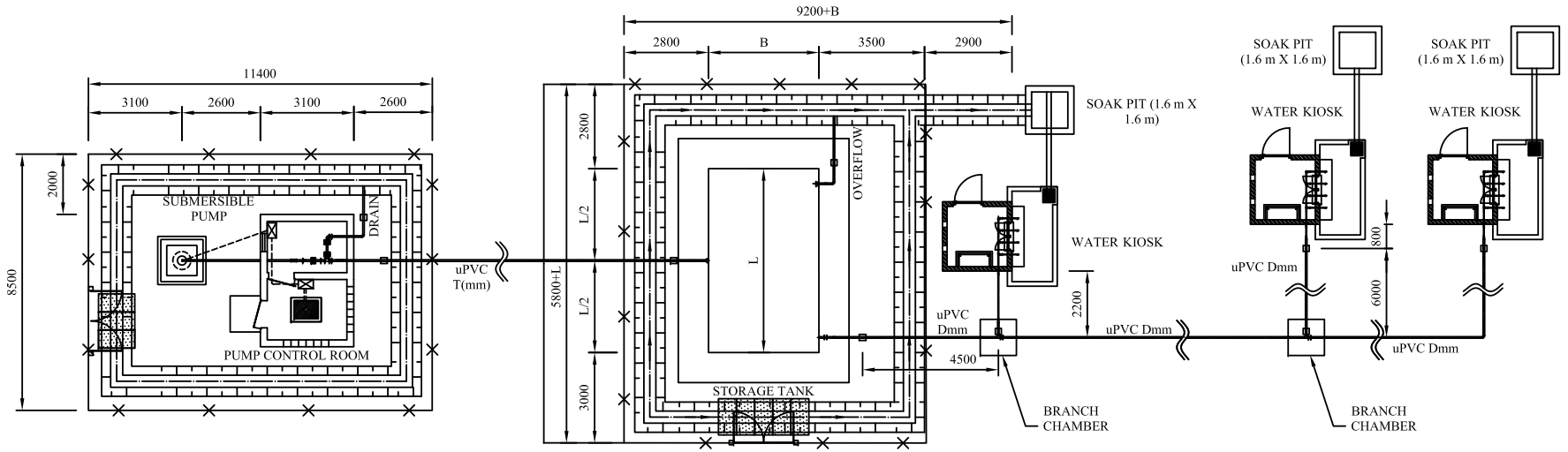
: WATER SUPPLY PIPE

: CABLE



SERIAL No.	L (mm)	B (mm)	uPVC T(mm)	uPVC D (mm)
189	6100	3600	50	50

OWNER:	PROJECT NAME:	CONSULTING ENGINEERS:	TITLE: CONSTRUCTION OF WATER SUPPLY FACILITIES BY SUBMERSIBLE PUMP LAYOUT PLAN OF TYPE S3		
THE MINISTRY OF WATER AND IRRIGATION THE REPUBLIC OF KENYA	THE PROJECT FOR RURAL WATER SUPPLY	NIPPON KOEI CO.,LTD.	SCALE 1:150	DATE OCT. 2010	DRAWING NO. SP-003



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

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.

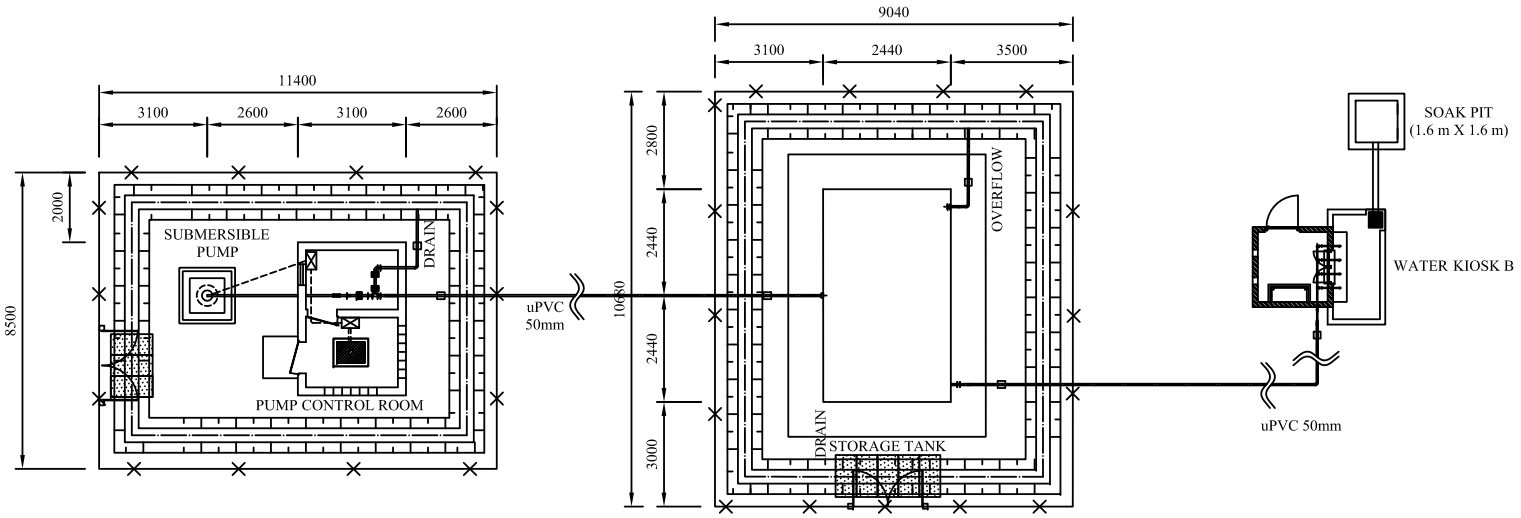
LEGEND:

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

OWNER:	PROJECT NAME:	CONSULTING ENGINEERS:	TITLE: CONSTRUCTION OF WATER SUPPLY FACILITIES BY SUBMERSIBLE PUMP LAYOUT PLAN OF TYPE S4		
THE MINISTRY OF WATER AND IRRIGATION THE REPUBLIC OF KENYA	THE PROJECT FOR RURAL WATER SUPPLY	NIPPON KOEI CO.,LTD.	SCALE 1:150	DATE OCT 2010	DRAWING NO. SP-004

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.

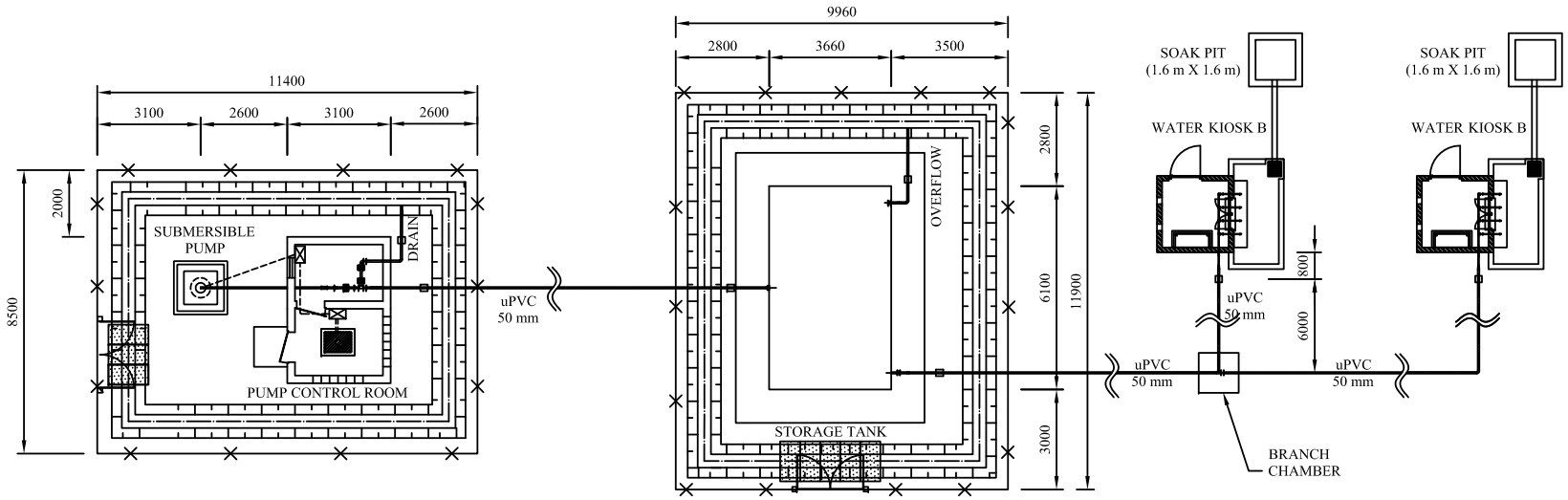


SERIAL . NO. 177

LEGEND:

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

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



SERIAL . NO. 183

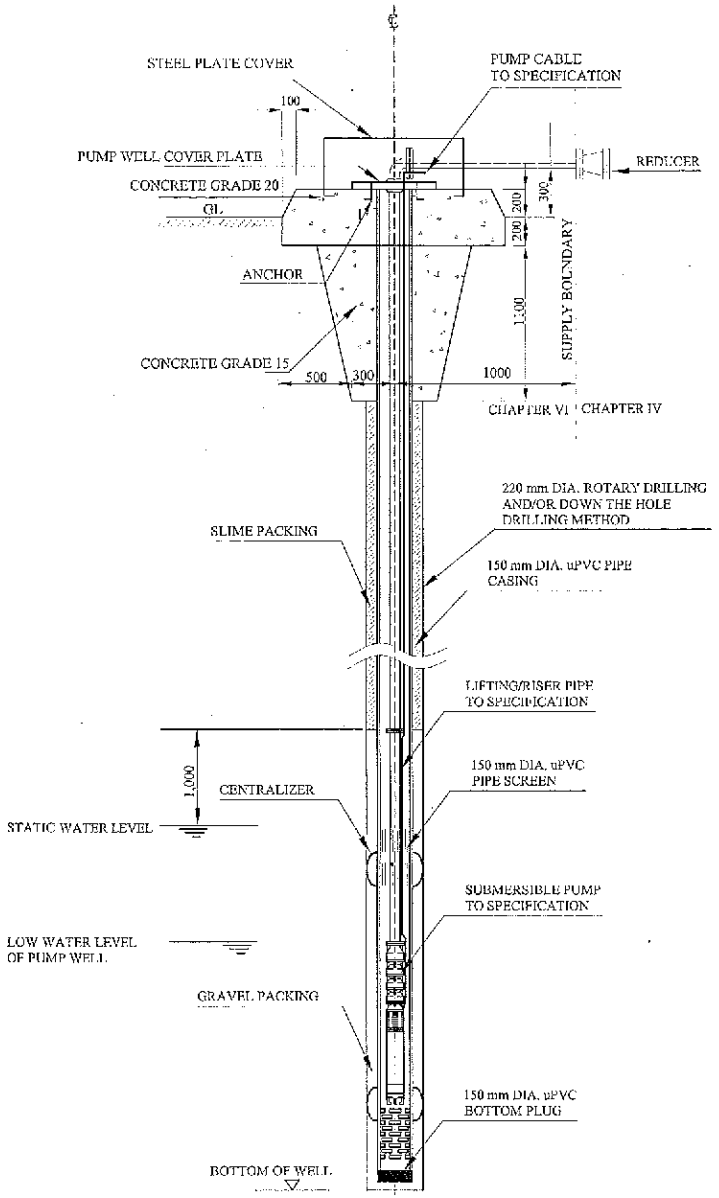
LEGEND:

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



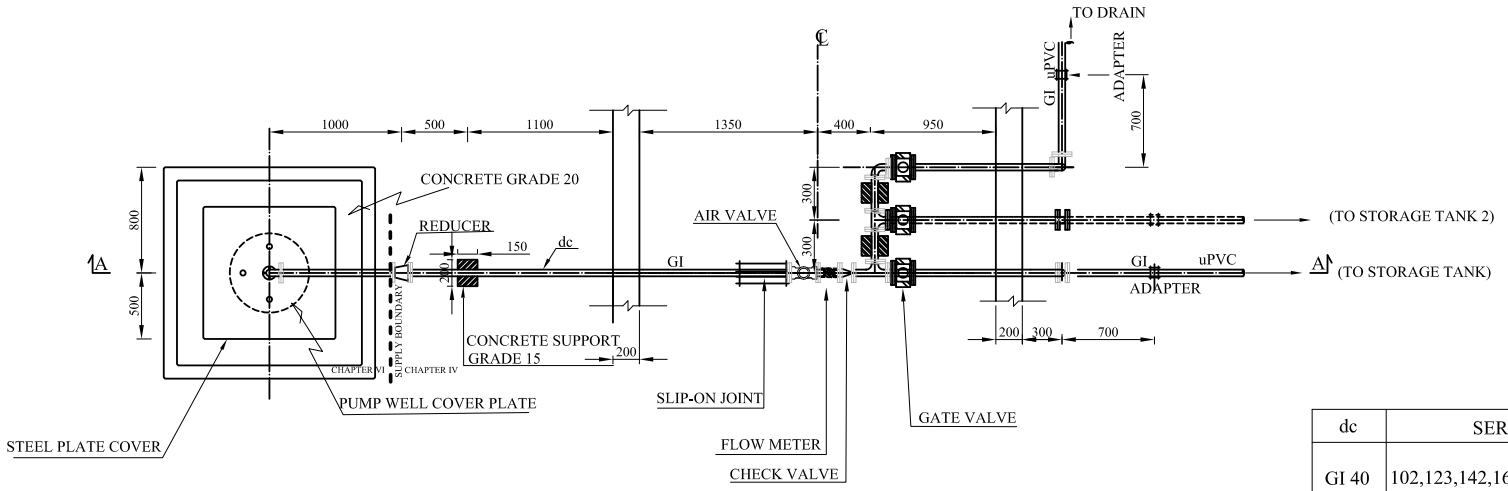
DESIGN DATA FOR PUMPS

Serial No.	Discharge (m3/hr)	Well Depth (m)	Ground Elevation (m)	Static Wate. Level (GL -m)	Riser Pipe Dia. (mm)	Riser Pipe Length (m)	Transmission Pipe Dia (mm)	Transmission Pipe Length (m)	High Water Level at Storage Tank (GL 1m)	Power Source	Remarks
96A	4.55	100.0	G.L.	20.0	50	42.8	50	12.3	3.59	Generator	
98A	2.83	100.0	G.L.	20.0	50	50.8	50	12.3	3.59	Generator	
102	1.02	155.0	1,136.0	5.0	32	101.5	40	8.0	2.37	Windmil	Existing Borehole
121	5.67	100.0	1,033.0	9.2	50	37.3	50	12.3	3.59	Solar	Existing Borehole
123	0.98	87.0	1,144.0	51.3	32	62.3	40	11.9	3.15	Solar	Existing Borehole
127A	2.50	100.0	G.L.	40.0	50	59.6	50	12.3	3.59	Generator	
133	3.47	120.0	1,321.0	16.3	50	57.3	50	12.3	3.59	Electrical Line	Existing Borehole
137A	3.17	100.0	1,026.0	1.9	50	67.0	50	12.3	3.59	Generator	
142	0.99	84.0	1,016.0	31.1	32	65.5	40	11.9	3.15	Solar	Existing Borehole
151	2.84	54.0	959.0	11.8	50	39.3	50	12.3	3.59	Generator	Existing Borehole
156A	4.00	130.0	G.L.	24.0	50	188.8	50	12.3	3.59	Generator	
158	4.66	60.0	1,118.0	4.7	65	57.3	65	2,011.2	3.59	Generator	Existing Borehole
162	1.10	140.0	1,169.2	44.6	40	106.3	40	11.9	3.15	Solar	Existing Borehole
163	2.78	137.0	1,183.0	81.5	50	113.3	50	12.3	3.59	Generator	Existing Borehole
169	2.00	110.0	1,453.5	20.2	50	60.3	50	856.6	3.59	Generator	Existing Borehole
172	5.22	92.0	1,259.0	4.4	50	25.3	50	12.3	3.59	Generator	Existing Borehole
173A	2.00	100.0	G.L.	35.0	40	48.3	40	17.3	3.59	Generator	
177	2.97	35.0	1,263.4	5.0	50	21.3	50	28.1	3.59	Generator	Existing Borehole
178A	3.00	100.0	G.L.	35.0	50	65.6	50	1,647.7	3.59	Generator	
180	4.16	100.0	1,354.0	6.6	65	28.7	65	664.3	3.59	Generator	Existing Borehole
183	3.14	127.0	1,168.3	38.1	50	121.3	50	191.2	3.59	Generator	Existing Borehole
185	2.00	120.0	1,177.0	7.5	50	96.5	40	12.3	3.59	Generator	Existing Borehole
188A	2.14	100.0	G.L.	20.0	50	98.3	50	1,243.8	3.59	Generator	
189	3.60	92.0	1,220.2	11.1	50	66.3	50	487.0	3.59	Electrical Line	Existing Borehole
192A	3.00	120.0	G.L.	20.0	50	50.6	50	1,691.0	3.59	Generator	
195A	3.00	100.0	G.L.	20.0	50	50.6	50	12.3	3.59	Generator	
197	5.32	60.0	1,062.0	6.9	50	51.3	50	12.3	3.59	Generator	Existing Borehole
200	0.60	150.0	1,438.0	44.7	40	129.3	40	19.8	2.15	Solar	Existing Borehole

NOTES:

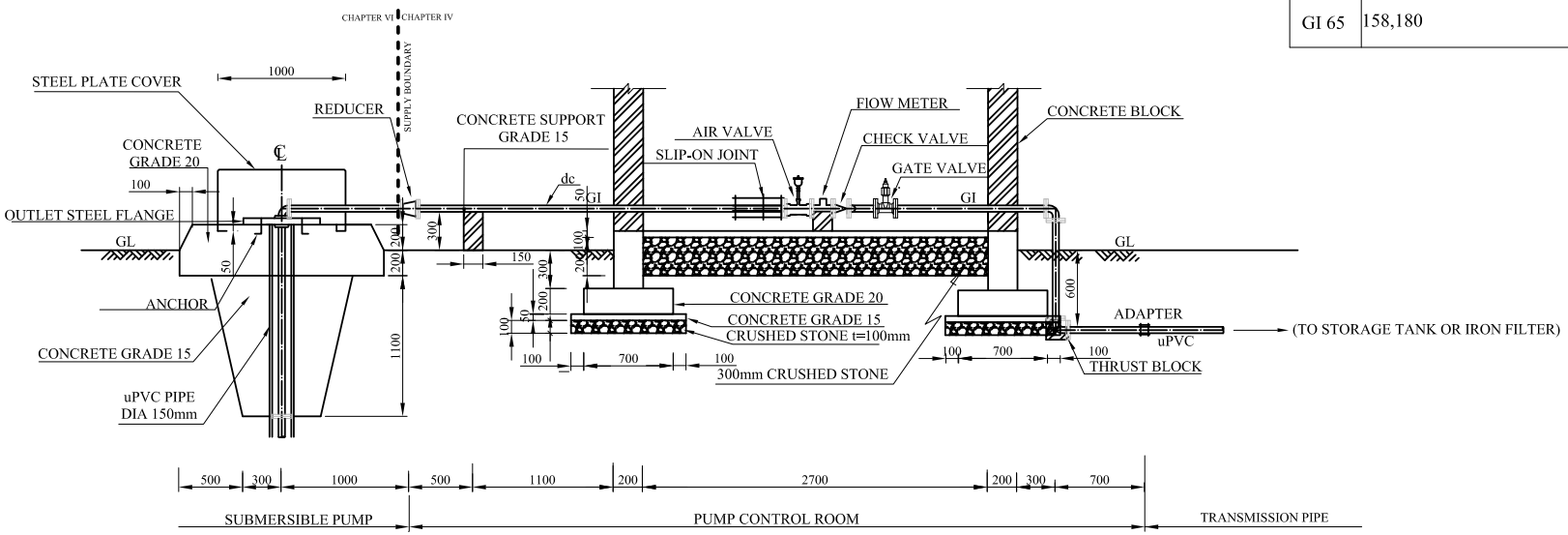
1. PIPELINE LENGTH: FROM THE SUPPLY BOUNDARY (1.0 M FROM THE CENTER LINE OF P. MP.) TO THE STORAGE TANK OR IRON FILTER, ACCORDINGLY. THE DIAMETER OF PIPELINE IS FOR TRANSMISSION PIPELINE.
2. PUMP BORE DIAMETER: 97 MM.
3. SYMBOLS "-" IN THE ABOVE TABLE ARE REFERENCE ONLY, AND THOSE NUMBERS SHALL BE RESET AFTER COMPLETION OF EXCAVATION BOREHOLES AND SHALL BE CONFIRMED AFTER PUMPING TEST.
4. LOCATION OF 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 ENGINEERS: 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



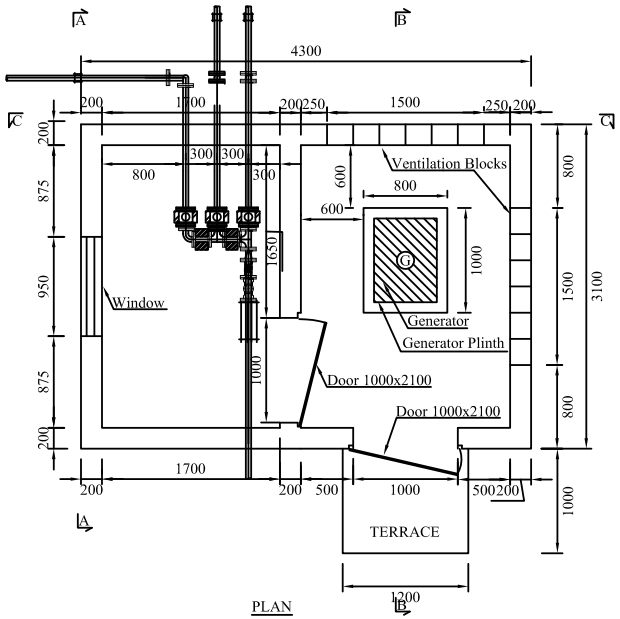
PLAN OF CONTROL ROOM

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

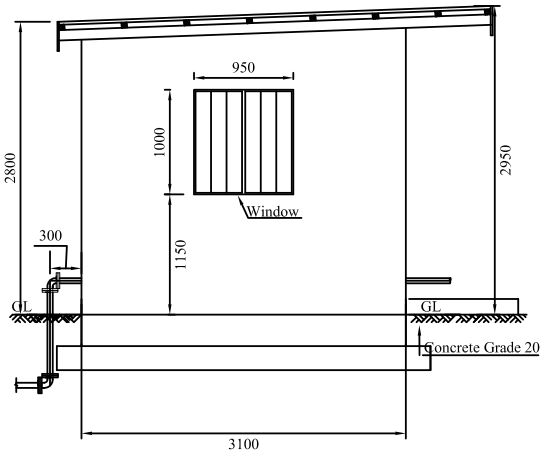


SECTION A-A

OWNER:	PROJECT NAME:	CONSULTING ENGINEERS:	TITLE: CONSTRUCTION OF WATER SUPPLY FACILITIES BY SUBMERSIBLE PUMP PIPEWORK OF PUMP CONTROL ROOM		
THE MINISTRY OF WATER AND IRRIGATION THE REPUBLIC OF KENYA	THE PROJECT FOR RURAL WATER SUPPLY	NIPPON KOEI CO.,LTD.	SCALE 1:40	DATE OCT 2010	DRAWING NO. SP-043



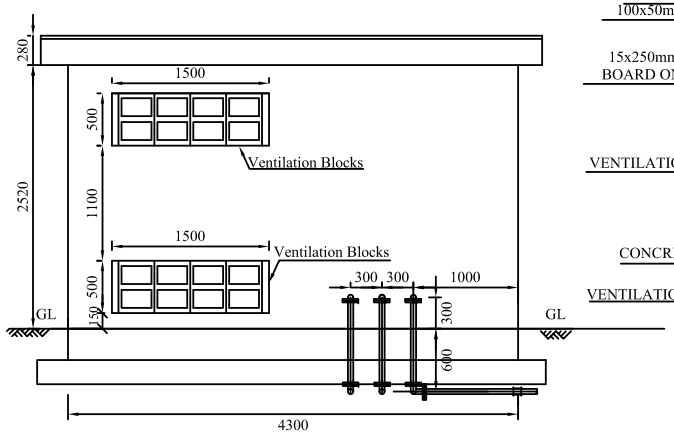
PLAN
Scale 1:50



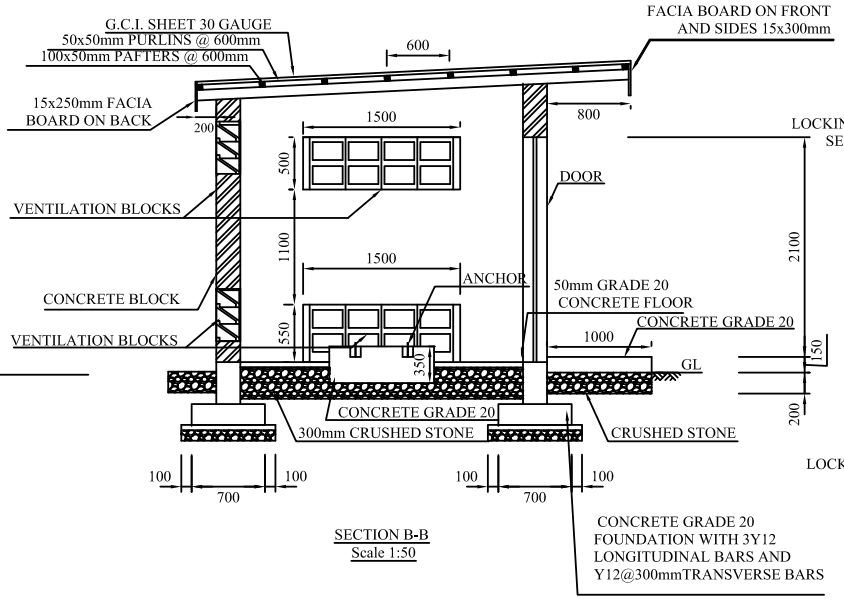
VIEW A-A
Scale 1:50

NOTE:

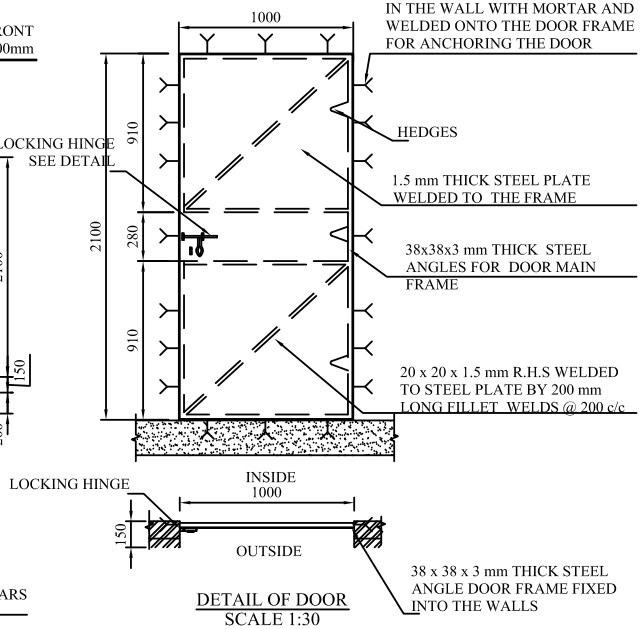
1. THIS LAYOUT PLAN SHALL BE APPLIED TO TYPE S2, S3,S4,S6 AND S9 AS SHOWN IN DRAWINGS NO SP-002 TO SP-009
2. IN THE EVENT OF ELECTRICAL LINE FOR POWER SOURCE , GENERATOR SHALL BE CANCELED
3. FOR DETAILS OF LOCKING HINGE AND WINDOW SEE DRAWING NO SP-068B
4. FOUNDATION LEVEL DEPENDS ON SITE CONDITIONS



VIEW C-C
Scale 1:50

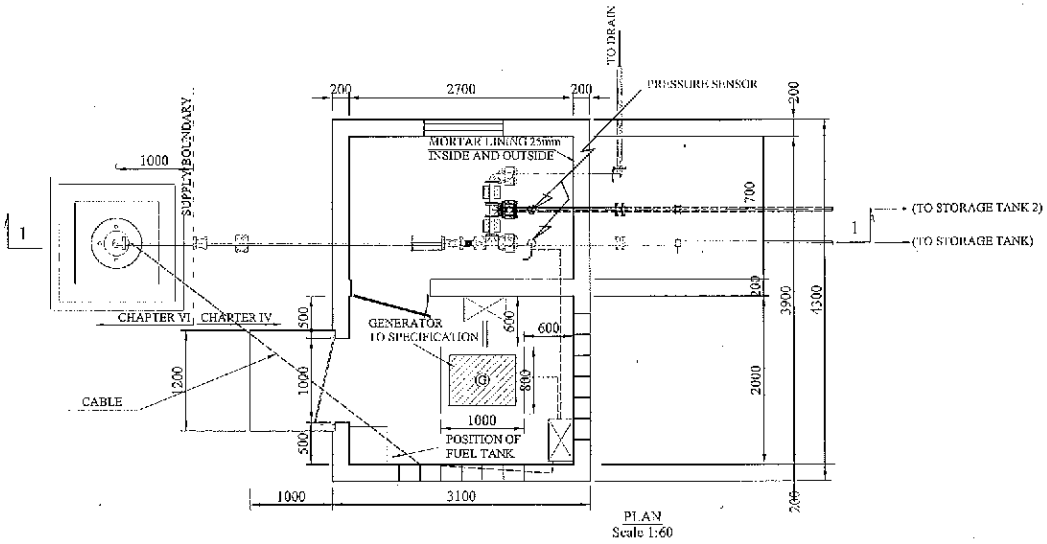


SECTION B-B
Scale 1:50

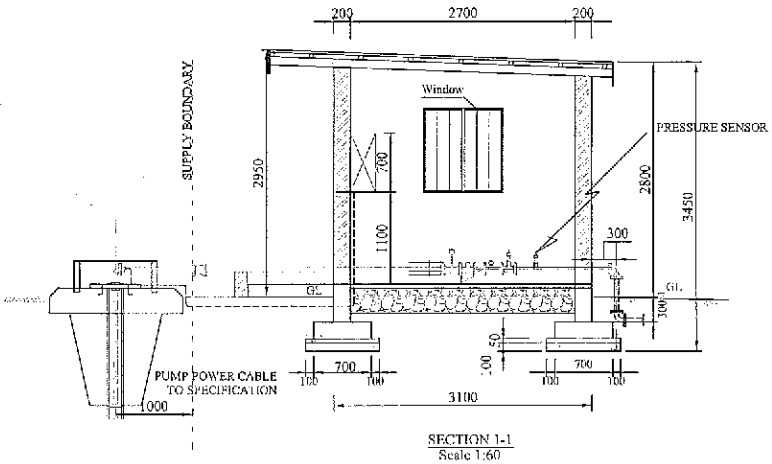


DETAIL OF DOOR
SCALE 1:30

OWNER:	PROJECT NAME:	CONSULTING ENGINEERS:	TITLE:		
THE MINISTRY OF WATER AND IRRIGATION THE REPUBLIC OF KENYA	THE PROJECT FOR RURAL WATER SUPPLY	NIPPON KOEI CO.,LTD.	LAYOUT PLAN OF CONTROL ROOM		
			SCALE 1:30 1:50	DATE OCT 2010	DRAWING NO. SP-044A



PLAN
Scale 1:60

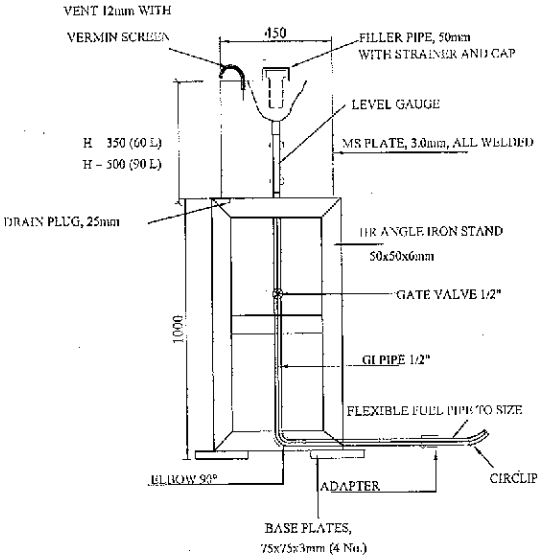


SECTION 1-1
Scale 1:60

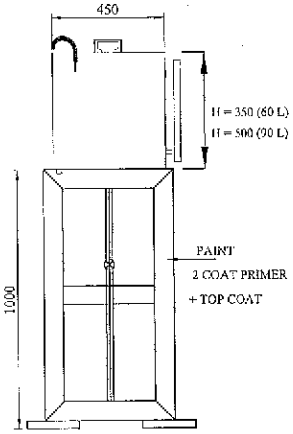
POWER SOURCE	SERIAL NO.
GENERATOR	96A, 98A,127A,137A, 151, 156A,158, 163, 167,172, 173,177,178A, 180,183,186 187A, 188A,191A,195A,197,
ELECTRICAL LINE	135, 189

NOTE

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



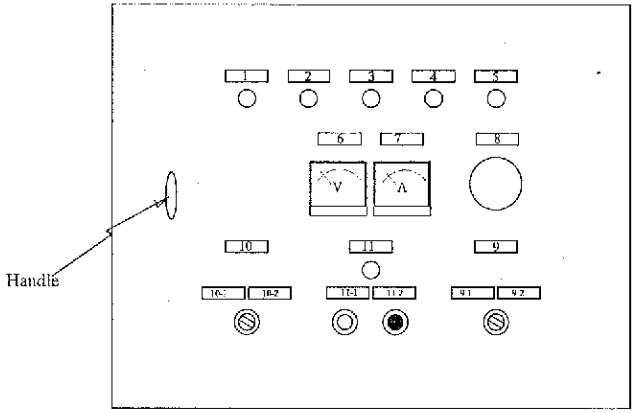
FUEL TANK - FRONT VIEW
Scale 1:20



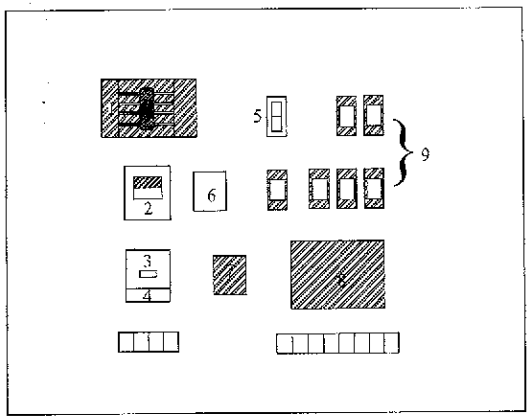
FUEL TANK - SIDE VIEW
Scale 1:20

OWNER:	PROJECT NAME:	CONSULTING ENGINEERS:	TITLE: CONSTRUCTION OF WATER SUPPLY FACILITIES BY SUBMERSIBLE PUMP LAYOUT OF DIESEL CABLE SYSTEM		
THE MINISTRY OF WATER AND IRRIGATION THE REPUBLIC OF KENYA	THE PROJECT FOR RURAL WATER SUPPLY	NIPPON KOEI CO.,LTD.	SCALE 1:20 1:60	DATE OCT 2010	DRAWING NO. SP-045A

CONTROL PANEL FRONT VIEW



CONTROL PANEL INSIDE VIEW



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

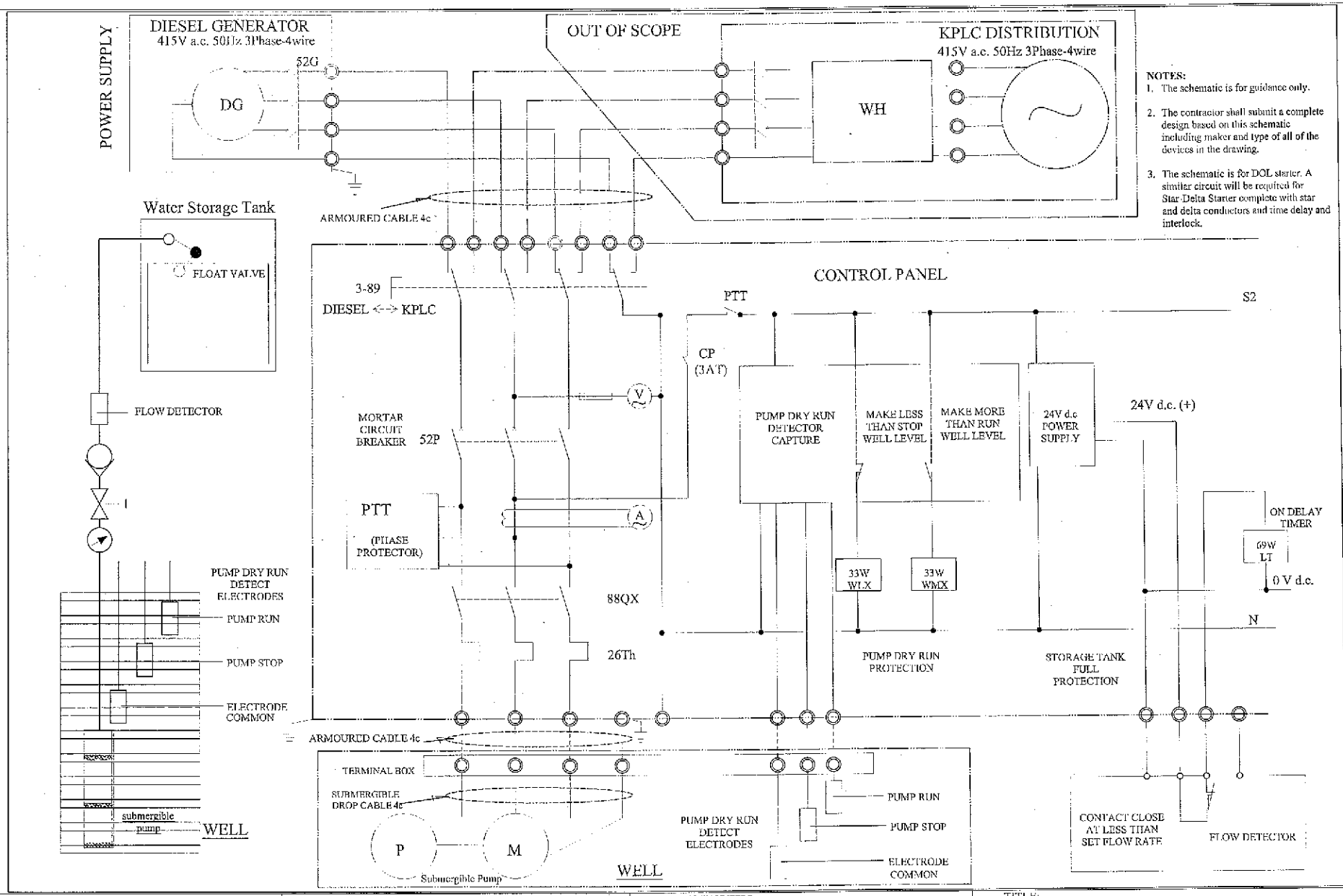
LEGEND

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	VOLTAGE METER	SUPPLY POW
7	AMMETER	LOAD CURRENT
8	BUZZER	BUZZER
9	CHANGE OVER SWITCH	BUZZER
9-1		NO USE
9-2		USE
10	CHANGE OVER SWITCH	PUMP AUTO STOP
10-1		USE
10-2		NO USE
8-2		STOP
11	STATUS INDICATOR	PUMP RUN
11-1	PUSH BUTTON SWITCH	STOP
11-2	PUSH BUTTON SWITCH	START

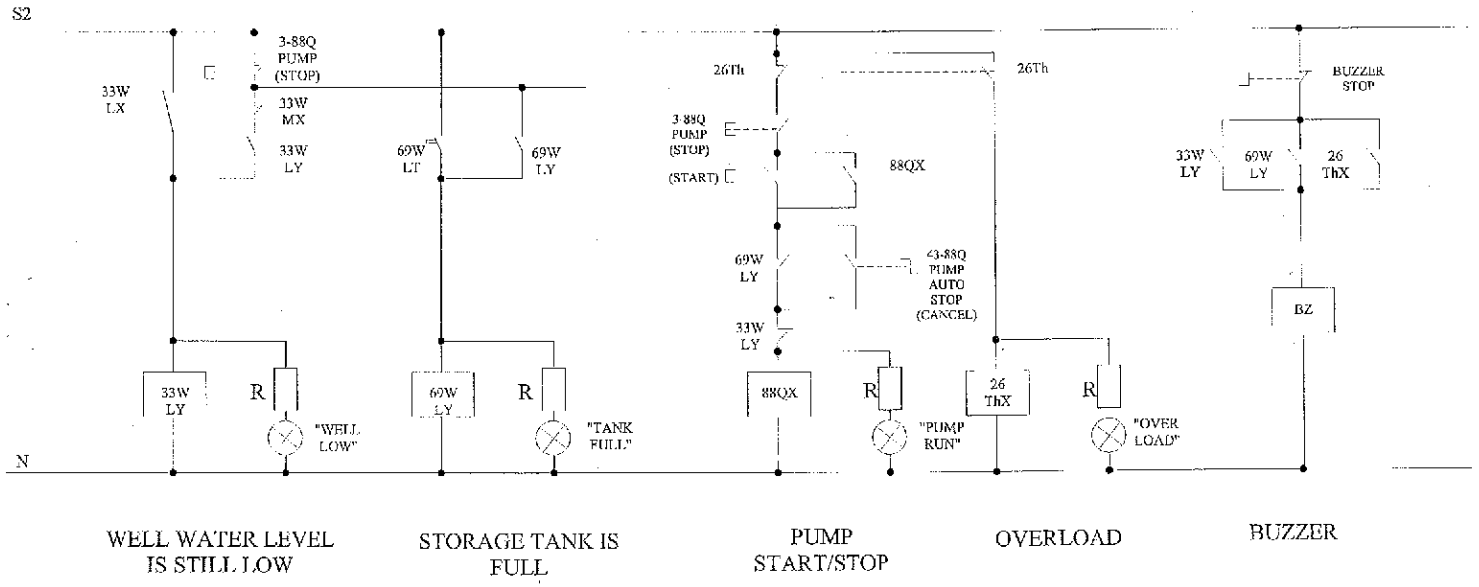
No.	Device	Name plate Indication
1	3-89: CHANGE OVER SWITCH	POW SELECT
1-1		KPLC
1-2		DIESEL
2	52:MORTER CIRCUIT BREAKER	POWER SWITCH
3	88Q: MAGNETIC CONTACTOR	88Q
4	26Th:THERMAL RELAY	26Th
5	CP (CIRCUIT PROTECTOR)	CONTROL POWER
6	24V d.c POWER SUPPLY	DC 24V
7	PTT: PHASE PROTECTION RY	29th
8	WATER LEVEL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

OWNER:	PROJECT NAME:	CONSULTING ENGINEERS:	TITLE: CONSTRUCTION OF WATER SUPPLY FACILITIES BY SUBMERGIBLE PUMP
THE MINISTRY OF WATER AND IRRIGATION THE REPUBLIC OF KENYA	THE PROJECT FOR RURAL WATER SUPPLY	NIPPON KOEI CO.,LTD.	AC ELECTRIC PUMP-1

SCALE	DATE	DRAWING NO.
NONE	JAN 2010	SP-046A

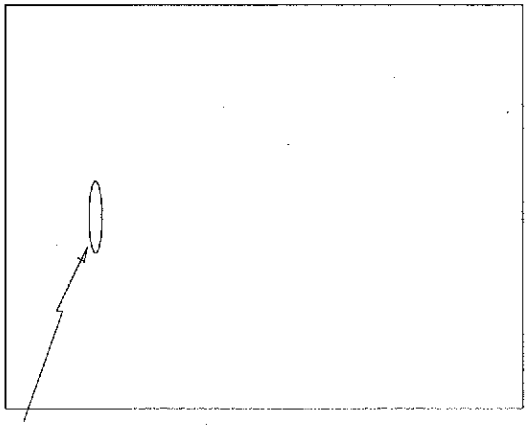


OWNER:	PROJECT NAME:	CONSULTING ENGINEERS:	TITLE: CONSTRUCTION OF WATER SUPPLY FACILITIES BY SUBMERSIBLE PUMP AC ELECTRIC PUMP-2		
THE MINISTRY OF WATER AND IRRIGATION THE REPUBLIC OF KENYA	THE PROJECT FOR RURAL WATER SUPPLY	NIPPON KOEI CO.,LTD.	SCALE NONE	DATE JAN 2010	DRAWING NO. SP-046B



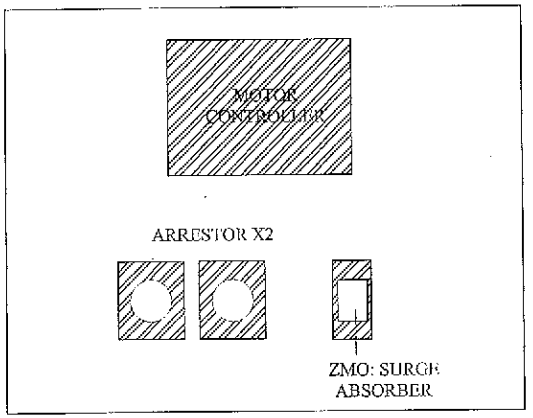
OWNER:	PROJECT NAME:	CONSULTING ENGINEERS:	TITLE: CONSTRUCTION OF WATER SUPPLY FACILITIES BY SUBMERSIBLE PUMP AC ELECTRIC PUMP-3		
THE MINISTRY OF WATER AND IRRIGATION THE REPUBLIC OF KENYA	THE PROJECT FOR RURAL WATER SUPPLY	NIPPON KOEI CO.,LTD.	SCALE NONE	DATE JAN 2010	DRAWING NO. SP-046C

CONTROL PANEL FRONT VIEW

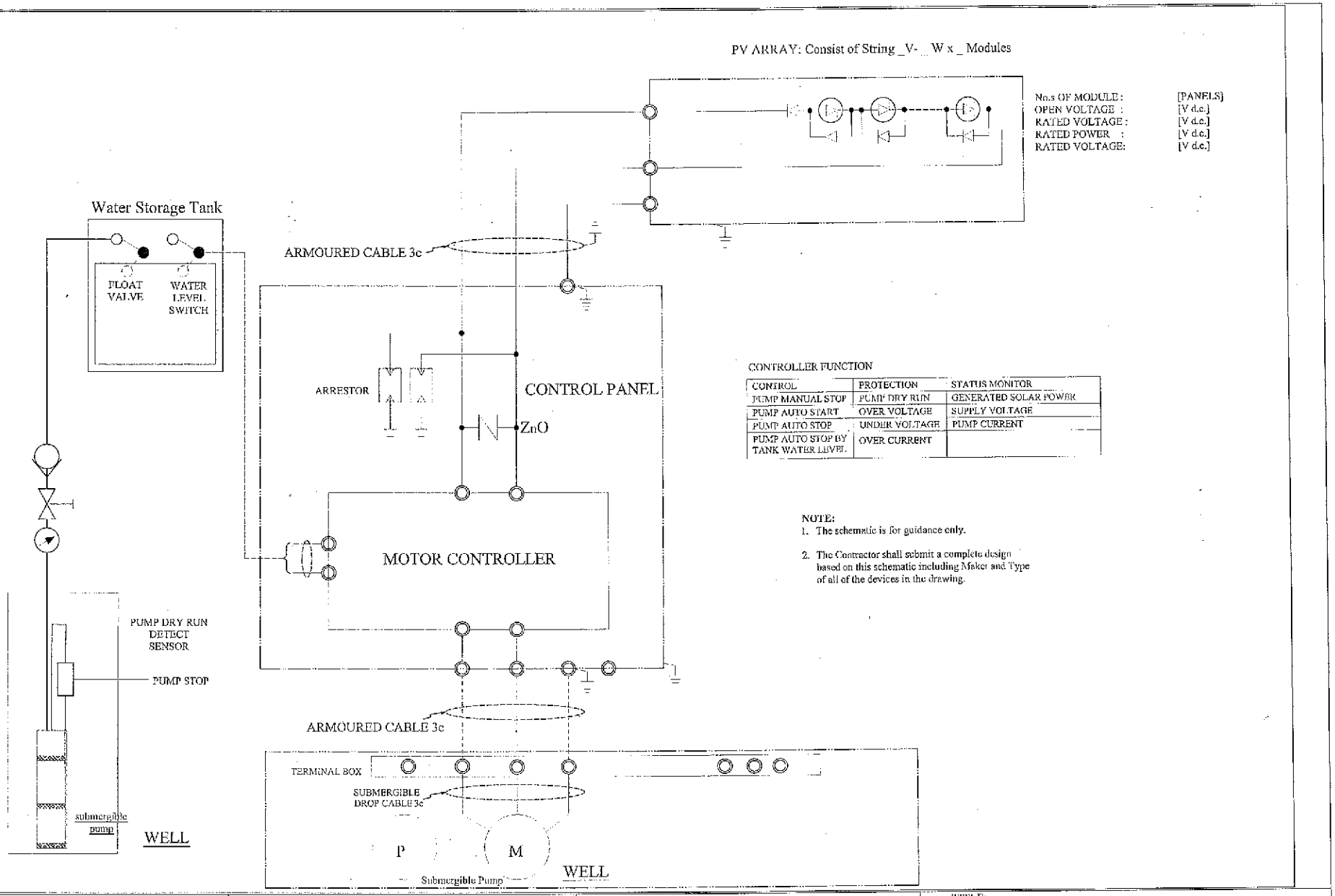


HANDLE

CONTROL PANEL INSIDE VIEW



OWNER:	PROJECT NAME:	CONSULTING ENGINEERS:	TITLE: CONSTRUCTION OF WATER SUPPLY FACILITIES BY SUBMURGIBLE PUMP SOLAR PUMP-1		
THE MINISTRY OF WATER AND IRRIGATION THE REPUBLIC OF KENYA	THE PROJECT FOR RURAL WATER SUPPLY	NIPPON KOEI CO.,LTD.	SCALE NONE	DATE JAN 2010	DRAWING NO. SP-047A

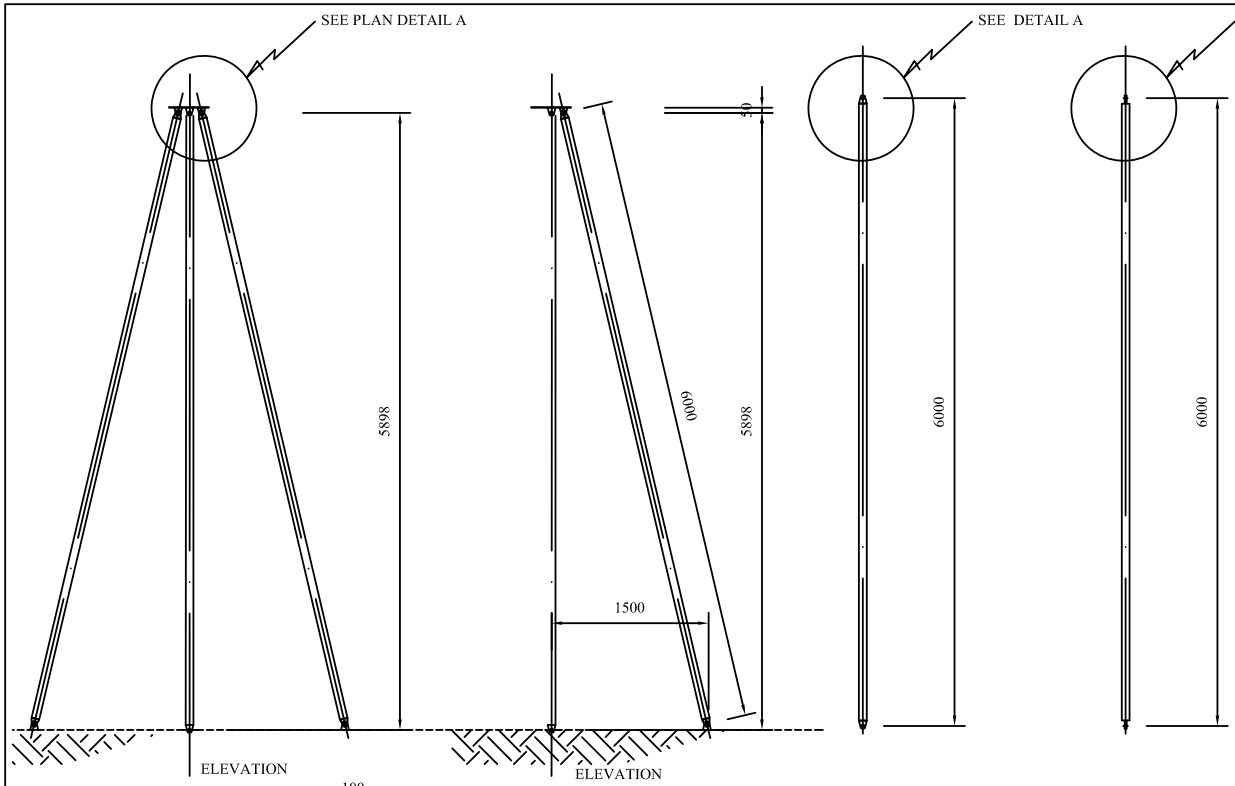


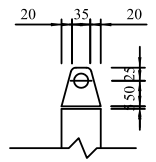
CONTROLLER FUNCTION

CONTROL	PROTECTION	STATUS MONITOR
PUMP MANUAL STOP	PUMP DRY RUN	GENERATED SOLAR POWER
PUMP AUTO START	OVER VOLTAGE	SUPPLY VOLTAGE
PUMP AUTO STOP	UNDER VOLTAGE	PUMP CURRENT
PUMP AUTO STOP BY TANK WATER LEVEL	OVER CURRENT	

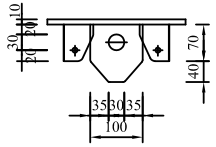
NOTE:
1. The schematic is for guidance only.
2. The Contractor shall submit a complete design based on this schematic including Maker and Type of all of the devices in the drawing.

OWNER:	PROJECT NAME:	CONSULTING ENGINEERS:	TITLE: CONSTRUCTION OF WATER SUPPLY FACILITIES BY SUBMERSIBLE PUMP		
THE MINISTRY OF WATER AND IRRIGATION THE REPUBLIC OF KENYA	THE PROJECT FOR RURAL WATER SUPPLY	NIPPON KOEI CO.,LTD.	SOLAR PUMP-2		
			SCALE NONE	DATE JAN 2010	DRAWING NO. SP-047B

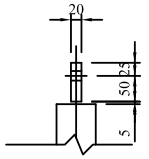




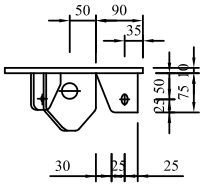
DETAIL A
SCALE 1:10



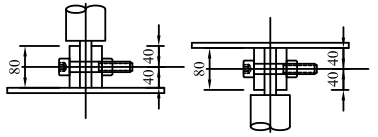
SECTION A-A
SCALE 1:10



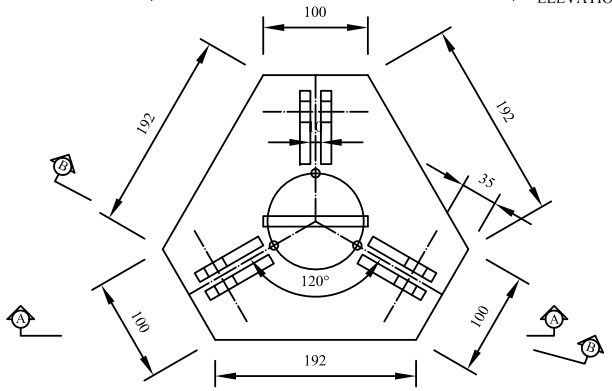
DETAIL B
SCALE 1:10



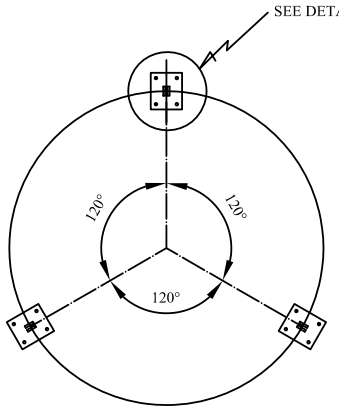
SECTION B-B
SCALE 1:10



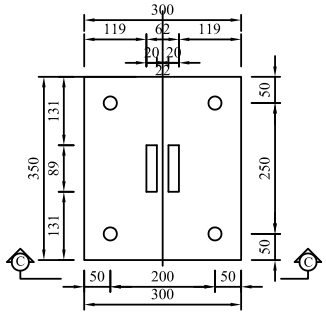
CONNECTION
DETAILS



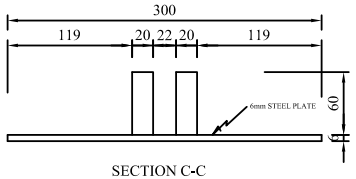
PLAN DETAIL A
SCALE 1:50



PLAN
SCALE 1:50



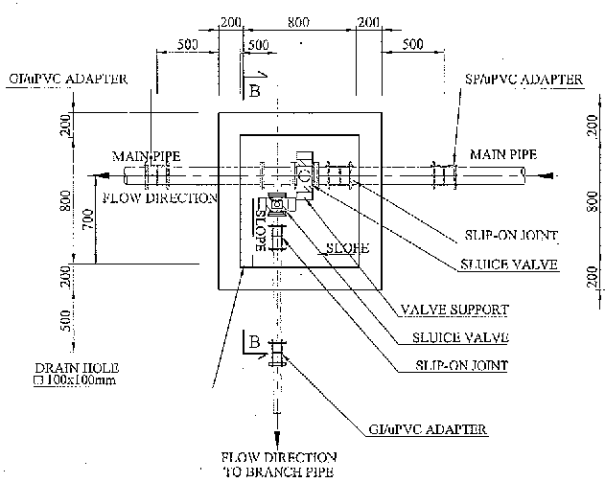
DETAIL B
SCALE 1:10



SECTION C-C
SCALE 1:50

NOTE:
1. Gantry crane shall be manufactured and delivered to District Water Offices in Machakos and Makueni

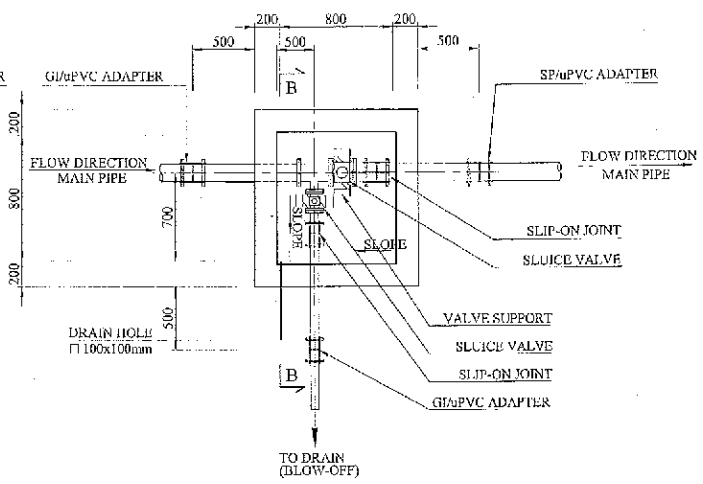
OWNER:	PROJECT NAME:	CONSULTING ENGINEERS:	TITLE: CONSTRUCTION OF WATER SUPPLY FACILITIES BY SUBMERSIBLE PUMP MOBILIZED GANTRY CRANE		
THE MINISTRY OF WATER AND IRRIGATION THE REPUBLIC OF KENYA	THE PROJECT FOR RURAL WATER SUPPLY	NIPPON KOEI CO.,LTD.	SCALE 1:10 1:50 1:100	DATE OCT 2010	DRAWING NO. SP-048



PLAN

BRANCH CHAMBER

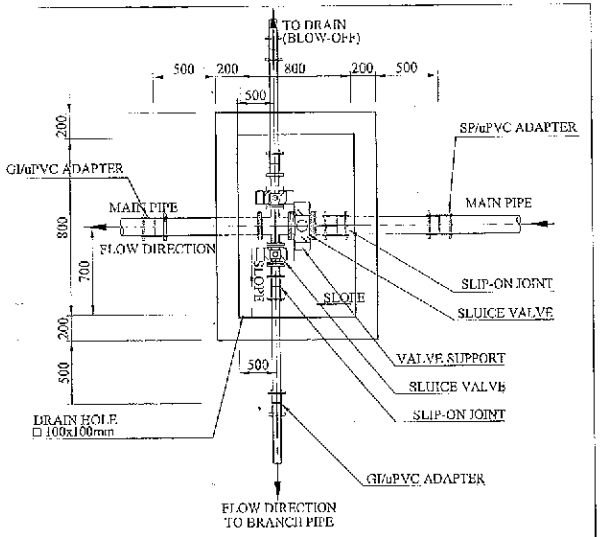
Scale 1:40



PLAN

BLOW-OFF VALVE CHAMBER

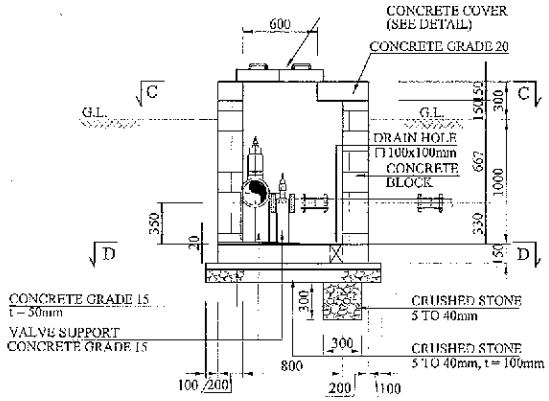
Scale 1:40



PLAN

BRANCH CHAMBER WITH BLOW OFF VALVE

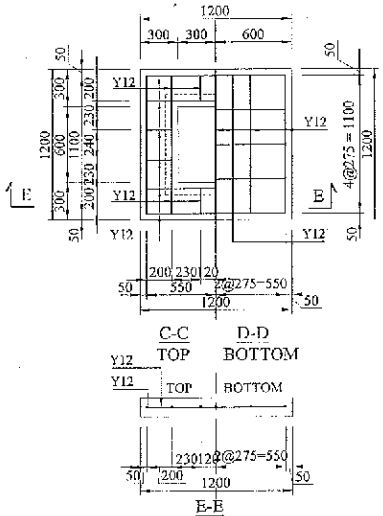
Scale 1:40



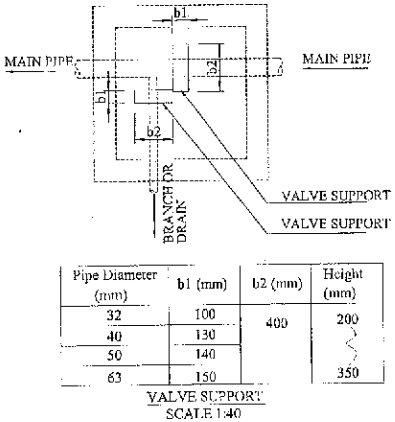
SECTION B-B (TYPICAL)

BRANCH & BLOW OFF VALVE CHAMBER

Scale 1:40



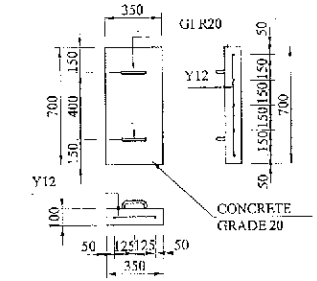
Scale 1:40



Pipe Diameter (mm)	b1 (mm)	b2 (mm)	Height (mm)
32	100	400	200
40	130		
50	140		
63	150		350

VALVE SUPPORT

SCALE 1:40



CONCRETE COVER

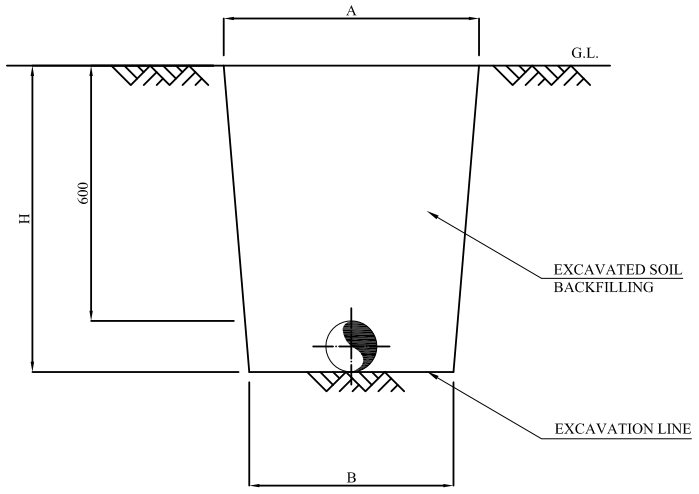
BRANCH & BLOW OFF VALVE CHAMBER

Scale 1:30

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:	PROJECT NAME:	CONSULTING ENGINEERS:	TITLE: CONSTRUCTION OF WATER SUPPLY FACILITIES BY SUBMERSIBLE PUMP BRANCH, BLOW OFF & AIR VALVE CHAMBER (1/2)		
THE MINISTRY OF WATER AND IRIGATION THE REPUBLIC OF KENYA	THE PROJECT FOR RURAL WATER SUPPLY	NIPPON KOEI CO.,LTD.	SCALE 1:40 1:30	DATE NOV 2007	DRAWING NO. SP-049

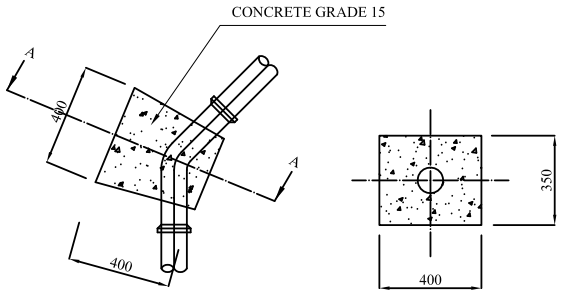


EXCAVATION

Dimension of Manual Excavation

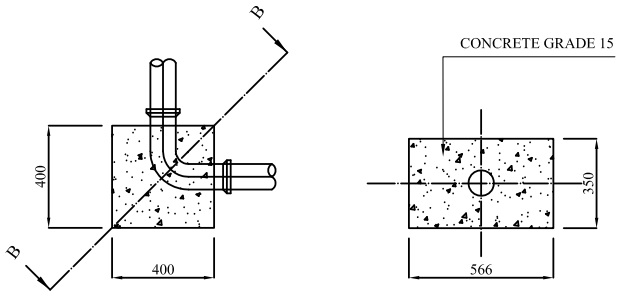
Pipe Diameter (mm)	Excavation	Width (m)		Excavation Depth: H (m)
		A	B	
50≤	Manual	0.60	0.50	0.65
	Machine	0.50	0.50	
>50	Manual	0.60	0.50	0.70
	Machine	0.65	0.65	

Note: Excavated soil shall be used for backfilling
: Surplus soil shall be spoiled.
: Sand with 100mm in thickness shall be bedded below the pipe incase 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



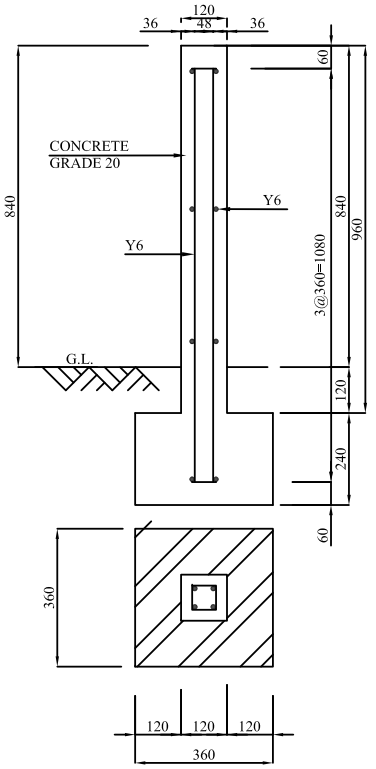
THRUST BLOCK FOR DEGREE OF BEND (LESS 45°)

SCALE 1:20



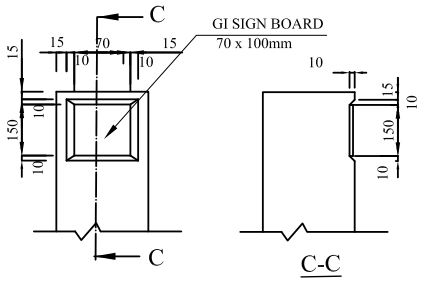
THRUST BLOCK FOR DEGREE OF BEND (45° - 90°)

SCALE 1:20



LINE MARKER

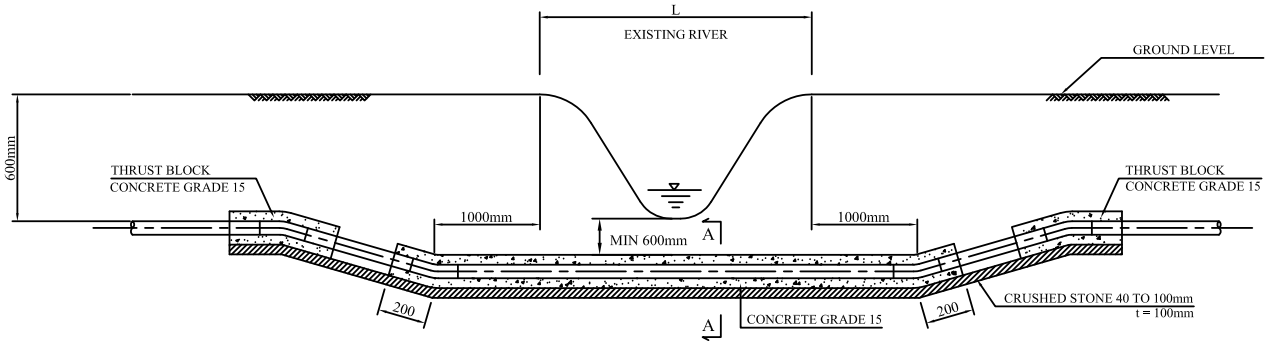
SCALE 1:20



SIGN BOARD

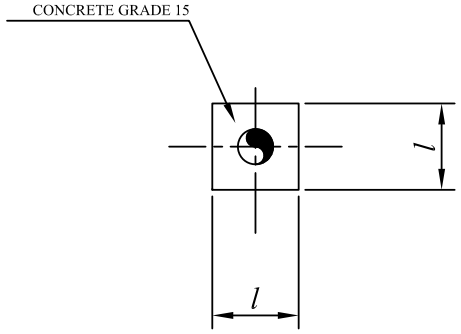
SCALE 1:15

OWNER:	PROJECT NAME:	CONSULTING ENGINEERS:	TITLE: CONSTRUCTION OF WATER SUPPLY FACILITIES BY SUBMERSIBLE PUMP PIPE INSTALLATION, LINE MARKER AND THRUST BLOCK		
THE MINISTRY OF WATER AND IRRIGATION THE REPUBLIC OF KENYA	THE PROJECT FOR RURAL WATER SUPPLY	NIPPON KOEI CO.,LTD.	SCALE 1:15 1:20 NONE	DATE NOV 2007	DRAWING NO. SP-051



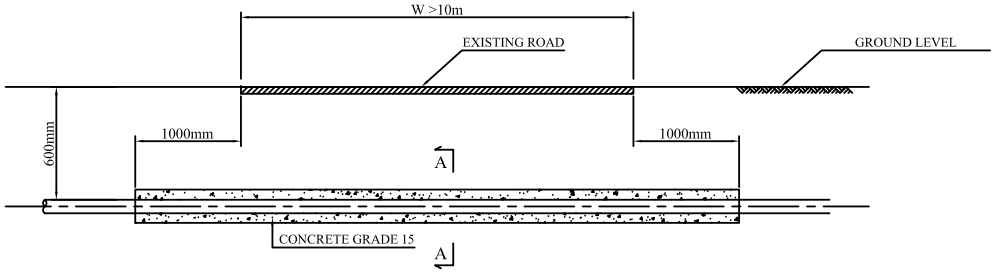
RIVER CROSSING

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



SECTION A-A

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



ROAD CROSSING

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

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