

When replying please quote: AWWDA/GOK/K/W-02/2023-LOT 1. Vol I (6) PE

19th May 2023

To All Bidders,

**RE: CONSTRUCTION WORKS FOR THE AUGMENTATION OF ATHI WATER
SUPPLY PROJECTS IN 2 LOTS**

**LOT 1 - AUGMENTATION OF KIAMBU COMMUNITY WATER SUPPLY
PROJECT: TENDER NUMBER: AWWDA/GOK/K/W-02/2023-LOT 1**

RESPONSE TO CLARIFICATIONS SOUGHT BY TENDERERS

Reference is made to the above-mentioned tender currently under procurement.

Pursuant to Clause 7.3 of the Instruction to Tenderers on Clarification and amendment of the Bidding Documents, please find hereby attached responses to clarifications as received by 16th May 2023.

All bidders are further informed that the last date of tender submission remains Tuesday 23rd May 2023, at 12.00 p.m.



ENG. MICHAEL M. THUITA, MBS
CHIEF EXECUTIVE OFFICER

Encl;



LOT 1 - AUGMENTATION OF KIAMBU COMMUNITY WATER SUPPLY PROJECT

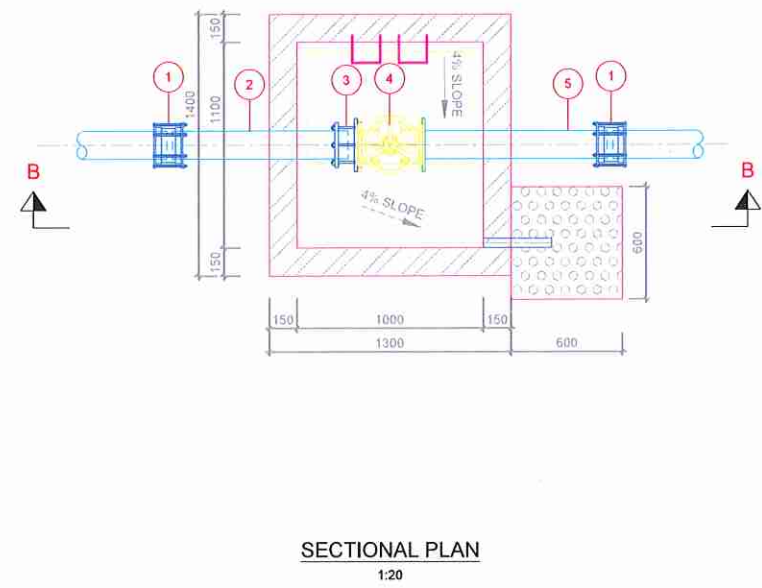
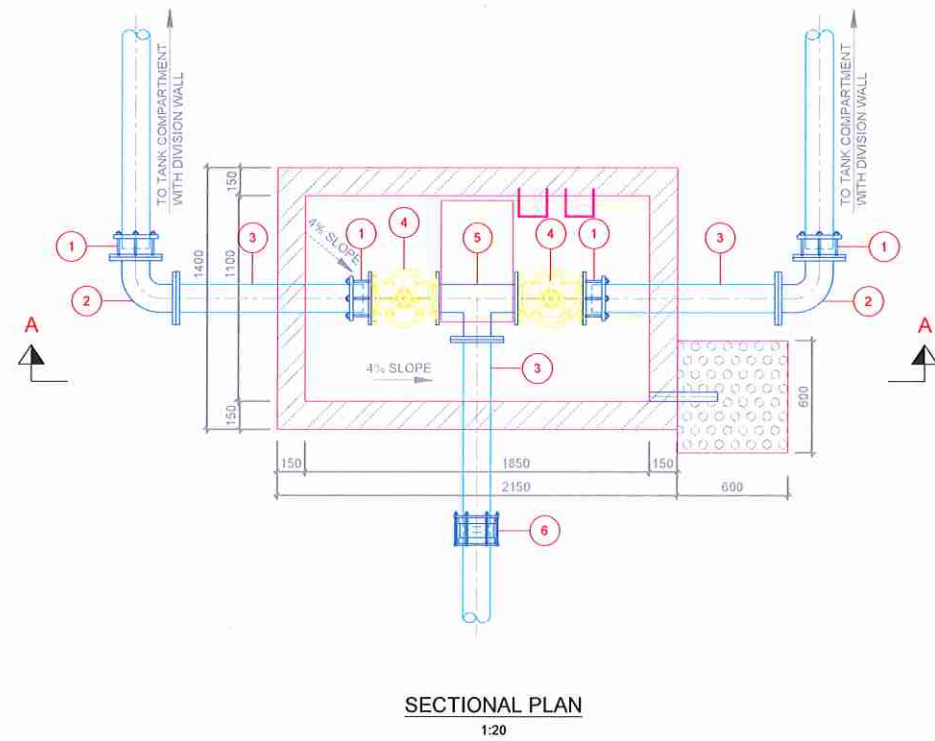
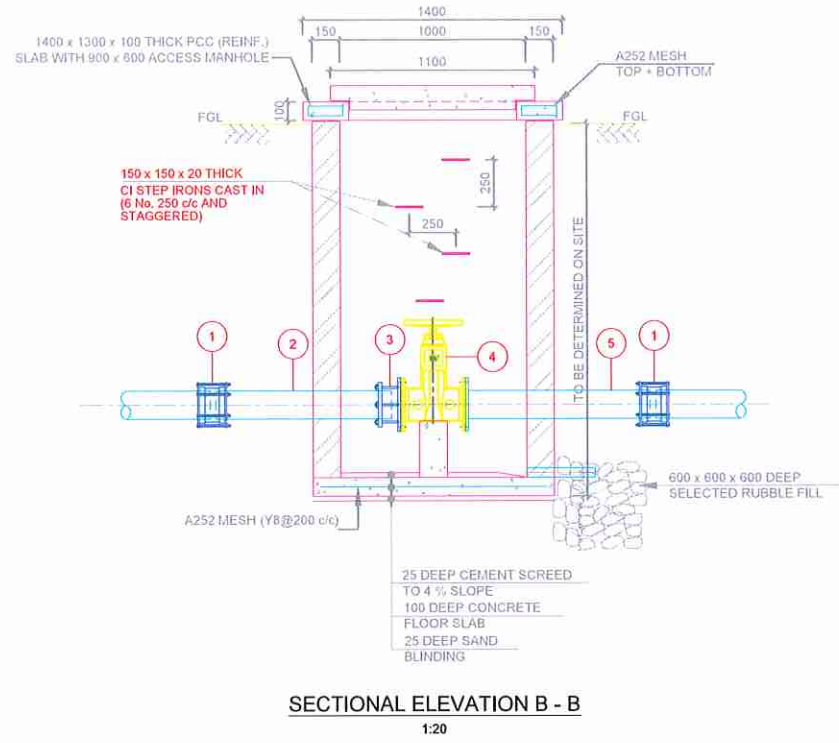
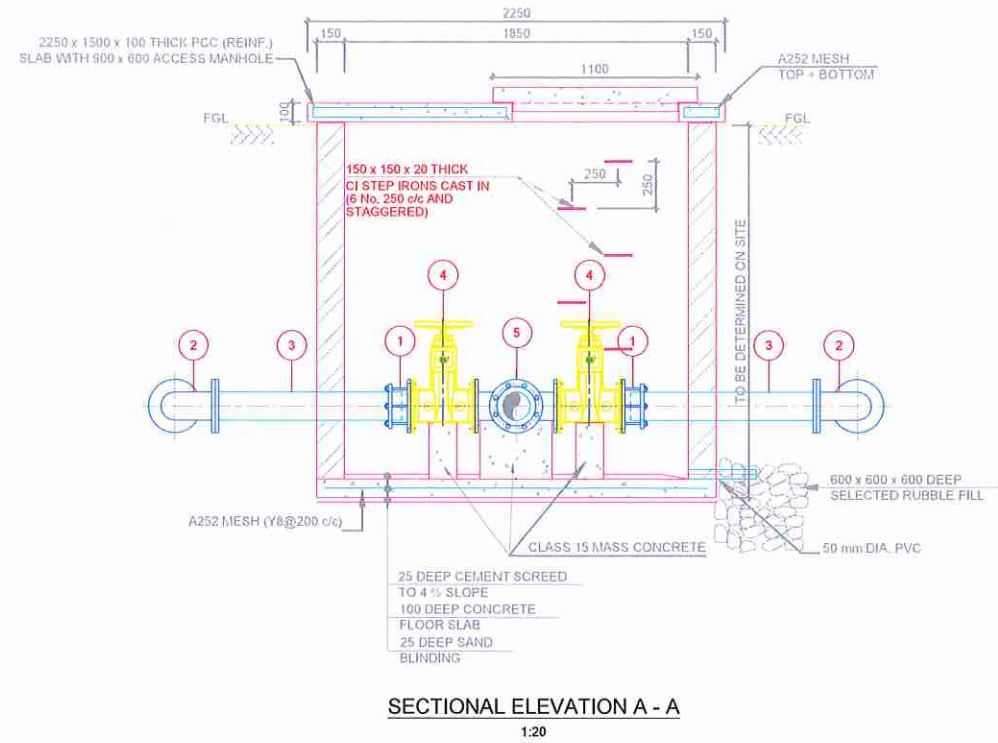
TENDER NO.: AWWDA/GOK/K/W-02/2023-LOT 1.

RESPONSE TO CLARIFICATIONS SOUGHT TENDERS

S/No.	Request for Clarification / Query	Response
1.	Kindly provide drawings for the Pressure (50M3 and 100M3) Tanks and other construction works.	The requested drawings are enclosed herein.
2.	In the dayworks bill it is indicated that we carry forward to preliminary and general items, while as in summary bill it is not indicated. Please clarify.	The day works bill amount is carried forward to the preliminary and general bill item no. A460.6 and the P&G item has been captured in the summary bill.
3.	Bill No: item nos A221 and A223 Contractor's profit and overheads is not included please clarify on the same, on item A620.8 the contractors mark up should be on 640.4 and 640.6 because there is no 640.5 kindly check and clarify	For item A230.2 'Contractor's markup on item A231, A232.2 & A230.2', Please replace A231 with A221 For item A620.8 'Contractor's mark-up on provisional sums for item 1-A640.5 to item 1-A460.6', Please replace 1-A640.5 with 1-A640.4
4.	Bill no 2: Please indicated quantity/ unit under items A271 and A277	Bill no. 2 items A271 and 277 are sum items, therefore the tenderers are advised to provide suitable rate for the whole works.
5.	Bill no 3: Please indicated quantity/ unit under items A271, A277 and K821	Bill no. 3 items A271 and 277 are sum items, therefore the tenderers are advised to provide suitable rate for the whole works.
6.	Bill No 5: Please indicated quantity/ unit under items nos S2 and S3, and clarify on the ratings for the solar as you have mentioned 120kw in S2.1 and in S3.1 you have mentioned electrical with 750kw.	Bill No. 5 Items nos S2 unit column is 'No.' and quantity column is '1' Bill No. 5 Items nos S3 unit column is 'No.' and quantity column is '1' For Bill No. 5 item S3.1 description, please replace 750kw with 120kw
7.	Bill No 5: in items no S26, description sum it is indicated as 10,000,000 and in the rate column it is indicated as Kshs. 5,000,000	For Bill No. 5 item S26 description, please replace 10,000,000/- with 5,000,000

SIGNED: Name. Eng. Kumar. Rep. Sign..... Eng. Rep. 1 of 1

NOTES



SCHEDULE OF PIPEWORK & FITTINGS

ITEM	DESCRIPTION	SIZE	TOTAL No.
1.	FLANGE ADAPTOR	ND 150	4
2.	DOUBLE FLANGED 90° BEND	ND 150	2
3.	SINGLE FLANGED PIPE PIECE L = 1000	ND 150	3
4.	DOUBLE FLANGED SLUICE VALVE	ND 150	2
5.	ALL FLANGED TEE	ND 150	1
6.	COUPLINGS TO SUIT WATER MAIN SIZE AND MATERIAL	ND 150	1

SCHEDULE OF PIPEWORK & FITTINGS

ITEM	DESCRIPTION	SIZE	TOTAL No.
1.	COUPLINGS TO SUIT WATER MAIN SIZE AND MATERIAL	ND 150	2
2.	PLAIN ENDED PIPE PIECE, L = 1000	ND 150	1
3.	FLANGE ADAPTOR	ND 150	1
4.	DOUBLE FLANGED SLUICE VALVE	ND 150	1
5.	SINGLE FLANGED PIPE PIECE, L = 1000	ND 150	1

REHABILITATION OF INDEPENDENT
MATAARA WATER SUPPLY SCHEME
PROJECT



ATHI WATER WORKS
DEVELOPMENT AGENCY

PROJECT:
AUGMENTATION OF KIAMBU
COMMUNITY WATER SUPPLY
PROJECT

TOWN: KIAMBU COUNTY

DRAWING TITLE:
Valve Chamber Details

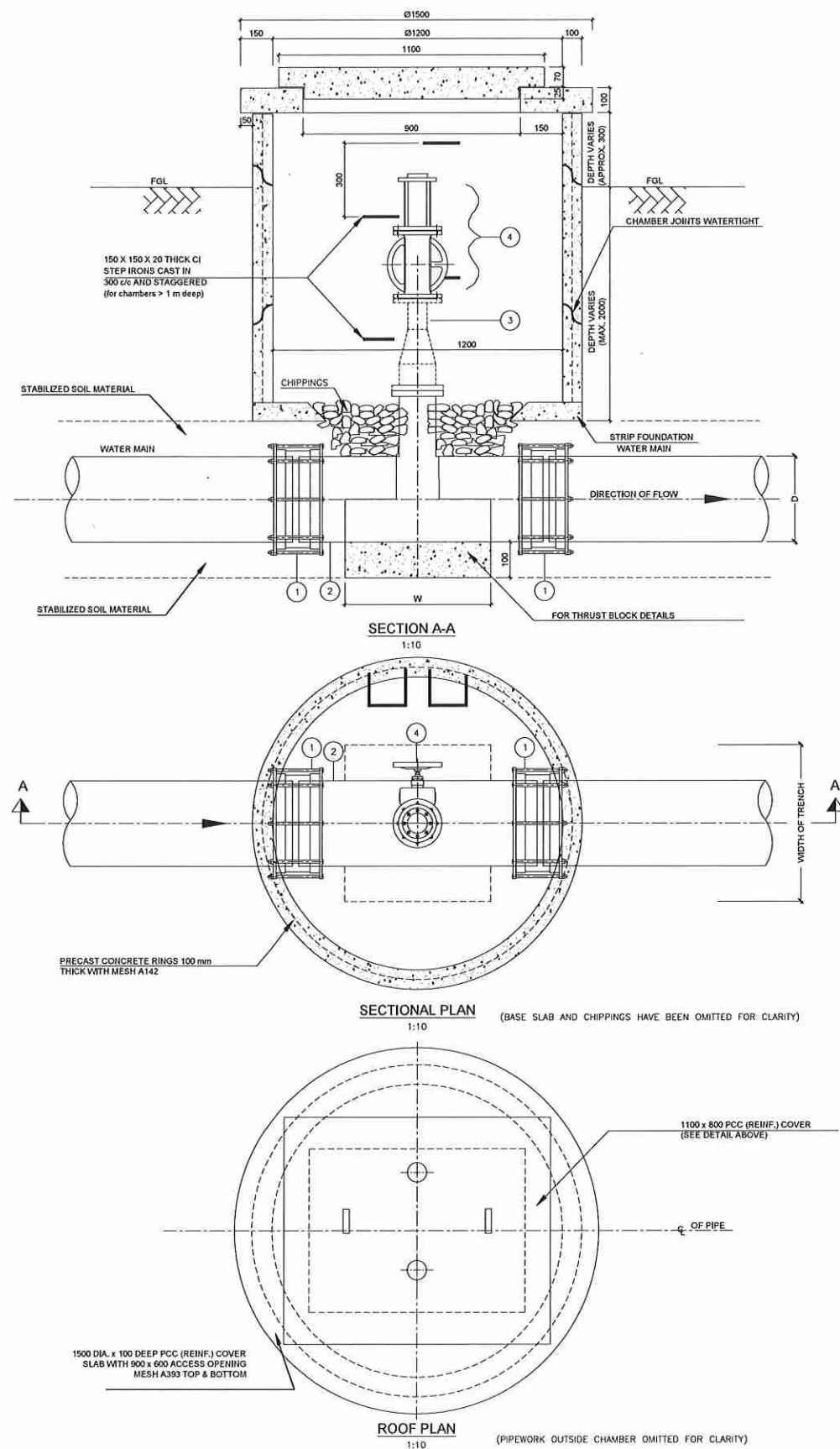
SCALES: DRG. No.: GAT/SD/13

DATE: JULY 2022 SHEET No.: 1 OF 1

WATER & SANITATION DEPARTMENT



DESIGN PROJECT No.:
SURVEYED BY: DRAWN BY:
DESIGNED BY: CHECKED BY:
APPROVED BY: CHIEF MANAGER - WATER & SANITATION
DATE: SIGNATURE:

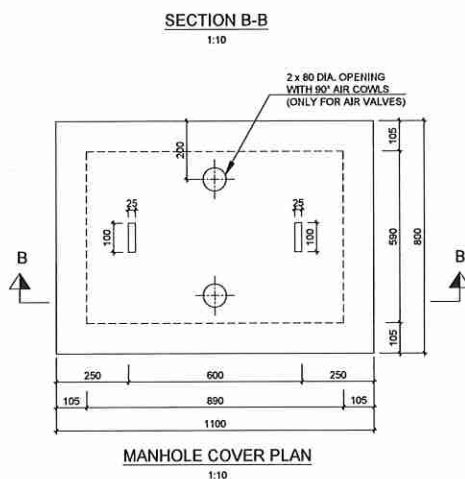
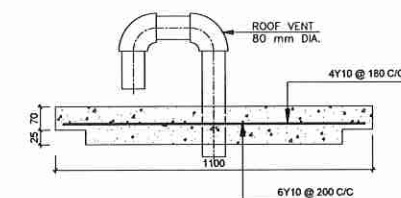


SCHEDULE OF AIRVALVES

AIRVALVE TYPE	DIAMETER MAIN (D1)	DIAMETER BRANCH (D2)
1	150	80
2	200	80
3	250	100

SCHEDULE OF PIPEWORK & FITTINGS

ITEM No.	DIAMETER (mm)	DESCRIPTION	No.
1	D	FLEXIBLE COUPLING	2
2	D1/D2	PLAIN ENDED TEE WITH FLANGED BRANCH	1
3	D2/80 OR 100	DOUBLE FLANGED REDUCER	1
4	80 OR 100	ANTI SHOCK ANTI SURGE AIR VALVE c/w ISOLATING VALVE	1



NOTES

Rev. No. DESCRIPTION DATE

REHABILITATION OF INDEPENDENT MATAARA WATER SUPPLY SCHEME PROJECT



ATHI WATER WORKS DEVELOPMENT AGENCY

PROJECT: AUGMENTATION OF KIAMBU COMMUNITY WATER SUPPLY PROJECT

TOWN: KIAMBU COUNTY

DRAWING TITLE: Air Valve Details

SCALES: DRG. No.: GAT/GD/13

DATE: JULY 2022 SHEET No.: 1 OF 1

WATER & SANITATION DEPARTMENT



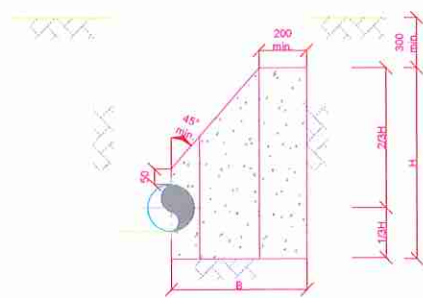
DESIGN PROJECT No.:

SURVEYED BY: DRAWN BY:

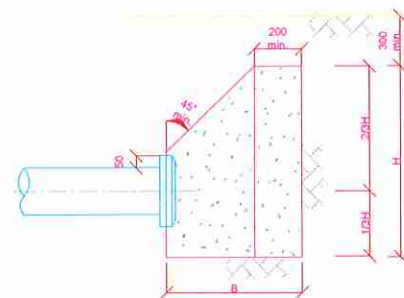
DESIGNED BY: CHECKED BY:

APPROVED BY: CHIEF MANAGER - WATER & SANITATION

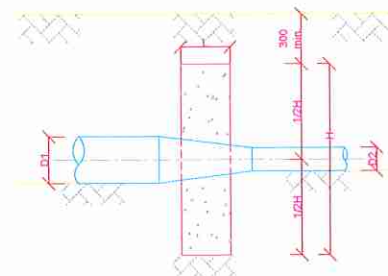
DATE: SIGNATURE:



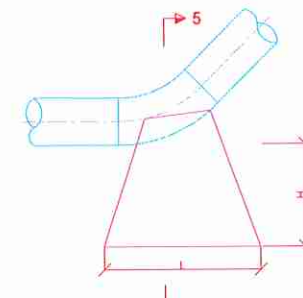
SECTION 1 - 1



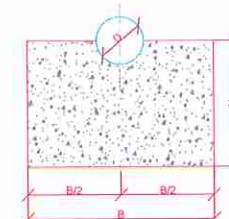
SECTION 3 - 3



SECTION 4 - 4

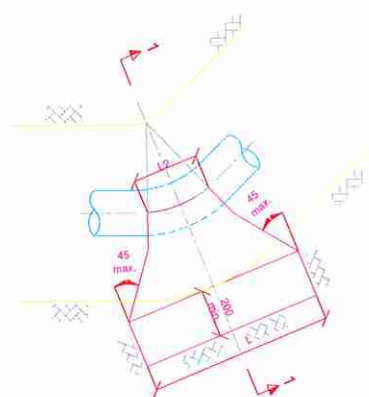


ELEVATION



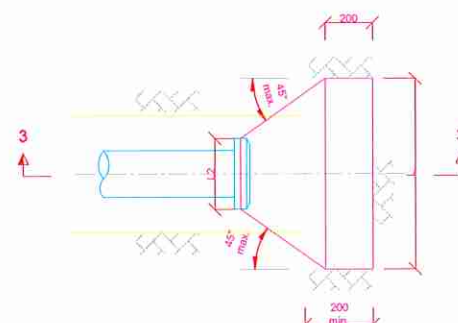
SECTION 5 - 5

VERTICAL ANCHOR BLOCKS AT DEPRESSIONS (TYPE DV)



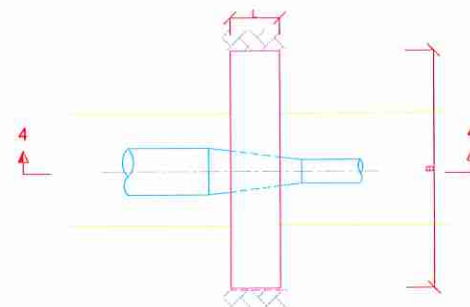
PLAN

HORIZONTAL BENDS



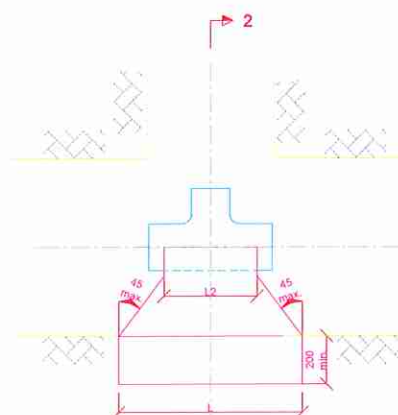
PLAN

END CAPS



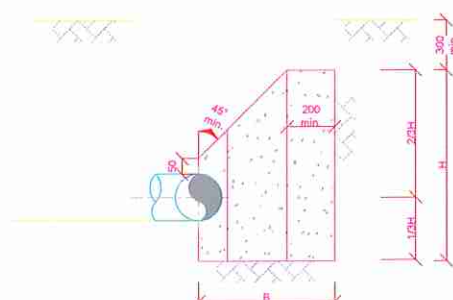
PLAN

REDUCERS

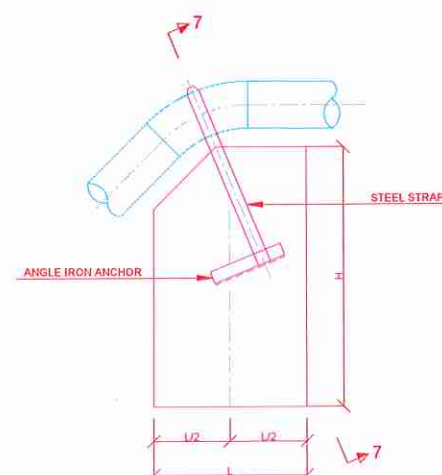


PLAN

TEES



SECTION 2 - 2



ELEVATION

VERTICAL ANCHOR BLOCKS AT CRESTS (TYPE CV)



SECTION 7 - 7

NOTES

Rev. No. DESCRIPTION DATE

REHABILITATION OF INDEPENDENT
MATAARA WATER SUPPLY SCHEME
PROJECT



ATHI WATER WORKS
DEVELOPMENT AGENCY

PROJECT:
AUGMENTATION OF KIAMBU
COMMUNITY WATER SUPPLY
PROJECT

TOWN: KIAMBU COUNTY

DRAWING TITLE:
Thrust Block

SCALES: DRG. No.: GAT/GSD/13

DATE: JULY 2022 SHEET No.: 1 OF 1

WATER & SANITATION DEPARTMENT



DESIGN PROJECT No.:

SURVEYED BY:

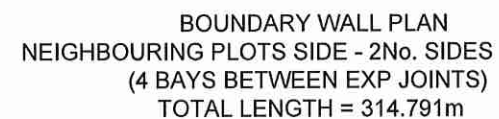
DRAWN BY:

DESIGNED BY:

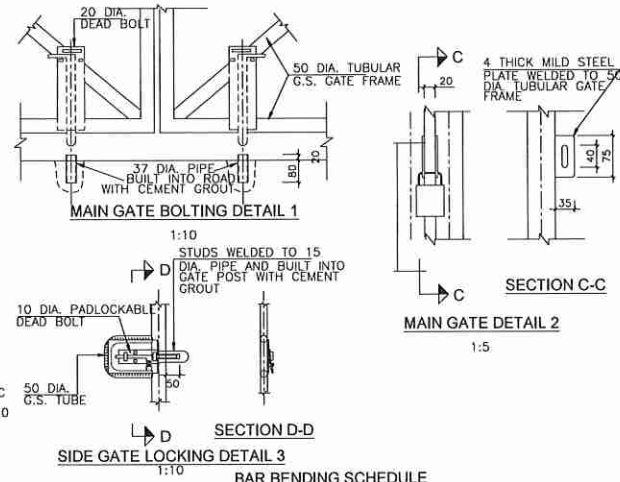
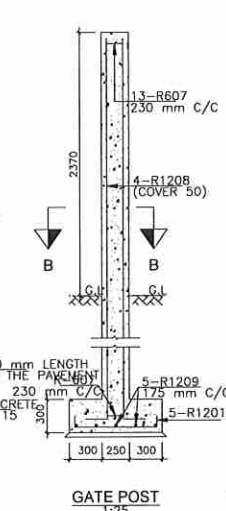
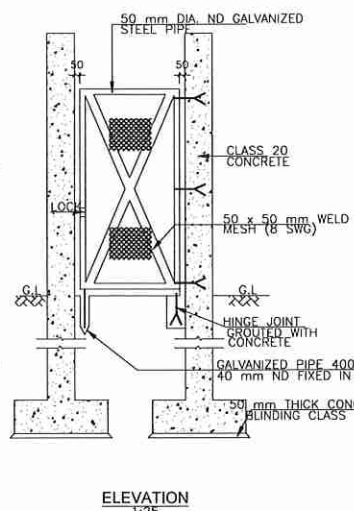
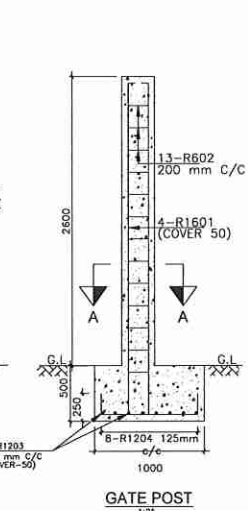
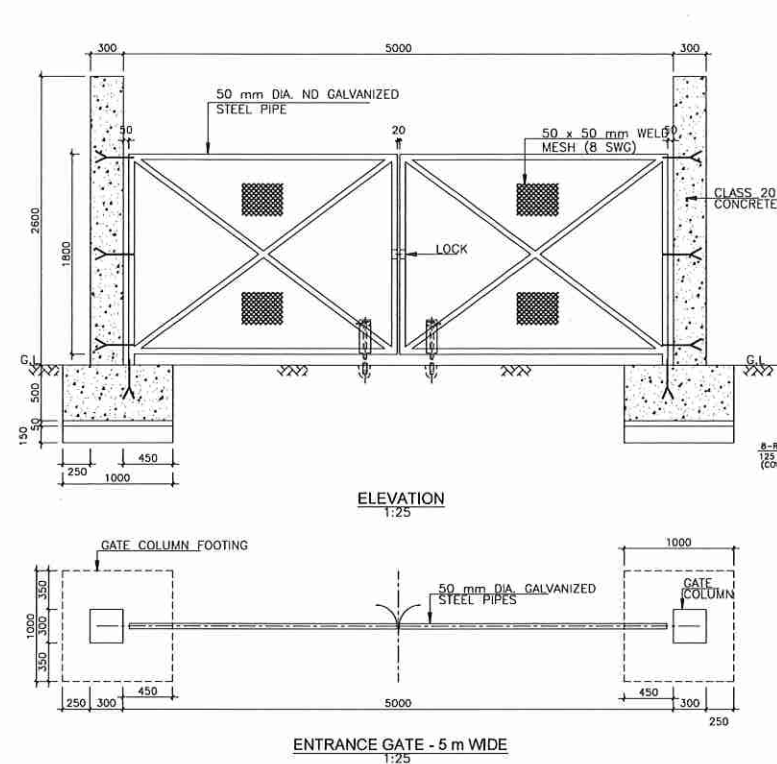
CHECKED BY:

APPROVED BY: CHIEF MANAGER - WATER & SANITATION

DATE: SIGNATURE:



Rev. No.	DESCRIPTION	DATE	
REHABILITATION OF INDEPENDENT MATAARA WATER SUPPLY SCHEME PROJECT			
			
ATHI WATER WORKS DEVELOPMENT AGENCY			
PROJECT : AUGMENTATION OF KIAMBU COMMUNITY WATER SUPPLY PROJECT			
TOWN : KIAMBU COUNTY			
DRAWING TITLE : FENCE AND GATES			
SCALES :		DRG. No.: GAT/GD/13	
DATE : JULY 2022		SHEET No. : 1 OF 1	
WATER & SANITATION DEPARTMENT			
			
DESIGN PROJECT No.:			
SURVEYED BY :		DRAWN BY :	
DESIGNED BY :		CHECKED BY :	
APPROVED BY: CHIEF MANAGER - WATER & SANITATION			
DATE :		SIGNATURE :	



LOCATION	BAR MARK	TYPE AND SIZE	No. IN EACH	TOTAL No.	CUT LENGTH METRES	TOTAL LENGTH METRES	SHAPE CODE	A	B	C	D	WEIGHT KG
ENTRANCE GATE 5 m WIDE c/c	1601	R16	4	8	3.050	24.400	37	0.050	3.000			38.527
	602	R6	13	26	1.050	27.300	60	0.200	0.200			6.060
	1203	R12	8	8	1.400	11.200	38	0.250	0.900			9.945
	1204	R12	8	8	1.400	11.200	38	0.250	0.900			9.945
ENTRANCE GATE 1.5 m WIDE	607	R6	—	—	0.950	—	60	0.150	0.150			—
	1208	R12	4	4	—	—	37	0.200	—			—
	1209	R12	5	5	1.000	5.000	35	0.770				4.440
	1210	R12	5	5	1.000	5.000	35	0.770				4.440
CHAIN LINK FENCING POST	605	R6	32	15.68	0.456	715.00	60	0.600	.600	—	—	158.73
	806	R8	4	196	3.160	619.36	62	0.580	0.385	2.580	—	244.65
PRECAST CONCRETE STRUT	607	R6	21	126	0.450	56.70	60	0.600	0.600	—	—	12.59
	807	R8	4	24	2.100	50.40	20	2.100	—	—	—	19.19

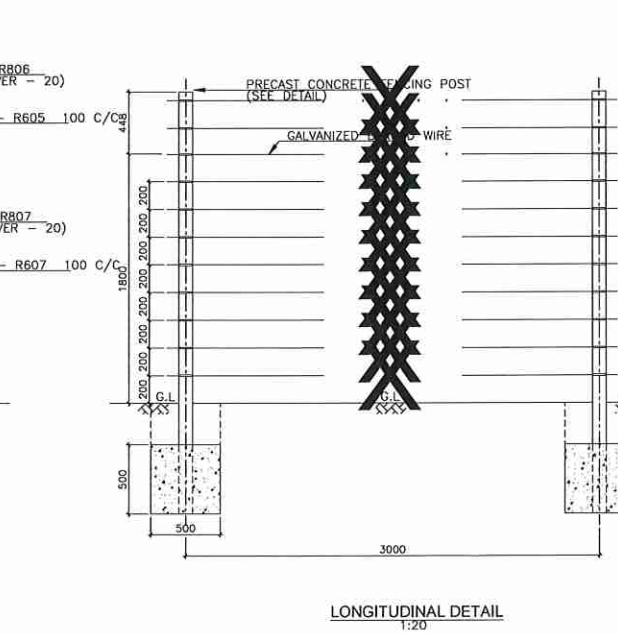
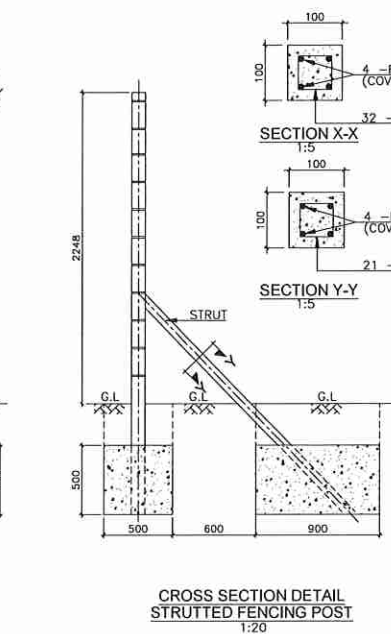
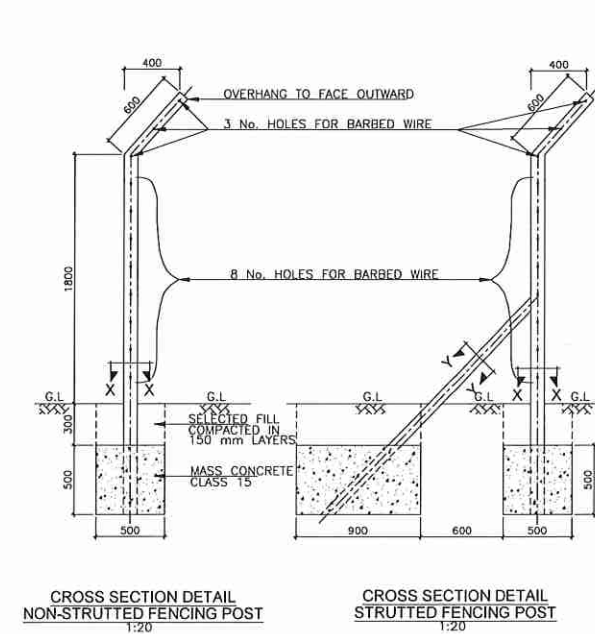
ALL BENDING DIMENSIONS ARE IN ACCORDANCE WITH SSRN 129

- NOTES :

1. ALL CONCRETE IS CLASS 25 UNLESS STATED OTHERWISE.
2. FENCE POSTS SHALL NOT BE MORE THAN 3 m c/c
3. SPECIAL FENCE POSTS WITH STRUTS SHALL BE USED AT ALL CORNERS AND AT DISTANCES NOT MORE THAN 30 m c/c.
4. WHERE CHAINLINK (TYPE GLC) 180 IS SPECIFIED, THE USE ONLY THREE LINE WIRES AND THREE ROWS OF BARBED WIRE AT THE TOP.
5. R DENOTES MILD STEEL

- LEGEND :

- | | |
|--------|-----------------------|
| GLC | GALVANISED LINK CHAIN |
| P.C.C. | PRECAST CONCRETE |
| ND | NOMINAL DIAMETER |
| GL | GROUND LEVEL |



FENCING DETAILS

ATHI WATER WORKS
DEVELOPMENT AGENCY

PROJECT:
AUGMENTATION OF KIAMBU
COMMUNITY WATER SUPPLY
PROJECT

TOWN: KIAMBU COUNTY

DRAWING TITLE : FENCE AND GATES

SCALES :	DRG, No. : GAT/GD/1
----------	---------------------

DATE : JULY 2022	SHEET No. : 1 OF 1
------------------	--------------------

WATER & SANITATION DEPARTMENT



DESIGN PROJECT No. :	
SURVEYED BY :	DRAWN BY :
DESIGNED BY :	CHECKED BY :
APPROVED BY : CHIEF MANAGER - WATER & SANITATION	
DATE :	SIGNATURE :

VERTICAL BENDS - DEPRESSIONS (dimensions in metres)

Pipe Diameter (mm)	Test Pressure (m)	45 deg					22.5 deg					11.25 deg				
		H (m)	L (m)	B (m)	L2 (m)	Vol (m ³)	H (m)	L (m)	B (m)	L2 (m)	Vol (m ³)	H (m)	L (m)	B (m)	L2 (m)	Vol (m ³)
80	90	0.50	0.40	0.30	0.10	0.04	0.50	0.40	0.30	0.10	0.04	0.50	0.40	0.20	0.10	0.03
	150	0.50	0.40	0.30	0.10	0.04	0.50	0.40	0.30	0.10	0.04	0.50	0.40	0.20	0.10	0.03
	240	0.50	0.40	0.30	0.10	0.04	0.50	0.40	0.30	0.10	0.04	0.50	0.40	0.20	0.10	0.03
100	90	0.50	0.40	0.30	0.15	0.05	0.50	0.40	0.30	0.10	0.04	0.50	0.40	0.20	0.10	0.03
	150	0.50	0.40	0.30	0.15	0.05	0.50	0.40	0.30	0.10	0.04	0.50	0.40	0.20	0.10	0.03
	240	0.50	0.40	0.30	0.15	0.05	0.50	0.40	0.30	0.10	0.04	0.50	0.40	0.20	0.10	0.03
150	90	0.55	0.60	0.30	0.30	0.08	0.55	0.40	0.30	0.14	0.05	0.55	0.40	0.30	0.13	0.05
	150	0.55	0.70	0.40	0.30	0.11	0.55	0.50	0.30	0.14	0.06	0.55	0.50	0.30	0.13	0.06
	240	0.55	0.80	0.40	0.30	0.13	0.55	0.70	0.30	0.14	0.07	0.55	0.50	0.30	0.13	0.06
200	90	0.60	0.80	0.40	0.35	0.14	0.60	0.70	0.30	0.14	0.08	0.60	0.50	0.30	0.13	0.06
	150	0.60	0.90	0.40	0.35	0.15	0.60	0.70	0.30	0.14	0.08	0.60	0.50	0.30	0.13	0.06
	240	0.60	1.10	0.60	0.35	0.27	0.60	0.80	0.40	0.14	0.12	0.60	0.60	0.40	0.13	0.09
250	90	0.65	0.80	0.50	0.40	0.20	0.65	0.70	0.40	0.15	0.12	0.65	0.60	0.40	0.14	0.10
	150	0.65	1.00	0.70	0.40	0.32	0.65	0.80	0.50	0.15	0.16	0.65	0.60	0.40	0.14	0.10
	240	0.65	1.20	0.70	0.40	0.37	0.65	1.00	0.50	0.15	0.19	0.65	0.70	0.50	0.14	0.14
300	90	0.70	1.00	0.50	0.40	0.25	0.70	0.80	0.40	0.16	0.14	0.70	0.60	0.40	0.15	0.11
	150	0.70	1.20	0.70	0.40	0.40	0.70	1.00	0.50	0.16	0.21	0.70	0.70	0.40	0.15	0.12
	240	0.70	1.50	1.00	0.40	0.67	0.70	1.20	0.70	0.16	0.34	0.70	0.80	0.40	0.15	0.14

VERTICAL BENDS - CREST (dimensions in metres)

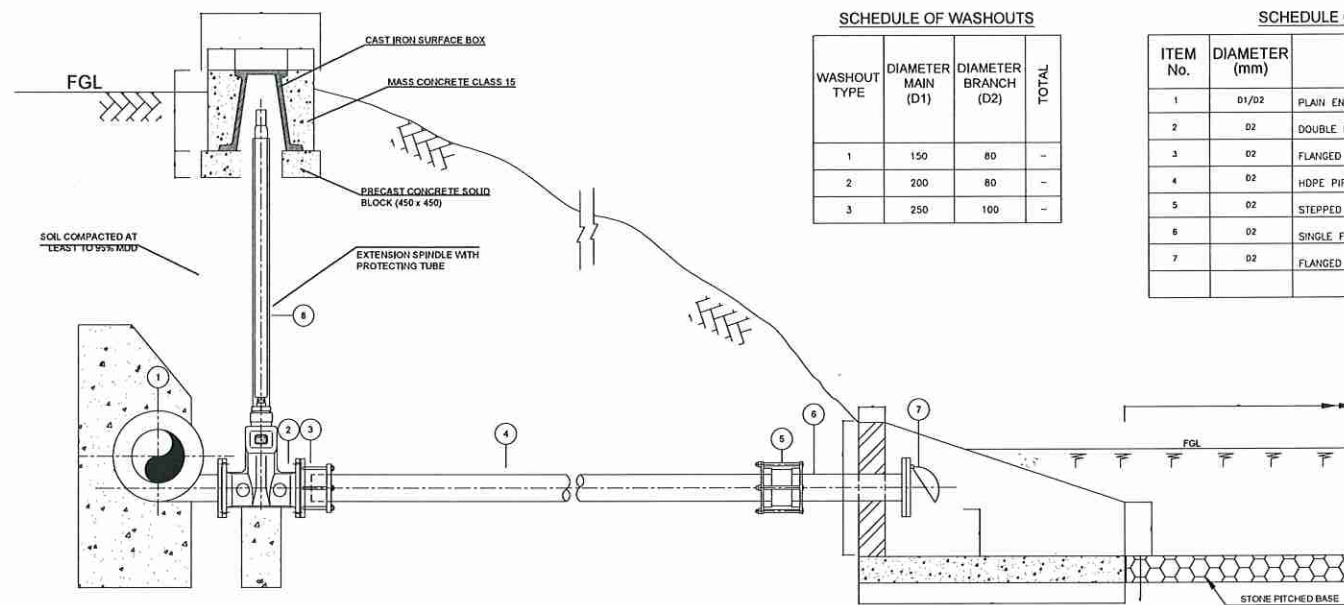
Pipe Diameter (mm)	Test Pressure (m)	45 deg					22.5 deg					11.25 deg				
		H (m)	L (m)	B (mm)	Strap (mm)	Vol (m ³)	H (m)	L (m)	B (mm)	Strap (mm)	Vol (m ³)	H (m)	L (m)	B (mm)	Strap (mm)	Vol (m ³)
80	90	0.60	0.80	0.70	30x4	0.28	0.50	0.50	0.50	30x4	0.12	0.40	0.40	0.40	30x4	0.07
	150	0.80	0.90	0.70	30x4	0.44	0.60	0.70	0.50	30x4	0.20	0.50	0.50	0.40	30x4	0.10
	240	0.90	1.20	0.80	30x4	0.72	0.80	0.90	0.50	30x4	0.34	0.60	0.70	0.40	30x4	0.17
100	90	0.80	1.20	0.70	30x4	0.55	0.60	0.60	0.70	30x4	0.24	0.40	0.50	0.70	30x4	0.14
	150	0.80	1.20	0.70	30x4	0.55	0.80	0.80	0.70	30x4	0.43	0.60	0.60	0.70	30x4	0.25
	240	0.90	1.40	0.80	30x4	0.82	0.80	1.20	0.70	30x4	0.62	0.70	0.70	0.70	30x4	0.34
150	90	0.80	1.20	1.00	30x4	0.78	0.70	0.90	0.80	30x4	0.48	0.60	0.70	0.70	30x4	0.29
	150	0.80	1.50	1.10	30x4	1.02	0.80	1.10	0.80	30x4	0.66	0.70	1.00	0.70	30x4	0.48
	240	0.80	1.70	1.10	30x4	1.10	0.80	1.30	0.90	30x4	0.86	0.80	1.00	0.80	30x4	0.63
200	90	0.80	1.60	1.40	40x4	1.35	0.70	1.50	0.90	30x4	0.85	0.60	1.00	0.80	30x4	0.47
	150	0.95	1.80	1.60	40x4	2.09	0.90	1.50	1.20	30x4	1.49	0.70	1.20	1.00	30x4	0.81
	240	1.00	2.00	2.00	40x6	3.00	1.00	1.60	1.60	30x4	2.35	0.80	1.40	1.20	30x4	1.29
250	90	1.10	1.60	1.20	40x4	1.73	0.80	1.30	1.10	30x4	1.05	0.60	1.20	0.90	30x4	0.62
	150	1.30	1.80	1.40	40x6	2.71	0.80	1.60	1.30	30x4	1.50	0.90	1.20	1.00	30x4	1.05
	240	1.30	2.20	1.80	60x6	4.06	1.00	1.70	1.60	40x6	2.49	0.90	1.50	1.20	40x4	1.56
300	90	1.20	1.80	1.40	60x6	2.46	1.00	1.50	1.20	60x4	1.67	0.80	1.20	1.00	60x4	0.93
	150	1.40	2.20	1.60	60x6	3.96	1.00	1.70	1.40	60x4	2.18	1.00	1.50	1.20	60x4	1.74
	240	1.60	2.50	2.20	100x6	7.09	1.20	2.00	1.80	80x4	3.95	1.00	1.70	1.20	60x4	1.98

REDUCERS (dimensions in metres)

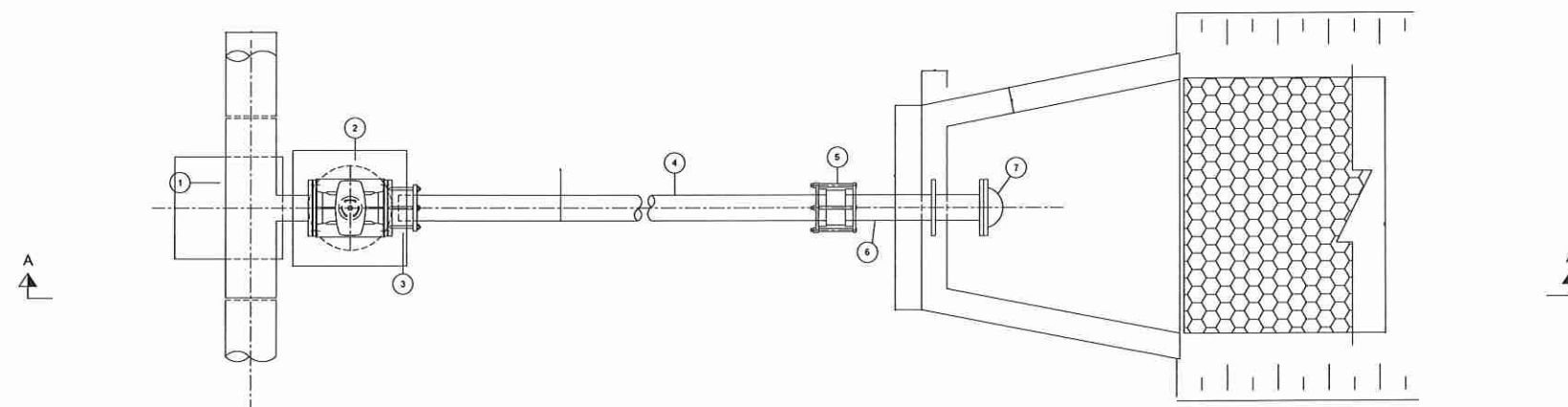
Pipe Diameter (mm)	Test Pressure (m)	L (m)	B (m)	H (m)	Vol (m ³)
100/80	90	0.35	0.50	0.40	0.07
	150	0.35	0.55	0.45	0.09
	240	0.35	0.60	0.55	0.12
150/80	90	0.40	0.50	0.40	0.08
	150	0.40	0.60	0.40	0.10
	240	0.40	0.75	0.55	0.17
150/100	90	0.40	0.50	0.40	0.08
	150	0.40	0.60	0.40	0.10
	240	0.40	0.70	0.45	0.13
200/100	90	0.40	0.70	0.50	0.14
	150	0.40	0.80	0.70	0.22
	240	0.40	1.00	0.80	0.32
200/150	90	0.40	0.60	0.40	0.09
	150	0.40	0.65	0.40	0.10
	240	0.40	0.75	0.50	0.15
250/100	90	0.40	0.80	0.60	0.18
	150	0.40	0.90	0.70	0.24
	240	0.40	1.00	0.80	0.31
250/150	90	0.40	0.80	0.60	0.18
	150	0.40	0.85	0.70	0.23
	240	0.40	0.95	0.85	0.32
250/200	90	0.40	0.70	0.60	0.16
	150	0.40	0.75	0.70	0.20
	240	0.40	0.90	0.80	0.28
300/100	90	0.40	1.00	0.70	0.27
	150	0.40	1.30	0.90	0.46
	240	0.40	1.50	1.00	0.59
300/150	90	0.40	1.00	0.70	0.27
	150	0.40	1.25	0.80	0.39
	240	0.40	1.50	1.00	0.59
300/200	90	0.40	1.00	0.70	0.27
	150	0.40	1.00	0.80	0.31
	240	0.40	1.20	1.00	0.47
300/250	90	0.40	1.00	0.70	0.26
	150	0.40	1.00	0.80	0.30
	240	0.40	1.10	1.00	0.42

HORIZONTAL BENDS (dimensions in metres)

Pipe Diameter (mm)	Test Pressure (m)	90 deg					45 deg					22.5 deg					11.25 deg				
		H (m)	L (m)	B (m)	L2 (m)	Vol (m³)	H (m)	L (m)	B (m)	L2 (m)	Vol (m³)	H (m)	L (m)	B (m)	L2 (m)	Vol (m³)	H (m)	L (m)	B (m)	L2 (m)	Vol (m³)
65	90	0.21	0.21	0.55	0.10	0.02	0.15	0.16	0.55	0.10	0.01										
	150	0.27	0.27	0.65	0.10	0.03	0.20	0.20	0.65	0.10	0.02										
	240	0.34	0.34	0.65	0.10	0.05	0.25	0.25	0.65	0.10	0.03	0.18	0.18	0.65	0.10	0.02					
80	90	0.22	0.23	0.55	0.10	0.02	0.16	0.17	0.55	0.10	0.01										
	150	0.29	0.29	0.65	0.10	0.04	0.21	0.22	0.65	0.10	0.02	0.15	0.16	0.65	0.10	0.01					
	240	0.36	0.37	0.65	0.10	0.06	0.27	0.27	0.65	0.10	0.03	0.19	0.19	0.65	0.10	0.02	0.13	0.14	0.65	0.10	0.01
100	90	0.32	0.32	0.60	0.15	0.04	0.23	0.24	0.60	0.15	0.03	0.17	0.17	0.60	0.10	0.01					
	150	0.41	0.41	0.70	0.15	0.08	0.30	0.31	0.70	0.15	0.05	0.21	0.22	0.70	0.10	0.02	0.15	0.16	0.70	0.10	0.01
	240	0.52	0.52	0.70	0.15	0.12	0.38	0.39	0.70	0.15	0.07	0.27	0.28	0.70	0.10	0.04	0.19	0.20	0.70	0.10	0.02
150	90	0.48	0.48	0.60	0.30	0.10	0.35	0.35	0.60	0.20	0.05	0.25	0.25	0.60	0.14	0.03	0.18	0.18	0.60	0.13	0.02
	150	0.61	0.62	0.70	0.30	0.17	0.45	0.46	0.70	0.20	0.10	0.32	0.33	0.70	0.14	0.05	0.23	0.23	0.70	0.13	0.03
	240	0.78	0.78	0.70	0.30	0.27	0.57	0.58	0.70	0.20	0.15	0.41	0.41	0.70	0.14	0.08	0.29	0.29	0.70	0.13	0.04
200	90	0.63	0.64	0.65	0.35	0.17	0.47	0.47	0.65	0.20	0.09	0.33	0.34	0.65	0.14	0.05	0.24	0.24	0.65	0.13	0.03
	150	0.82	0.82	0.75	0.35	0.31	0.60	0.61	0.75	0.20	0.17	0.43	0.43	0.75	0.14	0.09	0.30	0.31	0.75	0.13	0.05
	240	1.03	1.04	0.75	0.35	0.47	0.76	0.77	0.75	0.20	0.26	0.54	0.55	0.75	0.14	0.13	0.38	0.39	0.75	0.13	0.07
250	90	0.79	0.80	0.65	0.40	0.25	0.58	0.59	0.65	0.25	0.13	0.42	0.42	0.65	0.15	0.07	0.29	0.30	0.65	0.14	0.04
	150	1.02	1.03	0.75	0.40	0.46	0.75	0.76	0.75	0.25	0.25	0.54	0.54	0.75	0.15	0.13	0.38	0.39	0.75	0.14	0.07
	240	1.20	1.40	0.75	0.40	0.71	0.95	0.96	0.75	0.25	0.39	0.68	0.68	0.75	0.15	0.20	0.48	0.49	0.75	0.14	0.11
300	90	1.00	1.00	0.70	0.40	0.40	0.73	0.74	0.70	0.25	0.22	0.52	0.53	0.70	0.16	0.11	0.37	0.38	0.70	0.15	0.06
	150	1.30	1.28	0.80	0.40	0.73	0.95	0.95	0.80	0.25	0.40	0.68	0.68	0.80	0.16	0.21	0.48	0.48	0.80	0.15	0.11
	240	1.50	1.77	0.80	0.40	1.12	1.13	1.27	0.80	0.25	0.61	0.85	0.86	0.80	0.16	0.32	0.61	0.61	0.80	0.15	0.17
350	90	1.12	1.12	0.70	0.50	0.48	0.82	0.83	0.70	0.30	0.26	0.59	0.59	0.70	0.19	0.14	0.42	0.42	0.70	0.17	0.07
	150	1.45	1.44	0.80	0.50	0.89	1.06	1.07	0.80	0.30	0.48	0.76	0.76	0.80	0.19	0.25	0.54	0.54	0.80	0.17	0.13
	240	1.50	2.22	0.80	0.50	1.37	1.20	1.51	0.80	0.30	0.75	0.96	0.96	0.80	0.19	0.39	0.68	0.68	0.80	0.17	0.20
400	90	1.20	1.36	0.75	0.50	0.64	0.94	0.94	0.75	0.30	0.35	0.67	0.68	0.75	0.20	0.18	0.48	0.48	0.75	0.18	0.10
	150	1.60	1.70	0.85	0.50	1.18	1.20	1.23	0.85	0.30	0.64	0.87	0.87	0.85	0.20	0.34	0.61	0.62	0.85	0.18	0.18
	240	1.80	2.41	0.85	0.50	1.82	1.50	1.57	0.85	0.30	0.99	1.09	1.10	0.85	0.20	0.51	0.78	0.78	0.85	0.18	0.21
450	90	1.24	1.67	0.75	0.50	0.76	1.06	1.06	0.75	0.35	0.42	0.75	0.76	0.75	0.21	0.22	0.53	0.54	0.75	0.19	0.11
	150	1.70	2.02	0.85	0.50	1.42	1.30	1.43	0.85	0.35	0.78	0.97	0.98	0.85	0.21	0.40	0.69	0.69	0.85	0.19	0.21
	240	1.80	3.05	0.85	0.50	2.22	1.50	1.98	0.85	0.35	1.21	1.23	1.23	0.85	0.21	0.62	0.87	0.88	0.85	0.19	0.33
500	90	1.50	1.79	0.80	0.70	1.04	1.21	1.21	0.80	0.38	0.56	0.86	0.87	0.80	0.22	0.29	0.61	0.62	0.80	0.20	0.19
	150	1.80	2.49	0.90	0.50	1.89	1.50	1.62	0.90	0.35	1.04	1.11	1.12	0.90	0.21	0.54	0.79	0.79	0.90	0.20	0.21
	240	2.00	3.57	0.90	0.70	2.99	1.80	2.15	0.90	0.38	1.62	1.30	1.52	0.90	0.22	0.84	0.99	1.00	0.90	0.20	0.43



SECTIONAL ELEVATION A - A
1:10 (A1 SIZE)



SECTIONAL PLAN
1:10 (A1 SIZE)

SCHEDULE OF WASHOUTS

WASHOUT TYPE	DIAMETER MAIN (D1)	DIAMETER BRANCH (D2)	TOTAL
1	150	80	-
2	200	80	-
3	250	100	-

SCHEDULE OF PIPEWORK & FITTINGS

ITEM No.	DIAMETER (mm)	DESCRIPTION	No.
1	Ø1/Ø2	PLAIN ENDED INVERT LEVEL TEE WITH FLANGED BRANCH	1
2	Ø2	DOUBLE FLANGED SLUICE VALVE	1
3	Ø2	FLANGED STEPPED ADAPTOR TO SUIT uPVC	1
4	Ø2	HDPE PIPES, LENGTH = 30 m	-
5	Ø2	STEPPED COUPLING TO SUIT FERROUS/uPVC	1
6	Ø2	SINGLE FLANGED SPIGOT, L = 600 c/w PUDDLE FLANGE	1
7	Ø2	FLANGED FLAP VALVE	1

NOTES

Rev. No. DESCRIPTION DATE

REHABILITATION OF INDEPENDENT
MATAARA WATER SUPPLY SCHEME
PROJECT



ATHI WATER WORKS
DEVELOPMENT AGENCY

PROJECT:
AUGMENTATION OF KIAMBU
COMMUNITY WATER SUPPLY
PROJECT

TOWN: KIAMBU COUNTY

DRAWING TITLE:
Wash Out Details

SCALES: DRG. No.: GAT/GD/13

DATE: JULY 2022 SHEET No.: 1 OF 1

WATER & SANITATION DEPARTMENT



DESIGN PROJECT No.:

SURVEYED BY: DRAWN BY:

DESIGNED BY: CHECKED BY:

APPROVED BY: CHIEF MANAGER - WATER & SANITATION
DATE: SIGNATURE:

Rev. No	DESCRIPTION	DATE



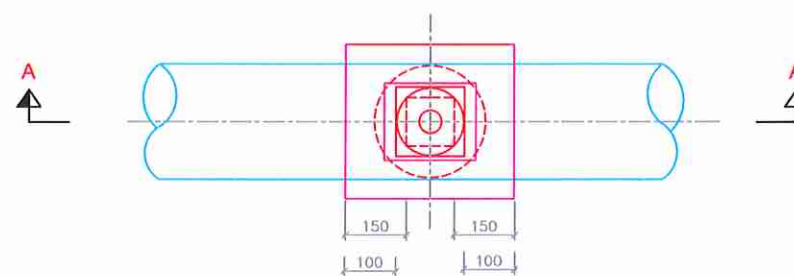
PROJECT :
AUGMENTATION OF KIAMBU
COMMUNITY WATER SUPPLY
PROJECT

DRAWING TITLE :
Valve Surface Block

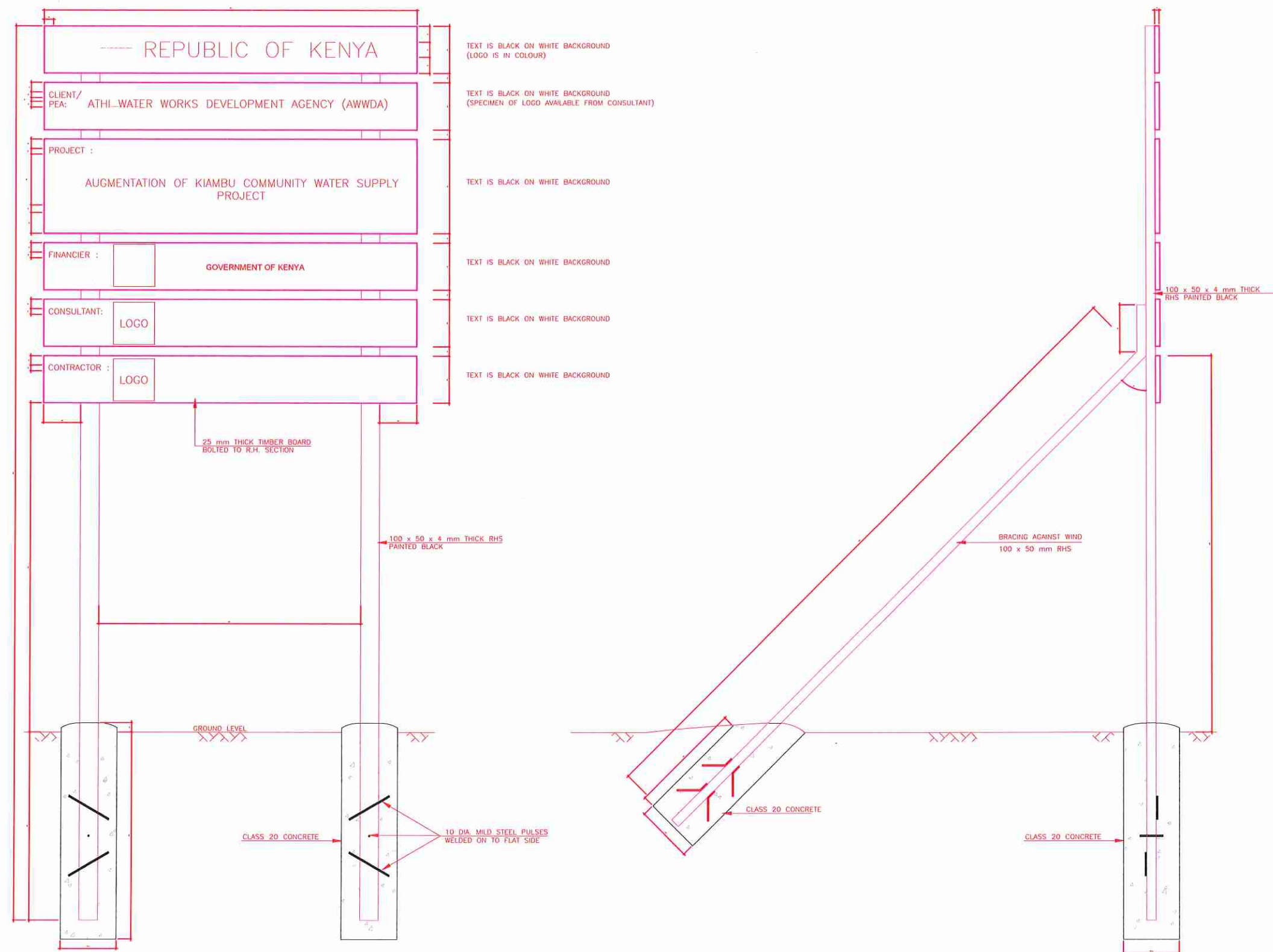
DATE : JULY 2022	SHEET No. : 1 OF 1
------------------	--------------------



DATE : SIGNATURE :



DETAILS OF VALVE SURFACE BOX



NOTES

Rev. No.	DESCRIPTION	DATE

REHABILITATION OF INDEPENDENT
MATAARA WATER SUPPLY SCHEME
PROJECT



ATHI WATER WORKS
DEVELOPMENT AGENCY

PROJECT:
AUGMENTATION OF KIAMBU
COMMUNITY WATER SUPPLY
PROJECT

TOWN: KIAMBU COUNTY

DRAWING TITLE:
Project Signboard

SCALES: DRG. No.: GAT/GD/13

DATE: JULY 2022 SHEET No.: 1 OF 1

WATER & SANITATION DEPARTMENT

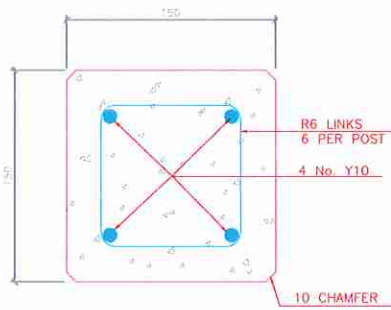
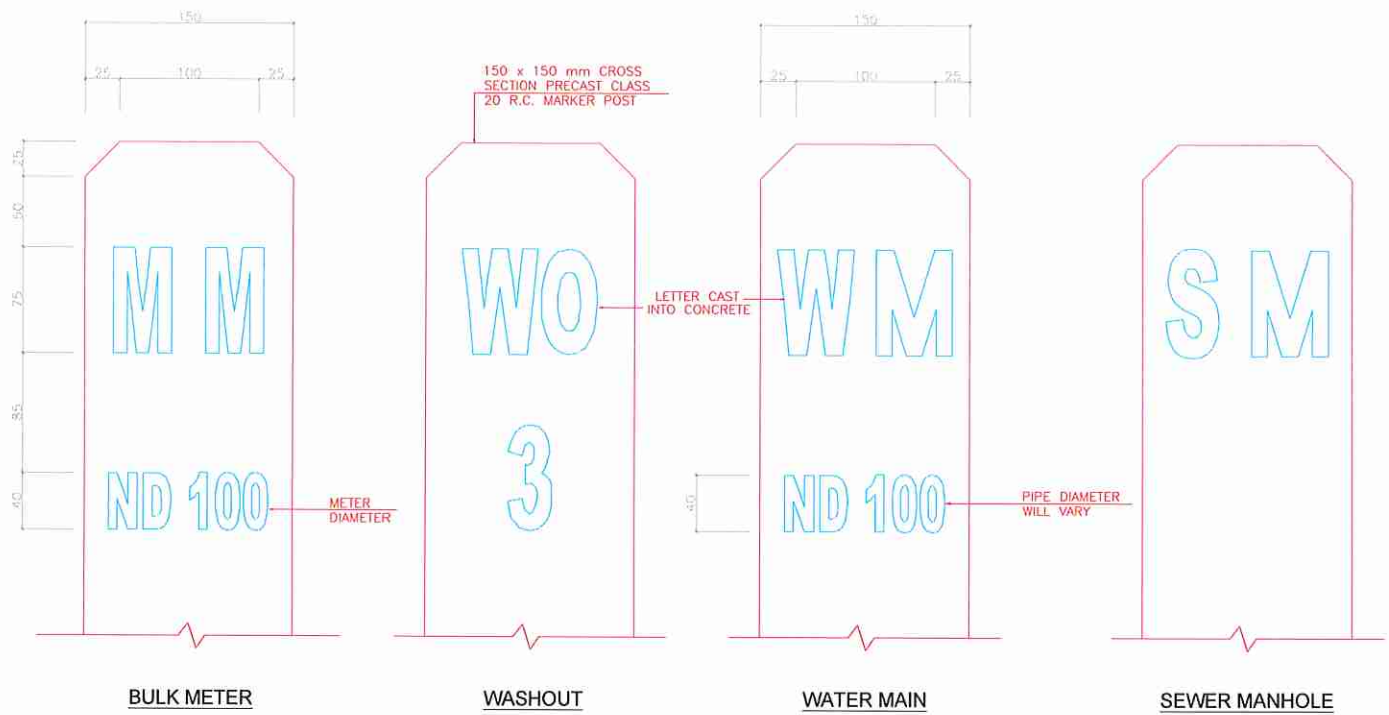


DESIGN PROJECT No.:

SURVEYED BY: DRAWN BY:

DESIGNED BY: CHECKED BY:

APPROVED BY: CHIEF MANAGER - WATER & SANITATION
DATE: SIGNATURE:

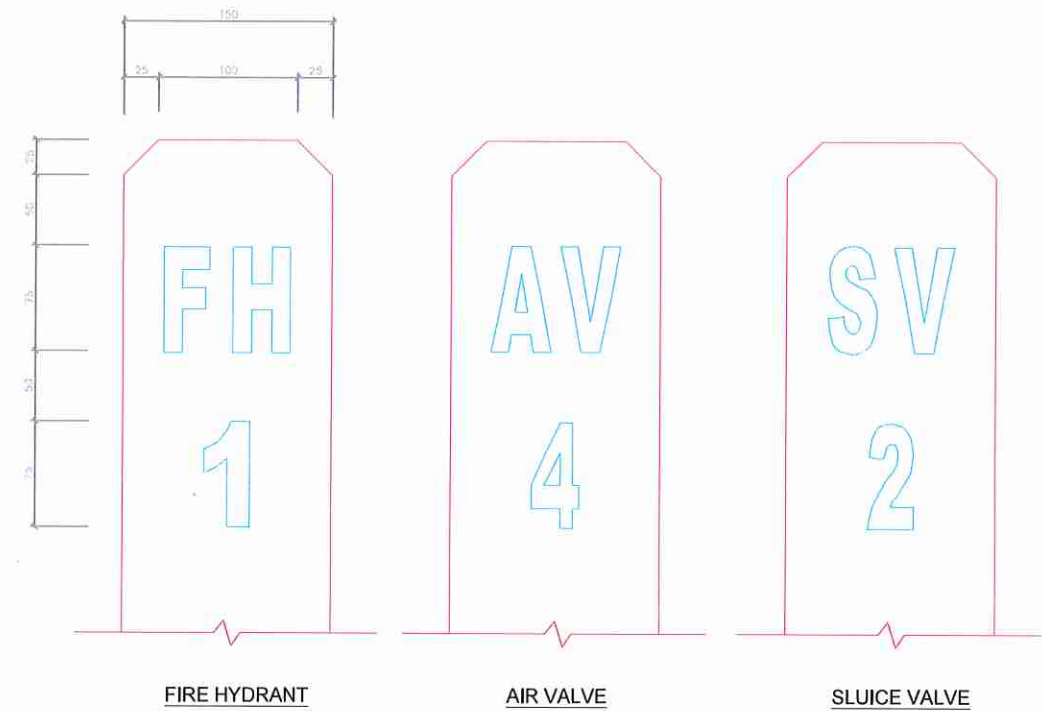


SECTION F-F
1:2.5

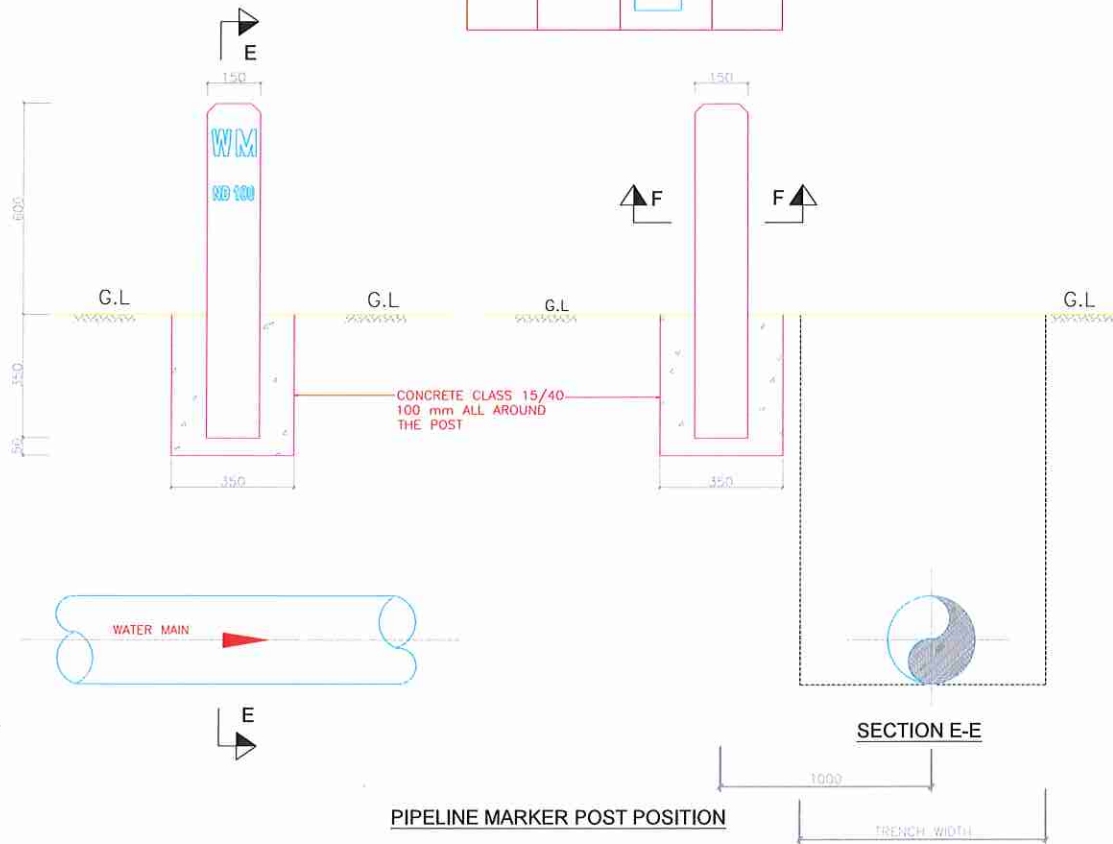
BAR BENDING SCHEDULE

BAR	No. OFF	TYPE	LENGTH
Y10	4	STRAIGHT	1000
R6	6		500

1. THE RESPECTIVE INSCRIPTION TO BE MADE ONLY ON ONE FACE OF INDICATOR POST FACING THE ACCESS ROAD.
2. ALL STRUCTURAL CONCRETE TO BE CLASS 20 ALL OTHER CONCRETE TO BE CLASS 15.
3. INDICATOR POST TO BE PLACED AT ALL APPURTENANCE LOCATIONS, AND AT INTERVALS OF 250 m ALONG WATER MAINS.
4. LETTERS TO BE INSCRIBED ON INDICATOR POLES SHOULD FACE ACCESS ROAD AND READ AS FOLLOWS:
AV FOR AIR VALVE
SV FOR SECTION VALVE
WO FOR WASHOUT
FH FOR FIRE HYDRANT
MM FOR MASTER METER
WM FOR WATER MAIN
SM FOR SEWER MANHOLE



MARKER POST DETAILS
1:2.5



Rev. No. DESCRIPTION DATE

REHABILITATION OF INDEPENDENT MATAARA WATER SUPPLY SCHEME PROJECT



ATHI WATER WORKS DEVELOPMENT AGENCY

PROJECT: AUGMENTATION OF KIAMBU COMMUNITY WATER SUPPLY PROJECT

TOWN: KIAMBU COUNTY

DRAWING TITLE: Marker Posts Details

SCALES: DRG. No.: QAT/OD/13

DATE: JULY 2022 SHEET No.: 1 OF 1

WATER & SANITATION DEPARTMENT



DESIGN PROJECT No.:

SURVEYED BY: DRAWN BY:

DESIGNED BY: CHECKED BY:

APPROVED BY: CHIEF MANAGER - WATER & SANITATION
DATE: SIGNATURE:



A-A

DATE: _____ SIGNATURE: _____