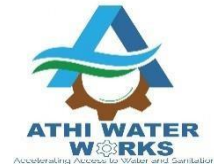


REPUBLIC OF KENYA

MINISTRY OF WATER, SANITATION & IRRIGATION



ATHI WATER WORKS DEVELOPMENT AGENCY

BIDDING DOCUMENT FOR PROCUREMENT OF WORKS CONTRACT

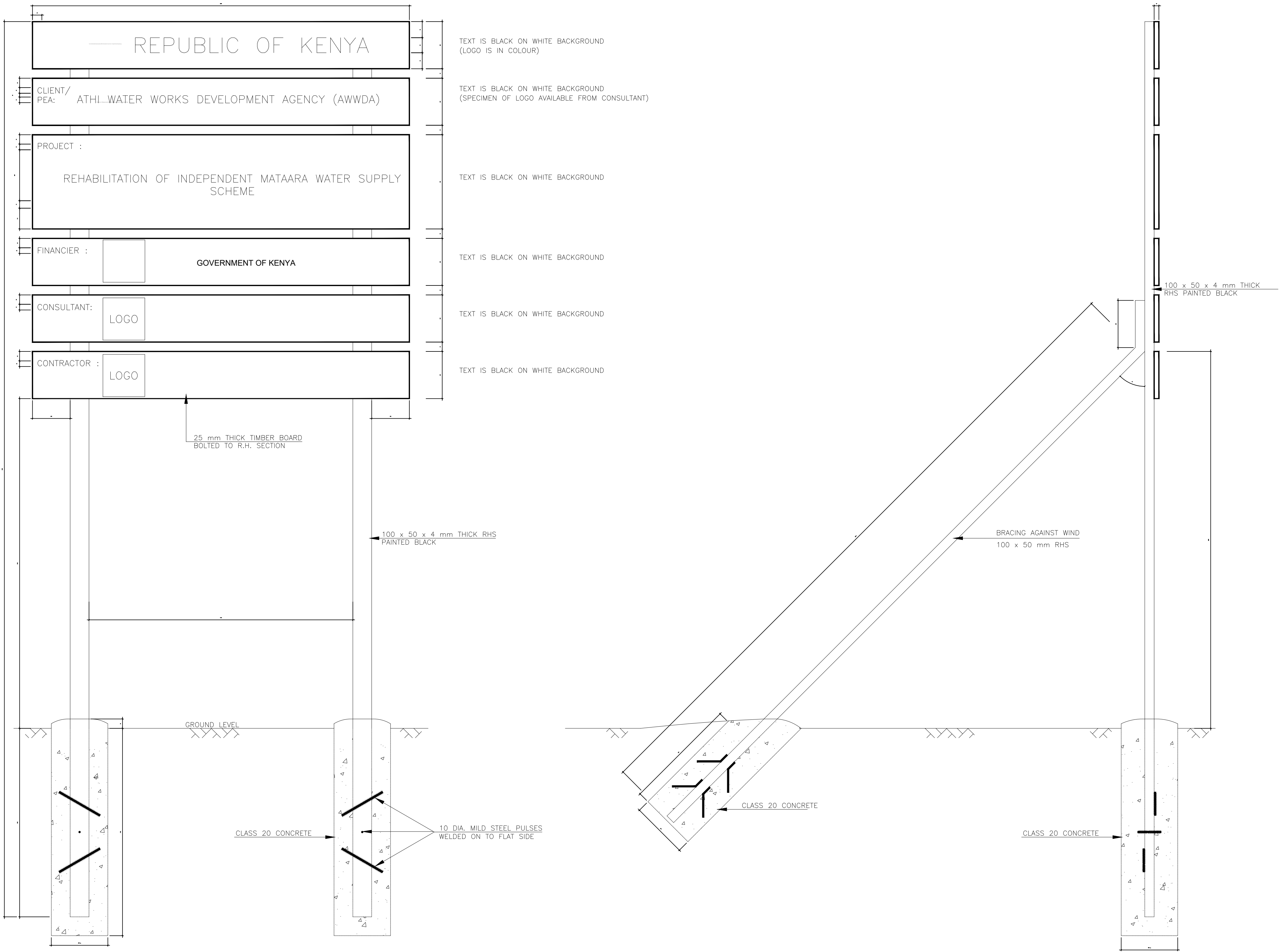
RESERVED FOR YOUTH, WOMEN AND PEOPLE LIVING WITH DISABILITIES

NAME: REHABILITATION OF INDEPENDENT MATAARA
WATER SUPPLY SCHEME PROJECT

IFB No: AWWDA/GOK/MWSS/W-01/2022

Issued on: 12TH JULY, 2022

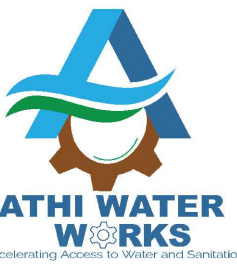
BOOK OF DRAWINGS



NOTES

Rev. No.	DESCRIPTION	DATE

REHABILITATION OF INDEPENDENT
MATAARA WATER SUPPLY SCHEME
PROJECT



ATHI WATER WORKS
DEVELOPMENT AGENCY

PROJECT :
REHABILITATION OF INDEPENDENT
MATAARA WATER SUPPLY SCHEME
PROJECT

TOWN :
GATANGA

DRAWING TITLE :
Project Signboard

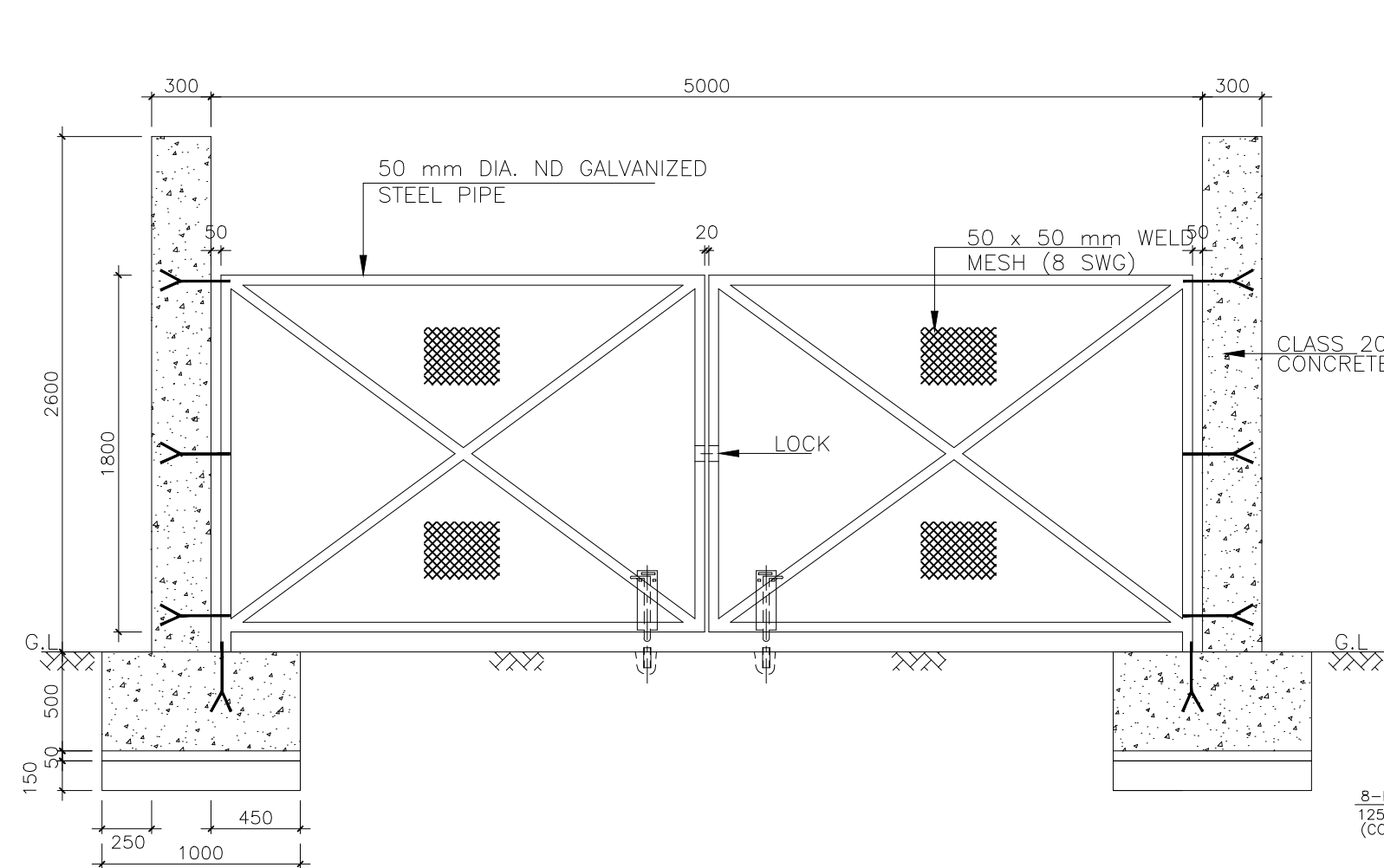
SCALES :	DRG. No. : GAT/GD/13
DATE : JULY 2022	SHEET No. : 1 OF 1

WATER & SANITATION DEPARTMENT

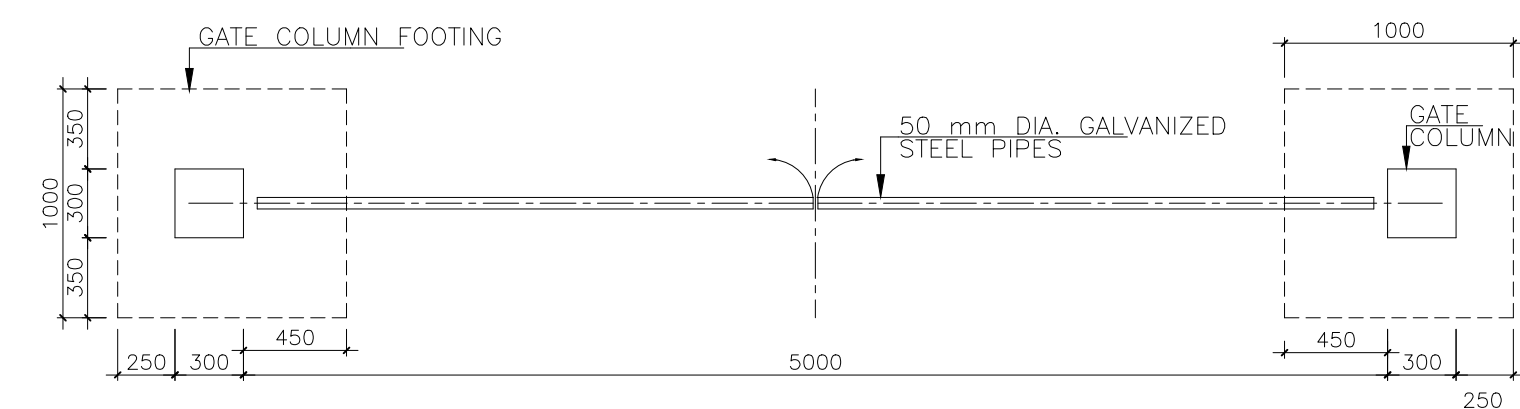
Athi Water Works Development Agency
Athi Water Plaza
Muthaiga North Road, Off Kiambu Road
P.O. Box 45283 - 00100,
NAIROBI

Tel: +254 -020-2724292/3
Fax: +254- 020-2724295
Mobile: +254- 715-688272
Email: info@awwda.go.ke
Website: www.awwda.go.ke

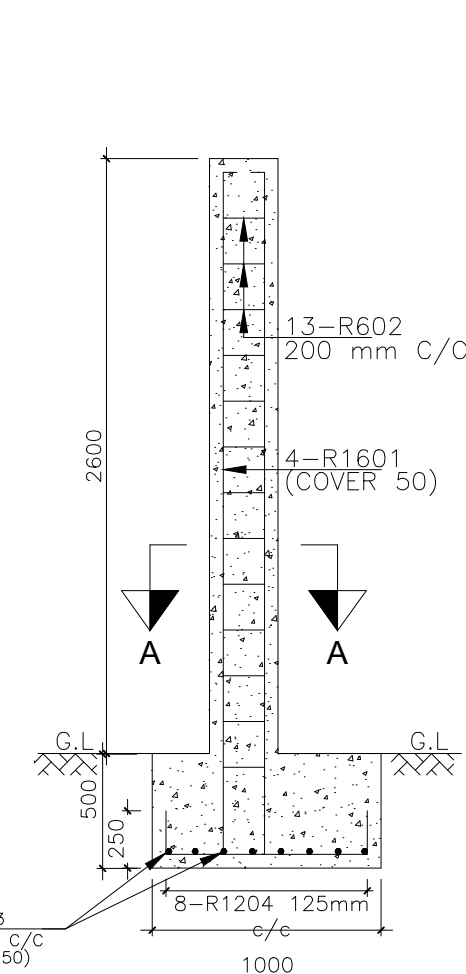
DESIGN PROJECT No. :	
SURVEYED BY :	DRAWN BY :
DESIGNED BY :	CHECKED BY :
APPROVED BY : CHIEF MANAGER - WATER & SANITATION	
DATE :	SIGNATURE :



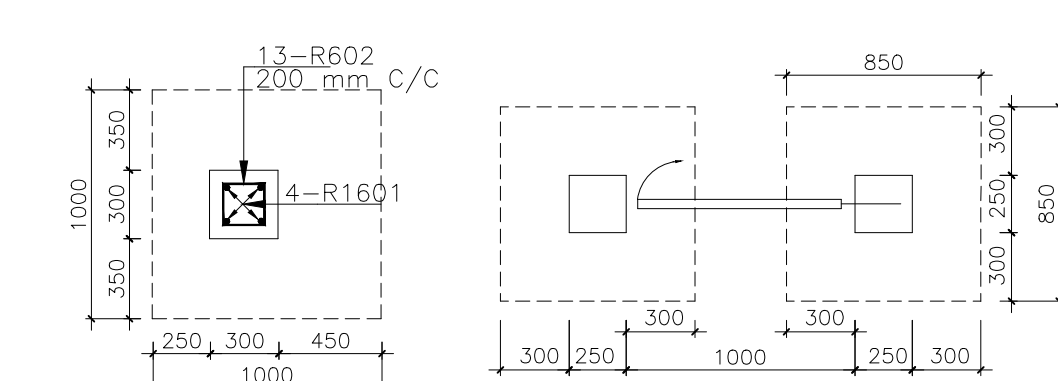
ELEVATION
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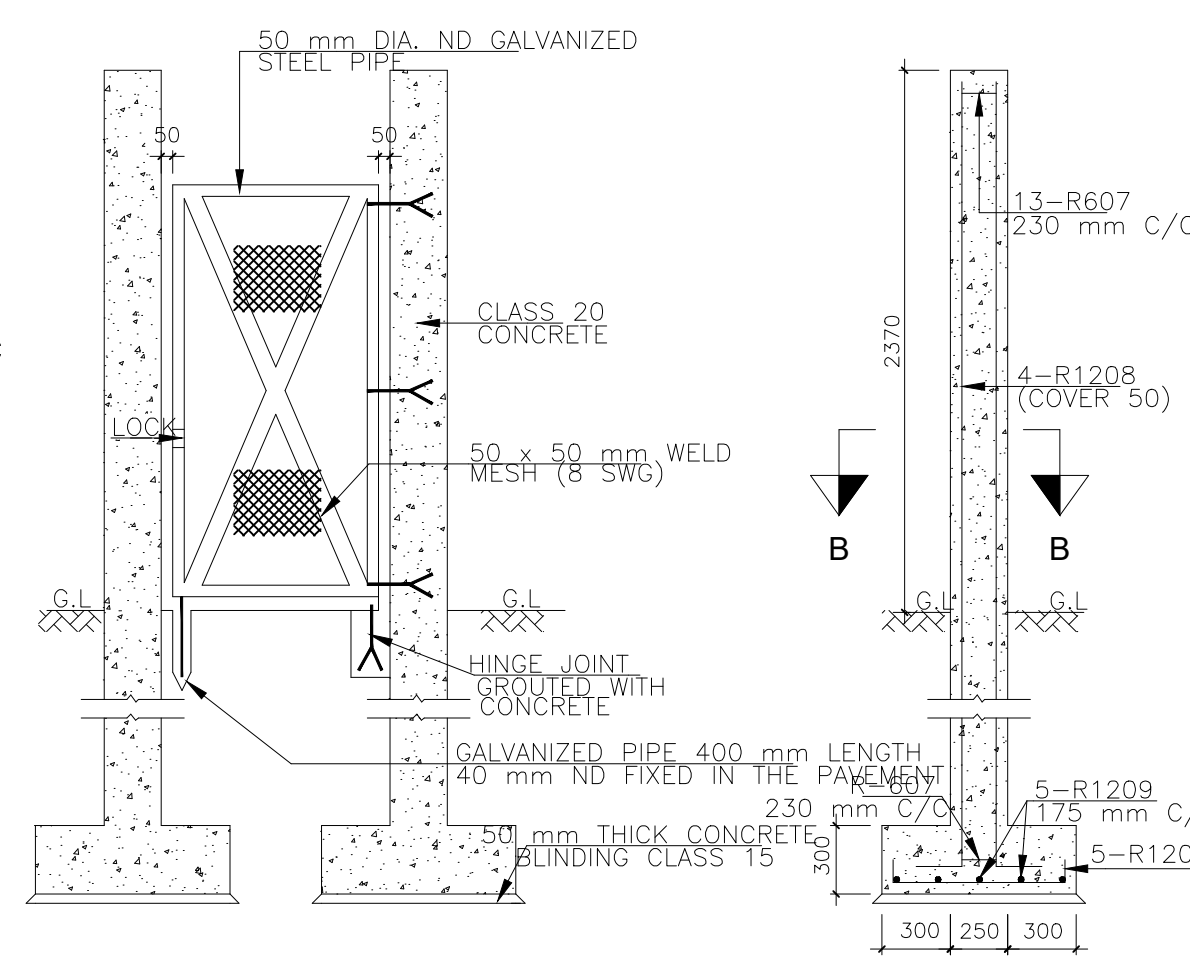
ENTRANCE GATE - 5 m WIDE
1:25



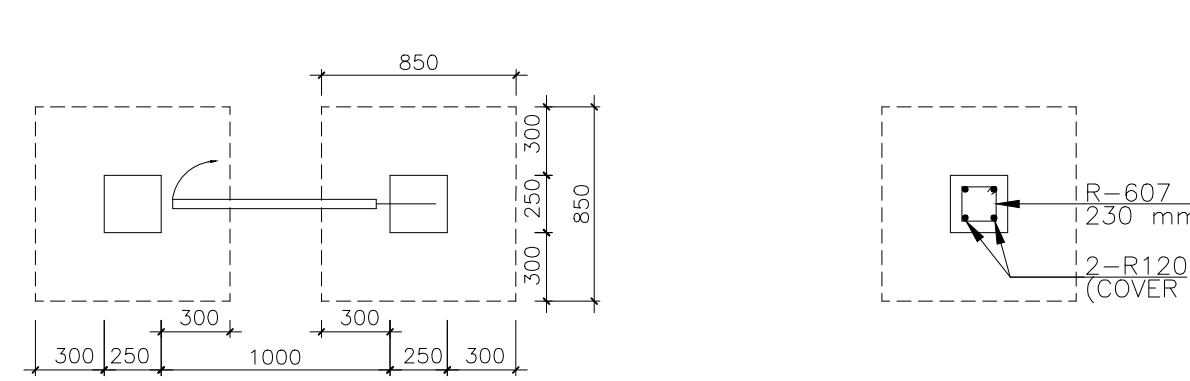
GATE POST
1:25



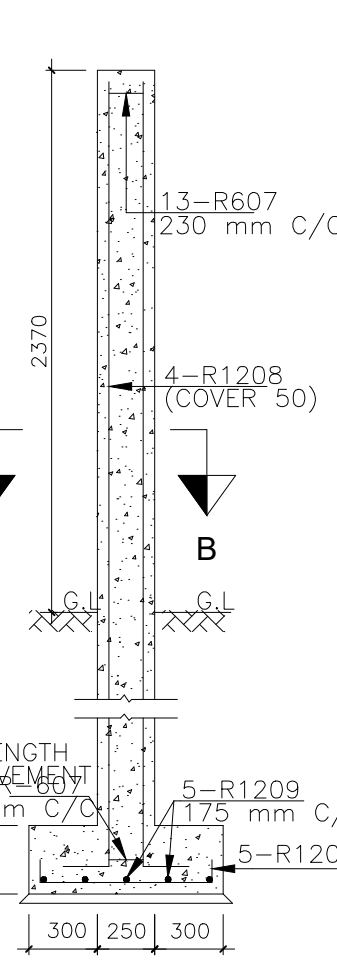
SECTION A-A
1:25



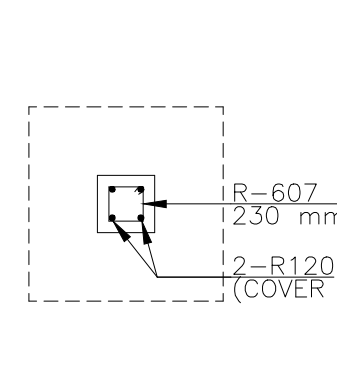
ELEVATION
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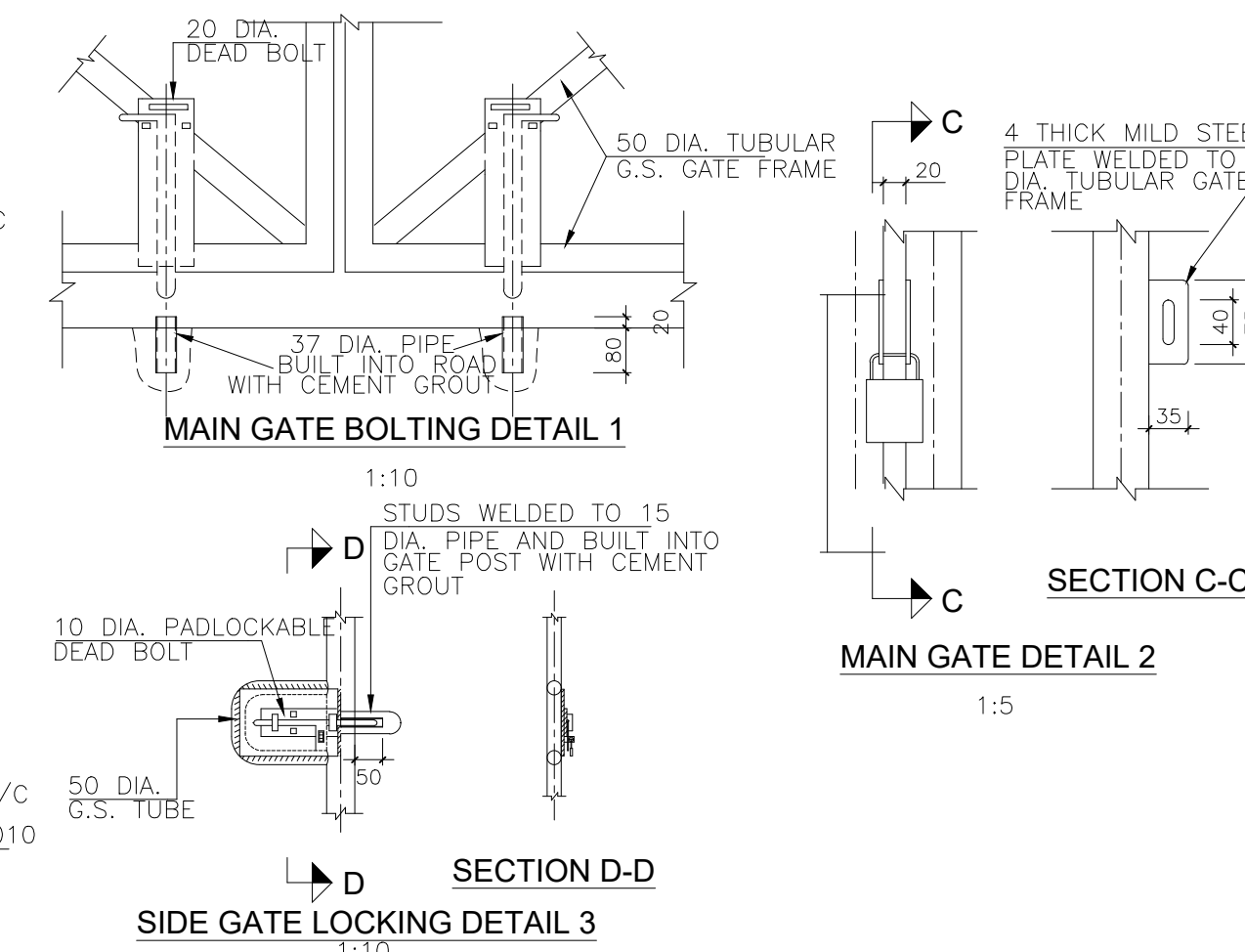
SIDE GATE - 1 m WIDE
1:25



GATE POST
1:25



SECTION B-B
1:25



MAIN GATE BOLTING DETAIL 1
1:10
MAIN GATE DETAIL 2
1:5

BAR BENDING SCHEDULE										
LOCATION	BAR MARK	TYPE AND SIZE	No. IN EACH	TOTAL No.	CUT LENGTH METRES	TOTAL LENGTH METRES	SHAPE CODE	A	B	WEIGHT KG
ENTRANCE GATE 5 m WIDE	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	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

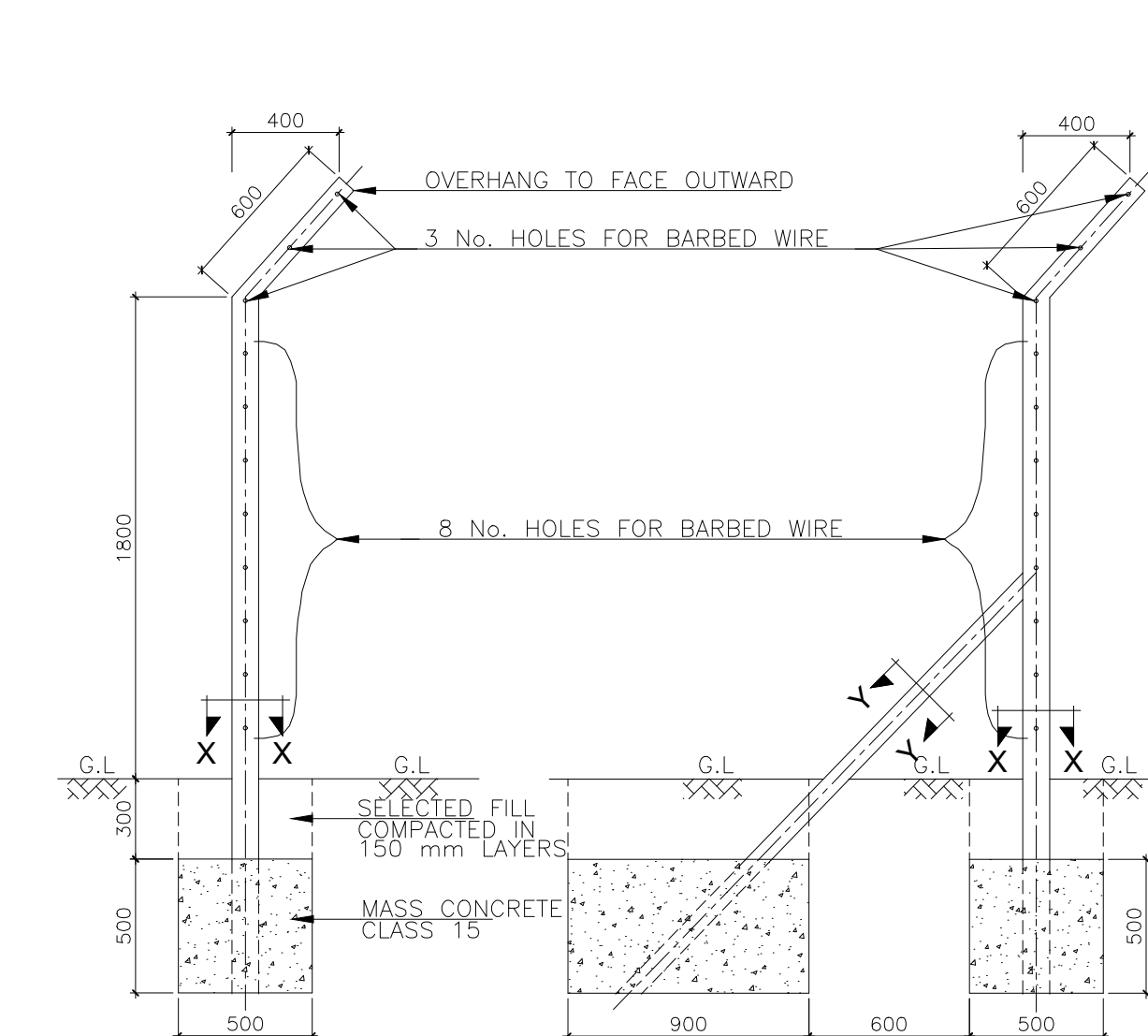
ALL BENDING DIMENSIONS ARE IN ACCORDANCE WITH SSRN 129

NOTES :

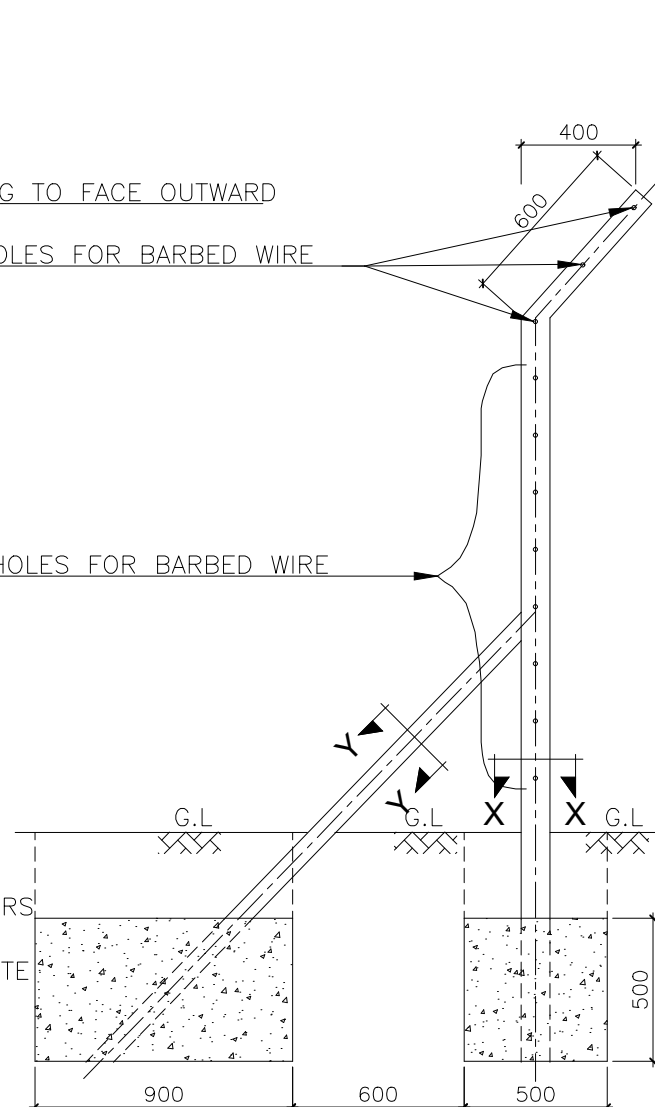
1. ALL CONCRETE IS CLASS 25 UNLESS STATED OTHERWISE.
2. FENCE POSTS SHALL NOT BE MORE THAN 3 m c/c
3. SPECIAL FENCE POSTS WITH STRUTS SHALL BE USED AT ALL CORNERS AND AT DISTANCES NOT MORE THAN 30 m c/c.
4. WHERE CHAINLINK (TYPE GLC) 180 IS SPECIFIED, THEN USE ONLY THREE LINE WIRES AND THREE ROWS OF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

LEGEND :

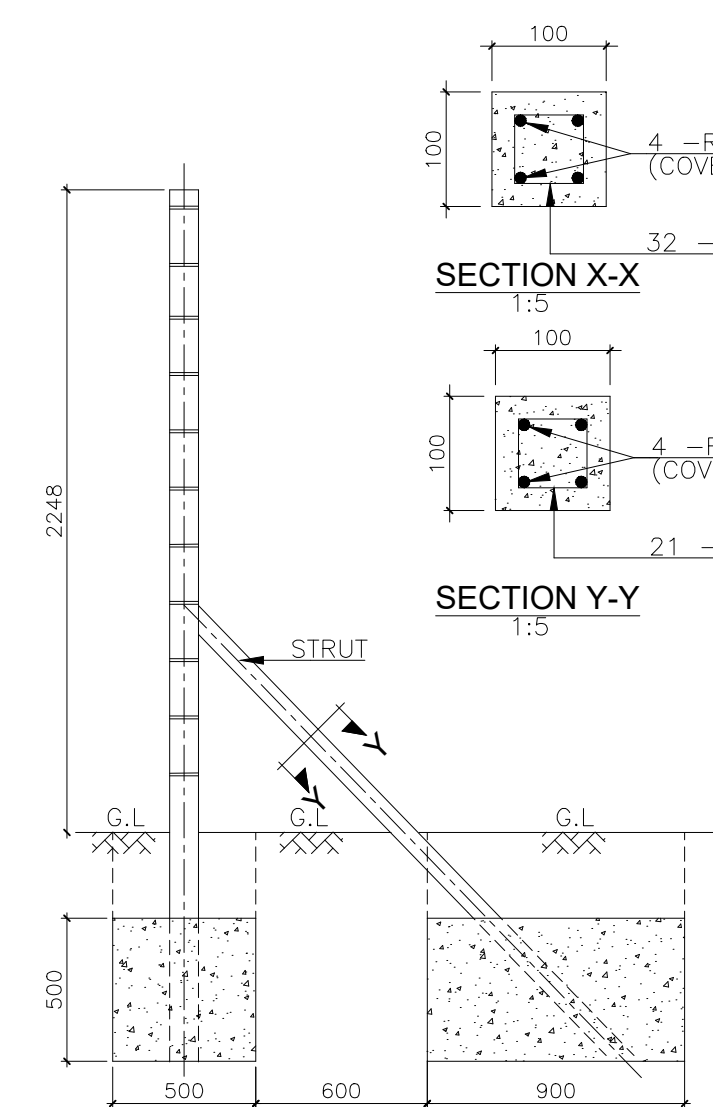
- GLC GALVANISED LINK CHAIN
P.C.C. PRECAST CONCRETE
ND NOMINAL DIAMETER
GL GROUND LEVEL



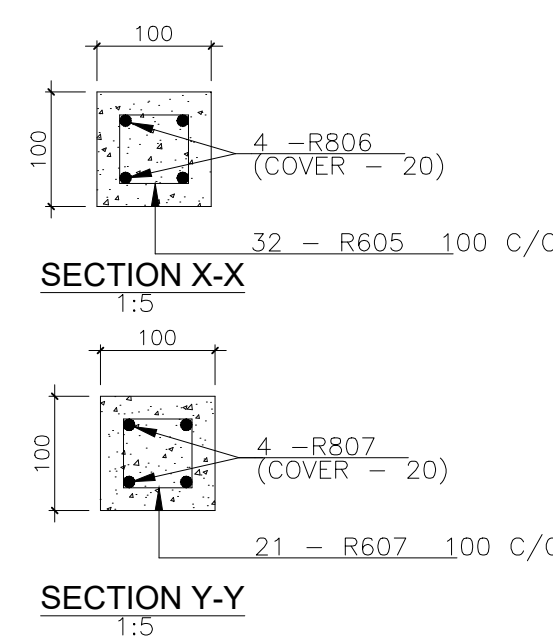
CROSS SECTION DETAIL
NON-STRUTTED FENCING POST
1:20



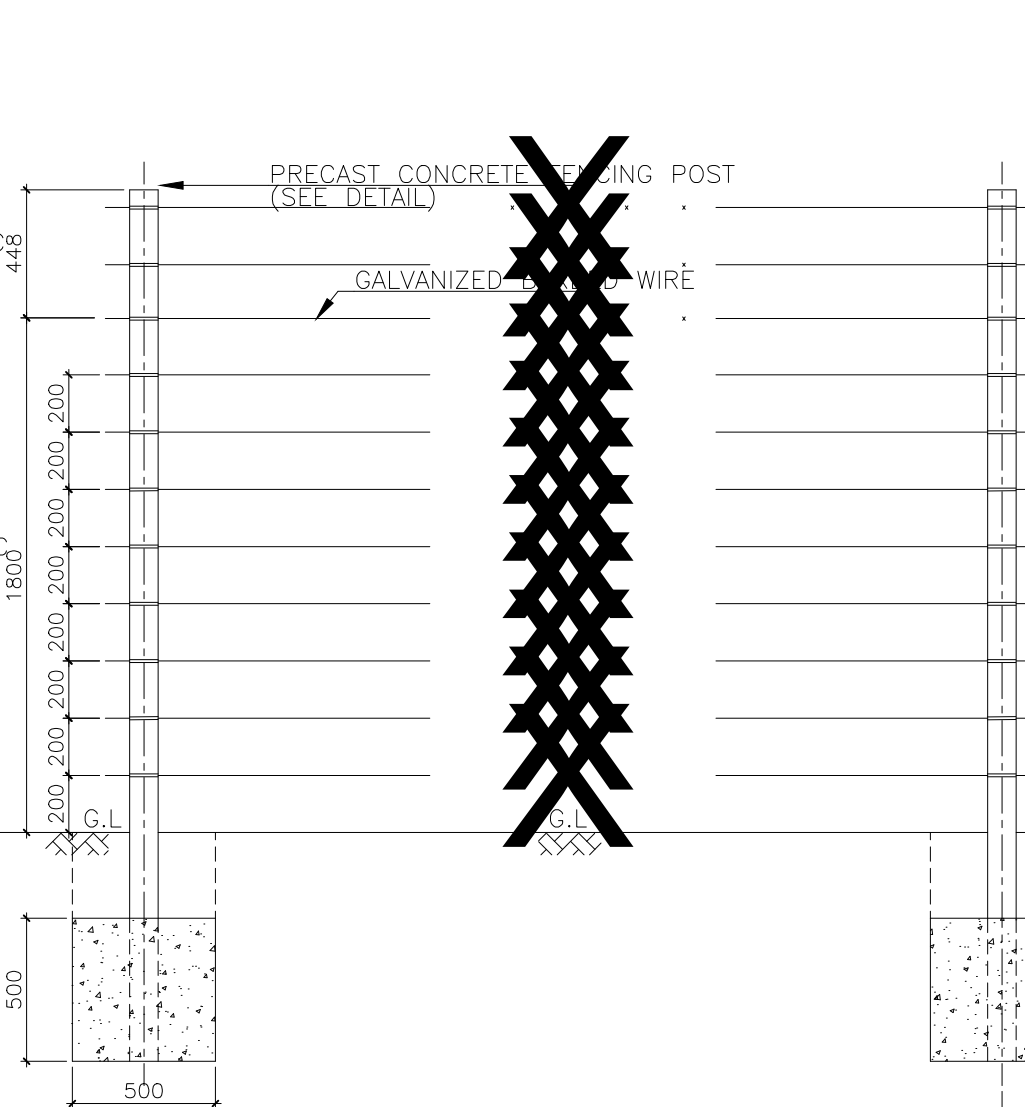
CROSS SECTION DETAIL
STRUTTED FENCING POST
1:20



CROSS SECTION DETAIL
STRUTTED FENCING POST
1:20



SECTION Y-Y
1:5



LONGITUDINAL DETAIL
1:20

FENCING DETAILS

Rev. No.	DESCRIPTION	DATE

REHABILITATION OF INDEPENDENT MATAARA WATER SUPPLY SCHEME PROJECT



ATHI WATER WORKS DEVELOPMENT AGENCY

PROJECT : REHABILITATION OF INDEPENDENT MATAARA WATER SUPPLY SCHEME PROJECT

TOWN : GATANGA

DRAWING TITLE : FENCE AND GATES

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

DATE : JULY 2022 SHEET No. : 1 OF 1

WATER & SANITATION DEPARTMENT

Athi Water Works Development Agency
Athi Water Plaza
Muthaiga North Road, Off Kiambu Road
P.O. Box 45283 - 00100,
NAIROBI
Tel: +254-020-2724292/3
Fax: +254-020-2724295
Mobile: +254-715-688272
Email: info@awwda.go.ke
Website: www.awwda.go.ke

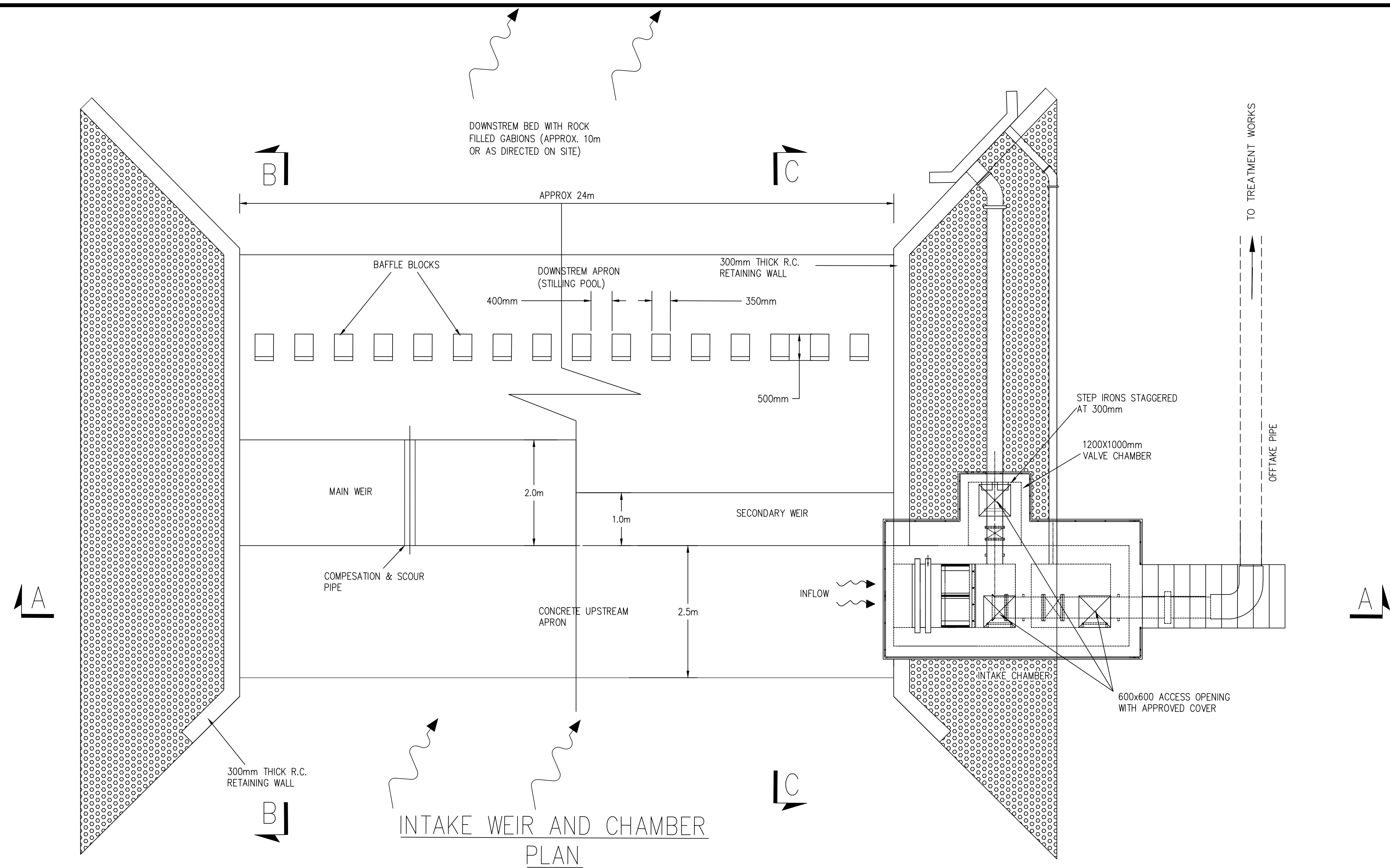
DESIGN PROJECT No. :

SURVEYED BY : DRAWN BY :

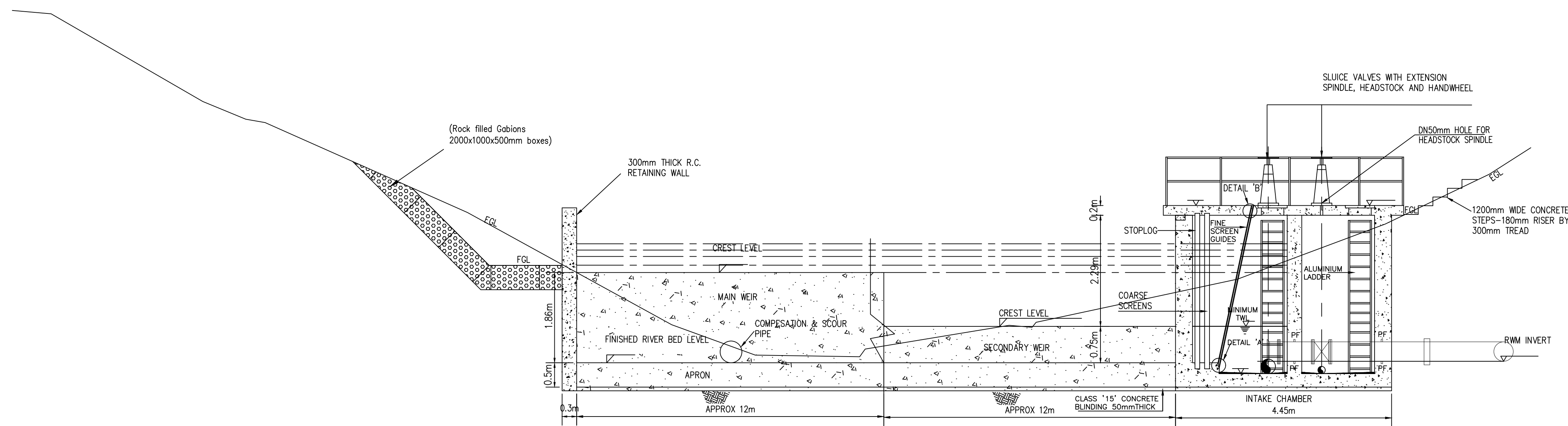
DESIGNED BY : CHECKED BY :

APPROVED BY : CHIEF MANAGER - WATER & SANITATION

DATE : SIGNATURE :



INTAKE WEIR AND CHAMBER
PLAN



SECTION A-A

NOTES

1. ALL DIMENSIONS/LEVELS ARE IN METRES UNLESS NOTED OTHERWISE.
2. FINAL LOCATION TO BE DETERMINED ON SITE AND APPROVED BY THE ENGINEER.
3. ALL EXPOSED CONCRETE EDGES HAVE A 25mm X 25mm CHAMFER.

LEGEND

	GABIONS
	GROUND PROFILE
	E.G.L. EXISTING GROUND LEVEL
	F.G.L. FINISHED GROUND LEVEL
	R.C. REINFORCED CONCRETE

Rev. No.	DESCRIPTION	DATE
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REHABILITATION OF INDEPENDENT
MATAARA WATER SUPPLY SCHEME
PROJECT



ATHI WATER WORKS
DEVELOPMENT AGENCY

PROJECT :
REHABILITATION OF INDEPENDENT
MATAARA WATER SUPPLY SCHEME
PROJECT

TOWN :
GATANGA

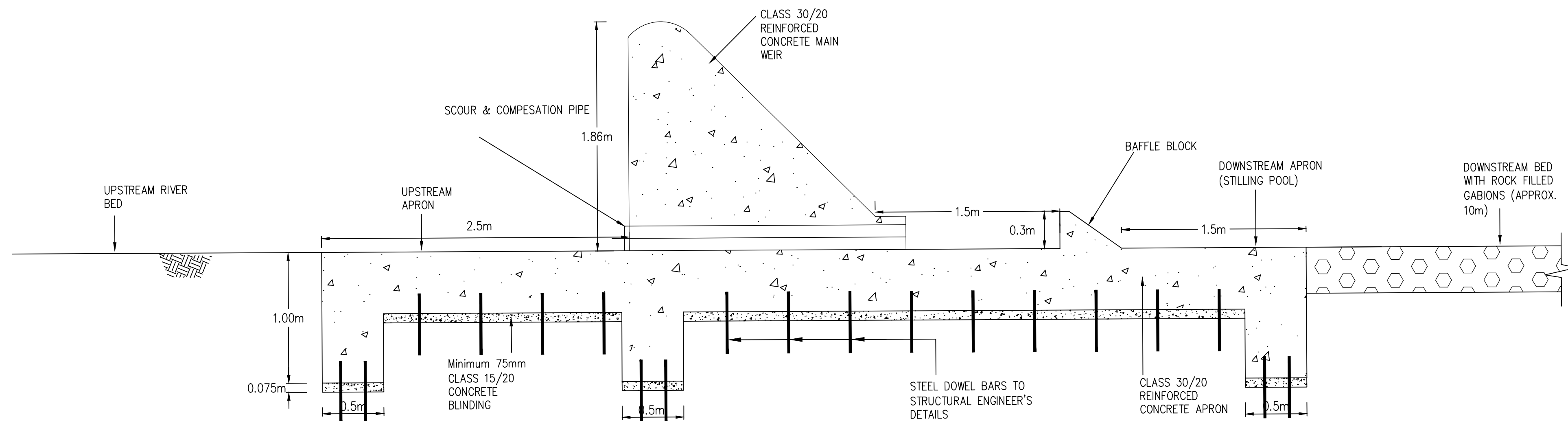
DRAWING TITLE :
Inlet Weir Structure Plan Section Details

SCALES :	DRG. No. : GAT/GD/13
DATE : JULY 2022	SHEET No. : 1 OF 1

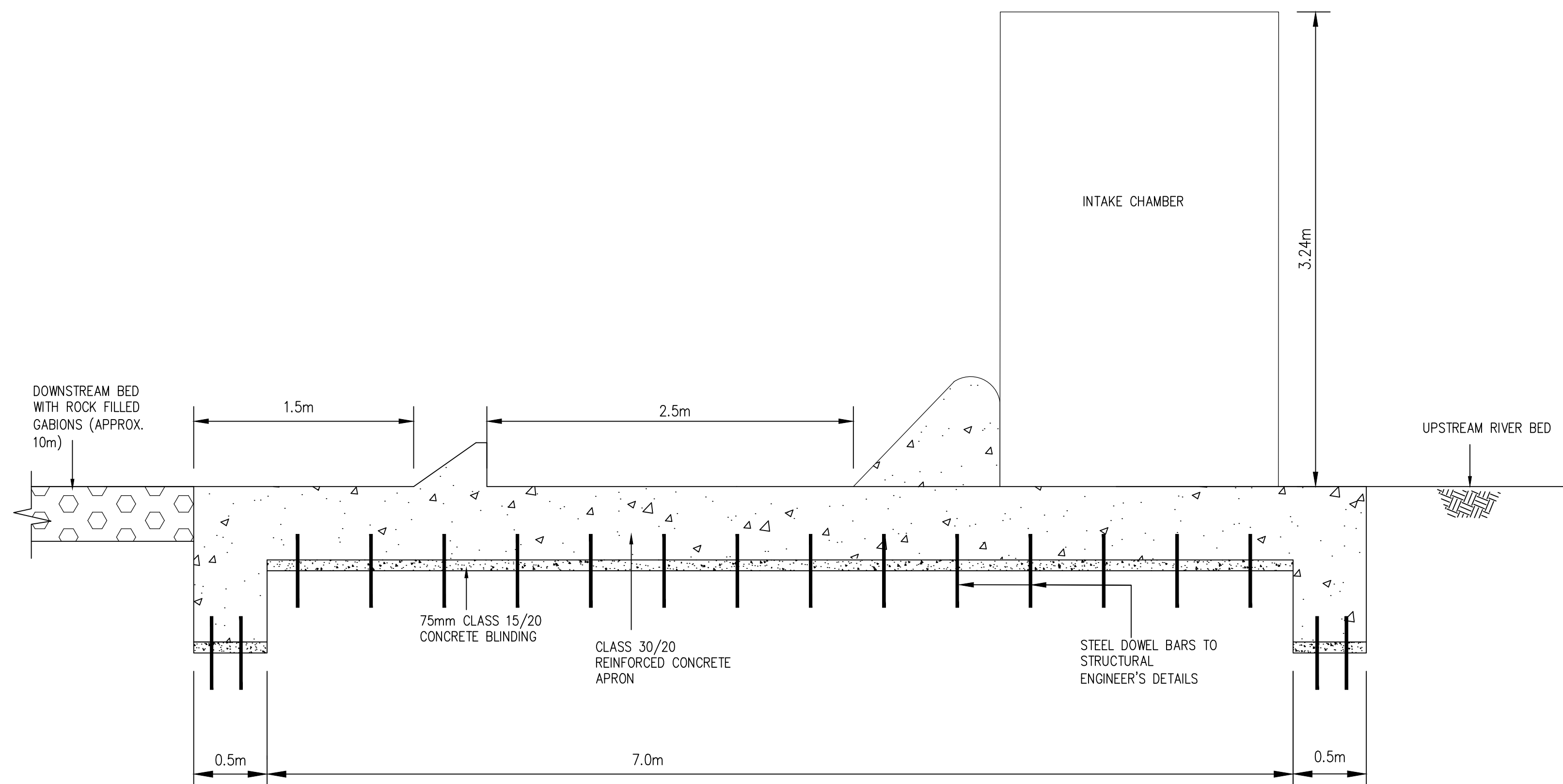
WATER & SANITATION DEPARTMENT

Athi Water Works Development Agency
Athi Water Plaza
Muthaiga North Road, Off Kiambu Road
P.O. Box 45283 - 00100,
NAIROBI
Tel: +254 -020-2724292/3
Fax: +254- 020-2724295
Mobile: +254- 715-688272
Email: info@awwda.go.ke
Website: www.awwda.go.ke

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

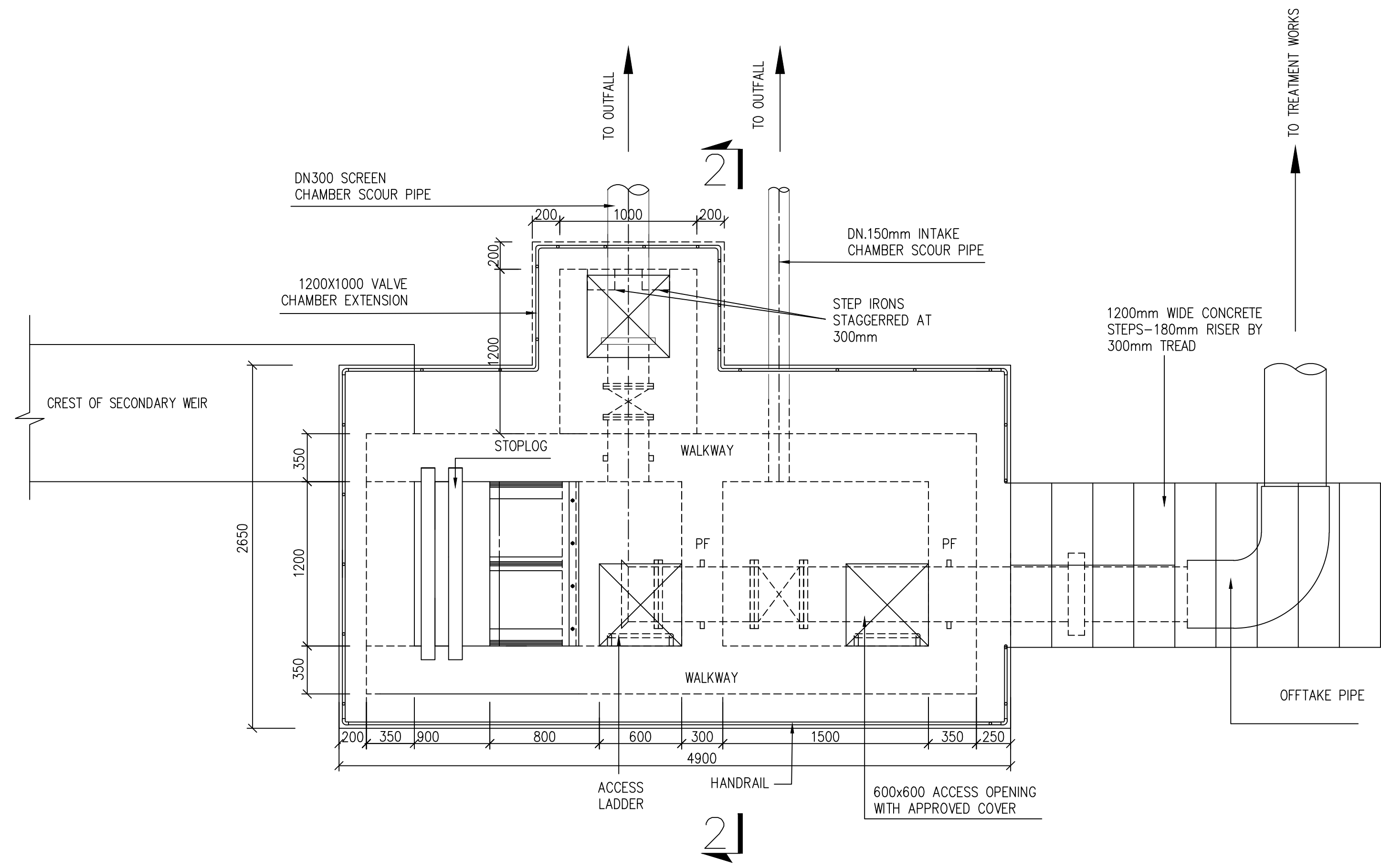


SECTION B-B
SECTION THROUGH MAIN WEIR
SCALE 1:25

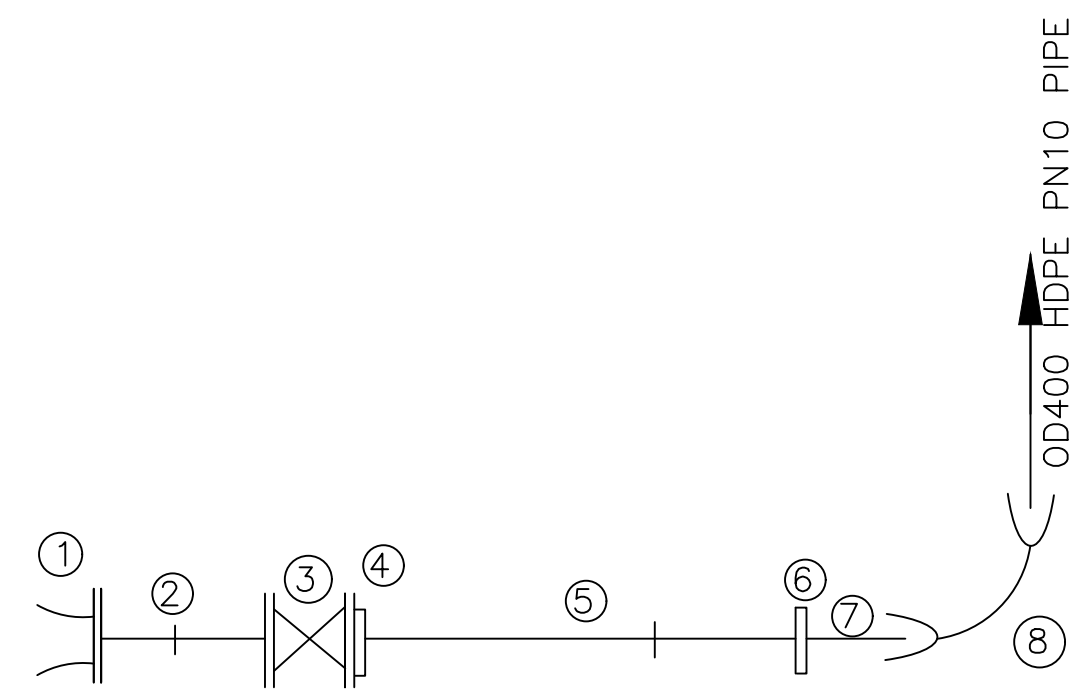


SECTION C-C
SECTION THROUGH SECONDARY WEIR
SCALE 1:25

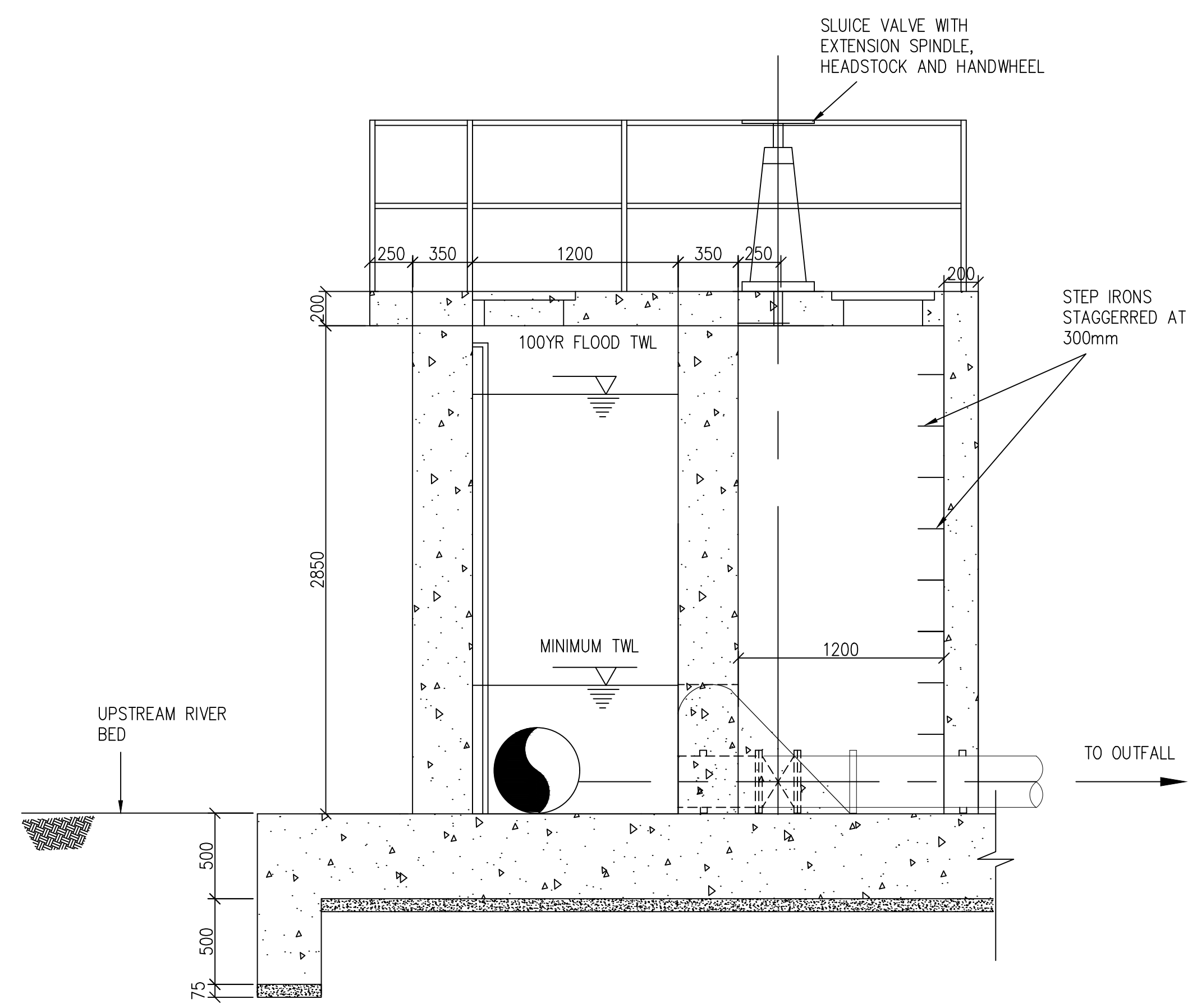
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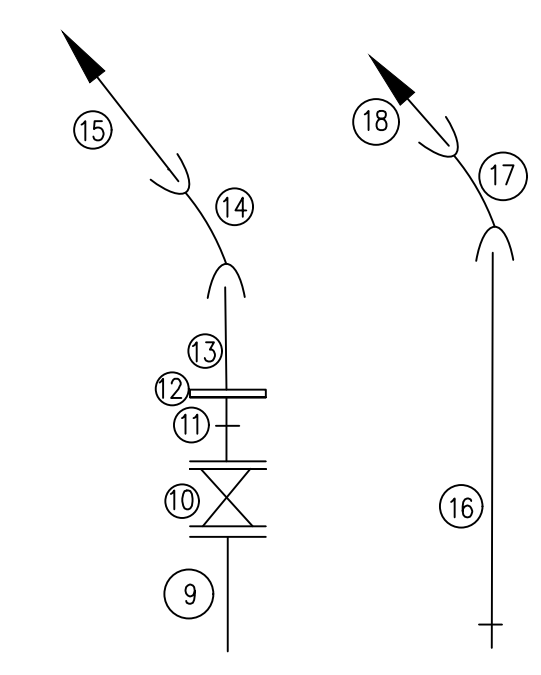
INTAKE CHAMBER PLAN
SCALE 1:25



- ① DN500 FLANGED STEEL BELLMOUTH
- ② DN500 DOUBLE FLANGED PIECE LEGNTH n.e. 1000mm WITH CENTRAL PUDDLE FLANGE
- ③ DN500 GATE VALVE WITH EXTENSION SPINDLE AND HAND WHEEL. LEGNTH OF SPINDLE TO BE DETERMINED ON SITE.
- ④ DN500 FLANGE ADAPTOR
- ⑤ DN500 SINGLE FLANGE STRAIGHT PIECE LEGNTH n.e. 3000mm WITH PUDDLE FLANGE.
- ⑥ DN500 STEEL/OD500 HDPE COUPLING ADAPTOR
- ⑦ OD500mm PLAIN ENDED PIPE LENGTH n.e. 500mm
- ⑧ OD500mm HDPE 90° BEND



SECTION 2-2



- ⑨ DN300 SINGLE FLANGED PIECE WITH PUDDLE FLANGE, LENGTH n.e. 2000mm LONG.
- ⑩ DN300 GATE VALVE WITH EXTENSION SPINDLE & HANDWHEEL LENGTH OF SPINDLE TO BE DETERMINED ON SITE.
- ⑪ DN300 SINGLE FLANGED PIECE WITH PUDDLE FLANGE, LENGTH n.e. 2000mm LONG.
- ⑫ DN300 FLEXIBLE COUPLING.
- ⑬ DN300 STRAIGHT PIECE; LENGTH n.e. 6000mm
- ⑭ DN300 45° BEND.
- ⑮ DN300STEEL PIPE;LENGTH n.e. 3000mm
- ⑯ DN150 STRAIGHT PIECE WITH PUDDLE FLANGE; LENGTH n.e. 9000mm
- ⑰ DN150 45° BEND.
- ⑱ DN150 STEEL PIPE;LENGTH n.e. 3000mm

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED
2. ALL LEVELS ARE IN METRES UNLESS OTHERWISE STATED
3. ALL REINFORCED CONCRETE SHALL BE CLASS '30/20' FOR WATER RETAINING STRUCTURES AND OTHER REINFORCED CONCRETE, BLINDING CONCRETE SHALL BE CLASS '15/20' UNLESS OTHERWISE STATED
4. ALL EXPOSED CONCRETE EDGES SHALL HAVE 20X20mm CHAMFER
5. ALL PIPES AND FITTINGS TO BE SIZED TO BS4772
6. THIS DRAWING TO BE READ IN CONJUNCTION WITH INTAKE LAYOUT PLAN
7. DETAILED SURVEY ON INTAKE SITE TO BE CARRIED OUT TO CONFIRM THE ∇ PROFILE
8. FLANGED INSERTS SHALL BE CAST WITH FLANGES CLEAR OF THE CONCRETE SURFACE TO ENABLE FASTENING OF BOLTS

LEGEND

- SV — SLUICE VALVE
PF — PUDDLE FLANGE
DN — NOMINAL DIAMETER
MS — MILD STEEL
GMS — GALVANISED MILD STEEL
TWL — TOP WATER LEVEL
EGL — EXISTING GROUND LEVEL
FGL — FINISHED GROUND LEVEL

Rev. No.	DESCRIPTION	DATE

REHABILITATION OF INDEPENDENT MATAARA WATER SUPPLY SCHEME PROJECT



ATHI WATER WORKS DEVELOPMENT AGENCY

PROJECT : REHABILITATION OF INDEPENDENT MATAARA WATER SUPPLY SCHEME PROJECT

TOWN : GATANGA

DRAWING TITLE : Inlet Weir Chamber Plan Section Details

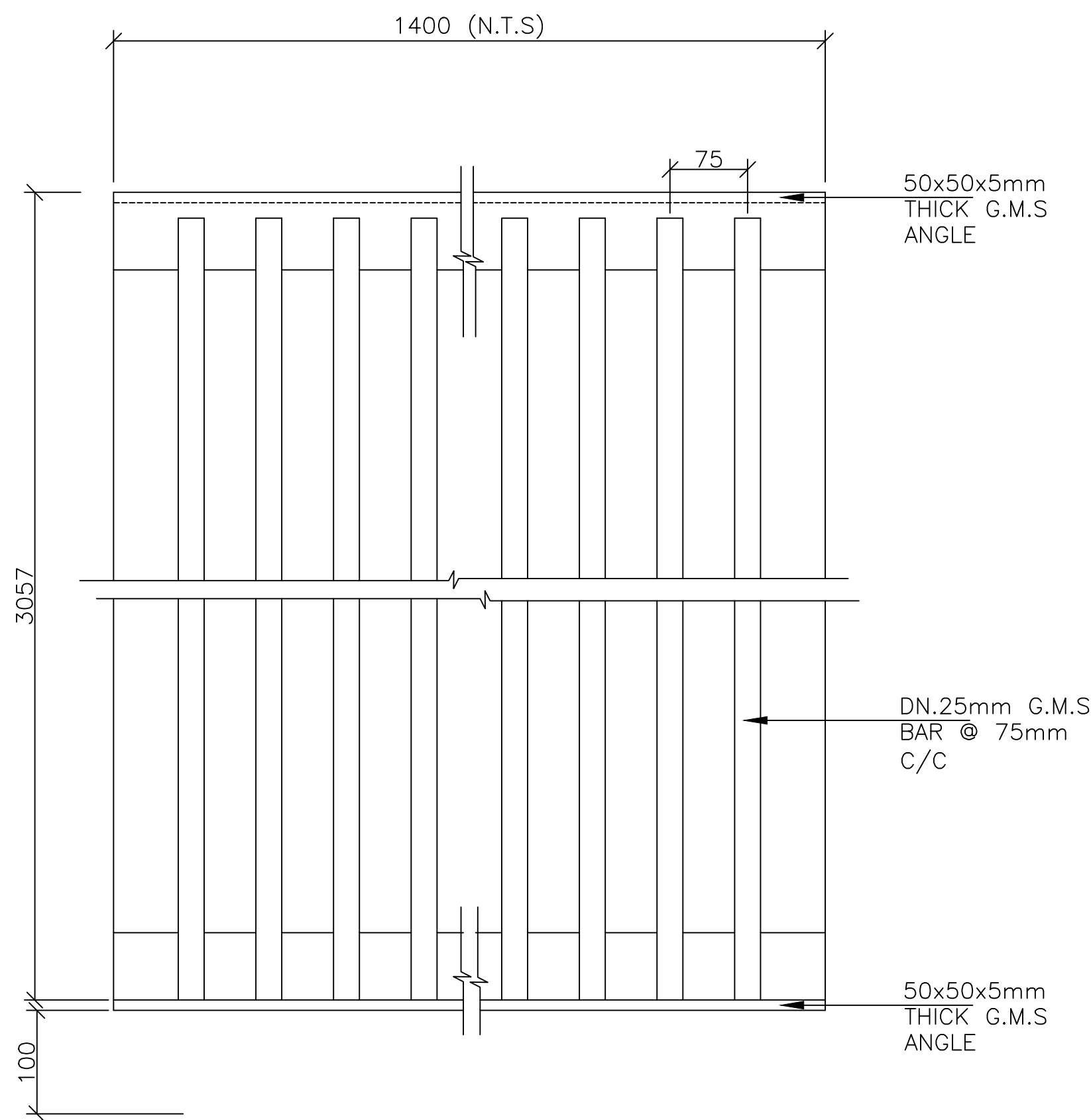
SCALES :	DRG. No. : GAT/GD/13
DATE : JULY 2022	SHEET No. : 1 OF 1

WATER & SANITATION DEPARTMENT

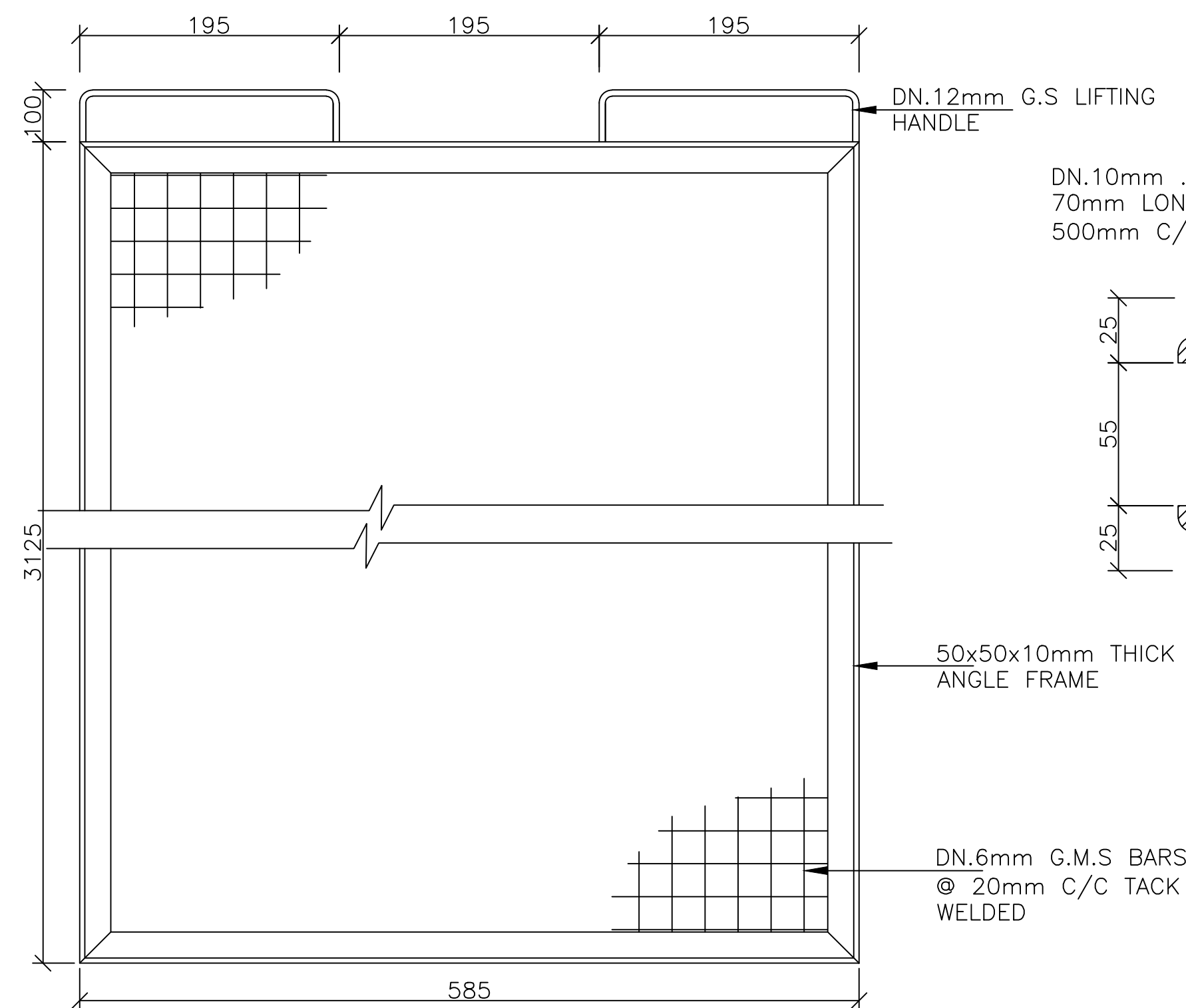
Athi Water Works Development Agency
Athi Water Plaza
Muthaiga North Road, Off Kiambu Road
P.O. Box 45283 - 00100,
NAIROBI

Tel: +254 -020-2724292/3
Fax: +254- 020-2724295
Mobile: +254- 715-688272
Email: info@awwda.go.ke
Website: www.awwda.go.ke

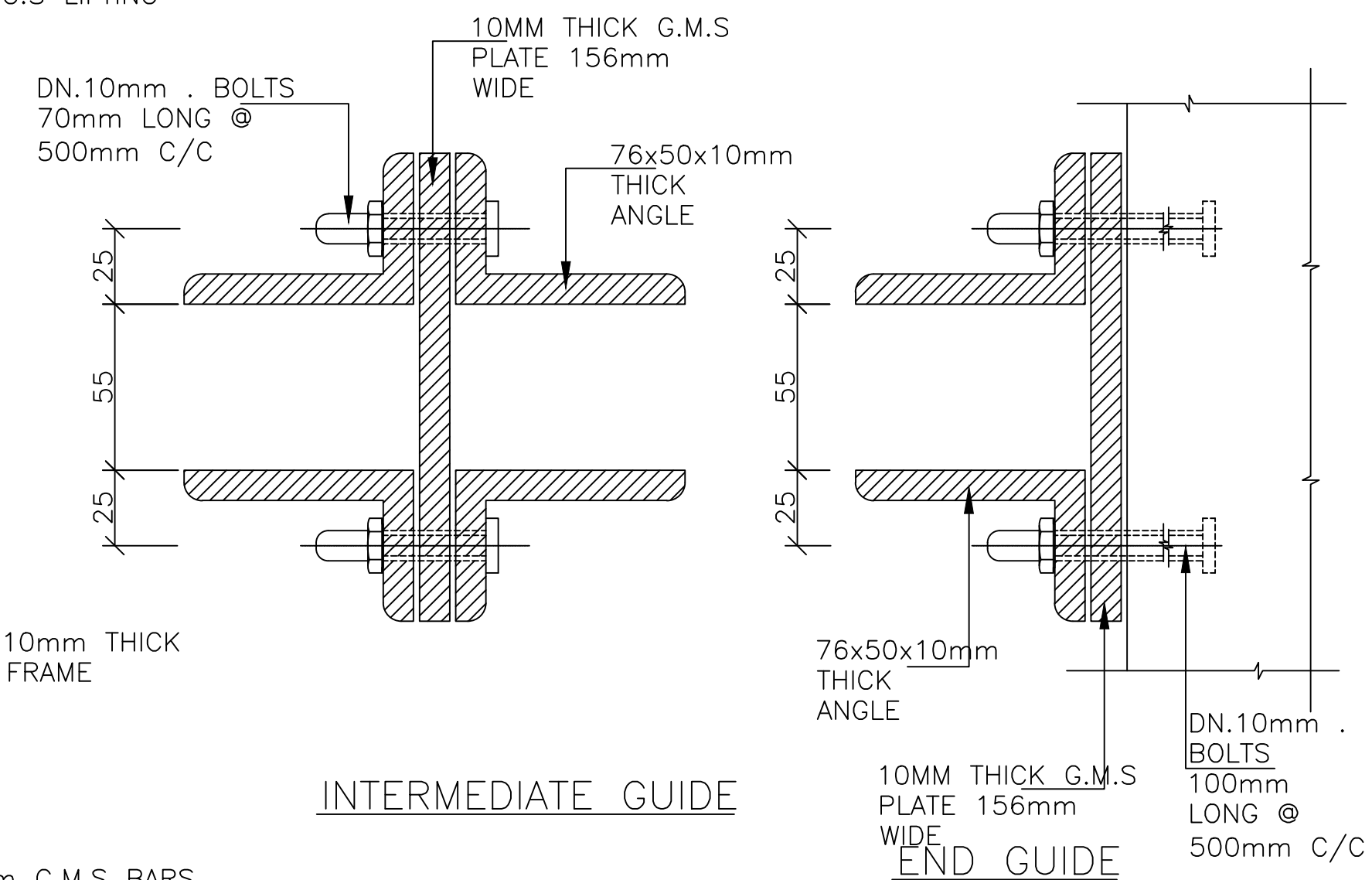
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SURVEYED BY :	DRAWN BY :
DESIGNED BY :	CHECKED BY :
APPROVED BY : CHIEF MANAGER - WATER & SANITATION	
DATE :	SIGNATURE :



COARSE SCREEN
SCALE 1:5

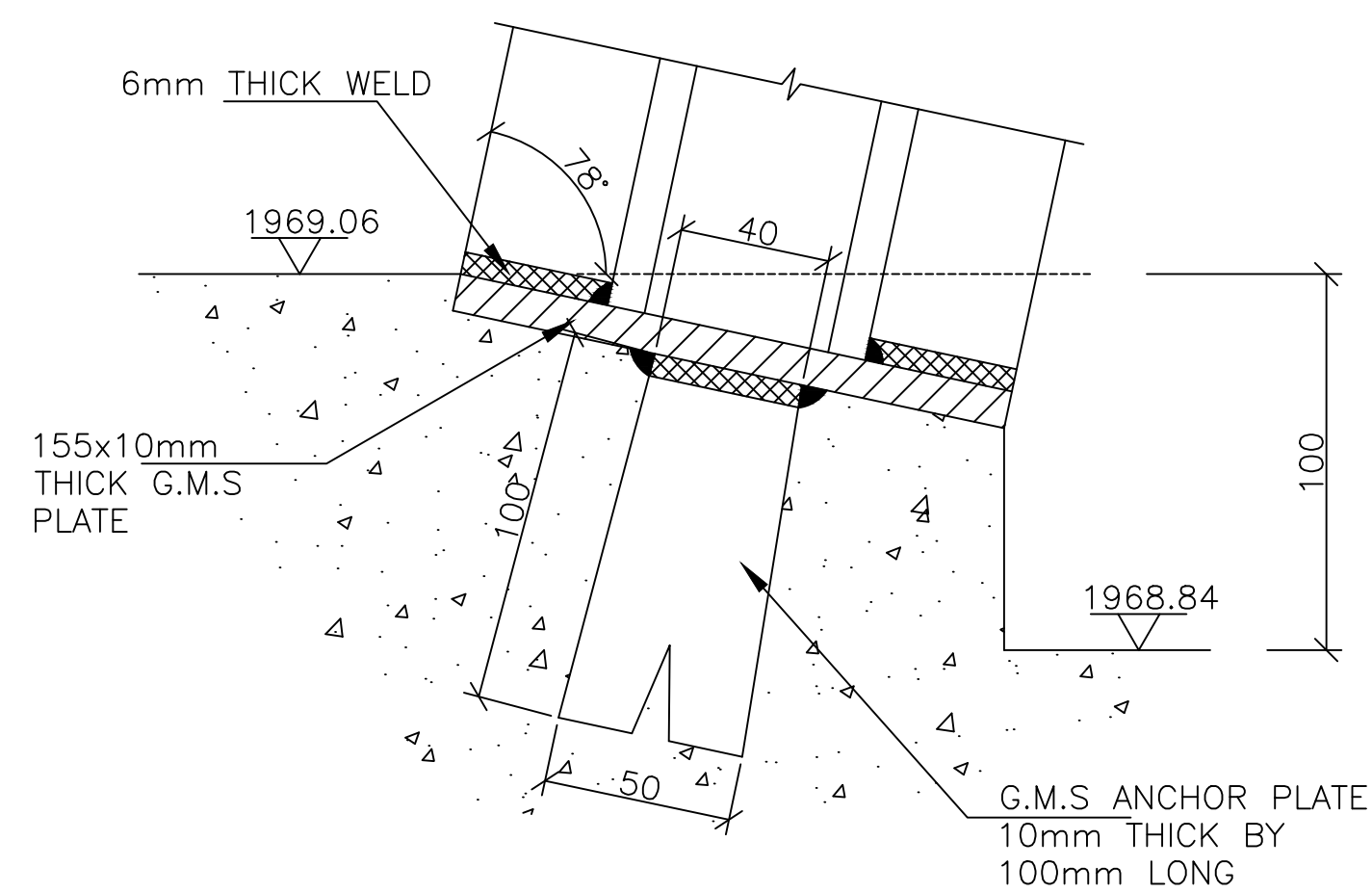


FINE SCREEN(2 NO.)
NTS

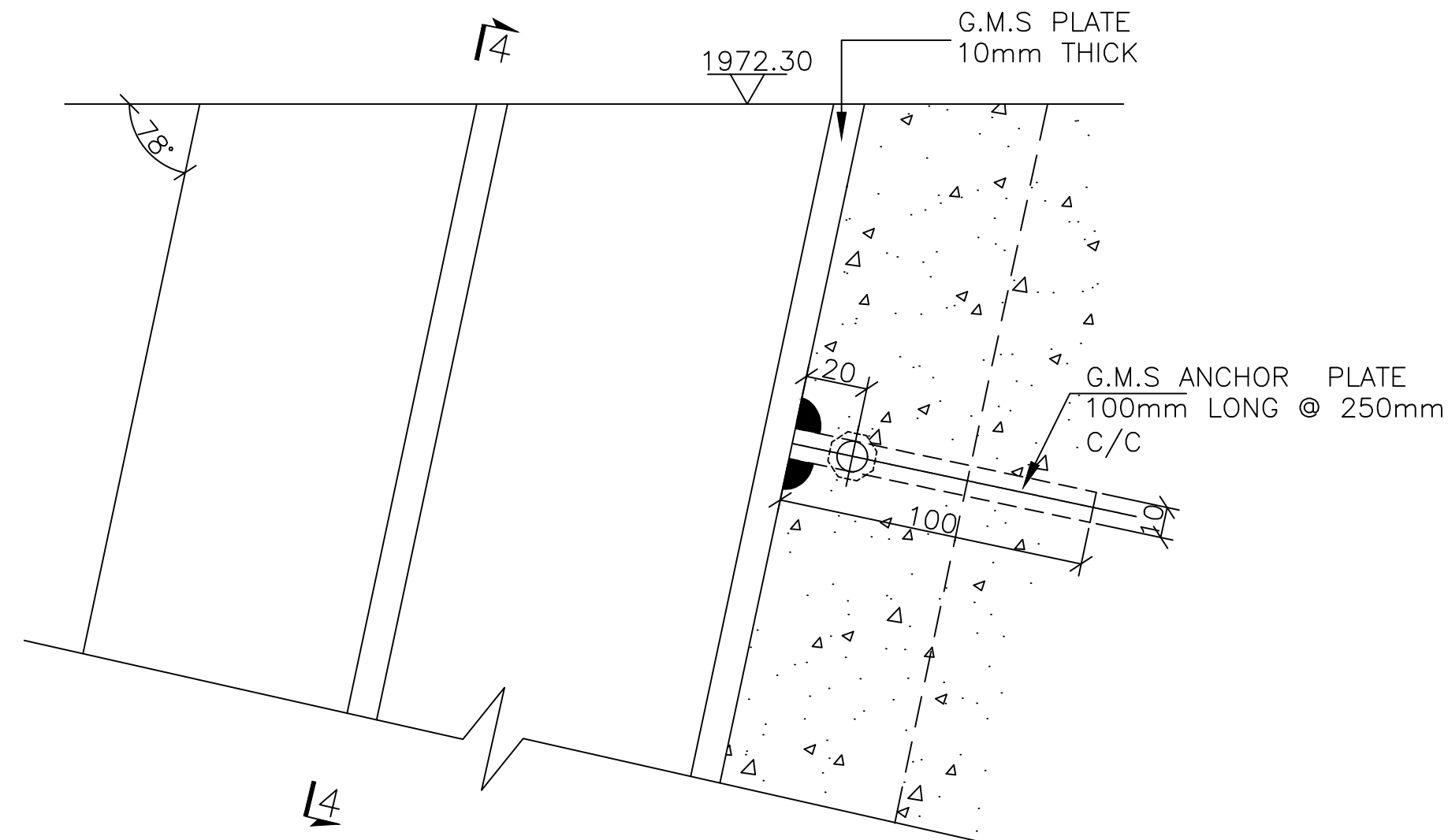


INTERMEDIATE GUIDE

FINE SCREEN GUIDES BRACKETS
SCALE 1:2

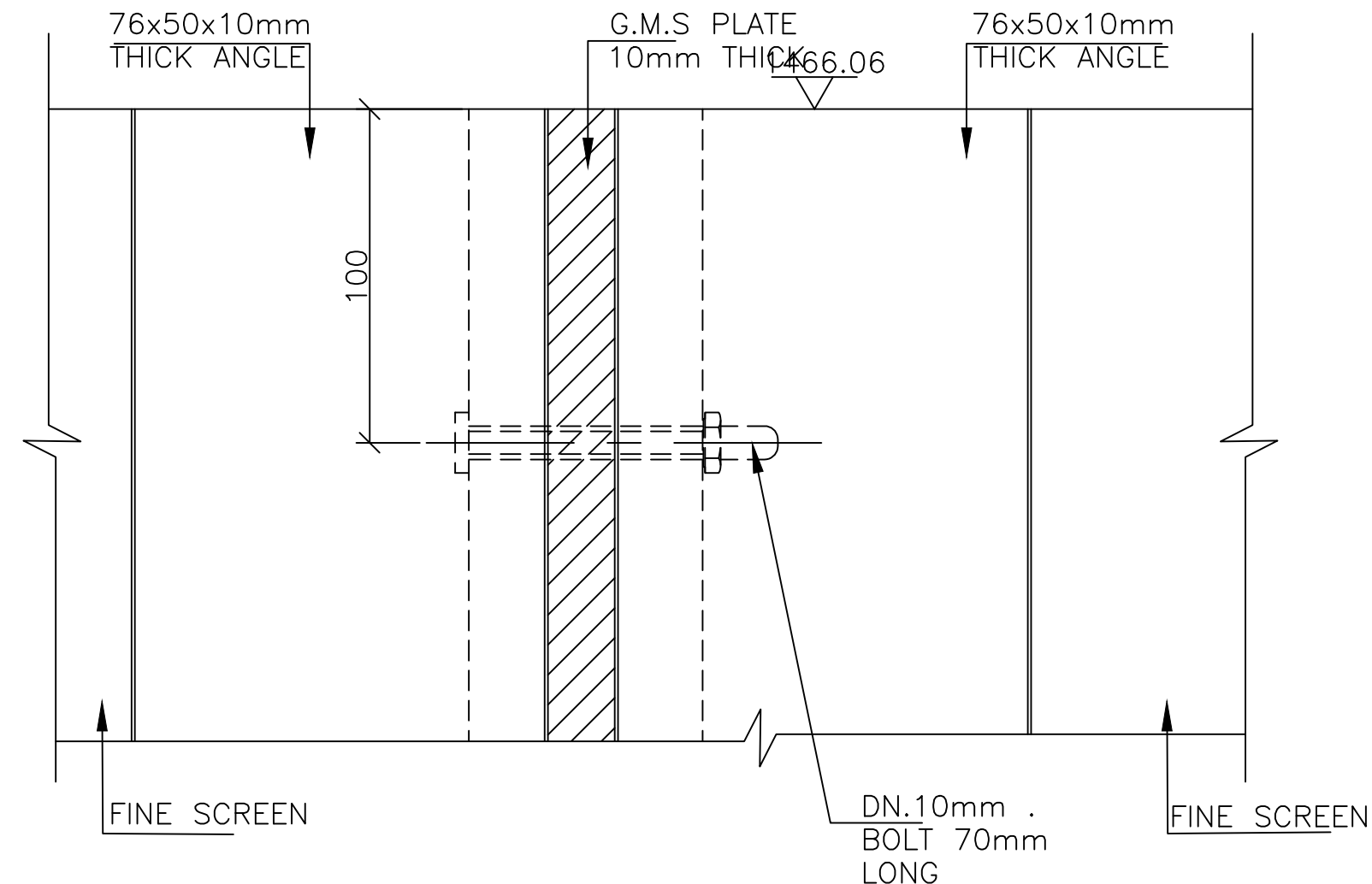


DETAIL 'A'
BOTTOM CONNECTION
SCALE 1:2

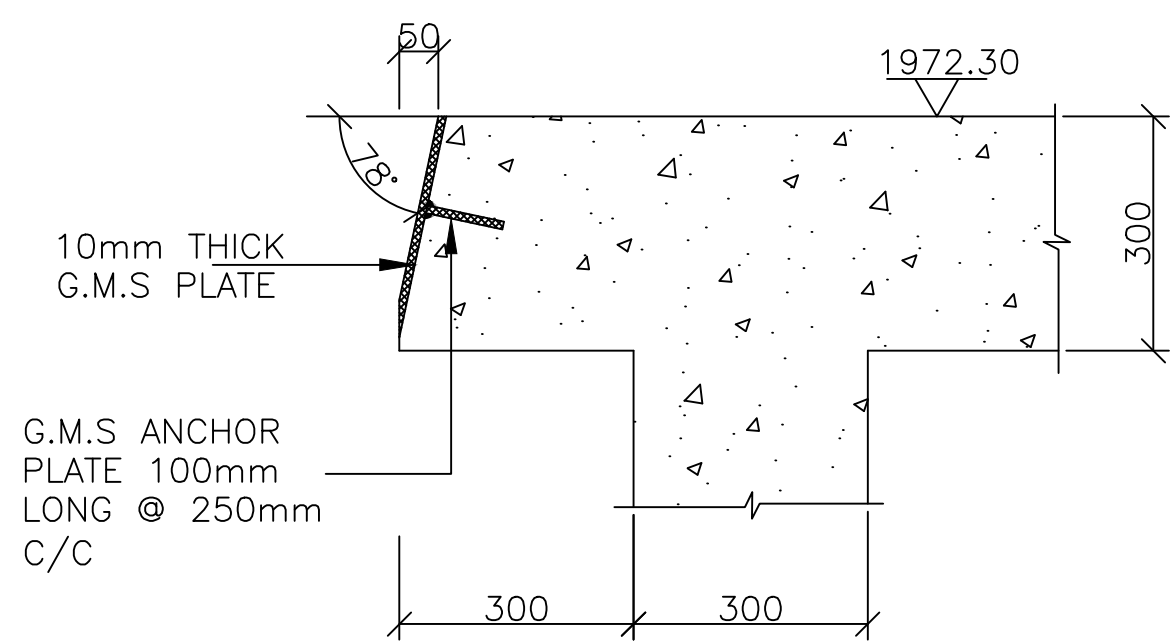


SIDE VIEW

FINE SCREEN GUIDES FIXING DETAILS
SCALE 1:2



SECTION 4-4



DETAIL 'B'
TOP CONNECTION
SCALE 1:10

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED
2. ALL LEVELS ARE IN METRES UNLESS OTHERWISE STATED
3. ALL REINFORCED CONCRETE SHALL BE CLASS '30/20' FOR WATER RETAINING STRUCTURES AND OTHER REINFORCED CONCRETE. BLINDING CONCRETE SHALL BE CLASS '15/20' UNLESS OTHERWISE STATED
4. ALL EXPOSED CONCRETE EDGES SHALL HAVE 20X20mm CHAMFER
5. ALL PIPES AND FITTINGS TO BE SIZED TO BS4772.
6. THIS DRAWING TO BE READ IN CONJUNCTION WITH Drg. No. IWS-C-203
7. DETAILED SURVEY ON INTAKE SITE TO BE CARRIED OUT TO CONFIRM THE GROUND PROFILE

LEGEND

GMS - GALVANISED MILD STEEL
NTS - NOT TO SCALE
C/C - CENTRE TO CENTRE

REHABILITATION OF INDEPENDENT MATAARA WATER SUPPLY SCHEME PROJECT



ATHI WATER WORKS DEVELOPMENT AGENCY

PROJECT: REHABILITATION OF INDEPENDENT MATAARA WATER SUPPLY SCHEME PROJECT

TOWN: GATANGA

DRAWING TITLE: Inlet Weir Structure_Screen Details

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

DATE: JULY 2022 SHEET No.: 1 OF 1

WATER & SANITATION DEPARTMENT

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Website: www.awwda.go.ke

DESIGN PROJECT No.:

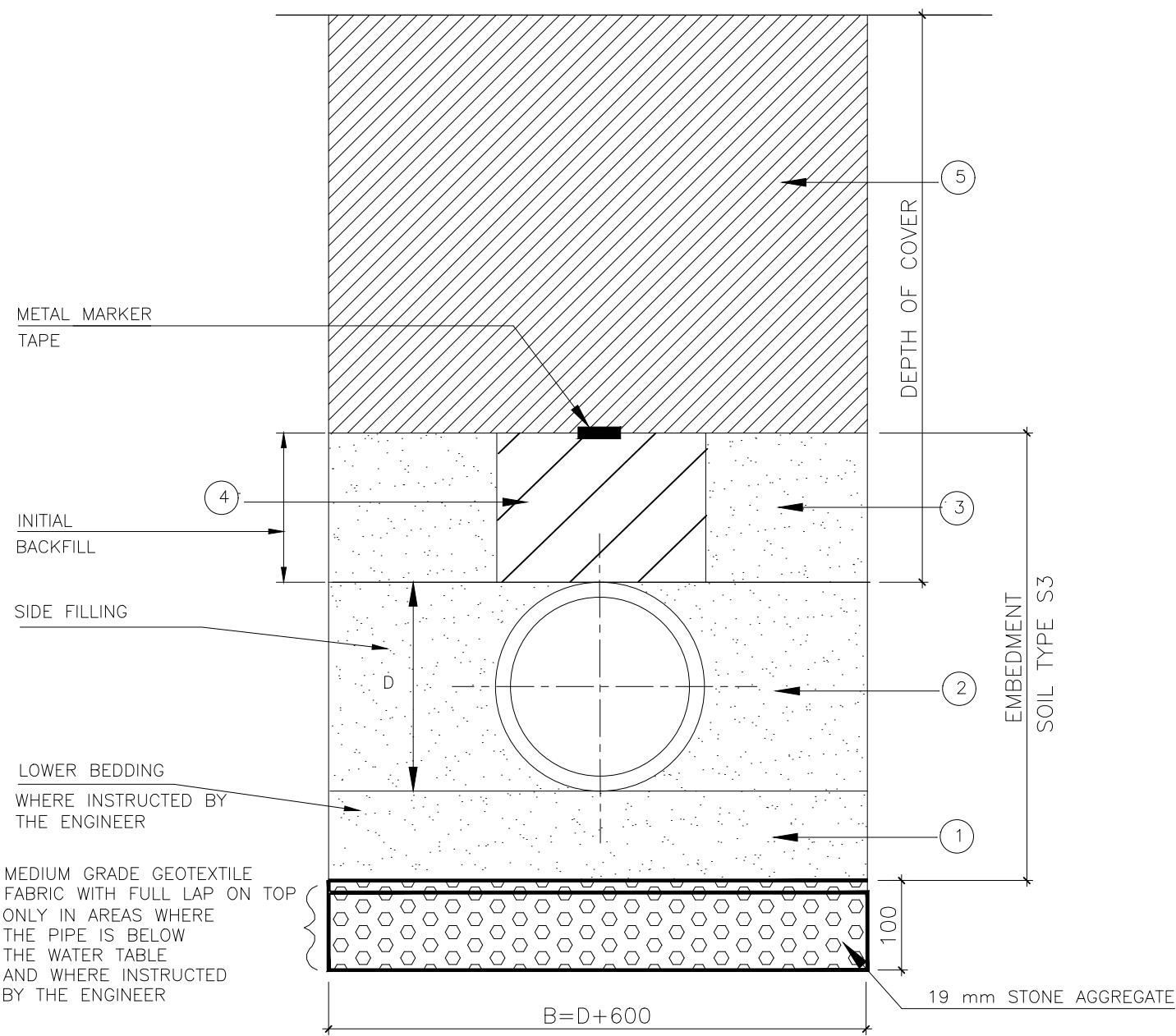
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DESIGNED BY: CHECKED BY:

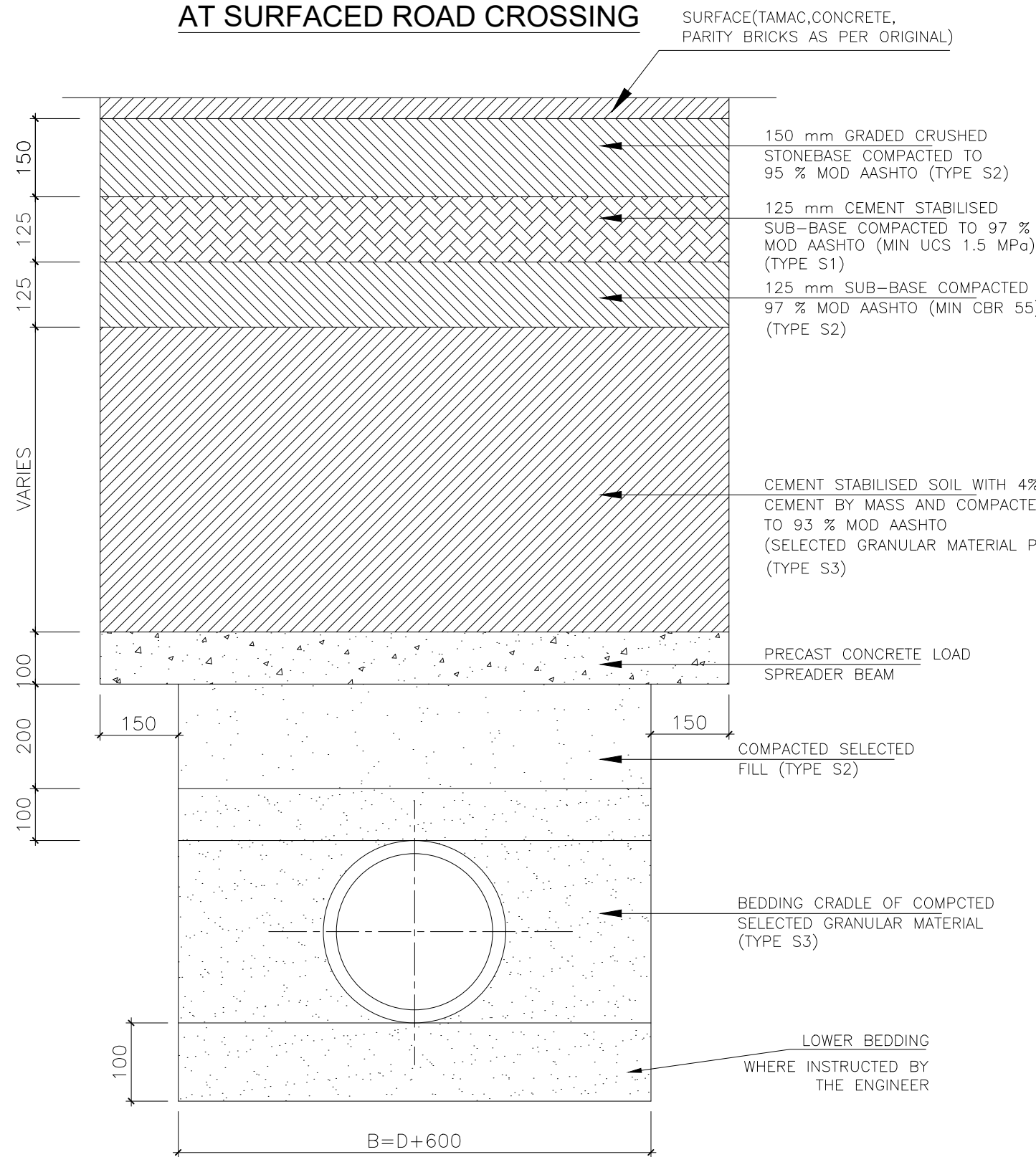
APPROVED BY: CHIEF MANAGER - WATER & SANITATION

DATE: SIGNATURE:

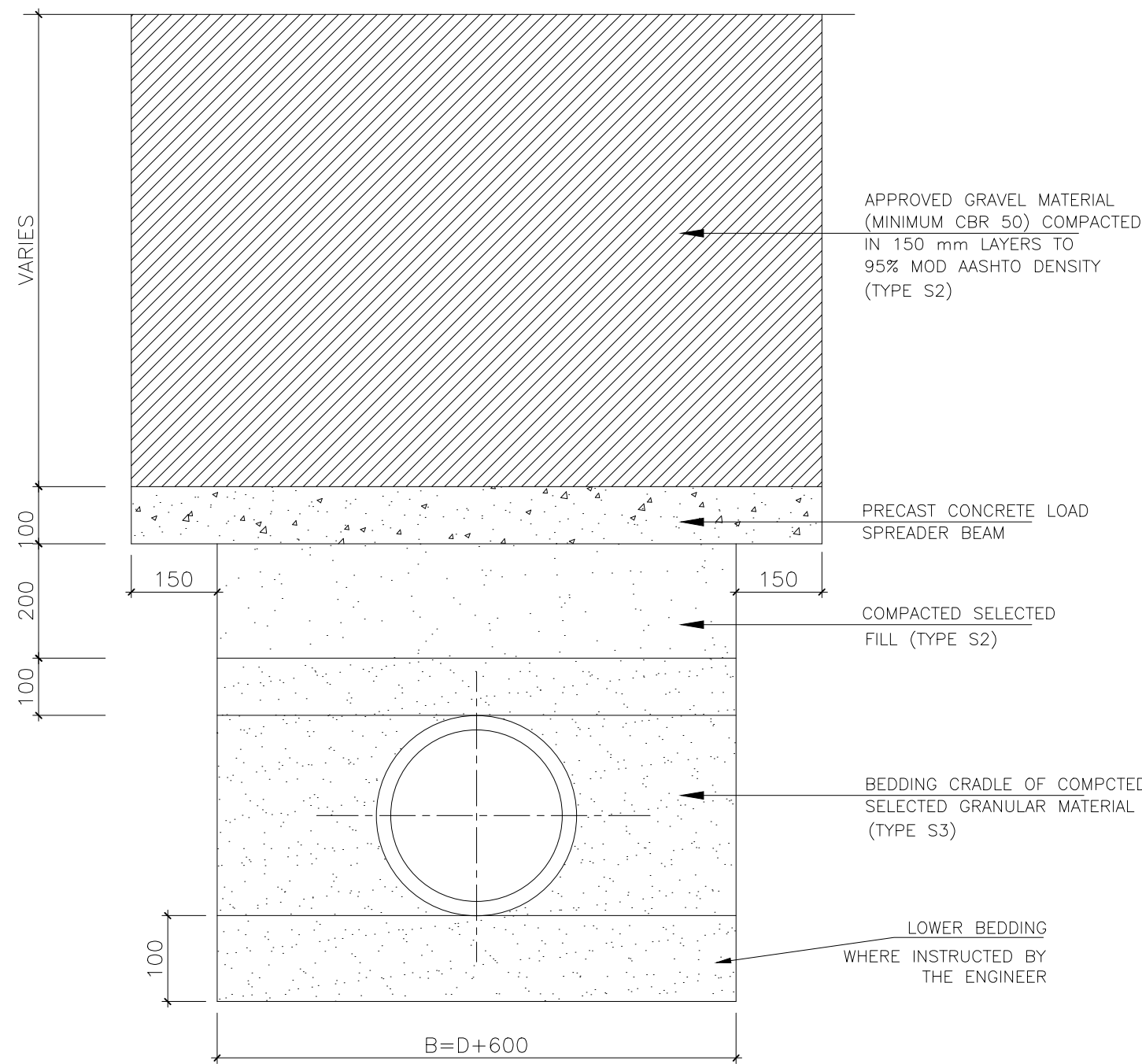
TYPICAL TRENCH EXCAVATION AND BACKFILLING FOR PE/uPVC PIPES



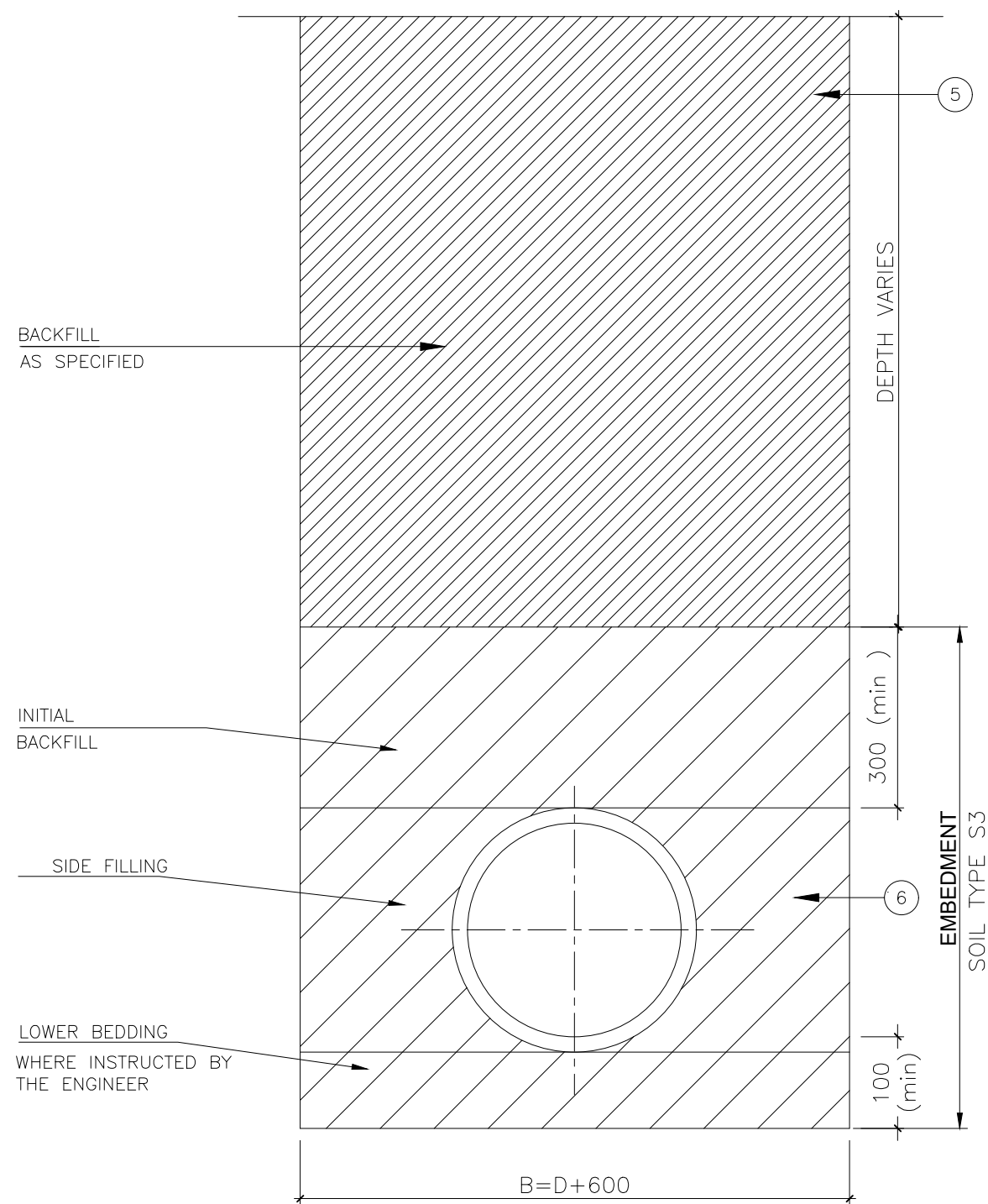
PIPE PROTECTION AT SURFACED ROAD CROSSING



PIPE PROTECTION AT UNSURFACED ROAD CROSSING



TYPICAL TRENCH EXCAVATION AND BACKFILLING FOR FERROUS PIPES



TYPICAL TRENCH WIDTHS FOR PIPES

NOMINAL DIAMETER D (mm)	80	100	160	200	250	300	600
WIDTH OF TRENCH B (m)	0.70	0.70	0.76	0.80	0.85	0.90	1.20

B = D + 0.6 m (LIMITED TO A MINIMUM OF 0.6 m)

TABLE 1 : MATERIAL DESCRIPTION CHART

SOIL TYPE	DESCRIPTION	GROUP SYMBOL
S1	GRAVEL – SINGLE SIZE	GW
S2	GRAVEL – GRADED	GP
S3	SAND AND COARSE GRAINED SOILS WITH LESS THAN 12% FINES.	GF

NOTE

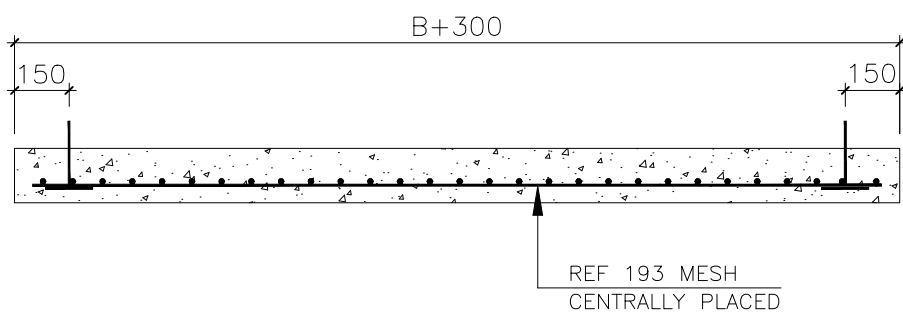
INSTEAD OF A CONCRETE SPREADER BEAM, A CONCRETE OR STEEL PIPE WITH SUFFICIENT INTERNAL BORE TO FACILITATE INSERTION OF PIPES SHOULD BE USED IF INSTRUCTED BY THE ENGINEER.

LEGEND :

- D PIPE OUTSIDE DIAMETER
B TRENCH WIDTH (SEE TABLE)

- ① LOWER BEDDING COMPRISING OF APPROVED GRANULAR BEDDING MATERIAL (SAND) COMPACTED TO 90 % MPD IN 50 mm LAYERS TO A THICKNESS OF 100 mm (min.) OR AS DIRECTED BY THE ENGINEER'S REPRESENTATIVE.
② APPROVED GRANULAR BEDDING MATERIAL TYPE S3 COMPACTED IN LAYERS AS PER NOTE 2. CAREFUL TAMPING ON EITHER SIDE OF THE PIPE SHOULD BE MAINTAINED TO ENSURE EQUAL PRESSURE ON BOTH SIDES OF THE PIPE.
③ APPROVED GRANULAR BEDDING MATERIAL TYPE S3 COMPACTED IN SHALLOW LAYERS TO A MAXIMUM OF 150 mm THICK.
④ AS IN ③ ABOVE, BUT EXCESSIVE TAMPING TO BE AVOIDED.
⑤ NORMAL BACKFILL MATERIAL PROPERLY RAMMED IN LAYERS. NOT EXCEEDING 150 mm THICK.

PRECAST CONCRETE LOAD SPREADER BEAM



SECTION THROUGH SPREADER BEAM



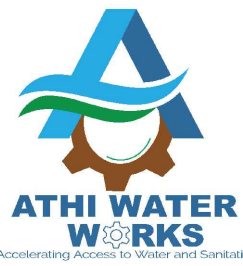
TABLE 2 : COMPACTION CHART GUIDE

% MPD	SOIL TYPE	COMPACTION METHOD	
		THICKNESS OF LAYER (max.)	No. OF PASSES
90	S1	150	1
	S2	150	2
	S3	50	2

NOTES:

1. MINIMUM TRENCH WIDTH TO BE NORMAL PIPE DIAMETER PLUS 600 mm.
2. THE LOWER BEDDING AND THE SIDE FILL SHALL BE COMPACTED IN LAYERS WHOSE DEPTH SHALL NOT EXCEED 50 mm NOR HALF THE NOMINAL PIPE DIAMETER WHICHEVER IS THE LESSER.
3. IN GENERAL, THE METHOD OF ATTAINING THE REQUIRED COMPACTION WILL BE ASCERTAINED AS FOLLOWS :
(i) THE ENGINEER'S REPRESENTATIVE WILL IDENTIFY, CLASSIFY AND AGREE THE SOIL TYPE OF EMBEDMENT MATERIAL AVAILABLE FROM THE TRENCH.
(ii) THE SITE SOIL TYPE WILL BE COMPARED WITH THOSE ON THE MATERIAL DESCRIPTION CHART [SEE TABLE 1]
(iii) THE COMPACTION METHOD REQUIRED IS THEN SELECTED FROM THE COMPACTION CHART FOR THE APPROPRIATE SOIL TYPE AND CLASS OF EMBEDMENT [SEE TABLE 2]
4. NOT ALL SOILS ARE GIVEN IN TABLE 1. IT SHOULD BE NOTED THAT :
(i) FINED GRAINED SOILS WITH HIGH PLASTICITY MAY NOT BE USED AS BACKFILL.
(ii) FINED GRAINED SOILS WITH LOW PLASTICITY MAY BE CONDEMNED FOR USE AS BACKFILL IF THE CONTRACTOR HAS DIFFICULTY IN ATTAINING THE REQUIRED COMPACTION.
5. WHERE SITE MATERIAL IS CONDEMNED, IMPORTED MATERIAL SHALL BE USED. THIS SHALL BE A WELL GRADED SOIL FROM FINES UPTO 20 mm GRAVEL OR AS APPROVED BY THE ENGINEER'S REPRESENTATIVE.
6. WHERE SOME DOUBT EXISTS AS TO THE COMPACTIBILITY OF THE SOIL AS DEFINED ABOVE, RECOURSE SHALL BE MADE TO THE MODIFIED PROCTOR DENSITY TEST. THE SITE AND LABORATORY TESTS SHALL BE CARRIED OUT TO TESTS 14 B AND 12 RESPECTIVELY TO SSRN 601.
7. IF STONES OR ROCK ARE PRESENT, IMPORTED BEDDING MATERIAL OF MIN. 150 mm THICK SHALL BE REQUIRED AS APPROVED BY THE ENGINEER'S REPRESENTATIVE. AT DESIGNATED ROAD CROSSINGS, THE BEDDING SHALL HAVE A MINIMUM THICKNESS OF 150 mm.
8. THE BACKFILL SHALL BE PLACED IN LAYERS AS DEFINED ABOVE. EACH LAYER SHALL BE RAMMED WITH A SMALL VIBRATORY RAMMER. THE LIKELY REQUIRED NUMBER OF PASSES OF THE RAMMER IS GIVEN IN TABLE 2. HOWEVER 90% MPD SHALL BE ACHIEVED AT ALL TIMES.
9. ONLY WHEN THERE IS 300 mm COVER OVER THE PIPE MAY HEAVIER COMPACTING EQUIPMENT BE USED. THE REMAINDER OF THE BACKFILL SHALL BE SUITABLY COMPACTED IN KEEPING WITH THE REINSTATEMENT OF THE GROUND TO BE CARRIED OUT. THIS SHALL BE AGREED UPON WITH THE ENGINEER'S REPRESENTATIVE.

REHABILITATION OF INDEPENDENT MATAARA WATER SUPPLY SCHEME PROJECT



ATHI WATER WORKS DEVELOPMENT AGENCY

PROJECT :
REHABILITATION OF INDEPENDENT MATAARA WATER SUPPLY SCHEME PROJECT

TOWN : GATANGA

DRAWING TITLE :
Pipe Bedding Details

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

DATE : JULY 2022 SHEET No. : 1 OF 1

WATER & SANITATION DEPARTMENT

Athi Water Works Development Agency
Athi Water Plaza
Muthaiga North Road, Off Kiambu Road
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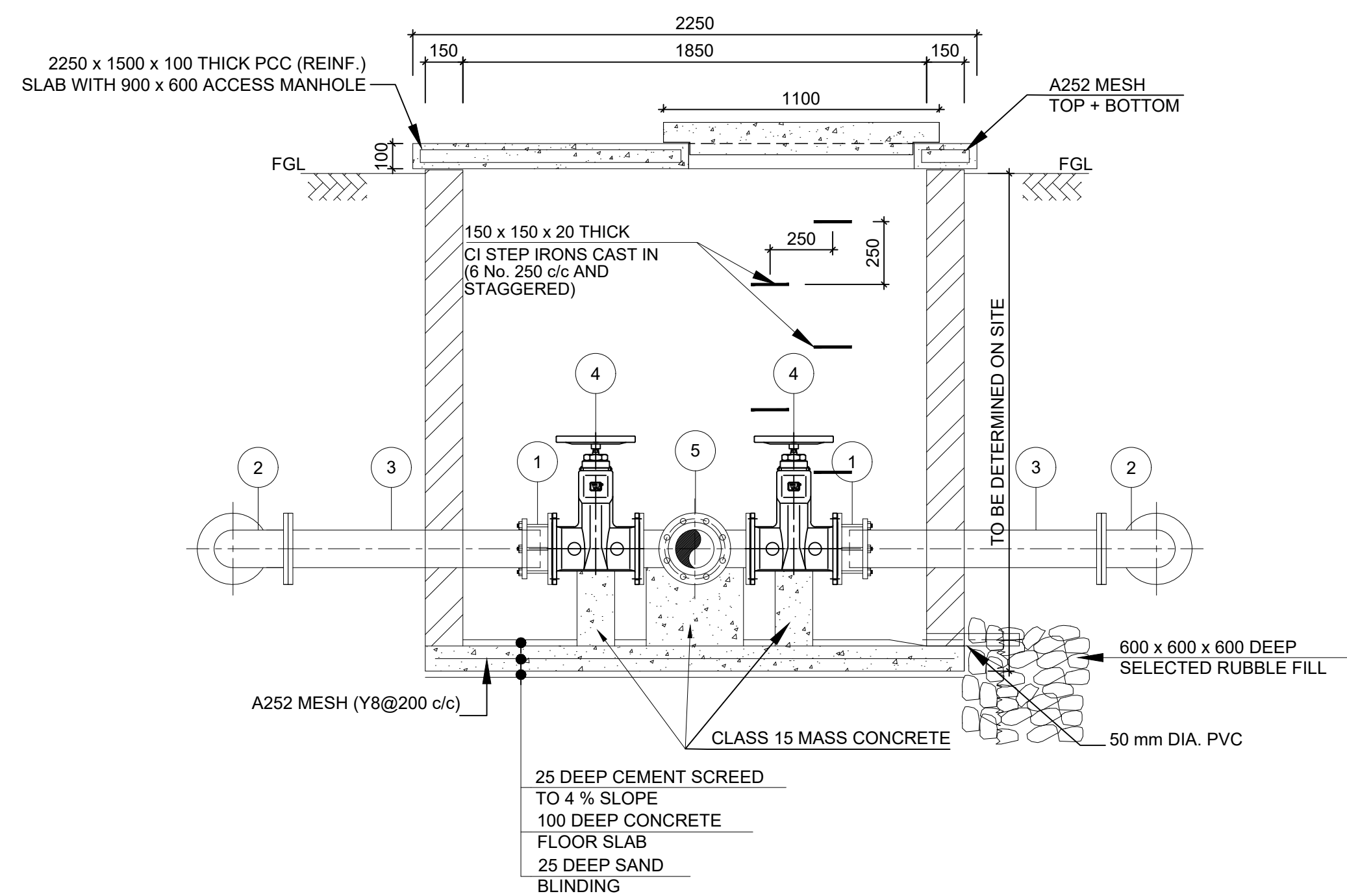
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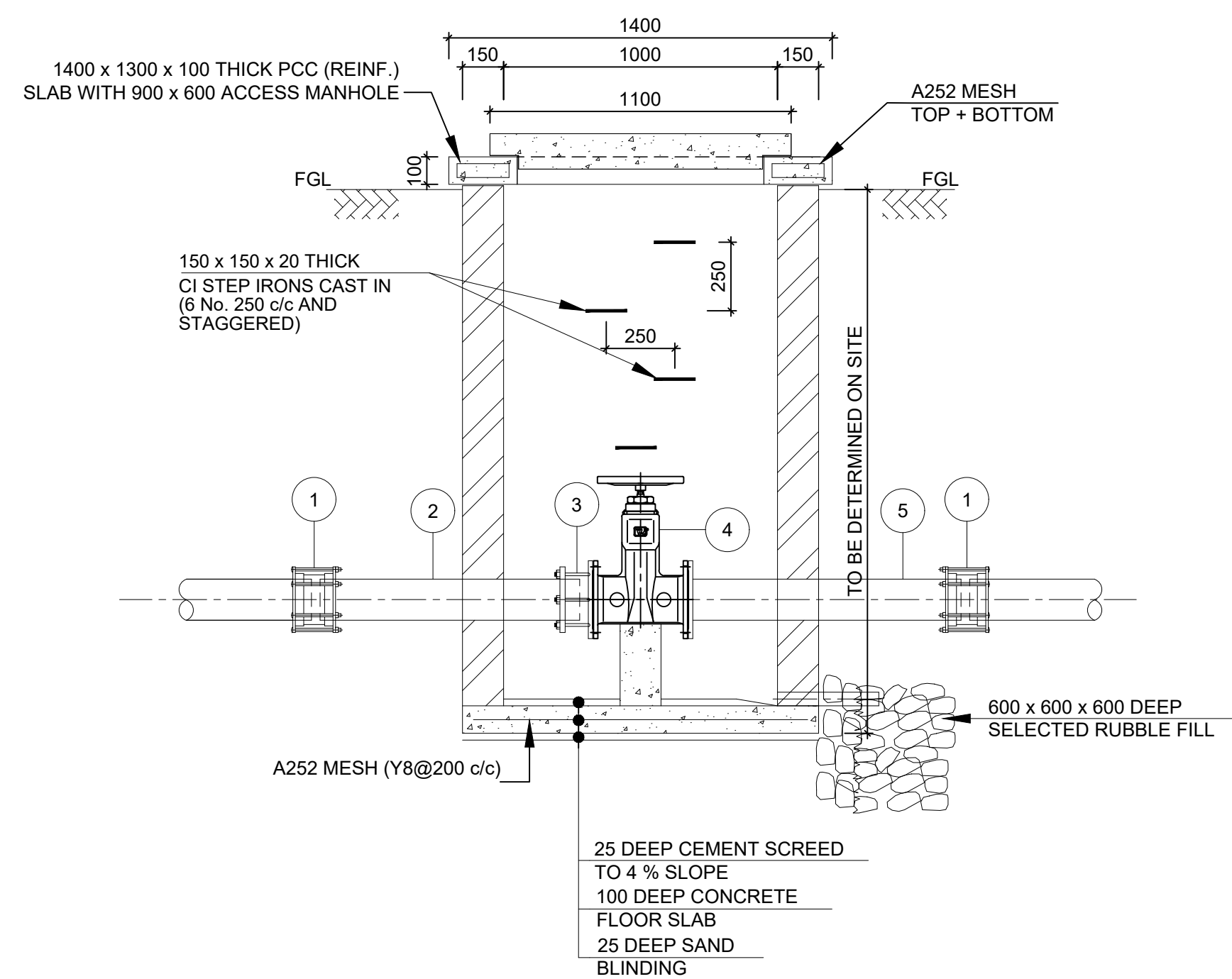
DESIGNED BY : CHECKED BY :

APPROVED BY : CHIEF MANAGER - WATER & SANITATION

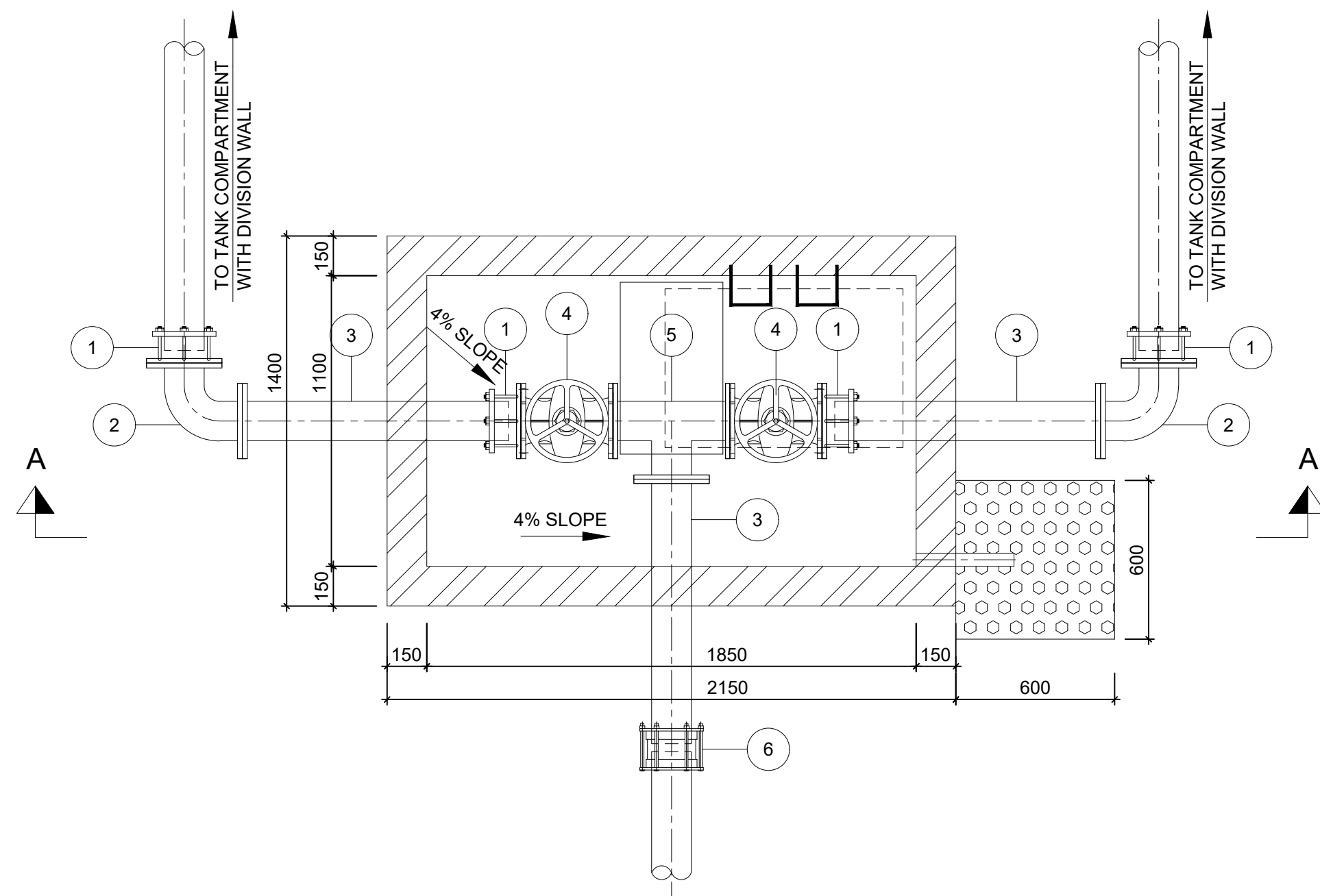
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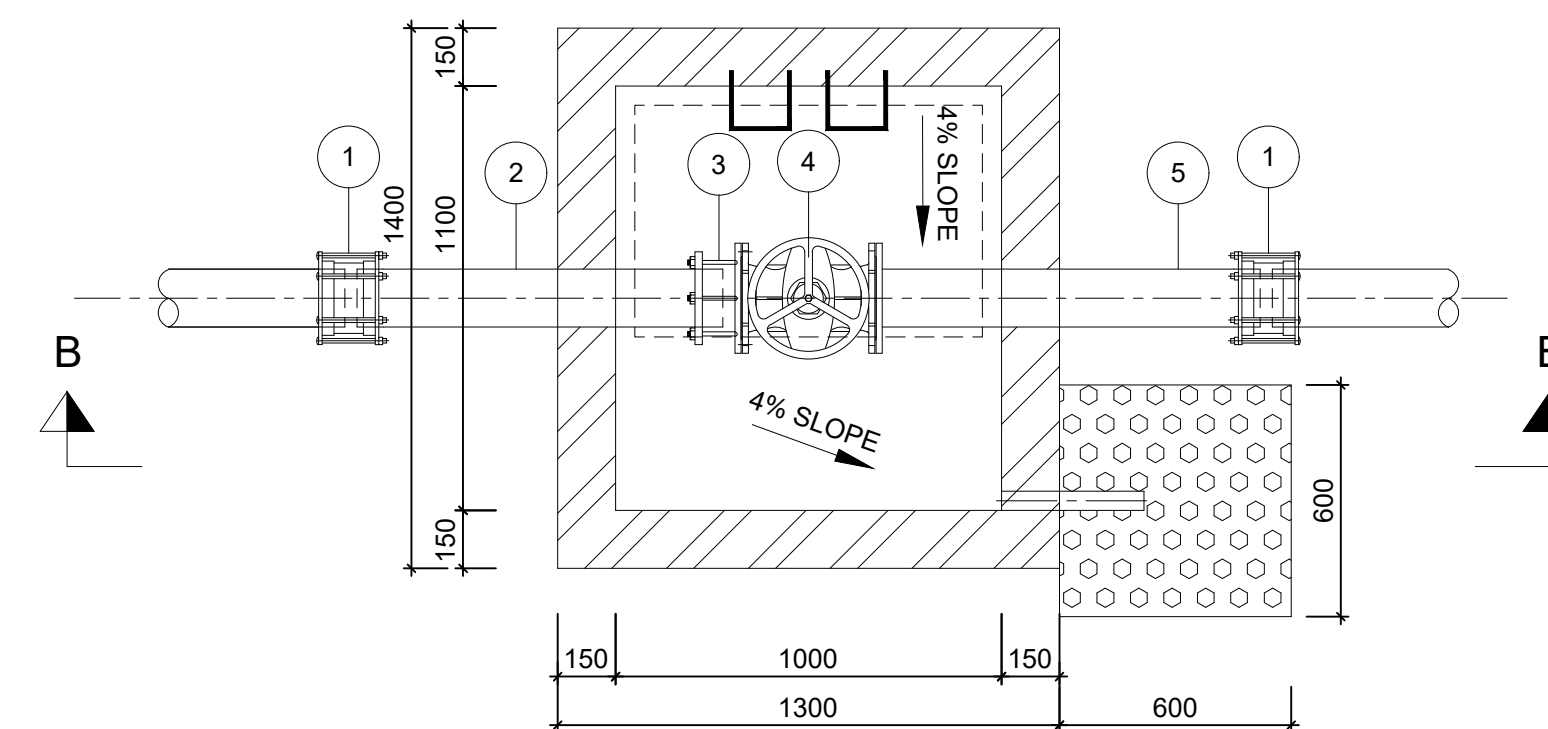
SECTIONAL ELEVATION A - A
1:20



SECTIONAL ELEVATION B - B
1:20



SECTIONAL PLAN
1:20



SECTIONAL PLAN
1:20

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

NOTES

Rev. No.	DESCRIPTION	DATE
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REHABILITATION OF INDEPENDENT
MATAARA WATER SUPPLY SCHEME
PROJECT



ATHI WATER WORKS
DEVELOPMENT AGENCY

PROJECT :
REHABILITATION OF INDEPENDENT
MATAARA WATER SUPPLY SCHEME
PROJECT

TOWN : GATANGA

DRAWING TITLE :
Valve Chamber Details

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

DATE : JULY 2022 SHEET No. : 1 OF 1

WATER & SANITATION DEPARTMENT

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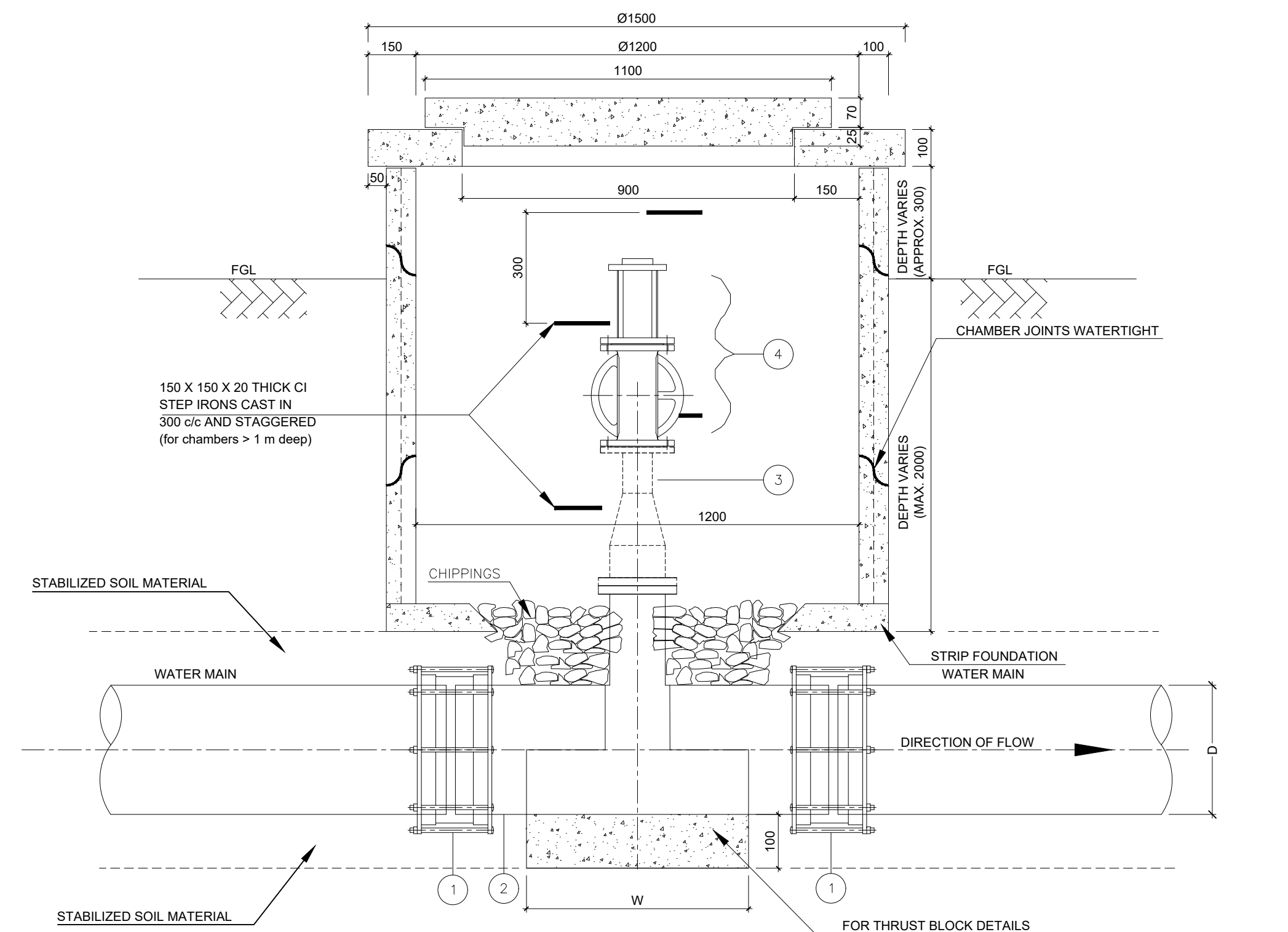
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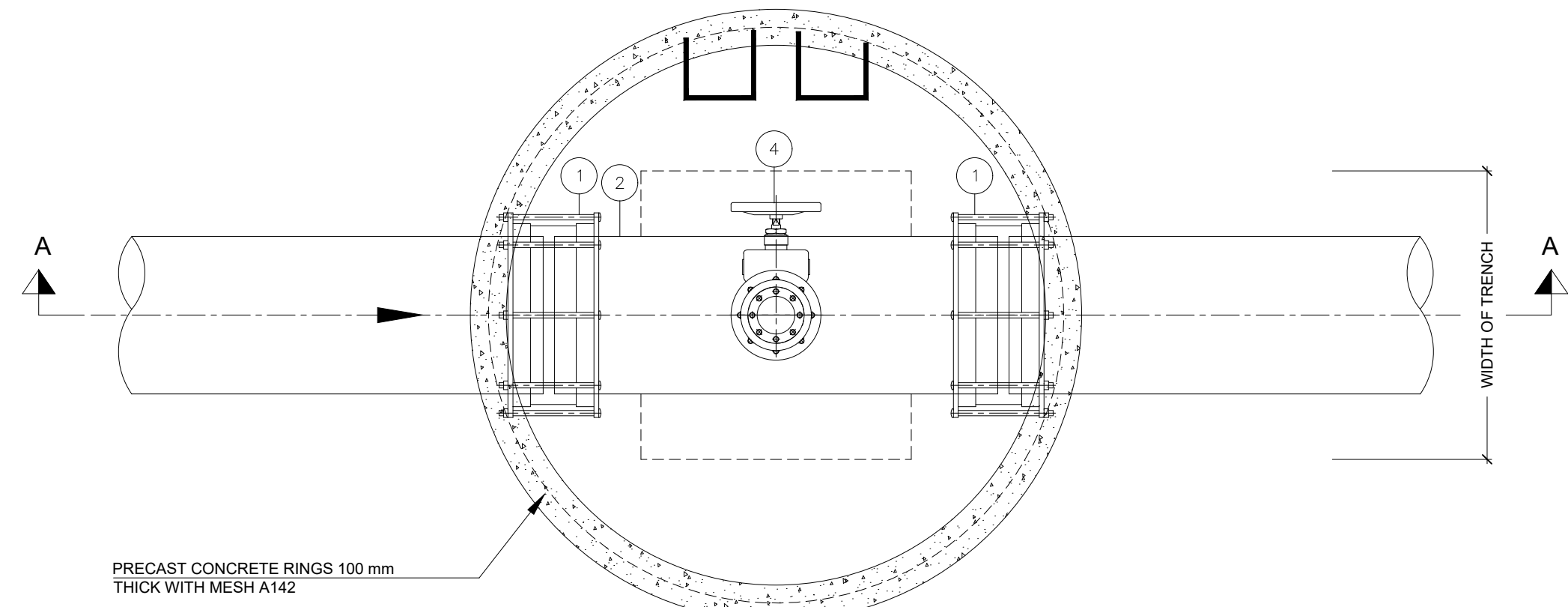
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DATE : SIGNATURE :



SECTION A-A

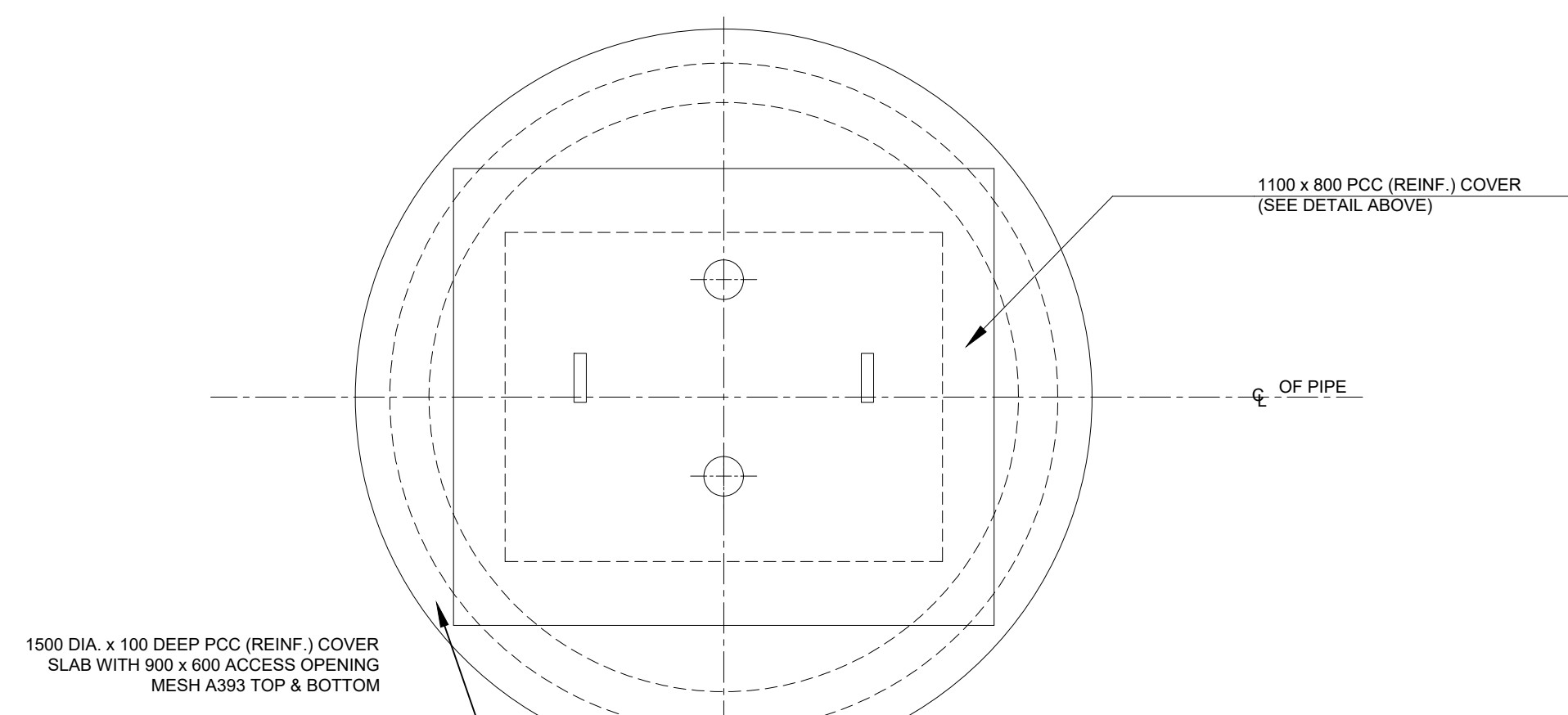
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SECTIONAL PLAN

1:10

(BASE SLAB AND CHIPPINGS HAVE BEEN OMITTED FOR CLARITY)



ROOF PLAN

1:10

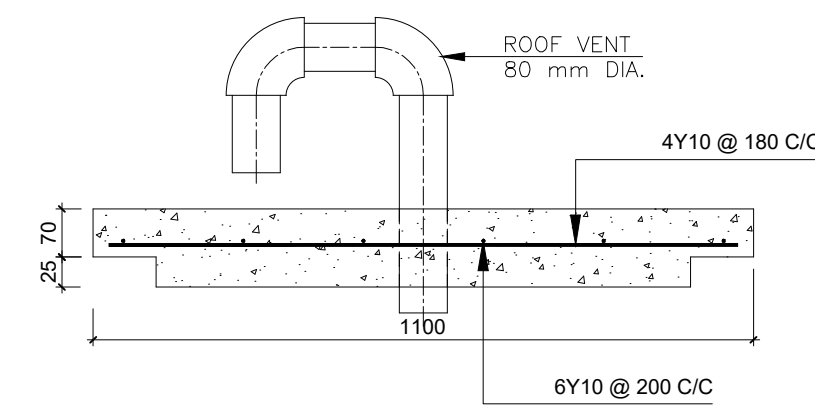
(PIPEWORK OUTSIDE CHAMBER OMITTED FOR CLARITY)

SCHEDULE OF AIRVALVES

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

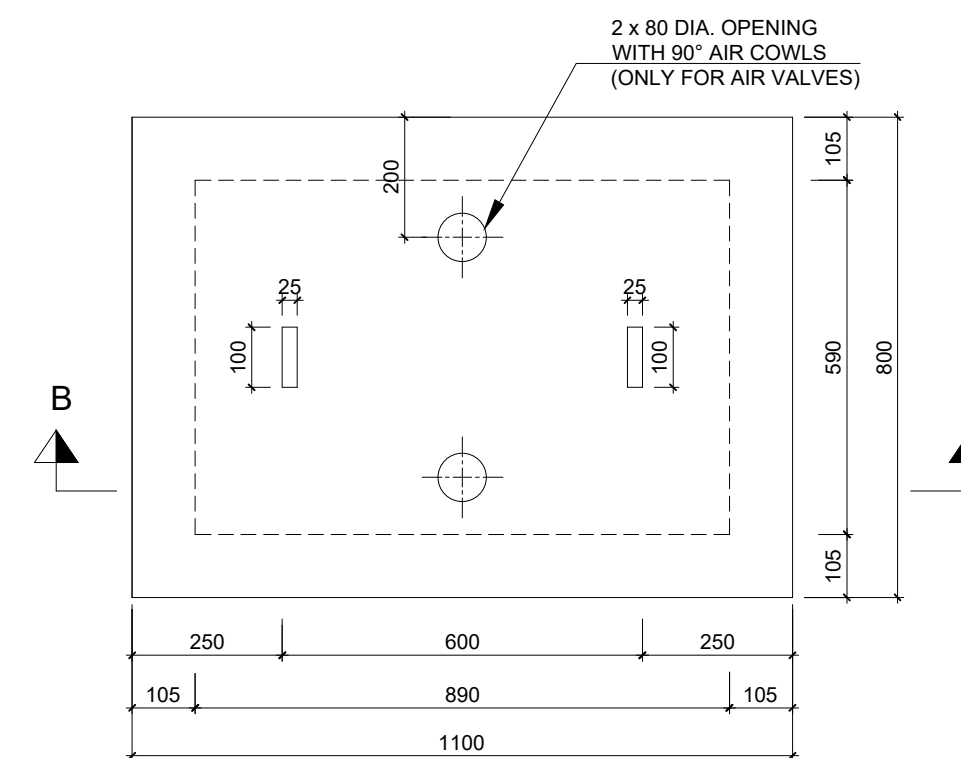
SCHEDULE OF PIPEWORK & FITTINGS

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



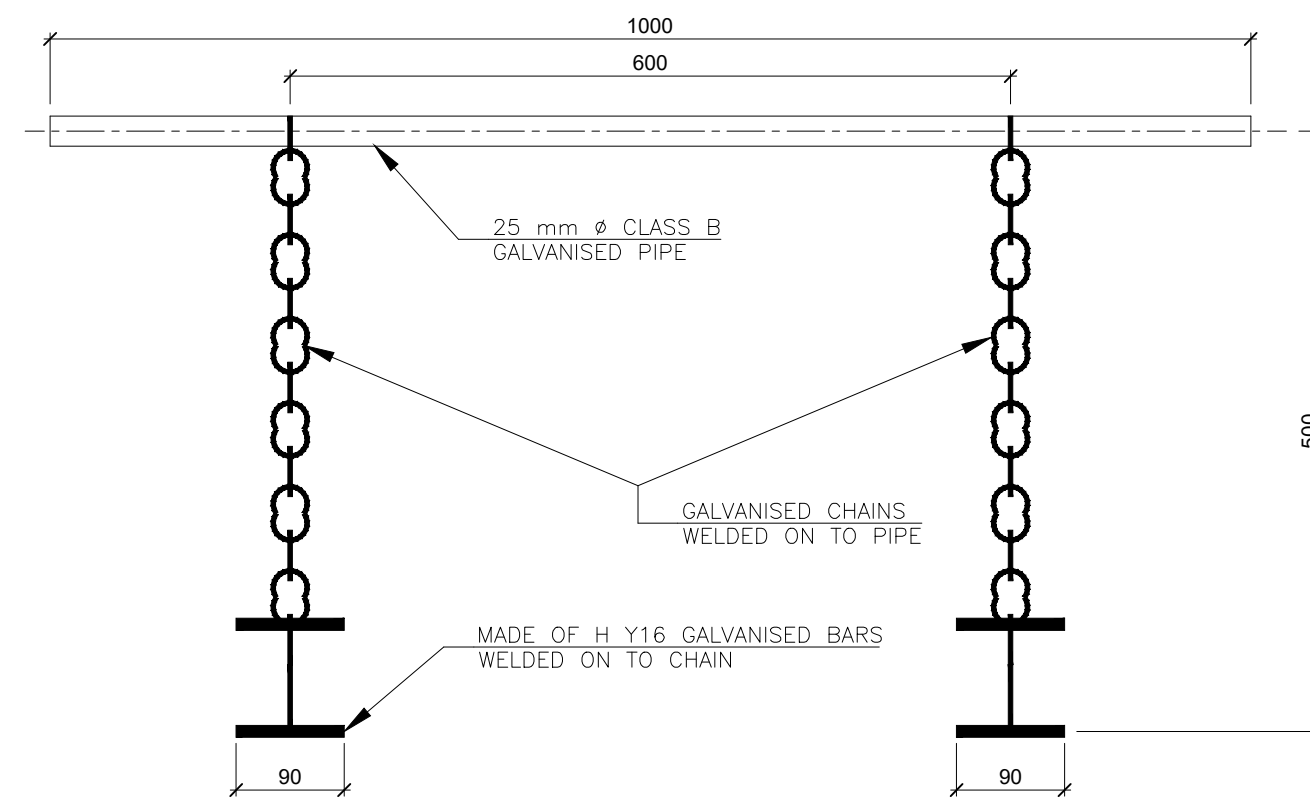
SECTION B-B

1:10



MANHOLE COVER PLAN

1:10



CHAMBER COVER LIFTING APPARATUS

1:5

NOTES

Rev. No.	DESCRIPTION	DATE

REHABILITATION OF INDEPENDENT
MATAARA WATER SUPPLY SCHEME
PROJECT



ATHI WATER WORKS
DEVELOPMENT AGENCY

PROJECT :
REHABILITATION OF INDEPENDENT
MATAARA WATER SUPPLY SCHEME
PROJECT

TOWN : GATANGA

DRAWING TITLE :
Air Valve Details

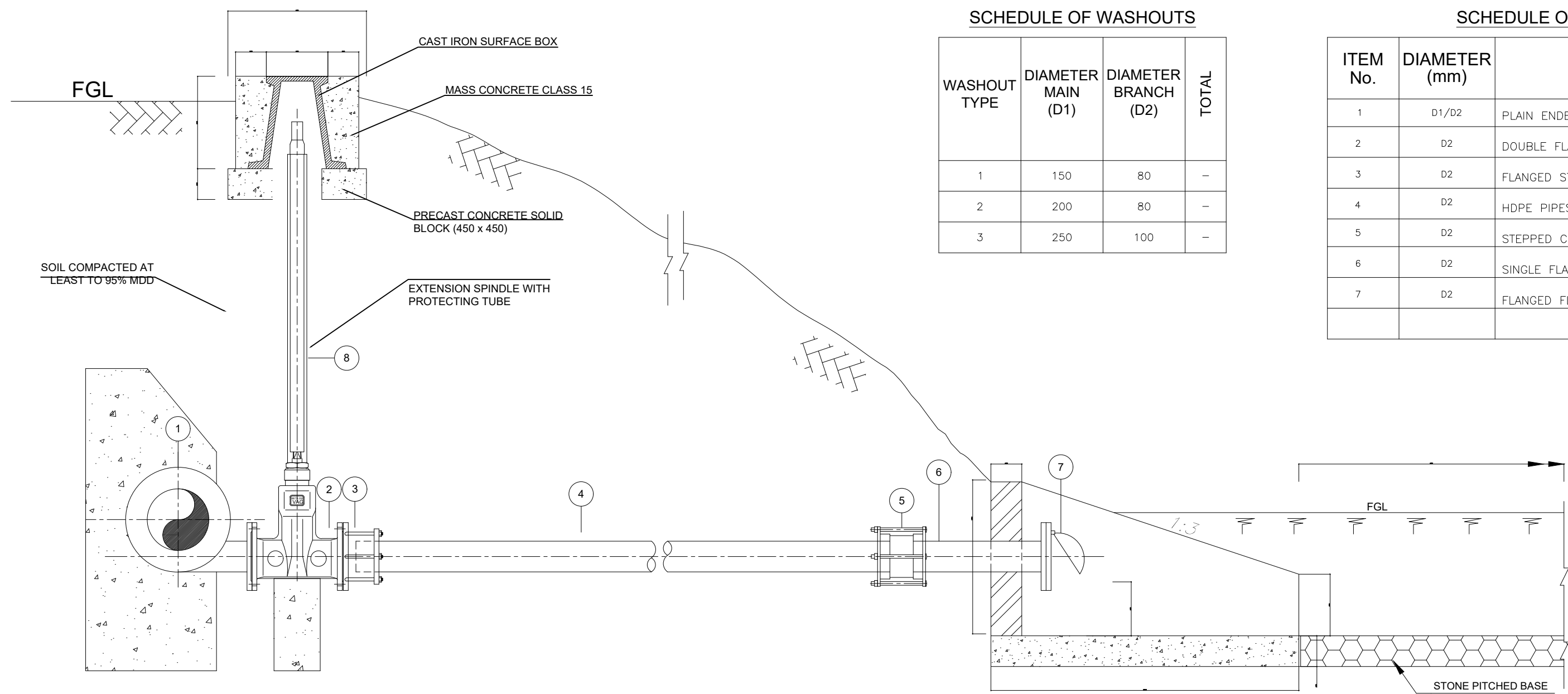
SCALES :	DRG. No. : GAT/GD/13
DATE : JULY 2022	SHEET No. : 1 OF 1

WATER & SANITATION DEPARTMENT

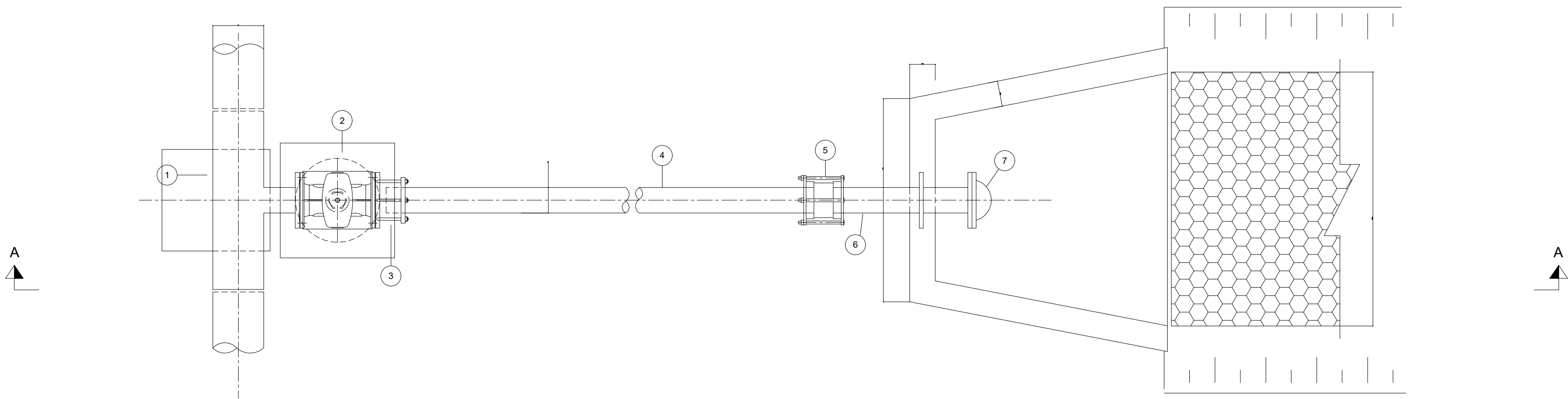
Athi Water Works Development Agency
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DESIGN PROJECT No. :	
SURVEYED BY :	DRAWN BY :
DESIGNED BY :	CHECKED BY :
APPROVED BY : CHIEF MANAGER - WATER & SANITATION	
DATE :	SIGNATURE :



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



SECTIONAL PLAN
1:10 (A1 SIZE)

SCHEDULE OF WASHOUTS

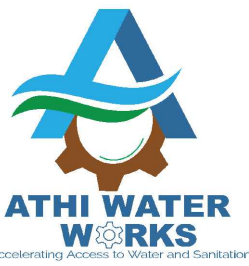
WASHOUT TYPE	DIAMETER MAIN (D1)	DIAMETER BRANCH (D2)	TOTAL
1	150	80	-
2	200	80	-
3	250	100	-

SCHEDULE OF PIPEWORK & FITTINGS

ITEM No.	DIAMETER (mm)	DESCRIPTION	No.
1	D1/D2	PLAIN ENDED INVERT LEVEL TEE WITH FLANGED BRANCH	1
2	D2	DOUBLE FLANGED SLUICE VALVE	1
3	D2	FLANGED STEPPED ADAPTOR TO SUIT uPVC	1
4	D2	HDPE PIPES, LENGTH = 30 m	-
5	D2	STEPPED COUPLING TO SUIT FERROUS/uPVC	1
6	D2	SINGLE FLANGED SPIGOT, L = 600 c/w PUDDLE FLANGE	1
7	D2	FLANGED FLAP VALVE	1

NOTES

REHABILITATION OF INDEPENDENT
MATAARA WATER SUPPLY SCHEME
PROJECT



ATHI WATER WORKS
DEVELOPMENT AGENCY

PROJECT :
REHABILITATION OF INDEPENDENT
MATAARA WATER SUPPLY SCHEME
PROJECT

TOWN :
GATANGA

DRAWING TITLE :
Wash Out Details

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

DATE : JULY 2022
SHEET No. : 1 OF 1

WATER & SANITATION DEPARTMENT

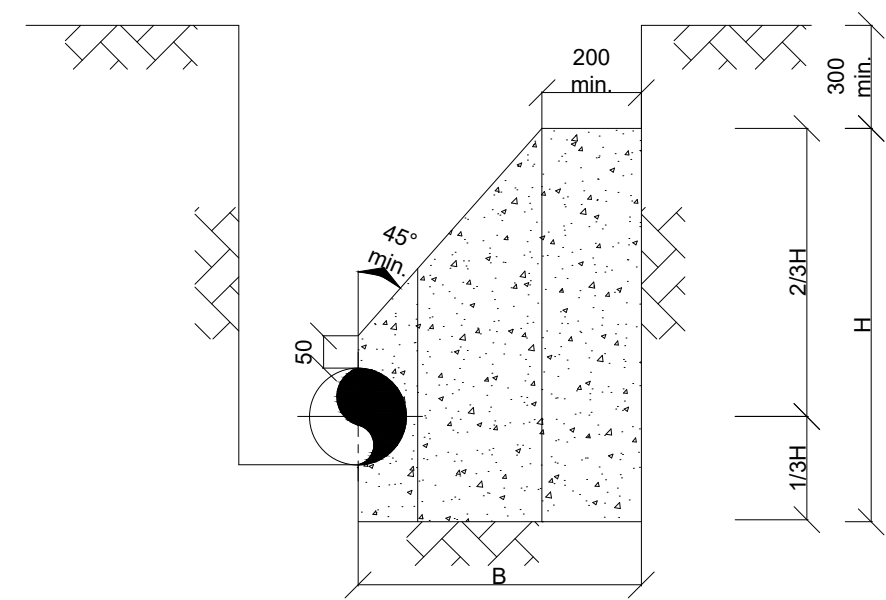
Athi Water Works Development Agency
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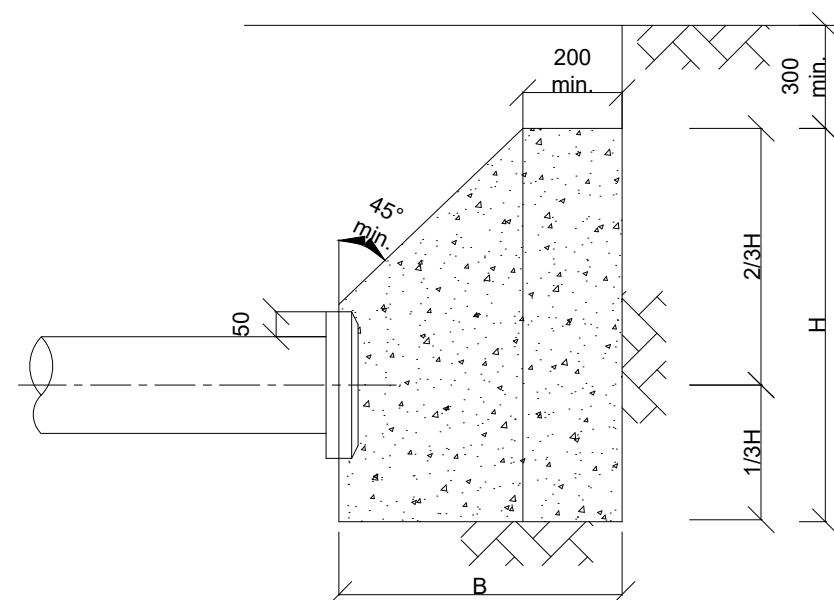
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DRAWN BY :

DESIGNED BY :
CHECKED BY :

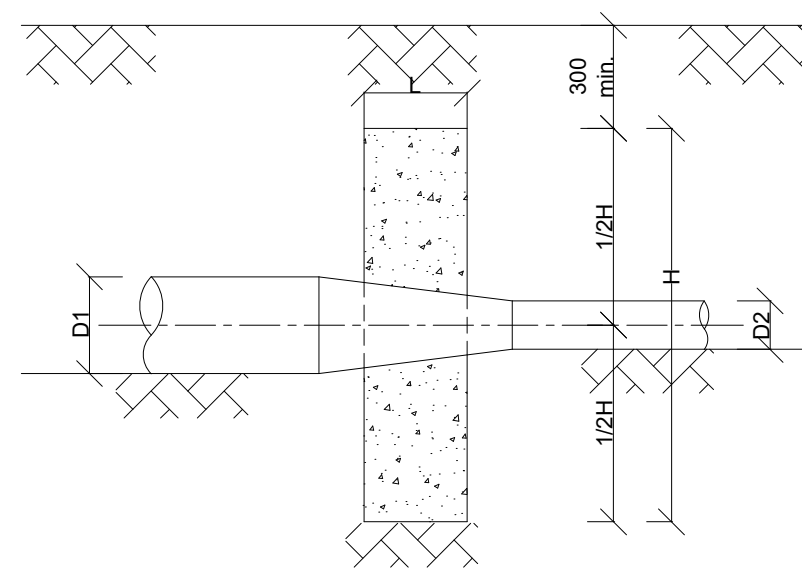
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DATE :
SIGNATURE :



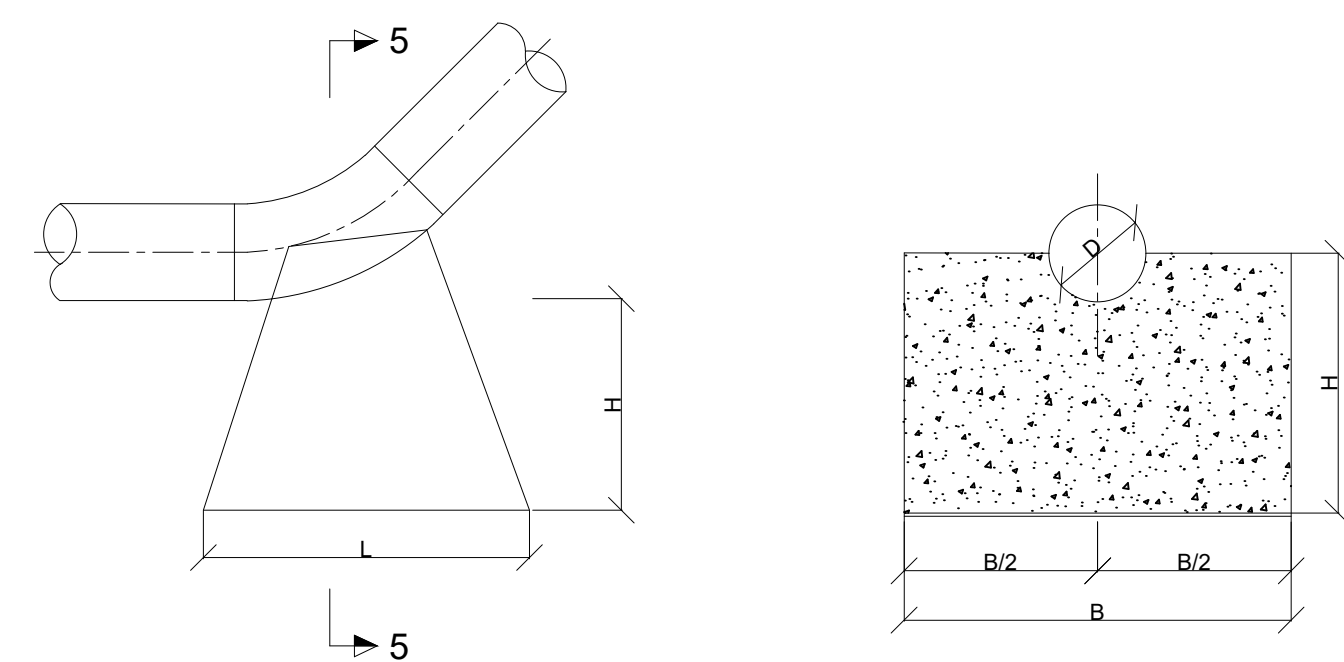
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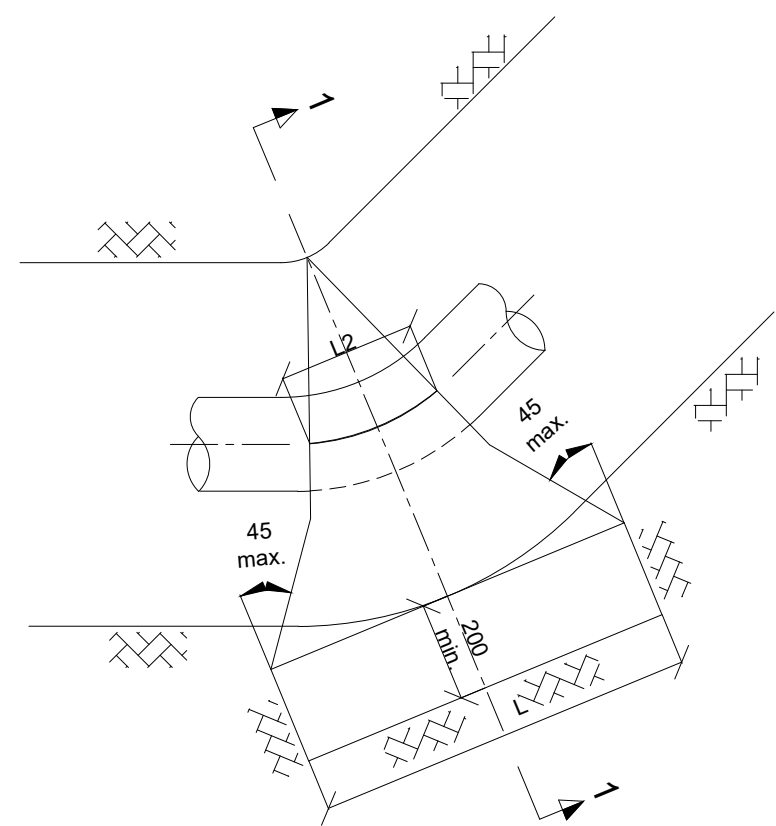
SECTION 3 - 3



SECTION 4 - 4

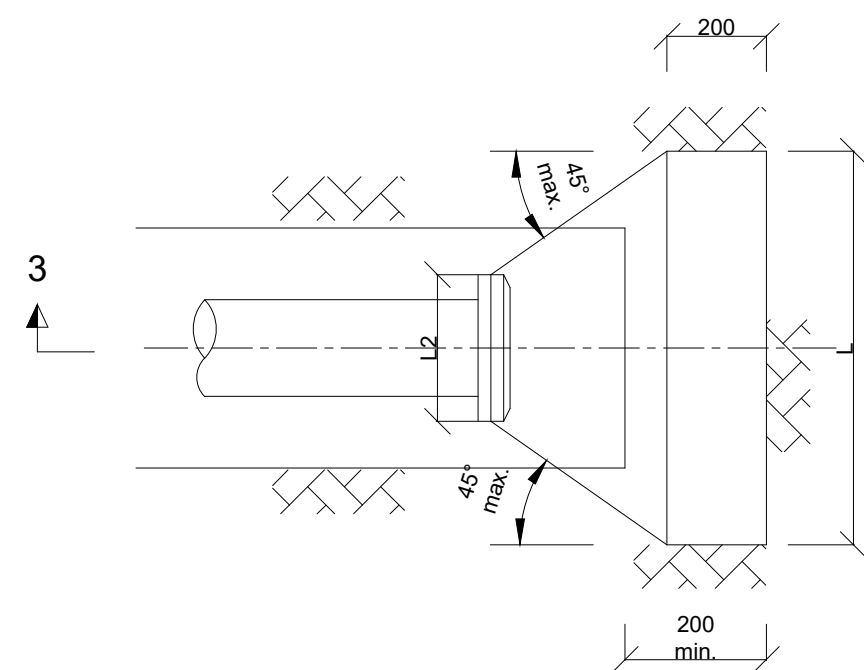


VERTICAL ANCHOR BLOCKS AT DEPRESSIONS (TYPE DV)



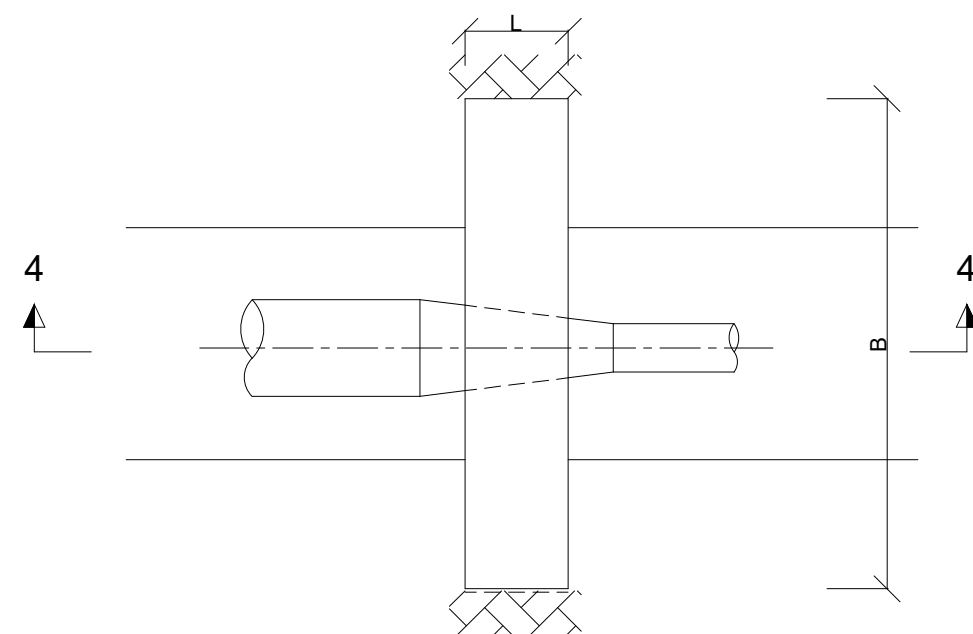
PLAN

HORIZONTAL BENDS



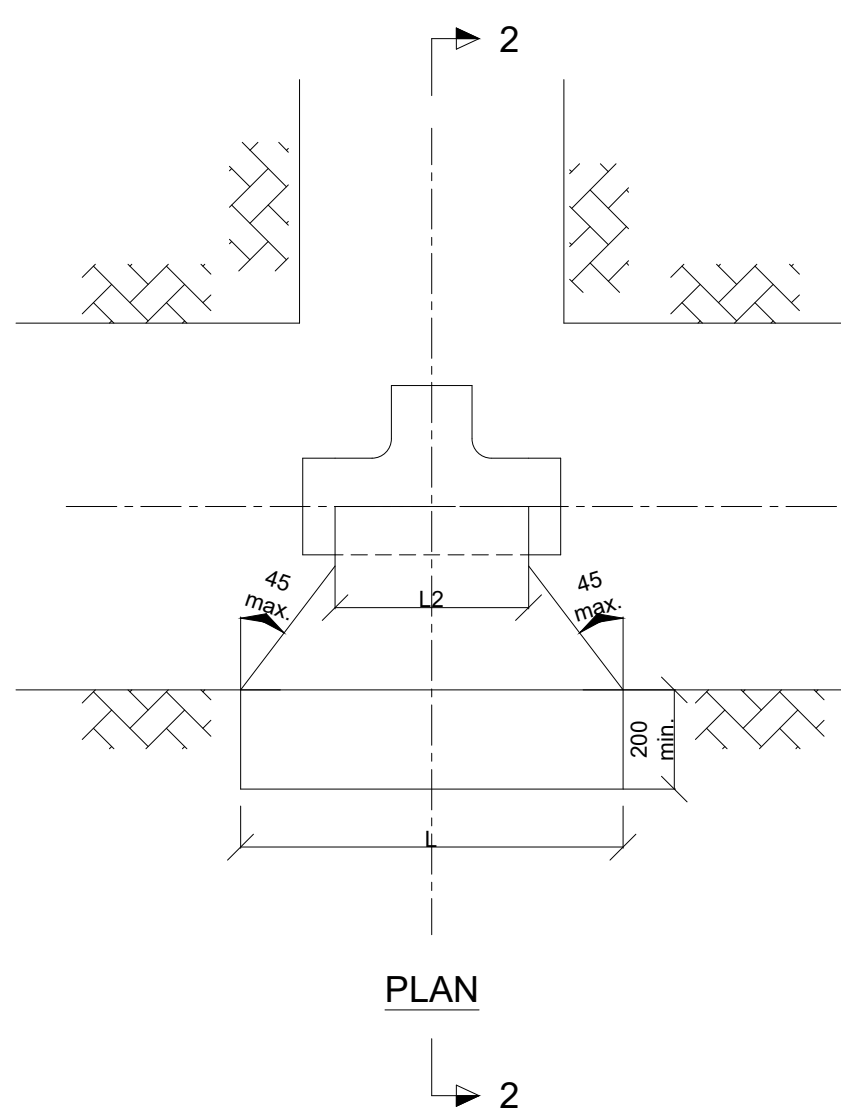
PLAN

END CAPS



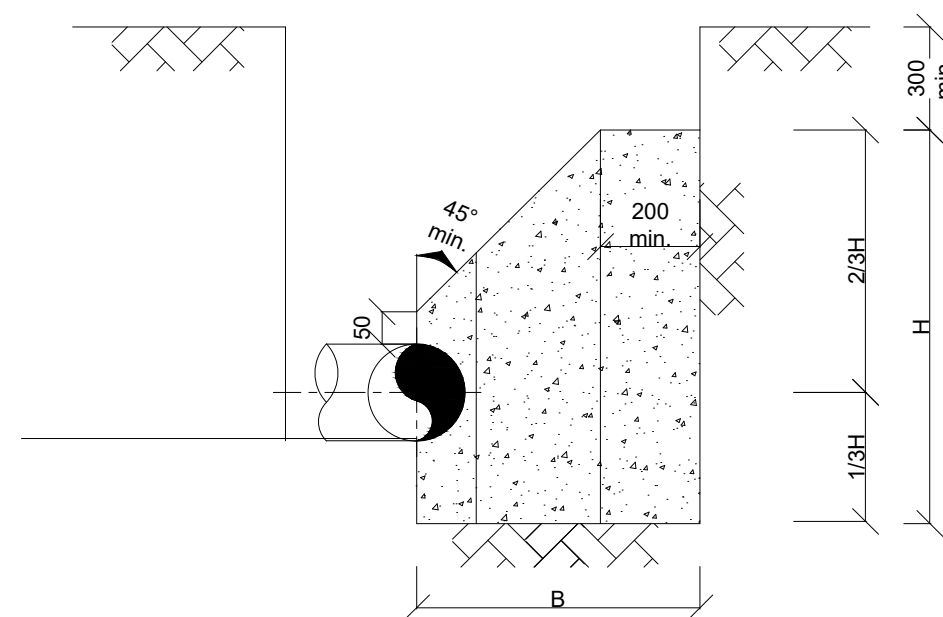
PLAN

REDUCERS

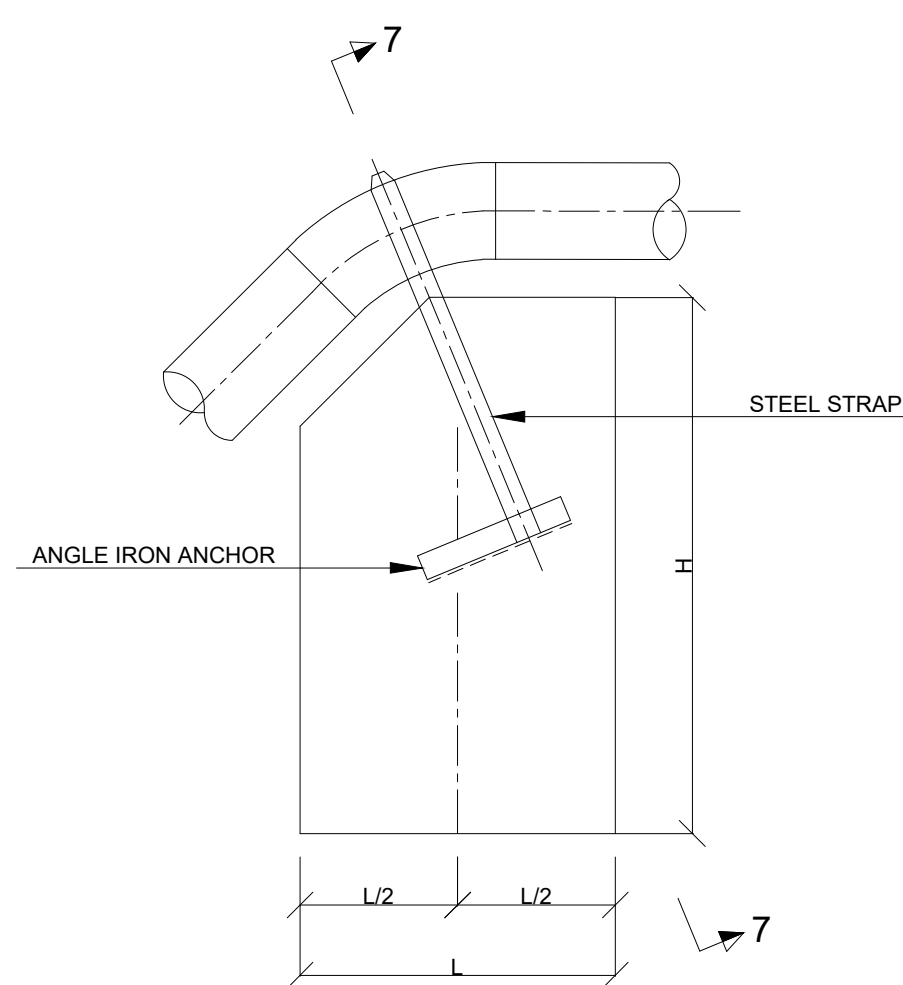


PLAN

TEES

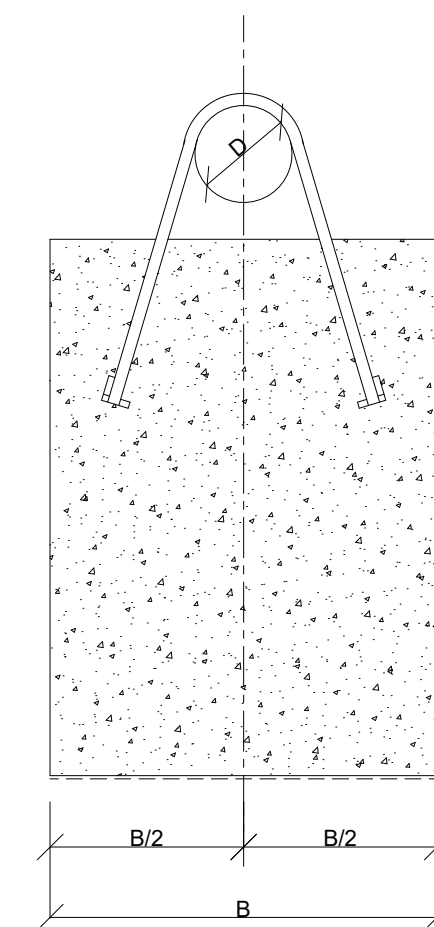


SECTION 2 - 2



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 :
REHABILITATION OF INDEPENDENT
MATAARA WATER SUPPLY SCHEME
PROJECT

TOWN :
GATANGA

DRAWING TITLE :
Thrust Block

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

DATE : JULY 2022
SHEET No. : 1 OF 1

WATER & SANITATION DEPARTMENT

Athi Water Works Development Agency
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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 (m³)	H (m)	L (m)	B (m)	L2 (m)	Vol (m³)	H (m)	L (m)	B (m)	L2 (m)	Vol (m³)
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)

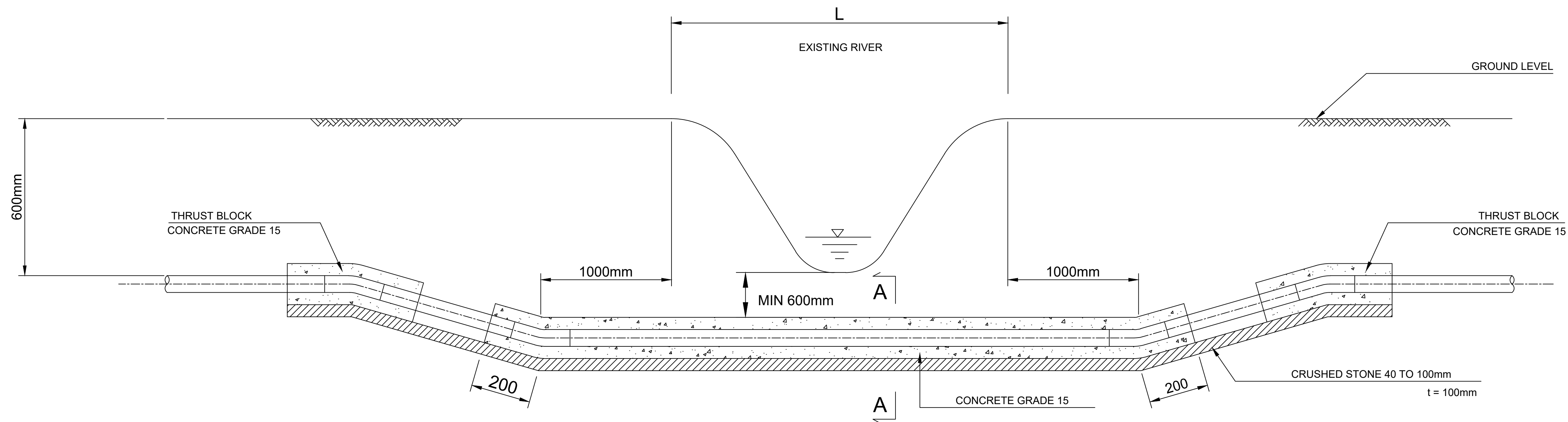
Pipe Diameter (mm)	Test Pressure (m)	45 deg					22.5 deg					11.25 deg				
		H (m)	L (m)	B (m)	Strap (mm)	Vol (m³)	H (m)	L (m)	B (m)	Strap (mm)	Vol (m³)	H (m)	L (m)	B (m)	Strap (mm)	Vol (m³)
80	90	0.60	0.80	0.70	30x4	0.28	0.50	0.50	0.50	30x4	0.12	0.40	0.40	0.40	30x4	0.07
	150	0.80	0.90	0.70	30x4	0.44	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	1.96

REDUCERS (dimensions in metres)

Pipe Diameter (mm)	Test Pressure (m)				
		L (m)	B (m)	H (m)	Vol (m³)
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

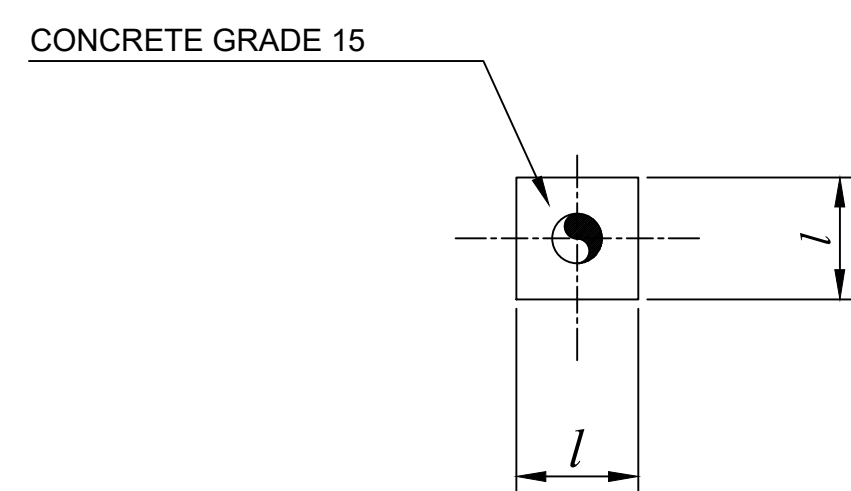
HORIZONTAL BENDS (dimensions in metres)

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	0.27
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	0.15
	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	0.28
	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

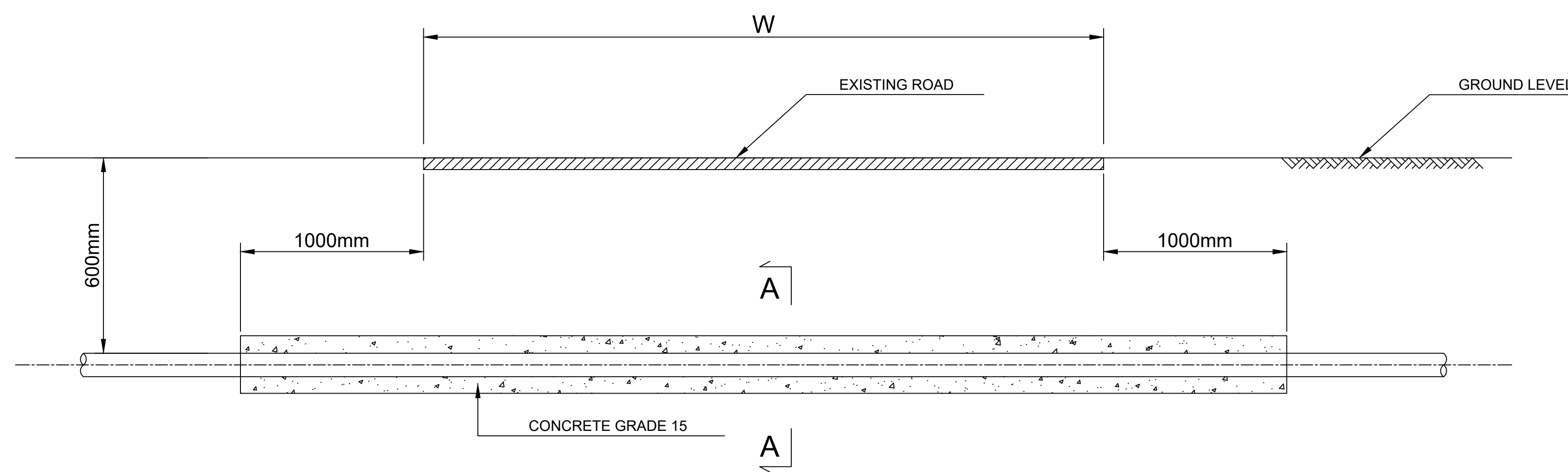


RIVER CROSSING

PIPE DIAMETER (mm)	l (mm)
225	1000



A-A



ROAD CROSSING

NOTES

REHABILITATION OF INDEPENDENT
MATAARA WATER SUPPLY SCHEME
PROJECT



ATHI WATER WORKS
DEVELOPMENT AGENCY

PROJECT :
REHABILITATION OF INDEPENDENT
MATAARA WATER SUPPLY SCHEME
PROJECT

TOWN : GATANGA

DRAWING TITLE :
River and Road Crossing Details

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

DATE : JULY 2022 SHEET No. : 1 OF 1

WATER & SANITATION DEPARTMENT

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Website: www.awwda.go.ke

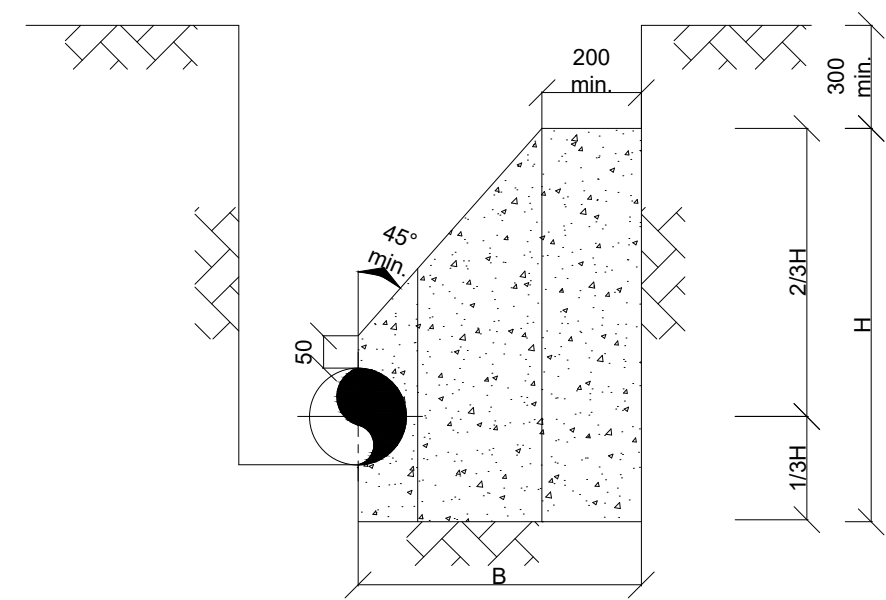
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SURVEYED BY : DRAWN BY :

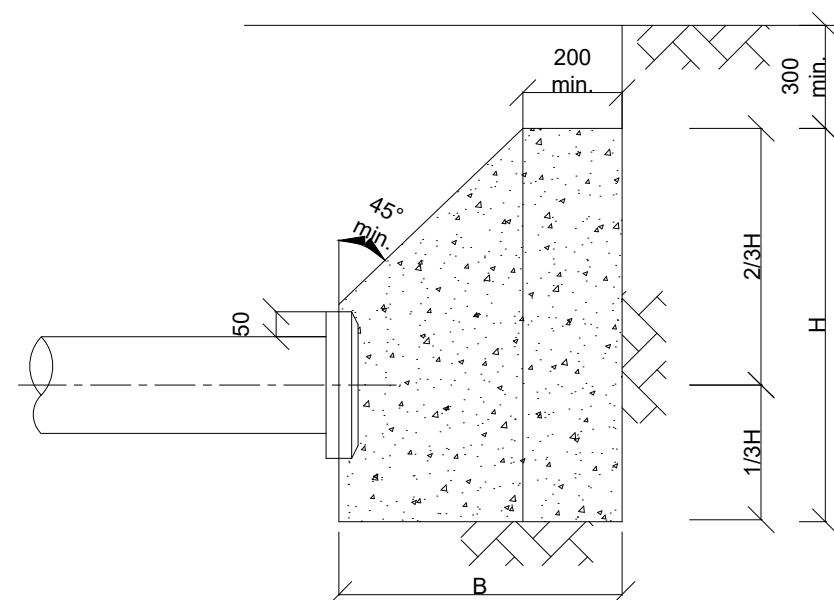
DESIGNED BY : CHECKED BY :

APPROVED BY : CHIEF MANAGER - WATER & SANITATION

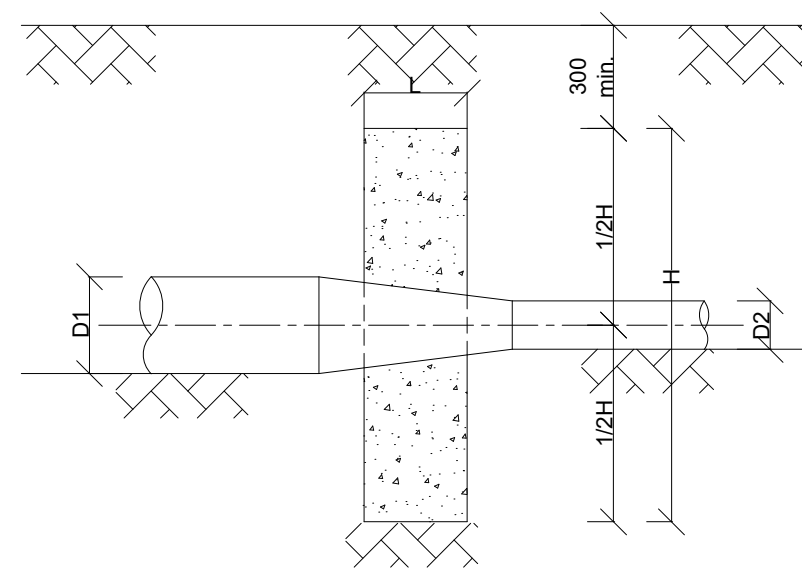
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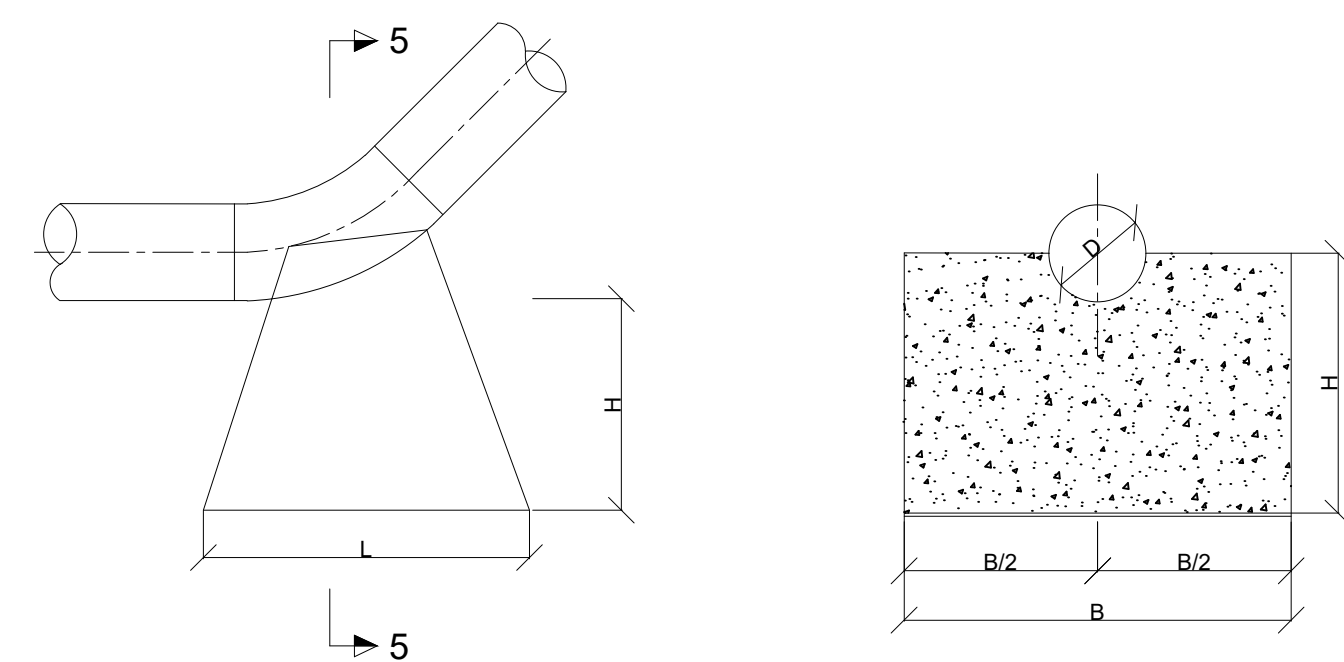
SECTION 1 - 1



SECTION 3 - 3



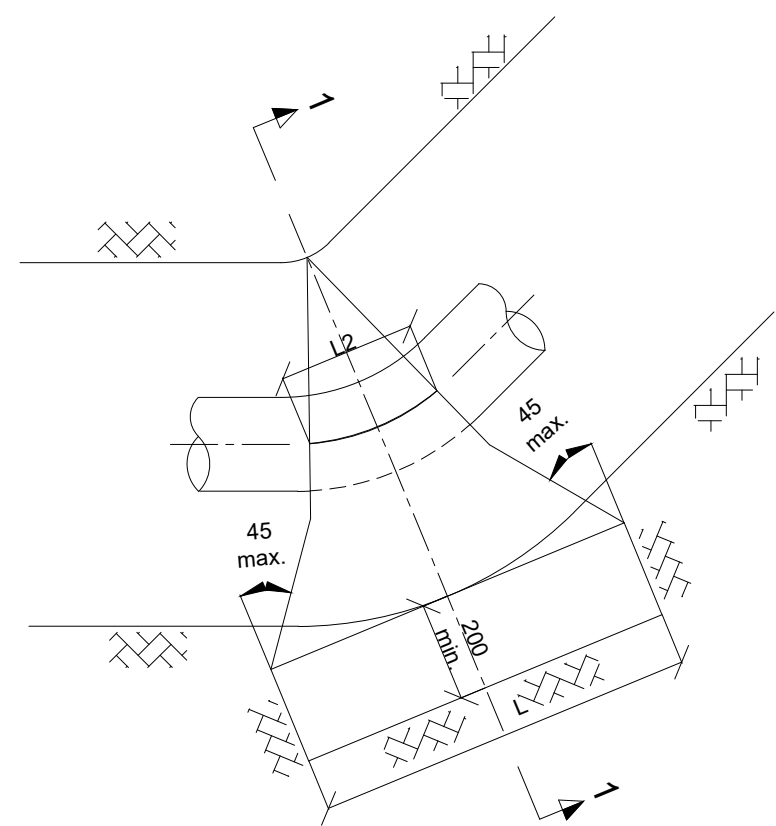
SECTION 4 - 4



ELEVATION

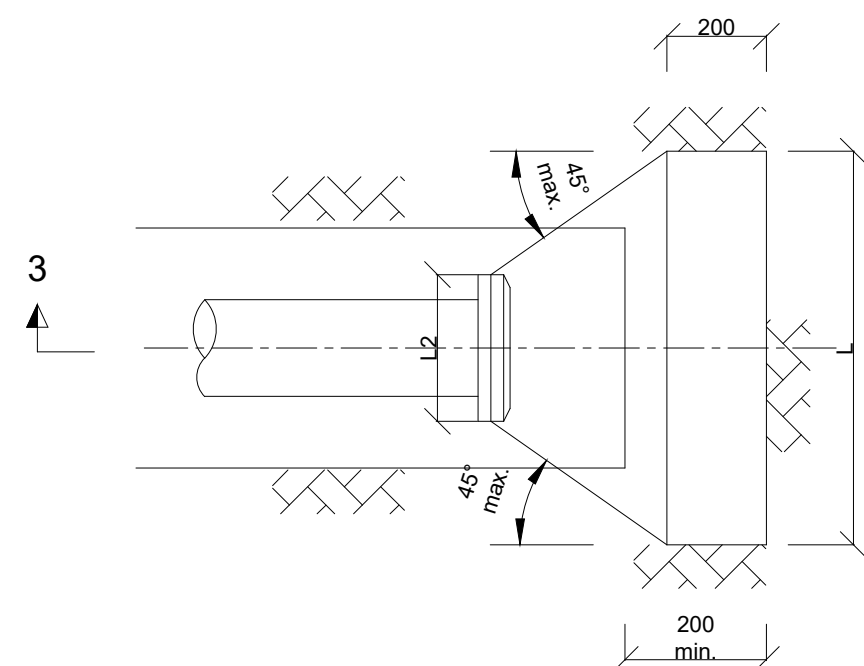
SECTION 5 - 5

VERTICAL ANCHOR BLOCKS AT DEPRESSIONS (TYPE DV)



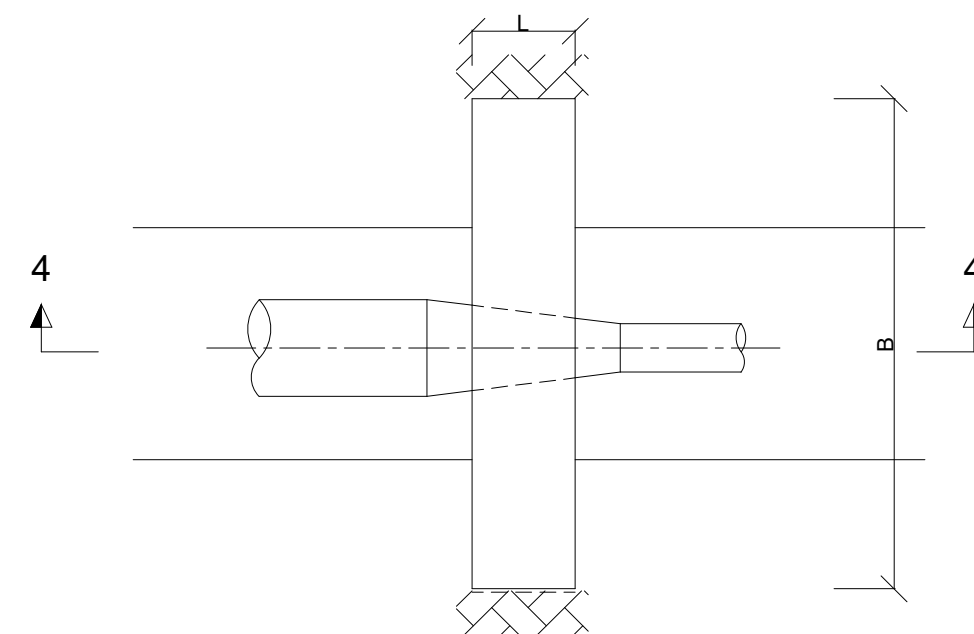
PLAN

HORIZONTAL BENDS



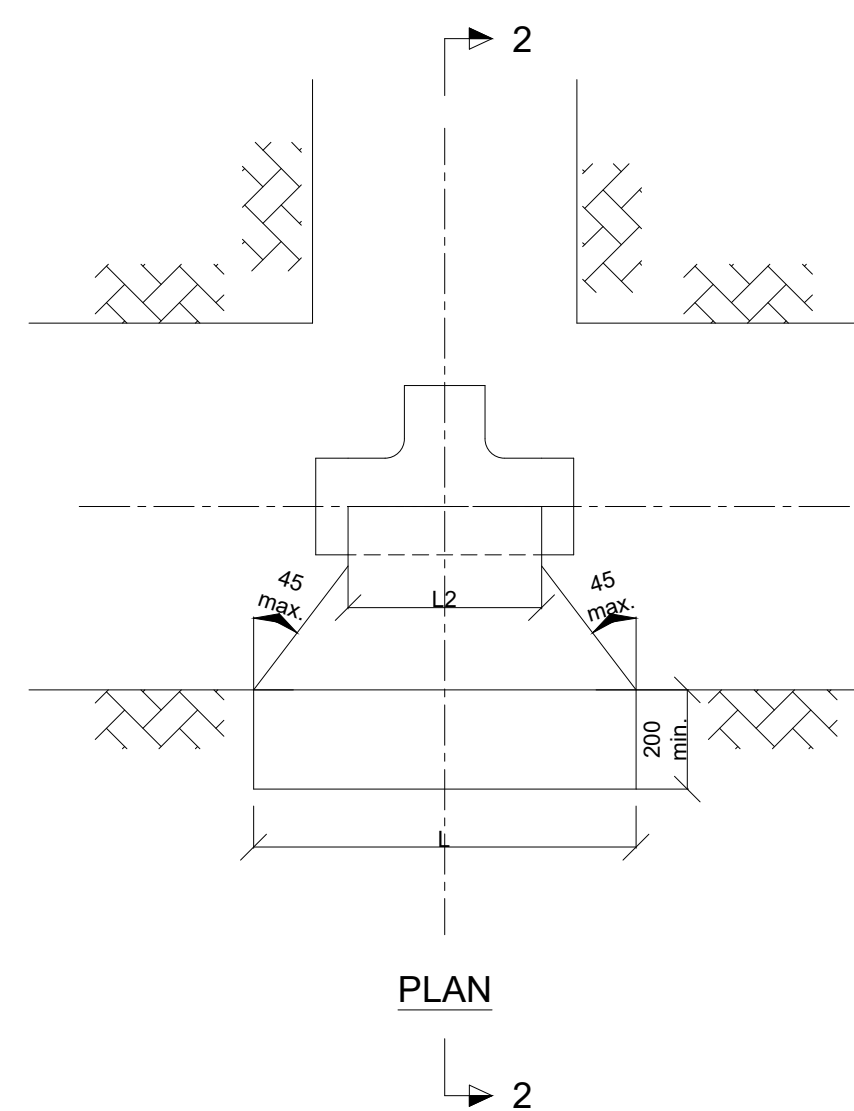
PLAN

END CAPS



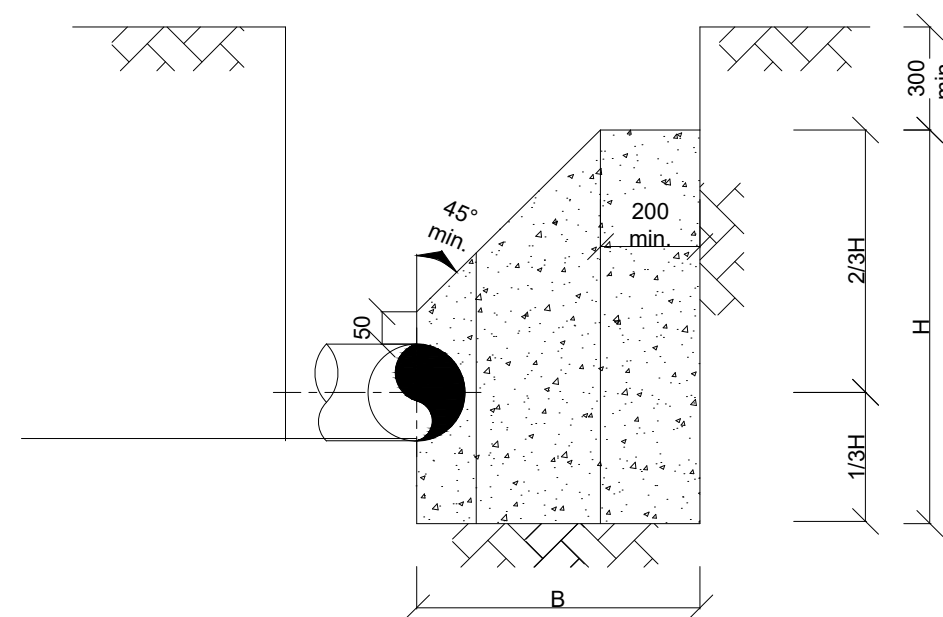
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REDUCERS

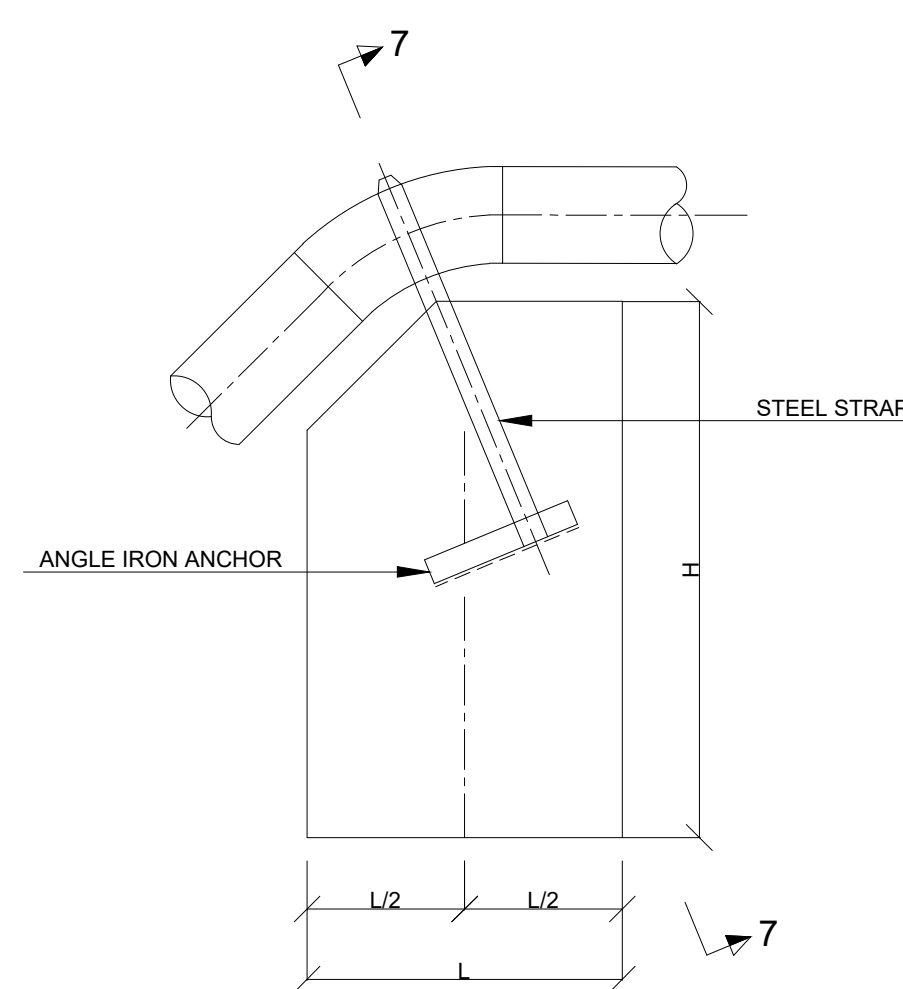


PLAN

TEES

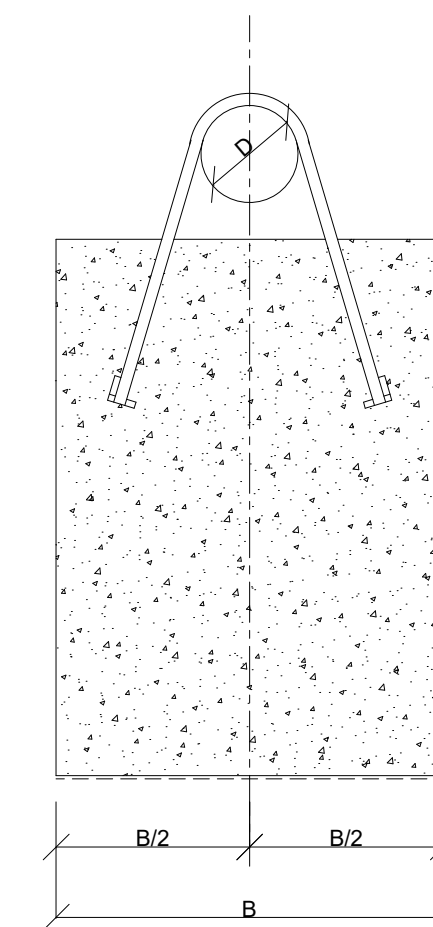


SECTION 2 - 2



ELEVATION

VERTICAL ANCHOR BLOCKS AT CRESTS (TYPE CV)



SECTION 7 - 7

NOTES

Rev. No.	DESCRIPTION	DATE
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REHABILITATION OF INDEPENDENT
MATAARA WATER SUPPLY SCHEME
PROJECT



ATHI WATER WORKS
DEVELOPMENT AGENCY

PROJECT :
REHABILITATION OF INDEPENDENT
MATAARA WATER SUPPLY SCHEME
PROJECT

TOWN :
GATANGA

DRAWING TITLE :
Thrust Block

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

DATE : JULY 2022
SHEET No. : 1 OF 1

WATER & SANITATION DEPARTMENT

Athi Water Works Development Agency
Athi Water Plaza
Muthaiga North Road, Off Kiambu Road
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NAIROBI
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Fax: +254- 020-2724295
Mobile: +254- 715-688272
Email: info@awwda.go.ke
Website: www.awwda.go.ke

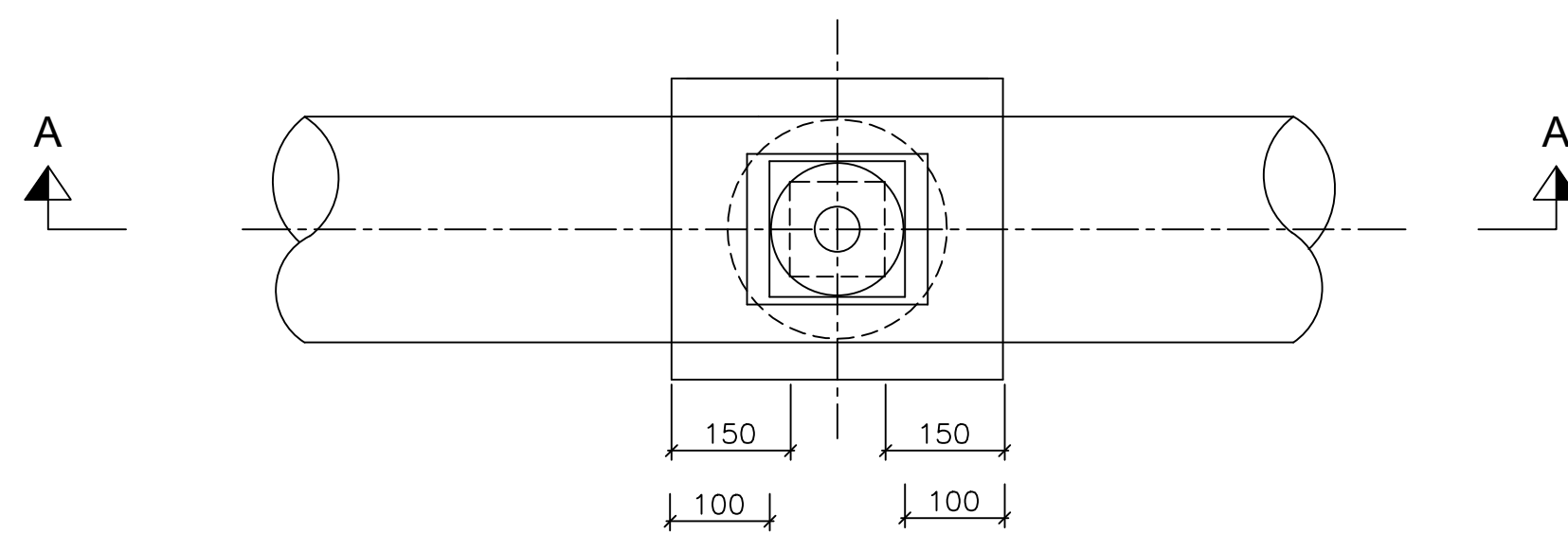
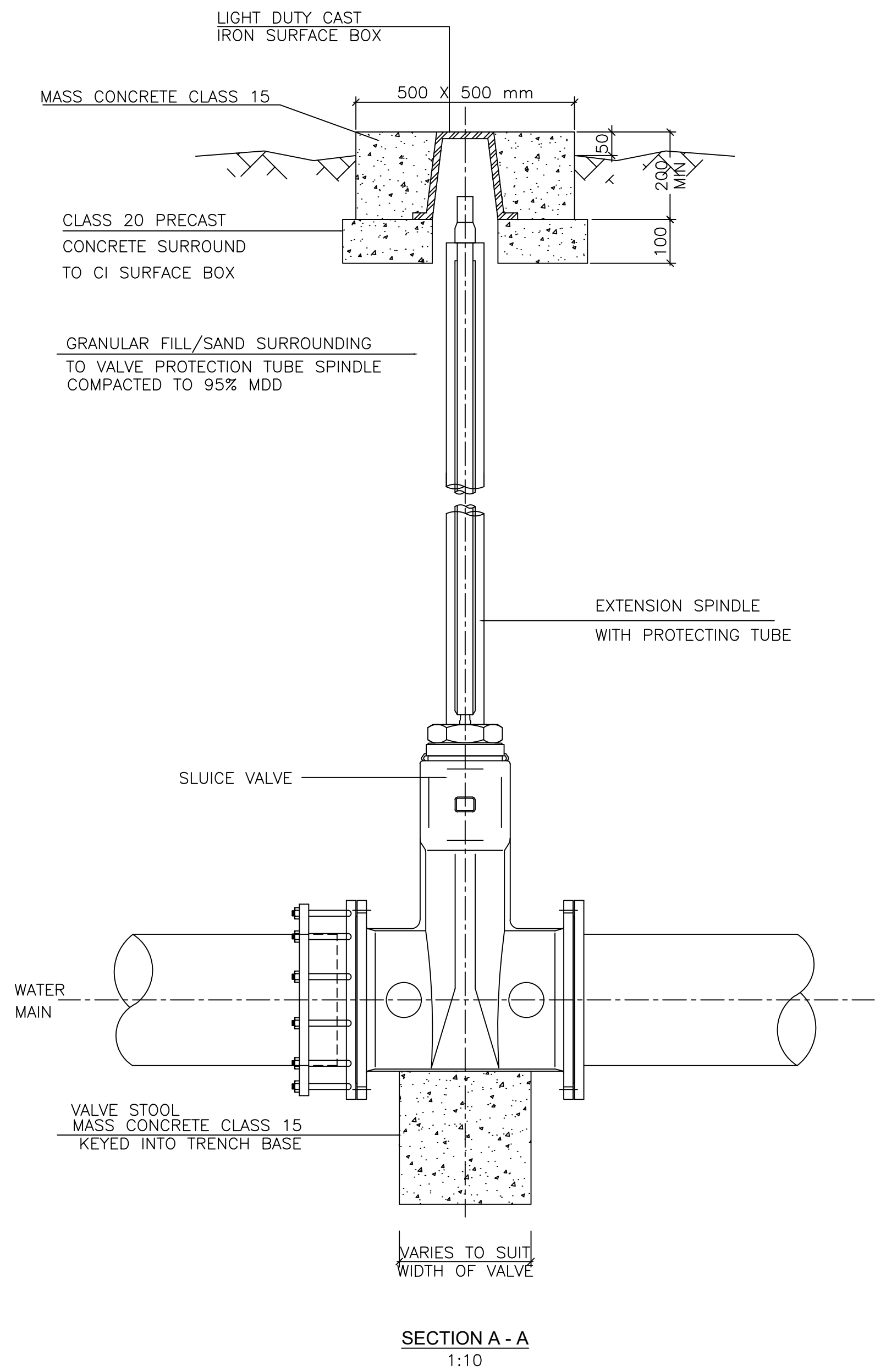
DESIGN PROJECT No. :

SURVEYED BY :
DRAWN BY :

DESIGNED BY :
CHECKED BY :

APPROVED BY : CHIEF MANAGER - WATER & SANITATION

DATE :
SIGNATURE :

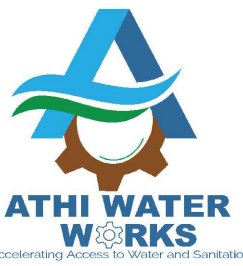


DETAILS OF VALVE SURFACE BOX

NOTES

Rev. No.	DESCRIPTION	DATE

REHABILITATION OF INDEPENDENT
MATAARA WATER SUPPLY SCHEME
PROJECT



ATHI WATER WORKS
DEVELOPMENT AGENCY

PROJECT :
REHABILITATION OF INDEPENDENT
MATAARA WATER SUPPLY SCHEME
PROJECT

TOWN :
GATANGA

DRAWING TITLE :
Valve Surface Block

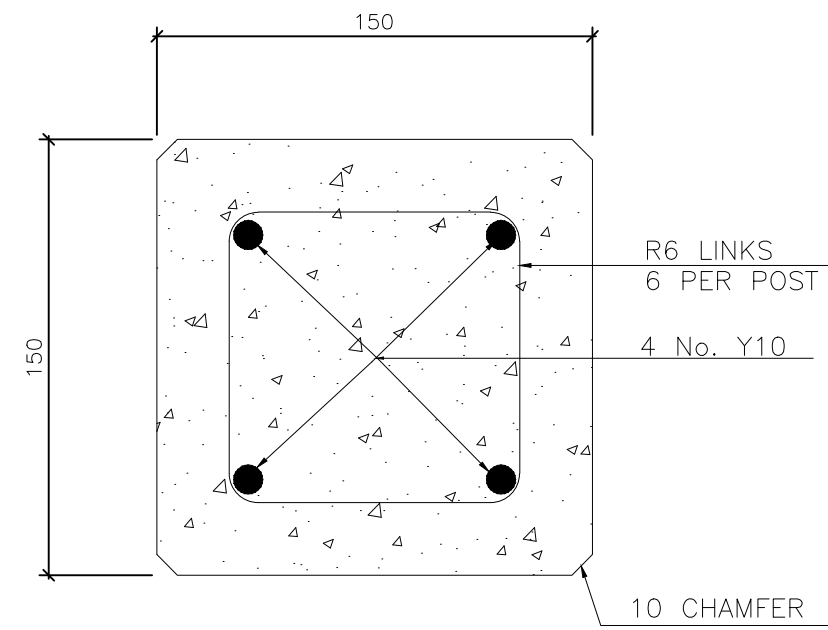
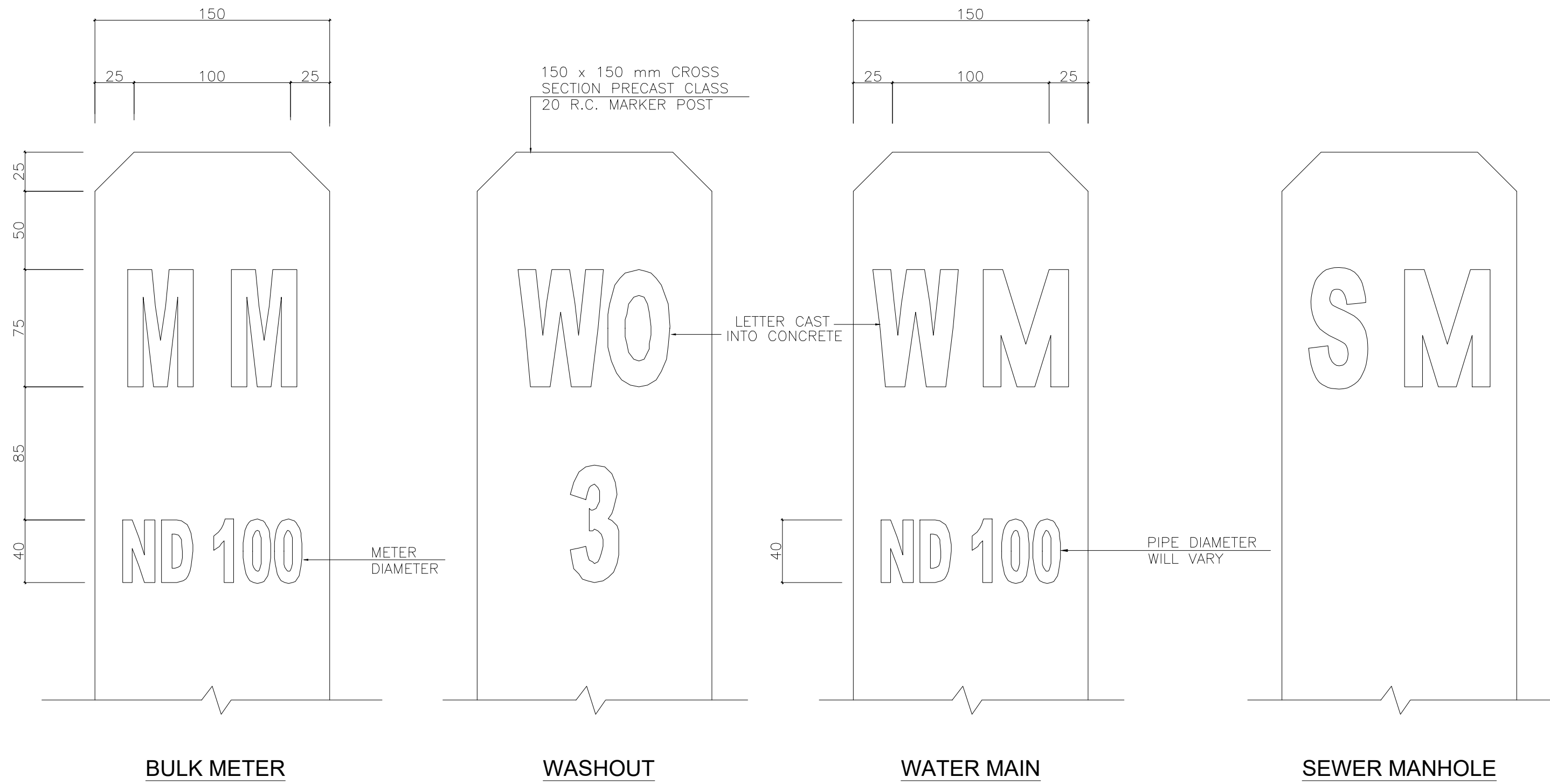
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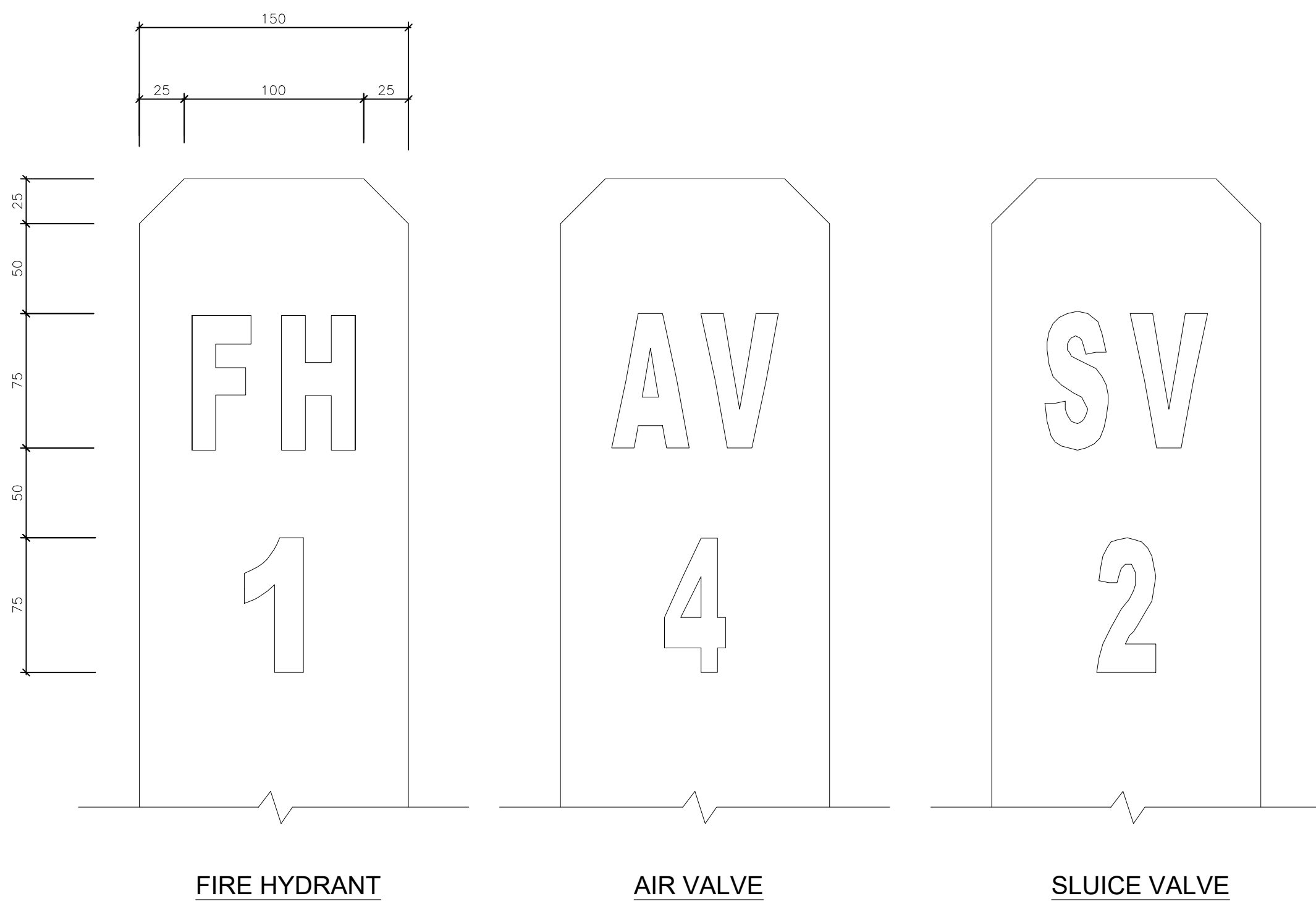


SECTION F-F
1:2.5

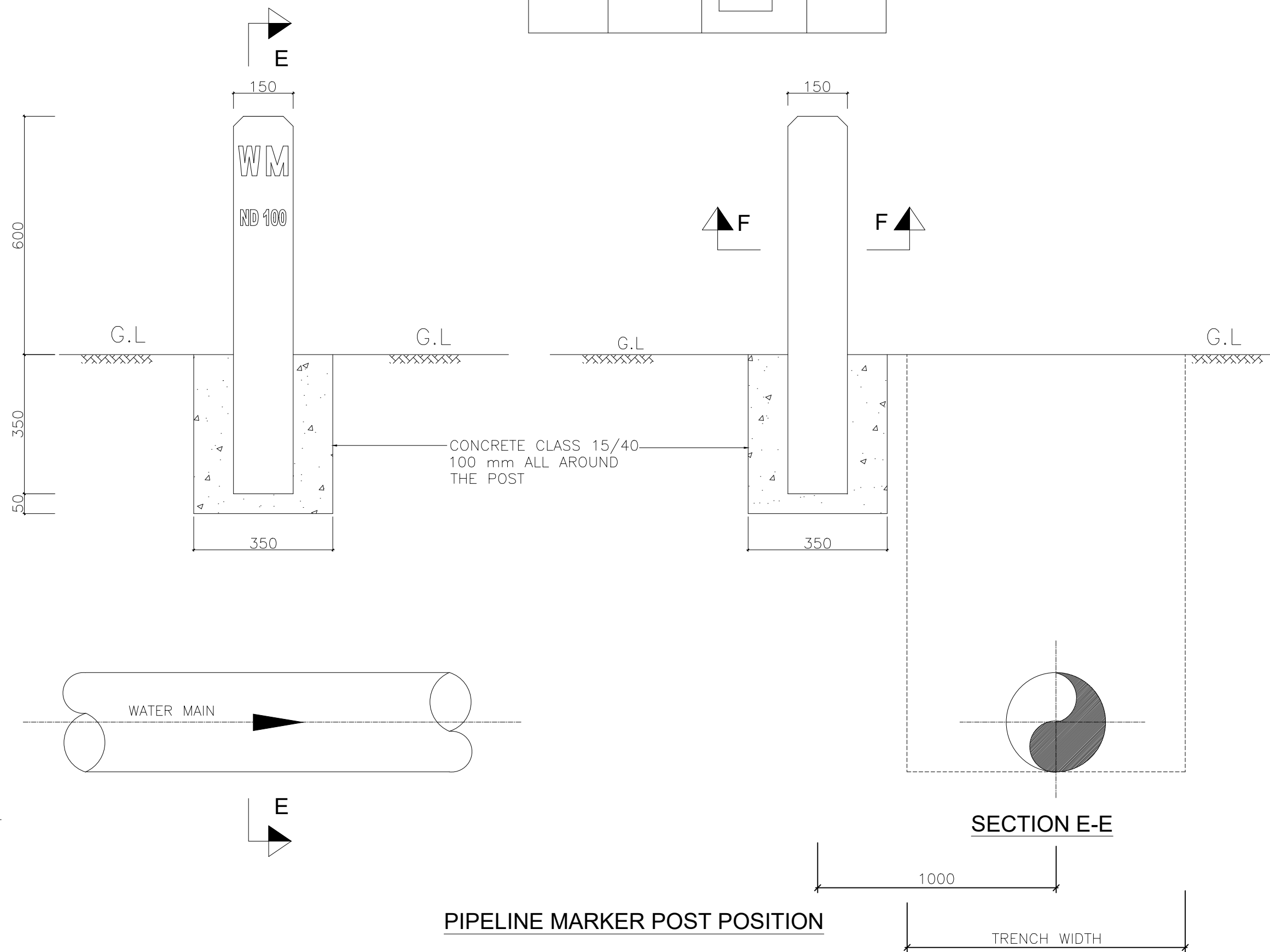
BAR BENDING SCHEDULE

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

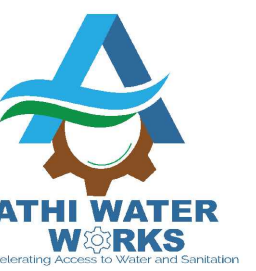
1. THE RESPECTIVE INSCRIPTION TO BE MADE ONLY ON ONE FACE OF INDICATOR POST FACING THE ACCESS ROAD.
2. ALL STRUCTURAL CONCRETE TO BE CLASS 20 ALL OTHER CONCRETE TO BE CLASS 15.
3. INDICATOR POST TO BE PLACED AT ALL APPURTENANCE LOCATIONS, AND AT INTERVALS OF 250 m ALONG WATER MAINS.
4. LETTERS TO BE 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



REHABILITATION OF INDEPENDENT
MATAARA WATER SUPPLY SCHEME
PROJECT



ATHI WATER WORKS
DEVELOPMENT AGENCY

PROJECT :
REHABILITATION OF INDEPENDENT
MATAARA WATER SUPPLY SCHEME
PROJECT

TOWN :
GATANGA

DRAWING TITLE :
Marker Posts Details

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

DATE : JULY 2022
SHEET No. : 1 OF 1

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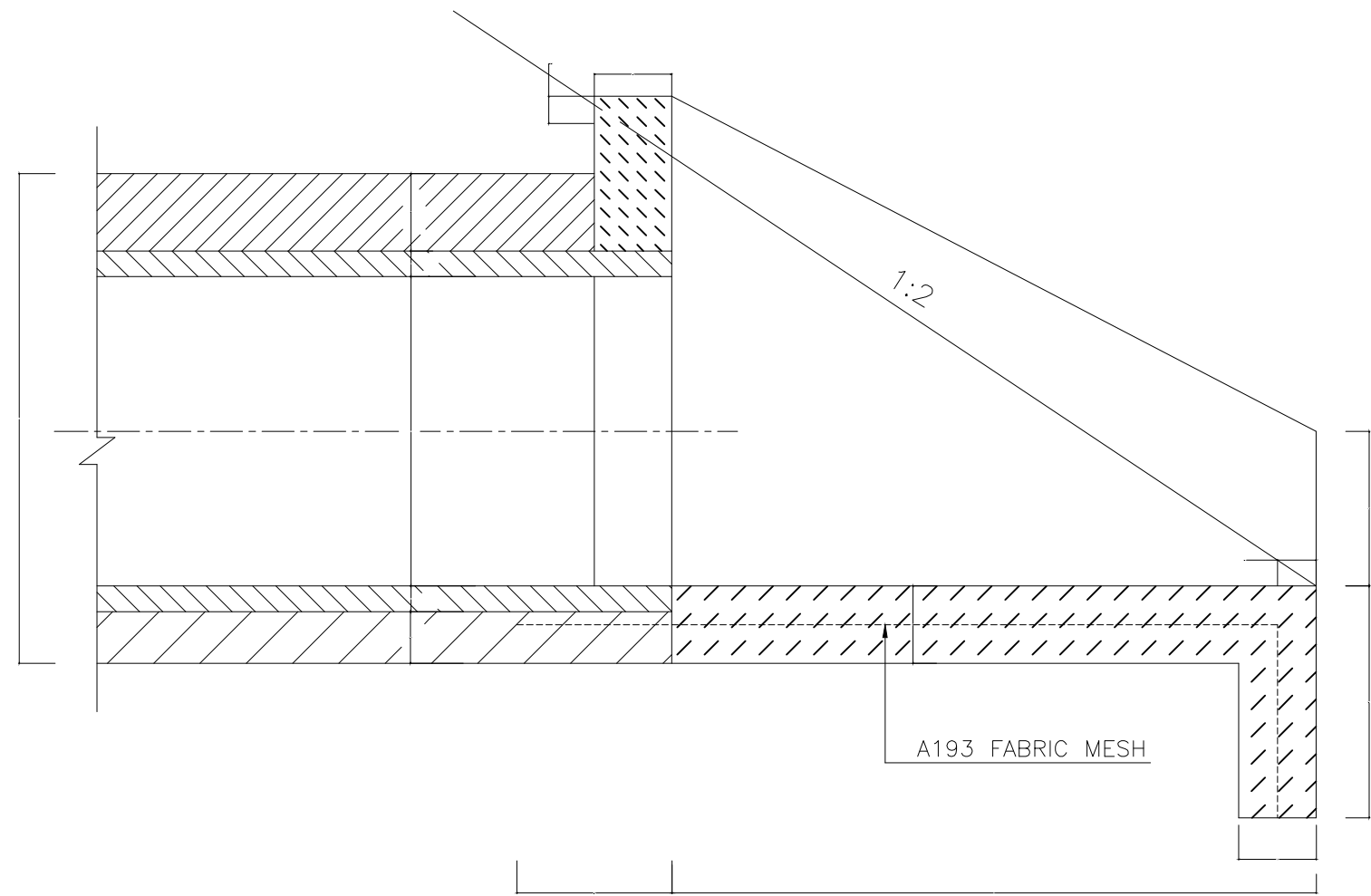
DESIGN PROJECT No. :

SURVEYED BY :
DRAWN BY :

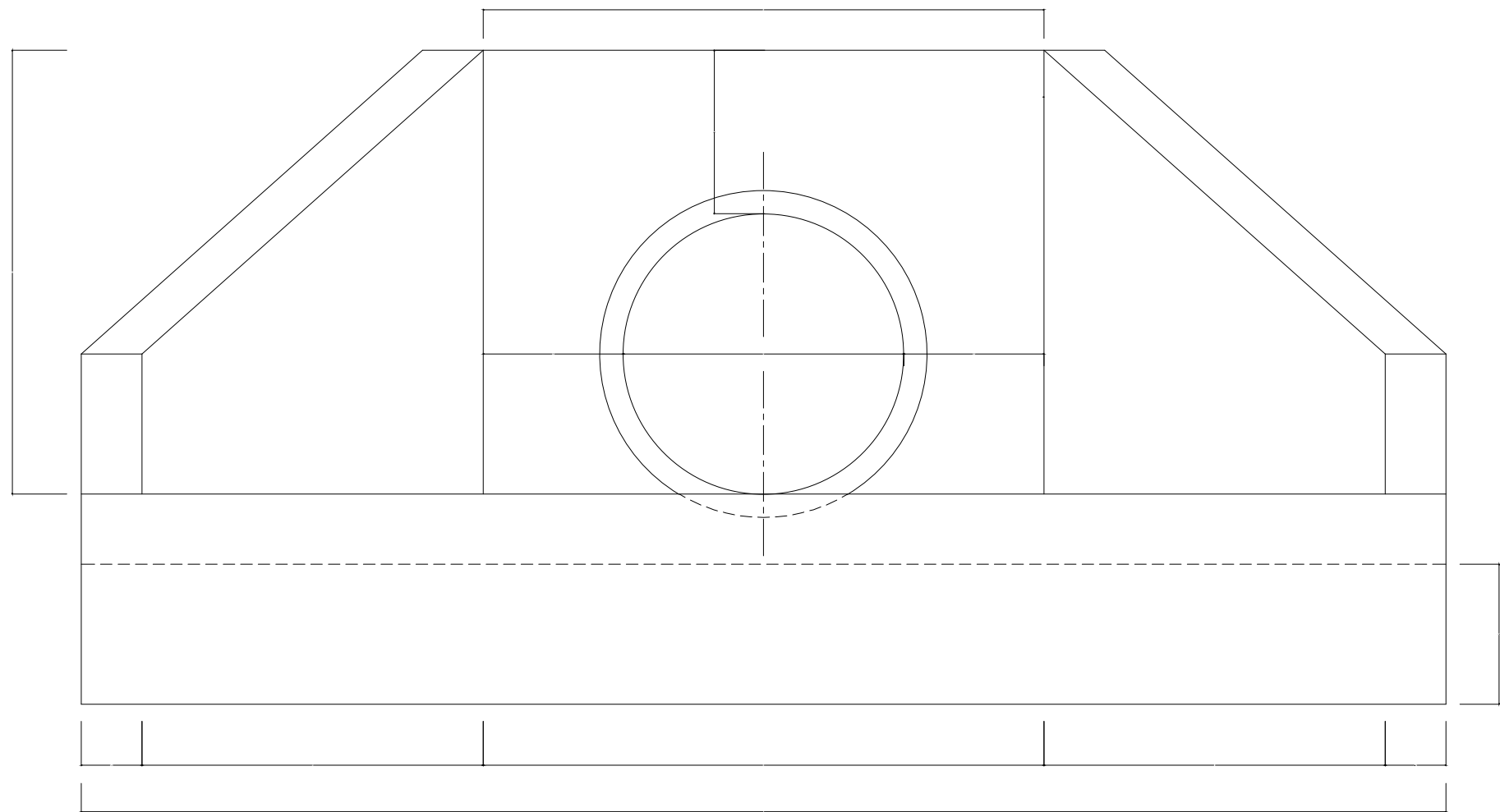
DESIGNED BY :
CHECKED BY :

APPROVED BY : CHIEF MANAGER - WATER & SANITATION

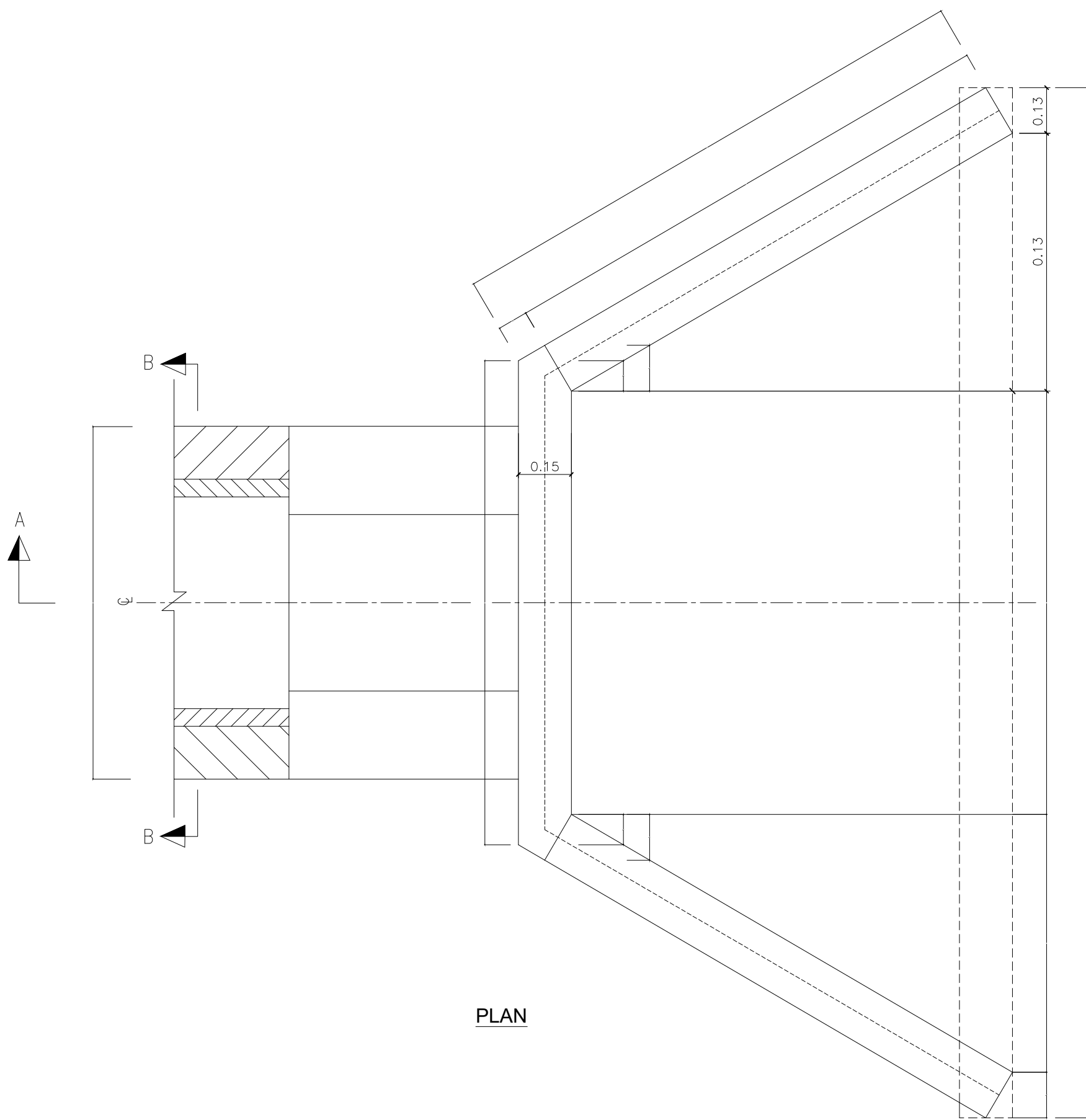
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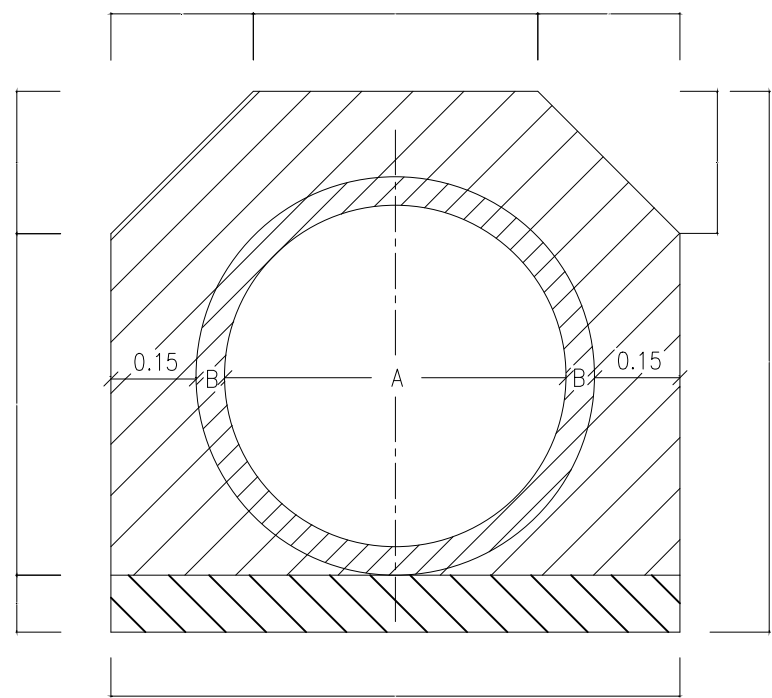
SECTION A-A



FRONT ELEVATION



PLAN



SECTION B-B

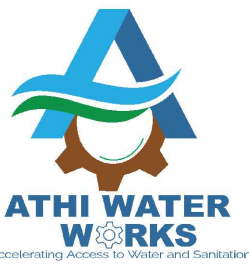
NOTES :

1. A 193 FABRIC MESH REINFORCEMENT
TO BE PLACED AS SHOWN

CULVERTS	A	B	C	D	E	F	G	H	J	K	L	M	N	P	CONCRETE CLASS 25/20 inlet & outlet	CONCRETE CLASS 15/20 surround & bed per running m
DIAMETER 0.90m	0.90	0.09	1.38	0.88	1.33	0.98	1.50	1.25	2.25	1.30	4.36	2.60	2.69	1.68	4.14m ³	0.86m ³

NOTES

REHABILITATION OF INDEPENDENT
MATAARA WATER SUPPLY SCHEME
PROJECT



ATHI WATER WORKS
DEVELOPMENT AGENCY

PROJECT :
REHABILITATION OF INDEPENDENT
MATAARA WATER SUPPLY SCHEME
PROJECT

TOWN :
GATANGA

DRAWING TITLE :
Culvert Drawings

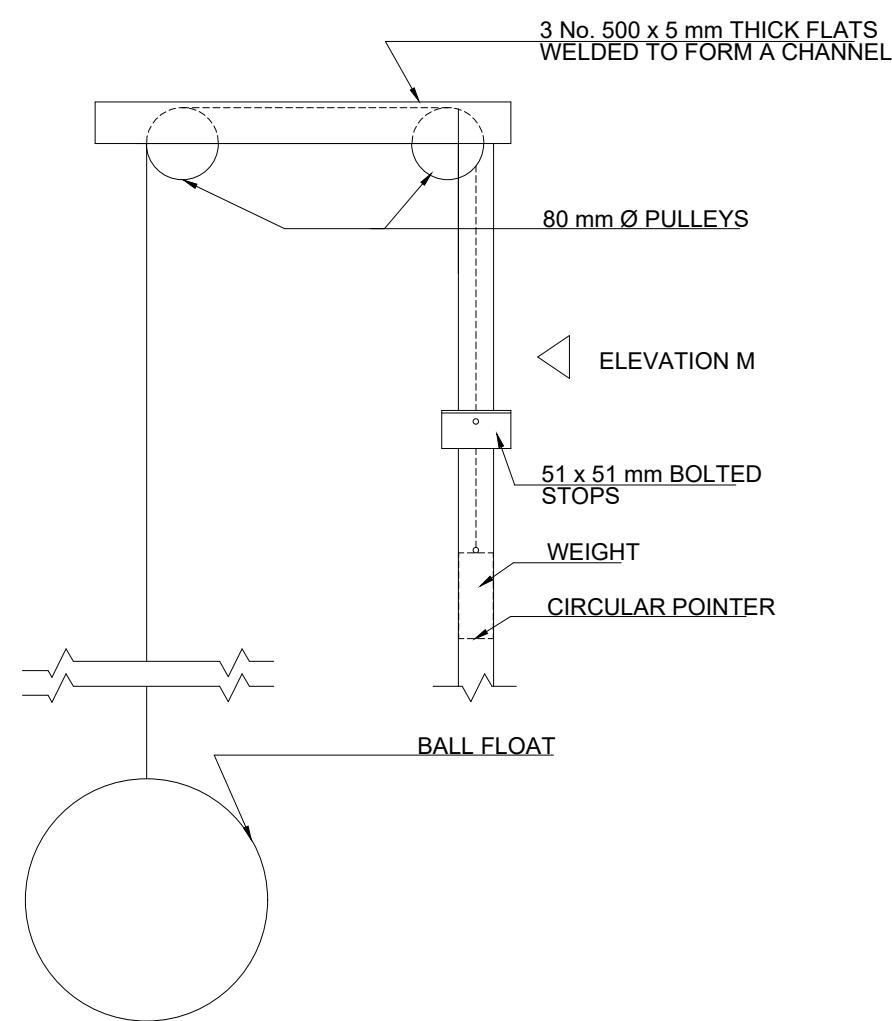
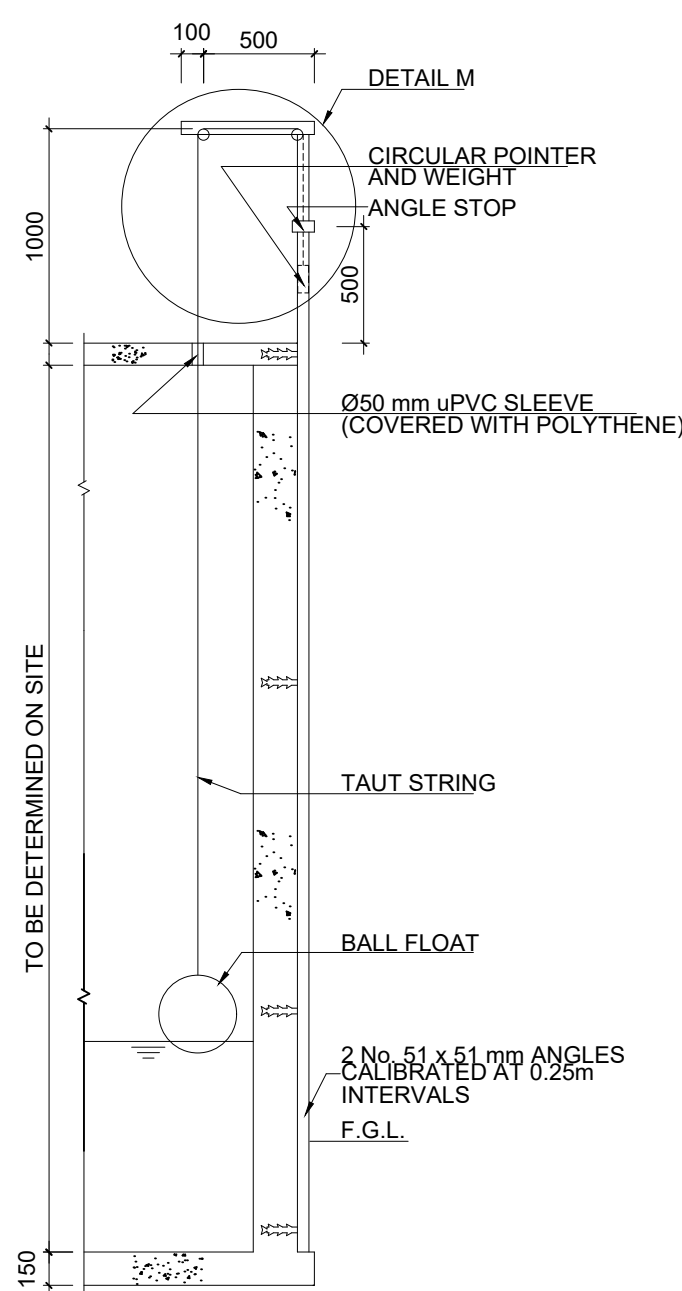
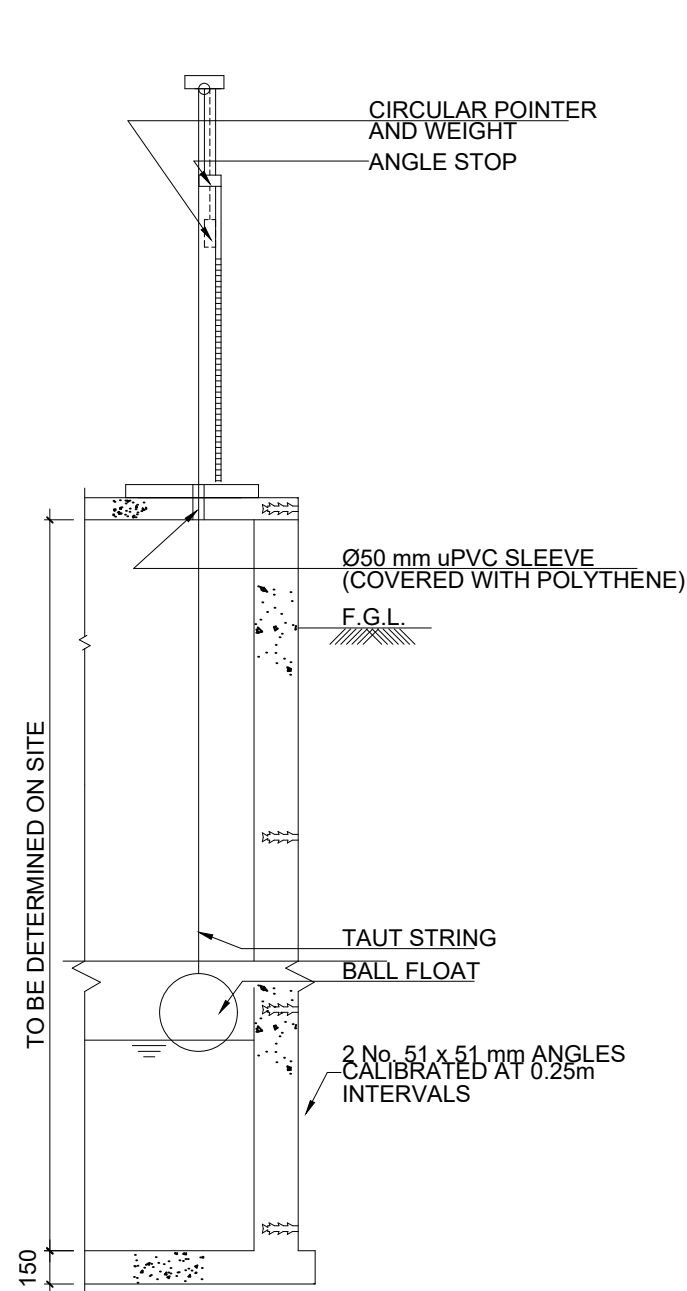
SCALES :
DRG. No. : GAT/GD/13

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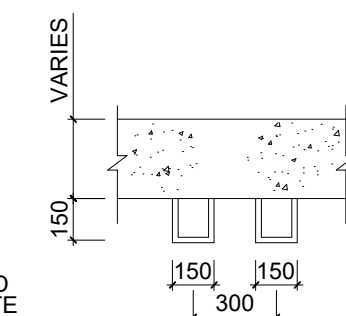
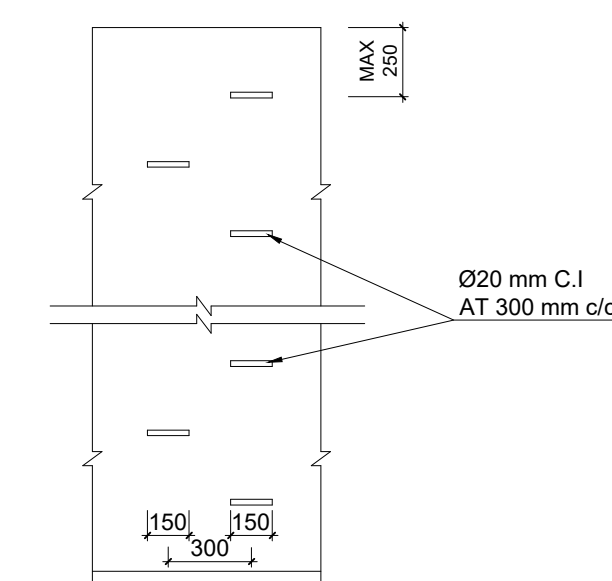
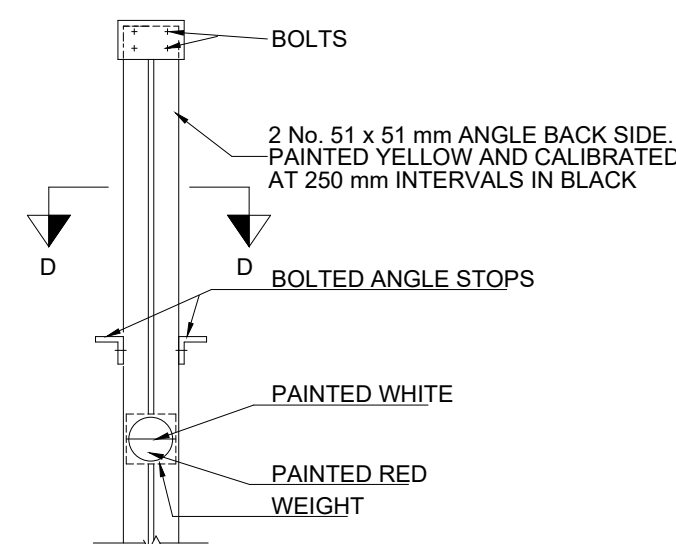
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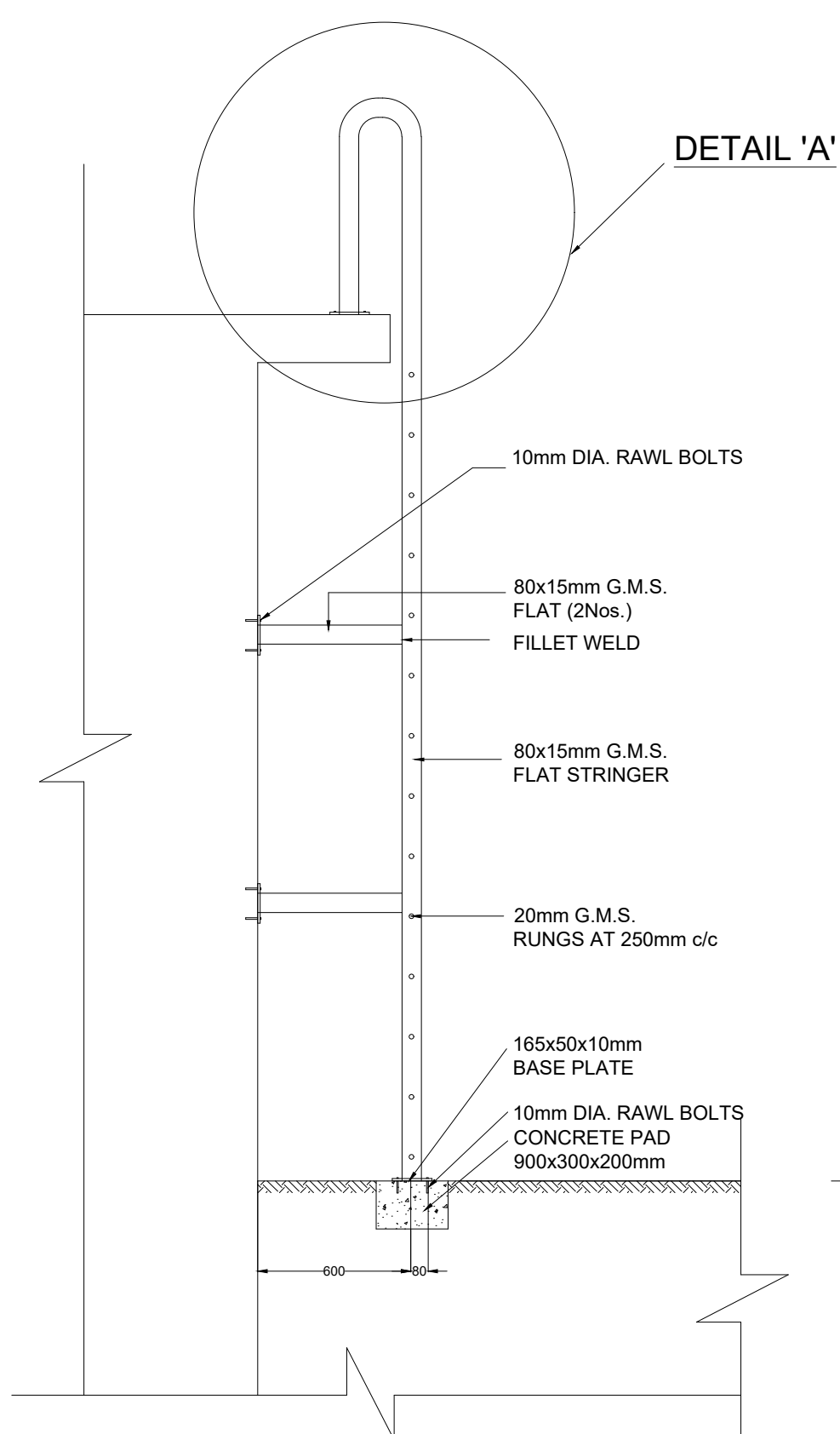
DESIGN PROJECT No. :
SURVEYED BY :
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CHECKED BY :
SIGNATURE :



TANK LEVEL INDICATOR



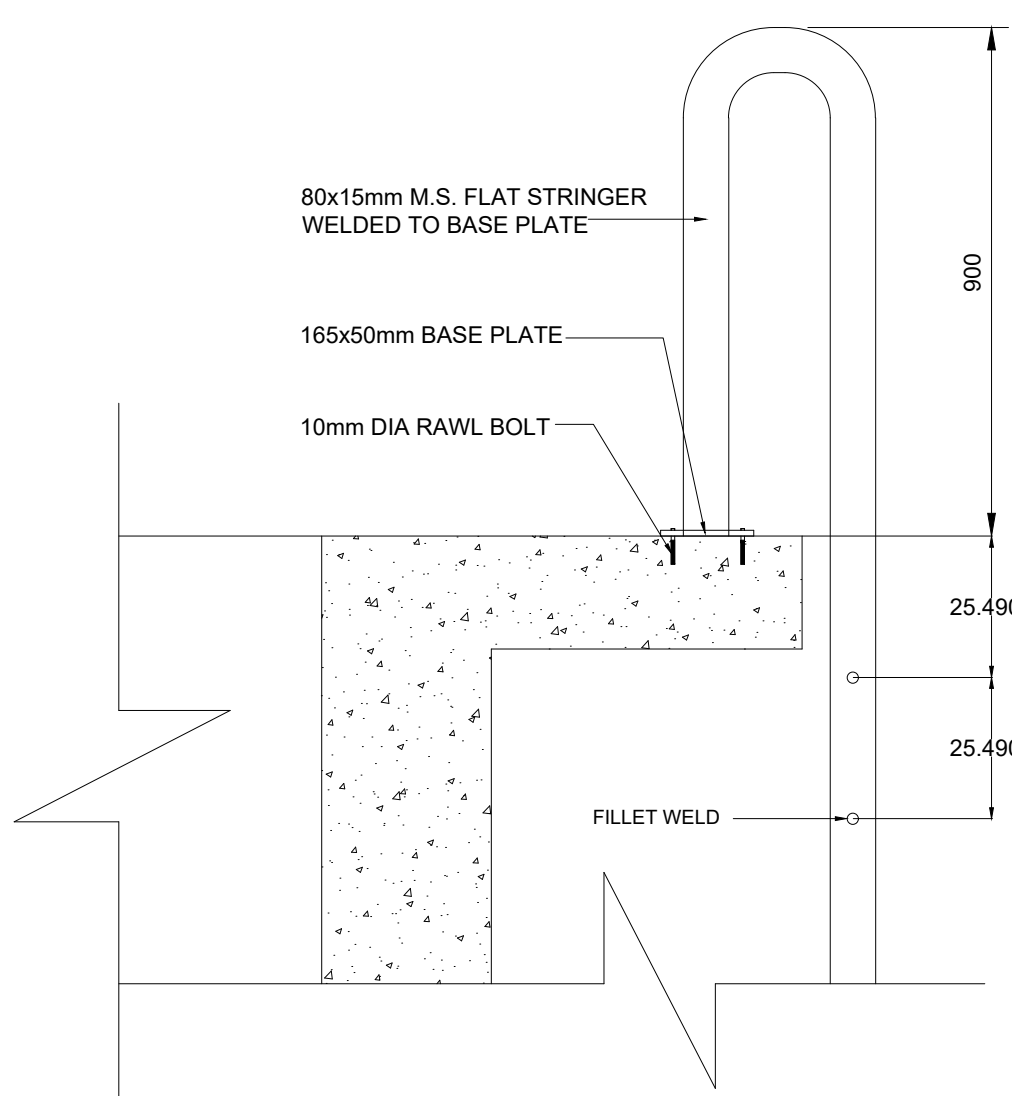
STEP IRON DETAILS



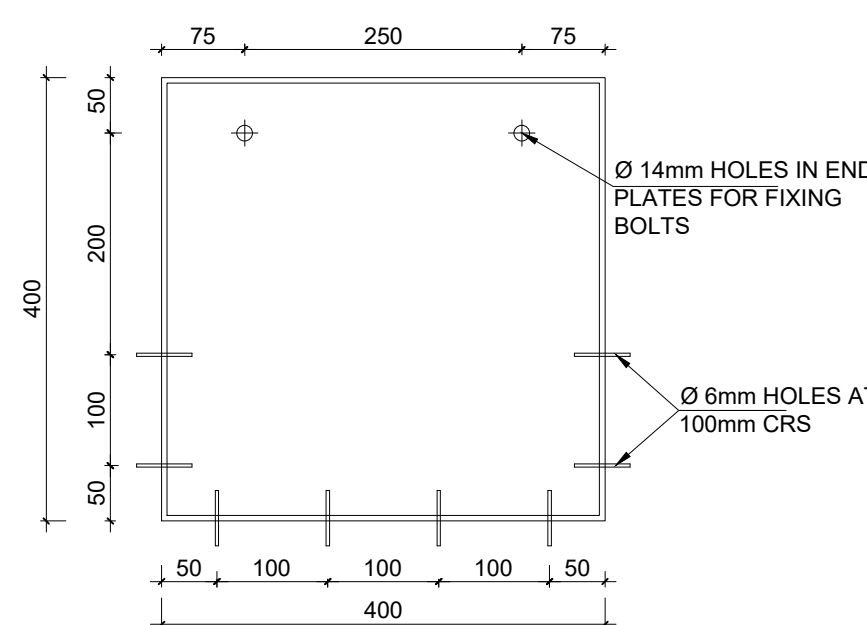
DETAILS OF G.M.S. LADDER
SCALE 1:25

NOTES :

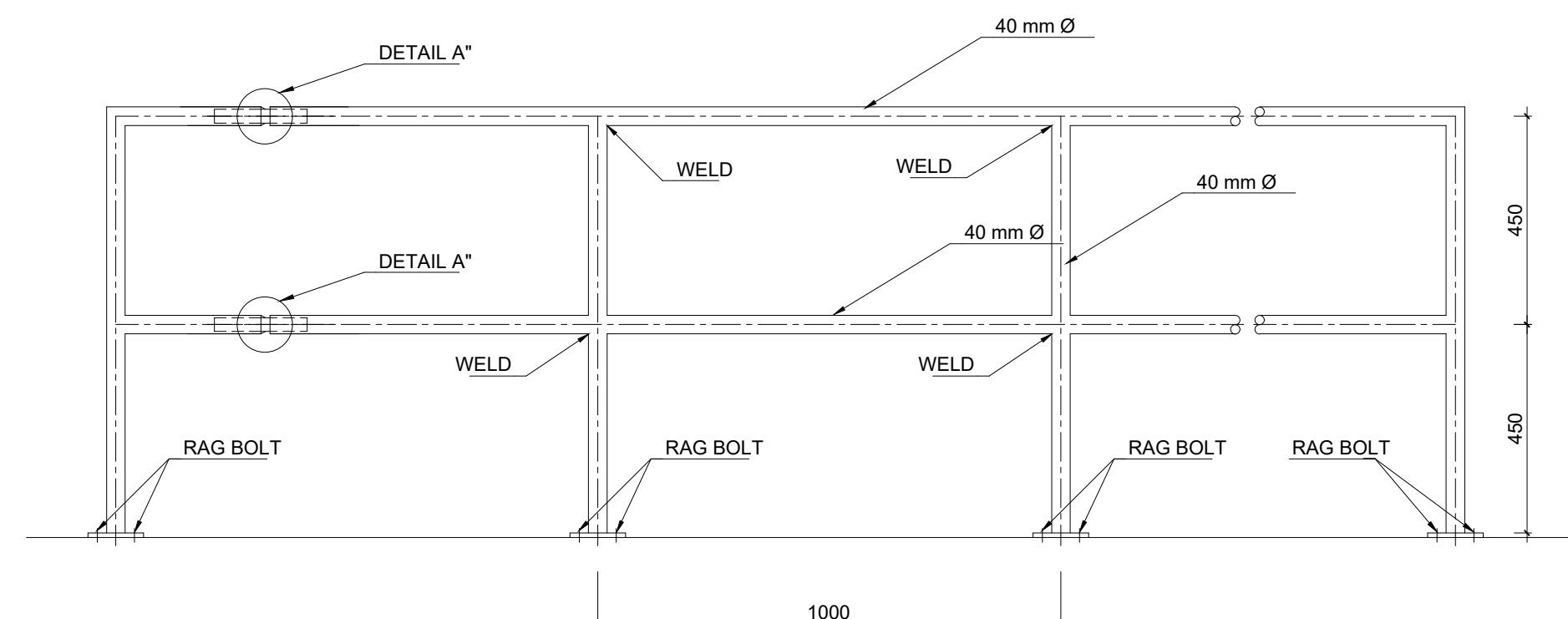
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS STATED OTHERWISE.



DETAIL 'A'

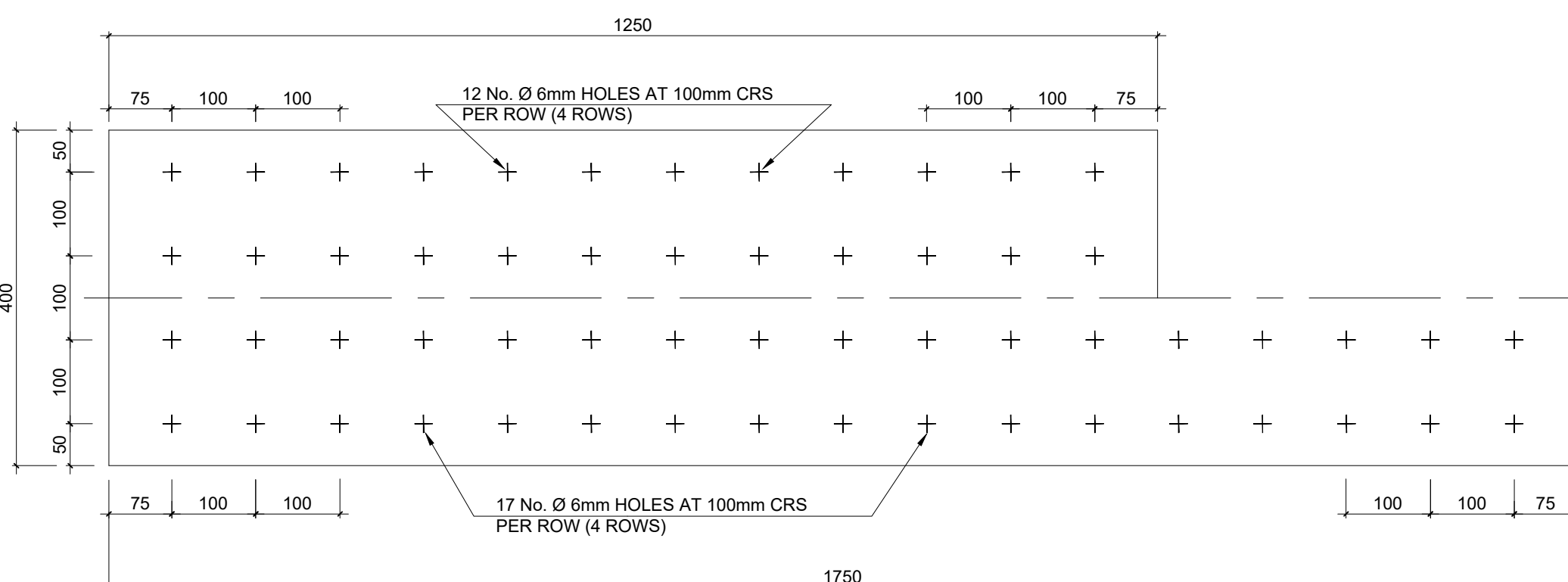
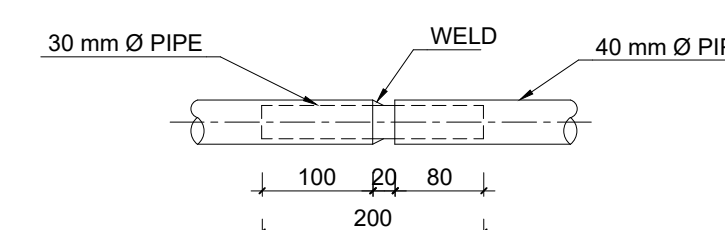


DISSOLVING BASKETS



DETAIL OF 10 mm THICK BASE PLATE
SCALE: 1:5

DETAILS OF HANDRAIL



NOTES

- BASKETS FABRICATED FROM 1.5mm THICK STAINLESS STEEL PLATE 1200mm WIDE FOLDED TO SHAPE WITH END PLATES WELDED ON.
LENGTH FOR ALUM TANK 1750mm AND LENGTH FOR SODA-ASH TANK 1250mm LENGTH FOR CHLORINE TANK 1000mm
- ENDPLATES TO BE FIXED USING STAINLESS STEEL SELF ANCHORING BOLTS OF 12mm

Rev. No.	DESCRIPTION	DATE

REHABILITATION OF INDEPENDENT MATAARA WATER SUPPLY SCHEME PROJECT



ATHI WATER WORKS DEVELOPMENT AGENCY

PROJECT : REHABILITATION OF INDEPENDENT MATAARA WATER SUPPLY SCHEME PROJECT

TOWN : GATANGA

DRAWING TITLE : LADDER AND HANDRAIL DETAILS

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

DATE : JULY 2022 SHEET No. : 1 OF 1

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DATE : SIGNATURE :