

## GENERAL LAYOUT

The general layout of the project notice board provides for a project title field in which the project is described and the client is identified. Below the project title field the board is divided into three vertical areas. The left hand side of this area is reserved for the seals/logos of the constituents of the BEP Grouping whose members may be commissioned to deliver professional services to the project. The central area is for listing the professional consultants on the project and the right hand area may be used for displaying individual company logos and any additional affiliation which the consultant may have in the BEP Grouping eg dual membership of SAIA and SABTACO.

## RECOMMENDATIONS:

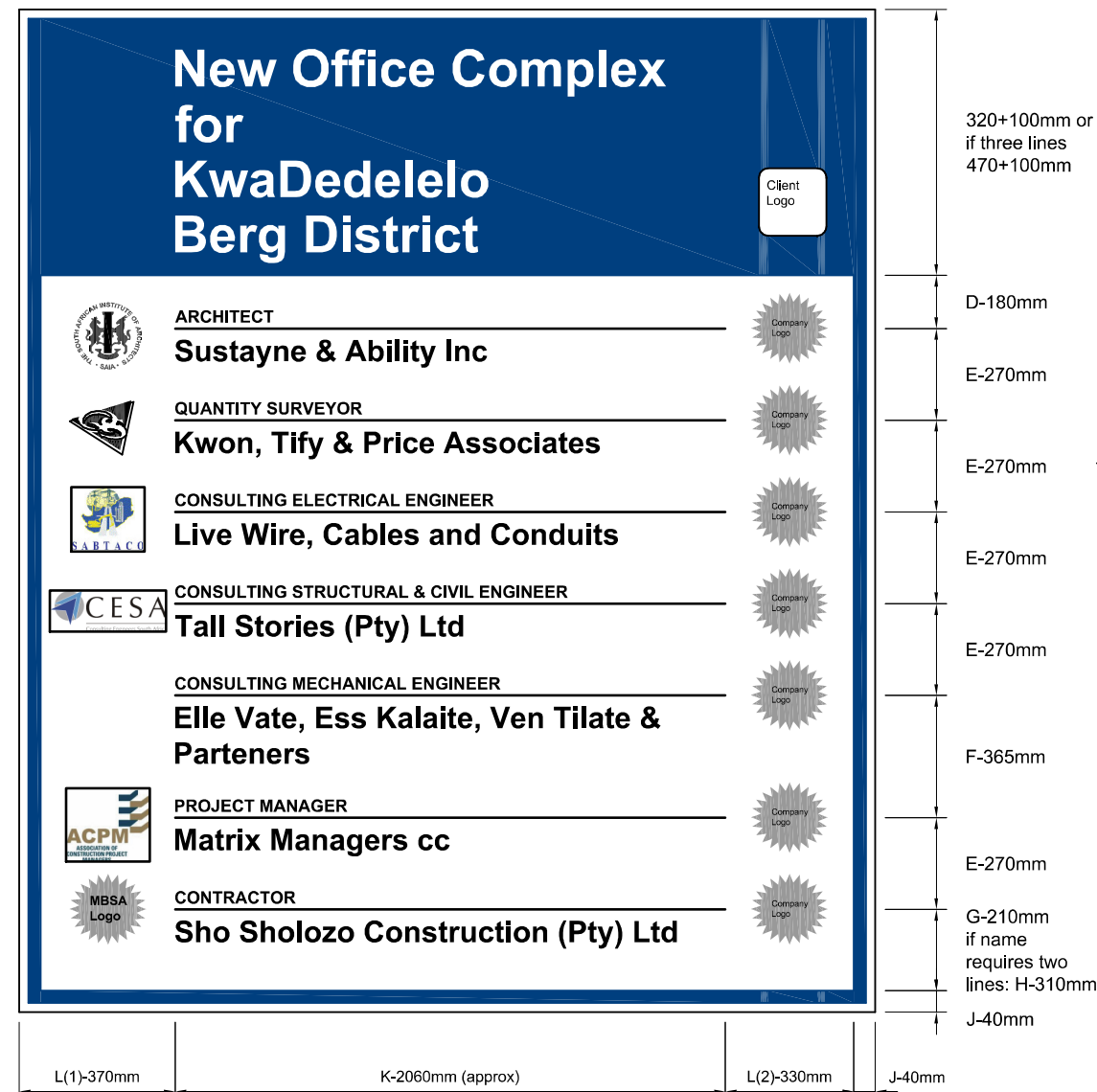
- The names of all professional consultants involved in the project and the main contractor should be displayed on the project notice board.
- Only bona fide members of the five constituents of the Built Environment Professions Grouping (ACPM, ASAQS, CESA, SABTACO and SAIA) may apply their association's seal/logo to the notice board.
- When applied, this seal/logo is placed to the left of the named discipline and consultant, centered in the vertical space provided and central on the horizontal line separating the discipline name from the consultant's name.
- Where a consultant is a member of more than one of the five BEP Grouping associations, the consultant may elect to display both associations' seals/logos. In this case, one appropriate seal is selected for display on the left hand side of the board while the other seal is displayed on the right hand side above the consultant's own logo (see item 7 below) – vertical spacing of the logos may require adjustment.
- Where the contractor is a member of MBSA or SAFCEC these seals may be applied in the same way as the professional associations' seals, ie to the left of the named contractor (see item 3 above).
- All parties are entitled to apply individual company logos in association with their names.
- When applied, the consultants' logos are placed to the right of the named discipline and consultant, centered in the vertical space provided and central on the horizontal line separating the discipline name from the consultant's name.
- The client's seal/logo is placed to the right hand side of the client's name in the bottom right hand portion of the project title field.
- Seals/logos may either all be in full colour and reproduced faithfully according to specification of the association/organisation represented, or all in black and white, as may be agreed by the parties concerned. It is the responsibility of each consultant to ensure that the appropriate information is provided.
- Seals/logos may either be provided in suitable electronic form or as print media, eg seal logo to full size, printed on transparent, adhesive media as supplied by the associations
- Variations which determine the height of the board are indicated.
- The signwriter should be issued with the relevant information for the board as well as copies of recommendation in hardcopy form. Alternatively the signwriter may be issued with the information in electronic form as long as these recommendations are clearly stated and followed.
- Where the architect is not architect, principal consultant and principal agent, the order in which the parties are listed on the project board is by mutual agreement. The contractor is generally the last name to be listed.

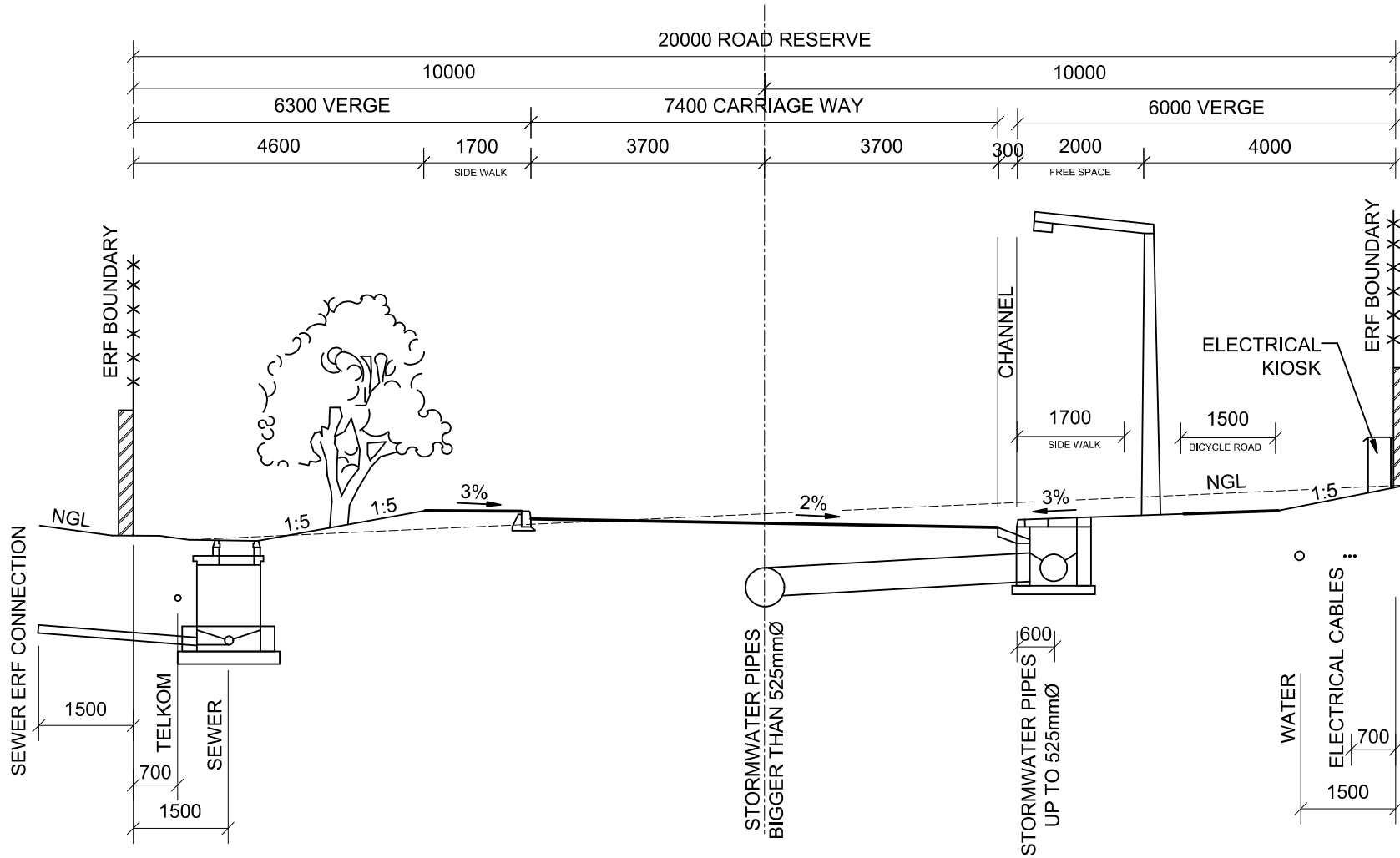
## TECHNICAL DATA

LETTERING & SETTING OUT:	TITLE BLOCK	100mm Arial bold upper and lower case letters in white.
	NAMES OF PRACTICES & FIRMS	75mm Arial bold upper and lower case letters in black. Allow 100mm between bottom of line and bottom of lettering.
	PROFFESIONAL TITLES	50mm Arial bold upper case letters only in black. Allow 10mm between line and professional titles.
	HORIZONTAL LINE	8mm thick in black

BORDERS, FIELDS & SEALS/LOGOS	OUTER BORDER	Dimension: 8mm wide Colour: White
	INNER BORDER	Dimension: 24mm wide Colour: Blue to match RGB 3:91:51 (R:3, G:91, B:151)
	TITLE BLOCK FIELD	Dimension: As specified below Colour: Blue to match RGB 3:91:51 (R:3, G:91, B:151)
	CONSULTANTS/ CONTRACTOR FIELDS	Dimension: As specified below Colour: White
	SEAL/LOGO ACTUAL SIZES	The full-size SAIA logo is 190mm diameter (reference dimension) - other seals/logos to be scaled accordingly

LEGEND:	A	170mm	The dimension from the top of the board to the bottom of the letters on the first line of the title block.
	B	320mm	The dimension from the top of the board to the bottom of the letters on the second line of the title block.
	C	470mm	The dimension from the top of the board to the bottom of the letters on the third line of the title block (if the title requires three lines)
	D	180mm	This dimension is standard, and is to the centre of the horizontal line.
	E	270mm	This dimension is standard if only one line is required for the practice name.
	F	365mm	This dimension is typical if two lines are required for the practice name.
	G	210mm	This dimension should be used where the last practice on the board requires only one line.
	H	310mm	This dimension should be used where the last practice on the board requires two lines.
	J	40mm	White border: 8mm wide Blue border: 32mm wide The blue border shall have a radius of 60mm to the corners.
	K	2060mm	This is an approximate dimension.
	L(1)	370mm	Allow: 40mm white and blue borders 330mm width for professional associations, contractors seals/logos
	L(2)	330mm	Net width for individual company logos





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MUNISIPALITEIT • UMASIPALA • MUNICIPALITY

STANDARD DETAIL DRAWING

TYPICAL LAYOUT OF SERVICES IN 20m ROAD RESERVE

Scale

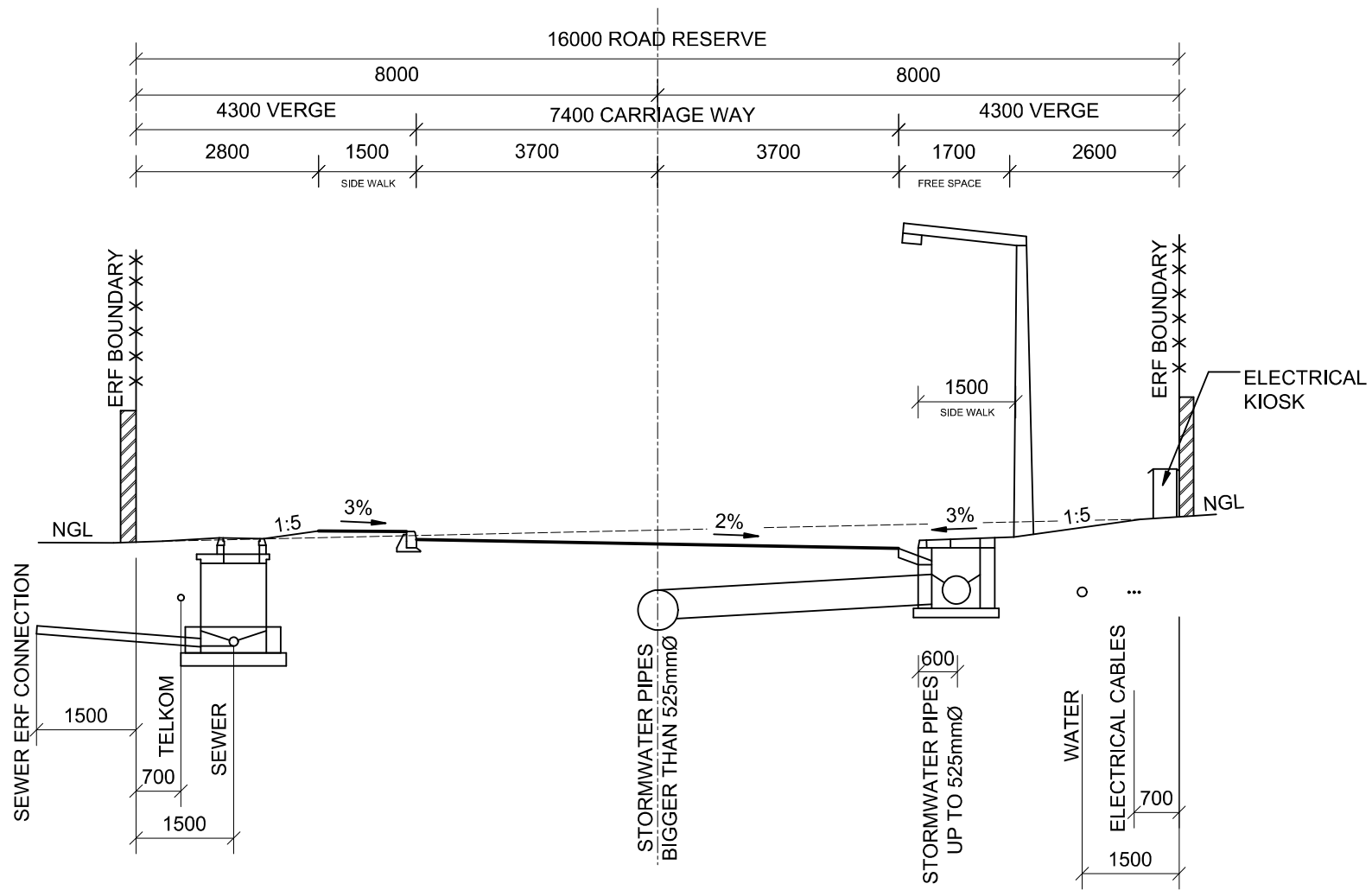
1:100

Paper Size

A4

Drawing No.

SG2



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STANDARD DETAIL DRAWING

TYPICAL LAYOUT OF SERVICES IN 16m ROAD RESERVE

Scale

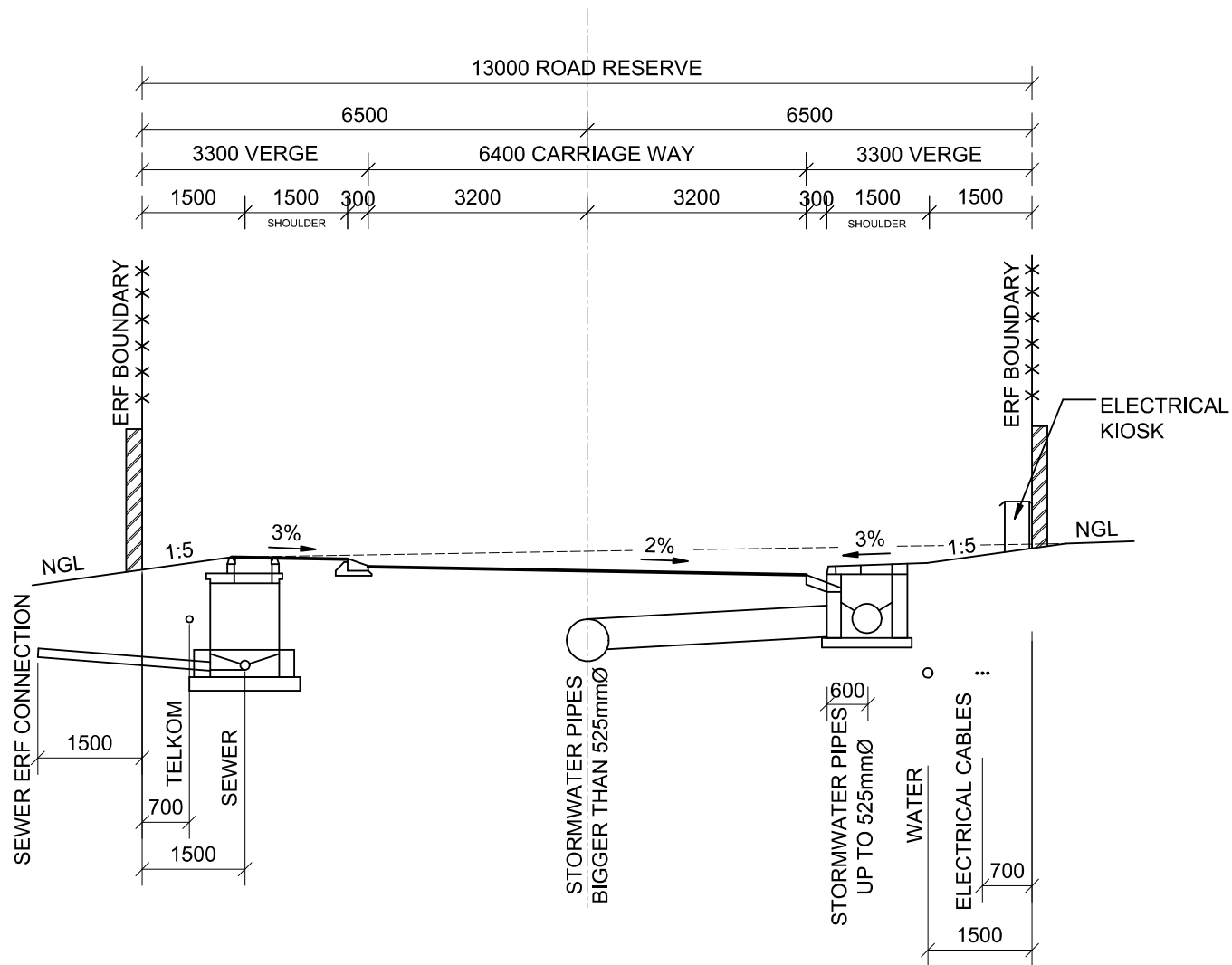
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Paper Size

A4

Drawing No.

SG3



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STANDARD DETAIL DRAWING

TYPICAL LAYOUT OF SERVICES IN 13m ROAD RESERVE

Scale

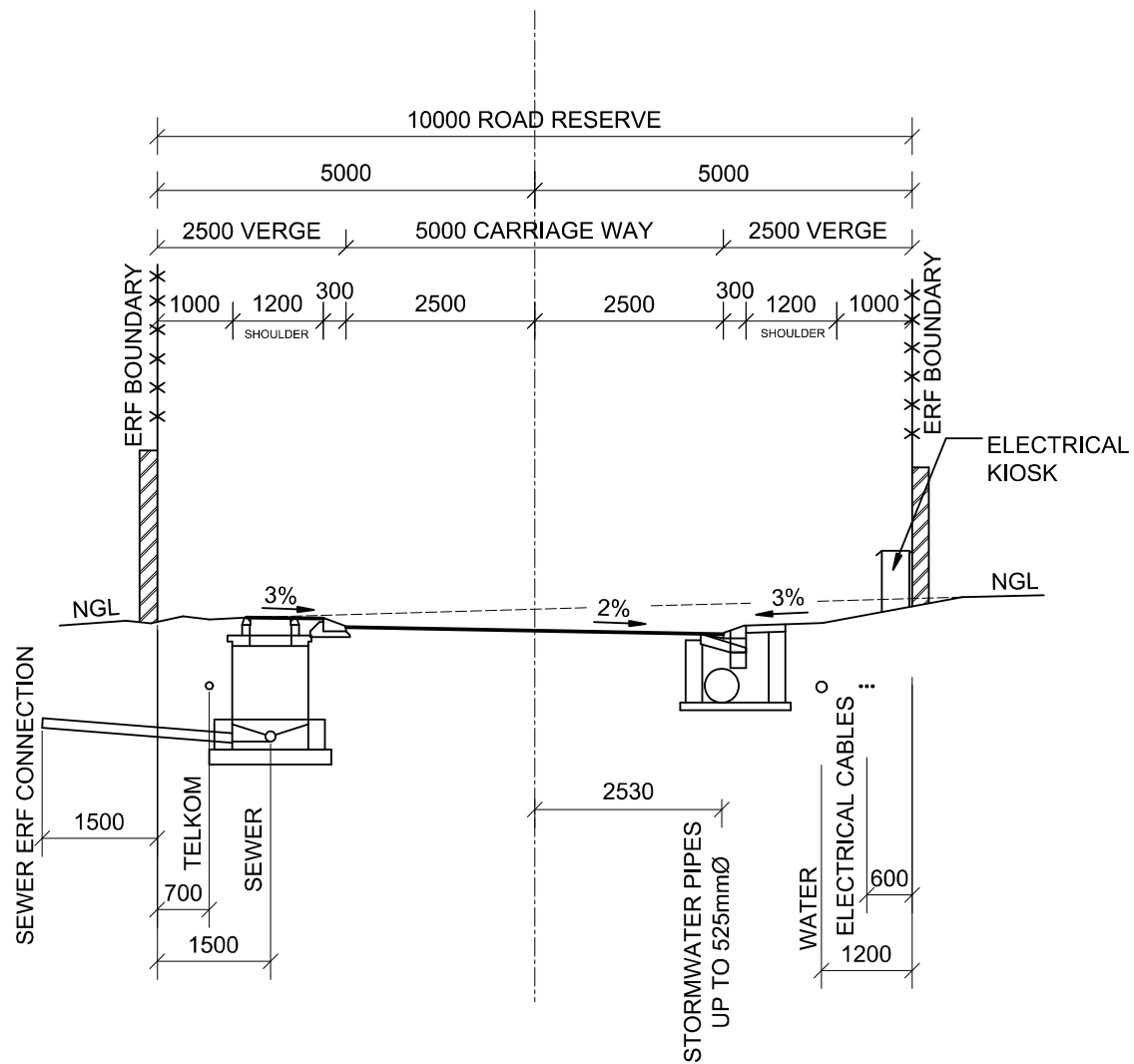
1:100

Paper Size

A4

Drawing No.

SG4



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STANDARD DETAIL DRAWING

TYPICAL LAYOUT OF SERVICES IN 10m ROAD RESERVE

Scale


1:100

Paper Size

A4

Drawing No.

SG5

SERVICES TYPE	LETTERING (CUT IN KERB WITH GRINDER)	COLOUR (OF LETTERING)	SPECIFICATIONS	EXAMPLES
<b>DUCTS</b>				
TELKOM	T	GREEN	CUT LETTERING ON KERB FACE WITH GRINDER, 75mm HIGH x 5mm THICK. PAINT LETTER WITH POLY-ACRYLIC ROOF PAINT.	
ELECTRICAL	E	RED		
TRAFFIC	R	YELLOW		
PARKS (IRRIGATION)	P	BLACK		
<b>WATERMANS - NOTE FOR ROUTE MARKERS AND VALVE AND HYDRANT MARKERS OUT OF ROAD RESERVES OR TOO FAR FROM KERBS - SEE DRAWING NO. SG7</b>				
VALVE	V	WHITE	<p>BLUE COVER FOR CHAMBER.</p> <p>PAINT ONE KERB (1M) BLUE (WITH POLY ACRYLIC ROOF PAINT) CUT LETTERING ON KERB FACE WITH GRINDER, 75MM HIGH x 5MM THICK. PAINT LETTER WITH POLY-ACRYLIC ROOF PAINT.</p> <p>OPTIONAL EXTRA: BLUE ROAD STUD ON CENTRE LINE OF ROAD – FIXED TO SURFACE WITH EPOXY.</p>	
FIRE HYDRANT	FH	WHITE	<p>YELLOW COVER FOR CHAMBER.</p> <p>PAINT ONE KERB (1m) YELLOW (WITH POLY ACRYLIC ROOF PAINT) CUT LETTERING ON KERB FACE WITH GRINDER, 75mm HIGH X 5mm THICK. PAINT LETTER WITH POLY-ACRYLIC ROOF PAINT.</p> <p>PAINT FH SYMBOL ON ROAD SURFACE NEXT TO KERB USING YELLOW ROAD MARKING PAINT (TO SANS 731).</p>	

			OPTIONAL EXTRA: YELLOW ROAD STUD ON CENTRE LINE OF ROAD – FIXED TO SURFACE WITH EPOXY.	
<b>HOUSE CONNECTIONS</b>				
SEWER	SINGLE GROOVE	BROWN	<p>CUT SINGLE GROOVE ON KERB FACE WITH GRINDER 75mm HIGH X 5mm THICK. PAINT GROOVE WITH POLY-ACRYLIC ROOF PAINT.</p> <p>MARKER POSTS: INSTALL 1200mm X 50mm X 50mm TIMBER POST PAINTED BROWN PROTRUDING 500mm ABOVE FINISHED GROUND LEVEL AT CONNECTION POINT. REFER TO DRAWING NO SS14</p>	
WATER	SINGLE GROOVE	BLUE	<p>CUT SINGLE GROOVE ON KERB FACE WITH GRINDER 75mm HIGH X 5mm THICK. PAINT GROOVE WITH POLY-ACRYLIC ROOF PAINT.</p> <p>MARKER POSTS: INSTALL 1200mm X 50mm X 50mm TIMBER POST PAINTED BLUE PROTRUDING 500mm ABOVE FINISHED GROUND LEVEL AT CONNECTION POINT. REFER TO DRAWING NO. SW10</p>	
ELECTRICAL	SINGLE GROOVE	RED	CUT SINGLE GROOVE ON KERB FACE WITH GRINDER, 75mm HIGH X 5mm THICK. PAINT GROOVE WITH POLY-ACRYLIC ROOF PAINT.	

NOTE: POLY ACRYLIC ROOF PAINT TO BE USED ON CONCRETE SURFACES



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STANDARD DETAIL DRAWING

SERVICES MARKINGS

Scale

Paper Size

N.T.S.

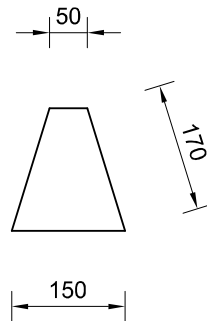
A4

Drawing No.

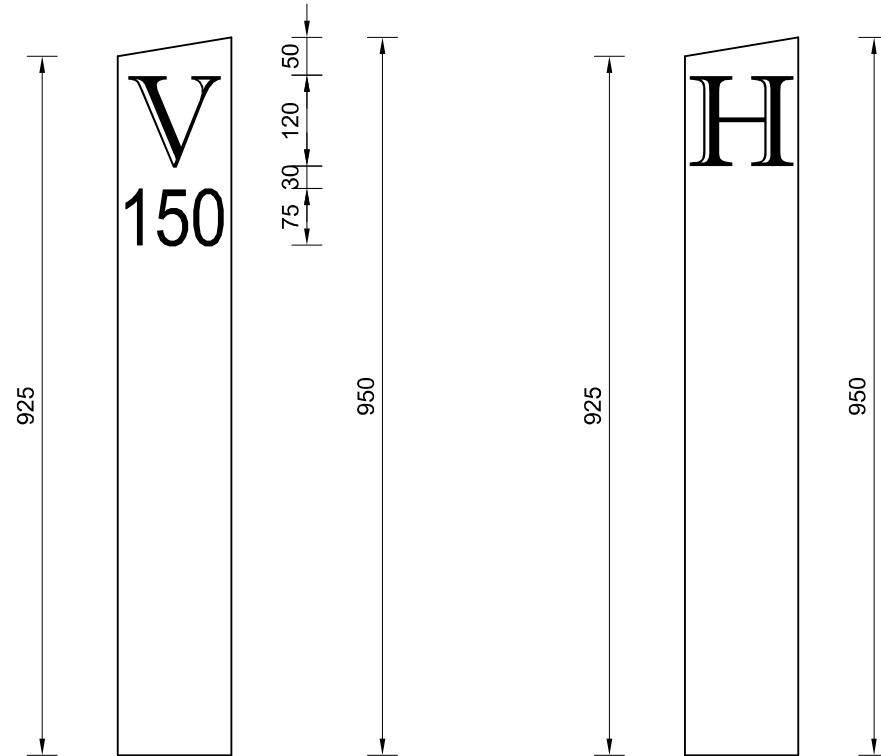
SG6

**NOTES:**

1. ROUTE, VALVE AND HYDRANT MARKERS, OUT OF ROAD RESERVES OR TOO FAR FROM KERBS.
2. POST MUST BE SET IN 300x300x200mm CONCRETE BASE (20MPa) AND PROTRUDE 500mm ABOVE GROUND.
3. REINFORCE MARKER WITH 1xY10 BAR IN CENTRE (875mm LONG).
4. VALVE AND ROUTE MARKERS SHALL ALSO INDICATE PIPE DIAMETER IN MILLIMETERS.
5. NON REFLECTORIZED PAINT SHALL BE USED ACC. TO SABS 731 COLOUR SPECIFICATIONS:
  - 5.1. MARKER - BLUE (EXPOSED SECTION TO BE PAINTED TO 100mm BELOW NATURAL GROUND LEVEL); HYDRANT - YELLOW
  - 5.2. LETTERING - WHITE
6. PIPE ROUTE MARKERS
  - 6.1. SAME AS VALVE MARKER - REPLACE "V" WITH "W"
  - 6.2. EVERY 50m AND CHANGE IN DIRECTION



**PLAN**



**ELEVATION**



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STANDARD DETAIL DRAWING

ROUTE, VALVE AND HYDRANT MARKERS OUTSIDE ROAD RESERVES  
OR TOO FAR FROM KERBS

Scale

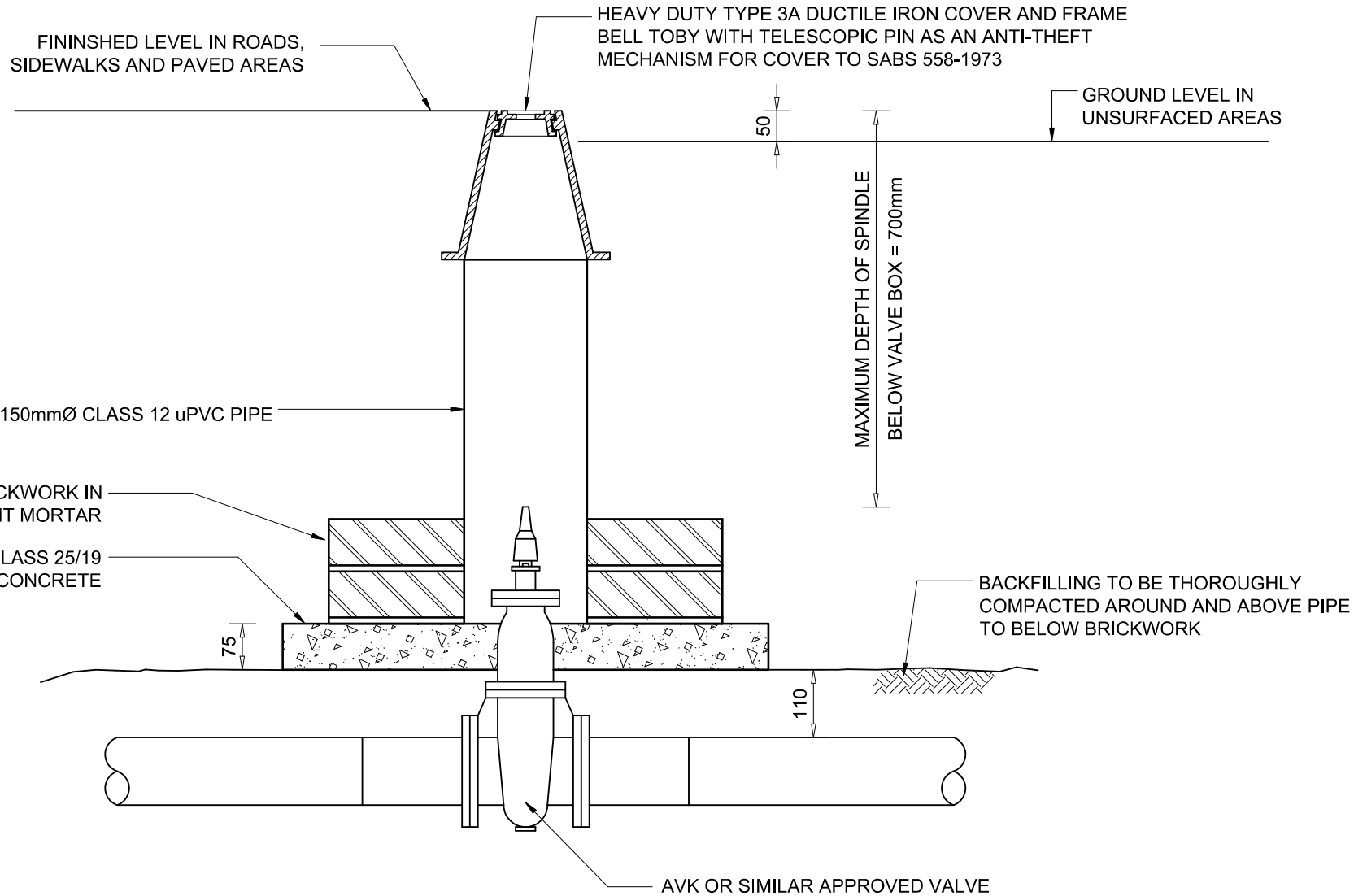
1 : 10

Paper Size

A4

Drawing No.

SG7



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STANDARD DETAIL DRAWING

VALVE CHAMBER

Scale

1 : 10

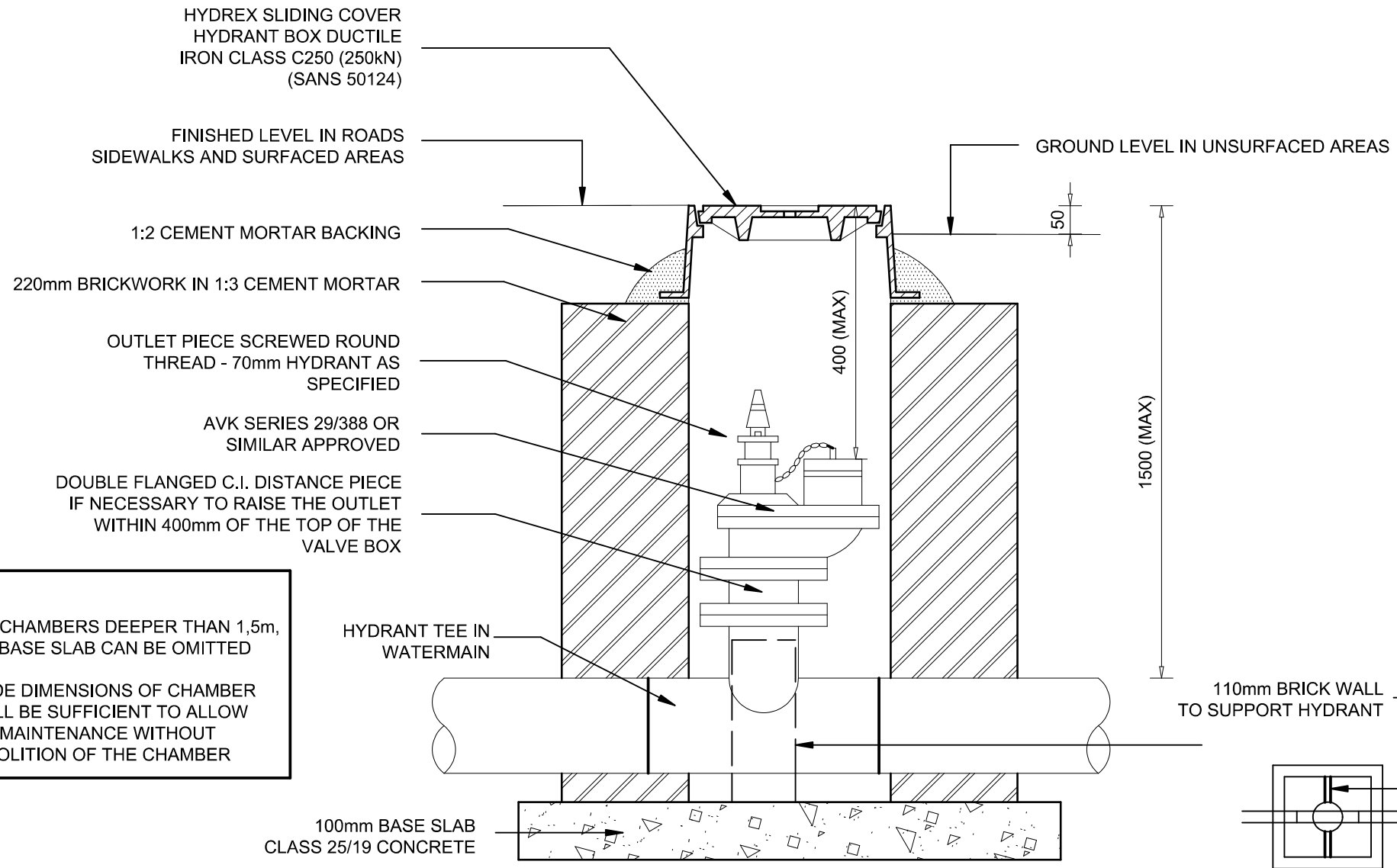
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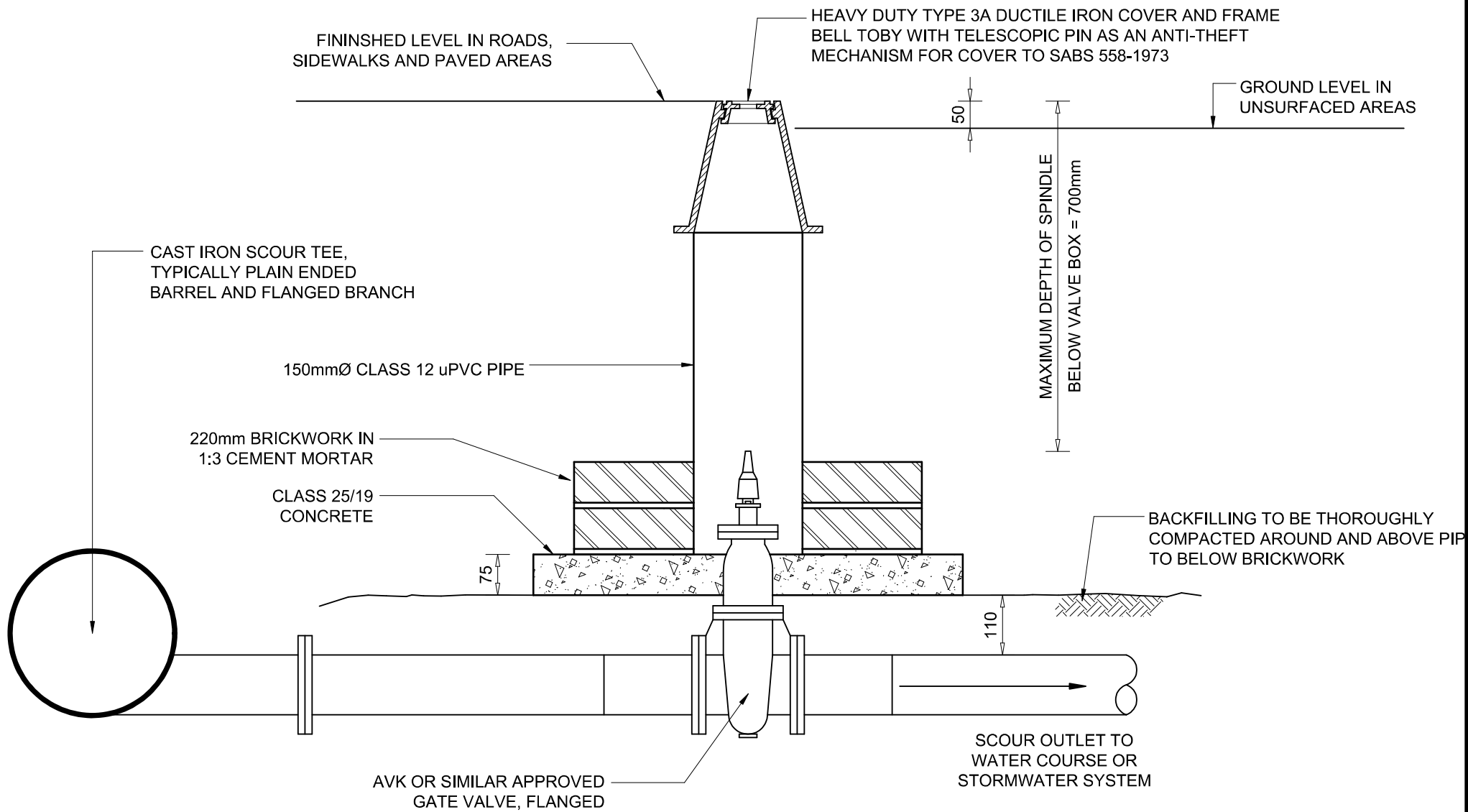
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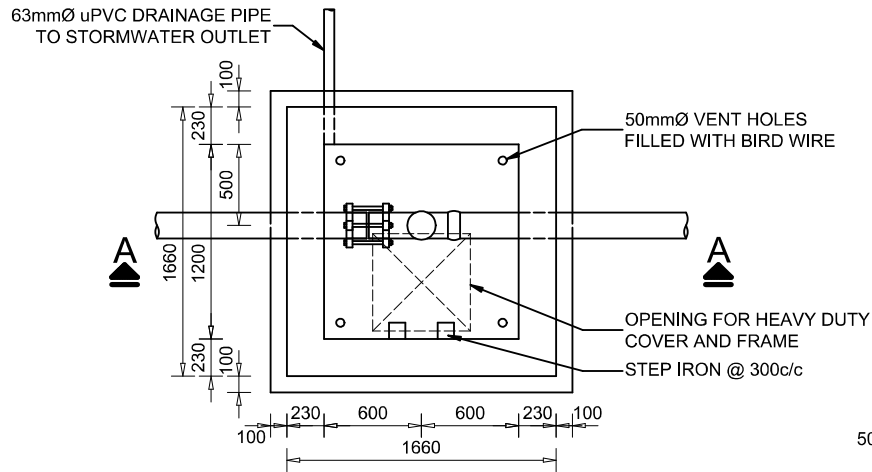
SW1



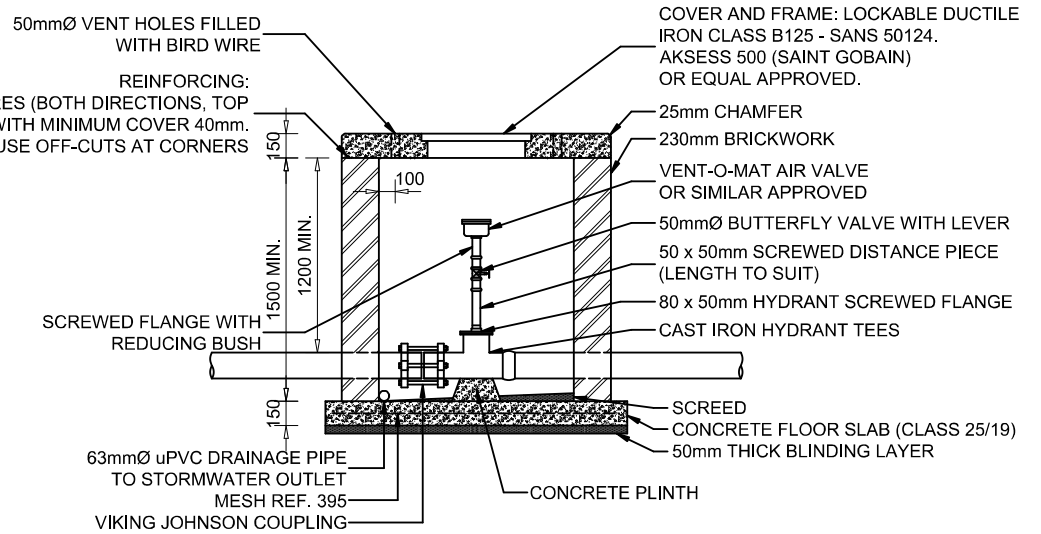


- NOTES :**
1. FOR CHAMBERS DEEPER THAN 1,5m, THE BASE SLAB CAN BE OMITTED
  2. INSIDE DIMENSIONS OF CHAMBER SHALL BE SUFFICIENT TO ALLOW FOR MAINTENANCE WITHOUT DEMOLITION OF THE CHAMBER





**PLAN**



**SECTION A - A**



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STANDARD DETAIL DRAWING

SINGLE AIR VALVE CHAMBER

Scale

N.T.S.

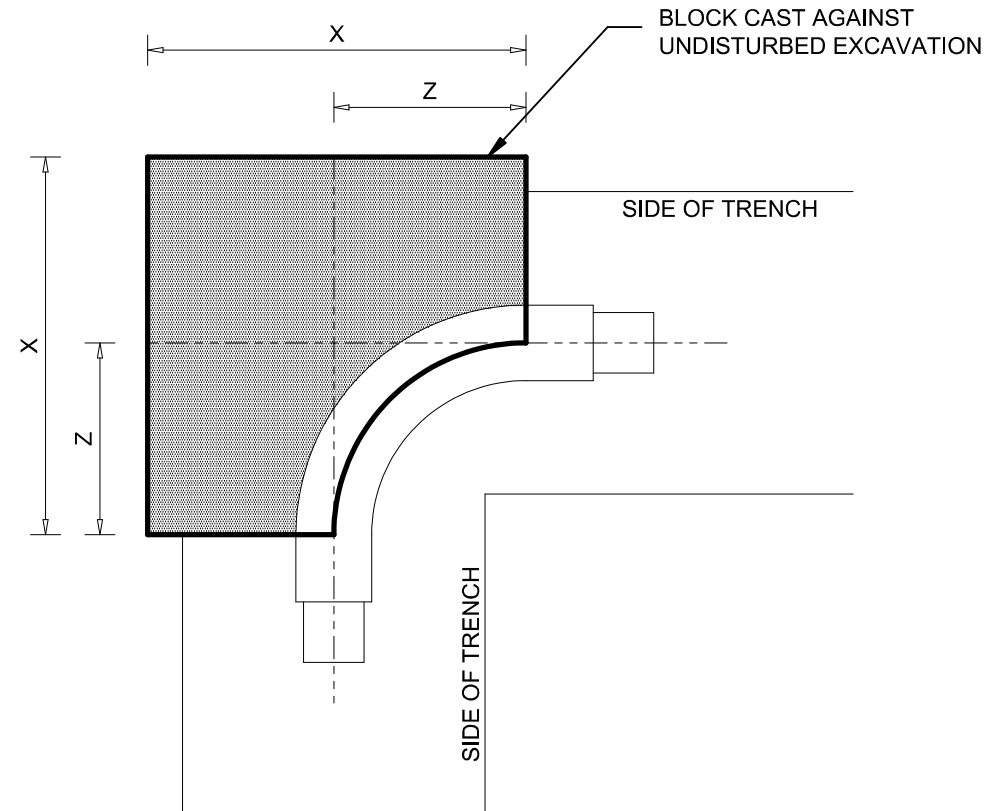
Paper Size

A4

Drawing No.

SW4

PIPE DIAMETER	X	DEPTH OF BLOCK	Z
300	1950	1200	575
250	1625	1000	550
200	1300	800	475
150	1000	600	400
100	650	400	250
75	500	300	175
50	325	200	125



BEARING PRESSURE OF SOIL BEHIND THRUST BLOCK MUST BE AT LEAST 40 kPA AND THE TEST PRESSURE HEAD IN PIPELINE NOT BIGGER THAN 135m



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STANDARD DETAIL DRAWING

THRUST BLOCK FOR 90° BENDS

Scale

N.T.S.

Paper Size

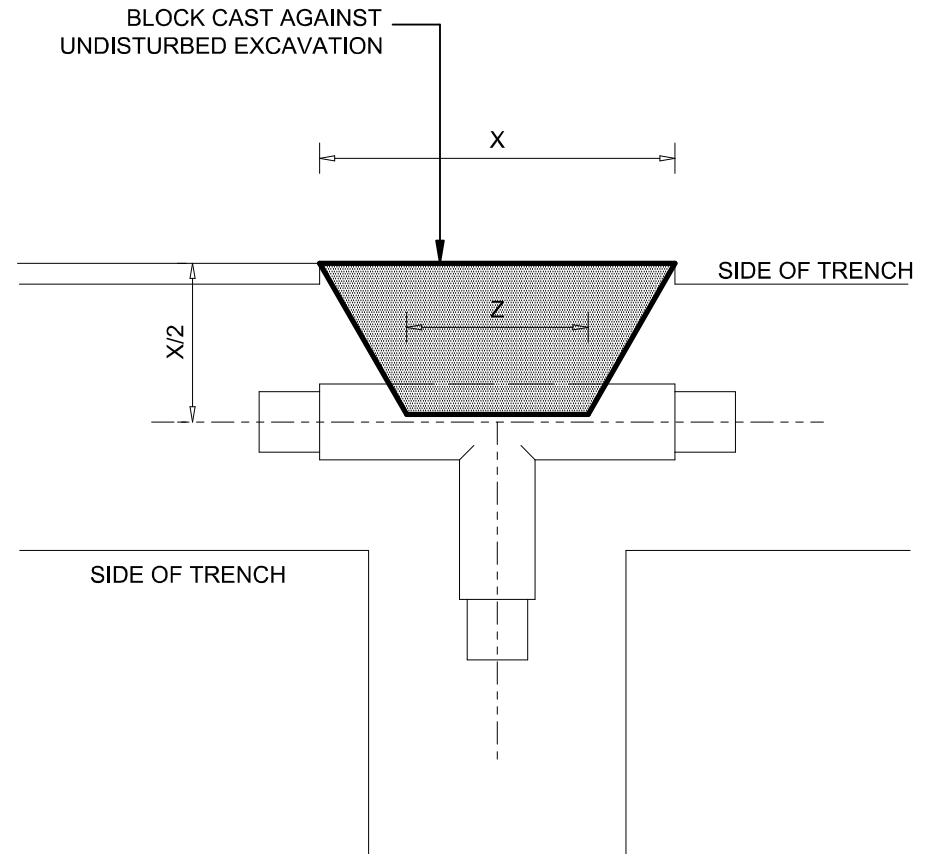
A4

Drawing No.

SW5

PIPE DIAMETER	X	DEPTH OF BLOCK	Z
300	1950	1200	550
250	1625	1000	450
200	1300	800	350
150	1000	600	275
100	650	400	200
75	500	300	150
50	325	200	100

BEARING PRESSURE OF SOIL BEHIND THRUST BLOCK MUST BE AT LEAST 40 kPA AND THE TEST PRESSURE HEAD IN PIPELINE NOT BIGGER THAN 135m



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STANDARD DETAIL DRAWING

THRUST BLOCK FOR TEES

Scale

N.T.S.

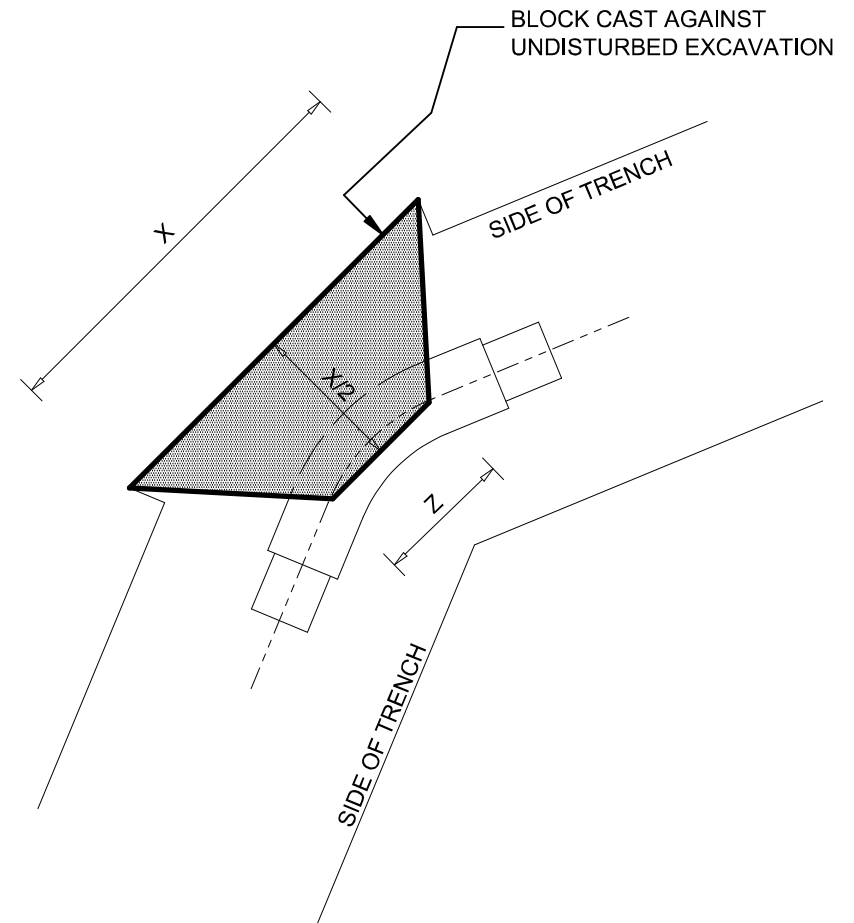
Paper Size

A4

Drawing No.

SW6

PIPE DIAMETER	X	DEPTH OF BLOCK	Z
300	1500	1200	375
250	1250	1000	350
200	1000	800	325
150	750	600	275
100	500	400	175
75	375	300	125
50	250	200	75



BEARING PRESSURE OF SOIL BEHIND THRUST BLOCK MUST BE AT LEAST 40 kPA AND THE TEST PRESSURE HEAD IN PIPELINE NOT BIGGER THAN 135m



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STANDARD DETAIL DRAWING

THRUST BLOCK FOR 45° BENDS

Scale

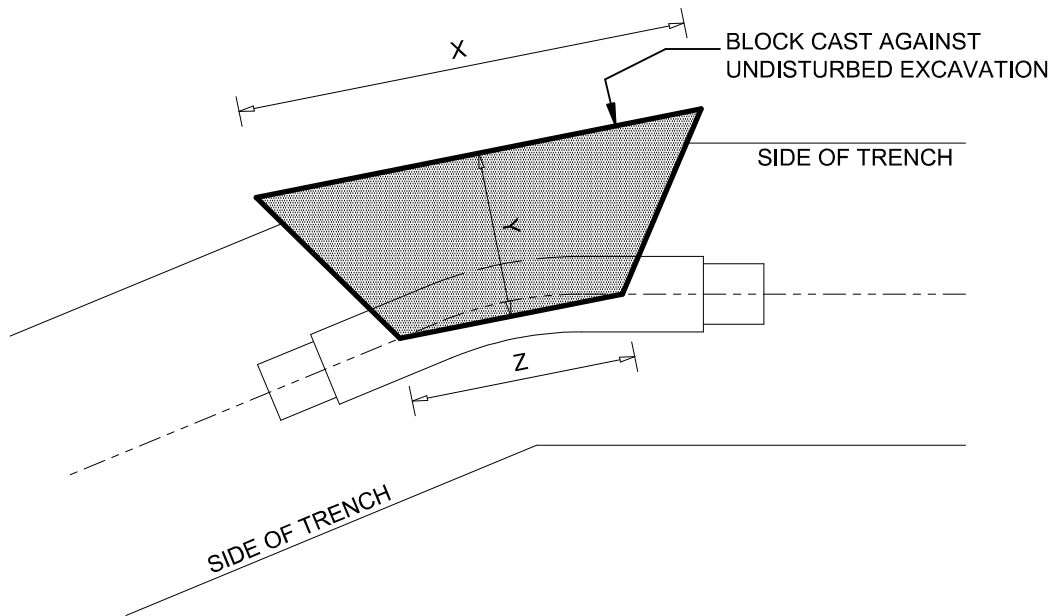
N.T.S.

Paper Size

A4

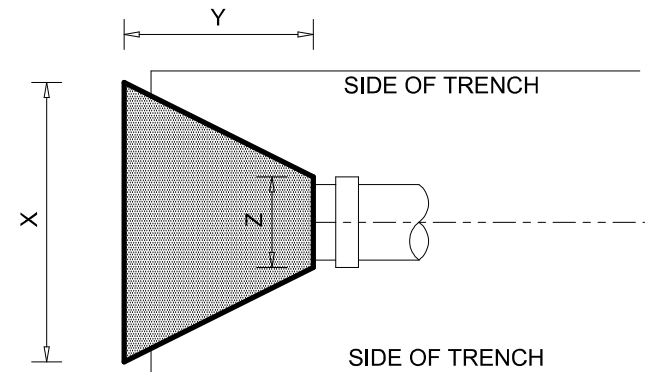
Drawing No.

SW7



FOR 11¼° AND 22½° BENDS

- NOTES:**
1. TO CAST CONCRETE AGAINST UNDISTURBED EXCAVATION Y MUST BE INCREASED AS NEEDED.
  2. BEARING PRESSURE OF SOIL BEHIND THRUST BLOCK MUST BE AT LEAST 40 kPa AND THE TEST PRESSURE HEAD IN PIPELINE NOT BIGGER THAN 135 kPa.
  3. THRUST BLOCKS MUST BE BUILT SYMMETRICAL AROUND FITTINGS.



FOR ENDCAPS

FOR 11¼° BENDS

PIPE DIAMETER	DEPTH OF BLOCK	X	Y	Z
150	300	400	350	150
100	200	300	300	100
75	200	200	300	100
50	200	200	250	75

FOR 22½° BENDS

PIPE DIAMETER	DEPTH OF BLOCK	X	Y	Z
150	450	550	400	200
100	300	350	300	150
75	250	250	300	100
50	200	200	250	100

FOR ENDCAPS

PIPE DIAMETER	DEPTH OF BLOCK	X	Y	Z
150	600	1000	450	200
100	500	500	300	150
75	400	400	300	125
50	100	100	250	100



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STANDARD DETAIL DRAWING

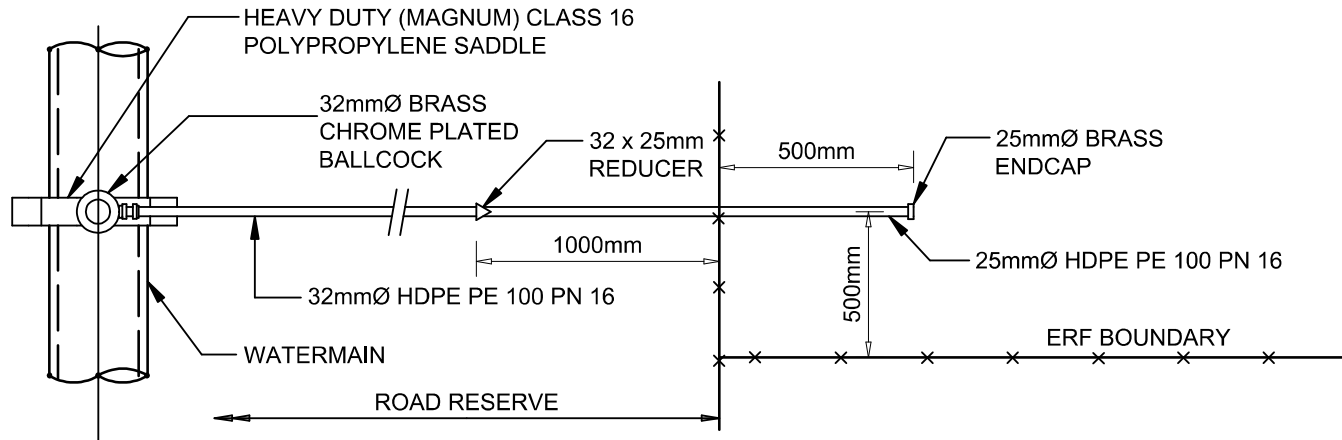
THRUST BLOCK FOR ENDCAPS,  
11¼° AND 22½° BENDS

Scale Paper Size

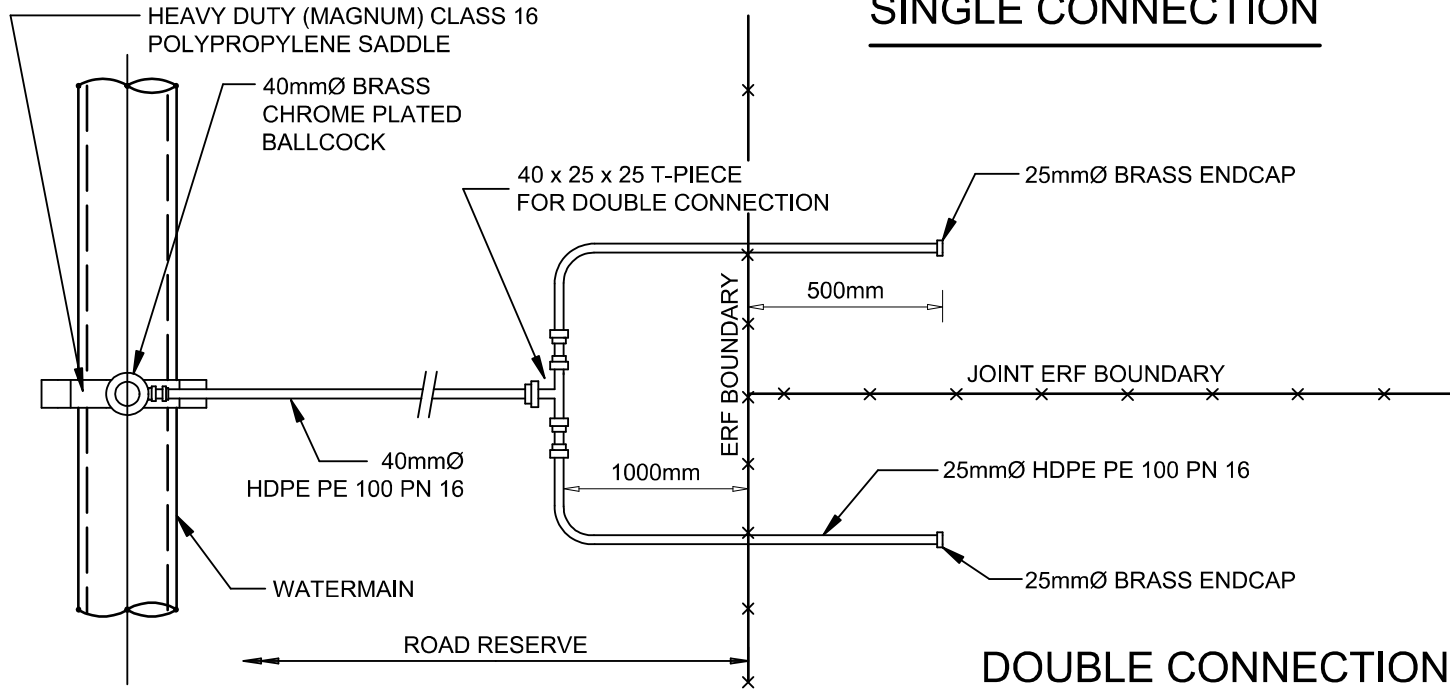
N.T.S. A4

Drawing No.

SW8



### SINGLE CONNECTION



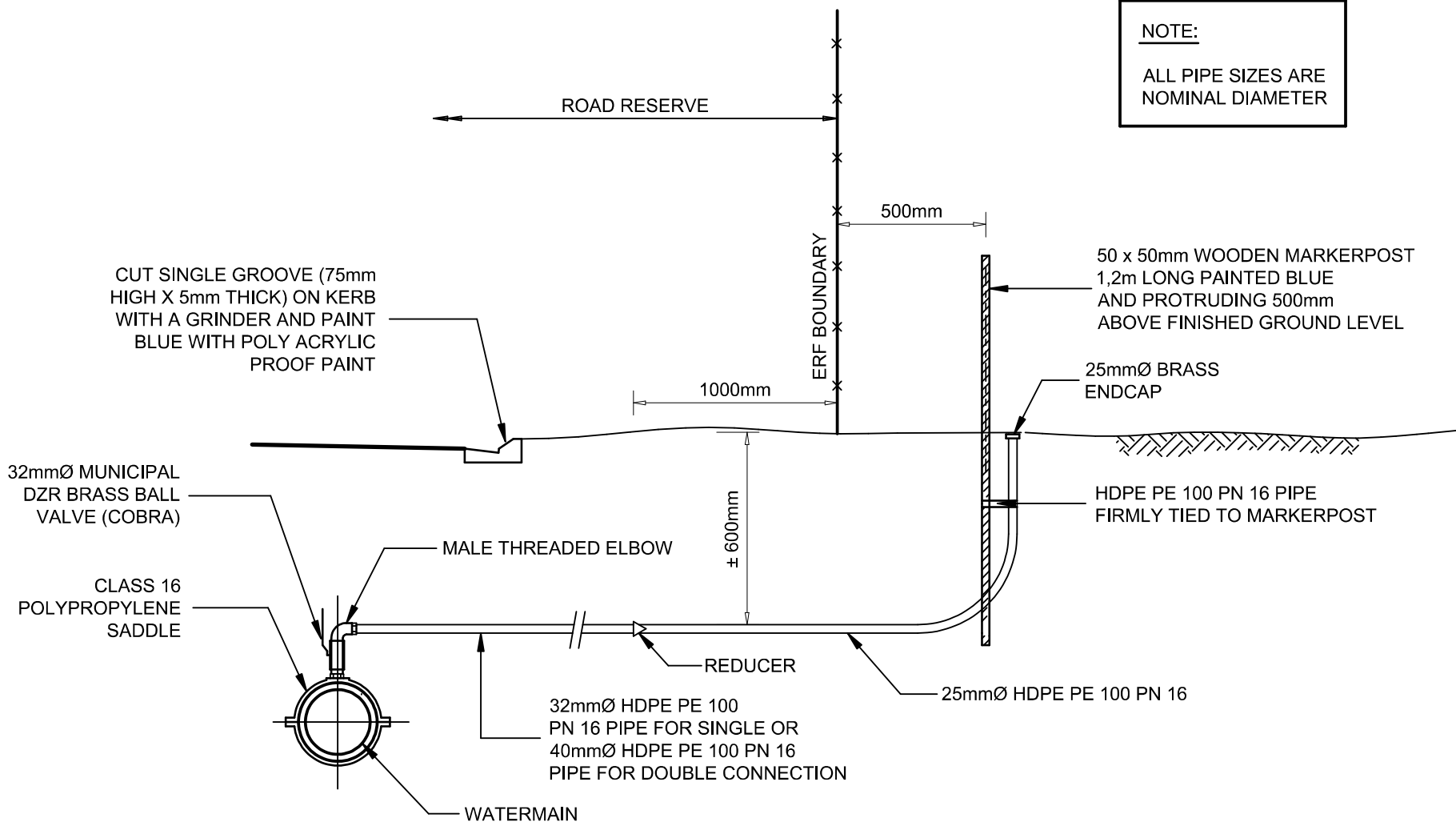
### DOUBLE CONNECTION

- NOTES**
1. ALL PIPE SIZES ARE NOMINAL DIAMETER (DN)
  2. BALL VALVES TO BE OPEN AT ALL TIMES.
  3. ERF CONNECTIONS MAY ONLY BE COVERED AFTER INSPECTION BY MUNICIPAL REPRESENTATIVES.
  4. WATER METERS TO BE INSTALLED IN THE ROAD RESERVE - AS CLOSE AS PRACTICALLY POSSIBLE TO THE ERF BOUNDARY.
  5. READ IN CONJUNCTION WITH SECTION B OF DESIGN GUIDELINES AND MINIMUM STANDARDS FOR CIVIL ENGINEERING SERVICES.

NOMINAL DIA (DN) VS INSIDE DIA (ID)	
SANS 150 4427 : 1996 PE 100 PN 16	
DN (mm)	ID (mm)
20	15.10
25	20.10
32	25.60
40	32.20
50	40.20



**NOTE:**  
ALL PIPE SIZES ARE  
NOMINAL DIAMETER



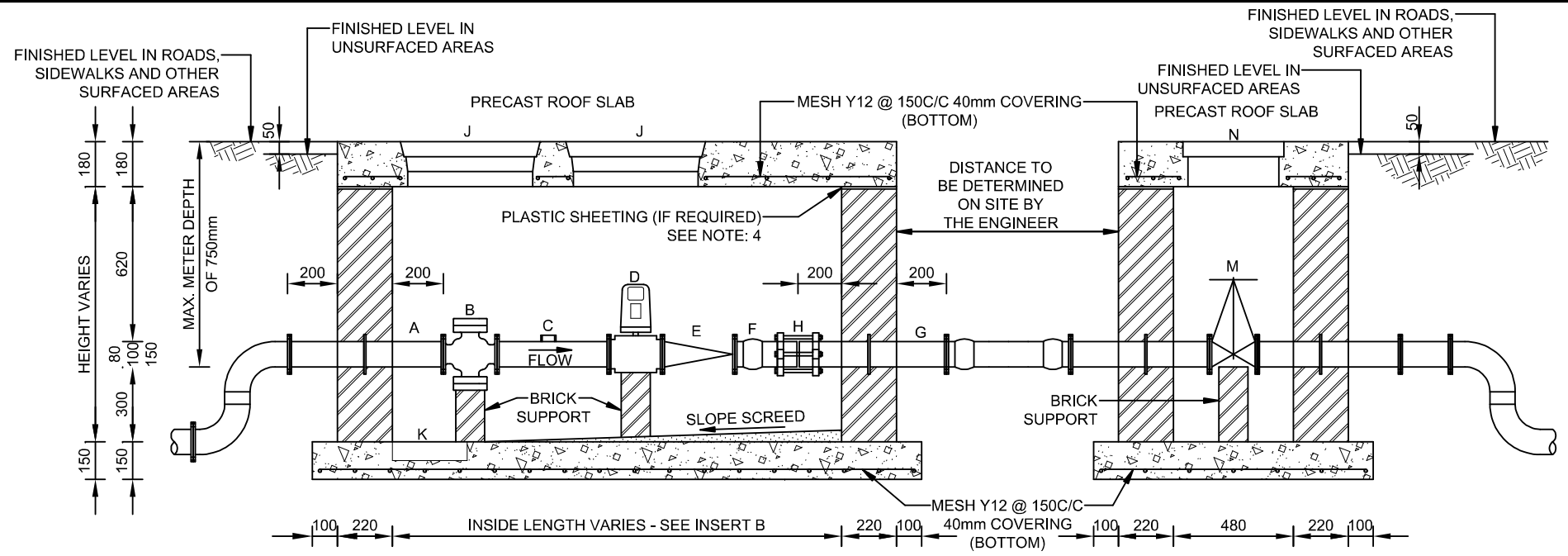
**PARTS LIST**

- ITEM A: PUDDLE PIECE, FLANGED\ T16
- ITEM B: STRAINER, FLANGED\ T16 [SENSUS]
- ITEM C: SPOOL PIECE, FLANGED\ T16 [BOTH SIDES] WITH PRESSURE NIPPLE & 25mmØ BALL VALVE
- ITEM D: COMBINATION WATER METER, FLANGED\ T16 [SENSUS] [SENSUS, MEITWIN = 80 & 100 mm] [SENSUS, WPVD = 150 mm]
- ITEM E: (AVK SWING CHECK VALVE)\*, FLANGED\ PN16\ T16
- ITEM F: FLANGED ADAPTOR, T16
- ITEM G: PUDDLE PIECE, PLAIN & FLANGED ENDED\ T16
- ITEM H: VIKING JOHNSON COUPLING
- ITEM J: 600 DIA, LIGHT DUTY, DUCTILE IRON COVER & FRAME [HINGE WITH SNAP LOCK]
- ITEM K: SUMP
- ITEM L: MUNICIPAL VALVE TO BE (AVK TYPE 1)\* LEFT HAND CLOSE WITH CAP TOP
- ITEM M: CONSUMER VALVE TO BE (AVK TYPE 1)\* RIGHT HAND CLOSE WITH HAND WHEEL
- ITEM N: HINGED DUCTILE IRON : SAINT GOBAIN. SECUREX Z - 600 D (SANS 50124 CLASS D400) OR SIMILAR APPROVED.

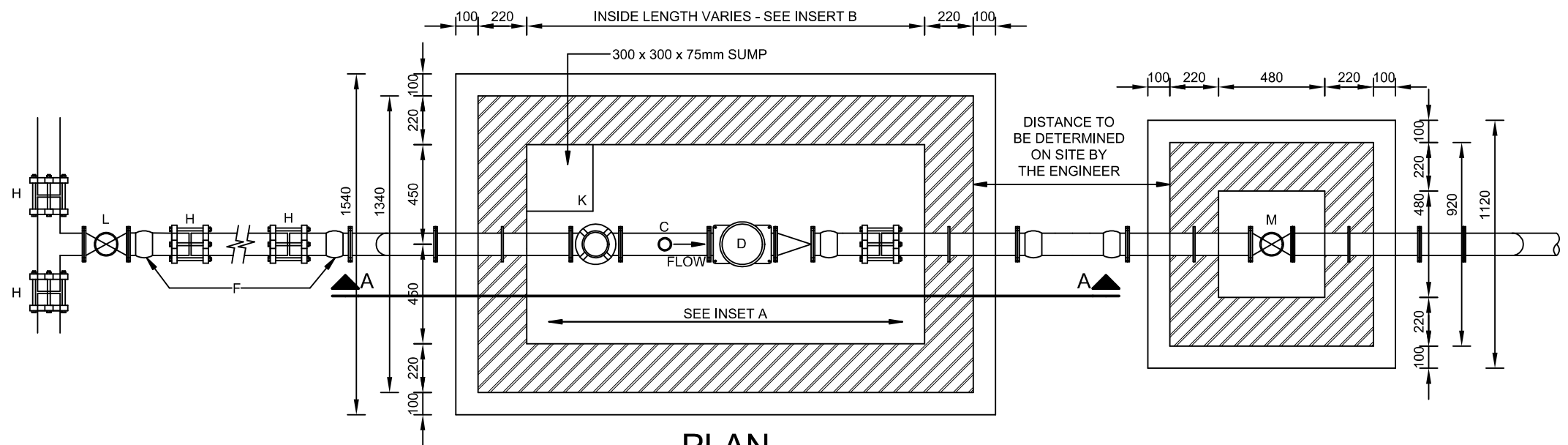
\* AVK OR SIMILAR APPROVED BY PROJECT ENGINEER

**NOTES**

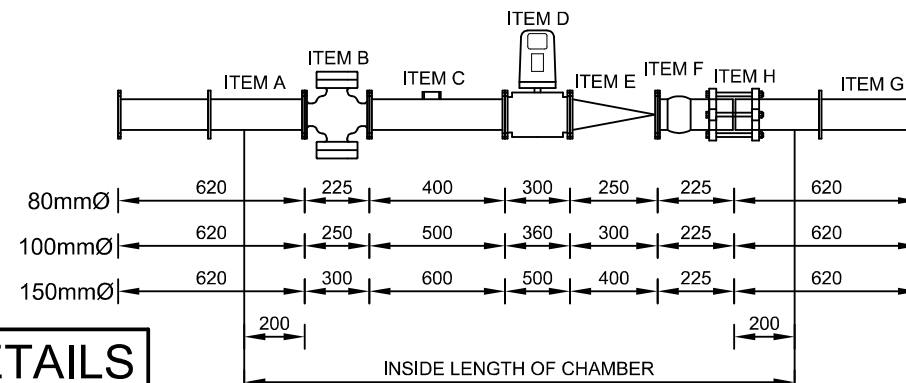
- NOTE 1: PLASTIC SHEETING 375 MICRON EMBOSSED D.P.C. SABS 952\1962 TYPE B TO BE PLACED ON WALLS BEFORE PLACING ROOF SLAB IN PLACE AND SEAL INTERNAL AND EXTERNAL JOINTS WITH SIKAFLEX-PRO 2HP
- NOTE 2: CONCRETE GRADE 25\19 FOR FLOOR AND ROOF SLABS
- NOTE 3: AVOID PLACING THE METER CHAMBER IN THE ROAD AND ENTRANCES WHEREVER POSSIBLE
- NOTE 4: CHAMBER WALLS TO BE PLASTERED, EXTERNAL AND INTERNAL, TO PREVENT SEEPAGE OF GROUND WATER INTO MANHOLE (PLASTER 13mm THICK, STEEL TROWELLED TO SMOOTH SURFACE)
- NOTE 5: EXTERNAL PLASTERED WALLS TO BE COATED WITH 2 COATS FLINTKOTE [ABE] AND 1 FINAL COAT SILVAKOTE [ABE] AND 1 FINAL COAT SILVAKOTE [ABE] AND INTERNAL PLASTERED WALLS TO BE COATED WITH 3 COATS DURASLURRY [ABE]
- NOTE 6: ALL FLANGES TO BE DRILLED T16
- NOTE 7: VIKING JOHNSON COUPLING TO BE SEALED WITH DENSO TAPE
- NOTE 8: ONLY STAINLESS STEEL 316L SHOULD BE USED FOR BOLTS & NUTS
- NOTE 9: INTERNAL, PIPE PIECES SHALL BE COATED WITH 3 COATS CARBOLINE 891, MINIMUM TOTAL THICKNESS OF 250 MICRON
- NOTE 10: EXTERNAL, PIPE PIECES SHALL BE COATED WITH 3 COATS CARBOLINE 891, MINIMUM TOTAL THICKNESS OF 250 MICRON
- NOTE 11: EXTERNAL, VIKING JOHNSON/ FLANGE ADAPTORE TO BE SEALED WITH DENSO TAPE
- NOTE 12: EXTERNAL BENDS, TEES & FLANGE ADAPTORS SHALL BE COATED WITH 3 COATS CARBOLINE 891, MINIMUM TOTAL THICKNESS OF 250 MICRON



**SECTION A - A**



**PLAN**



**INSET A**

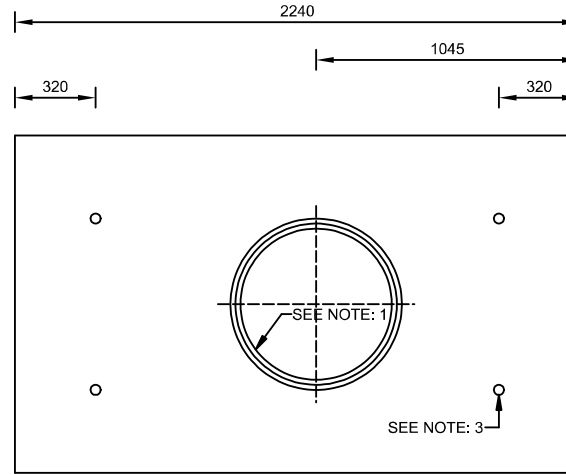
CHAMBER DIMENSIONS		FLOOR SLAB	WATER METER
INSIDE DIMS	OUTSIDE DIMS	OUTSIDE DIMS	METER SIZE
1800x900	2240x1340	2440x1540	80mm
2035x900	2475x1340	2675x1540	100mm
2425x900	2865x1340	3065x1540	150mm

**INSET B**

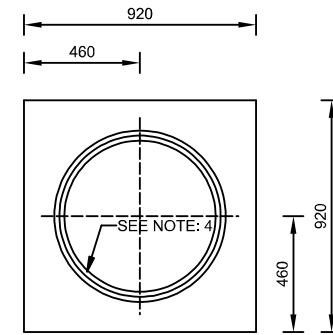
**FOR COVER SLAB DETAILS  
SEE DRAWING SW12**

**NOTES**

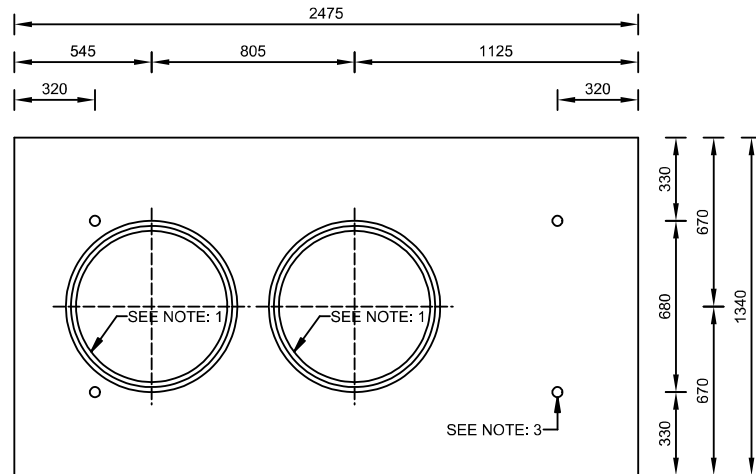
- NOTE 1: DUCTILE IRON COVER FRAMES TO BE PLACED ABOVE WATER METER & STRAINER
- NOTE 2: CUT & BEND MESH TO SUIT COVER OPENING & SUMP
- NOTE 3: PROVIDE 4 NO. 40mmØ LIFTING HOLE IN ROOF SLAB [PLUGGED WITH BITUMEN AFTER ROOF SLAB IS IN PLACE TO PREVENT WATER SEEPAGE]
- NOTE 4: HINGED DUCTILE IRON : SAINT GOBAIN SECUREX Z - 600 D (SANS 50124 CLASS D400) OR SIMILAR APPROVED



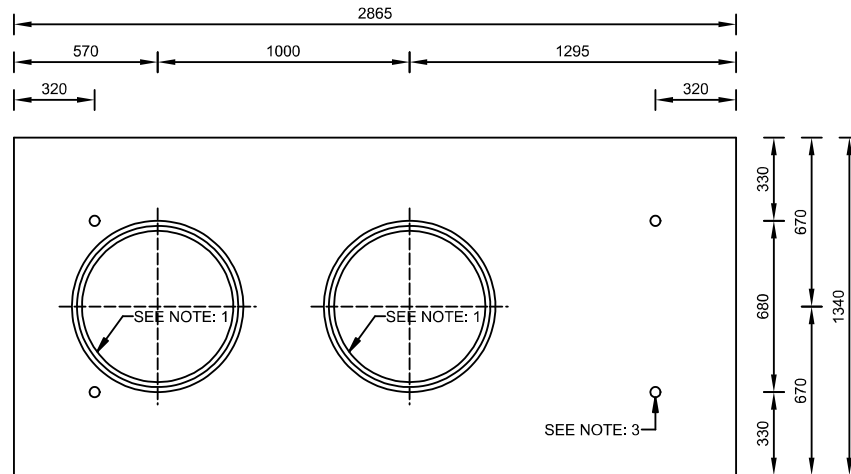
FOR 80mmØ METER



FOR CONSUMER VALVE CHAMBER



FOR 100mmØ METER



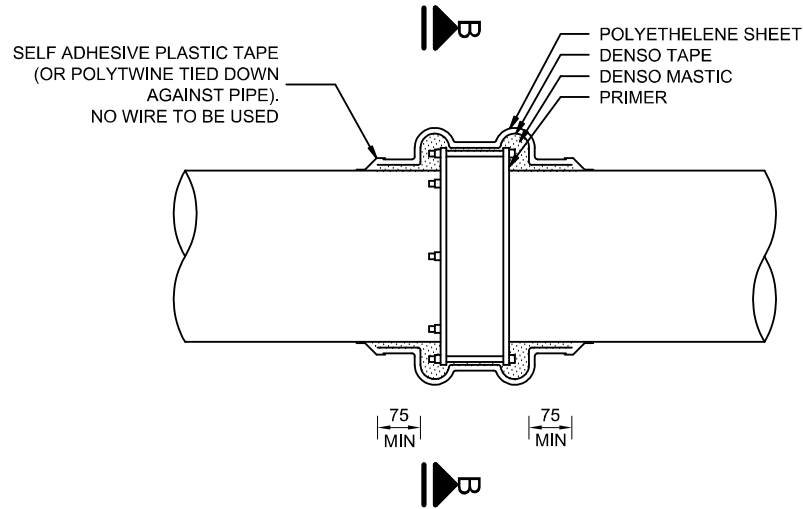
FOR 150mmØ METER

**SUPERCEDED - PLEASE OBTAIN LATEST SPECIFICATION FROM MUNICIPALITY**

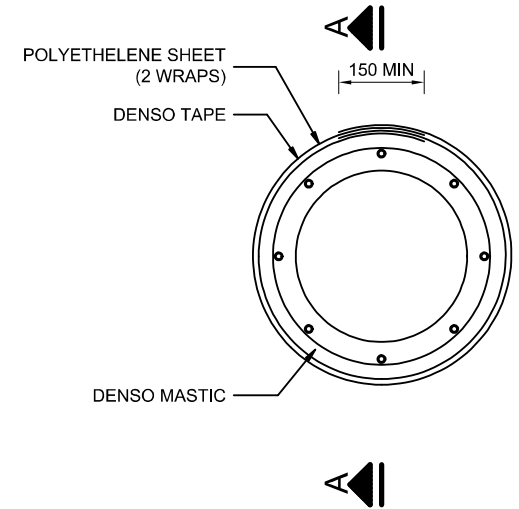
STANDARD DETAIL DRAWING

**NOTES:**

1. ALL WORK MUST BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATION SABS 1200 AND THE GENERAL CONDITIONS OF CONTRACT FOR THE CONSTRUCTION OF CIVIL ENGINEERING WORKS (2004).
2. ALL MODIFICATIONS TO EXISTING SERVICES AND DEVIATIONS FROM THE DESIGN TO BE AS PER INSTRUCTION FROM THE ENGINEER ONLY.
3. ALL CONCRETE TO BE CLASS 20/19 UNLESS OTHERWISE SPECIFIED.
4. ALL MATERIAL TO BE SUBMITTED TO ENGINEER FOR APPROVAL BY STELLENBOSCH MUNICIPALITY PRIOR TO CONSTRUCTION.
5. DENSO OR APPROVED EQUIVALENT PRODUCTS TO BE USED.
6. DENSO PRIMING SOLUTION TO BE BRUSHED ON TO ALL EXTERNAL PARTS OF COUPLING. BOLTS AND AT LEAST 75mm OF PIPE EITHER SIDE OF COUPLING.
7. DENSO TAPE TO BE MOULDED FIRMLY INTO PLACE AND SMOOTHED OVER BY HAND.



**SECTION A - A**



**SECTION B - B**



**STELLENBOSCH**

STELLENBOSCH • PNIEL • FRANSCHHOEK

MUNISIPALITEIT • UMASIPALA • MUNICIPALITY

STANDARD DETAIL DRAWING

CORROSION PROTECTION  
FOR FLANGES

Scale

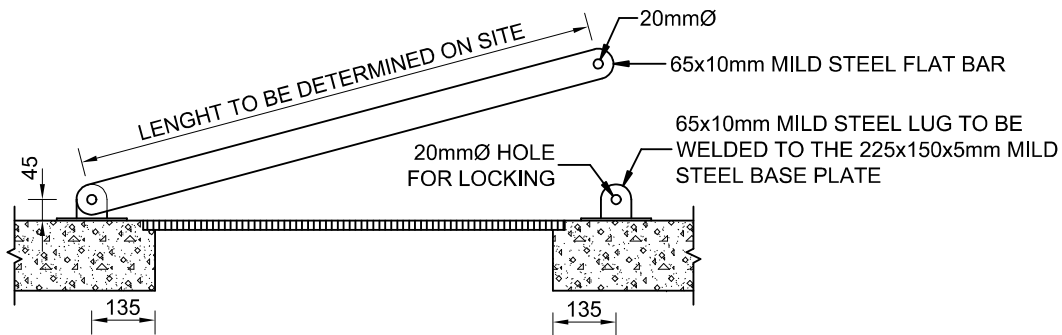
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Paper Size

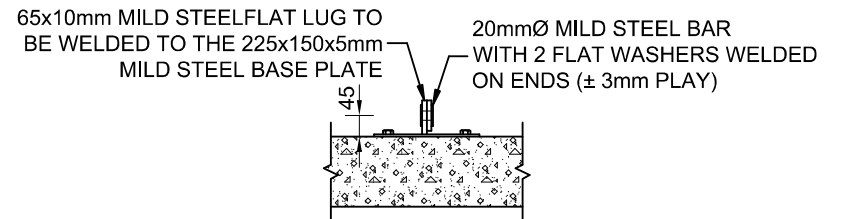
A4

Drawing No.

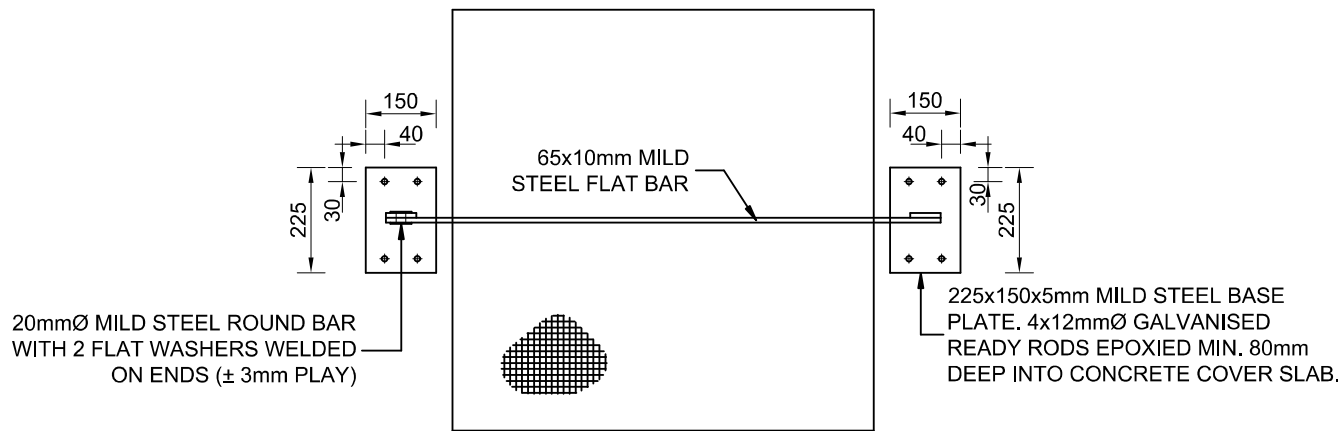
SW13



**FRONT VIEW**



**SIDE VIEW**



**PLAN VIEW**

**NOTES:**

1. ALL STEEL ITEMS SHALL BE, HOT DIP GALVANIZED (HDG) TO SABS EN 10240 AND SABS ISO 1461. WHERE THE HDG IS DAMAGED IT SHALL BE REPAIRED WITH ZINCFIX (OR SIMILAR APPROVED) TO MANUFACTURER'S SPECIFICATIONS.
2. ALL WELDS SHALL BE 6mm FILLET WELDS TO SABS 044.



**STELLENBOSCH**

STELLENBOSCH • PNIEL • FRANSCHHOEK

MUNISIPALITEIT • UMASIPALA • MUNICIPALITY

STANDARD DETAIL DRAWING

LOCKING BAR DETAIL

Scale Paper Size

N.T.S. A4

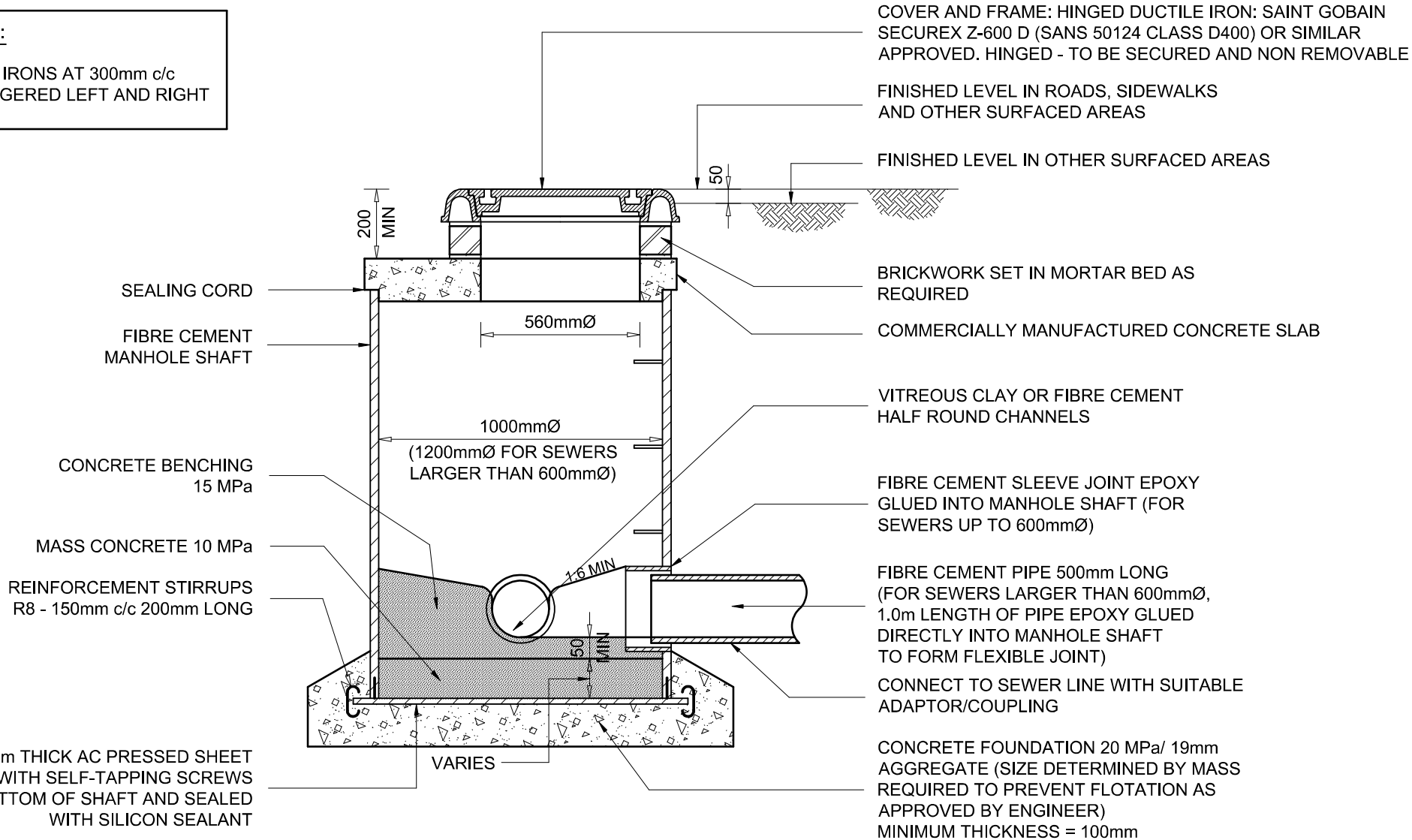
Drawing No.

SW14

**NOTE:**

STEP IRONS AT 300mm c/c  
STAGGERED LEFT AND RIGHT

DEPTH



COVER AND FRAME: HINGED DUCTILE IRON: SAINT GOBAIN SECUREX Z-600 D (SANS 50124 CLASS D400) OR SIMILAR APPROVED. HINGED - TO BE SECURED AND NON REMOVABLE

FINISHED LEVEL IN ROADS, SIDEWALKS AND OTHER SURFACED AREAS

FINISHED LEVEL IN OTHER SURFACED AREAS

BRICKWORK SET IN MORTAR BED AS REQUIRED

COMMERCIALY MANUFACTURED CONCRETE SLAB

VITREOUS CLAY OR FIBRE CEMENT HALF ROUND CHANNELS

FIBRE CEMENT SLEEVE JOINT EPOXY GLUED INTO MANHOLE SHAFT (FOR SEWERS UP TO 600mmØ)

FIBRE CEMENT PIPE 500mm LONG (FOR SEWERS LARGER THAN 600mmØ, 1.0m LENGTH OF PIPE EPOXY GLUED DIRECTLY INTO MANHOLE SHAFT TO FORM FLEXIBLE JOINT)

CONNECT TO SEWER LINE WITH SUITABLE ADAPTOR/COUPLING

CONCRETE FOUNDATION 20 MPa/ 19mm AGGREGATE (SIZE DETERMINED BY MASS REQUIRED TO PREVENT FLOTATION AS APPROVED BY ENGINEER) MINIMUM THICKNESS = 100mm

SEALING CORD

FIBRE CEMENT MANHOLE SHAFT

CONCRETE BENCHING 15 MPa

MASS CONCRETE 10 MPa

REINFORCEMENT STIRRUPS R8 - 150mm c/c 200mm LONG

20mm THICK AC PRESSED SHEET FIXED WITH SELF-TAPPING SCREWS TO BOTTOM OF SHAFT AND SEALED WITH SILICON SEALANT

**NOTE:**

THE PREFERRED MANHOLE TYPE IS THE PRECAST FIBRE CEMENT TYPE (DRAWING NO. SS1). USE OF THE PRECAST CONCRETE MANHOLE IS TO BE APPROVED BY THE WATER SERVICES DEPARTMENT.

COVER AND FRAME: HINGED DUCTILE IRON: SAINT GOBAIN SECUREX Z-600 D (SANS 50124 CLASS D400) OR SIMILAR APPROVED. HINGED - TO BE SECURED AND NON REMOVABLE

FINISHED LEVEL IN ROADS, SIDEWALKS AND OTHER SURFACED AREAS

FINISHED LEVEL IN UNSURFACED AREAS

VARIES TO SUIT FINISHED LEVELS

150

2100 MAX.

DEPTH

200 MIN

560mmØ

110mm BRICKWORK SHAFT SET IN 1:3 CEMENT MORTAR

150mm PRECAST COVER SLAB 25MPa/ 19mm

1000mmØ PRECAST CONCRETE RINGS

BENCHING 15 MPa CONCRETE WITH STEEL FLOAT FINISH

230mm BRICKWORK WITH SABS APPROVED BRICKS COMPLETELY PLASTERED INSIDE AND OUTSIDE.

13mm PLASTER (1 : 3) ON BOTH SIDES

FIBRE CEMENT SLEEVE JOINT BUILT INTO BRICKWORK

LARGEST PIPE Ø + 150mm

1:6 MIN

500mm LENGTH OF SEWER PIPE TO FORM FLEXIBLE JOINT

VITREOUS CLAY OR FIBRE CEMENT HALF ROUND CHANNELS

150mm BASE SLAB 25 MPa CONCRETE/ 19mm AGGREGATE

INTERLOCKING JOINT (NTS)

2 LAYER DENSO TAPE. TAPE WIDTH = 300mm

WATERPROOF INTERLOCKING JOINT BY SETTING IN 1:2 CEMENT MORTAR

75

230

1000

230

75

**NOTE:**

1. STEP IRONS AT 300 c/c AND STAGGERED LEFT AND RIGHT
2. AGGREGATE FOR CONCRETE: DOLOMITIC



**STELLENBOSCH**

STELLENBOSCH • PNIEL • FRANSCHHOEK

MUNISIPALITEIT • UMASIPALA • MUNICIPALITY

STANDARD DETAIL DRAWING

SEWER MANHOLE : PRECAST CONCRETE

Scale

1 : 20

Paper Size

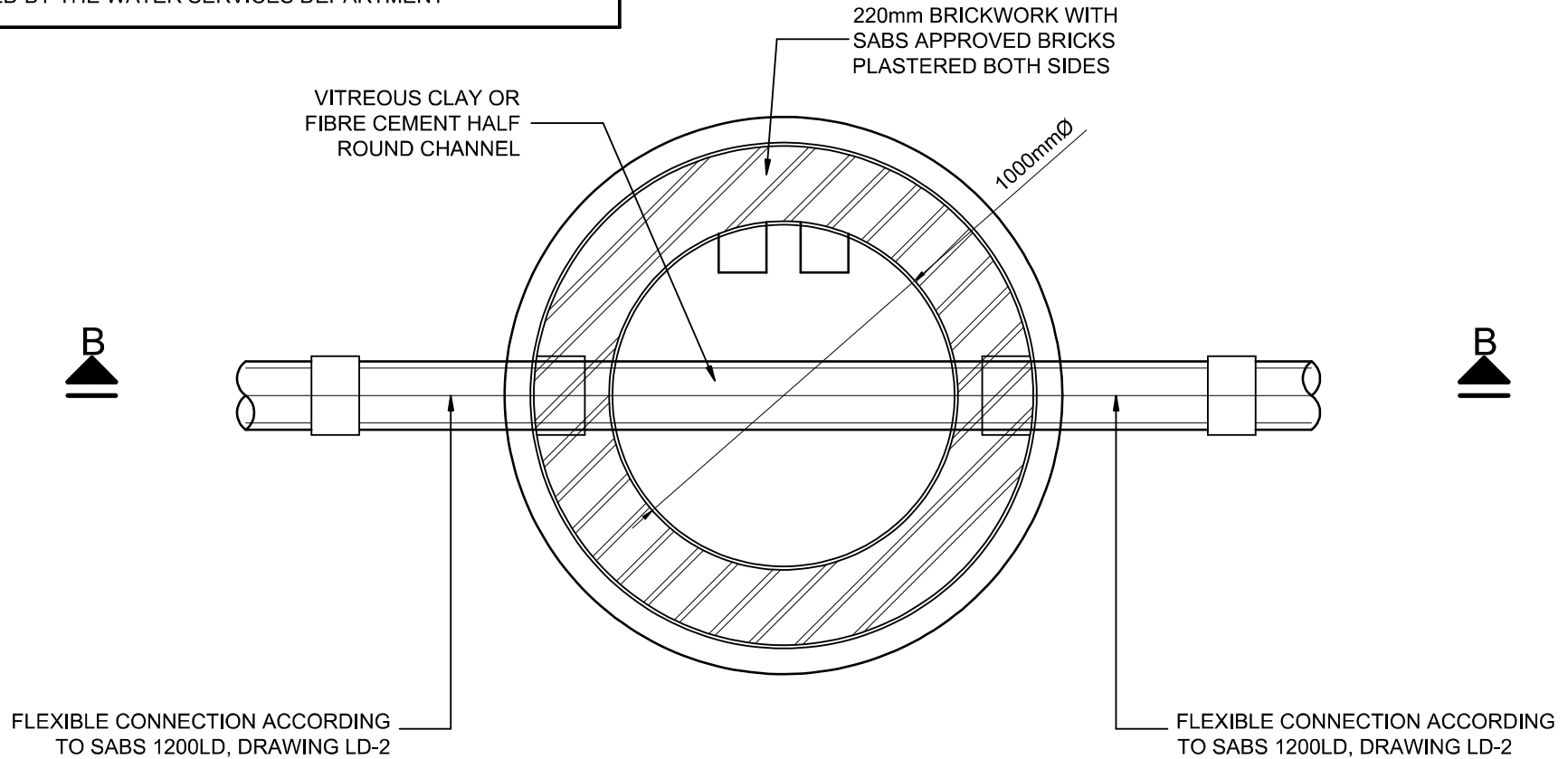
A4

Drawing No.

SS2

**NOTE:**

THE PREFERRED MANHOLE TYPE IS THE PRECAST FIBRE CEMENT TYPE (DRAWING NO. SS1). USE OF THE BRICK MANHOLE TO BE APPROVED BY THE WATER SERVICES DEPARTMENT



**SECTIONAL PLAN A - A**



**STELLENBOSCH**

STELLENBOSCH • PNIEL • FRANSCHHOEK

MUNISIPALITEIT • UMASIPALA • MUNICIPALITY

STANDARD DETAIL DRAWING

SEWER MANHOLE : BRICK - PLAN (1 OF 3)

Scale

Paper Size

1 : 10

A4

Drawing No.

SS3



FRAME TO BE SET IN 1:2 CEMENT MORTAR AND TO SUIT ROAD PROFILE WHERE APPLICABLE

COVER AND FRAME: HINGED DUCTILE IRON: SAINT GOBAIN SECUREX Z-600 D (SANS 50124 CLASS D400) OR SIMILAR APPROVED. HINGED - TO BE SECURED AND NON REMOVABLE

R12 BARS AT 150 mm C/C BOTH WAYS AND 30 mm COVER

150mm COVER SLAB 25 MPa/ 19mm CONCRETE

13mm 1:3 PLASTER ON BOTH SIDES

FLEXIBLE CONNECTION

150mm BASE SLAB 25 MPa/ 19mm AGGREGATE CONCRETE

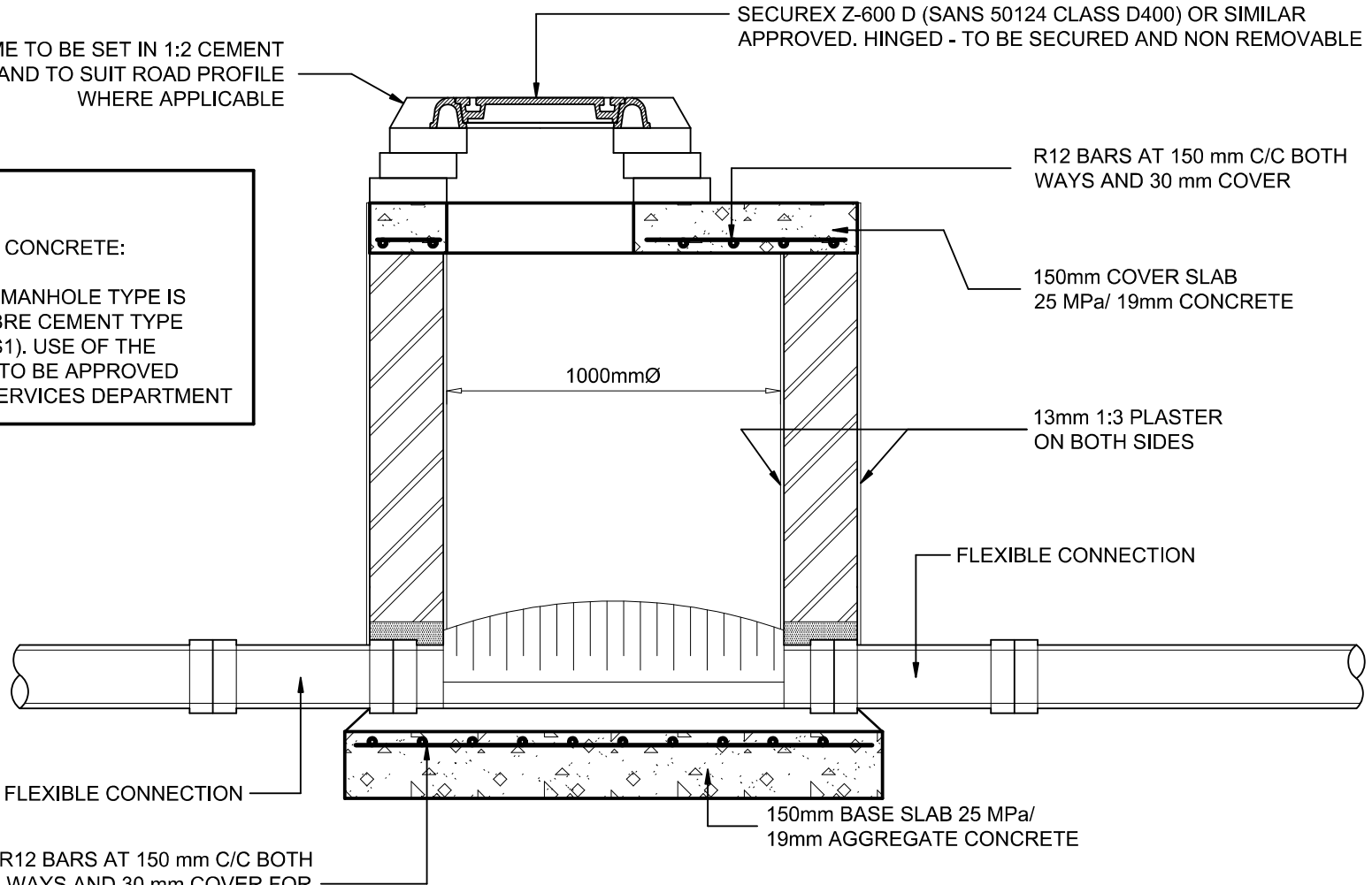
FLEXIBLE CONNECTION

R12 BARS AT 150 mm C/C BOTH WAYS AND 30 mm COVER FOR MANHOLES DEEPER THAN 1.5m

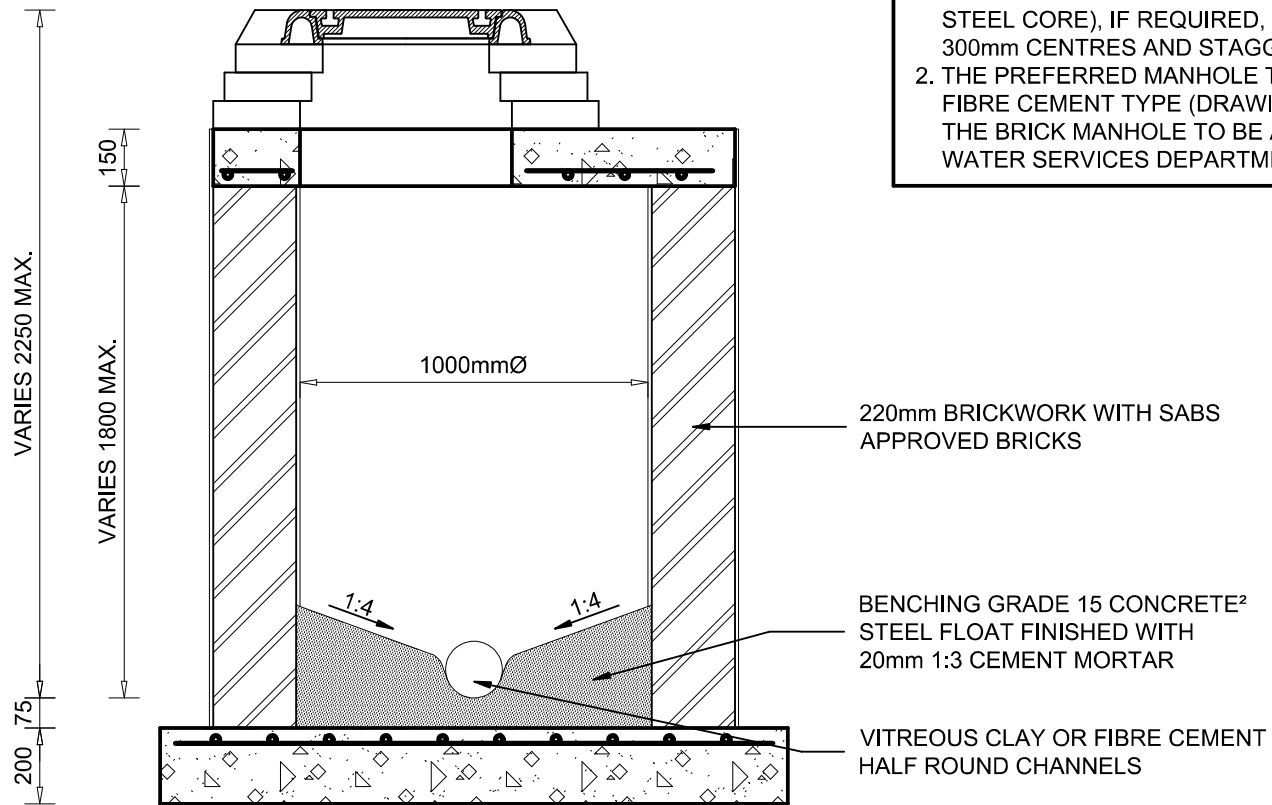
1000mmØ

**NOTE:**

1. AGGREGATE FOR CONCRETE: DOLOMITIC
2. THE PREFERRED MANHOLE TYPE IS THE PRECAST FIBRE CEMENT TYPE (DRAWING NO. SS1). USE OF THE BRICK MANHOLE TO BE APPROVED BY THE WATER SERVICES DEPARTMENT



**SECTION B - B**



**NOTES:**

1. STEP IRONS(POLYMERIC POLYPROPYLENE WITH A 12mm DIA HIGH TENSILE STRENGTH STEEL CORE), IF REQUIRED, TO BE PLACED AT 300mm CENTRES AND STAGGERED LEFT AND RIGHT
2. THE PREFERRED MANHOLE TYPE IS THE PRECAST FIBRE CEMENT TYPE (DRAWING NO. SS1). USE OF THE BRICK MANHOLE TO BE APPROVED BY THE WATER SERVICES DEPARTMENT.

**SECTION C - C**



**STELLENBOSCH**

STELLENBOSCH • PNIEL • FRANSCHHOEK

MUNISIPALITEIT • UMASIPALA • MUNICIPALITY

STANDARD DETAIL DRAWING

SEWER MANHOLE : BRICK - SECTION CC (3 OF 3)

Scale

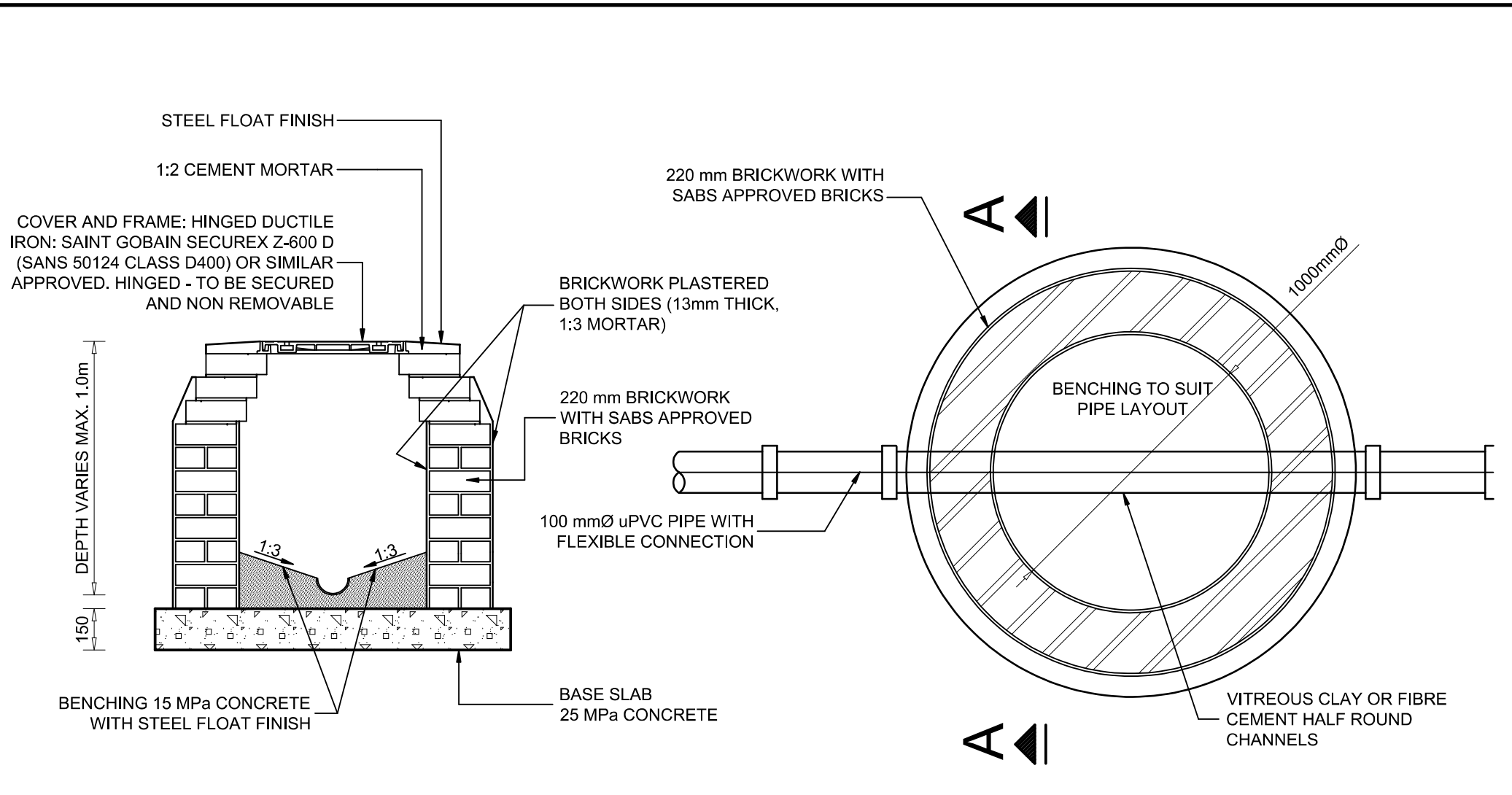
Paper Size

1 : 10

A4

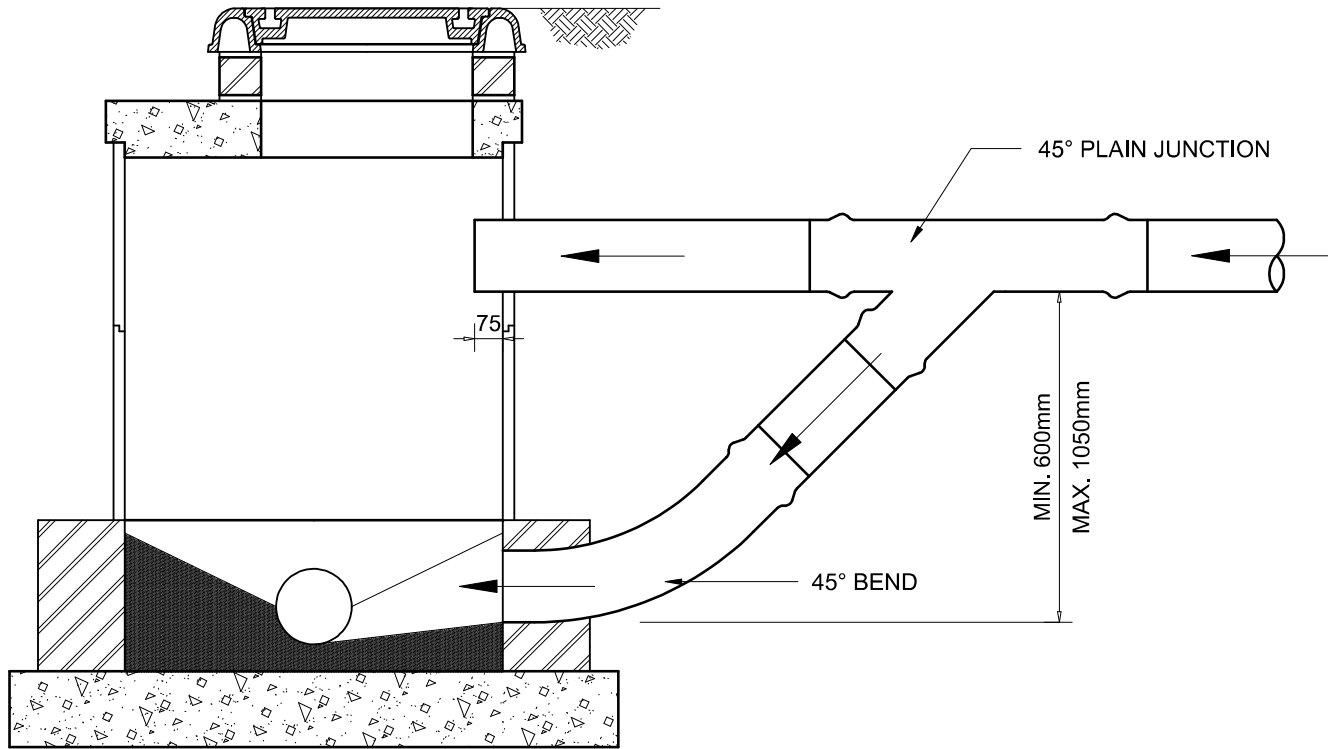
Drawing No.

SS5



SECTION A - A

PLAN LAYOUT



**STELLENBOSCH**

STELLENBOSCH • PNIEL • FRANSCHHOEK

MUNISIPALITEIT • UMASIPALA • MUNICIPALITY

STANDARD DETAIL DRAWING

SEWER MANHOLE WITH BACKDROP : TYPE 1

Scale

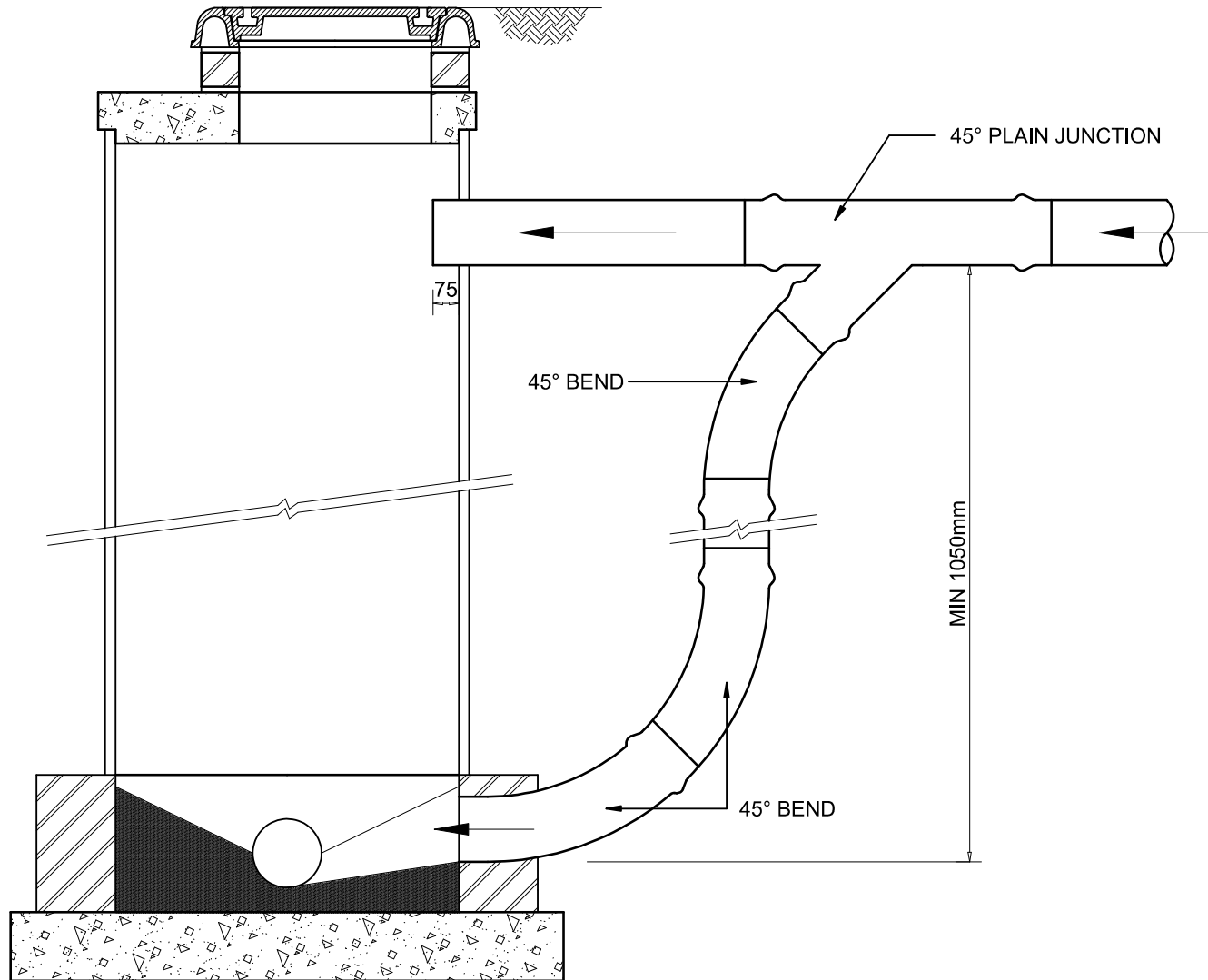
1 : 20

Paper Size

A4

Drawing No.

SS7



**STELLENBOSCH**

STELLENBOSCH • PNIEL • FRANSCHHOEK

MUNISIPALITEIT • UMASIPALA • MUNICIPALITY

STANDARD DETAIL DRAWING

SEWER MANHOLE WITH BACKDROP : TYPE 2

Scale

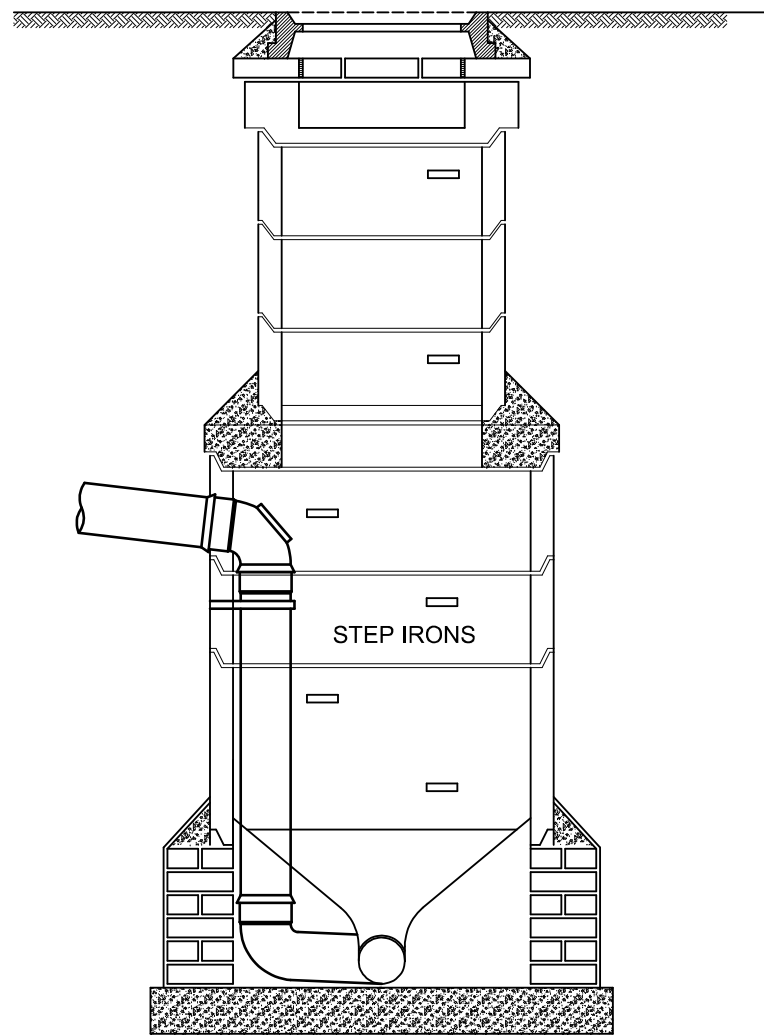
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Paper Size

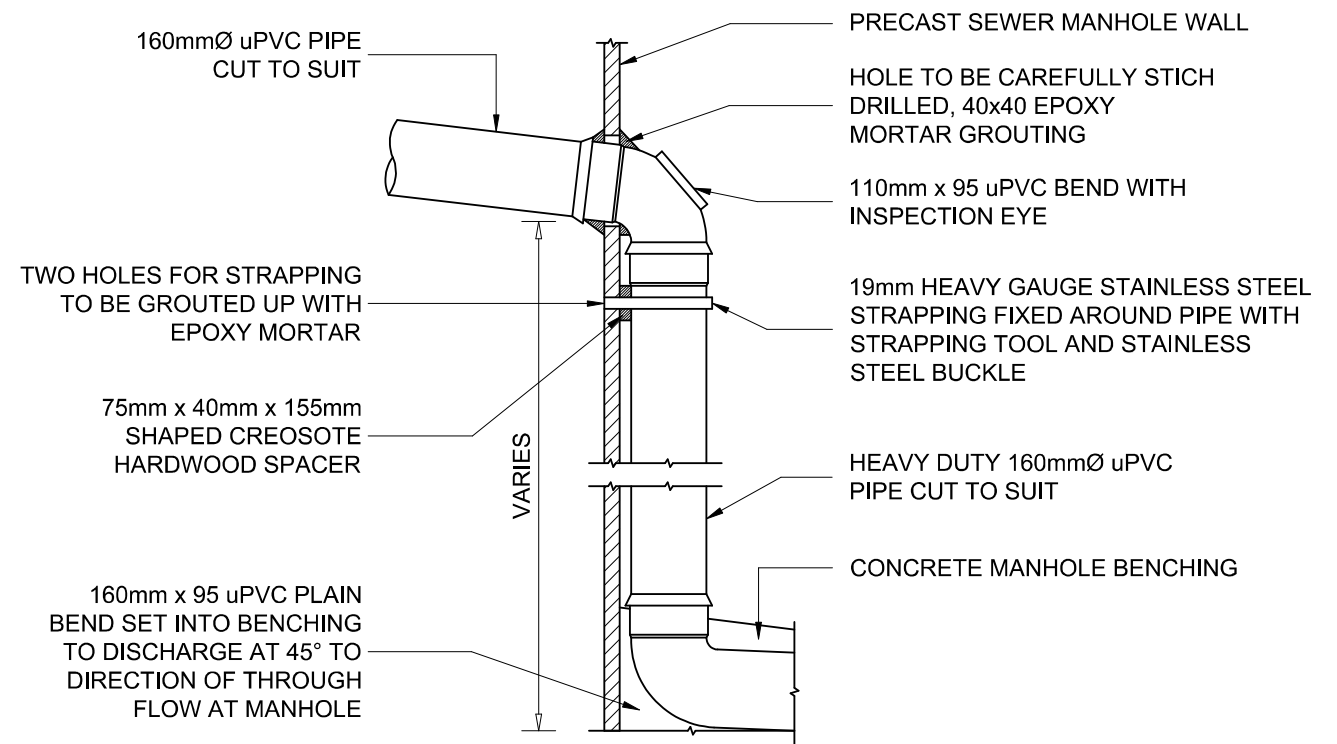
A4

Drawing No.

SS8



**BACKDROP 1.2m DEEP AND MORE  
(PRECAST CONCRETE RINGS)**

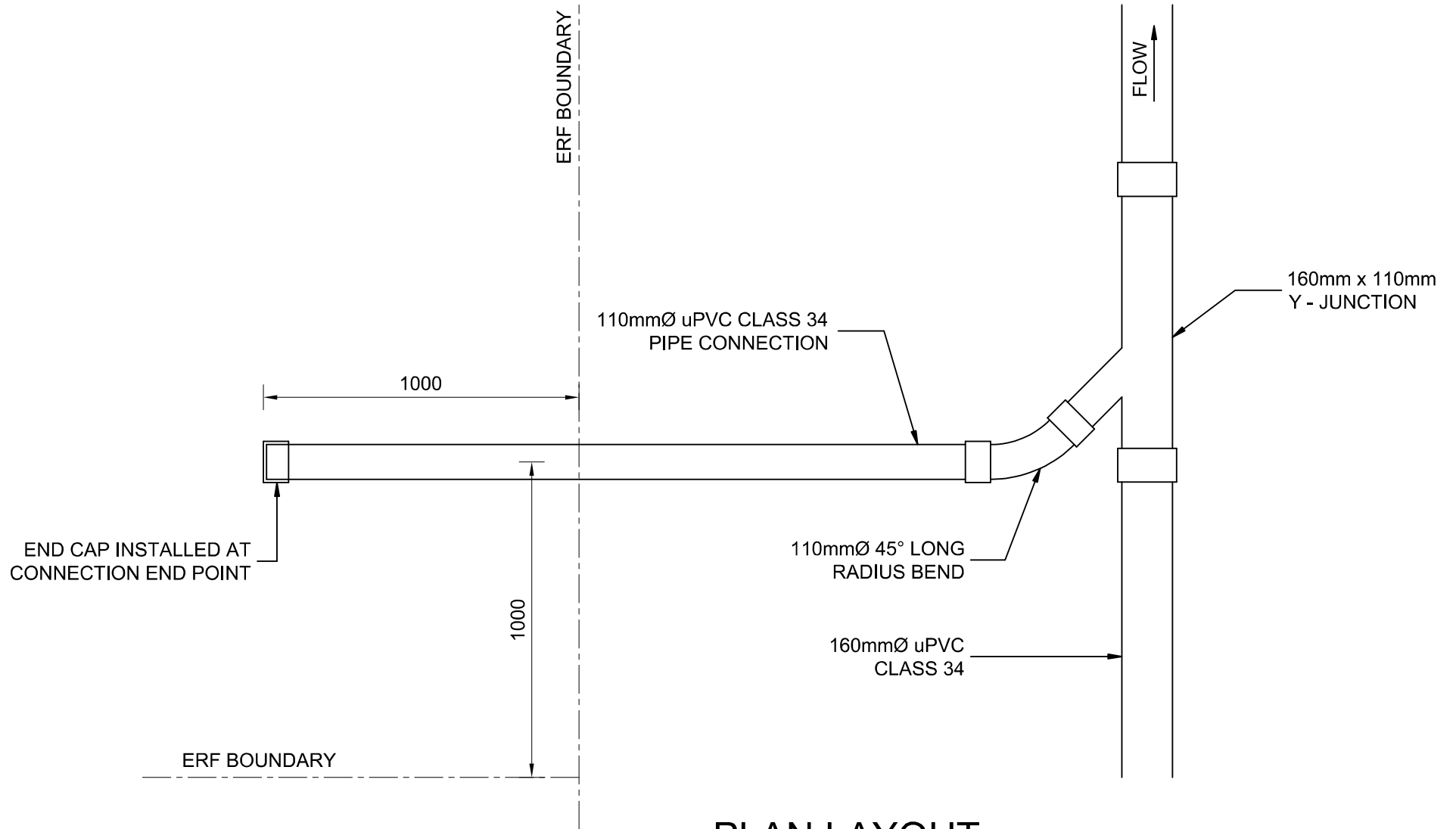


ELEVATION

**PIPE FITTING DETAILS**

**NOTES:**

1. PIPE SOFFIT LEVELS IN MANHOLE TO BE EQUAL EXCEPT WHERE OTHERWISE SHOWN.
2. MATERIAL AROUND BACKDROP PIPEWORK TO BE COMPACTED TO 93% MOD.AASHTO. (100% FOR SAND).
3. ALL BACKDROPS 600mm AND LESS TO BE MADE GOOD BY BENCHING.



## PLAN LAYOUT



**STELLENBOSCH**

STELLENBOSCH • PNIEL • FRANSCHHOEK

MUNISIPALITEIT • UMASIPALA • MUNICIPALITY

STANDARD DETAIL DRAWING

SEWER ERF CONNECTION LAYOUT

Scale

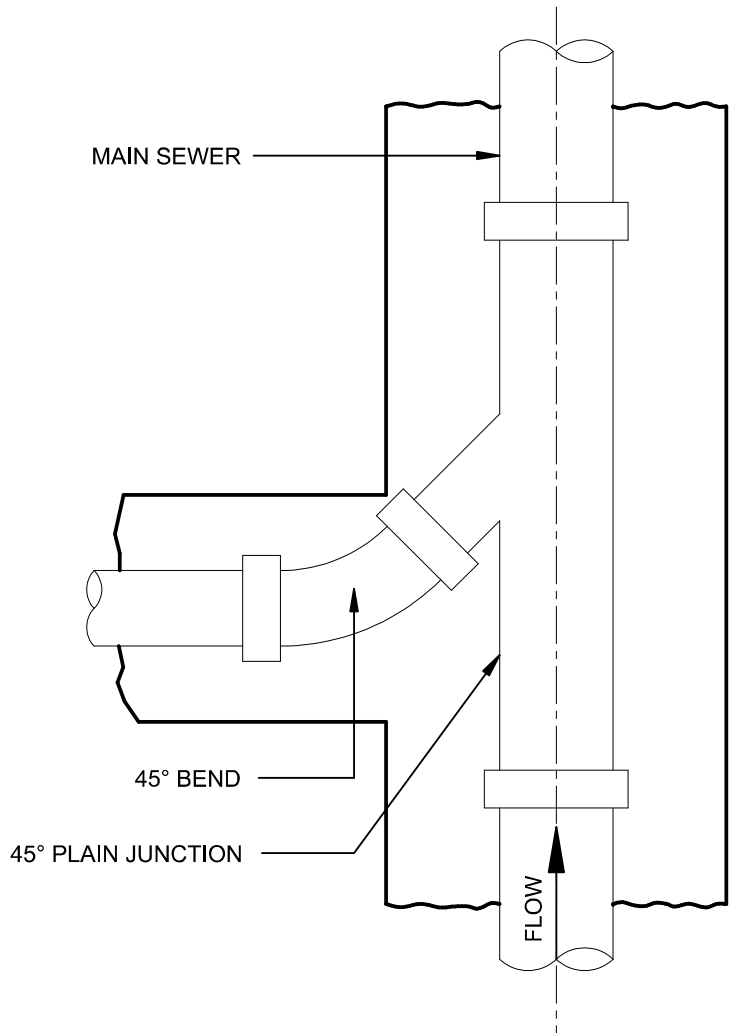
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Paper Size

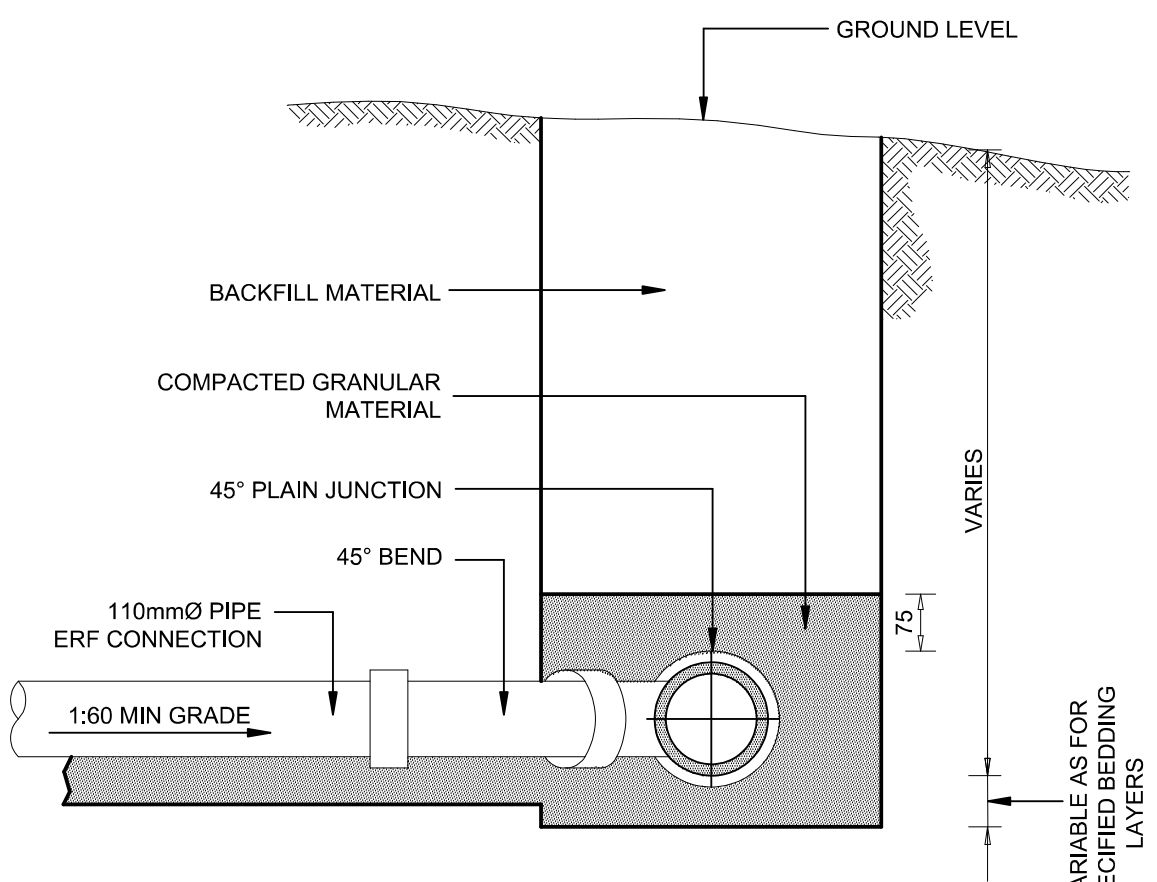
A4

Drawing No.

SS10

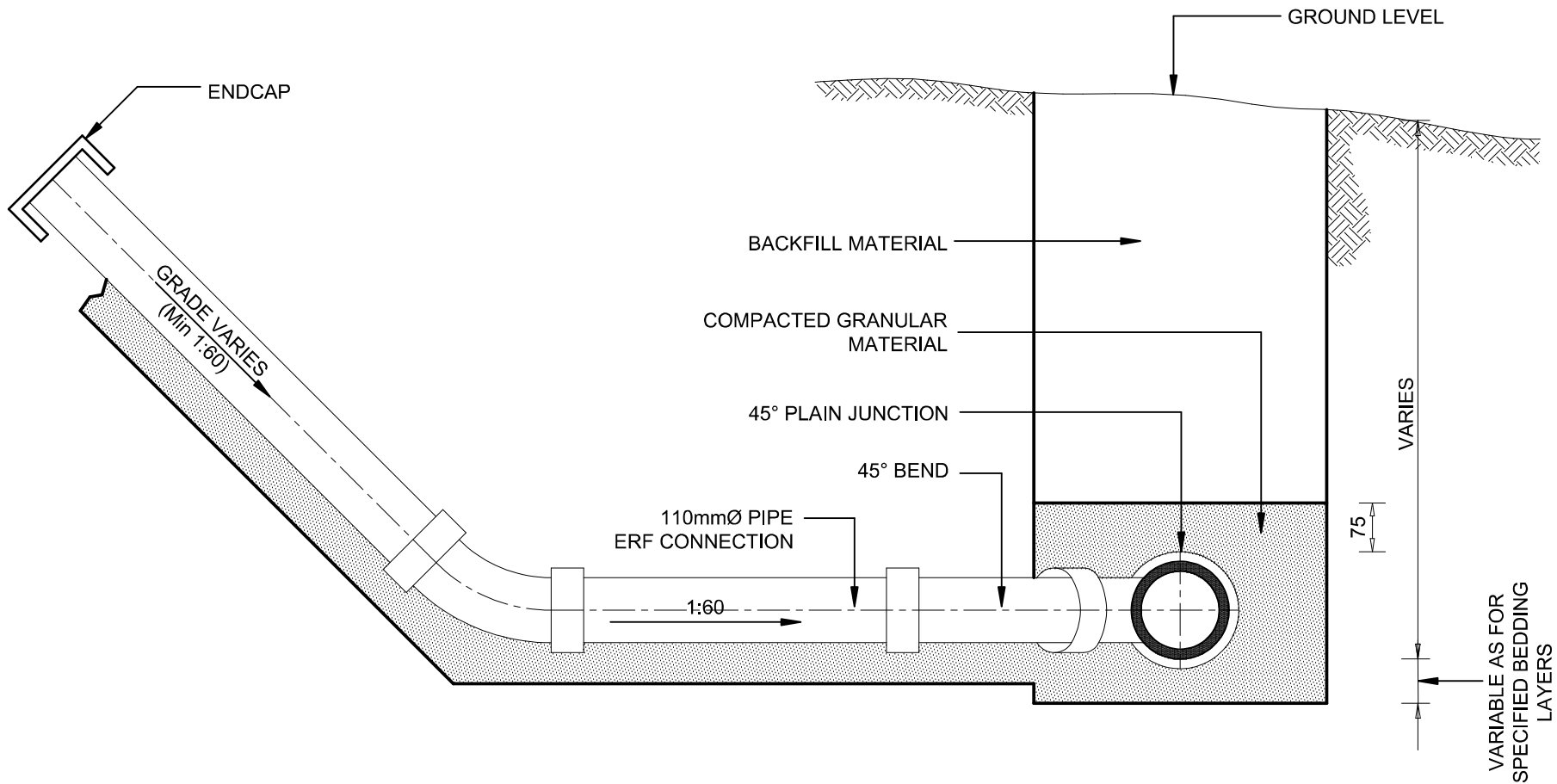


**PLAN**



**SECTIONAL ELEVATION**





**STELLENBOSCH**

STELLENBOSCH • PNIEL • FRANSCHHOEK

MUNISIPALITEIT • UMASIPALA • MUNICIPALITY

STANDARD DETAIL DRAWING

SEWER ERF CONNECTION : TYPE 2

Scale

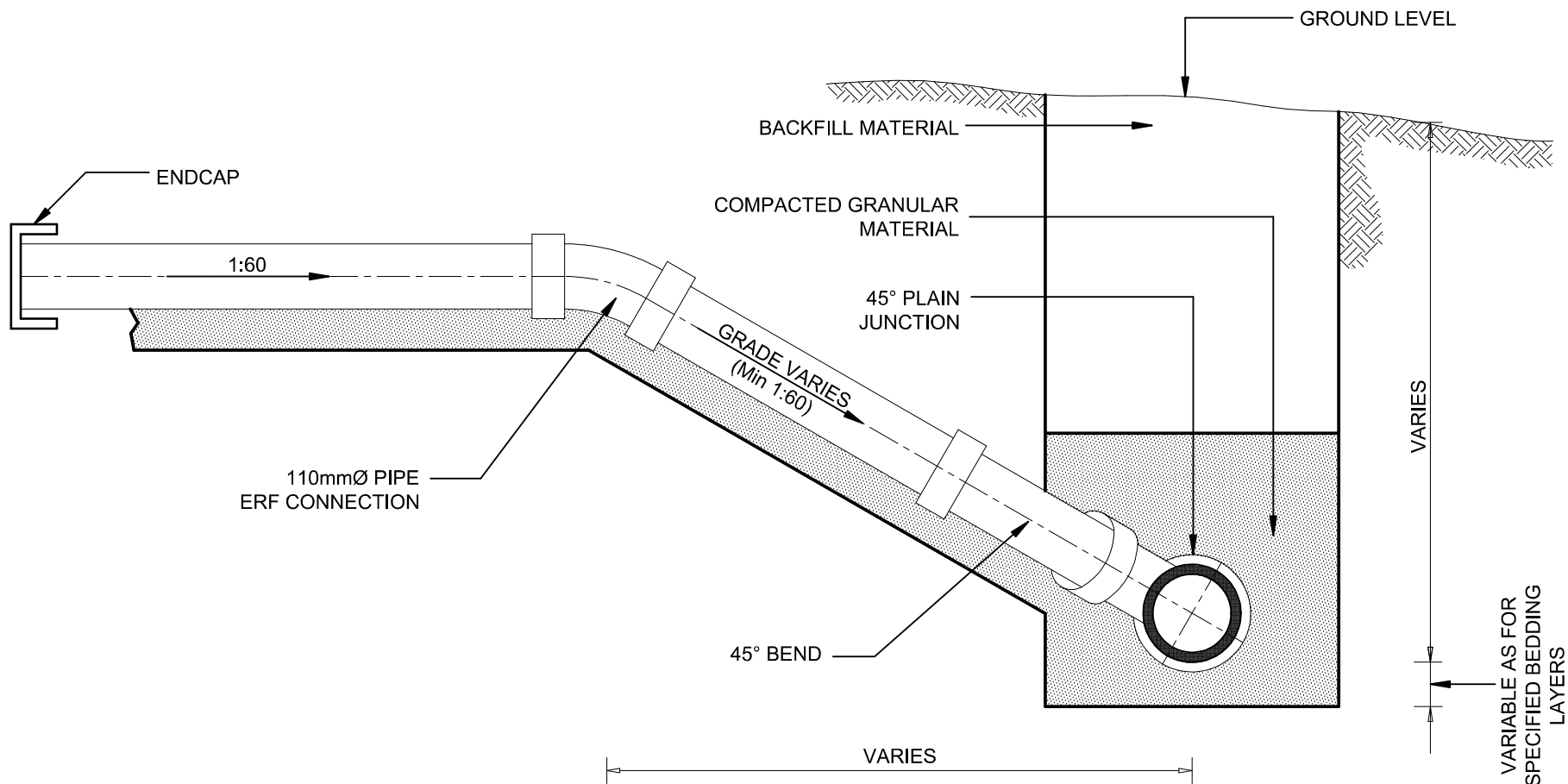
1 : 10

Paper Size

A4

Drawing No.

SS12



**STELLENBOSCH**

STELLENBOSCH • PNIEL • FRANSCHHOEK

MUNISIPALITEIT • UMASIPALA • MUNICIPALITY

STANDARD DETAIL DRAWING

SEWER ERF CONNECTION : TYPE 3

Scale

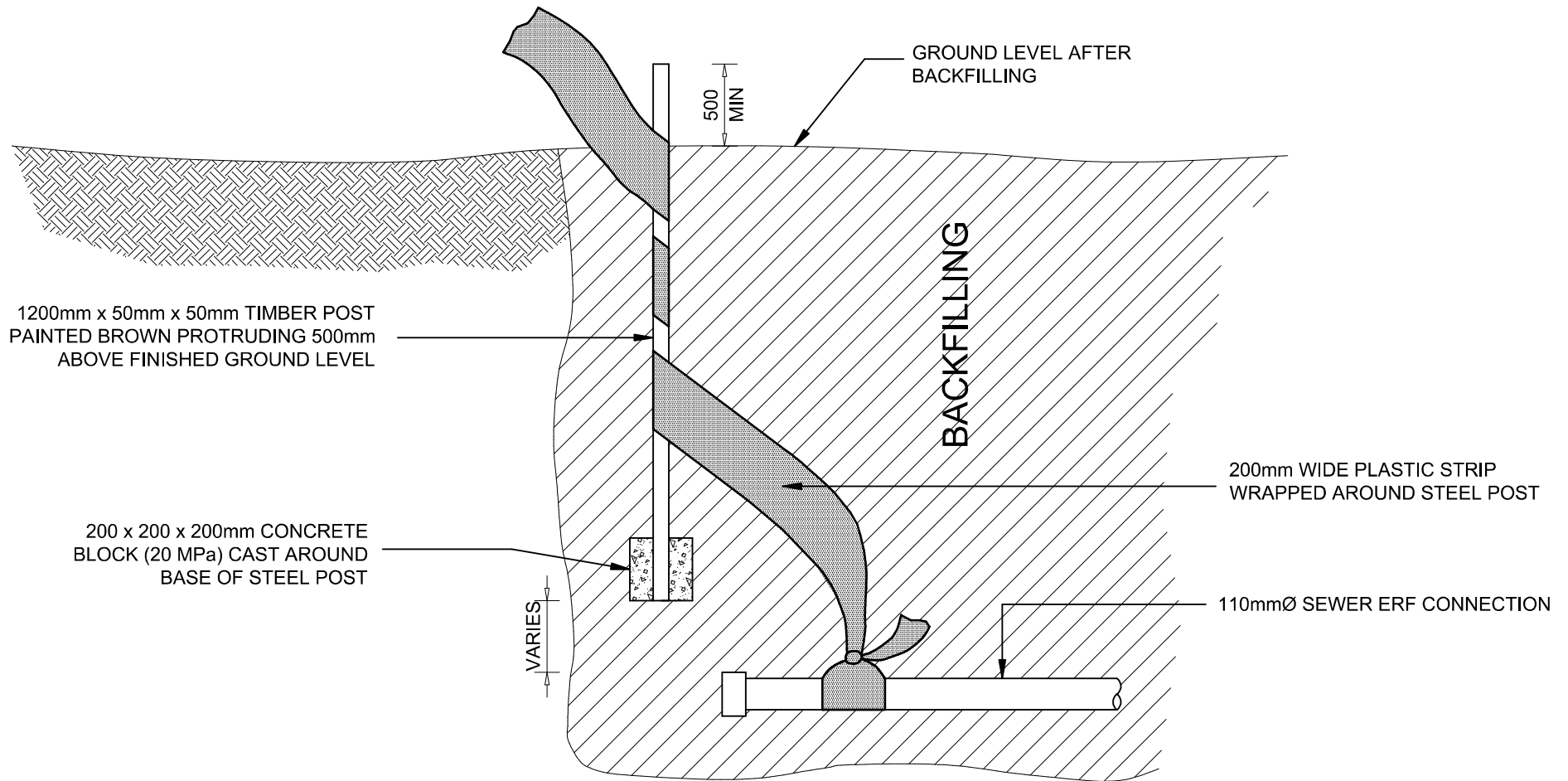
1 : 10

Paper Size

A4

Drawing No.

SS13



**STELLENBOSCH**

STELLENBOSCH • PNIEL • FRANSCHHOEK

MUNISIPALITEIT • UMASIPALA • MUNICIPALITY

STANDARD DETAIL DRAWING

MARKER POST FOR SEWER ERF CONNECTION

Scale

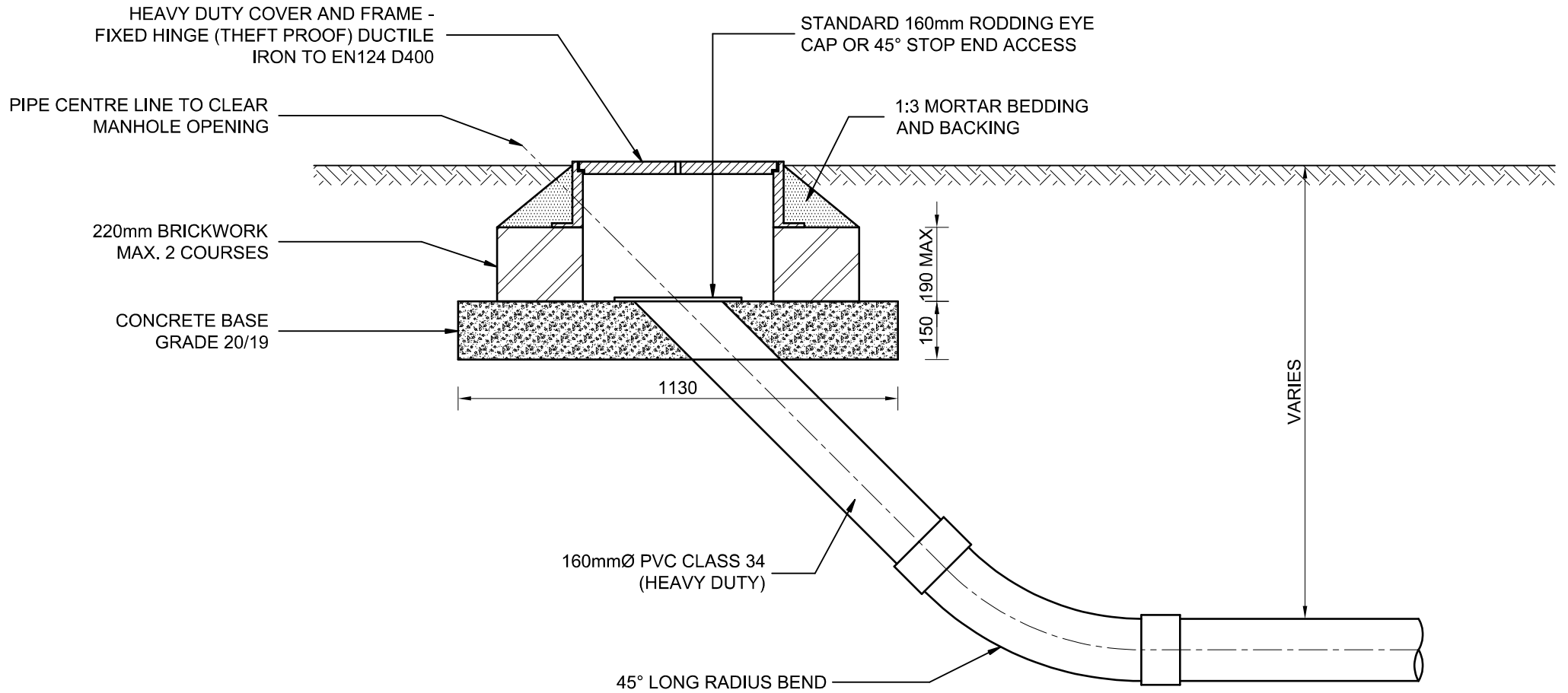
1 : 10

Paper Size

A4

Drawing No.

SS14



**STELLENBOSCH**

STELLENBOSCH • PNIEL • FRANSCHHOEK

MUNISIPALITEIT • UMASIPALA • MUNICIPALITY

STANDARD DETAIL DRAWING

RODDING EYE

Scale

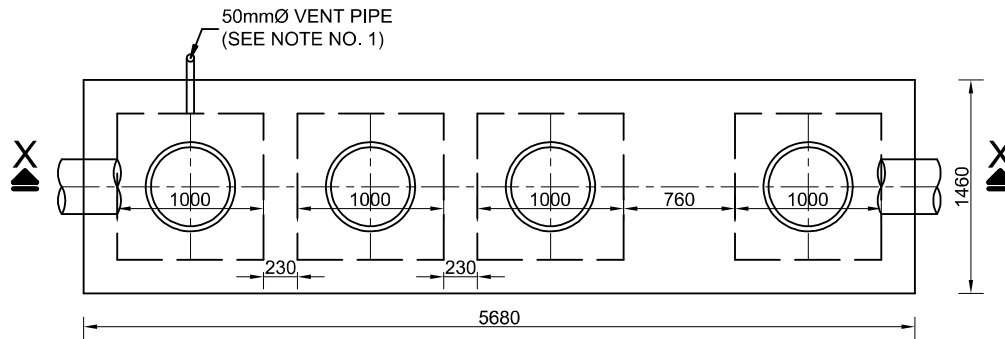
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Paper Size

A4

Drawing No.

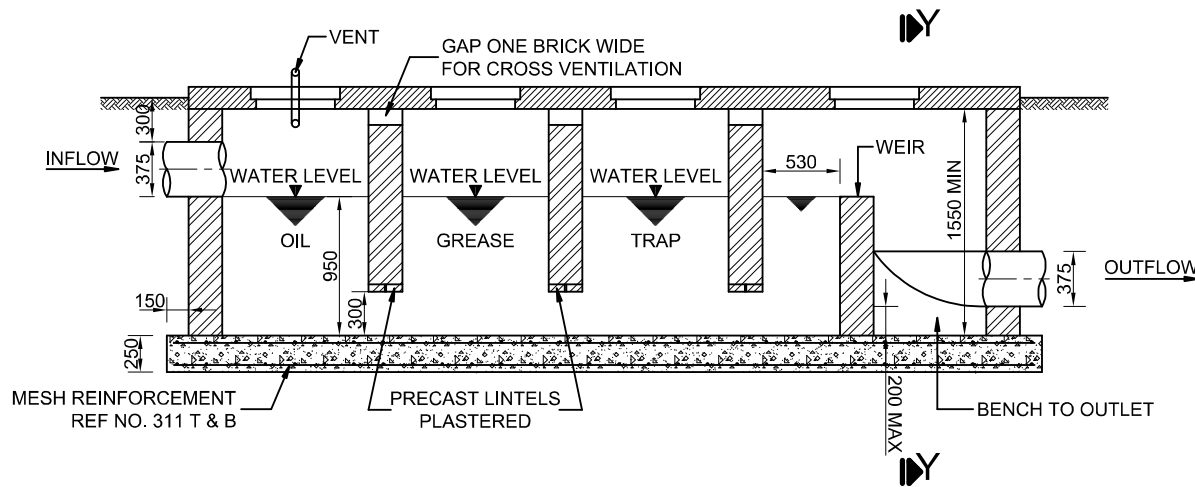
SS15



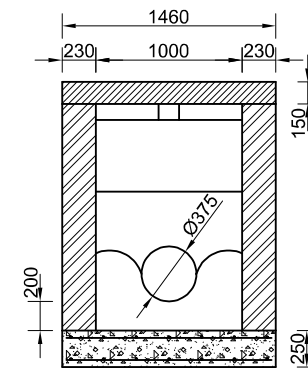
**PLAN**

**NOTES:**

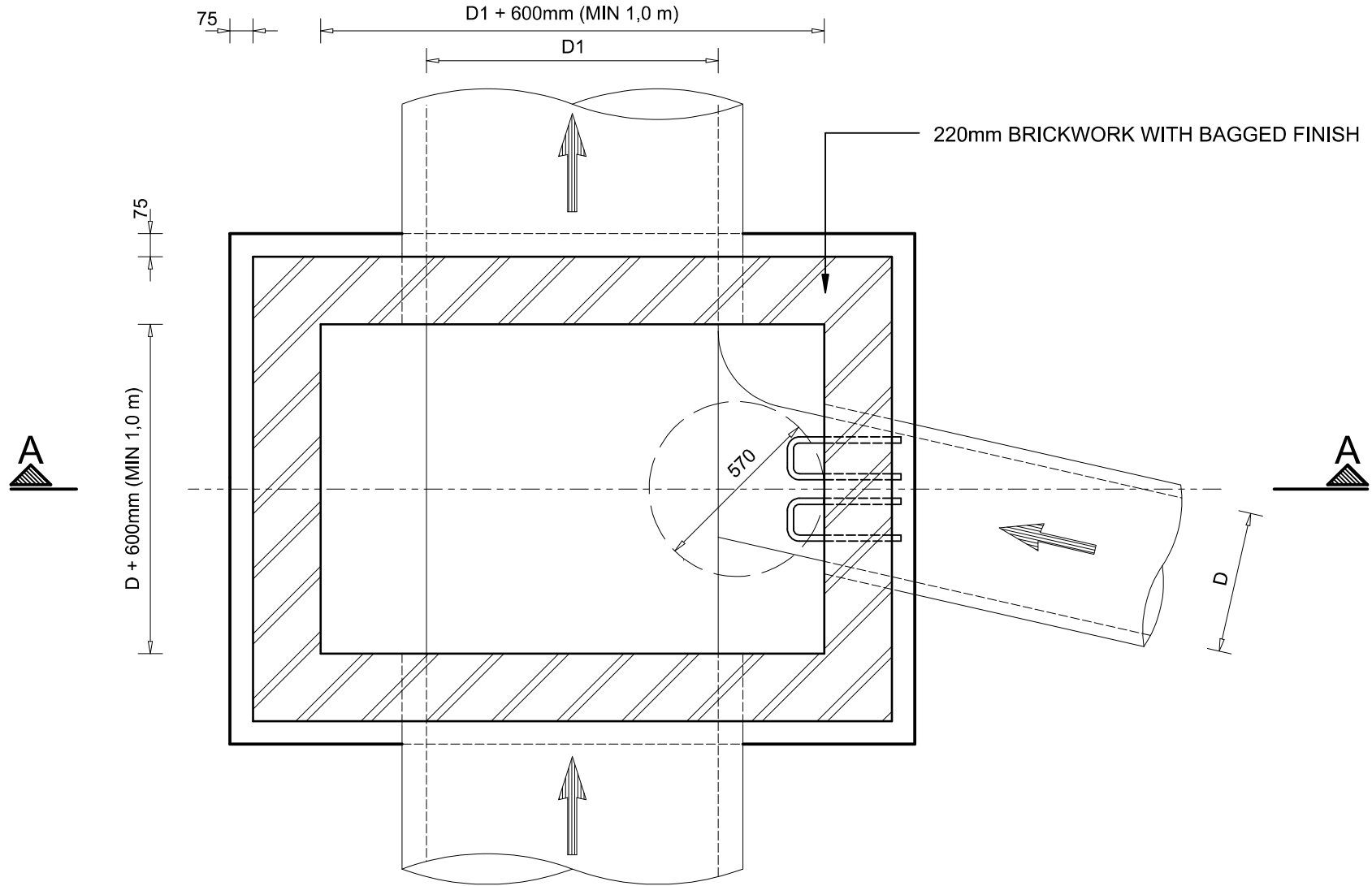
1. EXTERNAL VENT PIPE 50mmØ. TO DISCHARGE IN AN AREA APPROVED BY AND TO THE FIRE REGULATIONS OF THE LOCAL AUTHORITY.
2. ALL COMPARTMENT WALLS AND FLOORS ARE TO BE PLASTERED IN A TWO COAT 1:2 CEMENT/SAND MORTAR FINISH WITH A WOOD FLOAT AND HAVING COMPLETE COVERAGE OF 12mm THICKNESS.
3. BRICK WORK TO BE 230mm IN ENGINEERING CLASS NFX TO SANS 227 GALVANIZED BRICKFORCE TO BE USED EVERY 3 COURSES.
4. EXTERNAL WALLS AND PORTION WALLS TO BE DESIGNED TO SUIT LOCAL SOILS CONDITIONS. REINFORCED CONCRETE MAY BE USED AS AN ALTERNATIVE.
5. TOP SLAB TO BE IN REINFORCED CONCRETE DESIGNED TO ACCOMMODATE THE LOCAL CONDITIONS.



**SECTION X - X**



**SECTION Y - Y**



## SECTIONAL PLAN



**STELLENBOSCH**

STELLENBOSCH • PNIEL • FRANSCHHOEK

MUNISIPALITEIT • UMASIPALA • MUNICIPALITY

STANDARD DETAIL DRAWING

MANHOLE : TYPE C - PLAN (1 OF 2)

Scale

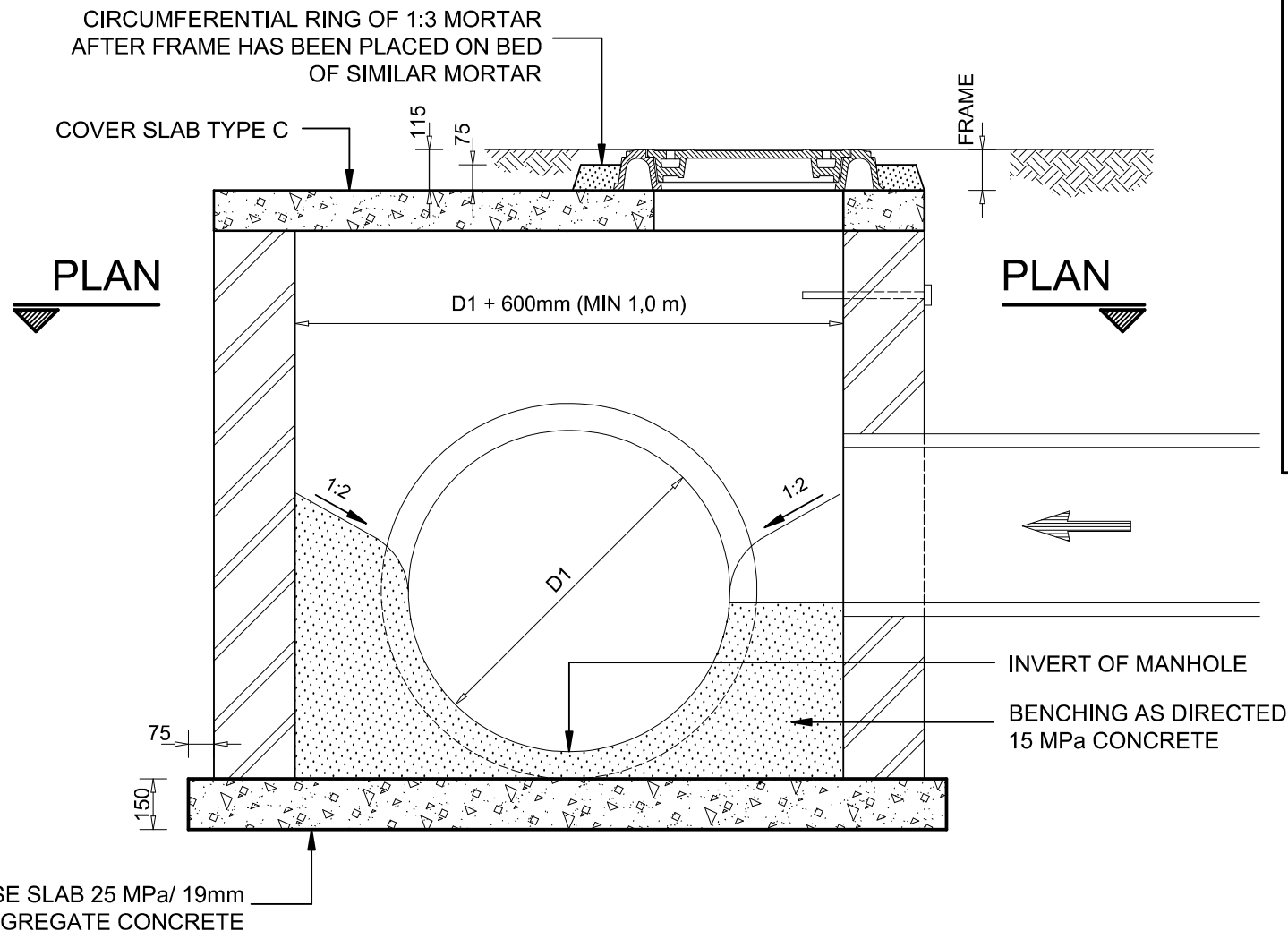
1 : 20

Paper Size

A4

Drawing No.

SSW1



- NOTES:**
1. HINGED DUCTILE IRON COVER AND FRAME: SANS 50124 CLASS D400 SECUREZ Z-600-D (LOCKABLE) OR SIMILAR APPROVED
  2. FOR USE WHERE DEPTH FROM COVER TO INVERT LEVEL IS 2,5M OR LESS.
  3. STEP IRONS TO BE INSTALLED WHERE DEPTH FROM COVER TO INVERT IS MORE THAN 1,0M.
  4. STEP IRONS SHALL HAVE A VERTICAL SPACING OF 300MM AND BE STAGGERED ALTERNATIVELY LEFT AND RIGHT AT 300MM C/C.
  5. PIPE AND BENCHING ARRANGEMENT TYPICAL. VARIES WITH LAYOUT.

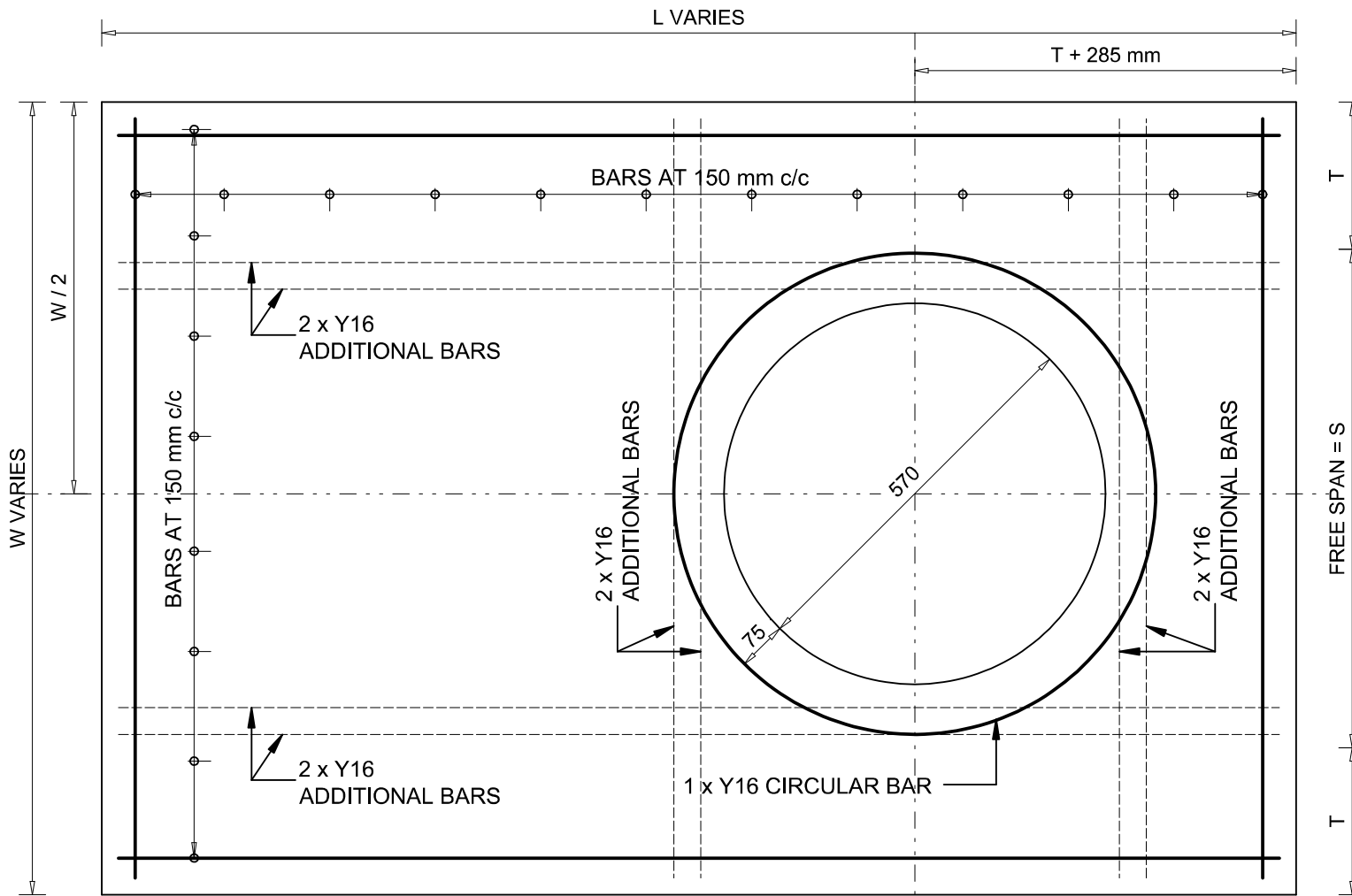
**SECTION A - A**

**STELLENBOSCH**  
 STELLENBOSCH • PNIEL • FRANSCHHOEK  
 MUNISIPALITEIT • UMASIPALA • MUNICIPALITY

STANDARD DETAIL DRAWING

MANHOLE : TYPE C - SECTION (2 OF 2)

Scale	Paper Size
1 : 20	A4
Drawing No.	
SSW2	



S	SLAB THICKNESS	BAR Ø
0 TO 1,5	150	Y16
>1,5 TO 2,5	200	Y25

#### NOTES:

1. For use with Type C and D Manholes.
2. Concrete 25 MPa.
3. Minimum cover to reinforcement 25mm.
4. All reinforcement to be placed at bottom of slab.  
Short span B1.
5. T: Wall width of brickwork.



**STELLENBOSCH**

STELLENBOSCH • PNIEL • FRANSCHHOEK

MUNISIPALITEIT • UMASIPALA • MUNICIPALITY

STANDARD DETAIL DRAWING

COVER SLAB : TYPE C

Scale

N.T.S.

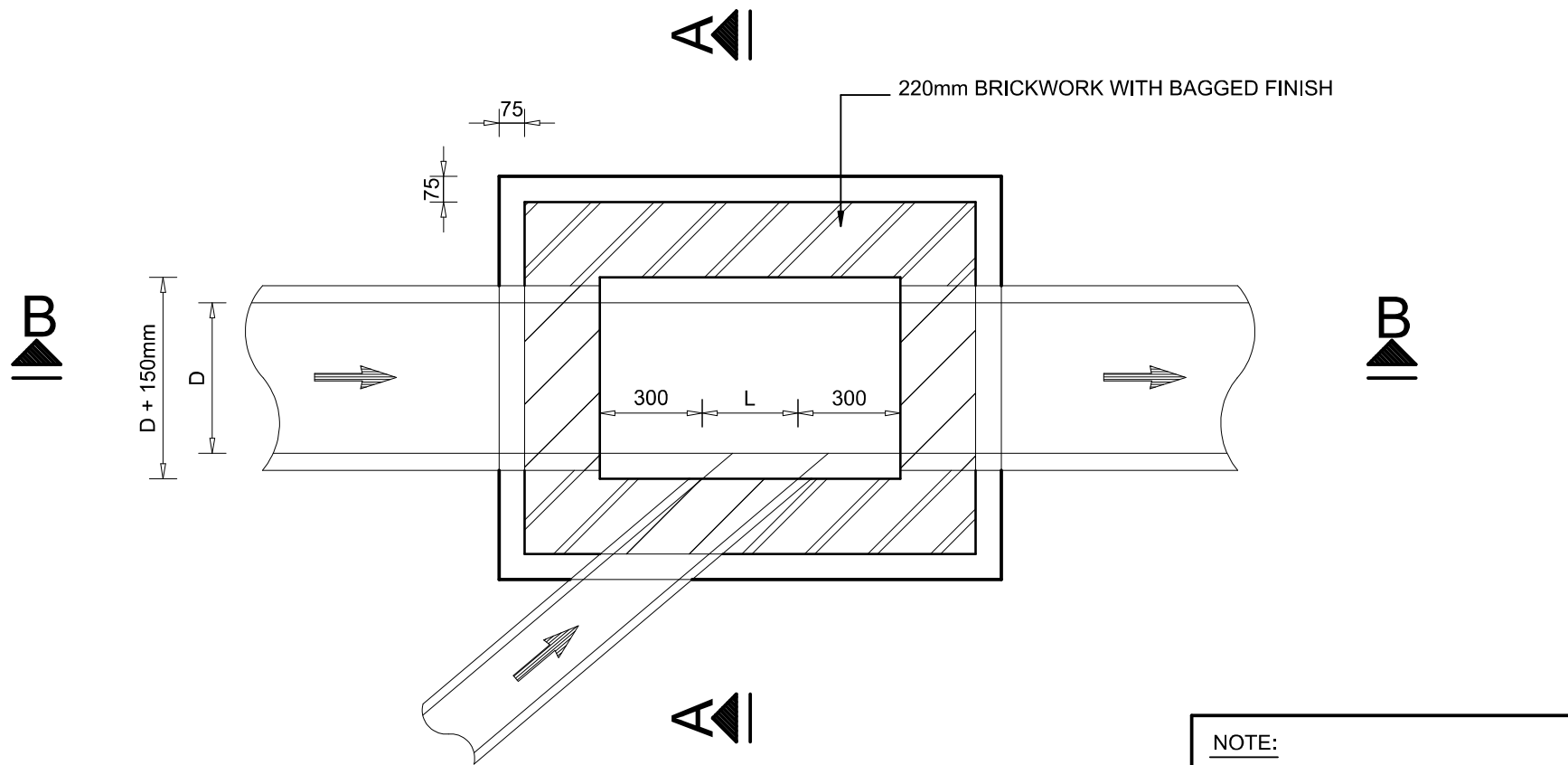
Paper Size

A4

Drawing No.

SSW3





PLAN LAYOUT



**STELLENBOSCH**

STELLENBOSCH • PNIEL • FRANSCHHOEK

MUNISIPALITEIT • UMASIPALA • MUNICIPALITY

STANDARD DETAIL DRAWING

JUNCTION BOX : TYPE 1 - PLAN (1 OF 2)

Scale

1 : 20

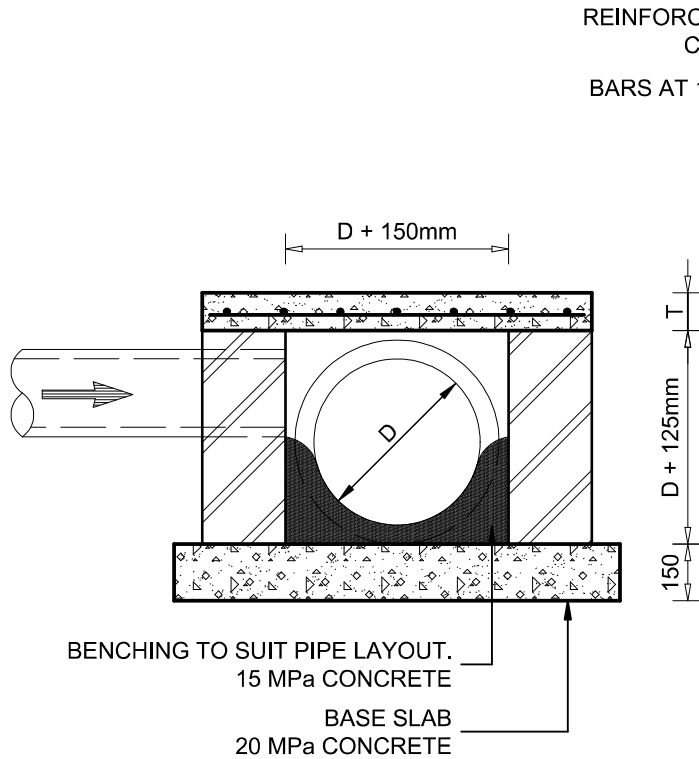
Paper Size

A4

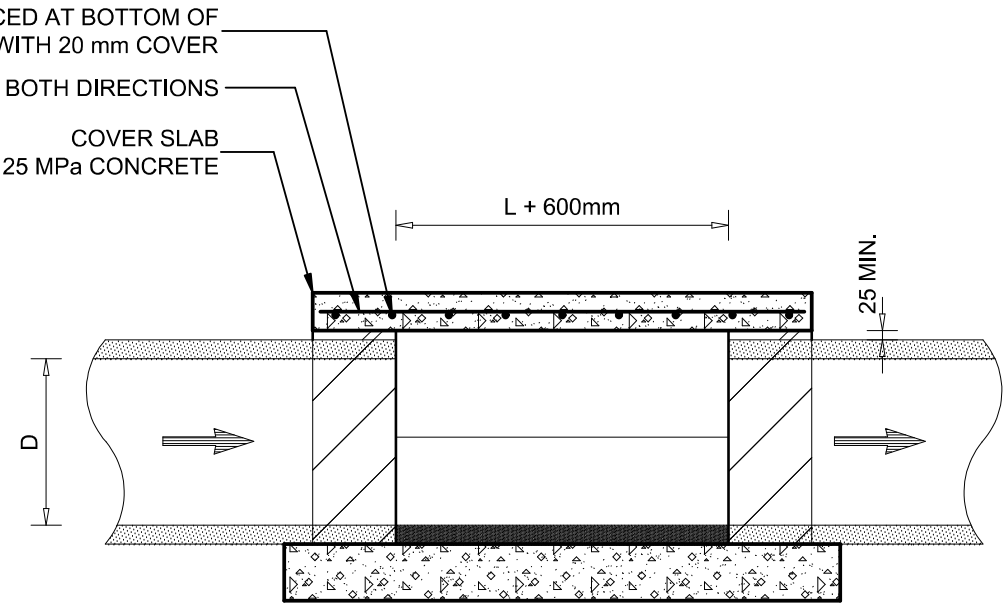
Drawing No.

SSW4

REINFORCEMENT		
FOR D + 150	SLAB THICKNESS T	BAR Ø
0,45 TO 0,8	100mm	Y12
0,8 TO 1,5	150mm	Y16
1,5 TO 2,5	200mm	Y25



SECTION A - A



SECTION B - B



**STELLENBOSCH**

STELLENBOSCH • PNIEL • FRANSCHHOEK

MUNISIPALITEIT • UMASIPALA • MUNICIPALITY

STANDARD DETAIL DRAWING

JUNCTION BOX : TYPE 1 - SECTION (2 OF 2)

Scale

1 : 20

Paper Size

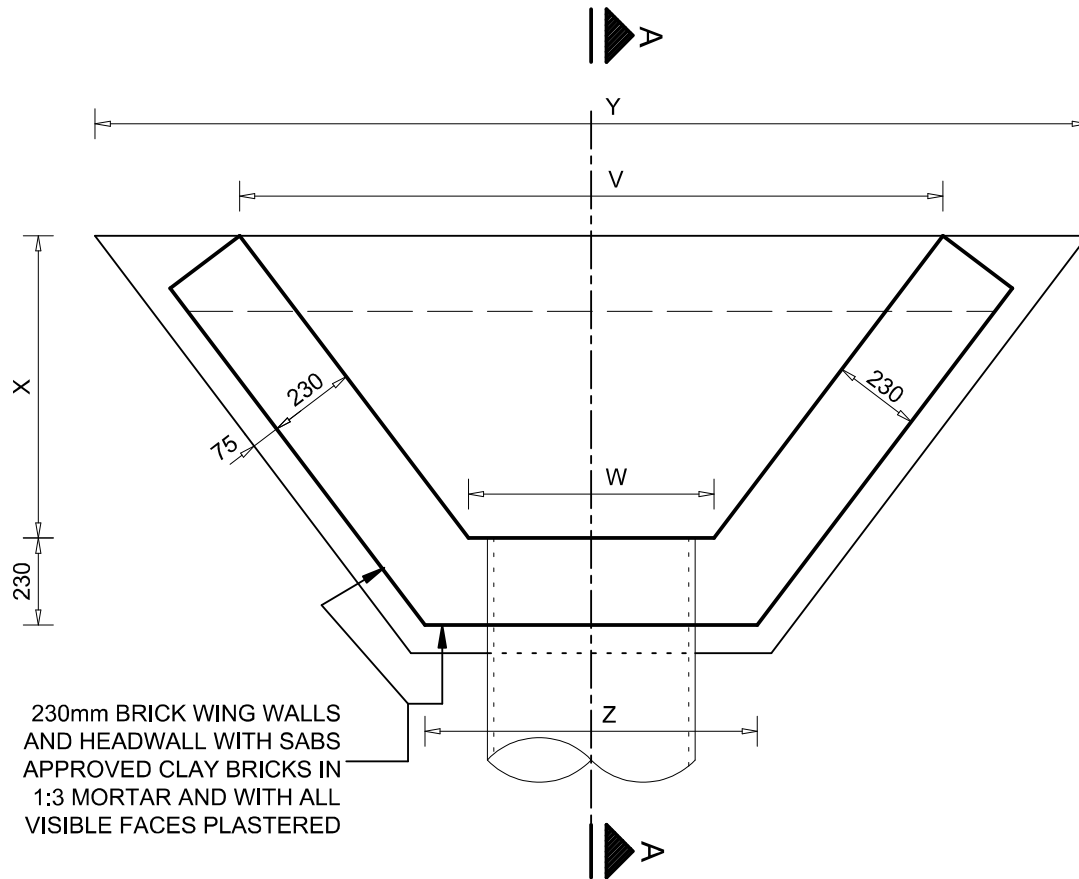
A4

Drawing No.

SSW5

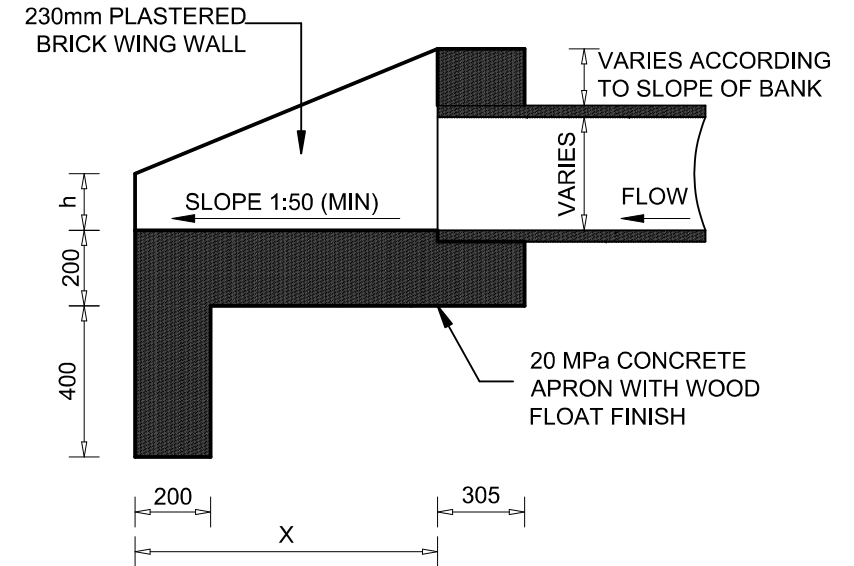
DIMENSIONS FOR SETTING-OUT PURPOSES

NOMINAL Ø	X	Y	Z	W	V	h
300	1000	2430	920	570	1725	260
375	1000	2510	1000	650	1805	260
450	1000	2590	1090	730	1885	260
525	1000	2680	1170	820	1975	350
600	1200	2990	1250	900	2285	350
675	1400	3310	1340	990	2605	350
750	1600	3625	1420	1070	2920	440
825	1800	3935	1500	1150	3230	440
900	2000	4255	1590	1240	3550	440



230mm BRICK WING WALLS AND HEADWALL WITH SABS APPROVED CLAY BRICKS IN 1:3 MORTAR AND WITH ALL VISIBLE FACES PLASTERED

**PLAN**



**SECTION A - A**



**STELLENBOSCH**

STELLENBOSCH • PNIEL • FRANSCHHOEK

MUNISIPALITEIT • UMASIPALA • MUNICIPALITY

STANDARD DETAIL DRAWING

HEADWALL : TYPE 1

Scale

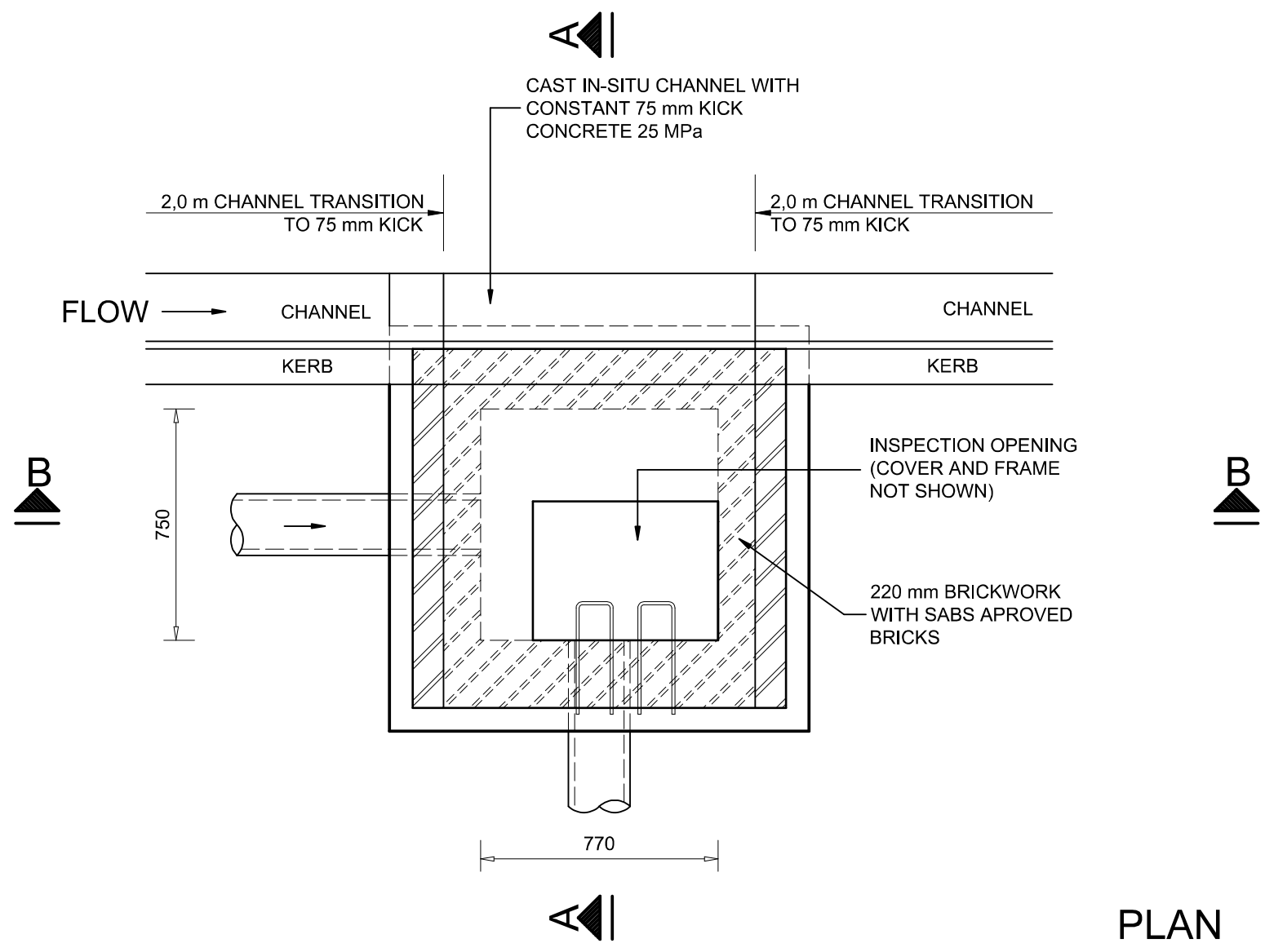
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Paper Size

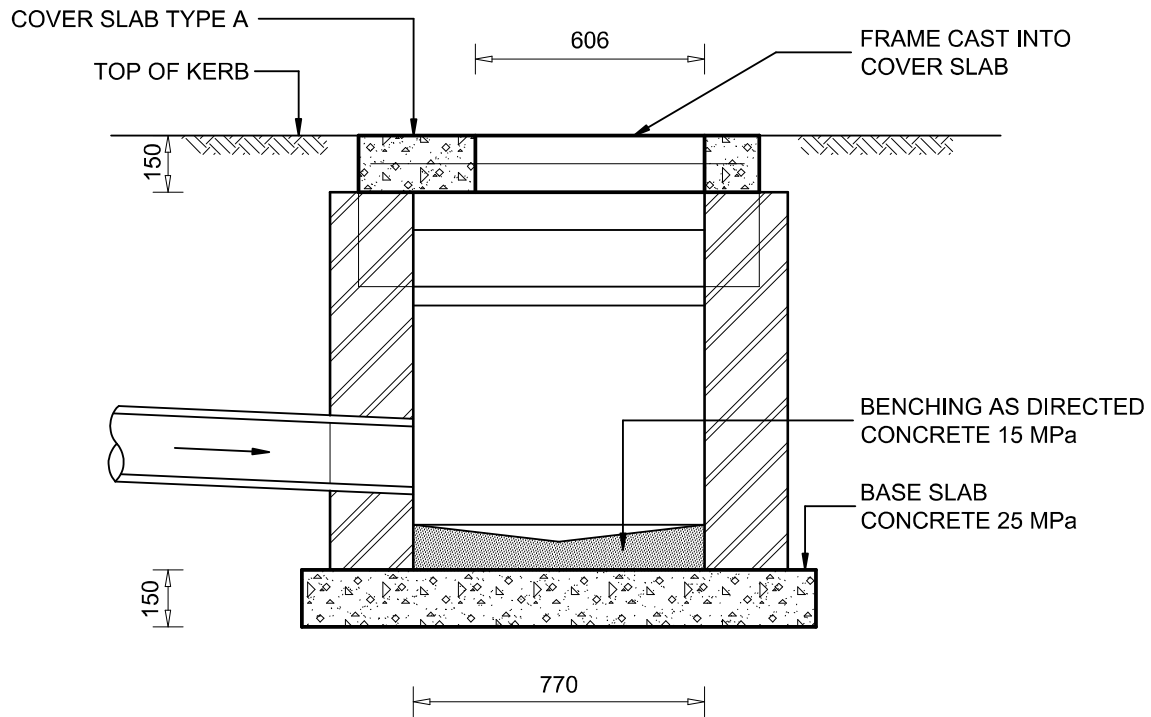
A4

Drawing No.

SSW6



PLAN



**SECTION B - B**



**STELLENBOSCH**

STELLENBOSCH • PNIEL • FRANSCHHOEK

MUNISIPALITEIT • UMASIPALA • MUNICIPALITY

STANDARD DETAIL DRAWING

CATCHPIT : TYPE A - SECTION B-B (2 OF 3)

Scale

1 : 20

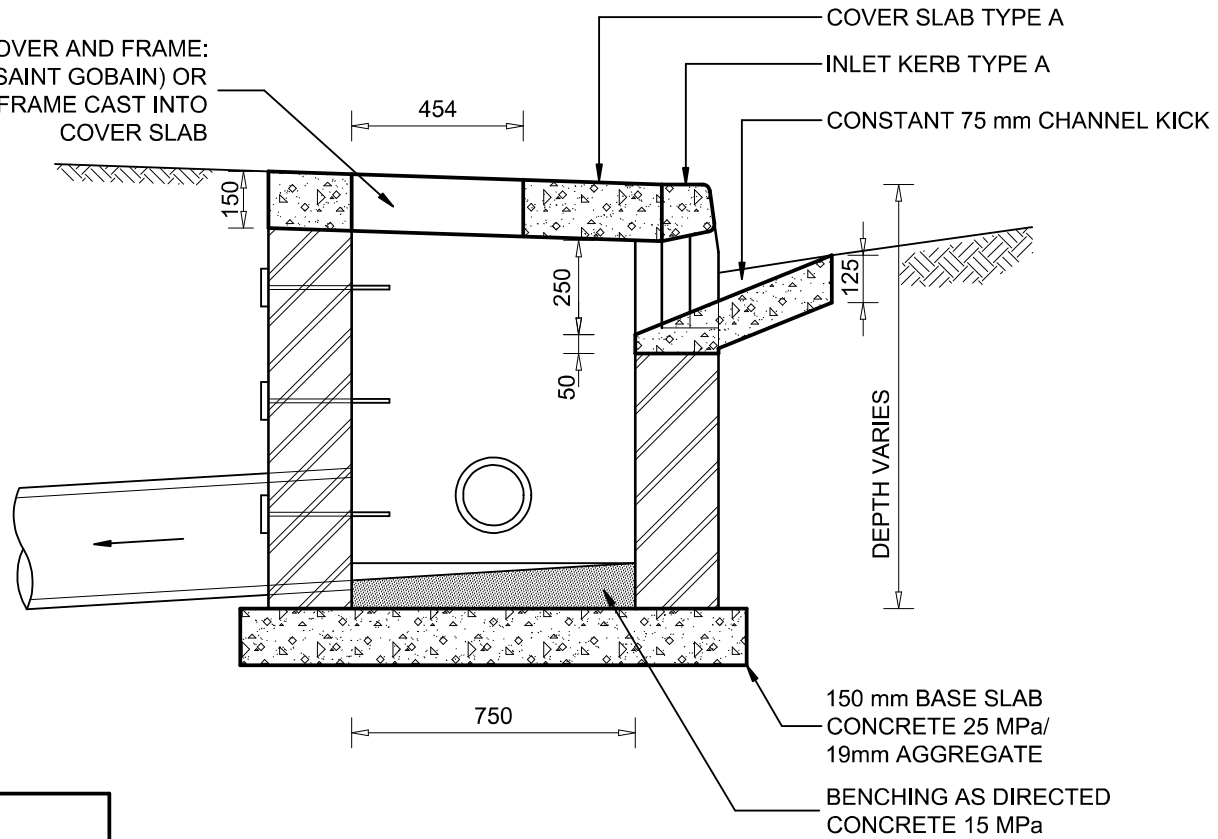
Paper Size

A4

Drawing No.

SSW8

HINGED AKSESS RANGE COVER AND FRAME:  
SANS 50124 CLASS B125 (SAINT GOBAIN) OR  
SIMILAR APPROVED. FRAME CAST INTO  
COVER SLAB



## SECTION A - A

### NOTES:

1. STEP IRONS TO BE STAGGERED AND PLACED TO SUIT BENCHING AT 300 mm c/c INTERVALS.
2. PIPE AND BENCHING ARRANGEMENT TYPICAL. VARIES WITH CIRCUMSTANCES.



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STANDARD DETAIL DRAWING

CATCHPIT : TYPE A - SECTION A-A (3 OF 3)

Scale

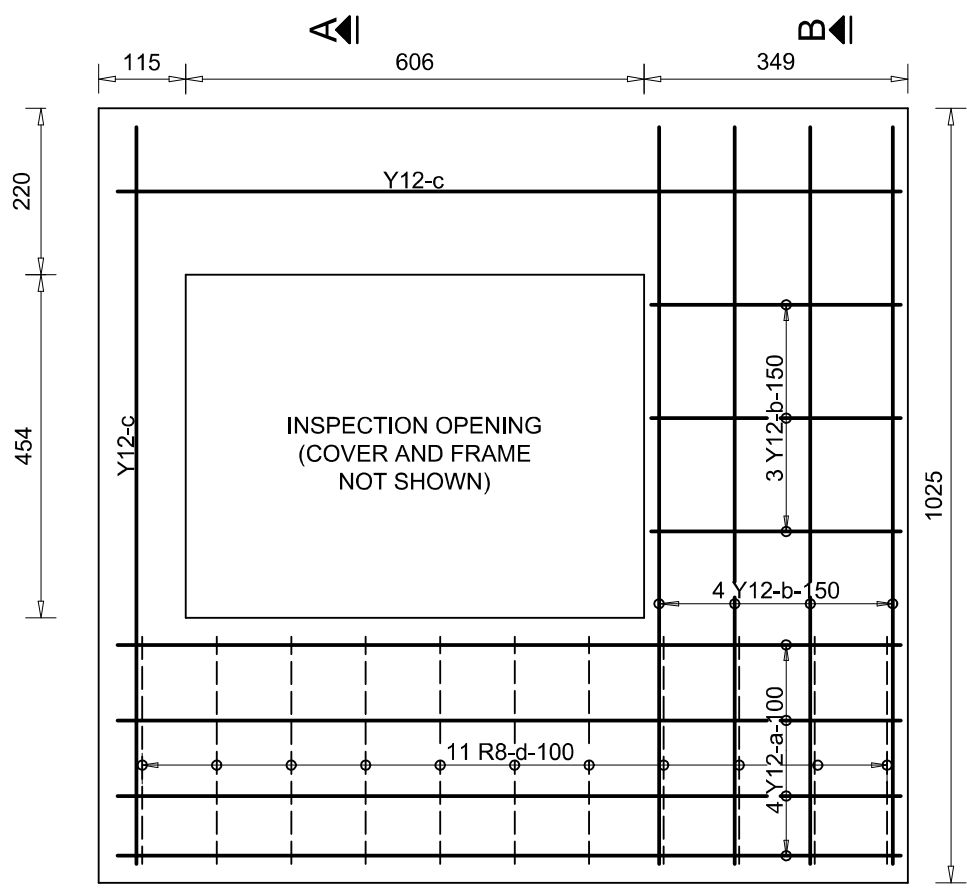
Paper Size

1 : 20

A4

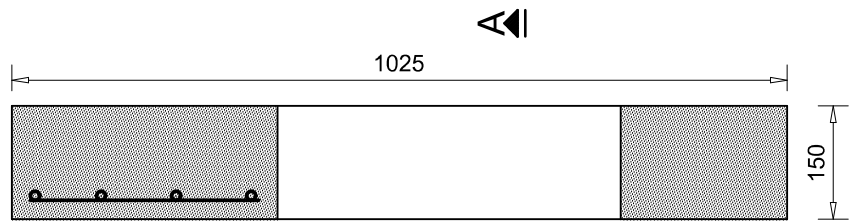
Drawing No.

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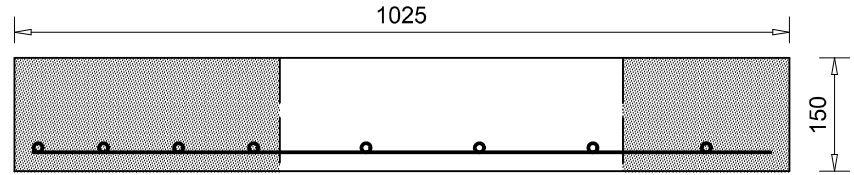


- NOTES:**
1. For use with Type A catchpits with max pipe diameter of 750mm.
  2. Concrete 25 MPa.
  3. 20mm Minimum cover over all reinforcement
  4. Cover to be cast into cover slab
  5. Cover slab to be in-situ.
  6. Wood float finish to top of slab.

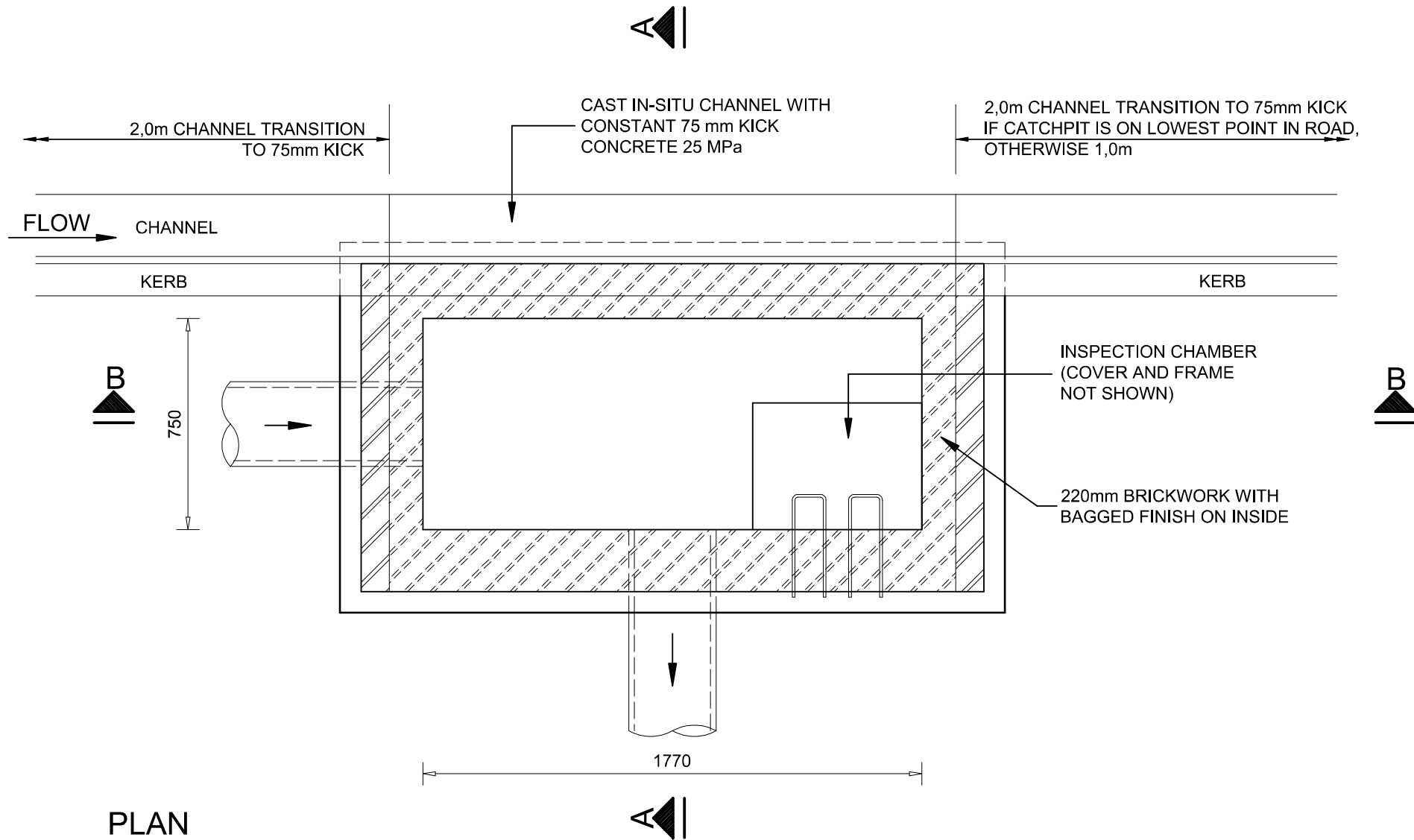
**PLAN LAYOUT ON  
BOTTOM REINFORCEMENT**



**SECTION A - A**



**SECTION B - B**



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STANDARD DETAIL DRAWING

CATCHPIT : TYPE B - PLAN (1 OF 3)

Scale

1 : 20

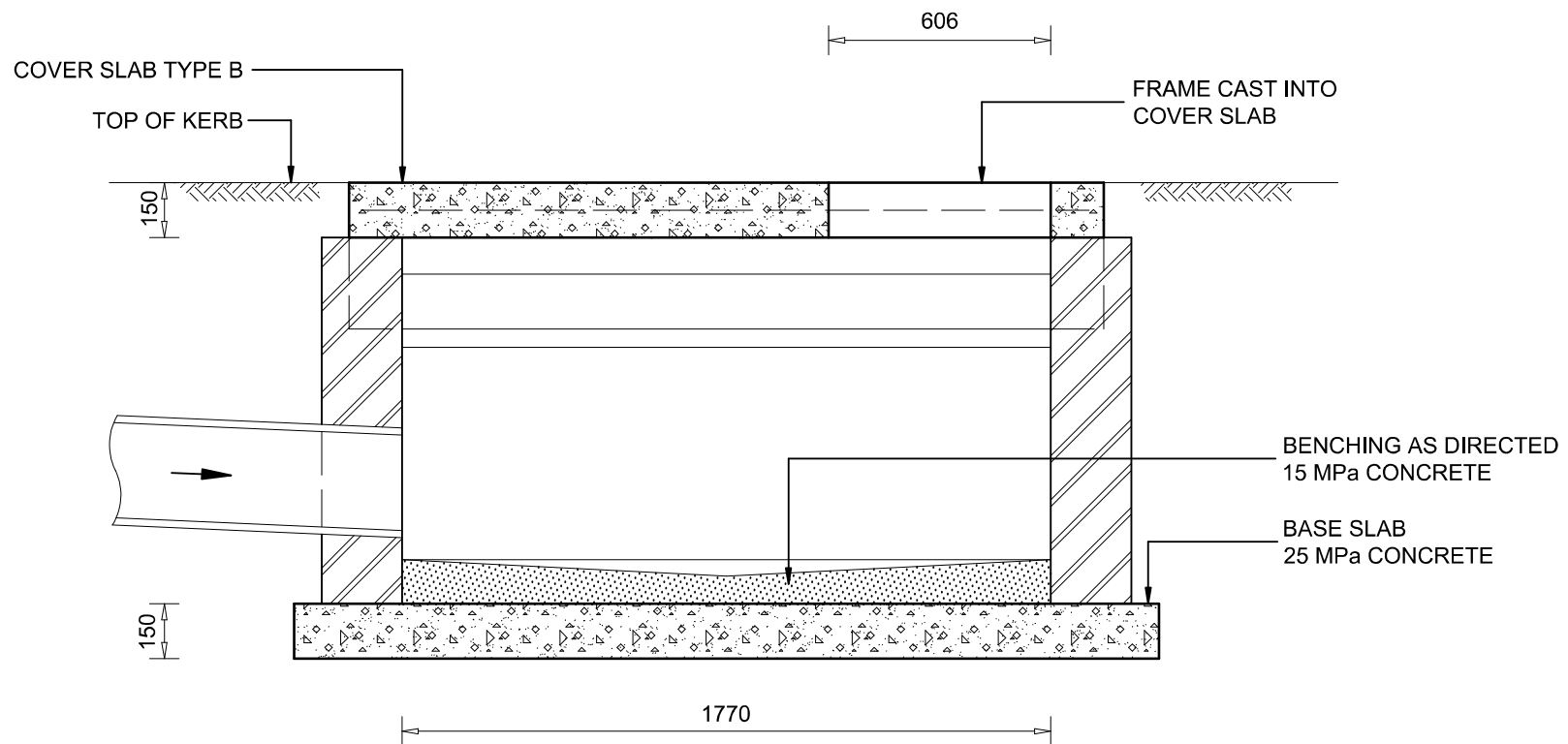
Paper Size

A4

Drawing No.

SSW11





## SECTION B - B



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STANDARD DETAIL DRAWING

CATCHPIT : TYPE B - SECTION B-B (2 OF 3)

Scale

1 : 20

Paper Size

A4

Drawing No.

SSW12

HINGED AKSESS RANGE COVER AND FRAME:  
SANS 50124 CLASS B125 (SAINT GOBAIN) OR  
SIMILAR APPROVED. FRAME CAST INTO  
COVER SLAB

WOOD FLOAT FINISH

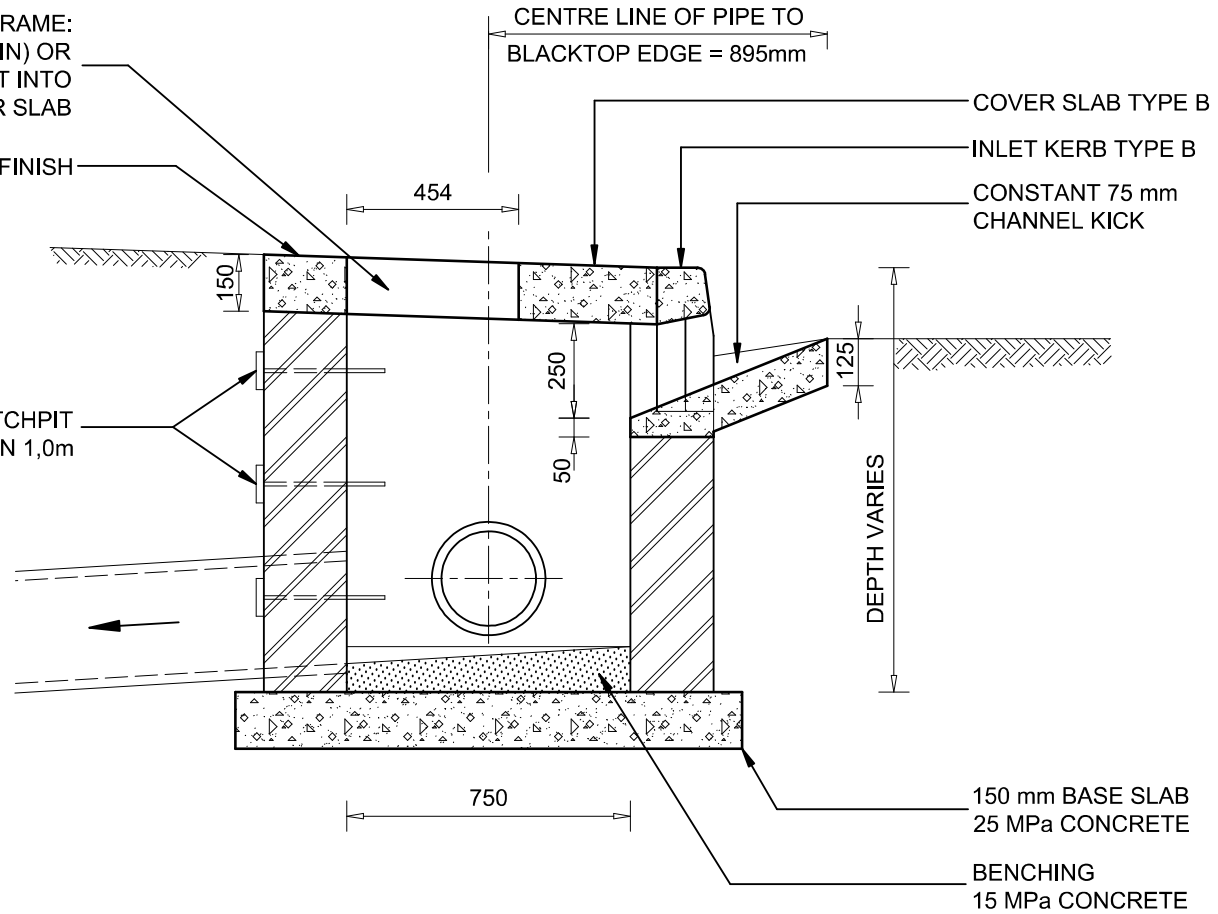
CENTRE LINE OF PIPE TO  
BLACKTOP EDGE = 895mm

COVER SLAB TYPE B

INLET KERB TYPE B

CONSTANT 75 mm  
CHANNEL KICK

STEP IRONS IF CATCHPIT  
IS DEEPER THAN 1,0m



## SECTION A - A

### NOTES:

1. STEP IRONS TO BE STAGGERED & PLACED AT 300mm SPACING FOR CATCHPITS DEEPER THAN 1,0.
2. PIPE AND BENCHING VARIES TO SUIT LAYOUT.



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STANDARD DETAIL DRAWING

CATCHPIT : TYPE B - SECTION A-A (3 OF 3)

Scale

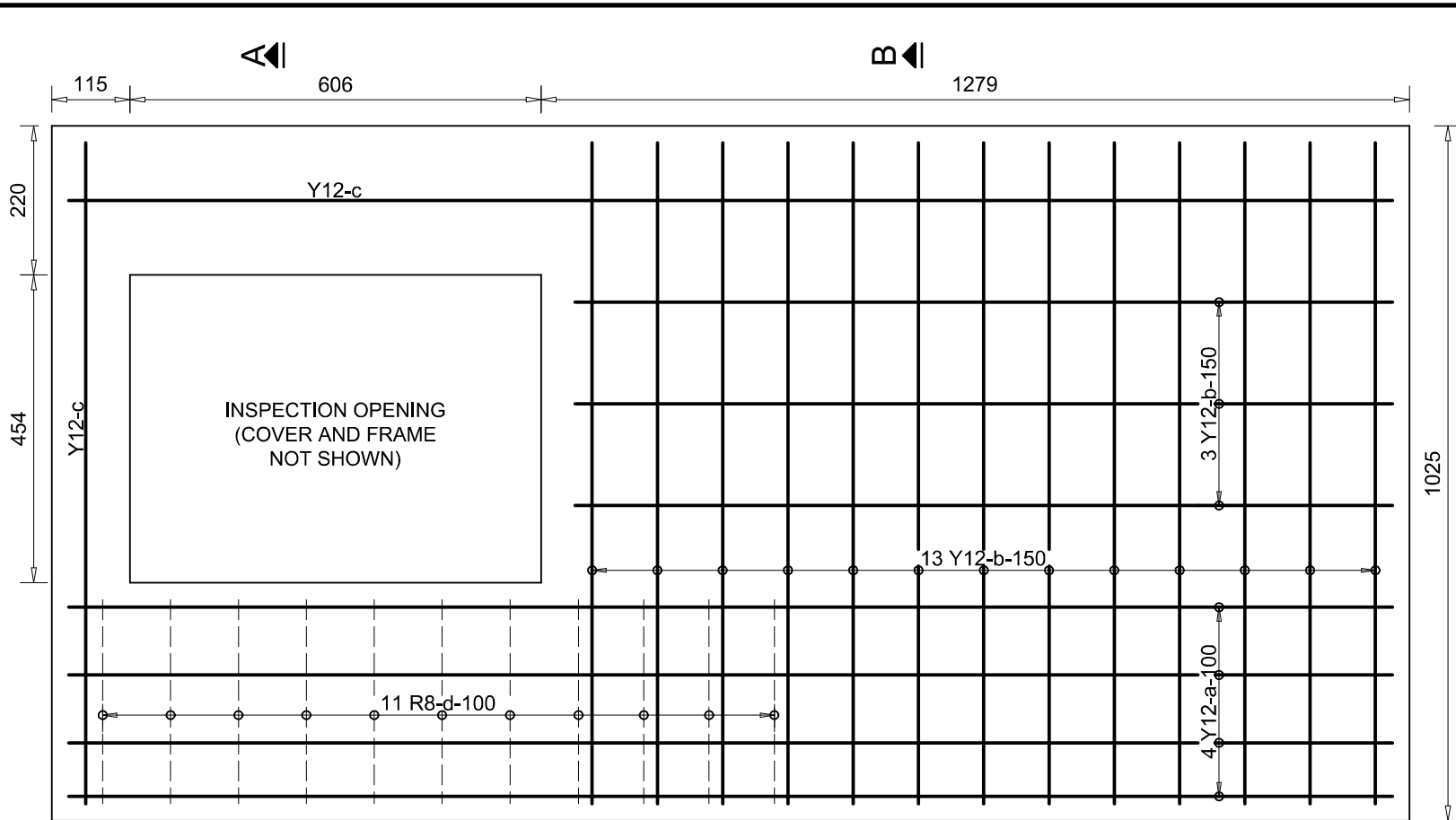
Paper Size

1 : 20

A4

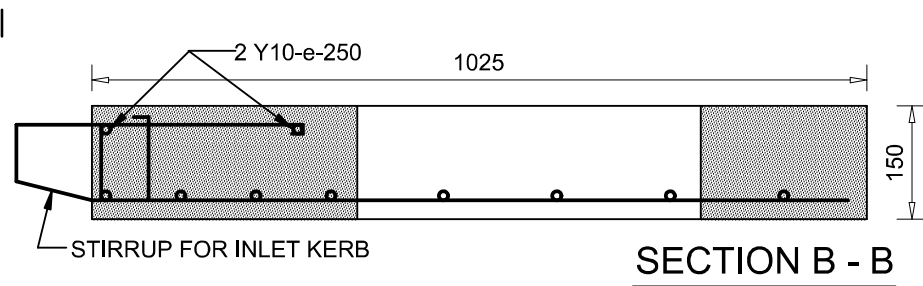
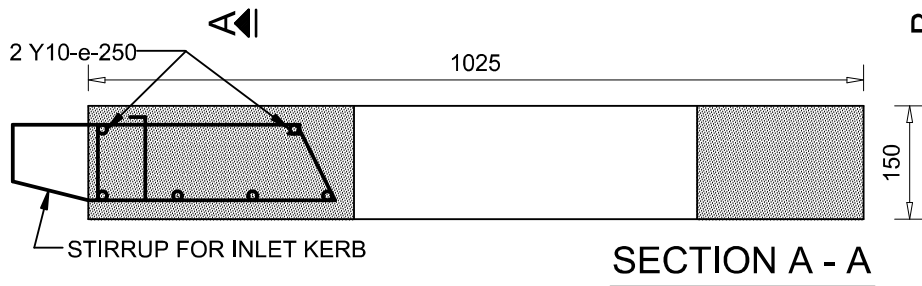
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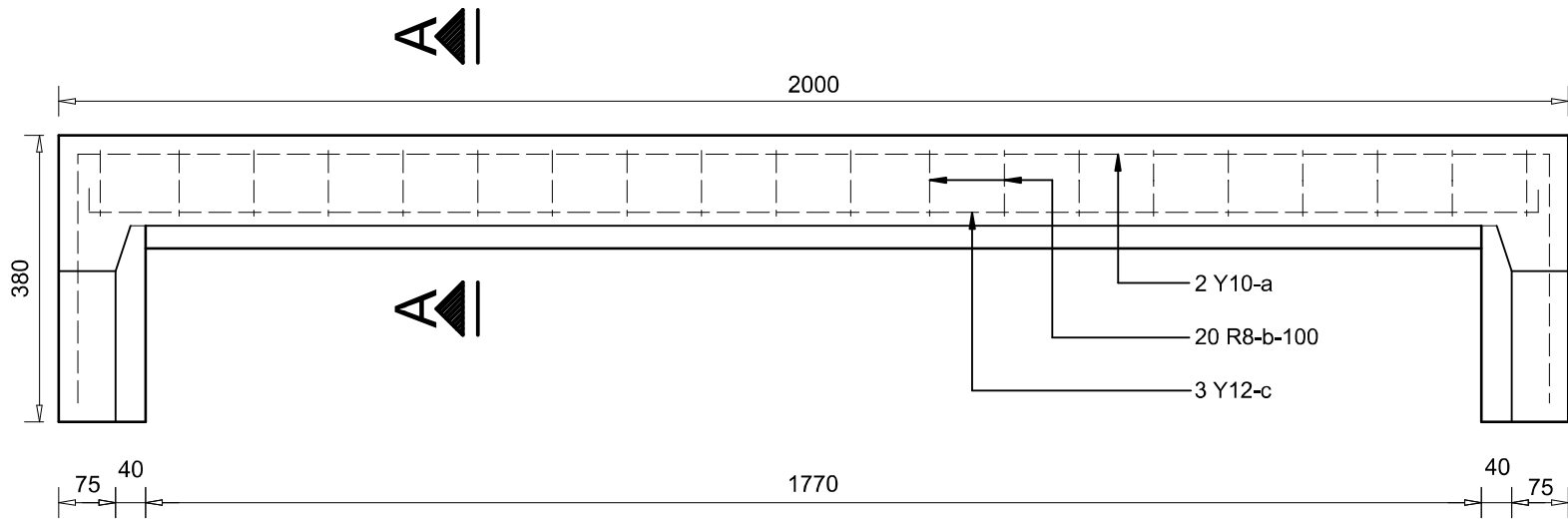
SSW13



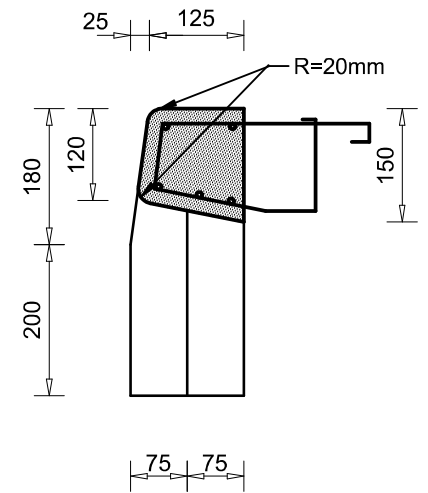
- NOTES:**
1. For use with Type B catch-pits with max pipe diameter of 750mm.
  2. Concrete 25 MPa.
  3. 20mm Minimum cover over all reinforcement
  4. Cover to be cast into cover slab
  5. Cover slab to be in-situ and reinforcement of cover slab to be joint with stirrups of inlet kerb.
  6. Wood float finish to top of slab.

**PLAN LAYOUT OF  
BOTTOM  
REINFORCEMENT**

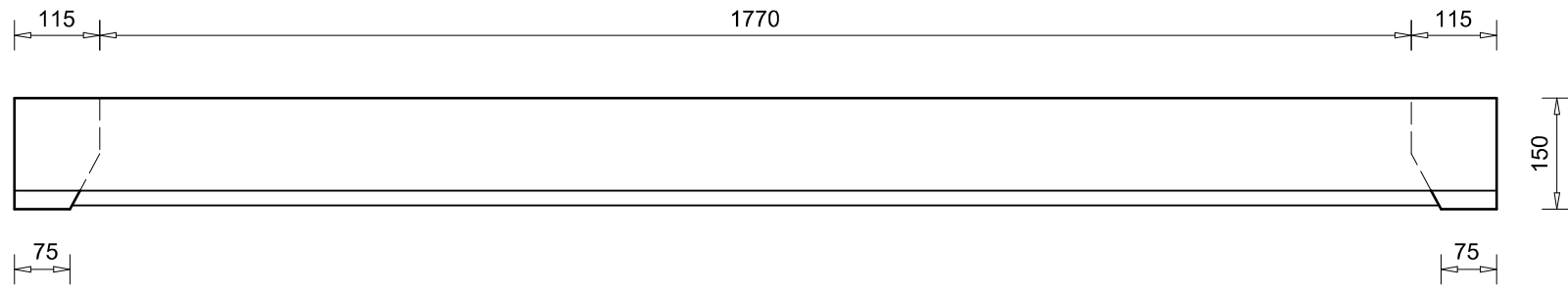




**FRONT ELEVATION**

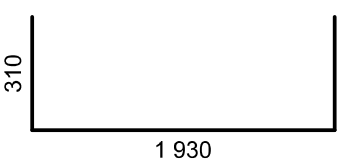
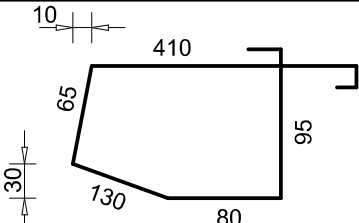
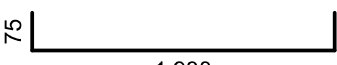


**SECTION A-A**



**PLAN**

## SCHEDULE FOR INLET KERB -TYPE B-

MARK	TOTAL	Ø	BENDING DETAILS
a	2	Y10	
b	20	R8	
c	3	Y12	

**NOTES:**

1. CONCRETE 25 MPa  
= 1 BAG CEMENT : 90 LITRE SAND : 110 LITRE STONE (1 : 2,4 : 2,9)
2. COVER TO REINFORCEMENT = 20 mm



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STANDARD DETAIL DRAWING

INLET KERB : TYPE B (2 OF 2)

Scale

1 : 10

Paper Size

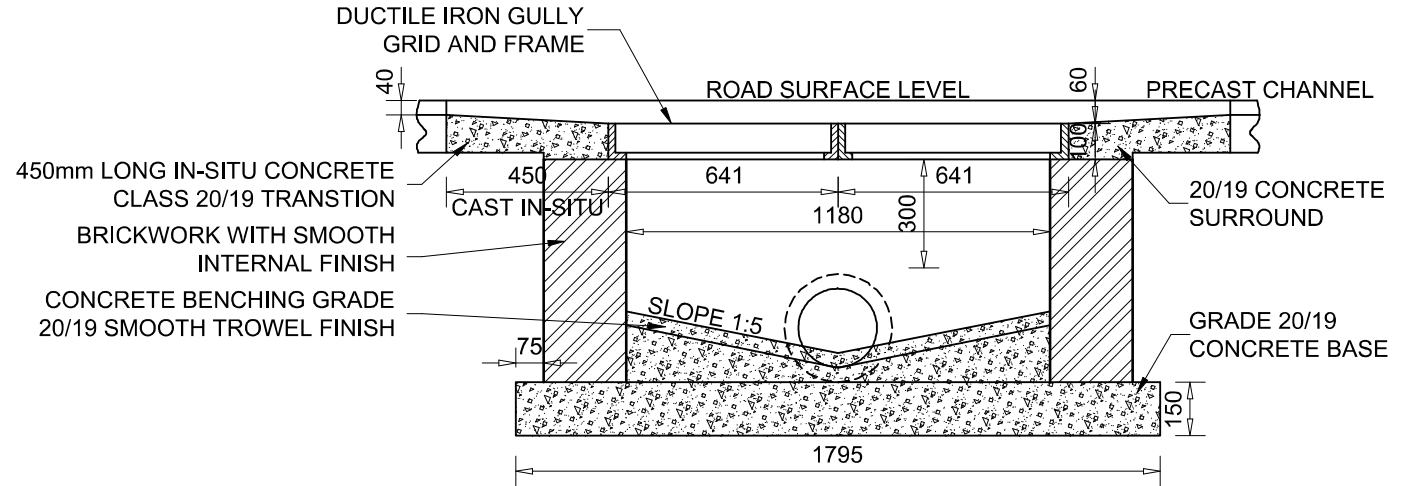
A4

Drawing No.

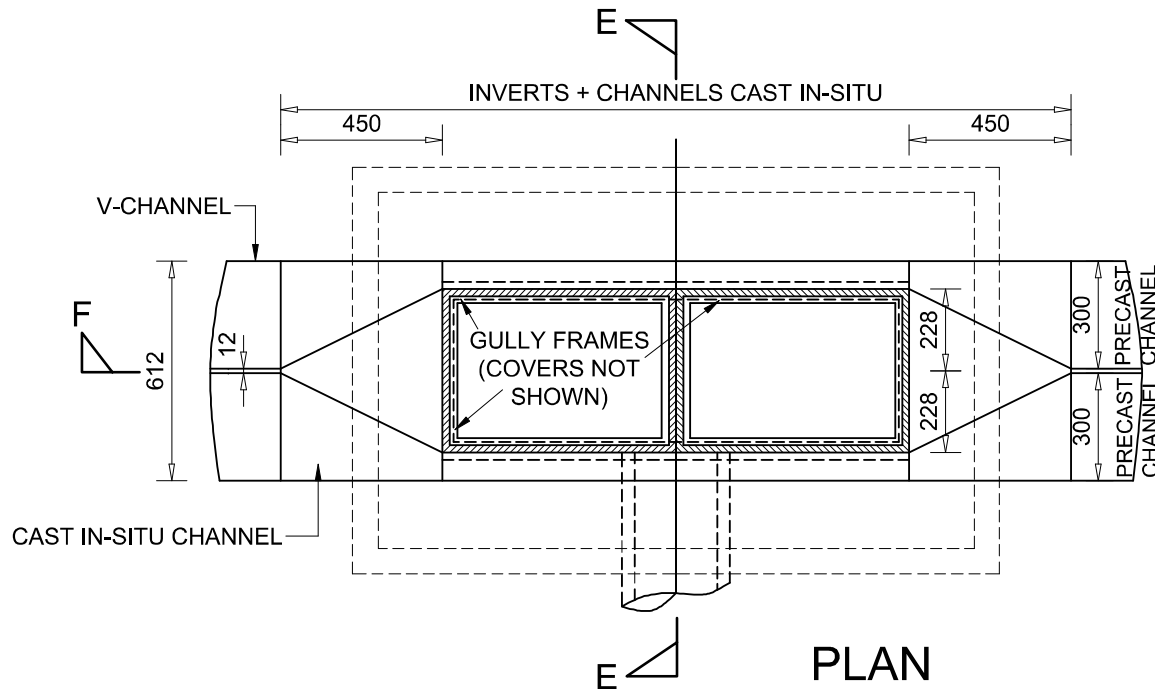
SSW16

**NOTES:**

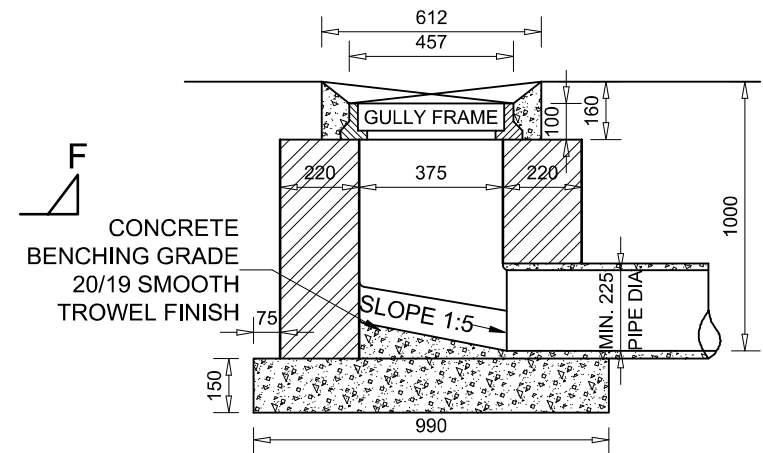
1. HINGED COVERS ARE TO OPEN TOWARDS SIDEWALK AND NOT ROAD.
2. BENCHING NOT REQUIRED IN SANDY AREAS.
3. MAX. DEPTH TO BE 1m.
4. BRICKWORK - TO BE ENGINEERING CLASS NFX TO SANS 227.



**SECTION F - F**



**PLAN**



**SECTION E - E**



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STANDARD DETAIL DRAWING

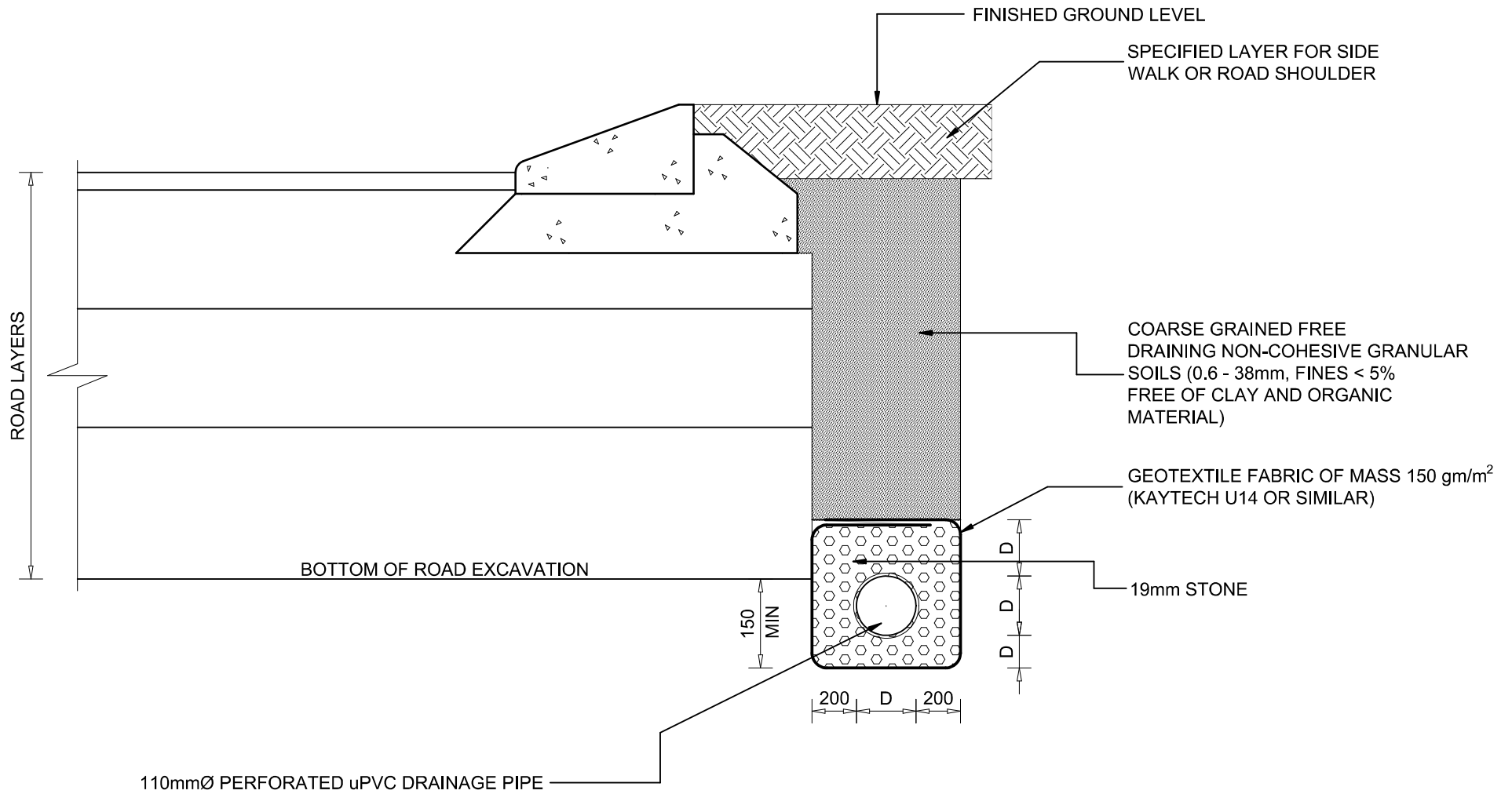
DOUBLE GULLY GRID CATCHPIT

Scale Paper Size

N.T.S. A4

Drawing No.

SSW17

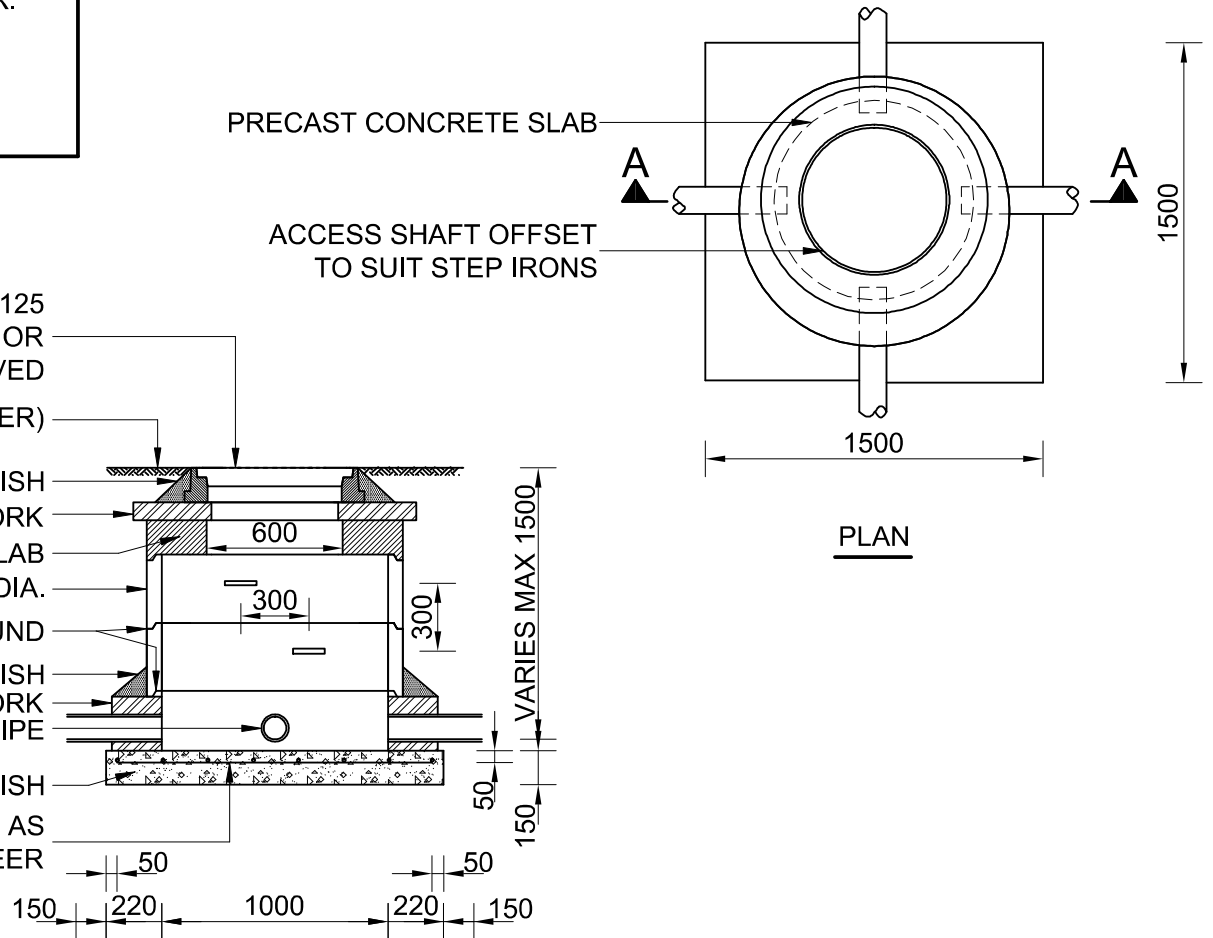


**NOTES:**

1. BENCHING REQUIRED TO PREVENT STANDING WATER.
2. BRICKWORK - ENGINEERING CLASS NFX
3. MORTAR FOR BRICKWORK TO BE 1:3
4. WHERE DEPTH > 1000 USE STANDARD SW MANHOLE

HINGED COVER AND FRAME : DUCTILE IRON CLASS B125  
(SANS 50124) SAINT GOBAIN (AKSESS RANGE) OR  
SIMILAR APPROVED  
ROAD OR FOOTWAY LEVEL (OR AS DIRECTED BY ENGINEER)

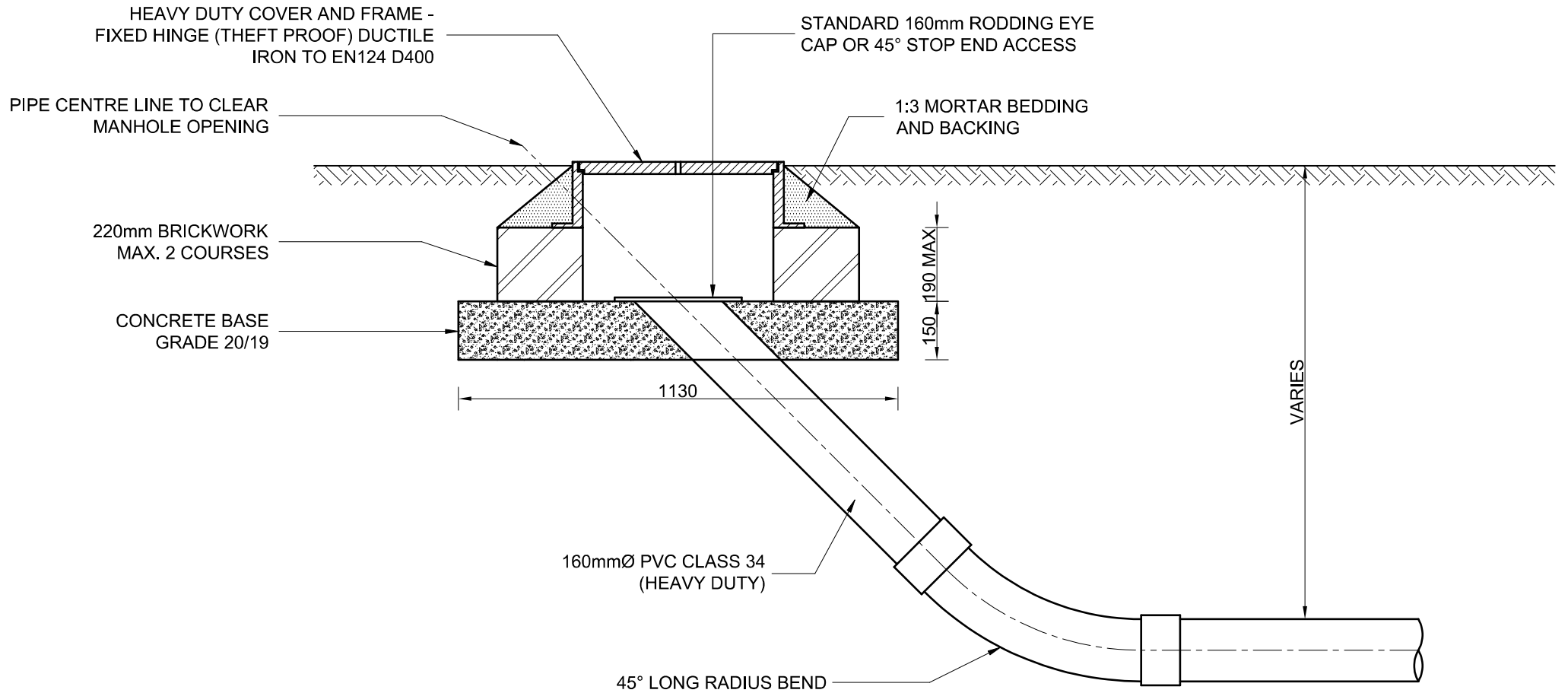
MORTAR 1:3 BEDDING AND BACKING TROWEL FINISH  
MIN. 1 COURSE, MAX. 3 COURSES BRICKWORK  
PRECAST CONCRETE COVER SLAB  
PRECAST CONCRETE RING 1000 DIA.  
PERFORMED PETROLATUM FLEXIBLE JOINING COMPOUND  
MORTAR 1:3 BEDDING AND BACKING TROWEL FINISH  
BRICKWORK  
110mmØ OR 160mmØ SUB-SOIL PIPE  
CONCRETE SLAB GRADE 20/19 TROWEL FINISH  
MIN. MESH REINFORCEMENT REF NO. 311 OR AS  
DIRECTED BY THE ENGINEER



**SECTION A - A**

**PLAN**





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STANDARD DETAIL DRAWING

RODDING EYE FOR SUBSOIL DRAINS

Scale

N.T.S.

Paper Size

A4

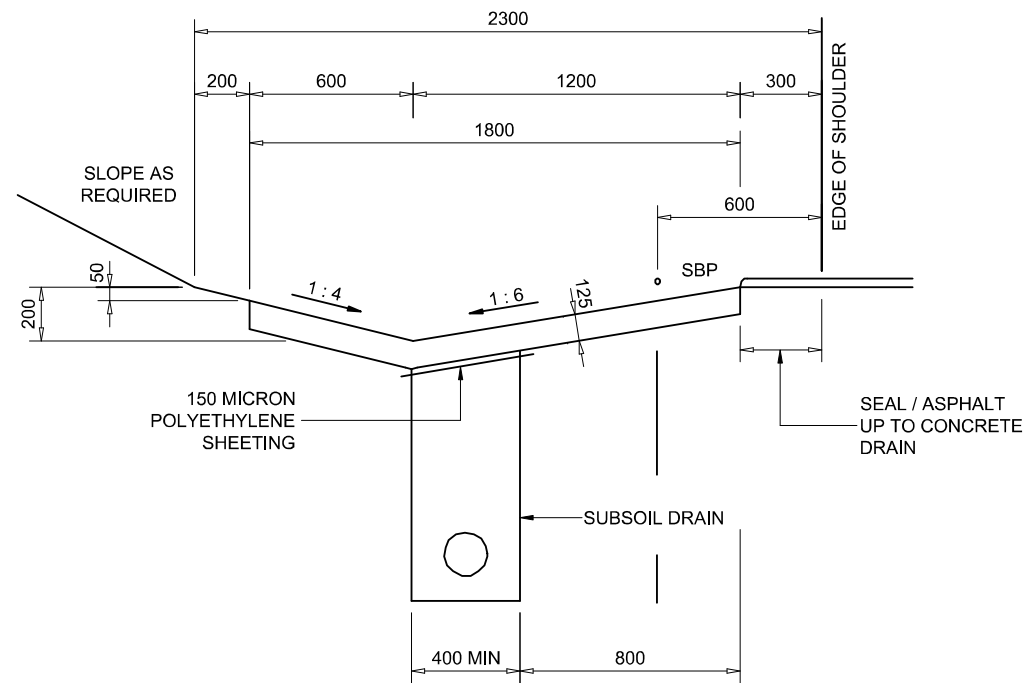
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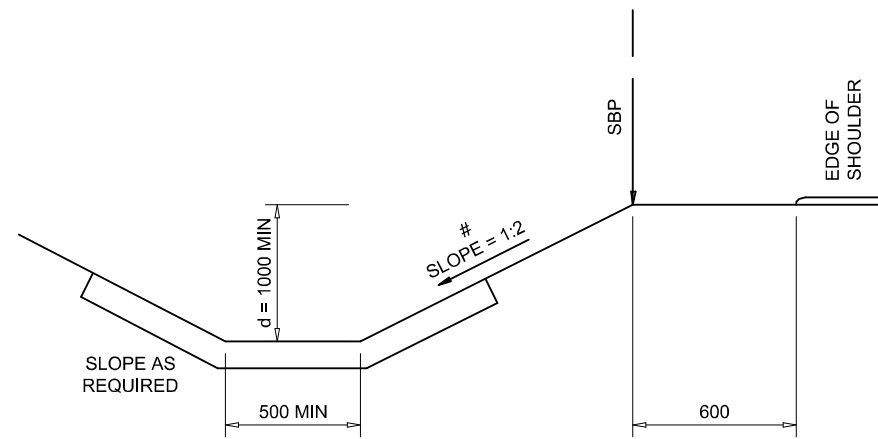
**LEGEND**

SBP = SHOULDER BREAK POINT

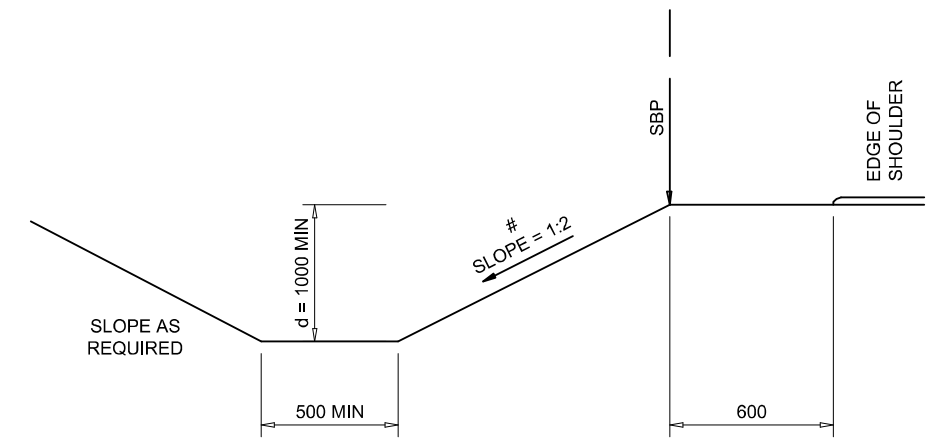
# = UNLESS OTHERWISE INDICATED IN THE PROJECT SPECIFICATIONS



**CONCRETE SIDE DRAIN**



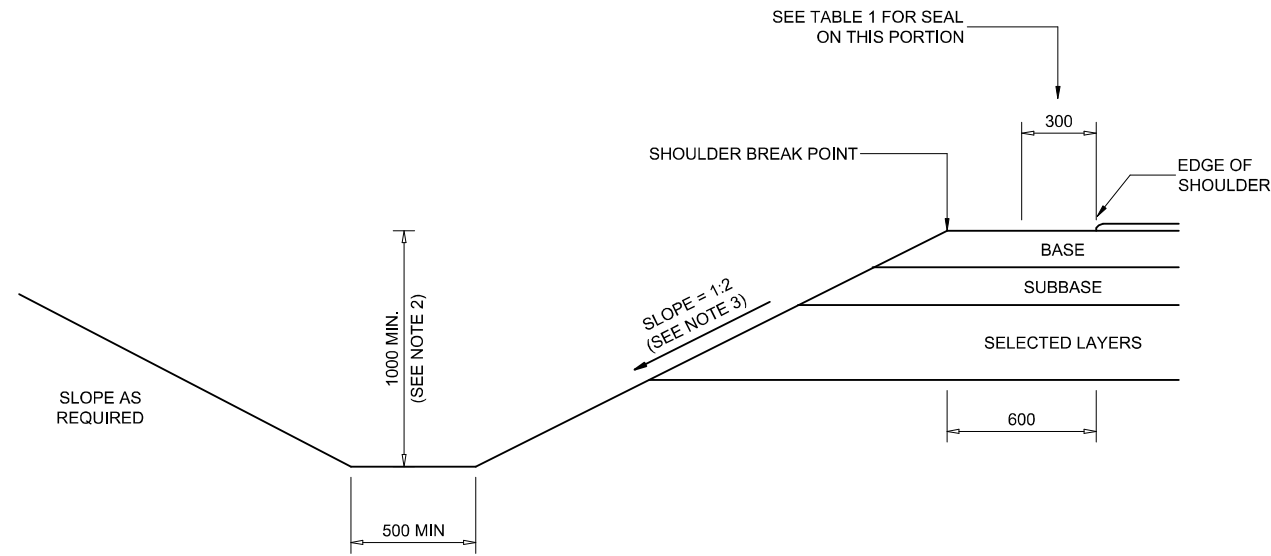
**LINED**



**UNLINED**

**EARTH SIDE DRAIN**

APPLICATION CRITERIA	<ul style="list-style-type: none"> <li>SLOPE &lt; 0.5%</li> <li>SLOPE &gt; 2.0%</li> <li>WHERE SPECIFIED BY THE ENGINEER</li> </ul>	<ul style="list-style-type: none"> <li>WHERE SPECIFIED BY THE ENGINEER</li> </ul>	<ul style="list-style-type: none"> <li>0.5% &lt; SLOPE &lt; 2.0%</li> <li>WHERE SPECIFIED BY THE ENGINEER</li> </ul>
SUBSOIL DRAIN	COMPULSORY	<ul style="list-style-type: none"> <li>WHERE SPECIFIED BY THE ENGINEER SUBJECT TO APPROVAL OF STELLENBOSCH MUNICIPALITY</li> </ul>	<ul style="list-style-type: none"> <li>WHERE SPECIFIED BY THE ENGINEER SUBJECT TO APPROVAL OF STELLENBOSCH MUNICIPALITY</li> </ul>



**UNLINED EARTH SIDE DRAIN**

CONSTRUCT LINED SIDE DRAIN IF VELOCITY > 1.5 m/s

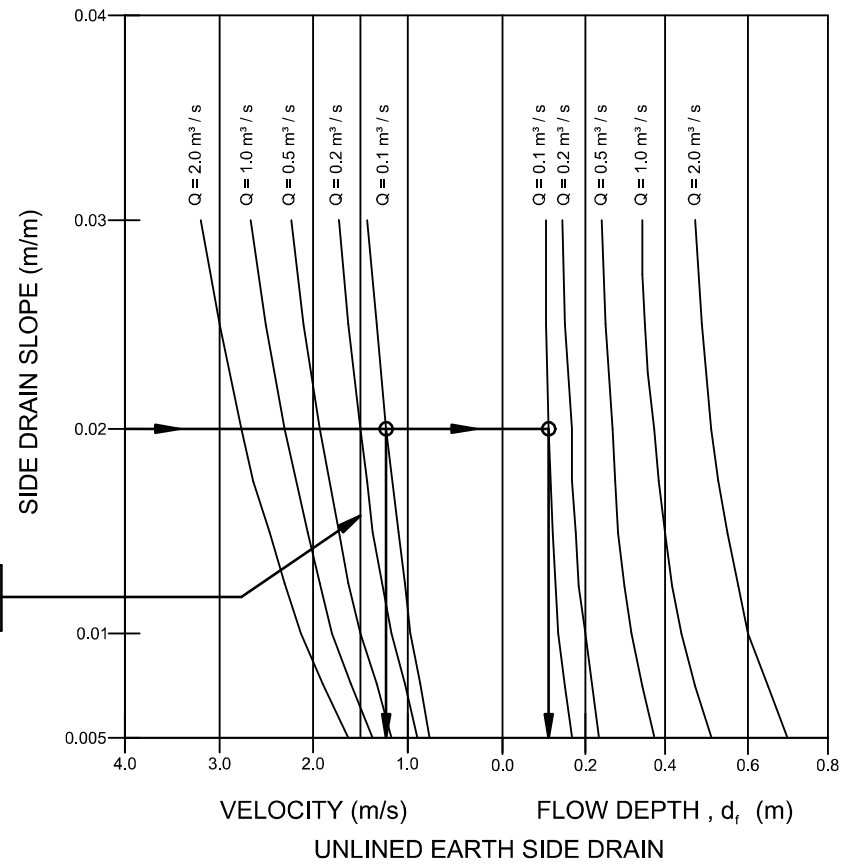
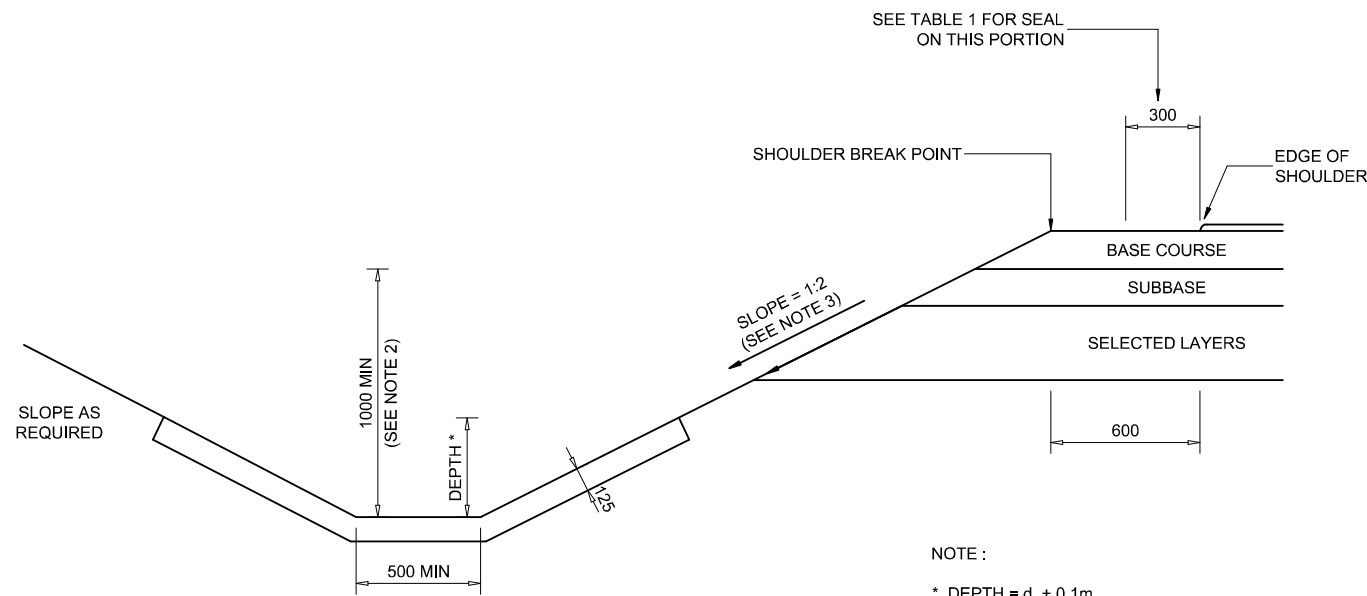


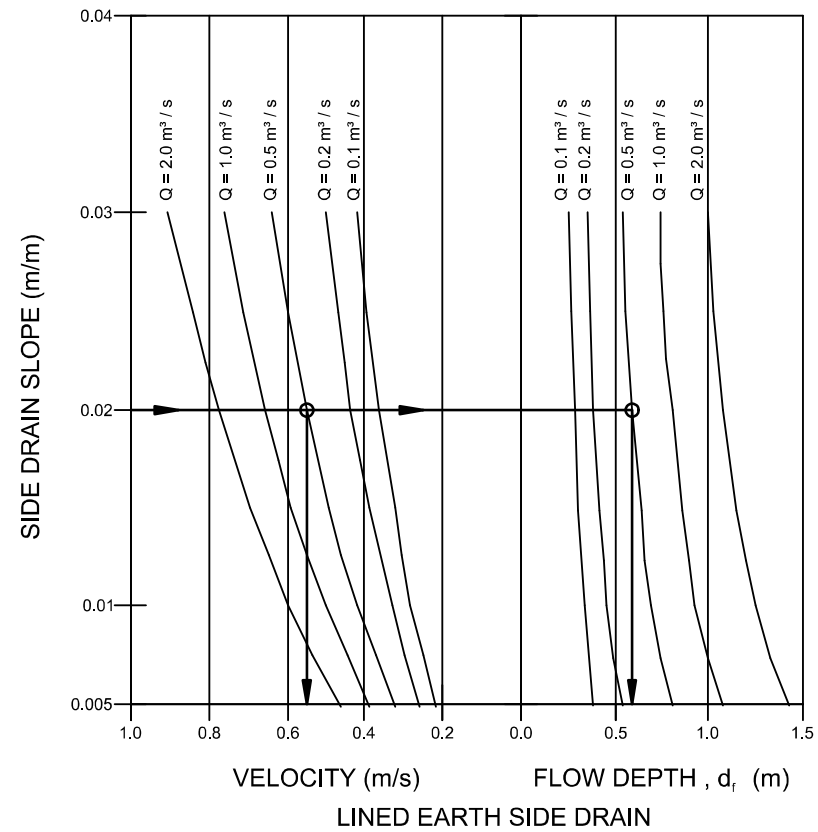
TABLE 1	
BITUMINOUS SURFACING	APPLICATION
CAPE SEAL DOUBLE SEAL ASPHALT	PRIME COAT + 2nd SLURRY PRIME COAT + 7mm STONE PRIME COAT

CONSTANTS USED IN CALCULATIONS	
INVERT WIDTH	= 0.5m
CUT SLOPE	= 1:1.5
MANNING CONSTANT	= 0.22 FOR UNLINED DRAINS = 0.012 FOR CONCRETE LINED DRAINS



**LINED EARTH SIDE DRAIN**

NOTE :  
\* DEPTH =  $d_f + 0.1m$   
WHERE  $d_f$  = FLOW DEPTH FROM LINED EARTH SIDE DRAIN DIAGRAM



- NOTES :
- APPLICATION CRITERIA  
(a) 0.5% < SLOPE < 2.0%  
(b) IF REQUIRED BY THE ENGINEER
  - USE THE UNLINED EARTH SIDE DRAIN DIAGRAM TO DETERMINE WHETHER A LINED SIDE DRAIN IS REQUIRED.
  - WHERE THIS DEPTH CANNOT BE ACHIEVED, SHALLOWER DEPTH MAY BE PERMITTED SUBJECT TO APPROVAL BY THE ENGINEER. IN SUCH CASES THE ENGINEER MUST DETERMINE WHETHER A SUBSOIL DRAIN IS REQUIRED.
  - UNLESS OTHERWISE INDICATED IN THE PROJECT SPECIFICATION.

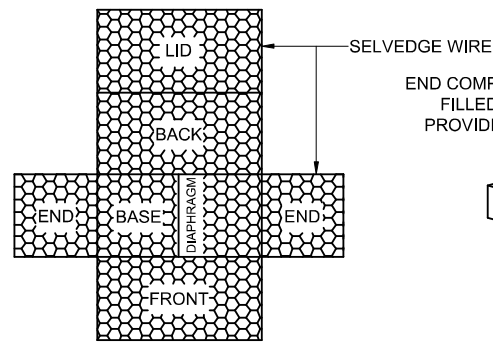


FIGURE 1

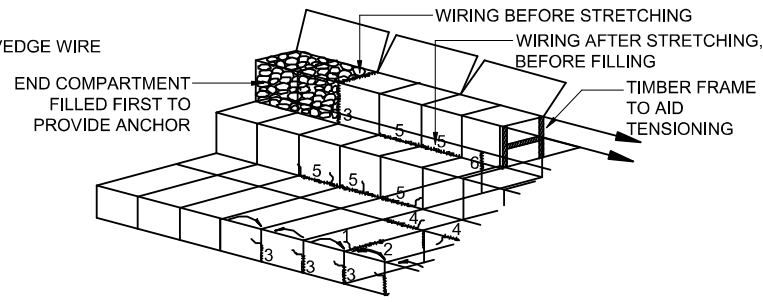


FIGURE 5

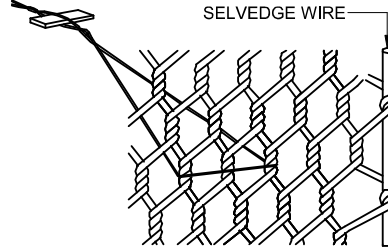


FIGURE 9

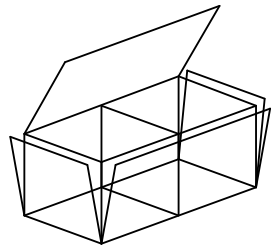


FIGURE 2

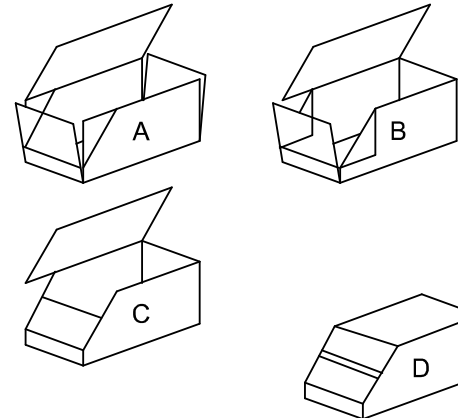


FIGURE 6

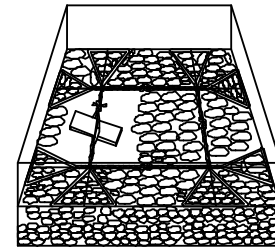


FIGURE 10

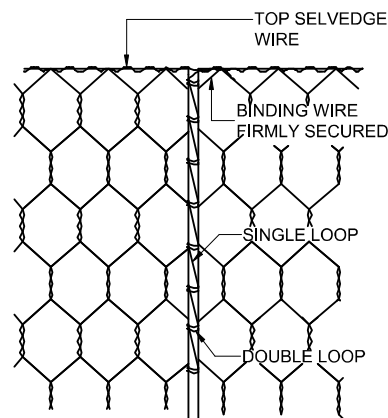


FIGURE 3

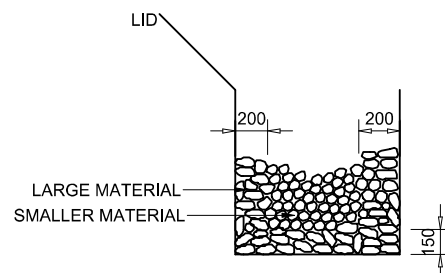


FIGURE 7

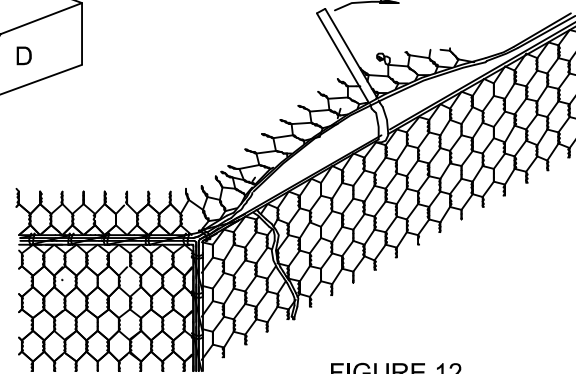


FIGURE 12

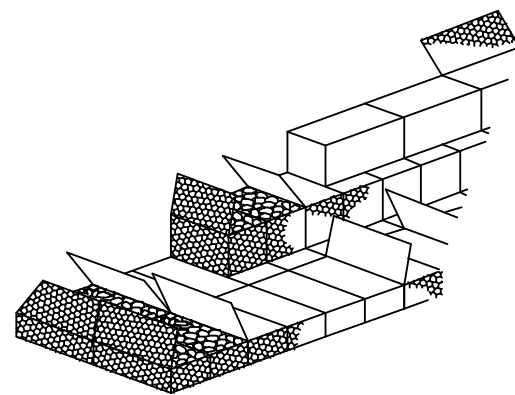


FIGURE 4

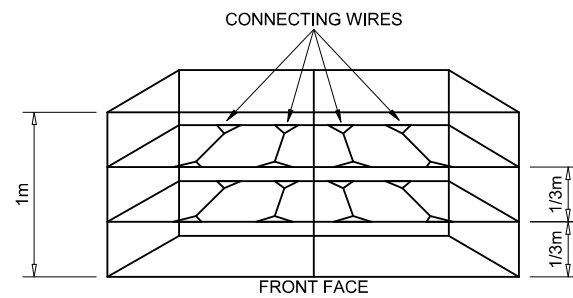


FIGURE 8

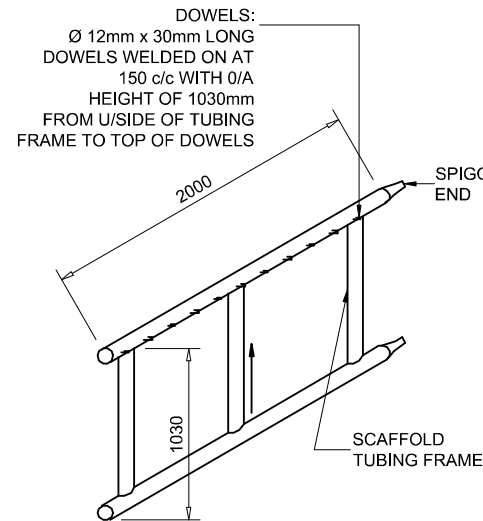


FIGURE 11

**ASSEMBLY :**

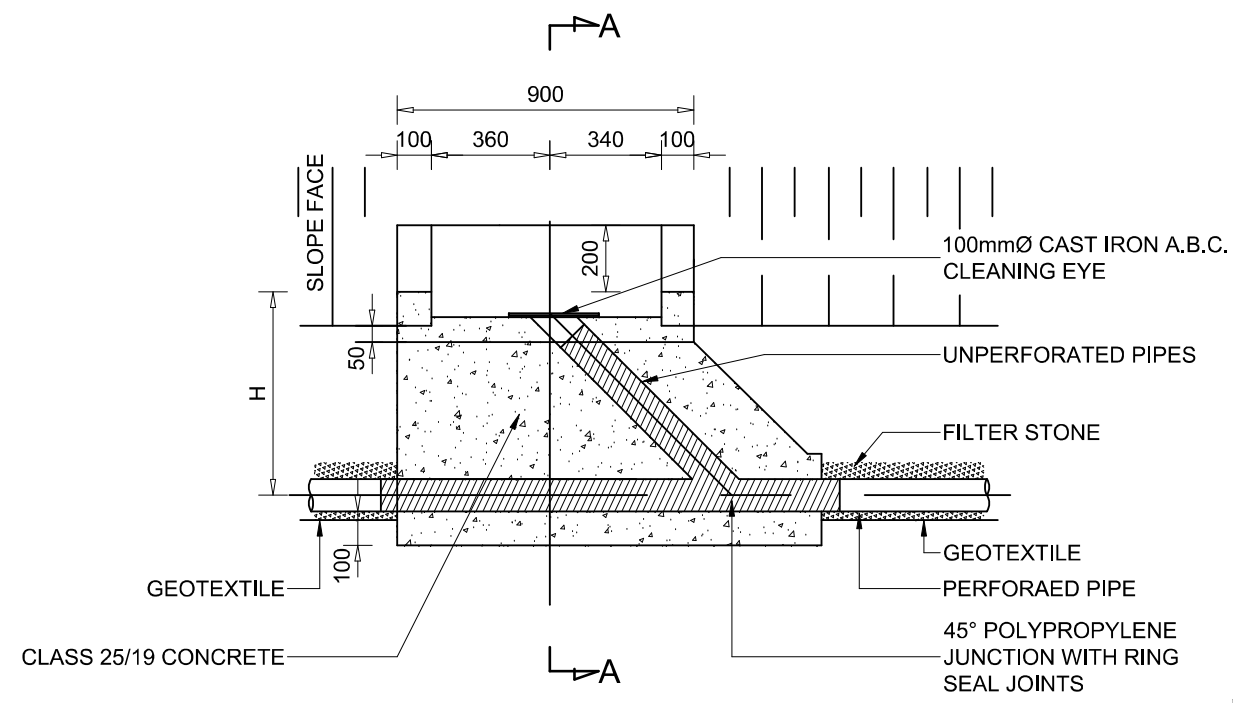
1. UNFOLD EACH GABION ON A HARD FLAT SURFACE. STRETCH IT OUT AND STAMP OUT ANY KINKS. MAKE SURE THAT ALL CREASES ARE IN THE CORRECT POSITIONS FOR FORMING THE BOX - ONE AT THE EDGE OF EACH PANEL AND EACH DIAPHRAGM (FIGURE 1).
2. FOLD THE SIDE AND END PANELS INTO THE UPRIGHT POSITION TO FORM A RECTANGULAR BOX. JOIN THE TOP CORNERS OF THE BOX TOGETHER WITH THE THICK SELVEDGE WIRE STICKING OUT FROM THE CORNERS OF EACH PANEL. THIS ENSURES THAT THE TOPS OF ALL FOUR SIDES OF THE BOX ARE LEVEL (FIGURE 2).
3. SECURING THE BINDING WIRE AROUND THE TOP SELVEDGES OF THE PANELS TO BE JOINED TOGETHER, LACE THE WIRE AROUND THE TWO EDGE SELVEDGES WITH SINGLE LOOPS IN TURN AT 100mm INTERVALS (FIGURE 3). FINALLY, FASTEN THE WIRE SECURELY AT THE BOTTOM CORNER SELVEDGES AND POKE THE LOOSE END INSIDE THE GABION BOX. THEN LIFT THE DIAPHRAGMS INTO THE VERTICAL POSITION AND WIRE THEM UP TO THE SIDE PANELS IN EXACTLY THE SAME WAY. THE TIGHTNESS OF THE MESH AND WIRING IS ESSENTIAL AT ALL TIMES.
4. IT IS GOOD CONSTRUCTION PRACTICE TO LACE SMALL GROUPS OF GABION BOXES TOGETHER AS COMPLETE SECTIONS BEFORE JOINING THEM TO THE REST OF THE STRUCTURE, USING EXACTLY THE SAME METHOD AS FOR ASSEMBLING SINGLE BOXES. PLACE THEM FRONT TO FRONT AND BACK TO BACK, SO THAT PAIRS OF FACING LIDS CAN LATER BE WIRED DOWN SIMULTANEDUSLY (FIGURE 4).

**FORMING THE STRUCTURE :**

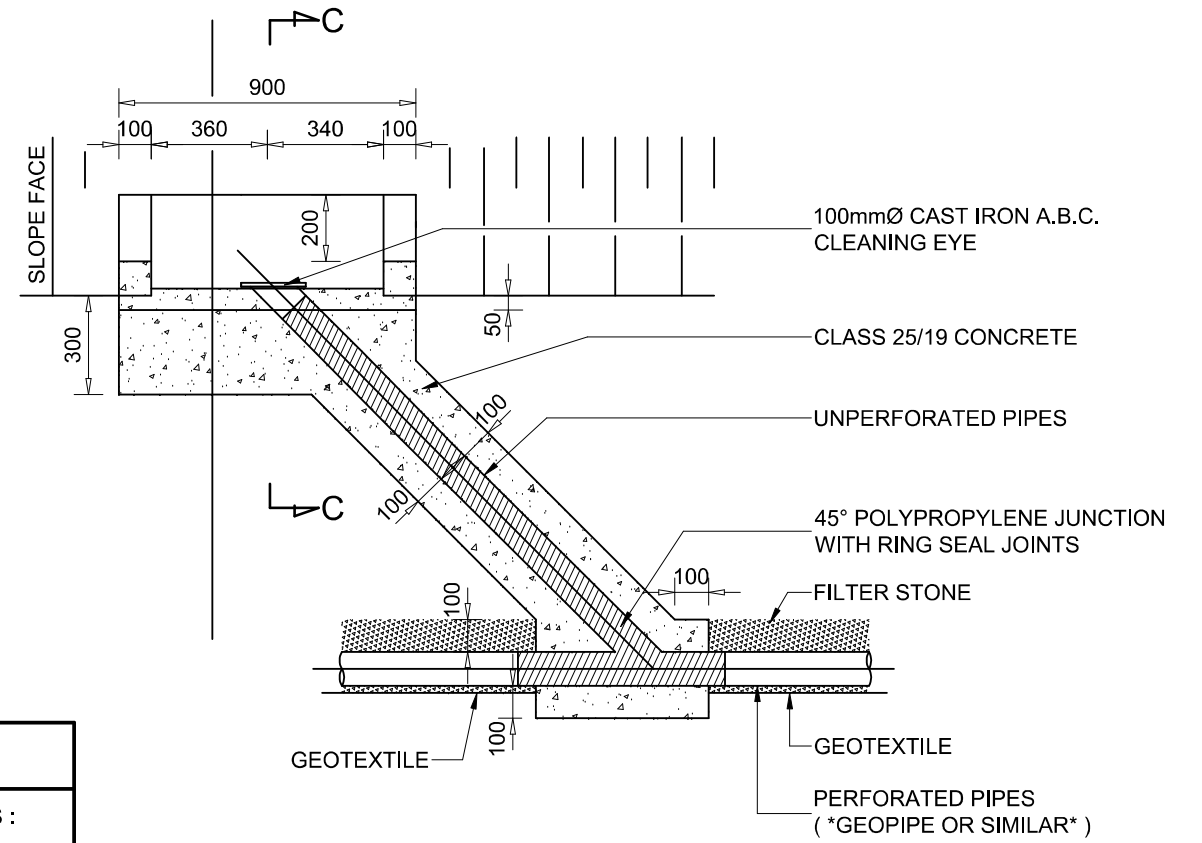
1. THE SURFACE ON WHICH THE GABION BOXES ARE TO BE CONSTRUCTED, SHALL BE LEVELLED TO THE SPECIFIED DEPTH SO AS TO PRESENT AN EVEN SURFACE. CAVITIES BETWEEN HARD PROTRUSIONS SHALL BE FILLED WITH MATERIAL SIMILAR TO THAT BEING USED FOR FILLING THE GABIONS.
2. ONLY ASSEMBLED BOXES, OR GROUPS OF BOXES, SHALL BE POSITIONED IN THE STRUCTURE. THE SIDE OR END, FROM WHICH WORK IS TO PROCEED, SHALL BE SECURELY LACED TO COMPLETED WORK AT ALL DIAPHRAGM POINTS (FIGURE 5), OR ANCHORED BY RODS DRIVEN INTO THE GROUND AT THESE POSITIONS. THE RODS MUST BE SECURED AND REACH AT LEAST TO THE TOP OF THE GABION BOX.
3. STRECH THE OPPOSITE SIDE OF THE BOX OR SECTION BY INSERTING BARS INTO THE BOTTOM CORNERS AND LEVERING THEM FORWARDS BY MEANS OF A WIRE STRAINER OR WINCH. THE TOP AND BOTTOM ARE THEN KEPT STRETCHED IN THIS WAY UNTIL THE GABION HAS BEEN FILLED. WHILE THE GABION IS BEING STRETCHED, ENSURE THAT THE OPPOSITE WIRING OR ANCHORING HAS BEEN PROPERLY CARRIED OUT AND IS NOT PULLING APART OR COLLAPSING (FIGURE 5). THE NEXT STEP IS TO WIRE ALL THE OTHER SIDES AND ENDS OF THE STRETCHED SECTION TO ADJOINING ALREADY FILLED GABIONS (FIGURE 5). THE STRONG INTER-CONNECTION OF ALL UNITS IN A GABION STRUCTURE IS AN IMPORTANT FEATURE OF THE TECHNIQUE AND IT IS THEREFORE ESSENTIAL THAT THE WIRING IS SECURE.
4. WHERE GABION STRUCTURES WITH NON-RECTANGULAR SHAPES ARE SPECIFIED, MODIFICATIONS TO THE BOXES ARE REQUIRED. GABION BOXES ARE FLEXIBLE ENOUGH TO CONFORM TO BENDS DOWN TO A RADIUS OF 25m WITHOUT WIRING. FIRST WIRE A NUMBER OF BOXES TOGETHER AND BEND THEM UP TO THE CURVE SET OUT PREVIOUSLY, HOLDING THEM IN POSITION DURING FILLING. OTHER SHAPES, BEVELS AND MITRES, SHOULD BE FORMED BY CUTTING AND FOLDING THE PANELS TO THE REQUIRED ANGLES AND SIZES (FIGURE 6).

**ROCK FILLING :**

1. FILLING SHOULD BE CARRIED OUT ONLY WHILST GABION BOXES ARE UNDER TENSION.
2. FILLING MATERIAL SHOULD BE HARD DURABLE STONE NOT LARGER THAN 250mm AND NOT SMALLER THAN THE SIZE OF THE MASH. IDEALLY THE STONE SHOULD BE JUST SLIGHTLY LARGER THAN THE MESH SIZE IN ORDER TO ALLOW FLEXIBILITY IN THE STRUCTURE BUT AT THE SAME TIME FILLS THE GABION COMPARTMENTS WITH THE MINIMUM OF VOIDS AND THE MAXIMUM MASS.
3. IN AREAS WHERE LARGE ENOUGH FILL IS DIFFICULT TO OBTAIN, THE COMPARTMENT IS LINED WITH LARGE MATERIAL AND THE INTERIOR FILLED WITH SMALLER. THE SMALL MATERIAL CAN BE 5% TO 7% OF THE FILL (FIGURE 7). CARE SHALL BE TAKEN IN PACKING THE VISIBLE FACES OF GABION BOXES WHERE ONLY SELECTED STONE OF THE SPECIFIED SIZE SHALL BE USED SO AS TO OBTAIN AN EVEN FACED FINISH.
4. TO AVOID BULGING ON THE VISIBLE SIDE OF THE STRUCTURE, FILL ALL THE OUTSIDE BOXES IN STAGES (1.0m HIGH BOXES IN THREE LEVELS AND 0.5m HIGH BOXES IN TWO LEVELS) WITH HORIZONTAL BRACING IN BETWEEN (FIGURE 8). FIX THE BRACING WIRES IN THE GABION BOX DIRECTLY ABOVE THE STONE LEVEL MAKING SURE THE WIRE PASSES ROUND AT LEAST TWO MESH WIDTHS AND "SPANISH" WINDLASS THE BRACING WIRES TO KEEP THE FACE EVEN AND FREE FROM BULGING (FIGURE 9). BRACING IN BOTH DIRECTIONS SHOULD BE USED IN GABIONS AT CORNERS OF STRUCTURES (FIGURE 10). AS AN ADDITIONAL MEASURE, SCAFFOLD PLANKING AS SHUTTERING ALONG THE FRONT FACE OR A PRE-FABRICATED SCAFFOLD TUBING FRAME SYSTEM CAN BE USED (FIGURE 11).
5. LEVEL OFF THE FILL 25mm TO 50mm ABOVE THE TOP OF THE MESH TO ALLOW FOR SETTLEMENT. SMALL MATERIAL IS BEST FOR THIS.
6. STRETCH THE LIDS TIGHTLY OVER THE FILLING USING A CROWBAR. SECURE THE CORNERS FIRST, BY MEANS OF THE THICK SELVEDGE WIRE PROTRUDING FROM THE LID CORNERS. TO ENSURE THAT THERE IS ENOUGH MESH TO COVER THE WHOLE AREA. SOME FILLING MAY HAVE TO BE REMOVED FROM THE TOP OF THE GABION BOX TO PREVENT THE LID FROM OVERSTRAINING, THEN SECURELY WIRE IT TO THE TOPS OF THE SIDES, ENDS AND DIAPHRAGMS, USING THE ALTERNATE SINGLE AND DOUBLE LOOPS (FIGURE 12).



**SECTION B - B**



**SECTION D - D**

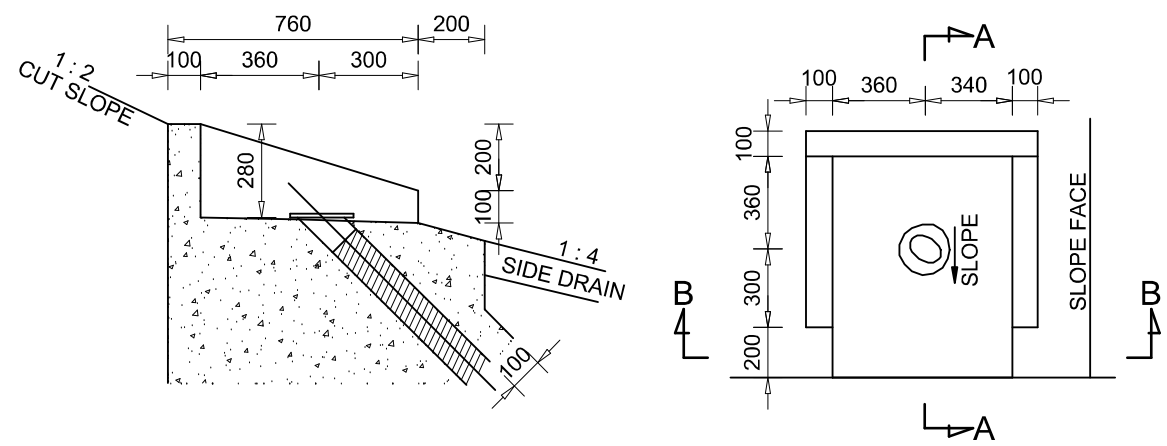
**NOTES**

1. POSITION OF CLEANING EYES :

(a) WHERE NO HAZARD IS CAUSED TO TRAFFIC OR MAINTENANCE IN THE ROAD RESERVE

(b) CLEARLY VISIBLE

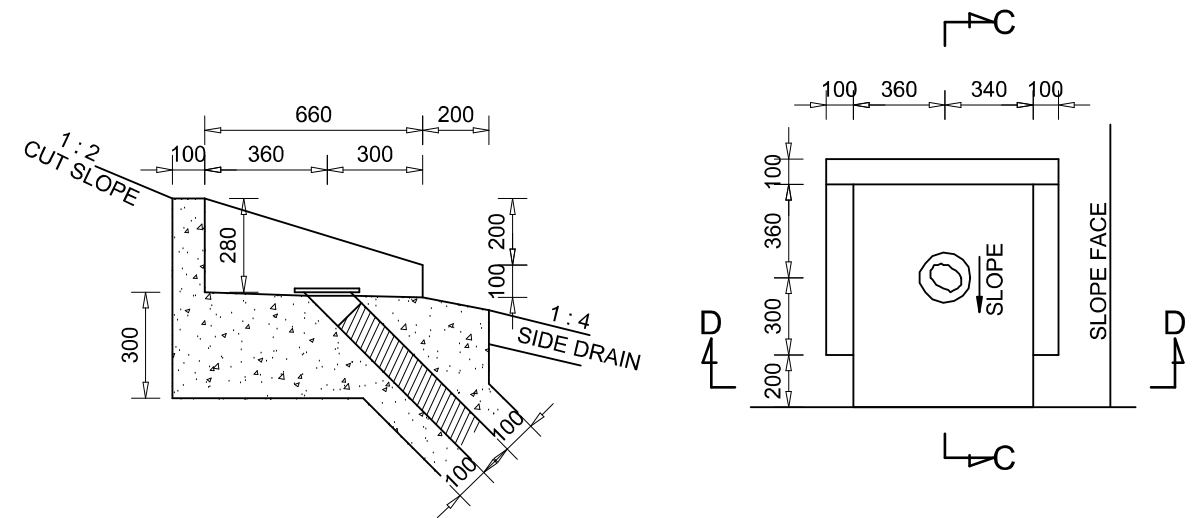
2. MAXIMUM SPACING : 100m



**SECTION A - A**

**PART PLAN**

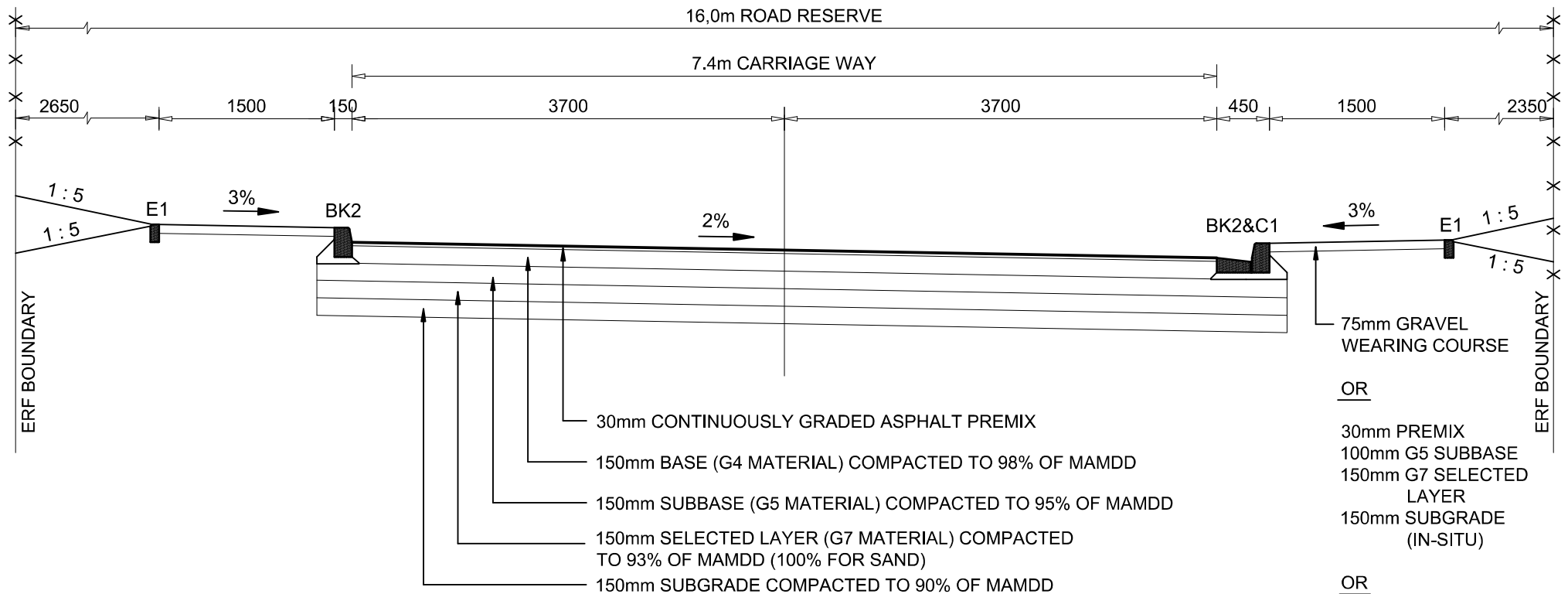
**CLEANING EYE TYPE 1 (H ≤ 1000)**



**SECTION C - C**

**PART PLAN**

**CLEANING EYE TYPE 2 (H > 1000)**



**NOTE:**

MAMDD: MODIFIED AASHTO MAXIMUM DRY DENSITY



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STANDARD DETAIL DRAWING

TYPICAL CROSS SECTION OF ROAD

Scale

Paper Size

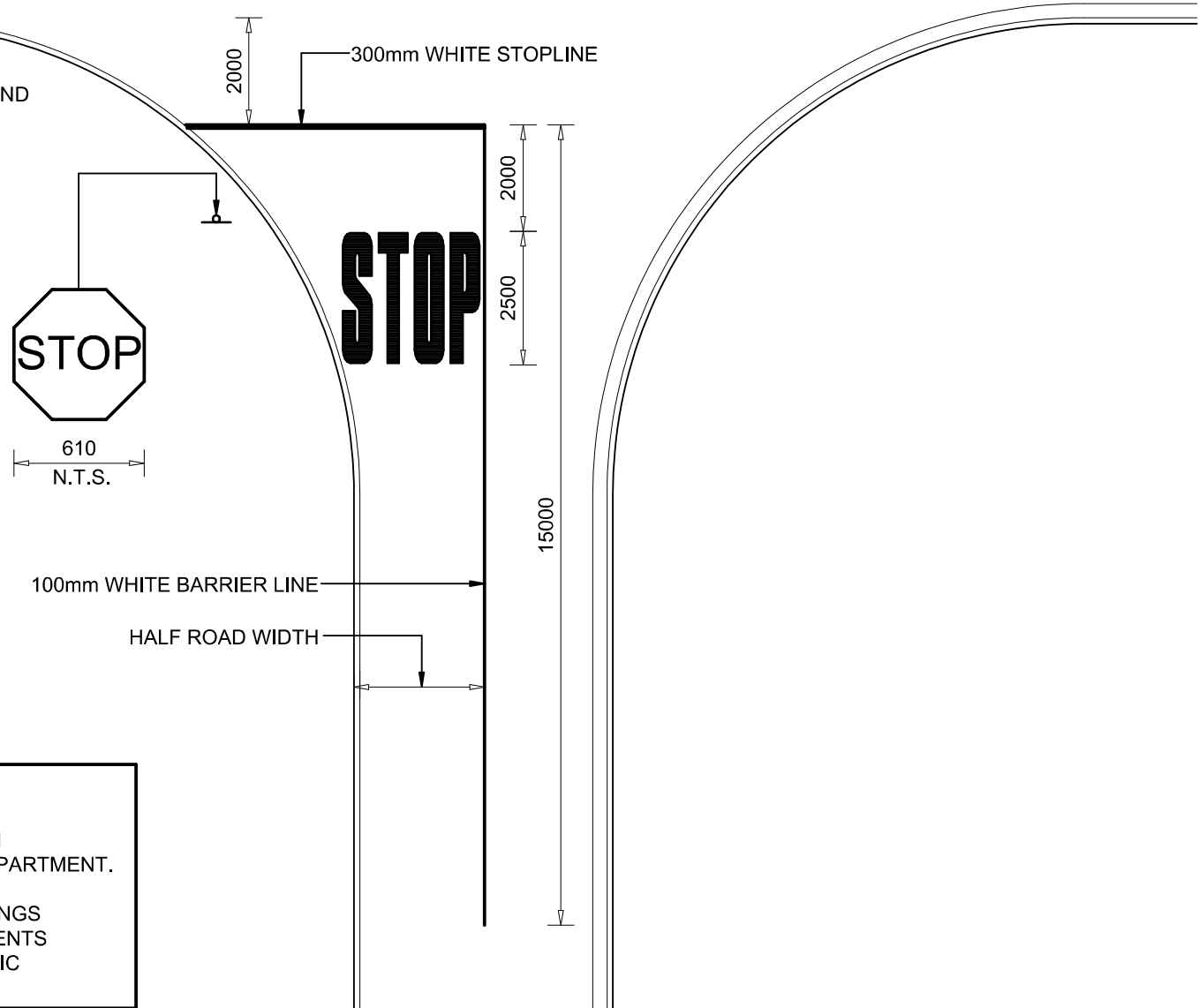
1 : 50

A4

Drawing No.

SR1

NOTE: MINIMUM HEIGHT FROM FINAL GROUND LEVEL TO TOP OF SIGN = 2200mm



**NOTES:**

1. TRAFFIC SIGNS SHALL BE ERECTED IN CONJUNCTION WITH THE TRAFFIC DEPARTMENT.
2. ALL TRAFFIC SIGNS AND ROAD MARKINGS SHALL COMPLY WITH THE REQUIREMENTS OF THE SOUTH AFRICAN ROAD TRAFFIC SIGNS MANUAL.



**STELLENBOSCH**

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STANDARD DETAIL DRAWING

TYPICAL STOP CONTROLLED INTERSECTION

Scale

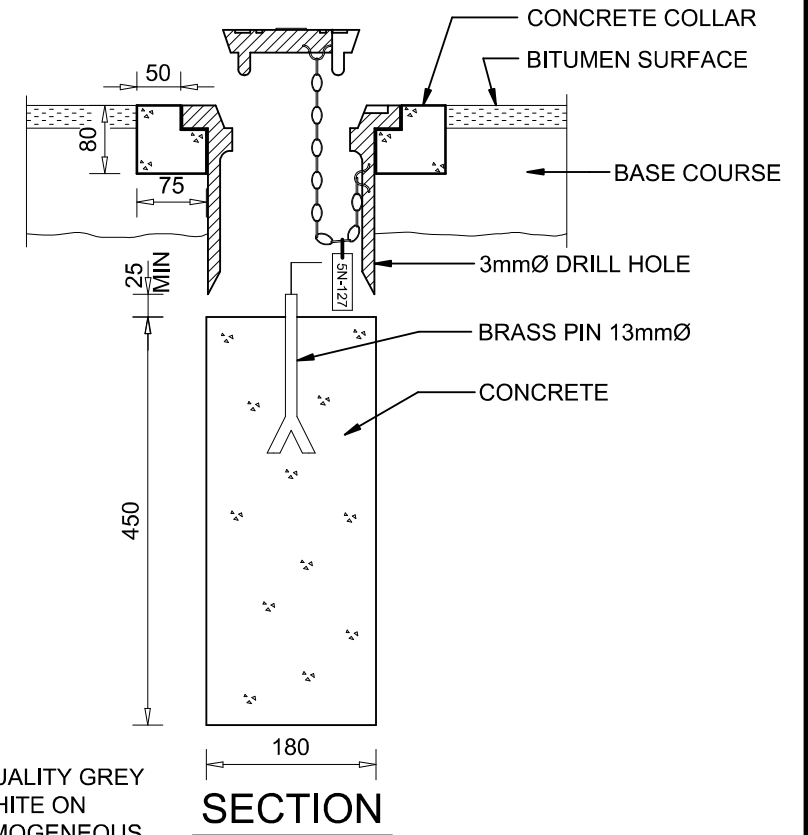
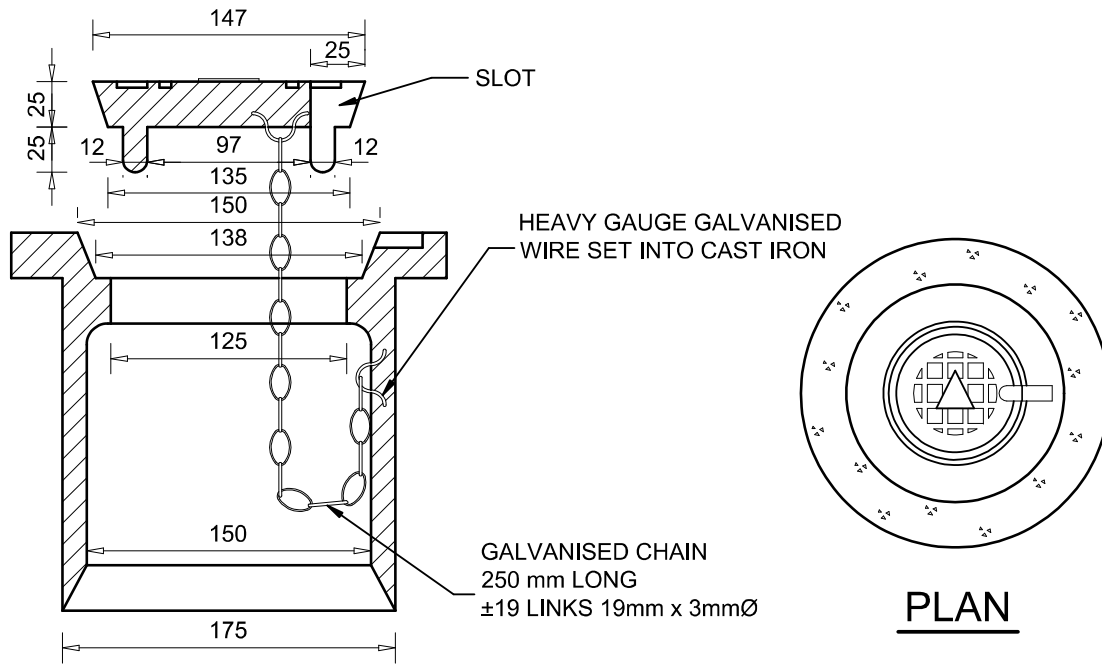
1 : 125

Paper Size

A4

Drawing No.

SR2



**1. DIMENSIONS AND TOLERANCES**

- 1.1 ALL CASTINGS, CHAINS AND CHAIN STAPLES SHALL CONFORM TO THE RELEVANT DIMENSIONAL REQUIREMENTS GIVEN ON THE PLAN.
- 1.2 COVERS AND FRAMES SHALL BE FREE FROM TWIST, SHALL BE SO FINISHED THAT COVERS REST EVENLY ON INTENDED MUTUAL BEARING SURFACES AND SHALL NOT ROCK. WHEN FITTED TO FRAMES, COVERS SHALL FIT SUFFICIENTLY LOOSELY TO BE RETAINED IN POSITION BY WEIGHT ONLY. THE TOP SURFACES OF COVERS, INCLUDING ANTI-SLIP PROJECTIONS, SHALL NOT PROTRUDE ABOVE, NOR BE MORE THAN 1,5mm BELOW THE TOPS OF ASSOCIATED FRAMES.

**2. MATERIAL AND FINISH**

- 2.1 CASTINGS SHALL BE MANUFACTURED IN GOOD QUALITY GREY CAST IRON AND NOT OF IRON WHICH APPEARS WHITE ON FRACTURE. ALL CASTINGS SHALL BE SOUND, HOMOGENEOUS AND FREE FROM SAND AND BLOW-HOLES, COLD SHUTS, SCAB AND OTHER DEFECTS.

- 2.2 THE CHEMICAL ANALYSIS OF GREY CAST IRON IS GIVEN IN THE FOLLOWING TABLE:

CARBON %	SILICON %	SULPHUR % MAX	PHOSPHORUS % MAX	MANGANESE %
3.5 - 4.0	1.25 - 2.0	0.05	0.02	0.75 - 1.0

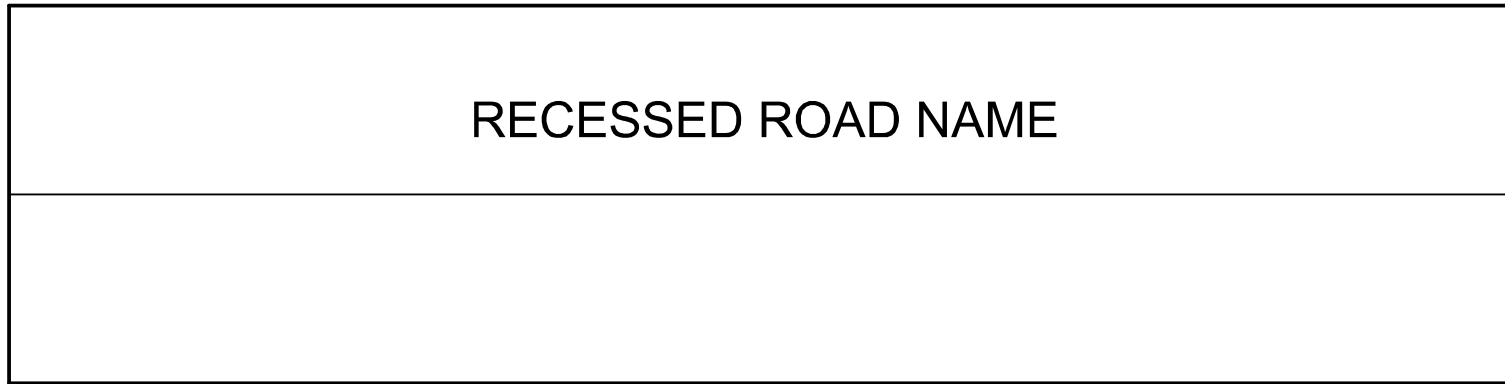
- 2.3 CHAINS AND CHAIN STAPLES SHALL BE MILD STEEL.
- 2.4 ALL CONCRETE TO BE OF CLASS 20/19.

1,5mm THICK STAINLESS STEEL/  
COPPER PLATE FOR NUMBER WITH  
COPPER WIRE

5N - 127

**TAG FOR NUMBER**

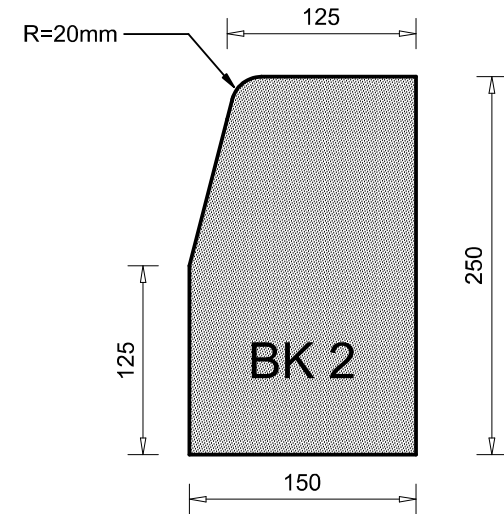




1000



FRONT ELEVATION



SECTION A-A

NOTES:

1. TEXT TYPE DIN A, TEXT HEIGHT 75mm
2. BLACK LETTERING ON YELLOW REFLECTIVE BACKGROUND. USING ROAD MARKING PAINT ACCORDING TO SABS 731 - 1987



**STELLENBOSCH**

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MUNISIPALITEIT • UMASIPALA • MUNICIPALITY

STANDARD DETAIL DRAWING

ROAD NAME KERB

(1 OF 2)

Scale

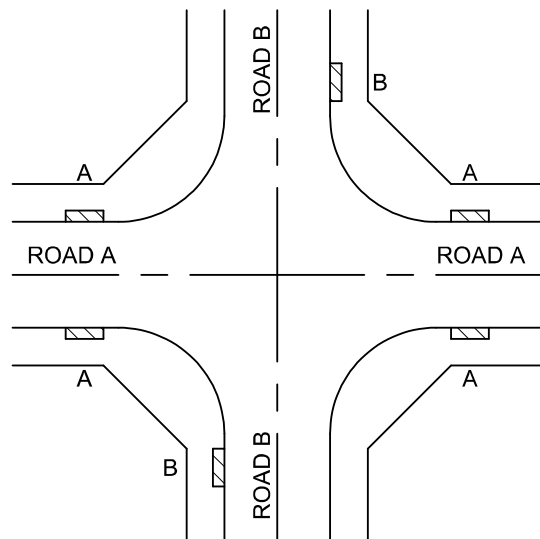
1 : 5

Paper Size

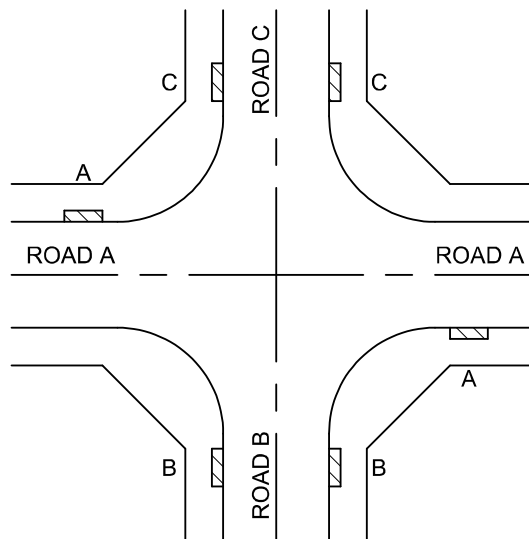
A4

Drawing No.

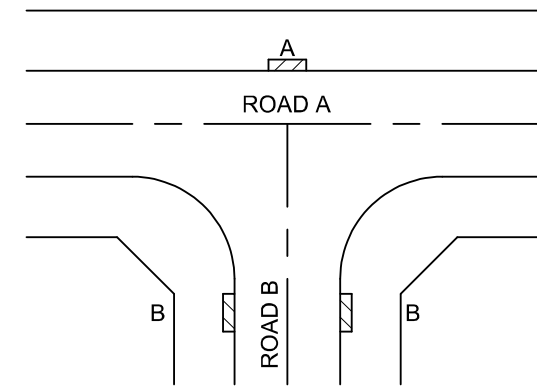
SR4



2 ROAD NAMES



3 ROAD NAMES



ROAD NAMES  
OPPOSITE INTERSECTING ROAD

## PLAN VIEW SHOWING ROAD NAME KERB POSITIONS

**NOTES:**

1. DENOTES THE POSITION OF THE PRECAST ROAD NAME KERB
2. THE LETTER DENOTES THE RELATIVE ROAD NAME TO APPEAR ON THE UNIT
3. RESESSED LETTERS PAINTED BLACK AND THE REMAINDER OF KERB TO HAVE A YELLOW BACKGROUND.



**STELLENBOSCH**

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STANDARD DETAIL DRAWING

ROAD NAME KERB

(2 OF 2)

Scale

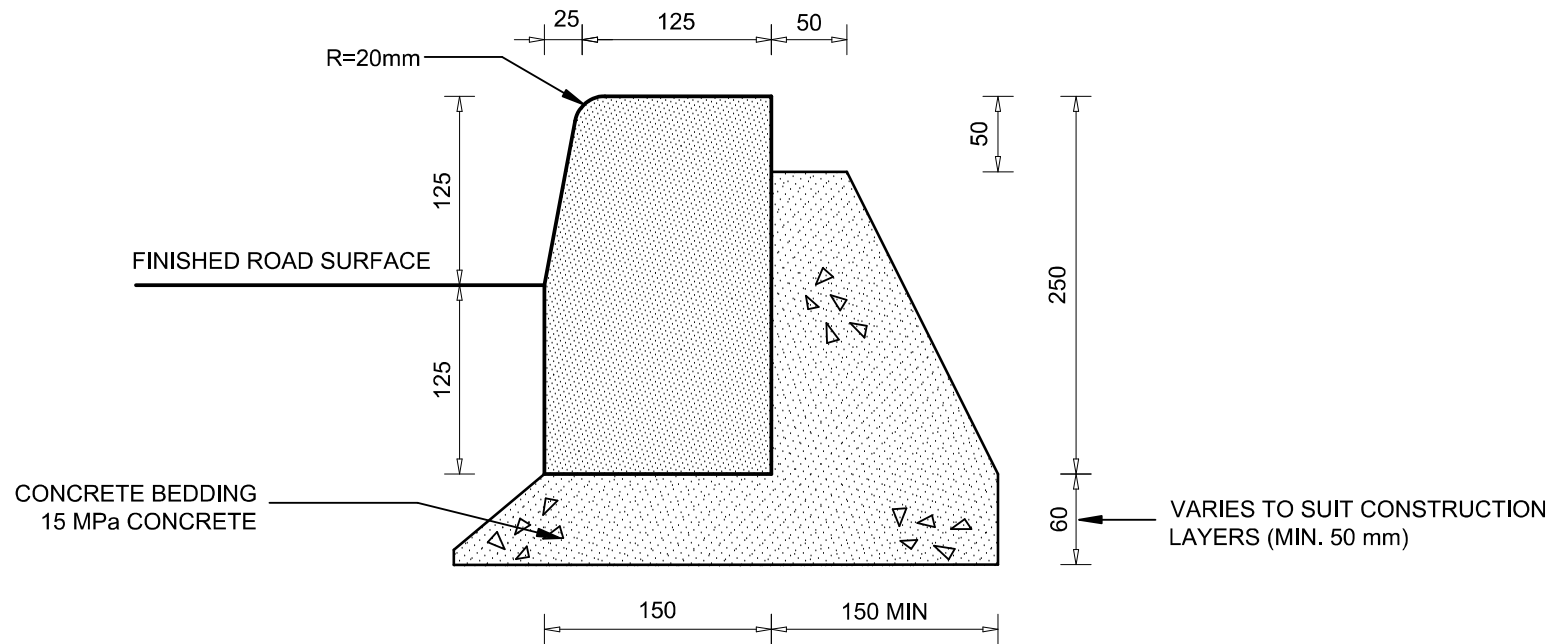
N.T.S.

Paper Size

A4

Drawing No.

SR5



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STANDARD DETAIL DRAWING

BARRIER KERB : TYPE BK2

Scale

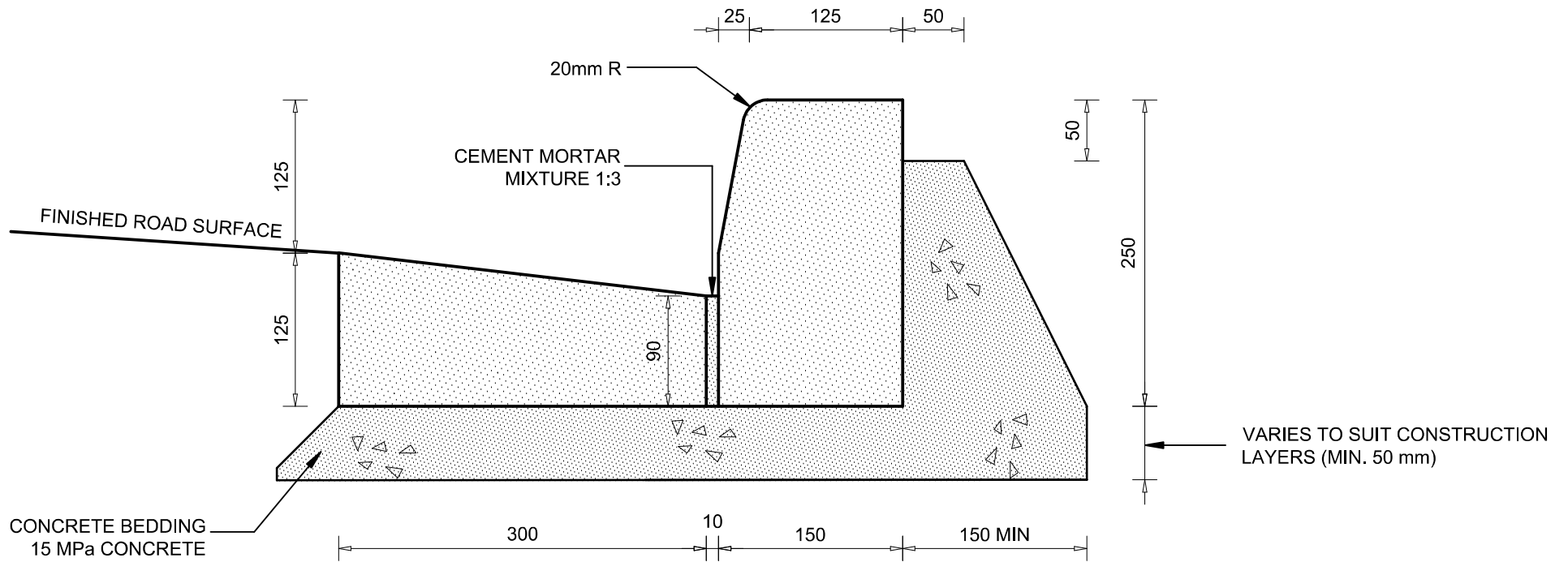
1 : 5

Paper Size

A4

Drawing No.

SR6



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MUNISIPALITEIT • UMASIPALA • MUNICIPALITY

STANDARD DETAIL DRAWING

BARRIER KERB : TYPE BK2 & C1

Scale

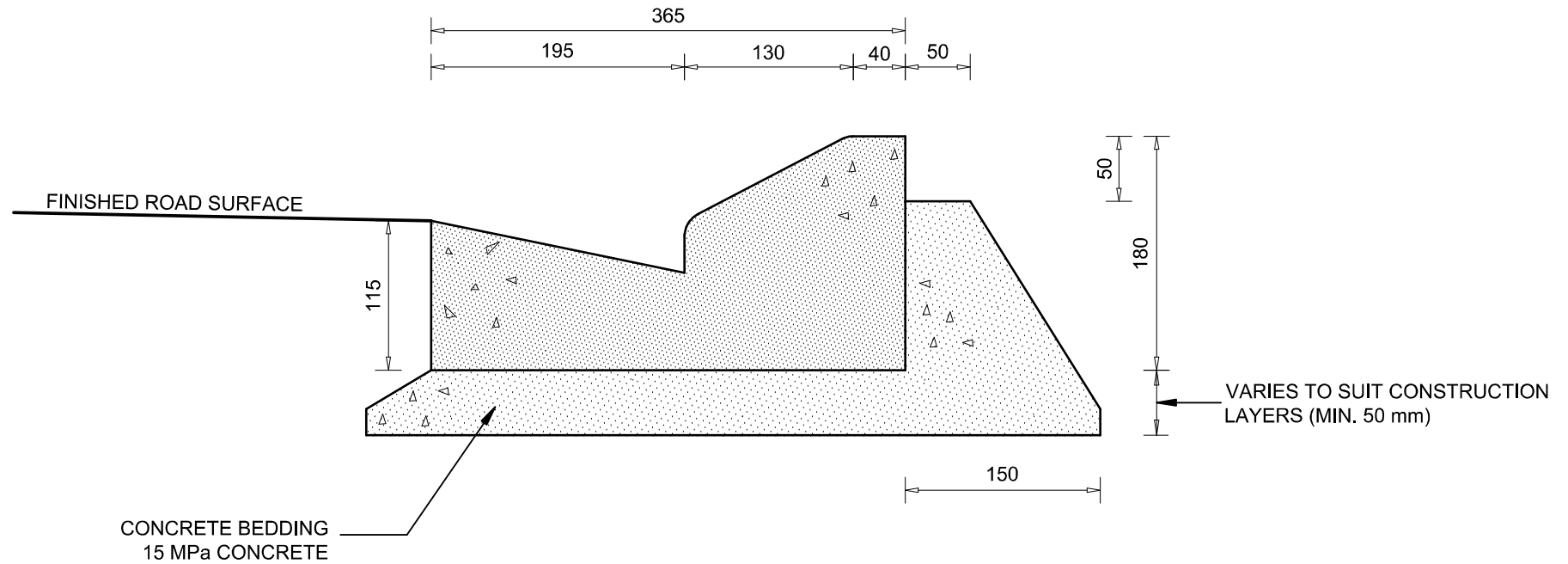
1 : 5

Paper Size

A4

Drawing No.

SR7



**STELLENBOSCH**

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MUNISIPALITEIT • UMASIPALA • MUNICIPALITY

STANDARD DETAIL DRAWING

MOUNTABLE KERB : TYPE CK5

Scale

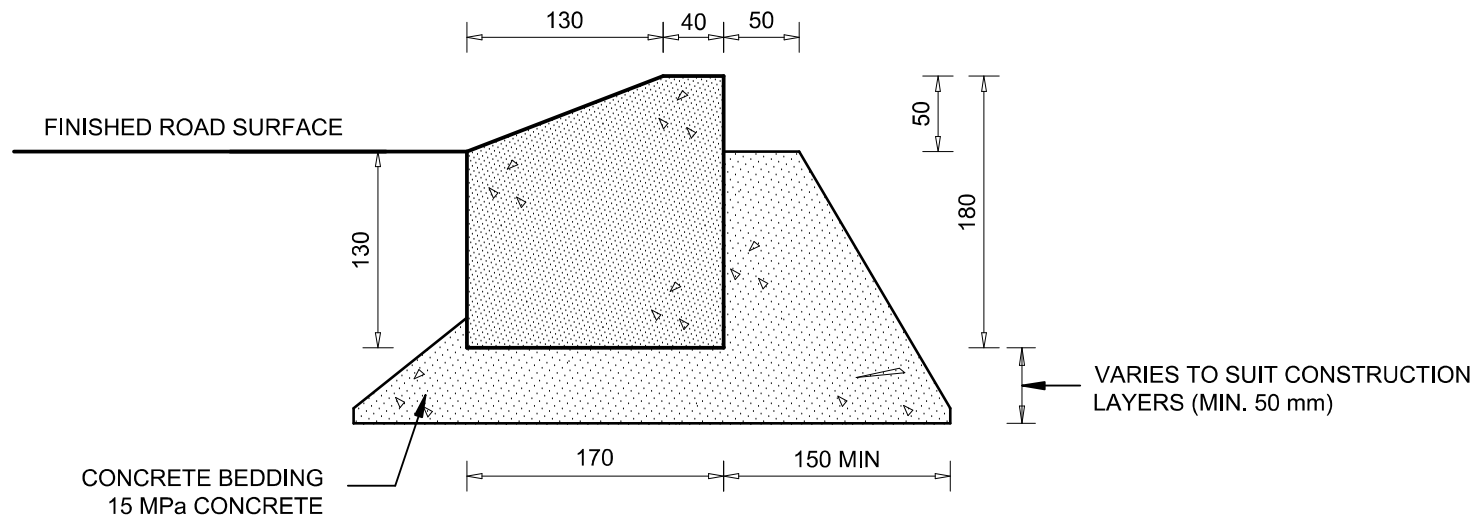
1 : 5

Paper Size

A4

Drawing No.

SR8



**STELLENBOSCH**

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MUNISIPALITEIT • UMASIPALA • MUNICIPALITY

STANDARD DETAIL DRAWING

MOUNTABLE KERB : TYPE MK10

Scale

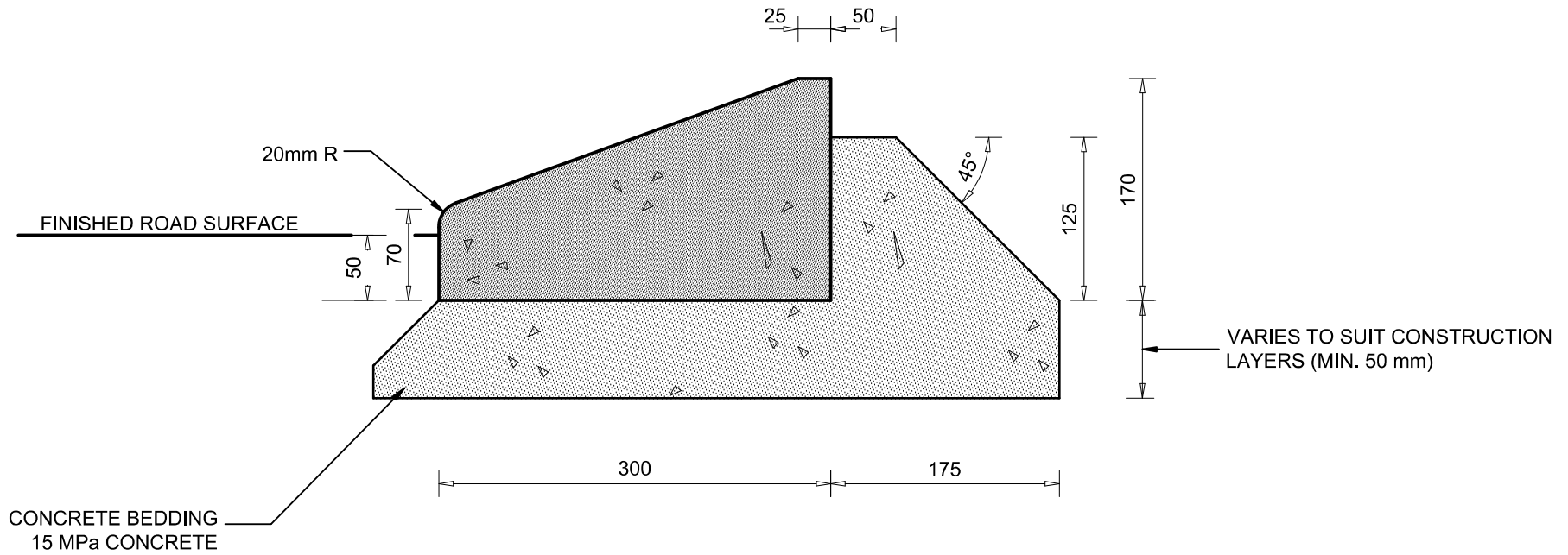
1 : 5

Paper Size

A4

Drawing No.

SR9



**STELLENBOSCH**

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MUNISIPALITEIT • UMASIPALA • MUNICIPALITY

STANDARD DETAIL DRAWING

MOUNTABLE KERB : TYPE MK7

Scale

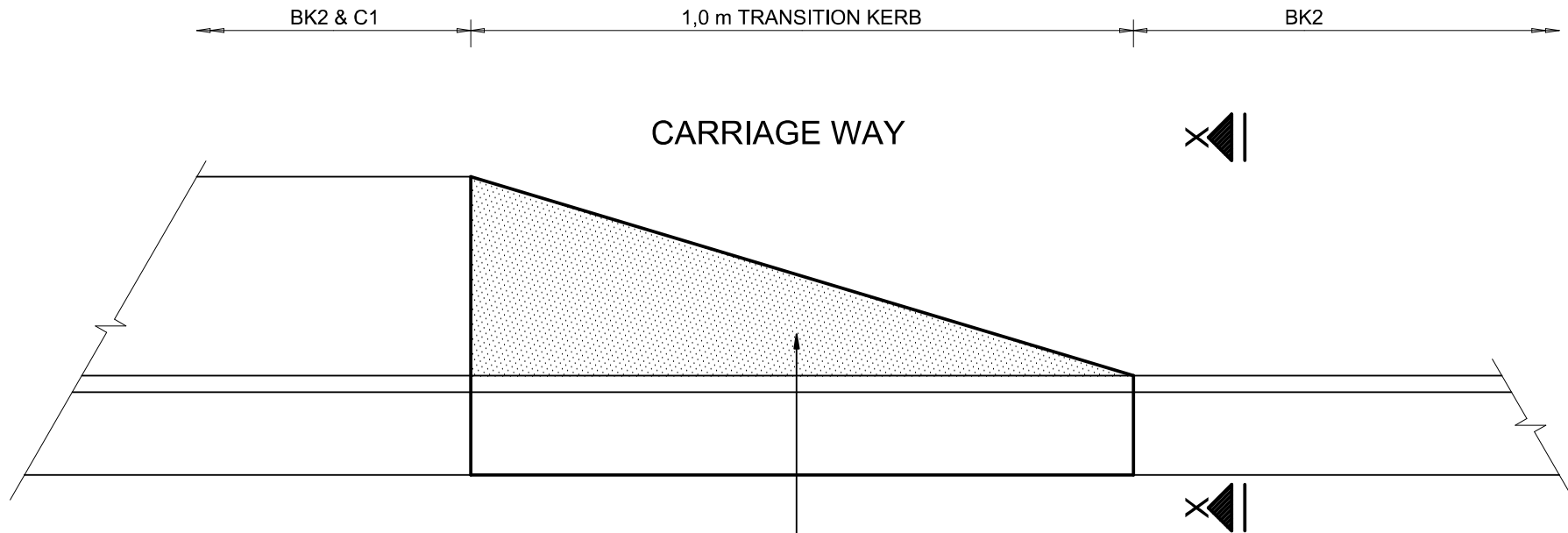
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Paper Size

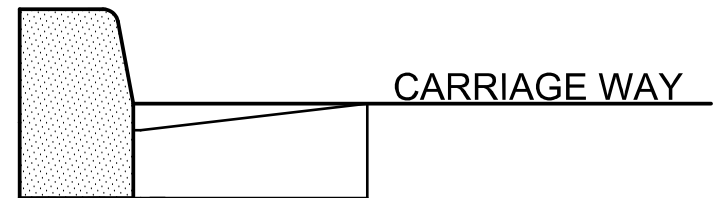
A4

Drawing No.

SR10



TRANSITION KERB SHAPED  
FROM 25 MPa CONCRETE  
WITH 6mm STONE



**SECTION X - X**

NOTE:  
ALL EXPOSED SURFACES TO HAVE  
A STEEL FLOAT FINISH



**STELLENBOSCH**

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STANDARD DETAIL DRAWING

TRANSITION KERB: BK2 & C1 - BK2

Scale

1 : 10

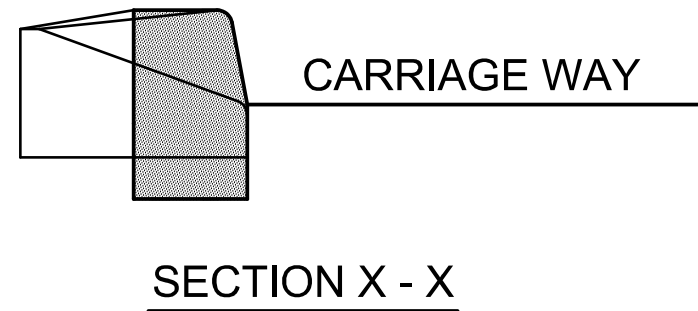
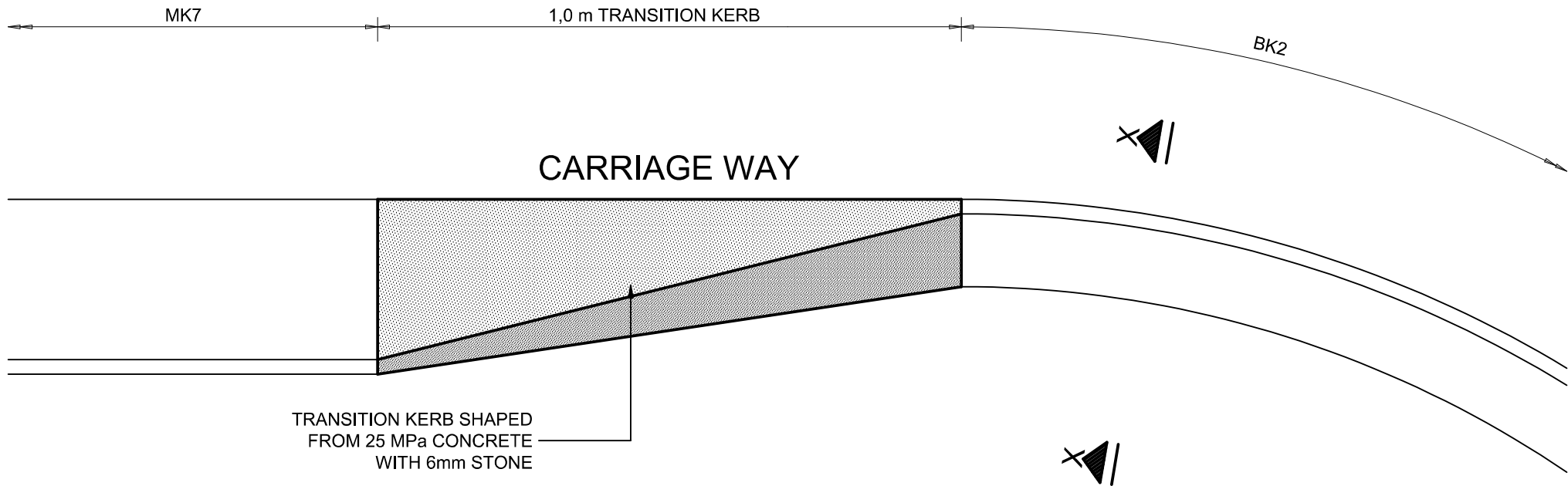
Paper Size

A4

Drawing No.

SR11





**NOTE:**  
ALL EXPOSED SURFACES TO HAVE A STEEL FLOAT FINISH



**STELLENBOSCH**

STELLENBOSCH • PNIEL • FRANSCHHOEK

MUNISIPALITEIT • UMASIPALA • MUNICIPALITY

STANDARD DETAIL DRAWING

TRANSITION KERB : MK7 - BK2

Scale

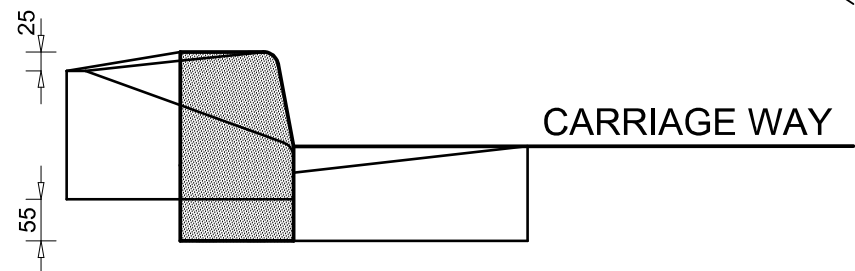
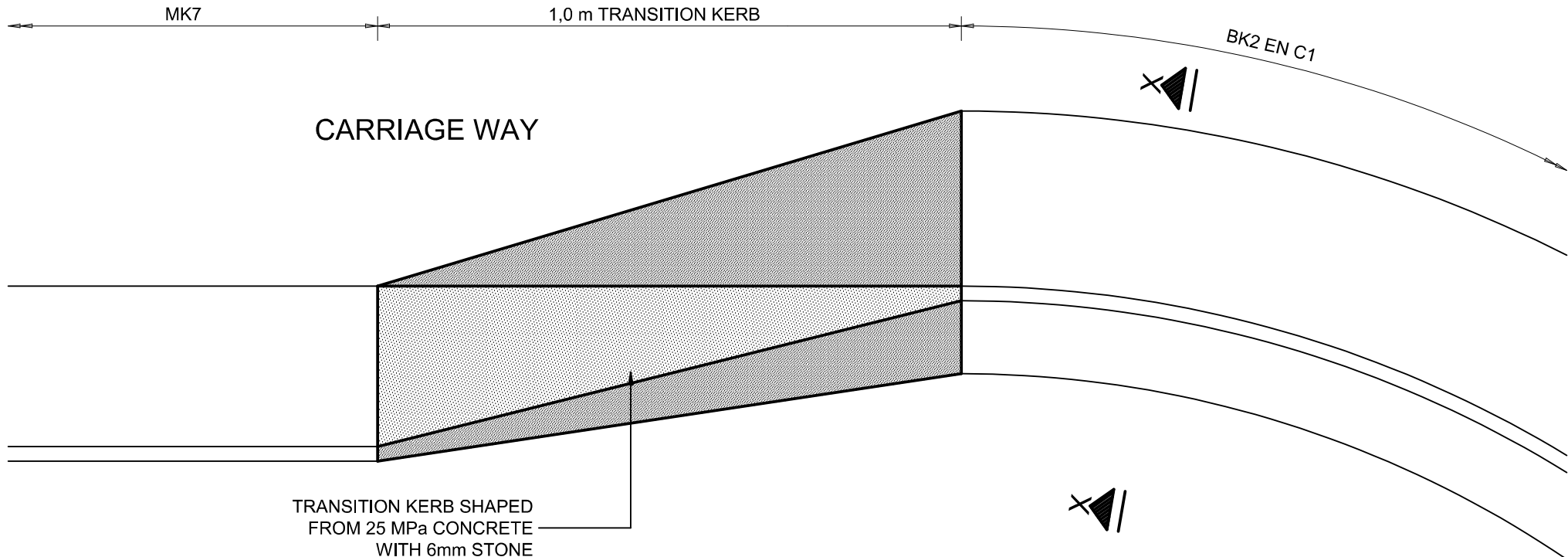
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Paper Size

A4

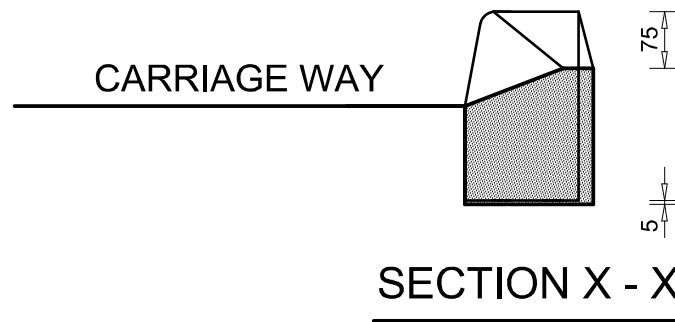
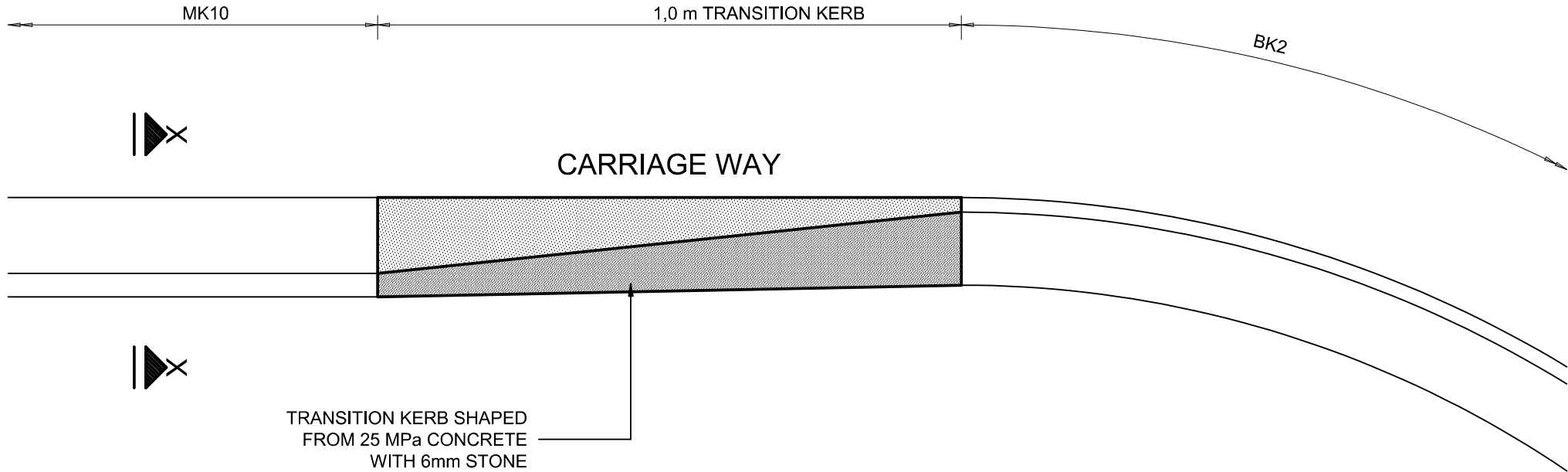
Drawing No.

SR12



SECTION X - X

**NOTE:**  
ALL EXPOSED SURFACES TO HAVE A STEEL FLOAT FINISH



**NOTE:**  
ALL EXPOSED SURFACES TO HAVE A STEEL FLOAT FINISH



**STELLENBOSCH**

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STANDARD DETAIL DRAWING

TRANSITION KERB : MK10 - BK2

Scale

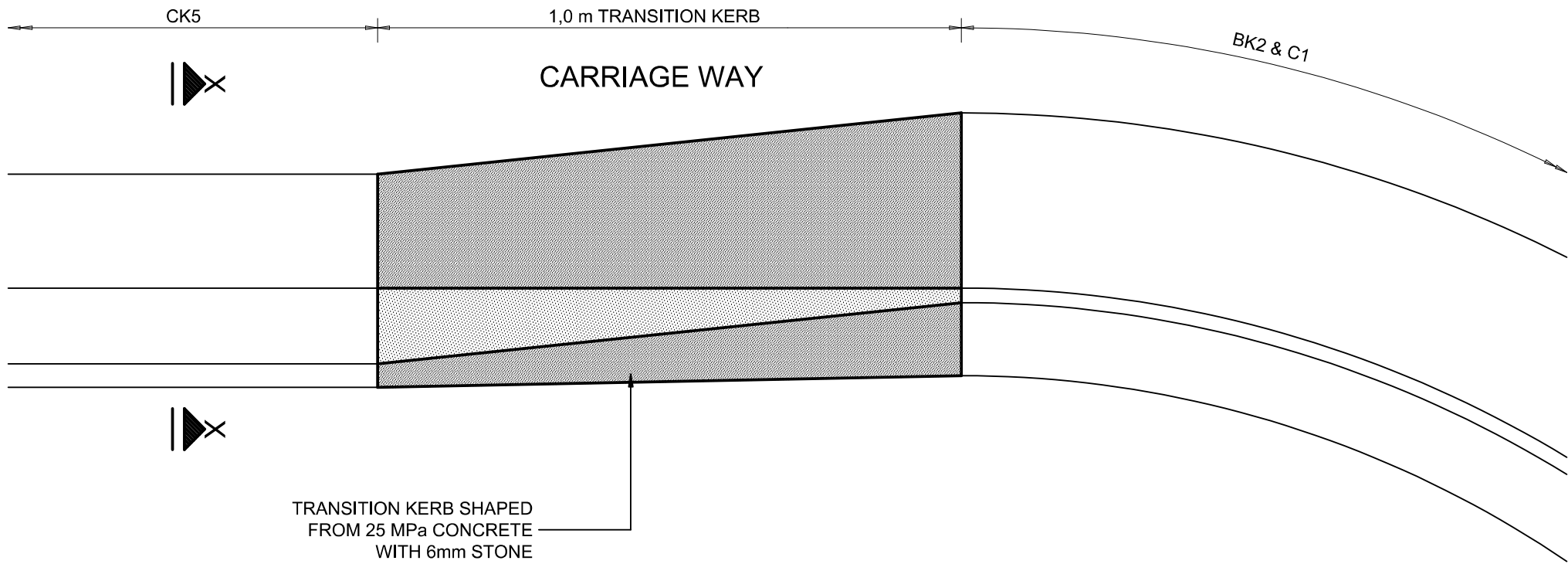
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Paper Size

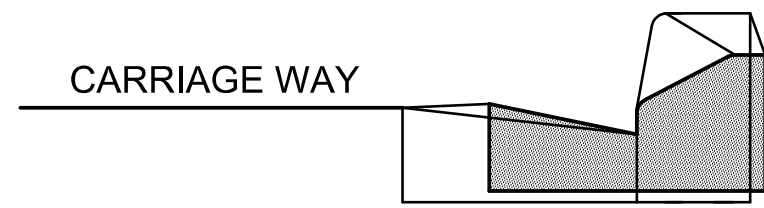
A4

Drawing No.

SR14

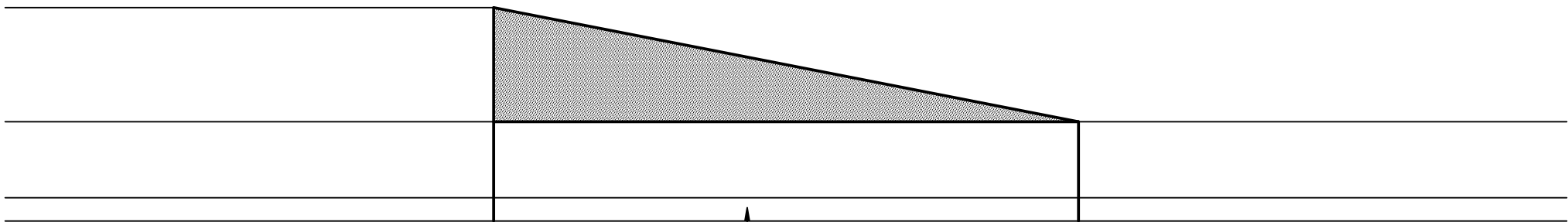


NOTE:  
ALL EXPOSED SURFACES TO HAVE A STEEL FLOAT FINISH

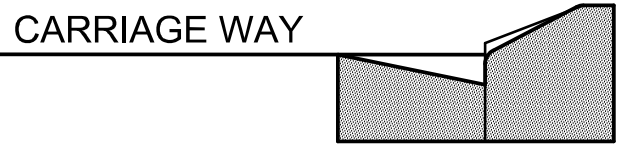




CARRIAGE WAY



TRANSITION KERB SHAPED  
FROM 25 MPa CONCRETE  
WITH 6mm STONE



SECTION X - X

NOTE:  
ALL EXPOSED SURFACES TO HAVE  
A STEEL FLOAT FINISH



**STELLENBOSCH**

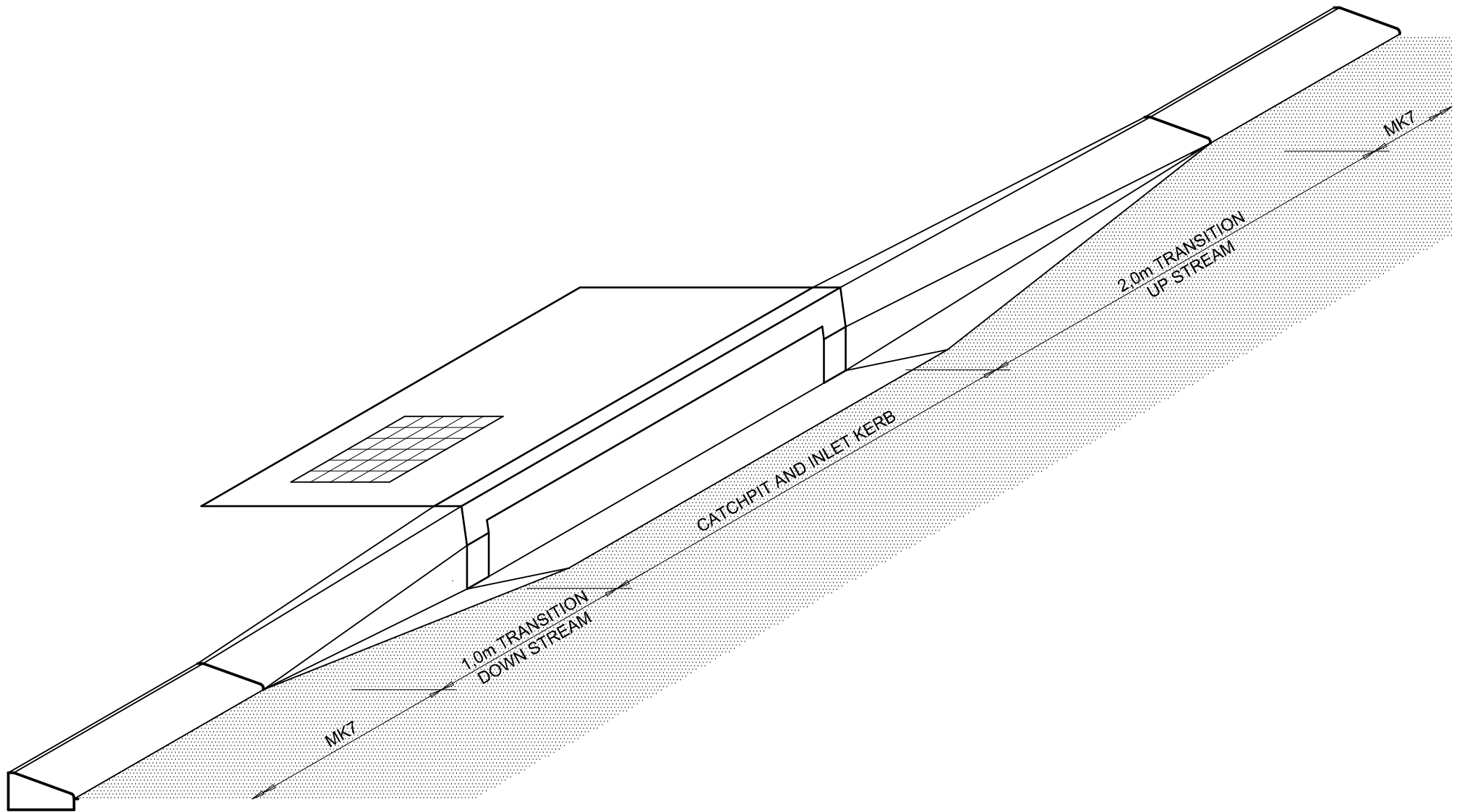
STELLENBOSCH • PNIEL • FRANSCHHOEK

MUNISIPALITEIT • UMASIPALA • MUNICIPALITY

STANDARD DETAIL DRAWING

TRANSITION KERB : CK5 - MK10

Scale	Paper Size
1 : 10	A4
Drawing No.	
SR16	



**STELLENBOSCH**

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MUNISIPALITEIT • UMASIPALA • MUNICIPALITY

STANDARD DETAIL DRAWING

MK7 KERBS WITH TYPE B CATCHPIT  
- ISOMETRIC VIEW -

Scale

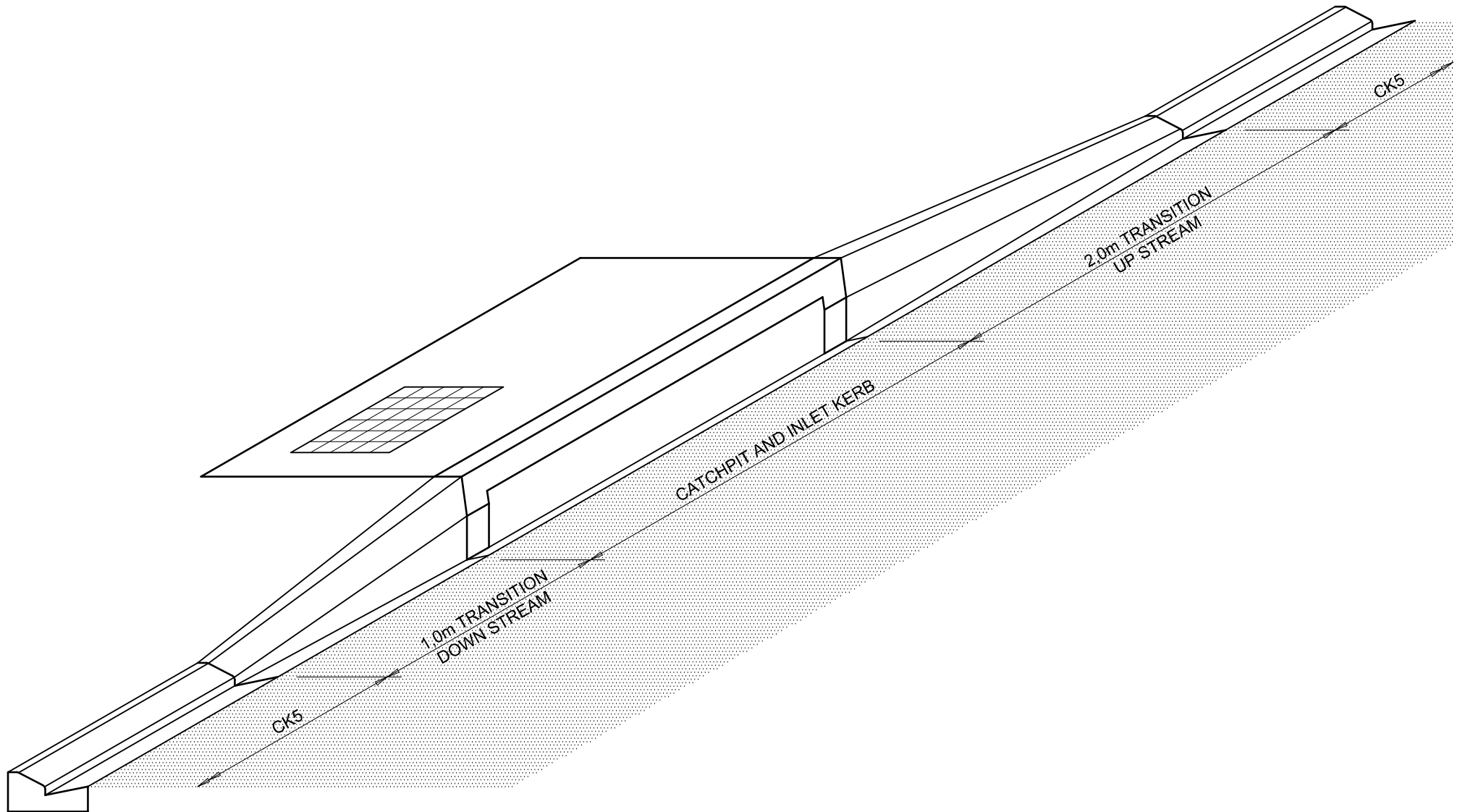
1 : 10

Paper Size

A4

Drawing No.

SR17



**STELLENBOSCH**

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MUNISIPALITEIT • UMASIPALA • MUNICIPALITY

STANDARD DETAIL DRAWING

CK5 KERBS WITH TYPE B CATCHPIT  
- ISOMETRIC VIEW -

Scale

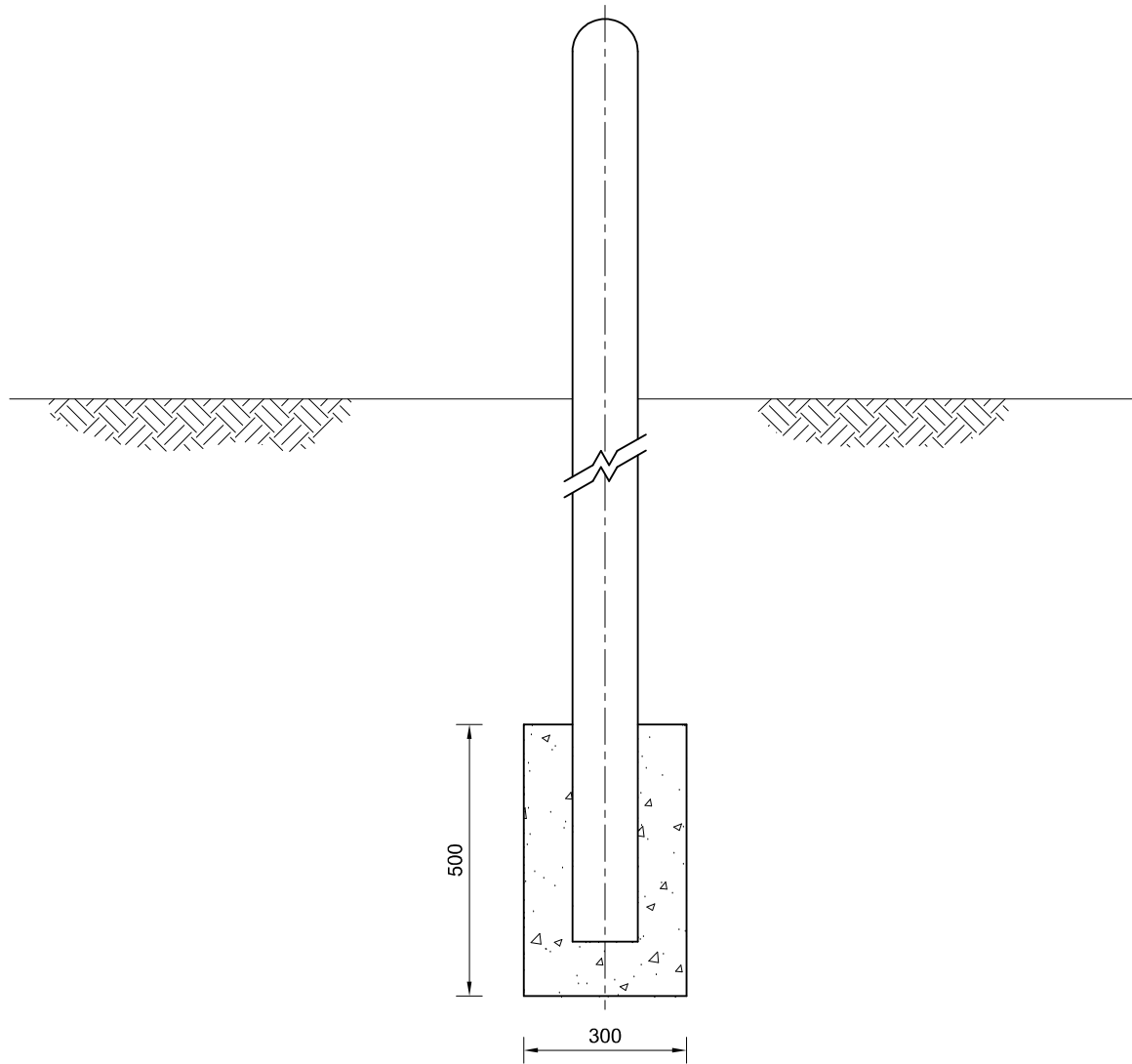
1 : 10

Paper Size

A4

Drawing No.

SR18



**STELLENBOSCH**

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MUNISIPALITEIT • UMASIPALA • MUNICIPALITY

STANDARD DETAIL DRAWING

TIMBER BOLLARD

Scale

N.T.S.

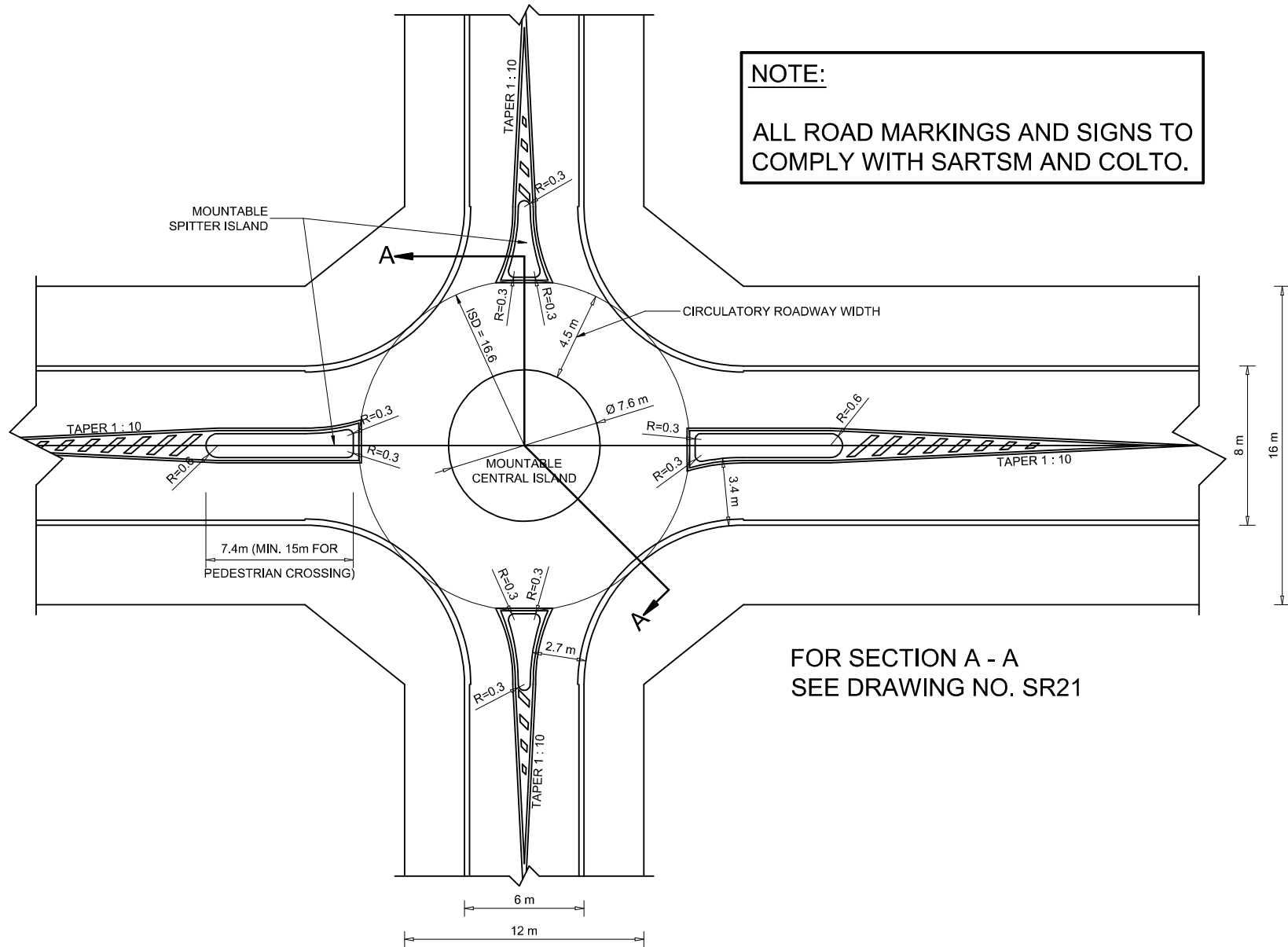
Paper Size

A4

Drawing No.

SR19





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STANDARD DETAIL DRAWING

TYPICAL MINI ROUNDABOUT AT MIDDLE & LOWER ORDER LINK ROADS

Scale

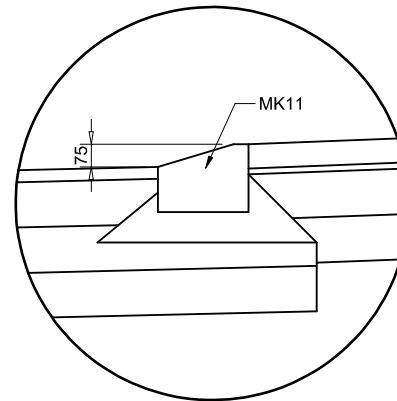
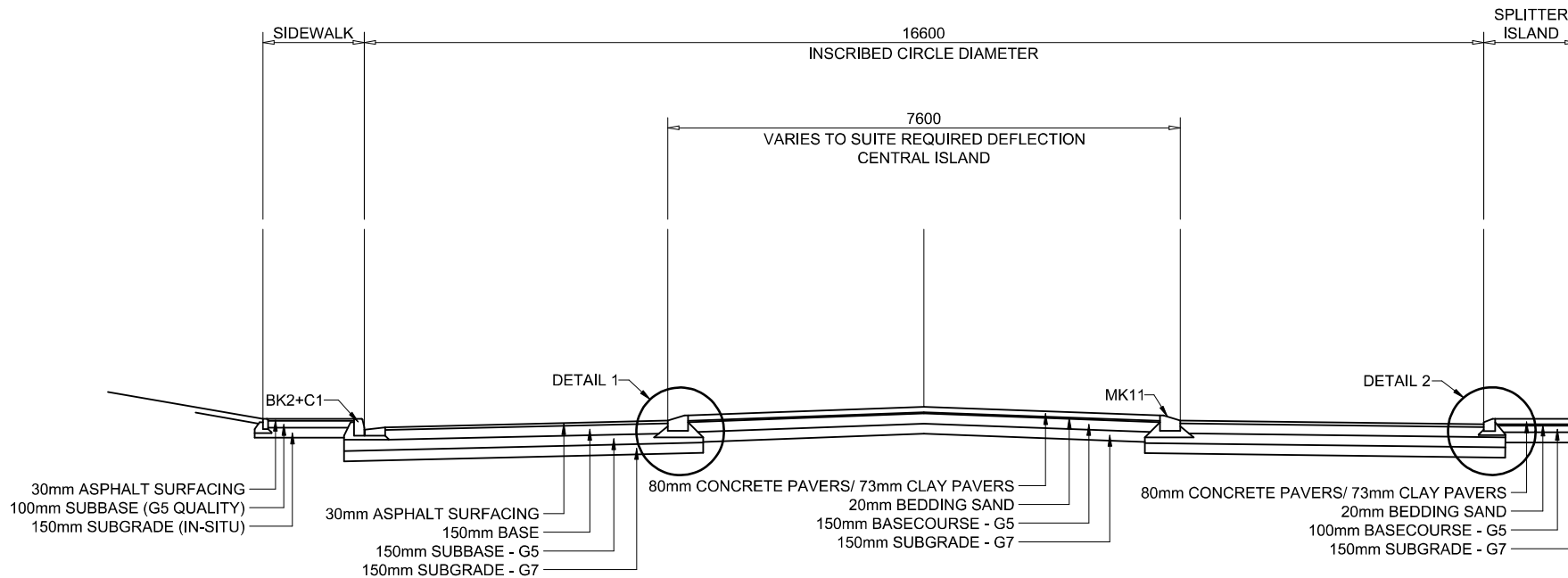
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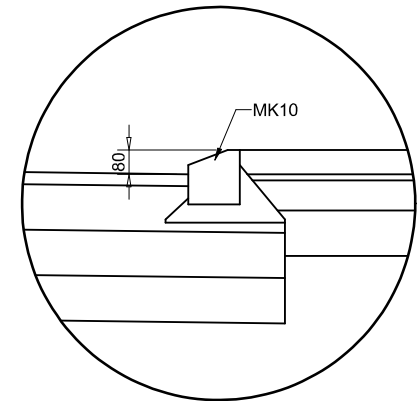
A4

Drawing No.

SR20



**DETAIL 1**  
SCALE N.T.S.



**DETAIL 2**  
SCALE N.T.S.

**NOTE:**

1. RETROFITTED CIRCLE:  
- ROAD LAYERWORKS TO MATCH EXISTING PAVEMENT ON HIGHER OUTER ROAD OR MINIMUM OF THIS STANDARD, WHICHEVER IS THE STRONGEST



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MUNISIPALITEIT • UMASIPALA • MUNICIPALITY

STANDARD DETAIL DRAWING

SECTION (A - A) OF TYPICAL MINI ROUNDABOUT

Scale

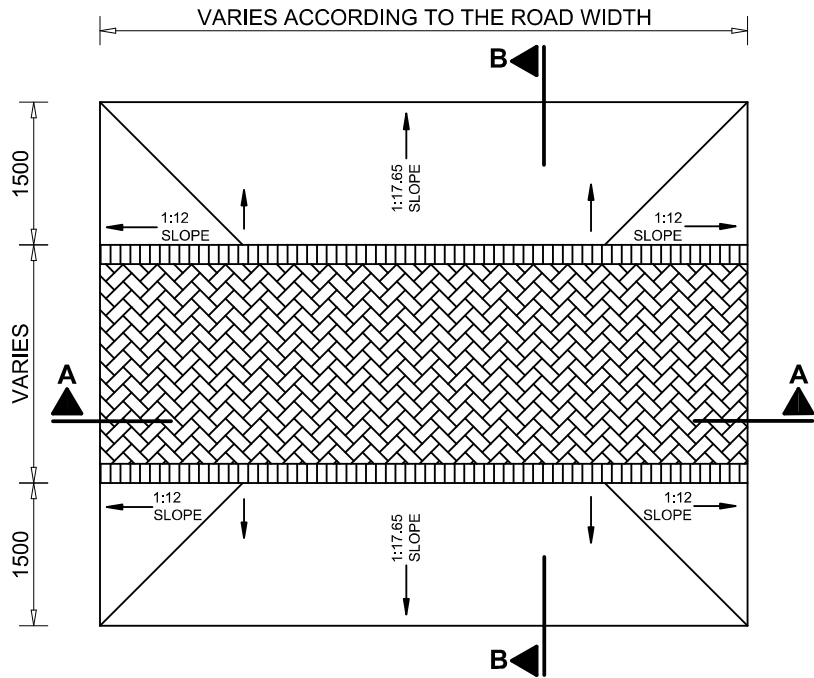
Paper Size

1 : 100

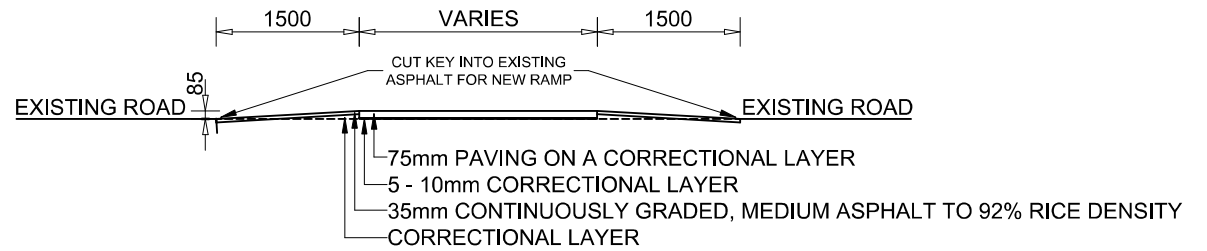
A4

Drawing No.

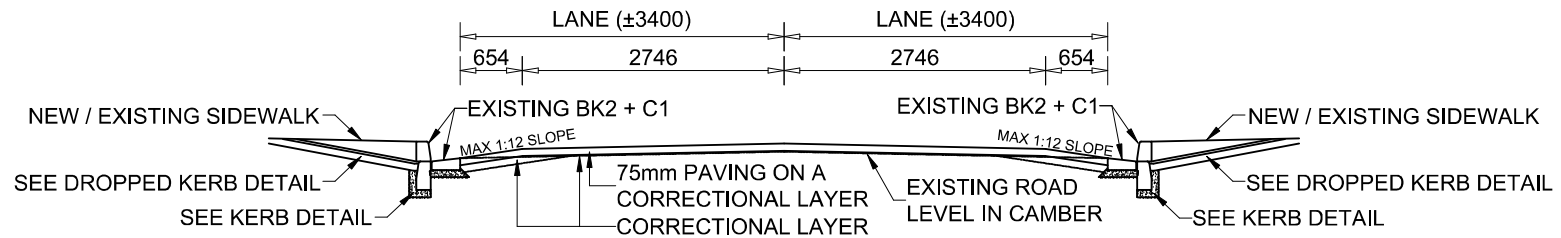
SR21



**RAISED PEDESTRIAN CROSSING PLAN**



**LONG SECTION B - B THROUGH CROSSING**



**CROSS SECTION A - A THROUGH CROSSING**



**STELLENBOSCH**

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MUNISIPALITEIT • UMASIPALA • MUNICIPALITY

STANDARD DETAIL DRAWING

TYPICAL RAISED PEDESTRIAN CROSSING

Scale

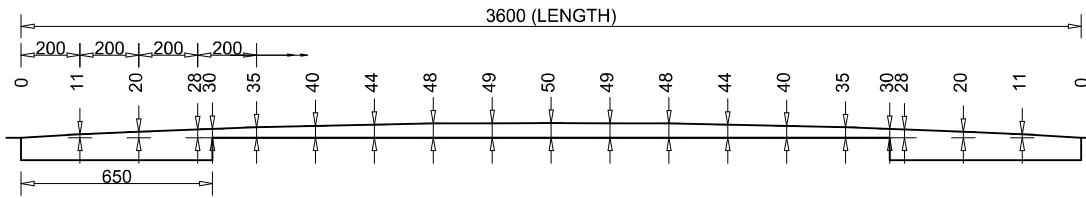
N.T.S.

Paper Size

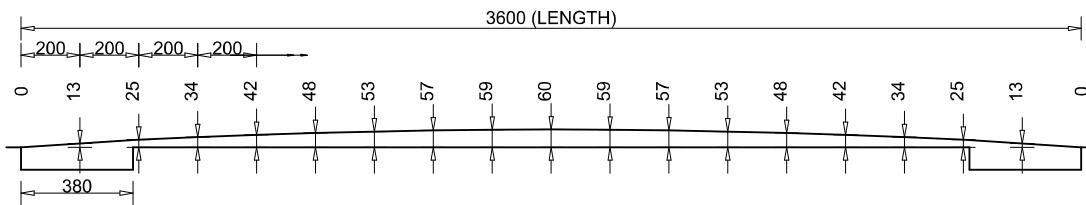
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Drawing No.

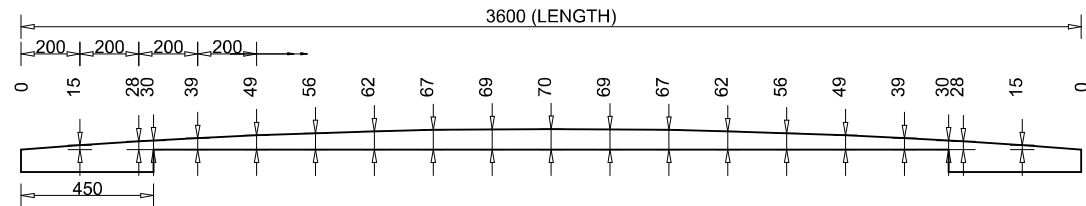
SR22



**50mm SPEED HUMP PROFILE (50km/h)**

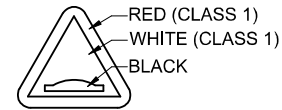


**60mm SPEED HUMP PROFILE (40km/h)**

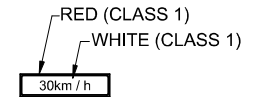


**70mm SPEED HUMP PROFILE (30km/h)**

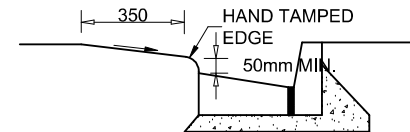
- NOTES:**
1. SPEED HUMPS SHOULD NOT BE PLACED AT DRIVEWAY ENTRANCES OR STORMWATER GULLIES.
  2. W332 AND IN11.1 SHOULD PREFERABLY BE LOCATED WITHIN 30m AHEAD OF FIRST SPEED HUMP WHEN A SERIES OF SPEED HUMPS ARE USED.
  3. SIGN MUST BE ERECTED BEFORE AND ROAD MARKINGS PROVIDED IMMEDIATELY AFTER CONSTRUCTION. ALLOW PREMIX TO COOL BEFORE PAINTING.
  4. SPEED HUMP TO BE CONSTRUCTED FROM PREMIX 'TYPE A'. TACK COAT TO BE APPLIED ON ROAD SURFACE BEFORE CONSTRUCTION.



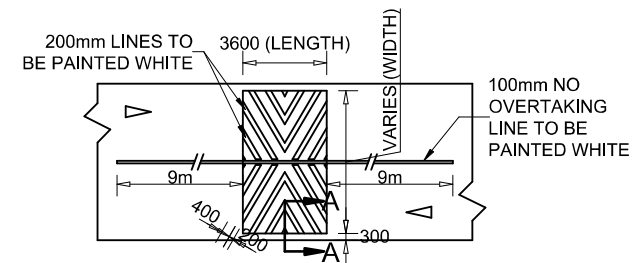
**W332 (SPEED HUMPS)**



**IN11.1 (SUPPLEMENTARY PLATE)**

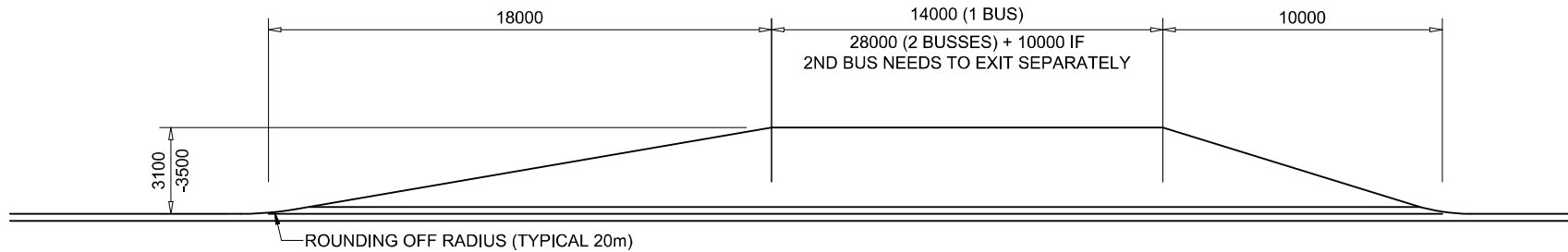


**EXISTING KERB AND CHANNEL CROSS - SECTION THROUGH A - A**

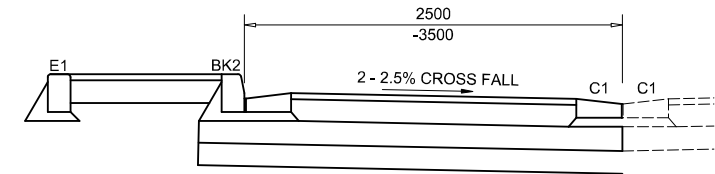


**WM10 SPEED HUMP**

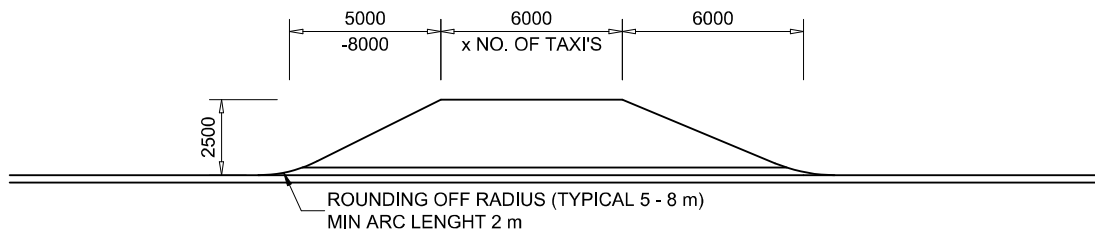
Scale	Paper Size
N.T.S.	A4
Drawing No.	
SR23	



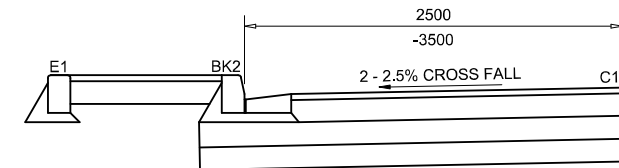
## BUS EMBAYMENT



### TYPICAL SECTION WITH CHANNEL



## TAXI EMBAYMENT



### TYPICAL SECTION WITHOUT CHANNEL

**NOTE:**

WHERE A BUS/TAXI STOP IS REQUIRED AT AN INTERSECTION, IT SHALL BE POSITIONED IMMEDIATELY AFTER THE INTERSECTION. AT PEDESTRIAN CROSSING POINTS, BUS/TAXI EMBAYMENTS SHALL BE POSITIONED IMMEDIATELY PAST THE PEDESTRIAN CROSSING POINT.



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STANDARD DETAIL DRAWING

TYPICAL TAXI AND BUS EMBAYMENT

Scale

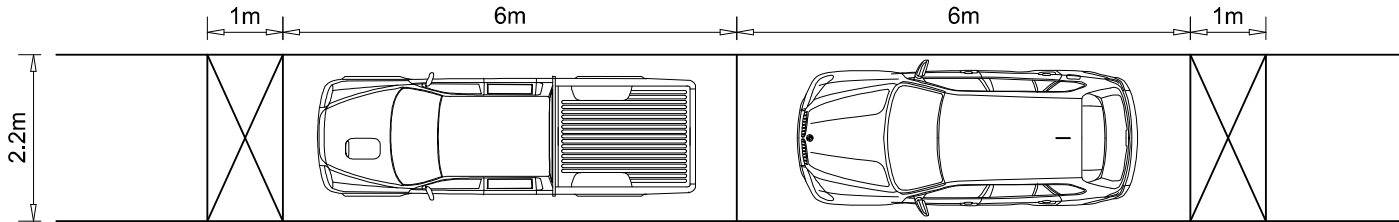
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Paper Size

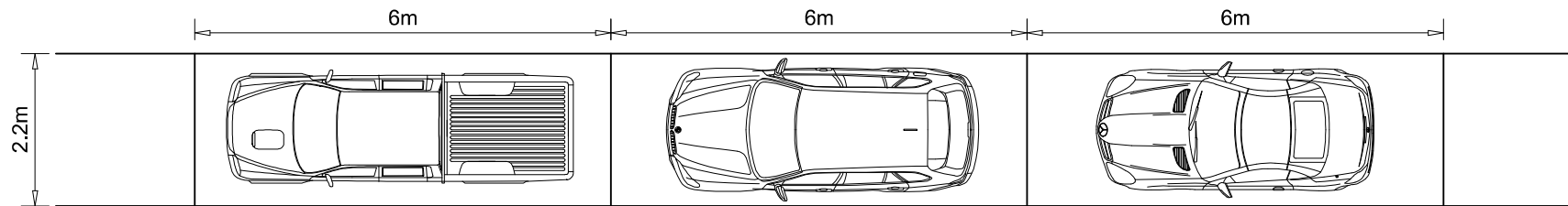
A4

Drawing No.

SR24



RECOMMENDED LAYOUT ALONG HIGHER ORDER LINKS



ABSOLUTE MINIMUM ALONG LOWER ORDER LINKS



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STANDARD DETAIL DRAWING

PARALLEL PARKING BAYS

Scale

1 : 100

Paper Size

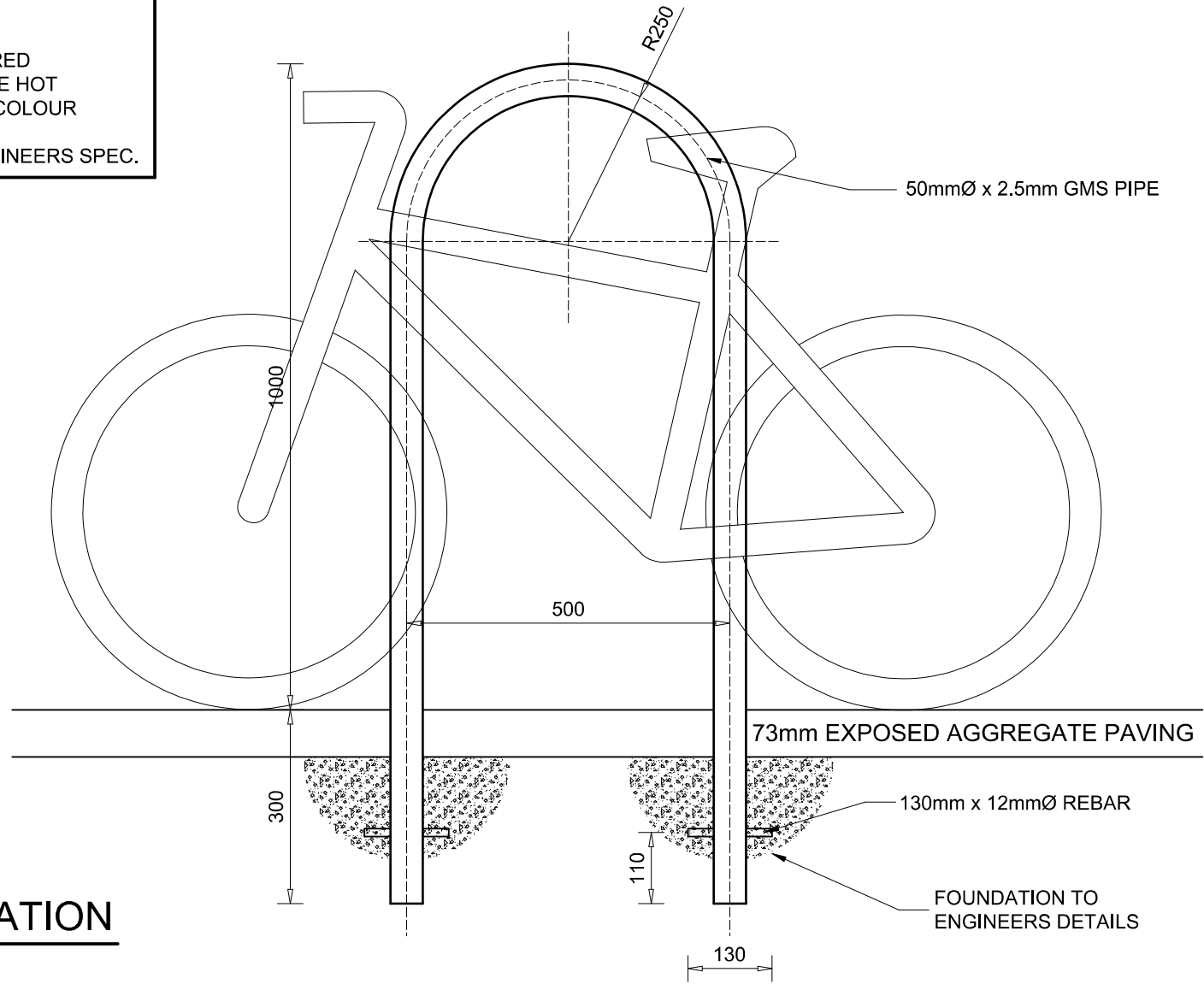
A4

Drawing No.

SR25

**NOTES:**

1. (5) FIVE RACKS REQUIRED
2. ALL STEEL WORK TO BE HOT DIPPED GALVANISED, COLOUR TO LATER SPEC.
3. FOUNDATIONS TO ENGINEERS SPEC.



**ELEVATION**



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STANDARD DETAIL DRAWING

BICYCLE STAND TYPE 1 (1 OF 2)

Scale

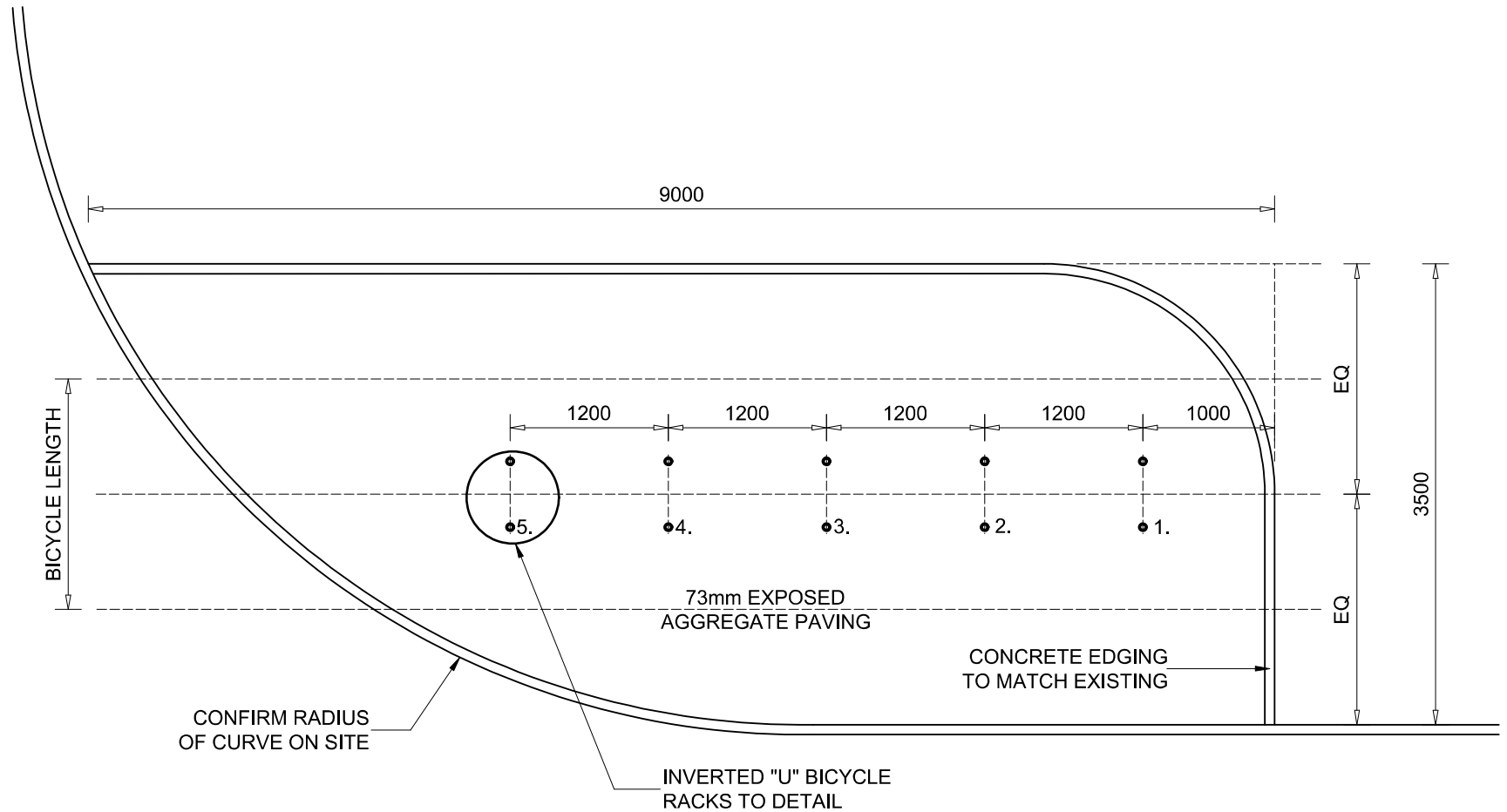
Paper Size

1 : 10

A4

Drawing No.

SR26



## LAYOUT PLAN



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STANDARD DETAIL DRAWING

BICYCLE STAND TYPE 1 (2 OF 2)

Scale

1 : 50

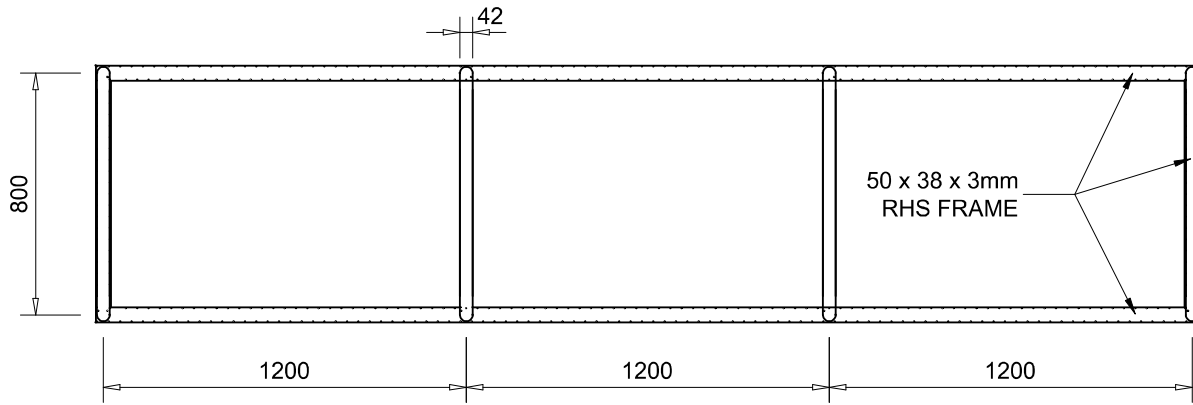
Paper Size

A4

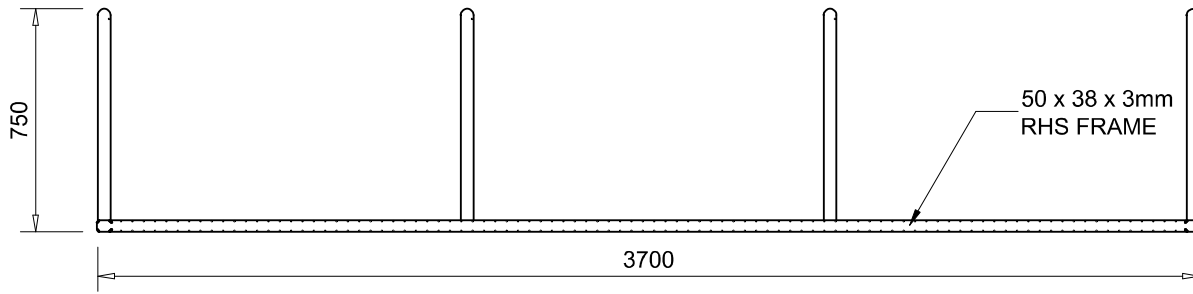
Drawing No.

SR27

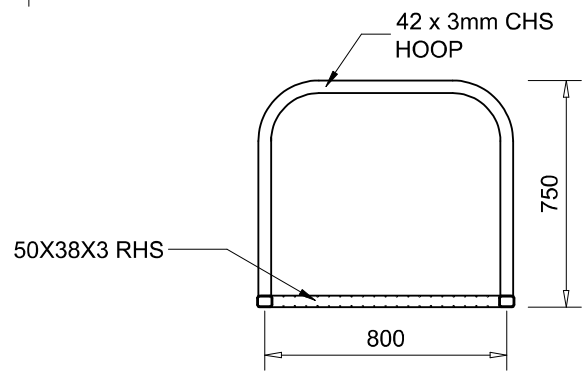




PLAN VIEW



ELEVATION



SECTION

NOTE:  
ALL STEEL TO BE GALVANISED.