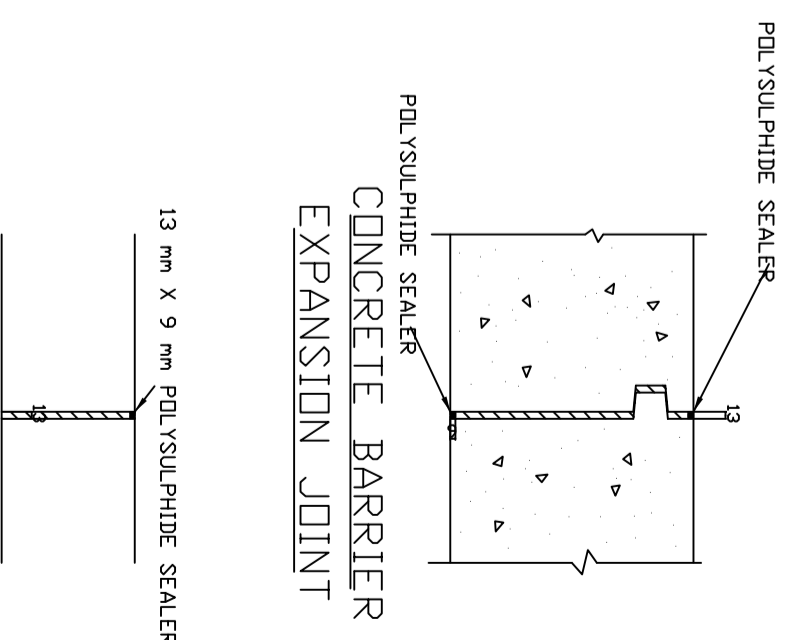
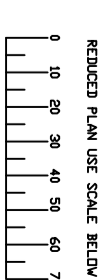
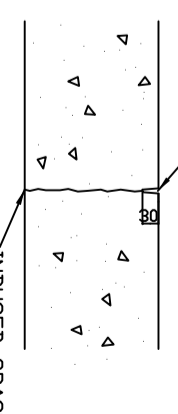


CITY ENGINEERS ROADS DEPARTMENT	DWG. NO
PLAN DESCRIPTION	
CONTINUED FROM	
CONTAINED ON	
CROSS SECTIONS	
TYPICAL CROSS SECTION	
SURVEY LAYOUT	



FOUNDATION SLAB EXPANSION JOINT

10 mm TAPERED TO 5 mm SLOT ACROSS
FULL WIDTH OF CONCRETE SLAB
SPACED AT 1.5 m INTERVALS

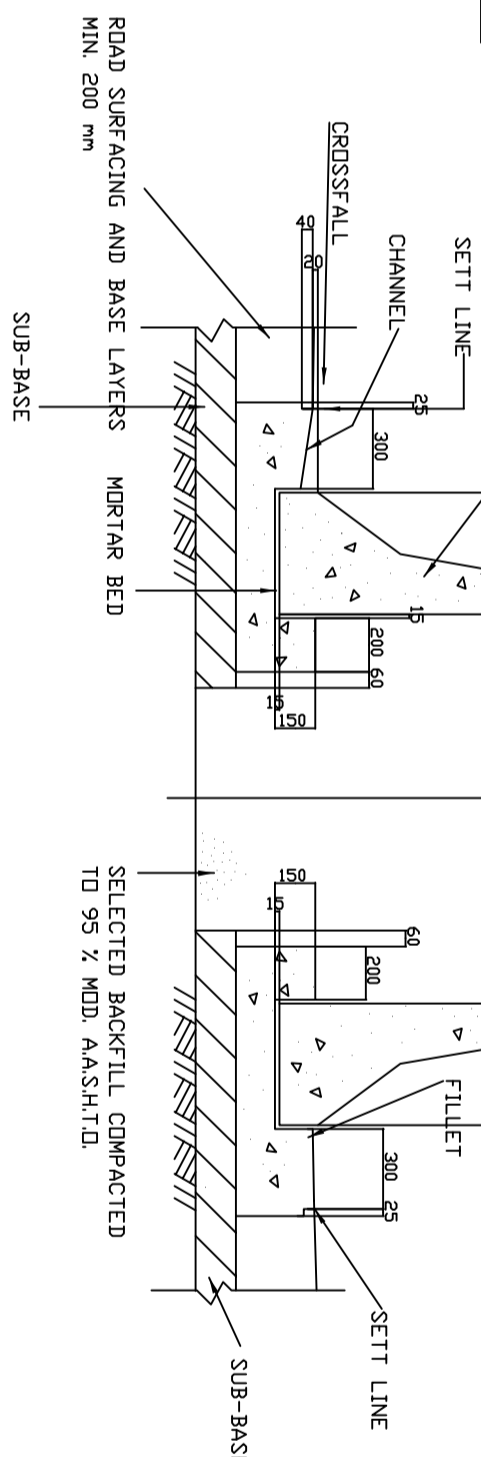
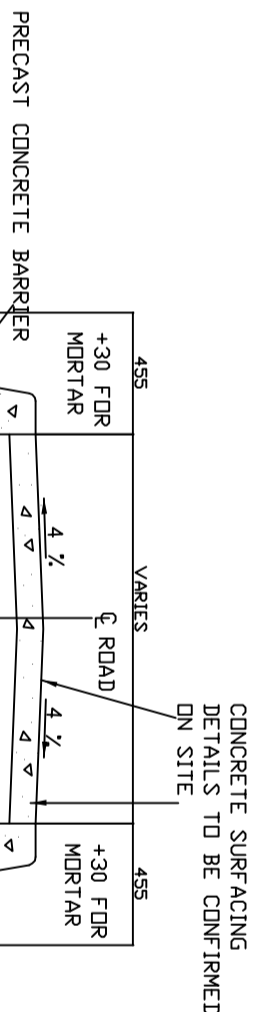


FOUNDATION SLAB SHRINKAGE JOINT

SCALE 1:10

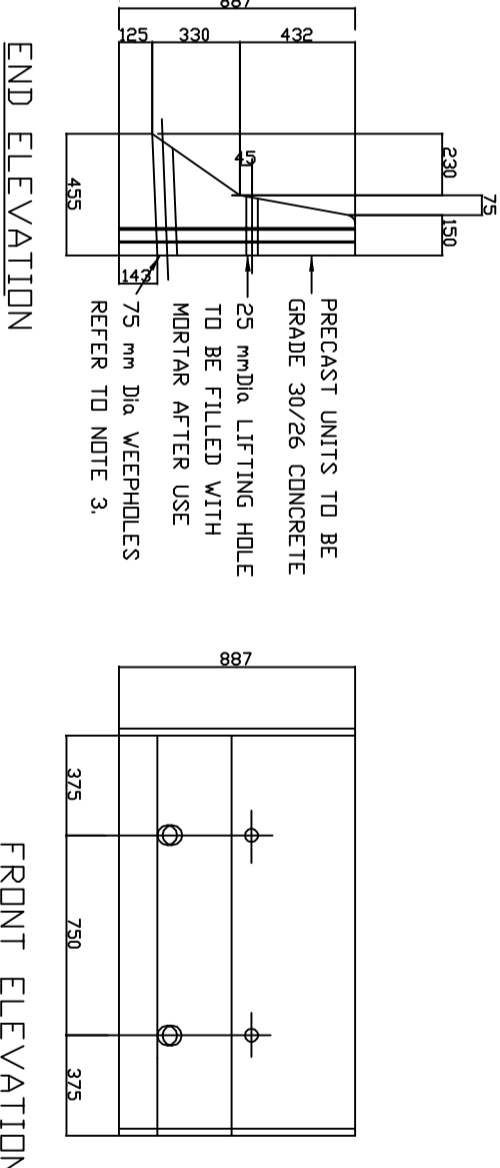
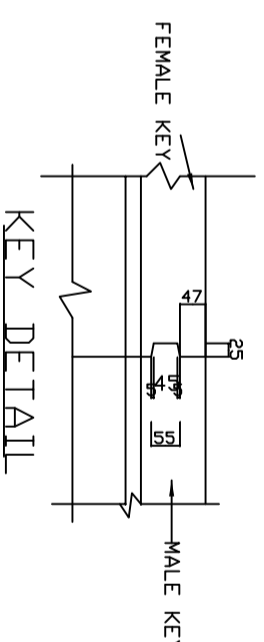
VERTICAL OFFSET (IN mm)	0	3	12	27	48	74	107	146	191	241	298	360	429	503	583	670	762
HEIGHT OF UNIT (IN mm)	887	884	875	860	839	813	780	741	696	626	589	522	458	384	304	217	125
HORIZONTAL OFFSET (IN mm)	0	9	24	54	96	149	215	292	382	483	597	722	860	1009	1170	1343	1528
DISTANCE	0,000	1,500	3,000	4,500	6,000	7,500	9,000	10,500	12,000	13,500	15,000	16,500	18,000	19,500	21,000	22,500	24,000

BRICK CHAMBER WALL THICKNESS		
DEPTH		THICKNESS
0,00 - 3,00 m		230 mm
3,01 - 4,50 m		345 mm
4,51 - 6,00 m		460 mm



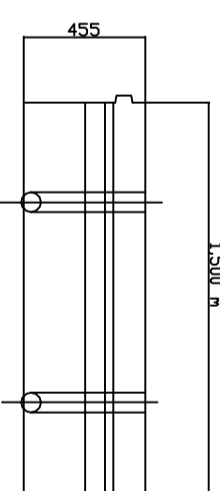
CONCRETE MEDIAN BARRIER

SCALE 1:20



DETAILS OF BARRIER UNIT

SCALE 1:20



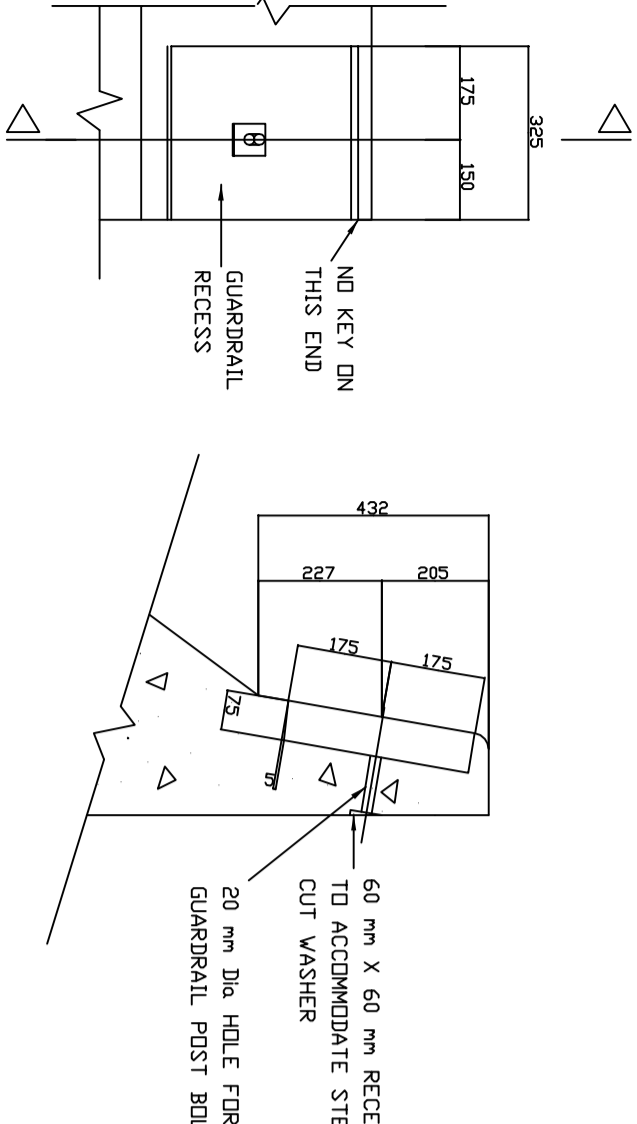
VERTICAL OFFSET (IN mm)	0	3	12	27	48	74	107	146	191	241	298	360	429	503	583	670	762
HEIGHT OF UNIT (IN mm)	887	884	875	860	839	813	780	741	696	626	589	522	458	384	304	217	125

HORIZONTAL OFFSET (IN mm)	DIRECTION OF TRAFFIC
0,000	0
1,500	9
3,000	24
4,500	54
6,000	96
7,500	149
9,000	215
10,500	292
12,000	382
13,500	483
15,000	597
16,500	722
18,000	860
19,500	1009
21,000	1170
22,500	1343
24,000	1528

- NOTES :
1. CAST IN SITU FOUNDATION TO BARRIER TO CONSIST OF GRADE 20/26 CONCRETE.
 2. TYPE A BENCHING TO BE USED FOR S.W. INLETS ON CONTINUOUS PIPELINES. FOR S.W. INLETS LOCATED AT THE HEAD OF A PIPELINE THE BENCHING NEED ONLY BE DISHED AT A GRADE OF 110
 3. WHEN SPECIFIED, 2 x 75 mm DIA. NON-METALLIC PIPES FILLED WITH NO-FINES CONCRETE ARE TO BE PROVIDED AS VEEPHOLES.
 4. CONTRACTION JOINTS IN THE CAST IN SITU FOUNDATION AND CHANNEL/FILLET ARE TO BE FORMED AT 1.5 m INTERVALS.
 5. EXPANSION JOINTS ARE TO BE FORMED BETWEEN THE BARRIER UNITS AND THROUGH THE CAST IN SITU FOUNDATION AND CHANNEL/FILLET AT INTERVALS NOT EXCEEDING 15.00 m
 6. IN SITU GROUND MUST BE COMPACTED TO 95% MOD. AASHITD. PRIOR TO INLET SLAB BEING CAST. IF DENSITY CANNOT BE ATTAINED, THE IN SITU MATERIAL MUST BE REMOVED TO A DEPTH OF 300 mm AND REPLACED WITH A SELECTED FILL.

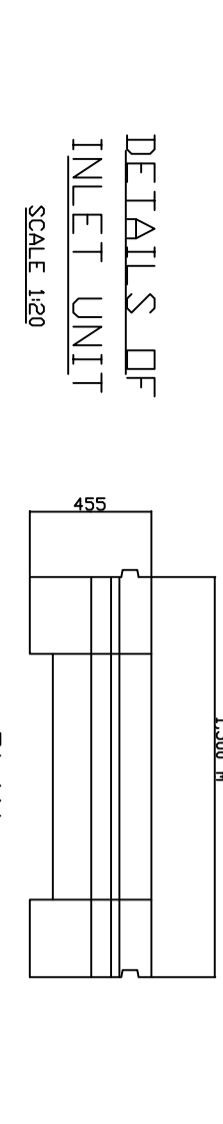
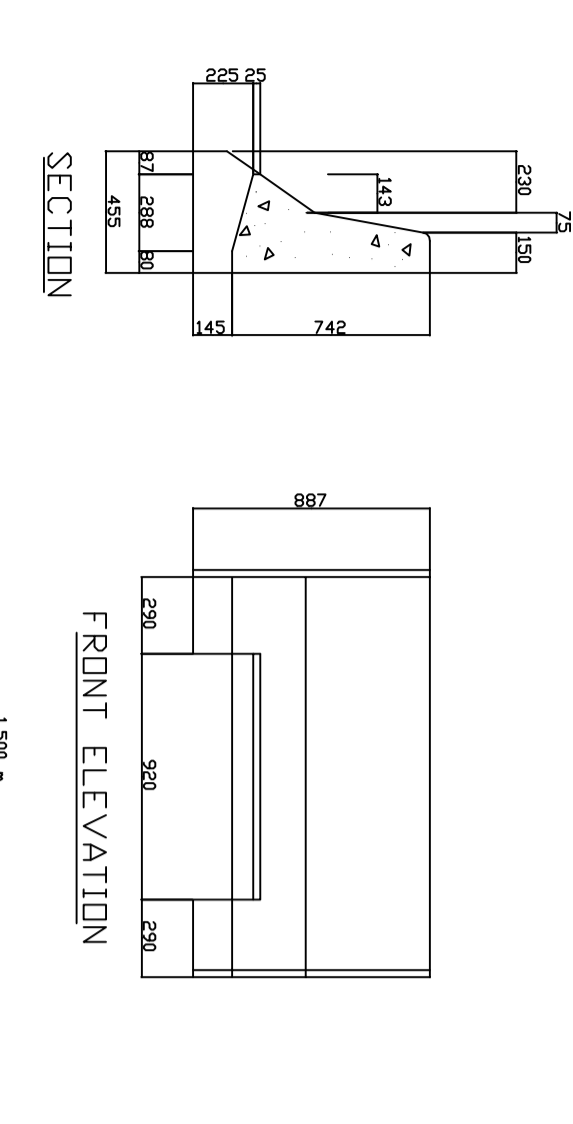
CONCRETE BARRIER INLET DETAILS

SCALE 1:20



DETAILS OF SPECIAL SECTION WITH GUARDRAIL RECESS

SCALE 1:10

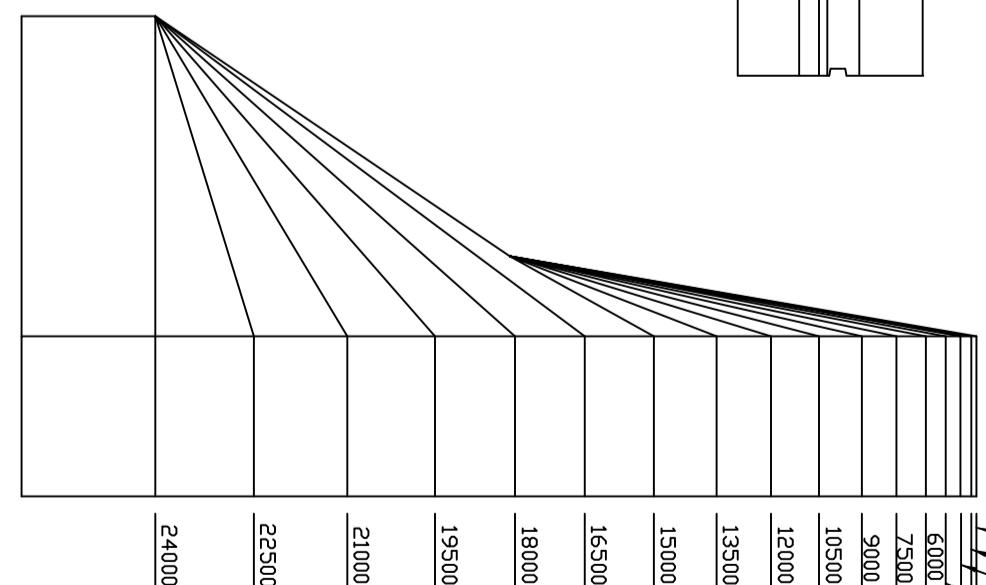


DETAIL SHOWING TRANSITION AT END OF INSTALLATION

SCALE 1:100

ELEVATION SHOWING HEIGHT PROFILES AT DIFFERENT DISTANCES ALONG FLARES

SCALE 1:10

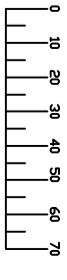


Contract No.			
Project Title		STANDARD DRAWING	
Drawing Title		CONCRETE MEDIAN BARRIERS	
Scales		DATE OF ISSUE	
AS SHOWN		FEBRUARY 1990	
Designed / PD / DRT		Date	
Checked		1995-12-05	
Manager / RBD		Drawn	
Director / Roads		V.A. BURNETT	
Reviewer		Executive Director	
Drawing No.		38578	
No.		of Sheets	

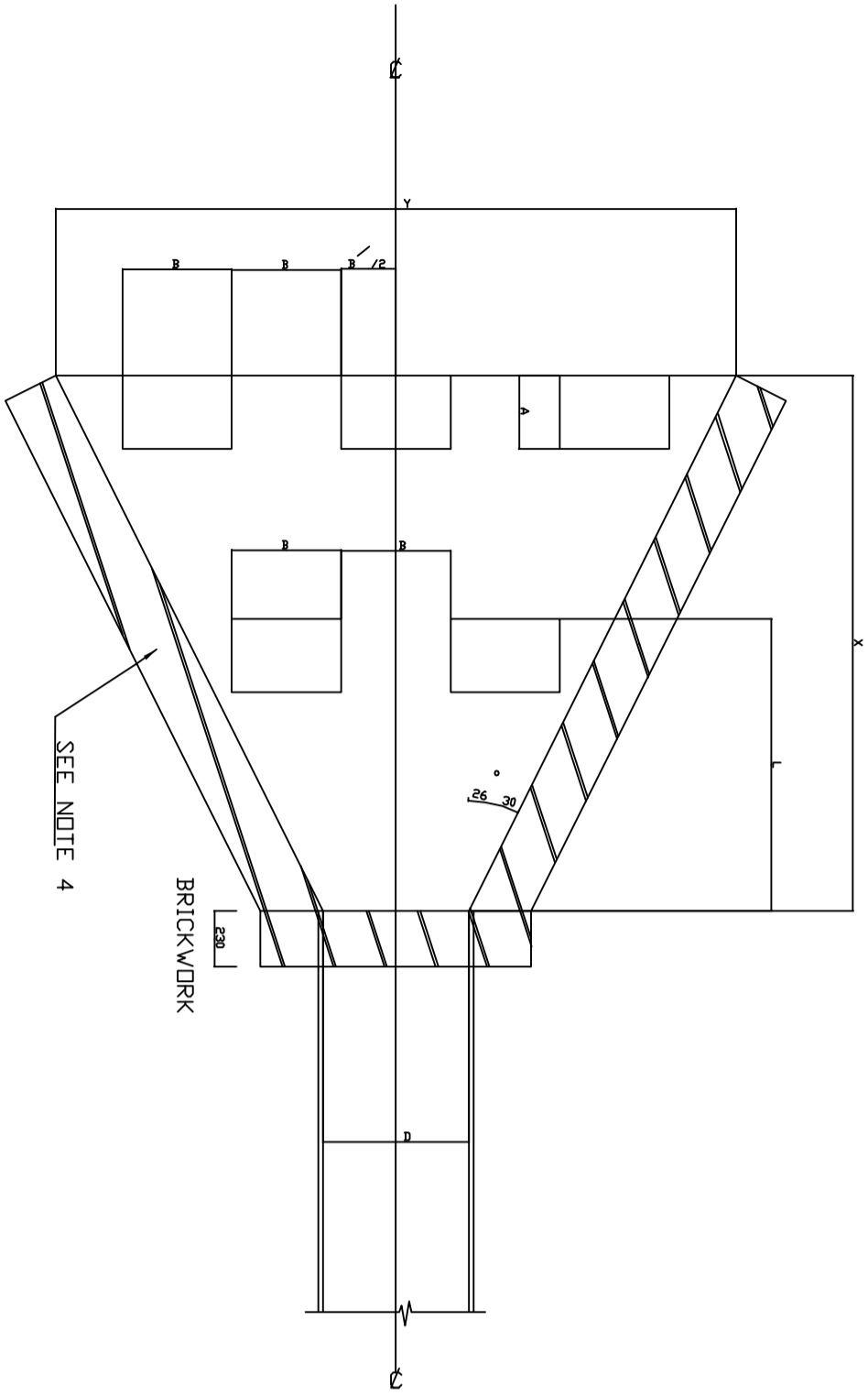
Revision	Date	Description
NOTING completion and service conditions have been completed		
Acquisitions completed		
UNDERGROUND SERVICES CHECKED		
NAME	DATE	MONTH
SIGNATURE		POINT
DATE		
BY		
DATE		
BY		
DATE		
BY		
DATE		
BY		
DATE		
NOTE: Any completed services checked by the contractor are to be confirmed by the Engineer and the Engineer is not liable for any errors or omissions.		

PLAN DESCRIPTION	DWG. NO.
CONTINUED FROM	
CONTINUED ON	
GROSS SECTIONS	
TYPICAL CROSS SECTION	
SURVEY LAYOUT	

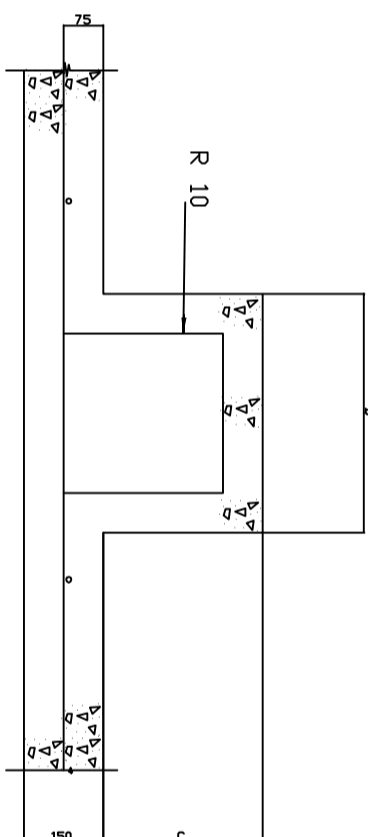
REDUCED PLAN USE SCALE BELOW



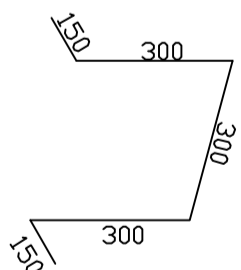
70mm ON ORIGINAL PLAN



PLAN OF TYPES 'A' AND 'B' HEADWALLS

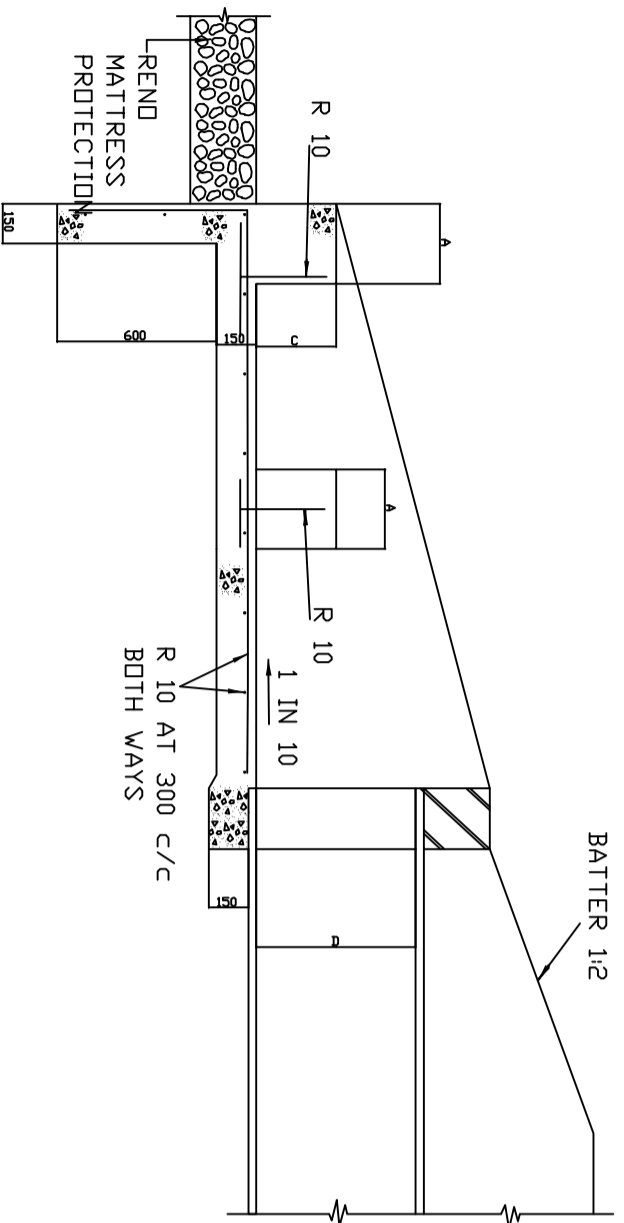


SECTION THROUGH BLOCK

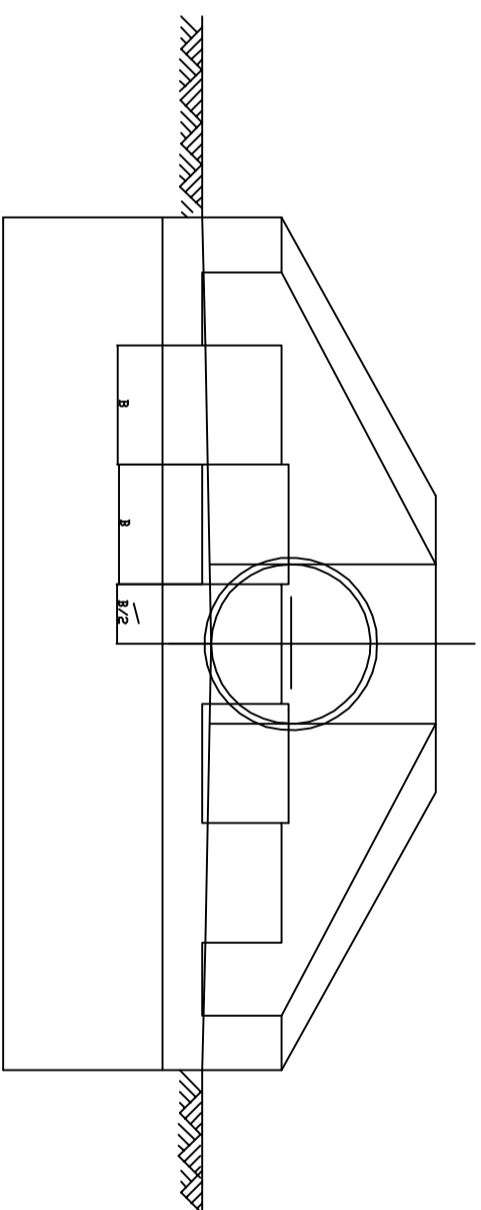


BLOCK REINFORCING (R 10)

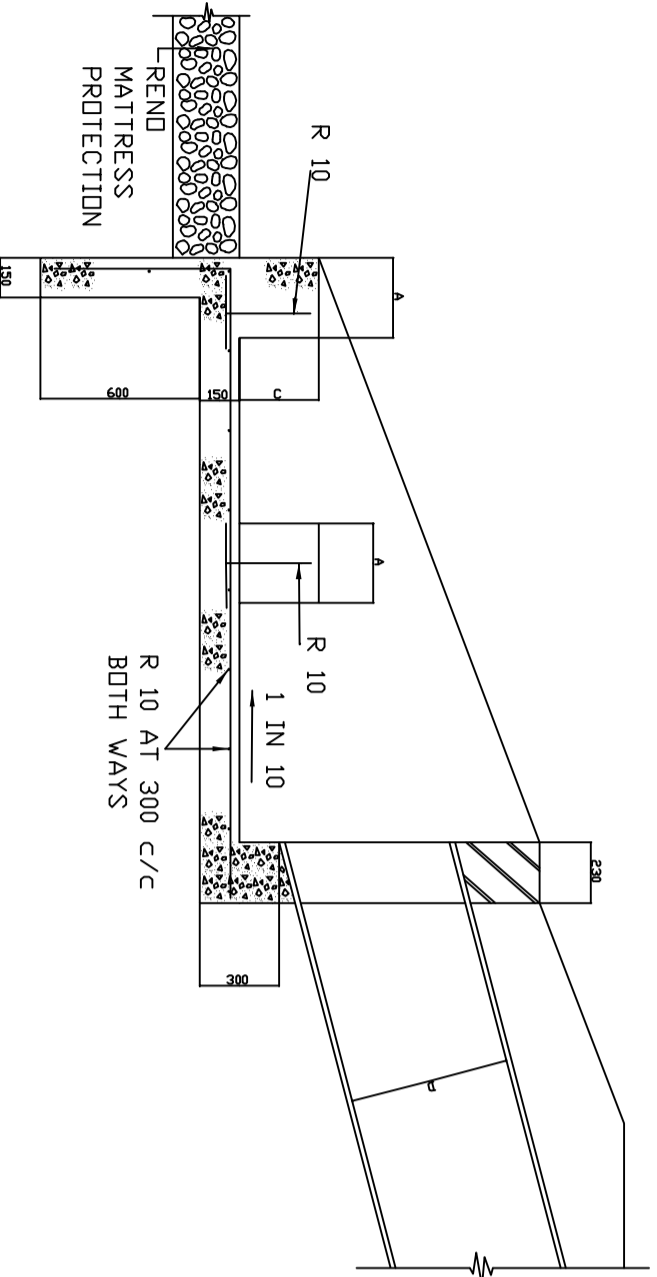
SPLITTER BLOCK DETAILS
SCALE 1:10



TYPE 'A' HEADWALL WHERE PIPE GRADE IS LESS THAN 20% (1:5)



TYPE 'A' HEADWALL - ELEVATION



TYPE 'B' HEADWALL WHERE PIPE GRADE IS GREATER THAN 20% (1:5)

NDM. PIPE DIA.	DIMENSIONS (mm)					
	A	B	C	L	X	Y
375	245	350	250	980	1800	2175
450	245	360	250	980	1800	2250
525	250	375	250	1050	2000	2525
600	300	450	300	1200	2200	2800
750	300	450	300	1500	2400	3150
825	300	450	300	1650	2600	3425
900	300	450	300	1800	2800	3700
1050	300	450	300	2100	3000	4050
1200	300	450	300	2400	3200	4400

- NOTES :
- 1) CONCRETE GRADE 20/26 MPa
 - 2) COVER TO STEEL 40mm MIN.
 - 3) REINFORCING TO BE CUT AND BENT ON SITE. MIN. LAPS 500mm
 - 4) HEADWALL BRICKWORK SIZES (IN mm) :
WALL HEIGHT 230
BRICKWORK 230
 - 5) ALL EXPOSED BRICKWORK TO BE FACEBRICK (REFER CLAUSE F 3.5.2. DEPARTMENTAL STANDARD SPECIFICATION)

STANDARD DRAWING

Project Title

Contract No.

Project Title

Drawing Title

HEADWALL DETAILS

Scales

1:20

DATE OF ISSUE

FEBRUARY 1990

AS SHOWN

Designed CVDH

Date 1995-12-05

Checked V.R.BURNETT

Manager B200

Director - Roads

Author

Executive Director

Drawing No 38576

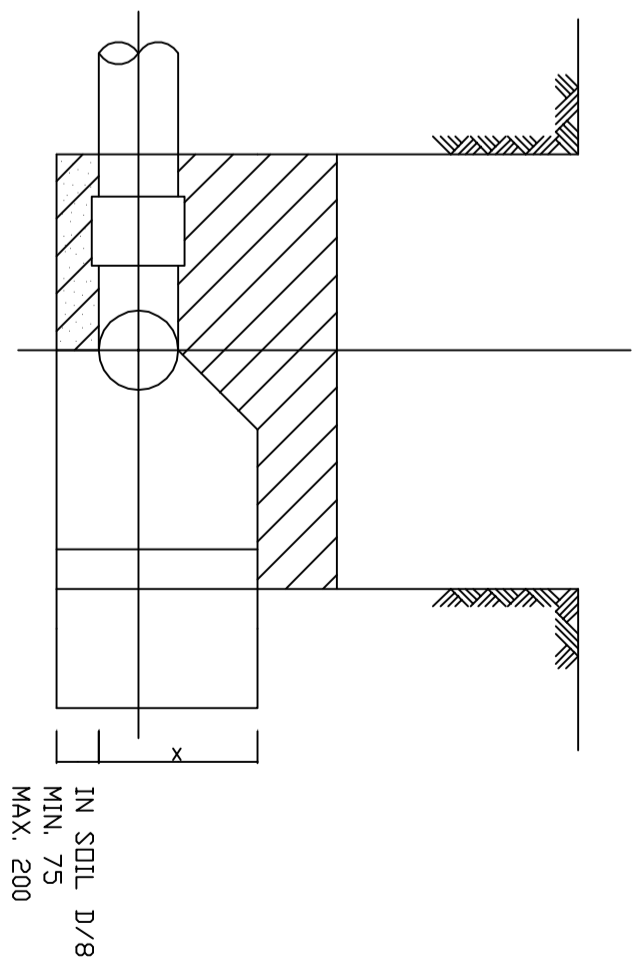
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CITY ENGINEERS SERVICE UNIT	DWG. NO.
ROADS DEPARTMENT	CONTINUED ON
PLAN DESCRIPTION	CROSS SECTIONS
CONTAINED ON	TYPICAL CROSS SECTION
SURVEY LAYOUT	

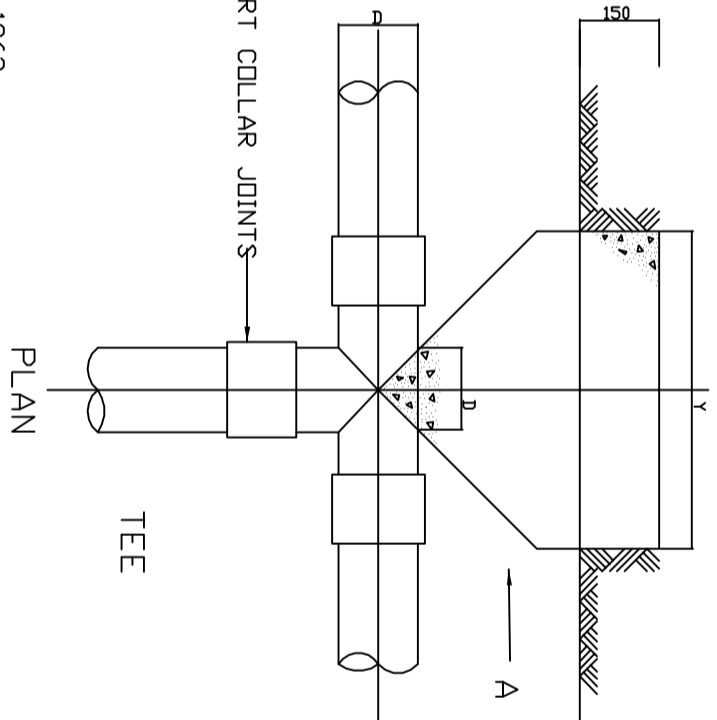
REDUCED PLAN USE SCALE BELOW

70m ON ORIGINAL PLAN

PIPE SIZE	CAP	EECRANCH	90° BEND	45° BEND	22.5° BEND	11.25° BEND
75mm	200 x 200	200 x 200	250 x 300	200 x 250	200 x 200	200 x 200
100mm	200 x 400	200 x 400	300 x 500	250 x 300	200 x 200	200 x 200
150mm	300 x 600	300 x 600	500 x 600	350 x 500	300 x 300	200 x 250
200mm	400 x 800	400 x 800	600 x 900	400 x 800	300 x 500	250 x 300
250mm	600 x 800	600 x 800	900 x 900	600 x 800	400 x 600	300 x 300
300mm	700 x 1000	700 x 1000	1000 x 1000	1300 x 700	1000 x 600	600 x 300 x 500



PLAN



C.I. SHORT COLLAR JOINTS

DRILLED TO 855.10 1962 TABLE D - WITH SLATTED HOLES

FOR VALVE DETAILS SEE ADJACENT HYDRANT

102mm DUCKFOOT BEND DRILLED TO BS 10. 1962 TABLE 'D'

300 x 300 x 100 CONCRETE BED

16mm SQUARE

102mm RISER

FOOTPATH LEVEL

102mm RISER

351

88

16mm

ANCHOR BLOCK

100mm Ø POLYBESTOS PIPE

SPACER RINGS

FLANGED CLIP WITH A 'POLYSTOP' CLAMP

500 x 500 x 700mm CONCRETE ANCHOR BLOCK (GRADE 20 / 26)

100mm Ø GATE VALVE

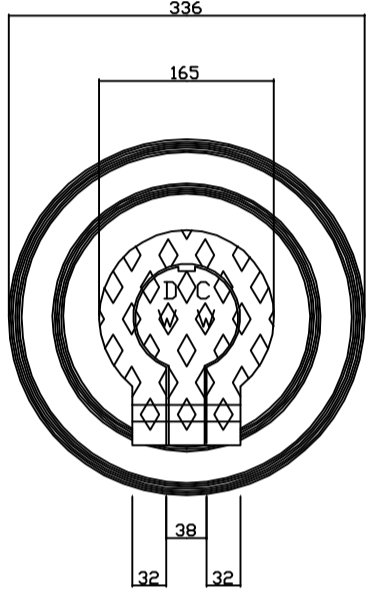
GROUND LEVEL

No. 5 VALVE COVER

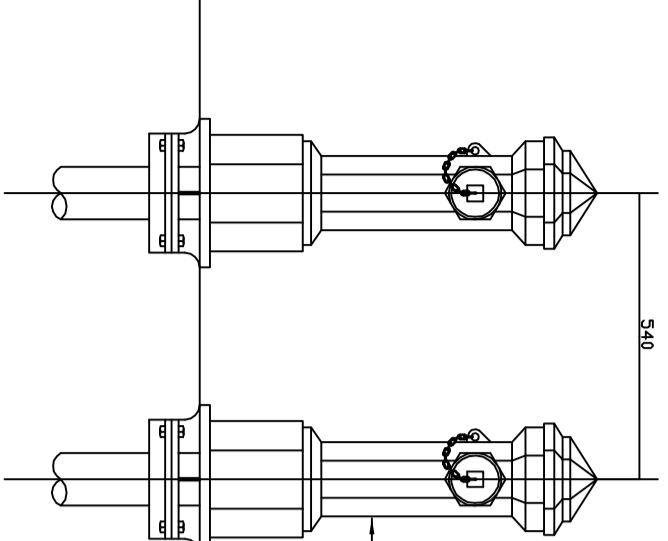
STANDARD HYDRANT DURBAN PATTERN WITH SCREW COUPLINGS

STANDARD HYDRANT WITH STEEL FITTINGS N.T.S.

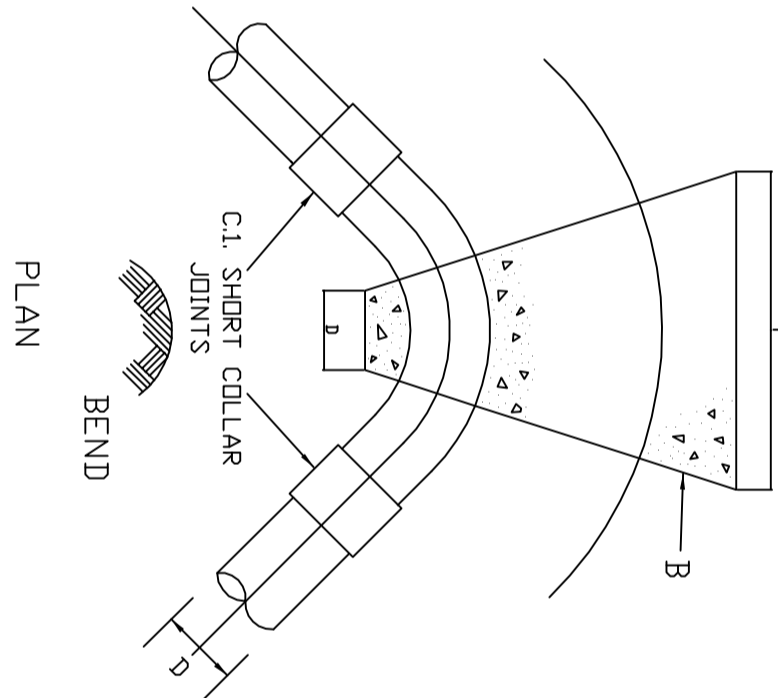
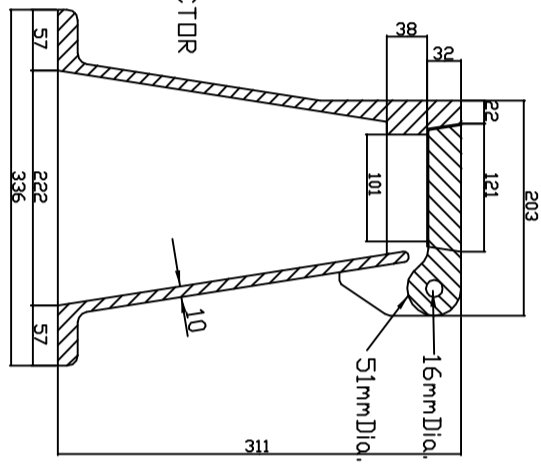
STANDARD HYDRANT WITH POLYBESTOS DUCKFOOT BEND (N.T.S.)



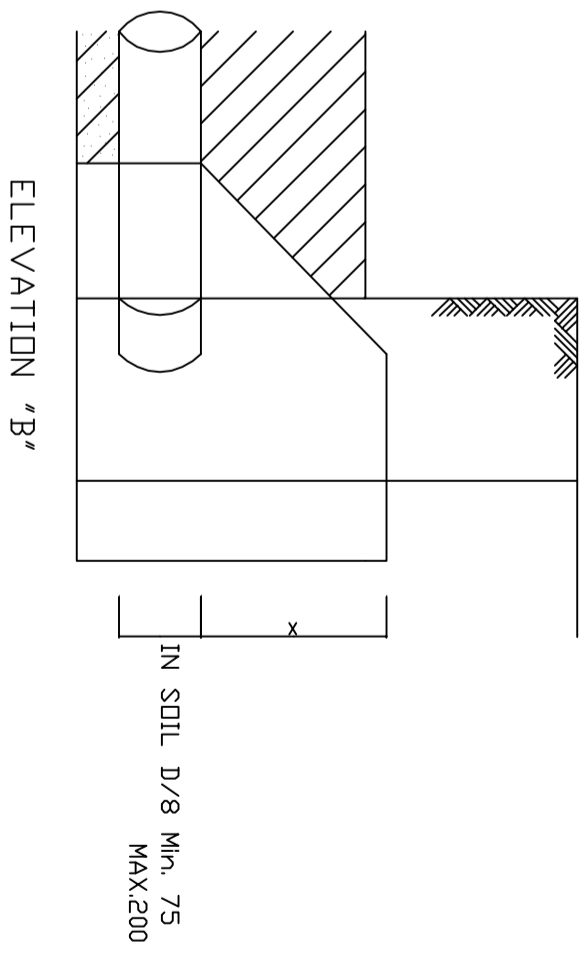
STANDARD HYDRANT DURBAN PATTERN WITH SCREW COUPLINGS



NOTE- ALL JOINTING MATERIAL TO BE SUPPLIED AND INSTALLED BY CONTRACTOR

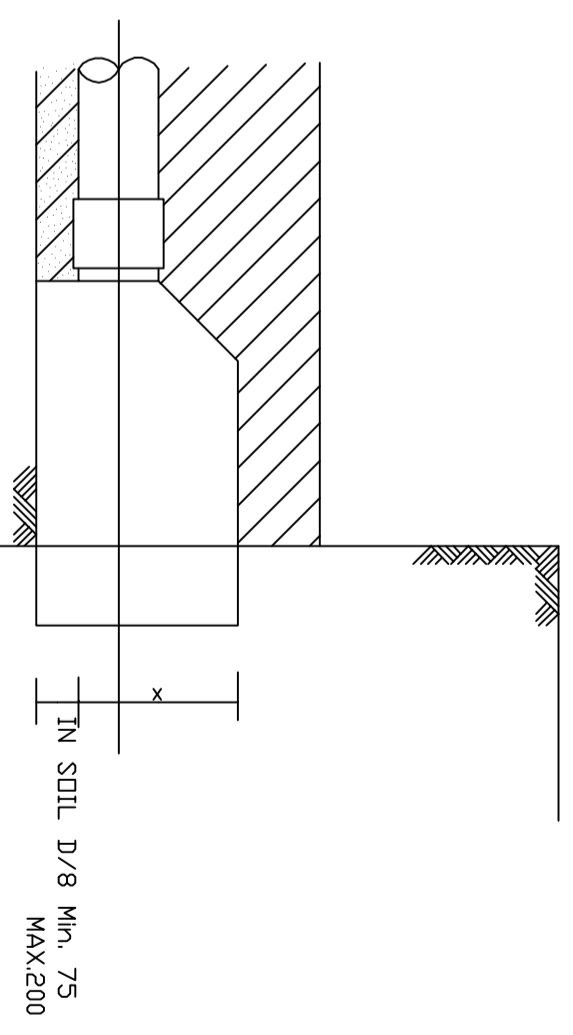
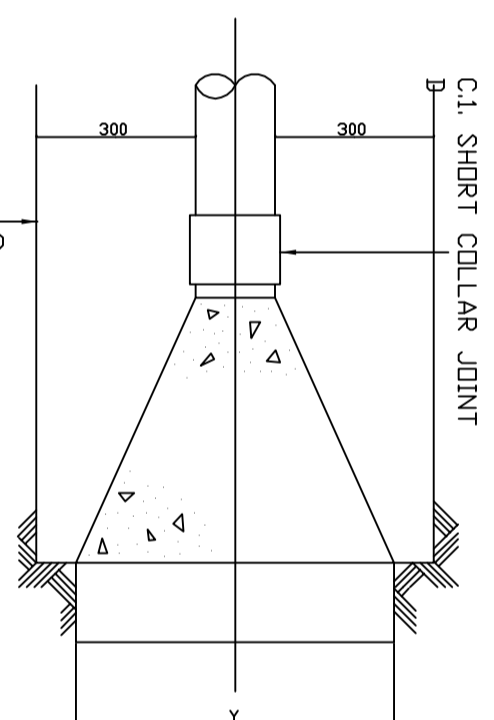
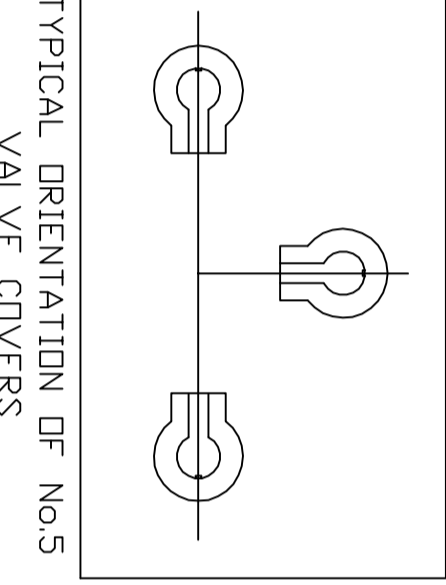
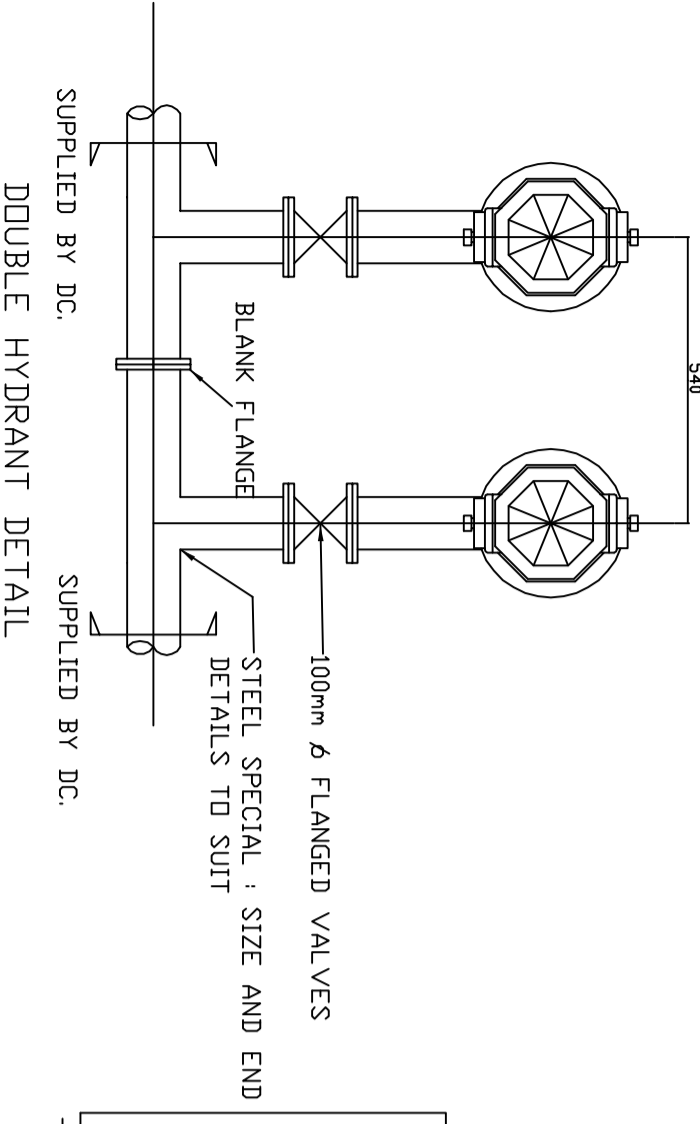


PLAN



AS PER PART 'DB' DEPT. SPECIFICATION FOR EARTHWORKS FOR PIPE TRENCHES. (CLASS 'C')

IN SOIL D/8 MIN.75 / MAX.200



REVISION	DATE	DESCRIPTION

CONTRACT NO. _____

PROJECT TITLE _____

STANDARD DRAWING

DRAWING TITLE

DETAILS OF :-

STANDARD HYDRANT THRUST BLOCKS TRENCHES.

DESIGNED BY: _____

CHECKED BY: _____

DATE OF ISSUE: _____

DATE: 1995-12-06

DRAWN BY: M.R. BLUMETT

MANAGER: R200

DIRECTOR: Roads

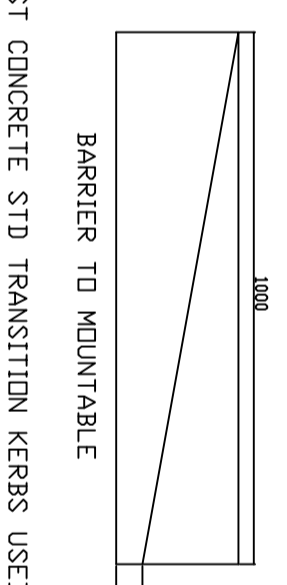
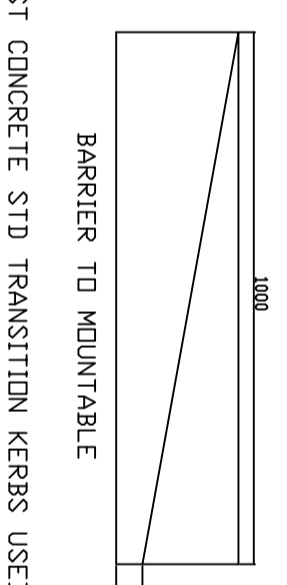
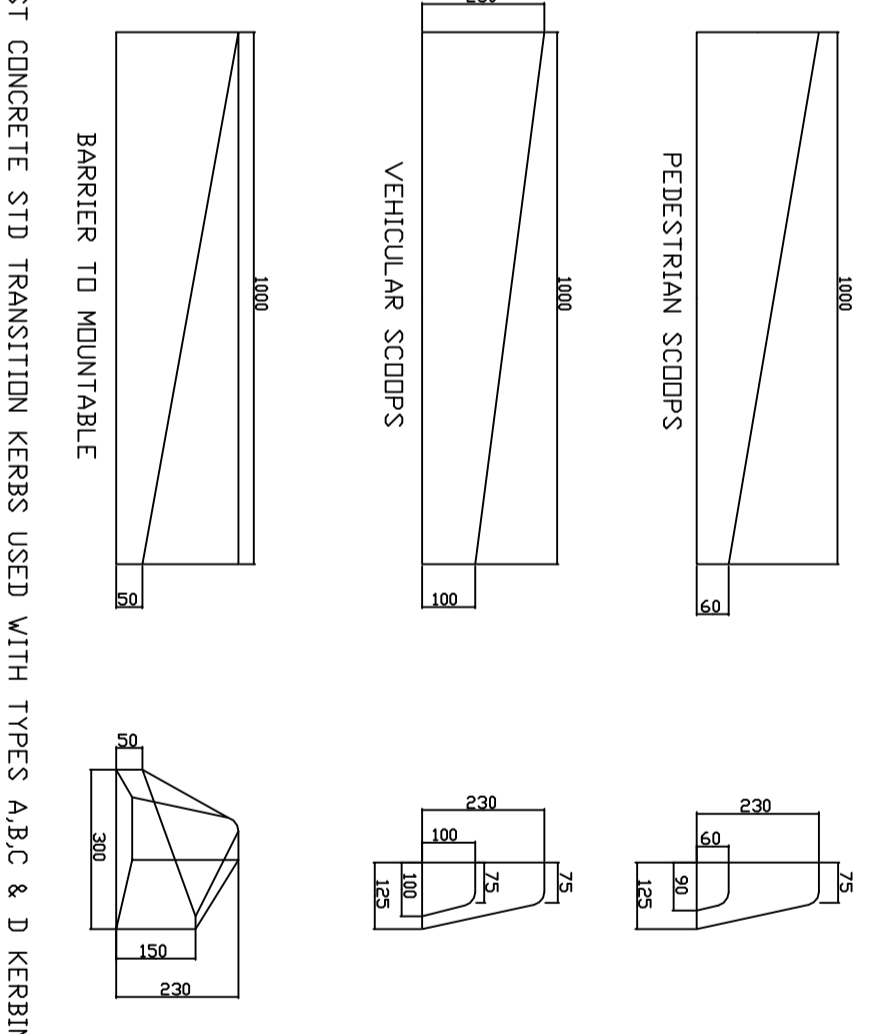
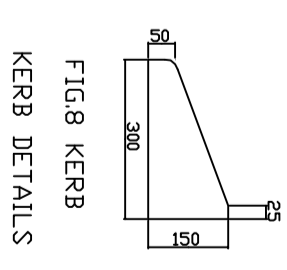
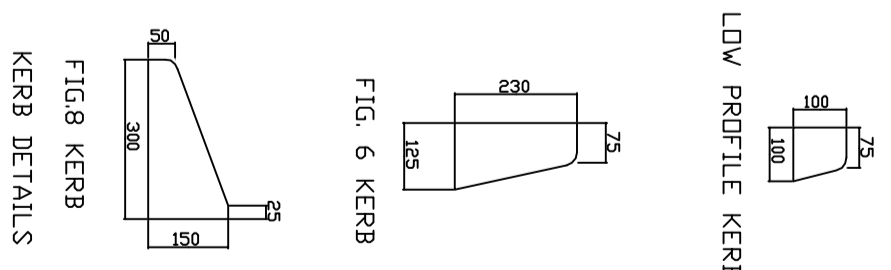
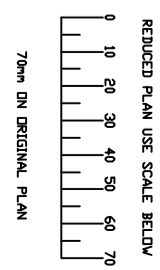
DRAWING NO. 38584

SHEET NO. _____

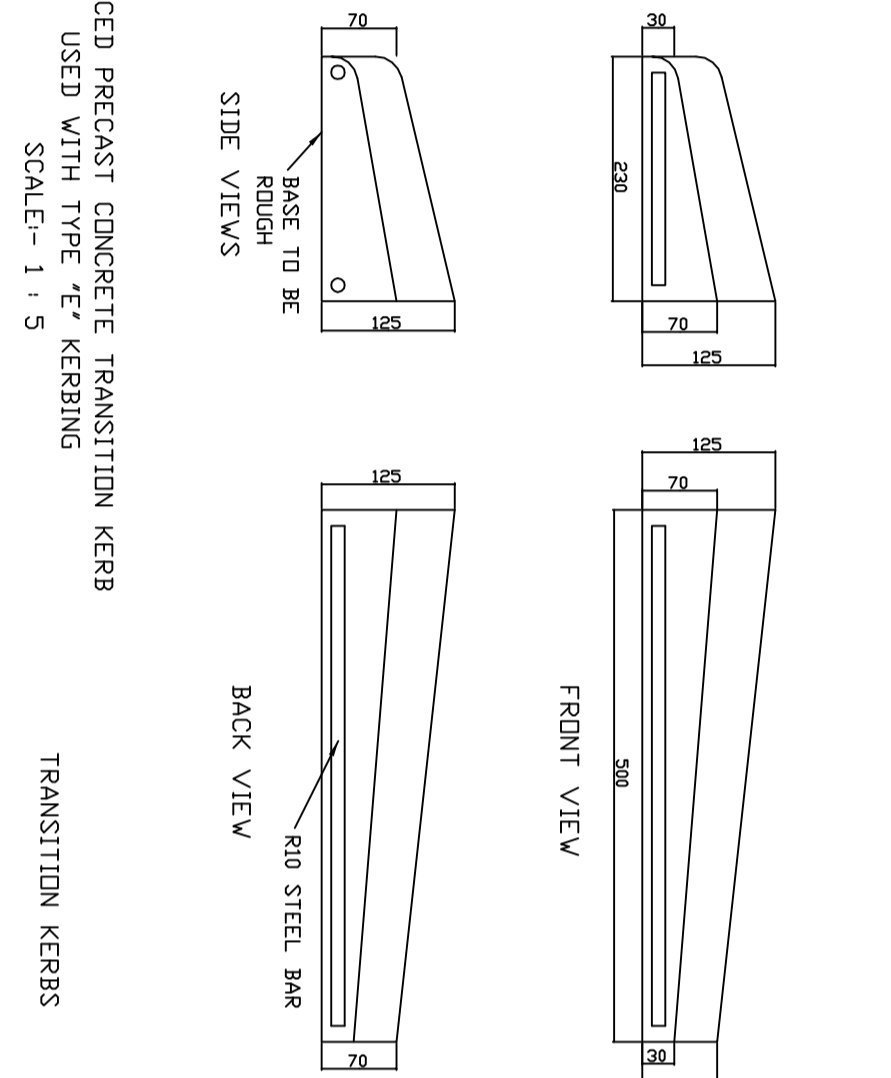
OF SHEETS _____

EXECUTIVE DIRECTOR

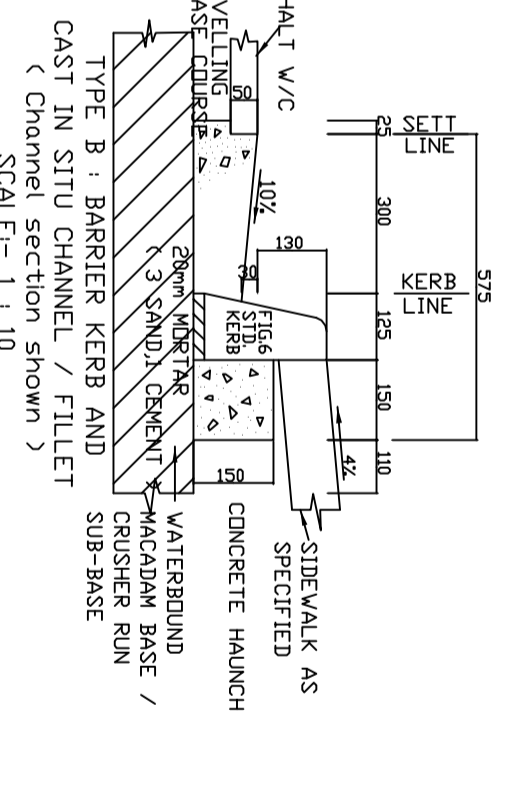
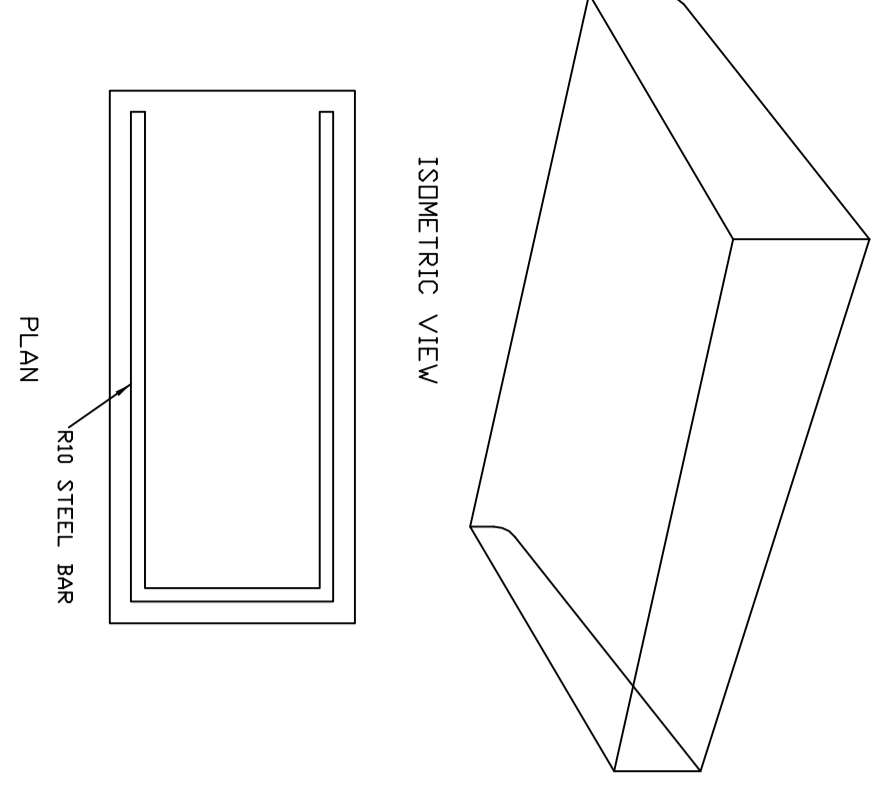
CITY ENGINEERS SERVICE UNIT	DWG. NO.
PLAN DESCRIPTION	CONTINUED FROM
REVISIONS	CROSS SECTIONS
	TYPICAL SECTION
	SURVEY LAYOUT



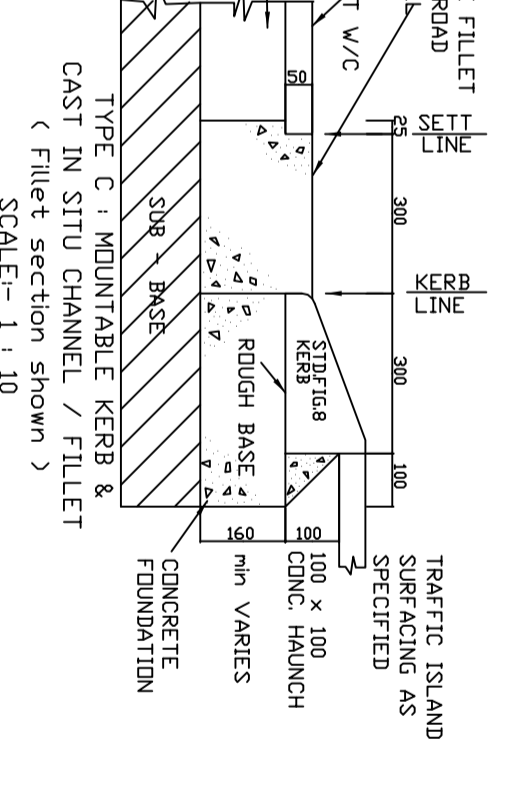
PRECAST CONCRETE STD TRANSITION KERBS USED WITH TYPES A,B,C & D KERBING. SCALE- 1 : 10



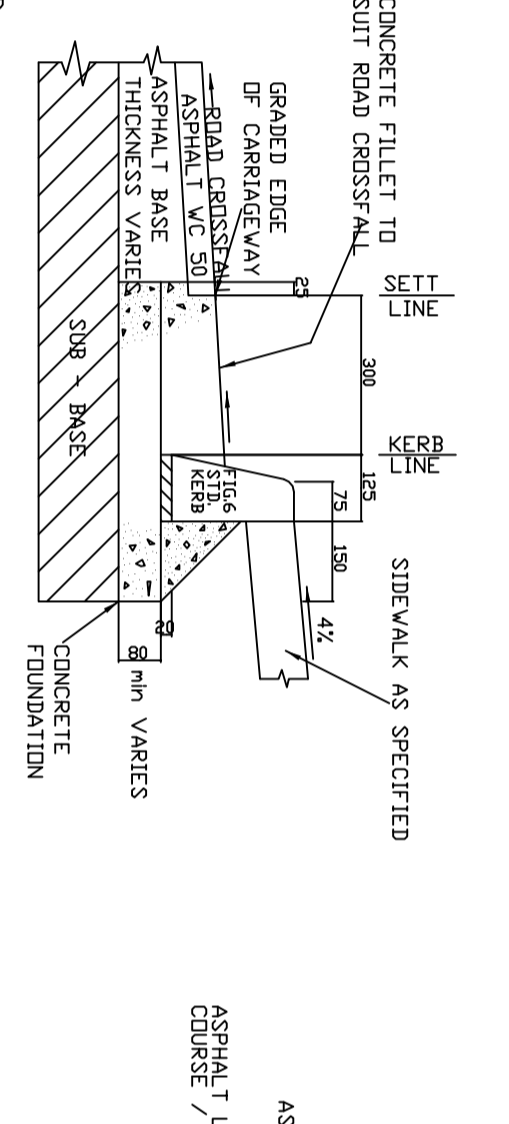
REINFORCED PRECAST CONCRETE TRANSITION KERB USED WITH TYPE 'E' KERBING. SCALE- 1 : 5



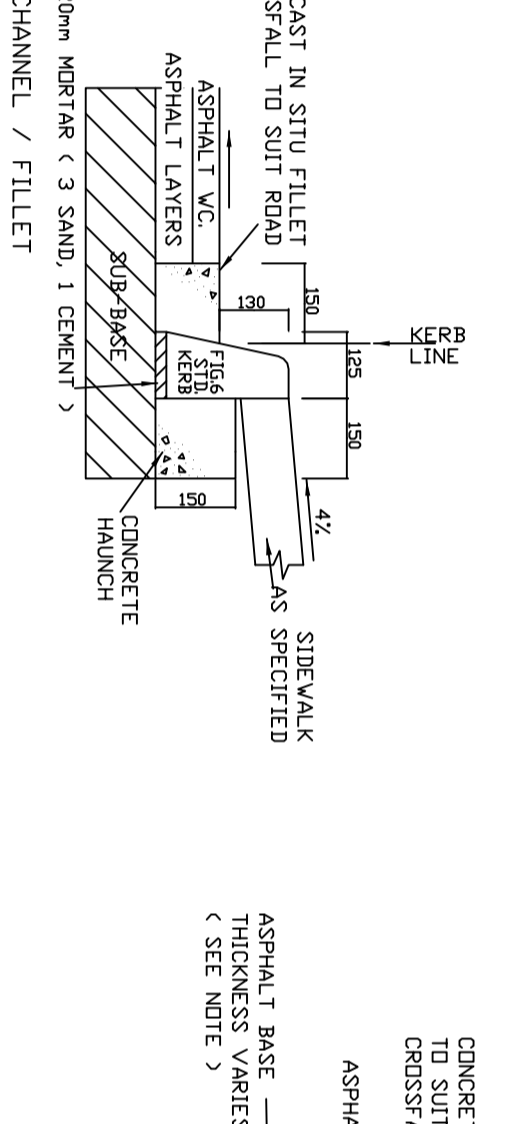
SCALE- 1 : 10



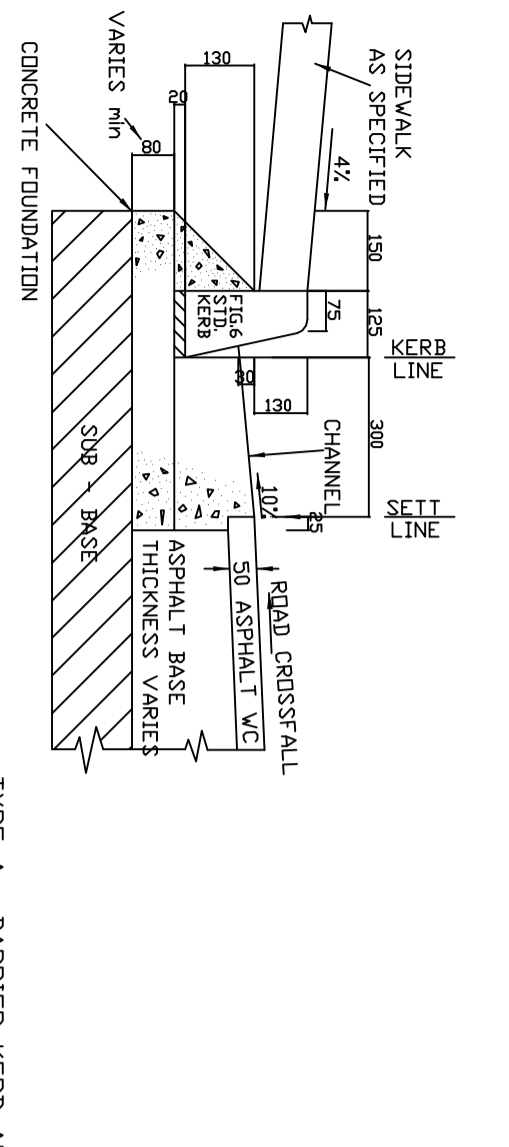
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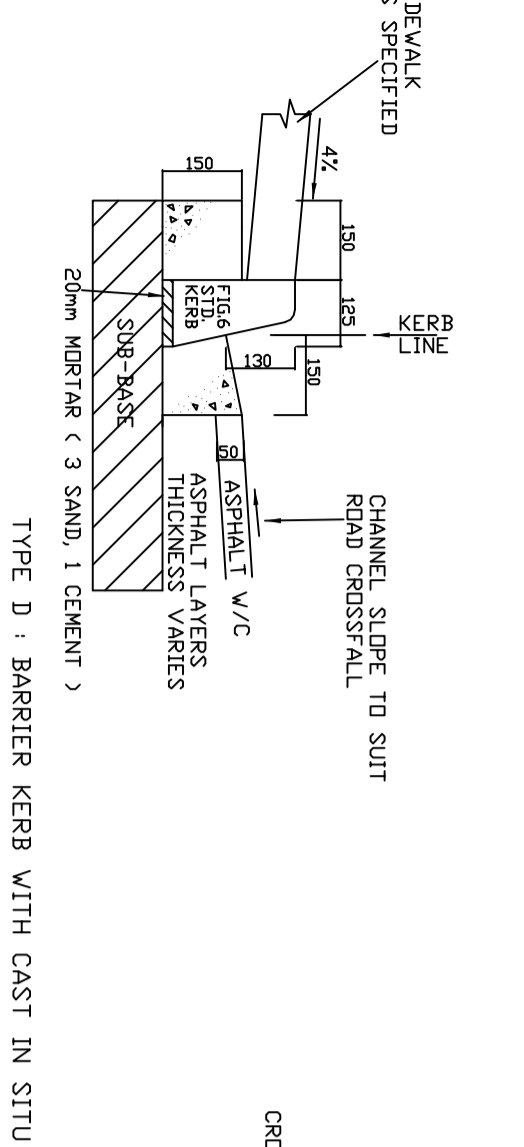
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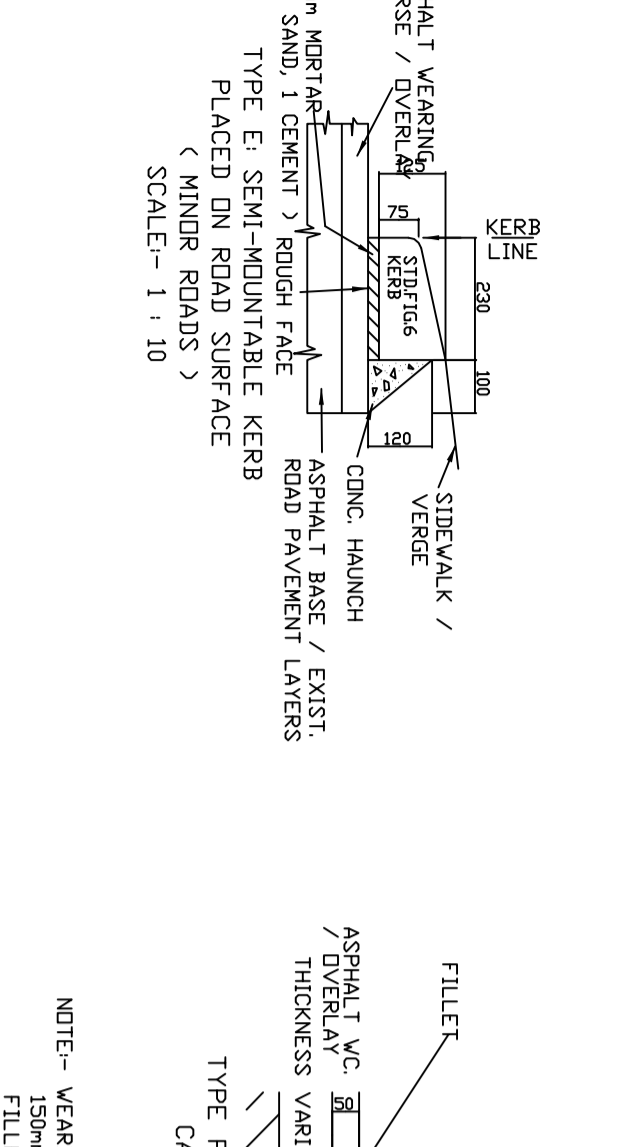
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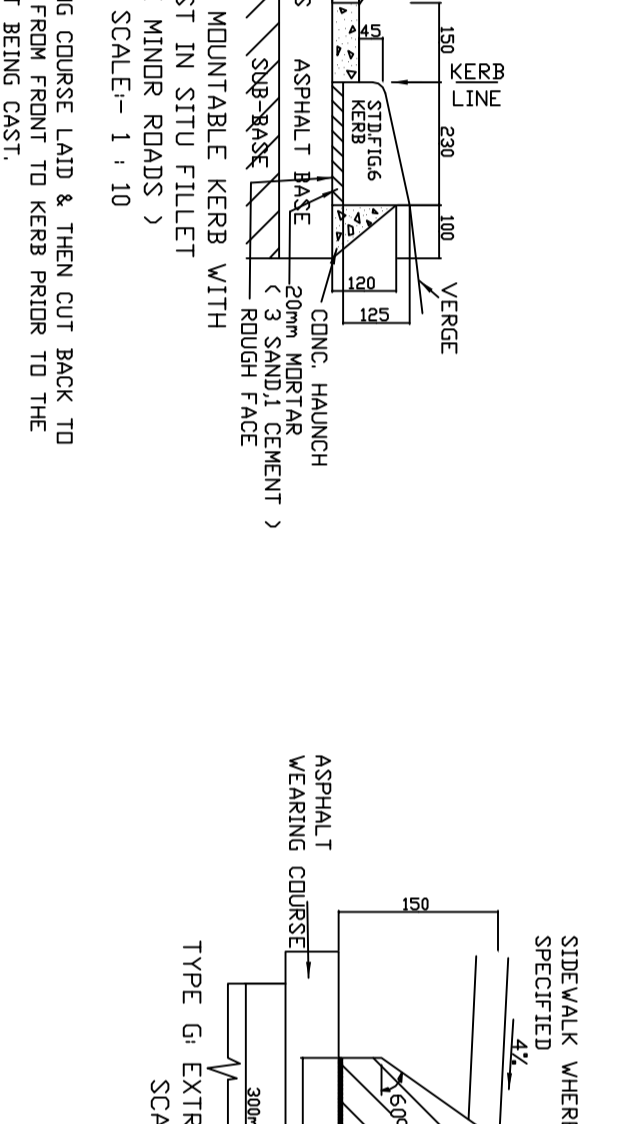
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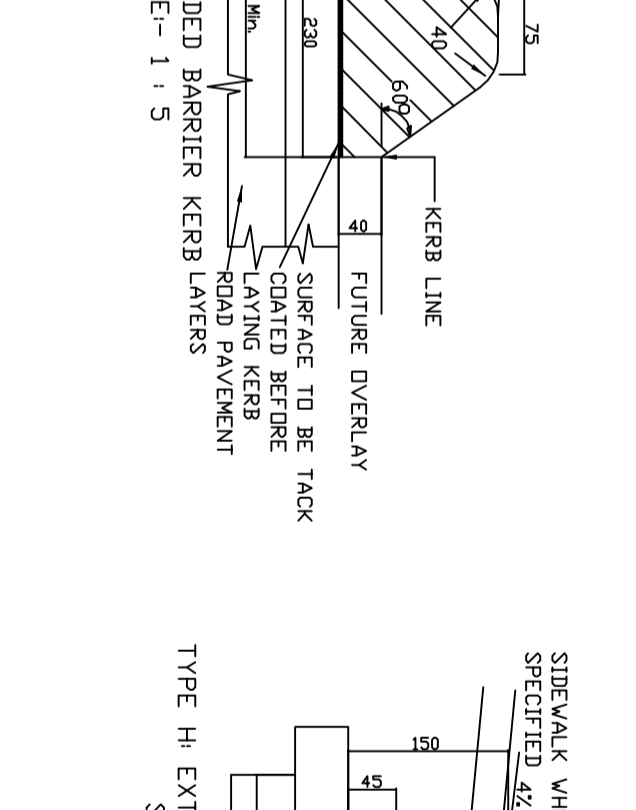
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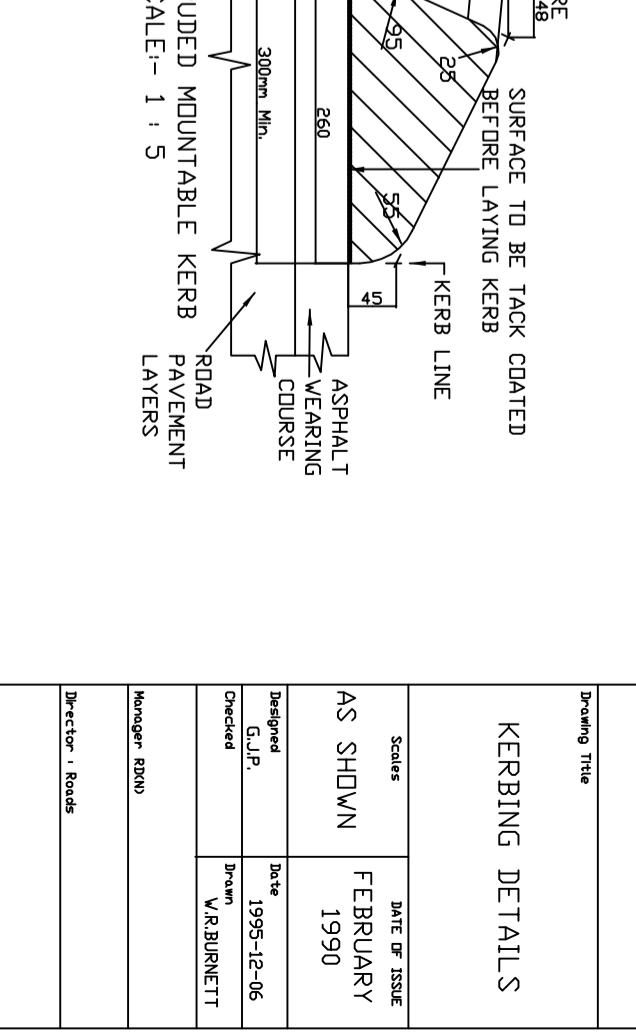
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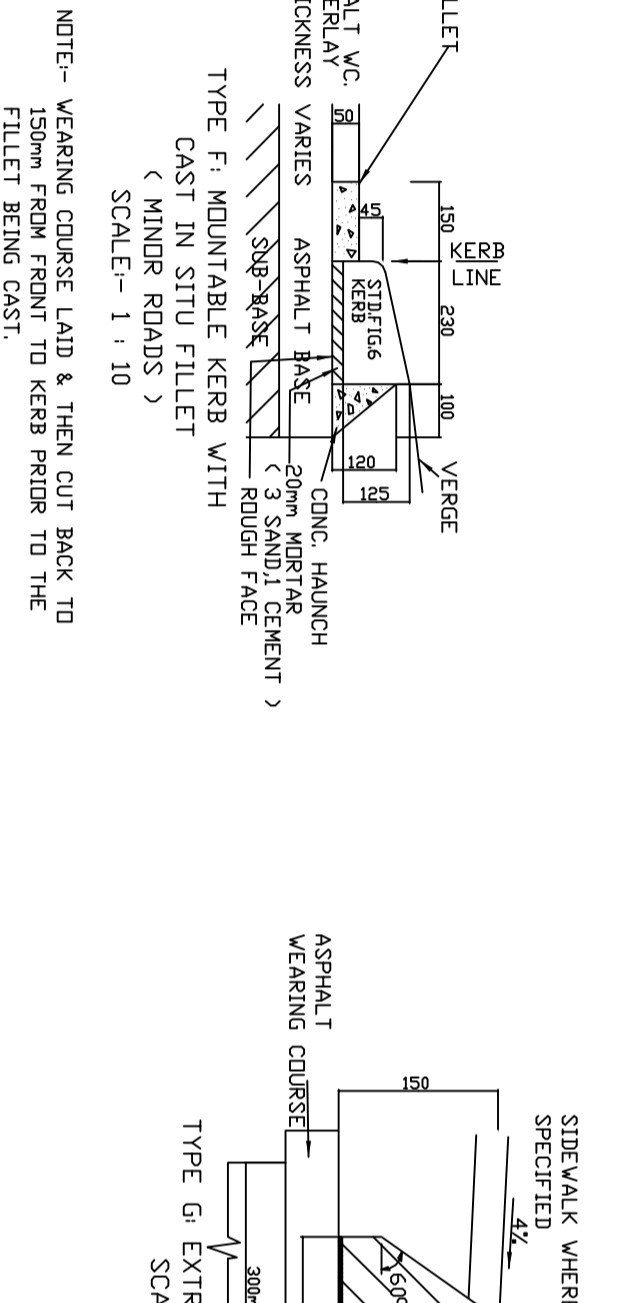
SCALE- 1 : 5



SCALE- 1 : 5



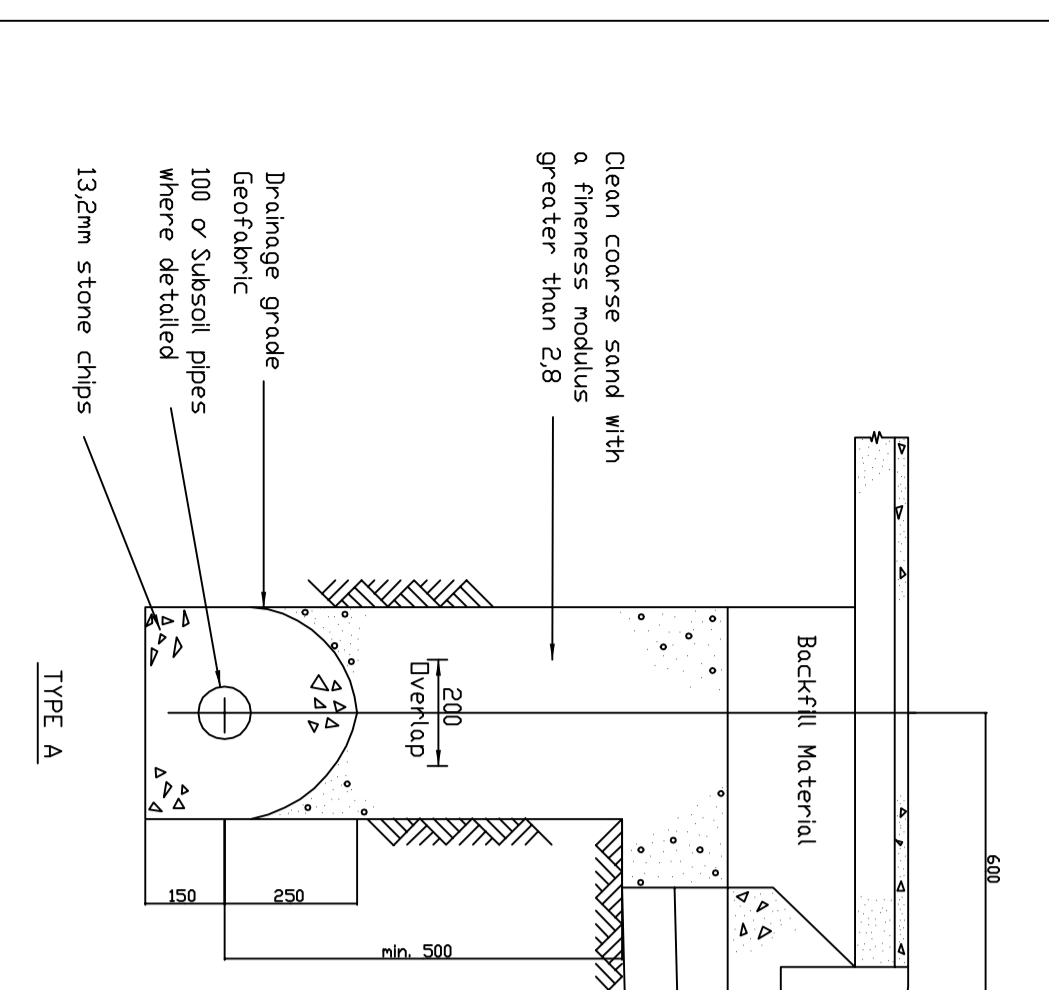
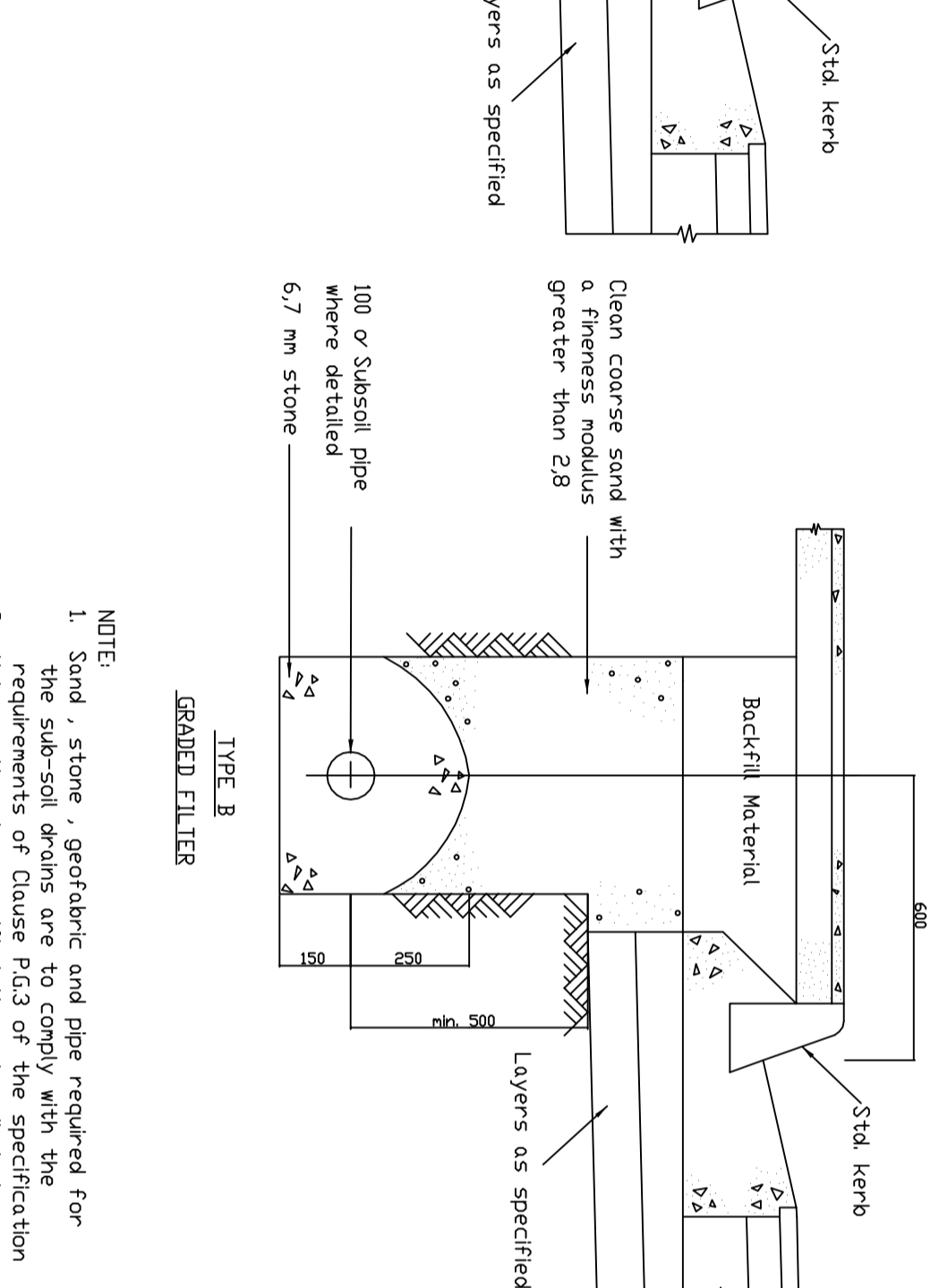
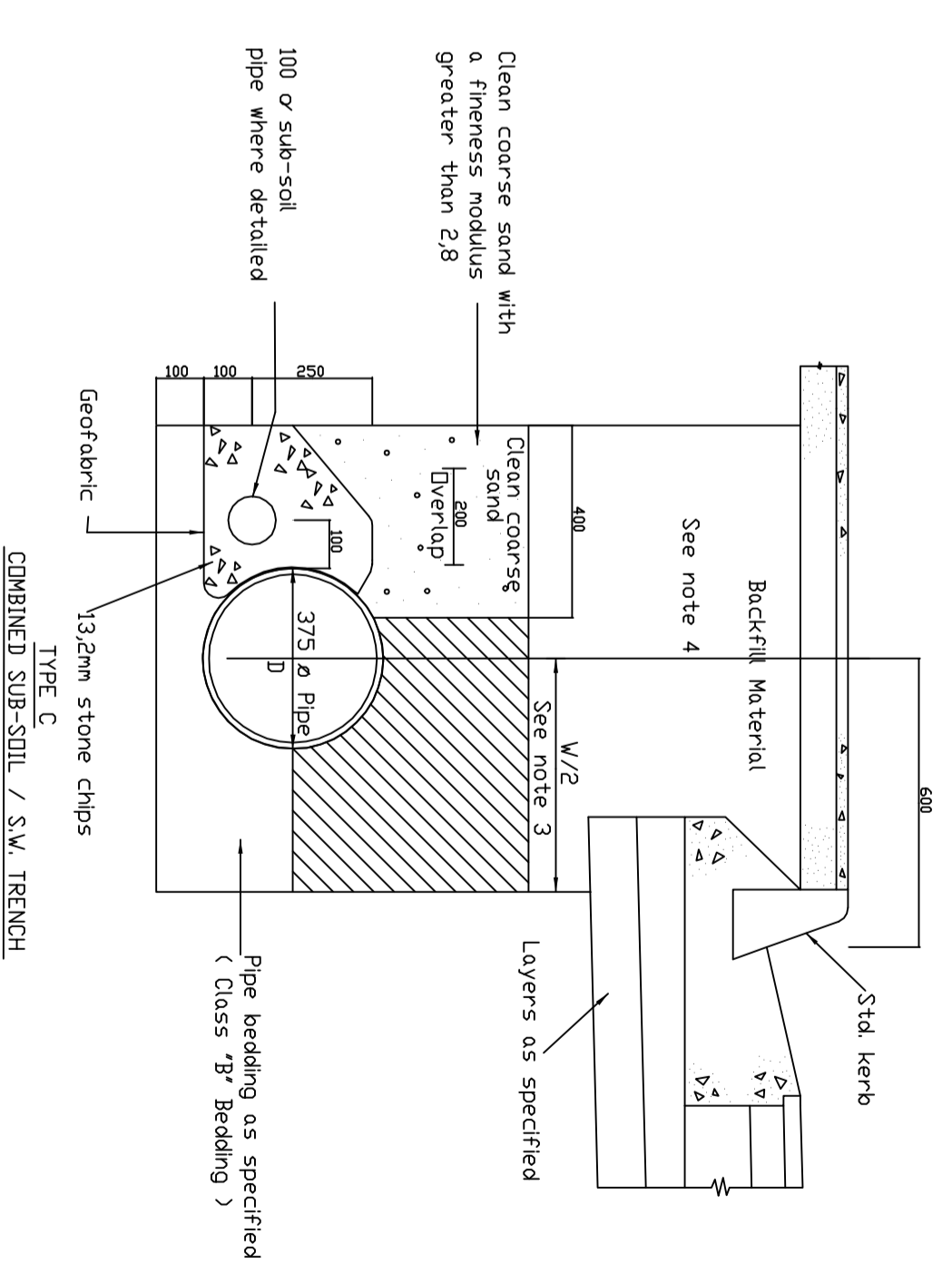
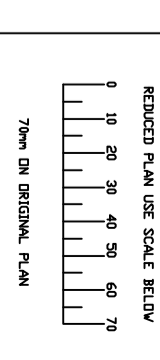
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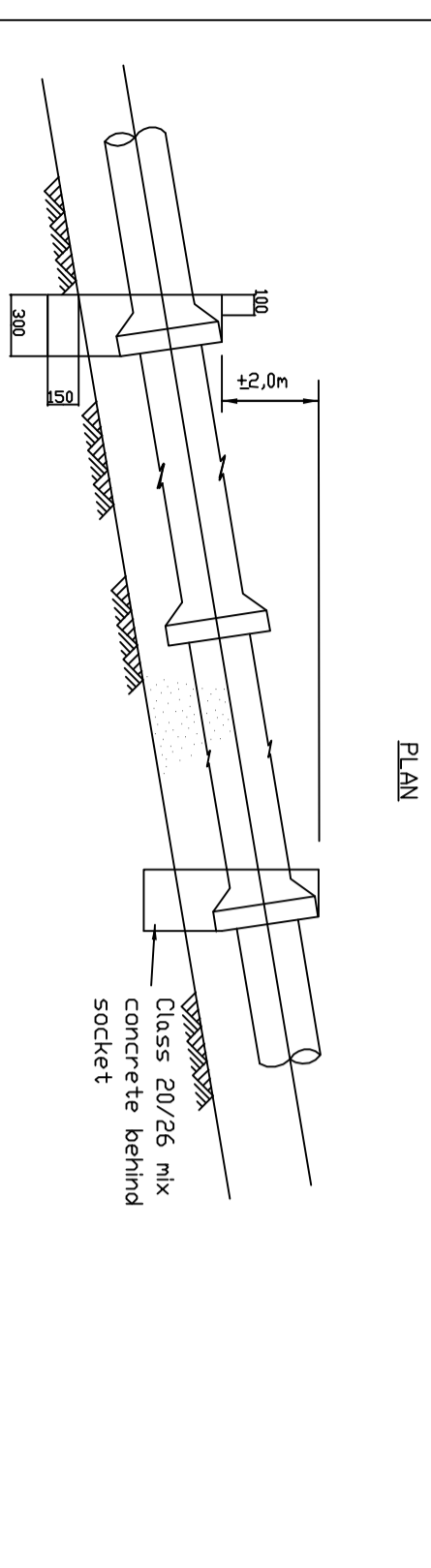
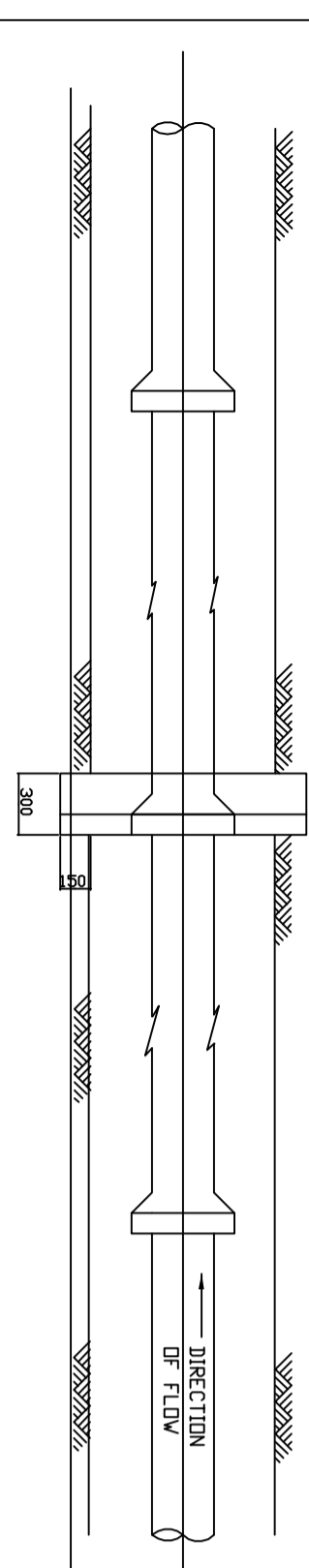
GENERAL NOTES--
 1. ALL CAST IN SITU CONCRETE IS TO BE GRADE 20 / 13.
 2. THE SURFACES OF THE CAST IN SITU CHANNEL / FILLET ARE TO HAVE A STEEL FLAT FINISH.
 3. EXPANSION JOINTS TO BE FORMED THROUGH THE KERBING CHANNEL / FILLET AND FOUNDATIONS AT INTERVALS NOT EXCEEDING 18.0m.
 4. CONTRACTION JOINTS TO BE FORMED THROUGH THE CHANNEL / FILLET AT 20m INTERVALS.
 5. WHERE KERB RADIUS IS LESS THAN 25m THE KERB LENGTH SHALL BE 300mm WHERE THE KERB RADIUS IS LESS THAN 2m THE KERBING SHALL BE CAST IN SITU.
 6. PRECAST KERBS ARE TO BE LAID WITH A 15mm GAP BETWEEN KERBS WHICH SHALL THEN BE FILLED WITH A CEMENT MORTAR.
 7. EXTRUDED KERBS: ASPHALT TO COMPLY WITH THE REQUIREMENTS OF CLAUSE EG.31 b) CONCRETE IS TO HAVE A CUBE STRENGTH OF 20MPa AT 28 DAYS.
 8. THE CONCRETE MIX DESIGN IS TO BE APPROVED BY THE ENGINEER.
 9. CONTRACTION JOINTS TO BE FORMED AT 20m INTERVALS.
 10. EXPANSION JOINTS ARE TO BE FORMED AT 6.0m INTERVALS ON STRAIGHTS AND 2.0m INTERVALS WHERE THE KERB RADIUS IS LESS THAN 50m.

Contract No.	Project Title
STANDARD DRAWING	
Drawing Title	
KERBING DETAILS	
Scale	DATE OF ISSUE
AS SHOWN	FEBRUARY 1990
Designed G.J.F.	Date 1995-12-06
Checked	Drawn W.R.BURNETT
Manager RDND	
Director - Roads	
Author	Executive Director
Drawing No 38577	Sheet of Sheets

CITY ENGINEERS SERVICE UNIT	DWG. NO.
PLANS DEPARTMENT	
CONTINUED FROM	
CONTINUED ON	
CROSS SECTIONS	
TYPICAL CROSS SECTION	
SURVEY LAYOUT	

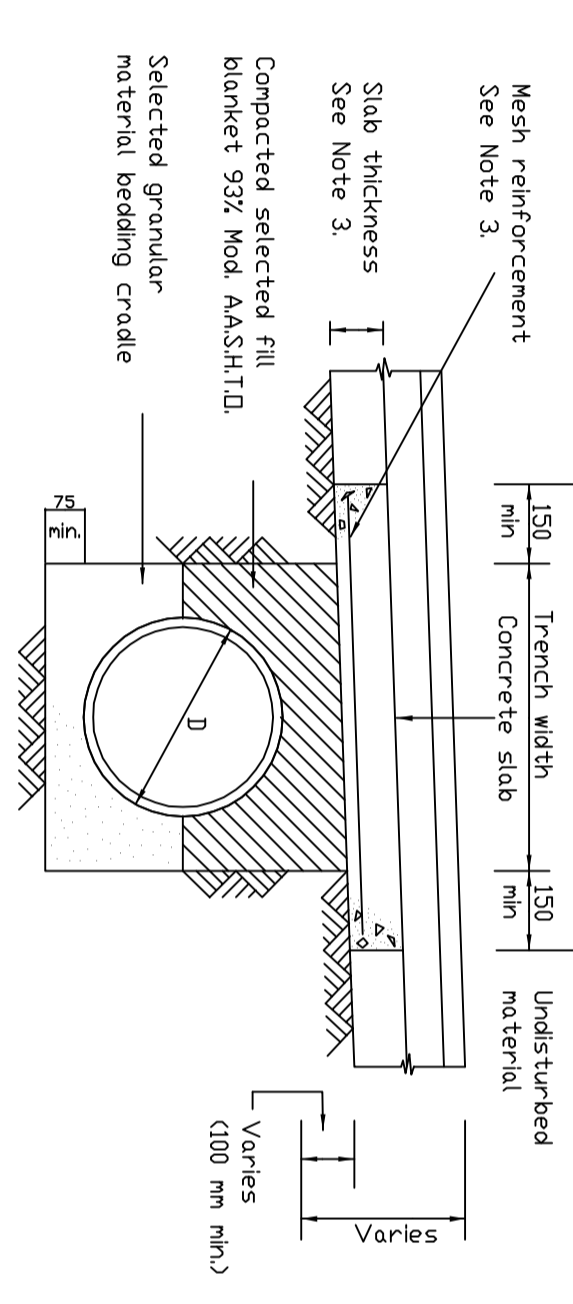


- NOTE:
- Sand, stone, geofabric and pipe required for the sub-soil drains are to comply with the requirements of Clause P.0.3 of the specification
 - Unless otherwise specified the sub-soil drains are to be laid at the min. depths indicated. Min grade of the drain is to be 1%.
 - W = Poy width
 - D = D.I.D. of pipe
 - Where detailed by Engineer. Clean coarse sand layer shall be extended to the edge of the road and / or raised to the level indicated for types A and B.

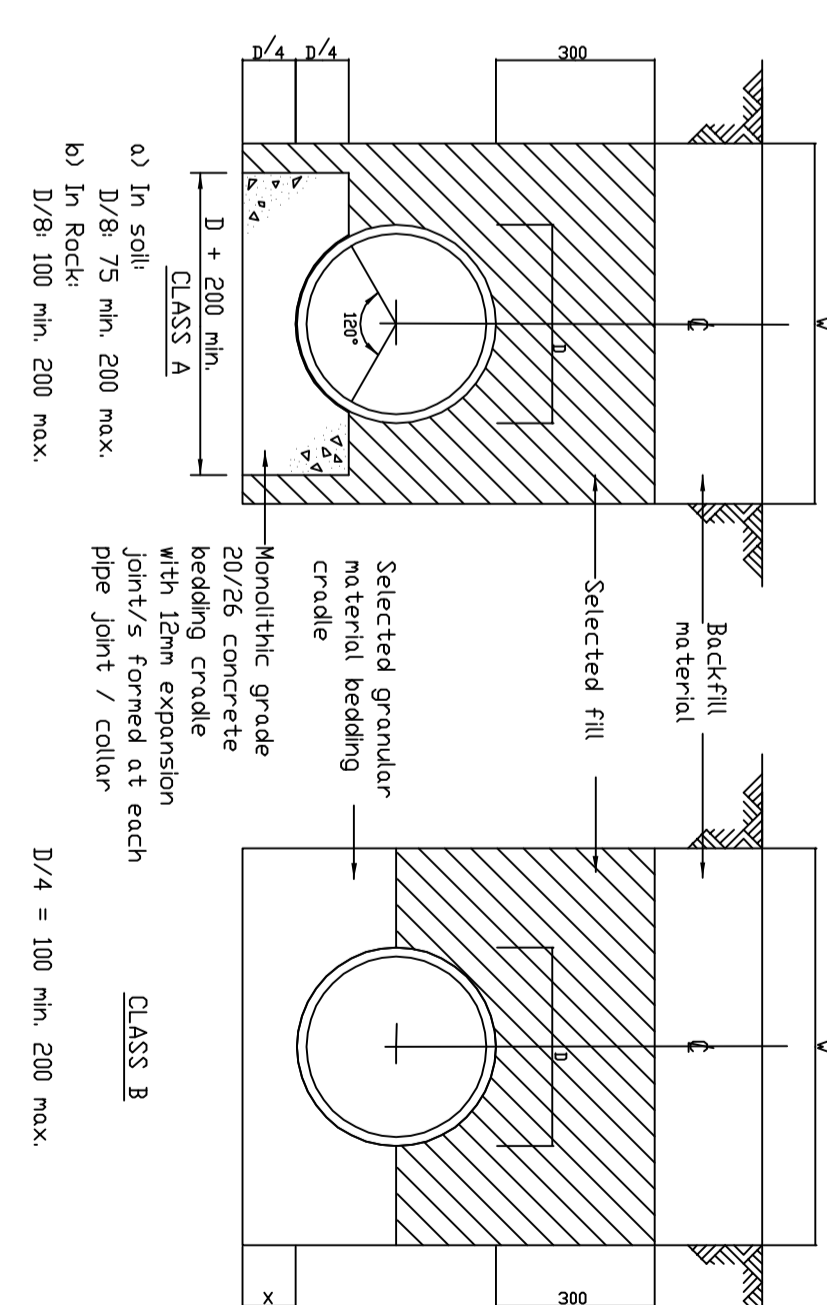


- NOTE:
- Sides and bottom of anchor blocks to be embedded to a min. depth of 150 mm into undisturbed in situ material.
 - No anchor blocks required where flexible pipes are used i.e. HD, upvc, pipes.

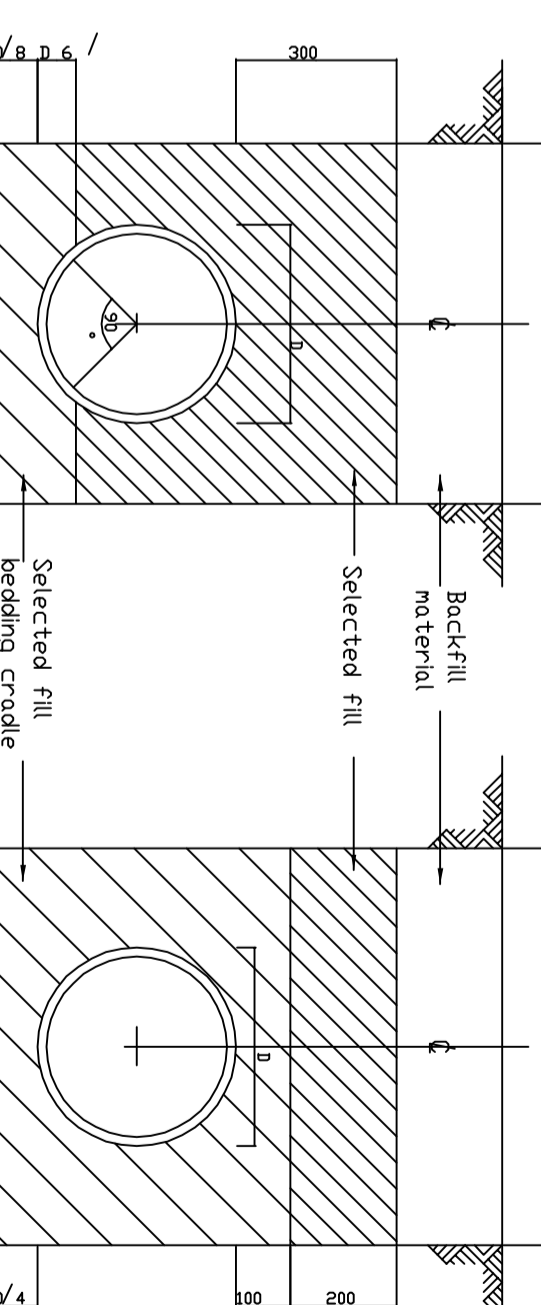
ANCHOR BLOCK DETAILS
SCALE: 1:25



DETAILS OF PIPE PROTECTION FOR REDUCED DEPTH OF COVER
SCALE: 1:10



- a) In soil:
D/8: 75 min, 200 max.
D/8: 100 min, 200 max.
- b) In Rock:
D/8: 100 min, 200 max.



- a) In soil:
D/6: 75 min, 200 max.
D/8: 100 min, 200 max.
- b) In Rock:
D/8: 100 min, 200 max.

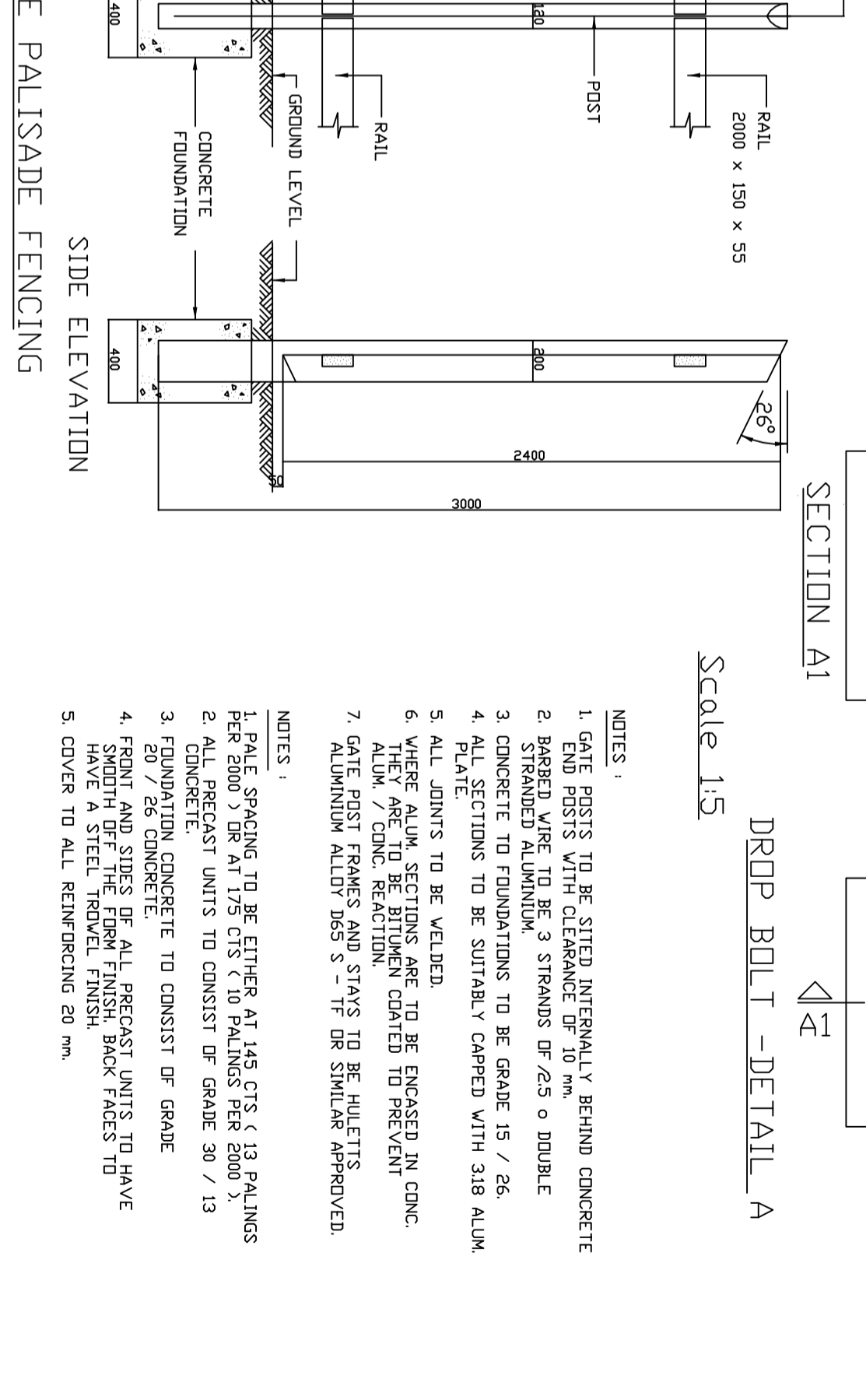
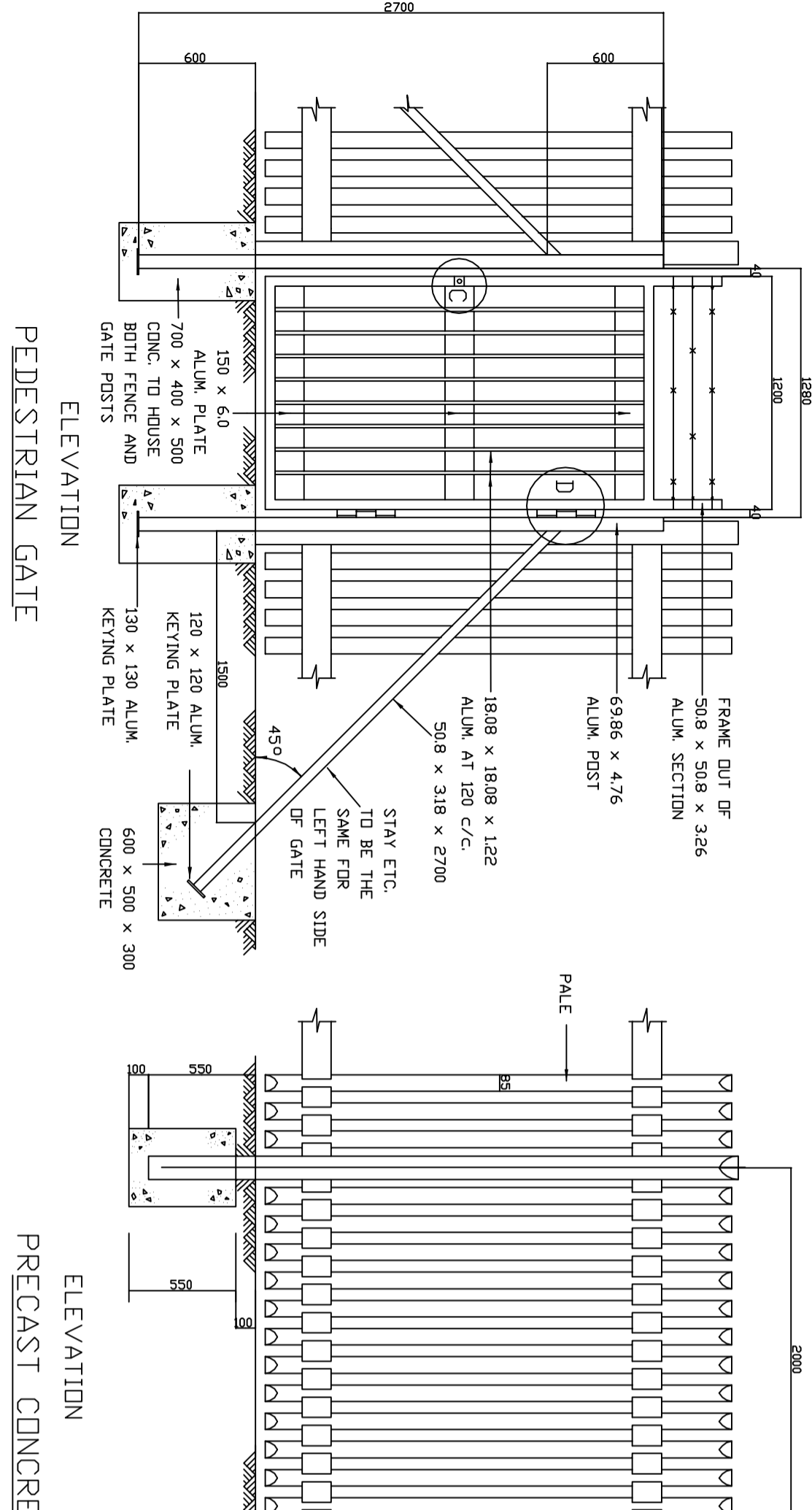
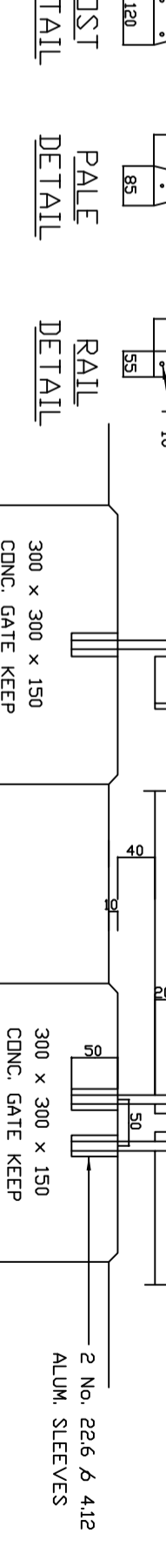
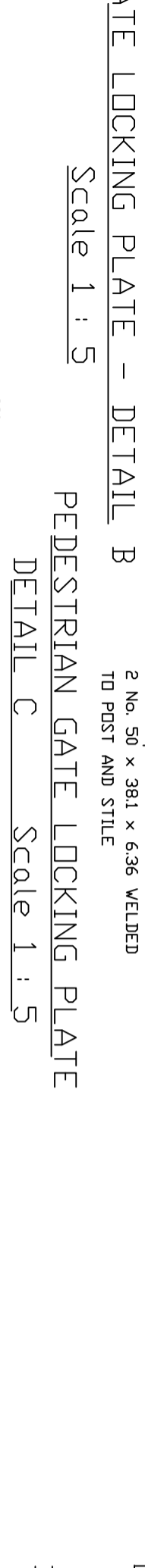
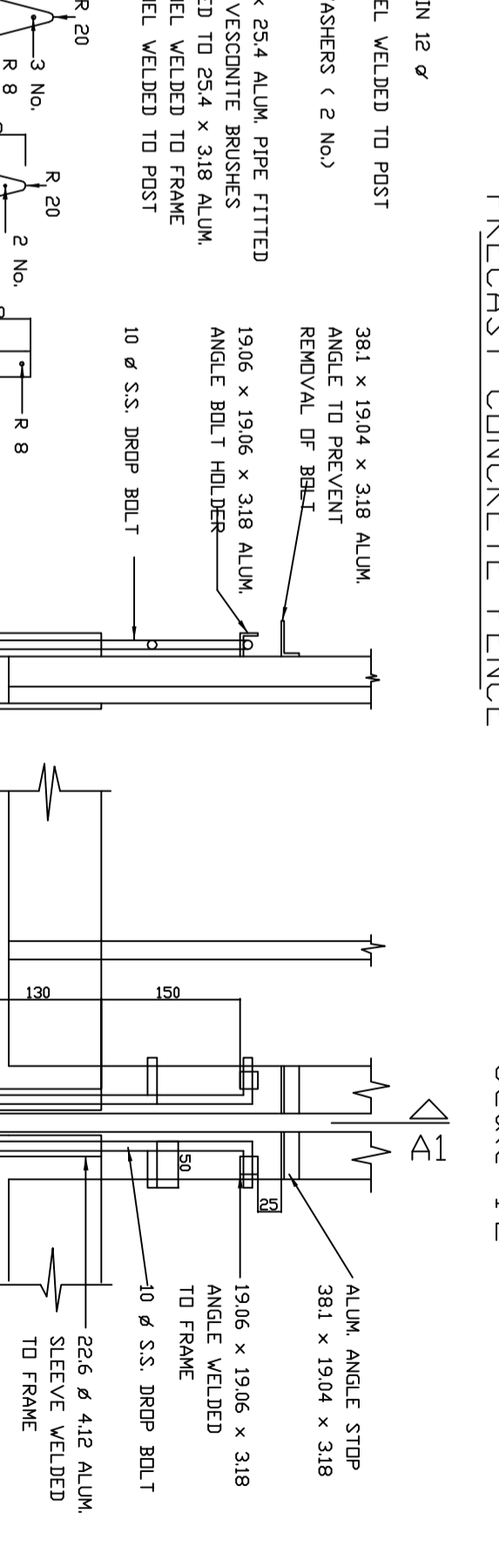
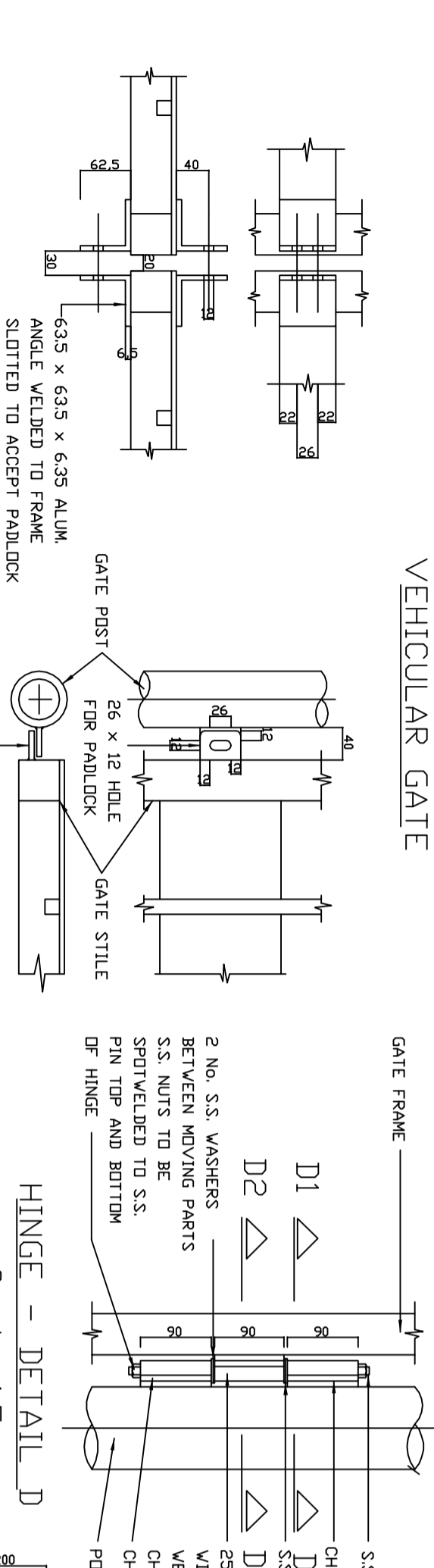
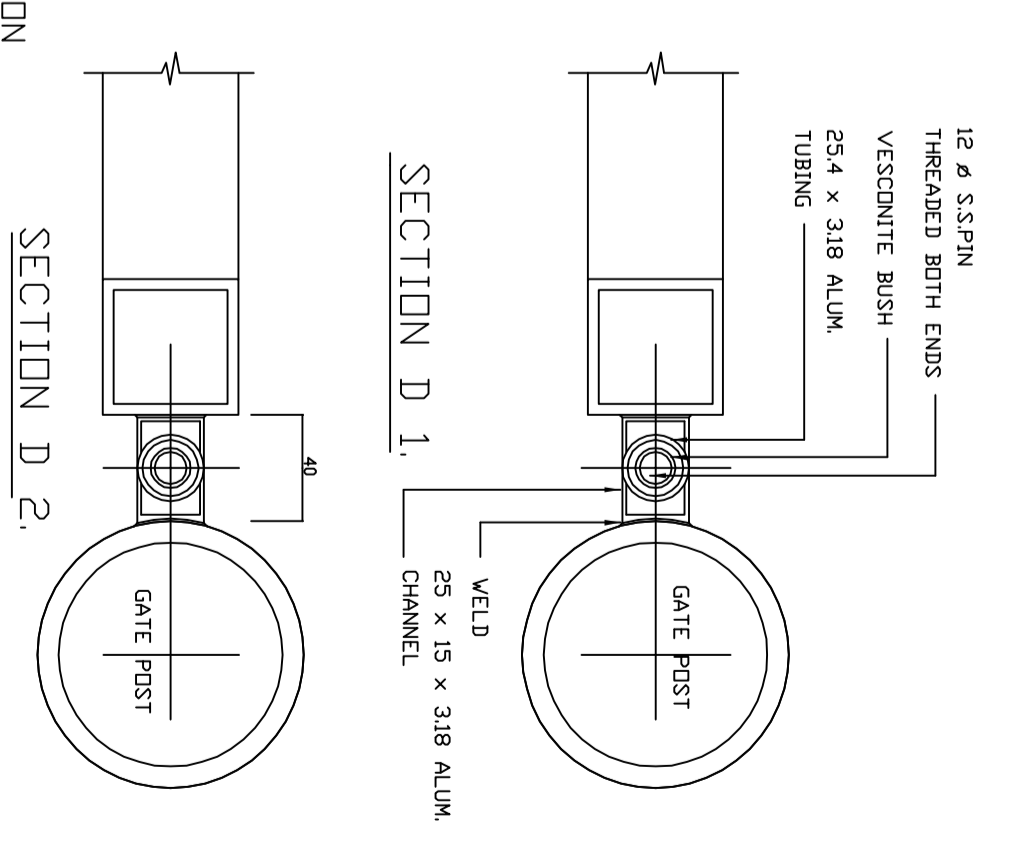
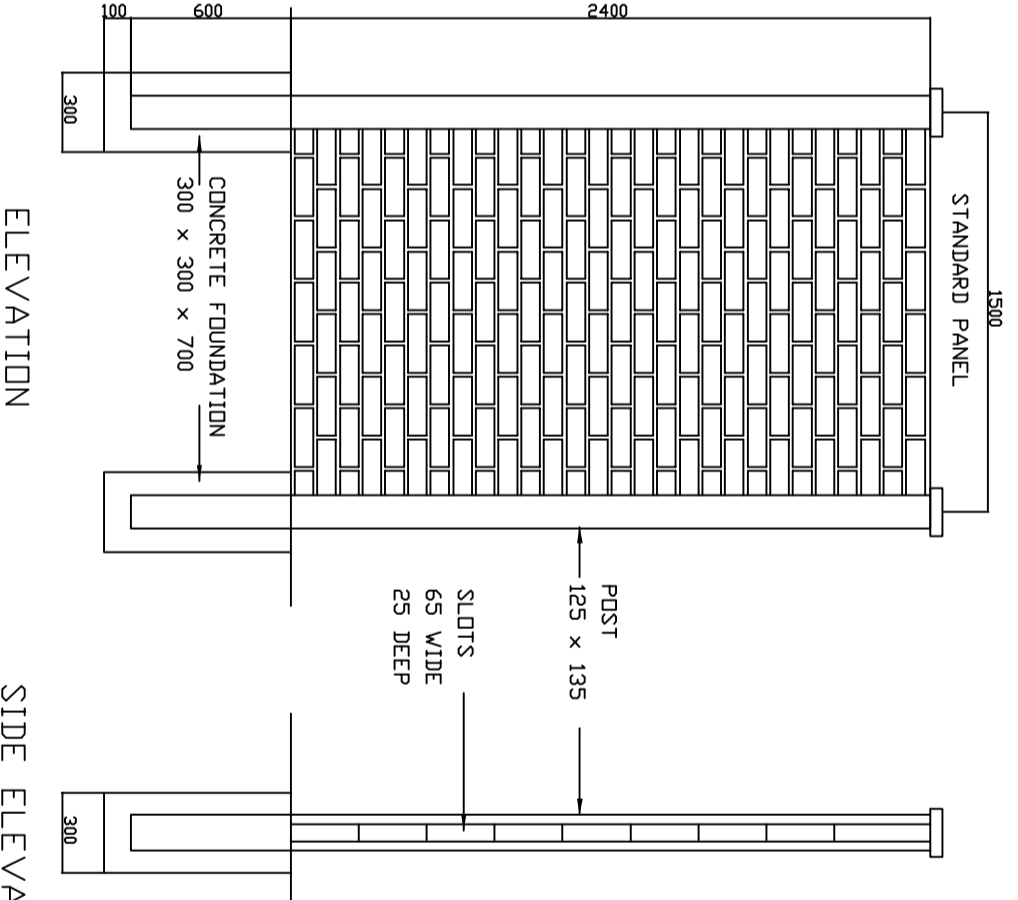
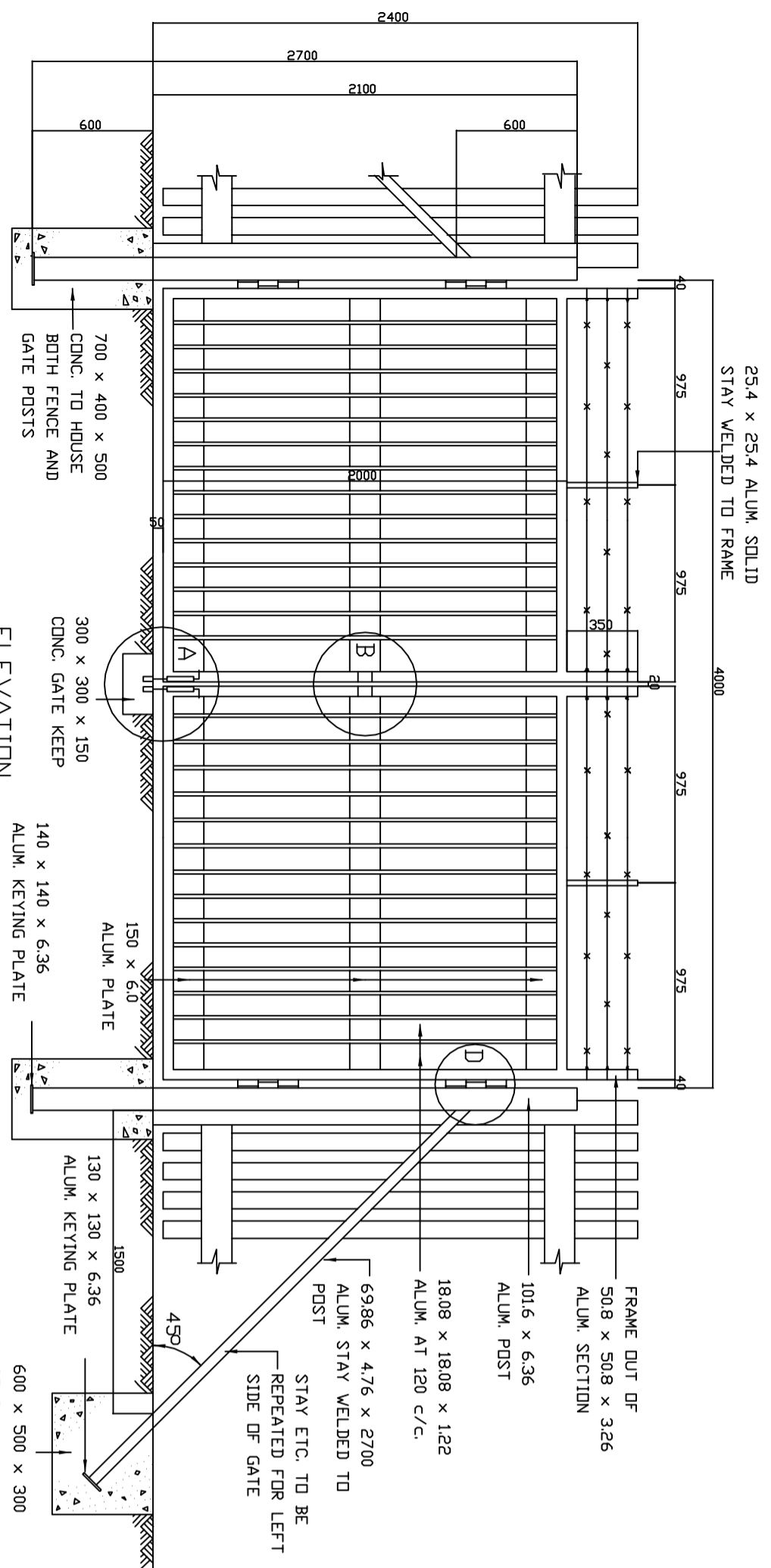
PIPE BEDDING DETAILS
SCALE: 1:10

Revision	Date	Description
1		NOTES: modifications made to concrete and bed and service regulations have been completed
2		Acquisitions completed
3		UNDERGROUND SERVICES CHECKED
4		APPROVED DATE: SIGNATURE:
5		DATE MADE:
6		DRAWN:
7		SCALE:
8		FILE CODE:
9		DATE:
10		BY:

Contract No.	
Project Title	
Standard Drawing	
Drawing Title	SUB-SOIL DRAIN, PIPE BEDDING AND PIPE PROTECTION DETAILS
Scale	DATE OF ISSUE AS SHOWN FEBRUARY 1990
Designed	Date: 1995-12-05
Checked	Drawn: V. RABINNETT
Manager: BDDO	
Director: Roads	
Author:	Executive Director
Drawing No.	Sheet
38575	of Sheets

PLAN DESCRIPTION	DWG. NO.
CONTINUED FROM	
CROSS SECTIONS	
TYPICAL CROSS SECTION	
SURVEY LAYOUT	

REDUCED PLAN USE SCALE BELOW
 0 10 20 30 40 50 60 70
 7mm ON ORIGINAL PLAN



NOTES :

- GATE POSTS TO BE SITED INTERNALLY BEHIND CONCRETE END POSTS WITH CLEARANCE OF 10 mm.
- BARBED WIRE TO BE 3 STRANDS OF 2.5 mm DOUBLE STRANDED ALUMINIUM.
- CONCRETE TO FOUNDATIONS TO BE GRADE 15 / 26.
- ALL SECTIONS TO BE SUITABLY CAPPED WITH 318 ALUM. PLATE.
- ALL JOINTS TO BE WELDED.
- WHERE ALUM. SECTIONS ARE TO BE ENCASED IN CONC. THEY ARE TO BE BITUMEN COATED TO PREVENT ALUM. / CONC. REACTION.
- GATE POST FRAMES AND STAYS TO BE HULLETS ALUMINIUM ALLOY D65 S - TF OR SIMILAR APPROVED.

AS SHOWN FEBRUARY 1990

Manager: RENO
 Director: I. Roode

Project Title: STANDARD DRAWING
 PRECAST CONCRETE FENCING AND ALUMINIUM GATES.

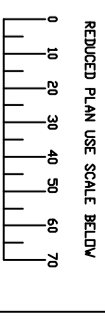
Revision	Date	Description

DATE OF ISSUE: FEBRUARY 1990

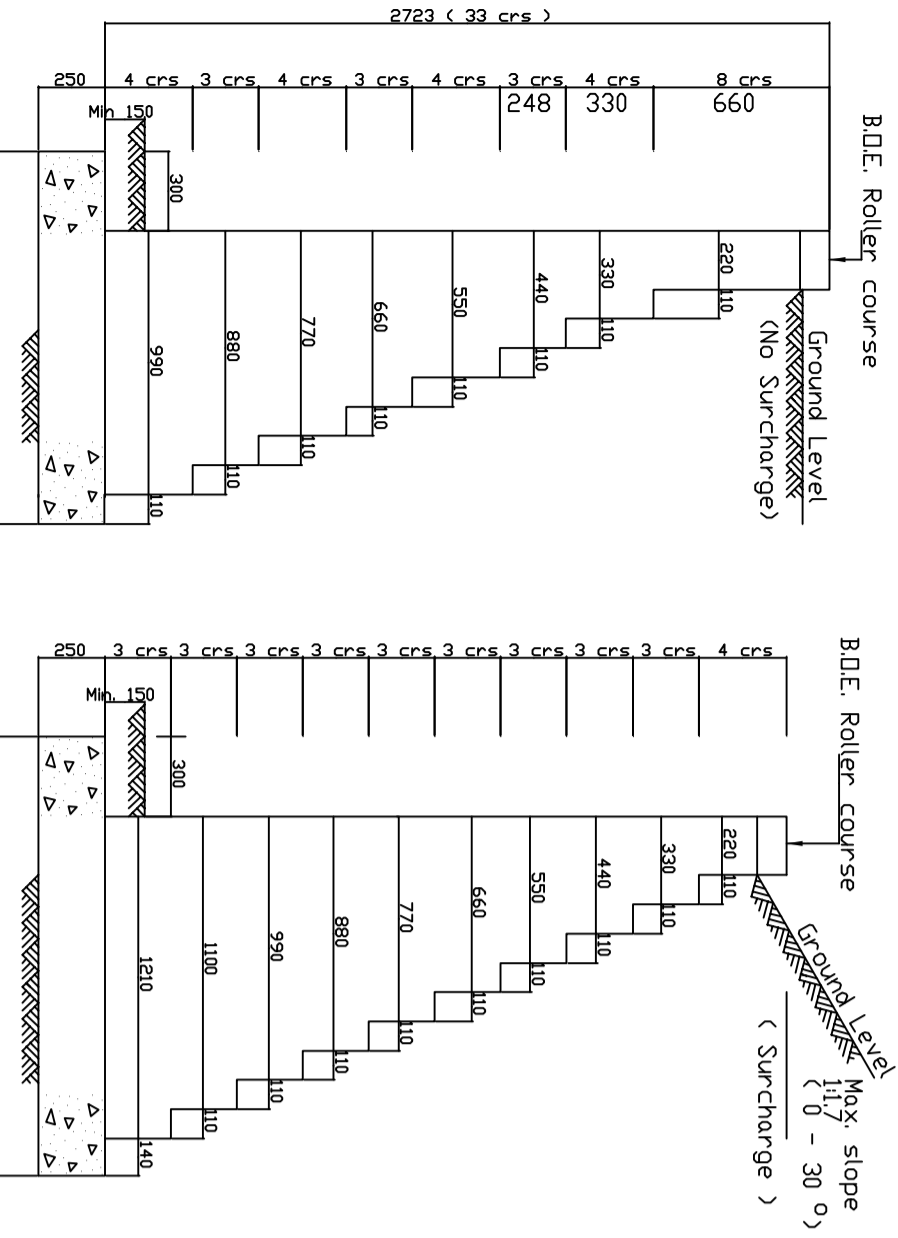
Drawn: V. BARBETT
 Checked: V. BARBETT

Project No: 38582

Sheet of Sheets: 1



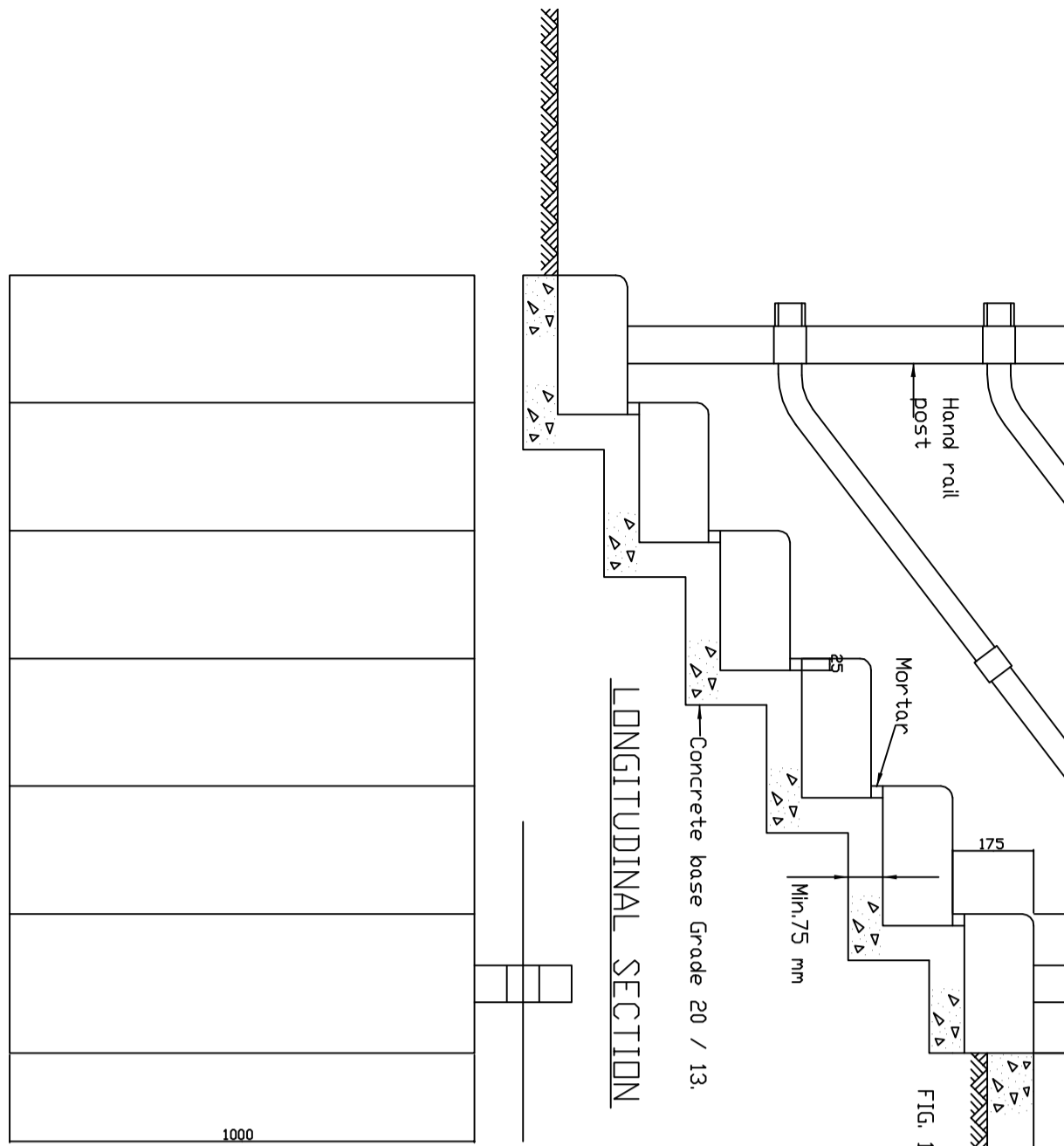
7mm in original plan



VERTICAL BRICK RETAINING WALL

SCALE 1:10

- NOTE 1 (RETAINING WALL)
1. Brickwork to be in English Bond grouted up solid.
2. Weepholes consisting of 75mm dia. A.C. pipes are spaced at 900mm c/c.
3. Concrete mix to be Grade 20 / 26.
4. Front face of walls are to consist of first quality red face bricks unless otherwise specified.
5. Face bricks are to be laid in stretcher bond and 'Brickforce' every 3rd course.
6. Vertical expansion joints are to be formed through the brickwork at 430m centres.

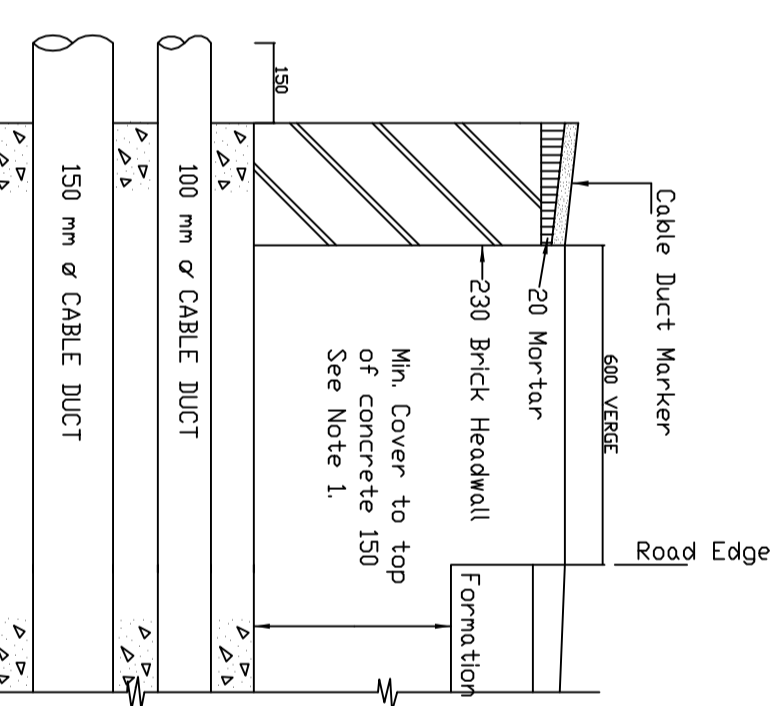
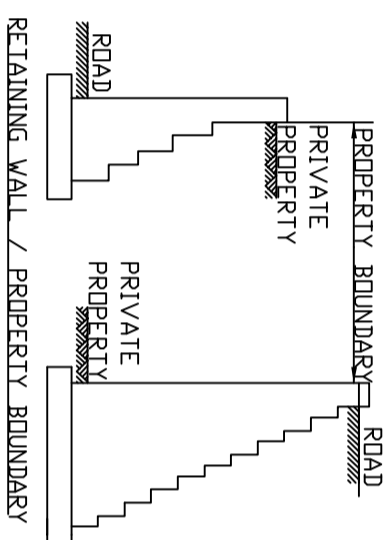


PRECAST STEPS AND STAIRCASE

SCALE 1:10

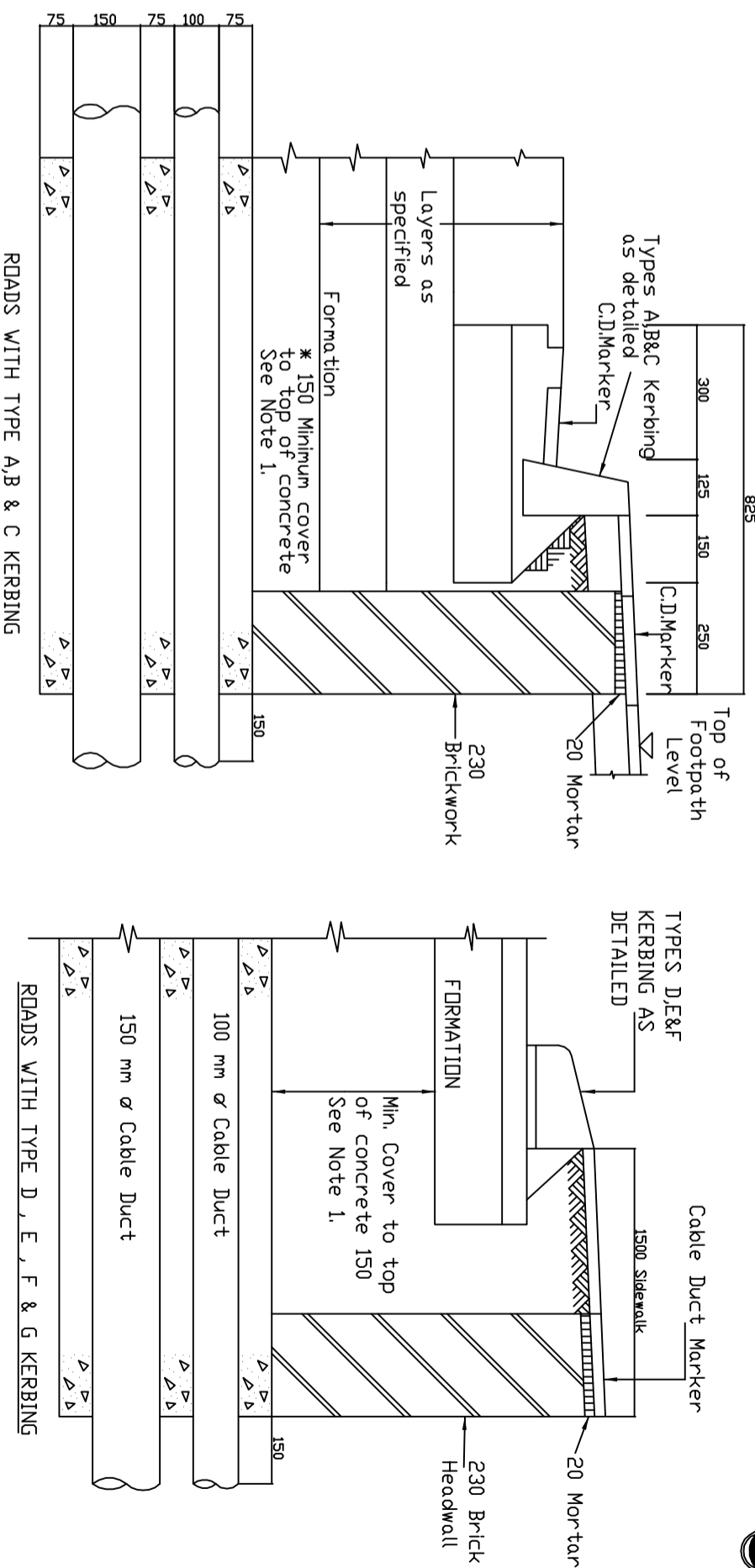
- NOTE 1 (CABLE DUCTS)
1. Details indicated apply to electrical LV & HV cables only. Duct details for 33 kV cables and greater voltages shall be indicated on the Project drawing.
2. Headwall to extend full width of specified No. of Ducts.
3. Duct surrounds are to vary according to the location of the Ducts:
a) Road Crossing: Ducts shall generally be encased in grade 10 / 26 concrete. Encasement dimensions as shown on the section.
b) Verges & Minor Roads: Ducts shall be bedded in a selected granular material backfill. The granular bedding is to be laid to a height of 150 mm above the top duct.

Table with 2 columns: Precast Product Units, Cable duct marker (38855), Concrete handrail (38853), Posts (38857), Steps (38857)



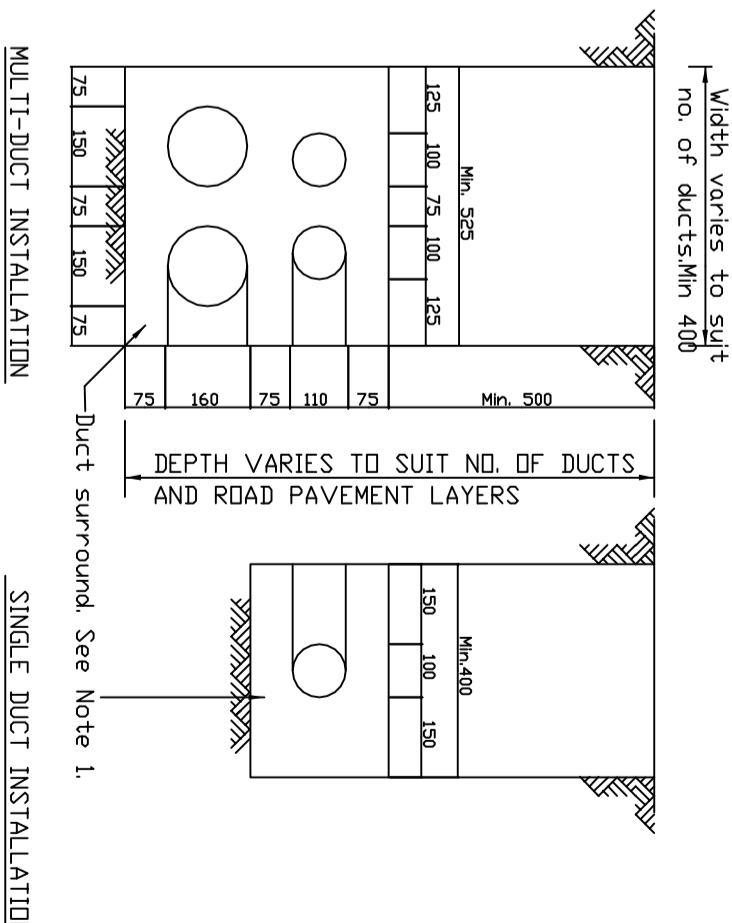
DETAIL OF CABLE DUCT MARKER AND HEADWALL

SCALE 1:10



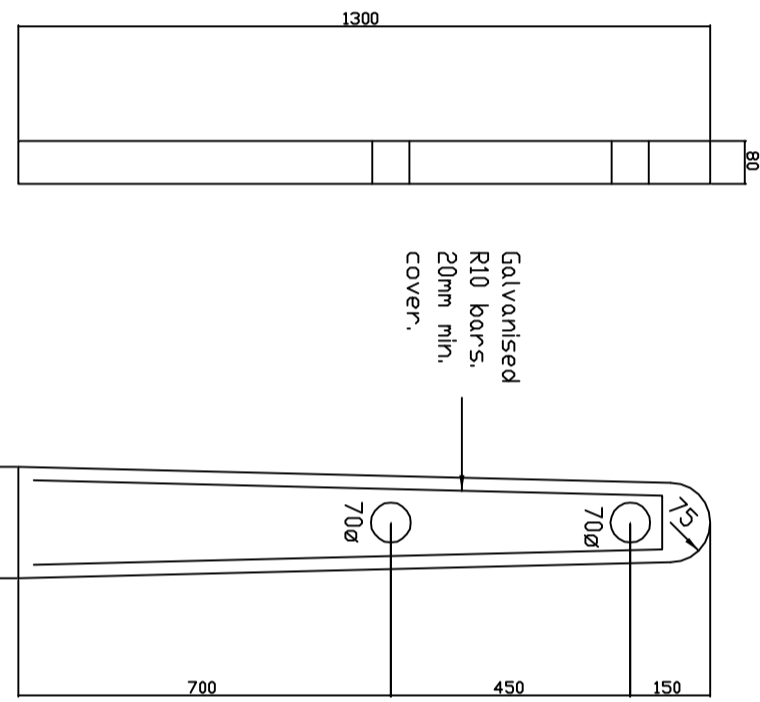
DETAIL OF CABLE DUCT MARKER AND HEADWALL

SCALE 1:10



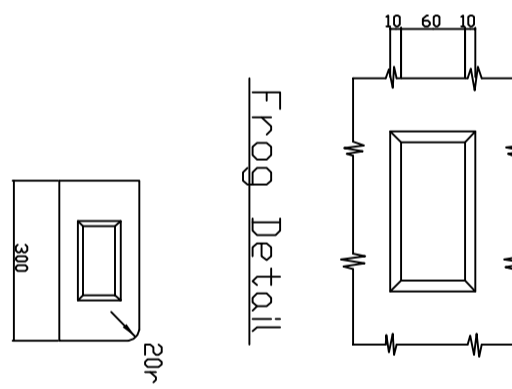
TYPICAL DETAIL OF DUCT LAYOUT

SCALE 1:10



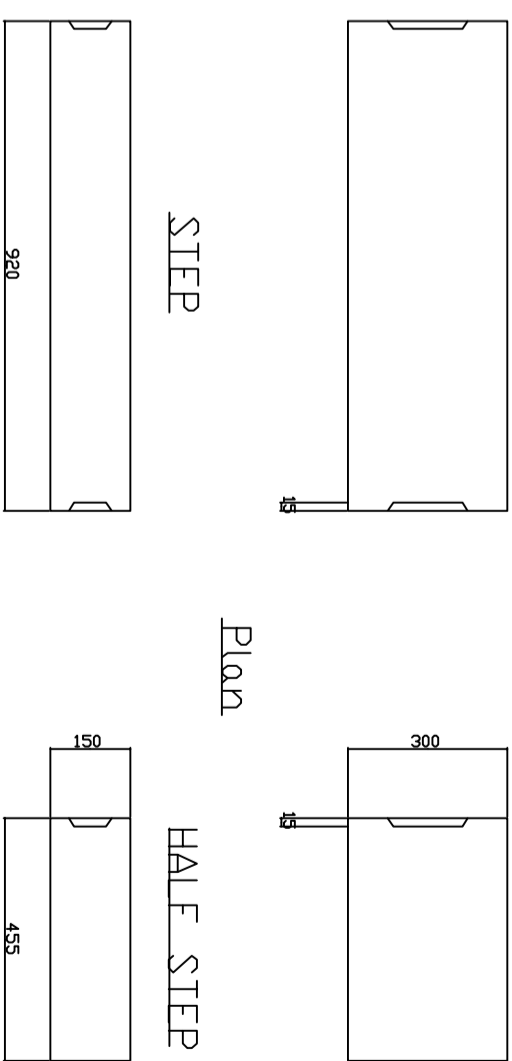
HAND RAIL POST

Concrete 30/13 Tolerance +3mm



Frog Detail

End Elevation



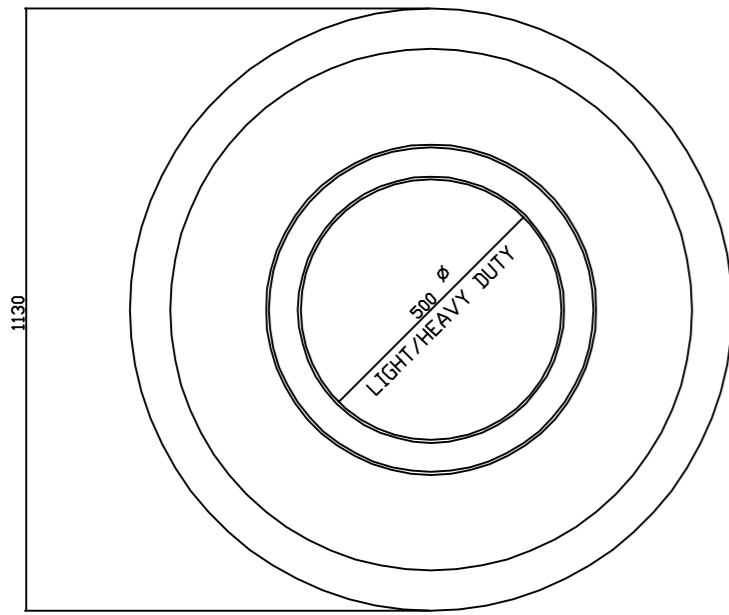
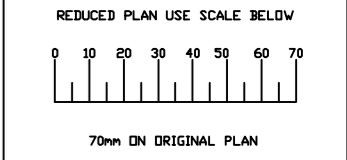
PRECAST STEP DETAILS

Elevation

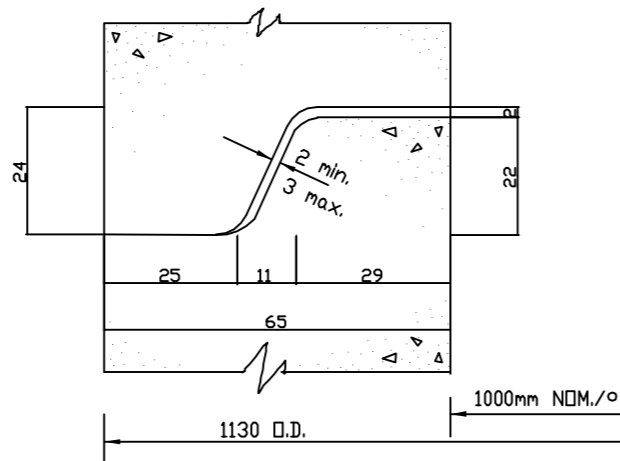
Standard drawing information including drawing title (Retaining Wall, P.C. Steps, Staircase Cable Ducts and Headwalls), scales, and project details.



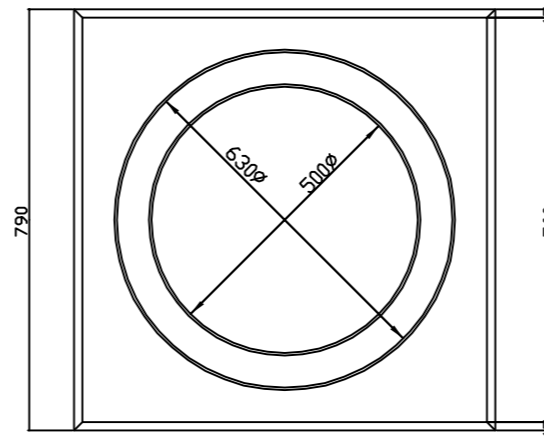
PLAN DESCRIPTION	DWG. NO.
CONTINUED FROM	
CONTINUED ON	
CROSS SECTIONS	
TYPICAL CROSS SECTION	
SURVEY LAYOUT	



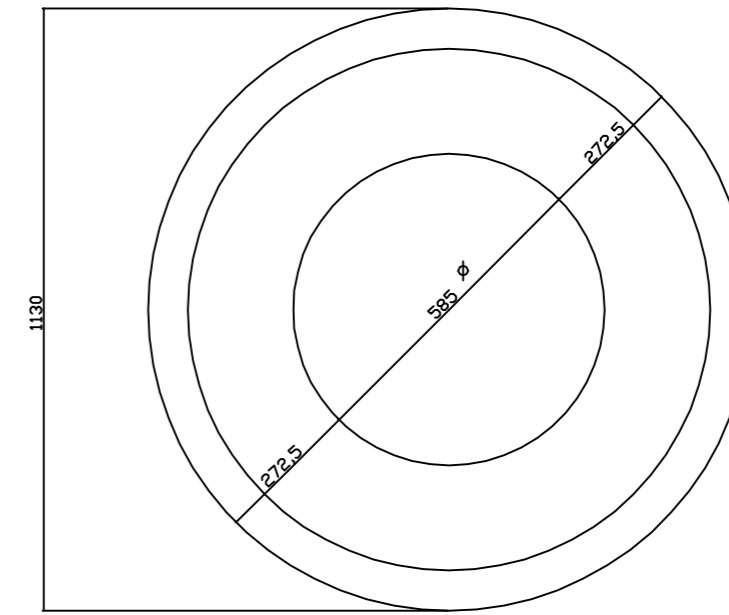
PLAN OF CIRCULAR LIGHT AND HEAVY DUTY FRAME FOR 1000 NOM. DIA. MANHOLE



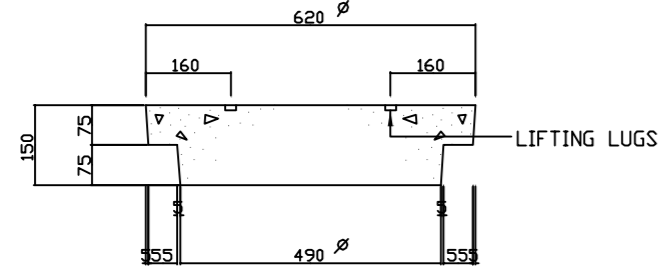
ALL RADII TO BE 10mm
DETAIL OF JOINT



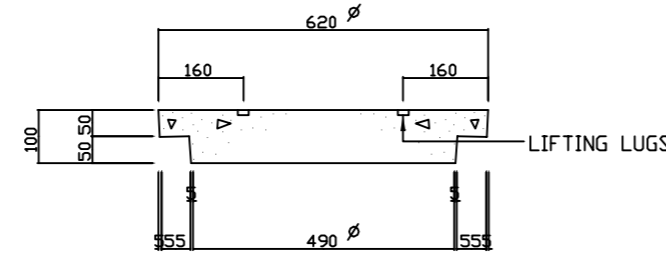
PLAN



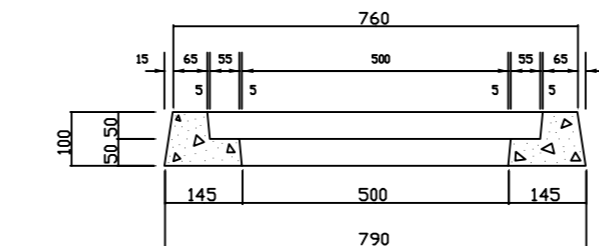
PLAN OF CIRCULAR COVER SLAB



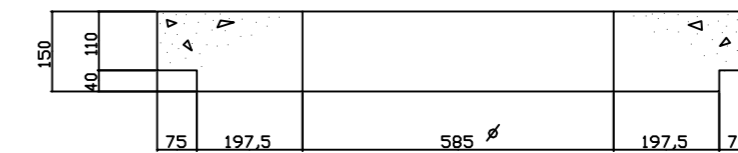
SECTION OF CIRCULAR HEAVY DUTY MH COVER



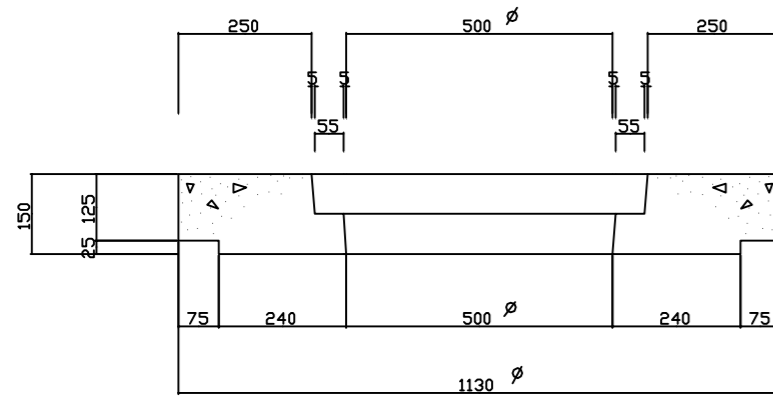
SECTION OF CIRCULAR LIGHT DUTY MH COVER



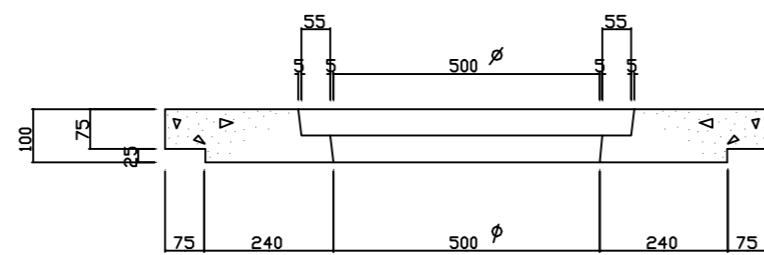
SECTION OF LIGHT DUTY SQUARE MANHOLE FRAME



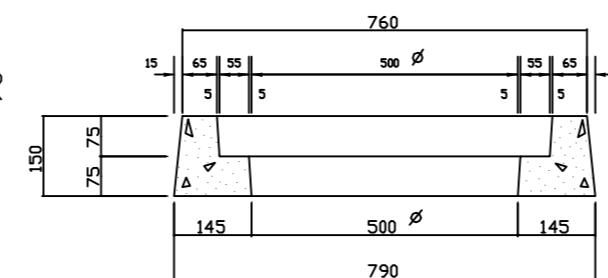
SECTION OF CIRCULAR COVER SLAB



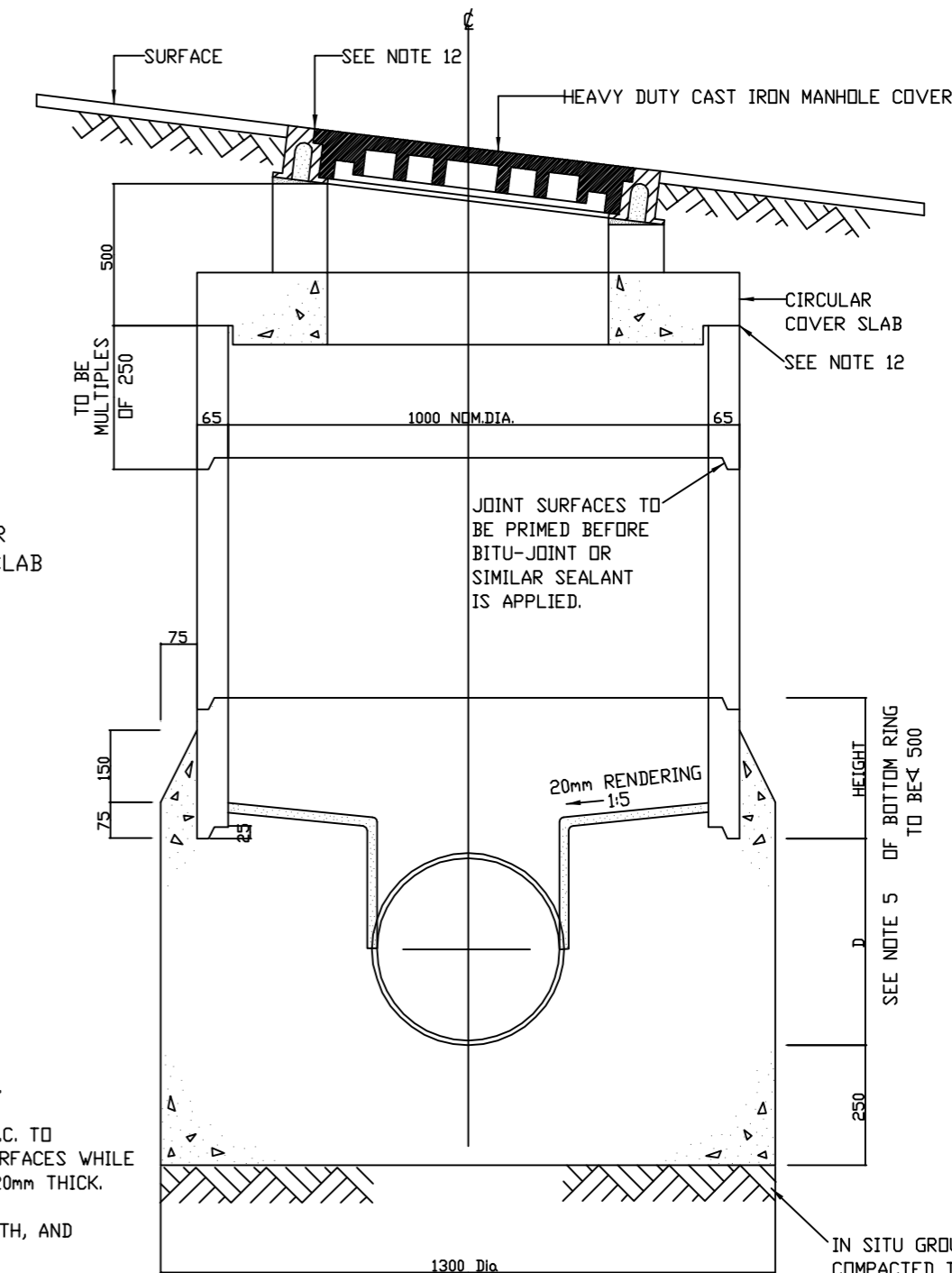
SECTION OF CIRCULAR HEAVY DUTY M.H. FRAME



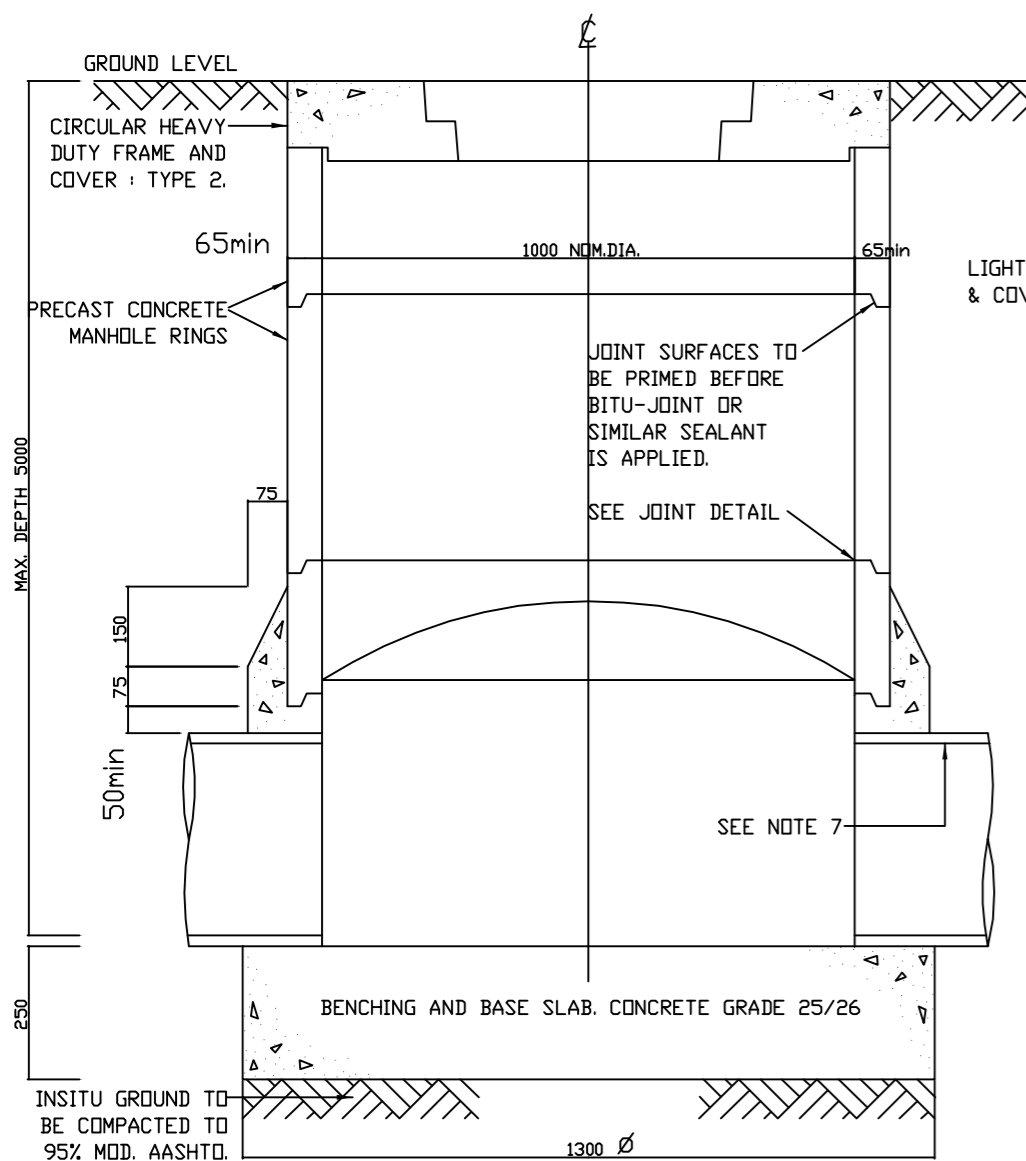
SECTION OF CIRCULAR LIGHT DUTY MH FRAME



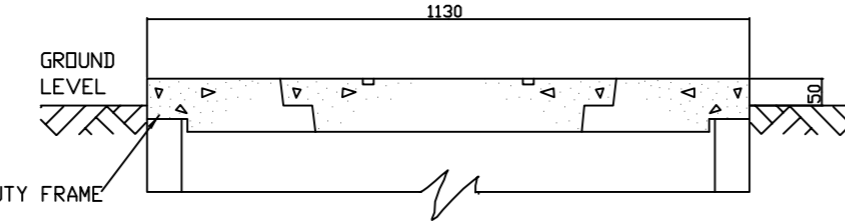
SECTION OF HEAVY DUTY SQUARE MANHOLE FRAME.



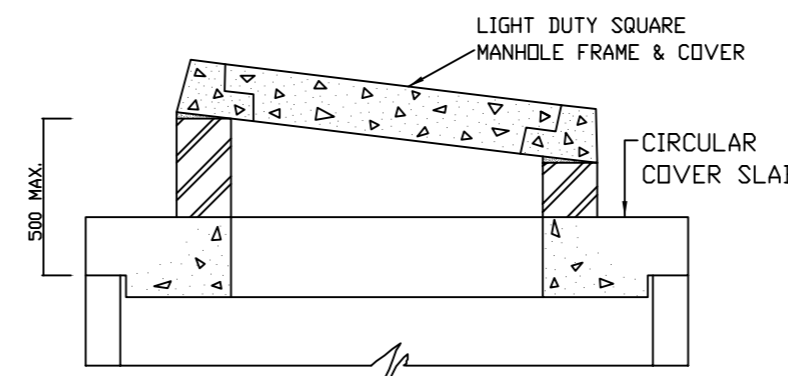
SECTION OF 1000 DIA. MANHOLE



SECTION OF 1000 DIA. MANHOLE



SECTION OF CIRCULAR LIGHT DUTY MANHOLE COVER AND FRAME



SECTION OF LIGHT DUTY SQUARE MANHOLE FRAME AND COVER

NOTES:

- GENERAL
 - ALL PRECAST CONCRETE MANHOLE COMPONENTS TO COMPLY WITH THE REQUIREMENTS OF S.A.B.S.1294 (WHERE APPLICABLE)
 - LENGTHS OF INDIVIDUAL WALL UNITS ARE TO VARY IN MULTIPLES OF 250mm.
 - HEAVY DUTY CAST IRON COVERS AND FRAMES TO DRG.NO.DMW1281/A ARE TO BE USED ON MANHOLES UNDER VEHICULAR TRAFFIC.
 - FOR DETAILS OF STEEL REINFORCEMENT TO MANHOLE COVERS, COVER SLABS AND FRAMES - SEE STANDARD PRECAST DETAILS LISTED ABOVE.
- STORMWATER MANHOLE
 - DIMENSION D VARIES WITH THE DIAMETER OF THE PIPES. DIMENSION D SHALL BE TO A POINT 50mm ABOVE THE HIGHEST CROWN OF THE PIPES.
 - RENDERING FOR MANHOLE BENCHING SHALL CONSIST OF 1 PART CEMENT TO 3 PARTS SAND THOROUGHLY MIXED AND APPLIED TO CONCRETE SURFACES WHILE THE LATTER ARE STILL GREEN. RENDERING SHALL BE AT LEAST 20mm THICK.
 - THE LENGTH OF PIPE BUILT INTO THE MANHOLE SHALL NOT EXCEED 2.5m.

- SEWER MANHOLE:-
 - THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING 38574.
 - RENDERING FOR MANHOLE BENCHING SHALL CONSIST OF 1 PART H.A.C. TO 2 PARTS SAND THOROUGHLY MIXED AND APPLIED TO CONCRETE SURFACES WHILE THE LATTER ARE STILL GREEN. RENDERING SHALL BE AT LEAST 20mm THICK.
 - ALL PIPES BUILT INTO MANHOLES SHALL NOT EXCEED 1.0m IN LENGTH, AND THE ADJOINING PIPE SHALL NOT EXCEED 2.0m IN LENGTH.
 - EVERY U.P.V.C. PIPE BUILT INTO A MANHOLE SHALL HAVE CLEAN DRY SAND (TO S.A.B.S. 1083 TABLE 1.) GLOUED TO ITS OUTSIDE AS RECOMMENDED BY PIPE MANUFACTURER USING SPECIAL PVC CEMENT (HENKEL S.A. PTY. LTD. TANGIT OR SIMILAR) TO ENSURE GOOD ADHESION TO BASE CONCRETE.
 - IN LOCATIONS DEFINED BY THE ENGINEER AS SUBJECT TO FLOODING, C.I. MANHOLE COVERS AND JOINTS SEALED WITH BOSTIK BUTYL TAPE OR SIMILAR, SHALL BE USED.

PRECAST PRODUCT DETAILS	
RING MANHOLES	38850
CIRCULAR FRAMES AND COVER SLAB	38851
SQUARE MANHOLE FRAMES	38852
MANHOLE COVERS	38853

Revision	Date	Description

NOTE: No construction work to commence until land and servitude acquisitions have been completed.

Acquisitions completed

Service	Date	Signature
SEWERS		
WATER MAINS		
SPACABLES		
ELECTRIC CABLES		
SAR CABLES		
E.C. CABLES		
DL PIPE LINE		

NOTE: All underground services affected by any construction work are shown. Care must be taken during excavation for road foundations, trenches etc. to avoid damage to underground services such as sewers, electric cables, water mains and connections. Wherever possible these must be located before work proceeds.

Contract No	
Project Title	

STANDARD DRAWING

Drawing Title

RING MANHOLES

Scales	DATE OF ISSUE
1:10	FEBRUARY 1990

Designed	Date
	1995-12-05

Checked	Drawn
	C.E.S.

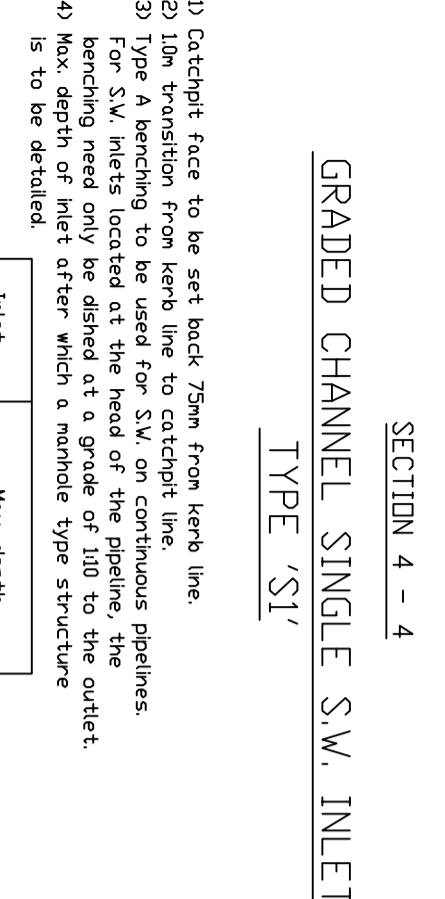
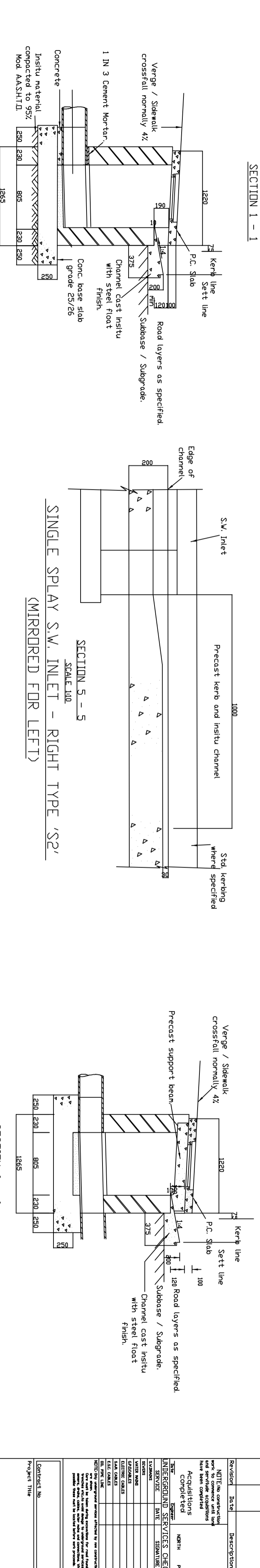
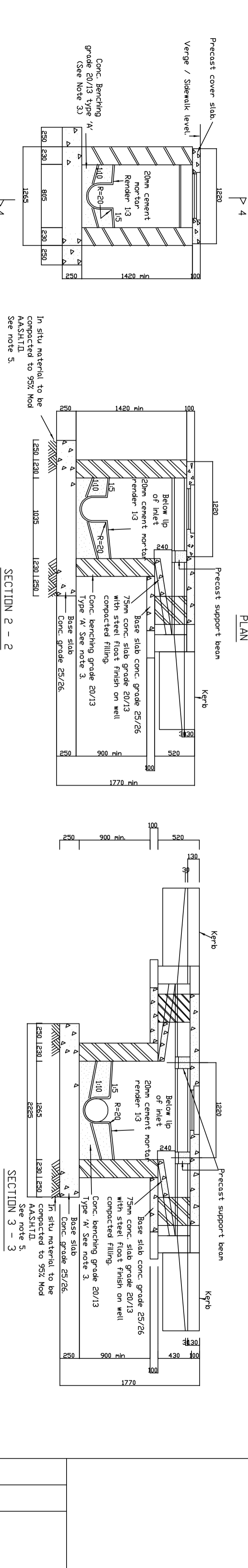
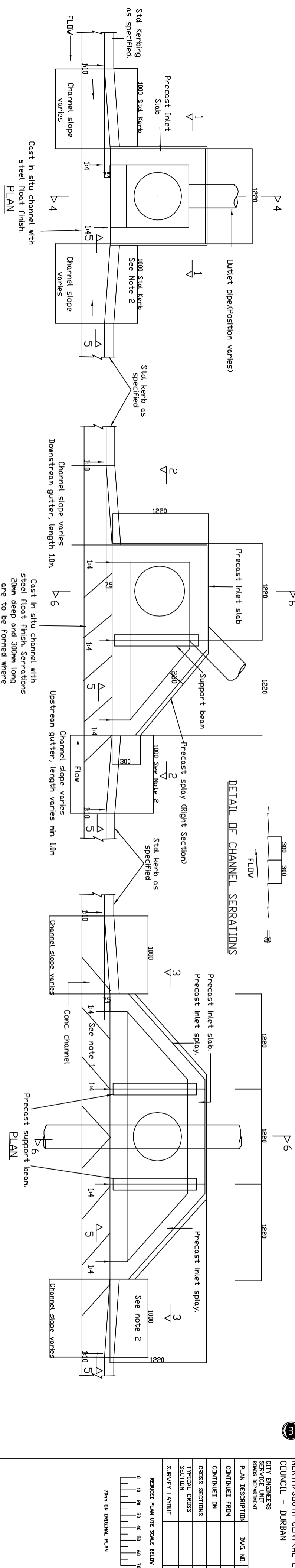
Manager: RDOD

Director: Roads

RAMoore Executive Director

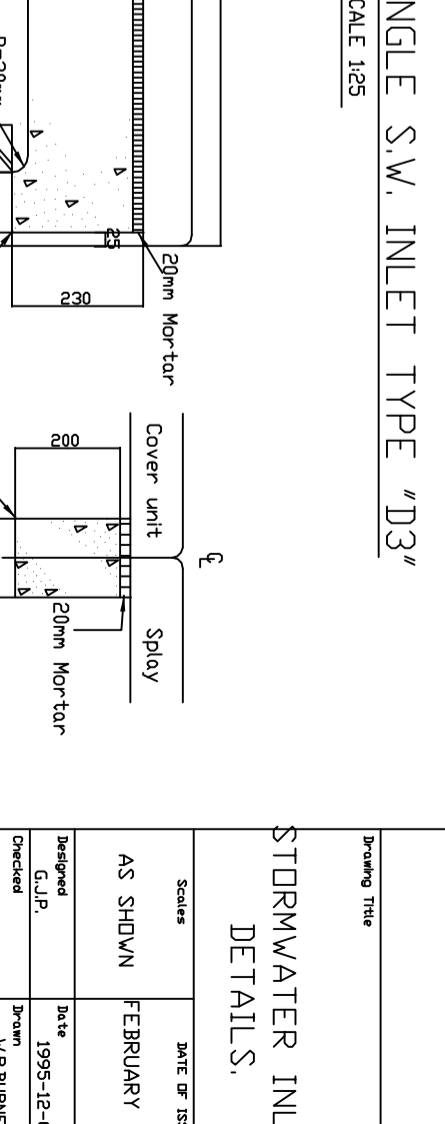
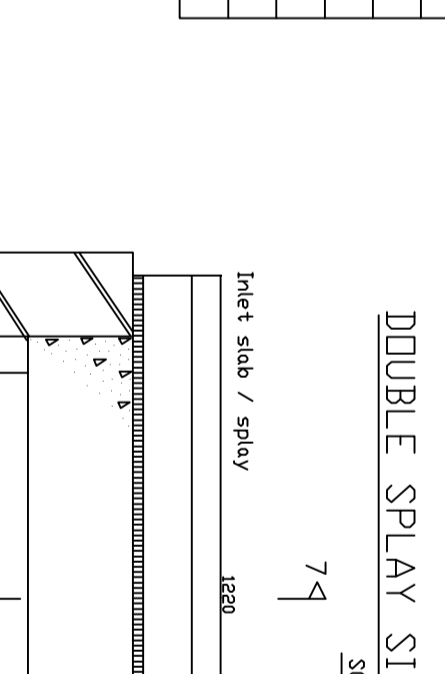
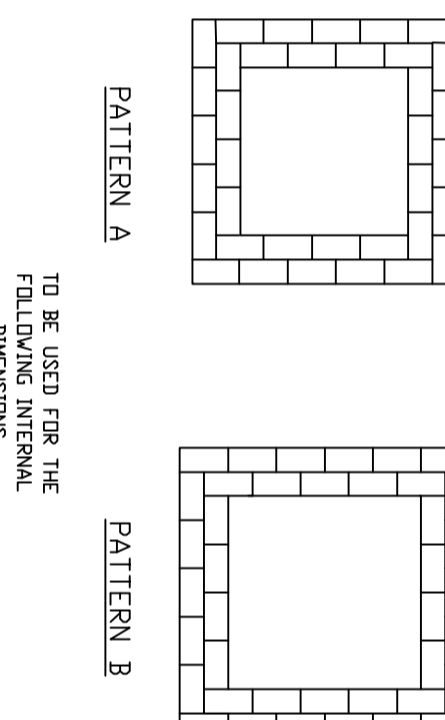
Drawing No	38570	Sheet of	Sheets
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CITY ENGINEERS SERVICE UNIT	DWG. NO.
ROADS DEPARTMENT	PLAN DESCRIPTION
CONTINUED ON	CONTINUED FROM
TYPICAL CROSS SECTIONS	SURVEY LAYOUT
REDUCED PLAN USE SCALE BELOW	70mm ON ORIGINAL PLAN



GRADED CHANNEL SINGLE S.W. INLET TYPE 'S1'

PRECAST CONCRETE UNIT	DRG.No.
Inlet cover support beam	38854
Inlet slab	38854
Plan inlet slab	38854
Standard inlet splay	38854
Light duty MH Cover	38853



- Catchpit face to be set back 75mm from kerb line.
- 10m transition from kerb line to catchpit line.
- Type A benching to be used for S.W. on continuous pipelines. For S.W. inlets located at the head of the pipeline, the benching need only be dished at a grade of 1:10 to the outlet.
- Max. depth of inlet after which a monode type structure is to be detailed.

PRECAST CONCRETE UNIT

Inlet Type	Max. depth (F.R.L. Invert)
S	2.0
D	3.0

PRECAST CONCRETE UNIT

Inlet cover support beam	DRG.No.
0 - 2%	1 m
2 - 4%	2 m
4 - 6%	3 m
6 - 8%	4 m
> 8%	5 m

BRICK LAYING PATTERNS

SCALE 1:25

BEAM POSITION DETAILS

SCALE 1:10

STANDARD DRAWING

STORMWATER INLET DETAILS.

AS SHOWN FEBRUARY 1990

Checked: W.F. BURNETT

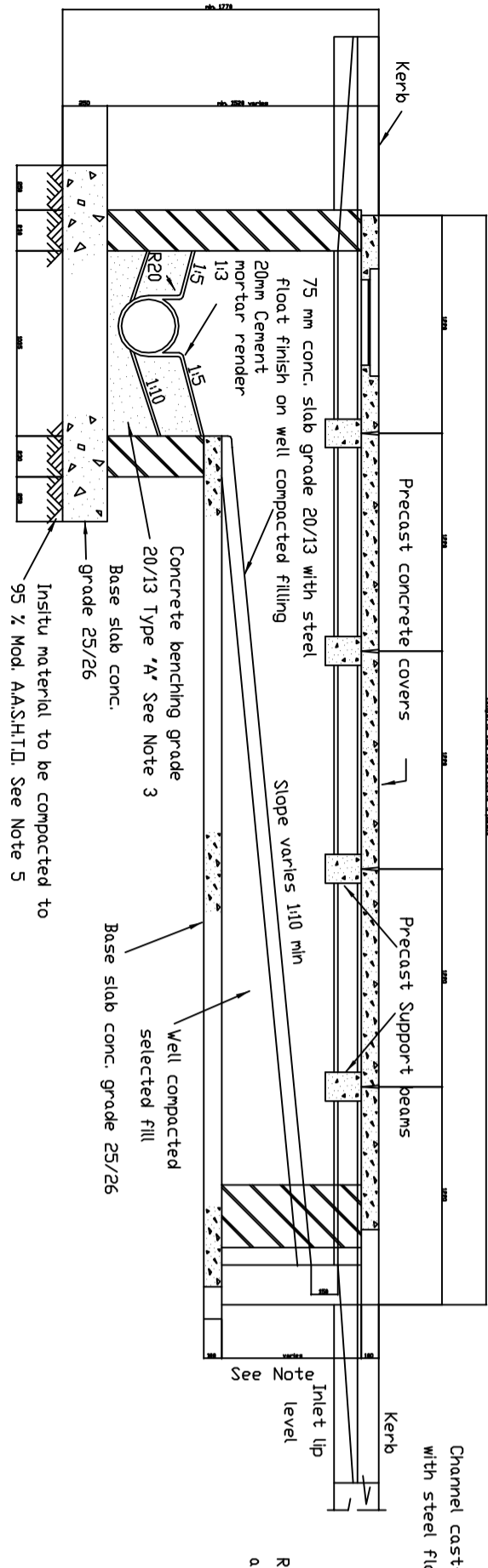
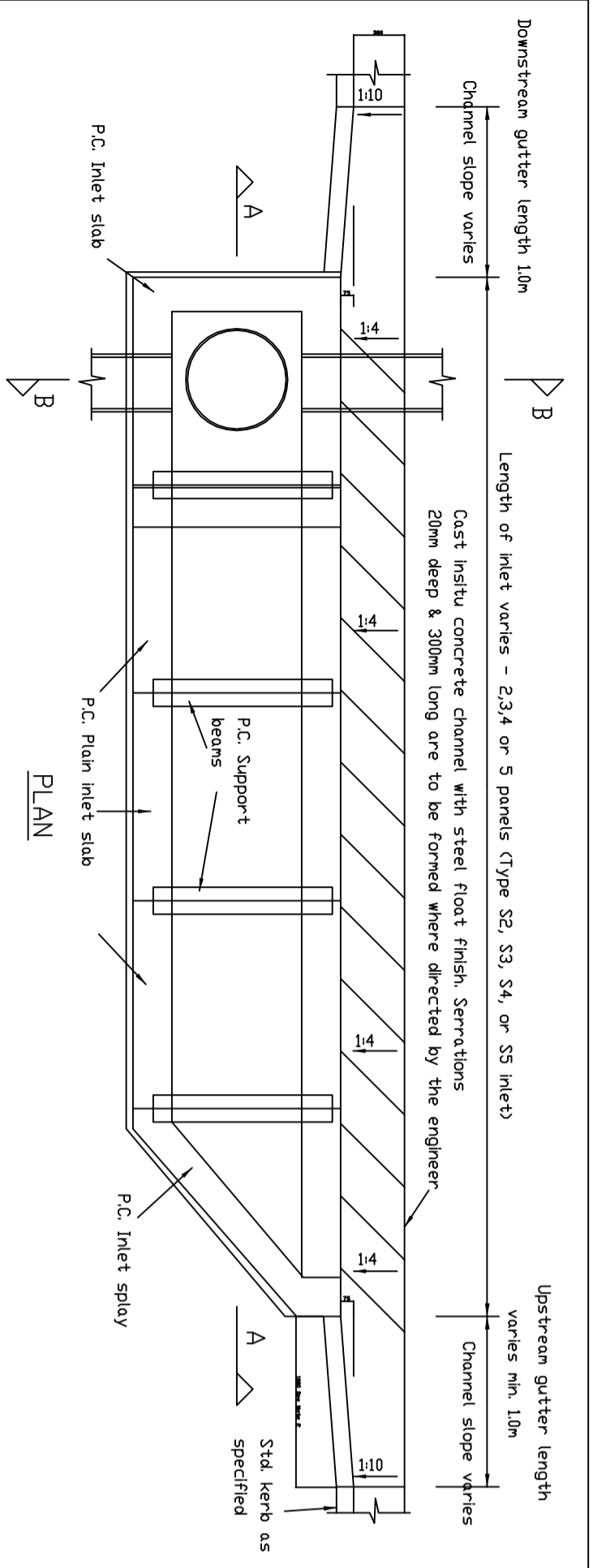
Drawn: W.F. BURNETT

Manager: R. B. B.

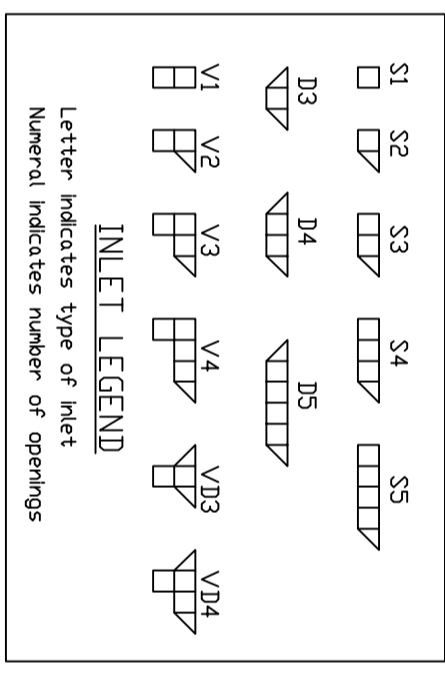
Director: J. B. B.

Project Title: 38572

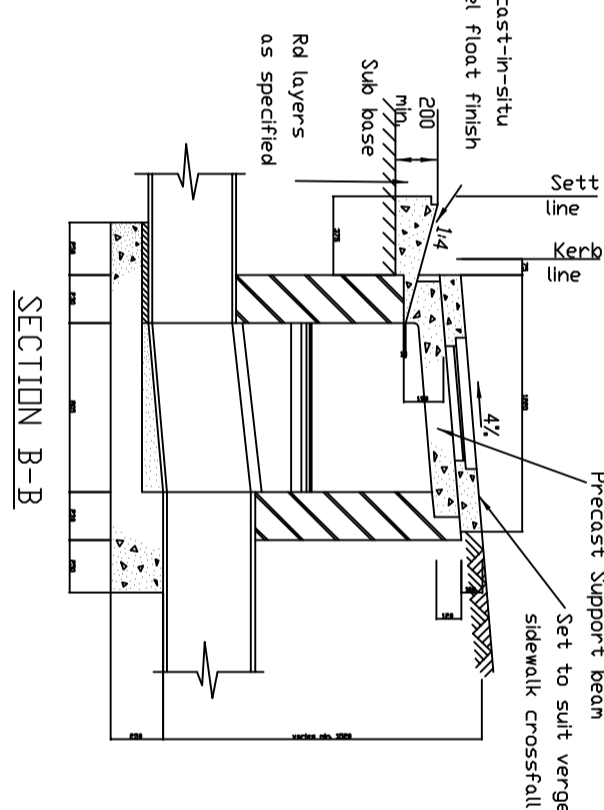
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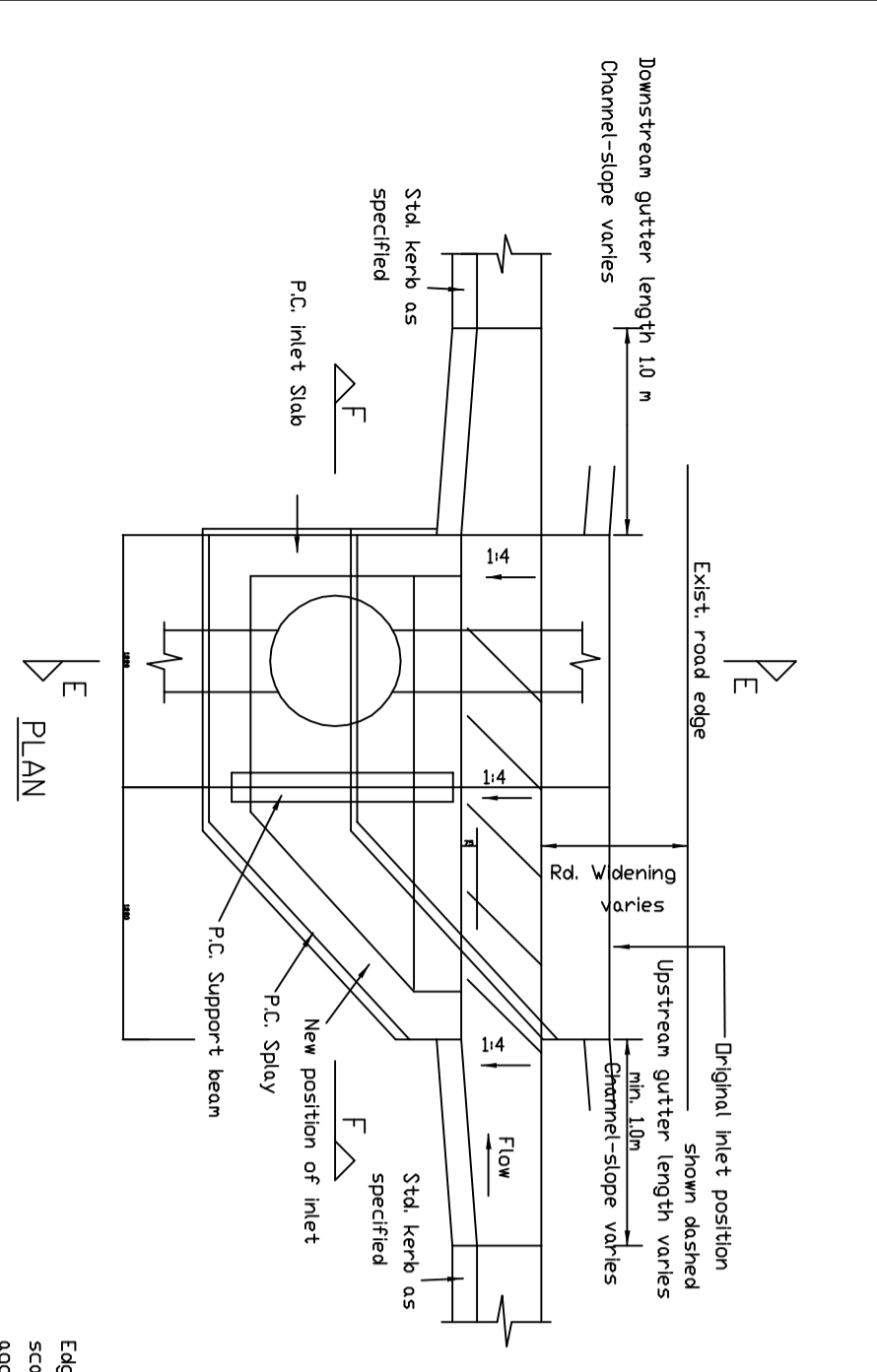
SECTION A-A
DETAIL OF SINGLE INLET TYPE " S "
SCALE 1 : 25



DETAIL OF CHANNEL SERRATIONS



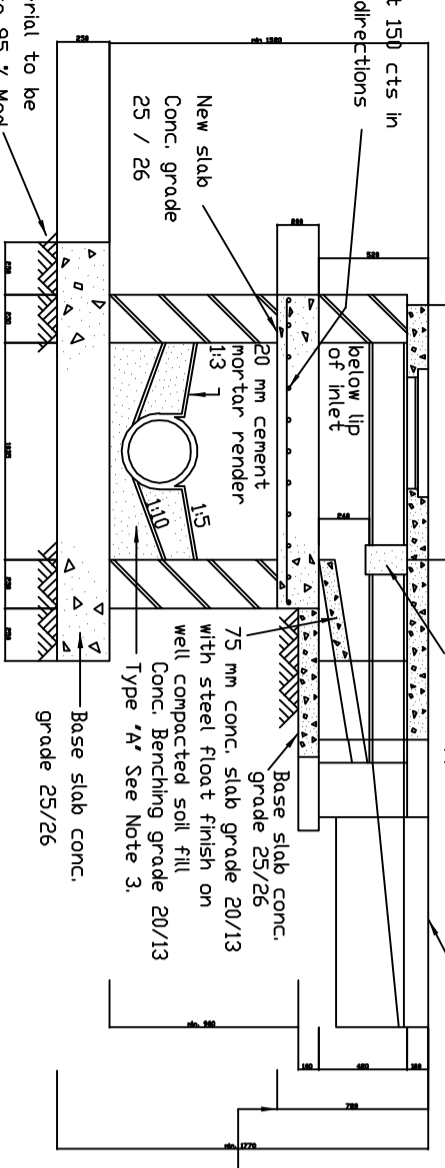
SECTION B-B
This dimension varies between 420 to 640 depending on the number of bays



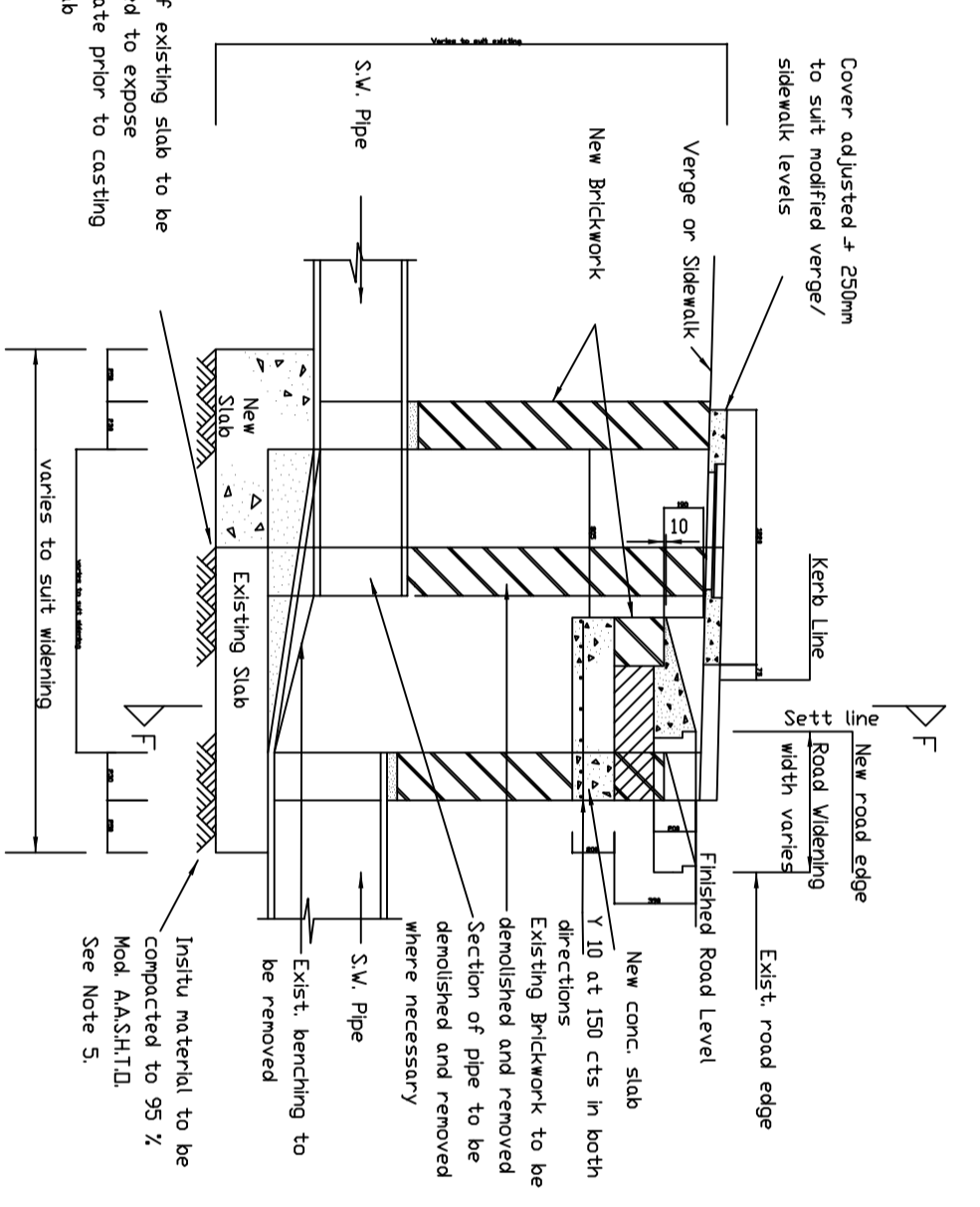
PLAN

Edge of existing slab to be scabbled to expose aggregate prior to casting new slab

Exist. inlet to be demolished to this level

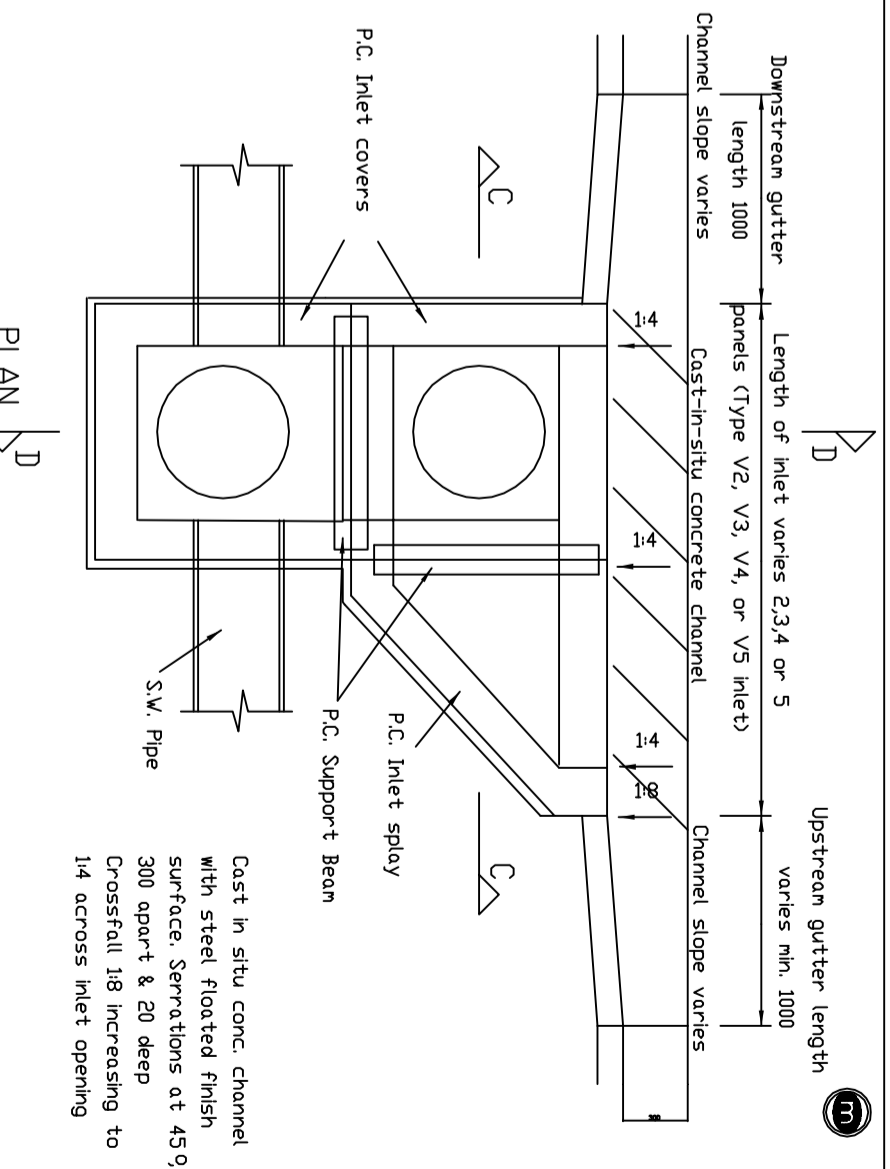


SECTION F - F

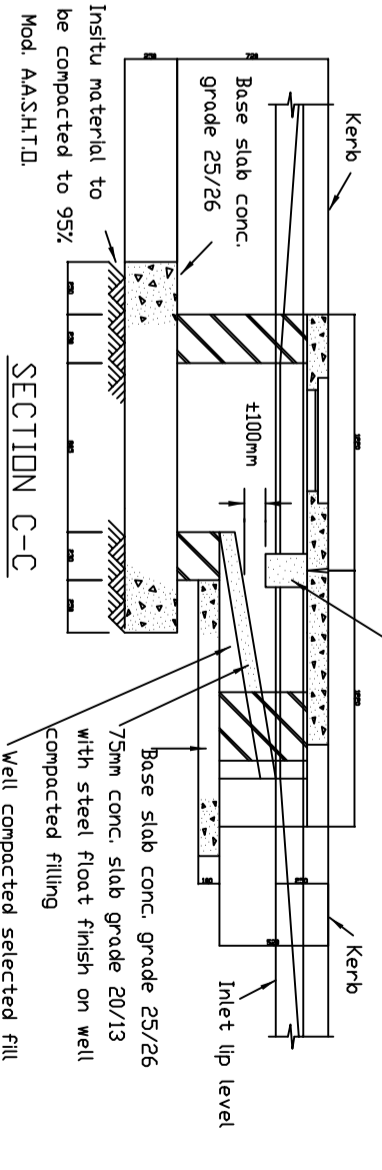


SECTION E-E
DETAILS OF INLET / MANHOLE AFFECTED BY ROAD WIDENING
SCALE 1 : 25

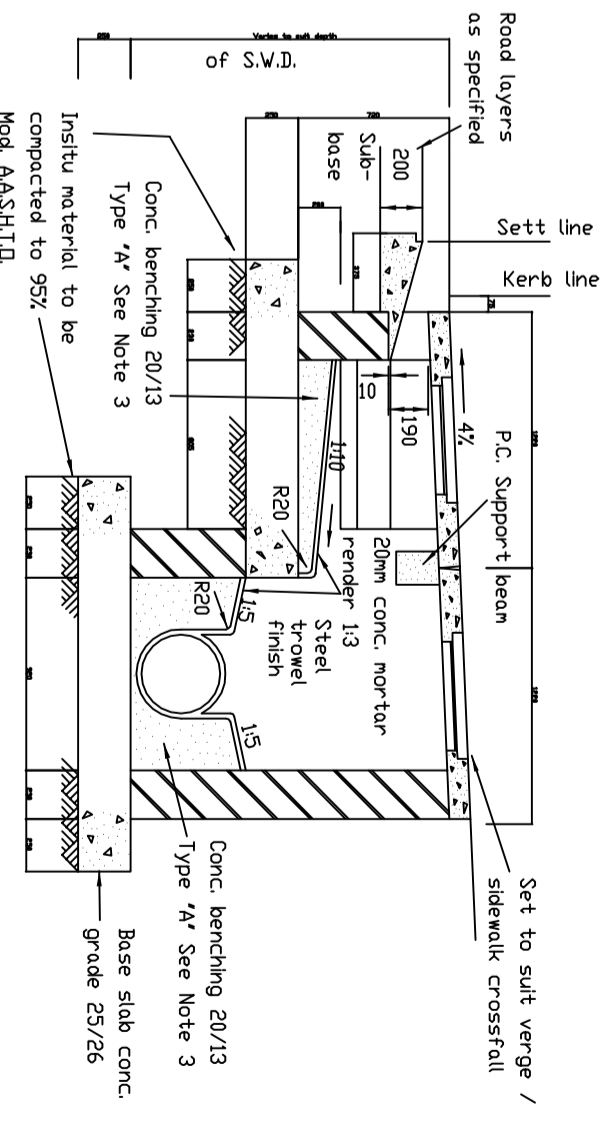
Note :
Width of inlet as indicated on Section F-F will vary depending on type of inlet. The dimensions are to conform with the details shown on DWG. No. 38572 (NB, TYPE S 2 shown)



PLAN



SECTION C-C



SECTION D-D
DETAILS OF INLETS TO SUIT S.W.D. IN VERGES TYPE " V "
SCALE 1 : 25

- GENERAL NOTES :
- Catchpit face to be set back 75mm from kerb.
 - 10m transition from kerb line to catchpit line.
 - Type A benching to be used for S.W. inlets on continuous pipelines. For S.W. inlets located at the head of the pipeline, the benching need only be dished at a grade of 1:10 to the outlet.
 - Max. depth of inlet after which a manhole type structure is to be detailed following-

Inlet Type	Max. depth (TRL-Invert)	S	D
S	2.0		
D	3.0		

PRECAST CONC. UNIT	DWG. NO.
Inlet cover support beam	38854
Inlet slab	38854
Plain inlet slab	38854
Standard inlet splay	38854
Light duty M.H. cover	38853

ROAD GRADE	UPSTREAM GUTTER LENGTH
0 - 2%	1m
2 - 4%	2m
4 - 6%	3m
6 - 8%	4m
> 8%	5m

NORTH/SOUTH CENTRAL LOCAL COUNCIL - DURBAN

CITY ENGINEERS SERVICE UNIT

ROADS DEPARTMENT

PLAN DESCRIPTION DWG. NO.

CONTINUED ON

CONTINUED FROM

CROSS SECTIONS

TYPICAL CROSS SECTION

SURVEY LAYOUT

REDUCED PLAN USE SCALE BELOW

0 10 20 30 40 50 60 70

70mm ON ORIGINAL PLAN

Revision: 1: 10/11/1990 Description: No construction work to commence until land has been surveyed and approved. Have been considered.

Acquisitions: NORTH POINT

UNDERGROUND SERVICES CHECKED: DATE: SIGNATURE:

EXAMINED: DATE: SIGNATURE:

DESIGNED: DATE: SIGNATURE:

DRAWN: DATE: SIGNATURE:

DATE OF ISSUE: FEBRUARY 1990

AS SHOWN

STORMWATER INLET SPECIAL DETAILS

Manager: RHOBO

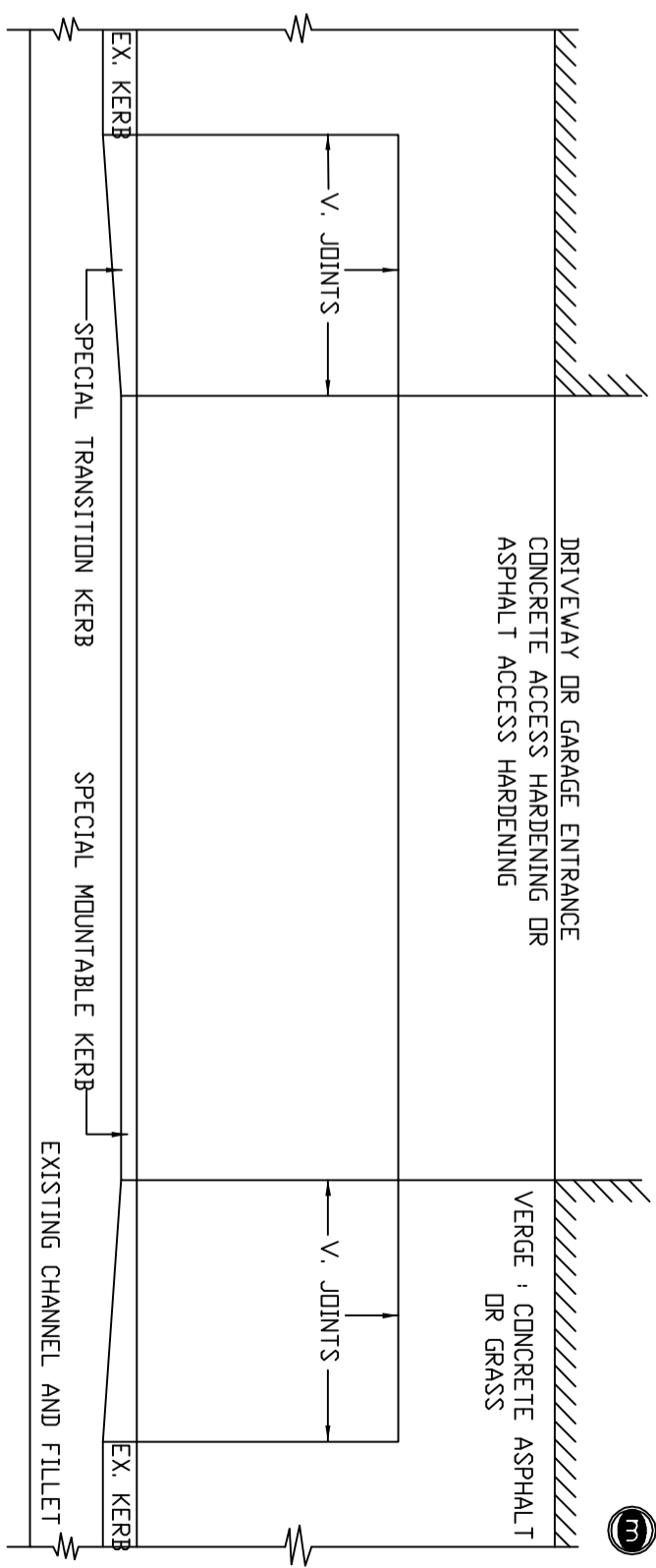
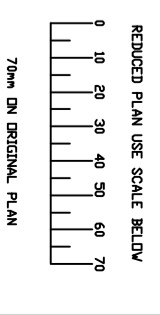
Director: ROOBE

Author: 38573

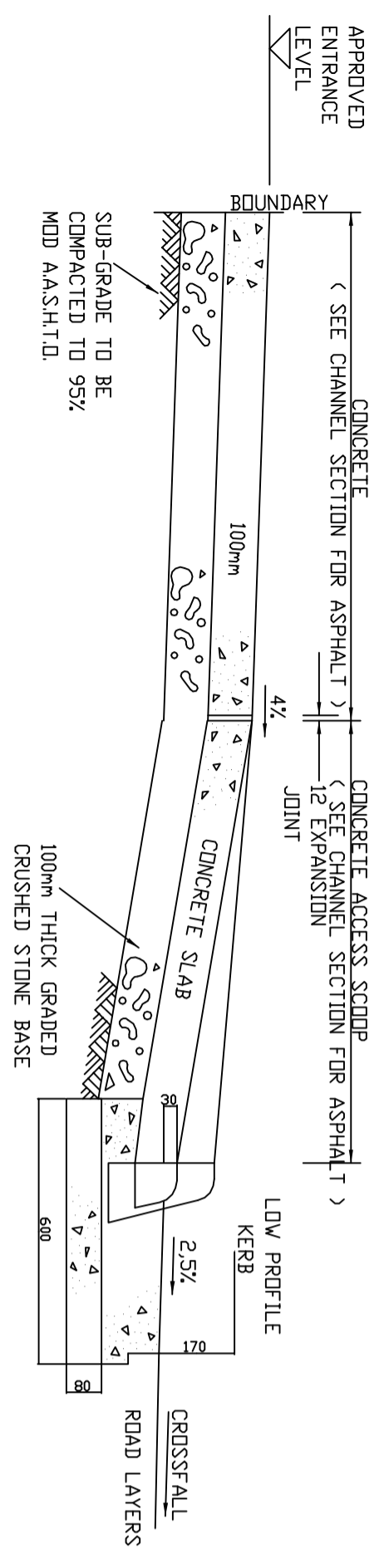
Executive Director

Sheet of Sheets

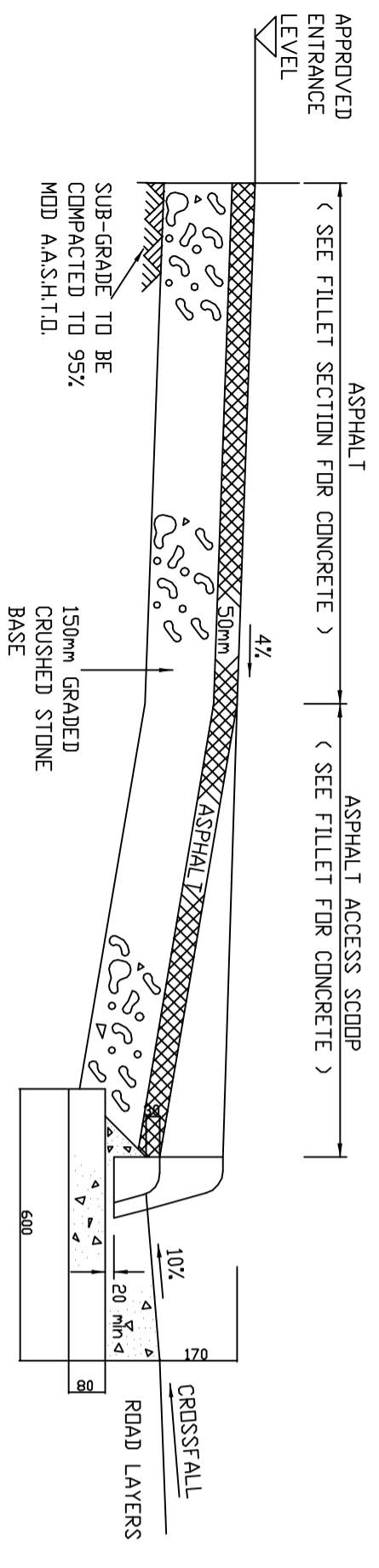
CITY ENGINEERS ROADS DEPARTMENT	DWG. NO.
PLAN DESCRIPTION	
CONTINUED FROM	
CROSS SECTIONS	
TYPICAL CROSS SECTION	
SURVEY LAYOUT	



PLAN OF ACCESS SCODP
(CONCRETE SCODP DETAILS)
SCALE 1 : 20

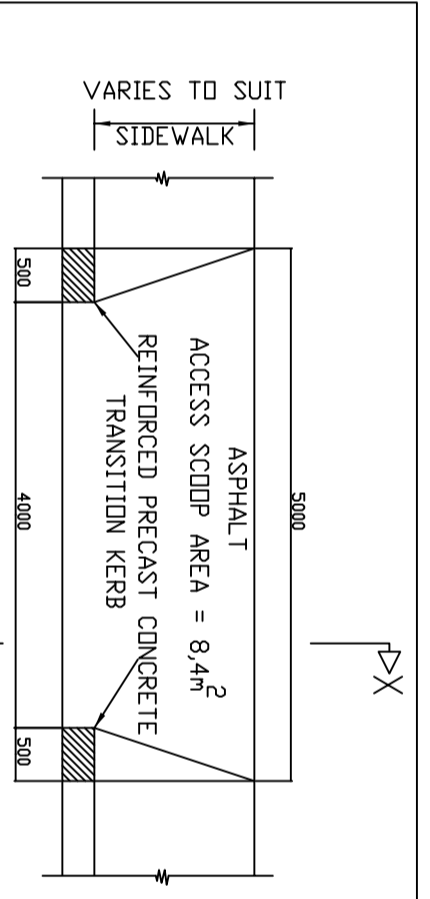


SECTION SHOWING TYPE 'A' KERB AND FILLET AND CONCRETE SURFACING TYPE 'B' (COMMERCIAL) SHOWN
SCALE 1:10



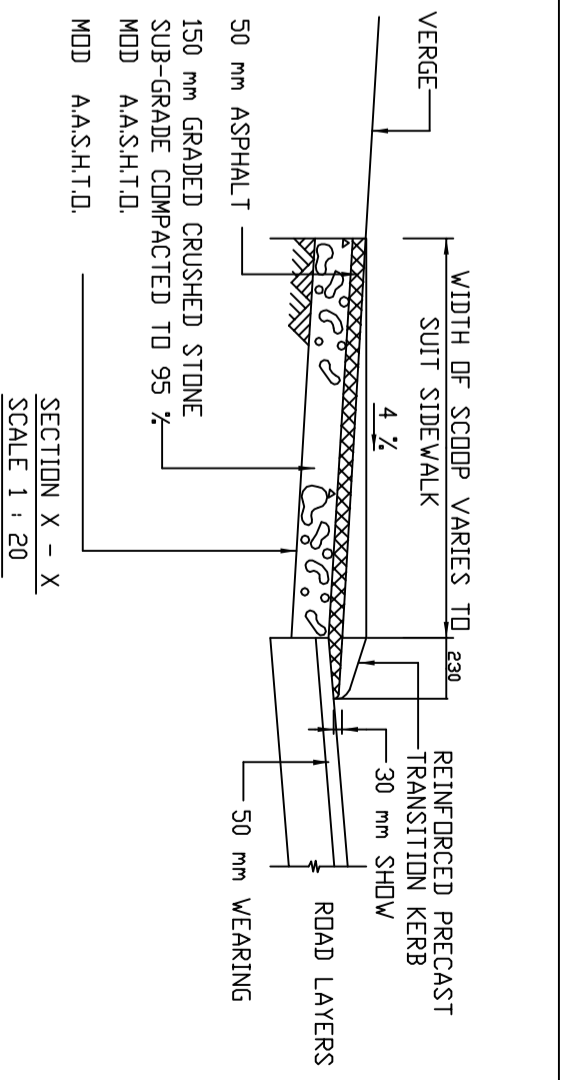
SECTION SHOWING TYPE 'A' KERB AND CHANNEL AND ASPHALT SURFACING TYPE 'A' (RESIDENTIAL) SHOWN
SCALE 1:10

ACCESS SCODP USED IN CONJUNCTION WITH TYPES A,B & D KERBING.

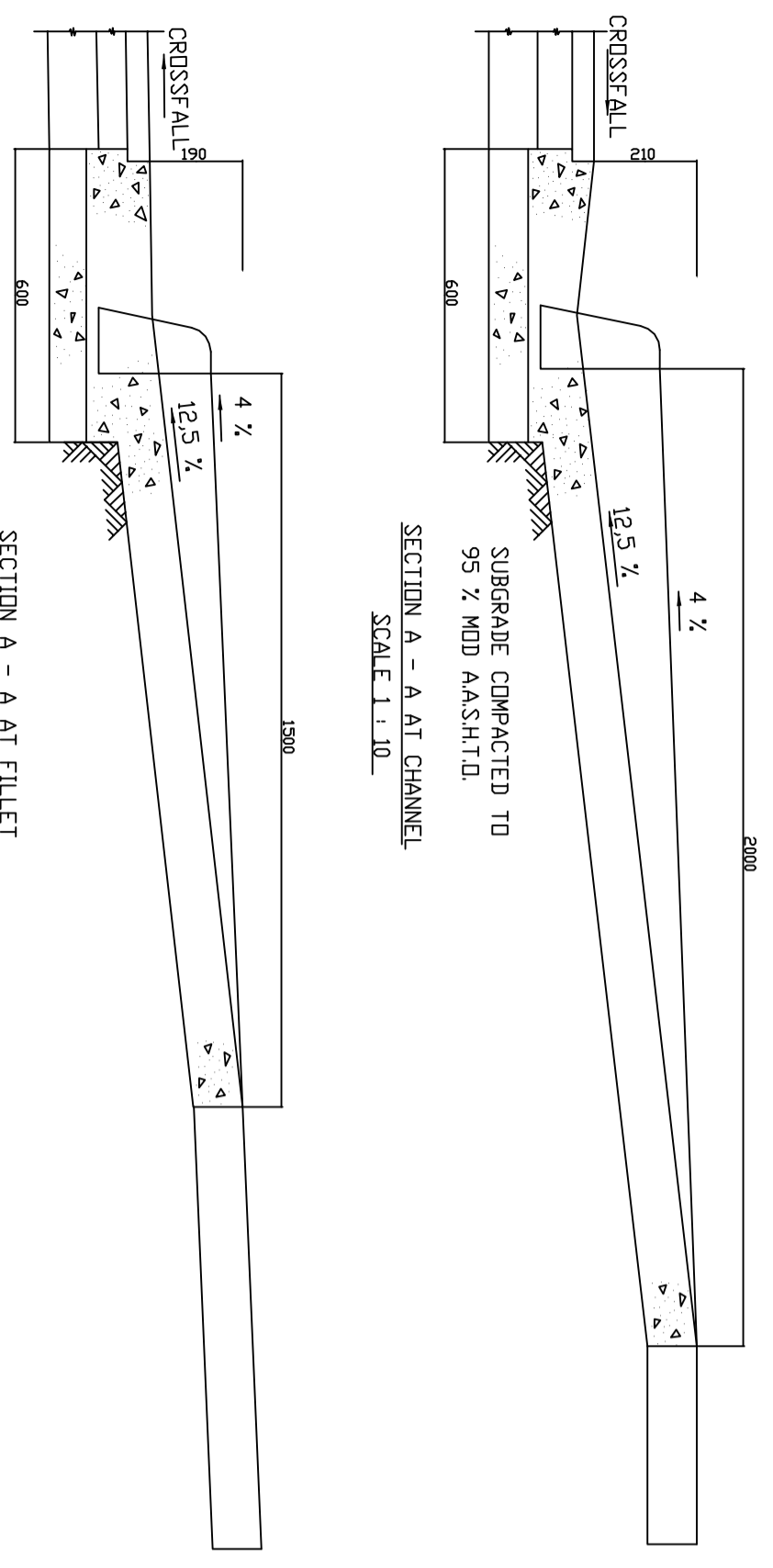


PLAN
SCALE 1:50

ACCESS SCODP - I USED IN CONJUNCTION WITH TYPE 'A' KERBING
(ASPHALT SURFACING TYPE 'A' (RESIDENTIAL) SHOWN)

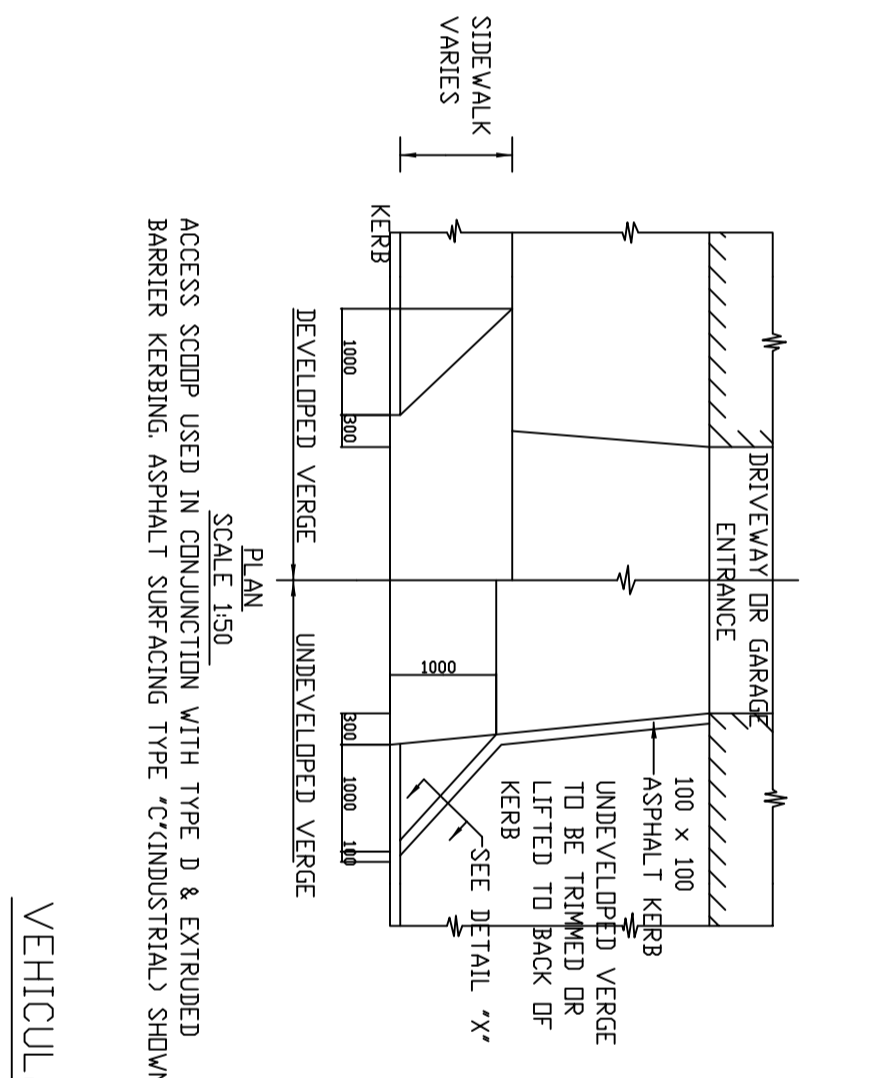


SECTION X - X
SCALE 1 : 20



SECTION A - A AT CHANNEL
SCALE 1 : 10

SECTION A - A AT FILLET
SCALE 1 : 10

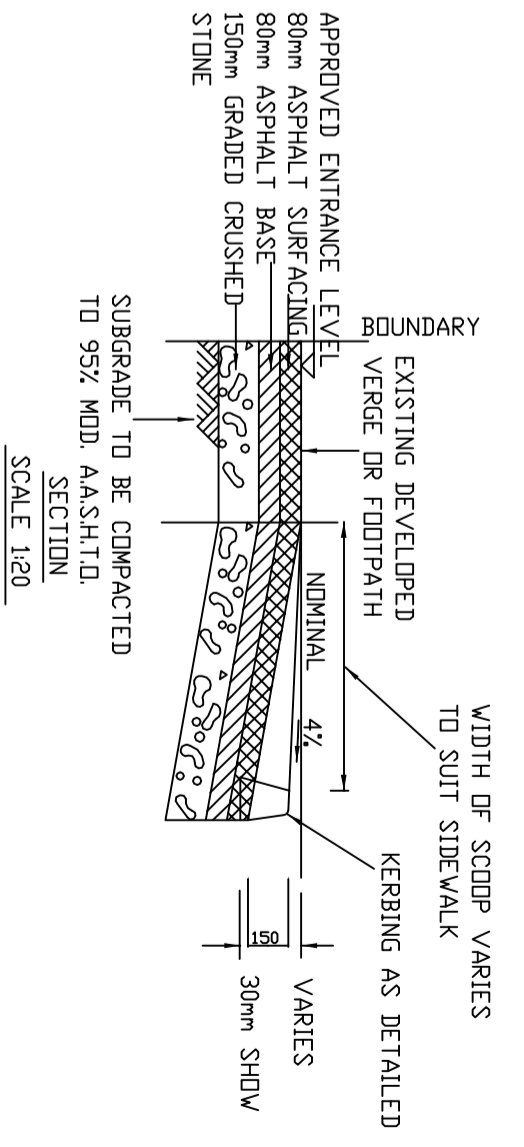


PLAN
SCALE 1:50

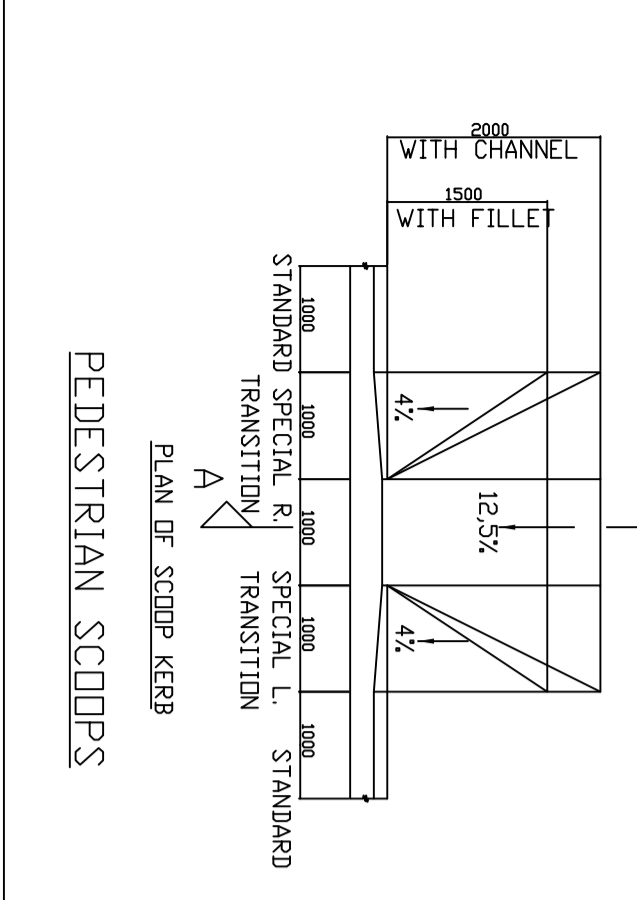
ACCESS SCODP USED IN CONJUNCTION WITH TYPE 'D' & EXTRUDED BARRIER KERBING. ASPHALT SURFACING TYPE 'C' (INDUSTRIAL) SHOWN.

VEHICULAR SCODPS

ACCESS SURFACING
DETAIL 'X'
SCALE 1 : 10
EXISTING VERGE TO BE TRIMMED OR BACKFILLED THUS

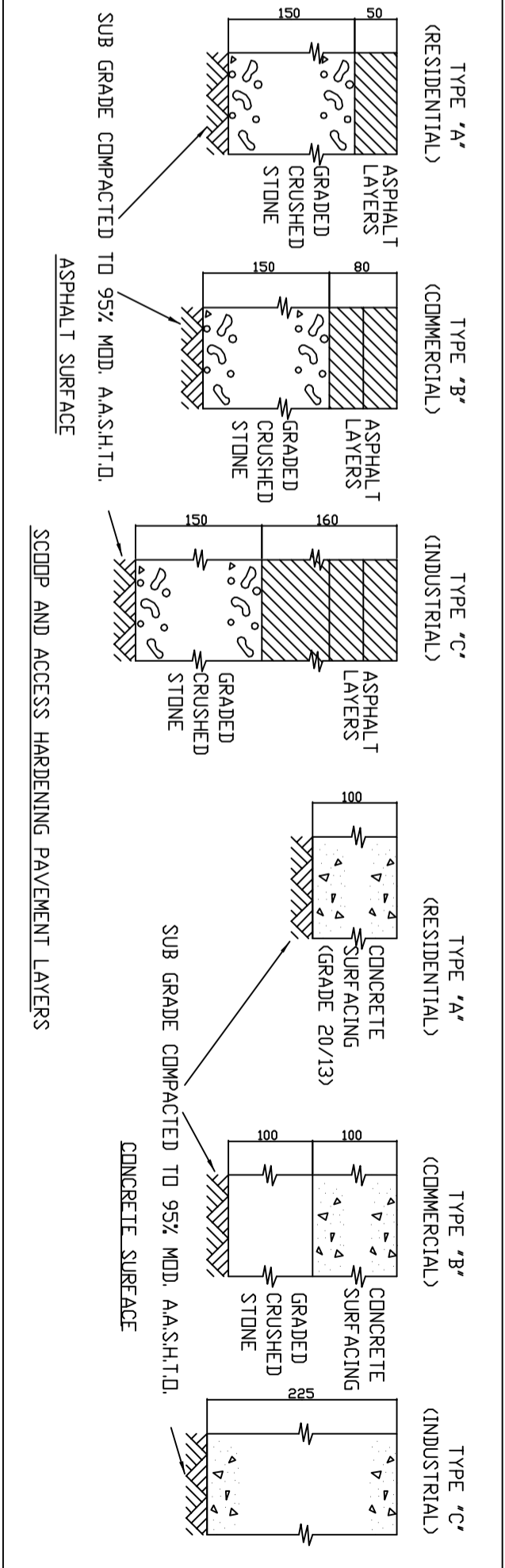


SECTION
SCALE 1:20



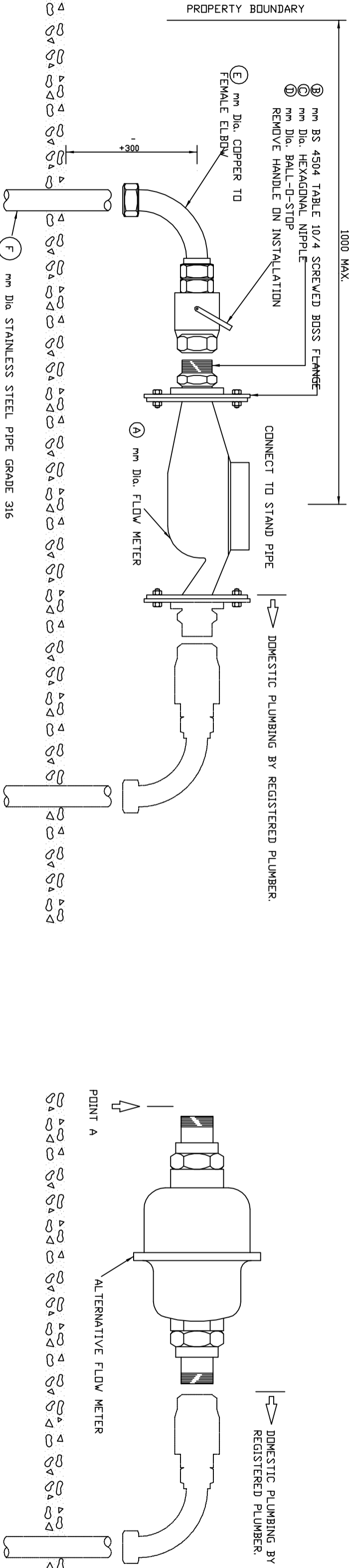
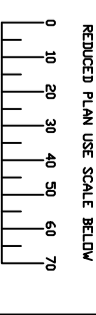
PEDESTRIAN SCODPS

NOTES:
1.VEHICULAR SCODPS ARE TO BE CONSTRUCTED WITH EITHER AN ASPHALT OR CONCRETE SURFACING. THE SURFACING DETAIL WILL BE CONFIRMED BY THE ENGINEER ON SITE.
2.ALL CAST - IN - SITU CONCRETE IS TO BE GRADE 20/13.
3.CONCRETE SCODPS ARE TO HAVE A WOOD FLAT FINISH.
4.CAST - IN - SITU CHANNEL / FILLET TO HAVE A STEEL TROWEL FINISH.
5.EXPANSION JOINTS TO BE PLACED THROUGH COMPLETE KERB AND CHANNEL CONSTRUCTION AS SPECIFIED.
6.CONTRACTION JOINTS TO BE PLACED THROUGH THE CHANNEL ON AT 2.0m c/c.
7.PEDESTRIAN SCODPS ARE TO BE FORMED WITH CONCRETE SURFACE ONLY.
8.APPROVED WOOD KILLER TO ASPHALTED AREAS TO BE SPRAYED ON COMPACTED SUB BASE.



Project Title	VEHICULAR AND PEDESTRIAN SCODPS
Contract No.	
Project Title	STANDARD DRAWING
Drawing Title	VEHICULAR AND PEDESTRIAN SCODPS
Scale	DATE OF ISSUE AS SHOWN FEBRUARY 1990
Designed G.J.P.	Date 1995-12-05
Checked	Drawn W.A.BURNETT
Manager 2800	
Director Roads	
Author	
Drawing No.	38579
Sheet	
of Sheets	

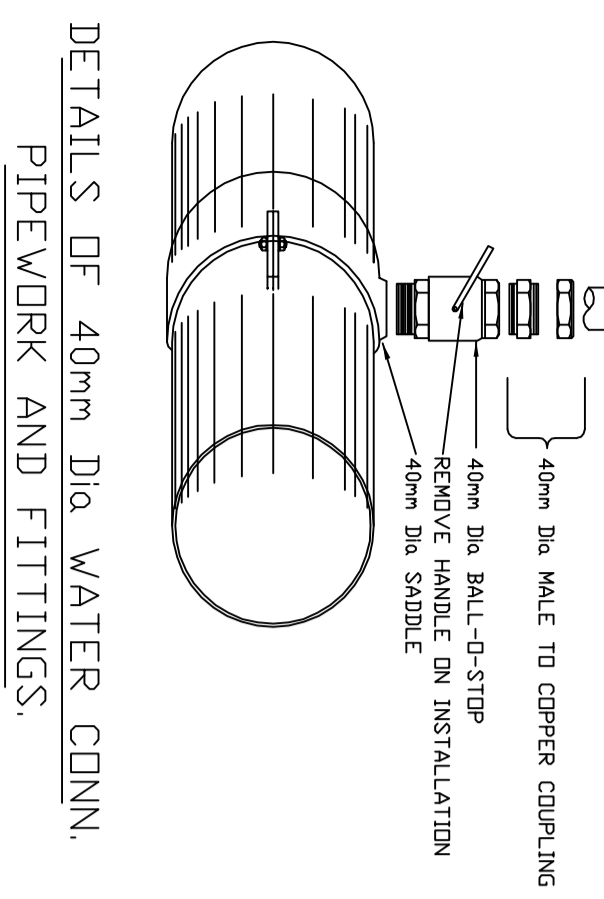
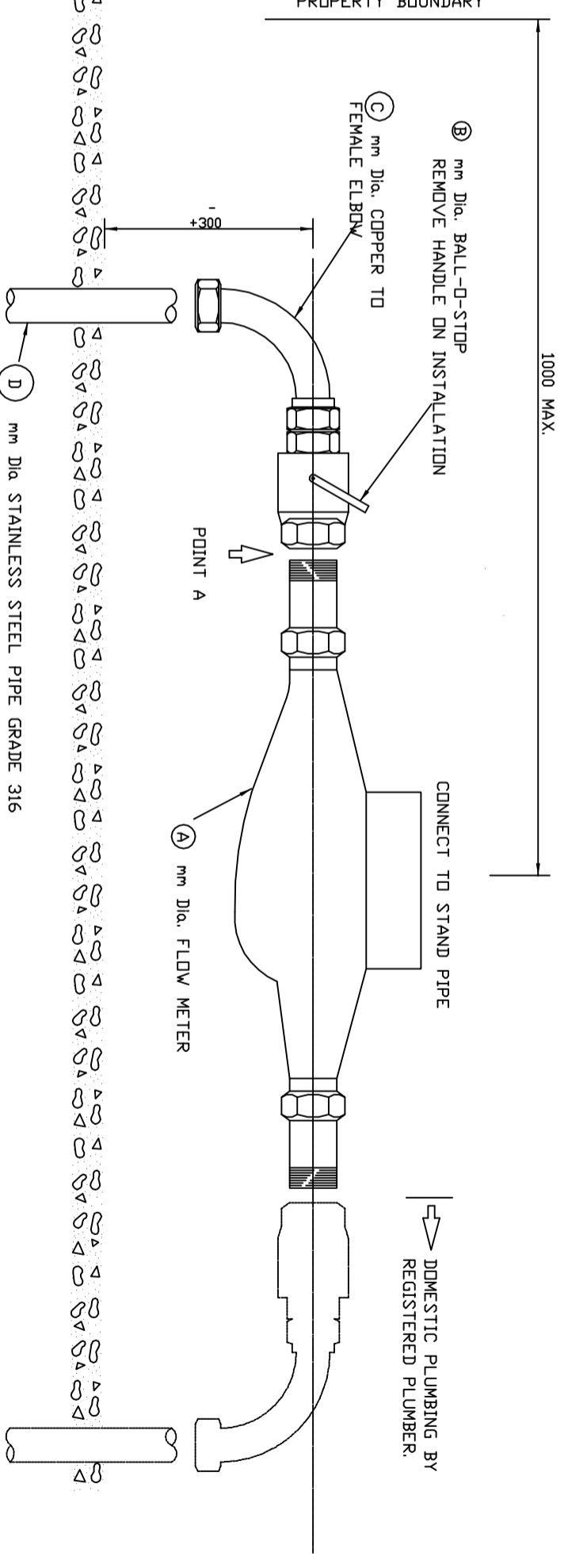
PLAN DESCRIPTION	DWG. NO.
CONTINUED FROM	
GROSS SECTIONS	
TYPICAL CROSS SECTION	
SURVEY LAYOUT	



NB: TYPE OF FITTINGS AFTER H ARE SIMILAR TO THE 40mm Dia. CONNECTION.

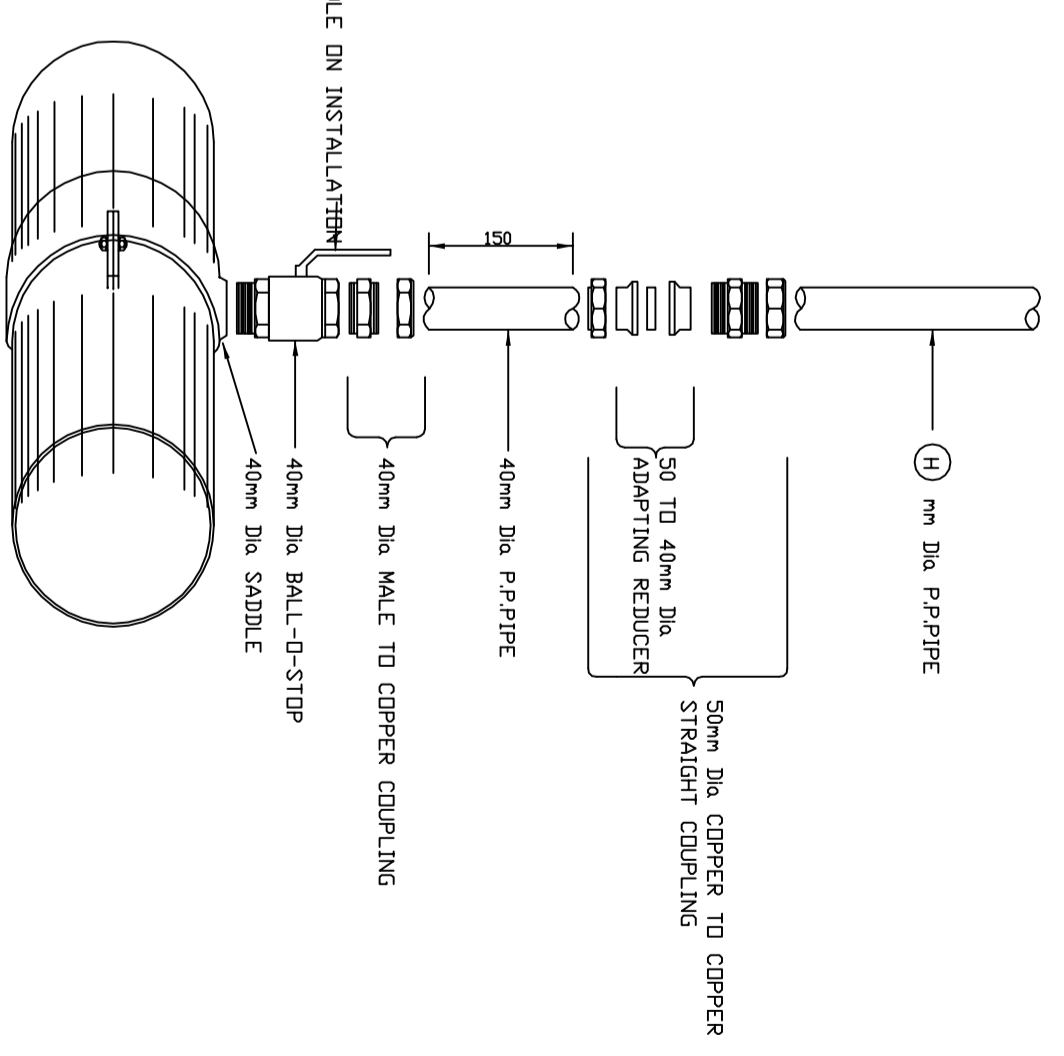
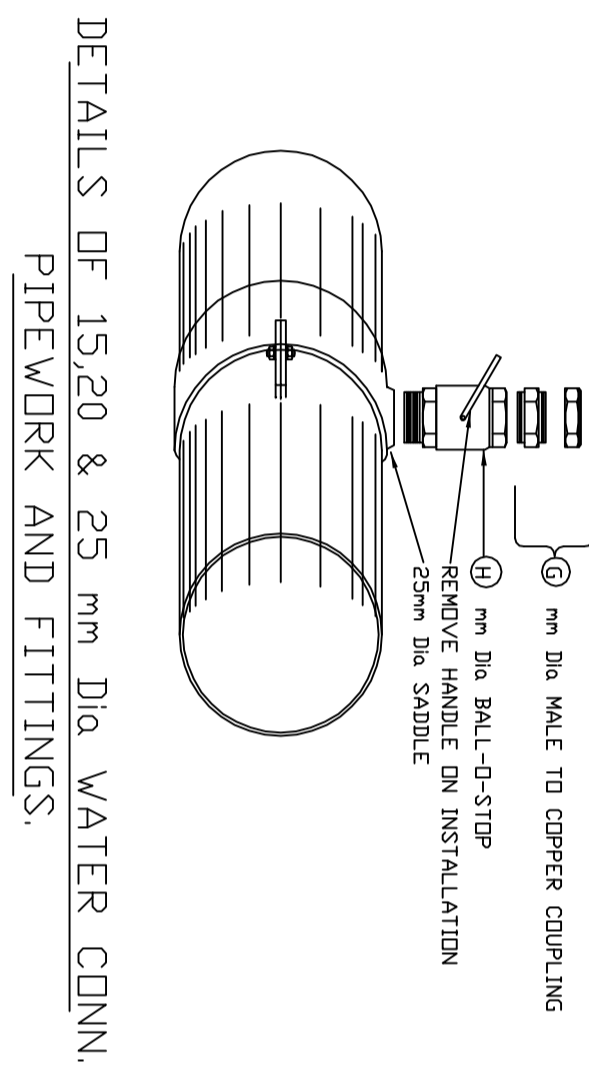
CONN. DIAMETERS

CONN. SIZE	15	20	25
A	15	15	25
B	15	20-15	25
C	15	20	25
D	15	20	25
E	20-15	20	25
F	20	25-20	25
G	25	25-20	25
H	25	25	25



CONN. DIAMETERS

CONN. SIZE	40	50
A	40	50
B	40	50
C	40	50
D	40	50
E	40	50
F	40	50
G	40	50
H	40	50



Revision	Date	Description
1		Initial site work to connect water lines and service connections have been completed
2		Acquisitions Completed

UNDERGROUND SERVICES CHECKED
DATE: 1995-12-05
DRAWN: M. BURNETT

Project Title: WATER CONNECTIONS PIPEWORK AND FITTINGS.

Contract No: []

Standard Drawing: []

Drawing Title: WATER CONNECTIONS PIPEWORK AND FITTINGS.

Scale: DATE OF ISSUE

NOT TO SCALE FEBRUARY 1990

Designed: 1995-12-05
Checked: M. BURNETT

Manager: []

Director: []

Author: []

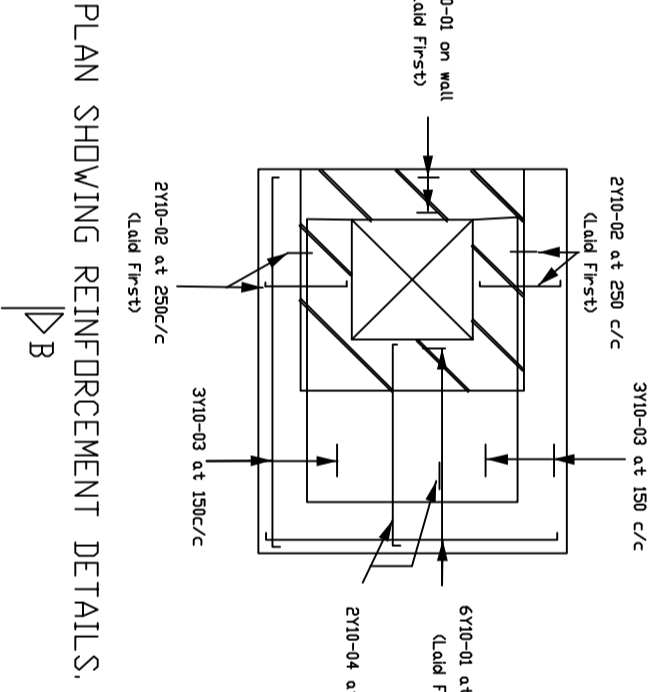
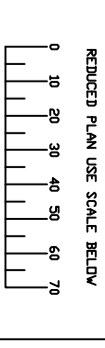
Executive Director: []

Drawing No: 38585

Sheet of Sheets: []

MANHOLE TYPE 'A' (TOTAL MASS = 16.81kg)			
BAR/MARK NO.	LENGTH	Y10	Y12
Y10 01	1450	75	1300
Y10 02	500	85	330
Y10 03	1900	75	1750
Y10 04	1150	85	980
TOTAL LENGTH		Y10	Y12
		11.60	11.40
		2.0	2.30

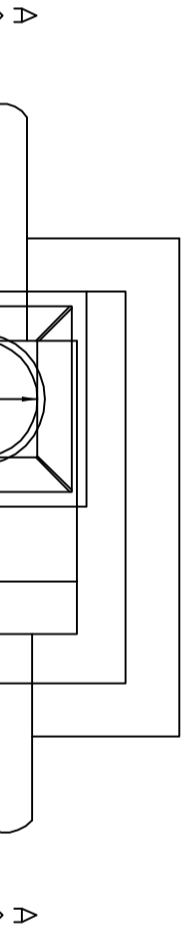
MANHOLE TYPE 'B' (TOTAL MASS = 36.36kg)			
Y12	Y10	Y12	Y10
Y12 01	8	2250	75
Y12 02	3	1000	80
Y12 03	7	2250	75
Y12 04	6	700	75
TOTAL MASS		36.36kg	



SECTION	DEPTH	PIPE DIA.	REINFORCEMENT
SECTION A	< 3m	< 900mm	Y10-01, Y10-02, Y10-03, Y10-04
SECTION B	> 3m	> 900mm	Y12-01, Y12-02, Y12-03, Y12-04

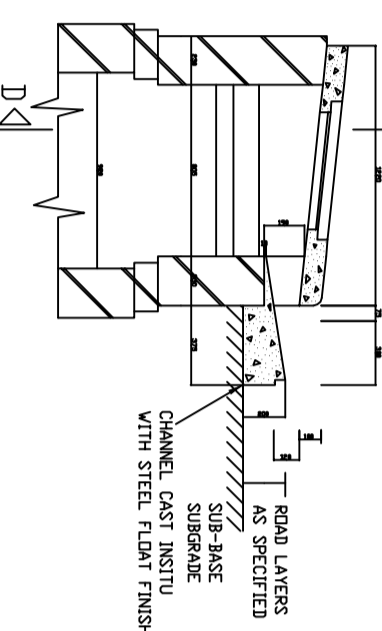
NOTE:- Where manhole depth is less than 2.30m the manhole shaft is to be 150mm and the height of the chamber is to vary.

MANHOLE TYPE A (< 3m deep , pipes < 900mm o)



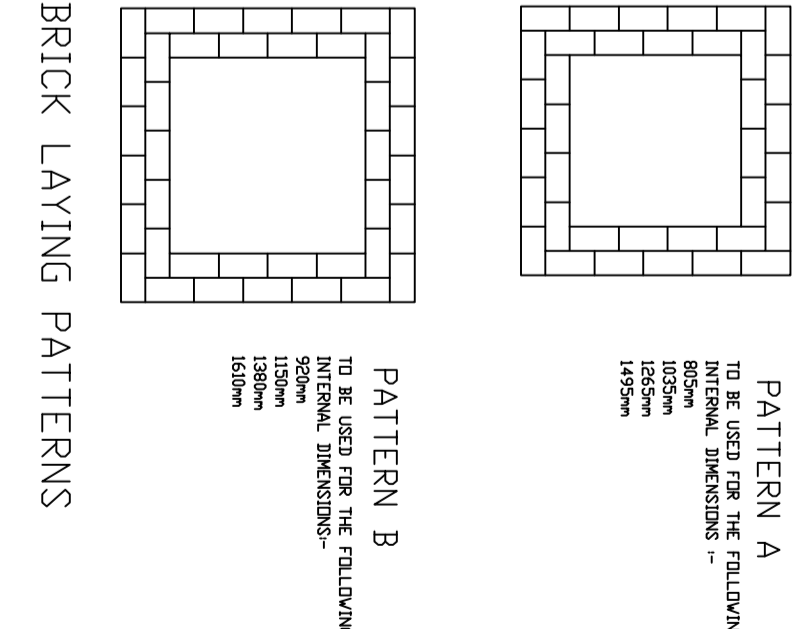
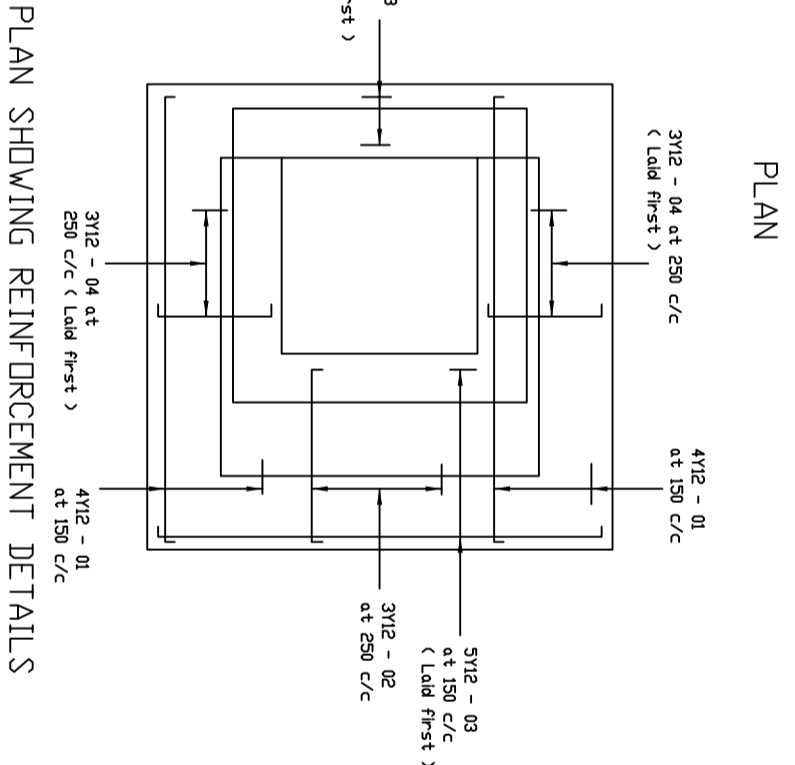
PRECAST CONC. UNIT

UNIT	DWG. NO.	QTY.
L.D. MANHOLE COVER	38853	1
L.D. SQUARE MANHOLE FRAME	38852	1
H.D. MANHOLE COVER	38853	1
H.D. SQUARE MANHOLE FRAME	38852	1



NOTE:- For details of Section D-D refer to drawing No. 38572 sections 1-1, 2-2, 3-3.

COVER & FRAME TO SUIT LOCATION

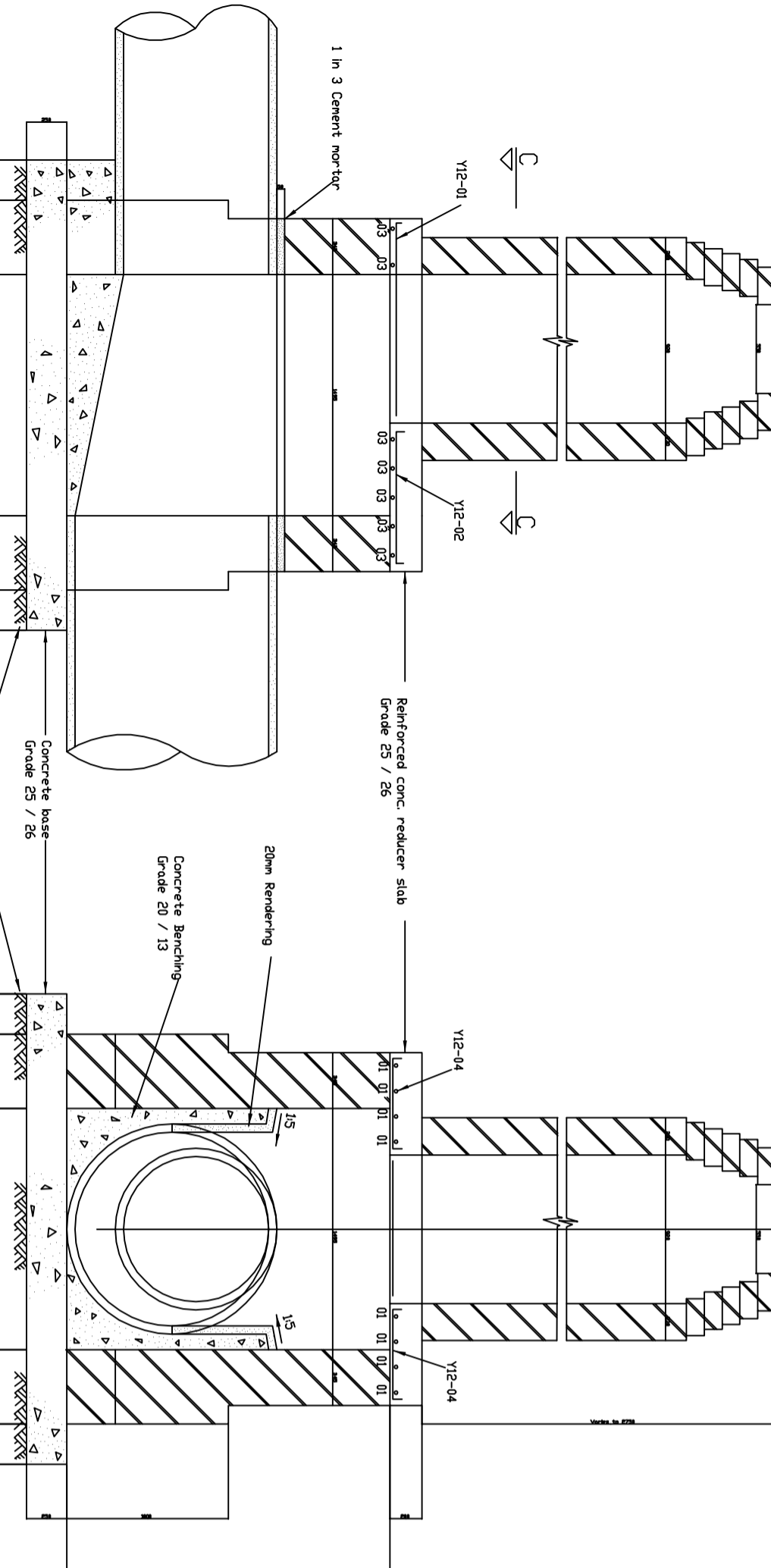


PATTERN A TO BE USED FOR THE FOLLOWING INTERNAL DIMENSIONS:-
805mm, 805mm, 1035mm, 1285mm, 1495mm

PATTERN B TO BE USED FOR THE FOLLOWING INTERNAL DIMENSIONS:-
920mm, 1150mm, 1380mm, 1610mm

NOTES:-
IN SITU GROUND MUST BE COMPACTED TO 95% MOD. AASH.T.D. PRIOR TO MANHOLE BASE SLAB BEING CAST. IF THE DENSITY CANNOT BE ATTAINED THE IN SITU MATERIAL MUST BE REMOVED TO A DEPTH OF 300mm AND REPLACED WITH A SELECTED BACKFILL.

STANDARD DRAWING



MANHOLE TYPE B (> 3-5m deep, pipe > 900mm o & > 0-5m deep, pipe 900-1200mm o)

PLAN :- SECTION C - C

Project Title	BRICK MANHOLE DETAILS
Scale	1:25
Date of Issue	FEBRUARY 1990
Designed	M. DIVKIAN
Checked	V. R. BARNETT
Drawn	V. R. BARNETT
Issue	1995-12-06
Project No.	38571
Director, Roads	
Executive Director	
Sheet No.	38571
of Sheets	

