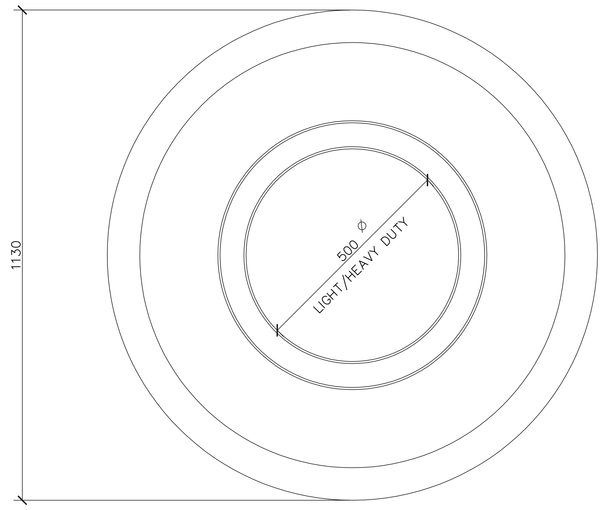
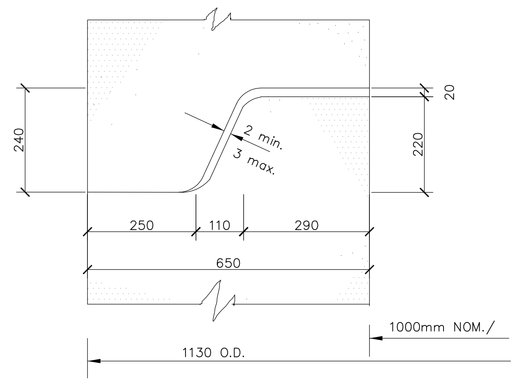
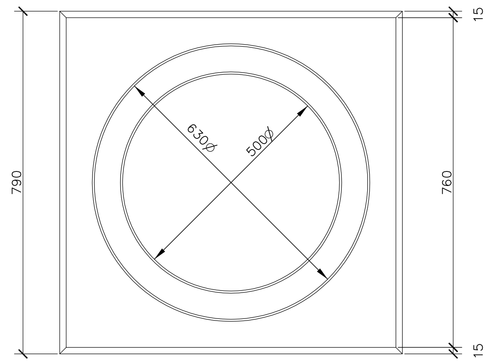


PLAN OF CIRCULAR LIGHT AND HEAVY DUTY FRAME FOR 1000 NOM. DIA. MANHOLE

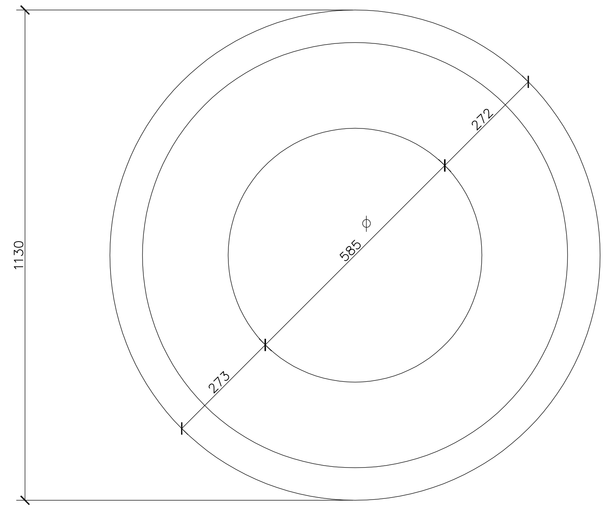


ALL RADII TO BE 10mm

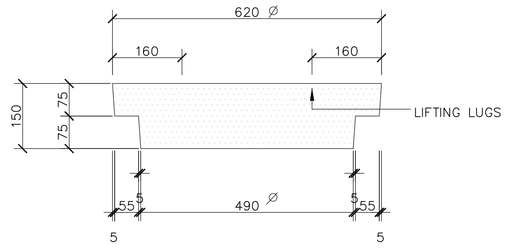
DETAIL OF JOINT



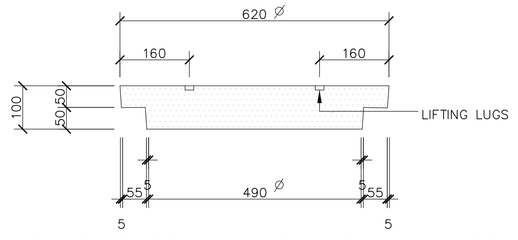
PLAN



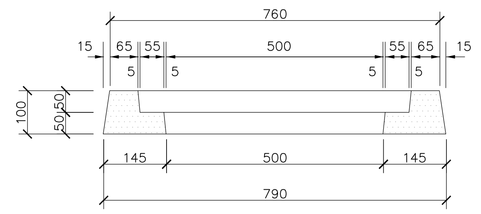
PLAN OF CIRCULAR COVER SLAB



SECTION OF CIRCULAR HEAVY DUTY MH COVER



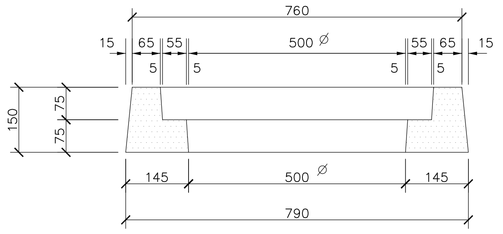
SECTION OF CIRCULAR LIGHT DUTY MH COVER



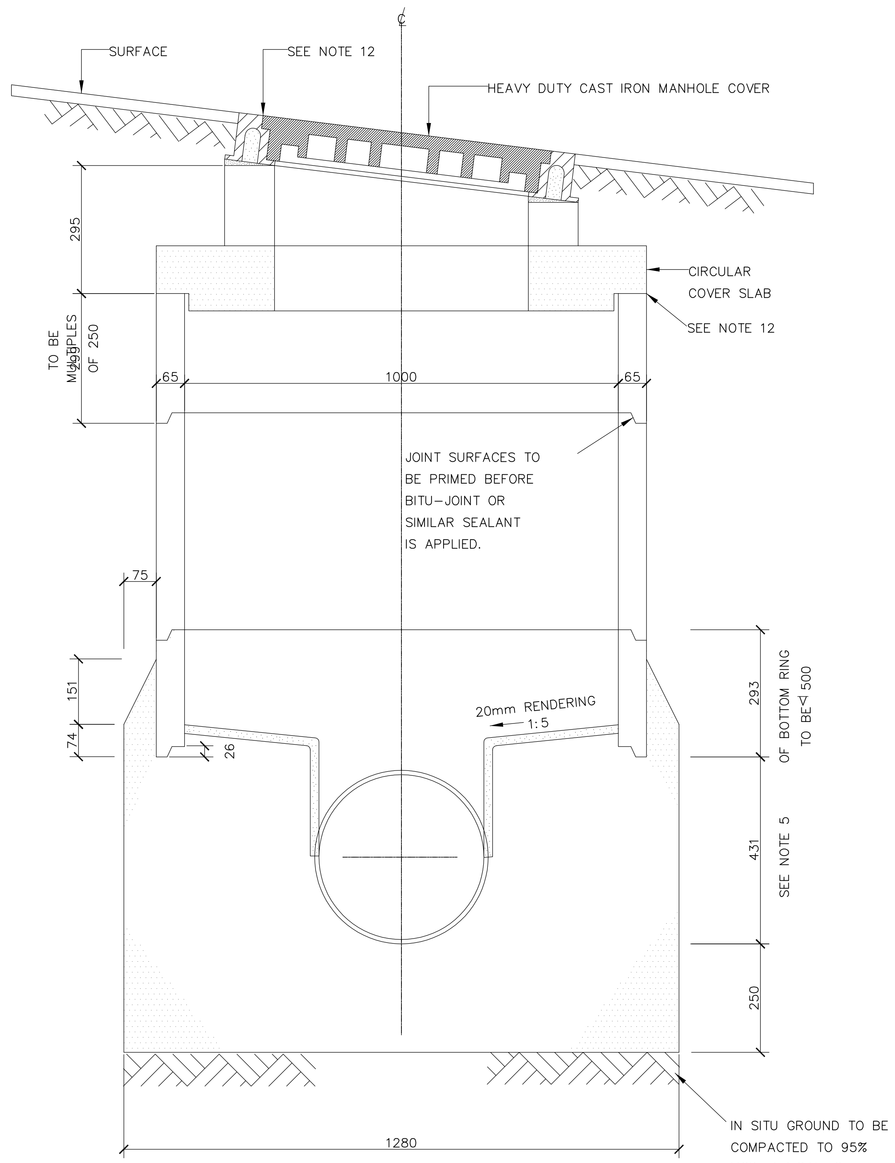
SECTION OF LIGHT DUTY SQUARE MANHOLE FRAME



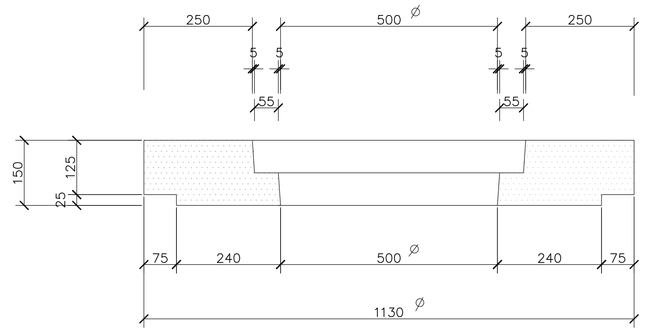
SECTION OF CIRCULAR COVER SLAB



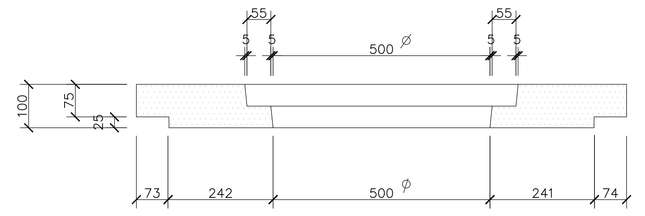
SECTION OF HEAVY DUTY SQUARE MANHOLE FRAME.



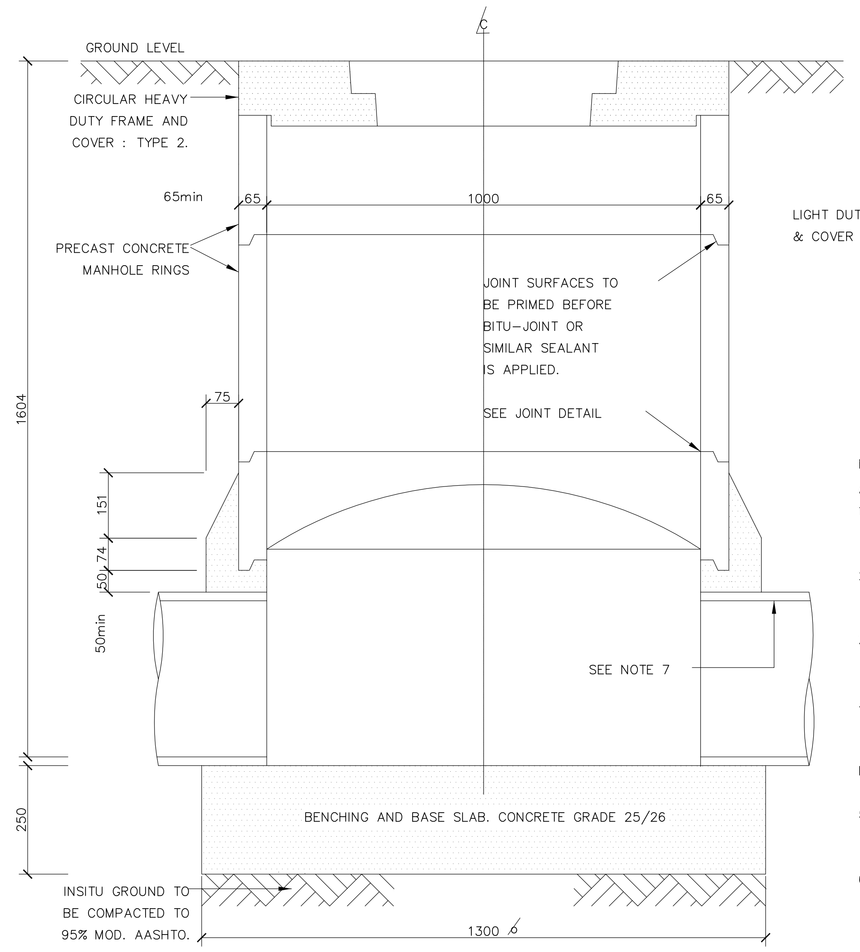
SECTION OF 1000 DIA. MANHOLE



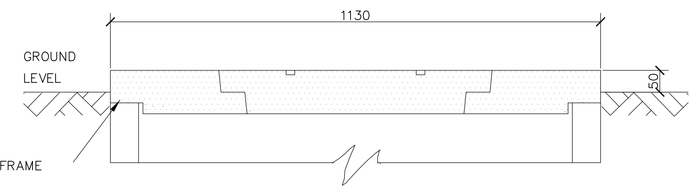
SECTION OF CIRCULAR HEAVY DUTY M.H. FRAME



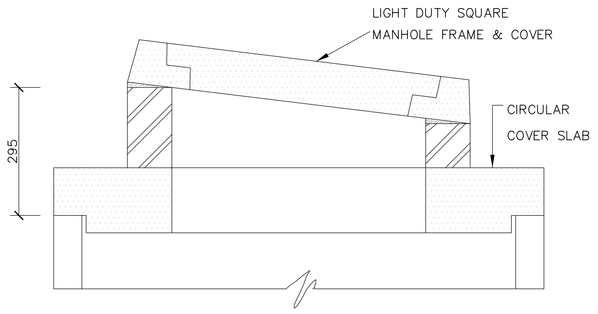
SECTION OF CIRCULAR LIGHT DUTY MH FRAME



SECTION OF 1000 DIA. MANHOLE



SECTION OF CIRCULAR LIGHT DUTY MANHOLE COVER AND FRAME



SECTION OF LIGHT DUTY SQUARE MANHOLE FRAME AND COVER

NOTES:

A. GENERAL

1. ALL PRECAST CONCRETE MANHOLE COMPONENTS TO COMPLY WITH THE REQUIREMENTS OF S.A.B.S.1294 (WHERE APPLICABLE)

2. LENGTHS OF INDIVIDUAL WALL UNITS ARE TO VARY IN MULTIPLES OF 250mm.

3. HEAVY DUTY CAST IRON COVERS AND FRAMES TO DRG.NO.DMW1281/A ARE TO BE USED ON MANHOLES UNDER VEHICULAR TRAFFIC.

4. FOR DETAILS OF STEEL REINFORCEMENT TO MANHOLE COVERS,COVER SLABS AND FRAMES – SEE STANDARD PRECAST DETAILS LISTED ABOVE.

B. STORMWATER MANHOLE

5. DIMENSION D VARIES WITH THE DIAMETER OF THE PIPES. DIMENSION D SHALL BE TO A POINT 50mm ABOVE THE HIGHEST CROWN OF THE PIPES.

6. 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.

7. THE LENGTH OF PIPE BUILT INTO THE MANHOLE SHALL NOT EXCEED 2.5m.

C. SEWER MANHOLE: –

8. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING 38574.

9. 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.

10. ALL PIPES BUILT INTO MANHOLES SHALL NOT EXCEED 1.0m IN LENGTH, AND AND THE ADJOINING PIPE SHALL NOT EXCEED 2.0m IN LENGTH.

11. EVERY U.P.V.C. PIPE BUILT INTO A MANHOLE SHALL HAVE CLEAN DRY SAND (TO S.A.B.S. 1083 TABLE 1.) GLUED 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.

12. 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

NORTH/SOUTH CENTRAL LOCAL COUNCIL – DURBAN

CITY ENGINEERS
SERVICE UNIT
ROADS DEPARTMENT

PLAN DESCRIPTION	DWG. NO.	
CONTINUED FROM		
CONTINUED ON		
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	Date	Description

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

Acquisitions completed

Date Engineer

NORTH POINT

UNDERGROUND SERVICES CHECKED

SERVICE	DATE	SIGNATURE
S.W.DRAINS		
SEWERS		
WATER MAINS		
G.P.O.CABLES		
ELECTRIC CABLES		
S.A.R. CABLES		
E.S.C. CABLES		
OIL PIPE LINE		

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

Contract No

Project Title

STANDARD DRAWING

Drawing Title

RING MANHOLES

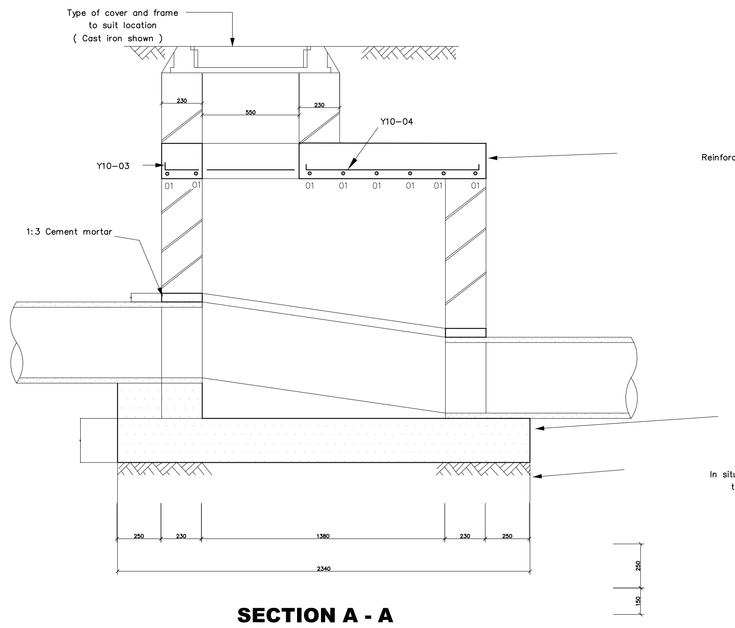
Scales	DATE OF ISSUE
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Designed	Date 1995-12-05
Checked	Drawn C.E.S.

Manager RD(N)

Director : Roads

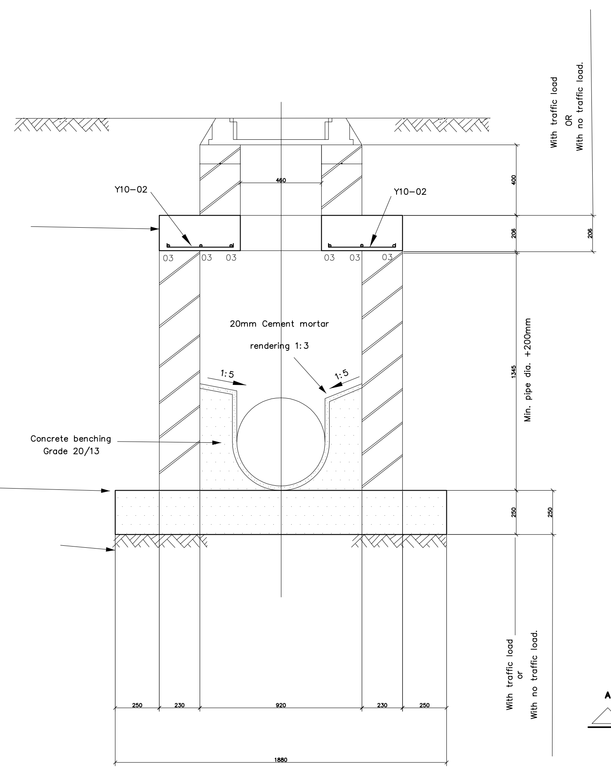
R.A.Moore Executive Director

Drawing No 38570 Sheet of Sheets



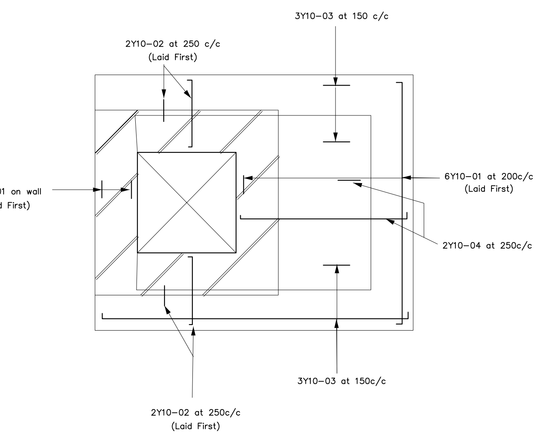
SECTION A - A

NOTE:– Where manhole depth is less than 2.50m the manhole shaft is to be 150mm and the height of the chamber is to vary.

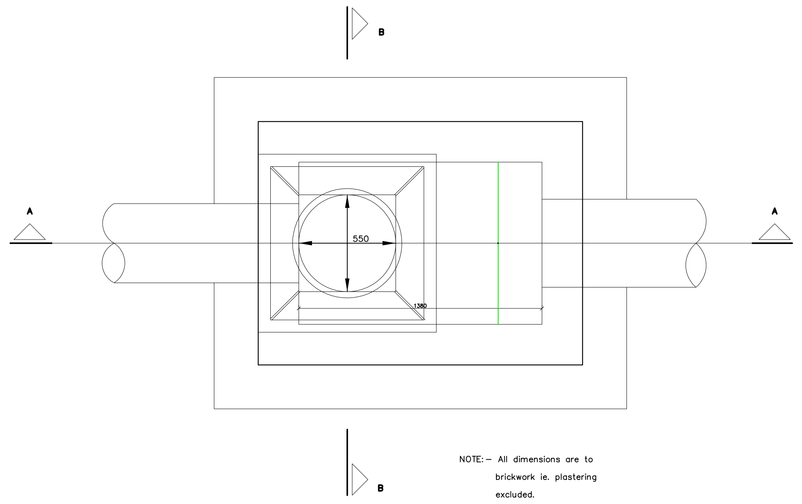


SECTION B - B

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



PLAN SHOWING REINFORCEMENT DETAILS.



NOTE:– All dimensions are to brickwork ie. plastering excluded.

PLAN

MANHOLE TYPE "A" (TOTAL MASS = 16.81kg)						
BAR MARK		No.	LENGTH		TOTAL LENGTH Y10	TOTAL LENGTH Y12
Y10	01	8	1450	75 03 1300	11.60	
Y10	02	4	500	85 03 330	2.0	
Y10	03	6	1900	75 01 1750	11.40	
Y10	04	2	1150	85 01 980	2.30	
MANHOLE TYPE "B" (TOTAL MASS = 36.36kg)						
Y12	01	8	2250	75 03 2100		18.00
Y12	02	3	1000	80 01 840		3.0
Y12	03	7	2250	75 01 2100		15.75
Y12	04	6	700	75 01 550		4.2

NOTES:–

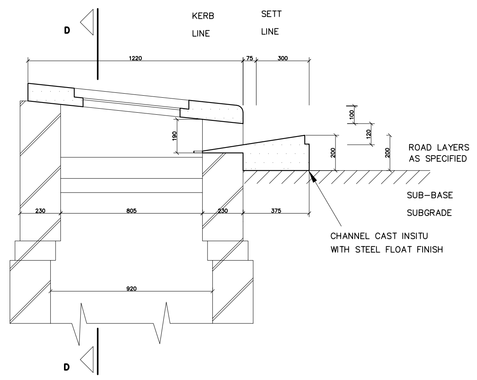
1.) Structural conc. to consist of Grade 25/26 with cube crushing strength of 25 MPa at 28 days.

2.) Blinding to consist of Grade 15/26 with cube crushing strength of 15 MPa at 28 days.

3.) Clear cover to main steel 40mm.

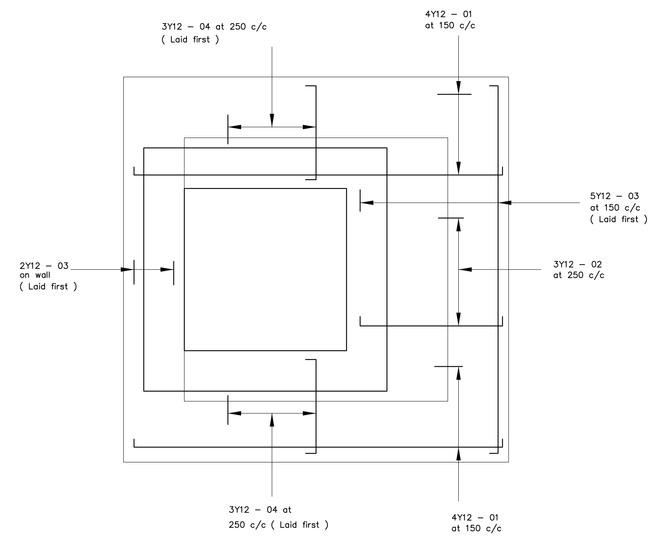
4.) Mortar to consist of 1 cement to 3 sand.

PRECAST CONC. UNIT	DWG. No.
L.D. MANHOLE COVER	38853
L.D. SQUARE MANHOLE FRAME	38852
H.D. MANHOLE COVER	38853
H.D. SQUARE MANHOLE FRAME	38852

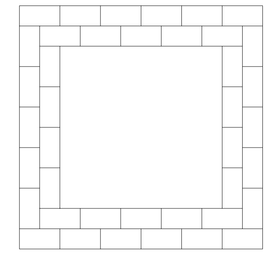


INLET TYPE COVER

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



PLAN SHOWING REINFORCEMENT DETAILS



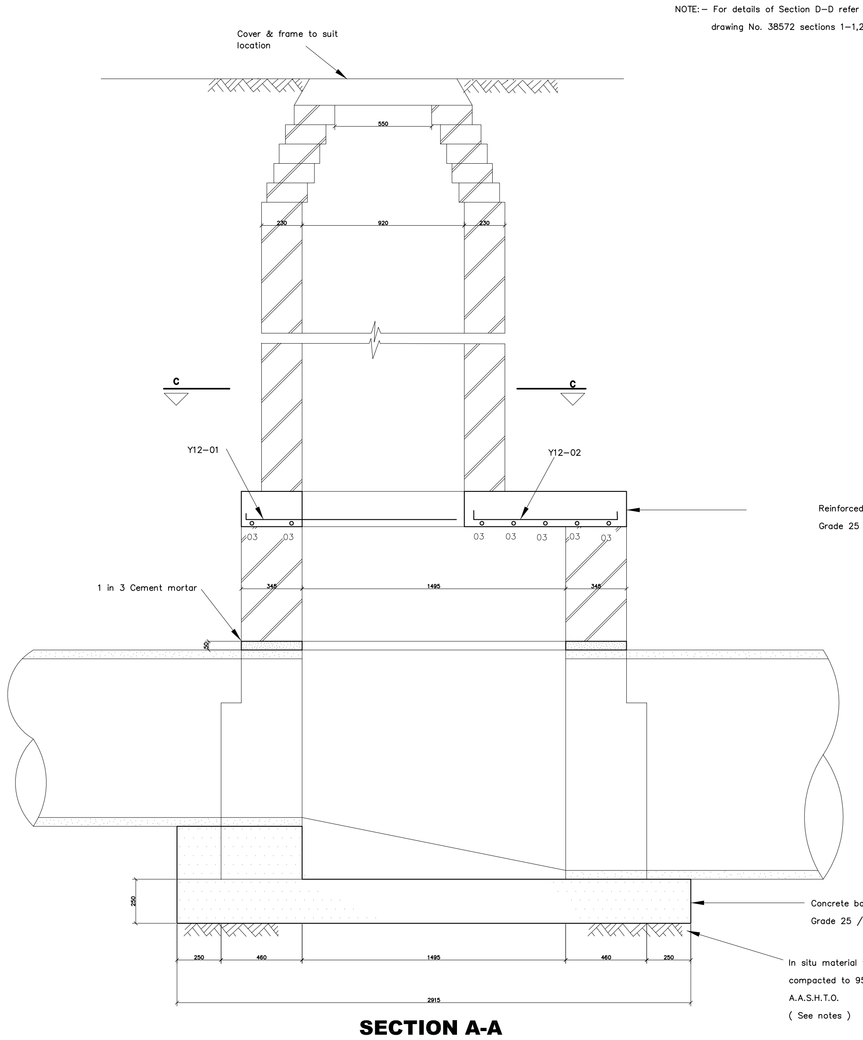
PATTERN A

TO BE USED FOR THE FOLLOWING INTERNAL DIMENSIONS :–
805mm
1035mm
1265mm
1495mm

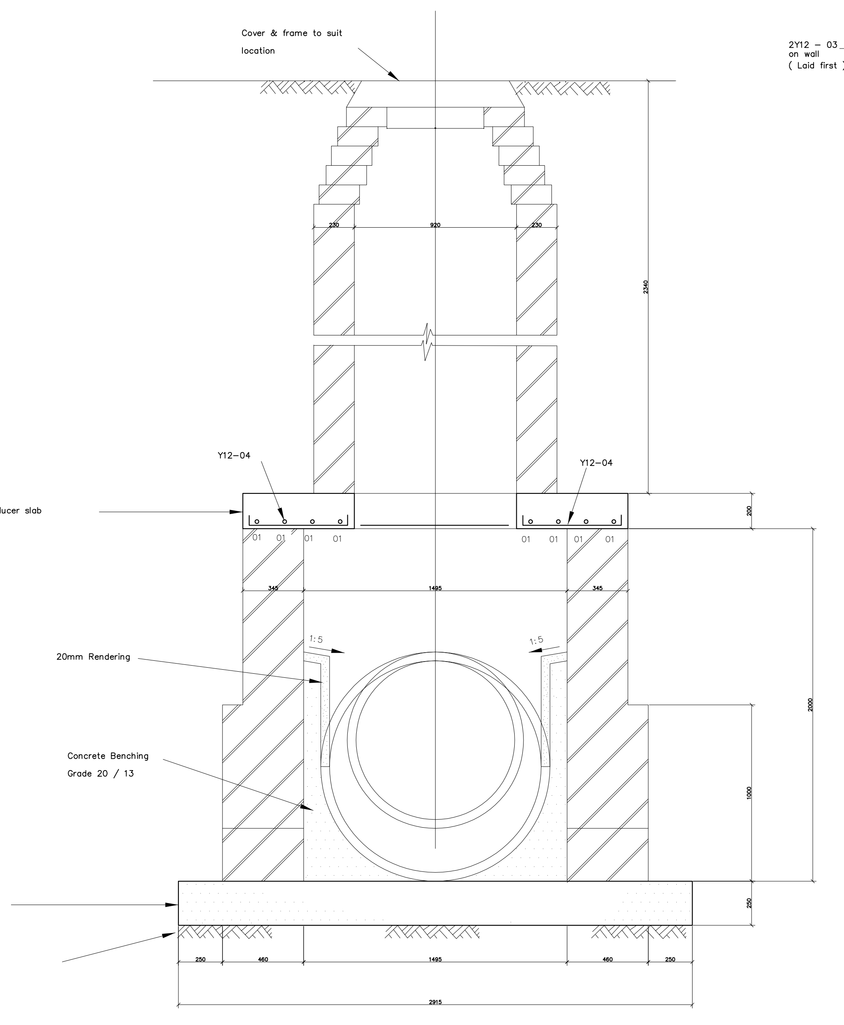
PATTERN B

TO BE USED FOR THE FOLLOWING INTERNAL DIMENSIONS:–
920mm
1150mm
1380mm
1610mm

BRICK LAYING PATTERNS

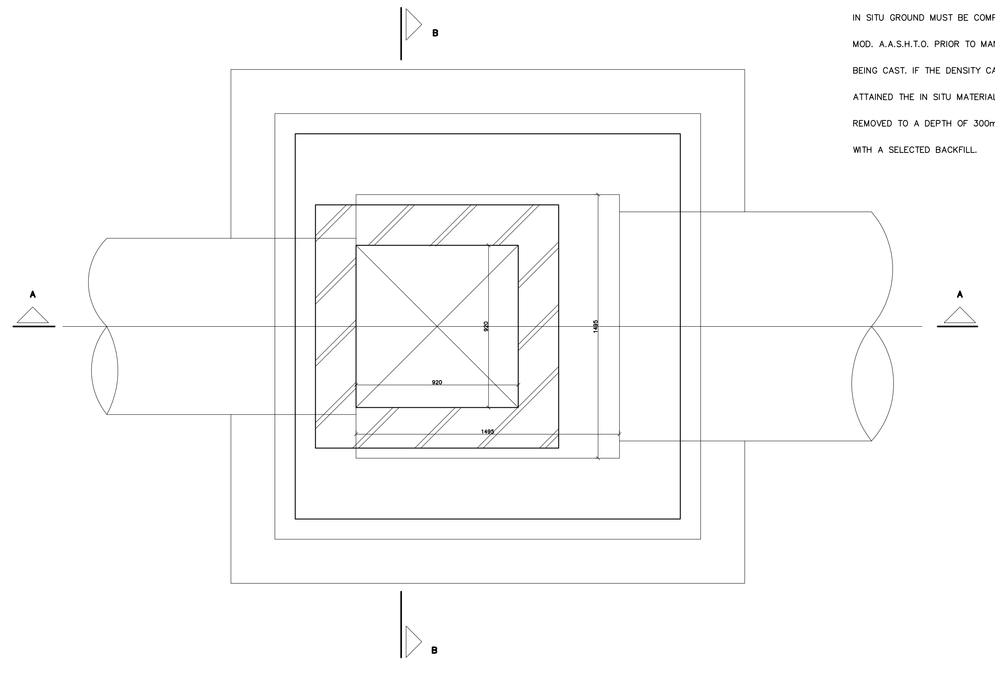


SECTION A-A



SECTION B-B

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



PLAN :- SECTION C - C

NOTES:–

IN SITU GROUND MUST BE COMPACTED TO 95% MOD. A.A.S.H.T.O. 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.

NORTH/SOUTH CENTRAL LOCAL COUNCIL – DURBAN

CITY ENGINEERS
SERVICE UNIT
ROADS DEPARTMENT

PLAN DESCRIPTION	DWG. NO.	
CONTINUED FROM		
CONTINUED ON		
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	Date	Description

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

Acquisitions completed

Date Engineer

NORTH POINT

UNDERGROUND SERVICES CHECKED

SERVICE	DATE	SIGNATURE
S.W.DRAINS		
SEWERS		
WATER MAINS		
G.P.O.CABLES		
ELECTRIC CABLES		
S.A.R. CABLES		
E.S.C. CABLES		
OIL PIPE LINE		

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

Contract No

Project Title

STANDARD DRAWING

Drawing Title

BRICK MANHOLE DETAILS

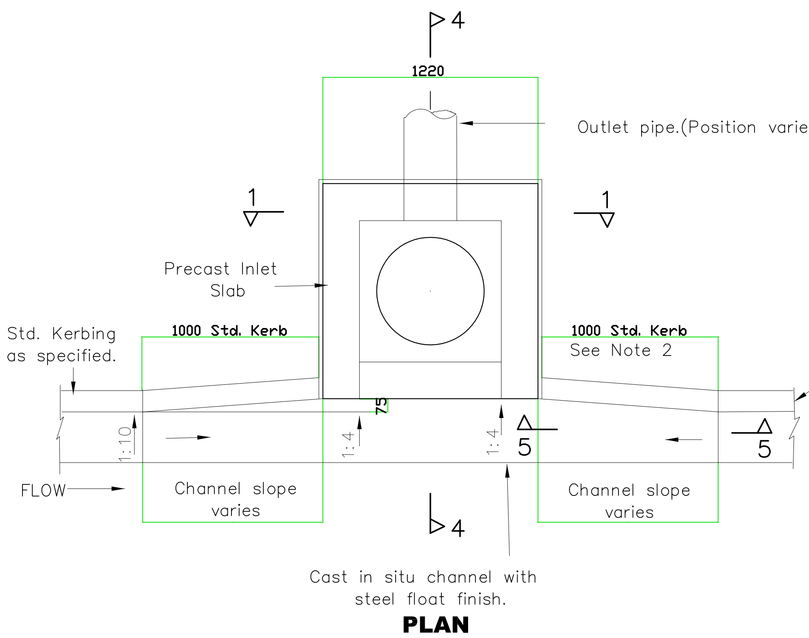
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Designed M.DYKMAN	Date 1995–12–06
Checked	Drawn W.R.BURNETT

Manager RD(N)

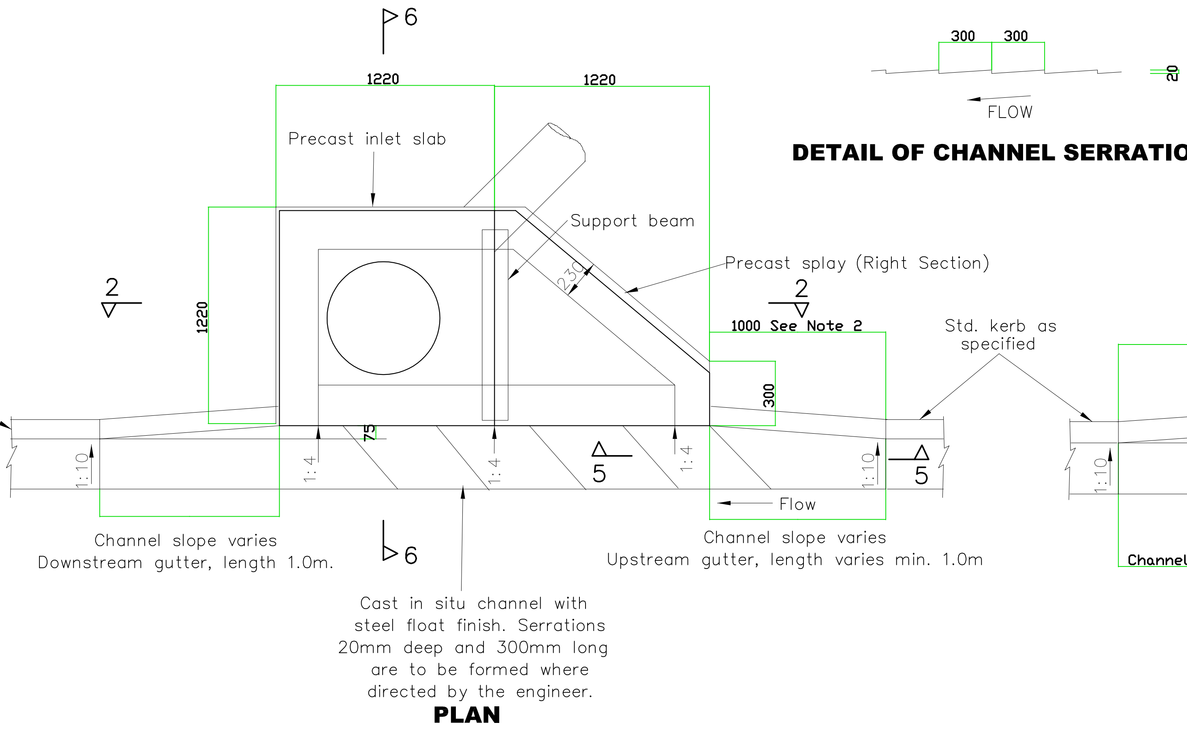
Director : Roads

R.A.Moore Executive Director

Drawing No 38571 Sheet of Sheets

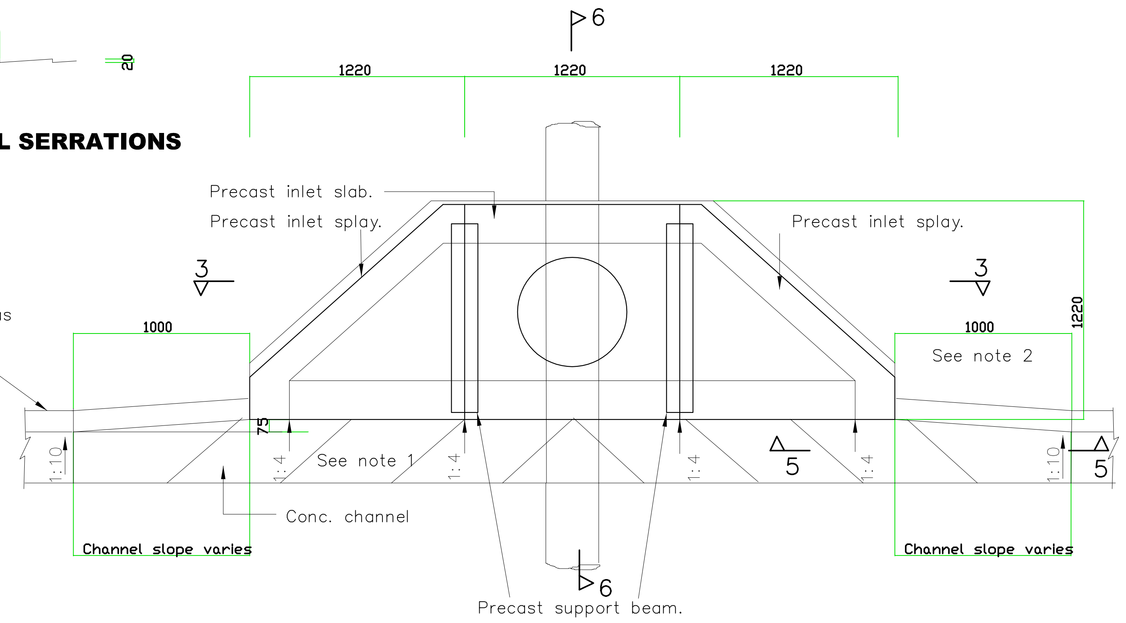


PLAN

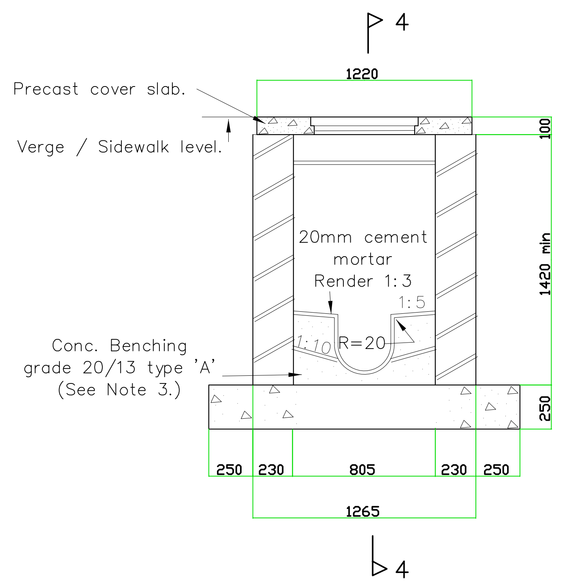


PLAN

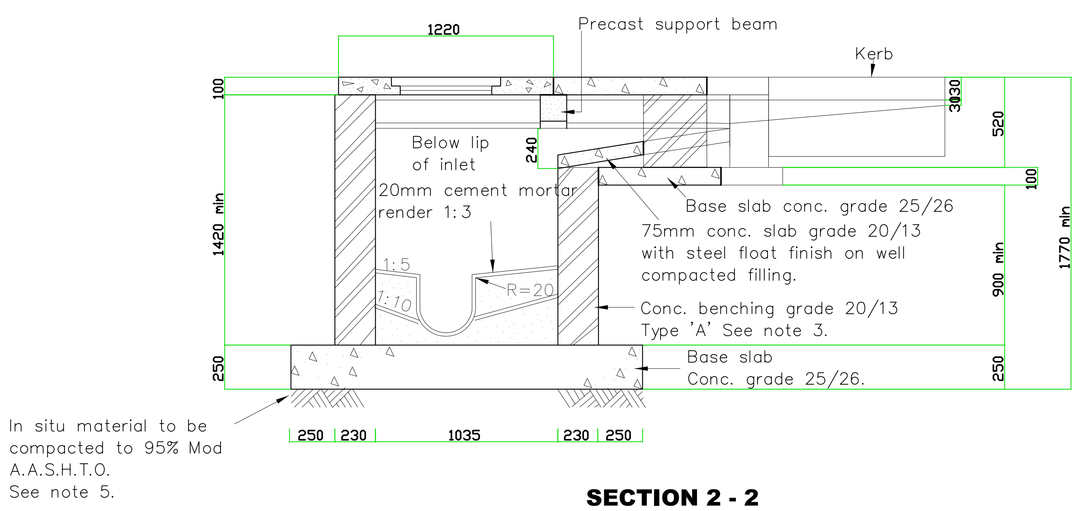
DETAIL OF CHANNEL SERRATIONS



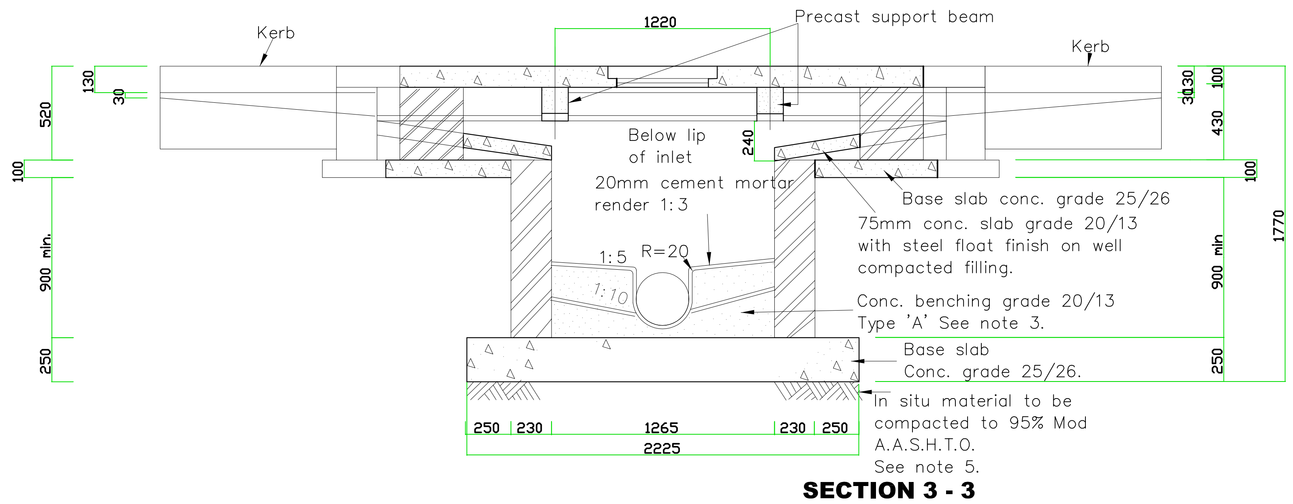
PLAN



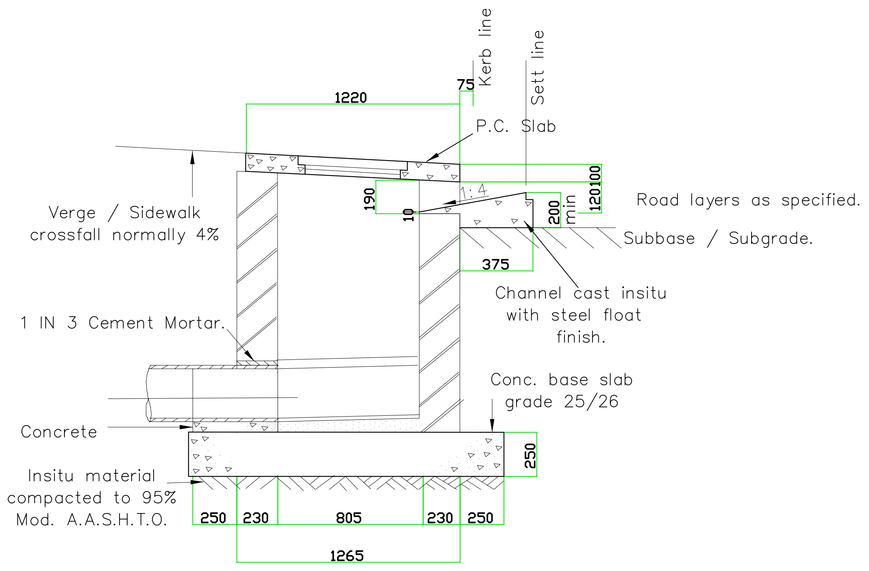
SECTION 1 - 1



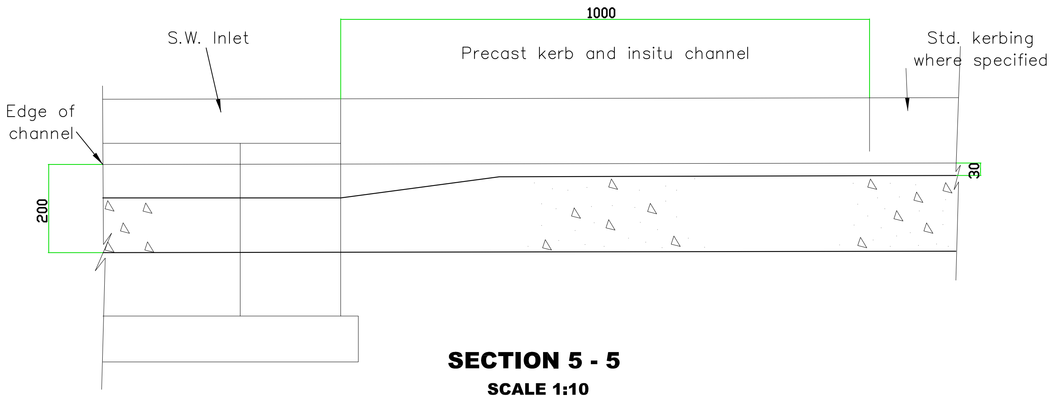
SECTION 2 - 2



SECTION 3 - 3

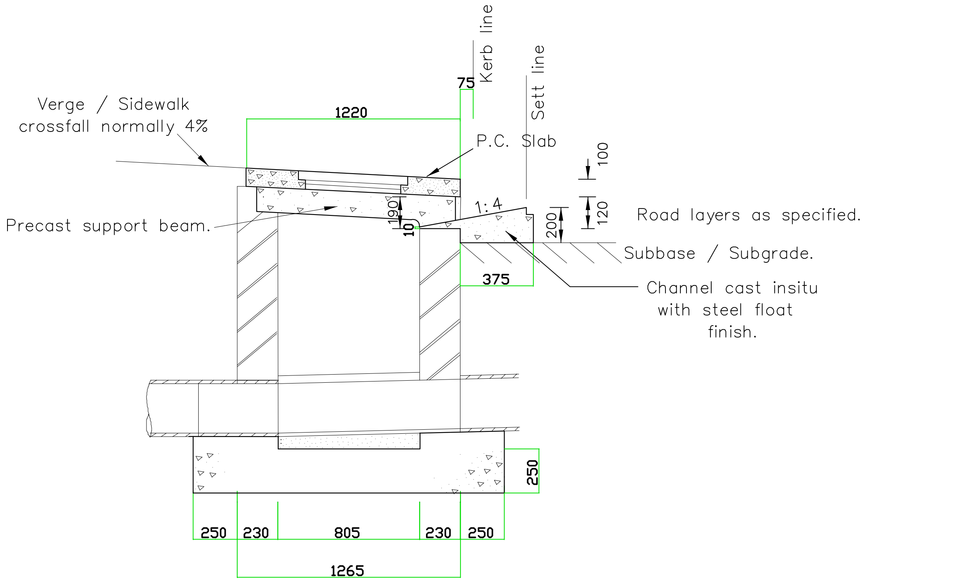


SECTION 4 - 4



SECTION 5 - 5

SCALE 1:10



SECTION 6 - 6

SINGLE SPLAY S.W. INLET - RIGHT TYPE 'S2' (MIRRORED FOR LEFT)

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

1) Catchpit face to be set back 75mm from kerb line.
2) 1.0m transition from kerb line to catchpit line.
3) 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.
4) Max. depth of inlet after which a manhole type structure is to be detailed.

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

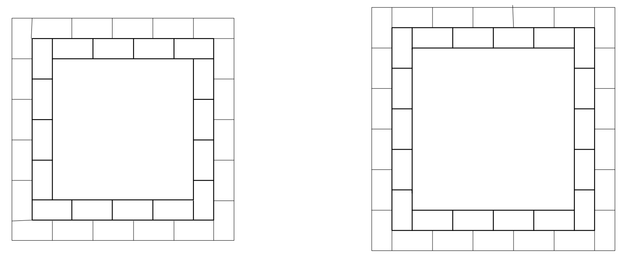
5) The insitu ground must be compacted to 95% Mod. A.A.S.H.T.O. prior to the inlet base slab being cast. If this density cannot be attained the insitu material must be removed to a depth of 300mm and replaced with a selected backfill.

6)

PRECAST CONCRETE UNIT	DRG.No.
Inlet cover support beam.	38854
Inlet slab.	38854
Plain inlet slab.	38854
Standard inlet splay.	38854
Light duty M.H. Cover.	38853

7) Gutter lengths:
In roads without full kerb and channel, minimum gutter lengths of 1.0m are to be provided on both upstream and downstream sides, Where additional upstream lengths are required this will not be indicated on the road S.W. drawing.
Upstream gutter lengths shall not be less than the following :–

Road Grade	Upstream Gutter Length
0 – 2%	1 m
2 – 4%	2 m
4 – 6%	3 m
6 – 8%	4 m
> 8%	5 m



PATTERN A **PATTERN B**

TO BE USED FOR THE FOLLOWING INTERNAL DIMENSIONS.

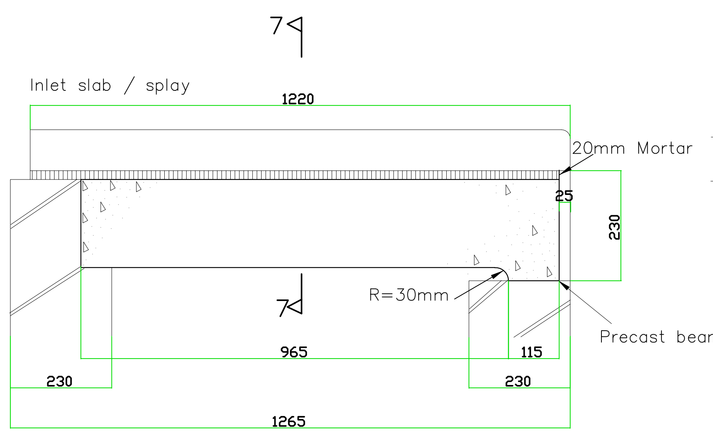
805mm	920mm
1035mm	1150mm
1265mm	1380mm
1495mm	1610mm

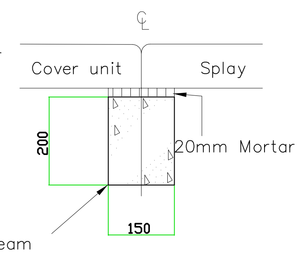
BRICK LAYING PATTERNS

SCALE 1:25

DOUBLE SPLAY SINGLE S.W. INLET TYPE "D3"

SCALE 1:25





SECTION 7 - 7

BEAM POSITION DETAILS

SCALE 1:10

NORTH/SOUTH CENTRAL LOCAL COUNCIL – DURBAN

CITY ENGINEERS
SERVICE UNIT
ROADS DEPARTMENT

PLAN DESCRIPTION	DWG. NO.
CONTINUED FROM	
CONTINUED ON	
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	Date	Description

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

Acquisitions completed

Date Engineer

NORTH POINT

UNDERGROUND SERVICES CHECKED

SERVICE	DATE	SIGNATURE
S.W.DRAINS		
SEWERS		
WATER MAINS		
O.P.O.CABLES		
ELECTRIC CABLES		
S.A.R. CABLES		
E.S.C. CABLES		
OIL PIPE LINE		

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

Contract No

Project Title

STANDARD DRAWING

Drawing Title

STORMWATER INLET DETAILS.

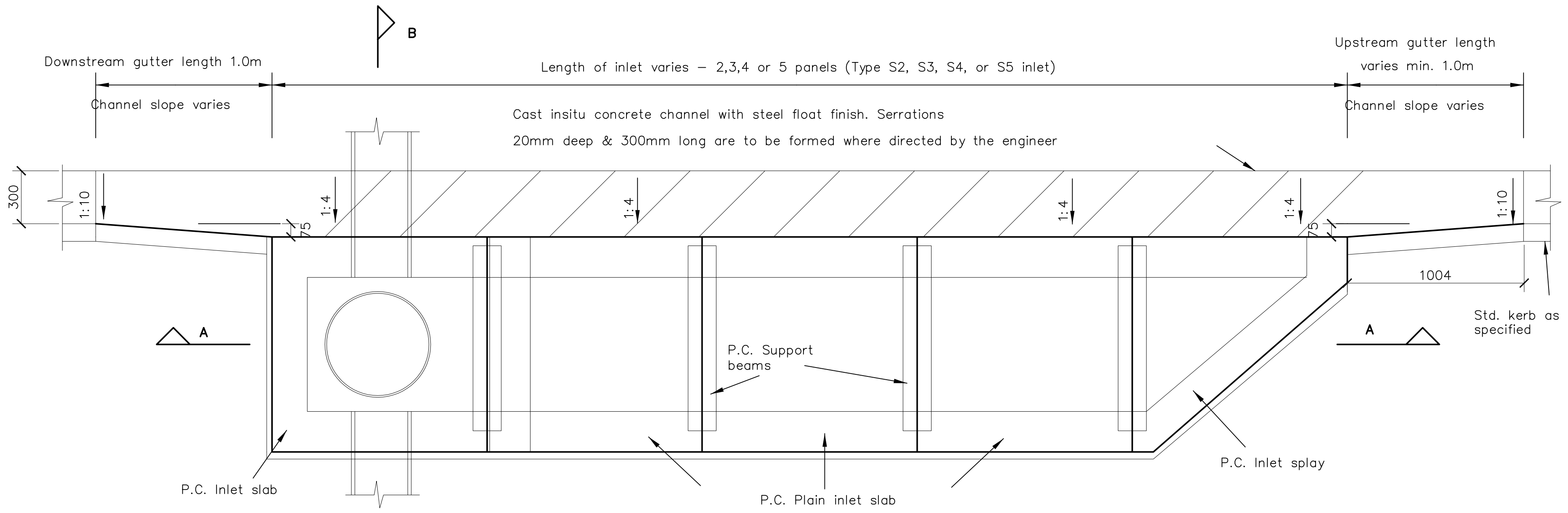
Scales	DATE OF ISSUE
AS SHOWN	FEBRUARY 1990
Designed G.J.P.	Date 1995-12-05
Checked	Drawn W.R.BURNETT

Manager RD(N)

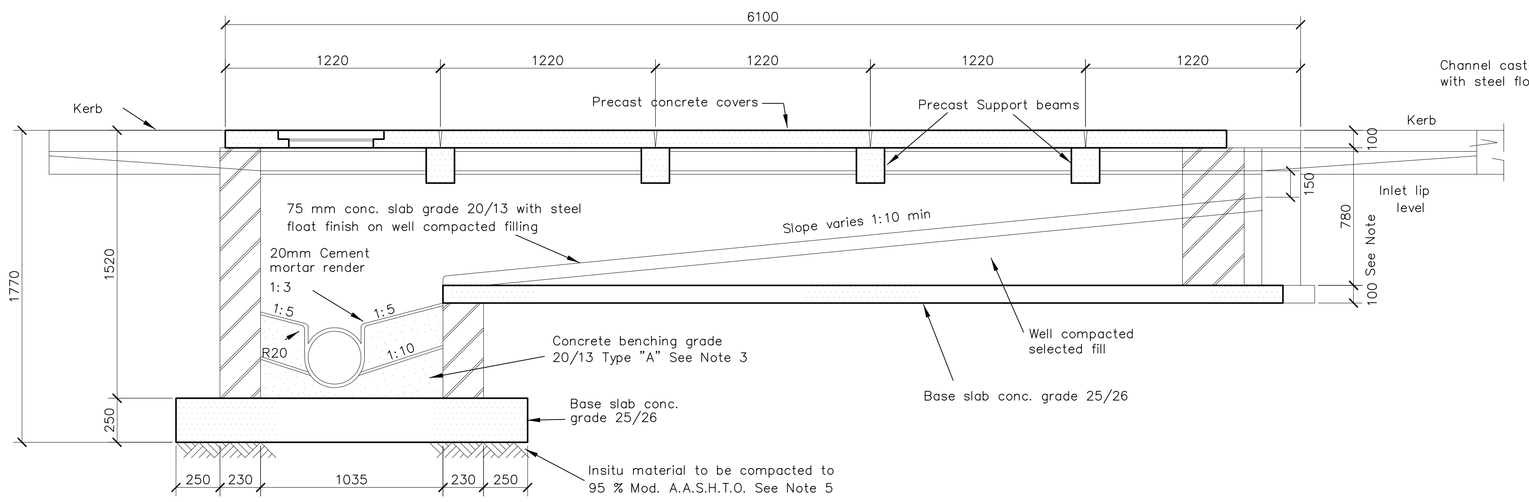
Director : Roads

R.A.Moore Executive Director

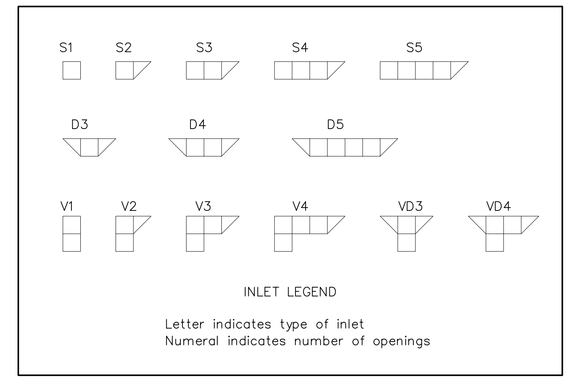
Drawing No 38572 Sheet of Sheets

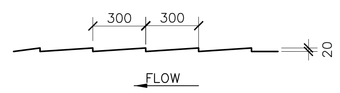


PLAN

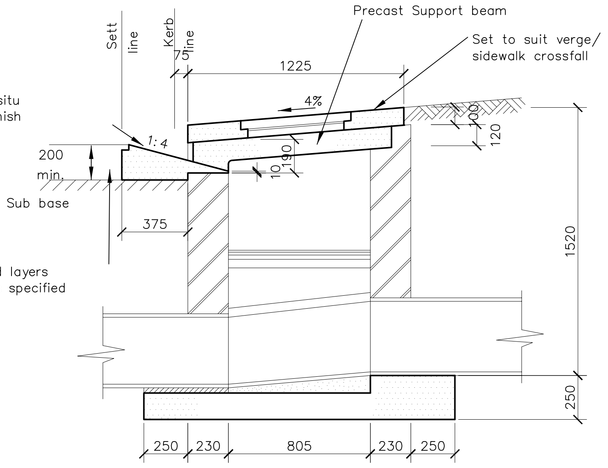


SECTION A-A





DETAIL OF CHANNEL SERRATIONS



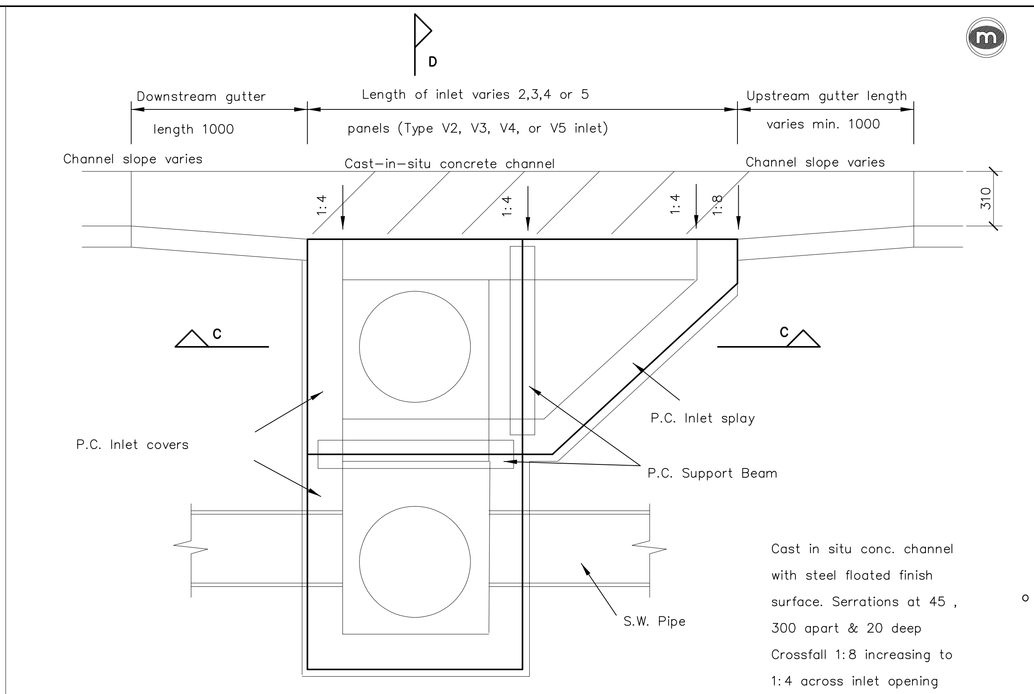
SECTION B-B

Note

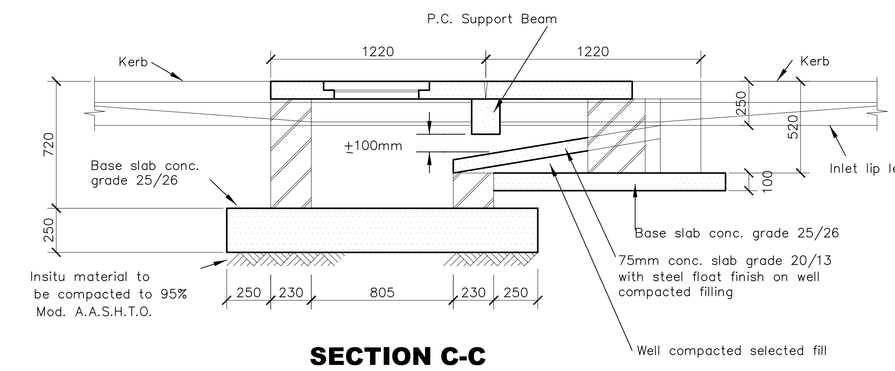
This dimension varies between 420 to 640 depending on the number of bays

DETAIL OF SINGLE INLET TYPE " S "

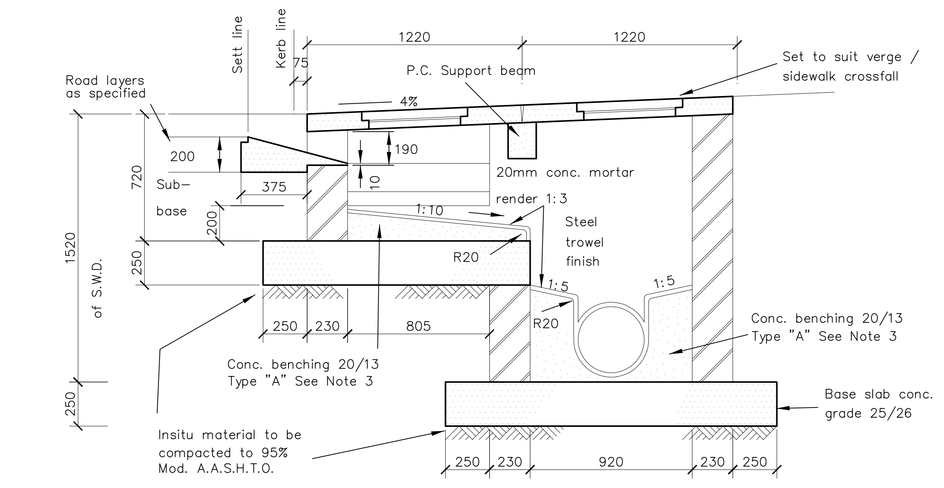
SCALE 1 : 25



PLAN



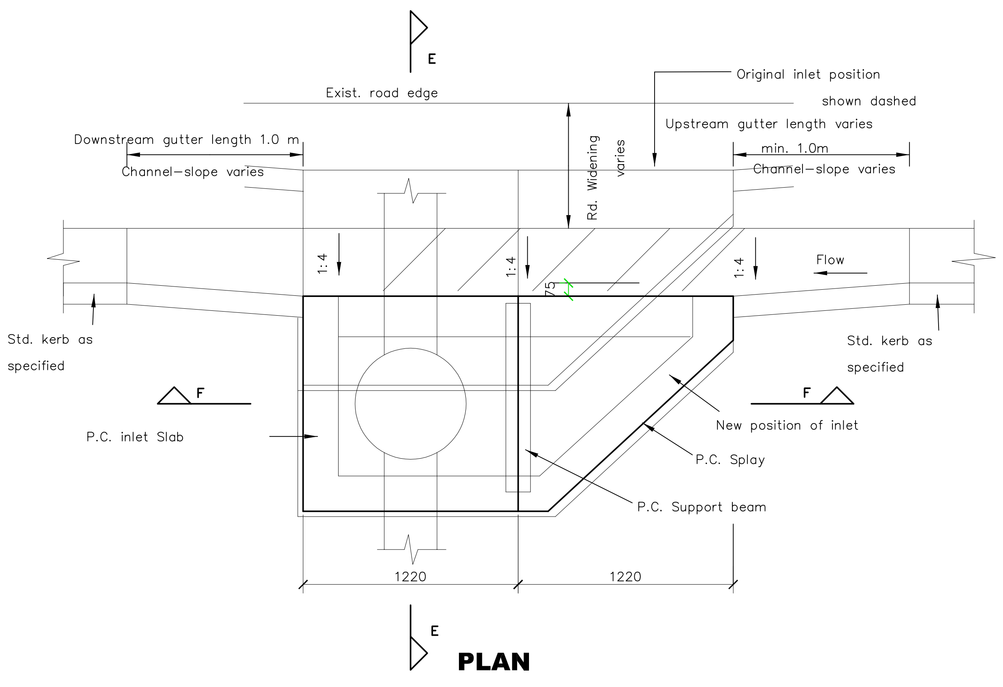
SECTION C-C



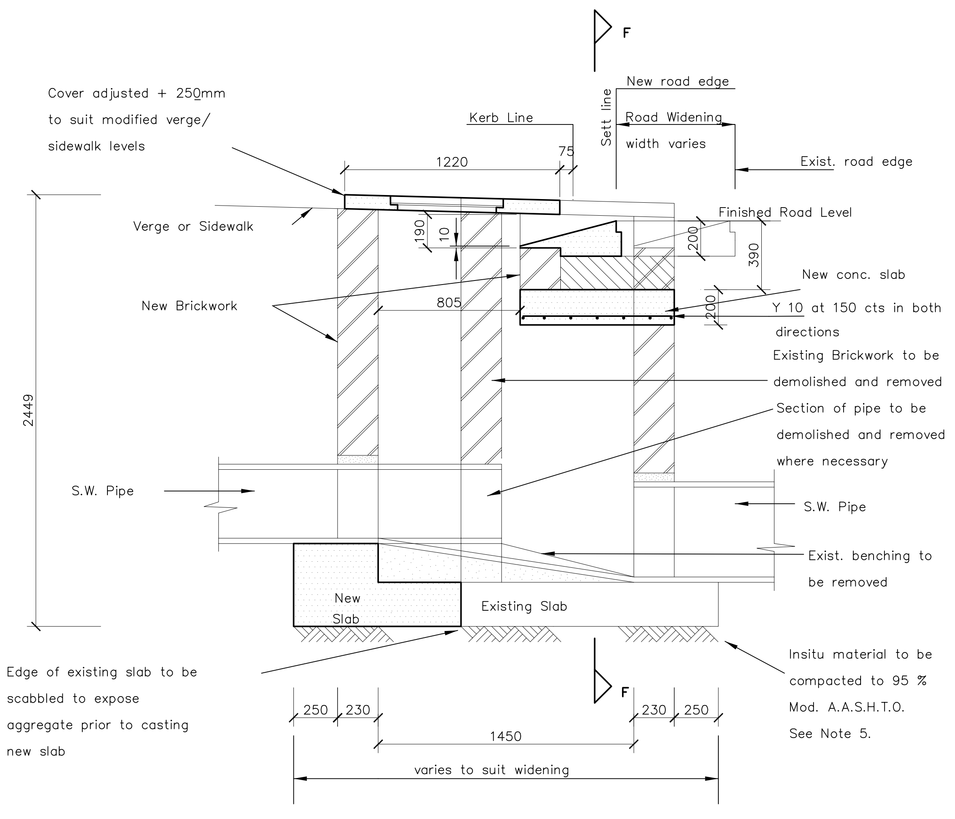
SECTION D-D

DETAILS OF INLETS TO SUIT S.W.D. IN VERGES TYPE " V "

SCALE 1 : 25



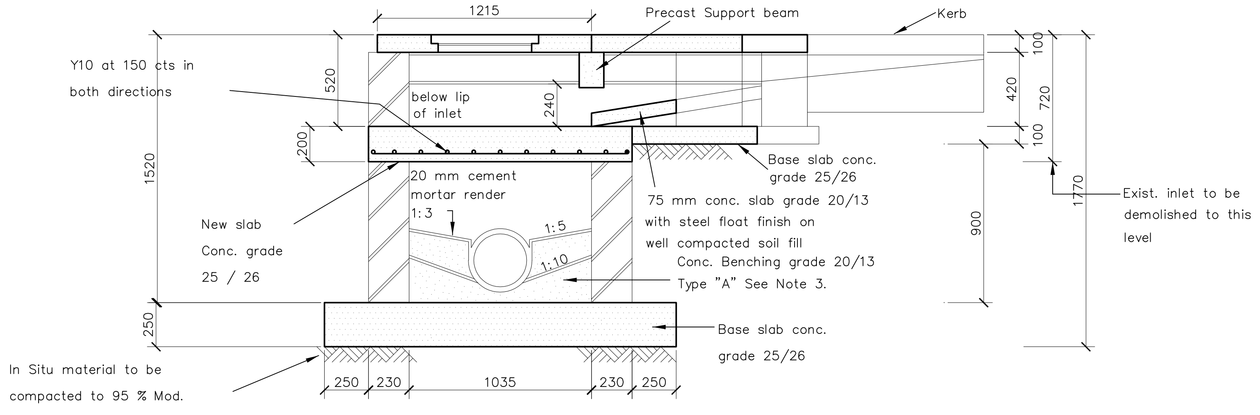
PLAN



SECTION E-E

DETAILS OF INLET / MANHOLE AFFECTED BY ROAD WIDENING

SCALE 1 : 25



SECTION F - F

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 (N.B. TYPE S 2 shown)

GENERAL NOTES :

1. Catchpit face to be set back 75mm from kerb.
2. 1.0m transition from kerb line to catchpit line.
3. 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.
4. Max. depth of inlet after which a manhole type structure is to be detailed

Inlet Type	Max. depth (FRL.–Invert)
S	2.0
D	3.0

5. The insitu ground must be compacted to 95% Mod. A.A.S.H.T.O. prior to the inlet base slab being cast. If this density cannot be attained the insitu material must be removed to a depth of 300mm and replaced with a selected backfill.
6.

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

7. Gutter lengths:

In roads without full kerb and channel , minimum gutter lengths of 1.0m are to be provided on both upstream and downstream sides. Where additional upstream lengths are required this will be indicated on the road S.W. drawing.

Upstream gutter lengths shall not be less than the following: –

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 FROM	
CONTINUED ON	
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	Date	Description

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

Acquisitions completed

Date Engineer

NORTH POINT

UNDERGROUND SERVICES CHECKED

SERVICE	DATE	SIGNATURE
S.W.DRAINS		
SEWERS		
WATER MAINS		
G.P.O.CABLES		
ELECTRIC CABLES		
S.A.R. CABLES		
E.S.C. CABLES		
OIL PIPE LINE		

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

Contract No

Project Title

STANDARD DRAWING

Drawing Title

STORMWATER INLET SPECIAL DETAILS

Scales	DATE OF ISSUE
AS SHOWN	FEBRUARY 1990
Plot Scale 1:25	
Designed G.J.P.	Date 1995–12–05
Checked	Drawn W.R.BURNETT

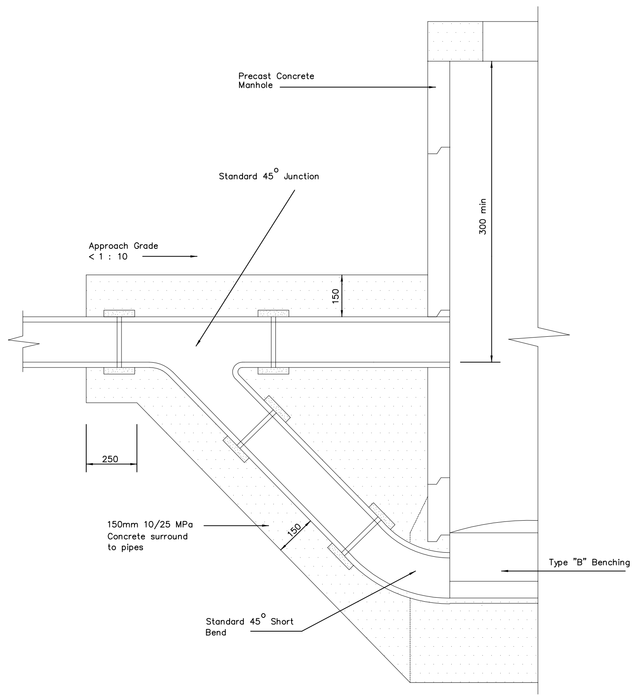
Manager RD(N)

Director : Roads

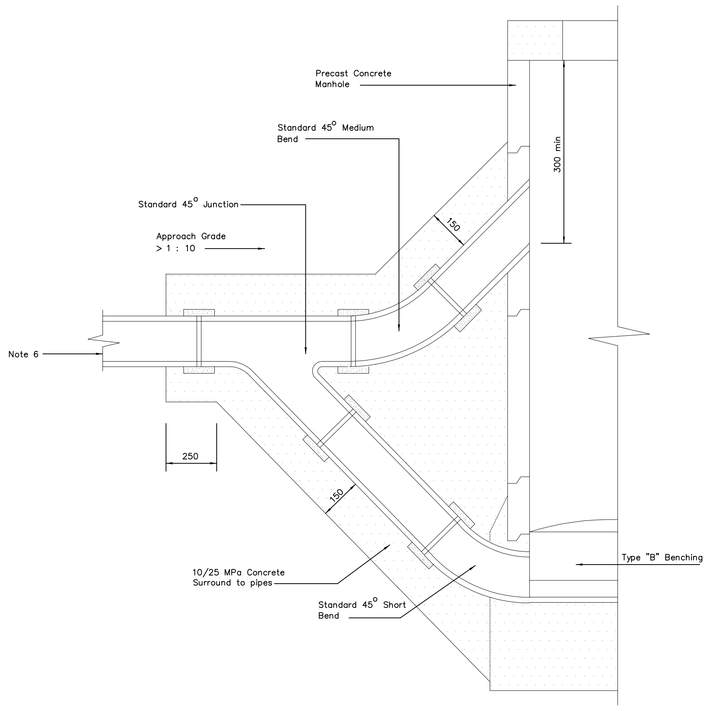
R.A.Moore Executive Director

Drawing No 38573

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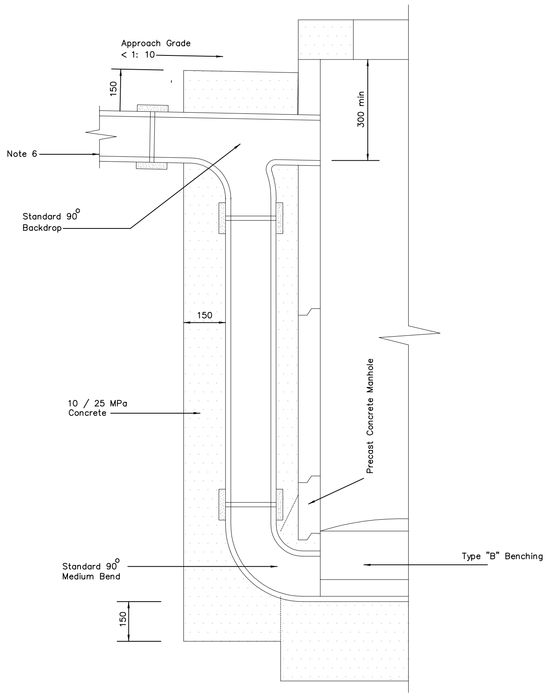


RAMP MANHOLE : TYPE A
FOR DROPS BETWEEN 500 AND 1000

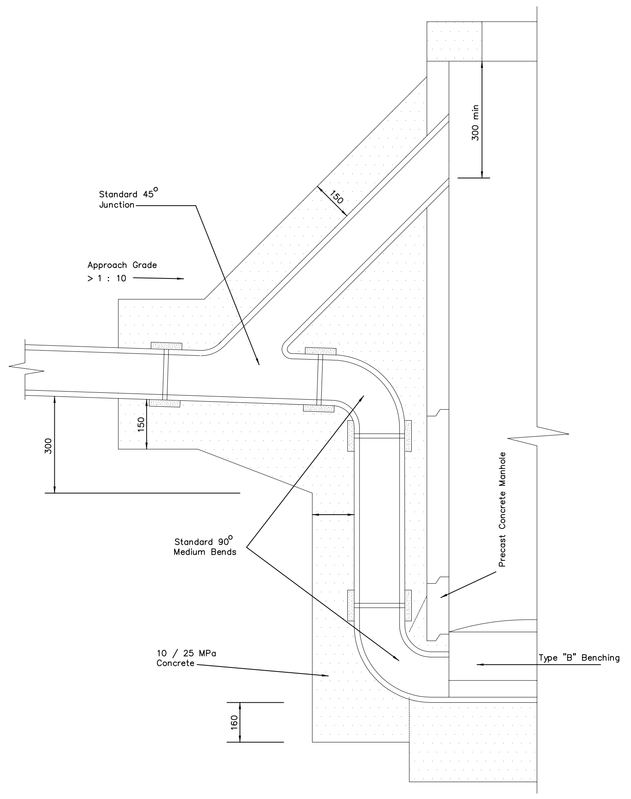


Rising Rodding Eye to be used where approach grades are 1 : 10 and steeper.

RAMP MANHOLE : TYPE B
FOR DROPS BETWEEN 500 AND 1000



BACKDROP MANHOLE : TYPE A
FOR DROPS IN EXCESS OF 1000

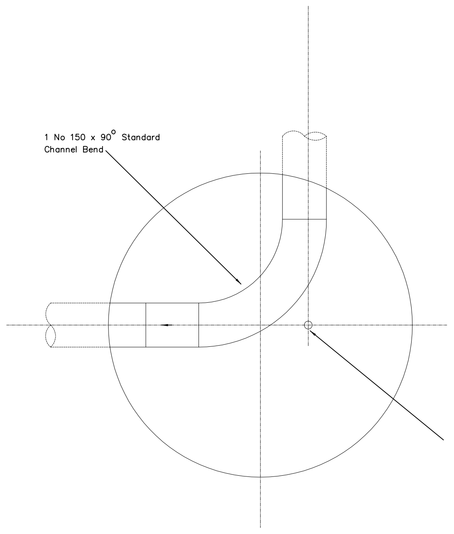


Rising Rodding Eye to be used where approach grades are 1 : 10 and steeper.

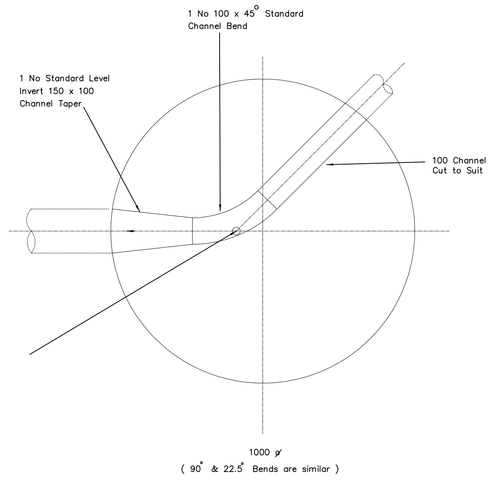
BACKDROP MANHOLE : TYPE B
FOR DROPS IN EXCESS OF 1000

STANDARD FITTING FOR RAMP AND BACKDROP MANHOLES.

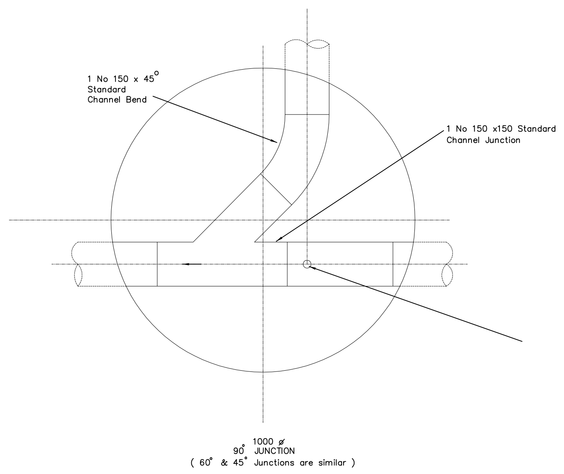
NOT TO SCALE



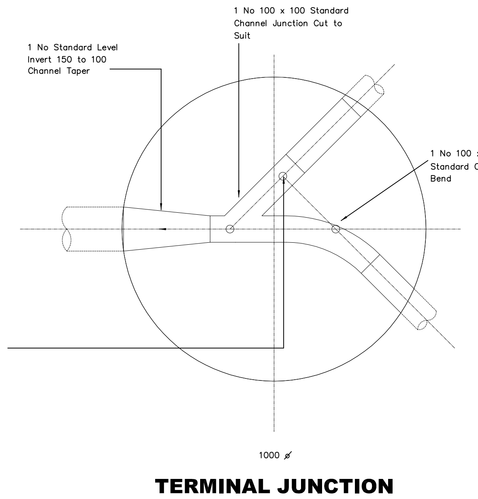
BENDS



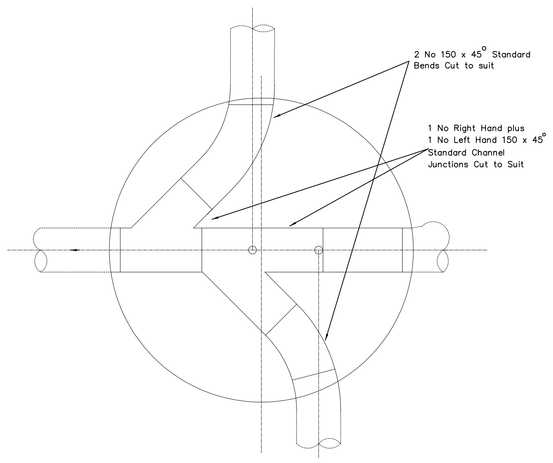
TERMINAL BENDS



SINGLE JUNCTION



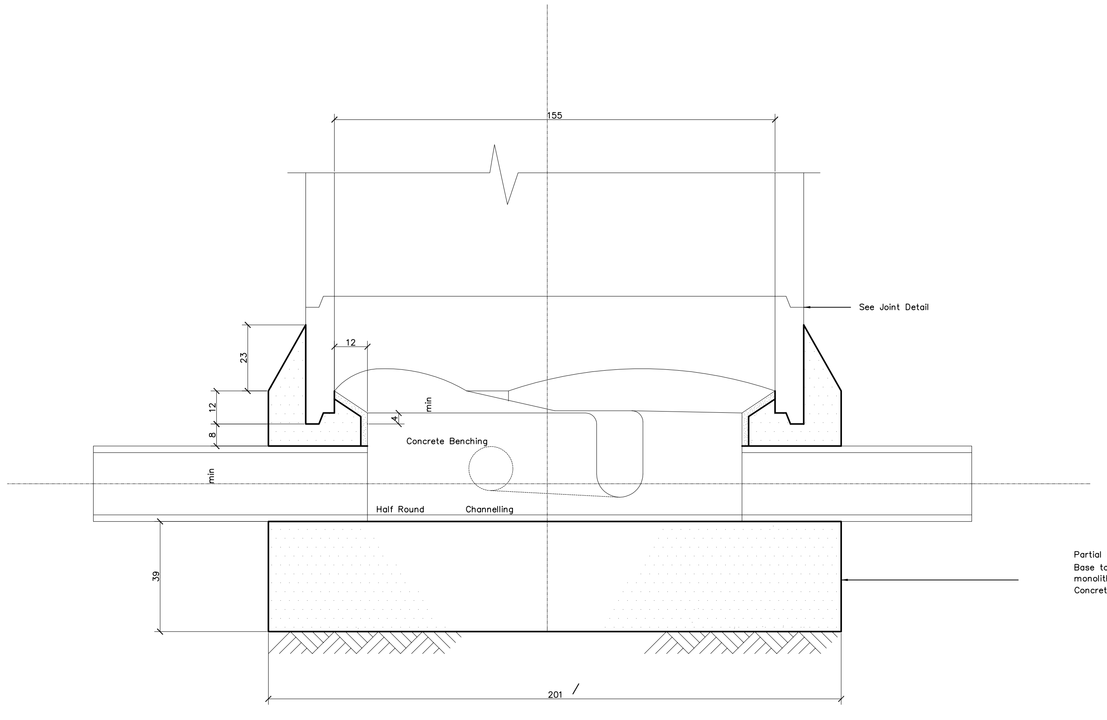
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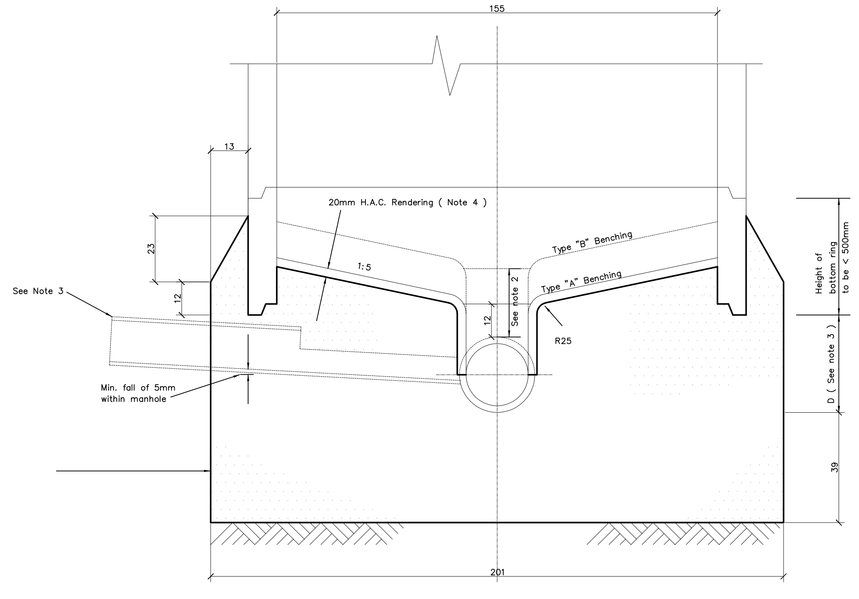
DOUBLE JUNCTION

STANDARD CHANNELLING IN PRECAST CONCRETE MANHOLES

NOT TO SCALE



SECTION OF 1000 DIAMETER MANHOLE



SECTION OF 1000 DIAMETER MANHOLE

PRECAST CONCRETE SEWER MANHOLE

SCALE 1 : 10

NOTE :

1. This drawing to be read in conjuction with Drawing 38570.
2. Where approach grades into the manhole are 1 : 15 or steeper and associated with a change in direction in the manhole of 30° or more , the benching is to be brought up two pipe diameters above the pipe invert (Type B benching sewers)
3. Dimension D varies with the diameter of the sewer pipes and shall be to a point 50mm above the highest crown of the pipes.
4. Rendering for manhole benching shall consist of one part H.A.C. to two parts sand thoroughly mixed and applied to concrete surfaces while the latter are still green. Rendering shall be at least 20mm thick.

NORTH/SOUTH CENTRAL LOCAL COUNCIL – DURBAN

CITY ENGINEERS
SERVICE UNIT
ROADS DEPARTMENT

PLAN DESCRIPTION	DWG. NO.	
CONTINUED FROM		
CONTINUED ON		
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	Date	Description

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

Acquisitions completed

Date Engineer

NORTH POINT

UNDERGROUND SERVICES CHECKED

SERVICE	DATE	SIGNATURE
S.W.DRAINS		
SEWERS		
WATER MAINS		
G.P.O.CABLES		
ELECTRIC CABLES		
S.A.R. CABLES		
E.S.C. CABLES		
OIL PIPE LINE		

NOTE: Only underground services affected by new construction work are shown.
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Contract No

Project Title

STANDARD DRAWING

Drawing Title

SEWER MANHOLES : RAMP, BACKDROP AND CHANNELLING DETAILS

Scales	DATE OF ISSUE
NOT TO SCALE	FEBRUARY 1990
Designed	Date 1995-12-05
Checked	Drawn W.R.BURNETT

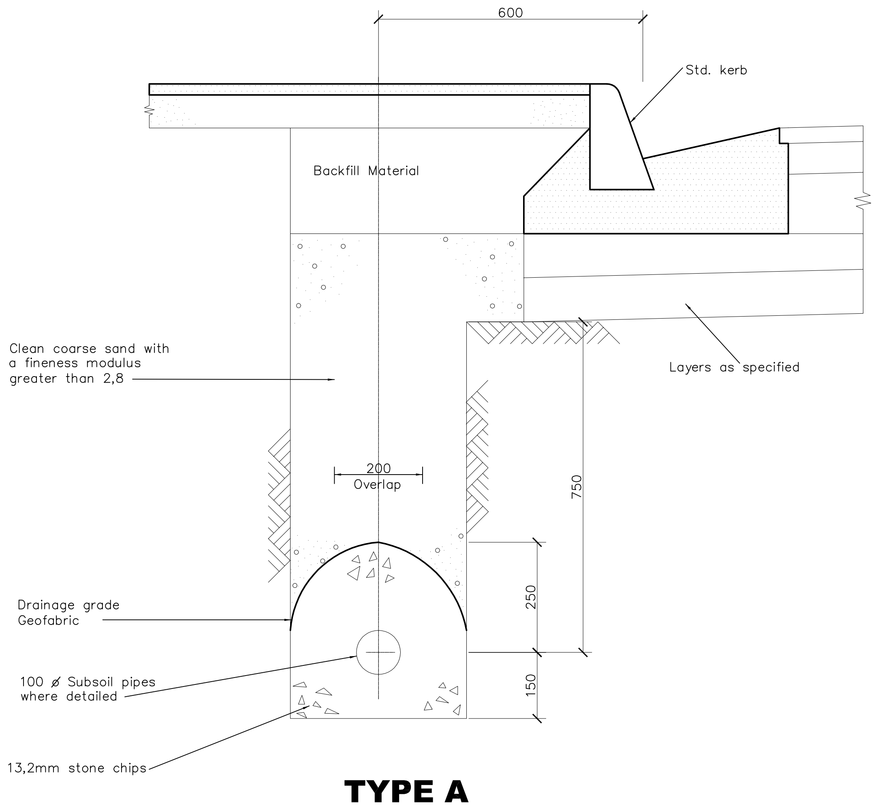
Manager RD(N)

Director : Roads

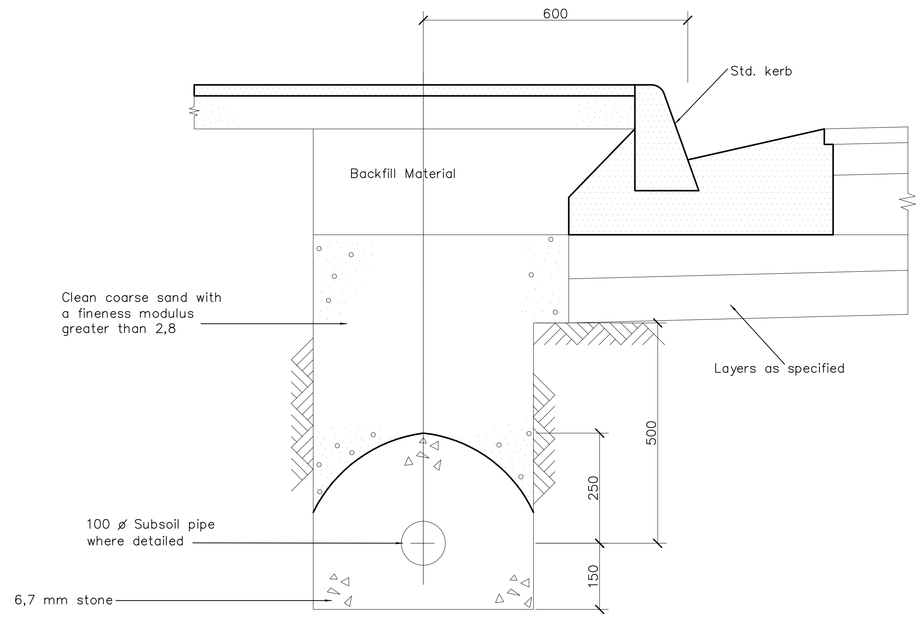
R.A.Moore Executive Director

Drawing No 38574

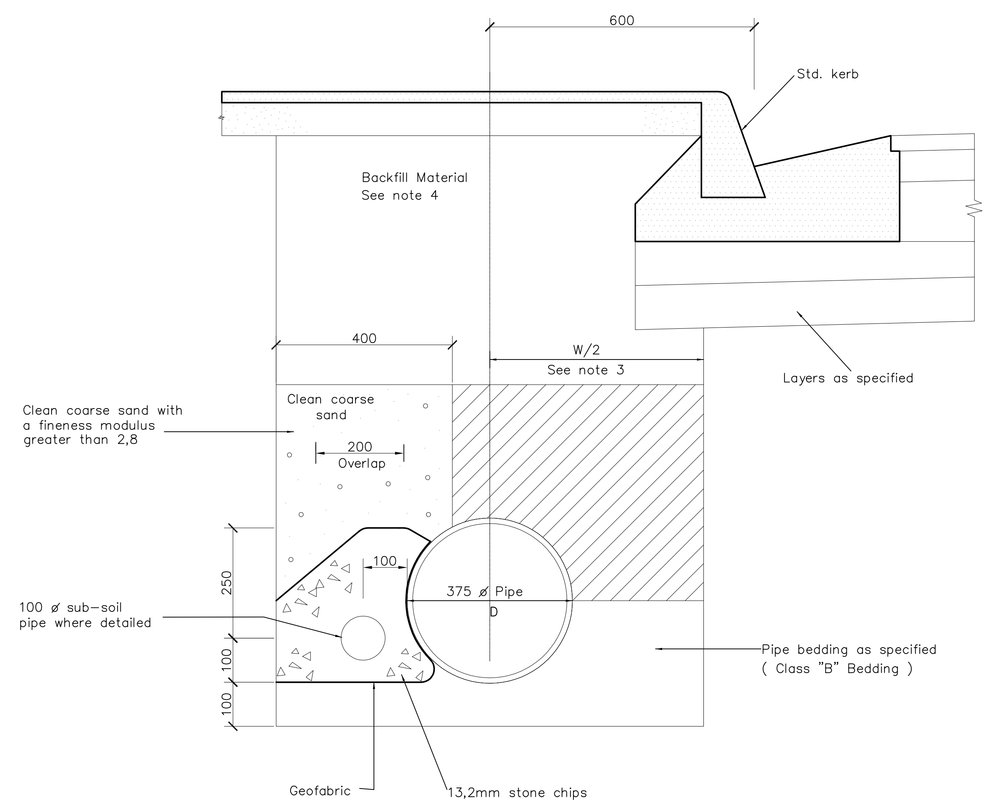
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TYPE A



TYPE B
GRADED FILTER

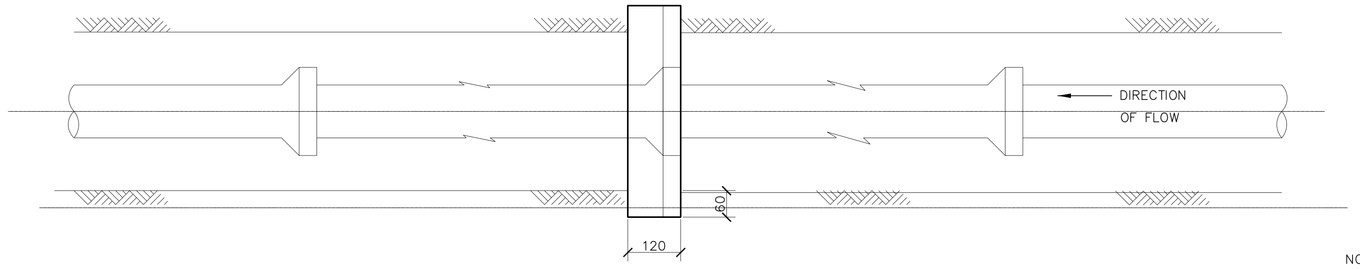


TYPE C
COMBINED SUB-SOIL / S.W. TRENCH

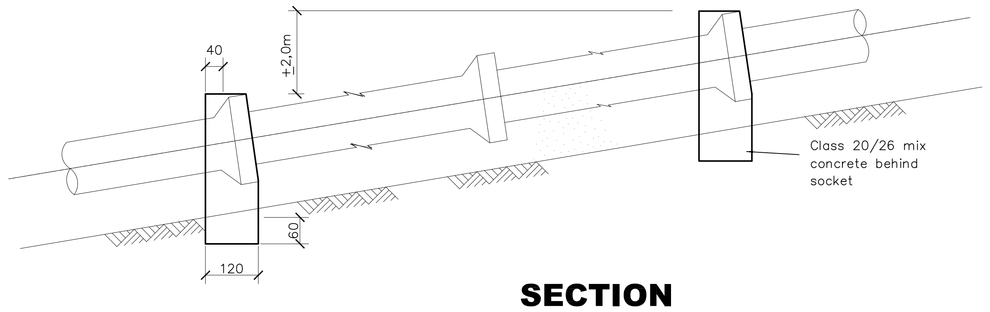
SUB-SOIL DRAIN DETAILS
SCALE: 1:10

NOTE:

1. Sand , stone , geofabric and pipe required for the sub-soil drains are to comply with the requirements of Clause P.G.3 of the specification
2. 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%.
3. W = Pay width
   D = O.D. of pipe
4. 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.



PLAN



SECTION

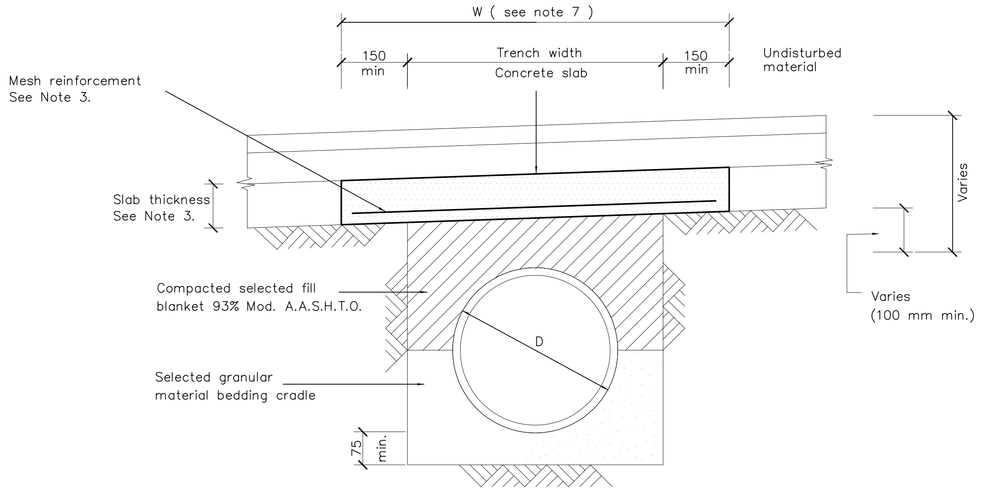
ANCHOR BLOCK DETAILS
SCALE 1 : 25

NOTE:

1. Sides and bottom of anchor blocks to be embedded to a min. depth of 150 mm into undisturbed in situ material.
2. No anchor blocks required where flexible pipes are used ie. H.D. u.p.v.c. pipes.

NOTE

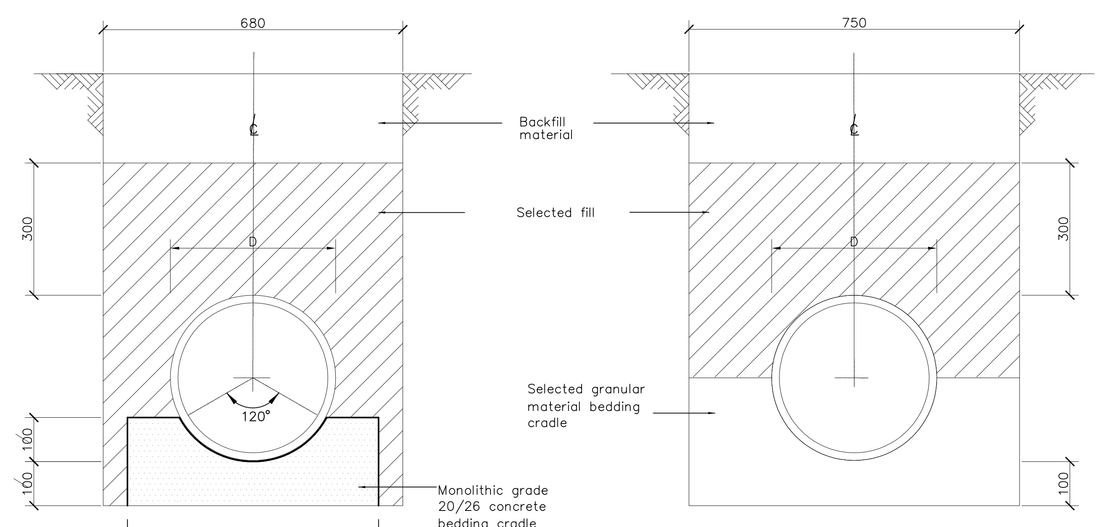
1. This detail applies where cover is less than 300mm in servitudes and less than 600mm in road reserves.
2. Class "B" Bedding is shown.
3. Slab thickness and reinforcing details will be confirmed by the engineer.
4. Slab is to consist of grade 20/26 concrete.
5. Cover to reinforcement is to be 35mm.
6. Construction joints are to be formed in the slab at intervals not exceeding 5,0m.
7. W=Trench width + 300mm in undisturbed material.



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

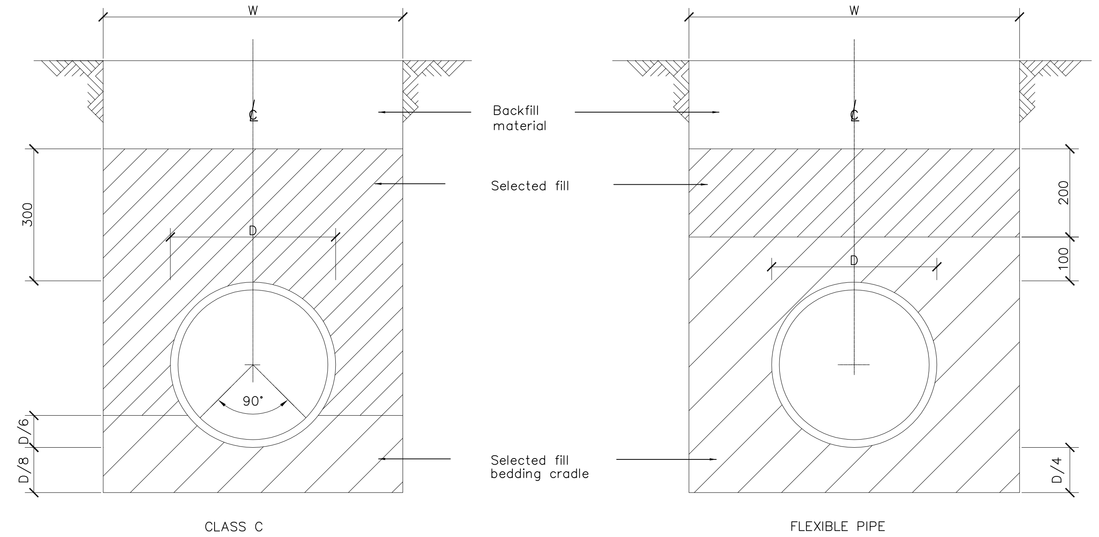
D/4 = 300 Max. with
a) 100 min Trench in soil
b) 50 min For trench in rock

a) In soil:
   X = D/6: 75 min. 200 max.
b) In Rock:
   X = D/4: 150 min. 200 max.



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

D/4 = 100 min. 200 max.



W = Trench pay width
D = Outside diameter of pipe

PIPE BEDDING DETAILS
SCALE: 1:10

NORTH/SOUTH CENTRAL LOCAL COUNCIL – DURBAN

CITY ENGINEERS
SERVICE UNIT
ROADS DEPARTMENT

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

REDUCED PLAN USE SCALE BELOW

0 10 20 30 40 50 60 70

70mm ON ORIGINAL PLAN

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Acquisitions completed

Date Engineer

NORTH POINT

UNDERGROUND SERVICES CHECKED

SERVICE	DATE	SIGNATURE
S.W.DRAINS		
SEWERS		
WATER MAINS		
G.P.O.CABLES		
ELECTRIC CABLES		
S.A.R. CABLES		
E.S.C. CABLES		
OIL PIPE LINE		

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Contract No

Project Title

STANDARD DRAWING

Drawing Title

SUB-SOIL DRAIN, PIPE BEDDING AND PIPE PROTECTION DETAILS

Scales	DATE OF ISSUE
AS SHOWN	FEBRUARY 1990
Plot Scale 1 : 10	
Designed G.J.P.	Date 1995-12-05
Checked	Drawn W.R.BURNETT

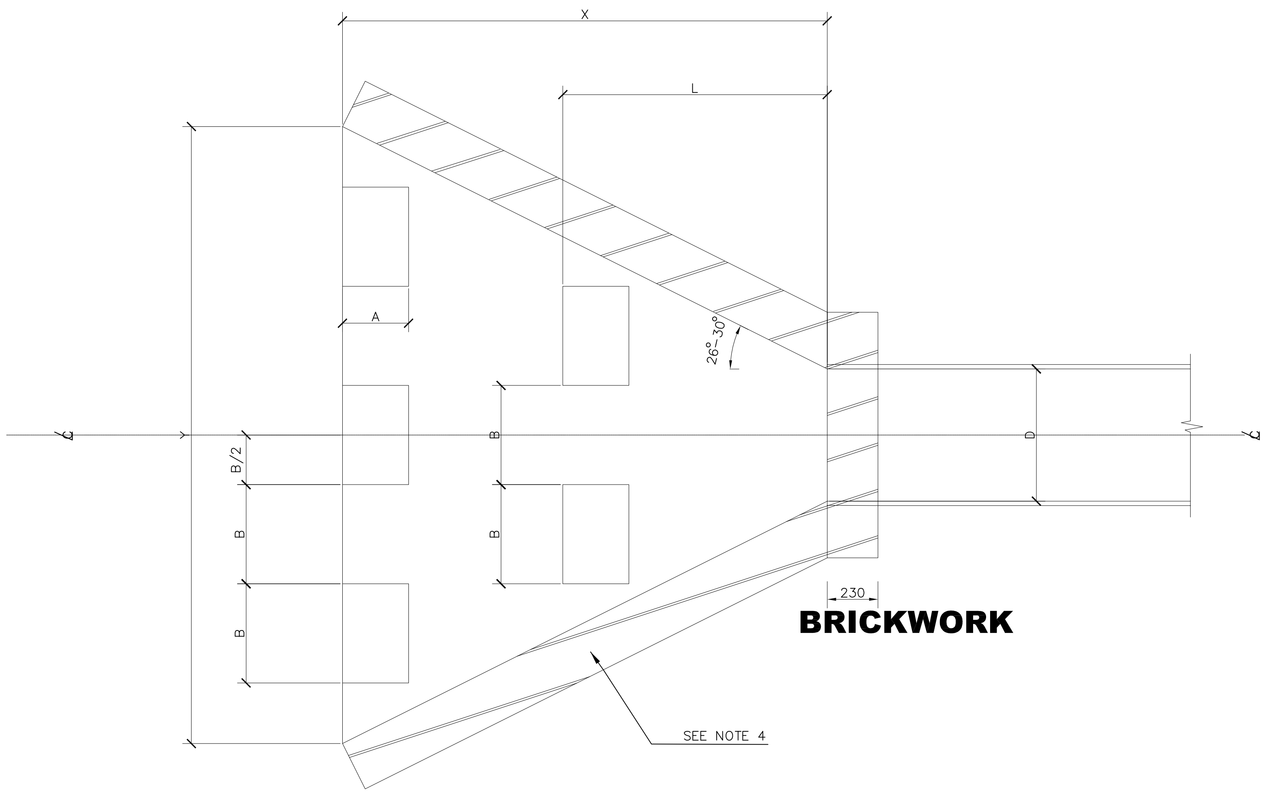
Manager RD(N)

Director : Roads

R.A.Moore Executive Director

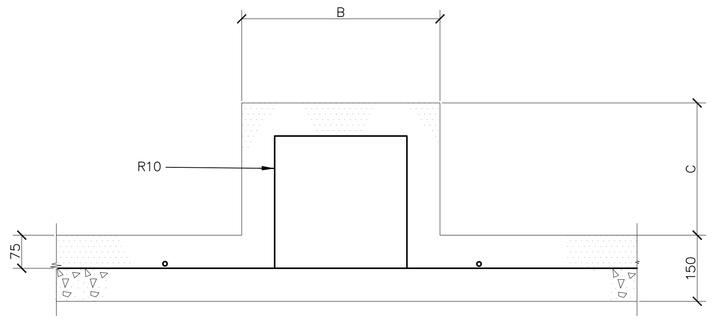
Drawing No 38575

Sheet of Sheets

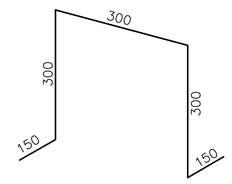


BRICKWORK

PLAN OF TYPES `A' AND `B' HEADWALLS



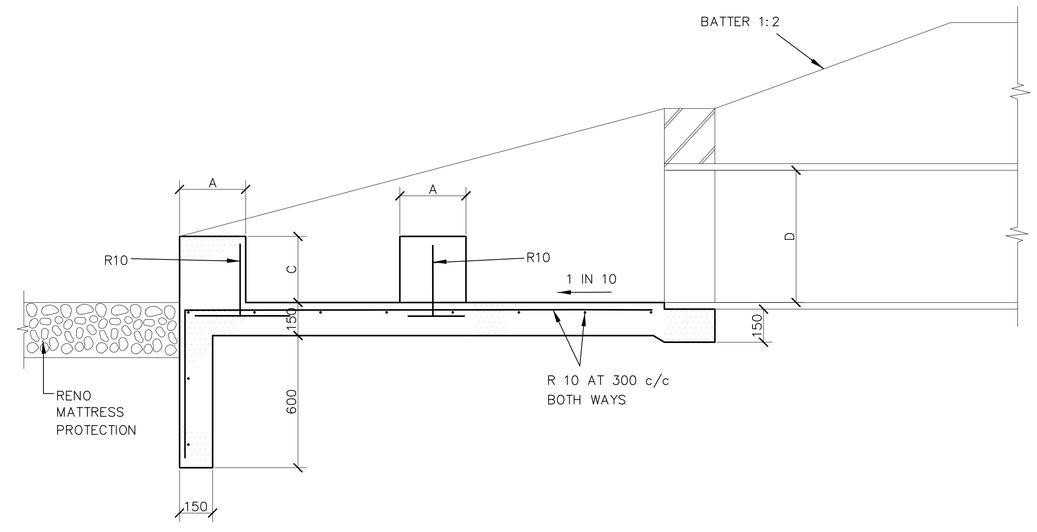
SECTION THROUGH BLOCK



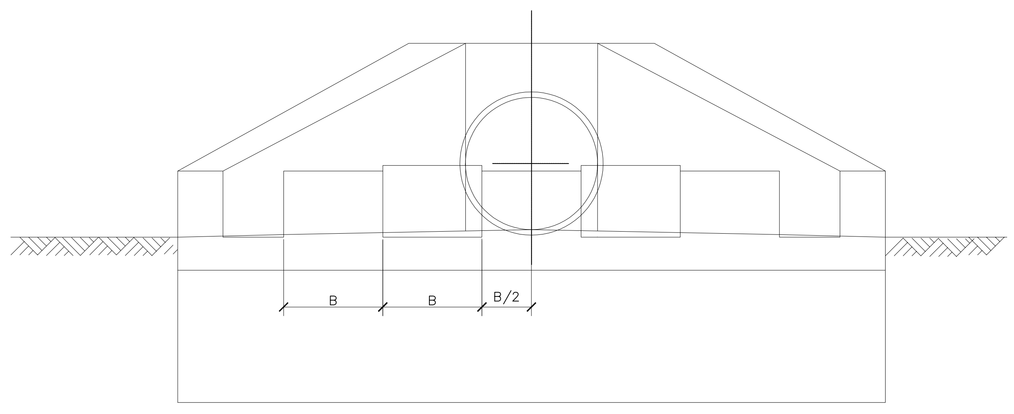
BLOCK REINFORCING (R 10)

SPLITTER BLOCK DETAILS

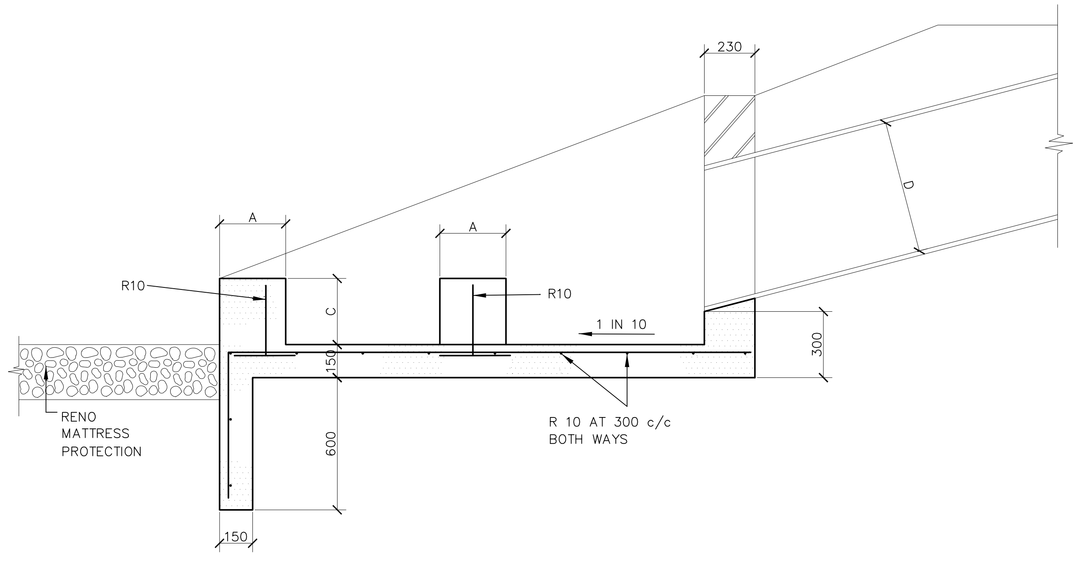
SCALE 1:10



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)

NOM. PIPE DIA.	DIMENSIONS (mm)					
D	A	B	C	L	X	Y
375	245	350	250	980		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	BRICKWORK
0–1100	230
1100–1400	345
1400–1800	460

5) ALL EXPOSED BRICKWORK TO BE FACEBRICK (REFER CLAUSE F 3.5.2. DEPARTMENTAL STANDARD SPECIFICATION)

NORTH/SOUTH CENTRAL LOCAL COUNCIL – DURBAN

CITY ENGINEERS
SERVICE UNIT
ROADS DEPARTMENT

PLAN DESCRIPTION	DWG. NO.	
CONTINUED FROM		
CONTINUED ON		
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	Date	Description
A	19:3:98	DIMENSIONS FOR PIPE O 375 & 450 ALTERED IN TABLE

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

Acquisitions completed

Date Engineer

NORTH POINT

UNDERGROUND SERVICES CHECKED

SERVICE	DATE	SIGNATURE
S.W.DRAINS		
SEWERS		
WATER MAINS		
G.P.O.CABLES		
ELECTRIC CABLES		
S.A.R. CABLES		
E.S.C. CABLES		
OIL PIPE LINE		

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

Contract No

Project Title

STANDARD DRAWING

Drawing Title

HEADWALL DETAILS

Scales	DATE OF ISSUE
1:20 AS SHOWN	FEBRUARY 1990
Designed: CWDH	Date: 1995-12-05
Checked	Drawn: W.R.BURNETT

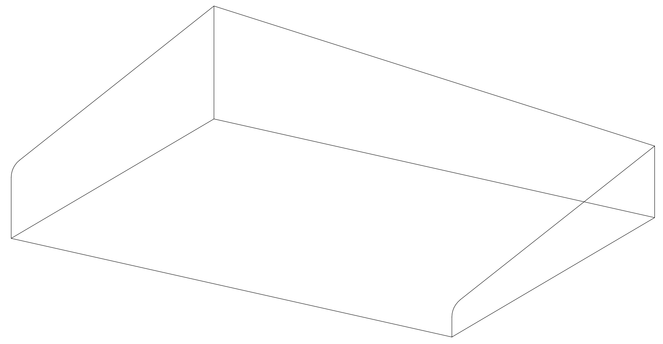
Manager RD(N)

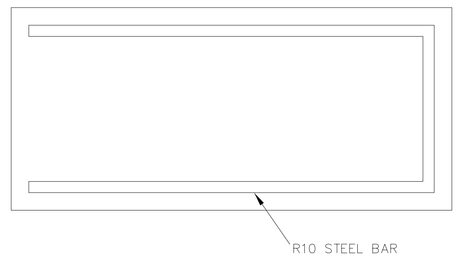
Director : Roads

R.A.Moore Executive Director

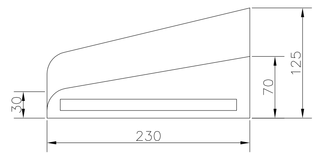
Drawing No 38576

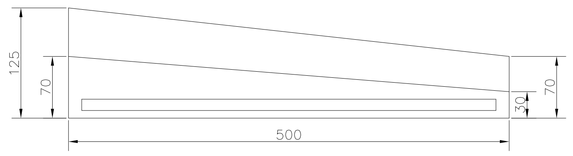
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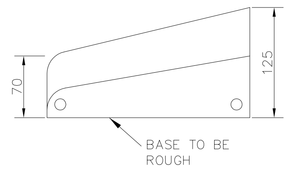


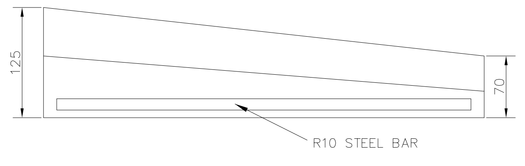
PLAN





FRONT VIEW



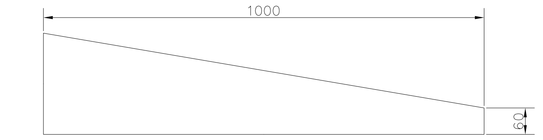


SIDE VIEWS

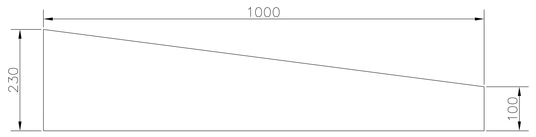
BACK VIEW

REINFORCED PRECAST CONCRETE TRANSITION KERB USED WITH TYPE "E" KERBING

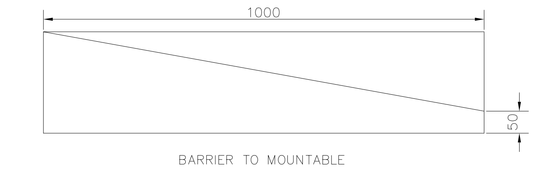
SCALE 1 : 5



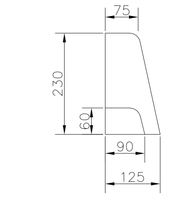
PEDESTRIAN SCOOPS

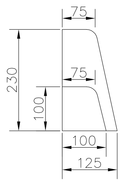


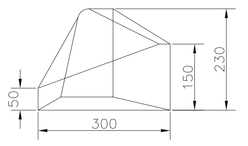
VEHICULAR SCOOPS



BARRIER TO MOUNTABLE



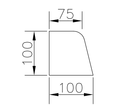




TRANSITION KERBS

PRECAST CONCRETE STD TRANSITION KERBS USED WITH TYPES A,B,C & D KERBING.

SCALE 1 : 10



LOW PROFILE KERB

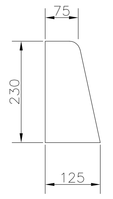


FIG. 6 KERB

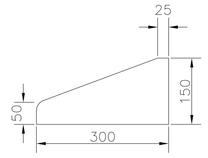
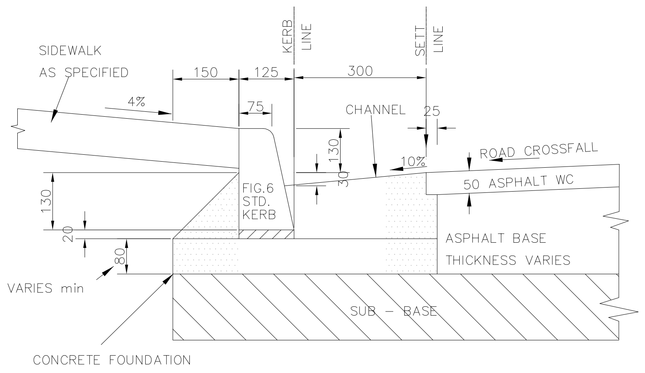


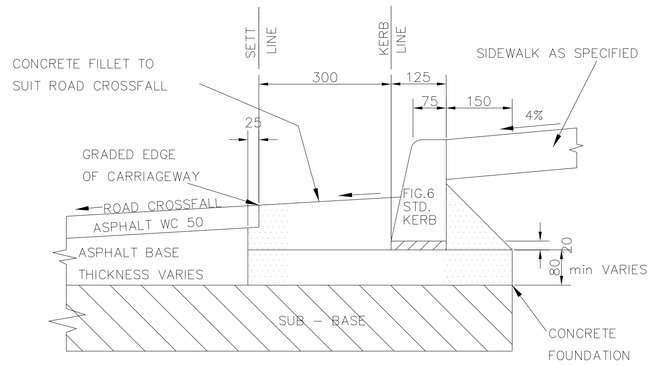
FIG.8 KERB

KERB DETAILS



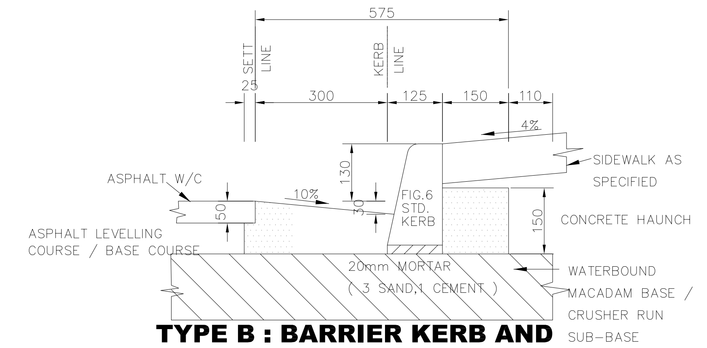
TYPE A : BARRIER KERB AND CAST IN SITU CHANNEL / FILLET (ARTERIAL ROADS)

SCALE 1 : 10



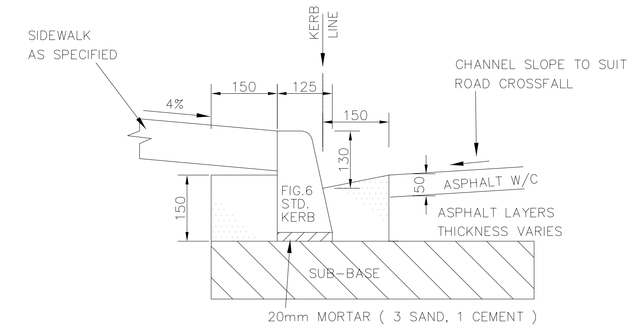
TYPE B : BARRIER KERB AND CAST IN SITU CHANNEL / FILLET (Channel section shown)

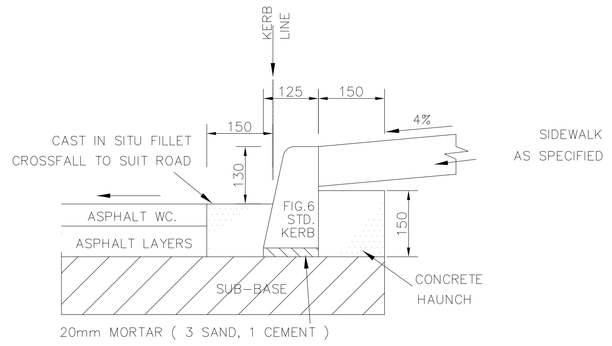
SCALE 1 : 10



GENERAL NOTES:–

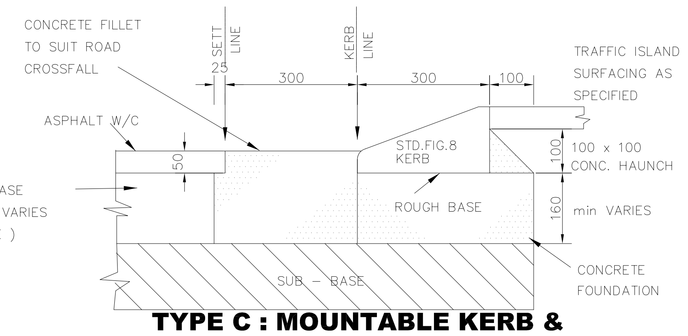
1. ALL CAST IN SITU CONCRETE IS TO BE GRADE 20 / 13.
2. THE SURFACES OF THE CAST IN SITU CHANNEL / FILLET ARE TO HAVE A STEEL FLOAT FINISH.
3. EXPANSION JOINTS TO BE FORMED THROUGH THE KERBING,CHANNEL / FILLET AND FOUNDATIONS AT INTERVALS NOT EXCEEDING 18.0m.
4. CONTRACTION JOINTS TO BE FORMED THROUGH 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 13mm GAP BETWEEN KERBS,WHICH SHALL THEN BE FILLED WITH A CEMENT MORTAR.
7. EXTRUDED KERBS.
   a)ASPHALT KERB:
   ASPHALT TO COMPLY WITH THE REQUIREMENTS OF CLAUSE EG.3.1
   b)CONCRETE KERB:
   1.THE CONCRETE IS TO HAVE A CUBE STRENGTH OF 20MPa AT 28 DAYS.
   2.THE CONCRETE MIX DESIGN IS TO BE APPROVED BY THE ENGINEER.
   3.CONTRACTION JOINTS TO BE FORMED AT 2.0m INTERVALS.
   4.EXPANSION JOINTS ARE TO FORMED AT 6.0m INTERVALS ON STRAIGHTS AND 2.0m INTERVALS WHERE THE KERB RADIUS IS LESS THAN 50m.





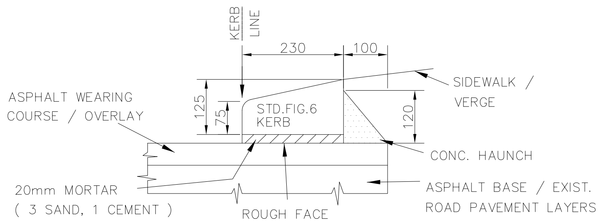
TYPE D : BARRIER KERB WITH CAST IN SITU CHANNEL / FILLET (MINOR ROADS)

SCALE 1 : 10



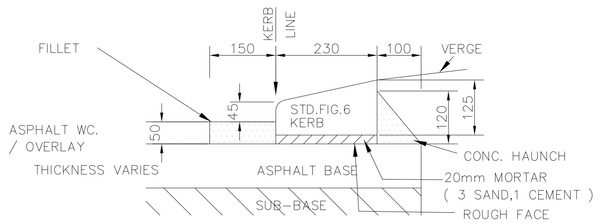
TYPE C : MOUNTABLE KERB & CAST IN SITU CHANNEL / FILLET (Fillet section shown)

SCALE 1 : 10



TYPE E: SEMI-MOUNTABLE KERB PLACED ON ROAD SURFACE (MINOR ROADS)

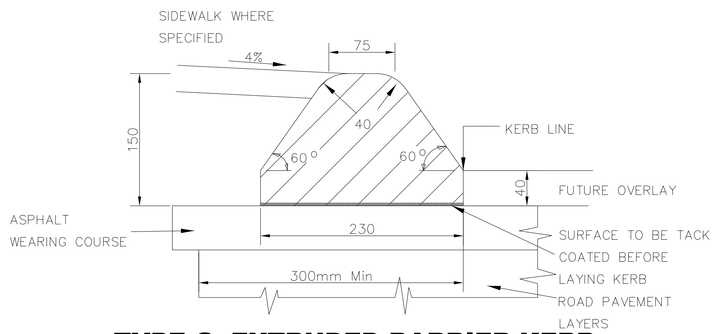
SCALE 1 : 10



TYPE F: MOUNTABLE KERB WITH CAST IN SITU FILLET (MINOR ROADS)

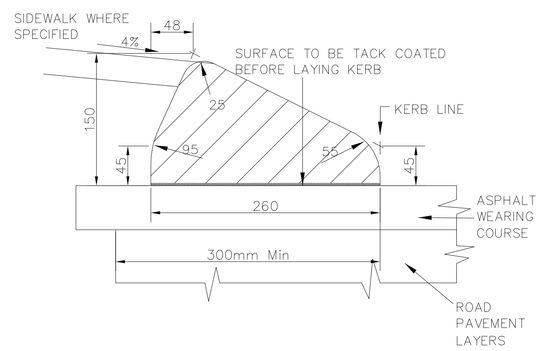
SCALE 1 : 10

NOTE:– WEARING COURSE LAID & THEN CUT BACK TO 150mm FROM FRONT TO KERB PRIOR TO THE FILLET BEING CAST.



TYPE G: EXTRUDED BARRIER KERB

SCALE 1 : 5



TYPE H: EXTRUDED MOUNTABLE KERB

SCALE 1 : 5

NORTH/SOUTH CENTRAL LOCAL COUNCIL – DURBAN

CITY ENGINEERS
SERVICE UNIT
ROADS DEPARTMENT

PLAN DESCRIPTION	DWG. NO.	
CONTINUED FROM		
CONTINUED ON		
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	Date	Description

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

Acquisitions completed

Date Engineer

NORTH POINT

UNDERGROUND SERVICES CHECKED

SERVICE	DATE	SIGNATURE
S.W.DRAINS		
SEWERS		
WATER MAINS		
G.P.O.CABLES		
ELECTRIC CABLES		
S.A.R. CABLES		
E.S.C. CABLES		
OIL PIPE LINE		

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

Contract No

Project Title

STANDARD DRAWING

Drawing Title

KERBING DETAILS

Scales	DATE OF ISSUE
AS SHOWN	FEBRUARY 1990
Plotting Scale 1 : 10	
Designed G.J.P.	Date 1995-12-06
Checked	Drawn W.R.BURNETT

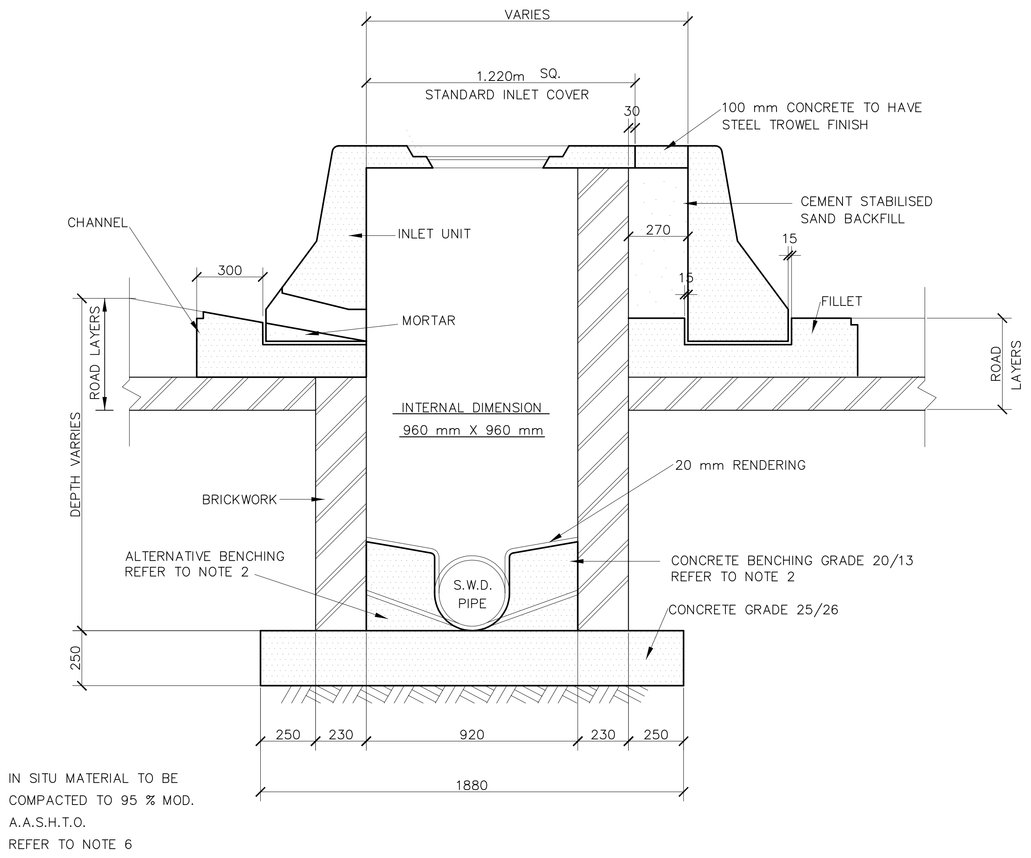
Manager RD(N)

Director : Roads

R.A.Moore Executive Director

Drawing No 38577

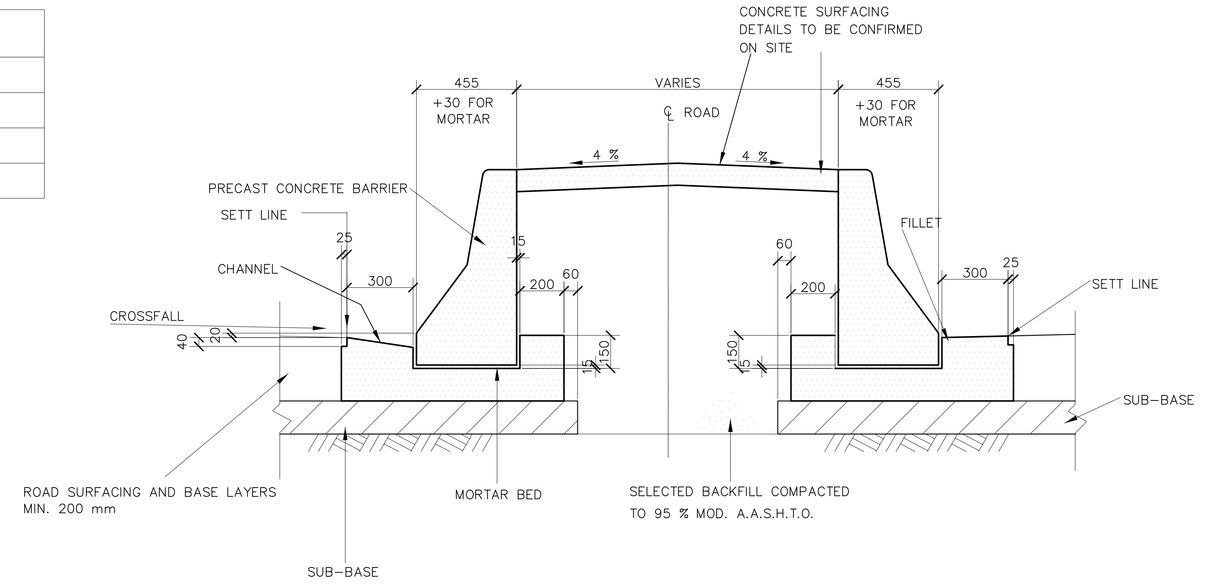
Sheet of Sheets



IN SITU MATERIAL TO BE
COMPACTED TO 95 % MOD.
A.A.S.H.T.O.
REFER TO NOTE 6

CONCRETE BARRIER INLET DETAILS
SCALE 1:20

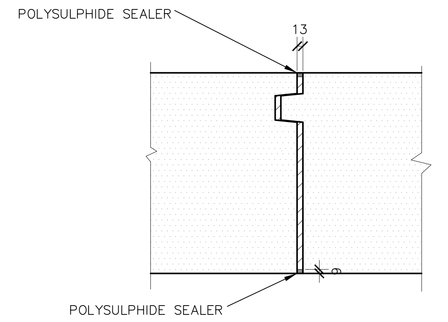
BRICK CHAMBER WALL THICKNESS	
DEPTH	THICKNESS
0,00 – 3,00 m	230 mm
3,01 – 4,50 m	345 mm
4,51 – 6,00 m	460 mm



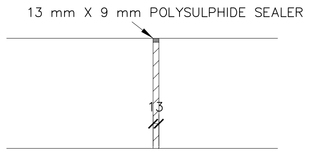
CONCRETE MEDIAN BARRIER
SCALE 1:20

NOTES :

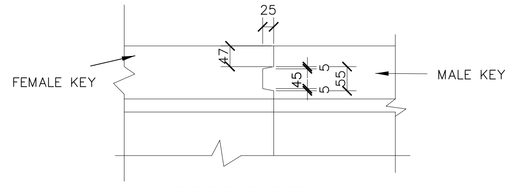
1. CAST IN SITU FOUNDATION TO BARRIER TO CONSIST OF GRADE 20/26 CONCRETE.
2. TYPE A BENCHING TO BE USED FOR S.W. INLETS ON CONTINUOUS PIPELINES. FOR S.W. INLETS LOCATED AT THE HEAD OF A PIPELINE THE BENCHING NEED ONLY BE DISHED AT A GRADE OF 1:10
3. WHEN SPECIFIED,2 X 75 mm DIA. NON–METALLIC PIPES FILLED WITH NO–FINES CONCRETE ARE TO BE PROVIDED AS WEEPHOLES.
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. A.A.S.H.T.O. 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.



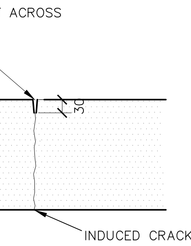
CONCRETE BARRIER EXPANSION JOINT



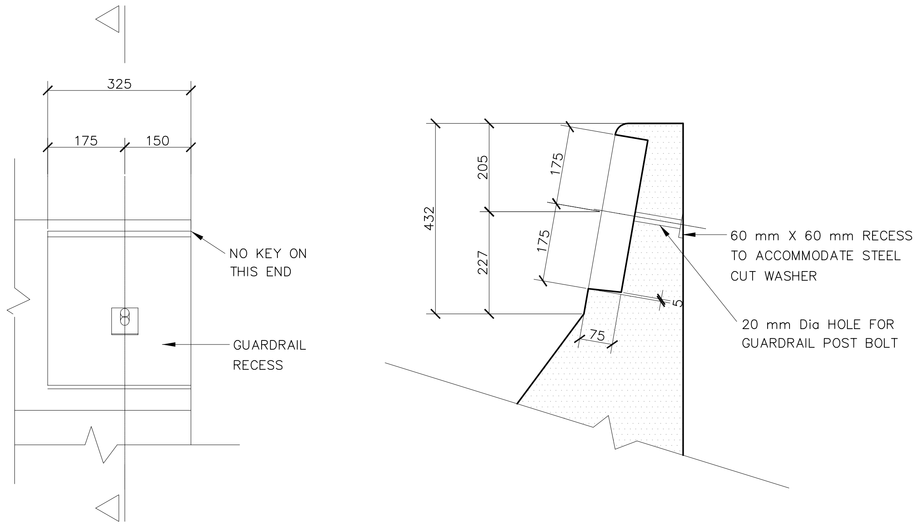
FOUNDATION SLAB EXPANSION JOINT



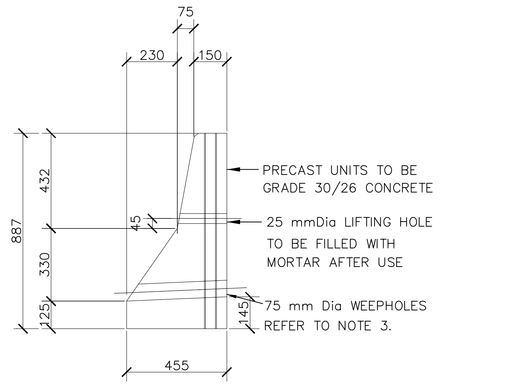
KEY DETAIL



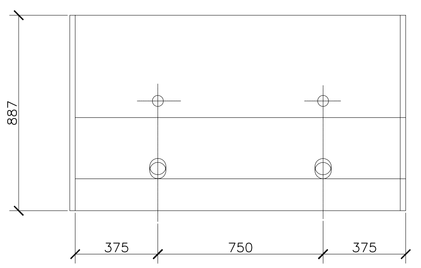
FOUNDATION SLAB SHRINKAGE JOINT
SCALE 1:10



DETAILS OF SPECIAL SECTION WITH GUARDRAIL RECESS
SCALE 1:10

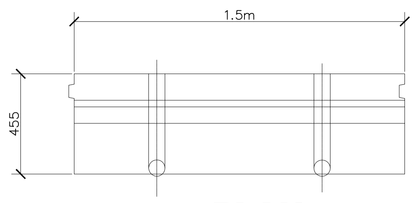


END ELEVATION

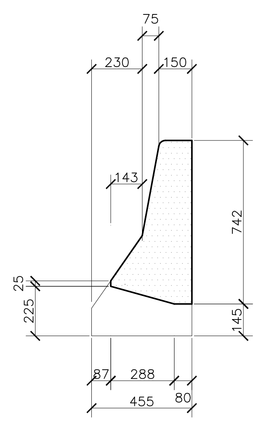


FRONT ELEVATION

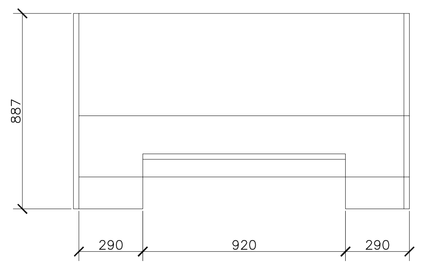
DETAILS OF BARRIER UNIT
SCALE 1:20



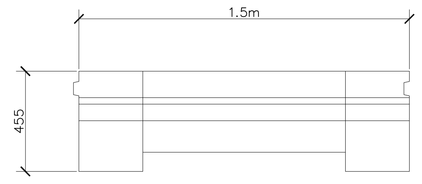
PLAN



SECTION



FRONT ELEVATION

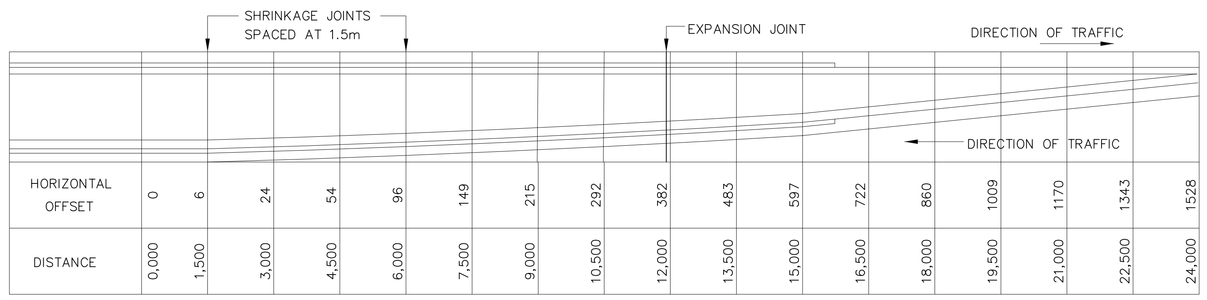


PLAN

DETAILS OF INLET UNIT
SCALE 1:20

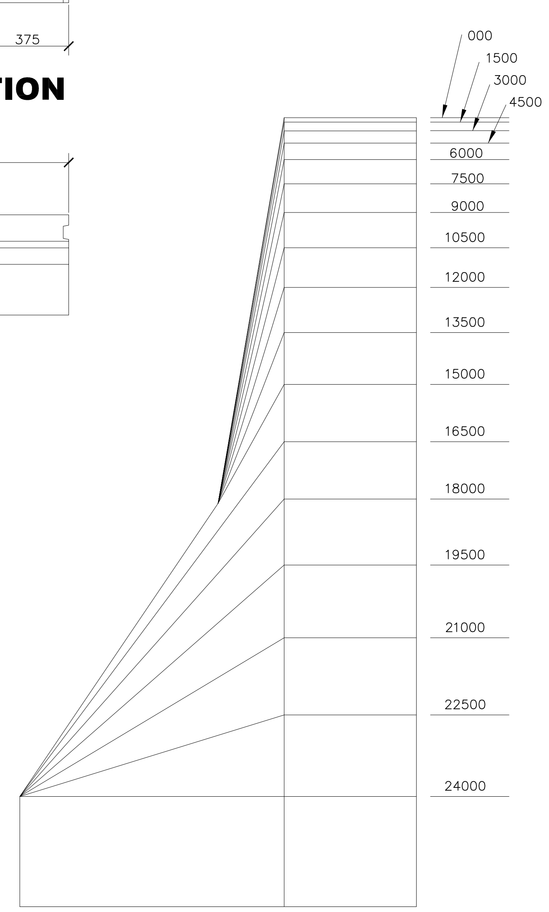
VERTICAL OFFSET (IN mm)	0	3	12	27	48	74	107	146	191	241	298	360	429	503	583	670	762
HEIGHT OF UNIT (IN mm)	887	884	875	860	839	813	780	741	696	626	589	522	458	384	304	217	125

ELEVATION



HORIZONTAL OFFSET	0	6	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

PLAN
DETAIL SHOWING TRANSITION AT END OF INSTALATION
SCALE 1:100



ELEVATION SHOWING HEIGHT PROFILES AT DIFFERENT DISTANCES ALONG FLARES
SCALE 1:10

NORTH/SOUTH CENTRAL LOCAL COUNCIL – DURBAN

CITY ENGINEERS
SERVICE UNIT
ROADS DEPARTMENT

PLAN DESCRIPTION	DWG. NO.
CONTINUED FROM	
CONTINUED ON	
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	Date	Description

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

Acquisitions completed

Date Engineer

NORTH POINT

UNDERGROUND SERVICES CHECKED

SERVICE	DATE	SIGNATURE
S.W.DRAINS		
SEWERS		
WATER MAINS		
P.T.O.CABLES		
ELECTRIC CABLES		
S.A.R. CABLES		
E.S.C. CABLES		
OIL PIPE LINE		

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

Contract No

Project Title

STANDARD DRAWING

Drawing Title

CONCRETE MEDIAN BARRIERS

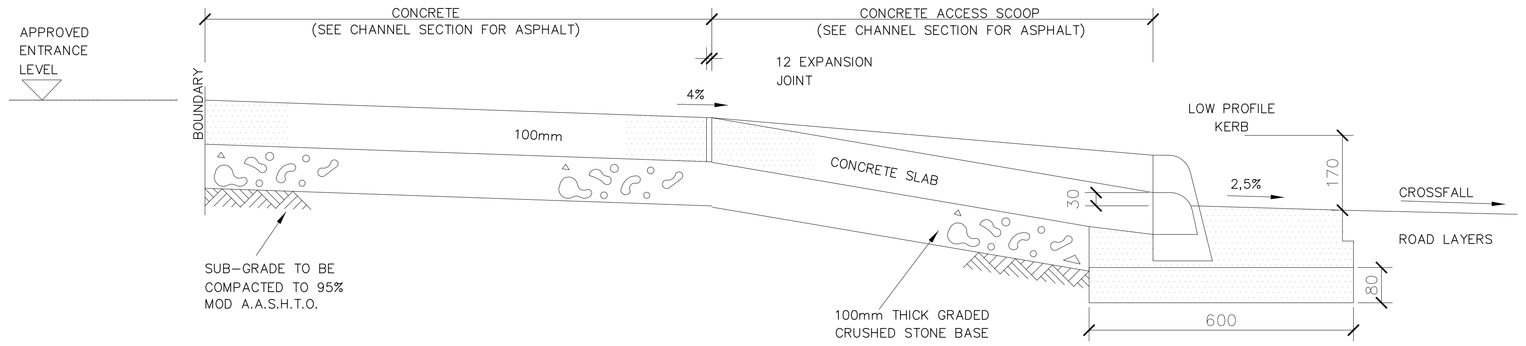
Scales	DATE OF ISSUE
AS SHOWN	FEBRUARY 1990
Plotting Scale 1:20	
Designed PD / DRT	Date 1995-12-05
Checked	Drawn W.R.BURNETT

Manager RD(N)

Director : Roads

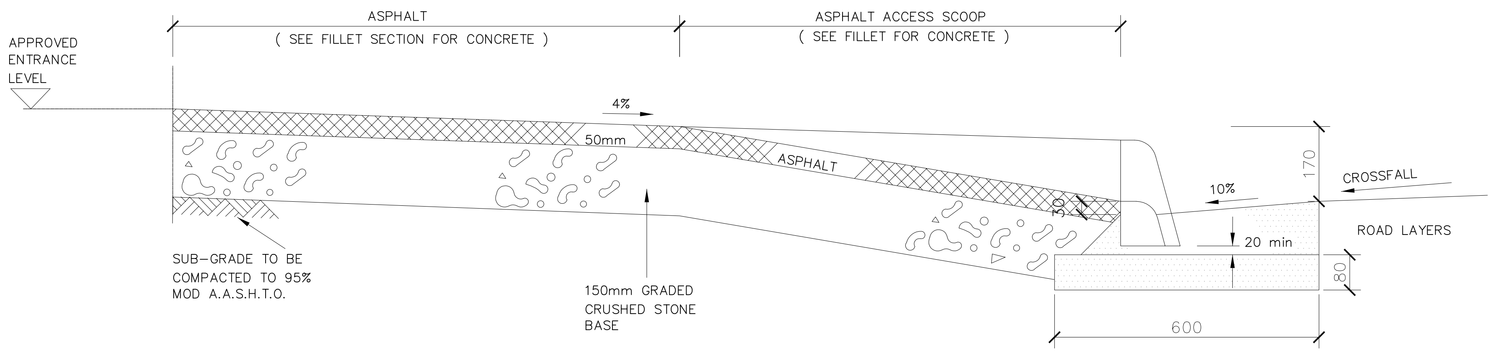
R.A.Moore Executive Director

Drawing No 38578 Sheet of Sheets



SECTION SHOWING TYPE "A" KERB AND FILLET AND CONCRETE SURFACING TYPE" B" (COMMERCIAL) SHOWN

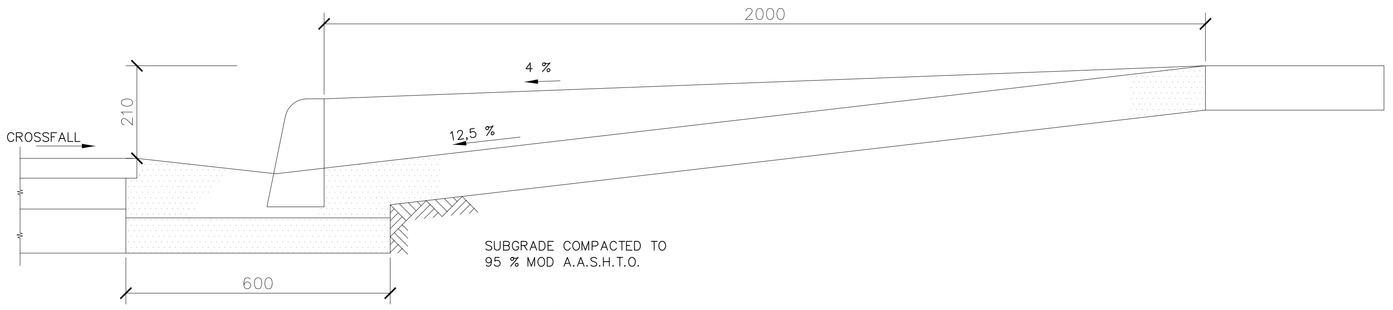
SCALE 1:10



SECTION SHOWING TYPE "A" KERB AND CHANNEL AND ASPHALT SURFACING TYPE "A" (RESIDENTIAL) SHOWN

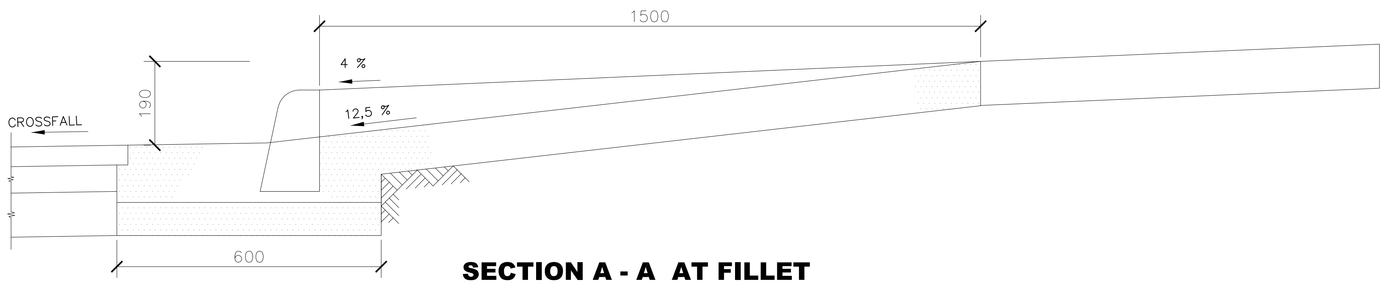
SCALE 1:10

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



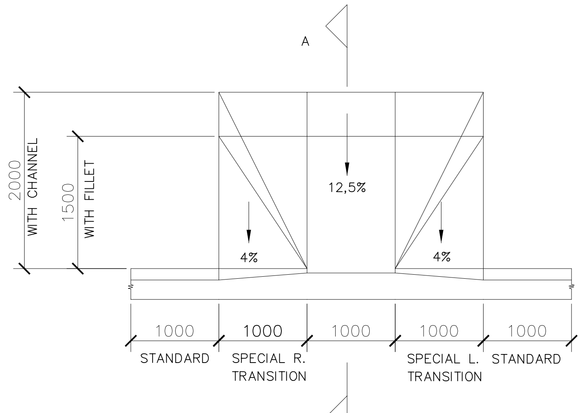
SECTION A - A AT CHANNEL

SCALE 1 : 10



SECTION A - A AT FILLET

SCALE 1 : 10

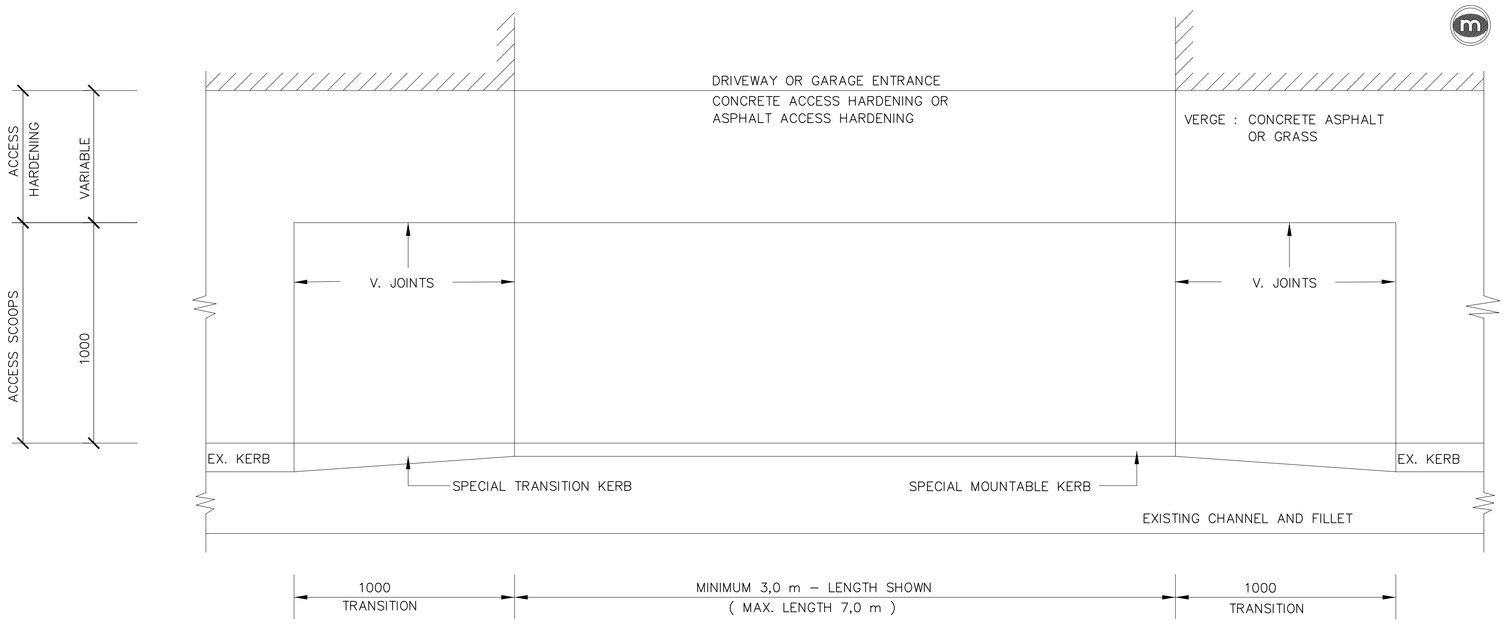


PLAN OF SCOOP KERB

PEDESTRIAN SCOOPS

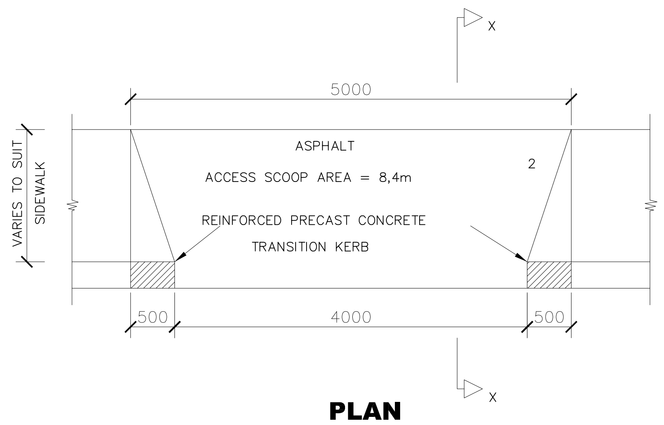
NOTES:

1. VEHICULAR SCOOPS 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 SCOOPS ARE TO HAVE A WOOD FLOAT 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 SCOOPS ARE TO BE FORMED WITH CONCRETE SURFACE ONLY.
8. APPROVED WEED KILLER TO ASPHALTED AREAS TO BE SPRAYED ON COMPACTED SUB BASE.



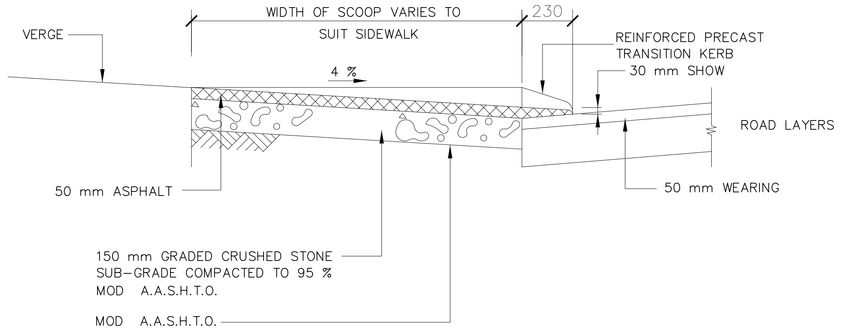
PLAN OF ACCESS SCOOP
(CONCRETE SCOOP DETAILS)

SCALE 1 : 20



PLAN

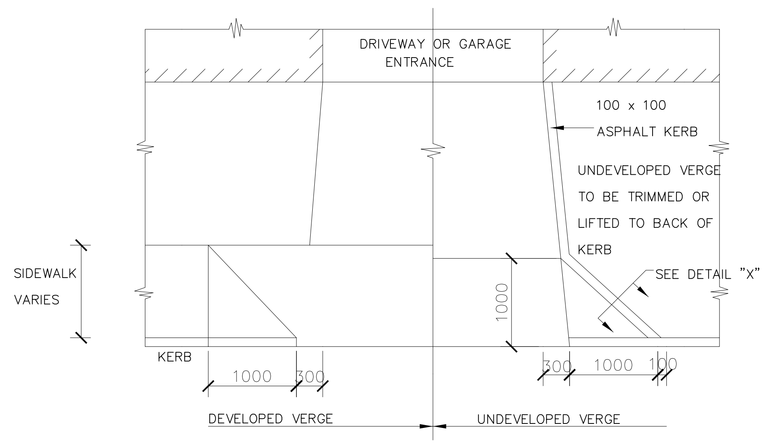
SCALE 1:50



SECTION X - X

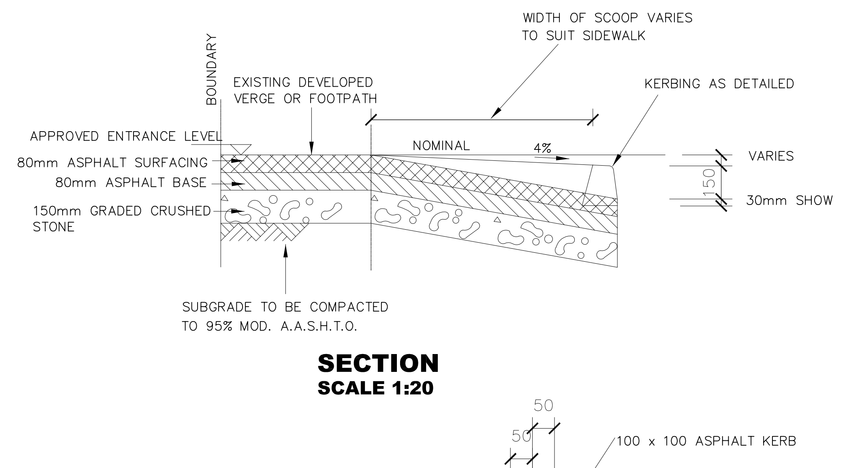
SCALE 1 : 20

ACCESS SCOOP -: USED IN CONJUNCTION WITH TYPE "E" KERBING
(ASPHALT SURFACING TYPE "A" (RESIDENTIAL) SHOWN)



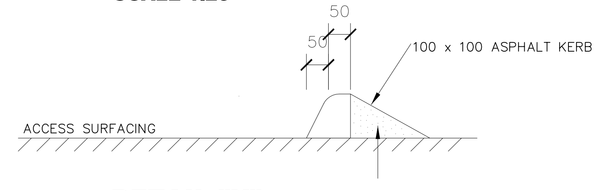
PLAN

SCALE 1:50



SECTION

SCALE 1:20



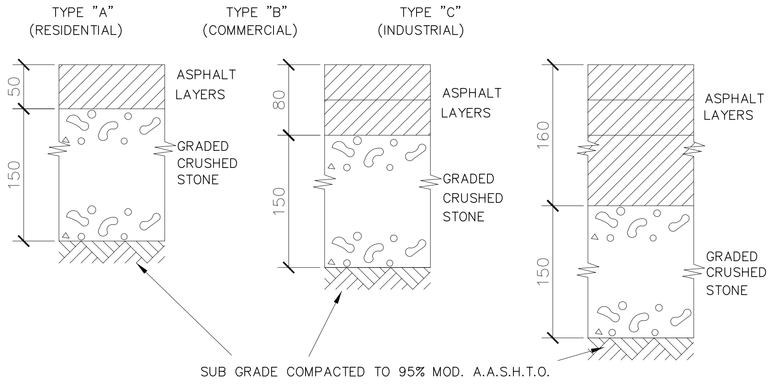
DETAIL "X"

SCALE 1 : 10

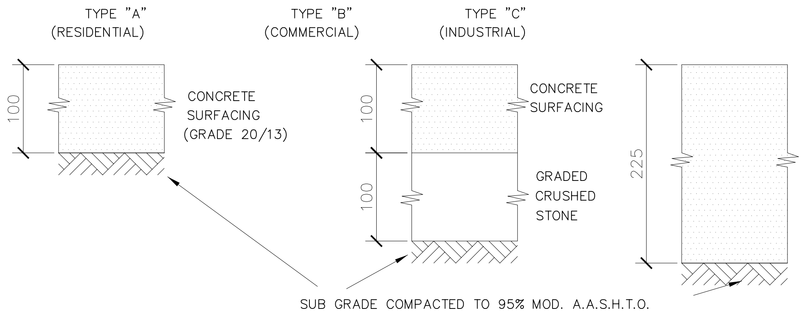
EXISTING VERGE TO BE TRIMMED OR BACKFILLED THUS

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

VEHICULAR SCOOPS



ASPHALT SURFACE



CONCRETE SURFACE

SCOOP AND ACCESS HARDENING PAVEMENT LAYERS

NORTH/SOUTH CENTRAL LOCAL COUNCIL – DURBAN

CITY ENGINEERS
SERVICE UNIT
ROADS DEPARTMENT

PLAN DESCRIPTION	DWG. NO.	
CONTINUED FROM		
CONTINUED ON		
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	Date	Description

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

Acquisitions completed

Date Engineer

NORTH POINT

UNDERGROUND SERVICES CHECKED

SERVICE	DATE	SIGNATURE
S.W.DRAINS		
SEWERS		
WATER MAINS		
G.P.O.CABLES		
ELECTRIC CABLES		
S.A.R. CABLES		
E.S.C. CABLES		
OIL PIPE LINE		

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

Contract No

Project Title

STANDARD DRAWING

Drawing Title

VEHICULAR AND PEDESTRIAN SCOOPS

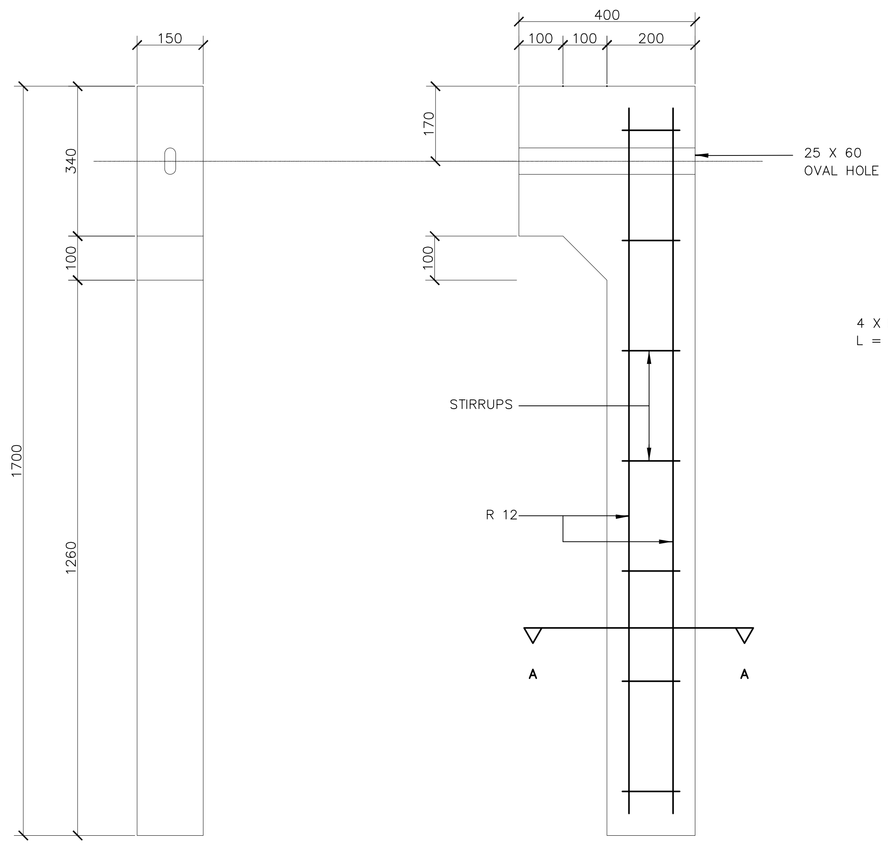
Scales	DATE OF ISSUE
AS SHOWN	FEBRUARY 1990
Plotting Scale 1 : 10	
Designed G.J.P. /	Date 1995-12-05
Checked	Drawn W.R.BURNETT

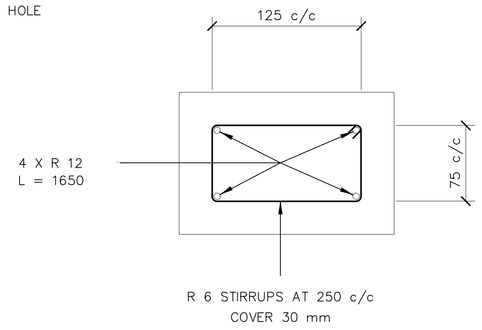
Manager RD(N)

Director : Roads

R.A.Moore — Executive Director

Drawing No 38579 — Sheet of Sheets





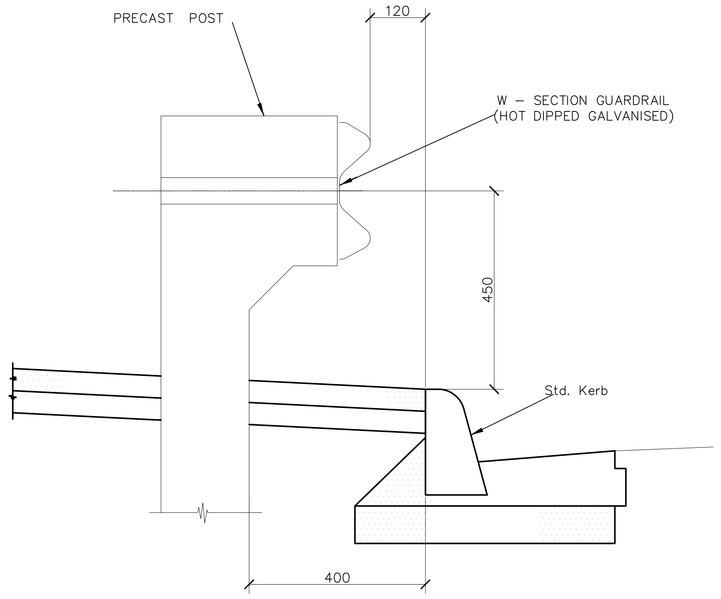
SECTION A - A

NOTES :

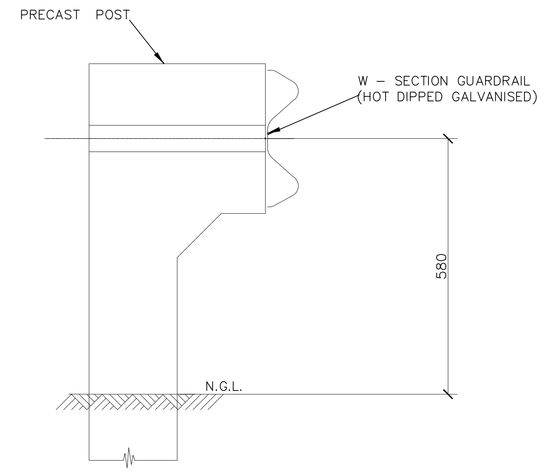
1) WHEN INSTALLED ON A CURVE OF A RADIUS LESS THAN 50 m , GUARD RAILS LENGTHS SHALL BE PRECURVED
2) PRECAST GUARD RAIL POSTS ARE TO BE CAST WITH GRADE 30/26 CONCRETE
3) TOLERANCE APPROX. 3 mm

REINFORCED CONCRETE GUARD POST DETAILS

SCALE 1:10



a) Behind Kerbing

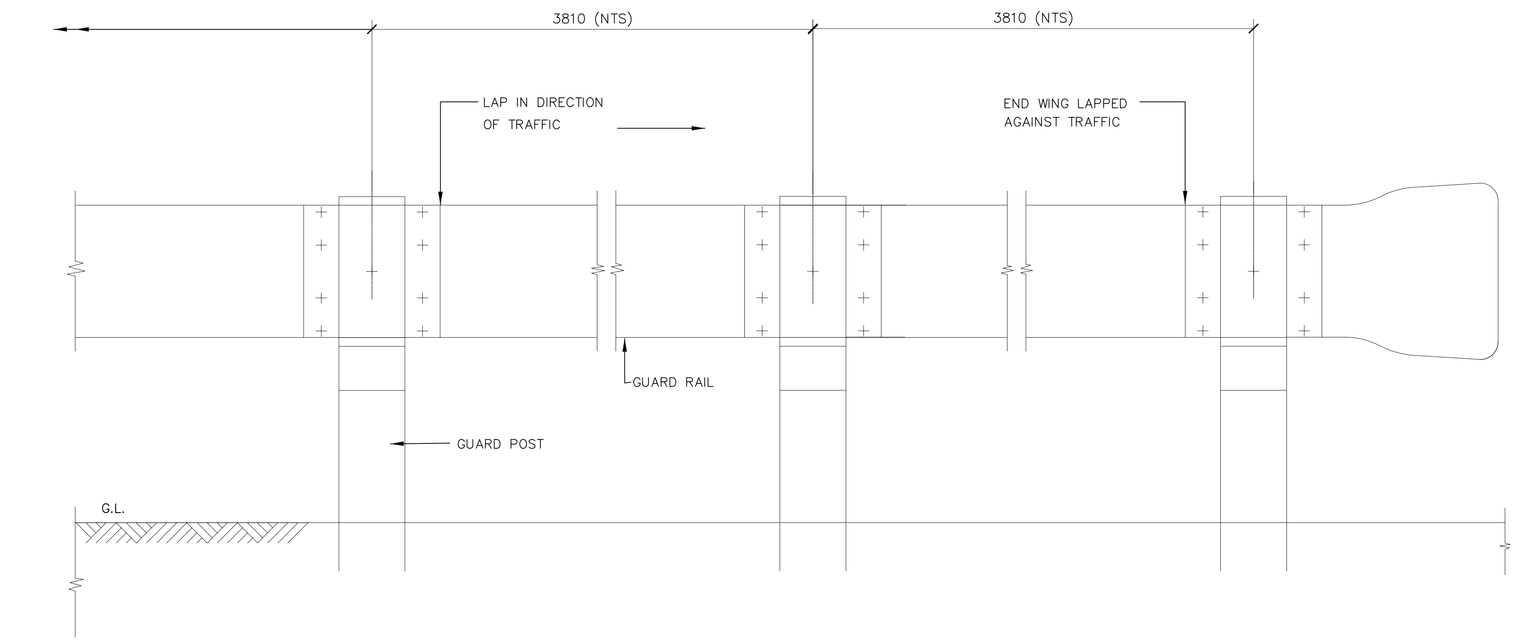


b) Without kerbing

ACTUAL POSITION FROM EDGE OF ROAD VARIES.

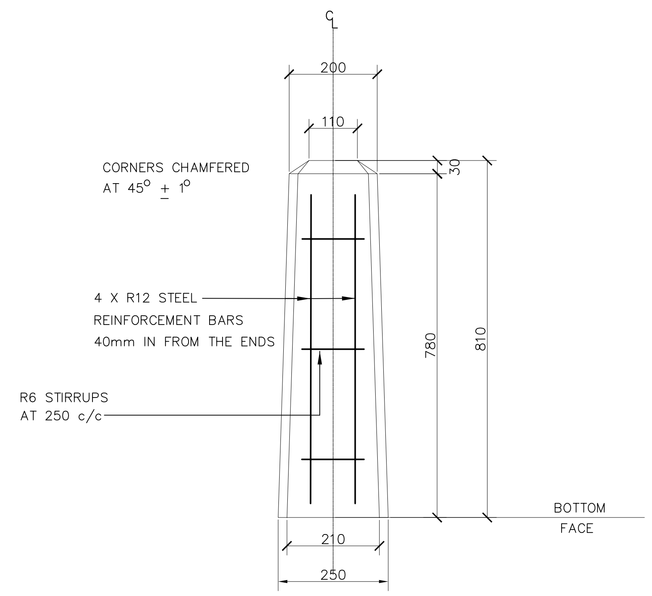
GUARD RAIL POSITION DETAILS

SCALE 1 :10



DETAIL OF TERMINAL SECTION

SCALE 1:10



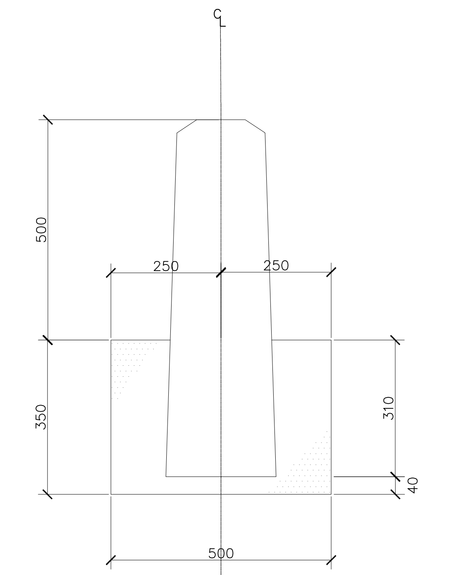
STANDARD BOLLARD

(TYPE A)

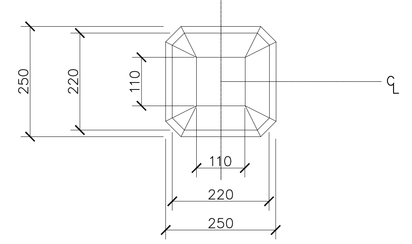
SCALE 1:10

NOTE :

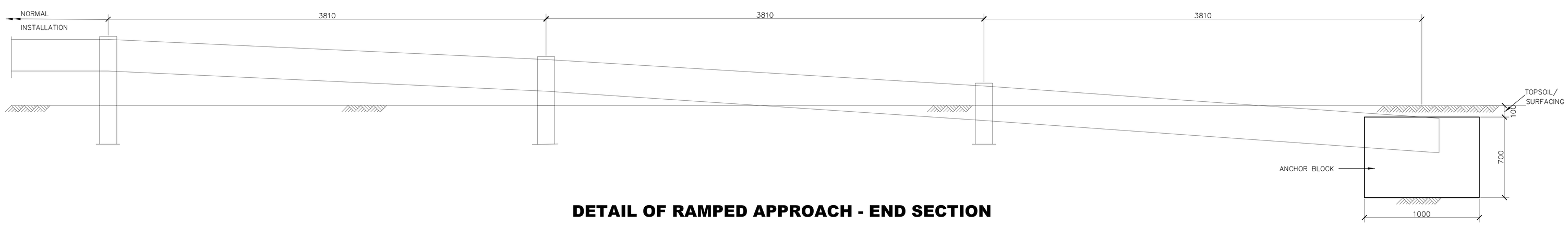
1. CONCRETE GRADE 30/13
2. FINISH – SMOOTH WITH BOTTOM FACE BRUSHED.
3. FOUNDATION CONCRETE IS TO BE GRADE 20/13 AND IS TO HAVE A STEEL TROWEL FINISH.
4. TOLERANCE TO ALL DIMENSIONS + 3mm.



SECTION THROUGH BOLLARD



END ELEVATION



DETAIL OF RAMPED APPROACH - END SECTION

SCALE 1:20

NORTH/SOUTH CENTRAL LOCAL COUNCIL – DURBAN

CITY ENGINEERS
SERVICE UNIT
ROADS DEPARTMENT

PLAN DESCRIPTION	DWG. NO.	
CONTINUED FROM		
CONTINUED ON		
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	Date	Description

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

Acquisitions completed

Date Engineer

NORTH POINT

UNDERGROUND SERVICES CHECKED

SERVICE	DATE	SIGNATURE
S.W.DRAINS		
SEWERS		
WATER MAINS		
G.P.O.CABLES		
ELECTRIC CABLES		
S.A.R. CABLES		
E.S.C. CABLES		
OIL PIPE LINE		

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

Contract No

Project Title

STANDARD DRAWING

Drawing Title

CONCRETE BOLLARD AND STEEL GUARD RAIL

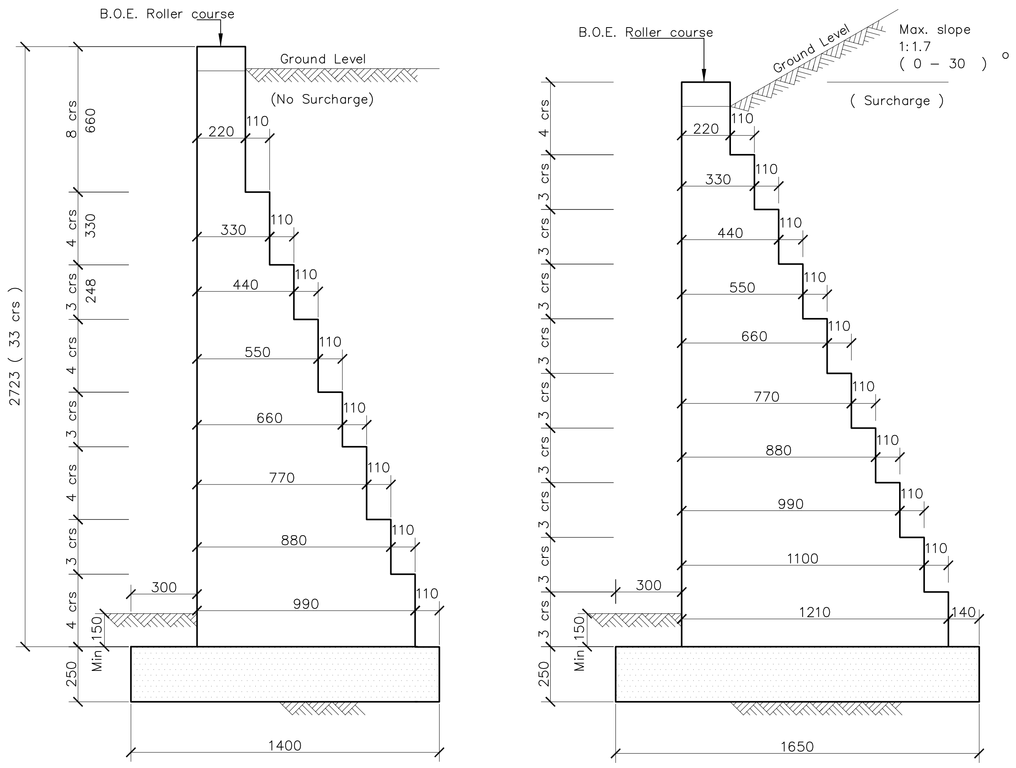
Scales	DATE OF ISSUE
AS SHOWN	FEBRUARY 1990
Plotting Scale 1 : 10	
Designed PD / DRT	Date 1995-12-05
Checked	Drawn W.R.BURNETT

Manager RD(N)

Director : Roads

R.A.Moore Executive Director

Drawing No. 38580 Sheet of Sheets



VERTICAL BRICK RETAINING WALL
SCALE 1 : 20

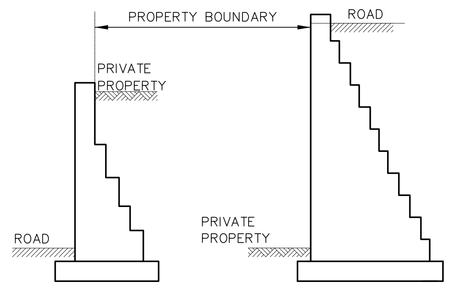
NOTE : (RETAINING WALL)

1. Brickwork to be in English Bond grouted up solid.
2. Weepholes consisting of 75mm Dia. A.C. pipes are to be provided at 1250 cts. hor. & 900 cts vert. Weepholes are to be backed by a 300 X 300 X 300mm no-fines concrete block.
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 shall be tied into the rear brickwork with "Brickforce" every 3rd course.
6. Vertical expansion joints are to be formed through the brickwork at +30m centres.

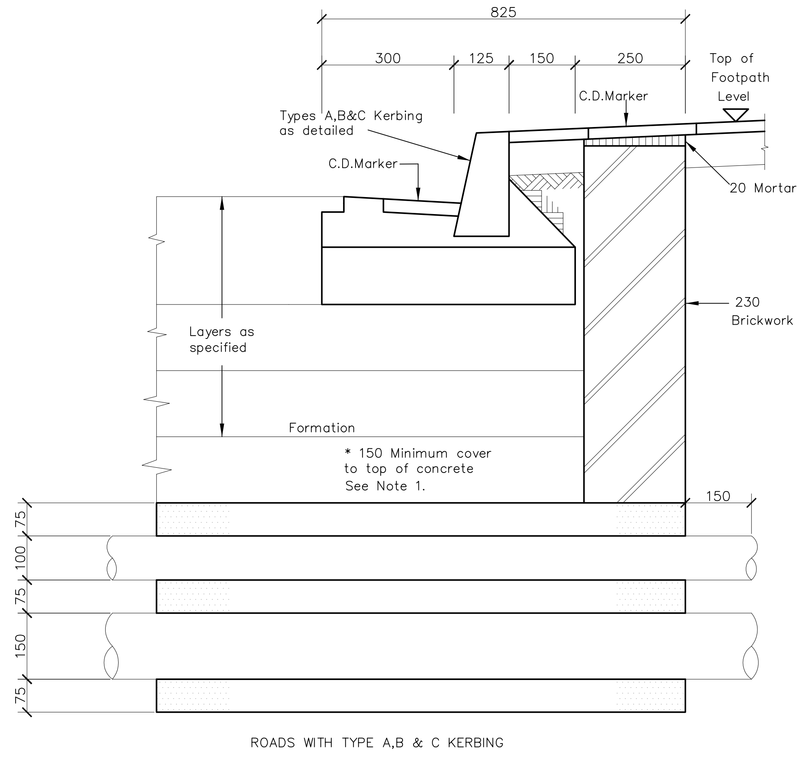
NOTE : (CABLE DUCTS)

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.

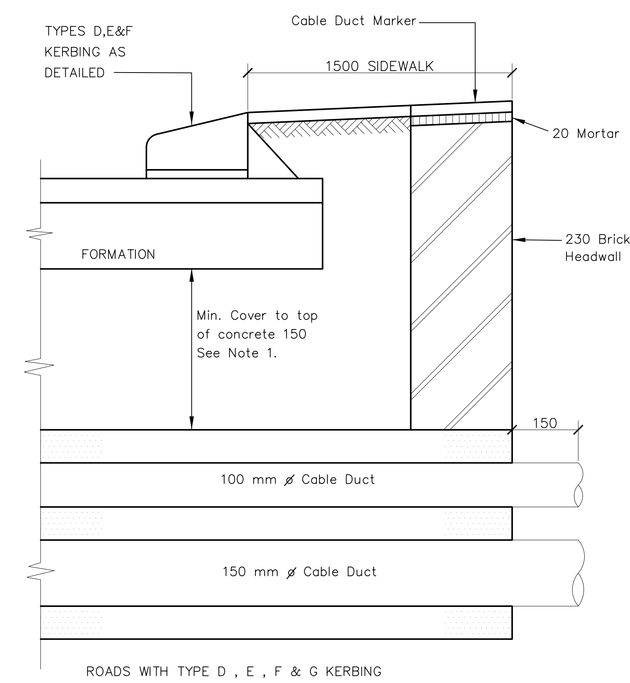
Precast Product Units		
Cable duct marker	38855	
Concrete handrail posts	38855	
Steps	38857	



RETAINING WALL / PROPERTY BOUNDARY



ROADS WITH TYPE A,B & C KERBING



ROADS WITH TYPE D , E , F & G KERBING

DETAIL OF CABLE DUCT MARKER AND HEADWALL
SCALE 1 : 10

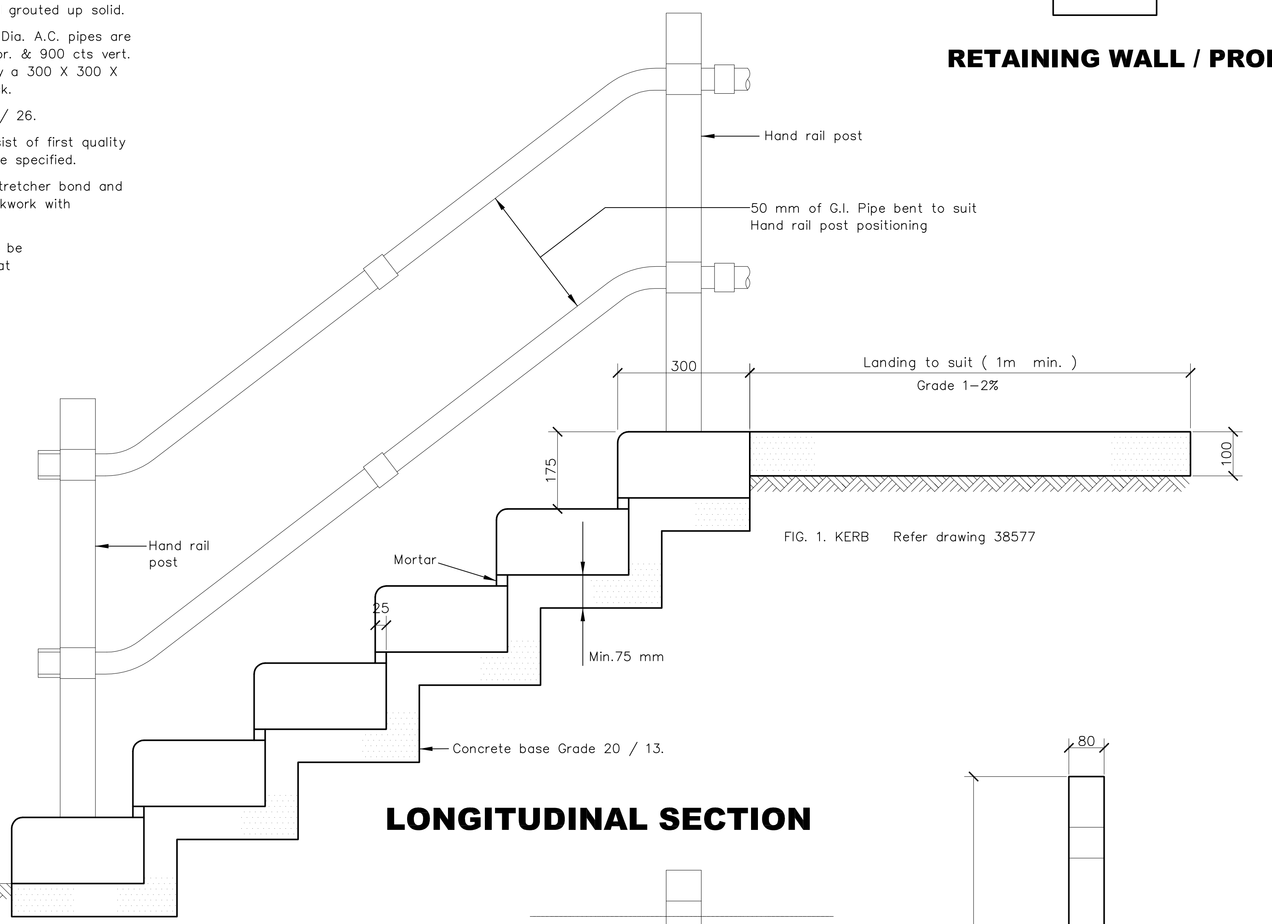
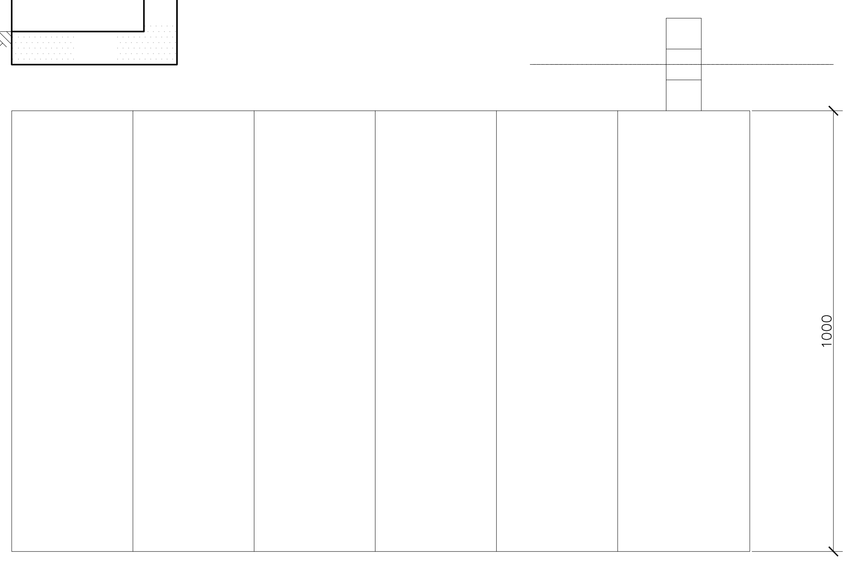


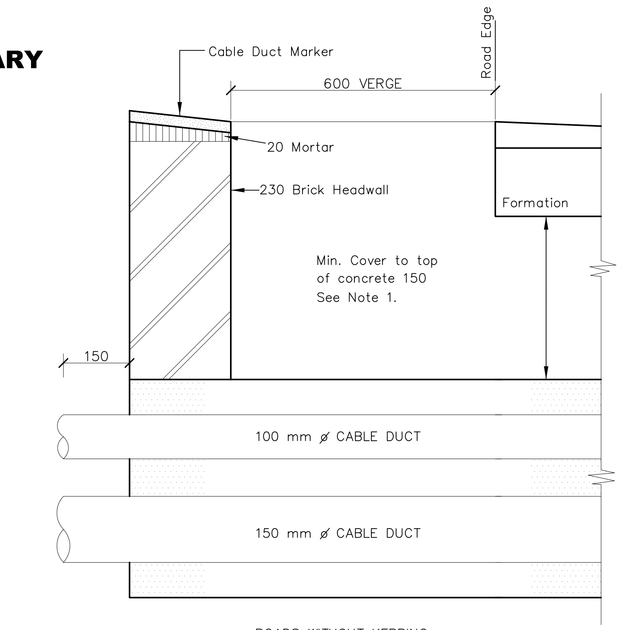
FIG. 1. KERB Refer drawing 38577

LONGITUDINAL SECTION



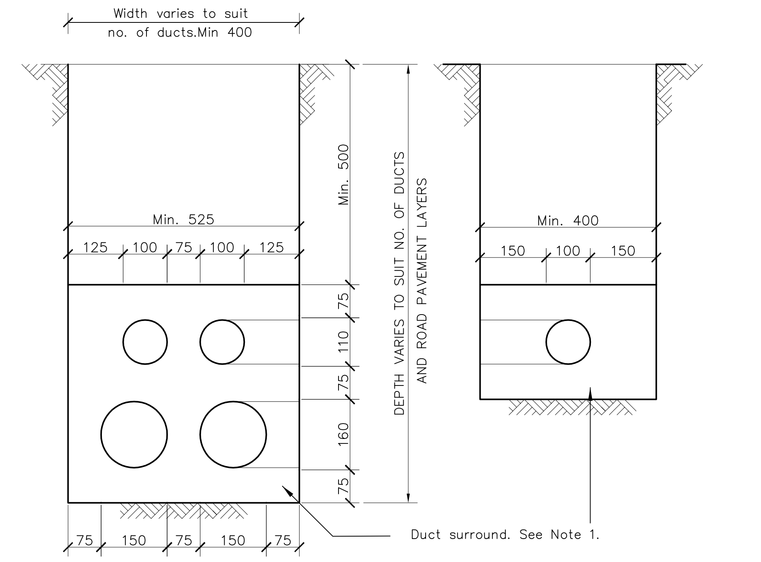
PLAN
SCALE 1 : 10

PRECAST STEPS AND STAIRCASE



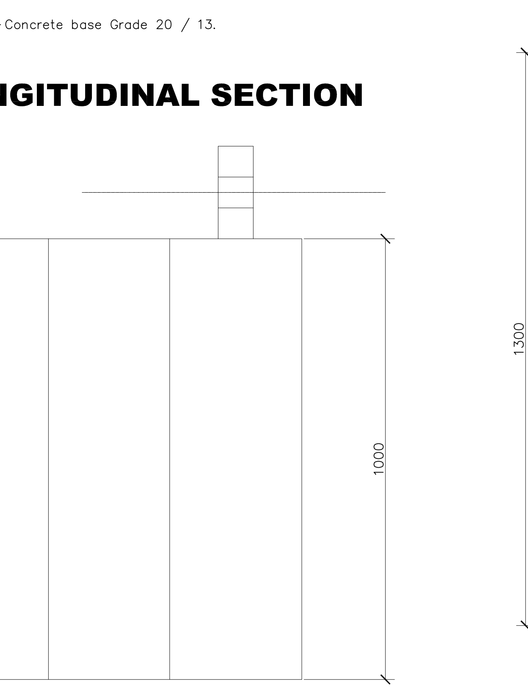
ROADS WITHOUT KERBING

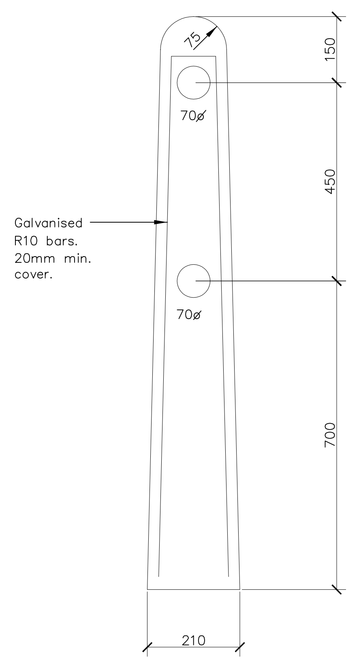
DETAIL OF CABLE DUCT MARKER AND HEADWALL
SCALE 1 : 10



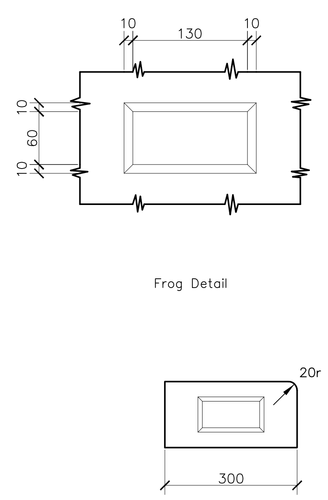
MULTI–DUCT INSTALLATION SINGLE DUCT INSTALLATION

TYPICAL DETAIL OF DUCT LAYOUT
SCALE 1 : 10



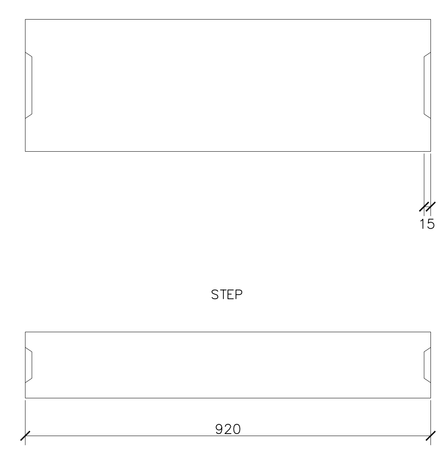


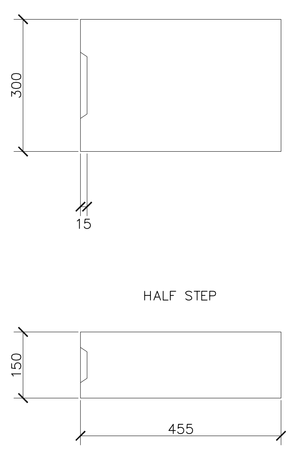
HAND RAIL POST
Concrete 30/13
Tolerance ± 3mm



Frog Detail

End Elevation





PRECAST STEP DETAILS

NORTH/SOUTH CENTRAL LOCAL COUNCIL – DURBAN

CITY ENGINEERS
SERVICE UNIT
ROADS DEPARTMENT

PLAN DESCRIPTION	DWG. NO.	
CONTINUED FROM		
CONTINUED ON		
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	Date	Description

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

Acquisitions completed

Date Engineer

NORTH POINT

UNDERGROUND SERVICES CHECKED

SERVICE	DATE	SIGNATURE
S.W.DRAINS		
SEWERS		
WATER MAINS		
G.P.O.CABLES		
ELECTRIC CABLES		
S.A.R. CABLES		
E.S.C. CABLES		
OIL PIPE LINE		

NOTE: Only underground services affected by new construction work are shown.
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Contract No

Project Title

STANDARD DRAWING

Drawing Title

RETAINING WALL, P.C. STEPS, STAIRCASE CABLE DUCTS AND HEADWALLS

Scales	DATE OF ISSUE
AS SHOWN	FEBRUARY 1990
Plotting Scale 1 : 10	
Designed G.J.P.	Date 1995-12-05
Checked	Drawn W.R.BURNETT

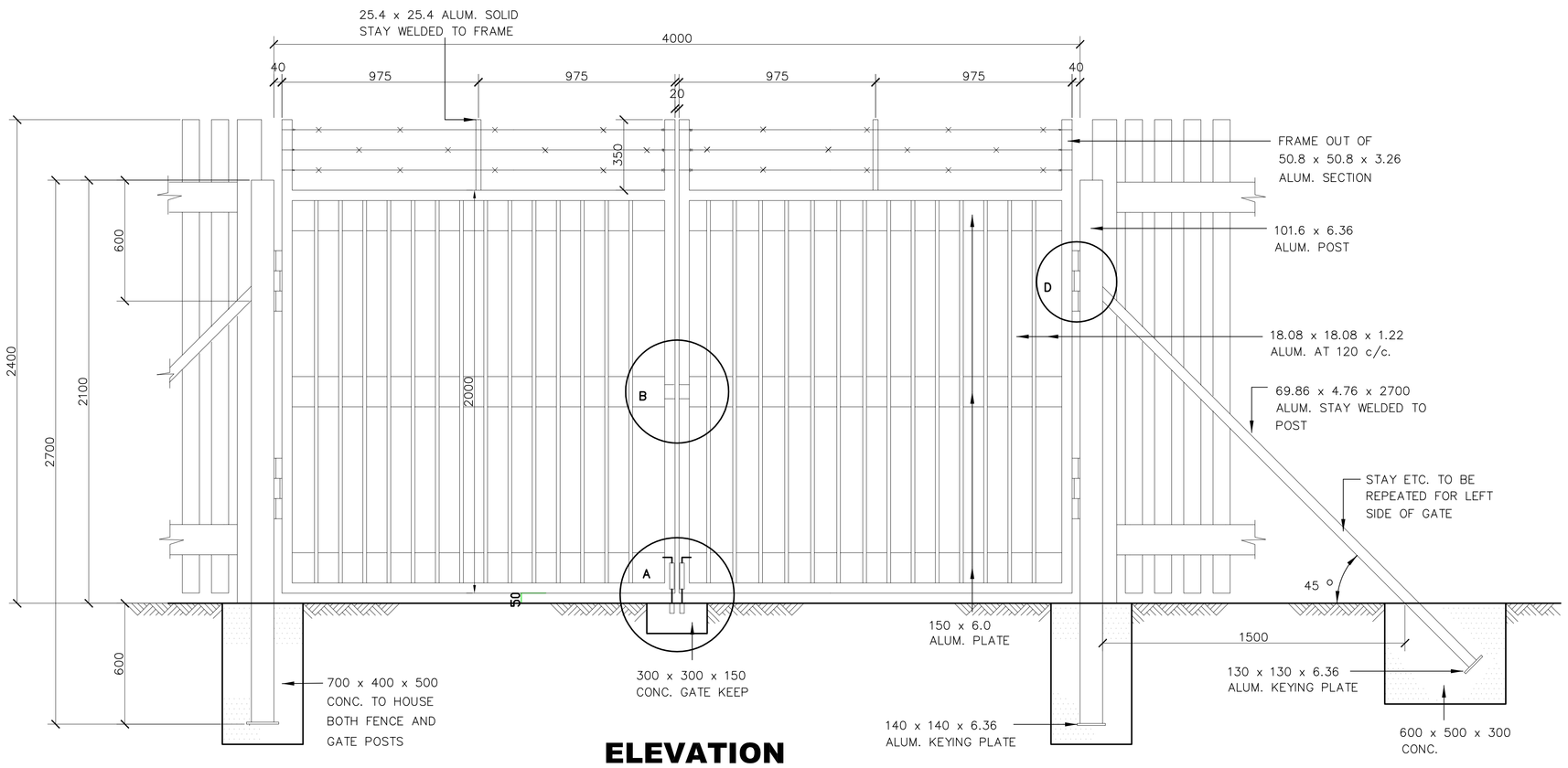
Manager RD(N)

Director : Roads

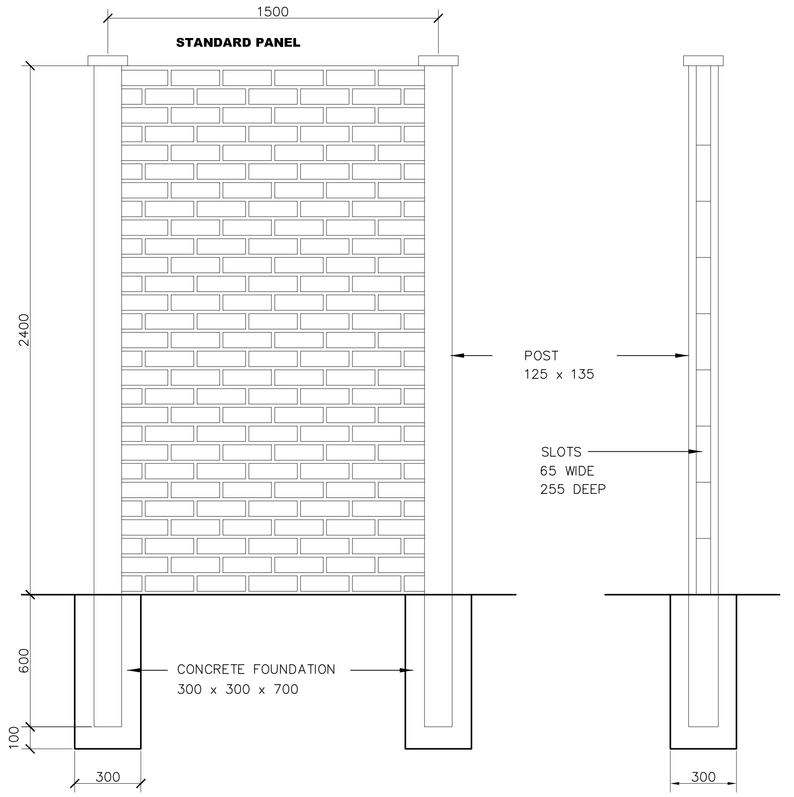
R.A.Moore Executive Director

Drawing No 38581

Sheet of Sheets

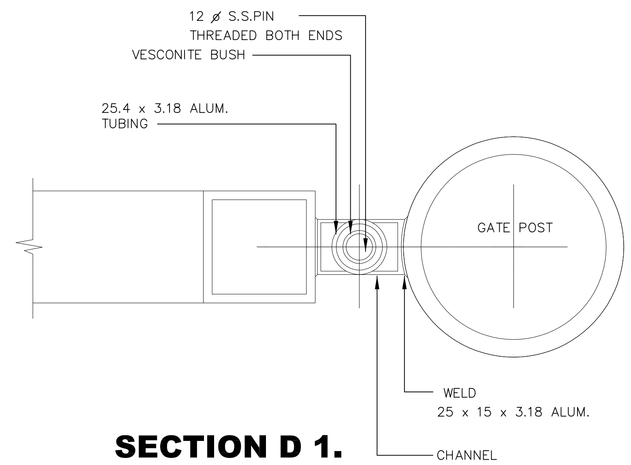


ELEVATION
VEHICULAR GATE

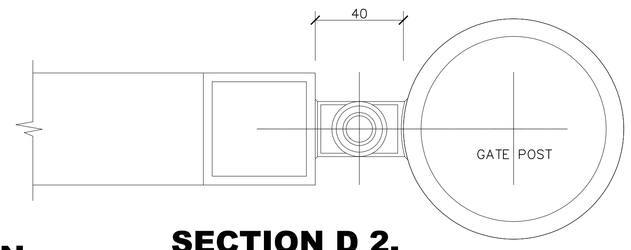


ELEVATION
PRECAST CONCRETE FENCE

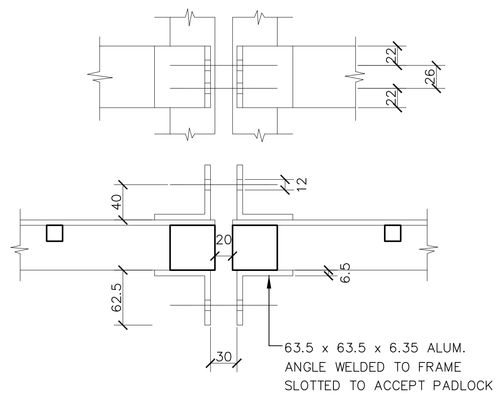
SIDE ELEVATION



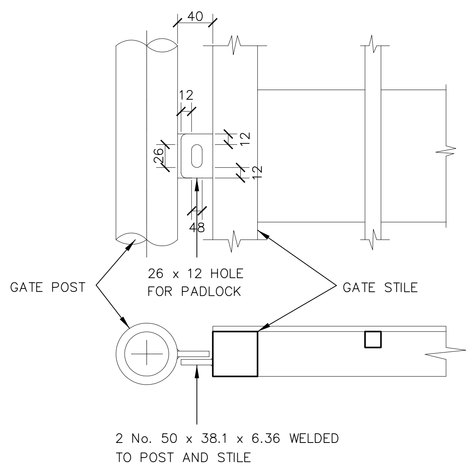
SECTION D 1.



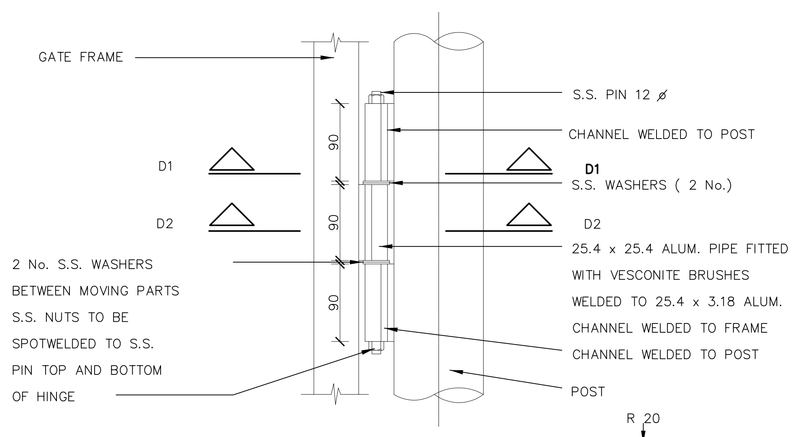
SECTION D 2.
SCALE 1:2



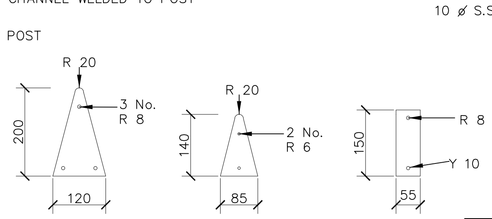
GATE LOCKING PLATE - DETAIL B
SCALE 1 : 5



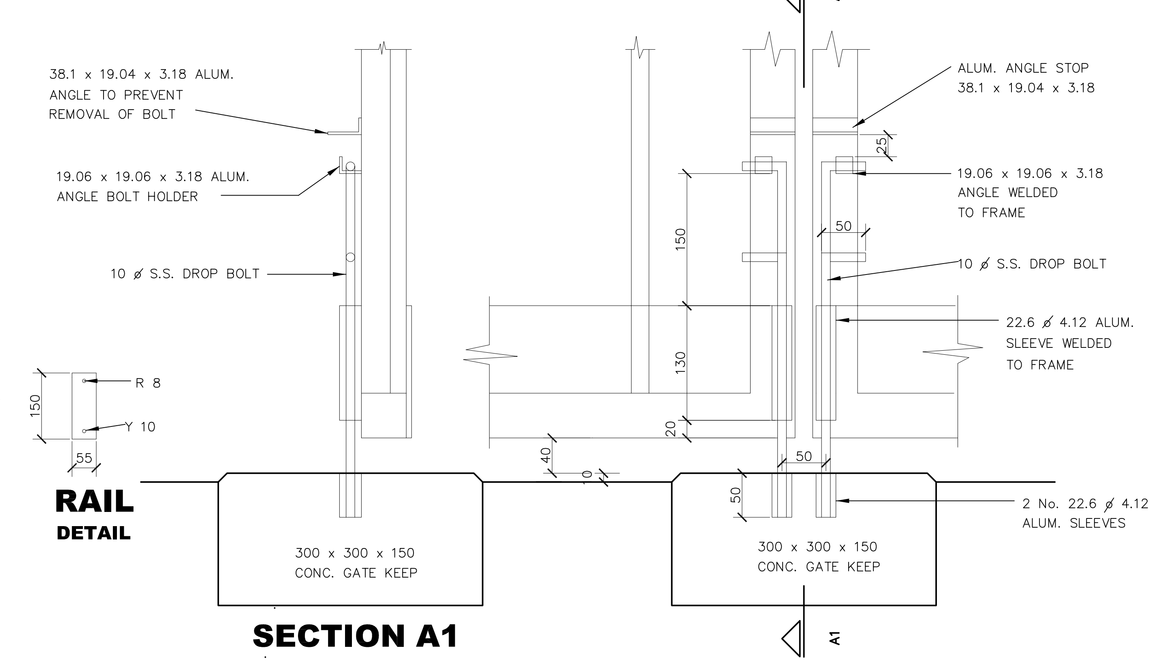
PEDESTRIAN GATE LOCKING PLATE
DETAIL C SCALE 1 : 5



HINGE - DETAIL D
SCALE 1:5

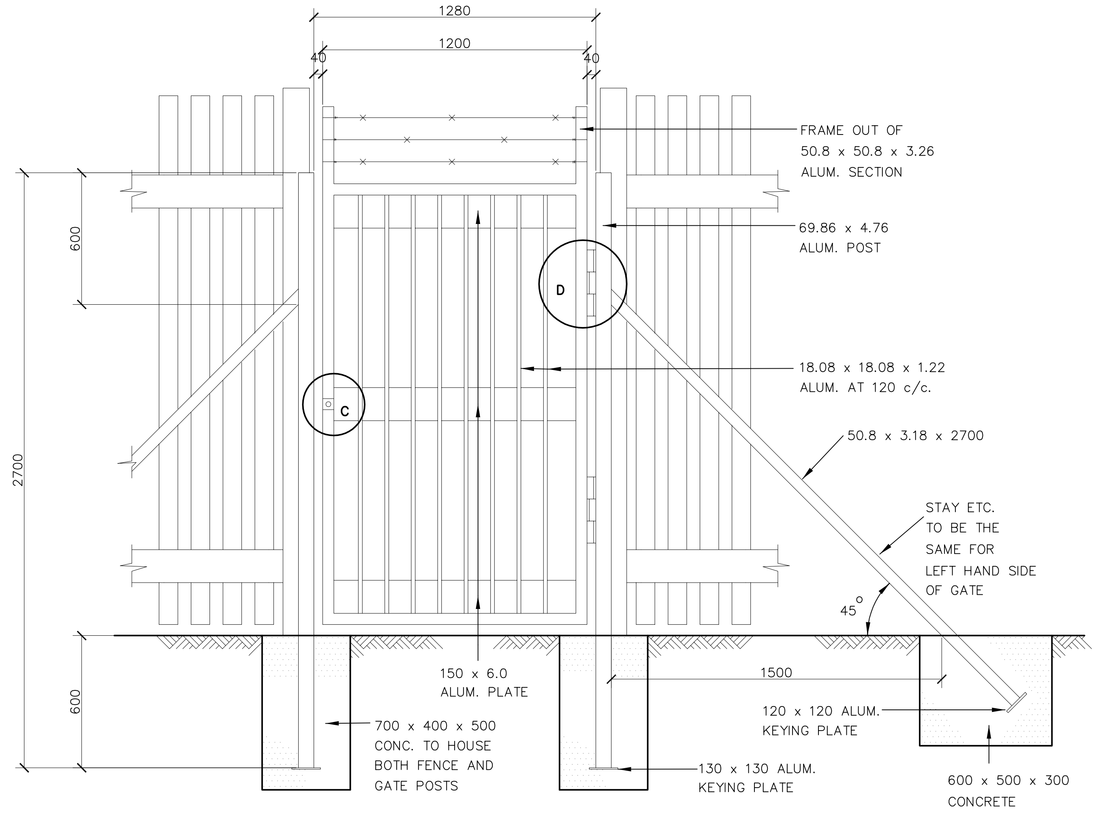


POST DETAIL
PALE DETAIL
RAIL DETAIL

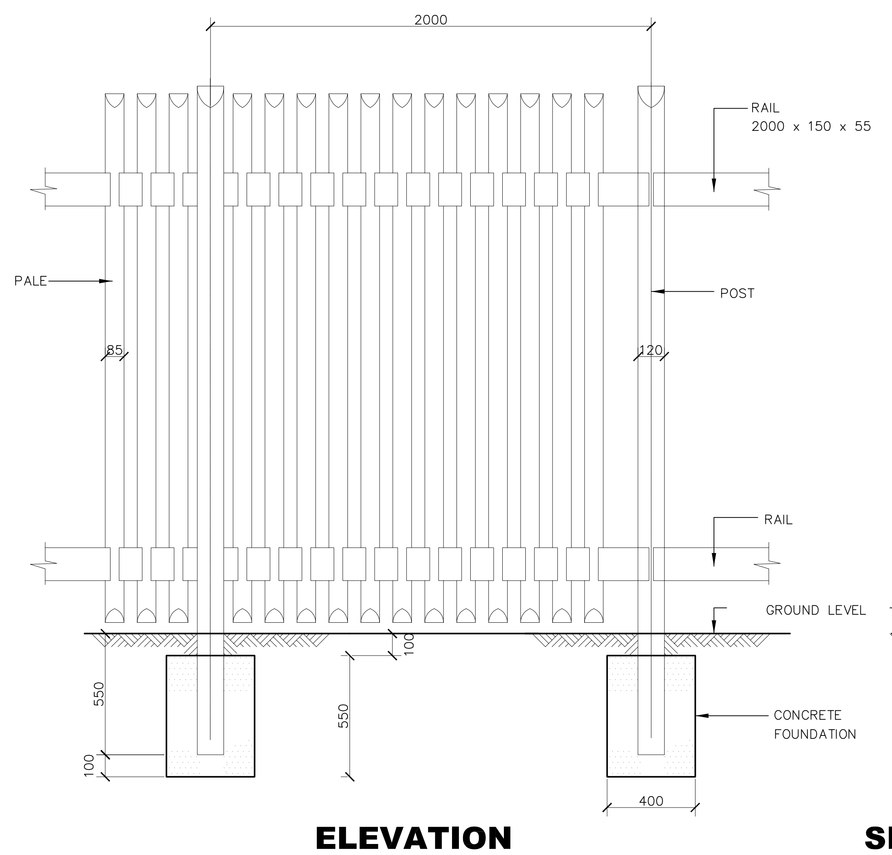


SECTION A1

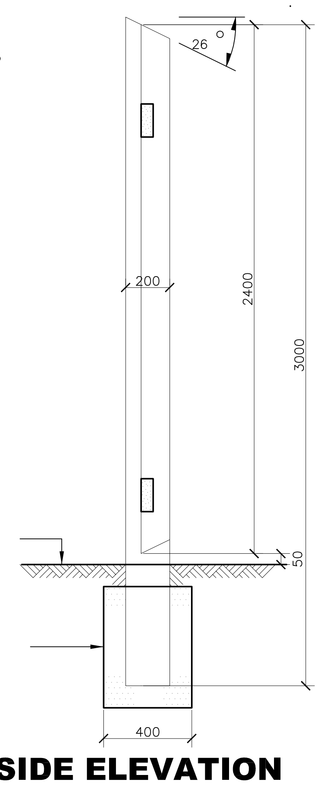
DROP BOLT -DETAIL A
SCALE 1:5



ELEVATION
PEDESTRIAN GATE



ELEVATION
PRECAST CONCRETE PALISADE FENCING



SIDE ELEVATION

NOTES :

1. GATE POSTS TO BE SITED INTERNALLY BEHIND CONCRETE END POSTS WITH CLEARANCE OF 10 mm.
2. BARBED WIRE TO BE 3 STRANDS OF 2.5 o DOUBLE / STRANDED ALUMINIUM.
3. CONCRETE TO FOUNDATIONS TO BE GRADE 15 / 26.
4. ALL SECTIONS TO BE SUITABLY CAPPED WITH 3.18 ALUM. PLATE.
5. ALL JOINTS TO BE WELDED.
6. WHERE ALUM. SECTIONS ARE TO BE ENCASED IN CONC. THEY ARE TO BE BITUMEN COATED TO PREVENT ALUM. / CONC. REACTION.
7. GATE POST FRAMES AND STAYS TO BE HULETTS ALUMINIUM ALLOY D65 S – TF OR SIMILAR APPROVED.

NOTES :

1. PALE SPACING TO BE EITHER AT 145 CTS (13 PALINGS PER 2000) OR AT 175 CTS (10 PALINGS PER 2000).
2. ALL PRECAST UNITS TO CONSIST OF GRADE 30 / 13 CONCRETE.
3. FOUNDATION CONCRETE TO CONSIST OF GRADE 20 / 26 CONCRETE.
4. FRONT AND SIDES OF ALL PRECAST UNITS TO HAVE SMOOTH OFF THE FORM FINISH. BACK FACES TO HAVE A STEEL TROWEL FINISH.
5. COVER TO ALL REINFORCING 20 mm.

NORTH/SOUTH CENTRAL LOCAL COUNCIL – DURBAN

CITY ENGINEERS
SERVICE UNIT
ROADS DEPARTMENT

PLAN DESCRIPTION	DWG. NO.	
CONTINUED FROM		
CONTINUED ON		
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	Date	Description

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

Acquisitions completed

Date Engineer

NORTH POINT

UNDERGROUND SERVICES CHECKED

SERVICE	DATE	SIGNATURE
S.W.DRAINS		
SEWERS		
WATER MAINS		
E.P.C.CABLES		
ELECTRIC CABLES		
S.A.R. CABLES		
E.S.C. CABLES		
OIL PIPE LINE		

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Contract No

Project Title

STANDARD DRAWING

Drawing Title

PRECAST CONCRETE FENCING AND ALUMINIUM GATES.

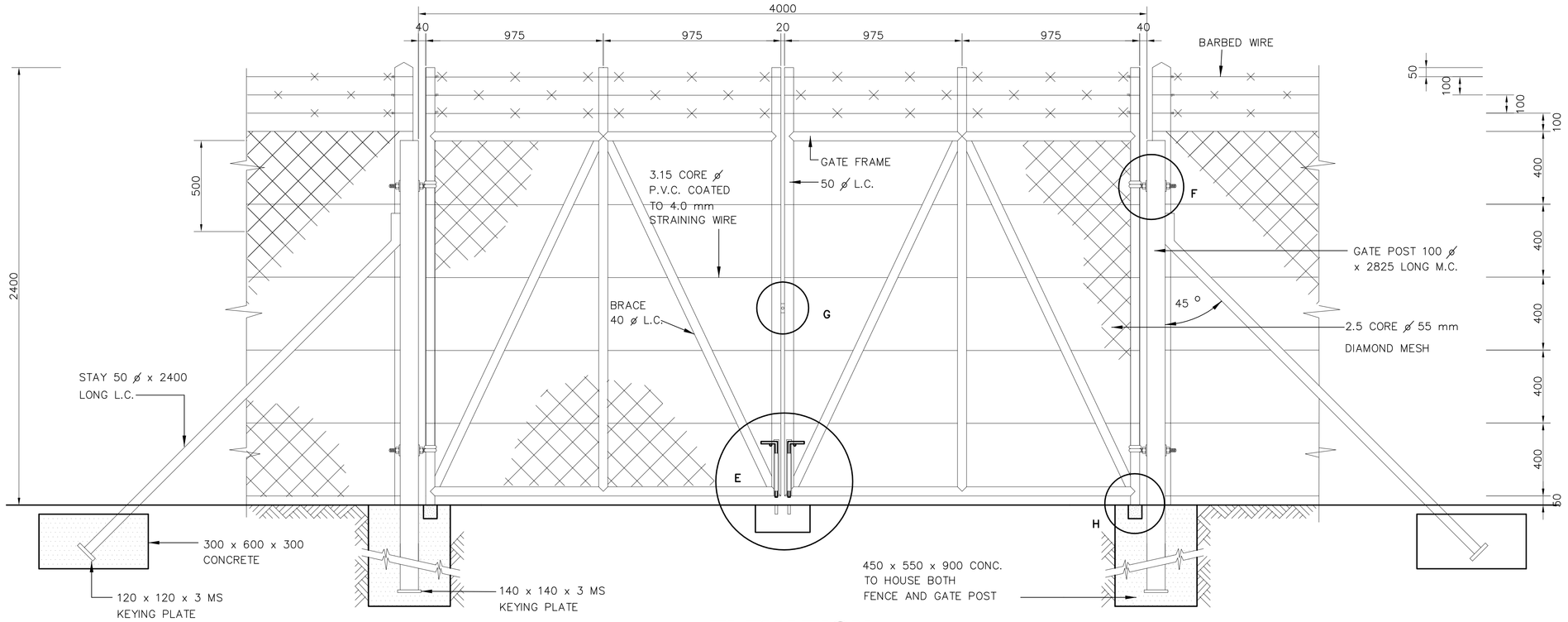
Scales	DATE OF ISSUE
AS SHOWN 1: 20	FEBRUARY 1990
Designed	Date 1995-12-05
Checked	Drawn W.R.BURNETT

Manager RD(N)

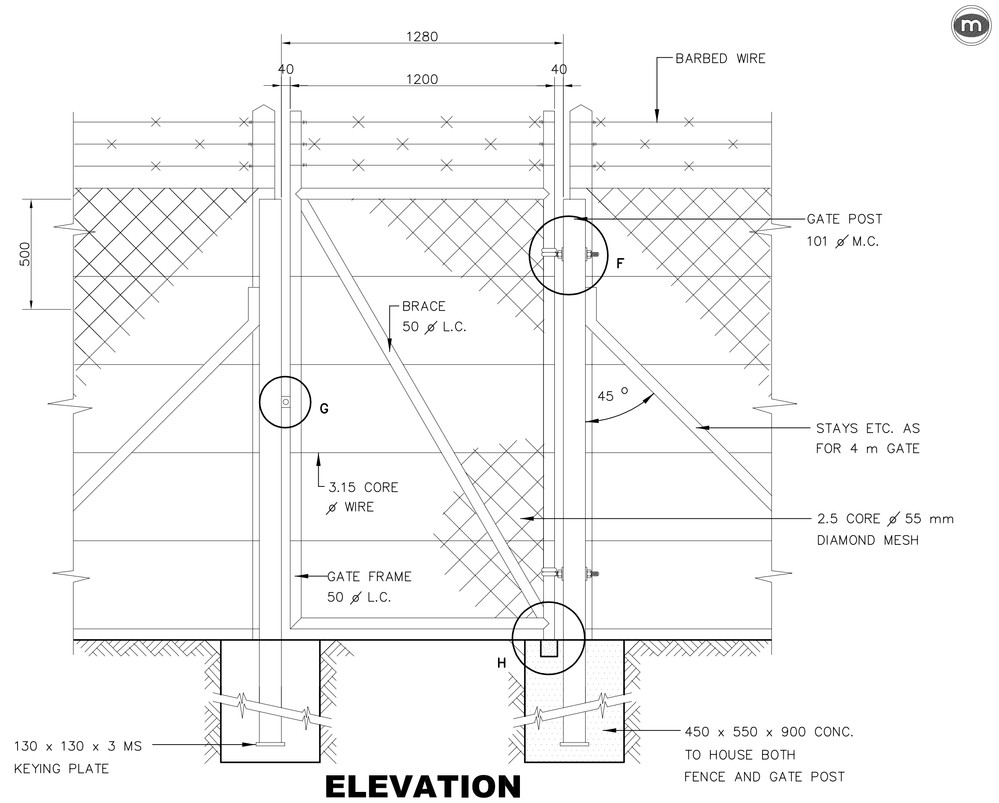
Director : Roads

R.A.Moore Executive Director

Drawing No 38582 Sheet of Sheets



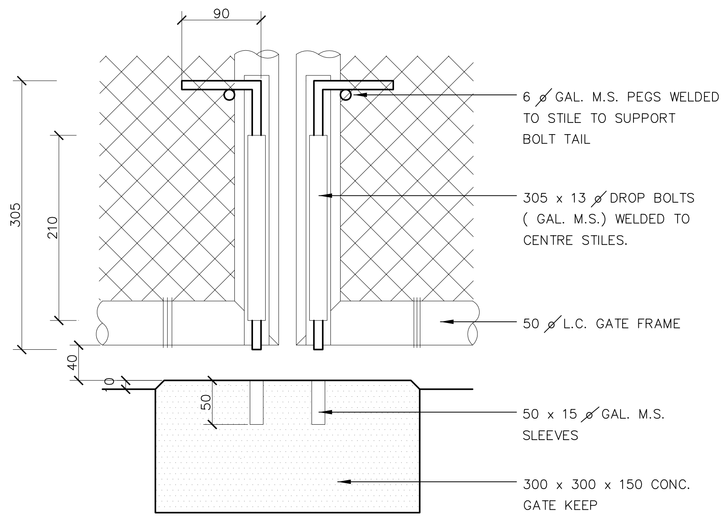
ELEVATION
VEHICULAR GATE



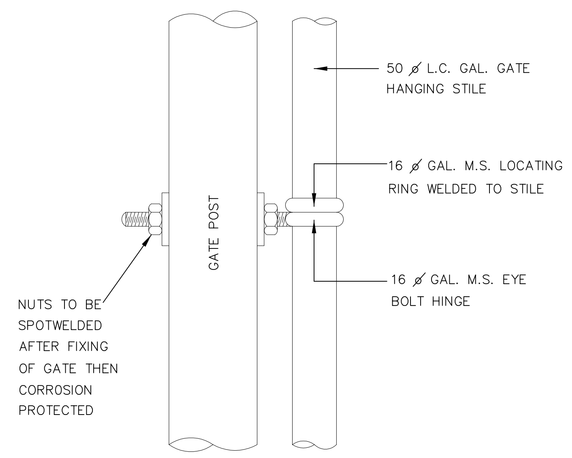
ELEVATION
PEDESTRIAN GATE

NOTE :

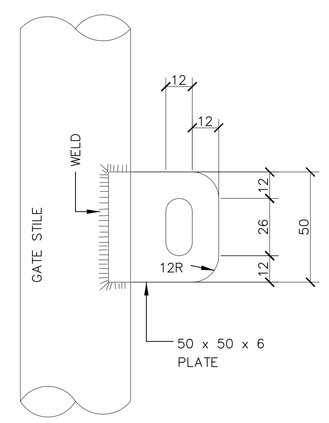
L.C. = Light Class
M.C. = Medium Class



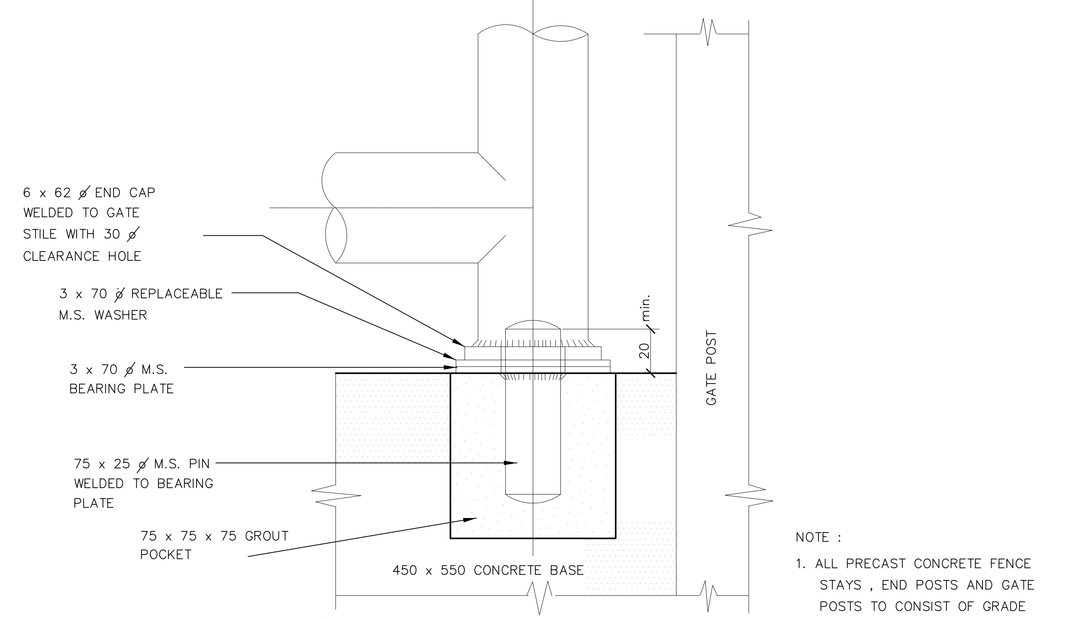
DETAIL E
SCALE 1 : 5



DETAIL F
SCALE 1 : 5



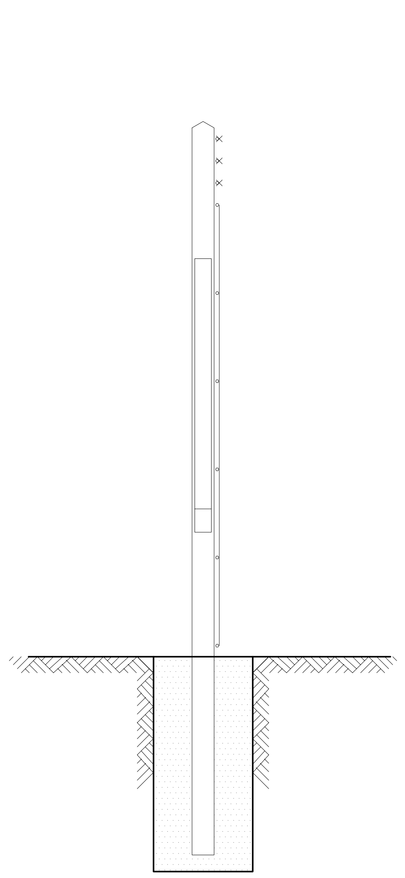
DETAIL G
SCALE 1 : 2



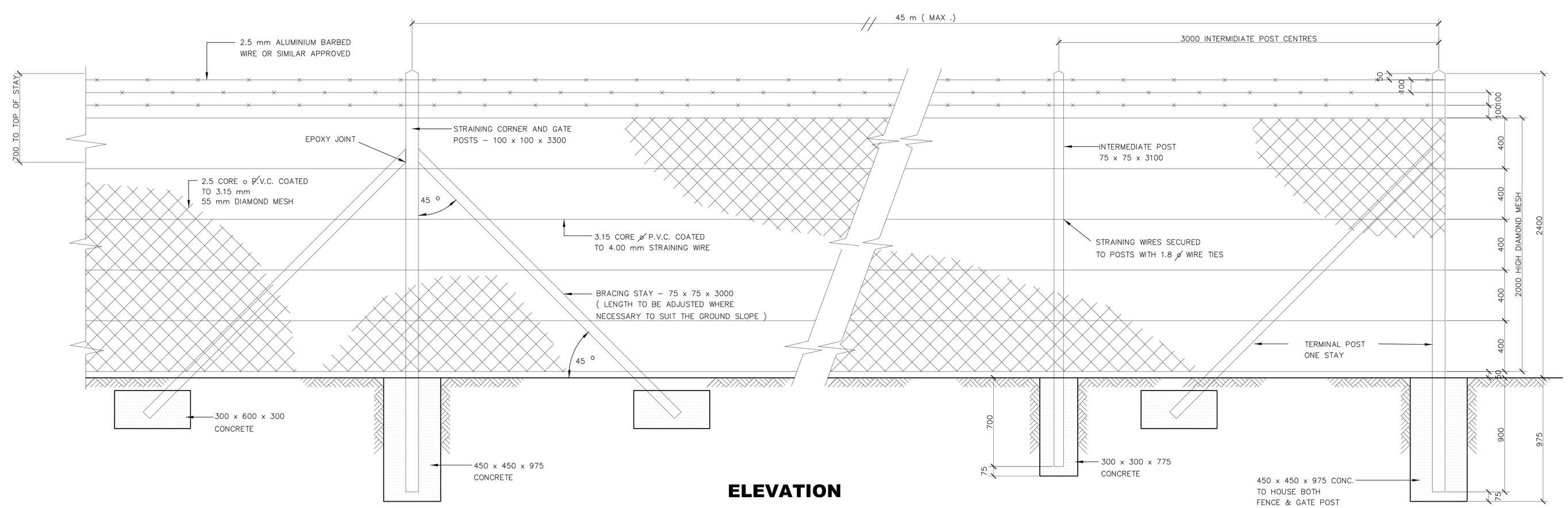
DETAIL H
SCALE 1:2

NOTE :

1. ALL PRECAST CONCRETE FENCE STAYS , END POSTS AND GATE POSTS TO CONSIST OF GRADE 40 / 13 PRESTRESSED CONCRETE.



SIDE ELEVATION



ELEVATION
WIRE MESH FENCE

NORTH/SOUTH CENTRAL LOCAL COUNCIL – DURBAN

CITY ENGINEERS
SERVICE UNIT
ROADS DEPARTMENT

PLAN DESCRIPTION	DWG. NO.	
CONTINUED FROM		
CONTINUED ON		
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	Date	Description

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

Acquisitions completed

Date / Engineer

NORTH POINT

UNDERGROUND SERVICES CHECKED

SERVICE	DATE	SIGNATURE
S.W.DRAINS		
SEWERS		
WATER MAINS		
G.P.O.CABLES		
ELECTRIC CABLES		
S.A.R. CABLES		
E.S.C. CABLES		
OIL PIPE LINE		

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Contract No

Project Title

STANDARD DRAWING

Drawing Title

WIRE MESH FENCE AND GATE DETAILS

Scales	DATE OF ISSUE
1:20 AS SHOWN	FEBRUARY 1990

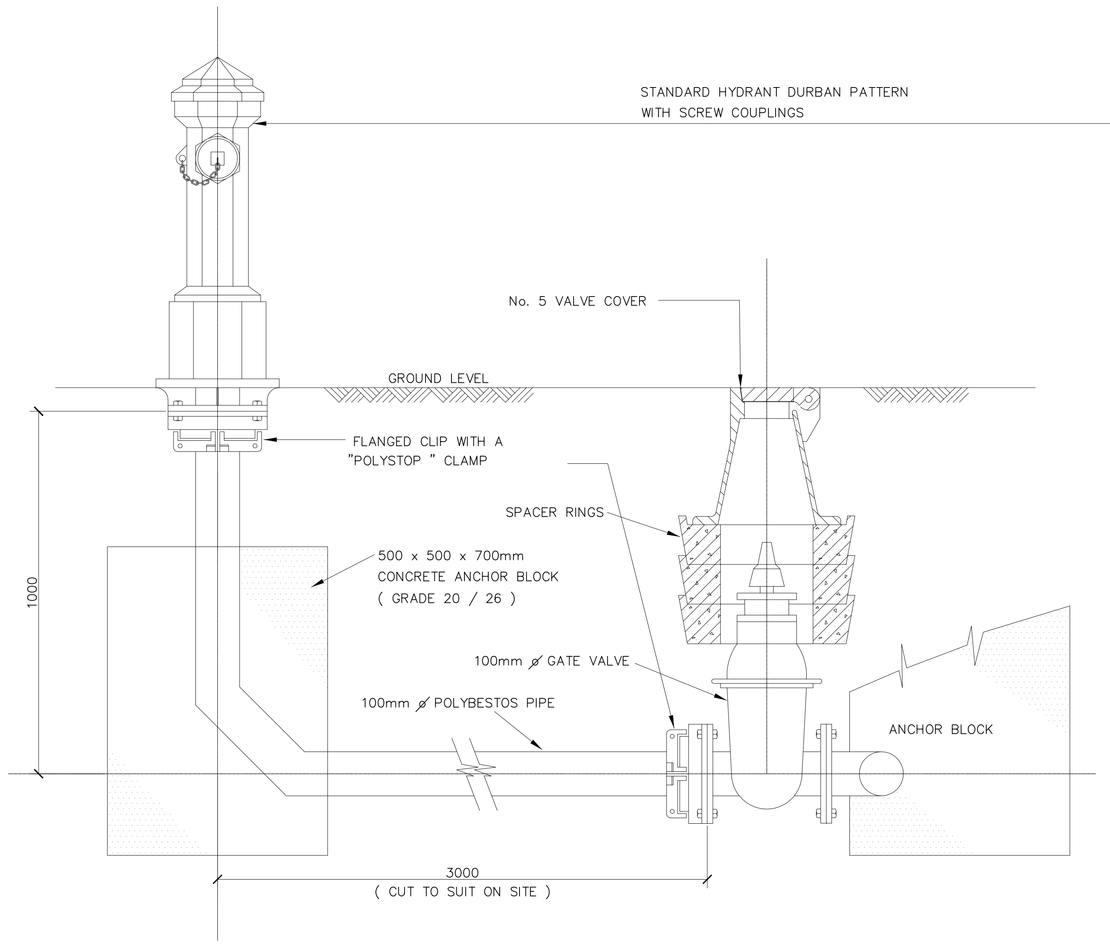
Designed	Date
PD / DRT	1995-12-05
Checked	Drawn
	W.R.BURNETT

Manager RD(N)

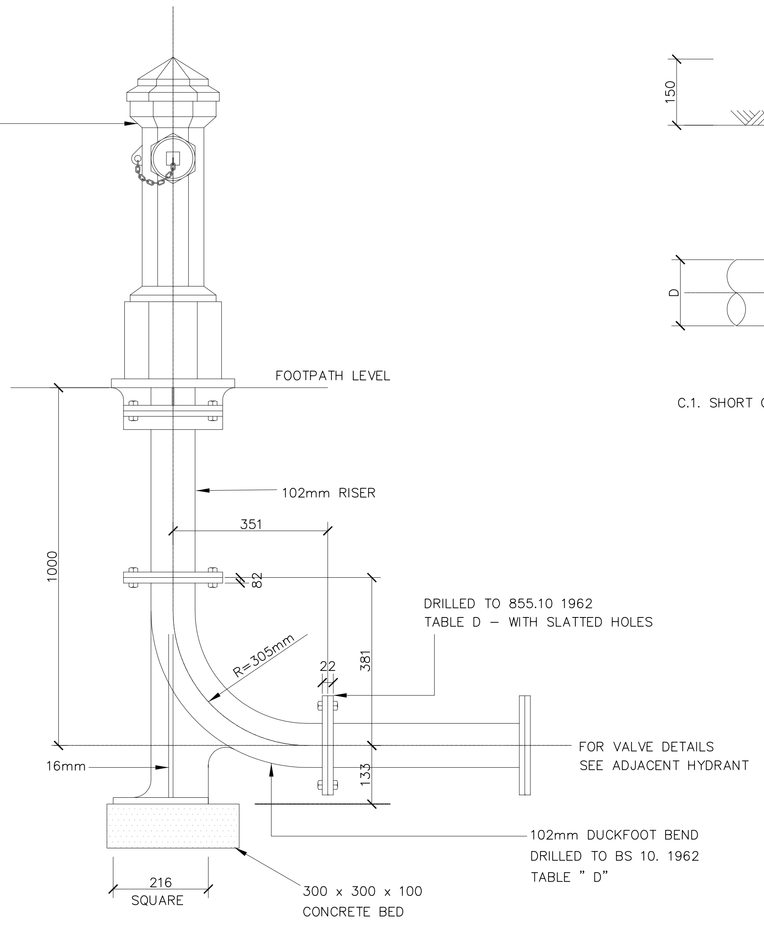
Director : Roads

R.A.Moore — Executive Director

Drawing No 38583 — Sheet of Sheets

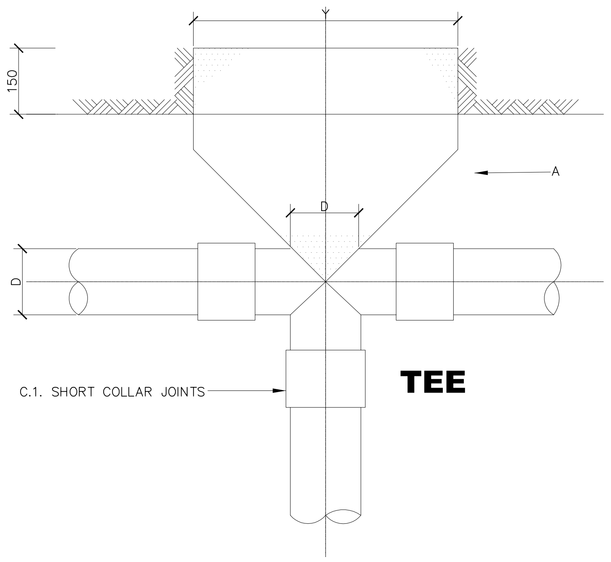


STANDARD HYDRANT WITH POLYBESTOS DUCKFOOT BEND (N.T.S.)



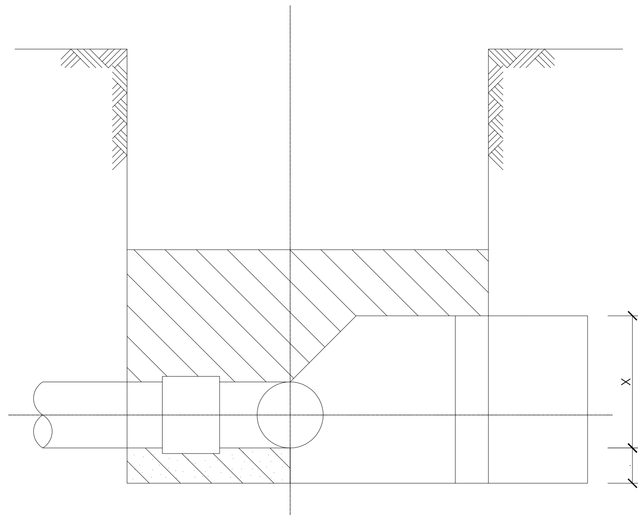
STANDARD HYDRANT WITH STEEL FITTINGS

N.T.S.

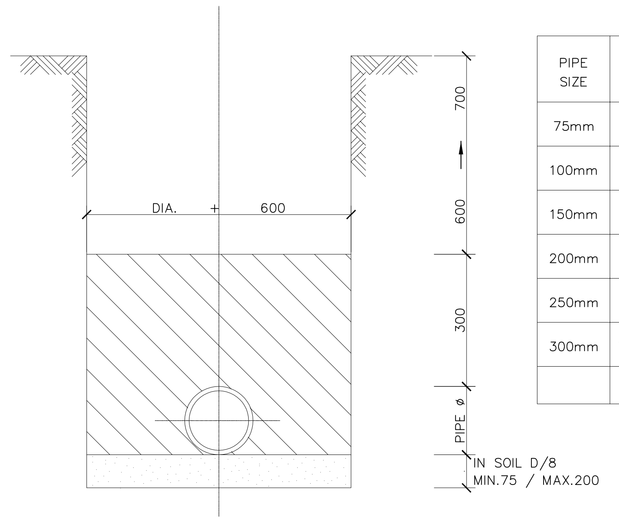


TEE

PLAN



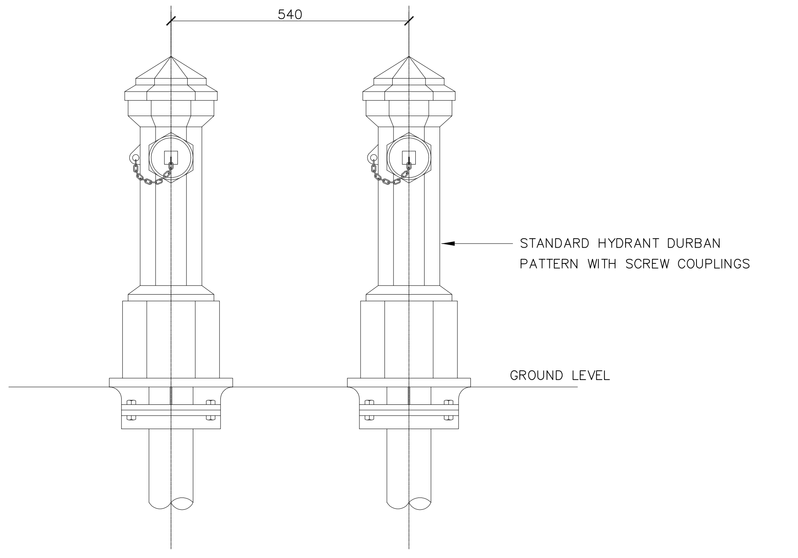
ELEVATION "A"



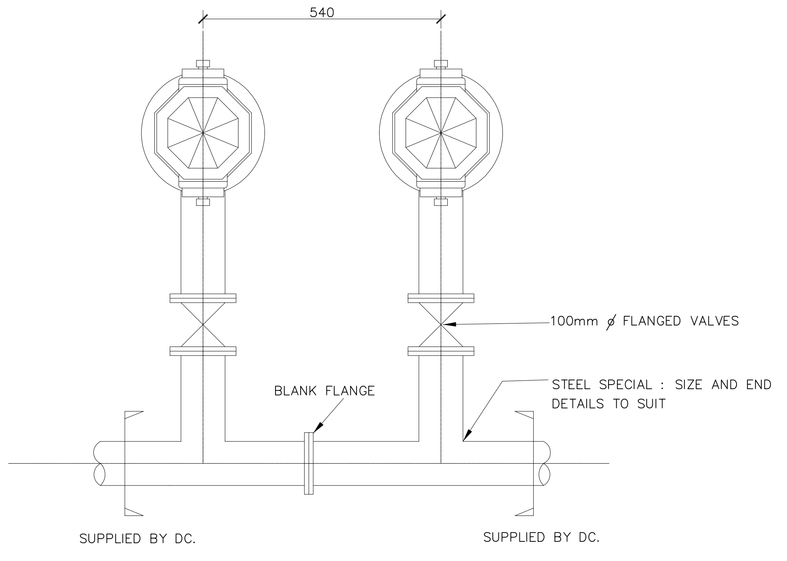
THRUST BLOCK SIZES (in mm)
in normal earth for heads of 120 m

PIPE SIZE	CAP	TEE(BRANCH)	90° 1/4 BEND	45° 1/8 BEND	22.5° 1/16 BEND	11.25° 1/32 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 1300	700 x 1000	600 x 600	300 x 500
	X Y	X Y	X Y	X Y	X Y	X Y

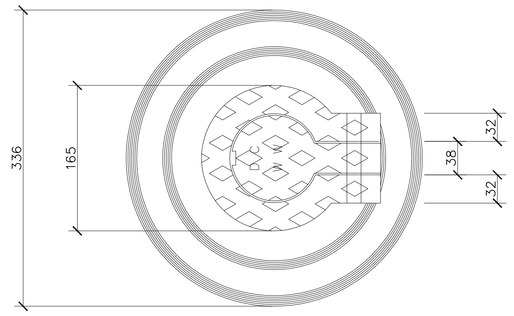
AS PER PART "DB" DEPT. SPECIFICATION FOR EARTHWORKS FOR PIPE TRENCHES. (CLASS "C")



NOTE:– ALL JOINTING MATERIAL TO BE SUPPLIED AND INSTALLED BY CONTRACTOR

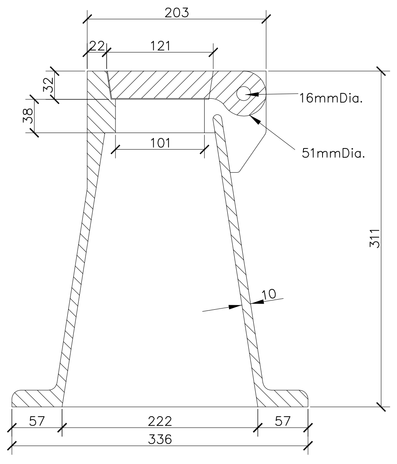


DOUBLE HYDRANT DETAIL



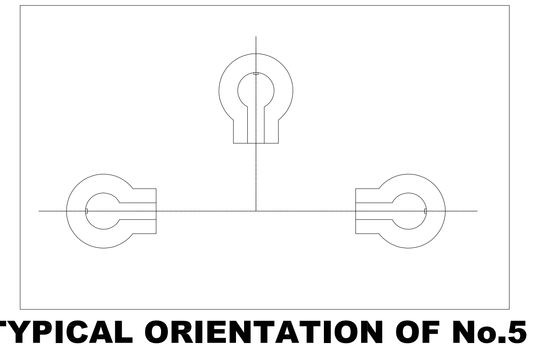
PLAN OF WATER VALVE COVER No.5

SCALE: 1 : 5

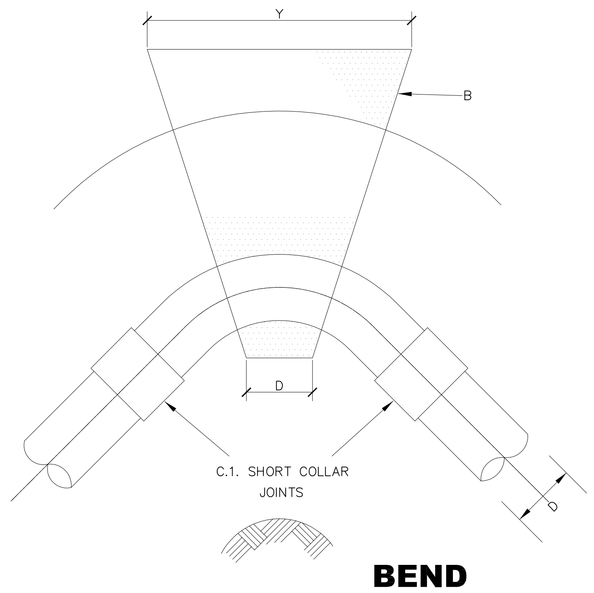


SECTION

SCALE 1 : 5

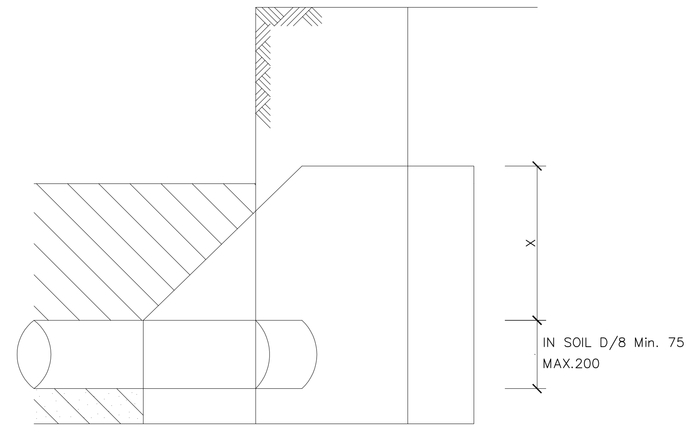


TYPICAL ORIENTATION OF No.5 VALVE COVERS

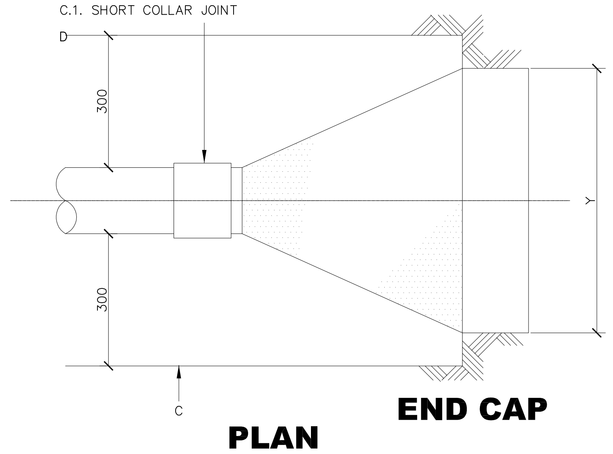


BEND

PLAN

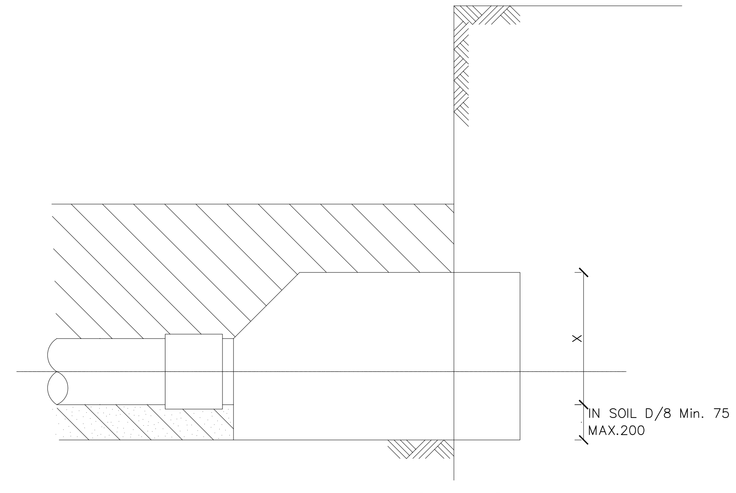


ELEVATION "B"



END CAP

PLAN



ELEVATION "C"

NORTH/SOUTH CENTRAL LOCAL COUNCIL – DURBAN

CITY ENGINEERS
SERVICE UNIT
ROADS DEPARTMENT

PLAN DESCRIPTION	DWG. NO.
CONTINUED FROM	
CONTINUED ON	
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	Date	Description

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

Acquisitions completed

Date Engineer

NORTH POINT

UNDERGROUND SERVICES CHECKED

SERVICE	DATE	SIGNATURE
S.W.DRAINS		
SEWERS		
WATER MAINS		
G.P.O.CABLES		
ELECTRIC CABLES		
S.A.R. CABLES		
E.S.C. CABLES		
OIL PIPE LINE		

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

Contract No

Project Title

STANDARD DRAWING

Drawing Title

DETAILS OF :– STANDARD HYDRANT THRUST BLOCKS TRENCHES.

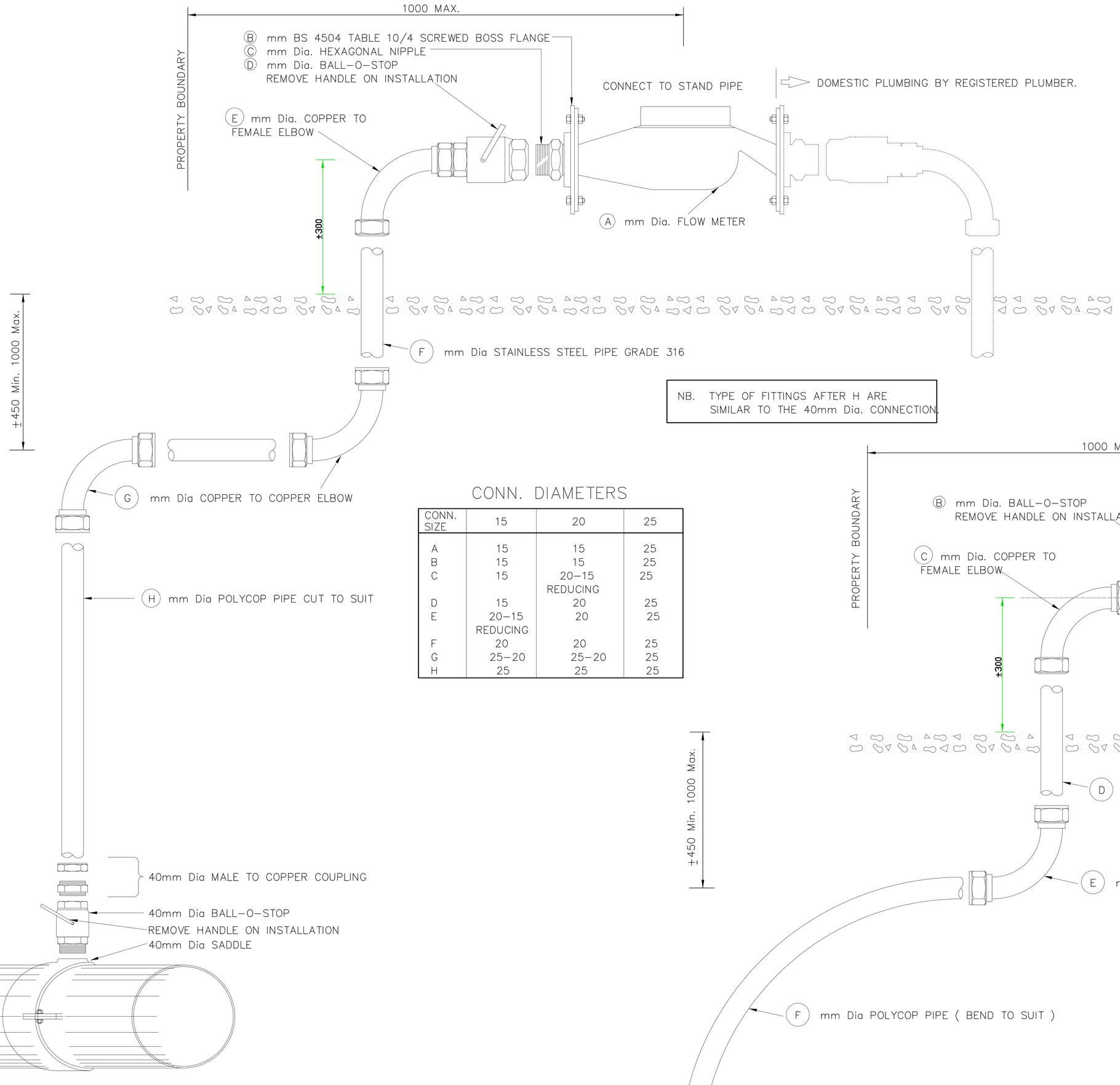
Scales	DATE OF ISSUE
1:10 or AS SHOWN	FEBRUARY 1990
Designed	Date 1995-12-06
Checked	Drawn W.R.BURNETT

Manager RD(N)

Director : Roads

R.A.Moore Executive Director

Drawing No 38584 Sheet of Sheets

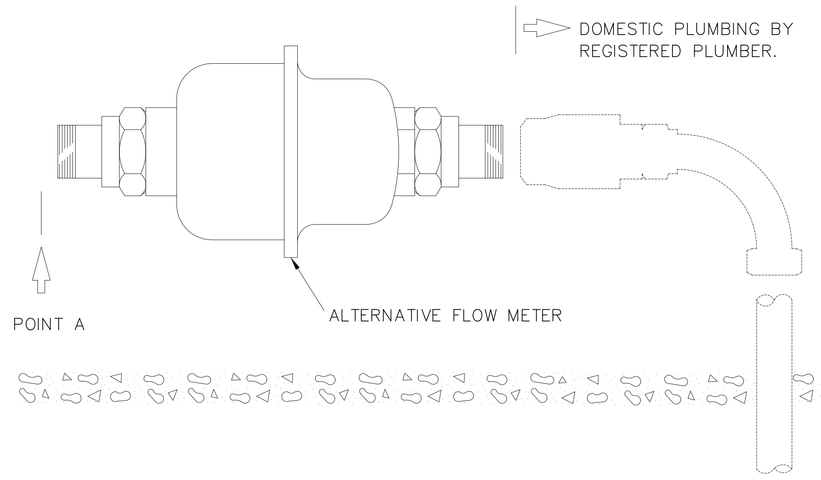


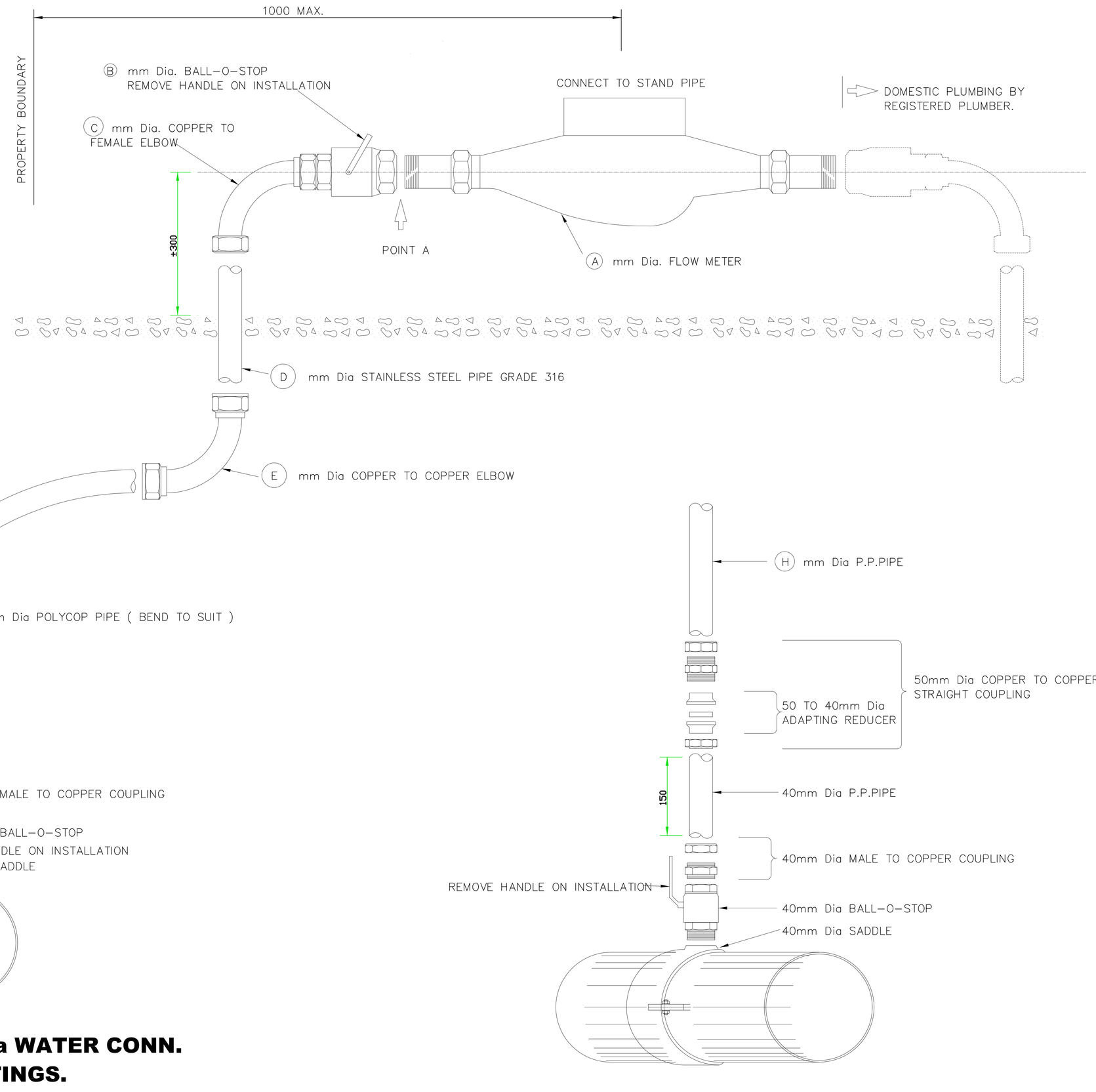
DETAILS OF 40mm Dia WATER CONN. PIPEWORK AND FITTINGS.

CONN. DIAMETERS

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

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





DETAILS OF 15,20 & 25 mm Dia WATER CONN. PIPEWORK AND FITTINGS.

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

DETAILS OF 50mm Dia WATER CONN. PIPEWORK AND FITTINGS.

NORTH/SOUTH CENTRAL LOCAL COUNCIL – DURBAN

CITY ENGINEERS
SERVICE UNIT
ROADS DEPARTMENT

PLAN DESCRIPTION	DWG. NO.	
CONTINUED FROM		
CONTINUED ON		
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	Date	Description

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

Acquisitions completed

Date Engineer

NORTH POINT

UNDERGROUND SERVICES CHECKED

SERVICE	DATE	SIGNATURE
S.W.DRAINS		
SEWERS		
WATER MAINS		
G.P.O.CABLES		
ELECTRIC CABLES		
S.A.R. CABLES		
E.S.C. CABLES		
OIL PIPE LINE		

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Contract No

Project Title

STANDARD DRAWING

Drawing Title

WATER CONNECTIONS PIPEWORK AND FITTINGS.

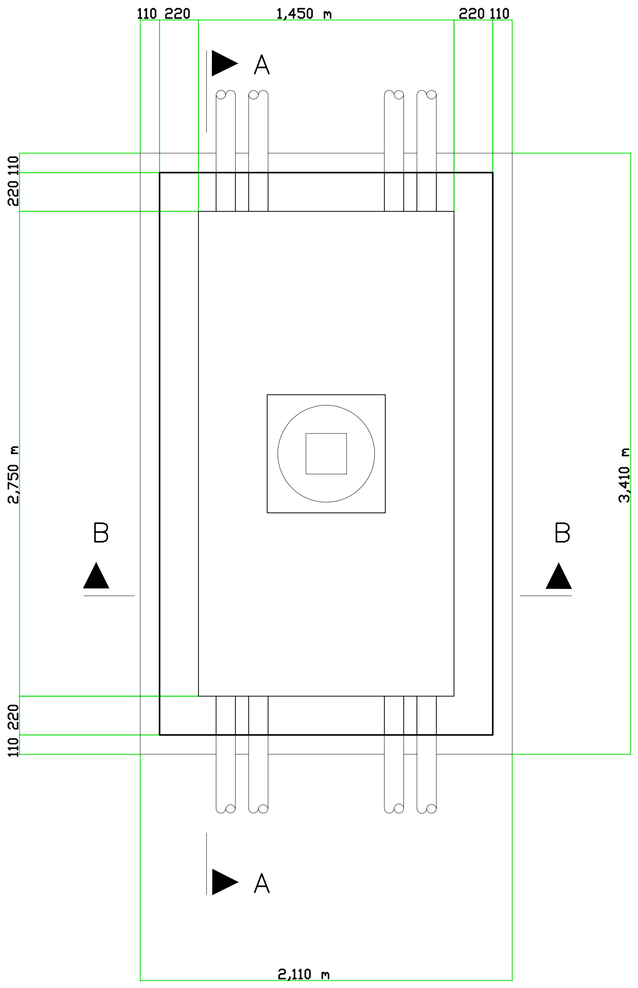
Scales	DATE OF ISSUE
NOT TO SCALE	FEBRUARY 1990
Designed	Date 1995-12-05
Checked	Drawn W.R.BURNETT

Manager RD(N)

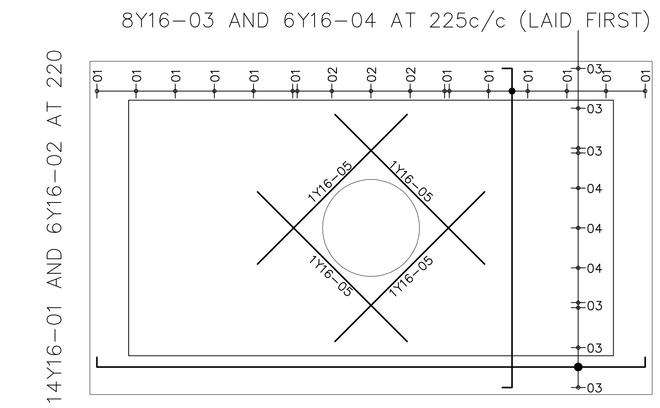
Director : Roads

R.A.Moore Executive Director

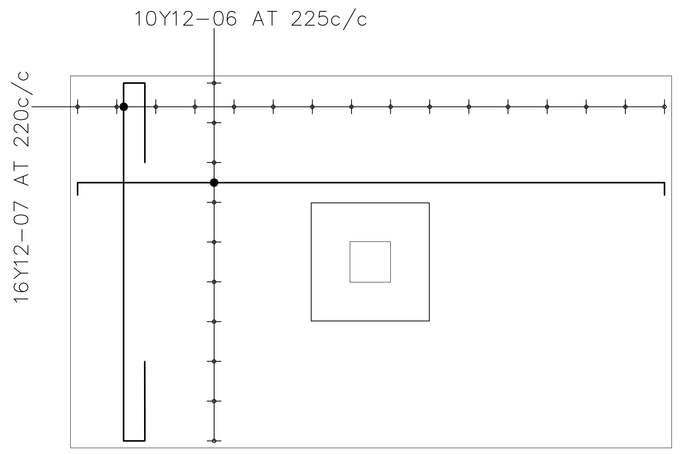
Drawing No 38585 Sheet of Sheets



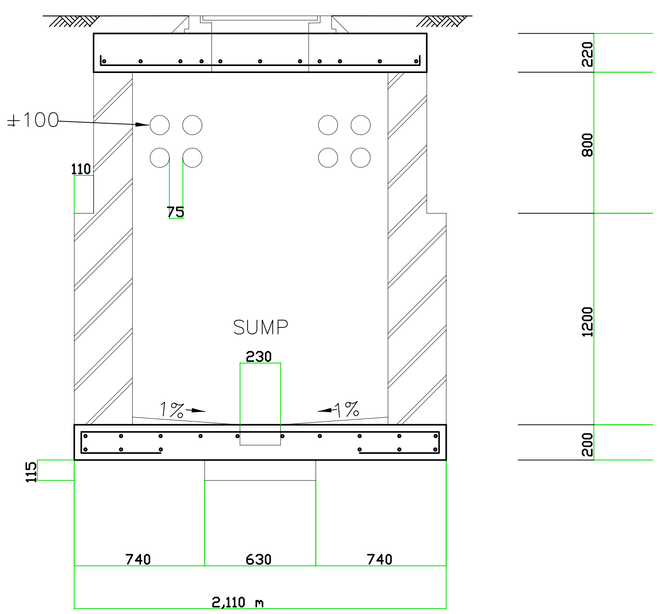
PLAN



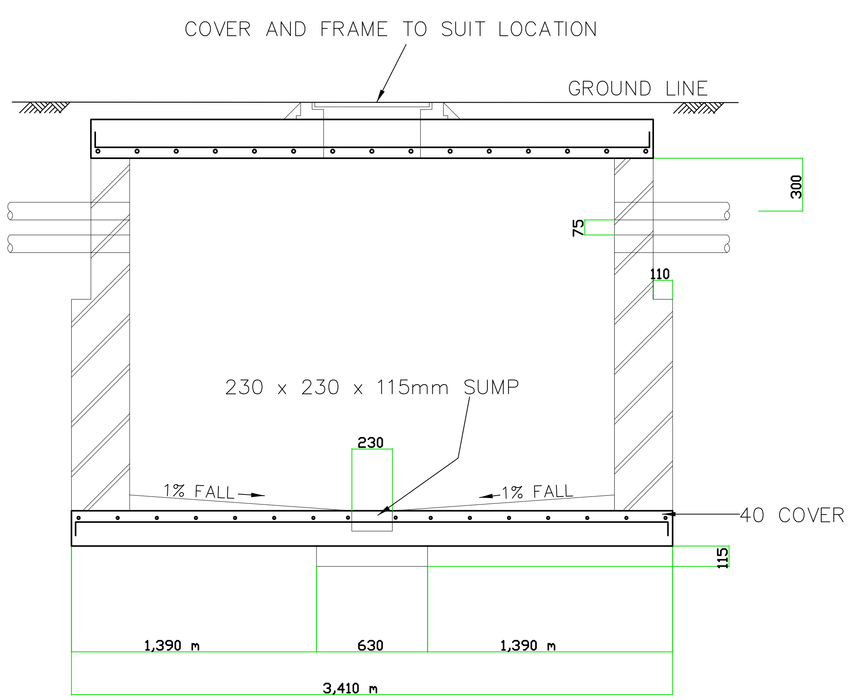
COVER SLAB REINFORCEMENT DETAILS



BASE SLAB REINFORCEMENT DETAILS



SECTION B-B



SECTION A-A

DECK STEEL DETAILS

BAR Dia	MARK	No.	LENGTH		TOTAL LENGTH Y16	TOTAL LENGTH Y12
Y16	01	14	1950	1750	27,30	
Y16	02	6	750	550	4,50	
Y16	03	8	3250	3050	26,00	
Y16	04	6	1400	1200	8,40	
Y16	05	4	1200	1200	4,80	

BASE STEEL DETAILS

Y12	06	10	3500	3300		35,00
Y12	07	16	3100	2000 (100 … 100; 450)		49,60

NOTE

REINFORCING DETAILS SHOWN ARE FOR ROADWAY MANHOLES. WHERE MIDBLOCK MANHOLES ARE REQUIRED DIMENSION AND STEEL DETAILS ARE UNCHANGED EXCEPT THAT THE BARS SHOWN ARE TO BE REPLACED BY Y10 BARS.

NOTES : –

1) IN SITU GROUND MUST BE COMPACTED TO 95% MOD. AASHTO PRIOR TO THE MANHOLE BASE SLAB BEING CAST. IF DENSITY CANNOT BE ATTAINED THE IN–SITU MATERIAL MUST BE REMOVED TO A DEPTH OF 300mm AND REPLACED WITH A SELECTED BACKFILL.

2) BLINDING TO CONSIST OF GRADE 15/26 WITH CUBE CRUSHING STRENGTH OF 15 MPa AT 28 DAYS.

3) CLEAR COVER TO MAIN STEEL 40mm

4) MANHOLE COVER AND FRAME TO BE SUPPLIED BY TELKOM.

5) CEMENT MORTAR FOR BRICKWORK SHALL BE COMPOSED OF 1 PART CEMENT TO 3 PARTS SAND.

6) THE BRICKWORK TO THE MANHOLES SHALL BE WELL AND REGULARLY BONDED IN DOUBLE STRETCHER BOND WITH NO FALSE HEADERS EXCEPT WHERE REQUIRED AS CLOSERS.

7) ALL CABLE DUCT PIPES TO BE SUPPLIED BY TELKOM UNLESS OTHERWISE SPECIFIED.

8) CONCRETE TO BASE AND DECK SLABS TO CONSIST OF 30/26 WITH CUBE CRUSHING STRENGTH OF 30MPa AT 28 DAYS.

NORTH/SOUTH CENTRAL LOCAL COUNCIL – DURBAN

CITY ENGINEERS
SERVICE UNIT
ROADS DEPARTMENT

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

REDUCED PLAN USE SCALE BELOW

0 10 20 30 40 50 60 70

70mm ON ORIGINAL PLAN

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Acquisitions completed

Date Engineer

NORTH POINT

UNDERGROUND SERVICES CHECKED

SERVICE	DATE	SIGNATURE
S.W.DRAINS		
SEWERS		
WATER MAINS		
G.P.O.CABLES		
ELECTRIC CABLES		
S.A.R. CABLES		
E.S.C. CABLES		
OIL PIPE LINE		

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Contract No

Project Title

STANDARD DRAWING

Drawing Title

TELKOM MANHOLES RECTANGULAR ROADWAY AND MIDBLOCK

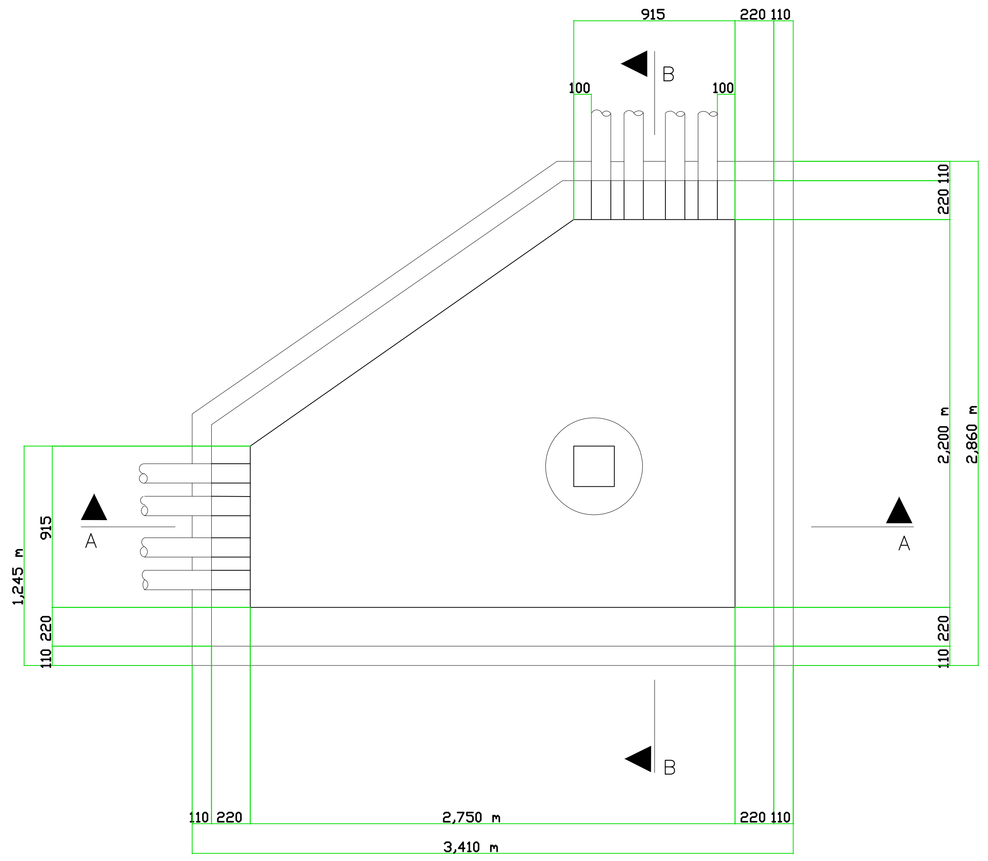
Scales	DATE OF ISSUE
1: 250	FEBRUARY 1990
Designed	Date 1995–12–06
Checked	Drawn C.E.S.

Manager RD(N)

Director : Roads

R.A.Moore Executive Director

Drawing No 38586 Sheet of Sheets



PLAN

NOTES :–

1) IN SITU GROUND MUST BE COMPACTED TO 95% MOD. AASHTO PRIOR TO THE MANHOLE BASE SLAB BEING CAST. IF DENSITY CANNOT BE ATTAINED THE IN–SITU MATERIAL MUST BE REMOVED TO A DEPTH OF 300mm AND REPLACED WITH A SELECTED BACKFILL.

2) BLINDING TO CONSIST OF GRADE 15/26 WITH CUBE CRUSHING STRENGTH OF 15 MPa AT 28 DAYS.

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4) MANHOLE COVER AND FRAME TO BE SUPPLIED BY TELKOM.

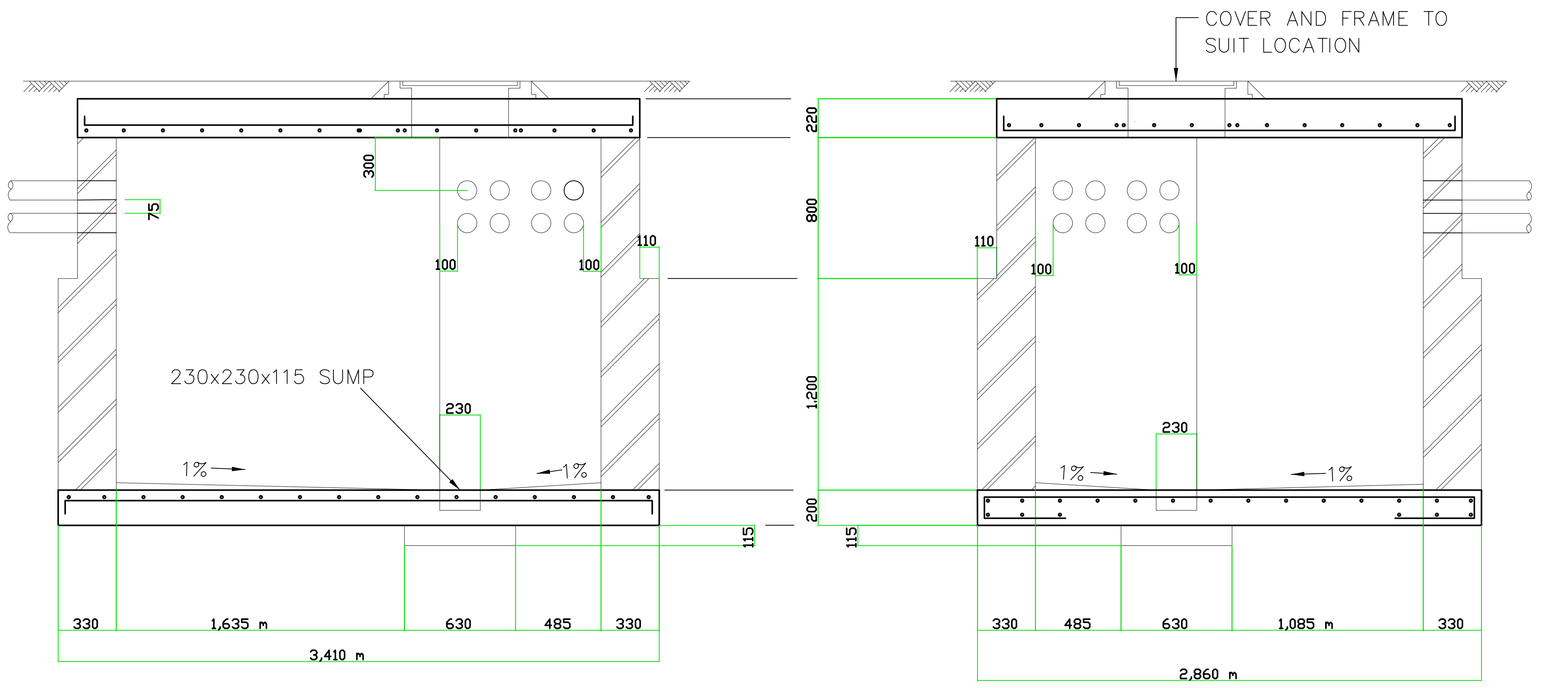
5) CEMENT MORTAR FOR BRICKWORK SHALL BE COMPOSED OF 1 PART CEMENT TO 3 PARTS SAND.

6) THE BRICKWORK TO THE MANHOLES SHALL BE WELL AND REGULARLY BONDED IN DOUBLE STRETCHER BOND WITH NO FALSE HEADERS EXCEPT WHERE REQUIRED AS CLOSERS.

7) ALL CABLE DUCT PIPES TO BE SUPPLIED BY TELKOM UNLESS OTHERWISE SPECIFIED.

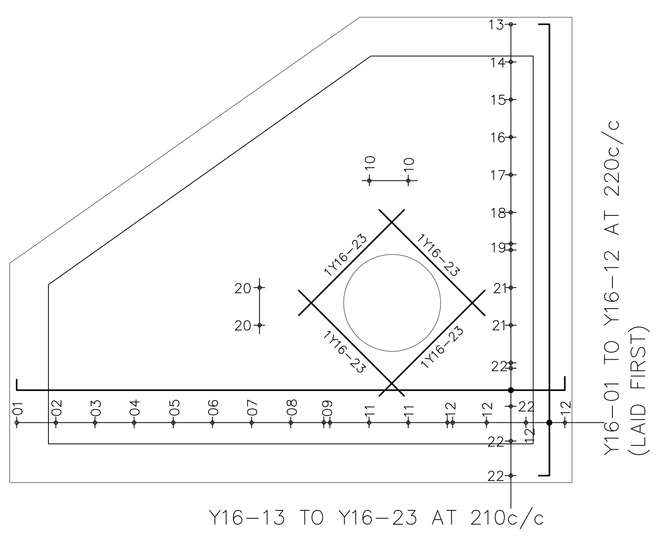
8) CONCRETE TO BASE AND DECK SLABS TO CONSIST OF 30/26 WITH CUBE CRUSHING STRENGTH OF 30MPa AT 28 DAYS.

NOTE:
REINFORCING DETAILS SHOWN ARE FOR ROADWAY MANHOLES. WHERE MIDBLOCK MANHOLES ARE REQUIRED DIMENSIONS AND STEEL DETAILS ARE UNCHANGED EXCEPT THAT THE BARS SHOWN ARE TO BE REPLACED BY Y10 BARS.

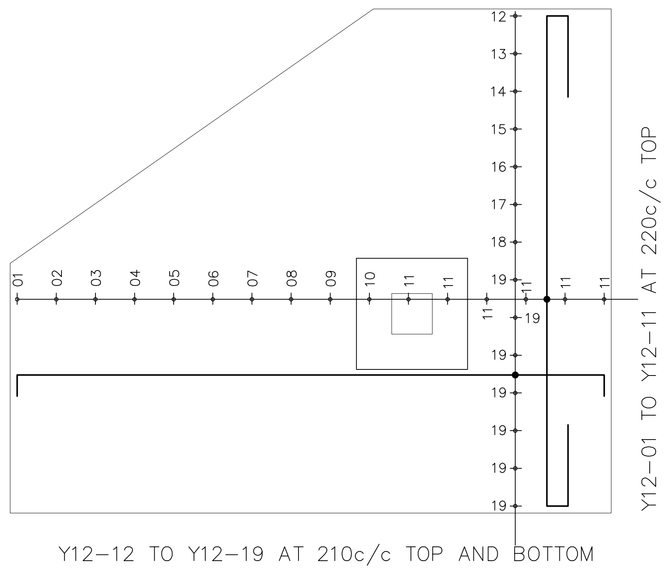


SECTION A-A

SECTION B-B



COVER SLAB REINFORCEMENT DETAILS



BASE SLAB REINFORCEMENT DETAILS

DECK STEEL DETAILS

BAR 0	MARK	No.	LENGTH	TOTAL LENGTH Y16	TOTAL LENGTH Y12
Y16	01	1	1350	1,35	
Y16	02	1	1500	1,50	
Y16	03	1	1650	1,65	
Y16	04	1	1800	1,80	
Y16	05	1	1950	1,95	
Y16	06	1	2100	2,10	
Y16	07	1	2250	2,25	
Y16	08	1	2450	2,45	
Y16	09	2	2600	5,20	
Y16	10	2	1450	2,90	
Y16	11	2	850	1,70	
Y16	12	5	2700	13,50	
Y16	13	1	1300	1,30	
Y16	14	1	1600	1,60	
Y16	15	1	1950	1,95	
Y16	16	1	2200	2,20	
Y16	17	1	2500	2,50	
Y16	18	1	2800	2,80	
Y16	19	2	3100	6,20	
Y16	20	2	1950	3,90	
Y16	21	2	850	1,70	
Y16	22	5	3520	16,25	
Y16	23	4	1200	4,80	

BASE STEEL DETAILS

Y12	01	1	2400	1300 / 100 100 / 450	2,40
Y12	02	1	2550	1450 / 100 100 / 450	2,55
Y12	03	1	2700	1600 / 100 100 / 450	2,70
Y12	04	1	2850	1750 / 100 100 / 450	2,85
Y12	05	1	3050	1950 / 100 100 / 450	3,05
Y12	06	1	3200	2100 / 100 100 / 450	3,20
Y12	07	1	3350	2250 / 100 100 / 450	3,35
Y12	08	1	3500	2400 / 100 100 / 450	3,50
Y12	09	1	3650	2550 / 100 100 / 450	3,65
Y12	10	1	3800	2700 / 100 100 / 450	3,80
Y12	11	6	3850	2750 / 100 100 / 450	23,10
Y12	12	2	1400	1200	2,80
Y12	13	2	1750	1550	3,50
Y12	14	2	2050	1850	4,10
Y12	15	1	2350	2150	2,35
Y12	16	1	2650	2450	2,65
Y12	17	1	2950	2750	2,95
Y12	18	1	3300	3100	3,30
Y12	19	10	3500	3300	35,00

NORTH/SOUTH CENTRAL LOCAL COUNCIL – DURBAN

CITY ENGINEERS
SERVICE UNIT
ROADS DEPARTMENT

PLAN DESCRIPTION	DWG. NO.
CONTINUED FROM	
CONTINUED ON	
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	Date	Description

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

Acquisitions completed

Date Engineer

NORTH POINT

UNDERGROUND SERVICES CHECKED

SERVICE	DATE	SIGNATURE
S.W.DRAINS		
SEWERS		
WATER MAINS		
G.P.O.CABLES		
ELECTRIC CABLES		
S.A.R. CABLES		
E.S.C. CABLES		
OIL PIPE LINE		

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Contract No

Project Title

STANDARD DRAWING

Drawing Title

TELKOM MANHOLES
'L' SHAPED
ROADWAY AND MIDBLOCK

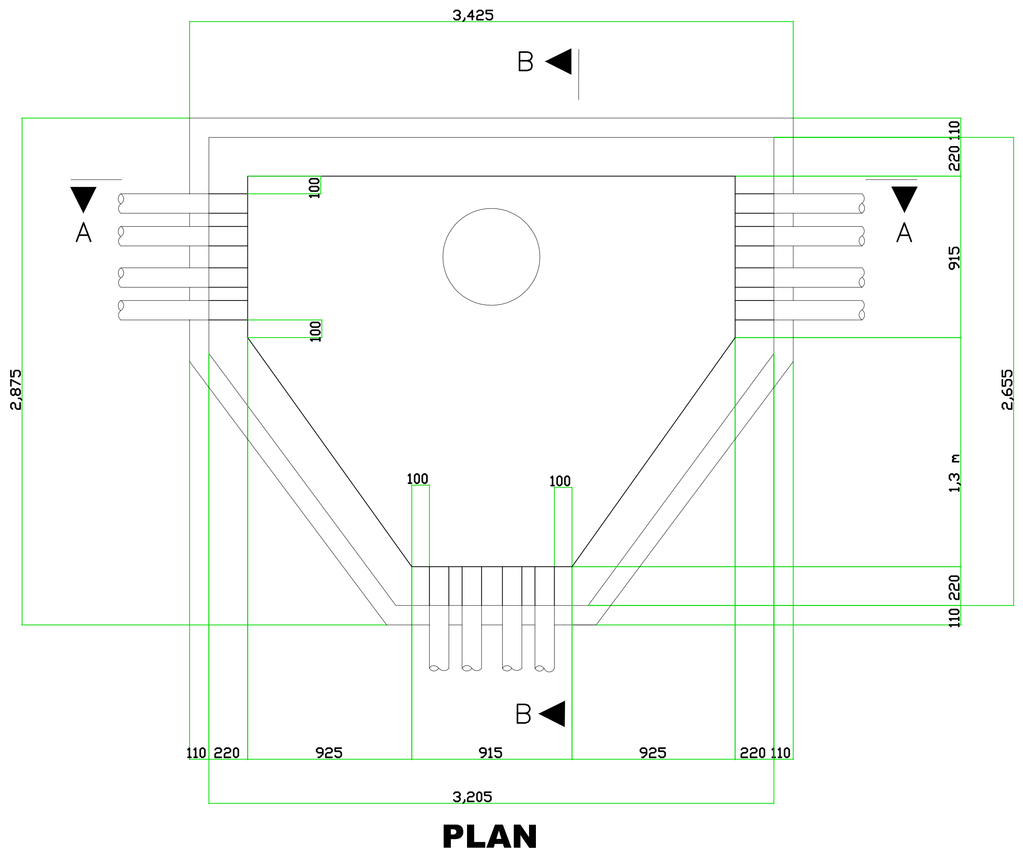
Scales	DATE OF ISSUE
1 : 250	FEBRUARY 1990
Designed	Date 1995-12-06
Checked	Drawn C.E.S.

Manager RD(N)

Director : Roads

R.A.Moore Executive Director

Drawing No 38587 Sheet of Sheets



PLAN

NOTES :-

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

2) BLINDING TO CONSIST OF GRADE 15/26 WITH CUBE CRUSHING STRENGTH OF 15 MPa AT 28 DAYS.

3) CLEAR COVER TO MAIN STEEL 40mm

4) MANHOLE COVER AND FRAME TO BE SUPPLIED BY TELKOM.

5) CEMENT MORTAR FOR BRICKWORK SHALL BE COMPOSED OF 1 PART CEMENT TO 3 PARTS SAND.

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NOTES:

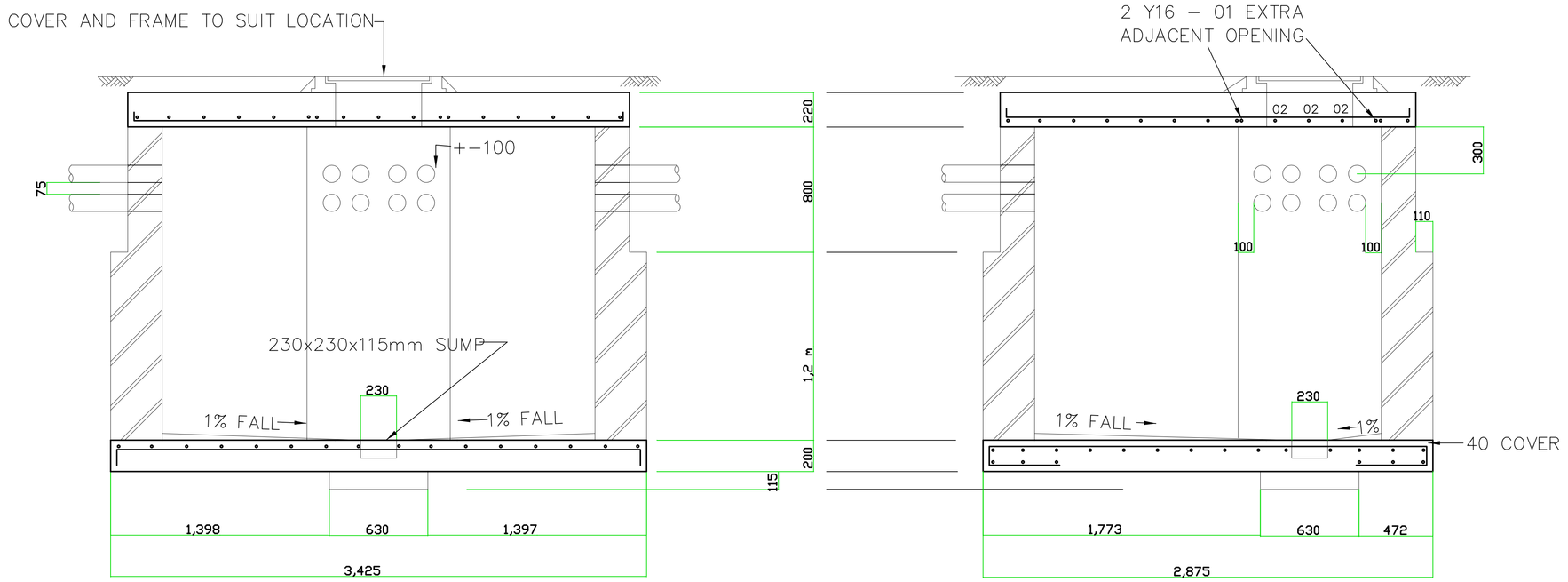
REINFORCING DETAILS SHOWN ARE FOR ROADWAY MANHOLES. WHERE MIDBLOCK MANHOLES ARE REQUIRED DIMENSION AND STEEL DETAILS ARE UNCHANGED EXCEPT THAT THE BARS SHOWN ARE TO BE REPLACED BY Y10 BARS.

DECK STEEL DETAILS

BAR 0	MARK	No	LENGTH		TOTAL LENGTH Y16	TOTAL LENGTH Y12
Y16	01	5	2900	2700	14,50	
Y16	02	6	1200	1000	7,20	
Y16	03	1	2650	2450	2,65	
Y16	04	1	2250	2050	2,25	
Y16	05	1	1900	1700	1,90	
Y16	06	1	1500	1300	1,50	
Y16	07	1	1100	900	1,10	
Y16	08	2	1200	1000	2,40	
Y16	09	2	1400	1200	2,80	
Y16	10	2	1600	1400	3,20	
Y16	11	2	1800	1600	3,60	
Y16	12	2	2000	1800	4,00	
Y16	13	4	2100	1900	8,40	
Y16	14	3	450	250	1,35	
Y16	15	3	1200	1000	3,00	
Y16	16	4	1200	1200	4,80	

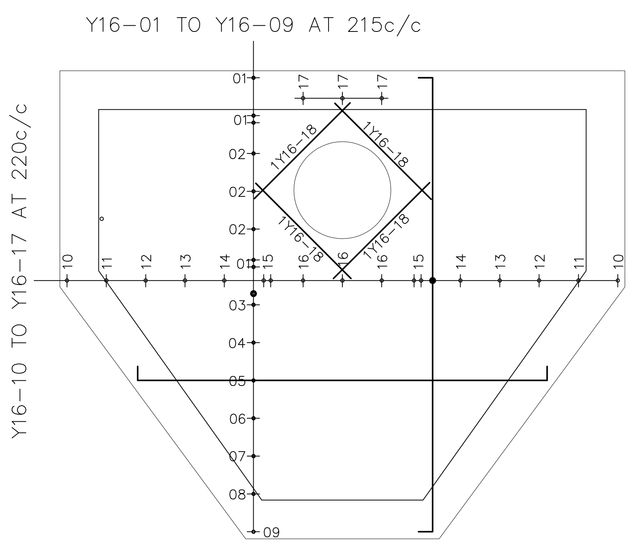
BASE STEEL DETAILS

Y12	01	2	2250	1150 (100 … 100, 450)		4,50
Y12	02	2	2450	1350 (100 … 100, 450)		4,90
Y12	03	2	2650	1550 (100 … 100, 450)		5,30
Y12	04	2	2850	1750 (100 … 100, 450)		5,70
Y12	05	2	3050	1950 (100 … 100, 450)		6,10
Y12	06	6	3250	2150 (100 … 100, 450)		6,50
Y12	07	10	3150	2950		31,50
Y12	08	1	2750	2550		2,75
Y12	09	1	2700	2200		2,70
Y12	10	2	2000	1800		2,00
Y12	11	2	1600	1400		1,60
Y12	12	2	1150	950		1,50

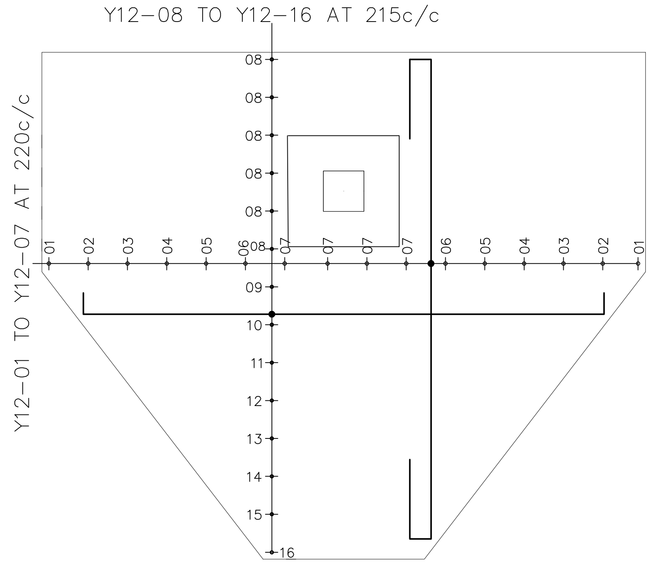


SECTION A-A

SECTION B-B



COVER SLAB REINFORCEMENT DETAILS



BASE SLAB REINFORCEMENT DETAILS

NORTH/SOUTH CENTRAL LOCAL COUNCIL – DURBAN

CITY ENGINEERS
SERVICE UNIT
ROADS DEPARTMENT

PLAN DESCRIPTION	DWG. NO.
CONTINUED FROM	
CONTINUED ON	
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	Date	Description

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Acquisitions completed

Date Engineer

NORTH POINT

UNDERGROUND SERVICES CHECKED

SERVICE	DATE	SIGNATURE
S.W.DRAINS		
SEWERS		
WATER MAINS		
G.P.O.CABLES		
ELECTRIC CABLES		
S.A.R. CABLES		
E.S.C. CABLES		
OIL PIPE LINE		

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Contract No

Project Title

STANDARD DRAWING

Drawing Title

TELKOM MANHOLES
'T' SHAPED
ROADWAY AND MIDBLOCK

Scales	DATE OF ISSUE
1 : 250	FEBRUARY 1990
Designed	Date 1995-12-06
Checked	Drawn C.E.S.

Manager RD(N)

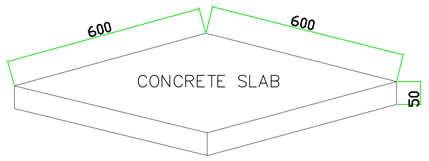
Director : Roads

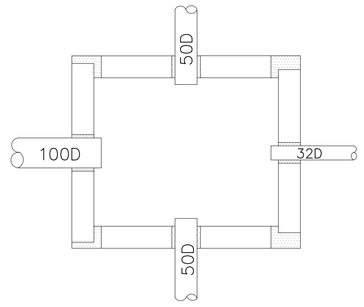
R.A.Moore Executive Director

Drawing No 38588 Sheet of Sheets

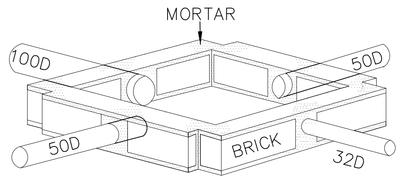
UNDERGROUND PIPE JUNCTION BOX

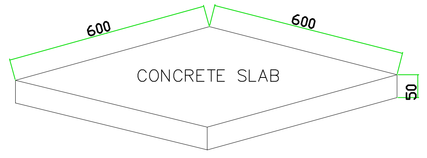
(SIDEWALK ONLY)





PLAN VIEW





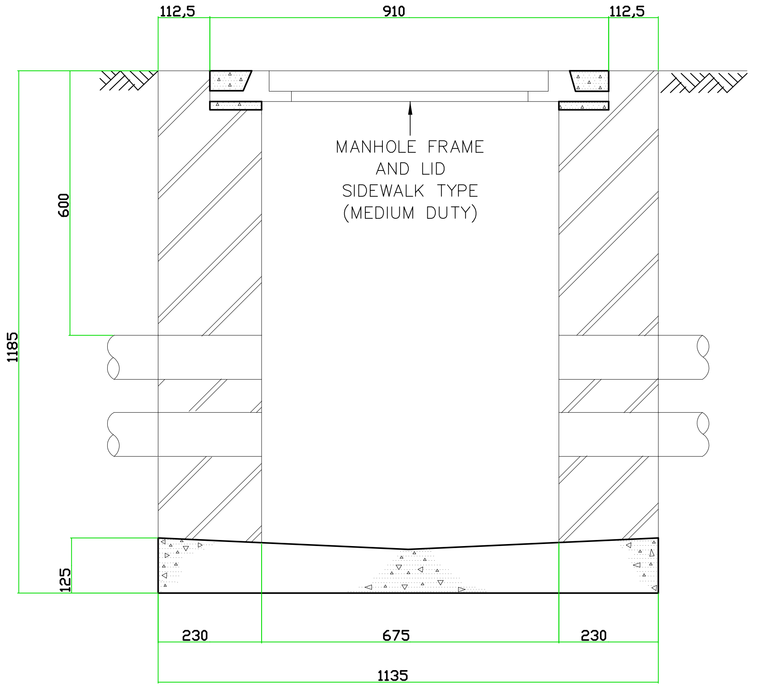
ISOMETRIC VIEW

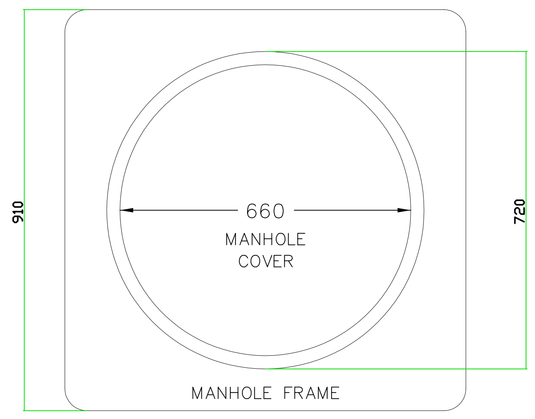
NOTES:

1) UPPER PAVING SLAB NOT TO BE SET INTO WET MORTAR.
2) TOP SURFACE OF MORTAR TO BE LEVEL AND SMOOTH.
3) BRICKS TO BE ARRANGED TO ACCOMMODATE PIPES AND PIPE DIRECTION.

BRICK DUG OUT

(SIDEWALK ONLY)





NOTES :–

1) IN SITU GROUND MUST BE COMPACTED TO 95% MOD. AASHTO PRIOR TO THE BASE SLAB BEING CAST. IF DENSITY CANNOT BE ATTAINED THE IN–SITU MATERIAL MUST BE REMOVED TO A DEPTH OF 300mm AND REPLACED WITH A SELECTED BACKFILL.

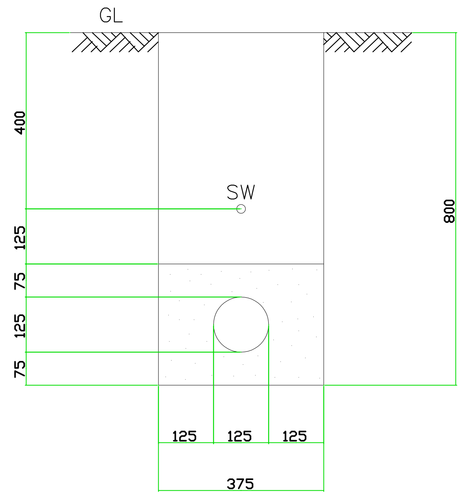
2) BLINDING TO CONSIST OF GRADE 15/26 WITH CUBE CRUSHING STRENGTH OF 15 MPa AT 28 DAYS.

3) MANHOLE COVER AND FRAME TO BE SUPPLIED BY TELKOM.

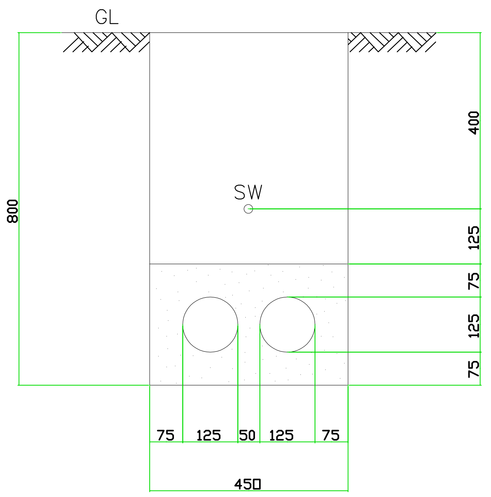
4) CEMENT MORTAR FOR BRICKWORK SHALL BE COMPOSED OF 1 PART CEMENT TO 3 PARTS SAND.

5) THE BRICKWORK TO THE MANHOLES SHALL BE WELL AND REGULARLY BONDED IN STRETCHER BOND WITH NO FALSE HEADERS EXCEPT WHERE REQUIRED AS CLOSERS.

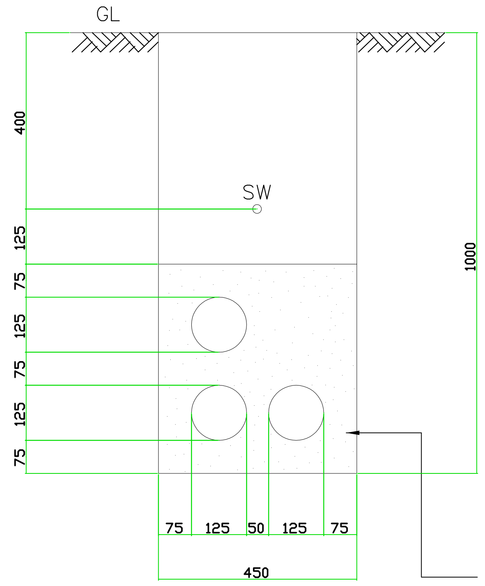
CABLE DUCT LAYOUTS



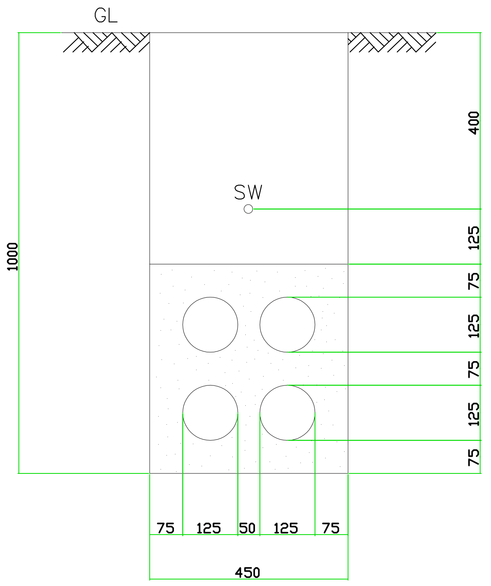
1 PIPE



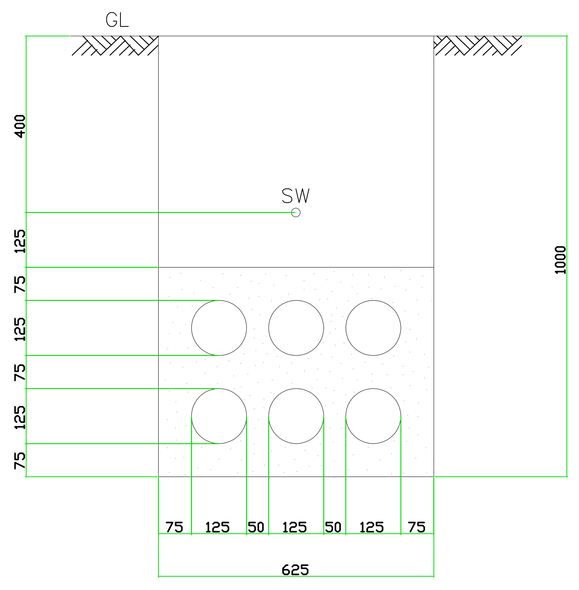
2 PIPES



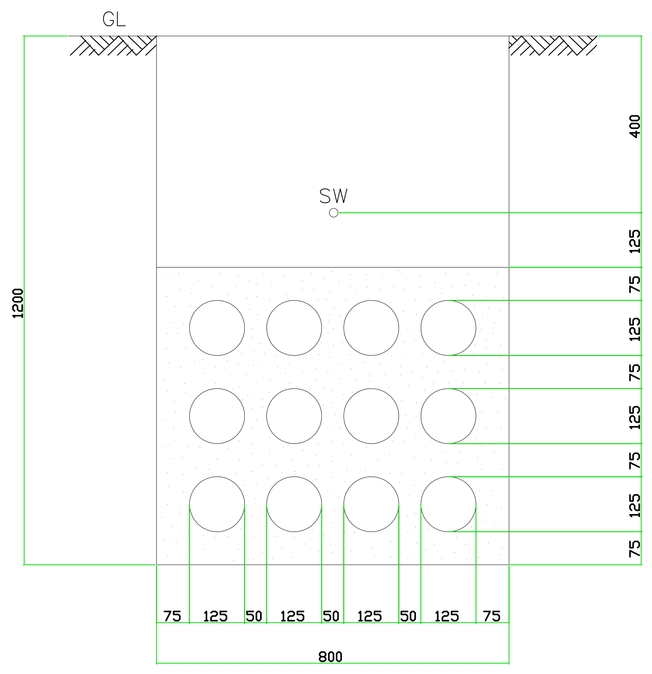
3 PIPES



4 PIPES



6 PIPES



12 PIPES

NOTES:

1) FOR CABLE DUCT HEADWALL POSITIONS REFER TO PLAN NO. 38581.
2) DUCT SURROUNDS ARE TO VARY ACCORDING TO THE LOCATION OF THE DUCTS:
   a) ROAD CROSSING: DUCTS SHALL GENERALLY BE ENCASED IN GRADE 20/26 CONCRETE. FOR ENCASEMENT DIMENSIONS SEE PLAN NO. 38
   b) VERGES AND MINOR ROADS: DUCTS SHALL BE BEDDED IN A SELECTED GRANULAR MATERIAL BACKFILL. THE GRANULAR BEDDING IS TO BE LAID TO A HEIGHT OF 150mm ABOVE THE TOP DUCT.

LEGEND

GL GROUND LINE
SW SCREEN WIRE
BACKFILL
SELECTED FILL

NORTH/SOUTH CENTRAL LOCAL COUNCIL – DURBAN

CITY ENGINEERS
SERVICE UNIT
ROADS DEPARTMENT

PLAN DESCRIPTION	DWG. NO.	
CONTINUED FROM		
CONTINUED ON		
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	Date	Description

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

Acquisitions completed

Date Engineer

NORTH POINT

UNDERGROUND SERVICES CHECKED

SERVICE	DATE	SIGNATURE
S.W.DRAINS		
SEWERS		
WATER MAINS		
D.P.O.CABLES		
ELECTRIC CABLES		
S.A.R. CABLES		
E.S.C. CABLES		
OIL PIPE LINE		

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

Contract No

Project Title

STANDARD DRAWING

Drawing Title

TELKOM
CABLE DUCTS AND JUNCTION BOX DETAILS

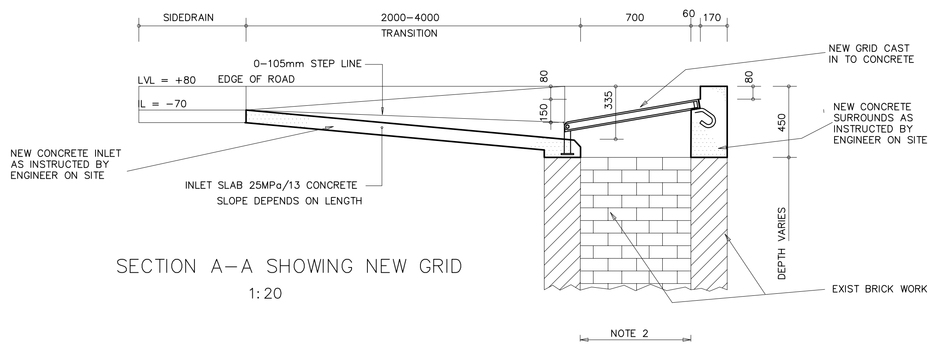
Scales	DATE OF ISSUE
1 : 10	FEBRUARY 1990
Designed	Date 1994–12–06
Checked	Drawn C.E.S.

Manager RD(N)

Director : Roads

R.A.Moore Executive Director

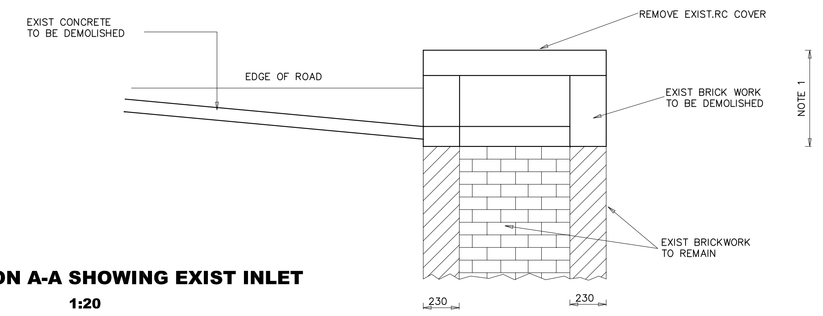
Drawing No 38589 Sheet of Sheets



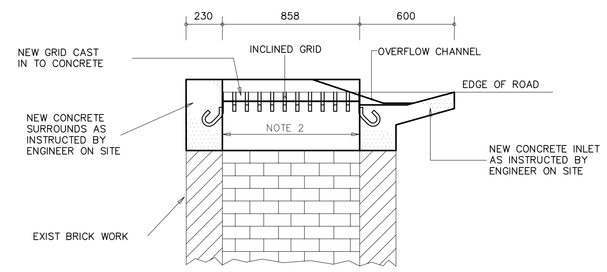
SECTION A–A SHOWING NEW GRID
1:20

N O T E:–

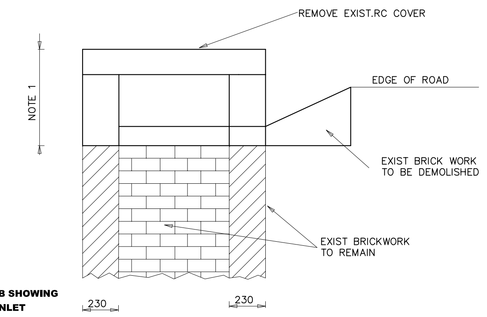
1. HEIGHT TO WHICH EXIST CONCRETE/ BRICKWORK TO BE DEMOLISHED WILL BE CONFIRMED BY RE FOR EVERY CATCHPIT.
2. EXISTING MANHOLES MAY VARY FROM THE SIZES AS DETAILED BELOW. ADJUSTMENTS WILL HAVE TO BE MADE IN THE NEW CONCRETE SURROUNDS TO FIT THE EXISTING CATCHPIT MANHOLE/CHAMBER.
3. GRID FRAME TO BE KEPT SQUARE DURING CONCRETE WORK. USE MIN 3xTIMBER STRUTS BETWEEN 60x6 FLATS.
4. CONCRETE STRENGTH = 25HPa
5. MINIMUM COVER = 40mm
6. REFER TO DRAWING SD 105 FOR GRID FABRICATION DETAILS



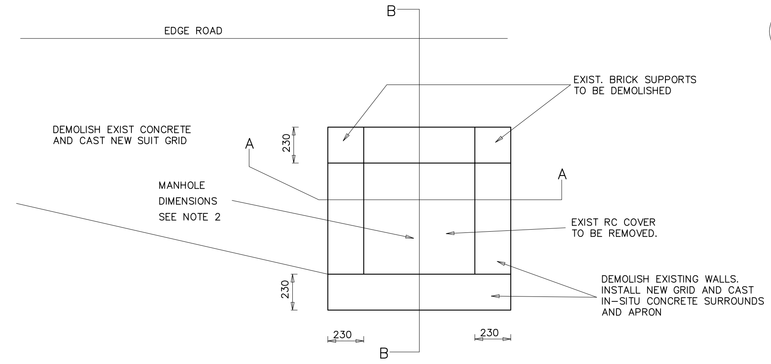
SECTION A-A SHOWING EXIST INLET
1:20



SECTION B-B SHOWING NEW GRID
1:20

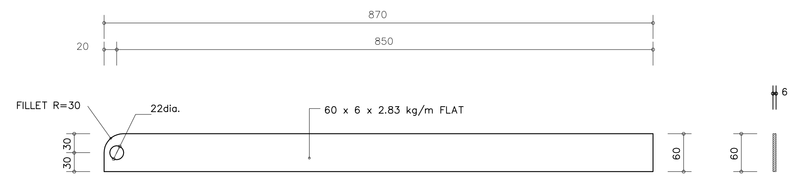


SECTION B-B SHOWING EXIST INLET
1:20

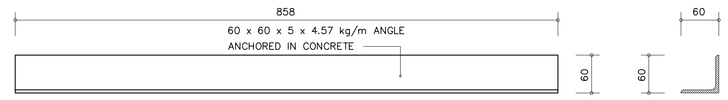


PLAN SHOWING EXIST INLET
1:20

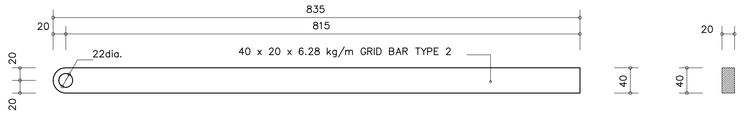
DETAILS OF EXISTING CATCHPIT WITH NEW GRID
(DETAILS OF NEW GRID BELOW)



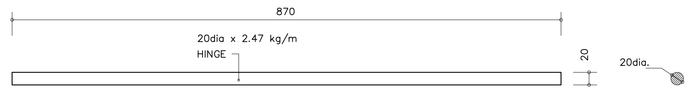
DETAILS OF 60 x 6 FLAT
SCALE 1:5



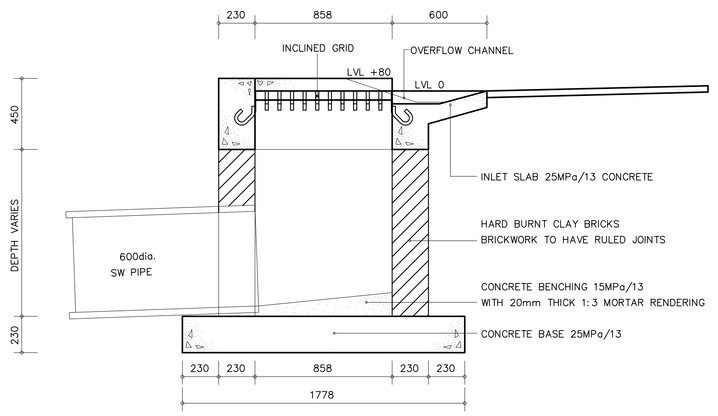
DETAILS OF 60 x 60 x 5 ANGLE
SCALE 1:5



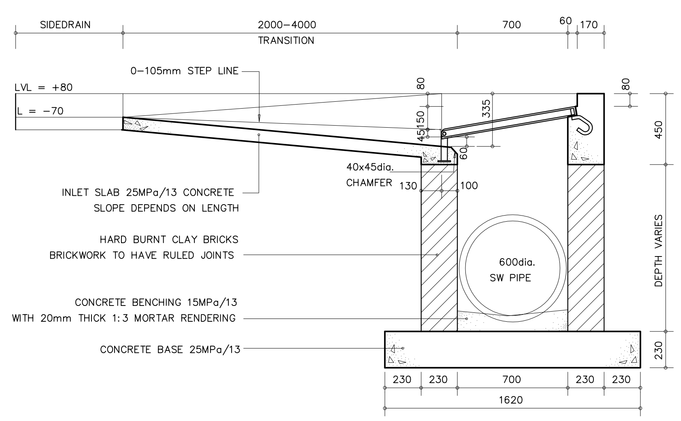
DETAILS OF GRID BAR TYPE 2
SCALE 1:5



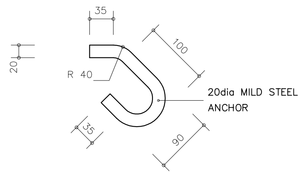
DETAILS OF 20dia. HINGE
SCALE 1:5



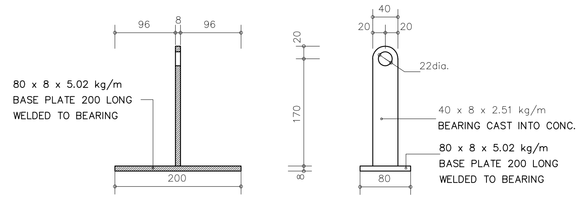
SECTION A–A
SCALE 1:20



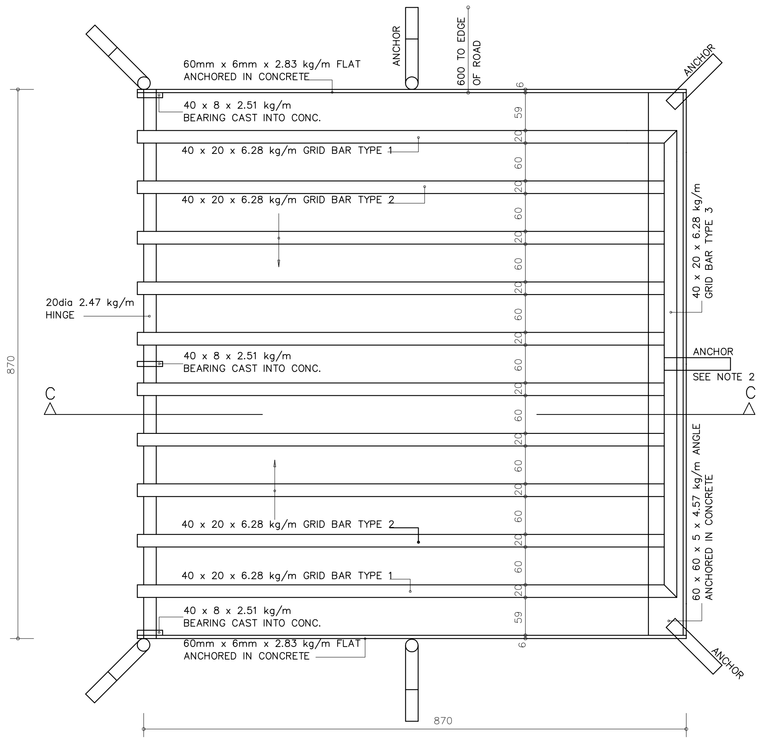
SECTION B–B
SCALE 1:20



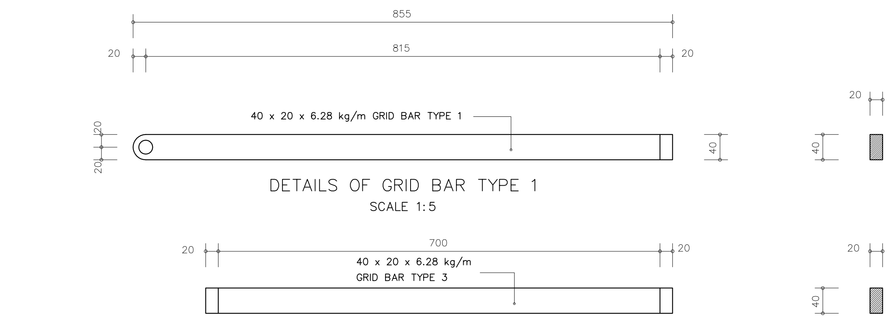
DETAILS OF ANCHOR
SCALE 1:5



DETAILS OF HINGE BEARING
SCALE 1:5



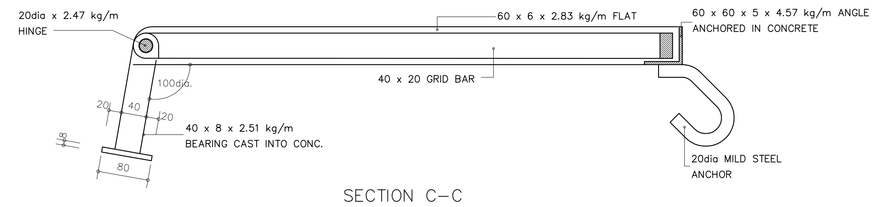
GRID AND FRAME PLAN
SCALE 1:5



DETAILS OF GRID BAR TYPE 1
SCALE 1:5



DETAILS OF GRID BAR TYPE 3
SCALE 1:5



SECTION C–C
SCALE 1:5

NOTE 1:

CONCRETE – BENCHING : 15 MPa/19
OTHER : 25 MPa/13
MINIMUM COVER = 40mm

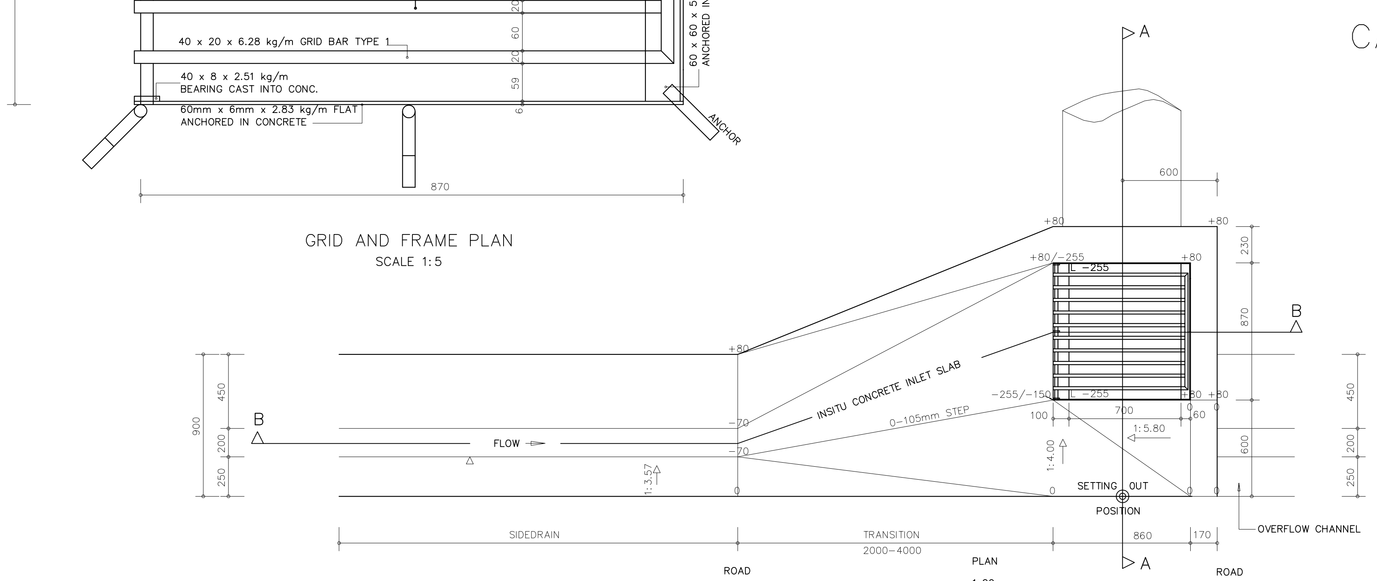
STEELWORK TO BE HOT–DIP GALVANISED AFTER MANUFACTURE TO SABS 763

WELDS TO BE 6mm THICK FILLET WELDS.

NOTE 2:

THIS MANHOLE CHAMBER IS SUITABLE FOR MAX. 600dia PIPE

ENGINEER TO PROVIDE SIZE ADJUSTMENT DETAILS ON SITE FOR LARGER PIPES.



DETAILS OF NEW CATCHPIT WITH NEW GRID

NORTH & SOUTH CENTRAL LOCAL COUNCIL

PHYSICAL ENVIRONMENT
SERVICE UNIT
ROADS DEPARTMENT

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

REDUCED PLAN USE SCALE BELOW

0 10 20 30 40 50 60 70

70mm ON ORIGINAL PLAN

CONSULTING ENGINEER:
MACKINTOSH BERGH & STURGESS
MBS
2nd. Floor
13 Henwood Road
Pinetown
3610
Tel. (031) 701–4647
Fax. (031) 701–4640

SURVEYOR:

Revision	Date	Description

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

Acquisitions completed

Date Engineer

NORTH POINT

UNDERGROUND SERVICES CHECKED

SERVICE	DATE	SIGNATURE
S.W.DRAINS		
SEWERS		
WATER MAINS		
G.P.O.CABLES		
ELECTRIC CABLES		
S.A.R. CABLES		
E.S.C. CABLES		
OIL PIPE LINE		

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

Contract No

Project Title

STANDARD DRAWINGS

Drawing Title

TYPICAL DETAILS OF GRID INLETS

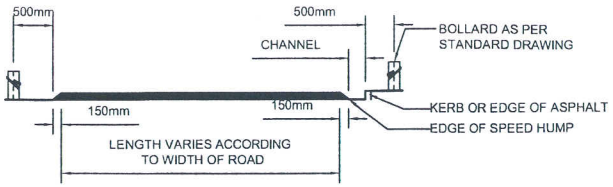
Scales	Reference
1 : 20	
Designed A.B.	Date JAN 97
Checked J.T.L.	Drawn CAD

Manager RD (N)

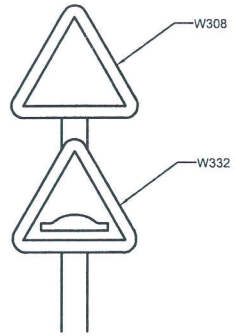
Director : Roads

R.A.Moore Executive Director

Drawing No 43120 Sheet of Sheets

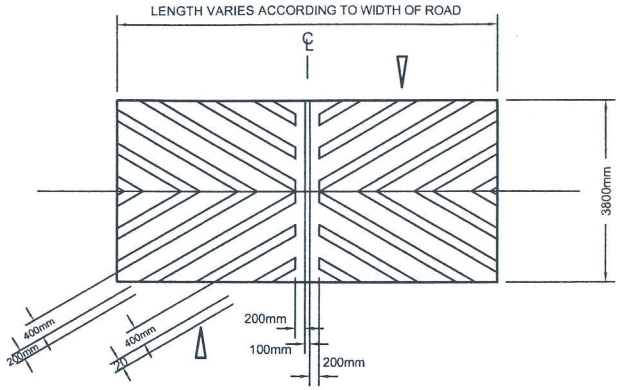


SECTION B - B

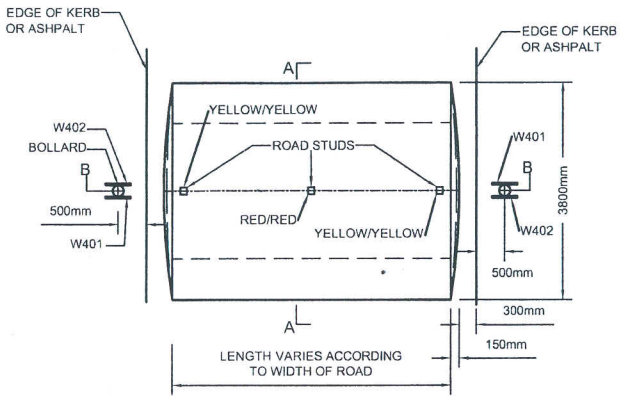


TRAFFIC CALMED ZONE SIGN

NOTES:
1. Road markings - refer to project specifications.
2. Asphalt to be continuously graded Mix A bitumen content of 5%.
3. Road studs: Double sided red 43 element aluminium lynx.

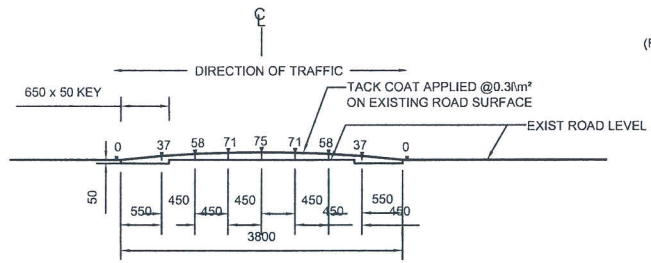


PLAN VIEW
SPEED HUMP PAINT DETAIL FOR TWO WAY TRAFFIC MARKINGS
(FOR DETAILS OF THE USE OF ROAD MARKING WM10 REFER TO SARTSM VOL1 CHAPTER 7, PAGE 7.3.17. & VOL4 CHAPTER 12)

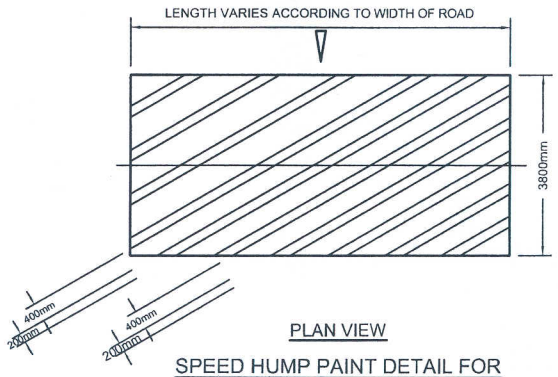


PLAN VIEW

SPEED HUMP DETAIL

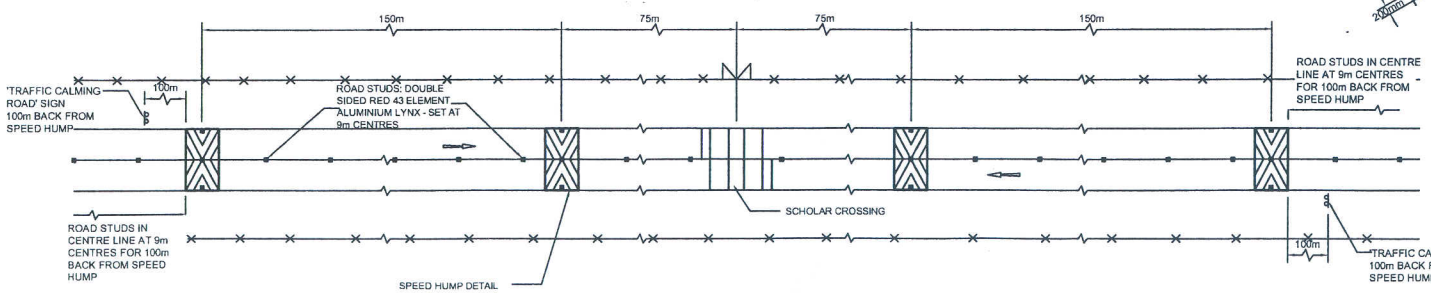


SECTION A - A



PLAN VIEW

SPEED HUMP PAINT DETAIL FOR ONE WAY TRAFFIC MARKINGS



NOTES:
1. 1,4mm Chromadek sheeting backing with uni-struts.
2. Legend: 112 Din Mod B - Black semi-matt.
3. Background - Class 1 white.
4. Border: red retro - reflective
5. Signs to be erected on Ø76mm hot dip galvanised post.
6. Signs are to be erected such that the outer edge of all signs ia a minimum of 750mm and a maximum of 1500mm from the edge of the asphalt or kerb.
7. Size: 900mm (W) x 1200mm (H).
8. Sign to be erected such that the height clearance to the underside of the aign is 2200mm off the natural ground level.
9. Sign to be in conformance with the SADC Road Traffic Signs Manual.

NOTE:
FOR ONE-WAY ROADS, PLEASE CONTACT THE PROJECT ENGINEER

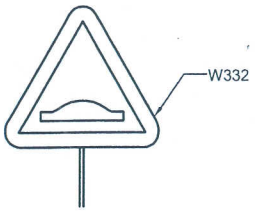
TRAFFIC CALMING: SCHOOL ZONES - TWO-WAY ROADS

CLASS 4 ROAD

TRAFFIC CALMING SCHOOL ZONES TWO-WAY ROADS & ONE WAY ROAD

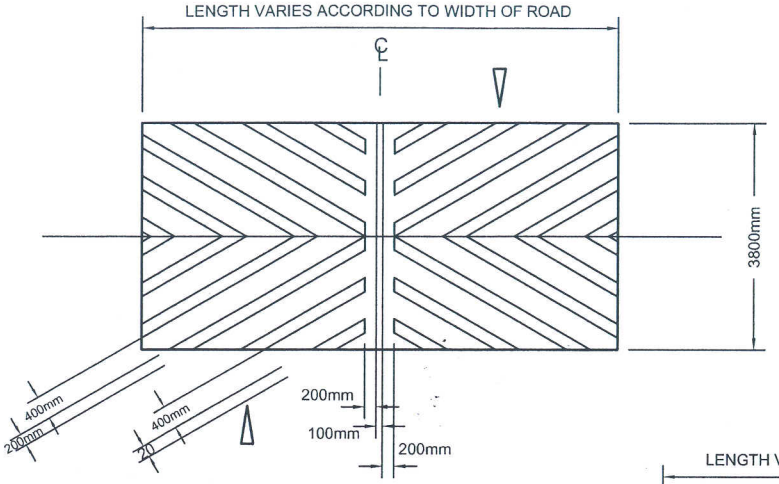
LAYOUTS, SECTIONS & DETAILS

46223



TRAFFIC CALMED ZONE SIGN

NOTES:
1. Road markings - refer to project specifications.
2. Asphalt to be continuously graded Mix A bitumen content of 5%.
3. Road studs: Double sided red 43 element aluminium lynx.

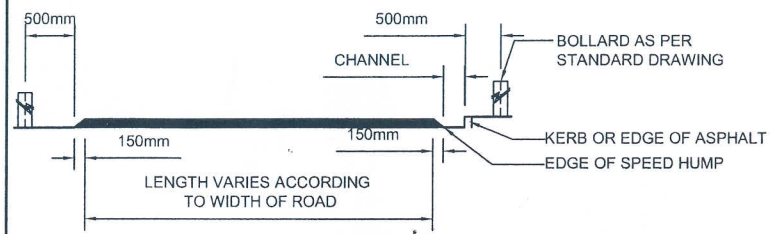


PLAN VIEW

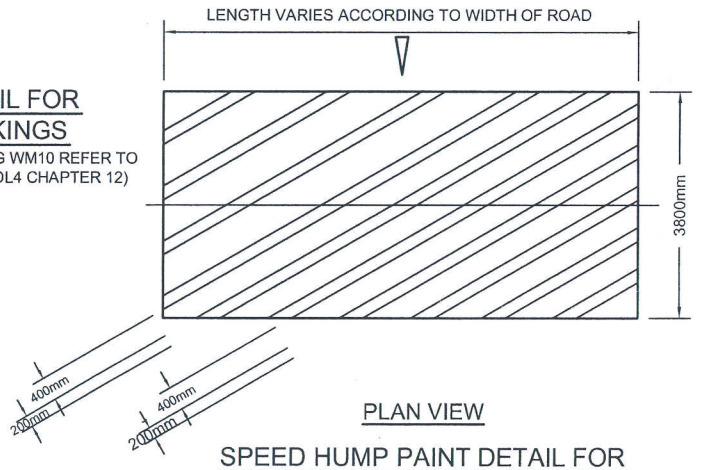
SPEED HUMP PAINT DETAIL FOR TWO WAY TRAFFIC MARKINGS

(FOR DETAILS OF THE USE OF ROAD MARKING WM10 REFER TO SARTSM VOL1 CHAPTER 7, PAGE 7.3.17. & VOL4 CHAPTER 12)

NOTES:
1) Road markings - refer to Project Specifications.
2) Signs - W332 & W308 to be erected 30m away from the speed hump on both approaches. The W332 and W308 signs are to be combined on one pole.
3) Signs are to be erected such that the outer edge of all signs is a minimum of 750mm and a maximum of 1500mm from the edge of the asphalt or kerb.
4) Signs are to be erected such that the height clearance to the underside of the sign is between 2100mm minimum 2500mm maximum off the natural ground level.
5) Asphalt is to be continuously graded Mix A Bitumen content 5%.
6) Road studs: Double sided Red 43 Element Aluminium Lynx.

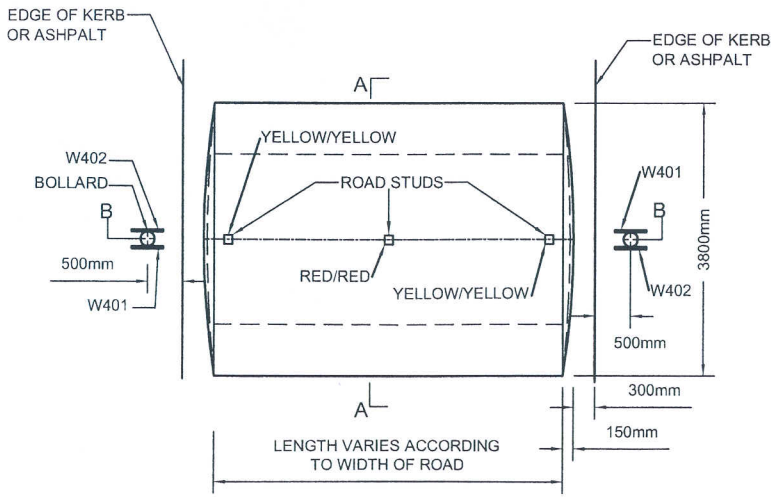


SECTION B - B



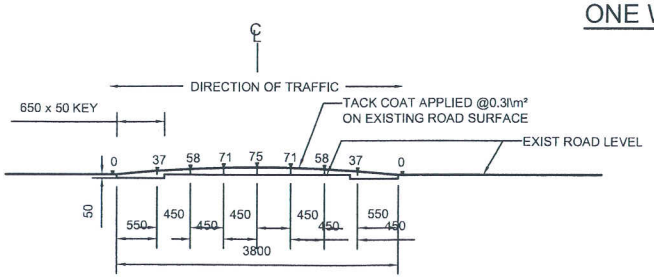
PLAN VIEW

SPEED HUMP PAINT DETAIL FOR ONE WAY TRAFFIC MARKINGS



PLAN VIEW

SPEED HUMP DETAIL



SECTION A - A

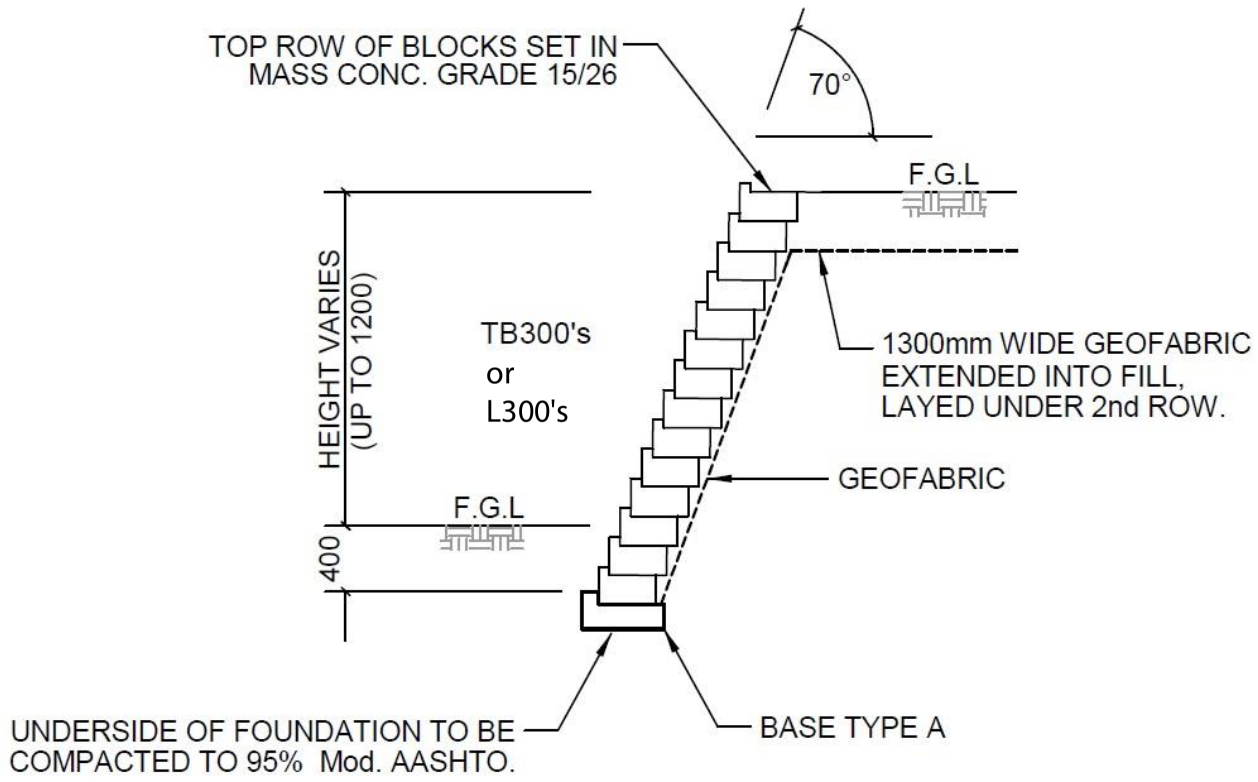
NOTE:
FOR ONE-WAY ROADS, PLEASE CONTACT THE PROJECT ENGINEER

STANDARD DETAIL FOR SPEED HUMPS

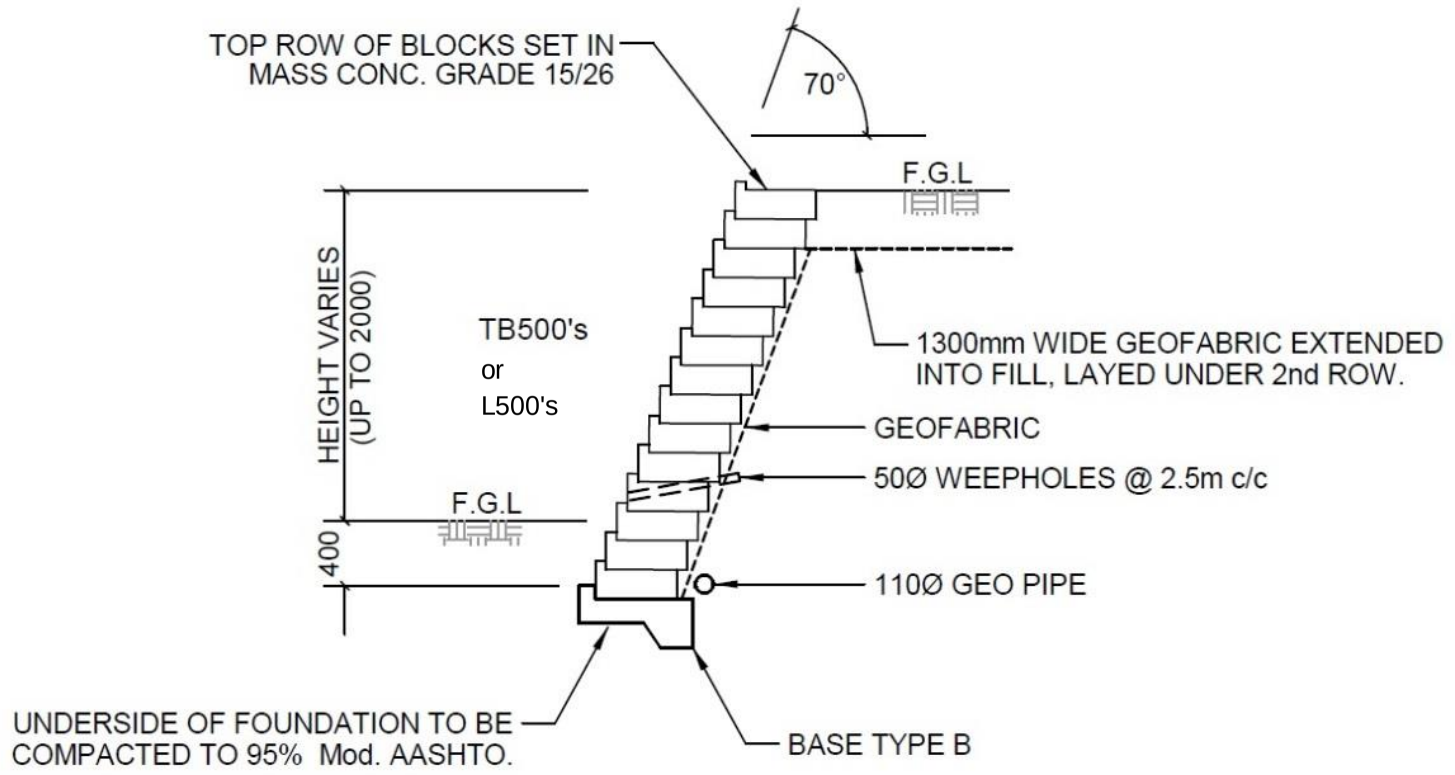
STANDARD DETAILS FOR SPEED HUMPS

LAYOUTS, SECTIONS & DETAILS

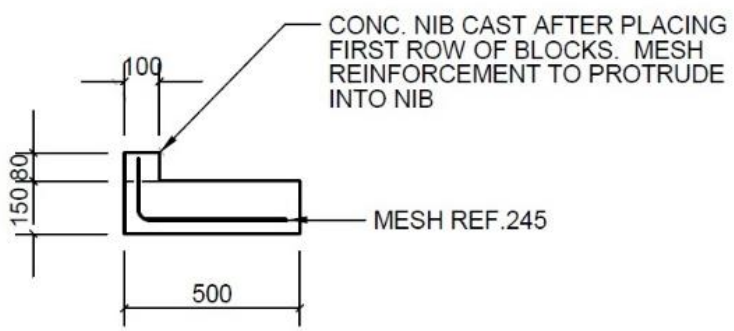
43924A/1



WALL TYPE 'A'
Scale 1 : 50



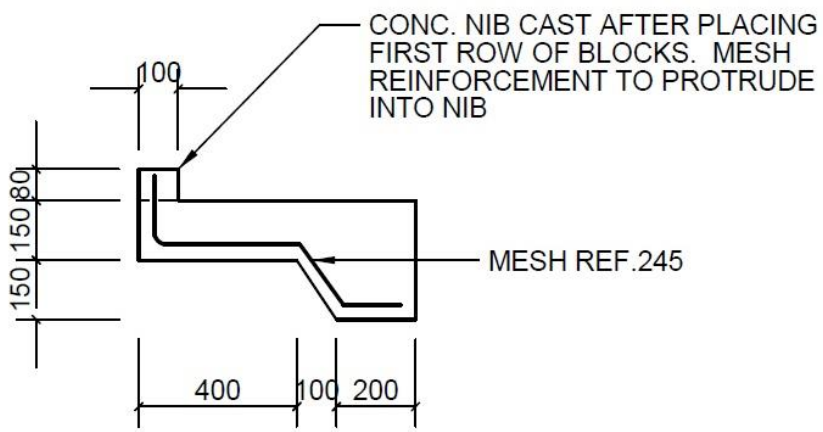
WALL TYPE 'B'
Scale 1 : 50



BASE TYPE 'A'
Scale 1 : 20

RETAINING WALL NOTES :

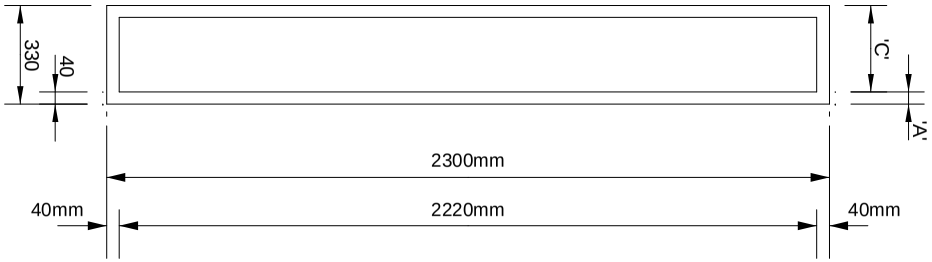
1. BLOCK TYPE : INFRASET "TERRACE BLOCK" OR SIMILAR APPROVED.
2. ALL FOUNDATION TRENCHES TO BE APPROVED BY THE ENGINEER ON SITE PRIOR TO CASTING OF CONCRETE.
3. BOTTOM ROW OF BLOCKS TO BE PLACED WHILE THE BASE CONCRETE IS STILL WORKABLE.
4. FILL BEHIND WALL TO BE COMPACTED IN LAYERS TO 95% MOD AASHTO.
5. CONCRETE IN WALL BASE - GR. 25/26 OR AS SPECIFIED
6. STABILISED FILL, IF REQUIRED - 10:1 CLEAN COARSE SAND : CEMENT , WELL RAMMED BETWEEN BLOCKS, IN BLOCKS AND 500mm BEHIND BLOCKS AS DETAILED.
7. MINIMUM OF 8 BLOCKS TO BE LAID PER SQ M.
8. CONTRACTOR TO MAKE ALLOWANCE FOR +/- 70mm "STEP BACK" WITH EACH 180mm STEP UP WHEN SETTING OUT THE BASE.
9. CONTRACTOR TO REFER TO DETAILED SURVEY DRAWINGS FOR THE LOCATION OF SERVICES, PROPERTY BOUNDARIES ETC.
10. LEVELS AND DIMENSIONS INDICATED ON THIS DRAWING ARE ONLY A GUIDE AND THESE NEED TO BE CONFIRMED BY THE ENGINEER ON SITE.
11. POSITION OF RETAINING WALLS TO BE CONFIRMED BY ENGINEER ON SITE.
12. WALLS LESS THAN 1m HIGH TO BE BLOCK TYPE TB300, BOTTOM ROW LAYED ON 75mm THICK BLINDING LAYER, 400mm WIDE AND AS DIRECTED TO DO SO BY ENGINEER ON SITE.
13. ALL RETAINING WALLS AS PER STRUCTURES DEPARTMENT DETAILS (ISSUED SEPARATELY IF REQUIRED).

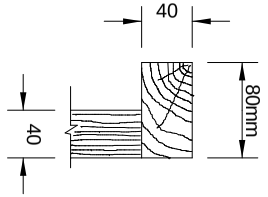


BASE TYPE 'B'
Scale 1 : 20

PATENTED EARTH RETAINING SYSTEMS
Drawing No.: 7400/1

HARDBOARD NOTICE BOARD FOR MTAB SUBSIDISED PROJECTS





DETAIL OF SURROUND

SCALE 1:5



NOTES:

A. Raised surround painted white.
B. White letters.
C. Royal Blue background - Ref. Blue 0-013.
D. Grey background - ref. Grey 8-089.
E. White dividing lines.

The face to be tempered hardboard in one piece. The colour numbers refer to those on the colour cards of British Standard 2660 of 1955.

AS BUILT

eTHEKWINI MUNICIPALITY

ENGINEERING UNIT
ROADS PROVISION DEPARTMENT

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

REDUCED PLAN USE SCALE BELOW

0 10 20 30 40 50 60 70

70mm ON ORIGINAL PLAN

Rev.	Date	Description
C	15:05:2000	NAME CHANGE
D	27:08:2001	NAME CHANGE
E	14:03:2003	NAME CHANGE

Contract No

Project Title

STANDARD DRAWING

Drawing Title

TYPICAL NOTICE BOARD FOR ENGINEERING UNIT

Scales	Reference

Designed	Date 14:03:2003
Checked	Drawn C.E.HONEY

Manager RD( )

D/H : RP

A.M.Peters Head : Engineering

Drawing No 40137E

Sheet 1 of 1 Sheets



NOTES:

1. Hard White Board 420X594
2. "A" : Royal Blue Letters Ref. Blue0-013.
3. "B" Red Letters
4. Logo to be Royal Blue Background, Dome in Powder Blue & Letters in White
5. Colours are based from the colour cards of British Standard 2660 of 1995

AS BUILT

eTHEKWINI MUNICIPALITY

ENGINEERING UNIT
ROADS PROVISION DEPARTMENT

PLAN DESCRIPTION	DRG No.	
CONTINUED FROM		
CONTINUED ON		
CROSS SECTIONS		
TYPICAL CROSS SECTION		
SURVEY LAYOUT		

REDUCED PLAN USE SCALE BELOW

0 10 20 30 40 50 60 70

70mm ON ORIGINAL PLAN

Rev.	Date	Description

Contract No

Project Title

STANDARD DRAWING

Drawing Title

TYPICAL NOTICE BOARD FOR ENGINEERING UNIT ROAD REHABILITATION

Scales	Reference
Designed	Date
Checked	Drawn

Manager RD( )

D/H : RP

A.M.Peters — Head : Engineering

Drawing No . — Sheet of Sheets

CHECKLIST: DOCUMENTATION FOR WORKS PACKAGE ORDER SUBMISSION AND APPROVAL

i. PRE- CONSTRUCTION PHASE

Item No.	*Description*	*Relevant Clause*	*Tick*
1.	Traffic accommodation plan		
2.	Project Specific Health and Safety file		
3.	Services Logging		
4.	Road Markings Logging		
5.	Daily diary – proposed template document consolidating all daily activities		
6.	Method statements		
7.	Quality plan (control and management) and checklists related to work activity		
8.	Control testing procedure and Service provider (Laboratory) to be used. (i.e. nuclear gauge testing)		
9.	All Asphalt Mix Designs		
10.	Plant list		
11.	Notice to Residents & public awareness boards		
12.	Detailed Works Programme		
13.	Hand Over meeting Minutes		
14	CSCG Plan		
15	Ward Councillor Meeting minutes (CLO & local labour)		

Project Manager: ---------- *(Name)*

---------- *(Signature)* Date: ----------

Contracts Manager: ---------- *(Name)*

---------- *(Signature)* Date: ----------

Construction Manager ---------- *(Name)*

---------- *(Signature)* Date ----------

CHECKLIST: DOCUMENTATION FOR WORKS PACKAGE ORDER SUBMISSION AND APPROVAL

ii. CONSTRUCTION PHASE Date:

Item No.	*Description*	*Construction Man. ✓*	*Employ. Rep. ✓*
1.	Pre-start checklist (site inspection / on-site procedures)		
2.	Daily diary		
3.	Daily strip plan of work zone(s)		
4.	Traffic officer report(s)		
5.	Daily foreman's report		
6.	Milling dip sheet		
7.	Paving spreadsheet		
8.	Ancillary works checklists (if any)		
9.	Delivery notes		
10.	Premix analysis		
11.	Density testing & process control analysis		
12.	CLO and local labour timesheet		
13.	F.T.E (monthly)		
14.	Daily pictures (construction & traffic accommodation)		
15.	Other: specify		
16.	Monthly Meeting minutes		
17.	Monthly Contractor Performance Form		

Project Manager: .....
(Name)

.....
(Signature) Date: .....

Contracts Manager: .....
(Name)

.....
(Signature) Date: .....

Construction Manager .....
(Name)

.....
(Signature) Date .....

DAILY DIARY

Contractor's logo (insert)

Project description:				**DATE :**			
				Start Time :			
Client:	**Ethekwini Municipality**	**Weather:**		**Traffic Safety Report Completed**			
		Rain (hours&mm):		**YES**		**No**	
Contract No:		**Working conditions:**		**Works Pre-start and Quality Checklist Completed**			
Suburb/Ward				**YES**		**No**	

Contractor:				**Subcontractor:**			
Staff and Labour	**No**	**Plant description**	**No**	**Staff and Labour**	**No**	**Plant description**	**No**

Materials on-site:

Description Of Work In Progress:

Delays, Breakdowns, Incidents or Comments

Site instructions / Engineer's Agent Representative Comments

Visitors:	

	Name	**Signature**		**Name**	**Signature**
Construction Manager			**Engineers Agent Representative:**		

SAFETY CHECKLIST

Contractor's logo (insert)

Project:	**Contract No:**
Chainages:	
Weather:	
Location:	**Date:**

1	Has the public been warned about construction works taking place and prolonged road closures?	☐ Yes	☐ No
2	Are workers wearing adequate safety clothing i.e. masks, safety vests, boots, gloves...etc?	☐ Yes	☐ No
3	Have sanitary facilities been provided for the workers on site?	☐ Yes	☐ No
4	Has the contractor completed the relevant checklist in the ETA roadwork's signs manual?	☐ Yes	☐ No
5	Are the road signs clearly visible to oncoming traffic?	☐ Yes	☐ No
6	Does the site have all the required signage in accordance with the ETA roadwork's signs manual?	☐ Yes	☐ No
7	Are the signs adequately spaced in accordance with the ETA roadwork's signs manual?	☐ Yes	☐ No
8	Have the permanent road signs that clash with the temporary roads signs been covered?	☐ Yes	☐ No
9	Are the flagmen standing in a safe place?	☐ Yes	☐ No
10	Are the flagmen clearly visible to oncoming traffic?	☐ Yes	☐ No
11	Is the work area sufficiently buffered by cones and delineators?	☐ Yes	☐ No
12	Is there sufficient space available for traffic to pass the work area safely?	☐ Yes	☐ No
13	Do pedestrians have a safe walkway to use?	☐ Yes	☐ No
14	Has the rubble/spoil on site been removed?	☐ Yes	☐ No
15	Is the road surface safe for vehicles to use?	☐ Yes	☐ No

		Name	Signature	Date
Acceptance / Approval	MAIN CONTRACTOR - CONSTRUCTION			
	HEALTH AND SAFETY OFFICER			

Comments:

PLANT&VEHICLE PRE-START CHECKLIST

Contractor's logo (insert)

Project:	**Contract No:**
Weather:	
Location:	**Date:**

1	Are all plant/vehicles equiped with functioning safety amber light?	☐ Yes	☐ No
2	Are all plant, vehicles and equipment been checked for oil leaks etc?	☐ Yes	☐ No
3	Are all plant and vehicles been checked for functional reverse buzzer?	☐ Yes	☐ No
4	Does all equipment have appropriately approved natis requirements?	☐ Yes	☐ No
5	Has the maximum vehicle load been displayed on all vehicles?	☐ Yes	☐ No
6	Has precaution for all vehicles been taken to prevent overloading?	☐ Yes	☐ No

		Name	Signature	Date
Acceptance / Approval	MAIN CONTRACTOR - CONSTRUCTION MANAGER			

Comments:

TRAFFIC AUDIT INSPECTION

Contractor's logo (insert)

CONTRACT DETAILS	
CONTRACT NUMBER	
CONTRACT DESCRIPTION	
CONTRACTOR	
TRAFFIC SAFETY OFFICER	

ROAD SECTION DESCRIPTION	
ROAD NAME	
FROM	
TO	
SUBURB	

DETAIL DESIGN	
TRAFFIC ACC. DESIGNED BY	
CHECKED BY	
DATE	

INSPECTION DETAIL	
DATE	
NAME OF ASSESSOR	
PHOTOGRAPH / REFERENCE	

INCIDENTS	
VEHICLE INCIDENTS	
THEFT	
CONSTRUCTION DAMAGE	
STORM DAMAGE	
WEATHER CONDITIONS	
OTHER (SPECIFY)	

DRAWING SKETCHES / DETAILS	
Note: Site traffic accommodation sketches are to be attached, per change of work zone	
DRAWING NO. :	
DRAWING NO. :	
DRAWING NO. :	
DRAWING NO. :	
DRAWING NO. :	

	NAME	DATE & TIME	SIGNATURE
CONTRACTOR - T.S.O			
MAIN CONTRACTOR - CONSTRUCTION MANAGER			

I, …… (T.S.O) hereby certify that all traffic accommodation signage and safety control devices were inspected and checked by me on ……. / ……. / 20 …… and comply with all specifications, legisilation and regulations pertaining to road safety.

TRAFFIC AUDIT INSPECTION

Contractor's logo (insert)

TEMPORARY SIGNS / DEVICES CHECKLIST

Component	In compliance	Not in compliance	Remedial measures required
Pre-warning area			
Transition area			
Buffer zone			
Construction zone			

Deviation Y / N	Signs in compliance	Signs not in compliance	
Detour Y / N	Signs in compliance	Signs not in compliance	
	Roadmarking provided	Detour distance ……..m	
Signs Position	Lateral	Transversal	Vertical
Signs Design	Size in compliance	Size not in compliance	
	Colour in compliance	Colour not in compliance	
Reflective Sheeting	Class……	Date manufactured…….	Date last cleaned …….
Posts / stands	In order	Not in order	Sand ballast
Delineators Y / N	Size …….. mm x ……. mm	Spacing	
	Condition	Stop / Go	
	Sand Bag		
Flagmen	Trained Y / N	Correct Position	Not in correct position
	Flagmen No.	Staff Length ……..m	Two-way Radios
	Distinctive clothing Y / N	Hard hat Y / N	
Road Marking condition			
Road Studs			
Road Width ……..m	Full width construction	Half width construction	
Abnormal Vehicle	Permit	Chase / Lead vehicles	

	NAME	DATE & TIME	SIGNATURE
CONTRACTOR - T.S.O			
MAIN CONTRACTOR - CONSTRUCTION MANAGER			

I, …… (T.S.O) hereby certify that all traffic accommodation signage and safety control devices were inspected and checked by me on ……. / ……. / 20 …… and comply with all specifications, legisilation and regulations pertaining to road safety.

Contractor's logo (insert)

TALLY SHEET

CONTRACT :	**PROJECT :**
DATE :	**FOREMAN :**
ROAD NAME :	**MIX TYPE AND THICKNESS :**

TRUCK REG.	DELIVERY NOTE NUMBER	TONNAGE	ACC TONNES	TIME DEPART FROM PLANT	DEPART TEMP	METERS/LOAD		LANE	CHAINAGE		THICKNESS (mm)	PAVING TEMP	PAVING TIME	SPREAD	AVE SPREAD
						LENGTH	WIDTH		START	END					

TOTAL TONNES USED : _____ **AVERAGE THICKNESS OF MAT :** _____

FOREMAN'S SIGNATURE _____ **CONSTRUCTION MANAGER'S SIGNATURE** _____

FOREMAN'S DAILY REPORT

Contractor's logo (insert)

PROJECT NUMBER:	DATE:	DAY:	FOREMAN:	SIGNATURE:
ROAD NAME:	CHAINAGE (FROM):	CHAINAGE (TO):		

DAILY ACTIVITY LIST											DAILY HOURS						RAIN:
PLANT DESCRIPTION	PLANT & LABOUR NUMBER PLATE	HOUR START	HOUR STOP	MILLING	SWEEPING	TACK COAT	ASPHALT INLAY	ROAD MARKING			WORK	IDLE	RAIN	SERV	BREAK DOWN	TOTAL	SHIFT: START: STOP: FUEL USED:
1. MILLING MACHINE																	
2. PAVER																	
3. PTR																	
4. ROLLING MACHINE																	
5. MECHANICAL BROOM																	
6. WATER TANKER																	
7. SAW CUTTER																	
8. TACK COAT MACHINE																	
9. MILLING TIPPER TRUCK																	
10. GENERATORS																	

MATERIALS	VOLUME(m3):	QUANTITY RECEIVED:
	AREA(m2):	QUANTITY USED:

LABOUR	NO.	HOURS SHIFT	HOURS TOTAL	TOTAL HOURS PER ABOVE ACTIVITIES	COMMENTS, INSTRUCTIONS AND DELIVERIES
1. SUPERVISOR					
2. OPERATORS					
3. DRIVERS					
4. SKILLED					
5. SEMI SKILLED					
6. LABOURERS					
TOTAL					

PATCHING QUANTITIES PRE-APPROVAL

Contractor's logo (insert)

Road Name :

From : **To :**

Road Length (m) : **Average Road Width (m):**

MEASUREMENTS

No.	Length (m)	Width (m)	Area (m^2)	Patch Type (Surface/ Structural)	Location

		Name	Signature	Date
Acceptance / Approval	Construction Manager			
	Engineer's Agent Representative			

PATCHING QUANTITY MEASUREMENTS

Contractor's logo (insert)

Road Name :

From : **To :**

Road Length (m) : **Average Road Width (m):**

MEASUREMENTS

No.	Length (m)	Width (m)	Average Thickness	Area (m^2)	Patch Type (Surface/ Structural)	Location

Contractor's logo (insert)	**NUCLEAR DENSITY METER CHECKLIST**	**Doc No:**	
		Rev No:	
		Date:	

Project: _____ **Contract No:** _____

Check		**Confirm/ Reject (Y/N)**
1.	Has the operator proved capable of operating the instrument and is acquainted with all the safety precautions?	
2.	Confirm the log-book has been completed every time the gauge has been, and is, removed from its storing facility.	
3.	All transport radiation labels are placed on the transport vehicle when transporting the gauge.	
4.	The gauge source is locked in the shielded or off position.	
5.	The emergency procedures in case of an accident and the relevant emergency telephone numbers are available.	
6.	The shutter mechanism is thoroughly cleaned.	
7.	The battery is fully charged.	
8.	The gauge is locked in its shipment box when not in use.	
9.	The following documents are with the gauge:	
	a. Monthly standard counts log-book	
	b. Operational manual	
	c. Compliance certificate (12 months)	
	d. Leak test results (certified)	
	e. Authorisation to operate the nuclear gauge	
	f Authority to possess a nuclear gauge issued by the Department of Health	
10.	The following must be carried out before the operation of any count:	
	a. Gauge is in the correct test mode.	
	b. All offsets have been disabled.	
	c. Correct depth measurement has been selected.	
	d. Correct time duration of the count has been selected (4 min. for standard count and 1 min. for field count).	
	e. Material's MDD and OMC are entered into the gauge's memory.	
	f. Area is cordoned off with appropriate signage.	
	g. Gauge is warmed-up for 20 minutes, or according to the manufactures instructions, before operation to allow the regulators and detectors to stabilise. Source rod should be in the "safe" position at all times during the warm-up period.	
11.	Gauge should be at least 10 m away from any other nuclear device, and at least 3 m away from other objects, to prevent external factors influencing the density measurements.	
12.	The following is ensured during pre-drilling of the hole to accommodate the source probe and during insertion of the source probe into the hole:	
	a. Hole is vertical, or the gauge will not seat properly causing inaccurate test results.	
	b. The pre-drilled hole is 50 mm deeper than the desired depth to be tested.	
	c. The drill rod does not vibrate when it is hammered into the test material.	
	d. The guide plate is seated level on the surface of the test material.	
	e The source probe or rod rests snugly in the hole before a count is taken.	
13.	The following checks are carried out before commencing with the count:	
	a. All offsets are disabled.	
	b. Correct standard density for the material has been entered.	
	c. Gauge is in the correct mode.	
	d. Correct depth of measurement has been selected.	
	e. Correct time for the duration of the count has been selected.	
	f. Testing is done as soon as possible after final compaction (± 24 hours)	
	g. No testing in rainy or wet conditions, or directly onto water-laden material.	
	h. Surface of the test material is level, smooth and free from voids.	
	i. Shutter mechanism is thoroughly cleaned.	
	j. Handle of the source rod engages properly into the catch position for the different positions of measurements.	
	k. Bottom of the gauge does not stand proud of the level surface of the test area due to excessive wear of the base of the gauge (rocking).	
	l. Only half the counts are received due faulty detector tube, or only one is functioning.	
	m. Detector tubes out of alignment due to excessive bumping of the gauge.	
	n. Voltage low, or voltage module is broken, leading to the incorrect quantity of counts detected by the detector tubes being recorded.	
	o. Incorrect count ratio due to excessive source decay, or standard count determined in a cold state, i.e., gauge not sufficiently warmed-up.	
	p Source probe or rod depth divisions out of alignment.	

Acceptance/Approval	**NAME**	**SIGNATURE**	**DATE**
Client's Rep	_____	_____	_____
Contractor's Rep	_____	_____	_____

ASPHALT PAVING TRIAL SECTION CHECKLIST

Doc No:	
Rev No:	
Date:	

Project: _____ **Contract No:** _____

Check	Confirm/Reject (Y/N)
1. **Paver**	
a. Truck Pushing Rollers	
i. Clean	
ii. Free Running	
b. Hopper	
i. Are sides reasonably smooth	
ii. Does side tilt mechanism work properly	
iii. Are rubber skirts in good condition	
iv. Do feed control gates work smoothly	
v. Are feed conveyors in good condition	
– Flights	
– Bed (no holes)	
– Chains, conditions and tension	
c. Screed Unit	
i. Are pivots free running	
ii. Are screed plates smooth and flat	
iii. Is bevel on tamper bars to specification	
iv. Are tamper bars straight	
v. Is clearance between tamper bars and screed correct Note: Clearance ..... mm, Specified Clearance .....0.05..... mm	
vi. Is protrusion of tamper bar below screed correct Note: protrusion .... mm, specified protrusion .....0.05..... mm	
vii. Is gap between tamper bars and screed clean	
viii. Are crown controls for screed working smoothly	
ix. Is locking system for crown control adequate	
x. Is screed inclination set correctly Note: Turnbuckle gauge reading: Actual:..... Specified:.....	
xi. Are augers in good condition and tight on shaft	
xii. Are the centre auger flights reversed	
xiii. Are augers set at correct height: Actual:..... Specified	
xiv. If telescope screed is fitted:	
– Do parts move smoothly	
– Do wings form a smooth continuation of main screed without steps	
– Are spreader screws extensions in good condition	
– Are tamper bar extensions to specification and is clearance between tamper and screed correct	
– Do tamper bar extensions protrude the correct distance below the screed	
xv. If screed is not telescopic:	
– Are there sufficient extension boxes	
– Are screed, tamper bars, spreader screws in good condition	
– Does extension form a continuation of main screed unit without steps	
– Are tamper bars and screed correctly set relative to each other	
– Do extensions to spreader screws attach tightly to main section	
xvi. Are screed heater burners working properly	
xvii. Does screed control at working platform work correctly	
xviii. Attachments	
– Are side cut-off plates free to move	
– Is joint matcher securely attached to chassis	
– Is joint matcher in good condition	
– Is mounting for travelling straight edge securely attached to chassis	
– Is travelling straight edge free to slide on its mounting	
– Is travelling straight edge correct length	
– Are shoes on straight edge free to move	
– Is tensioning winch in good condition	
– Is sensor unit working	
– Are tyre pressure and ballast correct Note pressure .....kPa and ballast ..... Specified	
– Are solid tyres on small wheels clean and intact	
– Check for fuel, oil hydraulic leaks	
– Is paver free of leaks	
– Is guide chain arm free to move in chassis	

ASPHALT PAVING TRIAL SECTION CHECKLIST (2 of 3)

	Check	Confirm/Reject (Y/N)
2.	**Aggregates**	
	a. Is there sufficient stockpile area	
	b. Is the material recovered from each stockpile pile uniform	

Stockpile (Size of aggregate)	Uniform Yes/No	Conformance to design grading

3.	**Hot Storage for Binder**	
	a. Is capacity sufficient for the programmed rate of production Capacity ..... t Estimated daily demand .....t /day	
	b. Are tanks fitted with automatic temperature recording systems	
	c. If a modified binder is used, are the blending facilities and methods appropriate to ensure a uniform product with the required properties	
	d. Is heating thermostatically controlled	
	e. Is there a warning system for variation in temperatures	
	f. Is binder circulated in tank and between tank and mixer	
	g. Are supply pipes lagged	
	h. Is there a level indicator	
	i Are sampling points to specification	
4.	**Cold feed bins**	
	a. Are methods of controlling rate of feed operating smoothly	
	b. Are these controls accurate	
	c. Are precautions available to prevent spill over	
	d. Is there an adequate warning system if rate of feed alters	
	e. Is there an efficient interlock between cold feed and binder feed	
	f. Are fine aggregate feeds susceptible to arching	
	g. Is there a method of detecting and compensating for variations of moisture in the aggregates	
	h Has contractor calibrated rates against RPM of belt pulley	
5.	**Mixing Plant**	
	a. Is rated capacity sufficient for the programmed rate of laying Rate Capacity.....t/h Required Capacity .....t/h	
	b. Are the proposed heating fuel and burners compatible	
	c. Is the method of control of the fuel/air mixture adequate	
	d. Are burners clean and nozzles to specification	
	e. Are drum rollers correctly set and in good conditions	
	f. Are drum flights in good conditions	
	g. Are binder spray bar and nozzles clean and in accordance with specification	
	h. Can position of spray bar be altered so as to control filler in mix and can adjustments be easily made	
	i. Method of determining temperatures of binder at plant: Is this adequate and are the results visible to the operator	
	j. Temperature controls of aggregate and final mix: Are these adequate and are the results available to the operator	
	k Is the plant fitted with suitable filler feed to allow accurate control of the filler content	
6.	**Emission Control**	
	a. Type:	
	b. Is dust collector matched to capacity of mixer	
	c. What method is used to return a portion of the recovered fines to the mix	
	d. What method is used for the disposal of unwanted fines	
	e Do emissions from the stack comply with Act 45 of 1965 (as amended)	
7.	**Buffer Storage**	
	a. Is this of adequate capacity	
	b. Is this properly lagged	
	c Do discharge gates operate smoothly	
8.	**Elevator between Mixer and Buffer Store**	
	a. Are buckets in good condition	
	b Are chains and cables in good conditions	

ASPHALT PAVING TRIAL SECTION CHECKLIST (3 of 3)

Check	Confirm/Reject (Y/N)
9. **Steel Wheel Rollers**	
a. Are edges of rollers in good condition	
b. Is change of direction smooth (no backlash)	
c. Is roller properly ballasted (Record mass and position) Mass ……t Position……	
d. Do wheel spray bars give a uniform cover on wheels	
e. Are wheel-cleaning mats in good condition	
f. Are scrapers in good condition and set	
g. Check for oil, fuel and hydraulic leaks	
h. Is roller free of leaks	
i. Do brakes work	
j Is reversing smooth	
10. **Pneumatic Rollers**	
a. Are tyres in good condition	
i. Is there a variable pressure system for tyre pressure. If so, is it working, and is pressure gauge working and visible to driver	
ii. Are all tyre pressures uniform. Note tyre pressures…… kPa	
b. Are rollers properly ballasted (Record mass and position) Roller 1: Mass ..... t Position ..... Roller 2: Mass ..... t Position	
e. Are spray bars working uniformly	
f. Are cleaning pads in good condition	
g. Check for fuel, oil and hydraulic leaks	
h Is roller free of leaks	
11. **Hand Tools, etc**	
a. Straight edge: Is it clean and straight	
b. Rakes and shovels: Are they clean and in good condition	
c Are thermometers available: No. ..... Size	
12. **Haulage Vehicles**	
a. Are the basins clean	
b. Do tailgates open and close properly	
c. Are load covers fitted	
d. Are vehicles free from fuel, oil and hydraulic leaks	
e. Does tipping gear work	
f Registration numbers of vehicles	

Acceptance/Approval	**NAME**	**SIGNATURE**	**DATE**
Client's Rep			
Contractor's Rep			

Comments:

STONE SEALS TRIAL SECTION CHECKLIST	Doc No:	
	Rev No:	
	Date:	

Project: _____ **Contract No:** _____

Check		Confirm/Reject (Y/N)
1.	**Pre-treatment done, waiting periods and QA complete**	
	a. Crack sealing	
	b. Edge break repair	
	c. Surfacing patching	
	d. Base patching	
	e. Functional patching	
	f. Rut filling	
	g. Texture treatment	
	h. Fog spray	
2.	**Road Surface**	
	a. Road surface	
	b. Is surface to be sealed clean	
	c. Is edge line of spray properly demarcated	
	d. Vegetation at edges, fine cracks cleared	
	e Surface clean: no dust, mud, droppings, oil, etc.	
3.	**Spray lanes demarcated with fibre rope**	
	a. Straight 15 m pinned	
	b. Curves 2-3 m pinned	
	c. Measured from centre line	
	d. Joint positions not under wheel tracks or yellow line (offset 200 mm)	
	e. Reinforced paper at transverse joints	
4.	**Traffic accommodation and safety**	
	a. Road signs in place	
	b. Cones, delineators, barricades positions and spacing	
	c. Flagmen	
	i.	
	ii.	
	iii.	
	d. Stop-go setup and communications/standby	
	e. Safety & protective clothing	
	f. Dust control (deviations)	
	g. Standby traffic light system	
	h. Double traffic on new seal (due to half-width construction)	
5.	**Weather limitations applicable to binder and seal to be applied**	
	a. Past 24 hours minimum temperature check	
	b. Weather forecast: temperature, rain and wind	
	c. Look up	
	d. Air temperature	
	e. Surface temperature (at different positions)	
	f. Aggregate temperature	
	g. Wind	
	h. Base moisture/existing surface wet?	
6.	**Aggregate**	
	a. Clean and uncontaminated	
	b. Pre-coating uniform	
	c Pre-coating dry	
7.	**Binder**	
	a. Has correct binder type been delivered	
	b. Is there a manufacturers' certificate	
	c. Are there any test results supplied	
	d. Date of dispatch of load _____?	
	e. Storage period complies with specification	
	f Binder temperature _____ °C complies?	
8.	**Distributor**	
	a. Valid certificate Expiry Date _____< 12 months old	
	b. Pump Serial No. _____ : Matches certificate	
	c. Spray Bar No. _____ : Matches certificate	
	d. Dipstick No. _____ : Matches certificate	
	e. Are their oil leaks	
	f. Are there binder leaks	
	g. Is spray bar height uniform and correct	
	h Are nozzles of uniform type	

STONE SEALS TRIAL SECTION CHECKLIST (2 of 2)

Check			Confirm/Reject (Y/N)
8.	*i.*	*Are nozzles correctly aligned*	
	j.	*Are fishplates in place at ends*	
	k.	*Is reinforced paper available*	
	l.	*Has tray test been carried out*	
	m	*Is variation within 5%*	
9.	**Chip Spreader**		
	a.	*Spreader width _____m – correct*	
	b.	*Do gates move freely when hopper is loaded*	
	c.	*Does charging hopper move easily across spreader when loaded and on an adverse camber*	
	d.	*Are agitator prongs in good condition*	
	e.	*Are planks available to allow wheels to travel on hot mix*	
	f.	*Are 1 m² canvas sheets available*	
	g.	*Is 15 or 20 kg spring balance available*	
	h.	*Check for fuel and oil leaks. Is spreader free of leaks*	
	i.	*Are rollers of distribution bins worn*	
	j.	*Are conveyor belts in good condition*	
	k.	*Are gates of the bins uniform and adjusted correctly*	
	l.	*During "dry" run is chip application uniform*	
	m.	*During "dry" run is chip application accurate*	
	n	*Is there a chip spreader on stand by*	
10.	**Steel Wheel Roller**		
	a.	*Are edges of roller in good condition*	
	b.	*Is change of direction smooth (no backlash)*	
	c.	*Is roller properly ballasted (Record mass and position)* Roller 1: Mass..... t Position..... Roller 2: Mass..... t Position.....	
	d.	*Do wheel spray bars give a uniform cover on wheels*	
	e.	*Are wheel cleaning mats in good condition*	
	f.	*Are scrapers in good condition and set*	
	g.	*Check for oil, fuel and hydraulic leaks. Is roller free of leaks*	
	h.	*Do brakes work*	
	i	*Is reversing smooth*	
11.	**Pneumatic Rollers**		
	a.	*Are tyres in good condition*	
	b.	*Is there a variable pressure system for tyre pressure*	
	c.	*If so, is it working and is pressure gauge working and visible to driver*	
	d.	*Are all tyre pressures uniform* *Note tyre pressures .....kPa OK?*	
	e.	*Is roller properly ballasted (record mass and position)* Roller 1: Mass..... t Position..... Roller 2: Mass..... t Position.....	
8.	**Trucks and Loader**		
	a.	*Are there sufficient trucks for production rate*	
	b	*Are they in good condition; no oil leaks, etc.*	
9.	**Brooms**		
	a.	*Are the rotary brooms in good condition*	
	b.	*If required is the "Z" broom in good condition*	
	c	*Is there sufficient labour with hand brooms*	

Acceptance/Approval	**NAME**	**SIGNATURE**	**DATE**
Client's Rep	_____	_____	_____
Contractor's Rep	_____	_____	_____

Comments:

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PRIME CHECKLIST

Doc No:	
Rev No:	
Date:	

Project: _____ **Contract No:** _____

Aspect		Yes/No
Base preparation	Completed	
	According to specification	
	Cured	
	Within time limit for stabilized base	
	Granular base < 50% of OMC	
Spray preparation	Cleaned	
	Dampened	
	String lines	
	Joint paper	
	No wet prime	
Materials: Sampling, testing and specifications	Binder	
	• Correct type	
	• Stored temperature	
	• Spray temperature	
	• Properties	
	Aggregate	
	• Blinding for excess removal	
	• Blinding for traffic accommodation	
	• Treatment of wet areas before seal	
	• Aggregate properties	
"No go" environmental conditions	Misty or wet conditions	
	Rain threatening	
	Strong wind blowing that would cause an uneven application	
	Temperature of the road surface dropped below 20 °C before priming (10 °C in case of MC-10 or emulsion)	
	After sunset	
Equipment condition checks	Binder distributor	
	Water sprinkler	
	Rotary broom	
	Other equipment	
Application rate	Trial confirmation	
	Effective width	
After care	Traffic off	
	Dry before sealing	
	Blinded for traffic accommodation	

Acceptance/Approval	NAME	SIGNATURE	DATE
Client's Rep			
Contractor's Rep			

Comments:

CRUSHED STONE BASE CHECKLIST FOR SITE OPERATIONS

Doc No:	
Rev No:	
Date:	

Project: **Contract No:**

Check	Confirm/Reject (Y/N)
1. **Before Start of Activities**	
a. Confirm material quality and properties with laboratory before placing on site	
b. Confirm water quality to be used during mixing	
c. Confirm correct grading as per specification	
d. Inspect underlying surface. To be in good condition and not damaged either mechanically or by rain	
e. Inspect dumped material on preparatory section for any deleterious material	
f. Inspect layer and evaluate effectiveness of pre-shaping, i.e., quantities vs layer thickness required (Refer to COLTO Section 3200 for preparation of material)	
g. Check temperature and wind speed for current and forecast conditions	
h. PPE equipment (masks, gloves, shoes protection wear) available?	
2. **Processing**	
a. Ensure and evaluate moisture content of mixed material (preferably 1 or 2% over OMC)	
b. Confirm correct compaction equipment on site (grid, smooth and 3-point roller/oscillating roller)	
3. **Compaction**	
a. Check density as compaction increases	
b. Monitor compaction process to avoid under or over compaction	
c. Monitor compaction process to avoid under or over vibrating material	
4. **Slushing**	
a. Check slushing equipment for condition and effectiveness	
– Rotary broom	
– Smooth drum roller	
– Water cart (spreading ability)	
b. Monitor slushing sequence and process as described in COLTO Section 3604(c)	
c. Inspect finished surface for tight fit closely knit mosaic pattern, free from excess fines	
d. Inspect surface to check rolled smoothly and not rolled out of shape	
e. Sample final surface after slushing for Indicator tests (grading and PI) and AD (Apparent Density)	
f. Carry out density testing at 50 mm intervals and record	
5. **Curing and Finishing**	
a. Take levels on completed surface and evaluate against specification	
b. Check density obtained against specification	
c. Check grading against specified target grading and grading envelope, refer to COLTO Table 3602/4	
d. Approve or reject layer accordingly, as per statistical judgement plan	
e. Monitor layer drying process (should be 50% below OMC at 100 mm depth)	
f. Record moisture contents before applying prime	
6. **Trial Sections**	
a. The above steps should be followed prior to production processing as part of a trial section	
b. During production mixing, the same checking procedures as above should be applied	

Acceptance/Approval	**NAME**	**SIGNATURE**	**DATE**
Client's Rep			
Contractor's Rep			

Comments:

CHEMICAL STABILISATION CHECKLIST FOR SITE OPERATIONS

Doc No:	
Rev No:	
Date:	

Project: **Contract No:**

Check		Confirm/Reject (Y/N)
1.	**Before start of activities**	
	a. Inspect layer and evaluate effectiveness of pre-shaping, i.e., quantities vs layer thickness required. (Refer to COLTO section 3200 for preparation of material)	
	b. Material should be damp	
	c. Make sure all oversize material is removed or crushed to maximum size required	
	d. Pre shaped material should be in a fairly smooth rideable condition	
	e. Check temperature and wind speed for current and forecast conditions	
	f. PPE equipment (masks, gloves, shoes protection wear) available	
2.	**Before spreading of stabilizer** (pockets)	
	a. Confirm cement quality and type of cement specified	
	b. Count pockets against square meter vs percentage stabiliser required	
	i.e., L x W x D x MDD x %stabiliser x compaction required = kg/m^3 (divided 50 = pockets required)	
	c. Count pockets per m^2 after spacing at correct intervals	
3.	**Before spreading of stabilizer** (mechanical spreader)	
	a. Collect and inspect weighbridge ticket from spreader supplier	
	b. Check pressure gauges on spreader tanks to be at required setting	
	c. Place square meter mats at pre-determined intervals to weigh the cement after spreading	
	d. Check hand scale for correctness and calibration	
4.	**During stabilisation**	
	a. Check speed of spreader during application by mechanical spreader, by weighing each mat against calculated weight for cement content	
	b. Check type of compaction equipment and mixing equipment for suitability and effectiveness	
	c. Ensure laboratory is notified for taking UCS, Mod and Indicator samples	
	d. Monitor specified mixing time against type of stabilising agent (see COLTO Table 3503/1)	
	e. No traffic allowed on freshly compacted surface	
5.	**Compaction**	
	a. Do nuclear tests to determine density (including calibration of testing equipment)	
	b. Sample material for laboratory testing before final compaction	
6.	**Finishing and curing**	
	a. Take levels on completed surface and evaluate against specification	
	b. Check curing method applied and ensure constant moist surface to avoid carbonation	
	c. Check density obtained from nuclear gauge against specification and specified statistical judgement plan	
	d. Check laboratory obtained strengths for UCS and ITS	
	e. Check Indicator test results obtained from laboratory against specification and specified statistical judgement plan	
	f. Approve or reject layer accordingly	

Acceptance/Approval	**NAME**	**SIGNATURE**	**DATE**
Client's Rep			
Contractor's Rep			

Comments:

IN SITU RECYCLING WITH BSM CHECKLIST	Doc No:	
	Rev No:	
	Date:	

Project: _____ **Contract No:** _____

Check	Confirm/ Reject (Y/N)
1. Recycler	
a. Is recycler model appropriate for depth to be worked (Manufacturers limits)	
b. Is recycler in good condition	
c. Is the drum fitted appropriate for recycling	
d Are all picks in good condition and present	
2. Tankers	
a. Does tanker have the correct stabilising agent	
b. Are there sufficient water tankers for production rate	
c. Do bitumen tankers contain the correct grade of bitumen/emulsion	
d. Are they fitted with dipsticks	
e. Is binder at correct temperature (Temperature.....^{o}C)	
f. Are supply pipes properly lagged	
g Are all pipes fully "bled"	
3. Steel Wheel Rollers	
a. Are edges of rollers in good condition	
b. Is change of direction smooth (no backlash)	
c. Are rollers properly ballasted (Record mass and position)	
d. Do rollers have variable amplitude/frequency settings	
e. Settings used for trial: Passes No. (_____) Amplitude (_____) Passes No. (_____) Frequency (_____)	
f. Are wheel cleaning mats in good condition	
g. Are scrapers in good condition and set	
h. Check for oil, fuel and hydraulic leaks	
i. Do brakes work	
j Is reversing smooth	
4. Pneumatic Rollers	
a. Are tyres in good condition	
b. Is there a variable pressure system for tyre pressure	
c. If so, is it working and is pressure gauge working and visible to driver	
d. Are all tyre pressures uniform Note tyre pressures .....kPa	
e. Is roller properly ballasted (record mass and position) Mass.....t Position.....	
5. Process	
a. Is the number of cuts for the total width defined	
b. Is the width of overlap for each longitudinal joint defined	
c. Is the length of cut (i.e., when train should return for adjacent cut) defined	
d. Is there sufficient volume of imported material for planned production	
e. Is there sufficient bitumen/emulsion for planned production	
f. Is there sufficient water for planned production	
g. Is outer edge of 1st cut clearly demarcated	
h. To ensure correct grading, is rotation speed of drum defined RPM_____	
i. To ensure correct grading, is forward speed of recycler defined m per minute _____	
j. Is moisture content of recycled material as per spec mc _____%	
k. Is application of cement in front of train as per spec kg/m^2_____	
l. Is grading of milled material similar to "design material"	
m. Is depth of cut on both sides of drum uniform as per spec	
n. Is final product completed within the allowable time period _____hours	

Acceptance/Approval	NAME	SIGNATURE	DATE
Client's Rep	_____	_____	_____
Contractor's Rep	_____	_____	_____

Comments:

_____

_____

IN SITU RECYCLING WITH FOAMED BITUMEN CHECKLIST

Pre-Start Checklist	**Supervisor:**	
	Date:	
	Machine ID:	

Project: _____ **Contract No:** _____

Check	**Confirm/ Reject (Y/N)**
1. **Recycler** (Start of shift)	
a. Check the bitumen system heaters are operational	
b. Check the temperature of the road surface (digital thermometer)	
c. Check that the foam-water tank is full	
d. Remove and clean the foam-water filter	
e. Remove and clean the bitumen filter	
f. Lift machine / lower drum / open chamber doors for visual inspection	
Check: all foamed bitumen nozzles clear	
all water injection nozzles clear	
g. Check each expansion chamber for blockages using "pre-water" function	
Switch # 1 2 3 4 5 6 7	
Nozzle # 1 & 3 | 2 & 4 | 5 & 7 | 6 & 8 | 9 & 11 | 10 & 12 | 13 & 15	
Note any blockages:	
h. Obtain loading / weighbridge certificate for bitumen tanker	
i. Calculate cut lengths / finalise cut plan (with the operator)	
j. Reset the on-board computer, enter data and check	
Density ☐ *Cut depth* ☐ *Application width* ☐	
Bitumen application rate ☐ *Foam water* ☐	
2. **Setting up the Recycling Train** (Each new cut / tanker load)	
a. Check cut guideline and position recycler on first cut	
b. Check bitumen temperature in tanker (loading hatch)	
c. Check bitumen tanker for leaks. Crack valve, check for cold plug	
d. Check water tanker is full and free of leaks	
e. Couple up bitumen tanker and bleed air from system	
f. Check that the bitumen foams using test nozzle	
g. Couple up water tanker and bleed air from system	
h. Check all supply lines and feed pipes for leaks	
i. Confirm cut plan / check computer settings & nozzle closure	
j. Check solenoid lights controlling spraybars / nozzle closure	
k. Close front & rear doors. Lower recycling drum to cut depth	
l. Lift drum and measure temperature of material on cut face	
m. Roller in place, Drivers ready. Level control team standing by	

IN SITU RECYCLING WITH BITUMEN EMULSION CHECKLIST

Pre-Start Checklist	**Supervisor:**	
	Date:	
	Machine ID:	

Project: _____ **Contract No:** _____

Check	**Confirm/ Reject (Y/N)**
1. **Recycler** (Start of shift)	
a. Check the bitumen emulsion system has been flushed.	
b. Check the temperature of the road surface (digital thermometer)	
c. Lift machine / lower drum / open chamber doors for visual inspection	
Check: all bitumen emulsion nozzles clear	
all water injection nozzles clear	
d. Obtain loading / weighbridge certificate for bitumen tanker	
e. Calculate cut lengths / finalise cut plan (with the operator)	
f. Reset the on-board computer, enter data and check	
Density [ ] *Cut depth* [ ] *Application width* [ ]	
Emulsion application rate [ ] *(percentage emulsion)*	
2. **Setting up the Recycling Train** (Each new cut / tanker load)	
a. Check cut guideline and position recycler on first cut	
b. Check emulsion temperature in tanker (loading hatch)	
c. Check emulsion tanker for leaks. Crack valve, check flow	
d. Check water tanker is full and free of leaks	
e. Couple up emulsion tanker and bleed air from system	
f. Couple up water tanker and bleed air from system	
g. Check all supply lines and feed pipes for leaks	
h. Confirm cut plan / check computer settings & nozzle closure	
i. Check solenoid lights controlling spraybars / nozzle closure	
j. Close front & rear doors. Lower recycling drum to cut depth	
k. Lift drum and measure temperature of material on cut face	
l. Roller in place, drivers ready. Level control team standing by	

IN PLANT TREATMENT WITH FOAMED BITUMEN CHECKLIST

Pre-Start Checklist	**Supervisor:**	
	Date:	
	Machine ID:	

Project: _____ **Contract No:** _____

Check	**Confirm/ Reject (Y/N)**
1. **Mixing Plant** (Start of shift)	
a. Check the bitumen system heaters are operational	
b. Check the temperature of the material stockpiles	
c. Check that the water tank is full	
d. Remove and clean the foam-water filter	
e. Remove and clean the bitumen filter	
f. Aggregate feed bins. Check for material packing / blockages	
Bin # 1. Material: _____ Setting	
Bin # 2. Material: _____ Setting	
g. Check the active filler bin and auger feed system	
h. Open pugmill hatch and visually inspect for blockages	
Check: all foamed bitumen nozzles clear	
all water injection nozzles clear	
i. Check each expansion chamber for blockages using "pre-water" function	
Nozzle # | 1 | 2 | 3 | 4 | 5 | 6 | 7 |	
Note any blockages:	
j. Obtain loading / weighbridge certificate for bitumen tanker	
k. Check delivery conveyor is clean and running free	
l. Reset the computer, enter data and check	
Material density [ ] *Active filler* [ ] *Application rate* [ ]	
Bitumen application rate [ ] *Foam water* [ ]	
2. **Setting up the Plant for Mixing** (Each new batch / tanker load)	
a. Check bitumen temperature in tanker (loading hatch)	
b. Couple up bitumen tanker and bleed air from system	
c. Check that the bitumen foams using test nozzle	
d. Water supply. Open valves and bleed air from system	
e. Check all supply lines and feed pipes for leaks	
f. Check ancillary plant and equipment is ready for mixing	
NOTES:	

CONCRETE PAVING TRIAL CHECKLIST	Doc No:	
	Rev No:	
	Date:	

Project: _____ **Contract No:** _____

Check	Confirm/Reject (Y/N)
1. **Aggregates**	
a. Do aggregate sizes conform to that approved in the design	
b. Have stockpiles been constructed correctly	
c. Are materials in stockpiles of uniform grading and quality	
d Is moisture content of fine aggregate stockpile consistent	
2. **Cement**	
a. Is the correct cement stored in silo	
b. Are test certificates available	
c If cement extenders are used, is the method of blending approved	
3. **Admixtures**	
a. Does the admixture conform to the specifications	
b. Is the admixture being stored correctly	
c If required, is the admixture being agitated prior to use	
4. **Batch Plant**	
a. Is the batch plant clean and in good working order	
b. Are bins for storing aggregate separated adequately to avoid contamination	
c. Have concrete slabs at base of bins been constructed according to the requirements, to avoid contamination	
d. Have the batch plant scales been checked and calibrated Certificate of Calibration	
e. Has the accuracy of the scales been checked under dynamic conditions Weigh full batches on weigh bridge and compare to batch plant print out	
f. Do dials or digital read out return to zero after discharge of each batch	
g. Do mixing blades have less than 10% wear	
h. Is water-metering system accurate	
i. Is add mixture dispenser operating correctly and accurately	
j. Does size of batch and speed of rotation comply with manufacturers specifications	
k. Is mixing time adequate to ensure a homogenous mix	
m Are bins of trucks clean and are correct protection measures in place during transport	
5. **Supporting Substrate Layer**	
a. Has the layer been wetted for a minimum of 1 hour before paving	
b. Is the substrate surface clean of all debris and free water	
c. Is there evidence of heaving in the layer	
d Has the layer been fully accepted according to specified criteria	
6. **Slipform Paving**	
a. Is paver in good condition with no oil leaks	
b. Are power tracks clean	
c. Are guide wires staked firmly in ground	
d. Has position and level of guide wires been checked	
e. Is track path clean, firm and level	
j Are sufficient canopies available for protection of paved concrete	
7. **Side Form Paving**	
a. Are paving machines in good condition with no oil leaks	
b. Are side forms clean and in good repair	
c. Are form faces perpendicular to the base	
d. Are forms true to line and level	
e. Are forms true in all directions (< 3 mm in 3 m)	
f. Are locks securely fastened	
g. Are forms fixed securely to substrate	
h. Is packing placed under forms adequate, and is mortar (1:3 cement/sand) packing flush with inside face	
i. Have forms been oiled immediately prior to concrete placement	
j Are sufficient canopies available for protection of placed concrete	
8. **Tie Bar Inserter**	
a. Are bars of correct diameter and length	
b. Are inserters set at the correct distances from edge of pavement	
c. Are the inserters set to the correct depth	
d Are there sufficient stocks available	

CONCRETE PAVING TRIAL CHECKLIST (2 of 2)

Check		Confirm/Reject (Y/N)
9.	**Dowel Bar Inserter**	
	a. Are the dowels of correct diameter and length	
	b. Are the dowels clean with sleeves properly fitted	
	c. Are the inserters set for the correct position and depth	
	d. Is there any excessive movement or lifting off the rails by the inserter during placement	
	e. Are the inserted dowels, after compaction, within the allowable tolerances with regards to alignment – *parallel to the finished surface* – *to the centre line of the carriageway* – *to each other*	
10.	**Finishing, Texturing and Curing**	
	a. Does the burlap drag conform to specification	
	b. Do the metal grooving tines conform to specifications	
	c. Are random spacings of tines correctly set	
	d. Is depth of texturing within specified tolerances	
	e. Are spray nozzles for curing compound clean	
	f. Are adequate protection measures available for spraying during windy conditions	
	g. Has the correct curing compound been supplied	
	h Can the curing compound be continuously agitated during spraying	

Acceptance/Approval	**NAME**	**SIGNATURE**	**DATE**
Client's Rep			
Contractor's Rep			

Comments:

BACKFILL TO STRUCTURES CHECKLIST

DOC No:	
REV No:	
DATE:	

Project: _____ **Contract No:** _____

Structure: _____ **Date:** _____

Element: _____ **Inspection No:** _____

Drawing No: _____ **Quantity (m^3):** _____

Rev No: _____ **Location:** _____

ITEMS TO BE CHECKED	CHECKED BY (initial & date)		REMARKS
	Foreman/ Site Engineer	Client's Rep	
Structure completion / approval received			
Approval of backfill material & source			
Compaction equipment agreed upon			
Backfill in layer thicknesses prescribed			
Density test result from lab acceptable (Attach result)			
Approval of final level			

Acceptance/Approval	NAME	SIGNATURE	DATE
Client's Rep:	_____	_____	_____
Contractor's Rep:	_____	_____	_____

Comments:

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GABIONS CHECKLIST

DOC No:	
REV No:	
DATE:	

Project: _____ **Contract No:** _____

Section: _____ **Date:** _____

CH Start: _____ **CH Finish:** _____

Length: _____ **Inspection Request No.:** _____

Drawing No: _____ **Revision:** _____

ITEMS TO BE CHECKED	CHECKED BY (Initial & Date)			REMARKS
	Contractor	Foreman/ Contractor	Client's Rep	
Correct Drawing Revision or as per RE's instruction				
Gabions: Material and Size-Specification				
Setting out – Alignment/Position				
Setting out – Level				
Excavations				
Gabions Bedding				
Mesh size: 80 mm x 100 mm				
Min wire diameter: 2.7 mm				
Mattresses, Standard size : L=6 m; W=2 m; Depth=0.2 m; 0.3 m or 0.5 m				
Boxes, Standard size: L=1 m, 2 m, 3 m or 4 m; W=1 m; Depth=0.3 m, 0.5 m or 1 m				
Filter Fabric type. Filter fabric to have min 300 mm overlap and to be fastened at joints				
Stone/Rock size: ALD= 125 mm Maximum stone size: 150 x 200 x 250 mm				
Internal horizontal bracing wires at 330 mm vertical centers wrapped around 2 mesh wires at the front and back (4 to every 1 cube of fill)				
Securely wire/lace along all the edges (top, bottom, sides and at diaphragm points) and to all adjacent boxes/mattresses before filling with rocks				
Internal vertical bracing wire @ 330 mm where water falls onto boxes and at mattresses (high water velocity)				
End of lacing wire turned to the inside of the box/mattress				
Vertical facing plumb and straight				
Top level checked				
Backfill/Soilcrete				
Suitable for the next level basket				

Acceptance/Approval	NAME	SIGNATURE	DATE
Sub-Contractor's Rep:			
Contractor's Rep:			
Client's Rep:			

Comments:

DRAINAGE PIPES CHECKLIST	DOC No:	
	REV No:	
	DATE:	

Project: _____	**Contract No:** _____

Section: _____	**Diameter:** _____
Chainage: _____	**Orientation:** _____
Drawing: _____	**Revision:** _____
Inspection Request No: _____	**Date:** _____

ITEMS TO BE CHECKED	**CHECKED BY (Initial and Date)**			**REMARKS**
	Sub-contractor	**Foreman/ Site Engineer**	**Client's Rep.**	
Latest drawing revision used				
Piping material: Size and state				
Setting out work: Alignment and level				
Permission to excavate received				
Excavate: Correct depth and width				
Compaction of excavation floors				
Density test done on excavation floors (attach lab result)				
Bedding material and thickness				
Check that pipes are free from damage				
Check seating of joints				
Check joint seal; bidum and wrapping				
Check wrapping overlaps				
Check orientation and line				
Check invert levels				
Check connection into inlet and outlet structures				
Repair to lifting holes and release to backfill				

Acceptance/Approval	**NAME**	**SIGNATURE**	**DATE**
Sub-Contractor's Rep:	_____	_____	_____
Contractor's Rep:	_____	_____	_____
Client's Rep:	_____	_____	_____

CONCRETE SIDE DRAINS CHECKLIST	DOC No:	
	REV No:	
	DATE:	

Project: _____	**Contract No:** _____

Section: _____	
Chainage: _____	
Drawing: _____	
Inspection Request No: _____	**Date:** _____

ITEMS TO BE CHECKED	**CHECKED BY (Initial and date)**			**REMARKS**
	Sub-contractor	**Contractor**	**Client's Rep.**	
Position as per drawing				
Levels checked				
Contraction joints @ 2.5m c/c				
Contact area @ joints painted with bitumen				
Expansion joints @ 30 m c/c				
Excavation compacted to 93% Mod. AASHTO Density				
Reinforcing: Welded steel fabric Ref 311				
Saw cutting of road: Cut to full depth of concrete: _____mm				
Saw cutting of road: In straight line				
End shutters (traverse shutters) flush with surfacing and back shutter				
Back shutter in straight line				
0.15mm Polyethylene sheeting or invert bitumen emulsion to trimmed excavation surfaces				
Approval obtained from Engineer to cast concrete				
Concrete: Class 30/19				
Concrete: Surface finish U2				
Expansion joints sealed with flexi cell				

Acceptance/Approval	**NAME**	**SIGNATURE**	**DATE**
Sub-Contractor's Rep:	_____	_____	_____
Contractor's Rep:	_____	_____	_____
Client's Rep:	_____	_____	_____

QUALITY CONTROL PLAN CHECKLIST
CONCRETE KERB AND CHANNEL

ETHEKWINI MUNICIPALITY

Contractor's logo (insert)

Project:	**Contract No:**
Chainages:	
Weather:	
Insp Req No:	**Date:**
Location:	
Drawing No.	**Rev:**

ITEMS TO BE CHECKED	CHECKED BY CONSTRUCTION MANAGER		
	YES	NO	REMARKS
Area/Length identified is correct			
Correct kerbing type/channel/fillet			
Correct kerbing lengths for radius			
Trench excavation depth			
Trench excavation to line and level			
Trench formation level compaction			
Correct strength and grade of concrete used			
Removal of voids from concrete			
Lay kerbs to line and level			
Jointing to specification (peps)			
Jointing to specification (expansion/contraction)			
Has haunching been done according to spec			
Pre-casting of concrete inspection for in-situ channel			
Has concrete cubes been made for the required testing			
Approved backfilling material			
Has all embankment slopes been addressed			
Backfilling			
Removal of spoil			
Site clean up/ house keeping			

		Name	Signature	Date
Acceptance / Approval	MAIN CONTRACTOR - CONSTRUCTION MANAGER			

Comments:

QUALITY CONTROL PLAN CHECKLIST
RAISING/LOWERING OF SERVICES

Contractor's logo (insert)

Project:	**Contract No:**
Chainages:	
Weather:	
Location:	**Date:**

ITEMS TO BE CHECKED	CHECKED BY CONSTRUCTION MANAGER		
	YES	NO	REMARKS
Is the raising/lowering of services being undertaken according to the approved method statement?			
Have the services to be raised been identified ?			
Have the depth categories been confirmed and recorded?			
Have the services being raised been logged ?			
Have the areas around the services been pre marked for saw cutting ?			
Have the levels been checked after services are raised ?			
Have the raised services been seated on a solid platform to prevent movement under traffic ?			
Have the raised services been properly caulked to the correct level ?			
Have the backfilling material been properly compacted ?			
Have the edges of the vertical faces been painted with tack and having a 40mm overlap on the horizontal faces ?			
Have the asphalt reinstatement around the services been properly constructed and compacted ?			
Has the rubble/spoil material been removed?			

		Name	Signature	Date
Acceptance / Approval	MAIN CONTRACTOR - CONSTRUCTION MANAGER			

Comments:

ROAD MARKING CHECKLIST

Contractor's logo (insert)

Project:	**Contract No:**
Chainages:	
Weather:	
Location:	**Date:**
Drawing No.	**Rev:**

ITEMS TO BE CHECKED	CHECKED BY CONSTRUCTION MANAGER		
	YES	NO	REMARKS
Is the roadmarking being carried out according to the approved method statement?			
Are the approved/revised roadmarking loggings being used?			
Roadmarking details confirmed and drawing studied			
Check SABS Mark on paint drums			
Check reflective beads for moisture (as required)			
Check Pre-marking			
Check Curves + Tapers			
Check Size of lettering & symbols			
Check width of painted line			
Check paint application			
Ensure wet paint on road is protected from traffic			

		Name	Signature	Date
Acceptance / Approval	MAIN CONTRACTOR - CONSTRUCTION MANAGER			

Comments:

CHECKLIST FOR PAYMENT CERTIFICATE BACKUP DATA

Contractor's logo (insert)

Project Number : **Date Submitted:**

Road Name :

Payment Certificate Number :

No.		FOLDER	SUBMITTED		
			Yes	No	Comments
1	**FTE and Timesheets**				
	1.1	FTE			
	1.2	CLO Timesheets			
	1.3	CLO Payslips			
2	**Site Information**				
	2.1	Site Diary			
	2.2	Sketch of work undertaken daily			
	2.3	Foreman's Daily Report			
	2.4	Tally Sheet			
	2.5	Plant and Vehicle Pre-start Checklist			
	2.6	Traffic Audit Inspection Sheet with approved layout			
	2.7	Safety Checklist			
	2.8	Roadmarking Checklist			
3	**Measurements and Photos**				
	3.1	Patching Quantities Pre-Approval Sheet			
	3.2	Patching Quantity Measurements Sheet			
	3.3	Dip Sheets			
	3.4	Photos of patching depths and location			
	3.5	Photos of patching after completion			
	3.6	Crack Sealing Quantity Measurement Sheet			
	3.7	Photos of Crack sealing			
	3.8	Weedkilling Measurement Sheet			
4	**Materials and Testing**				
	4.1	Asphalt Delivery Notes			
	4.2	Patching Density Test Results			
	4.3	Premix Analysis from supplier with M.T.R.D for patching			
	4.4	Paving Density Test Results			
	4.5	Premix Analysis from supplier with M.T.R.D for paving			
	4.6	Quality Control Checklist - Raising of Services			
	4.7	Quality Control Checklist - Kerb and Channel			
	4.8	Quality Control Checklist - Road Marking			

		Name	Signature	Date
Acceptance / Approval	Construction Manager			
	Engineer's Agent Representative			