Norwich Western Link

Drainage Strategy Report Appendix 16: Drainage Strategy Drawings & HCD Standard Details

Author: Ramboll

Document Reference: 4.04.16

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Contents

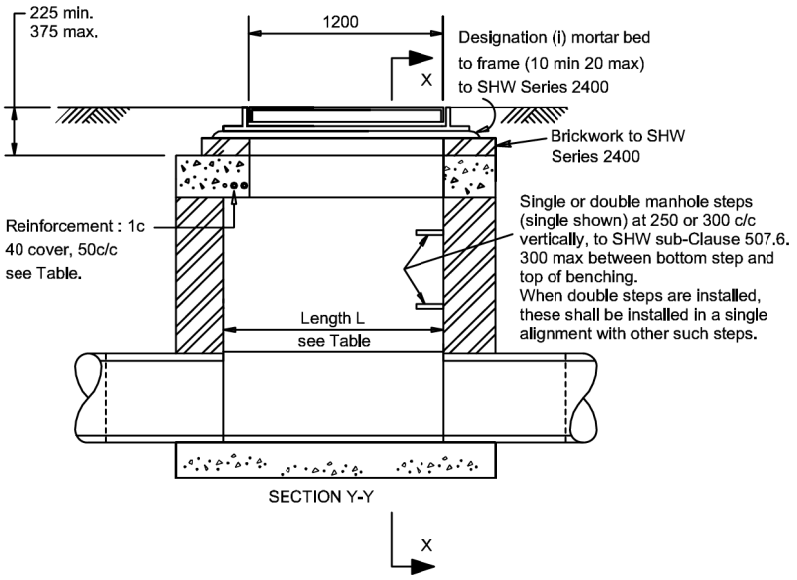
1 Introduction

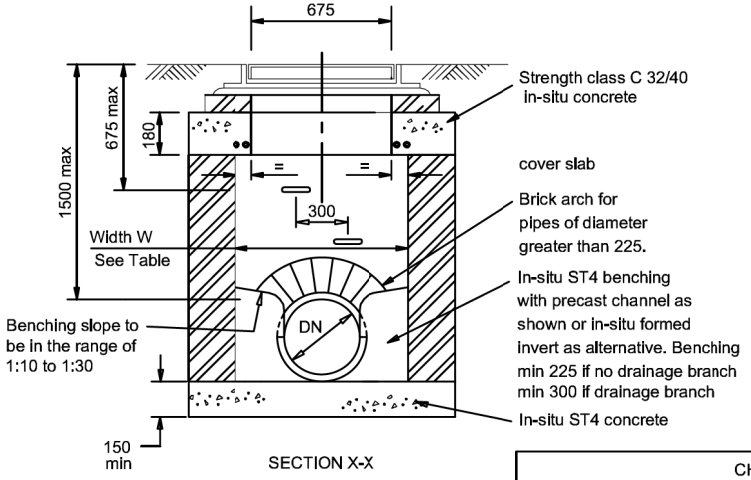
1.1.1 This document identifies the Proposed Scheme drawings that are to be read in conjunction
with the Drainage Strategy Report and can be found within the Planning Application documentation. It also includes Standard Highway Construction Detail drawings, taken from Volume 3 of the Manual of Contract Documents for Highway Works, that are relevant to the Proposed Scheme Drainage Design.

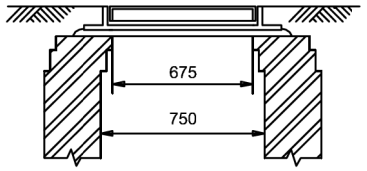
Summary of the Highway Standard Details included:
F3 - Type 1 Chamber
F4 - Type 2 Chamber
F5 - Type 3 Chamber
F6 - Type 4 Chamber
F11 - Type 7 Chamber
F13 - Precast and in-situ cast gullies
F18 - Edge of pavement drains - fin drains and narrow filter drains
F22 - In-line outlet triangular s.w. channel
F23 - In-line outlet to trapezoidal s.w. channel
F25 - Type 9 Chamber
F26 - Type 10 Chamber
F27 - Type 11 Chamber

1.1.2 We have included a summary of key information shown in this document in an accessible format. However, some users may not be able to access all technical details. If you require this document in a more accessible format please contact: norwichwesternlink@norfolk.gov.uk

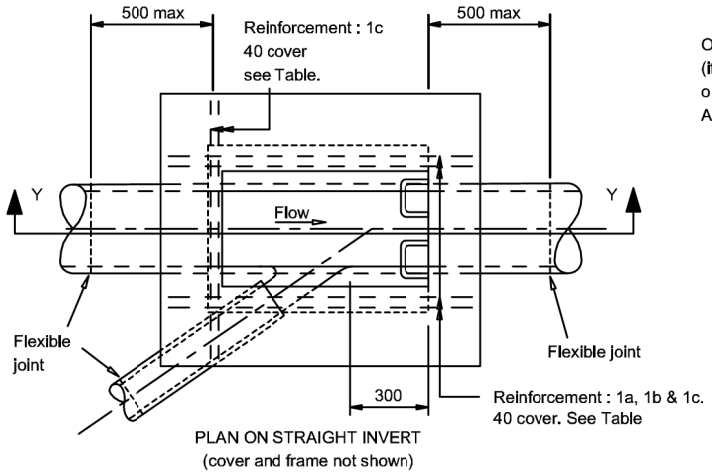
Document Reference	Document Title	Drawing Numbers
2.08.00	Drainage Layout Plans	PK1002-RAM-HDG-MLE-DR-DZ-0501
		PK1002-RAM-HDG-MLE-DR-DZ-0502
		PK1002-RAM-HDG-MLE-DR-DZ-0503
		PK1002-RAM-HDG-MLE-DR-DZ-0504
		PK1002-RAM-HDG-MLE-DR-DZ-0505
		PK1002-RAM-HDG-MLE-DR-DZ-0506
		PK1002-RAM-HDG-MLE-DR-DZ-0507
		PK1002-RAM-HDG-MLE-DR-DZ-0508
		PK1002-RAM-HDG-MLE-DR-DZ-0509
		PK1002-RAM-HDG-MLE-DR-DZ-0510
		PK1002-RAM-HDG-MLE-DR-DZ-0511
		PK1002-RAM-HDG-MLE-DR-DZ-0512
		PK1002-RAM-HDG-MLE-DR-DZ-0513
2.08.01	Drainage Basin Details	PK1002-RAM-HDG-MLE-DE-DZ-0541
		PK1002-RAM-HDG-MLE-DE-DZ-0542
		PK1002-RAM-HDG-MLE-DE-DZ-0543
		PK1002-RAM-HDG-MLE-DE-DZ-0544
		PK1002-RAM-HDG-MLE-DE-DZ-0545
		PK1002-RAM-HDG-MLE-DE-DZ-0546
		PK1002-RAM-HDG-MLE-DE-DZ-0547
2.08.02	Drainage Exceedance Flow Plans	PK1002-RAM-HDG-MLE-DE-DZ-0560
		PK1002-RAM-HDG-MLE-DE-DZ-0561
2.08.03	Drainage Outfall Details	PK1002-RAM-HDG-MLE-DE-DZ-0551
		PK1002-RAM-HDG-MLE-DE-DZ-0552
		PK1002-RAM-HDG-MLE-DE-DZ-0553
2.08.04	Drainage Typical Details	PK1002-RAM-HDG-MLE-DE-DZ-0001
		PK1002-RAM-HDG-MLE-DE-DZ-0002
		PK1002-RAM-HDG-MLE-DE-DZ-0003
		PK1002-RAM-HDG-MLE-DE-DZ-0004
		PK1002-RAM-HDG-MLE-DE-DZ-0005
		PK1002-RAM-HDG-MLE-DE-DZ-0006
2.08.05	Highway Catchment Plans	PK1002-RAM-HDG-MLE-DR-DZ-0520
		PK1002-RAM-HDG-MLE-DR-DZ-0521
		PK1002-RAM-HDG-MLE-DR-DZ-0522
		PK1002-RAM-HDG-MLE-DR-DZ-0523
		PK1002-RAM-HDG-MLE-DR-DZ-0524
		PK1002-RAM-HDG-MLE-DR-DZ-0525
2.08.06	Drainage Piped Ditches	PK1002-RAM-HDG-MLE-DR-DZ-0550
		PK1002-RAM-HDG-MLE-DR-DZ-0551
		PK1002-RAM-HDG-MLE-DR-DZ-0552

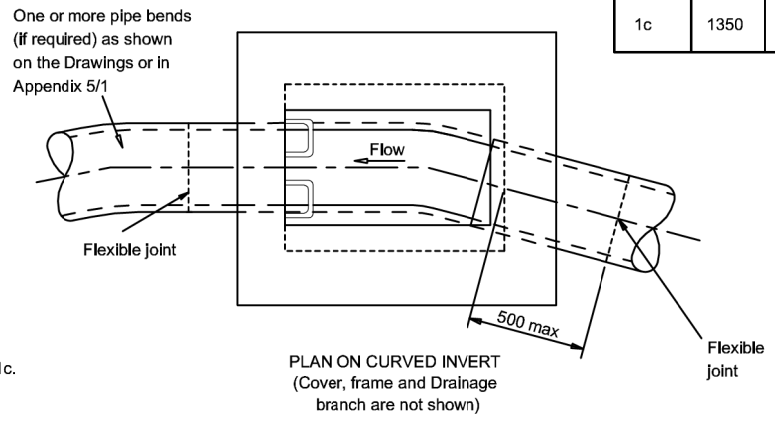






CHAMBER SUB-TYPE					
Sub-Type	Length L	Width W	Max. Pipe DN	Max. No. of Branches	Reinforcement T20 bars at 50 c/c
1a	1200	750	225	1 on either side	2 bars 1550 long
1b	1200	825	300	1 on either side	4 bars 1550 long
1c	1350	975	450	1 on either side	6 bars 1700 long 3 bars 1325 long





NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. Chamber walls 225 thick to be constructed in class B clay engineering bricks to SHW Series 2400 in designation (i) mortar or in-situ ST4 concrete to SHW, Clause 2602.
3. For details of pipe size(s), invert level(s) and type of cover and frame, see Drawings and Appendix 5/1.
4. See SHW, sub-Clause 507.7 regarding backfilling/surround to chamber.

FOR PIPES 450 MAX. DIAMETER
MAX. DEPTH 1500 + PIPE DIAMETER

HIGHWAY CONSTRUCTION DETAILS

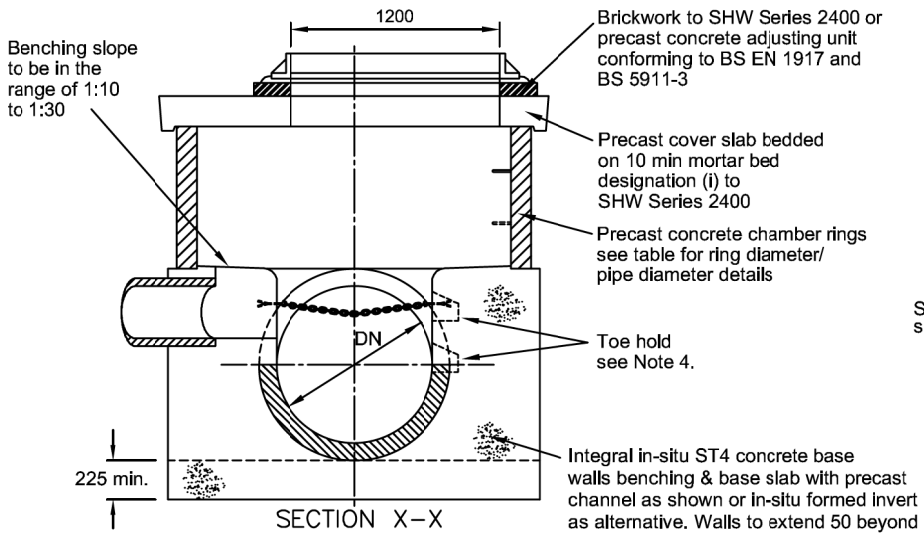
DRAINAGE

Issue	Date
E	MAY 06
D	NOV 03
C	MAY 01
B	AUG 94
A	DEC 91

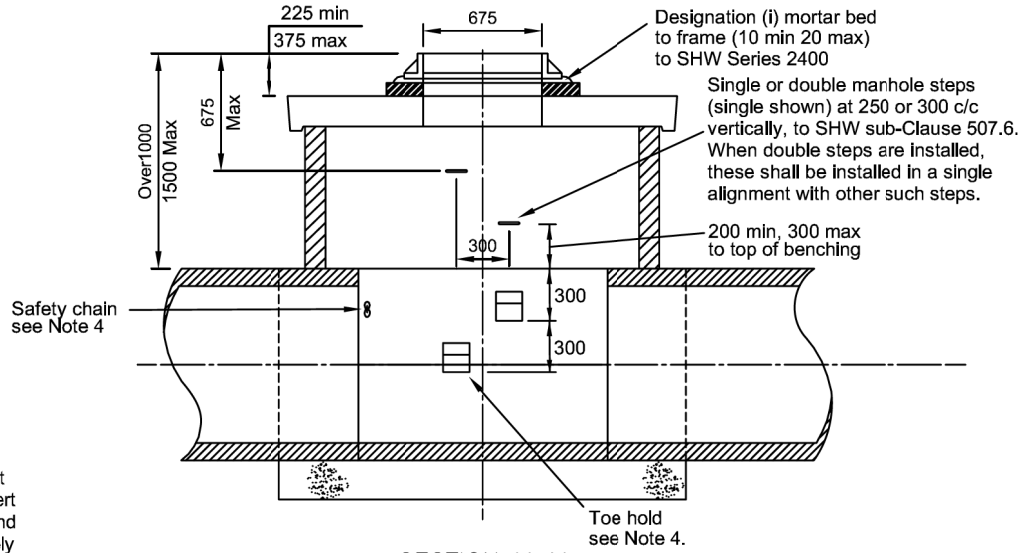
TYPE 1 CHAMBER (BRICK OR IN-SITU CONCRETE MANHOLE)

Drawing No.

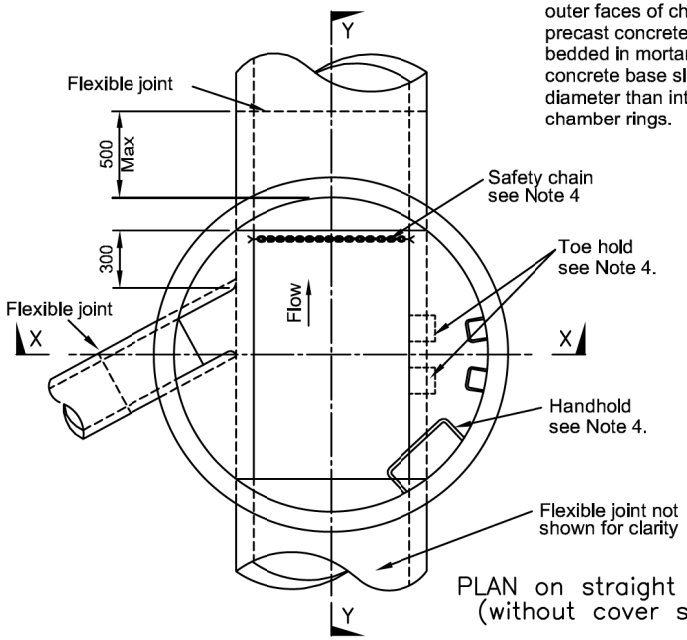
F3



SECTION X–X



SECTION Y–Y



PLAN on straight invert (without cover slab)

Chamber Sub-Type			
Sub-Type	Minimum Chamber Ring dia.	Max. Pipe DN	Maximum No. of Branches
2a	1500	700	1
2b	1800	900	1

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. Chamber walls and cover slab to be constructed in precast concrete to BS EN 1917 and BS 5911-3.
3. For details of pipe size(s), invert level(s) and type of cover and frame, see Drawings and Appendix 5/1.
4. Safety chain required where outfall pipe is 600 diameter or greater. Toe hold and handhold required where outfall pipe is 500 diameter or greater. For details of safety chain and handhold see Drawing Number F10. For details of toe hold see Drawing Number F28.
5. See SHW regarding backfilling/ surround to chamber.
6. All ST concrete shall be to SHW, Clause 2602.

FOR PIPES 450+ TO 900 DIAMETER
DEPTH 1000+ TO 1500
+ PIPE DIAMETER

HIGHWAY CONSTRUCTION DETAILS

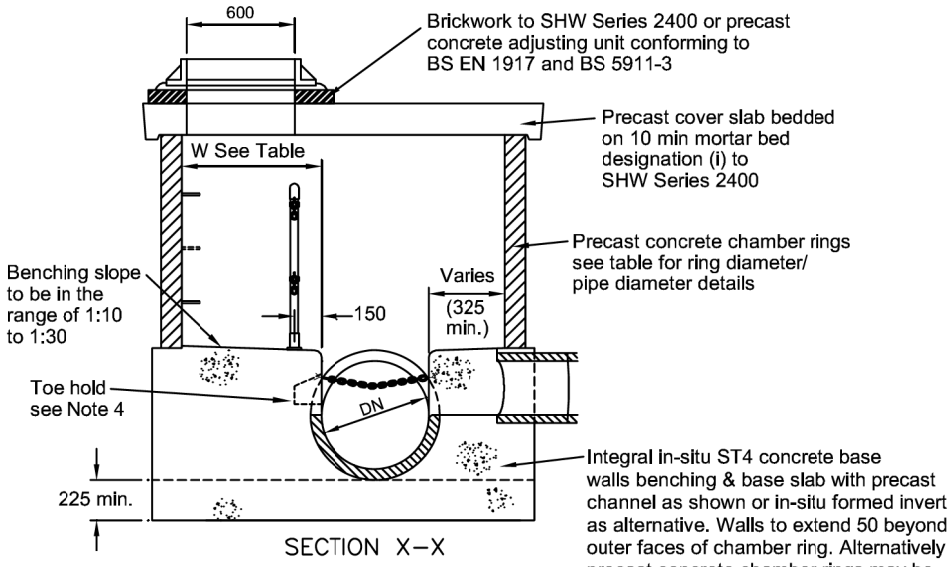
DRAINAGE

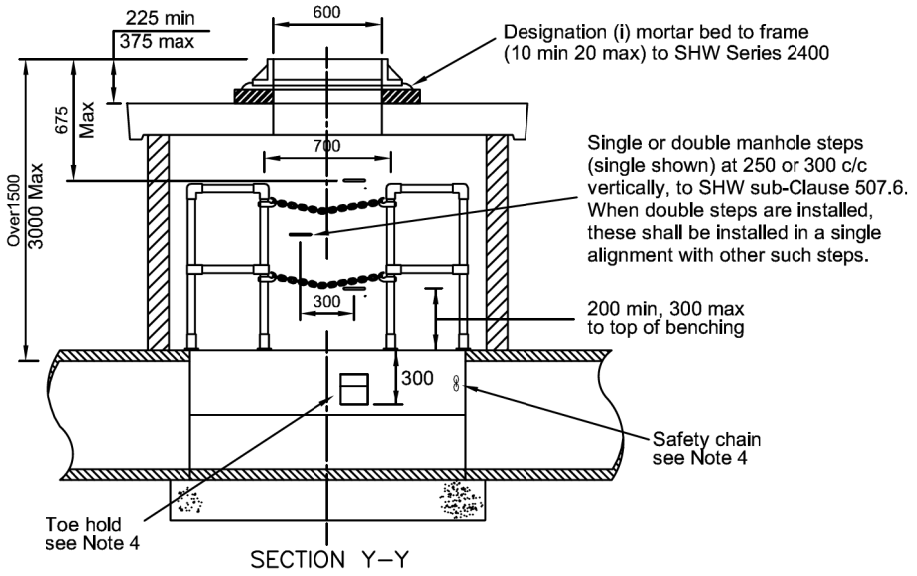
Issue	Date
E	MAY 06
D	NOV 04
C	NOV 03
B	MAY 01
A	DEC 91

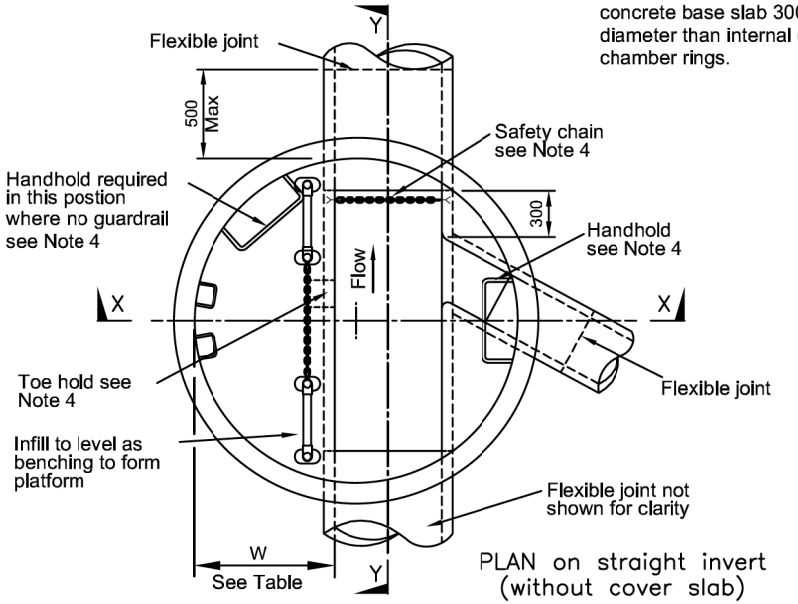
TYPE 2 CHAMBER (PRECAST CONCRETE MANHOLE)

Drawing No.

F4







Chamber Sub-Type				
Sub-Type	Minimum Chamber Ring dia.	Max. Pipe DN	Maximum No. of Branches	W
3a	1200	300	1	575
3b	1500	450	1	575
3c	1800	700	1	775
3d	2100	900	1	875

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. Chamber walls and cover slab to be constructed in precast concrete to BS EN 1917 and BS 5911-3.
3. For details of pipe size(s), invert level(s) and type of cover and frame, see Drawings and Appendix 5/1.
4. Safety chain and guardrail required where outfall pipe is 600 diameter or greater.
   Toe hold and handhold required where outfall pipe is 500 diameter or greater.
   For details of safety chain and handhold see Drawing Number F10.
   For details of guardrail and toe hold see Drawing Number F28.
5. See SHW regarding backfilling/surround to chamber.
6. All ST concrete shall be to SHW, Clause 2602.

FOR PIPES 900 MAX. DIAMETER. DEPTH 1500+ TO 3000 + PIPE DIAMETER

Issue	Date
F	MAY 06
E	NOV 04
D	NOV 03
C	MAY 01
B	AUG 94
A	DEC 91

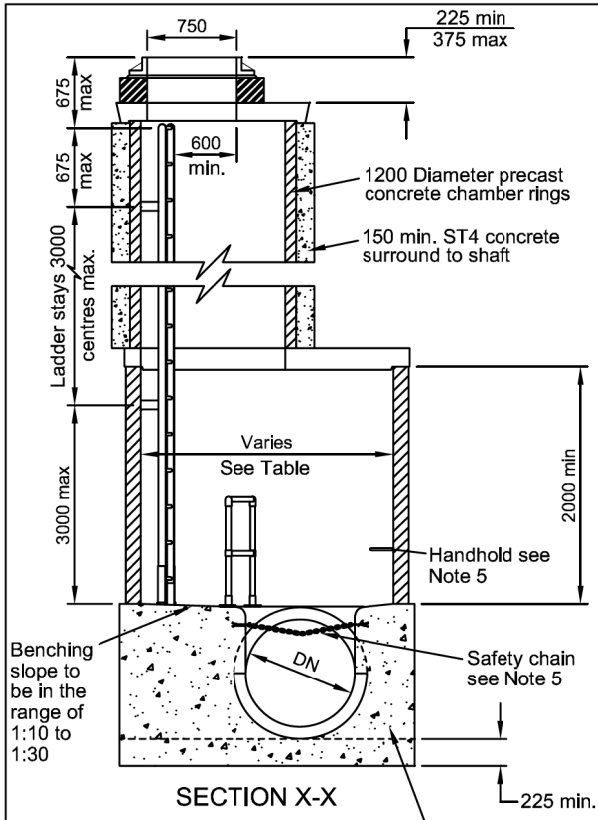
HIGHWAY CONSTRUCTION DETAILS

DRAINAGE

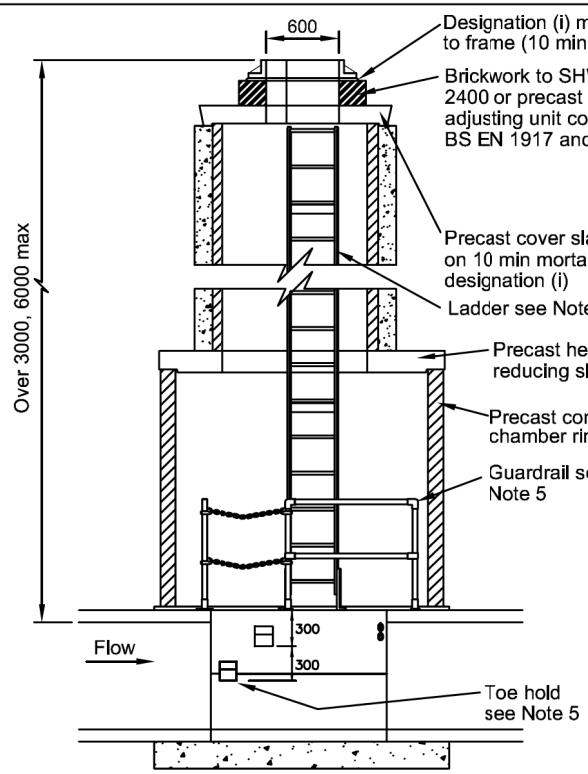
TYPE 3 CHAMBER (PRECAST CONCRETE MANHOLE)

Drawing No.

F5



SECTION X-X

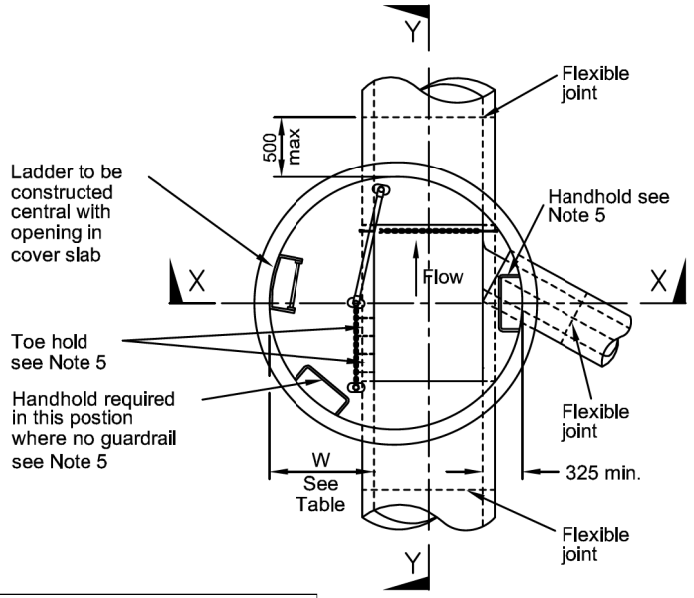


SECTION Y-Y

Integral in-situ ST4 concrete base walls benching & base slab with precast channel as shown or in-situ formed invert as alternative. Walls to extend 50 beyond outer faces of chamber ring. Alternatively precast concrete chamber rings may be bedded in mortar on an in-situ ST4 concrete base slab 300 greater in diameter than internal diameter of chamber rings.

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. Chamber walls and cover slab to be constructed in precast concrete to BS EN 1917 and BS 5911-3.
3. For details of pipe size(s), invert level(s) and type of cover and frame see Drawings and Appendix 5/1.
4. Mortar to be designation (i) to SHW Series 2400.
5. Safety chain and guardrail required where outfall pipe is 600 diameter or greater.
   Toe hold and handhold required where outfall pipe is 500 diameter or greater.
   For details of ladder, safety chain and handhold see Drawing Number F10.
   For details of guardrail and toe hold see Drawing Number F28.
6. See SHW, sub-Clause 507.7 regarding backfilling/ surround to chamber.
7. All ST concrete shall be to SHW, Clause 2602.



PLAN ON STRAIGHT INVERT
(Below reducing slab)

CHAMBER SUB-TYPE						
Sub-Type	Max. Pipe DN	Minimum Chamber ring dia.	W	Guardrail reqd.	Safety chain reqd.	Toe hold reqd.
4a	450	1500	625	x	x	x
4b	550	1500	625	x	x	✓
4c	900	2100	875	✓	✓	✓

FOR PIPES 300 TO 900 DIAMETER.
DEPTHS 3000+ TO 6000
+ PIPE DIAMETER

Issue	Date
F	MAY 06
E	NOV 04
D	NOV 03
C	MAY 01
B	AUG 94
A	DEC 91

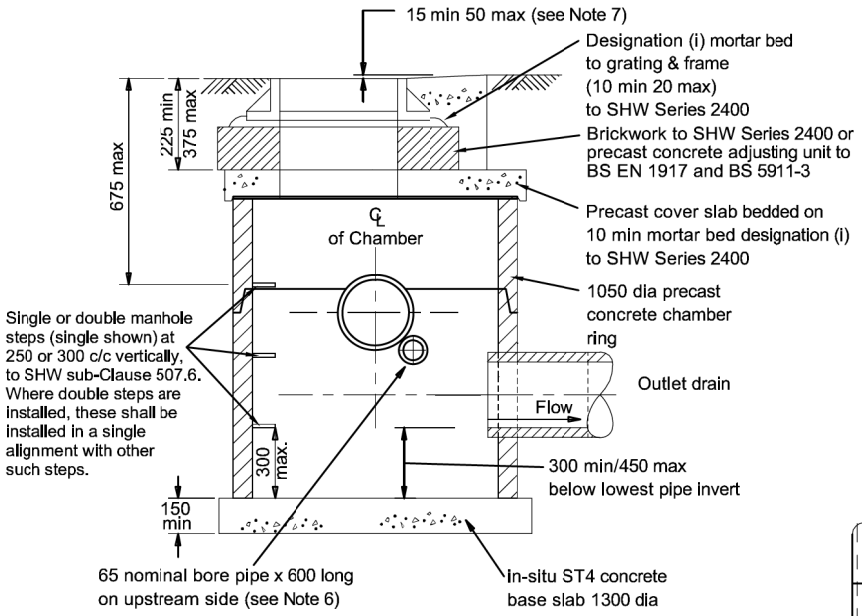
HIGHWAY CONSTRUCTION DETAILS

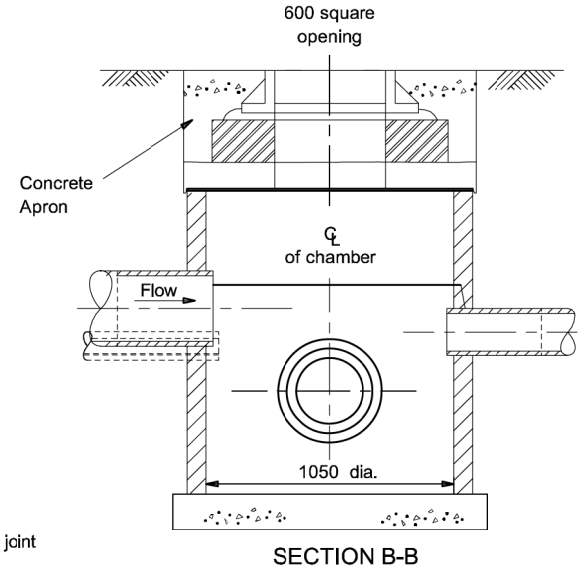
DRAINAGE

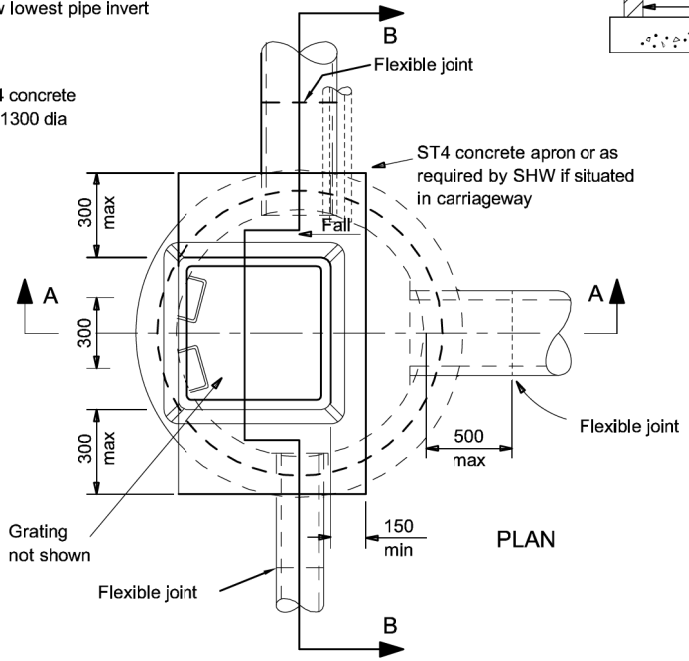
TYPE 4 CHAMBER (PRECAST CONCRETE MANHOLE)

Drawing No.

F6







NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. Catchpit to be constructed in precast concrete to BS EN 1917 and BS 5911-3.
3. Invert details, number of branches and type of gully top are shown on the Drawings and Appendix 5/1.
4. Mortar to be designation (i) to SHW Series 2400.
5. Pipes to be built into the catchpit with designation (i) mortar are shown on the Drawings and Appendix 5/1.
6. Pipe to be built into catchpit to drain lower portion of trench. Pipe is to be placed above any concrete bed to filter drain.
7. The gully top is to be set as dimensioned below the adjacent:
   a) hard shoulder (for verges)
   b) hard strip (for dual 2 central reserve)
   c) finished level in other locations.
8. See SHW, sub-Clause 507.7 regarding backfilling/surround to chamber.
9. All ST concrete shall be to SHW, Clause 2602.

Issue	Date
F	MAY 06
E	NOV 04
D	NOV 03
C	MAY 01
B	APR 94
A	DEC 91

FOR PIPES 450 MAX. DIAMETER

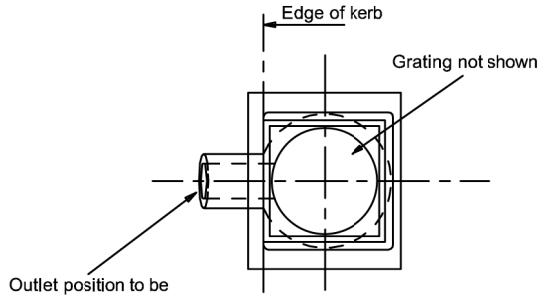
HIGHWAY CONSTRUCTION DETAILS

DRAINAGE

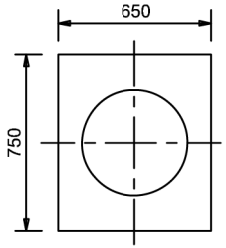
TYPE 7 CHAMBER (1050 CATCHPIT)

Drawing No.

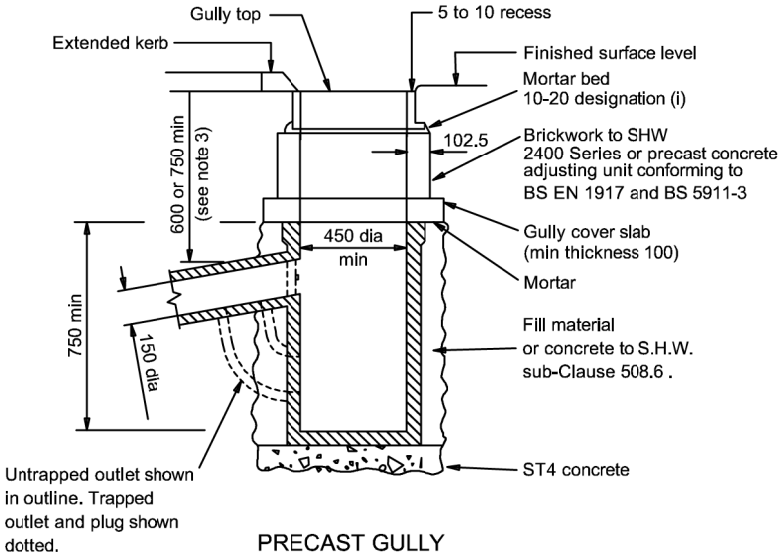
F11



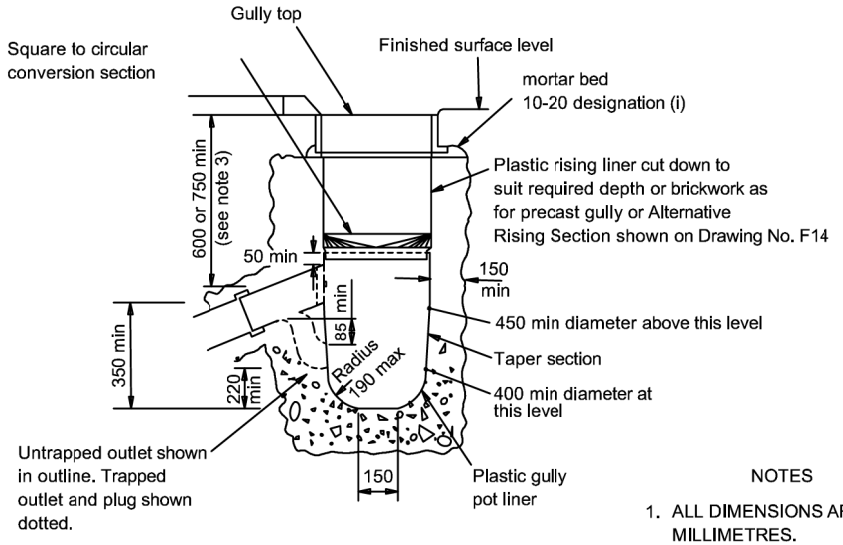
PLAN



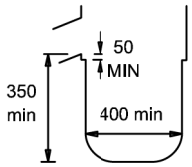
GULLY COVER SLAB



PRECAST GULLY



IN-SITU CAST GULLY

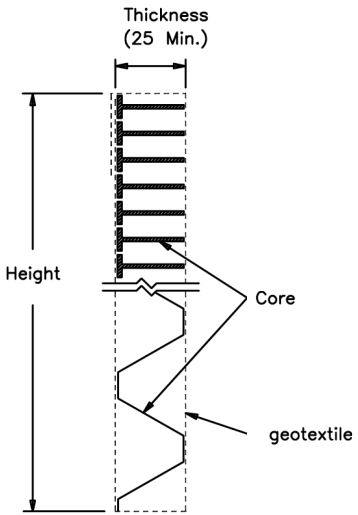


ALTERNATIVE IN-SITU CAST SUMP
(PARALLEL SIDES)

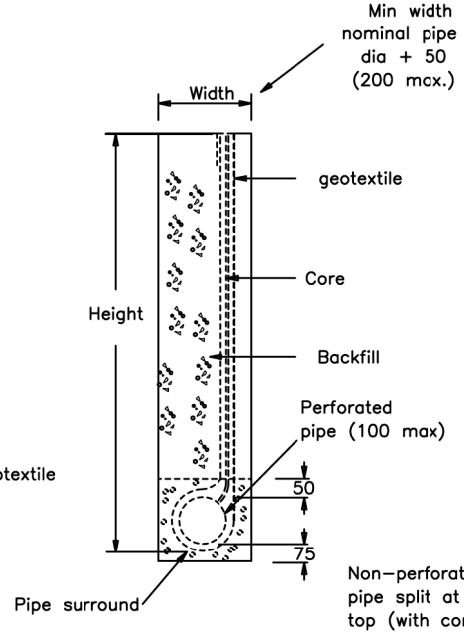
NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. For details of gully top, see Appendix 5/1.
3. The minimum depth from the top of the grating to the top of the gully outlet is to be 750 when the connecting pipe is under a carriageway or a hard shoulder and 600 elsewhere.
4. Precast concrete gullies and cover slabs shall be to BS 5911-6.
5. When an in-situ cast gully has a trap, the stoppers shall comply with the requirements of BS 5911-4 and BS EN 1917.
6. Alternative rising section shown on Drawing No. F14 may be used.
7. All ST concrete shall be to SHW, Clause 2602.

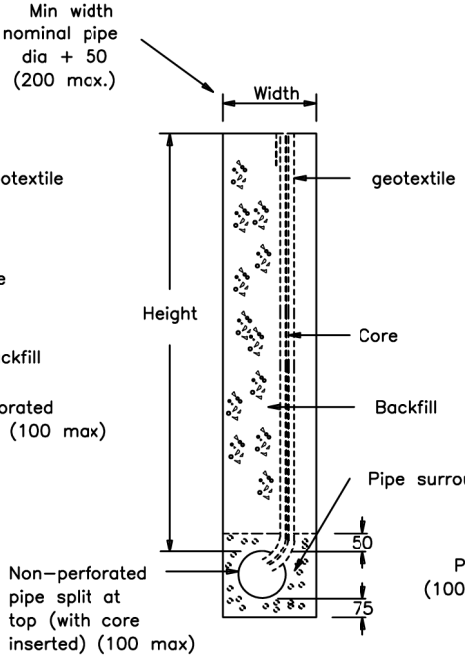
HIGHWAY CONSTRUCTION DETAILS	DRAINAGE	E	MAY 06	PRECAST AND IN-SITU CAST GULLIES	Drawing No. F13
		D	MAY 05		
		C	NOV 03		
		B	MAR 98		
		A	DEC 91		
		Issue	Date		



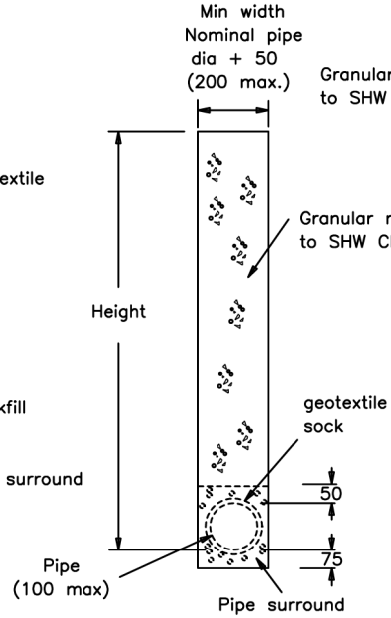
DRAIN TYPE 5



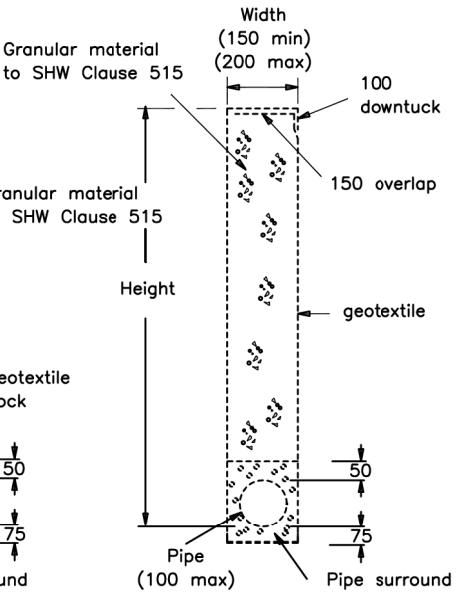
DRAIN TYPE 6



DRAIN TYPE 7



DRAIN TYPE 8



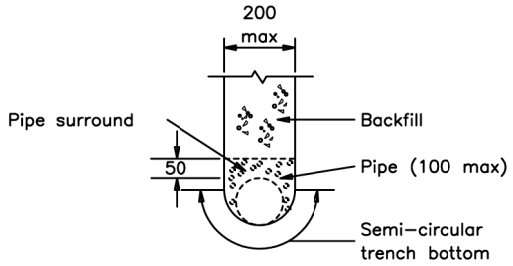
DRAIN TYPE 9

FIN DRAINS

Drain types 5, 6 and 7

NARROW FILTER DRAINS

Drain types 8 and 9

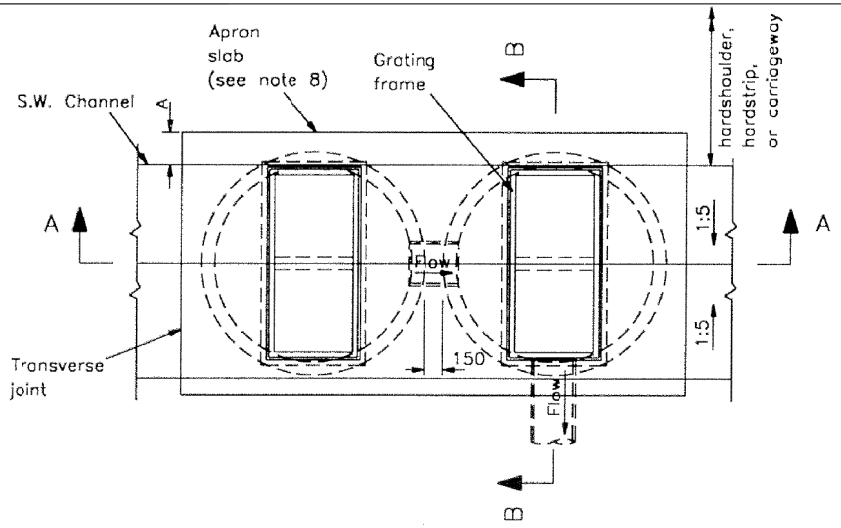


ALTERNATIVE TRENCH SHAPE
For drain types 6, 7, 8 and 9

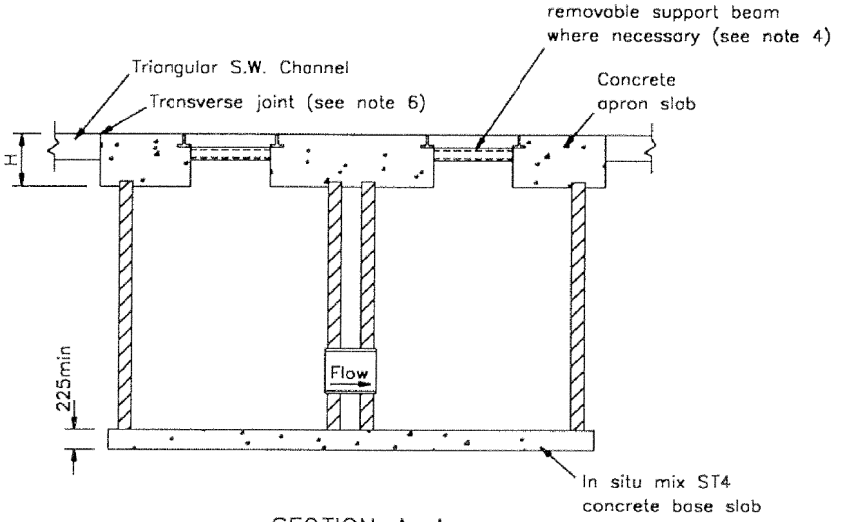
NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. The surround material and backfill to the pipes of drain types 6 and 7 shall comply with S.H.W. Clause 514. The surround material to pipes of drain types 8 and 9 shall be the granular material used as infill to the drain.

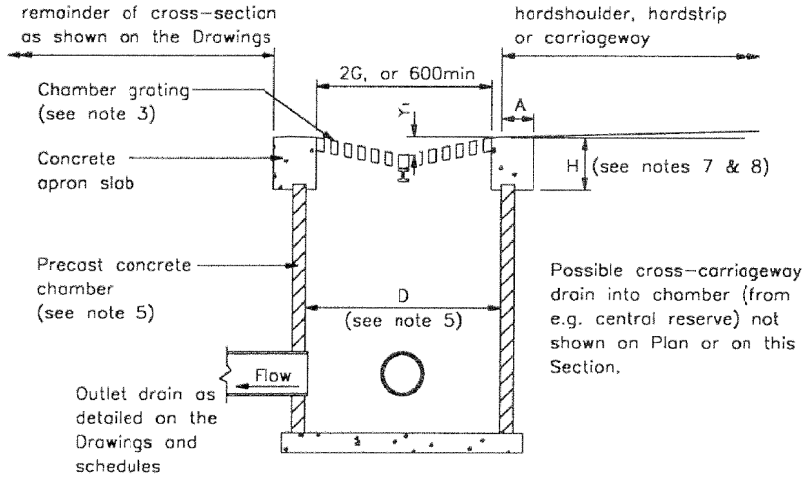
HIGHWAY CONSTRUCTION DETAILS	DRAINAGE	A	DEC 91	EDGE OF PAVEMENT DRAINS – FIN DRAINS AND NARROW FILTER DRAINS	Drawing No. F18
		Issue	Date		



PLAN
(Gratings not shown)



SECTION A–A

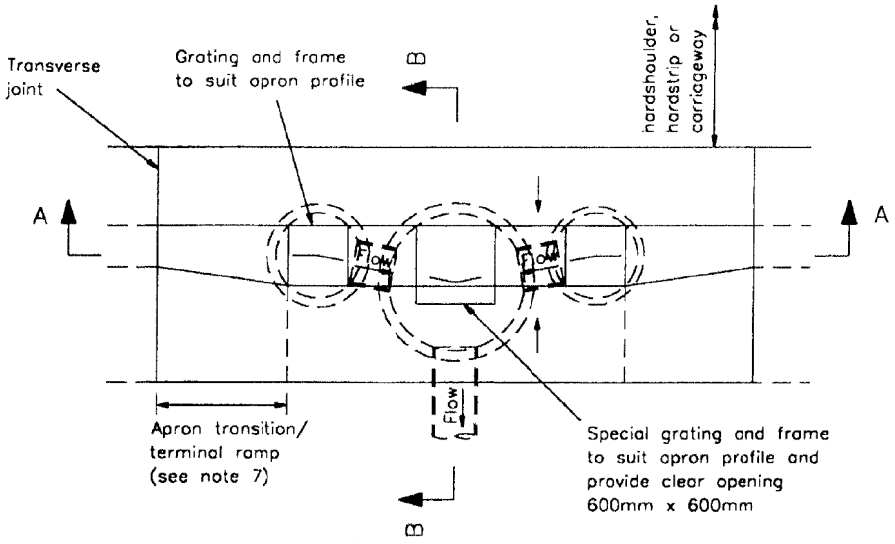


SECTION B–B

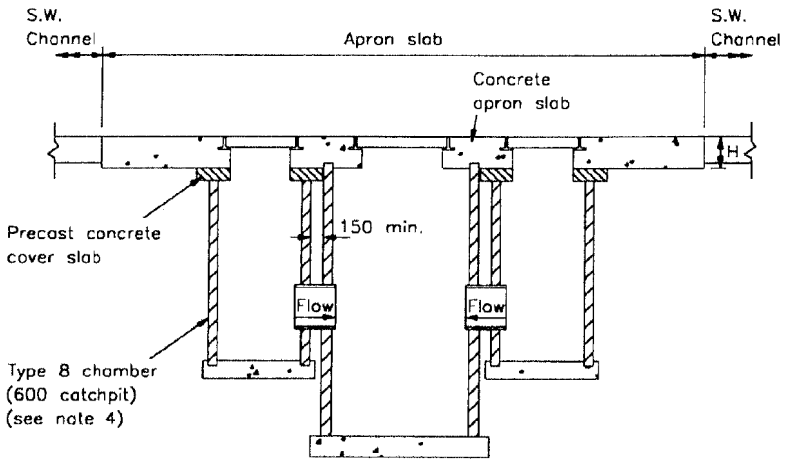
NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. Plan and Section A–A indicate outlet with twin grating installation and associated chambers. Detail can be modified for single or triple chamber installction. Associated drains and pipework shall be as detailed on the Drawings and schedules. Apron slab on Plan and Section B–B shown to suit verge installation. Slab width and profile differs when used in central reserve location.
3. Chamber gratings as specified to suit cross–section of apron. Minimum internal dimensions 600 x 600. Grating frames to be bedded on mortar and securely fixed to concrete apron by approved mechanical means. Frame to be otherwise bedded on epoxy resin mortar.
4. Support beam permissible beneath grating where necessary to withstand loading defined in Note 8. Beam to be removable where clear opening 600 x 600 not otherwise available for access purposes. Removable beams to be supported on purpose made steel brackets bearing upon grating frame rebates and bolted to the faces of the apron slabs within the access openings. Brackets shall restrain the beam from sideways movement. Beam rolling tolerances may be accommodated by use of purpose–made steel shims between the supporting brackets and the beams. All steelwork to be fabricated from steel to BS 970 : Part 1 and to be protected by hot dip galvanising to SHW, Clause 1909.
5. Chamber details beneath apron slab as HCD Drg. No. F11 for Type 7 chamber (1050 catchpit) but with internal diameter D as specified to provide minimum necessary clear opening beneath grating, and be not less than 1050.
6. A transverse joint shall be formed at each end of the apron slab in accordance with SHW, Clause 1009. Transverse joints shall not be permitted within the apron slab. No joints shall be permitted within adjacent lengths of concrete pavement slabs. Necessary joints in such slabs shall be spaced accordingly.
7. Dimension H to provide necessary support/bedding to removable support beam.
8. Apron slab and associated dimension H to be designed to withstand the accidental wheel loading defined in BD 37 (DMRB 1.3.14) paragraph 6.6. Dimension A to be minimised. Concrete to apron slab shall comply with SHW, Clause 1103, air–entrained in accordance with BS 5931. Plain concrete shall be a designed concrete, strength class C 28/35 to BS EN 206–1 and BS 8500. Reinforced concrete shall be strength class C 32/40 to SHW, Clause 1001. Concrete to apron slab cast in one with adjacent concrete pavement shall be as specified for the carriageway slab.
9. Dimensions Y and G shall be as defined in Appendix 5/3.

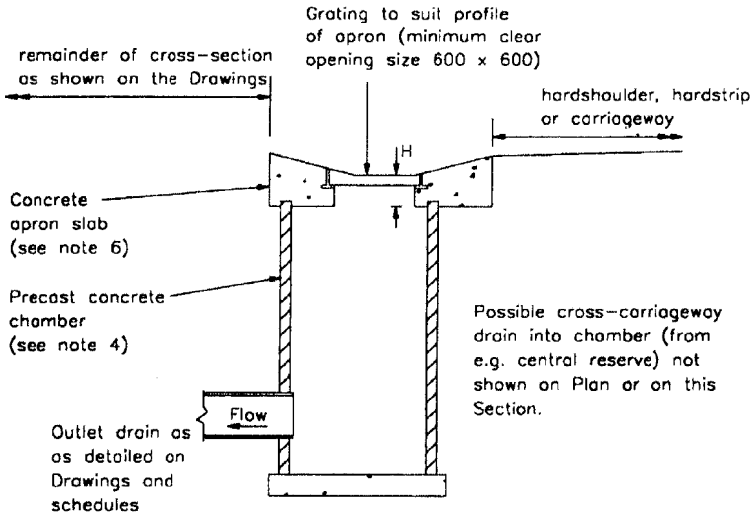
HIGHWAY CONSTRUCTION DETAILS	EDGE OF PAVEMENT DETAILS	Issue	Date	IN–LINE OUTLET TRIANGULAR S.W. CHANNEL	Drawing No.
		B	NOV 03		F22
		A	MAR 98		



PLAN



SECTION A–A

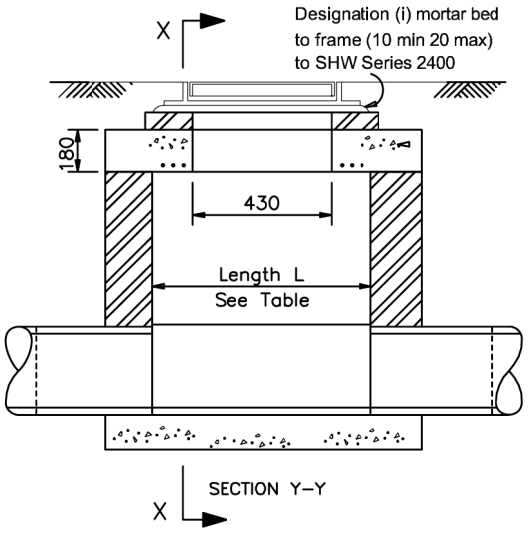


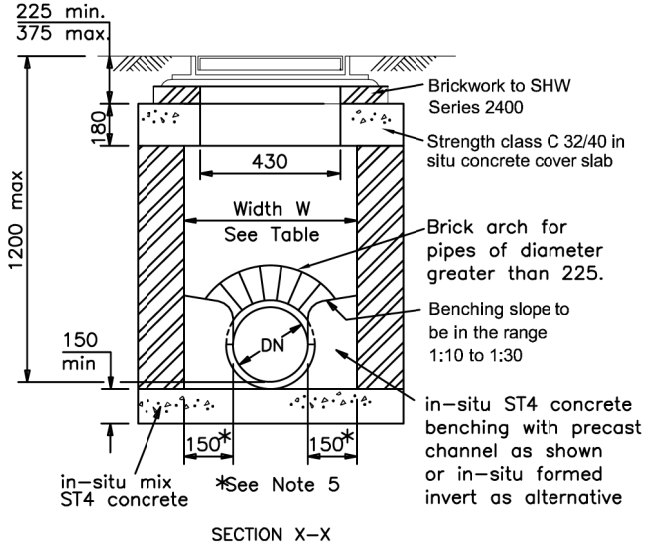
SECTION B–B

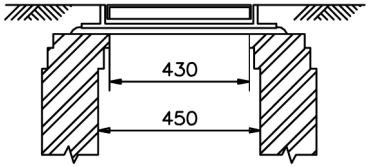
NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. Plan and Section A–A indicate typical outlet in–line with triple grating installation and associated chambers. Detail can be modified for twin or single grating installation or for off–line outlets to trapezodial or triangular S.W. channel. Associated drains and pipework shall be as detailed on the Drawings and schedules. Apron slab on Plan and Section B–B shown to suit verge installation. Slab width and profile differs when used in central reserve location.
3. Chamber gratings as specified in the chamber schedule to suit cross–section of apron. Grating frames to be bedded on mortar and securely fixed to rebates formed in concrete apron by approved mechanical means. Frame to be otherwise bedded on epoxy resin mortar.
4. Main chamber beneath apron slab to be as HCD Drg. No. F11 for Type 7 chamber (1050 catchpit). Subsidary chambers shown on Plan and Section A–A to be as HCD Drg. No. F12 for Type 8 chamber (600 nominal dia.) beneath underside of apron slab. Diameter may be increased if necessary to accommodate larger grating. Where longitudinal carrier pipes in verge are connected to main chamber, Type 7 chambers with special gratings and frame (as for main chamber shown) should be substituted in place of Type 8 chambers.
5. A transverse joint shall be formed at each end of the apron slab in accordance with SHW, Clause 1009. Transverse joints shall not be permitted within the apron slab. No joints shall be permitted within adjacent lengths of concrete pavement slabs. Necessary joints in such slabs shall be spaced accordingly.
6. Apron slab and associated dimension H to be designed to withstand the accidental wheel loading defined in BD 37 (DMRB 1.3.14) paragraph 6.6. Concrete to apron slab shall comply with SHW, Clause 1103, air–entrained in accordance with BS 5931. Plain concrete shall be a designed concrete, strength class C 28/35 to BS EN 206–1 and BS 8500. Reinforced concrete shall be strength class C 32/40 to SHW, Clause 1001.
7. Transition/terminal ramp to be formed as an integral part of the apron slab.
8. Over–excavation for main chamber beneath subsidary chambers to be backfilled with ST1 concrete to SHW, Clause 2602.

HIGHWAY CONSTRUCTION DETAILS	EDGE OF PAVEMENT DETAILS	Issue	Date	IN–LINE OUTLET TO TRAPEZOIDAL S.W. CHANNEL	Drawing No.
		B	NOV 03		F23
		A	MAR 98		

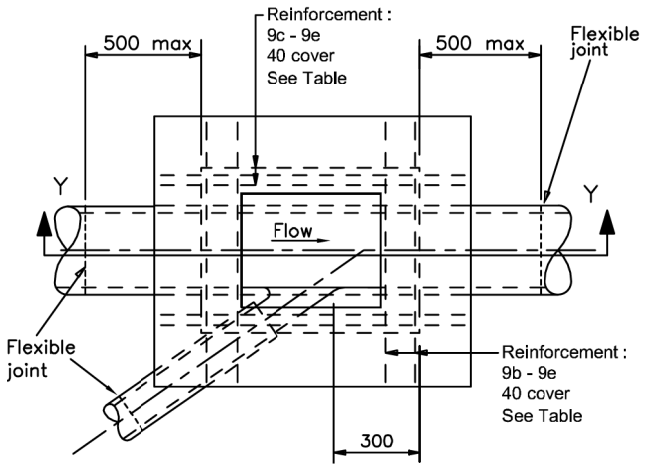




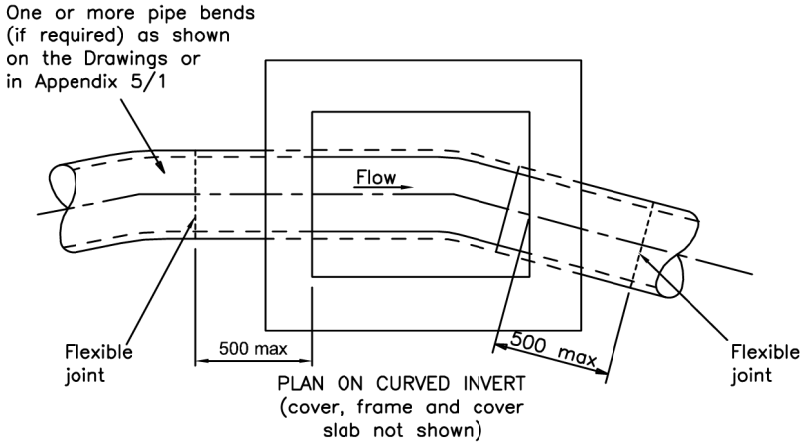


PERMITTED ALTERNATIVE COVER DETAIL FOR SUB–TYPE 9a

CHAMBER SUB–TYPE					
Sub–Type	No. of Branches	Length L	Width W	Max. Pipe DN	Reinforcement T20 bars at 50 c/c
9a	0	450	450	150	Nil
9b	0	450	600	300	4 No. 800 long
9c	1	1000	600	150	10 No. 950 long 4 No. 1350 long
9d	1	1000	750	300	10 No. 1100 long 6 No. 1350 long
9e	2	1000	750	150	



PLAN ON STRAIGHT INVERT (cover and frame not shown)



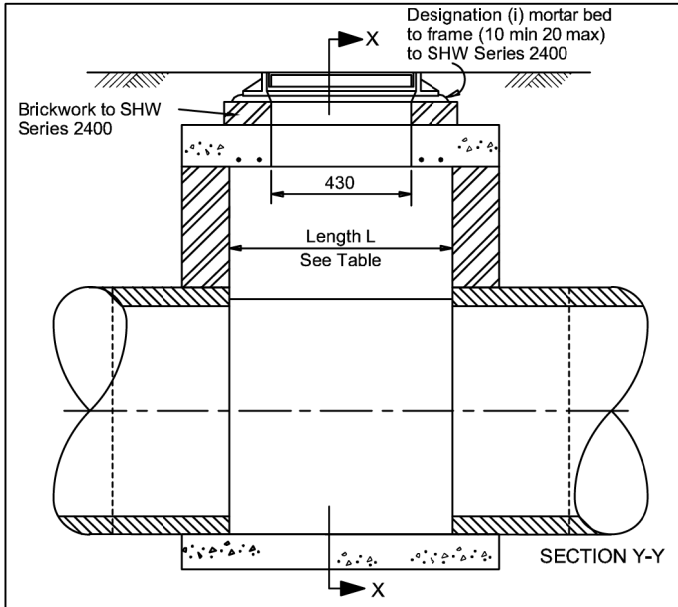
PLAN ON CURVED INVERT (cover, frame and cover slab not shown)

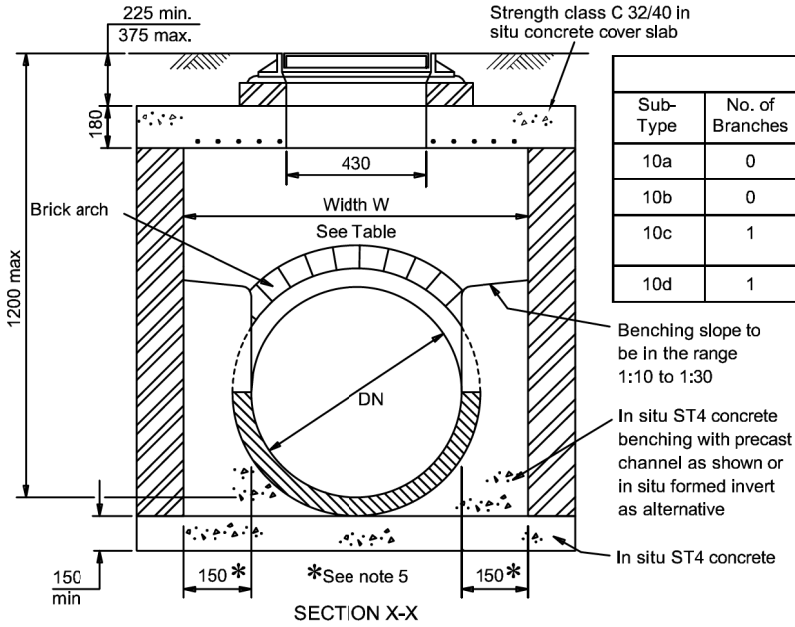
NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. Chamber walls 225 thick to be constructed in class B clay engineering bricks to SHW Series 2400 in designation (i) mortar or in-situ ST4 concrete to SHW, Clause 2602.
3. For details of pipe size(s), invert level(s) and type of cover and frame, see Drawings and Appendix 5/1.
4. See SHW, sub-Clause 507.7 regarding backfilling/surround to chamber.
5. Benching width to be 300 for branch connection.

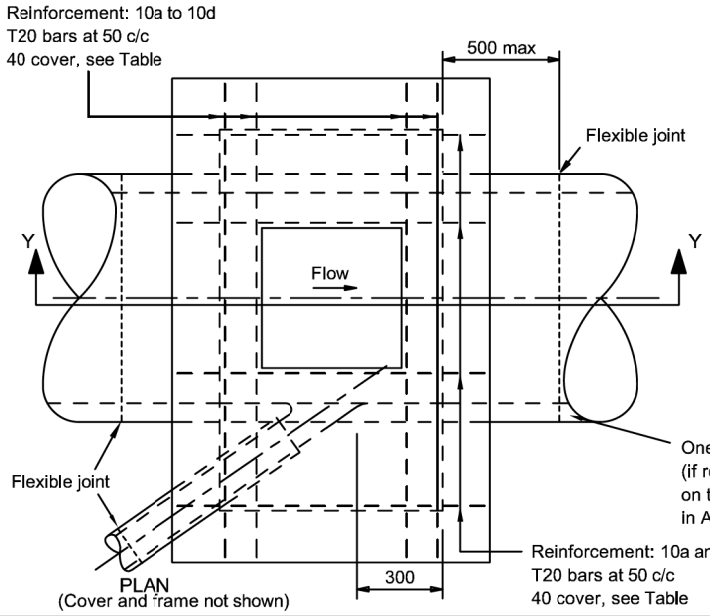
FOR PIPES 300 MAX. DIAMETER
MAX. DEPTH TO INVERT 1200
UP TO SINGLE BRANCH NOT EXCEEDING 225

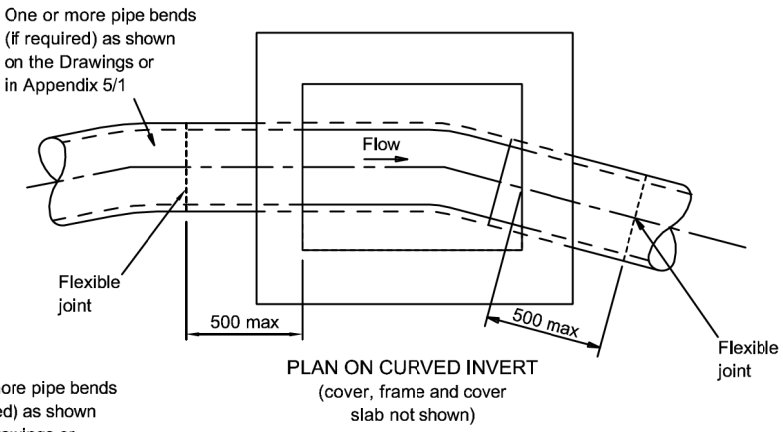
HIGHWAY CONSTRUCTION DETAILS	DRAINAGE	C	MAY 06	TYPE 9 CHAMBER (BRICK OR IN–SITU CONCRETE SHALLOW INSPECTION CHAMBER)	Drawing No. F25
		B	NOV 03		
		A	MAY 01		
		Issue	Date		





CHAMBER SUB-TYPE					
Sub-Type	No. of Branches	Length L	Width W	Max. Pipe DN	Reinforcement T20 bars at 50 c/c
10a	0	450	750	450	6 No. 800 long
10b	0	450	900	600	10 No. 800 long
10c	1	1000	900	450	10 No. 1350 long 10 No. 1250 long
10d	1	1000	1050	600	20 No. 1350 long





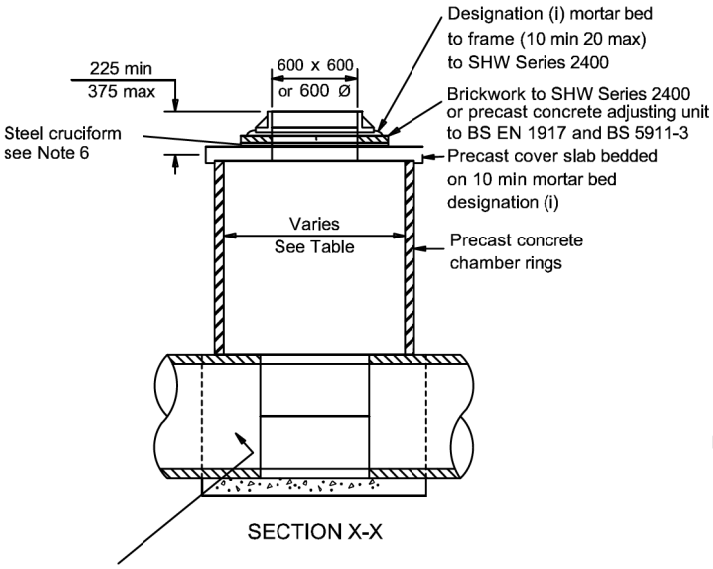
NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. Chamber walls 225 thick to be constructed in class B clay engineering bricks to SHW series 2400 in designation (i) mortar or in-situ ST4 concrete to SHW, Clause 2602.
3. For details of pipe size(s), invert level(s) and type of cover and frame, see Drawings and Appendix 5/1.
4. See SHW, sub-Clause 507.7 regarding backfilling/surround to chamber.
5. Benching width to be 300 for branch connection.

FOR PIPES 300 + TO 600 DIAMETER. MAX. DEPTH TO INVERT 1200

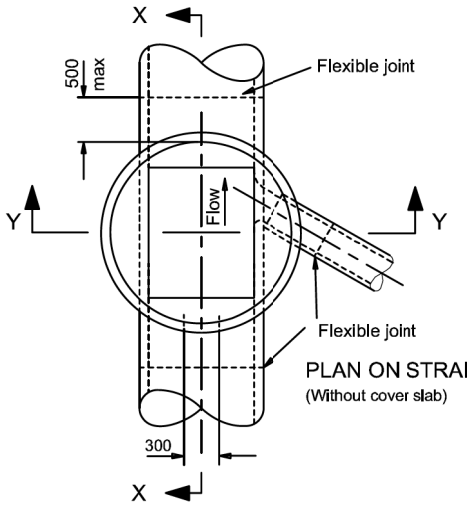
HIGHWAY CONSTRUCTION DETAILS	DRAINAGE	C	MAY 06	TYPE 10 CHAMBER (BRICK OR IN SITU CONCRETE SHALLOW INSPECTION CHAMBER)	Drawing No.
		B	NOV 03		F26
		A	MAY 01		
		Issue	Date		

CHAMBER SUB-TYPE			
Sub-Type	No. of Branches	Chamber ring dia.	Max. Pipe DN
11a	1	900	450
11b	1	1050	600
11c	1	1200	750
11d	1	1500	900

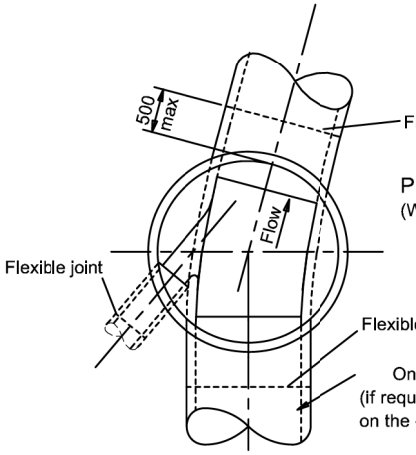


SECTION X-X

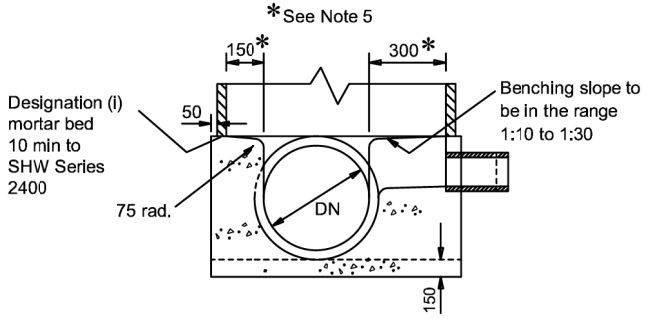
Integral in-situ ST4 concrete base walls benching & base slab with precast channel as shown or in-situ formed invert as alternative. Walls to extend 50 beyond outer faces of chamber ring. Alternatively precast concrete chamber rings may be bedded in mortar on an in-situ ST4 concrete base slab 300 greater in diameter than internal diameter of chamber rings.



PLAN ON STRAIGHT INVERT
(Without cover slab)



PLAN ON CURVED INVERT
(Without cover slab)



SECTION Y-Y

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. Chamber walls and cover slab to be constructed in precast concrete to BS EN 1917 and BS 5911-3.
3. For details of pipe size(s), invert level(s) and type of cover and frame, see cover and frame, see Drawings and Appendix 5/1.
4. See SHW regarding backfilling/surround to chamber.
5. Bencing width to be 300 for branch connection.
6. Cruciform comprising 2 No. 76 x 51 x 6 angle to BS 970 - 1 700 long and protected by hot dip galvanising in accordance with SHW Clause 1909. Cruciform built into brickwork across centre of access hole to prevent man entry.
7. Inspection chambers are intended for use where maintenance is to be carried out using remotely operated equipment only. Deep inspection chambers impose limitations on these techniques and therefore should not be used in highways or other high use areas where excavation for repairs would be unacceptable.
8. All ST concrete shall be to SHW, Clause 2602.

FOR PIPES 900 MAX DIAMETER

HIGHWAY CONSTRUCTION DETAILS	DRAINAGE	D	MAY 06	TYPE 11 CHAMBER (PRECAST CONCRETE DEEP INSPECTION CHAMBER)	Drawing No.
		C	NOV 04		
		B	NOV 03		F27
		A	MAY 01		
		Issue	Date		