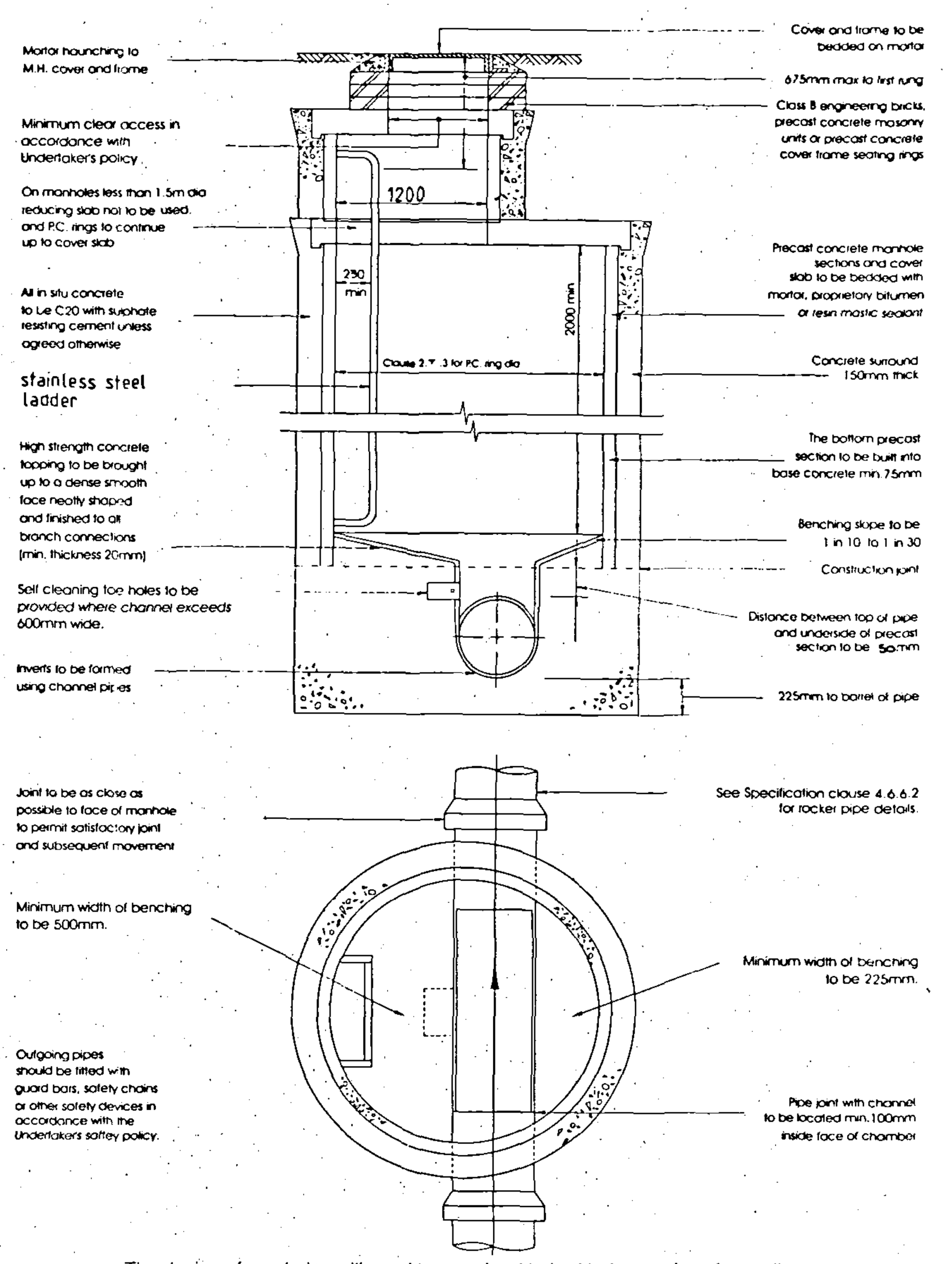
TYPICAL MANHOLE DETAIL - TYPE A

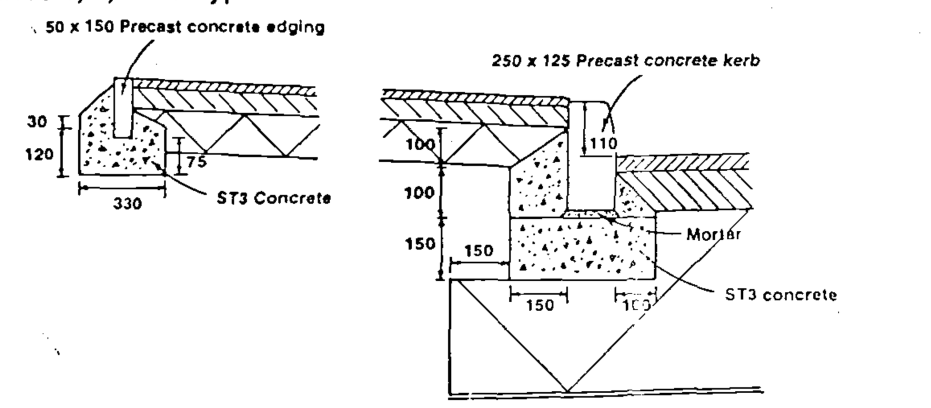
Depth from ground level to soffit of pipe 3m to 6m



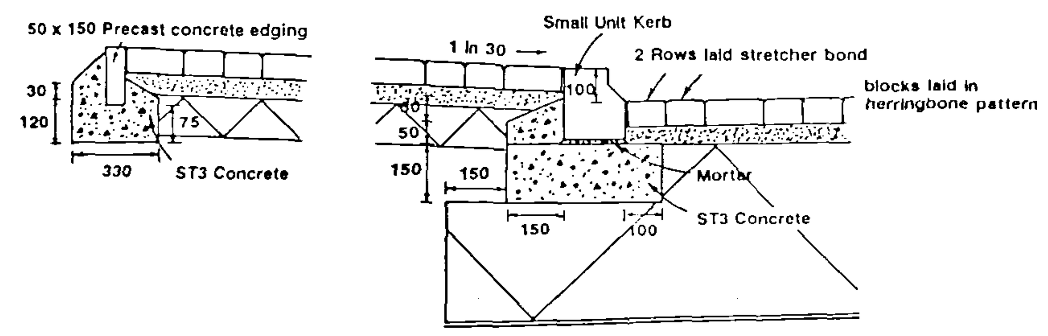
The design of manholes will need to comply with the Undertaker's safety policy

2 TYPICAL SECTIONS THROUGH CARRIAGEWAY EDGE AND FOOTWAY EDGE

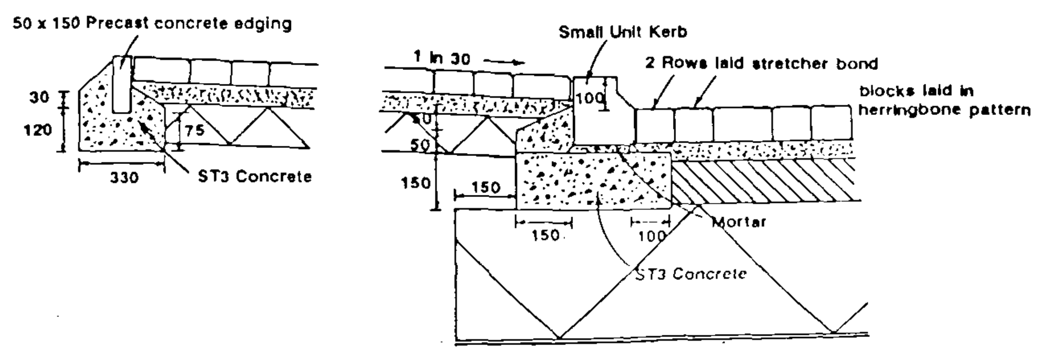
2.1 CHARTS 1, 2, 4 & 5 Type Roads



2.2 CHART 3



2.3 CHART 6



CONSTRUCTION CHART 1

ROADS UP TO 0.25 m.s.a. - NORMAL FLEXIBLE CONSTRUCTION

SUB-GRADE	SUB-BASE (mm)		SURFACING (mm)		TOTAL THICKNESS REQUIRED (mm)	
Bearing Capacity CBR	When sub-grade is classified as frost susceptible	When sub-grade is classified as non-frost susceptible	Basecourse	Wearing Course	When sub-grade is classified as frost susceptible	When sub-grade is classified as non-frost susceptible
			Note 4			
Below [illegible] & soft spots	Note 2	Note 2	110	40	Note 2	Note 2
[illegible]	630	630	110	40	780	780
2%	400	400	110	40	550	550
3%	310	310	110	40	[illegible]	460
4%	300	260	110	40	[illegible]	410
5%	300	225	110	40	450	375
[illegible]	300	200	110	40	[illegible]	[illegible]
Above 15%	300	150	110	40	450	300

CONSTRUCTION CHART 2

ROADS UP TO 0.25 m.s.a. - MINIMUM DEPTH FLEXIBLE CONSTRUCTION (See Clause 1.1.18)

SUB-GRADE	SUB-BASE (mm)	SURFACING			TOTAL THICKNESS REQUIRED (mm)	
Bearing Capacity CBR	Non-frost susceptible Type 1	Basecourse		Wearing Course	When sub-grade is classified as frost susceptible	When sub-grade is classified as non-frost susceptible
		When sub-grade is classified as frost susceptible	When sub-grade is classified as non-frost susceptible			
Below 1½% & soft spots	Note 2	200	190	40	Note 2	Note 2
1½%	Note 2	200	190	40	Note 2	Note 2
2%	150	200	190	40	[illegible]	380
3%	150	200	160	40	[illegible]	350
4%	150	200	150	40	[illegible]	340
5%	150	200	[illegible]	40	[illegible]	330
6-15%	150	[illegible]	130	40	[illegible]	320
Above 15%	150	200	110	40	[illegible]	300

CONSTRUCTION CHART 3

ROADS UP TO 0.25 m.s.a. - BLOCK PAVER CONSTRUCTION (See Clause 1.9)

SUB-GRADE	SUB-BASE (mm)		SURFACING (mm)			TOTAL THICKNESS REQUIRED (mm)	
Bearing Capacity CBR	When sub-grade is classified as frost susceptible	When sub-grade is classified as non-frost susceptible	Basecourse (Note 4)	Laying Course	Block Paver	When sub-grade is classified as frost susceptible	When sub-grade is classified as non-frost susceptible
Below 1½% & soft spots	Note 2	Note 2	90	30	60	Note 2	Note 2
1½%	630	630	90	30	60	810	810
2%	400	400	90	30	60	580	580
3%	310	310	90	30	60	490	490
4%	265	260	90	30	60	445	440
5%	265	225	90	30	60	445	405
6-15%	265	200	90	30	60	445	380
Above 15%	265	150	90	30	60	445	330

CONSTRUCTION CHART 4

ROADS UP TO 2.0 m.s.a. - NORMAL FLEXIBLE CONSTRUCTION

SUB-GRADE	SUB-BASE (mm)		SURFACING (mm)		TOTAL THICKNESS REQUIRED (mm)	
Bearing Capacity (CBR)	When sub-grade is classified as frost susceptible	When sub-grade is classified as non-frost susceptible	Basecourse	Wearing Course	When sub-grade is classified as frost susceptible	When sub-grade is classified as non-frost susceptible
Below 1½% & soft spots	Note 2	Note 2	180	40	Note 2	Note 2
1½%	630	630	180	40	850	[illegible]
2%	400	400	180	40	620	620
3%	310	310	180	40	530	530
4%	260	260	180	40	480	460
5%	230	225	180	40	450	445
6-15%	230	200	180	40	450	420
Above 15%	230	150	180	40	450	370

CONSTRUCTION CHART 5

ROADS UP TO 2.0 m.s.a. - MINIMUM DEPTH FLEXIBLE CONSTRUCTION (See Clause 1.1.18)

SUB-GRADE	SUB-BASE (mm)	SURFACING (mm)			TOTAL THICKNESS REQUIRED (mm)	
Bearing Capacity (CBR)	Non-frost susceptible Type 1	Basecourse		Wearing Course	When sub-grade is classified as frost susceptible	When sub-grade is classified as non-frost susceptible
		When sub-grade is classified as frost susceptible	When sub-grade is classified as non-frost susceptible			
Below 1½% & soft spots	Note 2	260	260	40	Note 2	Note 2
1½%	Note 2	260	260	40	Note 2	Note 2
2%	150	260	260	40	450	450
3%	150	230	230	40	420	420
4%	150	220	220	40	410	410
5%	150	210	210	40	400	400
6-15%	150	200	200	40	390	390
Above 15%	150	200	180	40	390	370

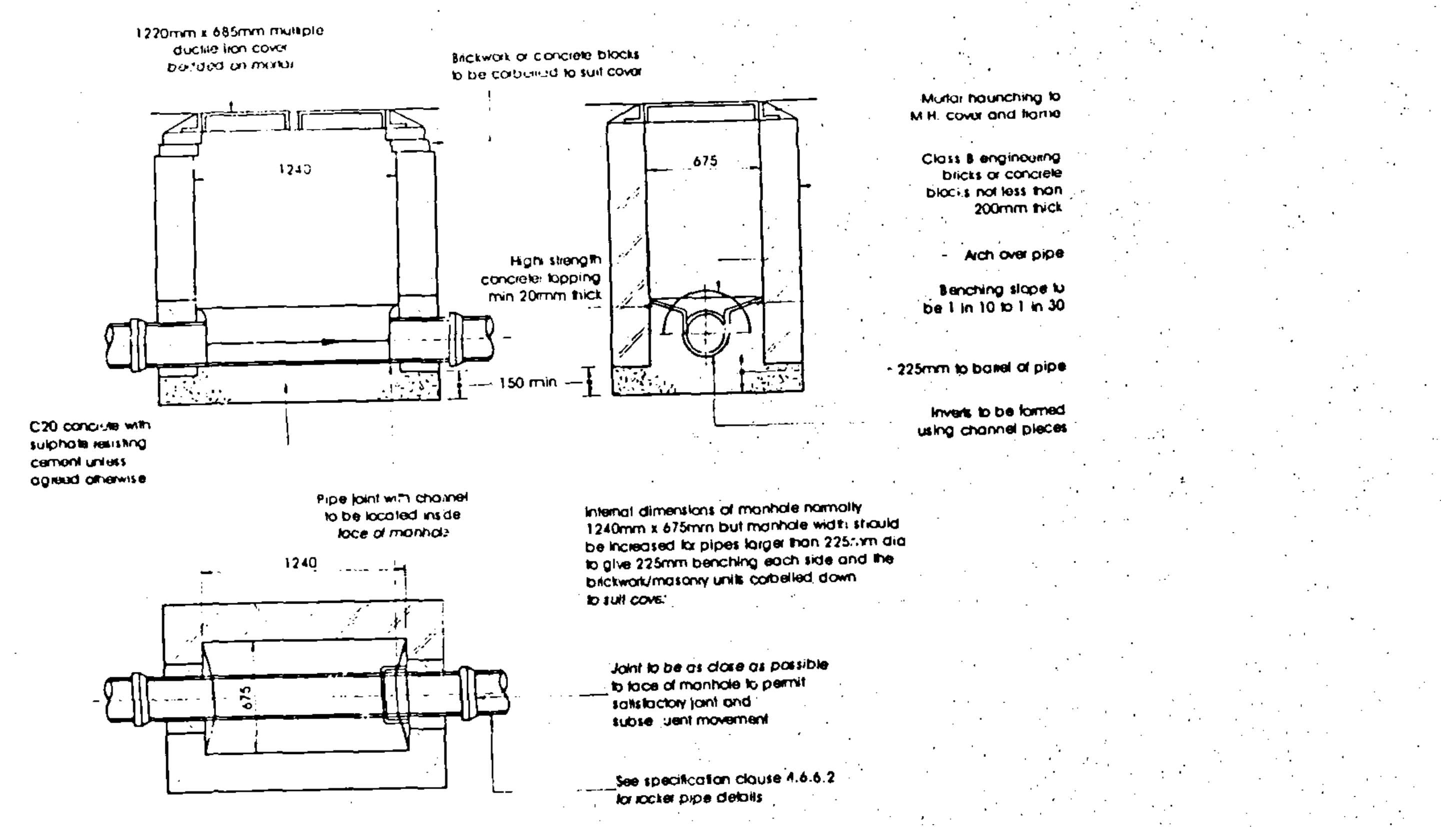
CONSTRUCTION CHART 6

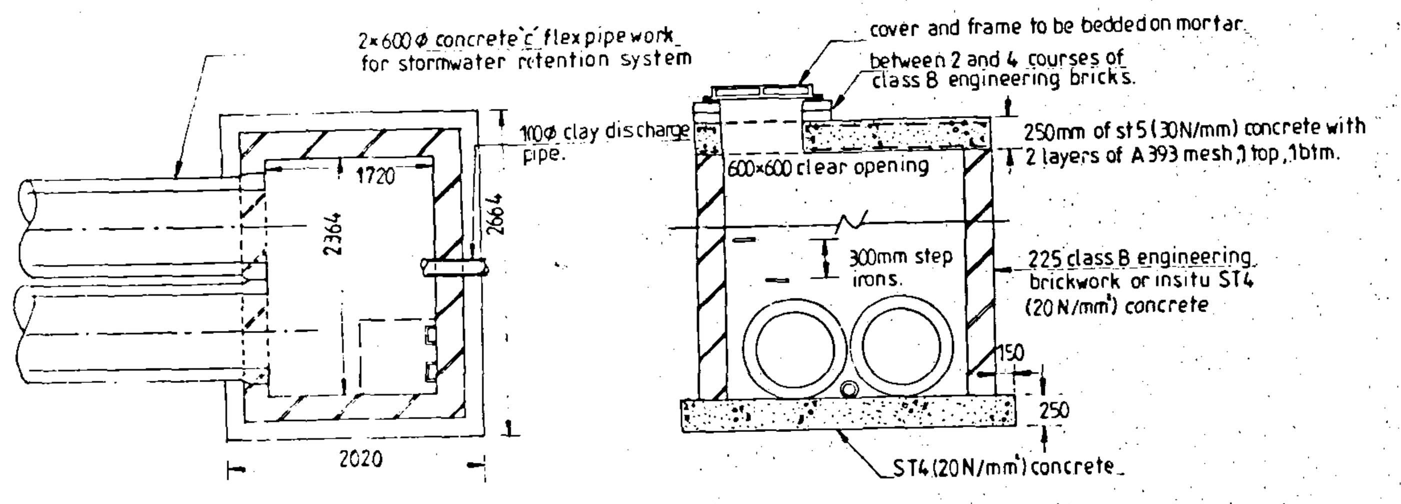
ROADS UP TO 2.0 m.s.a. - BLOCK PAVER CONSTRUCTION

SUB-GRADE	SUB-BASE (mm)		SURFACING (mm)			TOTAL THICKNESS REQUIRED (mm)	
Bearing Capacity (CBR)	When sub-grade is classified as frost susceptible	When sub-grade is classified as non-frost susceptible	Basecourse	Laying Course	Block Paver	When sub-grade is classified as frost susceptible	When sub-grade is classified as non-frost susceptible
Below 1½% & soft spots	Note 2	Note 2		30	[illegible]	Note 2	Note 2
1½%	630	630	[illegible]	30	[illegible]	[illegible]	[illegible]
2%	400	400	[illegible]	30	80	630	630
3%	310	310	[illegible]	30	80	540	540
4%	260	260	[illegible]	30	80	490	490
5%	225	225	[illegible]	30	80	455	455
6-15%	220	200	[illegible]	30	80	450	430
Above 15%	220	150	[illegible]	30	80	450	380

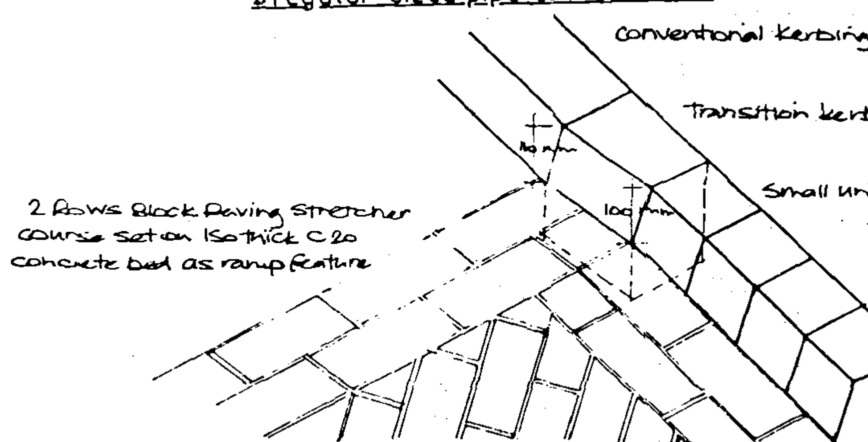
TYPICAL MANHOLE DETAIL - TYPE C

Depth from cover level to soffit of pipe 1.0m to 1.5m





Special Manhole Detail for Stormwater Storage system or Irregular sized pipe connections.



Detail of joint between Bitmac and Block-paved Road (n.t.s.)

DESIGNED TO SEWERS FOR ADOPTION - 5TH EDITION

Notes.

- All Manhole covers, frames and associated iron work to be aquired from aproved supplier.
- Sub base specification will be determined from site investigation to B.S.5930 (1981) No construction will begin until the investigation report has been accepted by Lincolnshire County Council.
- All iron work to be EN.124, Group 4 (Class D 400) Gully covers to be hinged but not removable. A 600 x 600mm clear opening with a minimum area of waterway of 900 cm² in accordance with the B.S. Manhole covers to be embossed with the Anglian Water logo clearly stating either F.W. or S.W. and to be from an approved supplier

Nominal Size DN	Pipe Bedding Requirement mm
150	10 or 14 nominal single size or 14 to 5 graded
225 to 525	10, 14 or 20 nominal single size or 14 to 5 graded or 20 to 5 graded
600 and above	10, 14, 20 or 40 nominal single size crushed rock or 14 to 5 graded or 20 to 5 graded or 40 to 5 graded

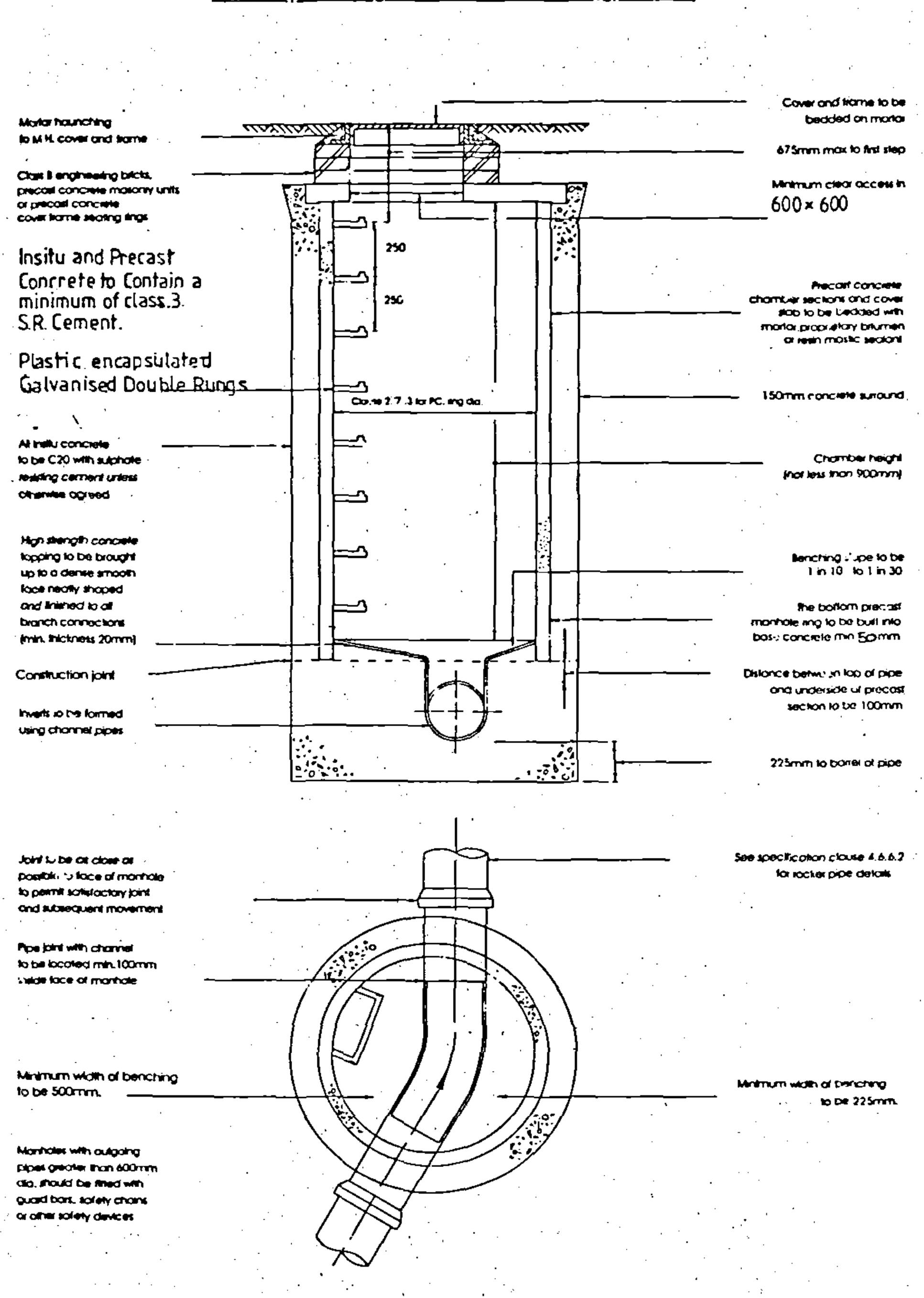
PIPE BEDDING SCHEDULE

19 AUG 2003

1022/03

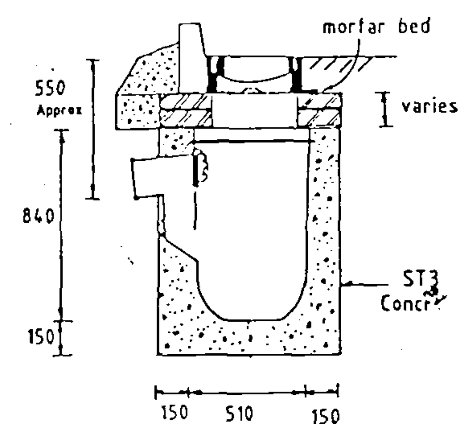
TYPICAL MANHOLE DETAIL - TYPE B

Max depth from ground level to soffit of pipe 3.0m

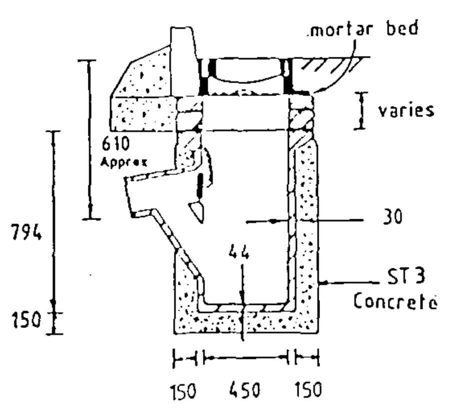


The design of manholes will need to comply with the Undertaker's safety policy

TYPICAL GULLEY DETAILS



Type G7
Trapped Plastic
Road Gulley



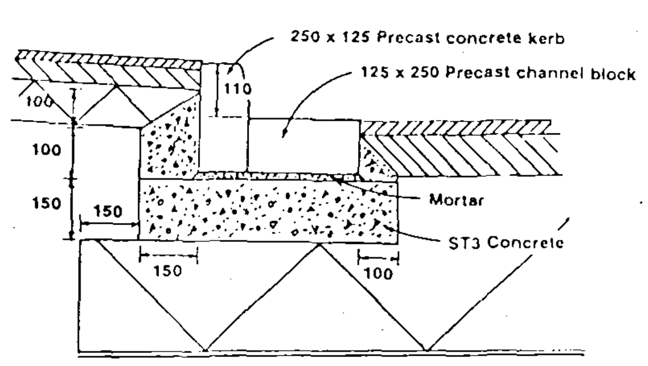
Type G5
Trapped Road Gulley

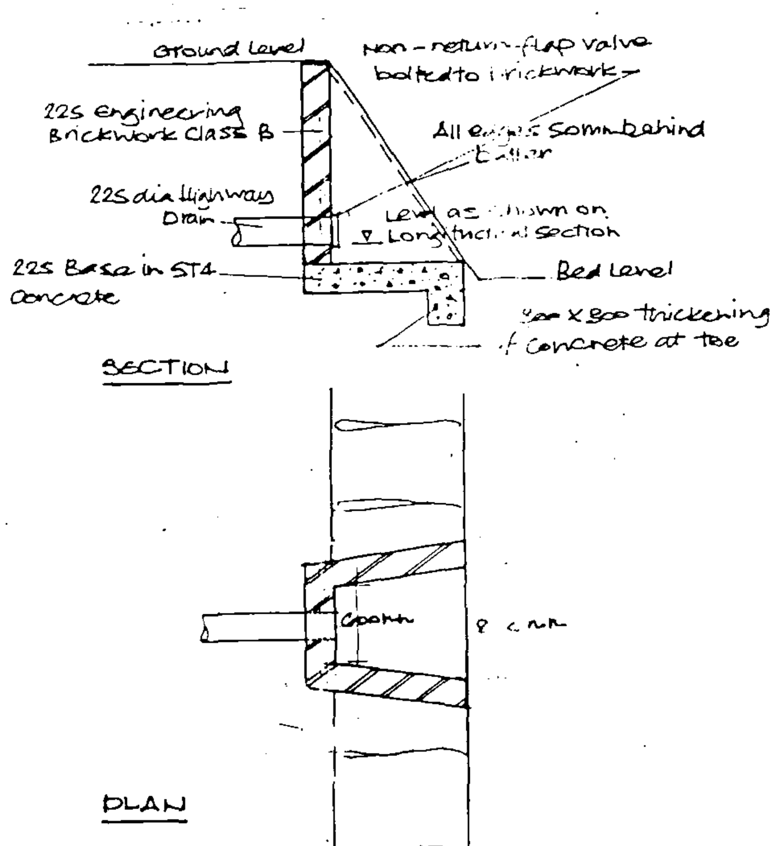
NOT TO SCALE

NOTES:

1) Cover and frame uncoated iron to Clause 5.9.4.
2) Mortar bed & benching to Clause 15.
3) Bricks to be Class B engineering bricks to BS 3921 (single course where necessary to obtain satisfactory fall). Corbelled if required. Frames to be bricked on four sides.
4) Insitu ST3 concrete
5) Position of out let pipe varies in plan
6) Insitu ST3 concrete 150mm thick surround to outlet pipe for first one metre under verge or total length if under carriageway.
7) Where grating is to be trafficked or laid against within 24 hours of frame being placed in position, then a suitable Ultra rapid hardening mortar and concrete (Monoset 241 or similar) shall be used to bed cover and frame.

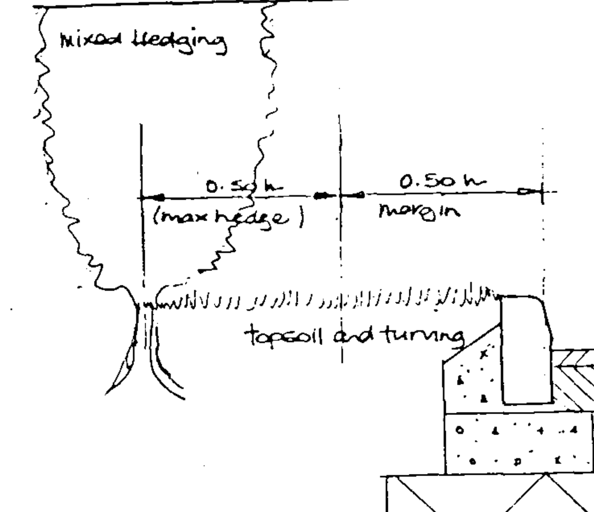
2.4 CHANNEL BLOCK AND KERB DETAIL



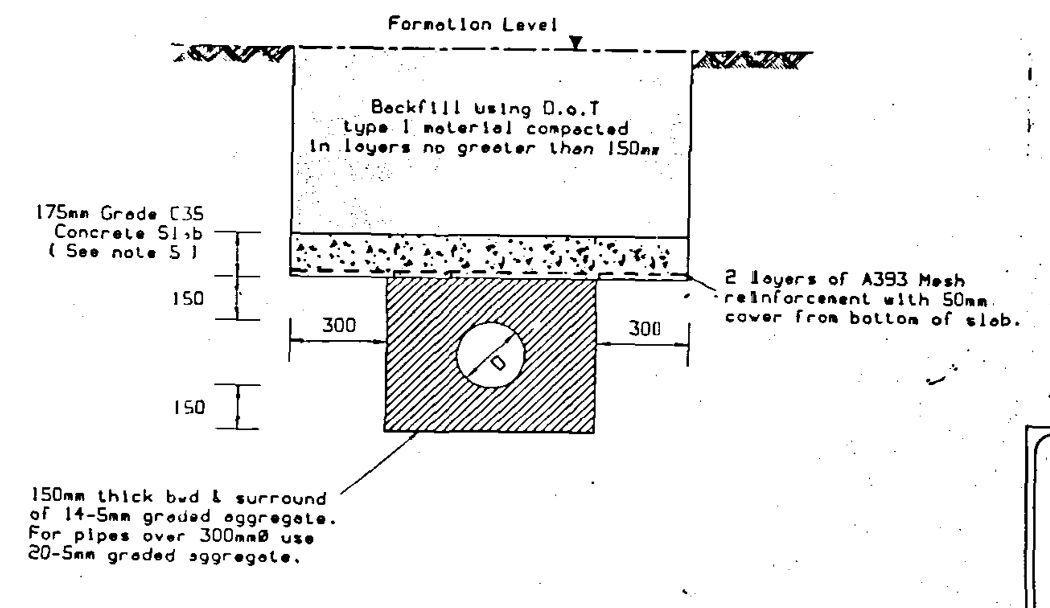


OUTFALL BAY DETAIL FOR DRAINAGE BOARD WATERCOURSE (1:50)

0.50 METRES SERVICE MARGIN DETAIL



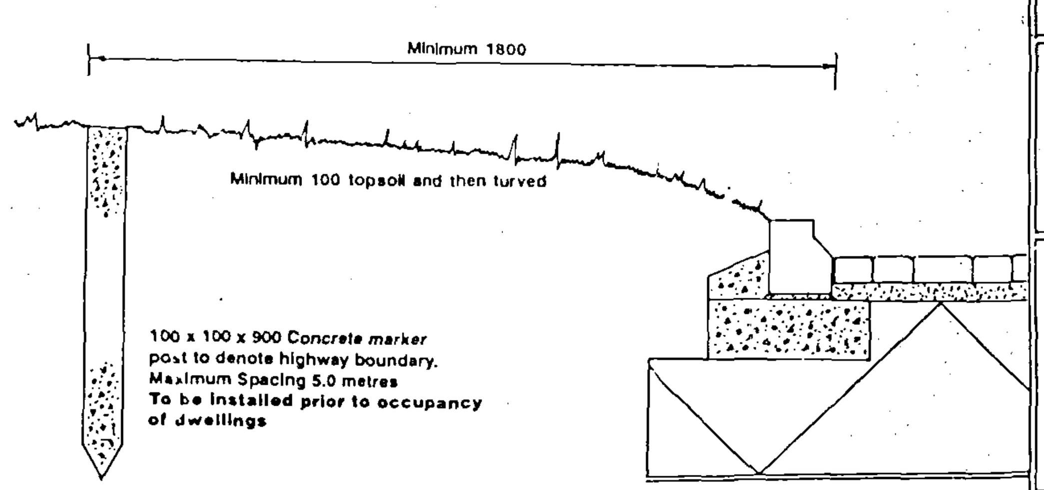
NOTE:-
Where sewers have less than 1.2m of cover beneath Carriageway then sewers to be protected with reinforced concrete slabs.



CONCRETE BED & SURROUND

(FOUL DRAINAGE)

2.5 SERVICE MARGIN DETAIL



WITHAM VALLEY CIVIL ENGINEERING LTD.

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TEL 01205 311021
FAX 01205 359376

Project	
Drawing Type	ENGINEERING DETAILS.
Client	DETERMINED PLAN
Drawing No.	E99/ENG.DET./1
Scale	NOT TO SCALE.
Drawn By	
Rev	