

Pipe Diameter (mm)	Rocker Pipe Length (mm)
150 - 600	600
601 - 750	1000
> 750	1250

MH Location	Cover Grade	Test Load
Non-trafficked/ Pedestrian areas	A15	15
Private drives	B125	125
Parking courts	C250	250
Carriageway	D400	400
Airfields/Dockyards	E600	600
Airfields/Dockyards	F900	900

NRSA Road Category	Description	Minimum Frame Depth (mm)
I	Trunk roads and dual carriageways	150
II	All other 'A' roads	150
III	Bus Services	150
IV	All other roads except residential cut-de-sacs	150
	Residential cut-de-sacs	100

1. Steps for manholes and other chambers shall be Type D Class 1, complying with the requirements of BS EN 13010: 2002.
2. Precast concrete manhole pattern step irons at 300mm centres vertically and staggered 300mm horizontally between centres.
3. Unprotected aluminium steps should not be permitted for adoptable applications.
4. Plastic encapsulated steps are subject to undertaker's requirements/approval.

1. Mild steel ladders for vertical fixing shall comply with the relevant provision of BS 4211, class A and PD 970.
2. After fabrication, mild steel ladders shall not be dip galvanized in accordance with BS EN ISO 1461:2009.
3. Stainless steel ladders for vertical fixing shall be fabricated from Grade 316S31 steel complying with BS 970, Part 1 and BS EN 10334, 10605, 10607, 10695, 10250, 10229, 10648, 10651, 10254, 10259.
4. GRP ladders shall be manufactured to the relevant requirements of BS EN 131, and from glass-reinforced polyester using an appropriate resin for the ladder location. Unidirectional reinforcement shall be provided in the GRP matrix to maximise the strength of the product.

1. High-strength concrete topping shall be produced, laid and finished in accordance with the relevant provisions of BS 8204: Part 2 and the following approximate proportions by weight shall be used: 1 part cement, 1 part natural sand and 2 parts single sized coarse aggregate.

1. Where inspection chamber is located in areas of block paving it shall be fitted with a recessed cover to accommodate paving blocks.

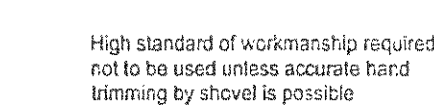
1. Manhole cover and frames shall comply with the relevant provisions of BS EN 124, BS 7903 and Highway Agency Guidance Document HA 104/02. They shall be of a non-rocking design which does not rely on the use of cushion inserts.
2. All manhole covers shall be the non-ventilating type and shall have closed keyways.
3. Refer to TABLE (iv) for frame depths.
4. Refer to Manhole Schedule/Drainage Drawing for cover grades.

Pipe Depth	Catchpit Dia.
<1000mm	900Ø
1000-1350mm	1050Ø
1350-2700mm	1200Ø

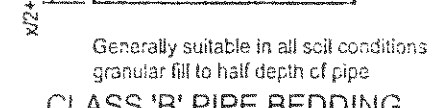
1. Products shall comply with the relevant provisions of BS 5911: Part 2, 200 & 230.



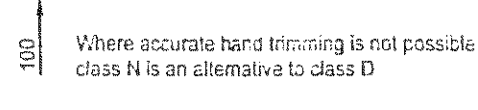
Depth to invert 1.25m (standard unit)
Silt Traps installed greater than single unit depth to be extended using Wavin
inspection chamber shaft units.



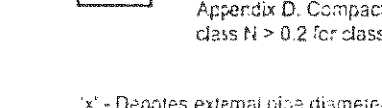
CLASS 'D' PIPE BEDDING



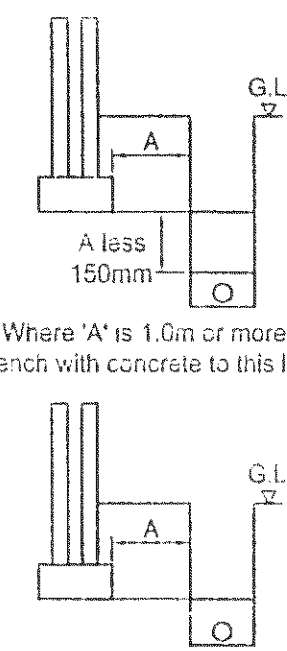
CLASS B TYPE BEDDING



CLASS 'N' PIPE BEDDING

 $D = \text{benzene external pipe diameter}$

LIMITS OF COVER FOR STANDARD STRENGTH RIGID PIPE IN ANY WIDTH OF TRENCH							
		Fields and gardens		Light traffic roads		Heavy traffic roads	
PIPE BORE BEDDING CLASS		MIN	MAX	MIN	MAX	MIN	MAX
100mm	D or N F B	0.4	4.2	0.7	4.1	0.7	3.7
		0.3	5.8	0.5	5.8	0.5	5.5
		0.3	7.4	0.4	7.4	0.4	7.2
150mm	D or N F B	0.6	2.7	1.1	2.5	—	—
		0.6	3.9	0.7	3.8	0.7	5.3
		0.6	5.0	0.6	5.0	0.6	4.6
225mm	D or N F B	—	—	—	—	—	—
		0.6	2.5	1.2	2.1	—	—
		0.6	3.3	0.8	3.2	0.9	2.4



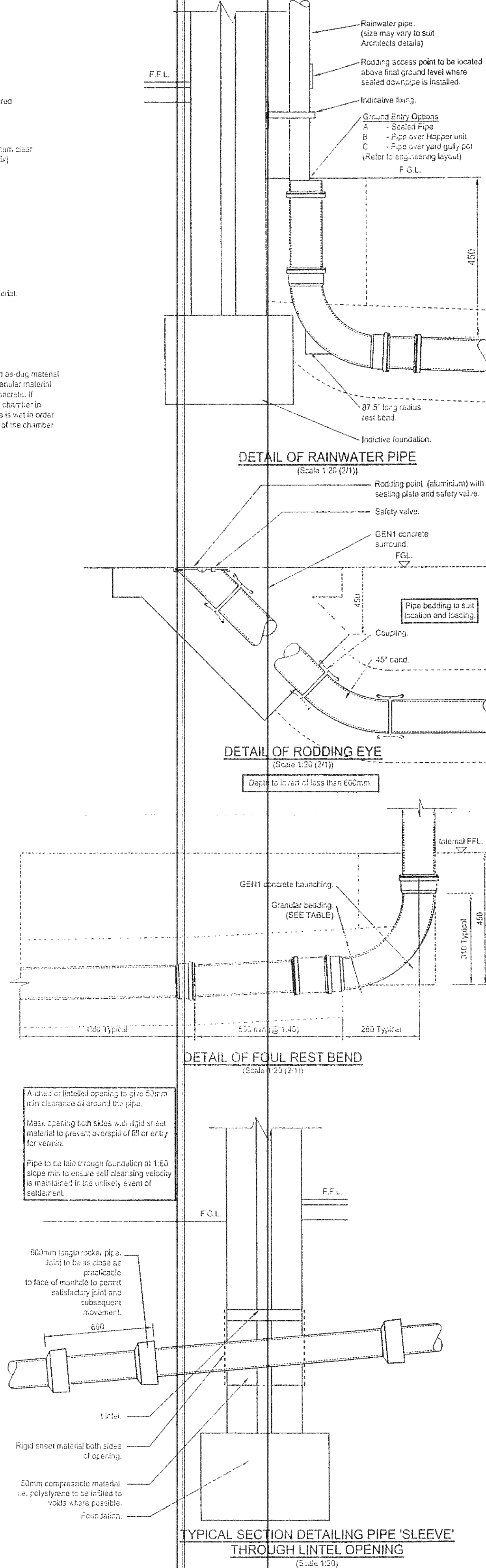
Where 'A' is 1.0m or more fill trench with concrete to this level.

Where 'A' is less than 1.0m fill trench with concrete to this level

(Not to Scale)

Minimum Dimensions for Access Fittings and Chambers					
Type	Internal Sizes			Cover Sizes	
	Depth to invert (m)	Length x Width (mm)	Circular (mm)	Length x Width (mm)	Circular (mm)
Rodding Eye	As Drain but Minimum 10Cmm				
Shallow Access					
Small	0.6 or less	150x100	150	150x100	150
Large	-	225x100	-	225x100	-
Inspection Chamber	0.6 or less	-	190	-	190
	1.0 or less	450x450	450	450x450	450
Manhole	1.5 or less	1200x750	1050	600x600	600
	Over 1.5	1200x750	1200	600x600	600
Manhole Shaft	Over 2.7	900x840	900	600x600	600

This plan complies with the Building Regulations 2002 Section 'H' - Drainage & Waste Disposal.



TYPICAL SECTION DETAILING PIPE 'SLEEVE
THROUGH LINTEL OPENING
(Scale 1:20)

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER LISTED DRAWINGS, AND WITH ALL RELEVANT ARCHITECT'S AND ENGINEER'S DRAWINGS AND SPECIFICATION.
2. NO DIMENSIONS ARE TO BE SCALED FROM THIS DRAWING, UNLESS NOTED OTHERWISE ALL DIMENSIONS ARE IN MILLIMETERS AND ALL LEVELS ARE IN METRES FROM THE SITE DATUM.
3. ALL DIMENSIONS TO BE CHECKED ON SITE. ALL DETAILS AND DIMENSIONS RELATING TO SUB-CONTRACTORS WORK MUST BE CHECKED AND AGREED BETWEEN THE SUB-CONTRACTOR OR SUPPLIER AND THE GENERAL CONTRACTOR.
4. THE ELECTRONIC INFORMATION FROM THIS DRAWING CAN NOT BE GUARANTEED AS DIMENSIONALLY DRAWN EXACT. FIGURED DIMENSIONS MUST BE USED FOR SETTING OUT AND DETAILING. *
5. THE MAIN CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF ALL TEMPORARY WORKS, AND IS ALSO RESPONSIBLE FOR THE SAFE MAINTENANCE AND STABILITY OF EXISTING BUILDINGS AT ALL TIMES.
6. THE MAIN CONTRACTOR IS RESPONSIBLE FOR SAVING WITH ALL OCCURRENCES OF CIRCUIT WATER DURING THE CONSTRUCTION PERIOD.
7. THE CONTRACTOR MUST COMPLY WITH ALL CURRENT LEGISLATION RELATING TO HEALTH & SAFETY.

1. ALL WORKS TO BE CONSTRUCTED IN STRICT ACCORDANCE WITH SPECIFICATION OF THE LOCAL AUTHORITY, BS5890:1985 & BSEN 752-1.
2. ALL PIPE RIGS NEAR BUILDINGS TO COMPLY WITH THE BUILDING REGULATIONS 2002 PART III, WHERE A PIPE IS WITHIN 0.1M OF THE FOUNDATION THE TRENCH SHALL BE FILLED WITH CLASS G/5 CONCRETE UP TO THE LOWEST LEVEL OF THE FOUNDATION. WHERE THE TRENCH IS FURTHER FROM THE FOUNDATION, THE TRENCH SHALL BE FILLED WITH CLASS G/5 CONCRETE TO A LEVEL BELOW THE LOWEST LEVEL OF THE FOUNDATION, TO THE DISTANCE FROM THE FOUNDATION LESS THAN 150MM IN BOTH CASES THE LEVEL SHALL BE BECESD AND SURROUNDED IN 150MM THICK CLASS G/5 CONCRETE.
3. WHERE PIPES, EXTERNAL TO THE STRUCTURES HAVE A DEPTH TO SLOTT FROM GRADE LEVEL OF LESS THAN 450MM THEY SHALL HAVE A CLASS G/5 CONCRETE ENCASEMENT 150MM THICK.
4. IN ANY CIRCUMSTANCES WHERE PIPES ARE BECESD AND SURROUNDED IN CONCRETE FLEXIBLE JOINTS SHOULD BE PROVIDED. COMPRESSIBLE BOARD (FIBREBOARD OR POLYSTYRENE) SHALL BE PROVIDED AT A MAXIMUM OF 60mm CENTRES (CONCORDING WITH PIPE JOINTS). THE JOINTS SHALL BE FILL TO FILL FLEX ELEMENTS AND BECESD AND SURROUNDED TO THE CONCRETE JOINTS. A BOARD THICKNESS OF 10mm FOR PIPES 3 TO 450MM NOMINAL DIAMETER AND 16mm FOR PIPES OVER 450MM NOMINAL DIAMETER.
5. ALL PRIVATE BUILDING DRAINAGE SHALL BE CONSTRUCTED IN STRICT ACCORDANCE WITH BSEN 752-1 UNLESS OTHERWISE SPECIFIED BUILDING DRAINAGE SHALL BE 100MM DRAINAGE AND SHALL BE LAID AT A MINIMUM GRADIENT OF $(\text{KILLOMETRE} \div \text{L} \div 100) \div 100$ IN 1 IN 100 FOR FIRM. APPROPRIATE JOINTS FOR EACH SIZE OF PIPE AND JOINT TO THE CONCRETE JOINTS. ALL BUILDING DRAINS SHALL BE LAID IN CONJUNCTION WITH NON ADHESIVE BONDING (CLASS D, N OR H) UNLESS OTHERWISE SPECIFIED.
6. ALL PIPES, BENDS AND JUNCTION MATERIALS SHALL BE VERIFIED QUAL, EXTRA STRENGTH OR SUPER STRENGTH TO BS6593:09M, WITH FLEXIBLE JOINTS AND KITCHEN CATCHMENT. ALTERNATIVELY ALL PIPES AND FITTINGS CAN BE UPVC CONFORMING TO BS6593:09M AND DESIGNSHIELD 100. APPROPRIATE AND SHALL BE LAID IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATION. UPVC PIPES ARE TO BE USED FROM THE MANUFACTURER SHALL BE APPROVED BY THE ENGINEER FOR TO CONSTRUCTION.

7. ALL CONNECTIONS TO BE SUFFIT TO SUFFIT.
8. TRENCH-TEMPORARY FORMWORK IS REQUIRED TO ALL EXCAVATIONS EXCEEDING 1.2M DEPTH TO PROVIDE ADEQUATE SUPPORT AND STABILITY AT ALL TIMES.
9. SEWERS EXCEEDING 1.2M DEPTH TO BE CONSTRUCTED IN SINGLE SECTIONS BETWEEN MANHOLES ONLY. TRENCHES TO BE BACKFILLED PRIOR TO EXCAVATING THE SUCCEEDING SEWER RUN.
10. ALL CONCRETE AND CONCRETE PRODUCTS TO BE IN ACCORDANCE WITH BRE 365 FOR SULPHATES.
11. WHERE SEWER OR TRAYS ARE TO BE ASSIGNED THEY SHALL BE REMOVED OR INFILLED BY GROUTING IN ACCORDANCE WITH THE CIVIL ENGINEER SPECIFICATION FOR THE WATER INDUSTRY 6TH EDITION, CLAUSE 5.23.
12. ALL SOAKAWAY AND/OR INFILTRATION FITS TO SATISFY BUILT-IN CONTROL OFFICER/ENVIRONMENT AGENCY.
13. ALL MATERIALS TO BE AGREED WITH THE LOCAL AUTHORITY PRIOR TO THE COMMENCEMENT OF WORKS.
14. MANHOLE COVERS AND FRAMES SITUATED IN THE CARRIAGEWAY AND VEHICULAR ACCESS SHALL BE CLASS D400 COVER AND FRAME 675x475mm CLEAR OPENING IN ACCORDANCE WITH EN 124.
15. MANHOLE COVERS AND FRAMES SITUATED IN AREAS OTHER THAN THE CARRIAGEWAY AND VEHICULAR ACCESS SHALL BE TO EN 125 CLASS B125 COVER AND FRAME 675x475mm CLEAR OPENING.

REFER TO DRAWING 01 FOR ENGINEERING LAYOUT

AL/ 42/12/doc.