



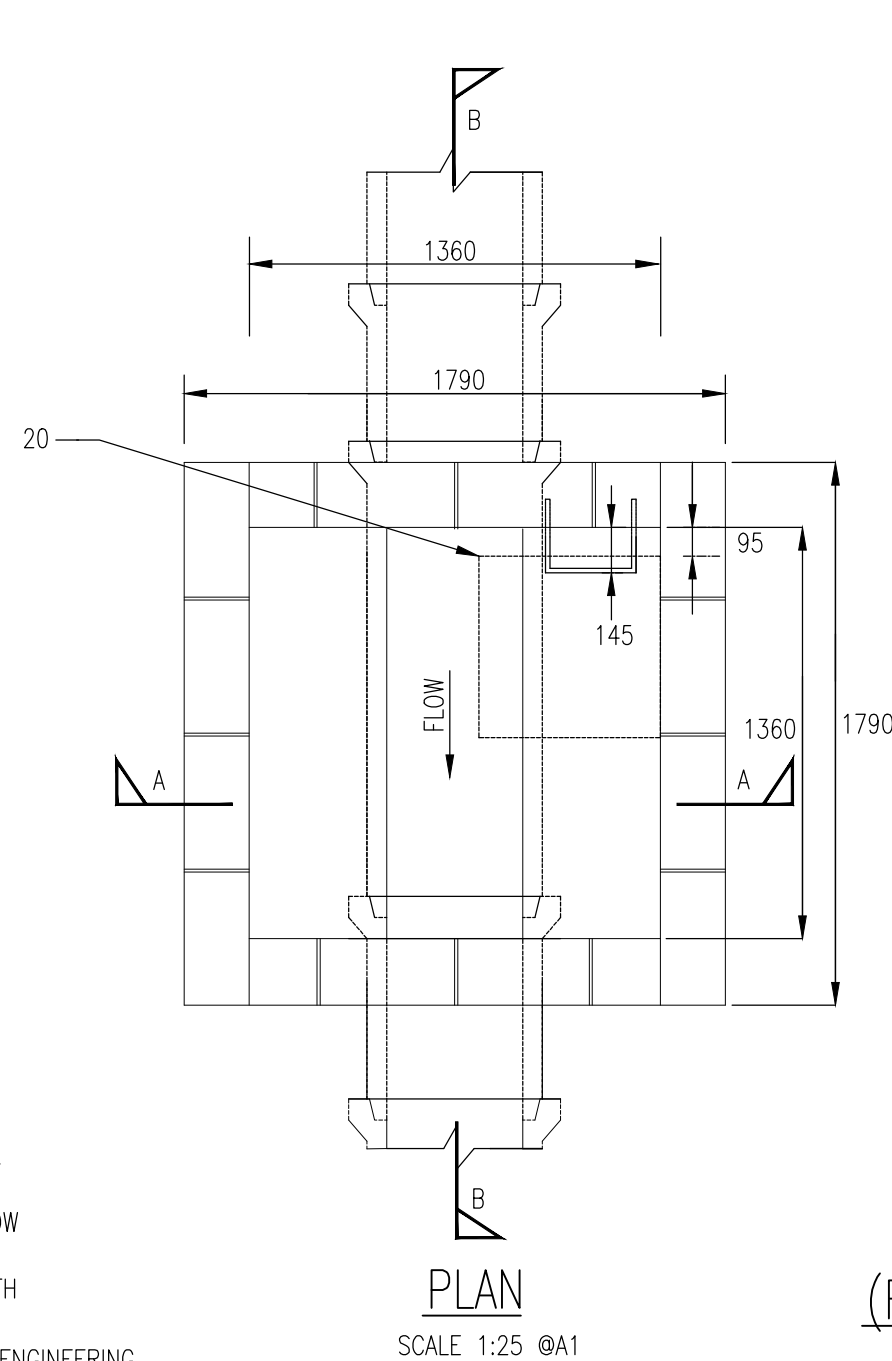
INLET DIA. (mm)	DROP DIA. (mm)
225	300
300	375
375	375
450	450
525	450
600	450
750	600
900	600

490 x 335 MIN. CLEAR OPENING FLAT TOP C.I.
GRATING TO
I.S./EN 124:2015 CLASS D400 SET 5mm BELOW
FINISHED
CHANNEL LEVEL AND BEDDED / HAUNCHED WITH
CEMENT MORTAR.

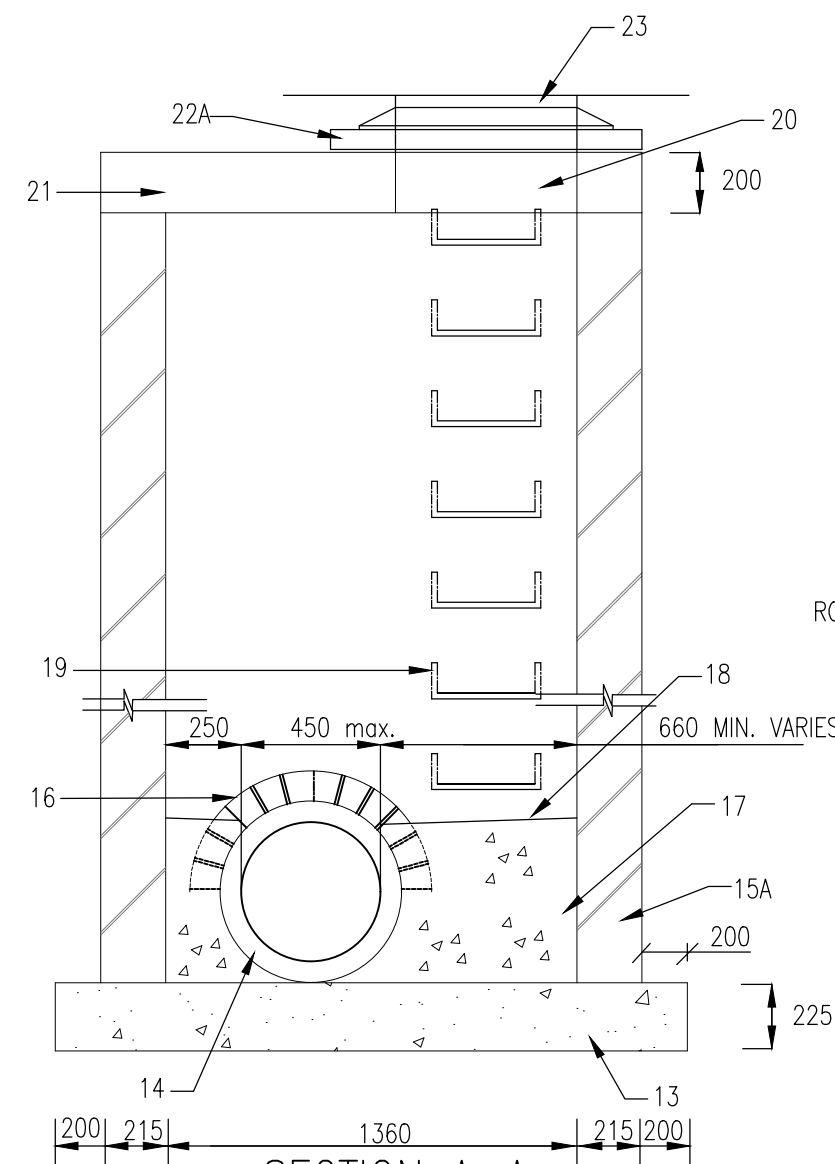


NORMAL INTERNAL DIAMETER	MINIMUM TRENCH WIDTH mm	MAXIMUM TRENCH WIDTH mm
100	450	650
150	500	700
225	600	800
300	700	900
375	950	1150
450	1050	1250
525	1150	1350
600	1250	1450
675	1350	1550
750	1400	1600
825	1500	1700
900	1950	2150
1050	2100	2300
1200	2300	2500
ABOVE 1200	PIPE DIAMETER PLUS 800mm	OUTSIDE DIAMETER PLUS 1000mm

MAXIMUM AND MINIMUM TRENCH WIDTHS

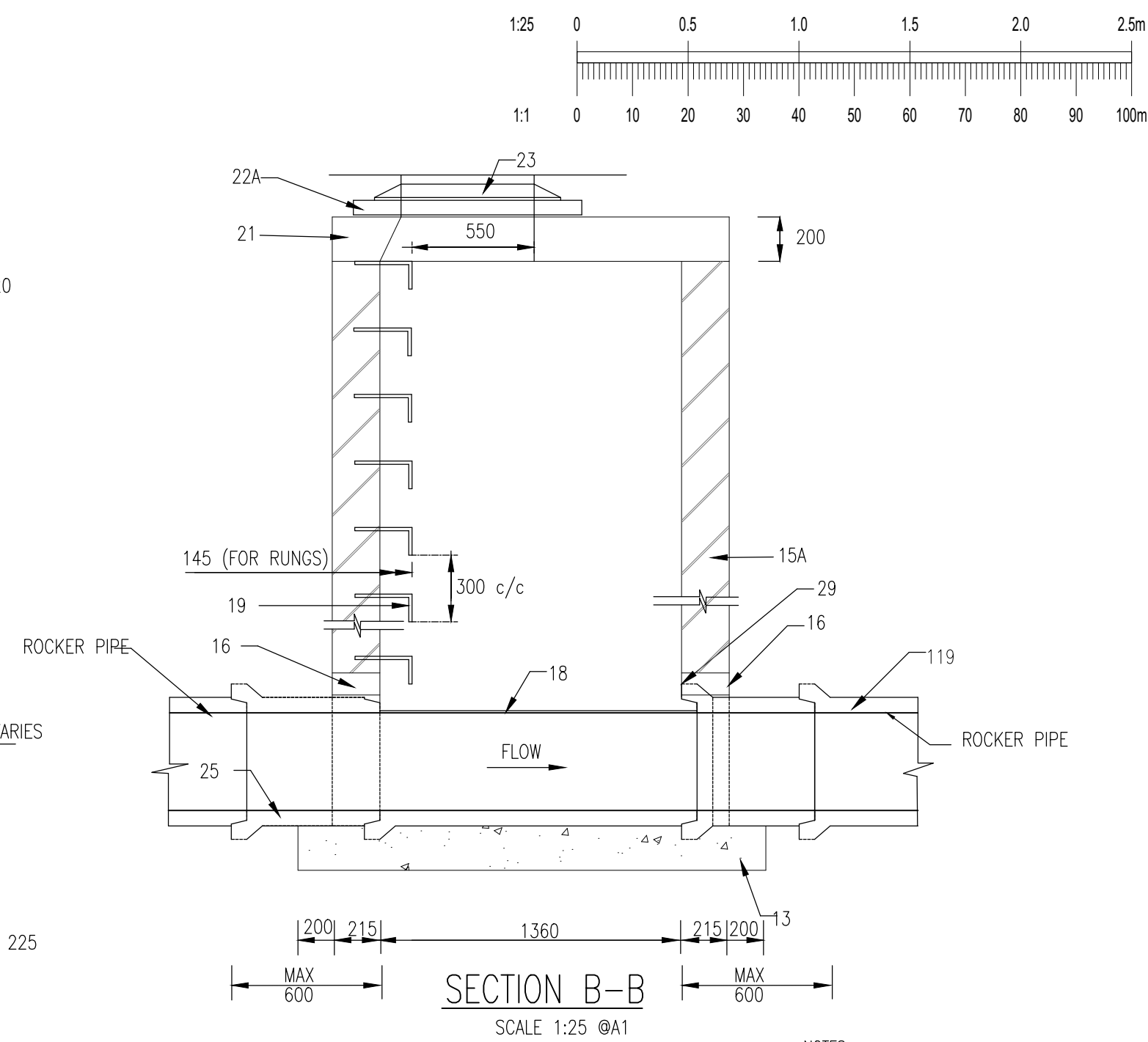


TYPICAL MANHOLE DETAIL 'TYPE B'
(FOR MANHOLES WHERE DEPTH TO INVERT IS 1m TO 3m)
(SURFACE WATER, MAX. PIPE SIZE 450Ø)



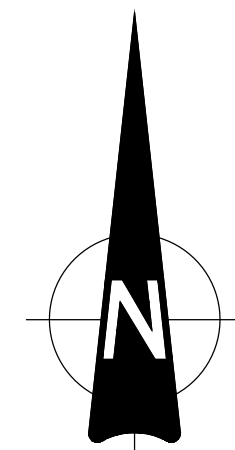
SECTION A-A

MANHOLE BISCUIT TO CONSIST OF
T16 RE-BAR AT 150mm C/C'S IN BOTH
DIRECTIONS ADDITIONAL BARS TO BE
PROVIDED ADJACENT OPE.



NOTES:

2. DO NOT SCALE. USE FIGURED DIMENSIONS ONLY.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECTURAL AND ENGINEERING DRAWINGS.
4. MORTAR SHALL BE CONSTRUCTED TO MEET STRICTLY IN ACCORDANCE WITH THE REQUIREMENTS OF DUBLIN CITY COUNCIL AND TO THE GUIDANCE SET OUT IN THE GREATER DUBLIN REGIONAL CODE OF PRACTISE FOR DRAINAGE WORKS
4. TYPE A GRANULAR FILL SHALL CONSIST OF WASHED PEA GRAVEL. ALL MATERIAL SHALL PASS A 19MM B.S. TEST SIEVE AND SHALL BE REPLACED BY A 4.75MM B.S. TEST SIEVE.
5. JOINTS SHALL BE FLUSH WITH SURFACE. FREE STONES GREATER THAN 25MM IN SIZE, BUILDERS RUBBER, VEGETABLE MATTER AND LUMPS OF CLAY GREATER THAN 75MM IN SIZE AND SHALL BE COMPACTED IN 150MM LAYERS.
6. WHERE SUITABLE PREVIOUSLY EXCAVATED MATERIAL IS USED FOR BACKFILLING, THIS MATERIAL SHALL BE COMPACTED IN 300MM LAYERS.
7. CONCRETE BED AND SURROUND SHALL BE USED ON ALL PIPES WHERE COVER TO THE TOP OF THE PIPE IS LESS THAN 1.2M IN ROADS, FOOTPATHS AND GRASS MARGINS AND 0.9M IN OPEN SPACES AND FIELDS.
8. ALL CONCRETE FOR PIPE BEDDING, HAUNCHING AND SURROUNDS SHALL BE GRADE C16/20 UNLESS OTHERWISE STATED.
9. ALL PIPE TRENCHES / EXCAVATIONS SHALL BE BACKFILLED AND COMPACTED STRICTLY IN ACCORDANCE WITH REQUIREMENTS CLASS 800. B.M. SPECIFICATION FOR ROAD WORKS.
10. ALL JOINTS SHALL BE REINFORCED WITH EITHER P.W.C. CONCRETE OR VIRIFIED CLAY IN ACCORDANCE WITH CURRENT IRISH STANDARDS.
11. PRIVATE DRAINS SHALL BE DISCONNECTED FROM PUBLIC SEWERS BY THE INSTALLATION OF AN INTERCEPTING TRAP.
12. 225MM THICK CL. 20/25 MASS CONCRETE FOUNDATIONS.
13. PREFORMED HALF CIRCLE CHANNEL PIPES. THE PIPELINE MAY WHERE PRACTICABLE, BE LAID THROUGH THE MANHOLE AND THE CROWN BROKEN OUT TO HALF DIAMETER, PROVIDED FLEXIBLE JOINTS ARE SITUATED ON EACH SIDE NO FURTHER THAN 800MM. FROM THE INNER FACE OF MANHOLE WALL.
14. FOR SURFACE WATER MANHOLLS HIGH DENSITY BLOCKS TO CL 510 OF IS-20 PART 1: 1984 OR CL 30/20 INSTU CONCRETE BLOCKWORK SHALL BE BEDDED AND JOINTED USING 150MM THICK CL. 20/25 CEMENT MORTAR TO IS-406. BEDS AND VERTICAL JOINTS SHALL BE COMPLETELY FILLED WITH MORTAR AS THE BLOCKS ARE LAID. BEDS AND VERTICAL JOINTS SHALL BE COMPLETELY FILLED WITH MORTAR AS THE BLOCKS ARE LAID. JOINTS SHALL BE FLUSH POSITIONED AS THE WORK PROCEEDS. 148MM FOR MANHOLES > THAN 3m DEPTH TO INVERT USING 30N/20 IN-SITU CONCRETE. REINFORCING MESH RE- A939 @ 6.16kg/m² TO BE FIXED AT 150MM TO THE ADJACENT WALLS. JOINTS TO BE SURFACED OVER PIPE CROWN.
15. BELIEVING ARCH 113MM THICK FOR PIPE 225MM, DIAM. OR LARGER. ALTERNATIVELY A REINFORCED CONCRETE UNTIL MAY BE USED. WORK SIZE OF BRICKS 215 X 103 X 65MM. RELEVING ARCHES USED IN BRICK OR BLOCKWORK MANHOLES
16. BENCHING AND PIPE CHANNEL PIPE SURROUND - C20/25 CONCRETE.
17. BENCHING FINISHED TO 300MM CEMENT MORTAR TO BE SUPPLIED OVER PIPE CROWN. LEVEL WITH PIPE SUFFIT AT 1/3 IN 30 SLOPE TOWARDS CHANNEL.
18. GALVANISED RINGS AT 225MM CL. VERTICALLY EMBEDDED TO A DEPTH OF 125mm INTO MANHOLE WALLS. OVER BENCHING AS DIRECTED BY DRAINAGE ENGINEER
19. OPE. IN ROOF SLAB POSITIONED SO THAT THE EDGE OF OPENING IN THE FRAME IS EVENED ABOVE THE FRONT EDGE OF ROOFS OR LAIDERS.
20. 100TH. INSTU R.C. ROOF SLAB IN CL.30/20 CONCRETE. COVER TO STEEL SHALL BE 40MM.
- 21A. 1 TO 2 NO. ENGINEERING BRICKS CL B TO I.S. 91: 1983 SET IN 1:3 (CEMENT SAND MORTAR). 21B. AN ACCESS SHALT 225mm THICK SHALL BE BUILT IN SOLD CONCRETE BLOCKS A OR B OR IN SOLID CONCRETE BLOCKS DESIGNATION S10, STRENGTH 10N/mm² TO SEAT THE MANHOLE COVER AND FRAME. THE MINIMUM DEPTH OF SHALT SHALL BE 450mm.
22. 150MM THICK MANHOLE COVER AND FRAME TO IS.1524: 1994 CLASS D400 NO.2 1988 SET IN 150MM THICK CEMENT MORTAR BED AND FRAMES HAUNCH OVER SIDES WITH CEMENT MORTAR. MANHOLE COVERS SHALL HAVE A CLEAR OPE. OF 600MM. DIAM. FOR SEWERS LESS THAN 1M. DIAM. MANHOLE COVERS ON SEWERS 1M. DIAM. OR GREATER SHALL HAVE A 600 X 600 CLEAR OPE. MANHOLE COVERS SHALL BE AT LEAST 100MM DEEP.
23. 150MM THICK MANHOLE COVERS SHALL BE SET IN 150MM THICK COVER AND FRAME FITTED AT GROUND LEVEL TO THE INLET PIPE ON THE BACKDROP.
24. SHORT LENGTH PIPE, PIPE JOINT EXTERNAL TO MANHOLE SHALL NOT EXCEED 600mm FROM THE INNER FACE OF THE MANHOLE WALL. SHORT LENGTH PIPES SURROUNDED IN 150mm THICK CL. 22.5/20 CONCRETE.
25. 150MM THICK MANHOLE COVERS TO INVERT IS GREATER THAN 3.0M. LADDERS SHALL BE USED INSTEAD OF RINGS. THEY SHOULD BE LOW CARBON STEEL AND HOT DIPPED AFTER FABRICATION.
26. LADDER STRINGERS SHOULD BE ADEQUATELY SUPPORTED FROM THE MANHOLE WALL AT INTERVALS OF NOT MORE THAN 3.0M. STRINGERS SHOULD BE BOLTED TO CLEATS TO FACILITATE REMOVAL.
27. ALL LADDERS, RINGS, HANDRAILS, SAFETY CHAINS ETC. SHALL BE HOT DIP GALVANISED TO B.S.729.
28. SOCKET OF PIPE MAY BE INSIDE MANHOLE FOR CONVENIENCE OF BRICK ARCH OVER PIPE.
29. ALL MANHOLES SHALL BE WATERIGHT TO THE SATISFACTION OF THE ENGINEER.
30. FORMWORK TO REINFORCED CONCRETE AND MASS CONCRETE SHALL BE CLASS F2.
31. CLASS U2 FINISH TO THE TOP OF SLABS.
32. PLAN DIMENSIONS OF MANHOLES ARE BASED ON BLOCKWORK HAVING A CO-ORDINATING SIZE OF 450 X 225 X 100.
33. MANHOLES ARE DESIGNED TO BE 8.5 TO 8.85MM AND WALL THICKNESSES TO 1.5325 TAKING GRANULAR P.W. PRESSURE AND H.B. SURCHARGE.
34. REINFORCEMENT TO SLABS TO ENGINEERS DETAILS.
35. CHAMBER SHALL BE FACED INTERNALLY WITH SOLID ENGINEERING BRICKS CLASS A OR B COMPLYING IS 91:1983 TIED INTO BACKDROP FOR A HEIGHT OF 1m OVER BENCHING. JOINTS SHALL BE FLUSH WITH SURFACE AND TO BE SET IN 150MM THICK MORTAR.
36. VERTICAL JOINTS SHALL BE COMPLETELY FILLED WITH MORTAR AS THE BLOCKS ARE LAID IN PLACE. MAX WALL THICKNESS TO BE 225mm.
37. TOP HOLES OF 230MM MINIMUM DEPTH AND GALVANIZE STEEL SAFETY RAILINGS TO BE PROVIDED IN BENCHING AT SEWERS GREATER THAN 525mm DIAM. AND DEPTH TO INVERT >3m.
38. ACCESS TO INVERT.
39. A SADDLE TO INVERT IS TO BE PROVIDED ON PIPES THAT EXCEEDS 450mm DIA. MILD STEEL CHAIN SHALL BE 10mm NOMINAL SIZE GRADE M (H) NON-GALVANIZED CHAIN, TYPE 1, COMPLYING WITH BS 4942 PART 2 OR EQUIVALENT.



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