



**MINIMUM MANHOLE DIAMETERS**

DIAMETER OF LARGEST PIPE IN MANHOLE (mm)	INTERNAL DIAMETER OF MANHOLE (mm)
LESS THAN 375	1200
375 TO 450	1350
450 TO 500	1500

**MINIMUM MANHOLE DIMENSIONS "D"**

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1. ALL DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS NOTED OTHERWISE
2. THE MINIMUM DEPTH OF COVER FROM THE FINISHED SURFACE TO THE CROWN OF GRAVITY PIPES WITHOUT PROTECTIVE MATERIAL SHALL BE AS FOLLOWS:
  - A) DRIVEWAYS AND PATHWAYS WITHOUT ANY POSSIBILITY OF VEHICULAR ACCESS - DEPTH NOT LESS THAN 0.5 m. THIS WOULD NORMALLY RELATE TO DRIVEWAYS IN PRIVATE PROPERTIES. SHAFTS FOR PIPES OF THIS NATURE ARE UNDESIRABLE AND SHOULD BE INSTALLED IN ACCORDANCE WITH THE CURRENT BUILDING REGULATIONS.
  - B) DRIVEWAYS, PARKING AREAS AND YARDS WITH HEIGHT RESTRICTIONS TO PREVENT ENTRY BY VEHICLES WITH A GROSS VEHICLE WEIGHT IN EXCESS OF 7.5 TONNES - DEPTH NOT LESS THAN 0.5 m.
  - C) DRIVEWAYS, PARKING AREAS AND NARROW STREETS WITHOUT FOOTWAYS (E.G. CURBS) WITHOUT LIMITED ACCESS FOR VEHICLES WITH A GROSS VEHICLE WEIGHT IN EXCESS OF 7.5 TONNES - DEPTH NOT LESS THAN 0.5 m.
  - D) DEPTHS OF SEWERS IN GATED ESTATES SHALL BE SIMILAR TO THAT OUTLINED ABOVE.
  - E) AGRICULTURAL LAND AND PUBLIC OPEN SPACE - DEPTH NOT LESS THAN 0.5 m.
  - F) OTHER HIGHWAYS AND PARKING AREAS WITH UNRESTRICTED ACCESS TO VEHICLES WITH A GROSS VEHICLE WEIGHT IN EXCESS OF 7.5 TONNES - DEPTH NOT LESS THAN 1.2 m. IF THE MINIMUM COVERS LISTED ABOVE ARE NOT ACHIEVED THE EXCAVATION SHALL BE REINSTATED IN ACCORDANCE WITH CLAUSE 808 MATERIAL IN ACCORDANCE WITH THE TI SPECIFICATION FOR ROAD WORKS. IF TO BE USED AS BACKFILL MATERIAL, WHERE THE SEWER MAIN IS LOCATED IN ROAD, FOOTPATH OR WHEN THE NEAREST PART OF THE TRENCH IS WITHIN 1.0 m OF THE PAVED EDGE OF THE ROADWAY, CLAUSE 808 IS TO BE COMPLIED AS PER CLAUSE 802 OF THE TI SPECIFICATION FOR ROAD WORKS.
  - G) SUBJECT TO EXCAVATED MATERIAL, e.g. CLASS 2C MATERIAL, TO TABLE 6.1 OF TI SPECIFICATION FOR ROADWORKS MAY BE USED IN GREEN-FIELD AREAS ABOVE GRANULAR PIPE SURROUNDING MATERIAL SUBJECT TO THE APPROVAL OF THE EMPLOYER'S REPRESENTATIVE.
  - H) SINGLE SIZES AGGREGATE IS 10mm GRADED AGGREGATE OR 10mm SINGLE SIZES AGGREGATE IS 10mm GRADED AGGREGATE. HAUNCH & SURROUND WHERE REQUIRED (NOTE: CONCRETE BED AND HAUNCH REQUIRED IN AREAS TO BE TAKEN IN CHARGE BY DUBLIN CITY COUNCIL) SHALL BE TO DETAIL B1.
  - I) IN SOFT GROUND CONDITIONS (CBR < 5) THE MATERIAL SHOULD BE EXCAVATED AND DISPOSED OF IN ACCORDANCE WITH THE WASTE MANAGEMENT ACT AND CLAUSE 808 MATERIAL IN ACCORDANCE WITH THE TI SPECIFICATION FOR ROAD WORKS SHALL REPLACE THE EXCAVATED MATERIAL WRAPPED IN GEO-TEXTILE WRAPPING. ALTERNATIVELY, SPECIAL PIPE SUPPORT ARRANGEMENTS, INCLUDING PILING ETC. MAY BE REQUIRED WHERE THE DEPTH OF SOFT MATERIAL IS EXCESSIVE SUCH ARRANGEMENTS SHALL BE SUBJECT TO ASSESSMENT BY THE EMPLOYER'S REPRESENTATIVE, BEFORE ADVANCING WITH THE WORK.
  - J) IN GREEN-FIELD AREAS, TYPE B BACKFILL (SELECTED EXCAVATED MATERIAL) WILL BE ALLOWED ABOVE THE SIDE HAUNCH GRANULAR MATERIAL IN THE CASE OF RIGID PIPES. A GRANULAR SURROUND OF A MINIMUM DEPTH OF 150mm ABOVE THE CROWN OF THE PIPE IS REQUIRED FOR FLEXIBLE PIPES, AND TYPE B MATERIAL MAY BE USED AS BACKFILL ABOVE THIS. ALL RISING MAINS IN GREEN-FIELD AREAS SHALL HAVE A MINIMUM COVER OF 300mm ABOVE THE CROWN OF THE PIPE.
  - K) PIPES SHALL NOT BE LAIN ON STONES, ROCKS, OR ANY HARD OBJECTS AT ANY POINT ALONG THE TRENCH. ROCK SHALL BE EXCAVATED TO A DEPTH OF 150mm BELOW THE ACTUAL DEPTH OF THE TRENCH WITH THE VOID FILLED WITH CLASS 808 MATERIAL IN ACCORDANCE WITH THE TI SPECIFICATION FOR ROAD WORKS. THE GRANULAR MATERIAL SHALL BE LAID ABOVE THIS VOID BACKFILL MATERIAL. MATERIAL ABOVE THIS VOID SHOULD BE MARKER TAPE SHALL BE INSTALLED AT TOP OF PIPE TRENCH WIDTHS FOR PIPES - SIZES 80mm MAY BE < 400mm, SUBJECT TO CONSIDERATION BEING GIVEN TO THE TRENCH DEPTH, HEALTH & SAFETY & CONSTRUCTION ACCESS REQUIREMENTS.

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2. CONCRETE PIPE BEDS AND HAUNCHES MAY BE REQUIRED TO ADDRESS MINIMUM COVER SITUATIONS AND SHALL BE SUBJECT TO SUBMISSION AND ASSESSMENT BY THE EMPLOYER'S REPRESENTATIVE BEFORE ADVANCING WITH THE WORKS.
3. CONCRETE PIPE BEDS AND HAUNCHES SHALL HAVE A MINIMUM THICKNESS OF 150mm WITH AN ABSOLUTE MINIMUM DEPTH OF COVER ABOVE THE EXTERNAL CROWN OF THE PIPE OF 150mm.
4. CONCRETE TO BE IN ACCORDANCE WITH IS EN 206 AND TO BE CLASS C 16 / 20.
5. THE HAUNCHES AND SURROUNDS TO BE FORMED USING FORMWORK TO PROVIDE A ROUGH CAST FINISH.
6. EXPANSION JOINTS IN THE CONCRETE SHALL BE PROVIDED AT ALL PIPE JOINTS TO ALLOW FOR PIPE FLEXIBILITY. COMPRESSIBLE FILLER BOARD TO BE IN ACCORDANCE WITH BS EN 1221-1 AND BS EN 622-4 AND TO BE 10mm THICK.
7. POLYETHYLENE PIPES SHALL BE WRAPPED IN PLASTIC SHEETING HAVING A COMPOSITION IN ACCORDANCE WITH BS 6708 BEFORE BEING CAST INTO CONCRETE.
8. BUTYRUBINOUS MATERIAL SHALL NOT BE PUT IN CONTACT WITH PE OR PVC PIPES.

1. FORM SAW CUT 100mm DEEP AT A MIN. OF 100mm FROM SIDES OF EXCAVATION PRIOR TO PERMANENT REINSTATEMENT. WHERE ANY TRIM LINES ARE WITHIN 400mm OF ROAD EDGE, JOINT OR OTHER REINSTATEMENT, THE TRIM LINE SHOULD BE EXTENDED TO THE SURFACE OF SUCH SITUATIONS.
1. LEAN MIX SURFACE TO BE SPRAYED AS PER CLAUSE 800 (TI SPEC) PRIOR TO APPLICATION OF BINDER COURSE M/MCOAM.
- 100°C HOT BITUMEN BINDER 10 PEN OR COLD THIXOTROPIC BITUMEN 50 - 10 PEN TO BE APPLIED TO ALL VERTICAL CUTS IN ACCORDANCE WITH IS EN 13104-1 PRIOR TO APPLICATION OF BUTYRUBINOUS MATERIAL.
- JOINTS SEALED WITH HOT BITUMEN AND TOPPED WITH THE SAND (GRT) TO GET A MINIMUM SAND RESISTANCE VALUE AS DETERMINED BY THE PORTABLE SKID RESISTANCE PENETROMETER USED IN ACCORDANCE WITH ROADNOTE 21 AND SHALL NOT EXCEED 3mm THICKNESS AND 25mm WIDTH.
- SURFACE REINSTATEMENT: ASPHALT CONCRETE ROAD: 40mm MIN THICK OF 3A4 TO 40mm TO 100mm SURFACE COURSE TO IS EN 13108 AND 100mm MIN THICK OF AC 20 30mm 30 TO 100mm BINDER COURSE TO IS EN 13108 AND NS4+3020 ON BITUMEN SPRAY TO CL 100 OF TI SPECIFICATION FOR ROAD WORKS OR 225mm THICK LEAN MIX CONCRETE, SAW CUT AND REINSTATE TO 100mm FROM EDGE OF TRENCH EXCAVATION. JOINTS SEALED WITH HOT BITUMEN AS NOTE 4.

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- AN INSPECTION CHAMBER SHOULD BE LOCATED AT OR WITHIN 1m OF THE PROPERTY BOUNDARY AND AT THE UPSTREAM END OF EACH SEWER CONNECTION ON THE PRIVATE SIDE OF THE CURTAGE, IF PRACTICABLE.
- ANY PIPE AND ASSOCIATED ACCESS UPSTREAM OF THE POINT OF CONNECTION TO A PUBLIC SEWER OR PRIVATE DRAIN SHOULD BE CONSTRUCTED IN ACCORDANCE WITH THE BUILDING REGULATIONS.
- ACCESS POINTS SHOULD BE LOCATED SO THAT THEY ARE ACCESSIBLE AND APPROPRIATE TO THE MAINTENANCE AT ALL TIMES FOR USE. THEY SHOULD AVOID REAR GARDENS OR ENCLOSED LOCATIONS AND THEY SHOULD NEVER OVERLAP WITH SURFACE DRESSING, TORSLOP, ETC.
- COVERS AND FRAMES SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS SUBJECT TO APPROVAL FROM IRISH WATER.
- 200mm ALL AROUND, 100mm DEEP CONCRETE PLINTH WITH PROTECTIVE STAINLESS METAL BAND AROUND COVERS IN GREEN AREAS.
- PROPRIETARY PREFABRICATED CHAMBER UNITS MAY ALSO BE USED, SUBJECT TO APPROVAL FROM THE ENGINEER.
- CONCRETE CHAMBERS SHALL BE SURROUNDED BY A MINIMUM OF 150mm COMPACTED CLASS 808 MATERIAL.

1. ACCESS JUNCTIONS (AJ) TO BE USED FOR INVERT DEPTHS UP TO 0.6m
- INSPECTION CHAMBERS TO BE USED FOR INVERT DEPTH 0.6m TO 1.0m. INSPECTION CHAMBERS CAN BE CONSTRUCTED IN BLOCKWORK OR CAST IN-SITU CONCRETE. PROPRIETARY TYPE PRECAST OR SPEC-SUBJECT TO ENGINEERS APPROVAL
- FOR INVERT DEPTHS IN EXCESS OF 1.0m DEEP USE MANHOLE TYPE CONSTRUCTION

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- STRUCTURAL DESIGN AND REINFORCEMENT DETAILS TO BE PROVIDED BY THE DEVELOPER AND SUBMITTED TO THE EMPLOYER'S REPRESENTATIVE FOR REVIEW.
- MANHOLES GREATER THAN 3m IN DEPTH WILL REQUIRE A DETAILED STRUCTURAL DESIGN AND BE SUBJECT TO THE EMPLOYER'S REPRESENTATIVE APPROVAL.
- MANHOLE ROOFS SHOULD CONSIST OF REINFORCED CONCRETE SLAB OF IN-SITU CONCRETE C 30 / 37 WITH A MINIMUM THICKNESS OF 225mm OR BRICK ROOFS WITH BENCHING ETC. SUBJECT TO THE EMPLOYER'S REPRESENTATIVE APPROVAL. PRE-CAST CONCRETE ROOF SLABS MAY BE USED SUBJECT TO THE EMPLOYER'S REPRESENTATIVE APPROVAL AND COMPLIANCE WITH BS 5911 PART 4 - 2002.
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- ALL CHAMBERS TO BE IN CHECKED FOR PLIFT BY THE CONTRACTOR, BASED ON GROUND CONDITIONS WITHIN THE SITE. SHOULD ANTI FLOTATION MEASURES BE REQUIRED THEY SHALL BE SUBJECT TO APPROVAL FROM THE EMPLOYER'S REPRESENTATIVE.
- ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206: 2013.
- BRANCHES INTO MANHOLES: BENCHING TO BE SHAPED SO AS TO GUIDE THE FLOW IN THE DIRECTION OF THE MAIN LENGTH OF THE MANHOLE. TO 30mm PLUS THE SUM OF THE BRANCH DIAMETERS PLUS 200mm PER BRANCH FOR BRANCHES UP TO 100mm OR 300mm FOR BRANCHES GREATER THAN 100mm.
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