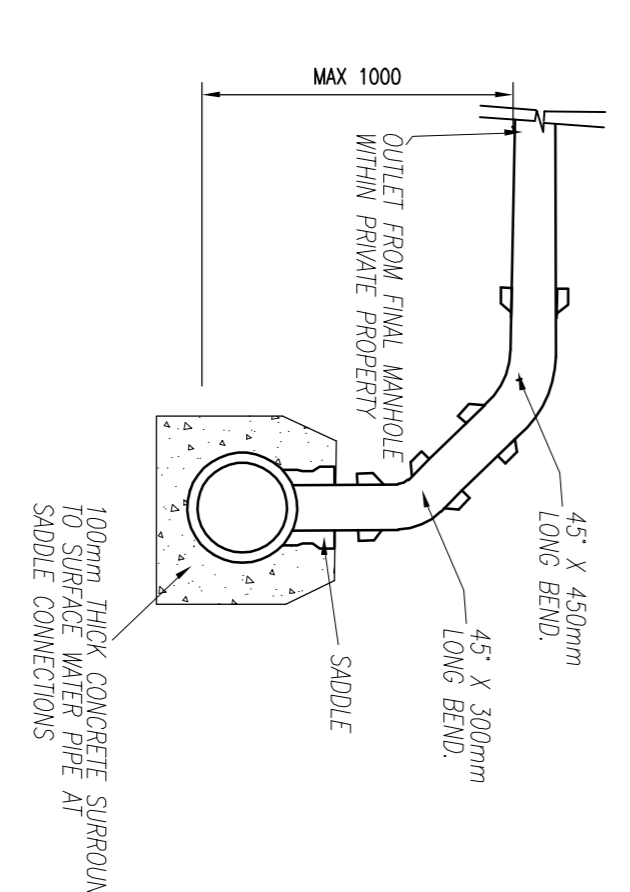


**TYPICAL MANHOLE DETAIL, TYPE A**  
(FOR LAST PRIVATE MANHOLES WHERE DEPTH TO INVERT IS 1m OR LESS)

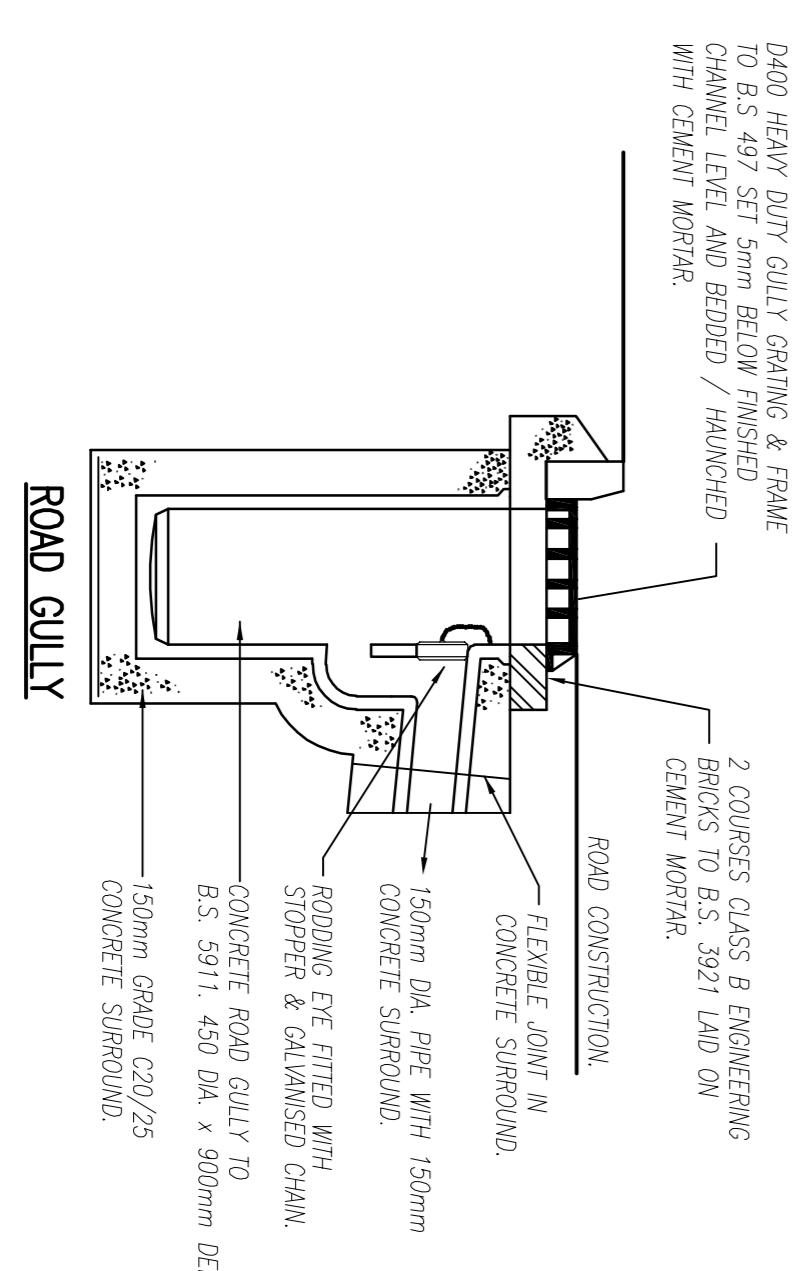
**TYPICAL MANHOLE DETAIL, TYPE B**  
(FOR LAST PRIVATE MANHOLES WHERE DEPTH TO INVERT IS 1m TO 3m)

**TYPICAL MANHOLE DETAIL, TYPE B**  
(FOR LAST PRIVATE MANHOLES WHERE DEPTH TO INVERT IS 1m TO 3m)

**TYPICAL MANHOLE DETAIL, TYPE B**  
(FOR LAST PRIVATE MANHOLES WHERE DEPTH TO INVERT IS 1m TO 3m)



**TYPICAL SADDLE CONNECTION DETAIL TO PUBLIC SEWER**



**ROAD GULLY**

- 27. HOLES OF 230mm MINIMUM DEPTH AND GALVANISED STEEL SAFETY RAILINGS TO BE PROVIDED IN BRACING OF SEWERS GREATER THAN 525mm diam. AND DEPTH TO INVERT >3m FOR ACCESS TO INVERT.
- 28. SAFETY CHAIN TO BE PROVIDED IN MANHOLES >450mm MILD STEEL SAFETY CHAIN SHALL BE 10mm NOMINAL SIZE GRADE W14 (NON GALVANISED), TYPE 1, COMPLYING WITH BS 4942 PART 2.
- 29. LADDER STRINGERS SHOULD BE ADEQUATELY SUPPORTED FROM THE MANHOLE WALL AT INTERVALS OF NOT MORE THAN 2.0m. STRINGERS SHOULD BE BOLTED TO CLEATS TO FACILITATE REMOVAL.
- 30. ALL LADDERS, RUNGS, HANDRAILS, SAFETY CHAINS ETC. SHALL BE HOT DIP GALVANISED TO BS:729.
- 31. SOCKET OF PIPE SHOULD BE CUT FLUSH WITH THE INSIDE SURFACE OF THE MANHOLE WALL.
- 32. POSITION OF 910mm SQUARE OPE IN INTERMEDIATE ROOF SLAB THE MANHOLE WALL.
- A) ALL MANHOLES SHALL BE WATER TIGHT TO THE SATISFACTION OF THE ENGINEER.
- B) FORMWORK TO REINFORCED CONCRETE AND MASS CONCRETE SHALL COMPLY TO CLASS 2. SECTION 6.2.7, BS 8110- PART1: 1997.
- C) FINISH TO THE TOP OF SLABS SHALL COMPLY TO TYPE A, SECTION 6.2.7, BS 8110 : PART 1 : 1997.
- D) PLAN DIMENSIONS OF MANHOLES ARE BASED ON BLOCKWORK HAVING A CO-ORDINATING SIZE OF 450 X 225 X 100.
- E) MANHOLES ARE DESIGNED TO B.S.8005 AND WALL THICKNESSES TO I.S.3235 BLOCKWORK DESIGN CODE TAKING GRANULAR FILL PRESSURE AND H.B. SURCHARGE.
- F) REINFORCEMENT TO SLABS TO ENGINEERS DETAILS.
- 33. FOR MANHOLES >3m DEPTH TO INVERT USE 30N/20 IN-SITU CONCRETE. REINFORCING MESH REF. A33086.18kg/m TO BE FITTED AT MID POINT OF WALL. ADDITIONAL REINFORCEMENT TO BE SUPPLIED OVER PIPE CROWN.
- 34. ALL DRAINAGE WORKS INCLUDING OUTFALL MANHOLES WITHIN PRIVATE AREAS, ARE TO BE CONSTRUCTED IN ACCORDANCE WITH THE GREATER DUBLIN REGIONAL CODE OF PRACTISE FOR DRAINAGE WORKS.

- 1. DO NOT SCALE. USE FIGURED DIMENSIONS ONLY.
- 2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECTURAL AND ENGINEERING DRAWINGS.
- 3. ALL WORKS SHALL BE CONSTRUCTED STRICTLY IN ACCORDANCE WITH THE REQUIREMENTS OF DUBLIN CITY COUNCIL (MESSAGE: www.dcc.ie/infocentre)
- 4. GRANULAR FILL SHALL COMPLY WITH CLAUSE 808 COMPACTED IN 150mm LAYERS UNLESS OTHERWISE SPECIFIED BY THE ROAD MAINTENANCE ENGINEER.
- 5. ALL BRICK TO BE ENGINEERING BRICK.
- 6. PIPE TRENCHES - FOR TAKING IN CHANGE CONCRETE SEWER PIPES WITH SLOPE AND SOCKET JOINTS AND RUBBER RINGS FITTING TO BS 61974 CLASS W OR CLASS H.
- 7. CONCRETE BED AND SURROUND SHALL BE USED ON ALL PIPES WHERE COVER TO THE SOFT 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 20N/20 UNLESS OTHERWISE STATED.
- 9. ALL PIPE TRENCHES / EXCAVATIONS SHALL BE BACKFILLED AND COMPACTED STRICTLY IN ACCORDANCE WITH REQUIREMENTS OF CLAUSE 505, DEPARTMENT OF THE ENVIRONMENT, SPECIFICATION FOR ROAD WORKS, WITH BUILDING REGULATIONS 1997 TABLE 7.
- 10. ALL PRIVATE DRAINS TO REAR OF HOUSING SHALL BE ACCORDANCE WITH BUILDING REGULATIONS 1997 TABLE 7.
- 11. ALL Foul SEWER MANHOLES SHALL BE EITHER IN-SITU CONCRETE OR CAST IN PLACE CONCRETE. ALL MANHOLES SHALL BE TO D.C.C. LAST M. BEFORE CONNECTING INTO PUBLIC SEWER TO BE TO D.C.C. STANDARDS.
- 12. INTERCEPTOR (BROAD) TRAPS TO BE PLACED AT ALL Foul M. CONNECTIONS FROM TO ENTERING PUBLIC SEWERS.
- 13. 200mm DIA. 20N/20 MASS CONCRETE MANHOLES WHERE BACKDROP DEPTH IS 200mm OR MORE SHALL BE CAST INTO CONCRETE AT BASE OF TUMBLE BAY.
- 14. PREPARED HALF CIRCLE CHANNEL PIPES, THE PRESSURE MAY WHERE PRACTICABLE, BE Laid THROUGH THE MANHOLE AND THE CROWN CUT OUT TO HALF DIAFTER, PROVIDED FLEXIBLE JOINTS ARE INSTALLED ON EACH SIDE NO FURTHER THAN 600mm FROM THE INNER FACE OF MANHOLE WALL.
- 15. FOR SURFACE WATER MANHOLES HIGH DENSITY BLOCKS TO CL. S10 OF 15.20 PART 1 : 1987 OR CL. 30/20 NS1U CONCRETE.
- 16. BLOCKWORK SHALL BE BEDDED AND JOINTED USING MORTAR DESIGNATION 3 TO I.S.406. BEDS AND VERTICAL JOINTS SHALL BE COMPLETELY FILLED WITH MORTAR AS THE BLOCKS ARE Laid.
- 17. JOINTS SHALL BE FLUSH POINTED AS THE WORK PROCEEDS. ALL Foul MANHOLES MUST BE FACED IN SOLID ENGINEERING BRICK (MIN. CLASS A OR B) OR NS1U SOLID ENGINEERING BRICK (MIN. CLASS A OR B) OR NS1U CONCRETE FOR 1m ABOVE BRACING LEVEL. BRICKS TO BE BOND TO BLOCKWORK USING ENGLISH GARDEN WALL BOND.
- 18. BLOCKWORK USING ENGLISH GARDEN WALL BOND SHALL BE BOND OVER FULL THICKNESS OF WALL. DOUBLE ARCH TO BE FORMED FOR PIPE DIAMETERS GREATER THAN 600mm.
- 19. BRACING AND PIPE CHANNEL PIPE SURROUND - CL. 20/20 CONCRETE.
- 20. BRACING FINISHED IN 2.1 SAND-GRANITE MORTAR WITH A SMOOTH FINISH TO BE Laid THROUGH THE MANHOLE AND THE CROWN CUT OUT TO HALF DIAFTER, PROVIDED FLEXIBLE JOINTS ARE INSTALLED ON EACH SIDE NO FURTHER THAN 600mm FROM THE INNER FACE OF MANHOLE WALL.
- 21. STAMPED BRINGS AT 200c/c VERTICALLY AND GALVANISED TO BS 729.
- 22. FOR MANHOLE DEEPER THAN 1m.
- 23. 600mm SQUARE OPE IN ROOF SLAB POSITIONED OVER RING/LADDER POSITION.
- 24. 200mm THICK PRECAST R.C. ROOF SLAB IN CL. 30/20 CONCRETE COVER POSITION.
- 25. 1 TO 2 NO. ENGINEERING BRICKS CL. B TO I.S. 911: 1983 SET IN 1:3 (CEMENT SAND MORTAR).
- 26. CLASS D40 MANHOLE COVER AND FRAME TO S/EN 124, 150mm DEEP FRAME FOR ROADS, 100mm DEEP FOR FOOTPATHS AND GREEN AREAS. NON-SLIP DESIGN, CLOSED KEYS, MANUFACTURED FROM SPHERULOPOLYMER, COVER AND FRAME COATED IN BITUMEN OR OTHER APPROVED MATERIAL, COVER TO HAVE A MINIMUM MASS OF 140kg/m<sup>2</sup>, FRAME BEARING AREA SHALL BE 8000mm<sup>2</sup> MIN., FRAMES SHALL BE DESIGNED TO PREVENT COVER FALLING INTO MANHOLE. FRAMES SHALL BE BEDDED ON PREPARED SAND SURROUND.
- 27. BACKDROP MANHOLES SHALL HAVE A HEAVY DUTY CLASS D40 COVER AND FRAME FITTED AT GROUND LEVEL TO THE INLET PIPE ON THE BACKDROP.
- 28. SHORT LENGTH PIPE PIPE JOINT EXTEND TO MANHOLE SHALL NOT EXCEED 600mm FROM THE INNER FACE OF THE MANHOLE WALL. SHORT LENGTH PIPES SURROUND IN 150mm THICK CL. 20/20 CONCRETE AND SHALL BE CUT FLUSH WITH INSIDE SURFACE OF THE M.
- 29. WHEN DEPTH OF MANHOLES TO INVERT IS GREATER THAN 3.0m, LADDERS SHALL BE USED INSTEAD OF RUNGS. TO BS 4211 EXCEPT THAT STRINGERS SHALL BE 100mm DIA. 20N/20 CONCRETE. STRINGERS SHALL BE 25mm IN DIA. FIBRE LADDERS SHOULD MEET THE DIMENSIONAL REQUIREMENTS OF BS:4211.

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| CLIENT   | GERARD GANNON PROPERTIES                           |          |          |
| ARCHITECT  | CONROY CROWE KELLY                                 |          |          |
| PROJECT  | CLONGRIFIN SHD APPLICATION 1                       |          |          |
| TITLE  | PUBLIC SURFACE WATER DRAINAGE CONSTRUCTION DETAILS |          |          |
| DRAWN  | DESIGNED   | APPROVED | DATE     |
| PJD  | PJD  | MD       | NOV 18   |
| SCALE  | JOB NO.  | DRG. NO. | REVISION |
| 1:25 @ A1  | 18-059   | P1210    | A        |