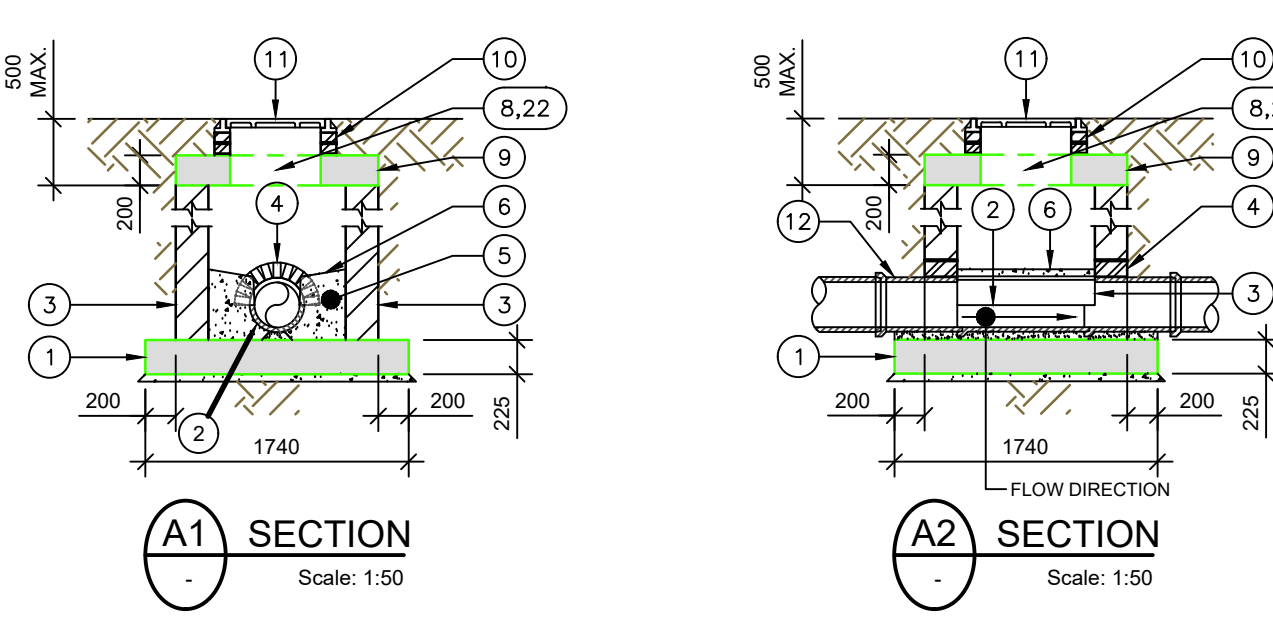
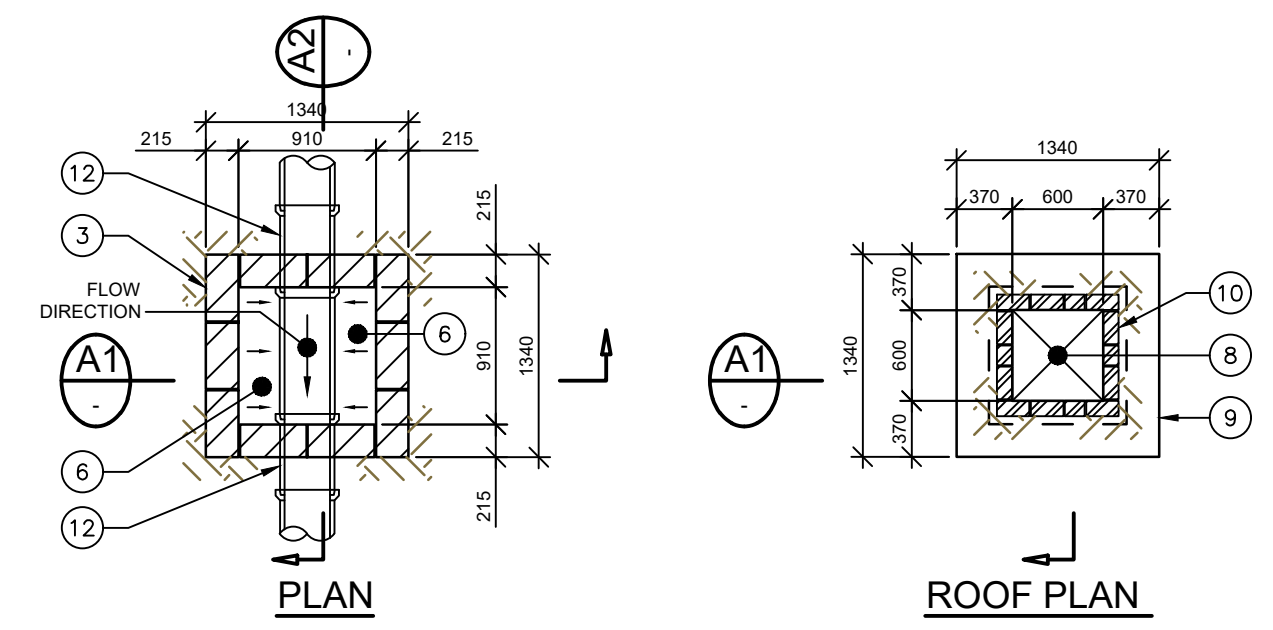


**NOTES**

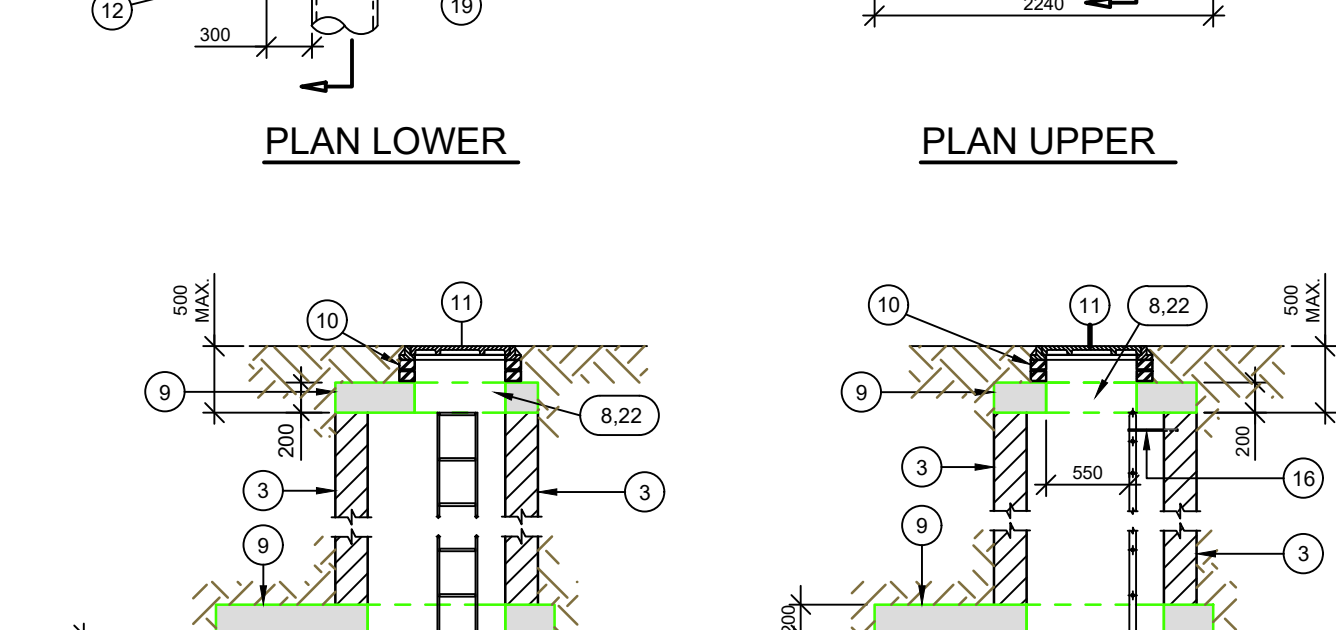
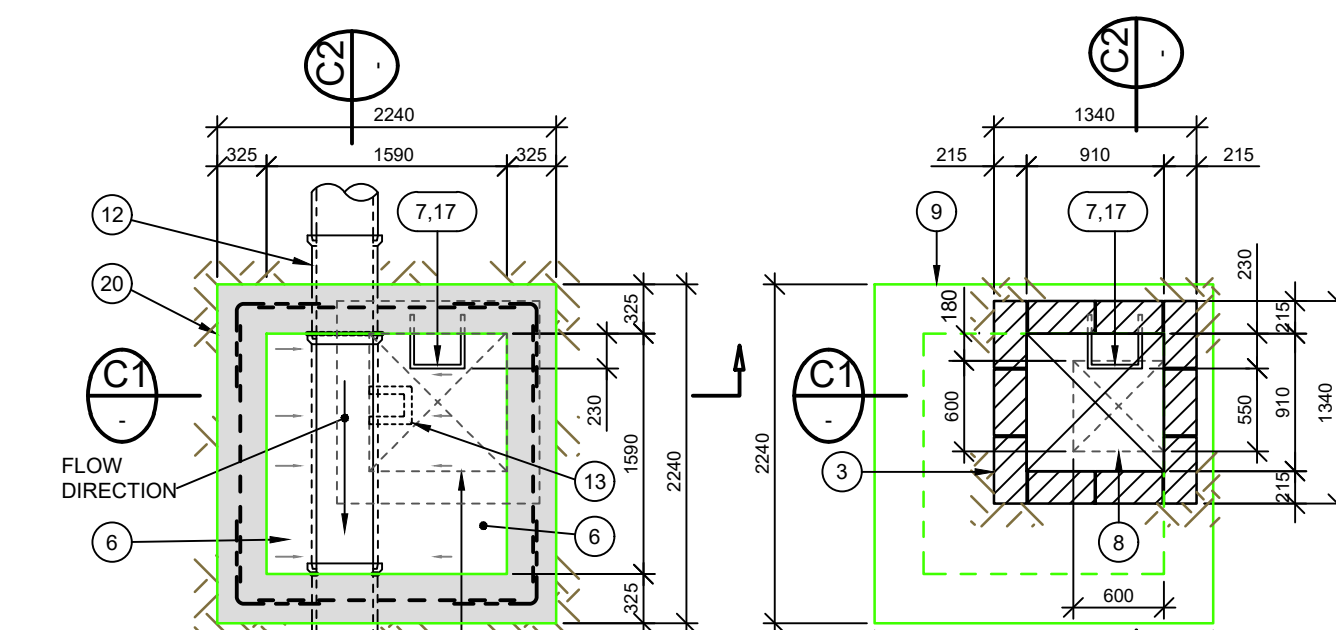
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS.
- FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING. ALL DIMENSIONS TO BE CHECKED ON SITE. ENGINEER TO BE INFORMED IMMEDIATELY OF ANY DISCREPANCIES BEFORE ANY WORK PROCEEDS.
- REFER TO DRAWING **21208-DOW-0000** FOR PROJECT SPECIFICATION.

**NOTES**

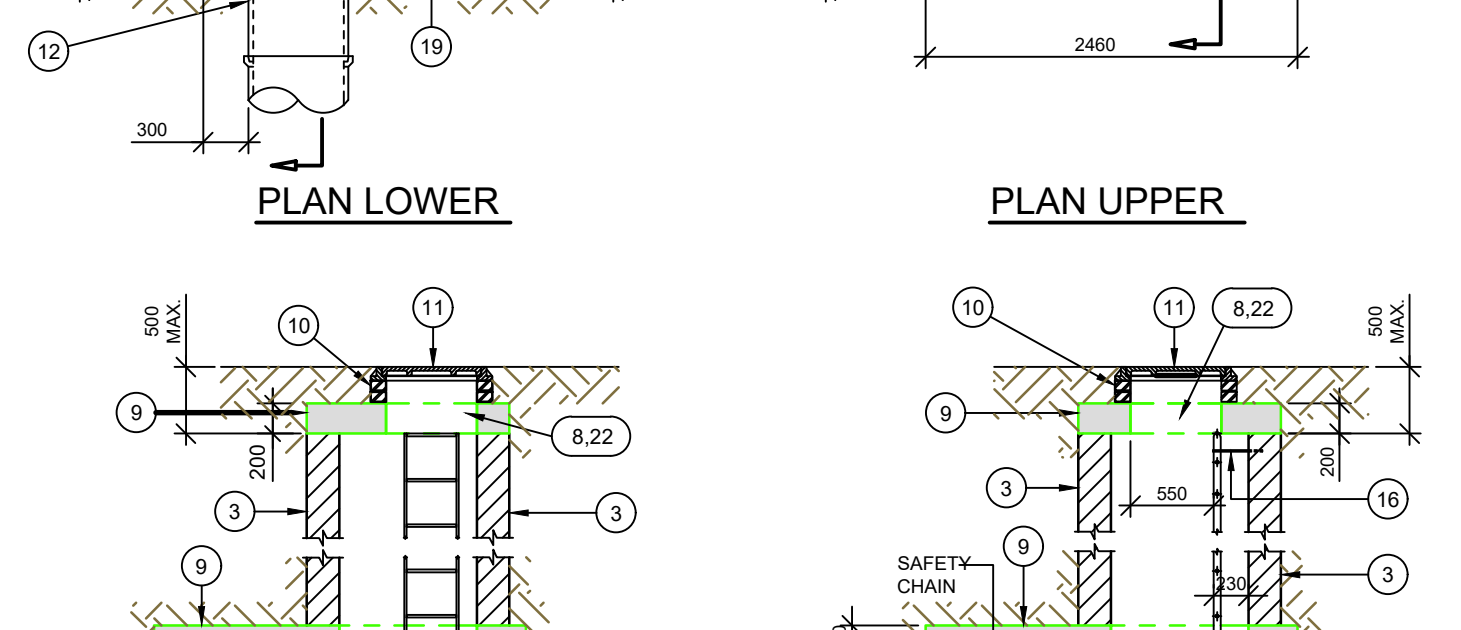
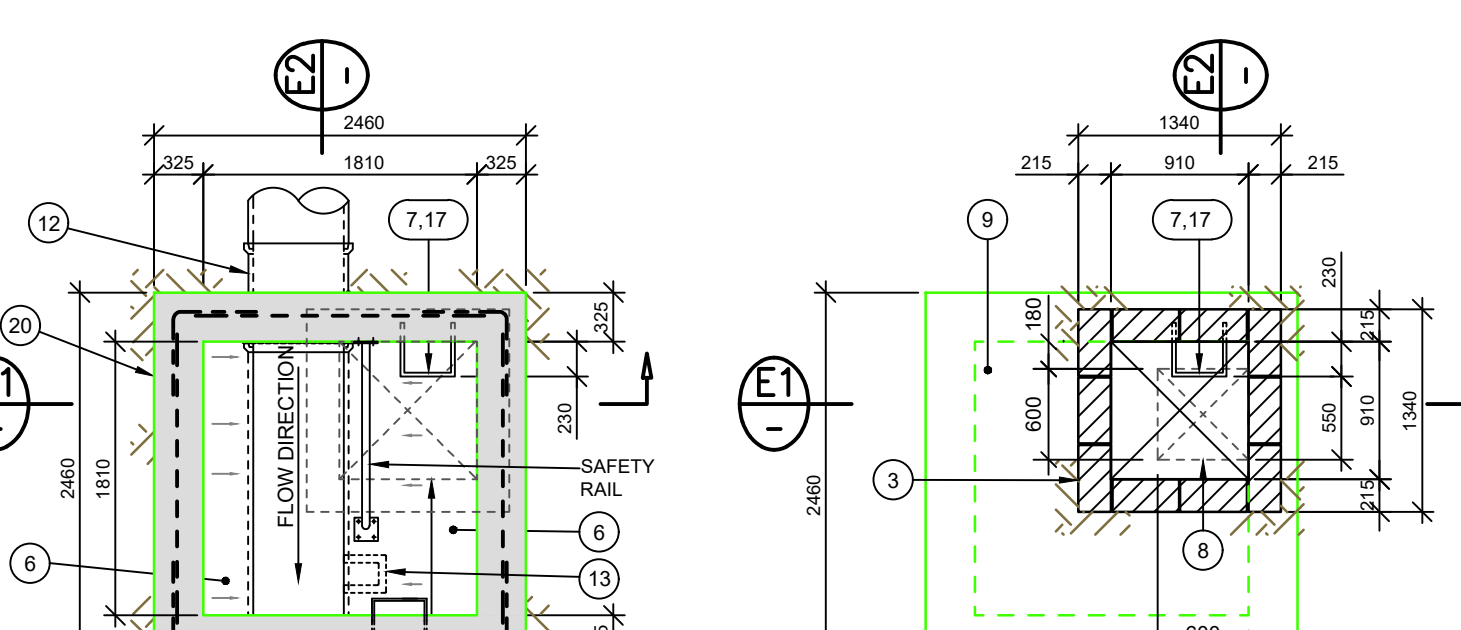
- 225mm THICK C30/37 MASS CONCRETE FOUNDATIONS.
- PREFORMED HALF CIRCLE CHANNEL PIPES. THE PIPELINE MAY, WHERE PRACTICABLE, BE LAID THROUGH THE MANHOLE & THE CROWN CUT OUT TO HALF DIAMETER. PROVIDED FLEXIBLE JOINTS ARE SITUATED ON EACH SIDE NO FURTHER THAN 600mm FROM THE INNER FACE OF MANHOLE WALL.
- MANHOLE CONSTRUCTION:**
  - FOR SURFACE WATER MANHOLES HIGH DENSITY BLOCKS 20N STRENGTH TO I.S. EN 771 OR C30/37 INSTITU CONCRETE TO I.S. EN 206.
  - BLOCK WORK SHALL BE BEDDED & JOINTED USING MORTAR TO 1:3:6 BEDS & VERTICAL JOINTS SHALL BE COMPLETELY FILLED WITH MORTAR AS THE BLOCKS ARE LAID.
  - 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 INSTITU CONCRETE FOR THE ABOVE BENCHING LEVEL. BRICK TO BE BONDED TO BLOCK WORK USING ENGLISHERS WALL BRICK.
- MAXIMUM DEPTH OF BLOCK WORK MANHOLE IS 1.20m (THE USE OF BLOCK WORK IN DEEPER MANHOLES WILL BE CONSIDERED BUT SUCH USE WILL REQUIRE DETAILED STRUCTURAL DESIGN AND WRITTEN APPROVAL FROM IRISH WATER).
- PRECAST R.C. ROOF SLAB SHALL BE 200mm THICK IN GRADE C 30/37, WITH 40mm COVER TO STEEL, DESIGNED TO BS 8100 TO TAKE FULL TRAFFIC LOADING.
- 600mm SQUARE OPE IN ROOF SLAB.
- 1 TO 3 COURSES OF SOLID ENGINEERING BRICKS CL. 'B' TO I.S. EN 998 SET IN M30 MORTAR.
- CLASS D400 OR E600 MANHOLE COVER & FRAME TO I.S. EN 124. 150mm DEEP FRAME FOR RINGS & 100mm DEEP FOR FOOTPATHS & GREEN AREAS. NON-SKID DESIGN. CLOSED REWAYS, MANUFACTURED FROM SPHERICAL GRAPHITE CAST IRON (DUCTILE CAST IRON), 800 x 800 (800) CLEAR OPENING, COVER & FRAME COATED IN BITUMEN OR OTHER APPROVED MATERIAL COVER TO HAVE A MINIMUM MASS OF 140g/m<sup>2</sup>. FRAME BEARING AREA SHALL BE 80,000mm<sup>2</sup> MIN. FRAMES SHALL BE DESIGNED TO PREVENT COVERS FALLING INTO MANHOLE. FRAMES SHALL BE BEDDED ON APPROVED MORTAR TO MANUFACTURERS INSTRUCTIONS.
- SHORT LENGTH PIPE & PIPE JOINT EXTERNAL TO MANHOLE SHALL NOT EXCEED 600mm FROM THE INNER FACE OF MANHOLE WALL.
- TOE HOLES OF 230mm MINIMUM DEPTH & GALVANISED STEEL SAFETY RAILINGS TO BE PROVIDED IN BENCHING OF SEWERS GREATER THAN 525mm Ø & DEPTH TO INVERT >3m FOR ACCESS TO INVERT.
- A STAINLESS STEEL SAFETY CHAIN IS TO BE PROVIDED ON PIPES THAT EXCEED 450mm IN DIAMETER, COMPLYING WITH BS 1935 OR EQUIVALENT.
- WHEN DEPTH OF MANHOLES TO INVERT IS GREATER THAN 3.0m LADDERS SHALL BE USED. INSTEAD OF RUNGS TO BS 4211 OR EQUIVALENT EXCEPT THAT STRINGERS SHOULD BE NOT LESS THAN 65 x 12mm IN SECTION & RUNGS 25mm IN DIAMETER. FIXED LADDERS SHALL MEET THE DIMENSIONAL REQUIREMENTS OF BS 4211 OR EQUIVALENT. DISTANCE FROM THE TOP RUNG OF THE LADDER TO GROUND LEVEL SHOULD NOT EXCEED 900mm.
- LADDER STRINGERS SHOULD BE ADEQUATELY SUPPORTED FROM THE MANHOLE WALL AT INTERVALS OF NOT MORE THAN 2.0m. STRINGERS SHOULD BE BOLTED TO GLEATS TO FACILITATE RENEWAL.
- ALL LADDERS, RUNGS, HORIZONTALS, SAFETY CHAINS ETC. SHALL BE HOT DIP GALVANISED TO EN ISO 1461 OR EQUIVALENT.
- PIPE SHOULD BE CUT FLUSH WITH THE INSIDE SURFACE OF THE MANHOLE WALL SO THAT THE CHANNEL EXTENDS THE FULL LENGTH OF THE MANHOLE (EXCEPT FOR PRECAST MANHOLES).
- POSITION OF 910 SQUARE OPE IN INTERMEDIATE ROOF SLAB.
- ALL MANHOLES SHALL BE WATERTIGHT TO THE SATISFACTION OF THE ENGINEER.
- FORMWORK TO REINFORCED CONCRETE & MASS CONCRETE SHALL COMPLY WITH IS EN 1992-1-1.
- FINISH TO THE TOP OF SLABS SHALL COMPLY WITH TYPE 'A', IS EN 1992-1-1.
- PLAN DIMENSIONS OF MANHOLES ARE BASED ON BLOCK WORK HAVING A CO-ORDINATING SIZE OF 450 x 225 x 100. FOR PIPE DIAMETER >750mm USE MANHOLE WITH INTERNAL DIAMETER SIZE=PIPE SIZE +1m x300mm.
- MANHOLES ARE DESIGNED TO I.S. EN 124 & WALL THICKNESS TO I.S. 225 BLOCK WORK DESIGN CODE TAKING GRANULAR FILL PRESSURE & H.B. SURCHARGE.
- REINFORCEMENT TO SLABS TO ENGINEERS DETAILS.
- FOR MANHOLES >3m DEPTH TO INVERT USE C 30/37 INSTITU CONCRETE. REINFORCING MESH REF. AS80 TO BE FIXED AT MID POINT OF WALL. ADDITIONAL REINFORCEMENT TO BE SUPPLIED OVER PIPE CROWN.
- PRECAST MANHOLES, CHAMBER WALLS & COVER SLAB TO BE CONSTRUCTED TO I.S. EN 1917 & I.S. 420:2004.
- MANHOLE OPENINGS TO BE SITUATED FURTHEST FROM THE NEAREST CARRIAGEWAY. MANHOLE STEPS ACCESS TO BE POSITIONED TO ALLOW VIEWING OF ONCOMING TRAFFIC.
- FOR BEDDING & SEALING OF CHAMBER RINGS, THE TOP RING (TO PRECAST COVER SLAB) & BOTTOM RING TO BE BEDDED WITH CEMENT MORTAR. FOR INTERMEDIATE RINGS, JOINTS TO BE SEALED WITH APPROVED PRE-FORMED JOINTING STRIP.
- PRECAST MANHOLE TO BE SURROUNDED WITH A MINIMUM OF 150mm THICK GRADE C20/25 CONCRETE.
- FOR FOUL DRAINAGE TO BE TAKEN IN CHARGE BY IRISH WATER, MANHOLES ARE TO BE CONSTRUCTED STRICTLY IN ACCORDANCE WITH THE REQUIREMENTS OF IRISH WATER WHICH MAY DIFFER FROM THE DETAILS PROVIDED. REFER TO IRISH WATER CODE OF PRACTICE FOR WASTEWATER INFRASTRUCTURE AND ASSOCIATED IRISH WATER STANDARD DETAILS, ALONG WITH ANY PARTICULAR REQUIREMENTS.



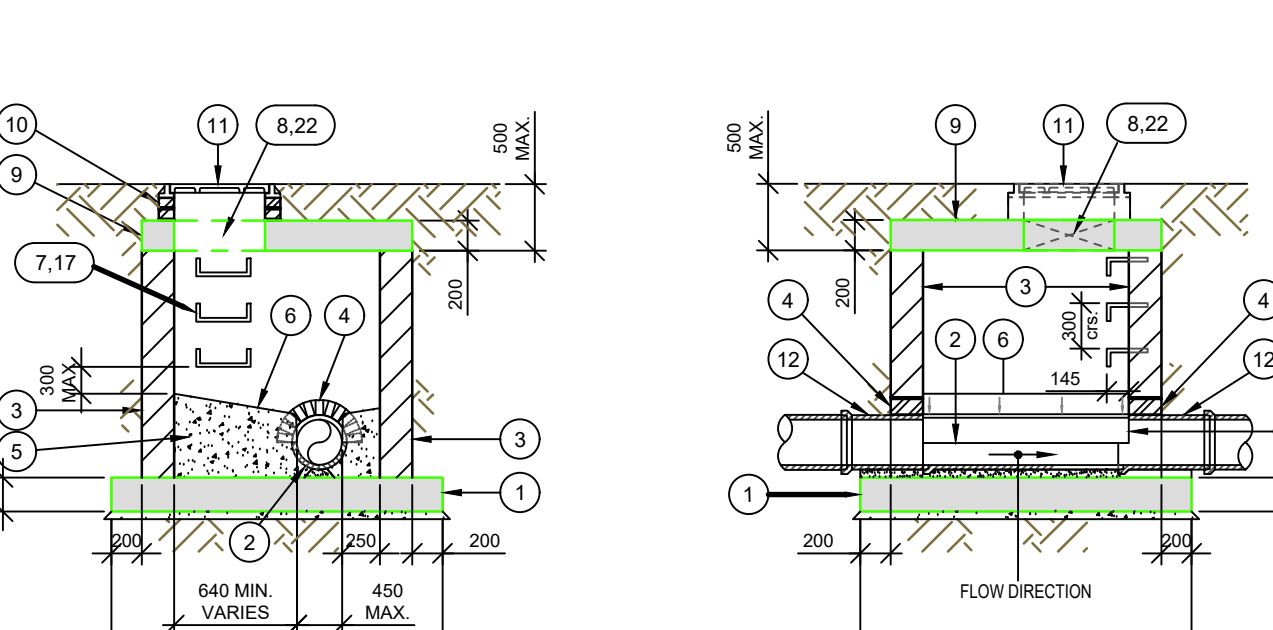
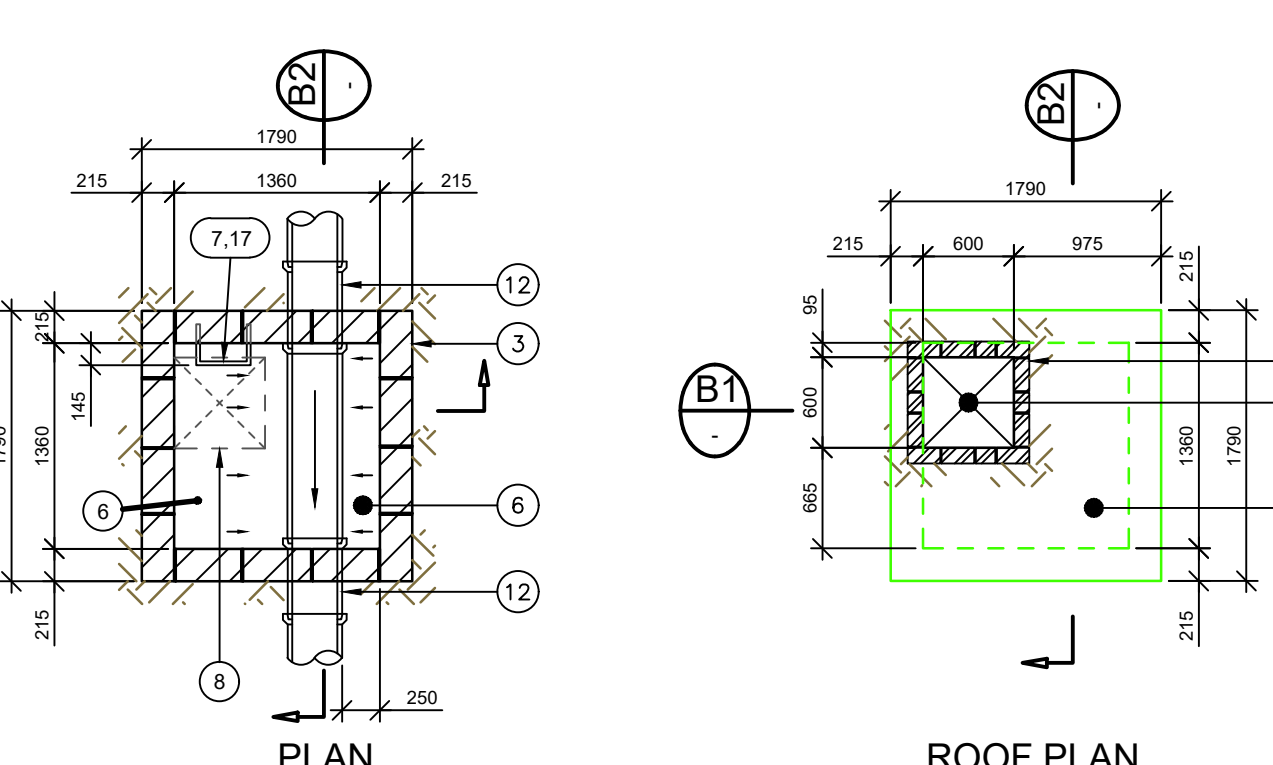
**MANHOLE TYPE A (FOR PIPE DIAMETERS 150,225,300,375,450 mm)**  
DEPTH TO INVERT < 1m



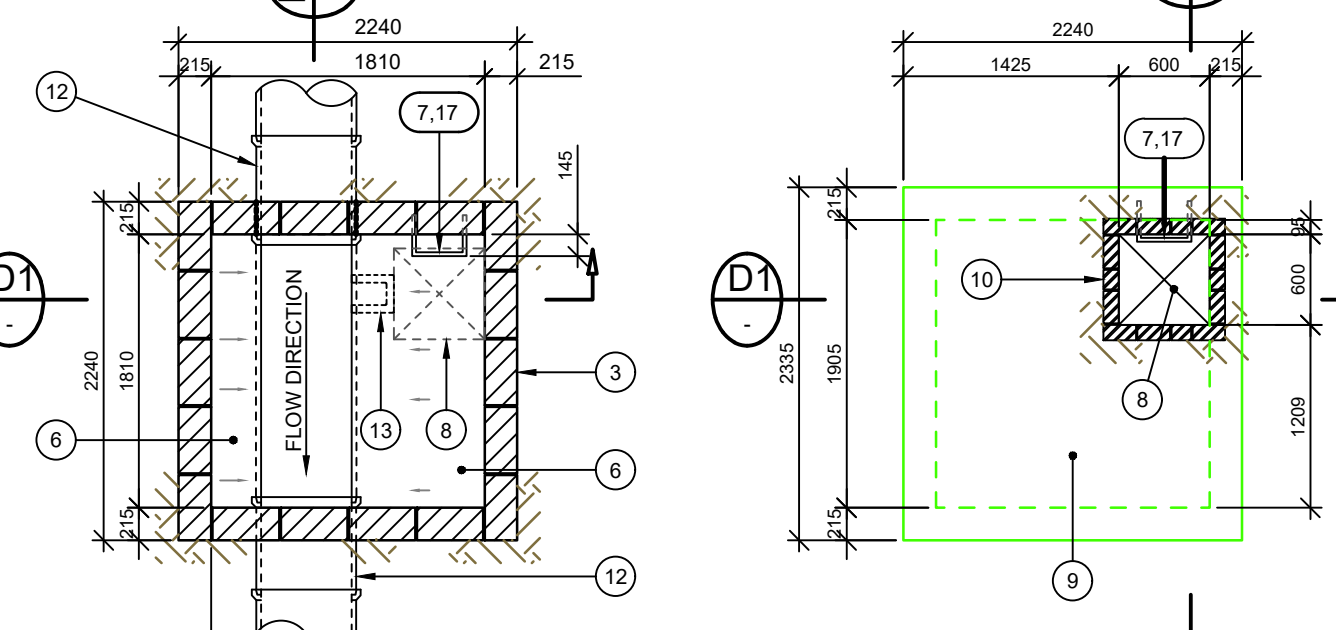
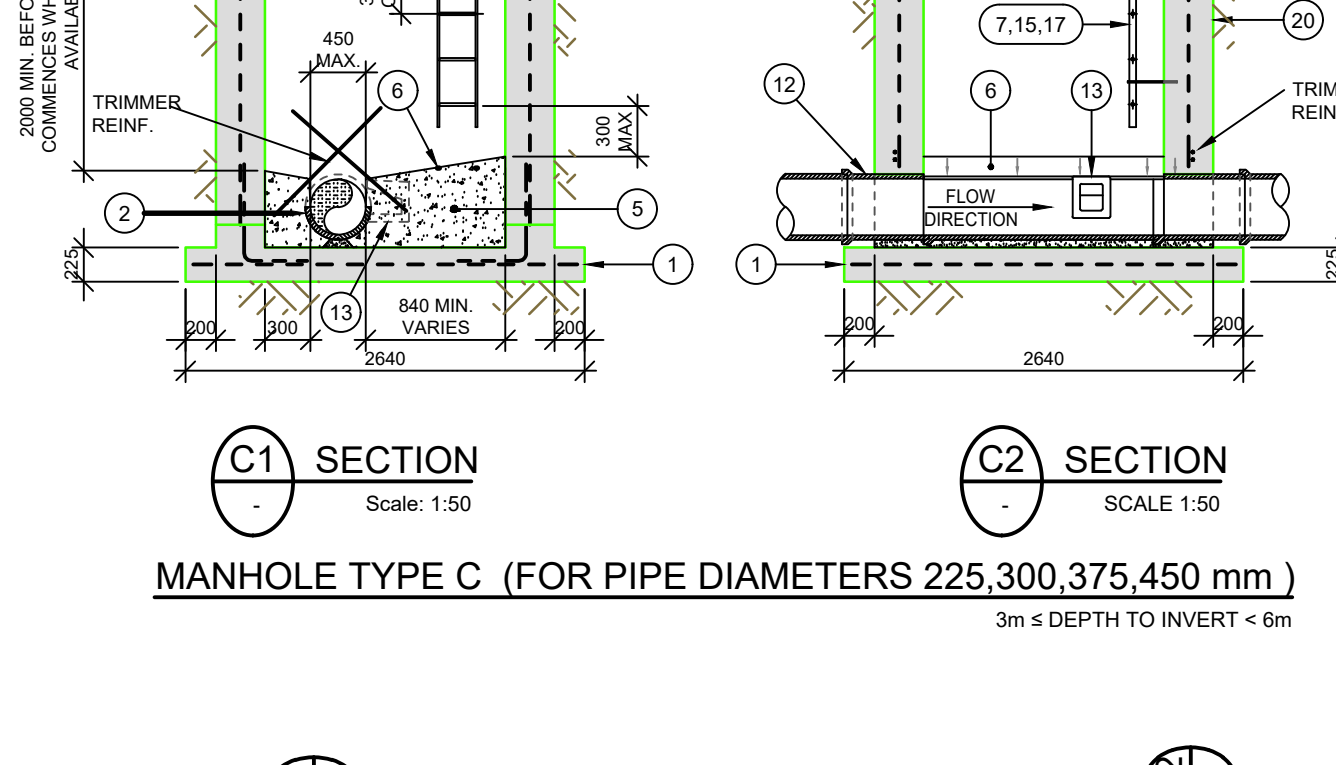
**MANHOLE TYPE C (FOR PIPE DIAMETERS 225,300,375,450 mm)**  
3m ≤ DEPTH TO INVERT < 6m



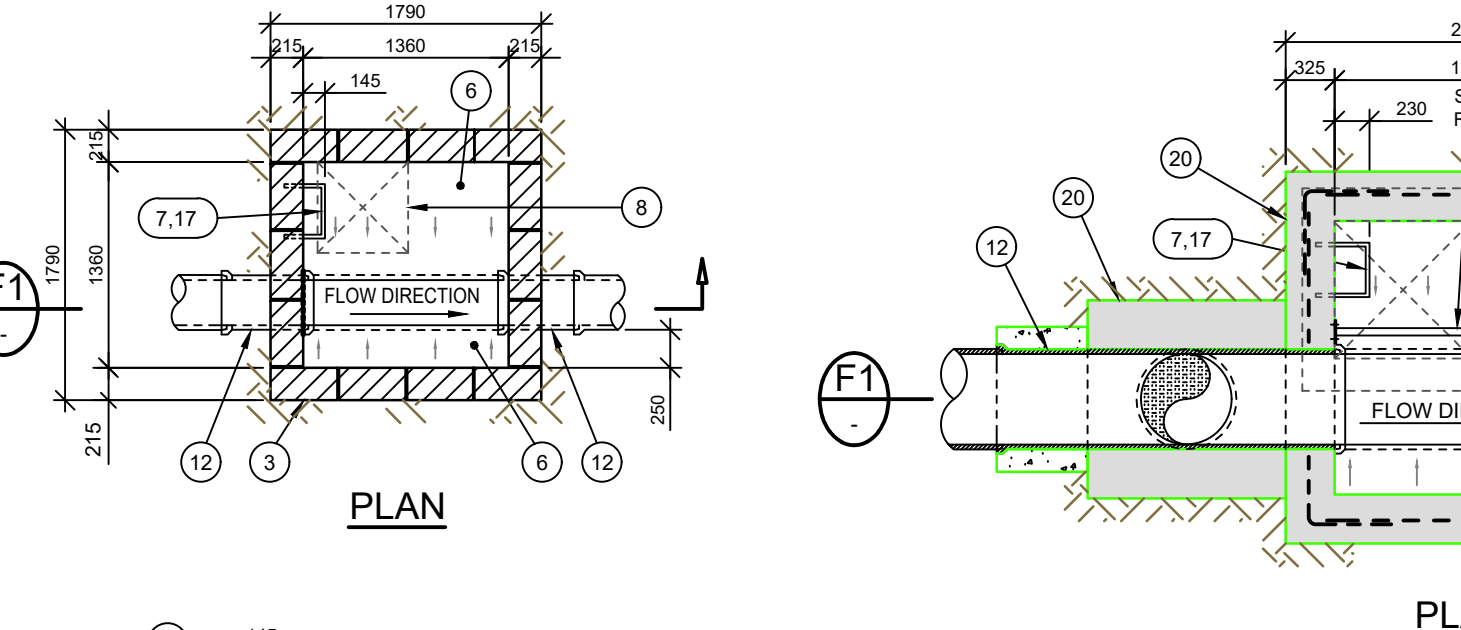
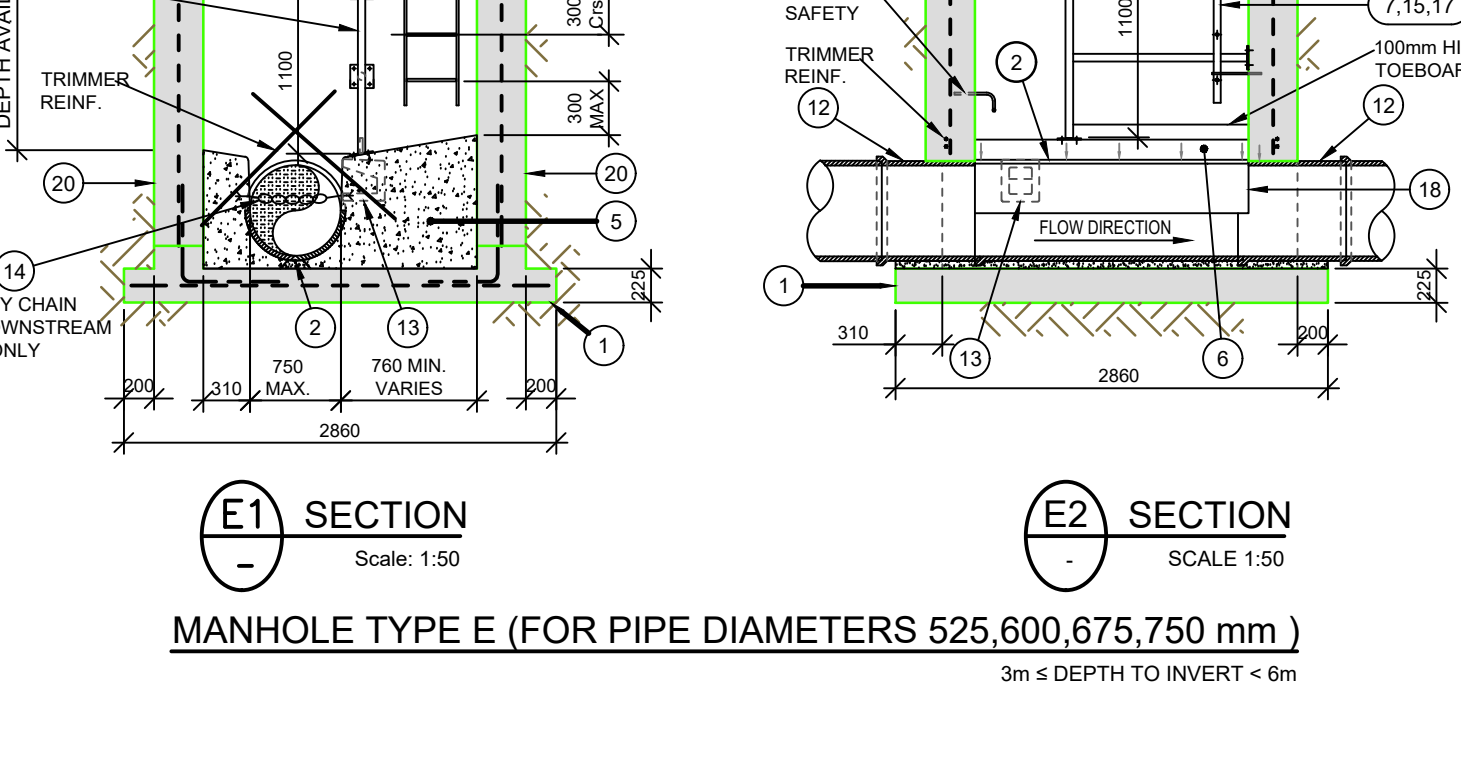
**MANHOLE TYPE E (FOR PIPE DIAMETERS 525,600,675,750 mm)**  
3m ≤ DEPTH TO INVERT < 6m



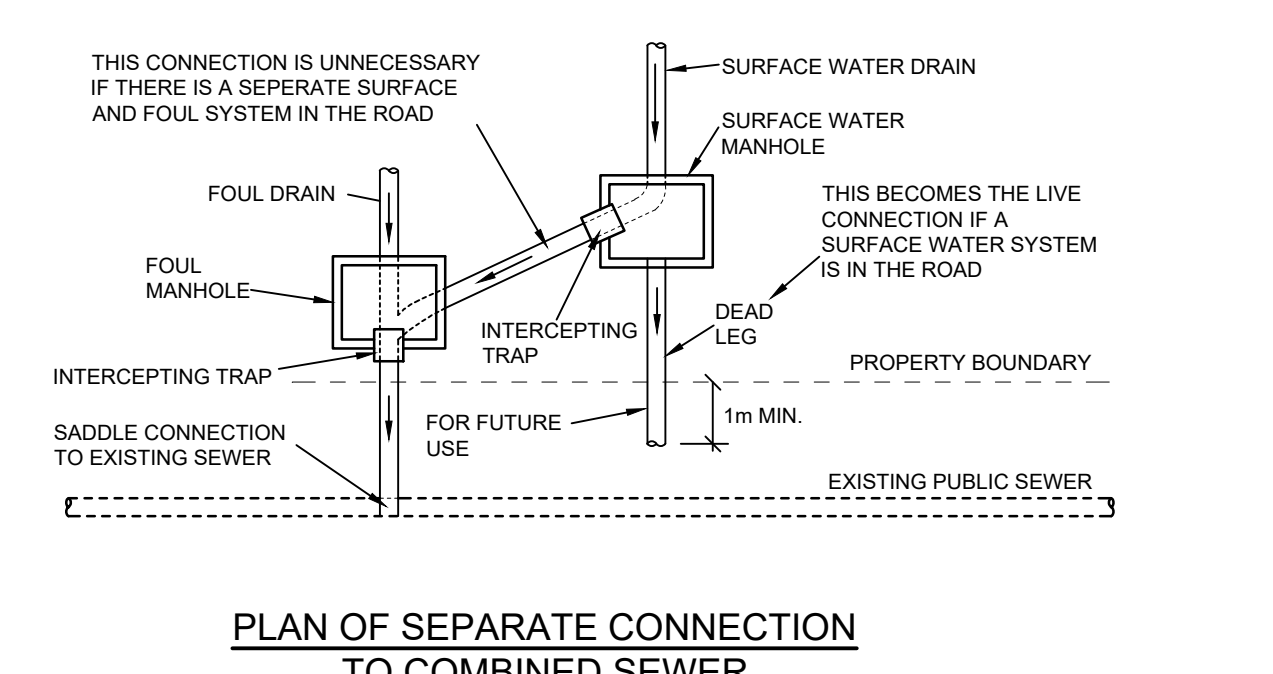
**MANHOLE TYPE B (FOR PIPE DIAMETERS 225,300,375,450 mm)**  
1m ≤ DEPTH TO INVERT < 3m



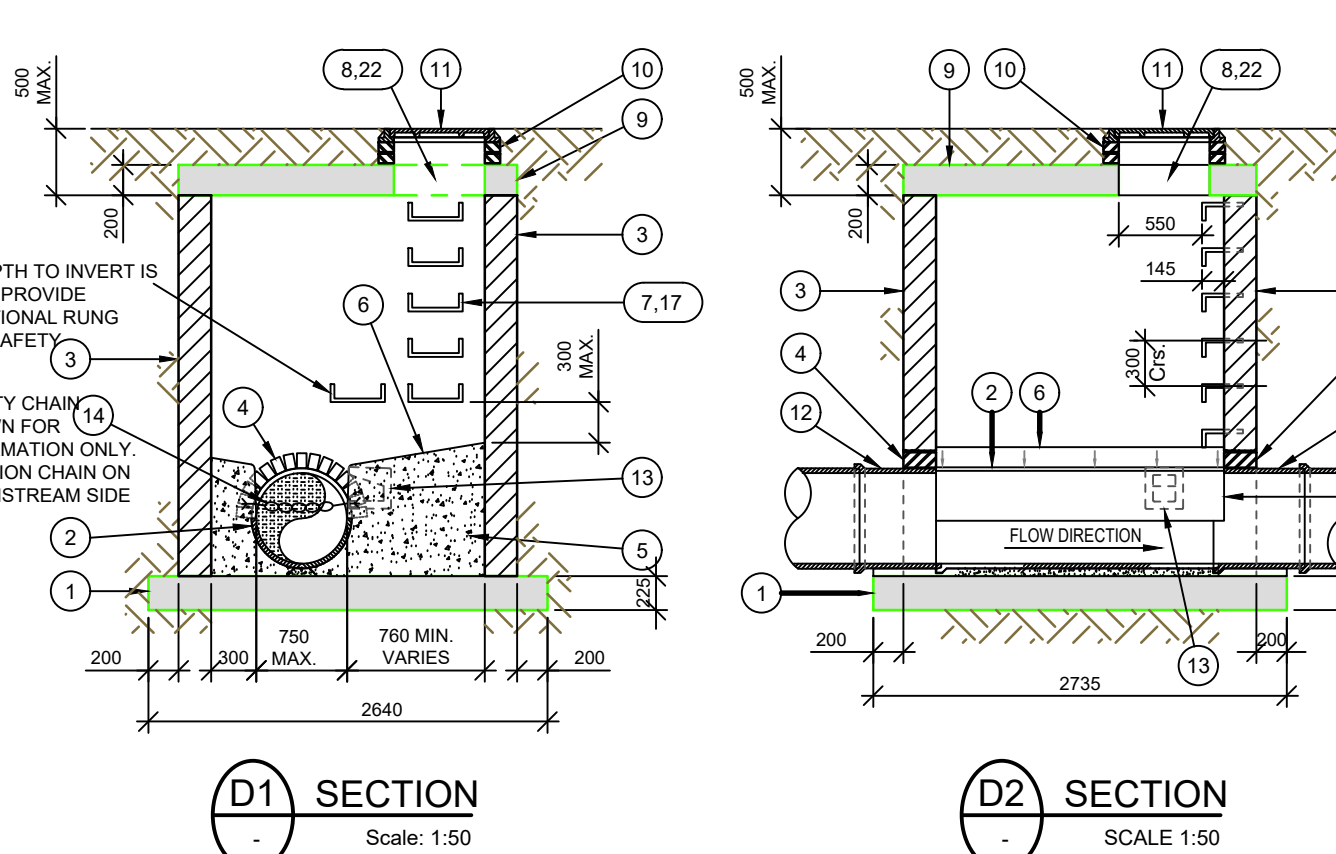
**MANHOLE TYPE D (FOR PIPE DIAMETERS 525,600,675,750 mm)**  
1m ≤ DEPTH TO INVERT < 3m



**MANHOLE TYPE F RAMP MANHOLE (FOR PIPE DIAMETERS 150-750 mm)**  
SCALE 1:50



**PLAN OF SEPARATE CONNECTION TO COMBINED SEWER**  
N.T.S.



**MANHOLE TYPE G BACKDROP MANHOLE FOR ALL PIPE DIAMETERS 225-750 mm**  
DROPP > 600 FOR 225 & 300 PIPE DIAMETERS  
DROPP > 750 FOR GREATER PIPE DIAMETERS

**TABLE F**

INLET Ø mm	DEPTH (max) mm	
	A	H
225	600	600
300	600	600
375	750	750
450	750	750
525	750	750
600	750	750
750	750	750

WHEN THE DROP 'H' IS GREATER THAN THE MAX VALUE SHOWN USE BACKDROP MANHOLE

**MANHOLE TYPE F RAMP MANHOLE (FOR PIPE DIAMETERS 150-750 mm)**  
SCALE 1:50

Inlet Dia. mm	Drop Dia. mm
225	300
300	375
375	375
450	450
525	450
600	450
750	600

Rev	Date	Amendments	by	chkd
C02	21.09.23	AP - PLANNING		AG AD
C01	08.03.23	AT - TENDER		AG AD
P01	18.06.22	ISSUED FOR PLANNING		AG AD

PROJECT  
**PROPOSED HOUSING DEVELOPMENT AT MAYESTON, POPPINTREE, DUBLIN 11**

CLIENT  
**FINGAL COUNTY COUNCIL**

DRAWING TITLE  
**MANHOLE DETAILS SHEET 1 OF 2**

drawn by: AG date: 18.08.22 scale: N.T.S @ A1 chk: AD

**21208 - DOW - 00 - XX - DR - C**

Project Originator Volume Level Type Role

**21208** **4000** **C02**

DOW Project No. drg. no. rev.

**AP - PLANNING**

Suitability Status: Code - Description

Cashel Business Centre,  
Cashel Road, Kimmage, Dublin 12  
T 01 4901611  
E admin@downesassociates.ie  
www.downesassociates.ie

