

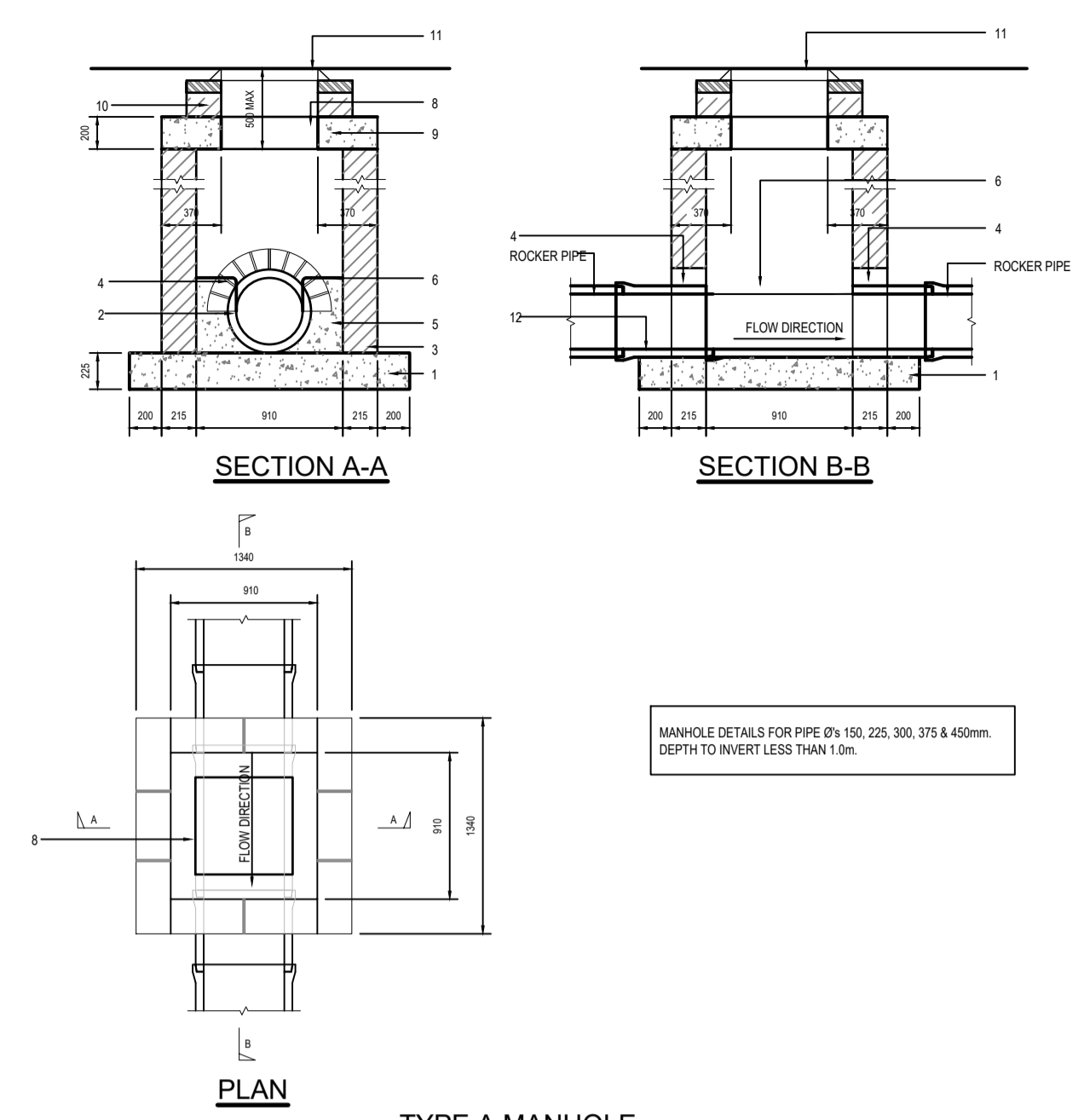
A1

DO NOT SCALE

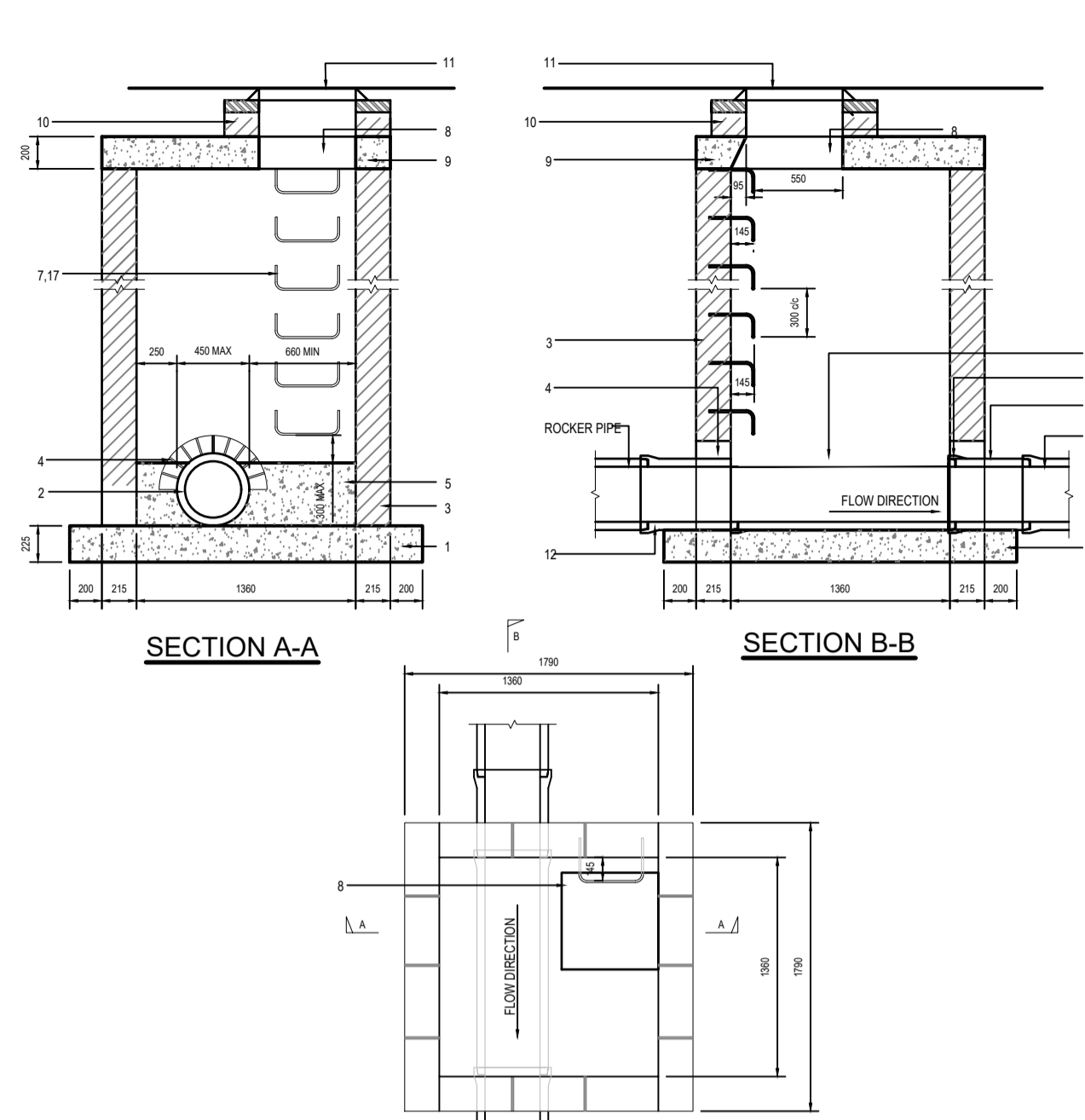
Date: Oct 31, 2019 - 2:12pm  
 Plotted by: patrick.sheridan

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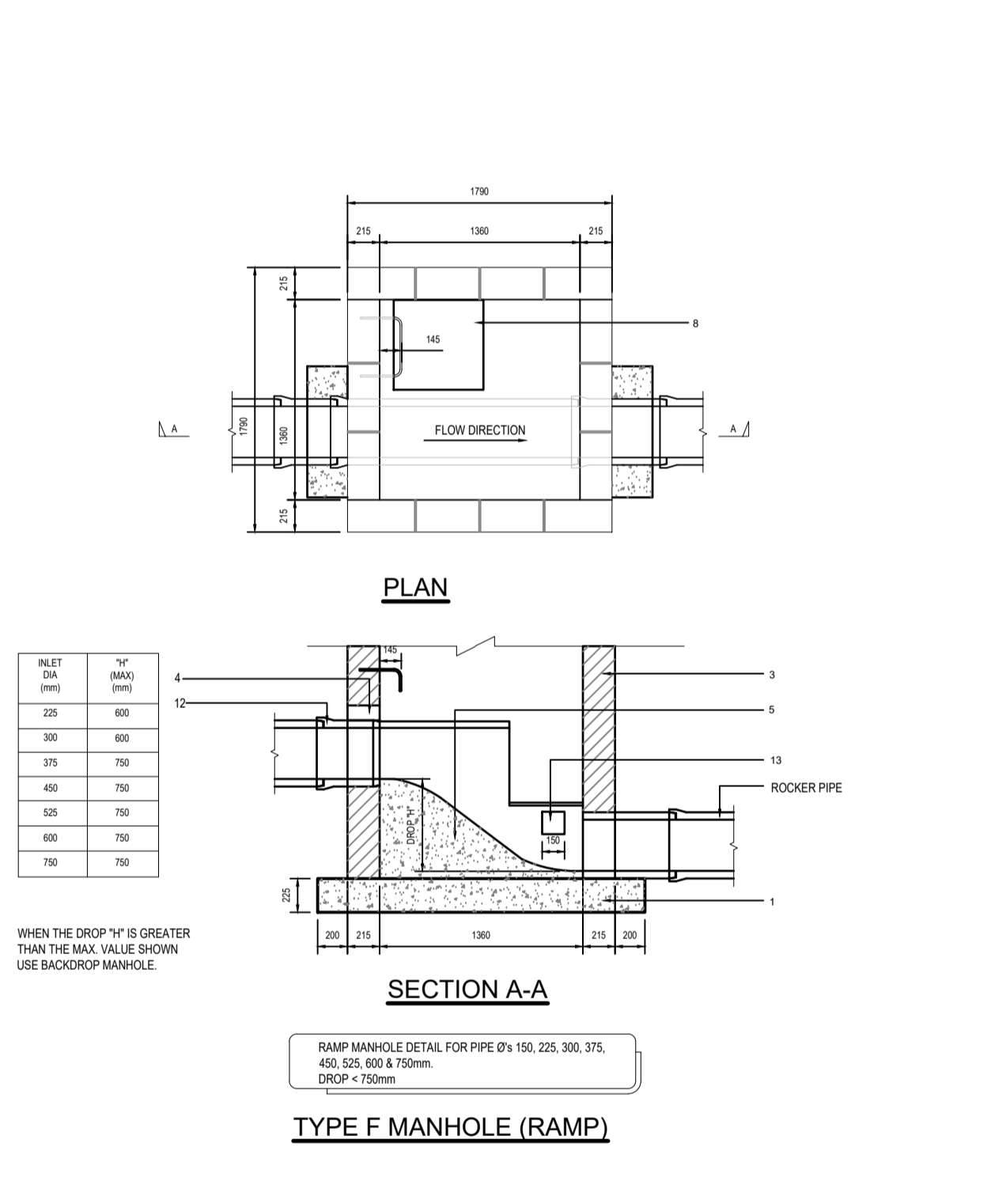
- MANHOLE GENERAL NOTES:**
- 1) ALL BRICK TO BE SOLID ENGINEERING BRICK CLASS A OR B
  - 2) FOR PIPE DIAMETER >750MM USE MANHOLE WITH INTERNAL DIAMETER SIZE = PIPE SIZE + 1 METRE + 300MM
  - 3) DISTANCE FROM TOP RING OF THE LADDER TO GROUND LEVEL MUST BE A MAXIMUM OF 500MM
- MANHOLE DRAWING NOTES:**
- 1) 225mm THICK CL20/20 MASS CONCRETE FOUNDATIONS.
  - 2) PREFORMED HALF CIRCLE CHANNEL PIPES. THE PIPELINE MAY WHERE PRACTICABLE, BE LAID THROUGH THE MANHOLE AND THE CROWN OUT OUT TO HALF DIAMETER. PROVIDED FLEXIBLE JOINTS ARE SITUATED ON EACH SIDE NO FURTHER THAN 600mm FROM THE INNER FACE OF THE MANHOLE WALL.
  - 3) MANHOLE CONSTRUCTION FOR SURFACE WATER MANHOLES HIGH DENSITY BLOCKS TO CL S10 OF IS 20 PART 1: 1987 OR CL 30/20 IN-SITU CONCRETE. BLOCKWORK SHALL BE BEDDED AND JOINTED USING MORTAR DESIGNATION THREE TO IS 406. BEDS AND 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 IN-SITU CONCRETE FOR 1m ABOVE BENCHING LEVEL. BRICK TO BE BOND TO BLOCKWORK USING A 1:3 SAND-CEMENT MORTAR.
  - 4) RELIEVING ARCH FORMED BY 215x103x65 BRICK CLASS A OR B AS PER DRAWING. RELIEVING ARCHES USED IN BRICK OR BLOCKWORK MANHOLES TO EXTEND OVER FULL THICKNESS OF WALL. A DOUBLE ARCH IS TO BE FORMED FOR PIPE DIAMETERS GREATER THAN 600mm.
  - 5) BENCHING AND PIPE CHANNEL PIPE SURROUND - CL 20/20 CONCRETE.
  - 6) BENCHING FINISHED IN 2:1 SAND-CEMENT MORTAR WITH SMOOTH TROVEL FINISH. AT 1 IN 30 SLOPE TOWARDS CHANNEL.
  - 7) STANDARD RUNGS AT 300mm VERTICALLY AND GALVANISED TO LATEST VERSION OF BS729 OR EQUIVALENT.
  - 8) 600mm SQUARE OPE. IN ROOF SLAB.
  - 9) PRECAST R.C. ROOF SLAB SHALL BE 200mm THICK IN CL 30/20MM CONCRETE, WITH 40MM COVER TO STEEL.
  - 10) 1) TO 2 COURSES OF SOLID ENGINEERING BRICKS CLASS B TO IS 91:1983 SET IN 1:3 (CEMENT AND MORTAR)
  - 11) CLASS D400 OR E600 MANHOLE COVER AND FRAME TO IS EN 124 150mm DEEP FRAME FOR ROADS, 100mm DEEP FOR FOOTPATHS AND GREEN AREAS. NON-ROCK DESIGN, CLOSED KEYWAYS, MANUFACTURED FROM SPHEROIDAL GRANITE CAST IRON (DUSTLE CAST IRON), 600/600 OR 800/800mm CLEAR OPENING. COVER & FRAME COATED IN BITUMEN OR OTHER APPROVED MATERIAL. COVER TO HAVE A MINIMUM MASS OF 14kg/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 MANUFACTURER'S CONSTRUCTIONS.
  - 12) SHORT LENGTH PIPE, PIPE JOINT EXTERNAL TO MANHOLE SHALL NOT EXCEED 600mm FROM THE INNER FACE OF MANHOLE WALL.
  - 13) TOE HOLES OF 230mm MIN. DEPTH AND GALVANISED STEEL SAFETY RAILINGS TO BE PROVIDED IN BENCHING OF SEWERS GREATER THAN 525 DIAMETER, AND DEPTH TO INVERT 2m FOR ACCESS TO INVERT.
  - 14) SAFETY CHAIN TO BE PROVIDED ON PIPES THAT EXCEED 450mm IN DIAMETER. WILD STEEL SAFETY CHAIN SHALL BE 10mm NOMINAL SIZE GRADE 454 NON CALIBRATED CHAIN TYPE 1, COMPLYING WITH BS 4542 Part 2 OR EQUIVALENT.
  - 15) WHEN DEPTH OF MANHOLES TO INVERT IS GREATER THAN 3.0m LADDERS SHALL BE USED, INSTEAD OF RUNGS, TO BS4211 EXCEPT THAT STRINGERS SHOULD BE NOT LESS THAN 60x12mm IN SECTION AND RUNGS 25mm IN DIAMETER. FIXED LADDERS SHOULD MEET THE DIMENSIONAL REQUIREMENTS OF BS 4211.
  - 16) 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 RENEWAL.
  - 17) ALL LADDERS, RUNGS, HANDRAILS, SAFETY CHAINS ETC. SHALL BE HOT DIP GALVANISED TO BS729.
  - 18) SOCKET OF PIPE SHOULD BE CUT FLUSH WITH THE INSIDE SURFACE OF THE MANHOLE WALL SO THAT THE CHANNEL EXTENDS FULL LENGTH OF THE MANHOLE (EXCEPT FOR PRECAST MANHOLES).
  - 19) POSITION OF 910 SQUARE OPENING IN INTERMEDIATE ROOF SLAB. ALL MANHOLES SHALL BE WATERTIGHT TO THE SATISFACTION OF THE ENGINEER. FORMWORK TO REINFORCEMENT CONCRETE AND MASS CONCRETE SHALL COMPLY TO CLASS 2, SECTION 6.2.7, BS8110: PART 1: 1997. FINISH TO THE TOP OF SLAB SHALL COMPLY TO TYPE A, SECTION 6.2.7, BS8110: PART 1: 1997. PLAN DIMENSIONS OF MANHOLES ARE BASED ON BLOCKWORK HAVING A CO-ORDINATING SIZE OF 450x225x100. MANHOLES ARE DESIGNED TO BS8005 AND WALL THICKNESSES TO IS325 BLOCKWORK DESIGN CODE TAKING GRANULAR FILL PRESSURE AND H.B. SURCHARGE. REINFORCEMENT TO SLABS TO ENGINEERS DETAILS.
  - 20) FOR MANHOLES >3.0m DEPTH TO INVERT USE 30x20 IN-SITU CONCRETE. REINFORCING MESH REF. A393 @ 6 180mm TO BE FIXED AT MID POINT OF WALL. ADDITIONAL REINFORCEMENT TO BE SUPPLIED OVER PIPE CROWN.
  - 21) FOR PRECAST MANHOLES, CHAMBER WALLS AND COVER SLAB TO BE CONSTRUCTED TO IS EN 1917 AND IS 420 2004.
  - 22) MANHOLE OPENING TO BE SITUATED FURTHEST FROM THE NEAREST CARRIAGEWAY. MANHOLE STEPS/ACCESS TO BE POSITIONED TO ALLOW VIEWING OF ONCOMING TRAFFIC.
  - 23) FOR BEDDING AND SEALING OF CHAMBER RINGS, THE TOP RING (TO PRECAST COVER SLAB) AND BOTTOM RING TO BE BEDDED WITH CEMENT MORTAR. FOR INTERMEDIATE RINGS, JOINTS TO BE SEALED WITH APPROVED PRE-FORMED JOINTING STRIP.
  - 24) PRECAST MANHOLES TO BE SURROUNDED WITH A MINIMUM OF 150MM THICK GRADE C20/40 CONCRETE.



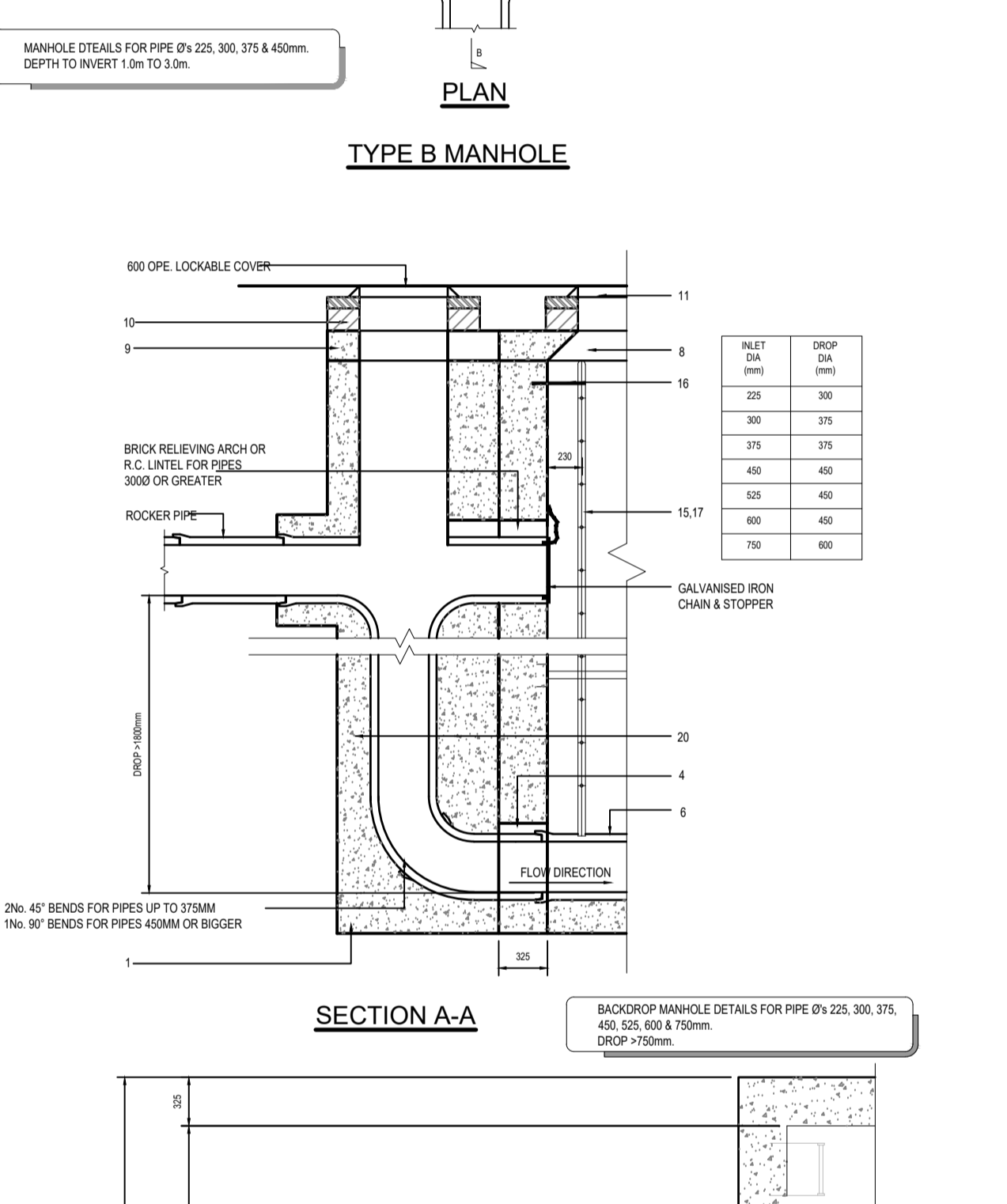
TYPE A MANHOLE



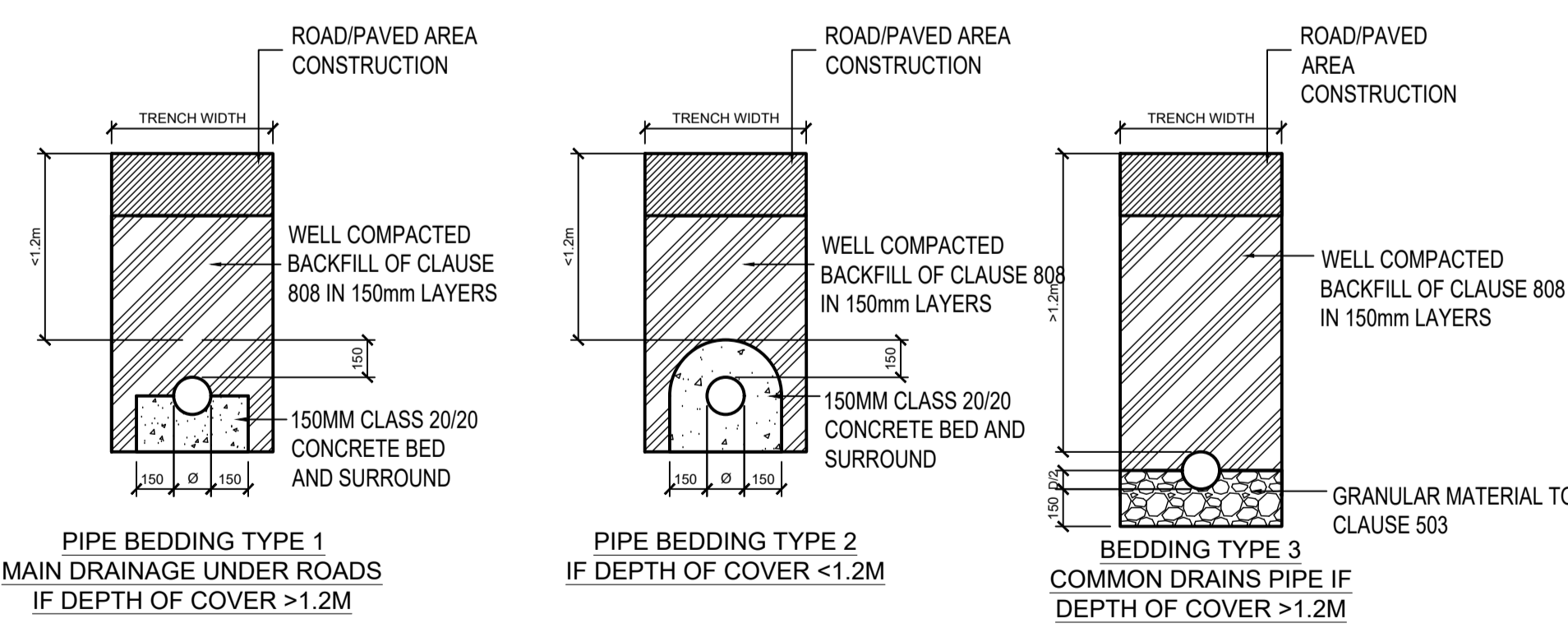
TYPE B MANHOLE



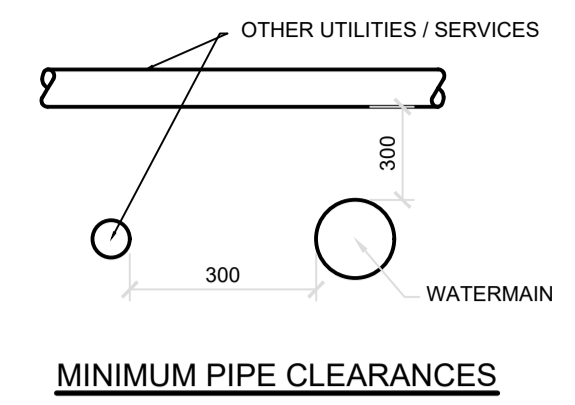
TYPE F MANHOLE (RAMP)



TYPE G MANHOLE (BACKDROP)



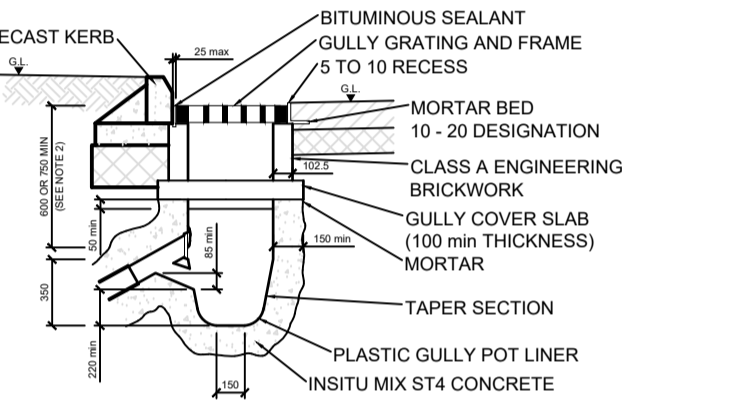
SURFACE WATER PIPE BEDDING DETAILS



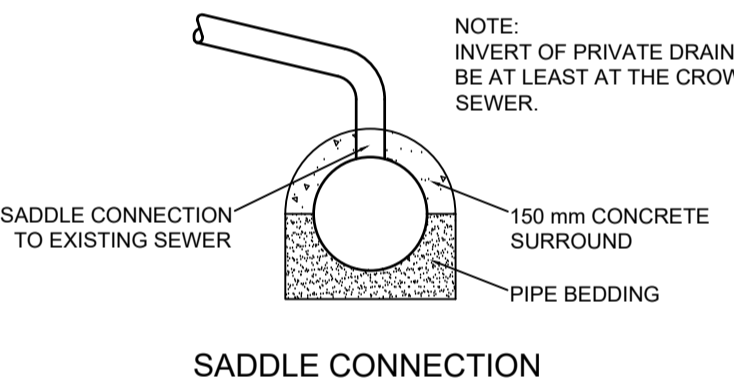
MINIMUM PIPE CLEARANCES

**NOTES:**  
 DETAILS INDICATED IN ACCORDANCE WITH GDOS REQUIREMENTS FOR STORM DRAINAGE  
 FOUL DRAINAGE TO BE CONSTRUCTED IN ACCORDANCE WITH RISH WATER STANDARD DETAILS AND CODE OF PRACTICE

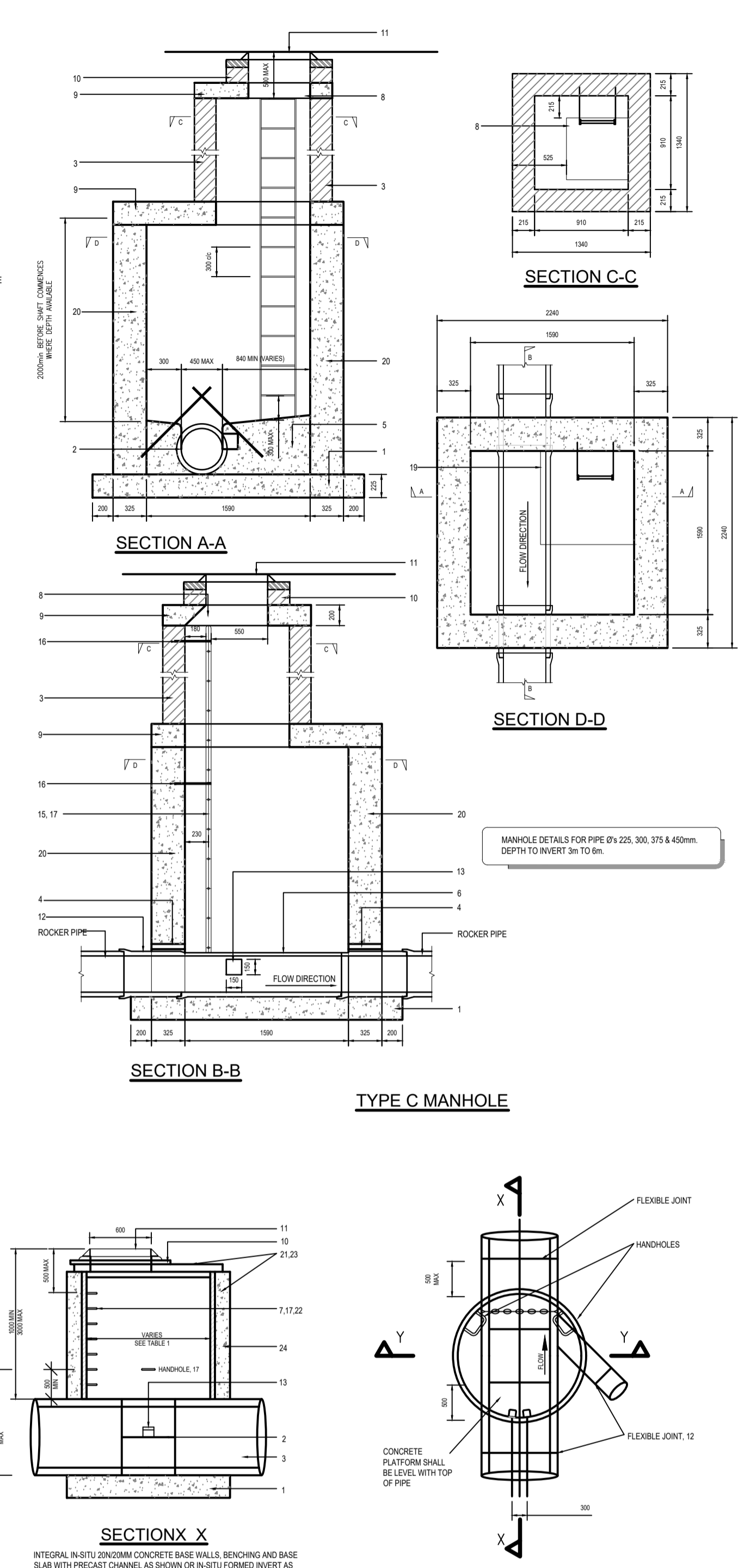
- NOTES:**
1. ALL DIMENSIONS ARE IN MILLIMETERS.
  2. THE MINIMUM DEPTH FROM THE TOP OF THE GRATING TO THE TOP OF THE GULLY OUTLET IS TO BE 750mm WHEN THE CONNECTING PIPE IS UNDER A CARRIAGE WAY OR A HARD SHOULDER AND 600 ELSEWHERE.
  3. PRE CAST CONCRETE GULLIES AND COVER SLABS SHALL BE TO BS 5911-6.
  4. WHEN AN IN-SITU CAST GULLY HAS A TRAP, THE STOPPERS SHALL COMPLY WITH THE REQUIREMENTS OF BS 5911-4 AND BS EN 1917.
  5. ALL ST CONCRETE SHALL BE TO SHW, CLAUSE 2002



TYPICAL PRECAST GULLY

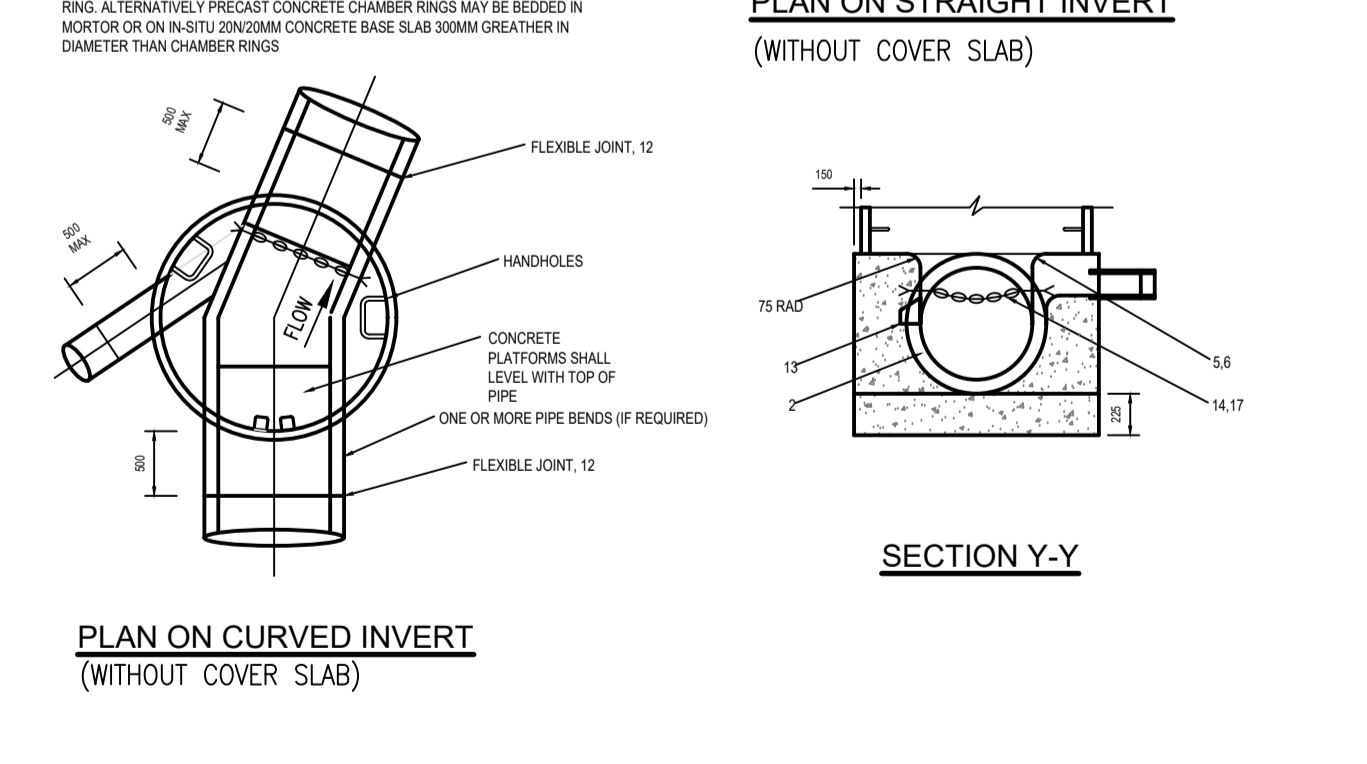


SADDLE CONNECTION



TYPE C MANHOLE

PLAN ON STRAIGHT INVERT (WITHOUT COVER SLAB)



PLAN ON CURVED INVERT (WITHOUT COVER SLAB)

SECTION Y-Y

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Rev	Description	By	Date	Chk'd	Auth
A	FOR PLANNING	PS	18.10.19	AC	GH
A	FINAL CLIENT APPROVAL	PS	09.10.19	AC	GH
-	FOR REVIEW	TD	09.05.19	AC	GH

**ATKINS**  
 Member of the SNC-Lavalin Group

Atkins House, 150-155 Airside  
 Business Park, Swords, Co. Dublin  
 Tel (+353) 01 810 8000  
 Fax (+353) 01 810 8001

Unit 2B, 2200 Cork Airport  
 Business Park, Cork  
 Tel (+353) 021 429 0300  
 Fax (+353) 021 429 0360

2nd Floor Technology House  
 Parkmore Technology Park, Galway  
 Tel (+353) 091 786 050  
 Fax (+353) 091 779 830

Client	AEVAL						
Project	WOODBROOK PHASE 1						
Original Scale	AS SHOWN	Design/Drawn	PS	Checked	GH	Authorised	JN
Date	09.05.19	Date	09.05.19	Date	09.05.19	Date	09.05.19
Status	P	Drawing Number	5154251_EWE_SCD_0001	Rev	A		

Purpose	PLANNING						
Title	STANDARD CONSTRUCTION DETAILS SHEET 1						
Original Scale	AS SHOWN	Design/Drawn	PS	Checked	GH	Authorised	JN
Date	09.05.19	Date	09.05.19	Date	09.05.19	Date	09.05.19
Status	P	Drawing Number	5154251_EWE_SCD_0001	Rev	A		