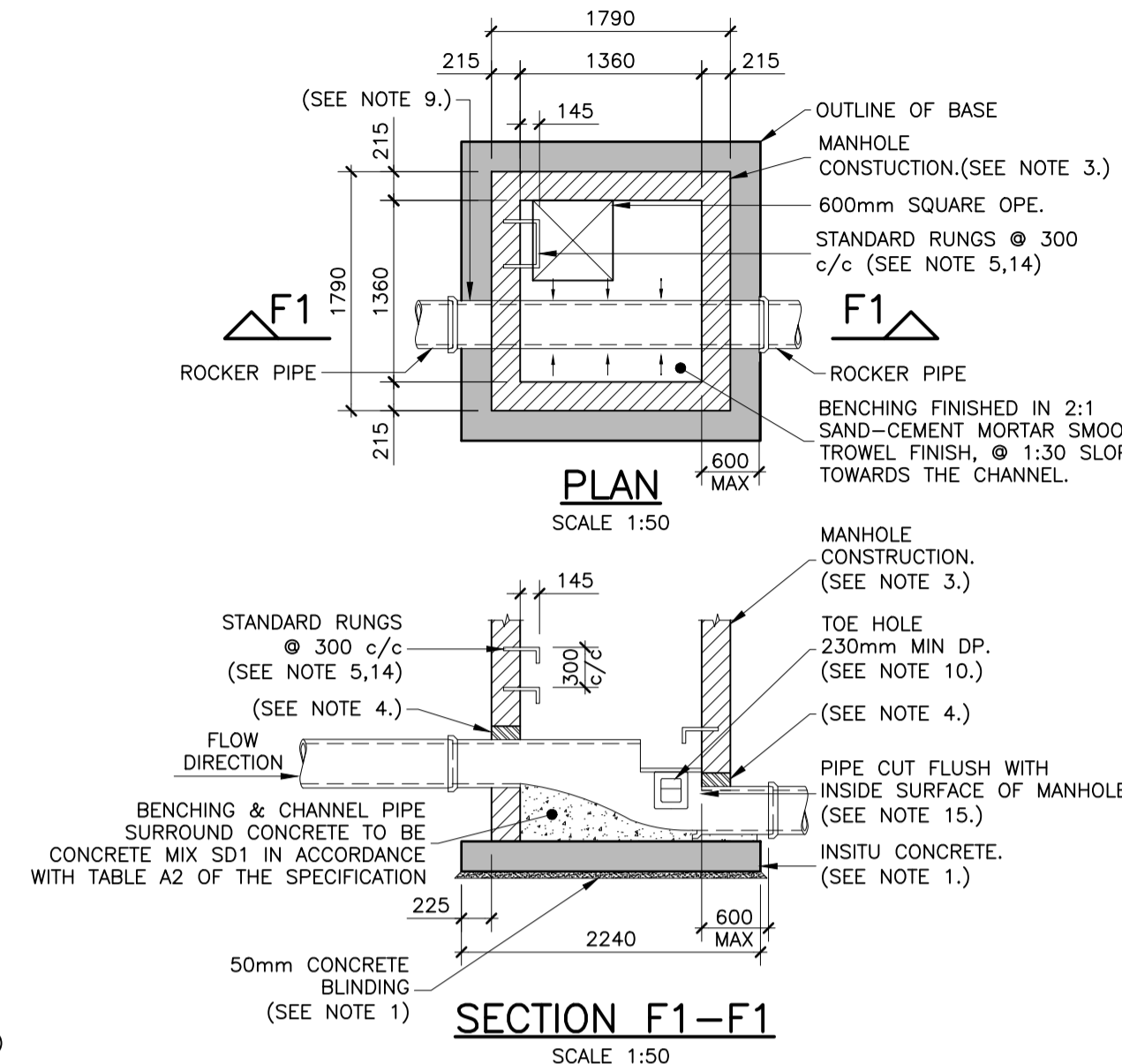


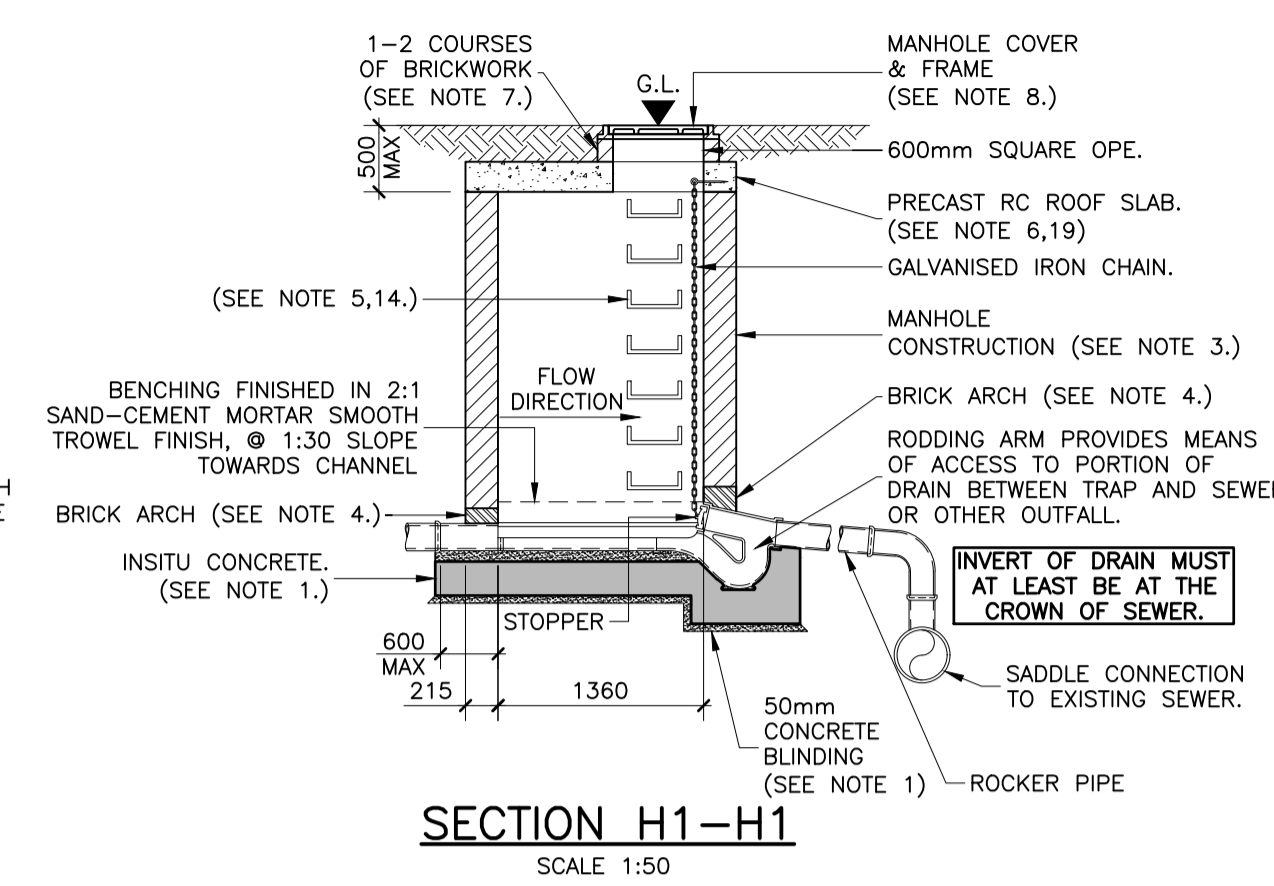
**MANHOLE TYPE E**  
3m < DEPTH TO INVERT > 6m



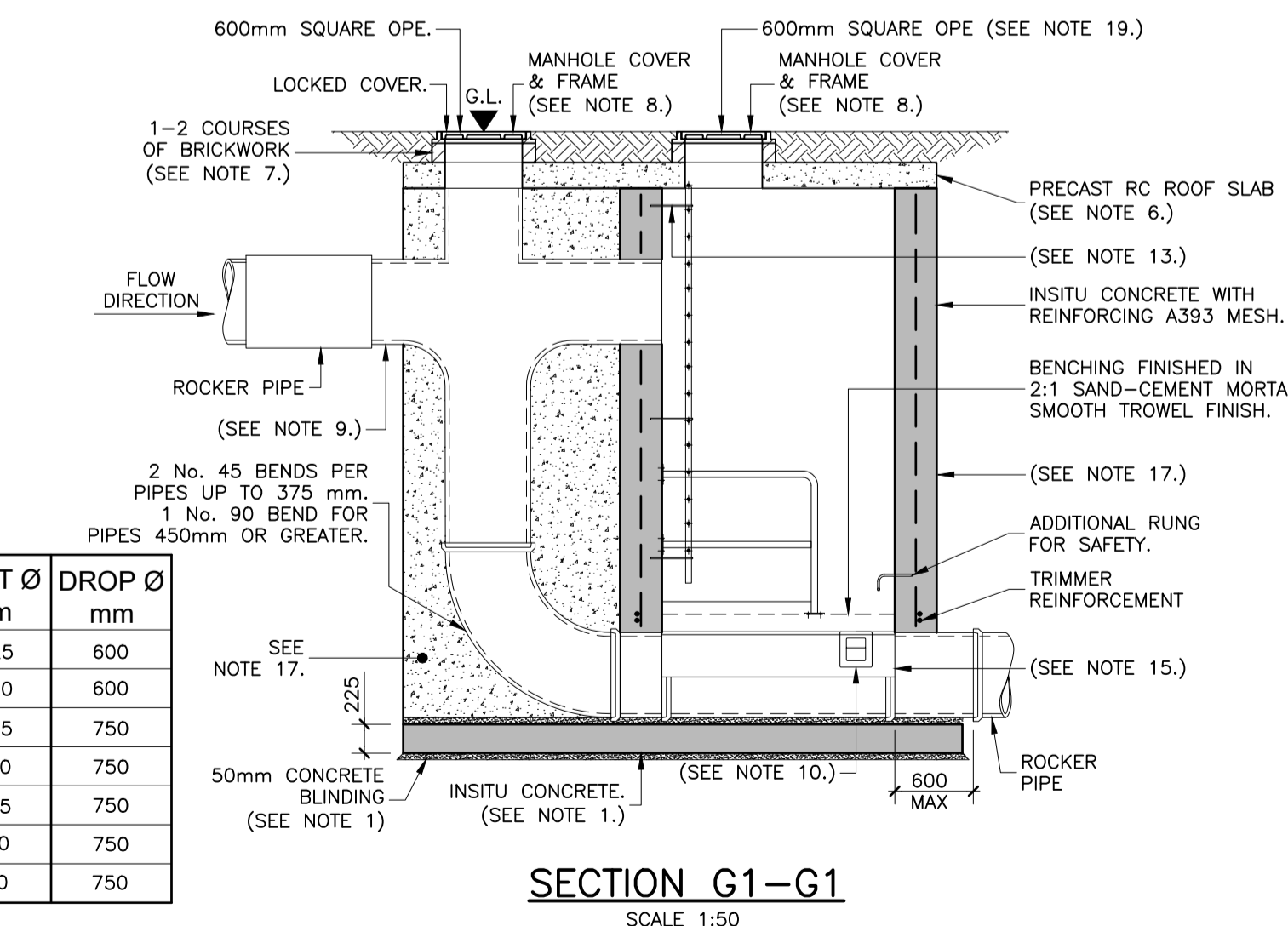
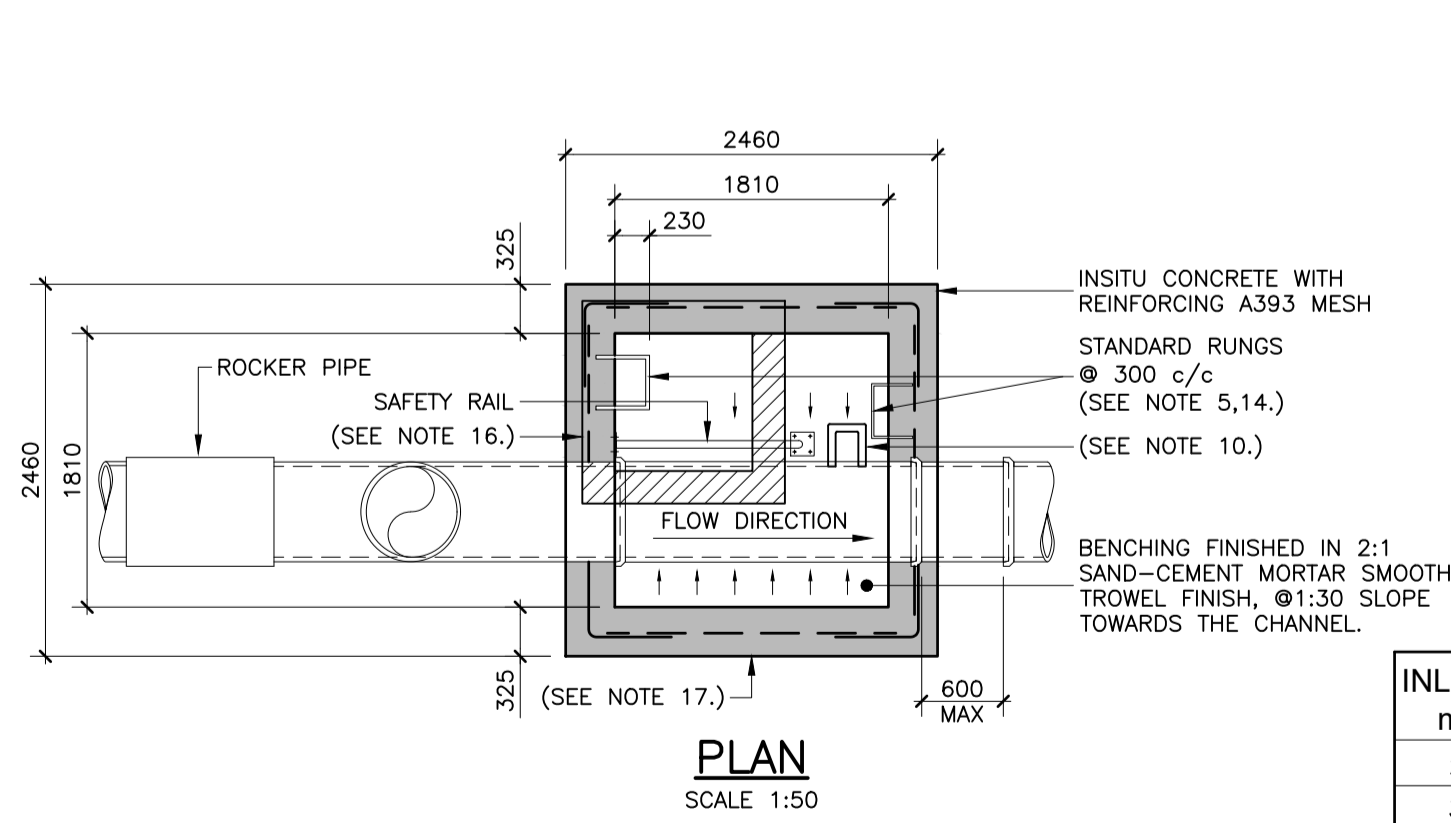
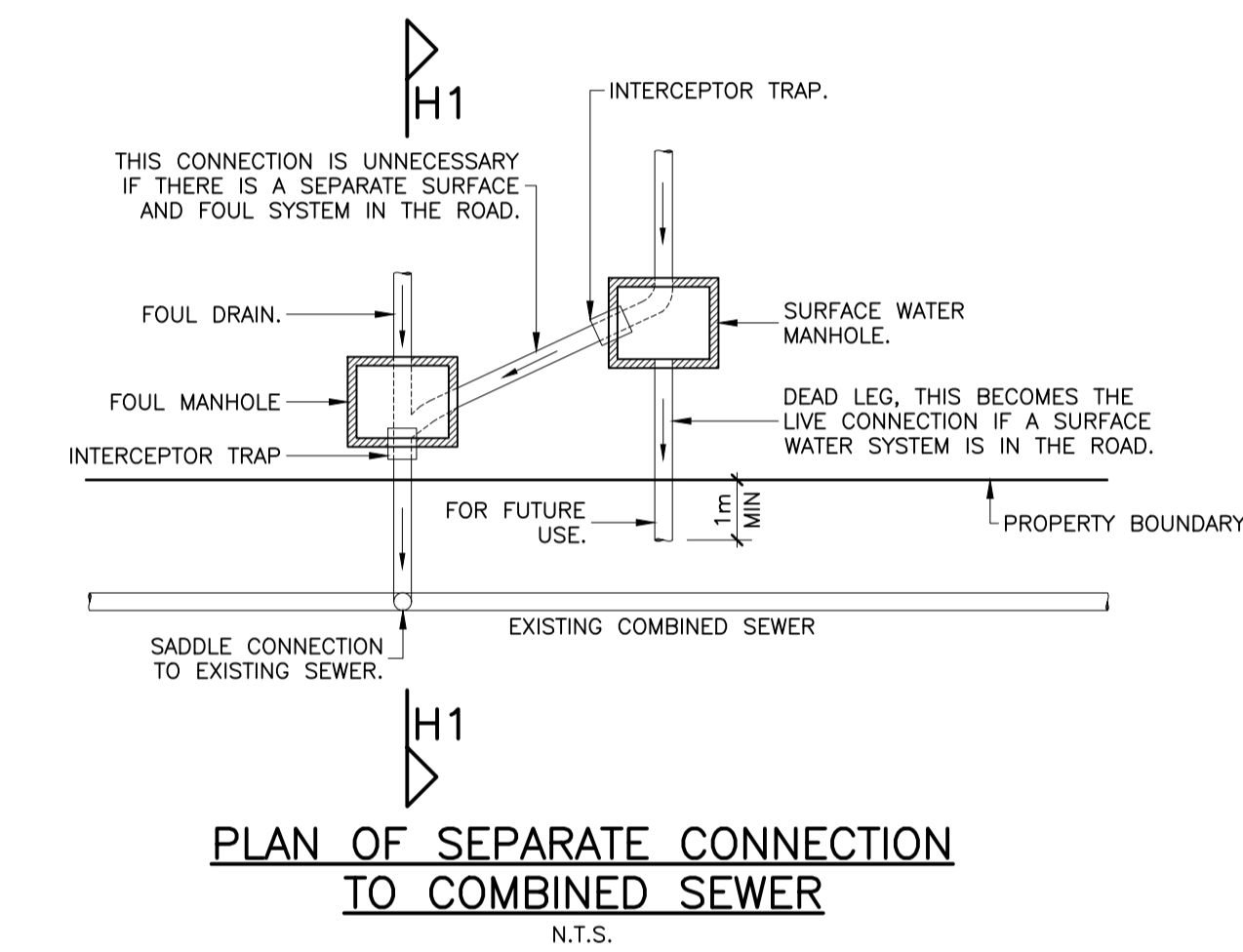
INLET Ø mm	DEPTH(max) mm
225	600
300	600
375	750
450	750
525	750
600	750
750	750

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

**MANHOLE TYPE F**  
RAMP MANHOLE DETAILS FOR PIPE DIAMETERS 150, 225, 300, 375, 450, 525, 600 & 750mm.  
DROP < 750mm

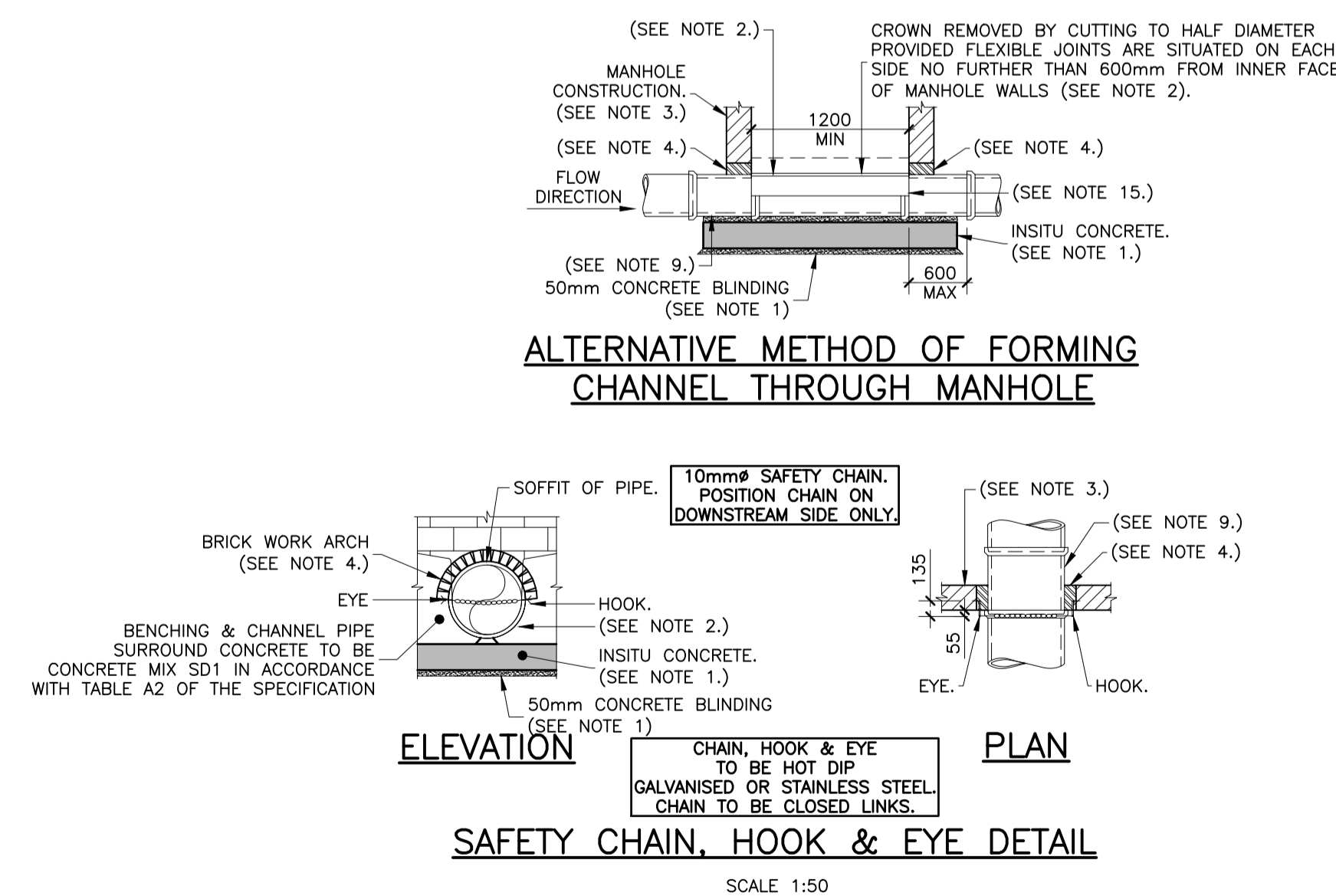


**MANHOLE TYPE H**  
**INTERCEPTOR TRAP DETAILS**  
FOR OUTFALL MANHOLES AT SITE BOUNDARY PRIOR TO CONNECTION TO PUBLIC SYSTEM



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

INLET Ø mm	DROP Ø mm
225	600
300	600
375	750
450	750
525	750
600	750
750	750



**NOTES:**

- THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ENGINEER'S AND ARCHITECT'S DRAWINGS AND SPECIFICATIONS.
- ALL LEVELS ARE IN METRES TO ORDNANCE DATUM, MALIN HEAD.
- ALL BRICKS TO BE SOLID ENGINEERING BRICK CLASS A OR B.
- FOR PIPE DIAMETER > 750mm, USE MANHOLE WITH INTERNAL DIAMETER SIZE: PIPE SIZE + 1000mm + 300mm.
- DISTANCE FROM TOP RUNG OF THE LADDER TO GROUND LEVEL MUST BE A MAXIMUM OF 500mm.

**DRAWING NOTES:**

- IN-SITU BASE TO BE 225 THICK, CONCRETE MIX SD1 IN ACCORDANCE WITH TABLE A2 OF THE SPECIFICATION. CONCRETE BLINDING TO BE CONCRETE MIX SD0 IN ACCORDANCE WITH TABLE A2 OF THE SPECIFICATION.
- PREFORMED HALF CIRCLE CHANNEL PIPES. THE PIPELINE MAY, WHERE PRACTICABLE BE LAID THROUGH THE MANHOLE AND THE CROWN CUT OUT TO HALF DIAMETER, PROVIDED FLEXIBLE JOINTS ARE SITUATED ON EACH SIDE NO FURTHER THAN 600mm FROM THE FACE OF MANHOLE WALL.
- MANHOLE CONSTRUCTION:
  - FOR SURFACE WATER MANHOLE HIGH DENSITY S10 BLOCKS IN ACCORDANCE WITH SECTION F10 OF THE SPECIFICATION, OR CONCRETE MIX SD3 IN ACCORDANCE WITH TABLE A2 OF THE SPECIFICATION. BLOCK WORK SHALL BE BEDDED AND JOINTED USING MORTAR IN ACCORDANCE WITH SECTION F10 OF SPECIFICATION.
  - 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 1 METRE ABOVE BENCHING LEVEL. BRICK TO BE BONDED TO BLOCK WORK USING ENGLISH GARDEN WALL BOND.
- RELIEVING ARCH FORMED BY 215x103x65 SOLID ENGINEERING BRICK CLASS A TO BS 3921 AS PER DRAWING. RELIEVING ARCHES USED IN BRICK OR BLOCK WORK MANHOLES EXTEND OVER FULL THICKNESS OF WALL. A DOUBLE ARCH IS TO BE FORMED FOR PIPE DIAMETERS GREATER THAN 600mm. BENCHING FINISHED IN 2:1 SAND-CEMENT MORTAR WITH A SMOOTH TROWEL FINISH, AT 1 IN 30 SLOPE TOWARDS CHANNEL.
- STANDARD RUNGS AT 300 C/C VERTICALLY AND GALVANISED TO THE LATEST VERSION OF B.S.729 OR EQUIVALENT. NOTE: STEP IRONS ARE NOT ACCEPTABLE.
- PRECAST R.C. ROOF SLAB SHALL BE 200mm THICK IN CONCRETE MIX SD3 IN ACCORDANCE WITH TABLE A2 OF THE SPECIFICATION.
- 1 TO 2 COURSES OF SOLID ENGINEERING BRICKS CLASS A TO BS3921 SET IN 1:3 (CEMENT SAND MORTAR).
- CLASS D400 OR E600 MANHOLE COVER AND FRAME TO IS/EN 124. 150mm DEEP FRAME FOR ROAD AND DESIGNS AND 100mm DEEP FOR FOOTPATHS AND GREEN AREAS. NON-ROCK DESIGN, CLOSED KEYWAYS, MANUFACTURED FROM SPHEROIDAL GRAPHITE CAST IRON (DUCTILE CAST IRON), 600x600 (600 DIAMETER), CLEAR OPENING, 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 BE 80000mm<sup>2</sup> MIN, FRAMES SHALL BE BEDDED ON APPROVED MORTAR TO MANUFACTURERS INSTRUCTIONS.
- SHORT LENGTH PIPE AND PIPE JOINT EXTERNAL TO MANHOLE SHALL NOT EXCEED 600mm FROM THE INNER FACE OF MANHOLE WALL.
- TOE HOLES OF 230mm MINIMUM DEPTH AND GALVANISED STEEL SAFETY RAILINGS TO BE PROVIDED IN BENCHING OF SEWERS GREATER THAN 525mm DIAMETER AND DEPTH TO INVERT > 3M TO INVERT.
- A SAFETY CHAIN IS TO BE PROVIDED ON PIPES THAT EXCEED 450mm IN DIAMETER. MILD SAFETY CHAIN SHALL BE 10mm NOMINAL SIZE GRADE M(H) NON-CALIBRATED CHAIN, TYPE 1, COMPLYING WITH B.S.4942 PART 2 OR EQUIVALENT.
- WHEN DEPTH OF MANHOLES TO INVERT IS GREATER THAN 3.0M LADDERS SHALL BE USED INSTEAD OF RUNGS TO B.S.4211 OR EQUIVALENT EXCEPT THAT STRINGERS SHOULD BE NOT LESS THAN 65x12mm IN SECTION AND RUNGS 23mm IN DIAMETER. FIXED LADDERS SHOULD MEET THE DIMENSIONAL REQUIREMENTS OF B.S.4211 OR EQUIVALENT.
- 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.
- ALL LADDERS, RUNGS, HANDRAILS, SAFETY CHAINS ETC SHALL BE HOT DIP GALVANISED TO B.S.729 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 AND MASS CONCRETE SHALL COMPLY WITH CLASS 2, SECTION 6.2.7, BS8110: PART1:1997.
  - FINISH TO THE TOP OF SLABS SHALL COMPLY WITH TYPE A, SECTION 6.2.7, BS8110: PART1:1997.
  - PLAN DIMENSIONS OF MANHOLES ARE BASED ON BLOCK WORK HAVING A CO-ORDINATE SIZE OF 450x225x100.
  - MANHOLES ARE DESIGNED TO B.S.8005 AND WALL THICKNESS TO L.S.325 BLOCK WORK DESIGN CODE TAKING GRANULAR FILL PRESSURE AND H.B. SURCHARGE.
  - REINFORCEMENT TO SLABS TO ENGINEERS DETAILS.
- FOR MANHOLES > 3M DEPTH TO INVERT USE CONCRETE MIX SD3 IN ACCORDANCE WITH TABLE A2 OF THE SPECIFICATION. REINFORCING MESH REF-A393 @ 6.16KG/M TO BE FIXED AT MID POINT OF WALL. ADDITIONAL REINFORCEMENT TO BE SUPPLIED OVER TO PIPE CROWN.
- FOR PRECAST MANHOLES, CHAMBER WALLS AND COVER SLAB TO BE CONSTRUCTED TO IS EN 1917 AND IS 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 AND SEALING OF CHAMBER RINGS, THE TOP RING (TO PRECAST COVER SLAB) AND BOTTOM RING TO BEDDED WITH CEMENT MORTAR. FOR INTERMEDIATE RINGS, JOINTS TO BE SEALED WITH APPROVED PRE-FORMED JOINTING STRIP.
- PRE-CAST MANHOLES TO BE SURROUNDED WITH A MINIMUM OF 150mm THICK CONCRETE MIX SD2 IN ACCORDANCE WITH TABLE A2 OF THE SPECIFICATION.

NO.	ISSUED FOR PLANNING	03.06.20	SS	SS
001	ISSUED FOR PLANNING	03.06.20	SS	SS

**PLANNING**



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Client: LAOIS COUNTY COUNCIL

Project Title: MOOREVILLE

Drawing Title: SURFACE WATER DETAILS  
SHEET 3 OF 4

Drawing Number: MV-ROD-00-XX-DR-C-0062 Rev: P01

Scale	Date	Job No	Card No
VARIES	JUN 20	19.109	S4 - STAGE APPROVAL