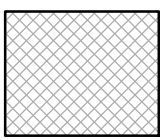
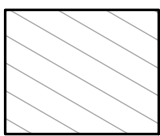
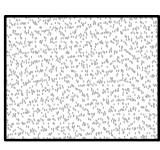


| MAX TRENCH WIDTH |       |
|------------------|-------|
| PIPE DIA.        | WIDTH |
| 150              | 600   |
| 225              | 700   |
| 300              | 750   |
| 375              | 1050  |
| 400              | 1100  |
| 450              | 1150  |
| 525              | 1200  |
| 600              | 1350  |
| 675              | 1450  |
| 750              | 1500  |
| 900              | 1900  |

DIM 'A'  
MIN 250 (ADOPTABLE)  
MIN 150 (GENERALLY)

- CLASS 'S' GRANULAR SURROUND**
- a) LAY AND COMPACT TO A THICKNESS NOT LESS THAN 100mm OVER FULL WIDTH OF TRENCH. WHERE TRENCH BOTTOM IS UNEVEN DUE TO HARD SPOTS INCREASE DEPTH BY 100mm. LAY PIPES DIGGING SLIGHT INTO BED AND RESTING UNIFORMLY. ADJUST TO LINE AND GRADIENT.
- b) LAY & COMPACT GRANULAR MATERIAL IN 100mm LAYERS TO 100mm ABOVE CROWN OF PIPE. SIDEFILL MATERIAL TO BE PLACED EVENLY ON BOTH SIDES OF PIPE TAKING CARE TO WORK THE MATERIAL UNDER THE LOWER QUADRANT OF THE PIPE (ENSURING THE PIPE IS NOT LIFTED). BOTH SIDES OF THE TRENCH SHOULD BE FILLED SIMULTANEOUSLY TO AVOID HORIZONTAL MOVEMENT OF THE PIPE.
- c) BACKFILL WITH SELECTED CUSHION OF 'SELECTED FILL'. COMPACT BY HAND IN 100mm LAYERS TO 150mm (250mm FOR ADOPTABLE SEWERS) ABOVE CROWN OF PIPE.



**GENERAL FILL MATERIALS**

TRENCHES SHALL BE BACKFILLED WITH MATERIAL EXCAVATED FROM WITHIN THE SITE OR IMPORTED ON TO THE SITE WHICH MEETS THE REQUIREMENTS OF A CLASS 1, 2 OR 3 GENERAL FILL MATERIAL COMPLYING WITH OF THE 'SPECIFICATION FOR HIGHWAY WORK, SERIES 600, TABLE 6/1. MECHANICAL COMPACTION OF MAIN BACKFILL MATERIAL SHOULD NOT BE COMMENCED UNTIL THEIR IS A TOTAL COVER DEPTH OF 300mm ABOVE THE CROWN OF THE PIPE.

**SELECTED FILL (FILL SELECTED FROM EXCAVATED MATERIAL)**

SELECTED FILL FROM EXCAVATED MATERIAL SHOULD BE READILY COMPACTABLE BY HAND AND FREE FROM TIMBER, FROZEN MATERIAL, VEGETABLE MATTER AND FOREIGN MATTER AND EXCLUDE HARD LUMPS OF CLAY RETAINED ON A 100mm SIEVE AND STONES RETAINED ON A 40mm SIEVE.

**GRANULAR PIPE BEDDING**

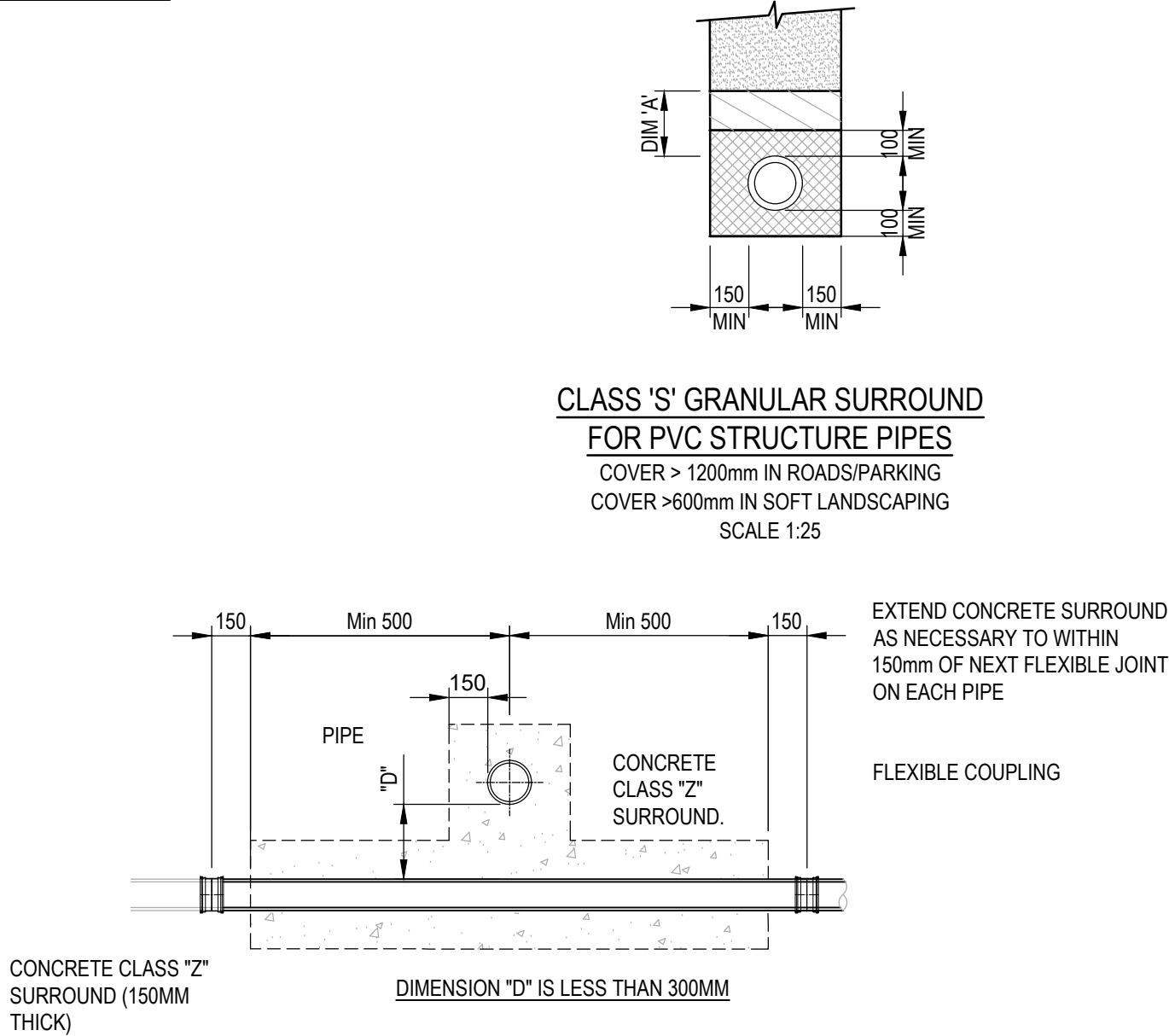
**PRIVATE PIPEWORK**

FOR PIPE SIZE DN100 & DN150, GRANULAR SUPPORT TO COMPLY WITH THE REQUIREMENTS OF A MATERIAL OF DESIGNATION TYPE 4/10 TO BE EN 12620:2002 (I.E. 10mm SINGLE SIZED). FOR PIPE SIZE DN225 & DN300, GRANULAR SUPPORT TO COMPLY WITH THE REQUIREMENTS OF A MATERIAL OF DESIGNATION TYPE 4/20 TO BS EN 12620:2002 (I.E. THE MATERIAL SHOULD HAVE A PARTICLE SIZE THAT IS PREDOMINANTLY WITHIN THE RANGE OF 5 TO 20mm).

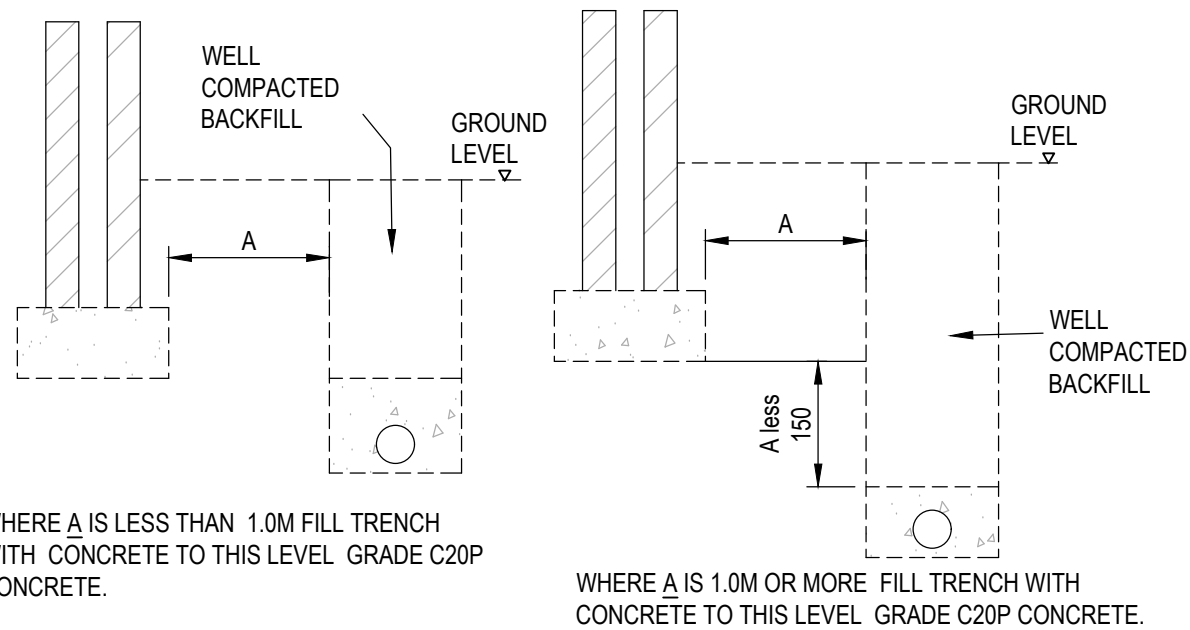
**ADOPTED PIPEWORK**

BEDDING AND SIDEFILL MATERIAL TO CONFORM TO THE REQUIREMENTS OF WATER INDUSTRY SPECIFICATION (WIS) 4-08-02 - 'SPECIFICATION FOR BEDDING AND SIDEFILL MATERIALS INCLUDING RECYCLED AGGREGATES FOR BURRIED PIPELINES' (FEBRUARY 1994, INCORPORATING NOVEMBER 2008 AMMENDMENTS).

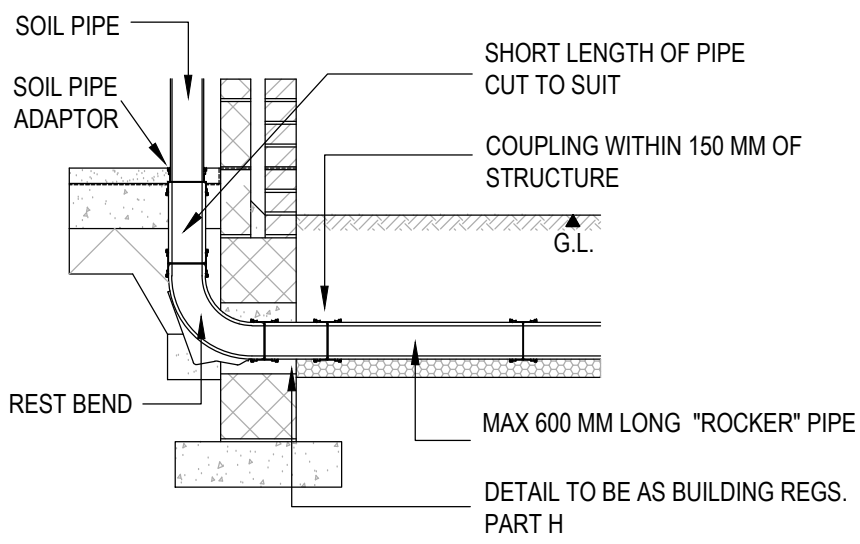
**CLASS 'S' GRANULAR SURROUND FOR PVC STRUCTURE PIPES**  
COVER > 1200mm IN ROADS/PARKING  
COVER >600mm IN SOFT LANDSCAPING  
SCALE 1:25



**TYPICAL PROTECTION TO PIPES CROSSING WHERE DISTANCE APART IS LESS THAN 300MM.**  
SCALE 1:25



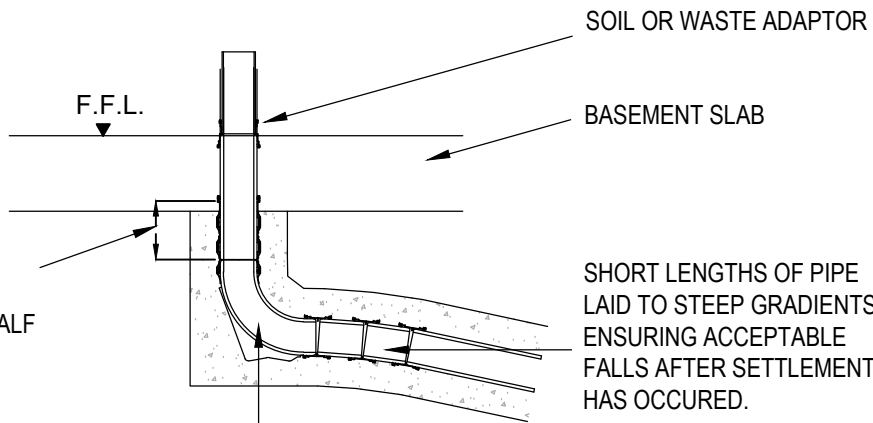
**PIPE TRENCHES ADJACENT TO FOUNDATIONS**  
SCALE 1:25



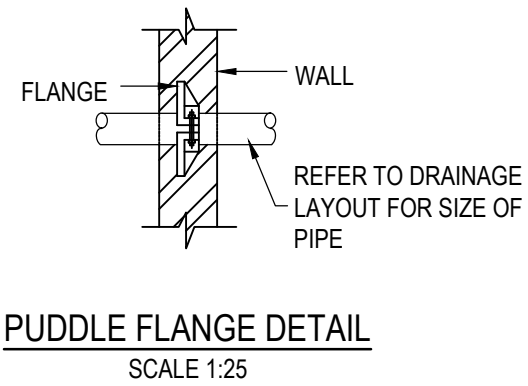
**SOIL & VENT PIPE / STUB STACK / W.C. CONNECTION DETAIL**  
SCALE 1:25

UP TO 180 MM TELESCOPIC MOVEMENT WHERE HEAVE IS EXPECTED INSERT PIPE TO HALF SOCKET DEPTH

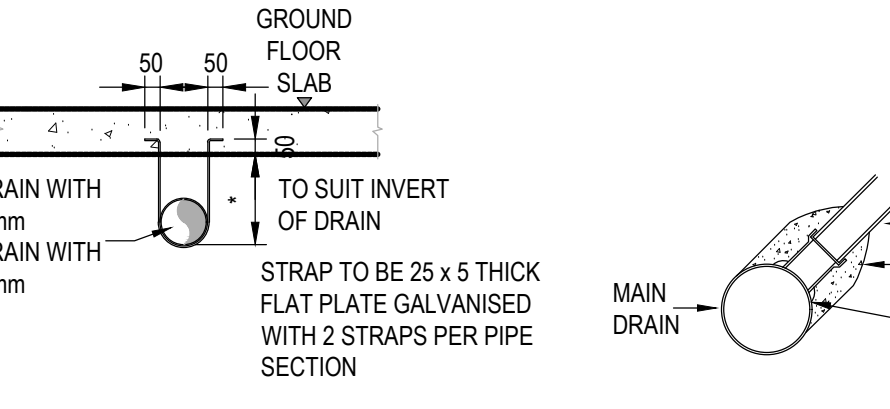
TELESCOPIC REST BEND



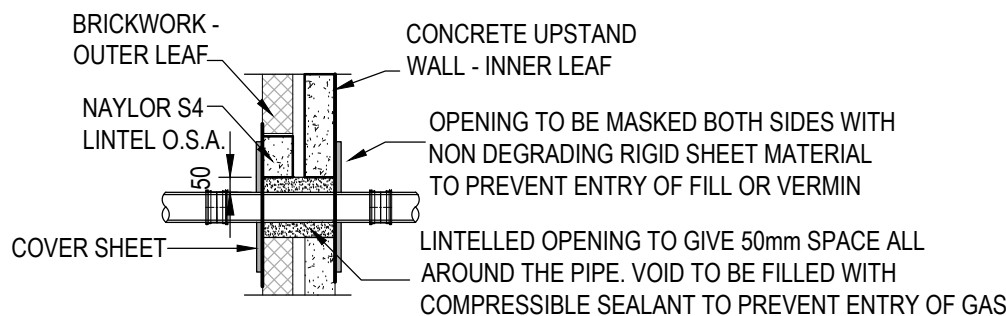
**TELESCOPIC REST BEND CONNECTION DETAIL**  
SCALE 1:25



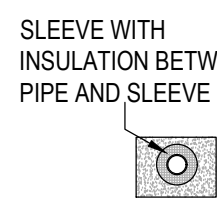
**PUDDLE FLANGE DETAIL**  
SCALE 1:25



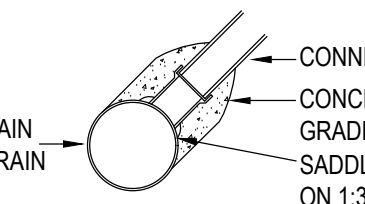
**TYPICAL DETAIL OF PIPE SUPPORT BELOW SUSPENDED FLOOR SITUATIONS**  
SCALE 1:25



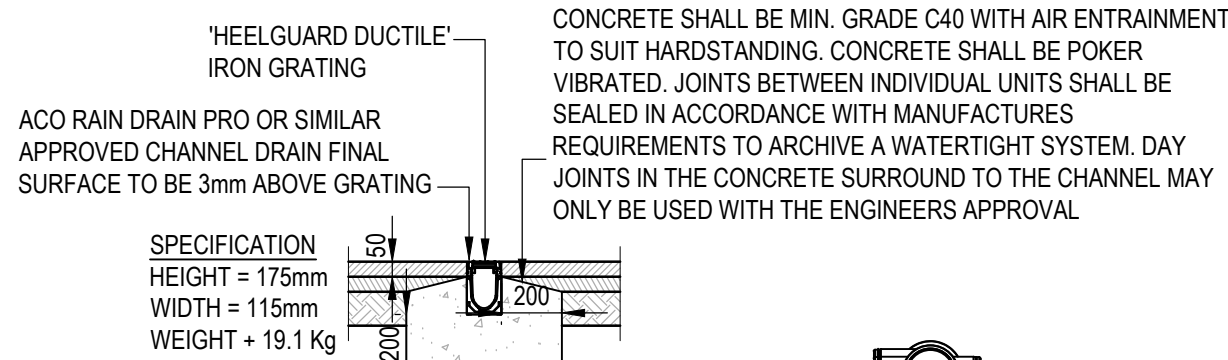
**TYPICAL WALL PENETRATION DETAIL**  
SCALE 1:25



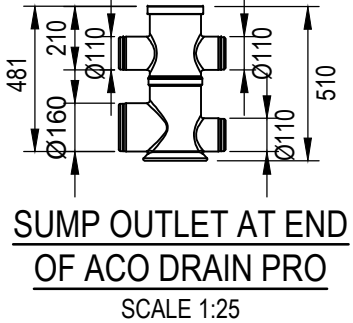
**TYPICAL PENETRATION USING SLEEVE**  
SCALE 1:25



**SADDLE CONNECTION**  
SCALE 1:25

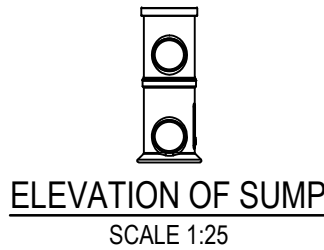


**CHANNEL DRAIN**  
SCALE 1:25

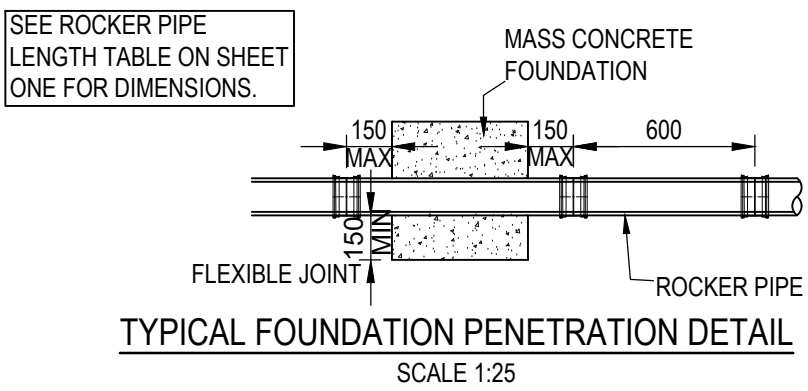


**SUMP OUTLET AT END OF ACO DRAIN PRO**  
SCALE 1:25

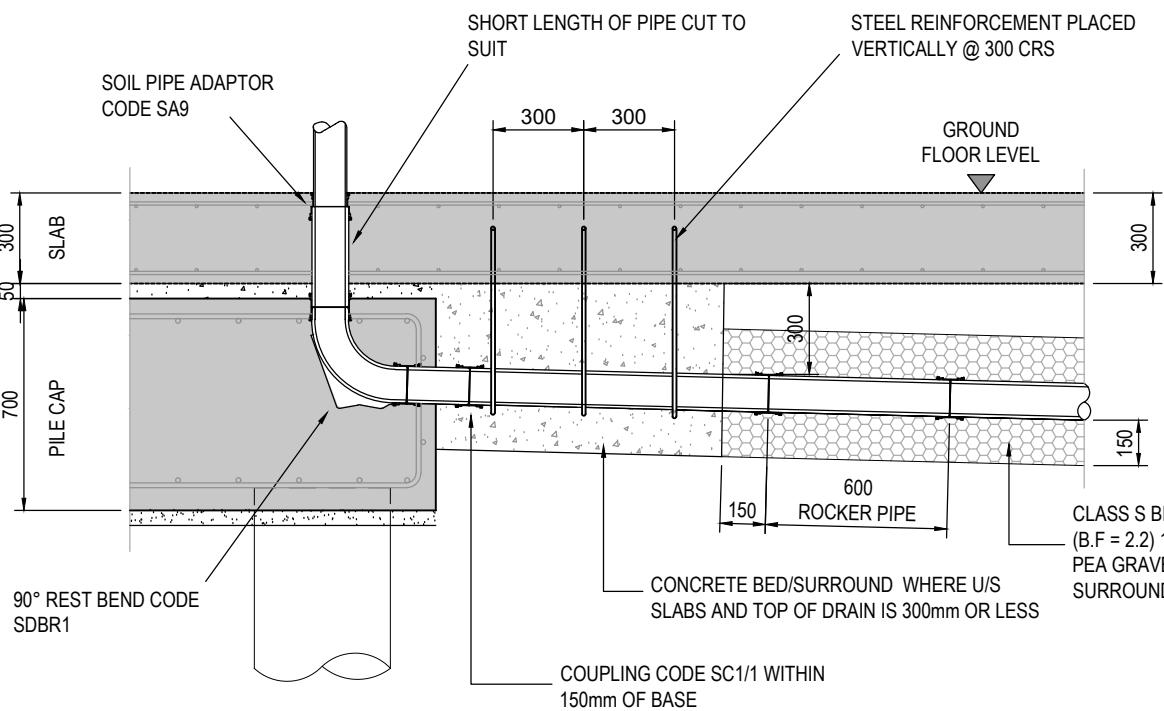
**PLAN SECTION OF SUMP AT END OF CHANNEL DRAIN**  
SCALE 1:25



**ELEVATION OF SUMP**  
SCALE 1:25



**TYPICAL FOUNDATION PENETRATION DETAIL**  
SCALE 1:25



**TYPICAL DETAIL SHOWING SVP THROUGH GROUND FLOOR SLAB**

**NOTE A:**

AT EACH FLEXIBLE PIPE JOINT A JOINT FILLER (E.G. FIBREBOARD OR POLYSTYRENE) SHALL BE USED (SEE TABLE BELOW), AND SHALL EXTEND THROUGH THE FULL THICKNESS OF ANY CONCRETE IN CONTACT WITH THE PIPE. THE CONCRETE BED SHALL BE CUT AWAY AT EACH JOINT TO GIVE A CLEARANCE OF AT LEAST 50MM, SO THAT THE JOINT DOES NOT BEAR ON THE BED.

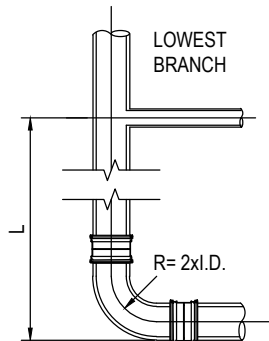
| COMPRESSIBLE FILLER AND PACKING FOR PIPELINES |                                  |
|-----------------------------------------------|----------------------------------|
| NOMINAL DIAMETER OF PIPE (MM)                 | THICKNESS OF COMPRESSIBLE FILLER |
| LESS THAN 450                                 | 18                               |
| 450 - 1200                                    | 36                               |
| EXCEEDING 1200                                | 54                               |

## PIPE BEDDING MATERIAL DETAILS

- ① MATERIAL DESIGNATED TYPE 'A' SHALL CONSIST OF ANGULAR GRAVEL OR CRUSHED ROCK GRADED IN ACCORDANCE WITH BS 882, OR AIR COOLED BLAST FURNACE SLAG TO BS 1047, OR SINTERED PULVERIZED FUEL ASH TO BS 3797, SELECTED ACCORDING TO PIPE SIZE AS FOLLOWS:-

| NOMINAL SIZE OF PIPES (MM) | MAXIMUM PARTICLE SIZE (MM) | IMPORTED GRANULAR MATERIALS                                                                  |
|----------------------------|----------------------------|----------------------------------------------------------------------------------------------|
| 100                        | 10                         | 10MM NOMINAL SINGLE-SIZE                                                                     |
| OVER 100 TO 150            | 15                         | 10 OR 14MM NOMINAL SINGLE-SIZE OR 14MM TO 5MM GRADED                                         |
| OVER 150 TO 300            | 20                         | 10, 14 OR 20MM NOMINAL SINGLE-SIZE OR 14MM TO 5MM GRADED OR 20MM TO 5MM GRADED               |
| OVER 300 TO 600            | 20                         | 14 OR 20MM NOMINAL SINGLE-SIZE OR 14MM TO 5MM GRADED OR 20MM TO 5MM GRADED                   |
| OVER 600                   | 40                         | 14, 20 OR 40MM SINGLE-SIZE OR 14MM TO 5MM GRADED OR 20MM TO 5MM GRADED OR 40MM TO 5MM GRADED |

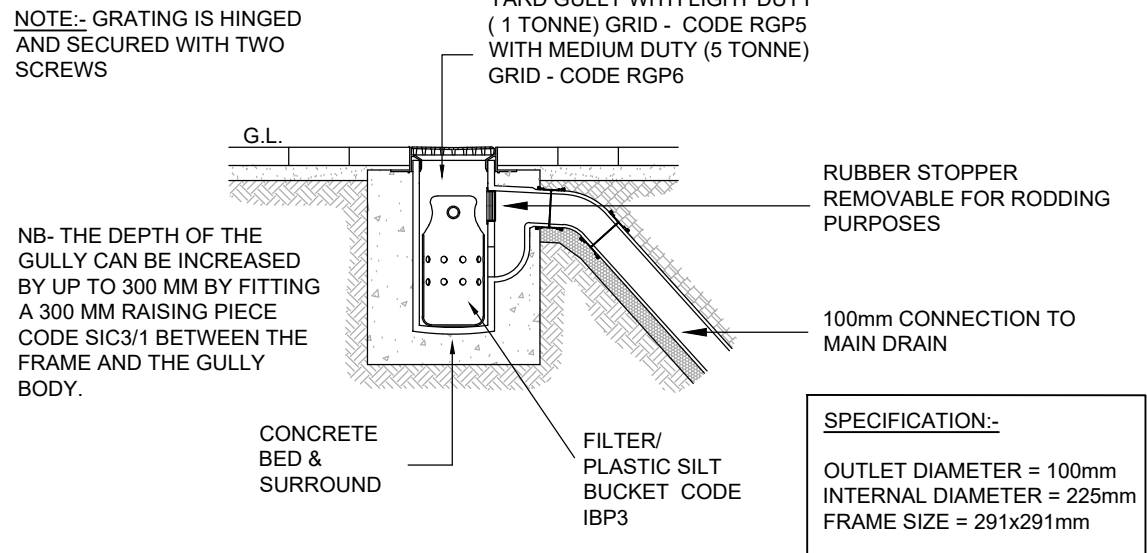
- ② MATERIAL DESIGNATED TYPE 'B' USED UNDER GARDENS AND VERGES SHALL CONSIST OF UNIFORM READILY COMPACTABLE MATERIAL, FREE FROM TREE ROOTS, VEGETABLE MATTER, BUILDING RUBBISH AND FROZEN SOIL, AND EXCLUDING CLAY LUMPS RETAINED ON A 75mm SIEVE AND STONES LARGER THAN 37MM. BEDDING TO BE COMPACTED IN 225MM LAYERS.
- ③ MATERIAL DESIGNATED TYPE 'B' USED UNDER ROADS AND FOOTPATHS SHALL CONSIST OF GRANULAR MATERIAL AS USED FOR CARRIAGEWAY SUB-BASE CONSTRUCTION.



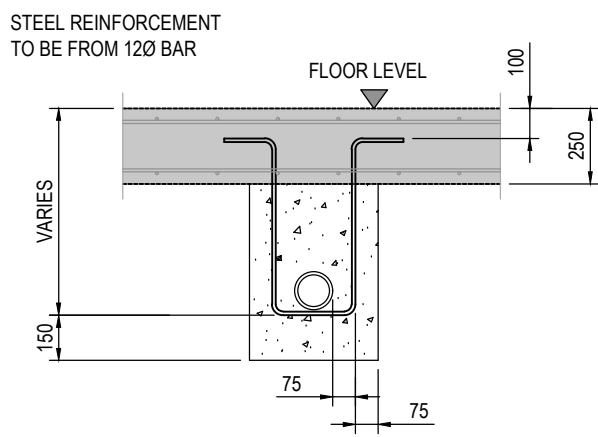
**DOWNPIPE DETAIL**

| APPLICATION                               | L (MIN)  |
|-------------------------------------------|----------|
| SINGLE DWELLING UP TO 3 STOREYS IN HEIGHT | 450mm    |
| BUILDINGS UP TO 5 STOREYS IN HEIGHT       | 740mm    |
| BUILDINGS UP TO 20 STOREYS                | 1 STOREY |
| BUILDINGS OVER 20 STOREYS                 | 1 STOREY |

NOTE:- (THIS INFORMATION HAS BEEN TAKEN FROM BS EN 12056-2:2000)



**YARD GULLY CONNECTION DETAIL**  
SCALE 1:20



**CROSS SECTION**  
SCALE 1:20

Notes

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECTS, ENGINEERS AND SPECIALISTS DRAWINGS TOGETHER WITH THE APPROPRIATE SPECIFICATIONS.
- IT IS THE CONTRACTORS RESPONSIBILITY TO CHECK ALL DIMENSIONS ON SITE. DIMENSIONS MUST NOT BE SCALED FROM THIS DRAWING, ANY DISCREPANCIES TO BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ARCHITECT IN WRITING.
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE. ALL LEVELS ARE IN METRES, UNLESS NOTED OTHERWISE.

### NOTES

- ALL DIMENSIONS ARE IN MILLIMETRES
- FOR DETAILS OF DEPTHS, NUMBER OF BRANCHES , AND PIPE SIZES REFER TO DRAINAGE PLANS OR SCHEDULE.
- FOR TYPES OF COVER AND FRAMES SUITABLE FOR THESE MANHOLES SEE DRAINAGE PLANS OR SCHEDULES.
- DIAMETER OF CONCRETE MANHOLE. RINGS SHALL BE AS SHOWN ON THE DRAWINGS AND/OR MANHOLE SCHEDULE
- WHEN DEPTH OF COVER LEVEL TO TOP OF BENCHING EXCEEDS 900mm STEP IRONS TO BS EN 1301 TO BE PROVIDED.
- INSITU MASS CONCRETE TO BE GEN3 STRENGTH CLASS C16/20. USE OF CEMENT REPLACEMENT ARE PERMITTED SUBJECT TO APPROVAL BY ENGINEER
- COVER SLABS & ALL REINFORCED CONCRETE TO BE RC25 STRENGTH CLASS C20/25 USE OF CEMENT REPLACEMENT ARE PERMITTED SUBJECT TO APPROVAL BY ENGINEER
- ALL BELOW GROUND CONCRETE TO BE:
  - MADE GROUND: DS-2 / AC-2
  - ALLUVIUM SOILS: DS1 / AC-4z
  - GLACIAL TILL: DS-1 / AC-1
- THE COVER FRAME SHALL BE BEDDED ON 1 TO 3 COURSES AS NECESSARY OF CLASS B ENGINEERING BRICKS & HAUNCHED IN CEMENT MORTAR 1:3
- BENCHING SHALL BE FORMED IN CONCRETE TOWELED SMOOTH TO A GRADIENT OF BEYWEEN 1:10 AND 1:30.
- ALL PRECAST CONCRETE COMPONENTS SHALL BE IN ACCORDANCE WITH BS5911 PART 100.
- RINGS SHALL BE JOINTED BY BUTTERING WITH WATERPROOF MASTIC JOINT (TOCSTRIP) MANUFACTURED BY WINN & COLES Co. LTD JOINTS SHALL BE NEATLY FINISHED BOTH INTERNALLY & EXTERNALLY.
- CONCRETE BASES TO MANHOLES SHALL BE 150mm MIN FOR MANHOLES UP TO 1.8m DEEP 225mm MIN FOR MANHOLES BETWEEN 1.8m & 6.0m & 450mm FOR MANHOLES EXCEEDING 6.0m DEEP. BASES TO HAVE LAYER OF A193 MESH MANHOLES GREATER THAN 1400x500 (INT) OR 1800 (INT) TO HAVE REINFORCEMENT BARS TO DETAILS PROVIDED BY STRUCTURAL ENGINEER.
- ALL PRECAST CONCRETE MANHOLES (SHALLOW TO MEDIUM DEPTH) TO BE SURROUNDED WITH A MIN OF 150mm OF CONCRETE
- SINGLE SEAL MANHOLE COVER & FRAMES TO BE PROVIDED ON ALL FOUL & SURFACE WATER DRAINAGE (EXTERNALLY ONLY). DOUBLE SEAL MANHOLE COVER & FRAMES TO BE PROVIDED ON FOUL & SURFACE WATER DRAINAGE (INTERNALLY ONLY). ALL MANHOLE COVERS ARE TO BE CAST IRON TO BS 497 AND SHALL BE RECTANGULAR OR SQUARE & BE HEAVY DUTY WHERE LOCATED IN ROAD WAYS & MEDIUM DUTY ELSEWHERE UNLESS OTHERWISE INDICATED ON SCHEDULE.
- WHERE SHALLOW (MAX OF 0.7m DEEP) PRE-CAST CONCRETE MANHOLES ARE POSITIONED UNDER MAIN ROADS OR ARE POSITIONED SUBJECT TO VEHICULAR TRAFFIC THE MANHOLE IS TO BE SURROUNDED WITH A MIN OF 225mm CONCRETE.
- BRICKS FOR MANHOLE CONSTRUCTION TO BE CLASS B ENGINEERING BRICKS TO BS 3921 IN ENGLISH BOND SET IN CEMENT MORTAR 1:3.
- FLEXIBLE JOINTS ON PIPE WORK TO BE MADE WITHIN 150MM & ROCKER PIPE LENGTH FROM INSPECTION CHAMBER/MANHOLE CHAMBER/FOOTING/GROUND BEAM OR WALL.
- 150mm DEEP TOE HOLES TO BE PROVIDED IN BENCHING OF SEWERS GREATER THAN 6000 FOR ACCESS TO INVERT. HOLES SHOULD BE STAGGERED HORIZONTALLY BY 150mm EITHER SIDE OF THE CL AND SPACED VERTICALLY SO THAT THE MAX. STEP WILL BE 300mm
- COVER AND FRAME TO BE CLASS D400 TO BS EN 124 WITH A 150mm DEEP FRAME IN ROADS AND CLASS B125 IN OPEN SPACE WITH A 600mm CLEAR OPENING. ALL COVERS TO BE KITEMARKED WITH MANUFACTURERS NAME CLEARLY VISIBLE.
- MANHOLE STEPS SHOULD BE BUILT INTO THE WALL AT REGULAR HEIGHT INTERVALS OF BETWEEN 230mm AND 300mm, UNLESS DOUBLE STEPS (RUNG IRONS) THEY SHOULD BE STAGGERED IN TWO VERTICAL RUNS AT APPROX. 300mm C/C HORIZONTALLY. THE TOP STEP SHOULD BE NOT MORE THAN 875mm BELOW THE SURFACE AND THE LOWEST NOT MORE THAN 300mm ABOVE THE BENCHING.

|     |          |     |                                     |      |
|-----|----------|-----|-------------------------------------|------|
| F11 | 12.06.25 | HD  | FINAL ISSUE                         | GB   |
| C01 | 17.11.23 | BM  | DRAWING STATUS UPDATED.             | GB   |
| P02 | 18.09.23 | BM  | DRAINAGE DETAILS AND NOTES AMENDED. | RH   |
| P01 | 21.06.22 | DAB | FIRST ISSUE                         | GB   |
| Rev | Date     | By  | Description                         | Appd |

### FINAL ISSUE



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Client



Architect

DAY ARCHITECTURAL

Project

THE FAIRFAX, MANCHESTER

## DRAINAGE STANDARD DETAILS SHEET 2

|              |         |          |
|--------------|---------|----------|
| Scale        | Drawn   | Revision |
| AS SHOWN @A1 | DAB     | F11      |
| Date         | Checked | GB       |
| FEB 2022     |         |          |

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C-26-011