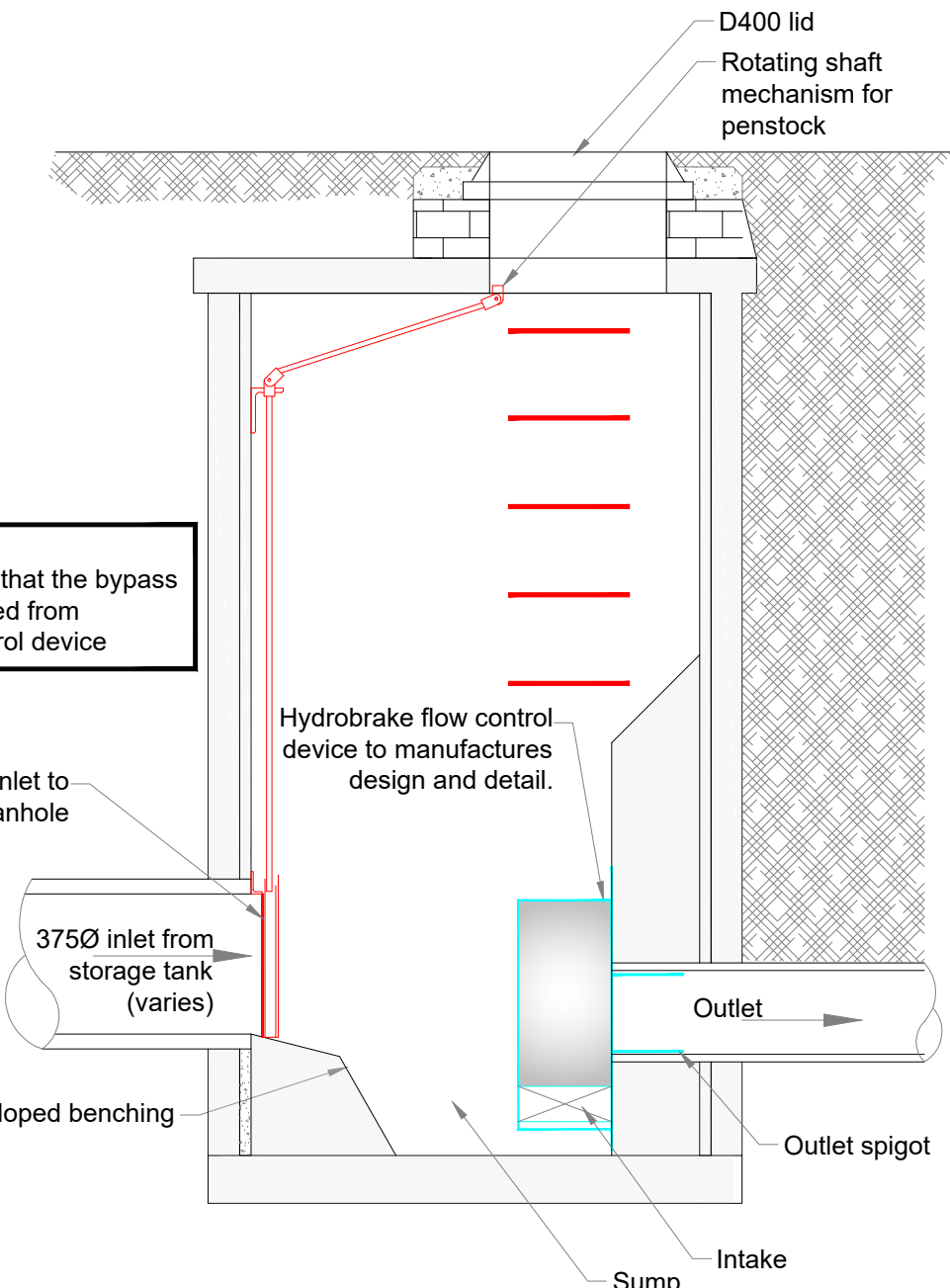
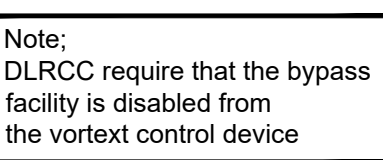
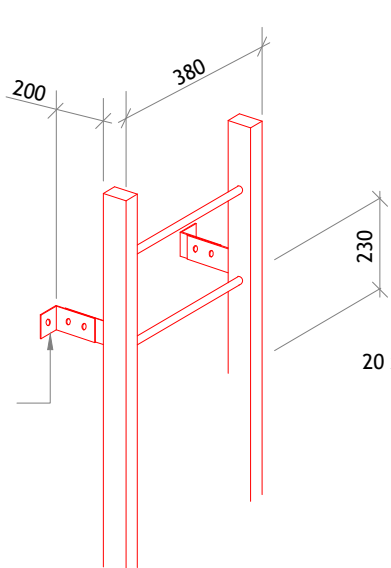
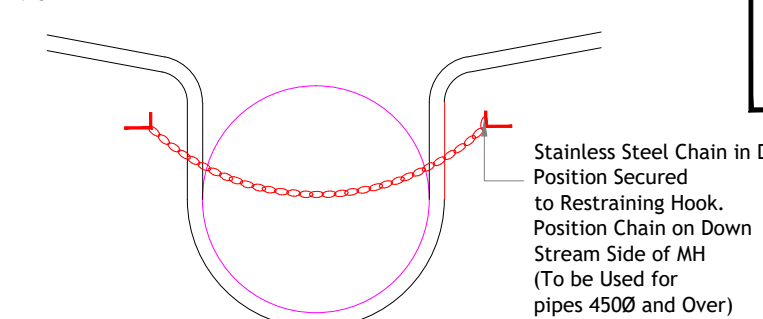
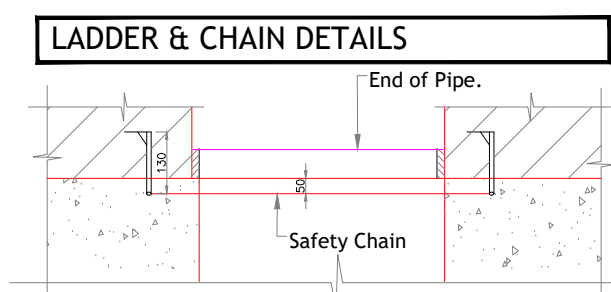
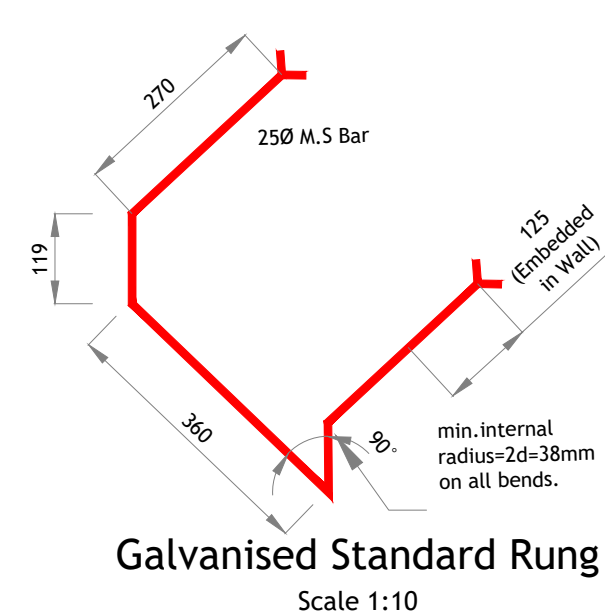
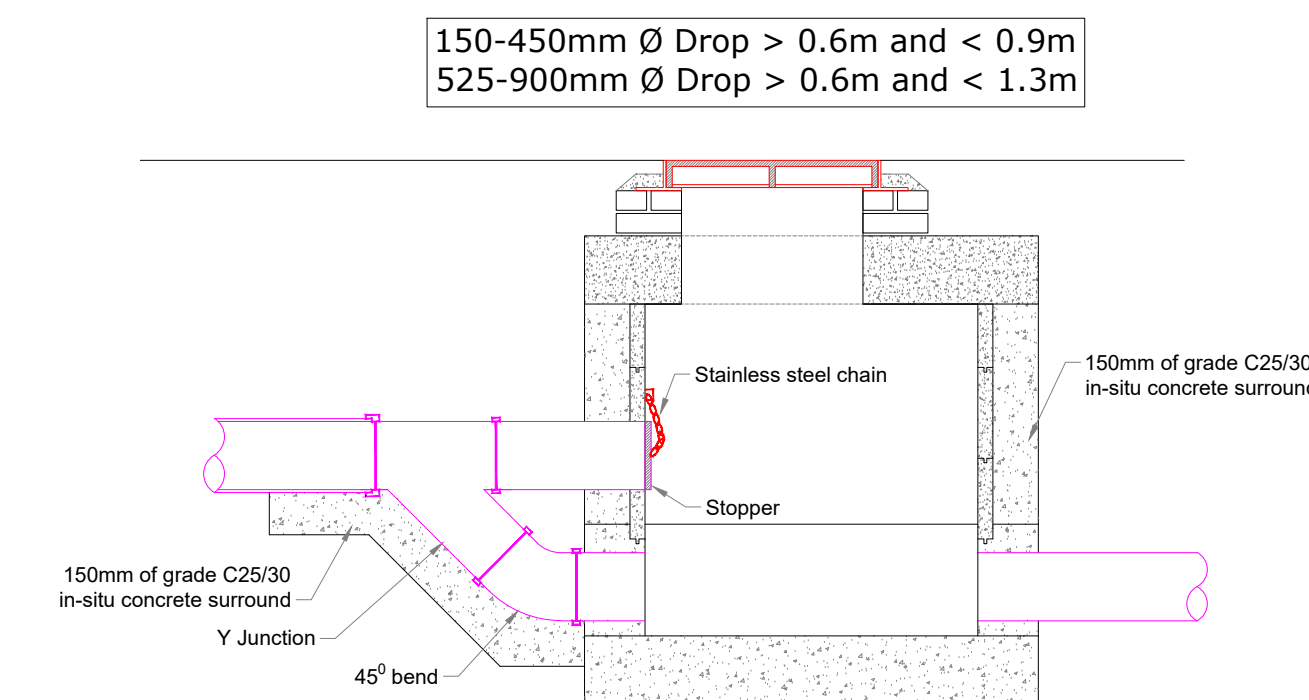
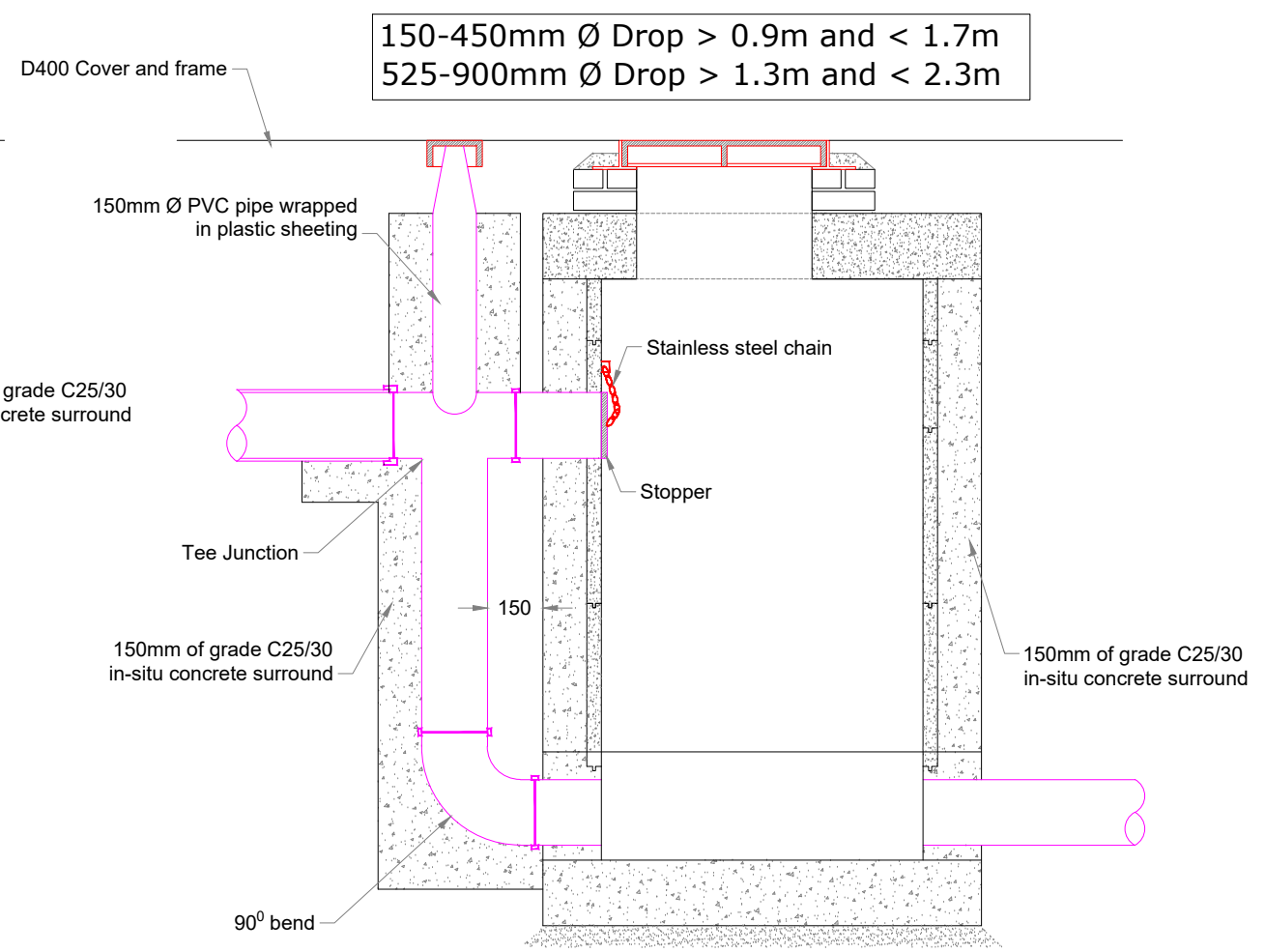
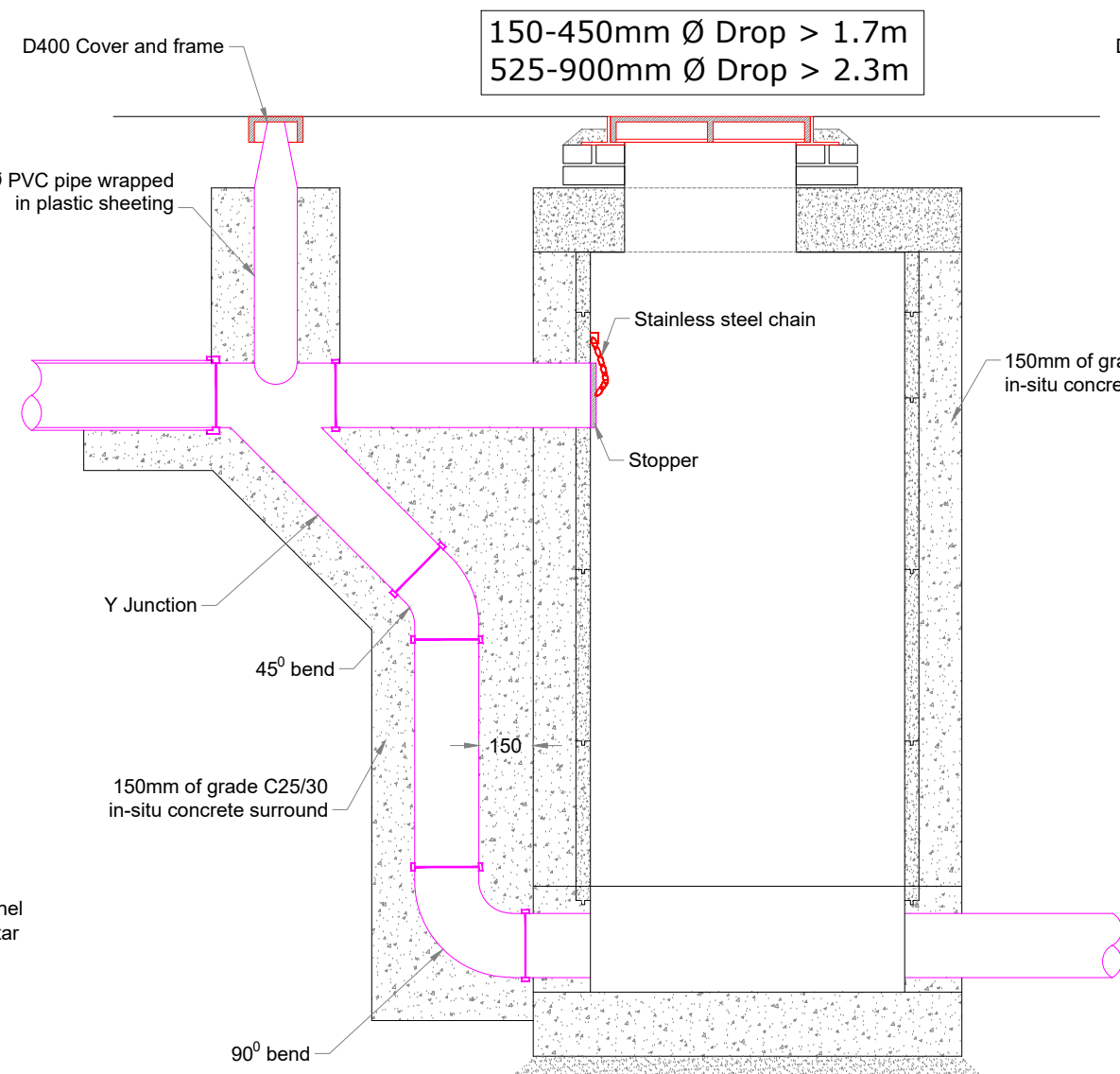
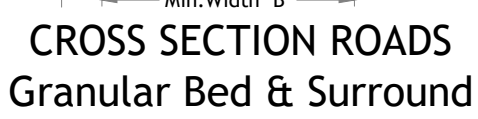
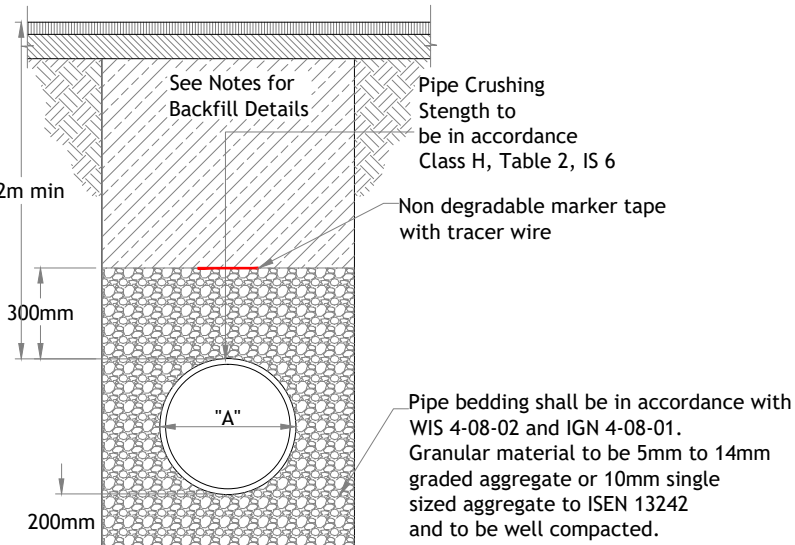
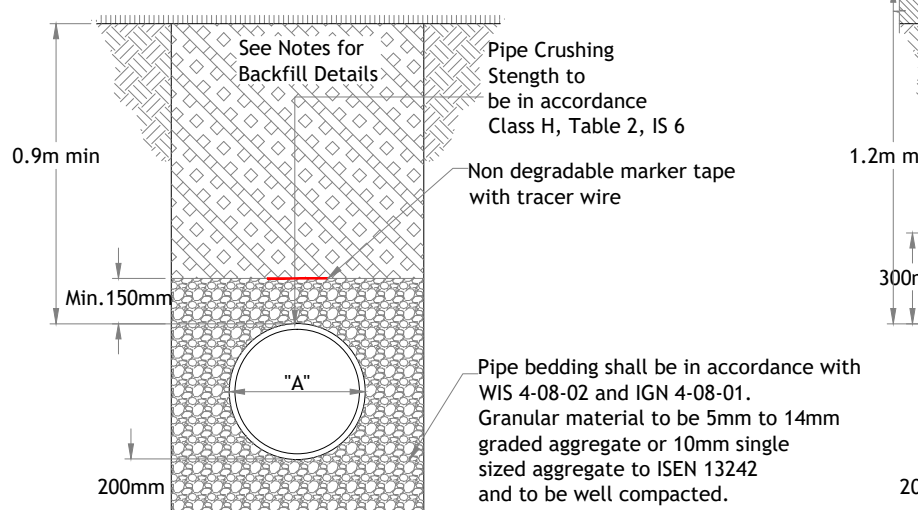
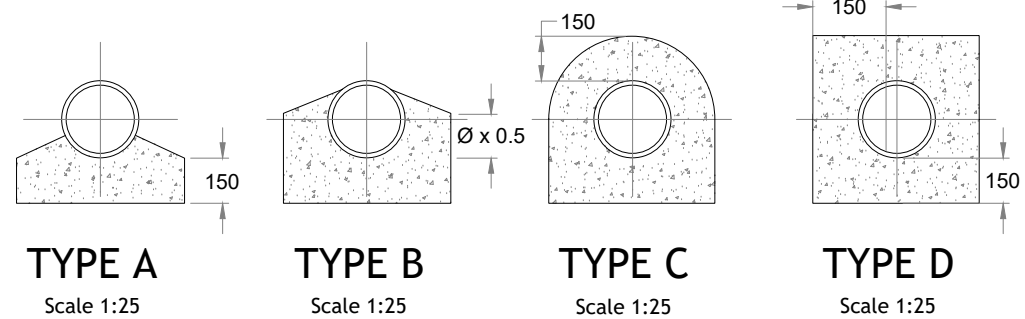
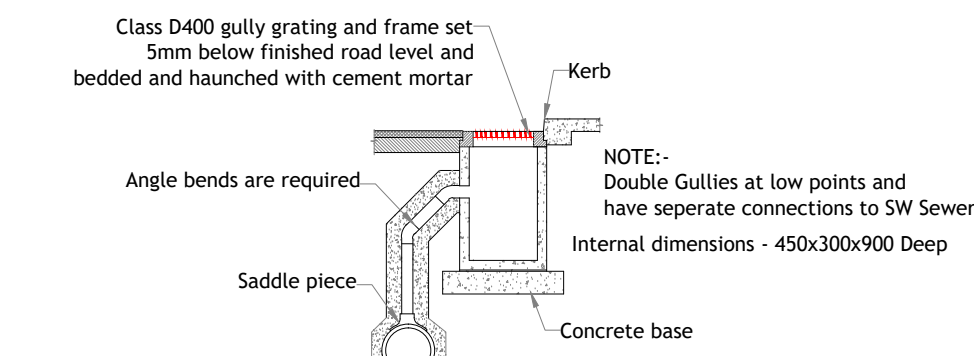
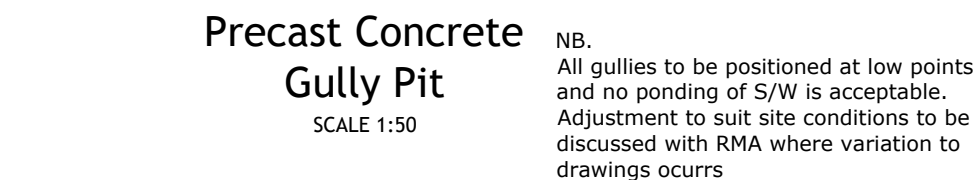
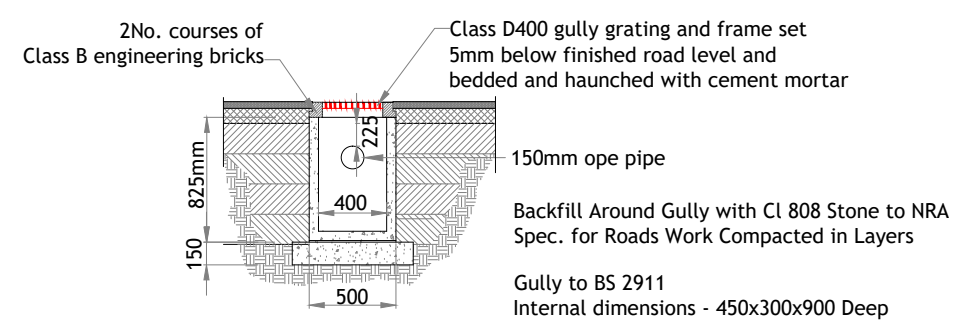


TABLE A						
DEPTH (m)	TYPE	PIPE DIAMETER (mm)				
		150	225	300	375	450
0-1	PRECAST	A 1050Ø	A 1200Ø	A 1200Ø	A 1200Ø	A 1200Ø
1-3	PRECAST	A 1050Ø	A 1200Ø	A 1200Ø	A 1350Ø	A 1350Ø
3-6	PRECAST	B 1200Ø	B 1200Ø	B 1200Ø	B 1350Ø	B 1500Ø



## Typical Hydrobrake Manhole

Scale 1:20

**NOTES:**

2. Read in conjunction with all relevant Architect's Engineer's drawings and cross read the detailed notes on the various Manholes.
3. The minimum diameter of manholes are as shown in Table A, but this may need to be increased subject to the following conditions, this is made up as follows:  
For pipes up to 150mmØ, provide the sum of the braches + 200mm per branch + 300mm  
For pipes over 150mmØ, provide the sum of the braches + 300mm per branch + (300mm if no pipes up to 150mmØ are used); for 2x150mm + 1x250 pipes on one side, (length of manhole subject to the above) + 300mm
4. Access rungs shall be provided in manholes greater than 1m to the invert level of the pipe.
5. A 200mm concrete surround, 100mm deep, shall be provided around manhole covers in paved areas.
6. Class U2 finish to the top of slabs. Reinforcement in the slabs to details or as directed by the Engineer.
7. Manhole foundations to be 225mm C30/37 sand concrete with 75mm lean mix concrete bedding.
8. Use pre-formed half circle channel pipes cut through manhole but the pipeline may be laid through the manhole and the crown cut out to half diameter ensuring that flexible joints are located either side of manhole at max. 600mm as measured from the inner diameter of manhole.
9. Use CL 20N/20 concrete for benching and pipe channel pipe surround.
10. Benchng to be finished in 1:3 cement:sand mortar with a smooth trowel finish, at 1 in 30 slope towards chamber. Form a 25mm radius nosing on benching level, crown at crown of the pipe.
11. Standard galvanised (BS 729) rungs to be positioned @ 300cm/c vertically.
12. Roof slab to have a min. 600mm rungs above.
13. 225mmHC Rect. R.C roof Slab in C30/37 concrete. Cover of steel shall be 40mm.
14. 445 cover frame to be 100mm min to 3 No. max. courses of engineering bricks (CL8 to 1:5.91:PRECAST set in C50/60 mortar).
15. RH cover and frames to be Class D400 to IS/EN 124 1500mm deep frame for rungs, 100mm deep for footpaths and green areas. Class B250 manhole cover may be used for private areas and for light duty vehicular traffic. Non-slip graded, closed keyways, manufactured from superlight graphite cast iron (ductile cast iron 600x600 (or 600mm) x clear opening, cover and frame coated in bitumen or other approved material, shall have a minimum mass of 140kg/m<sup>2</sup>, frame bearing area shall be 80,000mm<sup>2</sup> min., frames shall be designed to prevent covers falling into the manhole. Frames shall be bedded in C50/60 mortar to manufacturers instructions.
16. Galvanised steel safety railings to be provided in benching of sewers greater than 450mm Ø and depth to invert=3m for access to provide. Toe holes of 230mm min. depth to be provided where channel <600mm.
17. Safety chain to be provided on pipes that exceed 450mm Ø. Stainless steel safety chain shall be 10mm nominal size grade (M) non galvanized chain, type 1, complying with BS 5.4942 Part 2.
18. Invert of ramps of Manhole in Invert is greater than 3.0m. Ladders shall be used, instead of runs 25mm D10mm. B.S.4211 is required that stringers should be not less than 65x200mm. in section and runs 25mm D10mm in diam. Fixed Ladders should meet the dimensional requirements of BS 5.4211.
19. Ladder stringers should be adequately supported from the Manhole wall at intervals of 2.0m and should be bolted to the wall.
20. Socket of pipe to cut flush with the inside surface of the manhole wall.
21. Where manhole diameter changes in deep manholes, provide a 910mm square ope in the intermediate roof slab.
22. All Manholes shall be built to the satisfaction of the Engineer. Formwork to reinforced concrete and mass concrete shall comply comply to Class 2, Section 6.2.7 BS8110 Part 1:1997. Finish to the top of slabs shall comply to Type A, Section 6.2.7 BS8110: Part 1: 1997. Manholes are designed to BS 8005 and wall thicknesses to BS 5400.
23. Precast Manholes, Chamber walls and cover slab to be constructed to IS EN 197 and IS 420 2004.
24. Manhole ope to be situated further from the nearest carriageway. Manhole steps/ access to be positioned to allow viewing of incoming traffic.
25. For bedding and bedding of chamber rings, the top ring below PC slab and bottom ring to be sealed with cement mortar, for intermediate rings, joints to be sealed with approved pre-formed jointing strip.
26. Pre cast Manholes to be surrounded with a minimum of 150mm thick Grade C25/30 concrete.

PIPE BEDDING & BACK FILLING NOTES:-

1. Pipe/backet to be granular material to C1804/808 in accordance with the NRA Specification for Road Works. Use only C1.808 material within 500mm of cement bound materials such as concrete kerbs/pavts/haunching.
2. Backfill material to be compacted in accordance with C1.802 of the NRA specification compacted in layers of not greater than 150mm.
3. Back filling in open spaces shall consist of suitable selected excavated material, shall be compacted in layers greater than 150mm. The material shall be free from stones or lumps of clay greater than 75mm in size and shall be compacted in 150mm layers. It shall meet the requirements of 'Acceptable material' as defined in Clause 4-01 of the NRA Specification for Road Works.
4. Paving shall be in accordance with WIS 4-08-02 and IGN 4-08-01. Granular material to be 5mm to 14mm graded aggregate or 10mm single sized aggregate to ISEN 1302.
5. All pipes to have a 150mm Concrete surround where the cover is less than 900mm in depth. For Pedestrian covers the concrete shall be 150mm thick and for road covers if cover is <1.2m traffic loaded areas. All other pipework to be to bedding details as shown.
6. Concrete for pipe bedding, haunching and surrounds shall be C16/20 and have expansion joints at all pipe joints using 18mm filler board.
7. Formwork to Reinforced concrete and mass concrete shall be in accordance with Class F2.
8. Wrap PE pipes in plastic sheeting before casting into concrete

All pipe/manhole details to be compliant with Irish Water's Wastewater Infrastructure Standard Details document July'20 (Rev'04)

THIS IS A PLANNING DRAWING AND IS  
FOR THE APPROVAL OF IRISH WATER

REV	DATE	DESCRIPTION
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Project

KITLTERNAN VILLAGE LRD

Drawing Title				Architect	
MANHOLE DETAILS				MCORM Architects	
Date	Drawn By	Scales	Dwg.No.	Stage	Rev
May'24	RM	As Shown	2104C/336	LRD Stage 3	