

General Drainage Notes

- This drawing is to be read in conjunction with all other relevant Engineers and Architects details.
- All material & workmanship to be in accordance with 'Sewers for Adoption 6th Edition'.
- All work is to be carried out in accordance with the current British Standards, B.S. codes of practice & Building Regulations.
- Refer to SFA Specification for concrete grades & sand/ cement mortar grades. All precast & in-situ concrete to contain a minimum Class 3 sulphate resisting cement.
- Pre-formed channels are to be used at manholes.
- Granolithic concrete benching to be steel trowelled to a dense smooth face neatly shaped & finished to all branch connections & laid in accordance with the Specification.
- All dimensions are in millimetres u.n.o.
- Pipe bends to suit direction of flow.
- Manhole covers and frames to be to EN 124. Use grade D400 covers in vehicular movement areas and grade A15 covers in non-vehicular areas.
- All trenches under carriageway to be backfilled with Type 1 Sub-base, well compacted in layers not exceeding 150mm loose depth.

Notes on Bedding Details

Generally vitrified clay drainage pipework should be laid in accordance with BS 65 and BS 8301.

A–Type A granular material shall comply with WS No. 4–08–01 and shall be:–
(a) Imported single size or graded aggregate in accordance with BS 882 as shown in the table A.
(b) Selected as-dug granular bedding and sidefill material shall be free from organic matter, combustible materials, frozen soil, clay lumps larger than 75mm and stones larger than the maximum permitted particle size specified in table A depending on pipe size. The selected material shall be evaluated using the compaction fraction test detailed in Appendix A of WS No. 4–08–01. Material excavated from trenches dug through land contaminated with domestic, building or industrial waste should not be used.

B–Type B selected fill shall be:–
Uniform readily compactable material which is free from tree roots, vegetable matter, building rubbish, frozen soil, clay lumps and material retained on a 40mm sieve.

C–Concrete protection to pipe. For concrete grade refer to note 4 and concrete mix specification

E–General backfill shall be:–
Suitable excavated material from the trench (or imported) excluding boulders, lumps of concrete, timber and vegetable matter. Do not use heavy compactors before there is 600mm cover of material over the pipes.

Bc–External diameter of pipe.

H–When 'H' (depth of cover) is less than 0.9m below the finished surface of a road or less than 0.3m elsewhere use bedding class A or Z as appropriate for the material being used, or; Elsewhere use bedding class B or P as appropriate for the pipe being used. Provide temporary protection during construction against mechanical damage and frost.

Y–Depth of granular bedding Y shall be not less than 100mm beneath pipe barrels and shall be greater in soft or wet conditions or where the trench bottom is irregular.

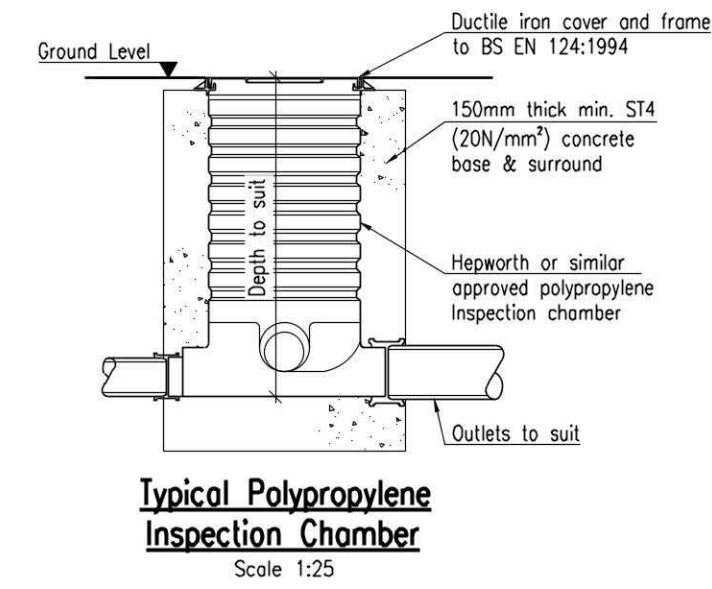


TABLE SHOWING PRIVATE MANHOLE/INSPECTION CHAMBER COVER GRADES AND AREAS OF USE	
COVER GRADE TO BS EN: 124	LOCATION
D400	FOR USE IN INDUSTRIAL ROADS AND PARKING AREAS ACCESSIBLE TO ALL TYPES OF ROAD VEHICLES INCLUDING HGV'S.
C250*	FOR USE IN PRIVATE ROADS OR PARKING AREAS eg. CAR PARKS AND MINOR PRIVATE ROADS ACCESSIBLE TO REFUSE VEHICLES, FIRE APPLIANCES ETC WITH POSSIBLE OCCASIONAL HGV USE.
B125	FOR USE IN FOOTWAYS, PEDESTRIAN AREAS, DRIVEWAYS AND CAR PARKS ACCESSIBLE BY LIGHT VEHICLES ONLY.
A15	FOR USE IN AREAS WHICH CAN ONLY BE USED BY PEDESTRIANS AND PEDAL CYCLISTS.
* D400 MAY BE USED IN LIEU OF C250 IF PREFERRED.	

MINIMUM DIMENSIONS FOR ACCESS FITTINGS AND INSPECTION CHAMBERS					
TYPE OF ACCESS	DEPTH TO INVERT FROM COVER LEVEL (m)	MINIMUM INTERNAL DIMENSIONS (1)		MINIMUM CLEAR OPENING SIZE (2)	
		LENGTH x WIDTH (mm x mm)	CIRCULAR (mm)	LENGTH x WIDTH (mm x mm)	CIRCULAR (mm)
RODDING EYE	–	AS DRAIN BUT MINIMUM 100mm.	–	–	SAME SIZE AS PIPEWORK
ACCESS FITTING SMALL 150mm DIA. SMALL 150x100mm LARGE 225x100mm	0.6m OR LESS EXCEPT WHERE SITUATED IN A CHAMBER	150 x 100 225 x 100	150 225	150 x 100 (1) 225 x 100 (1)	SAME SIZE AS ACCESS FITTING
INSPECTION CHAMBER					
SHALLOW	0.6m OR LESS	225 x 100	190 (2)		190 (1)
MEDIUM	1.2m OR LESS	450 x 450	450	MIN 430 x 430	430
DEEP	GREATER THAN 1.2m	450 x 450	450	MAX 300 x 300 (3)	ACCESS RESTRICTED TO MAX 350 (3)
NOTES: (1) THE CLEAR OPENING MAY BE REDUCED BY 20mm IN ORDER TO PROVIDE PROPER SUPPORT FOR THE COVER AND FRAME. (2) DRAINS UP TO 150mm DIAMETER. (3) A LARGER CLEAR OPENING COVER MAY BE USED IN CONJUNCTION WITH A RESTRICTED ACCESS. THE SIZE IS RESTRICTED FOR HEALTH AND SAFETY REASONS TO DETER ENTRY.					

PERMITTED PIPE/BEDDING TYPES		
DEPTH OF COVER BELOW ROADS		
	1.2m–3.5m	1.2m–3.5m
PIPE BEDDING	TYPE S	TYPE S
PIPE TYPE	CONCRETE CLASS 120 TO BS5911-1	VITRIFIED CLAY TO BS65, WITH FLEXIBLE JOINTS SUPER STRENGTH CLASS FOR 225 AND 300mm. EXTRA STRENGTH CLASS FOR ALL OTHER SIZES.
COVER DEPTH	0.9m–1.2m	<0.9m
PIPE BEDDING	TYPE S + 150 CONC. SLAB	TYPE Z
PIPE TYPE	CONCRETE CLASS 120 TO BS5911-1 AND VITRIFIED CLAY TO BS65	CONCRETE CLASS 120 TO BS5911-1 AND VITRIFIED CLAY TO BS65

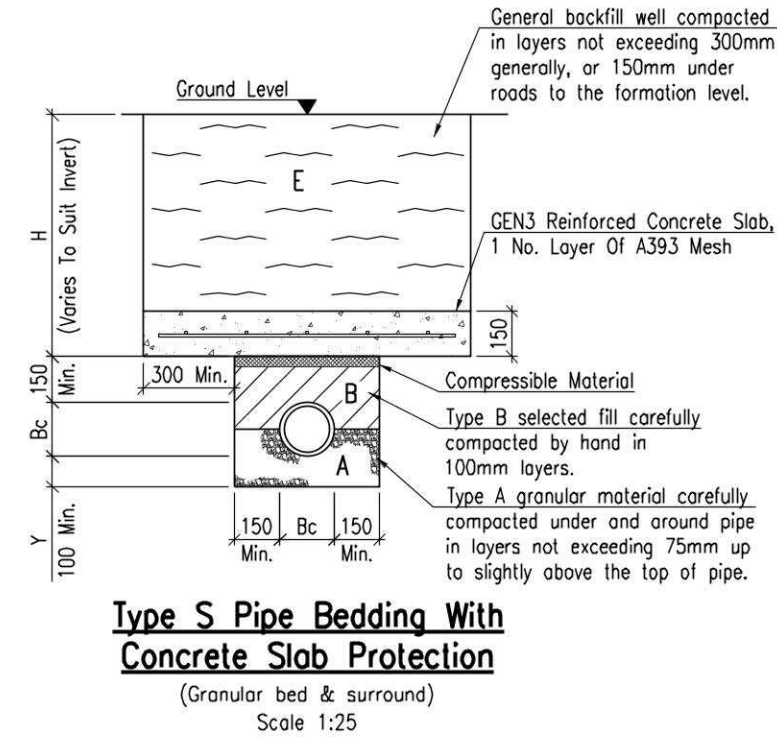
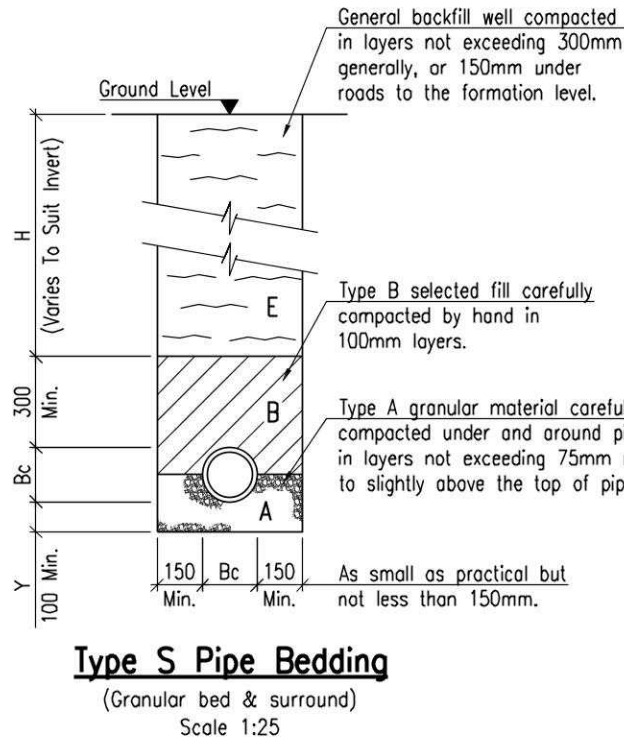
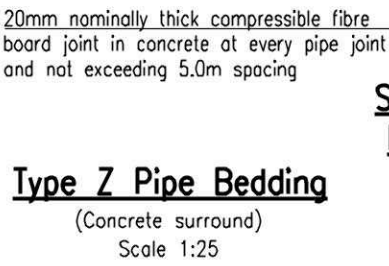
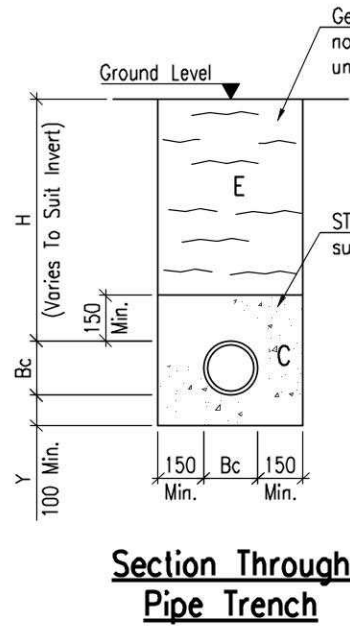


Table A Granular bedding and sidefill material for vitrified clay pipes				
PIPE SIZE DN (mm)	MAX. PARTICLE SIZE (mm)	NOMINAL SINGLE SIZE (mm)	GRADED SIZE (mm)	MAXIMUM CFE VALUE FOR AS-DUG
110	10	10	NOT PERMITTED	0.15
OVER 110 to 160	15	10 or 14	14 to 5	0.15
OVER 160 to 300	20	10,14 or 20	14 or 20 to 5	0.15
OVER 300 to 600	20	14 or 20	14 or 20 to 5	0.15



Section Along Pipe Trench

Rev	Date	Remarks
Status	FOR INFORMATION	
 SIDEBOTTOM RICHARDSON CHENG LTD 15 High Street, Spalding, Lincs. PE11 1TW Tel: 01775 712660 Fax: 01775 712635 Email: src@src Ltd CONSULTING STRUCTURAL AND CIVIL ENGINEERS		
Project	Residential Development Horseshoe Road, Spalding, Lincs. PE11 3JA For G R Merchant	
Title	Proposed Drainage Details	
Date	Feb. '17	Scale
Drawn	SRC	Checked
Design	SRC	File Name
DRG No. 42016/02		Rev
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