

Type B (Design and Construction Guidance)

D400 Ductile iron cover & frame to BS EN 124 & BS 7933 having 600 x 100 opening with 150mm deep frame in the highway (see clause 5.3.32)

Manhole haunching to H4, cover and frame Refr to Class 5.6.7
 Where roadworks are located in highway motor haunch is to stop 200mm below cover level

Double width metal stoppers to be Type D Class 5 complying to BS BS 12102:2002 sealed at 20mm intervals, to be used in vertical alignment. Galvanneal mild steel and plastic encapsulated stop to prevent rust

150mm GDN 3 concrete manhole
 In-situ concrete to be GDN3 (designed to BRE Special Design) Concrete to Aggregate Ground

High strength concrete to be brought up to a dense smooth face neatly shaped and finished all connecting connections (min. thickness 200mm). Graded to be 1:1.0 : 1.30

The bottom surface of pipe to be built into base concrete min. 75

Box out to be provided in benching if greater than 200mm dia. Box access to level 2700mm base level with between min 75mm and max 375mm height benching

Inverts formed using clay channel pipes.

Min. 1 max. 4 courses of concrete
 concrete blocks to prevent sliding ring, reduce class to pre 600mm

600mm maximum to first step from manhole to cover level

Reinforced Precast concrete

Minimum clear access 600mm

Chamber height not less than 200mm

Precast concrete manhole access to be finished with mortar, plastered on exterior to conform to BS EN 1917 and to be minimum 25mm

Lifting pins in concrete rings to be provided

Distance between top of pipe and chamber to be min 50mm to max 100mm

Construction joint

Distance between top of pipe and precast section to be min 50mm to max 100mm

220mm to base of pipe

Type A and Type B (Design and Construction Guidance)

Technical drawing of a rock socket showing various construction details and dimensions:

- Joint to be as close as possible to face of rock** to permit satisfactory joint and subsequent movement.
- See Figure 2.5 and Clause 5.6.6.2 for rocker pipe details**
- Minimum width of benching for landing area** to be 900mm from edge of step into the face of channel.
- Double width step runs** to be Type D Class 1 complying to BS EN 13131:2002 spaced at 250mm centres, to be cast in vertical alignment. Galvanneal mild steel and plastic encapsulated step runs are preferred.
- Minimum width of benching** to be 225mm.
- Inverts to be formed using clay channel pieces**

Manhole Diameters	
Nominal internal diameter of largest pipe in manhole (mm)	Minimum nominal internal dimension of manhole (mm)
Up to 300	1200
375-450	1350
500-700	1500
750-900	1800
Greater than 900	Specific detailed drawing required

(WHERE SITED IN CAR PARK AREAS
UP TO 3000 DEEP FOR PRIVATE IC's

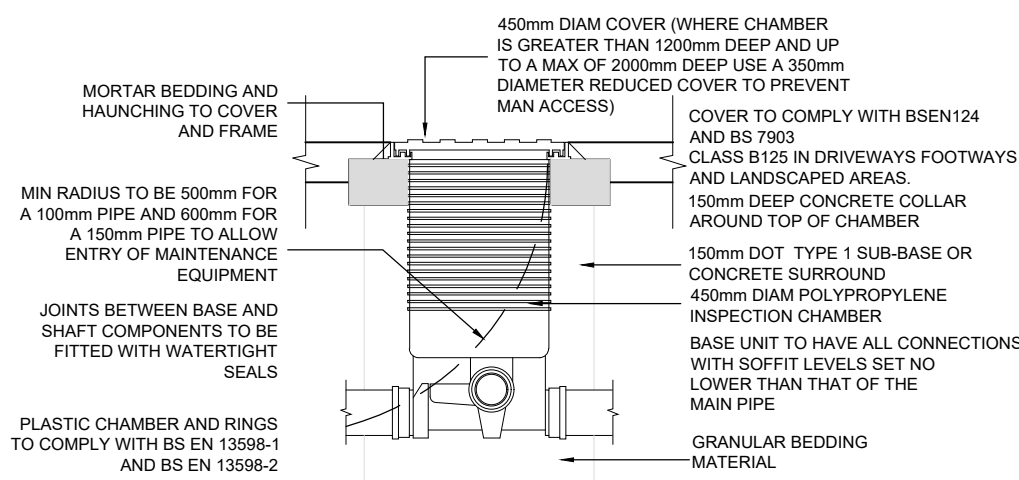


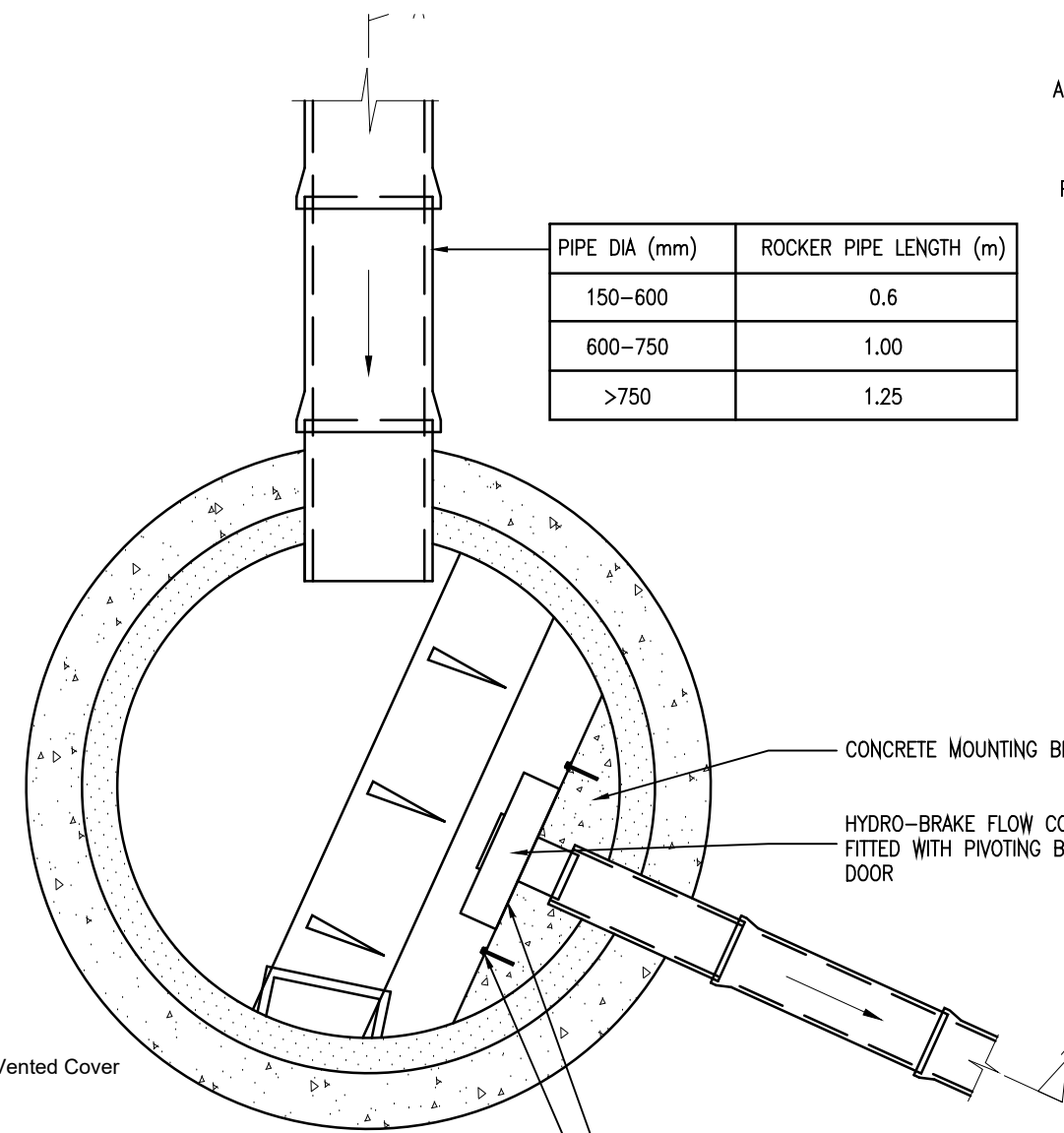
Diagram illustrating the dimensions of a Type 'S' manhole. The manhole is shown as a vertical section with a depth of 150 mm. The opening at the bottom is circular with a diameter of 150 mm. The manhole is labeled 'TYPE 'S'' and 'UNDER ROADS'.

DRAINS WITH GRANULAR (TYPE S)
BED AND SURROUND
(SCALE 1:20)

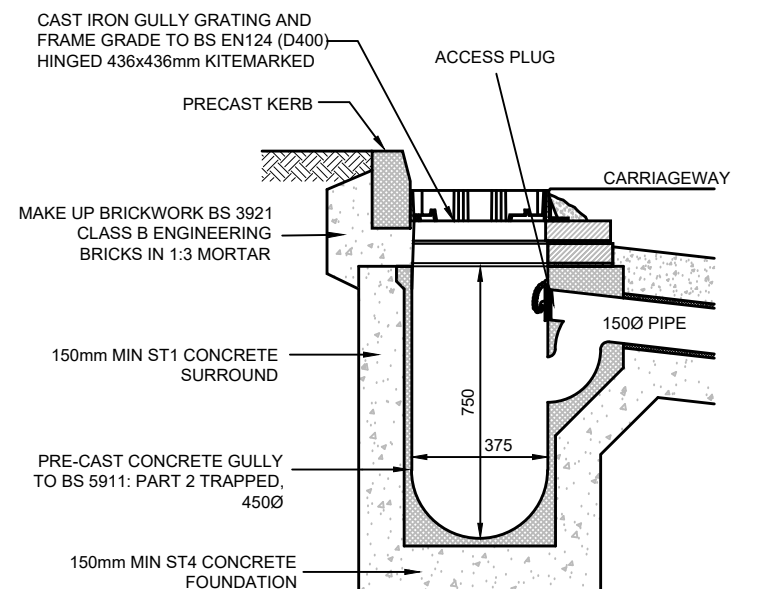
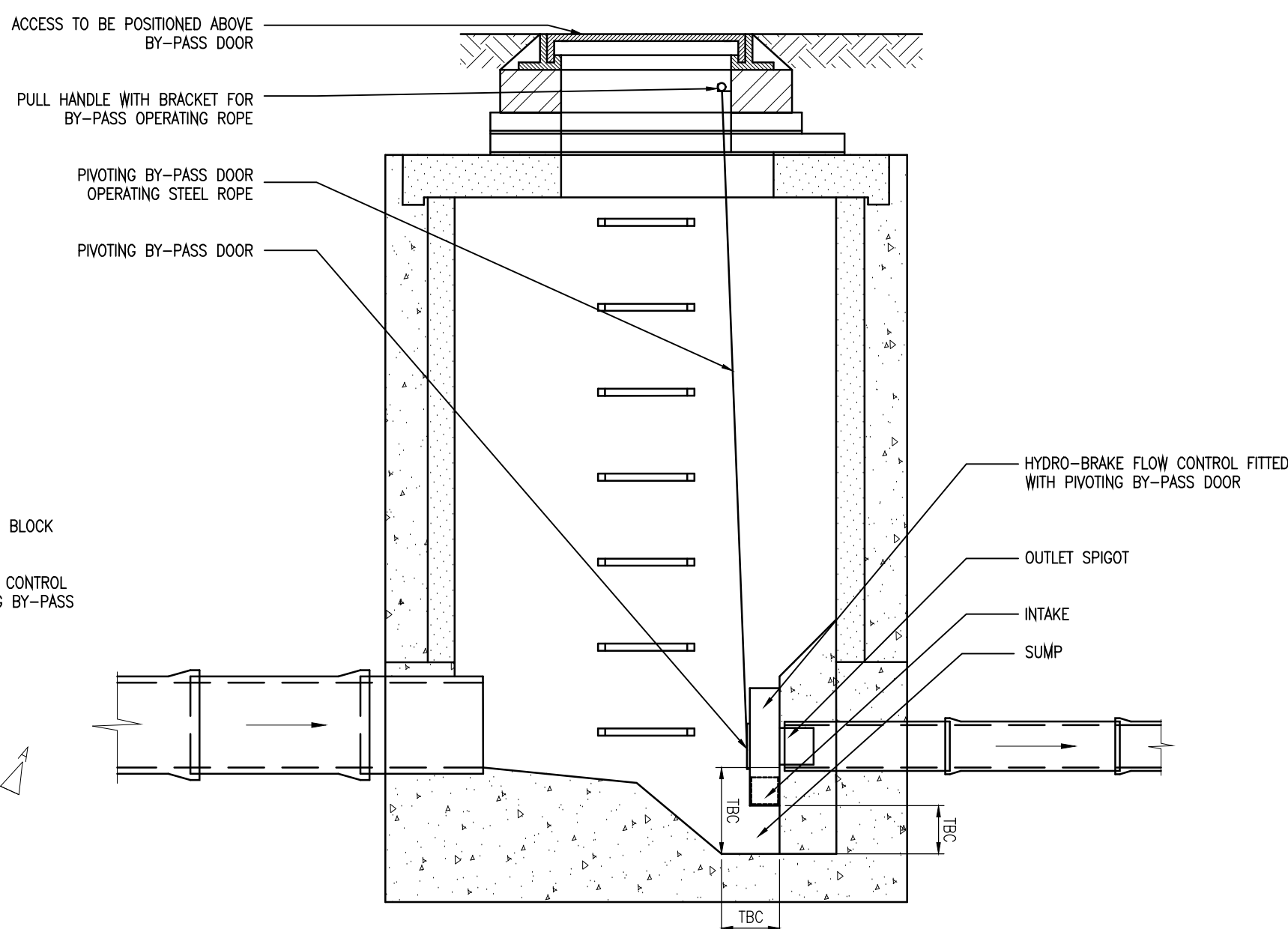
SIZE OF BEDDING MATERIAL		
ALL GRAVELLY MATERIAL TO BE SINGLE SIZES OR GRADED IN ACCORDANCE WITH BS 882 OR BS 883/7		
PIPE DIAMETER	NOMINAL SINGLE SIZED	GRADED
UP TO 100mm	10mm	
OVER 100mm TO 150mm	10mm or 14mm	5mm to 14mm
OVER 150mm TO 300mm	10mm, 14mm or 20mm	5mm to 14mm or 5mm to 20mm
OVER 300mm TO 550mm	14mm or 20mm	5mm to 14mm or 5mm to 20mm
OVER 550mm	14mm, 20mm or 40mm	5mm to 14mm or 5mm to 20mm or 5mm to 40mm

LIMITS OF COVER IN ANY WIDTH OF TRENCH			
NOMINAL SIZE	LAID IN FIELDS	LAID IN LIGHT ROADS	LAID IN MAIN ROADS
CLASS 120 CLAYWARE (PIPS (CLASS B BEDDING))			
100-150mm	0.6m - 8.0m	1.2m - 8.0m	1.2m - 5.0m
225mm	0.6m - 5.0m	1.2m - 5.0m	1.2m - 4.0m
450mm	0.6m - 4.5m	1.2m - 4.5m	1.2m - 4.0m
600mm	0.6m - 4.5m	1.2m - 4.5m	1.2m - 4.0m
CLASS M CONCRETE (PIPS (CLASS B BEDDING))			
300mm	0.6m - 3.0m	1.2m - 3.0m	1.2m - 2.5m
450mm	0.6m - 3.5m	1.2m - 3.5m	1.2m - 2.5m
600mm	0.6m - 3.5m	1.2m - 3.5m	1.2m - 3.0m
THERMOPLASTIC PIPES (CLASS B BEDDING)			
100 - 300mm	0.6m - 7.0m	0.9m - 7.0m	0.9m - 7.0m

WHERE COVER IS LESS THAN THE ALLOWABLE DEPTH PIPES TO HAVE A CLASS Z CONCRETE SURROUND OR CONCRETE COVER SLAB PROTECTION



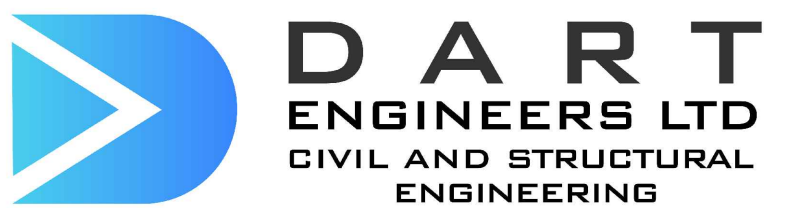
(SCALE 1:20)



TYPICAL PRECAST CONCRETE
ROAD GULLY DETAIL (1:25)

Notes:

1. This drawing is to be read in conjunction with all relevant architect's and engineer's drawings.
2. It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement.



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THE CHALLENGER GROUP

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DRAINAGE DETAILS

Drawn AD	Chkd RT	Date March 2024	Scale As Shown @ A1
Sheet Size A1	Drawing No. 23111-DR-C-0101		Revision P1