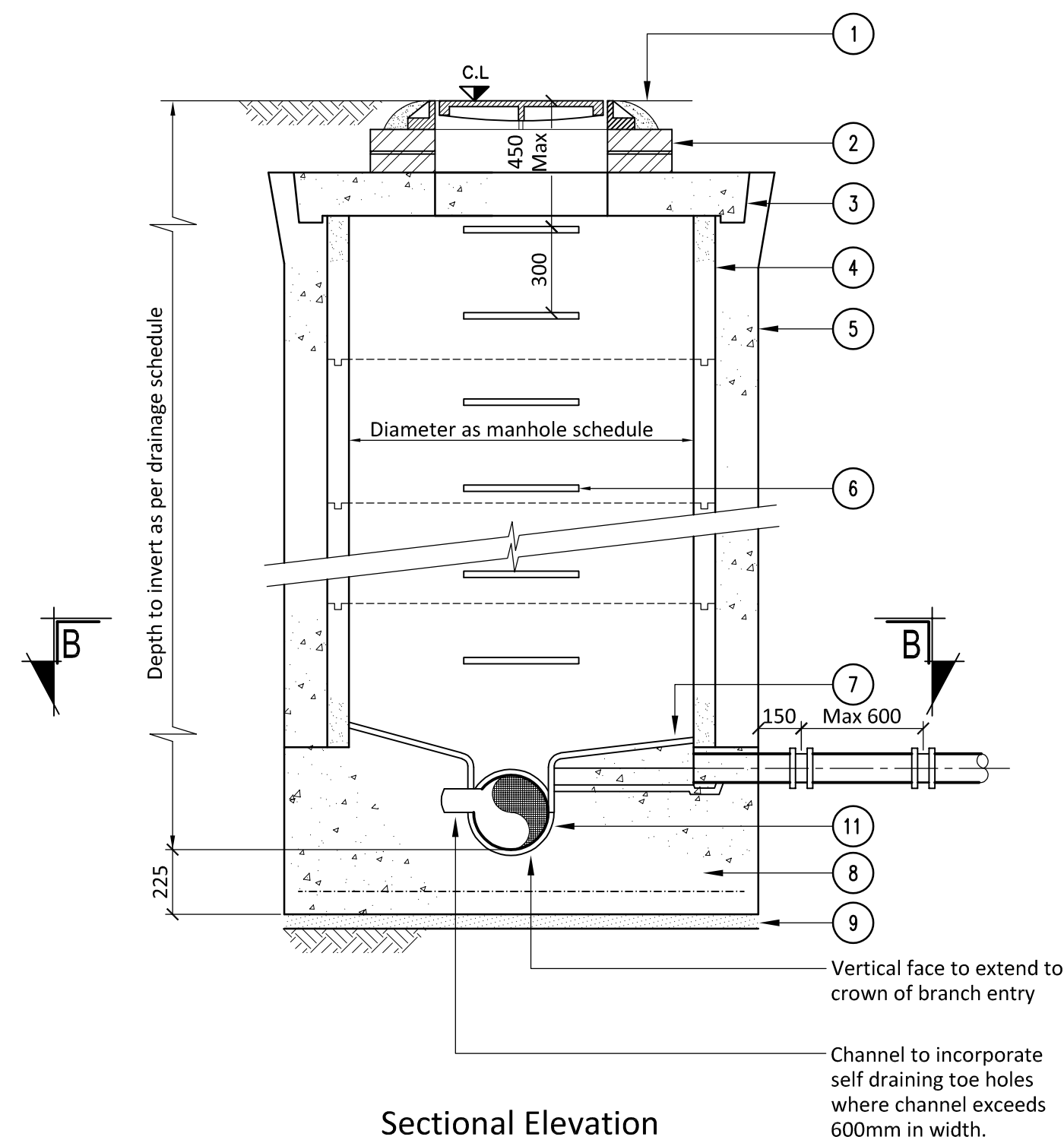
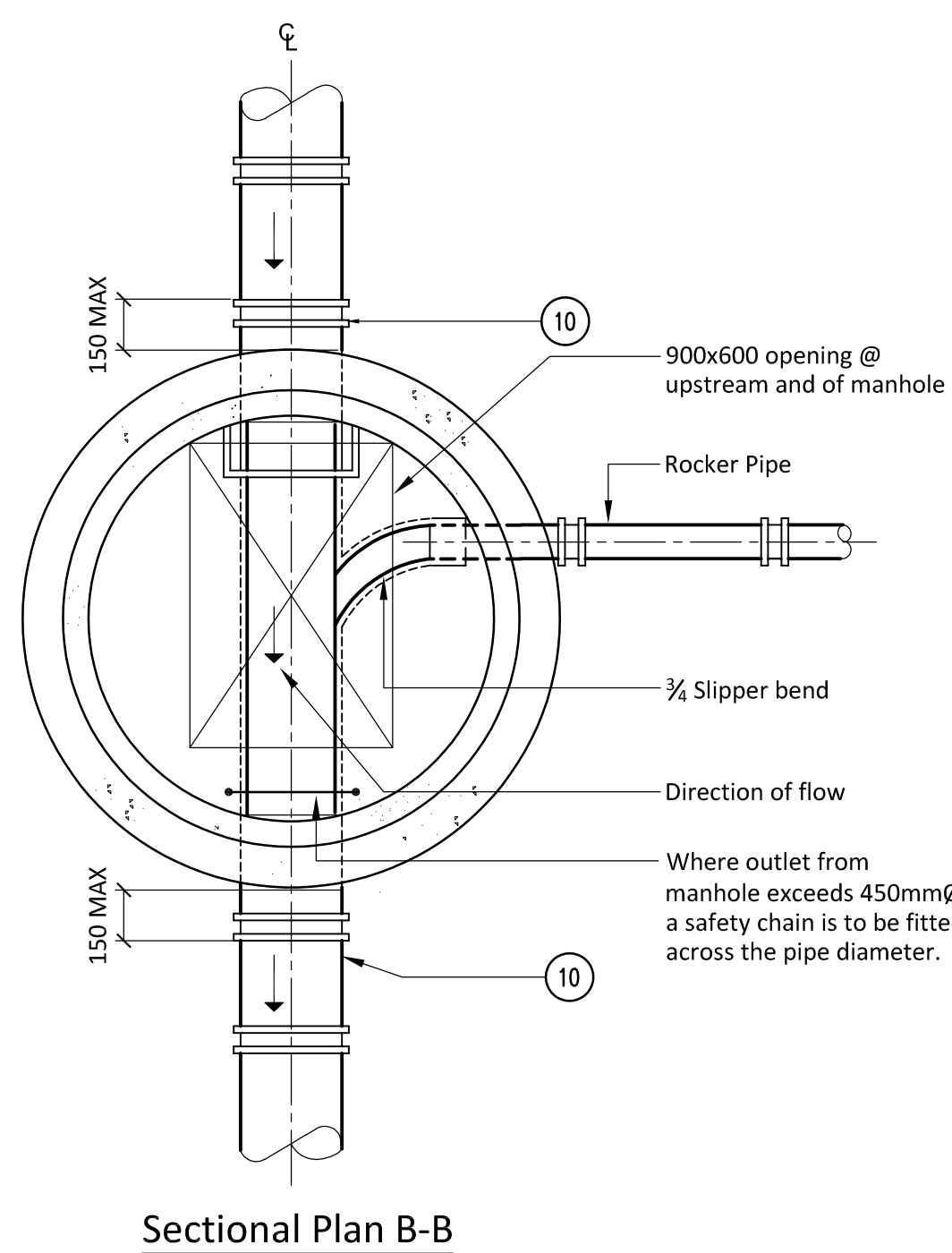




Detail 'E'
Typical External Concrete Ring Manhole
(Where cover to pipe soffit is less than 3.00m)
NTS

1. **Manhole covers and frames**
 - a) Manhole covers and frames to comply to BS EN124. Refer to manhole schedule for cover reference.
 - b) Manholes to have clear openings as shown in schedule.
 - c) Manhole cover and frame to be bedded and surrounded in 1:3 sharp sand & cement mortar.
 - d) (i) In trafficked areas and verges adjacent to roads use class D400 heavy duty covers unless noted otherwise.
(ii) In car parks and verges subject to slow moving commercial vehicles use class B125 medium duty covers unless noted otherwise
(iii) For footpaths inaccessible to vehicular traffic use class A15 light duty covers unless noted otherwise.
(iv) In black paved areas manhole cover and frame assembly to be recessed unless noted otherwise.
 - e) All manholes to have single seal covers unless noted otherwise.
 - f) All manhole covers to have closed keyways.
 - g) Manhole covers to reflect hardstanding/soft landscaping profile.

2. Brickwork regulating courses
 - a) Class B engineering brickwork to BS 3921
 - b) Regulating courses (min 2, max 4) to be bedded in 1:3 sharp sand & cement mortar.
 - c) Fair faced finish internally.

3. Reinforced chamber cover/reducing slab/landing slab.
- a) Heavy duty reinforced concrete cover slab to BS 5911 bedded on 1:3 mortar or mastic sealant (Tokstrip by Winn & Coales (Denso) Ltd, or equal approved).
- b) Refer to Table 1. below for minimum slab thicknesses.

Chamber (mm)	Cover slab thickness (mm)
900 DIA	135
1050 DIA	150
1200 DIA	150
1350 DIA	150
1500 DIA	175
1800 DIA	175
2100 DIA	180
2400 DIA	180
2700 DIA	205
1200 X 750	150

- c) In-situ cover slab may be cast for brick manholes. Reinforced with T16 @ 175c/s both ways top and bottom. cover to be 400mm. Concrete grade C35D 450mm long trimmer bars at manhole opening corners.

4. Precast concrete chamber/shaft
- a) Circular & rectangular sections to BS 5911
- b) All sections, to be jointed, shall be made watertight with an approved bituminous sealant (Tokstrip by Winn & Coales (Denso) Ltd, or equal approved.

5. Concrete surround
- a) Concrete to be 150mm thick
 - b) Concrete grade to be C20.

1. Manhole covers and frames
 - a) Manhole covers and frames to comply to BS EN124. Refer to manhole schedule for cover reference.
 - b) Manholes to have clear openings as shown in schedule.
 - c) Manhole cover and frame to be bedded and surrounded in 1:3 sharp sand & cement mortar.
 - d) (i) In trafficked areas and verges adjacent to roads use class D400 heavy duty covers unless noted otherwise.
(ii) In car parks and verges subject to slow moving commercial vehicles use class B125 medium duty covers unless noted otherwise.
(iii) For areas inaccessible to vehicular traffic use class A15 light duty covers unless noted otherwise.
(iv) In block paved areas manhole cover and frame assembly to be recessed unless noted otherwise.
 - e) All manholes to have single seal covers unless noted otherwise.
 - f) All manhole covers to have closed keyways.
 - g) Manhole covers to reflect hardstanding/soft landscaping profile.

- 6. Step Irons/Ladders**
- a) (i) Encapsulated step rungs
- (ii) First rung max 450mm from cover level, thereafter alternately staggered.
- (iii) Maximum distance between from benching to last rung to be 300mm vertically and horizontally 300mm.
- b) (i) Where depth to invert >3000mm provide ladder in place of step rungs.
- (ii) Galvanised mild steel solid rung ladders to BS 4211:1987
- (iii) Ladder to be class A without safety hoop.
- (iv) Stringers to be 65x10 flat spaced @ 390c/c.
- (v) Single rungs to be 200mm dia solid and spaced @ 250c/c.
- (vi) Max distance from benching to last rung to be 250mm
- (vii) Min 500mm, max 600mm from cover level to first rung.

7. Granolithic render
- a) 50mm granolithic render to surface of benching with 25mm radius roundings.
 - b) Grano concrete benching to be brought up to a smooth face neatly shaped and finished to all branch connections.
 - c) Where benching is <450mm wide slope shall be 1:10 else 1:30

- 8. Base and benching**
- a) Concrete grade C20 for base and benching.
 - b) Base of manholes in trafficked areas and verges adjacent to trafficked areas shall be reinforced with A393 mesh reinforcement within top face of base (cover 50mm).
 - c) Bend conveying main sewers runs to be formed in long radius bends to assist flow without risk of blockage.

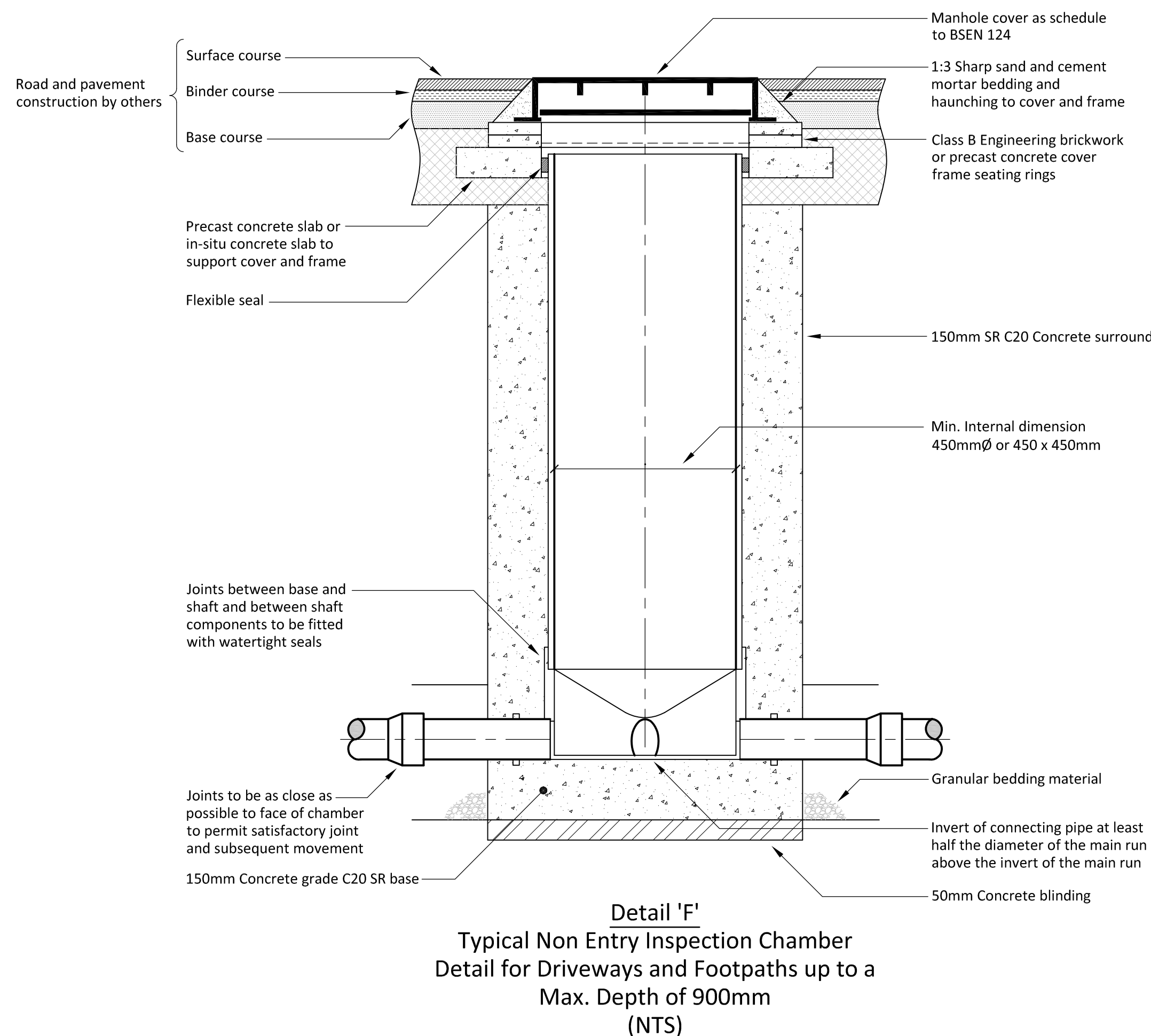
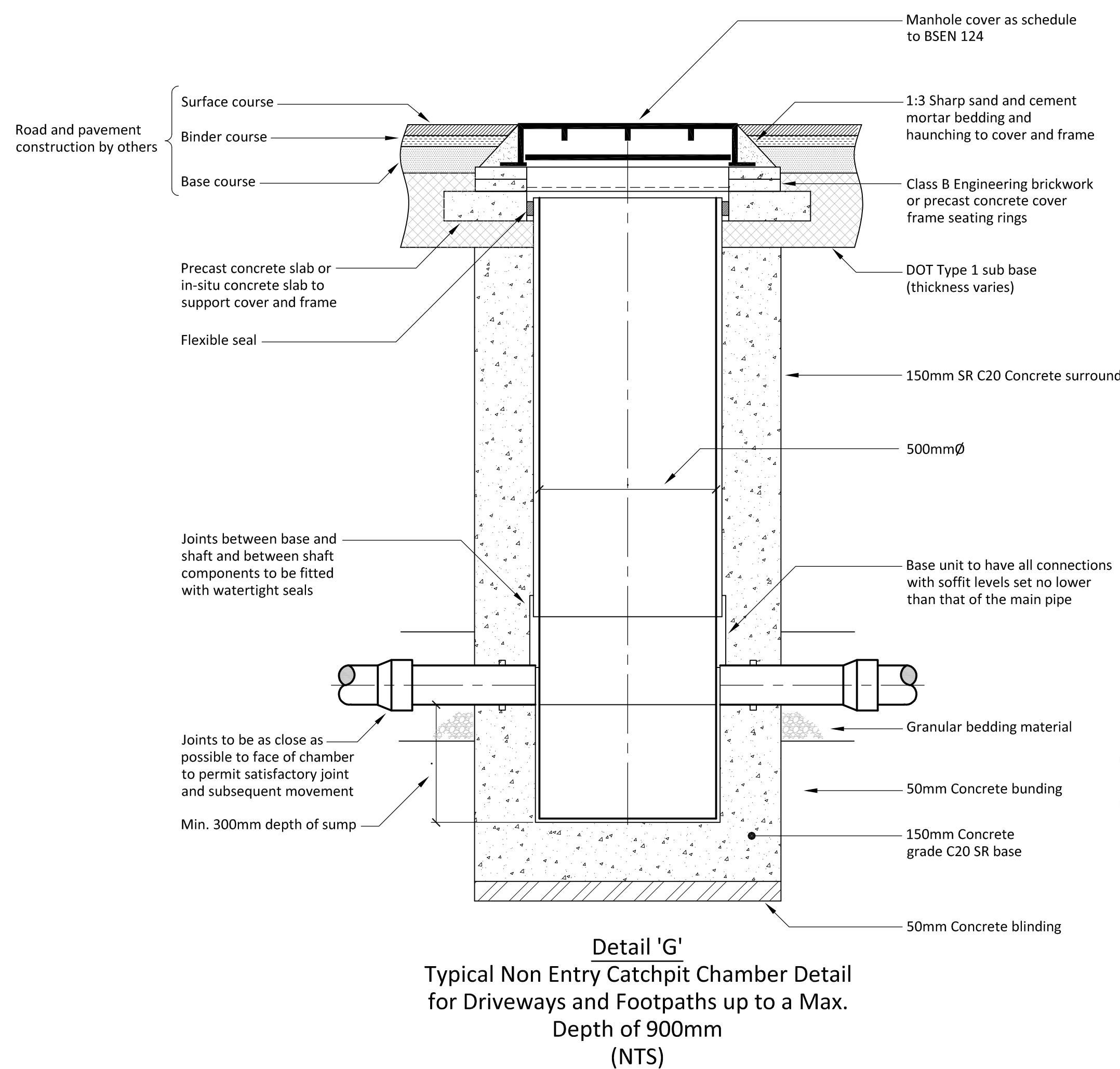
9. Blinding
- a) 50mm blinding to be concrete grade C7.5 where instructed by engineer.

10. Rocker pipe
 - a) First rocker pipe joint to be as 150mm from manhole face.
 - b) Second rocker pipe joint to be max. 600mm from first joint.
 - c) Full length flexible jointed pipes thereafter.

11. Branch entries
- a) Branches entering manholes shall discharge above horizontal ϵ of main channel be swept in direction of flow.
- b) Entry angles to main channel. (x°).

<u>Entry Angle</u>	<u>Channel Section</u>
X < 45	1/2
45 < X < 90	3/4
X > 90	3/4 + EXT. BEND.

- c) Channels to be formed with shallow radius bends to avoid accumulation of debris



Do not scale from this drawing.

Verify dimensions by site measurement.

Read this drawing in conjunction with the latest architectural and structural drawings.

This drawing is based on the following information:

Notes

1. This drawing to be read in conjunction with all mechanical, electrical & public health drawings for this contract.
2. All services work to be carried out in accordance with the relevant Engineering Specification for this contract

00	23.12.19	Planning Submission Outline Scheme	RG	CS
Revision	Date	Description	Drawn	Checked

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1 & 2 The Barn, West Stoke Road,
Lavant, Chichester, West Sussex
PO18 9AA

Project
The Cottage
Shirpney Road
Bognor
PO22 9PA

Drawing Title

Public Health Services
Drainage Details
Sheet 2

Scale	Sheet Size	Checked	Approved
NTS	A1	RG	CS

Status	
-	
Drawing No.	Rev.
22761-HM-XX-XX-DR-PH-0302	00