

600 mm x 600 mm clear opening cover complying with BS EN 124 and BS 7903 See Clause E2.32

Mortar bedding and haunching to cover and frame to Clause E6.7

Minimum 2 courses of Class B engineering bricks or precast concrete cover frame seating rings

675 mm maximum to first ladder rung from cover level

In-situ concrete to be GEN3 (designed to BRE Special Digest 1 Concrete in Aggressive Ground)

Lifting eyes in concrete rings to be pointed

230 mm

2000 minimum

900 mm minimum clear access behind ladder

Minimum clear access 600 mm

Precast concrete manhole sections and cover slab to be bedded with mortar, plastered or elastic seal conforming to BS EN 1917 and BS 5911-3 See Clause E2.29

Concrete surround 150 mm thick

Diameter as per Schedules

High-strength concrete topping to be brought up to a dense, smooth face, neatly shaped and finished to all branch connections (minimum thickness 20 mm)

self-cleaning top holes to be provided where channel exceeds 600 mm wide

Inverts to be formed using channel pieces

The bottom precast section to be built into base concrete minimum 75 mm

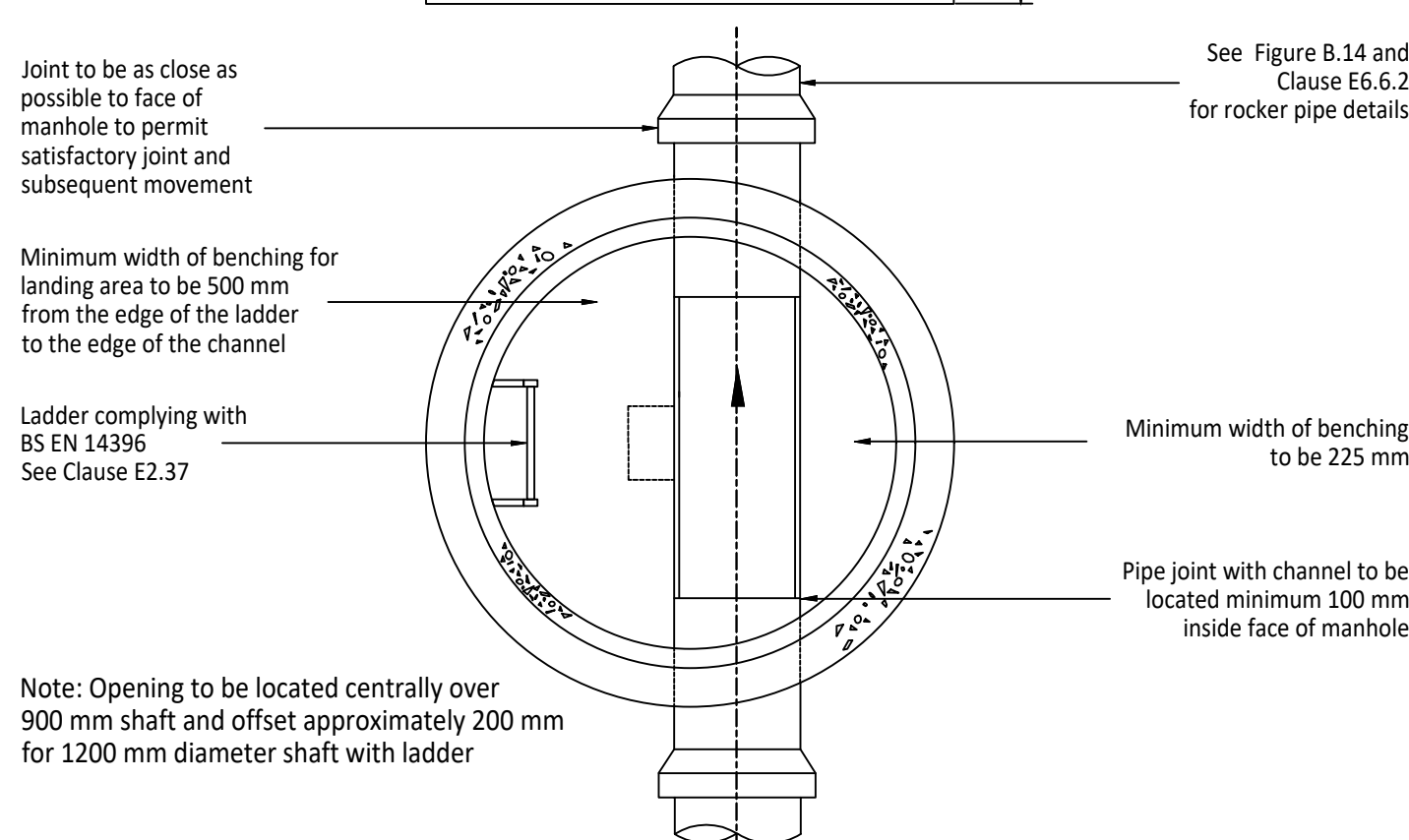
Benching slope to be 1:10 to 1:30

Construction joint

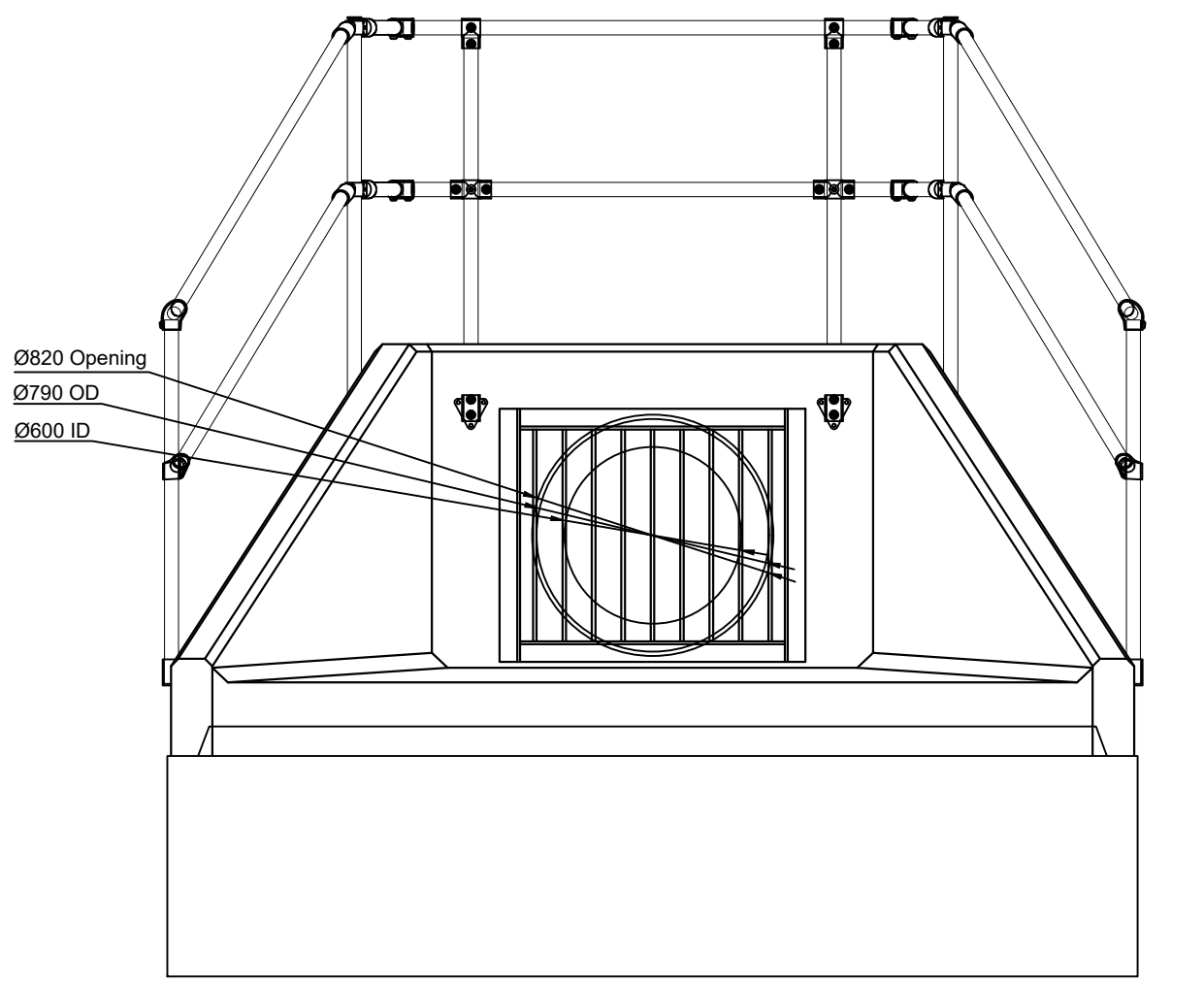
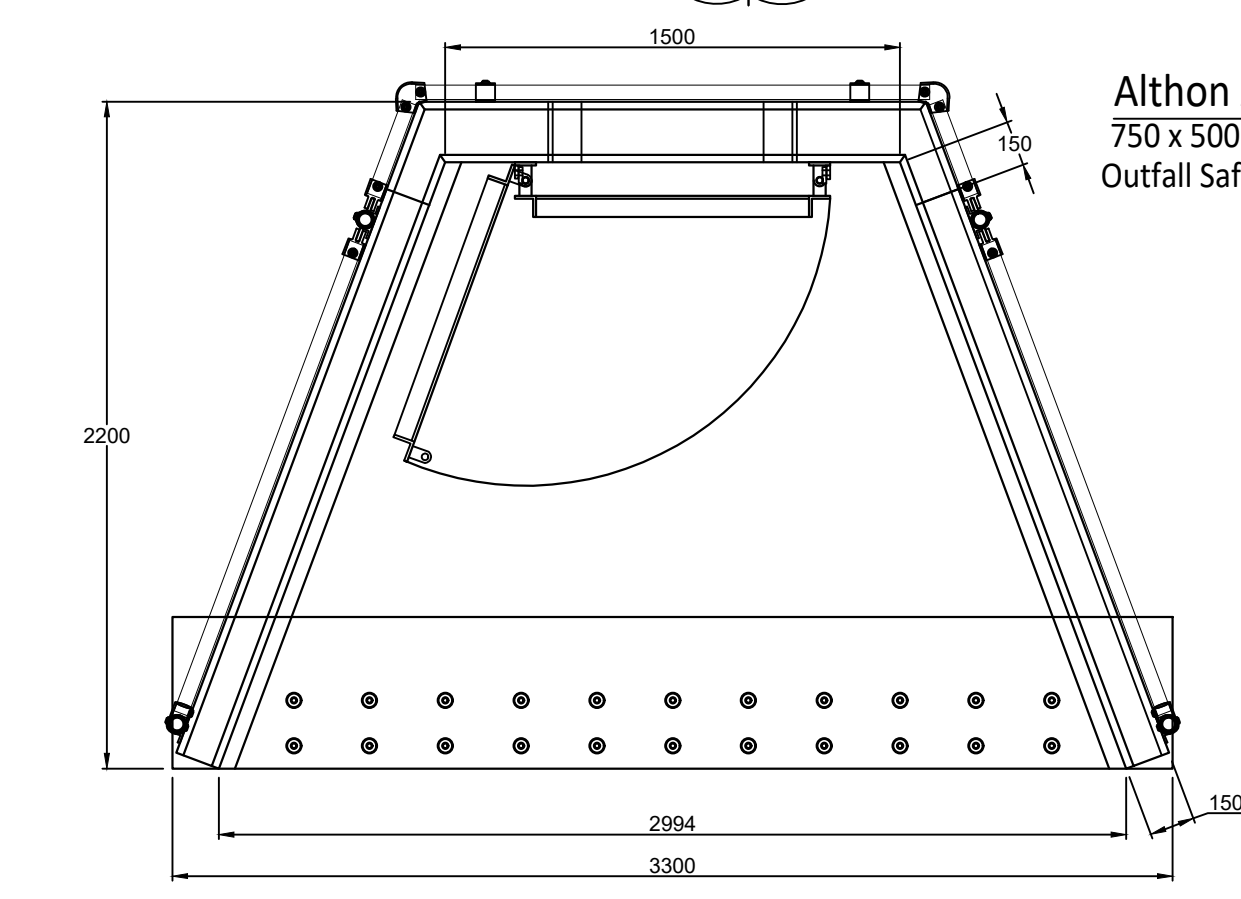
Distance between top of pipe and underside of precast section to be minimum 50 mm to maximum 300 mm

225 mm to underside of channel

25 mm to underside of channel



Note: Opening to be located centrally over 900 mm shaft and offset approximately 200 mm for 1200 mm diameter shaft with ladder



600 mm x 600 mm clear opening cover complying with BS EN 124 and BS 7903 See Clause E2.32

Mortar bedding and haunching to cover and frame to Clause E6.7

Minimum 1 course of Class B engineering bricks or precast concrete cover frame seating rings

675 mm maximum to first step rung from cover level

Minimum clear access 600 mm

Precast concrete manhole sections and cover slab to be bedded with mortar, plasticomeric or elasticomeric seal conforming to BS EN 1917 and BS 5911-3 See Clause E2.29

Lifting holes in concrete rings to be pointed

Diameter as per Schedules

150 mm concrete surround

In-situ GEN3 concrete complying with E4.1 and BRE Special Digest 1

Chamber height (not less than 900 mm)

Benching slope to be 1:30 to 1:30

The bottom precast manhole ring to be built into base concrete minimum 75 mm

Minimum 20 mm thick high-strength concrete topping complying with Clauses E4.3 and E6.5 neatly shaped and finished to all branch connections

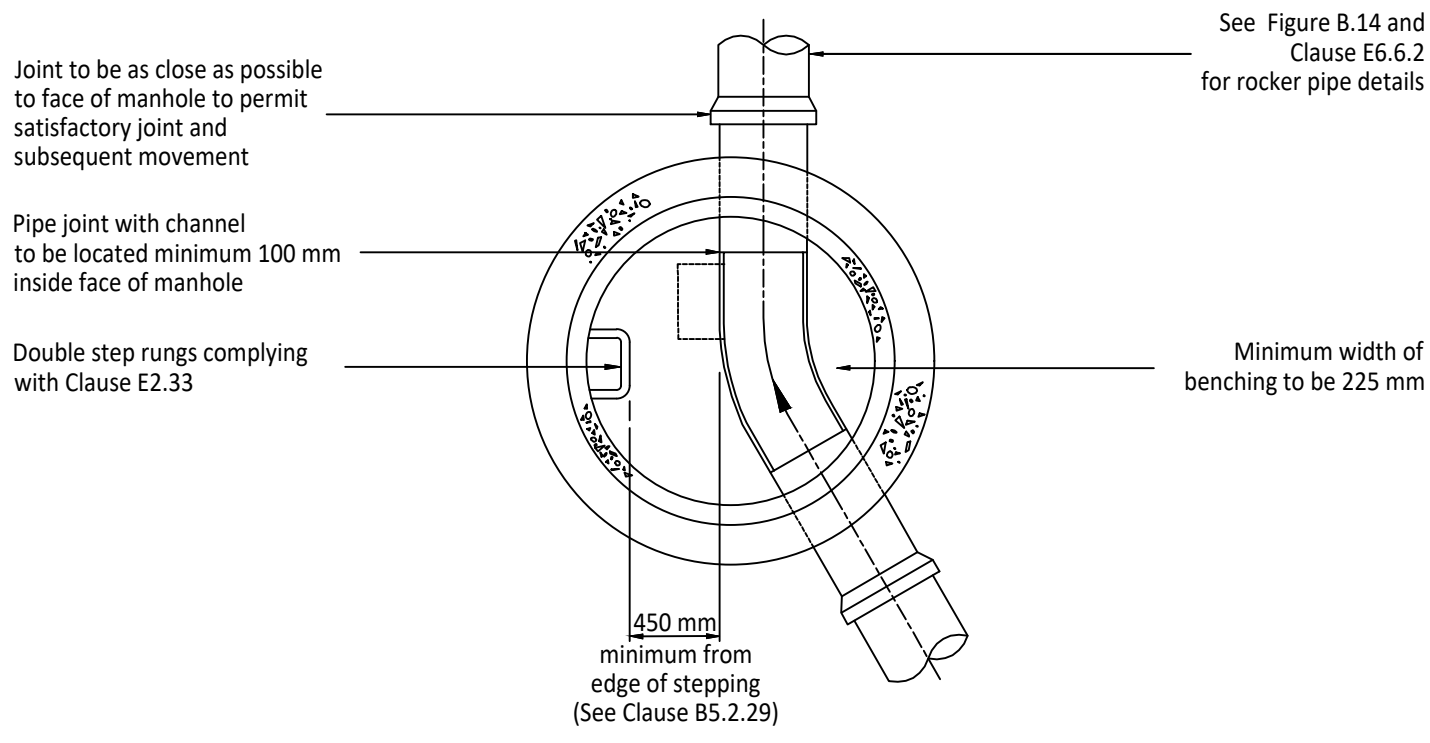
Distance between top of pipe and underside of precast section to be minimum 50 mm to maximum 300 mm

Construction joint

Self-cleaning toe holes to be provided where channel exceeds 600 mm wide

Inverts to be formed using channel pipes

225 mm to underside of channel



1220 mm x 685 mm multiple ductile iron cover Cover complying with Clause E2.32

Mortar bedding and haunching to cover and frame to Clause E6.7

Brickwork or concrete blocks to be corbelled (maximum 30 mm per course) to suit cover

Precast concrete chamber sections complying with Clause E2.29 jointed with mortar, elastomeric or plastic seals. Chamber wall to be minimum 125 mm

Benching slope to be 1:10 to 1:30

150 mm minimum

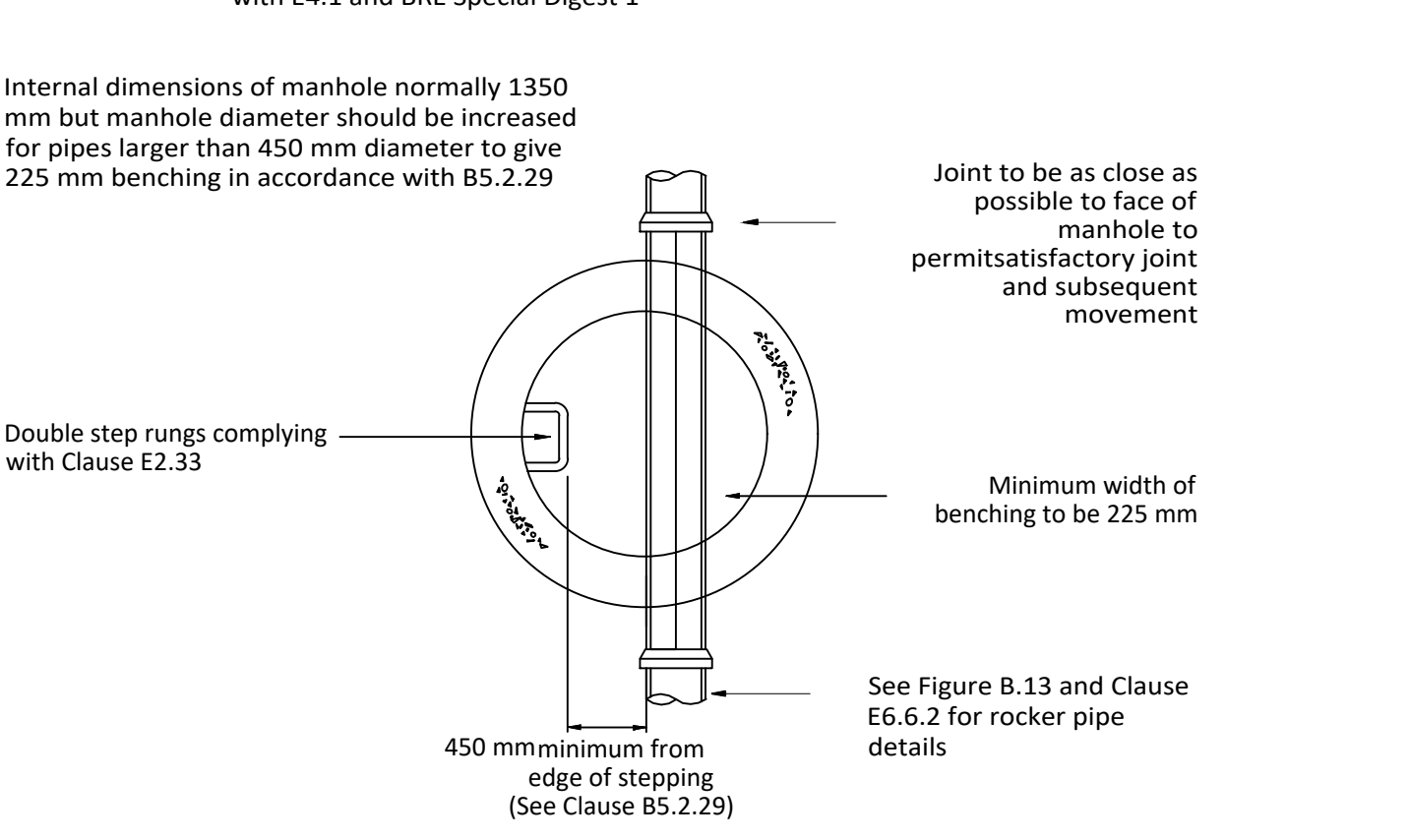
Inverts to be formed using channel pieces

1350 mm minimum

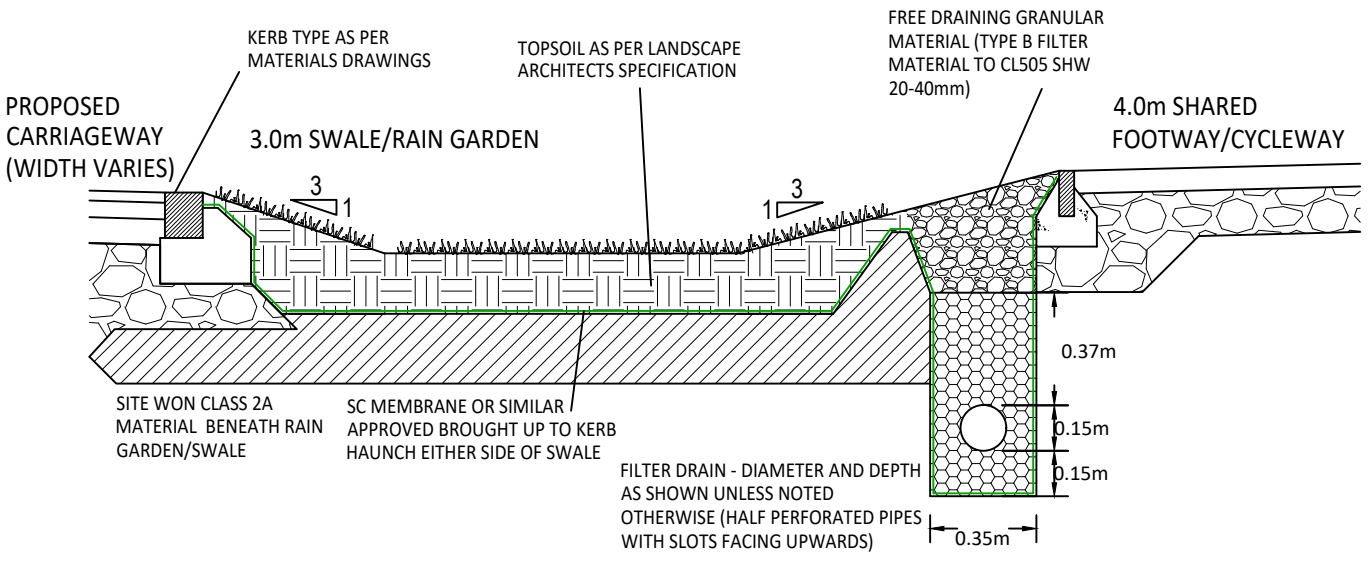
Minimum 20 mm high-strength concrete topping complying with Clause E4.3 and E6.5 neatly shaped and finished to all branch connections

225 mm to barrel of pipe

In-situ GEN3 concrete complying with E4.1 and BRF Snercl Digest 1



Note: The use of precast concrete chamber units to E2.29 with 150 mm GEN3 in-situ concrete complying with E4.1 and BRE Special Digest 1 in place of brickwork construction is permitted.



300 mm

Y

Bc

Backfill material, Type 2 granular material to S.H.W specification.

Granular bedding Type A material lightly compacted.

Excavated backfill material placed in 225mm thick loose layers compacted to the same density as the adjoining soil.

300 mm

Y

Bc

Granular bedding Type A material lightly compacted.

CLASS S BEDDING

(Verges & Landscaping)

Dia Dn (mm)	Width Bc (mm)		Y(mm)		L(mm)	Z MIN (mm)
	Max	Min	Y1 (Uniform Soil)	Y2 (Rock)		
100	550	450	300	200	18	150
150	600	490	150	200		150
225	700	580	150	200		150
300	750	680	150	200		150
375	1050	950	150	200		150
450	1150	1030	150	200		150
525	1200	1120	150	200	36	150
600	1350	1240	150	200		150
675	1450	1330	150	200		225
750	1500	1400	150	200		225
825	1600	1490	150	225		225
900	2100	1900	150	225		225
975	2150	1950	175	250		300
1050	2250	2050	175	275		300
1200	2500	2250	200	300		300
OVER 1200	O.D.+1000	O.D.+800	I.D./6	I.D./4	54	400

Nominal bore of pipe (mm)	Alternative Aggregate sizes (mm)	
	Single sized	Graded
100	10	-
150	10 or 14	14-5
225-300	14 or 20	14-5 or 20-5
375-525	14 or 20	14-5 or 20-5
>525	14, 20 or 40	14-5, 20-5 or 40-5

Granular bedding for pipes and backfilling material for temporary drains (trench sub-drains) shall consist of aggregates from natural sources to BS EN 12342 and BS EN 1744-1 or sintered pulverised fuel ash complying with the relevant provisions of BS 3892; sized in accordance with the above table

Selected fill material, whether selected from locally excavated material or imported, shall consist of uniform, readily compactable material, free from vegetable matter, building rubbish and frozen material, or materials susceptible to spontaneous combustion, and excluding clay of liquid limit greater than 80 and/or plastic limit greater than 55 and materials of excessively high moisture content. Clay lumps and stones shall be retained on 100mm and 40mm sieves respectively.

1. DRAINAGE NOTES:

1. Do not scale.
2. This drawing is to be read in conjunction with and checked against all other drawings, Engineering details, Specification and any structural, Geotechnical or other specialist document.
3. Site layout shown for context only, refer to other project drawings for details.
4. All adoptable drainage works to be constructed as detailed in design and construction guidance or as stipulated in the water authorities addendum.
5. All public sewers to be the subject of a section 104 agreement of the water industry act 1991.
6. Invert levels of existing manholes and sewers to be checked on site at the construction commences and results reported to engineers.
7. The contractor is responsible for maintaining continuity of flow for all existing sewers within the site boundary and limit of works for the duration of the project.
8. All drainage ironworks to comply with BS EN124, and be stamped with bsl kitemark, covers to suit loading as below;
 - carriageways and roads - D400
 - footways and pedestrian areas - C250
 - footways and pedestrian areas - B125
 - gardens/landscaping - A15
9. All sewer pipes, up to, and including 225mm are to be verified clay to BS EN252. All sewer pipes 300mm diameter and above to be concrete pipes to BS EN1916. Where agreed with adopting authority pipes up to and including 600mm diameter can be PVC-U to BS EN14041-1.
10. All drainage shall be installed and tested strictly in accordance with the manufacturers' printed instructions, BS EN 752, BS EN 1610, local water authority requirements and the building regulations.
11. All drainage shall be class s unless noted otherwise.
12. All trenches under existing and proposed public highways are to be backfilled with thoroughly compacted type 1 granular sub-base material.
13. Drainage at level beneath roads and areas of vehicular access (car parking etc) with less than 1200mm of cover shall be encased in concrete bed and surround with associated movement joints. drainage laid beneath paths, footways and pedestrian areas with less than 900mm of cover shall be similarly treated.
14. On carriageways and footways where pipes under 600mm diameter shall be fitted with guard bars, safety chains or other approved safety devices.
15. The use of precast concrete products made with sulphate resisting cement is mandatory, unless a laboratory report proves such precautions are not necessary.
16. All sewers to be abandoned must be surveyed to identify any lateral connections that are still live with any found to be connected to the engineer.
17. All foul and storm water drains which are not to be adopted as public sewers shall be in accordance with document h of the building regulations, together with nhb standards chapter 5.3 and 5.4 of 2003.
18. Where pipes pass through footings, retaining or screen walls, lintels to be provided over drains.
19. Where inverts are less than 0.6m deep inspection chambers (dia 150mm) or manholes (dia 225 x 1000mm) to be used, elsewhere proprietary plastic, brick or pcc to be used and sized in accordance with table 11 of document h of the building regulations (<0.6m invert min dn300, >0.6m to invert min dn400).
20. Where required 1m deep root barrier of an approved type to be installed vertically along the back edging kerb of all areas of footway/ demarcation to protect from both proposed and existing plant/cultivation.
21. Construction details subject to refinement through detailed design/technical approval process.

A	02/26	FOR REVIEW	JJS	CS
Rev	Date	Description	Drawn	Check



Title
**DRAINAGE CONSTRUCTION
DETAILS**

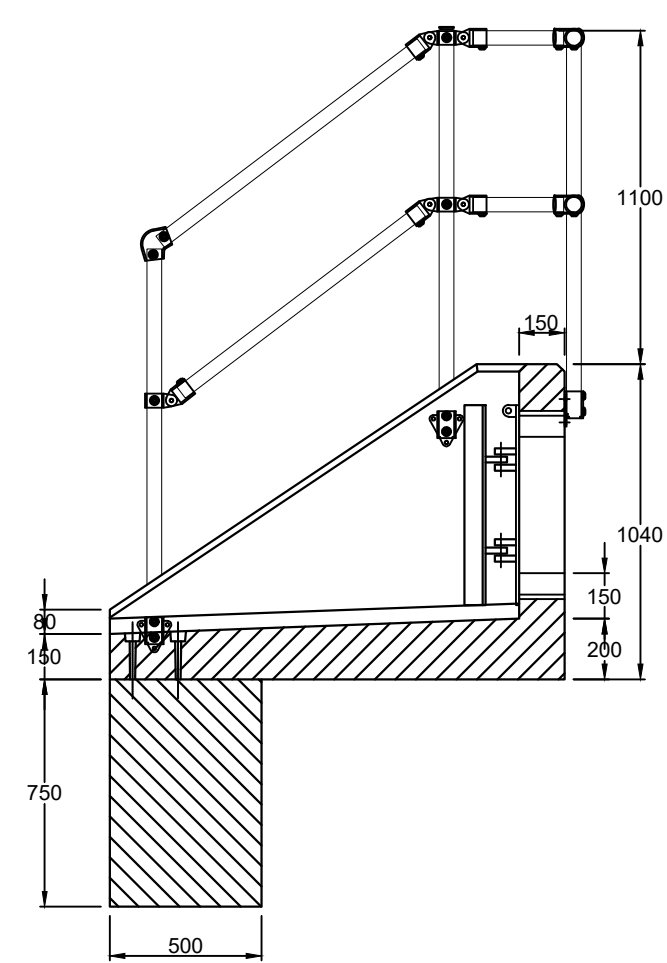
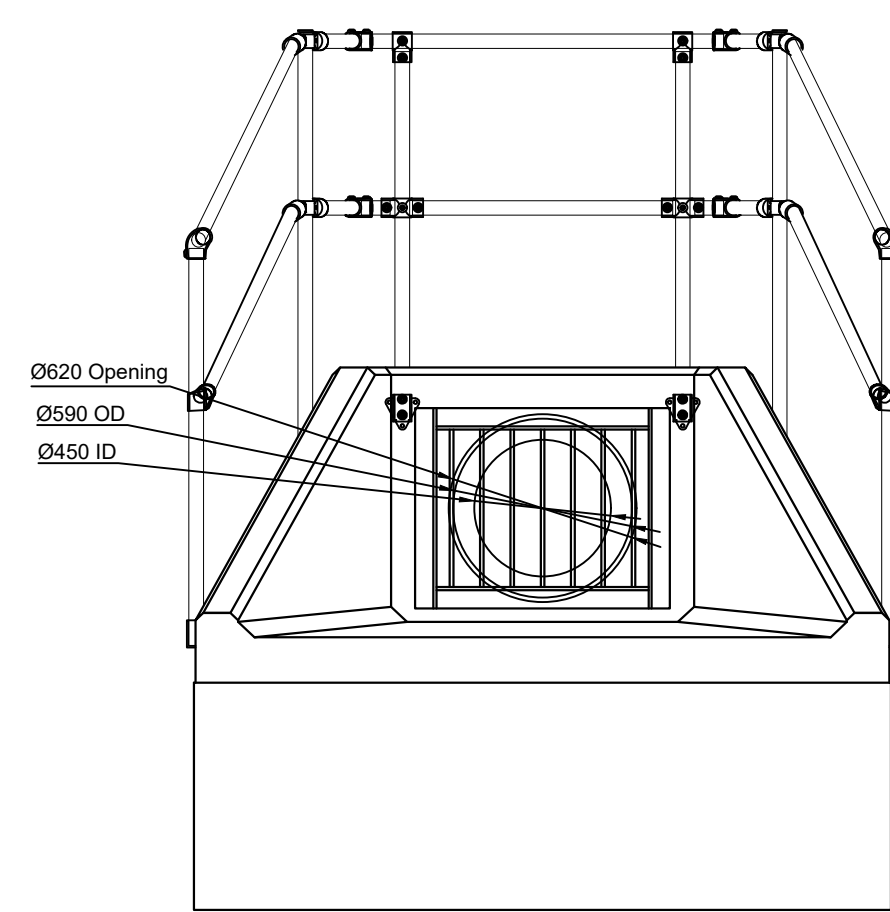
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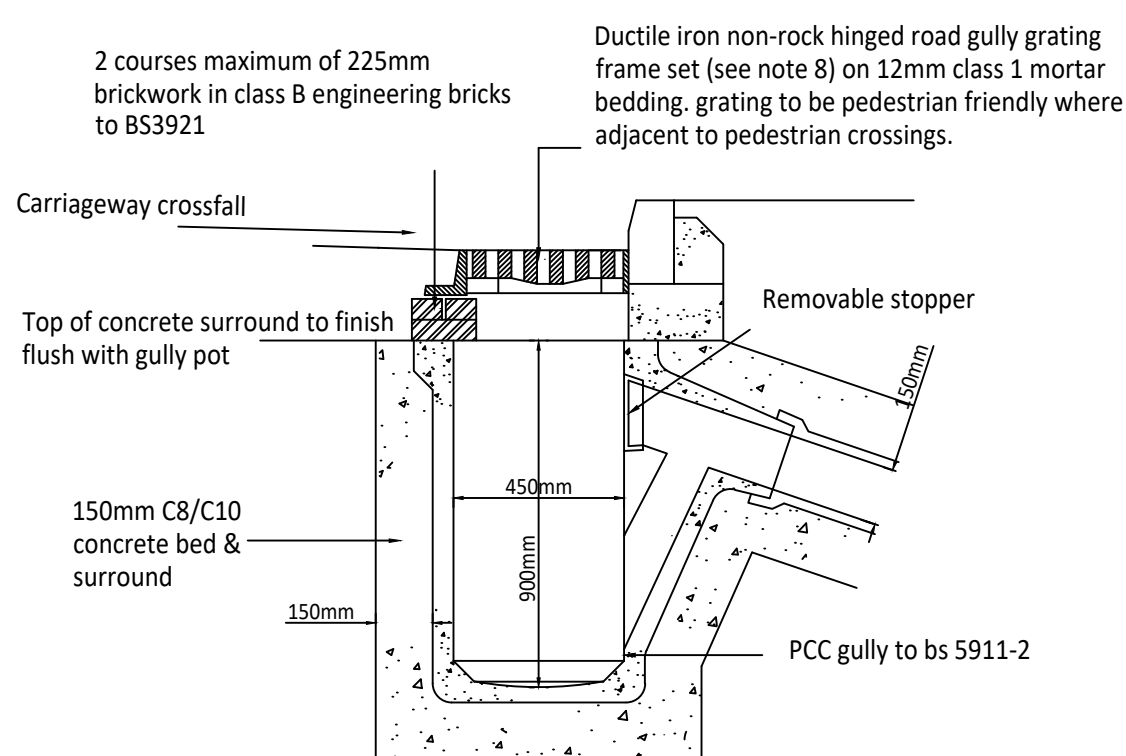
AS SHOWN @ A1	FEB 2026
Drawing No HD169-TVSP-0510	

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Technical drawing of a trapezoidal structure, likely a bridge or a large container. The drawing shows a top view and a side view. The top view is a trapezoid with a top width of 1208, a bottom width of 2300, and a height of 1500. The side view shows a trapezoid with a top width of 1000, a bottom width of 2300, and a height of 1500. The side view also shows a curved line representing the bottom edge of the structure. The drawing includes various dimension lines and labels, such as 1208, 1000, 1500, 2300, 150, and 15.



Althon AWSFA10X Inlet Headwall
750 x 500mm Toe, 3 Sided Kee Klamp, Sfa1 450
Outfall Safety Grille, up to 450mm Concrete Pipe



SCALE 1:20