

Hepworth SuperSleve Drainage Specification

Client name –

Date -

Site address –

1 Manufacturer details

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Overview

Hepworth SuperSleve clay drainage system comprises a range of vitrified clay pipes, bends, junctions and fittings available in 100mm, 150mm, 225mm and 300mm diameters, supplied complete with factory-fitted push-fit flexible couplings or plain ended with separate couplings to be fitted on site. SuperSleve products are suitable for foul and surface water drainage in housing, adoptable, commercial, industrial and highway drainage applications. Correctly installed it has a lifetime expectancy of over 100 years.

Benefits of Hepworth Clay

Sustainability – Clay is a future-proof material, 100% natural and 100% recyclable.

Quality – Kitemarked to BS EN 295-1, supported by a declaration of performance and CE mark.

Strength and durability – Naturally high product strength enhances in-use performance resulting in a lifetime expectancy of over 100 years.

Bedding performance – Recycled aggregates arising from selected construction demolition waste are approved for use with clay pipes.

Jetting performance – Hepworth SuperSleve pipes carry a lifetime jetting guarantee, jet proof to 7500 psi* *please refer to current trade price list for details.*

Chemical resistance – Clay is inert, so is unaffected by any effluent approved for discharge into a public sewer.

Product Standards and Specification Clause

BS EN 295-1:2013 Vitrified clay pipe systems for drains and sewers.

Requirements for pipes, fittings and joints

BS EN 295-5:2013 Vitrified clay pipe systems for drains and sewers.

Requirements for perforated pipes and fittings

BS EN 681-1:1996 Elastomeric seals. Material requirements for pipe joint seals used in water and drainage applications. Vulcanized rubber

Drains and sewers from 100mm to 300mm diameter shall be constructed using Hepworth SuperSleve Vitrified Clay Pipes, fittings and push fit flexible couplings kitemarked to BS EN 295-1:2013, with joint system E. Installed in accordance with the manufacturers recommendations with the following minimum pipe crushing strengths.

Minimum Pipe Crushing strength

100 mm – 40 kN/m	Pipe class – not required
150 mm – 40 kN/m	Pipe class – not required
225 mm – 45 kN/m	Class 200
300 mm – 72 kN/m	Class 240

Quality Assurance

BS EN ISO 9001:2008 Quality Management Systems – Requirements

BS EN ISO 14001:2004 Environmental Management Systems. Certificate No. 42231

2 Installation

2.1 Excavation

Set aside turf, topsoil, sub-base and good quality subsoil for use in re-instatement. Trench width to be as small as is practicable but no less than pipe o.d. plus 300 mm to allow working space. Locally increase excavation size to allow installation of inspection chambers and manholes.

2.2 Pipe bedding

The following specification is suitable in all areas other than –

Beneath non-trafficked areas where the cover to the crown of the pipe is less than 450 mm. (On private drains or sewers only, adoptable sewers to have min 0.9 metres cover). See section 2.3

Beneath ground bearing concrete slabs where the clearance between pipe crown and slab underside is less than 300 mm. See section 2.3

Beneath trafficked flexible pavement where clearance between pipe crown and the underside of construction is less than 450 mm. (On private drains or sewers only, adoptable sewers to have min 1.2 metres cover). See section 2.3

In ground where the trench formation has little bearing strength e.g. soft ground, running sand etc.

(For detailed advice see Technical note No 1 in the Hepworth literature).

Bedding Class F

Bedding Factor 1.9

Max cover depth in trafficked and non-trafficked areas - 7.5 metres
(all pipe diameters)

a) Lower bedding (between trench bottom and underside of pipe)

To be minimum 50 mm depth of granular material of either –

20 mm single-sized, or

20 mm graded, or

20 mm single sized re-cycled aggregate material to BRE Digest 433 class RCA (II) or RCA (III) with a compaction fraction value < 0.2, or

20 mm down re-cycled aggregate material to BRE Digest 433 class RCA (II) or RCA (III) with a compaction fraction value < 0.2

b) Upper bedding (between lower bedding and half-pipe level),

Sidefill (between lower bedding and pipe crown),

Initial backfill (minimum 150 mm above crown of pipe)

All to be either –

As-dug material (if suitable i.e. free from stones greater than 40 mm and lumps of clay greater than 100 mm), or

Other compactable material (free from particles greater than 40 mm e.g. Sand, all-in aggregate or other granular material)

20 mm single sized re-cycled aggregate material to BRE Digest 433 class RCA (II) or RCA (III) with a compaction fraction value < 0.2, or

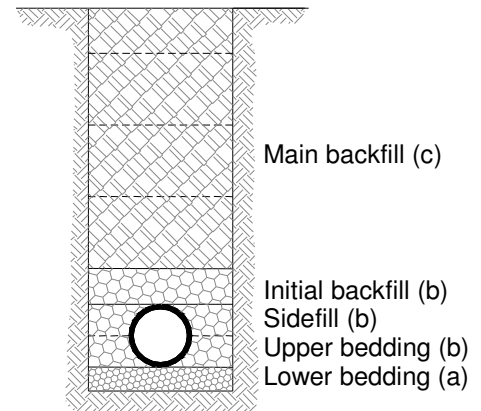
20 mm down re-cycled aggregate material to BRE Digest 433 class RCA (II) or RCA (III) with a compaction fraction value < 0.2

c) Main Backfill (above initial backfill)

To be either –

As-dug material, or

D.O.T. Type 1



No mechanical compaction should be used until the first 300 mm has been placed. The remainder should be compacted in 300 mm layers.

2.3 Concrete protection

Where the pipe bedding detail is not suitable a minimum 150 mm Concrete surround (min strength C20P) should be applied. A flexible joint should be inserted at the end of each coupling joint of minimum thickness 18 mm, which should extend to the edge of the encasement. Alternatively, where pipes are laid beneath concrete slabs they may be cast-in monolithically in a local thickening of the slab without the need for flexible boards. A flexible coupling joint should always be placed within 150 mm of the face of any concrete with a further joint no more than 600 mm away, where pipes emerge into flexible bedding. (note – this detail does not apply in poor ground – see note above).

2.4 Pipe cutting

Pipe cutting can be minimized by using pre-cut lengths available in 100, 150, 225 and 300 mm diameters in 300, 600 and 1000 mm lengths

Appropriate personal protective equipment should be used at all times when cutting clayware pipes.

Lever type chain cutters should be used on 100 and 150 mm pipes.

For 225 and 300 mm pipes use a masonry saw fitted with a diamond tipped blade or standard carborundum blade.

Cut pipe ends should be trimmed using the pipe trimmer (code MPT1) for 100 and 150 mm diameters or an emery stone for larger sizes.

2.5 Pipe jointing

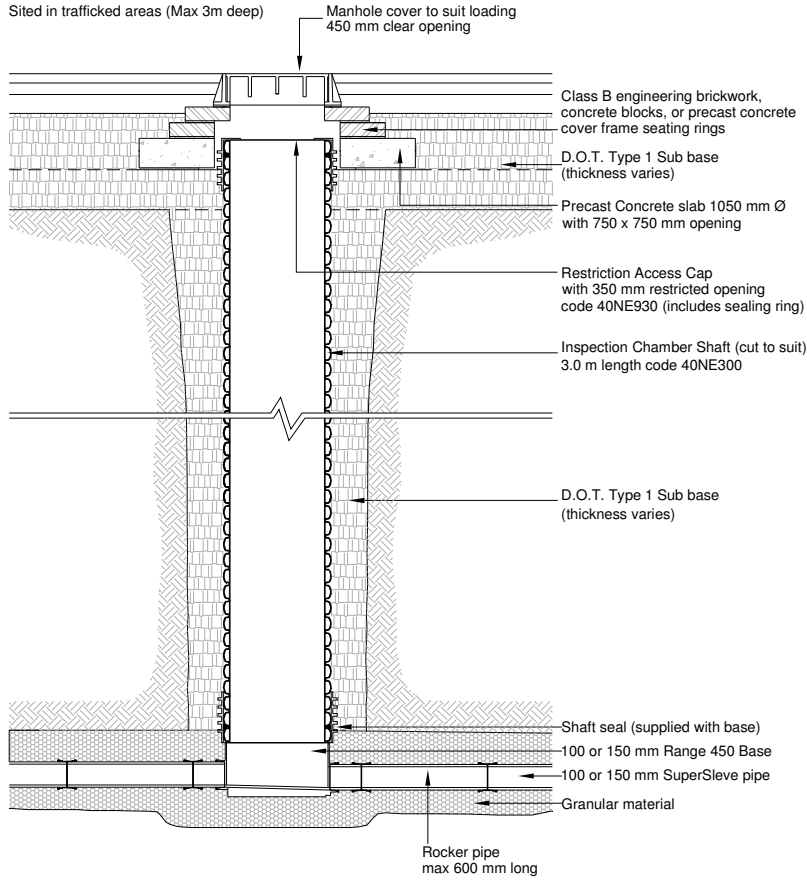
Always use purpose made Hepworth pipe lubricant. Clean and lubricate the pipe end to be jointed. Push a coupling onto the lubricated end until the pipe reaches the central rib. Clean and lubricate the other end of the pipe. Push the pipe (lubricated end first) into the coupling of the previously laid pipe. Take care not to let soil or stones enter the joint. For 100 and 150 mm diameters pipes need not be mechanically supported. For larger diameters slings should be used to support the pipe but the jointing force must still be applied by hand.

2.6 Workmanship

Installation of private drains and sewers should conform to BS EN 752 “Drains and Sewer Systems outside buildings”, BS EN 1610 “construction and testing of drains and sewers” and part H of the building regulations. Adoptable sewers should be installed in accordance with the current edition of the “Sewers for Adoption” manual and the relevant Water Company requirements.

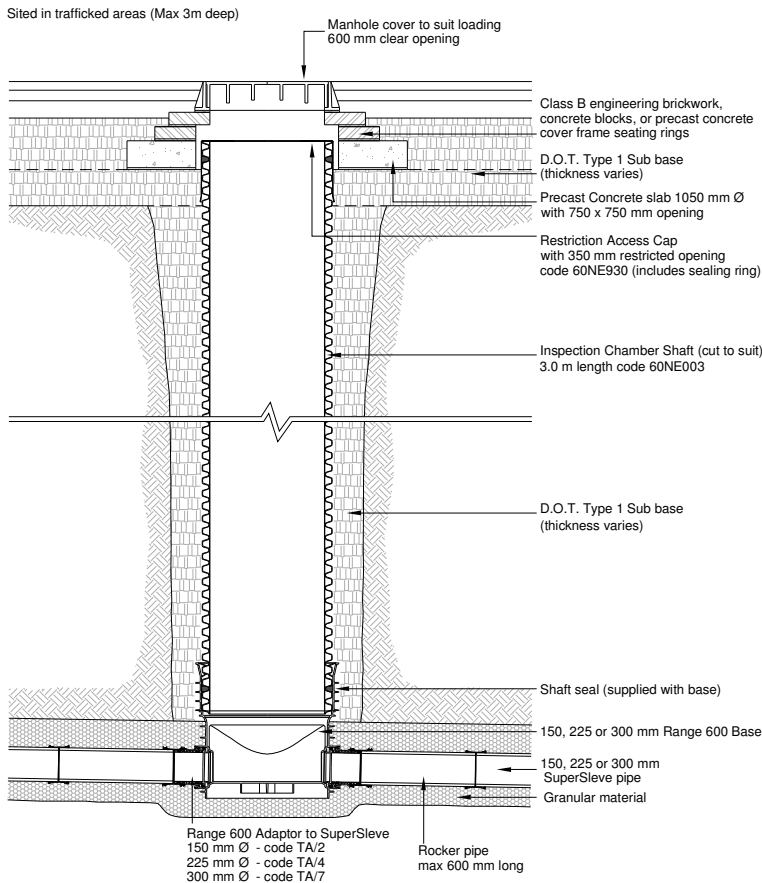
AP7 – Range 450 Inspection Chamber

Applicable ✓



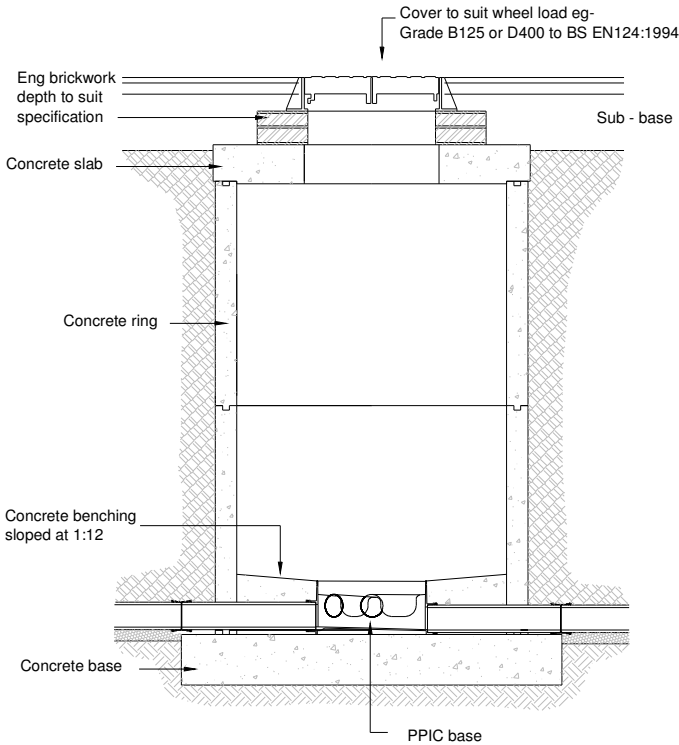
AP8 – Range 600 Inspection Chamber

Applicable ✓



AP6 - Concrete ring manhole with PPIC base

Applicable ✓



Max depth – dependant on pipe diameter, ring diameter and type of access (i.e. steps ladder or winch)
 Loading – dependant on type of cover.
 Airtight - dependant on type of cover.
 Screwed down – dependant on type of cover.
 PPIC base alternatives –
 SPIC6/1 –
 Main channel – 100 mm
 Side inlets – 2 no 100 mm at 45 °
 - 2 no 100 mm at 90 °
 SPIC6/2 –
 Main channel – 150 mm
 Side inlets – 2 no 100 mm at 45 °
 - 2 no 150 mm at 90 °

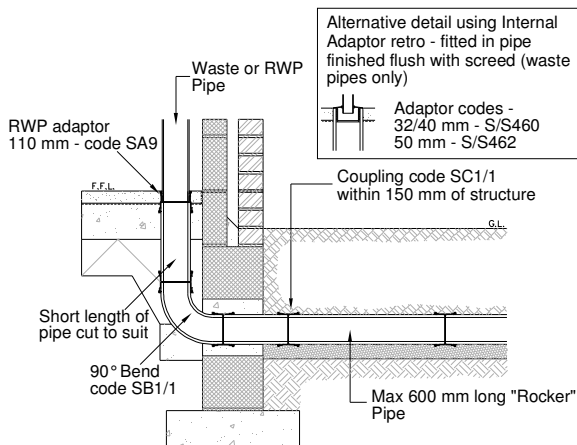
4 Terminal connection points

4.1 Direct Connections

Direct connections are made to the drainage system through a 90 ° bend and the appropriate adaptor. Please read the tick box to determine which products are applicable to this particular development.

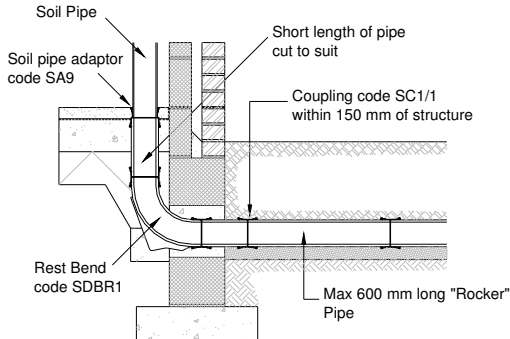
Applicable ✓

DC1 – internal waste pipe connection



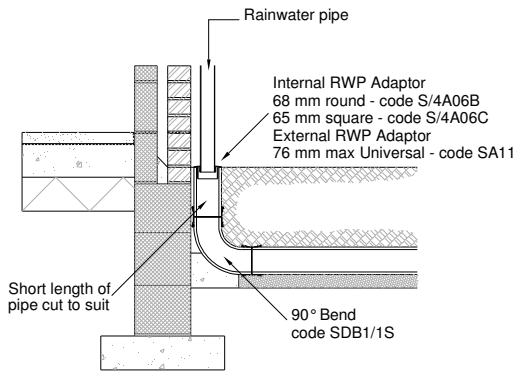
DC2 – Soil stack / Stub stack / WC connection

Applicable ✓



DC4 – External Rainwater pipe connection

Applicable ✓

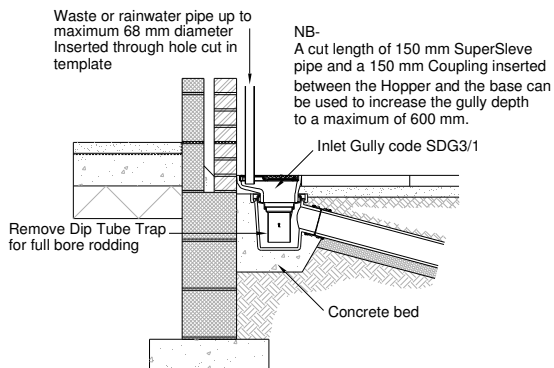


4.2 Gully connections (Trapped)

The selection of the correct gully will depend on the diameter and shape of the waste or rainwater pipe, the need for rodding access and the security of the grid. Hopper and trap combinations are not roddable. Please read the tick box to determine which products are applicable to this particular development.

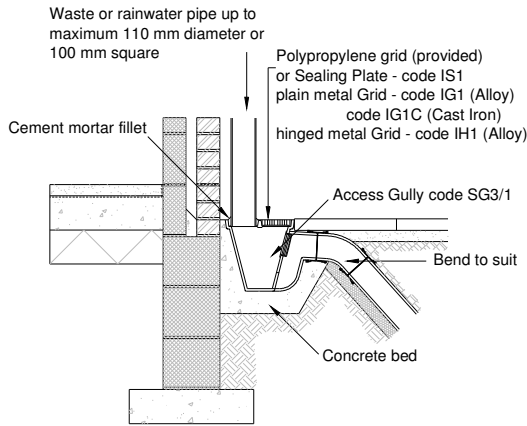
GC1 – inlet Gully connection

Applicable ✓



GC2 – Access Gully Connection

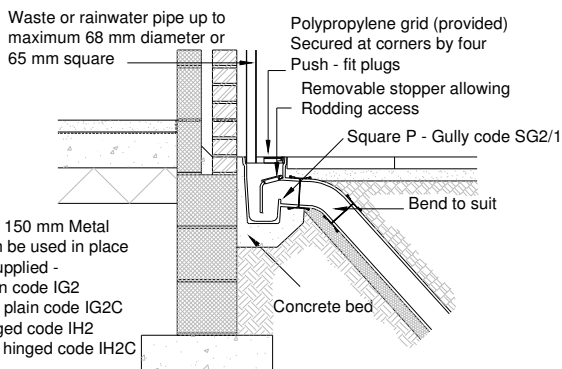
Applicable ✓



GC3 – Square P-Gully Connection

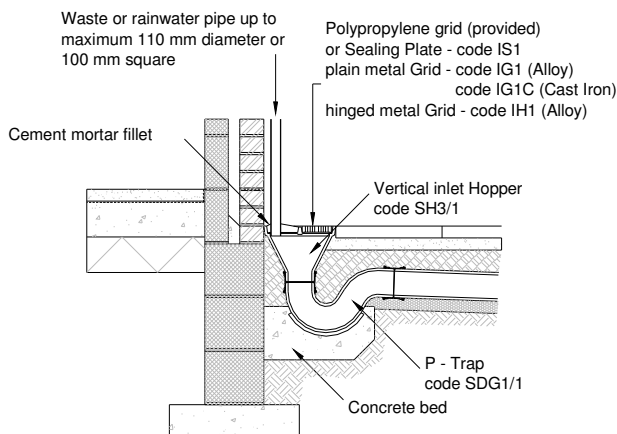
Applicable ✓

Remove bars in grid using a sharp knife to give a neat entry for waste / rainwater pipe. Rotate grid for rainwater pipe options.



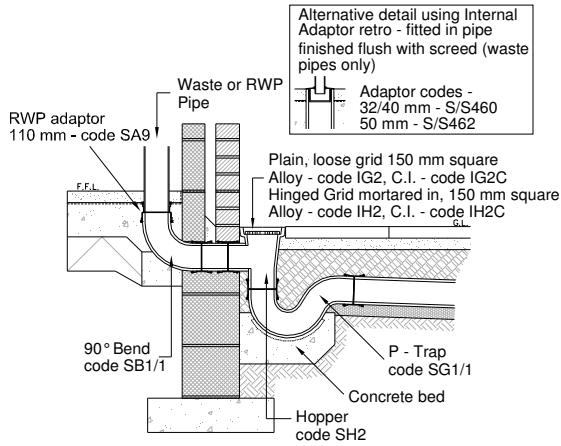
GC4 – Vertical inlet Hopper connection (trapped)

Applicable ✓



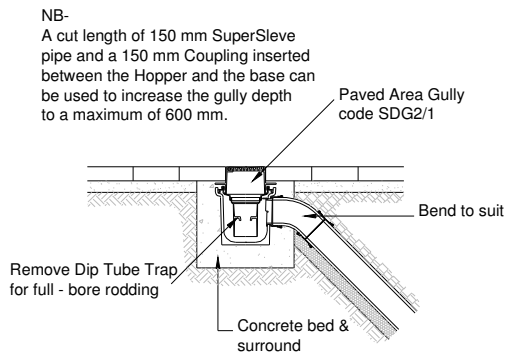
GC5 – Horizontal Inlet Hopper connection (trapped)

Applicable ✓



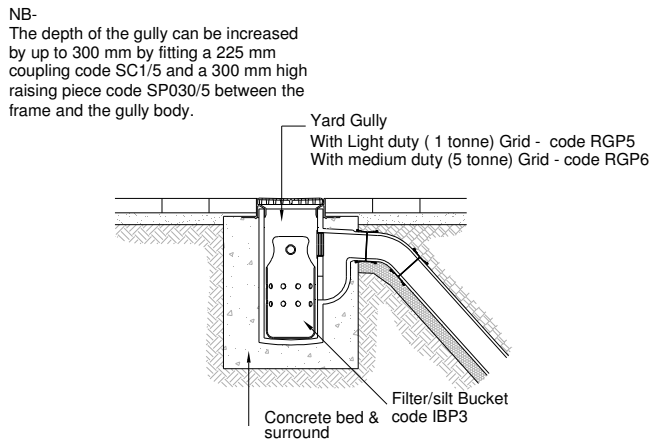
GC6 – Paved Area Gully connection

Applicable ✓



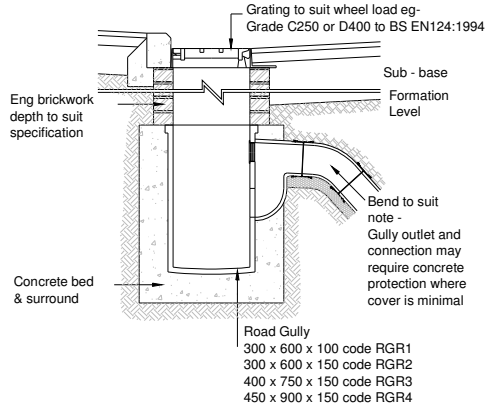
GC8 – Yard Gully connection

Applicable ✓



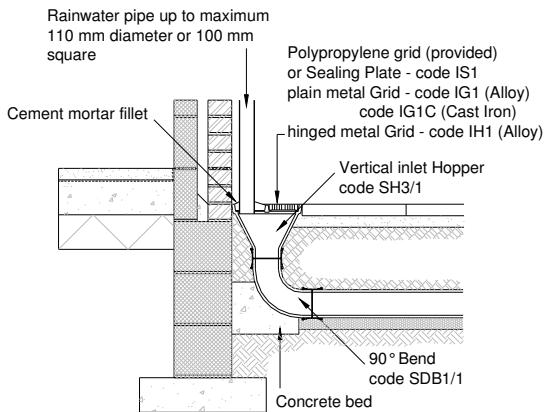
GC9 – Road Gully connection

Applicable ✓



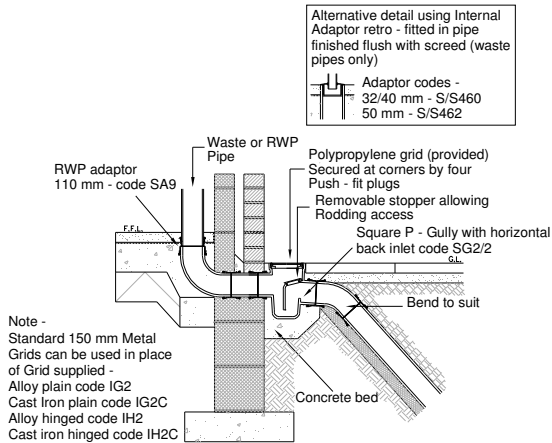
GC10 - Vertical inlet Hopper connection (untrapped)

Applicable ✓



GC13 - horizontal Inlet Square – P Gully connection

Applicable ✓



5 Testing

A test for watertightness using the air or water test should be applied initially after the system has been installed, before any backfilling, and again after backfilling is complete.

5.1 Cleaning

Flush out the whole of the system with water to remove any silt and debris before final tests are applied.

5.2 Air test

For pipes up to 300 mm diameter apply a pressure of 110 mm water gauge for approximately 5 minutes before testing. The pipe should then hold an initial 100 mm pressure with a maximum loss of head on a manometer of 25 mm, in 5 minutes for 100, 150 and 225 mm pipelines, or 7 minutes for 300 mm pipelines.

5.3 Water test

For pipes up to 300 mm diameter fill the system with water to a maximum depth of 5 metres above the lowest invert in the test section and a minimum depth of 1 metre above the highest invert in the test section. On steep runs it may be necessary to test in sections, to avoid exceeding the maximum head. This should then be left for one hour to condition the pipeline. The level of water should then be maintained for a period of 30 minutes by topping up to within 100 mm of the required level throughout the test. The quantity of water used should be recorded.

The loss per square metre of internal pipe surface area should not exceed –
 0.15 litres for test lengths consisting of pipes only,
 0.20 litres for test lengths including pipes and manholes,
 0.40 litres for tests on inspection chambers or manholes only.

As a guideline, per 10 metres of pipe run, this equates to –

Pipe diameter	100 mm	150 mm	225 mm	300mm
Permitted loss (litres)	0.47	0.72	1.07	1.41

Please note –

No responsibility for any errors or omissions will be accepted.