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Agrément Certificate
98/3472
Product Sheet 1

ULTRARIB GRAVITY SEWER SYSTEM

OSMA ULTRARIB 150 MM, 225 MM AND 300 MM INTERNAL DIAMETER PIPES AND FITTINGS

This Agrément Certificate Product Sheet(1) relates to Osma UltraRib 150 mm, 225 mm and 300 mm Internal Diameter Pipes and Fittings, a range of PVC-U pipes and fittings for use in domestic drains and public and private sewers at depths of up to 10 metres.

(1) Hereinafter referred to as 'Certificate'.

CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.

KEY FACTORS ASSESSED

Strength — the products have adequate strength for the intended application (see section 6).

Performance of joints — the joints remain watertight under normal use (see section 7).

Flow characteristics — the products will have normal flow characteristics associated with PVC-U underground sewerage systems (see section 8).

Resistance to chemicals — the products have adequate resistance to the type of chemicals likely to be found in domestic sewage (see section 9).

Resistance to elevated temperatures — the products have adequate resistance to the temperatures likely to be found in domestic sewage (see section 10).

Durability — the material from which the products are manufactured will not deteriorate significantly and the anticipated service life will be in excess of 50 years (see section 12).

The BBA has awarded this Certificate to the company named above for the products described herein. These products have been assessed by the BBA as being fit for their intended use provided they are installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of Third issue: 27 February 2019

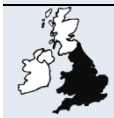
Originally certificated on 13 July 1998

Paul Valentine
Technical Excellence Director

Claire Curtis-Thomas
Chief Executive

Regulations

In the opinion of the BBA, Osma UltraRib 150 mm, 225 mm and 300 mm Internal Diameter Pipes and Fittings, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements of the following Building Regulations (the presence of a UK map indicates that the subject is related to the Building Regulations in the region or regions of the UK depicted):



The Building Regulations 2010 (England and Wales) (as amended)

Requirement: **H1(1)** **Foul water drainage**
Comment: The products will convey the flow of foul or surface water and minimise the risk of blockages or leaks. See sections 4.1, 6, 7, and 8 of this Certificate.

Requirement: **H3(3)** **Rainwater drainage**
Comment: The products will convey the flow of rainwater and minimise the risk of blockages or leaks. See sections 4.1, 6, 7, and 8 of this Certificate.

Regulation: **7** **Materials and workmanship (applicable to Wales only)**
Regulation: **7(1)** **Materials and workmanship (applicable to England only)**
Comment: The products are acceptable. See section 12 and the *Installation* part of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation: **8(1)** **Durability, workmanship and fitness of materials**
Comment: The products are acceptable. See sections 11.1 and 12 and the *Installation* part of this Certificate.

Regulation: **9** **Building standards applicable to construction**
Standard: 3.6 Surface water drainage
Standard: 3.7 Wastewater drainage
Comment: The products will satisfy the relevant requirements of these Standards, with reference to clauses 3.6.3(1)(2), 3.6.8(1)(2), 3.6.10(1)(2), 3.7.1(1)(2), 3.7.4(1)(2), 3.7.9(1)(2), 3.7.10(1)(2) and 3.7.11(1)(2). See sections 4.1, 6, 7, and 8 of this Certificate.

Standard: 7.1(a)(b) Statement of sustainability
Comment: The products can contribute to meeting the relevant requirements of Regulation 9, Standards 1 to 6 and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard.

Regulation: **12** **Building standards applicable to conversions**
Comment: All comments given for the products under Regulation 9, Standards 1 to 6 also apply to this Regulation, with reference to clause 0.12.1(1)(2) and Schedule 6(1)(2).

(1) Technical Handbook (Domestic).
(2) Technical Handbook (Non-Domestic).

The Building Regulations (Northern Ireland) 2012 (as amended)

Regulation: **23(a)(i)** **Fitness of materials and workmanship**
Comment: **(iii)(b)(i)** The products are acceptable. See section 12 and the *Installation* part of this Certificate.

Regulation: **81** **Underground foul drainage**
Comment: The products will convey the flow of foul or surface water and minimise the risk of blockages or leaks. See sections 4.1, 6, 7, and 8 of this Certificate.

Regulation:	**82**	**Rainwater drainage**
Comment:		The products will convey the flow of rainwater and minimise the risk of blockages or leaks. See sections 4.1, 6, 7, and 8 of this Certificate.

Construction (Design and Management) Regulations 2015
Construction (Design and Management) Regulations (Northern Ireland) 2016

Information in this Certificate may assist the client, designer (including Principal Designer) and contractor (including Principal Contractor) to address their obligations under these Regulations.

See sections: 3 *Delivery and site handling* (3.2) and 14 *General* of this Certificate.

Additional Information

NHBC Standards 2019

In the opinion of the BBA, Osma UltraRib 150 mm, 225 mm and 300 mm Internal Diameter Pipes and Fittings, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Chapter 5.3 *Drainage below ground*.

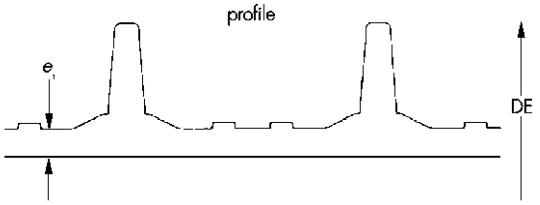
Technical Specification

1 Description

Osma UltraRib 150 mm, 225 mm and 300 mm Internal Diameter Pipes and Fittings (see Tables 1 to 3) of stiffness Class SN8 comprise:

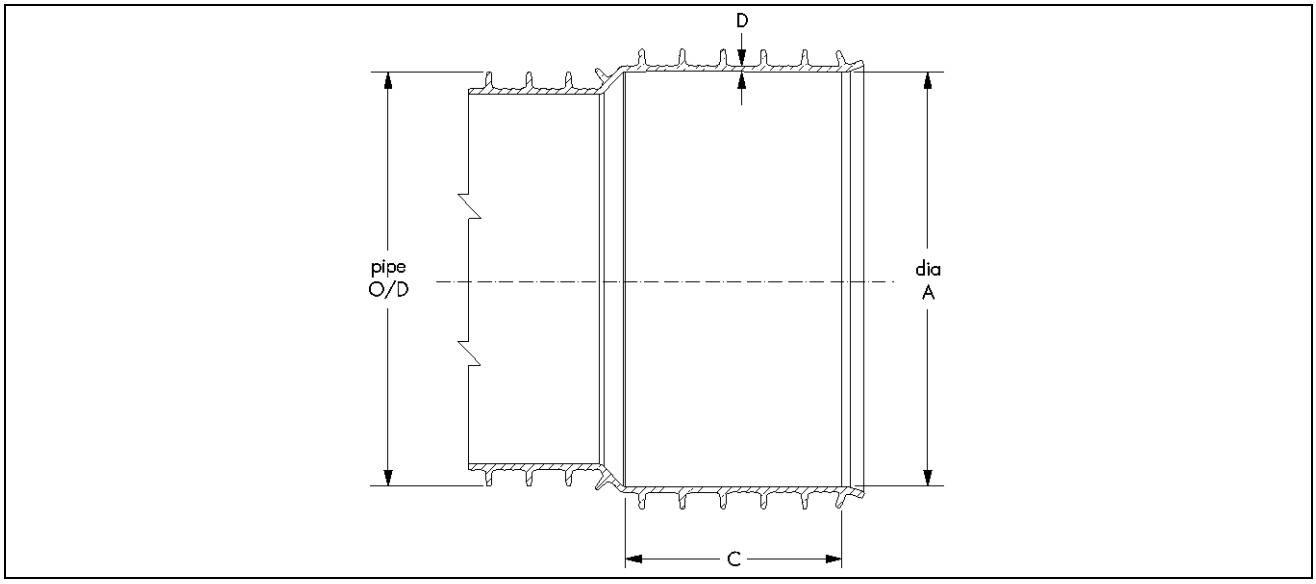
- solid wall pipes — extruded from PVC-U with a repeating pattern of radial ribs perpendicular to the axis of the pipe and provide a housing for type WC elastomeric ring seals to BS EN 681-1 : 1996. The pipes are brown in colour and are produced in three diameters either with plain ends (spigot x spigot) or with one end socketed (socket x spigot)
- PVC-U or polypropylene (PP) fittings — brown in colour. The sockets of each fitting are not ribbed. The body of the fitting is ribbed where appropriate. The range of fittings covered by this Certificate is shown in Table 3
- two-part, screw fitted PVC-U access covers — brown in colour. The caps incorporate a type WC ring seal to BS EN 681-1 : 1996.

Table 1 Pipe dimensions



Nominal size (DN/ID) (mm)	Outside diameter (DE) (mm)	Mean bore (mm)	Product code			Thickness (e_1)		Mean weight (kg·m^{-1})
			Plain end	Socketed end		nominal (mm)	minimum (mm)	
			3 m length	3 m length	6 m length			
150	170	152.0	6UR073	6UR043	6UR046	1.9	1.5	2.1
225	250	226.0	9UR073	9UR043	9UR046	2.3	1.9	4.5
300	335	301.0	12UR073	12UR043	—	2.9	2.3	7.0

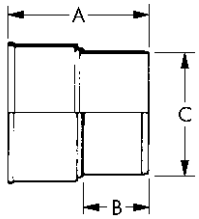
Table 2 Pipe socket dimensions



Nominal size (DN/ID) (mm)	Nominal pipe O/D (mm)	Socket inside diameter A (mm)		Socket depth C (mm)	Minimum wall thickness D (mm)
		maximum	minimum		
150	170	170.5	171.6	83	1.3
225	250	250.8	252.0	100	1.6
300	335	336.1	337.6	100	1.9

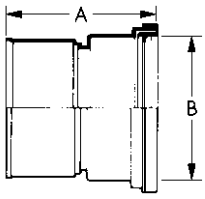
Table 3 Fittings[1]

S/S adaptor (150 mm socket x 160 mm BS EN 1401-1 spigot)



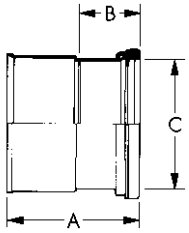
Product code	Nominal size (mm)	Dimensions (mm)		
		A	B	C
6UR141	150	180	84	160

D/S adaptor (to thin wall clay spigot)



Product code	Nominal size (mm)	Dimensions (mm)	
		A	B
6UR129	150	193	180

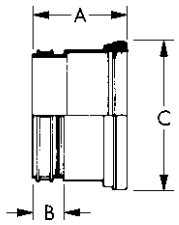
D/S adaptor (150 mm socket x 160 mm BS EN 1401-1 socket)



Product code	Nominal size (mm)	Dimensions (mm)		
		A	B	C
6UR142	150	173	86	161

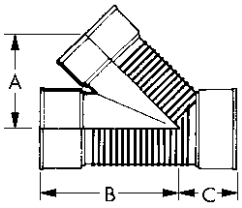
Table 3 Fittings[1] (continued)

S/S adaptor (150 mm spigot x 160 mm BS EN 1401-1 socket)



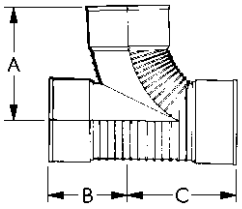
Product code	Nominal size (mm)	Dimensions (mm)		
		A	B	C
6UR143	150	125	42	161

D/S equal junctions 45°



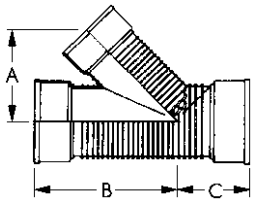
Product code	Nominal size (mm)	Dimensions (mm)		
		A	B	C
6UR213	150	210	304	126
9UR213	225	338	495	182
12UR213	300	410	600	270

D/S equal junction 87½° (to UltraRib spigot)



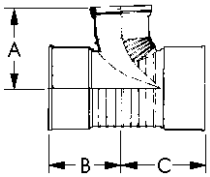
Product code	Nominal size (mm)	Dimensions (mm)		
		A	B	C
6UR193	150	246	180	225

D/S unequal junctions 45°



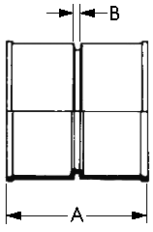
Product code	Nominal size (mm)	Dimensions (mm)		
		A	B	C
6UR219	150 x 110	185	265	90
9UR224	225 x 110	240	410	130
9UR226	225 x 160	275	415	130
9UR227	225 x 150	287	422	120
12UR236	300 x 160	295	500	155
12UR237	300 x 150	335	497	162
12UR240	300 x 225	470	575	295

D/S unequal junction 87½° (to BS EN 1401-1 spigot)



Product code	Nominal size (mm)	Dimensions (mm)		
		A	B	C
6UR199	150 x 110	174	163	177

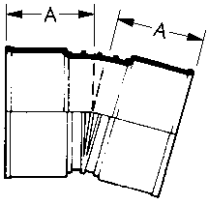
D/S pipe couplers with central register



Product code	Nominal size (mm)	Dimensions (mm)	
		A	B
6UR205	150	185	12
9UR205	225	240	12
12UR205	300	275	15

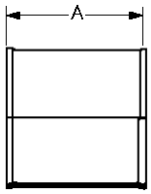
Table 3 Fittings[1] (continued)

D/S short radius bends 15°



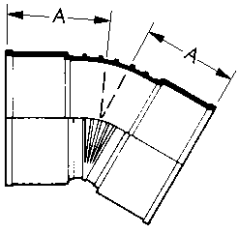
Product code	Nominal size (mm)	Dimension A (mm)
6UR567	150	112
9UR567	225	135
12UR567	300	190

D/S slip couplers



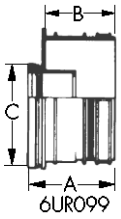
Product code	Nominal size (mm)	Dimension A (mm) A
6UR105	150	185
9UR105	225	270
12UR105	300	325

D/S short radius bends 30°



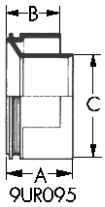
Product code	Nominal size (mm)	Dimension A (mm)
6UR566	150	125
9UR566	225	150
12UR566	300	210

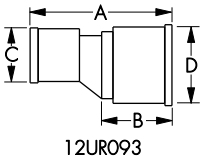
S/S reducers level invert



Product code	Nominal size (mm)	Dimensions (mm)		
		A	B	C
6UR099	150 x 110	115	95	110

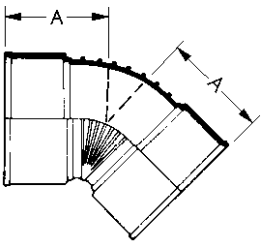
S/S reducers level invert





Product code	Nominal size (mm)	Dimensions (mm)			
		A	B	C	D
9UR95	225 x 150	142	122	170	
12UR093	300 x 225	405	205	275	365

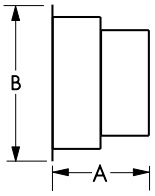
D/S short radius bends 30°



Product code	Nominal size (mm)	Dimension A (mm)
6UR563	150	140
9UR563	225	170
12UR563	300	235

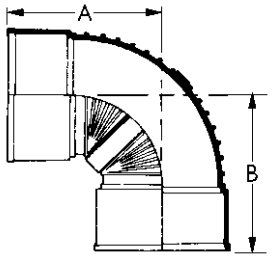
Table 3 Fittings[1] (continued)

Socket plugs [2]



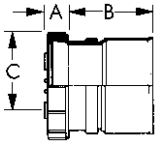
Product code	Nominal size (mm)	Dimensions (mm)	
		A	B
6UR296	150	95	195
9UR296	225	95	320
12UR296	300	170	340

D/S short radius bends 87½°



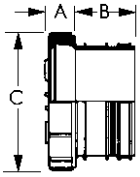
Product code	Nominal size (mm)	Dimensions (mm)	
		A	B
6UR561	150	262	262
9UR561	225	600	600
12UR561	300	685	710

S/S screwed access cover



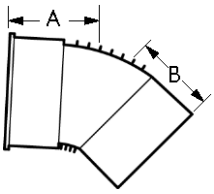
Product code	Nominal size (mm)	Dimensions (mm)		
		A	B	C
6UR290	150	40	185	196

P/E screwed access cover



Product code	Nominal size (mm)	Dimensions (mm)		
		A	B	C
6UR290	150	40	85	196

S/S short bend radius 45°



Product code	Nominal size (mm)	Dimensions (mm)	
		A	B
6UR163	150	138	128

(1) Dimensions are for guidance only, with a tolerance of ±5 mm.
(2) PP fittings (all others are PVC).

2 Manufacture

2.1 The pipes and fittings are produced by injection moulding or by thermoforming from PVC-U material, brown in colour.

2.2 Continuous quality control is exercised during manufacture to maintain product quality and includes checks for dimensional accuracy, impact resistance and weight of the pipes, and for dimensional accuracy and stress resistance of the fittings.

2.3 As part of the assessment and ongoing surveillance of product quality, the BBA has:

- agreed with the manufacturer the quality control procedures and product testing to be undertaken
- assessed and agreed the quality control operated over batches of incoming materials
- monitored the production process and verified that it is in accordance with the documented process
- evaluated the process for management of nonconformities
- checked that equipment has been properly tested and calibrated
- undertaken to carry out the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control operated by the manufacturer are being maintained.

2.4 The management system of Wavin Ltd has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 by BSI (Certificate FM00217) and BS EN ISO 14001 : 2015 by Intertek (Certificate 042231).

2.5 BSI Kitemark licence No KM 56705 has been issued to Wavin Ltd, Personage Way, Chippenham SN15 5PN, for the manufacture of pipes and couplers certified to WIS 4-35-01 : 2008 and BS EN 13476-3 : 2007.

3 Delivery and site handling

3.1 Each pipe length and fitting is engraved, marked or labelled with the Certificate holder's name, the pipe's internal diameter, and the BBA logo and/or the number of this Certificate. The fittings are also marked with the product code.

3.2 Handling, storage and transportation should be in accordance with BS 8000-0 : 2014, BS 8000-14 : 1989 and BS EN 1610 : 2015. When long-term storage is envisaged, the pipes and fittings must be protected from direct sunlight.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Osma UltraRib 150 mm, 225 mm and 300 mm Internal Diameter Pipes and Fittings.

Design Considerations

4 Use

4.1 Osma UltraRib 150 mm, 225 mm and 300 mm Internal Diameter Pipes and Fittings are for use in combination as sewerage systems designed in accordance with BS EN 752 : 2017, for the conveyance, by combined or separate systems, of surface water and domestic sewage as is permitted to be discharged into public sewers by the Water Industry Act 1991, Chapter 56, and surface water and sewage as is permitted and defined by the Sewerage (Scotland) Act 1968 and the Water and Sewerage Services (Northern Ireland) Order 2006.

4.2 The Certificate does not cover the use of the products for untreated trade effluents.

5 Practicability of installation

The pipes and fittings are designed to be installed by a competent contractor experienced with these types of products.

6 Strength

6.1 The fittings have adequate strength for use in situations when pipes to WIS 4-35-01 : 2008 and BS EN 13476-3 : 2007 are suitable.

6.2 The nominal short-term stiffness of the pipes and fittings is not less than 8 $kN \cdot m^{-2}$.

7 Performance of joints

7.1 The performance of joints will not be adversely affected by thermal expansion or contraction when correctly installed.

7.2 Joints on the pipeline remain watertight under conditions of pipeline movement in excess of those expected to occur in normal good drainage practice.

8 Flow characteristics

8.1 The products will have the normal flow characteristics associated with PVC-U underground sewerage systems.

8.2 Full bore discharges and velocities are available from the *Hydraulic Design of Pipes, Sewers and Channels*, Volume 2, 8th Edition by H R Wallingford and D I H Barr. The values are based on the Colebrook-White equation.

9 Resistance to chemicals

The products are suitable for use where pipes to WIS 4-35-01 : 2008 and BS EN 13476-3 : 2007, and fittings to BS EN 1401-1 : 2009, are normally used. They have adequate resistance to the type and quantities of chemicals likely to be found in domestic sewage.

10 Resistance to elevated temperatures

The products are for use where pipes to WIS 4-35-01 : 2008 and BS EN 13476-3 : 2007, and fittings to BS EN 1401-1 : 2009, are normally used and have adequate resistance to the temperatures likely to be found in domestic sewage.

11 Maintenance

11.1 Drains incorporating the products can be rodded easily using conventional flexible drain rods. Toothed root cutters, as used with some mechanical cleaning systems, could damage the fittings and should not be used.

11.2 The products have adequate resistance to water cleansing using pressure jetting equipment. It is recommended that low-pressure, high-volume systems are utilised in accordance with WIS 4-35-01 : 2008.

12 Durability

In the opinion of the BBA, no significant deterioration of the products will take place and installations will have a service life in excess of 50 years.

13 Reuse and recyclability

The pipes and fittings are manufactured from PVC-U and PP, which are readily recyclable.

Installation

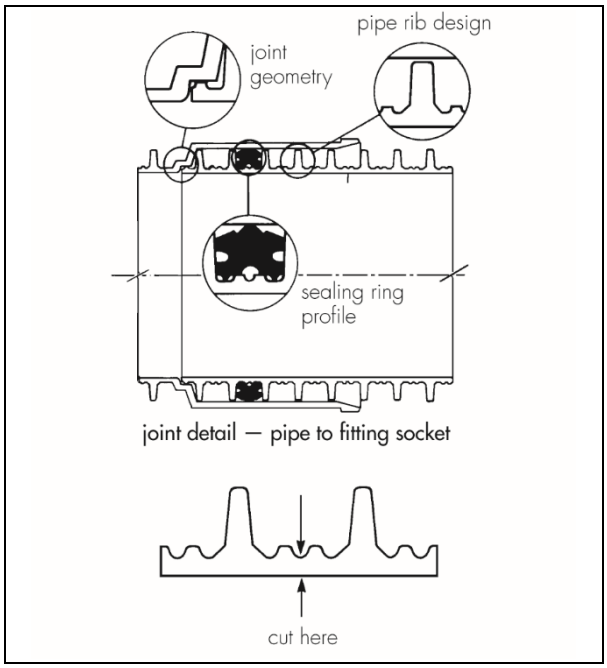
14 General

Installation of Osma UltraRib 150 mm, 225 mm and 300 mm Internal Diameter Pipes and Fittings must be in accordance with the Certificate holder's Installation Manual and, when appropriate, BS 8000-0 : 2014, BS 8000-14 : 1989, BS EN 1610 : 2015, BS EN 752 : 2017 and Water UK/WRc plc *Sewers for Adoption*, 7th edition, March 2012.

15 Procedure for jointing pipe

15.1 The pipes are cut midway between the ribs, as shown in Figure 1.

Figure 1 Joint details



15.2 Swarf is removed from the pipe end.

15.3 The pipe spigots and sockets are cleaned and the sealing ring is checked to ensure that it is correctly seated (not twisted) between the second and third ribs of the pipe end.

15.4 The manufacturer's lubricant is applied generously to the whole of the inside area of the socket, ensuring that it does not subsequently become contaminated with dirt.

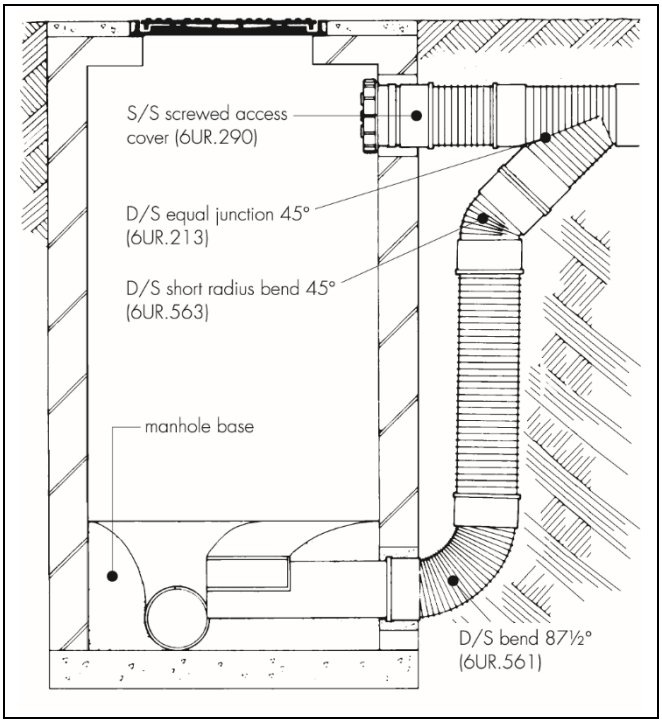
15.5 The pipe is offered to the socket, aligned and pushed fully home.

15.6 Jointing to other materials must be carried out in accordance with the Certificate holder's Installation Manual.

15.7 The pipes and fittings must have adequate protection against damage from site traffic.

15.8 Screw-fitted access covers are for use in backdrop manholes (see Figure 2).

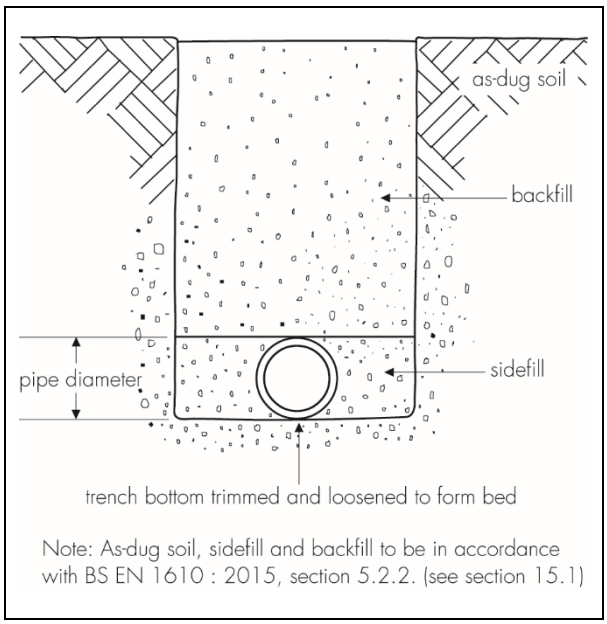
Figure 2 Manhole with backdrop — typical installation of screwed access cover



16 Procedure for laying pipes

Trench bottom in granular material

Figure 3 Typical trench detail



16.1 Where the as-dug material is suitable(1) for use as bedding, the bottom of the trench may be trimmed to form the pipe bed.

(1) Suitable material is defined in BS EN 1610 : 2015, Section 5.2.2.

16.2 Small depressions should be made to accommodate the pipe sockets or couplings. After the pipe has been laid these should be carefully filled to ensure that no voids remain under, or around, the socket.

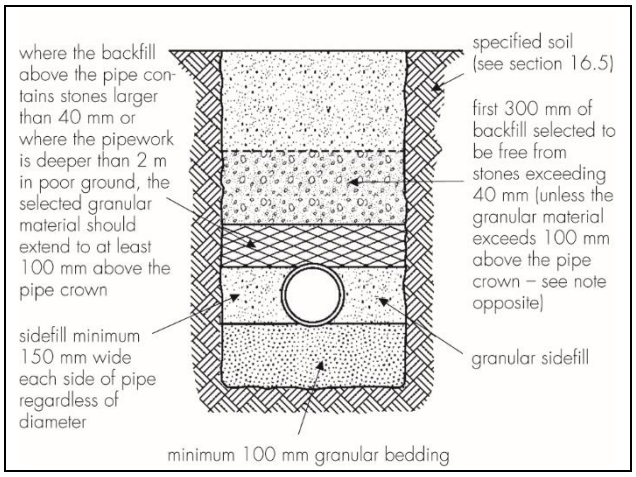
16.3 When the formation is prepared, the pipes should be laid upon it true to line and level within the specified tolerances. Each pipe should be checked and any necessary adjustments to level made by raising or lowering the formation, ensuring that the pipes finally rest evenly on the adjusted formation throughout their length. Adjustment should never be made by local packing.

16.4 Where the formation is low and does not provide continuous support, it should be brought up to the correct level by placing and compacting suitable material.

On granular beds

16.5 When the as-dug material is not suitable as a bedding, a layer of suitable granular material as defined in BS EN 1610 : 2015, Section 5.2.1, must be spread evenly on the trimmed trench bottom before the pipes are installed. The trench should be excavated to allow for a minimum thickness of 100 mm granular bedding under the pipes (see Figure 4).

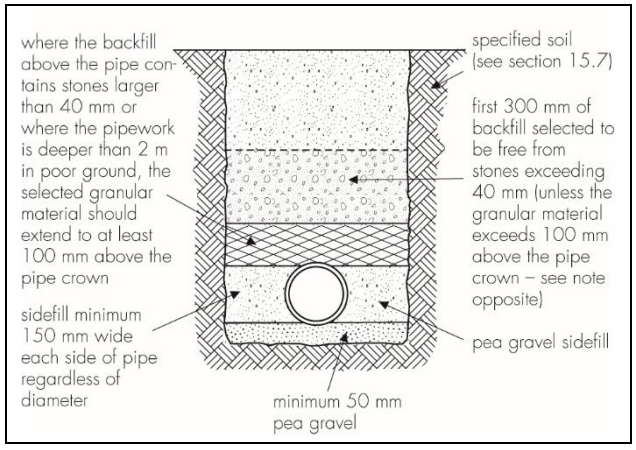
Figure 4 Pipes laid on 100 mm minimum granular bedding



16.6 The trench formation should be prepared, the bedding placed and the pipes laid in accordance with BS EN 1610 : 2015, BS 8000-0 : 2014 and 8000-14 : 1989.

16.7 For 150 mm pipes and fittings, and where the as-dug material can be hand trimmed by shovel and is not puddled when walked upon, a 50 mm depth of bedding material may be used. In this case, the material must be nominal 10 mm single-sized aggregate with no sharp edges, ie pea gravel (see Figure 5).

Figure 5 Pipes laid on 50 mm minimum pea gravel bedding



16.8 When the 150 mm pipes are to be laid on rock, compacted sand or gravel requiring mechanical means of trimming, or in very soft or wet ground, the bedding should be as detailed in section 16.5.

17 Tests

17.1 Tests were carried out on pipes and couplers to determine:

- flexibility and pipe ring stiffness to WIS/IGN No 4-31-05, Appendix E
- long-term stiffness to WIS/IGN No 4-31-05, Appendix D
- short-term stiffness to WIS/IGN No 4-31-05, Appendix B
- impact to WIS/IGN No 4-31-05, Appendix A
- dimensional accuracy to BS ISO 11922-1 : 1997
- stress rupture to BS 4728 : 1971
- resistance to penetration by simulated sharp aggregate
- Vicat softening temperature to BS 2782-1.120B : 1990
- impact resistance at 0°C to BS EN 744 : 1996
- longitudinal bending to the Manual of Contract Documents for Highway Works (MCHW), Volume 1, Series 500, Section 518.

17.2 Pipes, socketed pipes and couplers are kitemarked to WIS 4-35-01 : 2008 and BS EN 13476-3 : 2007.

17.3 Tests were carried out on the products to determine:

- combined temperature and external load to WIS 4-35-01 : 2008, Appendix A
- leaktightness whilst under angular deflection and diametric distortion to WIS 4-35-01 : 2008
- rodding resistance to WIS 4-35-01 : 2008, Appendix B
- ring stiffness to ISO 13967 : 1998.

17.4 Tests were carried out on the fittings to determine:

- dimensional accuracy to BS ISO 11922-1 : 1997
- drop test (fabricated fittings) to BS EN 12061 : 1999
- mechanical strength and flexibility (fabricated fittings) to BS EN 12256 : 1998.

18 Investigations

18.1 An examination was made of data relating to:

- resistance to water jetting to WIS 4-35-01 : 2008
- practicability of installation
- chemical resistance
- design method
- ease of jointing
- flow capacities.

18.2 A user survey was carried out to evaluate the performance of the products in use.

18.3 The manufacturing process was evaluated, including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used.

Bibliography

BS 2782-1.120B : 1990 *Methods of testing plastics — Thermal properties — Determination of Vicat softening temperature of thermoplastics*

BS 4728 : 1971 *Method for determination of the resistance to constant internal pressure of thermoplastics pipe*

BS 8000-0 :2014 *Workmanship on construction sites — Introduction and general principles*
BS 8000-14:1989 *Workmanship on building sites — Code of practice for below ground drainage*

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

BS EN 744 : 1996 *Plastics piping and ducting systems. — Thermoplastics pipes — Test method for resistance to external blows by the round-the-clock method*

BS EN 752 : 2017 *Drain and sewer systems outside buildings*

BS EN 1401-1 : 2009 *Plastic piping systems for non-pressure underground drainage and sewerage — Unplasticized poly(vinyl chloride) (PVC-U) — Specifications for pipes, fittings and the system*

BS EN 1610 : 2015 *Construction and testing of drains and sewers*

BS EN 12061 : 1999 *Plastics piping systems — Thermoplastics fittings — Test method for impact resistance*

BS EN 12256 : 1998 *Plastics piping systems — Thermoplastics fittings — Test method for mechanical strength or flexibility of fabricated fittings*

BS EN 13476-3 : 2007 + A1 :2009 *Plastics piping systems for non-pressure underground drainage and sewerage — Structured wall piping systems of unplasticized poly (vinyl chloride) (PVC-U), polypropylene (PP) and polyethylene (PE) — Specifications for pipes and fittings with smooth internal and profiled external surface and the system, Type B*

BS EN ISO 9001 : 2015 *Quality management systems — Requirements*

BS EN ISO 14001 : 2004 *Environmental management systems — Requirements*

BS ISO 11922-1 : 1997 *Thermoplastics pipes for the conveyance of fluids — Dimensions and tolerances — Metric series*

ISO 13967 : 1998 *Thermoplastic fittings — Determination of ring stiffness*

Manual of Contract Documents for Highway Works, Volume 1 *Specification for Highways Works*

WIS 4-35-01, Issue 2 : 2008 *Specification for thermoplastic structured wall pipes — Supplementary test requirements*

WIS/IGN No 4-31-05 *Specification for solid wall concentric external rib-reinforced uPVC sewer pipe*

19 Conditions

19.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page – no other company, firm, organisation or person may hold or claim that this Certificate has been issued to them
- is valid only within the UK
- has to be read, considered and used as a whole document – it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English Law.

19.2 Publications, documents, specifications, legislation, regulations, standards and the like referenced in this Certificate are those that were current and/or deemed relevant by the BBA at the date of issue or reissue of this Certificate.

19.3 This Certificate will remain valid for an unlimited period provided that the product/system and its manufacture and/or fabrication, including all related and relevant parts and processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

19.4 The BBA has used due skill, care and diligence in preparing this Certificate, but no warranty is provided.

19.5 In issuing this Certificate the BBA is not responsible and is excluded from any liability to any company, firm, organisation or person, for any matters arising directly or indirectly from:

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- actual installations of the product/system, including their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product/system is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product/system, including its manufacture, supply, installation, use, maintenance and removal
- any claims by the manufacturer relating to CE marking.

19.6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used, maintained and removed. It does not purport in any way to restate the requirements of the Health and Safety at Work etc. Act 1974, or of any other statutory, common law or other duty which may exist at the date of issue or reissue of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care.