
WATER INDUSTRY INFORMATION & GUIDANCE NOTE

IGN 4-08-01
February 1994: Issue 4
(Amendment November 2008)
(Page 1 of 5)

UK Water Industry

Amendment to: BEDDING AND SIDEFILL MATERIALS FOR BURIED PIPELINES

This amendment forms an integral part of the Specification and replaces elements of the original as indicated below.

Title	Delete: "Bedding and sidefill materials for buried pipelines". Insert: "Bedding and sidefill materials including recycled aggregates for buried pipelines".	4.	4 th paragraph. Delete: "Aggregates conforming to BS 882, air-cooled blast furnace slag conforming to BS 1407, or lightweight aggregates conforming to BS 3797 are suitable as processed bedding and sidefill materials." Insert: "Aggregates conforming to BS EN 13242:2002 are suitable as processed bedding and sidefill materials."
Foreword	2 nd paragraph. Delete: "or Standards such as BS 8005: Part1." Insert: "or Standards such as BS EN 752." After "in its own right (WIS No. 4-08-02", insert: "and No. 4-08-02 Amendment". 3 rd paragraph. After "WIS No. 4-08-02", insert: "and No. 4-08-02 Amendment".		5 th paragraph. Delete: "Crushed rock aggregates to BS 882 are particularly suitable. Air-cooled blast furnace slag to BS 1047, lightweight aggregates to BS 3797 or" Insert: "Coarse aggregates to BS EN 13242:2002 produced by crushing rock are particularly suitable."
1.	1 st paragraph. After 2 nd sentence, insert new paragraph: "These materials are aggregates obtained by processing natural or manufactured or recycled materials. The following are examples of recycled materials that may be used: recycled aggregate (RA), recycled concrete aggregate (RCA), recycled glass, blastfurnace slag and pulverized-fuel ash. Recycled aggregates may be used alone or in combination with natural and manufactured aggregates." 1 st paragraph. After "Water Industry Specification No. 4-08-02", insert: ", Issue 4 and No. 4-08-02 Amendment (Nov 2008)".		10 th paragraph. Delete: "up to 75mm". 11 th paragraph. After "detailed in WIS No. 4-08-02", insert: "and No. 4-08-02 Amendment".
		5.	Insert: "BS EN 1295-1:1998 Structural design of buried pipelines under various conditions of loading. General requirements." Delete: "BS 882 Specification for aggregates from natural sources for concrete" Insert: "BS EN 13242:2002 Aggregates for unbound and hydraulically bound materials for use

Technical enquiries to:
WRc, Frankland Road, Blagrove, Swindon, Wilts, SN5 8YF Tel: (01793) 865151 E-mail: wisign@wrcplc.co.uk

in civil engineering work and road construction.”

Delete: “BS 1047 Specification for air-cooled blast furnace slag aggregate for use in construction.”

Delete: “BS 3797 Specification for lightweight aggregates for masonry units and structural concrete.”

Delete: “BS 8005 Part1: Guide to new sewerage construction.”

Insert: “BS EN 752:2008 Drain and sewer systems outside buildings.”

Add to Water Industry Specifications/Information and Guidance Notes: “WIS No. 4-08-02 Amendment. Bedding and sidefill materials for buried pipelines.”

Table A.1 Delete title: "Table A.1 – Processed granular".
 Insert title: "Table A.1 – Processed and as-dug granular".

Delete Table A.1.
 Insert:

Pipe nominal size (DN)	Nominal maximum particle size (mm) See note (c)	Class of bedding See note (d)	Suitable Materials	
			Either: Maximum CF value for acceptability See note (b)	Or: Materials specified in British Standards See note (a)
100	10	S B F	0.15 0.30 0.15	10mm nominal single-size
		N	0.30	Fine aggregate
Over 100 to 150	16	S B F	0.15 0.30 0.15	10 or 14mm nominal single-size or 14mm to 5mm graded
		N	0.30	Fine aggregate
Over 150 to 300	20	S B F	0.15 0.30 0.15	10, 14 or 20mm nominal single-size or 14mm to 5mm graded or 20mm to 5mm graded
		N	0.30	All-in aggregate or fine aggregate
Over 300 to 550	20	S B F	0.15 0.30 0.15	14 or 20mm nominal single-size or 14 to 5mm graded or 20 to 5mm graded
		N	0.30	All-in aggregate or fine aggregate
Over 550	40	S B F	0.15 0.30 0.15	14, 20 or 40mm nominal single-size crushed rock or 14mm to 5mm graded or 20mm to 5mm graded or 40mm to 5mm graded
		N	0.30	All-in aggregate or fine aggregate

Note (a) Delete: "Processed granular materials to include aggregates to BS 882, air-cooled blastfurnace slag to BS 1047 and lightweight aggregates to BS 3797."
 Insert: "Processed granular materials to include aggregates to BS EN 13242."

Note (b) After "see WIS No. 4-08-02", insert: ", Issue 4 and No. 4-08-02 Amendment (Nov 2008)".

Note (d) Delete: "BS 8005: Part 1" and "IGN No. 4-11-02".
 Insert: "BS EN 1295-1:1998 Structural design of buried pipelines under various conditions of loading."

Table A.2 Delete Table A.2.
Insert:

Pipe nominal bore (mm) See note (d)	Nominal maximum particle size (mm)	Suitable Materials		
		Either: Maximum CF value for acceptability See note (b)		Or: Materials specified in British Standards See note (a)
		Non-pressure pipe	Pressure pipe	
100	10	0.15	0.30	10mm nominal single-size
Over 100 to 150	16	0.15	0.30	10 or 14mm nominal single-size or 14mm to 5mm graded
Over 150 to 300	20	0.15	0.30	10, 14 or 20mm nominal single-size or 14mm to 5mm graded or 20mm to 5mm graded
Over 300 to 550	20	0.15	0.30	14 or 20mm nominal single-size or 14mm to 5mm graded or 20mm to 5mm graded
Over 550	40	0.15	0.30	14, 20 or 40mm single-size or 14mm to 5mm graded or 20mm to 5mm graded or 40mm to 5mm graded

Note (a) Delete: "Processed granular materials to include aggregates to BS 882, air-cooled blastfurnace slag to BS 1047 and lightweight aggregates to BS 3797."
Insert: "Processed granular materials to include aggregates to BS EN 13242."

Note (b) After "see WIS No. 4-08-02", insert: "and No. 4-08-02 Amendment".

Appendix A At the end of Appendix A, insert:

Table A.4 – Specification for processed granular material

Property	BS EN 13242 category
Fines content	In accordance with the grading requirements of the end-use material as specified in the SHW
Resistance to fragmentation (flakiness)	LA ₅₀
Acid-soluble sulphate content: <ul style="list-style-type: none"> • aggregates other than air-cooled blast-furnace slag • air-cooled blast-furnace slag 	AS _{0.2} AS _{1.0}
Total sulphur: <ul style="list-style-type: none"> • aggregates other than air-cooled blast-furnace slag • air-cooled blast-furnace slag 	≤1% by mass ≤2% by mass
Volume stability of blast-furnace and steel slags: <ul style="list-style-type: none"> • air-cooled blast-furnace slag • steel slag 	Free from dicalcium silicate and iron disintegration in accordance with BS EN 13242:2002, 6.4.2.2 Site specific ^a
^a Insert appropriate category from BS EN 13242:2002, Table 14 following discussion with the producer (see 3.4.3)	

Table A.5 – Fines Content

Type of aggregate	Gravel		Crushed rock, recycled aggregate	
	Maximum fines category	Mass fraction of passing 0.063mm sieve	Maximum fines category - f	Mass fraction of passing 0.063mm sieve
Coarse	f ₂	≤ 2	f ₄	≤ 4
Fine and all-in	f ₃	≤ 3	f ₁₂	≤ 12