

Material: Bioretention Soil
Source: Bourne Amenity Ltd
Date: 03/01/2017
Tested Against: SUDs Guidelines 2015 Chapter 18
Tested By: Tim O'Hare Associates (TOHA/16/6953/3/SS)

Parameter	Unit	Suds 2015 Specification	Result	Compliance
Texture:				
Clay (<0.002mm)	%	< 5	7	No
Silt (0.002 - 0.63mm)				
Very Fine Sand (0.05 - 0.15mm)	%	< 20%	18	Yes
Fine Sand (0.15 - 0.25mm)				
Medium Sand (0.25 - 0.50mm)	%	35 - 65%	48	Yes
Coarse Sand (0.50 - 1.0mm)	%	50 - 60%	27	No
Very Coarse Sand (1.0 - 2.0mm)				
Stones (2 - 6mm)	%	< 10%	1	Yes
Organic Matter (LOI)	% w/w	3 - 5%	1.8	No
Ph (1:2.5 water extract)	units	5.5 - 8.5	8.1	Yes
Exchangeable Sodium Percentage	%	< 15*	2.4	Yes
Phytotoxic Contaminants:				
Total Zinc	mg/kg	< 300*	23	Yes
Total Copper	mg/kg	< 200*	9.3	Yes
Total Nickel	mg/kg	< 180*	27	Yes
Available Nutrients:				
Nitrogen	mg/l	0.10 - 0.30	0.08	No
Phosphorus	mg/l	16 - 100	24	Yes
Potassium	mg/l	120 - 900	436	Yes
Magnesium	mg/l	51 - 600*	80	Yes
Carbon:Nitrogen Ratio	:1	< 20:1*	13	Yes
Calcium Carbonate	% m/m	< 5*	<1.0	Yes
Additional Analysis:				
Electrical Conductivity (1:2 CaSO ₄ extract)	µS/cm	<3300	2435	Yes
Additional Criteria:				
Saturated Hydraulic Conductivity	mm/h	100 - 300	121	Yes
Total Porosity	%	> 30%	47	Yes

* Based on BSI BS3882:2015 Topsoil Guidelines

IMPORTANT NOTE / CIRIA c753 / Box 18.1 / Particle Size Distribution: Particle size distribution (PSD) is of secondary importance compared with saturated hydraulic conductivity. A material whose PSD falls within the recommended range does not preclude the need for hydraulic conductivity testing, that is it does not guarantee that the material will have a suitable hydraulic conductivity. The table in 18.2 provides a useful guide for selecting an appropriate material. The grading needs to be readily understood by both drainage and landscape/horticultural professionals.

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Parameter	Unit	Guidelines	Value	Result	Compliance
Heavy Metals and Hydrocarbons					
Total Arsenic (As)	mg/kg	S4UL	<37	9	Yes
Total Cadmium (Cd)	mg/kg	S4UL	<11	<0.2	Yes
Total Chromium (Cr)	mg/kg	S4UL	<910	<15	Yes
Hexavalent Chromium (Cr Vi)	mg/kg	S4UL	<6	<4.0	Yes
Total Cyanide (Cn)	mg/kg	Dutch Action Value (DAV)	<20	<1	Yes
Total Lead (Pb)	mg/kg	SP1010 (Defra Category 4)	<200	8	Yes
Total Mercury (Hg)	mg/kg	S4UL	<1.2	<0.3	Yes
Total (mono) Phenols	mg/kg	S4UL	<550	<1	Yes
Total Selenium (Se)	mg/kg	S4UL	<250	<1.0	Yes
Water Soluble Boron (B)	mg/kg	S4UL	<290	0.6	Yes
Acenaphthylene	mg/kg	S4UL	<420	<0.10	Yes
Acenaphthene	mg/kg	S4UL	<510	<0.10	Yes
Anthracene	mg/kg	S4UL	<5400	<0.10	Yes
Benzo (a) Anthracene	mg/kg	S4UL	<11	<0.10	Yes
Benzo (a) Pyrene	mg/kg	S4UL	<2.7	<0.10	Yes
Benzo (b) Fluoranthene	mg/kg	S4UL	<3.3	<0.10	Yes
Benzo (g,h,i) Perylene	mg/kg	S4UL	<340	<0.05	Yes
Benzo (k) Fluoranthene	mg/kg	S4UL	<93	<0.10	Yes
Chrysene	mg/kg	S4UL	<22	<0.05	Yes
Dibenzo (a,h) Anthracene	mg/kg	S4UL	<0.28	<0.10	Yes
Fluoranthene	mg/kg	S4UL	<560	<0.10	Yes
Fluorene	mg/kg	S4UL	<400	<0.10	Yes
Indeno (1,2,3-cd) Pyrene	mg/kg	S4UL	<36	<0.10	Yes
Naphthalene	mg/kg	S4UL	<5.6	<0.05	Yes
Phenanthrene	mg/kg	S4UL	<220	<0.10	Yes
Pyrene	mg/kg	S4UL	<1200	<0.10	Yes
Total PAHs (sum SUEPA16)	mg/kg	TOHA	<40	<1.6	Yes
Aliphatic TPH (C5 - C6)	mg/kg	S4UL	<78	<0.1	Yes
Aliphatic TPH (C6 - C8)	mg/kg	S4UL	<230	<0.1	Yes
Aliphatic TPH (C8 - C10)	mg/kg	S4UL	<65	<0.1	Yes
Aliphatic TPH (C10 - C12)	mg/kg	S4UL	<330	<1.0	Yes
Aliphatic TPH (C12 - C16)	mg/kg	S4UL	<2400	<2.0	Yes
Aliphatic TPH (C16 - C21)	mg/kg	S4UL	<92000	<8.0	Yes
Aliphatic TPH (C21 - C35)	mg/kg	S4UL		<8.0	Yes
Aliphatic TPH (C5-C35))	mg/kg	S4UL	<92000	<10	Yes
Aromatic TPH (C5 - C7)	mg/kg	S4UL	<140	<0.1	Yes
Aromatic TPH (C7 - C8)	mg/kg	S4UL	<290	<0.1	Yes
Aromatic TPH (C8 - C10)	mg/kg	S4UL	<83	<0.1	Yes
Aromatic TPH (C10 - C12)	mg/kg	S4UL	<180	<1.0	Yes
Aromatic TPH (C12 - C16)	mg/kg	S4UL	<330	<2.0	Yes
Aromatic TPH (C16 - C21)	mg/kg	S4UL	<540	<10	Yes
Aromatic TPH (C21 - C35)	mg/kg	S4UL	<1500	<10	Yes
Aromatic TPH (C5-C35)	mg/kg	S4UL	<1500	<10	Yes
Benzene	mg/kg	S4UL	<0.17	<0.001	Yes
Toluene	mg/kg	S4UL	<290	<0.001	Yes
Ethylbenzene	mg/kg	S4UL	<110	<0.001	Yes
O-xylene	mg/kg	S4UL	<140	<0.001	Yes
M-xylene	mg/kg	S4UL	<140	<0.001	Yes
P-xylene	mg/kg	S4UL	<130	<0.001	Yes
MTBE	mg/kg	Sail Guideline Values	<470	<0.001	Yes