



The Lab (Asia) Limited

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Scope of Accreditation
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ADDRESS : 22 San Hi Tsuen Street, Ping Shan, New Territories
地址 : 新界屏山新起村街 22 號

DD122, Lot 1483, Lot 1432 & Lot 1433, Tong Yan San Tsuen,
Ping Shan, Yuen Long, N.T.
新界元朗屏山唐人新村 DD122, 1483 段, 1432 段及 1433 段

DD121, Lot 1275A, Tong Yan San Tsuen, Ping Shan, Yuen Long, N.T.
新界元朗屏山唐人新村 DD121, 1275A 段

ACCREDITED TEST : Construction Materials 建築材料
CATEGORY : Environmental Testing 環境測試
認可測試類別

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Construction Materials 建築材料		
ITEM TESTED OR MEASURED 測試或量度項目	SPECIFIC TEST OR PROPERTY MEASURED 特定測試或量度的特性	SPECIFICATION, STANDARD METHOD OR TECHNIQUE USED 規範、標準方法或應用技術
Admixture (chemical analysis)	Acid soluble alkali content (equivalent Na ₂ O)	BS EN 480-12 : 2005
	Ash content	BS 5075 : Part 1 : 1982 App. D.2 (Amd 11057)
	Chloride ion content	BS 5075 : Part 1 : 1982 App. E (Amd 11057)
	Water soluble chloride content	BS EN 480-10: 2009 Method 3
	Dry material content	BS 5075 : Part 1 : 1982 App. D.1 (Amd 11057)
	Conventional dry material content	BS EN 480-8: 2012
	pH of liquid admixture	ISO 4316 : 1977
	Density (liquid)	ISO 758: 1976
	Relative density of liquid admixture	BS 5075 : Part 1 : 1982 App. D.3 (Amd 11057)

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Aggregates	Aggregate crushing value	BS 812: Part 3: 1975 Cl.7 + Amd. 2153 & 4616 BS 812: Part 110: 1990
	Aggregate impact value	BS 812: Part 3: 1975 Cl. 6 + Amd. 4616 BS 812: Part 112: 1990 + Amd.8772 CS3: 2013 Section 15
	Bulk density, voids and bulking	BS 812: Part 2: 1975 + Amd. 4615 excluding Cl. 6.4 & 6.5 BS 812: Part 2: 1995 +Amd. 9195 & 10397 excluding Cl. 6.4 & 6.5
	Clay, silt and dust content	BS 812: Part 1: 1975 (Amd. 2069, 4527, 4875) (Decantation method)
	Elongation index	BS 812: Section 105.2: 1990 CS3: 2013 Section 12
	Flakiness index	BS 812: Section 105.1: 1989 CS3: 2013 Section 11
	Los Angeles value	CS3: 2013 Section 14
	Magnesium sulphate test of aggregates (Soundness)	BS 812: Part 121: 1989 BS EN 1367-2: 2009 CS3: 2013 Section 19
	Methylene blue value	CS3: 2013 Section 13
	Moisture content	BS 812: Part 2: 1975 (Amd. 4615) (oven drying method) BS 812: Part 109: 1990 (oven drying method) CS3: 2013 Section 18
	Particle density and water absorption	BS 812: Part 2: 1995 (Amd. 9195& 10379) (Gas jar method or Pycnometer method) CS3: 2013 Section 17 (Gas jar method or Pycnometer method)
Particle size distribution	BS 812: Section 103.1: 1985 (Amd. 6003) (Sieve analysis) CS3: 2013 Section 10 (Amd. 1)	

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Aggregate (cont'd)	Relative density and water absorption	BS 812: Part 2: 1975 (Amd. 4615) (Gas jar method or Pycnometer method)	
	Resistance of aggregates to fragmentation	BS EN 1097-2: 2010 Cl. 5	
	Resistance to degradation of small size coarse aggregate by abrasion and impact in Los Angeles machine	ASTM C131-96 ASTM C131-03 ASTM C131-06	
	Sampling of aggregates	BS 812: Part 102: 1989 (Quartering / riffing of samples) CS3: 2013 Section 8 Cl. 8.6.1 & 8.6.2 (Quartering / riffing of samples)	
	Shell content	BS 812: Part 106: 1985	
	Soundness	ASTM C88-90 ASTM C88-05	
	Ten per cent fines value	BS 812: Part 3: 1975 (Amd. 2153, 4455, 4616 & 4845) BS 812: Part 111: 1990 CS3: 2013 Section 16	
	Aggregate (chemical analysis)	Acid-soluble material content	BS 812: Part 119: 1985 <i>Excluding Cl. 4</i>
		Total sulphate content (acid extraction)	BS 812: Part 118: 1988 Cl. 6
		Acid-soluble sulphate content	BS EN 1744-1: 1998 Cl. 12 <i>Excluding 12.2</i> CS3 : 2013 Section 21 Cl. 21.5
Total sulphur content		BS EN 1744-1 : 2009 Cl. 11.1 (excluding 11.1.2) CS 3 : 2013 Section 21.6	
Water-soluble chloride salts content		BS EN 1744-1: 2009 Cl. 7 <i>Excluding Cl. 7.2</i>	
Water-soluble chloride salts		BS 812: Part 117: 1988 <i>Excluding Cl. 4</i>	
Water-soluble chloride ion content		CS3 : 2013 Cl. 21.3	
Acid soluble chloride content		CS 3 : 2013 Section 21.4	
Presence of humus	CS 3 : 2013 Section 21.7		

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Bentonitic slurries	Density of bentonitic slurry using the mud balance	ASTM D4380-12
Bituminous materials	Binder content and aggregate grading of bituminous samples	BS 598-102: 1996 (Amd. 1) Method 5.2 BS 598-102: 2003 (Amd. 1) Method 5.2
	Bulk density of compacted bituminous specimens	BS EN 12697-6: 2003 (Procedure A) BS EN 12697-6: 2003 (Procedure B)
	Bulk specific gravity and density of compacted bituminous mixtures using automatic vacuum sealing method	ASTM D6752/D6752M-11 (excluding clause 5)
	Bulk specific gravity and density of non-absorptive compacted bituminous mixtures	ASTM D2726-88 (Method 9.1) ASTM D2726-96a (Method 9.1)
	Percent air voids in compacted mixtures	ASTM D3203-88 ASTM D3203-94 ASTM D3203/D3203M-11 ASTM D3549-93a (Dimension measurement method)
	Quantitative extraction of bitumen from bituminous paving mixtures	ASTM D2172-88 (Method A using ashing method) ASTM D2172-95 (Method A using ashing method)
	Reduction of bituminous materials to testing size	ASTM C702-98
	Sieve analysis of fine and coarse aggregates and materials finer than 75 micron sieve in mineral aggregates by washing	ASTM C117-87 ASTM C117-95 ASTM C136-84a with modifications ASTM C136-96a with modifications
	Theoretical maximum specific gravity of bituminous paved mixtures	ASTM D2041-78 (weighing in water method) ASTM D2041-95 (weighing in water method) ASTM D2041-03a (weighing in water method)
	Air voids content of bituminous specimens	BS EN 12697-8: 2003
	Needle penetration of bituminous materials	BS 2000: Part 49: 1993
	Softening point of bitumen (Ring and ball)	ASTM D36-95 (Reapproved 2000) BS 2000: Part 58: 2007
	Resistance of compacted asphalt mixtures to moisture induced damage	AASHTO T283-07

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Bituminous materials (cont'd)	Density, stability and flow of bituminous mixtures using Marshall Apparatus	ASTM D1559-89 excluding mix-design process
	Loss of Marshall stability test	Hong Kong Airport Authority Maintenance Contract M680, Major Taxiway Resurfacing (Stage 2) Particular Specification App. F Cl. 3.11.2
	Asphalt content of hot-mix asphalt by ignition method	ASTM D6307-05 Method A ASTM D6307-98 Method A
	Polymer modified binder content and particle size distribution of polymer modified friction course materials	Particular Specification for Highways Department Guidance Notes on Road Surface Requirements for Expressways and High Speed Roads RD/GN/032 (Jun 2007) App. B
Cement (Chemical analysis)	Alkali content	BS EN 196-21: 1992 Cl. 7 BS EN 196-2: 2005 Cl. 17 (reference method)
	Sodium oxide content	BS EN 196-21: 1992 Cl. 7 BS EN 196-2: 2005 Cl. 17 (reference method)
	Potassium oxide content	BS EN 196-21: 1992 Cl. 7 BS EN 196-2: 2005 Cl. 17 (reference method)
	Aluminium oxide content	BS EN 196-2: 1995 Cl. 13.11 BS EN 196-2: 2005 Cl. 13.11
	Calcium oxide content (CaO)	BS EN 196-2: 1995 Cl. 13.14 (alternative method) BS EN 196-2: 2005 Cl. 13.14 (alternative method)
	Chloride content	BS EN 196-21: 1992 Cl. 4 BS EN 196-2: 2005 Cl. 14
	Iron (III) oxide content (Fe ₂ O ₃)	BS EN 196-2: 2005 Cl. 13.10
	Magnesium oxide content (MgO)	BS EN 196-2: 1995 Cl. 13.15 (alternative method) BS EN 196-2: 2005 Cl. 13.15 (alternative method)
	Loss-on-ignition (L.O.I.)	BS EN 196-2: 1995 Cl. 7 BS EN 196-2: 2005 Cl. 7
	Manganese content (Mn)	BS EN 196-2: 1995 Cl. 12 BS EN 196-2: 2005 Cl. 12

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Cement (Chemical analysis) (cont'd)	Manganese oxide content (MnO)	BS EN 196-2: 1995 Cl. 12 BS EN 196-2: 2005 Cl. 12
	Manganese trioxide content (Mn ₂ O ₃)	BS EN 196-2: 1995 Cl. 12 BS EN 196-2: 2005 Cl. 12
	Sulphate content (as SO ₃)	BS EN 196-2: 1995 Cl. 8 BS EN 196-2: 2005 Cl. 8
	Residue insoluble in hydrochloric acid and sodium carbonate	BS EN 196-2: 1995 Cl. 9 BS EN 196-2: 2005 Cl. 9
	Residue insoluble in hydrochloric acid and potassium oxide	BS EN 196-2: 1995 Cl. 10 BS EN 196-2: 2005 Cl. 10
	Total silica content (Decomposition by sodium peroxide)	BS EN 196-2: 1995 Cl. 13.2 & 13.9 BS EN 196-2: 2005 Cl. 13.2 & 13.9
	Pure silica content (Decomposition by sodium peroxide)	BS EN 196-2: 1995 Cl. 13.2 & 13.6 BS EN 196-2: 2005 Cl. 13.2 & 13.6
	Soluble silica content (Decomposition by sodium peroxide)	BS EN 196-2: 1995 Cl. 13.2 & 13.8 BS EN 196-2: 2005 Cl. 13.2 & 13.8
Concrete	Air content of fresh concrete (by air column method)	BS EN 12350-7: 2000 Cl. 4 BS 1881: Part 106: 1983 Method A CS1: 1990 Section 6 + Amd. 1101 & 1102 CS1: 2010 Section 6
	Bleeding test	ASTM C232-99 Method A ASTM C232-09 Method A BS EN 480-4: 2005
	Compacting factor	BS 1881: Part 103: 1993 CS1: 1990 Section 3 + Amd. 1101 & 1102 CS1: 2010 Section 2 Part II

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Concrete (cont'd)	Compressive strength of concrete cubes in the force range 50 kN to 3000 kN	CS1: 1990 Section 12 (Amd. 1201, 1202 & 1203) CS1: 2010 Section 12 BS 1881: Part 116: 1983 + Amd. 6097 & 6720
	Compressive strength of concrete cores in the force range 50 kN – 3000 kN	CS1: 1990 Section 15 (Amd. 1201, 1203 & 1205) CS1: 2010 Section 15 (Amd. 1)
	Compressive strength of concrete cylinders in the force range 50 kN to 3000 kN	CS1: 2010 Section 20 + Amd. 1
	Concrete's ability to resist chloride ion penetration	AASHTO T277-93 ASTM C1202-05 ASTM C1202-07 CS1: 2010 Section 19
	Crack survey	HKHA MTS (2008/2010) for Maintenance & Building Materials Specification Part D Cl. 4.3.14
	Curing of test specimens	BS 1881: Part 111: 1983 + Amd. 6102 & 9387 CS1: 1990 Section 10 (Amd. 1101) CS1: 2010 Section 10
	Cutting out reinforcement	HKHA MTS (2008/2010) for Maintenance & Building Materials Specification Part D Cl. 4.2.3
	Density of compacted fresh concrete	BS 1881: Part 107: 1983 + Amd. 6085 & 6722 BS EN 12350-6: 2000 + Amd. 11077 CS1: 1990 Section 5 + Amd. 1101 CS1: 2010 Section 5
	Density of hardened concrete	BS 1881: Part 114: 1983 + Amd. 6098 & 6721 CS1: 1990 Section 16 (Amd. 1201 & 1203) CS1: 2010 Section 16
	Drilling powder samples	HKHA MTS (2008/2010) for Maintenance & Building Materials Specification Part D Cl. 6.4
	Dry cutting mini-cores	HKHA MTS (2008/2010) for Maintenance & Building Materials Specification Part D Cl. 6.2

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Concrete (cont'd)	Flexural strength of beams in the force range 5 kN – 100 kN	BS 1881: Part 118: 1983 + Amd. 6095 CS1: 1990 Section 14 + Amd. 1101 & 1203 CS1: 2010 Section 14
	Flow table test	BS 1881: Part 105: 1984 + Amd. 6087 CS1: 1990: Section 22 (Amd. 1206) CS1: 2010: Section 2 Part IV
	Heat of hydration monitoring (temperature Monitoring of concrete structure)	Mass Transit Railway Corporation Specification D/MTRCL/NW/CIV/M&W/002/A3, Cl. 11.82 & 11.83
	Making test beams from fresh concrete	BS 1881: Part 109: 1983 + Amd. 6104 CS1: 1990 Section 8 + Amd. 1101 CS1: 2010 Section 8
	Making test cylinders from fresh concrete	BS 1881: Part 110: 1983 + Amd. 6103 CS1: 1990 Section 9 + Amd. 1101, 1102 CS1: 2010 Section 9 + Amd. 1
	Making of test cubes from fresh concrete	BS 1881: Part 108: 1983 + Amd. 6105 & 9074 CS1: 1990 Section 7 (Amd. 1101 & 1102) CS1: 2010 Section 7
	Moisture content by weighing drilling powder	HKHA MTS (2008/2010) for Maintenance & Building Materials Specification Part D Cl. 4.3.8 Method 1
	Moisture content by weighing minicores	HKHA MTS (2008/2010) for Maintenance & Building Materials Specification Part D Cl. 4.3.8 Method 2
	Obtaining core samples	CS1: 1990 Section 15 (Amd. 1201) CS1: 2010 Section 15
	Removal of concrete cover to expose reinforcement	HKHA MTS (2008/2010) for Maintenance & Building Materials Specification Part D Cl. 4.2.1
Sampling of fresh concrete	BS 1881: Part 101: 1983 + Amd. 6901 & 6728 CS1: 1990 Section 1 (Amd. 1101) CS1: 2010 Section 1	

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Concrete (cont'd)	Slump	CS1: 1990 Section 2 (Amd. 1101 & 1102) CS1: 2010 Section 2 Part I
	Slump flow test	CS1: 2010 Section 2 Part V
	Slump test	BS 1881: Part 102: 1983 + Amd. 6090 & 6727
	Stiffening time	BS 5075-1: 1982 App. C.4 + Amd. 4183 CS1: 2010 Section 3
	Temperature of fresh concrete	BS 5328: Part 4: 1990 Cl. 3.4 (b)
	Temperature rise evaluation test	Mass Transit Railway Corporation Specification D/MTRCL/NW/CIV/M&W/002/A3, Cl. 11.40 (10)
	Water absorption	BS 1881: Part 122: 1983 + Amd. 6108
Concrete (diagnostic)	Carbonation test	BRE IP 6/81
	Covermeter survey	BS 1881: Part 204: 1988
	Half-cell potential measurement	ASTM C876-91 (Reapproved 1999)
	Surface hardness measurement	BS 1881: Part 202: 1986
	Ultrasonic pulse velocity measurement	BS 1881 : Part 203 : 1986 (Direct transmission) BS EN 12504-4 : 2004 (Direct and semi-direct transmission)

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Concrete (chemical analysis)	Detection of PFA	CS 1: 2010 Section 21.5 (Amd. 1)
	Cement and aggregate content (by CaO determination)	BS 1881: Part 124 : 1988 Cl. 5.4 & 5.9 <i>Excluding</i> 5.9.4 CS1: 2010 Section 21.6.4, 21.6.6 & 21.6.7
	Aggregate / cement ratio	BS 1881: Part 124: 1988 Cl. 5.9 (based on CaO content)
	Carbonate content	CS1: 2010 Section 21.10.4.2
	Chloride content	BS 1881: Part 124 : 1988 Cl. 10.2 CS1: 2010 Section 21.10.2
	Sulphate content	BS 1881: Part 124: 1988 Cl. 10.3 CS1: 2010 Section 21.10.3
	Sodium oxide content	BS 1881: Part 124 : 1988 Cl. 10.4
	Potassium oxide content	BS 1881: Part 124 : 1988 Cl. 10.4
	Total alkali content (equivalent Na ₂ O)	BS 1881: Part 124 : 1988 Cl. 10.4
Foundation	Plate load test	BS 1377: Part 9: 1990 Cl. 4.1

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Grout	Bleeding and free expansion of cement grout	General Specification for Civil Engineering Works (2006) Vol. 2 Cl. 17.60 HKHA Specification Library (2008) PIL 1.T320.5
	Compressive strength of grout cubes in the force range 50 kN – 3000 kN	CS1: 1990 Section 12 + Amd. 1201, 1202 & 1203 with modifications CS1: 2010 Section 12 with modifications
	Curing of specimens	CS1: 1990 Section 10 + Amd. 1101 with modifications CS1: 2010 Section 10 with modifications
	Flow of grout for preplaced-aggregate concrete (flow cone method)	ASTM C939-97
	Making of cubes	CS1: 1990 Section 7 with modifications CS1: 2010 Section 7 with modifications
Ground granulated blastfurnace slag (chemical analysis)	Loss-on-ignition (L.O.I.)	BS EN 196-2: 1995 Cl. 7 BS EN 15167-1: 2006 (Amd 16763) Cl. 5.2 & BS EN 196-2: 2005 Cl. 7
	Sulphate content (as SO ₃)	BS EN 196-2: 1995 Cl. 8 BS EN 15167-1: 2006 (Amd 16763) Cl. 5.2 & BS EN 196-2: 2005 Cl. 8
	Residue insoluble in hydrochloric acid and sodium carbonate	BS EN 196-2: 1995 Cl. 9 BS EN 196-2: 2005 Cl. 9
	Soluble silica	BS EN 196-2 : 1995 Cl. 13.8 BS EN 196-2 : 2005 Cl. 13.8
	Pure silica	BS EN 196-2 : 1995 Cl. 13.6 BS EN 196-2 : 2005 Cl. 13.6
	Total silica content (SiO ₂)	BS EN 196-2 : 1995 Cl. 13.9 BS EN 196-2 : 2005 Cl. 13.9
	Manganese content	BS EN 196-2 : 1995 Cl. 12 BS EN 196-2 : 2005 Cl. 12

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Ground granulated blastfurnace slag (chemical analysis) (cont'd)	Sulphide content	BS EN 15167-1 : 2006 (Amd 16763) Cl. 5.2 & BS EN 196-2 : 2005 Cl. 11
	Iron oxide (Fe ₂ O ₃)	BS EN 196-2 : 2005 Cl. 13.10
	Aluminium oxide (Al ₂ O ₃)	BS EN 196-2 : 1995 Cl. 13.11 BS EN 196-2 : 2005 Cl. 13.11
	Calcium oxide (CaO)	BS EN 196-2 : 1995 Cl. 13.14 (Alternative method) in conjunction with Cl. 13.16 BS EN 196-2 : 2005 Cl. 13.14 (Alternative method)
	Magnesium oxide (MgO)	BS EN 196-2 : 1995 Cl. 13.15 (Alternative method) in conjunction with Cl. 13.16 BS EN 15167-1 : 2006 (Amd 16763) Cl. 5.2 & BS EN 196-2 : 2005 Cl. 13.15 (Alternative method)
	Sodium oxide content	BS EN 196-21 : 1992 Cl. 7 (Reference method) <i>Excluding Cl. 7.5.1</i> BS EN 196-2 : 2005 Cl. 17 (Reference method) <i>Excluding Cl. 17.4.1</i>
	Potassium oxide content	BS EN 196-21 : 1992 Cl. 7 (Reference method) <i>Excluding Cl. 7.5.1</i> BS EN 196-2 : 2005 Cl. 17 (Reference method) <i>Excluding Cl. 17.4.1</i>
	Total alkali content	BS EN 196-21 : 1992 Cl. 7 (Reference method) <i>Excluding Cl. 7.5.1</i> BS EN 196-2 : 2005 Cl. 17 (Reference method) <i>Excluding Cl. 17.4.1</i>
	Chloride content	BS EN 196-21 : 1992 Cl. 4 BS EN 15167-1 : 2006 (Amd 16763) Cl. 5.2 & BS EN 196-2 : 2005 Cl. 14

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Ground water (chemical analysis)	pH value	BS 1377 : Part 3 : 1990 Cl. 9 GEOSPEC 3 : 2001 Test 9.5
	Sulphate content	BS 1377 : Part 3 : 1990 (Amd 9028) Cl. 5.5 GEOSPEC 3 : 2001 Test 9.3
Water (chemical analysis)	Acid soluble alkali content (equivalent Na ₂ O)	BS EN 1008 : 2002 Cl. 6.1.3 & BS EN 196-21: 1992 Cl. 7
	Alkalinity	ASTM D1067-11 Method B
	Chloride content	BS EN 1008 : 2002 Cl. 6.1.3 & BS EN 196-21: 1992 Cl. 4
	Sulphate content	BS EN 1008 : 2002 Cl. 6.1.3 & BS EN 196-2: 2005 Cl. 8
	Total dissolved solids content	BS 1377 : Part 3 : 1990 Cl. 8
Metallic materials	Tensile test of hot rolled bars (up to 50mm diameter) in the force range 3 kN – 2000 kN	BS 4449: 1988 Building Ordinance Office PNAP 122 (Jan 1990)
	Bend test of hot rolled bars	BS 4449: 1988 Building Ordinance Office PNAP 122 (Jan 1990)
	Rebend test of hot rolled bars	BS 4449: 1988 Building Ordinance Office PNAP 122 (Jan 1990)
	Tensile test of carbon steel bars (up to 50mm diameter) in the force range 3 kN – 2000 kN	CS2: 1995
	Bend test of carbon steel bars	CS2: 1995
	Rebend test of carbon steel bars	CS2: 1995

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Metallic materials (cont'd)	Tensile test of steel fabric for reinforcement of concrete in the force range 3 kN – 2000 kN	BS 4483: 1985 BS 4483: 1998
	Bend test of steel fabric for reinforcement of concrete	BS 4483: 1985 BS 4483: 1998
	Weld test on steel fabric for reinforcement of concrete	BS 4483: 1985 BS 4483: 1998
	Tensile test of cold reduced steel wires in the force range 3 kN – 2000 kN	BS 4482: 1985
	Rebend test of cold reduced steel wires	BS 4482: 1985
	Tensile test of reinforcing bar with mechanical coupler (up to 50 mm diameter) in the force range 3 kN – 2000 kN	BS 8110: Part 1: 1985 Cl. 3.12.8.16.2 BS 8110: Part 1: 1997 Cl. 3.12.8.16.2 General Specification for Civil Engineering Works (1992) Vol. 2 Cl. 15.33 General Specification for Civil Engineering Works (2006) Vol. 2 Cl. 15.35 Code of Practice for Structural Use of Concrete (2004) (2nd Ed) Cl. 3.2.8.2 Code of Practice for Structural Use of Concrete (2013) Cl. 3.2.8.3
	Proof load test of finished bolts, screw and studs in the force range 3 kN – 2000 kN	BS EN ISO 898-1: 2009 or BS EN ISO 898-1: 2013 <i>in conjunction with the following specification(s):</i> BS 3692: 2001 Cl. 13 + Amd. 13183 BS 3692: 2014 Cl. 14 BS 4190: 2001 Cl. 15 BS 4190: 2014 Cl. 15
	Rebend test of steel reinforcing bars	CS2: 2012 + Amd. 2/2014 CS2: 2012 + Amd. 1/2016
	Tensile test of steel reinforcing bars in the force range 3 kN – 2000 kN	BS EN ISO 6892-1: 2009 <i>in conjunction with the following specification(s):</i> CS2: 2012 + Amd. 2/2014 CS2: 2012 + Amd. 1/2016 BS 4449: 2005 + A2: 2009
	Mass per meter of steel reinforcing bars	CS2: 2012 + Amd. 2/2014 CS2: 2012 + Amd. 1/2016 BS 4449: 2005 + A2: 2009

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Metallic materials (cont'd)	Proof load test of steel nuts in the force range 3 kN – 2000 kN	BS 3692: 1967 BS 3692: 2001 BS 4190: 2001
	Tensile test of unmachined specimens of bolts and screws in the force range 3 kN – 2000 kN	BS 3692: 1967 BS 3692: 2001 BS 4190: 2001 BS EN 20898-1: 1992
	Tensile test of machined specimens of bolts and screws in the force range 3 kN – 2000 kN	BS 3692: 1967 BS 3692: 2001 BS 4190: 2001
	Charpy 'V' notch impact test	BS EN 10045-1: 1990
	Vickers hardness test on metallic materials in the scale range HV10, HV30	BS EN ISO 6507-1: 2005
	Tensile test of metallic materials in the force range 3 kN - 2000 kN	BS EN 10002-1: 2001 <i>in conjunction with the following specification(s):</i> BS EN 10137-1: 1996 Cl. 8.5.2.2 BS EN 10137-2: 1996 Cl. 7.4.1 BS EN 10137-3: 1996 Cl. 7.4.1 BS EN 10025: 1990 Cl. 7.4.1 & 8.6 BS EN 10155: 1993 Cl. 7.4.2 & 8.6.3.2 BS EN 10113-1: 1993 Cl. 8.6.2 BS EN 10113-2: 1993 Cl. 7.4.1 BS EN 10113-3: 1993 Cl. 7.4.1 BS EN 10210-1: 1994 Cl. 9.2.1 BS EN 10025: 1993 Cl. 7.4.1 and 8.6 BS EN 10025-1: 2004 Cl. 10.2.1 BS EN 10025-2: 2004 Cl. 10.2 BS EN 10210-1: 2006 Cl. 9.2 BS EN 10219-1: 1997 Cl. 6.7.1 & 9.2 BS EN 10219-1: 2006 Cl. 6.7.1 & 9.2 BS EN 10088-2: 2005 Cl. 7.4.2 BS EN 10088-3: 2005 Cl. 7.4.2

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Metallic materials (cont'd)	Tensile test of stainless steel bolts, screws and studs	BS EN ISO 6892-1:2009 in conjunction with the following specification(s): BS EN ISO 3506-1: 2009 Cl. 7.2.2 to 7.2.4
	Proof load test of stainless steel nuts	BS EN ISO 898-2:2012 Clause 9.1 in conjunction with the following specification(s): BS EN ISO 3506-2:2009 Cl. 7.2
	Tensile test of 7-wire strand for the pre-stressing of concrete	BS EN ISO 15630-3:2010 in conjunction with the following specification(s): BS 5896: 2012 Cl. 9 and 12
Metallic materials (non-destructive)	Ultrasonic examination of metallic materials	BS 5996: 1993 BS EN 10160: 1999 BS EN 10306: 2002
Mortar	Bond strength of repair mortar (Pull-off test)	HKHA MTS (2008/2010) for Maintenance & Building Materials Specification Part D Cl. 2.1.15 Method 1

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Pipes	<p>Assessment of the degree of pigment or carbon black dispersion in polyolefin pipes, fittings and compounds</p> <p>Density of polyethylene (PE) compounds, pipes and fittings</p> <p>Dimension of polyethylene (PE) pipes</p> <p>Elongation at break of polyethylene (PE) pipes (only elongation at break is reported)</p>	<p>BS ISO 18553: 2002 <i>in conjunction with the following specification(s):</i> BS EN 1555-1: 2002 Table 1 BS EN 12201-1: 2003 Table 1 BS EN 12201-1: 2011 Table 1 BS EN 13244-1: 2002 Table 1 BS ISO 4427-1: 2007 Table 1 (Corr. Aug 2008)</p> <p>ISO 1183: 1987 Method A BS EN ISO 1183-1: 2004 (Corr. No. 1) Method A BS EN ISO 1183-1: 2012 Method A <i>in conjunction with the following specification(s):</i> BS EN 1555-1: 2002 Table 1 BS EN 12201-1: 2003 Table 1 BS EN 12201-1: 2011 Table 1 BS EN 13244-1: 2002 Table 1</p> <p>BS EN ISO 3216: 2005 excluding Cl. 6-8 <i>in conjunction with the following specification(s):</i> ISO 4427: 1996 Cl. 4.1-4.3 ISO 11922-1: 1997 BS ISO 4427-2: 2007 Table 1 & 2 BS EN 1555-2: 2002 Table 1 & 2 BS EN 12201-2: 2003 Table 1 & 2 BS EN 12201-2: 2011 Table 1 & 2 (Corr. Jan 2012) BS EN 13244-2: 2002 Table 1 & 2</p> <p>ISO 6259-1: 1997 ISO 6259-3: 1997 BS EN ISO 6259-1 : 2001 <i>in conjunction with the following specification(s):</i> BS EN 1555-2: 2002 Table 4 BS EN 12201-2: 2003 Table 5 BS EN 12201-2: 2011 Table 3 (Corr. Jan 2012) BS EN 13244-2: 2002 Table 5 BS ISO 4427-2: 2007 Table 5</p>

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Pipes (cont'd)	Resistance to crack propagation - slow crack growth Melt mass-flow rate (MFR) of thermoplastics Crushing decohesion test for polyethylene (PE) electrofusion assemblies	ISO 13479: 1997 ISO 13479: 2009 ISO 1167-1: 2006 (Corr. May 2008) ISO 1167-2: 2006 (Corr. May 2008) <i>in conjunction with the following specification(s):</i> BS EN 12201-1: 2003 Table 2 BS EN 12201-1: 2011 Table 2 BS EN 13244-1: 2002 Table 2 BS ISO 4427-1: 2007 Table 2 (Corr. Aug 2008) EN ISO 1133: 1999 Procedure A BS EN ISO 1133: 2005 Procedure A BS EN ISO 1133-1: 2011 Procedure A <i>in conjunction with the following specification(s):</i> BS EN 12201-1: 2003 Table 1 BS EN 12201-1: 2011 Table 1 BS EN 12201-2: 2003 Table 5 BS EN 12201-2: 2011 Table 5 (Corr. Jan 2012) BS EN 12201-3: 2003 Table 6 BS EN 12201-3: 2011 + A1: 2012 Table 7 BS EN 13244-1: 2002 Table 1 BS EN 13244-2: 2002 Table 5 BS EN 13244-3: 2002 Table 6 BS EN 1555-1: 2002 Table 1 BS EN 1555-2: 2002 Table 6 BS EN 1555-3: 2002 Table 6 BS EN 1555-3: 2010 + A1 : 2012 Table 7 ISO 4427: 1996 Cl. 3.7 BS ISO 4427-1: 2007 Table 1 (Corr. Aug 2008) BS ISO 4427-2: 2007 Table 5 BS ISO 4427-3: 2007 Table 7 BS 7336: 1990 App. J <i>in conjunction with the following specification(s):</i> WIS 4-32-14 Mar 1995: Issue 1 Cl. 7.7 ISO 13955: 1997 <i>in conjunction with the following specification(s):</i> BS EN 1555-3: 2002 Table 4 BS EN 1555-3: 2010 + A1: 2012 Table 4 BS EN 12201-3: 2003 Table 6 BS EN 12201-3: 2011 + A1: 2012 Table 4 BS EN 13244-3: 2002 Table 6 BS ISO 4427-3: 2007 Table 4

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Pipes (cont'd)	Oxidation induction time (OIT)	ISO 11357-6: 2008 BS EN ISO 11357-6: 2013 (excluding dynamic OIT) <i>in conjunction with the following specification(s):</i> BS EN 12201-1: 2011 Table 1 BS EN 12201-2: 2011 Table 5 (Corr. Jan 2012) BS EN 12201-3: 2011 + A1: 2012 Table 7 BS EN 1555-3 : 2010 + A1: 2012 Table 7 BS ISO 4427-1: 2007 Table 1 (Corr. Aug 2008) BS ISO 4427-2: 2007 Table 5 BS ISO 4427-3: 2007 Table 7 ISO/TR 10837: 1991 <i>in conjunction with the following specification(s):</i> ISO 4427: 1996 Cl. 6.1 BS EN 728: 1997 / BS 2782: Part 11 Method 1103D: 1997 <i>in conjunction with the following specification(s):</i> BS EN 1555-1: 2002 Table 1 BS EN 1555-2: 2002 Table 6 BS EN 1555-3: 2002 Table 6 BS EN 12201-1: 2003 Table 1 BS EN 12201-2: 2003 Table 5 BS EN 12201-3: 2003 Table 6 BS EN 13244-1: 2002 Table 1 BS EN 13244-2: 2002 Table 5 BS EN 13244-3: 2002 Table 6
	Tensile strength and failure mode of test pieces from a butt-fused joint	ISO 13953: 2001 <i>in conjunction with the following specification(s):</i> BS EN 12201-1: 2011 Table 2 BS EN 12201-1: 2003 Table 2 BS EN 12201-3: 2011 + A1 : 2012 Table 4 BS EN 12201-3: 2003 Table 6 BS EN 13244-1: 2002 Table 2 BS EN 13244-3: 2002 Table 6 BS EN 1555-3: 2010 + A1 : 2012 Table 4 BS EN 1555-3: 2002 Table 4 BS ISO 4427-3: 2007 Table 4

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Pipes (cont'd)	<p>Peel decohesion test for polyethylene (PE) electrofusion assemblies of nominal outside diameter greater than equal to 90 mm</p> <p>Hydrostatic pressure test of polyethylene (PE) pipes</p>	<p>ISO 13954 : 1997</p> <p><i>in conjunction with the following specification(s):</i></p> <p>BS EN 12201-1: 2011 Table 2</p> <p>BS EN 12201-3: 2011 + A1 : 2012 Table 4</p> <p>BS EN 12201-3: 2003 Table 6</p> <p>BS EN 13244-3: 2002 Table 6</p> <p>BS EN 1555-3: 2010 + A1 : 2012 Table 4</p> <p>BS EN 1555-3: 2002 Table 4</p> <p>BS ISO 4427-3: 2007 Table 4</p> <p>BS EN ISO 1167-1: 2006 (Corr. May 2008)</p> <p>BS EN ISO 1167-4: 2007</p> <p><i>in conjunction with the following specification(s):</i></p> <p>BS EN 12201-2: 2011 (Corr. Jan 2012) Table 3</p> <p>BS EN 12201-3: 2011 + A1 : 2012 Table 4</p> <p>BS EN 1555-3: 2010 + A1 : 2012 Table 4</p> <p>ISO 4427: 1996 Cl. 5.1</p> <p>BS ISO 4427-2: 2007 Table 5</p> <p>BS ISO 4427-3: 2007 Table 4</p> <p>BS EN 921: 1995 / BS 2782-11 : 1995 Method 1127A : 1995 (Amd. No. 1)</p> <p><i>in conjunction with the following specification(s):</i></p> <p>BS EN 12201-2: 2003 Table 3</p> <p>BS EN 12201-3: 2003 Table 4</p> <p>BS EN 13244-2: 2002 Table 3</p> <p>BS EN 13244-3: 2002 Table 4</p> <p>BS EN 1555-2: 2002 Table 4</p> <p>BS EN 1555-3: 2002 Table 4</p>

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Pulverized fuel ash (chemical analysis)	Sulphuric anhydride content	BS 4550 : Part 2 : 1970 Cl. 10 BS EN 450-1 : 2005 +A1 : 2007 Cl. 5.2.4 & BS EN 196-2 : 1995 Cl. 8 BS EN 450-1 : 2005 +A1 : 2007 Cl. 5.2.4 & BS EN 196-2 : 2005 Cl. 8
	Loss-on-ignition (L.O.I.)	BS 4550 : Part 2 : 1970 Cl. 13.2 BS EN 196-2 : 1995 Cl. 7 (using 1 h ignition time) BS EN 450-1 : 2005 +A1 : 2007 Cl. 5.2.2 & BS EN 196-2 : 2005 Cl. 7 (using 1 h ignition time)
	Chloride content	BS EN 196-21 : 1992 Cl. 4 BS EN 450-1 : 2005 +A1 : 2007 Cl. 5.2.3 & BS EN 196-2 : 2005 Cl. 14
	Sodium oxide content	BS EN 196-21 : 1992 Cl. 7 (Reference method) <i>Excluding Cl. 7.5.1</i> BS EN 196-2 : 2005 Cl. 17 (Reference method) <i>Excluding Cl. 17.4.1</i>
	Potassium oxide content	BS EN 196-21 : 1992 Cl. 7 (Reference method) <i>Excluding Cl. 7.5.1</i> BS EN 196-2 : 2005 Cl. 17 (Reference method) <i>Excluding Cl. 17.4.1</i>
	Total alkali content	BS EN 196-21 : 1992 Cl. 7 (Reference method) <i>Excluding Cl. 7.5.1</i> BS EN 450-1 : 2005 +A1 : 2007 Cl. 5.2.9 & BS EN 196-2 : 2005 Cl. 17 (Reference method) <i>Excluding Cl. 17.4.1</i>
	Calcium oxide content	BS EN 196-2 : 1995 Cl. 13.14 (Alternative method) in conjunction with Cl. 13.16 BS EN 196-2 : 2005 Cl. 13.14 (Alternative method)
	Aluminium oxide content (Al ₂ O ₃)	BS EN 196-2 : 1995 Cl. 13.11 BS EN 450-1 : 2005 +A1 : 2007 Cl. 5.2.8 & BS EN 196-2 : 2005 Cl. 13.11
	Iron oxide content (Fe ₂ O ₃)	BS EN 450-1 : 2005 +A1 : 2007 Cl. 5.2.8 & BS EN 196-2 : 2005 Cl. 13.10

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Pulverized fuel ash (chemical analysis) (cont'd)	Total silica content (SiO ₂)	BS EN 196-2 : 1995 Cl. 13.9 BS EN 450-1 : 2005 +A1 : 2007 Cl. 5.2.8 & BS EN 196-2 : 2005 Cl. 13.9
	Pure silica content	BS EN 196-2 : 1995 Cl. 13.6 BS EN 196-2 : 2005 Cl. 13.6
	Soluble silica content (SiO ₂)	BS EN 196-2 : 1995 Cl. 13.8 BS EN 196-2 : 2005 Cl. 13.8
	Sum of silicon dioxide, aluminium oxide and iron oxide	BS EN 450-1 : 2005 +A1 : 2007 Cl. 5.2.8 (by calculation)
	Magnesium oxide content (MgO)	BS EN 196-2 : 1995 Cl. 13.15 (Alternative method) in conjunction with Cl. 13.16 BS EN 450-1 : 2005 +A1 : 2007 Cl. 5.2.10 & BS EN 196-2 : 2005 Cl. 13.15 (Alternative method)
	Manganese content (Mn)	BS EN 196-2 : 2005 Cl. 12
	Manganese oxide content (MnO)	BS EN 196-2 : 2005 Cl. 12
	Manganese trioxide content (Mn ₂ O ₃)	BS EN 196-2 : 2005 Cl. 12

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Road Surfaces	Texture depth of carriageways	Highways Department (Research and Development Division) Guidance Notes on Road testing - RD/GN/009 (Sep 1989) General Specification for Civil Engineering Works (1992) Vol. 2 App. 10.1 General Specification for Civil Engineering Works (2006) Vol. 1 App. 10.1
	Surface regularity of carriageways (by rolling straightedge method)	Highways Department (Research and Development Division) Guidance Notes on Road Testing - RD/GN/009 (Sep 1989) General Specification for Civil Engineering Works (1992) Vol. 2 Cl. 10.55 General Specification for Civil Engineering Works (2006) Vol. 1 Cl. 10.55
	Surface regularity of carriageways (by 3 meter straightedge method)	General Specification for Civil Engineering Works (1992) Vol. 2 Cl. 10.55 General Specification for Civil Engineering Works (2006) Vol. 1 Cl. 10.55
	Skid resistance of road surface using a portable pendulum tester	Highways Department (Research and Development Division) Guidance Notes on Road testing - RD/GN/009 (Sep 1989)
	Skid resistance performance of road markings using portable skid resistance tester	Highways Department Term Contract Particular Specification (2011) BS EN 1436: 1998 (Amd. 14288) Annex D BS EN 1436: 2007 (A1: 2008) Annex D
	Luminance coefficient under diffuse illumination (Q _d) and retro-reflected luminance (R _L) of road markings	Highways Department Term Contract Particular Specification (2011) BS EN 1436: 1998 + Amd. 14288 Annex A & B <i>excluding Annex B.7</i> BS EN 1436: 2007 (A1: 2008) Annex A & B <i>excluding Annex B.7</i>
	Thickness of road marking materials (by micrometer method)	Highways Department Term Contract Particular Specification (2011) BS 3262: Part 3: 1989 (Amd. 8785 & 10205) App. B

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Road Surfaces (Cont'd)	Permeability of friction coarse materials	General Specification for Civil Engineering Works (1992) Vol. 2 App. 9.1 General Specification for Civil Engineering Works (2006) Vol. 1 App. 9.1	
Rock	Point load strength of rock	ASTM D5731-95 International Society for Rock Mechanics (1985) Suggested method for determination point load strength	
	Preparation of rock core specimens and determination of dimensional and shape tolerances	ASTM D4543-85 (Re-approved 1991)	
	Unconfined compressive strength of intact rock core specimens	ASTM D2938-95 with modifications	
	Water content of rock	International Society for Rock Mechanics (1979) Part 1 Section 1	
	Porosity/density of rock using saturation and buoyancy techniques	International Society for Rock Mechanics (1979) Part 1 Section 3	
	Preparation of cylindrical rock specimens and verifying conformance to dimensional and shape tolerances	ASTM D4543-08 excluding Cl. 8.1	
	Determination of the elastic moduli of intact rock core specimens in uniaxial compression	ASTM D3148-96 excluding Cl. 9.3 & 9.4 ASTM D7012-14 Method D excluding Option A	
	Unconfined compressive strength of intact rock core specimens	ASTM D7012-14 Method C excluding Option A	
	Sprayed concrete	Flexural strength of fibre reinforced beam specimens	BS EN 14488-3: 2006 excluding Cl. 5.1
		Bond strength of cores by direct tension	BS EN 14488-4: 2005 + A1: 2008 excluding Cl. 5.1
Determination of energy absorption capacity of fibre reinforced slab specimens		BS EN 14488-5: 2006 excluding Cl. 5.1	

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Soil (Geotextile)	<p>Measuring the nominal thickness of geotextiles</p> <p>Determination of tensile properties of geotextiles and geotextile by the wide-width strip method</p> <p>Determination of the static puncture strength of Geotextiles and geotextile related products using a 50 mm probe</p> <p>Determination of the trapezoid tearing strength of geotextiles</p> <p>Determination of grab breaking load and elongation of geotextiles</p>	<p>ASTM D5199 – 12 (excluding Cl. 7.1)</p> <p>ASTM D4595 – 11 (excluding Cl. 7.1, 11.3 and 11.4)</p> <p>ASTM D6241 – 14 Method B (excluding Cl. 7.1)</p> <p>ASTM D4533/D4533M – 15 (excluding Cl. 7.1)</p> <p>ASTM D4632 – 08 (excluding Cl. 7.1)</p>

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Soil (Phase I)	In-situ bulk density and in-situ dry density of soil by the sand replacement method suitable for fine- and medium-grained soils (with small pouring cylinder)	GEOSPEC 3: 2001 Test 11.1
	In-situ bulk density and in-situ dry density of soil by the sand replacement method suitable for fine-, medium-, and coarse-grained soils (with large pouring cylinder)	GEOSPEC 3: 2001 Test 11.2
	In-situ bulk density and in-situ dry density of soils by nuclear densometer method suitable for fine- and medium-grained soils	GEOSPEC 3:2001 Test 11.3
	Relative compaction of fill material	GEOSPEC 3: 2001 Test 11.4 Buildings Department PNAP 55 (1994) Cl. 2 App. A
	In-situ California bearing ratio	BS 1377: Part 9: 1990 Cl. 4.3

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Soil & rock (bulk cargoes)	Density of peat and peat products	ASTM D4531-86 (Reapproved 2002) Method B
	Flow moisture point and transportable moisture limit by flow table test	Internal Maritime Solid Bulk Cargoes Code (2012) (Amd. 01-11) App. 2 Cl. 1.1 BS ISO 12742: 2007
	Flow moisture point and transportable moisture limit by penetration test	Internal Maritime Solid Bulk Cargoes Code (2012) (Amd. 01-11) App. 2 Cl. 1.2
	Transportable moisture limit by proctor fagerberg test	Internal Maritime Solid Bulk Cargoes Code (2012) (Amd. 01-11) App. 2 Cl. 1.3
	Angle of repose of fine-grained materials by pouring cone method	Internal Maritime Solid Bulk Cargoes Code (2012) (Amd. 01-11) App. 2 Cl. 2.2
	Determination of mass loss of bulk material on drying	BS ISO 10251: 2006
Soil (chemical analysis)	Carbonate content	BS 1377: Part 3: 1990 Cl. 6.2 & 6.3 (Amd. 9028)
	Water-soluble chloride content	BS 1377: Part 3: 1990 Cl. 7.2 (Amd. 9028) GEOSPEC 3: 2001 Test 9.4
	Acid-soluble chloride content	BS 1377: Part 3: 1990 Cl. 7.3
	Total sulphate content	BS 1377: Part 3: 1990 Cl. 5.2 & 5.5 (Amd. 9208) GEOSPEC 3: 2001 Test 9.3
	Water-soluble sulphate content	BS 1377: Part 3: 1990 Cl. 5.3 & 5.5 (Amd. 9208) GEOSPEC 3: 2001 Test 9.3
	Organic matter content	BS 1377: Part 3: 1990 Cl. 3 GEOSPEC 3: 2001 Test 9.1
	Loss-on-ignition (L.O.I)	BS 1377: Part 3: 1990 Cl. 4 GEOSPEC 3: 2001 Test 9.2
pH value	BS 1377: Part 3: 1990 Cl. 9 GEOSPEC 3: 2001 Test 9.5	

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Structural fixings (anchor bolts & dowel bars)	Shear proof load test for anchor bolts and dowel bars in the force range 1 kN – 200 kN	BS 5080-2: 1986 Cl. 4, 7.1, 7.2.1 & 7.2.3 + Amd. 7602 with modifications (by incremental method)
	Tensile proof load test of anchor bolts in the force range 1 kN - 450 kN	BS 5080: Part 1: 1993 Cl. 6, 7.1.1 & 7.1.3 (by incremental method) HKHA MTS (2008/2010) for Maintenance & Building Materials Specification Part D Cl. 4.1.4
	Tensile proof load test of dowel bars of 6mm - 40mm dia. in the force range 1 kN – 450 kN	BS 5080: Part 1: 1993 Cl. 6, 7.1.1 & 7.1.3 (by incremental method) HKHA MTS (2008/2010) for Maintenance & Building Materials Specification Part D Cl. 4.1.4
	Tensile proof load test of structural fixing in the force range 1 kN – 450 kN	BS 5080: Part 1: 1993 Cl. 6, 7.1.1 & 7.1.3 with modifications (by incremental method)
Tiles	Pull-off test of tiles	HKHA MTS (2016/2018) for Maintenance & Building Materials Specification Part D Cl. 7.11 HKHA-Specification Library (2014) Cl. FIN5.T150.A (3)
Welds (destructive)	Bend test on stud shear connectors	BS 5400-6: 1999 Cl. 5.5.4(b) Code of Practice for Structural Use of Steel (2005) Cl. 14.3.7.3 Code of Practice for Structural Use of Steel (2011) Cl. 14.3.7.3
	Bend test on welds in metallic materials	BS EN 910: 1996 BS 709: 1993 (Amd. 8909, 9146, 9378) Cl. 6 BS EN ISO 5173 : 2010 +A1 : 2011
	Charpy V-notch impact test on welds in metallic materials	BS EN 875: 1995 BS 709: 1983 (Amd. 8909, 9146, 9378) Cl. 11
	Fracture test on welds in metallic materials	BS 709: 1983 (Amd. 1, 2 & 3) BS EN 1320: 1997 BS EN ISO 9017 : 2013
	Macroscopic examination on welds in metallic materials	BS 709: 1983 BS EN 1321 :1997 BS EN ISO 17639 : 2013

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Construction Materials 建築材料			
ITEM TESTED OR MEASURED 測試或量度項目	SPECIFIC TEST OR PROPERTY MEASURED 特定測試或量度的特性	SPECIFICATION, STANDARD METHOD OR TECHNIQUE USED 規範、標準方法或應用技術	
Welds (destructive) (cont'd)	Transverse tensile test on welds in metallic materials in the force range 10 kN – 1500 kN	BS EN 895: 1995	
	Vickers hardness test across welded joints in the scale of HV10, HV30	BS EN 1043-1: 1996	
Welds (non-destructive)	Visual examination	BS 5289: 1976 BS EN 970: 1997 BS EN ISO 17637: 2011	
	Magnetic particle test	BS 6072: 1981 (Amd. 3960, 4542, 4843) (Magnetic flow method colour contrast technique, using permanent magnets and A.C. yokes) BS EN 1290: 1998 (Magnetic flow method colour contrast technique, using permanent magnets and A.C. yokes) BS EN ISO 9934-1: 2001 (Magnetic flow method colour contrast technique, using permanent magnets and A.C. yokes) BS EN ISO 17638: 2009 (Magnetic flow method colour contrast technique, using permanent magnets and A.C. yokes)	
	Liquid penetrant test	BS 6443: 1984 (Amd. 4844) (Colour contrast method) BS EN 571-1: 1997 (Colour contrast method) BS EN ISO 3452-1: 2013 (Colour contrast method)	
	Ultrasonic test	BS 3923: Part 1: 1986 (Butt welds in plates & pipes, 'T'-joint welds, nozzle welds and node welds) BS EN 1714: 1998 (Amd. 10286) (Butt welds in plates & pipes, 'T'-joint welds, nozzle welds and node welds) BS EN ISO 17640: 2010 (Butt welds in plates & pipes, 'T'-joint welds, nozzle welds and node welds)	
	Radiographic test	BS EN 1435: 1997 (Gamma ray) BS EN 1435: 1997 (Amd. 14938) (X-ray)	

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Manhole cover	Loading test of gully tops and manhole tops for vehicular and pedestrian areas	BS EN 124: 1994 Cl. 8 (excluding Cl. 8.4) General Specification for Civil Engineering Works, Vol. 1 (2006) Cl. 5.95 and Appendix 5.3
Pipes	Determination of the crushing strength of concrete pipes	BS EN 1916: 2002 Cl. 4.3.5, 6.4, Annex C2 & C4 <i>in conjunction with the following specification(s):</i> BS 5911: Part 1: 2002 + A2: 2010 Cl. 5.6 BS 5911: Part 100: 1998 + Amd 7588 Cl. 20.4 and Appendix D
	Dimensional tests of concrete pipes and ancillary Concrete products	BS 5911: Part 1: 2002 + A2: 2010 Cl. 5.4 and Annex D
	Hydrostatic test on concrete pipes and fittings	BS EN 1916: 2002 Cl. 4.3.7, 6.6, Annex E (excluding Annex E.3 and E.5) BS 5911: Part 100: 1998 + Amd 6269 & 7588 Cl. 20.3 and Appendix F
	Resistance to rapid crack propagation (RCP) - small-scale steady state test	ISO 13477: 2008 ISO 1167-1: 2006 + Corr. May 2008 <i>in conjunction with the following specification(s):</i> BS EN 1555-1: 2002 Table 2 BS EN 1555-2: 2002 Table 4 BS EN 12201-1: 2003 Table 2 BS EN 12201-1: 2011 Table 2 BS EN 13244-1: 2002 Table 2

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Soil (Geotextile)	Determination of bursting strength of textile fabrics - diaphragm bursting strength tester method	ASTM D3786 – 13 (excluding Cl. 7.1)
	Determination of the apparent opening size of a geotextile	ASTM D4751 – 16 Method A (excluding Cl. 6.1.1, 6.2.1 6.3)
	Determination of the water permeability of geotextile by permittivity	ASTM D4491/D4491M – 16 Method A (excluding Cl. 7.1)
	Determination of width of textile fabric	ASTM D3774 – 96 (excluding Cl. 7.1 and 9.2.2)
	Determination of the (in-plane) flow rate per unit width and hydraulic transmissivity of a geosynthetic using a constant head	ASTM D4716/D4716M – 14 (excluding Cl. 7.1)
Soil (Phase I)	Moisture content by oven-drying at 45°C±5°C	GEOSPEC 3: 2001 Test 5.1
	Moisture content by oven-drying at 105°C±5°C	GEOSPEC 3: 2001 Test 5.2
	Comparative test for the determination of moisture content by oven-drying	GEOSPEC 3: 2001 Test 5.3
	Liquid limit, plastic limit and plasticity index	GEOSPEC 3: 2001 Test 6.1
	Liquidity index	GEOSPEC 3: 2001 Test 6.2
	Particle density by gas jar method	GEOSPEC 3: 2001 Test 7.1
	Particle density by small pycnometer method	GEOSPEC 3: 2001 Test 7.2
	Particle size distribution by wet sieving (with dispersant)	GEOSPEC 3: 2001 Test 8.1
	Particle size distribution by wet sieving (without dispersant)	GEOSPEC 3: 2001 Test 8.2
Particle size distribution by the hydrometer method (with dispersant)	GEOSPEC 3: 2001 Test 8.5	

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Soil (Phase I) (cont'd)	Particle size distribution by the hydrometer method (without dispersant)	GEOSPEC 3: 2001 Test 8.6
	Construction of a continuous particle size distribution curve from the results of wet sieving and sedimentation tests	GEOSPEC 3: 2001 Test 8.7
	Dry density/moisture content relationship of soils containing particles which are not susceptible to crushing (using a 1000cc mould and 2.5 kg rammer)	GEOSPEC 3: 2001 Test 10.1
	Dry density/moisture content relationship of soils containing particles which are susceptible to crushing (using a 1000cc mould and 2.5 kg rammer)	GEOSPEC 3: 2001 Test 10.2
	Dry density/moisture content relationship of soils containing particles which are not susceptible to crushing (using a CBR mould and 2.5 kg rammer)	GEOSPEC 3: 2001 Test 10.3
	Dry density/moisture content relationship of soils containing particles which are susceptible to crushing (using a CBR mould and 2.5 kg rammer)	GEOSPEC 3: 2001 Test 10.4
	Dry density/moisture content relationship of soils containing particles which are not susceptible to crushing (using a 1000cc mould and 4.5 kg rammer)	GEOSPEC 3: 2001 Test 10.5
	Dry density/moisture content relationship of soils containing particles which are susceptible to crushing (using a 1000cc mould and 4.5 kg rammer)	GEOSPEC 3: 2001 Test 10.6
	Dry density/moisture content relationship of soils containing particles which are not susceptible to crushing (using a CBR mould and 4.5 kg rammer)	GEOSPEC 3: 2001 Test 10.7

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Soil (Phase I) (cont'd)	Dry density/moisture content relationship of soils containing particles which are susceptible to crushing (using a CBR mould and 4.5 kg rammer) California bearing ratio Moisture content	GEOSPEC 3: 2001 Test 10.8 BS 1377: Part 4: 1990 Cl. 7 GEOSPEC 3: 2001 Test 12.1 BS 1377: Part 9: 1990 Cl. 3

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Environmental Testing 環境測試		
ITEM TESTED OR MEASURED 測試或量度項目	SPECIFIC TEST OR PROPERTY MEASURED 特定測試或量度的特性	SPECIFICATION, STANDARD METHOD OR TECHNIQUE USED 規範、標準方法或應用技術
HEPA Appliances (air mover and vacuum cleaner)	Visual inspection	In-house Method HE-TM-001
	Housing-leak test (for HEPA air mover)	In-house Method HE-TM-002
	Airflow capacity (for HEPA air mover)	In-house Method HE-TM-003
	In-place leak test	In-house Method HE-TM-004
Class II (laminar flow) Biosafety cabinetry	Mandatory field tests - Downflow velocity profile test - Inflow velocity test - Airflow smoke patterns test - HEPA filter leak test - Cabinet integrity test (pressure decay / soap bubble test) for A1 cabinet - Site installation assessment tests - Alarm functions - Blower interlocks - Exhaust system performance	NSF/ANSI 49-2014 Annex F
	Optional worker comfort and safety tests: - Lighting intensity test - Vibration test - Noise level test	
Cleanroom	Classification of air cleanliness	BS EN ISO 14644-1: 2015
	Airflow test	ISO 14644-3: 2005 Cl. 4.2.2 & B.4
	Air pressure difference test	ISO 14644-3: 2005 Cl. 4.2.3 & B.5
	Installed filter system leakage test	ISO 14644-3: 2005 Cl. 4.2.4 & B.6
Fume cupboard	Face velocity	BS EN 14175-3 : 2003 Cl. 5.2
	Extract volume flow rate	BS EN 14175-4: 2004 Cl. 5.5.1 – 5.5.2
	Pressure drop test	BS EN 14175-3 2003 Cl. 5.6
	Air flow visualisation	BS EN 14175-4: 2004 Cl. 5.7
	Room air velocity test	BS EN 14175-4: 2004 Cl. 5.8

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Concrete	Compressive strength of concrete cubes in the force range 50 kN to 3000 kN	CS1: 1990 Section 12 + Amd. 1201, 1202 & 1203 CS1: 2010 Section 12 BS 1881: Part 116: 1983 + Amd. 6097 & 6720
	Compressive strength of concrete cores in the force range 50 kN to 3000 kN	CS1: 1990 Section 15 + Amd. 1201, 1203 & 1205 CS1: 2010 Section 15 + Amd. 1
	Compressive strength of concrete cylinders in the force range 50 kN to 3000 kN	CS1: 2010 Section 20 + Amd. 1
	Curing of test specimens	BS 1881: Part 111: 1983 + Amd. 6102 & 9387 CS1: 1990 Section 10 + Amd. 1101 CS1: 2010 Section 10
	Density of hardened concrete	BS 1881: Part 114: 1983 + Amd. 6102 & 9387 CS1: 1990 Section 16 + Amd. 1201 & 1203 CS1: 2010 Section 16
	Flexural strength of beams in the force range 10 kN to 100 kN	BS 1881: Part 118: 1983 + Amd. 6095 CS1: 1990 Section 14 + Amd. 1101 & 1203 CS1: 2010 Section 14
	Water absorption	BS 1881: Part 122: 1983 + Amd. 6108
Grout	Compressive strength of grout cubes in the force range 50 kN to 3000 kN	CS1: 1990 Section 12 + Amd. 1201, 1202 & 1203 with modification CS1: 2010 Section 12 with modifications
	Curing of test specimens	CS1: 1990 Section 10 + Amd. 1101 with modification CS1: 2010 Section 10 with modifications
Pipes	Determination of the water absorption of concrete pipes and fittings	BS EN 1916: 2002 Cl. 4.2.6.2, 6.7 & Annex F BS 5911: Part 100: 1988 + Amd 7588 Cl. 20.2 and Appendix E