

Appendix M

Summaries for GEO Publication No. 1/2007:
Engineering Geological Practice in Hong Kong

Table M1 - Summary of Current British Standard References and Replacement Eurocodes

BS Status	Relevant Updated Code for Citation	ID No.	Page no.	Existing Content of Technical Guidance Document	General Comments to define Scope of Updating / Specific Clauses in EN (s) / UK NA(s)	Scope of Updating
Technical Clauses in Report						
BS5930:1981 Code of Practice for Site Investigation						
Revised, withdrawn	N/A	P1-2007:5930A-2	38	Geoguide 3 is based on BS 5930 (1981), but notes that the BS fixed the boundary between fine and coarse soils at 35% implicitly requiring a laboratory particle size distribution test to be performed. BS 5930 (1999) addresses this issue, placing emphasis on engineering behaviour and giving more flexibility with respect to the classification of fine and coarse soils based on particle size.	1981; Historical; P1-2007:5930A-2; This citation of BS5930:1981 is historically correct. Consequently it would be incorrect to change it. The reference should be retained.	1
BS 812-110:1990 Testing Aggregates. Methods for Determination of Aggregate Crushing Value (ACV)						
Current, Obsolescent, Partially replaced	N/A	P1-2007:812A-2	88	ACV: The aggregate crushing value indicates the ability of an aggregate to resist crushing. The lower the figure the stronger the aggregate, i.e. the greater its ability to resist crushing (BSI,1990a).	1990a; Historical; P1-2007:812A-2; The citation appears in a table of results from tests carried out using the stated method. It is therefore a factual statement which cannot be changed.	1
BS:812-112:1990 Testing Aggregates. Method for Determination of Aggregate Impact Value (AIV)						
Current, Obsolescent, Partially replaced	N/A	P1-2007:812B-2	88	AIV: The aggregate impact value indicates the strength value of an aggregate as determined by performing the aggregate impact test (BSI, 1990b).	1990b; Historical; P1-2007:812B-2; The citation appears in a table of results from tests carried out using the stated method. It is therefore a factual statement which cannot be changed.	1
BS 812-111:1990 Testing Aggregates. Methods for Determination of Ten per cent Fines Value (TFV)						
Current, Obsolescent, Partially replaced	N/A	P1-2007:812C-2	88	TFV: The ten percent fines value test determines the crushing force in kN at which 10% of the weight of aggregate is reduced to fine material (BSI, 1990c).	1990c; Historical; P1-2007:812C-2; The citation appears in a table of results from tests carried out using the stated method. It is therefore a factual statement which cannot be changed.	1
BS5930:1999 Code of Practice for Site Investigation						
Current, partially replaced	N/A	P1-2007:5930B-2	38	Geoguide 3 is based on BS 5930 (1981), but notes that the BS fixed the boundary between fine and coarse soils at 35% implicitly requiring a laboratory particle size distribution test to be performed. BS 5930 (1999) addresses this issue, placing emphasis on engineering behaviour and giving more flexibility with respect to the classification of fine and coarse soils based on particle size.	1999; Historical; P1-2007:5930B-2; This citation is a factual statement about the reference itself, set in the context of development of soil descriptions. The citation should not be removed as this would detract from the text of the publication.	1
Current, partially replaced	BS5930:1999+A2:2010, BS EN 1997-2:2007	P1-2007:5930B-3	40	Key guidance on site investigations is contained in GCO (1987b). Other relevant documents include: <ul style="list-style-type: none"> • AGS-HK (2004a,b,c,d,e; 2005a,b) Ground Investigation Guidelines. • Geospec 3 (GEO, 2001). • BS5930 (BSI, 1999) gives international guidance. • International Society for Rock Mechanics and American Society for Testing and Materials standards for rock testing. • Ground Investigation Working Party Final Report, (IMMM-HK, 2003). • GEO (2005a) for site investigations for tunnel works. 	1999; Informative; P1-2007:5930B-3; The reference is cited in a list of guidance documents specifically dealing with guidance on site investigations. The reference is a current document containing NCCI, for use with BS EN 1997-1:2004 as defined in UK NA to BS EN 1997-1:2004, and remains a valid source of guidance. The reference and citation may therefore be retained. BS EN 1997-2:2007 gives prescriptive guidance for the planning and interpretation of geotechnical laboratory and field tests that are used for the support of geotechnical design of buildings and civil engineering works. It is intended to be used with BS EN 1997-1. Adding BS EN 1997-2:2007 as a reference and inserting a citation in the list may be considered an enhancement of the information provided.	4b
Current, partially replaced	BS5930:1999+A2:2010, BS EN ISO 14689-1:2003	P1-2007:5930B-4	58	The decomposition classification system used in Hong Kong for the rocks of plutonic and volcanic origin (GCO, 1988a) is not readily applicable to the metamorphic rocks and hydrothermally altered rocks as the strength of these rocks in the fresh state is not comparable with the granite and volcanic rocks which form the basis of the classification. This is especially true where anisotropic strength is developed due to foliation. Other classifications such as those described in BS 5930 (BSI, 1999) may be more appropriate for such rocks.	1999; Informative; P1-2007:5930B-4; The rock mass weathering classification systems described in BS5930:1999 were revised following the introduction of BS EN ISO 14689-1:2003. Complementary systems are now described in BS EN ISO 14689-1:2003 and BS5930:1999+A2:2010. To maintain a full range of possibilities, it is recommended that both documents be cited as sources of information.	4b
Current, partially replaced	BS5930:1999+A2:2010, BS EN ISO 14689-1:2003	P1-2007:5930B-5	60	This section reviews the processes of weathering in situ that are relevant to the development of typical ground models and classification systems in the igneous rocks of Hong Kong. The discussion is predominantly based on data from plutonic and volcanic rocks. Although the main processes and effects of weathering in clastic sedimentary and metamorphic rocks are similar to the igneous rocks, alternative classification systems as outlined in BS 5930 (BSI, 1999) may be more applicable due to their generally lower strength when fresh and closer spacing of the discontinuities. The weathering of carbonate rocks is mainly due to solution and removal of calcium carbonate by groundwater (see Section 5.5).	1999; Informative; P1-2007:5930B-5; The rock mass weathering classification systems described in BS5930:1999 were revised following the introduction of BS EN ISO 14689-1:2003. Complementary systems are now described in BS EN ISO 14689-1:2003 and BS5930:1999+A2:2010. To maintain a full range of possibilities, it is recommended that both documents be cited as sources of information.	4b

Table M1 - Summary of Current British Standard References and Replacement Eurocodes

BS Status	Relevant Updated Code for Citation	ID No.	Page no.	Existing Content of Technical Guidance Document	General Comments to define Scope of Updating / Specific Clauses in EN (s) / UK NA(s)	Scope of Updating
Current, partially replaced	BS5930:1999+A2:2010, BS EN ISO 14689-1:2003	P1-2007:5930B-6	61	Accounts of weathering and the development of weathering classification systems that are relevant to rocks in Hong Kong can be found in GCO (1988a), Martin & Hencher (1988), Anon. (1995), Irfan (1996a,b & 1998a), Fookes (1997b) and BSI (1999).	1999; Informative; P1-2007:5930B-6; The rock mass weathering classification systems described in BS5930:1999 were revised following the introduction of BS EN ISO 14689-1:2003. Complementary systems are now described in BS EN ISO 14689-1:2003 and BS5930:1999+A2:2010. To maintain a full range of possibilities, it is recommended that both documents be cited as sources of information.	4b
Current, partially replaced	BS5930:1999+A2:2010, BS EN ISO 14689-1:2003	P1-2007:5930B-7	62	Whilst the six-fold grading system is generally applicable to all the igneous rocks, it should only be extended to other types of rock that exhibit similar gradational weathering characteristics. Where this is not the case the alternative approaches given in BS 5930 (BSI, 1999) may be applicable. Marble weathers by dissolution with little transition between the fresh rock and soil, and the classification system reported in Chan (1994) and summarised in Section 5.5 is commonly used.	1999; Informative; P1-2007:5930B-7; The rock mass weathering classification systems described in BS5930:1999 were revised following the introduction of BS EN ISO 14689-1:2003. Complementary systems are now described in BS EN ISO 14689-1:2003 and BS5930:1999+A2:2010. To maintain a full range of possibilities, it is recommended that both documents be cited as sources of information.	4b
Current, partially replaced	BS5930:1999+A2:2010, BS EN ISO 14689-1:2003	P1-2007:5930B-8	113	The classification used in Hong Kong for the material description of chemically decomposed rocks of plutonic and volcanic origin (GCO, 1988a) is not readily applicable to the sedimentary rocks as their original strength in the fresh state is not comparable to fresh granite/volcanic rocks. Alternative classification systems may be considered, e.g. BS 5930 (BSI, 1999).	1999; Informative; P1-2007:5930B-8; The rock mass weathering classification systems described in BS5930:1999 were revised following the introduction of BS EN ISO 14689-1:2003. Complementary systems are now described in BS EN ISO 14689-1:2003 and BS5930:1999+A2:2010. To maintain a full range of possibilities, it is recommended that both documents be cited as sources of information.	4b
Current, partially replaced	BS5930:1999+A2:2010, BS EN ISO 14689-1:2003	P1-2007:5930B-9	115	The classification used in Hong Kong to describe chemically decomposed rock materials of plutonic and volcanic origin (GCO, 1988a) is not readily applicable to most metamorphic rocks, due to their fissility (e.g. phyllite) or high degree of alteration (e.g. skarn). Alternative classification systems may be considered, e.g. BS 5930 (BSI, 1999).	1999; Informative; P1-2007:5930B-9; The rock mass weathering classification systems described in BS5930:1999 were revised following the introduction of BS EN ISO 14689-1:2003. Complementary systems are now described in BS EN ISO 14689-1:2003 and BS5930:1999+A2:2010. To maintain a full range of possibilities, it is recommended that both documents be cited as sources of information.	4b
Reference Section of Report						
Revised, withdrawn	BS5930:1999+A2:2010, BS EN 1997-2:2007	P1-2007:5930A-1	257	BSI (1981). Code of Practice for Site Investigations (BS:5930:1981). British Standards Institution, London, 148 p.	1981; Reference; P1-2007:5930A-1; This reference has one historical citation. The citation should remain therefore the reference can be retained.	1
Current, Obsolescent, Partially replaced	BS812-110:1990	P1-2007:812A-1	257	BSI (1990a) . Testing Aggregates. Methods for Determination of Aggregate Crushing Value (ACV) (BS 812:Part 110:1990). British Standards Institution, London, 12 p.	1990a; Reference; P1-2007:812A-1; This reference has one historical citation directly related to reported data. Consequently the reference should be retained.	1
Current, Obsolescent, Partially replaced	BS812-112:1990	P1-2007:812B-1	257	BSI (1990b). Testing Aggregates. Method for Determination of Aggregate Impact Value (AIV) (BS:812:Part 112:1990). British Standards Institution, London, 14 p.	1990b; Reference; P1-2007:812B-1; This reference has one historical citation directly related to reported data. Consequently the reference should be retained.	1
Current, Obsolescent, Partially replaced	BS812-111:1990	P1-2007:812C-1	257	BSI (1990c). Testing Aggregates. Methods for Determination of Ten per cent Fines Value (TFV) (BS 812:Part 111:1990). British Standards Institution, London, 16 p.	1990c; Reference; P1-2007:812C-1; This reference has one historical citation directly related to reported data. Consequently the reference should be retained.	1

Table M1 - Summary of Current British Standard References and Replacement Eurocodes

BS Status	Relevant Updated Code for Citation	ID No.	Page no.	Existing Content of Technical Guidance Document	General Comments to define Scope of Updating / Specific Clauses in EN (s) / UK NA(s)	Scope of Updating
Current, partially replaced	BS5930:1999+A2:2010, BS EN 1997-2:2007, BS EN ISO 14688-1:2002, BS EN ISO 14688-2:2004, BS EN ISO 14689-1:2003, BS EN ISO 22475-1:2006, BS EN ISO 22476-1:2012, BS EN ISO 22476-2:2005+A1:2011, BS EN ISO 22476-3:2005+A1:2011, BS EN ISO 22476-12:2009, BS EN ISO 22282-1:2012, BS EN ISO 22282-2:2012, BS EN ISO 22282-4:2012	P1-2007:5930B-1	257	BSI (1999). Code of Practice for Site Investigations (BS:5930:1999). British Standards Institution, London, 204 p.	1999; Reference; P1-2007:5930B-1; This reference has eight citations, one historical and seven informative. The historical citation requires retention of the current reference. The informative citation in P1-2007:5930B-3 can be enhanced by additional references to BS EN 1997-2:2007. The other citations are probably best redirected to new references BS EN ISO 14689-1:2003 and BS5930:1999+A2:2010.	1

Table M2 - Extracts of Relevant Sections or Clauses of the British Standards and Eurocodes / National Annexes

Relevant Updated Code for Citation	ID No.	Page no.	Scope of Updating	Extracts of Relevant Sections or Clauses of the superseded British Standard(s)	Extracts of Relevant Sections or Clauses of the replacement British/European Standards
Technical Clauses in Report					
BS5930:1981 Code of Practice for Site Investigation					
N/A	P1-2007:5930A-2	38	1	BS5930:1981, Section 8.	N/A
BS 812-110:1990 Testing Aggregates. Methods for Determination of Aggregate Crushing Value (ACV)					
N/A	P1-2007:812A-2	88	1	Whole document.	N/A
BS:812-112:1990 Testing Aggregates. Method for Determination of Aggregate Impact Value (AIV)					
N/A	P1-2007:812B-2	88	1	Whole document.	N/A
BS 812-111:1990 Testing Aggregates. Methods for Determination of Ten per cent Fines Value (TFV)					
N/A	P1-2007:812C-2	88	1	Whole document.	N/A
BS5930:1999 Code of Practice for Site Investigation					
N/A	P1-2007:5930B-2	38	1	BS5930:1999, Section 6.	N/A
BS5930:1999+A2:2010, BS EN 1997-2:2007	P1-2007:5930B-3	40	4b	Whole document.	BS EN 1997-2:2007, whole document.
BS5930:1999+A2:2010, BS EN ISO 14689-1:2003	P1-2007:5930B-4	58	4b	BS5930:1999, cl 44.4	BS EN ISO 14689-1:2003 provides normative standard for rock mass description whereas BS5930:1999+A2:2010 provides greater general advice.
BS5930:1999+A2:2010, BS EN ISO 14689-1:2003	P1-2007:5930B-5	60	4b	BS5930:1999, cl 44.4	BS EN ISO 14689-1:2003 provides normative standard for rock mass description whereas BS5930:1999+A2:2010 provides greater general advice.
BS5930:1999+A2:2010, BS EN ISO 14689-1:2003	P1-2007:5930B-6	61	4b	BS5930:1999, cl 44.4	BS EN ISO 14689-1:2003 provides normative standard for rock mass description whereas BS5930:1999+A2:2010 provides greater general advice.
BS5930:1999+A2:2010, BS EN ISO 14689-1:2003	P1-2007:5930B-7	62	4b	BS5930:1999, cl 44.4	BS EN ISO 14689-1:2003 provides normative standard for rock mass description whereas BS5930:1999+A2:2010 provides greater general advice.
BS5930:1999+A2:2010, BS EN ISO 14689-1:2003	P1-2007:5930B-8	113	4b	BS5930:1999, cl 44.4	BS EN ISO 14689-1:2003 provides normative standard for rock mass description whereas BS5930:1999+A2:2010 provides greater general advice.
BS5930:1999+A2:2010, BS EN ISO 14689-1:2003	P1-2007:5930B-9	115	4b	BS5930:1999, cl 44.4	BS EN ISO 14689-1:2003 provides normative standard for rock mass description whereas BS5930:1999+A2:2010 provides greater general advice.

Table M3 - Description of Standards, Differences and Recommended Amendments

ID No.	Page no.	Scope of Updating	Description of Design, Specification and/or Testing Required		Effects of differences in Adopting Up-to-date Standard(s)	Recommended Amendments
			Quoted Standard(s)	Up-to-date Standard(s)		
Technical Clauses in Report						
BS5930:1981 Code of Practice for Site Investigation						
P1-2007:5930A-2	38	1	Method for description and classification of soils.	N/A	N/A	The citation is historical. Therefore the citation and reference should be retained unchanged.
BS 812-110:1990 Testing Aggregates. Methods for Determination of Aggregate Crushing Value (ACV)						
P1-2007:812A-2	88	1	Method of test for aggregates.	N/A	N/A	The reference, though dated, remains current. It can only be changed if the test data related to the test are also removed from the document.
BS:812-112:1990 Testing Aggregates. Method for Determination of Aggregate Impact Value (AIV)						
P1-2007:812B-2	88	1	Method of test for aggregates.	N/A	N/A	The reference, though dated, remains current. It can only be changed if the test data related to the test are also removed from the document.
BS 812-111:1990 Testing Aggregates. Methods for Determination of Ten per cent Fines Value (TFV)						
P1-2007:812C-2	88	1	Method of test for aggregates.	N/A	N/A	The reference, though dated, remains current. It can only be changed if the test data related to the test are also removed from the document.
BS5930:1999 Code of Practice for Site Investigation						
P1-2007:5930B-2	38	1	Method for description and classification of soils.	N/A	N/A	The citation is historical. Therefore the citation and reference should be retained unchanged.
P1-2007:5930B-3	40	4b	General advice on ground investigation.	Normative standard for ground investigation.	Removal of the BS would exclude extensive NCCI. Adding the BS EN would add to the available advice.	Add references to BS5930:1999+A2:2010 and BS EN 1997-2:2007. Change the citation to BS 5930:1999+A2:2010. Add BS EN 1997-2:2007.
P1-2007:5930B-4	58	4	Advice on rock mass weathering criteria and description.	Normative standard for description of rock masses now in BS EN ISO 14689-1:2003. NCCI and advice now contained in BS5930:1999+A2:2010.	Full advice requires reference to two standards.	Add references to BS5930:1999+A2:2010 and BS EN ISO 14689-1:2003. Change the citation to BS 5930:1999+A2:2010. Add BS EN ISO 14689-1:2003.
P1-2007:5930B-5	60	4	Advice on rock mass weathering criteria and description.	Normative standard for description of rock masses now in BS EN ISO 14689-1:2003. NCCI and advice now contained in BS5930:1999+A2:2010.	Full advice requires reference to two standards.	Add references to BS5930:1999+A2:2010 and BS EN ISO 14689-1:2003. Change the citation to BS 5930:1999+A2:2010. Add BS EN ISO 14689-1:2003.
P1-2007:5930B-6	61	4	Advice on rock mass weathering criteria and description.	Normative standard for description of rock masses now in BS EN ISO 14689-1:2003. NCCI and advice now contained in BS5930:1999+A2:2010.	Full advice requires reference to two standards.	Add references to BS5930:1999+A2:2010 and BS EN ISO 14689-1:2003. Change the citation to BS 5930:1999+A2:2010. Add BS EN ISO 14689-1:2003.
P1-2007:5930B-7	62	4	Advice on rock mass weathering criteria and description.	Normative standard for description of rock masses now in BS EN ISO 14689-1:2003. NCCI and advice now contained in BS5930:1999+A2:2010.	Full advice requires reference to two standards.	Add references to BS5930:1999+A2:2010 and BS EN ISO 14689-1:2003. Change the citation to BS 5930:1999+A2:2010. Add BS EN ISO 14689-1:2003.
P1-2007:5930B-8	113	4	Advice on rock mass weathering criteria and description.	Normative standard for description of rock masses now in BS EN ISO 14689-1:2003. NCCI and advice now contained in BS5930:1999+A2:2010.	Full advice requires reference to two standards.	Add references to BS5930:1999+A2:2010 and BS EN ISO 14689-1:2003. Change the citation to BS 5930:1999+A2:2010. Add BS EN ISO 14689-1:2003.
P1-2007:5930B-9	115	4	Advice on rock mass weathering criteria and description.	Normative standard for description of rock masses now in BS EN ISO 14689-1:2003. NCCI and advice now contained in BS5930:1999+A2:2010.	Full advice requires reference to two standards.	Add references to BS5930:1999+A2:2010 and BS EN ISO 14689-1:2003. Change the citation to BS 5930:1999+A2:2010. Add BS EN ISO 14689-1:2003.
Reference Section of Report						
P1-2007:5930A-1	257	1	This reference document is: Revised, withdrawn.	The current document(s) is (are): BS5930:1999+A2:2010, BS EN 1997-2:2007	N/A	The single citation of this document is historic and therefore the reference should be retained.
P1-2007:812A-1	257	1	This reference document is: Current, Obsolescent, Partially replaced.	The current document(s) is (are): BS812-110:1990	N/A	The standard is cited in the context of a presentation of test results. Consequently the reference should not be changed.

Table M3 - Description of Standards, Differences and Recommended Amendments

ID No.	Page no.	Scope of Updating	Description of Design, Specification and/or Testing Required		Effects of differences in Adopting Up-to-date Standard(s)	Recommended Amendments
			Quoted Standard(s)	Up-to-date Standard(s)		
P1-2007:812B-1	257	1	This reference document is: Current, Obsolescent, Partially replaced.	The current document(s) is (are): BS812-112:1990	N/A	The standard is cited in the context of a presentation of test results. Consequently the reference should not be changed.
P1-2007:812C-1	257	1	This reference document is: Current, Obsolescent, Partially replaced.	The current document(s) is (are): BS812-111:1990	N/A	The standard is cited in the context of a presentation of test results. Consequently the reference should not be changed.
P1-2007:5930B-1	257	1	This reference document is: Current, partially replaced.	The current document(s) is (are): BS5930:1999+A2:2010, BS EN 1997-2:2007, BS EN ISO 14688-1:2002, BS EN ISO 14688-2:2004, BS EN ISO 14689-1:2003, BS EN ISO 22475-1:2006, BS EN ISO 22476-1:2012, BS EN ISO 22476-2:2005+A1:2011, BS EN ISO 22476-3:2005+A1:2011, BS EN ISO 22476-12:2009, BS EN ISO 22282-1:2012, BS EN ISO 22282-2:2012, BS EN ISO 22282-4:2012	Updating will require addition of new references.	There is a single historic citation for this document which requires retention of the reference. Other citations, however will require updated references to BS5930:1999+A2:2010, BS EN 1997-2:2007 and BS EN ISO 14689-1:2003.

Table M4 - Recommended Revisions to Existing Clauses referring to British Standards

Page no.	BS Referenced in Technical Guidance Document	Scope of Updating ⁽¹⁾	ID No.	Existing Content of Technical Guidance Document	Recommended Content for Updated Technical Guidance Document
38	BS5930:1981 BS5930:1999	1 1	P1-2007:5930A-2 P1-2007:5930B-2	Geoguide 3 is based on BS 5930 (1981), but notes that the BS fixed the boundary between fine and coarse soils at 35% implicitly requiring a laboratory particle size distribution test to be performed. BS 5930 (1999) addresses this issue, placing emphasis on engineering behaviour and giving more flexibility with respect to the classification of fine and coarse soils based on particle size.	No change.
88	BS812-110:1990	1	P1-2007:812A-2	ACV: The aggregate crushing value indicates the ability of an aggregate to resist crushing. The lower the figure the stronger the aggregate, i.e. the greater its ability to resist crushing (BSI, 1990a).	No change.
88	BS812-112:1990	1	P1-2007:812B-2	AIV: The aggregate impact value indicates the strength value of an aggregate as determined by performing the aggregate impact test (BSI, 1990b).	No change.
88	BS812-111:1990	1	P1-2007:812C-2	TFV: The ten percent fines value test determines the crushing force in kN at which 10% of the weight of aggregate is reduced to fine material (BSI, 1990c).	No change.
40	BS5930:1999	4b	P1-2007:5930B-3	Key guidance on site investigations is contained in GCO (1987b). Other relevant documents include: • AGS-HK (2004a,b,c,d,e; 2005a,b) Ground Investigation Guidelines. • Geospec 3 (GEO, 2001). • BS5930 (BSI, 1999) gives international guidance. • International Society for Rock Mechanics and American Society for Testing and Materials standards for rock testing. • Ground Investigation Working Party Final Report, (IMMM-HK, 2003). • GEO (2005a) for site investigations for tunnel works.	Key guidance on site investigations is contained in GCO (1987b). Other relevant documents include: • AGS-HK (2004a,b,c,d,e; 2005a,b) Ground Investigation Guidelines. • Geospec 3 (GEO, 2001). • BS5930:1999+A2:2010 (BSI, 2010) and BS EN 1997-2:2007 (BSI, 2007) give international guidance. • International Society for Rock Mechanics and American Society for Testing and Materials standards for rock testing. • Ground Investigation Working Party Final Report, (IMMM-HK, 2003). • GEO (2005a) for site investigations for tunnel works.
58	BS5930:1999	4b	P1-2007:5930B-4	The decomposition classification system used in Hong Kong for the rocks of plutonic and volcanic origin (GCO, 1988a) is not readily applicable to the metamorphic rocks and hydrothermally altered rocks as the strength of these rocks in the fresh state is not comparable with the granite and volcanic rocks which form the basis of the classification. This is especially true where anisotropic strength is developed due to foliation. Other classifications such as those described in BS 5930 (BSI, 1999) may be more appropriate for such rocks.	The decomposition classification system used in Hong Kong for the rocks of plutonic and volcanic origin (GCO, 1988a) is not readily applicable to the metamorphic rocks and hydrothermally altered rocks as the strength of these rocks in the fresh state is not comparable with the granite and volcanic rocks which form the basis of the classification. This is especially true where anisotropic strength is developed due to foliation. Other classifications such as those described in BS EN ISO 14689-1:2003 (BSI, 2003) and BS 5930:1999+A2:2010 (BSI, 2010) may be more appropriate for such rocks.
60	BS5930:1999	4b	P1-2007:5930B-5	This section reviews the processes of weathering in situ that are relevant to the development of typical ground models and classification systems in the igneous rocks of Hong Kong. The discussion is predominantly based on data from plutonic and volcanic rocks. Although the main processes and effects of weathering in clastic sedimentary and metamorphic rocks are similar to the igneous rocks, alternative classification systems as outlined in BS 5930 (BSI, 1999) may be more applicable due to their generally lower strength when fresh and closer spacing of the discontinuities. The weathering of carbonate rocks is mainly due to solution and removal of calcium carbonate by groundwater (see Section 5.5).	This section reviews the processes of weathering in situ that are relevant to the development of typical ground models and classification systems in the igneous rocks of Hong Kong. The discussion is predominantly based on data from plutonic and volcanic rocks. Although the main processes and effects of weathering in clastic sedimentary and metamorphic rocks are similar to the igneous rocks, alternative classification systems as outlined in BS EN ISO 14689-1:2003 (BSI, 2003) and BS 5930:1999+A2:2010 (BSI, 2010) may be more applicable due to their generally lower strength when fresh and closer spacing of the discontinuities. The weathering of carbonate rocks is mainly due to solution and removal of calcium carbonate by groundwater (see Section 5.5).

Table M4 - Recommended Revisions to Existing Clauses referring to British Standards

Page no.	BS Referenced in Technical Guidance Document	Scope of Updating ⁽¹⁾	ID No.	Existing Content of Technical Guidance Document	Recommended Content for Updated Technical Guidance Document
61	BS5930:1999	4b	P1-2007:5930B-6	Accounts of weathering and the development of weathering classification systems that are relevant to rocks in Hong Kong can be found in GCO (1988a), Martin & Hencher (1988), Anon. (1995), Irfan (1996a,b & 1998a), Fookes (1997b) and BSI (1999) .	Accounts of weathering and the development of weathering classification systems that are relevant to rocks in Hong Kong can be found in GCO (1988a), Martin & Hencher (1988), Anon. (1995), Irfan (1996a,b & 1998a), Fookes (1997b), and BSI (2003, 2010) .
62	BS5930:1999	4b	P1-2007:5930B-7	Whilst the six-fold grading system is generally applicable to all the igneous rocks, it should only be extended to other types of rock that exhibit similar gradational weathering characteristics. Where this is not the case the alternative approaches given in BS 5930 (BSI, 1999) may be applicable. Marble weathers by dissolution with little transition between the fresh rock and soil, and the classification system reported in Chan (1994) and summarised in Section 5.5 is commonly used.	Whilst the six-fold grading system is generally applicable to all the igneous rocks, it should only be extended to other types of rock that exhibit similar gradational weathering characteristics. Where this is not the case the alternative approaches given in BS EN ISO 14689-1:2003 (BSI, 2003) and BS 5930:1999+A2:2010 (BSI, 2010) may be applicable. Marble weathers by dissolution with little transition between the fresh rock and soil, and the classification system reported in Chan (1994) and summarised in Section 5.5 is commonly used.
113	BS5930:1999	4b	P1-2007:5930B-8	The classification used in Hong Kong for the material description of chemically decomposed rocks of plutonic and volcanic origin (GCO, 1988a) is not readily applicable to the sedimentary rocks as their original strength in the fresh state is not comparable to fresh granite/volcanic rocks. Alternative classification systems may be considered, e.g. BS 5930 (BSI, 1999) .	The classification used in Hong Kong for the material description of chemically decomposed rocks of plutonic and volcanic origin (GCO, 1988a) is not readily applicable to the sedimentary rocks as their original strength in the fresh state is not comparable to fresh granite/volcanic rocks. Alternative classification systems may be considered, e.g. BS EN ISO 14689-1:2003 (BSI, 2003) and BS 5930:1999+A2:2010 (BSI, 2010) .
115	BS5930:1999	4b	P1-2007:5930B-9	The classification used in Hong Kong to describe chemically decomposed rock materials of plutonic and volcanic origin (GCO, 1988a) is not readily applicable to most metamorphic rocks, due to their fissility (e.g. phyllite) or high degree of alteration (e.g. skarn). Alternative classification systems may be considered, e.g. BS 5930 (BSI, 1999) .	The classification used in Hong Kong to describe chemically decomposed rock materials of plutonic and volcanic origin (GCO, 1988a) is not readily applicable to most metamorphic rocks, due to their fissility (e.g. phyllite) or high degree of alteration (e.g. skarn). Alternative classification systems may be considered, e.g. BS EN ISO 14689-1:2003 (BSI, 2003) and BS 5930:1999+A2:2010 (BSI, 2010) .
257	BS5930:1981	1	P1-2007:5930A-1	BSI (1981). Code of Practice for Site Investigations (BS:5930:1981). British Standards Institution, London, 148 p.	BSI (1981). Code of Practice for Site Investigations (BS 5930:1981). British Standards Institution, London, 148 p.
257	BS812-110:1990	1	P1-2007:812A-1	BSI (1990a). Testing Aggregates. Methods for Determination of Aggregate Crushing Value (ACV) (BS 812:Part 110:1990). British Standards Institution, London, 12 p.	No change.
257	BS812-112:1990	1	P1-2007:812B-1	BSI (1990b). Testing Aggregates. Method for Determination of Aggregate Impact Value (AIV) (BS:812:Part 112:1990). British Standards Institution, London, 14 p.	BSI (1990b). Testing Aggregates. Method for Determination of Aggregate Impact Value (AIV) (BS 812:Part 112:1990). British Standards Institution, London, 14 p.
257	BS812-111:1990	1	P1-2007:812C-1	BSI (1990c). Testing Aggregates. Methods for Determination of Ten per cent Fines Value (TFV) (BS 812:Part 111:1990). British Standards Institution, London, 16 p.	No change.
257	BS5930:1999	1	P1-2007:5930B-1	BSI (1999). Code of Practice for Site Investigations (BS:5930:1999). British Standards Institution, London, 204 p.	BSI (1999). Code of Practice for Site Investigations (BS 5930:1999). British Standards Institution, London, 204 p.
	Additional reference required.				BSI (2003) Geotechnical investigation and testing – Identification and classification of rock – Part 1: Identification and description (BS EN ISO 14689-1:2003). British Standards Institution, London, 16 p.
	Additional reference required.				BSI (2007) Eurocode 7. Geotechnical design. Ground investigation and testing (BS EN 1997-2:2007). British Standards Institution, London, 196 p.
	Additional reference required.				BSI (2010) Code of practice for site investigations (BS 5930:1999+A2:2010). British Standards Institution, London, 192 p.