2011 LABORATORY TESTING FEES

SOILPRO TECHNICAL SERVICES SDN BHD

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Soil properties applied to geotechnical engineering

THE MALAYSIAN SITE INVESTIGATORS ASSOCIATION MSIA Member M0012

Item	Description	Test Reference	Unit	Rate (RM)
1.0	**Classification Tests**			
1.1	**Moisture Content**	**BS1377: 1990**		
1.1.1	Oven-drying method	- Part 2, Method 3.2	No	2.00
1.1.2	Speedy moisture tester	**ASTM D4944, 1998**	No	5.00
1.2	**Liquid Limit (LL)**	**BS1377: 1990**		
1.2.1	Cone-four point method	- Part 2, Method 4.3	Set	20.00
1.2.2	Cone-one point method	- Part 2, 4.4	No	6.00
1.2.3	Casagrande-four point method	- Part 2, 4.5	Set	20.00
1.2.4	Casagrande-one point method	- Part 2, 4.6	No	6.00
1.3	**Plastic Limit (PL)**	- Part 2, Method 5.3	No	5.00
1.4	**Plasticity Index (PI) – derivation**	- Part 2, 5.4	No	1.00
1.5	**Linear Shrinkage (LS)**	- Part 2, Method 6.5	No	12.00
1.6	**Bulk Density**	**BS1377: 1990**		
1.6.1	Linear measurement	- Part 2, Method 7.2	No	10.00
1.6.2	Immersion in water	- Part 2, 7.3	No	40.00
1.6.3	Water displacement	- Part 2, 7.4	No	40.00
1.7	**Particle Density (specific gravity)**	**BS1377: 1990**		
1.7.1	Gas Jar	- Part 2, Method 8.2	No	75.00
1.7.2	Small pyknometer	- Part 2, 8.3	No	10.00
1.8	**Mass-Volume Relationship**			
1.8.1	Void ratio		No	20.00
1.8.2	Submerged Unit Weight		No	20.00
1.9	**Particle Size Distribution**	**BS1377: 1990**		
1.9.1	Coarse grained - sieving	- Part 2, Method 9.2, 9.3	No	12.00
1.9.2	Fine grained- hydrometer, dry mass(+ sieving)	- Part 2, 9.2, 9.3, 9.5	No	32.00
1.9.3	Fine grained- hydrometer, natural state	- ditto - (Part 1, 7.4.5)	No	100.00
1.9.4	Double hydrometer - refer to Item 9.3	- Part 5, Method 6.4	No	Item 9.3
1.9.5	Coarse grained - sieving	**ASTM D 422-63**	No	80.00
1.9.6	Fine grained- hydrometer, dry mass(+ sieving)	**ASTM D 422-63**	No	130.00
1.10	**Soil Classification for Engineering Purposes**			
1.10.1	British System	**BS5930: 1999**	No	10.00
10.2	Unified Soil Classification System	**ASTM D 2487, 2000**	No	10.00
1.11	**Samples Logging and Record**			
1.11.1	Split UD, photograph and logging		No	150.00
1.11.2	Provide small record samples		No	12.00
2.0	**Compaction-related Tests**	**BS1377: 1990**		
2.1	2.5 kg Rammer			
2.1.1	1.0 Litre mould (upto medium gravel) - 1 No.	- Part 4, Method 3.3	No	40.00
2.1.2	2.3 Litre CBR mould (upto coarse gravel) - 1 No.	- Part 4, 3.4	No	50.00
2.1.3	1 Litre mould – 5 No. (DD vs MC)	- Part 4, 3.3	Set	200.00
2.1.4	2.3 Litre CBR mould – 5 No. (DD vs MC)	- Part 4, 3.4	Set	250.00
2.1.5	CBR, unsoaked – 1 No.	- Part 4, Method 7.2	No	50.00
2.1.6	CBR, soaked 4 days – 1 No.	- Part 4, 7.3	No	55.00
2.1.7	CBR, top unsoaked & bottom soaked 4 days - 1 No		No	60.00
2.1.8	CBR, unsoaked – 5 No.	- Part 4, 7.2	Set	250.00
2.1.9	CBR, soaked 4 days – 5 No.	- Part 4, 7.3	Set	275.00
2.1.10	CBR, top unsoaked & bottom soaked 4 days - 5 No		Set	300.00
2.2	4.5 kg Rammer			
2.2.1	1.0 Litre mould (upto medium gravel) - 1 No.	- Part 4, 3.5	No	45.00
2.2.2	2.3 Litre CBR mould (upto coarse gravel) - 1 No.	- Part 4, 3.6	No	60.00
2.2.3	1 Litre mould - 5 No. (DD vs MC)	- Part 4, 3.5	Set	225.00
2.2.4	2.3 Litre CBR mould - 5 No. (DD vs MC)	- Part 4, 3.6	Set	300.00
2.2.5	CBR, unsoaked - 1 No.	- Part 4, Method 7.2	No	55.00
2.2.6	CBR, soaked 4 days - 1 No.	- Part 4, 7.3	No	60.00
2.2.7	CBR, top unsoaked & bottom soaked 4 days - 1 No		No	65.00
2.2.8	CBR, unsoaked - 5 No.	- Part 4, 7.2	Set	275.00
2.2.9	CBR, soaked 4 days - 5 No.	- Part 4, 7.3	Set	300.00
2.2.10	CBR, top unsoaked & bottom soaked 4 days - 5 No		Set	320.00
2.3	Maximum and Minimum Dry Densities			
2.3.1	Maximum density of sands	- Part 4, 4.2	No	140.00
2.3.2	Maximum density of gravelly soils	- Part 4, 4.3	No	150.00
2.3.3	Minimum density of sands	- Part 4, 4.4	No	40.00
2.3.4	Minimum density of gravelly soils	- Part 4, 4.5	No	50.00
2.3.5	Bulk and dry density by linear measurement	- Part 2, 3.2 & 7.2	No	20.00
2.3.6	Derivation of density index (relative density) inclusive of Items 2.3.1 to 2.3.5	- Part 4, 4.6	Set	360.00

Item	Description	Test Reference	Unit	Rate (RM)
3.0	**Direct Shear Test**	**BS1377: 1990**		
3.1	Rapid (1mm/min): Normal shear			
3.1.1	(60x60)mm, 3 specimens	- Part 7, 4	Set	350.00
3.1.2	(100x100)mm, 3 specimens	- Part 7, 4	Set	600.00
3.1.3	(300x300)mm, 3 specimens - outsourced	- Part 7, 5	Set	1100.00
3.2	Consolidated Drained: Normal shear	- Part 7		
3.2.1	(60x60)mm, 3 specimens	- Part 7, 4	Set	400.00
3.2.2	(60x60)mm, 3 specimens - multi reversal	- Part 7, 4.5.5	Set	800.00
3.2.3	(100x100)mm, 3 specimens	- Part 7, 4	Set	650.00
3.2.4	(100x100)mm, 3 specimens - multi reversal	- Part 7, 4.5.5	Set	1300.00
3.2.5	(300x300)mm, 3 specimens - outsourced	- Part 7, 5	Set	1400.00
4.0	**Total Stress Tests**			
4.1	Unconfined compression strength	**BS1377: 1990**		
4.1.1	38mm diameter, 1 specimen	- Part 7, Method 7.2	No	15.00
4.1.2	50mm diameter, 1 specimen	- Part 7, 7.2	No	20.00
4.1.3	70 / 72mm diameter, 1 specimen	- Part 7, 7.2	No	40.00
4.1.4	38mm diameter, 3 specimens	- Part 7, 7.2	Set	40.00
4.1.5	50mm diameter, 3 specimens	- Part 7, 7.2	Set	60.00
4.1.6	70 / 72mm diameter, 3 specimens	- Part 7, 7.2	Set	120.00
4.2	UU Triaxial without pwp	**BS1377: 1990**		
4.2.1	38mm diameter, 1 specimen	- Part 7, Method 8.4	No	20.00
4.2.2	50mm diameter, 1 specimen	- Part 7, 8.4	No	40.00
4.2.3	70 / 72mm diameter, 1 specimen	- Part 7, 8.4	No	50.00
4.2.4	38mm diameter, 3 specimens	- Part 7, 8.4	Set	60.00
4.2.5	50mm diameter, 3 specimens	- Part 7, 8.4	Set	120.00
4.2.5	70 / 72mm diameter, 3 specimens	- Part 7, 8.4	Set	150.00
5.0	**Effective Stress Test**			
5.1	UU Triaxial with pwp	K.H.Head, Vol.3		
5.1.1	38mm diameter, 3 specimens	-	Set	400.00
5.1.2	50mm diameter, 3 specimens	-	Set	500.00
5.1.3	70 / 72mm diameter, 3 specimens	-	Set	600.00
5.2	CU Triaxial (up to 3 days)	**BS1377: 1990**		
5.2.1	38mm diameter, 1 specimen	- Part 8,1~6 & 7	No	200.00
5.2.2	50mm diameter, 1 specimen	- Part 8,1~6 & 7	No	300.00
5.2.3	70 / 72mm diameter, 1 specimen	- Part 8,1~6 & 7	No	350.00
5.2.4	38mm diameter, 3 specimens	- Part 8,1~6 & 7	Set	550.00
5.2.5	50mm diameter, 3 specimens		Set	850.00
5.2.6	70 / 72mm diameter, 3 specimens		Set	1100.00
5.2.7	Additional days to Item 5.2		Day	280.00
5.3	CD Triaxial (up to 4 days)	**BS1377: 1990**		
5.3.1	38mm diameter, 1 specimen	- Part 8,1~6 & 8	No	300.00
5.3.2	50mm diameter, 1 specimen	- Part 8,1~6 & 8	No	450.00
5.3.3	70 / 72mm diameter, 1 specimen	- Part 8,1~6 & 8	No	550.00
5.3.4	38mm diameter, 3 specimens	- Part 8,1~6 & 8	Set	850.00
5.3.5	50mm diameter, 3 specimens	- Part 8,1~6 & 8	Set	1300.00
5.3.6	70 / 72mm diameter, 3 specimens	- Part 8,1~6 & 8	Set	1600.00
5.3.7	Additional days to Item 5.3		Day	280.00
5.4	Remould specimens for Items No.4 and No.5	- Part 7, 8.3.3.2 (c)		
	Based on natural condition at:	- Part 1, 7.7		
5.4.1	Received density & moisture, 1 specimen		No	40.00
5.4.2	Received density & moisture, 3 specimens		Set	100.00
	Based compaction (Item No.2) results at specified:	- Part 1, 7.7		
5.4.3	Effort or density & moisture, 1 specimen		No	115.00
5.4.4	Effort or density & moisture, 3 specimens		Set	235.00

SOILPRO TECHNICAL SERVICES SDN BHD 380315-T

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Managing Director

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Item	Description	Test Reference	Unit	Rate (RM)
6.0	**Compressibility Tests**	**BS1377: 1990**		
6.1	Oedometer (1-Dimensional) Consolidation	- Part 5, Method 3		
6.1.1	7 loadings and 3 unloadings	- Part 5, 3.5	No	150.00
6.1.2	Swelling pressure determination	- Part 5, 4.3	No	200.00
6.1.3	Measurement of swelling	- Part 5, 4.4	No	360.00
6.1.4	Settlement on saturation	- Part 5, 4.5	No	360.00
6.1.5	Additional loading to Item 6.1.1		Day	30.00
6.2	1-Dimensional Swell or Settlement Potential of Soils	**ASTM D4546, 2003**		
6.2.1	Free swell, heave % & swell pressure	- Method A		400.00
6.2.2	Heave % or settle % & swell pressure	- Method B		250.00
6.2.3	Prevent swell, swell pressure & precon pressure	- Method C		400.00
6.3	Expansion Index of Soils (Cell id - 101.9mm)	**ASTM D4829, 2003**		600.00
6.4	Measurement of Collapse Potential of Soils	**ASTM D5333, 2003**	No	350.00
7.0	**Permeability Tests**	**BS1377: 1990**		
7.1	Constant Head permeameter for non-cohesive soil	- Part 5, Method 5	No	300.00
7.2	Falling Head permeameter for cohesive soil	**K.H.Head, Vol.2**	No	400.00
7.3	Constant Head triaxial cell for cohesive soil	**BS1377: 1990**		
7.3.1	38mm diameter, 1 specimen	- Part 6, Method 6	No	400.00
7.3.2	50mm diameter, 1 specimen	- Part 6, 6	No	500.00
7.3.3	70 / 72mm diameter, 1 specimen	- Part 6, 6	No	600.00
7.4	**Saturated Hydraulic Conductivity**	**ASTM F1815, 2006**		
7.4.1	Putting green and sports tuff root zones	- Method A, B, C, D	No	500.00
8.0	**Other Total Stress Tests**			
8.1	Hand vane shear, pilcon		No	20.00
8.2	Pocket penetrometer		No	20.00
9.0	**Durability/Dispersibility Tests**	**BS1377: 1990**		
9.1	Pinhole Method	- Part 5, Method 6.2	No	400.00
9.2	Crumb Method	- Part 5, 6.3	No	250.00
9.3	Dispersion Method - double hydrometer	- Part 5, 6.4	No	100.00
9.4	Emersion test (same as Item 9.2)	**AS1289.3.8.1, 1997**	No	250.00
10.0	**Soil/water Chemical Tests**	**BS1377: 1990**		
10.1	Organic matter - outsourced	- Part 3, Method 3	No	35.00
10.2	Loss on Ignition - outsourced	- Part 3, 4	No	60.00
10.3	Total/soluble sulphate	- Part 3, 5	No	30.00
10.4	Carbonate - outsourced	- Part 3, 6	No	100.00
10.5	Chloride	- Part 3, 7	No	30.00
10.6	Total dissolved solids -outsourced	- Part 3, 8	No	50.00
10.7	pH value	- Part 3, 9	No	15.00
10.8	Total suspended solids	**Apha 2540D**	No	35.00

Item	Description	Test Reference	Unit	Rate (RM)
11.0	**Rock / Aggregate Tests**			
11.1	Sieve Analysis	BS812:1985, 103.1	No	45.00
11.2	Moisture Content	BS812:1990, 109	No	20.00
11.3	Aggregate relative density and absorption	ASTM C127, 2001	No	120.00
11.4	Rock S.G. and absorption for erosion control	ASTM D6473, 1999	No	120.00
11.5	Rock Compressive strength	ASTM D2938, 2002	No	130.00
11.6	Do- Young Modulus - outsourced	ASTM D3148, 2002	No	300.00
11.7	Do- Young Modulus & Poisson Ratio - outsourced	ASTM D3148, 2002	No	450.00
11.8	Rock Petrographic Analysis -outsourced	ASTM C295, 2003	No	500.00
11.9	Rock Point Load Index	ASTM D5371, 2002	No	90.00
11.10	Rock hardness by Rebound Hammer	ASTM D5873, 2000	No	50.00
11.11	Rebound Number of hardened concrete	ASTM C805, 2002	No	50.00
11.12	Crushing Value - outsourced	BS812:1990, 110	No	120.00
11.13	Ten Percent Fines - outsourced	BS812:1990, 111	No	120.00
11.14	Impact Value - outsourced	BS812:1990, 112	No	120.00
11.15	Abrasion Value - outsourced	BS812:1990, 113	No	350.00
11.16	Polished Stone Value - outsourced	BS812:1989, 114	No	120.00
11.17	Flakiness Index - outsourced	BS812:1989, 105.1	No	70.00
11.18	Elongation Index	BS812:1990, 105.2	No	70.00
11.19	Angularity Number - outsourced	BS812:1975, Part1, 7.5	No	70.00
11.20	Soundness Test - outsourced	ASTM C88, 1999	No	400.00
11.21	Alkali Silica Reactivity - outsourced	ASTM C289, 2003	No	400.00
11.22	Organic impurities - outsourced	ASTM C40, 2004	No	70.00
12.0	**Concrete**			
12.1	Concrete core test, diameter 100mm	BS1881:1983, 120	No	100.00
12.2	Concrete cube test	BS1881:1983, 116	No	5.00
13.0	**Photograph**			
13.1	Digital photo		No	10.00

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