



CIVIL ENGINEERING LABORATORY
 KING MONGKUT'S UNIVERSITY OF TECHNOLOGY NORTH BANGKOK
 DEPARTMENT OF CIVIL ENGINEERING

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1. Soil Testing		Unit cost (Baht)
1	Physical properties	
	Water Content	50
	Atterberg Limits(w _l ,w _p):(ASTM D4318)	400
	Shrinkage Limit	200
	Specific Gravity:(ASTM C127,128)	500
	Sieve Analysis (Dry):(ASTM C136)	500
	Sieve Analysis (Wet):(ASTM D421-422)	500
	Hydrometer (Including S.G.):(ASTM D421-85)	1,000
	Total Unit Weight + Water Content:(ASTM C29-91)	200
2	Unconfined Strength Test	
	Unconfined Compression Test:(ASTM D2166)	300
	Unconfined Compression Test (Remoulded)	350
3	Direct Shear Test	
	Direct Shear Test (Consolidated, one point)	1,500
4	Consolidation Test (7 loads):(ASTM D2435-96)	
	Lever Arm	3,000
5	Permeability Test	
	Sand-Constant Head	1,500
	Clay-Pressurized with saturation	3,000
6	Compaction Test	
	Standard Compaction:(ASTM D698)	1,000

	Modified Compaction:(ASTM D1557)	1,300
7	CBR	
	CBR,soaked (4 days), 3 points+Standard compaction test	1,700
	CBR,soaked (4 days), 3 points+Modified compaction test	2,000
8	Field Density Test-Sand Cone	1,000/3จุด
	มากกว่า 3 จุด จุดละ 300 บาท	
2. Aggregate Testing		Unit cost (Baht)
1	Los Angeles Abrasion Test:(ASTM C131, C535)	1,300
2	Sodium Sulphate Soundness (or Magnesium Sulphate):(ASTM C88)	3,500
3	Organic Impurity:(ASTM C40-92)	1,000
4	Alkali Aggregate Reaction Test	
	-Chemical method ASTM - C 289	6,000
	-Normal method ASTM - C 227, mortar bar (6months)	12,000
5	Unit Weight & Voids (AASHTO T19, ASTM C29)	600
6	Specific Gravity & Absorption, coarse aggregate (C 127)	1,000
7	Specific Gravity & Absorption, fine aggregate (C 128)	1,000
3. Dimesion Stone (Excluding sample preparation)		Unit cost (Baht)
1	Compressive Strength (ASTM C170, 5 samples) excluding preparation	2,000
2	Flexural Strength (ASTM C99) excluding preparation	2,500
3	Absorption and Bulk Specific Gravity (ASTM C97, 5 samples)	1,500
4.Rock Machanics Test Types		Unit cost (Baht)
1	Basic Properties	
	Water Content	200
	Total Unit Weight	300
	Dry Unit Weight	300
	Degree of Saturation	300

	Porosity	300
	Specific Gravity	400
	Absorption	400
	Sieving (Aggregate)	500
2	Index Tests	
	Unconfined Swelling Strain Index	1,000
	Confined Swelling Strain Index	2,000
	Slake Durability (2 cycles)	1,000
	Slake Immersion Test	2,000
	Schmidt Hammer (10 Test points)	600
3	Point Load Strength Index (per sample)	
	Axial	500
	Diametrical	500
	Irregular	500
4	Tensile Strength Test (per sample)	
	Brazilian test (ASTM D3967)	600
5	Uniaxial Compressive Strength (per sample)	
	Without Strain Gauge (Strength only)	600
	With Strain Gauge (Strength and Modulus)	2,000
6	Triaxial Compressive Strength (three point)	
	Without Strain Gauge (Strength only)	4,500
	With Strain Gauge (Strength and Modulus)	9,000
7	Direct Shear Strength (three point); ASTM D3080	
	Rock Discontinuity	4,500
	Rock Discontinuity	10,000
8	Sonic Velocity Measurement	1,000