

NHBRA

SOIL LABORATORY SECTION

INTERIM REVISED TEST RATES FOR THE MATERIALS LABORATORY

DATE OF REVISION:) 10th October 2010

S/N	TEST DESCRIPTION	UNIT	RATE	REMARKS
1	Sieve Analysis (wet and dry methods down to BS sieve No. 200)	Ea	20,000.00	
2	Hydrometer analysis	Ea	25,000.00	
3	Ditto 1, 2 but combined	Ea	40,000.00	
4	Atterberg limits	Ea	25,000.00	
5	Linear shrinkage	Ea	15,000.00	
6	Ditto 4, 5 but combined	Ea	40,000.00	
7	Free swell	Ea	15,000.00	
8	Specific gravity	Ea	15,000.00	
9	PH-Value determination	Ea	15,000.00	**
10	Organic content (ignition method)	Ea	20,000.00	**
11	Ditto 10 but hydrogen peroxide method	Ea	30,000.00	**
12	Sulphate content determination	Ea	25,000.00	**
13	Carbonate content determination	Ea	25,000.00	**
14	Cement content determination	Ea	25,000.00	**
15	Moisture content determination	Ea	15,000.00	
16	Permeability test			
	a) constant head	Ea	30,000.00	**
	b) falling head	Ea	35,000.00	**

S/N	TEST DESCRIPTION	UNIT	RATE	
17	Bulk density of undisturbed sample	Ea	20,000.00	

18	Field density	Ea	40,000.00	
19	Laboratory compaction test			
	a) Standard proctor(mould diameter100mmd)	Ea	50,000.00	
	b) Modified AASHO (mould diameter100 mm d)	Ea	55,000.00	
20	CBR penetration (static method)			
	a) unsoaked	Ea	30,000.00	
	b) 1 day soak	Ea	40,000.00	
	c) 4 days soak (Three points)	Ea	120,000.00	
21	Ditto 20 but Dynamic method			
	a) unsoaked	Ea	25,000.00	
	b) 1 day soak	Ea	30,000.00	
	c) 4 days soak (Three point)	Ea	150,000.00	
22	CBR for stabilized materials 3 days curing and 4 days soak	Ea	50,000.00	
23	One Dimensional consolidation (oedometer test)	Ea	30,000.00	
24	Direct shear test	Ea	40,000.00	
25	Trial shear test			
	a) Total stress method	Ea	50,000.00	
	b) Un-drained and consolidated (cuo) with pore water (Uo) measurements	Ea	50,000.00	
	c) Drained and consolidated (effective stress method)	Ea	60,000.00	
26	Unconfined compression test			
	a) 38.1 mm dia. Sample	Ea	40,000.00	
	b) 101.6mm dia. Sample	Ea	30,000.00	
27	Wetting and drying complete test (12 cycles)	Ea	60,000.00	**

S/N	TEST DESCRIPTION <u>AGGREGATES</u>	UNIT	RATE	
1	Sample preparation	Ea	25,000.00	

	Sieve analysis down to BS sieve size No. 200	Ea	30,000.00	
2	Clay, silt, fine dust content	Ea	30,000.00	
3	Water absorption for aggregates	Ea	20,000.00	
	Moisture content	Ea	25,000.00	
4	Organic impurities for sand	Ea	40,000.00	
5	Alkali-aggregate reaction	Ea	100,000.00	
	Chloride content	Ea	100,000.00	
	Sulphate content	Ea	100,000.00	
	Voids	Ea	50,000.00	
	Loss in ignition	Ea	80,000.00	
6	Aggregate soundness by sodium sulphate of magnesium, 5 cycles	Ea	150,000.00	
7	Bulk density	Ea	30,000.00	
8	Elongation index	Ea	30,000.00	
9	Flakiness index	Ea	30,000.00	
10	Aggregate crushing value (ACV)	Ea	40,000.00	
11	Aggregate impact value (AIV)	Ea	40,000.00	
12	Los angles abrasion test (LAAT)	Ea	45,000.00	
13	Crushing of rock cores	Ea	-----	
14	Preparation of rock samples	Ea	-----	
15	Identification of rock and aggregates	Ea	30,000.00	**
16	Ten percent (10) fines	Ea	40,000.00	
17	Specific gravity	Ea	30,000.00	
	<u>CONCRETE, BLOCKS AND BRICKS</u>			
CO	Crushing cubes n.e 15. cm	Ea	5,000.00	
CO	Crushing brick	Ea	5,000.00	
CO	Crushing blocks	Ea	5,000.00	
CO	Crushing mortar cubes n.e 75 mm size	Ea	5,000.00	
CO	Concrete mix design	Ea	600,000.00	

S/N	TEST DESCRIPTION	UNIT	RATE	
6	Casting of cubes (3 in , a set)	Ea	25,000.00	
7	Slump test	Ea	10,000.00	
	Air pore contents	Ea	10,000.00	
	Compaction	Ea	10,000.00	
8	Water absorption (blocks bricks)	Ea	10,000.00	
9	Tensile strength of cement mortar	Ea	25,000.00	**
10	Initial setting time of cement paste	Ea	10,000.00	
11	Final setting time of cement paste	Ea	10,000.00	
12	Ditto 10 and 11 but combined test	Ea	15,000.00	
13	Schmidt hammer test of concrete (1 spot- 15blows)	Ea	25,000.00	
14	Flexural strength (bricks blocks)	Ea	15,000.00	
	TAR AND BITUMEN			
1	Penetration test	Ea	35,000.00	
2	Distillation test	Ea	50,000.00	**
3	Softening point	Ea	65,000.00	**
4	Flash point	Ea	60,000.00	**
5	Viscosity	Ea	70,000.00	**
6	Ductility	Ea	50,000.00	**
7	Bitumen extraction	Ea	45,000.00	**
8	Asphalt concrete mix design and trial mix (complete test)	Ea	850,000.00	**
9	Marshal stability test crushing (set of 3 briquettes)	Ea	55,000.00	**
10	Coating and stripping test	Ea	30,000.00	**
11	Coating and stripping with adhesion agent	Ea	30,000.00	**

S/N	TEST DESCRIPTION	UNIT	RATE
	<u>SITE INVESTIGATION</u>		
1	Site reconnaissance and preliminary studies excluding transport	Lumpsum minimum	3,000,000.00
2	Mobilization and demobilization	Ea	1,000,000.00
3	Set up and dismantle rig at each borehole	Ea	40,000.00
4	Transport of rig from borehole to borehole		
	a) distance n.e 100 m	Ea	40,000.00
	b) exceeding 100 m but n.e 1 km	Ea	350,000.00
5	Ditto SI/4 but distance exc. 1 km	Ditto item SI/1 and SI/2	
6	Boring through soil strata		
	a) between ground level and 10 m	M	60,500.00
	b) between 10 m and 15 m	M	70,000.00
	c) exceeding 15m but n.e 30 m	M	80,000.00
	d) Exceeding 30 m but n.e 50	M	150,000.00
7	Ditto 6 but for S.P.T 0 – 10 m		440,000.00
	10 – 15 m	Ea	60,000.00
	15 – 30 m	Ea	80,000.00
8	Ditto 6 but for taking undisturbed samples	Ea	50,000.00
9	Ditto SI/6 but for taking disturbed samples	Ea	20,000.00
10	Ground water sampling	Ea	30,000.00
11	Filling boreholes with lean concrete	M	45,000.00
12	Continuous cone penetration		
	a) n.e 5.0 m depth	M	35,000.00
	b) exc. 5m but n.e 10m depth	M	50,000.00
13	Pitting and taking undisturbed samples		
	a) n.e 2.0 m deep	M	35,000.00
	b) exc. 2.0 m but n.e 3.0	M	70,000.00

14	Pitting and taking disturbed samples			
	a) n e 2.0m deep	M	35,000.00	
	Exc 2.0 m but n.e 5.0	M	70,000.00	
S/N	TEST DESCRIPTION	UNIT	RATE	
15	Plate bearing test			
	a) Truck method	Ea	560,000.00	**
	b) Ballast loading	Ea	3,300,000.00	**
16	Insitu CBR			**
	a) Truck method	Ea	30,500.00	**
	b)Cone penetration method	Ea	15,000.00	
17	Vane shear test	Ea	20,000.00	**
18	Penetration test by pocket penetrometer	Ea	10,500.00	**
19	Drilling through rock and hard soils and collection of undisturbed sample at levels			**
	a) depth 0 - 10m	M	350,00.00	**
	b) depth 10 – 20 m	M	350,000.00	**
	c) depth 20 – 30 m	M	550,000.00	**
20	Concrete core sampling	Ea	30,000.00	**
21	Full scale concrete footing test	Ea	400,000.00	**
22	Dimensioning of an existing structure	Ea	It depends	
23	Site investigation using specific equipment	Ea	It depends	
24	Sampling of building materials			
	a) rock and aggregates sampling	Ea	20,000.00	**
	b) gravel sampling	Ea	20,000.00	
	c) sand sampling	Ea	20,000.00	
	d) miscellaneous sampling	Ea	20,000.00	
25	Installation of ground water observation tubes	Ea	55,000.00	**
26	Infiltration of test in boreholes to determine the permeability of soil	Ea	600,000.00	**
27	Provision of casing (100 mm or 150 mm dia)			**
	a) 0m – 10m	M	15,000.00	**
	b)10m – 15 m	M	30,000.00	**
28	Field infiltration test for soils at shallow depths			**
	a) 0 - 50 cm depth	Ea	25,000.00	**
	b) 50 - 200 cm depth	Ea	50,000.00	**
29	Hourly rates for stoppage caused by client			
	a) Drilling rig and equipment	Hr	30.000.00	
	b) specialist engineer	Hr	15,000.00	
	c) Technician	Hr	10,000.00	
	d) Operator/Driller	Hr	8,000.00	

S/N	TEST DESCRIPTION	UNIT	RATE	
	<u>CHEMICAL ANALYSIS</u>			
1	Sample preparation	Ea	55,000.00	**
2	Insoluble residue	Ea	20,000.00	**
3	Mn (colourimetric method)	Ea	20,000.00	**
4	Alkalis (Na ₂ k ₂ o ₀ method)	Ea	30,000.00	**
5	Free lime (double determination method)	Ea	20,000.00	**
6	Nephelometric	Ea	20,000.00	**
7	Chloride (Cl) content	Ea	120,000.00	**
8	Sulphur content in fuel oil	Ea	30,000.00	**
9	Calorific value of coal or oil-double determination method	Ea	45,000.00	**
10	Double Carbonate Titrate titration (TLO ₃)	Ea	30,000.00	**
11	Carbonate titration (MgCo ₃ + CaCo ₃)	Ea	25,000.00	**
12	Extraction of stabilized sample			**
	a) Lime stabilized sample	Ea	45,000.00	**
	b) cement stabilized sample	Ea	90,000.00	**
	DEFLECTION BEAM TEST			**
	Establishing a test point	Ea	10,000.00	**
	Shifting and setting a beam at test point	Ea	9,000.00	**
	Deflection testing	Ea	15,000.00	**
	Truck charge for deflection per day	Ea	380,000.00	**
	Dynamic Cone Penetration Test up to a depth of 0.8m	Ea	25,000.00	**
	Roughness Measurement by a Merlin meter 100m single pass	Ea	35,000.00	**
	Cracks measurement by square frame (1m * 1m)	Ea	18,000.00	**

S/N	TEST DESCRIPTION	UNIT	RATE	
	Rut depths	Ea	10,000.00	**
	Measurement of pavement Temperature	Ea	15,000.00	**
	Visual inspection taking records of visible deterioration signs – 100m single pass per lane	Ea	10,000.00	**
	Data compilation	Km	550,000.00	**
	<u>CORE SAMPLING AC PAVEMENT</u>			**
1	Setting machine at point	Ea	20,000.00	**
2	Core cutting			**
	a) by 4 in. diameter cutter			**
	- up to 10 cm depth	Ea	45,000.00	
	- up to 20 cm depth	Ea	80,000.00	
	- 20 cm to 30cm depth	Ea	95,000.00	
	- 30 cm to 45cm depth	Ea	135,000.00	
	b) by 6in diameter cutter			
	- up to 10 cm depth	Ea	70,000.00	
	- up to 20 cm depth	Ea	95,000.00	
	- 20 cm to 30 cm depth	Ea	135,000.00	
	- 30 cm to 45cm depth	Ea	155,000.00	
3	Shifting core cutting machine from point to point	Ea	65,000.00	
4	Dismantling the machine after work	Ea	55,000.00	
	<u>Consultancy services</u>			
	Senior Engineer	Hr	30,000.00	
	Engineers	Hr	25,000.00	
	Senior Technicians	Hr	15,000.00	
	Technicians	Hr	10,000.00	
	Preparation of Report	minimum	250,000.00	