

ANNEXURE-I

BILL OF QUANTITY-CUM-PRICE SCHEDULE

Name of Project : 220kV SUBSTATION AT HAZIRA.
Name of Work : CIVIL WORKS OF YARD .

S.No.	Description of Item	Quantity	Unit	Unit Rate(Rs)	Amount(Rs)
1	Earthwork in excavation over areas (exceeding 30cm in depth 1.5m in width as well as 10sqm on plan) including dewatering as necessary of rain water/subsoil seepage water and disposal of excavated earth upto 100m and lift upto 4.5m, disposed earth to be levelled and neatly dressed.				
(a)	All kinds of soil.	8000	cum	91.50	732000.00
2	Earthwork in excavation in foundation trenches or drains (not exceeding 1.5m in width as well as 10sqm on plan) including dewatering as necessary of rain water/subsoil seepage water and dressing of sides and ramming of bottoms, lift upto 4.5m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 100m.				
(a)	All kinds of soil.	2500	cum	93.55	233875.00
3(a)	Filling available excavated earth (including rock) in trenches, plinth, sides of foundations, etc., in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead upto 100m and lift upto 4.5m.	2000	cum	30.25	60500.00
(b)	Providing and filling good earth (borrowed from identified place) in trenches, plinth, sides of foundations, etc., in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead upto 100m and lift upto 4.5m.	4500	cum	100.00	450000.00

4	Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth upto 4.5 m including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20cm in depth including consolidating each deposited layer by ramming, watering etc. and disposing of surplus excavated soil as directed within a lead of 100m.				
(a)	All kinds of soil				
4.1	Pipes, cables etc, not exceeding 80mm dia.	20	cum	58.50	1170.00
4.2	Pipes, cables etc. exceeding 80mm dia. but not exceeding 300 mm dia.	20	cum	95.55	1911.00
4.3	Pipes, cables etc. exceeding 300mm dia but not exceeding 600mm	20	cum	149.15	2983.00
5	Carriage & disposal of surplus excavated earth/rock beyond initial lead by mechanical means not necessarily all the times on pucca roads, including loading, unloading, dressing of excavated material, etc., complete as per specifications -.				
(a)	Lead upto 1 km.	4000	cum	34.77	139080.00
(b)	Lead upto 3 km.	500	cum	43.96	21980.00
(c)	Lead upto 5 km.	500	cum	52.61	26305.00
6	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work upto plinth level.				
(a)	1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size)	10	cum	1843.00	18430.00
(b)	1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 40mm nominal size)	50	cum	1549.15	77457.50
(c)	1:4:8 (1 cement : 4 coarse sand : 8 graded stone aggregate 40mm nominal size)	350	cum	1404.70	491645.00
7	Extra for providing and mixing water proofing material 'Impermo' or equivalent in cement concrete work in the proportion recommended by the manufacturer.	5000	kg	19.25	96250.00

8	Providing and laying in position machine batched, machine mixed and machine vibrated design mix cement concrete of specified grade for RCC structural elements excluding the cost of centering, shuttering, finishing and reinforcement including admixtures in recommended proportions (as per IS 9103) to accelerate, retard setting of concrete, improve workability without impairing strength and durability. - M25 grade				
(a)	All works (rafts, columns,walls & plinth beams) upto plinth level.	2000	cum	2368.05	4736100.00
9	Centering and shuttering including strutting, propping, etc., and removal of form for:				
(a)	Foundations, footings, bases of columns, etc., for mass concrete.	1100	sqm	61.10	67210.00
(b)	Columns, Pillars, Piers, Posts and Struts .	5000	sqm	135.80	679000.00
(c)	RCC walls at all levels (any thickness).	5000	sqm	106.40	532000.00
(d)	Suspended floors at all levels.	50	sqm	111.20	5560.00
10	Steel reinforcement -HCR TMT.				
(a)	Including supply and bending, binding (i/c cost of binding wire), placing in position, etc., all labour & material, complete.	10000	kg	21.85	218500.00
(b)	Excluding supply but including bending, binding (i/c cost of binding wire), placing in position, etc., all labour & material, complete. (See Note No:2)	300000	kg	3.00	900000.00
11	Structural steelwork welded in built up sections like edge protection angles and insert plates with lugs & framed work including providing, cutting, hoisting, fixing in position/ embedding in concrete and applying a priming coat of approved steel primer all complete.	18000	kg	24.30	437400.00
12	Steelwork welded in built up sections/framed work including providing ,cutting, hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc., as required.				
(a)	In gratings, frames, gates and similar works.	200	kg	29.15	5830.00
13	Painting with synthetic enamel paint of approved brand and manufacture to give an even shade:				
	Two or more coats on new work.	100	sqm	24.25	2425.00

14	Finishing walls with water proofing cement paint " Snowcem-Plus" of M/s Snowcem India Ltd. or equivalent of required shade :				
	New work : Two or more coat.	2000	sqm	23.10	46200.00
15	12 mm cement plaster of mix:				
	1:6 (1 cement :6 coarse sand)	350	sqm	46.60	16310.00
16	15mm cement plaster on rough side of walls.				
	1:6 (1 cement :6 coarse sand)	350	sqm	54.15	18952.50
17	Providing & fixing in position precast cement concrete trench covers or perforated covers wherever necessary at various elevations in all kinds of work including moulding, formwork, mixing, laying out, compacting and curing, storing, transportation, erection without damage, setting in position with cement and sand mortar, grouting etc all as per specs, drawings and directions of Engr-in-Charge but excluding the cost of reinforcement, inserts, edge angles, etc.				
	Grade of concrete shall be M25	100	cum	3500.00	350000.00
18	Providing and fixing (all dia & length) foundation bolts in position with help of proper templates including supply of templates ,nuts and washers all complete as per specs, drawings & directions of Engr-in-Charge	18000	kg	40.15	722700.00
19	Extra over Item above for providing galvanised bolts (Mass of zinc coating = 610gms/sqm), nuts & washer .	18000	kg	5.00	90000.00
20	Fixing (all dia & length) foundation bolts in position with help of proper templates(to be supplied by contractor) including nuts and washers all complete as per specs, drawings & directions of Engr-in-Charge.Bolts to be provided by BHEL free of cost.	2000	kg	3.00	6000.00
21	Preparation of subgrade by excavating earth to an average of 22.5cm depth, dressing to camber and consolidating with road roller including making good the undulations etc., and disposal of surplus earth lead upto 50m.	1000	sqm	21.50	21500.00

22	Consolidation of subgrade with power road roller of 8 to 12 tonne capacity including making good the undulations etc. with earth or quarry spoils etc. and rerolling the subgrade.	1000	sqm	0.65	650.00
23	Extra for compaction of earthwork in embankment under optimum moisture conditions to give at least 95% of the maximum dry density (Proctor density)	1000	sqm	2.90	2900.00
24	Providing and laying compacted 150mm thick layer of moorum shoulder on both sides of road as per direction of Engineer-in -Charge.	375	Sqm	75.00	28125.00
25	Proving and laying factory made anti skid precast interlocking cement paver blocks on the shoulder of the road as per direction of Engineer-in-Charge all inclusive. (The thickness of paver block shall be 50mm).	375	Sqm	100.00	37500.00
26	Providing and Laying WBM with specified size of stone aggregates, screening and moorum/ blinding materials including screening, sorting, spreading to template and consolidation with power road roller of 8 to 10 tonne capacity etc., complete. (Payment will be made for compacted layers only).				
(a)	Subbase with stone aggregate 90mm to 45mm including stone screening 13.2mm size and moorum/blinding material.	200	cum	689.91	137982.00
(b)	Base course with stone aggregate 63mm to 45mm including stone screening 13.2mm size and moorum/blinding material.	75	cum	565.84	42438.00
(c)	Base course with stone aggregate 53mm to 22.4 mm including stone screening 11.2mm size and moorum/blinding material.	75	cum	717.13	53784.75
27	Providing and laying 5 cm thick premix carpet surfacing with 3 cum of stone chippings 10mm nominal size per 100sqm and bitumen emulsion (Min. 65% bitumen content) of approved quality using 96 kg per cum of chippings including a tack coat of 1 kg bitumen emulsion per sqm of road surface including consolidation with road roller of 6 to 9 tonne capacity etc., complete.	1000	sqm	119.20	119200.00

28	Providing and fixing at or near ground level or alongsides of road etc. precast cement concrete in kerb stone, edgings etc. as per approved pattern and setting in position with cement mortar 1 : 3 (1 Cement : 3 coarse sand) including the cost of required centring, shuttering and finishing smooth with 6mm thick cement plaster 1:3(1 cement:3 fine sand) on exposed surfaces complete.				
	1:2:4 (1 Cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size)	60	cum	2391.00	143460.00
29	Providing and laying non-pressure NP2 class (light duty) RCC pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement: 2 fine sand) including testing of joints etc., complete.				
(a)	100mm dia. RCC pipe	10	RM	134.90	1349.00
(b)	150mm dia. RCC pipe	10	RM	154.75	1547.50
(c)	250mm dia. RCC pipe	50	RM	191.70	9585.00
(d)	300mm dia. RCC pipe	50	RM	259.45	12972.50
(e)	450mm dia. RCC pipe	10	RM	379.05	3790.50
30	Providing and laying non-pressure NP3 class (light duty) RCC pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement: 2 fine sand) including testing of joints etc., complete.				
(a)	250mm dia. RCC pipe	20	RM	200.00	4000.00
(b)	300mm dia. RCC pipe	20	RM	300.00	6000.00
(c)	450mm dia. RCC pipe	20	RM	425.00	8500.00
31	Providing and placing in position suitable PVC water stops conforming to IS 12200 of Deep-Jyoti or equivalent for construction/expansion joints between two RCC members and fixed to the reinforcement with binding wire before pouring concrete etc. complete.				
	Serrated with central bulb(225mm wide,8-11mm thick)	100	meter	368.90	36890.00

32	Providing and laying stone aggregate in switch yard areas in two layers of 75 mm each using 40 mm aggregates size in top layer and 20mm size aggregate in bottom layer .Before laying the stone aggregates , the yard surface shall be treated with antiweed treatment all complete as per Customer's specification. (The rate shall be inclusive of all materials ,labour,loading,unloading and surface preparation etc. required for aggregate laying and antiweed treatment)	15000	sqm	95.00	1425000.00
33	Providing and fixing PVC coated GI chain link fencing as per Customer's specification clause 3.1 of SECTION D4.5 of spec no. TCE.49156A-H-500-001(also including clause 14.7) including all allied activities required all complete .(Rate should include supply of all materials and labour etc. for execution of all works including toe wall construction and providing removal type of fencing wherever required .Steel gate and plaster of toe wall is not included in this item.)	570	meter	1500.00	855000.00
34	Grouting of block outs, pockets, foundations, bolts holes and underside of base plates with ready mixed grout or grout consisting of 2 parts by weight of sand, 1 part by weight of cement including approved plasticizer, non-shrink admixture, in the required proportion as recommended by manufacturer/Engineer, including placing, curing, cleaning, surface preparation, testing, etc. complete with labour, materials, equipment, handling, testing, etc. all complete as per specifications, drawings and instructions of the Engineer.	20	cum	10000.00	200000.00
35	Providing and laying compacted layer(at least 500 mm) of rubble cum sand under the foundations as per direction of Engineer in Charge.	1250	cum	350.00	437500.00
36	Providing and applying two layers of residual petroleum bitumen of penetration 85/25 of approved quality using 1.7 kg per sqm on the side faces of foundations after cleaning the surface with brushes and finally with a piece of cloth lightly soaked in kerosene oil.(For all lifts and leads).	6000	sqm	29.25	175500.00

37	Boring, providing and installing cast-in-situ reinforced cement concrete under reamed piles pile of specified diameter and length below pile cap in M25 in cement concrete ,to carry safe working load not less than specified,excluding the cost of steel reinforcement but including the cost of boring with casing and/or bentonite solution and the length of the pile to be embeded in the pile cap.(Length of pile for payment shall be measured upto bottom of pile cap).				
	450 mm dia pile	5500	meter	685.75	3771625.00
38	Vertical load testing of piles in accordance with IS 2911(PartIV) including installation of loading plateform and preparation of pile head or construction of test cap and dismantling of test cap after test etc.complete as per specification & the direction of Engineer in charge.				
	Single pile upto 50 Tonne capacity.				
(a)	Initial test	1	per test	21109.00	21109.00
(b)	Routine test	1	per test	12221.00	12221.00
39	Lateral load testing of single pile in accordance with IS :2911 (Part IV) for determining safe allowable lateral load on pile:				
	Upto 50 tonne capacity pile				
(a)	Initial test	1	per test	21109.00	21109.00
(b)	Routine test	1	per test	12221.00	12221.00
40	Uplift (Tension) test of single pile as per IS: 2911.Upto 50 tonne capacity pile.				
(a)	Initial test	1	per test	21109.00	21109.00
(b)	Routine test	1	per test	12221.00	12221.00

IMPORTANT NOTES:

- 1** Sulphate resisting cement is recommended for concrete of embedded foundations and substructures.For super structures ordinary portland cement may be used.
- 2** Reinforcement steel shall be supplied by BHEL free of cost as per norms indicated in conditions of contract. The rate quoted against Item No: 10(b) above shall be deemed to be inclusive of cost against all activities required including transportation of material from nearest SAIL stockyard.