

ANNEXURE I

BILL OF QUANTITY CUM PRICE SCHEDULE

Name of Project : 400/132/33 KV Substation at Nabinagar
Name of Work : Civil Work of Switchyard (Excluding
gravelling, fencing and building works)

S.No.	Description of Item	Quantity	Unit	Unit Rate(Rs)	Amount(Rs)
1	Earthwork in excavation by mechanical means (Hydraulic excavator)/manual means 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 3.5m, disposed earth to be levelled and neatly dressed.				
(a)	All kinds of soil.	80000	cum	129.35	10348000.00
2	Earthwork in excavation by mechanical means (Hydraulic excavator)/manual means 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 3.5m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 100m.				
(a)	All kinds of soil.	5130	cum	130.80	671004.00
3	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 3.5m.	68000	cum	83.80	5698400.00
4	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.	8000	cum	82.78	662240.00
(b)	Lead upto 3 km.	2000	cum	104.98	209960.00
	Lead upto 5 km.	700	cum	125.92	88144.00

5	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work upto plinth level.				
(a)	M15	20	cum	4514.05	90281.00
(b)	M10	20	cum	3888.20	77764.00
(c)	M7.5	1500	cum	3593.30	5389950.00
6	Extra for providing and mixing water proofing material 'Impermo' or equivalent in cement concrete work in the proportion recommended by the manufacturer.	800	kg	35.35	28280.00
7	Supplying and filling in plinth with Jamuna/local sand under floors including watering, ramming, consolidating and dressing complete.	10	cum	749.30	7493.00
8	Providing, laying and compacting boulder soiling of required thickness in foundations of equipment and under the floors as per direction of Engineer-in-Charge.	50	CUM	1000.00	50000.00
9	Supplying chemical emulsion in sealed containers including delivery as specified.				
	Chloropyriphos emulsifiable concentrate of 20%	400	litre	185.95	74380.00
10	Diluting & injecting chemical emulsion for PRE-CONSTRUCTIONAL ANTI-TERMITE treatment and creating a continuous chemical barrier under and all around the column pits, wall trenches, basement excavation, top surface of plinth filling, junction of wall & floor, along the external perimeter of building, expansion joints, over the top surface of consolidated earth on which apron is to be laid, surroundings of pipes and conduits, etc complete as per specifications (Plinth area of the building at ground floor only shall be measured for payment).	3000	sqm	90.00	270000.00
11	Applying three coat of residual petroleum bitumen of penetration 85/25 grade as per IS:702 of approved quality using 1.7 kg per sqm on the surface of foundation after cleaning the surface with brushes and finally with a piece of cloth lightly soaked in kerosene oil.	1500	sqm	280.00	420000.00
12	Providing and fixing in position 12mm thick bitumen impregnated fibre board conforming to IS: 1838, including the cost of primer, sealing compound in expansion joints.	250	per cm depth per 100 m	167.35	41837.50

13	Providing and laying in position machine batched, machine mixed and machine vibrated design mix cement concrete of specified grade for RCC structural elements including roads 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 reinforced cement concrete by using minimum 330kg of cement per cum of concrete.				
(a)	All works upto plinth level	8100	cum	5242.15	42461415.00
14	Centering and shuttering including strutting, propping, etc., and removal of form for:				
(a)	Foundations, footings, bases of columns, etc., for mass concrete.	3600	sqm	166.90	600840.00
(b)	RCC walls at all levels (any thickness).	23400	sqm	285.15	6672510.00
(c)	Suspended floors, roofs, landings, balconies, chajjas and access platforms at all levels.	10	sqm	311.20	3112.00
(e)	Columns, Pillars, Piers, Posts and Struts .	15250	sqm	365.60	5575400.00
15	Steel reinforcement -Cold twisted bars /TMT- Fe 500 (To be procured from SAIL,TISCO,IISCO, JINDAL STEEL and RINL only)				
(a)	Including supply, straightening, cutting and bending, binding (i/c cost of binding wire), placing in position, etc., all labour & material, complete.	10000	kg	62.25	622500.00
(b)	Excluding supply but including straightening, cutting, bending, binding, (i/c cost of binding wire), placing in position, etc., all labour & material, complete.(See Note 1)	624000	kg	6.50	4056000.00
16	Brickwork with F.P.S.bricks of class designation 75 in foundation and plinth in:				
	Cement mortar 1:6 (1 cement : 6 coarse sand)	5	cum	3316.55	16582.75
17(a)	Structural steelwork welded in built up sections like edge protection angles, pipes, 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.	67000	kg	59.90	4013300.00
17(b)	Extra over item above for providing galvanising of minimum 610gm/sqm	1000	kg	8.00	8000.00

18	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 frames, rails, ISMB, ISMC and similar works.	15000	kg	77.90	1168500.00
19	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	235	cum	5900.00	1386500.00
20	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	40000	kg	86.55	3462000.00
21	Extra over Item above for providing galvanised bolts (Mass of zinc coating = 800gms/sqm), nuts & washer .	40000	kg	10.00	400000.00
22	Fixing (all dia & length) foundation bolts in position with help of proper templates(template to be supplied by contractor) all complete as per specs, drawings & directions of Engr-in-Charge.Bolts to be provided by BHEL free of cost.	5000	kg	10.00	50000.00
23	Preparation and consolidation of sub grade with power road roller of 8 to 12 tonne capacity after excavating earth to an average of 22.5 cm depth,dressing to camber and consolidating with road roller including making good the undulations etc and re-rolling the sub grade and disposal of surplus earth lead upto 50 metres.	11250	sqm	61.25	689062.50
24	Suppling and stacking at site				
(a)	90 mm to 45 mm size stone aggregate	3000	cum	1010.75	3032250.00
(b)	63 mm to 45 mm size stone aggregate	2450	cum	1100.80	2696960.00
(c)	53mm to 22.4 mm	2350	cum	1190.80	2798380.00
(d)	Stone screening 13.2 mm nominal size (type A)	1050	cum	1338.75	1405687.50
(e)	11.2 mm nominal size (Type B)	470	cum	1425.85	670149.50
(f)	moorum	550	cum	624.45	343447.50

25	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.	2250	cum	330.15	742837.50
(b)	Base course with stone aggregate 63mm to 45mm including stone screening 13.2mm size and moorum/blinding material.	1650	cum	330.15	544747.50
©	Base course with stone aggregate 53mm to 22.4 mm including stone screening 11.2mm size and moorum/binding material.	2050	cum	330.15	676807.50
26	Providing and laying Bitumen Penetration Macadam with hard stone aggregate of quality, size and grading as specified, with bitumen of suitable penetration grade including required key aggregate as specified, spreading coarse aggregate with the help of self propelled/ tipper tail mounted aggregate spreader and applying bitumen by a pressure distributor and then spreading key aggregate with the help of aggregate spreader complete including consolidation with road roller of minimum 8 to 10 tonne capacity to achieve specified values of compaction and surface accuracy:				
	For 75mm compacted thickness using coarse aggregate of size 63-41mm graded @ 0.90 cum per 10 sqm key aggregate of size 20.0mm graded @ 0.18 cum per 10sqm. With paving asphalt grade VG-10 @ 68 kg/10sqm	11250	sqm	505.60	5688000.00
27	Providing and laying 2.5 cm thick premix carpet surfacing with 3 cum of stone chippings 10mm nominal size per 100sqm and bitumen emulsion (medium setting min. 65% bitumen content) complying with IS: 8887 using 96 kg per cum of chipping of road surface, including consolidation with road roller etc. complete .	11250	sqm	150.90	1697625.00
28	Providing and laying seal coat of premixed fine aggregate (passing 2.36 mm and retained on 180 micron sieve) with bitumen using 128 kg of bitumen of grade 80/100 bitumen per cum of fine aggregate and 0.60 cum of fine aggregate per 100 sqm of road surface including rolling and finishing with road roller all complete.	11250	sqm	61.30	689625.00

29	Providing and fixing at or near ground level factory made kerb stone of M-25 grade cement concrete in position to the required line, level and curvature, jointed with cement mortar 1 : 3 (1 Cement : 3 coarse sand) including making joints with or without grooves (thickness of joints except at sharp curve shall not to more than 5mm), including making drainage opening wherever required complete tec. as per direction of Engineer-in-charge (length of finished kerb edging shall be measured for payment).	150	cum	5046.80	757020.00
30	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)	250mm dia. RCC pipe	10	RM	342.45	3424.50
(b)	300mm dia. RCC pipe	10	RM	422.90	4229.00
(c)	450mm dia. RCC pipe	5	RM	620.85	3104.25
31	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.				
	250mm dia. RCC pipe	5		360.00	1800.00
	300mm dia. RCC pipe	5		450.00	2250.00
	450mm dia. RCC pipe	5		675.00	3375.00
32	Providing and placing in position suitable PVC water stops conforming to IS 12200 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)	280	meter	459.15	128562.00
33	Grouting of block outs, pockets, foundations, bolts holes and underside of base plates with cement, sand aggregate (of size 6 mm and down) grout M-30 with non-shrink additive and shall be of strength not less than M30 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.	25	cum	8000.00	200000.00

34	Providing and applying coat of water repellant silicate based (transparent) paint including cleaning the surface, diluting with solvent mineral all complete as per direction of Engineer-in-charge.	800	sqm	108.00	86400.00
35	Providing and applying polysulphide based sealant conforming to IS:12118 in expansion joints in concrete including cleaning of joints, raking out groove, application of primer, scaffolding etc. all complete for following size grooves:	200	m	500.00	100000.00
36	Providing and supplying grating of 40mm thickness and opening size 30mmx100mm, with minimum thickness of main bearing bar 3mm including sand blasting, priming, finish painting and galvanising of minimum weight 610gms/Sqm all complete as per customer specification part-II Section-VI, clause 13.04.00 and 9.01.00 (vii)	5000	kg	70.00	350000.00
37	Filling of approved materials i/c cost of materials, labour and equipment for handling, transportation, placing and compacting as required to the required density and to the required elevations as per specification, drawings and directions of Engineer-in-Charge.				
	Broken/crushed/non crushed stone of size 40 to 60mm for placing over transformer grating.	20	cum	1100.80	22016.00
					117962153.50

Note:

- For Item No : 15(b) reinforcement steel shall be supplied by BHEL **free of cost** as per norms indicated in conditions of contract.

The rate quoted against Item No: 15 (b) above shall be deemed to be inclusive of cost against all activities required including transportation of material from (SAIL,TISCO, IISCO, RINL, Jindal Steel or rerollers approved by main producers) stockyard.