

BILL OF QUANTITY-CUM-PRICE SCHEDULE

Name of Project: 220kv switchyard at Durgapur.

Name of Work : Civil works in switchyard.

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 3.5m, disposed earth to be levelled and neatly dressed.				
(a)	All kinds of soil.	28000.00	cum	101.85	2851800.00
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 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.	1600	cum	103.4	165440.00
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.	9700	cum	45.7	443290.00
4	Supplying and filling in plinth/foundations with Jamuna sand under floors of Cable trench, drains etc. including, watering, ramming consolidating and dressing complete	2800	cum	301.5	844200.00
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.	6000	cum	49.42	296520.00
(b)	Lead upto 3 km.	4000	cum	63.32	253280.00
(c)	Lead upto 5 km.	2000	cum	76.48	152960.00
6	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work upto plinth level.				

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(a)	1:2:4 (1 cement : 2coarse sand : 4 graded stone aggregate 20mm nominal size	50.00	cum	3257.45	162872.50
(b)	1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 40mm nominal size	600.00	cum	2713.05	1627830.00
(c)	1:4:8(1 cement : 4 coarse sand : 8 graded stone aggregate 40mm nominal size)	50.00	cum	2449	122450.00
7	Providing and laying damp proof course 40mm thick cement concrete 1:2:4 (1 Cement:2 coarse sand : 4 graded stone aggregate 12.5 mm nominal size) .	20	sqm	144.15	2883.00
8	Extra for providing and mixing water proofing material 'Impermo' or equivalent in cement concrete work in the proportion recommended by the manufacturer.	200	kg	27.45	5490.00
9	Applying coat of residual petroleum bitumen of penetration 80/100 of approved quality using 1.7 kg per sqm on damp proof course after cleaning the surface with brushes and finally with a piece of cloth lightly soaked in kerosene oil.	20	sqm	58.6	1172.00
10	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of centering, shuttering, finishing and reinforcement-All work upto plinth level: M20 grade.	3200	cum	3732	11942400.00
11	Reinforced cement concrete work in walls (any thickness), including attached pilasters, buttresses, columns, beams, slabs, pillars, piers, abutments, posts and struts etc upto floor five level excluding cost of centering, shuttering, finishing and reinforcement:				
	M20 grade	50.00	cum	4092.35	204617.50
12	Centering and shuttering including strutting, propping, etc., and removal of form for:				
(a)	Foundations, footings, bases of columns, etc., for mass concrete.	2300.00	sqm	119.25	274275.00
(b)	Columns, Pillars, Piers, Abutments, Posts and Struts	4500.00	sqm	238.4	1072800.00
(c)	RCC walls at all levels (any thickness).	5400.00	sqm	180.4	974160.00
(d)	Suspended floors, roofs, landings, balconies, chajjas and access platforms at all levels.	200.00	sqm	187.35	37470.00
(e)	Lintels, beams, plinth beams and cantilevers.	200.00	sqm	162.65	32530.00

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13	Steel reinforcement -Cold twisted bars /TMT				
(a)	Including supply and bending, binding (i/c cost of binding wire), placing in position, etc., all labour & material, complete.	315000.00	kg	42.70	13450500.00
14	Brickwork with F.P.S.bricks of class designation 75 in foundation and plinth in:				
	Cement mortar 1:6 (1 cement : 6 coarse sand)	20.00	cum	2121.75	42435.00
15	Brickwork with F.P.S bricks of class designation 75 in superstructure above plinth level upto V level in all shapes and sizes:Cement mortar 1:4 (1 cement : 4 coarse sand)	50.00	cum	2529.05	126452.50
16	20 mm cement plaster on the inside wall :				
	1:6 (1 cement : 6 coarse sand)	200.00	sqm	102.90	20580.00
17	12 mm cement plaster of mix:				
	1:6 (1 cement : 6 coarse sand)	200.00	sqm	72.70	14540.00
18	6mm cement plaster to ceiling of mix.				
	1:3 (1 cement : 3 fine sand)	100.00	sqm	62.15	6215.00
19	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 coats applied @ 3.84 kg/10 sqm)	500.00	sqm	30.80	15400.00
20	Painting with synthetic enamel paint of approved brand and manufacture to give an even shade :				
	Two or more coats on new work	200.00	sqm	33.25	6650.00
21	White washing with lime to give an even shade				
	New work (three or more coats)	100.00	sqm	6.75	675.00
22	Distempering with oil bound washable distemper of approved brand and manufacture to give an even shade				
	New work (two or more coats) over and including priming coat with cement primer.	500.00	sqm	41.55	20775.00
23	3mm thick plaster of paris punning over the plastered surfaces on wall surfaces as directed by engineer-in-charge.	500.00	sqm	47.20	23600.00

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24	Forming groove of uniform size from 12X12mm and upto 25X15mm in plastered surface and joints of ceiling and wall as per approved pattern using wooden battens, nailed to the underlayer including removal of wooden battens, repairs to the edges of plaster panel and finishing the groove complete as per specifications and directions of the Engineer-in-charge.	100	RM	13.30	1330.00
25	Add or deduct plaster drip course /groove in plastered surface or moulding to RCC projections.	50	RM	11.95	597.50
26	Applying priming coat				
(a)	With ready mixed red oxide zinc chromate primer of approved brand and manufacture on steel galvanised iron/ steel works.	100	sqm	12.65	1265.00
(b)	One coat of cement primer of approved brand and manufacture on wall surface.	100	sqm	17.20	1720.00
27	Structural steelwork welded in built up sections like edge protection angles/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.	12000	kg	46.35	556200.00
28	Providing and fixing manually operated suitable two leaved openable M.S switchyard fencing gate including frame, tracks/guides, locking arrangement, fixing the gate in RCC pillar excluding the cost of RCC pillars all complete as per customer's specification 10.09.03	1	No	200000.00	200000.00
29	Providing & fixing in position precast cement concrete trench covers, etc., 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, and of following grade:				
	M20	150.0	cum	4500.00	675000.00

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30	Providing and laying at or near ground level factory made kerb stone of M20 grade cement 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 etc. as per direction of Engineer-in-charge (length of finished kerb edging shall be measured for payment).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.(Precast C.C kerb stone shall be approved by Engineer-in-charge).	55.00	cum	4247.70	233623.50
31	Providing and fixing (all dia & length) foundation bolts in position with help of proper templates including nuts and washers all complete as per specs, drawings & directions of Engr-in-Charge	39000	kg	62.75	2447250.00
32	Extra over Item above for providing galvanised bolts (Mass of zinc coating = 610gms/sqm), nuts & washer	39000	kg	8.00	312000.00
33	Fixing (all dia & length) foundation bolts in position with help of proper templates including nuts and washers all complete as per specs, drawings & directions of Engr-in-Charge.Bolts to be provided by BHEL free of cost.	5000	kg	7.00	35000.00
34	Preparation and consolidation of subgrade with power road roller of 8 to 12 tonne capacity after excavating earth to an average of 22.5cm 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 50m.	5750	sqm	33.90	194925.00
35	Extra for compaction of earthwork in embankment under optimum moisture conditions to give at least 95% of the maximum dry density (Proctor density)	5750	cum	4.50	25875.00

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S.No.	Description of Item	Quantity	Unit	Unit Rate(Rs)	Amount(Rs)
36	Supplying and stacking of graded stone aggregate at site of size range				
(a)	90mm to 45mm	1050	cum	742.30	779415.00
(b)	63mm to 45mm	760	cum	768.45	584022.00
(c)	53mm to 22.4 mm	400	cum	810.55	324220.00
37	Laying WBM with specified stone aggregate stone screening and blinding material including screening, sorting, spreading to template and consolidation with power road roller of 8 to 10 tonne capacity etc., complete (payment for stone aggregate, screenings, kankar, moorum and red bajri etc., to be made separately)				
(a)	Subbase with stone aggregate 90mm to 45mm including stone screening 13.2mm size.	750	cum	192.55	144412.50
(b)	Base course with stone aggregate 63mm to 45mm including stone screening 13.2mm size.	600	cum	192.55	115530.00
(c)	Base course with stone aggregate 53mm to 22.4 mm including stone screening 11.2mm size.	300	cum	192.55	57765.00
38	Supplying and stacking of stone screenings/chippings at site				
(a)	13.2 mm nominal size (Type A)	400	cum	892.25	356900.00
(b)	11.2 mm nominal size (Type B)	100	cum	979.40	97940.00
39	Supplying and stacking of moorum at site.	200	cum	421.85	84370.00
40	2.5 cm 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.	3800	sqm	105.70	401660.00
41	Providing and laying seal coat over prepared surface of road with bitumen heated in bitumen boiler fitted with the spray set spraying using 98kg of bitumen of grade 80/100 and blinding surface with 0.90cum of stone aggregate of 6.7mm size (passing 11.2mm sieve and retained on 2.36mm sieve) per 100sqm of road surface including rolling and finishing with power road roller all complete.	3800	sqm	50.00	190000.00

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S.No.	Description of Item	Quantity	Unit	Unit Rate(Rs)	Amount(Rs)
42	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	173.95	1739.50
(b)	150mm dia. RCC pipe	10	RM	202.85	2028.50
(c)	250mm dia. RCC pipe	10	RM	258.20	2582.00
(d)	300mm dia. RCC pipe	10	RM	338.75	3387.50
(e)	450mm dia. RCC pipe	10	RM	499.55	4995.50
43	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	10	RM	300.00	3000.00
(b)	300mm dia. RCC pipe	10	RM	390.00	3900.00
(c)	450mm dia. RCC pipe	10	RM	575.00	5750.00
44	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)	1500	meter	386.75	580125.00
45	Providing and fixing on wall face unplasticised - Rigid PVC rain water pipes conforming to IS : 13592 Type A including jointing with seal ring conforming to IS : 5382 leaving 10 mm gap for thermal expansion.: Single socketed pipes .				
(a)	75mm diameter	20	meter	95.00	1900.00
(b)	110 mm diameter.	20	meter	163.40	3268.00
46	Supplying and fixing rolling shutters of approved make, made of required size MS laths interlocked together through their entire length and jointed together at the end by end locks mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with mechanical arrangement for operation complete including the cost of providing and fixing necessary 27.5cm long wire springs grade no. 2 and MS top cover of required thickness for rolling shutters.				

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S.No.	Description of Item	Quantity	Unit	Unit Rate(Rs)	Amount(Rs)
	80X1.20 mm MS laths with 1.2mm thick top cover.	10	sqm	1208.45	12084.50
47	Providing and fixing ball bearing for rolling shutters.	5	each	356.50	1782.50
48	Providing and fixing anodised aluminium work for doors, windows, ventilators and partitions with extruded builtup standard tubular/appropriate Z section and other sections of approved make conforming to IS: 733 and IS:1285, anodised transparent or dyed to required shade according to IS: 1868. (Minimum anodic coating of grade AC 15), fixed with rawl plugs and screws or with fixing clips or with expansion fasteners including necessary filling up of gaps at junctions at top , bottom and sides with required PVC/neoprene felt, etc. Aluminium sections shall be smooth , rust free, straight, mitred and jointed mechanically wherever required including cleat angle, aluminium snap beading for glazing/panelling, CP brass/stainless steel screws, all complete as per architectural drawings and direction of Engineer-in-charge. (Glazing and panelling to be paid for separately).				
(a)	For fixed portion	300	kg	290.45	87135.00
(b)	For shutters of doors, windows & ventilators including providing and fixing hinges/pivots and fittings wherever required including the cost of PVC/neoprene gasket required .	150	kg	310.45	46567.50
49	Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions, etc., with PVC/neoprene gasket, etc., complete as per the architectural drawings and directions of Engineer-in-charge. (Cost of aluminium snap beading shall be paid in basic item).				
	With float glass panes of 5.5mm thickness.	25	sqm	673.55	16838.75

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S.No.	Description of Item	Quantity	Unit	Unit Rate(Rs)	Amount(Rs)
50	Providing and fixing pressed steel door frames confirming to IS:4351 manufactured from commercial mild steel sheet of 1.25mm thickness including hinges, jamb, lock jamb, bead and if required angle threshold of mild steel angle of section 50X25mm, or base ties of 1.25mm pressed mild steel welded or rigidly fixed together by mechanical means, adjustable lugs with spit end tail to each jamb including steel butt hinges 2.5mm thick with mortar guards, lock strike plate and shock absorbers as specified and applying a coat of approved steel primer after pre-treatment of the surface as directed by Engineer-in-Charge:				
	Profile C	20	RM	271.65	5433.00
51	Providing and fixing ISI marked flush door shutters decorative type ,core of block board construction with frame of Ist class hard wood and well matched teak 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters.				
	35 mm thick including ISI marked Stainless Steel butt hinges with nessary screws.	20	sqm	1473.50	29470.00
52	52mm thick CC flooring with concrete hardner topping under layer 40mm thick CC 1:2:4 (1cement:2 coarse sand: 4 stone aggregate 20mm nominal size) and top layer 12 mm thick Hardcrete cement hardner consisting of mix 1:2 (1 cement hardner mix: 2 stone aggregate 6mm nominal size) by volume with which hardening compound of approved quality is mixed @ 2 liter per 50 Kg of cement including cement slurry, but excluding the cost of nosing of steps etc., complete.	100	sqm	286.55	28655.00
53	Cement plaster skirting (up to 30cm height) with cement mortar 1:3 (1 cement: 3 coarse sand) finished with a floating coat of neat cement.				
	18mm thick	20	sqm	168.50	3370.00
54	Providing and laying water proofing as per customer specification 10.14.09 including laying screed concrete,epoxy painting ,laying 25mm thick pre cast roof tiles of cement grade with stone chips with lime surkhi mortar etc. all complete.	100	sqm	600.00	60000.00

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55	Making khurras 45X45cm with average minimum thickness of 5cm cement concrete 1:2:4 (1 cement: 2 coarse sand: 4 graded stone aggregate of 20mm nominal size) over PVC sheet 1mX1mX400micron, finished with 12mm cement plaster 1:3 (1 cement: 3 coarse sand) and a coat of neat cement rounding the edges and making and finishing the outlet complete.	4	each	108.00	432.00
56	Providing and laying 100mm stone aggregate in switch yard areas in two layers including compaction and antiweed treatment all complete as per Customer's specification clause 10.08.03. (The rate shall be inclusive of all materials, labour, loading, unloading and surface preparation etc. required for aggregate laying and antiweed treatment)	22550	sqm	150.00	3382500.00
57	Providing and fixing 2.5.0meter high GI chain link fencing including all allied activities, all complete as per approved drawing and direction of Engineer -in -charge. (Rates shall be inclusive of all items like angles, pipes, chainlink fence, toe wall, PCC, etc all complete as per approved drawing) and as per customer's specification clause 10.09.02.	750	RM	2500.00	1875000.00
58	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.	4	cum	10000.00	40000.00
59	Providing and laying M10 cement concrete of required thickness in switchyard after antiweed treatment and before gravelling all complete as direction of Engineer-in charge.	2200	cum	2713.05	5968710.00

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60	Carriage of flyash from DPL's Ash pond and filling in the switchyard area/foundations including all leads & lifts loading, unloading, watering, compaction etc. all complete as per direction of Engineer in charge.	18500	cum	60.00	1110000.00
61	Filling of imported good earth in switchyard, including supplying, carriage, compaction all complete as per direction of Engineer-in-charge	9500	cum	100.00	950000.00
62	Providing ,laying and compacting stone base under the floors of required thicknessas per direction of Engineer-in-Charge.	30	cum	810.55	24316.50
63	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and sapling of girth up to 30cm measured at a height of 1m above ground level and removal of rubbish up to a distance of 50m outside the pheriphery of the area cleared.	28336	sqm	2.64	74807.04
64	Felling trees of all girth (measured at a heighth of 1m above ground level) including cutting of trunks and branches removing the roots and stacking of serviceable material and disposal of unserviceable material.				
a)	Beyond 30cm girth up to and including 60cm girth	45	each	81.70	3676.50
b)	Beyond 60cm girth up to and including 120cm girth	5	each	359.8	1799.00
	TOTAL AMOUNT				57352536.29