

Annexure-I**BILL OF QUANTITY****Name of Project****: 400KV SUB-STATION EXTN AT KALIVANTHAPATTU****Name of Work****: CIVIL WORKS FOR SWITCHYARD AND PANEL ROOM**

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.	6200	cum	129.35	801970.00
(b)	Ordinary rock	280	cum	197.75	55370.00
(c)	Hard rock (blasting prohibited)	50	cum	490.10	24505.00
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.		7700		
(a)	All kinds of soil.	1500	cum	130.80	196200.00
(b)	Ordinary rock	100	cum	212.00	21200.00
(c)	Hard rock (blasting prohibited)	30	cum	491.95	14758.50
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.	4200	cum	83.80	351960.00
4	Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth upto 3.0 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.	10	meter	101.40	1014.00
4.2	Pipes, cables etc. exceeding 80mm dia. but not exceeding 300 mm dia.	10	meter	165.60	1656.00
4.3	Pipes, cables etc. exceeding 300mm dia but not exceeding 600mm	10	meter	258.55	2585.50
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.	2125	cum	82.78	175907.50
(b)	Lead upto 3 km.	260	cum	104.98	27294.80
(c)	Lead upto 5 km.	130	cum	125.92	16369.60
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 : 2coarse sand : 4 graded stone aggregate 20mm nominal size)	65	cum	4514.05	293413.25
(b)	1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 40mm nominal size)	10	cum	3888.20	38882.00
(c)	1:4:8 (1 cement : 4 coarse sand : 8 graded stone aggregate 40mm nominal size)	360	cum	3593.30	1293588.00

Name of Project

: 400KV SUB-STATION EXTN AT KALIVANTHAPATTU

Name of Work

: CIVIL WORKS FOR SWITCHYARD AND PANEL ROOM

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7	Providing & laying in position plain cement concrete (PCC) of 1:5:10 (1 cement : 5 coarse sand : 10 brick aggregate) with a layer of cement slurry of mix 1:6 (1 cement : 6 Fine Sand) over PCC layer as per Technical Specification.	1050	cum	3357.40	3525270.00
8	Supplying and filling in plinth with Jamuna/local sand under floors including watering, ramming, consolidating and dressing complete.	3	cum	749.30	2247.90
9	Supplying chemical emulsion in sealed containers including delivery as specified.				
	Chloropyriphos emulsifiable concentrate of 20%	5	litre	185.95	929.75
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).	20	sqm	67.50	1350.00
11	Providing and laying damp proof course 50mm thick cement concrete 1:1.5:3 (1 Cement:1.5 coarse sand : 3 graded stone aggregate 12.5 mm nominal size) .	10	sqm	254.70	2547.00
12	Applying a 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.	10	sqm	96.65	966.50
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	1310	cum	5242.15	6867216.50
(b)	All works above plinth level upto floor V level	50	cum	5781.50	289075.00
14	Centering and shuttering including strutting, propping, etc., and removal of form for:				
(a)	Foundations, footings, bases of columns, etc., for mass concrete.	1100	sqm	166.90	183590.00
(b)	RCC walls at all levels (any thickness).	2100	sqm	285.15	598815.00
(c)	Suspended floors, roofs, landings, balconies, chajjas and access platforms at all levels.	90	sqm	311.20	28008.00
(d)	Lintels, beams, plinth beams and cantilevers.	110	sqm	262.25	28847.50
(e)	Columns, Pillars, Piers, Posts and Struts .	1750	sqm	365.60	639800.00
15	Steel reinforcement -Cold twisted bars /TMT- Fe 500 (To be procured from SAIL, TISCO, IISCO and RINL only)				
(a)	Including supply and straightening, cutting, bending, binding, (i/c cost of binding wire), placing in position, etc., all labour & material, complete.	100000	kg	62.25	6225000.00

Name of Project

: 400KV SUB-STATION EXTN AT KALIVANTHAPATTU

Name of Work

: CIVIL WORKS FOR SWITCHYARD AND PANEL ROOM

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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)	85	cum	3316.55	281906.75
17	Brickwork with F.P.S.bricks of class designation 75 in superstructure above plinth level to floor V level in all shapes and sizes in:				
	Cement mortar 1:6 (1 cement : 6 coarse sand)	40	cum	3876.15	155046.00
18	Providing and fixing chromium plated brass 100mm mortice latch and lock with 6 levers and a pair of lever handles with necessary screws etc. complete (best make of approved quality).	4	each	646.50	2586.00
19	Providing and fixing aluminium sliding door bolts anodised (anodic coating not less than grade AC 10 as per IS: 1868) transparent or dyed to required colour or shade with nuts and screws etc., complete.				
	300 X 16mm	8	each	203.80	1630.40
20	Providing and fixing aluminium tower bolts anodised (anodic coating not less than grade AC 10 as per IS: 1868) transparent or dyed to required colour or shade with necessary screws etc., complete.				
	300 X 10mm	8	each	100.40	803.20
	150 X 10mm	8	each	59.00	472.00
21	Providing and fixing aluminium handles anodised (anodic coating not less than grade AC 10 as per IS: 1868) transparent or dyed to required colour or shade with necessary screws etc., complete.				
	125mm	8	each	62.50	500.00
22	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.	13000	kg	59.90	778700.00
23	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 covering of floors/trenches of control room building with chequered plates, stringers, treads, landings, etc., of staircases involving use of chequered plates, wherever required, all complete.	23000	kg	67.20	1545600.00
(b)	In gratings, frames, ladders, stair railings, gates (including pipes), rails, ISMB, ISMC and similar works.	10000	kg	77.90	779000.00
24	Providing and fixing 1st quality ceramic glazed tiles conforming to IS:15622 (thickness to be specified by manufacture) of approved make in all colours (shades as approved by Engineer-in-Charge) in skirting, risers of steps and dados upto ceiling on wall over 12 mm thick bed of Cement mortar 1:3 (1 Cement:3 coarse sand) and jointing with grey cement slurry @3.3 kg/sqm including pointing in white cement mixed with pigment of matching shade complete.	110	sqm	724.25	79667.50

Name of Project

: 400KV SUB-STATION EXTN AT KALIVANTHAPATTU

Name of Work

: CIVIL WORKS FOR SWITCHYARD AND PANEL ROOM

S.No.	Description of Item	Quantity	Unit	Unit Rate(Rs)	Amount (Rs)
25	Providing and laying 1st quality ceramic glazed floor tiles 300X300 mm (thickness to be specified by manufacturer) conforming to IS:15622 of approved make in colours as approved by Engineer in Charge laid on 20mm mm thick bed of cement mortar 1:4 (1 cement : 4 coarse sand) including pointing the joints with white cement mixed with pigment of matching shade complete.	5	sqm	764.55	3822.75
26	Providing and laying polished vitrified floor tiles in different sizes (thickness to be specified by the manufacturer) with water absorption's less than 0.08% and conforming to IS: 15622 of approved make in all colours and shades laid over 20mm thick cement mortar 1:4 (1 Cement:4 coarse sand) including grouting the joints with white cement and matching pigments etc. complete as per direction of Engineer-in charge.				
	Size of tile 60 x 60 cm	20	sqm	1337.10	26742.00
27	Providing and fixing approved quality polished vitrified tiles (thickness to be specified by the manufacturer) of approved make and colours in skirting,risers of steps and dados over 12 mm thick bed of Cement mortar 1:3 (1 Cement:3 coarse sand) and jointing with grey cement slurry @3.3 kg/sqm including pointing in white cement mixed with pigment of matching shade complete.	5	sqm	1075.63	5378.13
28	Providing and fixing on roof Mangalore tile of 20mm nominal thickness and of approved size on 20mm thick 1:4 (1 cement: 4 coarse sand) mortar, all complete as per direction of Engineer-in-Charge.	80	sqm	210	16800.00
29	Providing and fixing in culvert/road crossing/building PVC pipes conforming to IS : 12818 including jointing with seal in complete				
	150mm diameter	50	RM	460.00	23000.00
30	18mm cement plaster on external face of walls in two coats with under layer 12mm thick cement plaster 1:5 (1 cement :5 coarse sand) finished with a top layer of 6mm thick 1:6 cement plaster(1cement : 6 fine sand)	125	sqm	182.90	22862.50
31	12mm cement plaster on even side of the walls in the mix: 1:6 (1cement :6coarse sand)	110	sqm	121.05	13315.50
32	12mm cement plaster finished with a floating coat of neat cement in the mix: 1:4 (1cement :4 fine sand)	475	sqm	153.45	72888.75
33	6mm cement plaster to ceiling of mix 1:3 (1 cement : 3 fine sand)	80	sqm	101.00	8080.00
34	Applying priming coat				
(a)	With ready mixed red oxide zinc chromate primer of approved brand and manufacture on steel galvanised iron/ steel works.	50	sqm	20.70	1035.00
(b)	Applying one coat of cement primer of approved brand and manufacture on wall surface:	100	sqm	27.55	2755.00

Name of Project

: 400KV SUB-STATION EXTN AT KALIVANTHAPATTU

Name of Work

: CIVIL WORKS FOR SWITCHYARD AND PANEL ROOM

S.No.	Description of Item	Quantity	Unit	Unit Rate(Rs)	Amount (Rs)
35	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.(Work to be carried as per relevant IS codes.)	80	sqm	66.70	5336.00
36	Distempering with first quality acrylic washable distemper (ready mixed) of approved manufacturer and of required shade and colour complete as per manufacturer's specification				
	New work (two or more coats)	5	sqm	37.35	186.75
37	Finishing walls with Acrylic exterior flat paint of required shade over an under coat of suitable primer on new cement plaster surface:				
	New work : (Two or more coat).	125	sqm	67.50	8437.50
38	Making plinth protection of 50mm thick cement concrete 1:2:4 (1 cement : 2coarse sand : 4 graded stone aggregate 20mm nominal size) laid over 75mm thick bed of dry brick balast 40mm nominal size well rammed and consolidated and grouted with fine sand including finishing the top smooth.	30.00	sqm	326.93	9807.75
39	Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded builtup standard tubular and other sections of approved make conforming to IS: 733 and IS:1285, fixed with rawl plugs and screws or with fixing clips or with expansion hold 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				
	Powder coated aluminium (minimum thickness of podwer caoting 50 micron)	80	kg	387.60	31008.00
(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 .				
	Powder coated aluminium (minimum thickness of podwer caoting 50 micron)	5	kg	436.35	2181.75
40	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 (weight not less than 13.75kg/sqm)	10	sqm	905.75	9057.50
41	Providing and fixing double action hydraulic floor spring of approved brand and manufacture IS 6315 marked "hardwyn" make (Model 3000) or equivalent for doors including cost of cutting floors as required, embedding in floors and cover plates with brass pivot and single piece M. S. sheet outer box with slide plate etc. complete as per direction of Engineer-in-charge.				
	With Stainless steel cover plate	2	each	1953.10	3906.20

Name of Project

: 400KV SUB-STATION EXTN AT KALIVANTHAPATTU

Name of Work

: CIVIL WORKS FOR SWITCHYARD AND PANEL ROOM

S.No.	Description of Item	Quantity	Unit	Unit Rate(Rs)	Amount (Rs)
42	Providing an fixing chicken wire mesh on wall, floor & ceiling surface all complete as per drawing/specification and direction of Engineer-in charge.	330	sqm	63	20790.00
43	Providing and laying light duty hume pipe (NP3) as per drawing and specification all complete excluding concrete and reinforcement.				
a	250mm dia	20	RM	338.4	6768.00
b	300mm dia	40	RM	469.8	18792.00
c	450mm dia	20	RM	684	13680.00
44	Antiweed treatment in switchyard area including micro leveling, dressing etc as per Technical Specification.	14000	Sqm	15.75	220500.00
45	Supplying and spreading stone in switchyard as per drawing and specification all complete over PCC excluding the cost of PCC.	14000	Sqm	104.5	1463000.00
46	Removal and relaying of gravel including supply of extra matching gravel.	100	Sqm	70	7000.00
47	Supplying and erection of dewatering pumps all complete as per customer's specification.				
(a)	5 HP	1	Nos	16000	16000.00
(b)	0.5 HP	2	Nos	8000	16000.00
48	Supplying & fixing (all dia & length) foundation bolts in position with help of proper templates including nuts, washers and template all complete as per drawings & directions of Engr-in-Charge.	11900	Kg	86.55	1029945.00
49	Extra over Item above for providing galvanised bolts (Mass of zinc coating = 610gms/sqm), nuts & washer .	11900	kg	4.50	53550.00
50	Fixing (all dia & length) foundation bolts in position with help of proper templates including nuts, washers and template (to be supplied by contractor) all complete as per drawings & directions of Engr-in-Charge.	600	Kg	5.85	3510.00
51	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.	155	sqm	61.25	9493.75
52	Extra for compaction of earthwork in embankment under optimum moisture conditions to give at least 95% of the maximum dry density (Proctor density)	155	sqm	7.75	1201.25
53	Suppling and stacking at site				
(a)	90 mm to 45 mm size stone aggregate	21	cum	1010.75	21225.75
(b)	63 mm to 45 mm size stone aggregate	16	cum	1100.80	17612.80
(c)	53 mm to 22.5 mm size stone aggregate	16	cum	1190.80	19052.80
(d)	Stone screening 13.2 mm nominal size (type A)	6.5	cum	1338.75	8701.88
(e)	Stone screening 11.2 mm nominal size (type B)	2.5	cum	1425.85	3564.63
(f)	moorum	4.5	cum	624.45	2810.03

Name of Project

: 400KV SUB-STATION EXTN AT KALIVANTHAPATTU

Name of Work

: CIVIL WORKS FOR SWITCHYARD AND PANEL ROOM

S.No.	Description of Item	Quantity	Unit	Unit Rate(Rs)	Amount (Rs)
54	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.	16	cum	330.15	5282.40
(b)	Base course with stone aggregate 63mm to 45mm including stone screening 13.2mm size and moorum/blinding material.	16	cum	330.15	5282.40
(c)	Base course with stone aggregate 53mm to 22.4 mm including stone screening 11.2mm size and moorum/blinding material.	16	cum	330.15	5282.40
55	Supplying and filling stone (40mm size) over grating for transformer/reactor foundation.	28	cum	1056.00	29568.00
56	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	25.0	Cum	5900.00	147500.00

Total 28748963.31