

BILL OF QUANTITY & PRICE SCHEDULE (Annexure-I)**Name of Project:** 400KV GIS SUBSTATION AT ENNORE SEZ**Name of Work:** BALANCE CIVIL WORKS OF SWITCHYARD**Name of Customer:** M/s TAMIL NADU GENERATION AND DISTRIBUTION CORPORATION LTD.**Tender Specification No.** TBSM/ENNORE/BALANCE CIVIL/SWITCHYARD/TENDER/22-23 DATE: 01.07.2022

S.No.	Description of Item	Quantity	Unit	Unit Rate (Rs.)	Total 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, disposed earth to be levelled and neatly dressed all complete for following depth All kinds of soil- upto 4m depth	3144	cum	125.95	395987
2	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, disposed earth to be levelled and neatly dressed all complete for following depth All kinds of soil- extra for additional 4m to 6m depth	100	cum	69.00	6900
3	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. All kinds of soil .	693	cum	166.40	115315
4	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.	1553	cum	125.75	195290
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 -. Lead upto 1 km.	369	cum	98.34	36287
6	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 -. Lead upto 3 km.	1832	cum	124.51	228102
7	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 -. Lead upto 5 km.	200	cum	149.17	29834
8	Supplying and filling in plinth with Jamuna/local sand under floors including watering, ramming, consolidating and dressing complete.	238	cum	810.82	192975
9	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work upto plinth level. Concrete grade M20 .	198	cum	5924.65	1173081
10	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work upto plinth level. 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 40mm nominal size)	137	cum	4927.00	674999
11	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work upto plinth level. 1:4:8(1 cement : 4 coarse sand : 8 graded stone aggregate 40mm nominal size)	846	cum	4478.15	3788515
12	Extra for providing and mixing water proofing material in cement concrete work @ 1kg per 50kg of cement.	1000	per 50kg cement	47.95	47950

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13	Providing and laying in position machine batched and machine mixed design mix M-25 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying but 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 as per direction of Engineer-in-charge. (Note :- Cement content considered in this item is @ 330 kg/cum. Excess/less cement used as per design mix is payable/recoverable separately). All works upto plinth level	1272	cum	5887.43	7488811
14	Extra for providing richer mixes at all floor levels. Providing M-30 grade concrete instead of M-25 grade BMC/RMC.(Cement content in M-30 shall be min @340kg/cum)	1272	cum	69.50	88404
15	Add for using extra cement in the items of design mix over and above the specified cement content therein.	331	quintal	672.75	222680
16	Providing, laying and compacting boulder soiling of required thickness in foundations of equipment and under the floors as per direction of Engineer-in-Charge.	226	cum	1045.80	236351
17	Centering and shuttering including strutting, propping, etc., and removal of form at all heights for. Foundations, footings, bases of columns, etc., for mass concrete.	1174	sqm	184.42	216509
18	Centering and shuttering including strutting, propping, etc., and removal of form at all heights for. Columns, Pillars, Piers, Posts and Struts .	516	sqm	454.41	234476
19	Centering and shuttering including strutting, propping, etc., and removal of form at all heights for. RCC walls at all levels (any thickness).	2662	sqm	369.24	982917
20	Centering and shuttering including strutting, propping, etc., and removal of form at all heights for. Lintels,beams,plinth beams and cantilevers.	64	sqm	333.23	21327
21	Steel reinforcement -Cold twisted bars /TMT- Fe 500 (To be procured from SAIL,TISCO,IISCO, JINDAL STEEL and RINL only) Including supply, straightening, cutting and bending, binding (i/c cost of binding wire), placing in position, etc., all labour & material, complete.	10000	kg	95.00	950000
22	Steel reinforcement -Cold twisted bars /TMT- Fe 500 (To be procured from SAIL,TISCO,IISCO, JINDAL STEEL and RINL only) Excluding supply but including straightning, cutting, bending, binding (i/c cost of binding wire), placing in position, etc., all labour & material, complete incl unloading & storage. (Reinforcement steel shall be supplied by BHEL free of cost)	79473	kg	9.00	715257
23	Extra over item 21 and 22 above for providing FUSION BONDED EPOXY COATING as per IS:13620 including the transportation of reinforcement steel to bidder's plant and bringing back to site and special handling during straightening, cutting, bending ,placing and providing PVC coated binding wire.	10000	kg	11.90	119000
24	Brickwork with F.P.S.bricks of class designation 75 in foundation and plinth in: Cement mortar 1:6 (1 cement : 6 coarse sand)	86	cum	4524.10	389073
25	12mm cement plaster of mix: 1:4 (1cement: 4 coarse sand)	866	sqm	180.85	156616
26	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.	7277	kg	93.00	676761

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27	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. In gratings, rails ,mono rails, frames, ladders, stair railings, gates(including pipe) ,gantry girder(beams,channels etc) and similar works.	3004	kg	131.00	393524
28	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	250	kg	114.00	28500
29	Extra over Item above for providing galvanised bolts (Mass of zinc coating = 610gms/sqm), nuts & washer .	250	kg	7.40	1850
30	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.	3172	sqm	90.10	285797
31	Suppling and stacking at site 90 mm to 45 mm size stone aggregate	435	cum	1278.69	556230
32	Suppling and stacking at site 63 mm to 45 mm size stone aggregate	297	cum	1386.53	411799
33	Suppling and stacking at site 53mm to 22.4 mm	50	cum	1475.02	73751
34	Suppling and stacking at site Stone screening 13.2 mm nominal size (type A)	225	cum	1439.66	323924
35	Suppling and stacking at site 11.2 mm nominal size (Type B)	100	cum	1398.19	139819
36	Suppling and stacking at site moorum	80	cum	563.01	45041
37	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). Subbase with stone aggregate 90mm to 45mm including stone screening 13.2mm size and moorum/blinding material.	851	cum	449.10	382184
38	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 calculation of qty. for payment).	63	cum	4335.95	273165
39	Providing and laying non-pressure NP2 class 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. 100mm dia. RCC pipe	10	RM	286.53	2865
40	Providing and laying non-pressure NP2 class 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. 150mm dia. RCC pipe	10	RM	315.32	3153
41	Providing and laying non-pressure NP2 class 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	20	RM	429.98	8600
42	Providing and laying non-pressure NP3 class 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. 150mm dia. RCC pipe	445	RM	597.00	265665

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43	Providing and laying non-pressure NP3 class 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. 300mm dia. RCC pipe	225	RM	1193.00	268425
44	Providing and laying non-pressure NP3 class 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. 450mm dia. RCC pipe	45	RM	1660.11	74705
45	Providing and laying non-pressure NP3 class 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. 600mm dia. RCC pipe	14	RM	2159.04	30227
46	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)	780	meter	216.54	168901
47	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	34	cum	8098.00	275332
48	Providing and laying stone aggregate in switch yard areas in 150mm thick layer using 20-40 mm aggregates size on top and 20mm at bottom .Before laying the stone aggregates , the yard surface shall be treated with antiweed treatment all complete as per direction of Engineer in Charge. (The rate shall be inclusive of all materials ,labour,loading,unloading and surface preparation etc. required for aggregate laying and antiweed treatment)	4829	sqm	206.20	995740
49	Supplying, fabricating and fixing angle iron posts,struts, flats of required size including bottom of post to be split and bent and top to be made Y shaped by cutting, bending and welding including drilling holes and finishing by painting with chlorinated rubber paint over suitable primer or epoxy based paint (of total DFT 250 microns) etc. all complete.(Cost of excavation, shuttering, concrete work, toe wall to be paid separately)	22883	kg	96.70	2212786
50	Providing and fixing PVC coated G.I chain link fence of 8 gauge with mesh size 75x75 mm and of required ht. above the toe wall including stretching and attaching by clips at 0.5m interval or as per drg. to 3 strands of HTSS wire of 4mm dia interwoven in chain link wire mesh and attaching to the fence post with nuts and bolts all complete as per approved drawing and direction of Engineer-in-Charge. (The rate quoted against this item shall be inclusive of all items like chain link fence, clips, HTSS wire, nuts and bolts etc. all complete as per drawing).	1543	sqm	650.00	1002950
51	Providing and fixing concertina coil fencing with punched tape concertina coil 600 mm dia 10 metre openable length (total length 90 m), having 50 nos rounds per 6 metre length, and fixing in existing angle iron 'Y' shaped placed 2.4 m or 3.00 m apart and with 3 horizontal barbed wire and 3 diagonals interwoven wires, stud tied with G.I. staples and G.I. clips to retain horizontal, including necessary bolts or G.I. barbed wire tied to angle iron, all complete as per direction of Engineer-in-charge, with Spring core (2.5mm thick) wire of high tensile strength of 165 kg/ sq.mm with tape (0.52 mm thick) and weight 43.478 gm/ metre (cost of M.S. angle, C.C. blocks shall be paid separately)	643	m	323.60	208075

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S.No.	Description of Item	Quantity	Unit	Unit Rate (Rs.)	Total Amount (Rs.)
52	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.	2	cum	14790.50	29581
53	Providing and fixing in position 12mm thick bitumen impregnated fibre board conforming to IS:1838 including cost of primer, sealing compound in expansion joints.	100	per cm depth per 100m	517.20	51720
54	Providing and fixing in position pre moulded joint filler in expansion joints	100	per cm depth per cm width per m length	2.90	290
55	Providing and laying in position bitumen hot sealing compound for expansion joints etc. Using grade A ceiling compound	920	per cm depth per cm width per m length	2.00	1840
56	Providing and laying polythene sheet of 125 microns between the PCC and RCC slab all complete as per direction of Engineer-in-Charge)	3172	sqm	14.80	46946
57	Providing and laying 80mm thick factory made cement concrete interlocking paver block of M-30 grade made by block making machine with strong vibratory compaction and of approved size and design/shape laid in required colour and pattern over and including 100mm thick compacted bed of course sand, filling the joints with coarse sand etc. all complete as per direction of Engineer-in- charge.	2379	sqm	645.00	1534455
58	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).	3164	sqm	228.40	722658
59	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.	131	cum	1386.53	181635
60	Demolishing brick work manually/by mechanical means including stacking of serviceable material and disposal of unserviceable material within 50 metres lead as per direction of Engineer-in- charge. In cement mortar	5	cum	842.75	4214
61	Demolishing RCC work manually/ by mechanical means including stacking of steel bars and disposal of unserviceable material within 50 metres lead as per direction of Engineer-in-charge.	10	cum	1454.55	14546
62	Breaking of pile heads of exiting piles manually/ by mechanical means and preparing it in all respect for casting of the pile caps including cleaning, brushing, disposal of dismantled material up to a lead of 100 meters, as per direction of Engineer-in-charge all complete.	1	cum	963.90	964
63	Supplying and filling with selected good earth of approved quality in layers not exceeding 300 mm loose thickness using borrowed soil (borrowed soil to be arranged by the bidder) and compacted so as to achieve at least 98 % maximum dry density as per IS-2720 (Part-VII) including royalty/seigniorage fee (if any), sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, tesing etc all complete.	2785	cum	458.50	1276923
64	Fixing (all dia & length) of 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	36	kg	7.20	259
65	Carring out Low Stain pile integrity test on 550mm diametere pile including all arrangement for test ,equipment / accessories , materials,labour, submission of test report etc butexcluding the cost of installation of job pile all complete as per specification and as directed by the engineer -in-charge.	10	Each	822.29	8223

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66	Quoted rate is considering river sand only for all items of BOQ related with sand. However in case of non availability of the river sand, and subjected to approval by customer, good quality crushed stone sand/M-sand conforming to the grading limits and other requirements set in IS: 383 may be used. If crushed stone sand/M-sand is used in place of river sand, net rebate of Rs 100/- per cum of concrete on final amount shall be given by the contractor for all concreting items.	2501	cum	-100.00	-250100
67	Providing and fixing in position 20mm thick bitumen impregnated fiber board conforming to IS: 1838, including cost of primer, sealing compound Grade-A in expansion joints.	104	per cm depth per 100m	754.00	78416
68	Providing & applying Bitumin coating for dowel bars (32mm dia & 500mm long) at expansion as per drawing as per instructions of Engineer-in-charge. This shall include cost of all materials , labours, lead, lift, etc. and all other associated activities. (except cost of dowel bars)	600	Nos	3.76	2256
69	Providing and laying 40mm dia & 75mm long Metal cap for dowel cap sleeve and filled with cotton waste at expansion joints as per drawing & as per instructions of Engineer-in-charge. This shall include cost of all materials, labours, lead, lift, etc. and all other associated activities.	600	Nos	22.97	13782
70	Antiweed treatment in switchyard area including micro grading with required slope,rolling & compaction to the lines & grades using half ton roller/surface vibrator with suitable water sprinkling,surface dressing,effectiveness test of antiweed chemical etc all complete as per customer technical specification and instruction of Engineer-In-Charge including cost of all labour,material,T&P etc	7956	sqm	16.64	132388
71	Construction of dry lean cement concrete sub base over a prepared sub-grade with coarse and fine aggregate conforming to IS:383, the size of coarse aggregate not exceeding 25 mm, aggregate cement ratio not to exceed 15:1, aggregate gradation after blending to be as per specifications, cement content not to be less than 150 Kg/cum, optimum moisture content to be determined during trial length construction, concrete strength not to be less than 10 Mpa at 7 days, mixed in a batching plant, transported to site, for all leads & lifts, laid with a mechanical paver, compacting with 8-10 tonne vibratory roller, finishing and curing etc. complete as per direction of Engineerin- charge.	317	cum	3391.95	1075248
72	Making Groove in Concrete road by cutting machine for Contraction Joint for filling Bitumin sealing compound as per approved drawing.	920	RM	88.00	80960
Total Amount (Rs.) - Excluding GST					32823626