

## **BILL OF QUANTITY & PRICE SCHEDULE**

### **Annexure-I**

**Name of Project** : 400KV GIS SUBSTATION AT ENNORE SEZ.  
**Name of Work** : BALANCE CIVIL WORKS OF SWITCHYARD

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, disposed earth to be levelled and neatly dressed all complete for following depth				
(a)	All kinds of soil- upto 4m depth	8615.000	cum	155.40	1338771
(b)	All kinds of soil- extra for additional 4m to 6m depth	100	cum	55.50	5550
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 .	2520	cum	157.20	396144
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.	10300	cum	100.70	1037210
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.	2300	cum	99.50	228850
(b)	Lead upto 3 km.	1450	cum	126.10	182845
(c)	Lead upto 5 km.	200	cum	151.40	30280
5	Supplying and filling in plinth with Jamuna/local sand under floors including watering, ramming, consolidating and dressing complete.	280	cum	900.60	252168
6	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work upto plinth level.				
(a)	Concrete grade M20 .	185	cum	5895.30	1090631
(b)	Concrete grade M15 .	364	cum	5425.40	1974846
(c)	1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 40mm nominal size)	425	cum	4836.40	2055470
(d)	1:4:8(1 cement : 4 coarse sand : 8 graded stone aggregate 40mm nominal size)	50	cum	4318.70	215935
7	Extra for providing and mixing water proofing material in cement concrete work @ 1kg per 50kg of cement.	1000	per 50kg cement	42.50	42500
8	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).				
(a)	All works upto plinth level	2525	cum	6300.60	15909015
(b)	All works above plinth level upto floor V level	50	cum	6948.80	347440
9	Extra for providing richer mixes at all floor levels.				
(a)	Providing M-30 grade concrete instead of M-25 grade BMC/RMC.(Cement content in M-30 shall be min @340kg/cum)	2575	cum	75.90	195443
10	Add for using extra cement in the items of design mix over and above the specified cement content therein.	670.000	quintal	708.90	474963
11	Providing, laying and compacting boulder soiling of required thickness in foundations of equipment and under the floors as per direction of Engineer-in-Charge.	700	cum	1045.80	732060

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12	Centering and shuttering including strutting, propping, etc., and removal of form at all heights for.				
(a)	Foundations, footings, bases of columns, etc., for mass concrete.	1500	sqm	200.60	300900
(b)	Columns, Pillars, Piers, Posts and Struts .	4300	sqm	439.50	1889850
(c)	RCC walls at all levels (any thickness).	5550	sqm	342.70	1901985
(e)	Lintels, beams, plinth beams and cantilevers.	1200	sqm	315.20	378240
13	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.	15000	kg	58.40	876000
(b)	Excluding supply but including straightening, 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)	220000	kg	9.00	1980000
(c)	Extra over item 13(a) and 13(b) 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.	220000	kg	11.90	2618000
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)	170	cum	3986.10	677637
15	12mm cement plaster of mix:				
	1:4 (1 cement: 4 coarse sand)	455	sqm	158.70	72209
16	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.	28000	kg	72.00	2016000
17	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, rails, mono rails, frames, ladders, stair railings, gates (including pipe), gantry girder (beams, channels etc) and similar works.	15000	kg	93.70	1405500
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	3205	kg	104.00	333320
19	Extra over Item above for providing galvanised bolts (Mass of zinc coating = 610gms/sqm), nuts & washer .	3205	kg	7.40	23717
20	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.	2810	sqm	73.70	207097
21	Suppling and stacking at site				
(a)	90 mm to 45 mm size stone aggregate	435	cum	1214.90	528482
(b)	63 mm to 45 mm size stone aggregate	297	cum	1323.00	392931
(c)	53mm to 22.4 mm	50	cum	1431.20	71560
(d)	Stone screening 13.2 mm nominal size (type A)	225	cum	1609.00	362025
(e)	11.2 mm nominal size (Type B)	100	cum	1713.70	171370
(f)	moorum	80	cum	750.50	60040
22	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.	515	cum	396.90	204404

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**Name of Work** : BALANCE CIVIL WORKS OF SWITCHYARD

S.No.	Description of Item	Quantity	Unit	Unit Rate (Rs)	Amount (Rs.)
23	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).	68	cum	6065.80	412474
24	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.				
(a)	100mm dia. RCC pipe	10	RM	262.40	2624
(b)	150mm dia. RCC pipe	10	RM	305.80	3058
(c)	250mm dia. RCC pipe	20	RM	411.60	8232
(d)	300mm dia. RCC pipe	20	RM	508.20	10164
(e)	450mm dia. RCC pipe	20	RM	746.20	14924
25	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.				
(a)	250mm dia. RCC pipe	20	RM	643.40	12868
(b)	300mm dia. RCC pipe	20	RM	772.10	15442
(c)	450mm dia. RCC pipe	20	RM	1124.10	22482
26	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)	65	meter	551.80	35867
27	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	7697.90	261729
28	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)	13920	sqm	206.20	2870304
29	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)	13750	kg	74.60	1025750
30	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).	1250	sqm	623.90	779875
31	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)	645	m	323.60	208722

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### Annexure-I

Name of Project

: 400KV GIS SUBSTATION AT ENNORE SEZ.

Name of Work

: BALANCE CIVIL WORKS OF SWITCHYARD

S.No.	Description of Item	Quantity	Unit	Unit Rate (Rs)	Amount (Rs.)
32	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.	10	cum	14790.50	147905
33	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
34	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
35	Providing and laying in position bitumen hot sealing compound for expansion joints etc.				
	Using grade A ceiling compound	100	per cm depth per cm width per m length	2.00	200
36	Providing and laying polythene sheet of 125 microns between the PCC and RCC slab all complete as per direction of Engineer-in-Charge)	2660	sqm	14.80	39368
37	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 coarse sand, filling the joints with coarse sand etc. all complete as per direction of Engineer-in- charge.	2100	sqm	645.00	1354500
38	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).	1720	sqm	228.40	392848
39	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.	84	cum	1323.00	111132
40	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.				
a	In cement mortar	5	cum	681.00	3405
41	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	1176.60	11766
42	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.	165	cum	963.90	159044
43	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/seignorage 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.	3200	cum	343.30	1098560

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### **Annexure-I**

**Name of Project** : 400KV GIS SUBSTATION AT ENNORE SEZ.  
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<b>S.No.</b>	<b>Description of Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Rate (Rs)</b>	<b>Amount (Rs.)</b>
<b>44</b>	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	8000	kg	7.20	57600
				<b>Total amount in Rs.</b>	<b>52094241</b>

**ANNEXURE-II**

**TRANSMISSION BUSINESS GROUP  
(SUB- CONTRACTS MANAGEMENT)  
TBG - NOIDA**

**PRICE SCHEDULE FORMAT**

**SUB: TENDER FOR “EXECUTION AND HANDING OVER OF BALANCE CIVIL WORKS FOR 400KV  
GIS SWITCHYARD AT ENNORE IN TAMILNADU”.**

**TENDER NO.:- TBSM/ ENNORE /BAL\_CIVIL/TENDER , Date: 05.11.2019**

(a) I/ We hereby agree to execute the above work at ----- % (in figure).....  
----- (in words) Above / Below/ At Par the rates of items given in BOQ  
(Annexure-I) of subject tender.

**NOTE:**

1. In this annexure the tenderer shall quote a percentage above/ below/At Par the rates shown in the Bill of Quantities (Annexure-I) of subject tender. The percentage quoted shall be clearly written both in words and figures In case of discrepancy in rates in figure and words, the minimum will be taken into account by BHEL.
2. The quoted percentage will apply to the individual items uniformly.

Date:

Place

Signature of tenderer  
Name & Designation of authorized person(s) with seal

**ANNEXURE-III**

**( Summary Of Prices)**

**Name of work:- EXECUTION AND HANDING OVER OF EXECUTION AND HANDING OVER OF BALANCE CIVIL WORKS FOR 400KV GIS SWITCHYARD AT ENNORE IN TAMILNADU**

<b>Sl No.</b>	<b>Description</b>	<b>Amount (Rs.)</b>
1	Total amount as per the rates in BOQ for " Execution and handing over of balance Civil works of switchyard at 400kV GIS substation at Ennore SEZ in Tamilnadu " (Annexure-I)	5,20,94,241.00
2	Value of percentage above/below/at par (As indicated in Price Schedule Format, Annexure-II) applicable to the total amount of civil work (Sl. no. 1 above)	.....% above/below/ at par
3	<b>Total amount after consideration of percentage above/below/ at par.</b>	