

ANNEXURE-I

**BILL OF QUANTITY CUM PRICE SCHEDULE**

**Name of Project** : 400/220 KV Switchyard at North Karanpura  
**Name of Work** : Civil Work of Switchyard (Excluding building works, gravelling, fencing, gate)

| 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.                                                                                                                                                                                                                                                                                                                                                                                                             | 42200    | cum  | 129.35        | 5458570.00  |
| (b)   | Ordinary rock                                                                                                                                                                                                                                                                                                                                                                                                                  | 3800     | cum  | 197.75        | 751450.00   |
| 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.                                                                                                                                                                                                                                                                                                                                                                                                             | 5200     | cum  | 130.80        | 680160.00   |
| 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.                                                                                                                                                                                      | 31200    | cum  | 83.80         | 2614560.00  |
| 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.                                                                                                                                                                                                                                                                                                                                                                                                                | 10000    | cum  | 82.78         | 827800.00   |
| (b)   | Lead upto 3 km.                                                                                                                                                                                                                                                                                                                                                                                                                | 2000     | cum  | 104.98        | 209960.00   |
| (c)   | Lead upto 5 km.                                                                                                                                                                                                                                                                                                                                                                                                                | 1000     | cum  | 125.92        | 125920.00   |
| 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                                                                                                                                                                                                                                                                                                                                                                                                                            | 10       | cum  | 4514.05       | 45140.50    |
| (b)   | M10                                                                                                                                                                                                                                                                                                                                                                                                                            | 3200     | cum  | 3888.20       | 12442240.00 |
| (c)   | M7.5                                                                                                                                                                                                                                                                                                                                                                                                                           | 1650     | cum  | 3593.30       | 5928945.00  |

|    |                                                                                                                                                                                                                                                                            |       |                                        |         |            |
|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----------------------------------------|---------|------------|
| 6  | Extra for providing and mixing water proofing material 'Impermo' or equivalent in cement concrete work in the proportion recommended by the manufacturer.                                                                                                                  | 1000  | kg                                     | 35.35   | 35350.00   |
|    |                                                                                                                                                                                                                                                                            |       |                                        |         |            |
| 7  | Supplying and filling in plinth with Jamuna/local sand under floors,cable trenches including watering, ramming, consolidating and dressing complete.                                                                                                                       | 1900  | cum                                    | 749.30  | 1423670.00 |
|    |                                                                                                                                                                                                                                                                            |       |                                        |         |            |
| 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%                                                                                                                                                                                                                             | 500   | litre                                  | 185.95  | 92975.00   |
|    |                                                                                                                                                                                                                                                                            |       |                                        |         |            |
| 10 | 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. | 30000 | sqm                                    | 280.00  | 8400000.00 |
|    |                                                                                                                                                                                                                                                                            |       |                                        |         |            |
| 11 | 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.                                                                                                    | 100   | per cm depth per 100 m                 | 167.35  | 16735.00   |
|    |                                                                                                                                                                                                                                                                            |       |                                        |         |            |
| 12 | Providing and laying polythene sheet of 125 microns between the PCC and RCC slab all complete as per direction of Engineer-in-Charge)                                                                                                                                      | 11775 | sqm                                    | 39.00   | 459225.00  |
|    |                                                                                                                                                                                                                                                                            |       |                                        |         |            |
| 13 | Providing and fixing in position pre moulded joint filler in expansion joints                                                                                                                                                                                              | 250   | per cm depth per cm width per m length | 2.40    | 600.00     |
|    |                                                                                                                                                                                                                                                                            |       |                                        |         |            |
| 14 | Providing and laying in position bitumen hot sealing compound for expansion joints etc.                                                                                                                                                                                    |       |                                        |         |            |
|    | Using grade A ceiling compound                                                                                                                                                                                                                                             | 250   | per cm depth per cm width per m length | 1.65    | 412.50     |

|              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |     |         |             |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-----|---------|-------------|
|              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |     |         |             |
| <b>15</b>    | 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.<br>- <b>M25 grade</b> reinforced cement concrete by using minimum 330kg of cement per cum of concrete. |         |     |         |             |
| <b>(a)</b>   | All works upto plinth level                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 10380   | cum | 5242.15 | 54413517.00 |
| <b>16</b>    | Extra for providing richer mixes at all floor levels.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |         |     |         |             |
| <b>(a)</b>   | Providing M-35 grade concrete instead of M-25 grade BMC/RMC.(Cement content in M-35 shall be @350kg/cum min)                                                                                                                                                                                                                                                                                                                                                                                                                              | 3000    | cum | 126.45  | 379350.00   |
| <b>17</b>    | Centering and shuttering including strutting, propping, etc., and removal of form for:                                                                                                                                                                                                                                                                                                                                                                                                                                                    |         |     |         |             |
| <b>(a)</b>   | Foundations, footings, bases of columns, etc., for mass concrete.                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 6680    | sqm | 166.90  | 1114892.00  |
| <b>(b)</b>   | RCC walls at all levels (any thickness).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 23960   | sqm | 285.15  | 6832194.00  |
| <b>(c)</b>   | Suspended floors, roofs, landings, balconies, chajjas and access platforms at all levels.                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 20      | sqm | 311.20  | 6224.00     |
| <b>(e)</b>   | Columns, Pillars, Piers, Posts and Struts .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 11000   | sqm | 365.60  | 4021600.00  |
| <b>18</b>    | Steel reinforcement -Cold twisted bars /TMT- Fe 500 (To be procured from SAIL, TISCO, IISCO, JINDAL STEEL and RINL only)                                                                                                                                                                                                                                                                                                                                                                                                                  |         |     |         |             |
| <b>(a)</b>   | Including supply, straightening, cutting and bending, binding (i/c cost of binding wire), placing in position, etc., all labour & material, complete.                                                                                                                                                                                                                                                                                                                                                                                     | 53000   | kg  | 62.25   | 3299250.00  |
| <b>(b)</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)                                                                                                                                                                                                                                                                                                                                                              | 1024000 | kg  | 10.00   | 10240000.00 |
| <b>19</b>    | Brickwork with F.P.S.bricks of class designation 75 in foundation and plinth in:                                                                                                                                                                                                                                                                                                                                                                                                                                                          |         |     |         |             |
|              | Cement mortar 1:6 (1 cement : 6 coarse sand)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 10      | cum | 3316.55 | 33165.50    |
| <b>20(a)</b> | 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.                                                                                                                                                                                                                                                           | 60000   | kg  | 59.90   | 3594000.00  |
| <b>20(b)</b> | Extra over item above for providing galvanising of minimum 610gm/sqm                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 2000    | kg  | 9.00    | 18000.00    |
|              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |     |         |             |

|     |                                                                                                                                                                                                                                                                                                                                                                                                                        |       |     |         |            |
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| 21  | 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, gratings and similar works.                                                                                                                                                                                                                                                                                                                                                              | 20000 | kg  | 77.90   | 1558000.00 |
| 22  | Providing & placing 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 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 M30                                                                                                                                                                                                                                                                                                                                                                                         | 200   | cum | 6000.00 | 1200000.00 |
| 23  | 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                                                                                                                                                                                                  | 79000 | kg  | 86.55   | 6837450.00 |
| 24  | Extra over Item above for providing galvanised bolts (Mass of zinc coating = 800gms/sqm), nuts & washer .                                                                                                                                                                                                                                                                                                              | 79000 | kg  | 10.00   | 790000.00  |
| 25  | 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.                                                                                                                                                                             | 1000  | kg  | 10.00   | 10000.00   |
| 26  | 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.                                                                                      | 18950 | sqm | 61.25   | 1160687.50 |
| 27  | Suppling and stacking at site                                                                                                                                                                                                                                                                                                                                                                                          |       |     |         |            |
| (a) | 90 mm to 45 mm size stone aggregate                                                                                                                                                                                                                                                                                                                                                                                    | 3340  | cum | 1010.75 | 3375905.00 |
| (b) | 63 mm to 45 mm size stone aggregate                                                                                                                                                                                                                                                                                                                                                                                    | 2560  | cum | 1100.80 | 2818048.00 |
| (c) | 53mm to 22.4 mm                                                                                                                                                                                                                                                                                                                                                                                                        | 2580  | cum | 1190.80 | 3072264.00 |
| (d) | Stone screening 13.2 mm nominal size (type A)                                                                                                                                                                                                                                                                                                                                                                          | 1165  | cum | 1338.75 | 1559643.75 |
| (e) | 11.2 mm nominal size (Type B)                                                                                                                                                                                                                                                                                                                                                                                          | 515   | cum | 1425.85 | 734312.75  |
| (f) | moorum                                                                                                                                                                                                                                                                                                                                                                                                                 | 600   | cum | 624.45  | 374670.00  |

|            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |      |     |         |            |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|---------|------------|
| <b>28</b>  | 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 ).                                                                                                                                                                                                                                                          |      |     |         |            |
| <b>(a)</b> | Subbase with stone aggregate 90mm to 45mm including stone screening 13.2mm size and moorum/blinding material.                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2470 | cum | 330.15  | 815470.50  |
| <b>(b)</b> | Base course with stone aggregate 63mm to 45mm including stone screening 13.2mm size and moorum/blinding material.                                                                                                                                                                                                                                                                                                                                                                                                                               | 1850 | cum | 330.15  | 610777.50  |
| <b>©</b>   | Base course with stone aggregate 53mm to 22.4 mm including stone screening 11.2mm size and moorum/blinding material.                                                                                                                                                                                                                                                                                                                                                                                                                            | 2260 | cum | 330.15  | 746139.00  |
|            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |      |     |         |            |
| <b>29</b>  | 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). | 235  | cum | 5046.80 | 1185998.00 |
|            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |      |     |         |            |
| <b>30</b>  | Providing and laying 60mm thick factory made cement concrete interlocking paver block of M-30 grade made by block making machine with strong vibratory compaction, of approved size, design & shape, laid in required colour and pattern over and including 50mm thick compacted bed of coarse sand, filling the joints with fine sand etc. all complete as per the direction of Engineer-in-charge.                                                                                                                                            | 9400 | sqm | 536.65  | 5044510.00 |
|            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |      |     |         |            |
| <b>31</b>  | 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.                                                                                                                                                                                                                                                                                                                        |      |     |         |            |
| <b>(a)</b> | 250mm dia. RCC pipe                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 10   | RM  | 342.45  | 3424.50    |
| <b>(b)</b> | 300mm dia. RCC pipe                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 10   | RM  | 422.90  | 4229.00    |
| <b>(c)</b> | 450mm dia. RCC pipe                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 5    | RM  | 620.85  | 3104.25    |

|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |      |       |          |           |
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|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |      |       |          |           |
| <b>32</b> | 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    | RM    | 360.00   | 1800.00   |
|           | 300mm dia. RCC pipe                                                                                                                                                                                                                                                                                                                                                                                                                                   | 5    | RM    | 450.00   | 2250.00   |
|           | 450mm dia. RCC pipe                                                                                                                                                                                                                                                                                                                                                                                                                                   | 5    | RM    | 675.00   | 3375.00   |
|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |      |       |          |           |
| <b>33</b> | 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(230mm wide,8-11mm thick)                                                                                                                                                                                                                                                                                                                                                                                                   | 125  | meter | 459.15   | 57393.75  |
|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |      |       |          |           |
| <b>34</b> | 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. | 36   | cum   | 10000.00 | 360000.00 |
|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |      |       |          |           |
| <b>35</b> | Providing and supplying grating of 40mm thickness and opening size 30mmx100mm, with minimum thickness of main bearing bar 5mm including shot blasting, priming, finish painting and galvanising of minimum weight 610gms/Sqm etc.all complete .                                                                                                                                                                                                       | 1000 | kg    | 70.00    | 70000.00  |
|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |      |       |          |           |
| <b>36</b> | 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   | 1100.00  | 22000.00  |

|            |                                                                                                                                                                                                                                                                                                                                                                                                  |      |     |        |           |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|--------|-----------|
|            |                                                                                                                                                                                                                                                                                                                                                                                                  |      |     |        |           |
| <b>37</b>  | Site grading/land development works including rolling compacting and dressing all complete.                                                                                                                                                                                                                                                                                                      |      |     |        |           |
| <b>(a)</b> | Mass cutting including lift of 3.5 m.                                                                                                                                                                                                                                                                                                                                                            | 8700 | cum | 60.00  | 522000.00 |
| <b>(b)</b> | Backfilling from above excavated earth with proper compaction in layers of 20cm .                                                                                                                                                                                                                                                                                                                | 8700 | cum | 83.80  | 729060.00 |
| <b>(d)</b> | Supply of earth at site including royalty, carriage and filling in specified areas in layers not exceeding 200mm depth, compacting under OMC to achieve 95% of Proctor density, finishing etc. all complete, for all leads and lift with all labour, material, tools, tackles, equipments, safeguards & incidentals as necessary as per specification and direction - of - Engineer -in- charge. | 500  | cum | 260.70 | 130350.00 |
|            |                                                                                                                                                                                                                                                                                                                                                                                                  |      |     |        |           |
| <b>38</b>  | 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.                                                                                                                                                                                             |      |     |        |           |
| <b>a</b>   | In cement mortar                                                                                                                                                                                                                                                                                                                                                                                 | 5    | cum | 566.60 | 2833.00   |
|            |                                                                                                                                                                                                                                                                                                                                                                                                  |      |     |        |           |
| <b>39</b>  | 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 | 978.95 | 9789.50   |
|            |                                                                                                                                                                                                                                                                                                                                                                                                  |      |     |        |           |
|            |                                                                                                                                                                                                                                                                                                                                                                                                  |      |     |        | 157331391 |

**Note:**

- For Item No : 18(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: 18 (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.