

ANNEXURE-I

TB-350-607-003 PKG IV
REV NO:00

BILL OF QUANTITY CUM PRICE SCHEDULE

Name of Project
Name of Work

: 400/132/33 KV Substation at Nabinagar
: Balance Civil Work of Switchyard (Excluding gravelling, fencing and building works)

| S.No. | Description of Item | Quantity | Unit | Unit Rate | Amount |
|-------|---|----------|------|-----------|------------|
| 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 4.5m, disposed earth to be levelled and neatly dressed. | | | | |
| (a) | All kinds of soil. | 2500 | cum | 117.58 | 293947.88 |
| 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. | 2845 | cum | 118.90 | 338262.53 |
| 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 4.5m. | 2460 | cum | 76.17 | 187388.53 |
| 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. | 745 | cum | 75.25 | 56059.03 |
| (b) | Lead upto 3 km. | 2030 | cum | 95.43 | 193716.44 |
| (c) | Lead upto 5 km. | 110 | cum | 114.46 | 12590.74 |
| 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 | 4103.27 | 41032.71 |
| (b) | M10 | 10 | cum | 3534.37 | 35343.74 |
| (c) | M7.5 | 340 | cum | 3266.31 | 1110545.30 |
| 6 | Providing and laying in position machine batched, machine mixed and machine vibrated design mix cement concrete of specified grade for RCC structural elements including roads excluding the cost of centering, shuttering, finishing and reinforcement including admixtures in recommended proportions (as per IS 9103) to accelerate, retard setting of concrete, improve workability without impairing strength and durability. - M25 grade reinforced cement concrete by using minimum 330kg of cement per cum of concrete including opening in drain/trench as per RFC drawing and instruction of engineer incharge.. | | | | |
| (a) | All works upto plinth level | 1810 | cum | 4765.11 | 8624856.97 |
| 7 | Centering and shuttering including strutting, propping, etc., and removal of form for: | | | | |
| (a) | Foundations, footings, bases of columns, etc., for mass concrete. | 4150 | sqm | 151.71 | 629605.22 |
| (b) | RCC walls at all levels (any thickness). | 13170 | sqm | 259.20 | 3413681.78 |
| (c) | Columns, Pillars, Piers, Posts and Struts . | 2045 | sqm | 332.33 | 679615.67 |
| 8 | 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. | 5500 | kg | 56.59 | 311218.88 |

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| (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) | 140140 | kg | 7.08 | 991980.99 |
| 9 | 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 | 3014.74 | 30147.44 |
| 10(a) | 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 and approved make of structural steel all complete as per specs, drawings and directions of Engr-in-Charge. | 5525 | kg | 54.45 | 300831.28 |
| 10(b) | Extra over item above for providing galvanising of minimum 610gm/sqm | 1785 | kg | 8.71 | 15550.92 |
| 11 | 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 all complete as per specs, drawings and directions of Engr-in-Charge. | | | | |
| (a) | In frames, rails, ISMB, ISMC and similar works. | 550 | kg | 70.81 | 38946.11 |
| 12 | 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 of Design Mix | 315 | cum | 6425.10 | 2023906.50 |
| 13 | 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 | 6325 | kg | 78.67 | 497612.73 |
| 14 | Extra over Item above for providing galvanised bolts (Mass of zinc coating = 800gms/sqm), nuts & washer. | 6325 | kg | 10.89 | 68879.25 |
| 15 | 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. | 30 | kg | 10.89 | 326.70 |
| 16 | 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. | 17520 | sqm | 55.68 | 975447.90 |
| 17 | Suppling and stacking at site | | | | |
| (a) | 90 mm to 45 mm size stone aggregate | 200 | cum | 918.77 | 183754.35 |
| (b) | 63 mm to 45 mm size stone aggregate | 150 | cum | 1000.63 | 150094.08 |
| (c) | 53mm to 22.4 mm | 2880 | cum | 1082.44 | 3117419.14 |
| (d) | Stone screening 13.2 mm nominal size (type A) | 70 | cum | 1216.92 | 85184.66 |
| (e) | 11.2 mm nominal size (Type B) | 605 | cum | 1296.10 | 784139.08 |

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|-------|--|----------|------|-----------|------------|
| (f) | moorum | 620 | cum | 567.63 | 351927.53 |
| 18 | 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. | 160 | cum | 300.11 | 48017.02 |
| (b) | Base course with stone aggregate 63mm to 45mm including stone screening 13.2mm size and moorum/blinding material. | 120 | cum | 300.11 | 36012.76 |
| (c) | Base course with stone aggregate 53mm to 22.4 mm including stone screening 11.2mm size and moorum/blinding material. | 1245 | cum | 300.11 | 373632.41 |
| 19 | Providing and applying tack coat using hot straight run bitumen of grade VG-10, including heating the bitumen, spraying the bitumen with mechanically operated spray unit fitted on bitumen boiler, cleaning and preparing the existing road surface as per specifications: | | | | |
| (a) | On W.B.M @ min. 0.75 Kg / sqm | 14070 | sqm | 36.50 | 513503.64 |
| (b) | On bituminous surface @ min. 0.50 Kg / sqm | 14070 | sqm | 26.36 | 370899.27 |
| 20 | Providing and laying Bitumen Penetration Macadam with hard stone aggregate of quality, size and grading as specified, with bitumen of suitable penetration grade including required key aggregate as specified, spreading coarse aggregate with the help of self propelled/ tipper tail mounted aggregate spreader and applying bitumen by a pressure distributor and then spreading key aggregate with the help of aggregate spreader complete including consolidation with road roller of minimum 8 to 10 tonne capacity to achieve specified values of compaction and surface accuracy: | | | | |
| | For 75mm compacted thickness using coarse aggregate of size 63-41mm graded @ 0.90 cum per 10 sqm key aggregate of size 20.0mm graded @ 0.18 cum per 10sqm. With paving asphalt grade VG-10 @ 68 kg/10sqm Including laying of materials with Paver machine and require other T&P for construction of bitumen Macadam etc and all complete work as instructions of the Engineer. | 14070 | sqm | 459.59 | 6466436.93 |
| 21 | Providing and laying 2.5 cm thick premix carpet surfacing with 3 cum of stone chippings 10mm nominal size per 100sqm and bitumen emulsion (medium setting min. 65% bitumen content) complying with IS: 8887 using 96 kg per cum of chipping of road surface, including consolidation with road roller etc. complete . | 14070 | sqm | 137.17 | 1929955.17 |
| 22 | Providing and laying seal coat of premixed fine aggregate (passing 2.36 mm and retained on 180 micron sieve) with bitumen using 128 kg of bitumen of grade 80/100 bitumen per cum of fine aggregate and 0.60 cum of fine aggregate per 100 sqm of road surface including rolling and finishing with road roller all complete. | 14070 | sqm | 55.72 | 784004.32 |
| 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,excavaion for fixing of kerb stone etc wherever required complete tec. as per direction of Engineer-in-charge (length of finished kerb edging shall be measured for payment). | 200 | cum | 4587.54 | 917508.24 |
| 24 | 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 | 10 | RM | 392.04 | 3920.40 |

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| S.No. | Description of Item | Quantity | Unit | Unit Rate | Amount |
|-------|---|----------|------|-----------|-----------------|
| | 300mm dia. RCC pipe | 10 | RM | 490.05 | 4900.50 |
| | 450mm dia. RCC pipe | 10 | RM | 735.08 | 7350.75 |
| | | | | | |
| 25 | 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 | 8712.00 | 87120.00 |
| | | | | | |
| 26 | 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. | 250 | cum | 1198.77 | 299692.80 |
| | | | | | |
| 27 | 12mm thick cement mortar plaster 1:4 (1Cement:4 Coarse Sand) at all elevation profiles and level including providing & supplying labour, material, tool, tackles & equipment) | 235 | Sqm | 120.08 | 28218.54 |
| | | | | | |
| 28 | Demolishing cement concrete work of any grade manually/by mechanical means including disposal of material to any lead as per direction of Engineer-In-Charge. (Whenever the demolishing work is carried out and adjacent area is affected by demolition work, these shall be repaired with matching finish and cost of such repair deemed to be included in above cost). | 10 | cum | 376.01 | 3760.08 |
| | | | | | |
| 29 | Demolishing R.C.C work manually/by mechanically means including stacking of steel bars and disposal of unserviceable material and shifting of steel bar in store as directed by Engineer-In-Charge. (Whenever the demolishing work is carried out and adjacent area is affected by demolition work, these shall be repaired with matching finish and cost of such repair deemed to be included in above cost). | 25 | Cum | 889.87 | 22246.64 |
| | | | | | |
| 30 | Extra for cutting reinforcement bars manually/by mechanical means in R.C.C or R.B. work (payment shall be made on the cross sectional area of R.C.C or R.B. Works) as per direction of Engineer-In-Charge | 550 | Sqm | 295.56 | 162558.74 |
| | | | | | |
| | | | | | 37603752 |

Note:

- 1 For Item No : 8(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: 8 (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.

ANNEXURE-II

Name of Project : 400/132/33 KV Substation at NPGC Nabinagar,Bihar

Name of Work: Under Ground earthing and electrodes

| Sl. No. | Description of Item | Unit | Qty. | Unit Rate | Total Amount (Rs.) |
|---------|---|------|-------|-----------|--------------------|
| 1 | Unloading, storing and laying of 40 mm dia MS Rods at a depth of 600 mm measured from the top of FGL (either top of gravel or top of land as the case may be) for bringing out risers just below ground level near the equipment foundations as per requirement including following works: - excavation of trenches - laying of MS rod - welding of rods - backfilling of soil for bringing out pig tail risers of 40 dia MS rod for equipments. - any other work necessary to complete the laying of earthmat For welding of rods & riser details refer enclosed NTPC drg. (40 mm Diameter MS rod will be supplied by BHEL) | MT | 20.00 | 5538.75 | 110775.00 |
| 2 | Fabrication & laying of Auxiliary Mat of 40 mm Dia MS Rods at a depth of 300 mm from top of FGL including excavation & backfilling as per Drg No. 'TB-XXX-316-AUX_ MAT' & connection with existing main earthmat - any other work necessary to complete the laying of earthmat (40 mm Diameter MS rod will be supplied by BHEL) | Nos. | 4.00 | 2029.65 | 8118.60 |
| 3 | Supply & Installing of 40 mm dia GS pipe Electrode (length - 3.0 Mtr) as per dr. no. TB-350-316-017, with test links and treated earth pit with CI frame and hinged cover alongwith all associated civil works i.e - excavation - installing the pipe electrode with alternate layers of Coke & charcoal, salt - backfilling and compaction - Casting the Test Pit with Cast Iron covers - any other work necessary to complete the work | Nos. | 4.00 | 7717.50 | 30870.00 |
| 4 | Installing of 40 mm diameter Rod Electrode with test pit/link as per Drg. No. TB-XXX-316-ROD ELECTRODE including following works : - excavation - installing the rod electrode - backfilling and compaction - Casting the Test Pit with Cast Iron covers - any other work necessary to complete the work (only 40 mm Diameter MS rod & test link shall be supplied by BHEL, other items like CI frame, cover etc. are in bidder's scope) | Nos. | 12.00 | 3428.25 | 41139.00 |
| 5 | Installing of 40 mm diameter Rod Electrode without test pit/link including following works: - excavation/hammering of rod in earth - installing the rod electrode - backfilling and compaction - any other work necessary to complete the work (40 mm Diameter MS rod will be supplied by BHEL) | Nos. | 6.00 | 2976.75 | 17860.50 |
| | TOTAL AMOUNT (RS.) | | | | 208763 |

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

PRICE SCHEDULE FORMAT

SUB: EXECUTION AND HANDING OVER OF BALANCE CIVIL WORKS (EXCLUDING GRAVELLING, FENCING AND BUILDING WORKS) OF 400/132/33KV SWITCHYARD AT NABINAGAR STPP & TPP IN BIHAR.

(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 & II) of subject tender.

NOTE:

1. In this annexure the tenderer shall quote a percentage above or below or at par the rates shown in the Bill of Quantities (Annexure-I & II) 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-IV

**SUMMARY OF PRICES FOR EXECUTION AND HANDING OVER OF BALANCE CIVIL WORKS
(EXCLUDING GRAVELLING, FENCING AND BUILDING WORKS) OF 400/132/33KV SWITCHYARD
AT NABINAGAR STPP & TPP IN BIHAR**

| Sl No. | Description | Amount (Rs.) |
|---------------|--|---------------------------|
| 1 (a) | Total amount as per the rates in BOQ for civil works (excluding gravelling, fencing and building works) (Annexure-I) | 376,03,752 |
| 1 (b) | Total amount as per the rates in BOQ for underground earthing works (Annexure-II) | 2,08,763 |
| 1 | Total Amount (Annexure- I & II) | 378,12,515 |
| 2 | Value of percentage above/below/at par (As indicated in Price Schedule Format, Annexure-III) applicable to the total amount of civil work (Sl. no. 1 above) |% above/below/at par |
| 3 | Total amount after consideration of percentage above/below/ at par. | |