

# **TENDER SPECIFICATION**

## **BHEL PSSR SCT 1399**

**CONSTRUCTION OF PILE AND PILE CAP FOR  
FOUNDATION IN MAIN PLANT**

**at**

**231MW CPP PARADIP REFINERY IOCL PARADIP,  
ORISSA**

### **VOLUME - III**

**PRICE BID**

**BOOK NO .....**



**BHARAT HEAVY ELECTRICALS LIMITED**  
**(A GOVERNMENT OF INDIA UNDERTAKING)**  
**POWER SECTOR – SOUTHERN REGION**  
**690, ANNA SALAI, NANDANAM, CHENNAI – 600 035**

**BHARAT HEAVY ELECTRICALS LIMITED**  
(A Government of India Undertaking)  
POWER SECTOR – SOUTHERN REGION,  
690, ANNA SALAI, NANDANAM, CHENNAI – 600 035.

# TENDER SPECIFICATION No. BHEL PSSR SCT 1399

## NAME OF THE WORK

Construction of Pile and Pile cap for Foundation in Main Plant (i.e. GTG, ,Utility Boilers, Fuel Oil System, DG Building, FGD Booster, CST, CT Pumps,Transformer,AC Plant,HRSG, STG, Switch Gear Control Building etc ) at 231MW CPP Paradip Refinery IOCL Paradip, Orissa

## Volume III

## RATE SCHEDULE

DATE:

Issued to

M/s.

For and on behalf of  
BHARAT HEAVY ELECTRICALS LTD

AGM / CONTRACTS

The tender documents are not transferable.

Place: Chennai-600035

Date:

**PREAMBLE FOR THE SCHEDULE OF QUANTITIES**

## PREAMBLE TO THE SCHEDULE OF QTS. (SOQ)

- 1) Details of the items in this Schedule shall be read in conjunction with the corresponding IOCL/EIL specifications and other documents and shall have precedence over any contrary statement mentioned any where in this document.
- 2) The work shall be carried out as per construction drawings (which will be issued progressively during the execution), specifications, the description of the items in this schedule and/or Engineer's instructions. The layout, sizes and details of the building, structures and foundations may vary at a large extent during actual construction.
- 3) Items of work provided in this schedule but not covered in the specifications shall be executed strictly as per instructions of the Engineer.
- 4) Unless specifically mentioned otherwise in the contract, the bidder shall quote his rates for the finished items and shall provide for the complete cost towards fuel, tools, tackle, equipment, constructional plant, temporary works, labour, materials, levies, taxes, transport, layout, repairs, rectification, maintenance till handing over, supervision, shops, establishments, services, temporary roads, revenue expenses, contingencies, overheads, profits and all incidental items not specifically mentioned but reasonably implied and necessary to complete the works according to the contract.
- 5) The rate quoted shall be inclusive of cleaning the site of any vegetations, dressing and leveling etc., required for commencement of site activities. No separate payment will be made towards the same.
- 6) The rate shall also be inclusive of carrying out survey of site to establish levels and coordinates at suitable intervals, from existing grid levels and coordinates furnished by the owner, establish bench marks, setting out the location and levels of the proposed structures, constructions and making references, pillars and other identification marks etc. No separate payment will be made towards the same.
- 7) The quantities of the various items mentioned in the schedule are approximate and may vary up to any extent or be deleted altogether. The quoted rates of each item shall remain firm as long as the variation in the total value of the works executed under this contract, including extra items if any, remain within +/- 30% (thirty percent) of the Bid Price of the probable extent of the work to be executed under any particular item in this schedule, before under taking any preliminary work or purchasing bought out component related to the work. The variation clause will be applicable as stipulated in the General conditions of contract, Volume 1 of this tender.
- 8) Rates shall be quoted both in figures and in words in clear legible writing. No over writing is allowed. All scoring and cancellation should be counter signed by the bidder. In case of illegibility, the interpretation of the engineer shall be final. All entries shall be in English language.

- 9) Engineers decision shall be final and binding on the contractors regarding clarification of items in this schedule with respect to the other section of the contract.
- 10) Unless otherwise specified in the schedule of items Reinforcement steel and earth rod/flat will be issued by BHEL as FREE ISSUE for incorporation in the permanent works as specified elsewhere in this tender document.
- 11) In case of any discrepancy between item description, relevant drawing and/or specification clarification shall be sought at tender stage itself. Otherwise it shall be assumed that the bidder has quoted for the more stringent requirement.

### **HIERARCHY**

**In case of any conflict/deviations amongst various documents, the order of precedence shall be as follows**

- Items in Schedule of quantities
- Statutory Regulations
- IOCL/EIL specification
- IS/BS standards

### **GENERAL:**

**NOTE: The bidder to note the following before submission of the offer**

**Technical requirements in Volume- II should be read in conjunction with BOQ in Volume – III and other sections of the tender / contract. In case of any conflict between the contents of BOQ in Volume – III and Technical Requirements in Volume – II, then BOQ will prevail over Technical requirements.**

**231 MW CPP PARADIP REFINERY IOCL PARADIP ORISSA****General Civil Works for Piling, Pile cap, Foundation & Other allied works of GTG, Utility Boilers, Fuel Oil System, DG building, FGD Booster, CST, CT pumps, Transformer, AC plant, HRSG, STG, Switch Gear Control Building & Other Main Plant Buildings/Structures**

| SL. NO | DESCRIPTION   | UNIT | QTY   | RATE (INR) | AMOUNT (INR)<br>in words & figures |
|--------|---|------|-------|------------|------------------------------------|
|        |   |      |       | in Rupees  |                                    |
| 100    | <b>EARTH WORK IN EXCAVATION, BACKFILLING AND DISPOSAL AS PER SPECIFICATION AND DRAWINGS</b>   |      |       |            |                                    |
| 101    | Earth work in excavation in all types of soil including ash which can be excavated by any means including setting out, levelling, dewatering (but excluding special type of dewatering viz. well point method), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 500 m, spreading/levelling of disposed materials etc all complete for following depths below ground level. |      |       |            |                                    |
|        | a Depth from ground level but not exceeding 2 m   | CUM  | 61400 |            |                                    |
|        | b Depth exceeding 2 m but not exceeding 4 m   | CUM  | 20200 |            |                                    |
|        | c Depth exceeding 4 m but not exceeding 6 m   | CUM  | 300   |            |                                    |
| 102    | Extra over ST No. 101 for dewatering of ground water by well point method as per IS 9759.   | CUM  | 73710 |            |                                    |
| A107   | <b>Back filling</b> upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 200 mm thickness using/with <b>selected materials from compulsorily excavated soil</b> available within a lead upto 500m and compacted as specified including re-excavation of stacked earth, watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following.   |      |       |            |                                    |
|        | a Each layer compacted so as to achieve at least 80% relative density as per IS-2720 part XIV in case of sandy soils.   | CUM  | 22265 |            |                                    |
| A108   | <b>Back filling</b> upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 200 mm thickness using/with selected materials <b>directly from excavation</b> and compacted as specified including watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following.   |      |       |            |                                    |
|        | a Each layer compacted so as to achieve at least 80% relative density as per IS-2720 part XIV in case of sandy soils.   | CUM  | 22265 |            |                                    |

| SL. NO | DESCRIPTION   | UNIT | QTY   | RATE (INR) | AMOUNT (INR)<br>in words & figures |
|--------|---|------|-------|------------|------------------------------------|
|        |   |      |       | in Rupees  |                                    |
| A109   | <b>Extra over ST No. 101</b> for carriage of excavated earth/selected materials for every 1 km or part thereof beyond an initial lead of 500m.  | CUM  | 97000 |            |                                    |
| A111   | <b>Supplying and filling sand</b> upto any depth under floors, tank pads, around foundations, plinths etc. in layers of 150 mm (compacted thickness) and compacted so as to achieve 85% relative density as per IS-2720 (Part-XIV) including spreading, watering, ramming/compaction by manual / mechanical means, dressing, royalty (if any) etc. all complete. <b>Sand for filling shall be clean and well graded conforming to IS: 383 with grading not inferior than zone III.</b>  | CUM  | 4200  |            |                                    |
| 200    | <b>PROVIDING AND PLACING CONCRETE WORK INCLUDING COST OF LABOUR, MATERIALS AND EQUIPMENT FOR HANDLING, TRANSPORTATION, BATCHING, MIXING, PLACING, VIBRATING INCLUDING COST OF PLASTICIZERS/ADMIXTURES CONFORMING- IS9103 LATEST TO ACHIEVE SLUMP AS PER SPECIFICATION/DIRECTION OF ENGINEER/MANUFACTURERS RECOMENDATION ETC FOR STRUCTURAL CONCRETE, IN CONCRETE WHEREEVER REQUIRED AND CURING (EXCLUDING COST OF CENTERING, SHUTTERING AND REINFORCEMENT) COMPLETE AS PER DRAWING AND SPECIFICATIONS UNLESS SPECIFIED OTHERWISE FOR THE FOLLOWING:</b> |      |       |            |                                    |
| 201    | <b>Concrete of grade M7.5</b> (1 part cement, 4 part sand, 8 parts of 40 mm graded aggregate by volume) as <b>filling course</b> at any depth below finished floor level, under and around foundations/floors, mass fill etc.   | CUM  | 100   |            |                                    |
| A201   | <b>Concrete 1:5:10</b> (1 part cement, 5 part sand, 10 parts of 40 mm graded aggregate by volume) as <b>filling course</b> at any depth below finished floor level, under and around foundations/floors, mass fill etc.   | CUM  | 2700  |            |                                    |
| 202    | Concrete of <b>grade M10</b> (1 part cement, 3 part sand, 6 parts of 40 mm graded aggregate by volume) as <b>lean concrete, levelling course</b> , mud mat under and around foundations/floors at any depth below finished floor level etc.   | CUM  | 60    |            |                                    |
| 205    | Providing and laying Design Mix cement concrete conforming to IS:456 & IS 10262-2009 for reinforced concrete works with coarse sand and graded hard stone aggregate of 20mm nominal size <b>in foundations/substructure, grade slab, paving, drains, under floors</b> etc at any level below finished floor level, any shape, position or thickness etc complete including use of plasticizer/ superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete as per specification & drawing for the following.     |      |       |            |                                    |
| a      | M25 Grade   | CUM  | 428   |            |                                    |

| SL. NO | DESCRIPTION  | UNIT | QTY   | RATE (INR)       | AMOUNT (INR)<br>in words & figures |
|--------|--|------|-------|------------------|------------------------------------|
|        |  |      |       | <b>in Rupees</b> |                                    |
| b      | M30 Grade  | CUM  | 323   |                  |                                    |
| Ac     | M35 Grade  | CUM  | 21083 |                  |                                    |
| 206    | Providing and laying Design Mix cement concrete conforming to IS:456 & IS 10262-2009 for reinforced concrete works with coarse sand and graded hard stone aggregate of 20mm nominal size <b>in superstructure</b> at any level above finished floor level, any shape, position or thickness etc complete including use of plasticizer/ superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete as per specification & drawing for the following.  |      |       |                  |                                    |
| a      | M25 Grade  | CUM  | 100   |                  |                                    |
| b      | M30 Grade  | CUM  | 630   |                  |                                    |
| 207    | Providing and laying Design Mix cement concrete conforming to IS:456 & IS 10262-2009 for reinforced concrete works of grade <b>M-30 Grade</b> in machine foundations for TG, Gas Turbine, ID/FD/PA fans, BFP, Coal mills at all elevations below/above finished floor level <b>except TG deck and top decks</b> supported over vibration isolation system including addition of suitable plasticizer conforming to IS 9103(latest) to achieve a slump more than 125mm in concrete as per manufacturer's recommendation with 20 mm nominal size graded aggregate in concrete all complete as per specification & drawing.   | CUM  | 100   |                  |                                    |
| A207   | Providing and laying Design Mix cement concrete conforming to IS:456 & IS 10262-2009 for reinforced concrete works of grade <b>M-35 Grade</b> in machine foundations for TG, Gas Turbine, ID/FD/PA/FGD booster fans, BFP, Coal mills at all elevations below/above finished floor level <b>except TG deck and top decks</b> supported over vibration isolation system including addition of suitable plasticizer conforming to IS 9103(latest) to achieve a slump more than 125mm in concrete as per manufacturer's recommendation with 20 mm nominal size graded aggregate in concrete all complete as per specification & drawing.   | CUM  | 4300  |                  |                                    |
| 208    | Providing and laying Design Mix cement concrete as per IS:456 & IS 10262-2009 of grades mentioned below for reinforced concrete works using graded aggregate in <b>top decks of all machine foundations</b> supported on vibration isolation system (excluding supply and installation of vibration system) and <b>top deck of TG foundation</b> at all levels including addition of suitable plasticizers conforming to IS9103 to achieve a slump more than 125 mm in concrete as per manufacturers recommendation, preparation of scheme for concreting, getting it approved by engineer, labour, materials, equipment, handling, batching, transporting, mixing, pumping, placing, leveling, vibrating, |      |       |                  |                                    |

| SL. NO | DESCRIPTION   | UNIT | QTY  | RATE (INR) | AMOUNT (INR)<br>in words & figures |
|--------|---|------|------|------------|------------------------------------|
|        |   |      |      |            | <b>in Rupees</b>                   |
|        | compacting, curing, testing, cleaning and rendering the exposed surface with cement sand mortar to give a smooth and even surface, maintaining and submitting records of concreting, petrographic examination and potential reactivity of aggregate etc. all complete as per specification, drawing and instructions of engineer, including UPV testing as directed by engineer in charge, rectification of the defects in concreting observed by ultra-sonic pulse velocity (UPV) testing by cement/epoxy grout etc, but excluding formwork, staging, reinforcement, embedments and temperature control of concrete.<br>Payment terms - a) After casting 75% ; b) After receipt of ultrasonic test report - 25%. |      |      |            |                                    |
|        | a M30 grade (with 20mm nominal size graded stone aggregate)   | CUM  | 100  |            |                                    |
|        | b M35 grade (with 20mm nominal size graded stone aggregate)   | CUM  | 800  |            |                                    |
|        | c M40 grade (with 20mm nominal size graded stone aggregate)   | CUM  | 100  |            |                                    |
| 209    | Extra over St. No. 205 to 208 & A207 for <b>controlling of temperature</b> of fresh concrete to less than 23 degree centigrade using ice, including all related arrangements for providing, storing and mixing of ice with water, cooling of aggregates etc. All complete as per specification, drawing and instruction of engineer in charge.  | CUM  | 3500 |            |                                    |
| 210    | Extra over ST Nos. 205 to 207 & A207 for <b>conducting UPV test</b> for concrete at all levels including all equipments, making necessary arrangements, staging, submission of report etc. all complete as directed by engineer in charge and as per specification.   | CUM  | 3500 |            |                                    |
| A211   | <b>Providing and encasing of structural steel member with concrete for fire proofing</b> using nominal aggregate size of 10.0 mm down for fireproofing works with M25 grade concrete 50 mm thick including staging & form works, reinforcement mesh (3mm thick wire, 50x50 size mesh) , expanded metal sheets if required, nuts, tie wires, weldings, surface preparation, rendering with cement mortar 1:3 to make the concrete surface smooth after deshuttering, curing etc. all complete as per EIL specification 6-68-0033 Rev 5. Expanded metal sheets shall be measured and paid separately.   | CUM  | 50   |            |                                    |
| 215    | <b>Dismantling concrete</b> work for all types of structures at all levels including stacking of servicable material to a lead of 500 m and disposal of unservicable material upto a lead of 2 km, cutting of reinforcement, labour, equipment, safety precautions etc all complete as per drawings, specification and instructions of engineer in charge.  |      |      |            |                                    |

| SL. NO | DESCRIPTION  | UNIT                      | QTY   | RATE (INR)       | AMOUNT (INR)<br>in words & figures |
|--------|--|---------------------------|-------|------------------|------------------------------------|
|        |  |                           |       | <b>in Rupees</b> |                                    |
| a      | Plain cement concrete of all grades  | CUM                       | 1     |                  |                                    |
| b      | Reinforced cement concrete of all grades   | CUM                       | 2     |                  |                                    |
| 216    | <b>Chipping of concrete</b> in reinforced concrete work, cutting pockets, making openings at all levels and according to shapes, disposal of waste materials upto a lead of 2 km as directed by engineer including equipment, safety precautions, making good the broken surface etc all complete as per specification, drawing, instructions of engineer in charge but excluding cutting of reinforcement . | CUDM<br>(Cubic Decimeter) | 100   |                  |                                    |
| 217    | Extra over and above St No 216 for <b>cutting of reinforcement</b> , all sizes and types including labour, equipment, return of cut reinforcement to store etc all complete as per specification, drawings and instructions of engineer in charge. Measurement shall be on the cross sectional area of reinforcement cut.  | SQCM                      | 30    |                  |                                    |
| 218    | Cutting Reinforced concrete with mechanised tools like Core drilling machine etc. for cutting pockets, holes, cores in slab, beam, column or foundation as per direction of engineer in charge.  | CUDM                      | 20    |                  |                                    |
| 300    | <b>SUPPLYING, FIXING AND REMOVING FORMWORK AT ANY ELEVATIONS FOR ALL STRUCTURES, AS PER SPECIFICATIONS AND INCLUDING ALL LABOUR MATERIAL, SCAFFOLDINGS AND CENTEREING COMPLETE INCLUDING POCKETS ETC. FOR THE FOLLOWING:</b>   |                           |       |                  |                                    |
| A301   | <b>Form work with good quality steel shuttering</b> below ground floor level for foundations, footings, base of columns, walls, columns, pilasters, beams, mass concrete, trenches etc.  |                           |       |                  |                                    |
| a      | <b>Straight shuttering</b>   | SQM                       | 73000 |                  |                                    |
| b      | <b>Curved shuttering in plan</b>   | SQM                       | 2000  |                  |                                    |
| A302   | <b>Form work with good quality steel shuttering</b> above ground floor level for foundations, footings, base of columns, walls, columns, pilasters, beams, mass concrete, trenches etc.  | SQM                       |       |                  |                                    |
| a      | <b>Straight shuttering</b>   | SQM                       | 3000  |                  |                                    |
| b      | <b>Curved shuttering in plan</b>   | SQM                       | 600   |                  |                                    |

| SL. NO | DESCRIPTION  | UNIT | QTY  | RATE (INR) | AMOUNT (INR)<br>in words & figures |
|--------|--|------|------|------------|------------------------------------|
|        |  |      |      | in Rupees  |                                    |
| A303   | <b>Fairface Formwork with good quality steel shuttering for TG</b> superstructure (above base raft level) including preparation of scheme, designing, submission and approval of staging drawing with sufficient props, braces and ties at every tier of height of approx. 4m for all heights.   | SQM  | 2800 |            |                                    |
| 304    | Providing, fixing and removing <b>formwork in block-outs/pockets</b> and openings (below 0.1 sqm plan area) at all elevations including cutting, formation of all shapes and all other operations required for making the required shape and size all complete as per specification, drawing and instruction of engineer in charge.  |      |      |            |                                    |
| a      | Upto 150 mm depth  | Each | 10   |            |                                    |
| b      | Pockets of depths more than 150mm and upto 300 mm depth  | Each | 10   |            |                                    |
| c      | Pockets of depths more than 300mm and upto 600 mm depth  | Each | 230  |            |                                    |
| d      | Pockets of depths more than 600mm and upto 1000 mm depth   | Each | 106  |            |                                    |
| e      | Pockets of depths more than 1000mm and upto 1500 mm depth  | Each | 40   |            |                                    |
| 400    | <b>REINFORCEMENTS(BHEL will supply Reinforcement Steel as a free issue) However transporting from BHEL stores is in agency's scope. The Steel will be issued to the agency in standard lengths. In some instances for 8mm, 10mm &amp; 12mm dia steel will be supplied in coil form. No extra claims against issue of non-standard lengths and de-coiling of 8mm,10mm &amp; 12mm.</b>                                     |      |      |            |                                    |
| A402   | Transporting BHEL stores including loading & unloading, straightening, cutting, bending, placing in position at any level, binding in position of <b>steel reinforcements of TMT steel of grade Fe-500</b> confirming to <b>IS:1786</b> including cost of binding wire 16 gauge size, labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer. | MT   | 4496 |            |                                    |
| 600    | <b>SUPPLYING &amp; INSTALLATION OF JOINT FILLER AND SEALING COMPOUND:</b>  |      |      |            |                                    |
| 601    | Supplying & installation of <b>bitumen impregnated fibre board</b> confirming to IS 1838 as joint filler at joints in concrete including nailing, coating of both faces with coal tar pitch/bitumin etc. all complete.   |      |      |            |                                    |

| SL. NO      | DESCRIPTION  | UNIT    | QTY | RATE (INR)       | AMOUNT (INR)<br>in words & figures |
|-------------|--|---------|-----|------------------|------------------------------------|
|             |  |         |     | <b>in Rupees</b> |                                    |
| a           | 12 mm wide joints.   | SQM     | 10  |                  |                                    |
| b           | 20 mm wide joints.   | SQM     | 540 |                  |                                    |
| d           | 50 mm wide joints  | SQM     | 24  |                  |                                    |
| 606         | <b>Providing and fixing PVC water stops</b> in joints conforming to IS 12200 & IS 15058 all complete for the following:  |         |     |                  |                                    |
| Ad          | <b>230 mm wide and 5 mm thick</b>  | RM      | 480 |                  |                                    |
| <b>700</b>  | <b>M.S. EMBEDMENTS</b>   |         |     |                  |                                    |
| 701         | Supply, fabricating and fixing of mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc. including welding, bolting, cutting, drilling, scaffolding, setting etc. all complete.   | MT      | 16  |                  |                                    |
| 702         | Same as above with BHEL supplied material free of cost including loading, transportation, unloading etc. all complete from BHEL store to plant site.   | MT      | 20  |                  |                                    |
| 703         | Fixing of embedments, inserts, pipe sleeves, angle pieces, anchor bolts of various diameters, plates of dimensions as required etc. including scaffolding, setting in position, transportation from BHEL site stores to work spot etc. all complete.   | MT      | 64  |                  |                                    |
| 704         | Supply, Fabrication, transportation, delivery at site and erection, installation and alignment of mild steel foundation bolt assembly conforming to IS:2062 and grade 1 of IS:432 in concrete along with nuts, lock nuts (as per IS:1363, 1364 and IS:3138), washers, anchor plates, stiffner plates, protective tape, pipe sleeves, templates etc. including welding, cutting, grinding, threading, drilling etc. all complete. | MT      | 22  |                  |                                    |
| 705         | Supplying, fabricating, erecting and installing following items in concrete/brickwall for all kind of works, including setting material in concrete, layout, scaffolding, cutting, forming, grinding, drilling, bolting, welding, jointing, testing etc. all complete.   |         |     |                  |                                    |
| b           | <b>PVC pipes / conduits of all diameters</b>   | Quintal | 1   |                  |                                    |
| c           | <b>UPVC pipes / conduits of all diameters</b>  | Quintal | 6   |                  |                                    |
| <b>1000</b> | <b>Brickwork masonry including all labour, material, equipment, transportation, handling, scaffolding etc. at all levels as per specification, drawings and as directed by engineer - in - charge.</b>   |         |     |                  |                                    |

| SL. NO      | DESCRIPTION  | UNIT | QTY  | RATE (INR)       | AMOUNT (INR)<br>in words & figures |
|-------------|--|------|------|------------------|------------------------------------|
|             |  |      |      | <b>in Rupees</b> |                                    |
| 1001        | Providing <b>brick work</b> in cement mortar 1:6 (1 part cement 6 parts coarse sand) in walls, chambers etc. in thickness varying from 230mm to 460mm at all depths, places and positions <b>below plinth</b> including raking out joints, curing, scaffolding etc. complete excluding plastering and painting.  |      |      |                  |                                    |
|             | d <b>Using burnt clay bricks</b> of class designation 5.0 of nominal dimension   | CUM  | 15   |                  |                                    |
| A1002       | Providing <b>brick work</b> in cement mortar 1:5 (1 cement 5 coarse sand) in walls, chambers etc. in thickness varying from 230mm to 460mm at all heights, places and position <b>above plinth</b> including raking out joints, curing, scaffolding etc complete excluding plastering and painting.  |      |      |                  |                                    |
|             | Ad <b>Using burnt clay bricks</b> of class designation 5.0 of nominal dimension  | CUM  | 160  |                  |                                    |
| <b>1200</b> | <b>Cement mortar plaster including making grooves wherever required including all labour, material, scaffolding, curing etc at any level as per specification, drawings and as directed by engineer - in - charge.</b>   |      |      |                  |                                    |
| A1201       | Providing <b>18mm thick plaster</b> in two layers <b>outside</b> the building/boundary wall in cement mortar <b>1:4</b> on walls, finished to a smooth finish including providing 3mmx3mm size grooves at junctions of two dissimilar materials , acrylic water proof compound (@ 1 Kg per 50 Kg of cement) etc. all complete.                             | SQM  | 800  |                  |                                    |
| A1202       | Providing <b>12mm thick plaster inside</b> the building/boundary wall in cement mortar <b>1:4</b> on walls, finished to a smooth finish including providing 3mmx3mm size grooves at junctions of two dissimilar materials all complete.  | SQM  | 800  |                  |                                    |
| 1204        | Providing <b>6mm thick plaster on ceiling</b> in cement mortar <b>1:4</b> finished to a smooth all complete.   | SQM  | 805  |                  |                                    |
| 1207        | <b>Forming groove</b> of uniform size from 12X12 mm upto 20X15 mm in plastered surface as per approved pattern, using wooden battens nailed to the under layer, including removal of wooden battons, repair of the edges of plaster panel and finishing the groove etc. complete as per specification, drawing and the instructions of engineer in charge. | RM   | 50   |                  |                                    |
| A1211       | Supply & fixing 20G chicken wire mesh on brick/ stone masonry and RCC joints and fixed with GI type nails etc. complete  | SQM  | 35   |                  |                                    |
| <b>1300</b> | <b>Finishes, painting to concrete, plastered surfaces including all labour, material, equipment, surface preparation, scaffolding etc. at any level as per specification, drawings and as directed by engineer - in - charge.</b>  |      |      |                  |                                    |
| A1317       | Providing & applying Antifungal treatment to exposed concrete surfaces complete as per EIL specification No. A011-06-42-PT-H09 R0.   | SQ.M | 3500 |                  |                                    |

| SL. NO | DESCRIPTION   | UNIT | QTY    | RATE (INR)       | AMOUNT (INR)<br>in words & figures |
|--------|---|------|--------|------------------|------------------------------------|
|        |   |      |        | <b>in Rupees</b> |                                    |
| 1800   | <b>Miscellaneous works including all labour, material, equipment etc. at any level unless otherwise specified as per specification, drawings and as directed by engineer - in - charge.</b>   |      |        |                  |                                    |
| 1802   | Providing and mixing approved <b>Bipolar Concrete penetrating Corrosion inhibiting admixture</b> in concrete as per detail specification of manufacturer etc. all complete.   | Kg   | 164000 |                  |                                    |
| 1805   | Providing 50mm thick <b>premix carpet surfacing</b> laid to slope in two layers 30mm and 20mm respectively with 12mm downgraded stone chips mixed with 80/100 grade bitumen @ 52 Kg/Cu.M including compaction etc. all complete.  | SQM  | 960    |                  |                                    |
| 1806   | Providing 50mm thick <b>anti corrosive layer</b> laid to required slope consisting of clean & well graded coarse sand mixed with A90 grade bitumen for softening point upto 45 degree Celcius or A65 grade bitumen for softening point above 45 degree celcius as per IS: 73 or its equivalent quality 8 to 10% by volume and rolled or compacted all complete. | SQM  | 200    |                  |                                    |
| 1810   | Providing, laying and fixing <b>rails and guide rails in concrete</b> for transformer, rail track including cutting of rails, joining of rails, anchoring lugs etc all complete.  | MT   | 7      |                  |                                    |
| 1811   | Providing and fixing <b>weep holes</b> in Drains consisting of <b>100 mm dia HDPE pipe sleeves</b> with single side covering for the pipe mouth with galvanised welded wire fabric of 20 mm sq. opening covered with 40 mm downgraded aggregates in 300 X 300 mm sq. and 300 mm deep size all complete.   | EACH | 10     |                  |                                    |
| 1812   | Laying of <b>earthing mats/rods</b> including risers, transportation from yard stores, loading, unloading, cutting to length, welding, protective painting of joints etc. all complete. (Excavation & Back filling shall be paid separately under respective item of earth work. Earthing mats/rods shall be supplied by BHEL free of cost)                     | MT   | 97     |                  |                                    |
| A1813  | Installation of <b>Earthing test pit Electrodes (electrodes will be supplied free by BHEL)</b> including boring, filling of pit with salt, charcoal, construction of test pits brick chamber with covers etc. complete as per EIL specifications.   | EACH | 202    |                  |                                    |
| 1826   | Supply and laying approved quality rounded pebbles / gravels of 40mm size in transformer yards.   | CUM  | 660    |                  |                                    |
| A1827  | Supply and laying fire clay refractory brick 75mm thick (Type - I) using high alumina cement @ fireclay grog (less than 1mm size) including cost of all materials, curing etc. all complete on tank pads.   | CUM  | 40     |                  |                                    |
| A1834  | Providing & laying firecrete 20 to 25 mm thick layer including curing etc. all complete as per Manufacturer's recommendation.   | CUM  | 8      |                  |                                    |
| 2000   | <b>Fencing and gates including all labour, material, equipment etc at any level as per specification, drawings and as directed by engineer - in - charge.</b>   |      |        |                  |                                    |

| SL. NO      | DESCRIPTION  | UNIT | QTY  | RATE (INR)       | AMOUNT (INR)<br>in words & figures |
|-------------|--|------|------|------------------|------------------------------------|
|             |  |      |      | <b>in Rupees</b> |                                    |
| 2002        | Supplying and erecting in position <b>2.4 m high gavanised chain linked fencing</b> conforming to IS 2761 of <b>10G</b> hot dip galvanised steel wires woven in the form of zig-zag mesh giving an opening size of 50 mm square. <b>GI barbed wire fencing of height of 600 mm</b> confirming to IS 298 at top of chain link fencing shall be provided with 4 strands of barbed wire hot dip galvanised wire of 12G comprising of 2 ply of wires with barbs of 16G spaced at 100mm. Cost to include for GI hook bolts, rings & washers, hot dip galvanised tension wires, 25X6 mm GI flat stretcher bar at end posts, accessories etc. all complete. (Structural post shall be separately under ST No. 2008)   | RM   | 630  |                  |                                    |
| 2008        | Supply, fabrication and fixing of <b>mild steel posts</b> for fencing including painting etc all complete.   | MT   | 2    |                  |                                    |
| 2010        | Supply, fabrication and installing in position and testing <b>MS Gates</b> out of channels, joists, angles, flats, plates, pipes, welded steel wire mesh & sheets including stiffners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, bronze aluminium ball bearing arrangements, castor wheels, primer & aluminium paintings etc. all complete.   | MT   | 7    |                  |                                    |
| <b>2500</b> | <b>PILING WORKS</b>  |      |      |                  |                                    |
| A2501       | <b>Mobilisation of (4)four set of Driven cast in situ RCC piling rigs</b> and accessories capable of installing 500mm diameter piles in all types of soil to project site and demobilisation of the same after completion of piling works etc all complete.  | Set  | 4    |                  |                                    |
| A2503       | Installation of <b>driven cast-in-situ RCC vertical pile</b> as per IS 2911 (Part 1, Sec. 1) by driving a suitable MS casing pipe (removable) having detachable MS shoe (flat/conical) at the bottom and driving using atleast 5 MT hammer for the length as specified ( <b>length to be measured from pile cut-off level to the bottom of pile</b> )/for the desired set criteria (to be finalised during contract stage) so as to acheive the safe load carrying capacity as mentioned using cement concrete grade M35 conforming to IS:456 with 20 mm nominal size stone aggregates with<br><br>a minimum cement content of 400Kg per cum of concrete including providing all materials (but excluding reinforcement steel for which measurement/payment shall be made separately), providing plasticser wherever required, breaking pile head to cut off level and exposing pile reinforcement for embedment in pile cap, empty driving etc including providing approved MS shoe(design and drawing of MS shoe shall be submitted by bidder for approval without extra cost to BHEL/Owner) etc all complete as per specification, drawing and as directed by the engineer-in-charge for the following. |      |      |                  |                                    |
| a           | Pile with 500 mm diameter and 14 m length below cut off level having a safe load carrying capacity of 80MT in vertical compression   | Each | 4483 |                  |                                    |

| SL. NO | DESCRIPTION   | UNIT | QTY  | RATE (INR)       | AMOUNT (INR)<br>in words & figures |
|--------|---|------|------|------------------|------------------------------------|
|        |   |      |      | <b>in Rupees</b> |                                    |
| A2504  | Extra over ST. No. A2503a for pile length more than the specified length of 14m below cut off level.  |      |      |                  |                                    |
| a      | For 500 mm diameter pile  | Rm   | 4000 |                  |                                    |
| A2505  | Rebate on ST.No.A2503a for pile length less than the specified length of 14 m below cut off level.  | Rm   | 1000 |                  |                                    |
| A2507  | Conducting initial load test upto a maximum test load of three times the safe load capacity on single pile as specified in accordance with IS 2911 Part-4 including preparation of pile head for testing, necessary excavation, all arrangements of loading, unloading, test equipments/ accessories, jacks, recording of results, labour, submission of test report but excluding the cost of installation of pile ( installation of pile shall be paid separately) etc. all complete as per specification, drawing and as directed by engineer in - charge for the following: |      |      |                  |                                    |
| a      | <b>For vertical compression test by cyclic load method</b>  |      |      |                  |                                    |
| i      | 500 mm diameter pile-80 MT safe load capacity   | Each | 6    |                  |                                    |
| b      | <b>For lateral load test</b>  |      |      |                  |                                    |
| i      | 500 mm diameter pile-5 MT safe load capacity  | Each | 6    |                  |                                    |
| c      | <b>For tension/uplift test</b>  |      |      |                  |                                    |
| i      | 500 mm diameter pile-20 MT safe load capacity   | Each | 6    |                  |                                    |
| A2508  | Conducting routine load test on single job pile as specified in accordance with IS 2911 (Part-4) including preparation of pile head for testing, necessary excavation, providing all arrangements of loading, unloading, test equipments/accessories, jacks, recording of results, labour, submission of test report etc but <b>excluding the cost of installation of job pile</b> complete as per specification, drawing and as directed by the engineer-in-charge for the following.  |      |      |                  |                                    |
| a      | <b>For vertical compression test by maintained load method</b>  |      |      |                  |                                    |
| i      | 500 mm diameter pile-80 MT safe load capacity   | Each | 45   |                  |                                    |

| SL. NO | DESCRIPTION   | UNIT | QTY          | RATE (INR) | AMOUNT (INR)<br>in words & figures |
|--------|---|------|--------------|------------|------------------------------------|
|        |   |      |              |            | <b>in Rupees</b>                   |
| b      | <b>For lateral load test</b>  |      |              |            |                                    |
| i      | 500 mm diameter pile-5 MT safe load capacity  | Each | 45           |            |                                    |
| A2510  | Conducting dynamic pile load test through CBRI/ IIT/Reputed institute consisting of tests - 1) Free lateral vibration tests on a set of 2 test piles, 2) Forced lateral vibration tests on a set of 3 test piles, 3) Forced vertical test on one test pile and submission of test reports. Installation of test piles, excavation, pile breaking, construction of pilecap, preparation of pile head etc. shall be paid separately.  | LS   | 1            |            |                                    |
| A2513  | Preparation of pile heads, providing manpower and arrangements necessary for assisting in conductance of dynamic pile load test.  | LS   | 1            |            |                                    |
|        |   |      | <b>TOTAL</b> |            |                                    |
|        | <u>Note to Rate schedule:</u>   |      |              |            |                                    |
| i)     | The quantities of the various items mentioned in the schedule are approximate and may vary up to any extent or be deleted altogether. The quoted rates of each item shall remain firm as long as the variation in the total value of the works executed under this contract, including extra items if any, remain within +/- 30% (thirty percent) of the Bid Price of the probable extent of the work to be executed under any particular item in this schedule, before under taking any preliminary work or purchasing bought out component related to the work. The variation clause will be applicable as stipulated in the General conditions of contract, Volume 1 of this tender. |      |              |            |                                    |
| ii)    | <b>PAYMENT FOR ADDITIONAL ITEMS</b>   |      |              |            |                                    |
|        | For working out the rates for supplemental / additional items, the least of the following will be operated.   |      |              |            |                                    |
| a)     | Near similar item (or) derived from LOI items   |      |              |            |                                    |
| b)     | Direct from CPWD schedule of rates. The cost index (based on formula) for the project site prevailing during the year of reckoning, shall be calculated and applied over the DSR-2007 item rate.  |      |              |            |                                    |
| c)     | Derived from CPWD rates (While deriving the rate from CPWD, the above procedure (as given in (b)) shall be followed).   |      |              |            |                                    |
|        | If any item could not be derived from the above, Rate will be worked out based on market rate for such item with 15% plus towards contractor's overhead and profit.   |      |              |            |                                    |