

Name of Work: Supply and Installation of Maintenance Free Earth Pits inside factory

A) Scope of work:

1. The work involves supply and installation of Maintenance free Earth Pits conforming to IS:3043 as per the specification below and the attached drawing.
2. The contractor has to submit the Test Certificate for the Earth /Ground Enhancement compound conforming to IEC 62561- Part 7 or equivalent documents for the earth pits before the start of the work:
3. Following are the components of earthing and bonding system.
 - a) Earth Electrode.
 - b) Earth Enhancement Material.
 - c) Earth Pit.
4. The main earthing electrode shall be made up of high tensile low carbon steel rods bonded with copper on outer surface. The copper coating thickness shall be minimum 250 Micron.
5. The earth electrode shall be of **minimum 30mm diameter and 3 meter length having fault current capacity of 50kA rms for 1sec.** The contractor has to submit the Test Certificate.
6. The earth enhancement material shall be highly conductive and non-corrosive in nature having low water solubility by highly hygroscopic. The resistivity of the earth enhancement material shall not be more than **0.1 Ohm-m**. The sulphur content of the Earth Enhancement Material shall be less than 2%.
7. The earth enhancement material shall be supplied in sealed moisture proof bags.
8. Backfill material:
 - a) The excavated soil shall be sieved to remove large stones and place around the electrode. Care shall be taken to ensure that backfill material is wet and compact.
 - b) Material like sand, salt, coke breeze, cinders and ash shall not be used because of acidic and corrosive nature.
9. Construction of unit Earth pit:
 - a) A hole of 150mm to 200mm diameter (min) shall be prepared manually or with the help of 'Earth Auger' to a depth of about 2.8 meters.
 - b) The earth electrode shall be placed at centre of the hole.
 - c) The top of the rod shall be gently driven to penetrate into the soil so that minimum 150mm of the electrode is inserted in the natural soil.
 - d) The earth enhancement material (**minimum 50 kg**) shall be filled into the augured/ dug hole in slurry form and allowed to set. After setting, the diameter of composite structure (earth electrode + earth enhancement material) shall be of minimum 150mm dia. covering entire length of the hole.
 - e) The remaining portion of the hole shall be covered by backfill soil, which is taken out during auguring /digging.
 - f) Attached drawing shows the installation of maintenance free earth pit.
10. Inspection chamber:
 - a) The inspection chamber is a concrete box of 600mmx600mmx600mm (inside dimension) with smooth cement plaster finish provided on top of the pit.
 - b) MS plate of 5mm thick with pulling hooks shall also be acceptable.

- c) Care shall be taken regarding level of the floor surrounding the earth so that the connector is not too deep in the masonry or projecting out of it.
 - d) Earthpit Identification Profama (Pit number, date of testing, resistance value etc) shall be fixed on top of the cover. Earthpit Identification Profarma shall be given by BHEL free of cost.
11. The Earth resistance value of each pit will be measured after completion of the work. Earth-pit resistance **shall not be more than 2 Ω** .
 12. After successfully testing of earth pits, the earth pit (s) shall be connected to the plant earth grid using GI earth strips.

Special Terms & Conditions (STC)

1. The bidders are encouraged to visit the site before submitting their offers and assess the total quantum of job and site related issues that may arise during execution, however with prior intimation.
2. All The complete scope of work including installation and Testing of Earth-Pits shall comply with latest code of practice and Indian electricity rules.
3. Any safety equipment such as Hand Gloves, helmet & safety belt etc. has to be provided by contractor.
4. The detail of the material to be given by BHEL free of cost is mentioned in Schedule B.
5. Contractor shall engage experienced workers for site work. Supervisors & adequate workers shall be deputed for carrying out the work. They should be instructed to carry out work as per the instructions of Engineer-in-Charge. In case of urgency, contractor may carry the work in 2nd shift also.
6. All safety precautions shall be strictly followed. Department shall be indemnified against any injury/death caused to your workmen and the supplier himself is responsible for providing compensation / medical treatment.
7. Total quantity mentioned in schedule 'A' is tentative and may vary up to 30 % on either side. The contractor shall be bound by contract to satisfactorily complete the enhanced / reduced quantum of work at his quoted rates.
8. The contractor shall get approval from Engineer-in-charge before work execution. The decision of Engineer-in-charge regarding satisfactory work shall be final and binding on contractor.
9. Permit / Site Clearance shall be taken by contractor from BHEL's concerned Engineer-in-charge before starting the digging work.
10. While digging near substations, Pipeline, Cable and other items might be visible. They shall be handled with utmost care. If any damaged is caused to any items, the cost plus an amount as decided by BHEL shall be recovered from the contractors bill
11. It must be clearly understood by contractor and duly confirmed that he shall bear full and final risk arising out of working with 132kV/11kV/415V system. No claim shall be made by the contractor for damage to his tools or tackles and any injury, whatsoever, which may occur to any of his workmen during the execution of this work.

12. BHEL reserve the right to recover the cost of any damage done by contractor to BHEL's property during execution of work as it may deem fit without explanation to contractor.
13. Repeated failure to comply with condition as above may lead to termination of contract at the cost and risk of contractor.
14. Any activity which is not mentioned in scope of work shall also be carried out by the contractor, whenever required, to complete the work in all aspect.
15. In addition to above terms and conditions mentioned in Annexure-I, II, III, IV, V, and VI, VII, VIII, IX and other terms and conditions issued from time to time shall also be applicable.

21. Payment terms: -

- 21.1 The payment will be made either 50% or 100% satisfactory completion of work as mentioned in Schedule-A on submission of invoice to BHEL In case of micro & small Enterprises within 45 days, for medium Enterprises 60 days and for non MSME 90 days.
- 21.2 Contractor is required to pay Salaries / wages of contracted staff deployed at buyer location first i.e. on their own and then claim payment from Buyer along with all statutory documents like, PF, ESIC etc. as well as the bank statement of payment done to their staff.
- 21.3 Payment shall be made as per actual work carried out as per Schedule-A after submission of invoice to BHEL, duly certified by the engineer in charge and submission of PF, ESI challans & wage sheet by the contractor for the man power deputed during the work. Taxes (if any) shall be paid only when relevant bill/invoice bearing tax registration no. along with the receipt/challan copy of deposition of tax is submitted.
- 21.4 Contractor shall ensure the payment of latest revised statutory minimum wages and additional wages as per BHEL HR CLC for Contract workers, throughout the contract period. No compensation/payment will be made by BHEL against any wage revision during contract period.
- 21.5 Payment will be made through NEFT/RTGS Only. The Bank Account No along with details of bank, IFSC Code, MICR Number etc. shall be mentioned by the firm along with the bill for making the payment through NEFT/RTGS.
- 21.6 Contractor shall pay wages for government recognized gazette holiday i.e. 26th January, 15th August and 2nd October. No claim shall be made by contractor to BHEL.
- 21.7 Any disallowance of tax credit will be recovered with interest from contractor's bill if disallowance is attributed to them.
- 21.8 Price will be firm throughout the contract.

22. Penalty:

In case the contractor does not carry out the contractual/statutory obligations and the general terms and conditions or the services rendered by him are found to be unsatisfactory, it will brought to his notice first to rectify the deficiency/ anomaly within specified time (3 days) failing which BHEL reserves the right to impose penalty (0.5% per week of contract value will be deducted after 3 days time, limited to maximum 10% of contract value) and/or terminate the contract without assigning any reason whatsoever. In such an event, no damages will be payable for short closure of the contract and EMD will be forfeited. The remaining work may be awarded to any other suitable agency at risk and cost of contractor.

Signature of Issuing Officer
Date

Signature of Contractor
Date