

ANNEXURE - 1

**SUPPLY, INSTALLATION, TESTING & COMMISSIONING OF EARTHING STATION
USING 600 mm X 600 mm X 3 mm COPPER PLATE ELECTRODE SYSTEM
QTY = 8SET AND INCLUDES LOOPING BETWEEN EARTHING STATIONS&11 KV 800
KVA DISTRIBUTION TRANSFORMERS & 11 KV HT PANELS INSIDE MRS BUILDING**

Scope of work : Supply & Installation of Copper Plate Earthing Station using 2'X2'X3mm (600x600x3 mm) EC Grade Copper Plate with 50 mm X 6 mm EC Grade Copper Flat Laid in a depth of 2.5 Mtr from ground level, using necessary S.S. Bolt Nuts & suitable Clamps. Scope also includes Construction of Brick Masonry Chamber of size 400 mm X 400 mm with Heavy Duty Cast Iron Chamber Plate. Complete work includes materials and labour, suitable for the site and to comply with IS: 3043 with latest Amendments (Code of Practice for Earthing).

- 1) Supply of Copper Plate Earthing Station materials as a KIT includes a) 600mm X 600mm X 3 mm EC Grade Copper Plate – 8 nos., b) 32mm X 6mm EC Grade Copper Flat to a depth 2.5 Mtr from ground, c) 50mm size B Class GI pipe, d) Charcoal & Salt as necessary e) wire mesh funnel f) SS Bolt Nuts washers, clamps etc. suitable & as necessary to complete the Earthing Station, confirming to IS: 3043 --- Qty = 8 set.
- 2) Supply of EC Grade Copper Flat of size 32 mm X 6 mm -- Qty = 200 Mtr.
- 3) Supply of Civil Masonry Materials like Fire Bricks, Cement, CI Chamber plate etc. to prepare Earth Pit Inspection Chamber, confirming to IS:3043 -- Qty = 8 set.
- 4) Miscellaneous Hardware items like SS Bolt Nuts washers, Clamps, Insulating Supports, paint & paint brushes for labelling etc. as required at site to complete the work.
- 5) Complete labour for Fixing of Electrode & preparing Earthing station, Chamber pit with necessary brick, CI plate etc. as necessary including earth digging & complete grouting work included.
- 6) Complete labour for Fixing & Terminating Earth lead / flat including earth digging & any other grouting work as required at site, to complete looping system between earthing stations and earthing stations to 11KV 800 KVA Distribution Transformers & 11KV HT Panels inside MRS Building.
- 7) Testing & Measuring Earth Resistance value, Painting and Labelling the Earth Station all included.
- 8) Necessary Tools & Instruments like Earth Tester, Welding set are in Firm's scope.
- 9) Supply of all necessary materials, labour & grouting work all included.
- 10) Safety of work men is at most important. Firm has to comply with all relevant factory rules, Necessary work permit to be taken in advance to come inside factory & carry out the above work.
- 11) The entire work to be carried out at engine division at the identified places and as guided by Engineer In-charge.
- 12) ANY OTHER ITEMS, BOTH MATERIALS & LABOUR, NOT MENTIONED ABOVE, BUT NECESSARILY REQUIRED TO COMPLETE THE WORK IS IN THE FIRM'S SCOPE & FIRM TO QUOTE THE SAME SEPERATELY

Note: 1) The Firm's scope includes supply of Copper Plate Earthing Materials as Kit, Supply of copper earth flat, Fixing the Earthing Station, Laying, Fixing and Connecting the earth flats etc. and suitable SS Bolt nuts / hardware items as required at site. (Material Portion)

Note: 2) complete labour for Installation, Testing and Commissioning and PREPARING EARTHING LAYOUT, EARTHING TEST REPORT AND SUBMIT THE SAME TO CENTRAL ELECTRICAL INSPECTOR FOR APPROVAL (Laissioning Work with Central Electricity Authority / CEA Inspectorate Approval is included) (Labor Portion)

Note: 3) It is presumed that the soil to be excavated for earth pits and cable trench is of normal soil. If it is found hard or rocky during execution of work, the pit / trench has to be excavated using tractor compressor which would be at extra cost to BEML. Firm to Quote the price for hiring tractor compressor on daily basis separately.

Note: 4) After excavation of metalled road / soil for cable trench, the soil would be back filled and consolidated after necessary works. The making good of metalled road / cement concrete is in BEML Scope.

BEML Estimation:

- 1) Supply of Copper Plate Earthing Materials as Kit --- Qty = 8 Kit @ Rs. xxx /- each X 8 nos. = Rs. xxxx/-
Supply and preparation of Copper plate Earth station using 2' x 2' x 3mm EC grade copper plate with necessary pipe, Clamps, Salt charcoal etc., as per IS regulation.
Supply and providing necessary hardwares, Stainless Steel bolt-nut for the above job.
- 2) Earth Excavation, Fixing & Commissioning Cu Plate Earthing -- Qty = 8 nos @ Rs. xxx /- each X 8 nos. = Rs. xxxx/-
(Civil works like construction of masonry earth pit chamber is included in Firm's scope).
- 3) Supply of 32 X 6 mm Copper Flat -- Qty = 200 Mtr. @ Rs. Xxxx/- per Mtr X 200 M = Rs. xxxx/-
(Supply and laying of 32 x 6mm Copper flat in PVC Sleeve OR in PVC Pipe, to prevent copper soil corrosion is included in Firm's scope).
- 4) Laying & Fixing Copper Flat in excavated earth trench -- Qty = 200 Mtr @Rs. Xxx /- per Mtr X 200 M = xxxx/-
- 5) Testing, Commissioning, Preparing earthing Layout Drawing, Earth Test Report and Submitting Report to CEA for Approval & Laissioning to get CEA Inspectorate Approval -- Qty = 1 job Lump sum Rs. xxxx/-
(To Contact CEA Inspectorate Office at Chennai & On-line application submission & Inspection Fee to Govt. in the name of BEML is also included in Firm's scope).
- 6) Total Rs. xxxxxx/- + GST extra