

ANNEXURE-V

BILL OF QUANTITIES FOR UNDER GROUND EARTHING AND ELECTRODES , REV.02

Name of Project : 400kV substation at BADNAWAR in Madhya Pradesh

Sl. No.	Description	Unit	Quantities	Unit Rate	Amount (Rs.)
1	Unloading, storing and laying of 100X12 mm MS flat at a depth of 500 to 800 mm measured from the top of FGL (either top of gravel or top of land as the case may be) as per requirement including following works: excavation - laying of MS flat - backfilling of soil. This shall include all cutting, bending, welding, fixing, application of zinc rich paint on cutting surface, etc to the main earthmat. - any other work necessary to complete the laying of earthmat -100x12 mm MS flat will be supplied by BHEL	MT	250		
2	Unloading, storing and laying of 75X8 mm MS flat at a depth of 500 mm to 800mm and bringing out risers just above gravel level near the equipment foundations as per requirement including following works: - excavation - backfilling of soil for bringing out pig tail risers of 75X8 MS flat for equipments. Risers shall be raised from the earthmat (at 500 to 800mm depth) to 300 mm above ground level to the nearest point of the equipment. This shall include all cutting, bending, welding, fixing, application of zinc rich paint on cutting surface, etc to the main earthmat. -75X8 MS flat will be supplied by BHEL	MT	50		
3	Installing of hot dip galvanized MS rod Electrode of size 25mm dia. x3000mm long(to be driven in ground) ,including following works : - excavation/hammering of rod in earth - installing the rode electrode - backfilling and compaction - any other work necessary to complete the work -MS galvanized rod Electrode of size 25mm dia. x3000mm long will be supplied by contractor .	Nos.	400		
4	Installing of hot dip galvanized MS rods Electrode of size (25mm dia. x3000mm long) in earth by making drilling of 6" and test pit ,including following works : - excavation - installing the rode electrode - back filling of earthing pits with bentonite soil - any other work necessary to complete the work -MS galvanized rod Electrode of size 25mm dia. x3000mm long , bentonite soil and required nut bolt will be supplied by contractor .	Nos.	20		
5	Installing of earth pit as per enclosed drawing -Including Civil work , excavation , brick work , cutting, bending, welding, backfilling of soil , fixing etc as per drawing. - 4 nos. GI pipes 40 mm diameter, 4mm thick shall be used for one earth pit . -GI pipes and all other required material as per drawing shall be supplied by contractor .Only MS flat shall be supplied by BHEL.	set (earth pit)	45		
	Total (Rs.)				
Note 1- Refer enclosed specification for detailed of below ground earthing and drawing . Note 2- Actual depth of below ground earth mat grid is 500mm, but it may be varies some places from 500mm to 800mm due to fouling of trench , drain , culvert etc.					