

**भारत संचार निगम लिमिटेड**  
( भारत सरकार का उपक्रम )  
**BHARAT SANCHAR NIGAM LIMITED**  
(A Govt. of India Enterprise)

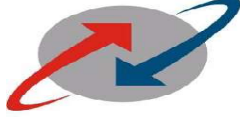
**E-TENDER DOCUMENT FOR MEASUREMENT, CORRECTION, AND/OR INSTALLING EARTHING SYSTEM, INSTALLATION OF LIGHTING ARRESTOR, AND AVIATION LAMP AT VARIOUS BTS LOCATIONS IN CHENNAI TELEPHONES, INCLUDING RURAL AREAS OF CHENGALPATTU, KANCHEEPURAM, AND THIRUVALLUR DISTRICT through E-tendering.**

No: DGM (NWP-CM)/E-Tender/Earth Measurement/Correction/ Installation/CM/2023-24 dated 20-07-2023

**Single stage bid**  
**(Two stage opening –Technical & Financial Bid)**

**O/o DEPUTY GENERAL MANAGER,  
NWP-CM, BSNL CHTD  
3<sup>rd</sup> FLOOR, 238 RK Mutt Road  
RK NAGAR EXCHANGE BUILDING,  
Chennai – 600 028**

**Tel: 044-2462 0125**



**भारत संचार निगम लिमिटेड**  
(भारत सरकार का उपक्रम)  
**BHARAT SANCHAR NIGAM LIMITED**  
(A Govt. of India Enterprise)

**BSNL-CHENNAI TELEPHONE DISTRICT**

---

**TENDER FORM**

**E-TENDER DOCUMENT FOR MEASUREMENT, CORRECTION, AND/OR INSTALLING EARTHING SYSTEM, INSTALLATION OF LIGHTING ARRESTOR, AND AVIATION LAMP AT VARIOUS BTS LOCATIONS IN CHENNAI TELEPHONES, INCLUDING RURAL AREAS OF CHENGALPATTU, KANCHEEPURAM, AND THIRUVALLURDISTRICT through E-tendering.**

No: DGM (NWP-CM)/E-Tender/Earth Measurement/Correction/ Installation/CM/2023-24 dated 20-07-2023

**Cost of the Tender Form: Rs.2360/- (Rs.2000 +GST 18%)**

**Estimate cost of tender: Rs. 2, 97, 70,000.00/-**

**Bid Security / EMD: Rs. 5, 95,400.00 /-**

**Tender forms Available in [www.chennai.bsnl.co.in](http://www.chennai.bsnl.co.in) following “Link for E-tenders by Chennai Telephones”.**

**Date &Time of Tender Opening: 14:30 Hrs on 16-08-2023**

**at the**

**O/o DGM (NWP-CM),  
2nd FLOOR, 238 RKMutt Road  
RK NAGAR EXCHANGE BUILDING,  
Chennai – 600 028**

**Visit us at: [www.chennai.bsnl.co.in](http://www.chennai.bsnl.co.in)**

## Table of Contents

Description	Page No.
Notice Inviting E-Tender	4-8
Instructions to Bidders and Terms & Conditions	9-26
SPECIAL INSTRUCTIONS TO BIDDERS FOR E-TENDERING	27-31
Application Form to be submitted with E-Tender <b>ANNEXURE - A</b>	32
Format of the Performance Bank guarantee <b>ANNEXURE - B</b>	33-34
No close relative in BSNL –Certificate Format <b>ANNEXURE - C</b>	35
<b>Schedule of Requirement ANNEXURE - D;Part-1</b>	36
Scope of works & Terms and conditions <b>ANNEXURE - D;Part-2</b>	37-41
Time Schedule <b>ANNEXURE - D;Part-3</b>	42
Penalty <b>ANNEXURE - D;Part-4</b>	43
Financial Bid e-FORMAT <b>ANNEXURE - E</b>	44
Agreement <b>ANNEXURE - F</b>	45
Clause by clause Compliance <b>ANNEXURE - G</b>	46
Vendor Master Form <b>ANNEXURE - H</b>	47-48
Bidder's Profile & Questionnaire <b>ANNEXURE - I</b>	49-50
Letter of Authorisation for attending Bid opening Event <b>ANNEXURE - J</b>	51
Appendix-1 to Section 4 Part A of Chapter 4 (Standard Tender Enquiry Document) <b>ANNEXURE - K</b>	52-59
Bid Form <b>ANNEXURE - L</b>	60
ECS Form <b>ANNEXURE - M</b>	61
Undertaking <b>ANNEXURE – N</b>	62
Non Blacklist- self declaration <b>ANNEXURE - O</b>	63
Declaration for no addition/deletion/correction in Tender Document <b>ANNEXURE - P</b>	64
Check List <b>ANNEXURE - Q</b>	65
Earth Measurement Report Format <b>ANNEXURE - R</b>	66
Engineering Instructions for Earthing <b>ANNEXURE - S</b>	67-91



**भारत संचार निगम लिमिटेड**  
(भारत सरकार का उपक्रम)  
**BHARAT SANCHAR NIGAM LIMITED**  
(A Govt. of India Enterprise)  
**CHENNAI TELEPHONES**

## **NOTICE INVITING TENDER**

**(Press Notice - shall not be part of NIT)**

No: DGM (NWP-CM)/E-Tender/Earth Measurement/Correction/ Installation/CM/2023-24  
dated 20-07-2023

**BSNL Chennai Telephones invites**  
**E-TENDER DOCUMENT FOR MEASUREMENT, CORRECTION, AND/OR INSTALLING**  
**EARTHING SYSTEM, INSTALLATION OF LIGHTING ARRESTOR, AND AVIATION LAMP AT**  
**VARIOUS BTS LOCATIONS IN CHENNAI TELEPHONES, INCLUDING RURAL AREAS OF**  
**CHENGALPATTU, KANCHEEPURAM, AND THIRUVALLUR DISTRICT through E-**  
**tendering.**

**Last Date for Submission of E-Tender 16-08-2023 by 14.00Hrs**

Tender forms Available [www.chennai.bsnl.co.in](http://www.chennai.bsnl.co.in) following "Link for E-tenders by  
Chennai Telephones" <https://www.tenderwizard.com/BSNL> from : 14:00hrs of  
24.07.2023 to 13.58 hrs of 16.08.2023

For further details, visit our website: [www.chennai.bsnl.co.in](http://www.chennai.bsnl.co.in) following "Link for E-tenders  
by Chennai Telephones" <https://www.tenderwizard.com/BSNL>



**Bharat Sanchar Nigam Limited**  
**(A Govt. of India Enterprise)**  
**O/o DGM (NWP-CM), Chennai Telephones, 238 RK Mutt Road, RK Nagar,**  
**Chennai-28**

**NOTICE INVITING ON LINE TENDER**

No: DGM (NWP-CM)/E-Tender/Earth Measurement/Correction/ Installation/CM/2023-24 dated 20-07-2023

The General Manager (CM), BSNL, Chennai Telephones on behalf of Bharat Sanchar Nigam Limited invites on line item rate bids from interested parties for earth measurement correction and/or installation of earthing system, Installation of Lightning Arrestor and aviation lamp for the mobile tower locations of Chennai Telephones including rural areas of Chengalpattu Kancheepuram & Tiruvallur District under Chennai Telephones areas. The Prescribed E-Tender document may be obtained from [www.chennai.bsnl.co.in](http://www.chennai.bsnl.co.in) following “Link for E-tenders by Chennai Telephones”: <https://www.tenderwizard.com/BSNL>.

Cost of E-Tender document shall be drawn as DD from any of the Nationalised Bank/Scheduled Bank in favour of the AO (CASH) COBA, BSNL Chennai Telephones, payable at Chennai.

**Cost of the Tender Form: Rs.2360 /-(Rs.2000 +GST 18%)**

**Estimate cost of tender: Rs. 2, 97, 70,000.00/-**

**Bid Security / EMD: Rs. 5, 95,400.00/-**

**Last date of Receipt of E-Tender (offline): 14:00 Hrs of 16.08.2023**

**Date of opening of E-Tender (TOC) 14:30 Hrs of 16.08.2023**

The application for E-Tender must be submitted in **two sealed envelopes separately**, super scribing

- one envelope as “**Technical Bid** for E-Tender for Drive Test Data collection - CM WING” along with Bid security declaration and
- Second Envelope as “**Financial Bid** for Drive Test Data collection – CM WING”.

**1.On-line Submissions :**

The entire bid-submission would be online on the portal of M/s ITI Limited <https://www.tenderwizard.com/BSNL>. Broad outline of submissions are as follows:

1. Digitally signed copy of Tender Documents and Addendums, Corrigendums, if any.
2. Submission of Mandatory and Eligibility documents in accordance with Instructions to bidders and terms & conditions clause 4 .

**2.Offline Submissions (physical document submission) :**

The bidder is requested to submit the following documents (in original) in offline mode

1. EMD/Bid Security – in Original (Except MSME Bidders)
2. Tender Document Fee receipt-in original (Except MSME Bidders)
3. Power of Attorney for authorization for executing the Tender, if required.
4. Request for claiming exemption of Bid security & tender document fee and proof in respect of valid certification from NSIC/MSME for the tendered work.

in separate cover to DGM NWP-CM, 3<sup>rd</sup> floor, and Door No: 238 RK Mutt Road, RK Nagar Telephone Exchange, Chennai-600028. on or before the date & time of submission of bids specified in covering letter of this tender document, in a Sealed Envelope. The envelope shall bear (Name of the Work), the tender number and the words 'DO NOT OPEN BEFORE' (due date & time).

**Note: The Bidder has to upload the Scanned copies of all above said original documents as one of the Eligibility documents/Bid-Annexure during Online Bid-Submission.**

**E-Tender document submitted without cost of E-Tender document will summarily be rejected.**

**1. The General Manager (CM) BSNL R.K.Mutt Road, Chennai Telephones reserves the right to reject any or all of the E-Tender without assigning any reason whatsoever.**

**2. Purchase of Tender Document:** Tender document can be obtained by downloading it from the website [www.chennai.bsnl.co.in](http://www.chennai.bsnl.co.in) following "Link for E-tenders by Chennai Telephones" The tender document for participating in E-tender shall be available for downloading from <https://www.tenderwizard.com/BSNL>:- from 24.07.2023/14.00 hrs up to 16.08.2023/13.58hrs.

Bidders must register on the e-tender portal, if not already registered earlier and follow all instructions for participating in bidding for the tender.

- **The bidders cannot participate in the tender without downloading official copy of the tender document.**
- **The Tender document shall not be available for download after its closing date/time.**

2.1 The bidders downloading the tender document are required to submit the tender fee amount through DD of an amount of Rs 2360 /- along with the tender bid failing which the tender bid shall be left unopened/rejected. The DD shall be drawn from any Nationalized/Scheduled bank in favor of AO (Cash) COBA, BSNL, Chennai Telephones and payable at Chennai.

2.2 BSNL, Chennai Telephone District has decided to use process of e-tendering for inviting this tender and thus the physical copy of the tender would not be sold.

**3. Availability of tender document:-**The tender document shall be available for downloading from 14.00 hours of 24.07.2023 to 13.58 hours of 16.08.2023.

### **3.1 CLARIFICATION OF BID DOCUMENTS**

A prospective bidder, requiring any clarification on the Bid Documents shall submit his queries through e-Tender Portal and also notify the purchaser in writing to the Purchaser's mailing address indicated in the invitation of Bid. The Purchaser shall respond in writing to any request for the clarification of the Bid Documents, which it receives 15 days prior to the date of opening of the Tenders. Copies of the query (without identifying the source) and clarifications by the Purchaser shall be uploaded as clarification to the concerned tenderer on <https://www.tenderwizard.com/BSNL>, as addenda, for all the prospective bidders who have downloaded the official copy of tender documents from <https://www.tenderwizard.com/BSNL> portal.

Any clarification issued by BSNL in response to query raised by prospective bidders

shall form an integral part of bid documents and it shall amount to an amendment of relevant clauses of the bid documents.

The format in which the clarifications are to be sent via E-mail.

Sl.No.	Section	Clause	Brief description of the clause	Ref page No. in Bid	Comments of Bidder

### **3.2 AMENDMENT OF BID DOCUMENTS**

- a) The Purchaser may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder, modify bid documents by amendments prior to the date of submission of Bids with due notification to the prospective bidders. Amendments, if any, to the tender document will be notified in the <https://www.tenderwizard.com/BSNL> website. It is the responsibility of the vendors who download the tender document to note these amendments and submit tenders accordingly.

The amendments shall be notified in writing through E-tender portal to all prospective bidders to the address intimated at the time of purchase of the bid document from the purchaser and these amendments will be binding on them.

In order to afford prospective bidders a reasonable time (min 7 days) to take the amendment into account in preparing their bids, the purchaser may, at its discretion, extend the deadline for the submission of bids suitably.

**Bidders to note that scanned copy of all the relevant documents as listed below are required to be uploaded on the <https://www.tenderwizard.com/BSNL> Portal and only required offline documents attested/authorized are to be submitted to DGM NWP-CM, 3<sup>rd</sup> Floor, and Door No: 238 RK Mutt ROAD, RK Nagar Telephone Exchange, Chennai-600028. Offline in a sealed cover.**

### **3.3. Date & Time of Submission of Tender bid:**

- 1. Last Date/ Time of submission of Bid Online: up to 13:59 Hrs on 16.08.2023**
- 2. Last Date/Time of Submission of documents in hardcopy: up to 14.00 Hrs on 16.08.2023.**

**Note:-**In case the date of submission (opening) of bid is declared to be a holiday, the date of submission (opening) of bid will get shifted automatically to next working day at the same scheduled time. Any change in bid opening date due to any other unavoidable reason will be intimated to all the bidders separately.

### **4. Online opening of Tender Bids: At 14:30 Hours on 16.08.2023.**

**5. Place of opening of Tender bids:** BSNL has adopted e-tendering process which offers a unique facility for 'Public Online Tender Opening Event (TOE). BSNL's Tender Opening Officers as well as authorized representatives of bidders can attend the Public Online Tender Opening Event (TOE) from the comfort of their offices.

6. However, if required, authorized representatives of bidders (i.e. Supplier organization) can attend the TOE at the O/o DGM NWP-CM, VI Floor, GSM Section, R K Nagar Telephone Exchange Building, No:238 RK Mutt ROAD, RK Nagar, CHENNAI-28, where BSNL's Tender Opening Officers would be conducting Public Online Tender Opening Event (TOE).

DGM NWP-CM

Signature of Bidder

7. Tender bids received after due date& time will not be accepted.
  8. Incomplete, ambiguous, Conditional, tender bids are liable to be rejected.
  9. GM (CM), CHTD reserves the right to accept or reject any or all tender bids without assigning any reason. He is not bound to accept the lowest tender.
  10. The bidder shall furnish a declaration under his digital signature that no addition / deletion / corrections have been made in the downloaded tender document being submitted and it is identical to the tender document appearing on E-tender Portal (<https://www.tenderwizard.com/BSNL>). Format for the certificate to be furnished is at Annexure - Q
  11. In case of any correction / addition / alteration / omission in the tender document, the tender bid shall be treated as non-responsive and shall be rejected summarily.
  12. For further instructions regarding submission of bids online the bidder shall visit the homepage of the portal (<https://www.tenderwizard.com/BSNL>).
- Note:** - All documents submitted in the bid offer should be preferably in English. In case the certificate viz experience, registration etc. is issued in any language other than English, the bidder shall attach an English translation of the same duly attested by the bidder & the translator to be true copy in addition to the relevant certificate.
- All computer-generated documents should be duly attested / signed by the issuing organization.
13. Physical copy of the tender document would not be available for sale.

**DIVISIONAL ENGINEER (TENDER)**  
**O/o DGM NWP-CM, 2nd FLOOR, R K NAGAR TELEPHONE EXCHANGE BUILDING,**  
**No: 238 RK Mutt ROAD,RK Nagar, CHENNAI-28.**  
**Tel No: 2462 0125**

## Instructions to Bidders and Terms & Conditions

### 1. Introduction

1.1. Bharat Sanchar Nigam Limited (BSNL), 100% owned by Government of India, with the dominant market share in the Wire line Telephony, Wireless Telephony, Broadband & Internet services besides other data services like MPLS- VPN, Leased circuits etc. BSNL is the largest Internet Service Provider (ISP) of India. As a leading telecom player, BSNL controls a wide range of telecom infrastructure such as Main Exchange Buildings, RSU Exchange Buildings, Transmission Centre Buildings, BTS sites, billing centres, customer care centres...etc.

### 2. Purpose of the E-Tender

2.1. BSNL CHTD (from here on BSNL means Competent Authority floating the **E-Tender**) intends to invite on line item rate bids from interested parties for MEASUREMENT, CORRECTION, AND/OR INSTALLING EARTHING SYSTEM, INSTALLATION OF LIGHTING ARRESTOR, AND AVIATION LAMP **at various mobile tower locations under coverage areas of Chennai Telephones including rural areas of Chengalpattu, Kancheepuram & Tiruvallur District under Chennai Telephones**. After evaluation of on-line item rate bids agreements will be entered with the successful party **for a period of one year, which can be extended further up to a period of one year in step of 6 months as per performance and on mutually agreeable terms and conditions**.

### 3. General requirement

3.1. BSNL CHTD intends to contract MEASUREMENT, CORRECTION, AND/OR INSTALLING EARTHING SYSTEM, INSTALLATION OF LIGHTING ARRESTOR, AND AVIATION LAMP **at various mobile tower locations** of Chennai telephones including Chengalpattu, Kancheepuram & Thiruvallur districts. These may be required for different time frames at different installations as per requirement (Annexure E). Contractors need to bid for the provision of services at all sites in a unit.

#### 3.2 Cancellation /Withdrawal of this E-tender

- **BSNL CHTD, has all rights to cancel/terminate/withdraw this tender even at any stage of floating as well as after finalization of tender / issue of work order / issued which is in currency, under prior intimation to Bidder/contractor with maximum Two weeks of Time, where any/all clauses of agreement(s)/assurance(s) of this e-tender shall become null and void. BSNL CHTD will not entertain any loss if any arising in this regard.**

### 4. ELIGIBILITY REQUIREMENTS:

#### 4.1. Documents Establishing Bidders Eligibility and qualifications:

**On-line Submissions** (Technical Bid envelope and Financial Bid/Price Bid envelope) the entire bid-submission would be online on the portal of M/s ITI Limited <https://www.tenderwizard.com/BSNL>. Broad outline of submissions are as follows:

#### **4.1.1 Technical Bid envelope**

##### **A. Submission of Mandatory documents:**

- Proof for GST registration Certificate.
- Digitally signed copy of Tender Document, Corrigendum and Addendums, if any.
- Proof of experience for having done similar works during the last two years in the form of certificate may be enclosed.
- EMD.
- Proof for payment of Tender processing fee of M/s ITI Limited.
- Request for claiming exemption of tender document fee and Proof in respect of valid certification from MSME/NSIC for the tendered item/work.

##### **B. Submission of Eligibility documents:**

- Application form (Annexure-A)
- Declaration regarding no close relative working in BSNL (Annexure-C)
- Copy of PAN certificate
- EPF and ESI Registration number if any. Duly Attested
- Vendor Master Form (Annexure-J)
- Bidder's Profile and Questionnaire (Annexure-K)
- Letter of Authorisation for Bid opening Event (Annexure-L)
- **The contractor /bidder must have a turnover of not less than 50 Lakhs during each of the preceding 2 financial years. The turnover of the company/contractor as required in eligibility criteria to be issued/certified by a Chartered Accountant along with latest audited annual reports of the company (i.e. Profit & loss statement, Balance sheet) and income tax clearance certificate for the last two financial years.**
- Certificate of incorporation wherever applicable.
- Article of Memorandum of Association of partnership deed or proprietorship deed as the case may be wherever required.
- The authorization for signing the E-Tender document, bid, agreement etc.
- Bidder shall furnish a clause-by-clause compliance on the BSNL's all terms and conditions of this bid (Tender document and addendum/clarifications if any). **A bid without clause-by clause compliance (Annexure-H) shall not be considered for evaluation and will be summarily rejected.**
- For the purpose of compliance to be furnished pursuant to clause 4.1.1 above, the bidder shall sign on each and every page along-with the seal of the company.
- Labour licence document
- Declaration regarding the close relatives working in BSNL should be submitted as per Annexure-C.

#### **4.1.2 Financial Bid (Price Bid) as per the format in Annexure-E**

All the above said documents mentioned at 4.1.1 A and B and 4.1.2 are to be uploaded online.

#### **4.1.3 Offline Submissions (physical document submission):**

The bidder is requested to submit the following documents (in original) one set of

- EMD DD /Banker cheque/bank transaction receipt in accordance with clause 5.3– in original if applicable.
- Tender Document Fee.

- Power of Attorney for authorization for executing the power of attorney, if required.
- Request for claiming exemption of Bid security & tender document fee and Proof in respect of valid certification from NSIC/MSME for the tendered item/work.

*A check list in Annexure-R may be referred for other documents.*

**4.1.4 Other Eligibility Requirements:**

- The contractor/bidder should have sufficient technically qualified staff/Teams and infrastructure to carryout assessment of quality of service simultaneously without any delay. Persons deployed should be physically fit to handle all the services mentioned in Annexure-D
- The contractor /Bidder should not have failed to accept the LOI and also not submitted the PBG in similar Tender after the issuance of LOI. Participation of such bidders is liable to be rejected.

**5. Financial Requirement**

**5.1. "All Suppliers (including MSEs who are registered with the designated MSME bodies like NSIC etc ) shall furnish performance security to the purchaser for an amount equal to 5% of value of Advance Purchase order within 7 days from the date of issue of Advance purchase order by the purchaser".**

**5.1 (a) In case the required Performance Bank Guarantee is not submitted within the stipulated time then the bidder's participation could not be considered for further process of Finalisation/ Award of contract.**

**5.2. Performance bank Guarantee:**

Contractor shall submit the aforesaid Performance Bank Guarantee of the said amount or as BSNL CHTD may recommend from time to time. **The performance Bank Guarantee should be valid for a period of two years and six months from the date of award of contract.** Without prejudice to other rights and remedies available to BSNL CHTD, BSNL CHTD reserves the right to forfeit/adjust the said Performance Bank Guarantee in full or part or any sum due from the contractor to BSNL CHTD at any time. Contractor shall continue to be liable for balance if any. BSNL CHTD reserves the right to increase the amount of Performance Bank Guarantee at any time in its own discretion with respect to any/some/all such contractors.

**5.3 BID Security:**

Bidders are required to furnish the Bid security **Rs.5,95,400** /- by DD,BG or preferably through online payment mode. However scanned copies of the Bank Transaction details with UTR number towards the successful e-payment for EMD are required. Originals of bank receipts towards tender fee, EMD shall be submitted by bidder on any date before or within 5 days of bid submission end date falling which the tender bid shall be rejected. The bank details are attached below

BANK NAME	UNION BANK OF INDIA
BANK ACCOUNT NUMBER	527401010012073
ACCOUNT NAME	BSNL COBA COLLECTION A/C
BANK BRANCH	ARMENIAN STREET
IFSC CODE	UBIN0552747
CIF ID	900413342
ADDRESS	Armenian Street Branchno. 60 - Armenian Street- Chennai -600001
PHONE NO.	044 - 23460707 / 23460708
EMAIL	CSMOOLYA@UNIONBANKOFINDIA.COM
BRANCH CODE	552747

- b. The MSME units shall be exempted from submission of Bid security deposit on production of requisite proof in respect of valid certification from MSME for the tendered item.

The tender documents shall be issued to MSE bidders free of cost provided the tendered item is listed in the Registration Certificate of MSE. A proof regarding current registration with the bodies such as District industries centres or Khadi & Village industries commission or Khadi & Village industries Board or Coir Board or NSIC or Director of Handicrafts & Handloom or any other body specified by the Ministry of Micro, Small and Medium Enterprise have to be attached along with the bid. The enlistment certificate issued by the aforesaid bodies should be current and valid on the date of opening of bid. A proof regarding current registration with the aforesaid bodies have to be attached along with the bid.

The successful bidder's security will be discharged upon the bidder's acceptance of the award of contract on furnishing the Performance Bank Guarantee in accordance with clause 5.1.

## 6. Evaluation Criteria

The evaluation is based on the Grand Total of all Items (1) to (8) in F Column of Financial Bid of Annexure- E.

6.1 In the financial bid, a weightage column is provided for evaluation purposes. The contractor's basic rate will be multiplied by the weightage amount, and that value will be used for evaluation.

6.2 The total will be arrived by summing the weighted value at Column no. F of the financial bid sheet and the lowest total sum arrived will be considered as the lowest L1 bidder. Example of financial bid considered for evaluation is given below.

SOR NO (A)	Service Item Description (B)	Basic Price per work Order in Rs. (D)	Weightage (E)	Weightage value for evaluation (F)
1	Measurement of Equipment earth in NBSNL locations which includes all equipments earth (BTS equipment, DG, PP, Battery frame).	A	75%	0.75*A
2	Measurement of Tower earth both in NBSNL and BSNL locations which includes Tower and Lightening earth.	B	75%	0.75*B
3	Correction of equipment earth values to bring it within norms (1 ohms) in locations under Sl.no 1 above, wherever earth is available & value is found beyond norms.	C	15%	0.15*C



4	Correction of Tower earth values to bring it within norms (0.5 ohms) in locations under Sl.no 1 above, wherever earth is available & value it is found beyond norms.	D	15%	0.15*D
5	Providing equipment earth as per Eng.instructions provided , in locations under Sl.no.1 , wherever it is not available	E	5%	0.05*E
6	Providing Tower earth as per Eng.instructions provided , in locations under Sl.no.2 , wherever it is not available	F	5%	0.05*F
7	Providing of lighting arrester wherever not available	G	5%	0.05*G
8	Making aviation lamp working by ensuring sensor and electrical accessories are made functional.	H	5%	0.05*H
Total				0.75*A+0.75*B+0.15*C+0.15*D+0.05*E+0.05*F+0.05*G+0.05*H

6.3. **The work will be awarded to the lowest rates quoted by the tenderer only.** However BSNL may award the work to more than one tenderer also. In that case BSNL proposes to limit the maximum number of selected bidders up to **four** bidders only. However BSNL reserves the right to issue work order in this regard. The discretion of BSNL is final and non-negotiable.

6.4 The rates of L-1 approved by the BSNL shall be the rates at which work orders shall be placed by the BSNL on the other bidders, if the counter offer of the lowest bidder is accepted by other bidder as per the quantities mentioned above.

6.5. After award of contract to the Approved bidders, the officer designated by the competent authority shall issue the work orders for commencement of the work.

**6.6 Reservation of Distribution of quantity to MSME bidders:**

No. of Bidders to be approved (Col. 1)	Quantity allotted to the respective bidder (Col. 2)					Qty earmarked for MSE bidder(s) (Col. 3)
	L1	L2	L3	L4	L5 and so on	
One bidder	75%	Nil	Nil	Nil	Nil	25%
Two Bidders	45%	30%	Nil	Nil	Nil	25%
Three Bidders	38%	22%	15%	Nil	Nil	25%

- If L-1, L-2, L-3 etc., happens to be MSE bidders then they will be given the allotted quantity as per the applicable sub-column 2 of column 2 of the above table. In case, there are MSE

bidders whose quoted price is within +15% of L-1 price than 25% reserved quantity shall be distributed amongst such MSE bidders.

- If no eligible MSE bidders are available then aforesaid earmarked 25% sites shall be de-reserved & the allotted sites for other general bidders will be restored to 100% and distribution shall be as tabulated below:

No. of Bidders to be approved (Col. 1)	Quantity allotted to the respective bidder (Col. 2)				
	L1	L2	L3	L4	L5 and so on
One bidder	100%	Nil	Nil	Nil	Nil
Two Bidders	60%	40%	Nil	Nil	Nil
Three Bidders	50%	30%	20%	Nil	Nil
Four Bidders	40%	30%	20%	10%	Nil

- The 25% of estimated quantity/requirement in any tender shall be earmarked for MSME subject to the condition that the rate quoted by MSME is within the band of L1+15% and the said bidder agrees to supply man power at finalized L1 rates after evaluation.
- 25% earmarked for MSE bidder includes sub target of
  - i) Minimum 3% reservation for Women owned MSE bidder and
  - ii) 5% procurement from the MSE's owned by SC/ST entrepreneurs.

## **7. Agreement period**

7.1. The agreement shall be valid for a period of **one year** and will be extended suo moto on same terms and conditions in step of six months but not more than one-year subject to satisfactory performance during the previous period by the contractor. This is subject to extension of the Performance Bank Guarantee of same amount or enhanced amount as per the discretion of BSNL CHTD, one month prior to the end of the agreement.

**7.2 As in clause 3.2 under Instructions to Bidders and Terms and Conditions, upon completion of measurement, correction, installation of equipment earth, tower earth, provision of lightning arrestor and aviation lamp in NBSNL/BSNL sites of Chennai Telephones including rural areas of Chengalpattu Kancheepuram & Tiruvallur District under Chennai Telephones" this agreement would be withdrawn/Terminated by BSNL at any stage.**

## **8. Right**

8.1. BSNL CHTD reserves the right to reject any application/ **E-Tender** for any reason, without assigning any reason and liability, the information provided by the contractor gathered by BSNL CHTD shall become BSNL CHTD's property even if application is rejected and can be used by BSNL CHTD in any manner, it deem fit.

8.2. The **E-Tender** can be modified/ withdrawn/Terminate at any time without any information or notice to anyone.

8.3. The decision of BSNL CHTD will be final and binding on all the bidders.

**8.4 The BSNL shall have the right to e-reverse the price bid after opening of the financial bid**

in case the rate quoted by the lowest bidder found to be abnormally very low / high. In case e-reverse option not available in Portal then BSNL reserves the right to Manual negotiation is applicable.

8.5 BSNL reserves the **right to disqualify** such bidders who have a record of not meeting contractual obligations against earlier contract entered into with BSNL and **blacklist such bidder** for a suitable period in case they fail to honour their bid without sufficient reasons.

## **9. Responsibilities of Contractor**

9.1. The contractor shall be responsible for provision of the services as per scope of work defined at Annexure-D. Annexure-D lays out the services required.

9.2 Contractor shall be liable for all payments of wages, Salary, Bonus, PF etc to its employees & shall comply with all statutory laws, rules, relating to employment, wages, PF, ID, act etc. **It is the contractor's responsibility to make all payments of wages, Salary, PF, Bonus, etc., to its employees regularly by them without fail.**

## **10. Inspection**

10.1. BSNL CHTD shall have the right to cause an examination of the work and the final bills of the contractor including all supporting vouchers, abstract etc. to be made after payment of the final bill and if as a result of such audit and technical examination any sum is found to have been overpaid in respect of any work done by the contractor under the contract or any work claimed by him to have been done by him under the contract and found not to have been executed, the contractor shall be liable to refund the amount of over payment and it shall be lawful for BSNL CHTD to recover the same from him through the PBG or future bills.

## **11. General Terms and Conditions:**

### **11.1. Commercial Terms & Conditions**

11.1.1. BSNL CHTD reserves the right to disqualify such bidders who have a record of not meeting contractual obligations against earlier contracts entered into with the BSNL.

11.1.2. The BSNL CHTD reserves the right to black list a bidder for a suitable period in case he fails to honour his bid without sufficient grounds.

11.1.3. The BSNL CHTD reserves the rights to counter offer price(s) against price(s) quoted by any bidder.

11.1.4. BSNL CHTD also reserves the right to award the work amongst more than one bidder.

11.1.5. Any clarification issued by BSNL CHTD, in response to query raised by prospective bidders shall form an integral part of bid documents and it may amount to amendment of relevant clauses of the bid documents.

11.1.6. The company reserves the right to change the terms of trade from time to time with notice period of 30 days.

11.1.7. The company reserves the right to withhold or delay the payment for the contractor in case of any pending disputes.

11.1.8. In the event of any question, dispute or difference arising under this agreement or in connection there-with (except as to the matters, the decision to which is specifically provided under this agreement), the same shall be referred to the sole arbitrator appointed by BSNL CHTD.

11.1.9. BSNL CHTD's decision will be final on all matters relating to the business and will be binding on the contractor.

11.1.10. It will be BSNL CHTD's endeavour to make the payment to the contractors as per the schedule, however this may stretch beyond the scheduled time only in case of delays in getting claims from the contractors or in case of incorrect claims.

11.1.11. The payment to the contractors will be made through a cheque / ECS after deducting applicable taxes.

11.1.12. The contractor's representatives will report to Competent Authority through the nodal officer appointed by Competent Authority.

11.1.13. All present, future & additional taxes /Levies/ duties etc. that may be levied by the govt. /Local authorities etc. will be borne by the contractors.

11.1.14. The contractor's representatives shall comply with all applicable laws, bye Laws, rules, regulations, orders, directions, and notifications etc of the Govt./Court/Tribunals and shall also comply with all directions issued by BSNL CHTD and provide BSNL CHTD with all information and cooperation that BSNL CHTD may reasonably require from time to time.

11.1.15. The contractor's representatives have to fully cooperate with BSNL CHTD to investigate any complaint from the public/staff.

11.1.16. The contractor shall ensure provision of necessary safety devices tools/ kits etc required for discharge of services as mentioned in Annexure D at his own cost and shall recoup the same from time to time. BSNL will not be liable for any deficiency on contractor part in compliance to the above clause.

11.1.17. Contractor shall be liable for all payments of wages, Salary, Bonus, PF etc to its employees & shall comply with all statutory laws, rules, relating to employment, wages, PF, ID, act etc. **It is the contractor's responsibility to make all payments of wages, Salary, PF, Bonus, etc., to its employees regularly by them without fail.**

11.1.18. The Contractor shall be liable for any theft, sabotage etc. of BSNL CHTD property and the damages/losses if any will be recovered from the contractor. The contractor shall report any such incident to the site in charge immediately.

11.1.19. A. The Contractor agrees to protect, defend, indemnify and hold harmless BSNL CHTD and its employees, officers, directors, agents or representatives from and against any and all

liabilities, damages, fines, penalties and costs (including legal costs and disbursements) arising from or relating to:

(a) Any breach of any statute, regulation, direction, orders or standards from any governmental body, agency, telecommunications operator or regulator. Applicable to such party; or

b) Any breach of the terms and conditions in this agreement by Contractor

This clause shall survive even on the termination or expiry of this agreement.

11.1.20. BSNL CHTD Shall not be liable for any act of commission or omission of any third party.

11.1.21. The Contractor's representatives will have to abide by the policy rules, regulations & instructions of BSNL CHTD as revised/modified from time to time, without any prior notice to the Contractor in respect of all matters including security deposit / PBG, payment to the contractor etc.

11.1.22. The Contractor will be bound by all the aspects and legal issues relating to the labour laws.

11.1.23. Any misfortune untoward incidents met by personnel deployed by the contractor are to be borne by the contractor only and BSNL is not liable for those incidences.

11.1.24. At the time of award the details of site list with DE concerned will be given to the successful vendors.

## **12. PROCEDURE FOR SUBMISSION OF E-Tender**

### **SEALING AND MARKING OF BIDS**

The bid should be submitted as per Clause 4 of tender information. The bids are called under **Single Stage Bidding & Two Envelope System**. The bid should be submitted on line using two envelope methodologies. The First envelope will be named as **Techno-commercial bid**. This envelope will contain documents of bidder's satisfying the eligibility / Technical & commercial conditions as per clause 4 with Bid Security as per Clause 5 . 3 Second envelope will be named as **Financial bid** containing Price Schedule as per Annexure-E.

**On line:** Bid sealing is done electronically by encrypting each bid part with a symmetric pass phrase, if applicable in the portal, by the bidders himself.

**Offline:** The required Offline documents only mentioned in clause 4.1.3 may be submitted in a single main envelope under the personal seal of the bidder.

a) The envelope shall be addressed to the purchaser inviting the tender as given below:

**DIVISIONAL ENGINEER (TENDER)  
O/o DGM NWP-CM,  
3<sup>rd</sup> floor, R K NAGAR TELEPHONE EXCHANGE BUILDING,  
No: 238 RK Mutt ROAD, RK Nagar, CHENNAI-28  
Tel No: 2462 0125 Fax No. 2462 0115**

- b) The envelope shall bear the name of the tender, the tender number and the words 'DONOT OPEN BEFORE' (due date & time).
- c) The envelope shall indicate the name and complete postal address of the bidder to enable the purchaser to return the bid unopened in case it is declared to be received 'late'.
- d) Tender should be deposited in the tender box provided by tendering authority or sent by registered post or delivered in person on above mentioned address given above. The responsibility for ensuring that the tenders are delivered in time would vest with the bidder.
- e) Bids delivered in person on the day of tender opening shall be delivered upto specified time & date as stated in NIT at the venue given in clause 12 (a) above. The purchaser shall not be responsible if the bids are delivered elsewhere.
- f) The prescribed documents as per mandatory and eligibility criterion should be submitted by contractor.
- g) The contractor shall be intimated after evaluation of the bid.

Venue of Tender Opening: Tender will be opened in the

**Chamber of DGM NWP CM, 3<sup>rd</sup> floor, RK Nagar, Chennai-600 028 at 14.30 hours on the due date.**

If due to administrative reasons the venue of the bid opening is changed, it will be displayed prominently on notice board.

If the envelope is not sealed and marked as required at para 12.a and 12.b, the bid shall be rejected.

### **13. SAFETY CODE**

**13.1** Suitable scaffoldings should be provided for workmen for all works that cannot safely be done from the ground or from solid construction except such short period of works as can be safety from ladders. When a ladder is used, an extra mazdoor shall be engaged for holding the ladder and if the ladder is used for carrying materials, suitable foot holds and handrails shall be provided on the ladder. The ladder shall be given an inclination not steeper than 1:4 (1 horizontal and 4 vertical).

**13.2** Scaffolding or staging more than 12 feet above the ground level or floor swung or suspended from and overhead support or erected with stationery support shall have guard rail properly attached, bolted, braced and secured at least 3 feet height above the floor or platform of such scaffolding or staging and extending along the entire length of the outside and ends thereof with only such opening as may be necessary for the delivery

of materials. Such scaffolding or staging shall be fastened as to prevent it from swaying from the building structures/mast structures.

- 13.3** Working platforms, gangways and stairways should be so constructed that they should not sag unduly or unequally and if the height of the platform or the gangway or stairway is more than 12 feet above ground level or floor level, they should be closely boarded, should be suitably fenced as described in (2) above and should have adequate width.
- 13.4** Every opening in ceiling of a building or in a working platform is provided with suitable means to prevent the fall of persons or materials or with suitable fencing or railing whose minimum height shall be 3 feet.
- 13.5** Safe means of access shall be provided to all working platforms and other working places. Every ladder shall be securely fixed. No portable single ladder shall be more than 10 feet in length while the width between the side rails shall in no case be less than 11 1/2" for ladders up to and including 10 feet in length. For longer ladders this width should be increased at least 1/4" for each additional foot of length. Uniform step spacing shall not exceed 12". Adequate precautions shall be taken to prevent danger from electrical equipment. No materials on any of the sites of work shall be so stacked or placed as to cause danger or inconvenience to any person or the public. The contractor(s) shall provide all necessary fencing and lights to protect the public from accident, and shall be bound to bear the expenses of defense of every suit, action or other Proceeding at law that may be brought by any person for injury sustained owing to neglect on the above precautions and to pay any damages and cost which may be awarded in any suit, action or proceedings to any such person or which may with the consent of the contractor(s) be paid to compromise any claim by any such person.
- 13.6** All necessary personal safety equipment as considered adequate by the purchaser or its nominee should be kept available for the use of persons employed on the site and maintained in condition suitable for immediate use, and the contractor(s) should take adequate steps of ensuring proper use of equipment by those concerned.
- (a)** Workers employed on mixing asphaltic materials, cement and lime mortars shall be provided with protective footwear and with protective goggles.
  - (b)** Those engaged in white washing or stacking of cement bags or any materials which is injurious to the eyes shall be provided with welders protective goggles.
  - (c)** Those engaged in welding works shall be provided with welders protective goggles and/or protective eye sight lids.
  - (d)** Stone breakers shall be provided with protective goggles and protective clothing and seated at sufficiently safe intervals.
  - (e)** When workers are employed in sewers and manholes which are in use, the Contractor(s) shall ensure that the manhole covers are opened and ventilated at least half an hour before the workers are allowed to get into the manhole and the manhole so opened shall be cordoned off with suitable railing and provide with warning signals or boards to prevent accidents to the Public.

- (f)** The Contractor(s) shall not employ persons below the age of 18 years and females for all the works involving risk.
- (g)** When the work is done near any place where there is risk of drowning all necessary equipment should be provided and kept ready for use and all necessary steps taken for prompt rescue of any person in danger and adequate provision should be made for prompt first aid treatment for all injuries likely to be sustained during the course of the work.
- (h)** Use of hoisting machines and shackles including their attachment, anchorage and support shall conform to the following standards or conditions:
  - (i)** These shall be of good mechanical constructions, sound materials and adequate strength and free from patent defect and shall be kept in good repair and in good working order.
  - (ii)** Every rope used in hoisting or de-hoisting materials or as a means of suspension shall be durable quality and adequate strength and free from patent defects.
  - (iii)** Every crane operator or hoisting appliance operator shall be properly qualified and no person under the age of 21 years shall be in-charge of any hoisting machine including any scaffolding winch or give signals to operator.
  - (iv)** In case of every hoisting machine and of every chain ring hook, shackle, swivel and pulley block used in hoisting or as means of suspension, the safe working load shall be so ascertained by adequate means. Every hoisting machine and gear referred to above shall be plainly marked with the safe working load. In case of hoisting machine having a variable with the safe working load, each safe working load of the conditions under which it is applicable shall be clearly indicated. No part of any machine or any gear referred to above in these paragraphs shall be loaded beyond the safe working load except for the purpose of testing.
  - (v)** The Contractor(s) shall notify the safe working load of the machine(s) to the Purchaser, or its nominee, and should ensure that under no condition, the operating load of the machine should exceed the safe working load.
  - (vi)** Motor, gearing, transmission, electric wiring and other dangerous part of hoisting appliances should be provided with sufficient safe guards. Hoisting appliances should be provided with such means as will reduce to the minimum risk of accidental descent of the load. Adequate precautions should be taken to reduce to the minimum the risk of any part of a suspended load becoming accidentally displaced.
- (i)** When workers employed on electrical installations which are already energized, insulating mats, wearing apparel such as gloves, sleeves or both as may be necessary should be provided. The workers should not wear any rings, watch and carry keys or other materials which are good conductors of electricity.
- (j)** All scaffolds, ladders and other safety devices mentioned or described herein shall be maintained in safe conditions and no scaffolds, ladders or safety equipment shall be altered or removed while they are in use.  
Adequate washing facilities should be provided at or near the place of work.



- (k)** These safety provisions should be brought to the notice of all concerned by displaying on a Notice Board at a prominent place at work spot. The persons responsible for compliances of the safety code shall be named therein by the Contractor(s).
- (l)** To ensure effective enforcement of the Rules and Regulations relating to safety precautions, the arrangements made by the Contractor(s) shall be open to inspection by the Labour Officer or by the Purchaser or by its Nominee or representatives.
- (m)** Notwithstanding the above clauses from (a) to (l) there is nothing in these to exempt the Contractor(s) from the operations of any other Act or Rules in force in the Republic of India.
- (n)** Safety equipment for the Personnel deployed by the contractor is to be supplied by the contractor themselves.

#### **14.LABOUR CONDITIONS**

- 14.1** Successful bidder should have registered themselves with Assistant Labour Commissioner (central) as per contract labour (regulation and abolition) Act (Central) 1972 and Contract Labour Rules (Central) 1971 as applicable and submit the copy of the license along with the bid.
- 14.2** The Contractor(s) should keep the list of workers being engaged on the work with their full postal address and specimen signatures. Every day, attendance should be taken by the contractor/ In-charge of the work and no unauthorized persons should be allowed to attend the work either on the tower or near the tower.
- 14.3** The Contractor(s) should take all necessary precautions for the safety of the persons and other properties. The workers should be insured for any type of compensation in case of any injury to any person.
- 14.4** The contractor will be assigned work anywhere under the jurisdiction of Chennai Telephones and should be able to deploy sufficient man power to any place in the state for carrying out the works.
- 14.5** Provision for shelter and other necessary amenities for the labour engaged by the contractor during the course of installation works should be done by the contractor only at his own cost. The engineer-in-charge designated by the Purchaser may require the contractor to dismiss or remove from the site of the work any person or persons in the contractors employ upon the work who may be incompetent or exhibit misconduct and the contractor shall forthwith comply with such requirements.
- 14.6** Engaging child labour (below the age of 14) is strictly prohibited.

#### **14.7 INSURANCE:**

Without limiting any of his/their obligations or liabilities, the Contractor(s) shall, at his/their own expense, take and keep comprehensive insurance including third party risk for the plant, machinery, and materials etc., brought to the site and for all the workers during the execution of work. The Contractor(s) shall also take out workmen's compensation insurance as required by Law and undertake to indemnify and keep indemnified BSNL from and against all manner of claims, demands, losses, damages, costs (including the cost between attorney and client) and charges and expenses that may arise

in regard to the same or that the Government may suffer or incur with respect to and/or incidental to the same. The Contractor(s) shall have to furnish originals and/or attested copies when called upon by the Purchaser or its nominee of all the insurance policies taken as aforesaid, within 15 days of being called upon to do so together with all premium receipts and other papers related thereto which the Purchaser may require. In no case, the work should be commenced without taking the necessary insurance policies as aforesaid.

**14.8 FAIR WAGES CLAUSE:**

The Contractor(s) shall pay wages not less than the fair wage to the labour engaged by him/them for the work.

**Explanation:**

- (a) 'Fair Wage' means, wage whether for time or place of work fixed by Law or otherwise notified at the time of inviting tenders for the work and with such wages prescribed by the State Government for the District in which the work is done.
- (b) The Contractor(s) shall, notwithstanding the provisions of any contract to the contrary, cause to be paid a fair wage to labourers indirectly engaged for the work, including any labour engaged by his sub contractor(s) if any, in connection with the said work, as if the labourers had been immediately engaged by him/them. Vis-à-vis the Union Government of India, the Contractor(s) shall be deemed to be part of this Contract and any breach thereof shall be breach of this contract/agreement.
- (c) All sums payable by way of compensation under any of these conditions shall be considered as reasonable compensation to be applied to the use of BSNL without reference to the actual loss or damage sustained and whether or not any damage shall have been sustained.

**15. RIGHT TO VARY QUANTUM OF WORK:-**

**15.1 BSNL shall have the right to increase the quantum of work in terms of 25%,50%, up to 100% and to decrease quantum of work, up to 50% of the total requirement without any change in the unit price or other terms and conditions at the same time of awards of contract or during the operation of agreement.**

**16. Payment Terms & Conditions:**

16.1. 100% payment shall be made on completion of works as mentioned in work orders or as instructed by site in charge. The following documents shall be submitted for claiming the payment:

- a) Bill in triplicate with details of the site id, site name, services executed under the Work Order number and date.
- b) Copy of the work order against which the bill(s) is/are issued by the DE BSS of concerned units.
- c) Work Completion Certificate from the Site- in-Charge/ Engineer of BSNL to the effect that the work has been carried out satisfactorily
- (b) Copy of work order.
- (c) Working satisfactory report
- (e) Each bill should contain the PAN number and GST number of the contractor.
- (f) The above Certified bills shall be forwarded to AO PLG GSM, RK Nagar for making

payment.

16.2. Appropriate % of Income TAX will be deducted from the bill depending upon the statutory requirement

16.3. Payment will be made through ECS/NEFT/RTGS.

**17. Liquidated Damages**

1. The time allowed for completion of the work as entered in the e-tender shall be strictly adhered by the contractor and shall be deemed to be the most important aspect of the contract on the part of the contractor and shall be reckoned from **DURATION for completion of work mentioned in Annexure-D Part 3** by BSNL. The work shall, throughout the stipulated period of contract, be proceeded with all due diligence to achieve the desired progress uniformly, and the contractor shall pay as penalty an amount equal to 0.25 percent of the estimated amount per day of delay in completion of work, subject to a maximum of 10 (ten) percent of the cost of the work awarded.
2. On any date the penalty payable as above, reaches 10(ten) percent of the estimated cost of the work, the contractor should proceed with the work further only on getting a written instruction from the Divisional Engineer that, he is allowed to proceed further with the work. It will be in the discretion of the Divisional Engineer to allow the contractor to continue with the work on the basis of any written agreement reached between the contractor and the Divisional Engineer one of the conditions of such agreement may be a stipulation for the contractor to agree for realization of penalty for delay at a higher rate as may be agreed between the Divisional Engineer and contractor.
3. Penalty for delay incompletion of the work shall be recoverable from the bills of the contractor and/or by adjustment from the security deposit or from the bills of any other contract.
4. In the event of non-responsiveness from the contractor, the Purchaser reserves the right to get the unexecuted part of the work done by any other agency at any rate (even if higher than the tendered rate) and recover the expenditure incurred from the bills payable to the original contractor or the security deposit. The Purchaser shall not make any payment to the original contractor for any unfinished work and he is liable for penalties as given above.

**18. Power of Attorney**

- (a) The power of Attorney shall be submitted and executed on the non-judicial stamp paper of appropriate value as prevailing in Tamil Nadu State and the same be attested by a Notary public or registered before Sub-registrar of the Tamil Nadu State.
- (b) The power of Attorney be executed by a person who has been authorized by the Board of Directors of the bidder in this regard, on behalf of the Company/ institution/ Corporate.
- (c) In case of the bidder being a firm, the said Power of Attorney shall be executed by all the partner(s) in favour of the said power of Attorney.

(d) Attestation of the specimen signatures of authorized signatory by the Company's/ firm's bankers shall be furnished. Name, designation, phone number, mobile number, email address and postal address of the authorized signatory shall be furnished.

### **19. Arbitration:**

Except and otherwise provided elsewhere in the contract, if any dispute, difference, question or disagreement arises between the parties hereto or their respective representatives or assignees, in connection with construction, meaning, operation, effect, interpretation of the contract or breach thereof which parties unable to settle mutually the same shall be referred to arbitration as provided hereunder:

a) A party wishing to commence arbitration proceeding shall revoke Arbitration Clause by giving 60 days notice to the designated officer of the other party. The notice invoking arbitration shall specify all the points of disputes with details of the amount claimed to be referred to arbitration at the time of invocation of arbitration and not thereafter. If the claim is in foreign currency, the claimant shall indicate its value in Indian Rupee for the purpose of constitution of the arbitral tribunal.

b) The number of the arbitrators and the appointing authority will be as under

Claim amount (excluding claim for counter claim, if any)	Number of arbitrator	Appointing Authority
Above Rs.5 lakhs to Rs.5 crores	Sole Arbitrator to be appointed from a panel of arbitrators of BSNL	BSNL  (Note: BSNL will forward a list containing names of three empanelled arbitrators to the other party for selecting one from the list who will be appointed as sole arbitrator by BSNL)
Above Rs.5 crores	3 Arbitrators	One arbitrator by each party and the 3rd arbitrator, who shall be the presiding arbitrator, by the two arbitrators. BSNL will appoint its arbitrator from its panel.

c) Neither party shall appoint its serving employee as arbitrator.

d) If any of the arbitrators so appointed dies, resigns, becomes incapacitated or withdraws for any reason from the proceedings, it shall be lawful for the concerned party/arbitrators to appoint another person in his place in the same manner as aforesaid. Such person shall proceed with the reference from the stage where his predecessor had left it both parties consent for the same; otherwise, he shall precede de novo.

e) Parties agree that neither party shall be entitled for any pre-reference or pendent elite interest on its claims. Parties agree that any claim for such interest made by any party shall be void.

f) Unless otherwise decided by the parties, Fast Track procedure as prescribed in Section 29 B of the Arbitration Conciliation Act, 1996 for resolution of all disputes shall be followed, where the claim amount is upto Rs.5 crores.

### **Fast track procedure:**

- (1) Notwithstanding anything contained in this Act, the parties to an arbitration agreement, may, at any stage either before or at the time of appointment of the arbitral tribunal, agree in writing to have their dispute resolved by fast track procedure specified in sub-section (3).
- (2) The parties to the arbitration agreement, while agreeing for resolution of dispute by fast track procedure, may agree that the arbitral tribunal shall consist of a sole arbitrator who shall be chosen by the parties.
- (3) The arbitral tribunal shall follow the following procedure while conducting arbitration proceedings under sub-section (1):-
  - (a) The arbitral tribunal shall decide the dispute on the basis of written pleadings, documents and submissions filed by the parties without oral hearing;
  - (b) The arbitral tribunal shall have power to call for any further information or clarification from the parties in addition to the pleadings and documents filed by them;
  - (c) An oral hearing may be held only, if, all the parties make a request or if the arbitral tribunal considers it necessary to have oral hearing for clarifying certain issues;
  - (d) The arbitral tribunal may dispense with any technical formalities, if an oral hearing is held, and adopt such procedure as deemed appropriate for expeditious disposal of the case.
- (4) The award under this section shall be made within a period of six months from the date the arbitral tribunal enters upon the reference.
- (5) If the award is not made within the period specified in sub-section (4), the provisions of sub-sections (3) to (9) of section 29A shall apply to the proceedings.
- (6) The fees payable to the arbitrator and the manner of payment of the fees shall be such as may be agreed between the arbitrator and the parties.
- (7) The arbitral tribunal shall make and publish the award within time stipulated as under:

Amount of Claims and Counter Claims	Period for making and publishing of the award (counted from the date the arbitral tribunal enters upon the reference)
Upto Rs.5 crores	Within 6 months (Fast Track procedure)
Above Rs.5 crores	Within 12 months

However, the above time limit can be extended by the Arbitrator for reasons to be recorded in writing with the consent of parties and in terms of provisions of the Act.

- (8) In case of arbitral tribunal of 3 arbitrators, each party shall be responsible to make arrangements for the travel and stay, etc. of the arbitrator appointed by it. Claimant shall also be responsible for making arrangements for travel/stay arrangements for the Presiding Arbitrator and the expenses incurred shall be shared equally by the parties.

In case of sole arbitrator, BSNL shall make all necessary arrangements for his travel/stay and the expenses incurred shall be shared equally by the parties.

- (9) **This contract is subject to the jurisdiction of courts at Chennai only.**

## **20. Set off (Recovery of sum due to BSNL):**

DGM NWP-CM

Signature of Bidder

- a) Any sum of money due and payable to the Service Provider (including security deposit refundable to him) under this contract may be appropriated by BSNL and set off the same against any claim of BSNL for payment of a sum of money arising out of this contract or under any other contract made by Service Provider with BSNL.
- b) In the event of said security deposit being insufficient, the balance of total amount recoverable shall be deducted from any sum due to the Service Provider under this or any other contract with Bharat Sanchar Nigam Limited. Should this amount be insufficient to cover the said full amount recoverable, the Service Provider shall pay to Bharat Sanchar Nigam Limited on demand the balance amount, if any, due to Bharat Sanchar Nigam Limited within 30 days of such demand made by BSNL.
- c) If any amount due to the company is so set off against the said security deposit, the service provider shall have to make good the said amount so set off to bring the security deposit to the original value immediately by not later than 10 days.

## **21. Force majeure clause;**

21.1 Force majeure shall mean any event or circumstances or combination of the events or events or circumstances that materially and adversely affect, prevent or delay any party in performance of its obligation in accordance with the terms of this agreement but only if and to the extent such events and circumstances are within the affected parties reasonable, control, directly or indirectly.

21.2 Force majeure events; the force majored events shall consist of civil war, rebellion, civil commotion, mutiny, flood, tempest, earth quack or other unforeseen forces of the nature or act of god or due to any restrained or regulation or change in the statute, policy of the state or central govt. like expropriation or compulsory acquisition, exercise of the central and / or state got executive prerogative and court stay order.

21.3 In the event of a force majored occurrence, the party invoking the force Majeure shall promptly notify the other party of such circumstances force majeure occurrence shall be suspend the parties obligations with respect to circumstances affected by the force majeure

## **SPECIAL INSTRUCTIONS TO BIDDERS FOR E-TENDERING**

### **General**

E-Tendering is a new methodology for conducting Public Procurement in a transparent and secured manner. Suppliers/ Vendors will be the biggest beneficiaries of this new system of procurement. For conducting electronic tendering, CHTD has decided to use the portal (<https://www.tenderwizard.com/BSNL>) through ITI, a Government of India Undertaking.

Benefits to Suppliers are outlined on the Home-page of the portal. Submission of Bids through online process is mandatory for this Tender. Those suppliers/service providers not registered on the website mentioned above, are required to get registered beforehand. The intending bidder must read the terms and conditions of this tender carefully. They should only submit his bid if considers themselves eligible and is in possession of all the documents required.

BSNL, Chennai Telephones reserves the right to reject any prospective application without assigning any reason and to restrict the list of qualified bidders to any number as deemed suitable by it, if too many bids are received satisfying the laid down criteria.

### **INSTRUCTIONS**

Information and instructions for bidders posted on website [www.tenderwizard.com/BSNL](http://www.tenderwizard.com/BSNL) shall form part of bid document. If not registered, the intending tenderers shall get themselves registered with M/s ITI Limited, as per instructions on their web site, by paying applicable fee as per Govt. of India ruling.

#### **1. Tender Bidding Methodology:**

Sealed Bid System – **Two** Stage – Using Two Envelopes’,

In case of two envelope system Financial & Techno-commercial bids shall be submitted by the bidder at the same time.

#### **2. Broad outline of activities from Bidders prospective:**

1. Procure a Digital Signature Certificate (DSC)
  2. Register on Electronic Tendering System® (ETS) of <https://www.tenderwizard.com/BSNL>
  3. Create Users and assign roles on ETS
  4. View Notice Inviting Tender (NIT) on ETS
  5. Download Official Copy of Tender Documents from ETS
  6. Clarification to Tender Documents on ETS
    - Query to BSNL (Optional)
    - View response to queries posted by BSNL
  7. Bid-Submission on ETS
  8. Attend Public Online Tender Opening Event (TOE) on ETS
    - Opening of Technical-Part
  9. Post-TOE Clarification on ETS (Optional)
    - Respond to BSNL’s Post-TOE queries.
  10. Attend Public Online Tender Opening Event (TOE) on ETS
    - Opening of Financial-Part
- (Only for Technical Responsive Bidders)

**For participating in this tender online, the following instructions are to be read carefully.**

#### **3. Digital Certificates**

For integrity of data and authenticity/ non-repudiation of electronic records, and to be compliant with IT Act 2000, it is necessary for each user to have a Digital Certificate (DC). also referred to as Digital Signature Certificate (DSC), of Class 2 or above, issued by a Certifying Authority (CA) licensed by Controller of Certifying Authorities (CCA) [refer <http://www.cca.gov.in>].

#### **4. Registration and Training**

To use the Electronic Tender portal (<https://www.tenderwizard.com/BSNL>) vendors need to register on the portal. Registration of each organization is to be done by one of its senior persons who will be the main person coordinating for the e-tendering activities. In ETS terminology, this person will be referred to as the Super User (SU) of that organization. For further details, please visit the website/portal, and click on the 'Supplier Organization' link under 'Registration' (on the Home Page), and follow further instructions as given on the site.

Pay Annual Registration Fee as applicable.

**Note:** After successful submission of Registration details and Annual Registration Fee, please contact Tender wizard Helpdesk (as given below), to get your registration accepted/activated.

#### **ITS's Helpdesk**

Telephone/ Mobile - 9894191904/ 9941947400 *[between 9:30 hrs to 18:00 hrs on working days]*

E-mail ID - [bsnlthelpdesk@gmail.com](mailto:bsnlthelpdesk@gmail.com), [twhelpdesk679@gmail.com](mailto:twhelpdesk679@gmail.com),  
[twhelpdesk438@gmail.com](mailto:twhelpdesk438@gmail.com)

#### **BSNL Contact**

**BSNL's Contact Person-1, DE (TENDER), Phone Number - 044-2462 0125**

**FAX Number 044-2462 0115 Email id:-[derfnomcr@gmail.com](mailto:derfnomcr@gmail.com)**

*[Between 10:00 hrs to 17:30 hrs on working days]*

**BSNL's Contact Person-2, SDE GSM (Tender),**

**Email id:-[sdebsstenderkkn@gmail.com](mailto:sdebsstenderkkn@gmail.com)**

**Telephone no. 044-2462 0125 between 10:00 hrs to 17:30 hrs on working days**

#### **5. Some Bidding related Information for this Tender (Sealed Bid)**

The entire bid-submission would be online on Tender wizard portal. Broad outline of online submissions are as follows:

- Submission of digitally signed copy of Tender Documents / Addendum if any
- Two Electronic Envelopes containing
  1. Technical BID for E-Tender-Part
  2. Financial Bid for E-Tender-Part

Bidders are requested to ensure uploading scanned copies of EMD, EMBG/ MSME, EPF, ESI Financial proof for 2 previous yrs and Experience certificates and mandatory documents mentioned in in the online mode.

6. **On-line Submissions** (Technical Bid envelope and Financial Bid/Price Bid envelope) the entire bid-submission would be online on the portal of M/s ITI Limited <https://www.tenderwizard.com/BSNL>. Broad outline of submissions are as follows:

#### **6.1 Technical Bid envelope**



**A. Submission of Mandatory documents:**

- Proof for GST registration Certificate.
- Digitally signed copy of Tender Document, Corrigendum and Addendums, if any.
- Proof of experience for having done drive test works during the last two year in the form of experience certificate may be enclosed.
- EMD receipt.
- Proof for payment of Tender processing fee of M/s ITI Limited.
- Request for claiming exemption of tender document fee and Proof in respect of valid certification from MSME/NSIC for the tendered item/work.

**B. Submission of Eligibility documents:**

- Application form (Annexure-A)
- Declaration regarding no close relative working in BSNL (Annexure-C)
- Copy of PAN certificate
- EPF and ESI Registration number if any. Duly Attested
- Vendor Master Form (Annexure-H)
- Bidder's Profile and Questionnaire (Annexure-I)
- Letter of Authorisation for Bid opening Event (Annexure-J)
- **The contractor /bidder must have a turnover of not less than 50 Lakhs during each of the preceding 2 financial years. The turnover of the company/contractor as required in eligibility criteria to be issued/certified by a Chartered Accountant along with latest audited annual reports of the company (i.e. Profit & loss statement, Balance sheet) and income tax clearance certificate for the last two financial years.**
- **Proof of experience for having done similar works during the last two years in the form of certificate may be enclosed.**
- Certificate of incorporation wherever applicable.
- Article of Memorandum of Association of partnership deed or proprietorship deed as the case may be wherever required.
- The authorization for signing the E-Tender document, bid, agreement etc.
- Bid form duly attested (Annexure-L).
- Bidder shall furnish a clause-by-clause (Annexure-G) compliance on the BSNL's all terms and conditions of this bid (Tender document and addendum/clarifications if any). **A bid without clause-by clause compliance (Annexure-G) shall not be considered for evaluation and will be summarily rejected.**
- For the purpose of compliance to be furnished pursuant to clause 4.1.1 above, the bidder shall sign on each and every page along-with the seal of the company.
- Labour licence document

**6.2 Financial Bid (Price Bid) as per the format in Section 9 Part B.**

All the above said documents mentioned at 6.1 A & 6.1 B and 6.2 are to be uploaded online.

**6.3 Offline Submissions (physical document submission) :**

The bidder is requested to submit the following documents (in original) one set of

1. EMD/Bid Security declaration form– in original,
2. Tender Document Fee,
3. Power of Attorney for authorization for executing the power of attorney, if

required.

4. Request for claiming exemption of Bid security & tender document fee and Proof in respect of valid certification from NSIC/MSME for the tendered item/work.

The bidder is requested to submit the above mentioned documents i.e clause 6.3 s.no 1-4 in separate cover offline mode to

DIVISIONAL ENGINEER (TENDER)  
O/o DGM NWP-CM  
3<sup>rd</sup> floor R K NAGAR TELEPHONE EXCHANGE BUILDING,  
No: 238, RK Mutt ROAD, RK NAGAR CHENNAI-28  
Tel No: 044-2462 0125

on or before the date & time of submission of bids specified in covering letter of this tender document, in a Sealed Envelope. The envelope shall bear (Name of the Work), the tender number and the words '**DO NOT OPEN BEFORE**' (due date & time) as mentioned in the Clause 14 of E-Tender document.

**Note: The Bidder has to upload the Scanned copy of all above said original documents as Bid-Annexure during Online Bid-Submission.**

*A check list in Annexure-Q may be referred for other documents.*

#### **7. Special Note on Security of Bids**

Security related functionality has been rigorously implemented in ETS in a multidimensional manner. Starting with 'Acceptance of Registration by the Service Provider', provision for security has been made at various stages in Electronic Tender's software. Specifically for Bid Submission, some security related aspects are outlined below:

As part of the Electronic Encrypted functionality, the contents of both the 'Electronic Forms' and the 'Main-Bid' are securely encrypted using a Password created by the server itself. The Pass-word is more difficult to break. This method of bid-encryption does not have the security and data-integrity related vulnerabilities which are inherent in e-tender in systems which use Public-Key of the specified officer of a Buyer organization for bid-encryption. Bid-encryption in ETS is such that the Bids cannot be decrypted before the Public Online Tender Opening Event (TOE), even if there is connivance between the concerned tender-opening officers of the Buyer organization and the personnel of e-tendering service provider.

#### **8. Public Online Tender Opening Event (TOE)**

- ETS ([www.tenderwizard.com/BSNL](http://www.tenderwizard.com/BSNL)) offers a unique facility for 'Public Online Tender Opening Event (TOE)'. Tender Opening Officers as well as authorized representatives of bidders can attend the Public Online Tender Opening Event (TOE) from the comfort of their offices. For this purpose, representatives of bidders (i.e. Supplier organization) duly authorized are requested to carry a Laptop and Wireless Connectivity to Internet.
- Every legal requirement for a transparent and secure 'Public Online Tender Opening Event (TOE)' has been implemented on the portal. The work of taking notes during a manual 'Tender Opening Event' is therefore replaced with this superior and convenient form of 'Public Online Tender Opening Event (TOE)'.
- ETS ([www.tenderwizard.com/BSNL](http://www.tenderwizard.com/BSNL)) has a unique facility of 'Online Comparison Chart' which is dynamically updated as each online bid is opened. The format of the chart is based on inputs provided by the Buyer for each Tender. The information in the Comparison Chart is based on the data submitted by the Bidders. A detailed Technical and/ or Financial Comparison Chart enhance Transparency. Detailed instructions are given on relevant screens.
- ETS ([www.tenderwizard.com/BSNL](http://www.tenderwizard.com/BSNL)) has a unique facility of a detailed report titled 'Minutes of Online Tender Opening Event (TOE)' covering all important activities of '**Online Tender Opening Event (TOE)**'. This is available to all participating bidders for 'Viewing/ Downloading'.

- There are many more facilities and features on ETS ([www.tenderwizard.com/BSNL](http://www.tenderwizard.com/BSNL)). For a particular tender, the screens viewed by a Supplier will depend upon the options selected by the concerned Buyer.

**9. Important Note:**

**In case of internet related problem at a bidder's end, especially during 'critical events' such as a short period before bid-submission deadline, during e-auction, it is the bidder's responsibility to have backup internet connections. In case there is a problem at the e-Procurement/e-Auction service provider's end(in the server, leased line etc) due to which all the bidders face a problem during critical events, and this is brought to the notice of BSNL by the bidders in time, then BSNL will promptly re-schedule the affected event(s).**

**10. Other Instructions**

For further instructions, the vendor should visit the home-page of the portal (<https://www.tenderwizard.com/BSNL>).

Important Note: It is strongly recommended that all authorized users of Supplier organizations should thoroughly peruse the information provided under the relevant links, and take appropriate action. This will prevent hiccups, and minimize teething problems during the use of ETS.

**The following 'FOUR KEY INSTRUCTIONS for BIDDERS' must be assiduously adhered to:**

1. Obtain individual Digital Signing Certificate (DSC or DC) well in advance of your first tender submission deadline on ETS
  2. Register your organization on ETS well in advance of your first tender submission deadline on ETS.
  3. Get your organization's concerned executives trained on ETS well in advance of your first tender submission deadline on ETS.
  4. **Submit your bids well in advance of tender submission deadline on ETS (At least one day before the deadline) (There could be last minute problems due to internet timeout, breakdown, etc).**
- While the first three instructions mentioned above are especially relevant to first-time users of ETS, the fourth instruction is relevant at all times.**

**11. Minimum Requirements at Bidders end**

- **Computer System with good configuration (Min P IV, 1 GB RAM, Windows 7 OS)**
- **Broadband connectivity.**
- **Microsoft Internet Explorer 6.0 or above**
- **Digital Certificate(s)**

**E-reverse auction/ Limited tender option available with the portal, if required will be conducted after the opening of financial bids in case of more than one techno-commercially qualified bidders. However, in case of only one techno-commercially qualified bidder, the Tender Inviting authority reserves the right to go for manual negotiation, if service charges per shift quoted by the bidder are on the higher side.**

***The BSNL shall have the right to e-reverse the price bid after opening of the financial bid in case the rate quoted by the lowest bidder found to be abnormally very low / high. In case e-reverse option not available in Portal then BSNL reserves the right to Manual negotiation is applicable.***

**Annexure – A**

**Application Form to be submitted with E-Tender**

**Name of the Contactor :**

**Address for correspondence :**

I,....., authorized signatory of the contractor M/S....., certify that I fully agree and comply with all the clauses and sub-clauses of the E-Tender and annexures available with E-Tender.

(Signature of the authorized signatory)

(With seal and contact numbers)

Dated..... at.....

Note: The bidder while submitting the bid should sign all the pages of the E-Tender document consisting of terms and conditions and draft of agreement and enclose the same with this Annexure.

**Annexure – B**

**FORMAT OF THE PERFORMANCE BANK GUARANTEE**

(To be typed on Rs.100/- non-judicial stamp paper)

Bank Guarantee in respect of LOI dated \_\_\_\_\_ between General Manager(NWO)-CM/GSM, BSNL, Chennai Telephone District hereafter called BSNL CHTD and M/s \_\_\_\_\_, having its Registered Office at \_\_\_\_\_ (hereinafter called CONTRACTOR) has entered into an agreement dated \_\_\_\_\_ (hereinafter referred to as "the said agreement") with General Manager-CM, Bharat Sanchar Nigam Limited (BSNL) (A Government of India Enterprise) Chennai Telephones having Office at 238, R.K.Mutt Rd, Chennai - 600028 whereby BSNL CHTD has agreed to appoint CONTRACTOR's for providing BSNL CHTD services on the terms and conditions exclusively mentioned therein for the circle \_\_\_\_\_).

It has been agreed between the parties that a Bank Guarantee for Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_ thousand only) shall be given by the CONTRACTOR in favour of the BSNL CHTD for due and faithful performance of the terms and conditions of the said agreement. \_\_\_\_\_ Bank having its office at \_\_\_\_\_ has at the request of the CONTRACTOR (M/s ), agreed to give the guarantee as herein after contained:

1. We, \_\_\_\_\_ (hereinafter called 'The Bank') do hereby undertake and assure to the BSNL CHTD that if in the opinion of the BSNL CHTD, the CONTRACTOR has in any way failed to observe or perform the terms and conditions of the said agreement or has committed any breach of its obligations there-under, the Bank shall on demand and without any objection or demur pay to the BSNL CHTD the said sum of Rs. \_\_\_\_\_/- (Rupees \_\_\_\_\_ lakh only) or such lesser amount as BSNL may demand without requiring BSNL CHTD to have recourse to any legal remedy that may be available to it, compel the Bank to pay the same.

2. Any such demand from the BSNL CHTD shall be conclusive as regards the liability of CONTRACTOR to pay to BSNL CHTD or as regards the amount payable by the Bank under this guarantee. The Bank shall not be entitled to withhold payment on the ground that the CONTRACTOR had disputed its liability to pay or has disputed the quantum of the amount or that any arbitration proceeding or legal proceeding is pending between CONTRACTOR and BSNL CHTD regarding the claim.

3. We, the Bank further agree that the guarantee shall come into force from the date \_\_\_\_\_ Hereof and shall remain in full force and effect for the period of **thirty months** from the date of commencement of the agreement or the term of this guarantee whichever is later. But if the period of the said agreement is extended either pursuant to the provisions in the said Agreement or by mutual agreement between the CONTRACTOR and the BSNLCHTD, the Bank shall automatically renew the period of the Guarantee for such period which expires 6 (six) months after the renewed period of the said agreement failing which it shall pay to the BSNL

CHTD the said sum of Rs.\_\_\_\_\_ /- (Rupees\_\_\_\_\_ only) without BSNL CHTD demanding the payment of the above sum.

4. The Bank further agrees that the BSNL CHTD shall have the fullest liberty without the consent of the Bank and without affecting in any way the obligations hereunder to vary any of the terms and conditions of the said agreement or to extend the time for performance of the said agreement from any of the powers exercisable by BSNL CHTD against the CONTRACTOR and to forebear to enforce any of the terms and conditions relating to the said agreement and the Bank shall not be relieved from its liability by reason of such failure or extension being granted to CONTRACTOR or through any for bearance, act or omission on the part of BSNL CHTD or any indulgence by BSNL CHTD to CONTRACTOR or any other matter or thing whatsoever which under the law relating to sureties would but for this provision have the effect of relieving or discharging the guarantor.

5. The Bank further agrees that in case this Guarantee is required for a larger period and it is not extended by the Bank beyond the period specified above in Clause 3, the Bank shall pay to BSNL CHTD without BSNL CHTD having to demand the payment of the said sum of Rs./- (in words Rupees.\_\_\_\_ only) on the last day on which the Bank Guarantee is due to expire.

6. Notwithstanding anything herein contained, The liability of the Bank under this guarantee is restricted to the PG Amount and it will remain in force for a period of 3 years i.e. up to \_\_\_\_\_.

(b) The guarantee shall stand completely discharged and all rights of the BSNL CHTD under this Guarantee shall be extinguished if no claim or demand is made on us in writing on or before \_\_\_\_\_.

7. The Bank guarantees that the below mentioned officer who have signed it on behalf of the Bank have authority to give this guarantee under its delegated power.

Place: .....

Date: .....

(Signature of the Bank Officer)

Rubber stamp of the bank

Authorized Power of Attorney Number: .....

Name of the Bank officer: .....

Designation: .....

Complete Postal address of Bank: .....

.....

Telephone Numbers .....

Fax numbers .....

**Annexure – C**

**Format of Certificate regarding No close relatives working in BSNL**

(To be submitted by all the Directors of the Company)

“I \_\_\_\_\_ s/o \_\_\_\_\_ r/o \_\_\_\_\_ here by certify that none of my relative(s) as defined under is/are employed in BSNL unit for which I am bidding. In case at any stage, it found that the information given by me is false / incorrect, BSNL shall have the absolute right to take any action as deemed fit/without any prior intimation to me.”

The near relatives for this purpose are defined as:-

- a) Members of a Hindu undivided family.
- b) They are husband and wife.
- c) The one is related to the other in the manner as father, mother, son(s) & son's wife (daughter in law), Daughter(s) and daughter's husband (son in law), brother(s) and brother's wife, sister(s) and sister's husband (brother in law).

Dated this \_\_\_\_\_ Day of \_\_\_\_\_ 2023

Signature: \_\_\_\_\_

**Annexure – D**  
**PART-1 SCHEDULE OF REQUIREMENT**

SOR NO	Service Item Description	Approximate No of work orders
1	Measurement of Equipment earth in NBSNL locations which includes all equipments earth (BTS equipment, DG, PP, Battery frame).	1297
2	Measurement of Tower earth both in NBSNL and BSNL locations which includes Tower and Lightening earth.	1113
3	Correction of equipment earth values to bring it within norms ( $\leq 0.5$ ohms) in locations under Sl.no 1 above, wherever earth is available & value is found beyond norms.	Work order will be issued on need basis by DE BSS concerned
4	Correction of Tower earth values to bring it within norms ( $\leq 0.5$ ohms) in locations under Sl.no 2 above, wherever earth is available & value it is found beyond norms.	Work order will be issued on need basis by DE BSS concerned
5	Providing equipment earth ( $\leq 0.5$ ohms) as per Eng.instructions provided , in locations under Sl.no.1 , wherever it is not available	Work order will be issued on need basis by DE BSS concerned
6	Providing Tower earth ( $\leq 0.5$ ohms) as per Eng.instructions provided , in locations under Sl.no.2 , wherever it is not available	Work order will be issued on need basis by DE BSS concerned
7	Providing of lighting arrester wherever not available	Work order will be issued on need basis by DE BSS concerned
8	Making aviation lamp working by ensuring sensor and electrical accessories are made functional.	Work order will be issued on need basis by DE BSS concerned

The above mentioned is the tentative requirement only. Requirement may vary based on the field conditions.



**PART 2- SCOPE of WORK- Service to be provided by the contractor**

Scope of work for Earth measurement/Correction/Installation in Mobile towers locations

This comprehensive work involves SOR No wise is given below

1. Measurement of Equipment earth in NBSNL locations which includes all equipments earth (BTS equipment, DG, PP, Battery frame etc).
2. Measurement of Tower earth both in NBSNL and BSNL locations which includes Tower and Lightning earth etc.
3. Correction of equipment earth values to bring it within norms( $\leq 0.5$  ohms) in locations under Sl.no 1 above, wherever earth is available & value is found beyond norms. Work order will be issued separated by DE BSS concerned after getting the measurement of earth report which duly attested by the contractor and the site in charge (SDE BSS).
4. Correction of Tower earth values to bring it within norms ( $\leq 0.5$  ohms) in locations under Sl.no 2 above, wherever earth is available & value it is found beyond norms. Work order will be issued separated by DE BSS concerned after getting the measurement of earth report which duly attested by the contractor and the site (SDE BSS).
5. Providing equipment earth within norms ( $\leq 0.5$  ohms) as per Eng.instructions provided , in locations under Sl.no.1 , wherever it is not available
6. Providing tower earth within norms ( $\leq 0.5$  ohms) as per Eng. Instructions provided, in locations under Sl.no.2 , wherever it is not available
7. Providing of lightning arrester (as mentioned in terms & conditions provided for SOR No 7 elsewhere in the tender document) wherever not available on need basis. Work order will be issued by DE BSS concerned.
8. Making aviation lamp (as mentioned in terms & conditions provided for SOR No 8 elsewhere in the tender document) working by ensuring sensor and electrical accessories are made functional.

**SOR NO:1,2 Earth Measurement:-**

**Terms and Conditions:-**

- Measurement should be done as per the departmental standards.
- The Earth measurement of the BTS location should be done with the presence of site in charge of the BTS ie SDE BSS.
- The measurement report should be clearly indicate with the site Id, site Address, date of measurement, earth resistance value with the certification for the authenticity of the measured value.(Format attached in Annexure-R)
- The measurement report should be duly signed by the vendor and site in charges.
- Based on the reports only DE BSS will issue work order for correction of earth or to provide new earth at the BTS location on need basis.
- The measurement report (in A4 print out) duly signed by the vendor and BSS in charge with date should be pasted inside the BTS room by the contractor. And also the earth value and date of measurement should be written with paint inside the BTS room/at outdoor BTS sites as directed by the site in charge which should be neat and visible by the contractor.
- All measurement work should be completed in the mentioned time frame or otherwise stipulated penalty will be applicable.
- All materials/equipments required for the measurement of earth should be provided by the Contractor.

**SOR NO:3,4 Correction/Mitigation of earth values:-**

**Terms and Conditions:-**

- The work order will be issued by DE BSS concerned for the sites whose earth value is abnormally higher than the norms based on the earth measurement report.
- Resistance to earth for equipment must be within eligible limits of  $\leq 0.5 \Omega$ .
- Resistance to earth for Tower must be within eligible limits of  $\leq 0.5 \Omega$ .
- The contractor shall bring the earth resistance value under norms by adopting the guidelines provided in the Engineering instructions.
- All nuts and bolts (related to earth resistance work) should be tightened by the contractor.
- The rusted nuts and bolts (related to earth resistance work) should be replaced with new nuts & bolts.
- Materials to be refilled in the pit- Charcoal, Salt/earthing powder, Soft soil in the required quantity to mitigate the earth value.
- The contractor should check the continuity from the equipments/towers to the earth pit, If there is no continuity means it is the contractor's responsibility to extend the continuity and mitigate the earth resistance value including the replacement of G.I strips. The existing G.I plates, pipes, strips can be used for the breakage cases.
- All materials required to mitigate the earth resistance value to  $\leq 0.5$  ohms should be supplied by the contractor.
- Lifting of extra excavated earth material & residual garbage to be cleared at site on completion of work as per instruction from the field officer.
  - Chemical treatment of earth using Salt/earthing powders, etc. is not recommended.

**SOR NO: 5, 6 Providing tower, Equipment earth as per Eng.instructions provided, in locations under SOR-1, 2, wherever it is not available**

**Terms and conditions for PLATE EARTH:- (Prepared as per Els attached in Annexure S)**

1. For BTS sites –Earthing shall be done as per the departmental standards.
2. The contractor shall excavate a pit of size 2M x 2M x 3M (all types of soil) for BTS sites. The size of the hot dip G.I. plate shall be 600 mm x 600 mm x 8 mm.
4. Hot Dip G.I. Plates and hot dip GI strips of 50 mm X 3 mm are connected by nuts and bolts. To prevent ingress of moisture and soil, the joint is made watertight by covering with Bitumen.
5. GI pipe of 1" dia and 3 M length may be provided in the earth pit for pouring the water in the pit for reducing the current path to the earth in all seasons and may be fitted so that it will be 1' above the ground level.
6. Instead of G.I. Pipe, 'A' tube / 'B' tube / 'C' tube of Tubular Posts can be used for pouring the water inside the Pit, wherever possible.
7. Existing G.I. Strip, if useable, can be used.
8. Existing tube or G.I. Pipe, if O.K. and can be used, should be used.
9. Existing G.I. Plate, if O.K. and can be used, should be used.
10. Material to be used in the pit- Charcoal, Salt/earthing powder, Soft soil in the required quantity.
11. The Pit should be done at the existing Earthing Location; so that, possibility of repairing of existing Earthing System can be explored by utilizing existing useable items.
12. The Earthing at New Place, at New Location should be done, where digging of existing Earthing is not possible.

14. In case other than soil is found , while excavating pit; then Vendor has to bring soft soil from outside and use for 0.3 M height in pit.
15. Wherever required, Trenching is to be done in between Pit to Equipment Room (Trench Size- 30 cm breadth X 60 cm depth for length of approx. 10M).
16. Suitable soil should be used at Rocky places for re-filling the earth –pit.
17. Distribution links i.e. 2 hot dip GI strip joined to different plates and taken parallel together in G.I pipe to provide one point for testing earth resistance and other may be extended to Exchange Earth Distribution Bar.
18. The bends in hot dip GI strips should not be sharp, but with a radius of one meter.
19. After the earthing electrode is placed and all the interconnections are made, the pit should be filled up with fine ash and with finely sieved good quality soil, 1 feet above the top edge of hot dip GI plates, which should be rammed in the layers, so that it is compact and cohesive.
20. Earthing chamber of size (1 'x 1'x 1') is to be provided with the ms lid and provision to be made for measurement of earth resistance.
21. The earth measurement is to be taken in the presence of SDE BSS I/C and report should be with the Signature & Seal of Bidder/Tenderer handed over to the BSS I/C in tabulated form, one copy should be enclosed with bill & one copy should be pasted inside the BTS room with date and signature of the bidder and site in charge.
22. The resistance of the earth value should not be more than 0.5 Ohm.
23. The work should be carried out under the supervision of the officer assigned by the concerned Divisional Engineer.
25. The required material for earthing work is to be arranged by tenderer at his own cost and tenderer has to make the transportation at his own cost. No extra payment will be paid.
26. Exchange Earth Bus Bar and other connection: Each log is connecting to Plate earth by means of hot dip GI strip. All connections are made by GI nuts & bolts for GI to GI with a lead strip of 3 mm thick in between for ensuring proper surface contact as follows, that is, -  
(a) Hot dip GI strips to G.I. Strip..... By GI nuts and Boltswith lead strip 1 to 3 mm thick in between. (b) Hot dip GI strip to Copper Strip or lugs... connected by new nuts & bolts covered to make it moisture proof.
27. To be noted : All materialsrequired for the above works have to be supplied by the contractor only.
28. The GM CM CHTD reserves the right to accept or reject any or all the tenders, without assigning any reason thereof.
29. The work of earthing is to be completed within the stipulated time period. If not completed, GM CM reserves the right to disqualify such bidder and he will be black listed for 2 years and the applicable penalty will be imposed while processing the bills.
30. IMPORTANT POINTS FOR CONSIDERATION IN EARTHING:
  - (i) Chemical treatment of earth using Salt/earthing powders, etc. is not recommended
  - (ii) Earth conductor should not be encircled with metal clamps while taking it along the wall. This is essential to eliminate the high inductive reactance that will impede the flow of surge current along the conductor in case of lightening.
  - (iii) Earthing conductors should not pass through any metallic conduit or pipe, as this will increase surge impedance.
  - (iv) There should be no sharp bends along the entire length of earth conductors. Bending should be done with a radius of one meter.
  - (v) All the joints of the similar metals should be water proof.

31. Since earthing is an important Technical requirement, hence this work is to be done within the given time period.
33. Earthing work shall be carried out as per the Engineering Instructions of Technical & Development Circle E.I. No. PROTECTION/EARTHING/I-001 issue No:03 dt. 30.04.2005 and IS 2309: 1989 Protection of Bldgs and allied structures against lightning – code of practice (Second revision). Engineering Instructions attached with the tender as Annexure-.
34. Space constraint sites as certified by the site In charges; Type of earth (types of earths as mentioned in EIs) will be decided by the site in charges based on the availability of space and other parameters. For such cases spike earth will be the option and it will be considered only with the certification from site in charge stating the space and other parameter constraint. Accordingly the same will be captured by DE BSS while issuing the work order.

**TECHNICAL SPECIFICATION/ REQUIREMENT**  
**FOR BTS SITE-PLATE EARTHING**  
**MATERIAL REQUIRED**

<b>Sr. No.</b>	<b>Item Description per site</b>
1	<b>Hot dipped G.I. plates</b> (Size 600 mm X 600 mm X 8 mm thick).
2	<b>Hot dipped G.I. Strip of size 50mm X 3 mm</b>
3	Charcoal. Medium Size
4	Salt/earthing powder
5	Soft soil
6	GI Earth Bus Bar 60mm (breadth) X 300 mm (length) X 8 mm (thick) Fitted on insulated material at appropriate suitable place.
7	GI pipe 1" (i.e. Intl Dia. 20 mm and Extl Dia. 24 mm to 25 mm) 3 mtr piece. With appropriate elbow couplers etc. ( Length Qty. will be as per site requirement)
8	Copper lugs 16 sq. mm.
9	Required Water for earthing
10	New Bolts with Nut & Washer 1/4" Lenth 50 cm.

**WORK DETAILS**

<b>Sr. No.</b>	<b>Item Description per site</b>
1	Excavation of Pit/Pits soft soil/Murum. Except Hard rock Pit size 2 mtrs X 2 mtrs X 3 mtrs for /BTSExch. Site.) *
2	Trenching in between Pit to Equipment Room. (if required) and reinstating the trench(near to its original state) work per siteTrench size:- 30 cm breadth X 60 cm Depth soft soil/murum except Hard Rock For length of Approx 10 mtrs. (Trench length may varies as per the site location)
3	Laying of Earth Cable Wire in trench in between earth pit to Equipment Room (through 1" G.I. Pipe) to the extent of appropriate length per meter length upto-20 mtrs With protection (Concrete)
4	Fitting of Earth distribution bus bar in the equipment room proper cladding arrangement at suitable location as per specification
5	Connecting of Earth cable to the Earth pit & Earth bus bar with proper lugging & creating testing point at the centre point of earth pit (This includes Erection of Earth plates & interconnection between them with multi standard copper wire 16 sq mm)
6	Installation of 1" G.I. Pipe upto the top of the Pit from bottom of the pit & arrangement

	thereof.
7	Construction of 300 mm (breadth) X 300 mm (length) X 300 mm (depth) X 2'' thick Cement Concrete Chamber built in Brick with opening and closing arrangement of pit by cement concrete lid of sufficient strength. (For this item required material for chamber including RCC frame & lid thereof is to be supplied by the contractor)
8	Reinstating with Charcoal, Soil, Salt/earthing powder (layer by layer) layer of 0.30 meters each.
9	Lifting of extra excavated earth material & residual garbage from the site to be cleared on completion of work as per instruction from the field officer.

**SOR NO-7 Providing of lighting arrester wherever not available**

- Providing and fixing copper Lightning arrester i.e. Lightning rod made of copper IS:613(1984) with one spike on one end and threading on the other end shall be provided. This shall be provided on the top of the tower. Copper strips shall be provided from the lower end of the lightning rod to the lug with a hole provided at 0.5 m below the top of the tower. On the bottom of the tower the strips shall be terminated to the earth point of the tower
- The copper strips of 1500mm length, 25mm dia, hollow tube and of wall thickness not less than 1.60 mm including tinning the bottom portion of the spike for a length of not less than 150mm and connecting to the G.I. strip of size 50 x 3mm by means of clamps and 2nos 10mm dia with brass bolts and nuts all complete as directed by the Engineer-in-charge in each tower.
- The lightning spike shall be fixed to the tower with a Teflon sheet to avoid direct contact with the tower.
- The height of the lightning spike should be sufficient, so that antennae are sufficiently below and will come in the Protection Zone.

**SOR NO-8 PROVIDING TWIN AVIATION LIGHTS OVER THE TOWER WHEREEVER NOT AVAILABLE:**

- The work includes fittings of twin aviation lights confirming to ICAO regulation PVC conduits and wiring of these points through PVC conduits by side of waveguide rack from top of the twin aviation lights to the switch to be provided on the wall of the BBU shelter facing the tower or adjoining the building structure as directed by Engineer-in-Charge.
- Providing and fixing LED aviation obstruction lamp (DC operated) of standard make with light dependent resistance sensor (day and night automatic timer) with necessary MS brackets and MCB switches, clamps etc., complete in each tower, all as per directions of Engineer-in-charge.
- Supplying & laying of 2x1.5 Sqmm armoured copper conductor Cable "Armoured/ ISI PVC Insulated & sheathed cable" of approved quality and brand including copper Terminations/ Lugs etc. all complete as per directions of Engineer- in-charge. Sheath Earthing for the armoured cable shall be done at minimum of two points on the tower as per the standards specified.

**PART-3 TIME SCHEDULE**

<b>SOR NO</b>	<b>Service Item Description</b>	<b>Duration for completion of work (excluding the date of work order,including any holidays if any)</b>
1	Measurement of Equipment earth in NBSNL locations which includes all equipments earth (BTS equipment, DG, PP, Battery frame).	7 days
2	Measurement of Tower earth both in NBSNL and BSNL locations which includes Tower and Lightening earth.	7 days
3	Correction of equipment earth values to bring it within norms ( $\leq 0.5$ ohms) in locations under Sl.no 1 above, wherever earth is available & value is found beyond norms.	7 days
4	Correction of Tower earth values to bring it within norms ( $\leq 0.5$ ohms) in locations under Sl.no 2 above, wherever earth is available & value it is found beyond norms.	7 days
5	Providing equipment earth within norms ( $\leq 0.5$ ohms) as per Eng.instructions provided , in locations under Sl.no.1 , wherever it is not available	7 days
6	Providing Tower earth within norms ( $\leq 0.5$ ohms) as per Eng.instructions provided , in locations under Sl.no.2 , wherever it is not available	7 days
7	Providing of lighting arrester wherever not available	7 days
8	Making aviation lamp working by ensuring sensor and electrical accessories are made functional.	7 days

**PART-4 PENALTY**

**PENALTYCLAUSE:**

Delays in the contractor's performance:

5. The time allowed for completion of the work as entered in the e-tender shall be strictly adhered by the contractor and shall be deemed to be the most important aspect of the contract on the part of the contractor and shall be reckoned from **DURATION for completion of work mentioned in Annexure-D Part 3** by BSNL. The work shall, throughout the stipulated period of contract, be proceeded with all due diligence to achieve the desired progress uniformly, and the contractor shall pay as penalty an amount equal to 0.25 percent of the estimated amount per day of delay in completion of work, subject to a maximum of 10 (ten) percent of the cost of the work awarded.
6. On any date the penalty payable as above, reaches 10(ten) percent of the estimated cost of the work, the contractor should proceed with the work further only on getting a written instruction from the Divisional Engineer that, he is allowed to proceed further with the work. It will be in the discretion of the Divisional Engineer to allow the contractor to continue with the work on the basis of any written agreement reached between the contractor and the Divisional Engineer one of the conditions of such agreement may be a stipulation for the contractor to agree for realization of penalty for delay at a higher rate as may be agreed between the Divisional Engineer and contractor.
7. Penalty for delay incompletion of the work shall be recoverable from the bills of the contractor and/or by adjustment from the security deposit or from the bills of any other contract.
8. In the event of non-responsiveness from the contractor, the Purchaser reserves the right to get the unexecuted part of the work done by any other agency at any rate (even if higher than the tendered rate) and recover the expenditure incurred from the bills payable to the original contractor or the security deposit. The Purchaser shall not make any payment to the original contractor for any unfinished work and he is liable for penalties as given above.

**ANNEXURE 'E'****FINANCIAL BID**

Name of the Contractor:-

SOR NO (A)	Service Item Description (B)	Basic Price per work Order in Rs. (D)	Weightage (E)	Weighted value for evaluation (F)
1	Measurement of Equipment earth in NBSNL locations which includes all equipments earth (BTS equipment, DG, PP, Battery frame).	A	75%	0.75*A
2	Measurement of Tower earth both in NBSNL and BSNL locations which includes Tower and Lightening earth.	B	75%	0.75*B
3	Correction of equipment earth values to bring it within norms (1 ohms) in locations under Sl.no 1 above, wherever earth is available & value is found beyond norms.	C	15%	0.15*C
4	Correction of Tower earth values to bring it within norms (0.5 ohms) in locations under Sl.no 1 above, wherever earth is available & value it is found beyond norms.	D	15%	0.15*D
5	Providing equipment earth as per Eng.instructions provided , in locations under Sl.no.1 , wherever it is not available	E	5%	0.05*E
6	Providing Tower earth as per Eng.instructions provided , in locations under Sl.no.2 , wherever it is not available	F	5%	0.05*F
7	Providing of lighting arrester wherever not available	G	5%	0.05*G
8	Making aviation lamp working by ensuring sensor and electrical accessories are made functional.	H	5%	0.05*H
			Total	

Grand Total in words:

The evaluation is based on the Grand Total of all Items (1) to (8) in column F of financial bid i.e. The total will be arrived by summing the weighted value at Column no. F of the financial bid sheet and the lowest total sum arrived will be considered as the lowest L1 bidder

**\*Note:**

- The rate quoted should be without Tax for Service item description and will remain fixed throughout the period of the tender, including the extension period.
- Rate quoted should be in Paise/Rupee only and not as a percentage
- The quantity of the service items may vary based on the requirement.
- In case of variation between figures and words, amount quoted in words shall prevail.

DGM NWP-CM

Signature of Bidder



**ANNEXURE- F**

**PROFORMA for the AGREEMENT**

(To be typed on Rs.100/- non-judicial stamp paper)

The Agreement made on this..... day of (month)..... (Year).....between M/S..... Herein after called "The Contractor" (which expression shall unless excluded by or repugnant to the context, include its Successors, heir, executors, administrative representative and assignee) of the one part and the Bharat Sanchar Nigam Limited CHTD here in after referred to as the BSNL, of other part. Whereas the contractor has offered to enter into contract with the said BSNL for Measurement correction & Installation of Earthing at BTS sites of BSNL & NBSNL locations, in CHTD CM wing of BSNL from reliable and experienced Contractors through open enquiry on the terms and conditions herein contained and the rates approved by the BSNL (copy of Rates annexed) have been duly accepted and where as the necessary security deposits have been furnished in accordance with the provisions of the Bid document and whereas no interest will be claimed on the security deposits. Now these presents witness and it is hereby agreed and declared by and between the parties to these presents as follows.

1) The contractor shall, during the period of this contract that is to say from ..... (Date of agreement) to a period of one year or completion of guarantee period (if any) for Rs.....(In words) Rs..... whichever is later or until this contract shall be determined by such notice as is hereinafter mentioned, safely carryout, by means of labours employed at his own expenses and by means of tools, implements and equipment etc to be supplied by him to his labour at his own expensed, all work of tender and other associated works as described in Bid Documents (annexed to the agreement), when the BSNL or General Manager Telecom.CM or any other persons authorized by General Manager CM in that behalf require. It is understood by the contractor that the quantity of work mentioned on the schedule is likely to change as per actual requirements as demanded by exigencies of service. The NIT (notice inviting tender), Bid documents (Qualifying and Financial), letter of intent, approved rates, annexed hereto and such other additional particulars, instructions, drawings, workorders as may be found requisite to be given during execution of the work shall be deemed and taken to be an integral part of the contract and shall also be deemed to be included in the expression "The Agreement" or "The Contract" wherever herein used.

2) The contractor shall also supply the requisite number of workmen with means and materials as well as tools, appliances, machines, implements, vehicles for transportation, cartage etc. required for the proper execution of work within the time prescribed in the work orders.

3) The contractor hereby declares that nobody connected with or in the employment of the BSNL of Telecommunications/DTS is not/shall not ever be admitted as partner in the contract.

4) The contractor shall abide by the terms and conditions, rules, guidelines, construction practices, safety precautions etc, stipulated in the Bid document including any correspondence between the contractor and the BSNL having bearing on execution of work and payments of work to be done under the contract.

5) The Contractor shall abide by the any changes in the tender condition made during the validity of the contract period which do not has any financial bearing.

In witness whereof the parties present have here into set their respective hands and seals the day in.....

Above written:

Signed sealed and Delivered by  
the above named Contractor in the presence of

Witness:

1.

2.

Signed and Delivered on behalf of the Bharat Sanchar Nigam Limited by the

Witness :

1.

2.

**ANNEXURE-G**

**PROFORMA FOR CLAUSE BY CLAUSE COMPLIANCE**

I / We certify that all Clauses and Sections of the Tender Document are complied with. I / We hereby certify that all the Clauses in all Sections of the Tender Document are accepted unconditionally.

**Signed** \_\_\_\_\_

For and on behalf of the Service Provider

Name (capital) \_\_\_\_\_

Position \_\_\_\_\_

Date \_\_\_\_\_

**ANNEXURE-H****VENDOR MASTER FORM**

(The details listed will be used for making all payments against POs / WOs, refund of EMDs / SDs, intimation of payments by email, issue of TDS certificates, C Form for CST purchases etc.)

(\*) Minimum Required Fields to be Filled by the Company/Vendor. Please Attach copies of the supporting documents.

Title\* :  Mr.  Ms.  M/s  Dr.

Name\* :

Address\* :

Town/District\* :

City\* :

State\* :

Postal/Pin code\* :  Country\* :

**Contact Details:**

Telephone Number :  Fax No. :

Email\_id :

(Mandatory for E-Tendering)

Name of Contact Person :  Mobile No. :

Alternate Contact Person :  Mobile No. :

**Tax information:**

PAN :

Service Tax reg. no. :

LST (Local VAT reg.No.) :  CST Reg. No :

Tax Registration no. :

(for Foreign Vendors)

**Income Tax Exemption details:**

IT exemption no. :  IT exemption rate :

IT Exemption date :

IT exemption date from :  IT exemption date to :

**Excise Details:**

Excise reg. no. :

Excise Range :

Excise Division :

Excise Commissionerate :

**Payment Transaction/Bank Details:**

Bank Country :

Bank Name :

Bank Address :

Bank A/c No :

Bank IFSC :

Account holder's Name :

Type of Account : Savings(10) ☐ Current(11) ☐

SWIFT Code :   
(for Foreign Vendors)

IBAN :   
(for Foreign Vendors)

(Enclose a blank Cheque / a photocopy of the Cheque to verify A/c No. & Bank details)

**Industry Status:**

Micro/ SSI Status : Yes ☐ No ☐

1. I/We hereby authorize BSNL to make all payments to us by cheque /direct credit to our bank account details which are specified above.
2. I/We hereby authorize BSNL to deduct bank charges applicable for such direct bank payments.

Note:

1. If PAN is not provided, TDS @20% will be deducted wherever applicable.
2. If Excise Registration/Service Tax Registration/VAT Registration Number is not provided, then the taxes will not be paid wherever applicable.
3. If Bank Particulars are not provided, the payment will be made by Cheque only.
4. If the relevant documents for Micro/SSI status are not provided, then the relevant exemptions will not be given.

**Company / Vendor Authorized Signatory / Designation** **Date:** **Company Seal**

(For Office Use)

Vendor Account Group :  Payment Method :

TDS Type - Invoice :  TDS Code - Invoice :

Checked by:	Authorized by (Finance)	SAP Vendor Master Created on	SAP Vendor Code

**ANNEXURE - I**  
**Bidder's profile & Questionnaire.**

Tenderer / Bidder's Profile & Questionnaire

(To be filled in and submitted by the bidder)

A) Tenderer's Profile

1. Name of the Individual/ Firm: .....

2. Present Correspondence Address

.....  
.....

Email ID.....

Telephone No. .... Mobile No. ....

FAX No. ....

3. Address of place of Works/

Manufacture

.....

Telephone No. .... Mobile No. ....

4. State the Type of Firm: (Tick the correct choice ) Sole proprietor-ship/partnership firm/ Private limited company/ Public Limited Company

5. Name of the sole proprietor/ partners/ Director(s) of Pvt. Ltd Co.:

S. No	Name	Father's Name	Designation
1			
2			
3.			
4.			
5.			

6. Name of the person authorized to enter into and execute contract/agreement and the capacity in which he is authorized (in case of partnership/ private Ltd Company):

.....  
.....

7. Permanent Account No. : .....

8. Details of the Bidder's Bank for effecting e-payments:

(a) Beneficiary Bank Name:.....

(b) Beneficiary branch Name:.....

(c) IFSC code of beneficiary Branch.....

(d) Beneficiary account No.:.....

(e) Branch Serial No. (MICR No.):.....

DGM NWP-CM

Signature of Bidder

9. Whether the firm has Office/ works (i.e. manufacture of the tendered item) in Chennai? If so state its Address

.....  
.....

**B) Questionnaire**

1. Do you think any other detail/ material is required to complete the work specified in the specification? Yes/ No.

1.1 If Yes, Give details

.....  
.....

2. Do you think any other item of work need be included in tender form to complete the work specified in the specification? Yes/ No.

2.1 If Yes, Give details

.....  
.....

3. Kindly indicate the maximum Quantity of tendered material which you are capable of supplying within the scheduled delivery period.

Name of the tendered Item

Qty that can be supplied by the firm within scheduled delivery period.

4. Suggestion for improvement of the tender document.

.....  
.....

Place.....

Signature of contractor .....

Date .....

Name of Contractor .....

**ANNEXURE- J**

**Letter of Authorization for attending Bid Opening Event.**

(To be typed preferably on letter head of the company)

**Subject:** Authorization for attending Bid opening

I/ We Mr. /Ms. .... have submitted our bid for the tender no. .... in respect of ..... (Item of work) which is due to open on ..... (date) in the Meeting Room, O/o .....

We hereby authorize Mr. / Ms. ....&Mr. / Ms..... (alternative) whose signatures are attested below, to attend the bid opening for the tender mentioned above on our behalf.

.....

Signature of the Representative

..... Signature of Bidder/ Officer authorized to sign

Name of the Representative on behalf of the Bidder

.....

Signature of the alternative Representative

.....

Name of the alternative Representative

Above Signatures Attested

**Note 1:** Only one representative will be permitted to attend the Bid opening

2. Permission for entry to the hall where bids are opened may be refused in case authorization as prescribed above is not received.

**ANNEXURE-K**

**Appendix-1 to Section 4 Part A of Chapter 4 (Standard Tender Enquiry Document)**

S. No.	Defaults of the bidder / vendor.	Action to be taken
A	B	C
1(a)	Submitting fake / forged	i) Rejection of tender bid of respective Vendor.
	a) Bank Instruments with the bid to meet terms & condition of tender in respect of tender fee and/ or EMD;	ii) Banning of business for 3 years which implies barring further dealing with the vendor for procurement of Goods & Services including participation in future tenders invited by BSNL for 3 years from date of issue of banning order.
	b) Certificate for claiming exemption in respect of tender fee and/ or EMD;	iii) Termination/ Short Closure of PO/WO, if issued. This implies non-acceptance of further supplies / work & services except to make the already received material work/ complete work in hand.
	and detection of default at any stage from receipt of bids till award of APO/ issue of PO/WO.	
	<b>Note 1:-</b> However, in this case the performance guarantee if alright will not be forfeited.	
	<b>Note 2:-</b> Payment for already received supplies/ completed work shall be made as per terms & conditions of PO/ WO.	
1(b)	Submitting fake / forged documents towards meeting eligibility criteria such as experience capability, supply proof, registration with Sales Tax, Income Tax departments etc and as supporting documents towards other terms & conditions with the bid to meet terms & condition of tender :	
	(i) If detection of default is prior to award of APO	i) Rejection of Bid & ii) Forfeiture of EMD/Banning of business for 3 years which implies Barring further dealing with the vendor for procurement of Goods & Services including participation in future tenders invited by BSNL for 3 years from date of issue of banning order.



	(ii) If detection of default after issue of APO but before receipt of PG/ SD (DD,BG etc.)	i) Cancellation of APO , ii) Rejection of Bid & iii) Forfeiture of EMD/Banning of business for 3 years which implies Barring further dealing with the vendor for procurement of Goods & Services including participation in future tenders invited by BSNL for 3 years from date of issue of banning order.
--	---	---

S. No.	Defaults of the bidder / vendor.	Action to be taken
A	B	C
1(b) cont d.	(iii) If detection of default after receipt of PG/ SD (DD,BG etc.) .	i) Cancellation of APO ii) Rejection of Bid & iii) Forfeiture of PG/ SD. However on realization of PG/ SD amount, EMD, if not already released shall be returned. Banning of business for 3 years which implies Barring further dealing with the vendor for procurement of Goods & Services including participation in future tenders invited by BSNL for 3 years from date of issue of banning order.
	(iv) If detection of default after issue of PO/ WO	i) Termination/ Short Closure of PO/WO and Cancellation of APO ii) Rejection of Bid & iii) Forfeiture of PG/ SD. However on realization of PG/ SD amount, EMD, if not released shall be returned. iv) Banning of business for 3 years which implies Barring further dealing with the vendor for procurement of Goods & Services including participation in future tenders invited by BSNL for 3 years from date of issue of banning order.
	<b>Note 3:-</b> However, settle bills for the material received in correct quantity and quality if pending items do not affect working or use of supplied items.	
	<b>Note 4:-</b> No further supplies are to be accepted except that required to make the already supplied items work.	

2	If vendor or his representative uses violent/ coercive means viz. Physical / Verbal means to threatens BSNL Executive / employees and/ or obstruct him from functioning in discharge of his duties & responsibilities for the following :	Banning of business for 3 years which implies Barring further dealing with the vendor for procurement of Goods & Services including participation in future tenders invited by BSNL for 3 years from date of issue of banning order.
	a) Obstructing functioning of tender opening executives of BSNL in receipt/ opening of tender bids from prospective Bidders, suppliers/ Contractors.	
	b) Obstructing/ Threatening other prospective bidders i.e. suppliers/ Contractors from entering the tender venue and/ or submitting their tender bid freely.	
3	Non-receipt of acceptance of APO/ AWO and SD/ PG by L-1 bidder within time period specified in APO/ AWO.	Forfeiture of EMD/ Banning of business for 3 years which implies Barring further dealing with the vendor for procurement of Goods & Services including participation in future tenders invited by BSNL for 3 years from date of issue of banning order.

S. No.	Defaults of the bidder / vendor.	Action to be taken
A	B	C
4.1	Failure to supply and/ or Commission the equipment and /or execution of the work at all even in extended delivery schedules, if granted against PO/ WO.	i) Termination of PO/ WO. ii) Under take purchase/ work at the risk & cost of defaulting vendor. iii) Recover the excess charges if incurred from the PG/ SD and outstanding bills of the defaulting Vendor.

4.2	Failure to supply and/ or Commission the equipment and /or execution of the Work in full even in extended delivery schedules, if granted against PO/ WO.	<p>i) Short Closure of PO/ WO to the quantity already received by and/ or commissioned in BSNL and/ or in pipeline provided the same is usable and/or the Vendor promises to make it usable.</p> <p>ii) Under take purchase/ work for balance quantity at the risk &amp; cost of defaulting vendor.</p> <p>iii) Recover the excess charges if incurred from the PG/ SD and outstanding bills of the defaulting Vendor.</p>
5.1	The supplied equipment does not perform satisfactory in the field in accordance with the specifications mentioned in the PO/ WO/Contract.	<p>i) If the material is not at all acceptable, then return the non-acceptable material (or its part) &amp; recover its cost, if paid, from the o/s bills/ PG/ SD.</p> <p>OR</p> <p>ii) If the material is inducted in network &amp; it is not possible to return it and/ or material is acceptable with degraded performance, the purchaser may determine the price for degraded equipment (Financial penalty = Price – price determined for degraded equipment) himself and/ or through a committee.</p> <p>Undertake recovery of financial penalty from outstanding dues of vendor including PG/ SD.</p>
5.2	Major quality problems (as established by a joint team / committee of User unit(s) and QA Circle) / performance problems and non-rectification of defects (based on reports of field units and QA circle).	<p>i) If the material is not at all acceptable, then return the non-acceptable material (or its part) &amp; recover its cost, if paid, from the o/s bills/ PG/ SD;</p> <p>OR</p> <p>ii) If the material is inducted in network &amp; it is not possible to return it and/ or material is acceptable with degraded performance, the purchaser may determine the price for degraded equipment (Financial penalty = Price – price determined for degraded equipment) himself and/ or through a committee.</p> <p>Undertake recovery of financial penalty from outstanding dues of vendor including PG/ SD;</p>

		and iii) Withdrawal of TSEC/ IA issued by QA Circle.
6	Submission of claims to BSNL against a contract	i) Recovery of over payment from the outstanding dues of Vendor including EMD/ PG & SD etc. and by invoking 'Set off' clause 21 of Section 5 Part A or by any other legal tenable manner. ii) Banning of Business for 3 years from date of issue of banning order or till the date of recovery of over payment in full, whichever is later.
	(a) for amount already paid by BSNL .	
	(b) for Quantity in excess of that supplied by Vendor to BSNL.	
	c) for unit rate and/ or amount higher than that approved by BSNL for that purchase.	
	<b>Note 5:-</b> The claims may be submitted with or without collusion of BSNL Executive/ employees.	
	<b>Note 6:-</b> This penalty will be imposed irrespective of the fact that payment is disbursed by BSNL or not.	
7	Network Security/ Safety/ Privacy:- If the vendor tampers with the hardware, software/ firmware or in any other way that a)advers	i) Termination of PO/ WO. ii) Banning of business for 3 years which implies barring further dealing with the vendor for procurement of Goods & Services including participation in future tenders invited by BSNL for 3 years from date of issue of banning order. iii) Recovery of any loss incurred on this account from the Vendor from its PG/ SD/ O/s bills etc.
	b) Disrupts/ Sabotages functioning of the BSNL network equipments such as exchanges, BTS, BSC/ MSC, Control equipment including IN etc., transmission equipments but not limited to these elements and/ or any other TSP through BSNL.	iv) Legal action will be initiated by BSNL against the Vendor if required.
	c) tampers with the billing related data/ invoicing/ account of the Customer/ User(s) of BSNL and/ or any other TSP(s).	
	d) hacks the account of BSNL Customer for unauthorized use i.e. to threaten others/ spread improper news etc.	
	e) undertakes any action that affects/ endangers the security of India.	

8	If the vendor is declared bankrupt or insolvent or its financial position has become unsound and in case of a limited company, if it is wound up or it is liquidated.	<p>i) Termination/ Short Closure of the PO/ WO.</p> <p>ii) Settle bills for the quantity received in correct quantity and quality if pending items do not affect working or use of supplied items.</p> <p>iii) No further supplies are to be accepted except that required to make the already supplied items work.</p> <p>iv) In case of turnkey projects, If the material is commissioned and is usable without any degradation of performance, then settle bills for the acceptable equipment/ material (or its part).</p> <p>v) In case of turnkey projects, if the material is inducted in network &amp; it is not possible to return it and/ or material is acceptable with degraded performance, the purchaser may determine the price for degraded equipment (Financial penalty = Price – price determined for degraded equipment) himself and/ or through a committee.</p> <p>Undertake recovery of financial penalty from outstanding dues of vendor including PG/ SD.</p>
9	In the event of the vendor, its proprietor, Director(s), partner(s) is / are convicted by a Court of Law following prosecution for offences involving moral turpitude in relation to the business dealings.	<p>i) Termination/ Short Closure of the PO/ WO.</p> <p>ii) Settle bills for the material received in correct quantity and quality if pending items do not affect working or use of supplied items.</p> <p>iii) No further supplies are to be accepted except that required to make the already supplied items work.</p> <p>iv) In case of turnkey projects, If the material is commissioned and is usable without any degradation of performance, then settle bills for the acceptable equipment/ material (or its part).</p> <p>v) In case of turnkey projects, If the material is inducted in network &amp; it is not possible to return it and/ or material is acceptable with degraded performance, the purchaser may determine the price for degraded equipment (Financial penalty = Price – price determined for degraded equipment) himself and/ or through a</p>

		committee. Undertake recovery of financial penalty from outstanding dues of vendor including PG/ SD.
10	If the vendor does not return/ refuses to return BSNL's dues:	i) Take action to appoint Arbitrator to adjudicate the dispute.
	a) inspite of order of Arbitrator.	i) Termination of contract, if any. ii) Banning of business for 3 years which implies barring further dealing with the vendor for procurement of Goods & Services including participation in future tenders invited by BSNL from date of issue of banning order or till the date by which vendor clears the BSNL's dues, whichever is later. iii) Take legal recourse i.e. filing recovery suite in appropriate court.
	b) inspite of Court Orders.	i) Termination of contract, if any. ii) Banning of business for 3 years which implies barring further dealing with the vendor for procurement of Goods & Services including participation in future tenders invited by BSNL from date of issue of banning order or till the date by which vendor clears the BSNL's dues, whichever is later.
	If the Central Bureau of Investigation/ Independent External Monitor (IEM) / Income Tax/ Sales Tax/ Excise / Custom Departments recommends such a course	Take Action as per the directions of CBI or concerned department.
11	The following cases may also be considered for Banning of business:	i) Banning of business for 3 years which implies Barring further dealing with the vendor for procurement of Goods & Services including participation in future tenders invited by BSNL for 3 years from date of issue of banning order.
12	(a) If there is strong justification for believing that the proprietor, manager, MD, Director, partner, employee or representative of the vendor/ supplier has been guilty of malpractices such as bribery, corruption, fraud, substitution of tenders, interpolation, misrepresentation with respect to the contract in question.	i) Banning of business for 3 years which implies Barring further dealing with the vendor for procurement of Goods & Services including participation in future tenders invited by BSNL for 3 years from date of issue of banning order.

	(b) If the vendor/ supplier fails to execute a contract or fails to execute it satisfactorily beyond the provisions of Para 4.1 & 4.2.	
	(c) If the vendor/ supplier fails to submit required documents/ information, where required.	
	(d) Any other ground which in the opinion of BSNL is just and proper to order for banning of business dealing with a vendor/ supplier.	
	(d) Any other ground which in the opinion of BSNL is just and proper to order for banning of business dealing with a vendor/ supplier.	
<b>Note 7:</b> The above penalties will be imposed provided it does not clash with the provision of the respective tender.		
<b>Note 8:-</b> In case of clash between these guidelines & provision of invited tender, the provision in the respective tender shall prevail over these guidelines.		

ANNEXURE- L

BID FORM

From

.....  
.....  
.....

To

The Dy.General Manager (NWP-CM)  
BSNL Chennai Telephones, CM Wing  
2nd flr, No 238 RKMutt Road, RK Nagar, Chennai-600028.

Dear Sir,

1 Having examined the above mentioned tender enquiry document including amendments / clarification /addenda Nos

\_\_\_\_\_ Dated  
the receipt of which is duly acknowledged, we, the undersigned, offer to provide Infra maintenance service in conformity with the conditions of contract and specifications for the sum of Service charges as mentioned in the financial bid and made part of this bid.

2. We undertake, to enter into agreement within one week of being called upon to do so and bear all expenses including charges for stamps etc and agreement will be binding on us.

3. If our bid is accepted, we will obtain the guarantees of a Scheduled Bank for a sum not exceeding 10% of the Tender value for the due performance of the Contract.

4. We agree to abide by this Bid for a period of **180** days from the date fixed for Bid opening and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

5. Until an agreement is signed and executed, this Bid together with your written acceptance thereof in your notification of award shall constitute a binding contract between us.

6. Bid submitted by us is properly digitally signed so as to prevent any subsequent replacement.

7. We understand that you are not bound to accept the lowest or any bid, you may receive.

Dated this .....Day of .....2023.

Signature of

In capacity of

Duly authorized to sign the bid for and on behalf of .....

Witness .....

Address .....

Signature

DGM NWP-CM

Signature of Bidder



**ANNEXURE- M**

**ECS FORM**

(Mandate Form)

Payment through NEFT/RTGS-System (Real time gross settlement)

1	Name of the supplier (M/s)	
2	Address of the supplier.	
3	Name of the a/c Holder.	
4	Bank Name	
5	Branch Name	
6	Branch Address, Telephone No. Fax No.	
7	MICR & IFSC Code no.	
8	Type of account	
9	A/c. No.	
10	IFS Code	

I hereby declare that the particulars given above are correct and complete. If the transaction is delayed or not effected at all for reasons of incomplete or incorrect information, I would not hold the user institution responsible I have read the option invitation letter and agree to discharge the responsibility expected on me as a participant under the scheme.

Date: Signature of the authorized signatory of the supplier with stamp.

*Certified that the particulars furnished above are correct as per our records.*

Bank's Stamp

Date: Signature of the authorized official of the Bank

I have read and understood the above.

Signature of Bidder with Date:

DGM NWP-CM

Signature of Bidder

**ANNEXURE- N**

**UNDERTAKING**

This deed of undertaking executed on this \_\_\_\_\_ day of ----- Two thousand and ----- by (Name of sole proprietor/ partner/ Director / authorized representative, the Firm, Company, Trust, Society etc.)----- S/O -----residing at-----on behalf of said M/s -----(Name of the Firm, Company, Trust, Society, etc.) having its office at-----and duly authorized to sign, file and verify present undertaking by the said -----(Name of the Firm, Company, Trust, Society, etc.) in favour of Bharat Sanchar Nigam Limited, a Government of India Enterprise having its Registered Office at Bharat Sanchar Bhawan, Harish Chandra Mathur Lane, Janpath, New Delhi and local office located at ----- hereinafter called BSNL which terms shall mean and include its successors, administrators, heirs and assigns.

Whereas M/S BSNL invited bids for ----- I/We participated in the bidding process and emerged as successful bidder with respect to Tender No. ----- I/ We ----- acknowledge that I/We -----have fully understood and are aware of the terms & conditions of the Tender/ Contract and do hereby **unequivocally and unconditionally undertake and declare** that :

1. I/ We -----shall comply with all the Rules/ Regulations/ Laws/ Government instructions/ statute etc; that are applicable / will be applicable which are aimed to protect the interest of the workers/ employees engaged by me / us during the course of performance of this contract.
2. I/We shall fully protect, indemnify and hold harmless BSNL and its employees, officers, Directors, agents or representatives against any liabilities, losses, actions, judgments, damages, fines, penalties and costs (including legal costs and disbursements ) arising from or relating to:
  - a) any breach/ violation of any direction / order of government authorities, breach/ violation of any provisions of the labour laws or any other laws / statutes / regulations that are aimed to protect the interest of the workers/ labourers engaged by me / us during the course of this contact.
  - b) any claim made by any other third party in connection with violation of any of the laws, guidelines, instruction, etc;
3. In witness whereof this undertaking has caused on the ----- Day ----- Month of -----Year

Date:

Place:

Signature: -----

Name: -----

Designation: -----

**WITNESS** :1. ....

2. ....

**ANNEXURE- O**

**NON BLACKLISTING CERTIFICATE**  
**(To be submitted in Bidders Letter pad)**

I \_\_\_\_\_, S/O \_\_\_\_\_  
hereby certify that I/my company have/has not been blacklisted by a State or Central Govt. Department/ PSU of Central or any State Govt and GST Authorities as mentioned in the Tender Document. In case at any stage, it is found that the information given by me is false/incorrect, BSNL shall have the absolute right to take any action as deemed fit/ without any prior intimation to me.

**Signed** \_\_\_\_\_  
For and on behalf of the Service Provider

Name (capital) \_\_\_\_\_

Position \_\_\_\_\_

Date \_\_\_\_\_

**ANNEXURE- P**

**DECLARATION FOR NO ADDITION / DELETION / MODIFICATION DONE IN TENDER DOCUMENT**

It is hereby certified that there are no additions / deletions / corrections made in the downloaded Tender Document being submitted and it is identical in all respect to the Tender Document appearing on e-Tender Portal <https://www.tenderwizard.com/bsnl>.

**Signed** \_\_\_\_\_

For and on behalf of the Service Provider

Name (capital) \_\_\_\_\_

Position \_\_\_\_\_

Date \_\_\_\_\_

## **ANNEXURE- Q**

### **CHECK LIST**

The check list shall be filled up and enclosed with the Tender document

SL. No.	ITEMS	Whether available Yes/No	Remarks
1	Bid security Declaration		
2	DD or bankers cheque for the tender fee		
3	MSME/NSIC certificate if applicable		
4	Chennai Office details		
5	Digitally signed copy of tender documents, Corrigendum and Addendum.		
6	Authorization to sign bid document		
7	Proprietary deed/ Partnership deed/ MOA		
8	Power of attorney in case of Partnership Company.		
9	Document proof of past performance in PSU/ Govt dept, having done similar works during last two years in the form of certificate		
10	Bid form Annexure-M		
11	No near relative certificate		
12	Proof of financial health of bidder certified by Chartered Accountant /Bank		
13	IT returns copy of last 2 financial years		
14	Authorization letter for attending bid opening Annexure-K		
15	Profile of bidder& questionnaire Annexure-J		
16	Vendor master form Annexure-I		
17	Declaration for no addition / deletion / correction done in Tender document		
18	GST registration copy		
19	PAN card copy		
20	EPF registration copy		
21	ESI registration copy		
22	Labour licence copy		
23	Financial bid		
24	Non Blacklist certificate(Govt, PSU,GST authorities)		
25	Clause by clause compliance		
26	Proof of Turnover not less than 50lakhs		

\*\*\*\*\*

**ANNEXURE- R**  
**EARTH MEASUREMENT REPORT**

**Work order No:-**

**Site Id:-**

**Unique Id:-**

**Site Name:-**

**Site Address:-**

**Site In Charge SDE BSS:-**

**DE BSS Concerned :-**

**Date of Measurement:-**

**Equipment Used:-**

**Earth Resistance Value:-**

We certify that above earth resistance test values are true and correct

**Signature of the Contractor with seal**

**Signature of Site In Charge SDE BSS with seal**

**Counter Signature of DE BSS with seal**

## ANNEXURE-S

### ENGINEERING INSTRUCTIONS

BHARAT SANCHAR NIGAM LIMITED  
ENGINEERING INSTRUCTIONS

PROTECTION  
EARTHING  
I-001

#### EARTHING ARRANGEMENT FOR TRANSMISSION AND SWITCHING SYSTEMS (COMBINED RING EARTH) WITH LIGHTNING PROTECTION

##### 1.0 SCOPE

This Engineering Instruction describes the combined ring earth arrangement of transmission and switching systems.

##### 2.0 OBJECTIVE OF EARTHING:

An Earthing System is an essential part of any electric/electronic system. The objective of an Earthing System may be summarized as follows :

- (i) To provide safety to personnel during normal and fault conditions by limiting step and touch potential.
- (ii) To assure correct operation of electrical/electronic devices.
- (iii) To prevent damage to electrical/electronic apparatus.
- (iv) To dissipate lightning strokes.
- (v) To stabilize voltage during transient conditions and therefore to minimize the probability of flashover during the transients.
- (vi) To divert stray RF energy from sensitive audio, video, control and computer equipment.

##### 2.1 REQUIREMENTS FOR EFFECTIVE EARTHING

An Earthing system must meet the following specifications :

- (i) The resistance to earth must be within the allowable limits for the particular application.
- (ii) The electrodes buried in the ground must be :
  - a) Having good electrical conductivity to carry highest specified load current.
  - b) Immune to the corrosive action of the soil all along the period.
  - c) Of sufficient mechanical strength to enable them to be installed without any damage, and
  - d) Inert, i.e. must not be a source of galvanic corrosion current, within the system to be protected.

(iii) The earth electrode must provide as much of the area of contact as possible with the soil to reduce the resistance of the current path to earth.

(iv) The resistance of the earth connection must remain within the allowable specified limit throughout the various seasons of the year.

##### 3.0 INSTALLATION

In all transmission and switching systems, a combined ring earth should be provided. The installation procedure is described below.

##### 3.1 Laying of Ring Earth around New Telecom Departmental Building :

(i) The ring earth around the Telecom building and tower is shown in **FIGURE 1**.

A trench, 30 cms. wide and normally 150 cms. deep is dug. The depth should not be less than 60 cms. in any case. A G.I. (Galvanized Iron) strip of 50x3 mm. is laid in the trench. The trench should be minimum one meter away from the building. In the case of black cotton soil, the trench should be sufficiently deep to avoid cracking of soil in summer. In case of rocky or hard murram soil, the depth may be 60 to 90 cms. In case of rocky, hard murram and black cotton soil, the trench should not be filled by the excavated material and instead foreign good earth, i.e. yellow soil or ash, which are fine and cohesive in nature, should be used. While filling the trench, the earth may be rammed in layers, so as to give cohesiveness and compactness to the soil.

(ii) The G.I. strips are to be connected with each other as shown in **FIGURE 2**. The joints are to be properly wrapped and sealed by waterproof tape to avoid any ingress of moisture at the joint, while laying the GI strips for ring earth, it should not be bent sharply at right angles, but should be laid in smooth curve of not less than one metre radius.

(iii) In case of new building ring earth should act as the equipotential bonding and all earthing equipments are to be extended from the ring earth.

3.2 Where it is difficult to lay ring earth such as private/rented building due to space constraints, the plate/spike earth may be used. The construction practice of plate/spike earth is as follows.

##### 3.2.1 Plate Earth:

The arrangement of construction of plate earthing is shown in **FIGURE 3**.

Page No.1  
Issue III, 30-04-2005

## BHARAT SANCHAR NIGAM LIMITED ENGINEERING INSTRUCTIONS

## PROTECTION EARTHING I-001

### 3.2.2. Spike Earth:

The present arrangement of earth electrode system consists of twenty numbers of 25.0 mm or 38.0 mm dia. GI pipes, each of 275 cm or 375 cm length. Each pipe is used as earth spike and is so driven into the ground that its top remains at some depth below the ground surface. The spacing between any two spikes should not be less than 375 cm ordinarily. In no case, it should be less than 250 cm. A typical layout is shown in **FIGURE 4**.

The positions of the spikes should be marked out on the site and a trench no wider than necessary should be excavated. The trench should be 70 to 100 cms deep. The spike should be driven vertically into the trench until the top of the driving head is 30 cms above the bottom of the excavation. Spikes can be driven in quite easily with a sledge hammer for round electrodes. A new arrangement has been developed consisting of a sliding hammer placed on the electrode so that the work may be carried out at a level convenient to the workman without a ladder or auxiliary platform. The blows are delivered to the rod at a point near to the ground. The driving head or a suitable bolt is supplied with each earth spike and this must be used to prevent the top of the spike being damaged during the driving operation, when the spike has been driven fully into the ground, it will probably be found that the driving head will be tight fit on the spike and in these circumstances it may be left in position.

The spikes should be connected together by a continuous main earth conductor, normally of size 19x1.6 mm. bare tinned copper protected by PVC pipe to prevent corrosion. The PVC pipe containing the earth conductor should be lightly dressed down and wiped on to the earth conductor at each side of the binder. The binder should be soft copper wire, 1.4 mm. diameter wound round the earth conductor at the points where it is held in the clamp on the spike (**FIGURE 5**). The PVC pipe used should be 19 mm. nominal dia. and 10 kg per 460 cms. length in weight. The binder and the exposed part of the earth conductor should be thoroughly tinned.

The earth conductor should be clamped at a point as low as possible on the spike and bent so as to lie along the bottom of the trench. All bolt's, clamps, plumber's wipes and tinned copper wire adjacent to the wiped joints should be well coated with black paint suitable for iron work.

The main earth conductor should be run as straight and short as possible from the electrode system to the earth collector at a cellar level (cable chamber).

Outside the building and underground, the earth conductor should be drawn into 19 mm PVC pipe. The pipe should be brought into the building through the main wall and terminated at a height of 30 cm above the floor. A 38 mm.

steel pipe through the wall should be provided in the building to allow the PVC pipe to be led in, within the building the earth conductor should be run bare uncovered and unpainted, but short length of conduit may be used where protection against mechanical damage is considered necessary, such as where it passes through floor or wall.

### 3.3 Commoning of Earths for Equipotential Bonding :

For all existing telecom installations, all the existing earths are to be commoned, i.e. tower earth, **building earth**, **lightning earth**, equipment earth, power plant earth, engine alternator earth etc. to bring equipotential situation. For commoning of existing earth, the following procedure is to be adopted.

A G.I. strip of 50x3 mm. size can be used as equipotential bonding conductor to connect at one end the plate/spike earth with terminal strip in the pit and the other end with ring earth strip in the pit. All connections are made by GI nuts and bolts for GI to GI with a lead strip of 1 to 3 mm thick in between for insuring proper surface contact. All the joints inside the earth should be made waterproof. **For lightning prone areas, we may use 19x6 mm. copper strip instead of GI strip.**

3.4 For distribution of earth on various floors of a multistoried buildings is indicated in **FIGURE 6**.

### 3.5 Earthing Arrangement for Antenna Towers and Antenna Subsystem

#### 3.5.1 Zone of protection:

The zone of protection adopted (45 degree angle), with a base radius equal to the height of lightning spike, is an indicative spike, is an indicative that the object near to the base of a tall conductor are less likely to be struck by lightning.

Such a zone however may not be entirely safe. This can be infringed by unprotected electric wires or fences, and while these can be dealt with when they form part of the scheme, they may be under different ownership and may pass through the zone without contact with the structures to be protected. This requires liaison and special provisions.

Sometimes, it may be necessary to provide a tall spike for protection from the neighboring building or structure, in order to prevent it from damaging our own building and structure in turn. Smoke and hot gases from the neighboring chimney tend to attract the lightning discharge to it. These are illustrated in **FIGURE 7**. Hence the zone of protection adopted should cover these possibilities also.



## BHARAT SANCHAR NIGAM LIMITED ENGINEERING INSTRUCTIONS

## PROTECTION EARTHING I-001

Generally, the tower is the tallest structure in the compound of a microwave station and it protects the area coming under 45 degree cone from its apex, from lightning. However, at times an antenna is put up at the top of the tower and with its dish, feed and shields protruding away from the tower, then a part of the antenna may not come in the protection zone offered by the tower, even with existing one metre high lightning spikes fitted on the tower. The height of the lightning spike may have to be increased sufficiently in such circumstances.

Usually the antennae are mounted with their fixtures on one side of the tower. The fixing structures and the other ancillaries make the antenna protrude beyond the tower structure. This protruding may be from one to even five metres for Horn Antennas. The exact height where the antenna is mounted is to be taken into consideration to see whether the protection zone encompasses the antenna fringe well within the protection zone.

The tower may have to be planned with greater height than the actual height of the antenna to be mounted for effective transmission, in consistent with the SACFA clearance. These are illustrated in **FIGURE 8, 9, 10 & 11**.

### 3.5.2 Extreme Cases

In extreme cases, in order to bring the antenna structure under protection zone the height of the lightning spike is to be raised by 4 to 5 metres by putting an additional GI pipe of 10.cm diameter. The additional GI pipe should be rigidly supported by means of steel wire ropes tightened by means of bull-dog grips as shown in **FIGURE 12**. The existing spike is to be fitted at the topmost point of this 5 metre pipe. this raising of lightning spike may not be required, if antenna of 4 metres is not proposed at the top position of the tower.

### 3.5.3 Earthing of Antenna Towers Mounted on top of Buildings.

For earthing of tower on top of a building, 50x3 mm. GI strip down leads should be bonded to any two opposite tower legs and brought down along outside of the building and connected to ring earth as shown in **FIGURE 13**. The connection of GI strip down lead to the tower leg is done by GI nuts and bolts with lead sheath in between.

Due to non-availability of space around the building, where only plate earth is provided, then GI strip (50 x 3mm.) down leads should be bonded to any two opposite legs of the tower and brought down along outside of the building and connected to plate earth. There should be no sharp bends in the down lead.

### 3.5.4 Earthing of Waveguides :

The wave guide for UHF/VHF which are aluminium sheathed and that for microwave system which are copper wave guide, are mounted on the tower and connected to antenna. All such wave guides should be individually earthed, at the top and at the bottom of the tower and at in-between intervals, by earthing kits as recommended/specified by the manufacturer.

#### 3.5.4.1 Earthing of Aluminium Sheathed VHF/UHF Feeders (Waveguide)

Where aluminum sheathed VHF/UHF solid di-electric feeders are used to connect the output of the transmitter to the antenna mounted on the tower, precautions are necessary to ensure the efficient continuity of the earth connection throughout the feeder.

Though the aluminium has basically less resistance than steel contact between dissimilar metals and exposure to moisture etc. makes it difficult to maintain good continuity of low resistance with the tower member or the earth lead, special precautions are to be taken to ensure a firm continuity as well as to ensure protection from the moisture and weather.

When connecting copper earth clips or clamps to the aluminium outer sheaths (conduits), it is necessary to clean thoroughly the outer sheath of aluminum, immediately smear it with light mineral oil, and then clamp and tighten the copper clip (The clamp may also be of tinned copper). After wiping off the surplus oil, the earthing clip and the surrounding aluminum conduits should be given a coat of bitumenastic paint, so as to exclude the moisture ingress from the atmosphere (Alternatively, PVC tapes of special grade may be used to cover the bonded portion to make the same water and air resistant. This has to be done very carefully and inspected every six months or even earlier and replaced with correct type of water resistant adhesive tape which is also heat resistant, since it is exposed to heat from sunlight).

#### 3.5.4.2 Earthing of Copper Waveguides

Grounding kits are supplied along with the wav guide by the manufacturer. Grounding kits are normally used at the top and at the bottom of the vertical run of the wave guide according to the procedure given by the manufacturer. While connecting the wire braid to the wave guide, remove the polyethylene jacket with knife & plier and clean the exposed copper conductor with a cloth and a brush damped with kerosene. Wrap the border of the polyethylene jacket with adhesive tape about two holds. Now put the wire braid over the stripped-off portion of wave guide. Apply silicon compound on all the parts where the unjacketed wave guide

## BHARAT SANCHAR NIGAM LIMITED ENGINEERING INSTRUCTIONS

## PROTECTION EARTHING I-001

is bared after the wire braid is put. After applying the silicon compound, wrap around the grounding with adhesive tape, so that moisture ingress is avoided. Other end of wire braid should be connected to member supporting the wave guide with the help of galvanized brass nuts and bolts as shown in **FIGURE 14**.

### 3.5.5 Connection of Tower and the Antenna subsystem to the Ring Earth.

Each leg of the tower should be separately connected by 50x3mm. G.I. strips above the ground level of each leg and other end is connected to the ring earth. The connection of G.I. Strip to the tower leg is done by tower bolts & nuts with lead sheaths in between. The sheath of the cable for warning light on tower, if armoured, should be separately connected to the tower at the top end, and to the ring earth at the bottom end by GI strips.

All wave guide terminations are individually to be gripped by a copper strip clamp and through copper conductor is commoned at a GI strip (50x3 mm.) which is run separately to the ring earth.

### 3.6 Earthing Arrangements for Power Plant on LT side and other Protection Measures;

The LT side of the main transformer (11 KV step-down) by Electricity Board in the building premises should be checked and the neutral should be connected to separate electrical earth properly. This earth and the transformer earth should be minimum 6 to 7.5 meters away from the nearest point of the ring earth, in order to avoid interference. 11 KV lightning arresters on all the three phases should be ensured on HT side (between line and the transformer), to arrest the longitudinal transients of lightning strikes caused by induction which carries over a long length of HT overhead wires towards transformer.

The sheath/armour of the underground cable bringing the LT electric supply inside the building, if armored, should be connected to the ring earth of the building.

It should be ensured that neutral in all switches on the power board is not connected to the frame of the power board. Neutral should be insulated from switch and distribution box frame. The frame of Engine Alternator is to be connected to the ring earth. Neutral of the alternator should not be earthed near engine but should be extended to the power board and connected to ring earth through a link. The DC positive from the power plant is to be connected to the ring earth. For LT side in the building 4 numbers of 650 V lightning arresters are to be provided as shown in **FIGURE 15**. Additional Lightning arresters should also be provided in the Neutral between ON/OFF switch in the building. Other limb of the arrester is to be connected to the ring earth.

Lightning arresters/Integrated protection module(IPM) are also to be provided in both the limbs of Telephone wires, which are entering inside the building. Earthing is to be provided to the gas discharge tubes outside the building and connected to the ring earth. **The sheath of underground cable is also to be connected to common earth at MDF end.**

The external tube light fixtures, steel window frames, fencing wires, gates and any other metallic substances are to be connected to the ring earth through GI strips.

### 3.7 Earthing Arrangement for Transmission and Switching Equipments

The Radio and Multiplexing equipments are to be connected by means of a mesh earth copper strips 20x1.5 mm running on top of the bays and forming a mesh. Each bay may be connected by means of copper cables with crimped type lugs on both sides to the copper strip. As shown in **FIGURE 16**, the meshed earth of equipment should be connected to the external ring earth in a shortest distance possible at two opposite points of the mesh. Inside the building, all joints should be made by means of lugs (crimped type), nuts and bolts of brass and copper strips.

**Various telecom equipments may follow mesh type architecture or isolated bonding architecture for earthing as specified by the manufacture. The installation manual will specify the type of bonding required. Accordingly, due care is to be taken while installing the equipments suitably.**

**The equipments belonging to two isolated bonding networks or an isolated bonding network and a mesh bonding network shall not touch each other. The isolation requirements are also to be specified clearly.**

Earth connection is distributed to the Switching equipment, Power plant, MDF etc. from the point located nearest to the ring earth. In case, it is not convenient to connect the various equipments directly with the ring earth, one or more distribution plates (earth plates) may be provided at suitable location so that distance from the ring earth to the distribution plate and distribution plate to equipment is minimum. The earth plate is made up of copper with a typical dimension of 400 mm. (L) x 100 mm. (W) x 10 mm. (T) and is connected to the ring earth by a 50x3 mm. GI strip earth conductor. At the ring earth end, this GI strip should be connected by means of GI nuts and bolts with the GI strip of ring earth with a lead strip in between. The joint should be covered with insulation tape and bitumen and should be water tight.

Page No.4  
Issue III, 30-04-2005

## BHARAT SANCHAR NIGAM LIMITED ENGINEERING INSTRUCTIONS

The other end of the GI strip earth conductor should be terminated on the earth plate by brass nut and bolts. The earth plate should have a number of holes to connect earth distribution cables meant for switch room power plant, MDF and any other place to meet the earthing requirement of the system.

The arrangement for distribution of earth from plate earthing is shown in **FIGURE 17**.

**3.8 For connecting to external and internal gantry to earthing station, a separate Outdoor Grounding Busbar and Indoor Ground Busbar may be provide as indicates in FIGURE 18. The outdoor grounding busbar may be installed at the outfacing wall of the building at a convenient location.**

**3.9 There is a sequence to be maintained for connecting various equipments to be connected to the earth plate. The connections should follow the order as surge produces, surge absorbers, ring earth followed by equipment earth. External cable, lightning system, tower, wave-guides, engine alternator etc., are typical surge produces. The building, building reinforcement steel, water pipes etc. are typical surge absorbers. A typical arrangement of sequence for connecting various equipment is indicated in FIGURE 19.**

### 4.0 MEASUREMENT OF EARTH RESISTANCE AND IT'S LIMIT:

For the purpose of measurement of earth resistance, small interconnecting strip should be provided in the ring earth in a small manhole chamber, so that ring earth can be broken from loop.

In case of ring earth, earth resistance is not a major significant item where all equipment is earthed to a common ring. For testing of earth resistance value of commoned earth (by commoning of no. of individual earth), the testing of individual earth is to be done by disconnecting it from Equipotential bonding.

The earth resistance should be less than or equal to 0.5 ohm for individual earth connected to Equipotential bonding. In only exceptional cases, earth resistance is allowed up to 1.0 ohms. For measurement of earth resistance please refer to EI No. G 0002, Issue 1, dated-15.09.1966.

### 5.0 MATERIAL USED IN EARTHING:

(i) G.I. strips of size 50x3 mm. are laid in a ring trench and connected to tower legs, earth bar in power room and engine room. etc. All joints inside the earth should be made waterproof.

(ii) Tower and other connection : Each leg is connect to ring earth by means of GI strip. All connections are made by

## PROTECTION EARTHING

I-001

GI nuts and bolts for GI to GI with a lead strip of 1 to 3 mm. thick in between for ensuring proper surface contact. That is,

- |  |   |
|--|---|
| (a) GI strip to.....<br>GI strip                     | By GI nuts and bolts<br>with lead strip 1 to 3 mm.<br>thick in between.       |
| (b) GI strip to .....<br>Copper strip<br>or lug, and | Connected by brass<br>nuts and bolts<br>covered to make it<br>moisture proof. |
| (c) Copper to.....<br>copper strip<br>or lugs        | With insulation tape &<br>should be water tight<br>outside the building.      |
| (d) Connections...<br>inside the<br>building         | 19x6 mm. copper<br>strip is used.   |

### 6.0 IMPORTANT POINTS FOR CONSIDERATION IN EARTHING:

- (i) Chemical treatment of earth using salts, etc. are not recommended as the chemical treatment does not last long and needs to be checked periodically.
- (ii) A separate GI strip 50x3 mm. is used to connect the lightning spike to ring earth to ensure proper connectivity of lightning spike with the ring earth as shown in **FIGURE 13**.
- (iii) Earth conductor should not be encircled with metal clamps while taking it along the wall. This is essential to eliminate the high inductive reactance that will impede the flow of surge current along the conductor in case of lightening.
- (iv) Earthing conductors should not pass through any metallic conduit or pipe as this will increase surge impedance.
- (v) There should be no sharp bends along the entire length of earth conductors. Bending should be done with a radius of one metre.
- (vi) In digital systems, equipments contain active devices such as FET, MOS and CMOS which are static-sensitive components and can be permanently damaged if it comes in contact with human body possessing electrostatic potential. As such antistatic floor tiles or mats should be installed and connected to earth. If anti-static flooring is not provided, a antistatic wrist-strap which is properly earthed should be used while working on such equipments.
- (vii) All the joints of the similar metals should be water proof.

Page No.5  
Issue III, 30-04-2005

**BHARAT SANCHAR NIGAM LIMITED  
ENGINEERING INSTRUCTIONS**

**PROTECTION  
EARTHING  
I-001**

**Reference:**

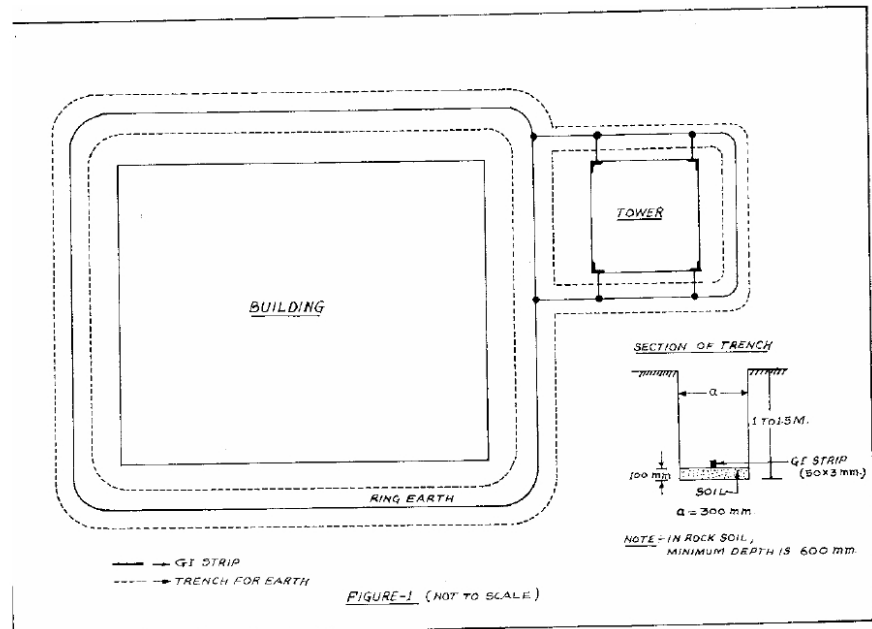
1. CCIR
2. APO EI on Radio Television, PL 1000
3. EI of "Masurement of Exchange Earth with an Earth Meggar" EI No. G 0002, Issue 1, dated-15.09.1966.
4. ITU-T recommendation K.27 "Bonding Configurations and Earthing inside a Telecommunication Building".
5. Transmission Maintenance Hand/book
6. Electrical Earthing & Accident Prevention by M.G. Say.
7. Lightning Protection for Electrical System (Beck).
8. Earthing Telecommunication Installations CCITT 1976.
9. Technical description of Radio Relay eqpt. GYPES GIT-4000/800 & 6000/1800 (Budapest).
10. Electrical Transmission & Distribution reference book.
11. The Earthing Problem particularly in its application to Telephony (Martin Thialets).
12. The Protection of Transmission Systems against Lightning (Lewis).
13. South African Institute of Electrical Engineers June 1955.
14. The Protection of Telecommunication lines & Equipment against lightning Discharges CCITT 1974.

**END**

Page No.6  
Issue III, 30-04-2005

BHARAT SANCHAR NIGAM LIMITED  
ENGINEERING INSTRUCTIONS

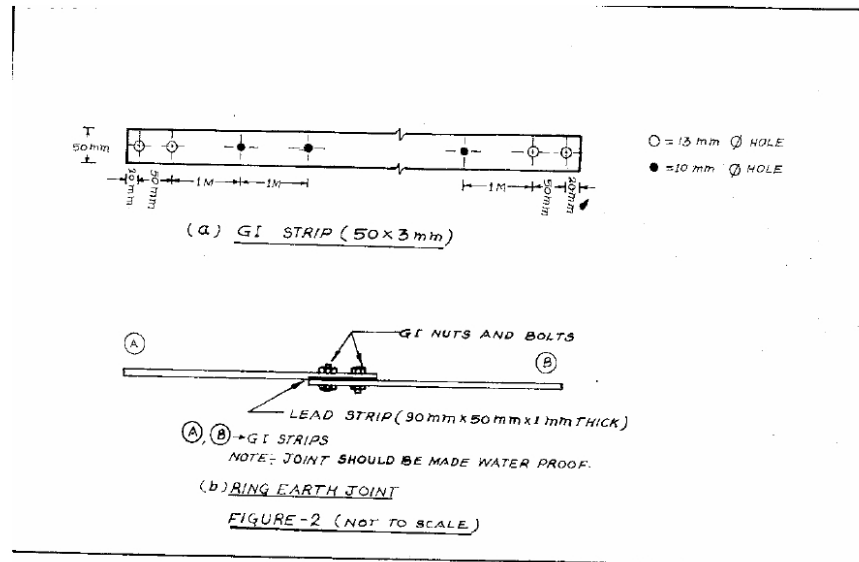
PROTECTION  
EARTHING  
I-001



Page No.7  
Issue III, 30-04-2005

BHARAT SANCHAR NIGAM LIMITED  
ENGINEERING INSTRUCTIONS

PROTECTION  
EARTHING  
I-001



Page No.8  
Issue III, 30-04-2005

BHARAT SANCHAR NIGAM LIMITED  
ENGINEERING INSTRUCTIONS

PROTECTION  
EARTHING  
I-001

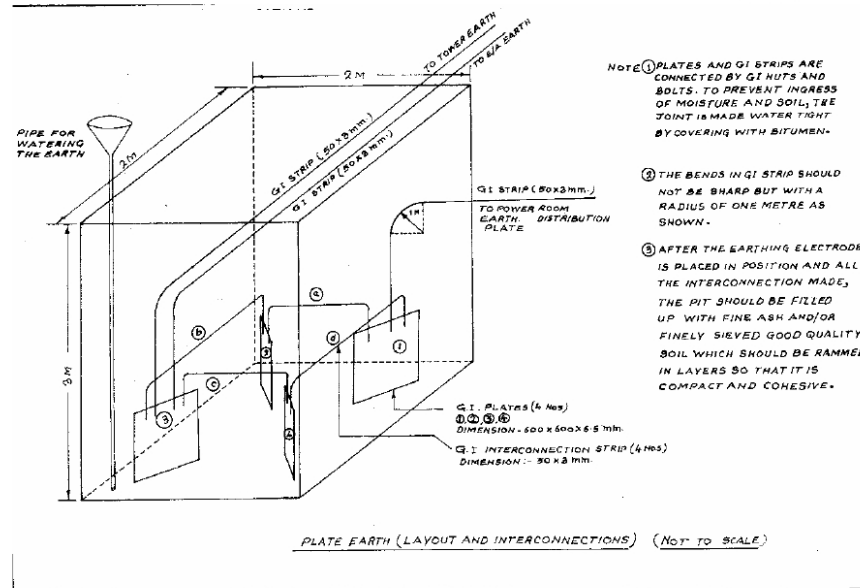
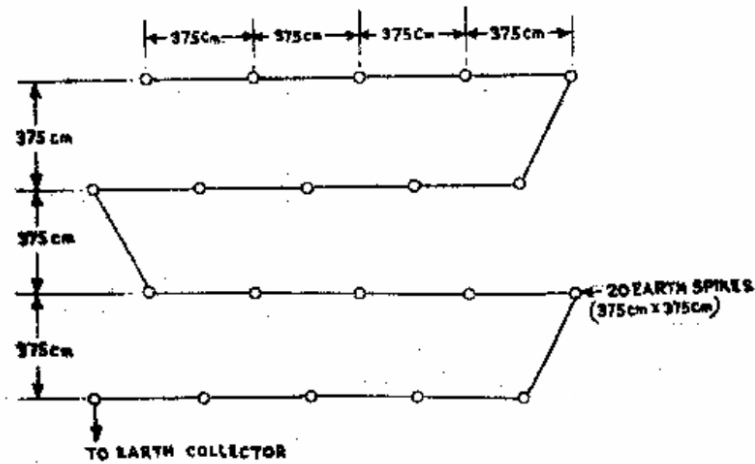


FIGURE-3

BHARAT SANCHAR NIGAM LIMITED  
ENGINEERING INSTRUCTIONS

PROTECTION  
EARTHING  
I-001



SPIKE EARTH

FIGURE - 4

Page No.10  
Issue III, 30-04-2005



BHARAT SANCHAR NIGAM LIMITED  
ENGINEERING INSTRUCTIONS

PROTECTION  
EARTHING  
I-001

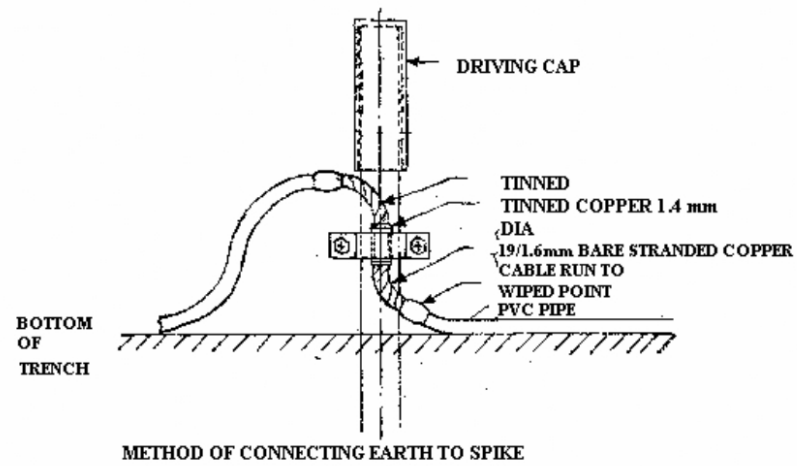


Figure-5

Page No.11  
Issue III, 30-04-2005

BHARAT SANCHAR NIGAM LIMITED  
ENGINEERING INSTRUCTIONS

PROTECTION  
EARTHING  
I-001

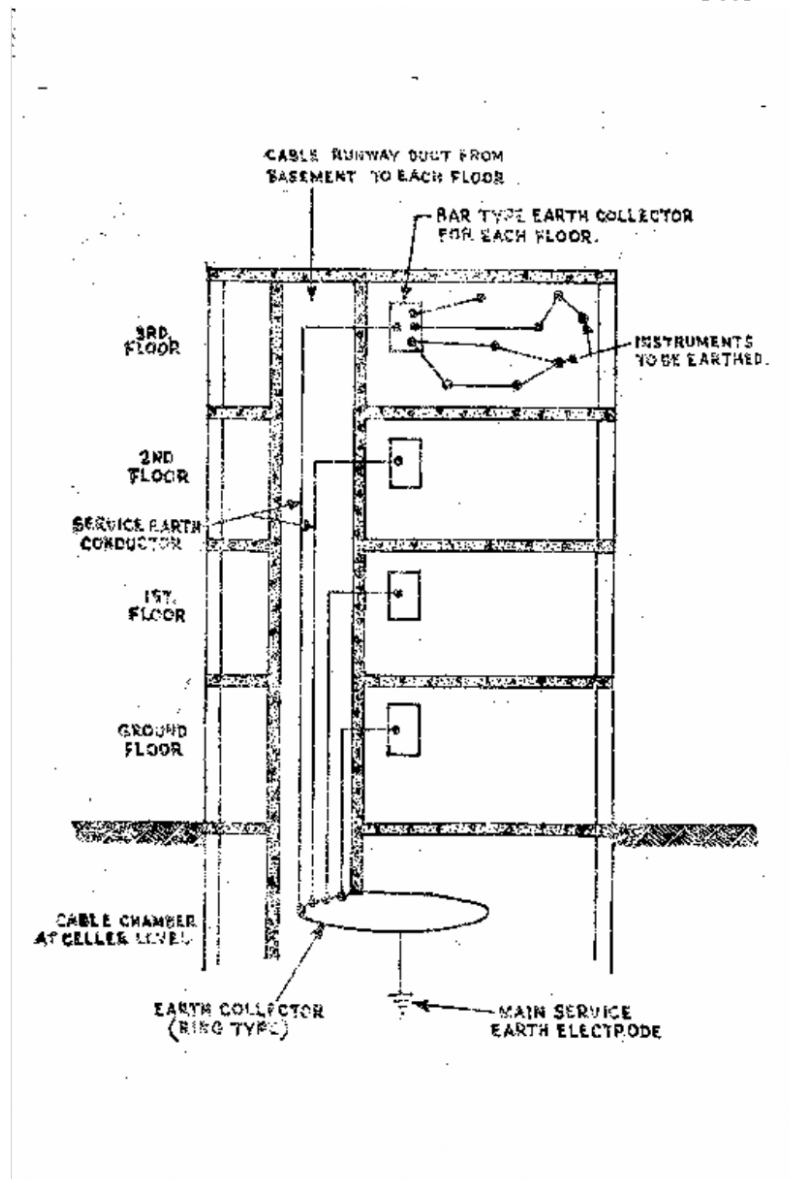


Figure-6  
Dimension of Earth collector bar=400x100x10 mm Copper  
Gauge of earth cable= 50 sq.mm

Page No.12  
Issue III, 30-04-2005

BHARAT SANCHAR NIGAM LIMITED  
ENGINEERING INSTRUCTIONS

PROTECTION  
EARTHING  
I-001

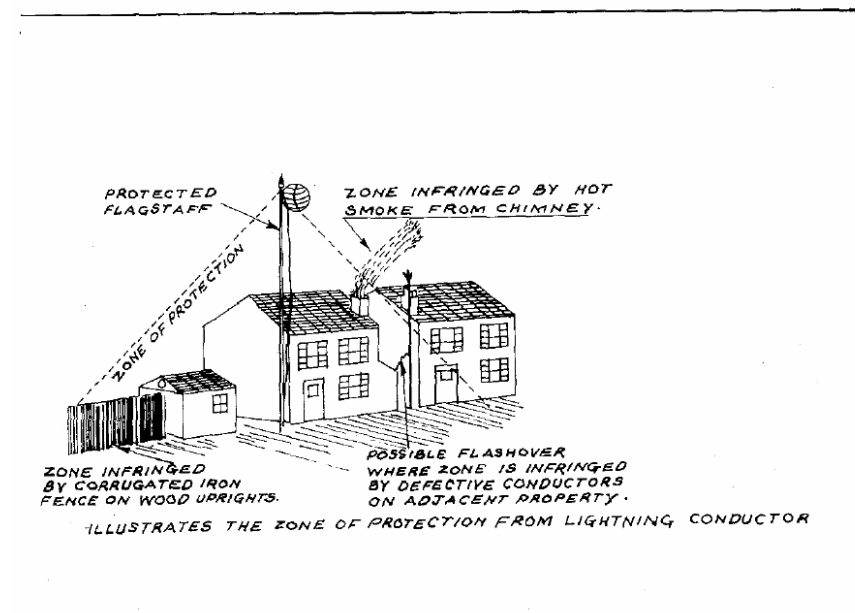


Figure-7

Page No.13  
Issue III, 30-04-2005

BHARAT SANCHAR NIGAM LIMITED  
ENGINEERING INSTRUCTIONS

PROTECTION  
EARTHING  
I-001

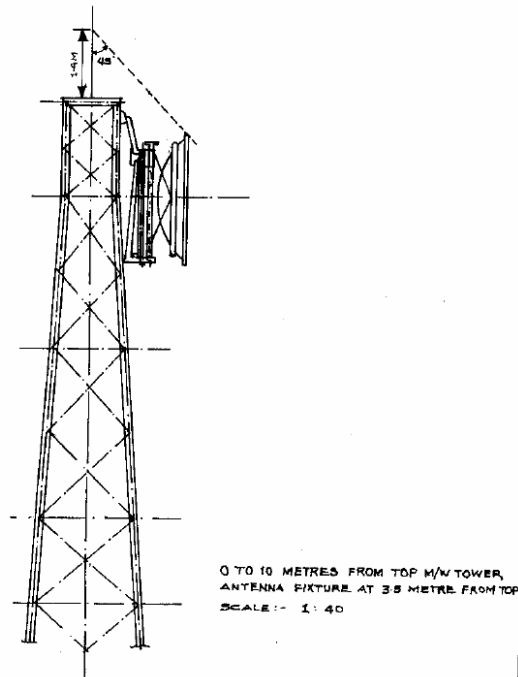


Figure-8

Page No.14  
Issue III, 30-04-2005

BHARAT SANCHAR NIGAM LIMITED  
ENGINEERING INSTRUCTIONS

PROTECTION  
EARTHING  
I-001

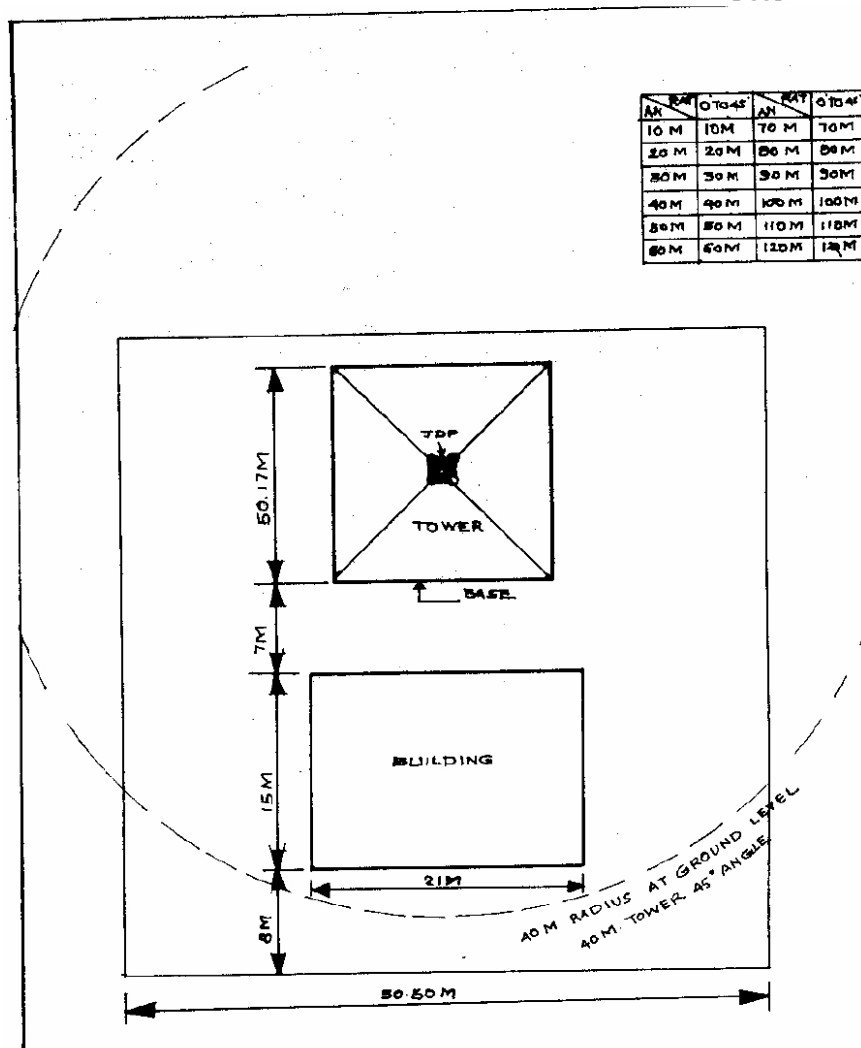


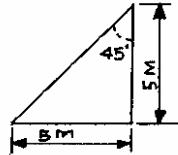
FIGURE-9

Page No.15  
Issue III, 30-04-2005

BHARAT SANCHAR NIGAM LIMITED  
ENGINEERING INSTRUCTIONS

PROTECTION  
EARTHING  
I-001

ADDITIONAL CLEARANCE ON GROUND TO COVER THE HEIGHT  
OF BOWDING TO LIVE WITHIN THE CONE.  
↓ FOR 45° 5M EXTRA IN ALL SIDES



HEIGHT	RADIUS
40 M	40 M
60 M	60 M
80 M	80 M
100 M	100 M
120 M	120 M

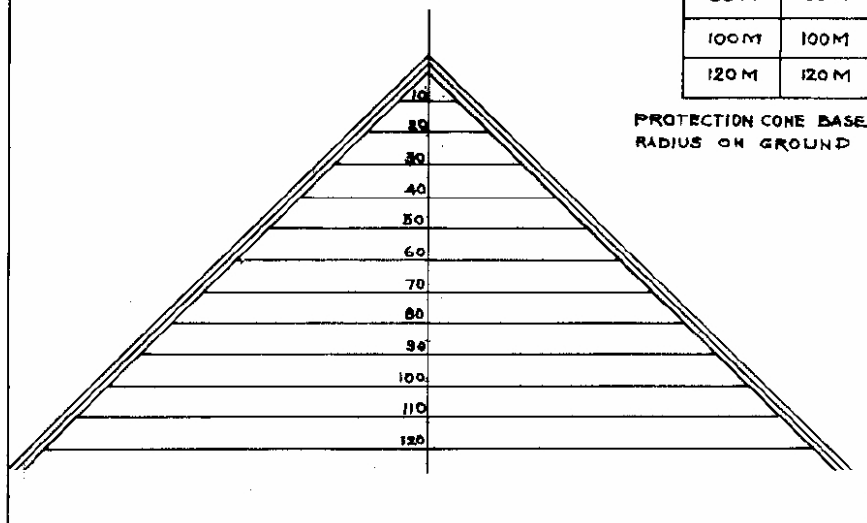


FIGURE-10

Page No.16  
Issue III, 30-04-2005

BHARAT SANCHAR NIGAM LIMITED  
ENGINEERING INSTRUCTIONS

PROTECTION  
EARTHING  
I-001

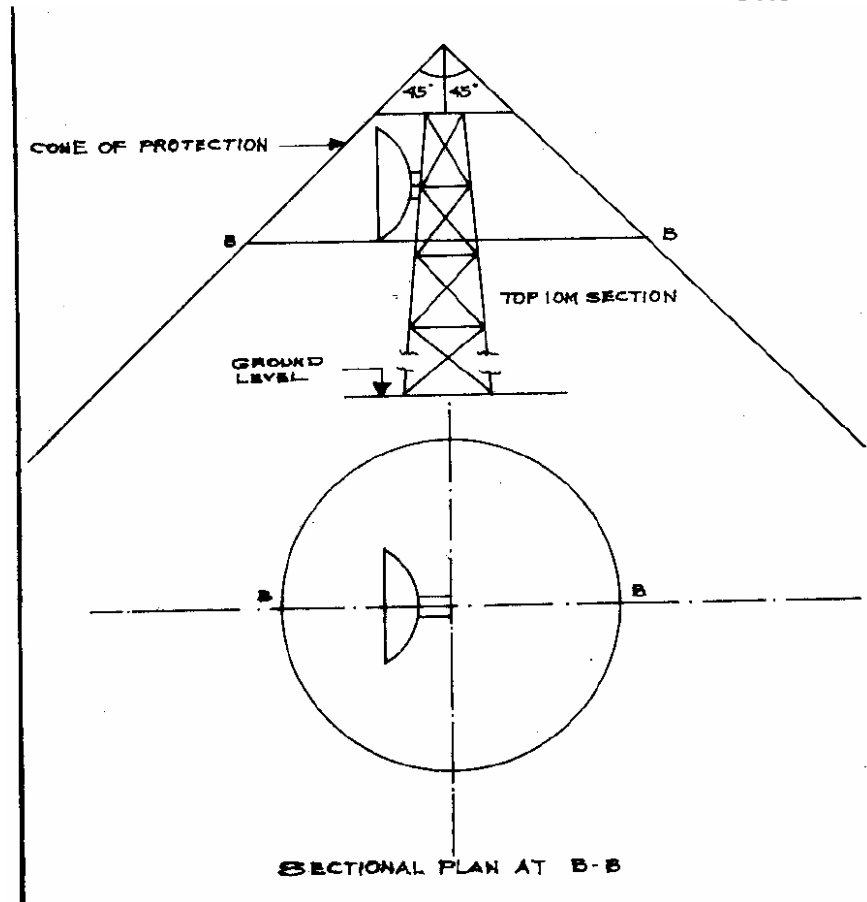


FIGURE-11

Page No.17  
Issue III, 30-04-2005

BHARAT SANCHAR NIGAM LIMITED  
ENGINEERING INSTRUCTIONS

PROTECTION  
EARTHING  
I-001

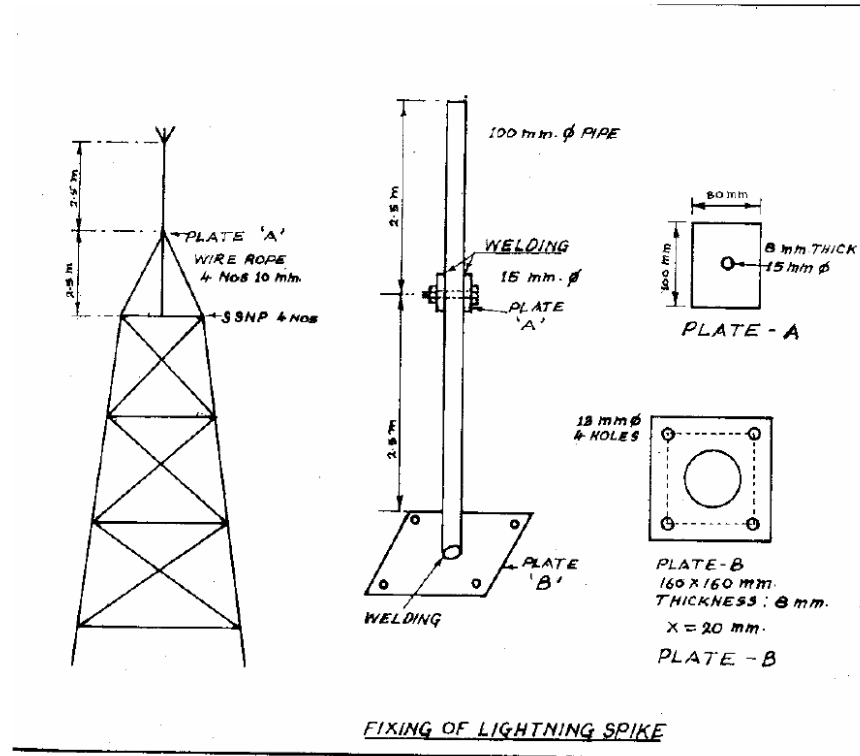


FIGURE-12



BHARAT SANCHAR NIGAM LIMITED  
ENGINEERING INSTRUCTIONS

PROTECTION  
EARTHING  
I-001

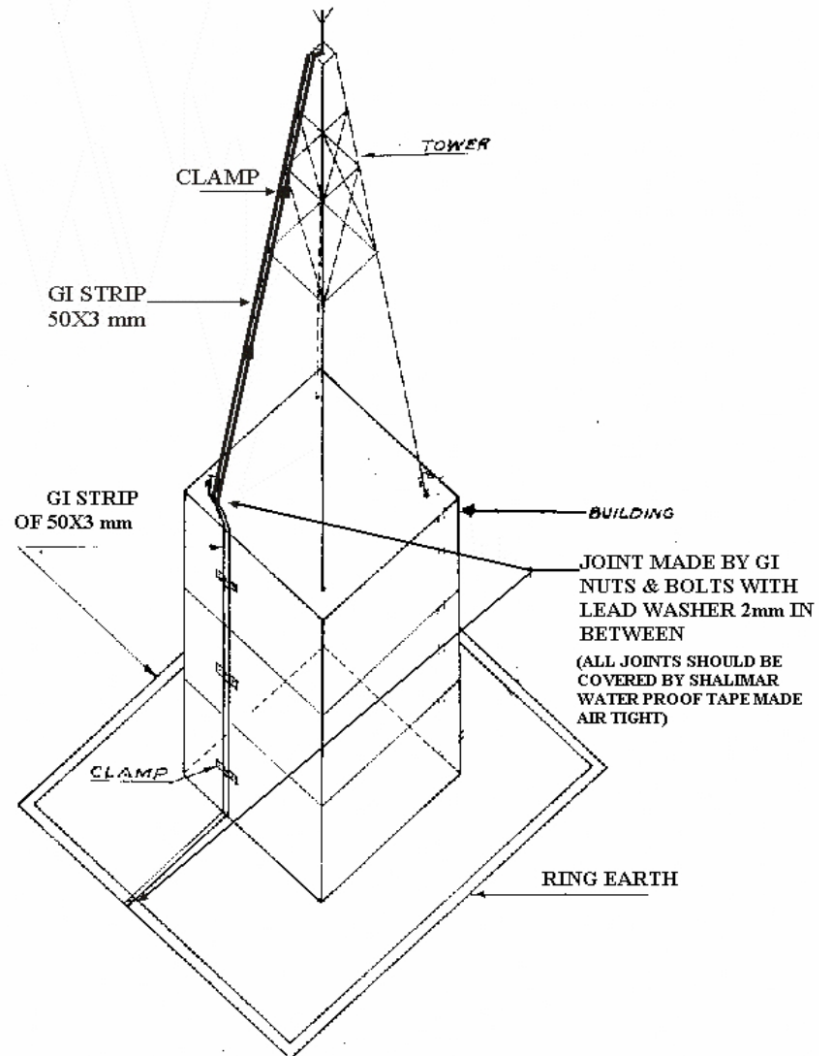


FIGURE-13 TOWER MOUNTED ON TOP OF BUILDING

Page No.19  
Issue III, 30-04-2005

BHARAT SANCHAR NIGAM LIMITED  
ENGINEERING INSTRUCTIONS

PROTECTION  
EARTHING  
I-001

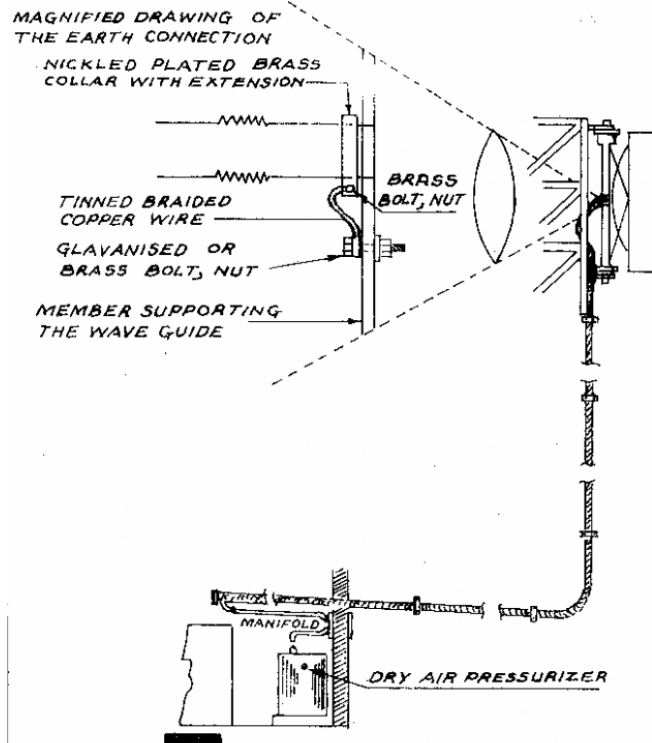


FIGURE-14

Page No.20  
Issue III, 30-04-2005

BHARAT SANCHAR NIGAM LIMITED  
ENGINEERING INSTRUCTIONS

PROTECTION  
EARTHING  
I-001

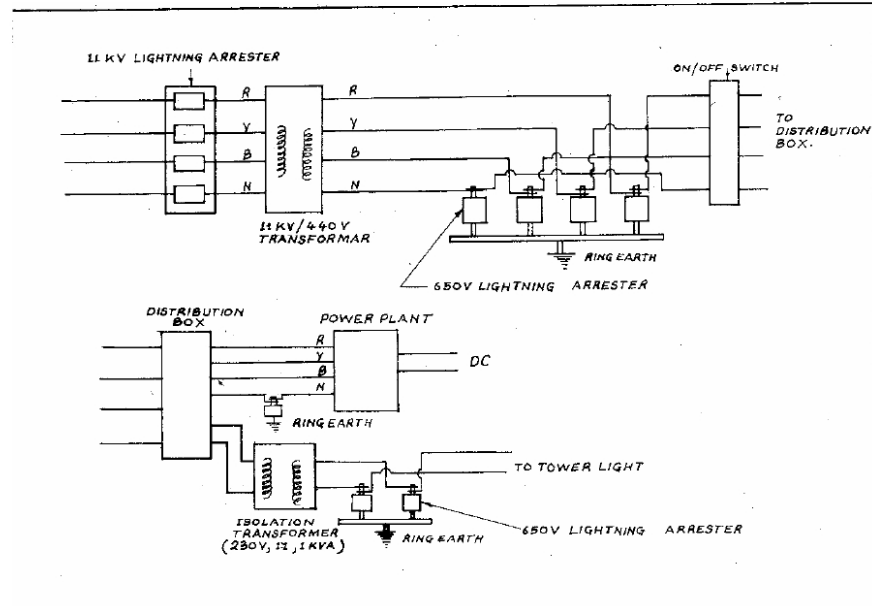


FIGURE-15

BHARAT SANCHAR NIGAM LIMITED  
ENGINEERING INSTRUCTIONS

PROTECTION  
EARTHING  
I-001

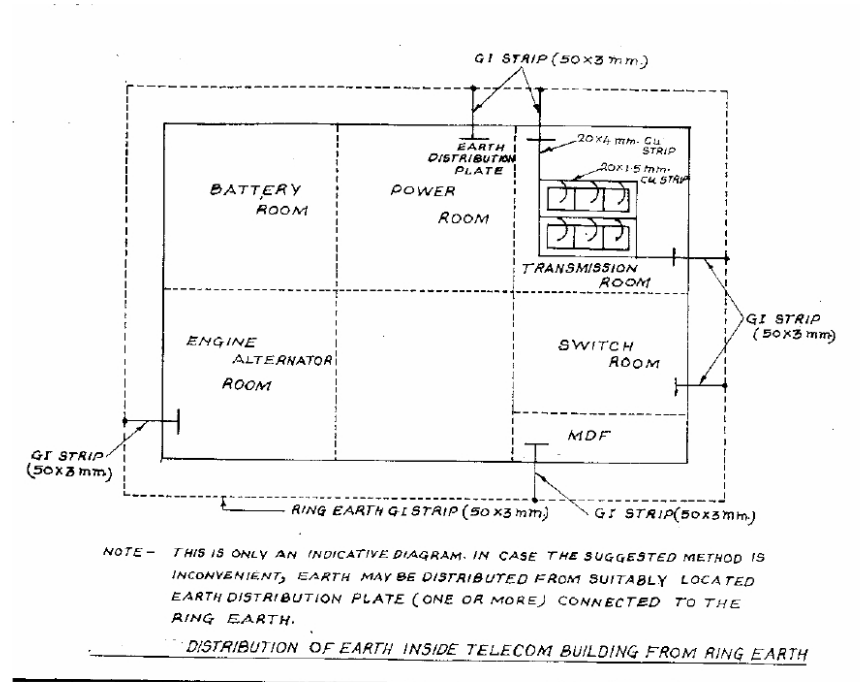


FIGURE-16

BHARAT SANCHAR NIGAM LIMITED  
ENGINEERING INSTRUCTIONS

PROTECTION  
EARTHING  
I-001

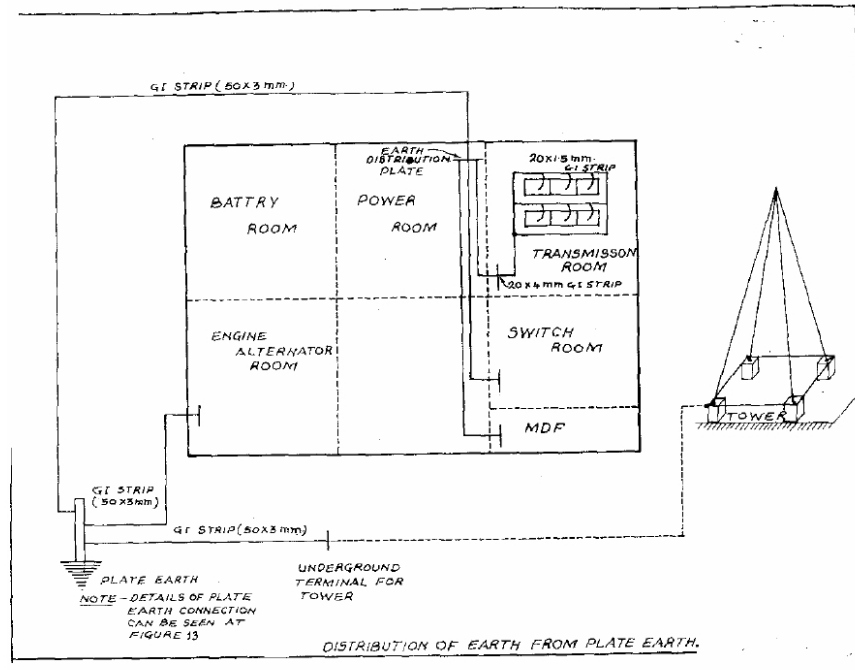
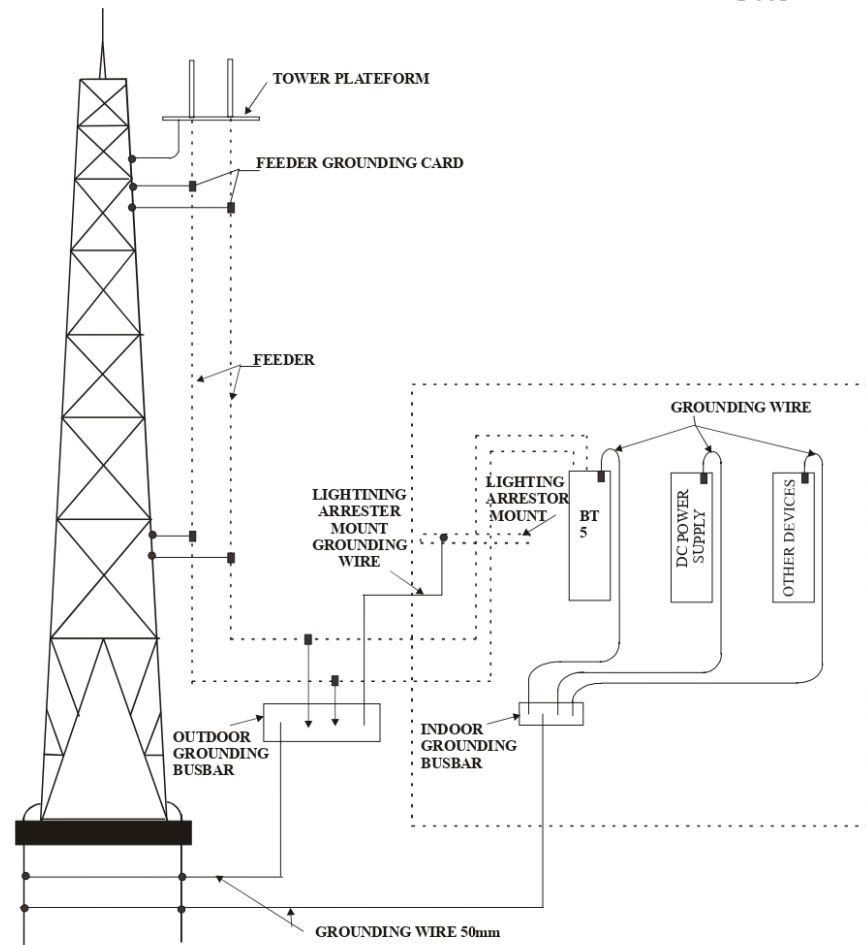


FIGURE-17

BHARAT SANCHAR NIGAM LIMITED  
ENGINEERING INSTRUCTIONS

PROTECTION  
EARTHING  
I-001

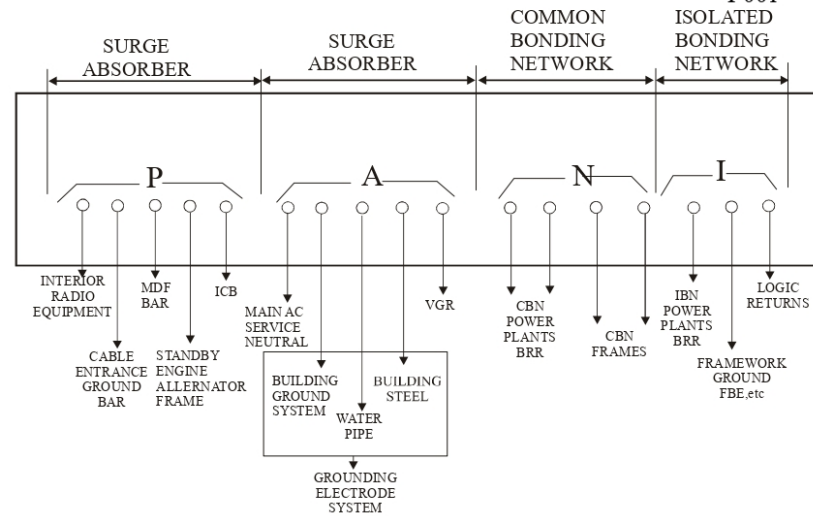


**Figure - 18**  
**EARTHING ARRANGEMENT USING OUTDOOR GROUNDING**  
**BUSBAR AND INDOOR GROUNDING BUSBAR**

Page No.24  
Issue III, 30-04-2005

BHARAT SANCHAR NIGAM LIMITED  
ENGINEERING INSTRUCTIONS

PROTECTION  
EARTHING  
I-001



NOTE:- Ignore the connections not available in a specified application, but maintain the sequence of the available connections

ICB- Integrated Collector Bar  
VGR- Vertical Ground Riser  
CBN- Common Bonding Network  
IBN- Isolated Bonding Network  
BRR- Battery Return Reference  
FBE- Framework Bonding Equalizer

**FIGURE - 19**  
**BUILDING PRINCIPLE GROUND**

Page No.25  
Issue III, 30-04-2005

**END OF THE E-TENDER DOCUMENT**