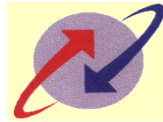


# **BID DOCUMENT**

## **Short Term Tender for laying Optical Fibre Cable by HDD/Open Trenching method and Splicing/Termination of Optical Fibre cable in BGTD**

**Tender No: AGM (CC)/4-10/OFC-IMP. WORKS/2012-13/1**

**O/o AGM (CC)  
2<sup>th</sup> Floor, City Telephone Exchange,  
Sampangiramanagar, Bangalore-560 027**



**BHARAT SANCHAR NIGAM LIMITED  
BANGALORE TELECOM DISTRICT**

Document SL. No	Issued to
Name of the SSA:	Bangalore Telecom District
Date	Issued By

Read, Understood & complied  
Signature of Bidder

## Table of Contents

Section	Contents	Page Nos.
I	Notice Inviting Tender	3-4
II	Bid Form	5
III	Tender's profile	6-7
IV	Instruction to Bidders	8-19
V	General Conditions of the contract	20-37
VI	Special Conditions of the contract	38-46
VII	Scope of work and jurisdiction of Contract	47-52
VIII	Cable Construction Specifications	53-75
IX	Material Security Bond (PART I) and Bank Guarantee Format (PART II)	76-77
X	Agreement	78
XI A	Annexure 1 to 4-Letter of authorization for attending bid opening, Declaration, Certificates for down loaded document & non-employment of near relatives.	79-81
XI B	Rate of Empty cable drums	81
XII	Work order format	82-83
XIII	Schedule of rates	84-87
XIV	Financial Bid Pro-forma	88

Read, Understood & complied  
Signature of Bidder

## **Bharat Sanchar Nigam Limited**

(A Government of India Enterprise)  
Office of AGM (CC), II floor, City Telephone Exchange Building,  
Sampangiramanagar, Bangalore-560 027

### **SECTION – I**

#### **Notice Inviting Tender**

#### **Tender for laying Optical Fibre Cable by HDD/Open trenching method and Splicing /Termination of Optical Fibre Cable in BGTD**

TENDER No. & DATE: AGM (CC)/4-10/OFC-IMP. WORKS/2012-13/1 dtd @ BG - 27, the 07.02.2013

Sealed Tenders are invited for and on behalf of Chairman and Managing Director, Bharat Sanchar Nigam Limited by PGM, BGTD for laying Optical Fibre Cable by HDD/ Open trenching method and Splicing /Termination of optical fibre cable in BGTD.

- 1.1 Name of the work** : Laying Optical Fibre Cable by HDD/Open trenching method and Splicing / Termination of Optical Fibre Cable in BGTD.
- 1.2 Quantity required** : i) Laying OFC by HDD method - **12.00 km**  
: ii) Laying OFC by open trenching method and splicing works - **2.0 km**
- 1.3 Estimated cost** : Rs.60.90 lakhs
- 1.4 Document Cost** : Rs.1,145/- (Rupees One Thousand One Hundred forty five only)
- 1.5 EMD / Bid Security** : Rs.1.50 lakhs (Rupees One lakh Fifty Thousand only)
- 1.6 Eligibility Criteria for bidders :**

- I. The bidder should have successfully completed the following works of OFC laying by HDD / open trenching method in BSNL/MTNL/other PSUs /Govt. Department/ private telecom service providers
- a. **Three** works each costing not less than amount equal to 40% of the estimated cost during the last 7 years ending 31.01.2013.  
OR
- b. **Two** works each costing not less than amount equal to 50% of the estimated cost during the last 7 years ending 31.01.2013.  
OR
- c. **One** work costing not less than amount equal to 80% of the estimated cost during the last 7 years ending 31.01.2013.

The copy of experience certificate issued by the competent authority not below the rank of AGM/DE or equivalent in BSNL/MTNL, and duly attested by an officer not below the rank of SDE/AE/ Gazetted Officer shall be submitted along with bid. And in case the certificate issued by any other government department /PSUs/Private service telecom providers should be duly attested by Gazetted officer or Notary.

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- II. The bidder should have an average financial turnover during the last 3 years of at least 30% of the estimated cost:
- i) 2009-2010
  - ii) 2010-2011
  - iii) 2011-2012
- The same should be supported by Profit & Loss account statement duly certified by the Auditors/CA.
- III. The bidder should have at least one HDD machine at his disposal, either owned or leased. The machine should be at least of minimum 10 tons or above pullback capacity as per the site requirement.

For establishing ownership of HDD machine, the contractor should submit documents showing.

- i) Make/Model of HDD machine, its Serial No. & capacity.
- ii) Bill of lading/custom clearance receipt/Commercial Invoice/Air waybill.

Those having HDD machine on lease should enclose lease deed which shall be valid for minimum six months from the date of opening of bid along with above supporting documents.

- 1.7 Period of contract:** 3 months from the date of signing of the agreement of the tender.
- 1.8 Mode of payment for tender document:** Tender document can be purchased by paying cost of bid document cited above, in the form of DD issued from any scheduled bank drawn in favour of **BSNL, BGTD, payable at Bangalore** which is not transferable and non refundable. The tender document also can be down loaded from Website [www.bangaloretelecom.com/www.tenders.gov.in](http://www.bangaloretelecom.com/www.tenders.gov.in) Downloaded documents should be submitted along with the tender document cost as in NIT with a certificate stating that **no corrections are incorporated** in the down loaded document.
- 1.9 Mode of payment of Bid Security:** Bid security can be paid in the form of Crossed Demand Draft drawn in favour of **“BSNL, BGTD” payable at Bangalore** or in the form of Bank Guarantee issued from any Scheduled Bank with a period of validity for **180 days** from the date of opening the Qualifying bid.
- 1.10 Last date and time for sale of tender document in case of direct purchase** : **28.02.2013**  
Time up to **17:00 hrs**
- 1.11 Last date and time of submission of completed tender document** : **01.03.2013**  
Time up to **13:00 hrs.**
- 1.12 Place of submission of completed tender document:** AGM (CC), II floor, City Telephone Exchange Building, S.R.Nagar, Bangalore-560 027  
Tel: 2212 1700 / 2221 6122
- 1.13 Date and time of opening of tender (Technical Bid only)** : **01.03.2013**  
Time at **14:00 hrs**

Tender Document can be had from AGM (CC), BGTD, BSNL, II floor, City Telephone Exchange Building, Sampangiramanagar, Bangalore-560 027

Tender Document contains **88** pages.

AGM (CC),  
BGTD, BSNL

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Signature of Bidder

## Section II BID FORM

Tender No. AGM (CC)/4-10/OFC-IMP. WORKS/2012-13/1                      dtd. @ BG - 27, the 07.02.2013

To,  
The Principal General Manager,  
BSNL, BGTD. Telephone House,  
Rajbhavan Road, Bangalore - 01.

Dear Sir,

Having examined the conditions of Contract and Specifications including addenda numbers-----, the receipt of which is hereby duly acknowledged, we, undersigned, offer to execute the work of Laying **Optical Fibre Cable by HDD/Open trenching method and Splicing/Termination of Optical Fibre Cable including supply of accessories in BGTD** in conformity with said terms &, conditions of contract and specifications as may be ascertained in accordance with the schedule of prices attached herewith and made part of this Bid.

We undertake if our Bid is accepted, we will execute the work in accordance with specifications, time limits & terms and conditions stipulated in the tender document.

If our Bid is accepted, we shall submit the securities as per the conditions mentioned in the contract.

We agree to abide by this Bid for a period of **150 days** from the date fixed for Bid opening (Qualifying Bid) and it shall remain binding upon us and may be accepted at any time before the expiry of that period.

We also agree to extend the bid validity for a period of further **120 days** on BSNL's request as per clause no. **4.11.2** of tender document.

Until a formal Agreement is prepared and executed, this Bid together with your written acceptance thereof in your notification of award shall constitute a binding contract between us.

Bid submitted by us is properly sealed and prepared so as to prevent any subsequent alteration and replacement.

Date

Name:

Signature of Authorised Signatory .....

In capacity of .....

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

- In case of proprietary / partnership firm, the tender has to be signed by proprietor/ all partners / power of attorney holder
- In case of Limited company Director /Officer authorized by Company or Power of attorney holder on behalf of company should sign.

Witness .....

Address .....

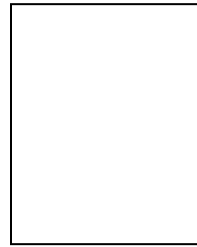
Signature .....

**Clause No 4.11.2. In exceptional circumstances, the BSNL may request the consent of the bidder for an extension to the period of bid validity. The request and the response there to shall be made in writing. The bid security provided under the clause 4.9.1 shall also be suitably extended. The bidder may refuse the request without forfeiting his bid security. A bidder accepting the request and granting extension will not be permitted to modify his bid.**

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**SECTION III**

**TENDERER'S PROFILE**



**3.1 General:**

**3.1.1** Name of the Tenderer / Firm .....

**3.1.2** Name of the person submitting the tender whose Photograph is affixed .Shri/Smt .....

Photo to be affixed here

- Passport size Photograph of the tenderer / authorized Signatory holding Power of Attorney (who is signing this bid) **duly self attested** should be affixed in the appropriate box
- In case of Sole Proprietorship the bidder himself/herself should sign the tender. Power of attorney is required in case where bidder himself/herself has not submitted the bid but done through Power of Attorney holder
- In case of Partnership firms, the tender has to be signed by all Partners or power of attorney holder.
- In case of limited company Director /Officer authorized by Company or Power of attorney holder on behalf of company should sign.

**3.1.3** Address of the Tenderer /Firm

**3.1.4** Communication Address.....

**3.1.5** Tel. No. (With STD Code) (O) .....(Fax)..... (R).....

**3.1.6** Registration & incorporation particulars of the firm/Company to be submitted are:

- i. Proprietorship – Copy of affidavit stating that he is the sole proprietor of the firm and is accountable to all tax liabilities of the said firm , on a non- judicial stamp paper of appropriate value as prevailing in the respective states(s), attested by a Notary public or registered before Sub- Registrar of the states(s) concerned.
- ii. Partnership – Self attested copy of the registration of the firm issued by Registrar of Firms and copy of partnership deed.
- iii. Limited company - Self attested copy of Memorandum & Articles of Association and certificate of incorporation.

**3.1.7** Name of Proprietor/Partners/Directors .....

**3.1.8** Tenderer's bank, its address,

- i) Current Account No. ....
- ii) Bank IFSC Code .....
- iii) MICR code ..... for ECS payment,

**3.1.9** Infrastructural capabilities:

- a. Capacity of trenching per day (in meters).....
- b. Capacity of pipe laying per day (in meters).....
- c. Capacity of pulling cable through duct /pipe per day (in meters).....

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- d. Capacity of engaging mazdoors per day .....
- e. Particulars of vehicles available with the tenderer

Sl.No.	Type of Vehicle	Registration No.
1		
2		
3		

- f. Particulars of other machines possessed by the contractor which can help in trenching, cable laying and cable pulling , splicing and Acceptance Testing.
  - 1 .....
  - 2 .....
  - 3 .....

**3.1.10 Details of Technical and Supervisory Staff:**

Sl.No.	Name	Qualification	Designation	Remarks
1				
2				
3				
4				

**3.1.11 Details of CST/KST/Service Tax etc.**

- 1. Trade Index Number**
- 2. CST/ KST/VAT Registration Certificate**
- 3. PAN Number**
- 4. Service Tax Registration Certificate**

I/We hereby declare that the information furnished above is true and correct.

Place:

Date:

Signature of Tenderer/Authorised Signatory .....

Name of the Tenderer.....

Seal of the Tenderer

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Signature of Bidder

## Section IV Instruction to Bidders

### A. INTRODUCTION

#### 4.1 DEFINITIONS

- a. **President of India:** The President of India means the President of India and his successors.
- b. **Government of India:** The Government or Government of India shall mean the President of India
- c. BSNL means **BHARAT SANCHAR NIGAM LIMITED**, the company with Board of Directors and Chairman & Managing Director, with Head Quarters at New Delhi.

All references of:

Department  
Chief General Manager  
Principal General Manager  
General Manager  
Deputy General Manager/Area Manager/Director/Telecom Dist. Manager  
Assistant General Manager  
Sub Divisional Engineer  
Junior Telecom Officer  
Chief Accounts Officer  
Accounts Officer  
Assistant Accounts Officer  
Junior Accounts Officer

Including other officers in the BSNL, whatever designations assigned to them from time to time, who may be the in-charge of direction, supervision, testing, acceptance and maintenance including their successor(s) in the office appearing in various clauses shall be taken to mean BSNL, an enterprise under the Ministry of Communications, Government of India

Department in the document means department of BHARAT SANCHAR NIGAM LIMITED

- d. **The SSA Head** means the Head of SSA , **PGM, BGTD** and his successors
- e. **The General Manager** means the General Manager (NW-CFA), BSNL, or any other GM of Bangalore Telecom District and his successors.
- f. **The Deputy General Manager** means all the Deputy General Managers, Area Managers of Bangalore Telecom District
- g. **The Assistant General Manager** means all the AGMs of Bangalore Telecom District in charge of underground cable works and their successors.
- h. **Representatives of the AGM** mean the Officer and staff for the time being in the Bangalore Telecom District deputed by the AGM for supervising the works etc.
- i. **Bangalore Telecom District** – Secondary Switching Area covered by Bangalore District.
- j. **The jurisdiction of PGM, BGTD:** The jurisdiction of **PGM, BGTD** means full SSA under his control for Telecom Administration and service.
- k. **Representative of PGM, BGTD:** Representative of **PGM, BGTD** means Officer and staff for the time being in “BGTD” deputed by the **PGM, BGTD** for inspecting or supervising the work or testing etc.
- l. **Engineer-in-charge:** The Engineer-in-charge means the Engineering Officer nominated by PGM, BGTD to supervise the work, under the contract (Minimum AGM level Officer).
- m. **Site Engineer:** Site Engineer shall mean an SDE of BSNL who may be placed by the **PGM, BGTD** as in-charge of the work at site at any particular period.
- n. **A/T Unit:** A/T Unit shall be mean Acceptance and Testing Unit of BSNL.
- o. **A/T Officer:** An Officer authorised by **PGM, BGTD/A/T unit** to conduct A/T.
- p. **Contract:** The term contract means, the documents forming the tender and acceptance thereof and the formal agreement executed between the competent authority on behalf of the CMD BSNL and the contractor, together with the documents referred to therein including these conditions, the specifications, designs, drawings and instructions issued from time to time, by the engineer in-charge and all these

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documents taken together shall be deemed to form one contract and shall be complementary to one another. In the contract, the following expressions shall, unless the context otherwise requires have the meanings, hereby respectively assigned to them. The expression works or work shall unless there be something either in the subject or context repugnant to such construction, be construed and taken to mean the works by or by virtue of the contract, contracted to be executed whether temporary or permanent, and whether original, altered, substituted or additional.

- q. **Contractor:** The contractor shall mean the individual, firm or company, enlisted with BSNL in accordance with procedure for enlistment of contractor, whether incorporated or not, undertaking the works and shall include the legal personal representative of such individual or the persons composing such firm or company, or the successors of such firm or company and the permitted assignees of such individual, firm or company.
- r. **Works:** The expression “**Works**” shall unless there is something either in the subject or context repugnant to such construction be construed and taken to mean the works by or by virtue of the contract, contracted to be executed whether temporary or permanent and whether original, altered, substituted or additional.
- s. **Schedule(s):** Schedule(s) referred to in these conditions shall mean the relevant schedule(s) or the **standard** schedule of rates mentioned in the document.
- t. **Site:** The site shall mean the land/ or other places on, into or through which work is to be executed under the contract or any adjacent land, path or street through which, the work is to be executed under the contract or any adjacent land, path or street which may be allotted or used for the purpose of carrying out the contract.
- u. **Normal Time or Stipulated Time:** Normal time or stipulated time means time specified in the work order to complete the work.
- v. **Extension of Time:** Extension of Time means the time granted by BSNL to complete the work beyond the normal time or stipulated time.
- w. **Date of Commencement of Work:** Date of commencement of work means the date of actual commencement of work from the date of issue of work order.
- x. **Due date of completion:** Due date of completion shall be the date by which the work shall be completed at site including clearance of site.
- y. **Duration of completion of work:** The duration of completion of work or completion time shall be time specified in the work order plus extension of time granted, if any.
- z. **Excepted risk:** Excepted risk are risks due to war (whether declared or not), invasion, act of foreign enemies, hostilities, civil war, rebellion, revolution, insurrection, military or usurped power, any acts of Government damages from aircraft, acts of God, such as earthquake, lightening and unprecedented floods and other causes over which, the contractor has no control and the same having been accepted as such, by the Accepting Authority or causes solely due to use or occupation by the government of the part of the work, in respected of which a certificate of completion has been issued.

## **B. ELIGIBILITY OF BIDDERS:**

**4.2 ELIGIBILITY CONDITIONS:** The bidders are eligible to bid as per **clause No.1.6** “Eligibility Criteria for bidders” of NIT Section I.

### **4.2.1 Participation of near relatives of BSNL employees in the Tender / Execution of works in BSNL Units:**

It has been decided that the near relatives of BSNL employees either directly recruited or on deputation are prohibited from participation in the tender and execution of works in the different units of BSNL. The detailed guidelines in this regard are given in the following paragraphs.

- (a) The near relatives for this purpose are defined as
  - i. Members of a Hindu Undivided family,
  - ii. Husband and wife,

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- iii. The one is related to the other in the manner as father, mother, son(s) & son's wife (daughter in law), daughter (s) & daughter's husband (son in law), brother (s) & brother's wife, sister (s) & sister's husband (brother in law)
- (b) As per Government of India's CCS Conduct rule, no Government servant shall in the discharge of his official duties deal with any matter or sanction any contract to any company or for any other person, if any member of his family is employed in that company or firm or under that person or if he or Any member of his family is interested in such matter or contract in any other manner and the Govt. servant shall refer every such matter or contract to his official superior. This clause is applicable to all BSNL employees and in view of this as soon as any BSNL employee becomes aware of the above aspect, he must intimate this to the prescribed authority. For non-executive employees this authority is SSA Head/circle Head/Chief engineer/ Chief Archt./corporate Office under whom he is posted. For executive employees (at present some of them are called as Gazetted officers) the prescribed authority for this purpose is Circle Head/ Chief Engineer/Chief Archt. /Corporate Office under whom he is posted.
- (c) The company/or firm or any other person is not permitted to tender for works in BSNL Unit in which his near relative(s) is (are) posted. The unit is defined as SSA / Circle/Chief Engineer/Chief Archt. / Corporate office for non-executive employees and all SSA in a Circle including Circle office/Chief Engineer /Chief Archt. / Corporate office for executive employees (including those called as Gazetted officers at present). Therefore, it has been decided by the competent authority that the tenderer should give a certificate that none of his/her such near relative is working in the units as defined above where he is going to apply for tender/work. In case of proprietorship firm ,The certificate will be given by the proprietor in case of proprietorship, , by all the partners in case of partnership firm and in case of limited company by all the Directors of the company. Any breach of these conditions by the company or firm or any other person, the tender work will be cancelled and earnest money / security deposit will be forfeited at any stage whenever it is so noticed. The department will not pay any damage to the company or firm or the concerned person. The company or firm or the person will also be debarred for further participation in the concerned unit.
- (d) The declaration duly signed that tenderer having no relatives employed in BSNL should be enclosed with tender form (As per Performa given in Section – XI-A Annexure-4)
- 4.2.2 The firm/party BLACK LISTED by Central Government/State Government or any unit of BSNL shall not be eligible for bid .Suppression of this information at the time of filling of tender and subsequently, will amount to automatic rejection and forfeiture of all deposits at any stage.

### **C. BID DOCUMENTS:**

- 4.3 The Bid Documents:** The construction work to be carried out, goods required, bidding procedures and contract terms are prescribed in the Bid Documents.
- 4.3.1. The Bid Documents include:**
- 4.3.1.1 Notice inviting Tender
  - 4.3.1.2 Bid Form
  - 4.3.1.3 Tenderer's Profile.
  - 4.3.1.4 Instruction to Bidders.
  - 4.3.1.5 General (Commercial) Condition of the contract.
  - 4.3.1.6 Special Conditions of Contract.
  - 4.3.1.7 Scope of work &Jurisdiction of Contract.
  - 4.3.1.8 OF Cable Construction Specifications
  - 4.3.1.9 Material Security Bond Form.
  - 4.3.1.10 Agreement (Sample).
  - 4.3.1.11 Letter of Authorisation for Attending Bid Opening.
  - 4.3.1.12 Rates of Empty Cable Drums
  - 4.3.1.13 Schedule of Rates
  - 4.3.1.14 Financial bid form

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Signature of Bidder

The bidder is expected to examine all instructions, forms, terms and specifications in the bid documents. Failure to furnish all information required as per the Bid Documents or submission of bids not substantially responsive to the Bid Documents in every respect will be at the bidder's risk and shall result in rejection of the bid.

**4.4 CLARIFICATION ON BID DOCUMENTS:**

A prospective bidder, requiring any clarification of the Bid Documents shall notify BSNL in writing or by fax or mail at the department's mailing address indicated in the invitation for Bids. BSNL shall respond in writing to any request for clarification of the Bid Documents, which it received not later than 21 days prior to the date for the opening of the bids. Copies of the query (without identifying the source) and the clarifications by BSNL shall be sent to all the prospective bidders who have purchased the bid documents and all such clarifications issued by BSNL will form part of the bid document.

**4.5 AMENDMENT OF THE BID DOCUMENTS:**

- 4.5.1 At any time, prior to the date of submission of bids BSNL may, for any reason whether suo motto or in response to a clarification requested by a prospective Bidder, modify the bid documents by amendments.
- 4.5.2 The amendments shall be notified in writing or by mail or FAX to all prospective bidders on the address intimated at the time of purchase of bid document from BSNL and these amendments will be binding on them.
- 4.5.3 In order to afford prospective bidders reasonable time to take the amendments into account in preparing their bids, BSNL may, at its discretion extend the deadline for the submission/opening of bids suitably.

**D. PREPARATION OF BIDS:**

**4.6 COST OF BIDDING:**

- 4.6.1 The bidder shall bear all costs associated with the preparation and submission of the bid. BSNL, will in no case, be responsible or liable for these costs, regardless of the conduct or outcome of the bidding process.

**4.7 DOCUMENTS TO BE SUBMITTED ESTABLISHING BIDDER'S ELIGIBILITY AND QUALIFICATIONS:**

- 4.7.1 The bidder shall furnish, as part of his bid documents establishing the bidder's eligibility, the following documents:
  - 1. Bid Security in accordance to NIT Section I.
  - 2. Cost of bid documents as per NIT Section I, in the case of web downloaded document.
  - 3. The bidder should have successfully completed the following works of OFC laying by HDD / open trenching method in BSNL/MTNL/other PSUs /Govt. Department/ private telecom service providers
    - a. **Three** works each costing not less than the amount equal to **40%** of the estimated cost during the last 7 years ending **31.01.2013**.  
OR
    - b. **Two** works each costing not less than the amount equal to **50%** of the estimated cost during the last 7 years ending **31.01.2013**.  
OR
    - c. **One** work costing not less than the amount equal to **80%** of the estimated cost during the last 7 years ending **31.01.2013**.

The copy of experience certificate issued by the competent authority not below the rank of AGM/DE or equivalent in BSNL/MTNL, and duly attested by an officer not below the rank of SDE/AE/ Gazetted Officer shall be submitted along with bid. And in case the certificate issued by any other government department /PSUs/Private service telecom providers should be duly attested by Gazetted officer or Notary.

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Signature of Bidder

4. The bidder should have an average financial turnover during the last 3 years of at least 30% of the estimated cost:
  - i. 2009-2010
  - ii. 2010-2011
  - iii. 2011-2012.

The same should be supported by self attested copy of Profit & Loss account statement duly certified by the Auditors/CA.

5. The bidder should have at least one HDD machine at his disposal, either owned or leased. The machine should be at least of minimum 10 tons or above pullback capacity as per the site requirement.

To establish ownership of HDD machine, the contractor should submit documents showing.

- i) Make / Model of HDD machine, its Serial No. & capacity
- ii) Bill of lading / custom clearance receipt/Commercial invoice/ Airways bill.

Those having HDD machine on lease should enclose lease deed which shall be valid for six months from the date of opening of bid along with above supporting documents.

6. Solvency Certificate in **original** from the banker of the tenderer for **Rs.5 lakhs**. The solvency certificate shall not be older than the date of issue of NIT.
7. Registration of Firm:
  - i. Proprietorship – Copy of affidavit stating that he is the sole proprietor of the firm and is accountable to all tax liabilities of the said firm , on a non- judicial stamp paper of appropriate value as prevailing in the respective states(s), attested by a Notary public or registered before Sub- Registrar of the states(s) concerned.
  - ii. Partnership – Self attested copy of the registration of the firm issued by Registrar of Firms and copy of partnership deed.
  - i. Limited company - Self attested copy of Memorandum & Articles of Association and certificate of incorporation.
8. Indemnity Bond Declaration as per format given in Annexure-2 of section XI-A (It should be on Non judicial stamp paper of Rs.100/-duly attested by a Notary Public or registered before Sub-Registrar of the State(s) concerned)
9. Self attested copy of Employee's Provident Fund Registration certificate.
10. Self Attested copy of ESI registration certificate. In case any exemption from ESI Act, certificate in that effect to be enclosed.
11. Self attested copy of Service Tax Registration Certificate.
12. Tender document(s), in original, duly filled in and signed by tenderer or his authorised representative **on each page**. All corrections and overwriting must be initialed with date by the tenderer or his authorised representative.
13. Bid Form, duly filled in, and signed as per section II.
14. Tenderer's profile, duly filled in, and signed as per section III of the tender document.
15. 'Power of Attorney' in ORIGINAL, in case a person other than the tenderer has signed the tender documents. The Power of Attorney should be submitted as follows:
  - a. The Power of Attorney should be submitted and executed on the non-judicial stamp paper of appropriate value as prevailing in the respective states(s) and the same be attested by a Notary public or registered before Sub- Registrar of the states(s) concerned.
  - b. The Power of Attorney should 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/Body corporate. The latest minutes of the Board of directors authorizing the signatory to sign the document on behalf of the company should be furnished.
  - c. In case of the bidder being a partnership firm, the said Power of Attorney should be executed by all the partners(s) in favor of the said Attorney.

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- d. Attestation of the specimen signatures of such authorized signatory of the bid by the company's/firm's bankers shall be furnished. Name, designation, phone No. Mobile No, E-mail address and postal address of the authorized signatory shall be provided.
16. Self attested copy of PAN card
17. Self attested copies of income tax returns for the last 3 assessment years, **i.e.**  
(i) 2009-2010 (ii) 2010- 2011 and (iii) 2011-2012.
18. Declaration in case of web downloaded document as per format given in section XI-A, Annexure -3.
19. Certificate in the format given in section XI –A, Annexure-4, regarding non-participation of near relatives of BSNL employees as per clause 4.2.1 of section IV.

**Note:** - The authenticity of all the above documents enclosed with the tender bid of the responsive/approved bidders can be verified by the BSNL at any time from the date of opening of the Technical Bid and till the completion of work. At any stage, if the document on verification is found to be forged, the bid will be cancelled/terminated at bidder's Risk and cost and the EMD/Security deposited by the bidder will be forfeited. All the documents submitted should be valid on the date of submission of bid.

- 4.8.** While all the conditions specified in the Bid documents are critical and are to be complied, special attention of bidder is invited to the following clauses of the bid documents. Non-compliance of any one of which shall result in outright rejection of the bid.
- (i) Clause 4.13 of section IV: The bids will be recorded /returned unopened if covers are not properly sealed with 'PERSONAL SEAL' of the bidder.
- (ii) Clause 4.9 of section IV: The bids will be rejected at opening stage if Bid security is not submitted as per clause No.4.9.1 and 4.9.3 and bid validity is less than the period prescribed in Clause 4.11.
- (iii) Clause 1.6 of Section I and Clause 4.7 of Section IV: If the eligibility condition as per clause 1.6 of section I is not met and /or documents prescribed to establish the eligibility as per Clause 4.7 of section IV are not enclosed, the bids will be rejected without further evaluation.
- (iv) Section XIII- Price Schedule: Prices are not filled in as prescribed in price schedule.

**4.9. BID SECURITY:**

- 4.9.1 The bidder shall furnish, as part of his bid, a bid security (EMD) as in the NIT of Section I of the Tender Document. No interest shall be paid by BSNL on the bid security for any period, what so ever.
- 4.9.2 The bid security is required to protect BSNL against the risk of bidder's conduct, which would warrant the security's forfeiture, pursuant to para 4.9.7.
- 4.9.3 Bid Security shall be paid in the form of Crossed Demand Draft drawn in favour of "BSNL BGTD" payable at Bangalore or in the form of Bank Guarantee issued from any Scheduled Bank with a period of validity for **180 days** from the date of opening the Qualifying bid.
- 4.9.4 A bid not secured in accordance with para 4.9.1 & 4.9.3 shall be rejected by BSNL as non responsive.
- 4.9.5 The bid security of the unsuccessful bidder will be refunded as promptly as possible as but not later than 30 days after the expiry of the period of bid validity prescribed by BSNL.
- 4.9.6 The successful bidder's bid security will compulsorily be converted to part performance security deposit. Hence if the Bid security is submitted in the form of Bank Guarantee, the successful bidders have to replace the Bank Guarantee with a new Bank Guarantee for the same amount with a validity of **2 years** from the date of signing the agreement.68

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**4.9.7 The bid security shall be forfeited:**

- 4.9.7.1 If a bidder withdraws his bid during the period of bid validity specified in the bid document including extension period of further 120 days.
- 4.9.7.2 If the bidder makes any modifications in the terms and conditions of the tender before acceptance of the tender, which are not acceptable to BSNL or
- 4.9.7.3 In case of successful bidder, if the bidder fails ;
- i) To sign the agreement or
  - ii) To furnish Material Security or
  - iii) To furnish Performance Security.

**4.10 BID PRICES:**

- 4.10.1 **Prices** shall be quoted by the bidder as **percentage below/above/at par** in section XIV (financial bid proforma ) with respect to the Schedule of Rates vide section XIII which is exclusive of service Tax. However the successful bidder can claim the service tax as applicable as extra on production of necessary bills. Prices quoted at any other place shall not be considered.

**Note:** If the bidder desires to quote below or above the schedule of rates, percentage quote is to be mentioned in figures as well as in words in the appropriate columns. In case if the quote is 'At Par' with respect to the schedule of rates, the same should be mentioned in words "At Par" at the respective column

- 4.10.2. In case work allotted to a contractor is not done in stipulated period, any increase in service tax, the additional expenses shall be borne by the contractor.
- 4.10.3 The contractor shall be responsible for transporting the materials, to be supplied by BSNL (at District Telecom Store) or otherwise to execute the work under the contract, to site at his/their own cost. The costs of transportation are subsumed in the standard Schedule Rates and therefore no separate charges are payable on this account. The offer shall be firm in Indian Rupees.
- 4.10.4 A bid submitted with an adjustable price quotation will be treated as non-responsive and rejected.

**4.11 PERIOD OF VALIDITY OF BIDS:**

Bid shall remain valid for **150 days** from date of opening of the bid (Qualifying Bid). **A BID VALID FOR A SHORTER PERIOD SHALL BE REJECTED BY BSNL AS NON-RESPONSIVE.**

- 4.11.1 The bid once accepted will be valid for **150 days** from the date of acceptance of the bid.
- 4.11.2 In exceptional circumstances, the BSNL may request the consent of the bidder for an extension to the period of bid validity. The request and the response there to shall be made in writing. The bid security provided under the clause 4.9.1 shall also be suitably extended. The bidder may refuse the request without forfeiting his bid security. A bidder accepting the request and granting extension will not be permitted to modify his bid.

**4.12 SIGNING OF BID:**

- 4.12.1 The bidder shall submit, his bid, typed or printed and all the pages numbered consecutively and shall be signed by the bidder or a person or persons duly authorized to bind the bidder to the contract. The letter of authorization shall be indicated by written power of attorney accompanying the bid. All pages of the original bid, except for un amended printed literature shall be signed by the person or persons signing the bid. The bids submitted shall be sealed properly..
- (Note: The tenderer is advised to keep a photocopy (at his own cost) of the bid documents for his own reference.)**
- 4.12.2 The bid shall contain no inter-lineation, erasures or overwriting except as necessary to correct errors made by the bidder in which case such corrections shall be signed with date by the person or persons signing the bid.

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**E. SUBMISSION OF BIDS:**

**4.13 SEALING AND MARKING OF BIDS**

**4.13.1. The bid shall be 'single stage bidding and Two envelope system'**

**4.13.2 In Single stage bidding & two envelopes system, the bidder shall submit his bid in two envelopes:**

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 1.6 of section I and clause 4.7 of section IV with Bid Security as per Clause 4.9.

The cover of **Second envelope** shall contain the original copy of the **Financial bid** as per the format at section XIV, duly marked 'FINANCIAL BID'.

Both the envelopes should be sealed separately and further kept in a single main envelope under the PERSONAL SEAL of the bidder.

**4.13.3 (a) The envelopes shall be addressed to the purchaser inviting the tender.**

**AGM (CC), BGTD, BSNL,  
2<sup>nd</sup> Floor, City Telephone Exch. Bldg.,  
4<sup>th</sup> Main Road, S. R. Nagar,  
Bangalore-560027**

**(b) The envelope shall bear the name of the tender, the tender number and the words 'DO NOT OPEN BEFORE' (01.03.2013 & 1400 hours).**

**(c) The inner and outer envelopes 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 (address is given in Clause 4.13.3(a) above). The responsibility for ensuring that the tenders are delivered in time would vest with the bidder. Bids delivered in person on the day of tender opening shall be delivered upto specified time & date as stated in NIT to AGM(CC). The purchaser shall not be responsible if the bids are delivered elsewhere.**

**(f) Venue of Tender Opening:**

Tenders will be opened in the office of AGM (CC), II floor, City Telephone Exchange Building, S.R.Nagar, Bangalore - 27.

If due to administrative reasons, the venue of Bid opening is changed, it will be displayed prominently in the office of AGM(CC), II floor, City Exchange Building, 4<sup>th</sup> Main, S.R.Nagar, Bangalore-27.

**4.13.4 If the both the envelopes are not sealed and marked as required at para 4.13, the bid shall be rejected.**

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Tender for laying OF cable by HDD/Open trench method and Splicing/Termination of OFC in BGTD for the year 2012-2013

4.13.5 The tenderer will be bound by all terms, conditions & specifications as detailed in the tender documents. Any tender with conditions other than those specified in the tender document is liable to be rejected. No modification by the contractor in any of the conditions will be permitted after the tender is opened.

#### **4.14. SUBMISSION OF BIDS**

4.14.1 Bids must be received by the Purchaser at the address specified under para 4.13.3 not later than time specified in NIT on due date.

4.14.2 The Purchaser may, at its discretion, extend this deadline for the submission of bids by amending the Bid Documents in accordance with clause 4.5 in which case all rights and obligations of the purchaser and bidders previously subject to the deadline will thereafter be subjected to the deadline as extended.

4.14.3 **Postponement of Tender Opening:** Whenever it is considered necessary to postpone the opening date of tenders, quick decision would be taken and communicated to the tenderers who have purchased the tender documents and shall be at least one day before the original date of opening. Such notice of extension of date of opening shall also be put up on the notice board and also published in the newspapers in which original NIT has been published.

4.14.4 **BSNL** if subsequently declares date fixed for opening of bids as holiday, the revised schedule will be notified. However, in absence of such notification, the bids will be opened on next working day, time and venue remaining unaltered.

**4.15 LATE BIDS:** Tenders will not be received after the specified date and time of closing of the tender and the same shall be **rejected and returned unopened to the bidder**. It is the sole responsibility of the bidder that he should ensure timely submission of bid.

#### **4.16 MODIFICATIONS AND WITHDRAWAL OF BIDS:**

4.16.1 Any bidder can modify or withdraw his bid after bid submission, provided that written notice of such modification or withdrawal is received by the designated officer prior to the deadline fixed for submission of the bid. (i.e. closure of tender box) .

4.16.2 The bidder modification or withdrawal notice should be prepared, sealed, marked and dispatched as required in the case of bid submission in accordance with the provision.

4.16.3 No bid shall be modified subsequent to the deadline for submission of bids.

#### **4.17 OPENING OF BIDS**

4.17.1 **The BSNL shall open bids in the presence of bidders or their authorized representatives who chose to attend, at time specified in NIT on due date. The bidder's representatives, who are present, shall sign in an attendance register. Authority letter to this effect shall be submitted by the bidders in format enclosed in section XI-A before they are allowed to participate in bid opening.**

4.17.2 Maximum of two representatives of a bidder shall be authorized and permitted to attend the bid opening.

4.17.3 Name of envelopes to be opened & information to be read out by Bid Opening Committee.

(i) In Single stage bidding & single envelope system; techno-commercial will be opened on the date and time of tender opening given in NIT.

(ii) In Single stage bidding & two envelopes system; the bids will be opened in 2 stages i.e. the techno-commercial bid shall be opened on the date and time of tender opening given in NIT. The financial bid will not be opened on the date and time of opening of techno commercial bids. In this case sealed financial bids will be handed over to DGM (CC), BGTD for retention.

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Thereafter the CET will evaluate Techno-commercial bids & the report of CET will be approved by competent authority.

The financial bids of those bidders who are approved to be techno-commercially compliant by the competent authority, will be opened by TOC in front of techno commercially eligible bidders / authorized representatives by sending them a suitable notice.

- (iii) The following information should be read out at the time of Techno-commercial bid opening:-
  - a) Name of the Bidder
  - b) Name of the item
  - c) EMD amount & validity and acceptability
  - d) Information in respect of eligibility of the bidder.
  - e) Details of bid modification/ withdrawal, if applicable.
- (iv) The following information should be read out at the time of Financial bid opening:-
  - a) Name of the Bidder
  - b) Name of the item
  - c) Quantities/prices quoted in the bid
  - d) Discount, if offered
  - e) Taxes & levies

4.17.4 The date fixed for opening of bids, if subsequently declared to be a holiday by the BSNL, the bids will be opened on the following working day, time and venue remaining unaltered unless the revised date of opening of bids is notified before opening of tender.

#### 4.18 CLARIFICATION OF BIDS BY BSNL:

To assist in examination, evaluation and comparison of bids, BSNL may, at its discretion ask the bidder for clarification of its bid. The request for its clarification and its response shall be in writing. However, no post bid clarification at the initiative of the bidder shall be entertained.

#### 4.19 PRELIMINARY EVALUATION:

4.19.1 BSNL shall evaluate the bids to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed and whether the bids are generally in order.

4.19.2 Arithmetical errors shall be rectified in the following basis. If there is discrepancy between the unit price and total price that is obtained multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected by the purchaser. If there is discrepancy between words and figures, the amount in words shall prevail. If the Contractor does not accept the correction of the errors, his bid shall be rejected.

4.19.3 Prior to the detailed evaluation, BSNL will determine the substantial responsiveness of each bid to the bid document. For purpose of these clauses a substantially responsive bid is one which conforms to all the terms and conditions of the bid documents without deviations. BSNL's determination of bid's responsiveness is to be based on the contents of the bid itself without recourse to extrinsic evidence.

4.19.4 A bid determined as substantially non responsive will be rejected by BSNL and shall not subsequent to the bid opening be made responsive by the bidder by correction of the non-conformity.

4.19.5 BSNL may waive any minor infirmity of non-conformity or irregularity in a bid which does not constitute a material deviation, provided such waiver does not prejudice or affect the relative ranking of the bidder.

#### 4.20 EVALUATION AND COMPARISON OF SUBSTANTIALLY RESPONSIVE BIDS;

4.20.1 BSNL shall evaluate in detail and compare the bids, previously determined to be substantially responsive.

4.20.2 The evaluation and comparison of responsive bids shall be on the percentage deviation (above/below/at par) offered and indicated in schedule of rates of the bid documents.

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4.20.3 The comparison shall be made on total amount quoted for the entire quantity of works mentioned as a package.

4.21 CONTACTING BSNL:

4.21.1 No bidder shall try to influence BSNL on any matter relating to its bid, from the time of bid opening till the time contract is awarded.

4.21.2 Any effort by the bidder to modify his bid or influence BSNL in BSNL's bid evaluation, bid comparison or the contract award decision shall result in the rejection of the bid.

**4.22 AWARD/PERIOD OF CONTRACT:**

4.22.1 BSNL shall consider award of contract only to those eligible bidders whose offers have been found technically, commercially and financially acceptable.

4.22.2 The work against the tender is for three months' requirement and the terms and conditions of this tender shall be operative for a period of three months from the date of signing of agreement between the department and the contractor.

**4.22.3 Selection Criteria**

4.22.3.1 Maximum 2 (Two) contractors are required for this work. However BSNL has got the discretion to allot additional contractors depending on the actual work requirement. Contractor will be selected from the technically qualified list based on their Financial Bid ranking. The successful contractors have to carry out the works in BGTD including rural SDCAs of BGTD.

4.22.3.2 Lowest, based on financial bid L-1, L-2 .....are financial rating of bidders in ascending order. L-1 is the lowest bidder.

4.22.3.3 L-1 Contractor will be allotted 70% of the work. L-2 bidder will be counter offered L-1 rates and he will get remaining 30% work. In case no. of contractors awarded is less than the requirement, BSNL has got the discretion to modify the above clause as per procurement manual guidelines during the period of contract. BGTD is having discretion to limit to L-1 if more than 1 bidder quoted same L-1 rate. In this case BGTD need not counter offer the L-1 rate to other technically qualified bidder and the work shall be equally allotted to all the qualified L1 bidders.

4.22.3.4 To reallocate the work keeping in principle subject to logistics and administrative convenience, percentage of work to be allotted to L-1 bidder and other bidders also varies depending on the no. of contractors awarded. Performance of the Contractor will be monitored during the execution of the works and accordingly further works will be awarded.

4.22.3.5 In case of rate quoted by multiple bidders is same, BSNL reserves the right to accept or reject any tender or all tenders and the right to refloat the tenders without assigning any reason. In case of acceptance of the tender, the tender period shall be restricted to three to four months and proportionate quantum of the work shall be equally awarded to all the bidders for the said period.

4.22.3.6 Principal General Manager, BSNL, Bangalore Telecom District reserves the right to accept or reject any tender or all tenders and the right to re float the tender without assigning any reasons. BSNL also does not bind itself to accept the lowest offer. BSNL also reserves the right to distribute the work and award the contract to any number of contractors, as and when required.

**4.23 BSNL'S RIGHT TO VARY QUANTUM OF WORK:**

(a) BSNL will have the right to increase or decrease up to 25% of the quantity of goods and services specified in the schedule of requirements without any change in the unit price or other terms & conditions at the time of award of contract.

(b) In exceptional situation where the requirement is of an emergent nature and it is necessary to ensure continued supplies from the existing vendors, the BSNL reserves the right to place the repeat order up to 50% of the quantities of goods and services contained in the running tender / contract within a period of twelve months from the earliest date of acceptance of APO/ LOI at the same rate or a rate negotiated (downwardly) with the existing vendors considering the reasonability of rates based on prevailing marketing conditions and the impact of reduction in duties and taxes etc.

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**4.24 BSNL'S RIGHT TO ACCEPT ANY BID AND TO REJECT ANY OR ALL THE BIDS:**

BSNL reserves the right to accept or reject any bid and to annul the bidding process and reject all bids, at any time prior to award of contract without assigning any reason what-so-ever and without thereby incurring any liability to the affected bidder or bidders on the grounds for the BSNL's action.

**4.25 ISSUE OF LETTER OF INTENT:**

4.25.1 The issue of letter of intent shall constitute the intention of BSNL to enter into the contract with the bidder. Letter of Intent will be issued as offer to the successful bidder.

4.25.2 The bidder shall give his acceptance along with **material security within 14 days** from the date of issue of Letter of Intent.

**4.26 SIGNING OF AGREEMENT:**

4.26.1 The signing of agreement shall constitute the award of contract on the bidder. The agreement with the successful bidder shall be signed by BSNL within a week of submission of material security.

4.26.2 As soon as the tender is approved by the competent authority, the Bid Security deposited by the successful bidder shall be compulsorily converted into the Performance security deposit, which will be held by BSNL till the completion of warranty period.

**4.27 ANNULMENT OF AWARD:**

Failure of the successful bidder to comply to sign the agreement as per clause 4.26 shall constitute sufficient ground for the annulment of the award and forfeiture of the bid security in which event, BSNL may make the award to any other bidder at the discretion of BSNL or call for new bids.

**4.28 THE PRINCIPAL GENERAL MANAGER RESERVES THE RIGHT:**

To place the contract with one or more contractors as he may think fit. To allot any work partially or fully as he chooses. To complete the work, company referred to in the contract to meet any emergency if he is satisfied that the contractor is not in a position to complete the work within the period required.

To split up the work and award it to a number of contractors by dividing it in any fashion that is considered necessary.

NOT TO OFFER THE ITEMS OF WORKS/SUPPLIES TO CONTRACTORS OR WITHDRAW CERTAIN ITEMS DURING THE CURRENCY OF THE TENDER.

To allow two or more works, simultaneously, to any one contractor.

The Principal General Manager may terminate this agreement at his option at any time giving 14 days (fourteen days) notice and that too without assigning any reason. In case of bad work, Principal General Manager may remove the same and have it replaced deducting the value of the work rejected or the cost of replacing the same, as he may think proper from any amount due to the Contractor making this tender.

In the event of any damages sustained by the company due to the unsatisfactory execution or delays in carrying out the work by the selected contractor the Principal General Manager, besides forfeiting the security deposit as referred, is entitled to recover the cost of damages. The Principal General Manager's decision shall be final. The Principal General Manager reserves to himself the right to forfeit the entire security deposit or such portion thereof he may think, for improper reinstatement of consolidation of the road cost made by the contractor.

The Contractor's heirs shall with the consent in writing of the Principal General Manager have the right to continue to perform the duties or engagements of the contract in case of death. In the event of the contractor with such consent as aforesaid, transferring his business and in the event of the contractor being a company and being wound up at any time during the period of this contract for the purpose and with the object of transferring its business to any person, persons or a company shall continue to perform the duties or engagements of the contractor under this contract and be subject to the liabilities there under.

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## SECTION V

### 5. GENERAL (COMMERCIAL) CONDITIONS OF THE CONTRACT

- 5.1 APPLICATION:** The General conditions shall apply in contracts made by BSNL for the execution of work of Trenching, HDD, laying Cables, Splicing and Reinstatement etc.,
- 5.2 STANDARDS:** The works to be executed under the Contract shall conform to the standards prescribed in the Optical Fibre Cable construction specifications.
- 5.3** Prices charged by the contractor for services provided under the contract shall not be higher than the prices quoted by the contractor in his bid. Price once fixed will remain same for the entire period of contract..
- 5.4 SUBCONTRACTS:** The contractor shall not assign, sub contract the whole or any part of the works covered by the contract, under any circumstances.
- 5.5 Security:**
- 5.5.1 Material Security:**
- 5.5.1.1 The successful bidder' will have to deposit Material Security of **Rs.2,00,000/-**(Rupees Two lakhs Only), in the form of Bank Guarantee (valid up to and including three months there after, the period of the contract) from a Scheduled Bank and in the Material Security Bond form provided in the Bid Document. Material Security can also be submitted in the form of Crossed Demand Draft drawn in favour of BSNL, BGTD issued by a Scheduled Bank and payable at Bangalore. The Material Security will be a non interest bearing deposit, for any period what so ever.
- 5.5.1.2 **The** contractor at any point of time will not be issued stores costing more than material security. If due to any reason more stores have to be issued to the contractor then the material security will be suitably enhanced. In this regard the decision of PGM, BSNL, BGTD shall be final and binding.
- 5.5.1.3 The proceeds of the material security shall be payable to the department as a compensation for any loss resulting from the contractor,s failure to handle properly the material issued to him under the contract.
- 5.5.1.4 The Material security shall be released/refunded within a fortnight from the date of the payment of the last final bill of the work under the contract or final settlement of material account whichever is later on production of the “no dues certificate” from “Engineer in charge”.
- 5.5.2 Performance Security:**
- 5.5.2.1 The contractor shall permit BSNL, at the time of making any payment to him for work done under the contract, to deduct such sum in addition to the sum already deposited as security deposit (due to conversion of bid security), an amount to the tune of **7.5 %** of running bills/final bill.
- 5.5.2.2 The proceeds of the performance security shall be payable to BSNL as compensation for any loss resulting from the contractor's failure to complete its obligations under the contract.
- 5.5.2.3 The performance security deposit shall be refunded after expiry of warranty period of last work executed provided there are no recoveries to be made arising out of poor quality of wo-rk, incomplete work and/or violation of any terms and conditions of the contract as stipulated in the bid document. The Security Deposit will not bear any interest. The Security Deposit shall not be returned to the Contractor(s) until a period of 12 months shall have elapsed after payment of the final bill for final work order, but a portion thereof may be refunded at the discretion of the Principal General Manager, if the performance of the contractor has been found satisfactory and the portion retained will be sufficient to cover any damage.
- 5.5.2.4 No interest will be paid to the contractor on the security deposit.
- 5.6 Issue of Work Orders & Time limit:**  
Time frame for carrying out the works  
The contractor is expected to carry out at least 200 mts of Trenching/HDD/ Cable laying at a stretch in a

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day. The survey of the full route is to be carried out for any underground utilities, in proposed route. This should be done at a rate of 1 Km per day.

The total time allowed to carry out the Construction work will be calculated as below.

Survey of Routes	-- 1 KM/ day
Permission from other govt agencies/BBMP/CMC/BDA and other agencies—	Maximum 30 days
Mobilisation of resources	-- 1 day
Trenching/HDD/Cable laying	-- 200 mts/ day

The contractor is expected to carry out either 2 joints/ 2 terminations per day .

The work order will be issued indicating the dates of commencement & completion of work as per the above time schedule. Work order should be issued indicating the quantum of such work in the route.

The Work order shall be issued by the AGM in-charge of cable construction works after examining the technical and planning details of the works to be executed.

If due to any reason partial work order is to be issued then the same shall be issued with the approval of an officer not below the rank of Area manager/DGM.

The AGM in charge shall mention the time limit to execute the work order after seeing the quantum of work and store available position.

BSNL reserves the right to cancel or modify the scope of work stipulated to be carried out against the work order in the event of change of plan necessitated on account of technical reasons or in the opinion of the work order issuing authority or the Area Manager/DGM, if the contractor is not executing the work at the required pace. The work order shall be issued so as to include all items of works for the section allotted to the contractor as put in the NIT.

Note: All contractors who desire to take up the work, which involves Road opening are advised to obtain the “ Reopening and Restoration protocol “ latest version from BBMP and study the same before submitting the tender. Compliance to the contents contained in the above document is MANDATORY

**WORK EXECUTION:** The work orders are issued by the respective AGM indicating the name of the work, route length, type of surface, width, and period allowed for completion of work, with indent for collection of stores/cables. The time allowed for completion is for complete activities like road cutting, trenching, cable /pipe laying refilling (with sand wherever required), permanent reinstatement and splicing and termination of OF cable.

The contractor shall keep sufficient labour force and required materials to carry out the work strictly within the stipulated period. The stipulated period is fixed as per the permission of BBMP/BDA/CMC. However subject to the actual field constraint situation if any the extension of the time will be allowed and there would be no scope for getting extension of time for delayed execution.

Delayed execution will not only attract imposing of penalty but also tell upon the performance of the contract, which may lead to termination of contract, without any further notice.

**Certificate of inspection/completion:**

Certificate from a TECHNICAL COMMITTEE consisting of (i) AGM-CC, (ii) SDE-CC, (iii) SDE-OFC RT MTCE, and (iv) AE-CIVIL for having re-instated for which the running bill has been prepared has to be submitted. The items rejected by the committee, are required to be redone at the cost of contractor immediately. Therefore the contractor shall keep the site engineer, always at the work spot, for interaction with the inspecting agency. All the concerned documents, permission letter, work order, indent etc. shall be made available by the contractor's site engineer to the inspecting agency, whenever required by them.

**5.7. EXTENSION OF THE TIME LIMIT:**

**5.7.1 GENERAL**

5.7.1.1 In each work order, the work order issuing authority shall specify the time allowed for completion of work consistent with the magnitude and urgency of work. The time allowed for carrying out the work is to be strictly observed by the contractor and shall be reckoned within 30 days from the date of issue of work order.

5.7.1.2 In as much as “ the time being deemed to be the essence of contract”, throughout the stipulated period of contract, the work is to be proceeded with all due diligence on the part of the contractor.

**5.7.2 Application for Extension of Time and Sanction of EOT:**

5.7.2.1 There may be some hindrances, other than covered under *force majeure*, while execution of work and in

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such cases the contractor shall apply in writing in the prescribed Form (Part- A) to the engineer-in-charge for the extension of time (EOT), on account of which he desires such extension within three days of occurrence of hindrance. The Engineer-in-charge shall forward the request to the competent authority (an officer of the rank of JAG level in-charge of cable construction work) with his detailed report and photocopy of the hindrance register, in the prescribed Form (Part-B) within three days of receipt of request from the contractor. The competent authority is empowered to grant extension of time for completion of work on certain conditions. He shall exercise such powers if the following conditions are satisfied.

- i) The application contains the ground(s), which hindered the contractor in execution of work.
  - ii) The Engineer-in-charge is of the opinion that the grounds shown for Extension of time are reasonable.
- 5.7.2.2 The competent authority shall consider the request keeping all the facts and circumstances in view and shall grant extension of time, if in his opinion, there are reasonable and sufficient grounds for granting such extension and the reasons for delay are not ascribable to the contractor.
- 5.7.2.3 The competent authority may also grant extension of time for completion of work in cases where reasons for delay are ascribable to the contractor, but such extension of time shall be with LD charges as per clause dealing with penalty for delays in execution of works. The extension of time with LD charges shall be issued under the signature of JAG level Telecom Officer competent to grant the extension of time.
- 5.7.2.4 The competent authority shall grant EOT with time period for completion of work expressly mentioned. The sanction of the competent Authority of EOT shall be issued under the signature of the Engineer in-charge.
- 5.7.2.5 If the competent authority is of the opinion that the grounds shown by the contractors are not reasonable and sufficient and declines to grant the extension of time, the contractor cannot challenge the soundness of the opinion by reference to arbitration. The decision of the competent authority on period of extension of time or refusal for extension of time shall be final and binding on the contractor.
- 5.7.2.6 Completion of work shall be strictly be adhered to the time allotted, in unforeseen situation/constraint/ground reality , the EOT shall be granted by DGM CC after carrying out the actual survey of the routes/works sites. and any EOT granted more than 3<sup>rd</sup> time shall attract LD charges @1% of the amount against the said works .
- 5.7.3 **Grant of Extension of Time without Applications:**  
There are, at times, practical difficulties like non-availability of materials, delay in getting permissions/right of way etc. reasons of which are ascribable to the department. In such cases, the engineer in-charge with the approval of competent authority to sanction EOT, may issue extension of time *suo moto* without waiting for contractor to make an application for EOT. Entry of hindrances shall be made in the Hindrance Register. BSNL will however, not be liable to the contractor for any losses or damages, costs, or expenses that the contractor may in any way sustain/suffer due to delay in making the above available.
- 5.7.4 Completion of work shall be strictly be adhered to the time allotted. In unforeseen situation/ constraint, the EOT shall be granted by DGM CC after carrying out the actual survey of the routes/works sites.

## **5.8. Measurement, Inspection, Testing and Acceptance Testing**

### **5.8.1 Measurement:**

- 5.8.1.1 The measurement is to be maintained by the officer in charge of the work or his immediate engineering subordinate not below the rank of Junior Telecom Officer. The entry shall be made in ink. No entry shall be erased. If a mistake is made, it should be corrected by crossing out the incorrect words or figures and inserting the corrections, the corrections thus made shall be initialed & dated by the officer concerned
- 5.8.1.2 **Responsibility of taking and recording measurements:** The measurement of various items of work shall be taken and recorded in the measurement book issued with each work order. The measurement shall be taken and recorded by an officer not below the rank of Junior Telecom Officer, supervising the work. The Junior Telecom Officer/ Sub Divisional Engineer directly responsible for supervision of work shall be responsible for accuracy of 100% of measurements. The AGM where Junior Telecom Officer is supervising officer shall be responsible for conducting test check of 50% of measurements. The AGM shall be responsible for conducting test check of 10% of measurements.

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5.8.1.3 **Method of recording of nomenclature of items:** Complete nomenclature of items, as given in the agreement need not be reproduced in the measurement book for recording the measurements, but corresponding Item Code as provided, shall be used.

5.8.1.4 **Method of measurements:** The measurements of the work shall be done for activity-wise as and when the item of work is ready for measurement. The method of measurement of various items are enumerated as under:

**Measurement of depth of trenches:** The cable routes of one work order shall be divided into a number of segments each of maximum 200 meters length bounded by identifiable landmarks at both the ends of the segments. If landmarks are not available, length of segment may be maintained at 200 meters. The measurement of depth shall be recorded at each point of measurement (POM) in the measurement book in meters in the multiples of 5cms. For example, 97cms will be recorded as 95cms and 103cms as 105cms. The points of measurements shall be at a distance of 10 meters starting from 0 (zero) meter. For example, if the length of segment is 75 meters, the POMs shall be at 0M, 10M, 20M, 30M, 40M, 50M, 60M, and 70M. The last POM shall be at 75<sup>th</sup> M to be recorded against Residual POM. For each segment average depth shall be worked out by dividing the total depth by number of POMs. The measurements of depth shall be recorded in the measurement book.

5.8.1.5 **Trench of less Depth:**

**Relaxation and Competent Authorities to Grant Relaxation:**

The depth of trench is very important for future life of cables. Therefore, contractor is **obligated** to ensure that the standard depth is maintained in normal circumstances. The efforts required to excavate trenches is not proportionate especially with reference to depth. Therefore, normally the workers tend to dig shallow trenches. As standard depth of the trench is important for future life and protection of cables, this tendency has to be discouraged. In order to encourage the contractor to achieve best possible depth in the face of site constraints, the following scale of payment shall be applied for digging trenches of lesser depths, subject to condition that relaxation has been granted by the competent authority for lesser depths. If for any reason, the required depth can not be reached and the competent authority is satisfied with the reasons for not achieving the full depth then the payment will be regulated as follows, where more standard width and more depth are required to be done by the contractor, the rates proportionate, which will be decided by the DGM/AM concerned. After digging, the trenches have to be made clear of boulders and other materials and a smooth bed is to be made available for laying cables.

5.8.1.6 However, due to obstructions, if the standard depth cannot be achieved, lower depth up to certain limits are acceptable by the authorities as prescribed below with extra protection as per specifications. The relaxation by the competent authority prescribed below shall be obtained giving reasons for not achieving standard depth.

<b>Depth slab</b>	<b>Powers delegated for depth Relaxation</b>
<165 Cms to $\geq$ 150 Cms	Depth relaxation not required
<150 Cms to $\geq$ 130 Cms	AGM
<130 Cms to $\geq$ 90 Cms	DGM
<90 Cms to $\geq$ 60 Cms	GM
<60 Cms to $\geq$ 30 Cms	PGM/CGM
<30 Cms	Not permitted.

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- i. In case depth achieved falls under different depth slabs as per the depth slab clause 5.8.1.6, a separate application shall be submitted to the respective competent authority for granting of depth relaxation.
- ii. The competent authority for depth relaxation as per the above depth slab shall inspect/or authorize to inspect the routes/ locations/segment of the routes and enter inspection remarks in the prescribed format at Part C of **Section VIII**.

5.8.1.7 The rates payable for the work of shallow –depth as acceptable by DGM/AM/GM, concerned shall be as follows.

**Optical Fibre Cable: - Standard Depth 1.65 meter (All kinds of soil)**

Depth between	% Reduction in rates (ROR)	Amount payable (P)
<165 Cms to $\geq$ 150 Cms	5% of RA (approved rates)	95% of the approved rates
<150 Cms to $\geq$ 130 Cms	12.5% of RA (approved rates)	87.5% of the approved rates
<130 Cms to $\geq$ 100 Cms	25% of RA (approved rates)	75% of the approved rates
Below 100 cms.	40% of RA (approved rates)	60% of the approved rates

**5.8.1.7.1 OFC Standard Depth 1.65 m:** Assuming that the standard depth required is 165 cms and the rate approved is Rs.100/- for the standard depth, then as per the above table, the rate reduction for other than 165 cms nominal depth shall be worked out as:

P = Amount Payable per meter.

ROR = Reduction in rate in %, as applicable, as per table given above.

RA = Rate approved per meter

Note: Sample Calculation:

If slab is <165 Cms to  $\geq$ 150 Cms and RA = Rs 100/- , then ROR = 5%

Therefore P= (100-5) % \* 100 = Rs 95/-

**Measurement of Lengths and Profiles of strata and protection.** The measurements of length of trenches are on running meter basis, irrespective of type of soil encountered while digging. The type of protection provided (item code-wise) in a segment shall be recorded in the measurement book in the sheet provided for this purpose.

**Measurement of length of cable:** The length of cables laid in trenches, through pipes and through ducts shall be measured by using RODO Meter/ measuring tape. The length should be cross verified with the marking of length on the cables. The lengths shall be recorded in sheet provided in the measurement book.

**Measurement of other items:** The measurement/numerical details of other items shall be recorded in the sheets provided for respective items, viz., Digging of joint pit and preparation of joint chamber along with its type i.e. Brick chamber or Pre Cast RCC type. Fixing, Painting and sign writing of route/joint indicator, termination of Cable in equipment room and number of joints, erection and sign writing of FDMS/FDF.

5.8.1.8 The contractor shall sign all the measurements recorded in the Measurement Book. This will be considered as an acceptance by the contractor of measurement recorded in the MB. In case contractor fails to attend at the measurement or fails to countersign or to record the difference within a week, then in any such events, the measurements taken by Engineer -in-charge or by the subordinate as the case may be shall be final and binding on the contractor and the contractor shall have no right to dispute the same.

5.8.1.9 AGM shall carry out test check by re-opening trench at as many locations as necessary as specified in the document ‘procedure for Optical Fibre Cable construction’ and bills will be passed only when he is personally satisfied of the correctness of the entries in the “Measurement Book” and also when he is

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satisfied of other aspects of the work as per the terms of the contract. The Contractor shall provide the necessary assistance of labour for re-opening of trench for test check by the AGM. Separate payment shall not be made to the contractor for excavation of such test checks. However, such test pits shall not be more than 10% of the cable laying work.

5.8.1.10 Measurement of work of cable pulling through Pipe/duct will be taken to the actual length of the cable which has been pulled.

5.8.1.11 The Measurement is to be maintained by the officer in charge of the work but not below the rank Junior Telecom Officer. The following Measurements are to be recorded in a register for each work order.

1. Number of OF Cable (12F/24F/48F/96F) Terminations in Exchanges

2. Number of OF Cable (12F/24F/48F/96F) Joints in the Field

3. The number of FDMS Exge Racks /FDFs Installed.

4. The number of OFC routes Acceptance Tested

The Junior Telecom Officer/Sub Divisional Engineer directly responsible for supervision of work shall be responsible for 100% accuracy of measurements. The Sub Divisional Engineer where Junior Telecom Officer is supervising officer shall be responsible for conducting test check of 50% of measurements. The AGM shall be responsible for conducting test check of 10% of measurements.

#### **5.8.2. INSPECTION AND QUALITY CONTROL:**

5.8.2.1 **The Quality of works:** The importance of quality of Cable Construction works cannot be over-emphasized. The quality and availability of long distance media and telecom service and efficiency of the reliable media connectivity of exchanges depends up on quality of laying of OF Cable. Further, the OF cables vulnerable to damages due to work of other agencies.

5.8.2.2 The quality of O.F cable plant depends upon the quality of individual items of work involved viz. Depth of cables laid, care while pulling & laying. Protection, Jointing of cables and Termination in equipment room FDMS/FDF and at last but not the least on documentation of cable networks. In order to ensure quality in Cable Construction work, each component of work needs attention. The works shall be carried out strictly in accordance with specifications laid down to achieve the requisite quality aim.

5.8.2.3 It is imperative that the contractors are fully conversant with the construction practices and shall be fully equipped to carry out the work in accordance with specification. The contractors are expected and bound to ensure quality in construction works in accordance with specifications laid down. The contractor shall engage adequate and experienced supervisors to ensure that works are carried out as per specifications and with due diligence and in a professional manner. The contractors shall satisfy himself/themselves that the work conforms to the quality specification before offering the same to A/T wing for Acceptance and Testing.

5.8.2.4 An assessment of extent of interest shown by the contractors in executing the works with requisite quality shall be recorded and used in evaluating the Contractors' Performance Rating (CPR).

5.8.2.5. The works shall be carried out strictly in accordance with specifications laid down to achieve the requisite quality aim. This will require close cooperation and coordination among three sub agencies namely (1) The Constructions Officers (i.e. the engineer –In-charge and staff/officers working under him/ her supervising the work) (2) The Contractor (3) The Acceptance and testing Wing of the Department. All the three sub agencies shall have distinctly defined functions and interrelationships.

Broadly they are outlined as under:

Quality control responsibilities of Construction Officers: The construction officers are directly responsible for ensuring proper control of the quality of the work in accordance with specifications. They shall also be responsible for ensuring the materials duly approved by the competent authority are used in the works. The construction officers shall ensure that defects are immediately brought to the notice of contractors so that the same can be rectified without any loss of anytime.

5.8.2.6 In addition to acceptance testing being carried out by A.T wing and supervision by Construction Officers, all works at all times shall be opened to inspection of the department. The contractor shall be bound, if called upon to do so, the works for inspection without any extra payment.

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5.8.2.7 **Site Order Book:** The site order book is one of the primary records to be maintained by the JTO/SDE supervising the work during the course of execution of works. The noting made by officers as well as contractors, will form as basis for operations of many contractual clauses. The site order book is to be maintained in the prescribed format. The contractor or their authorised representatives shall also be at liberty to note their difficulties in these books. The site order books shall invariably be consulted at the time of making final payments to the contractor.

**5.8.3 Accepting Testing – Trench Depth (other than HDD works)**

5.8.3.1 The work shall be deemed to have been completed only after the A.T. Officer has accepted the same. The contractor shall make test pits at the locations desired by A.T. Officer for conducting test checks without any extra payment. The contractor shall restore the pits after test measurements to its original shape. The contractor shall be responsible to provide test measurements tools and testers for conducting various tests.

5.8.3.2 **Scope of Acceptance and Testing:** The purpose of acceptance and testing is to verify integrity of measurements and quality of work done. The A.T. Officer shall not be responsible for recording of measurements for the purpose of billing and contractual obligations. However, if the measurements taking by A.T. Officer are found to be lesser than the measurements recorded by the officer responsible for recording the measurements, the measurements taken by A.T. Officer shall prevail without prejudice to any punitive action against the contractor as per provisions of the contract and the officer recording the measurements. The contractor shall be obligated to remove defects/deficiencies pointed out by the A.T. Officer without any additional cost to BSNL.

5.8.3.3 **Offering the work for acceptance and testing:** The Sub Divisional Engineer responsible for construction, after having satisfied himself of completion of work ready for A.T., shall offer the work to A.T. Officer for conducting Acceptance Testing. The work shall be offered for A.T. as soon as part of work is complete in all respects. The work against any work order can be offered for A.T. in a number of stages.

5.8.3.4 The contractor shall provide labour, if demanded by the A/T officer for digging of test pits and other necessary infrastructure for carrying out the A/T work. No extra payment will be made for the digging of test pits.

**5.8.3.5 Acceptance Testing- Fiber**

The work shall be deemed to have been completed only after the A.T. Officer has accepted the same. The contractor shall make staff/supervisory officers available to the exchange/termination locations with all the details/documents of OFC cable in route splicing, termination details in FDMS/FDF. The Contractor shall be responsible for providing necessary tools/measuring instruments required for splicing and testing of the cable at site.

5.8.3.6 The Sub Divisional Engineer is responsible for pulling of OF cable, splicing, termination of cable in FDMS/FDF in exchange/ end termination locations, and OFC offset diagram documentation and after having satisfied himself of completion of work ready for A.T., shall offer the work to A.T. Officer for conducting Acceptance Testing. The work shall be offered for A.T after the end to end completion of cable laying, termination works and end to end continuity of all the fibers is ensured.

5.8.3.7 The contractor shall provide labour, if demanded by the A/T officer for digging of test pits and other necessary infrastructure for carrying out the A/T work. No extra payment will be made for the digging of test pits.

5.8.3.8 For providing OF connectivity to the apartments for FTTH connections the fibres shall be terminated in one central location and further distribution of cable to be done to the multiple blocks. In such cases one acceptance test has to be conducted for the entire works carried for the apartment.

**5.9 WARRANTY**

5.9.1 The contractor shall warrant that the material supplied for the work shall be new and free from all defects and faults in material, workmanship and manufacture and shall be of the highest grade and consistent with the established and generally accepted standards for materials of the type ordered and shall perform in full conformity with the specifications and drawings. The contractor shall be responsible for any defects that may develop under the conditions provided by the contract and under proper use, arising from faulty materials,

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design or workmanship such as corrosion of the equipment, inadequate quantity of materials etc. and shall remedy such defects at his own cost when called upon to do so by BSNL who shall state in writing in what respect the stores are faulty. This warranty shall survive inspection or payment for, and acceptance of goods, but shall expire except in respect of complaints notified prior to such date, twelve months after the AT

- 5.9.2 If it becomes necessary for the contractor to replace or renew any defective portion/portions of the materials under this clause, the provisions of the clause shall apply to the portion/portions material so replaced or renewed or until the end of the above mentioned period of twelve months, whichever may be later. If any defect is not remedied within a reasonable time as prescribed by the department, the department may proceed to do the work at the contractors risk and costs, but without prejudice to any other rights which BSNL may have against the contractor in respect of such defects.
- 5.9.3 The Cable joint shall be guaranteed for a period of ONE year from the date of closing of joint. In case of failure of the joint due to poor workmanship, i.e. without external damage with in the stipulated period of guarantee the contractor shall repair the joints at his own cost within 24 hours of informing him, failing which the department may carry out the repairs and penalty equivalent to five times of the approved rate of the jointing works plus the cost of material. The cost of jointing kit, supplied by the department, so used to revive the joint shall be deducted from the running bills of the contractor pending for payment or from security if all bills have been settled.

5.9.4 Replacement under warranty clause shall be made by the contractor free of all charges at site including freight, insurance, cost of works and other incidental charges.

#### 5.10 **AUDIT AND TECHNICAL EXAMINATION:**

- 5.10.1 BSNL shall have the right to cause an audit and technical 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 overpayment and it shall be lawful for BSNL to recover the same from him, or in any other manner legally permissible and if it is found that the contractor was paid less than what was due to him under the contract in respect of any work executed by him under it, the amount of such under payment shall be duly paid by BSNL to the contractor.
- 5.10.2 Provided that BSNL shall be entitled to recover any sum overpaid, or the contractor shall be entitled to payment of any sum paid short where such payment have been agreed upon between the AGM or his subordinate officer on one hand and the contractor on the other hand, under any term of the contract permitting payment for work after assessment by the PGM, BGTD or his subordinate officer.
- 5.10.3 Any sum of money due and payable to the contractor (including security deposit refundable to him) under this contract may be appropriated by BSNL for the payment of a sum of money arising out or under any other contract made by the contractor with BSNL.

#### 5.11 **PAYMENT TERMS**

##### 5.11.1 **Procedure for Preparation and Settlement of Bills**

The work order shall contain work of one or more OFC works. All items of work involved in the work order shall be completed in all respects before preparing the bills for the work. The provision of running bill has been made to make it easy for the contractor to manage his cash flow and to complete the work systematically and meaningfully in a shortest possible time. The procedure for preparation of running and final bills is enumerated as under.

##### 5.11.2 **Procedure for Preparation, Processing and Payment of Running bills:**

The Contractor shall prepare the running bills in triplicate ensuring execution of part work in its completeness as envisaged above, correctness of rates and quantum of work and submit the bills to S.D.E. in-charge of work. The bills shall be prepared accurately and as per measurements recorded in the measurement book. The S.D.E. in-charge shall record the certificate on the running bill that the site order books have been consulted before signing the running bills. This would enable the S.D.E. to ensure whether the defects pointed during execution have been rectified or not. The S.D.E. in-charge of work shall scrutinize

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the bills and accord necessary certificates and submit the running bills with the documents as mentioned below to the AGM, in-charge of work.

- i. First copy of bill along with measurement book, depth A/T reports, and cable/Fibre termination and / continuity test report (in case of cable pulling) by CC team SDE in –charge (**Payable Copy**)
- ii. Second and third copy of bill along with copy of depth A/T report and termination and continuity test of the cable for office record (**Not for Payment**)

5.11.2.1 The AGM shall exercise the prescribed checks on the bills and accord necessary certificates on the bills. The AGM shall retain the third copy in record and record it in the estimate file maintained in his office and send first and second copies with all documents to works Section of the Planning Cell for processing of bills and release of payment.

5.11.2.2 The work section of the plan finance cell shall process the bills in estimate file of the concerned work and scrutinize the bills vis-à-vis work order issued, sanctioned provisions in the estimate etc. The bill shall be passed, after necessary scrutiny by works section, by the officer competent to pass the bill. Against any running bill, payment to the extent of only 80% shall be made which shall be treated as an advance to the contractor. 7.5% of the bill amount towards Performance Security Deposit and statutory taxes applicable to contract shall be deducted at the time of payment of bill. Account payee cheque for the amount passed in the bill will be issued only after the contractor gives a stamped receipt for the amount, if the bills are not pre-receipted. Details of payment of all the bills shall be entered into contract's ledger by Work Section of the Planning Cell.

5.11.2.3 **Bill payment through Electronic Clearance Scheme**

The payment of bill will be allowed only for full completion of work as per the work order. For More than 2000 mts of work there will be multiple work orders.

All the payments shall be made through ECS (**Electronic Clearance Scheme**) only. The contractors should submit the mandate form for this purpose along with the agreement while entering into the contract. The payment for partial completion of work will be allowed only when the work order is for 1000 meters & above. The invoices/bills shall be super scribed as "1<sup>st</sup> running bill", "2<sup>nd</sup> running bill" till the quantity of the work is completed for each work order. The last bill may be furnished as "last and final bill". For payment for each partial bill, only 80% of the bill amount shall be passed after doing all deductions, the balance 20% of which shall be passed with full completion of work in all respect along with AT certificate. In exceptional cases where work required for preparing Running Bill can not be completed within reasonable time due to non-availability of stores or any other reason and where the department is reasonable for delay, the concerned DGM may permit payment of running bill (prepared without completing the work end to end for that unit of work) to the extent of 70% so that the contractor does not face resource crunch. Such payment shall be treated as an advance payment to the contractor like any other running bills.

5.11.3 **Procedure for preparation, processing and payment of final bill:**

5.11.3.1 The contractor shall prepare the final bill in triplicate after completion of the entire work entrusted against the work order & actual servicing of the route and acceptance and route testing of all the works and submit to S.D.E- in- charge of work within 30 (Thirty) days of acceptance and testing and payment shall be made within one month.

The final bill shall be prepared for all the measurements of all items involved in execution of complete work order. The Contractor shall prepare the final bill containing the following details:

- 1 The bill for all the quantities as per Measurements at the Approved Rate
- 2 Adjustment of amount received against all the work orders for that specific rate
- 3 Adjustment of Performance Security Deposit and Statutory Taxes already recovered
- 4 Store reconciliation statement furnishing account of stores received against the Work Order and returned to the designated Store Go down as surplus with requisite verification from store in-charge/S.D.E in-charge of work.
- 5 Letters of grant of E.O.T(s) if work could not be completed within stipulated time
- 6 Six sets of bound documentation, with Soft Copy

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**5.11.3.2 The following recoveries shall be affected from every bill**

1. **Performance Security Deposit at 7.5% of the value of work done**
2. **Income Tax.**
3. **Works contract Tax**
4. **Any other charges towards loss, theft and liquidity damages.**
5. **1% of bill amount towards cess to the state government.**

5.11.3.4 The S.D.E in –charge of work shall scrutinize the work order bill against the works entrusted and accord necessary certificate stating that the work has been executed satisfactory in accordance with specification and terms and conditions of contract. The S.D.E shall verify the quantities of items of work with reference to measurements recorded in the measurement book (and also A/T reports in case of any deviations noted by A/T officer). The S.D.E in-charge of work shall submit the final bills along with other documents mentioned above, with the documents as mentioned hereunder to the AGM, in-charge of work.

- Bill prepared by the contractor.
- Material reconciliation statement.
- Measurement book.
- A/T Certificates.
- The site order registers.
- Details of recoveries/penalties for delays, damages to BSNL / Third party properties as per provisions of the contract. In case no recovery is to be made, **NIL** report needs to be submitted.
- Details of empty cable drums cost of which needs to be recovered from the bill if any.
- The contractor may use Form ACE-18 to prepare his bills. But the bills prepared by him in his own forms etc., may be accepted provided they comply with the following conditions:
  - i. The bills are submitted in quadruplicate, all being signed on revenue stamp by the contractor.
  - ii. The copies may be marked as original, duplicate etc.
  - iii. Details of quantity and nature of each item of work done as well as the approved rates are given.
  - iv. Copy of work order cum completion certificate.
  - v. A/T clearance certificate along with the part work order bill.
  - vi. A certificate with running bill signed by concerned SDEs, counter signed by concerned AGMs that after ramming extra material has been transported and dumped at authorized dumping ground.
  - vii. All the invoices and receipts for the payment of completed work when executed by a firm must be signed by all partners except where the contractors are described in their tender as a firm in which case the receipt or invoices may be signed by one of the authorized partner in the name of the firm.
  - viii. All the partners or Managing Partner can nominate a representative to sign the receipt or invoices.

5.11.3.5 The AGM shall exercise the prescribed checks on the bills and accord necessary certificates on the bills. The AGM shall retain the third copy of the bill along with photocopies of other documents in his estimate file and send first and second copies of the bill, measurement book and other documents submitted by S.D.E along with the bills as above to the concerned section for processing the final payment.

5.11.3.6 The office cell dealing with bills shall process the bills in the estimate file of the concerned work and scrutinize the bills vis-à-vis work order issued, sanctioned provisions in the estimate etc. The office cell shall also scrutinize the bill to recover all the liabilities of the contractor and statutory taxes besides 7.5% payments against security deposit. The bill shall be passed, after necessary scrutiny by Works Section, by the officer competent to pass the final bill.

**5.11.4 PROCEDURE FOR PAYMENT FOR SUB STANDARD WORKS**

The contractors are required to execute all works satisfactorily and in accordance with the specifications. If certain items of works are executed with unsound, imperfect, or unskilled workmanship or with materials of any inferior description or that any materials or articles provided by him for execution of work are unsound or of a quality inferior to that contracted for or otherwise, not in accordance with the contract (referred to as sub-standard work, here in after), the AGM In-charge shall make a demand in writing specifying the work, materials or articles about which there is a complaint.

**5.11.5 Timely action by Construction Officers:**

Timely reporting and action, to a great extent, can prevent occurrence of sub standard work, which will be difficult or impossible to rectify later on. It is incumbent on the part of Construction Officers to point out

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the defects in work in time during progress of work. The Junior Telecom Officer/ Sub Divisional Engineer responsible for execution and supervision of work shall without any loss of time submit a report of occurrence of any substandard work to the AGM in-charge besides making an entry in the site order book. A notice in respect of defective work shall be given to the contractor by AGM in-charge in writing during the progress of work asking the contractor to rectify/replace/remove the substandard item of work and also definite time period within which such rectification/removal/replacement has to be done. After expiry of notice period, if the contractor fails to rectify/replace/remove the substandard items, the defect shall be got rectified/replaced/removed departmentally or through some other agency at the risk and cost of the contractor.

5.11.5.1 Non reporting of substandard work in time on the part of the Construction Officers shall not in any way entitle the contractor to claim that the defects were not pointed out during execution and as such the contractor cannot be absolved of the responsibility for substandard work or associated liabilities.

**5.11.5.2 Authority and Procedure to accept substandard work and payment thereof:-**

There may be certain items of work pointed out as substandard which may be difficult to rectify and in the opinion of PGM, BGTD, the items in question will not materially deteriorate the quality of service provided by the construction, the PGM, BGTD shall appoint committee to work out the reduced rates payable to the contractor for such substandard work. The committee shall constitute one AGM other than the one who is directly in-charge of Cable Construction involving substandard items of work, as Chairman and one S.D.E (Planning) and an Accounts Officer, as members. The committee shall take into account; the approximate cost of materials/work pointed out as substandard and recommend the rates payable to such substandard work which shall not exceed 60% of the approved rates of the items in question.

5.11.6 **Record of substandard work:** The items adjudged as substandard shall be entered into the measurement with red-ink.

**5.12 DISPOSAL OF EMPTY CABLE DRUMS**

5.12.1 The contractor shall be responsible to dispose off the empty cable drums after laying of the cable. The competent authority taking into account the prevailing market rates has fixed the cost of Cables of various sizes of cable drums. The cost of empty cable drums shall be deducted from the bill for the work on which the cable along with the drums has been issued or any other amount due to the contractor or from security deposit.

5.12.2 Rates fixed for cable drums are given in Tender Document XIB (Qualifying Bid). The rates are fixed and there is no percentage above or below applicable on these rates.

5.12.3 The contractor shall be responsible for the accounting of the cable drums issued and shall mention the number and types of cable drums in the bill so that the amount is deducted from the bills due.

5.12.4 The contractor shall not be allowed to dump the empty cable drums in Govt /Public place, which may cause inconvenience to Govt /Public. If the contractor does not dispose off the empty cable drums within 3 days of becoming empty, the department is at liberty to dispose off the drums in any manner deemed fit and recover the amount fixed in this contract for empty cable drums and recover double the amount fixed in this contract for empty cable drum charges from the bill / security deposit or any other amount due to the contractor.

**5.13 PENALTY CLAUSE:**

**5.13.1 DELAYS IN THE CONTRACTORS PERFORMANCE**

5.13.1.1 The time allowed for completion of the work as entered in the tender shall be strictly adhered to 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 7<sup>th</sup> (Seventh) day of the issue of work order 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 1%(one percent) of the amount, minimum Rs 1000/-(Rupees One Thousand Only) per week of the incomplete work, for every one week of delay in completion of work, subject to a maximum of 10%(ten percent) of the cost of the awarded works against the work order.

5.13.1.2 On any date, the penalty payable as above, reaches 10% (ten percent) of the estimated cost of the work

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against the particular work order; contractor should proceed with the work further only on getting a written instruction from the AGM that, he is allowed to proceed further with the work. It will be in the discretion of the AGM to allow the contractor to continue with the work on the basis of any written agreement reached between the contractor and the AGM 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 AGM and the contractor.

- 5.13.1.3 Penalty for delay in completion 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. However, adjustment from security deposit will be made only when the contract has been terminated or at the time of final settlement of bills on completion of work.
- 5.13.1.4 In case of slow progress of the work in a section which have been awarded to a particular contractor, and the public interest does not permit extension of time limit for completion of the work, PGM, BGTD will have the full right to order that the scope of the contractor may be restricted to such fraction of the whole of the work and get the balance executed at the risk and cost of the contractor. The details are given in Rescission of the contract clause of the bid document. All such payments shall be recovered from the contractor's pending bills or security deposit.
- 5.13.1.5 PGM, BGTD reserves the right to cancel the contract and forfeit the security deposit if the contractor fails to commence the work within 33(thirty three) days after issue of the work order.

**5.13.1.6 Penalty for other delays:**

Time is the essence of contract. The period of completion mentioned in the permission letter of BBMP/BDA/CMC or in the work order of BGTD shall be, for all the activities of a specified job eg. trenching, cable/pipe laying, refilling & final reinstatement shall be strictly followed. If the contractor fails to complete the work, within the stipulated period, he shall be liable to pay compensation as below.

Where excavation in the property of BBMP/BDA/CMC is involved

Road Category	Road width	Penalty for late completion, Rupees per meter per day of delay
A	Above 15 m	Rs.10/-
B	Between 7.5 m & 15 m	Rs.06/-
C	Less than 7.5 m	Rs.05/-

The decision of the A.G.M. concerned shall be final and the amount of penalty shall be recovered from any of the due amount/bills of the contractor. This is in addition to any other penal action proposed elsewhere in the contract.

**NOTE:** For this purpose a record of delays will be kept in a register called "Register of delays" and all the entries should be signed by SDE/JTO and Contractor during the period of execution.

**5.13.1.7 PENALTY FOR BAD WORKMANSHIP (In Case of Final Reinstatement)**

The quality of work executed, shall be as per prescribed technical- specifications. The work of sub standard-quality noticed during execution or during the period of one year, from the date of completion, has to be made good by the contractor, at his own cost. Failing to attend the defective work by the contractor, BGTD shall be at liberty to carry out the noticed defective work and to recover the cost from the contractor, from any bills due & payable to him including performance security deposit. The works of final reinstatement of BBMP/BDA/CMC have to be executed strictly as per technical specifications of BBMP/BDA/CMC. All such works are liable for inspection either by BBMP/BDA/CMC authorities or any independent agency authorized by BBMP/BDA/CMC. The contractor is liable to take immediate remedial/rectification action, as pointed out by the inspection authority, at his own cost, and offer the works for inspection again. If the works offered for second inspection, are rejected by the inspecting agency, the contractor shall be liable to pay penalty as follows.

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Road Category	Road width	Penalty for rejection on 2 <sup>nd</sup> Inspection per Meter of Reinstatement.
A	Above 15 m	Rs.20/-
B	Between 7.5 m & 15 m	Rs.15/-
C	Less than 7.5 m	Rs.12/-

The amount of penalty shall be recovered from any bills/amount due to the contractor( including performance security deposit). If the contractor fails to redress the trench properly i.e., **ramming and consolidation** of the trench as per procedure mentioned in the technical specification and removing of surplus earth within 48 hours of the completion of the work, then a **penalty of 20% of the charge for excavation of trenching** against the work order of the particular work shall be recovered straightway from the bill.

**5.14 Penalty for causing inconvenience to the public:**

- 5.14.1 To ensure progress during the execution of work and to cause minimum inconvenience to the public, the contractor shall not dig a trench of more than 200 meters at a stretch in a route at a time. He shall cause to lay cable and close such trenches expeditiously. Under any circumstances a stretch of trench of maximum 200 meters shall not be kept open for more than 4(four) days in case of cable laying by digging paved surfaces. In the event of contractor failing to comply with these conditions, a penalty of recovery up to Rs300 /- (Rupees Three Hundred only) per day the trench is kept open beyond the time limit allowed may be imposed by BSNL . This penalty will be in addition to that payable for delay or slow work.
- 5.14.2 The contractor shall not be allowed to dump the empty cable drums/waste materials in Govt /public place, which may cause inconvenience to Govt /Public. If the contractor does not dispose off the empty cable drums/waste materials within 3 (three) days of becoming empty, the department is at liberty to dispose off the drums in any manner deemed fit and recover double the amount fixed in this contract for empty cable drums / waste materials from the bill/ security deposit.
- 5.14.3 If any such penalty is levied on a contractor for more than 2(Two) occasions, then his/her contract could be terminated. In this regard the decision of PGM, BGTD shall be final and binding.

**5.15**

**5.15.1 Penalty for cutting/damaging the old cable of BSNL**

During excavation of trench utmost care is to be taken by the contractor, so that the existing underground cables are not damaged or cut. In case any damage /cut is done to the existing cables, a penalty as per the schedule given below will be charged from the contractor or the amount will be deducted from his running bills.

	Size of existing U/G /OF cable cut/damaged	Amount of penalty per cut/damage
i	Up to 100 pairs cable	<b>Rs.500.00</b> (Five Hundred)
ii	Above 100 pairs & up to 400 pairs	<b>Rs.1,000.00</b> (One thousand)
iii	Above 400 pairs	<b>Rs.2,000.00</b> (Two thousand)
iv	OF Cable	<b>Rs.50,000.00</b> (Fifty Thousand) as per the recent guidelines from BSNL HQ

Besides the above penalty, the contractor shall carry out such repairs for restoration of the damaged cable free of charge. The cost of jointing kit shall also be borne by the contractor. If contractor fails to repair the damage, the cost of repair (including cost of labour + jointing kit) shall be recovered from the contractor.

**5.15.2 Penalty for damaging any other utilities.**

In case of any damage caused to any property of a third party /injury/loss occurs to any person because of any lack of proper precaution on the part of the contractor, the contractor will be held responsible and has to compensate for such damage/injuries/losses which will be deducted from his bills payable or from the security deposit or from what ever amount due to him. He will be required to make good security deposit or any such deposit by payment of additional amount before new work are taken up .If BSNL has to incur any expenditure to repair such damages or to compensate for such injuries/lapses, the amount plus five

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percent as processing charge will be recovered from the dues of the Contractor or from the security deposit or both. In every case by virtue of the provisions and Workman's Compensation Act the BSNL is obliged to pay compensation to a work man employed by the contractor in charge of the execution of the work, the BSNL will be entitled to recover from contractor the amount of compensation so paid plus five percent processing charge. Insurance coverage for the materials supplied to the contractor must be borne by the contractor for covering the loss if any due to fire, hazardous lifting, explosions, impact by rail / road, Vehicle, animal, riot, strike malicious and terrorist damages. The contractor has to appraise himself of the laws/rules/regulations of the Bangalore Mahanagar Palike / BDA / CMC and abide by such laws/rules/regulations concerning his work. Any lapses on this account may lead to penalize and prosecution for which the contractor will be solely responsible.

**5.16 Penalty for damaging stores/materials supplied by BSNL while laying**

- 5.16.1 The contractor while taking delivery of materials supplied by the department at the designated place shall thoroughly inspect all items before taking them over. In case of execution of the work, if any material is found damaged / working unsatisfactorily, then a penalty equivalent to the cost of damaged material plus 10%(Ten Percent) as penalty shall be recovered from the contractor's payments/securities.
- 5.16.2 In case of damage to PIJF cables, the penalty shall be imposed as per clause No.5.15.1 as applicable.
- 5.16.3 However, contractor will not be penalized for any defect in workmanship of the material, which shall be taken up separately with the supplier of the stores.
- 5.16.4 If the contractor fails to provide adequate provision on site for barricading, G I sheet, caution sign board, red light etc., then a penalty @ of 20% of the excavation charges (trenching)pertaining to the work order shall be recovered from the bills. All sum payable by way of compensation/ penalties under any of the provision of the contract are agreed to be considered as reasonable compensation without reference to proof of actual loss or damage sustained and whether or not any damage have been sustained. However this would be without prejudice to the right of BSNL,BGTD to raise any further claims as a result of loss or damage sustained by getting the work done at the cost and risk of the contractor.

**5.17 Penalty for delayed Submission of Bills**

- 5.17.1 "The bills complete in all respects submitted by the contractor beyond the prescribed period mentioned in the previous clauses are liable for penalty at the rate of 0.25% of the amount of the bill for every one week of delay subject to maximum of 5 % of the amount of the concerned bill"
- 5.17.2 "The bills ( Running/Final ) complete in all respects submitted by the contractor after six months of completion of A/T, will be treated as invalid and no payment will be made on them. However, in exceptional cases, payment will be authorised with applicable penalties mentioned in the bid documents by PGM, BGTD only, after detailed investigation & on appeal by the contractor."

**5.18 RESCISSION/ TERMINATION OF CONTRACT**

- 5.18.1 **Circumstances for rescission of contract** Under the following conditions the competent authority may rescind the contract:
- a. If the contractor commits breach of any item of terms and conditions of the contract
  - b. If the contractor suspends or abandons the execution of work and the engineer in-charge of the work comes to conclusion that work could not be completed by due date for completion or the contractor had already failed to complete the work by that date.
  - c. If the contractor had been given by the officer-in-charge of work a notice in writing to rectify/replace any defective work and he/she fails to comply with the requirement within the specified period.
- 5.18.2 Upon rescission of the contract the security deposit of the contractor shall be liable to be forfeited and shall be absolutely at the disposal of BSNL as under;
- 5.18.2.1 Measurement of works executed since the date of measurement and up to the date of rescission of contract shall be taken in the presence of the contractor or his authorized representative who shall sign the same in the MB. If the contractor or his authorised representative do not turn up for joint measurement, the measurement shall be taken by the officer authorised for this purpose after expiry of due date given for joint measurement. The measurement taken by the officer so authorised shall be final and no further request for joint measurement shall be entertained.
- 5.18.2.2 The unused material (supplied by BSNL) available at site shall be transported back by the department to the

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- Telecom Store at the risk and cost of the contractor. If any such material is found damaged/lost then the penalty shall also be recovered from the contractor as per conditions in tender documents *Ibid*
- 5.18.2.3 The un-executed work shall be got executed through the qualified bidder from amongst the bidders, who participated in the bidding process, by giving them offers in their order of ranking (L1, L2, L3...) at their quoted rates. If the work was awarded on single tender basis then BSNL shall get the unexecuted work completed through any other contractor approved in BGTD at the approved rates of that particular section or to execute the work departmentally as is convenient or expedient to BSNL at the risk and cost of the contractor. In such an event no compensation shall be payable by BSNL to the contractor towards any inconvenience/ loss that he may be subjected to as a result or such an action by BSNL. In this regard, the decision of PGM shall be final and binding. In all these cases, expenses which may be incurred in excess of the sum which would have been paid to the original contractor if the whole work had been executed by him shall be borne and paid by the original contractor and shall be deducted from any money due to him by BSNL under the contract or any other account whatsoever any where in the department or from a security deposit.
- 5.18.2.4 The certificate of the AGM in-charge of work as to the value of work done shall be final and conclusive against the contractor provided always that action shall only be taken after giving notice in writing to the contractor.
- 5.19 TERMINATION FOR INSOLVENCY**
- 5.19.1 BSNL may at any time terminate the Contract by giving written notice to the Contractor, without compensation to Contractor, if the Contractor becomes bankrupt or otherwise insolvent as declared by the competent court provided that such termination will not prejudice or affect any right or action or remedy which has accrued or will accrue thereafter to BSNL.
- 5.19.2 Optional Termination by BSNL (Other than due default of the Contractor)**
- 5.19.2.1 BSNL, at any time, at its option cancel and terminate this contract by written notice to the contractor, in which event the contractor shall be entitled to payment for the work done up to the time of such cancellation and a reasonable compensation in accordance with the contract prices for any additional expenses already incurred for balance work exclusive of purchases and/or whole of material, machinery and other equipment for use in or in respect of the work.
- 5.19.2.2 In the event of the termination of the contract, the contractor shall forthwith clear the site of all the contractor's materials, machinery and equipments and hand over possession of the work/operations concerned to BSNL or as BSNL may direct.
- 5.19.2.3 BSNL, at its option, cancel or omit the execution of one or more items of work under this contract and may part of such items without any compensation whatsoever to the contractor.
- 5.20 Issuance of Notice:**
- 5.20.1 **The AGM in-charge of work shall issue show cause notice giving details of lapses, violation of terms and conditions of the contract, wrongful delays or suspension of work or slow progress to the contractor directing the contractor to take corrective action.** A definite time schedule for corrective action shall be mentioned in the show cause notice. If the contractor fails to take corrective action within the stipulated time frame, the AGM in-charge shall submit a draft of final notice along with a detailed report to the competent authority who had accepted the contract.
- 5.20.2 **The final notice for rescission of contract** to the contractor shall expressly state the precise date and time from which the rescission would become effective. The following safe guards shall be taken while issuing the final notice:
- a. During the period of service of notice and its effectiveness, the contractor should not be allowed to remove from the site any material/equipment belonging to the department.
  - b. The contractor shall give in writing the tools and plants he would like to take away/remove from the site. Such of the materials as belong to him and which may not be required for future execution of balance work may be allowed by the AGM in-charge of work to be removed with proper records.
  - c. No new construction beneficial to the contractor shall be allowed.
  - d. Adequate departmental security arrangement in replacement of the contractor watch and ward shall be made forthwith. Expenses on this account are recoverable from the security deposit or any amount due to the contractor.

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### 5.20.3 TERMINATION OF CONTRACT

- 1) In the event of any breach by the contractor of any of the terms and conditions thereof or if the compensation/ penalties imposed against one or more work orders exceeds the Security Deposit or if the work relating to one work order remains incomplete or if the contractor fails to start the work within 33 days from the date of issue of the work order or if in the opinion of the D.G.M.(CC) which will be final the work is not being performed satisfactorily, the concerned AGM, thereof shall have the power to adopt any of the following courses as suited to the BSNL.
- 2) To terminate the contract at any time, giving **14 days notice** and in that case the performance Security Deposit of the contractor shall stand forfeited to the BSNL.
- 3) To measure up the work of the contractor and to take such part thereof remaining unexecuted at the hands of the contractor and award of the work to another contractor to complete, and in case of defects discovered subsequently, to have the defects repaired and removed by another contractor, in both cases, expenses which may be incurred in excess of what would have been paid to the contractor, if the whole work had been properly executed by him (the amount of such excess, certified in writing by the AGM concerned shall be final and conclusive) shall be borne and paid by the contractor or may be deducted from any money due to him from the company, under this contract or any other contract or from the Security Deposits at his credit..
- 4) If the contractor fails to execute any item of work within the time schedule, or refuses to carry out any work or refuses to follow the work priority for executing any specified work, BSNL reserves the right to get the work done by other agencies even with higher rates and the differences of the cost will be recovered from the contractors pending bills or Security Deposit as the case may be.
- 5) In the event of any of the above course being adopted, the contractor shall have no claim for compensation for any loss sustained by him by reason of his having purchased or procured any material or entered into any engagements or made any advance on account of or with a view to the execution of the work of the performance thereof.

### 5.21 Indemnities:

- 5.21.1 The contractor shall at all times hold BSNL harmless and indemnify from against all action, suits, proceedings, works, cost, damages, charges, claims and demands of every nature and descriptions, brought or produced against BSNL, its officers and employees and forthwith upon demand and without protect or demur to pay to BSNL any and all losses and damages and cost (inclusive between attorney and client) and all costs incurred in endorsing this or any other indemnity or security which BSNL may now or at any time have relative to the work or the contractors obligation or in protecting or endorsing its right in any suit on other legal proceeding charges and expense and liabilities resulting from or incidental or in connection with injury, damages of the contractor or damage to property resulting from or arising out of or in any way connected with or incidental to the operations caused by the contract documents, in addition the contractor shall reimburse BSNL or pay to the BSNL forthwith on demand without protect or demur all cost, charges and expenses and losses and damages otherwise incurred by it in consequences of any claim, damages and actions which may be brought against BSNL arising out of or incidental to or in connection with the operation covered by the contractor.
- 5.21.2 The contractor shall at his own cost at BSNL's request defend any suit or other proceeding asserting a claim covered by this indemnity, but shall not settle, compound or compromise any suit or other finding without first consulting the BSNL.

### 5.22 FORCE MAJEURE

- 5.22.1 If at any time during the continuance of this contract, the performance in whole or in part by either party or any obligation under this Contract be prevented or delayed by reason of any War or Hostility, Acts of Public Enmity, Fires, Civil Commotion, Sabotage, Effects of Floods, Explosions, Epidemics, Quarantine Restrictions, General Strikes and Bundhs, Acts of God(Hereinafter referred to as Events) provided notice of happenings, of any such eventuality is given by either party to the other, within 21 days from the date of occurrence thereof, neither party shall, by reason of such EVENT, be entitled to terminate this Contract, nor shall either party have any claim for damages against the other in respect of such non-performance and work under the contract shall be resumed as soon as practicable after such event may come to an end or cease to

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exist, and the decision of BSNL as to whether the work have been so resumed or not shall be final and conclusive, provided further that if the performance , in whole or part of any obligation under this contract is prevented or delayed by reason of any such event for a period exceeding 60days either party may, at his option terminate the contract.

**5.22.2** Provided also that if the contract is terminated under this clause, BSNL shall be at liberty to take over from the contractor at a price to be fixed by BSNL, which shall be final, all unused, undamaged and acceptable materials, bought out components and stores in the course of execution of the contract, in possession of the contractor at the time of such termination of such portions there of as BSNL may deem fit excepting such materials bought out components and stores as the contracts may with the concurrence of BSNL elect to retain.

### **5.23 ARBITRATION:**

5.23.1 In the event of any question, dispute or differences arising under the agreement or in connection therewith (except as to matter the decision of which is specifically provided under this agreement), the same shall be referred to the sole arbitration of the Principal General Manager, Bangalore Telecom District or in case his designation is changed or his office is abolished then in such case to the sole arbitration of the officer for the time being entrusted whether in addition to the functions of the Principal General Manager, Bangalore Telecom District, or by whatever designation such officers may be called (hereafter referred to as the said officer) and if the Principal General Manager, Bangalore Telecom District, or the said officer is unable or unwilling to act as such to the sole arbitration or some other person appointed by the Principal General Manager, Bangalore Telecom District or the said officer. The agreement to appoint an arbitrator will be in accordance with the Arbitration and Conciliation Act,1996. There will be no objection to any such appointment that the arbitrator is Government Servant or that he has to deal with the matter to which the agreement relates or that in the course of his duties as Government Servant he has expressed views on all or any of the matter under dispute. The award of the arbitrator shall be final and binding on the parties. In the event of such arbitrator to whom the matter is originally referred, being transferred or vacating his office or being unable to act for any reasons whatsoever such Principal General Manager Bangalore Telecom District or the said officer shall appoint another person to act as arbitrator in accordance with terms of the agreement and the person so appointed shall be entitled to proceed from the stage at which it was left out by his predecessors.

5.23.2 The Arbitrator may from time to time with the consent of the parties enlarge the time for making and publishing the award, subject to aforesaid , Indian Arbitration and Conciliation Act 1996 and the rules made there under and any modification thereof for the time being in force shall deem to apply to the arbitration proceedings under this clause.

5.23.3 The venue of the arbitration proceedings shall be the office of the Principal General Manager, Bangalore Telecom District or such other place as the arbitrator may decide. The following procedure shall be followed.

- a) In case parties are unable to reach a settlement by themselves, the dispute should be submitted or arbitration in accordance with contract agreement.
- b) There should not be a joint submission with the contractor to the Sole Arbitrator.
- c) Each party should submit its own claim separately and may oppose the claim put forward by the other party.
- d) The onus of establishing his claims will be left to the contractor.
- e) Once a claim has been included in the submission by the contractor, a reiteration or modification thereof will be opposed.
- f) The "points of defense" will be based on actual conditions of the contract.
- g) Claims in the nature of ex-gratia payments shall not be entertained by the Arbitrator as these are not contractual.
- h) The question whether these conditions are equitable shall not receive any consideration in the preparation of "points of defense"

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- i) If the contractor includes such claims in his submission, the fact that they are not contractual will be prominently placed before the Arbitrator.

The award of the sole Arbitrator shall be final and binding on all the parties to the dispute.

5.23.4 **Legal Jurisdiction and laws Applicable:**

The contract shall be governed by Indian Laws and Courts at Bangalore will have jurisdiction to entertain any dispute(s) or claim(s) arising out of such dispute(s).

5.24 **Set Off**

Any sum of money due and payable to the contractor (including security deposit refundable to him) under this contract may be appropriated by BSNL or the Govt. or any other person or persons contracting through the Govt. of India and set off the same against any claim of the department or Govt. or such other person or persons for payment of a sum of money arising out of this contract made by the contractor with BSNL or Govt. such other person or persons contracting through Govt. of India.

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## Section VI

### 6. SPECIAL CONDITIONS OF CONTRACT

**Wherever there is a conflict, the provisions herein shall prevail over those in section V .**

#### 6.1 GENERAL:

- 6.1.1 The work shall be accepted only after Acceptance Testing carried out by the team, designated by BSNL , as per prescribed schedule and work /material passing the test successfully.
- 6.1.2 BSNL reserves the right to disqualify such bidders who have a record of not meeting contractual obligations against earlier contracts entered into with the BSNL.
- 6.1.3 BSNL reserves the right to blacklist a bidder for a suitable period in case he fails to honour his bid without sufficient grounds.
- 6.1.4 BSNL reserves the right to counter offer price(s) against price(s) quoted by any bidder.
- 6.1.5 Any clarification issued by BSNL, 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.
- 6.1.6 Tender will be evaluated as a single package of all the items given in the price schedule
- 6.1.7 All works to be executed under the contract shall be executed under the direction and subject to the approval in all respects of by the AGM or site Engineer -in – charge of work site who shall be entitled to direct at what point or points and what manner they are to be commenced, and from the time to time carried on.
- 6.1.8 If the contractor shall desire an extension of time for completion of the work on the grounds of unavoidable hindrance in execution of work or on any other ground he shall apply in writing to the AGM within 3 days of the date of hindrance on account of which he desires such extension as aforesaid. In this regard the decision of PGM shall be final.
- 6.1.9 If at any time after the commencement of the work, BSNL may feel that execution of whole or part of work, as specified in the tender is not required to be carried out, then BSNL shall give notice in writing of the fact to the contractor who shall have no claim to any payment of compensation whatsoever on account of any profit or advantage which he might have derived in consequence of the full amount of the work not having been carried out neither shall he have any claim for compensation by reason of any alterations having been made in the original specifications, drawings, designs and instructions which shall involve any curtailment of the work as originally contemplated.
- 6.1.10 Whenever any claims against the contractor for the payment of a sum of money arises out of or under the contract, BSNL shall be entitled to recover such sum by appropriating in part or whole the security deposit of the contractor and to sell any Government promissory notes etc., forming the whole or part of such security or running /final bill pending against any contract with BSNL. In the event of the security being insufficient or if no security has been taken from the contractor, then the balance or the total sum recoverable as the case may be, shall be deducted from any sum then due or which at any time there after may become due to the contractor under this or any other contract with BSNL. Should this sum be not sufficient to cover the full amount recoverable the contractor shall pay to BSNL on demand the balance remaining due
- 6.1.11 No official of Gazetted rank or other Gazetted officer employed in Engineering or administrative duties in an Engineering Department or any other Department of the Government of India is allowed to work as a contractor for a period of two years after his retirement from Government service without the previous permission of BSNL. This contract is liable to be cancelled if either the contractor or any of his employee is found at any time to be such a person who had not obtained the permission of BSNL as aforesaid before submission of the engagement in the contractor's service as the case may be.
- 6.1.12 In the event of the contractor being, adjudged insolvent or going voluntarily into liquidation of having received order or other order under insolvency act made against him or in the case of company, of the passing of any resolution or making of any order for winding up whether voluntarily or otherwise, or in the event of the contractor failing to comply with any of the conditions herein specified, the PGM shall have the power to terminate the contract without any notice.

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- 6.1.13 Without prejudice to any of the rights or remedies under this contract, if the contractor dies, the PGM on behalf of the CMD BSNL can terminate the contract without compensation to the contractor. However the PGM at his discretion may permit contractor's heirs to perform the duties or engagements of the contractor under the contract, in case of his death. In this regard the decision of PGM shall be final.
- 6.1.14 In the event of the contractor, winding up his company on account of transfer or merger of his company with any other, the contractor shall make it one of the terms and stipulations of the contract for transfer of his properties and business, that such other person or company, shall continue to perform the duties or engagements of the contractor under this contract and be subject to his liabilities there under.
- 6.1.15 **Interpretation of the contract document:**  
The representative of the PGM, BGTD and the contractor shall in so far as possible by mutual consultation, try to decide upon the meaning and intent of the contract document. In case of disagreement the matter shall be referred to the PGM whose decision shall be final. Any change in the contract documents shall be set forth in writing by the representative of the parties hereto. It shall be the contractor's responsibility to thoroughly familiarize all of his supervisory personnel with the contents of all the contract documents
- 6.1.16 **Notification**
- 6.1.16.1 The contractor shall give in writing to the proper person or authority with a copy to the AGM such notification as may be mandatory or necessary in connection with the commencement, suspension resumption, performance and /or completion of the contracted work. All notice shall be given sufficiently in advance of the proposed operation to permit proper co-relation of activities and the contractor shall keep all proper persons or authorities involved and advised of the progress of operations through out the performance of the work and /or with such other information and / or supporting figure and data as may from time to time as directed or required.
- 6.1.17 **Shut down on account of weather conditions**  
The contractor shall not be entitled to any compensation whatsoever by reason of suspension of the whole or any part of the work made necessary by BSNL or deemed advisable on account of bad weather conditions or other Force Majeure conditions
- 6.2 Stores Supplied by BSNL:**
- 6.2.1 At no point of time the contractor shall be issued stores of value more than the contractors material security. If at all the work requires more amount of materials to be issued to the contractor, then the security shall suitably be revised before the issue of the store and the contractor will not have any objection to it
- 6.2.2 The contractor shall transport (including loading and unloading ) all stores issued to him from the District Telecom Store, to the site of work at his own cost. BSNL shall not pay any transportation charges to the contractor.
- 6.2.3 All materials supplied to the contractor by BSNL shall remain the absolute property of BSNL and shall not be removed from the site of the work except for use in the work and shall be at all times open to inspection by the representative of the PGM . In case the materials like cable and accessories are taken delivery of by the contractor and stored at the site office/store of the contractor such site office / store will also be treated as site for this purpose. Any such materials remaining unused at the time of the abandonment, completion or determination of the contract shall be returned to BSNL at a place informed to him by BSNL, failing which the cost of the unused materials shall be deducted from the contractor's material security or any of his pending bills or from any other security.
- 6.2.4 The contractor shall be responsible for the transportation of store, storage and safe custody of all material supplied to him by BSNL, which in the contractor's custody whether or not installed in the work. The contractor shall satisfy himself regularly the quantity and quality of the materials supplied to him and he will be responsible for any subsequent deterioration and discrepancy (inclusive of theft) in the quality and quantity of the materials.
- 6.2.5 The contractor shall submit a proper account every month of all the materials supplied to him by BSNL and those consumed for items of work any discrepancy of difference between the materials issued to the contractor and those consumed in the work as per the "BSNL's calculation"(which shall be final ) will be charged to the contractor or deducted from his bills at 1.5 times of prevailing standard price including freight, handling charges storage charges etc.

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- 6.2.6 The contractor shall ensure that only the required materials are issued to him. Upon completion of work, the contractor shall return to BSNL at the later designated store in good condition, free of charges, any unused materials that were supplied by BSNL.
- 6.2.7 **Insurance coverage**  
Without limiting any of his other obligations or liabilities, the contractor shall, at his own expense, take and keep comprehensive insurance including third party risk for the plant, machinery, men, material etc. brought to the site and for all the work during the execution. The contractor shall also take out workmen's compensations insurance as required by law and under take to indemnify and keep indemnified the Government from and against all manner of claims and demands and losses and damages and cost (including between attorney and client) charges and expenses that may arise in regard the same or that the Government may suffer or incur with respect to and / or incidental to the same. The contractor shall have to furnish originals and /or attested copies as required by the department of the policies of insurance taken within 15 days of being called upon to do so together with all premium receipts and other papers related thereto which the department may require.
- 6.2.8 **Employee's Provident Fund and Miscellaneous Act 1952.**  
Employee means any person who is employed for wages in any kind of work, manual or otherwise, in or in connection with the work of an establishment and who gets his wages directly or indirectly from the employer and includes any person employed by or through a contractor in or in connection with the work of the establishment.  
**As per the recent guidelines from BSNL Headquarters, BSNL contractors have to pay EPF by cheque and produce proof to BSNL.**  
Under para 36B of the EPF Scheme, 1952:  
The Contractor shall within seven days of the close of every month submit to the Principal Employer a statement showing the recoveries of contributions in respect of employees employed by or through him and shall also furnish to him such information as the Principal Employer is required to furnish under the provisions of the scheme to the Commissioner.
- 6.3 Easements, Permits, Licenses and other facilities**
- 6.3.1 The contractor shall obtain /provide at his own cost all easements, permits and license necessary to do its work including the following  
"Right of User" easements and permits, Railway and Highway crossing permits including bridge., Canal/stream crossing permits.
- 6.3.2 The contractor shall be fully responsible for angling and obtaining all necessary easements, permits and licenses, for moving all necessary equipments, tools, supplied materials and men across Railways and Highways across public or private road as well as premises of any public utility within the right of user and for bearing all costs, that may be incurred in respect of the same.
- 6.3.3 The contractor is to confine his operation to the provided construction work "Right of User" unless it has made other arrangements with the particular property owners and /or tenants such other arrangements shall be entirely at the responsibility of the contractor as to cost and arrangements as also breach and claim and shall be entitled with a copy to the AGM.
- 6.3.4 The contractor will not be entitled to extra compensation for hardship and increase in cost by the cable trench being routed adjacent to or across other pipeline, Highways ,Railways, Telephones or poser poles and wires or guy wires, embankments, cliffs, streams or other obstacles which may physically or otherwise in any manner, restrict or limit the use of the construction "Right of User". Some construction and such contingency shall be deemed to have been providing for in the rates.
- 6.3.5 At location where the OF cable trench is routed across or along railways or roads the contractor shall without extra cost provide and maintain such detours and road controls as are required by the railways or Government or local agencies having jurisdiction.
- 6.3.6 If the contractor is not in position to obtain the permission due to restrictions, ban etc imposed by local authorities,, then the extension of time limit shall be provided as per EOT clause given in tender document

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6.3.7 Contractor has to get road cutting permissions from local authorities viz BDA, BBBMP, CMC etc. BSNL BGTD will apply for Road permission to the concerned authorities and do the payments that is estimated by the above authorities after getting in writing. The contractor has to liaison with the local authorities for getting these permissions. Contractor has to survey the route for buried utilities, liaison with other agencies for locating their utilities and should get their clearance before starting the execution of the work.

6.3.8 The contractor has to liaison with the local authority viz BDA, BBMP, and CMC etc in getting the permissions for which BSNL will apply seeking right of way permission and the estimated payment for the same will be paid by BSNL after getting in writing.

6.3.9 Reinstatement Charges will be paid after getting certificate from the appropriate local authority

**6.3.10 General procedure for obtaining the permission:**

1. The contractor on receiving the work order with route details should carry out the survey of the routes for any buried under ground utilities by taking the built diagram of other utility agencies and draw out a firm plan indicating
  - a) The exact alignment of the route
  - b) The location of each entry / exit pit
2. Prepare an application to the local authorities in the prescribed format and submit to the work order issuing authority for verification, approval and signature.
3. Completed applications to be submitted to the local concerned local authorities for permissions. Further liaison with the local authority and clarify if any points in consultation with the work order issuing authority / Site engineer.
4. The demand note as raised by the local authority to be submitted by the contractor to work order issuing authority for making payment. The payment will be normally made within 7 days by cheque.
5. BSNL also will pursue with local authorities in case of policy issue regarding permission.
6. In the event of delay in obtaining permissions due to any reason attributable to local authorities. The same to be intimated in writing to work order issuing authority.

BBMP/ Local authorities may impose a stipulation that the contractors firm be registered as contractor with them. Such stipulation are required to be completed within a reasonable time

**6.4 Quality of work**

BSNL shall be the final judge of the quality of the work and satisfaction of BSNL in respect thereof set forth in the contract documents. Laxity or failure to enforce compliance with the contract documents by BSNL and /or its representative shall not manifest a change or intent of waiver, the intention being that, notwithstanding the same, the contractor shall be and remain responsible for complete and proper compliance with the contract documents and the specification therein. The representative of the PGM, BGTD has the right to prohibit the use of men and any tools, materials and equipment which in his opinion do not produce work or performance meet the requirement of the contract documents.

**6.5 Taxes and duties**

6.5.1 Contractor shall pay all rates , levies, fees royalties, taxes and duties payable or arising from out of ,by virtue of or in connection with and /or incidental to the contract or any of the obligations of the parties in terms of the contractor documents and /or in respect of the works or operations or any part thereof to be performed by the contractor and the contractor shall indemnify and keep indemnified BSNL from and against the same or any default by the contractor in the payment thereof.

**6.6 PROTECTION OF LIFE AND PROPERTY AND EXISTING FACILITIES**

The contractor is fully responsible for taking all possible safety precaution during preparation for and actual performance of the works and for keeping the construction site in a reasonable safe condition. The contractor shall protect all life and property from damage or losses resulting from his construction operations and shall minimize the disturbance and inconvenience to the public.

6.6.1 If the excavation of the trench alters the contours of the ground around road and highway crossing in such locations dangerous to traffic, the contractor shall at his own cost, take all necessary precautions to protect public and shall comply with all BSNL regulations as to placing of warning boards (Minimum size 3' X 2') traffic signals, barricades, flags etc. at such location. If the contractor does not put the warning signal as per

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above directions, **then a penalty of Rs.500/- per day shall be levied on the contractor**, till the directions are complied by the contractor. The contractor shall take due precautions to avoid damages to other pipe lines, water mains, sewers, telephones, telegraphs and power conduits, laid wires poles and guy wires, railways, highways, bridges or other underground or above ground structure and / or property crossing or adjacent to the cable trench being excavated.

6.6.2 Attention of the contractor is drawn to the rules regarding laying of cable at road crossing, along Railway Bridges, Highways safety precautions while working in public street. The contractor in writing shall obtain the detailed engineering instructions from the AGM of the area.

6.6.3 The contractor shall be solely responsible for location through approved non-destructive means and ensuring the safety of all existing underground pipeline, electrical cables and / or other structures.

6.6.4 The contractor shall be solely liable for all expense for and in respect of repairs and/or damage occasioned by injury of or damage to such underground and above structures or other properties and undertake to indemnify BSNL, from and against all actions, cause of actions, damages, claims and demands what so ever, either in law or in equity and all losses and damages and costs (inclusive between attorney and client), charges and expenses in connection therewith and / or incidental thereto. The contractor shall take all responsibilities and risk in crossing other pipelines and cables and shall be responsible for protecting all such existing pipelines, poles, electric lines, sewers, cables or other facilities from damage by the contractor's operation in connection with the work. The contractor without cost of BSNL shall promptly repair any damage incurred.

6.6.5 The current market value of any commodities lost as a result of any damage to the aforesaid existing facilities shall be paid by the contractor together with such additional sums necessary to liquidate the personal of property damages, resulting there from.

6.6.6 **WORK AND LABOUR:**

The normal working hours shall be between 8 AM to 6 PM on all working days ( 0800 and 1800 hours) but it may be necessary for the contractor to work longer hours for carrying out work at night in busy thoroughfares, of which due advance verbal notice will be given and recorded in the log book kept at site. The contractor may have to work sometimes only during night hours if the situation so demands. Work on Sundays and public holidays shall also be carried out when necessary. No additional payment will be made on this account.

No labour below the age of 14 years shall be employed on the work.

The contractor shall pay his labourers not less than wages fixed under Minimum wages act.

In every case, in which by virtue of the provisions of section 12, sub-section (1) of the workmen' s compensation Act 1923, BSNL is obliged to pay compensation's the amount of compensations paid and Without prejudice to the right of BSNL shall be at liberty to recover such amount or any part thereof by deducting it from the security deposit or from any sum , due by BSNL to the contractor(s) whether under this contract or other wise .BSNL shall not be bound to contest any claim made against it under section 12 sub-section (1) of the said act except on the written request of the contractor(S) and upon his/their giving to BSNL full security for all cost for which BSNL might become liable in consequence of contesting such claims.

The contractors shall at his own responsibility arrange to obtain necessary license required under "Contract Labour (Regulation and Abolition) Act. 1970" and abide by the provisions of the said Act.

The contractor shall at all times hold the BSNL harmless and indemnify against all claim, cost, charges and incur or pay on account of his negligence or misconduct of the contractor or his servants or any of them and of any person under his control whether in respect of injury to the person or damage to the property of any member of the public or any other concern on account of any defect or want of repair in such works or in the equipment used by the contractor in connection there with or otherwise and against all claims and demands in respect thereof.

If damage is caused to persons or assets or private parties or other such electric, gas or water supply utilities etc., during the course of the work, the damage shall be made good by the contractor to the person or party at the cost of the contractor as demanded. The contractor will also be responsible to comply with all laws including those relating to the labour etc., in force at the time. The contractor is responsible to comply with Contract Labour (Regulation & Abolition) Act 1970 and the Contract Labour (Regulation & Abolition)

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Central Rules 1971 as amended from time to time. A log book will be kept at the work site, all observations and instructions will be recorded therein. The contractor is required to note the contents which will also be verbally explained to the representative of the contractor at the work site. The contractor will however be responsible all such remarks, instructions etc., and take necessary action and remedy defect and/or comply with instructions. His noting the log book cannot be considered as sufficient ground for non compliance of instructions.

The contractor shall not charge any extra amount for traveling, overtime allowance and charges for any materials used by him and will not be entitled to get compensation for any damage or losses in the course of execution of works for any extra payments i.e, charges for labour that he will employ at his own deterioration of materials.

**6.7 Labour Welfare measures and workman compensation**

6.7.1 **Obtaining license before commencement of work.** The contractor shall obtain a valid labour licence issued by Assistant Labour commissioner, Govt of India, Department of Labour under the Contract Labour (R&A) Act, 1970 and the Contract labour (regulation and abolition) Central rules 1971. On issue of LOI and before commencement of work, the successful bidder shall produce the Labour Licence Certificate with a validity of the license until the completion of work. The contractor shall also abide by the provisions of the Child Labour (Prohibition and regulation) Act 1986. Any failure to fulfill the requirement shall attract the penal provisions of this contract arising out of the resultant non- execution of work. The successful bidder shall also produce the list of labours to be engaged by him along with ESI and EPF particulars

**6.7.2 Contractors Labour Regulations:**

**6.7.2.1 Working Hours**

Normally working hours of an employee shall be restricted to 09hrs/day( 09.00 hrs to 18.00hrs). The working day shall be so arranged that inclusive of interval for rest, if any, it shall not spread over more than 12 hours on any day.

6.7.2.2 When a worker is made to work for more than 9 hours on any day or for more than 48 hours in any week he shall be paid over time for the extra hours put in by him.

6.7.2.3 Every worker shall be given a weekly holiday normally on a Sunday, in accordance with the provisions of Minimum Wages (central) Rules 1960, as amended from time to time, irrespective of whether such worker is governed by the Minimum Wages Act or not.

6.7.2.4 Where the Minimum Wages prescribed by the Government, under the Minimum Wages Act, are not inclusive of the wages for the weekly day of rest, the worker shall be entitled to rest day wages, at the rate applicable to the next preceding day, provided he has worked under the same contractor for a continuous period of not less than 6 days.

6.7.2.5 Where a contractor is permitted by the Engineer-in-charge to allow a worker to work on a normal weekly holiday, he shall grant a substituted holiday to him for the whole day, on one of the five days, immediately before or after the normal weekly holiday, and pay wages to such worker for the work performed on the normal weekly holiday at the overtime rate.

**6.7.2.6 Display of Notice Regarding Wages Etc.**

The contractor shall , before he commences his work on contract, display and correctly maintain and continue to display and correctly maintain, in a clear and legible condition in conspicuous places on the work, notices in English and in local Indian languages spoken by the majority of the workers, giving the minimum rates of the wages fixed under Minimum Wages Act, the actual wages being paid, the hours of work for which such wage are earned, wages periods, dates of payments of wages and other relevant information.

**6.7.3 Payment of Wages.**

6.7.3.1 The contractor shall fix wage periods in respect of which wages shall be payable.

6.7.3.2 No wage period shall exceed one month.

6.7.3.3 The wages of every person employed as contract labour in an establishment or by a contractor, where less than one thousand such persons are employed, shall be paid before the expiry of seventh day and in other cases before the expiry of tenth day after the last day of the wage period in respect of which the wages are payable.

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- 6.7.3.4 Where the employment of any worker is terminated by or on behalf of the contractor, the wages earned by him shall be paid before the expiry of the second working day from the date on which his employment is terminated.
- 6.7.3.5 All payment of wages shall be made on a working day at the work premises and during the working time and on a date notified in advance and in case the work is completed before the expiry of the wage period, final payment shall be made within 48 hours of the last working day.
- 6.7.3.6 Wages due to every worker shall be paid to him direct or to other person authorised by him in this behalf.
- 6.7.3.7 All wages shall be paid in current coin or currency or in both.
- 6.7.3.8 Wages shall be paid without any deductions of any kind except those specified by the Central Government by general or special order in this behalf or permissible under the Payment of Wages Act 1956.
- 6.7.3.9 A notice showing the wages period and the place and time of disbursement of wages shall be displayed at the place of work and a copy sent by the contractor to the Engineer-in-charge under acknowledgement.
- 6.7.3.10 It shall be the duty of the contractor to ensure the disbursement of wages in presence of the supervising officer of BSNL who will be required to be present at the place and time of the disbursement of wages by the contractor to workmen.
- 6.7.3.11. The contractor shall obtain from the site Engineer or any other authorised representative of the Engineer-in-charge, as the case may be, a certificate under his signature at the end of the entries in the "Register of Wages" or the "Wage-cum-Muster Roll", as the case may be, in the following form :  
"Certified that the amount shown in the column No..... has been paid to the workman concerned in my presence on.....at....."
- 6.7.4 **Fines and deductions which may be made from wages** : The wages of a worker shall be paid to him without any deduction of any kind except the following:-  
Fines, Deductions for absence from duty i.e. from the place or the places where by the terms of his employment he is required to work. The amount of deduction shall be in proportion to the period for which he was absent  
Deductions for damage to or loss of goods expressly entrusted to the employed person for custody, or for loss of money or any other deductions which he is required to account, where such damages or loss is directly attributable to his neglect or default., Deduction for recovery of advances or for adjustment of overpayment of wages, advances granted shall be entered in a register. Any other deduction, which the Central Government may from time to time allow.
- 6.7.4.1 No fines should be imposed on any worker save in respect of such acts and omissions on his part as have been approved of by the Labour Commissioner.
- 6.7.4.2 No fine shall be imposed on a worker and no deduction for damage or loss shall be made from his wages until the worker has been given an opportunity of showing cause against such fines or deductions.
- 6.7.4.3 Every fine shall be deemed to have been imposed on the day of the act or omission in respect of which it was imposed.
- 6.7.5 Labour records:**
- 6.7.5.1 The contractor shall maintain a **Register of Persons employed** on work on contract in form XIII of the contract Labour (R & A) central Rules 1971.
- 6.7.5.2 The contractor shall maintain a **Muster Roll** register in respect of all workmen employed by him on the work under Contract in form XVI of the CL (R&A) Rules 1971.
- 6.7.5.3 The contractor shall maintain a **Wage Register** in respect of all workmen employed by him on the work under contract in form XVII of the CL (R & A) Rules 1971.
- 6.7.6 **Register of accidents:** The contractor shall maintain a register of accidents in such form as may be convenient at the work place but the same shall include the following particulars:  
Full particulars of the labourers who met with accident, Rate of wages, Sex, Age ,Nature of accident and cause of accident, Time and date of accident, Date and time when admitted in hospital, Date of discharge from the hospital, Period of treatment and result of treatment, Percentage of loss of earning capacity and disability as assessed by Medical Officer, Claim required to be paid under Workmen's Compensation Act, Date of payment of compensation, Amount paid with details of the person to whom the same was paid., Authority by whom the compensation was assessed., Remarks.

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- 6.7.6.1 The contractor shall maintain a **Register of Fines** in the form XII of the CL (R & A) Rules 1971. The contractor shall display in a good condition and in a conspicuous place of work the approved list of acts and omission for which fines can be imposed.
- 6.7.6.2 The contractor shall maintain a **Register of Deductions for damage or loss** in form XX of the CL (R&A) Rules 1971.
- 6.7.6.3 The contractor shall maintain a **Register of Advances** in form XXIII of the CL(R & A) Rules 1971.
- 6.7.6.4 The contractor shall maintain a **Register of Overtime** in form XXIII of the CL (R & A) Rules 1971
- 6.7.7 **Attendance card-cum wage slip**
- 6.7.7.1 The contractor shall issue an **Attendance card cum wage slip** to each workman employed by him.
- 6.7.7.2 The card shall be valid for each wage period.
- 6.7.7.3 The contractor shall mark the attendance of each workman on the card twice each day, once at the commencement of the day and again after the rest interval, before he actually starts work. The card shall remain in possession of the worker during the wage period under reference. The contractor shall complete the wage slip portion on the reverse of the card at least a day prior to the disbursement of wages in respect of the wage period under reference. The contractor shall obtain the signature or thumb impression of the worker on the wage slip at the time of disbursement of wages and retain the card with him.
- 6.7.8 **Employment Card:** The contractor shall issue an **Employment Card** in the form XIV of CL (R&A) Central Rules 1971 to each worker within three days of the employment of the worker.
- 6.7.9 **Service certificate:** On termination of employment for any reason whatsoever the contractor shall issue to the workman whose services have been terminated, a Service Certificate in the form XV of the CL (R&A) central Rules 1971.
- 6.7.10 **Preservation of labour records:** The labour records and records of Fines and deductions shall be preserved in original for a period of three years from the date of last entries made in them and shall be made available for inspection by the Engineer-In –Charge or labour Officer or any other Officers authorized by the Ministry of Communication in this behalf.
- 6.7.11 **Power of labour officer to make investigations or enquiry:** The labour officer or any person authorised by the Central Government on their behalf shall have power to make enquiries with a view to ascertaining and enforcing due and proper observance of Fair Wage Clauses and provisions of these Regulations. He shall investigate into any complaint regarding the default made by the contractor in regard to such provision.
- 6.7.12 **Report of investigating officer and action thereon:** The Labour Officer or other persons authorised as aforesaid shall submit a report of result of his investigation or enquiry to the Engineer-in-charge indicating the extent, if any to which the default has been committed with a note that necessary deductions from the contractor's bill be made and the wages and other dues be paid to the labourers concerned. The Engineer-in-charge shall arrange payment to the labour concerned within 45 days from the receipt of the report from the Labour Officer or the authorised officer as the case may be.
- 6.7.13 **Inspection of Books and Slips:** The contractor shall allow inspection of all the prescribed labour records to any of his workers or to his agent at a convenient time and place after due notice is received or to the Labour Officer or any other person, authorised by the Central Government on his behalf.
- 6.7.14 **Submission of Returns:** The contractor shall submit periodical returns as may be specified from time to time.
- 6.7.15 **Amendments:** The Central Government may from time to time add to or amend the regulations and on any question as to the application / interpretation or effect of those regulations.

## 6.8 COMPLIANCE WITH LAWS AND REGULATIONS

During the performance of the works the contractor shall at his own cost and initiative fully comply with all applicable laws of the land and with any and all applicable by laws, rules, regulations and orders and any other provisions having the force of law made or promulgated or deemed to be made or promulgated by the Government, Governmental Agency or department, municipal board, Government of other regulatory or authorised body or persons and shall provide all certificates of compliance therewith as may be required by

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such applicable law. By laws, rules, regulations, orders and/ or provisions, the contractor shall assume full responsibility for the payment of all contributions and pay roll taxes, as to its employees, servants or agents engaged in the performance of the work specified in the contractor documents. If the contractor shall require any assignee or sub contractor to sham any portion of the work to be performed hereunder may be assigned, sub- leased or sub contracted to comply with the provisions of the clause and in this connection the contractor agrees as to undertake to save and hold the Government harmless and indemnified from and against any/all penalties, actions, suits, losses and damages, claims and demands and costs (inclusive between attorney and client) charges and expenses whatsoever arising out or occasioned, indirectly or directly, by failure of the contractor or any assignee or subcontractor to make full and proper compliance with the said by - laws, Rules, Regulations, Laws and Order and provisions as aforesaid.

- 6.9 TOOLS and PLANTS:** The contractor shall provide at his own cost all tools, plants appliances, Implements, measuring instruments etc. required for proper execution of the works. The contractor shall also supply without charge the requisite number of persons with the means and materials necessary for the purpose of setting out works, counting, weighting assisting the measurements for examination at any time and from time to time. The contractor shall be responsible to make all arrangements, at his own cost for dewatering of trenches / ducts and de-gasification of the ducts before carrying out the work. The contractor shall also be responsible to make arrangements, at his own cost, for water required for carrying of works at sites including curing of CC / RCC works. Failing his so doing the same may be provided by the engineer- in - charge at the expense of the contractor and the expenses shall be deducted from any money due to the contractor under this contract or otherwise.

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## Section VII

### 7. SCOPE OF WORK AND JURISDICTION OF CONTRACT

#### 7.1 Scope of work for Optical Fibre Cable laying by open trenching method

- 7.1.1 The Optical Fibre Cable is laid through HDPE/PLB Pipes buried at a nominal depth of 165 cms. The steps involved in OF Cable Construction are as under:
- 7.1.2 Excavation of trench up to a nominal depth of 165 cms, according to Construction specifications along National/State highways/other roads and also in city limits as mentioned in the notice inviting tender.
- 7.1.3 Laying of HDPE/PLB pipes/coils coupled by HDPE sockets in excavated trenches, on bridges and culverts, drawing of 6 mm Polypropylene rope (P.P rope) through the HDPE pipes/coils as per Construction specifications and sealing of HDPE pipe ends at every manhole by HDPE end caps of suitable size.
- 7.1.4 Providing of mechanical protection by RCC Pipes/ GI pipes and/or concreting/chambering according to construction specifications, wherever required.
- 7.1.5 Fixing of GI pipes/troughs with clamps at culverts / bridges and / or chambering or concreting of G.I Pipes/ troughs, wherever necessary
- 7.1.6 Back filling and dressing of the excavated trenches according to construction specifications
- 7.1.7 Opening of manholes (of size 3 meters X 1 meters X 1.65 meters depth), replacing existing 6mm P.P. ropes by 8 mm P.P. rope (from manhole to manhole) for ensuring smooth passage for pulling the cable. Pulling of Optical Fibre Cable with proper tools and accessories as per construction specifications. Sealing of both ends of the manholes by hard rubber bush of suitable size to avoid entry of rodents into the HDPE pipes, putting split HDPE pipes and split RCC pipes with proper fixtures over cable in the manhole to protect the bare cable in the pulling manhole. Back filling and dressing of manholes.’
- 7.1.8 Digging of pit of size 2 meter X 2 meter X 1.8 meter (depth) for construction / Fixing of RCC ‘O’ Ring/Joining chamber at approximately every two kilometers of internal size of 1.5 meter X 1.5 meter X 1.2 meter using bricks and mortar or fixing pre-cast jointing chamber of internal diameter of 1.2 meter filling of jointing chamber with clean sand, placing either pre-cast RCC cover or stone of suitable size on jointing chamber to protect the joint and back filling of jointing chamber with excavated soil.
- 7.1.9 Digging of pit at every manhole and jointing chamber to a depth of 60 cms, Supply & fixing of route indicator/joint indicator, concreting and backfilling of pits. Painting of route indicators with yellow color and joint indicator by red colour and sign writing denoting route/joint indicator number, as per construction specifications.
- 7.1.10 Where ever trenching work could not be carried out due to field constraints like crossing of bridges and culverts or open trenching is practically not possible, HDD has to be done by using mole machine/HDD machine and the work has to be completed along the entire route without any discontinuity, so that Pipes /cables are laid end to end. Use of Mole machine is for a small stretches only.
- 7.1.11 PLB pipe should be joined with couplers at all entry/exit pits.

#### 7.2 Scope of work for Optical Fibre Cable laying by HDD method.

##### 7.2.1 Horizontal Boring and Insertion of Casing Pipe/ PLB:

Horizontal Boring and Inserting Casing Pipe with rope (material–HDPE of pressure rating 4 Kg/cm<sup>2</sup>) along road and under railway/road/canals/streams crossing in all type of soils at prescribed depth, including all civil works & reinstatement as per BMP standards. Supply of all tested lifting tools and tackles, other required equipment and consumable, labour etc., and making all such necessary arrangements are under tenderer’s scope. Total job has to be completed within time schedule mentioned in work order. The work includes different sizes of boring:

- Boring up to 60 mm diameter, for laying 1PLB pipe.
- Boring from 61 to 100 mm diameter, for laying 2 PLB Pipes.
- Boring from 101 to 150 mm diameter, for laying 4PLB Pipes
- Boring from 151 to 200mm diameter , for laying 7 PLB pipes

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- Boring from 201 to 300mm diameter , for laying 12 PLB pipes
- Boring from 301 to 450mm diameter , for laying 12 PLB pipes
- For laying multiple HDPE pipes/OFC cables in the same route, the site engineer will decide the diameter of the boring to be executed, based on the physical diameter of the proposed nos of HDPE pipes/cables.

**7.2.2 In this system of cable laying, following job specifications should be maintained:**

1. Guided boring/drilling technology is to be used
2. Radar or any other detection system should be used for avoiding damage to existing underground utilities
3. The depth of boring should be such as to clear any underground utilities/obstacles. However, in no case the depth of boring be less than 1.7m from the road surface for OFC PLB pipe.
4. In Horizontal and Vertical boring, the machine should be capable of going up to 10 meter below the ground level.
5. In a shift of 8 hours at least 200 meters of drilling longitudinal or 3 to 4 road crossings should be possible.
6. The span of HDD ( shot length) will be decided by the Engineer-in –charge as per the site requirement.
7. The Contractor should provide sufficient Metal Barricades, Warning Lamps, Display boards indicating, the Name of the Contractor , Organization : BSNL, Contact Number at the work site.
8. Bangalore City Strata comprises of around 3% of Hard rock. In case of any route, rock is encountered during HDD operations, and there is no alternate route available, the HDD machine must be capable of drilling through the rock and the route must be completed. If the contractor is failing to complete the work order on such routes, no payment will be made for the partially completed work.

**7.2.3 Ground Penetrating Radar Survey and damage to Telephone Cable and other underground services.**

The contractor should collect all available information regarding underground services and take necessary care to protect them. He should also have sufficient arrangements to identify and protect such underground services. The contractor shall carry out Ground Penetrating radar survey along the proposed cable route at his own cost to identify the underground services and for setting out the routes as directed by Construction Officer. The Construction Officer shall provide route map to the contractor if available for plotting the existing utilities and setting the route for horizontal drilling.

**7.3 SCOPE OF THE WORK FOR SPLICING WORKS**

The contract is meant for carrying out splicing of 12F/24F/48F/96F/ fiber OF cables laid in Bangalore Telecom District. The scope and description of the works including the responsibility of BSNL and the contractor is enumerated in the following paragraphs:

The contractor has to supply the conventional /Ribbon Splicing machine, back up generator, associated meters such as OTDRs, Source Meter, Power Meter, Splicing tools and the skilled splicer to operate the splicing machine and carry out the fiber splicing. The Contractor at his own cost should arrange Vehicle required for OF Cable Splicing and transportation of men and material, etc for splicing.

1. The operation of the splicing machine, associated works like preparing the cable, cutting the fibre for splicing, placing the spliced ribbons properly in trays, testing the quality of splice, placing the enclosures suitably in joint pit, acceptance testing, preparation of documents are all jobs of the contractor.
2. All the routes in which OFC cable laying has been carried out shall be spliced and terminated end to end.
3. Suitable joint pit required for carrying out the splicing work shall be dug by the contractor And also restore the pits after completion of the splicing.
4. The Contractor has to collect the store materials at his own cost such as FDMS Outdoor Kit/ FDMS Exge Rack/C Channel / Runways etc from Divisional Cable Stores situated at WMS compound, Bangalore-41.
5. The splicing should achieve standard acceptable results for the joints. For this purpose, the measurements by OTDR will be carried out from the both ends of the cable in 1310 and 1550 wavelengths. The attenuation of the OF Cable will be checked by sending the light source from one end of the cable and received at the other end. The result should be within the permissible limits as per the standard practice and Engineering Instructions available with BSNL. In case the results are not meeting, the iteration of splicing operation to be repeated till a satisfactory result is achieved. For this purpose the splicing machine should be maintained to a proper level of satisfactory operation which does not need repeated iteration.

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6. Forming the ribbons suitably after splicing inside the enclosure, sealing the enclosure as per the standard procedure laid in the EIs shall be the job of the contractor.
7. The contractor, on receiving the Work Order and intimation, shall be equipped with all kinds of measuring instruments & materials required for OFC Construction works such as Splicing Machine, OTDR, Source Meter, Power Meter, Splicing Tools, Skilled Splicer and Engineers. The concerned SDE CC will coordinate to execute the job.
8. These splicing may be either for straight joint, branch joint or for terminations at FDMS in the exchange premises.
9. The splicing should be given warranty for one year against workmanship. In case of any internal damage( without physical damage ), the contractors shall repair the joints without any extra cost during the warranty period.
10. Payment terms : The payment for the works completed in all respects such as depth AT, pulling of the cable, in route splicing, end to end termination of the cable in FDF/FDMS, A/T of the routes / fibres shall be released.
11. For claiming the payment, the contractor has to submit the bill along with satisfactory Completion Report and Acceptance Testing Report for the route.
12. Acceptance Testing will be done by T&D Circle / DE A/T BGTD. AGM Cable Construction will coordinate to execute the job.
13. The contractor has to prepare three sets of A/T Books ( Which includes traces of each fibre in 1310 and 1550 Wavelength and attenuation sheets) in spiral binding form
14. Normally the work will be offered in such a way that the contractor is engaged for full day or continuous days for completing the job. However, in case of contingencies, if this continuous working is not maintained, the contractor shall not have any claim for continuous job.
15. On receiving the Work Order, the contractor should report on the stipulated date for carrying out the work. Normally 3 days notice will be given in the Work Order for starting date.

#### **7.4 ALLIED ACTIVITIES:**

##### **7.4.1 Transportation of materials:**

The materials required for executing the work entrusted to the Contractors against a work order shall be made available at District Stores Depot at BGTD. In some cases the materials may be available at Sub - divisional store godown. The Contractor shall be responsible for transporting the materials, to be supplied by BSNL or otherwise to execute the work under contract, to site at his/their own cost. The costs of transportation are subsumed in the Standard Schedule Rates and therefore no separate charges are payable on this account.

##### **7.4.2 Disposal of Empty Cable Drums:**

The Contractor shall be responsible to dispose of the empty cable drums after laying of the cables. The cost of various sizes of empty cable drums recoverable from the Contractor has been fixed taking into account the prevailing market rates as mentioned in this document.

**7.4.2.1** It shall be obligatory on part of the contractor to dispose of the empty cable drums at his/ their level and the amount fixed for various empty cable drums shall be recovered from the bill for the work for which the drum (s) was / were issued or from any other amount due to the contractor or the Security Deposit.

**7.4.2.2** The Contractor shall not be allowed to dump the empty cable drums in Govt. / Public place which may cause inconvenience to the department / Public. If the Contractor does not dispose of the empty cable drums within 3 days of becoming empty, BSNL shall be at liberty to dispose off the drums in any manner deemed fit and also recover double the amount of cost of empty cable drum from the bill / security deposit / any other amount due to the contractor.

**7.4.3 Supply of Material:** There are some materials required to be supplied by the contractor for execution of works under this contract like Bricks, Cement, Wire mesh and Steel for protection, etc, besides using other consumables which do/don't become the part of the asset. The Contractor shall ensure that the materials supplied are of best quality and workmanship and shall be strictly in accordance with the specifications.

The Contractors shall have a local establishment with office address at Bangalore after finalization of the tender to have better coordination with BSNL and local authorities.

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- 1) The scope of work includes obtaining permission from the local authorities, for this purpose BGTD will sign the application form in the format detailing the routes, number of pits to be made, etc, to the contractor for submission to BMP or local authorities. The contractor in turn has to submit and obtain the demand note from the local authorities for effecting the prescribed payment to BBMP or local authorities towards road cutting permissions.
- 2) In case there is complete ban or restrictions in carrying out the work imposed by BMP, then extension of time will be granted on getting written intimation from the contractor.
- 3) HDD works can be carried out on all days
- 4) The pits made for carrying out the work to be restored to the original level to the satisfaction of the local authorities.

**7.5 VALUE / VOLUME OF WORK:** The estimated cost of work is as mentioned in the Notice Inviting Tenders which has been worked out based on standard scheduled rates mentioned in this tender document. The actual value of work may vary based on the actual requirement but generally being limited to +/- 25% of the indicated value.

Name of the Area	OF cable laying by HDD	OF cable laying by Trenching
BGTD including Rural SDCAs	12.00 km	2 Km

**7.6 JURISDICTION OF CONTRACT:** The jurisdiction of the contract shall be the area covered by Exchanges in **BGTD SSA including sub-urban SDCAs**. If any additional telephone exchange is planned, the same shall be included in the zone in the vicinity of concerned exchange keeping in view the logistics of carrying out the work.

Scope of work includes jobs relating to road cutting, excavation in trenches, laying required cables/pipes through trenches, placing of bricks for identification and safety, refilling the trenched area as per specification and to the satisfaction of the AGM. The excavation may have to be carried out in different type of soils for which rates would remain the same. It may be required to lay either RCC or GI Pipes in road crosses or at other required places as per the requirements of BSNL and draw the cables through the pipes. For OF cable, HDPE /PLB pipes will have to be laid. The scope of work also includes the road reinstatement works under the jurisdiction of Bruhat Bangalore Mahanagara Palike (BBMP)/BDA to be carried out as per Technical Specifications of BBMP/BDA/CMC. The acceptance of such works completely rests with BBMP/BDA/CMC authorities.

The works will be required to be carried out within the areas served by Bangalore Telecom District covering Urban BBMP BGTD, from time to time. The contractor(s) shall execute the work(s) entrusted to them within the period, either stipulated in the work order issued by the AGM or stipulated in the road cutting permits issued by BBMP/BDA/CMC. It is the responsibility of the contractor to employ sufficient men for the works ordered so that the targets, for completion of work as prescribed shall be met.

**SOIL/ Surface of earth and rates:** Rate offered for road cutting, trenching & refilling with excavated earth is common for all type of soils. Rate offered for refilling with sand, brought from outside, shall be as per specifications of BBMP/BDA/CMC. The tenderers must note that the quantum of the work in BBMP limits largely depends upon the permission given by BBMP for the road cutting and hence no fixed quantum /regular flow of work can be guaranteed and some of the items may not be required to be performed. For example, the tenderer may be asked to carry out only laying of the cable in the trenches. In such case, the tenderer will not have any claim whatsoever for other items of works.

#### **TECHNICAL - SPECIFICATIONS & BRIEF DESCRIPTION OF WORKS**

**EXCAVATION OF TRENCHES:** Trenches for cable laying will depend upon the requirements and number of cables to be laid. The width may be increased as per BSNL requirement. Standard size of trench for purpose of calculation for OFC cable laying will be the depth of the trench 1.65 meters, top width

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0.45 meters & bottom width 0.30 meters. The payment for final reinstatement will be done strictly as per the type of surface & width of the trenches and/or size of manholes, hand holes mentioned in the permission letter of BBMP and work order of BGTD. Payment for road reinstatement will be allowed, strictly, as per these measurements and no deviation will be permitted.

**PRECAUTIONS:** Use cable drum jack and spindle for paying out the cables. Rotate the cable drums in the direction of the arrow indicated on the flange. See that the mazdoors who pull cable do not cluster at one point and that they are distributed through out the length of the pulling portion of the cable. While laying, never bend the cable to a radius smaller than 9 times the overall cross sectional diameter of the cable. Trench should be cleaned for any fallen stones etc., before actual laying. While pulling cable through pipe make sure that cable is not damaged at the mouth of the pipe. Use grease on the cable to reduce friction. Place warning bricks continuously over the cable. Get the activities of "Putting soft earth and placing warning bricks" acceptance tested. Replace the warning bricks of other utility services if they got disturbed while trenching.

**ROAD CROSSING PIPE LAYING:** RCC Pipes of 250 mm diameter shall be laid in the road crossing trenches. In some cases GI Pipes 50 mm sizes to 100 mm sizes dia may have to be laid. Pipe laying work involves jointing of collars and lowering the same in the trench and filling up the trenches and leveling the road and making the road road-worthy without any humps or depressions in the out surface.

**BACK FILLING AND CONSOLIDATION:** Semi circular RCC Pipes (not bricks) are to be placed over HDPE Pipes for OFC laying as per company standards. Semi-circular pipes will be supplied by the contractor(s) themselves. After laying of the cables/pipes, the trenches are to be back filled by the soil excavated, wherever the refilling is required to be done with course sand, fresh sand should be brought from outside and refilled. If excavated sand is used for refilling then no payment will be allowed.

The final reinstatement will have to be done by the contractor as per specifications and to the satisfaction of the respective corporation/municipalities within the targeted period of completion.

**DAMAGES TO THE EXISTING INSTALLATION AND TRIAL PITS:** The contractor shall take all precautionary methods to avoid any damage to the existing installation in the places where the trenches are to be made. The contractors are responsible for any or all damage caused to the existing cables or the pipe lines of Karnataka Electricity Systems, Bangalore Water Supply and Sewerage Systems. The contractors will have to make good the damage at his own expense. If the contractors fail to do so, the AGM will arrange to repair and the cost of such repairs will be deducted from the contractor's bill. The AGM as a sole judge will decide the cost of such repair. In order to avoid such damages, it is necessary to dig "TRIAL PITS" before start of trenching work. These trial pits will be of the size of approximately 30 cm wide and 60 to 120 cm length (at right angles to the length of the cables) with a depth of 1 meter at a suitable interval of cable route. If it is a slab surface, two slabs may be removed and trial pits may be made. The company shall not make any separate payments for trial pits and this expenditure may be included under the cost of trenching and reinstatement.

**TOOLS AND OTHER AMENITIES OF LABOURERS:** The contractor shall provide at his cost all tools, caution boards & barricades tackle, danger lights and flags and other requirements for efficient and speedy progress of the work. For safety purposes, it is recommended to use pickaxe below one for the surface of the soil so that damages to existing cables can be avoided. It is the responsibility of the contractor to provide tents, lights and water for their labourers in the area where tents will be pitched for work. The contractors are responsible for the movement of their crew from one place to another place.

**SUPERVISION:** The contractor shall provide sufficient and suitable labourers and supervisors to ensure that all the instructions are properly and promptly carried out. The work is to be carried out with due diligence and in the professional manner. The contractor will organise his labour and supervision in such a manner as excavation, cable laying and reinstatement works are carried out without interruption on each day. No cable trenches are to be left open normally, after the day's work is completed. If in the event of a length of open trench is left, the contractor shall be responsible for the provision at his expense of proper guarding and danger lighting of the trenches to avoid accidents and damage to third parties. The contractors shall be able to execute the work between 2 and 3 locations simultaneously by keeping adequate number of persons at his disposal for speedy execution of works entrusted to him.

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**PROCEDURE TO CARRYOUT WORK, ITS COMPLETION & PRECAUTIONS:** The AGM shall issue a work order for 1 to 10 Kms of works or less with the assignment of supervisory staff. The contractor shall arrange to mobilize his team to their work spot. Though the drawing, which will be accompanied a work order will be a sketchy one, the company engineer shall mark the exact location of the work. After starting the work, the trial pits to be made for the clearance and the company supervisors will mark the required area of the trenching. After the completion of the required trenching for the type of cable is to be laid, the company shall take the measurement of the trenches and enter in the approved measurement book. Then the laying of cables, placing of bricks and reinstatement will start. After the completion of the reinstatement work, the company will write the length of the cable laid and complete the measurement book with the signatures of both company representative and contractor for having accepted the measurements. Before the start of the work, the BSNL shall obtain necessary permission from Corporation, Municipality, Electricity Company, Water and Sewerage Company, Police authorities for their clearance for night work, particularly for controlling the traffic. In addition to trenching, cable laying and reinstating, the following supplies and works are also being offered to the contractors.

**CONCRETING ATOP PIPES:** In some cases cement concreting in the proportion 1:2:4 (Cement + Sand+ + 40 mm grade Jelly) is to be done on top piles for extra protection to cables. The work will involve carriage of materials to site, concreting and curing also to the satisfaction of the supervisory officer. A sketch for the work carried out should accompany the bill. On readiness of the duct for cable construction, cable has to be pulled using rope while PLB pipe/ Nylon preferably blowing method.

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## Section –VIII

### 8. CABLE CONSTRUCTION SPECIFICATIONS

#### 8.1 OPTICAL FIBRE CABLE

The guidelines in the form of Engineering instructions (E.Is.) on Construction Practices of Optical Fibre Cables are issued by T& D wing of BSNL from time to time. However, the present practices are summarized here under, from the point of view of describing scope of work under various items of work. This document will need revision as and when practices undergo any revision.

##### 8.1.1 General

The Optical Fibre Cable is planned considering the following objects of the scheme.

**8.1.1.1** Minimum possible route length vis-a vis route having maximum number of towns with potential telecom growth.

**8.1.1.2** Linking of small exchanges off main road by leading in OFC vis- a vis routing the main cable itself via such exchanges.

After deciding above mentioned issues, a detailed measurement of lengths of cable route along with details of rail/road crossings, culverts, causeways, etc may be recorded in the detailed survey register. The probable locations of joints, terminations and re-generators may also be decided and marked on the route map. On the basis of surveys, general permission from road and rail authorities for laying the Optical Fibre Cable along the decided routes and permission for rail /road crossings will have to be obtained. Generally, OFC is laid straight as far as possible along the road near the boundaries, away from the burrow pits. The OFC is laid along the roads at a minimum distance of 15 meters from the center line of the road or in accordance with the permission from the concerned road authorities in view of their road-widening plan. As the OFC carries high capacity traffic and is planned for 40 years of life, it is imperative that the cable is laid after obtaining due permission from all the concerned authorities to avoid any damage/shifting at a later stage and also disruption of service/revenue loss.

In special cases, where it may be necessary to avoid burrow pits or low laying areas, the cable may be run underneath the shoulders at a distance of 0.6 meter from the outer edge of the road embankment provided the same is located at least 4.5 meters away from central line of road and 1.2 meter below the road surface.

The Optical Fibre Cable is laid through HDPE/PLB pipes buried at a nominal depth of 165 cms. The steps involved in OF Cable construction are as under:

- i) Excavation of trench upto a nominal depth of 165 cms, according to Construction specifications along National/State Highways/other roads and also in city limits as mentioned in the notice inviting tender.
- ii) Laying of HDPE/PLB pipes/coils coupled by sockets in excavated trenches, on bridges and culverts, drawing of 6 mm Polypropylene para rope (P.P. rope) through the HDPE/PLB pipes / coils as per Construction specifications and sealing of HDPE/PLB pipe ends at every manhole by HDPE/PLB end caps of suitable size.
- iii) Providing of mechanical protection by RCC Pipes/GI pipes and /or concreting/chambering according to construction Specifications, wherever required.
- iv) Fixing of GI pipes/ troughs with clamps at culverts/bridges and/or chambering or concreting of G.I.pipes / troughs, wherever necessary.
- v) Back filling and dressing of the excavated trenches according to construction specifications.
- vi) Opening of manholes (of size 3 meters X 1 meter X 1.65 meters depth), replacing existing 6mm P.P. rope by 8mm P.P. rope (from manhole to manhole) for ensuring smooth passage for pulling the cable. Pulling of Optical Fibre Cable with proper tools and accessories as per construction specifications. Sealing of both ends of the manholes by hard rubber bush of suitable size to avoid entry of rodents into the pipes, putting split HDPE pipes and split RCC pipes with proper fixers over cable in the manhole to protect the bare cable in the pulling manhole. Back filling and dressing of manholes.
- vii) Digging of pit of size 2 meter X 2 meter X 1.8 meter (depth) for construction of jointing chamber at approximately every two kilometers of internal size of 1.5 meter x 1.5 meter x 1.2 meter using bricks and mortar or fixing pre-cast jointing chamber of internal diameter of 1.2 meter filling of jointing chamber with clean sand, placing either pre-cast RCC cover or stone of suitable size on jointing chamber to protect the joint and back filling of jointing chamber with excavated soil.

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- viii) Digging of pits 1 meter towards jungle side at every manhole and jointing chamber to a depth of 60 cms
- ix) Fixing of route indicator /joint indicator, concreting and back filling of pits. Painting of route indicators with yellow colour and joint indicator with by red colour and sign writing denoting route/joint indicator number, as per construction specifications.

## **8.2 Specifications of Materials used**

**8.2.1 HDPE / PLB Pipe / Coils :** The Optical Fibre Cable is pulled through 50 mm outer diameter HDPE/ PLB pipes/Coils having strength of 10 kg/sq.cm. 50 mm/40mm HDPE/PLB pipes of 5 meters length or 50 meters coil, should meet specifications as given in GR.no.G/CDS-OS/01 dated December 1994 and revised up to date.

**8.2.2 HDPE Socket :** For coupling HDPE Pipes/coils, HDPE sockets as per IS 4984-1995 ('O' ring type) made of High Density Polyethylene 5010 or equivalent injection grade materials should be used. The HDPE sockets should be black in colour and should be fitted with rubber rings at both ends and should confirm to GR. No.G/CDS-05/01 dated December,1994 and revised upto date. 5mm X 5mm projections inside at the center of the socket should be provided to prevent the pipes from passing through. It should weigh 150 gms, (with a tolerance of +/- 5 %) and should be able to withstand a pressure of 10 kg.per.sq.cms. without any damage /deterioration in performance.

**8.2.3 PP Rope :** 6 mm pp rope is drawn through the HDPE pipes/ coils and safely tied to the end caps at either ends with hooks to facilitate pulling of the OF cable at a later stage. The pp rope used is 3 strand Polypropylene Para Pro rope having yellow colour and shall be of 6 mm diameter and it should have a minimum breaking strength of 550 kgs. The length of each coil of rope should be 205 meters and it should confirm to (i) BS 4928 Part-II of 1974 (II) IS 5175 of 1982 (iii) It should be of special grade and should have ISI certificate mark (iv) It should be manufactured out of industrial quality Polypropylene.

**8.2.4 HDPE end caps:** For pulling the cable through the pipes, it is necessary to have suitable manholes at every 200 m length and also at bends and corners suitably located. The pipes are laid for 200 m or less at a time for t/he distance between two manholes. The ends of the HDPE pipes/coils are closed with HDPE End Caps. The end caps used should be suitable for closing 50 mm outer diameter class V HDPE pipes. The end caps should be manufactured from High Density Polyethylene, should withstand internal pressure of 10 kg per sq.cms., should be black in colour, should have a weight of 100 grams(with tolerance of +/- 5%) and should confirm to G/CDS-05/01 dated December,1994 and revised upto date. A suitable arrangement should be provided in the End Cap to the PP Rope.

## **8.2.5 MATERIALS FOR MECHANICAL PROTECTION**

For lesser depths requiring mechanical protection as per specifications and in built up areas, in towns and cities falling within the municipal limits, suitable mechanical protection is provided to HDPE pipes / coils using RCC full round Pipes or GI pipes or concreting of size 25cms X 25 cms reinforced with MS weld mesh or a combination of any of these as per the written instructions of the Engineer in charge.

**8.2.5.1 HALF ROUND RCC PIPES:** After laying of PLB/ HDPE Pipes it is covered by a consolidated layer of soft earth (or sand in special cases where excavated material contains sharp stones/ objects) which would be free from stones or other sharp objects, carefully presses and lightly tamped. On this layer of soft earth, a layer of half round RCC pipes 1m long, is placed as a warning layer and also a mechanical protection, as telecom cables are vulnerable to damages due to excavations by other agencies.)

**8.2.5.2 RCC FULL ROUND PIPES :** Reinforced cement concrete pipes (Spun type) coupled with RCC collars sealed with cement mortar are used to provide mechanical protection to HDPE / Coils. The RCC pipes/ collars should be of NP-2 class for 100 mm / 150 mm (internal diameter) full round, confirming to IS standard 458- 1988 revised up to date. The pipes should have a nominal length of 2 meters.

The RCC collars should be properly sealed using cement mortar 1: 3 (1: 53 grade cement of reputed brand, 3: fine sand without imparities). If the mechanical protection is provided by RCC pipes, every third joint will be embedded in a concrete block of size 60 cms (L) X 40 cms (W) X 25 cms (H) of 1:2:4 cement concrete mix 1:2:4 (1: cement, 2: coarse sand 4: stone aggregate of 20 mm nominal size) so that the

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alignment of RCC pipes remain firm and intact. Both ends of RCC/GI pipes will be sealed by providing concrete block of size 40cm (L) X 40cm (W) X 25cm (H) of 1:2:4 cement concrete mix to avoid entry of rodents.

#### **8.2.5.3 G.I. PIPES**

G.I. Pipes should be of medium duty class having diameter of 65 mm./40mm. The G.I.pipes should confirm to IS 554/1985 (revised upto date) IS 1989 (part-I). 1900 sockets (revised up to date) & IS 1239 (Part-II) 1992 (revised up to date) Wherever protection by G.I. Pipe is provided, it is preferable to use HDPE coils. As space on parapet wall on Bridges/culverts is limited, 40 mm GI pipes may be used with 32 mm HDPE coil drawn inside.

#### **8.2.5.4 M.S.Weld Mesh Item code – PCCT**

The HDPE/GI Pipe can also be protected by embedding it in concrete of size of 25 cms X 25 cms reinforced with MS weld mesh. The MS weld mesh used should be of 50 mm X 100 mm size, 12 SWG, 120 cms in width in rolls of 50 m each. One meter of MS weld mesh caters to approx.3 meters of concreting

The strength of RCC /CC is dependent on proper curing, there fore, it is imperative that water content of CC /RCC mix does not drain out into the surrounding soil. In order to ensure this, the RCC/CC work should be carried out by covering all the sides by yellow PVC sheets of weight of not less than 1 KG per 8 sq. m. to avoid seepage of water into the soil.

#### **8.2.6 Joint chamber/'O' Ring protection chamber**

The joint chamber is provided at every joint normally at a distance of 2 kms to keep the OFC joint well protected and also to keep extra length of cable which may be required in the event of faults at a later date. The joint chambers are made at site using i) brick / mortar or ii) pre cast RCC type.

##### **8.2.6.1 Construction of brick chamber at site**

For constructing brick chamber, first a pit of size 2 m x 2m x 1.8 m depth is required to be dug. Then base of the chamber is made using concrete mix of 1:5:10(1:1.7m x 1.7 m x 0.15 m (thickness). Walls of brick chamber having internal dimensions of 1.2 m x 1.2 m x 1.2 m x 1m(H) should be constructed on this base having wall thickness of 9” using cement mortar mix of 1:5(1: cement, 5: fine sand). The bricks to be used for this purpose should be of size 9”x 4.5”x 3”, best quality available and should have smooth rectangular shape with sharp corners and shall be uniform in colour and emit clear ringing sound when struck. The joint chamber should be so constructed that HDPE pipe ends remain protruding minimum 5 cms inside the chamber on completion of plastering. The HDPE pipes should be embedded in wall in such a way so that, the bottom brick should support the pipe and upper brick should be provided in a manner that HDPE pipe remains free from the weight of the construction. The joint chamber should be plastered on all internal surfaces and top edges with cement mortar of 1:3 (1: Cement, 3:Coarse sand) 12 mm thick finished with a floating coat of complete cement as per standard. Pre cast RCC slab with two handles to facilitate easy lifting of size 0.7 m x 1.4 m and of thickness of 5 cm having one handle for each half in centre and word ‘OFC’ engraved on it are to be used to cover the joint chamber. Two numbers of such slabs are required for one joint chamber. This pre-cast slab should be made of cement concrete mix of 1:2:4 (1: cement, 2:coarse sand, 4:stone aggregate 6 mm nominal size) reinforced with steel wire fabric 75 x 25 mm mesh of weight not less than 7.75 Kg per sq. meter. The joint chamber is filled with clean sand before closing. Lastly, back filling of joint chamber pit with excavated soil is carried out.

##### **8.2.6.2 Pre cast RCC Chamber**

The pre cast slab should be made of cement concrete mix of 1:2:4 (1:cement 2:coarse and 4:stone of aggregated 6 mm nominal size) Reinforced with steel rod of 10 mm at a spacing 4 inch between two rods. For fixing pre cast RCC chamber, first a pit of size 1.2m X 1.2m X 0.6 m depth is required to be dug. Pre cast RCC chamber consists of two points. (i) Full round RCC joint chamber with dia of 120 cm and height of 60 cm and thickness of 7.5 cm. (ii) Round top cover will be with dia of 120 cm and thickness of 7.55 cm having one handle in centre and word ‘BSNL OFC’ engraved on it. The precast RCC ‘O’ring should be placed in such a way that the top surface is visible on the foot path.

**8.2.7 RUBBER BUSH** :To prevent entry of rodents in to HDPE pipes, the ends of HDPE are sealed at every manhole and joint using rodents resistant hard rubber bush (Cap) after optical fibre cable is pulled. The

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rubber bush should be manufactured from hard rubber with grooves and holes to fit into 50 mm HDPE Pipe (class V), so that it should be able to prevent entry of insects, rodents, mud and rainwater in to the HDPE pipe. It should weigh 150 gms (with a tolerance of +/- 5%). It should conform to specification No. G/CDS-05/01 dated December, 1994 and revised up to date.

**8.2.8 Route /Joint indicator :** The route / joint indicator are co- located with each manhole /joint chamber. In addition route indicators are also to be placed where route changes direction like road crossing etc. The route/joint indicators made pre cast RCC should have the following dimensions:

Base - 250 mm X 150 mm.; Top- 200 mm X 75 mm .; Height - 1250 mm

The word '**BSNL OFC**' should be engraved on the route/joint indicators.

The route indicators are painted yellow and the same are placed at 2 ft. away from the centre of the trench towards jungle side. The joint indicators are placed at OFC joints and placed 1 ft. away from wall of the joint chamber facing jungle side and are painted red. The engraved Word '**BSNL OFC**' should be painted in white .On route as well as joint indicators. Numbering of route indicators/ joint indicators should also be done in white paint. The number scheme For route indicator will be joint No. /route indicator No. for that joint.

For example, 2/6 marking on a route indicator means 6<sup>th</sup> route indicator after 2<sup>nd</sup> joint. Additional joints on account of Faults at a later date should be given number of preceding joint with suffix A, B, C, and D. For example sign writing 2A on a joint indicator means, additional joint between Joint No. 2 and 3. The numbering of existing route/ joint indicator should not be disturbed on account of additional Joints. Enamel paints of reputed brand should be used for painting and sign writing of route as well joint indicators.

### **8.3 EXCAVATION OF TRENCHES**

#### **8.3.1 Trenching --- Item code – OFCT**

**8.3.1.1 Location and Alignment of the Trench:** In city areas, the trench will normally follow the foot path of the road except where it may have to come to the edge of the carriage way when cutting across road with specific permission from The concerned authorities maintaining the road (such permissions shall be obtained by the department). Outside the city limits the trench will normally follow the boundary of the roadside land. However, where the road side land is full of burrow pits or a forestation or when the cable has to cross culverts/bridges or streams, the trench may come closer to the road Edge or in some cases, over the embankment or shoulder of the Road (Permissions for such deviations for cutting the embankment as well as shoulder of the road shall be obtained by the department). The alignment of the trench will be decided by a responsible department official not below the rank of a Junior Telecom Officer. Once the alignment is marked no deviation from the alignment is permissible except with the approval of Engineer-in-charge. While marking the alignment only the centre line will be marked and the contractor shall set out all other work to ensure that, the excavated trench is as straight as possible. The contractor shall provide all necessary assistance and labour, at his own cost for marking the alignment. Contractor shall remove all bushes, undergrowth, stumps, rocks and other obstacles to facilitate marking the centre line without any extra charges. It is to be ensured that minimum amount of bushes and shrubs shall be removed to clear the way and the contractor shall give all consideration to the preservation of the trees.

#### **8.3.1.2 Line-Up:**

The line-up of the trench must be such that HDPE /PLB pipe(s) shall be laid in a straight line except at location where it has to necessarily take a bend because of change in the alignment or gradient of the trench, subject to the restrictions mentioned elsewhere.

#### **8.3.2 Method of Excavation:**

**8.3.2.1** Excavating trenches of required width including excavation for sockets and dressing of sides and ramming of bottoms depth up to 1.65 m including getting out excavated soil and then returning the soil as required in layers not exceeding 20 cm in depth including consolidating each deposited layer by ramming, watering etc., and disposing of surplus excavated soil. Filling available excavated earth in trenches in layers not exceeding 20 cm in depth consolidating each deposited layer by ramming and watering and lift up to 1.65 m. In city limits as well as in built up areas, the contractor shall resort to use of manual labour only to

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ensure no damage is caused to any underground or surface installations belonging to other Public utility services and/or private parties. However, along the Highways and cross country there shall be no objection the contractor resorting to mechanical means of excavation, provided that no underground installations exist in the path of excavation, if any, are damaged. There shall be no objection to resort to horizontal boring to bore a hole of required size and to Push through G.I. pipe (65mm/40mm dia) through horizontal bore at road crossing or rail crossing or small hillocks etc. All excavation operations shall include excavation and getting out.' Getting out ' shall include throwing the excavated materials at a distance of at least one meter or half the depth of excavation, whichever is more, clear off the edge of excavation. In all other cases 'getting out ' shall include depositing the excavated materials as specified. In rocky strata excavation shall be carried out by use of electro mechanical means like breakers or by blasting wherever permissible with express permission from the competent authority. If blasting operations are prohibited or not practicable, excavation in hard rock shall be done by chiseling. Trenching shall as far as possible be kept ahead of the laying of pipes. Contractor shall exercise due care that the soil from trenching intended to be loose for back filling is not mixed with loose debris. While trenching, the Contractor should not cause damage to any underground installation belonging to other agencies and any damage caused should be made good at his own cost and expense.

Necessary barricades, night lamps, warning boards and required watchman shall be provided by the contractor to prevent any accident to pedestrians or vehicles. While carrying out the blasting operations, the contractor shall ensure adequate safety by cautioning the vehicular and other traffic. The contractor shall employ sufficient man-power for this with caution boards, flags, sign writing etc.

The contractor should provide sufficient width at the trench at all such places, where it is likely to cave in due to soil conditions without any extra payment. A minimum free clearance of 15 cms should be maintained above or below any existing underground installations. No extra payment will be made towards this. In order to prevent damage HDPE/PLB pipes over a period of time, due to the growth of trees, roots, bushes, etc, the contractor shall cut them when encountered in the path of alignment of trench without any additional charges.

In large burrow pits, excavation may be required to be carried out for more than 165 cms in depth to keep gradient of bed less than 15 degrees with horizontal. If not possible as stated above, alignment of trench shall be changed to avoid burrow pit completely.

**8.3.3 Depth and size of the Trench :** The depth of the trench from top of the surface shall not be less than 165 cms unless otherwise relaxation is granted by competent authority under genuine circumstances. In rocky terrain, the depth of the trench may be restricted to a depth of 100 to 140 cms. However Engineer-in-charge in exceptional cases due to adverse site conditions encountered, may allow to lay HDPE/PLB pipes at a lesser depth with additional protection. In all cases, the slope of the trench shall not be less than 15 degrees with the horizontal surface. The width of the trench shall normally be 45 cms at the top and 30 cms at the bottom. In case, additional pipes (HDPE/CI/RCC pipes) are to be laid in some stretches, the same shall be accommodated in this normal size trench. When trenches are excavated in slopes, under ground, inclined portion the lower edge shall be treated, as top surface of land and depth of trench will be measured accordingly. In certain locations, such as uneven ground, hilly areas and all other places, due to any reasons what so ever it can be ordered to excavate beyond standard depth of 165 cms to keep the bed of the trench as smooth as possible. Near the culverts, both ends of the culverts shall be excavated more than 165 cms to keep the gradient less than 15 degrees with horizontal.

**For additional depth in excess of 165 cms., additional payment of pro rata basis shall be applicable.**

If excavation is not possible to the minimum depth of 165cms., as detailed above, full facts shall be brought to the notice of the Engineer in charge in writing giving details of location and reason for not being able to excavate that particular portion to the minimum depth. Approval shall be granted by the competent authority in writing under genuine circumstances. The decision of the competent authority shall be final and binding on the contractor.

**Dewatering:** The contractor shall be responsible for all necessary arrangements to remove or pump out water from trench. The contractor should survey the soil conditions encountered in the section and make his own assessment about dewatering arrangements that may be necessary. No extra payment shall be admissible for this.

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**Wetting :** Wherever the soil is hard due to dry weather conditions, if watering is to be done for wetting the soil to make it loose, the same shall be done by the contractor. No extra payment shall be admissible for this.

**Blasting :** For **excavation in hard rock**, where blasting operations are considered necessary, the contractor shall obtain approval of the Engineer-in-charge in writing for resorting to blasting operation.

The contractor shall obtain license from the competent authority for undertaking blasting work as well as for obtaining and storing the explosive as per the Explosive Act, 1884 as amended upto date and the explosive Rules , 1983, the contractor shall purchase the explosives fuses detonators, etc. only from a licensed dealer. Transportation and storage of explosive at site shall conform to the aforesaid Explosive Act and Explosive Rules. The contractor shall be responsible for the safe custody and proper accounting of the explosive materials. Fuses and detonators shall be stored separately and away from the explosives. The Engineer-in-charge or his authorized representative shall have the right to check the contractor's store and account of explosives. The contractor shall provide necessary facilities for this. The contractor shall be responsible for any damage arising out of accident to workmen, public or property due to storage, transportation and use of explosive during blasting operation.

Blasting operations shall be carried out under the supervision of a responsible authorized agent of the contractor (referred subsequently as agent only ), during specified hour as approved in writing by the Engineer-in-charge. The agent shall be conversant with the rules of blasting. All procedures and safety precautions for the use of explosives drilling and loading of explosives before and after shot firing and disposal of explosives shall be taken by the contractor as detailed In **IS :4081** safety code for blasting and related drilling operation.

**Trenching Near Culverts/ Bridges :** The HDPE/PLB pipes shall be laid in the bed of culvert at the depth not less than 165 cms protected by G.I pipes and concreting as decided by Engineer-in-charge. Both ends of culverts shall be excavated more than 165 cms in depth to keep the gradient of not less than 15 degree with horizontal. The bed of trench should be as smooth as possible. While carrying out the work on bridge and culverts, adequate arrangement for cautioning and the traffic by way of caution boards during day time and danger lights at night shall be provided. In case of small bridges and culverts, where there is a likelihood of their subsequent expansion and remodeling, the cable should be laid with some curve on both sides of the culvert or the bridge to make some extra length available for readjustment of the cable at the time of reconstruction of culvert or the bridge.

#### **8.3.4 LAYING OF H.D.P.E. / PLB PIPES : Item code – HDPE**

After the trench is excavated to the specified depth, the bottom of the trench has to be cleared of all stones or pieces of rock and leveled up properly. A layer of soft soil/or sand (in case the excavated material contains sharp pieces of rock/stones) of not less than 5cms is required for leveling the trench to ensure that the cable when laid will follow a straight alignment. Adequate care shall be exercised while laying so that the OF cables are not put to undue tension / pressure after being laid as this may adversely affect the optical characteristics of cables with passage of time. The contractor shall ensure that trenching and pipe laying activities are continuous, without leaving patches or portions incomplete in between. In case intermediate patches are left, measurement of the completed portions will be taken only after work in such left over patches are also completed in all respects.

**Item code WPL1** After laying of PLB/ HDPE Pipes it is covered by a consolidated layer of soft earth (or sand in special cases where excavated material contains sharp stones/ objects) which would be free from stones or other sharp objects, carefully presses and lightly tamped. On this layer of soft earth long a layer of half round RCC pipes( 150mm or 250mmdia,1m long) should be placed for PLB pipes as a warning layer and also a mechanical protection, as telecom cables are vulnerable to damages due to excavations by other agencies. Preparatory to aligning the pipe for jointing, each length of the HDPE/ PLB pipe shall be thoroughly cleaned to remove all sand , dust or any other debris that may clog, disturb or damage the Optical Fibre cable when it's pulled at a later stage. The ends of each pipe and inside of each HDPE socket shall be thoroughly cleaned of any dirt or other foreign materials. After the trench is cleaned the HDPE /PLB Pipes / Coil shall be laid in the cleaned trench, jointed with "O" ring type HDPE sockets & 6 mm PP rope should be drawn through the HDPE/PLB pipes at the time of laying the pipes to facilitate cable pulling at a later stage. At every manhole approximately at every 200m or at bends or turns the PP rope will be tied to the HDPE end caps used for sealing the HDPE pipes, to avoid entry of rodents / mud etc. At the end of each day work, the open ends of the pipes sections shall be tightly closed with end caps to prevent the entry of dirt/mud, water or any foreign matter into HDPE/PLB pipes until the work is resumed. In City, Town, Urban area falling within Municipal / Corporation limits, the HDPE/PLB pipes shall be laid with

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protection using RCC/G.I Pipes/ Concreting reinforced with weld mesh. Moreover in cross country routes, if depth is less than 1.2 meters, protection by using RCC/G.I Pipes/Concreting reinforced with weld mesh shall be provided. Engineer-in-charge shall decide about such stretches and type of protection to be provided in view of the site requirements. Normally 100 mm RCC Pipes shall be used for protecting HDPE/PLB Pipe but if more than one HDPE/PLB Pipe is to be laid and protected, RCC Pipe of suitable size to accommodate the required number of HDPE/PLB Pipes shall be used.

**Item code – GIPT/ RCC** The HDPE/PLB Pipes shall be laid in RCC Full Round spun Pipes/GI Pipes as required at road crossings. The RCC pipes/ GI pipes shall extend at least 3 meters on either side of the road at road crossings. At road crossings, extra GI/ HDPE Pipes may be laid as per the direction of the Engineer-in-charge. On Rail bridges and crossings, the HDPE/PLB Pipes shall be encased in suitable cast iron as prescribed by the Railway Authorities. Wherever RCC pipes are used for protection, the gaps between the RCC collars and the RCC Pipes shall be sealed using cement mortar 1:3 (1 :53 grade cement of reputed brand, 3 : fine sand without impurities) to bar entry of rodents. Every third collar of RCC pipes (normally of 2 meters Length) and also both ends of RCC pipes will be embedded in a concrete block of size 40 cms (W) X 25 cms ( H) of 1:2:1 cement concrete mix ( 1: 53 grade cement of reputed brand, 2 : coarse sand, 3 : stone aggregate of nominal size of 20mm ) so that the alignment of RCC pipes remain firm and intact and to avoid entry of rodents. Wherever GI pipes are used, special care should be taken to ensure that G.I Pipes are coupled properly with the sockets so as to avoid damage to HDPE/PLB Pipe and eventually the OF cable in the event of pressure coming on the joint and G.I. pipe joint giving its way. Rubber bushes shall be used at either ends of G.I./ Pipe to protect HDPE/PLB pipe. Both the ends of G.I. pipes will be embedded in a concrete block of size 40 cms(L) x 40 cm (W) x 25 cms (H) of 1:2:4 cement concrete mix (1:53 grade cement of reputed brand, 2 : coarse sand, 3:stone aggregate of nominal size of 20 mm) so that the alignment of G.I. pipes remain firm and intact and to avoid entry of rodents. In case of protection by concreting at site, the nominal dimension of concreting shall be 250 mm x 250 mm section. Cement Concrete Mixture used shall be of 1:2:4 composition i.e. 1:53 grade Cement of a reputed company, 2: Coarse Sand, 4: Graded Coarse Stone aggregate of 20 mm nominal size, reinforced with MS weld mesh. As the RCC is cast at site, it is imperative to ensure that special care is taken to see that proper curing arrangements are made with adequate supply of water. The contractor shall invariably use mechanical mixer at site for providing RCC protection to ensure consistency of the mix. For carrying out concreting work in trenches, yellow PVC sheets of width not less than 1.0M and of weight not less than 1Kg. per 8sq. meters shall be spread and nailed on sides of the trench to form trapezoidal section for concreting in the cleaned trench, to avoid seepage of water into the soil. A bed of cement concrete mixture of appropriate width and 75 mm thickness shall be laid on the PVC sheet, before laying HDPE/PLB pipes. The HDPE/PLB pipes shall then be laid above this bed of concrete. After laying the HDPE/PLB pipes, MS weld mesh is wrapped around and tied and concrete mix is poured to form the cross sectional dimensions as instructed by the Engineer-in-charge. The strength of RCC is dependent on proper curing, therefore, it is imperative that water content of RCC mix does not drain out into the surrounding soil. Portions where cement concreting have been carried out shall be cured with sufficient amount of water for reasonable time to harden the surface. After curing refilling of the balance depth of the trench has to be carried out with excavated soil. The HDPE/PLB pipes RCC/GI pipes shall be laid only in trenches accepted by Engineer-in-charge or his representative. The contractor shall exercise due care to ensure that the HDPE/PLB pipes, are not subjected to any damage or strain. Water present in the trench at the time of laying the HDPE/PLB pipes shall be pumped out by the Contractor before laying the pipes in the trench to ensure that no mud or water gets into the pipes, thus choking it. In case of nallahs, which are dry for nine months in a year, the HDPE/PLB Pipes shall be laid inside the RCC pipes/ or GI Pipes and concrete laid at a minimum depth of 165cms, as instructed by the Engineer-in-charge. The mechanical protection shall extend at least 5 meters beyond the bed of Nallah on either side. Notwithstanding anything contained in clauses referred above, the Engineer-in-charge may order, based on special site requirements, that the HDPE/PLB Pipes may be encased in reinforced cement Concrete, as detailed, Ibid. While laying the pipes, a gap of 2m is kept at convenient locations approx. 200 m apart and at the bends and turns, which will be used as manholes during OF cable pulling. Ends of the HDPE/PLB pipes at the manholes shall be sealed using HDPE end caps after tying the PP rope to the end caps to avoid choking of the pipes. In a similar manner, manholes shall be kept while approaching bridges, road crossings etc, as instructed by the Engineer-in-charge. The location of the manholes will be decided by the Engineer-in-charge.

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**Laying Protection Pipes On Bridges And Culverts : Item code – GIBC**

In case trenching and pipe laying is not possible in the beds of the culverts, the pipes shall be laid over the culverts/bridges after getting the due permission from the competent authority. Of late the bridge construction authorities are providing ducts below the footpaths on the bridges for various services. The telecom officers need to maintain good liaison with the concerned authority to get one side of the duct allotted for Telecom Cables. In such ducts, G.I. pipes can be coupled and laid for pulling the cables. It would be pertinent to mention here that close liaison with bridge construction authorities would be of immense advantage in ensuring provision of ducts on one or both the sides of the bridges as per future requirements. However, for laying cables on existing bridges, where duct arrangement does not exist, one of the following methods may be adopted. Normally in Bridges / Culverts, where there are no ducts and where the cushion on the top of the Arch is 50cms to 100cm or more, G.I. Pipe (Carrying HDPE/PLB pipe and cable) may be buried on the top of the Arch adjoining the parapet wall, by digging close to the wheel guards. Every precaution shall be taken to see that no damage occurs to the arch of the culvert. After burying the G.I.Pipe, the excavated surface on the arch shall be restored. Where the thickness of the Arch is less than 50 cms, the pipe must be buried under the wheel guard masonry and the wheel guard rebuilt.

If neither of the two methods is possible, the G.I. Pipes/ GI Troughs must be clamped outside the parapet wall with the clamps supplied by the department. If necessary, the pipes may be taken through the parapet wall at the ends where the wall diverges away from the road. In case where the method explained in clauses referred above are not possible, the G.I. pipes / s can be fixed on the top of the road kerb close to the inside face of the parapet wall by means of clamps supplied, using raw plugs and wood screws or small diameter bolts, without damaging the concrete and limiting the external diameter of the bolts to 7.5 mm. The permission for carrying out This work will be obtained from the Road Authorities by BSNL. Methods cited in above clauses should be carried out under close supervision of Road authorities. The surface to be concreted should be thoroughly cleaned and leveled before concreting. At both ends of the Bridges/Culverts, where the GI Pipes/GI Troughs slope down and get buried, the concreting should be extended to ensure that no portion of the GI Pipes/GI Troughs is exposed as ordered by the Engineer-in-charge to protect the Pipe/Trough from any possible damage externally caused. Where white wash/colour wash is existing on the Bridges/Culverts, the same should also be carried out on the concreted portion to ensure uniformity.

**Back Filling and Dressing of the Trench :**

The earth used for filling shall be free from all roots, grass, shrubs, vegetation, trees, saplings and rubbish. Provided that the HDPE/PLB pipes have been properly laid in the trench at the specified depth, the back filling operation shall follow as closely as practicable. The back filling operation shall be performed in such a manner so as to provide firm support under and above the pipes and to avoid bend or deformation of the HDPE/PLB pipes when the HDPE/PLB pipes get loaded with the back filled earth. At locations where the back filled materials contains stones/sharp objects which may cause injury to the HDPE/PLB pipes and where the excavated or rock fragments are indented to refill the trench in whole or in part, the trench should be initially filled, with a layer of ordinary soil or derocked loose earth of not less than 10cms above the pipes. Back filling on public, private roads, railway crossings, footpaths in city areas shall be performed immediately after laying the HDPE/PLB pipes. Back filling at such locations shall be thoroughly rammed so as to ensure original condition and made safe for traffic. All excess soil / material left out on road / foot path / railway crossing shall be removed by contractor. However along the high ways and cross-country, the dug up material left out should be kept as heap above the trench while refilling. In city limits, no part of the trench should be kept open for more than 50 metre length at any time and in all places where excavation has been done, no part of the trench should be kept open over night to prevent any mishap or accident in darkness.

**Cable pulling and Jointing /Splicing**

**Cable pulling Item code – OFCP**

Manholes marked during HDPE / PLB pipe laying of approx. size of 3m length X 1.0 m width X 1.65 m. depth shall be excavated for pulling the cables. There may be situations where additional manholes are required to be excavated, for some reasons, to facilitate smooth pulling of cable. Excavation of additional manholes will be carried out, without any extra cost. De-watering of the manholes, if required, will be carried out without any extra cost. De-watering/ Degasification of the ducts, if required, will be carried out without any extra cost.

The existing 6mm pp rope shall be replaced by with pp rope of 8mm dia between the two consecutive manholes. This is to ensure that the HDPE / PLB pipes are cleaned for pulling the cable without exerting undue tension on the

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OF cable. While cleaning, excessive pressure should not be put which may result in breaking of pp rope and thus require opening of additional manholes. However, in case the cleaning rope gets stuck up during pulling, the location of clogging of HDPE / PLB pipe should be measured and located accurately. The trench at that location should be opened and the HDPE pipe should be cleaned properly or if not possible it should be changed by a clean new HDPE/PLB pipe to facilitate easy cable pulling at a later stage without any breakage. If clogging of HDPE/PLB pipe is in the location where the pipes are protected either by RCC pipe or by concreting and the protection is broken for cleaning/changing the HDPE pipe, the protection thus removed should be brought back to normal by the contractor without any extra cost. However, HDPE / PLB pipes, RCC pipes required for this purpose will be supplied by BSNL. The Optical fibre cables are available in drums in length of 2 kms. The cables shall be manually pulled through already laid HDPE/PLB pipes by using the 8 mm PP rope. This work is to be carried out under the strict supervision of site in-charge. At a time, maximum three persons at every manhole should be deployed to pull the cable as more tension to cable may lead to breaking of fibres. Cost of such damages will be recovered from the contractor. After pulling of the drum is completed, both ends of the HDPE/PLB pipes in each manhole should be sealed by hard rodent resistant rubber bush, to avoid entry of rodents / mud into HDPE / PLB pipes. The manholes are prepared by providing 65 mm split HDPE pipe of 2.5 to 3 m length and closing the split HDPE pipes by providing necessary clamps/adhesive tape as per the directions of Engineer-in-charge. Afterwards, the split / cut HDPE pipe are covered with 100 mm split RCC pipe of 2 m length and sealing the ends of RCC pipe with lean cement solution for protecting bare cable in the manhole. After fixing of HDPE /RCC split pipes necessary back filling/reinstatement and dressing of manholes should be carried out as referred under trenching. The location of the pulling manhole should be recorded for preparation of documentation.

#### **Jointing / Splicing:**

The OFC cable drums are usually of 2 kms in length hence optical fibre joints will be approx. at every 2kms. The 6/12/24 fibres are to be spliced at every 2 kms and at both ends (Terminations) in the equipment room as directed by the Engineer-in-charge. The infrastructure required for cable splicing i.e. Splicing machine., Air Conditioned Van., OTDR., Optical talk set., Tool kit etc will be arranged by the bidder at his own cost and also any additional accessories. E.g. engine etc. required at site for splicing will also be arranged by the bidder at his own cost.

The optical fibre cable thus jointed end-to-end will be tested by an officer of A/T unit for splice losses and transmission parameters as specified by TCHQ and prevalent at that time. The OF cable should meet all the parameters, specified and no relaxation will be granted. It should also be ensured that during jointing no fibre are interchanged or broken. The number of joints should not be more than 10% of the theoretical value calculated by the department.

**Note:** The jointing /Splicing of optical fibre cable is an optional item. The DTS units which are equipped for this works should preferably carry out this work departmentally.

#### **8.3.7 Construction of Jointing Chamber:**

**8.3.7.1** The joint chambers are provided at every joint to keep the OFC joints well protected and also to keep extra length of cable, which may be, required to attend the faults at a later date. Jointing chambers are to be prepared normally at a distance of every 2 kms. Actual location of jointing chamber depends on length of cable drum and appropriateness of location for carrying out jointing work. The location is finalized by Engineer-in-charge. The jointing chambers are constructed either of brick masonry work at site & pre cast RCC slabs for covers or by way of fixing pre cast RCC chambers and covers as per the instructions of Engineer-in-charge.

#### **8.3.7.2 Pre Cast RCC chamber Item code - JCPC**

Protection Chamber made of Cement Concrete mix of 1:2:4

(1: Cement, 2: Sand and 4: stone aggregated 6mm nominal size) and reinforcement with steel rod of 10mm at a space of 4 inch.

The pre cast RCC Chamber made 2 Parts

(i) Full Round pre cast RCC Chamber with Dia of 120 cm and Height of 60 cm & Thickness of 7.5 cm.

(ii) Round top cover with dia of 120 cm and Thickness of 7.5 cm having one Handle in Center and word BSNL OFC in engraved on it

(iii) The above said 2 Components will be placed in a pit of size 1.20 m x 1.20 m x 0.60 m in such away that the top cover is visible at the surface.

The pre cast RCC chamber will be supplied by the department. After fixing the pre cast RCC joint chamber, the joint chamber is filled with clean sand before closing. Lastly back filling of joint chamber pit with excavated soil

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and should be carried out up to normal ground level and compacted.

The work of cable pulling includes the work of cable pulling up to exchange termination point and has to be carried out as per the directions of Engineer in charge.

### **8.3.7.3 Construction of RCC Man hole With necessary earthwork excavation. Item Code – RCCMH**

The overall dimensions of RCC MH is 190 cm X 130 cm in width & length with 198cm depth. The internal dimension of Manhole should be of 160 cm X 100 cm with a sump of size 30 cm X 30 cm in center for cleaning purpose at the bottom. RCC bottom slab of RCC manhole should be casted over a bed of plain cement concrete 1:5:10 (1cement: 5course sand:10 hard stone aggregate of 40 mm nominal size) of thickness of 8cm with 10 cm thick in cement concrete mix 1:1.5:3 ( 1 cement :1.5 coarse sand: 3 hard stone aggregate of 20 mm nominal size) with steel reinforcement of 6mm dia rods placed at 10 cm center to center in both directions. The floor of manhole shall be finished with 40 mm thick flooring in cement concrete of mix 1:2:4 ( 1 cement: 2 aggregate : 4 coarse aggregate) with adequate slope so that water if any collected in the Manhole will flow into sump provided in the bottom of manhole. The sump shall be covered with GI grating of size 330 X 330 mm weighing not less 10 kgs. The walls of RCCMH shall be 15 cms thick using cement concrete mix in the proportion of 1:2:4(1 cement: 2 coarse sand : 4 hard stone aggregate ) reinforced with 10 mm CTD bars on both sides of wall in two layers (inner layer & outer layer) with 10cms center to center on both directions with proper arrangements to fix MS angle of size 150 X100 X 6mm frame to accommodate pre cast manhole cover. 2 nos of GI pipes of length 15cm, of 150 mm diameter should be embedded while concreting the shorter walls and 1 no of 150 mm dia of 15cm length GI pipe on longer side of wall and 8 nos (4+4)GI pipes of 50 mm dia of 15cm length in shorter walls for cable entry. Cement concrete band all round the manhole of thickness 10cm and with depth of 25 cm from the top of MH to be casted homogeneously along with RCC walls. The internal surface of walls of and all exposed surfaces of pedestals shall be finished smooth with cement mortar 1 : 3 ( 1 cement: 3 fine sand) and finished smooth with a floating coat of neat cement. Proper arrangements shall be made for fixing 4 nos.( 2 +2 ) round hooks for holding cable coils on shorter walls of manhole at a distance 25cm between the hooks. Pre cast RCC manhole covers slab 4 no of dimension 120 X 40 X15 cm covered with MS ‘U’ channel all round of size 150 X 75 X 6mm in cement concrete of 1:1:3 ( 1 cement : 1 coarse sand : 2 graded stone aggregate of 12.5 min nominal size ) reinforced with a grid of 10 cms center to center, of 12 mm bars on both directions over MS sheet of 18 gauge welded to the frame at bottom. The each manhole covers should be provided with 1.25 ‘‘ (40mm) diameter bolt of length 5.5’’ (45 mm) welded at bottom and covered with 1.5 ‘‘ diameter MS pipe welded to the bolt at bottom for lifting operations of manhole covers. The lifting key of cover slab made of MS rod as per the drawing no.D4 using 25 mm diameter MS rod should be supplied to the department. The above operations is to be carried out as per the directions of engineer – in- charge. Payment for this chamber is made based on the actual dimensions

### **8.3.7.4 Fixing of Route Indicators / Joint indicators Item code – ORJF**

Pits shall be dug 1M towards jungle side at every manhole and jointing chamber for fixing of Route / Joint Indicator. In addition, Route Indicators are also required to be placed where O.F Cable changes directions like road crossings etc. The pits for fixing the indicator shall be dug for a size of 60cmsX 60cms and 75cms depth. The indicator shall be secured in upright position by ramming with stone and murrum upto a depth of 60cms and concreting in the ratio of 1 :2 : 4 (1: cement, 2: coarse sand, 4 stone aggregate 20mm nominal size) for the remaining portion of 15cms. Necessary curing shall be carried out for the concreted structure.

The rout and joint indicator shall be painted with primer before painting with oil paint. The Material used should bear ISI mark. The size of each written letter should be at least 3.5cms. The colours of painting and sign writing is as under:

**1 . For Joint Indicator Red**

**2 . For Route Indicator Yellow**

**3 For Letters White**

The numbering scheme for route indicators will be Joint No./Route Indicators No. for that joint. For example 2/6 Indicator means 6<sup>th</sup> route indicator after 2<sup>nd</sup> joint. Additional joints on account of faults at a later date should be given number of preceding joint with suffix A,B,C and D. For example sign writing 2A on a joint indicator means , additional joint between Joint No. 2 and 3. The numbering existing route / joint indicator should not be disturbed on account of additional joints.

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### **8.3.7.5 Fixing of PLB Pipes on walls, Item code – PLBG**

PLB Pipes are to be fixed on walls of Multistoried buildings to pull OFC cable for GSM Towers

**8.3.7.6 Item code 12 PVC** Laying of 110 mm PVC Pipes at a depth of 90 cms along with PLB Pipes of OF cable trench of depth 165 cms, in the common trench.

## **8.4 Documentation:**

### **8.4.1 Documentation for OFC, Item code – DOCT**

The documentation consisting of the following shall be prepared exchange to exchange for intra SSA OFC links for each section in case of inter SSA/ National Long distance routes.

**i) OFC Route Index Diagram – General:** This diagram shall consist of Cable Route Details on Geographical Map drawn to scale with prominent land marks and alignment of cable with reference to road. This shall be prepared on **A-3 sheets** of 80 GSM

**ii) Route Index Diagrams- Profile:** These diagrams will contain:

Make and Size of the cable., Offset of the cable from the center of the road at every 10 meters., Depth profile of the cable at every 10 meters; Details of protection with type of protection depicted on it; Location of culverts and bridges with their lengths and scheme of laying of HDPE / PLB Pipe thereon; Important landmarks to facilitate locating the cable in future; Location of Joints and pulling manholes.

These diagrams shall be prepared on **A-4 sheets** of 75 GSM. On one sheet profile of maximum 400 meters shall be given to ensure clarity.

**iii) Joint Location Diagram:** This diagram will show :

Geographical location of all the joints., Depth of joint Chamber covers from ground level., Type of Chamber (Brick / Pre-cast), Length O.F. Cable kept inside the joint chamber from either direction.

This shall be prepared on A-4 sheets of 75 GSM.

All the diagrams ( i ), (ii), & (iii) shall bear the signatures of the Contractor, the Engineer-in-charge as a proof of accuracy of the details. The diagrams shall be bound in A-4 size book with cover. The cover sheets shall be of 110 GSM and laminated The front cover shall have the following details.

Name of the SDCA , Name of the OFC Link , Name of the Contractor , Date of Commencement of work , Date of completion of work .For each Route/ Section 6 sets of above mentioned document shall be submitted.

### **Preparation of Documents in general**

The documents should be prepared in the bound sets which will contain the following.

The route diagram indicating the road, Hand holes, Number of Pipes, Important land marks in one sheet. The detailed profile of the Cable Construction route to be drawn in A4 sheet indicating the following details

The offset – every 10 m interval, Land marks – minimum one per 30 m., The depth of the trenching profile – every 10 m interval., Hand holes., Number of Pipes / Cables and colour. , Other utilities running parallel or crossing the route.

The documents should be prepared for each route of 1 KM in computer using drawing tools of MS Office and six bound copies as a set should be made over along with a soft copy. The drawings will be accepted by the Engineer in charge after verifying the correctness, usability.

## **Specification for laying PLB Pipes by Horizontal Directional Drilling**

1. The contractor is responsible to carry out the Pipe laying / Cable laying for any length from 10 meters to 200 meters at a stretch by using suitable machinery like Mole machine and HDD machines.
2. The Machines owned or hired by the contractor should have a serial number with the contractor's identity.
3. The Contractor shall have a local establishment with office address at Bangalore after finalization of the tender to have better coordination with BSNL and local authorities.
4. The scope of work includes taking permission from the local authorities, for this purpose BGTD will sign the application form in the format detailing the routes, number of pits to be made, etc, to the contractor for submission to BBMP or local authorities. The contractor in turn has to submit and obtain the demand note from the local authorities for effecting the prescribed payment to BBMP or local authorities towards road cutting permissions.

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5. In case there is complete ban or restrictions in carrying out the work imposed by BBMP, then extension of time will be granted on getting written intimation from the contractor.
6. HDD works can be carried out on all days including Holidays
7. The pits made for carrying out the work to be restored to the original level to the satisfaction of the local authorities.

**Tools and plants :**

The contractor shall provide at his own cost all tools, plants appliances, implements etc. required for proper execution of works. The contractor shall also supply without charge the requisite number of persons with the means and materials necessary for the purpose of setting out works, counting, weighing and assisting the measurements for examination at any time and from time to time. The contractor shall be responsible to make all arrangements, at his own cost for de-watering of trenches/ducts and de-gasification of the ducts before carrying out the work. The contractor shall also be responsible to make arrangements, at his own cost, for water required for carrying of works at sites including curing of CC/RCC works. Failing his so doing, the same may be provided by the Engineer-in-charge at the expense of the contractor and the expenses shall be deducted from any money due to the contractor under this contract or otherwise.

The contractor may be allotted works in more than one location simultaneously for which the bidder should be capable of organizing additional machines and resources for simultaneous working.

The contractor has to apprise himself of the laws/rules/regulations of the Bangalore Mahanagar Palike / BDA/CMC and abide by such laws /rules/regulations concerning his work. Any lapses on this account may lead to penalize and prosecution for which the contractor will be solely responsible. Contractors have to liaison with local authorities in getting permission.

**LAYING OF PIPES/ CABLES:**

**General Work Description:**

Laying of OFC cables of different types and sizes, in general including some or all of the following activities:

Making arrangement for Horizontal Boring for cable only Making Horizontal inserting casing pipe and laying cable through it .Lifting of cable from the cable store

The contractor will remove the empty cable drums from the site of work as soon as cables are laid and dispose them off as deemed fit. The cost of empty cable drums as per the fixed rates will be deducted.

The major quantity of the envisaged work under this contract is for laying PLB pipes in a route by HDD / Trenchless method. However due to practical limitations like other buried utilities, narrow road, route is not straight etc Trenchless method of laying may not be practical in some stretches in the prescribed route of pipe pipes laying. In such cases, the contractor should follow conventional trenching method to lay the PLB pipes as required to complete the end to end work in that route. Such stretches of conventional laying will be decided by the Engineer-in- Charge at site. The construction practices and standards as per engineering instructions are applicable to all the works.

**CABLE LAYING STANDARDS**

**Horizontal Boring and Insertion of Casing Pipe/ PLB :**

Horizontal Boring and Inserting Casing Pipe with rope (material – HDPE of pressure rating 4 Kg/cm<sup>2</sup>) along road and under railway/road/canals/streams crossing in all type of soils at prescribed depth, including all civil works & reinstatement as per BBMP standards. Supply of all tested lifting tools and tackles other required equipment and consumable, labour etc., and making all such necessary arrangements are under tenderer's scope. Total job has to be completed within time schedule mentioned in work order. The work includes different sizes of boring:

- Boring up to 60 mm diameter, for laying 1PLB pipe.
- Boring from 61 to 100 mm diameter, for laying 2 PLB Pipes.
- Boring from 101 to 150 mm diameter, for laying 4 PLB Pipes.
- Boring from 151 to 200mm diameter, for laying 7 PLB pipes.
- Boring from 201 to 300mm diameter, for laying 12 PLB pipe.
- Boring from 301 to 450mm diameter, for laying 12 PLB pipes.
- For laying multiple pipes in the same route, the site engineer will decide the diameter of the boring to be executed, based on the number of pipes proposed.

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**In this system of cable laying, following job specifications should be maintained:**

1. Guided boring/drilling technology is to be used
2. Radar or any other detection system should be used for avoiding damage to existing underground utilities
3. The depth of boring should be such as to clear any underground utilities/obstacles. However, in no case the depth of boring be less than 1.7m from the road surface for OFC PLB pipe and 1.2m for copper cables.
4. In Horizontal and Vertical boring, the machine should be capable of going up to 10 meter below the ground level.
5. In a shift of 8 hours at least 200 meters of drilling longitudinal or 3 to 4 road crossings should be possible.
6. The span of HDD (shot length) will be decided by the Engineer-in-charge as per the site requirement.
7. The Contractor should provide sufficient Metal Barricades, Warning Lamps, Display boards indicating, the Name of the Contractor, Organisation : BSNL, Contact Number at the work site.
8. Bangalore City Strata comprises of around 3% of Hard rock. In case of any route, rock is encountered during HDD operations, and there is no alternate route available, the HDD machine must be capable of drilling through the rock and the route must be completed. If the contractor is failing to complete the work order on such routes, no payment will be made for the partially completed work.

**Ground Penetrating Radar Survey and damage to Telephone Cable and other underground services.**

The contractor should collect all available information regarding underground services and take necessary care to protect them. He should also have sufficient arrangements to identify and protect such underground services. The contractor shall carry out Ground Penetrating radar survey along the proposed cable route at his own cost to identify the underground services and for setting out the routes as directed by Construction Officer. The Construction Officer shall provide route map to the contractor if available for plotting the existing utilities and setting the route for horizontal drilling.

Where ever HDD/Mole operation could not be carried out due to field constraints like narrow roads, very short stretches and crossing of bridges and culverts, trenching has to be done and the work has to be completed along the entire route without any discontinuity, so that pipes/cables are laid end to end. On Bridges and Culverts Pipe and Cable are laid as per the Specifications given in the tender document.

**SAFETY PRECAUTIONS :**

**Safety Precautions when excavating or working in excavations close to electric cables**

The Engineer-in-charge of the work should get full information from Electricity **undertaking** regarding any electric cables, which are known or suspected to exist near the proposed excavation and unless this is done, excavation should not be carried out in the section concerned. The electricity undertaking should be asked to send a representative and work should be preceded with close Consultation with them.

Only wooden handled hand tools should be used until the electric cables have been completely exposed. Power cables, not laid in conduits, are usually protected from above by a cover slab of concrete, brick or stone. They may or may not be protected on the sides. It is safer, therefore, always drive the point of the pickaxe downwards then uncovering a cable, so that there is less chance of missing such warning slabs. No workman should be permitted to work alone where there are electric cables involved. At least one more man should be working near by so that help can be given quickly in case of an accident. If disconnection of power could be arranged in that section it will be better. No electric cables shall be moved or altered without the consent of the electric Authority and they should be contacted to do the needful. If an electric cable is damaged even slightly, it should be reported to the electric Authority and any warning bricks disturbed during excavation should be replaced while back filling the trench. Before driving a spike into the ground, the presence of other underground properties should be checked. Information on plans regarding the location of power cables need not to be assumed as wholly accurate. Full precautions should be taken in the Vicinity until the power cable is uncovered. All electric cables should be regarded as being live and consequently dangerous. Any power is generally dangerous, even low voltage proving fatal in several cases.

**Electric shock – Action and treatment:** Free the victim from the contact as quickly as possible. He should be jerked away from the live conductors by dry timber, dry rope or dry clothing. Care should be taken not to touch with bare hands as his body may be Authorize while in contact. Artificial respiration should begin immediately to restore breathing even if life appears to be extinct. Every moment of delay is serious, so in the meanwhile, a doctor should be called for.

**Safety precautions while working in public street and along railway lines :** Where a road or footpath is to be opened up in the course of work, special care should be taken to see that proper protection is provided to prevent any

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accidents from occurring. Excavation work should be done in such a manner that it will not unduly cause inconvenience to pedestrians or occupants of buildings or obstruct road traffic. Suitable bridges over open trenches should be so planned that these are required for the minimum possible time. Where bridges are constructed to accommodate vehicular traffic and is done near or on railway property, it should be with the full consent and knowledge of the competent railway authorities.

**Danger from falling material :** Care should be taken to see that apparatus, tools or other excavating implements or excavated materials are not left in a dangerous or insecure position so as to fall or be knocked into the trench there by injuring any workman who may be working inside the trench.

**Care when working in Excavations :** Jumping into a trench is dangerous. If it is deep, workmen should be encouraged to lower them selves. Workers should work at safe distance so as to avoid striking each other accidentally with tools. If the walls of the trench contain glass bits, corroded wire or sharp objects they should be removed carefully. If an obstruction is encountered, it should be carefully uncovered and protected if necessary . care must be taken to see that excavated material is not left in such a position that it is likely to cause any accident or obstruction to a roadway or waterway. If possible the excavated material should be put between the workmen and the traffic without encroaching too much on the road.

**Danger of cave in :**When working in deep trenches in loose soil, timbering up/ shoring the sides will prevent soil subsidence. The excavated material should be kept at sufficient distance from the edge of the trench or pit, vehicles or heavy equipment must not be permitted to approach too close to the Excavation. When making tunneled opening, it should be ensured that the soil is compact enough to prevent cave in even under adverse conditions of traffic. Extra care should be taken while excavating near the foundations of buildings or retaining walls. In such cases, excavation should be done gradually and as far as possible in the presence of the owners of the property.

**Protection of Excavations :** Excavations in populated areas, which are not likely to be filled up on the same day should be protected by barriers or other effective means of preventing accidents and the location of all such openings must in any event be indicated by red flag or other suitable warning signs. During the hours from dusk to dawn adequate number of red warning lamps should be displayed. Supervisory officers should ensure that all excavations are adequately protected in this manner as serious risk and responsibility is involved. Notwithstanding adoption of the above mentioned precautions, works involving excavations should be so arranged as to keep the extent of opened ground and the time to open it to a minimum.

**Precautions while working on roads :**The period between half an hour after sun-set and half an hour before sunrise, and any period of abnormal darkness may also be considered as night for the purpose of these instructions, for the purpose of providing the warning signs. Excavation liable to cause danger to vehicles or the public must at all times be protected with fencing of rope tied to strong upright or bamboo poles at a suitable height or by some other effective means. Any such temporary erection which is likely to cause obstructions and which is not readily visible should be marked by posts carrying red flags or boards with a red background by day and by continuously lighted lamps at night. The flags and the lamps should be placed in conspicuous positions so as to indicate the pedestrians and drivers of vehicles the full expanse i.e. both width and length of the obstruction. The distance between lamps or between floors should not generally exceed 1.25m along the width and 6m along length of the obstruction in non-congested areas, but 4 metres along the length in congested areas. If the excavation is extensive, sufficient notice to give adequate warning of the danger, should be displayed conspicuously not less than 1.25m above the ground and closed to the excavation. Where any excavation is not clearly visible for a distance of 25m to traffic approaching from any direction or any part of the carriage way of the road in which the excavation exists, a warning notice should be placed on the kerb or edge of all such roads from which the excavation or as near the distance as is practicable but not less than 10m from the junction of an entering or intersecting road in which the excavation exists. All warnings, in these should have a red background and should be clearly visible and legible. All warning lamps should exhibit a red light, but white lights may be used in addition to facilitate working at night. Wherever required a passage for pedestrians with footbridge should be provided. At excavations, cable drums, tools and all materials likely to offer obstructions should be properly folded round and protected. This applies to jointer's tents as well. Leads, hoses etc. stretched and across the carriageway should be guarded adequately for their own protection and also that of the public.

**Traffic Control :** The police authorities are normally responsible for the control of traffic and may require the setting up of traffic controls to reduce the inconvenience occasioned by establishment of a single line of traffic due to restriction in road width or any other form of obstruction caused by the work. As far as possible, such

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arrangements should be settled in advance. If there are any specific regulations imposed by the local authorities, these should be followed.

**Work along Railway Lines :**Normally all works at Railway crossing is to be done under supervision of the railway authorities concerned, but it is to be borne in mind that use of white, red or green flags by BSNL staff is positively forbidden to be used when working along a railway line as this practice may cause an accident through engine drivers mistaking them for railway signals. When working along a double line of railway, the men should be warned to keep a sharp look on both the "UP" And "DOWN" lines to avoid the possibility of any accident when trains pass or happen to cross one another near the work spot.

**Procedure and Safety precautions for use of explosives during blasting for trenching:** In areas where the cable trench cannot be done manually on account of boulders and rocks, it is necessary to blast the rocks by using suitable explosives. The quality of explosive to be used depends on the nature of the rocks and the kind of boulders. A few types of explosives fuses and detonators normally used for making trenches for cable works are detailed below Gun power, Nitrate Mixture, Gelatin, Safety fuse, Electric Detonator, Ordinary Detonator.

**Procedure :** A detailed survey of the route is to be done to assess the length of the section where trenching is to be done with the help of blasting. A route diagram of the rocky section may be prepared indicating the length of the route where the explosives are to be used. For the purpose of obtaining License, a longer length of route should be given in the application as in many cases, after digging, rocks appear where blasting was not initially anticipated. Next a license will have to be obtained for use and storing of explosive in that section. If the area falls under a police commissioner, the authority for granting such license is the police commissioner of the concerned area. When the route does not fall in the jurisdiction of a police commissioner, the authority for issuing license is the District Magistrate. The concerned authority should be applied in prescribed form with a route map. The concerned Authority will make an enquiry and issue a license for using/ storing explosives for cables trenching work. Such license will be valid for 15 days only. The license should be got renewed if the blasting operation need to be extended. Once the license is granted, it is the responsibility of the holders of the license for the proper use of explosives, its transportation and storing.

**Method of using :** The safest explosive is the gelatin and electric detonator. Gelatin is in the form of stick. Electric Detonator is a type of fuse used for firing the explosive electrically. Holes are made at suitable Intervals on rocky terrain or boulders either by air compressor or by manual chipping. The depth of the holes should be 2 to 3 ft. Fill up the holes with small quantity of sand for about 6". First the electric detonator is to be inserted into the gelatin and the gelatin is to be inserted into the holes keeping the +ve and -ve wirings of electric detonators outside the holes. Again refill the holes with sand. These +ve and -ve insulated wires of detonator are then extended and finally connected to an EXPLODER kept at a distance of not less than 100m.

Now the explosive is ready for blasting. But, before connecting wires to exploder for blasting, all necessary precautions for stopping the traffic, use of red flags, exchange of caution signals, etc. should be completed and only then Exploder should be connected and operated.

**Operation of exploder (IDL Schaffer type 350 type exploder ):** The type 350 blasting machine consists of a bearing block with blasting machine system and the Explosion proof light – alloy injection moulded housing. The exploder is held with the left hand. The twist handle is applied to the drive pin, clapped with the right hand turned in the clockwise direction in continuous measurements at the highest speed from the initial position until it reached to a stop. At this stage an indication lamp will glow. When the indication lamp glows "press button switch" should be pressed. This will extend the electric current to detonator and the gelatin will be detonated. The rock will be blasted out of trench. Number of holes can be blasted in a single stroke by connecting all such detonators in series connection and finally to the exploder. After blasting again mazdoors are engaged on the work to clear the debris. If the result of the first blasting is not satisfactory, it should be repeated again on the same place.

**Warning:** There may be two reasons for unsatisfactory results of the blasting. Misfire of gelatin due to leakage of current from detonator. Overloading because of overburdens. Never pull the broken wire pieces from the holes in such case. Attempt should not be made to re-blast the misfired gelatin. The safest way is to make a fresh hole by its side and put fresh gelatin in that hole and blast it.

**Precautions:** The abstract of Explosives Rules 1983 which are relevant to our work is given below.

**Restriction of delivery and dispatch of explosives:** No person shall deliver or dispatch any explosives to any one other than a person who, is the holder of a licence to possess the explosives or the agent of a holder of such a licence duly authorized by him in writing on his behalf. Or is entitled under these rules to possess the explosives

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without licence. The explosives so delivered or dispatched shall in no case exceed the quantity, which the person to whom they are delivered or dispatched is authorized to possess with or without a licence under these rules. No person shall receive explosives from any person other than the holder of a licence granted under these rules. No person shall receive from or transfer explosives to any person for a temporary storage or safe custody in a licensed premise unless prior approval is obtained from the Chief Controller. Person holding licence for possession of explosives granted under these rules shall store the explosives only in the premises specified in the license.

**Protection from lightning during storing:** Every magazine shall have attached there to one or more efficient lightning conductors designed and erected in accordance with the specification laid down in Indian Standard Specifications No. 2309 as amended from time to time. The connections to various parts of earth resistance of the lightning conductor terminal on the building to the earth shall be tested at least once in every year by a qualified electrical engineer or any other competent person holding a certificate of competency in this behalf from the State Electricity Department. A certificate showing the results of such tests and the date of the last test shall be hung in conspicuous place in the building.

**Precaution during thunder-storm:** When a thunder – storm appears to be imminent in the vicinity of a magazine or store house every person engaged in or around such magazine and store house shall be withdrawn to a safe distance from such magazine or store house and the magazine and the store house shall be kept closed and locked until the thunder storm has ceased or the threat of it has passed.

**Maintenance of records:** Every person holding a license granted under these rules for possession, sale or use of explosives shall maintain records in the prescribed forms and shall produce such record on demand to an Inspection Officer.

**Explosives not to be kept in damaged boxes:** The licensee of every magazine or store house shall ensure that, the explosives are always kept in their original outer package. In case, the outer package gets damaged so that the explosive contained there in cannot be stored or transported, such explosives shall be repacked only after the same are examined by controller of explosives.

**Storage of explosives in excess of the licensed quantity:** The quantity of any kind of explosives kept in any licensed magazine or store house shall not exceed the quantity entered in the license against such kind of explosives. No explosives in excess of the licensed quantity shall be stored in the magazine or store house unless a permit in this behalf is obtained from the licensing authority by a letter or telegram.

**Precautions to be observed at Site:** The Electric power at the blasting site shall be discontinued as far as practicable before charging the explosives. No work other than that associated with the charging operations shall be carried out within 10 meters of the holes unless otherwise specified to the contrary by the licensing authority.

When charging is completed, any surplus explosives detonators and fuses shall be removed from the vicinity of the holes and stores at a distance which should prevent accidental detonation in the event of a charge detonating prematurely in any hole. The holes which have been charged with explosives shall not be left unattended till the blasting is completed. Care shall be taken to ensure that fuse or wires connected to the detonation are not damaged during the placing of stemming materials and tamping.

**Suitable warning procedure to be maintained :** The licensee or a person appointed by the licensee to be in charge of the use of explosives at the site shall lay down a clear warning procedure consisting of warning signs and suitable signals and all persons employed in the area shall be made fully conversant with such signs and signals.

**Precautions to be observed while firing:** The end of the safety fuse(if used in place of a detonator should be freshly cut before being lighted. The exploders shall be regularly tested and maintained in a fit condition for use in firing. An exploder shall not be used for firing a circuit above its rated capacity. The electric circuits shall be tested for continuity before firing. All persons other than the shot-firer and his assistant, if any, shall be withdrawn from the site before testing the continuity. For the purpose of jointing, the ends of all wires and cables should have the insulation removed for a maximum length of 5 cms and should, then be made clear and bright for a minimum length of 2.5 cms and the ends to be joined should be twisted together so as to have a positive metal contact. Then these should be taped with insulation to avoid leakage when in contact with earth. In case of blasting with dynamite or any other high explosive, the position of all the bore holes to be drilled shall be marked in circles with white paint. These shall be inspected by the Contractor's agent. Bore holes shall be of a size that the cartridge can easily pass down. After the drilling operation, the agent shall inspect the holes to ensure that drilling has been done only at the marked locations and no extra hole has been drilled. The agent shall then prepare the necessary charge separately for each bore hole. The bore holes shall be thoroughly cleaned before a cartridge is inserted. Only cylindrical

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wooden tamping rods shall be used for tamping. Metal rods or rods having pointed ends shall never be used for tamping. Metal rods or rods having pointed ends shall never be used for tamping. One cartridge shall be placed in the bore hole and gently pressed but not rammed down. Other cartridges shall then be added as may be required to make up the necessary charge for the bore holes. The top most cartridge shall be connected to the detonator which shall in turn be connected to the safety fuses of required length. All fuses shall be cut to the length required before being inserted into the holes. Joints in fuses shall be avoided. Where joints are unavoidable, a semi circular niche shall be cut in one piece inserted in to the niche. The two pieces shall then be wrapped together with string. All joints exposed to dampness shall be wrapped with rubber tape. The maximum of eight bore holes shall be loaded and fired at one occasion. The charges shall be fired successively and not simultaneously. Immediately before firing, warning shall be given and the agent shall see that all persons have retired to a place of safety. The safety fuses of the charged holes shall be lignite in the presence of the agent, who shall see that all the fuses are properly ignited. Careful count shall be kept by the agent and others of each blast as it explodes., In case all the charged bore holes have exploded, the agent shall inspect the site soon after the blast but in case of misfire the agent shall inspect the site after half an hour and mark red crosser( X ) over the holes which have not exploded. During his interval of half and hour, nobody shall approach the misfired holes. No driller shall work near such bore until either of the following operations have been done by the agent for the misfired boreholes.

a. The Contractor's agent shall very carefully (when the tamping is damp dry extract the tamping with a wooden scraper and withdraw the primer and detonator.

b. The holes shall be cleaned for 30 cm of tamping and its direction ascertained by placing a stick in the hole. Another hole shall then be drilled 15 cm away and parallel to it. This hole shall be charged and fired. This misfired holes shall also explode along with the new one. Before leaving the site of work, the agent of one shift shall inform the another agent relieving him for the next shift, of any case of misfire and each such location shall be jointly inspected and the action to be taken in the matter shall be explained to the relieving agent.

The Engineer-In-Charge shall also be informed by the agent of all cases of misfire, their causes and steps taken in that connection.

**General Precautions:** For the safety of persons red flags shall be prominently displayed around the area where blasting operations are to be carried out. All the workers at site, except those who actually ignite the fuse, shall withdraw to a safe distance of at least 200 meter for the blasting site. Audio warning by blowing whistle shall be given before igniting the fuse. Blasting work shall be done under careful supervision and trained personnel shall be employed. Blasting shall not be done within 200 meters of an existing structure, unless specifically permitted by the Engineer-in-Chief in writing.

**Precautions against misfire:** The safety fuse shall be cut in an oblige direction with a knife. All saw dust shall be cleaned from inside of the detonator. This can be done by blowing down the detonator and tapping the one end. No tools shall be inserted into the detonator for this purpose. If there is water present or if the borehole is damp, the junction of the fuse and detonator shall be made water tight by means of tough grease or any other suitable material. The detonator shall be inserted into the cartridge so that about one-third of the copper tube is left exposed outside the explosive. The safety fuse just above the detonator shall be securely tied in position in the cartridge. Waste proof fuse only shall be used in the damp borehole or when water is present in the borehole. If a misfire has been found to be due to defective fuse, detonator or dynamite , the entire consignment from which the fuse, detonator or dynamite was taken shall be got inspected by the Engineer-in-chief or his authorized representative before resuming the blasting or returning the consignment.

**Precaution against stray currents:** Where electrically operated equipments is used in locations having conductive ground or continuous metal objects, tests shall be made for stray current to ensure that electrical firing can proceed safely.

#### **8.6 FINAL REINSTATEMENT -----Under BBMP/BDA Jurisdiction**

For final reinstatement the following are the description and specifications of works for different surfaces as per the Bruhat Bangalore Mahanagara Palike requirements which are to be met strictly .

**Note 1:** The type of surface, width and length shall invariably be mentioned in the permission granted by BBBMP/BDA/CMC and in the work order issued by BGTD.

**Note 2:** Whenever refilling with coarse sand is involved, the required quality of sand shall be brought from outside. The work of refilling shall be done in the presence of site engineer only.

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**Specifications for back filling of trenches up to slab base :**

**8.6.1 Footpaths**

**a. Using available red earth :** The excavated red earth / murrum shall be refilled and well compacted using mechanical compactors / pneumatic tampers in layers of 15 cm, watering the layers to optimum moisture content.

**b. Using sand :** The trench shall be back filled with sand when the earth met with is not red earth or murrum, using coarse sand in the FM range of 2.5 to 3 and well compacted using mechanical compactors in layers of 15 cm, watering the layers to optimum moisture content etc. complete as per detailed specification. The trench shall be never flooded to achieve compaction of sand.

**c. Burnt stone slab :** Reinstatement of base and super structure for foot paths

Reinstatement of footpath paved with Burnt stone slab including compacting the surface before relaying and setting the stones and bringing the surface to grade and line to adjoining surface and pointing the joints with 1.3 mortar, curing etc.

**d. Interlocking blocks :** Reinstatement of foot paths paved with interlocking blocks including spreading sand to the required thickness compacting and laying the blocks and bringing the surface to grade and line to adjoining surface also supplementing sand and interlocking blocks if required etc

**e. Chequered cement concrete tiles :** Reinstatement of footpaths paved with Chequered cement concrete Tiles including providing base concrete of 75mm thick compacting and fixing tile in Cement Mortar of 1:3 proportion and bringing the surface to grade and line to adjoining surface, also supplementing base concrete and chequered tiles if required etc.

**8.6.2 Road surfaces :** The trench in carriage way shall be back filled with only sand using coarse sand in the FM range of 2.5 to 3 and well compacted using mechanical compactors in layers of 15 cm, watering the layers to optimum moisture content etc.

**a. Water bound Macadam surface:** Relaying of water bound macadam (WBM) surface by providing, laying, spreading and compacting stone aggregates of specific size to water bound macadam specification for thickness not less than 20 cm including spreading in uniform thickness and compacting using mechanical tamper in layers adding requisite type of screening / binding materials to fill up the interstices of course aggregates, watering etc.

**b. Mix seal Surfacing :** Reinstatement of Mix Seal surfacing by providing, laying, mix seal surfacing with specified graded crushed aggregate premixed with bituminous binder of 80/100 grade, in hot mix plant laying to the required thickness compacting with mechanical tamper with all material labour etc.

**c. Bituminous macadam :** Reinstatement of Bituminous macadam by providing, laying, Bituminous Concrete with specified graded crushed aggregate premixed with bituminous binder of 80/100 grade, in hot mix plant, laying to the required thickness compacting with mechanical tamper, with all material labour

**d) Dense Bituminous Macadam :** Reinstatement of Dense Bituminous Macadam by providing, laying, Bituminous Concrete with specified graded crushed aggregate premixed with bituminous binder of 80/100 grade, in hot mix plant laying to the required thickness compacting with mechanical tamper with all material labour etc.

**e) Bituminous Concrete :** Reinstatement of Bituminous Concrete by providing, laying, Bituminous Concrete with specified graded crushed aggregate premixed with bituminous binder of 80/100 grade, in hot mix plant laying to the required thickness compacting with mechanical tamper with all material labour

**CONCRETE:** Providing and laying granite or basalt or trap jelly cement concrete using 40 mm and down size jelly for foundation laid in 15 cms thick layer and well compacted including curing etc., complete in CC 1:2:4. Providing and laying granite or basalt or trap jelly cement concrete using 20 mm and down size jelly including mixing, laying, tamping, curing and finished for exposed faces with necessary centering form work etc., complete (CC 1:3:6). Depending upon the area where road crossings have to be done and also permission from police authorities to be obtained. This work may have to be carried out in the night and the work has to be completed before next day morning, so as not to disrupt traffic. In case of very large road crossings, it has to be done in portion and the portion that has been done has to be completed before the next day morning.

Read, Understood & complied  
Signature of Bidder

**Layer Thickness for Asphalt Road of various categories**

		Category of road			
		A	B	C	D
1	WMB(mts)	0.232	0.232	0.232	0.150
2	BM(mts)	0.050	0.050	0.050	--
3	DBM(mts)	0.075	0.050	--	--
4	BC(mts)	0.040	0.040	0.040	--
5	Chip Carpet(mts)	--	--	--	0.025
	Total Thickness	0.397	0.372	0.322	0.175

**Calculations of Reinstatement Charges for different category of roads**

Particulars	Basic rate in cum	Category of Roads							
		A	COST	B	COST	C	COST	D	COST
WBM(mts)	989.25	0.232	229.506	0.232	229.506	0.232	229.506	0.15	148.3875
BM(mts)	1861.6	0.05	93.08	0.05	93.08	0.05	93.08	--	
DBM(mts)	8095.65	0.075	607.17375	0.05	404.7825	--		--	
BC(mts)	8881.4	0.04	355.256	0.04	355.256	0.04	355.256	--	
Total Thickness		0.397	1285.0158	0.372	1082.6245	0.322	677.842	0.175	148.3875

**Supply of materials at site, including all charges and taxes**

Bricks (Table molded) of 'B' class 9" x 4.5 " with ISI No IS-107/76-III Revision with stipulated tolerance and RCC Hume pipes and collars and also semi-circular pipes conforming to ISI No 458/1988. The rates are to be quoted by the contractors. Pipes should be of 2 meters length. If less, proportionate rates will be paid. For covering joints one meter length semi-circular pipes will be required.

**TRANSPORTATION OF CABLE DRUMS TO WORK SPOT:** Transportation of cable drums from stores to work site also will be the responsibility of the contractor including loading and unloading. The following operations must be carried out very carefully and it must be ensured that no cable is damaged under any circumstances. Use always lorries for transporting the cable drums. Use crane for loading and unloading cable drums from lorry. If crane is not available, use ramp/tripod with chain pulley for loading and unloading. Do not drop cable drum to the ground under any circumstances. Check the condition of the cable whenever any cable drum is received from the stores. If a cable drum is to be transported to a short distance (Say a few yards) roll the drum always in the direction of arrow indicated on the drum.

**SPECIAL NOTE & PRECAUTIONS TO CONTR/ACTORS REGARDING CABLE CONSTRUCTION/ROAD REINSTATEMENT/REPAIR WORKS TO BE DONE TO THE SATISFACTION OF THE RESPECTIVE CORPORATION/MUNICIPALITIES.**

The percentage rate quoted shall be inclusive of clearance of site prior to commencement and after completion of the work in all respects and will hold good for the work under all conditions of sites, moisture and weather etc. All the works should be carried out in accordance with the standard specification of the Indian Standard Institute, National Building Code and other specifications of the corporation/municipality and as per directions of the Officer-in-Charge of the work. The contractors at his own cost will supply materials at site. The Percentage rates should be inclusive of all leads, lifts, loading, unloading and incidental charges and taxes (local or general). All materials should conform to ISI standard specifications and such other standards as may be prescribed by the BSNL and or the corporations or municipalities. The percentage rates quoted shall be inclusive of providing barricades, putting up danger signs/lights, watchman etc., till completion of work. Following guidelines and precautions are to be followed for trenching and cable laying:

**TRENCHING:** After getting the work orders, the work sites/routes should be surveyed along with the construction unit personnel, permission from proper concerned authorities should be collected along with traffic

Read, Understood & complied  
Signature of Bidder

police permission wherever necessary. Pilot pits should be taken at suitable points. Trench should be marked and trenching should be taken to lay cable below all the other installations except power cables and care should be taken to identify power cables. Caution Board, red flags and Road barricades should be used liberally. In addition flickering lamps or red lamps should be provided during night along with number of cone reflectors. Necessary wooden/steel plates may be provided at intervals across the trench for public to cross conveniently. Restrict the use of crowbars only to the removal of hard upper crust of the earth and for levering stones. Use pick axes and pharaohs for further trenching. Take care not to damage the existing underground plant/services while trenching. Intimate to the concerned utilities if any of their plant/services are damaged while trenching. Power cables should be avoided. Trench should be straight as far as possible and stack the excavated earth properly. More than 200 m trench should not be taken at a time in any route and kept open. Get the trench acceptance tested. A/T should be informed 24 hours well in advance.

**TRENCHING ACROSS ROADS: PRECAUTIONS:** Use road crossing pipes to lay cables across roads and streets. Requirement of RCC pipes should be ascertained and collected in advance. Providing flicker lamps, continuously lighted lamps and red flags while working on roads. In case of broad roads, complete the pipe laying for the first half of the road and then the second half to allow smooth flow of traffic. Bury the pipes sufficiently deep (the axis of the pipe alignment should be 1 meter below the road surface). Leave guide wires inside spare pipes.

**PAYING OUT AND LAYING CABLES:** Use cable drum jack and spindle for paying out the cables. Rotate the cable drums in the direction of the arrow indicated on the flange. See that the mazdoors who pull cable do not cluster at one point and that they are distributed through out the length of the pulling portion of the cable. While laying, never bend the cable to a radius smaller than 9 times the overall cross sectional diameter of the cable. Trench should be cleaned for any fallen stones etc., before actual laying. While pulling cable through pipe make sure that cable is not damaged at the mouth of the pipe. Use grease on the cable to reduce friction. Put soft earth for 6 inches over the cable. Replace the warning bricks of other utility services if they got disturbed while trenching. Measurements should be taken and entries made in the Measurement Book by Construction Officer. The contractor or his representative should sign in the Measurement Book having accepted the measurement. Use the correct key to lift manhole covers. Obtain assistance to lift heavy covers. Place manhole guards or barricades around all open manholes.

**Special conditions of contract:** PGM, BGTD reserves the option of awarding the Reinstatement of Road/ Foot Path etc. as per BBMP specification to any other agency at the cost of contractor.

Read, Understood & complied  
Signature of Bidder



**Part A**

**APPLICATION FOR EXTENSION OF TIME**

(To be filled in by the contractor)

- 1. Name of the Contractor -----
- 2. Agreement No. -----
- 3. Work Order No. -----
- 4. Date of commencement of work -----
- 5. Scheduled date of completion of work -----
- 6. Details of E.O.T. previously sanctioned (if any) :

Sl.No.	Extension No	Letter No and date	Period of extension	Whether E.O.T. was granted with L.D. or without L.D.
1	First			
2	Second			
3	Third			

Total extensions previously given (copies of previous -----  
letters of grant of E.O.T.(s), shall be enclosed

- 7. Period for which extension is applied for -----
- 8. Hindrance on account of which extension is applied for with details

Sl.No.	Nature of Hindrance	Date of occurrence of hindrance	Period for which it is likely to last	Period for which extension required for this particular hindrance	Overlapping period if any with reference to item	Net extension applied for	Remarks if any

- 9. Submitted to Engineer-in- Charge(Through site Engineer) -----

Signature of the Contractor -----

Date

For Office use only

Date of receipt	Inward serial number	signature of receiving official with date

The scrutiny of details submitted by the contractors has been done and the report is mentioned hereunder

Signature of Site Engineer

Read, Understood & complied  
Signature of Bidder

**Part B**

**APPLICATION FOR EXTENSION OF TIME**

(To be filled in by the Engineer- in -Charge)

- 1. Date of receipt of Application for extension of time -----
- 2. Name of the Contractor -----
- 3. Work order No. -----
- 4. Estimated amount of work to be completed against the work order -----
- 5. Date of Commencement of work -----
- 6. Due date of completion of work -----
- 7. Period for which extension is applied for -----
- 8. Hindrance on account of which extension is applied with details -----
- 9. EOT requested for-----First time/Second time/Third time//Forth time/-----

Sl.No.	Nature of Hindrance	Date of occurrence of hindrance	Period for which it is likely to last	Period for which extension is required for this particular hindrance	Overlapping period if any , with reference to them	Net extension applied for	Extension recommended

9. Submitted to competent authority for consideration

Signature of SDE

Signature of AGM

Read, Understood & complied  
Signature of Bidder

## Part C

### DEPTH RELAXATION FORMAT

#### APPLICATION FOR Depth Relaxation to be issued by AGM/DGM/GM/PGM

1. Name of the Route (as per Work Order for which depth relaxation sought for) -----

2. Route length (in meters) -----

3. Work order No. -----

SL. No.	Running length ( in mtrs).		Depth achieved	Reason for Relaxation	Inspection Remarks
	From	To			
1					
2					
3					
4					
5					
6					
7					

**NOTE:**

1. In case depth achieved falls under different depth slabs as per the depth slab clause, a separate application shall be submitted to the respective competent authority for granting of depth relaxation.
2. The competent authority for depth relaxation as per the depth slab at clause No. 5.8.1.6 shall inspect/authorize to inspect the routes/locations/segment of the routes and enter inspection remarks.

Signature of Competent Authority  
(PGM/GM/DGM/AGM)

Read, Understood & complied  
Signature of Bidder

**SECTION IX**

**PART I**

**Bank guarantee form**

**MATERIAL SECURITY BOND FORM**

Where as ..... (Hereafter called “the Contractor”) has been awarded the contract of Cable Construction Works, as per tender number ..... , Name of the SSA/SDCA.....  
KNOW ALL MEN by these Presents that WE ..... of.....having our registered office at .....(hereinafter called the “the Bank”) are bound unto .....(hereinafter called “ BSNL” ) in the sum of .....for which payment will and truly to be made of the said BSNL, the Bank binds itself, its successors and assigns by these presents.

**THE CONDITIONS** of the obligations are:

1. If the Contractor is unable to keep stores issued to him, properly, i.e the store provided to the contractor, by BSNL are damaged or
2. The stores issued to the contractor by the BSNL are stolen or
3. The Contractor is not able to provide proper account of the stores issued to him/her/them by BSNL.  
We undertake to pay to BSNL up to the above amount upon receipt of its first written demand without BSNL having to substantiate its demand, provided that in its demand, BSNL will note that the amount claimed by it is due to it owing to the occurrence of one or two or all of three conditions specifying the occurred condition or conditions.

This guarantee will remain in force up to ...and including ninety days (180) days after the Period of Contract validity, and any demand in respect thereof should reach the bank not later than the above date.

Signature of the Bank

Signature of Witness  
Name & of Address Witness

Read, Understood & complied  
Signature of Bidder

## PART II

### BID SECURITY (Bank Guarantee) FORM

Whereas ..... (hereinafter called “the Bidder”) has submitted its bid dated.....for the work of ..... vide Tender No.....dated..... KNOW ALL MEN by these presents that We ..... of ..... having our registered office at .....(hereinafter called “the Bank”) are bound unto Bharat Sanchar Nigam Limited (hereinafter called “BSNL”) in the sum of Rs..... for which payment will and truly to be made of the BSNL, the Bank binds itself, its successors and assigns by these present.

THE CONDITIONS of the obligation are :

1. If the Bidder withdraws his bid during the period of bid validity specified by the Bidder on the Bid form or
2. If the Bidder, having been notified of the acceptance of his bid by BSNL during the period of bid validity (a) fails or refuses to execute the Contract, if required; or (b) fails or refuses to furnish the Performance Security, in accordance with the instructions to Bidders.

We undertake to pay to BSNL up to the above amount upon receipt of its first written demand, without BSNL having to substantiate its demand, provided that in its demand, BSNL will note that the amount claimed by it is due to it owing to the occurrence of one or both of the two conditions, specifying the occurred condition or conditions. This guarantee will remain in force as specified in Section II of the Bid Document upto and including THIRTY (30) days after the Period of bid validity and any demand in respect thereof should reach the Bank not later than the specified date/dates.

Signature of the Bank Authority  
Signed in Capacity of Name & Full address of Branch  
Tel No. & Fax Number of Branch

Name & Address of witness  
Signature

**OR**

### DETAILS OF EARNEST MONEY DEPOSIT

I have submitted the Bid Security (EMD) of Rs. \_\_\_\_\_ in the 1st envelop and details are as under

Demand draft No \_\_\_\_\_ dated \_\_\_\_\_

Name of Bank \_\_\_\_\_

Signature of bidder with rubber stamp

Read, Understood & complied  
Signature of Bidder

**SECTION –X**

**AGREEMENT ( In Rs 200/- Stamp Paper )**

The successful Tenderer shall have to execute the following agreement:

This agreement made on this-----day of ( month)-----(year)-----between M/s -----herein after called “The Contractor” ( Which expression shall excluded by or repugnant to the context, include its successors, heir, executors, administrative representative and assignee) of the one part and Chairman & Managing Director , BSNL here in after referred to as BSNL, of other part.

Where as the contractor has offered to enter into contract with the said BSNL for the execution of work of Trenching, PLB Pipe laying, OF Cable Pulling, Preparation of Joint chambers, Fixing, painting and sign writing of route/joint indicators, Reinstatement and other associated works in BGTD Urban, on the terms and conditions herein contained and the rates approved by BSNL have been duly accepted and where as the necessary security deposits have been furnished in accordance with the provisions of the tender document and where as 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 .....to..... or completion of work whichever is earlier or until this contract shall be determined by such notice as is hereinafter mentioned, safely carry out, by means of labour employed at his own expenses and by means of tools, implements and equipments etc., to be supplied by him to his labour at his own expenses, all Trenching, PLB Pipe laying, OF Cable Pulling, Preparation of Joint chambers, Fixing, painting and sign writing of route/joint indicators, Cable jointing, Reinstatement and other associated works as described in tender documents (annexed to the agreement), when BSNL or the PGM or any other persons authorized by the PGM 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.
- 2) The NIT (notice inviting tender), Bid documents (Qualifying and Financial ), letter of intent, approved rates, annexed hereto and such other additional particulars, instructions, drawings, work orders 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.
- 3) The Contractor shall also supply the requisite number of workmen with means & 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 order.
- 4) The Contractor hereby declares that nobody connected with or in the employment of the BSNL shall not ever be admitted as partner in the contract.
- 5) The Contractor shall abide by the terms and conditions, rules, guidelines, Construction practices, safety precautions etc. stipulated in the tender document including any correspondence between the contractor and BSNL having bearing on execution of work and payments of work to be done under the contract.

In witness whereof the parties presents have here into set their respective hands and seals  
the day and year in-----

Above written:

Signed, Sealed & Delivered  
by the above named Contractor in the presence of

Witness:

- 1.
- 2.

Signed & Delivered  
on behalf of the Chairman and Managing Director, BSNL

Witness:

- 1
- 2.

Read, Understood & complied  
Signature of Bidder

**Section- XI - A**

**LETTER OF AUTHORISATION FOR ATTENDING BID OPENING ( Annexure -1)**

Tender Number \_\_\_\_\_

Subject : Authorisation for attending bid opening on \_\_\_\_\_ (date)

To

AGM

Sir,

Following persons are hereby authorized to attend the bid opening for the tender mentioned on behalf of \_\_\_\_\_ (bidder) in order of preference given below.

Order of Preference	Name	Specimen Signature
Alternate Representative		

Signature of bidder Or

Officer authorized to sign the bid documents on behalf of the bidder

Name of the Contractor

Address

Telephone Number & Fax Number

- Note: 1. Only one representative will be permitted to attend bid opening. Alternate Representatives will be permitted when regular representatives are not able to attend.
2. Permission for entry to the hall where bids are opened, may be refused in case Authorisation as prescribed above is not submitted.

Read, Understood & complied  
Signature of Bidder

## **DECLARATION (Annexure -2)**

**(INDEMNITY BOND ON 100/- RUPEE STAMP PAPER)**

**(IN CASE OF PARTNERSHIP FIRM/PROPRIETOR OF FIRM/ COMPANY)**

I-----son of /wife of Shri -----  
-----and proprietor/ Director/Partner of M/s -----  
-----do hereby solemnly affirm and declare as under:

1. That I am the sole prop./partner/Director of M/s-----  
-----has never ever been debarred and/ or blacklisted by any Dept. of Central Govt./State Govt./ PSU/Public bodies/Municipalities and not having any on going litigation or court case pending or any other money suits also state that the bid is not submitted in the name of this firm while being Director or partner or proprietor of such firm which is either debarred, black-listed or has entertained litigation or having on going litigation or court cases pending.

2. In case the above declaration is found to be incorrect or wrong , the contract if awarded to the firm shall be terminated immediately and the firm shall be liable to be blacklisted / debarred for future works/contract with BSNL. Any such action shall however be without prejudice to BSNL's rights under the law.

Signature of Proprietor/Partner/Director  
(Shri/Smt./Ms-----)

Note: The signatory should not affect any variation in the text of declaration. Declaration in any other form shall not be acceptable and render the bidder for penal action as decided by competent authority.

## **Certificate for Downloaded Document ( Annexure -3)**

**The following certificate should be submitted in the case of downloaded tender document**

The downloaded tender document as published at the website (bangaloretelecom.com ) has been used for bidding in this tender. It is certified that no modification has been done to the contents of the document.

Date :

Signature of the Bidder

Read, Understood & complied  
Signature of Bidder



**Certificate regarding non-employment of near relatives in BSNL ( Annexure -4)**

I ----- S/o -----Residing at -----hereby certify that none of my relative(s) as defined in the tender document is / are employed in BSNL unit as per details given 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.

**Signature of the Bidder with seal.**

Note: The above certificate shall be given by Proprietor in case of Proprietorship firm, by all the partners in case of Partnership firm and by all Directors in case of Limited company.

**Section XI- B**

**RATES OF EMPTY CABLE DRUMS ( Fixed Rates)**

These are the rates of the empty cable drums which have to be deducted from contractors bills as per terms and conditions of tender documents.

Sl.	Size of drum	Rate of Disposal
1	OF Cable 96F / 48 F	504.00
2	OF Cable 24 F/12 F	200.00

Note: These are fixed rates and no negotiation shall be acceptable from these rates.

Read, Understood & complied  
Signature of Bidder

**Section XII**

Work order format for trenching /HDD and splicing of OF cable works

Bharat Sanchar Nigam Limited (A Government of India Undertaking) Bangalore Telecom District, Bangalore.						
Work Order No.		Dated / / 2013				
<b>To</b>						
Sub: Work Order for						
Ref: Tender No. dated						
Specification: 1) HDD : Bore size /Pits 2) Trench : Depth/:width 3) Splicing & Termination works 24F/48F/96F/144F/288F						
1	Estimate No Schedule No .and date					
2	Name of the Route & Exchange Area					
3	Approximate length of trench / Type of Surface /No. of pits/					
	Sl No.	Foot path / carriage way / kutchra road	Type of Surface	Length in Meters	No. of Pits in case of HDD	No. of MH / HH / O Ring
	1					
	2					
Note: Type of surface to be filled as Gravel/Asphalt /WBM/Tiles/Concrete/Slabs /Interlocking blocks						
Approximate No of OFC joints/ No of terminations / AT						
4	Size and Length of PLB Pipes / OF Cable/ required :					
	Sl No.	No. of pipes in case of PLB	OF Cable	Length in Meters		
	1					
	2					
Note:. OF cable type to be filled as 6F/12F/24F/48F/96F/144F/288F						
5	Approximate length of route/ no.of joints/no.of terminations/AT					
	Length of route	Size of cable	Joints	terminations	No.of FDMS	Acceptance Testing
	1					
	2					
6	a) Date of Commencement			b) Date of Completion		
Approximate/ Actual Cost of work						
7	<b>Important instructions as per Tender conditions</b>					
8	a) Preparation of Route& OFFSET diagrams and submission to Planning Unit					
	b) Work is to be carried out as per instructions of the concerned SDE/JTO					
	c) No damage should be done to existing Telecom /Electrical/Railway Cable/BWSSB Pipes, any underground utility cable should be laid in parallel trench to avoid such problem					
	d) Cost of damages to be borne by Contractor. e) Cable Joint Indicator shall be suitably provided.					
	f) Refilling /reinstatement is to be carried out strictly as per specifications to the satisfaction of BBMP/Local authority g) Restoration materials should be available at site prior to commencement of work					
	h) Barricades ,caution sign boards with contact telephone numbers must be deployed at site of work					
	i)Completion of work shall be strictly adhered to the time allotted, In unforeseen situation/constraint ,the EOT shall be granted by DGM CC after carrying out the actual survey of the routes/works sites.					
Signature with Date AGM(CC )						
Copy to: AGM (CP)/AO(Works) /DGM(Projects)/ SDE CC BSNL,BGTD						

Read, Understood & complied  
Signature of Bidder

	<b>Work Order Completion report (To be filled by the Contractors)</b>
1	No.of work orders received:
2	No.of work orders completed:
3	Total Trench length dug : a)HDD:                      mtrs      b) Trench:                      mtrs      c) PLB: d)OFC:                      mtrs
4.	OFC splicing a)OFC joints                      Nos      b) OFC terminations                      Nos.      c)      FDMS/FDF                      nos
5	Progressive cost of all the work orders:
6	Actual date of completion of the present WO:
7	Cable Mtce diagram submitted
8	Material reconciliation :      Issued                      Laid                      Balance      returned to stores (DSD)
9	Avg Depth                      Min Depth                      Depth relaxation obtained Yes / No Attach depth and Fibre A/T certificate and relaxation certificate if applicable.
	Signature of Contractor (with date & Stamp)
	Remarks (if any) of Counter Signing Authority
	Details of EOT obtained:
	LD for ..... days@ Rs.      Per day is imposed
	LD for ..... days      condoned
	All the statements above are verified and found in order
SDE-CC	
Signature with Date	
Countersigned with Date	
AGM	

Read, Understood & complied  
Signature of Bidder

**SECTION XIII**

<b>Schedule of rates for Optical Fibre Cable Construction works</b>				
<b>Trenching rates for OF cable construction</b>				
<b>SL.No.</b>	<b>Item Code</b>	<b>Description of Item / Work</b>	<b>Unit Per</b>	<b>Offered SR (in Rupees)</b>
1	OFCT-all kind of soil	Excavating Trenches up to a depth of 165 cm and width 45 cm Top and 30 cm bottom including excavation for sockets and dressing of sites, ramming of bottoms, including getting out excavated soil and refilling the soil, and backfilling the excavated trench after laying HDPE/PLB pipes with or without protection, as required in layers not exceeding 20 cm in depth including consolidating each deposited layer by ramming, watering etc, and disposing surplus excavated soil. <i>(Materials will be made available Divisional Cable Store)</i>	Meter	208.56
2	OFCT-Ordinary Rock	Excavating Trenches up to a depth of 165 cm and width 45 cm Top and 30 cm bottom including excavation for sockets and dressing of sites, ramming of bottoms, including getting out excavated soil and refilling the soil, and backfilling the excavated trench after laying HDPE/PLB pipes with or without protection, as required in layers not exceeding 20 cm in depth including consolidating each deposited layer by ramming, watering etc, and disposing surplus excavated soil. <i>(Materials will be made available Divisional Cable Store)</i>	Meter	326.90
3	OFCT-Hard Rock	Excavating Trenches up to a depth of 165 cm and width 45 cm Top and 30 cm bottom including excavation for sockets and dressing of sites, ramming of bottoms, including getting out excavated soil and refilling the soil, and backfilling the excavated trench after laying HDPE/PLB pipes with or without protection, as required in layers not exceeding 20 cm in depth including consolidating each deposited layer by ramming, watering etc, and disposing surplus excavated soil. <i>(Materials will be made available Divisional Cable Store)</i>	Meter	592.43
4	WPL1	Supply of semi-circular RCC pipes 150mm dia . 1meter length,NP II class conforming to ISI No 458/1988	Each	77.00
5	WPL1	Placing semi-circular RCC pipes(150 mm dia)	Meter	7.53
		Semicircular RCC Pipes are supplied by the contractor		
6	HDPE	Laying of HDPE/ PLB Pipes / Coils coupled with HDPE Sockets and drawing 6mm PP rope	Meter	4.24
		BSNL will supply HDPE/PLB Pipes in sizes or coils, HDPE Sockets, PP rope, and End Caps.		
7	GIPT	Laying and fixing 100mm/65 mm/40mm GI Pipes in trenches with HDPE /PLB Pipe inside and drawing PP rope	Meter	9.72
		BSNL will supply GI pipes in lengths of 6 M HDPE Pipes / Coils and PP Rope.		

Read, Understood & complied  
Signature of Bidder

8	Providing RCC protection with 1:2:4 (1:Cement, 2:Sand,4: Stone chips) reinforced with Weld Mesh 25cmX25cm		Cum	3585.15
9	Supply of RCC Hume Pipe,150 mm dia, 2 mtr long NP II class conforming to ISI No 458/1988 on Road Crossings with HDPE /PLB pipe inside.		Meter	154.00
10	Laying & Fixing of RCC Hume Pipe 2 mtr long on Road Crossings with HDPE /PLB pipe inside(150 mm dia &250mm Dia)		Meter	19.74
11	Supply of RCC Hume Pipe,250 mm dia, 2 mtr long NP II class conforming to ISI No 458/1988 on Road Crossings with HDPE /PLB pipe inside.		Meter	188.00
12	Laying & Fixing of RCC Hume Pipe 2 mtr long on Road Crossings with HDPE /PLB pipe inside(150 mm dia)		Meter	19.74
13	Supply of RCC collars for Hume Pipe,150 mm dia, 2 mtr long NP II class conforming to ISI No 458/1988 on Road Crossings with HDPE /PLB		Number	25.00
14	Supply of RCC collars for Hume Pipe, 250 mm dia, 2 mtr long NP II class conforming to ISI No 458/1988 on Road Crossings with HDPE /PLB		Number	40.00
Full round RCC pipes in lengths of 2 meters with Collars are to be supplied by the Contractor at the approved rates. Clamps, sealing cement & other accessories required for sealing and coupling the pipes and PP rope will be arranged by the contractor.				
15	Supply of Route /Joint indicator engraved with BSNL-OFC		Each	173.02
16	Digging of pit 1meter away at each Man hole/Joint Chamber for fixing of Route /Joint indicator , concreting , Painting and Sign writing		Each	168.21
17	OFCP	Pulling of O.F. Cable(24F) , Opening of Manholes, replacing 4mm/6mm PP rope by 8mm PP rope, , Sealing of HDPE/ PLB Pipes by rubber bushes in Manholes, providing HDPE/RCC Split Pipes in Manholes & Backfilling of Manholes	Meter	12.02
BSNL will supply OF Cable, 8mm PP rope, Rubber bush, All other materials are arranged by the Contractor				
18	JCPC	Digging of pit for Jointing Chamber, Fixing of Pre-cast RCC Chamber/“O’ Ring Joint chamber of diameter 1.2 meter with clean sand, placing of pre-cast RCC Slabs on RCC Chamber and back filling of jointing pit with sand . “O’ Ring diameter is 1.2 meter	Each	2118.19

Read, Understood & complied  
Signature of Bidder

19		Supply of pre- cast RCC Protection Chamber/"O" ring Joint Protection chamber made of Cement Concrete mix of 1:2:4 (1: Cement, 2: Sand and 4: stone aggregated 6mm nominal size) and reinforcement with steel rod of 10mm at a space of 4 inch- consisting of 2 Parts (i) Full Round pre cast RCC Chamber with Dia of 120 cm and Height of 60 cm & Thickness of 7.5 cm. & (ii) Round top cover with dia of 120 cm and Thickness of 7.5 cm having one Handle in Center and Supply of 'O' ring ( 1.2 meter dia).	Each	6000.00
20	JCBR	Digging of pit of size 2 m x 2m x 1.8 m depth , concreting of base of the chamber using concrete mix of 1:5:10(1:1.7m x 1.7 m x 0.15 m (thickness), forming of Walls with brick having internal dimensions of 1.2 m x 1.2 m x 1m(H) keeping the wall thickness of 9" using cement mortar mix of 1:5(1: cement, 5: fine sand). filling of brick chamber with clean Sand, Supply and placing of pre-cast RCC slabs on brick chamber and back filling of jointing pit.		
		(a)Pre-cast RCC slabs 5cm thickness	Chamber	9892.14
		(b) Pre-cast RCC slabs 10cm thickness	Chamber	10221.24
21		Digging Pit of 1Mx1Mx1.65M for OFC pulling exiting Duct / PLB	Number	541.66
22		Laying PLB pipe by HDD method using HDD machine. (up to 60 mm dia)	Meter	314.12
23		Splicing of OFC at FDMS/FDF	Number	3675.00
24		Splicing /Jointing of OFC in routes	Number	3675.00
25		Installation of FDMS/FDF	Number	1777.00
26		Tapping of Fibre from existing Network to Access Network(2F to 12F)	Number	2825.00
27		Termination of OFC at FTTH/GSM/Pvt Customer premises	Number	2825.00
28		Acceptance testing (A/T) of FDMS/FDF installation & Terminations	Number	2725.00
29		Acceptance testing (A/T) of OFC routes and Fibres	Number	2475.00

Read, Understood & complied  
Signature of Bidder

**REINSTATEMENT Charges As Per BBMP Specifications**

SL. No.	Type of Road	Per Unit	Offered SR (in rupees)
1	Gravel Surface	Sq. Mtr	336-50.
2	Interlocking Blocks	Sq..Mtr	<u>402.48</u>
3	Chequered Cement Concrete Tiles	Sq. Mtr	<u>451,61</u>
4	Water bound Macadam Surface (A,B,C Category Road )	Sq. Mtr	229.50
5	Water bound Macadam Surface (D Category Road)	Sq. Mtr	148.38
6	Asphalt Surface (A Category - Thickness 0.397cm)	Sq. Mtr	1285.02
7	Asphalt Surface(B Category- thickness 0.372)	do	1082.62
8	Asphalt Surface(C Category thikness 0.322)	do	677.84
9	Cement Concrete 1:2:4	Cum	4502.55

Read, Understood & complied  
Signature of Bidder

**Section XIV**

**FINANCIAL BID  
OFC Works –BGTD**

To  
The Principal General Manager,  
BSNL, BGTD.

Subject: Our Financial Bid for tender for laying OFC by Open trenching/ HDD method and splicing/termination of OFC in Bangalore Telecom District for the year 2012-2013

Tender No: -----

Dear Sir,  
Having examined the tender documents, terms and conditions stipulated therein, specifications of work etc., we the under signed offer to execute the Cable Construction Works in conformity with the said specifications and conditions of contract at the percentage ( Below / At Par / Above) with respect to the schedule rates given at Section XIII. (The Schedule of rate at section XIII is exclusive of service tax)

BELOW

In figures.....%.

In words.....percent

OR

AT PAR

In words.....

OR

ABOVE

In figures.....%

In words.....percent

If our Bid is accepted, we shall submit the securities as per the conditions mentioned in the contract. We agree to abide by this Bid for a period of 150 days and also for further extension of 120 days vide clause 4.11.2 of the tender document from the date of opening of the qualifying bid and it shall remain binding upon us and may be accepted at any time before the expiry of that period.

Date

Signature of the Tenderer.....

Name of the Tenderer.....

**Note: If the bidder desires to quote below or above the schedule of rates, percentage quote is to be mentioned in figures as well as in words in the appropriate columns.  
In case if the quote is 'At Par' with respect to the schedule of rates, the same should be mentioned in words "At Par" at the respective column**

Read, Understood & complied  
Signature of Bidder