

INVITATION OF BIDS FOR RELOCATION OF SERVERS
O/O THE ACCOUNTANT GENERAL (A&E) - II, MADHYA PRADESH, GWALIOR

Tender Enquiry No EDP/PR/2020-21/D - 246 dated 24 Sep 2020

1. Office of the Accountant General (A&E) - II, Madhya Pradesh Gwalior hereby invites sealed tenders depicting financial implication for Relocation of servers and associated tasks. The rates are to be quoted for items shown in Enclosure - II with estimated time frame in terms of man days against the requirements. Super scribe the above mentioned Title, Tender Enquiry number and date of opening of the bids on the sealed cover to avoid the bid being declared invalid.

2. The address and contact numbers for sending bids or seeking clarifications regarding this Tender Enquiry are given below –

- | | |
|---|--|
| (a) Bids/queries to be addressed to. | The Senior Accounts Officer
(EDP/ IT Support Cell) |
| (b) Postal address for sending/submitting the Bids. | O/o Accountant General
(Accounts & Entitlement) – II
EDP Section, 2nd Floor (A block)
Lekha Bhavan, Jhansi road
Gwalior – 474002 |
| (c) Name/designation of the contact person. | Shri Kaushal K Choudhary, Sr. AO
(EDP/ IT Support Cell) |
| (d) Telephone numbers of the contact personnel. | 9431000944 |
| (e) Last date for Submission of bids. | 03.00 pm on date 06/10/2020 |

3. This Notice Inviting Tender (NIT) is divided into following five Parts and all the Parts are placed at Enclosure **I** to this Tender Enquiry: -

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|-----|----------|---|--|
| (a) | Part I | - | General Information |
| (b) | Part II | - | Essential Details of Items/Services required |
| (c) | Part III | - | Standard condition of Tender Enquiry |
| (d) | Part IV | - | Special conditions of Tender Enquiry |
| (e) | Part V | - | Evaluation criteria and price bid issues. |

The Technical details /Scope of Work of individual items are placed at **Enclosure II** to this Tender Enquiry.

-Sd-
(Kaushal Kishore Choudhary)
Senior Account Officer
EDP/ IT Support Cell

- Encls:**
- I. Part I, II, III, IV & V of Tender Enquiry
 - II. Scope of Work and Price Bid Format

Part I – General information

1. **Last date and time for depositing the Bids.** The tenders are to be submitted in **Two Bid format** containing separate Technical and Financial bids. The sealed Bids (both Technical and Commercial) should be deposited/reach by **03.00 pm on date 06/10/2020**. The responsibility to ensure this lies with the Bidder. Technical and Price bids sealed in separate covers (with clear superscription of the individual bids on each envelope), shall be kept in another common cover (bearing the Tender details) should be given for submission.

2. **Manner of depositing the Bids.** Sealed Bids should either be dropped in Tender box or sent by registered post at the address given above so as to reach by the due date and time. Late tenders will not be considered. No responsibility will be taken for postal delay or non-delivery/non-receipt of Bid documents. Bids sent by FAX or e-mail will not be considered.

3. **Time and date for opening of Bids.** The Technical bids shall be opened at **04.00 pm on date 06/10/2020**. If due to any exigency, the due date for opening of the Bids is declared closed holiday, the Bids will be opened on the next working day at the same time or on any other day/time, as intimated by the O/o Accountant General (Accounts & Entitlement) - II. The date of opening of Commercial bids will be informed to firms who have been qualified in Technical bids.

4. **Location of the Tender Box:** EDP Section, 2nd Floor (A Block), Lekha Bhavan O/o Accountant General (Accounts & Entitlement) – II, M.P, Gwalior.

5. **Place of opening of the Bids.** The bids will be opened at **EDP Section, 2nd Floor, O/o Accountant General (Accounts & Entitlement) – II, Lekha Bhavan, Gwalior**. The Bidders to depute their representatives, duly authorized in writing, to attend the opening of Bids on the due date and time. Rates and important commercial/technical clauses quoted by all Bidders will be read out in the presence of the representatives of all the Bidders. This event will not be postponed due to non-presence of any authorized representative.

6. **Two-Bid system.** Tender shall be submitted in two bids i.e. Technical and Financial bid. Technical bid envelope should be titled as **“Technical bid for Relocation of Servers”** and Financial bid envelope should be titled as **“Financial Bid for Relocation of Servers”**. Both the envelopes should be kept in third sealed envelope titled as **“Tender for Relocation of Servers at O/o the AG(A&E)-II”**. Bids should be forwarded by Bidders under their original memo / letter head furnishing details like

- Copy of the Registration Certificate of the firm clearly indicating the Proprietors name.
- Tax registration details, GST number, Bank Account details.
- Complete postal & e-mail address of their office.
- Past experience of the firm in the related field, copies of previous work orders.
- Proof of trained qualified manpower.

In case of noncompliance to any of the Term and conditions/Scope of Work, deviation from Tender Enquiry must be specified in unambiguous terms.

7. **Modification and Withdrawal of Bids.** No bid shall be modified after the deadline for submission of bids. **Conditional tenders will be rejected.**

8. **Validity of Bids.** The Bids should remain valid for **06 months** from the date of opening of the Bids.

Part II – Essential Details of Items/Services required

The present case pertains to relocation of backup server from its present location to a separate location other than the present premises. The GPF application is based on Oracle 11g based database with Red Hat Linux 5 as the base Operating System. The database is installed in a High end server along with a backup server located in the same compartment. The GPF application and database is the backbone of this office as it is responsible for the maintenance of crucial data of the State Govt. employees. Concerns have been raised to relocate the backup server to a different physical location to safeguard the data in case of an unexpected accident or in case of a natural calamity.

Details of the Item(s)/Services to be carried out

The work is proposed to be carried out through a competent firm and during the contract period the service providing firm shall relocate the present backup server at the newly allocated space. The firm will employ necessary man power to shift the actual server, digging/laying out works for fiber optic cable. The firm will also employ qualified technicians to install the other related electronic equipment such as repeaters, trans-receivers, media converters etc. and ensure cabling work for power supply requirements. All the electronic/electrical consumables will be part of the contract. On completion of the relocation works as per Annexure I, the firm shall prepare and submit a suitable network diagram of the newly formed network to this office. The work also includes fine tuning of the server after completion of the work.

Part III – Standard Conditions of Tender Enquiry /Terms and Conditions

The Bidder is required to give confirmation of his acceptance of the Standard Conditions of the Tender Enquiry mentioned below which will automatically be considered as part of the Contract concluded with the successful Bidder (i.e. Firm in the Contract) as selected by the Office of the Accountant General (A&E)-II, Madhya Pradesh, Gwalior. Failure to do so may result in rejection of the Bid submitted by the Bidder.

1. **Operation of Contract.** The powers and functions of the office under this Contract shall be exercised by **The Sr. Deputy Accountant General (Admin & Pension), O/o the Accountant General (A&E) - II, Madhya Pradesh, Gwalior.** In addition, the contract may also be operated on the same terms and conditions by the branch office located at Bhopal.

2. **Law.** The Contract shall be considered and made in accordance with the laws of the Republic of India. The contract shall be governed by and interpreted in accordance with the laws of the Republic of India.

3. **Effective Date and Duration of the Contract.** The contract shall come into effect on the date of signatures of both the parties on the agreement (Effective Date) and shall remain valid until the completion of the obligations of the parties under the contract. The deliveries and supplies and performance of the services shall commence from the effective date of the contract. The firm shall draw up an action plan for the commencement of this agreement as desired by the Accountant General. The source code shall be the property of the customer. The firm shall give proper documentation and source code in media along with hard copy thereof.

4. **Dispute/Arbitration.** These terms and conditions are governed by the law of India for the time being in force. In case of any dispute, the decision of the Accountant General(A&E)-II Madhya Pradesh, Gwalior would be final and binding upon both the parties. The cause of dispute must be presented in writing before him within 15 days of occurring of such dispute for the purpose of adjudication. If occasion arises, the jurisdiction of the appropriate court will be at Gwalior.

5. **Non-disclosure of Contract documents.** Except with the written consent of Office of the Accountant General (A&E) - II, Madhya Pradesh Gwalior, the firm shall not disclose the contract or any provision, specification, plan, design, pattern, sample or information thereof to any third party.

6. **Termination of Contract.** O/o The Accountant General (A&E)-II, Madhya Pradesh, Gwalior shall have the right to terminate this Contract in part or in full at any stage without assigning any reason. The contract will also be terminated under following circumstances: -

(a) If the contractor fails to perform the assigned job even after extension of the agreed time frame or

does a poor/ substandard job repeatedly.

(b) If the firm is under any legal or other disputes.

7. **Notices.** Any notice required or permitted by the contract shall be written in the English language and may be delivered personally or may be sent by FAX or registered pre-paid mail/airmail, addressed to the last known address of the party to whom it is sent.

8. **Transfer and Sub-letting.** The firm has no right to give, bargain, sell, assign or sublet or otherwise dispose of the contract or any part thereof, as well as to give or to let a third party take benefit or advantage of the present contract or any part thereof.

9. **Amendments.** No provision of present Contract shall be changed or modified in any way (including this provision) either in whole or in part except by an instrument in writing made after the date of this Contract and signed on behalf of both the parties and which expressly states to amend the present Contract.

10. **Taxes and Duties** (i) If Bidder desires to ask for tax/taxes extra, the same must be specifically stated. In the absence of any such stipulation, it will be presumed that the prices include all such charges and no claim for the same will be entertained.

(ii) If reimbursement of any Duty/Tax is intended as extra over the quoted prices, the Bidder must specifically say so. In the absence of any such stipulation it will be presumed that the prices quoted by firm are final and no claim on account of such duty/tax will be entreated after the opening of tenders.

(iii) If a Bidder chooses to quote a price inclusive of any duty/tax and does not confirm inclusive of such duty/tax so included is firm and final, he should clearly indicate the rate of such duty/tax and quantum of such duty/tax included in the price. Failure to do so may result in ignoring of such offers summarily.

11. **Payment:** Payment will be made strictly on the basis of issues resolved, related reports and regular training imparted to officials successfully irrespective of Man-days / man-months. No payment will be made for unsuccessful/ unresolved/ incomplete items. The amount of penalty if any imposed by the Accountant General/Deputy Accountant General shall be deducted from the amount payable to the firm.

12. **Liquidated Damages.** In the event of the Firm's failure to submit the documents, supply the stores/goods, provide the services and conduct trials, installation of equipment, etc as specified in this contract, Office of the Accountant General (A&E) - II, Madhya Pradesh, Gwalior may, at his discretion, withhold any payment until the completion of the contract.

The schedule for delivery and installation is to be strictly adhered to in view of the strict schedule for implementation of the project as time is essence of the contract. Any unjustified, unacceptable delay in delivery and installation beyond the time schedule shall render the vendor liable for liquidated damages @ 1% of tendered amount per week subject to a maximum of 5 weeks and thereafter this office holds the option for cancellation of the order for pending work. The work place for the work will be at O/o Accountant General (A&E) II, Madhya Pradesh, Gwalior.

13. **Force Majeure:** For purpose of this Clause "Force Majeure" means and includes war, insurgency, revolution, fire, flood, epidemic, quarantine restrictions, freight embargoes, declared general strike in relevant industries, act of God, and such other acts or event beyond the control of this office and the service providing firm. In case of a Force Majeure situation, the firm shall promptly notify in writing of such conditions, the cause thereof and likely duration of the delay unless otherwise directed by the Customer in writing, the firm shall continue to perform its obligations under the agreement as far as reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

Part IV – Special conditions of Tender Enquiry

The Bidder is required to give confirmation of their acceptance of 'Special Conditions of the Tender Enquiry' mentioned below which will automatically be considered as part of the Contract concluded with

the successful Bidder (i.e. Firm in the Contract) as selected by O/o The Accountant General (A&E)-II, Madhya Pradesh, Gwalior. Failure to do so may result in rejection of Bid submitted by the Bidder.

1) Earnest Money Deposit: EMD Deposit of **Rs 5000/-** in the form of Bank Guarantee/FDR issued by National/ Scheduled Bank in favour of "**Pay and Accounts Officer, Office of the Principal Accountant General (A&E)-I, Madhya Pradesh, Gwalior**" shall have to be deposited by the firm at the time of submission of tender and the same will be refunded on finalization after contract /agreement.

2) Forfeiture of EMD. EMD will be forfeited, if the bidder withdraws or derogates from the tender in any respect within the period of validity of his tender. Also if the successful bidder fails to furnish the required security deposit, the EMD furnished will be forfeited.

3) Delivery Schedule: The vendor should start the work within 1 week from the date of agreement and the entire work shall have to be delivered, installed and commissioned after due testing within the period quoted in tender form from the date of start of work by the said vendor keeping ample scope of bug fixing, documentation, etc. No request for the enhancement in price due to extension in time schedule of delivery or installation would be entertained.

4) Time Schedule: The firm shall complete the above mentioned work within **01 Man-month** from the date of commencement of work or as may be agreed by the Accountant General (A&E) II, M.P. Gwalior. One person working one day ($8\frac{1}{2}$ hours from 9.30 am to 06.00 pm excluding lunch hours) is one Man-day. If one person works for the whole month then it will be one man-month time. Any extension in interest of the work may be granted with the approval of office of the Comptroller and Auditor General of India on recommendation Accountant General (A&E) II, Madhya Pradesh, Gwalior. After due process the contract shall be effective from the date of execution and remain in force till completion of work as defined above.

The firm shall strictly adhere to time schedule or completion/ installation/ implementation of the work as decided by the Accountant General (A&E) II, Madhya Pradesh, Gwalior as conveyed to the firm from time to time.

5) Warranty: The firm shall be responsible for satisfactory completion of the work assigned through this agreement and agrees to provide warranty for successful implementation of the change request. This warranty shall further extend to the satisfactory and actual implementation/ generation of the forms and reports developed / modified for one year or as may be fixed by the Accountant General (A&E) - II Madhya Pradesh, Gwalior according to specifications and its approval by the O/o The Comptroller and Auditor General of India. The Accountant General (A&E) II, Madhya Pradesh, Gwalior shall hold till completion of warranty period, 10% of the balance amount of the contract price, from the date of completion of assigned job.

During period of warranty the firm shall provide services by a call in person or telephonically as desired by the Accountant General (A&E) - II, Madhya Pradesh without any extra charge.

6) Security Deposit: An amount of **10%** of the contract value will have to be placed as security deposit in the shape of FDR or Bank guarantee in favour of '**Pay and Accounts Officer, Office of the Principal Accountant General (A&E) - I Madhya Pradesh, Gwalior**' which will be released after successful completion of the work as per terms and conditions of the contract. Security deposit should be returned to vendor after successful completion of work and issue of completion certificate.

7) Payment Terms: Ninety percent of the amount payable to the firm on account of professional fee shall be paid only after successful and satisfactory completion and implementation of the work assigned through this agreement and the balance 10% will be released after warranty period.

Any unsatisfactory/incomplete work shall be completed by this office at the risk & cost of the firm and decision of the Accountant General in this regard shall be final. Payment will be made only on those items which has been resolved/related report generated, training imparted and user manual instructions provided by the firm. The request for payment shall be made to the Office of the Accountant General (Accounts & Entitlement)-II Madhya Pradesh, Gwalior in writing accompanied by a valid invoice describing the items delivered/Services rendered. All payment made to the firm shall be subject to Tax Deducted at Source (TDS) wherever applicable. Works Contract Tax and Stamp Duty on

contract, if any, are payable by the firm. Payment of the Contract shall be made in Indian Currency.

8) Manual and Documentations : The following manuals/ documentation are to be provided. All the manuals will be the property of the Indian Audit and Accounts Department.

- i) A complete drawing on the revised network layout along with location of devices.
- ii) Complete power supply payout drawing.
- iii) All User manuals/Technical Descriptions issued with the additional devices used at various places.
- iv) Any other documents that this office finds necessary.

9) Penalty for delay in delivery and installation: The schedule for delivery and installation is to be strictly adhered to in view of the strict schedule for implementation of the project as time is essence of the contract. Any unjustified , unacceptable delay in delivery and installation beyond the time schedule shall render the vendor liable for liquidated damages @ 1% of tendered amount per week subject to a maximum of 5 weeks and thereafter this office holds the option for cancellation of the order for pending work.

10) Completion: the work will be deemed to be completed only when this office has received both the servers in operational condition as per the terms of the Contract, whether explicit or implied and the same is found to be running smoothly and satisfactorily after testing.

11) Cancellation of the work order: The work order can be cancelled by this office on account of breach of any of the clause of the work order or on account of incompetence on the part of the vendor to carry out the work as per requirement of this office. In such situation security deposit made by vendor will be forfeited in favour of this office.

12) Additional work: Any additional work other than those mentioned in the scope of work will be done by the vendor at a rate agreed to if ordered.

13) Arbitration: In the event of any disputes or differences whether during the execution of orders or thereafter whether by breach or in any manner in regard to:

- i) The constitution of terms and conditions .
- ii) The respective rights and liability of the parties hereto thereunder.
- iii) Any matter or things arising out or in relation to or in connection with these terms and conditions

Then either party shall give written notice to the other for the same and such dispute or differences shall be referred for the sole arbitration of any persons appointed by the Comptroller and Auditor General of India. The decision of such arbitration shall be conclusive and binding on the parties hereto. There shall be no objection to any such appointment that the person appointed is a Govt. Servant. The Provisions of the Arbitration and Conciliation Act,1966 and rules thereunder shall apply to the arbitration proceedings. Such Arbitration shall be held at Gwalior.

14) Binding: This office does not bind itself to accept the lowest tender and reserves the right to reject any or all tenders received without assigning any reason whatsoever. Tenders in which any of the particulars and prescribed information are inadequate or incomplete in any respect or the prescribed conditions are not fulfilled are liable to be rejected. Canvassing in any form by the tenderers will result in rejection of their tenders.

Part V – Evaluation Criteria & Price Bid issues

1. **Evaluation Criteria.** The broad guidelines for evaluation of Bids will be as follows.

(a) Only those Bids will be evaluated which are found to be fulfilling all the eligibility and qualifying requirements of the Tender Enquiry, both technically and commercially.

(b) The technical Bids forwarded by the Bidders will be evaluated by this office with reference to the technical characteristics / services of the equipment / item as mentioned in the Tender Enquiry. The compliance of Technical Bids would be determined on the basis of the parameters specified in the Tender Enquiry. **The Price Bids of only those Bidders will be opened whose Technical Bids would clear the technical evaluation.**

(c) The Lowest Bid will be decided upon the lowest price quoted by the particular Bidder as per the Price Format. All taxes and duties quoted by the Bidders will be considered. The ultimate cost to Office of the Accountant General (A&E)-II, Madhya Pradesh, Gwalior would be the deciding factor for ranking of Bids. L1 will be decided based on total price quoted by firms in all the serials. Price to be quoted for works mentioned against Enclosure II Scope of Work.

(d) The Bidders are required to spell out the rates of all duties and taxes in unambiguous terms; otherwise their offers will be loaded with the maximum rates of duties and taxes for the purpose of comparison of prices.

(g) This office will have the right to award contracts to different Bidders for being lowest in particular items. Office of the Accountant General (A&E)-II, Madhya Pradesh, Gwalior also reserves the right to do Apportionment of Quantity.

SCOPE OF WORK

Name of Work

Relocation and installation of backup Server from the present location to an approximate distance of 1000 meters, provide connectivity using Optical Fiber network through Cable laying by Open Trenching, laying of Optical Fiber cable and allied jobs. The description of scope of work/job/work to be done is as mentioned in subsequent paragraphs.

Scope

The Instructions spelt out in this document deal with the methods to be adopted for the project as below:

- a) Physical relocation of backup server from the present location to the newly assigned location in Audit Bhavan situated at an approximate distance of 1000 meters.
- b) Underground Optical Fiber Cable laying in PLB/HDPE ducts and inter connection of the servers (main and backup servers) using Optical Fiber Cables.
- c) Laying of Optical Fiber cables and provide necessary arrangements for provision of power supply for the newly relocated servers, UPS and associated electrical equipment.

a). Physical relocation of Backup Server

1. The firm has to arrange for physical movement of the back-up server from the present location at Lekha Bhavan to the newly assigned location Audit Bhavan which is at an approximate distance of 1000 meters.
2. The firm has to employ qualified man-power to safely remove the server from Server Room at EDP, 2nd floor of Lekha Bhavan and arrange movement to the designated location at Audit Bhavan.
3. The server has to be placed at the designated location and necessary data and power supply connectivity has to be provided.
4. The Contractor at his own cost should arrange Vehicle required for OF Cable, Splicing and transportation of men and material.
5. The operation of the newly installed server will be verified to the satisfaction of Senior Account Officer/ (EDP/ IT Support Cell) and accordingly work completion certificate will be issued.
6. All wear and tear / damage (including hardware and software damages to the server) during the process of relocation will be covered by the firm without any additional cost.

b). Optical Fiber cable laying approach

1. ***On the basis of the initial survey carried out by AAO/IT Support Cell the proposed route and approximate distance has been determined. Please note that the quantity for cables and excavation work are approximate. Interested firms are advised to measure and work out the exact quantity by visiting and inspecting site in person. The parties shall visit our office during office hours between 11.00hrs to 17.30hrs on all working days except holidays and shall take note of the actual work to be carried out.***
2. Permission for digging work along with the designated route shall be obtained from CPWD as and when required.

3. The Optical Fiber Cable shall be laid through PLB/HDPE Ducts buried at a nominal depth of 165 cms.

4. In exceptional circumstances deviation to the guidelines are permissible subject to approval of o/o the Accountant General (A & E) – II without compromising on the standard of work.

5. The steps involved in OF Cable construction are as under:

a) Excavation of trench upto a nominal depth of 165 cms. in non-Rocky soil, according to construction specifications. Under exceptional conditions/genuine circumstances due to site constraints/ soil conditions, relaxation can be granted by the competent authority for excavation of trench to a depth lesser than 165cm. Such relaxation shall be given as per the laid down norms/ procedures being followed by office of the Comptroller and Auditor General of India for similar works in its field offices.

b) Laying of PLB/HDPE Ducts/coils coupled by sockets in excavated trenches, as per construction specification and sealing of PLB HDPE Ducts pipe ends at every manhole by end-plugs of appropriate size.

c) Providing additional protection by R.C.C. Pipes/GI pipes/DWC pipes and/or concreting/chambering, wherever required. according to construction specification.

d) Fixing of GI pipes/Channels with clamps or concreting of G.I. Pipes/troughs, wherever necessary. Normally, RCC/DWC pipes shall be used and use of GI pipes shall be avoided. However, in case it is felt that GI pipe is unavoidable in certain circumstances this should be done with the prior approval of competent authority. This shall be recorded appropriately.

e) Back Filling and Dressing of the Trench according to construction specifications.

f) Making manhole (of size 2.0 m length x 0.45 m width x 1.65 m Depth) at Cable pulling locations for housing the OF Cable loop & Pulling Optical Fiber Cable using proper tools and accessories. Sealing of both ends of the PLB/HDPE pipe in manhole by hard rubber bush of suitable size to avoid entry of rodents into the PLB/HDPE Ducts, putting split PLB/HDPE Ducts and split RCC pipes with proper fixtures over cable in the manhole to protect the bare cable.

g) Digging of pit of size 2-meter x 2-meter x 1.8 meter (depth) for fixing of Jointing chamber precast RCC cover or stone of suitable size on Jointing chamber to protect the Joint and back filling of jointing chamber with excavated soil.

i) Painting of route indicators with Blue color and joint Indicator by Grey color sign writing denoting route/joint indicator number and marked as "OFC-AG(AE) II" as per construction specification.

6. Specifications of Materials to be used

a) PLB/HDPE Duct: Optical Fiber Cables should be pulled through Pre Lubricated HDPE Duct of 40 mm/33mm size conforming to the specifications.

b) PLB/HDPE Duct Accessories:

i) Push fit Coupler: Push Fit couplers shall be used for coupling PLB/HDPE ducts/coils.

ii) PP Rope: The PP rope can be ordered along with the PLB duct as required. In this case PP rope is drawn through the HDPE/PLB pipes/coils and safely tied to the end caps at either ends with hooks to facilitate pulling of the OF cables at a later stage.

iii) End Cap: End Cap shall be used for sealing the ends of the empty ducts, prior to installation of the OF Cable and shall be fitted immediately after laying the duct to prevent the entry of any dirt, water, moisture, insects/rodents etc.

iv) Cable sealing Plug: This shall be used to seal the end of the ducts perfectly, after the OF cable is pulled in the duct. For pulling the cable through the ducts, it is necessary to provide man holes at that location and also at bends and corners wherever required. The ends of the PLB/HDPE

ducts/coils are closed with Cable Sealing Plugs. The End Plugs used should be suitable for closing 40mm/33mm PLB HDPE ducts/coils.

7. Material for Providing Additional Protection

- a) RCC Full Round Pipes: Reinforced cement concrete pipes (spun type) coupled with RCC collars sealed with cement mortar used to provide additional protection to PLB/HDPE Ducts/coils at lesser depths should be of full round and size 100 mm (internal diameter).
- b) RCC Split Pipes: The split Reinforced cement concrete pipes (spun type) with in-built collars are used to provide additional protection to PLB HDPE Ducts/coils should be of 100mm internal diameter.
- c) G.I. Pipes: G.I. pipes should be of medium duty class having inner diameter of 50mm and should conform to specifications
- d) DWC Pipes: Use of normal duty DWC (Double walled corrugated) HDPE pipe
- e) M.S. Weld Mesh: The PLB HDPE Ducts can also be protected by embedding it in concrete of size of 25 cms x 25 cms reinforced with MS weld mesh.

8. Joint Chamber:

The Joint chamber shall be provided at every joint location to keep the OF cable joint well protected and also to house extra length of cable which may be required in the event of faults at a later date- The Joint chamber shall be of pre-cast RCC type as per construction specification.

9. Rubber Bush:

To prevent entry of rodents into PLB HDPE DUCTS, the ends of PLB/HDPE DUCTS are sealed at every manhole and joint using rodent resistant hard rubber bush (cap) after optical fibre cable is pulled. The rubber bush should be manufactured from hard rubber with grooves and holes to fit into 40 mm PLB/HDPE DUCTS pipe, so that it should be able to prevent the entry of insects, rodents, mud, and rainwater into the PLB/HDPE DUCTS pipe.

10. Route/Joint Indicator:

The Route/Joint indicators are co-located with each manhole/joint chamber. In addition, Route indicators are also to be placed where route changes direction like road crossings etc. Either RCC/Pre-cast or Stone based route indicators can be used. The detailed specification and design of the same shall be as per construction specification. Generally, Stone Route indicators shall be used.

11. Scope of the Work for Splicing Works:

The contract is meant for carrying out Conventional/ ribbon splicing of cables.

The scope and description of the works of the contractor is enumerated in the following paragraphs:

- a) The contractor has to supply Conventional / ribbon Splicing machine, backup 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.
- b) The Contractor at his own cost should arrange Vehicle required for OF Cable Splicing and transportation of men and material, etc for splicing.
- c) The operation of the splicing machine, associated works like preparing the cable, cutting the fiber 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.
- d) The routes/section for which the contractor has executed the OFC cable laying works, the splicing/ termination of cable at terminal end shall be carried out by the same contractor and ensure the end to

end connectivity.

e) 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. 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. In case the results are not meeting, the iteration of splicing operation to be repeated till a satisfactory result is achieved.

f) Forming the ribbons suitably after splicing inside the enclosure, sealing the enclosure as per the standard laid procedure.

g) The contractor, on completion of the OFC laying works should be ready with the Splicing Machine, OTDR, Source Meter, Power Meter, Splicing Tools, Skilled Splicer and Engineer to carry out the splicing works. The number days allowed for execution of OFC works shall also include the splicing/termination & end to end continuity of cable.

h) The splicing should be given warranty for one year against workmanship. In case the splicing give away due to poor workmanship, the contractor has to arrange to re-splice by providing the machine and the skilled labour at the site during the warranty period.

12. Construction Specifications

a) Excavation of Trenches

i) Location and Alignment of the Trench: In built up 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 cutting across road with specific permissions from the concerned authorities maintaining the road. Permissions for deviations shall be obtained from concerned authorities.

ii) Line-Up: The line-up of the trench must be such that PLB/HDPE Ducts shall be laid in a straight line except at locations 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.

iii) Method of Excavation: In built up areas, the contractor shall resort to use of manual labour only to ensure no damage is caused to any underground or surface installations belonging to other public utility services and/or private parties. All excavation operations shall include excavation and 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. In Rocky strata excavation shall be carried out by use of electro mechanical means like breakers/ jack hammers or by blasting wherever permissible. 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.

Necessary barricades, night lamps, warning board 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.

In order to prevent damage to PLB/HDPE DUCTS 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.

iv) 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, less depth shall be allowed only in exceptional circumstances with additional protection where it is not possible to achieve the normal depth due to harsh terrain/ adverse site conditions encountered.

This shall be properly documented. 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 & 30 cms at the bottom. In case, additional pipes (HDPE/GI/RCC Pipes) are to be laid in some stretches, the same shall be accommodated in this normal size trench.

v) 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 arrangement that may be necessary. No extra payment shall be admissible for this.

vi) 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.

vii) Blasting: For excavation in hard rock, where blasting operations are considered necessary, the contractor shall obtain approval in writing for resorting to blasting operation

b) Laying OF PLB/HDPE Ducts

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 5 cms is required for levelling 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. Preparatory to aligning the pipe for jointing, each length of the PLB/HDPE Ducts 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 is pulled at a later stage. The ends of each pipe and inside of each Socket shall be thoroughly cleaned of any dirt or other foreign materials.

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 PLB/HDPE Ducts until the work is resumed.

For lesser depths requiring additional protection, suitable protection shall be provided to PLB/HDPE pipes/coils using RCC/DWC full round/split pipes or GI pipes or cement concreting reinforced with MS weld mesh or a combination of any of these as per the site requirement.

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 compositions.

c) Back Filling and Dressing of the Trench:

Provided that the PLB/HDPE pipes have been properly laid in the trench at the specified depth, the back filling operation shall follow as early as practicable. The earth used for filling shall be free from all roots, Grass, shrubs, vegetation, trees, saplings and any other kind of garbage or pebbles. The back filling operation shall be performed in such a manner so as to provide firm support above the pipes and to avoid bend or deformation of the PLB/HDPE pipes when the pipes get loaded with the back filled earth.

13. Cable pulling and joining/splicing:

a) Cable Pulling

Manholes marked during PLB/HDPE Ducts pipe laying of approx. size of 2.0 m length x 1.0 m width x 1.65 m depth shall be excavated for pulling the cables. There may be situations where addition manholes are required to be excavated, for some reasons, to facilitate smooth pulling of cable. Excavation of addition manholes will be carried out, without any extra cost. De-watering of the manhole, if required, will be carried out without any extra costs. Dewatering/ De-gasification of the Ducts, if required, will be carried out without any extra costs.

b) Jointing/ Splicing

The Infrastructure required for cable splicing i.e. Splicing machine, OTDR, Optical talk set, Tool kit etc. will be arranged by the firm and also any additional accessories. e.g. Engine etc. required at site for splicing will also be arranged by the firm. The through Optical Fiber should meet all the technical parameters, specified and no relaxation will be granted.

c) Construction of Jointing Chamber:

The joint chambers are provided at every joint to keep the O.F.C. joint 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 at the Fiber Point of Interconnect (FPIO). Actual location of jointing chamber depends on length of cable drum and appropriateness of location for carrying out jointing work.

14. Fixing of Route Indicators / Joint Indicators: RCC/Pre cast/Stone Route Indicators are to be used where necessary. The route / joint indicator made of pre-cast RCC should have the suitable dimensions. The word "OFC-AG(AE) II" should be engraved on the Route/Joint indicators.

For Joint Indicator: Grey color

For Route Indicator: Blue color

For "OFC-AG(AE) II" mark & Nos: White color.

15. Allied activities:

a) Transportation of Materials: The contractor shall be responsible for transporting the materials to execute the work under the contract, to site at his/their own cost.

b) Disposal of Empty Cable Drums: It will be the responsibility of the contractor to dispose the debris along the way of the work at no additional cost to this office.

c) Supply of Materials: There are some materials required to be supplied by the contractor for execution of work 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.

c). Provision of Power Supply Requirements

The following services has to be provided by the firm under the power supply requirements.

- 1) Design and laying of power supply cables for smooth power supply requirements for the Backup servers.
- 2) Installation of the suitable power supply sockets with appropriate ratings.
- 3) Provide connectivity from the UPS to the server.
- 4) Provide power supply to the subsidiary devices newly installed to support the newly created infrastructure including provision for Air conditioners, Switches, network devices and lighting requirements.
- 5) Any other requirement that arises during installation of the server at the designated location.

DELIVERABLES / DOCUMENTATION

The documentation, consisting of the following shall be prepared and provided both in Electronic format on CD as well as Hard binded copy.

a) Route Index Diagrams – 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.

b) Route Index Diagrams – Profile: These diagrams will contain scheme of laying of PLB/HDPE Ducts pipe thereon pulling manholes. These diagrams shall be prepared on A-4 sheets of 80 GSM. On one sheet profile of maximum 400 meters shall be given to ensure clarity.

c) Power Supply Diagram: Power supply diagram shall also be prepared by the firm and hand over to this office on satisfactory completion of the project. This shall be prepared on A-4 sheets of 80 GSM.

All the diagrams (a), (b) & (c) shall bear the signatures of the contractor 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 firm must ensure that following function process have been completed as per the contract and to full satisfaction of this office.

1. Every issue mentioned against Scope of Work has been resolved.
2. Main server and Back-up server at both the locations are fine-tuned and working satisfactorily.
3. Documentation as mentioned above.

DESCRIPTION OF ITEMS REQUIRED/ PRICE BID FORMAT

SI	Particulars	Approximate Required quantity	Unit Rate	Total Rate
<u>Fiber Solutions External</u>				
1	Fiber Optic Cable (Single mode 2 core 9/125)	1000 Meter (Mention Per Meter Rate)		
2	Fiber Media Converter 10/100 Mbps	02 in No. (Mention rate per item)		
3	Fiber LC to LC connector Single mode	04 in No. (Mention rate per item)		
4	SC to SC interface connector	02 in No. (Mention rate per item)		
5	Trans receiver optical fiber SFP 1Gbps	02 in No. (Mention rate per item)		
6	Optical Fiber Terminal box	03 in No. (Give rate per item)		
7	Conduit Reel Clip Fiber Optic	500 Meter (Mention Per Meter Rate)		
8	Cat 6 patch cable	02 in No. (Mention rate per item)		
9	Tape Roll	10 in No. (Mention rate per item)		
10	Optical Fiber Patch cable (Single Mode) 3m	02 in No. (Mention rate per item)		
11	PLB/HDPE duct Pipe	800 Meter (Give Per Meter Rate)		
12	Consumables such as Bend pipe, Duct pipe wall clip, Root markers, Steel wire	(Mention Total Rate)		
13	Any items not mentioned above.	Mention details and prices of such items if any.		
<u>Internal Premises Cabling (data)</u>				
1	Supply and installation of 24 port – SG-300 - 24 port - all GIGA L2 managed	01 in No. (Mention rate per item)		
2	Patch Panel - D - link - 24 port Loaded	01 in No. (Mention rate per item)		
3	Supply and installation of 42U Rack with Accessories Rack	01 in No. (Mention rate per item)		
4	Any items not mentioned above.	Mention details and prices of such items if any.		
<u>Internal Premises (Server room) Cabling (Power Supply)</u>				
1	Supply of APC Back-UPS Pro BR1500G-IN, 1500VA / 865W, 230V UPS System for server and installation.	01 in No. (Mention rate per item)		
2	Electrical Board modular 6 way	02 in No. (Mention rate per item)		
3	15 Amp socket for Air conditioner	01 in No. (Mention rate per item)		
4	All consumables including Power supply cables, 15 Amp Switches/sockets, 5 amp Switches/sockets, pipes for power supply provision for Server room.	(Mention Total Rate)		
5	Any items not mentioned above.	Mention details and prices of such items if any.		

Relocation/ Installation Charges

1.	Physical relocation of backup server	(Mention Total Rate)		
2.	Installation of Fiber optic cable including work charges for Soft Digging, Hard Digging and Levelling for optical fiber laying including road boring. (Depth of 165 cm and width of around 4 inches Approx.)	Meter (Required distance Approximately 1000 meters)		
3.	Power supply installation charges	(Mention Total Rate)		
4.	Any other charges if applicable	Mention details and prices of such items if any. (Give Total Rate)		

Grand Total (in Rs)	
Grand Total (in words.....)	

Signature of Representative of the firm