

RAILTEL CORPORATION OF INDIA LIMITED
(A Govt. of India Undertaking, Ministry of Railways)

TENDER DOCUMENT

FOR

THE WORK OF

“Deployment of maintenance teams in South East Delhi including Ghaziabad & Noida (163.274 kms) for maintenance of OFC cable network, Wi-Fi Network and associated equipment etc.” for a period of 2 years and extendable by one year on same terms & conditions

Tender No. Railtel/Tender/OT/NR/O&M/17-18/64

((Cost of Tender Document: Rs.5900/-only)
(By Post: Rs.6490/- only)

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INDEX

SECTION I

Sl. No.	SUBJECT
1.	Tender Notice
2.	Check List
3.	Preamble(Maintenance of OFC cable)
4.	Introduction
5.	Maintenance of Associated assets

TENDER NOTICE**Tender No. Railtel/Tender/OT/NR/O&M/17-18/64****Date: 12.02.2018**

RailTel Corporation of India Ltd. invites sealed Open Tenders from the established and reliable contractors with proven experience for the work of “Deployment of maintenance teams in **South East Delhi including Ghaziabad & Noida (163.274 kms)** for maintenance of OFC cable network, Wi-Fi Network and upkeep of associated gears for a period of 2 years and extendable by one year on same terms & conditions as detailed below:

S.N	Sectional HQ	Section Details	Length Sec. (KM)	Estimated Tender value for Two years	Earnest money (@2% of total tender value(Rs))
1.	Tilak Bridge	South East Delhi	163.274	7311446	146300

a)	Commencement of Sale of Tender Documents	28.02.18
b)	Closing of sale of Tender Documents	02.04.18 at 17:00 hrs.
c)	Last date and time for submission of tender documents.	03.04.18 upto 15:00 hrs.
d)	Opening date and time of tender documents.	03.04.18 at 15:00 hrs.
e)	Validity of offer	120 days from the date of opening of tender
f)	Address for availability of tender document	Executive Director, Northern Region Railtel Corporation of India Ltd. 6 th Floor, Block III, Delhi IT Park, Shastri Park, Delhi – 110053
g)	Web address for availability of tender document	Detailed tender notice and tender document are also available at our website www.railtelindia.com .

h)	Cost of Tender document by hand/downloaded from RCIL site (Including GST) #	Rs. 5900/-(In the form of Bank Draft in Favour of RailTel Corporation of India Ltd. Payable at New Delhi)
i)	Cost of Tender document if required by post (including GST and postage charges of Rs. 590) #	Rs. 6490 /-(In the form of Bank Draft in Favour of Railtel corporation of India Ltd. Payable at New Delhi)
j)	<p>If the tender document is downloaded from the website then the cost of tender document as stated above have to be submitted along with the offer in the form of Bank Draft in favour of RailTel Corporation of India Ltd. payable at New Delhi.</p> <p>Bidders shall provide their GSTN(a copy of registration certificate)along with the cost of tender document. if want to avail the input tax credit.</p>	
k)	<p>The rates should be inclusive of taxes, However all the taxes charged by the bidder shall be shown separately. The tenderer has to submit the breakup of all taxes at the time of submission of their “on account bills” also. The tenderer has also to submit their GST No. of respective state & PAN No. at the time of submissions of their “on account bills. In addition to it, the contractor should submit copy of GST registration certificate for the states wherever applicable.</p> <p>Act & ESI registration no. should also be available with the contractor. All the statutory provisions have to be made by the contractor.</p>	

Small Scale Units registered MSE with NSIC under single point registration scheme shall be exempted from the cost of tender documents. However, postage charges of Rs. 590/- would have to be paid by them, in case they need tender document by post.

The offers shall be opened on above said date in the presence of those bidders who choose to be present. If the above said date happens to be a holiday the same shall be opened on the next working day.

(K.L Kataria)
General Manager/Operations,
RailTel Corporation of India Limited

Details of sections for which tenderer has to quote**Annexure-A**

SN	Sectiona HQ	Section Details	Length of Sec. (KM)	Estimated Tender Value for two years (Rs.)	Earnest Money (@ 2% of total tender value (Rs)
1	Tilak Bridge	South East Delhi including Ghaziabad & Noida (163.274 kms)	163.274	7311446	146300

Note: The RKM in Delhi and UP are 121.284 KM & 41.99 KM respectively.

Check List for Tenderer before submission of Tender:

1. Read carefully and understand each clause of the Tender Document. Your Special attention is requested on various penalty clauses mentioned in tender documents. Each page of the Tender Document is to be signed and stamped.
2. Submit documents to prove your minimum Eligibility criteria.
3. Deposit EMD (only as DD) as listed in Tender Document.
4. Submit documents like Invoices, Cash Memo, Bills etc. in support of possession of vital test equipments/machines. Undertaking to provide vital equipment on awarding the contract.
5. Submit list of Personnel who will be deployed on regular basis for this Maintenance work along with their qualification and experience.
6. Submit complete plan of deploying your maintenance teams indicating their head quarters to achieve the end objective of this Maintenance Tender. Head quarter of maintenance team for each section shall be decided by the RailTel.
7. Please quote a percentage (both in figure & words) 'above/below' the rates given by RailTel against 'SOR-A -.

If needed, separate Work Order will be issued by RailTel for execution of some of the items against 'SOR-B' as per rates indicated by RailTel .Confirm your acceptance of the same by signing on SOR-A, SOR-'B' , the tenderer shall quote percentage (Above/below) for SOR-A. For execution of items against SOR-B, no minimum work can be indicated, however, the maximum amount against SOR-B shall normally be kept at 10% of SOR-A per annum. However, additional 20% of SOR-A under SoR-B may be utilized for OFC diversion works, marketing requirement and improvement works etc.

8. Failure to comply with the above points shall render the offer to be invalid and liable to be rejected.

Signature of Tenderer with Seal

PREAMBLE

S No	Name of the work
1	Deployment of maintenance teams for maintenance of OFC cable network and associated equipment etc. for a period of 2 years.(SOR-A)
2	OFC improvement works and other minor works (SOR-B)
3	Up-keep of infrastructure like AC machine , DG sets, shelter , power plant and associated control equipment etc.
4	Up keep of Wi-Fi related assets like Fiber, Switches, UPS, Battery, AP, LAN & Power Cables etc. An exclusive diploma engineer per team shall be deployed for the purposes. (SOR-A)

The contract shall be extendable by one year on same terms & conditions.

2. SUBMISSION OF TENDER BID:

2.1 The tender bid shall be submitted as below:

The bids shall be sealed in an envelope which should bear the Tender No., its description, section name and date of opening. The complete Tender Bid shall be addressed to:

**Executive Director,
Northern Region,
RailTel Corporation of India Limited,
6th Floor, Block III, Delhi IT Park,
Shastri Park, Delhi – 110053**

Last Date of receipt of tenders: Sealed tenders for the Tender No. Railtel/Tender/OT/NR/O&M/17-18/64 will be received in the office of the Executive Director, RailTel, upto 15:00 hrs IST of Date 03.04.18 and will be opened at 15:00 hrs on same day. If the above said day happens to be a holiday, the tender shall be opened on the next working day at the given time.

3. ELIGIBILITY CRITERIA:

The bidder/tenderer should have the following Technical & Financial capabilities for each section that the tenderer is quoting:

3.1 Technical Capability:

Tenderers should have:

- (a) Performed OFC route maintenance for a continuous stretch of more than 150 Kms (One hundred fifty kilometres) for a minimum period of 6 (six) months in the past three financial years & current year before the date of opening of tender.

Or

- (b) Should have executed trenching, laying, splicing and termination of OFC for a continuous stretch of 50 Kms (Fifty Kilometre) in a single contract or a combined length of minimum 200 Km (Two Hundred Kilometres) in the past three financial years & current year before the date of opening of tender.

Note:

1. Tenderers must have completed the above mentioned works either for Govt. / public Sector or for reputed private sector telecom service providers/Infrastructure Provider with satisfactory performance report from the client.
2. Tenderer must have completed the above mentioned works in the last three financial years & current year reckoned from the date of opening of the tender.
3. No consortium/ Joint Bid shall be allowed.
4. Certified copies of the necessary experience certificates to this effect shall be enclosed along with the tender document while quoting for establishing credentials.

3.2 Financial Capability:

- a) The tenderer must have received total contract value of 150 % of the advertised value of tendered sections for which they are participating in the past three financial years & current year before the date of opening of tender.
- b) The tenderer should produce:
- (i) Solvency certificate from a Nationalized/ Scheduled Bank for a minimum value of 40% of the annual value of the tendered sections. If the quoted cost is < 1 Cr, this condition will not apply.
 - (ii) Audited balance sheet and income statement of all the preceding three financial years and PAN Number.

(iii) The contractor should submit copy of GST registration certificate for the states wherever applicable.

3.3 In case the tenderer wants to quote for multiple sections, the financial and technical criterion given above will have to be separately meet for each section being quoted, i.e. for 4 sections tenderer should have 4 times capability required for one section.

4. General Condition:

The tenderer must have a proper office with Landline phone/FAX, Internet connection Computer, printer & Office staff etc. and provide Phone, Fax no. & E-mail ID in his credentials along with the submission of offer. Any change subsequently shall be advised in writing to this office.

5. Currency of the Contract:

The currency of the contract shall be Two Years from the date of taking up service contract after issue of LOA and shall be extendable by one year on same terms & conditions.

In case of premature withdrawal (before the completion of the tenure agreed) of the Team by the contractor for any reason whatsoever, the Security Deposit shall be forfeited. Also, in case the premature withdrawal is without at least one month's notice, additionally the maintenance charges for the last two months shall also be forfeited.

6. Tender Cost: Cost of the tender document in Rs. 5900/- (Rupees Five Thousand Nine Hundred Only) by person and Rs. 6490/- (Rupees Six Thousand Four Hundred Ninty Only) by post. The payment for the cost of the tender document shall be made as Demand Draft on any Scheduled Bank/Nationalized bank of RBI in favour of RailTel Corporation of India Ltd., payable at New Delhi. Cost of the tender document is not refundable.

Small Scale Units registered with NSIC under single point registration scheme shall be exempted from the cost of tender documents. However, postage charges of Rs. 590/- would have to be paid by them, in case they need tender document by post.

7. The tenderer shall produce along with tender document, the documentary support for their experience. The tenderer shall also state the number of fully equipped teams, which shall be placed fully under the disposal of RailTel. Documentary support like cash memo/invoice/bill for the possession of vital equipment such as OTDR, Splicing Machine, Power meter, Cable route locator, Road Vehicle etc. shall be submitted along with the tender document.

8. All tenders must be accompanied by the Schedule of Rates attached as SOR-A, SOR-B duly filled in and signed complete with technical details, unsealed tenders will not be accepted.
9. EMD:- A sum of Rs. 2% of total tender value for respective tendered section should be deposited as earnest money in favour of RailTel Corporation of India Ltd., payable at New Delhi, in the form of Demand Draft on any Scheduled Bank/Nationalized bank of RBI. The validity of Demand draft will be at least 60 days beyond opening of tender. No interest is allowed on this Deposit and RailTel Corporation reserves the right to forfeit this Deposit if the successful tenderer fails to submit the Security Deposit required by the terms and conditions of the tender. Tenders not accompanied by Earnest Money will be summarily rejected. For multiple sections, the EMD amount will be 2% of the total tender value for the total number of sections which he has quoted.
- 9.1 For NSIC registered firm: Please refer clause no. 5.8 (Earnest Money) under instructions to tenderers and conditions of tendering.
10. The offer of Tenderers, who do not comply with the above conditions, will be rejected.
11. The RailTel reserves the right to accept / reject any tender in respect of whole or any portion of the items specified without assigning any reason whatsoever. RailTel also reserves the right to add or delete any maintenance section. In case of Addition/deletion of any section, the change in contract value will be governed as under:

Change in Sectional length :

Any increase/decrease of OFC route during the course of contract will be considered for proportionate payment on bimonthly basis i.e along with bimonthly billing cycle. Any such change taken place in any billing cycle will be considered for next billing cycle and corrigendum will be issued accordingly.

12. Material to be supplied by RailTel & Contractor: The quoted rates in the schedule should include all the materials to be provided for the work to be done by the contractor as described in the tender document and the schedules attached. Tenderer's special attention is invited to the fact that no material shall be arranged /supplied by RailTel except OFC & HDPE Duct (as required) in various sections for Preventive Maintenance and fault rectification of OFC. All materials including the materials covered under the Schedule of Requirement and those required to achieve the end objective and any special protection materials needed are to be

supplied by the contractor. The material used by contractor should be of approved quality specified .

- 13. Unit Prices :** The prices quoted by the tenderers shall be as an all inclusive price against SOR-A after taking all the relevant factors into consideration and these should be firm all inclusive without any variation clauses. These shall include all taxes & duties such as GST etc. as payable under the law of the land, while for SOR-B rates have been indicated by RailTel. RailTel shall not accept any liability for the same after award and acceptance of contract. However, the tenderer shall quote only percentage (Above/below) for SOR-A.
- 14.** The teams shall be deployed within 21 days from the date of issue of Letter of Acceptance. If the tenderer fails to deploy the material and man power as per tender document, LOA shall be cancelled and EMD shall be forfeited.
- 15.** Validity: The tenderer shall keep the offer open for a minimum period of 120 days from the date of opening of the tender within which period the tenderer cannot withdraw his offer. Any contravention of this condition will make tenderer liable for rejection and forfeiture of his Earnest Money deposit.
- 16.** Before quoting, the Tenderers are advised to ascertain the nature of work involved and invariably undertake a site inspection.
- 17.** Tenderer is required to quote for the complete work.
- 18.** The submission of tender will be deemed to imply that this memorandum and all documents enclosed have been studied and understood and the tenderer is aware of the full scope of the work to be done and the conditions affecting the execution.
- 19.** The tenderer shall not increase the quoted rates in case RailTel decides to negotiate for reduction in rates. Such negotiations shall not amount to cancellation or withdrawal of the original offer and the rates originally quoted will be binding on the tenderer.
- 20.** If the tenderer deliberately gives wrong information in his/her tender or creates such circumstances for the acceptance of his/her tender, then RailTel reserves the right to reject such tender at any stage. In case credential certificate(s) submitted by the contractor are found to be incorrect, the EMD deposited shall be forfeited in respective tenders he has quoted and he will be barred from quoting in RailTel tenders for a period of 3 years.
- 21.** Performance Bank Guarantee (PBG): The successful tenderer shall give a performance guarantee amounting to 5 % of annual contract value within 21 days from the date of

issue of LOA. Extension of time for submission of PBG beyond 21 days and upto 60 days from the date of issue of LOA may be granted subject to the conditions that a penal interest of 15 % per annum of the amount of BG shall be charged for the period of delay beyond 21 days i.e. 22st day after date of issue of LOA. In case the successful tenderer is not able to submit PBG, the tenderer will have options to submit this amount in the form of Demand draft. PBG (DD in lieu) shall be released after satisfactorily completion of the work and on expiry of warranty.

- 22.** The Security Deposit for each work shall be 5% of total contract value. The Earnest Money (2% of total contract value) of the successful tenderer shall be adjusted towards the same.

Remaining 3% of total contract value shall be recovered from the contractor's "on account" bills as under:

- a. The rate of recovery should be at the rate of 10% of the bill amount till 5 % total contract value is achieved. (EMD 2% and balance 3% from the running bills)
 - b. Security Deposit shall be returned to the contractor after the complete physical completion of the work as certified by the competent authority.
 - c. No interest will be payable upon the Earnest Money and Security Deposit.
 - d. Wherever the contract is rescinded, security deposit and PBG shall be forfeited.
- 23.** The successful tenderer shall sign an agreement for the execution of the work as tendered by him/her and accepted by RailTel within 15 days after the receipt of notice from RailTel that such documents are ready.
- 24.** The maximum number of sections that can be awarded to a contractor is 50% of the number of tendered sections.

INTRODUCTION

INFRASTRUCTURE :

1. RailTel has exclusive Right of Way along the Railway track. RailTel has built over 40,000 Kms length of OFC route along the ROW and access network in cities on which different transmission equipment, data network equipment etc have been deployed.
 - 1.1 Armored OF Cable has been laid along the route is provided with HDPE/GI/RCC protection wherever required for Track Crossing, Road Crossing, LC gates etc. The contractor shall accept the site on as-is-where-is basis. The maintenance agency is not only responsible for the proper maintenance of backbone UG/Over Head OFC laid between node to node but also the access OFC network laid in cities. The agency is fully responsible for the end to end performance between the two nodes in the entire jurisdiction of the teams reach awarded.
 - 1.2 The RailTel has DWDM, STM telecom equipments, Power plant, DG sets, AC machine, earthing etc in POPs on OFC network .
 - 1.3 Railtel has Wi-Fi related assets like Fiber,Switches,UPS, Battery,APs, LAN,Power Cables etc at some Railway stations in the section.

2. SCOPE OF WORK:

- 2.1 The CONTRACTOR shall be responsible for the maintenance of the OFC network awarded to him. This shall include but not limited to undertake all required preventive measures of the OFC route, rectification of faults and restoration jobs required for achieving the OFC link availability of highest order.
- 2.2 The contractor shall carry out any OFC related works like attending to existing protection works, splicing, termination, tightening of nuts/bolts, provision of complete clamps for supporting the already done protection work over culverts/bridges, wiring of equipment as directed by the Engineer of the section. No additional payment will be made on account of these technical works.
- 2.3 The contractor shall also carry out other miscellaneous works such as proper up keep of Telecom equipment, power plant, DG sets, Air Conditioners, minor repairing of shelters/building, Earthing arrangements general cleanliness of the RailTel's POP, and other such activity as advised by Engineer of the section on periodical basis. In case of replacement or repair of any spares or parts of any equipment, payment for the same will be reimbursed to contractor on actual basis.

- 2.4 The maintenance contract is planned to be awarded for a period of 2 years and extendable by one year on same terms & conditions . However, the contract can be terminated by giving 30 days notice before the expiry of contractual completion period in case performance of the contractor is not found satisfactory or as and when required by RailTel.
- 2.5 **Preventive Maintenance for Cable Protection:**
- 2.5.1 Regular patrolling and surveillance of OFC route to have pro-active check to prevent OFC link disruptions. It will be done by dedicated and exclusive team who will not be assigned any other work. There should be at least one patrolman on approximately every 25-35 kms beat. Each patrolman has to be equipped with a mobile phone. Suitability of patrol man shall be examined by Engineer before deployment.
- 2.5.2 Patrolling of the entire block section for Railway Route has to be done by way of 'Window Inspection' from passenger train and the entire section has to be covered on daily basis during daytime. If any activity is observed which may affect the OFC, the patrolling team should get down and reach the suspected spot by foot or by any means and prevent any damage to the OFC. The matter must be reported to the RailTel officials immediately. The time-to-time movement of the patrolling team shall be kept informed on daily basis so that they can be contacted during emergencies.
- 2.5.3 Part of the team shall also go on foot/bi-cycle along the entire route so that minimum two block sections on every day is covered and observe the condition of the OFC. Foot patroller to cover atleast 5 Km daily on foot/bicycle. It is expected that the entire section under the contract will be covered by foot patrolling at least once a week. Therefore, for effective patrolling of the entire section by passenger train as well as by foot/bi-cycle, as above, sufficient number of persons has to be engaged by the contractor. Monitoring of jobs undertaken by other agencies in the vicinity of RailTel's fiber network to ensure the safety of RailTel's OFC cable shall also be done by assigned agents of the contractor.
- 2.5.4 Attending to / safe-guarding against any signs of damage or potential damage of RailTel's OFC network, which come to light during patrolling.
- 2.5.5 Collecting information & accordingly coordinate with other agencies before the execution of work, who shall carry out any work in the vicinity of RailTel's OFC route, to safe-guard against the damages to RailTel's OFC cable. The contractor shall effectively co-ordinate with other agencies working along the RailTel's OFC route to prevent damage to OFC link and the contractor will be held responsible for any cut of the link by other agencies.

2.5.6 Liaisoning also shall be maintained with other department like NHAI, Municipal corporations, Nagar palikas, Rlys, Urban Development Authorities etc regarding the permission being given or shall be given to other parties for any type of construction works along the RailTel OFC route. Regular liaisoning with various Railway authorities like Railway field officials of Engineering, S & T and Electrical department and protect the OFC when any of these departments do work, which may directly or indirectly affect the OFC in the section. However, only cost of the material (JC and JE), may be reimbursed at SoR-B rates by RailTel for rectification of cuts during large scale Railway/NHAI works in all the O&M contracts with the approval of ED/Region. Penalty for not providing JC then shall be Rs. 10,000/- per JC. For all other cases it shall be equal to the penalty proposed in Annexure "C".

2.5.7 Additional patrolmen, if required for gauge conversion/ doubling works / continuous construction works shall be deputed by the contractor including day-to-day open line works of Railway such as track works, bridge works and sleeper works etc.

2.6 **Planned repairs to existing joints/Terminations:**

The preventive maintenance should be carried out with prior approval and during planned shutdown period generally during night time between 00:00 to 05:00 hrs. The additional shutdown is not guaranteed, as number of customer circuits will be in operation.

2.6.1 Contractor shall also carry out testing of existing joints and OFC repairs along with testing of OFC route for improvement in the performance with link margin as per national/international standards and instruction of Engineer with consumable material such as repair kit etc. No extra charges will be payable for this schedule maintenance except maintenance charges as per SOR-A. However, for attending OFC joint / termination and laying of cable etc as the case may be for improvement of fibres which was identified as high loss / break / defective (at the time of taken over of the section) payment will be made as per SOR – B rates.

2.6.2 **Preventive maintenance of OFC cable:**

All measurements for preventive maintenance shall be carried out as per prior agreed time schedule. The testing of all fibers including short haul fibers shall be done, once in every four months for all sections and reports shall be submitted along with alternate bi-monthly bill. Any defects observed in the OF cable or in any of the associated equipments shall be attended at site. RailTel's maintenance supervisor will also accompany the teams as and when required. Testing should be supervised by the Engineer. Working fibers will be tested as per the instructions of engineer. OTDR testing report in proforma 1 & 2 will be submitted within 10 days of doing the measurements.

- 2.6.3 Testing consists of OTDR testing and Power Meter reading of all fibers for proving one to one correspondence. Station to station testing is required for spare fibers terminated at block stations in both the directions. Run through fibers may be tested from end to end only. The periodicity of testing is once in four months for all block sections.
- 2.6.4 **Reports:** Reports consists of (a) Section-wise tabulation of all fiber events reported by OTDR of more than 0.2 dB over the section fiber wise for all fibers tested in the given Performa in print and in Excel worksheet, (b) Tabulation of power loss from A-B & B-A direction, average and loss per km in 1550 nm for all the fibers tested. The OTDR traces should be submitted in soft copy format.
- 2.6.5 In a situation, where in the vicinity of RailTel's OFC network any major construction / doubling projects are going on or are to start and necessitates re-routing through a new safe route of OFC to avoid damage, Contractor shall explore feasibility of alternate routes & provide detailed route plan for new location, where re-routing can be done.
- 2.6.6 Block section-wise condition of fibers is to be plotted using following color codes. Soft copy of the report to be submitted in hard & soft copy along with Bi-monthly bill.

- a. Broken and non-usable high loss fibers----- RED
- b. High loss fibers but usable in case of emergency----- PINK
- c. Working fibers----- GREEN
- d. Spare usable fibers----- YELLOW

Summary of fiber condition should be provided in the performa attached.

2.7 Equipment/other fault restoration Services:

- 2.7.1 The contractor shall facilitate Engineer rectification of any other type of fault (equipment/ power plant etc) & shall be available with maintenance team & transport etc for going to the section.
- 2.7.2 Head Quarter of Maintenance Teams to be stationed at the designated Head quarters given in Annexure-A or at any other place mutually agreed to. The Maintenance teams shall comprise of manpower, logistics, required Tools/Plants/Machinery, equipments and sufficient fund to meet day to day expenditures, etc
- 2.7.3 On all working days the members of team with team equipments should be present in office of the Engineer during office period unless team is assigned work in the section. The movement of team members should be in the knowledge of Engineer

responsible for O&M of the section. The attendance of all team members shall be marked in the Performa accordingly. Daily diary of the works and movement of all staff shall be submitted along with the bill duly verified by the Engineer responsible for O&M of the section.

2.7.4 Scope of maintenance: Identification of OFC fault/cut on ground, obtaining permission from local authorities if required, excavation of earth to expose cable, laying of required length of OFC with protection wherever required, splicing of OFC, installation of Jointing pit (FRP/RCC chamber) & back filling of pit (FRP/RCC chamber) with Sand, minor repairing of shelters/building like leakage etc, provision/alignment/tightening of clamps and maintenance of GI pipes and troughs on bridges, supply and installation of cable Route Markers of RCC/FRP make and Joint Markers as per specification, testing of OFC and updating of OFC as-built drawings etc. Cable route plan will be up-dated with each instance of cut, including date, cable location etc. Up-dated copies of relevant sheets of ABD (As built drawing) will be submitted along with bi-monthly bill. Updated drawing of whole section will be submitted in soft copy every 6 months & hard copy every year.

2.8 Restoration for OFC cuts:

Under OFC link cut condition, the following activities shall have to be taken up by the CONTRACTOR for the restoration of OFC cut fault for the end-to-end restoration of the network traffic/service:

2.8.1 On receipt of information of fault in OFC the team stationed at the team HQ shall move immediately for locating and rectifying fault as per the response time given below. The working fibers shall be restored first. Sufficient labour shall be engaged for speedy restoration. Adequate care shall be taken not to damage QUAD copper cable of Railways if laid in the same trench.

2.8.2 For the identification of exact fault location on immediate basis, the OTDR measurement of spare fibre shall be made from the nearest telecom station/Node. For better clarity, the OTDR measurement on spare fiber shall be taken at Nodes / nearest OFC joints situated at both ends of cut and using dummy fiber spool of 1km, in case required.

2.8.3 After the OTDR measurement, the as-built drawing shall be referred and the physical site of fault on ground shall be located. It may be possible that data in as-built document may not be correct for the accuracy purpose, as such As-built drawing shall be taken as reference only. No claim of contractor will be entertained on account of the inaccuracy of the as built drawing. Accordingly, locating the OFC fault, the job of excavation in all types of soil, identification of OFC, pulling of cable from both ends if feasible, construction of jointing pits, splicing of OFC, back filling of

trench & jointing-pit shall be taken up as per the standard procedure. Further, FRP /RCC marker at the jointing pit has to be provided for identification of route as well as jointing pit, depth of cable etc (Date of installing Jointing pits to be updated on route plan). This should be incorporated in the cable route plan also with accurate offset and depth recorded. The splicing of fibers are to be carried out in line with the installed fiber i.e. G.652 and measurements are to be taken on spare fibers. In case the active fibers are to be used, precautions are to be taken with regard to the power launched on to the fiber. Restoration of site shall be done to the entire satisfaction of the Engineer.

- 2.8.4 In case of OFC cut where it is not possible to pull the cable from either end, the contractor has to make two pits/ splicing joints required length of OFC supplied by RailTel has to be put in between two joints. The spacing of joints/ pits shall be depending up on situation at site and shall be as decided by Engineer. Remaining OFC has to be coiled in both the pits. Further, joint FRP/RCC markers at each jointing pit have to be provided for identification of route as well as jointing pit. The precise joint locations so provided should be incorporated in the cable route plan also.
- 2.8.5 After the completion of site activities, the CONTRACTOR shall ensure the restoration of the traffic from the Network Operations Center (NOC) and there after fresh OTDR measurement & traces (at 1550nm) shall be taken for all spare fibers & submitted to RailTel.
- 2.8.6 After the completion of site activities & hop test, the As-built drawing shall be updated by incorporating the new details like OFC loop used, Joint-pit location, offset and depth of cable etc. Position of OFC should be shown from the center of the nearest track in as built drawing and the length of loop in joint pit after fault restoration shall be incorporated in as built drawings. The updated final as built drawings of cable route plans in soft and hard copies shall be made available to Railtel after end of contract period.
- 2.8.7 After attending the fault & permanent restoration a Fault-Rectification report, jointly signed by RailTel & CONTRACTOR, shall be generated for the closure of the complaint.
- 2.8.8 Any other job required for the restoration of the OFC fault/cut in totality is to be taken up by the Contractor.
- 2.8.9 In case the site condition is not favorable for the immediate permanent restoration of the fault, the temporary restoration of the service fibers shall be taken up immediately with the approval of Engineer. Permanent restoration work will not be considered in breakdown time unless there is again link break during restoration job.

Permanent restoration of joint is to be carried out by contractor within 48 hrs from time of fault /OFC cut. In case the site is not conducive for permanent restoration some arrangement of manpower has to be done by contractor for safeguarding exposed OFC till permanent restoration. No extra payment shall be given to contractor on account of deployment of additional manpower to attend the cut. In case of further cuts at exposed OFC location contractor will be accountable for this additional downtime of OFC link.

- 2.8.10 OFC issued by RailTel to the contractor for use at OFC fault locations, should be checked & tested before use at site.
- 2.8.11 It is mandatory for the contractors to install the jointing chambers and joint markers of RCC/FRP type after permanent restoration is done and should therefore keep adequate spare stock. The contractor shall keep minimum two nos. of jointing pit during the failure/cuts.
- 2.8.12 In case of any breakdown in the access network/last mile connectivity, Contractor shall be responsible for obtaining approval at his own cost from statutory authorities like Municipal Corporation, Development Authorities, Electricity Department PWD, NHAI and any other concerned authority as required for carrying out the repair.
- 2.8.13 Drains, pipes, cables, overhead wires and similar services encountered in the course of the works shall be guarded by the contractor at his own cost, so that they may continue in full and uninterrupted use to the satisfaction of the owners thereof.
- 2.8.14 Should any damage be done by the CONTRACTOR to any AC Power mains, utility pipelines cables or lines (whether above or below ground etc) whether or not shown on the drawings, the CONTRACTOR must make good or bear the cost of making good the same without delay to the satisfaction of the Engineer.
- 2.8.15 CONTRACTOR shall observe in addition to Codes specified in respective specification all national and local laws, ordinances, rules and regulations and requirements pertaining to the WORK and shall be responsible for extra costs arising from violations of the same.
- 2.8.16 CONTRACTOR shall have at all times during the performance of the WORK, a competent supervisor on the site. Any instruction given to such Supervisor shall be considered as having been given to the CONTRACTOR.
- 2.8.17 The CONTRACTOR shall employ as many personnel as required to comply with the local rules and administrative orders governing the Working Hours of Employment the contractor shall be responsible for compliance with all statutory requirements including personnel related matters.

- 2.8.18 **Night Work:** The contractor shall also work during night time and is required to complete the work in all respects within the stipulated time. Sufficient lighting arrangements and precautionary steps shall be provided to safeguard the workmen, public and the Railway assets and to afford adequate facilities for properly placing and inspecting the material and the work when the night work is in progress.
- 2.8.19 The minimum down time shall include time taken in restoration of fault/cut caused by any means like miscreant activity at day or night, due to work done by Railway or any other organization, due to development of high losses / break at existing joints, fault caused due to rodent, ant etc.
- 2.8.20 In case of partial damage of the cable or development of high loss in the working and spare fibre or cable cut at any time (day/night) by miscreants or by any agency, the responsibility of repairing the defective fibre lies with the contractor and included in the Schedule of Rate (SOR) - A.
- 2.8.21 In case contractor fails to complete the restoration of link (as per original condition) or submit OTDR & test records to establish completion of work a penalty as given in the tender document shall be recovered in addition to the recovery of amount spent by RailTel in restoration the link as per SOR B rate of the work involved at site.
- 2.8.22 In no case the Engineer shall be held responsible for the delay in restoration except for the instance of making availability of OFC (if required) for restoration.
- 2.8.23 In the event of urgency, the team has to move to adjacent section, if desired by RailTel. The payment for actual work done, including transportation, will be made as per relevant items of SOR"B".
- 2.8.24 **Examination of Finished Work:**

When finished work is taken down for the purpose of inspection for any reason, the contractor shall bear the entire expenses incidental there to in the event that the said work is found to be defective. This situation may be applicable to both planned work as also to emergency restoration.

2.9 Mean-Time-To-Restore fibre cuts (MTTR) & Quality of work:

2.9.1 Response Time: The maximum response time is 15 minutes from the time RailTel informs the team about the failure. Within this time the maintenance team should move towards the location of fault.

Restoration Time:

- a) The maximum restoration time is response time plus travel time including time for localization and restoration. In any case, the restoration period including localization & splicing should not exceed six hours. The maximum time to restoration (MTTR) of 6 hours/cut will be applicable to this section as per details attached, but maximum no of cuts to be restricted to 10nos in the entire section on bimonthly basis. Time exceeding 6 hours per cut and time of every additional cut after 10 cuts will be counted for penalty.
- b) In the sections where cable has been laid by HDD method and immediate restoration in 6 hrs is not possible, the maintenance contractor has to arrange:
 - i) Restoration of link within 24 hrs by drawing of overhead fibre between the adjacent pits to bypass the defective/faulty sub section.
 - ii) Guarding of overhead section till permanent restoration of cable laid by HDD Method.
 - iii) Restoration of cable laid by HDD method within reasonable time.
 - No down time will be considered for failure of cable in HDD section. However, this is subject to lying of the overhead OFC to restore the link within 6 hours of the failure taking place.
 - However, down time of overhead fibre once drawn for temporary restoration of HDD section, will be considered while calculating the down time for entire billing period.
- c) In case CRT exceeds the prescribed restoration time for the section (6 Hrs/cut, subjected to maximum of 10 cuts on bimonthly basis) penalty for Hours exceeding the CRT shall be imposed as defined in tender document.

2.9.2 Record of Fault Repair Time:

Time taken by the Contractor from the time of lodging the complaint to the representative of Contractor at their designated office/Head Quarter plus 10 minutes (10 minutes being taken as the lead time for conveying the failure information to the OFC Maintenance Contractor) up to the time of restoration of end-to-end traffic after rectification of OFC cut(s)/fault(s) including the traveling time. The Repair time of any fault occurred shall be calculated by collecting data from respective NOCs of RAILTEL. After restoration of the link, a fault report is to be generated by contractor and obtained joint signature with RAILTEL engineer for records. Any pending restoration of link on account of RailTel shall be certified by Engineer and should not be counted in outage time.

- 2.9.3 If the splice loss of all the fibers are not within the prescribed limit, the contractor has to re-do the splice till the value is achieved failing which RailTel will carry out the work by itself deducting a defined penalty per fault from the monthly bill. If any failure/fault occurs in the rectification work done by the contractor within twelve months from rectification and beyond the currency of contract, due to defective workmanship/supply, the cost of material under warranty found defective will be recovered from contractor's dues/deposit available with RailTel.
- 2.9.4 During the maintenance or fault rectification work, should any damage occur to the Railway QUAD and other cables, contractor is liable to pay compensation as demanded by the Railway authorities.

2.10 Monitoring & maintenance at equipment locations:

The supervisor with maintenance team shall carry out preventive maintenance of each STM 64/16/4-1/DWDM long haul node (4-5 per section) once in 15 days. During every visit to the stations for measurements, the contractor staff shall monitor the condition of the electronic/electrical equipment installed for any alarms, order wire, battery voltage. Periodic watering of earths shall be carried out. Cabling and wiring etc. shall be neatly dressed up.

The equipment shall be cleaned with blower/vaccum cleaner & Engineer assisted for all O&M activities and new equipment installations & advise the status to nominated RailTel Officials. The building/pre-fab housing the equipments and its surroundings shall be kept clean & tidy by the contractor. In case any discrepancies are observed, the matter should be brought to the notice of the RailTel's Engineer.

- 2.10.1 The contractor will also check the functioning of Power Plant , Air conditioners and DG sets in the RailTel POP and report immediately to Engineer in case of defect or if the temperature at the POP is high. Minor repairs to the Shelter /Building/POP like Water proof sealing of shelter, repair to DOOR handles, WINDOW/DOOR PACKING etc will also be carried out by the contractor without any additional payment.
- 2.10.2 The contractor will test the working of diesel generator by running it for 30 minutes once in a month on load. After monitoring the condition of Diesel Generator (DG set) if filling up of lube oil and or diesel oil is required, the contractor will arrange the same from the nearest petrol pump/depot approved by the Engineer. The cost of lube oil/diesel oil will be reimbursed by RailTel as per actual on production of the receipt. In addition to it, 5% payment will be made towards cartage charges. Consumption of Diesel oil shall be verified based on the hour meter reading provided on the diesel generator. The Engineer in the sections has to maintain a register to keep record of time of failure of electricity, start time and off time of D.G. set, total running hours of DG set etc.

The contractor shall ensure attention to electrical problems associated with 230 V AC supply. The cost of material used in the rectification will be reimbursed as verified from site of work.

2.10.3 Contractor shall also carry out wiring and installation of associated fittings etc. for extending data circuits to customer or as advised by Engineer as and when required, utilizing existing man power resources. Accordingly one technician shall be available in the maintenance team, trained in this type of work. All required material shall be made available by RailTel.

2.11 Maintenance Plan:

The Tenderer as part of his Tender has to submit a detailed plan for the maintenance of the network including the details of the man-power and equipments proposed to be located at different sites to cover the jurisdiction as described in "Annexure-A", the communication facilities, the planned maintenance bases and the detailed plans to fulfill the tender conditions.

2.11.1 The CONTRACTOR shall submit the list of manpower, machines, equipments and consumable items with quantities suitable to meet the contractual requirements for the jurisdiction described elsewhere in the tender document along with the Tender and make available resources to RailTel officials for inspection, maintenance and corrective measures as and when required.

2.11.2 Entry pass shall be issued to the representatives of the contractor by RAILTEL from the respective maintenance stations for handling all maintenance work in Railway area.

2.11.3 Submission of monthly & emergency report as desired by Engineer in the Performa specified by RailTel will also be a part of maintenance contract.

2.11.4 Supply of OFC and HDPE duct: For making good of any break/loss/cut in fiber only OFC and HDPE Duct shall be supplied by RailTel to the contractor at the nearest RailTel depot or designated stores. All other materials including splicing enclosures shall be arranged by contractor including Joint enclosure, Joint chamber and route marker of RCC/FRP free of cost. The material shall be picked up by the contractor in advance from nearest RailTel's depot and shall be accounted with reference to the specific incidence of fiber cuts. The transportation cost on differential distance from nominated store shall be arranged by RailTel.

2.12 Supply of consumables/items like Joint enclosure, FRP Jointing pit, Complete Clamps for holding pipe over bridges/culverts etc meeting the specifications as

detailed under the Technical specification of the tender document shall be done only after approval of TM. Contractor has to keep stock of above items up to the satisfaction of Engineer.

- 2.12.1 The material issued to the contractor and remaining unutilized after completion of the job shall be returned back to RailTel's designated stores at the end of contract period. A monthly material statement shall be submitted to the Engineer by the contractor.
- 2.12.2 Wherever new joint is provided or existing joint is attended for rectification during the maintenance period, joint shall be properly buried with its top cover being at least 1.2 mtrs below the ground level.
- 2.12.3 Quarterly meeting with EIC along with Engineer and Supervisor/Maintenance team contractor shall be mandatory to assess the progress of work and for pin-pointing the constraints to ensure the quality and speed of preventive/ protective maintenance work.

2.13 Taking over the section for maintenance:

- a) There should be a proper handing over/taking over of outgoing and incoming contractor. The fiber parameters should be at least as good as or better than these were at the time of taking over the sections by outgoing maintenance team.
- b) The contractor shall complete the OTDR measurement (& power measurements to find out criss-cross of fibers) of all the block sections for all the fibers and submit a joint statement duly signed by the contractor and RailTels Engineer indicating the faults to be attended for making good of all the non-working fibers. This process shall be completed within 90 days from the date of deployment. As one time drive, all criss-crossing of fiber to be got removed by the contractor to save downtime during failure rectification. This will be done in close co-ordination with Engineer of RailTel.
- c) The Engineer shall also advise the contractor of the faults to be attended to make the fibers good at the cost of RailTel. A separate work Order will be issued by RailTel for such work. This shall be completed in 90 days from the date of advice by RailTel. The payments of the above work will be carried out as per SOR B rates given in the tender.
- d) In case the contractor fails to submit the joint report indicating the faults, criss-crossing the fibers to be attended within 45 days from the date of Deployment of team, a defined penalty will be imposed.
- e) Maintenance of all the fibers shall be the sole responsibility of the contractor.

- f) On completion of the contract, the OTDR measurement shall be carried out on all spare fibers to ascertain the condition of cable, which should be same or better than the condition of the cable taken over by the contract at the beginning of the contract period. In case there is an increase in the number of fiber events at the time of handing over vis-à-vis the number of events at the time of taking over (events/faults more than .5 db), the cost of rectification will be deducted from the final bill of the outgoing team as per the SOR-B rates, the security amount held may also be forfeited. Besides this, OFC route drawings handed over to the contractor at the time of award of work shall be updated fully and submitted to RailTel, both in Hard and Soft copy as given by RailTel incorporating the various changes occurred during the contract period. No dues certificate shall be submitted by the contractor at the time of final bill for SOR-A and SOR-B.
- g) On the advice of Railtel, Tenderer will arrange the separate rectification team for rectification of all the OFC faults and make the fiber good without affecting the regular maintenance as per the scope of work.

2.14 SOR B Items & Methodology For Operating :

Beside regular maintenance the Contractor has to work for improvement of fibre and for Cable route strengthening work under “SOR – B”, as and when communicated by authorized representative of RailTel in writing. The SOR for respective items to be executed in Schedule- B which are enclosed to this tender document. Along with the items the rate for each item is also indicated. If the items are executed, the contractor shall be paid as per rate indicated in Schedule-B.

- a. Engineer of the section shall prepare the estimate for faults to be attended as per 2.13b above, get the approval of the Competent Authority of RailTel and advise the contractor, in writing, to carry out the work.
- b. Separate work order shall be issued for each rectification works (as per clause 2.13 & 2.14) to the contractor (successful tenderer) as per SOR B rates given in tender document.
- c. Completion period will be specified in work orders as per site condition & nature of urgency.
- d. In the event of failure of Contractor to complete the work within 90 days from the date of issue of such order, Penalty will be imposed as per rule and the work will be entrusted to outside agency, implication if any, arising due to execution of the work by outside agency will have to be borne by the CONTRACTOR i.e. no claim for compensation will be entertained. In case of repeated failure to take up SOR-B work, contractor can be terminated.

2.15 Maintenance of Wi-Fi Network :

The CONTRACTOR shall be responsible for maintenance of the Wi-Fi network consisting of Fiber, Switches, UPS, Battery, APs, LAN, Power Cables etc. This shall include but not limited to undertake all required preventive measures. However, R&R (Repair & Return) of the Wi-Fi assets will be Railtel's responsibility.

The diploma engineer of the contractor meant for Wi-Fi will also work under the guidance of MPLS NOC.

3. CONDITIONS OF CONTRACT

3.1 The CONTRACTOR may quote for one or more OFC sections under jurisdictions described in "Annexure-A".

3.2 Before quoting, it is advisable that the prospective Tenderer shall make themselves fully conversant with the locations, OFC routes and types of jobs in details to be carried out therein as per the tender requirement, so that they clearly understand the scope of work and assess the requirement of resources to complete the work in scheduled time.

3.3 The CONTRACTOR is deemed to have understood the conditions of existing OFC routes like terrains, various crossings, access details, on-route RailTel's maintenance bases etc., by visiting the sites and collecting first hand information before submission of the offer. In case of any doubt, the clarification may be taken from the RailTel before submission of the offer.

3.4 The Contractor shall be totally responsible for the successful execution of the OFC route maintenance contract.

3.5 The contractor shall not sub-contract whole or any part of the work.

3.6 The data provided in the Tender document shall be used by the Tenderer for reference and information purpose only. It shall be the Tenderer's responsibility to verify the data & satisfy himself in regard to accuracy of data.

3.7 The CONTRACTOR shall be responsible for making an arrangement at each maintenance station for excavation works, testing, measuring, splicing equipments, unskilled/skilled manpower, transport facilities for their teams & other logistic supports required to maintain end-to-end OFC connectivity in physical layer as per the contract.

3.8 The responsibility of the CONTRACTOR shall include provision of preventive measures of OFC routes to avoid damage and cut, deployment of manpower, supply

of required materials, erection, installation, testing, documentation, including the related civil works necessary for ensuring the complete end-to-end OFC connectivity in physical layer as described in the tender document at no extra cost to RailTel.

- 3.9 The material used & workmanship shall satisfy the applicable standard Specifications.
- 3.10 RailTel shall be entitled to reject the goods, materials and work executed by the contractor, which may not be conforming to the specifications within a reasonable time of installation of the said goods and materials and charge the contractor for all expenses direct and consequential, incurred thereby.
- 3.11 Where it is mentioned in the specifications that the CONTRACTOR shall perform certain work for completing the job in totality, it is to be understood that the contractor shall do so at his own cost and contract price shall be deemed to have included cost of such performances and provisions so mentioned.
- 3.12 The Contractor to provide safety appliances like: dust masks, safety belt, safety shoes, helmet, hand gloves, safety goggles, rain gears etc to their personnel working.
- 3.13 During any construction work in public places, all precautionary caution boards, barricading sheets as per standard laws & rules to be used by the Contractor.
- 3.14 During the course of execution of the work, if any discrepancy or inconsistency, error or omission in any of the provisions of the contract is discovered which needs to be clarified, the matter shall be referred to Executive Director/RailTel who shall give his decision in the matter and his decision shall be final and conclusive.
- 3.15 The contractor should ensure that the team employed by him shall not move or trespass to areas other than the site(s) required for the execution of the work. Under no circumstances the Contractor should infringe and carry out the work which hampers the Operations and Safety of the Railways, train movements and damage Railway assets. The contractor is responsible for the safety of team members while executing the work in the Railway areas.
- 3.16 The Contractor shall submit along with the offer the list of the number of personnel who will be available permanently for the maintenance works of RailTel. This should include details of technical qualification & minimum experience.
- 3.17 The work is subject to inspection at all times by RailTel officials. The CONTRACTOR shall carry out all instructions given to him or his representatives during inspection.

- 3.18 Any work not conforming to the execution plans, standard specification codes or engineering practices shall be rectified by the CONTRACTOR at his own cost.
- 3.19 Inspection and acceptance of the work shall not relieve the CONTRACTOR from any of his responsibilities under this contract.
- 3.20 The CONTRACTOR shall provide the complete details of planning for items/materials, test/measuring instruments, tools/tackles & manpower to be deployed for the jurisdiction as mentioned in Annexure-A and B with the offer.
- 3.21 The CONTRACTOR shall observe in addition to codes specified in respective specification, all national and local laws, ordinances, rules and regulations and requirements pertaining to work and shall be responsible for any extra costs arising from violations of the same, which shall be borne by the Contractor.
- 3.22 By entering into the maintenance contract with RailTel, the contractor shall agree to maintain the secrecy of all documents/information/drawings etc provided by RailTel during the period of contract and shall handover all the documents back to the RailTel immediately after the termination of the contract.
- 3.23 In case Engineer feels that the contractor is not able to execute the work to the satisfaction of RailTel, RailTel shall at its own discretion can engage other agencies for that incident to ensure the smooth execution of the job at the risk and cost of the contractor, after duly informing him telephonically or through SMS, followed up by a letter.
- 3.24 The CONTRACTOR shall be solely responsible for making available for executing the work, all-requisite construction equipment, special aids, tools, plants and testing equipment and appliances. Such construction equipment etc. shall be subject to examination by RailTel for approval for the same. Any discrepancies pointed out by the RailTel shall be immediately got rectified, repaired or the equipment replaced altogether, by the CONTRACTOR.
- 3.25 The representative of the CONTRACTOR shall take care for not to tamper with the RailTel's installed equipments in the RailTel premises.
- 3.26 Access to the RailTel's facilities shall be allowed to the authorized persons of the CONTRACTOR only with the prior intimation to RailTel's Engineer.
- 3.27 All faults shall be intimated to the CONTRACTOR'S supervisor/ authorized person by either RailTel's Network Operation Centre (NOC) or the Engineer as indicated

through telephonic communication, e-mail or through fax. For this the CONTRACTOR shall provide RailTel with the contact number, both landline and Mobile & e-mail address / Fax no. within 10 days from the award of the contract.

- 3.28 The locations of repeater/cable route are indicated on the as-built drawings to be supplied by RailTel after award of contract to a successful Tenderer. However, It is advisable that Tenderers must visit site to familiarize themselves with all constraints, restrictions, access requirements and available infrastructure. The CONTRACTOR shall not be eligible for any adjustment in cost and time, on account of any lack of data regarding above. The Contractor may visit the OFC route and satisfy himself before quoting the rate. However, the route details mentioned in Annexure-A are enclosed for reference only.
- 3.29 While executing the job at site by the CONTRACTOR, penalty claimed against any damage caused to the infrastructure of RailTel & other parties shall be borne by the Contractor.
- 3.30 Tenderers are advised to submit their quotations strictly based on the terms, conditions, and specifications in the tender document and not to stipulate any deviations.
- 3.31 Calibration of test and measuring instrument – instruments should always be calibrated, instruments like OTDR/splicing machine/power meter to be jointly tested & report signed once every month.
- 3.32 The CONTRACTOR becomes defaulter on the following conditions:
- 3.32.1 If he fails to repair fault and make the OFC link available within 12 hours.
- 3.32.2 Improper maintenance resulting in down time / consumables / loss of parts.
- 3.32.3 Loss or damage to RailTel's property due to the acts of Contractor.
- 3.32.4 In the event of RailTel receiving notice from any statutory authorities or from external agencies on account of loss/damage to their property due to the acts of Contractor.
- 3.32.5 During the contract period, if the CONTRACTOR has defaulted more than once or the defaulting case of the Contractor is severe, then RailTel has the right to terminate the contract and forfeit the security deposit, if deemed necessary.
- 3.33 **ESCALATION:** The maintenance charges quoted by the CONTRACTOR shall be kept firm till the completion of entire period of contract, and no Price Escalation shall be payable on any ground.

- 3.34 Contractor (successful tenderer) is accountable for timely payment to staff employed by him for the contract.
- 3.35 The contractor shall indemnify the Company against all losses or damages, if any, caused to it on account of acts of the personnel deployed by him. The contractor shall ensure regular and effective supervision and control of the personnel deployed by him and giving suitable directions for undertaking the contractual obligations.

4. PAYMENT TERMS:

FOR "SOR -A" items:

- 4.1 As per provisions of tender document, payment will be made by RailTel on certification of work by respective Engineer of the section. Submission of bills within 15 days for previously completed two months period is mandatory failing which a penalty as defined shall be charged. Bill of SOR-B and its status shall be sent along with next billing cycle of SOR-A.
- 4.2 Even though the maintenance charges are worked out on a monthly basis, the CONTRACTOR shall be paid once in two months for the maintenance charges for two months period subject to submission of bill along with defined documents.
 - 4.2.1 6 identical billing cycles of 2 month period each will be considered during any financial year. The period should be viz. April to May, June to July, Aug to Sept, October to November, December to January & February to March.
 - 4.2.2 If the date of LOA is not coinciding with the beginning (1st date of the month) of any period (i.e. 1st April/1st June/1st August etc) , the first billing period from the date of issue of LOA will be taken till closure(last date of the month) of instant 2-month period. For example if LOA is issued on 10th April, the first billing cycle shall be from 10th of April to 31st May allowed to be taken proportionately. Subsequently, the billing cycle will continue with the regular 2 Month billing period
- 4.3 Cumulative Repair time is defined as the total time taken in each billing period of consecutive two months where the link is not available for service in the jurisdiction of the contractor. This does not include the time taken for planned works. If the OFC has to be cut and spliced for a planned work the working fibers shall be made available within 2 hours beyond which the time shall be added to the Cumulative repair time, unless otherwise authorized by RailTel's Engineer. For the situation like flood, fire etc., beyond the control of contractor. Unforeseen circumstances to be decided at the discretion of RailTel, the extra time taken for repair may not be added in the cumulative repair time.

4.4 The amount payable against the maintenance charges is dependent upon the Cumulative Repair Time taken by the Contractor for the restoration of all OFC link cut/faults occurred during each billing period of consecutive two months. Accordingly, the value of the maintenance charges per month shall be decided as per the following:

4.4.1 Cumulative Repair Time of the faults in each billing period of consecutive two months upto first 10 cuts of not more than 6 hrs each for the entire section including backbone and city access network: 100 % payment of monthly maintenance charges.

4.4.4.1 Deduction as defined shall be made from monthly maintenance charges if the Cumulative repair time of the faults in each billing period of consecutive two months exceeds by 2 hours or part thereof.

4.4.4.2 Further deduction as defined shall be made from monthly maintenance charges if the Cumulative repair time of the faults in each billing period of consecutive two months exceeds by next two hours or part thereof .

4.4.4.3 The following documents must be submitted duly certified by the RailTel's Engineer along with the bill for payments for the respective sections:-

1. Month wise cumulative repair time taken.
2. Any other Recovery for contractor's fault.
3. Certificate showing the due Payments have been made to all Team Members by the Contractor as per the prevailing minimum wages act. The tenderer shall furnish an undertaking that he shall indemnify RailTel, being the principal employer, in the event any liability pertaining to employee of tenderer engaged in the current contract.
4. Hand corrected copy of relevant sheets of As Built Drawings with signature of Engineer. (Copy ABD available with Engineer shall also be corrected). There should be PF A/c & ESI registration No. with the contractor. All the statutory provisions have to be made by the contractor.

4.4.4.4 The Penalty imposed on account of various reasons / Slippages in accordance with the conditions stipulated in this document may go up to 50% of Bi-Monthly billed amount for the billing period. In case an agency is repeatedly touches the maximum level of penalty in consecutive billing periods, it will be treated as default and the contract may be terminated (The idea is to discharge the work in accordance with the contract efficiently rather than having major lapses and keep paying penalty repeatedly).

- 4.5 Price Variation: Price Variation will not be allowed during the currency of contract.
- 4.6 No advance payments will be made.

FOR SOR B item:

- 4.6.1 100% payment will be paid after completion of work and on certification of RailTel engineer. Deduction of amount as penalty defined in case Non- execution of SOR-B within 3 months
- 4.6.2 Liquidated damages (LD) @ 0.5% per week subject to maximum of 20 % of the value of the work. Delay may be condoned on request of contractor, if the delay is beyond contractor's scope i.e. Railways/State Govt. Authorities permissions, Natural Calamities like flood etc.
- 4.7 **Warranty period:** All material supplied / used and the work done by the contractor shall be guaranteed against the defective manufacture/workmanship for a period of 24 months. Cost of such defective material shall be recovered from subsequent bills or from 5% amount held (in case validity of contract is over).

5. TECHNICAL SPECIFICATIONS

5.1 INSTALLATION OF JOINT CLOSURE & SPLICING OF OFC

Only fusion splicing which is accomplished by applying localized heating (i.e. by electric arc or flame) at the interface between two butted, pre-aligned fibre ends, causing them to soften and fuse together, will be used on RailTel's network.

5.2 STRAIGHT JOINT FOR FIBRE OPTIC CABLE:

- 5.2.1 There are various types of joint enclosures available in the market. The procedure for assembly of joint enclosure is described in the installation manual supplied with straight joint enclosure. This includes the following:
 - a. Material inside joint closure kit.
 - b. Installation tools required.
 - c. Detailed procedure for cable jointing.
 - d. Procedure for re-opening the closure.
- 5.2.2. The Optic Fiber straight through joint closure (Mechanical seal type) to be used shall be of TVSE, Raychem model, FOOSC, 3M make, ROXTEC and shall be approved in advance by RailTel. The joint shall be protected CC/Fiber chamber (FRP) as approved by Engineer.

**Upkeep of associated assets like Power
Plant,Air conditioners ,
Voltage stabilizers, Change over unit
, D.G.Sets, Shelters,Earthing**

SCOPE OF WORK:

1. At the time of taken over the section from outgoing maintenance agency, a station wise Joint inspection will be done by RailTel Engineer & Contractor representative to check the functioning of different equipments like Air Conditioners, DG sets, earthing ,power plant and shelters and defects/faults are to be recorded jointly within 30 days from the date of start of maintenance and submit the report about the status of associated equipment within 30 days else it will be deemed that all the equipments installed are in working condition and responsibility for repairing will rest on contractor. One time cost of repairing/replacement of faulty/defective equipment will be borne by RailTel on actual basis.
2. Subsequently the contractor shall be responsible for proper & timely upkeep of the associated equipment
3. Payment at actual shall be made for parts/components replaced for proper upkeep of associated equipment.

(A) Upkeep of Power plant equipment:

The contractor will do proper up keep at least once in a month at each station which will consist, but not limited, of the following:

Battery Charger:

1. Testing of Auto changeover of SMRs.
2. Checking of current setting as per load.
3. Checking of input & output voltages and recording the same as per format given in the maintenance manual.
4. Checking of extension and reporting of alarms to NMS, wherever provided.
5. Checking of proper connection of input and load cables and distribution amendment provided.

Battery Set :

1. Checking and recording of individual cell voltages as per format given in the maintenance manual.
2. Checking of conductance of each cell with battery tester once in a quarter supervised by RailTel Engineer.

3. Cells whose voltages/conductance is found to be below prescribed value should be noted and Engineer advised.
4. Checking of battery voltages at equipment end.
5. Checking of proper connection of load cables.
6. Cleanliness of battery cells and bank.
7. Checking of sulphation/physical damage

(B) Upkeep of Air Conditioners, Voltage stabilizers and Change over unit:

1. Function checking, necessary adjustments, filter checking/cleaning, servicing etc. of AC, Voltage stabilizer, and change over unit at least once in three months time (if required more frequently).
2. In case of malfunction of AC machine, voltage stabilizer and change over unit, corrective measures have to take to attend/rectify the failures within 48 hrs failing which penalty of Rs. 200 per day will be levied.
3. Any Air Conditioner machine or its spare parts taken for repairing/ replacement should be returned within 3 days of carrying them outside the premises of RailTel and reinstalled by the AC mechanic.
4. The contractor will utilize services of trained A.C. mechanic for checking and attending the faults at site at his own cost .
5. Defective window type machine should be got repaired within 48 hours from nearest township in case minor defects. However, split type machine has to be maintained/ repaired by deployment of Air-Conditioner mechanic at site. The transportation cost for carrying the breakdown machine to and fro will be on contractor's account.
6. Over-hauling of the Room AC machines is to be done once every year during winter.
7. The full functioning of change over unit, wherever provided, should be checked once in a quarter.
8. A history register is to be maintained to keep record of repair/repairable spares, schedule breakdown details etc.
9. Payment, at actual, shall be made for all parts / components (including Gas filling) replaced.

(C) Upkeep of Diesel Generator Sets:

1. Function checking, necessary adjustments, servicing etc. of DG Set will be done once in one month time. This will consist of (but not limited to) the following:
2.
 - a. Testing on load.(1/2 Hour on load ,once in a month)
 - b. Testing of Auto start in case of AC failure.
 - c. Checking of Hour meter readings.
 - d. Checking of diesel oil/engine oil level/air filters.
 - e. Testing of Battery voltage of DG and its charging.
 - f. Cleanliness of the DG set.
 - g. Checking of frequency on loads.
 - h. Checking Voltage and Current on load.
 - i. Checking of DG earth resistance
 - j. water level in radiator (wherever applicable).

The contractor shall utilize services of trained / authorized D.G. mechanic for checking and attending the faults at site at his own cost.

3. All the consumables, Lubricants, Fuels and cleaning agents are to be provided by the contractor. Reimbursement for Lubricant & Diesel oil will be made as per actual, on production of bills plus 5% towards cartage charges to contractor.
4. The breakdown machine is to be attended and rectified within 72 hrs failing which penalty of Rs. 500 per day will be levied. Quality of service to be performed should be entire satisfaction of RailTel engineer.
5. Any component of DG set taken for repairing/ replacement should be returned within 3 days of carrying them outside the premises of RailTel. The component after due repair should be reinstalled within 3 days from the date of taking the defective component. Removal, refitting of the same shall be done under supervision of train / authorized D.G. mechanic brought by the contractor. The contractor will also be responsible for carrying the defective component for servicing at workshop etc.
6. A history register is to be maintained to keep record of repair/repairable spares, schedule breakdown details etc.

(D) Upkeep of Shelters/Building:

The contractor will do the proper upkeep of shelter once in three months which will consists (but not limited to) of the following:

1. Checking of leakage of water and repairing of the same.
2. Tightening the nut & bolt of the shelters in case of loose.
3. Minor repair of shelter if any.
4. Checking of condition of doors, windows and locking arrangements
5. General cleanliness of shelter once in a month.

(E) Upkeep of Earthing Arrangement

The contractor will do the following activities as per schedule given below:

1. Watering of the earth pits on every visit (at least once in a month).
2. Checking of the physical connections at equipment ends.
3. Tightening of nut/bolts once in a quarter.
4. Measurement of earth resistance once in six months under supervision of RailTel Engineer. At least one measurement shall be done during peak summer.

Annexure-A**Jurisdiction of OFC Maintenance Sections**

- a) The OFC section shall have at least one maintenance team stationed at the team headquarters. List of maintenance sections where the maintenance teams are to be deployed is furnished below:

SN	Section	Length (Km)	Bimonthly allowed cumulative repair time in hrs.	Team head quarters	Tender Number
1.	South East Delhi	163.274	6 hour for first 10 cut	Tilak Bridge	RailTel/Tender/OT/NR/O&M/17-18/64

RailTel also reserves the right to add or delete any maintenance section. However, payment will be made as covered in the preamble.

Existing Node details of S-E DLI Section					
	From	To	Total	O/H (in km)	U/G Patch (in km)
1	Thompson Road	Okhla	11	1.8	9.2
2	Tilak bridge	Sahibabad	19	1.5	17.5
3	Sahibabad	Ghaziabad	7	0	7
4	Thompson Road	Old Delhi Rly Station	4	0.9	3.1
5	Old Delhi Rly Station	Sahibabad	14	0	14
	Railway Route(in RKM)		55	4.2	50.8
1	Kailash Hospital	Bajaj Noida-HCL-SPMCIL	4	4	0
2	Sify-Aircel-Tikona		3	3	0
3	Idea Mohan Coop.		1.5	0	1.5
4	Delhi Sectt.	NIC Laxmi Nagar	7	0	7

5	NIC Laxminagar	Mandawali			
6	Tilak Bridge	Delhi Sectt.	4	0.2	3.8
7	IIT Delhi		3	0.3	2.7
8	NIC Nehru Stadium		1.5	1.5	0
9	NIC CGO	CBI-ERNET (U/G)	1.727	0	1.727
10	HNZM	SOJ	7	0.6	6.4
11	INA FOB	CVC	1.2	1.2	0
12	SPMCIL	Land Soil	1	1	0
13	Tilak bridge	RCF	1	1	0
14	NIXI Noida	Kailash Hospital	0.534	0	0.534
15	Tikona Vasundhera		1.896	1.896	0
16	Ernet Closure	Soochna Bhawan	0.727	0.727	0
17	Tikona Okhla Ph III	Closure outside Sify	0.155	0.155	0
18	Ayush, INA	INA FOB	2.25	2.25	0
19	SSTL-Tikona Okhla Ph-I	Rly Track at Mohan Coperative	3.709	3.709	0
20	Soochna Bhawan	CRIS, MTNL Building CGO Complex	0.9	0.9	0
21	NIC CGO	DRI, Paravaryan Bhawan	0.245	0.245	0
22	NIC CGO	NHRC	0.3	0.3	0
23	T-Point on Rly Track b/w Shadhara-Old DLI	Shastri Park basement	2.3	0	2.3
24	CAG	BIS	0.4	0.4	0
25	ACGR ITO	NIDM ITO	0.8	0.8	0
26	CAG	INSA	0.471	0.471	0
27	CBI Bahadur Shah Zafar Marg	BIS	0.2	0.2	0
28	ITO Pragati Maidan	DFCCIL/Pra gati Maidan	1.45	1.45	0
29	Dayal Singh T Point	Dayal Singh College	0.5	0.5	0
30	SPMCIL in building/campus			0.5	0

			0.5		
31	Sec 16 Metro Stn	HCL/Noida	0.6	0.6	0
32	IOCL/CGO complex	Soochna Bhawan	0.5	0.5	0
33	NBA	T point to NBCC plaza	0.25	0.25	0
	Total Route (in Km)		109.614	32.853	76.761

Route added due to New LINK Connectivity

S.No.	Section		Route (In RKm)	O/H Patch (in Km)	U/G Patch (in Km)	Remarks
	From	To				
1	Noida City Center Metro Station	NCMRWF-NIB-ICAI/Sec-62, Noida	9.85	2.4	7.45	work executed by M/s. Hayatt. 400 mtrs, O/H under boundray of NIB and ICAI
2	SPMCIL/Noida	Rajguru-Maharaja garsain Collage	2.2	2.2	0	work executed S-E DLI team.
3	NCMRWF/Sec-62, Noida	CIRTES/Noida	1.2	1.2	0	work executed Dept. team
4	CIRTES/Noida	T-Point,NIB/Sec-62, Noida	1.4	1.4	0	
6	CRWC	DFCCIL, Pragatimaidan	0.3	0.3	0	
7	Pawan Hans	T-Point,SPMCIL, Noida	0.45	0.45	0	protection path, work executed by Dept. team
8	Pawan Hans	T-Point,SPMCIL, Noida	0.51	0.51		Work path. work executed by Dept. team
9	DDA/INA	Ayush/INA	1.1	1.1	0	Work executed by Dept. team.
10	DDA/INA	NDMC/Kidwai Nagar	1.35	1.35	0	
11	DDA/INA	ASI/INA	0.6	0.6	0	
12	AAI/Rajiv Gandhi Bhawan	JorBagh Metro Station	0.75	0.75	0	
13	SBI/Hauz Kas	NIFT/Hauz Kas	1.1	1.1	0	
14	SBI/Green Park	NIFT/Hauz Kas	1.08	1.08	0	
15	SBI/Agarwal Plaza,phase-1,Okhla	SSTL/Okhla	0.6	0.6	0	
16	SBI Spl.Curr. Branch/Ph-1, Okhla		0.2	0.2	0	

17	CERT/Electronics Niketan/CGO	Soochna Bhawan	0.35	0.35	0	
18	NIC/CGO	ITBP/CGO	1.49	0.6	0.89	Work executed by M/s.IPCON
19	NIC/CGO	BSF/CGO				
20	NIC/CGO	CRPF/CGO				
21	ITBP/CGO	CABSEC/CGO				
22	NIC/CGO	Dayal Singh Collage/Lodhi Road including JLN Metro	2.57	2	0.57	
23	RCF/ITO	NCTE/HQ/ITO	1.5	1.5	0	Work executed by Dept. team
24	RCF/ITO	ICCR/ITO	1.1	1.1	0	
25	ICCR/ITO	NCTE/HQ/ITO	0.8	0.8	0	
26	ICCR/ITO	ICAI/ITO	0.45	0.45	0	
27	Delhi Sectt.	Vypar Bhawan/ITO	0.7	0.7	0	
28	NCMRWF-NIB- ICAI/Sec-62, Noida	EPFO/Sec-24/Noida	0.55	0.55	0	
29	Wi-Fi Hauz Kas		1.1	1.1	0	
30	MECON (13/15 Floor)-	NIC Laxminagar, Scope Mina	0.5	0.5	0	
Total of Newly laid OFC route			33.8	24.89	8.91	
Net RKM (Existing + Newly laid Route) in S-E DLI Section			163.274	57.743	85.67 1	

Annexure – B

Minimum Man & Machine/Equipments required to be engaged under one Maintenance Team:

(a)

1. Experienced Supervisor: (Preferably Diploma Holder in Electronics, Electrical or Graduate with relevant Experience in field work,) additional experience in the field of AC machine, DG sets will be desirable
2. Technician for Splicing & Measurements (main splicer).
3. Electrical Technician for Power Plant, DG sets, AC unit, wiring etc
4. Patrollers with cell phone for surveillance, liaison and foot patrolling and train patrolling (one Man for about 50kms beat). However the contractor has to deploy extra manpower for as and when needed during any Railway work or other agencies work in the section.
5. Bike patrollers for surveillance in city access cable area for 50 Kms.
6. Un-skilled manpower for trenching etc. as and when required.
7. Driver of the vehicle.
8. One Diploma Engineer (ECE/CSE/IT) for up keeping of Wi-Fi system provided at various stations in the section.

(b)

1. Innova/ Qualis/Scorpio or equivalent Utility Vehicle for transportation of men, machines and stores ,Vehicle shall be in good working condition should not be more than three years old.
2. Portable Generator set Kirlosker/Honda/Eicher or similar make, lighting arrangement like emergency light/gas light.
3. Fusion Splicing Machine with 2 cleavers, Fujikura/Fitel/INNO Korea or similar make.
4. Power Source and Power Meter, JDSU/Anritsu/Yokagawa or similar make.
5. OTDR (Minimum range - 200 Kms), Anritsu/JDSU/Yokagawa or similar make.
6. OFC cable Route Detector
7. Spare battery with charger for splicing machine.

8. Cable Splitter for vertical cutting of PVC sheath & armour
9. All sorts of patch-cords and connectors for the purpose of measurement
10. Duct Cutter

11. Road-o-meter.

12. Clamp type earth megger and clamp type AC/DC multimeter

13. Communication Gadget: As required (Telephone, Cell phone, E-Mail etc.)

14. Tool/Tackles kit.

15. Blow lamp/ hot air gun for sealing joint closure.

16. 1 Km length dummy fiber spool.

17. 500 m Aerial OFC having 12 fibers.

18. Rexene/Polythene & Umbrella cover etc.

19. Portable vacuum cleaner, Eureka Forbes/Bosch/Phillips or similar make

Note: OFC test and measuring instruments must have been calibrated in a year once from an established national Testing Organization/ lab. Upto date Certificates should always be available.

Manpower and equipments should be available with the maintenance teams round the clock as listed above. However contractor can add more manpower & equipments for speedy maintenance & minimizing downtime without any extra cost implications to RailTel.

In case the main Splicer of the team is on leave, standby Splicer must be arranged in advance by the contractor In case of absence of supervisor/ technician/splicer/patrolmen from site except sanctioned leave granted in consultation with RailTel engineer (indicated in item (a) 1 to 6 in list given above), penalty as defined will be deducted.

No man power or equipment can be changed without prior ascertaining the suitability by the Engineer & his approval. Each such change shall be pre-reported in writing to Engineer.

Annexure-C**Penalty to be imposed for the non-compliance/deficiency in the maintenance of OFC, AC and DG covered under this maintenance contract:**

S No.	Description of deficiencies	Penalty
1	Non-submission / non-modification of as built drawing (Only modifications made to be submitted)	Rs. 1,000/- per fault
2	Non-submission of OTDR traces to be taken before and after rectification of cable fault /cut (involving two joints).If OTDR traces is submitted within next billing cycle, the penalty will be returned back to the contractor.	Rs. 5000/- per section
3	For provision of joint pit within 30 days, no penalty. From 31 day to 60 days, penalty of Rs. 5000/- per joint pit and from 61 days to 90 days penalty of Rs. 10,000/- per joint pit. After 90 days, case will be considered for termination.	
4	Swapped fibers not restored (involving at least one joint)	Rs.5400/-
5	Cable laid during fault restoration / rectification (small length) at lesser depth without protection.	Rs. accepted rate of respective SOR – B + 20 %)
6	Cable laid temporarily over bridges and leads to subsequent failure (involving two joint).	Rs 2 x (accepted rate of respective SOR – B + 20 %)
7	Splice loss of all fibers not within prescribed limit (0.05 db per splice)	Rs 6000/ -
8	In case MTTR exceeds the prescribed restoration time for the section of 6 Hrs per cut on Bi-monthly basis	Rs 5000/- per two hours or part thereof.
9	Unavailability of communication with maintenance team/patroller	Rs.1000
10	Non-Submission of OTDR reading and Power meter readings of all fibers (Once in a four	Rs.5000/- per section+ Rs. 2500/- for every week or part thereof till the next

	month).	periodical report falls due
11	Failure or non availability of Transport/Vehicle.	Actual cost of hiring alternative vehicle+ Rs. 1000 each trip from monthly bill.
12	Non Submission of joint report indicating the fault to be attended within 90 days from Date of deployment of team	Rs.2500/- per week or part therefore beyond 90 days up to next 45 Days from the date of deployment of the team.
13	Non Submission of bill for previously completed two months within 15 days of completion of billing period.	Rs. 200/- per week beyond 10 days upto next billing cycle, subsequently Rs. 500/- per week.
14	Absence of Engineer/Supervisor/ Technician/Splicer/Patrolmen from site.(indicated in item 1 to 8 of Annexure-B).	Rs. 200/- per day each for patroller and assistant splicer and Rs. 1000/- per day each for Engineer/supervisor & Splicer (If the person is under sanctioned leave then it should be in knowledge of Engineer and contractor should deploy another person in place of absent person).
15	Non availability of Vital equipments	Rs. 500/ per day
16	If foot /bi-cycle patrolling not done	Rs.600/- for one time-per block/sub section in a month(i.e. if foot patrolling not done in a month for one sub/block section penalty per month imposed will be 3X600 = Rs. 1800/- per month since three times in a month to be done)
17	Non-execution of SOR-B work within 3 months	20% of the cost of SOR-B work from SOR-A bill of that period (work communicated in writing by authorized representative of RailTel)
AIRCONDITIONER MAINTENANCE		
18	Breakdown duration exceeding 48 hrs	Rs 200/- per day
DG SET MAINTENANCE		

19	Breakdown duration exceeding 72 hrs.	Rs 500/- per day
20	Upkeep of shelter/earthing arrangement /power plant etc.	Rs. 200/- per day per location.
21	Joint Marker	Penalty Rs. 1000/- per joint marker for non provisioning of Joint marker within 30 days.
22	Criss crossing of fibers during carrying out the SOR A works.	Rs. 2000/- per joint

Schedule of Rates "SOR-A"

South East Delhi including Ghaziabad & Noida (163.274 kms) for maintenance of OFC cable network, Wi-Fi Network and associated equipment etc." for a period of 2 years and extendable by one year on same terms & conditions

Sr. No	Description	Length of section in RKMs	Estimated Maintenance charge in Rs. of the section per month	Total Est. Maintenance charge in Rs. for the section in two years
1	<p>Maintenance charges for OFC cable, Wi-Fi system and up keep of associated gears etc. as per terms & conditions given in the tender document .</p> <p>This also includes provision of one exclusive diploma engineer for maintenance of Wi-Fi system provided at stations.</p>	163.274	304643.57	7311446

Schedule of Rates -“SOR-B”
(for OFC Route strengthening work)

Schedule -I (Service/Execution)				
SN	Item	Description	Unit	Rate
1	Trenching (1.2 Mtr depth)	On either side of the above pit 5 mtrs of trench to be dug along side of the OFC already laid, to place the chamber. After placing the chamber the entire area to be covered with the excavated earth and should be rammed properly. The balance loose earth shall be heaped on the trench uniformly.	Mtr	41
2	Cutting Hard Rock upto 0.3mtr depth	Cutting hard rock and carting away debris from site of strata and filling by concrete as per instructions of site engineer.	Mtr	207
3	Backfilling	Wherever a meniscus appearance formed along the trench due to improper backfilling or sinking of earth due to rain is to be backfilled with earth brought from neighborhood. The backfilling should be 30 cm above ground level after ramming of the earth. (Care shall be taken for not creating trenches in Railway area for taking out soil and the work shall be cared out in consultation with the Section engineer of Railways)	Mtr	23
4	Laying of OFC	Laying of OFC in already made trench and through HDPE/GI/RCC pipes where ever necessary.	Mtr	6
5	Laying of HDPE Duct	Laying of HDPE Duct in already made trench/GI/RCC pipes where ever necessary.	Mtr	6
6	Horizontal Drilling	Horizontal Drilling by using m/c at a depth of 1.5m below the formation level of the earth as per decision of RCIL engineer.	Mtr	257
7	Horizontal Drilling	Horizontal Drilling by manually pushing method at a depth of 1.5m below the formation level of the earth as per decision of RCIL engineer.	Mtr	164
8	Termination of FMS	Termination on 12F FMS (SC-APC type)	Nos.	5664
Schedule-II (Supply)				
9	Supply of FMS	Supply of FMS 12 fiber (SC-APC type) with all accessories.	Nos.	4514
Schedule-III (Composite)				
10	Chambers	Excavation of jointing pit with out damaging the fiber and provision of joint chamber of 1.1 mtr dia , 60 Cm height and 50 mm thickness with two piece top cover and bottom cover with holes for drainage and cable entry (The reinforcement drawing enclosed). This includes backfilling and ramming of the trench after placing the joint closure and cable loop in the chamber with out causing any damage to the same and consolidation of soil as well as disposal of soil as per plan and as advised by RailTel Representative.	No	3078

11	Top Plates	Supply, Transporting and fixing of top plates. Wherever the top plates are missing or damaged, they should be replaced with out damaging the fiber. The descriptions of dimensions are as above as per drawings supplied.	No	559
12	Route Markers	Supply, Transporting and fixing of cable route markers shall normally be provided at a distance of every 100/50 mtrs on the cable route, at places/corners where the route of the cable changes, on either side of culvers, bridges, L.C.Gates, road cuttings etc. These shall be of standard RCC with letters "RCIL OFC" "engraved and suitably painted. They shall be painted with Green when placed near joint chambers and should be painted with orange at all other places. The engraved portion RCIL OFC should be painted with white. The height is 90cm, width 30cm and thickness 8cm as per the drawings supplied.	No	198
13	Concreting	Concreting is to be done in rocky areas where OFC is to be protected and to keep the route marker in position. At bridges and culverts to protect OFC on approaches and wherever necessary as directed by RCIL Engineer. The proportion of cement sand and metal the ratio is 1:3:6, curing and ensuring proper setting. The depth is 0.15 mtrs and width is 0.3 mtrs. The OFC to be drawn through HDPE or G.I Pipe or half cut RCC as per site conditions and as directed by RCIL Engineer.	Cu. Mtr	2750
14	Concreting of Route Markers	Concreting of route markers as directed by RCIL Engineer, route markers shall be concreted to keep it in vertical position. The concreting to be done 15cm above the ground level and 15cm below the ground level. Length and width are 30cm each as per drawing supplied at 1:2:4 ratio.	No	49
15	G.I. (Pipe on RCC Bridges)	Supply, transport and installation of 75 mm dia GI Pipe IS1239 medium grade with holes drilled as an anti theft measure with threads on either end for coupling to be provided to protect OFC and laying on RCC bridges/trenches with CC at every 1m as directed by RCIL Engineer	Mtr	325
16	G.I.(Pipe on Girder Bridges)	Supply, transport and installation of 75 mm dia GI Pipe IS1239 medium grade with holes drilled as an anti theft measure with threads on either end for coupling to be provided to protect OFC and fixing on Girder bridges as directed by RCIL Engineer	Mtr	503
17	Sand filling	Supply, transport and filling of the RCC joint chambers with dry sand mixed with anti-termite chemical as required in specification up to 400mm height and the cover is re fixed in position.	No	565
18	OFC Joint Enclosure	Supply & Provision of OFC Joint including Splicing (24 Fibre) inside already prepared jointing pit. This does not include provision of Joint chamber, top plate & back filling. The joint Enclosure shall be supplied by Contractor (TVSE, R&M, Raychem or 3M Make only).	No.	4104
19		Rectification & Splicing of existing OFC joints. This includes supply and provision of thermo shrink sealing on cable entry ports & closure dome or as required.	No.	3078
20	Supply & Mounting of Aluminium Ladder	Supply & mounting of 6" width Aluminium ladder. This includes mounting of terminal joint & dressing of spare OFC with suitable plastic clamps/Bands	Mtr.	308

RailTel/Tender/OT/NR/O&M/17-18/64

21	DWC Pipe	Supply of DWC pipe 120/103.5mm OD/ID as per IS 14390 Part II in 30 mtrs length with 2 snap fit couplers for jointing Each 30 mtr coil length. It also includes installation of DWC pipe with fixing of all materials.	Mtr	236
22	Prefab Joint pit	Provision of joint pit (Pre-Fab) as detailed in drawing & advised by engr. At site of reputed make like Sintex etc.	Nos	3283
23	Prefab Route marker	Supply & Erection of Pre-fab route marker printed on both sides & placed at every 50 mtrs and at joint and diversions	Nos	257
24	Pulling of Arial fiber	Pulling of 12Core aerial fibre with 4 mm G.I wire support and spaces at a distance of 1 mtr. OFC to be supplied by RailTel and rest items to be supplied by contractor	Mtr	22
25	Conical Chamber	Supply & Provision of conical manhole (1.5 mtr. dia.)	Nos.	10474
26	24 Fiber FMS	Supply and installation of Fibre management system with all installation material, splicing, termination and testing of 2X24 fibre of cable with all connectors' material as per the instruction of site engineer. (E2K type FMS required only)	Nos.	16701

Note: Unit rates given above are inclusive of all taxes. It is mandatory for the tenderers to give tax break up in table given below. In addition, in case tax rates are different in different states in which the section falls, then tenderer should give individual tax rate as per the states.

Tax Break Up

Schedule	Tax Name	Rate of tax (%)
Schedule I		
Schedule II		
Schedule III		

Signature of the Tenderer with Stamp

INDEX

SECTION-II

S No	Subject
1.	Instructions to Tenderers & Conditions of Tendering (GCC)
2.	Special conditions of Contract
3.	Forms, Proformas & Drawing of Tender

**INSTRUCTIONS TO TENDERERS AND CONDITIONS OF TENDERING
(GCC)**

INDEX

PARA	SUBJECT
1.	GENERAL INSTRUCTIONS
2.	INTERPRETATIONS
3.	LOCAL CONDITIONS
4.	COMPLIANCE TO TENDER CONDITIONS, SPECIFICATIONS & DRAWINGS
5.	EARNEST MONEY
6.	SUBMISSION OF OFFERS
7.	UNIT PRICES
8.	VALIDITY OF OFFER
9.	RATES DURING NEGOTIATION
10.	OPENING OF TENDER
11.	NON-TRANSFERABILITY AND NON-REFUNDABILITY
12.	ERRORS, OMISSIONS & DISCREPANCIES
13.	WRONG INFORMATION BY TENDERER
14.	QUALIFYING CRITERIA
15.	SYSTEM PERFORMANCE GUARANTEE
16.	EVALUATION OF OFFER
17.	AGREEMENT
18.	TENDERER'S ADDRESS

INSTRUCTIONS TO TENDERERS AND CONDITIONS OF TENDERING

1. GENERAL INSTRUCTIONS

- 1.1 Tender is invited by the Executive Director/Northern Region on behalf of M/s RailTel Corporation of India Limited for the work as defined in preamble para 1.
- 1.2 The Preamble, Instructions to Tenderers and Conditions of Tendering, Scope of work, Description of work & SORs, all Annexure & Forms and Corrigendum & Addendum etc, if any, shall, hereafter, be collectively referred to as the "Tender Document".

2. INTERPRETATIONS

The following terms wherever occurring in the tender Document and wherever used throughout the execution of the contracts, shall, unless excluded by or repugnant to the context, have the meaning attributed thereto as follows:

"CONTRACT" Means the Contract resulting from the acceptance by the Executive Director of this Tender whether in whole or in part.

"CONTRACTOR" Means the successful Tenderer, i.e. the Tenderer whose Tender has been accepted either in whole or in part.

"CONTRACTOR'S REPRESENTATIVE" Shall mean a person in supervisory capacity who shall be so declared by the Contractor and who shall be authorized for any work specified in the Contracts. He shall be responsible for proper execution of contracts.

"MONTH" Means any consecutive period of thirty days.

"MATERIALS" Means all equipments, tools, special aids, plants and testing equipments and appliances for execution of contract.

"PoP" Means point of presence i.e. A place or premises where any telecom equipment is placed.

"RailTel" Means M/s RailTel Corporation of India Limited, Office of the Executive Director, Northern Region, RailTel Corporation of India Limited, 10th floor, Bank of Baroda Building, 16, Sansad Marg. New Delhi- 110001.

"Section" Means the areas to be taken up by the Contractor for execution of maintenance work and other maintenance related work given in the tender

document.

ENGINEER shall mean a RailTel employee who is responsible for maintenance carried out in particular section by maintenance team.

ENGINEER-IN-CHARGE (EIC) shall mean a Senior Manager of RailTel, responsible for ensuring that all field works covered by the contract are carried out in accordance with approved designs, drawings & specifications and conditions of contract as agreed to.

“BLOCK SECTION” Means the distance along the railway track between two consecutive Railway stations.

"TENDERER" Means and includes any firm of engineers or Contractors or any company or body, corporate or otherwise, who submit the Tender which has been invited.

"WORK OR WORKS" Means all or any of the items of the work for which the Tenderer /Contractor has Tendered/contracted according to the specifications, drawings and Annexure hereto annexed or to be implied there from, or incidental thereto or to be hereafter specified or required in such explanatory instructions and drawings, being in conformity with the specifications, drawings, Annexure and schedules and also such instructions and drawings additional to the aforementioned as may from time to time be issued by the Engineer during the progress of the contracted work.

"WRITING" Includes all matters written, typewritten or printed either in whole or in part.

3. LOCAL CONDITIONS

- 3.1 It will be imperative on each tenderer to fully acquaint himself with all the local conditions and factors which would have any effect on the performance of the contract before quoting. The Executive Director shall not entertain any request for clarifications from the tenderer regarding such local conditions. No request for the change of price, or time schedule of delivery of stores shall be entertained after the offer is accepted by the Executive Director on account of any local condition or factor.
- 3.2 The intending tenderer is advised to study the tender document carefully before quoting. Any submission of a bid by the tenderer shall be deemed to have been done after a careful study and examination of these documents with full understanding of the implication thereof. These conditions and specifications

shall be deemed to have been accepted unless otherwise, specifically commented upon by the Tenderer in his quotation. Failure to adhere to anyone or all these instructions may render his offer liable to be ignored without any reference.

- 3.3 Should a tenderer find discrepancies in, or omission from the drawings or any of the Tender document or he has any doubt to their meaning, he should at once notify the RailTel who may send a written clarification to all tenderers.

4. COMPLIANCE TO TENDER CONDITIONS, SPECIFICATIONS & DRAWINGS

- 4.1 The tenderer shall indicate paragraph by paragraph for each section of the tender document that either his tender complies in every respect with the requirements of each clause and sub clause or if not, precisely how they differ from the requirements of the tender. In later case, the Tenderer shall enclose a separate statement indicating only the deviations for any clause or sub-clause of Conditions of Contract, Instructions to Tenderers and Conditions of Tendering, Technical Specifications, Preamble etc. which he proposes with justifications for deviations proposed. The Executive Director reserves the right to accept or reject these deviations and his decision thereon shall be final.
- 4.2 The Services offered shall be in accordance with the drawings and specifications & conditions of the contract.
- 4.3 Contractor should give details of contract carried out giving details of the name of the contract, date of award, length of the section, value of the contract, the original execution period and the actual execution time taken. This will be supported by a user certificate.
- 4.4 The tenderer should provide information about the compliance of various clauses / sub clauses / paragraphs (when tenderer plans to give separate compliance of each paragraph or sub clause) of tender document

5. EARNEST MONEY

- 5.1 The tenderer shall furnish an amount as given in Preamble as earnest money in favour of RailTel Corporation of India Limited for each tendered section that he wants to quote for.
- 5.2 The validity of offer will be 120 days from the date of opening of tender 'as given in Preamble. It being understood that the tender documents have been sold/issued to the tenderer and the tenderer has been permitted to tender in consideration of the stipulation on his part that after submitting his tender he

will not resile from his offer or modify the terms and conditions thereof in a manner not acceptable to RailTel. If the tenderer fails to observe or comply with the foregoing stipulation, the aforesaid amount deposited as Earnest Money shall be liable to be forfeited by the RailTel.

- 5.3 The Earnest Money receipt shall be incorporated in the original copy of the tender document. Other copies of the offer shall contain true copies of Earnest Money receipt. The Earnest Money should be furnished in the form of an Account Payee Demand Draft in favour of M/s RailTel Corporation of India Limited payable at New Delhi from SBI or a Nationalized Bank or a schedule Commercial Bank operating in India.
- 5.4 The earnest money may be forfeited under the following circumstances.
- 5.4.1 If tenderer withdraws its tender during the period of tender validity specified in Preamble
- 5.4.2 In case of successful tenderer, if the tenderer fails to sign the contract in accordance with relevant para of Preamble and to furnish Security Deposit in accordance with relevant clause of preamble .The earnest money of unsuccessful tenderer will save as herein before provided, be returned within reasonable time to the unsuccessful tenderer but the RailTel shall not be responsible for any loss or depreciation that may happen to the security for the due performance of the above stipulation to keep offer open for the period specified in the tender documents or to the Earnest Money while in their possession nor be liable to pay interest thereon.
- 5.5 If the tender is accepted, the amount of Earnest Money will be held as security deposit as per relevant para of Preamble of tender document for due and faithful fulfillment of contract.
- 5.6 The tender not accompanied by Earnest Money as mentioned in clause 5.3 above or if any of the documents submitted by the tenderers is proved to be fraudulent, the offer will be summarily rejected & EMD will be forfeited.
- 5.7 The Security Deposit shall be released as per relevant clause of preamble
- 5.8 For NSIC registered firm
- 5.8.1 For Small Scale Units registered with NSIC under single point registration scheme and participating in this tender, following exemptions shall be available

- (i) They shall be exempted from cost of tender documents. However, postage charges of Rs.590/- would have to be paid by them, in case they need tender document by post.
- (ii) They shall also be exempted from depositing Earnest money.

These exemptions shall be applicable provided units are registered with NSIC for tendered item and registration is current and valid. Firms claiming these exemptions are required to submit along with their offer, a copy of their current and valid NSIC registration certificate for the tendered item/items, otherwise their offer would not be considered.

6. SUBMISSION OF OFFERS

- 6.1 The offer in the prescribed forms should be submitted before the time and date fixed for the receipt of the offers. Offers received after the stipulated time and date will be summarily rejected.
- 6.2 In case the date of opening happens to be a holiday, the tender will be received and opened at the same time on the next working day.
- 6.3 The offer shall be either type written or written neatly in indelible ink in English. Each page of the offer must be numbered consecutively. A reference to total number of pages comprising the offer must be made at the top right hand corner of the top page. The supporting documents should be submitted either in original or duly signed by the authorized signatory of the tenderer. The original documents shall be produced for verification when called for.
- 6.4 All copies of the tender papers shall be signed in ink by the tenderer, on each page including closing page in token of his having studied the tender papers carefully.

6.5 RATES IN FIGURES & WORDS :-

- i) All prices having a bearing on the quoted price shall be written both in figures and in words in the prescribed offer form. In case of difference in words and figures the amount written in words will be taken into consideration.
- ii) In the event of any discrepancy between unit rate and total cost, the value shown in unit rate will be taken for evaluation purpose.
- iii) In case the schedule of requirement quoted by tenderer is incomplete with

reference to tender document, the offer is liable to be rejected.

6.6 ATTESTATION OF ALTERATION:

No scribbling is permissible in the tender documents. Tender containing erasures and alterations in the tender documents are liable to be rejected. Any correction made by the tenderer/ tenderers in his/their entries must be signed (not initialed) by him/them.

6.7 Submission of tender BID will be done as per relevant para of Preamble.

7. UNIT PRICES:

Unit prices should be quoted in Indian Rupees by the tenderer after taking all the relevant factors into consideration and these should be Firm and all inclusive without any variation clauses. The prices shall be quoted in rupees for the units under metric system.

8. VALIDITY OF OFFER

The tenderer should keep the offers valid for the period as mentioned in "Preamble".

9. RATES DURING NEGOTIATION

The tenderer/s shall not increase his/their quoted rates in case the RailTel Administration negotiates for reduction of rates. Such negotiations shall not amount to cancellation or withdrawal of the original offer and the rates originally quoted will be binding on the tenderer/s.

10. OPENING OF TENDER:

Tenderer's Bid will be opened at the time & date of opening of the tender given in relevant para of preamble in presence of such Tenderers/Authorized Representatives who choose to be present.

11. NON-TRANSFERABILITY AND NON-REFUNDABILITY

The tender documents are not transferable. The cost of tender paper is not refundable.

12. ERRORS, OMISSIONS & DISCREPANCIES

The Contractor(s) shall not take any advantage of any mis-interpretation of the conditions due to typing or any other error and if in doubt, shall bring it to the notice of the Engineer Incharge without delay. In case of any contradiction only the printed rules, and books should be followed and no claim for the mis-interpretation shall be entertained.

13. WRONG INFORMATION BY TENDERER

If the tenderer/s deliberately gives/give wrong information in his/their tender which creates/create circumstances for the acceptance of his/their tender forfeiting his EMD. Also, if the wrong information leads to release of any wrong payment, the contract will be cancelled and Security deposit will be forfeited.

14. QUALIFYING CRITERIA

For qualifying in tenderers bid shall be required to meet the eligibility requirements as given in relevant para of preamble.

15. SYSTEM PERFORMANCE GUARANTEE

The Contractor shall give unqualified and unconditional guarantee that the maintenance team deployed by him will achieve desired objective, If he needs to depute any additional Man, Machine & Material to achieve desired objective, no extra payment shall be made to the contractor. Amount as defined in the preamble will be held towards the same.

16. EVALUATION OF OFFER

The tenders received will be evaluated by the Authorized representative of RailTel as per eligibility & evaluation criteria given in the tender document.

However, the RailTel shall not be bound to accept the lowest or any tender or to assign any reason for non-acceptance or rejection of a tender. The purchaser reserves the right to accept any tender in respect of the whole or any portion of the work specified in the tender document.

17. AGREEMENT

The successful tenderer/s shall be required to sign an agreement with the representative of RailTel for carrying out the work according to the tender documents within 15 days as indicated in relevant para of preamble

18. TENDERER'S ADDRESS

Tenderer shall state in the tender his postal address fully and clearly. Any *communication sent to the tenderers by post at his said address shall be deemed to have reached the tenderer duly & timely, notwithstanding the fact that the communication could not reach the tenderer at all or in time for whatever reason. Important documents shall be sent by Registered Post and will be dealt as per relevant para of preamble

Section-II

Special Conditions of Contract

SPECIAL CONDITIONS OF CONTRACT

I N D E X

PARA	SUBJECT
1.	TENDER DOCUMENTS
2.	AGREEMENT
3.	CONTRACT PERFORMANCE GUARANTEE (SECURITY DEPOSIT)
4.	CONTRACTOR'S OFFICE
5.	PROGRAMME OF WORK.
6.	COMPETENT SUPERVISORS
7.	TEST & MEASURING INSTRUMENTS AND SPECIAL TOOLS ETC
8.	STORES TO BE SUPPLIED BY CONTRACTOR
9.	SPARES
10.	QUALITY ASSURANCE
11.	INSPECTION OF MAN, MACHINE & MATERIALS
12.	SUBLETTING AND ASSIGNMENT
13.	EXECUTION OF WORK
14.	MAINTENANCE OF WORKS
15.	CLEARANCE OF SITE
16.	WARRANTY SUPPORT
17.	INFRINGEMENT OF PATENTS
18.	LABOUR LICENCE & COMPLIANCE WITH LABOUR, INDUSTRIAL & ENVIRONMENTAL LAWS
19.	DEFAULTS AND DELAYS

20. **LOSS SUSTAINED DUE TO DEFAULTS AND DELAYS**
21. **CONTRACTOR'S LIABILITIES FOR COSTS AND DAMAGES**
22. **UNIT PRICES**
23. **TERMS OF PAYMENTS**
24. **FINAL SETTLEMENT**
25. **TAXES**
26. **INSURANCE FOR WORKMEN & MATERIALS**
27. **FORCE MAJEURE CLAUSE**
28. **SETTLEMENT OF DISPUTE AND ARBITRATION**
29. **TERMINATION OF CONTRACT**

SPECIAL CONDITIONS OF CONTRACT

1. TENDER DOCUMENTS

- 1.1 The services and quality required, bidding procedure and contract terms and conditions are prescribed in the tender documents. The set of tender documents issued for the purpose of bidding includes following together with Corrigendum and Addendum, if any.

Section-I: I) Preamble.
 II) Checklist & tender notice
 iii) Introduction, scope of work

Section-II: I) Instructions to tenderers and conditions of tendering.
 II) Special conditions of contract
 III) Forms, proformas & Drawing of Tender

- 1.2 If the Tender submitted by a Tenderer is accepted and the contract awarded to the Tenderer the various works/Contracts coming under the purview of the contract shall be governed by tender documents .
- 1.3 Any special conditions stated by the Tenderer in the covering letter submitted along with the tender shall be deemed to be a part of the Contract to such extent only as have been explicitly accepted by the RailTel.

2. AGREEMENT

The successful Tenderer shall within 15 days after having been called upon by notice to do so be bound to execute an agreement based on accepted rates, terms and conditions, in such form as the RailTel may prescribe, and lodge the same with the RailTel together with the conditions of contract, specifications and Schedule of prices referred to therein duly completed. The form for agreement is referred as Form no. 1.

3. CONTRACT PERFORMANCE GUARANTEE (Security Deposit)

- 3.1 On receipt of the Letter of Acceptance of Tender from the RailTel the successful Tenderer shall deposit an amount to RailTel as defined as per relevant para of preamble rounded off the nearest whole number towards payment of Security Deposit for due fulfillment of the contract .
- 3.2 Details as to how SD will be deposited and released are given in the preamble.

4. CONTRACTOR'S OFFICE

Tenderer shall state in the tender his postal address fully and clearly. Any communication sent to the tenderers by post at his said address shall be deemed to have reached the tenderer duly & timely, notwithstanding the fact that the communication could not reach the tenderer at all or in time for whatever reason. Important documents shall be sent by Registered Post and will be dealt as per relevant para of preamble

5. PROGRAMME OF WORK

5.1 The Contractor shall have necessary resources to execute the work/contract so that the entire work is completed within two year period as mentioned in the relevant para of preamble from the date of issue of Letter of Acceptance of the tender.

5.2 Contractor has to commence work within 21 days from the date of issue of Letter of acceptance.

5.3 The Contractor shall be held responsible for the execution of the work/contracts according to the various clauses of the Technical specifications, instructions/drawings etc as per tender conditions. Failure to comply with any of these will be dealt with as per provision laid down in Conditions of Tendering.

5.4 The contractor will program his work/contract in such a manner so as not to interfere in the working telecom circuits and movement of trains.

6. COMPETENT SUPERVISORS

The CONTRACTOR shall depute experienced / competent representative(s) at site during the execution of any job. Any instructions given to such representative(s) shall be construed as having been given to the CONTRACTOR

7. TEST & MEASURING INSTRUMENTS AND TOOLS ETC.

The CONTRACTOR shall be totally responsible for the calibration & functionality of test equipment to be used at site as per laid down procedure in tender document.

8. STORES TO BE SUPPLIED BY CONTRACTOR

All materials required for the execution of the contract shall be arranged and supplied by the Contractor except supply of Duct and OFC so as to realize the end objective.

9. SPARES

The tenderer shall keep spare man, machine and material to achieve the end objective of work. This will be on the own cost of contractor.

10. QUALITY ASSURANCE

Quality of service to be performed should be to entire satisfaction of RailTel, in case the services are not found up to the mark or failure to execute the work as per terms & conditions of the contract, RailTel will get the work done from other sources at contractor's cost.

11. INSPECTION OF Man, Machine & Work

The Executive Director or his representative may inspect and test the various portions of the work / contract at all stages and shall have full power to reject all or any portion of the work that he may consider to be defective or inferior in quality of materials, machine & workmanship or design in comparison to what is called for in the specification. Periodicity will be as defined in O&M manual.

12. SUBLETTING AND ASSIGNMENT

The contractor shall not sub-contract whole or any part of the work.

13. EXECUTION OF WORK

All the works/Contract shall be executed in strict conformity to the provisions of the contract document and with such explanatory detailed drawings, specifications and instructions as may be approved from time to time based on detailed design and engineering carried out by contractor in line with requirements as per contract document. The contractor shall be responsible for ensuring that the work throughout are executed in the most substantial, proper and workmanlike manner with the quality of material and workmanship in strict accordance with the specifications and as per sound industrial practices and to the entire satisfaction of the RailTel.

14. MAINTENANCE OF WORKS /CONTRACTS

The maintenance of section is to be done as per the laid down terms and conditions in the contract agreement to achieve the end objective of the contract

15. CLEARANCE OF SITE

At the end of the work at each location the Contractor shall as a part of his Contractual obligation, leave the section completely neat and clean.

16. WARRANTY

- 16.1 All material supplied/used and the work done by the contractor shall be guaranteed against the defective manufacture/workmanship within warranty period from the date of rectification. The cost of work and material under warranty found to be defective will be recovered from the SD.

17. INFRINGEMENT OF PATENTS:

- (a) The Contractor is forbidden to use any patents or registered drawings, processes or

patterns in fulfilling his contract without prior consent in writing of the owner of such patents, drawings, patterns or trademarks except where these are specified by the Executive Director himself. Royalties where payable for the use of such patented processes, registered drawings or patterns shall be borne exclusively by the Contractor. The Contractor shall advise the Executive Director or its representatives of any proprietary rights that may exist on such processes, drawings or patterns which he may use of his own accord.

- (b) In the case of patents taken out by the Contractor of the drawings or patterns registered by him or of those patents, drawings or patterns for which he holds a license, the signing of the contract automatically gives the Executive Director or its representatives the right to repair by himself for services covered by the patent or by any person or body chosen by him and to obtain from any sources he desires the component parts required by him for carrying out the repair work. In the event of infringement of any patent rights due to above action of the Executive Director, he shall be entitled to claim damages from the Contractor on the grounds of any loss of any nature which he may suffer e.g. in the case of attachment because of counterfeiting.

18. LABOUR LICENSE and COMPLIANCE WITH LABOUR, INDUSTRIAL & ENVIRONMENTAL LAWS

The Contractors are required to produce license as enjoined in the Government of India Contract Labour (Regulation and Abolition) Act (1978) with latest amendments, if any. The Contractor shall at its expense, ensure due compliance with all applicable and governing Industrial, environmental and Labour Laws, Rules, Regulations and Bye-laws both of the Central and State Govt. and all other local authorities and shall keep RailTel harmless and indemnified in respect thereof. The CONTRACTOR shall ensure due compliance with the provisions of the relevant minimum Wages Act, payment of Wages, Contract Labour (Regulations & Abolition) Act, Employees Provident Fund Act and other industrial and environmental laws in force and provide any related information to RailTel as and when required.

19. DEFAULTS AND DELAYS

The Contractor shall execute the work with due diligence and expedition, keeping to the proper maintenance. Should he refuse or neglect to comply with any reasonable orders given to him in writing by the Rail Tel's engineer in connection with the work or contravene the provision of the Contract or the progress of work lags persistently behind the time schedule due to his neglect, the contract will be terminated as per the condition given in the SCC.

20. LOSS SUSTAINED DUE TO DEFAULTS AND DELAYS

In the event of any loss or damages to RailTel and other parties on account of execution and/or completion of the work or any part thereof by the contractor, He may become defaulter and penalties shall be borne by Contractor itself as per various clauses defined in the tender document.

21. CONTRACTOR'S LIABILITIES FOR COSTS AND DAMAGES

- 21.1 Whenever any claim or claims for payment arises out of or under the contract against the contractor, the Executive Director or its representatives shall be entitled to withhold and also have lien to retain such sum or sums in whole or in part thereof. The contractor shall be charged a penalty as defined in tender document. .
- 21.2 The Maximum Liability of contractor to any Loss/Damages to RailTel including Liquidity Damages and Performance Bond shall be limited to 100% of Value of contract.

22. UNIT PRICES

- 22.1 The prices quoted by the Tenderer shall include the prices of Man, Machine & materials including all other charges. The prices would also include charges towards completing all necessary formalities such as submission of forwarding notes, banker's charges for Bank guarantee, Indemnity Bonds inclusive of cost of Stamp etc. as applicable and also the charges, if any, levied by the RailTel.
- 22.2 **TAXES, DUTIES, OCTROI, LEVIES ETC:** The quoted prices shall be inclusive of all taxes, duties, GST if any etc. till the completion of the contract and the CONTRACTOR shall not be eligible for any compensation on this account. Any change in statutory duties/taxes, in position /removal of any duty/taxes shall be to RailTel's account.
- 22.3 The prices quoted in the contract shall be inclusive of all taxes i.e. Income tax, GST, custom duty levied by any statutory authority or any other tax. The tenderer will indicate the details of taxes included in the unit price.

23. TERMS OF PAYMENT

- 23.1 All bills (tax invoice) shall be submitted to the authority concerned in Regional Office of RailTel.
- 23.2 Even though the maintenance charges are worked out on a monthly basis. The CONTRACTOR shall be paid once in two months the maintenance charges for two months period subject to submission of permanent restoration certificate (proforma -7) of fault occurred during the particular period jointly signed by RAILTEL & contractor representatives and on submission of test results of power, OTDR readings etc as required by the terms of the contract to the satisfaction of the Engineer.
- 23.3 Submission of bills within 10 days not by next week for previously completed two months is mandatory failing of which a penalty shall be charged as defined in tender document. Deduction from monthly maintenance charges if the Cumulative repair time of the faults in each billing period of consecutive two months exceeds by 2 hours or part thereof.
- 23.4 The amount payable against the maintenance charges is dependent upon the Cumulative Repair Time taken by the Contractor for the restoration of all OFC link cut/faults occurred during each billing period of consecutive two months. Cumulative repair time does not include the down time taken for planned works like diversion of OFC, re-termination etc

23.5 ON ACCOUNT PAYMENT FOR Submission of documents : Along with the bill (tax invoice) for payments for the respective sections, the documents as defined in tender document must be submitted duly certified by the RailTel's representative.

23.6 GST related clauses

- a. The price quoted in the offer should be firm, fixed indicating the breakup and inclusive of all taxes & duties like import, custom, Anti Dumping, CGST, SGST, IGST, UTGST etc. The offer should be inclusive of packing, forwarding, freight upto destination, insurance charges
- b. Bidder shall issue valid tax invoice to RailTel for availing proper credit of CGST/SGST/IGST/UTGST incase of award of contract. GST will not be reimbursed in the absence of valid tax invoice
- c. For all the taxable supplies made by the vendor, the vendor shall furnish all the details of such taxable supplies in the relevant returns to be filed under GST Act
- d. If the vendor fails to comply with any of the above, the vendor shall pay to purchaser any expense, interest, penalty as applicable under the GST Act
- e. In case of incorrect reporting of the supply made by the vendor in the relevant return, leading to disallowance of input credit to purchaser, the vendor shall be liable to pay applicable interest under the GST Act to the credit of purchaser. The same provisions shall be applicable in case of debit/credit notes
- f. Tenderer shall quote all inclusive rates, but there shall be break up of basic price and all type of applicable taxes such as SGST/CGST/IGST/UT GST along with respective HSN/SAC Code under GST Law (including tax under reverse charges payable by the recipient).
- g. Wherever the law makes it statutory for the Purchaser to deduct any amount towards GST at sources, the same will be deducted and remitted to the concerned authority
- h. In regards to works contract, the tenderer should have registration no. for GST in respective state where work is to be executed and shall furnish GST registration certificate along with Tender
- i. The imposition of any new tax and/or increase/in the aforesaid taxes, duties levies, after the last stipulated date for the receipt of tender of tender including extensions if any and the bidder there upon necessarily and properly pays such taxes/levies/cess, the bidder shall be reimbursed the amount so paid, provided such payments, if any, is not, in the opinion of RailTel attributable to delay in execution of work within the control of the bidder. The bidder shall, within a period of 30 days of the imposition of any such tax or levy or cess, give a written notice thereof to RailTel that the same is given pursuant to this condition, together will all necessary information including details of input credit relating thereto. In the event of non-payment/default in payment of any of the above taxes, RailTel reserves the right to with-hold the dues/payments of bidder and make payment to State/Central Government authorities as may be applicable. However, if the rates are reduced after the last stipulated date for receipt of tender, bidder has to pass on the benefits to RailTel
- j. In case the successful tenderer is not liable to be registered under CGST/IGST/UTGST/SGST act, the Railtel shall deduct the applicable GST from his/their bills under Reverse Charge Mechanism(RCM)and deposit the same to the concerned Tax Authority.

24 FINAL SETTLEMENT

Security Deposit and PBG shall be returned to the contractor as per relevant paras of preamble.

25. TAXES

- 25.1 The Contractor and all personnel employed by him shall pay such taxes like Income Tax etc as are payable under statutory laws of India and the RailTel WILL NOT ACCEPT any liability for the same.
- 25.2 Deduction of Income Tax at source as per provisions of Finance Act and Income Tax in force shall be made from the Contractor/Sub-Contractor and the amount so deducted may be credited to the Central Government.
- 25.3 Wherever the law makes it statutory for the Executive Director or its representatives to deduct any amount towards statutory deduction on Works Contract, the same will be deducted and remitted to the concerned authority.

26. INSURANCE OF MATERIALS

The Contractor shall take out and keep in force a Policy or policies of Insurance for all machine & materials including RailTel supply materials/ equipments

- 26.1 The Contractor should, however, insure the stores brought to HQ, site, against risks in consequence of war and invasion, as required under the Emergency Risk (Goods) Insurance Act enforce from time to time.
- 26.2 It may be noted that the beneficiary of the insurance policy should be RailTel or the policies should be pledged in favour of RailTel. The contractor shall keep the policy/policies current till the completion of the contract.
- 26.3 For the purpose of enabling the contractor to take the insurance cover in connection with this contract, the Executive Director or its representatives will advise the approximate price of all the RailTel supply materials to the Contractor.

27. FORCE MAJEURE CLAUSE

If at any time, during the continuance of this Contract, there are delays or some jobs are not performed, which are on account of any war, hostility, act of the public enemy, Civil Commotion, Sabotage, Fires, Floods, Earth quakes, explosions, strikes, epidemics, lockouts, any statute, statutory rules / regulations, order of acquisitions issued by any Government Department or Competent Authority etc. or acts of God, then such delays or non-completion of jobs will not be counted as non-performance of the contract & will also not attract attendant penalties.

28. SETTLEMENT OF DISPUTE AND ARBITRATION

- 28.1 Any dispute or difference whatsoever arising between the parties out of or relating to the construction, meaning, scope, operation or effect of this contract or the validity or the breach thereof shall be settled by arbitration in accordance with the Arbitration and Conciliation Act, 1996 as amended and the award made in pursuance thereof shall be

binding on the parties. The venue of such arbitration or proceedings thereof shall be New Delhi.

28.2 All arbitration proceedings shall be conducted in English. Recourse against any Arbitral award so rendered may be entered into court having jurisdiction or application may be made to such court for the order of enforcement as the case may be.

29. TERMINATION OF CONTRACT OWING TO DEFAULT OF CONTRACTOR :

29.1 If the Contractor should:

- (i) become bankrupt or insolvent
- (ii) If contractor, subcontract whole or any part of the work.
- (iii) Abandon the contract
- (iv) Persistently disregard the instructions of the RailTel's Engineer or contravene any provision of the contract, or
- (v) fail to provide man , machine & material and/or carry out the works as per contractual specifications,
- (vi) Is a defaulter as per relevant clause of condition of contract?
- (vii) promise offer or give any bribe, commission, gift or advantage either himself or through his partner, agent or servant to any officer or employee of RailTel or any person on his or on their behalf in relation to the execution of this or any other contract with the RailTel,
- (viii) in RailTel's opinion, the cessation of work become necessary, owing to paucity of funds of the Contractor, the Contractor's apparent inability to perform, non possession of equipments and tools required for the work or defective and mal-functioning equipments, non-availability of proper/nominated instrumentation, inability to provide men and material, repeated slippages and payment of penalty thereof or for any other cause deemed reasonable then and in any of these said cases, the Engineer on behalf of the RailTel may serve the Contractor with a 30 days notice in writing to that effect terminate the contract.

29.2 In such case, the value of approved materials utilized at site and of certified and accepted work done to date by the Contractor as per contract agreement shall be paid for in full at the rates specified in the Contract subject to the clause of Liquidated damages contemplated herein. All such materials become the property of the RailTel. Notice in writing from the RailTel of such termination and reason thereof shall be conclusive evidence of taking over of works from the contractor. Full security deposit will be forfeited in such case of termination.

The contractor shall be debarred from participating in the tender for executing the balance work.

29.3 Contractors defaulting in one section and having their contract terminated will not be allowed to participate in RailTel's next O & M tender for a period of 3 years in any of it's regions.

29.4 RIGHT OF RAILTEL AFTER TERMINATION OF CONTRACT OWING TO DEFAULT OF CONTRACTOR :

In the event of any or several of the courses, referred to above, being adopted:

- (a) The Contractor shall have no claim to compensation for any loss sustained by him by reason of his having purchased or procured any Man, Machine & materials or entered into any commitments or made any advances on account of or with a view to the execution of the works or the performance of the contract and Contractor shall not be entitled to recover or be paid any sum for any works thereto not actually performed under the contract, unless or until the Engineer shall have certified the performance of such work and the value payable in respect thereof and the Contractor shall only be entitled to be paid the value so certified.
- (b) The Engineer shall be entitled to take possession of any materials, tools, implements, machinery or buildings on the works or on the property on which these are being or ought to have been executed, and to retain the employ the same in the further execution of the works or any part thereof until the completion of the works without the Contractor being entitled to any compensation for the use and employment thereof or for wear and tear or destruction thereof.
- (c) The RailTel shall not be liable to pay to the Contractor any moneys on account of the contract until the satisfactorily completion of work duly verified by Railtel representative. The Contractor shall have no claim to any payment of compensation or otherwise how sever on account of any profit or advantage which he might have derived from execution of the work in full but he did not derive in consequence of termination of the contract.

- 30.** In case of failure of any contract in Delhi-NCR area during the course of contract, adjoining area O&M agency will have to take the O&M maintenance of failed section at the rate of on going contract, if desired by RailTel.

AGREEMENT

Form-I

An AGREEMENT made this _____ day of _____ Year, between RailTel Corporation of India Limited, having its registered office at 10th floor, Bank of Baroda Building, 16, Sansad Marg. New Delhi- 1100 01 and regional office at RailTel Corporation of India Ltd,Northern Region with full address, acting in the premises through Executive Director or his successor _____ of M/s. RailTel Corporation of India Limited ,.....Region (hereinafter referred to as ' RailTel') of one part and M/s _____.(Name and Full Address of Firm (Registered and regional office address) (hereinafter referred to as 'contractor') of the other part.

Whereas in response to a call for Tender for _____ **Name of Work]** as per Tender Document at **Annexure 'B'** hereto the Contractor has submitted a Tender here to and whereas the said Tender of the Contractor has been accepted for _____

_____ **[Name of Work]**
 as per copy of **Letter of Acceptance No.** _____ **dated** _____ of **Tender No. RailTel/Tender/OT/NR/O&M/17-18/64 Dated:12.02.2018 (Tender Notice date)** complete with enclosures at the accepted rates and agreed deviations from Tender Papers as per **Annexure-A** hereto and at an estimated contract value of Rs. _____(Rupees _____ Only).

Now this agreement witnesses that in consideration of the premises and the payment to be made by the Purchaser to the Contractor provided for herein below the Contractor shall supply all equipment and materials and execute and perform all works for which the said Tender of the Contractor has been accepted strictly according to the various provisions in Annexure 'A' , 'B' hereto and upon such supply, execute and performance to the satisfaction of the purchaser and the purchaser shall pay to the Contractor at the rates accepted as per the said Annexure 'A' and in terms of the provisions therein.

In the witness where of the parties have hereunto set and subscribed their respective hands and/or seals day and year respectively mentioned against their respective signatures.

Signed and delivered at _____ by Shri _____ for and on behalf of M/s. _____

The contractor within named in the presence of:

1. Signatures
- Date
- Name in Block Capitals
- Address

2. Signatures
Date
Name in Block Capitals
Address

Signed and delivered at _____ for and on behalf of RailTel by Shri _____ (Director / Projects or his successor) in the presence of:-

1. Signatures
Date
Name in Block Capitals
2. Signature
Date
Name in Block Capitals

Annexure 'A' : Copy of Letter of Acceptance
Annexure 'B' : Tender Document

GUARANTEE BOND FOR PERFORMANCE GUARANTEE

(On Stamp Paper of requisite value)

(To be used by approved Scheduled Banks)

1. In consideration of the RailTel Corporation of India Limited, registered office at 6th Floor, Delhi IT park,Block-III, Shastri Park,Delhi-110053 and regional office at RailTel Corporation of India Ltd,Northern Region (full Address) (hereinafter called "the RailTel") having agreed to exempt
 .(hereinafter called " the said Contractor(s)") from the demand, under the terms and conditions of an Agreement **No.Railtel/Tender/OT/17-18/64;Dtd 12.02.18**.....[L.O.A.No]
 Dated.....[L.O.A.Date] made between M/s.[Firm full Address] and RailTel Corporation of India Limited, for "Deployment of maintenance teams for maintenance of OFC cable network and associated equipment etc. for a period of 2 years and extendable by one year on same terms & conditions".

Name of Work/Supply of Materials] (hereinafter called "the said Agreement") of Performance Guarantee/Security Deposit for the due fulfillment by the said contractor's) of the terms and conditions contained in the said Agreement, or production of a Bank Guarantee for Rs..... (Rs. Only). We,(indicate the name of the Bank and full address) hereinafter referred to as " the Bank") at the request of. M/s..... Contractor(s) do hereby undertake to pay the RailTel an amount not exceeding Rs. Against any loss or damage caused to or suffered or would be caused to or suffered by the RailTel by reason of any breach by the said Contractor(s) of any of the terms or conditions contained in the said Agreement.

2. We, Bank (indicate the name of the Bank and full address) do hereby undertake to pay the amount due and payable under this Guarantee without any demur, merely on demand from the RailTel stating that the amount is claimed is due by way of loss or damage caused to or would be caused to or suffered by the RailTel by reason of breach by the said Contractor(s) of any of terms or conditions contained in the said Agreement or by reason of the Contractor(s) failure to perform the said Agreement. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs.
3. We, Bank (indicate the name of the Bank and full address) undertake to pay to the **RailTel** any money so demanded notwithstanding any dispute or disputes raised by the Contractor(s) / Supplier(s) in any suit or proceedings pending before any court or Tribunal relating thereto our liability under this present being, absolute and unequivocal.

The Payment so made by us under this Bond shall be a valid discharge of our liability for payment thereunder and the Contractor(s) / Supplier(s) shall have no claim against us for making such payment.

4. We, Bank (indicate the name of the Bank and full address) further agree that the Guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Agreement and that it shall continue to be enforceable till all the dues of the RailTel under or by virtue of the said Agreement have been fully paid and its claims satisfied or discharged

OFFER LETTER

Form-III

From:

M/s. _____

To,

**The Executive Director,
.....Region
RailTel Corporation of India Limited**

Sub: Deployment of maintenance teams in South East Delhi including Ghaziabad & Noida (163.274 kms) for maintenance of OFC cable network, Wi-Fi Network and associated equipment etc.” for a period of 2 years and extendable by one year on same terms & conditions

Ref: Tender Notice No. RailTel/Tender/OT/NR/O&M/17-18/64 ,dated 12.02.2018

I/We the undersigned hereby offer to execute the agreement for the above work within seven days from the date of issue of letter of acceptance of the tender in strict compliance within the provision detailed in the tender document attached.

I/We agree that this tender shall not be restricted or withdrawn and shall remain open for acceptance for and during the period of 120 days from the date of opening of the tender.

I/We fully understand the terms and conditions as contained in the tender document and we agree that the same shall apply to Our tender and I/We shall be bound by them.

Earnest money deposit @ 2% total tender value for respective tendered section drawn in favour of RailTel Corporation of India Ltd., payable atis enclosed.

The full value of the earnest money shall be forfeited without prejudice to any other right or remedies if: -

I/We do not execute the contract document within 15 days after the receipt of notice by the RailTel Corporation that such documents are ready.

I/We do not commence work within 21 days from the date of issue of letter of acceptance.

Until a formal agreement is prepared and executed, acceptance of this offer letter shall constitute a binding contract between us subject to modification as may be mutually agreed to between us and indicated in the letter of acceptance of my/our offer.

I enclose herewith the following documents in support of my credential:-

- 1. Demand draft/Pay Order No....., dated..... issued by..... for Rs..... (Rs.....only) as earnest money.**
- 2. Name and Qualification of supervisor, Technician and Splicer.**

List of the Equipments, Make, Model No. in working condition for each section of Works.

Description	Make	Model No	Year of purchase	LDC (Last Date of Calibration	Qty.
Gen Set					
Fusion Splicing Machine with 2 nos. of Cleavers					
Power Source					
Power Meter					
OTDR					
Cable Route Detector					
Vehicle					
Multimeter & AC/DC Clamp Meter					
Tools Kit					
Road-O-meter					
Blow lamp or Hot air-gun					
Tent					
Lighting Arrangement					
Spare battery with charger for splicing machine					
500 m 24 Fiber Overhead OFC					
Minimum two nos. of jointing pit to be available with contractor					
Dummy Fiber Spool					
Minimum 50 m duct with couplers					
Communication gadget: As required (Telephone, Cell phone, E-Mail etc.)					

3. No. of support staff, which will be kept for maintenance:

4. Vehicle details along with its Registration No:

Shortcomings in the above, if any, will be made good and section wise full details shall be furnished for each section to be awarded, before award of the contract by RailTel.

Yours Sincerely,

Signature of the Tenderer

Seal of the Tenderer

Place: -

Date: -

Witnessed by: -

1. Signature:
Name:
Address:

2. Signature: -
Name: -
Address:

OFFER SHEET

FOR THE SECTION: South East Delhi including Ghaziabad & Noida (163.274 kms)

Tender No: Railtel/Tender/OT/ NR/O&M/17-18/64 ;Dtd 12.02.18

Name of Work: Deployment of maintenance teams in South East Delhi including Ghaziabad & Noida (163.274 kms) for maintenance of OFC cable network, Wi-Fi Network and associated equipment etc.” for a period of 2 years and extendable by one year on same terms & conditions

SOR-A

(a)For OFC maintenance:

SI No	Description of the work	Rate, % age above / below the base price (Rs) for two years [In figures & words]
1.	Maintenance charges for OFC cable network,wifi system and upkeep of associated gears given in the tender document in South East Delhi including Ghaziabad & Noida (163.274 kms) This also includes provision of one exclusive diploma engineer per maintenance team for maintenance of Wi-Fi system provided at stations.	<u>Above/Below.....</u> <u>.....</u> <u>(+ / -).....</u>

(Signature and seal of the contractor)

Tenderer's Offer:

We hereby offer to do the work as defined in the scope of Tender No. Railtel/Tender/OT/NR/O&M/17-18/64 at Par or%
 (.....percentage in words) above / below* the rates in SOR 'A' as shown above.
 (* Strike out 'above' or 'below' as desired. In case neither is struck off 'below' will be assumed.

Signature of Contractor with seal

Performas

1. Splice loss / dB loss Vs Km in section
2. OTDR measurements
3. Power measurements
4. Patrolling reports
5. Attendance
6. Material check
7. Failure / rectification report (Form-A & B)
8. Availability of Essential equipments.
9. Maintenance contractor monthly performance(SOR-A)
10. Maintenance contractor Bill certificate (SOR-B)
11. Joint inspection report of Air-Conditioner
12. Air-Conditioner Breakdown report card
13. Air-Conditioner maintenance report card
14. Joint inspection report of D.G.Set
15. D.G.Set Breakdown report card
16. D.G. Set maintenance report card
17. List of periodical maintenance to be carried out for Engine, Alternator & Control panel.
18. Schedule of periodical maintenance of D.G. Set Engine.
19. Fiber summary report
20. Format for recording informations on running of 15 KVA, D.G.Set

Proforma-1 & 2 : Proforma for Splice loss/ dB loss vs KM & OTDR measurements in section:

Section:.....

Date:

Fiber Length:.....

Fiber No.	Km	Loss (dB)	dB/Km	OTDR EVENTS (For ascending order inter station wise)										
				Kms										
				Stn 1- Stn 2	Stn 2- Stn 3	Stn 3- Stn 4	Stn 4- Stn 5	Stn 5- Stn 6						
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														
13														
14														
15														
16														
17														
18														
19														

20														
21														
22														
23														
24/48														

**Signature of RailTel
Engineer**

**Signature of Contractor
with seal**

PROFORMA 1 FOR MEASUREMENTS ----- A -> B

PROFORMA 2 FOR MEASUREMENTS ----- B -> A

Shall be submitted within 10 days of doing the measurements.

Proforma- 3 Proforma for Power Measurement:

Section:

Date:

Fibre Length:

Fiber No.	Fiber length	dB Loss		Average	dB/Km	Remarks
		A-> B	B-> A			
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24/48						

**Signature of RailTel
Engineer**

Signature of Contractor with seal

Proforma-4 for Patrolling Reports:

Section:

For the month of: _____

Sl. No.	Date	Name of Patroller	Section		Patrolled		Remarks	Signature
			From	To	From	To		
			Station	Station	(Km.)	(Km.)		
			(Km.)	(Km.)				

Signature of RailTel Engineer

Signature of Contractor with seal

Proforma for OFC Failure / Rectification Report:

Section:

Date:

Failure Rectification:

Sl.	Description	Details
1	Name of the station &/or Pole No. of the Fault and Optical distance from nearest RailTel /Railway node.	
2	Date & Time of receiving information about the failure (Name & Designation of informer).	
3	Time of Departure of the Team from head quarter.	
4	Time of testing by OTDR to localize the fault	
5	Station from where OTDR test has been done	
6	Time of reaching to the location of fault.	
7	Time of restoration of the fault.	
8	Details of reasoning for the occurrence of the fault.	
9	i) Depth of Cable at Cut Location ii) Whether in Duct or Bare laid iii) Whether Brick protection in the block section of cut	
10	Type of restoration	Temporary / Permanent
11	If restoration is temporary give reason for temporary restoration.	
12	Reason for delay in restoration, for which contractor is not responsible (please give detailed break up of time). Separate sheet may be attached if required.	
13	Details of Rectification	
A	Period of block allowed	
B	Actual block period	
C	Reason for extension of block	

Signature of Engineer at site.

**Signature of Contractor representative
at site**

Name:

Name:

Contd/...

Page – 2

14	Reason for rectification / block.	
A	Fibre swapped earlier (high loss / break)	Yes / No
B	Rectify partial cut	Yes / No
C	Rectify Ant attack in existing joint closure	Yes / No
D	For permanent restoration (earlier temporary rectification was done)	Yes / No
E	Date of temporary rectification, if any	
F	Date on which the failure could be identified.	
G	Length of OFC used for restoration of failure.	
15	Details about ground work	
A	Length of excavation & refilling of trench.	
B	Depth of trench (should be 1.2 metre), if desired depth can not be achieved, give details of protection provided.	
C	No. of Joint closure used.	1 / 2 / Existing Joint Closure
Details about Joint Closure at Pit – 1		
D	Length of OFC of interruption cable kept in the joint pit – 1	
E	Length of OFC of main cable kept in the joint pit – 1	
F	Whether sealing of joint closure has been done properly	Yes / No
G	Depth of closure at pit – 1 from ground level (it should be 1.2 metre)	
H	Location of Joint closure / pit – 1 (give pole No. & offset from centre of nearest track)	
I	Whether the cable route plan has been modified and location of Joint closure has been indicated in the existing cable route plan.	Yes / No
Details about Joint Closure at Pit – 2		
J	Length of OFC of interruption cable kept in the joint pit – 2	

Signature of Engineer.

Signature of Contractor representative

Name:

Name: **Contd/....**

Page – 3

K	Length of OFC of main cable kept in the joint pit – 2	
L	Whether sealing of joint closure has been done properly	Yes / No
M	Depth of closure at pit – 2 from ground level (it should be 1.2 metre)	
N	Location of Joint closure / pit – 2 (give pole No. & offset from centre of nearest track)	
O	Whether the cable route plan has been modified and location of Joint closure has been indicated in the existing cable route plan.	Yes / No
15	Item used during restoration / protection	
A	RCC/FRP	
B	HDPE	
C	G.I Pipes	
D	Joint chamber	
D	Joint marker	
E	Sand filling in Joint Chamber – 1	
F	Sand filling in Joint Chamber – 2	
G	Concreting (width 30 cms, thickness 15 cms)	
H	Any other items	
16	Remark of the Team in Charge of the Section.	
17	Remark of the RailTel Representative at site.	

Signature of Contractor with seal

Signature of Engineer

Name:

Designation:

Availability of Essential Equipment

Sr. No.	Essential Equipment	Workability	Availability for the whole period	Non availability / Non workability with period
1	Generator set	Working/ Not working	Yes / No	From To.....
2	Fusion Splicing Machine	Working/ Not working	Yes / No	From To.....
3	Power source	Working/ Not working	Yes / No	From To.....
4	Power meter	Working/ Not working	Yes / No	From To.....
5	OTDR	Working/ Not working	Yes / No	From To.....
6	1 Km length dummy fiber spool.	Working/ Not working	Yes / No	From To.....
7	Hot Air Gun / Blow lamp	Working/ Not working	Yes / No	From To.....
8	Innova/Bolero / Scorpio	Working/ Not working	Yes / No	From To.....
9	Tent / Garden Umbrella	Working/ Not working	Yes / No	From To.....
10	Telephone, Cell phone	Working/ Not working	Yes / No	From To.....
11	Tool/Tackles kit,	Working/ Not working	Yes / No	From To.....
12	Garden umbrella / Tent.	Working/ Not working	Yes / No	From To.....
13	Road – O – meter.	Working/ Not working	Yes / No	From To.....
14	OFC cable detector	Working/ Not working	Yes / No	From To.....
15	Lighting arrangement like emergency light/gas light	Working/ Not working	Yes / No	From To.....
16	All sorts of patch cords	Working/ Not working	Yes / No	From To.....
17	Spare battery with charger for splicing machine.	Working/ Not working	Yes / No	From To.....
18	Aerial OFC(24 Fiber) 500 m piece (approx)	Available	Yes / No	From To.....

- Strike out which is not applicable

Signature of Railtel Engineer

Signature of Contractor
with seal

MAINTENANCE CONTRACTOR MONTHLY PERFORMANCE (SOR A)

Maintenance Section:		Headquarter:							
LOA/CA Valid up to:		Certificate for the Month of:							
Name of the Contractor:									
LOA/CA NO. & Date:									
OFC RKM:	NO of Acs in the Section:	Window Type:	Split Type:						
WHETHER REQUIRED MANPOWER, VEHICLE,EQUIPMENTS AVAILABLE DURING THE BILLING PERIOD (Yes/No):									
If "No", then furnish details of what was not available (give period of non availability):									
(i) non	availability	period	:						
from.....	To.....	Days.....							
(ii) non	availability	period	:						
from.....	To.....	Days.....							
(iii) non	availability	period	:						
from.....	To.....	Days.....							
(iv) non	availability	period	:						
from.....	To.....	Days.....							
(v) non	availability	period	:						
from.....	To.....	Days.....							
FOUR MONTHLY OTDR TEST REPORT DUE ON:		WHETHER SUBMITTED (Yes/No):							
Reconciliation statement for materials issued by RCIL has been received & ok (Yes / No):									
<u>SL NO.</u>	<u>SOR"B"WORK ORDER NO & DATE</u>	<u>WORK STATUS</u>							
<u>PENALTY (Yes/No):</u>									
Whether AC'S ,DG sets & Voltage Stabilizers & Auto Sequencers in the sections have been maintained as per tender condition:									
(Yes / No)		(If - NO: give details in separate sheet/reverse of the certificate)							
NO. OF FAILURES DURING THE BILLING PERIOD & DETAILS,CERTIFICATE THERE OF:									
S	Date / Block	Locat	From	To	Durati	Proper sealing, Jt	Whether	As-	Temporary/

N	Section	ion (offset)	(Hrs.)	(Hrs.)	on (Hrs.)	Pit, Marker, Sand filling done as per requirements (Yes/No): If "No", Then which work was not done	all fiber ok after rectificati on (Yes/No):	built Dra wing upd ated (Yes /N	Permanent
1									
2									
3									

Note:

- i. Attach the form 7'A' for all failures. Ensure that no cells of the form are left blank.
- ii. For any additional information with regard to the maintenance period, please use the reverse of this certificate and/or use additional sheet.
- iii. All over writing etc. are to be countersigned by the user of the certificate.,
- iv. For any failure duration for which "force majeure" clause is applicable separate recommendations with justifications for waiver may be attached with this certificate.
- v. A copy of certificate is to be handed over to the contractor.
- vi. The certificate should be issued every month and should reach R.O by the 15th of the following month.

List of enclosures:

(Signature, Date & Stamp of the Engineer)

MAINTENANCE CONTRACTOR BILL CERTIFICATION (SOR B)

MAINT. SEC:					HQ:		
PERIOD OF BILL :							
NAME OF THE CONTRACTOR :							
BILL NO. & DATE ;							
LOA/CA NO & DATE :					LOA/CA PERIOD :		
BILL RECEIVED ON :					BILL CERTIFIED & SENT TO R.O.ON:		
REASON WHY 'SOR-B' WORK WAS NECESSITATED (Attach separate sheet if necessary) :							
CERTIFICATE OF WORK DONE:							
Sl No	Short description of the work done	SOR B Sch ref. of the item	Unit	Unit rate as per SOR-B (Rs.)	Qty claimed by the Contractor	Actual Qty executed	Certification of quality of work done by the Contractor
1							
2							
3							
4							

- NOTE: (i) For any additional information with regard to the bill, please use the reverse of this certificate.
- (ii) All over-writing etc. are to be countersigned by the issuer of the certificate.
- (iii) Attach copy of the measurement certificate which was issued immediately after completion of the work.
- (iv) A copy of this certificate is to be handed over to the Contractor (for raising bill).
- (v) Attach contractor's bill and other forms in connections with the work done.
- (vi) The certificate with all enclosures (including bill of contractor) should be sent to R.O within 10 days from the date of receipt of the bill.

List of enclosures:

(Signature, Date & Stamp of the
Engineer of the section)

Joint Inspection Report of Air Conditioner

Station:

SI No	Defect noticed / services required	Air Conditioner			
		No. - 1	No. - 2	No. - 3	No. - 4
1	Compressor defective	Yes / No	Yes / No	Yes / No	Yes / No
2	Require Gas Charging	Yes / No	Yes / No	Yes / No	Yes / No
3	Steiner Capillary defective	Yes / No	Yes / No	Yes / No	Yes / No
4	Running Capacitor defective	Yes / No	Yes / No	Yes / No	Yes / No
5	Starting Capacitor defective	Yes / No	Yes / No	Yes / No	Yes / No
6	Motor Capacitor defective	Yes / No	Yes / No	Yes / No	Yes / No
7	Front Grill defective	Yes / No	Yes / No	Yes / No	Yes / No
8	Relay defective	Yes / No	Yes / No	Yes / No	Yes / No
9	Fan Motor defective	Yes / No	Yes / No	Yes / No	Yes / No
10	Blower Fan defective	Yes / No	Yes / No	Yes / No	Yes / No
11	Stabilizer 5 kva defective	Yes / No	Yes / No	Yes / No	Yes / No
12	Change over unit (timer) defective				
Other defects (if any)					
13					
14					
15					
16					
17	Working properly with effective cooling				

Signature of Engineer:

Signature of Contractor's Representative:

Designation:

Designation:

Name:

Name

Date:

Date:

Air Conditioner Breakdown Report Card

Number of Air Conditioner Installed: 1 / 2 / 3 / 4
(Strikeout whichever is not applicable)

Station:

Machine No	Machine Failed on		Machine Repaired on		Failure duration (hrs)	Status after repairing	Signature representative of	
	Date	Time	Date	Time		Working / Not working	Engineer	Contractor

Signature of Engineer:

Signature of Contractor's Representative:

Designation:

Designation:

Name:

Name

Date:

Date

Air Conditioner Servicing Report Card
Number of Air Conditioner Installed: 1 / 2 / 3 / 4
(strike out whichever is not applicable)

Station:

Servicing of each machine:

To be done once in three months

Description of machine & details of servicing		Servicing		Status	Signature of	
		Due date	Done on	Working / Not working	Engineer	Contractor representative
Machine No. – 1	Servicing - 1					
	Servicing – 2					
	Servicing – 3					
	Servicing – 4					
Machine No. – 2	Servicing – 1					
	Servicing – 2					
	Servicing – 3					
	Servicing – 4					
Machine No. – 3	Servicing – 1					
	Servicing – 2					
	Servicing – 3					
	Servicing – 4					
Machine No. – 4	Servicing - 1					
	Servicing – 2					
	Servicing – 3					
	Servicing – 4					

Signature of Engineer:

Signature of Contractor's Representative:

Designation:

Designation:

Name:

Name:

Date:

Date:

Joint Inspection Report of DG Set

Station:

Sr. No.	Defect noticed / services required	Status
1	DG Set fails to start	Yes / No
2	Alternator is not giving output voltage	Yes / No
3	Alternator output voltage is fluctuating	Yes / No
4	Alternator is not delivering load	Yes / No
5	Frequency of output voltage is out of range	Yes / No
6	Multi Display meter is not working	Yes / No
7	AMF panel of DG Set is not working	Yes / No
8	DG Set, Battery charger is not working	Yes / No
9	Input Contactor coil is defective	Yes / No
10	Output Contactor coil is defective	Yes / No
11	Battery is not taking load during start	Yes / No
12	Exhaust Fan is not working	Yes / No
Other defects (if any)		
12		
13		
14		
15		
16	Working properly with effectively delivering the load	

Signature of RailTel Engineer

Signature of Contractor's Representative:

Designation:

Designation:

Name:

Name

Date:

Date:

Diesel Generator Set Breakdown Report Card

(strike out whichever is not applicable)

Sr. No.	DG Set Failed on		DG Set Repaired on		Failure duration (hrs)	Status after repairing	Signature representative of	
	Date	Time	Date	Time		Working / Not working	RailTel	Contractor

Signature of Engineer:

Signature of Contractor's Representative:

Designation:

Designation:

Name:

Name

Date:

Date

Diesel Generator Set Servicing Report Card

(strike out whichever is not applicable)

Station:

Table - 1

Activities	After Every 3 months							
	Qtr – 1		Qtr – 2		Qtr – 3		Qtr – 4	
	Due date	Done on	Due date	Done on	Due date	Done on	Due date	Done on
Drain out sump oil from Engine.								
Fill the fresh Engine Oil 20 W 40.								
Replace Oil Filter Assembly/Element.								
Drain out water droplets from fuel filter bowl by Drain screw (see note - 1 below).								
Clean the fuel feed pump bowl and it's Filter.								
Clean the Air cleaner Primary Filter by just blowing air from inside to outside.								
Clean Air Cleaner filter housing by dry cloth.								
Adjust tappet clearance of the both valve as per specified Value.								
Clean the Breather Assembly.								
Take out primary Fuel Filter Element & Dispose off.								
Take out Secondary Fuel Filter Element & Fit in primary Filter Pot.								

Replace in secondary pot new Fuel Filter Element.								
Check V-Belt condition & if need Adjust it.								
Checking & Tightening of Pedestal Mounting Nut Bolts.								
Activities	After Every 3 months							
	Qtr – 1		Qtr – 2		Qtr – 3		Qtr – 4	
	Due date	Done on	Due date	Done on	Due date	Done on	Due date	Done on
Check electrolyte level in each Battery cell, if need top up.								
Clean the Battery terminals and smears them with petroleum jelly.								

Table – 2

Activities	After every 12 months		After every 18 months	
	Due date	Done on	Due date	Done on
Replace Air Cleaner primary Filter or earlier (see note - 2 below)				
Check Injectors pressure, spray pattern & Dribbling at Authorised Service Centre.				

Note:

1. According to environmental conditions, drain the water from fuel filter assembly by loosening the drain screw at the bottom of fuel filter. If humidity is more, then drain after every 15 days.
2. The filter choking time depends on user's environmental conditions, normal life of filter element is approximate 1000 hours. If choke indicator indicates choking before 250 hours or its choking frequency trend is increasing, then replace the new primary filter element.

Signature of Engineer:

Signature of Contractor's Representative:

Designation:

Designation:

Name:

Name

**List of Periodical Upkeep to be carried out for
“Engine, Alternator & Control Panel”.**

Monthly:

1. Check Diesel level in fuel tank and record
2. To check for leakage of Oil & Diesel in the D.G Set.
3. Drain out sump oil from Engine.
4. Fill the fresh Engine Oil 20 W 40.
5. Drain out water droplets from fuel filter bowl.
6. Clean the Air cleaner Primary Filter by just blowing air from inside to outside.
7. Clean the fuel feed pump bowl and it's Filter.
8. Clean Air Cleaner filter housing by dry cloth.
9. Clean the Breather Assembly.
10. To check tightness of Mechanical Components in the Engine.
11. Tighten all Bolts & Nuts in the coupling of the D.G Set.
12. Adjust tappet clearance of the both valve.
13. Check Battery voltage.
14. Check the Battery Charging Circuit in the panel.
15. Check specific gravity & level of Battery electrolyte, if needed top up.
16. Clean the Battery terminals and smears them with petroleum jelly.
17. Check the Healthiness of Electronic Panel & its Operation.
18. Check Healthiness of Mechanical Safeties in Engine & Electrical Safeties in Panel.
19. Check and monitor all mechanical readings from Gauges.
20. Check the Terminal connections inside the Alternator Terminal Box.
21. Check automatic switching on & off of cooling fan.
22. Check tightness of all connections in the terminals.
23. Check V-Belt condition & if need Adjust it.
24. Replace Oil Filter Assembly/Element.

Bi-monthly:

1. Carry out all types of Maintenance as per Monthly Visit.
2. Carry out check appearing under column 'C' mentioned below.

Quarterly:

1. All the Maintenance as per Monthly Visit.
2. Carry out check appearing under column 'D' mentioned below.
3. Carry out cleaning of Air Filter, AVR Connections etc.
4. Check for coupling healthiness.

Annual:

1. Carry out all monthly checks.
2. Carry out check appearing under column 'E' mentioned below.
3. Carry out cleaning of Air Filter, AVR Connections etc.

One and half yearly:

1. Carry out all monthly checks.
2. Check Injectors pressure, spray pattern & Dribbling from a Authorized Service Centre

**Schedule of Periodical upkeep of DG Set Engine
(Recommended by Manufacturer):**

Category	Periodicity
A	Activities on monthly basis
B	Activities on Bi-monthly basis
C	Activities on quarterly basis
D	Activities on Annual basis
E	Activities on one and half basis

Activities	A	B	C	D	E
Check Diesel level in fuel tank and record	•	•	•	•	•
Check oil Diesel leakage and diesel in the D G Set.	•	•	•	•	•
Drain out sump oil from Engine.	•	•	•	•	•
Fill the fresh Engine Oil 20 W 40.	•	•	•	•	•
Drain out water droplets from fuel filter bowl.	•	•	•	•	•
Clean the Air cleaner Primary Filter by just blowing air from inside to outside.	•	•	•	•	•
Clean the fuel feed pump bowl and it's Filter.	•	•	•	•	•
Clean Air Cleaner filter housing by dry cloth.	•	•	•	•	•
Clean the Breather Assembly.	•	•	•	•	•
To check tightness of Mechanical Components in the Engine	•	•	•	•	•
Tighten all Bolts & Nuts in the coupling of the D.G Set.	•	•	•	•	•
Adjust tappet clearance of the both valve as per specified Value.	•	•	•	•	•
Check Battery voltage.	•	•	•	•	•
Check the Battery Charging Circuit in the panel.	•	•	•	•	•
Check electrolyte level in each Battery cell, if need top up.	•	•	•	•	•
Clean the Battery terminals and smears them with petroleum jelly.	•	•	•	•	•

Check the Healthiness of Electronic Panel & its Operation.	•	•	•	•	•
Check Healthiness of Mechanical Safeties in Engine & Electrical Safeties in Panel.	•	•	•	•	•
Check and monitor all mechanical readings from Gauges.	•	•	•	•	•
Check the Terminal connections inside the Alternator Terminal Box.	•	•	•	•	•
Check automatic switching on & off of cooling fan.	•	•	•	•	•
Check tightness of all connections in the terminals.	•	•	•	•	•
Check V-Belt condition & if need Adjust it.	•	•	•	•	•
Replace Oil Filter Assembly/Element.	•	•	•	•	•
Take out primary Fuel Filter Element & Dispose off.		•	•	•	•
Take out Secondary Fuel Filter Element & Fit in primary Filter Pot.		•	•	•	•
Replace in secondary pot new Fuel Filter Element.		•	•	•	•
Check oil level in the sump by Dipstick mark.		•	•	•	•
Carry out cleaning of Air Filter, AVR Connections etc.			•	•	•
Check for coupling healthiness.			•	•	•
Replace Air Cleaner primary Filter				•	
Check Injectors pressure, spray pattern & Dribbling a Authorized Service Centre.					•

Note:

1. Accordingly environmental conditions needs, drain the water from fuel filter assembly by losing the drain screw at the bottom of fuel filter. If humidity is more than drain after every 15 days.
2. The filter choking time depends on user's environmental conditions, normal life of filter element is approximate 1000 hours. If choke indicator indicates choking before 250 hours or its choking frequency trend is increasing, then replace the new primary element.

Fiber summary for the year.....

Section:.....

Optical Length:.....Km

Date of Measurement										
		1 st four month of the year			2 nd four month of the year			3 rd four month of the year		
Fibre No.	Fibre length / deployment	Optical Length (km)	Loss (dB)	Av. Loss (dB/km)	Optical Length (km)	Loss (dB)	Av. Loss (dB/km)	Optical Length (km)	Loss (dB)	Av. Loss (dB/km)
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										

16										
17										
18										
19										
20										
21										
22										
23										
24/48										

Signature & Name of Engineer of the section

Date

Format for recording informations on running of 5/7.5/15 KVA, D.G.Set installed at each location

Information regarding running of D.G.Set and pouring of "Diesel Oil"

Sr. No.	Date	Hour meter reading (Analog)	Hour meter reading (on MDM)	Reading of "Oil level indicator" before pouring Diesel Oil	Quantity of "Diesel Oil" poured (Litre)	Reading of "Oil level indicator" after pouring Diesel Oil	"Diesel Oil" poured by Maintenance team / RailTel representative	Signature of Maintenance Team representative, if, Diesel Oil is poured by Mntce team	Signature of RailTel representative
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									

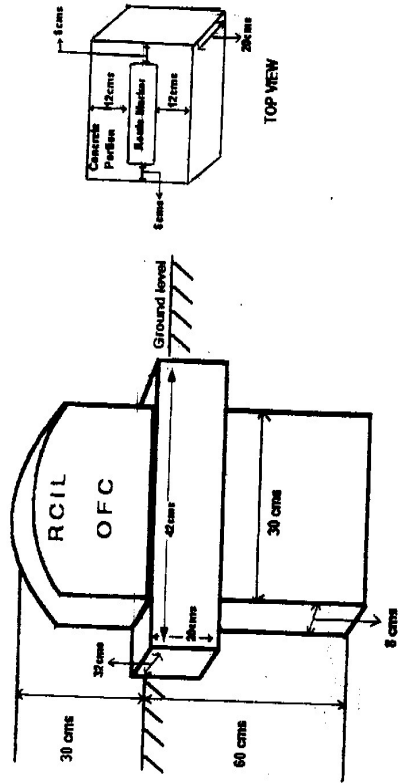
* For test run, The RailTel Engineer will note Hour-meter eading at start ,at stop & duration of run of D.G.set & jointly sign the report with contractor.

BID DATA SHEET

The section consists of provisions that are specific to various clauses of Tender Document.

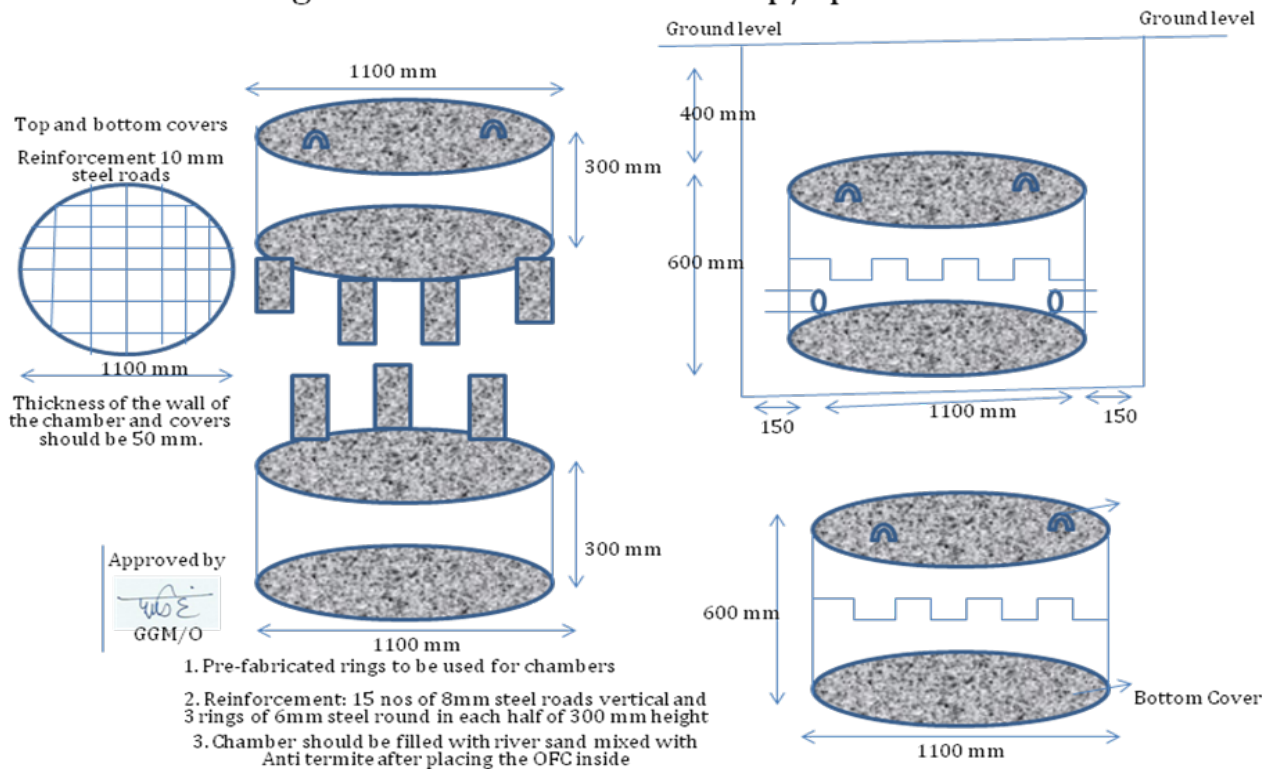
Reference	Description
Tender Notice	<p>Last date of submission</p> <p>Address: Executive Director, Northern Region, RailTel Corporation of India Limited, 6th Floor, Block III, Delhi IT Park, Shastri Park, Delhi – 110053</p> <p>Date & Time: 03.4.18 upto 15:00hrs</p> <p>Date & Time of opening of tender: 03.4.18 at 15:00hrs</p>
Offer letter	<p>Validity of offer</p> <p>120 days (one hundred twenty days)</p> <p>From the date of opening of tender</p>
Tender condition- clause para 3 of preamble	<p>Eligibility criteria</p> <p>As per clause 3.1 for Technical eligibility and clause 3.2 for financial capability</p>
Tender condition – preamble para 9	<p>Earnest money</p> <p>As per para 9 of preamble</p>
Tender Condition- Preamble para 21	<p>Performance bank guarantee- As per para 21 of preamble</p>
Tender condition- preamble para 22	<p>Security Deposit</p> <p>As per para 22 of preamble</p>

OFC ROUTE MARKER / JOINT MARKER



RAILTEL CORPORATION OF INDIA LTD. EASTERN REGION.	
PROPOSED BY Jyoti 21/03/06	APPROVED BY Sudip 21/03/06 DEMO/OL/NER.

Diagram of construction of loop/splice chamber



END