



RAILTEL CORPORATION OF INDIA LIMITED

No.275E, EVR Periyar Saalai, 4th Floor, Office of the Chief Administrative Officer,
Southern Railway, Egmore, Chennai- 600008

TENDER DOCUMENT

TENDER NO: RailTel/OT/SR/MAS/2016-17/SN 19-21
Dt: 05.04.2016

Name of Work:

Construction of Masonry Huts, Supply and Installation of AC Units & DG Sets,
drawing / Laying of OFC and Electrical cable in Chennai Territory as per the
Schedule of work and specifications given in this Tender Document.

Tender Document Sold to : M/s.



RailTel Corporation of India Limited

A Government of India (Ministry of Railways) Undertaking

No.275E, EVR Periyar Saalai, 4th Floor, Office of the Chief Administrative Officer, Southern Railway, Egmore, Chennai- 600008

visit www.railtelindia.com, Tel: 040-27821134 Fax: 27820682,

Corp.& Regd.Office: 10th Floor, Bank of Baroda Building, 16-Parliament Street, New Delhi-110001.

NOTICE INVITING TENDER

Tender Notice No: RailTel/OT/SR/MAS/2016-17/SN 19-21 Dt: 05.04.2016

RailTel Corporation of India Ltd., Chennai invites sealed tenders from established contractors with proven experience for the work of “Construction of Masonry Huts, Supply and Installation of AC Units & DG Sets, drawing / Laying of OFC and Electrical cable in Chennai Territory” as per the Schedule of work and specifications given in this Tender Document”:

1 Tender Notice No. RailTel/OT/SR/MAS/2016-17/SN 19 Dt. 05.04.2016			
Description of work	No. of Locations	Estimated value (Rs)	EMD in Rs.
Construction of Masonry Huts, Supply and Installation of AC Units & DG Sets, drawing/ Laying of OFC and Electrical Cable in Chennai Territory (3 Locations i.e on POPs at Cuddalore , Pondicherry and Chidambaram) as per the Schedule of Works and specification givens in the Tender Documents	3	50,59,718.28	1,01,194.36
2 Tender Notice No. RailTel/ OT/SR/MAS/2016-17/SN 20 Dt. 05.04.2016			
Description of work	No. of Locations	Estimated value (Rs)	EMD in Rs.
Construction of Masonry Huts, Supply and Installation of AC Units & DG Sets, Drawing / Laying of OFC and Electrical in Chennai Territory (3 Locations i.e on Arani, Thiruvannamalai and Kanchipuram) as per the Schedule of works and specifications given in the Tender Document.	3	50,58,730.04	1.01,174.60
3 Tender Notice No. RailTel/ OT/SR/MAS/2016-17/SN 21 Dt. 05.04.2016			
Description of work	No. of Locations	Estimated value (Rs)	EMD in Rs.
Construction of Masonry Huts, Supply and Installation of AC Units & DG Sets, Drawing / Laying of OFC and Electrical in Chennai Territory (3 Locations i.e on Mettupalayam, Ooty and Coonoor) as per the Schedule of works and specifications given in the Tender Document.	3	50,78,487.88	1.01,569.75

a)	Sale of Tender Documents.	From: 21.04.2016
b)	Closing of sale of Tender Documents	24.05.2016 at 17.00 hrs (by hand)
c)	Submission of tender documents.	25.05.2016 on 11.00 hrs.
d)	Opening of tender documents.	25.05.2016 on or before 15.00 hrs.
e)	Earnest Money (EMD) per section as specified above will be payable by Bank Draft / F.D.R in favour of RailTel Corporation of India Limited. Secunderabad	
f)	Cost of Tender Document for each is. Rs. 5725/- inclusive of VAT @14.5% (Rs.6300/- if required by post incl. of VAT 14.5%) payable by Bank Draft in favour of RailTel Corporation of India Limited. Secunderabad from any scheduled bank (Non-Refundable)	

Eligibility Criteria:

Tenderer must have completed successfully and satisfactorily at least one similar work costing not less than 35 % of the value of the tendered work during the preceding three years (i.e. current financial year and three previous financial years) executed for Govt. /PSUs/ Reputed private sector Telecom service providers / Telecom Infrastructure Provider with satisfactory performance report from the client.

Cost of Tender Document shall be paid in the form of Demand Draft drawn in favour of **RailTel Corporation of India Limited, Secunderabad** from any scheduled bank. Tender document can be purchased from the Office of The Executive Director (Southern Region), RailTel Corporation of India, Secunderabad, on any working day or can be downloaded from the web site www.railtelindia.com. Documents down loaded from web site shall accompany the payment for the cost of the document in the form of D.D as mentioned at clause “F” above during the submission of Tender document. Documents received without the cost of tender will summarily be rejected **The tender document should be sealed in a cover duly superscripted tender No., and name of the work** and shall be dropped in the Box kept in the office of Group General Manager, RailTel Corporation of India Private Limited, No.275E, EVR Periyar Saalai, 4th Floor, Office of the Chief Administrative Officer, Southern Railway, Egmore, Chennai- 600008, as mentioned at clause “c” above. RailTel is not responsible for delay or loss in transit. The tenderer may be present at the time of opening of tenders, if they desire. The tender offers are deemed to be valid for acceptance for a period of 120 days from the date of opening of the tender. Late/delayed/ incomplete tenders and tenders with insufficient EMD will be summarily rejected.

Tender Notice and Tender Document are also available at our website www.railtelindia.com

SD /-
(Sandeep Kumar)
 Addl. GM/RCIL/MAS
For Group General Manager/MAS)

1.0 **INSTRUCTIONS TO TENDERERS**

1.1 **NAME OF THE WORK:**

“Construction of Masonry Huts, Supply and Installation of AC Units & DG Sets, drawing / Laying of OFC and Electrical cable in Chennai Territory as per the Schedule of work and specifications given in this Tender Document.

1.2 **TENDERING INSTRUCTIONS:**

- 1.2.1 The tender document in original along with the schedule filled in and **duly signed and stamped on each page**, complete in all respects shall be enclosed in an envelope. The Tenderer shall also enclose in his offer that they accept all the RailTel’s terms and conditions and have not offered any counter clauses. This envelope shall then be sealed and following shall be superscripted on the envelope:-

“**TENDER NOTICE No: RaiTel/OT/SR/MAS/2016-17/19-21 Dt: 05.04.2016**”

- 1.2.2 Tender cover should be addressed to **The Group General Manager, RailTel Corporation of India Ltd, No.275E, EVR Periyar Saalai, 4th Floor, Office of the Chief Administrative Officer, Southern Railway, Egmore, Chennai- 600008** The Tender should be deposited in the Tender Box in the office of the Group General Manager, RailTel Corporation of India Ltd, Chennai before **closing of the tender box at 11.00 hrs. on 25.05.2016.**

- 1.2.3 Tender sealed and super scribed as mentioned above can also be sent by Registered Post with acknowledgement due, to the above mentioned Office. The Tenders which are received after the time and date specified above shall not be considered. For delays by Department of Posts/courier agency RailTel will not be responsible.

- 1.2.4 **Offer:** The tenderers are required to quote percentage **rate for** the Schedule both in figures and words as indicated in the schedule. If there is any discrepancy in the quoted rates both in figures and words, the rates quoted in words will be taken as final.

1.2.5 **EARNEST MONEY**

The tenderer shall deposit earnest money along with the tender in favour of “**RailTel Corporation of India Limited**” payable at **Secunderabad** in the form of **Demand Draft/FDR** of any Nationalized/Scheduled Bank. Bank Guarantee for earnest money is not accepted. Tenders without earnest money will be summarily rejected. The earnest money of successful tenderer will be retained as part of retention money for due and faithful fulfillment of a contract. The earnest money of the other tenderers shall be returned to them. No interest will be payable on the earnest money deposit.

- 1.2.6 **Bidder may quote for multiple tender based on its capacity in one tender document but the cost of the tender document shall have to be submitted for each tender quoted by them accompanied with requisite Earnest Money deposit (EMD) as prescribed below for which he has participated. The tender document should be sealed in a cover duly superscripted**

1.2.7 However, small scale Units registered with NSIC under single point registration scheme are exempted from cost of Tender Document and EMD. Valid documents i.e., registration of NSIC should be provided for this to get exemption from submission EMD.

The EMD details for each section are as follows:

1	Tender No. RailTel/OT/SR/MAS/2016-17/SN 19 Dt. 05.04.2016.			
	Description of work	No. of Locations	Estimated value (Rs)	EMD in Rs.
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1.3 **DOCUMENTS TO ACCOMPANY THE OFFER:**

The following documents as laid down hereunder are to be attached with their offer.

- 1.3.1 Tender document including schedule of work duly signed and stamped in each page.
- 1.3.2 Earnest Money Deposit (DD/FDR)
- 1.3.3 Work done/Experience certificate

1.3.4 Turn over certificate.

1.4 **GENERAL**

1.4.1 All corrections and over-writing must be attested.

1.4.2 The Tenderer should read the conditions carefully and also see the schedule of work/supply before submitting the offer.

1.4.3 No counter conditions for the clauses laid down will be permitted.

1.4.4 The Tenderer must confirm to the specifications/special conditions.

1.4.5 Tenderer while quoting , may specifically note the following :-

- a) The offer shall be inclusive of all taxes / duties as applicable at present.
- b) Any statutory variation in taxes / duties, shall be to RailTel account and shall be admissible on production of valid documentary evidence. Tenderer must submit the taxes / duties structure considered by him while quoting the rates in a separate sheet including contractor percentage for each line item and it is mandatory.
- c) Octroi duty / Municipal taxes, if any, shall be borne by the Contractor.
- d) RailTel will deduct income tax at source as per rates in vogue.

1.4.6 Change of location due to administrative reason shall not invite any additional cost, contractor has to complete the work in the same rate only.





GENERAL TERMS AND CONDITIONS OF CONTRACT

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RAILTEL

GENERAL TERMS AND CONDITIONS OF CONTRACT

1. DEFINITION OF TERMS:

The words and terms specified in this section or pronouns in their stead, shall unless repugnant to the meaning or context thereof for the purpose of this contract and the specifications thereof, have the meanings as given below:

- 1.1 "RAILTEL" shall mean "RailTel Corporation of India Ltd, Chennai", issuing the tender and order and shall include its successors and assigns, as well as their authorized officers/representatives including consultants, if any, to the said "RAILTEL"
- 1.2 The "PROJECT" shall mean the entire work as described in the contract or LOA.
- 1.3 "CONTRACTOR" shall mean the successful BIDDER whose Bid has been accepted by RAILTEL and on whom the 'Contract' or 'Order' is placed by RAILTEL and in this contract it is the aforesaid contractor and shall, unless repugnant to the context, include their heirs, legal representatives, successors and permitted assigns
- 1.4 "SUB-CONTRACTOR" shall mean the person or firm named in the 'Contract' or 'LOA' to whom the work has been sublet by the CONTRACTOR with the prior consent in writing of RAILTEL and shall include their heirs, legal representatives and successors
- 1.5 "MANUFACTURER" refers to a person or firm who is the producer and supplier of material or designer and fabricator of equipment to be supplied to RAILTEL or the CONTRACTOR or both under the Contract or LOA.
- 1.6 "INSPECTOR" shall mean the authorized representative(s) appointed by or on behalf of RAILTEL for the purpose of inspection of materials / equipment / works
- 1.7 "SITE" shall mean the actual places in the proposed "Project" as detailed in the 'Specification' or other places where work has to be executed under the Contract
- 1.8 "MONTH" shall mean English calendar month
- 1.9 "SPECIFICATIONS" shall mean all directions, various technical specifications, provisions and requirements attached to the contract, as originally agreed and as modified from time to time by RailTel subject to price adjustments mutatis mutandis which pertain to the method and manner of performing the work or works to the quantities and qualities of the work or works and the materials to be furnished under the contract for the work or works as may be amplified or modified by RailTel-In-Charge during the performance of the contract in order to provide for unforeseen conditions or in the best interest of the work or works. It shall also include the latest edition including all addenda / corrigenda of relevant Bureau of Indian standard specifications and other relevant codes governing a particular activity or facility. The term shall include the specifications specified in the contract in respect of each type of material/goods to be used in the execution of contract.
- 1.10 "BID" or "TENDER" shall mean the proposal/document that the BIDDER submits as his offer with price and conditions in the requested and specified format as detailed in 'Specifications' / 'Tender documents
- 1.11 "BILL OF QUANTITIES" means the priced and completed bill of quantities forming part of the bid / tender.
- 1.12 "PLANT" or "EQUIPMENT" and "WORK" or "WORKS" shall mean the goods to be supplied, work to be executed and services to be provided by the Contractor under the 'contract' or 'LOA'
- 1.13 "LETTER OF INTENT" or "LETTER OF ACCEPTANCE" means the formal, acceptance by RAILTEL of the bid / tender of the bidder

- 1.14 "CONTRACT" shall mean the agreement under these presents between RAILTEL and the Contractor for the execution of works, including all the schedules contained in the agreement and all the documents, such as Tender Documents, General Conditions of Contract, Job Specifications, the accepted Schedule of Rates, General Requirements, Time Schedule for completion of the job, Drawings, Letter of Intent, agreed variations, if any, etc.,
- 1.15 "CONTRACT PRICE" shall mean either the lumpsum price named in the Contract / LOA subject to the provision contained hereof or the total amount payable to the Contractor for the entire execution and full completion of the work as calculated from quoted unit rates and estimated or measured quantities for various items of work as set out in the Schedule of Quantities attached to the Contract / LOA
- 1.16 "DATE OF CONTRACT" shall mean the calendar date on which RAILTEL and Contractor have signed the 'Contract', "EFFECTIVE DATE OF CONTRACT" shall mean the calendar date on which RAILTEL shall have issued to the Contractor the 'Letter of Intent' or as otherwise mutually agreed to between RAILTEL and the Contractor
- 1.17 "CONTRACTUAL COMPLETION PERIOD" shall mean the time period agreed for completing the execution of and passing the tests on completion of the works or any section or part thereof as stated in the contract (or as extended subsequently) calculated from the commencement date. The 'Contract' shall be executed as agreed between the Contractor and RAILTEL in the Letter of Intent / Contract / LOA.
- 1.18 "TESTS ON COMPLETION" means the tests specified in the Contract or otherwise agreed by RAILTEL and the Contractor which are to be made by the Contractor, to the satisfaction of RAILTEL before the works or any section or part thereof are taken over by RAILTEL
- 1.19 "APPROVED" and "APPROVAL" where used in the specification / tender shall mean respectively approved by and approval by RAILTEL. When the words 'Approved', 'Approval', 'Subject to Approval', 'Satisfactory', 'Equal to', 'Proper', 'Requested', 'As directed', 'Where directed', 'When directed', 'Determined by', 'Accepted', 'Permitted', or words and phrases of like import are used, the approval, judgment, direction, etc., is understood to be a function of RAILTEL or its designated representative qualified technically to the respective acts.
- 1.20 "CONTRACTOR'S WORKS" or "MANUFACTURER'S WORKS" shall mean and include land and other places which are used by the Contractor or his sub-Contractor for the manufacture of 'Equipment' or performing the 'Works'
- 1.21 "VIRTUAL COMPLETION" shall mean all work is completed as directed and the 'Site' is cleared to the satisfaction of RAILTEL; but prior to and conditional on / subject to the issuing of "Completion Certificate", or "Final Certificate
- 1.22 WORDS importing persons shall include Firms, Companies, Corporations and other Bodies, whether incorporated or not
- 1.23 WORDS importing singular shall also include the plural and vice versa, where the context requires
- 1.24 "DRAWINGS" shall mean: All drawings new or revised furnished by RAILTEL forming part of tender as a basis for proposals and forming part of Contract / LOA and made part thereof
- 1.25 "ACT OF INSOLVENCY" shall mean any Act of Insolvency, as defined by the Presidency Towns Insolvency Act, or the Provincial Insolvency Act or any amending statute
- 1.26 Wherever FIGURES are given in the Contract under the word "ELEVATION" or any abbreviation of it, or where figures representing elevations are given, unless otherwise stated, shall mean the ELEVATION relative to the permanent Bench Mark fixed by RAILTEL for the particular work, located as shown on site plan or a datum level established by RAILTEL

- 1.27 "WRITING" shall include any manuscript, typewritten or printed statement issued under or over signature of RAILTEL and / or Contractor / vendor with seal
- 1.28 "RAILTEL-IN-CHARGE" shall mean the person nominated by "RAILTEL" from time to time and shall include those who are expressly authorized by RAILTEL to act for and on its behalf for all functions pertaining to operation of this contract / LOA.
- 1.29 "NOTICE IN WRITING" or "WRITTEN NOTICE" shall mean a notice in written, typed or printed characters sent (unless delivered personally or otherwise proved to have been received) by registered post to the last known private or business address or the address of the registered office and shall be deemed to have been received when in the ordinary course of post it would have been delivered.
- 1.30 "CONSTRUCTIONAL PLANT" shall mean all appliances or things of whatsoever nature required in or about the execution, completion or maintenance of the works or temporary works (as defined hereinafter) but does not include materials or other things intended to form or forming part of the permanent work
- 1.31 "TEMPORARY WORKS" shall mean all temporary works of every kind required in or about the execution, completion or maintenance of the works
- 1.32 "THE COMPLETION CERTIFICATE" shall mean the certificate to be issued by RAILTEL or RAILTEL-In-Charge when the works have been completed to their satisfaction and in accordance with the criteria stipulated in the Contract. This certificate shall only be tentative and subject to the final certificate as below
- 1.33 "THE FINAL CERTIFICATE" in relation to the work, shall mean the certificate regarding the satisfactory compliance or otherwise of the various provisions of the contract, which is issued by RAILTEL, after the period of liability is over
- 1.34 "THE PERIOD OF LIABILITY" in relation to a work shall mean the specified period from the date of issue of the completion certificate up to the date of issue of final certificate, during which time the Contractor stands responsible for rectifying all defects, at its own cost, rate and responsibility.
- 1.35 "HOLD BACK" shall mean the amount of money deducted from a Contractor's request for payment for works completed. It shall be retained by RAILTEL until such time as established in the contract: to guarantee full and satisfactory performance. No interest shall be paid to the Contractor on this money
- 1.36 "PRICE VARIATION CLAUSE" shall be that written formula, which sets out how a given price(s) in the tender and contract documents can be modified during the course of contract. It shall be mutually agreed to by all the parties at the outset of the project, and shall be so deemed
- 1.37 ALL REFERENCES TO ANY NOTICES, MODIFICATIONS, CLARIFICATIONS, INSTRUCTIONS, APPROVALS, AGREED, MUTUALLY AGREED, ACCEPTANCES, DEMANDS, ASSURANCES, INTIMATIONS and the like and / or their alternative forms wherever appearing shall mean such acts IN WRITING signed by the authorized representative, unless otherwise specified
- 1.38 "GOODS" shall mean the materials to be supplied by the Contractor to be used in the execution of the contract or LOA and such goods or materials shall conform to the specifications incorporated in the tender or bid
- 1.39 "FIRST QUALITY" shall mean the level of quality available as "the best in the market" at the material time, as the term in quotes is generally understood in respect of such brand / make / model etc., as the appropriate consultant may recommend / have recommended

- 1.40 "ACCEPTING OFFICER" is officer authorized by RAILTEL to accept the contract and modify/change/alter the terms thereof who shall be the final authority in respect of any disputes that may arise under this contract.
- 1.41 WORK: The works to be executed on the basis of the LOA issued by RAILTEL from time to time in accordance with the contract or part thereof as the case may be and shall include extra, additional, altered or substituted works as required for purpose of the contract.
- 1.42 CONSTRUCTION EQUIPMENT: All appliances and equipment of whatsoever nature for the use in as for the execution and completion of the works under the contract.
- 1.43 CONTRACT DOCUMENTS: Collectively the Agreement with all its schedules and annexures, if any, the tender document, Quotations designs, drawings, specifications, special and general conditions of contract, letter of acceptance, agreed variations if any and such other documents constituting the tender and acceptance thereof as specifically agreed and incorporated in the letter of acceptance.
- 1.44 ENGINEER-IN-CHARGE (EIC)/ RAILTEL-IN- CHARGE: The representative of RAILTEL at site acting under the orders of RAILTEL to supervise the work and in other matters
- 1.45 DEFECTS LIABILITY PERIOD: The period from the date of virtual completion up to the date of expiry of specified maintenance period during which the Contractor is responsible for rectifying defect, if any, that may appear in the works at free of cost. The liability period shall exist, RAILTEL issues a LOA file closing certificate
- 1.46 SECURITY DEPOSIT: The deposit held by RailTel as security for due fulfillment of the contract.
- 1.47 ACCEPTANCE and ACCEPTANCE DATE: shall mean the acceptance by RAILTEL in writing after following the procedure. Such acceptance certificate shall be given by RAILTEL only upon receiving invoice from the Contractor, which shall be treated as acceptance. Acceptance Date shall mean the date on which the Final bill amount paid to Contractor by RAILTEL.
- 1.48 READY FOR SERVICE: shall mean the delivery of the materials, the Installation, the corresponding interconnection, the successful completion of the Field Acceptance Tests.
- 1.49 DOCUMENTATION: shall mean the As-Constructed Plans, general instruction, drawings, diagrams and other written material as well as electronic material (such as in the form of CD-ROM or Floppy) that the Contractor is required to provide to RAILTEL under this Contract.
- 1.50 MATERIAL: shall mean all the Hardware that are included in the scope of Supply as detailed in a specific Order placed and confirmed hereunder and conforming to the respective Specifications.
- 1.51 SUPPLY PRICE: shall mean the aggregate price payable by RAILTEL to the Supplier for the material supplied and delivered at site. The pricing information must be detailed as specified in the contract.
- 1.52 FIELD ACCEPTANCE TESTING: shall be considered accomplished, after the Site Acceptance Tests are satisfactorily completed, if the system meets all the specifications detailed in the contract.
- 1.53 INFORMATION: shall mean technical, financial and commercial information and data relating to Party's respective businesses, finances, planning, facilities, products, techniques and processes and shall include, but is not limited to, discoveries, ideas, concepts, know-how, techniques, designs, specifications, drawings, blueprints, tracings, diagrams, models, samples, flow charts, data, computer programs, disks, diskettes, tapes, marketing plans, customer names and other technical, financial or commercial information and intellectual properties, whether in written, oral or other tangible or intangible forms.
- 1.54 INSTALLATION: shall mean the assembling of the materials, the loading, unloading, the testing and the successful operation of the system, in accordance with the defined technical characteristics

and with the installation and security rules in effect under the laws of India and, as applicable, in the various states of India.

- 1.55 LOA shall mean the Initial Order and the subsequent orders issued by RAILTEL specifying the scope of the work to be done by the Contractor periodically.
- 1.56 PARTY OR PARTIES: shall mean RAILTEL or the Contractor(s).
- 1.57 PROPOSAL OR THE OFFER: shall mean the document prepared by the Contractor in response to the tender of RAILTEL, including any modifications, clarifications requested and accepted by RAILTEL.
- 1.58 PROJECT MANAGEMENT: means the Contractor(s) will use well established Project Management techniques to meet the scheduled dates and time frames, and fulfilling all obligations as specified in Division of Responsibilities.
- 1.59 SCOPE OF SUPPLY: shall mean the totality of the supplies that the Contractor(s) is obliged to provide to RAILTEL.
- 1.60 SERVICES: shall mean the system design & engineering (as applicable for access network), installation, supervision and training that the Contractor(s) is required to provide to RAILTEL under the Contract.
- 1.61 SERVICES CONTRACT PRICE: shall mean the aggregate price payable by RAILTEL to the Contractor for the Services provided hereunder.
- 1.62 SYSTEM: shall mean the Outside Plant cable network or a part thereof, as the case may be, to be implemented by the Contractor and operated by RAILTEL in the Territory.
- 1.63 TERRITORY: shall mean the geographical area specified in India by RAILTEL
- 1.64 TIME SCHEDULE: shall have the meaning set forth in the LOA in terms of this contract.

2. SEVERABILITY:

If any provision of this document is invalid or unenforceable or prohibited by law, this document shall be considered divisible as to such provision and such provision shall be inoperative and shall not be part of the consideration moving from either party to the other and the remainder of this document shall be valid and binding and of like effect as though such provision was not included herein.

3. DENIAL OF PARTNERSHIP / JOINT VENTURE:

It is hereby expressly agreed and declared that:

- 3.1.1 These presents do not create any partnership or joint venture or associations of persons between the parties hereto.
- 3.1.2 Each of these parties hereto has undertaken obligations and has rights specified herein on their own account and is principal to principal and not on behalf of, or on account of or as agents of any of them or of anyone else

Nothing contained in this document shall be deemed to constitute a party as agent of the other party for any reason or purpose whatsoever.

4. SCOPE OF CONTRACT / LOA:

- 4.1 It is understood and agreed by the **Contractor** that the work described shall be complete in every detail, even though every item necessarily involved is not particularly mentioned. Each

component of the works that is provided must meet all its intended functions over the expected or stated service life.

4.2 The **Contractor** shall carry out the work or complete the system in every respect, in accordance with the contract / LOA and accompanying drawings and in accordance with the directions and to the satisfaction of RailTel-In-Charge.

5. CONTRACTOR TO ACQUAINT HIMSELF AS TO THE CONDITIONS OF WORK / SUPPLY:

5.1 The **Contractor** shall make allowance for all contingencies in the contract price and shall not raise any claims or objections against **RAILTEL** in any matters which include but not limited to the nature of work, site conditions, right of way, surface and water conditions, local conditions and all other related issues.

5.2 The acceptance and execution of the contract shall be construed as evidence that such an examination was made and later claims for labour, equipment or materials required for difficulties encountered shall not be allowed.

5.3 The prices quoted by the **Contractor** are and shall be construed to be based on his own knowledge and judgment of the conditions and hazards involved.

5.4 The **Contractor** shall be deemed always to have satisfied himself as to the correctness and sufficiency of the Tender and of the Rates and Prices stated in the Schedule of Quantities all of which, shall except in so far as it is otherwise provided in the Contract, cover all his obligations under the Contract.

6. MATERIALS:

6.1 **RailTel** will not supply any material.

6.2. Materials supplied / provided by the Contractor:

6.2.1 All materials supplied or used shall be as per **RAILTEL**'s specifications and shall be new and of first quality approved by Bureau of Indian standards. **RAILTEL** shall the right to accept or reject the same. Where foreign or partly foreign equipment or materials are offered or intended to be used, the fact must be specifically stated and brought to the notice of **RAILTEL** for prior written approval.

6.2.2 Unauthorized substitution of materials delivered in error or to wrong description or quality, or supplied in excess of the quantity ordered, or rejected goods, shall be returnable only at the expense of the **Contractor**. The **Contractor** shall bear among other things relevant charges, handling, transportation and insurance expenses.

6.2.3 It shall be the **Contractor's** responsibility to safeguard all materials against theft, loss, damage or whatsoever.

7. DESPATCH:

7.1 The goods, if any, to be supplied by the **Contractor** shall be dispatched and delivered well in time to suit the completion period specified in the contract, or as per completion schedule mutually agreed upon.

7.2 Failure to meet the stipulated completion periods for inadequate supply of goods, or for any other reasons, shall be subject to the provisions of "**Liquidated Damages**" under this agreement.

8. SUB-CONTRACTS:

8.1 The **Contractor** shall not sub-contract any part or the whole of the work, without the prior consent of RAILTEL. The **Contractor** may sub-contract parts of the contract, if necessary and in the interest of the project and only to sub- Contractors approved in advance in writing by RAILTEL. The **Contractor** shall be responsible for transmitting specifications and pertinent data to sub- Contractors and ensuring full compliance by them. In such cases even if written permission is given, it shall not relieve the **Contractor** from his obligations under the contract and he shall be fully responsible for all supplies / work done by his sub-Contractors. The **Contractor** shall also be exclusively responsible for the effective planning and co-ordination of the work from sub-Contractors. to ensure proper integration with all works.

8.2 It shall be as per the specifications of **RAILTEL** and **RAILTEL** shall have sole discretion to withdraw its consent and have the remaining part performed or executed by any other party of RAILTEL's choice.

8.3 Notwithstanding anything contained herein, RAILTEL shall have sole discretion to nominate sub-contractors for specialized activities/works or even for part of specified works, before or during the course of Work, wherever required in the opinion of RAILTEL on account of slow progress, poor quality or Contractor's lack of sufficient mobilization.

9. REJECTION:

9.1 The **Contractor** will notify **RAILTEL** well in advance when an item of work is taken up requiring its prior clearance, such as recording of levels, measurement or shuttering before pouring concrete, or when samples are required to be taken by it for testing during the progress of work. The **Contractor** will provide all assistance to **RAILTEL** in fulfillment of its duties. In the event that the goods or the works are defective or non-conforming to the specifications and standards, **RAILTEL** shall exercise its right of rejection or rectification of the defects / shortcomings and charge the **Contractor** for all expenses incurred thereby. All goods supplied or procured shall be factory tested and duly passed by RAILTEL.

9.2 Further, **RAILTEL** shall also be entitled to reject the goods and work executed by the **Contractor** which may not be conforming to specifications, within a reasonable time after installation or first use of the said goods and materials, if testing or inspections subsequently prove these to be non-conforming and charge the **Contractor** for all expenses, direct and consequential incurred thereby.

10. SECRECY CLAUSE

10.1 The technical information, drawings, specifications and other related documents forming part of the tender or the contract are the property of **RAILTEL** and shall not be used for any other purpose, except for execution of the contract. All rights including rights based on prior user, copyrights and rights in the event of grant of a patent and registration of designs are reserved exclusively by RAILTEL.

10.2 In the event of any breach of this provision, the **Contractor** shall indemnify **RAILTEL** from any loss, cost or damage or any other claim whatsoever from RAILTEL's collaborators and / or any other parties claiming from or through them or from any other party in respect of such breach.

11. **RAILTEL's INSTRUCTIONS:**

11.1 RAILTEL may, in its absolute discretion, from time to time, issue further drawings and / or instructions, details, directions, modifications, variations, specifications and explanations etc; which are collectively referred to as RAILTEL's INSTRUCTIONS

12. **CHANGES IN THE WORK:**

12.1 If it becomes necessary or desirable to modify the contract and the specifications and the drawings etc; which may result in quantity variation **beyond plus 100% or minus 25 %** of the original scope, **RAILTEL** may, without invalidating the contract, direct that changes shall be made accordingly and **no increase in Rates** shall be given.

12.2 The rates for quantity variations, substituted items and new items of work shall be based on the following in the order indicated:

- i) If a rate exists in the contract for an item having the same or similar specifications as proposed in the revised specifications, the Contractor shall carry out the work at the same rates as already existing in the contract.
- ii) If the rates cannot be determined as at (i) above, or do not exist, the rates shall be derived from the rates for a similar class of work in the contract.
- iii) If the rates cannot be determined as at (i) and (ii) above, the **Contractor** shall be paid after negotiation based on market rate and contractors profit not more than 10%.

12.3 Except for minor modifications in the work, not involving extra cost and not inconsistent with the purposes of the work and except on an emergency endangering life or property, no extra work or change shall be made unless in pursuance of a written order from **RAILTEL** authorizing the extra work or change and no claim for any addition to the contract amount shall be valid unless so ordered.

12.4 During course of execution of the main work, if any new works to be carried over in the same LOA, Contractor need to execute the same on issuing of LOA amendment or any deviation note or LOI for the same.

13. **CONTRACTOR'S OBLIGATIONS**

The **Contractor** shall proceed with execution of the contract in the best and most expeditious manner by engaging qualified careful and efficient workers and complete the work strictly in conformity with the plans, drawings schedules and RAILTEL instructions.

14. **SUPPLY OF TOOLS, EQUIPMENT AND OTHER MATERIALS**

14.1 For full completion of the work the **Contractor** shall, at his own expense, procure all necessary tools and equipment, depending on the type of work awarded for securing quality, safe conduct and rate of progress of work. The **Contractor** shall also provide all protective measures for safety and storage of equipment under such conditions.

14.2. The Contractor shall ensure that all the tools, equipment and other materials required for the work are mobilized and are available. RAILTEL shall have the right to mobilize any / all Equipment as may be required so as to make them available for the work. Expenses / Charges incurred by RAILTEL in respect here of shall be reimbursed by the Contractor or adjusted in the payments to be made to the contractor by RAILTEL

14.3 The **Contractor** shall not dispose of, transport or withdraw any tools, tackles, equipment and material provided by him for the contract without taking prior written approval from **RAILTEL**, who at all times shall have right to refuse such permission, if in **RAILTEL** opinion, the same will adversely affect the safe, efficient or expeditious completion of the project.

15. PROGRAM AND CONSTRUCTION SCHEDULE

15.1 Upon award of contract and before commencement of the work, the **Contractor** shall prepare a detailed and comprehensive work completion schedule, for review and approval by RAILTEL. The **Contractor** shall also submit to RAILTEL, a CPM / Bar chart for the works at the works / project site within one (1) week from effective date of contract. These "approved" schedule and procedures shall form the basis of all the works to be performed by the Contractor and shall be adhered to by the Contractor subject to modification by RAILTEL

15.2 The **Contractor** will inform and present in person to RAILTEL, the name, designated Project Manager along with his Organizational structure, site engineers / staff for assessment of their suitability & capability in handling the Works, awarded by RAILTEL. In case the designated representative of RAILTEL is not satisfied with suitability or capability of the Contractor's staff, the **Contractor** shall locate and present an alternative person for assessment of staff to RAILTEL. However the **Contractor** shall deploy only those particular staff, who have been assessed and approved by RAILTEL representative for handling the Works awarded by RAILTEL. Even during the course of the Work, if RAILTEL observes and passes instructions to the **Contractor** to replace a particular staff or employee / sub contractor, the **Contractor** shall abide by RAILTEL instructions in this matter at no extra cost to RAILTEL and take immediate steps to minimize the delay in execution of the Work.

15.3 Failure to respect the completion dates stipulated in the LOA or instruction shall entitle **RAILTEL** to the application of the "Liquidated Damages" under this Contract

16. EXECUTION OF WORKS.

16.1 All site works are to be protected with diversion signs, barricades, danger signs, warning tapes etc.

16.2 Prior to excavation, the existing cable / pipe etc., belonging to other utilities must be located so as to avoid damage to these utilities by taking trial pits at appropriate distances. Any damage to other utility shall be informed to **RAILTEL** and shall be made good by the Contractor to the entire satisfaction of the affected utility or as per existing law at his own cost.

16.3 While trenching Contractor shall do shoring wherever required.

16.4 Any damage to checkered tiles / granites / structures belonging to shops or other establishments shall be informed to **RAILTEL** and shall be made good by Contractor to the entire satisfaction of the affected utility or as per existing law at his own cost.

- 16.5 The **Contractor** at all times shall work in co-ordination with RAILTEL's representative / supervisory staff and offer them all reasonable facilities to become familiar with the erection, operation and maintenance of the equipment.
- 16.6 In respect of observations of local rules and regulations, administrative orders, working hours and the like the **Contractor** and his personnel shall fully cooperate with **RAILTEL** and follow **RAILTEL** instructions. The **Contractor** shall be responsible for compliance with all statutory requirements including personnel related matters.
- 16.7 In the event of the **Contractor** being prevented by causes not attributable to him from proceeding with the work, before he temporarily withdraws from the site he will obtain permission of **RAILTEL**, and shall hand over to **RAILTEL** for safe keeping during his absence such contract material that he is unable to use / erect and **RAILTEL** will furnish a receipt for material so handed over. However, such storage of material by **RAILTEL** shall be at the risk of the **Contractor**.
- 16.8 The **Contractor** shall not sell, assign, mortgage, hypothecate or remove equipment or materials which have been installed or which may be necessary for the completion of the contract, without the prior written consent of RAILTEL
- 16.9 The **Contractor** shall, throughout the execution and completion of the works and the remedying of any defects therein, take all reasonable steps to protect the environment on and off the site and to avoid damage or nuisance to persons or to property of the public or others resulting from pollution, noise or other causes arising as a consequence of his methods of operation and shall be exclusively liable and responsible for the same
17. **TEST & INSPECTION:**
- 17.1 The **Contractor** shall provide for the purpose of inspection, ladders, lighting and equipment for testing, necessary instruments etc., at his own cost. He shall make these available to RAILTEL, if requested, at no cost.
- 17.2 Any work not conforming to the drawings, specifications, or codes for execution shall be rejected forthwith and the **Contractor** shall carry out the rectification at his own cost and within the time specified for the completion of that type of work
- 17.3 All results of inspection and test will be recorded in the inspection reports. Performa of which shall be approved by RAILTEL. These reports shall form part of the completion documents.
18. **EXAMINATION OF WORK BEFORE COVERING UP:**
- 18.1. The **Contractor** shall give advance notice to **RAILTEL** or its representative whenever any work or materials are intended to be covered up in the earth, in bodies or walls or otherwise to be placed beyond the reach of measurement, in order that the work may be inspected or that correct dimension may be taken before being so covered, placed beyond reach of measurement. In default of such notice, the same shall, at the option of **RAILTEL** or its representative. be uncovered and measured at the **Contractor's** expenses. The work shall again be covered up at the **Contractor's** expense.

19. EXAMINATION OF FINISHED WORK:

When finished work is taken down for the purpose of inspection the Contractor shall bear all the expenses incidental thereto in the event that the said work is found to be defective. **RAILTEL** shall pay the cost incidental thereto in the event there is no default of notice and if it is also in accordance with the specifications

20. PROTECTION TO EXISTING PLANT AND EQUIPMENT

- 20.1. During construction of the project, any existing plant and equipment may be operated in and around the vicinity of the project site. In such cases, the **Contractor** shall protect all existing plant, structures, piping, conduits, equipment and facilities against damage during his construction operations
- 20.2. **RAILTEL** shall not be responsible or held liable for any damage to person or property consequently upon the use, misuse or failure of any construction tools and equipment of **RAILTEL** used by the **Contractor** or any of his sub- Contractors, even though such construction tools and equipment may be furnished, rented or loaned to the **Contractor** or any of his sub-Contractors. The **Contractor** accepts all responsibility in this connection and agrees to indemnify and save harmless **RAILTEL** from any and all claims for said damages arising out of or resulting from said use, misuse or failure of such construction tools and equipment
- 20.3. Adequate lighting at and near all the storage, handling, fabrication, pre- assembly and erection sites for properly carrying out the work and for safety and security shall be provided and maintained by the **Contractor**. If the **Contractor** fails to provide all the above listed facilities, **RAILTEL** may provide such facilities as it may deem necessary and charge the cost thereof to the **Contractor**. In any case, the **Contractor** shall be liable for all damages and consequences arising out his neglect in this regard.

21. STORING CONTRACTOR'S MATERIALS & CLEAN UP OF WORK SITE

- 21.1 All soil, filth or other matter taken out of any trench, sewer, drain, cesspool or other place shall not be deposited on the surface, but shall at once be carted away by the Contractor from the site of work, for suitable and proper disposal as directed by **RAILTEL**.
- 21.2 During erection, the **Contractor** shall, without any additional payment, at all times keep the working and storage areas used by him free from accumulation of loose or combustible material, waste materials, or rubbish. If the **Contractor** fails to comply with these requirements, **RAILTEL** will proceed to clear those areas and the expenses incurred by **RAILTEL** in this regard shall be payable by the **Contractor**.
- 21.3 The **Contractor** shall be responsible for the safe and secure storage of any material or equipment.

23. OFFICES, TOOL ROOM, STORES, WAREHOUSE ETC.,

The **Contractor** shall be fully responsible for storage of all materials covered in his scope and also of those issued by **RAILTEL** and shall acquire necessary site storage space as may be required at his own cost. Similarly it is the responsibility of the **Contractor** to establish his own site office / tool room. No space for storage, office or for any other purpose would be provided by **RAILTEL**. The Contractor has to establish Warehouse and Security at appropriate site in order to store materials issued by **RAILTEL**. Security of all materials 24 hours a day is the sole

responsibility of the Contractor and the Contractor has to engage a Professional and registered Security Agency for the same.

24 STATUTORY APPROVALS:

- 24.1 It shall be the **Contractor's** responsibility to furnish all particulars and furnish necessary application forms to the concerned authorities on behalf of **RAILTEL**, if so required, and satisfy all requirements and obtain approval.
- 24.2 The **RAILTEL** shall provide any assistance possible and shall arrange for payments to be made to various Agencies upon submission of the required estimates.

25. DAY/NIGHT WORK:

- 25.1 The **CONTRACTOR** is normally expected to work during night time only and is required to complete the work in all respects as stipulated elsewhere. However, day work may be stipulated by the **RailTel** or permitted in exigencies, with prior approval of the RailTel.
- 25.2 Sufficient lights must be provided by the contractor to safeguard the workmen and the public and to afford adequate facilities for properly placing and inspecting the materials and work when the night work is in progress.
- 25.3 Where night work is in progress, all excavated areas shall be barricaded and shall be provided with red lights at the cost of Contractor and all other work areas shall be well illuminated to prevent accidental falls etc.

26. WORK IN MONSOON AND DEWATERING:

- 26.1. The construction and erection work entails working in monsoon conditions, which will affect productivity and require additional effort to protect the works. The **Contractor** must maintain an adequate labour force and appropriate equipment, as may be required for the project and plan and execute the work according to the prescribed schedule. No extra rate will be considered for such work in monsoon.
- 26.2. During monsoon and at all times during construction, it shall be the responsibility of the **Contractor** to keep the construction site free from accumulation of water at his own cost. Prior to any concreting, the prepared excavations must be totally free of water and the **Contractor** must have on hand the necessary pumping equipment to maintain the works dry. Standby equipment shall also be on site prior to start of concreting.

27. CONTRACT PRICE

- 27.1 Contract price shall include all traveling expenses to and from the site, allowances, living expenses, wages, salaries, overtime, benefits and all compensations to be paid for the **Contractor's** skilled and unskilled workmen, supervisors, clerical staff, watch and ward staff, store-keepers etc. It shall also include insurance carried by the **Contractor** for his workers, workmen's compensation, tools and tackles, plants and aids, third party liability and any other insurance as called for in General & Special Conditions of this contract. As well, the price includes cost of all licenses and permits, cost of procurement, loading, transport and unloading of all his material, tools and tackles, instruments and construction aids to and from the site, cost of providing office, tool room, quarters, canteen workshops and all facilities at site as may be required, cost of supply of all material required under the Contract, applicable taxes (ST, WCT

etc.) and duties, performance of all services as required under the Contract and satisfactorily executing the complete work under the Contract. If any fees are to be paid to the statutory authorities for testing, inspection or calibration, these shall be considered by the **Contractor** and included in his pricing and if not so done, the same shall be the **Contractor's** responsibility.

27.2 Income Taxes on Contractor's / Sub-Contractor's Staff / Employees: The Contractor's staff, personnel and labour will be liable to pay personal income taxes in respect of such of their salaries, wages and allowances, as may be applicable. The **Contractor** shall ensure that all such taxes are duly paid on time by its personnel and indemnify RAILTEL in this connection.

28. BREAKDOWN OF UNIT PRICES:

The **Contractor** may be required to furnish an item wise breakdown of Materials, manpower, consumables, overhead etc. showing quantities and proportional contract prices of the physical units included in the Contract, if so requested by **RAILTEL** for their accounts. In addition **RAILTEL** may request unit prices for works not fully defined in the Contract; but which might be necessary during the execution of the project.

29. GUARANTEE PERIOD & OBLIGATIONS DURING THAT PERIOD:

29.1 A minimum of twelve (12) calendar months from the date of completion of clearing all deficiencies, unless otherwise agreed in writing by **RAILTEL**, shall be deemed to be the Guarantee Period. The Project Technical Specifications may impose more stringent warranty periods, for specific elements of the project. In such case the latter shall govern. The contract shall not be considered as completed until **RAILTEL** has certified in writing that works have been completed and the Guarantee Period shall commence from the date of such certificate. In case any defects in the system/work due to bad materials, and/or bad workmanship develop before the expiry of the above period, the **Contractor**, on notification by **RAILTEL**, shall rectify or remedy the defects at his own cost, by making his own arrangements to provide materials, labour, equipment and any other appliances required in this regard. Should the **Contractor** propose any substitutions to rectify the problem that deviate from what was initially installed; prior approval from the **RAILTEL** shall be required in writing.

29.2 The retention amount will be returned to the Contractor only after the expiry of this Guarantee period or on provision of Bank Guarantee. In case even on due notification by **RAILTEL**, the Contractor fails to rectify or remedy the defects, **RAILTEL** shall have the right to get this done by the other agents and recover the cost incurred by deductions from the Security Deposit amount due to the Contractor, incase this cost is within the value of the security amount, and if not, the Contractor shall be liable to pay to **RAILTEL** the balance amount with all attendant costs including interest as may be worked out by **RAILTEL**.

29.3 The guarantee period shall be extended by the length of time required to make any adjustments, changes or repairs necessary to fulfill the guarantee.

29.4 The **CONTRACTOR** shall obtain similar guarantees from each of his SUB- CONTRACTORS. However, the overall responsibility shall lie with the **Contractor** to provide these to the **RAILTEL** along with full contract documentation during closing out of each site.

30. RELEVANCE OF WORK SCHEDULES

The Work Schedules are intended to direct the progress of work and have no bearing on the payments to be made to the **CONTRACTOR by RAILTEL**, which shall be consistent with the agreed Payment Schedule notwithstanding anything set out elsewhere. The release of funds shall be as in the following clauses.

31. TIME AND ORDER OF COMPLETION AND LIQUIDATED DAMAGES:

31.1 If the Contractor has not started the work within 7 days from the date of issue of LOA date / LOI date / RAILTEL Schedule / ROW permissions/ issue of Materials whichever is later, RAILTEL shall be entitled to cancel the LOA / Contract.

31.2 Both the parties agree that in respect of obligations undertaken by each of them under this Agreement, **time is the essence**.

31.3 **Completion time** / period indicated in the LOA / Contract shall be deemed to be of the essence of the Contract. No necessity for an extension of time is anticipated, but if untoward or extraordinary circumstances should arise beyond the control of the **Contractor**, which, in the opinion of **RAILTEL**, should entitle the **Contractor** to a reasonable extension of time, such extension may be refused or granted, but shall not operate to relieve the **Contractor** of any of his obligations, under the contract.

31.4 If this Contract is delayed at any time in the commencement, or during the progress of the work by any act, delay or neglect of **RAILTEL** or their employees, or by any other **Contractor** engaged by **RAILTEL**, or by changes ordered in the work by **RAILTEL**, or by Force Majeure, the time of completion shall be extended by a reasonable period as may be mutually agreed upon application from the **Contractor** at the time of such special circumstances occurring and not later than 7 days of occurring.

31.5 In the event that provision of Service is delayed beyond the dates specified in the LOA or agreed timelines duly signed by Contractor in kick off meeting, for any reasons attributable to the **Contractor**, then the **Contractor** shall pay to **RAILTEL** liquidated damages for such delay, calculated on the basis of the total price of the LOA value at the rate of **0.5%** per week of delay in completion of Project subjected to a maximum of 10%.

31.6 PENALTIES:

i. Poor Response: If the Contractor fails to respond within 24 hrs from the receipt of communication from the Site Engineer, RAILTEL would initiate necessary action and impose penalty up to an amount of Rs.10,000/= (Rs. Ten thousand only) for each case.

ii. Non-standard of working practice: As per Government conditions the Contractor is supposed to use caution boards, DG sets, barricading stands, stone dust etc. If the Contractor is failed to mobilize the above equipment/materials in time, RAILTEL will not allow the Contractor to execute the job further. Any penalties levied by the local/Statutory Authorities on RAILTEL shall be borne by the Contractor, an additional amount of Rs.10,000/= (Rs. Ten thousand only) per day will be charged as penalty for non-mobilizing basic requirements and towards the delay in completion of the job.

iii. Public Sensitivity Issues: If the contractor fails to respond within 12 Hrs for any public sensitivity issue. RAILTEL will take necessary action for rectifying/attending to the grievance of general public, whatever the cost incurred for rectification by RAILTEL, will be deducted from the Contractor. In addition to this an equal amount will be deducted as RAILTEL service charges and or up to a value of Rs.5 Lakh whichever is lower.

iv. Poor Performance: If the Contractor fails to deliver/ fail to follow the schedule of work or time lines as agreed by both the parties. In such cases RAILTEL will terminate the work / contract to that extent, a communication shall be sent to Contractor stating the failures. The balance work shall be allotted to other Contractor and completes the Project. In case of termination the following payment procedure shall be adopted:

While settling the bill, RAILTEL will impose penalty up to 10% of the value of the contract. Further, an amount of 15% of bill value will be retained for one year towards defects liability period. All these charges shall be deducted from pending payments / any and all BG'S / Securities.

v. Poor Supervision: If the Contractor fails to arrange adequate supervisors at Site, RAILTEL will do the supervision and deduct Rs.1, 000/= (Rupees One thousand only) per person per shift as supervision charges.

31.7 RAILTEL shall have absolute right at its sole discretion to encash any / all Bank Guarantee(s) provided by the Contractor, under this or any other Contract(s) with RAILTEL or forfeit Security Deposit in the event of:

- i. The LOA issued by **RAILTEL** is not executed by the Contractor to the satisfaction of **RAILTEL** within the time specified by **RAILTEL** and or
- ii. The Contractor fails to rectify any / all damages during the course of work even after directions from **RAILTEL** to do so and or
- iii. The Contractor fails to perform his obligations under this Contract and or
- iv. **RAILTEL** is put to loss, damage, what so ever in view of RAILTEL.

and **RAILTEL** shall have right to Cancel the LOA or the Contract besides encashing the BG / s or Earnest Money Deposits whichever is available with **RAILTEL** or may proceed against the **Contractor** for recovery of the said penalty.

32. Deleted

33. DELAY AND EXTENSION OF TIME:

33.1 If in the opinion of RAILTEL, the work is delayed for justifiable reasons, **RAILTEL** shall make a fair and reasonable extension of time for completion of the Contract Works. Such justifiable reasons shall include:

- i. force majeure , or
- ii. by reason of proceedings taken or threatened by or disputes with adjoining or neighboring RAILTEL's or public authorities, or
- iii. by the works or delays of other Contractors or Tradesman engaged by RAILTEL ,or
- iv. by reason of "RAILTEL's instructions", as per relevant clause indicated elsewhere in this agreement, or
- v. for delays in RAILTEL supply of basic materials.

- 33.2 In all cases, the Contractor shall prove how such factors affected the works and to what extent.
- 33.3 In case of strike or lockout, the **Contractor** shall, as soon as possible, give written notice thereof to RAILTEL, but the **Contractor** shall nevertheless constantly use his endeavors to prevent delay and shall do all that may reasonably be required to the satisfaction of **RAILTEL** to proceed with the work. However, extension of the time shall be without prejudice to **RAILTEL** invoking any of the other conditions/stipulations in these General Conditions of the Contract. No extension of time shall be granted for monsoon conditions.
34. **SUSPENSION:**
- 34.1 The **Contractor** shall, on the order of RAILTEL, suspend the progress of the works or any part thereof, for such time or times and in such manner as **RAILTEL** may consider necessary and shall during such suspension, properly protect and secure the works so far as necessary in the opinion of the RAILTEL. Such suspension is warranted when:
- i. Provided for in the contract; or
 - ii. Necessary for the proper execution of the works, or by reason of weather conditions; or
 - iii. Necessary for the safety of the works or any part thereof; or
 - iv. Necessary by some default on the part of the **Contractor**.
- 34.2 The **Contractor** shall not be entitled to extra costs (if any) incurred by him during the period of suspension of the works; but in the event of any suspension ordered by **RAILTEL** for reasons other than aforementioned then **RAILTEL** shall have the right to grant such extension of time of completion of the works as **RAILTEL** may consider proper.
- 34.3 If the progress of works or any part thereof is suspended on the order of the **RAILTEL** for more than three months at a time, the **Contractor** may serve a written notice on **RAILTEL** requiring a permission within fifteen (15) calendar days from receipt thereof, to proceed with the works or that part in regard to which progress is suspended. If such permission is not granted within that time, the **Contractor** may, but is not bound to, treat the suspension where it affects part only of the works, as a deletion of such part, or where it affects the whole of the works, as an annulment of the Contract by RAILTEL.
- 34.4 No Idling charges will be paid to the Contractor in case of suspension of work due to local problems/delays, supply of material, issue of drawings etc. from RAILTEL
35. **TERMINATION OF CONTRACT BY RAILTEL:**
- 35.1 **RAILTEL** shall be entitled to interrupt and terminate the contract at any time should, 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, or from any other cause whatsoever. In such case, the value of approved materials utilized at site and of certified and accepted work done to date by the **Contractor** 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**.
- The amounts held in the "hold back" account shall likewise be released, within a reasonable time after making the adjustments if any, payable by the Contractor. Notice in writing from the **RAILTEL** of such termination and the reason thereof shall be conclusive evidence of taking over of works from the Contractor.

- 35.2 The **Contractor** shall have no claim for any payment or compensation or otherwise howsoever on account of any anticipated profits or advantages which he did not derive from the execution of the work in full.
- 35.3 **RAILTEL** shall also be entitled to terminate the contract at any time, If in the opinion of **RAILTEL**, the **Contractor** or any person acting through / under him attempts to or does any or all of the following acts.
- a) has obtained the contract by paying or agreeing to pay a consideration/ commission
 - b) has obtained the contract as a result of ring tendering.
 - c) Offer or give any person in **RAILTEL** any gift or consideration.
- 35.4 **RAILTEL** may, in its opinion if so warranted, choose to rescind the Contract,
- If the **Contractor** -
- a) Becomes bankrupt or insolvent; or is proceeded against for winding up, insolvency or bankruptcy; or for any offences involving moral turpitude, or its accounts are frozen by any statutory body or court order;
 - b) Makes an arrangement with or assignment in favour of his creditors, or agrees to carry out the contract under a Committee of inspection of his creditors; or
 - c) Being a Company or Corporation, goes into liquidation (other than a voluntary liquidation consented by **RAILTEL** for the purpose of amalgamation or reconstruction); or
 - d) Assigns the contract or any part thereof otherwise than as provided in clause "SUB-CONTRACTS" of these conditions; or
 - e) Makes substitutions to materials, to designs, or to sequencing of works, without the prior approval of **RAILTEL**; or
 - f) Abandons the contract as previously defined; or
 - g) Disregards the written instructions of the **RAILTEL**, or contravenes any provision of the contract; or
 - h) fails to adhere to the agreed program of work; or
 - i) fails to remove materials from the site or to pull down and replace work, after receiving from **RAILTEL**, notice to the effect that the said materials or works have been condemned or rejected, as mentioned elsewhere in these conditions; or
 - j) fails to take steps to employ competent or additional staff and labour, as required elsewhere in these conditions; or
 - k) fails to afford **RAILTEL** or **RAILTEL**'s Representatives proper facilities for inspecting the works or any part thereof, as required elsewhere in these conditions; or
 - l) promises, accepts, offers or gives either himself or through his partners, agents or servants, any bribe, commission, gift or advantage to any officer or employee of **RAILTEL**, or to any person on its or on their behalf, in relation to the execution of this Contract; or
 - m) is deemed to have done or omitted to do one or more of the above.
 - n) fails to adhere to the agreed quality and specifications.
 - o) fails to fulfill any condition under this contract
 - p) and for any other reasons at the sole discretion of **RAILTEL**.
- 35.5 Providing that reason has been established for rescinding, then and in any of the aforementioned cases, **RAILTEL** may serve the **Contractor** with a notice in writing to that effect. If the **Contractor** does not respond within seven (7) calendar days after the delivery to him of such notice, proceed to make good the default, in so far as the same is capable of being made good and carry on the work or comply with such directions as aforesaid, to the entire satisfaction of

RAILTEL, then **RAILTEL** shall be entitled, after giving forty eight (48) hours notice in writing, under the hand of the **RAILTEL**, to rescind the contract in whole or in part or parts (as may be specified in such notice) and adopt either or both in the following courses:

- a) Carry out the whole or part of the work from which the **Contractor** has been removed, by the employment of the required labour, equipment and materials. The cost of such works shall include but not be limited to: handling and lifting at site, freight, transport and execution insurance, supervision and all incidental charges.
- b) Measure up the whole or part of the work from which the **Contractor** has been removed and get it completed by another **Contractor**. The manner and method in which such work is completed shall be to the entire discretion of **RAILTEL**, whose decision shall be final.

35.6 In both cases (a) and (b) mentioned above, the **RAILTEL** shall be entitled (1) to appropriate the whole or such portion of the Bank Guarantee's as it may consider fit, and (2) to recover from the Contractor the cost of carrying out the work in excess of the sum which would have been payable according to the certificate of the **RAILTEL** to the Contractor, had the works been carried out by the Contractor under the terms of the contract, such certificate being final and binding upon the Contractor. However, such recovery shall be made only when the cost incurred by **RAILTEL** is in excess of the Bank Guarantee's forfeited from the Contractor and shall be limited to the amount by which the cost incurred exceeds the Bank Guarantee's thus forfeited.

35.7 The amounts thus to be forfeited or recovered may be deducted from any moneys then due or which at any time thereafter may become due to the **Contractor** by the **RaiTel** under this or any other contract or otherwise.

35.8 In such an event as contemplated herein above:

- a) The **Contractor** shall have no claim for compensation for any loss sustained by him by reason of his having purchased or procured any 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. The **Contractor** shall not be entitled to be paid any sum for any work thereto actually performed under the contract, unless and until **RAILTEL** 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) **RAILTEL** or the **RAILTEL**'s representatives shall be entitled to take possession of any materials, tools, implements, machinery and buildings on the works or on the property on which these are being or ought to have been executed and to retain and employ the same in the further execution of 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 for destruction thereof.
- c) **RAILTEL** shall not be liable to pay the **Contractor** any moneys on account of the contract until the expiry of the period of warranty and thereafter until the final costs of completion, maintenance damages for delay in completion (if any) and all other expenses incurred by **RAILTEL** have been ascertained and the amount thereof certified by **RAILTEL**. The **Contractor** shall then be entitled to receive only such sum or sums (if any) as **RAILTEL** may certify would have been due to him upon due completion by him, after deducting the said amount. If such amount shall exceed the sum which would have been payable to the **Contractor**, then the **Contractor** shall upon demand, pay to **RAILTEL** the amount of such

excess and it shall be deemed a debt due by the **Contractor** to the **RAILTEL** and shall be recoverable accordingly.

36 **ASSIGNMENT:**

36.1 The agreement shall be binding on and ensure for the benefit of **RAILTEL** and the **Contractor**. The **Contractor** shall not assign or transfer any rights, duties, obligations or benefits conferred under this agreement, to any person without prior consent in writing from **RAILTEL**. Any such assignment, if permitted, shall not relieve the **Contractor** of any of its obligations or liabilities under the Agreement, and if so required by **RAILTEL**, the **Contractor** shall procure that any such assignee shall enter into a deed of warranty in favour of **RAILTEL** in terms, which are satisfactory to **RAILTEL**. However, **RAILTEL** shall without the prior permission of **Contractor**, assign or transfer the benefits or liabilities of the whole or any part of the Agreement.

37 **Deleted**

38 **COMMUNICATIONS TO BE IN WRITING:**

All notices, communications, references and complaints made by the **RAILTEL** or his representative or the **Contractor** inter se concerning the works shall be in writing. Notices, communications, references or complaints not in writing shall not be recognized.

39 **COMPLIANCE WITH STATUTORY LAWS/REGULATIONS:**

39.1 The **Contractor** warrants that all goods/systems supplied and work done under the contract shall conform to all applicable City, State and Central laws, ordinances and all relevant statutory regulations. Further, the **Contractor** shall indemnify, keep indemnified and defend and save **RAILTEL** harmless for loss, cost or damage by reason of any actual or alleged violation thereof.

39.2 The **Contractor** shall ensure compliance with all relevant statutes, laws, rules and regulations of the Central or State Government or any other authority such as the Workmen's Compensation Act, Payment of Wages Act, Minimum Wages Act, Employees State Insurance Act, Employees Provident Fund Act, Apprentices Act, Contract Labour Regulation and Abolition Act, Child Labour (Prohibition and Regulation) Act, etc., and any / all other applicable statutes and all modifications thereof, in connection with labour/employees engaged by him or his sub-**Contractors** in the work. The **Contractor** shall furnish to **RAILTEL** all necessary documents, challans etc., in respect of payments towards Provident Fund/ Employees State Insurance and under other statutes on periodical basis as required by **RAILTEL**.

39.3 **Contractor** must follow all norms and set procedures of Indian Labour Laws and regulations in the execution of the Works. The **Contractor** shall not engage minors/children under minimum age as specified in the applicable Indian Labour Laws.

39.4 The **Contractor** shall conform to the provisions of Indian Boiler Regulation, Indian Factory Rules, Indian Electricity Act and any other acts of legislature relating to the work and to the regulations and bylaws of any authority and of any water, lighting and other companies and/or Authorities with whose systems the Project is proposed to be connected and shall, before making any variations from the Drawings or specifications that may be necessitated, give to **RAILTEL** written notice, specifying the variations proposed to be made and the reason for making it apply for instructions thereon.

39.5 The **Contractor** shall indemnify **RAILTEL** in respect of all actions, suits, claims and demands brought or made against **RAILTEL** by the workmen of the **Contractor**, or any other person or persons whomsoever, in connection with the works, or in respect of any matter or thing done or omitted to be done by the **Contractor** in the execution of or in connection with the works,

- notwithstanding that all reasonable and proper precautions may have been taken by Contractor. He shall also indemnify against any loss or damage to **RAILTEL** in consequence of any action or suit or proceedings (civil and/or criminal) being brought against **RAILTEL** for anything done or omitted to be done in connection with the execution of the work. The indemnity given by the **Contractor** as aforesaid shall extend to making good all claims and demands proceedings (civil and /or criminal) arising out of losses/damages to property of every description and kind, the infringement of any legal right, as well as injury or accident to any person resulting in death or otherwise.
- 39.6 The **Contractor** agrees to and does hereby accept full and exclusive liability for compliance with all obligations imposed by the Employees State Insurance Act 1948 and the **Contractor** further agrees to defend, indemnify and hold **RAILTEL** harmless from any liability or penalty which may be imposed by the Central, State or Local Authority by reason of any asserted violation by the **Contractor** or sub-**Contractor** of the Employee's State Insurance Act 1948, and also from all claims, suits or proceeding that may be brought against **RAILTEL** arising under, this Contract, whether brought by Central or State Government authority or any political sub-division thereof.
- 39.7 The **Contractor** agrees to file with the Employee's State Insurance Authorities, the declaration form and all forms which may be required in respect of **Contractor's** or sub-**Contractor's** employees, and who are employed in Work provided for under this Contract as required under the said Act. The **Contractor** shall deduct and secure the agreement of the sub-Contractors to deduct the employees contribution as per the first schedule of the Employees State Insurance Act from wages and affix Employee's contribution cards at wages payment intervals. The **Contractor** shall remit and secure the agreement of sub-Contractor to remit to the concerned Bank, Employee's State Insurance Corporation Account, the employees contribution's required by the said Act.
- 39.8 The **Contractor** agrees to maintain all cards and records as required under the Act in respect of employees and payments and the **Contractor** shall secure the agreement of the sub-Contractor to maintain such records. Any expenses incurred for the contribution, making contributions or maintaining records shall be to **Contractors** or sub-**Contractors** account. **RAILTEL** shall have all the right to retain such sum as may be deemed fit and necessary from the Contract Price, until the **Contractor** shall have submitted documentary proof relating to payment of all its contributions under Employees State Insurance Act, Provident Fund Act, etc.
- 39.9 The **Contractor** shall maintain and ensure that all their personnel and its sub-Contractor's personnel involved in the Project, where necessary identity cards and shall also maintain/ cost to be maintained by its sub-Contractors all necessary records in respect of its personnel and its sub-Contractor's personnel as required in Law. The **Contractor** shall be responsible for all expenses that may be incurred in this connection.
- 39.10 Neither the **Contractor** nor the **Contractor's** permitted sub-**Contractors** nor the employees of any of them shall be deemed for any purpose to be employees of **RAILTEL**. Accordingly, neither the **Contractor** nor the **Contractor's** Sub-**Contractor** nor their employees shall be entitled to any of the benefits under any employee benefit plan **RAILTEL** presently has in effect or may hereafter put into effect.
- 39.11 The **Contractor** shall ensure that no employee of the **Contractor** or of any **Sub-Contractor** or Sub-supplier engaged by the **Contractor** is treated in law as an employee of **RAILTEL** and the **Contractor** shall fully indemnify **RAILTEL** in this regard.
- 40 STATUTES, REGULATIONS AND JURISDICTION:**
All matters relating to the Validity, meaning and performance of the contract shall be decided in accordance with the laws and statutes of Republic of India and shall be subject to and be referred to the Courts of Law situated in Hyderabad.

41 CONTRACTOR TO INDEMNIFY RAILTEL

- 41.1 The **Contractor** shall indemnify **RAILTEL** and every member, officer and employee of **RAILTEL**, as also the **RAILTEL**'s site **RAILTEL**-in-Charge against all actions, proceedings, claims, demands, costs and expenses whatsoever arising out of or in connection with Damage to Property and all actions, proceedings, claims, demands, costs and expenses which may be made against **RAILTEL** for or in respect of or arising out of any failure by the **Contractor** in the performance of his obligations under the Contract.
- 41.2 **RAILTEL** shall not be liable and cannot be held liable for or in respect of any demand or compensation payable by law in respect of or in consequence of any accident or injury to any workmen or other person in the employment of the **Contractor** or his sub-**Contractor** and the **Contractor** shall indemnify and keep indemnified **RAILTEL** against all such damages and compensations and against all claims, damages, proceedings, costs, charges and expenses whatsoever in respect thereof or in relation thereto.

42 PATENT INDEMNIFICATION

- 42.1 In the event any designs, drawings, plans or diagrams or any of the construction methods or processes furnished/ followed by the **Contractor** for the construction of the portion of project or for the operation of the project, constitute infringement of patent or any of the protected rights and use thereof restrained. The **Contractor** shall procure for **RAILTEL** at no cost to the latter, the right to constitute using the same or to the extent it is possible, replace the same with non infringing work approved by **RAILTEL**, or modify them so that they become non-infringing, but such modifications shall otherwise be to the entire satisfaction of **RAILTEL**.
- 42.2 The provisions of this paragraph shall survive the completion, expiration or termination of the Contract.

43 PAYMENT OF CLAIMS AND DAMAGES:

- 43.1 Should **RAILTEL** have to pay any money in respect of any claims or demands whatsoever, as aforesaid , as described herein inclusive of the amount so paid and the costs incurred by **RAILTEL** in respect of any damage or loss to any property belonging to third party or to any public utility service, shall be charged to and paid by the **Contractor** and he shall not be at liberty to dispute or question the right of **RAILTEL** to make such payments on any ground whatsoever, notwithstanding the same may have been made without his consent or authority, or in law or otherwise to the contrary.
- 43.2 In every case in which by virtue of the provisions of Section 12, sub-section (I) of Workmen's Compensations Act, 1923 or other applicable provision of Workmen's Compensations Act or any other Act, **RAILTEL** is obliged to pay compensation to workmen employed by the **Contractor** and/or his sub **Contractor**'s in execution of Work, **RAILTEL** shall be entitled to recover from the **Contractor** the amount of compensation so paid, and without prejudice to the rights of **RAILTEL** under Section 12, sub-section (2) of the said Act.
- 43.3 **RAILTEL** shall be at liberty to recover such amount, or any part thereof, by deducting it from the Security Deposit or from any sum due to the **Contractor** whether under this Contract or otherwise. **RAILTEL** shall not be bound to contest any claim made under Section 12, sub-section (1) of the said Act except on written request of the **Contractor** and upon his giving to **RAILTEL** full security for all costs for which **RAILTEL** might become liable in consequence of contesting such claim. **RAILTEL** shall have lien on the amount due to the **Contractor** in respect of any amount

that may be claimed by **RAILTEL** and/or payable by the **Contractor** under any of the provisions of the Contract.

44 INSURANCE & RISK

44.1 Third Party Liability Insurance Policy:

The **Contractor** shall take Insurance Policy to cover third party liability (claims arising out of injury and / or property damage) for LOA, value (per event / aggregate limit i.e. 1:1) including cross liability. The validity of this insurance shall be till the completion of Maintenance Period.

44.2 Workmen's Compensation Policy:

The **Contractor** shall maintain/cause to be maintained a Workmen's Compensation Insurance Policy in accordance with Workmen's Compensation Act, 1923 or any other applicable statutory requirements from time to time covering all the employees engaged by the **Contractor** (including sub-**Contractor**'s employees) in the performance of the contract. The policy availed by the **Contractor** shall incorporate the following endorsement: "**the principal's interest protected**".

44.3 Additional Clauses

The policy shall contain a suitable clause whereby **RAILTEL** shall be named as 'co-insured' under the policy. The policy shall contain a suitable clause whereby **RAILTEL** shall be named as the 'loss-payee' under the policy.

44.4 The insurance policies will be effective during the entire duration of the contract. The **Contractor** shall ensure the satisfactory payment of premia and other charges payable under the above policies and shall be responsible for satisfactory and expeditious compliance of all procedures, formalities and other terms and conditions relating to the initiation and maintenance of the policy including any claim there under.

44.5 All costs on account of insurance liabilities covered under contract will be on **Contractor's** account and will be included in contract price.

44.6 The **Contractor** shall not cancel or terminate or curtail the insurance policies in any manner without the prior express approval of **RAILTEL**.

44.7 **Contractor** has to submit Labour License copy issued by the Labour Commissioner-Central, before starting the work.

NOTWITHSTANDING ANYTHING TO THE CONTRARY CONTAINED ABOVE, the following terms are agreed to in addition to those that are set out above.

45 INDEMNIFICATION:

45.1 The **Contractor** hereby releases and shall indemnify, defend and hold harmless the **RAILTEL** and its subsidiaries and affiliates and their officers, agents, employees, successors and assignees and authorized representatives against any and all suits, actions, legal or administrative proceedings, claims, demand, damages, liabilities, interest, attorney's fees, costs and expenses of whatsoever kind or nature, including those arising out of damage to property and injury to or death of persons, whether arising during or after completion of the work hereunder and in any manner directly or indirectly caused, occasioned, or contributed to in whole or in part, or claim to be caused, occasioned, or contributed to in whole or in part, by reason of any act, omission, fault or negligence whether active or passive of the **Contractor**, **sub-Contractors** or of anyone acting

under its direction or control on its behalf in connection with or incidental to the performance of this contract.

45.2 The **Contractor** shall pay and meet all expenses including legal costs incurred by **RAILTEL** in responding to and defending all such claims and the **Contractor** shall meet and pay all damages awarded against **RAILTEL** and keep **RAILTEL** harmless and indemnified to the fullest extent.

45.3 There will not be any claim against **RAILTEL** for any claim not recovered and/or short recovered from the insurance company such amount shall be borne by the **Contractor** himself.

45.4 In the event **RAILTEL** is required to pay any royalty, penalty or other sum by whatever name known, to any of its contracting partners or agencies, either on account of time runs or the project not being made operational in full by the **Contractor**, or suffering any other disability, loss, damage or other inconvenience, on account of any delays or lapses in executing the project and rendering it fully operational, for any reasons not attributable directly to **RAILTEL**, the **Contractor** agrees and under takes to indemnify, keep indemnified and save harmless **RAILTEL** from all such costs, damages, expenses, disability, in such manner that at the first instance itself.

45.5 **Risk Purchase:**

45.5.1 In the event the **Contractor** fails to executive the Work as per agreed productivity / Quality Norms of works issues related to Public sensitivity / safety does not perform as per specification / fails to fulfill his obligations as mentioned elsewhere in this Contract and time lines, **RAILTEL** after giving 7 days notice to the **Contractor** shall have the right to get the balance / defective Work executed / re-executed through any other **Contractor** / sub **Contractor** / agency as **RAILTEL** deems fit and proper at the costs and expenses of the **Contractor**, provided however that if the estimated cost for execution of such work as certified by **RAILTEL**'s representative shall be less than the proportionate Contract Price, the benefit there from shall be to **RAILTEL**'s account. And if the same shall be estimated more than the proportionate Contract price, the excess amount incurred by **RAILTEL** in this connection shall be reimbursed by the **Contractor** which may be adjusted by **RAILTEL** against any outstanding dues payable to the **Contractor** under this contract or shall entitled to recover from the **Contractor**. In such an event, **RAILTEL** shall have the right to retain and hold in its custody and possession of all requisite equipment, materials, tackles, machinery etc., belonging to the **Contractor** in connection with the Work, as it deems necessary so as to put them in use. **RAILTEL** shall be at liberty to sell the materials belonging to the **Contractor** if in the opinion of **RAILTEL**, it is necessary to avoid any loss /hardship/ damages that may be incurred by **RAILTEL** on account of the **Contractor**'s failure to execute the Work to the satisfaction of **RAILTEL**. However, the Risk Purchase Clause shall be applied if the **Contractor** is behind schedule for more than 40% of the Value of the Work that has been awarded and if the delay is more than 20 % in time Parameters.

46 **TIME SCHEDULE:**

46.1 Time is the essence of the contract.

Time is the essence of the contract. Following Milestones are suggested for completion of the work in the specified completion period. This may be adhered to:

- D = Day of issue of LOA.
- D + 60 = Supply of items.
- D + 100 = Execution and completion of all works as per Schedule .
- D + 120 = Completion Provisional Acceptance testing, if any.

The **Contractor** shall provide a detail Time Schedule including the key activities related to the implementation of the network described in this Contract. Each site or group of sites should have its own schedule, which is a part of the overall implementation schedule.

- 46.2 The Time Schedule should include as a minimum information, the following activities:
- a) Issue of LOA
 - b) Project kick-off meeting
 - c) Detail engineering
 - d) Receiving ROW permissions
 - e) Mobilization
 - f) Civil Work
 - g) Cable Works
 - h) OSP inspection
 - i) Testing and DEL delivery schedule
 - j) **RAILTEL** Inspection
 - k) Certificate of Acceptance
- 46.3 In addition, the **Contractor** shall identify the project team structure with job responsibilities and description including the quantity of employees in each field of expertise and the quantity of installation teams, he plans to use for this project.
- 46.4 The **Contractor** has to discuss and sign off in detail the Time schedule & other resource deployment plan with **RAILTEL** and get the **RAILTEL**-in-charge approval before proceeding with the work.
- 46.5 For each job description, the **Contractor** shall provide the average quantity of years of experience that the individuals have in this particular field of work.
- 47 **INSPECTION, TESTING AND ACCEPTANCE:**
- 47.1 After completion of installation at each route, the OSP system thereof shall be tested by the **Contractor**. The **Contractor** shall notify **RAILTEL** in writing prior to the commencement of such tests. **RAILTEL** may, at its discretion, be present and witness such tests or waive in writing the performance of these tests in which case such systems shall become accepted, upon putting into Commercial service or, in the absence of written notice of rejection given to the **Contractor** after completion of installation whichever occurs first.
- 47.2 **RAILTEL** will provide the **Contractor** with an inspection and acceptance test schedule for the Operation system, which shall be carried out by the **Contractor**. Upon achieving satisfactory results of such tests, **RAILTEL** shall issue a Final Acceptance Test Certificate on the completion of the test in respect of the route concerned.
- 47.3 **MANDRILL:** until the specified mandrill is passed and certified by Engineer in Charge and in case if there is any problem in passing specified mandrill no payment shall be paid to the Contractor for that stretch. Further, after rectification of the duct the Contractor has to pass the mandrill again in all the ducts. The cost of ROW charges/ penalties if any raising out of this will be debited from the Contractor's bill as mentioned in Article 6 of Schedule B.
- 47.4 In the event that the OSP system at the Site concerned does not satisfactorily pass the tests, the **Contractor** shall rectify the defects and the procedure referred to above in this Article shall be repeated as many times as is necessary, in order for testing and Acceptance to be satisfactorily completed.

48 WARRANTIES AND REPLACEMENT OF MATERIALS

- 48.1 The **Contractor** assures and guarantees that the cables or all other related materials installed in the project which fall under Contractor scope in terms of the contract will be new, unused when installed and will be free from defects in materials and workmanship and will function substantially in accordance with the applicable technical specification during the warranty period of twelve (12) months from Virtual Completion Date/ Final Acceptance Date
- 48.2 The **Contractor** undertakes to promptly remedy all defects discovered in the system for the scope of work covered by him within the warranty period and notified to the **Contractor** by either repairing or replacing, at its option, the defective product or its defective part or subassembly or unit at his own cost and expense. Repaired or replaced units and subassemblies shall have a new warranty period of twelve (12) months from date of rectification.

49 STORAGE AT SITE:

- 49.1 The **Contractor** shall be fully responsible for storage of all materials covered in his scope and shall acquire necessary site storage space as may be required, for timely completion of the project. **RAILTEL** will deliver the materials covered in its scope to the **Contractor** at **RAILTEL**'s warehouse point and it will be sole responsibility of the **Contractor** to transport such materials to his designated storage places or sites and safeguard the same against theft, loss or damage whatsoever. No additional cost shall be payable on this account.
- 49.2 Any tax implications including Octroi etc., during the transport within the territory shall be the responsibility of the **Contractor**. During the currency of the contract the **Contractor** shall be responsible for the safe custody of such materials delivered by **RAILTEL** till the final installation and will make good any shortages/damages, which occur during transportation to the site/storage at its cost. The **Contractor** shall also furnish a weekly report of consumption of **RAILTEL** supplied materials to enable **RAILTEL** Logistics to monitor the progress and arrange to supply additional quantity of such materials covered in the scope of **RAILTEL** as and when required.

50 MATERIAL RECONCILIATION:

- 50.1 It shall be the effort of the **Contractors** to reduce wastage at every level.
- 50.2 At the end of the specified work as per LOA, **RAILTEL** would undertake a joint reconciliation of all materials issued. The maximum allowable wastage for the various items is indicated below.
- a) PVC Conduits wastage not greater than 1%.
 - b) Cables wastage not greater than 0.5%
 - c) Accessories wastage not greater than 1%
 - d) HDPE ducts wastage not greater than 1%. Less than 50 Mts. HDPE ducts lengths will be treated as wastage.
- 50.3 Any shortfall would be to the **Contractors** account calculated on the basis of the cost incurred by **RAILTEL** for procuring these items and would be deducted from the final bill.

51. MISCELLANEOUS:

- 51.1 No party shall publish any press release or otherwise publicly disclose the existence of this Contract or any of its Terms and Conditions, without the express prior written consent of the other Party, following advance review by consenting Party of the text of the press release or other public disclosure.

In the event of any changes, amendments, modifications in the provision and other terms and conditions of the **Contractor**, the same shall be executed and implemented by a way of Supplementary document duly signed by both the parties.





SPECIAL CONDITIONS

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RAILTEL

SPECIAL CONDITIONS OF CONTRACT

1.0 SCOPE OF WORK

“Construction of Masonry Huts, Supply and Installation of AC Units & DG Sets, drawing / Laying of OFC and Electrical cable in Chennai Territory as per the Schedule of work and specifications given in this Tender Document.

2.0 SPECIFICATION OF WORK

2.1 The RailTel reserves the right to reject or alter any part of the work executed by the contractor which in the judgment of RailTel does not comply with the requirements of these specifications. The decision of the RailTel shall be final and conclusive for all purpose.

3.0 RATES

The tenderer are required to quote item wise rate for the Schedule both in figures and words. If there is any discrepancy in the quoted rates both in figures and words, the rates quoted in words will be taken as final.

3.1 The offer shall be **inclusive of all taxes / duties** as applicable at present. Proof of payment or declaration that all duties and taxes have been paid for the material being supplied to RailTel/Secunderabad to be enclosed.

3.2 Any statutory variation in taxes / duties shall be to RailTel account and shall be admissible on production of valid documentary evidence.

4.0 SECURITY DEPOSIT:

4.1 On Receipt of the Letter of Acceptance of Tender from the RailTel, the successful Tenderer shall within a period of 15 days deposit an amount equal to 5% of contract as Security deposit for due fulfillment of the contract.

4.2 The Earnest Money already paid by the successful Tenderer may at the discretion of the successful Tenderer be adjusted towards payment of this Security deposit and

4.3 The additional amount shall be paid in any one of the following forms:

- (a) Bank draft
- (b) Irrevocable Bank Guarantee issued by any scheduled bank acceptable to purchaser.
- (c) FDR (or)
- (d) The balance amount will be recovered from the Contractor's "on account" bills (10% of bill amount).

4.3 The Security Deposit will bear no interest.

4.4 The Instruments for security deposit should be valid for three months beyond the defects liability period (Warranty / Maintenance period). On successful completion of defect liability period and on certification of concerned RailTel engineer, the security deposit will be refunded or Bank guarantee released to the contractor after adjustment of any dues payable by the contractor.

5.0 CONTRACT PERFORMANCE GUARANTEE (PBG)

5.1 On receipt of the Letter of Acceptance of Tender from the RailTel, the successful Tenderer should give a Performance Guarantee in the form of irrevocable bank guarantee from any Nationalized Bank or Scheduled Bank in the Form given in Tender document amounting to **5% of the contract value.**

5.2 The Performance Guarantee should be furnished by the successful contractor after letter of acceptance has been issued, but before signing of the agreement. The agreement should normally be signed within 15 (fifteen) days after issue of LOA and Performance Guarantee should also be submitted within this time limit. The Instruments for Performance Guarantee should be valid for two months beyond the completion period.

5.3 Performance Guarantee shall be released after satisfactory completion of the work.

5.4 Wherever the contracts are rescinded, the security deposit shall be forfeited and the Performance Guarantee shall be en-cashed.

5.5 The balance work shall be got done independently without risk and cost of the original contractor.

5.6 The original contractor shall be debarred from participating in the tender for executing the balance work. If the failed contractor is a Joint Venture (JV) or a partnership firm, then every member/partner of such a firm would be debarred from participating in the tender for the balance work either in his/her individual capacity or as a partner of any other JV/partnership firm.

6.0 Deduction of Income Tax at source:

Income Tax and any other tax such as work contract tax etc, at the prevailing rates during the period of contract shall be deducted at source on all the payments. The contractor should quote the PAN, Sales & Service Tax Registered number should be mentioned on the bill for arranging payment.

7.0 Eligibility Criteria Technical / Financial:

7.1 Technical Capability: Tenderer must have completed works of similar nature of job successfully and satisfactorily of values as indicated below:

Tenderer must have completed successfully and satisfactorily at least one similar work costing not less than 35% of the value of tendered work during the preceding three years (i.e. current financial year and three previous financial years) executed for Govt. /PSUs/ Reputed private sector Telecom service providers / Telecom Infrastructure Provider with satisfactory performance report from the client.

7.1.1 Similar Work Defined:

i) Civil engineering works like building construction works, pipe laying works(Gas, Sewer etc.) or similar civil works..

OR

ii) All type of Telecom equipment/OFC including telecom cable works, OFC maintenance works.

OR

iii) Any type of Electrical works/Transmission Line works etc.

7.2 Financial Capability:

The total contract amount received by the tenderer during the last three years 2012-13, 2013-14 & 2014-15 (i.e. current financial year 2015-16 and three previous financial years) as per current ITCC/Audited balance sheet/turnover certificate should be a minimum of 150% of applied Tender Value of work. Offers not accompanied by ITCC/Audited balance sheet will not be considered.

7.3 Contractor's Engineer:

The Contractor shall constantly keep one competent Engineer who will be responsible for carrying out the works during its progress.

8.0 Workmen, Tools, Plant & Machinery

The contractor shall make his own arrangements for all plant, machinery, equipment and Tools including spare parts, fuel and consumable stores all labour required during execution of work.

9.0 Maintenance Period:

Maintenance period is **one year** from the date of completion of the work certified by the concerned RailTel Engineer and issue of Provisional Acceptance Certificate. During this period, the contractor has to be make good of any deficiencies arising from defective workmanship/material at free of cost.

10.0 Warranty/Guarantee:

Besides other warranty/guarantees required the Contractor shall warranty/guarantee the work in general for one year. All required guarantees shall be submitted to the RailTel's Engineer by the Contractor. For all brought out items supplied by the contractor, organized warranty/guarantee certificates from the manufacturer shall be in the name of the employer and handed over to the employer after completion of the works.

11.0 RailTel's Engineer Instructions:

Contractor shall forthwith comply with and duly execute the work true to the instructions issued to him by the RailTel's Engineer or his authorized representative.

12.0 Schedule of Work/Supply

The Schedule of Work/Supply given in the Schedule is provisional and is meant to indicate the intent of the work and to provide a uniform basis for tendering. The Employer reserves the right to increase or decrease any of the quantities or to totally omit any item of work and the Contractor shall not claim any extras or damages on these grounds. Hence the Contractor is expected to quote his rates keeping this in mind, as no claims of any sort for variations in quantities or deletion of items will be entertained under any circumstances.

Any error in description or in quantity or omission of items from the contract document shall not vitiate this Contract but shall be treated as a variation.

13.0 Visit:

Before tendering, the Contractor shall visit and examine the site and satisfy himself as to the correct dimensions of the work and the facilities for obtaining any special articles and shall obtain generally his own information on all matters affecting the continuation and progress of the works. Further, the Contractor shall be deemed to have examined the existing site details before tendering.

14.0 AGREEMENT

The successful Tenderer shall after having been called upon by notice to do so, be bound to execute an agreement based on accepted rates 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.

15.0 TERMS OF PAYMENT

15.1

15.1.1: For supply Item:

“On account payment” for supply of equipments, materials indicated in the schedule of requirements subject to recoveries of liquidated damages, if any, shall not be made more than twice in a calendar month as given below :

I) 75% (Seventy five percent) of the value of equipments/ material supplied of each consignment shall be paid on production of the following documents:

a) On receipt of materials at site.

b) Original Inspection certificate issued by Inspecting Officer.

c) Challan / Invoice in duplicate.

d) A certificate that the materials supplied are as per the contract and the amount claimed in the Invoice is correct as per terms of the contract.

e) Insurance policy for material (100% of the value of on account payment)

f) All on account payments shall be covered by a standing indemnity bond in the approved form

15.1.2 15% (Fifteen percent) value of goods supplied shall be paid after the successful completion of installation & commissioning of these equipments at various locations and completion of all measurements and testing to the satisfaction of Engineer.

15.2 For work portion:

90% of supplies made and work executed shall be paid on successful completion of installation & commissioning of work at various locations and completion of all the works to the satisfaction of Engineer.

15.3 5% (Five percent) value of the goods supplied shall be paid after the successful completion of installation & commissioning of whole system and issue of “Provisional Acceptance Certificate by Purchaser's Engineer

15.4 Balance 5% of contract shall be paid after completion, on the certification of consultant and RailTel engineer-in-charge and on completion of warranty period and issue of FAC

15.5 Documents to be submitted along with bills:

- a) Delivery challan for supply items.
- b) Warranty certificate for the supplied items as per clause 10 of SCC.

15.6 FINAL SETTLEMENT

On expiry of the maintenance/warranty period, the SD will be released to the contractor after adjustment of any dues payable by the contractor.

15.7 DEDUCTION FROM BILLS

All costs, damages or expenses, which RailTel may have paid or incurred, which under the provisions of contract are Contractor's obligations will be deducted by RailTel from Bills/Invoice of Contractor, as and when it is understood that such an expenses has been incurred or paid for. All such claims of RailTel shall, however, be duly supported by appropriate and certified vouchers, receipts or explanations as are available to enable the Contractor to identify such claims.

16.0 TAXES

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 will be credited to the Central Government. Settlement of Income Tax should be made with Income Tax authorities.

Wherever the law makes it statutory for the Purchaser to deduct any amount towards Sales Tax on Works Contract, the same will be deducted and remitted to the concerned authority. The Contractor and all personnel employed by him shall pay such taxes like Income Tax as are payable under statutory laws of India and the Purchaser will not accept any liability for the same.

17.0 Provisional Acceptance Certificate:

After completion of provisional acceptance tests and if no problems are noticed during observation period of 15 days, Purchaser's Engineer shall issue a Provisional Acceptance Certificate for successful completion of work and connectivity of whole system covering all materials and services included in the Schedule of Works, after the acceptance test as per the approved test procedure have been completed and the performance has been found to meet the specifications. RailTel's decision in this respect shall be final.

18.0 Final Acceptance Certificate:

FAC shall be issued after successful completion of maintenance period/guarantee period of one year from the date of issue of PAC.

19.0 Bill passing officer is Addl.GM/MAS and Bill paying officer is GM/Finance.

20.0 PAN / Sales & Service Tax Regd.No./ VAT TIN No. should be mentioned on the bill for arranging payment.

21.0 TIME OF COMPLETION:

Time is the essence of the contract. Total period of completion is **120 days** from the date of issue of acceptance letter.

22.0 SETTLEMENT OF DISPUTE AND ARBITRATION

22.1 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 Secunderabad

22.2 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.

22.3 The Arbitral Tribunal shall consist of the sole Arbitrator appointed by mutual agreement of the parties.

22.4 Each of the parties agree that notwithstanding that the matter may be referred to Arbitrator as provided herein, the parties shall nevertheless pending the resolution of the controversy or disagreement continue to fulfill their obligation under this Agreement so far as they are reasonably able to do so.

23.0 QUANTUM OF WORK AND VARIATION IN QUANTITIES

23.1 Quantities indicated in Schedule of Requirements are approximate and purport to convey the tenderer an idea of the magnitude of the work. The Contract value may vary within + / -25% of grand total of schedule of requirements as included in the Letter of Acceptance to tender as per site requirement, in case of variation in quantities the contractor shall be bound to carry out the work at the rates agreed in the schedule up to the limit of +/-25% variation in the value of contract and shall not be entitled to any claim or any compensation whatsoever.

23.2 The quantities quoted in the Schedule are not firm and may be varied.

23.3 However, for variation beyond +25% (a) for the first 15% increase in quantity beyond 25% of agreement value; the rates will have a reduction of 2% in the incremental value of the agreement. b) And for the next 10% increase in quantity, the rates will have an additional reduction of 2% in further incremental value of the agreement. In case the execution of quantity is required to exceed +50 % of overall agreement value, the rates shall be negotiated.

24 FORCE MAJEURE CLAUSE

If at any time during continuance of this Contract, the performance, in whole or part, by either party, of any obligation under this contract shall be prevented or delayed by reason of any war, hostility, act of the public enemy, Civil Commotion, Sabotage, Fires, Floods, Earth quakes, explosions, strikes, epidemics, quarantine, restrictions lockouts, any statute, statutory rules, regulations, order of requisitions issued by any Government Department or Competent Authority or acts of God (here-in-after referred to as event) then provided notice of the happening of any such, event is given by either party to the other within twenty one days from the date of occurrence thereof neither party shall by reason of such event be entitled to terminate this Contract nor shall either party have any claim for damage against the other in respect of such non-performance or delay in performance, and the obligations under the Contract shall be resumed as soon as practicable after such event has come to an end or ceased to exist, PROVIDED FURTHER that if the performance in whole or part of any obligation under this contract is prevented or delayed by reason of any such event beyond a period as mutually agreed to by the RaiITel and the Contractor

after any event or 60 days in the absence of such an agreement whichever is more, either party may, at its option, terminate the Contract provided also that if the contract is so terminated under this clause the RailTel may, at the time of such termination, take over from the Contractor at prices as provided for in the contract, all works executed or works under execution.

- 25 All the terms & conditions stipulated are binding on the contractor. In all matters of dispute, the decision of Group General Manager, Chennai shall be final.
- 26 All items required for satisfactory execution of the work contemplated are covered in the schedules. If contractor feels that any item is required for satisfactory completion of the work over and above the schedules, he may quote for the same duly giving necessary justification for the same.

All the works should be carried out as per the instructions of RailTel Engineer-In-Charge at site.





Schedule of Requirement

राज्य
RAILTEL

Schedule of Works for creation of new POPs at Cuddalore , Pondicherry and Chidambaram (ie. 3 Locations)- SN 19					
Schedule-A for OFC and Electrical cable laying/diversion work including supply of Generator and its associated equipments					
S. No	Description	Units	Rate	Qty	Amount
1	Supply & installation of jointing pit as per drawing with cover and required trenching to ease out cable/duct.	No	3154	6	18924
2	Supply and fixing of cable route markers as per drawing	No	242	15	3630
3	Concreting for protection of OFC Cable	Cu.M	3292	6	19752
4	Trenching to a depth of 1.2Mtr and approximate width for pipe/duct/cable and backfilling after laying OFC as per specification.	Mtr	72	825	59400
5	Cutting hard rock for 0.3 mtr depth of trench	Mtr	221	60	13260
6	Providing dry sand in FRP/RCC joint chambers up to 400mm height	Nos	600	6	3600
7	Laying of HDPE Duct in trenches. Supply and pulling of nylon rope through it.	Mtr	7	900	6300
8	Laying of OFC/QUAD Cable in trench and through HDPE/GI/RCC pipes where ever necessary.	Mtrs	7	975	6825
9	Supply & Provision OFC Joint closure including Splicing (24 Fibre).The Joint Enclosures shall be TVSE, Raychem model FOSC,ROXTEC,3-M Make	Nos	10302	12	123624
10	Rectification & re-splicing of existing mid section OFC Joints. This includes supply and provision of joint repair kit & sleeves	Nos	6480	6	38880
11	Repair of existing OFC Terminal Joint (24 Fibre).This includes splicing of all the 24 Fibres/dropping of fibres/dropping of fibre/pigtail as required.	Nos	3720	12	44640
12	Trenching to a depth of 1mtr below rail/Road/Platform level,placing of G.I Pipe(as per IS 1239 pt.I & pt.ii),50mm dia.(inside) in the trench made, backfilling and ramming	Mtrs	768	75	57600
13	Supply & laying of 50mm dia GI Pipe IS 1239 medium grade with holes drilled as an anti theft measure coupling etc.on bridges/trenches/other surfaces with CC at every 1m as per drawing. Concreting rates shall be separate as per item 3A.	Mtr	387	75	29025
14	Horizontal Drilling at a approximately depth of 1.65/1.2 m below the formation level of the earth including insertion of DWC pipes along with couplings etc.	Mtr	460	75	34500
15	Supply of FMS 24F,Telescopic,19" Rack mountable with 24 nos ,1U of 0db SC/PC adapters and 24 no. of 900 micron 1.5 Mtr SC/PC pigtails from reputed manufacturer like Raychem,3M,Rosenberger,etc.,Complete to the finished item of work and as directed by the RaiITel Engineer - in-charge.	Nos	6338.84	6	38033.04
16	Supply of 25 sq.mm multistrand single core copper cable of make Finolex(Black) including proper copper lugs	Mtr	190	75	14250
17	Supply of 25 sq.mm multistrand single core copper cable of make Finolex(Red) including proper copper lugs	Mtr	190	75	14250

18	Providing of 16 sq.mm multistrand single core copper cable of make Finolex(Green/Yellow) including proper copper lugs	Mtr	129	75	9675
19	Providing of 6 sq.mm multistrand single core copper cable of make Finolex(Green/Yellow) including proper copper lugs	Mtr	65	45	2925
20	Providing 2"PVC Channel/Trough and fixing hardware	Mtr	75	75	5625
21	Providing of 18mm flexible conduit	Mtr	35	90	3150
22	Supply of 10 sq.mm multistrand 3 core flexible copper cable of make Finolex including proper copper lugs	Mtr	210	60	12600
23	Installation of SDH Equipment FMS,Racks etc .including DDF,LADDERS,RUNWAY,PATCH CORDS AND THEIR TESTING AND COMMISSIONING (Permanent installation in Masonry Hut)	Nos	11000	3	33000
24	Supply and installation of encapsulated class type B lightning current arrestors and class C surge arrestors within built terminal isolating device suitable for single phase TT network as per RDSO Specification RDSP/SPN/244/2004 or latest.	Nos	18966	3	56898
25	Supply and installation of Air Condition units 2 TR x 2(Twin type)	Nos	137323	3	411969
26	Supply and intallation of Generator set 3Ph 15KVA (including Generator earthing and Platform)	Nos	358546	3	1075638
27	48V/300AH tubular Gel VRLA Maintenance free Battery	Nos	123740.65	3	371221.95
28	230V AC/48V DC 75 Amp with 25A (3+1) Battery Charger	Nos	88726.67	3	266180.01
29	Supply, Testing and Installation of Fire extinguisher. Fire Extinguisher HCFC 123 Type 5Kg	Nos	36548	3	109644
30	Supply of OFC	Mtrs	56.42	750	42315
31	Supply of HDPE Duct	Mtrs	40.13	750	30097.5
32	Supply AC Distribution Box	Nos	8587.5	3	25762.5
33	supply of 100 Amps L&T Digital meter	Nos	9160	3	27480
34	Supply of meter box and Fuse carrier box	Nos	2519	3	7557
35	Supply of DC Dual Source Distribution Box a) Powder coating MS DCDB box 16 SWG of 500mm x 400mm x 120mm with detachable front cover and cable entry holes on top and bottom with dummy caps. b) Single pole DCMCB ratings 6Amps 2Nos. 10 Amps 2 Nos.32Amps 2 Nos. 25 Amps 2 Nos.standard / anger / legrone Havells. c) Copper Bus bar having 6 holes with SS nuts and bolts of size 5mm x 25mm x 200mm-2Nos.	Nos	19465	3	58395
36	Supply of 10sq mm round type leg	Nos	11.45	36	412.2
37	Supply of Copper legs 16sq mm legs	Nos	17.175	36	618.3
38	Supply of Copper legs 25sq mm legs	Nos	28.625	36	1030.5
39	Supply of 35sq mm Copper pin type leg	Nos	28.625	36	1030.5
40	Supply of 2 inch GI pipe	Mtrs	458	18	8244
41	Supply of AC Fuse Carrier 63Amps - 4 Nos. with Box of 10KV power input.	Nos	5152.5	3	15457.5
42	supply of power cable 35 sq.mm 4 core armored Aluminium UG cable max	Mtrs	178.5	150	26775

43	35sq mm cable termination and power supply wiring with necessary lugs and other materials labour charges	Nos	2247.2	6	13483.2
44	concealed wiring work, call cutting, PVC pipe, PVC pipe fixing, db box fixing ,db box fixing tube light fixing ,switch board fixing,15 Amps box fixing ,45 watts CFL street Light fixing and wall refilling masonry work	Ls	13258.48	3	39775.44
45	Earthing	Nos	20224.8	3	60674.4
46	Copper Bus bar 5mm X 25mm X 600mm for Terminationg Earth	Nos	1500	6	9000
Sub Total for Schedule'A' (For OFC and Electrical cable laying and associated works)=					3253127.04

Schedule'B' for Civil Works :

S. No	DESCRIPTION OF ITEM	UNIT	Rate	Qty	Amount
1	Excavation in open foundations, trenches nallah training, drains (exceeding 1.5 M in width or 10 Sq.M on plan) including disposal or stacking of excavated spoil in loose or soft soils which can be removed by spades powrahs or mamoties.	1 CuM	66.08	226.00	14934.08
2	Excavation in trenches for foundations, cables, pipes, nallah training, drains etc., not exceeding 1.5 M in width and for pits, wells, etc., not exceeding 10 SqM on plan including disposal or stacking of excavated spoil. In dense or hard soils which require picks or crowbars for hacking including soils containing stones or boulders measuring under 0.03 cum and boulder studded soils.	1 CuM	90.16	40.00	3606.4
3	Providing and laying cement concrete 1:3:6 (1 cement, 3 sand and 6 aggregate) with 40 mm nominal size graded stone aggregate foundations and plinth/under-floors etc.	1 CuM	2560.40	40.00	102416
4	Supplying and stacking at specified locations on Railway premises : Clean sand	1 CuM	688.80	32.00	22041.6
5	Providing and laying cement concrete 1:1:5:3 (1 cement, 1.5 sand and 3 aggregate) with 20 mm nominal size graded stone aggregate, for reinforced work (excluding cost of fabrication and placing of reinforcement) In foundations, footings base of columns and similar works and mass concrete.	1 CuM	3622.48	33.32	120701.03
6	Providing and laying cement concrete 1:1:5:3 (1 cement, 1.5 sand and 3 aggregate) with 20 mm nominal size graded stone aggregate, for reinforced work (excluding cost of fabrication and placing of reinforcement) In columns, pillars, posts and struts.	1 CuM	3663.08	7.70	28205.71
7	Providing and laying cement concrete 1:1:5:3 (1 cement, 1.5 sand and 3 aggregate) with 20 mm nominal size graded stone aggregate, for reinforced work (excluding cost of fabrication and placing of reinforcement) In suspended floors, roofs, landings, shelves, and their supports, balconies, chajjas, lintels, beams, girders, bressemer and contilevers etc.,	1 CuM	3661.12	30.68	112323.16
8	Providing form works, including centering shuttering, strutting, propping etc., height of propping and centering from supporting floor to ceiling not exceeding 4 m. and removal of the same, for in-situ concrete work (including reinforced concrete) with all contractor's material for Foundations,	1 SqM	110.88	27.34	3031.45

	footings, bases of columns, etc., and mass concrete				
9	Supplying and providing reinforcement using contractors MS/Tor/TMT Steel HYSD bars for foundations, footings, beams, Lintels, Chajjas, Roof slab, Flooring, Foundations and all other Rcc works etc., including straightening, cutting, bending, cranking and fixing in position and binding reinforcement with contractor's GI binding wire, material, labour, tools, plant, machinery consumables all lead and lift etc., complete as per approved drawing, specifications and as directed by the Engineer-in-charge.	1 MT	48290.00	8.34	402738.6
10	Providing form works, including centering shuttering, strutting, propping etc., height of propping and centering from supporting floor to ceiling not exceeding 4 m. and removal of the same, for in-situ concrete work (including reinforced concrete) with all contractor's material for Flat surfaces, such as soffits of suspended floors, roofs, landings and the like, for slabs etc.,	1 SqM	152.32	103.36	15743.79
11	Providing form works, including centering shuttering, strutting, propping etc., height of propping and centering from supporting floor to ceiling not exceeding 4 m. and removal of the same, for in-situ concrete work (including reinforced concrete) with all contractor's material for Sides and soffits of beams, beam haunches, cantilevers, girders, bressemeres and lintels etc., less	1 SqM	100.52	160.00	16083.2
12	Providing form works, including centering shuttering, strutting, propping etc., height of propping and centering from supporting floor to ceiling not exceeding 4 m. and removal of the same, for in-situ concrete work (including reinforced concrete) with all contractor's material for Edges of slabs and breaks in floors etc., less than 20 cm width.	1 M	35.56	82.70	2940.81
13	Providing form works, including centering shuttering, strutting, propping etc., height of propping and centering from supporting floor to ceiling not exceeding 4 m. and removal of the same, for in-situ concrete work (including reinforced concrete) with all contractor's material for Chulla hoods, weather shades, chajjas, carbels, etc., including edges.	1 SqM	152.32	5.32	810.34
14	Providing and laying Brick Masonry for superstructure of 230 mm thick walls with CM (1:8) prop. (Cement : Sand) using second class brick from approved source having crushing strength of not less than 40 kg/sqcm and water absorption not exceeding 20% by weight, including cost and conveyance of all materials like cement, sand, bricks, water etc., to site, cost and seigniorage charges on materials including of all labour charges, like mixing cement mortar, wall construction, curing, scaffolding charges, for work at any floor at any level, etc., complete for finished item of works.	1 CuM	3168.93	55.02	174354.52
15	Providing and fixing cold roll formed 1.25 mm thick steel hollow frames for doors and window, complete with fixing lugs, hinges, mortar guards, lock strike plates, buffers, bolt holes, etc., as required including base ties or angle thresholds, as required and conforming to I.S.4351 Frames to profile A of	1 M	406.00	20.32	8249.92

	specification 105 X 60 mm size.				
16	Filling surplus earth from foundations or Railway's earth, murum ashes or sand in trenches, plinths of floors in layers not exceeding 20 cm. depth and Consolidating each layer by watering and ramming.	1 CuM	24.92	33.34	830.8328
17	Providing and fixing skin moulded flush door shutter 35 mm thick for doors to the already fixed to existing frame using screws and cutting the door to required size to suit the existing floor level of the room including painting two coats of enamel paint of approved quality and colour with all accessories like aluminium sliding bolts of 300 mm - 2 nos, aluminium tower bolts of 150 mm - 1 no, aluminium handles - 150 mm - 2 nos, door stopper - 1 no, with all contractor's material tools, labour, machinery lead, lift transport to site etc., complete as directed by the Engineer-in-charge at site.	1 SqM	3190.00	6.00	19140
18	Manufacturing, providing and fixing powder coated Aluminium sliding windows with track 61 x 31x1.5 mm fixed to box size 63x31x2mm and 4 mm glass including all contractors materials, tools, tackles, labour, cement, lead, lift etc., complete and as directed by Engineer-in-charge at site.	1 SqM	4200.00	4.02	16884
19	Providing and Plastering 12 mm thick for even surface of brick masonry walls in two coats iwht base coat of 8 mm thick in CM (1:6) and top coats of 4 mm thick CM (1:4) with dubara sponge finishing including coast ad conveyance of all materials cement, sand, bricks, water etc., to site including all operational incidental charges, cost and seingniorage charges on materials and all labour charges for mixing mortar, finishing, curing, scaffolding charges, lifting charges including cutting grooves wherever necessary etc., for any floor at any level, etc., complete for finished item of works.	1 SqM	160.65	320.04	51414.42
20	Providing and Plastering 20 mm thick for uneven surface of brick masonry walls in two coats iwht base coat of 8 mm thick in CM (1:6) and top coats of 4 mm thick CM (1:4) with dubara sponge finishing including coast ad conveyance of all mateials cement, sand, bricks, water etc., to site including all operational incidental charges, cost and seingniorage charges on materials and all labour charges for mixing mortar, finishing, curing, scaffolding charges, lifting charges including cutting grooves wherever necessary etc., for any floor at any level, etc., complete for finished item of works.	1 SqM	182.26	290.72	52986.62
21	Providing and Plastering 12 mm thick for even surface of block masonry walls in two coats with base coat of 8 mm thick in CM (1:6) and top coats of 4 mm thick CM (1:4) with dubara sponge finishing including coast ad conveyance of all materials cement, sand, bricks, water etc., to site including all operational incidental charges, cost and seingniorage charges on materials and all labour charges for mixing mortar ,finishing, curing, scaffolding charges, lifting charges including cutting grooves wherever necessary etc., for any floor at any level, etc., complete for finished item of works.	1 SqM	164.88	118.70	19571.25

22	Providing and laying flooring in Granolithic concrete over CC Bed of 40 mm thick with CC (1:12) prop using 12 mm HBG graded hard granite machine crushed metal laid in panels (alternately) of size not exceeding 1.5 m X1.5 m divided by 4 mm thick glass strips 40 mm depth and finishing the top surface to required smoothness and slopes, including cost and conveyance of all materials to site, all labour charges, full rounding and polishing on edges, mixing of cement mortar, curing etc., complete for finished item of work (excluding cost of C.C. Bed)	1 SqM	181.32	54.00	9791.28
23	Providing and fixing Ceramic tiles of standard company such as Johnson, Regency & Spartek etc., in flooring fixed over 25 mm thick cement plaster 1:3 with contractor's materials, labour, tools, plant, machinery, consumables, all lead and lift etc., complete as per approved drawing specifications as directed by the Engineer-in-charge.	1 SqM	418.00	26.04	10884.72
24	Providing and fixing Ceramic tiles of standard company such as Johnson, Regency & Spartek etc., in skirting and dadoing fixed over 25 mm thick cement plaster 1:3 with contractor's materials, labour, tools, plant, machinery, consumables, all lead and lift etc., complete as per approved drawing specifications as directed by the Engineer-in-charge.	1 SqM	378.00	47.04	17781.12
25	Supply and fixing of MS Grills made of 12 mm MS square bars (Brite or equivalent) as per the drawing with MS hold fasts for the frame for fixing into side walls, including cost and conveyance of all materials to site, labour charges, forwelding, grinding of joints, fixing into masonry and painting with one primary coat of red oxide, etc., complete for finished item of work for all floors.	1 Kg	61.07	139.36	8510.71
26	Providing and laying Impervious coat to exposed RCC Roof slab and sunken slab surfaces to required slopes with CM compound of approved compound from reputed manufacturers at 1 Kg/bag of cement (or as per manufacturers specifications) laid over roof slab when it is green including cost and conveyance of all materials like cement, sand, water proofing compound etc., to site, seigniorage charges and labour charges, rendering smooth and thread lining at regular intervals round off junction of wall and slab curing, lift charges etc., for any floor at any level, complete for finished item of work.	1 SqM	202.93	123.34	25029.38
27	Providing and applying to walls /ceiling ,two coats of cement based putty of white or any other approved colour, of approved brand including preparation of surface by cleaning /scraping the surface with wire brushes etc., to remove all loose flakes dirt, dust, grease, oil, mortar droppings etc., so as to make the surface fit for receiving putty and applying two coats to get an even surface with time interval of minimum 3 hours between successive coats , gently leveling the surface with water proofing emery/sand paper with all contractor's men material, tools and plants ,all lead lift including scaffolding wherever necessary and cleaning of work area on	1SqM	69.46	313.36	21765.98

	completion of work etc., complete as per specification and as directed by engineer in charge. For external surfaces				
28	Providing and applying to walls /ceiling ,two coats of cement based putty of white or any other approved colour, of approved brand including preparation of surface by cleaning /scraping the surface with wire brushes etc., to remove all loose flakes dirt, dust, grease, oil, mortar droppings etc., so as to make the surface fit for receiving putty and applying two coats to get an even surface with time interval of minimum 3 hours between successive coats , gently leveling the surface with water proofing emery/sand paper with all contractor's men material, tools and plants ,all lead lift including scaffolding wherever necessary and cleaning of work area on completion of work etc., complete as per specification and as directed by engineer in charge. For Internal surfaces	1Sqm	62.13	417.34	25929.33
29	Applying one coat of cement primer of approved brand and manufacture on wall surface	1Sqm	21.75	730.70	15892.72
30	Wall painting on new work with two or more coats of plastic emulsion paint of approved brand and manufacture to give an even shade	1Sqm	53.05	417.34	22139.88
31	Finishing walls with Acrylic Smooth exterior paint with Silicone additives of required shade on new work (Two or more coats applied @ 1.67ltr/10 sqm over and including one coat of water proofing cement paint applied @ 2.20 kg/10sqm	1Sqm	73.95	313.36	23172.97
32	Extra over Items for roller painting in lieu of normal brush painting if specifically ordered	1Sqm	10.39	417.34	4336.16
33	Painting two coats over existing priming coat on steel or other metal surfaces to give an even shade including cleaning surfaces of all dirt, dust and other foreign matter, for surfaces over 10 cm. In width/girth, using : Synthetic enamel paint, brushing exterior type 1	1 SqM	39.48	8.32	328.47
34	Providing form works, including centering shuttering, strutting, propping etc., height of propping and centering from supporting floor to ceiling not exceeding 4 m. and removal of the same, for in-situ concrete work (including reinforced concrete) with all contractor's material for : Columns, pillars and post square, rectangular, or polygonal in plan.	1 SqM	134.12	114.00	15289.68
35	Providing and fixing fly proof galvanized M.S.wire gauge to windows and clerestory windows using galvanized M.S.wire gauge with average width of aperture 1.4 mm in both directions with wire of dia 0.63mm With 2nd class teak wood beading 50x20 mm	1Sqm	568.51	4.02	2285.41
36	Coursed rubble masonry second sort in foundations and plinth In cement mortar 1:6(1 cement, 6 sand)	cum	1805.08	74.04	133648.12
37	Supplying and stacking at specified locations on Railway premises :Murum	cum	204.96	124.70	25558.51
38	Pointing on second sort coursed stone masonry with Ruled pointing with cement mortar 1:4 (1 cement, 4 sand)	1Sqm	85.65	122.72	10510.96

39	Providing and fixing Armstrong Acoustical suspended ceiling system with OPTRA micro look title, the title should have thickness of 15/20mm & Humidity resistance of 95% RH, Average NRC 0.90 sound attenuation of 20db, light reflectance >84%, Thermal conductivity k=0.036 w/mok, colour white, Fire performance class 0/class 1 (BS-476) in module size of 600mmx600mmx15/20mm laid on Armstrong silhouette B/R grid systems with T-section flanges colour white having rotary stitching on the main runner 1200mmx600mm cross Tees The grid should be of Armstrong make with 38 web height wide T-section flanges colour white having rotary stitching on all T sections i.e the main runner 1200mm & 600mm cross Tee. The T section to have galvanizing of 120 gms for per m2 & passed through 500 hrs of salt test. The title & Grid system used together should carry a 15 years warrantee with all contractors labour, tools, materials, lead, lift, vat, transportation etc complete and as directed by Engineer-in-charge at site, specification of Calcium silicate ceiling Tiles	sqm	1817	54.00	98118
40	Providing and fixing of Steel Flush doors at all levels fully flush type of 46 mm thick pressed galvanized sheet single /double leaf of (Shakti Met-Dor Ltd . or approved equivalent make) which consists of frame, shutter, infill and finish as detailed below and conforming to IS 277. Door frame shall be single rebate profile of size 100 x 57 mm with bending radius of 1.00 mm having 1.25 mm thick galvanized steel sheet (18 gauge) with steel door shutter of 46 mm thick fully flush, double skin door shall be manufactured from 0.80 mm thick galvanized steel sheet (22 gauge). The infill material shall be resin bonded honey comb paper with thermal insulation. Door frames and shutter shall be finished with etched primer coating, stoved zinc phosphate primer and thermosetting polyurathene aliphatic grade paint (35 micron DFT) of approved colour. Rate shall include supply and fix 3 mm thick base plates, all joints of frames with provision for anchor bottom fixing to wall / RC surface, reinforcement pad for fixing of door closers, factory finish, pre-punched cut-outs to receive hardware and ironmongery, 3 mm thick hinge plates predrilled to receive hinges for screw mounted fixing Single Leaf Door GD Series of size 1000 x 2100mm. a. S.S.Ball Bearing Butt Hinges 4" x 3" x 3mm. – 3nos. b. Mortice dead bolt with 5 pin tumbler brass cylinder 70mm thick with both side key operation. – 1no. c. S.S. D' Handles of 19mm Dia of 250mm length. – 2nos. d. Door Closer NT121 (Briton Make). – 1no	1 Nos	16000	3.00	48000
Sub Total Schedule 'B' =					1707981.24
SCHEDULE ' C ' (MISCELLANEOUS WORKS)					
1	Provision for supply and laying vinyl flooring of desired shade and design in lengths or tiles as directed on existing base using approved rubber based adhesive and including cleaning and drying of base thermo welding of seams with	1 SqM	635.00	54.00	34290

	venyl cord etc., complete using : Antistatic flooring 2.0 mm thick				
2	Supply of Modular based cable Sealing system consists following items KFO 6X1 with Flange PA 6.6 30% GF-Flange, Packing space (180x120mm) Frame Dimension (420 x 319 mm) with the following multi diameter Modules and accessories : RM 20 w 40 (0 + 3.5 - 16.5 mm) - 6 Nos, Wedge 120 mm - 1 No, Stay plates galvanised 120 mm - 6 Nos, TSL 10 x 5 sealing strip - 1 No, Assembly Gel (25 ML Pack) - 1 No.	Each	14240.00	3.00	42720
3	Supply and fixing of FRP cable tray of 300 mm width with proper C type couplers on angles	1 M	450.00	48.00	21600
Sub Total Schedule 'C' =					98610
Grand Total for "Reach-1" ie. (Schedule'A') + (Schedule'B') + (Schedule'C')=					5059718.28

Percentage Quoted by Tenderer (above/at par/below) %	
Total value after Tenderer 's percentage (Rupees in words.....)	

(*Price quoted above shall be inclusive of all taxes, levis & freight)



Schedule of works for creation of new POPs at Arani, Thiruvannamalai and Kanchipuram (ie 3 Locations)- SN 20					
Schedule's' for OFC and Electrical cable laying/diversion work including supply of Generator and its associated equipments					
S.No	Description	Units	Rate	Qty	Amount
1	Supply & installation of jointing pit as per drawing with cover and required trenching to ease out cable/duct.	No	3154	6	18924
2	Supply and fixing of cable route markers as per drawing	No	242	15	3630
3	Concreting for protection of OFC Cable	Cu.M	3292	6	19752
4	Trenching to a depth of 1.2Mtr and approximate width for pipe/duct/cable and backfilling after laying OFC as per specification.	Mtr	72	825	59400
5	Cutting hard rock for 0.3 mtr depth of trench	Mtr	221	60	13260
6	Providing dry sand in FRP/RCC joint chambers up to 400mm height	Nos	600	6	3600
7	Laying of HDPE Duct in trenches. Supply and pulling of nylon rope through it.	Mtr	7	900	6300
8	Laying of OFC/QUAD Cable in trench and through HDPE/GI/RCC pipes where ever necessary.	Mtrs	7	975	6825
9	Supply & Provision OFC Joint closure including Splicing (24 Fibre).The Joint Enclosures shall be TVSE, Raychem model FOSC,ROXTEC,3-M Make	Nos	10302	12	123624
10	Rectification & re-splicing of existing mid section OFC Joints. This includes supply and provision of joint repair kit & sleeves	Nos	6480	6	38880
11	Repair of existing OFC Terminal Joint (24 Fibre).This includes splicing of all the 24 Fibres/dropping of fibres/dropping of fibre/pigtail as required.	Nos	3720	12	44640
12	Trenching to a depth of 1mtr below rail/Road/Platform level, placing of G.I Pipe(as per IS 1239 pt.I & pt.ii),50mm dia.(inside) in the trench made, backfilling and ramming	Mtrs	768	75	57600
13	Supply & laying of 50mm dia GI Pipe IS 1239 medium grade with holes drilled as an anti theft measure coupling etc. on bridges/trenches/other surfaces with CC at every 1m as per drawing. Concreting rates shall be separate as per item 3A.	Mtr	387	75	29025
14	Horizontal Drilling at a approximately depth of 1.65/1.2 m below the formation level of the earth including insertion of DWC pipes along with couplings etc.	Mtr	460	75	34500

15	Supply of FMS 24F, Telescopic, 19" Rack mountable with 24 nos ,1U of 0db SC/PC adapters and 24 no. of 900 micron 1.5 Mtr SC/PC pigtails from reputed manufacturer like Raychem, 3M, Rosenberger, etc., Complete to the finished item of work and as directed by the RailTel Engineer - in-charge.	Nos	6338.84	6	38033.04
16	Supply of 25 sq.mm multistrand single core copper cable of make Finolex(Black) including proper copper lugs	Mtr	190	75	14250
17	Supply of 25 sq.mm multistrand single core copper cable of make Finolex(Red) including proper copper lugs	Mtr	190	75	14250
18	Providing of 16 sq.mm multistrand single core copper cable of make Finolex(Green/Yellow) including proper copper lugs	Mtr	129	75	9675
19	Providing of 6 sq.mm multistrand single core copper cable of make Finolex(Green/Yellow) including proper copper lugs	Mtr	65	45	2925
20	Providing 2"PVC Channel/Trough and fixing hardware	Mtr	75	75	5625
21	Providing of 18mm flexible conduit	Mtr	35	90	3150
22	Supply of 10 sq.mm multistrand 3 core flexible copper cable of make Finolex including proper copper lugs	Mtr	210	60	12600
23	Installation of SDH Equipment FMS, Racks etc. including DDF, LADDERS, RUNWAY, PATCH CORDS AND THEIR TESTING AND COMMISSIONING (Permanent installation in Masonry Hut)	Nos	11000	3	33000
24	Supply and installation of encapsulated class type B lightning current arrestors and class C surge arrestors within built terminal isolating device suitable for single phase TT network as per RDSO Specification RDSP/SPN/244/2004 or latest.	Nos	18966	3	56898
25	Supply and installation of Air Condition units 2 TR x 2(Twin type)	Nos	137323	3	411969
26	Supply and installation of Generator set 3Ph 15KVA (including Generator earthing and Platform)	Nos	358546	3	1075638
27	48V/300AH tubular Gel VRLA Maintenance free Battery	Nos	123740.65	3	371221.95
28	230V AC/48V DC 75 Amp with 25A (3+1) Battery Charger	Nos	88726.67	3	266180.01
29	Supply, Testing and Installation of Fire extinguisher. Fire Extinguisher HCFC 123 Type 5Kg	Nos	36548	3	109644
30	Supply of OFC	Mtrs	56.42	750	42315
31	Supply of HDPE Duct	Mtrs	40.13	750	30097.5
32	Supply AC Distribution Box	Nos	8587.5	3	25762.5

33	supply of 100 Amps L&T Digital meter	Nos	9160	3	27480
34	Supply of meter box and Fuse carrier box	Nos	2519	3	7557
35	Supply of DC Dual Source Distribution Box a) Powder coating MS DCDB box 16 SWG of 500mm x 400mm x 120mm with detachable front cover and cable entry holes on top and bottom with dummy caps. b) Single pole DCMCB ratings 6Amps 2Nos. 10 Amps 2 Nos.32Amps 2 Nos. 25 Amps 2 Nos.standard / anger / legrone Havells. c) Copper Bus bar having 6 holes with SS nuts and bolts of size 5mm x 25mm x 200mm-2Nos.	Nos	19465	3	58395
36	Supply of 10sq mm round type leg	Nos	11.45	36	412.2
37	Supply of Copper legs 16sq mm legs	Nos	17.175	36	618.3
38	Supply of Copper legs 25sq mm legs	Nos	28.625	36	1030.5
39	Supply of 35sq mm Copper pin type leg	Nos	28.625	36	1030.5
40	Supply of 2 inch GI pipe	Mtrs	458	18	8244
41	Supply of AC Fuse Carrier 63Amps - 4 Nos. with Box of 10KV power input.	Nos	5152.5	3	15457.5
42	supply of power cable 35 sq.mm 4 core armored Aluminium UG cable max	Mtrs	178.5	150	26775
43	35sq mm cable termination and power supply wiring with necessary lugs and other materials labour charges	Nos	2247.2	6	13483.2
44	concealed wiring work, call cutting, PVC pipe, PVC pipe fixing, db box fixing, db box fixing tube light fixing, switch board fixing, 15 Amps box fixing, 45 watts CFL street Light fixing and wall refilling masonry work	Ls	13258.48	3	39775.44
45	Earthing	Nos	20224.8	3	60674.4
46	Copper Bus bar 5mm X 25mm X 600mm for Termination Earth	Nos	1500	6	9000
Sub Total for Schedule 'A' =					3253127.04
SCHEDULE ' B' (CIVIL WORKS)					
S. No	DESCRIPTION OF ITEM	UNIT	Rate	Qty	Amount
1	Excavation in open foundations, trenches nallah training, drains (exceeding 1.5 M in width or 10 Sq.M on plan) including disposal or stacking of excavated spoil in loose or soft soils which can be removed by spades powrahs or mamoties.	1 CuM	66.08	228.00	15066.24
2	Excavation in trenches for foundations, cables, pipes, nallah training, drains etc., not exceeding 1.5 M in width and for pits, wells, etc., not exceeding 10 SqM on plan including disposal or stacking of excavated spoil. In dense or hard soils which require picks or crowbars for hacking including soils containing stones or boulders measuring under 0.03 cum and boulder studded	1 CuM	90.16	40.00	3606.4

	soils.				
3	Providing and laying cement concrete 1:3:6 (1 cement, 3 sand and 6 aggregate) with 40 mm nominal size graded stone aggregate foundations and plinth/under-floors etc.	1 CuM	2560.40	40.00	102416
4	Supplying and stacking at specified locations on Railway premises : Clean sand	1 CuM	688.80	32.00	22041.6
5	Providing and laying cement concrete 1:1:5:3 (1 cement, 1.5 sand and 3 aggregate) with 20 mm nominal size graded stone aggregate, for reinforced work (excluding cost of fabrication and placing of reinforcement) In foundations, footings base of columns and similar works and mass concrete.	1 CuM	3622.48	33.34	120773.48
6	Providing and laying cement concrete 1:1:5:3 (1 cement, 1.5 sand and 3 aggregate) with 20 mm nominal size graded stone aggregate, for reinforced work (excluding cost of fabrication and placing of reinforcement) In columns, pillars, posts and struts.	1 CuM	3663.08	7.65	28022.56
7	Providing and laying cement concrete 1:1:5:3 (1 cement, 1.5 sand and 3 aggregate) with 20 mm nominal size graded stone aggregate, for reinforced work (excluding cost of fabrication and placing of reinforcement) In suspended floors, roofs, landings, shelves, and their supports, balconies, chajjas, lintels, beams, girders, bressemeres and contilevers etc.,	1 CuM	3661.12	30.66	112249.93
8	Providing form works, including centering shuttering, strutting, propping etc., height of propping and centering from supporting floor to ceiling not exceeding 4 m. and removal of the same, for in-situ concrete work (including reinforced concrete) with all contractor's material for Foundations, footings, bases of columns, etc., and mass concrete	1 SqM	110.88	27.33	3030.35
9	Supplying and providing reinforcement using contractors MS/Tor/TMT Steel HYSD bars for foundations, footings, beams, Lintels, Chajjas, Roof slab, Flooring, Foundations and all other Rcc works etc., including straightening, cutting, bending, cranking and fixing in position and binding reinforcement with contractor's GI binding wire, material, labour, tools, plant, machinery consumbles all lead and lift etc., complete as per approved drawing, specifications and as directed by the Engineer-in-charge.	1 MT	48290.00	8.33	402255.7

10	Providing form works, including centering shuttering, strutting, propping etc., height of propping and centering from supporting floor to ceiling not exceeding 4 m. and removal of the same, for in-situ concrete work (including reinforced concrete) with all contractor's material for Flat surfaces, such as soffits of suspended floors, roofs, landings and the like, for slabs etc.,	1 SqM	152.32	103.32	15737.70
11	Providing form works, including centering shuttering, strutting, propping etc., height of propping and centering from supporting floor to ceiling not exceeding 4 m. and removal of the same, for in-situ concrete work (including reinforced concrete) with all contractor's material for Sides and soffits of beams, beam haunches, cantilevers, girders, bressemeres and lintels etc., less	1 SqM	100.52	160.00	16083.2
12	Providing form works, including centering shuttering, strutting, propping etc., height of propping and centering from supporting floor to ceiling not exceeding 4 m. and removal of the same, for in-situ concrete work (including reinforced concrete) with all contractor's material for Edges of slabs and breaks in floors etc., less than 20 cm width.	1 M	35.56	82.65	2939.03
13	Providing form works, including centering shuttering, strutting, propping etc., height of propping and centering from supporting floor to ceiling not exceeding 4 m. and removal of the same, for in-situ concrete work (including reinforced concrete) with all contractor's material for Chulla hoods, weather shades, chajjas, carbels, etc., including edges.	1 SqM	152.32	5.34	813.38
14	Providing and laying Brick Masonry for superstructure of 230 mm thick walls with CM (1:8) prop. (Cement : Sand) using second class brick from approved source having crushing strength of not less than 40 kg/sqcm and water absorption not exceeding 20% by weight, including cost and conveyance of all materials like cement, sand, bricks, water etc., to site, cost and seingnorage charges on materials including of all labour charges, like mixing cement mortar, wall construction, curing, scaffolding charges, for work at any floor at any level, etc., complete for finished item of works.	1 CuM	3168.93	54.99	174259.46
15	Providing and fixing cold roll formed 1.25 mm thick steel hollow frames for doors and window, complete with fixing lugs, hinges, mortar guards, lock strike plates, buffers, bolt holes, etc., as required including base ties or angle thresholds,	1 M	406.00	20.34	8258.04

	as required and conforming to I.S.4351 Frames to profile A of specification 105 X 60 mm size.				
16	Filling surplus earth from foundations or Railway's earth, murumm ashes or sand in trenches, plinths of floors in layers not exceeding 20 cm. depth and Consolidating each layer by watering and ramming.	1 CuM	24.92	33.33	830.58
17	Providing and fixing skin moulded flush door shutter 35 mm thick for doors to the already fixed to existing frame using screws and cutting the door to required size to suit the existing floor level of the room including painting two coats of enamel paint of approved quality and colour with all accessories like aluminum sliding bolts of 300 mm - 2 nos, aluminium tower bolts of 150 mm - 1 no, aluminium handles - 150 mm - 2 nos, door stopper - 1 no, with all contractor's material tools, labour, machinery lead, lift transport to site etc., complete as directed by the Engineer-in-charge at site.	1 SqM	3190.00	6.00	19140
18	Manufacturing, providing and fixing powder coated Aluminium sliding windows with track 61 x 31x1.5 mm fixed to box size 63x31x2mm and 4 mm glass including all contractors materials, tools, tackles, labour, cement, lead, lift etc., complete and as directed by Engineer-in-charge at site.	1 SqM	4200.00	3.99	16758
19	Providing and Plastering 12 mm thick for even surface of brick masonry walls in two coats iwht base coat of 8 mm thick in CM (1:6) and top coats of 4 mm thick CM (1:4) with dubara sponge finishing including coast ad conveyance of all mateials cement, sand, bricks, water etc., to site including all operational incidental charges, cost and seingniorage charges on materials and all labour charges for mixing mortar, finishing, curing, scaffolding charges, lifting charges including cutting grooves wherever necessary etc., for any floor at any level, etc., complete for finished item of works.	1 SqM	160.65	319.98	51404.78
20	Providing and Plastering 20 mm thick for uneven surface of brick masonry walls in two coats iwht base coat of 8 mm thick in CM (1:6) and top coats of 4 mm thick CM (1:4) with dubara sponge finishing including coast ad conveyance of all mateials cement, sand, bricks, water etc., to site including all operational incidental charges, cost and seingniorage charges on materials and all labour charges for mixing mortar, finishing, curing, scaffolding charges, lifting charges including cutting grooves wherever necessary	1 SqM	182.26	290.64	52972.04

	etc., for any floor at any level, etc., complete for finished item of works.				
21	Providing and Plastering 12 mm thick for even surface of block masonry walls in two coats with base coat of 8 mm thick in CM (1:6) and top coats of 4 mm thick CM (1:4) with dubara sponge finishing including coast ad conveyance of all materials cement, sand, bricks, water etc., to site including all operational incidental charges, cost and seingniorage charges on materials and all labour charges for mixing mortar, finishing, curing, scaffolding charges, lifting charges including cutting grooves wherever necessary etc., for any floor at any level, etc., complete for finished item of works.	1 SqM	164.88	118.65	19563.01
22	Providing and laying flooring in Granolithic concrete over CC Bed of 40 mm thick with CC (1:12) prop using 12 mm HBG graded hard ganite machine crushed metal laid in panels (alternately) of size not exceeding 1.5 m X1.5 m divided by 4 mm thick glass strips 40 mm depth and finishing the top surface to required smoothness ans slopes, including cost and conveyance of all materials to site, all labour charges, full rounding and polishing on edges, mixing of cement mortar, curing etc., complete for finished item of work (excluding cost of C.C. Bed)	1 SqM	181.32	54.00	9791.28
23	Providing and fixing Ceramic tiles of standard company such as Johnson, Regency & Spartek etc., in flooring fixed over 25 mm thick cement palster 1:3 with contractors materials, labour, tools, plant, machinery, consumables, all lead and lift etc., complete as per approved drawing specifications an as directed by the Engineer-in-charge.	1 SqM	418.00	25.98	10859.64
24	Providing and fixing Ceramic tiles of standard company such as Johnson, Regency & Spartek etc., in skirtingand dadoing fixed over 25 mm thick cement palster 1:3 with contractors materials, labour, tools, plant, machinery, consumables, all lead and lift etc., complete as per approved drawing specifications an as directed by the Engineer-in-charge.	1 SqM	378.00	46.98	17758.44
25	Supply and fixing of MS Grills made of 12 mm MS square bars (Brite or equivalent) as per the drawing with MS hold fasts for the frame for fixing into side walls, including cost and conveyance of all materials to site, labour charges, forwelding, grinding of joints, fixing into masonary and painting with one primary coat	1 Kg	61.07	139.32	8508.27

	of red oxide, etc., complete for finished item of work for all floors.				
26	Providing and laying Imprevious coat to exposed RCC Roof slab and sunken slab surfaces to required slopes with CM compound of approved compound from reputed manufacturers at 1 Kg/bag of cement (or as per manufacturers specifications) laid over roof slab when it is green including cost and conveyance of all materials like cement, sand, water proofing compound etc., to site, seigniorage charges and labour charges, rendering smooth and thread lining at regular intervals round off junction of wall and slab curing, lift charges etc., for any floor at any level, complete for finished item of work.	1 SqM	202.93	123.33	25027.35
27	Providing and applying to walls /ceiling ,two coats of cement based putty of white or any other approved colour, of approved brand including preparation of surface by cleaning /scraping the surface with wire brushes etc., to remove all loose flakes dirt, dust, grease, oil, mortar droppings etc., so as to make the surface fit for receiving putty and applying two coats to get an even surface with time interval of minimum 3 hours between successive coats , gently leveling the surface with water proofing emery/sand paper with all contractor's men material, tools and plants ,all lead lift including scaffolding wherever necessary and cleaning of work area on completion of work etc., complete as per specification and as directed by engineer in charge. For external surfaces	1Sqm	69.46	313.32	21763.20
28	Providing and applying to walls /ceiling ,two coats of cement based putty of white or any other approved colour, of approved brand including preparation of surface by cleaning /scraping the surface with wire brushes etc., to remove all loose flakes dirt, dust, grease, oil, mortar droppings etc., so as to make the surface fit for receiving putty and applying two coats to get an even surface with time interval of minimum 3 hours between successive coats , gently leveling the surface with water proofing emery/sand paper with all contractor's men material, tools and plants ,all lead lift including scaffolding wherever necessary and cleaning of work area on completion of work etc., complete as per specification and as directed by engineer in charge. For Internal surfaces	1Sqm	62.13	417.33	25928.71
29	Applying one coat of cement primer of approved brand and manufacture on wall surface	1Sqm	21.75	730.65	15891.63

30	Wall painting on new work with two or more coats of plastic emulsion paint of approved brand and manufacture to give an even shade	1Sqm	53.05	417.33	22139.35
31	Finishing walls with Acrylic Smooth exterior paint with Silicone additives of required shade on new work (Two or more coats applied @ 1.67ltr/10 sqm over and including one coat of water proofing cement paint applied @ 2.20 kg/10sqm	1Sqm	73.95	313.32	23170.01
32	Extra over Items for roller painting in lieu of normal brush painting if specifically ordered	1Sqm	10.39	417.33	4336.05
33	Painting two coats over existing priming coat on steel or other metal surfaces to give an even shade including cleaning surfaces of all dirt, dust and other foreign matter, for surfaces over 10 cm. In width/girth, using : Synthetic enamel paint, brushing exterior type 1	1 SqM	39.48	8.34	329.26
34	Providing form works, including centering shuttering, strutting, propping etc., height of propping and centering from supporting floor to ceiling not exceeding 4 m. and removal of the same, for in-situ concrete work (including reinforced concrete) with all contractor's material for : Columns, pillars and post square, rectangular, or polygonal in plan.	1 SqM	134.12	114.00	15289.68
35	Providing and fixing fly proof galvanized M.S.wire gauge to windows and clerestory windows using galvanized M.S.wire gauge with average width of aperture 1.4 mm in both directions with wire of dia 0.63mm With 2nd class teak wood beading 50x20 mm	1Sqm	568.51	3.99	2268.35
36	Coursed rubble masonry second sort in foundations and plinth In cement mortar 1:6(1 cement, 6 sand)	cum	1805.08	73.98	133539.81
37	Supplying and stacking at specified locations on Railway premises :Murum	cum	204.96	124.65	25548.26
38	Pointing on second sort coursed stone masonry with Ruled pointing with cement mortar 1:4 (1 cement, 4 sand)	1Sqm	85.65	122.64	10504.11

RAILTEL

39	<p>Providing and fixing Armstrong Acoustical suspended ceiling system with OPTRA micro look title, the title should have thickness of 15/20mm & Humidity resistance of 95% RH, Average NRC 0.90 sound attenuation of 20db, light reflectance >84%, Thermal conductivity k=0.036 w/mok, colour white, Fire performance class 0/class 1(BS-476) in module size of 600mmx600mmx15/20mm laid on Armstrong silhouette B/R grid systems with T-section flanges colour white having rotary stitching on the main runner 1200mmx600mm cross Tees, The grid should be of Armstrong make with 38 web height wide T-section flanges colour white having rotary stitching on all T sections i.e the main runner 1200mm & 600mm cross Tee. The T section to have galvanizing of 120 gms for per m2 & passed through 500 hrs of salt test. The title & Grid system used together should carry a 15 years warrantee with all contractors labour, tools, materials, lead, lift, vat, transportation etc complete and as directed by Engineer-in-charge at site, specification of Calcium silicate ceiling Tiles</p>	sqm	1817	54.00	98118
40	<p>Providing and fixing of Steel Flush doors at all levels fully flush type of 46 mm thick pressed galvanized sheet single /double leaf of (Shakti Met-Dor Ltd . or approved equivalent make) which consists of frame, shutter, infill and finish as detailed below and conforming to IS 277. Door frame shall be single rebate profile of size 100 x 57 mm with bending radius of 1.00 mm having 1.25 mm thick galvanized steel sheet (18 gauge) with steel door shutter of 46 mm thick fully flush, double skin door shall be manufactured from 0.80 mm thick galvanized steel sheet (22 gauge). The infill material shall be resin bonded honey comb paper with thermal insulation. Door frames and shutter shall be finished with etched primer coating, stoved zinc phosphate primer and thermosetting polyurathene aliphatic grade paint (35 micron DFT) of approved colour. Rate shall include supply and fix 3 mm thick base plates, all joints of frames with provision for anchor bottom fixing to wall / RC surface, reinforcement pad for fixing of door closers, factory finish, pre-punched cut-outs to receive hardware and ironmongery, 3 mm thick hinge plates predrilled to receive hinges for screw mounted fixing Single Leaf Door GD Series of size 1000 x 2100mm.</p>	1 Nos	16000	3.00	48000

	a. S.S.Ball Bearing Butt Hinges 4" x 3" x 3mm. – 3nos. b. Mortice dead bolt with 5 pin tumbler brass cylinder 70mm thick with both side key operation. – 1no. c. S.S. D' Handles of 19mm Dia of 250mm length. – 2nos. d. Door Closer NT121 (Briton Make). – 1no				
Sub Total for Schedule 'B' =					1706993.00
SCHEDULE ' C ' (MISCELLANEOUS WORKS-Civil)					
1	Provision for supply and laying vinyl flooring of desired shade and design in lengths or tiles as directed on existing base using approved rubber based adhesive and including cleaning and drying of base thermo welding of seams with vinyl cord etc., complete using : Antistatic flooring 2.0 mm thick	1 SqM	635.00	54.00	34290
2	Supply of Modular based cable Sealing system consists following items KFO 6X1 with Flange PA 6.6 30% GF-Flange, Packing space (180x120mm) Frame Dimension (420 x 319 mm) with the following multi diameter Modules and accessories : RM 20 w 40 (0 + 3.5 - 16.5 mm) - 6 Nos, Wedge 120 mm - 1 No, Stay plates galvanised 120 mm - 6 Nos, TSL 10 x 5 sealing strip - 1 No, Assembly Gel (25 ML Pack) - 1 No.	Each	14240.00	3.00	42720
3	Supply and fixing of FRP cable tray of 300 mm width with proper C type couplers on angles	1 M	450.00	48.00	21600
Sub Total for Schedule 'C' =					98610
Grand Total for "Reach-2" ie. (Schedule'A') + (Schedule'B') + (Schedule'C') =					5058730.42

Percentage Quoted by Tenderer (above/at par/below) %	
Total value after Tenderer 's percentage (Rupees in words.....)	

(*Price quoted above shall be inclusive of all taxes, levis & freight)

RAILTEL

Schedule of works for creation of new POPs at Metupalayam, Ooty and Coonoor (ie 3 Locations)- SN 21					
Schedule 'A' for OFC and Electrical cable laying/diversion work including supply of Generator and its associated equipments					
S.No	Description	Units	Rate	Qty	Amount
1	Supply & installation of jointing pit as per drawing with cover and required trenching to ease out cable/duct.	No	3154	6	18924
2	Supply and fixing of cable route markers as per drawing	No	242	15	3630
3	Concreting for protection of OFC Cable	Cu.M	3292	6	19752
4	Trenching to a depth of 1.2Mtr and approximate width for pipe/duct/cable and backfilling after laying OFC as per specification.	Mtr	72	825	59400
5	Cutting hard rock for 0.3 mtr depth of trench	Mtr	221	150	33150
6	Providing dry sand in FRP/RCC joint chambers up to 400mm height	Nos	600	6	3600
7	Laying of HDPE Duct in trenches. Supply and pulling of nylon rope through it.	Mtr	7	900	6300
8	Laying of OFC/QUAD Cable in trench and through HDPE/GI/RCC pipes where ever necessary.	Mtrs	7	975	6825
9	Supply & Provision OFC Joint closure including Splicing (24 Fibre).The Joint Enclosures shall be TVSE,Raychem model FOSC,ROXTEC,3-M Make	Nos	10302	12	123624
10	Rectification & re-splicing of existing mid section OFC Joints. This includes supply and provision of joint repair kit & sleeves	Nos	6480	6	38880
11	Repair of existing OFC Terminal Joint (24 Fibre).This includes splicing of all the 24 Fibres/dropping of fibres/dropping of fibre/pigtail as required.	Nos	3720	12	44640
12	Trenching to a depth of 1mtr below rail/Road/Platform level, placing of G.I Pipe(as per IS 1239 pt.I & pt.ii),50mm dia.(inside) in the trench made, backfilling and ramming	Mtrs	768	75	57600
13	Supply & laying of 50mm dia GI Pipe IS 1239 medium grade with holes drilled as an anti theft measure coupling etc. on bridges/trenches/other surfaces with CC at every 1m as per drawing. Concreting rates shall be separate as per item 3A.	Mtr	387	75	29025
14	Horizontal Drilling at a approximately depth of 1.65/1.2 m below the formation level of the earth including insertion of DWC pipes along with couplings etc.	Mtr	460	75	34500

15	Supply of FMS 24F, Telescopic, 19" Rack mountable with 24 nos ,1U of 0db SC/PC adapters and 24 no. of 900 micron 1.5 Mtr SC/PC pigtailed from reputed manufacturer like Raychem, 3M, Rosenberger, etc., Complete to the finished item of work and as directed by the RailTel Engineer - in-charge.	Nos	6338.84	6	38033.04
16	Supply of 25 sq.mm multistrand single core copper cable of make Finolex(Black) including proper copper lugs	Mtr	190	75	14250
17	Supply of 25 sq.mm multistrand single core copper cable of make Finolex(Red) including proper copper lugs	Mtr	190	75	14250
18	Providing of 16 sq.mm multistrand single core copper cable of make Finolex(Green/Yellow) including proper copper lugs	Mtr	129	75	9675
19	Providing of 6 sq.mm multistrand single core copper cable of make Finolex(Green/Yellow) including proper copper lugs	Mtr	65	45	2925
20	Providing 2"PVC Channel/Trough and fixing hardware	Mtr	75	75	5625
21	Providing of 18mm flexible conduit	Mtr	35	90	3150
22	Supply of 10 sq.mm multistrand 3 core flexible copper cable of make Finolex including proper copper lugs	Mtr	210	60	12600
23	Installation of SDH Equipment FMS, Racks etc. including DDF, LADDERS, RUNWAY, PATCH CORDS AND THEIR TESTING AND COMMISSIONING (Permanent installation in Masonry Hut)	Nos	11000	3	33000
24	Supply and installation of encapsulated class type B lightning current arrestors and class C surge arrestors within built terminal isolating device suitable for single phase TT network as per RDSO Specification RDSP/SPN/244/2004 or latest.	Nos	18966	3	56898
25	Supply and installation of Air Condition units 2 TR x 2(Twin type)	Nos	137323	3	411969
26	Supply and installation of Generator set 3Ph 15KVA (including Generator earthing and Platform)	Nos	358546	3	1075638
27	48V/300AH tubular Gel VRLA Maintenance free Battery	Nos	123740.65	3	371221.95
28	230V AC/48V DC 75 Amp with 25A (3+1) Battery Charger	Nos	88726.67	3	266180.01
29	Supply, Testing and Installation of Fire extinguisher. Fire Extinguisher HCFC 123 Type 5Kg	Nos	36548	3	109644
30	Supply of OFC	Mtrs	56.42	750	42315
31	Supply of HDPE Duct	Mtrs	40.13	750	30097.5
32	Supply AC Distribution Box	Nos	8587.5	3	25762.5

33	supply of 100 Amps L&T Digital meter	Nos	9160	3	27480
34	Supply of meter box and Fuse carrier box	Nos	2519	3	7557
35	Supply of DC Dual Source Distribution Box a) Powder coating MS DCDB box 16 SWG of 500mm x 400mm x 120mm with detachable front cover and cable entry holes on top and bottom with dummy caps. b) Single pole DCMCB ratings 6Amps 2Nos. 10 Amps 2 Nos.32Amps 2 Nos. 25 Amps 2 Nos.standard / anger / legrone Havells. c) Copper Bus bar having 6 holes with SS nuts and bolts of size 5mm x 25mm x 200mm-2Nos.	Nos	19465	3	58395
36	Supply of 10sq mm round type leg	Nos	11.45	36	412.2
37	Supply of Copper legs 16sq mm legs	Nos	17.175	36	618.3
38	Supply of Copper legs 25sq mm legs	Nos	28.625	36	1030.5
39	Supply of 35sq mm Copper pin type leg	Nos	28.625	36	1030.5
40	Supply of 2 inch GI pipe	Mtrs	458	18	8244
41	Supply of AC Fuse Carrier 63Amps - 4 Nos. with Box of 10KV power input.	Nos	5152.5	3	15457.5
42	supply of power cable 35 sq.mm 4 core armored Aluminium UG cable max	Mtrs	178.5	150	26775
43	35sq mm cable termination and power supply wiring with necessary lugs and other materials labour charges	Nos	2247.2	6	13483.2
44	concealed wiring work,call cutting ,pvc pipe ,pvc pipe fixing,db box fixing ,db box fixing tube light fixing ,switch board fixing,15 Amps box fixing ,45 watts CFL street Light fixing and wall refilling masonry work	Ls	13258.48	3	39775.44
45	Earthing	Nos	20224.8	3	60674.4
46	Copper Bus bar 5mm X 25mm X 600mm for Terminationg Earth	Nos	1500	6	9000
Sub Total for Schedule'A' =					3273017.04
SCHEDULE ' B' (CIVIL WORKS)					
S. No	DESCRIPTION OF ITEM	UNIT	Rate	Qty	Amount
1	Excavation in open foundations, trenches nallah training, drains (exceeding 1.5 M in width or 10 Sq.M on plan) including disposal or stacking of excavated spoil in loose or soft soils which can be removed by spades powrahs or mamoties.	1 CuM	66.08	226.00	14934.08

2	Excavation in trenches for foundations, cables, pipes, nallah training, drains etc., not exceeding 1.5 M in width and for pits, wells, etc., not exceeding 10 SqM on plan including disposal or stacking of excavated spoil. In dense or hard soils which require picks or crowbars for hacking including soils containing stones or boulders measuring under 0.03 cum and boulder studded soils.	1 CuM	90.16	40.00	3606.4
3	Providing and laying cement concrete 1:3:6 (1 cement, 3 sand and 6 aggregate) with 40 mm nominal size graded stone aggregate foundations and plinth/under-floors etc.	1 CuM	2560.40	40.00	102416
4	Supplying and stacking at specified locations on Railway premises : Clean sand	1 CuM	688.80	32.00	22041.6
5	Providing and laying cement concrete 1:1.5:3 (1 cement, 1.5 sand and 3 aggregate) with 20 mm nominal size graded stone aggregate, for reinforced work (excluding cost of fabrication and placing of reinforcement) In foundations, footings base of columns and similar works and mass concrete.	1 CuM	3622.48	33.34	120773.48
6	Providing and laying cement concrete 1:1.5:3 (1 cement, 1.5 sand and 3 aggregate) with 20 mm nominal size graded stone aggregate, for reinforced work (excluding cost of fabrication and placing of reinforcement) In columns, pillars, posts and struts.	1 CuM	3663.08	7.65	28022.56
7	Providing and laying cement concrete 1:1.5:3 (1 cement, 1.5 sand and 3 aggregate) with 20 mm nominal size graded stone aggregate, for reinforced work (excluding cost of fabrication and placing of reinforcement) In suspended floors, roofs, landings, shelves, and their supports, balconies, chajjas, lintels, beams, girders, bressemeres and cantilevers etc.,	1 CuM	3661.12	30.66	112249.93
8	Providing form works, including centering shuttering, strutting, propping etc., height of propping and centering from supporting floor to ceiling not exceeding 4 m. and removal of the same, for in-situ concrete work (including reinforced concrete) with all contractor's material for Foundations, footings, bases of columns, etc., and mass concrete	1 SqM	110.88	27.33	3030.35

9	Supplying and providing reinforcement using contractors MS/Tor/TMT Steel HYSD bars for foundations, footings, beams, Lintels, Chajjas, Roof slab, Flooring, Foundations and all other Rcc works etc., including straightening, cutting, bending, cranking and fixing in position and binding reinforcement with contractor's GI binding wire, material, labour, tools, plant, machinery consumbles all lead and lift etc., complete as per approved drawing, specifications and as directed by the Engineer-in-charge.	1 MT	48290.00	8.33	402255.7
10	Providing form works, including centering shuttering, strutting, propping etc., height of propping and centering from supporting floor to ceiling not exceeding 4 m. and removal of the same, for in-situ concrete work (including reinforced concrete) with all contractor's material for Flat surfaces, such as soffits of suspended floors, roofs, landings and the like, for slabs etc.,	1 SqM	152.32	103.32	15737.70
11	Providing form works, including centering shuttering, strutting, propping etc., height of propping and centering from supporting floor to ceiling not exceeding 4 m. and removal of the same, for in-situ concrete work (including reinforced concrete) with all contractor's material for Sides and soffits of beams, beam haunches, cantilevers, girders, bressemer and lintels etc., less	1 SqM	100.52	160.00	16083.2
12	Providing form works, including centering shuttering, strutting, propping etc., height of propping and centering from supporting floor to ceiling not exceeding 4 m. and removal of the same, for in-situ concrete work (including reinforced concrete) with all contractor's material for Edges of slabs and breaks in floors etc., less than 20 cm width.	1 M	35.56	82.65	2939.03
13	Providing form works, including centering shuttering, strutting, propping etc., height of propping and centering from supporting floor to ceiling not exceeding 4 m. and removal of the same, for in-situ concrete work (including reinforced concrete) with all contractor's material for Chulla hoods, weather shades, chajjas, carbels, etc., including edges.	1 SqM	152.32	5.34	813.38

14	Providing and laying Brick Masonry for superstructure of 230 mm thick walls with CM (1:8) prop. (Cement : Sand) using second class brick from approved source having crushing strength of not less than 40 kg/sqcm and water absorption not exceeding 20% by weight, including cost and conveyance of all materials like cement, sand, bricks, water etc., to site, cost and seingnorage charges on materials including of all labour charges, like mixing cement mortar, wall construction, curing, scaffolding charges, for work at any floor at any level, etc., complete for finished item of works.	1 CuM	3168.93	54.99	174259.46
15	Providing and fixing cold roll formed 1.25 mm thick steel hollow frames for doors and window, complete with fixing lugs, hinges, mortar guards, lock strike plates, buffers, bolt holes, etc., as required including base ties or angle thresholds, as required and conforming to I.S.4351 Frames to profile A of specification 105 X 60 mm size.	1 M	406.00	20.34	8258.04
16	Filling surplus earth from foundations or Railway's earth, murumm ashes or sand in trenches, plinths of floors in layers not exceeding 20 cm. depth and Consolidating each layer by watering and ramming.	1 CuM	24.92	33.33	830.58
17	Providing and fixing skin moulded flush door shutter 35 mm thick for doors to the already fixed to existing frame using screws and cutting the door to required size to suit the existing floor level of the room including painting two coats of enamel paint of approved quality and colour with all accessories like aluminium sliding bolts of 300 mm - 2 nos, aluminium tower bolts of 150 mm - 1 no, aluminium handles - 150 mm - 2 nos, door stopper - 1 no, with all contractor's material tools, labour, machinery lead, lift transport to site etc., complete as directed by the Engineer-in-charge at site.	1 SqM	3190.00	6.00	19140
18	Manufacturing, providing and fixing powder coated Aluminium sliding windows with track 61 x 31x1.5 mm fixed to box size 63x31x2mm and 4 mm glass including all contractors materials, tools, tackles, labour, cement, lead, lift etc., complete and as directed by Engineer-in-charge at site.	1 SqM	4200.00	3.99	16758

19	Providing and Plastering 12 mm thick for even surface of brick masonry walls in two coats iwht base coat of 8 mm thick in CM (1:6) and top coats of 4 mm thick CM (1:4) with dubara sponge finishing including coast ad conveyance of all mateials cement, sand, bricks, water etc., to site including all operational incidental charges, cost and seingniorage charges on materials and all labour charges for mixing mortar,finishing, curing, scaffolding charges, lifting charges including cutting grooves wherever neccessary etc., for any floor at any level, etc., complete for finished item of works.	1 SqM	160.65	319.98	51404.78
20	Providing and Plastering 20 mm thick for uneven surface of brick masonry walls in two coats iwht base coat of 8 mm thick in CM (1:6) and top coats of 4 mm thick CM (1:4) with dubara sponge finishing including coast ad conveyance of all mateials cement, sand, bricks, water etc., to site including all operational incidental charges, cost and seingniorage charges on materials and all labour charges for mixing mortar,finishing, curing, scaffolding charges, lifting charges including cutting grooves wherever neccessary etc., for any floor at any level, etc., complete for finished item of works.	1 SqM	182.26	290.64	52972.04
21	Providing and Plastering 12 mm thick for even surface of block masonry walls in two coats with base coat of 8 mm thick in CM (1:6) and top coats of 4 mm thick CM (1:4) with dubara sponge finishing including coast ad conveyance of all materials cement, sand, bricks, water etc., to site including all operational incidental charges, cost and seingniorage charges on materials and all labour charges for mixing mortar, finishing, curing, scaffolding charges, lifting charges including cutting grooves wherever necessary etc., for any floor at any level, etc., complete for finished item of works.	1 SqM	164.88	118.65	19563.01
22	Providing and laying flooring in Granolithic concrete over CC Bed of 40 mm thick with CC (1:12) prop using 12 mm HBG graded hard ganite machine crushed metal laid in panels (alternately) of size not exceeding 1.5 m X1.5 m divided by 4 mm thick glass strips 40 mm depth and finishing the top surface to required smoothness ans slopes, including cost and conveyance of all materials to site, all labour charges, full rounding and polishing on edges, mixing of cement mortar, curing etc., complete for finished item of work (excluding cost of C.C.	1 SqM	181.32	54.00	9791.28

	Bed)				
23	Providing and fixing Ceramic tiles of standard company such as Johnson, Regency & Spartek etc., in flooring fixed over 25 mm thick cement palster 1:3 with contractors materials, labour, tools, plant, machinery, consumables, all lead and lift etc., complete as per approved drawing specifications an as directed by the Engineer-in-charge.	1 SqM	418.00	25.98	10859.64
24	Providing and fixing Ceramic tiles of standard company such as Johnson, Regency & Spartek etc., in skirting and dadoing fixed over 25 mm thick cement palster 1:3 with contractors materials, labour, tools, plant, machinery, consumables, all lead and lift etc., complete as per approved drawing specifications an as directed by the Engineer-in-charge.	1 SqM	378.00	46.98	17758.44
25	Supply and fixing of MS Grills made of 12 mm MS square bars (Brite or equivalent) as per the drawing with MS hold fasts for the frame for fixing into side walls, including cost and conveyance of all materials to site, labour charges, forwelding, grinding of joints, fixing into masonry and painting with one primary coat of red oxide, etc., complete for finished item of work for all floors.	1 Kg	61.07	139.32	8508.27
26	Providing and laying Imprevious coat to exposed RCC Roof slab and sunken slab surfaces to required slopes with CM compound of approved compound from reputed manufacturers at 1 Kg/bag of cement (or as per manufacturers specifications) laid over roof slab when it is green including cost and conveyance of all materials like cement, sand, water proofing compound etc., to site, seigniorage charges and labour charges, rendering smooth and thread lining at regular intervals round off junction of wall and slab curing, lift charges etc., for any floor at any level, complete for finished item of work.	1 SqM	202.93	123.33	25027.35
27	Providing and applying to walls /ceiling ,two coats of cement based putty of white or any other approved colour, of approved brand including preparation of surface by cleaning /scraping the surface with wire brushes etc., to remove all loose flakes dirt, dust, grease, oil, mortar droppings etc., so as to make the surface fit for receiving putty and applying two coats to get an even surface with time interval of minimum 3 hours between successive coats , gently levelling the surface with water proofing emery/sand paper with all contractor's men material, tools and	1 Sqm	69.46	313.32	21763.20

	plants ,all lead lift including scaffolding wherever necessary and cleaning of work area on completion of work etc., complete as per specification and as directed by engineer in charge. For external surfaces				
28	Providing and applying to walls /ceiling ,two coats of cement based putty of white or any other approved colour, of approved brand including preparation of surface by cleaning /scraping the surface with wire brushes etc., to remove all loose flakes dirt, dust, grease, oil, mortar droppings etc., so as to make the surface fit for receiving putty and applying two coats to get an even surface with time interval of minimum 3 hours between successive coats , gently leveling the surface with water proofing emery/sand paper with all contractor's men material, tools and plants ,all lead lift including scaffolding wherever necessary and cleaning of work area on completion of work etc., complete as per specification and as directed by engineer in charge. For Internal surfaces	1Sqm	62.13	417.33	25928.71
29	Applying one coat of cement primer of approved brand and manufacture on wall surface	1Sqm	21.75	730.65	15891.63
30	Wall painting on new work with two or more coats of plastic emulsion paint of approved brand and manufacture to give an even shade	1Sqm	53.05	417.33	22139.35
31	Finishing walls with Acrylic Smooth exterior paint with Silicone additives of required shade on new work (Two or more coats applied @ 1.67ltr/10 sqm over and including one coat of water proofing cement paint applied @ 2.20 kg/10sqm	1Sqm	73.95	313.32	23170.01
32	Extra over Items for roller painting in lieu of normal brush painting if specifically ordered	1Sqm	10.39	417.33	4336.05
33	Painting two coats over existing priming coat on steel or other metal surfaces to give an even shade including cleaning surfaces of all dirt, dust and other foreign matter, for surfaces over 10 cm. In width/girth, using : Synthetic enamel paint, brushing exterior type 1	1 SqM	39.48	8.34	329.26
34	Providing form works, including centering shuttering, strutting, propping etc., height of propping and centering from supporting floor to ceiling not exceeding 4 m. and removal of the same, for in-situ concrete work (including reinforced concrete) with all contractor's material for : Columns, pillars and post square, rectangular, or polygonal in plan.	1 SqM	134.12	114.00	15289.68

35	Providing and fixing fly proof galvanized M.S.wire gauge to windows and clerestory windows using galvanized M.S.wire gauge with average width of aperture 1.4 mm in both directions with wire of dia 0.63mm With 2nd class teak wood beading 50x20 mm	1Sqm	568.51	3.99	2268.35
36	Coursed rubble masonry second sort in foundations and plinth In cement mortar 1:6(1 cement, 6 sand)	cum	1805.08	73.98	133539.81
37	Supplying and stacking at specified locations on Railway premises :Murum	cum	204.96	124.65	25548.26
38	Pointing on second sort coursed stone masonry with Ruled pointing with cement mortar 1:4 (1 cement, 4 sand)	1Sqm	85.65	122.64	10504.11
39	Providing and fixing Armstrong Acoustical suspended ceiling system with OPTRA micro look tile,the tile should have thickness of 15/20mm & Humidity resistance of 95% RH,Average NRC 0.90 sound attenuation of 20db,light reflectance >84%,Thermal conductivity k=0.036 w/mok, colour white, Fire performance class 0/class 1(BS-476) in module size of 600mmx600mmx15/20mm laid on Armstrong silhouette B/R grid systems with T-section flanges colour white having rotary stitching on the main runner 1200mmx600mm cross Tees, The grid should be of Armstrong make with 38 web height wide T-section flanges colour white having rotary stitching on all T sections i.e the main runner 1200mm & 600mm cross Tee. The T section to have galvanizing of 120 gms for per m2 & passed through 500 hrs of salt test. The tile & Grid system used together should carry a 15 years warrantee with all contractors labour, tools, materials, lead, lift, vat, transportation etc complete and as directed by Engineer-in-charge at site, specification of Calcium silicate ceiling Tiles	sqm	1817	54.00	98118

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40	<p>Providing and fixing of Steel Flush doors at all levels fully flush type of 46 mm thick pressed galvanized sheet single /double leaf of (Shakti Met-Dor Ltd . or approved equivalent make) which consists of frame, shutter, infill and finish as detailed below and conforming to IS 277. Door frame shall be single rebate profile of size 100 x 57 mm with bending radius of 1.00 mm having 1.25 mm thick galvanized steel sheet (18 gauge) with steel door shutter of 46 mm thick fully flush, double skin door shall be manufactured from 0.80 mm thick galvanized steel sheet (22 gauge). The infill material shall be resin bonded honey comb paper with thermal insulation. Door frames and shutter shall be finished with etched primer coating, stoved zinc phosphate primer and thermosetting polyurathene aliphatic grade paint (35 micron DFT) of approved colour. Rate shall include supply and fix 3 mm thick base plates, all joints of frames with provision for anchor bottom fixing to wall / RC surface, reinforcement pad for fixing of door closers, factory finish, pre-punched cut-outs to receive hardware and ironmongery, 3 mm thick hinge plates predrilled to receive hinges for screw mounted fixing Single Leaf Door GD Series of size 1000 x 2100mm.</p> <p>a. S.S.Ball Bearing Butt Hinges 4” x 3” x 3mm. – 3nos.</p> <p>b. Mortice dead bolt with 5 pin tumbler brass cylinder 70mm thick with both side key operation. – 1no.</p> <p>c. S.S. D’ Handles of 19mm Dia of 250mm length. – 2nos.</p> <p>d. Door Closer NT121 (Briton Make). – 1no</p>	1 Nos	16000	3.00	48000
Sub Total for Schedule 'B' =					1706860.84
SCHEDULE ' C ' (MISCELLANEOUS WORKS-Civil)					
1	Provision for supply and laying venyl flooring of desired shade and design in lengths or tiles as directed on existing base using approved rubber based adhesive and including cleaning and drying of base thermo welding of seams with venyl cord etc., complete using : Antistatic flooring 2.0 mm thick	1 SqM	635.00	54.00	34290
2	Supply of Modular based cable Sealing system consists following items KFO 6X1 with Flange PA 6.6 30% GF-Flange, Packing space (180x120mm) Frame Dimension (420 x 319 mm) with the following multi diameter Modules and accessories : RM 20 w 40 (0 + 3.5 - 16.5 mm) - 6 Nos, Wedge 120 mm - 1 No, Stay plates	Each	14240.00	3.00	42720

	galvanised 120 mm - 6 Nos, TSL 10 x 5 sealing strip - 1 No, Assembly Gel (25 ML Pack) - 1 No.				
3	Supply and fixing of FRP cable tray of 300 mm width with proper C type couplers on angles	1 M	450.00	48.00	21600
	Sub Total for Schedule 'C' =				98610
	Grand Total for "Reach-2" ie. (Schedule'A') + (Schedule'B') + (Schedule'C') =				5078487.88

Percentage Quoted by Tenderer (above/at par/below) %	
Total value after Tenderer 's percentage (Rupees in words.....)	

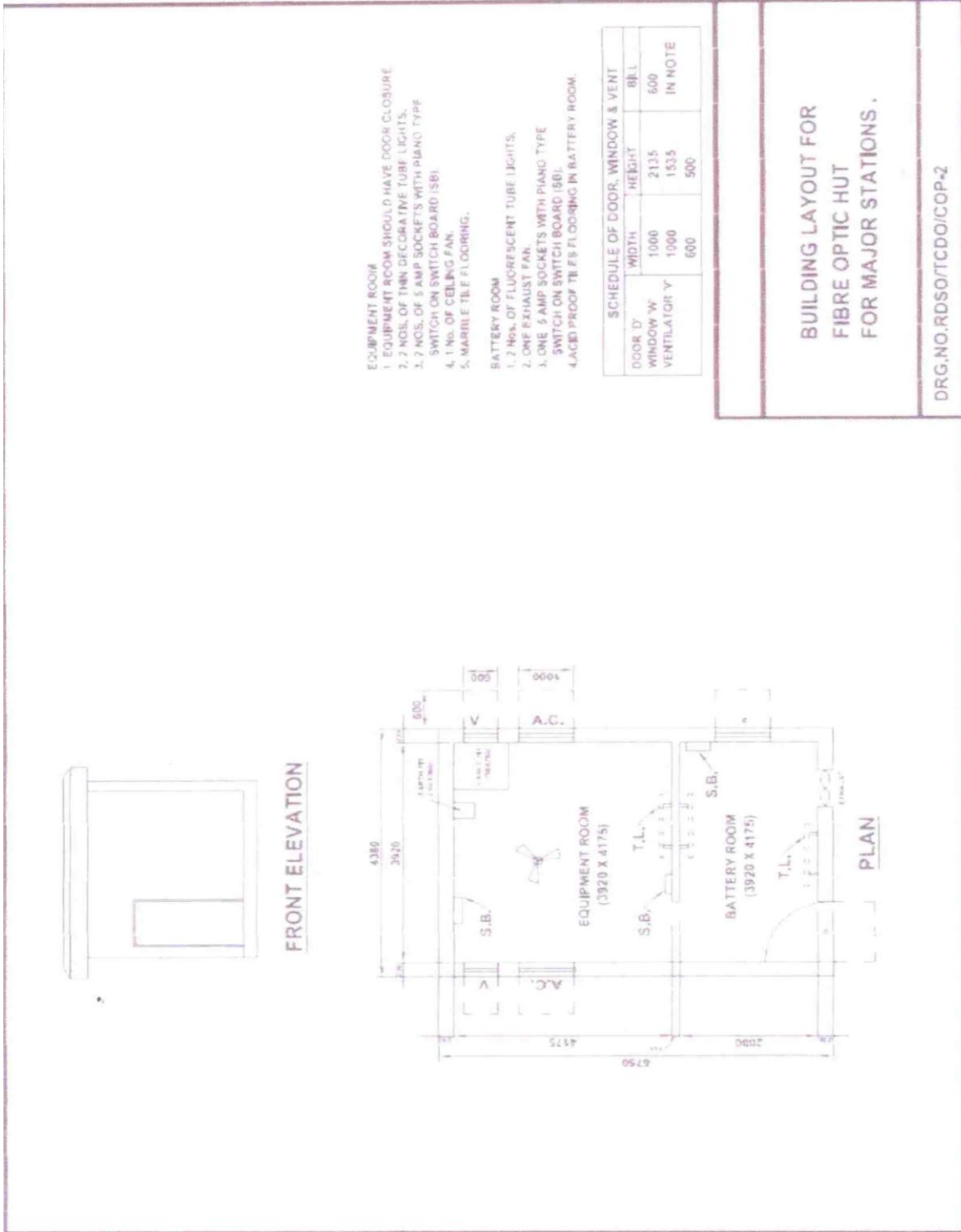
(*Price quoted above shall be inclusive of all taxes, levis & freight)





Drawing & Specifications

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Annexure.1

TECHNICAL SPECIFICATION AND INSTRUCTIONS FOR AC UNITS

S.No	Parameter	Particulars
1	Total tonnage of complete unit	4.0 TR
2	Tonnage of each unit	2.0 TR
3	Sensible Capacity	≥ 42000 BTU/HR
4	Sensible Heat ratio	≥ 0.9
5	Applicable standards confirming to	IS : 8148
6	Compressor type	Scroll
7	No. of compressors in complete unit	Two
8	MTBF	≥ 25000 working Hrs.
9	Life of Compressor	\geq Minimum 10 years
10	Continuous running time	Each unit consists of two compressors, hence with 12 hrs operation for each compressors, the unit can run for 24 hrs.
11	Refrigerent	R22 or equivalent
12	Safety control	Required
13	Protections	Required
14	Alarm display	Required
15	Mememory display	Required
16	Outside mountable	Required
17	Electrical data – Supply with variation	230 V, Single phase, 50 Hz. (Nominal)
18	MTBF Compressor	≥ 25000 working hrs.
19	MTBF Fans	≥ 30000 working hrs.
20	MTBF Motor	≥ 21000 working hrs.
21	MTBF Micro Processor based Controller	≥ 20000 working hrs.
22	Motor protection	IP 55 or better
23	Intelligent switching	The unit should be capable of intelligently switching on and off compressors depending on the room temp.
24	Intelligent switching	The compressors should work alternatively to avoid continuous working of a compressor. This change over time can be programmed and the same can be set from 0.5 Hrs. to 12 Hrs. in steps of 0.5 Hrs.

Note: 1. Above requirement and specifications are for general guidance. However, minor design and specification deviation may be acceptable provided the cooling specifications as stipulated in the schedule are met.

2. The AC unit is similar to Sensicool brand of Voltas/Spacemaker brand of Hitachi etc.

SPECIFICATIONS**SPECIFICATION FOR 15 KVA SINGLE PHASE WATER-COOLED/AIR-COOLED DIESEL GENERATOR (SILENT TYPE) FOR OPTICAL FIBER EQUIPMENT****1.1 Purpose**

The purpose of this document is to provide specification for 15 KVA single-phase Water-cooled/Air-cooled diesel generator set (silent type) as an alternate power supply, proposed to be used for RailTel's STM-16/64 broadband unmanned telecommunication network installation.

1.2 STRUCTURE

The Diesel Generator set complete shall comprise of Diesel engine, Alternator and AMF Panel conforming to specifications for 15 KVA ratings as given below. Diesel engine and Alternator shall be close coupled or provided with flexible coupling and mounted on a base plate of robust construction. DG sets shall meet the requirements of environmental (protection) rules 1986 as laid down by Ministry of Environment & Forests read with GSR 371 (E) dated 17.02.02, GSR 520 (E) dated 01.07.03 and G.S.R. 215 (E), dated 15th March, 2011 under the Environment (Protection) Act, 1986) (as amended from time to time) in respect of emission norms for the Engine and in respect of noise level for the DG sets. All engines will generally conform to IS 10000/BS649/BS5514.

1.2.1 The tenderer should submit a copy of type approval certificate from CPCB / MOE&F / Authorized Agency approved by CPCB or MOE&F for emission norms as quoted above.**1.3. Make of the components:**

Diesel Generator comprising of Diesel Engines & Alternators should be from the following manufacturers:

1.3.1 Diesel Generators:

Kirloskar/ Greeves/ Ashok Leyland/ Cummins / Mahindra & Mahindra/Eicher

1.3.2 Alternators:

KIRLOSKAR / CROMPTON/ IEC/ STAMFORD/ ELECTRODYNE

1.3.3 Make of component to be used in AMF panel

MCCB : L& T/GE/C&S/HAVELLS/ABB/SCHNEIDER

CONTACTORS : L& T/GE/C&S/HAVELLS/ABB/SCHNEIDER.

MCB : GE/HAGER/MDS/Standard/HAVELLS/INDOKUP/ SCHNEIDER .

CT's : KAPPA/KALPA/RR Electrotech

Volt & Amp.Meters : L&T/MECO/ENERCON/CADEL

Push Buttons : RASS/TECHNIQUE.

Switches : SALZAR/SWITRON/SWITCH-ON/KAYCEE.

Fuses Base : INDO ASIAN/GE/C&S/KAYCEE.

Wires & cables : POLYCAB/RR CABLES/FINOLEX.

KWH meters : ECE/HAVELLS/L&T.

Relays : ALSTOM/AVKSEGC/EASUN/NAGOBA/MINILEC/BERNENI/EC2/JEEWAN.

Auxiliary Relays: PLA/OEN/GILLARD.

1.4 Specification for Alternator, Diesel Engine and AMF Control panel.

1.4.1 Alternator:

The alternator shall be brush less type self excited and self regulated of 15 KVA rating in Single phase at 230 V, 50 Hz, 1500 RPM and shall conform to IS: 13364 (Part 1) 1992. The alternators shall be screen-protected drip proof with IP 21 degree of protection as per IS: 4691/85.

1.4.2 Diesel Engine:

The Diesel engine shall be Water-cooled, electric start developing required BHP at 1500 RPM with **Class A-2 governing** for alternator to deliver 15 KVA output continuously at NTP conditions. The Diesel engine should be capable of providing 10% overload for one hour for every 11 hours continuous running at full load. The diesel engine shall conform to IS: 10000 / BS 649 or BS5514 series standards as applicable.

The diesel engine shall be complete with the following accessories:

- a). Fuel tank with capacity for 24 hrs continuous running at full load.
- b). Safety controls to shut down the engine in the event of Low lube oil pressure or high cylinder head temperature.
- c). Exhaust silencer.
- d). 12V Starting system complete with charging alternator and cutout.
- e). Maintenance free batteries with suitable rating with connecting cables. The batteries shall be supplied in fully charged condition and shall conform to relevant IS.
- f). Standard set of Tools and spares for maintenance.
- g). The tenderer shall specify the fuel tank capacity, hourly consumption and minimum fuel level to be maintained.

1.5 AMF CONTROL PANEL (Micro Processor Based)

1.5.1 The panel provides automatic control for starting the generator set when a mains failure occurs.

1.5.2 It should be of sheet metal mounted on the frame and fitted in front of the door.

1.5.3 Control panel should be provided with the following Instruments:

- Voltmeter
- Ammeter
- Frequency meter
- Hour meter
- Pressure gauge
- HWT/HCT
- Battery Voltmeter

1.5.4 AMF control panel should be provided with the following Indication Lamps.

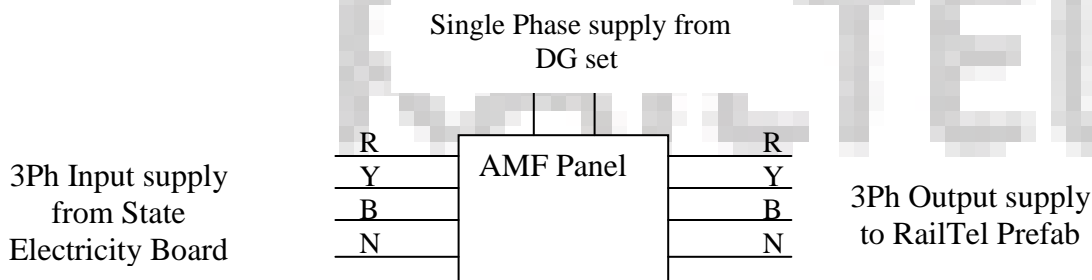
- Failure to start
- Low lubricating oil pressure.
- High cylinder head temperature alarm
- Over speed.
- Fuel Level low in main tank.
- Generator emergency alarm.

1.5.5. AMF control should have the following Operational features: -

- Engine fault auto-shutdown and reset.
- Mains sensing for over voltage and under voltage.
- Generator set operating.
- Load on generator

- Load on Mains
 - Static Battery charger
 - Horn
- 1.5.6 AMF should also have following features: -
- It should be able to select the generators operating mode: Off- Automatic- Manual and Test modes.
 - It should be able connect the generator’s voltmeter across single phase & neutral.
 - It should be able to connect the frequency meter to check the diesel generator frequency.
- 1.5.7 AMF should contain Pushbuttons for the following features: -
- Emergency shutdown --Red Button.
 - MCB to protect Alternator and Mains supply.
- 1.5.8 Following equipment will be fitted inside the AMF cabinet:
- 10A rated current static battery charger for automatic static battery recharge.
 - Voltage relay to control the mains line; the voltage threshold should be adjustable.
 - Device for Automatic Generator Start up when AC Mains supply falls below a preset level. The starter circuit allows no. of start, when motor is locked in the fail to start mode.
 - Two electrically and mechanically combined relays for diverting the load from mains to generator and vice versa. During the generator starting sequence, the load is connected to the generator only after the generator voltage is stabilized at the rated setting.
 - In case of AC main supply failure continues for more than four hours, and then DG set shall be switched off automatically. If AC main failure continues for a further period of 2 hours, the DG set will restart again.
- 1.6.0 Device for automatic shutdown of the generator if the following fault occurs & give audible alarms.
- Lube Oil pressure low.
 - High Cylinder Temperature.
 - Over speed.
 - Fuel level below minimum specified level in main tank.
- 1.6.1. Each of the above emergency situations triggers a visual alarm and keeps the diesel generator out of service until the control circuit is re-established manually.
- 1.6.2 Current transformer connected to phase of the unit’s line.
- 1.6.3 The panel should have outputs for remote contacts for the following signals:
- Mains voltage out of limits.
 - Failure to start
 - Low lube oil pressure.
 - High cylinder head temperature.
 - Over speed.
 - Fuel level low in main tank.
- 1.6.4 The panel should be fixed with input and output terminals. For identification – non-insulating stickers will be provided.

Note: DG set is 15KVA single phase and Wiring should be for 3Phase



TECHNICAL SPECIFICATIONS FOR ACCOUSTIC ENCLOSURE

- 1.0 Introduction
- 1.1 The acoustic enclosure shall be of modular construction with provision to assemble and dismantle easily. The proposed enclosure offered should have the approval of the Diesel engine manufacturer. The complete enclosure along with DG set should have the statutory approval of CPCB / MOE&F. A copy of the same should be enclosed. It should have the following features: -
- 2.0 Exhaust System
- 2.1 The exhaust gas should be taken out through a suitable flexible pipe to prevent any back pressure on the engine.
- 2.2 The residential silencer should be mounted inside the canopy.
- 2.3 The exhaust system should include exhaust pipe suitably supported.
- 2.4 Thermal insulation
- 2.4.1 The exhaust system and noise suppressor should be provided with thermal insulation to prevent excess heat radiation on the engine and safe for operator.
- 3.0 Noise Suppressor (Silencer)
- 3.1 Absorption type Non Resistance Residential Silencer should be provided to suppress exhaust noise from the engine.
- 4.0 Surface Treatment – Painting
- 4.1 The enclosure surface should be suitably treated for Degreasing, Derusting and phosphating. High quality powder quoting coating process as prevalent in the Industrial Practice shall be ensured.
- 5.0 Vibration insulation
- 5.1 The engine and alternator shall be mounted on Anti-Vibration mounting pads to eliminate engine vibration.
- 6.0 Dimensions (LxBxH) should be suitable to house the AMF panel inside the enclosure.
- 7.0 All other requirements that are essential to make the DG set compliant to CPCB norms for noise reduction shall form part of the technical requirement. A copy of approval from CPCB for the acoustic enclosure should be enclosed.
- 8.0 CONSTRUCTION DETAILS
- 8.1 The structure should be fabricated using CRCA sheets 1.6 mm thick outer skins and steel members.
- 8.2 Base:**
- 8.2.1 The enclosure integral with base frame should be of direct mountable type on the foundation.
- 8.3 Doors:**
- 8.3.1 Doors should be fabricated from MS CRCA 1.6 mm thick. Air tight with neoprene rubber gasket and heavy-duty spring loaded locks.
- 8.4 Grouting
- 8.4.1 Acoustic enclosure should be designed in such a way that no grouting is required on the ground, only level surfac capable of withstanding the load may be provided.
- 8.5 Acoustic Insulation:**
- 8.5.1 Insulation material properly clamped should be provided on all doors, roof and sides to absorb noise.
- 8.5.2 Sound attenuators / down stream silencers (Side louvers) should be provided at all openings for air inlet / outlet to facilitate free airflow but to absorb sound resulting in extreme low noise level.

8.5.3 Detachable partitions, if required, are provided inside the enclosure to attain further noise attenuation of the engine..

8.5.4 The acoustic insulation should achieve reduction in noise levels as per latest CPCB norms. A copy of approval from CPCB for the acoustic enclosure should be enclosed.

8.6 Inspection window:

8.6.1 A suitable glass window sealed with rubber gasket should be provided for viewing the metering the parameter of AMF Control Panel.

8.7 Ventilation:

8.7.1 To provide a suitable forced air circulation and ventilation system to maintain safe operating temperatures inside the enclosure, requisite air circulation for engine aspiration combustion and cooling should be provided for, in the design of the enclosure.

9.0 BATTERY

12VDC battery assembly of suitable capacity complete with all necessary connecting leads and terminals of AMCO/Exide make should provide equivalent.

10.0 BASE FRAME

The base frame should be formed base plate providing common bed for engine and alternator directly coupled together. The base plate with cross member would form the part of sheet metal canopy. The Base frame should have provision of grouting on foundation bolts. Provision should also be made on the base frame for lifting arrangement of the complete DG Set with Canopy.

11.0 FUEL TANK

11.1 Fuel Tank should be fabricated out of 14SWG CRCA MS sheet and is part of base frame. It should be duly painted and fitted with inlet and outlet connections, air vent etc. complete with:

- Fuel Level Indicator (Electrical)
- Filler Cap with lock.
- Drain Valve Plugged
- Spill return
- Feed connection to engine valve
- Braided pipe for fuel connections

AVM Pads

Adequate nos. of. KOEL make AVMS between engine / alternator and the base plate, should be provided.

Note: Any materials/modifications required for satisfactory commissioning of DG set to be borne by contractor.

3. Technical specification of concrete foundation for DG set

3.1. Introduction

Foundation is one of the important factors affecting the successful operation of a Diesel Generating set. Improper foundation may result in alignment and vibration problems which may subsequently lead to failure of coupling, instruments of engine / alternator components.

There are basically three functions of foundation.

- i. To support the weight of the entire generator set.
- ii. Maintain correct alignment between the engine and generator.
- iii. Absorb the vibration produced by the rotating and reciprocating masses.

3.2. Guidelines for designing and fabrication of base plates.

- The base frame should be rigid enough for the selected engine/ alternator combinations so that it will deflect during handling / operation of the set.
- The welded structure should be stress relieved after welding.
- The pad provided on base frame for engine / alternator resting should have plain machined surface. The machining should be done after complete fabrication /welding to avoid surface distortion. This is necessary to get good clamping of engine and alternator to avoid vibration on the base frame and to facilitate easy alignment.
- Provision should be made in the base frame for lifting of the set.
- Taper pads should be provided on the channel used for base frame.
- The foundation length and width should exceed the length and width of the generator set by a minimum of 1ft (0.305 M).
- The foundation depth should be sufficient to attain a minimum weight equal to the generator set's weight. To calculate the necessary foundation depth, the following formula: -

$$\text{Foundation Depth (ft)} = \frac{W}{150 \times B \times L}$$

$$\text{(m)} = \frac{W}{2400 \times B \times L}$$

Where W = Total net weight of generator (pound-kg).
 150 = Density of Concrete (pounds per cubic foot)
 2400 = Density of concrete (kilogram per cubic meter)
 B =Foundation width (feet)-(meters)
 L = Foundation length (feet)-(meters).

- When vibration isolation equipment is used, the floor depth required is that needed for structural support of the static load. If isolators are used, dynamic loads will be transmitted to the facility floor and the floor must be designed to support 125% of the generator set weight.

3.3 Guidelines for concrete foundation

While mounting the set on a concrete foundation, the bearing strength of the soil at the proposed site of installation should be determined. The table given below gives approximate safe bearing capacity of

various materials. The foundation area must be large enough to support the weight of engine and foundation.

S.No	Nature of Load Bearing Material	Safe Bearing capacity kg./ sqm
1	Hard Rock granite	2,44,100-9,76,400
2	Medium rock shell etc.	97,900-1,46,400
3	Hard pan	78,100-97,900
4	Soft rock	48,800-58,900
5	Hard clay	39,000-48,800
6	Gravel and coarse sand	39,000-48,800
7	Loose medium coarse & compacted fine sand	29,300-39,000
8	Medium clay	19,500-39,000
9	Loose fine sand	9,750-39,500
10	Soft clay	9,750

- It is recommended that concrete foundation used for supporting the generator set base frame should be raised above the ground level by 30 cm. Approx. to facilitate easy servicing. For fixing the generator set base frame to the concrete foundation anchor bolts should be used. The threaded length of anchor bolt should protrude out of concrete by atleast 35 mm to accommodate base frame and nut. The position of and nos. of anchor bolts is decided by the size of the DG set.

3.4. The proposed foundation design based on the above broad parameters may be submitted along with the offer.

3.5. Notwithstanding the above, actual foundation would be provided on site conditions/requirements.

Inspection of DG set.

4.1. Inspection of the DG set will be conducted as per clause no. 29 & 30 of Special Conditions of Contract of tender document and also includes the following: -

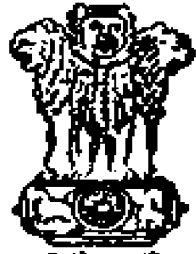
- (i) The DG set will be checked for alignment before subjecting it to load tests.
- (ii) Voltage regulation test.
- (iii) Full load test for 3 hrs. at rated KVA, at UPF.
- (iv) 10% overload test for 1 hrs. after the full load test at UPF.
- (v) High Voltage test to be done as per IS 4722 i.e. 1.5 KV for 1 minute for single phase. In case these tests are to be repeated the same will be at 80% of the voltage as per IS 4722.
- (vi) Insulation resistance tests- the insulation resistance shall be measured with a DC Voltage of about 500V applied for a sufficient time for the reading of the indicator to become steady. The insulation resistance will be not less than 1 mega ohm if measured after the application of high voltage test.
- (vii) Checking for the trouble free starting and oil leakages.
- (viii) The sets do not vibrate during the load running test with the base kept free, the base not bolted to any structure of foundation.
- (ix) High voltage and insulation resistance test should be conducted on alternator as well as control panel after the load tests.
- (x) The control panel will be checked for functional requirement and completeness as per detailed specifications.
- (xi) The tenders shall show the performance of the DG sets with the load available with the consignee during final inspection at the consignees end.

4.2. Inspection schedule should be submitted taking in to account the above broad parameters.

Technical specification for provision of earth

1. Introduction

The earthing arrangement is required to provide one earth for DG set & other earth for AC supply. The earth resistance should be less than 1 ohm.



CODE OF PRACTICE
FOR
EARTHING AND BONDING SYSTEM
FOR SIGNALLING EQUIPMENTS

RDSO SPECIFICATION NO. RDSO/SPN/197/2008

SIGNAL DIRECTORATE

RESEARCH, DESIGNS & STANDARDS ORGANISATION

LUCKNOW – 226011.

**CODE OF PRACTICE FOR EARTHING AND BONDING SYSTEM FOR
SIGNALLING EQUIPMENTS**

1. Scope

This document covers earthing & bonding system to be adopted for signaling equipments with solid state components which are more susceptible to damage due to surges, transients and over voltages being encountered in the system due to lightning, sub-station switching etc. These signaling equipments include Electronic Interlocking, Integrated Power supply equipment, Digital Axle counter, Data logger etc.

2. References

IS 3043	<i>Code of practice for earthing.</i>
ANSI/UL 467	<i>Grounding & bonding equipment.</i>
IEEE 80	<i>IEEE guide for Safety in AC sub-station grounding.</i>
IEEE 837	<i>Standard for qualifying permanent connections used in sub-station grounding.</i>
IEC 62305	<i>Protection against lightning.</i>

3. Importance of Earthing

The installation and maintenance of an effective low resistance earthing system is essential due to the following -

- Efficiently dissipate heavy fault currents and electrical surges, both in magnitude and duration, to protect equipment being damaged so as to minimize down time, service interruption and replacement cost.
- Provide a stable reference for electrical and RF circuits at the installation to minimize noise during normal operation.
- Protection of personnel who work within the area from dangerous electric shock caused due to “step potential” or “touch potential”.

4. Characteristics of good Earthing system

- Excellent electrical conductivity
 - Low resistance and electrical impedance.
 - Conductors of sufficient dimensions capable of withstanding high fault currents with no evidence of fusing or mechanical deterioration.
 - Lower earth resistance ensures that energy is dissipated into the ground in the safest possible manner.
 - Lower the earth circuit impedance, the more likely that high frequency lightning impulses will flow through the ground electrode path, in preference to any other path.
- High corrosion resistance
The choice of the material for grounding conductors, electrodes and connections is vital as most of the grounding system will be buried in the earth mass for many years. Copper is by far the most common material used. In addition to its inherent high conductivity, copper

is usually cathodic with respect to other metals in association with grounding sites, which means that it is less likely to corrode in most environments.

- Mechanically robust and reliable.

5. Location for Earth

- Low lying areas close to the building or equipment are good for locating Earth Electrodes.
- The location can be close to any existing water bodies or water points but not naturally well-drained.
- Dry sand, lime stone, granite and any stony ground should be avoided.
- Earthing electrode should not be installed on high bank or made-up soil.

6. Acceptable Earth Resistance value

The acceptable Earth Resistance at earth busbar shall not be more than 1 ohm.

7. Components of Earthing & Bonding system

The components of Earthing & Bonding system are-

Earth electrode, Earth enhancement material, Earth pit, Equi-potential earth busbar, connecting cable & tape/strip and all other associated accessories.

8. Design of Earthing & Bonding system

8.1 Earth Electrode

- The earth electrode shall be made of high tensile low carbon steel circular rods, molecularly bonded with copper on outer surface to meet the requirements of Underwriters Laboratories (UL) 467-2007 or latest. Such copper bonded steel cored rod is preferred due to its overall combination of strength, corrosion resistance, low resistance path to earth and cost effectiveness.
- The earth electrode shall be UL listed and of minimum 17.0mm diameter and minimum 3.0mtrs long.
- The minimum copper bonding thickness shall be of 250 microns.
- Marking: UL marking, Manufacturer's name or trade name, length, diameter, catalogue number must be punched on every earth electrode.
- Earth electrode can be visually inspected, checked for dimensions and thickness of copper coating using micron gauge. The supplier shall arrange for such inspection at the time of supply, if so desired.

8.2 Earth Enhancement material

Earth enhancement material is a superior conductive material that improves earthing effectiveness, especially in areas of poor conductivity (rocky ground, areas of moisture variation, sandy soils etc.). It improves conductivity of the earth electrode and ground contact area. It shall have following characteristics-

- Shall mainly consist of Graphite and Portland cement. Bentonite content shall be negligible.
- Shall have high conductivity, improves earth's absorbing power and humidity retention capability.
- Shall be non-corrosive in nature having low water solubility but highly hygroscopic.
- Shall have resistivity of less than 0.2 ohms-meter. Resistivity shall be tested by making a 20cm. cube of the material and checking resistance of the cube at the ends. The supplier shall arrange for such testing at the time of supply, if so desired. Necessary certificate from National/ International lab for the resistivity shall also be submitted.

- Shall be suitable for installation in dry form or in a slurry form.
- Shall not depend on the continuous presence of water to maintain its conductivity.
- Shall be permanent & maintenance free and in its “set form”, maintains constant earth resistance with time.
- Shall be thermally stable between -10°C to $+60^{\circ}\text{C}$ ambient temperatures.
- Shall not dissolve, decompose or leach out with time.
- shall not require periodic charging treatment nor replacement and maintenance.
- Shall be suitable for any kind of electrode and all kinds of soils of different resistivity.
- Shall not pollute the soil or local water table and meets environmental friendly requirements for landfill.
- Shall not be explosive.
- Shall not cause burns, irritation to eye, skin etc.
- Marking: The Earth enhancement material shall be supplied in sealed, moisture proof bags. These bags shall be marked with Manufacturer’s name or trade name, quantity etc.

8.3 Backfill material

The excavated soil is suitable as a backfill but should be sieved to remove any large stones and placed around the electrode taking care to ensure that it is well compacted. Material like sand, salt, coke breeze, cinders and ash shall not be used because of its acidic and corrosive nature.

8.4 Earth Pit

8.4.1 Construction of unit earth pit: Refer typical installation drawing.

- A hole of 100mm to 125mm dia shall be augured /dug to a depth of about 2.8 meters.
- The earth electrode shall be placed into this hole.
- It will be penetrated into the soil by gently driving on the top of the rod. Here natural soil is assumed to be available at the bottom of the electrode so that min. 150 mm of the electrode shall be inserted in the natural soil.
- Earth enhancement material (minimum approx. 30-35 kg) shall be filled into the augured/dug hole in slurry form and allowed to set. After the material gets set, the diameter of the composite structure (earth electrode + earth enhancement material) shall be of minimum 100mm dia covering entire length of the hole.
- Remaining portion of the hole shall be covered by backfill soil, which is taken out during auguring /digging.
- A copper strip of 150mmX25mmX6mm shall be exothermically welded to main earth electrode for taking the connection to the main equi-potential earth busbar in the equipment room and to other earth pits, if any.
- Exothermic weld material shall be UL listed and tested as per provisions of IEEE 837 by NABL/ ILAC member labs.
- The main earth pit shall be located as near to the main equi-potential earth busbar in the equipment room as possible.

8.4.2 Construction of loop Earth by providing multiple earth pits

- At certain locations, it may not be possible to achieve earth resistance of $\leq 1\text{ohm}$ with three earth electrodes /pits due to higher soil resistivity. In such cases, provision of loop earth consisting of more than one earth pit shall be done. The number of pits required shall be decided based on the resistance achieved for the earth pits already installed. The procedure mentioned above for one earth pit shall be repeated for other earth pits.

- The distance between two successive earth electrodes shall be min. 3mtrs and max. upto twice the length of the earth electrode i.e. 6 mtrs. approx.
- These earth pits shall then be inter linked using 25X2 mm. copper tape to form a loop using exothermic welding technique.
- The interconnecting tape shall be buried at depth not less than 500mm below the ground level. This interconnecting tape shall also be covered with earth enhancing compound.
- Main Equi-potential Earth Busbar (MEEB) of size 300X25X6 mm copper strip shall be installed to the wall of prefab/room on suitable insulators.
- For connecting earth pit and Main Equi-potential Earth Busbar (MEEB) 16 Sq.mm dia multi-strand single core PVC insulated copper cable with suitable copper lugs and stainless steel nuts and bolts shall be used. This cable shall be protected with GI pipe with clamping while entering into the prefab.
- The MEEBs shall have pre-drilled holes of suitable size for termination of bonding conductors. The MEEBs shall be insulated from the building walls. Each MEEB shall be installed on the wall with low voltage insulator spacers of height 60mm. The insulators used shall have suitable insulating and fire resistant properties for this application. The MEEBs shall be installed at the height of 0.5m from the room floor surface for ease of installation & maintenance. All terminations on the MEEBs shall be by using copper lugs with spring washers.

1.4.3 Measurement of Earth resistance

The earth resistance shall be measured at the Main Equi-potential Earth Busbar (MEEB) with all the earth pits interconnected using Fall of Potential method as per Para 37 of IS: 3043.

1.4.4 Inspection Chamber

- A 300X300X300 mm (inside dimension) concrete box with smooth cement plaster finish shall be provided on the top of the pit. A concrete lid, painted black, approx. 50 mm. thick with pulling hooks, shall be provided to cover the earth pit.
- Care shall be taken regarding level of the floor surrounding the earth so that the connector is not too deep in the masonry or projecting out of it.
- On backside of the cover, date of the testing and average resistance value shall be written with yellow paint on black background.

8.5 Equipotential Earth Busbar and its connection to equipments & Surge protection devices in the Equipment room: Refer typical bonding connections drawing no.SDO/RDSO/E&B/002.

8.5.1 Equi-potential earth busbars

There shall be one equi-potential earth busbar for each of the equipment room i.e. IPS/Battery charger room and EI/Relay room. The equi-potential earth busbars located in individual rooms shall be termed as Sub equi-potential busbars (SEEB). The equi-potential earth busbar located in the IPS /Battery charger room and directly connected to Class 'B' SPDs and the main earth pit shall be termed as Main equi-potential earth busbar (MEEB).

The EEBs shall have pre-drilled holes of suitable size for termination of bonding conductors. The EEBs shall be insulated from the building walls. Each EEB shall be installed on the wall with low voltage insulator spacers of height 60mm. The insulators used shall have suitable insulating and fire resistant properties for this application. The EEBs shall be installed at the height of 0.5m from the room floor surface for ease of installation & maintenance. All terminations on the EEBs shall be by using copper lugs with spring washers.

8.5.2 Bonding Connections

To minimize the effect of circulating earth loops and to provide equi-potential bonding, “star type” bonding connection is required. As such, each of the SEEBs installed in the rooms shall be directly connected to MEEB using bonding conductors. Also, equipment/racks in the room shall be directly connected to its SEEB. The bonding conductors shall be bonded to their respective lugs by exothermic welding.

8.5.3 All connections i.e. routing of bonding conductors from equipments to SEEB & from SEEBs to MEEB shall be as short and as direct as possible with min. bends and separated from other wiring. However, connection from SPD to MEEB shall be as short as possible and preferably without any bend.

8.5.4 Materials and dimensions of bonding components for connection of individual equipments with equipotential bus bar and earth electrode shall be as given below.

Component/Bonding	Material	Size
Main equipotential earth busbar (MEEB).	Copper	300X25X6 mm (min.)
Sub equipotential earth busbar (SEEB).	Copper	150X25X6 mm (min.)
Individual equipments to SEEB using copper lugs with stainless steel nut and bolts.	Multi-strand single core PVC insulated copper cable as per IS:694	10 Sq.mm
SEEB to MEEB using copper lugs with stainless steel nut and bolts.	Multi-strand single core PVC insulated copper cable as per IS:694	16 Sq.mm
Surge protection devices (SPD) to MEEB using copper lugs with stainless steel nut and bolts.	Multi-strand single core PVC insulated copper cable as per IS:694	16 Sq.mm
MEEB to main earth electrode.	Multi-strand single core PVC insulated copper cable as per IS:694 (Duplicated)	35 Sq.mm
Main earth pit to other earth pit in case of loop earth.	Copper tape	25X2 mm

9. Drawing of earthing & bonding system

The complete layout with dimensions of the earthing & bonding system shall be submitted by the supplier after commissioning.

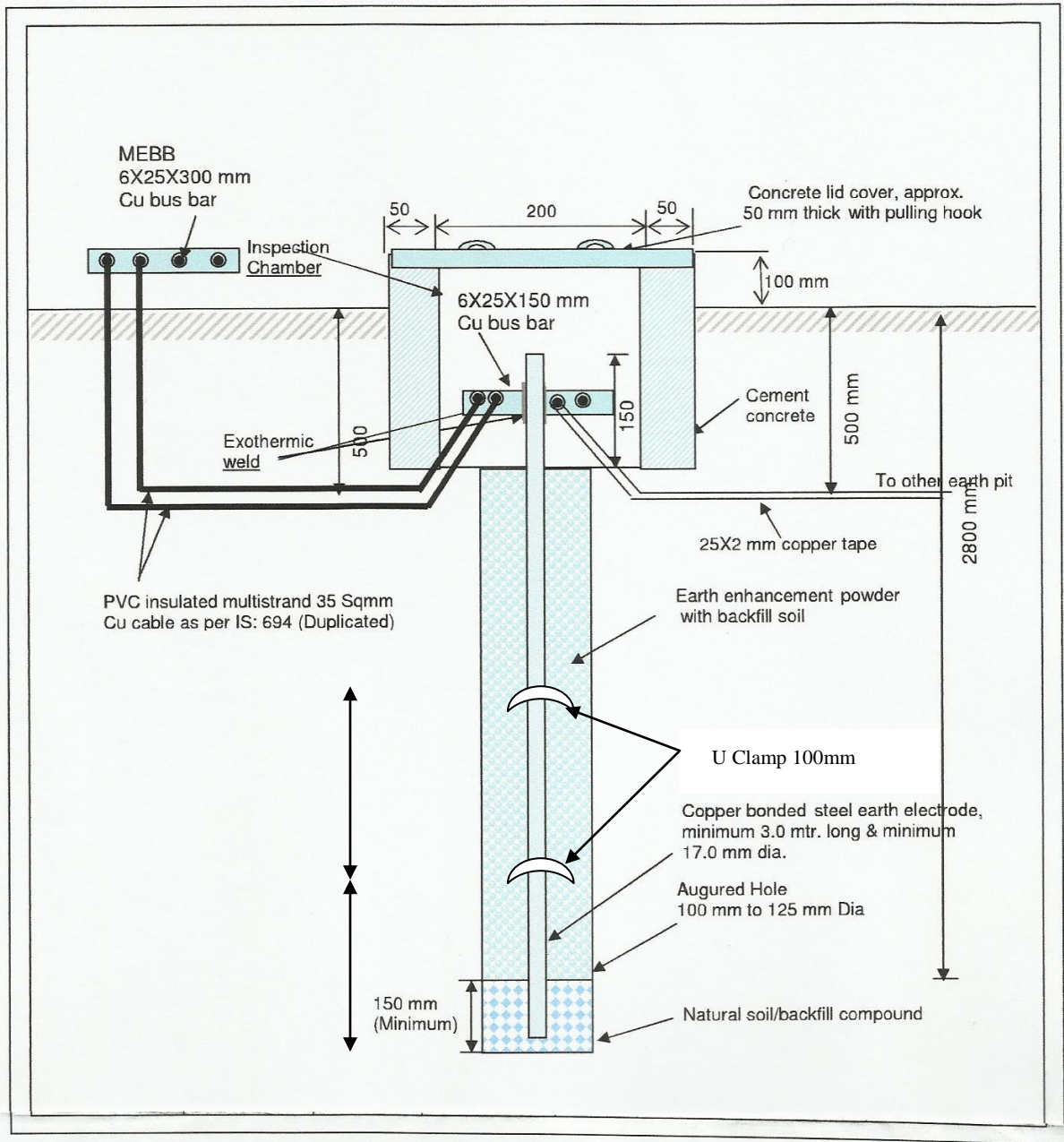
10. Warranty

The supplier shall be responsible for complete supply, installation & commissioning of the earthing & bonding system. The warranty of such system shall be 12 months from date of commissioning. During this period, any failure of earthing system due to improper materials & bad workmanship shall be attended free of cost by the supplier.

11. Maintenance of earthing & bonding system

The maintenance schedule should cover verification of earthing system conductors and components, verification of electrical continuity, measurement of earth resistance, re-fastening of components and conductors etc.





RAILTEL

SPECIFICATION FOR CABLE LAYING

Specification for High Tension and Low Tension under ground cables and cable trenches, cable laying etc.

1. SCOPE: This specification covers supply of low tension and high tension under ground cables and laying of cables in the cable trenches running of cables along the structures, wall, steel frame work, trusses, etc. with connected materials indicators etc.

2. LT UG CABLE:

2.1: power cables shall be suitable for 440/435 V 3 phase with neutral earthed system and for heavy duty use.

2.2: The cable shall be of 1100 Volts grade, 4 core, PVC insulated and PVC sheathed, aluminum conduct red, cores laid up, surrounded by comma covering inner sheath applied either by extrusion or by wrapping of a filling material containing un vulcanized rubber or thermo-plastic material applied with Proofed or plastic tape and armored with galvanized steel round wire flat strip and outer sheathing with PVC.

2.3: The conductors shall be of stranded aluminum wires, sizes conforming to class-2 of table 13 of IS – 8130/76 or latest.

2.4: The PVC insulated and PVC sheathed LTUG cables shall conform to IS-1554 (Part I)/1976 or latest.

3. CABLE TRENCHES (ORDINARY):

Excavation of cable trenches of different sizes in all types of soils. The bottom of trench is leveled freed from stones, and sharp edges of rock. A layer of 10 cms thick sand is laid at the bottom of trench after laying the cable, it is covered once again with 10 cms thick sand and covered with well burnt country bricks at the rate of 9 to 10 bricks per metre depending upon width of brick for each cable without leaving any gap between so as to prevent damages to the cables due to crow bars etc.(during any excavation at a later date) and one brick to be placed in between the cables at every one metre of regular interval and duly filling the trench with earth after positioning the cable markers ramming well in stages to bring the surface in level with original surface.

If two separate feeders are to be laid in the same trench horizontal interval spacing is advisable in order to reduce the effect of mutual heating and also to ensure a fault occurring on the cable will not damage the adjacent one.

If single core cables are used for forming a three phase circuit, the three cables are laid in triangular formation (trefoil).

The sizes and cable trench details are shown in the drawing No. RaiITel/SR/SC/Power Cable/2/2004.

4. ROAD CROSSING: Cutting of roads, excavation of the cable trench of different sizes and laying of RCC Hume pipes and jointed with collars in an approved manner. The pipes are required to be laid so as to keep the cable at one metre below the ground level. The pipes shall be extended up to 2 meters on either side of the road, measured from the edge of the road. The pipes shall be positioned so as to maintain a slope of about 1 in 30, to allow drainage of seepage water. No bricks or sand are required to be placed at such places. A number of pipes are laid for number of cables, if are required to be laid. The cable trench can be closed with the excavated earth and ramming well in stages to bring the surface in level with the original and making the road as earlier.

The cable can be drawn through pipes without disturbing the traffic when once the above arrangement is made.

The cable markers can be placed on either side of the road so as to identify the cable route.

The sizes and road crossing details are shown in the Drg.No.RaiITel/SR/SC/Power Cable/2/2004 enclosed.

5. Track crossings: Removing of existing ballast, excavation of the cable trench of different sizes under the track and laying of RCC Hume pipes and joined with collers in and approved manner. The pipes are required to be laid so as to keep the cable at minimum one metre below the track or formation level. The pipes shall be laid up to the railway boundary at both ends or up to the point as prescribed by the Railway. The pipes used shall be of long lengths and the pipes shall be positioned so as to maintain a slope of about 1 in 30 to allow drainage or seepage water. No bricks or sand are required to be placed at such places. A number pipes are laid for number of cables if are required to be laid. The cable trench can be closed with the excavated earth and ramming well in stages to bring the formation/cutting as per the original and replacing the removed ballast as earlier.

The cables can be drawn through pipes without disturbing the traffic, when once the above arrangement is made.

The cables markers can be placed on either side of the track at a convenient place so as to identify the cable route.

The size and the track crossing details are shown in the Drg.No./SR/SC/Power Cable/2/2004 enclosed.

6. Laying of cables on Racks and Cleats:

Inside buildings, workshops, sheds, sub-stations etc. it is sometimes necessary to lay the cables on racks or brackets, spaced at regular intervals or some times they are required to be clamped/cleated directly on the walls/trusses/beams or M.S. structures fixed on walls.

The cables are laid direct upon trays with or without spacers some times instead of using metal trays the cables are required to be supported and clamped on brackets spaced at such regular intervals so as to prevent under sag.

For horizontal runs, brackets or supports made from angle iron are grouted in the walls and they are arranged in a single place when only a few cables are involved. When large numbers of cables have to be laid over the same route the brackets are fixed as per formation.

For horizontal run of one or two cables can be clamped/cleated directly on walls beams preferably with the non-magnetic materials like aluminum, wood etc. For vertical runs, the cables are clamped/cleated on walls/columns or on MS flats or on angle irons fixed on walls and they are required to be spaced at such intervals so as to prevent beckling of cables and creepage of load.

All steel work shall be painted with two coat of Red Oxide and finished with suitable colour anti corrosive paints.

7. Cables along with structures:

The GI pipes shall be fastened to the structures up to 2.5 mtrs. From ground level by suitable MS clamps at an interval of not more than one metre with suitable bolts, nuts, washers, etc. the cable shall be drawn

through the GI pipe. Both the ends of GI pipe shall have a PVC/Wooden bushes to avoid abrasion to the cable. in addition the top end shall be sealed with cable compound to arrest ingress of rain water.

The cable shall be run above pipe level up to cable termination end through suitable teak wood cleats duly clamped to the structure by suitable clamps, bolts, nuts, washers, etc.

8. Cable laying in the masonry trench:

Inside the substations, repair sheds, work shops etc. suitable sizes of masonry trenches will be constructed by the Railways.

The cable shall be laid in the trenches and covered with RCC slabs/MS sheet/Aluminium chequered plates as per the schedule and instructions of Engineer at site.

9. Bends: the cable trench shall be straight as far as possible without bends and at places where obstacles are encountered, there shall be no abrupt bends or sharp, corners, such bends if unavoidable, the cable shall be laid with minimum bend as per following specification.

9.1: Bending radius for PVC cables while installing/ laying PVC cables the following minimum bending radius should be observed in order that the cables, especially insulation may not undergo damage.

For 1.1 KV cables:

- (a) Single core cables – 15 x D (where D is the overall diameter of cable)
- (b) Multi core cables – 12 x D

9.2 Bending Radius for XLPE cables:

While installing/laying XLPE HT cables the following minimum bending radius should be observed so that the cable end especially the insulation is not damaged.

Voltage Grade of cable	Recommended minimum bending radius
a) Up to 11 KV	15 x D
b) Above 11 KV	15 x D for multicore cables 20 x D for single core cables

Where D – is overall diameter of cable.

10. Slope: The slope of the cable trench according to the formation of the land shall be made so as to keep the bend of the cable minimum as stated in item 10 above.

11. Looping of cable:

11.1 : the cable at the foot of the structures shall be looped to the lengths of 5 metre to allow for the future requirement the coil diameter shall be not less than minimum bending radius as stated in item 10 above. The excavation at structures shall be done suitably and covered with sand, bricks and earth as detailed under item 4 above.

11.2: At each end termination near the panel board a 5 metre loop shall be kept as an allowance and loop ring shall be formed circular and as recommended by the cable manufacturers.

12.0: Accessories/Materials:

12.1: Cable Route Indicators: Cast Iron Cable Indicators/markers manufactured as per the Drg.No.RaiITel/SR/SC/Cable Route Marker/3/2004 enclosed. The cable markers shall be positioned, fixed

firm and cemented in a manner acceptable to the Engineer at site. The M.S. Item's shall be dipped in hot tar and dried before they are fixed. The cable marker shall be painted with 2 coats of red oxide, one coat before providing at site and another after positioning and cementing. The spacing of the markers shall be not more than 6 metre in straight runs.

12.2: Country Bricks:

12.2.1: GENERAL: Country bricks must free from cracks large chipped surfaces and broken corners stones and lumps inclusions of burnt kankar if of small extent may be permitted. The brick surface should be so hard as not to get scratched by the finger nail. Franchres surface should not have cava ties to any appreciable extent and the texture should be as even as possible. The country bricks when struck with a piece of steel should give a fairly ringing and not a dull earthy sound. It should not absorb more than 25% of its own dry weight of water. When dropped on ground from a height of 1 metre, it should not crack or break.

12.2.2: Quality and size: Country bricks may be slightly over burnt but not under burnt in any case. The Colour may be dull red or even reddish yellow, provided it is not due to under-burnt material and is only a feature of the type of moldings clay used. The normal size of country brick should be 225mm x 115mm x 75mm. The size of the frog in the upper face should be same as per first or second class bricks.

12.3: Sand: the sand shall be preferably of river sand or as per the quality required by the Engineer at site. The sand shall be free from lumps of earth, clay, etc. and screened.

12.4: RCC Hume Pipes: RCC Hume pipes supplied shall be of size 150 mm internal dia and 210 mm external dia to the standard lengths. Necessary collars for joining the above pipes shall also be supplied. The pipes and collars shall be conforming to relevant latest ISS and same should be approved by the Engineer at site before laying in the trenches.

12.5: Clamps, bolts, etc: Clamps shall make out of Aluminium or M.S.Flat. The bolts used shall be of suitable dia and of sufficient lengths. One M.S.Hex nut and a check nut with one spring washer between two nos. of flat washers shall be used for tightening the bolts. The M.S.Clamps shall be painted with one coat of Red Oxide and 2 coats of Aluminium paint.

12.6: GI Pipes: the GI Pipes shall be of 'B' Class of 50 mm dia/100mm 3.4mm dia thickness to the standard lengths. Necessary collars bends etc. for joining the above pipes shall also be supplied. The pipes and accessories shall be conforming to relevant latest ISS and same should be approved by the Engineer at site before use.

12.7: HT Cable end boxes/kits to use with 11 KV earthed system XLPE Cables:

12.7.1: Out door end termination: the kit should essentially contain the following contents:

1. Required quantity of cable joining compound.
2. Required quantity of hardener
3. Plastic mould
4. Mould adhesive cum-solvent
5. Earth continuity connection
6. Stress grading paste
7. Self bonding insulating tape
8. Insulators
9. Copper binding wire
10. Aluminium Oxide tape
11. Nylon stringer cutting XLPE insulation

12. Polyester tape
13. Semi conducting self bonding tape
14. M.Seal (Fast setting)epoxy putty
15. Instruction sheet

12.7.2: Indoor end terminations: The kit should essentially contain the following contents.

1. Required quantity of cable jointing compound
2. Required quantity of hardener
3. Plastic mould
4. Mould adhesive cum solvent
5. M.Seal (fast settings)epoxy putty
6. Earth continuity connection
7. Stress grading paste
8. Self bonding insulating tape
9. Copper binding wire
10. Aluminium oxide tape
11. Nylon string for cutting XLPE insulation
12. Semi conducting self bonding tape
13. Instruction sheet

12.8:LT Cable end boxes/kits to use with 1.1 KV PVC Cables:

For indoor & outdoor end terminations: The kit should essential contain the following contents.

1. Required quantity of cable jointing compound
2. Required quantity of hardener
3. Plastic mould
4. Mould adhesive cum solvent
5. M.Seal(fast settings) epoxy putty
6. Earth continuity connection
7. Spacer
8. Instruction sheet

12.9: WP Junction Boxes: These shall be made out of MS Sheet iron with weather proof arrangements type with suitable terminals, locking arrangements knock out cable entry holes etc. The box shall be painted with one coat of red oxide and two coats of aluminum paint. These shall be made & provided as per the instructions of the Engineer at site.

12.10: Cable gland: The cable gland shall be of brass with fixing check nuts etc. The correct size of gland shall be used for the particular size of cable. The glands to be used should be approved by the Engineer at site.

12.11: (Cable jointing lugs): These shall be made of aluminum, crimping type (i.e. solder less) and bolted type and also shall have adequate current carrying capacity. The lugs to be used should be approved by the Engineer at site.

12.12: Cable markers for track crossings: These shall be made of cast iron the design shall be approved by the Railway. The following information shall be clearly marked on the marker.

1. Electric cable : Volts
2. Number : Cables
3. Danger : In English, Hindi and the vernacular of the Dist.

4. Depth of cable : Below track level
5. Depth of cable : Below ground level between the toc of bank and Railway fencing.

12.13: Cable markers used where no. of feeders involved:

These shall be made of cast iron; the design shall be approved by the Rly. The following information shall be clearly marked on the marker.

- a) Electrical cables, volts (b) No. & sizes of cables
- c) Length of cable (d) origin & destination of cable.

13: General:

13.1: Test Certificates shall be produced for the cables supplied from the manufacturers:

13.2: Kit materials/accessories supplies should have approval of site Engineer before using the same.

13.3: The method of laying the cables shall be generally as indicated in Drg.No.SC. /SR/SC/Power Cable/2/2004.

13.4: The cable routes shall be actually measured at site and the requirement accessed before the supplies are affected. No joints in straight runs will be permitted. Measurement for cables will be taken as straight runs and from gland to gland. Covering of trenches shall be carried out only after measurements are taken and recorded. Insulation resistance tests shall be repeated after laying the cable and before the terminations are made in the presence of the Engineer-in charge at site.

13.5: While connecting the cables to OH Mains/switch panels the cable end boxes shall be used as per the directions of Engineer at site, required to be laid in existing trenches within the unit substations/shop bays, the contractor shall ensure that this is done by removing the existing slabs and replacing the same after laying, duly cleaning the trench wherever warranted.

13.6: Wherever the cables enter or leave the buildings they shall be through walls in 150mm. Dia RCC pipes, GI pipes with collar as directed by the Engineer-in charge at site including civil works.

13.7: The cables shall be treated through RCC pipes at all road and rail line crossings and at all other service line crossings like drain pipes, sewage and water-mains as per instructions of the Engineer- in charge at site.

13.8: Where track crossings are involved in two cable markers shall be fixed at both ends of the underground crossing as directed by the Engineer at site.

13.9: Where we have to deal with No. of feeders like workshops, repair shops, sub-stations etc.

Approved type C.I Cable route indicators shall be grouted in concrete along the route of the cable at intervals of 50 metre in straight runs and at every diversion point and at every entry and exist paints of buildings, sheds etc. These shall be used along with other types of cable markers as directed by the engineer at site.

13.10: All cables ends shall be provided with cable glands and each lead provided with crimped aluminum shoes of suitable sizes.

13.11: Any foundation drainage/walls/masonry structure will be remade with a good mason after passing the cable, by the contractor. Pipes will be provided by the contractor.

14: CABLE TERMINATIONS:

14.1: All the exposed cable runs in shop, floors, particularly being terminated on SDBs, Fuse boxes, shall be encased in a suitable size of GI Pipe and secured to the pillars/columns by means of clamps.

14.2: Termination of cables shall be carried out using approved crimping type “dowels: aluminum lugs and approved type of crimping tools.

14.3: The method of termination shall be as per the procedure laid down in the relevant manufacturer’s literature.

14.4: The prices quoted shall include all the necessary supply of materials such as glands, lugs, consumables etc.

14.5: Every piece of cable shall be tested before taking up the termination work and after completion of the same and the results of such tests shall be recorded.

14.6: All testing shall be carried out in the presence of the Engineer-in-charge at site.

NOTE: Any Required Drawings Can Be Obtained From RailTel Engineer In Charge



OFFER LETTER

To
RailTel Corporation of India Limited,
No.275E, EVR Periyar Saalai,
4th Floor, Office of the Chief Administrative Officer,
Southern Railway, Egmore,
Chennai- 600008

I/We _____ have read the various conditions detailed in tender documents attached here to and hereby agree to ABIDE BY THE SAID CONDITIONS. I/We also agree to keep this tender open for acceptance for a period of **120 days** from the date fixed for opening the same and in default thereof, I/We will be liable for forfeiture of my/our Earnest Money. I/We offer to “Construction of Masonry Huts, Supply and Installation of AC Units & DG Sets, drawing / Laying of OFC and Electrical cable in Chennai Territory” as per the Schedule of work and specifications given in this Tender Document” and hereby bind myself/ourselves. I/We also hereby agree to abide by the Various Conditions of Contract and to carry out the supplies according to the Specifications for materials and works laid down by the RailTel for the present contract.

2. A sum of Rs. _____ as an Account Payee Demand Draft No. _____ dt. _____ issued by _____ in favour of RailTel Corporation India Ltd. Secunderabad is herewith forwarded as “Earnest Money”. The full value of Earnest Money shall stand forfeited without prejudice to any other rights or remedies if, I/We withdraw or modify the offer within validity period to that effect.

SIGNATURE OF SUPPLIER (S) with Seal

Date:

SIGNATURE OF WITNESS CONTRACTOR (S) ADDRESS

- 1.
- 2.

GUARANTEE BOND PROFORMA FOR SECURITY DEPOSIT

(On Stamp Paper of requisite value)

(To be used by approved Scheduled Banks)

1. In consideration of the RailTel Corporation of India Limited., Chennai (Herein after called RailTel) having agreed to exempt ----- (Hereinafter called "the said Contractor(s)") from the demand, under the terms and conditions of an LOA No---- dated ----- made Between Group General Manager, RailTel Corporation of India Limited, Chennai and for (hereinafter called " the Said Agreement") of 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. only. We ----- (indicate the name of the Bank) herein after referred to as "the Bank") at the request of ----- 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 if the terms Or conditions contained in the said Agreement.
2. We, -----Bank do hereby undertake to pay the amounts due and payable under this Guarantee without any demur, merely on demand from the RailTel starting 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 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 there under and the Contractor(s) / Supplier(s) shall have no claim against us for making such payment.
4. We,-----Bank 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 or till RailTel certifies that the terms and conditions of the said Agreement have been fully and properly carried out by the said Contractor(s) and accordingly discharges this Guarantee Unless a demand or claim under the Guarantee is made on us in writing on or Before the (1) We shall be discharged from all liability under this Guarantee thereafter-----
5. We,-----

------(Name of the Bank), Further agree with the RaiITel that the RaiITel shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the Agreement or to extend time of to postpone for any time or from time to time any of the powers exercisable by the RaiITel against the said Contractor(s) and to forbear or enforce any of the terms and conditions relating to the said Agreement and we shall not be relieved from our liability by reason of any such variation, or extension to the said Contractor(s) or for any forbearance, act or omission on the part of RaiITel or any indulgence by the RaiITel to the said Contractor(s) or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have affect of so relieving us.

- 6. This Guarantee will not be discharged due to the change in the Constitution of the Bank or the Contractor(s) Supplier(s).
- 7. -----(name of the Bank lastly undertake not to revoke this Guarantee during its currency except with the previous consent of the RaiITel in writing.

Dated _____ day of _____ 2015

For -----
(Name of the Bank)

Witness:

1. Signature

Name

2. Signature

Name

5. We Bank further agrees that the guarantee herein contained shall not be effected by any change in the constitution of the said contractor.

Datedday of

for.....Bank

ACCEPTED

For on behalf of the President of India.

FORM-II

PROFORMA FOR STATEMENT OF DEVIATIONS

(1) The following are the particulars of deviations from the requirements of the tender specification.

Clause	Deviation	Remarks (including justification)

(2) The following are the particulars of deviations from the requirements of the instructions to Tenderers, General and Special Conditions of contract-

Clause	Deviation	Remarks (including justification)

Signature and seal of the Tenderer

Note: Where there is no deviation, the statement should be returned duly signed with an endorsement indicating "No Deviations".