



Tender No. HQ/EL/132KV TRL- XING/EC-01

For

Design, supply, erection, testing and commissioning of 132 KV, 3 phase double circuits Transmission Line Crossing Modification work for DFC alignment in Allahabad Division of North Central Railway

Employer:
DEDICATED FREIGHT CORRIDOR CORPORATION OF INDIA LIMITED
A GOVERNMENT OF INDIA ENTERPRISE
Under
MINISTRY OF RAILWAYS

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PART-I**Chapter – I****PREAMBLE & GENERAL INSTRUCTIONS TO TENDERERS****1.1.1 Introduction****(i) General**

Dedicated Freight Corridor Corporation of India Ltd. (DFCCIL), a public sector undertaking has been set up under the Indian Companies Act 1956 for implementation of Dedicated Freight Corridor Project. Government of India is the sole shareholder of the DFCC.

Ministry of Railways (MOR), Government of India has planned to construct Dedicated Freight Corridor (DFC) covering about 3338 route kilometers on Eastern and Western Corridors. The coverage of Eastern Corridor is from Ludhiana to Dankuni and Western Corridor is planned from Jawaharlal Nehru Port, Mumbai to Rewari / Tughlakabad / Dadri near Delhi. There will be a linkage between two corridors at Dadri.

(ii) Eastern Dedicated Freight Corridor

Eastern DFC Route will be approximately 1839 Km long from Dankuni to Ludhiana via Dankuni – Asansole – Dhanbad – Gaya – Sonnagar - Mughalsarai-Allahabad-Kanpur-Tundla-Aligarh-Khurja - Bulandshahr – Meerut – Saharanpur – Ambala - Ludhiana. Proposed alignment of DFC has been generally kept parallel to existing Indian Railway line except provision of detours at some stations where the existing yards /cities are congested .

The contract for the Civil & Track works on Bhaupur-Khurja section is under finalization and the work will commence shortly. Tender for system contract of Bhaupur –Khurja section is also under process.

(iii) Scope of Work

On behalf of President of India , General Manager /Electrical /EC/ Dedicated Freight Corridor Corporation of India Limited, 4th Floor Pragati Maidan Metro Station Building, New Delhi herein after referred to as 'DFCCIL' is inviting sealed tenders from established, and experienced Contractors for execution of the following work:

‘Design, supply, erection, testing and commissioning of 132 KV, 3 phase double circuits Transmission Line

Crossing Modification work for DFC alignment in Allahabad Division of North Central Railway'

- (iv) Scope of work is as per the requirements given in the bid document but not limited to:
- (a) Route survey and Preparation of profile
 - (b) Design of tower/foundations, wherever required.
 - (c) Execution of Foundations
 - (d) Supply of complete materials
 - (e) Tower erection and stringing
 - (f) Testing and commissioning
 - (g) Dismantling and handing over the material to Railways.
 - (h) Other miscellaneous works.

The details of the 132 kV TR line crossings locations of North Central Railway infringing the DFC alignment and included in the scope of present tender for modification are given in Annexure 2A.

- (v) Cost of the work: The estimated cost of the tendered work is approximately Rs 20.23 Cr.
- (vi) The tenderer shall be governed by General Conditions of Contract(GCC), preamble and general instructions to tenderers and special conditions of contract(SCC). Wherever there is conflict in any condition between GCC and ,Special condition of contract mentioned in tender documents, the condition mentioned in special condition will prevail. However Engineer decision in this connection shall be final and binding.
Part 1, Chapter-II contains (A) General conditions of contract and (B) Special conditions of contract specific to this work and shall be applicable in the contract.

(v) **Location**

Works is to be executed in the jurisdiction of Allahabad Division of North Central Railway. However, DFCCIL reserves right to change the site of work anywhere in adjacent / adjoining area of the work defined in Para 1.1.1 (iii) above in the jurisdiction and the contractor shall be bound to execute the work without any extra cost.

1.1.1(a) DELETED

1.1.1(b) TENDER BID

The Tender Bid shall be submitted **in one sealed covers with two separate sealed Packets** as under :-

Packet -A

Eligibility/Qualifying element of the Tender Bid , here in after called "TECHNICAL BID "

Packet –B

Price elements of the Tender Bid herein after called "**Financial- Bid**".

The details to be included in Technical Bid (Packet A) And Financial- Bid (Packet-B) are as per 1.1.1(c) below:

The **Technical- Bid (Packet-A)** shall be opened on the date of tender opening. The detailed scrutiny of Technical Bid shall be carried out. The "**Financial- Bid**" (**Packet-B**) shall be opened only of those tenderers who qualify in Technical Bid. The **Financial- Bid** of un-qualified tenderers shall be returned without opening the **Packet B**. The detailed procedure for tender opening and processing is given in Para 1.1.3.10.

1.1.1(c) FORM OF TENDER

The Tender documents shall be in **two separate sealed packets** viz. :-

Packet -A containing Technical bid and Packet –B containing Financial bid. Detailed credentials as per the requirement of eligibility criteria and all tender papers except Schedule of Prices are to be submitted in "Technical-Bid" i.e. Packet-A .Schedule of Prices with percentage above/below/at par duly filled in are to be submitted in "Financial –Bid."

Completed tender documents in two packets viz. Packet-A and Packet-B shall be sealed separately in envelopes super scribing as Packet-A (Technical Bid) and Packet – B (Financial Bid) along with the name of the work. These two sealed Envelopes and the envelop (superscribing ""Earnest Money for the work "containing the Earnest money and cost of Tender document in case of downloaded tenders) in the form as prescribed in the tender documents shall further be sealed in a larger envelope super scribing the name of the work as stated above (**along with date and time of opening of tenders.**) . . **Any tender received later than the time and date of opening of tenders shall be rejected and returned to the tenderer/s unopened .**

Tenders not submitted in the proper Forms are liable to be rejected.

(a) **Documents to be enclosed with each copy of TECHNICAL BID (Packet A) :-**

SN	Description	Documents
(1)	Offer letter complete with summary of prices blanked out.	Form-1
(2)	Tenderer's credentials in accordance with para 1.1.12	Form- 2A, 2B, & 2 C
(3)	Earnest money in accordance with Para 1.1.7 and cost of tender document in case of downloaded tenders in accordance with Para 1.1.3.3	
(4)	Written confirmation authorizing the signatory of the Tender to commit the Tenderer in accordance with para 1.1.4	
5	A copy of the Tender papers duly signed in Ink by the Tenderer, on each and every page in token of his having studied the Tender papers carefully shall be attached with the Tender.	

(b) **Documents to be enclosed with the FINANCIAL BID (Packet B)**

SN	Description	Documents
(1)	Offer letter complete with summary of prices.	Form -4 & 5

1.1.2 Tender Document

This tender document consists of following five parts:

- Part-I** Chapter-I Preamble and General Instructions to tenderers.
Chapter-II Conditions of Contract
Chapter-III Prices & Payments
Chapter-IV Explanatory Notes
- Part -II** General Specifications
Part -III Particular specifications
Part -IV Annexures and Appendices
Part -V Tender Forms

1.1.3 Sale and Submission of Tender Document

1.1.3.1 Tender document can be purchased from the office of the General Manager/ Electrical (EC) Room No. 432, 4th floor ,Dedicated Freight Corridor Corporation of India Limited, Pragati Maidan Metro station building complex New Delhi on any working day on payment of Rs. 10,000/- through Demand Draft payable at New Delhi in favor of "**Dedicated Freight Corridor Corporation of India Limited, New Delhi**" The cost of the tender form is not refundable and also not transferable.

1.1.3.2 Clause applicable for tender documents downloaded from Internet

Tenderer/s are free to down load tender documents at their own risk and cost, for the purpose of perusal as well as for using the same as tender document for submitting their offer. Master copy of the tender document will be available in the office of GM/ Electrical (EC), Dedicated Freight Corridor Corporation of India Limited, New Delhi. After award of the work, an agreement will be drawn up. The agreement shall be prepared based on the master copy available in the office of General Manager/ Electrical (EC), Dedicated Freight Corridor Corporation of India Limited, New Delhi and not based on the tender documents submitted by the Tenderer. In case of any discrepancy between the tender documents downloaded from the internet and the master copy, later shall prevail and will be binding on the Tenderers. No claim on this account will be entertained.

1.1.3.3 Cost of Tender documents downloaded from internet

Tender documents are available on Dedicated Freight Corridor Corporation of India Limited website i.e. "www.dfcc.in or www.dfccil.org" and the same can be downloaded and used as tender documents for submitting the offer.. The cost of the tender document as indicated above in para 1.1.3.1 above will have to be deposited by the Tenderer in the form of Demand draft payable in favour of '**Dedicated Freight Corridor Corporation of India Limited, New Delhi**' along with the Tender document. This should be paid separately and not included in the earnest money. **In case, tender is not accompanied with the cost of the tender document as detailed above, tender will be summarily rejected.**

1.1.3.4 Complete tender documents must be submitted duly completed in all respects in the tender box in the office of the **General Manager/ Electrical (EC), Room no. 432, 4th floor Dedicated Freight Corridor Corporation of India Limited, Pragati Maidan Metro station building complex New Delhi** upto **15.00 Hrs on 14.03.2013**. The "**Packet-A (TECHNICAL BID)**" with certified credentials along with required Earnest money will be opened at **15.30 Hrs** on the same day and read out in the presence of such

tenderer(s) as is/are present. Tenders, which are received after the time and date prescribed for submission of tenders shall not be considered. In case the intended date for opening of tenders is declared a holiday, the tenders will be opened on the next working day at the same time. The detailed scrutiny of Prequalification bid shall be carried out. The detail procedure of tender opening will be as per 1.1.3.10.

1.1.3.5 Tenders sealed and superscribed as aforesaid can also be sent by Registered post addressed to the **General Manager/ Electrical (EC), Room no. 432** 4th Floor, **Dedicated Freight Corridor Corporation of India Limited**, Pragati Maidan Metro Station Building Complex, New Delhi - 110001, India. but a tender which is received after the time and date specified in Para above shall not be considered. Tender delivered or sent otherwise will be at the risk of the tenderers.

1.1.3.6 The rate/s should be quoted in ink in figures as well as in words. If there is variation between rates quoted in figures and in words, the rate quoted in 'words' shall be taken as correct. If more than one or improper rates are tendered for the same item, the tender is liable to be rejected.

1.1.3.7 Each page of the tender papers is to be signed by the tenderers or such person/s on his/their behalf that is/are legally authorized to sign for him/them.

1.1.3.8 **Care in Submission of Tenders** – Before submitting a tender, the tenderer will be deemed to have satisfied himself by actual inspection of the site and locality of the works, that all conditions liable to be encountered during the execution of the works are taken into account and that the quoted rates by tenderer in tender forms are adequate and all inclusive in item of Taxes, Duties & Levies etc. in terms of General/Special Conditions of Contract for the completion of works to the entire satisfaction of the Employer .

1.1.3.9 Tenders containing erasures and/or alteration of the tender documents are liable to be rejected. Any correction made by Tenderer(s) in his/their entries must be attested by him/them.

1.1.3.9.1 Pre-bid conference: There will be pre-bid conference at **11.00** hours on **14-02-2013** in Dedicated Freight Corridor Corporation of India Limited, Conference Room; 4th Floor, DFCCIL, Pragati Maidan Metro Station Building Complex, New Delhi -110001, India. Bidders should give their queries in writing upto 3 days prior to pre-Bid Conference. All interested Bidders may attend the Pre-Bid Conference. DFCC response to queries as well as addenda to bidding document will be posted on the DFCCIL's

website. Non-attendance at the pre-Bid conference will not be a cause for disqualification of the Bidder.

All communication between the Employer and the tenderer shall be in writing. For the purposes of seeking clarification, the Employer's address is:

Dedicated Freight Corridor Corporation of India Limited

Attention: Mr. V .P. Singh

General Manager / Elect (EC)

Room # 432; 4th Floor ,

Pragati Maidan Metro Station Building Complex

New Delhi - 110001, INDIA

Telephone: +91 – 11 – 23454840, Facsimile number: +91-11-23454842

Electronic mail address: vpsingh@dfcc.co.in

1.1.3.10 OPENING OF TENDER

- (a) Tender will be opened at **15.30** hrs. on **14-03-2013**, in the Dedicated Freight Corridor Corporation of India Limited, Conference Room; 4th Floor, DFCCIL, Pragati Maidan Metro Station Building Complex, New Delhi in the presence of the tenderers or their representatives as may be present at the prescribed date and time.
- (b) At the time and date prescribed in tender document, the outer sealed cover shall be opened. Thereafter the packet of '**Technical bid (Packet-A)**' only of all the tenderers shall be opened and the contents thereof i.e. qualification details shall be read out. **Financial Bid (Packet-B)** shall be kept in safe custody in sealed conditions.
- (c) After the opening of "Technical bid" (Packet-A) of all the tenderers, these bids shall be scrutinized and analyzed. If found necessary by the Employer, the tenderers shall be asked to furnish clarifications and the Employer may also hold discussions with the tender(s) after giving due notice. The names of the tenderers whose bid are considered complete and they meet eligibility criteria shall be short listed.
- (d) The **Financial Bid (Packet –B)** shall be opened on a subsequent date and time duly notified well in advance. The Financial bid shall be opened of only those tenderers who are short listed after scrutiny of their Technical bid. The Financial bid of the tenders who do not qualify during scrutiny of Technical bid shall not be opened and these shall be returned by the employer. The time of opening, date and venue shall be advised to qualified tenderers well in advance to enable them to depute their representative. The earnest money of non-qualifying tenderers will be returned back within a reasonable period of completion of results of Technical bid.

1.1.4 Constitution of the Firm:

1.1.4.1 The tenderer shall clearly specify whether the tender is submitted on his own or on behalf of a Partnership Firm. If the tender is submitted on behalf of a partnership Firm he should submit the certified copy of partnership deed along with the tender and authorization to sign the tender document on behalf of partnership firm. If these documents are not enclosed along with tender documents, the tender will be treated as having been submitted by individual signing tender documents. The DFCCIL will not be bound by any power of attorney granted by the tenderer/s or by changes in the composition of the firm made subsequent to the execution of the contract. The DFCCIL may, however, recognize such power of attorney and changes after obtaining proper legal advice, cost of which will be chargeable to the contractor.

1.1.4.2 The tenderer whether sole proprietor, or a partnership firm if they want to act through agent or individual partner(s) should submit along with the tender, a power of attorney duly stamped and authenticated by a Notary Public or by Magistrate in favor of the specific person whether he/they be partner(s) of the firm or any other person specifically authorizing him/them to submit the tender, sign the agreement, receive money, witness measurements, sign measurement books, compromise, settle, relinquish any claim(s) preferred by the firm and sign "No Claim Certificate" and refer all or any disputes to arbitration.

1.1.4.3 **Partnership Firm-** In case the tenderer/s is a partnership firm, the work experience, turnover etc. shall be in the name of partnership firm only.

1.1.5 Joint Ventures shall be considered as under:

- i Separate identity/name shall be given to the joint venture Firm.
- ii Number of members in a JV Firm shall not be more than three.
- iii A member of JV Firm shall not be permitted to participate either in individual capacity or as a member of another JV Firm in the same tender.
- iv The tender form shall be purchased in the name of the JV Firm/Lead Member.
- v Normally EMD shall be submitted only in the name of the JV Firm and not in the name of constituent member. However, EMD in the name of Lead Member can be accepted subject to giving written confirmation from JV members to the effect that EMD submitted by Lead Member may be deemed as EMD submitted by JV Firm

- vi One of the members of the JV Firm shall be its Lead Member who shall have a majority (at least 51%) share of interest in the JV Firm and also, must have satisfactorily completed in the last three previous financial years and the current financial year upto the date of opening of the tender, one similar single work for a minimum value of 35% of advertised tender value. The other members shall have a share of not less than 20% each in case of JV Firms with upto three members. In case of JV Firm with foreign member(s), the Lead member has to be an Indian Firm with a minimum share of 51%.
- vii A copy of Memorandum of Understanding (MOU) executed by the JV members shall be submitted by the JV Firm along with the tender. The complete details of the members of the JV Firm, their share and responsibility in the JV Firm etc. particularly with reference to financial, technical and other obligations shall be furnished in the MOU.
- viii Once the tender is submitted, the MOU shall not be modified/altered/terminated during the validity of the tender. In case the tenderer fails to observe/comply with this stipulation, the full Earnest Money Deposit (EMD) shall be liable to be forfeited.
- ix Approval for change of constitution of JV Firm shall be at the sole discretion of the Employer (DFCCIL). The constitution of the JV Firm shall not be allowed to be modified after submission of the tender bid by the JV Firm, except when modification becomes inevitable due to succession laws etc and in any case the minimum eligibility criteria should not get vitiated. However, the lead member shall continue to be the lead member of the JV Firm. Failure to observe this requirement would render the offer invalid.
- x Similarly, after the contract is awarded, the constitution of the JV Firm shall not be allowed to be altered during the currency of contract except when modification become inevitable due to succession laws etc and in any case the minimum eligibility criteria should not get vitiated. Failure to observe this stipulation shall be deemed to be breach of contract with all consequential panel action as per contract conditions.
- xi On award of contract to a JV Firm, a single Performance Guarantee shall be submitted by the JV Firm as per tender conditions. All the guarantees like Performance Guarantee, Bank Guarantee for Mobilization advance, Machinery advance etc shall be accepted only in the name of the JV Firm and no splitting of guarantees amongst the members of the JV Firm shall be permitted.
- xii On issue of LOA (Letter of Acceptance), an agreement among the members of the JV Firm (to whom the work has been awarded) shall be

executed and got registered before the Registrar of the Companies under Companies Act or before the Registrar/Sub- Registrar under the Registration Act, 1908. This JV Agreement shall be submitted by the JV Firm to the DFCCIL before signing the contract agreement for the work. In case the tenderer fails to observe/comply with this stipulation, the full Earnest Money Deposit (EMD) shall be forfeited and other panel actions due shall be taken against partners of the JV and the JV. This Joint Venture Agreement shall have, inter-alia following clauses :

- xii.1 **Joint And Several Liability**- Member of the JV Firm to which the contract is awarded, shall be jointly and severally liable to the Employer (DFCCIL) for execution of the project in accordance with General and Special Conditions of Contract. The JV members shall also be liable jointly and severally for the loss, damages caused to the DFCCIL during the course of execution of the contract or due to non-execution of the contract or part thereof.
- xii.2 **Duration of the Joint Venture Agreement** - It shall be valid during the entire currency of the contract including the period of extension, if any and the maintenance period after the work is completed.
- xii.3 **Governing Laws** - The Joint Venture Agreement shall in all respect be governed by and interpreted in accordance with Indian Laws.
- xiii **Authorized Member** - Joint Venture members shall authorized one of the members on behalf of the Joint Venture Firm to deal with the tender, sign the agreement or enter into contract in respect of the said tender, to receive payment, to witness joint measurement of work done, to sign measurement books and similar such action in respect of the said tender/contract. All notices/correspondences with respect to the contract would be sent only to this authorized member of the JV Firm.
- xiv No member of the Joint Venture Firm shall have the right to assign or transfer the interest right or liability in the contract without the written consent of the other members and that of the employer (DFCCIL) in respect of the said tender/contract.
- xv Documents to be enclosed by the JV Firm alongwith the tender:
 - xv.1 In case one or more of the members of the JV Firm is/are partnership firm(s), following documents shall be submitted :
 - (a) Notary certified copy of the Partnership Deed.
 - (b) Consent of all the partners to enter into the Joint Venture Agreement on a stamp paper of appropriate value (in original).
 - (c) Power of Attorney (duly registered as per prevailing law) in favour of one of the partners of partnership firm to sign the JV

Agreement on behalf of the partnership firm and create liability against the firm.

- xv.2 In case one or more members is/are proprietary FIRM or HUF, the following documents shall be enclosed :

Affidavit on Stamp Paper of appropriate value declaring that his/her Concern is a Proprietary Concern and he/she is sole proprietor of the Concern OR he/she is in position of "KARTA" of Hindu Undivided Family (HUF) and he/she has the authority, power and consent given by other partners to act on behalf of HUF.

- xv.3 In case one or more members is/are limited companies, the following documents shall be submitted:

- (a) Notary certified copy of resolutions of the Directors of the Company, permitting the company to enter into a JV agreement, authorizing MD or one of the Directors or Managers of the Company to sign JV Agreement, such other documents required to be signed on behalf of the Company and enter in to liability against the company and/or do any other act on behalf of the Company.
- (b) Copy of Memorandum and Articles of Association of the Company.
- (c) Power of Attorney (duly registered as per prevailing law) by the Company authorizing the person to do/act mentioned in the para (a) above.

1.1.6 Validity Of Tender

Tenderer shall keep his offer open for a minimum period of 90 days from the date of opening of the tender or as mentioned in the Tender notice.

1.1.7 Earnest Money –

- a) The tender must be accompanied by Earnest Money of Rs3034980/- (Thirty lacs thirty four thousand nine hundred eighty only) in favour of '**Dedicated Freight Corridor Corporation of India Limited, New Delhi**' deposited in any of the forms as mentioned in 1.1.7(c), failing which the tender will not be considered.
- b) The earnest money shall remain deposited with the DFCCIL for the period of validity of the offer prescribed in this tender i.e.90 days from the date of opening of tender. If the validity of the offer is extended, the validity of earnest money should also be extended failing which the offer after the expiry of the aforesaid period may not be considered by the DFCCIL.
- c) The Earnest money should be in any of the following forms :
Banker's cheque / Demand Draft/ FDR from Nationalized/ Indian Scheduled Commercial Bank

- d) It shall be understood that the tender documents have been sold/issued to the tenderer and the tenderer is permitted to tender in consideration of stipulation on his part, that after submitting his tender he will not resile from his offer or modify the terms and conditions, thereof in a manner not acceptable to the Employer. Should the tenderer fail to observe or comply with the said stipulation, the aforesaid amount shall be liable to be forfeited to the DFCCIL.
- e) The earnest money of the unsuccessful tenderer(s) will, save as herein-before provided, be returned to the unsuccessful tenderer(s) within a reasonable time but the DFCCIL shall not be responsible for any loss or depreciation that may happen for the due performance of the stipulation to keep the offer open for the period specified in the tender documents or to the earnest money while in their possession nor be liable to pay interest thereon.

NOTE: No interest shall be paid by DFCCIL on earnest money amount.

1.1.8 Execution of contract Agreement – The Tenderer whose tender is accepted shall be required to appear in person at the office of the **General Manager/ Electrical (EC), DFCCIL, New Delhi** or if a firm or corporation, a duly authorized representative shall so appear and execute the contract documents within 15 days after notice that the contract has been awarded to him and Performance Guarantee has been deposited by him. Failure to do so shall constitute a breach of the agreement affected by the acceptance of the tender in which case the full value of the earnest money accompanying the tender shall stand forfeited without prejudice to any other rights or remedies.

In the event of any Tenderer whose tender is accepted shall refuse to execute the contract documents as herein before provided, the DFCCIL may determine that such Tenderer has abandoned the contract and there upon his tender and acceptance thereof shall be treated as cancelled and DFCCIL shall be entitled to forfeit the full amount of the earnest money ..

1.1.9 (a) Security Deposit On Acceptance Of Tender:

The security deposit / rate of recovery / mode of recovery on acceptance of tender shall be as per the Para 16(1)-(3) of General Conditions of Contract (GCC).

1.1.10 Tenderer's Address

The tenderer should state in the tender his postal address legibly and clearly. Any communication sent in time, to the tenderer by post at his said address shall be deemed to have reached the tenderer duly and in time. Important documents should be sent by Registered post.

1.1.11 Right of DFCCIL to deal with Tenders

- a) The DFCCIL reserves the right of not to invite tenders for any of DFCCIL work or works or to invite open or limited tenders and when tenderers are called to accept a tender in whole or in part or reject any tender or all tenders without assigning reasons for any such action.
- b) The authority for the acceptance of the tender will rest with the DFCCIL. It shall not be obligatory on the said authority to accept the lowest tender or any other tender and no tenderer(s) shall demand any explanation for the cause of rejection of his/their tender nor the DFCCIL undertake to assign reasons for declining to consider or reject any particular tender or tenders.

1.1.12(i) Eligibility criteria**(A): Technical Eligibility Criteria**

Criteria Requirement	Compliance Requirement				Documents Submission Requirements
	Single Entity	Joint venture			
		All parties combined	Each Partner	Lead partner	
<p>The Tenderer should have successfully completed at least one similar* single work for a minimum value of 35% of advertised tender value of work in the last three financial years i.e. current Financial year and three previous financial years (with reference to the deadline for submission of tender).</p> <p>*The meaning of “similar work” for this work is “Satisfactory execution of Supply, erection, testing and commissioning of Transmission Line</p>	Must meet requirement	Must meet requirement	Not applicable	Must meet requirement	The copy of completion certificate issued by work awarding authority.

of voltage 132 kV or above.”					
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Note: Value of completed work done by a member in an earlier JV Firm shall be reckoned only to the extent of the concerned member's share in that JV firm for the purpose of satisfying his/her compliance to the above mentioned technical eligibility criteria in the tender under consideration.

(B): Financial Eligibility Criteria

Criteria Requirement	Compliance Requirement				Documents Submission Requirements
	Single Entity	All parties combined	Each Partner	One of the partner	
The tenderer should have received total payment against satisfactory execution of all completed/ ongoing works of all types (not confined to only similar works) during preceding three Financial years i.e. current Financial year and three previous financial years (with reference to the deadline for submission of tender) of a value not less than 150% of the advertised cost of the work.	Must meet requirement	Must meet requirement	Not applicable	Not applicable	A certificate from auditor or audited balance sheet / TDS certificate

Note: Contractual payments received by a Member in an earlier JV firm shall be reckoned only to extent of the concerned member's share in that JV Firm for the purpose of satisfying compliance.

1.1.12 (ii) Credentials of Tenderer

The tenderer shall provide satisfactory evidence acceptable to DFCCIL to show that:

- (a) For Technical eligibility criteria, the details will be submitted in Form 2A. Supporting documents shall also be submitted.
- (b) For Financial eligibility criteria, the details will be submitted in Form 2B .Supporting documents shall also be submitted
- (c) The tenderer should submit attested copies of the certificates obtained from the agencies wherever the works have been completed successfully. These certificates should indicate the details of works carried out and successful commissioning of similar type of work executed by the tenderer.

Certificate from Private individuals for whom such work is executed/being executed shall not be accepted.

The following will be applicable for evaluating the eligibility:

- (i) Similar nature of work physically completed within the qualifying period, i.e. last three financial year and current financial year (even though the work might have commenced before the qualifying period) shall only be considered in evaluating the eligibility criteria:
- (ii) The total value of similar nature of work completed during the qualifying period and not the payment received within qualifying period alone, should be considered. In case, the final bill of similar nature of work has not been passed and final measurements have not been recorded, the paid amount including statutory deductions is to be considered. If final measurements have been recorded and work has been completed with negative variation, then also the paid amount including statutory deductions is to be considered.
However, if final measurements have been recorded and work has been completed with positive variation but variation has not been sanctioned, original agreement value or last sanctioned agreement value whichever is lower shall be considered for judging eligibility.
- iii) As a proof of sufficient financial capacity and organizational resources, contractor should have received total payments against satisfactory execution of all completed /on-going works of all types (not confined to only similar works) during the last three financial years and in the current financial year (up to the date of submission of the tender) of a value not less than 150% of advertised cost.
- iv) Tenderer shall submit a statement of contractual payments received during last three financial years and current financial year on the prescribed Performa as per Form-2B. The details shall be based on the form 16-A issued by the employer i.e. the certificate of deduction of tax at source as per Income Tax Act 1961. The photocopies of form 16-A shall be enclosed

duly attested by Notary Public with seal and Notarial Stamp thereon. or A certificate from auditor or audited balance sheet certified by Chartered Accountant .clearly indicating the contractual amount received duly attested by Notary Public with seal and Notarial Stamp thereon.

- v) The tenderer shall be considered disqualified/in-eligible if
- (a) The Tenderer or any of its partners and/or subcontractors included in the tender has been banned for business with Ministry of Railways/DFCCIL along with any of its attached and subordinate offices through an order issued by Ministry of Railways as per list available on Web site (<http://www.indianrailways.gov.in/railwayboard>) of Railway Board pertaining to Banning of Business, with the Banning being valid as on the date of submission the Tender.
 - (b) The Tenderer or any of its partners has suffered bankruptcy/insolvency or its is in the process of winding-up or there is a case of insolvency pending before any Court on the deadline of submission of Application.

1.1.13 Period of Completion

The entire work is required to be completed in all respects within 18 months (Eighteen months) from the date of issue of the acceptance letter. Time is the essence of contract. The contractor will be required to maintain steady and regular progress to the satisfaction of the Engineer to ensure that the work will be completed in all respects within the stipulated time.

1.1.14 Deleted.

1.1.15 If the Tenderer/s deliberately gives any wrong information about credentials/documents in his/their tenders and thereby create(s) circumstances for acceptance of his/their tender, DFCCIL reserves the right to reject such tender at any stage, besides, shall suspend the business. The EMD of such tenderers shall also be forfeited .

1.1.16 Deleted

1.1.17 Quantum of work and materials –

- (a) The indicative schedule of quantities of various items of works is included in part-IV Annexure-2..

1.1.17.1 Variation in contract quantities shall be dealt as per Para 1.2.27 of Special Conditions of Contract (SCC)

1.1.18 Employer not bound to accept any tender:

The employer shall not be bound to accept the lowest or any tender or to assign any reason for non-acceptance or rejection of a tender. The employer reserves the right to accept any tender in respect of the whole

or any portion of the work specified in the tender papers or to reduce the work or to accept any tender for less than the tendered quantities without assigning any reason whatsoever. In case the overall value of the tender by a public sector undertaking of the Central Government is upto 10% higher than the lowest tender of a private tenderer, the DFCCIL reserves the right to give preference to the tender of such public sector undertaking at the lowest price bid.

1.1.19 Schedule of Prices

Schedule-1, of the tender document lists out the Schedule of Prices for various items. Based on these, the total contract value has also been worked out in schedule-1.

1.1.20 **Performance Guarantee** shall be required from successful bidders as per Para 1.2.28 of Special Conditions of Contract(SCC)

1.1.21 The tenderer shall furnish information for making payment through EFT/ECS.

1.1.21 **No form C&D shall be issued to the contractor for this work.**

PART - I

**CHAPTER II
CONDITIONS OF CONTRACT**

- (A) GENERAL CONDITIONS OF CONTRACT**
- (B) SPECIAL CONDITIONS OF CONTRACT**

(A) GENERAL CONDITIONS OF CONTRACT**DEFINITIONS AND INTERPRETATION**

1.(1) Definition:- In these General conditions of Contract, the following terms shall have the meaning assigned here under except where the context otherwise requires:-

- (a) "Railway" shall mean the President of the Republic of India or the Administrative Officers of the Railway/DFCCIL or of the Successor Railway/DFCCIL authorized to deal with any matters which these presents are concerned on his behalf.
- (b) "General Manager" shall mean the officer in-charge of the General Superintendence and Control of the Railway and shall also include the Managing Director/DFCCIL and shall mean and include their successors, of the successor Railway;
- (c) "Chief Engineer" shall mean the officer in-charge of the Engineering Department of Railway and shall also include Chief Engineer (Construction), Chief Signal and Telecommunication Engineer, Chief Signal and Telecommunication Engineer(Construction), Chief Electrical Engineer, Chief Electrical Engineer(Construction)/GGM/GM of DFCCIL.
- (d) "Divisional Railway Manager" shall mean the Officer in-charge of a Division of the Railway and shall also mean any officer nominated by Managing Director/DFCCIL and shall mean and include their successors of the successor Railway.
- (e) "Engineer" and Employer's Engineer shall mean the Divisional Engineer or the Executive Engineer, Divisional Signal & Telecommunication Engineer, Divisional Signal & Telecommunications Engineer (Construction), Divisional Electrical Engineer, Divisional Electrical Engineer(Construction), in executive charge of the works and shall include the superior officers of the Engineering, Signal & Telecommunication, and Electrical Department of Railway i.e., the Senior Divisional Engineer/Deputy Chief Engineer /Chief Engineer/Chief Engineer(Construction), Senior Divisional Signal & Telecommunication Engineer/Deputy Chief Signal & Telecommunication Engineer/Chief Signal & Telecommunication Engineer(Construction)/Senior Divisional Electrical Engineer/Deputy Chief Electrical Engineer/Chief Electrical Engineer(Construction, Chief Administrative Officer(Construction and Chief Project Manager of DFCCIL.

- (f) "Engineer's Representative" shall mean the Assistant Engineer, Assistant Signal and Telecommunication Engineer and Assistant Electrical Engineer, APM/PM/Dy.CPM/Add. CPM of DFCCIL in direct charge of the work and shall include any Sr. Sec./Sec./Jr. Engineer./Executive/Sr. Executive of DFCCIL of Civil Engineering/Signal and Telecommunication Engineering /Electrical Engineering Department appointed by the Railway/DFCCIL and shall mean and include the Engineer's Representative of the successor Railway/DFCCIL.
- (g) "Contractor" shall mean the person/Firm/Cooperative Society or Company / JV whether incorporated or not who enters into the contract with the Railway and shall include their executors, administrators, and successors and permitted assigns.
- (h) "Contract" shall mean and include the Agreement of Work Order, the accepted schedule of rates of the Schedule or Rates of Railway/DFCCIL modified by the tender percentage for items of work quantified, or not quantified, the General Conditions of Contract, the special conditions of contracts, if any, the drawings, the specifications, the special specifications, if any and tender forms, if any and all other documents included as part of contract .
- (i) "Works" shall mean the works to be executed in accordance with the contract.
- (j) "Specifications" shall mean the Specifications for materials and works referred / mentioned in tender documents.
- (k) "Schedule of rates of Railway" shall mean the schedule of rates issued under the authority of the Chief Engineer from time to time and also includes Rates specified in tender document . .
- (l) "Drawing" shall mean the maps, drawings, plans and tracings or prints there of annexed to the contract and shall include any modifications of such drawings and further drawings as may be issued by the Engineer from time to time.
- (m) "Constructional Plan" shall mean all appliances or things of whatsoever nature required for the execution, completion or maintenance of the works or temporary works (as hereinafter defined) but does not include materials or other things intended to form or forming part of the permanent work.
- (n) "Temporary Works" shall mean all temporary works of every kind required for the execution completion and/or maintenance of the works.
- (o) "Site" shall mean the lands and other places on, under, in or through which the works are to be carried out and any other lands or places provided by the Railway for the purpose of the contract.
- (p) "Period of Maintenance" shall mean the defect liability period from the date of completion of the works as certified by the Engineer.

- (2) **Singular and Plural:-** Words importing the singular number shall also include the plural and vice versa where the context requires.
- (3) **Headings & marginal headings:-**The headings and marginal headings in these general conditions are solely for the purpose of facilitating reference and shall not be deemed to be part thereof or be taken into consideration in the interpretation or construction thereof or the contract.

GENERAL OBLIGATION

- 2 (1) Execution Co-relation and intent of contract Documents:-**The contract documents be signed in triplicate by the Railway/DFCCIL and the Contractor. The contract documents are complementary, and what is called for by any one shall be as binding as if called for by all, the intention of the documents is to include all labour and materials, equipments and transportation necessary for the proper execution of work. Materials or work not covered by or properly inferable from any heading or class of the specifications shall not be supplied by the Railway/DFCCIL to the contractors unless distinctly specified in the contract documents. Materials or works described in words which so applied have a well known technical or trade meaning shall be held to refer to such recognized standards.
- (2) If a work is transferred from the jurisdiction of one Railway to another Railway or to a project authority or vice versa while contract is in subsistence, the contract shall be binding on the Contractor and the Successor Railway/Project in the same manner & take effect all respects as if the Contractor and the Successor Railway/Project were parties thereto from the inception and the corresponding officer or the Competent Authority in the Successor Railway/Project will exercise the same powers and enjoy the same authority as conferred to the Predecessor Railway/Project under the original contract/agreement entered into.
- (3) If for administrative or other reasons the contract is transferred to the Successor Railway the contract shall notwithstanding any things contained herein contrary there to, be binding on the Contractor and the Successor Railway in the same manner and take effect in all respect as if the Contractor and the Successor Railway had been parties thereto from the date of this contract.
- 3(1) Law governing the contract:-**The contract shall be governed by the law for the time being in force in the Republic of India.
- (2) **Compliance to regulations and bye-laws:-**The contractor shall conform to the provision of any statute relating to the works and regulations and bye-laws

of any location authority and of any water and lighting companies or undertakings, with whose system the work is proposed to be connected and shall before making any variation from the drawings or the specifications that may be necessitated by so confirming give to the Engineer notice specifying the variation proposed to be made and the reasons for making the variation and shall not carry out such variation until he has received instructions from the Engineer in respect thereof. The contractor shall be bound to give all notices required by status, regulations or bye-laws as aforesaid and to pay all fees and taxes payable to any authority in respect thereof.

- (4) **Communications to be in writing:-** All notices, communications, reference and complaints made by the Railway or the Engineer or the Engineer's representative or the contractor interse concerning the work shall be in writing and no notice, communication, reference or complaint not in writing shall be recognized.
- (5) **Service of Notices on Contractors:-**The contractor shall furnish to the Engineer the name designation and address of his authorized agent and all complaints, notices, communications and references shall be deemed to have been duly given in the Contractor if delivered to the contractor or his authorized agent or left at or posted to the address so given and shall be deemed to have been so given in the case of posting on day on which they would have reached such address in the ordinary course of post or on the day on which they were so delivered or left. In the case of contract by partners, any change in the constitution of the firm shall be forthwith notified by the contractor to the Engineer.
- (6) **Occupation and use of land:-** No land belonging to or in the possession of the Railway shall be occupied by the Contractor without the permission of the Railway. The Contractor shall not use, or allow to be used, the site for any purposes other than that of executing the works. Whenever non-railway bodies/persons are permitted to use railway premises with competent authority's approval, conservancy charges as applicable from time to time may be levied.
- (7) **Assignment or subletting of contract:-** The contractor shall not assign or sublet the contract or any part thereof or allow any person to become interested therein any manner whatsoever without the special permission in writing of the Railway. Any breach of this condition shall entitle the Railway to rescind the contract under clause 62 of these conditions and also render the contractor liable for payment to the Railway in respect of any loss or damage arising or ensuing from such cancellation. Provided always that execution of the details of the work by petty contractor under the direct and personal supervision of the Contractor or his agent shall not be deemed to be sub-letting under this clause. The permitted subletting of

work by the contractor shall not establish any contractual relationship between the sub-contractor and the Railway and shall not relieve the contractor of any responsibility under the contract.

- (8) **Assistance by the Railway for the Stores to be obtained by the Contractor:-**Owing to difficulty in obtaining certain materials (including Tools & Plant) in the market, the Railway may have agreed without any liability therefore to endeavour to obtain or assist the contractor in obtaining the required quantities of such materials as may be specified in the Tender. In the event of delay or failure in obtaining the required quantities of the aforesaid material the contractor shall not be deemed absolved of his own responsibility adjust progress of works including employment of labour and the Railway shall not in any way be liable for the supply of materials or for the non-supply thereof for any reasons whatsoever nor for any loss or damage arising in consequence of such delay or no supply.
- (9) **Railway Passes:-** No free Railway passes shall be issued by the Railway to the contractor or any of his employee/work.
- (10) **Carriage of materials:-**No forwarding orders shall be issued by the Railway for the conveyance of contractor's materials, tools and plant by Rail which may be required for use in the works and the contractor shall pay full freight charges at public tariff rates therefore.
- (11) Deleted
- (12) **Representation on Works:-** The contractor shall, when he is not personally present on the site of the works place and keep a responsible agent at the works during working hours who shall on receiving reasonable notice, present himself to the Engineer and orders given by the Engineer or the engineer's representative to the agent shall be deemed to have the same force as if they had been given to the Contractor. Before absenting himself, the contractor shall furnish the name and address of his agent for the purpose of this clause and failure on the part of the Contractor to comply with this provision at any time will entitle the Railway to rescind the contract under clause 62 of these conditions.
- (13) **Relics and Treasures:-** All gold, silver, oil and other minerals of any description and all precious stones, coins, treasures relics antiquities and other similar things which shall be found in or upon the site shall be the property of the Railway and the Contractor shall duly preserve the same to the satisfaction of the Railway and shall from time to time deliver the same to such person or persons as the Railway may appoint to receive the same.

(14)**Excavated material:-**The contractor shall not sell or otherwise dispose of or remove except for the purpose of this contract, the sand, stones clay ballast, earth, rock or other substances or materials which may be obtained from any excavation made for the purpose of the works or any building or produced upon the site at the time of delivery of the possession thereof but all the substances, materials, buildings and produce shall be the property of the Railway provided that the contractor may, with the permission of the Engineer, use the same for the purpose of the works either free of cost or pay the cost of the same at such rates as may be determined by the Engineer.

(15)**Indemnity by Contractors:-** The contractor shall indemnify and save harmless the Railway from and against all actions, suit proceedings losses, costs, damages, charges, claims and demands of every nature and description brought or recovered against the Railways by reason of any act or omission of the contractor, his agents or employees, in the execution of the works or in his guarding of the same. All sums payable by way of compensation under any of these conditions shall be considered as reasonable compensation to be applied to the actual loss or damage sustained, and whether or not any damage shall have been sustained.

16 (1)**Security Deposit:-** The earnest money deposited by the contractor with this tender will be retained by the Railways as part of security for the due and faithful fulfillment of the contract by the contractor. The balance to make up the security deposit, the rates for which are given below, may be deposited by the contractor in cash or may be recovered by percentage deduction from the contractor's "on account" bills. Provided also that in case of defaulting contractor the Railway may retain any amount due for payment to the contractor on the pending "on account bills" so that the amounts so retained may not exceed 10% of the total value of the contract.

(2) Unless otherwise specified in the special conditions, if any, the Security Deposit/rate of recovery/mode of recovery shall be as under:

- (a) Security Deposit for each work should be 5% of the contract value.
- (b) The rate of recovery should be at the rate of 10% of the bill amount till the full security deposit is recovered.
- (c) Security Deposits will be recovered only from the running bills of the contract and no other mode of collecting SD such as SDE in the form of instruments like BG(except Note (ii) below); FD etc. shall be accepted towards Security Deposit.

Security deposit shall be returned to the contractor after the expiry of the Defect Liability Period in all the cases other than Note (i) mentioned below and after passing the final bill based on No Claim Certificate with the approval of the Competent Authority. The Competent Authority shall normally be the authority who is competent to sign the contract. The certificate, inter alia,

should mention that the work has been completed in all respects and that all the contractual obligations have been fulfilled by the contractor and that there is no due from the contractor to Railways against the contract concerned. Before releasing the SD, an unconditional and unequivocal no claim certificate from the contractor concerned should be obtained.

Note:

- (i) After the work is physically completed, security deposit recovered from the running bills of a contractor can be returned to him if he so desires, in lieu of FDR/irrevocable Bank Guarantee for equivalent amount to be submitted by him.
- (ii) In case of contracts of value Rs.50 crore and above, irrevocable Bank Guarantee can also be accepted as a mode of obtaining security deposit.

(3) No interest will be payable upon the Earnest Money and Security Deposit or amounts payable to the contractor under the contract, but Government Securities deposited in terms of Sub-clause (1) of this clause will be payable with interest accrued thereon.

(4) Performance Guarantee(P.G.)

The procedure for obtaining Performance Guarantee is outlined below:

- (a) The successful bidder may give Performance Guarantee amounting to 5% of the contract value in any of the following forms:-
 - (i) a deposit of Cash
 - (ii) Irrevocable Bank Guarantee
 - (iii) Government Securities including State Loan Bonds at 5 percent below the market value
 - (iv) Deposit Receipts, Pay Orders, Demand Draft and Guarantee Bonds. These forms of Performance Guarantee could be either of the State Bank of India or of any of the Nationalized Banks;
 - (v) Guarantee Bonds executed or Deposits Receipts tendered by all Scheduled Banks;
 - (vi) A Deposit in the Post Office Saving Bank;
 - (vii) A deposit in the National Savings Certificates.
 - (viii) Twelve years National Defence Certificates;
 - (ix) Ten years Defence Deposits;
 - (x) National Defence Bonds; and
 - (xi) Unit Trust Certificates at 5 per cent below market value or at the face value whichever is less.

Also FDR in favour of '**Dedicated Freight Corridor Corporation of India Limited, New Delhi**', (free from any encumbrance) may be accepted.

Note: The instruments as listed above will also be acceptable for Guarantees in case of Mobilization advance.

- (b) The performance Guarantee shall be submitted by the successful bidder after the letter of acceptance has been issued, but before signing of the agreement. The agreement should normally be signed within 15(fifteen) days after the issue of LOA and the Performance Guarantee shall also be submitted with this time limit. This guarantee shall be initially valid up to the stipulated date of completion plus 60 days beyond that. In case, the time limit for completion of work gets extended, the contractor shall give the validity of Performance Guarantee extended to cover such extended time for completion of work plus 60 days.
- (c) The performance Guarantee (PG) shall be released after the physical completion of the work based on the 'completion certificate' issued by the competent authority stating that the contractor has completed the work in all respects satisfactorily. The security deposit, however, shall be released only after the expiry of the defect liability period and after passing the final bill based on 'No Claim Certificate'.
- (d) Wherever the contract is rescinded, the security deposit shall be forfeited and the Performance Guarantee shall be encashed and the balance work shall be got done independently without risk and cost of the failed contractor, the failed contractor shall be debarred from participating in the tender for executing the balance work. If the failed contractor is a JV or a partnership firm, then every member/partner of such a firm shall 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.
- (e) The Engineer shall not make a claim under the Performance Guarantee except for amounts to which the President of India is entitled under the contract (no withstanding and/or without prejudice to any other provisions in the contract agreement) in the event of:
 - (i) Failure by the contractor to extend the validity of the Performance Guarantee as described herein above, in which event the Engineer may claim the full amount of the Performance Guarantee.
 - (ii) Failure by the contractor to pay President of India any amount due, either as agreed by the contractor or determined under any of the Clauses/conditions of the agreement, within 30 days of the service of the notice to the effect by Engineer
 - (iii) The contract being determined or rescinded under provision of the GCC the Performance Guarantee shall be forfeited in full and shall be absolutely at the disposal of the President of India.

17. **Force Majeure Clause:-** If at any time, during the continuance of this contract, the Performance in whole or in part by either party of any obligation under this contract shall be prevented or delayed by reason of any war, hostility, acts of public enemy, civil commotion, sabotage, serious loss or damage by fire, explosions, epidemics, strikes, lockouts or act of God (hereinafter, referred to events) provided, notice of the happening of any such event is given by either party to the other within 30 days from the date of occurrence thereof, neither

party shall by reason of such event, be entitled to terminate this contract nor shall either party have any claim for damages against the other in respect of such non-performance or delay in performance, and works under the contract shall be resumed as soon as practicable after such event has come to an end or ceased to exist, and the decision of the Engineer as to whether the works have been so resumed or not shall be final and conclusive, PROVIDED FURTHER that if the performance in whole or in part of any obligation under this contract is prevented or delayed by reason of any such event for a period exceeding 120 days, either party may at its option terminate the contract by giving notice to the other party.

17-A Subject to any requirement in the contract as to completion of any portions or portions of the works before completion of the whole, the contractor shall fully and finally complete the whole of the works comprised in the contract (with such modifications as may be directed under conditions of this contract) by the date entered in the contract or extended date in terms of the following clauses:-

- i) If any modifications have been ordered which in the opinion of the Engineer have materially increased the magnitude of the work, then such extension of the contracted date of completion may be granted as shall appear to the Engineer to be reasonable in the circumstances, provided moreover that the Contractor shall be responsible for requesting such extension of the date as may be considered necessary as soon as the cause thereof shall arise and in any case not less than one month before the expiry of the date fixed for completion of the works.
- ii) If in the opinion of the Engineer the progress of work has any time been delayed by any act or neglect of Railway's employees or by other contractor employed by the Railway under sub-clause (4) of clause 20 of these conditions or in executing the work not forming part of the contract but on which contractor's performance necessarily depends or by reasons of proceeding taken or threatened by or dispute with adjoining or to neighbouring owners or public authority arising otherwise through the Contractor's own default etc. or by the delay authorized by the Engineer pending arbitration or in consequences of the contractor not having received in due time necessary instructions from the Railway for which he shall have specially applied in writing to the Engineer or his authorized representative then upon happening of any such even causing delay, the contractor shall immediately give notice thereof in writing to the Engineer within 15 days of such happening but shall nevertheless make constantly his best endeavours to bring down or make good the delay and shall do all that may be reasonably required of him to the satisfaction of the Engineer to proceed with the works. The contractor may also indicate the period for which the work is likely to be delayed and shall be bound to ask for

necessary extension of time. The Engineer on receipt of such request from the contractor shall consider the same and shall grant such extension of time as in his opinion is reasonable having regard to the nature and period of delay and the type and quantum of work affected thereby. No other compensation shall be payable for works so carried forward to the extended period of time., the same rates, terms and conditions of contract being applicable as if such extended period of time was originally provided in the original contract itself.

- (iii) In the event of any failure or delay by the Railway to hand over the Contractor possession of the lands necessary for the execution of the works or to give the necessary notice to commence the works or to provide the necessary drawings or instructions or any other delay caused by the Railway due to any other cause whatsoever, then such failure or delay shall in no way affect or vitiate the contract or alter the character thereof or entitle the contractor to damages or compensation therefore, but in any such case, the Railway may grant such extension or extensions of the completion date as may be considered reasonable.

17-B Extension of time for delay due to contractor:-

The time for the execution of the work or part of the works specified in the contract documents shall be deemed to be the essence of the contract and the works must be completed not later than the date(s) as specified in the contract. If the contractor fails to complete the works within the time as specified in the contract for the reasons other than the reasons specified in clause 17 and 17-A, the Railway may, if satisfied that the works can be completed by the contractor within reasonable short time thereafter, allow the contractor for further extension of time as the Engineer may decide. On such extension the Railway will be entitled without prejudice to any other right and remedy available on that behalf, to recover from the contractor as agreed damages and not by way of penalty a sum equivalent to $\frac{1}{2}$ of 1% of the contract value of the works for each week or part of the week.

For the purpose of this clause, the contract value of the works shall be taken as value of work as per contract agreement including any supplementary work order/contract agreement issued. Provided also, that the total amount of liquidated damages under this condition, shall not exceed the under noted percentage value or of the total value of the item or groups of items of work for which a separate distinct completion period is specified in the contract.

- | | | |
|-----|---------------------------------------|---|
| i) | For contract value up to Rs.2 lakhs | - 10% of the total value of the contract |
| ii) | For contracts valued above Rs.2 lakhs | - 10% of the first Rs.2 lakhs and 5% of the balance |

Further competent authority while granting extension to the currency of contract under clause 17(B) of GCC may also consider levy of token penalty as deemed fit based on the merit of the case.

Provided further, that if the Railway is not satisfied that the works can be completed by the Contractor and in the event of failure on the part of the contractor to complete the work within further extension of time allowed as aforesaid, the Railway shall be entitled without prejudice to any other right or remedy available in that behalf, to appropriate the contractor's security deposit and rescind the contract under clause 62 of these conditions, whether or not actual damage is caused by such default.

- 18(1) Illegal Gratification:-**Any bribe, commission, gift or advantage given, promised or offered by or on behalf to the contractor or his partner, agent or servant or, anyone on his behalf, to any officer or employee of the Railway, or to any person on his behalf in relation to obtaining or execution of this or any other contract with the Railway shall, in addition to any criminal liability which he may incur, subject contractor to the rescission of the contract and all other contracts with the Railway and to the payment of any loss or damage resulting from such decision and the Railway shall be entitled to deduct the amounts so payable from any moneys due to the Contractor(s) under this contract or any other contracts with the Railway.
- (2)** The contractor shall not lend or borrow from or have or enter into any monetary dealings and transactions either directly or indirectly with any employee of the Railway and if he shall do so, the Railway shall be entitled forthwith to rescind the contract and all other contracts with the Railway. Any question or dispute as to the commission or any such offence or compensation payable to the Railway under this clause shall be settled by the General Manager of the Railway, in such a manner as he shall consider fit and sufficient and his decision shall be final and conclusive. In the event of rescission of the contract under this clause, the contractor will not be paid any compensation whatsoever except payments for the work done up to the date of rescission.

EXECUTION OF WORKS

- 19(1) Contractor's understanding:-**It is understood and agreed that the contractor has, by careful examination, satisfied himself as to the nature and location of the work, the conformation of the ground, the character, quality and quantity of the materials to be encountered, the character of equipment and facilities needed preliminary to and during the progress of the works, the general and local conditions, the labour conditions prevailing

therein and all other matters which can in any way affect the works under the contract.

(2) Commencement of works:-The contractor shall commence the works within 15 days after the receipt by him of an order in writing to this effect from the Engineer and shall proceed with the same with due expedition and without delay.

(3) Accepted Programme of work:-The contractor who has been awarded the work shall as soon as possible but not later than 30 days after the date of receipt of the acceptance letter in respect of contracts with initial completion period of two years or less or not later than 90 days for other contracts have to submit the detailed programme of work indicating the time schedule of various items of works in the form of Bar Chart/PERT/CPM. He shall also submit the details of organization (in terms of labour and supervisors) plant and machinery, that he intends to utilize (from time to time) for execution of the work within stipulated date of completion. The programme of work amended as necessary by discussions with the Engineer, shall be treated as the agreed programme of the work for the purpose of this contract and the contractor shall endeavour to fulfill this programme of work. The progress of work will be watched accordingly the liquidated damages will be with reference to the overall completion date. Nothing stated herein shall preclude the contractor in achieving earlier completion of item or whole of the works than indicated in the programme.

(4) Setting out of works:- The contractor shall be responsible for the correct setting out of all works in relation to original points, lines and levels of reference at his cost. The contractor shall execute the work true to alignment, grade, levels and dimensions as shown in the drawing and as directed by the Engineer's representative and shall check these at frequent intervals. The contractor shall provide all facilities like labour and instruments and shall co-operate with the Engineer's representative to check all alignment, grades, levels and dimensions. If, at any time, during the progress of the works any error shall appear or arise in any part of the work, the contractor, on being required so to do by the Engineer's representative shall, at his own cost rectify such errors, to the satisfaction of the Engineer's representative. Such checking shall not absolve the contractor of his own responsibility of maintaining accuracy in the work. The contractor shall carefully protect and preserve all bench marks, sight rails, pegs and other things used in setting out the work.

20(1) Compliance to Engineer's instructions:-The Engineer shall direct the order in which the several parts of the works shall be executed and the contractor shall execute without delay all orders given by the Engineer from

time to time but the contractor shall not be relieved thereby from responsibility for the due performance of the works in all respects.

(2) Alterations to be authorized:-No alterations in or additions to or omissions or abandonment of any part of the works shall be deemed authorized, except under instructions from the Engineer, and the contractor shall be responsible to obtain such instructions in each and every case in writing from the Engineer.

(3) Extra works:- Should works over and above those included in the contract require to be executed at the site, the contractor shall have no right to be entrusted with the execution of such works which may be carried out by another contractor or contractors or by other means at the option of the Railway.

(4) Separate contracts in connection with works:- The Railway shall have the right to let other contracts in connection with the works. The contractor shall afford other contractors reasonable opportunity for the storage of their materials and the execution of their works and shall properly connect and coordinate his work with theirs. If any part of the contractor's work depends for proper execution or result upon the work of another contractor(s), the contractor shall inspect and promptly report to the Engineer any defects in such works that render it unsuitable for such proper execution and results. The contractor's failure so to inspect and report shall constitute an acceptance of the other contractor's work as fit and proper for the reception of his work, except as to defects which may develop in the other contractor's work after the execution of his work.

21 Instruction of Engineer's Representative:- Any instructions or approval given by the Engineer's representative to contractor in connection with the works shall bind the contractor as through it had been given by the Engineer provided always as follows:

- (a) Failure of the Engineer's representative to disapprove any work or materials shall not prejudice, the power of the Engineer thereafter to disapprove such work or material and to order the removal or breaking up thereof.
- (b) If the Contractor shall be dissatisfied by reason of any decision of the Engineer's representative, he shall be entitled to refer the matter to the Engineer who shall there upon confirm or vary such decision.

22(1) Adherence to specifications and drawings:- The whole of the works shall be executed in perfect conformity with the specifications and drawings of the contract. If contractor performs any works in a manner contrary to the specifications or drawings or any of them and without such reference to the Engineer he shall bear all the costs arising or ensuing therefore and shall be responsible for all loss to the Railway.

- (2) Drawings and specifications of the works:-**The contractor shall keep one copy of drawings and specifications at the site, in good order, and such contract documents as may be necessary available to the Engineer or the Engineer's representative.
- (3) Ownership of drawings and specifications:-**All drawings and specifications and copies thereof furnished by the Railway to the Contractor are deemed to be the property of the Railway. They shall not be used on other works and with the exception of the signed contract set, shall be returned by the contractor to the Railway on completion of the work or termination of the contract.
- (4) Compliance with Contractor's request for details:-** The Engineer shall furnish with reasonable promptness, after receipt by him of the contractor's request for the same, additional instructions by means of drawings or otherwise, necessary for the proper execution of the works or any part thereof. All such drawing and instructions shall be consistent with the contract Documents and reasonably inferable therefrom.
- (5) Meaning and intent of specification and drawings:-** If any ambiguity arises as to the meaning and intent of any portion of the specifications and drawings or as to execution or quality of any work or material, or as to the measurements of the works the decision of the Engineer thereon shall be final subject to the appeal (within 7 days of such decision being intimated to the contractor) to the Chief Engineer who shall have the power to correct any errors, omissions, or discrepancies in aforementioned items and whose decision in the matter in dispute or doubt shall be final and conclusive.
- 23 Working during night:-** The contractor shall not carry out any work between sun-set and sun-rise without the previous permission of the Engineer.
- 24. Damage to Railway property or private life and property:-**The contractor shall be responsible for all risk to the work and for trespass and shall make good at his own expense all loss or damage whether to the works themselves or to any other property of the Railway or the lives, persons or property of others from whatsoever cause in connection with the works until they are taken over by the Railway and this although all reasonable and proper precautions may have been taken by the contractor, and in case the Railway shall be called upon to make good any costs, loss or damages, or to pay an compensation, including that payable under the provisions of the Workmen's Compensation Act or any statutory amendments thereof to any person or persons sustaining damages as aforesaid by reason of any act, or any negligence or omissions on the part of the contractor the amount of any costs or charges including costs and charges in connection with legal proceedings, which the Railway may incur in reference thereto, shall be charged to the contractor. The Railway shall have the power and right to pay or to defend or

compromise any claim of threatened legal proceedings or in anticipation of legal proceedings being instituted consequent on the action or default of the contractor, to take such steps as may be considered necessary or desirable to ward off or mitigate the effect of such proceedings, charging to contractor, as aforesaid any sum or sums of money which may be paid and any expenses whether for reinstatement or otherwise which may be incurred and the propriety of any such payment, defence or compromise, and the incurring of any such expenses shall not be called in question by the contractor.

25. Sheds, stores houses and Yards:-The contractor shall at his own expense provide himself with sheds, stores houses and yards in such situations and in such numbers as in the opinion of the Engineer is requisite for carrying on the works and the contractor shall keep at each such sheds, stores houses and yard a sufficient quantity of materials and plant in stock as not to delay the carrying out of the works with due expedition and the Engineer and the Engineer's representative shall have free access to the said sheds, store houses and yards at any time for the purpose of inspecting the stock of materials or plant so kept in hand, and any materials or plan which the Engineer may object to shall not be brought upon or used in the works, but shall be forthwith removed from the sheds, store houses or yards by the contractor. The contractor shall at his own expenses provide and maintain suitable mortar mills, soaking vats or any other equipments necessary for the execution of the works.

26. Provision of efficient and competent staff:-The contractor shall place and keep on the works at all times efficient and competent staff to give the necessary directions to his workmen and to see that they execute their work in sound and proper manner and shall employ only such supervisors, workmen and labourers in or about the execution of any of these works as are careful and skilled in the various trades and callings. The contractor shall at once remove from the works any agents, permitted sub-contractor, supervisor, workman or labourer who shall be objected to by the Engineer and if and whenever required by the Engineer, he shall submit a correct return showing the names of all staff and workmen employed by him. In the event of the Engineer being of the opinion that the contractor is not employing on the works a sufficient number of staff and workmen as is necessary for the proper completion of the works within the time prescribed, the contractor shall forthwith on receiving intimation to this effect take on the additional number of staff and labour specified by the Engineer within seven days of being so required and failure on the part of the contractor to comply with such instructions will entitle the Railway to rescind the contract under clause 62 of these conditions.

27(1) Workmanship and testing:-The whole of the works and/or supply of materials specified and provided in the contract or that may be necessary to

be done in order to form and complete any part thereof shall be executed in the best and most substantial workman like manner with materials of the best and most approved quality of their respective kinds, agreeable to the particulars contained in or implied by the specifications and as referred to in and represented by the drawings or in such other additional particulars, instructions and drawings may be found requisite to be given during the carrying on of the works and to the entire satisfaction of the Engineer according to the instructions and directions which the contractors may from time to time receive from the Engineer. The materials may be subjected to tests by means of such machines, instruments and appliances as the Engineer may direct and wholly at the expense of the contractor.

(2)Removal of improper work and materials:-The Engineer or the Engineer's Representative shall be entitled to order from time to time:

- (a) The removal from the site within the time specified in the order of any materials which in his opinion are not in accordance with the specifications or drawings.
- (b) the substitution of proper and suitable materials, and
- (c) the removal and proper re-execution, notwithstanding any previous tests thereof or on account payments therefore, of any work which in respect of materials or workmanship; is not in his opinion in accordance with the specifications and in case of default on the part of the contractor in carrying out such order the Railway shall be entitled to rescind the contract under clause 62 of these conditions.

28. Facilities for inspection:-The contractor shall afford the Engineer and the Engineer's Representative every facility for entering in and upon every portion of the work at all hours for the purpose of inspection or otherwise and shall provide all labour, materials, planks, ladders, pumps, appliances and things of every kind required for the purpose and the Engineer and the Engineer's Representative shall at all times have free access to every part of the works and to all places at which materials for the works are stored or being prepared.

29. Examination of work before covering up:- The contractor shall give 7 days' notice to the Engineer or the Engineer's 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 measurements in order that the work may be inspected or that correct dimensions may be taken before being so covered, placed beyond the reach of measurement in default whereof, the same shall at the option of the Engineer or the Engineer's representative be uncovered and measured at the contractor's expense or no allowance shall be made for such work or materials.

30. Temporary Works:-All temporary works necessary for the proper execution of the works shall be provided and maintained by the contractor and subject to the consent of the Engineer shall be removed by him at his expenses when they are no longer required and in such manner as the Engineer shall direct. In the event of failure on the part of the contractor to remove the temporary works, the Engineer will cause them to be removed and cost as incurred by supervision and other incidental charges shall be recovered from the contractor. If temporary huts are provided by the contractor on the Railway land for labour engaged by him for the execution of works, the contractor shall arrange for handing over vacant possession of the said land after the work is completed; if the contractor's labour refuse to vacate, and have to be rejected by the Railway necessary expenses incurred by the Railway in connection therewith shall be borne by the contractor.

31(1) Contractor to supply water for works:- Unless otherwise provided in the contract, the contractor shall be responsible for the arrangements to obtain supply of water necessary for the works.

31 (2) Deleted

31(3) Deleted

31 (4)(a) Contractor to arrange supply of Electric power for works:- Unless otherwise provided in the contract, the contractor shall be responsible for arrangements to obtain supply of electric power for the works.

31 (4)(b) Deleted

32. Property in materials and plant:- The materials and plant brought by the Contractor upon the site or on the land occupied by the Contractor in connection with the works and intended to be used for the execution thereof shall immediately, they are brought upon the site of the said land, be deemed to be the property of the Railway. Such of them as during the progress of the works are rejected by the Engineer under Clause 25 of these conditions or are declared by him not to be needed for the execution of the works or such as on the grant of the certificate of completion remain unused shall immediately on such rejection, declaration or grant cease to be deemed the property of the Railway and the Contractor may then (but not before) remove them from the site or the said land. This clause shall not in any way diminish the liability of the Contractor nor shall the Railway be in any way answerable for any loss or damage which may happen to or in respect of any such materials or plant either by the same being lost, stolen, injured or destroyed by fire, tempest or otherwise.

33.(1) Tools, Plant and Materials Supplied by Railway:- The Contractor shall take all reasonable care of all tools, plant and materials or other property

whether or a like description or not belonging to the Railway and committed to his charge for the purpose of the works and shall be responsible for all damage or loss caused by him, his agents, permitted subcontractor, or his workmen or others while they are in his charge. The Contractors shall sign accountable receipts for tools, plants and materials made over to him by the engineer and on completion of the works shall hand over the unused balance of the same to the Engineer in good order and repair, fair wear and tear excepted, and shall be responsible for any failure to account for the same or any damage done thereto.

(2) Hire of Railway's Plant:- The Railway may hire to the Contractor such plant as concrete mixers, compressors and portable engines for use during execution of the works on such terms as may be specified in the special conditions or in a separate agreement for Hire of Plant.

34. (1) Precaution during progress of works:- During the execution of works, unless otherwise specified, the Contractor shall at his own cost provide the materials for and execute all shoring, timbering and strutting works as is necessary for the stability and safety of all structures, excavations and works and shall ensure that no damage, injury or loss is caused or likely to be caused to any person or property.

(2) Roads and Water courses:- Existing roads or water courses shall not be blocked cut through, altered, diverted or obstructed in any way by the Contractor, except with the permission of the Engineer. All compensations claimed for any unauthorized closure, cutting through, alterations, diversion or obstruction to such roads or water courses by the Contractor or his agent or his staff shall be recoverable from the Contractor by deduction from any sums which may become due to him in terms of contract, or otherwise according to law.

(3) Provision of access to premises:- During progress of work in any street or thoroughfare, the Contractor shall make adequate provision for the passage of traffic, for securing safe access to all premises approached from such street or thoroughfare and for any drainage, water supply or means of lighting which may be interrupted by reasons of the execution of the works and shall react and maintain at his own cost barriers, lights and other safeguards as prescribed by the Engineer, for the regulation of the traffic, and provide watchmen necessary to prevent accidents. The works shall in such cases be executed night and day if so ordered by the Engineer and with such vigour so that the traffic way be impeded for as short a time as possible.

(4) Safety of Public:- The Contractor shall be responsible to take all precautions to ensure the safety of the public whether on public or Railway property and shall post such look out men as may in the opinion of the Engineer be required to comply with regulations pertaining to the work.

35. Deleted.

36. (1) Suspension of works:- The Contractor shall on the order of the Engineer, suspend the progress of the works or any part thereof for such time or times and in such manner as the Engineer may consider necessary and shall during such suspension properly protect and secure the work so far as is necessary in the opinion of the Engineer. If such suspension is:-

- (a) Provided for in the contract, or
- (b) Necessary for the proper execution of the works or by the reason of weather conditions or by some default on the part of the Contractor, and/or
- (c) Necessary for the safety of the works or any part thereof.

(2) The Contractor shall not be entitled to the extra costs, if any, incurred by him during the period of suspension of the works, but in the event of any suspension ordered by the Engineer for reasons other than aforementioned and when each such suspensions and to such compensations as the Engineers may consider proper having regard to the period of such suspensions and to such compensations as the Engineer may consider reasonable in respect of salaries or wages paid by the Contractor to his employees during the periods of such suspension.

(3) Suspension lasting more than 3 months:- If the progress of the works or any part thereof is suspended on the order of the Engineer for more than three months at a time, the Contractor may serve a written notice on the Engineer requiring permission within 15 days from the receipt thereof to proceed with the works or that part thereof in regard to which progress is suspended and if such permission is not granted within that time the Contractor by further written notice so served may, but is not bound to, elect to treat the suspension where it affects part only of the works as an omission of such part or where it affects the whole of the works, as an abandonment of the contract by the Railway.

37. Rates for items of works:- The rates, entered in the accepted Schedule of Rates of the Contract are intended to provide for works duly and properly completed in accordance with the general and special (if any) conditions of the contract and the specifications and drawings together with such enlargements, extensions, diminutions, reductions, alterations or additions as may be ordered in terms of Clause 42 of these conditions and without prejudice to the generality thereof and shall be deemed to include and cover superintendence

and labour, supply, including full freight, of materials, stores, patterns, profiles, moulds, fittings, centering, scaffolding, shoring props, timber, machinery, barracks, tackle, roads, pegs, posts, tools and all apparatus and plant required on the works, except such tools, plant or materials as may be specified in the contract to be supplied to the Contractor by the Railway, the erection, maintenance and removal of all temporary works and, buildings, all watching, lighting, bailing, pumping and draining, all prevention of or compensation for trespass, all barriers and arrangements for the safety of the public or of employees during the execution of works, all sanitary and medical arrangements for labour camps as may be prescribed by the Railway, the setting of all work and of the construction, repair and upkeep of all centre lines, bench marks and level pegs thereon, site clearance, all fees duties, royalties, rent and compensation to owners for surface damage or taxes and impositions payable to local authorities in respect of land, structures and all material supplied for the work or other duties of expenses for which the Contractor may become liable or may be put to under any provision of law for the purpose of or in connection with the execution of the contract, and all such other incidental charges or contingencies as may have been specially provided for in the specifications.

38. Deleted

39. (1) Rates for extra items of works:- Any type of work carried out by the Contractor on the instructions of the Engineer which is not included in the accepted schedules of rates shall be executed at the rates set forth in the "Schedule of Prices of Railway" modified by the tender percentage and such items are not contained in the latter, at the rate agreed upon between the Engineer and the Contractor before the execution of such items of work and the Contractors shall be bound to notify the Engineer at least seven days before the necessity arises for the execution of such items of works that the accepted schedule of rates does not include rate or rates for the extra work involved. The rates payable for such items shall be decided at the meeting to be held between the Engineer and Contractor, in as short a period as possible after the need for the special item has come to the notice. In case the Contractor fails to attend the meeting after being notified to do so or in the event of no settlement being arrived at, the Railway shall be entitled to execute the extra works by other means and the Contractor shall have no claim for loss or damage that may result from such procedure.

(2) Provided that if the Contractor commences work or incurs any expenditure in regard thereto before the rates as determined and agreed upon as lastly hereuntofore mentioned, then and in such a case the Contractor shall only be entitled to be paid in respect of the work carried out or the rates as shall be fixed by the Engineer. However if the Contractor is not satisfied with the decision of the Engineer in this respect he may appeal to the Chief Engineer within 30 days of getting the decision of the Engineer, supported by

analysis of the rates claimed. The Chief Engineer's decision after hearing both the parties in the matter would be final and binding on the Contractor and the Railway.

40. (1) Handing over of works:- The Contractor shall be bound to hand over the works executed under the contract to the Railway complete in all respects to the satisfaction of the Engineer. The Engineer shall determine the date on which the work is considered to have been completed, in support of which his certificate shall be regarded as sufficient evidence for all purposes. The Engineer shall determine from time to time, the date on which any particular section of the work shall have been completed, and the contractor shall be bound to observe any such determination of the Engineer.

(2) Clearance of site on completion:- On completion of works, the Contractor shall clear away and remove from the site all constructional plant, surplus materials, rubbish and temporary works of every kind and leave the whole of the site and works clean and in a workman like condition to the satisfaction of the Engineer. No final payment in settlement of the accounts for the works shall be paid, held to be due or shall be made to the Contractor till, in addition to any other condition necessary for final payment, site clearance shall have been effected by him, and such clearance may be made by the Engineer at the expense of the Contractor in the event of his failure to comply with this provision within 7 days after receiving notice to that effect. Should it become necessary for the Engineer to have the site cleared at the expenses of the Contractor, the Railway shall not be held liable for any loss or damage to such of the Contractor's property as may be on the site and due to such removal there from which removal may be effected by means of public sales of such materials and property or in such a way as deemed fit and convenient to the Engineer.

VARIATIONS IN EXTENT OF CONTRACT

41. Modification to contract to be in writing:- In the event of any of the provisions of the contract requiring to be modified after the contract documents have been signed, the modifications shall be made in writing and signed by the Railway and the Contractor and no work shall proceed under such modifications until this has been done. Any verbal or written arrangement abandoning, modifying, extending, reducing or supplementing the contract or any of the terms thereof shall be deemed conditional and shall not be binding on the Railway unless and until the same is incorporated in a formal instrument and signed by the Railway and the Contractor, and till then the Railway shall have the right to repudiate such arrangements.

42. (1) Powers of modification to contract:- The Engineer on behalf of the Railway shall be entitled by order in writing to enlarge or extend, diminish or reduce the works or make any alterations in their design, character position, site, quantities, dimensions or in the method of their execution or in the

combination and use of materials for the execution thereof or to order any additional work to be done or any works not to be done and the contractor will not be entitled, to any compensation for any increase/reduction in the quantities of work but will be paid only for the actual amount of work done and for approved materials supplied against a specific order.

- (2) (i) Unless otherwise specified in the special conditions of the contract, the accepted variation in quantity of each individual item of the contract would be up to 25% of the quantity originally contracted, except in case of foundation work. The contractor shall be bound to carry out the work at the agreed rates and shall not be entitled to any claim or any compensation whatsoever up to the limit of 25% variation in quantity of individual item of works.
- (ii) In case of earthwork, the variation limit of 25% shall apply to the gross quantity of earth work and variation in the quantities of individual classifications of soil shall not be subject to this limit.
- (iii) In case of foundation work, no variation limit shall apply and the work shall be carried out by the contractor on agreed rates irrespective of any variation.
- (3) **Valuation of variations:-** the enlargements, extensions, diminution, reduction, alterations or additions referred to in sub-clause (2) of this clause shall in no degree affect the validity of the contract but shall be performed by the Contractor as provided therein and be subject to the same conditions, stipulations and obligations as if they had been originally and expressly included and provided for in the specifications and drawings and the amounts to be paid therefore shall be calculated in accordance with the accepted schedule of rates. Any extra items/quantities of work falling outside the purview of the provisions of sub-clause (2) above shall be paid for at the rates determined under clause-39 of these conditions.

CLAIMS

43. (1) Monthly Statement of Claims:- The Contractor shall prepare and furnish to the Engineer once in every month an account giving full and detailed particulars of all claims for any additional expenses to which the Contractor may consider himself entitled to and of all extra or additional works ordered by the Engineer which he has executed during the preceding month and no claim for payment for and such work will be considered which has not been included in such particulars.

(2) Signing of "No Claim" Certificate:- The Contractor shall not be entitled to make any claim whatsoever against the Railway/DFCCIL under or by virtue of or arising out of this contract, nor shall the Railway entertain or consider any such claim, if made by the Contractor, after he shall have signed a "No Claim"

Certificate in favour of the Railway/DFCCIL in such form as shall be required by the Railway/DFCCIL after the works are finally measured up. The contractor shall be debarred from disputing the correctness of the items covered by "No Claim" Certificate or demanding a clearance to arbitration in respect thereof.

MEASUREMENTS, CERTIFICATES AND PAYMENTS

- 44. Quantities in schedule annexed to Contract:-** The quantities set out in the accepted schedule of rates with items of works quantified are the estimated quantities of the works and they shall not be taken as the actual and correct quantities of the work to be executed by the Contractor in fulfillment of his obligations under the contract.
- 45. Measurement of works:-** The Contractor shall be paid for the works at the rates in the accepted schedule of rates and for extra works at rates determined under Clause 39 of these conditions on the measurements taken by the Engineer or the Engineer's representative in accordance with the rules prescribed for the purpose by the Railway. The quantities for items the unit of which in the accepted schedule of rates is 100 or 1000 shall be calculated to the nearest whole number, any; fraction below half being dropped and half and above being taken as one; for items the unit of which in the accepted schedule of rates is single, the quantities shall be calculated to two places of decimals. Such measurements will be taken of the work in progress from time to time and at such intervals as in the opinion of the Engineer shall be proper having regard to the progress of works. The date and time on which "on account" or final measurements are to be made shall be communicated to the Contractor who shall be present at the site and shall sign the results of the measurements (which shall also be signed by the Engineer or the Engineer's representative) recorded in the official measurements book as an acknowledgement of his acceptance of the accuracy of the measures. Failing the Contractor's attendance the work may be measured up in his absence and such measurements shall, notwithstanding such absence, be binding upon the Contractor whether or not he shall have signed the measurement books provided always that any objection made by him to measurement shall be duly investigated and considered in the manner set out below:-
- (a) It shall be open to the Contractor to take specific objection to any recorded measurements or Classification on any ground within seven days of the date of such measurements. Any re measurement taken by the engineer or the Engineer's representative in the presence of the Contractor or in his absence after due notice has been given to him in consequence of objection made by the Contractor shall be final and binding on the Contractor and no claim whatsoever shall thereafter be entertained regarding the accuracy and classification of the measurements.

(b) If an objection raised by the Contractor is found by the Engineer to be incorrect the Contractor shall be liable to pay the actual expenses incurred in measurements.

46. (1) "On-Account" Payments:- The Contractor shall be entitled to be paid from time to time by way of "One-Account" payment only for such works as in the opinion of the Engineer he has executed in terms of the contract. All payments due on the Engineer's or the Engineer's Representative's certificates of measurements shall be subject to any deductions which may be made under these presents and shall further be subject to, unless otherwise required by Clause 16 of these conditions, a retention of ten percent by way of security deposits, until the amount of security deposit by way of retained earnest money and such retentions shall amount to 10% of the total value of the contract provided always that the Engineer may by any certificate make any correction or modification in any previous certificate which shall have been issued by him and that the Engineer may withhold any certificate if the works or any part thereof are not being carried out to his satisfaction.

(2) Rounding off amounts: - The total amount due on each certificate shall be rounded off to the nearest rupee i.e. sum less than 50 paise shall be omitted and sums of 50 paise and more upto Re. 1/- will be reckoned as Re. 1/-

(3) On Account Payments not prejudicial to final settlement: - "On-Account" payments made to the Contractor shall be without prejudice to the final making up of the accounts (except where measurements are specifically noted in the Measurement Book as "Final Measurements" and as such have been signed by the Contractor) and shall in no respect be considered or used as evidence of any facts stated in or to be inferred from such accounts nor of any particular quantity of work having been executed nor of the manner of its execution being satisfactory.

(4) Manner of payment: - Unless otherwise specified payments to the Contractor will be made by cheque but no cheque will be issued for an amount less than Rs. 100/-

47. Maintenance of works:- The Contractor shall at all times during the progress and continuance of the works and also for the period of maintenance specified in the Tender Form after the date of passing of the certificate of completion by the Engineer or any other earlier date subsequent to the completion of the works that may be fixed by the Engineer be responsible for and effectively maintain and uphold in good substantial, sound and perfect condition all and every part of the works and shall make good from time to time and at all times as often as the Engineer shall require, any damage or defect that may during the above period arise in or be discovered or be in any way connected with the works, provided that such damage or defect is not directly caused by errors in

the contract documents, act of providence or insurrection or civil riot, and the contractor shall be liable for and shall pay and make good to the Railway or other persons legally entitled thereto whenever required by the Engineer so to do, all losses, damages, costs and expenses they or any of them may incur or be put or be liable to by reasons or in consequence of the operations of the Contractor or of his failure in any respect.

48.(1) Certificate of completion of works: - As soon as in the opinion of the Engineer, the works has been completed and has satisfactorily passed any final test or tests that may be prescribed, the Engineer shall issue a certificate of completion duly indicating the date of completion in respect, of the work and the period of maintenance of the work shall commence from the date of completion mentioned in such certificate. The Engineer may also issue such a certificate indicating date of completion with respect to any part of the work (before the completion of the whole of work), which has been both completed to the satisfaction of the Engineer and occupied or used by the Railway. When any such certificate is given in respect of part of a work, such part shall be considered as completed and the period of maintenance of such part shall commence from the date of completion mentioned in the completion certificate issued for that part of the work.

(2) Contractor not absolved by completion Certificate: - The Certificate of completion in respect of the works referred to in sub-clause (1) of this clause shall not absolve the Contractor from his liability to make good any defects imperfections, shrinkages or faults which may appear during the period of maintenance specified in the tender arising in the opinion of the Engineer from materials or workmanship not in accordance with the drawings or specifications or instruction of the Engineer, which defects, imperfections, shrinkages or faults shall upon the direction in writing of the Engineer be amended and made good by the Contractor at his own cost: and in case of default on the part of Contractor the Engineer may employ labour and materials or appoint another Contractor to amend and make good such defects, imperfections, shrinkages and faults and all expenses consequent thereon and incidental thereto shall be borne by the Contractor and shall be recoverable from any moneys due to him under the contract.

49. Approval only by maintenance Certificate: - No certificate other than maintenance certificate referred to in Clause 50 of the conditions shall be deemed to constitute approval of any work or other matter in respect of which it is issued or shall be taken as an admission of the due performance of the contract or any part thereof or of the accuracy of any claim or demand made by the Contractor or of additional varied work having been ordered by the Engineer not shall any other certificate conclude or prejudice any of the powers of the Engineer.

50.(1) Maintenance Certificate:- The Certificate shall not be considered as completed until a maintenance Certificate shall have been signed by the Engineer stating that the works have been completed and maintained to his satisfaction. The maintenance Certificate shall be given by the Engineer upon the expiration of the period of maintenance or as soon thereafter as any works ordered during such period pursuant to sub clause (2) Clause 48 of these conditions shall have been completed to the satisfaction of the Engineer and full effect shall be given to this Clause notwithstanding the taking possession of a or using the works or any part thereof by the Railway.

(2) Cessation of Railway's Liability: - The Railway shall not be liable to the Contractor for any matter arising out of or in connection with the contract of the execution of the works unless the contractor shall have made a claim in writing in respect thereof before the issue of the Maintenance Certificate under this clause.

(3) Unfulfilled Obligations: - Notwithstanding the issue of the Maintenance certificate the Contractor and (subject to sub-clause 2 of this clause) the Railway shall remain liable for the fulfillment of any obligation incurred under the provision of the contract prior to the issue of the maintenance Certificate which remains unperformed at the time such certificate is issued and for the purposes of determining the nature and extent of any such obligations the contract shall be deemed to remain in force between the parties thereto.

51. (1) Final Payment:- On the Engineer's certificate of completion in respect of the works adjustment shall be made and the balance of account based on the Engineer or the Engineer's representative's certified measurements of the total quantity of work executed by the contractor upto the date of completion and on the accepted schedule or rates and for extra works on rates determined under Clause 39 of these conditions shall be paid to the Contractor subject always to any deduction which may be made under these presents and further subject to the Contractor having delivered to the Engineer either a full account in detail of all claims he may have on the Railway in respect of the works or having delivered "No Claim" Certificate and the Engineer having after the receipt of such account given a certificate in writing that such claims are correct, that the whole of the works to be done under the provisions of the Contracts have been completed, that they have been inspected by him since their completion and found to be in good and substantial order, that all properties, works and things, removed, disturbed or injured in consequence of the works have been properly replaced and made good and all expenses and demands incurred by or made upon the Railway for or in the respect of damage or loss by from or in consequence of the works, have been satisfied agreeably and in conformity with the contract.

(2) Post Payment Audit:- It is an agreed term of contract that the Railway reserves to itself the right to carry out a post-payment audit and or technical examination of the works and the final bill including all supporting vouchers, abstracts, etc., and to make a claim on the contractor for the refund any excess amount paid to him if as a result of such examination any over-payment to him is discovered to have made in respect of any works done or alleged to have been done by him under the contract.

51-A. Production of vouchers etc. by the Contractor:- (i) For a contract of more than one crore of rupees, the contractor shall, whenever required, produce or cause to be produced for examination by the Engineer any quotation, invoice, cost or other account, book of accounts, voucher, receipt, letter, memorandum, paper of writing or any copy of or extract from any such document and also furnish information and returns verified in such manner as may be required in any way relating to the execution of this contract or relevant for verifying or ascertaining cost of execution of this contract (the decision of the engineer on the question of relevancy of any documents, information or return being final and binding in the parties). The contractor shall similarly produce vouchers; etc., if required to prove to the Engineer, that materials supplied by him, are in accordance with the specifications laid down in the contract.

(ii) If any portion of the work in a contract of value more than one crore of rupees be carried out by a sub-contractor or any subsidiary or allied firm or company (as per Clause 7 of the General Conditions of Contract), the Engineer shall have power to secure the books of such sub-contract or any subsidiary or allied firm or company, through the contractor, and such books shall be open to his inspection.

(iii) The obligations imposed by sub clause (i) & (ii) above is without prejudice to the obligations of the contractor under any statute rules or orders binding on the contractor.

52. Withholding and lien in respect of sums claimed:- Whenever any claim or claims for payment of a sum of money arises out of or under the contract against the contractor, the Railway shall be entitled to withhold and also have a lien to retain such sum or sums in whole or in part from the security, if any, deposited by the contractor and for the purpose aforesaid, the Railway shall be entitled to withhold the said cash security deposit or the security if any, furnished as the case may be and also have a lien over the same pending finalization or adjudication of any such claim. In the event of the security being insufficient to cover the claimed amount or amounts or if no security has been taken from the contractor, the Railway shall be entitled to withhold and have a lien to the extent of the such claimed amount or amounts referred to supra, from any sum or sums found payable or which at any time thereafter may

become payable to the contractor under the same contract or any other contract with this or any other Railway or any Department of the Central Government pending finalization or adjudication of any such claim.

It is an agreed term of the contract that the sum of money or moneys so withheld or retained under the lien referred to above, by the Railway will be kept withheld or retained as such by the Railways till the claim arising out of or under the contract is determined by the arbitrator (if the contract governed by the arbitration clause) or by the competent court as the case may be and that the contractor will have no claim for interest or damages whatsoever on any account in respect of such withholding or retention under the lien referred to supra and duly notified as such to the contractor. For the purpose of this clause, where the contractor is a partnership firm or a limited company, the Railway shall be entitled to withhold and also have a lien to retain towards such claimed amount or amounts in whole or in part from any sum found payable to any partner/limited company, as the case may be whether in his individual capacity or otherwise.

52-A Lien in respect of claims in Other Contracts:- Any sum of money due and payable to the contractor (including the security deposit returnable to him) under the contract may be withheld or retained by way of lien by the Railway, against any claim of this or any other Railway or any other Department of the Central Government in respect of a payment of a sum of money arising out of or under any other contract made by the contractor with this or any other Department of the Central Government.

It is an agreed term of the contract that the sum of money so withheld or retained under this clause by the Railway will be kept withheld or retained as such by the Railway till the claim arising out of or under any other contract is either mutually settled or determined by arbitration, if the other contract is governed by arbitration clause or by the competent court as the case may be and contractor shall have no claim for interest or damages whatsoever on this account or on any other ground in respect of any sum of money withheld or retained under this clause and duly notified as such to the contractor.

53. Signature on Receipts for Amounts:- Every receipt for money which may become payable or for any security which may become transferable to the Contractors under these presents, shall, if signed in the partnership name by anyone of the partners of a Contractor's firm be a good and sufficient discharge to the Railway in respect of the moneys or security purported to be acknowledged thereby and in the event of death of any of the Contractor, partners during the pendency of the contract it is hereby expressly agreed that every receipt by anyone of the surviving Contractor partners shall if so signed as aforesaid be good a sufficient discharge as aforesaid provided that nothing in this clause contained shall be deemed to prejudice or effect any claim which the Railway may hereafter have against the legal representative of any

contractor partner so dying for or in respect to any breach of any of the conditions of the contract, provided also that nothing in this clause contained shall be deemed to prejudice or effect the respective rights or obligations of the Contractor partners and of the legal representatives of any deceased Contractor partners interse.

LABOUR

54. Wages to Labour:- The Contractor shall be responsible to ensure compliance with the provision of the Minimum Wages Act, 1948 (hereinafter referred to as the "said Act" and the Rules made there under in respect of any employees directly or through petty contractors or subcontractors employed by him on road construction or in building operations or in stone breaking or stone crushing for the purpose of carrying out this contract.

If, in compliance with the terms of the contract, the Contractor supplied any labour to be used wholly or partly under the direct orders and control of the Railway whether in connection with any work being executed by the Contractor or otherwise for the purpose of the Railway such labour shall, for the purpose of this clause, still be deemed to be persons employed by the Contractor.

If any moneys shall, as a result of any claim or application made under the said Act be directed to be paid by the Railway, such money shall be deemed to be moneys paid by it as aforesaid within seven days after the same shall have been demanded, the Railways shall be entitled to recover the same form any moneys due or accruing to the Contractor under this or any other Contract with the Railways.

54-A. Apprentices Act:- The Contractor shall be responsible to ensure compliance with the provisions of the Apprentices Act, 1961 and the Rules and Orders issued there under from time to time in respect of apprentices directly or through petty contractors or sub-contractors employed by him for the purpose of carrying out the Contract.

If the contractor directly or through petty contractors or sub-contractors fails to do so, his failure will be a breach of the contract and the Railway may, in its discretion, rescind the contract. The contractor shall also be liable for any pecuniary liability arising on account of any violation of the provisions of the Act.

Note: The contractors are required to engage apprentices when the works undertaken by them last for a period of one year or more and/the cost of works is rupees on lakh or more.

55. Provisions of payments of Wages Act:- The Contractor shall comply with the provisions of the Payment of Wages Act, 1936 and the rules made there under in respect of all employees directly or through petty contractors or sub-contractors employed by him in the works. If In compliance with the terms of the contract, the Contractor directly or through petty contractors of sub-contractors shall supply and layout to be used wholly or partly under the direct orders and control of the Engineer whether in connection with the works to the executed hereunder or otherwise for the purpose of the Engineer such labour shall never the less be deemed to comprise persons employed by the contractor and any moneys which may be ordered to be paid by the Engineer shall be deemed to be moneys payable by the Engineer on behalf of the Contractor and the Engineer may due to the Contractor in terms of the contract. The Railway shall be entitled to deduct from any moneys due to the contractor (whether under this contract or any other contract) all moneys paid or payable by the Railway by the way of compensation of aforesaid or for costs of expenses in connection with any claim thereto and the decision of the Engineer upon any question arising out of the effect or force of this clause shall be final and binding upon the Contractor.

55-A (1) Provisions of Contract labour (Regulation and Abolition) Act, 1970 – (1) The contractor shall comply with the provision of the contract labour (Regulation and Abolition) Act, 1970 and the Contract labour (Regulation and Abolition) Central Rules 1971 as modified from time to time, wherever applicable and shall also indemnify the Railway from and against any claims under the aforesaid Act and the Rules.

- (2) The Contractor shall obtain a valid licence under the aforesaid Act as modified from time to time before the commencement of the work and continue to have a valid licence until the completion of the work. Any failure to fulfill the requirement shall attract the penal provision of the Contract arising out of the resultant non-execution of the work.
- (3) The Contractor shall pay to the labour employed by him directly or through subcontractors the wages as per provision of the aforesaid Act and the Rules wherever applicable. The Contractor shall notwithstanding the provisions of the contract to the contrary, cause to be paid the wages to labour indirectly engaged on the works including any engaged by subcontractors in connection with the said work, as if the labour had been immediately employed by him.
- (4) In respect of all labour directly or indirectly employed in the work for performance of the contractor's part of, the contract, the Contractor shall comply with or cause to be complied with the provisions of the aforesaid Act and Rules wherever applicable.
- (5) In every case in which, by virtue of the provisions of the aforesaid Act or the Rules, the Railway is obliged to pay any amount of wages to a workman employed by the Contractor or his sub contractor in execution of the work or no incur any expenditure on account of the Contingent, liability of the Railway due to the contractor's failure to fulfill his statutory obligations under the aforesaid Act or the rules the Railway will recover from the Contractor, the

amount of wages so paid or the amount of expenditure so incurred, and without prejudice to the rights of the Railway under the section 20, sub-section (2) and section 2, sub-section (4) of the aforesaid Act, the Railway shall be at liberty to recover such amount or part thereof by deducting it from the security deposit and/ or from any sum due by the Railway to the contractor whether under the contract or otherwise. The Railway shall not be bound to contest any claim made against it under sub-section (1) of section 20 and sub-section (4) of section 21 of the aforesaid Act except on the written request of the contractor and upon his giving to the Railway full security for all costs for which the Railway might become liable in contesting such claim. The decision of the Railway regarding the amount actually recoverable from the contractor as stated above shall be final and binding on the Contractor.

56. Reporting of Accidents of Labour:- The Contractor shall be responsible for the safety of all employees directly or through petty contractors or sub-contractor employed by him on the works and shall report serious accidents to any of them however and wherever occurring on the works to the Engineer or the Engineers Representative and shall made every arrangements to render all possible assistance.

57. Provision of Workmen's Compensation Act:- In every case in which by virtue of the provisions of section 12 sub-section (1) of the Workmen's Compensation Act 1923, Railway is obliged to pay compensation to a workman directly or through petty contractor or subcontractor employed by the Contractor in executing the work, Railway will recover from the Contractor the amount of the compensation so paid, and, without prejudice to the rights of Railway under Section 12 Sub-section (2) of the said Act, Railway shall be at liberty to recover such amount or any part thereof by deducting it from the security deposit or from any sum due by Railway to the Contractor whether under these conditions or otherwise, Railway shall not be bound to contest any claim made against it under Section 12 Sun-section (1) of the said Act except on the written request of the Contractor and upon his giving to Railway full security for all costs for which Railway might become liable in consequence of contesting such claim.

57-A Provision of Mines Act:- The contractor shall observe and perform all the provisions of the Mines Act, 1952 or any statutory modifications or re-enactment thereof for the time being in force and any rules and regulations made there under in respect of all the persons directly or through the petty contractors or sub-contractors employed by him under this contract and shall indemnify the Railway from and against any claims under the Mines Act, or the rules and regulations framed there under, by or on behalf of any persons employed by him or otherwise.

58 Railway not to provide quarters for Contractors:-No quarters shall normally be provided by the Railway for the accommodation of the contractor or any of his staff employed on the work.

59(1) Labour Camps:-The contractor shall at his own expense make adequate arrangements for the housing, supply of drinking water and provision of latrines and urinals for his staff and workmen, directly or through the petty contractors or sub-contractors and for temporary crèche (Bal-mandir) where 50 or more women are employed at a time. Suitable sites on Railway land, if available, may be allotted to the contractor for the erection of labour camps, either free of charge or on such terms and conditions that may be prescribed by the Railway. All camp sites shall be maintained in clean and sanitary conditions by the contractor at his own cost.

(2) Compliance to rules for employment of labour:- The contractor(s) shall conform to all laws, by-laws rules and regulations for the time being in force pertaining to the employment of local or imported labour and shall take all necessary precautions to ensure and preserve the health and safety of all staff employed directly or through petty contractors or sub-contractors on the works.

(3) Preservation of peace:- The contractor shall take requisite precautions and use his best endeavours to prevent any riotous or unlawful behaviour by or amongst his workmen and other employed directly or through the petty contractors or sub-contractors on the works and for the preservation of peace and protection of the inhabitants and security of property in the neighbourhood of the works. In the event of the Railway requiring the maintenance of a special Police Force at or in the vicinity of the site during the tenure of works, the expenses thereof shall be borne by the contractor and if paid by the Railway shall be recoverable from the contractor.

(4) Sanitary arrangements:- The contractor shall obey all sanitary rules and carry out all sanitary measures that may from time to time be prescribed by the Railway Medical Authority and permit inspection of all sanitary arrangements at all times by the Engineer, the Engineer's Representative of the Medical staff of the Railway. Should the contractor fail to make the adequate sanitary arrangements, these will be provided by the Railway and the cost therefore recovered from the contractor.

(5) Outbreak of infectious disease:- The contractor shall remove from his camp such labour and their families as refuse protective inoculation and vaccination when called upon to do so by the Engineer or the Engineer's representative on the advice of the Railway Medical Authority. Should cholera, plague or other infectious disease break out, the contractor shall burn the butts, beddings, clothes and other belongings of or used by the infected parties and promptly erect new huts on health sites as required by the engineer, failing

which within the time specified in the Engineer's requisition, the work may be done by the Railway and the cost therefore recovered from the contractor.

(6) Deleted

(7) Medical facilities at site: - The Contractor shall provide medical facilities at the site as may be prescribed by the Engineer on the advice of the Railway Medical Authority in relation to the strength of the Contractor's resident staff and workmen.

(8) Use of intoxicants: - The sale of ardent spirits or other intoxicating beverages upon the work or in any of the buildings, encampments or tenements owned, occupied by or within the control of the contractor or any of his employees shall be forbidden and the Contractor shall exercise his influence and authority to the utmost extent to secure strict compliance with this condition.

(9) Non-employment of female labour: - The Contractor shall see that the employment of female labour on in Cantonment areas, particularly in the neighbourhood of soldier's barracks, should be avoided as far as possible.

(10) Restrictions on the employment of retired Engineers of Railway services within two years of their retirement:- The Contractor shall not, if he is a retired Government Engineer of Gazetted rank, who has not completed two years from the date of retirement, in connection with this contract in any manner whatsoever without obtaining prior permission of the President and if the Contractor is found to have contravened this provision it will constitute a breach of contract and administration will be entitled to terminate the contract at the risk and cost of the contractor and forfeit his security deposit.

60. (1) Non-employment of labours below the age of 15:- the Contractor shall not employ children below the age of 15 as labourers directly or through petty contractors or subcontractors for the execution of work.

(2) Medical Certificate of fitness for labour: - It is agreed that the contractor shall not employ a person above 15 and below 19 years of age for the purpose of execution of work under the contract unless a medical certificate of fitness in the prescribed form granted to him by a certifying surgeon certifying that he is fit to work as an adult is obtained and kept in the custody of the contractor or a person nominated by him in this behalf and the person carries with him, while at work; a token giving a reference to such certificate. It is further agreed that the responsibility for having the adolescent examined medically at the time of appointment or periodically till he attains the age of 19 years shall devolve entirely on the contractor and all the expenses to be incurred on this account shall be borne by him and no fee shall be charged from the adolescent or his parent for such medical examination.

- (3) Period of validity of medical fitness certificate:** - A certificate of fitness granted or renewed for the above said purposes shall be valid only for a period of one year at a time. The certifying surgeon shall revoke a certificate granted or renewed if in his opinion the holder or it is, not longer fit for work in the capacity stated therein. Where a certifying surgeon refuses to grant or renew a certificate or revoke a certificate, he shall, if so required by the person concerned, state his reasons in writing for doing so.
- (4) Medical re-examination of labourer:-** Where any official appointed in this behalf by the Ministry of labour is of the opinion that any person employed in connection with the execution of any work under this contract in the age group 15 to 19 years is without a certificate of fitness or is having a certificate of fitness but no longer fit to work in the capacity stated in the certificate, he may serve on the Contractor, or on the person nominated by him in the regard, a notice requiring that such persons shall be examined by a certifying surgeon and such person shall not if the concerned official so directs, be employed or permitted to do any work under this contract unless he has been medically examined and certified that he has been granted a certificate of fitness or a fresh certificate of fitness, as the case may be.

EXPLANATIONS:-

- (1) only qualified medical practitioners can be appointed as “Certifying Surgeons” and the term “Qualified Medical Practitioners” means a person holding a qualification granted by an authority specified in the Schedule to the Indian Medical Degrees Act, 1916 (VII to 1916) or in the Schedule to the Indian Medical Council Act, 1933 (XXVII) of 1933.
- (2) The Certifying surgeon may be a medical officer in the service of State or Municipal Corporation.

DETERMINATION OF CONTRACT

- 61. (1) Right of Railway of determine the contract:** - The Railway shall be entitled to determine and terminate the contract at any time should, in the Railway’s opinion, the cessation of work becomes necessary owing to paucity of funds or from any other cause whatever, in which case the value of approved materials at site and of work done to date by the Contractor will be paid for in full at the rate specified in the contract. Notice in writing from the Railway of such determination and the reasons therefore shall be conclusive evidence thereof.
- (2) Payment on determination of contract:** - Should the contract be determined under sub clause (1) of this clause and the Contractor claims payment for expenditure incurred by him in the expectation of completing the whole of the work, the Railways shall admit and consider such claims as are deemed

reasonable and are supported by vouchers to the satisfaction of the Engineer. The Railway's decision on the necessity and propriety of such expenditure shall be final and conclusive.

- (3) the contractor shall have no claim to any payment of compensation or otherwise, howsoever on account of any profit or advantage which he might have derived from the execution of the work in full but which he did not derive in consequence of determination of contract.

62 (1) Determination of contract owing to default of contractor:- If the Contractor should:-

- i. Becomes bankrupt or insolvent, or
- ii. Make an arrangement with of assignment in favour of his creditors, or agree to carry out the contract under a Committee of Inspection of his creditors, or
- iii. Being a Company or Corporation, go into liquidation (other than a voluntary liquidation for the purposes of amalgamation or reconstruction), or
- iv. Have an execution levied on his goods or property on the works, or
- v. Assign the contract or any part thereof otherwise than as provided in Clause 7 of these conditions, or
- vi. Abandon the contract, or
- vii. Persistently disregard the instructions of the Engineer, or contravene any provision of the contract, or
- viii. Fail to adhere to the agreed programme of work by a margin of 10% of the stipulated period, or
- ix. Fail to remove materials from the site or to pull down and replace work after receiving from the Engineer notice to the effect that the said materials or works have been condemned or rejected under clause 25 and 27 of these conditions, or
- (x) fail to take steps to employ competent or additional staff and labour as required under clause 26 of the conditions
- (xi) fail to afford the Engineer or Engineer's representative proper facilities for inspecting the work or any part thereof as required under clause 28 of the conditions, or
- (xii) promise, offer or give any bribe, commission, gift or advantage either himself or through his partner, agent or servant to any officer or employee of the Railway or to any person on his or on their behalf in relation to the execution of this or any other contract with this Railway.
- (xiii)(A) At any time after the tender relating to the contract, has been signed and submitted by the Contractor, being a partnership firm admit as one of its partners or employ under it or being an incorporated company elect or nominate or allow to act as one of its directors or employ under it in any capacity whatsoever any retired engineer of the gazette rank or any other

retired gazette officer working before his retirement, whether in the executive or administrative capacity, or whether holding any pensionable post or not, in any Department of the Railways for the time being owned and administered by the President of India before the expiry of two years from the date of retirement from the said service of such Engineer or Officer unless such Engineer or Officer has obtained permission from the President of India or any officer duly authorized by him in this behalf to become a partner or a director or to take employment under the contract as the case may be, or

(B) Fail to give at the time of submitting the said tender:-

- (a) The correct information as to the date of retirement of such retired engineer or retired officer from the said service, or as to whether any such retired engineer or retired officer was under the employment of the Contractor at the time of submitting the said tender, or
- (b) the correct information as to such engineers or officers obtaining permission to take employment under the contractor, or
- (c) being a partnership firm, the correct information as to, whether any of its partners was such a retired engineer or a retired officer, or
- (d) being in incorporated company, correct information as to whether any of its directors was such a retired engineer or a retired officer, or
- (e) being such a retired engineer or retired officer suppress and not disclose at the time of submitting the said tender the fact of his being such a retired engineer or a retired officer or make at the time of submitting the said tender a wrong statement in relation to his obtaining permission to take the contract or if the contractor be a partnership firm or an incorporated company to be a partner or director of such firm or company as the case may be or to seek employment under the contractor, and or company as the case may be or to seek employment under the contractor, and after expiry of 48 hours notice a final termination notice should be issued.

Then and in any of the said clause, the Engineer on behalf of the Railway may serve the Contractor with a notice in writing to that effect and if the contractor does not within seven days after the delivery to him of such notice proceed to make good his 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 of the entire satisfaction of the Engineer, the Railway shall be entitled after giving 48 hours notice in writing under the hand of the Engineer to rescind the contract as a whole or in part or parts (as may be specified in such notice) and after expiry of 48 hours notice, a final termination notice should be issued and adopt the following courses:

To measure up or 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 in the entire discretion of the Engineer whose decision shall be final.

62(2) Right of Railway after, rescission of contract owing to default of contractor: In the event of any or several of the courses, referred to in sub-clause (1) of the clause, being adopted.

- a) the contractor shall have no claim to compensation for any loss sustained by him by reason of his having purchased or procured any materials or entered into any commitments or made any advances on account of or with a view to the execution of the works or the performance of the contract and contractor shall not be entitled to recover or be paid any sum for any work thereto for actually performed under the contract unless and until the Engineer shall have certified the performance of such work and the value payable in respect thereof and the contractor shall only be entitled to be paid the value so certified.
- b) The Engineer or the Engineer's representative 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 the works or any part thereof until the completion of the works without the contractor being entitled to any compensation for the use and employment thereof or for wear and tear or destruction thereof.
- c) The Engineer shall as soon as may be practicable after removal of the contractor fix and determine ex-parte or by or after reference to the parties or after such investigation or enquiries as he may consider fit to make or institute and shall certify what amount(if any) had at the time of rescission of the contract been reasonably earned by or would reasonably accrue to the contractor in respect of the work then actually done by him under the contract and what was the value of any unused, or partially used materials, any constructional plan and any temporary works upon the site. The legitimate amount due to the contractor after making necessary deductions and certified by the Engineer should be released expeditiously.

STATEMENT OF DISPUTES – INDIAN RAILWAY ARBITRATION RULES

63. Matters finally determined by the Railway – All disputes and differences of any kind whatsoever arising out of or in connection with the contract, whether during the progress of the work or after its completion and whether before or after the determination of the contract, shall be referred by the contractor to the General Manager and the General Manager shall within 120 days after receipt of the contractor's representation make and notify decisions on all matters referred to by the contractor in writing provided that matter for which provision has been made in clauses 8, 18, 22(5), 39, 43(2), 45(a),55,55-A(5), 57, 57A, 61(1), 61(2) and 62(1) to (xiii) (B) of General Conditions of contract or in any special clause of the conditions of the contract shall be deemed as 'excepted matters' (matters not arbitrable) and decisions of the Railway authority, thereon shall be final and binding on the contractor; provided further

that 'excepted matters' shall stand specifically excluded from the purview of the arbitration clause.

64(1)(i) Demand for Arbitration:-In the event of any dispute or difference between the parties hereto as to the construction or operation of this contract, or the respective rights and liabilities of the parties on any matter in question, dispute or difference on any account or as to the withholding by the Railway of any certificate to which the contractor may claim to be entitled to, or if the Railway fails to make a decision within 120 days, then and in any such case, but except in any of the 'excepted matters' referred to in clause 63 of these conditions, the contractor, after 120 days but within 180 days of his presenting his final claim on disputed matters shall demand in writing that the dispute or difference be referred to arbitration.

64(1)(ii) The demand for arbitration shall specify the matters which are in question, or subject of the dispute or difference as also the amount of claim item wise. Only such dispute(s) or difference(s) in respect of which the demand has been made, together with counter claims or set off, given by the Railway, shall be referred to arbitration and other matters shall not be included in the reference.

64(1)(ii)(a) The arbitration proceedings shall be assumed to have commenced from the day, a written and valid demand for arbitration is received by the Railway.

(b) The claimant shall submit his claim stating the facts supporting the claims along with all the relevant documents and the relief or remedy sought against each claim within a period of 30 days from the date of appointment of the Arbitral Tribunal.

(c) The Railway shall submit its defence statement and counter claim(s), if any, within a period of 60 days of receipt of copy of claims from Tribunal thereafter, unless otherwise extension has been granted by Tribunal.

(d) The place of arbitration would be New Delhi

64(1)(iii) – No new claim shall be added during proceedings by either party. However, a party may amend or supplement the original claim or defence thereof during the course of arbitration proceedings subject to acceptance by Tribunal having due regard to the delay in making it.

64(1)(iv) – If the contractor(s) does/do not prefer his/their specific and final claims in writing, within a period of 90 days of receiving the intimation from the Railways that the final bill is ready for payment, he/they will be deemed to have waived his/their claim(s) and the Railway shall be discharged and released of all liabilities under the contract in respect of these claims.

- 64 (2)** – Obligation During Pendency of Arbitration – Work under the contract shall, unless otherwise directed by the Engineer, continue during the arbitration proceedings, and no payment due or payable by the Railway shall be withheld on account of such proceedings, provided, however, it shall be open for Arbitral Tribunal to consider the decide whether or not such work should continue during arbitration proceedings.
- 64 (3)(a)(i)** – In cases where the total value of all claims in question added together does not exceed Rs.10,00,000/- (Rupees ten lakhs only), the Arbitral tribunal shall consist of a sole arbitrator nominated by the MD/DFCCIL. The sole arbitrator shall be appointed within 60 days from the day when a written and valid demand for arbitrator is received by MD/DFCCIL .
- 64 (3)(a)(ii)** – In cases not covered by the clause 64(3)(a)(i), the Arbitral Tribunal shall consist of a Panel of three officials, as the arbitrators. For this purpose, the Railway will send a panel of more than 3 names of DFCCIL officers which may also include the name(s) of Officer(s) empanelled to work as Arbitrator to the contractor within 60 days from the day when a written and valid demand for arbitration is received by the MD . Contractor will be asked to suggest to MD at least 2 names out of the panel for appointment as contractor's nominee within 30 days from the date of dispatch of the request by Railway /DFCCIL . The MD shall appoint at least one out of them as the contractor's nominee and will, also simultaneously appoint the balance number of arbitrators either from the panel or from outside the panel, duly indicating the 'presiding arbitrator' from amongst the 3 arbitrators so appointed. MD shall complete this exercise of appointing the Arbitral Tribunal within 30 days from the receipt of the names of contractor's nominees. While nominating the arbitrators it will be necessary to ensure that one of them is from the Accounts department. **64 (3)(a)(iii)** – If one or more of the arbitrators appointed as above refuses to act as arbitrator, withdraws from his office as arbitrator, or vacates his/their office/offices or is/are unable or unwilling to perform his functions as arbitrator for any reason whatsoever or dies or in the opinion of the MD fails to act without undue delay, the MD shall appoint new arbitrator/arbitrators to act in his/their place in the same manner in which the earlier arbitrator/arbitrators had been appointed. Such re-constituted Tribunal may, at its discretion, proceed with the reference from the stage at which it was left by the previous arbitrator(s).
- 64 (3)(a)(iv)** – The arbitral Tribunal shall have power to call for such evidence by way of affidavits or otherwise as the arbitral Tribunal shall think proper, and it shall be the duty of the parties hereto to do or cause to be done all such things as may be necessary to enable the arbitral Tribunal to make the award without any delay. The arbitral Tribunal should day-to-day proceedings. The proceedings shall normally be conducted on the basis of documents and written statements.

- 64 (3)(a)(v)** – While appointing arbitrator(s) under sub-clause (i), (ii) & (iii) above, due care shall be taken that he/they is/are not the one/those who had an opportunity to deal with the matters to which the contract relates or who in the course of his/their duties as Railway servant(s) expressed views on all or any of the matters under dispute or differences. The proceedings of the arbitral Tribunal or the award made by such Tribunal will, however, not be invalid merely for the reason that one or more arbitrator had, in the course of his service, opportunity to deal with the matters to which the contract relates or who in the course of his/their duties expressed views on all or any of the matters under dispute.
- 64 (3)(b)(i)** – The arbitral award shall state item wise, the sum and reasons upon which it is based. The analysis and reasons shall be detailed enough so that the award could be inferred there from.
- 64 (3)(b)(ii)** – A party may apply for corrections of any computational errors, any typographical or clerical errors or any other error of similar nature occurring in the award of a tribunal and interpretation of a specific point of award to tribunal within 60 days of receipt of the award.
- 64 (3)(b)(iii)** – A party may apply to tribunal within 60 days of receipt of award to make an additional award as to claims presented in the arbitral proceedings but omitted from the arbitral award.
- 64 (4)** – In case of the Tribunal, comprising of three Members, any ruling on award shall be made by a majority of Members of Tribunal. In the absence of such a majority, the views of the Presiding Arbitrator shall prevail.
- 64(5)** – Where the arbitral award is for the payment of money, no interest shall be payable on whole or any part of the money for any period till the date on which the award is made.
- 64(6)** – The cost of arbitration shall be borne by the respective parties. The cost shall inter-alia include fee of the arbitrator(s), as per the rates fixed by the DFCCIL from time to time and the fee shall be borne equally by both the parties.
- 64(7)** – Subject to the provisions of the aforesaid Arbitration and Conciliation Act 1996 and the rules there under and any statutory modifications thereof shall apply to the arbitration proceedings under this clause.

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(B) SPECIAL CONDITIONS OF CONTRACT

1.2.1 This Tender shall be governed by Preamble and General, Special conditions, Technical Specifications.

1.2.2 If there are varying or conflicting provisions in the documents forming part of the contract. Engineer shall be deciding authority with regard to the intentions of the provision and decision of Engineer will be final and binding on the contractor.

1.2.3 **Scheme of work** – Within a period of 30 days beginning from the date of issue of Letter of Acceptance of Tender, the Contractor shall submit the detailed time schedule for design and various documents enumerated in tender papers to the employer.

1.2.4 **Quality Assurance Programme in Supply and Erection /execution**

a. All materials used in the work shall be of the best quality and of the class most suited for the purpose specified and procured from the Part-1 sources approved by Research, Design and Standard Organisation/Central Organisation for RLY Electrification or PGCIL (In absence of RDSO/CORE). It is essential that the manufacturer from whom supply is arranged should have long experience of design and manufacture of equipments, components, materials and fittings. The requisite facilities for testing prototypes supplied against this contract should be available with the manufacturer. In the case of those equipments, components or fittings for which the requisite facilities for testing of prototypes are not available with the manufacturer, the manufacturer shall arrange to carry out the prototype tests on his own cost in a testing laboratory approved by the Employer. Only tested quality steel shall be used. The contractor shall ensure that the Employer's prescribed Quality Assurance Standards are rigidly followed in the manufacture and erection/installation of all the materials/components and fittings/equipments required for the work.

b. **Quality of Materials And Erection** – All erection work carried out shall also be of the best quality acceptable to the Employer. **The work shall be carried out as per latest RDSO specification/ CORE specification or PGCIL(In absence of RDSO/CORE) as on the date of opening of tender even if mentioned otherwise elsewhere in the tender.**

1.2.4.1(a) **Quality Assurance Materials** – All the equipments, materials, fittings and component will be subject to quality control programme of manufacturer, being a part of the Quality Assurance Programme of the Contractor. **The materials may also be inspected by the Employer or his representative/RITES either at the manufacturer work or at**

the Contractors' depot. The Engineer or his representative shall have the right to be present during all the stages of manufacture and shall be afforded free of charge all reasonable facilities for inspection and testing as well as to examine the stage inspection report of the manufacturer in addition to the quality audit which the Contractor may institute as a part of his programme so as to satisfy himself that the materials are in accordance with specifications, approved drawings and designs and employer's prescribed Quality Assurance Standards.

- b. **Erection** - All erection work will also be subjected to the quality Assurance Programme including inspection by the Employer or his representative to ensure that the work is done in accordance with the specification and approved drawings and designs and employer's prescribed quality assurance standards.
- c. **Expenses Of Employer' Representative** – All the expenses of Engineer's representative shall be borne by the Employer whether the inspected material is finally utilised in work or not.
- d. The decision of the Engineer shall be final in respect of acceptability or otherwise of any material, fittings, component or equipment required for the work.
- e. **Quality Assurance Programme.** – For proper control of quality and to ensure that the materials, equipments and fittings are manufactured according to specifications and the erection according to approved instructions, drawings, specifications, the Contractor shall adopt a suitable quality assurance programme to ensure quality at all necessary points, whether at manufacturer's works, or in his depot or at work site as well as during erection. Such quality Assurance Programme shall also meet the requirement of the employer's prescribed quality Assurance Standards. This programme of the Contractor shall generally cover the following: -
 1. The organization to manage and implement the quality assurance programme.
 2. The documentation control system:
 - i. Basic control system.
 - ii. Adopted at manufacturer's work
 - iii Adopted at the Contractor Depot and work site.
 3. Procedure adopted for:
 - i. Source Inspection.
 - ii. Incoming raw material inspection.
 - iii. Verification of material purchased.

- iv. Fabrication Controls.
 - v. Site erection controls.
4. Inspection and Test Procedure for:
- i. Manufacture and quality control procedure.
 - ii. Field activity.
5. System of handling and storage.
6. System of quality audit.
7. System of maintenance of records.
8. For the purpose of obtaining 'On Account Payment', the Contractor shall submit along with the invoice, the documents indicated in the prescribed quality Assurance standards which should inter alia cover the following as may be applicable in each case.
- i. Material test reports on raw materials used.
 - ii. Material type and routine test report on components specification.
 - iii. Inspection Plan with reports of the inspection Plan check points.
 - iv. Routine test report.
 - v. Factory test results as required under the specification.
 - vi. Quality audit report including test check report of Employer's representative if any.

1.2.5 Deleted

1.2.6 Deleted

1.2.7 Deleted

1.2.8 Contractor's drawings etc. –

- (a) All calculations, designs, drawings, schedules, information data progress charts etc(as applicable) required by the Engineer/Engineer's representative in connection with the contract, shall be furnished by the Contractor at his own expenses as per Part II, Chapter VII.

(b) ADHEDRENCE TO SPECIFICATION AND DRAWINGS:

The whole of the works shall be executed in perfect conformity with the specifications and drawings of the contract. If the contractor performs any work in a manner contrary to the specifications or drawings or any of them and without such reference to the engineer he shall bear all the costs arising or ensuring there from, and shall be responsible for all loss to the DFCCIL.

(c) **DRAWINGS AND SPECIFICATIONS OF THE WORKS:** The contractor shall keep one copy of drawings and specifications at the site, in good order, and such other contract documents as may be necessary, available to the engineer and the engineer's representative.

1. **OWNERSHIP OF DRAWINGS AND SPECIFICATIONS:** All designs/drawings/calculations/data submitted by the contractor for execution of the work shall be property of the Engineer/Engineer's representative and DFCCIL reserve the right to use them for any work, in any manner deemed fit. In case of any ambiguity in the interpretation of design and drawing, the decision of the Engineer/Engineer's representative shall be final and conclusive. All designs/drawings and specifications and copies thereof furnished by the DFCCIL to the contractor are deemed to be the property of the DFCCIL. They shall not be used on other works and with the execution of the signed contract set, shall be returned by the contractor to DFCCIL on completion of work or on termination of the contract.

2. **COMPLIANCE WITH CONTRACTOR'S REQUEST FOR DETAILS:** The Engineer/Engineer's representative shall furnish with reasonable promptness after receipt by him of the contractors request for the same, additional instructions by means of drawings or otherwise, necessary for the proper execution of the works or any part thereof. All such drawings and instructions shall be consistent with the contract documents and reasonably inferable there from.

3. **MEANING AND INTENT OF SPECIFICATION AND DRAWINGS:** If any ambiguity arises as to the meaning and intent of any portion of the specifications and drawings or as to execution or quality of any work or material or as to the measurements of the works, the decision of the Engineer/Engineer's representative there shall be final subject to appeal within seven days of such decision being intimated by the contractors to the GM/ EL/EC /DFCCIL who shall have the power to correct any errors, omissions or discrepancies in the specifications, drawings, classification or work or materials, and whose decision in the matter in dispute or doubt shall be final and conclusive and binding .

1.2.9 Traffic Blocks/Power Blocks/Shut Down:

a. The contractor shall obtain Power/Traffic/Shut down in the name of authorized representative of DFCCIL. Engineer/Engineer's representative will facilitate to make arrangements to obtain power blocks/shut down (hereinafter referred to as blocks) for works to be carried out along or adjacent to the track work. Works such as foundations of towers shall be

done without blocks. The requirement of shut down, power blocks etc. shall be assessed by the contractor and will be submitted to the Engineer/Engineer's representative. All the erection of towers/stringing of conductors, shifting of conductors from old towers to new towers, dismantling of towers, conductors & insulators etc. shall be done under minimum power block/shut down. Contractor will arrange minimum two gangs of labours i.e. expert of TR line fitters, Semi skilled fitters, labours etc. with supervisors and sufficient tools and tackles required as per site conditions. Work will be done day & night with war foot level with the approval of the Engineer/Engineer's representative.

- b. Blocks will be granted during day & night hours continuous. The Contractor shall confirm that he will equip himself to carry out all construction during night blocks efficiently by suitable special lighting equipments without any extra cost.
- c. Block period shall be counted from the time the TR-line is placed at the Contractor's disposal at the work-spot till it is cleared by the Contractor.
- d. Blocks will be subject to normal operating conditions and rules of the Railway. All formalities of exchanging private number etc with the traffic control/traction power controller will be carried out by the Engineer staff and for this purpose the Engineer will depute a representative for each erection gang, who will be responsible for imposing power blocks/shut down and also removing the same after men, material and equipment have been cleared by the Contractor from running tracks and the same declared safe for traffic by Engineer/Engineer's representative in case of works involving safety of running tracks.
- e. Blocks required for carrying out works necessitated by the thefts, pilferage, accidents or such other incidents, shall be facilitated by the Engineer over and above the normal requirements of block.

1.2.10 (a) Correctness Of Work and Materials – The contractor shall be solely responsible for correctness of the positions, levels and dimensions of the works according to approved drawings, notwithstanding that he may have been assisted by the Engineer or his men in setting out the same.

(b) If any dimension figured upon a drawings differs from that obtained by scaling the drawings the figured dimensions should be normally taken as correct unless it is prima facie a mistake. But all such cases shall be brought to the notice of the Engineer/Engineer's representative and the discrepancy set right before execution.

1.2.11 Contractor's Responsibility for discrepancy – All designs and drawings submitted by the Contractor shall be based on a thorough study and shall be such that the Contractor is satisfied about their suitability. The Engineer's approval will be based on these considerations. Notwithstanding approval communicated by the Employer, during the progress of the contract for designs and drawings, prototype samples of components, materials and equipments after inspection of materials, after erection and adjustments to installations, the ultimate responsibility for correct design

and execution of work shall be with contractor unless the Engineer insists on adoption of his own designs inspite of the Contractor not being agreeable to it.

b. The Contractor shall be responsible for and shall bear, and pay the cost for any alternation or works arising from any discrepancies, errors or omissions in the designs and drawings supplied by him, whether such designs and drawings have been approved by the Engineer or not.

1.2.12 Additions and alterations to erected equipments – The engineer may require additional installations or modifications to be carried out on the works he deems necessary, either during the execution or after a part or whole of the installations coming with the purview of the Contract has been put into commercial service. Further it may be necessary and expedient to energize overhead equipment which has been completed and finally adjusted in portions in yard/s. This will necessitate erection of new equipment in the vicinity of or joining energized equipment. In case the prices for such additional works or modifications are not covered by the schedule of price and are such that either party considers additional prices for such works justified, such additional works or modification shall be carried out, only after the additional prices proposed by the Contractor are accepted by the Employer. In case additional installations or modifications are required to be carried out under this para, the Employer shall grant a reasonable extension of time, should it be necessary.

1.2.13 Training Of Employer's Staff – DELETED

1.2.14 Work By Other Agencies

- a. Any other works undertaken at the same time by the Engineer direct or through some other agency at the same time or section where the contractor is carrying out his work will not entitle the contractor to prefer any claim regarding any delays or hindrances he may have to face on this account but the Employer shall grant a reasonable extension of time to the contractor. The contractor shall comply with any instruction which may be given to him by the Employer in order to permit simultaneous execution of his own works and those undertaken by other contractors or the DFCCIL without being entitled on this account on any extra charge.
- b. The contractor shall not be entitled to any extra payment due to hindrance resulting from normal Railway operations, such as delay on account of adequate number of and duration of blocks not being granted, operational delay in movement of work trains extension of time to the contractor.
- c. In the course of checking/finalizing of layout plans and general arrangement drawings for modified Transmission line, the contractor shall prepare a list of infringements if any exist, and advise the employer in time.

1.2.15 Infringement of patents

- a) The Contractor is forbidden to use any patents or registered drawings, process or pattern in fulfilling his contract without the previous consent in writing of the owner of such patent, drawing, pattern or trade mark, except where these are specified by the Employer himself. Royalties where payable for the use of such patented processes, registered drawings or patterns shall be borne exclusively by the Contractor. The contractor shall advise the Employer of any proprietary right that may exist on such processed drawings or patterns which he may use of his own accord.
- b) In the case of patent taken out by the Contractor of the drawings or patterns registered by him, or of those patents, drawings, or patents for which he holds a licence, the signing of the Contract automatically gives the Employer the right to repair by himself the purchased articles covered by the patent or by any person or body chosen by him and to obtain from any sources he desires the component parts required by him in carrying out the repair work. In the event of infringement of any patent rights due to above action of the Employer, he shall be entitled to claim damages from the contractor on the grounds of any loss of any nature which he may suffer e.g. in the case of attachment because of counterfeiting.
- c) **Indemnification by contractor.** – In the event of any claim or demand being made or action being brought against the Employer for infringement of later patent in respect of any equipment, machine, plant, work or thing used or supplied by the Contractor under this contract or in respect of any methods of using or working by the Employer of such equipment machine, plant work or thing, the contractor shall indemnify the employer and keep him indemnified and harmless against all claims, costs, charges and expenses arising from or incurred by reason of such claim provided that the Employer shall notify the contractor immediately any claim is made and that the contractor shall be at liberty, if he so desires with the assistance of the Employer if required but at the Contractor's expense, to conduct all negotiations for the settlement of the same or any litigation that may arise there from and provided that no such equipment, machine, plant work or thing, shall be used by the Employer for any purpose or in any manner other than that for which they have been supplied by the Contractor and specified under this contract.

1.2.16 Insurance:

- a) The contractor shall take out and keep in force a policy or policies of insurance against all liabilities of the contractor or the employer at common law or under any status in respect of accidents to person who shall be employed by the contractor in or about the site of the contractors office for the purpose of carrying out the works on the site. The contractor shall also take out and keep in force a policy or policies of insurance against all recognized risks to their offices and depots. Such insurance shall in all respects be to the approval of the Employer and if he so requires in his name.

b) Insurance of man, materials and installations.

The contractor shall take out and keep in force a policy or policies of insurance against all liabilities of the contractor or the Employer at common law or under any statute in respect of accidents to persons till installation are provisionally handed over to the employer. For this purpose the installation in a section shall be deemed to have been provisionally handed over when provisional acceptance certificate is issued for the section or the installation in the section or commissioned or on the expiry of three months after installation are given ready in all respect for handing over, whichever is earlier, for commercial use. The contractor shall not be liable for losses or damages to equipments erected, in the course of erection or in stores at the contractor's depot in consequence of mutiny or other similar causes over which the contractor has no control and which cannot be insured, such losses or damages shall, if required by the employer, be made good by the contractor at the cost of the employer.

- c) The contractor should, however, insure the materials brought to site against risks in consequence of war and invasion as required under the emergency risks (goods) Insurance Act 1962 from time to time.

1.2.17 Accident

- a. The contractor shall, in respect of all staff engaged by him or by his sub-contractor, indemnify and keep the employer at all times indemnified and protected against all claims made and liabilities incurred under Workman's Compensation Act, the Factories Act and the Payment of Wages Act, and rules made thereunder from time to time or under any other labour and Industrial Legislation made from time to time.
- b. The contractor shall indemnify and keep the employer indemnified and harmless against all actions, suits, claim demands, costs, charges or expenses arising in connection with any death or injury sustained by any person or persons sustained due to the acts or omission of the contractor, his sub-contractors, his agents or his staff during the executions of this contract irrespective of whether such liability arises under the Workman's Compensation Act, or Fatal Accident Act or any other statute in force for the time being.
- c. The contractor's liability to meet third party claims of the type outlined above will be applicable only in cases where accidents have been caused by bad design, workmanship, material or negligence on the part of the contractor and further the liability of the contractor will be limited to Rs.5 lakh for any one accident.
- d. The contractor shall be responsible for all repairs and rectification of damages to traction installations erected or under erection due to Railway accidents, thefts, pilferage or any other cause, without delay to minimize or to avoid traffic detentions, in a section until the installation are provisionally handed over to the employer.

1.2.18 Safety measures –

- a) The contractor shall take all precautionary measures in order to ensure the protection of his own personnel moving about or working on the railway premises, but shall then conform to the rules and regulations of the Rly if and when, in the course of the work there is likely to be any danger to persons in the employment of the contractor due to running traffic while working in the Rly siding and premises, the contractor shall provide flagman or look out men for protection of such persons. . The employer shall remain indemnified by the contractor in the event of any accident occurring in the normal course of work, arising out of the failure of contractor or his men to exercise reasonable precaution at all places of work..
- b) Blasting of rocks for foundation work shall be done only after due notice is given to the employer and time/s and date /s for blasting operations agreed to by the employer . Blasting , if required to be done in the vicinity of the track, shall not be undertaken until the Employer's flagmen on duty take necessary step to protect trains and the track is adequately protected by the contractor against damage by blasted rock .The contractor shall follow detailed instructions which will be issued to him regarding blasting operations in the vicinity of tracks.
- c) The contractor shall abide by all Railway regulations in force for the time being and ensure that the same are followed by his representatives, Agents or sub-contractors or workmen. He shall give due notice to his employees and workers about provision of this para.
- d) The works must be carried out most carefully without any infringement of the Indian Railway Act or the General and Subsidiary Rules in force on the Railway, in such a way that they do not hinder Railway operation or affect the proper functioning of or damage any Railway equipment, structure or rolling stock except as agreed to by the employer, provided that all damage and disfiguration caused by the contractor at his own cost failing which cost of such repairs shall be recovered from the contractor.
- e) If safety of track or track drainage etc. is affected as a consequence of works undertaken by the contractor, the contractor shall take immediate steps to restore normal conditions. In case of delay, the employer shall, after giving due notice to the contractor in writing, take necessary steps and recover the costs from the contractor.
- f) The contractor shall be responsible for safe custody of all equipments till provisional acceptance.
- g) **Deleted**

1.2.19 Deleted

1.2.20 Provisional Acceptance:

- a) Immediately after completion of works at or in a section , the Contractor shall certify and advise the Employer in writing that the section is/are (i) complete (ii) ready for satisfactory commercial service and (iii) ready to be handed over. He will also place at the disposal of the Employer the required staff for checking it and putting it into operation.
- b) The test or tests as stipulated in Part-II, Chapter VII of the specification in connection with the taking over by the Employer of the equipment and installations shall be carried out jointly by the Employer and the contractor within a month after the receipt of the contractor's notifications, as stated in sub-para/s above.
- c) After inspection and satisfactory conclusion of tests and when the employer is satisfied with the satisfactory working of the installations he will issue a 'Provisional Acceptance Certificate' which would be signed by both the parties. The Provisional Acceptance Certificate will not be withheld for any minor defects.
- d) Should the result/s of inspection and the test/s be not satisfactory, an extension of one month will be granted to the contractor to make good the defects and deficiencies pointed out by the Employer. Fresh inspection and test will then be carried out after the contractor has attended to the defects and deficiencies. If these tests are also not satisfactory, the Employer may proceed at the contractor's expenses by all means deemed expedient, to have the installation made satisfactory until they comply with the specifications and approved drawings and designs.
- e) In such a case, or in case of delay in completing the work under this contract within the time limit, the Employer reserves the right if he deems it possible to use in a reasonable manner any section or any part of the section even if some installations of the section are not completely erected. The Employer will give to the contractor for this purpose seven days previous notice. The contractor shall then take at his own expenses all necessary steps to complete the works in accordance with, the provisions of the contract. In case it becomes impossible to proceed with the above mentioned taking over tests, for reasons other than for which the contractor is responsible, the "Provisional Acceptance Certificate" shall be issued at or within a mutually agreed reasonable period not exceeding three months after completion of the relevant sections as indicated in sub-para/s above.

NOTE

1. Provisional Acceptance Certificate for each crossing Modification will be issued immediately after all tests) are completed to the satisfaction of the engineer. Should the employer be unable to complete the tests and energisation of the line within a reasonable time which shall not exceed 1 month from the date of contractor's notification, the issue of provisional Acceptance Certificate shall not be delayed and shall be issued within a maximum time of 3 months after notification has been issued.

2. The issue of Provisional Acceptance Certificate shall not be withheld for rectification of minor defects which may reasonably be considered not essential for energisation and operation of installation. In such cases, only the value of materials and cost of rectification of minor defects shall be withheld from the payments of Provisional Acceptance until rectification is completed.

1.2.21 Defective equipment to be changed

- a) Notwithstanding the issue of Provisional Acceptance Certificate and partial or full use of any equipment, if the completed equipment or any portion thereof before it is finally taken over at the end of the guarantee period be found to be or to have become defective in course of usage by the DFCCIL due to faulty material, design or workmanship, or otherwise fails to fulfill the requirement of the Contract and/or its purpose, the Employer shall normally give the Contractor prompt notice setting forth the particulars of each defects or failure and the Contractor shall forthwith make the defects good or modify or replace the equipment, as may be directed by the Employer's Engineer, at his own cost in all respects to make it comply satisfactorily with the said requirements. Should the Contractor fail to do within a reasonable time the service of the said notice upon him or should time not permit of service of such notice, the Employer may repair or reject and replace the whole or part of such defective equipment as the case may be, at the cost of the Contractor. The Contractor's full liability under this clause shall be satisfied by the payment to the Employer of the extra total cost, if any, of such replacement delivered and erected as provided for in the original Contract, such extra cost being the ascertained difference between the price paid by the Employer under the provisions above mentioned for such replacement and the Contractor's price for the plant so replaced, plus the sum, if any, paid by the Employer to the Contractor in respect of such defective equipment. Should the Employer not so replace the rejected equipment within a reasonable time, the Contractor's liability under this clause shall be satisfied by the repayment by the Contractor of all moneys paid by the Employer to him in respect of such rejected equipment. Rejected/defective materials shall be returned to the Contractor to the extent possible.
- (b) Provisions of this para will apply only in respect of the equipments and components supplied by the Contractor or his sub-Contractor.

1.2.22 Use of Rejected Equipments –

In the event of such rejection as aforesaid, the employer shall, without prejudice to his other rights and remedies and, in particular, without prejudice to his rights under the clause just preceding, be entitled to the use of the rejected equipment for a time reasonably sufficient to enable him to obtain other replacement equipment. During such period, if the rejected equipment is used commercially, the contractor shall not be entitled to the payment on energisation until such rejected equipment is rectified and/or

replaced, but the Employer shall not be entitled to claim any damages arising out of rejected equipment in respect of such period.

1.2.23 Guarantee/defect liability period: –

- a) The Contractor shall guarantee that all the equipments and works executed under this contract shall be free from all defects and faults in material, design, workmanship and manufacture and shall be of acceptable standards for the contracted work and in full conformity with the technical specifications, drawings and other contract stipulations, **for a period of 18 months from the date of Provisional Acceptance by the Employer**
- b) During the period of guarantee the Contractor shall keep available an experienced engineer/ man power and necessary equipment to attend to any defective installations resulting from defective erection and/or defects in the equipment supplied by the Contractor. This engineer shall not attend to rectification of defects which arise out of normal wear and tear and come within the purview of routine maintenance work. The contractor shall bear the cost of modifications, additions or substitutions that may be considered necessary due to faulty materials, design or workmanship for the satisfactory working of the equipment. The final decision shall rest with the General Manager/ or his successor(s)/Nominee.
- c) During the period of Guarantee the Contractor shall be liable for the replacement at site of any parts which may be found defective in the equipment whether such equipment be of his own manufacture or those of his sub-contractor whether arising from faulty design, materials, workmanship or negligence in any manner on the part of the Contractor provided always that such defective parts as are not repairable at site are promptly returned to the Contractor if so required by him at his (Contractor's) own expenses. In case of type defects in Contractor's equipment and components detected during guarantee period, contractor should replace all such items irrespective of the fact whether all such items have failed or not. The Contractor shall bear the cost of repairs carried out on his behalf by the Employer at site. In such a case, the contractor shall be informed in advance of the works proposed to be carried out by the Employer.
- d) If it becomes necessary for the Contractor to replace or renew any defective portion of the equipment under the para aforesaid then the provision of the said para shall also apply to the portions of the equipment so replaced or renewed until the expiration of six month from the date of such replacement or renewal or until the end of the above mentioned period whichever is later. Such extension shall not apply in case of defects of a minor nature, the decision of the General Manager/ Electrical /EC or his successor/nominee being final in the matter. If any defect be not remedied within a reasonable time during the aforesaid period the Employer may proceed to do work at the Contractor's risk and expense, but without prejudice to any

other rights and remedies which the Employer may have against the Contractor in respect of such defects or faults.

- e) The repaired or renewal parts shall be delivered and erected on site free of charge to the employer.
- f) Any materials, fittings, components or equipments supplied under 1.1.17 of GCC shall also be covered by the provisions of this paragraph. The liability of the Contractor under the guarantee will be limited to re-supply of equipments, components and fittings made under 1.1.17. of GCC Such re-supply shall be effected at the Contractor's depot or, in the event of closure of the depot, at the stores depot of the Engineer-in-charge of maintenance of the section covered by the contract.

1.2.24 Final Acceptance

- (a) The final acceptance of the entire equipment installed on the Group shall take effect from the date of expiry of the period of guarantee as defined in paragraph 1.2.23 of the expiry of the last of the respective periods of guarantee of various sections for which provisional Acceptance Certificates are issued or brought into commercial operation, provided in any case that the Contractor has complied fully with his obligations under clause 1.2.23 in respect of each section of the Group, provided also that the attention has been paid by way of maintenance by the Employer.
- (b) If on the other hand the contractor has not so complied with his obligation under para 1.2.23 in respect of any section, the Employer may either extend the period of guarantee in respect of that section until the necessary works are carried out by the Contractor or carry out those works or being them carried out suo moto on behalf of the Contractor at the Contractor's expenses. After expiry of the period of guarantee for each section, a certificate of final acceptance for the section shall be issued by the Employer and the last of such certificate will be called the last and final acceptance certificate. The contract shall not be considered as completed until the issue of final acceptance certificate by the Employer.
- (c) The Employer shall not be liable to the Contractor for any matter arising out of or in connection with the contract or execution of the work unless the Contractor shall have made a claim in writing in respect thereof before the issue of final acceptance certificate under this clause.
Notwithstanding the issue of final acceptance certificate the Contractor and the Employer (subject to sub-clause as above) shall remain liable for fulfillment of any obligation incurred under the provision of the contract prior to the issue of final acceptance certificate which remains unperformed at the time such certificate is issued and for determining the nature and extent of such obligation the contract shall be deemed to remain in force between the parties hereto.

1.2.25 Payment

Payment will be governed by the terms specified in Part-I, Chapter III and in accordance with accepted schedule of prices, read with relevant para of the other parts and Chapters of the Tender Papers. The employer retains the right to withhold money due to the contractor arising out of this contract for any default of the contractor from other contracts which the contractor may have with the Government of India.

- i) The Contractor shall, whenever required, produce or cause to be produced for examination by the Employer any quotation/invoice, cost of other account, book of account, voucher, receipt letter, memorandum paper or writing or any copy of or extract from any such document and also furnish information and returns verified in such manner as may be required in anyway relating to the execution of this contract or relevant for verifying or ascertaining the cost of the execution of this Contract (the decision of the employer on the question of relevancy of any documents, information or return being final and binding on the parties). The Contractor shall similarly produce vouchers etc., if required, to prove to the Employer that materials supplied by him are in accordance with the specifications laid down in the contract.
- ii) If any portion of the work be carried out by a sub-contractor or any subsidiary or allied firm or company the Employer shall have power to secure the books of such sub-contractor or any subsidiary or allied firm or company, through the Contractor, and such books shall be open to his inspection. The Contractor should seek prior permission from the employer for subletting whole and/or part of the work to any sub-contractor.
- iii) The obligations imposed by sub-clause (i) and (ii) above are without prejudice to the obligation of the Contractor under any statute, rules or order binding to the Contractor or other conditions of the contract.
- iv) It is an agreed term of the contract that the employer reserves the right to carry out post-payment Audit and/or technical examination of the works and the final bill, including all supporting vouchers, abstracts etc. and to make a claim on the Contractor for the refund of any excess amount paid to him if as a result of such examination any over payment to him is discovered to have been made in respect of any work done or alleged to have been done by him under the contract.

1.2.26 All payments in respect of the contract during the currency of the contract shall be made through Electronic clearing system (ECS)/Electronic funds transfer (EFT). The successful tenderer on award of contract must submit ECS/EFT Mandate Form complete in all respects as detailed at Form-16 of the tender document. However, if the facility of ECS/EFT is not available at a particular location, the payments shall be made by cheque.

1.2.27 Variation in contract quantities–

1. All individual items in this contract shall be operated with variation of plus or minus 25% and payment would be made as per the agreement rate. For this, no finance concurrence would be required.
2. In case increase in quantity of an individual item by more than 25% of the agreement quantity is considered unavoidable, the same shall be got executed by floating a fresh tender. If floating a fresh tender for operating that item is considered not practicable, quantity of that item will be operated in excess of 125% of the agreement quantity subject to the following conditions.
 - a) Operation of an item by more than 125% of the agreement quantity needs the approval of an officer of the rank not less than GM/CPM.
 - (i) Quantities operated in excess of 125% but upto 140% of the agreement quantity of the concerned item, shall be paid at 98% of the rate awarded for that item in that particular tender.
 - (ii) Quantities operated in excess of 140% but upto 150% of the agreement quantity of the concerned item shall be paid at 96% of the rate awarded for that item in that particular tender.
 - (iii) Variation in individual items beyond 150% will be prohibited and would be permitted only in exceptional unavoidable circumstances with the concurrence of associate finance and shall be paid at 96% of the rate awarded for that item in that particular tender.
 - b) The variation in quantities as per the above formula will apply only to the Individual items of the contract and not on the overall contract value.
 - c) Execution of quantities beyond 150% of the overall agreemental value should not be permitted and if found necessary, should be only through fresh tenders or by negotiating with existing contractor.
3. In cases where decrease is involved during execution of contract:
 - (a) The contract signing authority can decrease the items upto 25% of individual item without finance concurrence.
 - (b) For decrease beyond 25% for individual items or 25% of contract agreement value, the approval of an officer not less than rank of GM/CPM/DFCCIL may be taken, after obtaining 'No Claim Certificate' from the contractor and with finance concurrence, giving detailed reasons for each such decrease in the quantities.
 - (c) It should be certified that the work proposed to be reduced will not be required in the same work.

4. The limit for varying quantities for minor value items shall be 100% (as against 25% prescribed for other items). A minor value item for this purpose is defined as an item whose original agreement value is less than 1% of the total original agreement value.
5. No such quantity variation limit shall apply for foundation items.

1.2.28 Performance Guarantee

- (a) On acceptance of tender, the successful tenderer is required to submit a **Performance Guarantee (PG)** within 30 days(thirty) from the date of issue of letter of acceptance (LOA). Extension of time for submission of PG beyond 30(thirty) days and up to 60 days from the date of issue of LOA may be given by the Authority who is competent to sign the contract agreement. However, a penal interest of 15% per annum shall be charged for the delay beyond 30 days (Thirty), i.e., from 31st day after the date of issue of LOA., In case the contractor fails to submit the requisite PG even after 60 days from the date of issue of LOA, the contract shall be terminated duly forfeiting EMD and other dues, if any payable against that contract. The failed contractor shall be debarred from participating in re-tender for the work. This guarantee shall be initially valid up to the stipulated date of completion plus 60 days beyond that. In case, the time for completion of work gets extended, the contractor shall get the validity of Performance Guarantee extended to cover such extended time for completion of work plus 60 days.
- (b) The successful bidder shall submit a Performance Guarantee (PG) in **the form of irrevocable Bank Guarantee**, amounting to 5% of the contract value.

The instruments mentioned above should be in favor of **‘Dedicated Freight Corridor Corporation of India Ltd. NEW DELHI.’**

- (a) The Performance Guarantee (PG) shall be released after the physical completion of the work based on the “Completion Certificate” issued by the competent authority stating that the contractor has completed the work in all respects satisfactorily. The security deposit, however, shall be released only after the expiry of the maintenance period and after passing the final bill based on “No Claim Certificate.”
- (b) Wherever the contract is rescinded, the security deposit shall be forfeited and the Performance Guarantee shall be encashed and the balance work shall be got done independently without risk and cost. The failed contractor shall be debarred from participating in the tender for executing the balance work. If the failed contractor is a JV or a partnership firm, then every member/partner of such a firm shall 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.

- (c) The Employer shall not make a claim under the Performance Guarantee except for amounts to which the employer is entitled under the contract (not withstanding and/or without prejudice to any other provisions in the contract agreement) in the event of:
- (i) Failure by the contractor to extend the validity of the Performance Guarantee as described herein above, in which event the Engineer may claim the full amount of the Performance Guarantee.
 - (ii) Failure by the contractor to pay DFCCIL amount due, either agreed by the contractor or determined under any of the Clauses/Conditions of the agreement, within 30 days of the service of notice to this effect by Engineer.
 - (iii) The contract being determined or rescinded under provision of the GCC the Performance Guarantee shall be forfeited in full and shall be absolutely at the disposal of the DFCCIL.
- (d) The value of PG to be submitted by the contractor will not change for variation upto 25% (either increase or decrease). In case during the course of execution, value of the contract increases by more than 25% of the original contract value, an additional Performance Guarantee amounting to 5% (five percent) for the excess value over the original contract value shall be deposited by the contractor".

1.2.29 “Clause 55-B to GCC: Provision of Employees Provident Fund and Miscellaneous Provisions Act, 1952.

The contractor shall comply with the provisions of Para 30 & 36-B of the Employees Provident Fund Scheme, 1952; Para 3 & 4 of Employees’ Pension Scheme, 1995; and Para 7 & 8 of Employees Deposit Linked Insurance Scheme, 1976; as modified from time to time through enactment of ‘Employees Provident Fund & Miscellaneous Provisions Act, 1952, wherever applicable and shall also indemnify the Railway from and against any claims under the aforesaid Act and the Rules’

1.2.30 Arbitration:-

Unless settled amicably, any dispute in respect of which the recommendations (if any) of conciliation has not become final and binding shall be finally decided by reference to arbitration by a Board of Arbitrators appointed in accordance with sub-clause (i) below. Such arbitration shall be held in accordance with the Indian Arbitration and Reconciliation Act, 1996. The seat of such arbitration shall be New Delhi, and the language of arbitration proceedings shall be English.

- i) For value of claims upto 1.5 crore a sole arbitrator shall be appointed out of a panel of arbitrators. For claims above Rs.1.5 crore, the arbitral tribunal will comprise three Members, one each to be appointed by

DFCCIL and the contractor. The Third member, who will also act as the presiding member, will be appointed by mutual consent of the first two members. If these two members fail to reach an agreement on the third member then, on request by either or both parties, appointment will be made by the Managing Director/DFCCIL.

PART-I**CHAPTER - III****PRICE AND PAYMENT****1.3.1 Scope**

This chapter deals with prices to be paid for supply and/or erection of various items of work or for supplies and other amounts payable in accordance with accepted schedule of prices and rates and terms and conditions of payment mentioned herein. This is a works contract. The total prices for the completed items of work are the actual prices payable to the contractor as per the terms and conditions of the contract.

1.3.2 Schedule of Prices**(a) (i) Prices for items**

The rates given against various items of work in Schedule-1 (Form-5) of the tender papers are the Schedule of Prices. The tenderers are required to quote **SINGLE** percentage below/at par/above against Schedule of Prices. while quoting the summary of prices (Form-4). The actual payment to be made against any item of Schedule-1, shall be derived after loading the Schedule of Prices with the tenderer's quoted percentage. The prices so obtained shall be the prices for the various items of work given in schedule-1.

(ii) Non-Schedule Items

--DELETED--

(iii) All prices as above shall be FIRM irrespective of minor variations in basic quantities and use of alternative types of various components and fittings approved by the employer. Minor changes in the basis designs shall not affect unit prices, so long as such changes are mutually agreed to by the employer and the contractor. The prices shall be for material and erection /execution and for a complete job .

(b) Other Price Adjustment -**(i) Unit Prices for Materials**

The prices offered in tender shall include all Taxes, Duties and levies (including Octroi etc.) applicable on this works contract. Therefore, they should quote their prices taking into account, the rate of taxes as leviable in the event of sale through works contract to the Central Government

Organization in that state. The prices shall also include provision for losses and wastage in transit and erection.

(ii) For Erection

The prices offered in tender shall include cost of erection and testing to be done by the Contractor to the extent indicated in Part-II, Chapter VII and also cover all cost of administration of the contract, insurance premia, bankers' charges for guarantees, cost of stamps, cost of storage, loading, unloading and handling of materials, and for any road transport which the Contractor may use for carriage of materials between his depot and depot/s and site of work. The unit prices shall include cost of works and adjustments necessary to be done by the contractor during or after the tests carried out by the employer as per tender conditions.

(c) (i) Price Variation on Material

PRICE VARIATION CLAUSES:

1.3.2.1 The percentage component of various items (other than items mentioned in Para 1.3.2.4) in the contract on which variation in prices shall be admissible shall be as under :

	Other works contract with provision of separate PVC clause for steel.
Labour component	30%
Other material component	40%
Fuel component	15%
Fixed component	15%

1.3.2.2 No price variation will be admissible on fixed component.

1.3.2.3 Price Variation for items other than mentioned in 1.3.2.4 below:

The amount of variation in prices (increase / decrease) in the several components (labour, material etc.) other than steel shall be worked out by the following formulae:

$$i) L = R \times \frac{(I-I_0)}{I_0} \times \frac{P}{100}$$

$$ii) M = R \times \frac{(W-W_0)}{W_0} \times \frac{Q}{100}$$

$$iii) U = R \times \frac{(F-F_0)}{F_0} \times \frac{Z}{100}$$

L- Amount of price variation in labour.

- M- Amount of price variation in material.
 U. Amount of price variation in fuel.
- R- Gross value of the work done by the contractor (other than Supply of items 2b and 3 of SOR) as per on account bill
- Io - Consumer price index number for industrial workers- All India-published in RBI bulletin for the base period.
- I - Consumer Price Index Number for industrial workers -All India- Published in RBI bulletin for the average Price Index of the three months of the quarter under consideration.
- W_O- Index Number of wholesale prices – By groups and sub groups-All commodities-As published in the RBI Bulletin for the base period
- W- Index Number of wholesale prices – By Groups and sub Groups- All commodities as published in the RBI Bulletin for the average Price Index of the three months of the quarter under consideration.
- F_O – Index Number. of wholesale prices – By Groups and sub Groups for fuel, power, light and lubricants as published in the RBI Bulletin for the base period
- F- Index Number of wholesale prices – By Groups and sub Groups for fuel, power, light and lubricants as published in the RBI Bulletin for the average Price Index of the three months of the quarter under consideration.
- P- % of labour component
 Q- % of Material component
 Z- % of Fuel component

Note

- (1) The Index Number. for the base period will be the Index Number. as obtained for the month of opening of the tender and the quarter will commence from the month following the month of opening of tender. If the rates quoted in negotiated tenders are accepted, the base month for PVC will be month in which Negotiations are held.

1.3.2.4 Price variation clause for steel.

The formula for calculating the amount of variation on account of variations in prices of fabricated steel for supply in item no. 3 of schedule -1 shall be as indicated below :

$$M_s = Q(B_s - B_{s_0}) \text{ Where,}$$

M_s - Amount of price variation in fabricated steel payable/ recoverable.

Q - weight of steel in tones supplied by the contractor as per the on accounts bill for the Month under consideration.

B_s - SAIL's (Steel Authority of India Limited) ex- works/ex plant price plus excise duty there of (in rupees per tonne) for the relevant category of steel supplied by the contractor as prevailing rate on the first day of the month in which the steel was purchased by the contractor or as prevailing rate on the first day of the month in which the steel was brought to the site by contractor whichever is lower.

B_{s_0} - SAIL's Ex- works price plus excise duty there of (in rupees per tonne) for the relevant category of steel supplied by the contractor as prevailing ex-works/ex plant base price of steel per tone as available for the relevant category of steel to be taken as available on SAIL's website www.sail.co.in for the month of opening of tender .If the rates in negotiated tenders are accepted, this will be the month in which negotiations were held . In case there is no notification by SAIL for the month under consideration, the price of steel as notified in the last available month is to taken.

Note-

i) Relevant categories of steel for the purpose of operating the above price variation formula based on SAILS ex works price plus excise duty thereof are as under :

SN	Category of supplies	Category of steel produced by SAIL whose ex works price plus excise would be adopted to determined price variation.
1	Reinforcement bars and other rounds	TMT 8 mm IS 1786 Fe 415/Fe 500
2	All types and sizes of angles	Angle 65X65X6 mm IS 2062 E250 A SK
3	All types and sizes of plates	PM Plates above 10-20 mm IS 2062 E 250 A SK
4	All types and sizes of channels and joints	Channels 200x75 mm IS 2062 E250 A SK
5	Any other section of steel not covered in the above categories and excluding HTS	Average of price for the 3 categories covered under S.No. 1,2,3 above

Special Note

It is clearly indicated that price variation implies both increase as well decrease in input prices and therefore price variation during the

currency of the contract may result in extra payment or recovery as the case may be.

(d) **Quantities**

The approximate estimated quantities of various items of works are included in Annexure 2 of part –IV.

(e) **Explanatory Notes**

Explanatory notes for various items of work included in Schedule 1 are given in Part I, Chapter IV.

(f) **New items of work**

If during the execution of the work the Contractor is called upon to carry out any new item of work not included in Schedule-1, the Contractor shall execute such works at such prices as may be mutually agreed with the Employer before commencement.

1.3.3 Price of Equipments, Components, Materials and executions – The prices of each item shall include cost of material, labour, equipment, tools & plant, taxes, lead and lift and all other costs as a complete job for completion of item. The Works Contract tax, Sales tax, Excise duty, VAT, Octroi, Royalty, Toll tax, Levy, or any other tax, taxes/levied by the Central or State Govt. or local bodies, upto the last date of receipt of Tender shall be borne by the tenderer. No part of such taxes on contractor's labour/materials or any other amount will be paid by DFCCIL. This should be kept in view before tendering.

1.3.4 Price of Additional supplies - DELETED

1.3.5 Payments and recoveries –

70% of the item price (material cost for only supply portion) on receipt of materials at Site after successful inspection and duly certificated by Engineer's representative at manufacture works or at site of works.

Further payment of material & erection cost to cover 90% of the contract price on successful completion of inspection and due certification of installation and testing of all material including equipment by the Engineer/Engineer's representative.

Balance 10% payment shall be released after successful completion of work and certification by Engineer/Engineer's representative.

1.3.6 Invoicing procedure

- a) The contractor shall submit his invoicing procedure for approval by the Employer within 2 month from the date of receipt of Letter of Acceptance of Tender. Separate invoices shall be submitted for different types of payment mentioned above. All invoices shall be submitted with original supporting documents or certified true copies of supporting document wherever these are acceptable to the Engineer/Employer's representative. Where copies of original documents are required in support of several invoices, true certified copies of the original documents may be forwarded to Engineer, with his consent.
- b) Invoices shall be submitted only on the basis of agreed principles and prices, quantities and measurements of works completed shall be approved by the Employer's Engineer prior to the submission of invoices. For this purpose, the schedule of quantities and measurements submitted by the contractor for approval of the Employer's Engineer may be only upto the extent of work completed except in the case of payments on provisional acceptance.

1.3.7 On account payments -

'On Account' payment will be made for equipment, components, fittings and materials required for the execution of work as per para 1.3.5. All 'On Account' payment shall be covered by a standing indemnity bond in the approved Form(Form -12).

NOTE:-All the invoices should be accompanied by the following:-

1. Supplier's challans
2. Inspection Certificate granted by the Employer' representative
3. Certificate of receipt of materials at Contractor's Depot duly accepted by the Employer's Engineer
4. Certificate that the stores have been insured
5. Quality assurance documents

1.3.8 Recoveries from the Contractor
-- Deleted--**1.3.9 Progress payments for supply and erection (General) – As per para 1.3.5****1.3.10 Payment for additional supplies**

Deleted

1.3.11 Income Tax, W/C Tax & Excise duty .

- (a) TDS as applicable will be deducted.
- (b) All taxes, duties & levies (including Octroi etc.) arising out of the transactions between the contractor and his sub-contractors/Suppliers for this work will be included in the rates quoted by the contractor in the relevant schedule.
- (c) Wherever the law makes it statutory for the employer to deduct any amount towards Sales Tax or works contract, the same will be deducted and deposited with the concerned authority.

1.3.12 Payment on Provisional Acceptance. - DELETED

1.3.13 Payments for surplus Materials –

Deleted.

1.3.14 Final settlement -

Deleted.

1.3.15 Measurements

- (a) Payment for field work shall be made in accordance with approved designs and drawings and measured in relevant units except where provided for otherwise. In case the dimensions of the work are more than those shown in approved designs and drawings, the contractor will not be entitled to any extra payment, unless dimensions were increased on account of physical impossibility of carrying out the work in accordance with approved drawings and designs. In case the dimensions of work are less than those shown in the approved designs and drawings and the work is accepted without being rejected, payment will be made as per work actually done.
- (b) The measurements will be made generally in accordance with standard engineering practice and in conformity with the explanatory Notes for Schedule - 1 (Part I, Chapter IV.)

1.3.16 Mobilization Advance:

- i) An interest bearing mobilization advance shall be paid to the bidder exclusively for the costs of mobilization at ten percent of contract price on the provision by the bidder of an unconditional bank guarantee of 110 % of

- the sanctioned advance amount on prescribed format. The Bank guarantee shall be from a nationalized Bank in India or any Scheduled Bank in India.
- ii) Such bank guarantees shall remain effective until the advance payment has been fully recovered, but the amount thereof shall be progressively reduced by the amount repaid by the bidder, as indicated in the Interim Payment Certificates.
 - iii) This shall be limited to 10% of the contract value and payable in 2 stages as indicated below:
 - a) 5% of the contract value on signing of the contract agreement.
 - b) 5% on mobilization of site establishment, setting up offices, bringing in equipments and actual commencement of work.
 - iv) Another advance against machinery and equipments shall be limited to a maximum of 10% of the contract value against new machinery and equipments involving substantial outlay, brought at site and essentially required for the work. This advance shall not exceed 75% of the purchase price of such equipments and will be payable when hypothecated by a suitable bond or irrevocable bank guarantee of the amount specified in (i) above.
 - v) This advance as stated in (iv) above shall be subject to the conditions:
 - a) The bidder shall produce satisfactory proof of payment;
 - b) Such equipment are considered necessary by the Engineer for the works;
 - c) These equipments have been verified to have been brought to site;
 - d) The bidder gives an undertaking on stamp paper that the equipment will work only on that job and will not be removed from the site without obtaining written approval from the 'Engineer'; and
 - e) Bidder furnishes bank guarantee to cover the advance. No advance shall be admissible on equipments purchased under hire purchase scheme/financing arrangement or on hired equipments etc.
 - vi) The rate of interest shall be 4.5% per annum above the base rate of State Bank of India as effective on the date of approval of payment of Mobilization advance by the Competent Authority.
 - vii) The repayment of advances shall be done through percentage deductions from the interim payments. The time of commencement of repayment, rate of deductions from interim payments, and the time by which the advance should be fully repaid will be as specified in the contract.
 - viii) The advances shall be used by the bidder exclusively for mobilization expenditures, including the acquisition of construction related plant and equipment. Mobilization expenditures mentioned herein shall not include the margin money and bank commission etc. paid by the bidder for procurement of BGs against performance security and mobilization advance etc. Should the bidder misappropriate any portion of the advance e, it shall become due and payable immediately, and no further advance will be made to the bidder thereafter. In such cases the bidder shall also be liable for appropriate action under the contract.

1.3.17 Release of Security Deposit:

- (i) After issue of the certificate of acceptance of the entire installation, and after expiry of the guarantee period/Defect Liability Period, the DFCCIL shall release the Security Deposit submitted by the Contractor.
- (ii) The Security deposit shall, however, be liable to be forfeited in case of any breach by the contractor of any of the conditions of the contract for non-completion of the full contract without prejudice to other rights remedies of the employer whether specifically provided herein or otherwise.

XXXXX

**PART - I
CHAPTER – IV**

**EXPLANATORY NOTES OF SCHEDULE – I
SCHEDULE OF PRICES**

SECTION- I GENERAL

1.4.1 Explanatory notes for various items of work in schedule – I are given below:

1.4.2 a) Wherever an item of work covers supply of materials and/or erection, such include all bolts, nuts, locknuts, washers etc

b) The equipments and materials to be supplied by the contractor against various items should conform to relevant Specification.

1.4.3 Erection of any item of equipment, whether supplied by the contractor or by the employer will include proper connecting, testing, commissioning and bringing the equipment into operation in accordance with Part II, chapter VIII and chapter IX and to the satisfaction of the employer.

1.4.4 Special notes for measurements and Particulars (explanatory notes) are included in Section 2 of this chapter under various items, where necessary.

1.4.5 Reconciliation materials supplied by the employer.

--Deleted--

1.4.7 Released Material

The contractor shall return all the released material to the employer/Railway from the existing system at the first available opportunity but not later than two weeks at the Railway store at Jhansi . If the contractor fails to return the released material in specified time, the cost of released material will be recovered from the progress bill before releasing any payment.

PART- I**CHAPTER – IV: SECTION-2****PARTICULAR (Explanatory Note)****Item No. 1. Provision of Drg./Design & detailed survey of transmission line**

The price shall cover check survey of the entire line route on a flat rate basis per Kilometer of transmission line, check survey of the entire line route, preparation of drawings showing the longitudinal axis of the transmission line. The layout shall show the location and the type of towers and other relevant and necessary details as road, trees, rivers, overhead line crossings, Railway crossing etc. within 50 Mtrs on either side of the route and the distance of the transmission line from the DFCCIL/RAILWAY track and cover soil investigation and testing in an approved manner. The investigation shall generally be done as per IS:1498 (1970), IS:1988(1982), IS:2720(Part IV,V & VI). The price shall also include the preparation and submission of all drawings and design (wherever applicable) including completion drawings as specified under para 2.7.6, 2.7.8 and 2.7.10 Part II chapter VII as a complete job.

NOTE : For purpose of payment, the length of the transmission line shall be the sum of all spans.

Item No. 2(a) Design (wherever applicable) Erection/Execution of foundations for All types of towers.

The price shall cover on a per cum of concrete rate basis for ,foundations, supply and handling of all materials, excavation including shoring, shuttering and dewatering wherever required, grouting of stubs casting and curing of concrete including form work and back filling of the pits with excavated earth, benching and leveling of the site .with all contractors material, labour, tools and plants , lead and lift , dewatering as a complete job as per specifications and as directed by Employer's engineer . The price shall not include the cost of reinforcement and brick masonry revetment wherever required, which will be paid for separately under relevant items. Concrete to be used shall be **M-20 grade**. The price shall also include design where drawings are not available .

Item No. 2(b) Extra for supply and erection of reinforcement :

The price shall cover per tonne basis the cost of supply and erection, cutting, hooking bending, binding and placing in position for reinforcement rods for foundation with all contractors material, labour, tools and plants ,

lead and lift as a complete job as per specifications and as directed by Employer's engineer. The price shall be applicable for various types of foundations. The reinforcement shall be for Fe 415/Fe 500 grade as per IS 1786 .

Item No. 2(c) Supply and erection of brick masonry revetment :

The price shall cover per cubic metre basis the construction first class brick work in cement and sand in proportion 1:4 including all supplies with proper weep holes, ruled pointing on outer faces of wall and filling of earth up to the brick work level on the tower side with all contractors material, labour, tools and plants , lead and lift as a complete job as per specifications and as directed by Employer's engineer.

Note For Item 2(a) to 2(c)

1. Payment for foundation against item no. 2(a)) shall be on per cubic meter basis of concrete as a complete job .
2. The muff will be included as part of respective foundation.
3. For purpose of computation of volume of concrete for item 2(a) and 2(c) ,the volume of steel work, if any, embedded in foundation and muff shall be ignored.
4. Payment against item 2(a) and 2(c) shall be on the basis of design volume and that against item 2(b) shall be on the basis of design weight.

Item No. 3 : Design(whenever applicable) , fabrication, supply and erection of super structures, stubs and extensions etc. of All type of towers :

Super structures ,stubs and extensions : The price shall cover on per tonne basis the cost of structural steel, fabrication, galvanization and erection (including punching and tack welding etc.) of steel work for the superstructures , stubs and extensions of all types of the towers complete in all respects. The price shall include the cost of supply of bolts, U bolts and hangers etc. The price shall also include the cost of clearing, handling and transporting as required. with all contractors material, labour, tools and plants , lead and lift as a complete job as per specifications and as directed by Employer's engineer. The price also include for design where drawings are not available.

NOTE: For item no.3, payments will be made on the basis of design weight

Item No. 4 (a) (i) : Supply and erection of single earth electrode :

The price shall cover on a flat rate basis supply and erection of one earth electrode and code of practice for earthing as IS: 3043-1987 and also as shown in typical RDSO Drg. No. ETI/OHE/SK/107. The price shall also cover supply and erection of 50 mm x 6 mm steel flat painted with two coats of red oxide zinc chromate primer to IS:2074, CNSL based and furnish with two coat of bitumen 82/25 blows grade buried 600 mm below in ground

level as per para 2.1.13 part II chapter I & its connection to the structure and to the earth electrode. with all contractors material, labour, tools and plants , lead and lift , dewatering as a complete job as per specifications and as directed by Employer's engineer

Item No. 4(a) (ii) Extra for additional earth electrode.

The price shall cover on a flat rate basis supply and erection of an additional earth electrode including its inter-connection to the main earth electrode by means of 50 mm x6mm painted steel flat. with all contractors material, labour, tools and plants , lead and lift , dewatering as a complete job as per specifications and as directed by Employer's engineer

Item No. 5(a): Supply & erection of a Number Plate :

The price shall cover supply and erection of a number plate according to the typical RDSO Drg. No. ETI/OHE/SK/102. The price shall include galvanized small parts steel work if any, for fixing the number plate to the structure with all contractors material, labour, tools and plants , lead and lift as a complete job as per specifications and as directed by Employer's engineer. The material shall be purchased from RDSO/CORE approved firms.

Item No. 5(b) : Supply & erection of a Danger Plate :

The price shall cover supply and erection of danger plate according to the typical RDSO Drg. No. ETI/OHE/SK/104. The price shall include the galvanized small parts steel work, if any, for fixing the danger plate to the structure. with all contractors material, labour, tools and plants , lead and lift as a complete job as per specifications and as directed by Employer's engineer The material shall be purchased from RDSO/CORE approved firms.

Item No.5(c) : Supply and erection of a phase plate.

The price shall cover supply and erection of phase plate according to the typical RDSO Drg. No. ETI/OHE/SK/103. The price shall include the galvanized small parts steel work, if any, for fixing the phase plate to the structure. with all contractors material, labour, tools and plants , lead and lift as a complete job as per specifications and as directed by Employer's engineer The material shall be purchased from RDSO/CORE approved firm.

Item No. 5(d) : Supply and erection of circuit plate :

The price shall cover supply and erection of circuit plate according to the typical RDSO Drg. No. ETI/OHE/SK/105. The price shall include the cost of galvanized small parts steel work, if any, for fixing the plate to the structure with all contractors material, labour, tools and plants , lead and lift as a

complete job as per specifications and as directed by Employer's engineer. The material shall be purchased from RDSO/CORE approved firms.

Item No.6a : Supply and erection of anti climbing device for A to D type towers :

The price shall cover on a flat rate basis the supply and erection of an anti climbing device to be provided on A to D type towers as the case may be according to the typical RDSO Drg. No. /ETIOHE/SK/106. Anti climbing should be provided at a height of 3.60 Mtrs. from ground level. with all contractors material, labour, tools and plants , lead and lift as a complete job as per specifications and as directed by Employer's engineer

Item No.6b : Supply and erection of anti climbing device for Special type towers :

The price shall cover on a flat rate basis the supply and erection of an anti climbing device to be provided on special type towers as the case may be according to the typical RDSO Drg. No. /ETIOHE/SK/106. Anti climbing should be provided at a height of 3.60 Mtrs. from ground level. with all contractors material, labour, tools and plants , lead and lift as a complete job as per specifications and as directed by Employer's engineer

Item No. 7 : Supply and erection of bird guard :

The price shall cover supply and erection of bird guard for suspension point on the structure, according to the typical RDSO Drg. No. ETI/OHE/SK/101 with all contractors material, labour, tools and plants , lead and lift as a complete job as per specifications and as directed by Employer's engineer.

Item No. 8 (a) : Supply & erection of a 9 unit single suspension string :

The price shall cover supply and erection of 9 unit single suspension insulator string complete with all hardware including suspension clamp with all contractors material, labour, tools and plants , lead and lift as a complete job as per specifications and as directed by Employer's engineer.

Item No. 8(b) : Supply and erection of 9 unit duplicate suspension string :

The price shall cover supply and erection of 9 unit duplicate suspension insulator string complete with all hardware including suspension clamps with all contractors material, labour, tools and plants , lead and lift as a complete job as per specifications and as directed by Employer's engineer.

Item No. 9(a) : Supply & erection of a 10 unit single tension string :

The price shall cover supply and erection of 10 unit single tension insulator string complete with all hardware including dead end clamps for PANTHER Conductor with all contractors material, labour, tools and plants , lead and lift as a complete job as per specifications and as directed by Employer's engineer.

Item No. 9(b) : Supply and erection of 10 unit duplicate tension string :

The price shall cover supply and erection of 10 unit duplicate tension insulator string complete with all hardware including dead end clamps for PANTHER Conductor. with all contractors material, labour, tools and plants , lead and lift as a complete job as per specifications and as directed by Employer's engineer

Item No. 10(a) : Supply & Erection of Panther ACSR conductor for 3 phase double circuit transmission line including dismantling work if any :

The price shall cover on a flat rate basis supply & erection of 30/7/3.0 mm (130 Sq.mm) ACSR conductor "PANTHER" per Km. of 3 phase double circuit transmission line (comprising of six conductor). The price shall include stringing, tensioning, jointing clamping etc. of the conductor.

The price shall also cover the cost of connecting with existing 132 KV TR line with all contractors material, labour, tools and plants , lead and lift as a complete job as per specifications and as directed by Employer's engineer

Item No. 10(b) : Supply & erection of accessories ACSR PANTHER conductor for 3 phase double circuit transmission line.:

The price shall cover on a flat rate basis supply and erection of all accessories such as vibration dampers, mid span compression joints, repair sleeves, PG clamps, preformed armoured rods and any other fitting with all contractors material, labour, tools and plants , lead and lift as a complete job as per specifications and as directed by Employer's engineer s required for one Km of 3 phase double circuit transmission line. All conductor accessories shall conform to IS-2121 (1981)

NOTE : for item no. 10 (a&b)

1. The length of the line for purpose of payment shall be the sum of all span lengths as appearing in the profile drawing measured between center line of the of sub-station terminal gantries. No Deduction shall be made for strain assemblies nor shall any extra payment be made for jumper or extra conductors used on account of sag.
2. The payment for accessories shall be made per Km of TR line and no extra payment be made for any accessories lost/damaged during supply/erection.

Item No. 11(a) : Supply, erection & commissioning of Galvanised stranded steel of ground wire/Earth wire:

The price shall cover on a flat rate basis supply and erection per Km of transmission line of single ground wire consisting of stranded galvanized steel wire of size 7/3.15 mm conform to grade 3 of IS 2141. The price shall include stringing, tensioning, jointing and clamping of the ground wire. with all contractors material, labour, tools and plants , lead and lift as a complete job as per specifications and as directed by Employer's engineer.

Item No. 11(b) : Supply & erection of ground wire accessories :

The price shall cover on a flat rate basis for supply and erection per Km of transmission line of all ground wire accessories such as suspension clamps shall conform to IS 2486, tension clamps mid span compression joints etc. the price shall also cover supply and erection of flexible copper bonds of not less than 30 Sq.mm in area for connecting the ground wire to the tower as suspension points and suitable galvanized steel legs for connecting the ground wire to the tower at tension points with all contractors material, labour, tools and plants , lead and lift as a complete job as per specifications and as directed by Employer's engineer.

NOTE for item no. 11 :

In areas where two ground wires have been provided, the length to be considered for payment shall be twice of the length measured as per note of item no. 10 for concerned span.

Item No. 12 Supply and erection of 132 KV support insulator for jumper connection on gantries.

The price shall cover on a flat rate basis supply and erection of 132 KV support insulator complete with all fixing arrangements on gantry structure & arrangement for jumper connection by ACSR Panther conductor on either side of gantry. with all contractors material, labour, tools and plants , lead and lift as a complete job as per specifications and as directed by Employer's engineer

Item No. 13 Dismantling of 132 KV old TR Line towers.

The price shall cover Dismantling of 132 KV old TR Line towers along with all other materials and proper staking of thereof as per direction of Engineer. with all contractors material, labour, tools and plants , lead and lift as a complete job as per specifications and as directed by Employer's engineer

Item No. 14 Transportation of released material from site to Railway stores at Jhansi .

The price shall cover handling, leading, loading , ,unloading , stacking and transportation of released material from site to **Railway** stores at Jhansi as a complete job.

Item No. 15 Shifting of conductors and earth wire of existing Tr. Line to new Towers for connecting conductors and earth wire of newly erected Tr. Line to existing Tr. Line and their adjustments

The price covers all the shifting of conductors and earth wire from existing Transmission line to new towers and to adjust the same as per new conditions. with all contractors material, labour, tools and plants , lead and lift , dewatering , as a complete job as per specifications and as directed by Employer's engineer.

PART - II
CHAPTER – I
GENERAL SPECIFICATION

2.1.1 INTRODUCTION:

This part deals with general information and criteria for design, manufacture, supply, erection, testing and setting to work of the 132 KV, 3 phase, Double circuit transmission line Xings Modification work for DFC alignment in ALD Division over North Central Railway.

2.1.2 FUNCTION:

This part includes the particular specifications and general information of 132 KV, 3 Phase double circuit transmission line in connection with Modification of Xings infringing DFCC alignment in Allahabad Division over N.C. Railway .

2.1.3 ROUTE;

The locations requiring modification of 132KV transmission line of North Central Railway infringing DFC alignment are indicated in Part-IV Annexure-2-A.

The details collected through tentative survey of crossing profiles / line route ,can be collected on payment @200/-per plan from the corporate office of DFCCIL .

2.1.4 CLIMATIC DATA :

The climatic data pertaining to the area in which the transmission line crossing modification will be done are given in part-III.

2.1.5 TYPE OF CONSTRUCTION:

In the modification of crossings the 3 phase, double circuit, transmission line shall be constructed on self supporting lattical galvanised steel towers designed to carry the two circuits in vertical formation on cross-arm one below the other. A continuous ground wire shall be provided above the conductors such that the protective angle does not exceed 30 deg from the vertical.as per NCR Tower Design.

2.1.6 DESIGN PARTICULARS:

- (a) Normal ruling span and the structure height shall be determined by the tenderer for the most economical line const. according to the present day practice. The towers shall conform to the following parameters.

(A) Under Normal conditions:

The normal ruling span shall be 320 m

- i) Wind span:-Sum of the two half spans to the support under consideration. For normal horizontal spans this equal to normal ruling span.
- ii) Weight span: Horizontal distance between the lowest point of the conductors on the two spans adjacent to the tower. For design of structures , the span limits (in mts) given in following Table-2.1 shall prevail:

Table 2.1

S.N.	Tower Type	Normal Condition		Broken wire condition	
		Max.	Min.	Max.	Min.
1	A	525	200	315	100
2	B,C& D	525	0	315	200

B) Under broken wire conditions:

- i) Wind span: 0.6x Wind span under normal conditions.
- ii) Max. weight span: 0.6x weight span under normal conditions
- iii) Min. weight span: As per table above.

The tenderer shall, however, ensure that the design as per these parameters is suitable for all locations as per the route profile map of the section. Suitable increase in these parameters to suit requirements of route profile map will have to be done by the tenderer without any additional cost to the employer.

(b) Deleted.

(c) The minimum ground clearance shall be the following under maximum temperature conditions in still air :

- (i) 6.1 m in open route (at max. sag conditions i.e. max. temp. and still air.).
- (ii) 6.7 m at all roads and accessible places. In order to achieve above clearances , the height of tower shall be increased by providing 4% sag allowance to account for errors in stringing .
- (iii) 4.6 m between nearest live conductor and any other part of any fence, wall, building or other structure on which a person may stand, or against which a ladder may be placed.
- (iv) 3.0 m between the nearest conductor and other wires or guarding.
- (v) 4.6 m between the nearest conductor and any tree and hedge standing underneath or alongside the line.

(d) The minimum spacing between conductors shall be:

- (i) Vertical 4.00 m.
- (ii) Horizontal 7.00 m

(e) Minimum vertical clearance between the earth wire and the nearest power conductor shall not be less than 6.80 m.

- (f) Tension of earth wire & conductor shall be so coordinated that the sag of earth wire shall be atleast 10% less than that of power conductor under all temperature condition.
- (g) The conductors shall be ASCR of size 30/7/3.00 mm (PANTHER).
- (h) The ground wire shall be 7/3.15 mm galvanised steel wire of 60 Tonne quality.
- (i) Standard ball and socket type porcelain insulators of 280mm diameter with disc centre as 145 mm shall be used for suspension and tension strings. The number of discs in the suspension and the tension strings shall be as follows:

	<u>Suspension</u>	<u>Tension</u>
<u>Normal</u>	9	10
Approach Tower upto 1.5 Km from the sub-stn,	8	9

- j) Arcing fitting shall be provided as follow:-
- i) At both ends of each tension string.
 - ii) At both ends of each insulator string upto a distance of 1.5 Km on either side of the sub-stns. These arcing fittings shall be of the adjustable type.
- k) The temperature and wind pressure are specified in part-III.
- l) The pilot insulator strings consisting of 9 Nos. of disc insulators may be used at angle towers to restrict the swing of jumpers to maintain requisite clearances with tower members.

2.1.7 **ROAD CROSSING:**

At all important road crossings, the towers on either side shall be fitted with duplicate suspension or tension strings for each conductor. The ground clearance from the centre of the road to bottom conductor under maximum temperature and in still air shall be not less than 6.1 m even when this conductor is broken in the adjacent span. As for as possible the tower layout shall be planned in such a way that road lies at one end of the span.

2.1.8 **RAILWAY CROSSING:**

The Railway crossings shall be erected on C type towers on either side with duplicate tension insulator strings and shall be constructed in conformity with “ Regulations for Electrical Crossings for Railway Track-1987” or its latest version.

2.1.9 **RIVER CROSSING:**

Small rivers, streams, canals, etc. shall be crossed on standard towers. Special structures shall be provided for crossing large rivers with the approval of the Employer.

2.1.10 SAFETY FACTOR OF TOWERS AND FOUNDATIONS:a) **Normal conditions for Towers**

The towers shall be designed confirming to classification of loadings given in IS:802 (Pt. I/ sec. I) 1977 or IS:802 (Pt. I/ sec. I) 1995 i.e. climatic load(for reliability),failure containment loads (for safety requirements) Further designs shall be governed by limiting load criteria as specified in aforesaid specifications. All angle towers shall be checked for the anti-cascading load conditions laid in specifications.

The following broken wire conditions may be assumed in the design of towers:-

1	Single circuit towers	Any one phase of ground wire broken whichever is more stringent for a particular member
2	Double , Triple circuit and quadruple circuit towers	
(i)	Suspension towers	Any one phase of ground wire broken whichever is more stringent for a particular member
(ii)	Small and medium angle towers	Any two phases broken on the same side and same span or any one phase and one ground wire broken on the same side and same span whichever combination is more stringent for a particular member.
(iii)	Large angle tension towers/ dead end towers	Any Three phases broken on the same side and same span or any two of the phases and one ground wire broken on the same side and same span whichever combination constitutes the most stringent for a particular member.
3	Cross Arms	In all type of towers the power conductors supports and ground wire supports shall be designed for the broken wire conditions also.

b) **Broken wire conditions for Towers:-**

The minimum factor of safety based on crippling load of struts and the elastic limit of tension members with full wind pressure at 32 deg. C temperature and two-third wind pressure at minimum temperature which ever combination is more sever for particular member acting at right angle to the line on conductors, ground wire and tower with unbalanced horizontal

pull parallel to the lines due to conductors/ground wire broken in adjacent span as specified below, shall be 1.50 as per IS: 802.

The following broken wire conditions may be assumed in the design of towers:-

TR-Line towers

For line with Single conductor

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Tangent tower with suspension strings
(0 deg. To 2 deg.) 2 Small angle towers with tension strings
(3 deg. To 15 deg) 3 Medium angle towers with tension strings (15 deg. To 30 deg) 4 Large angle (30 deg to 60 dg) and dead end towers with tension strings. | <p>Any one power conductor broken or one ground-wire broken whichever is more stringent for a particular member.</p> <p>Any two of the power conductors broken on the same side and on the same span or any one of the power .</p> <p>Conductors and any one ground wire broken on the same span whichever combination is more stringent for a particular member.</p> <p>Three power conductors broken on the same side and on the same span or any two of the power conductors and anyone ground wire broken on the same span, which ever combination constitutes the most stringent, condition for a particular member.</p> |
|--|---|

II Cross Arms

In all type of towers, the power conductors supports and ground wire supports shall be designed for the broken wire conditions also.

c) **Normal conditions for foundations:-**

The minimum factor of safety against downward vertical or inclined loads on the ultimate bearing strength of earth, required under worst conditions i.e. with full wind acting at 32 deg. C temperature at right angles to the line on conductors, ground wire and towers shall be 2.50 . The minimum factor of safety against uplift loads for this condition shall be 1.50

d) **Broken wire condition for foundations:**

The minimum factor of safety against downward vertical or inclined loads on the ultimate bearing strength of earth, with full wind pressure acting at 32 deg. C temperature at right angle to the line on conductors ground wire and towers with unbalanced horizontal pull parallel to the line due to conductors/ground wire broken in adjacent span, shall be 1.5.

The minimum factor of safety for uplift loads with full wind pressure at right angles to the line on conductors/ground wire and towers, with unbalanced horizontal pull parallel to the line due to conductors broken in adjacent span shall be 1.5 .

The broken wire condition shall be the same as given under para 2.1.10 (b)

In the case of towers the wind pressure shall be calculated on 1.5 times the projected area of the members on the windward face.

In the case of conductors and ground wires the pressures given in Table - 2 of IS: 802 (Pt..I section - I)-1995/1977 shall be assumed as acting on the full projected area

(e) **Factor of safety for towers and foundations for river crossings:-**

The factors of safety for towers and foundations for major river crossing shall be as detailed below:

For Towers	The factor safety for anchor and suspension towers shall be not less than 2.50 under normal condition and 1.50 under broken wire condition.
For foundations	The factor of safety for foundation of anchor and suspension towers shall be not less than 3 under normal condition and 2 under broken wire condition.

The broken wire conditions shall be taken as follows:

For suspension towers	Ground wire or one power conductor of only one circuit broken to produce the maximum stress in the members.
For anchor towers	Ground wire and all the three conductors of one circuit broken on the same side.

2.1.11 FACTORS OF SAFETY OF CONDUCTORS AND GROUND WIRE:

The minimum factor of safety for conductors and ground wire shall be 2.0 based on their ultimate tensile strength, at (a) 32 deg. C temperature and maximum wind pressure and (b) minimum temperature and two-third of max. wind pressure as per IS: 802. In addition, the conductor tension at 32 deg. C without external load shall not exceed the following percentages of ultimate tensile strength of the conductors/ground wire:

(a) Initial unloaded tension	35%
------------------------------	-----

- (b) Final unloaded tension 25%

The ground wire and conductor tensions and sag shall be such that under no condition, the sag of ground wire shall exceed that of conductor.

2.1.12 CLEARNACE OF LIVE PARTS FROM STEEL WORK:

The following minimum clearances shall be provided between live parts and earthed tower or cross arm members:

- | | |
|--|--------|
| i) Suspension strings in still
air and when deflected by wind by
32 deg. C from the normal (vertical)
position of string. | 1.55 m |
| ii) Suspension strings when deflected
by wind by 60 deg. C from the normal
(vertical) position of the string. | 1.10 m |
| iii) Strain strings at strain towers. | 1.55 m |
| iv) Jumper connection at strain
towers when deflected by wind
upto 10 deg. C from the normal
(vertical) position. | 1.55 m |

The clearances shall be reckoned from extreme edges of the hardware. Higher clearances may be adopted to achieve a co-ordinated design.

2.1.13 EARTHING:

Each tower shall be earthed by connecting one of its legs to an earth electrode, consisting of a galvanised iron pipe 40 mm nominal bore about 3 m long driven into the ground not less than 4.00 m away from the nearest leg of the tower so that it is outside the resistance area of the tower itself. The connection shall be made by means of 50 x 6 mm mild steel flat painted with two coats of red oxide zinc chromate primer to IS: 2074, CNSL based and finished with two coats of bitumen 82/25 blown grade buried 600 mm below ground level.

The maximum tower footing resistance under worst conditions in dry weather shall be 10 ohms. Where necessary, multiple electrodes shall be used to lower the tower footing resistance.

In hard or rocky soil, where it is not possible to get the requisite minimum tower footing resistance with galvanised iron pipe earth electrode, crow foot counter poise earthing consisting of 7/3.15mm galvanised stranded steel wires with suitable lugs radiating away from the 4 tower legs and buried 600 mm, below ground level, shall be used. Typical earthing station is shown in the RDSO/ CORE drawing No. ETI/OHE/SK/107.

2.1.14 ANTICLIMBING DEVICE:

In order to prevent unauthorised persons from climbing the tower without the aid of a ladder or a special appliances, the towers shall be provided with a suitable anti climbing device at a height of 3.60 m from ground level. A typical anti climbing device is shown in RDSO/CORE Drawing No. ETI/OHE/SK/106. The Tenderer may, however, offer alternative designs in accordance with the latest transmission line practice. This can be used with the approval of Employer .

2.1.15 NUMBER, PHASE, DANGER & CIRCUIT PLATES :

Each tower shall be numbered serially commencing from the terminal tower at one end of the line. Number will be indicated by the employer to the contractor. Number plate of enamelled form shall be provided and fixed to each tower. Danger plates of enamelled iron shall be provided on 2 side faces of each tower. Circular enamelled disc red, yellow and blue shall be provided for phase indication on each type towers and on sub-stn. gantries. Circuit plates of approved design shall be provided on one of the transverse face of each tower.

The above plates other than phase plates shall be fixed at a height of approximately 4 metres from the ground. They shall conform to RDSO/CORE specification No. ETI/OHE/33 (2/73) and to Drawing Nos. ETI/OHE/SK/102, ETI/OHE/SK/103, ETI/OHE/SK/104 & ETI/OHE/SK/105. The letters, figures and conventional skull & bones of danger plates shall be in signal red on the front of the plate.

2.1.16 SCOPE OF WORK:

The transmission line crossing modification, when erected, shall be fully in accordance with the specification and functionally complete in all respects. All works required in this connection as per relevant IS and other specifications listed in para 2.1.18 shall be deemed to be part of the contract whether specifically stated or not in this specification.

Note:- please also refer para 2.8.8. of tender documents .

2.1.17 MATERIALS AND WORKMASHIP:

Unless otherwise specified, all materials shall be of the outdoor type, of the best quality and capable of satisfactory operation under tropical sun, atmospheric conditions and heavy rain.

2.1.18 COMPLIANCE WITH STANDARD SPECIFICATIONS:

(a) Unless otherwise specified, all materials shall conform to the requirements of the latest edition/revision of the following standard specifications:

- i) Indian standard (abbreviated as IS)
- ii) International Electro technical commission (abbreviated as IEC) publications.
- iii) British standard (abbreviated as BS)
- iv) RDSO/CORE specifications.

A list of important relevant specifications is given below:

SNO.	Description	Specifications
1	Structural steel (Standard Qty.)	IS: 2062-1999
2.	Hard-drawn stranded aluminium and steel cored aluminium conductor for overhead power transmission purposes.	IS: 398 (Pt. I) 1996
3.	Rolled brass plate sheet, strip & foil.	IS 410-1977
4.	Code of practice for plain and reinforced concrete	IS 456-1978
5.	Voltage and frequency for AC transmission and distribution systems.	IS12360-1988
6.	Aluminium and Aluminium alloy ingots and casting for general engineering purpose.	IS 617-1994
7	Specification for porcelain insulators for over head power lines with a nominal voltage greater than 33KV & above	IS: 731-1971
8	Code of practice for use of structural steel in general buildings construction	IS: 800-1984
9	Code of practice for use of structural steel in overhead transmission line towers Pt.I load and permissible stresses (Second revision)	IS 802(pt I)-1977/1995 (Part-1/sec-1)/1992(Part-1,Sec-2)
10	Code of practice for use of structural steel in overhead	IS 802 (Pt.II) 1978 & 1992.

	transmission line towers Pt.II fabrication galvanising inspection and packing.	
11.	Code of practice for use of structural steel in overhead transmission line towers Pt.III testing.	IS 802 (Pt.III)1978/ 1995
12	Code of practice for design installation and maint.of overhead power line.	IS 5613(Pt. 2/Sec. 2)-1985
13	Rolled steel beam, channel, & angle sec.	IS 808-1989
14	Structural steel (high tensile)	IS 8500-1991
15	Method of measurement of building and civil Engg. works:Part VIII steel work and iron work.	IS1200(Pt.VIII) 1993
16	General requirements for the supply of matallurgical materials.	IS1387-1993
17	Classification and identification of soils for general engineering purpose.	IS1498-1970
18	Schedule for wrought steels for general engg. purple.	IS1786-1985
19	Electroplated coatings of Zinc on iron and steel	IS 1573-1986
20	Reels and drums for bare wire	IS 1778-1980
21	Rolling and cutting tolerances for hot-rolled steel products	IS 1852-1985
22	Electrotechnical vacabulary	IS 1885(pt.77)-1993
23	Method of load tests on soils	IS 1888-1982
24	Carbon steel forgings for general engineering purpose	IS 2004-1991
25	Plain washers	IS 2016-1967
26	Blackheart malleable iron castings	IS-14329-1995
27	Fittings for aluminium and steel cored aluminium conductors for overhead power lines.	IS 2121-1962
28	Guide for insulation co-ordination	IS 2165-Pt.I-1977 & Pt.II-1983
29	Insulator fittings for overhed power lines for 3.3 KV and above. pt-I General requirements. Part-II Dimensional requirements.	IS 2486 (Pt.I)-1993 IS 2486 (Pt.II) 1989
30	Danger notice	IS 2551-1982
31	Methods of testing weight,	IS 2663-1989

	thickness and uniformity of coating and hot dipped galvanised articles	
32	Methods of test for soils	IS 2720 (Relevant parts)
33	Code of practice for earthing	IS 3043-1987
34	Single coil regular section, Spring washers for bolts, nuts & screws	IS 3063-1994
35	Dimensions for disc insulators	IS 3188-1980
36	Code of practice of design and const. Of foundations for transmission line towers and poles	IS 4091-1979
37	Specification for hot dip zinc coating on structural steel & other allied products	IS 4759-1984
38	Hot-dip galvanised coatings on fasteners	IS 5358-1969
39	Specification for hexagonal bolts for steel structures.	IS 6639-1972
40	Galvanised steel stay wire and suspension strand Amendments CF 8400, Sep. 1941, PD 818 Aug. 1948	BS 183- 38
41	Specification for galvanising and its testing	RE/OHE/13 (4/84)
42	Specification for SS bolts, nuts and washer	RE/OHE/18(4/84)
43	Specification for Enamelling of steel plates	RE/OHE/33(2/73)

Note:- Specification reference nos. indicated above shall be taken with latest revision.

2.1.19 INSPECTION:

The provision of part-I for inspection, including facilities to be provided by the manufacturer (1.2.4) will apply.

2.1.20 PROTOTYPE TESTS:

- (a) These comprise inspection tests conducted on the first component/fittings of a specified manufacturer which the employer considers sufficient to prove that the design is in conformity with the specification to the extent this can be ascertained at with the specification to the extent this can be ascertained at the manufacturers works. The type test shall be conducted on each item as indicated in the standard specifications, in the presence of the employer's

representative. The contractor shall arrange to get these tests conducted in an approved laboratory at his own cost.

(b) Exemption from prototype test

If prototype test of components/fittings of a particular manufacturer confirming to relevant specification/s have already been successfully carried out in an approved manner and drawings and certified copies of original test certificates are submitted by the Contractor and these are accepted by the Employer, fresh prototype test may be waived by the Employer.

- (c) The testing of proto type towers will be the responsibility of the contractor(as applicable). The contractor will arrange material transportation, erection, testing of proto type towers including payment of testing charges to the authorised testing agency. The disposal of scrap of tested tower will be the responsibility of the contractor. The DFCCILs shall not bear any such charges.
- (d) Generally the drawings for execution shall be supplied by DFCCIL. Wherever, there is any inadequacy, insufficiency or unsuitability in the Bid Document or any part thereof, the Contractor shall take into account, address or rectify such inadequacy, insufficiency, impracticality or unsuitability.
- (e) However if any design /drg. Is not available then the same will be designed and relevant drg.s prepared by the contractor and got it approved from DFCCIL before execution . The contractor will be responsible for proper design of the towers & gantries along with the associated fittings as per latest IS Specification(as applicable). The calculation for the design parameters shall be got checked through some Government agency like CPRI/Bangalore & Structural Research Institute, Ghaziabad etc. In case of failure of any tower or fitting during testing, the contractor will arrange further testing at his own cost and DFCCIL shall not pay any charges on this account. The checked drawings/design calculations shall be submitted for approval.
- f) Any approval by the Employer for prototype shall in no way absolve the contractor of his responsibilities under the terms and conditions of the contract for the components/ fittings supplied and erected.

2.1.21 ROUTINE TESTS:

These comprise inspection and tests conducted at the manufacturer's works on every component/fittings, or as specified, for exercising quality control on manufactured items.

2.1.22 TEST CERTIFICATE

Three copies of the test certificates of successful prototype tests carried out at the manufacturer's Works(as applicable) on components/fittings shall be furnished to

the Employer within a month after completion of prototype tests. Three copies of routine tests carried out on components/fittings shall also be furnished after these are passed by the Employer's representative on inspection.

2.1.23 BULK MANUFACTURE:

Bulk manufacture may be undertaken only after specific written approval of the Employer has been obtained, indicating that test on the prototypes are satisfactory. Where prototype have already been tested and tests certificates accepted by the Employer Bulk manufacture may proceed after exemption for prototype tests is received from the employer in writing.

2.1.24 INTERCHANGEABILITY

All similar components/fitting and removable parts of similar equipment shall be fully interchangeable.

2.1.25 Deleted

2.1.26 Aviation Requirements

The river crossing towers and any other towers in the vicinity of airport shall be painted and the crossing span shall be provided with markers to caution the low flying air craft.

XXXXXX

PART-II
CHAPTER-II

TOWERS AND STEEL WORK

<u>PARA NO.</u>	<u>SUBJECT</u>
2.2.1	SCOPE
2.2.2	TYPES OF TOWERS
2.2.3	EXTENSIONS TO TOWERS AND ANGLES
2.2.4	SPECIAL STRUCTURES.
2.2.5	DESIGN OF TOWERS.
2.2.6	FABRICATION OF TOWERS.
2.2.7	BOLTS, NUTS AND WASHERS.
2.2.8	STEP BOLTS.
2.2.9	TOWER ACCESSORIES.
2.2.10	INSULATOR ATTACHMENTS AND GROUND WIRE CLAMPS.
2.2.11	PROTECTION AGAINST RUST.
2.2.12	TEMPLATES.
2.2.13	WORKMANSHIP
2.2.14	CHECK ASSEMBLY AND TESTING.
2.2.15	MARKING.
2.2.16	PACKING.
2.2.17	WEIGHT OF STRUCTURES.
2.2.18	FORM BOXES AND TEMPLATES.

PART-II**CHAPTER-II****2.2 TOWERS AND STEEL WORK****2.2.1 SCOPE:**

Generally the drawings for execution shall be supplied by DFCCIL. Wherever, there is any inadequacy, insufficiency or unsuitability in the Bid Document or any part thereof, the Contractor shall take into account, address or rectify such inadequacy, insufficiency, impracticality or unsuitability. However if any design /drawing. is not available then the same will be designed and relevant drawings prepared by the contractor and got it approved from DFCCIL before execution . The contractor will be responsible for proper design of the towers & gantries along with the associated fittings as per latest IS Specification(as applicable). The calculation for the design parameters shall be got checked through some Government agency like CPRI/Bangalore & Structural Research Institute, Ghaziabad etc. In case of failure of any tower or fitting during testing, the contractor will arrange further testing at his own cost and DFCCIL shall not pay any charges on this account. The checked drawings/design calculations shall be submitted for approval.

This chapter deals with the design, manufacture, testing and supply of towers including cross-arms, stubs, templates and other steelwork required in connection with the erection of the 132 kV transmission line.

2.2.2 TYPE OF TOWERS:**2.2.2.1 General description of the Tower****2.2.2.1 (A):The towers are of the following types :****(a)**

- i) A type - tangent towers
- ii) B type - small angle towers.
- iii) C type - medium angle towers.
- iv) D type - anchor towers/large angle towers

(b) Special Towers.**2.2.2.1 (B):**

The towers are of self supporting lattice steel type, designed to carry the line conductors with necessary insulators , earth wires and all fittings under loading conditions.

2.2.2.1(C)

The towers shall be fully galvanised structure. The type and grade of mild steel shall conform to latest applicable national/ international standards.

2.2.2.2 Type of Towers

2.2.2.3 The Towers are classified as given below for 132 KV lines:

Type of towers	Deviation limit	Typical use
A	0deg.-2deg.	To be used as tangent Tower.
B	0 deg.-15 deg.	a) Angle towers with tension insulator string. b) Also to be designed for unbalanced tension resulting from unequal ruling span of 250 m and 375 m on each side of the tower. c) Also to be designed for uplift forces resulting from an uplift span upon 200 mtr. under broken wire condition. d) Also to be designed for anti cascading condition.
B	0 deg.	e) To be used as section tower.
C	15 deg.-30 deg.	a) Angle tower with tension insulator string. b) Also to be designed for unbalanced tension resulting from unequal ruling span of 250 m and 375 m on each side of the tower. c) Also to be designed for uplift forces resulting from an uplift span upto 200 mtr. under broken wire condition. d) Also to be designed for anti cascading condition.
D/E	30 deg.-60 deg.	a) Angle tower with tension insulator string. b) Also to be designed for the unbalanced tension resulting from unequal ruling span of 250 m and 375 m on each side of the tower. c) Also to be designed for uplift forces resulting from an uplift span upto 200 mtrs. Under broken wire condition. d) Dead end with 0 deg to 15 deg deviation both on line and sub station side (slack span).
	0 deg	e) Complete dead end. f) For river crossing anchoring with longer wind span with 0 deg deviation on crossing span side and 0 deg to 30 deg deviation on other sides.

Note:

The above towers can also be used for longer span with smaller angle of deviation.

2.2.3 EXTENSION TO TOWERS AND STUB ANGLES:

- a) The tower shall be designed for adding 3 m, 6 m and 9 m body extensions for maintaining adequate ground clearances without reducing the specified factor of safety in any manner.

The provision for adding 25 m body extension to tower type A and D shall also be kept by the contractor for power line crossing or any other obstacle, tower types A or D shall be used with 15 m/ 25 m extension depending upon the merit of the prevailing site condition.

The 25 m extension shall be designed in such a manner that the same can also be used on 12 m and 18 m extension to normal after removal of the bottom (part) panel.

- b) The tower shall be designed in such a manner that in case of (individual) unequal leg extension required as per site condition can be added without changing in bracing pattern of all four types of normal towers and towers with +3 m and + 6 m body extension.
- c) All above extension provision to normal towers shall be treated as part of normal tower only.

2.2.4 SPECIAL STRUCTURES:

In addition to the standard types of towers referred in para 2.2.2 special structures may be required to suit special site conditions. The requirement of the special structures shall be determined after detailed survey of the route has been carried out. Their use shall, however, be avoided as far as possible. All general provisions relating to towers shall also cover the special structures to the extent applicable.

2.2.5 DESIGN OF TOWERS:

Following type tested towers drawings of North Central Railway shall be provided to the contractor:

SN	Description	Drawing No.	
1 (i)	Structural details of 'A' type tower - Top portion	PRJ/69/DA/2	2/4
(ii)	Structural details of 'A' type tower - Bottom portion	PRJ/69/DA/2	1/4
(iii)	Structural details of 'A' type tower - +3,+6 &+9m body extension	PRJ/69/DA/2	3/4
2(i)	Structural details of 'B' type tower - Top portion	PRJ/69/DB/1	3/5
(ii)	Structural details of 'B' type tower - Bottom portion	PRJ/69/DB/1	2/5
(iii)	Structural details of 'B' type tower – 6 m body extension	PRJ/69/DB/1	4/5

(iv)	Structural details of 'B' type tower - +3m & +9m body extension	PRJ/69/DB/1	5/5
3(i)	Structural details of 'C' type tower - Bottom portion	PRJ/69/DC/1	2/5
(ii)	Structural details of 'C' type tower - Top portion	PRJ/69/DC/1	3/5
(iii)	Structural details of 'C' type tower - +6 m body extension	PRJ/69/DC/1	4/5
(iv)	Structural details of 'C' type tower – 3m & +9 m body extension	PRJ/69/DC/1	5/5
4(i)	Structural details of 'D' type tower - Top portion	PRJ/69/DD/1	2/8
(ii)	Structural details of 'D' type tower - Bottom portion	PRJ/66/DD/1	1/8
(iii)	Structural details of 'D' type tower + 6m	PRJ/69/DD/1	3/8
(iv)	Structural details of 'D' type tower +12m	PRJ/69/DD/1	7/8
(v)	Structural details of 'D' type tower +18m	PRJ/69/DD/1	8/8
(vi)	Structural details of 'D' type tower +25m	PRJ/69/DD/25M	
(vii)	Structural details of 'D' type tower +3m	PRJ/69/DD/1	5/8
(viii)	Structural details of 'D' type tower +9m	PRJ/69/DD/1	6/8

These drawings may be used by the contractor for this work. However, in case any other design of tower is to be used for the work not covered above, then following principle of tower designing shall be followed by the contractor.

- (a) The towers used by the contractor should be of tested type. These should have been tested both for design load and destruction load in a recognized test bed/testing station by Central/State Govt. department, or SEB or a Central/State Govt. undertaking or a corporation. Such towers must have been used at least for a period of 5 years.
- (b) The design of towers shall except where otherwise provided, comply with the Indian Standard Code of Practice for use of structural, steel in overhead transmission line towers IS:802(Pt.1/Sec.I)-1977 or IS:802(Pt.1/Sec.I)-1995. For purposes of design, all possible loads, which may occur in the worst combination, shall be considered. The structural work shall be so designed that all parts are accessible for inspection and cleaning. Pockets or depression, which are likely to hold water, shall have drain holes.

(c) Factors of safety:

The towers shall be designed for factors of safety under normal and broken wire conditions specified in Para 2.1.10.

(d) Minimum Size

The minimum thickness of steel members shall be 5mm for leg and lower cross arm members in compression: and 4mm for other members in conformity with IS: 802(Part-I/ Sec-I)-1995.

(e) Ratio of slender-ness.

The ratio of slenderness (l/r) shall not exceed the following limits:

- | | | |
|------|--|-----|
| i) | Leg members and lower members of cross arm in compression. | 120 |
| ii) | Other members having calculated stresses. | 200 |
| iii) | Redundant members and those carrying nominal stress. | 250 |
| iv) | Members other than those covered in (i) above carrying tensile stresses only | 375 |

WIND LOAD

Wind load on towers and conductors shall be calculated on the basis of wind pressure specified in Part III.

(f) Maximum stresses

The maximum stresses for steel manufactured to IS: 2062(1999) shall be as per relevant codal provisions.

(g) STRESS DIAGRAM.

Full details of the design calculation along with stress diagrams and tables for normal working conditions and broken wire conditions showing the permissible and actual loading shall be furnished (wherever applicable). The formulae adopted for determining the effective lengths and the crippling stress shall be stated.

(h) ERECTION STRESSES

Where erection stresses combined with other co-existent stresses should produce a working stress in any member appreciably above the specified permissible stress, additional material shall be added to the member or other provision made to bring the combined stress within the permissible limit.

(i) GUARANTEED WEIGHT : Deleted**2.2.6 FABRICATION OF TOWERS :****(a) STEEL SECTIONS**

The towers shall be fabricated in India using standard rationalised metric sections, welding is not permitted in the process of fabrication. IS steel sections of tested quality in conformity with IS 2062 Gr. A will be used in towers extensions, stubs & stub setting template.

(b) FABRICATION PROCESS

Fabrication of towers shall be carried out in conformity with the latest practices, by using power driven cropping, punching, strengthening shearing and drilling machines. The cropping, shearing and punching shall be adopted for all sections up to 10mm thickness. Thicker sections shall be sawn and drilled. Wherever required all angle sections, plates and bars shall be straightened before fabrications. The flanges of angle sections shall be properly chamfered to avoid fouling with other members and difficulty in tightening of bolts. Members up to 6mm thickness may be bent cold where the bends are small provided no fracture of material appears. The holes adjacent to the bend must be punched or drilled only after bending. Diameter of bolt holes shall be not more than 1.5mm larger than the diameter of the bolts. Following minimum edge distances and bolt spacing would be adopted.

Bolt dia mm	Hole dia mm	<u>Spacing of bolts and nuts and edge distance</u>		
		Bolt spacing (Min) mm	Hole centre to rolled or sawn edge mm	Hole centre to sheared by flame cut edge mm
12	13.5	32	16	20
16	17.5	40	20	23
20	21.5	48	25	28

(c) SPLICES

Where a lap splice is used in leg members the back of the inside angle shall be chamfered to clear the fillet of the outside angle. The members so spliced should be designed to withstand the resultant secondary stresses.

2.2.7 BOLT NUTS AND WASHERS:

- (a) All metal parts shall be secured by means of bolts and nuts the diameter of which shall be not less than 16mm unless otherwise approved.
- (b) Bolts and nuts for tower parts.

Bolts and nuts shall conform to IS: 6639 – 1972. The mechanical properties shall conform to property class 5.6 and clause 5 of IS:1367-1976 for bolts and nuts respectively. Washers/spring washer shall conform to RDSO/CORE Specification ETI/OHE/18(4/84).

- (c) Galvanized steel lock or spring washers about 3mm thickness conforming to RDSO/CORE specification No. RE/OHE/18(4/84) shall be provided under all nuts. Lock washers if used shall be of the positive lock type. Galvanised steel or wrought iron tapered washers shall be provided, wherever necessary.

2.2.8 STEP BOLTS:

Each tower and special structure shall be provided conforming to IS 10238 on one of its legs with galvanized mild steel hexagonal head step bolts of not less than 16mm dia, 175mm long spaced about 450mm apart and extending from about 3.5m above the ground level to the top of the tower. Each step bolt shall be provided with two nuts to fasten the bolts securely to the tower. The step bolt shall be capable of withstanding a vertical load of not less than 150 kg.

2.2.9 TOWER ACCESSORIES:

- (a) **Danger, number, phase and circuit plates.**

Holes shall be provided on tower members at suitable position for fixing danger number, phase and circuit plates either directly or through separate attachments (see para 2.1.15).

- (b) **Anti-climbing device.**

Provision shall be made to fix an anti-climbing device on each tower as specified in 2.1.14.

- (c) **Bird guard.**

Unless the cross-arms are of a design which will prevent birds perching immediately above the insulator strings and thus fouling the same with droppings, suitable bird guards shall be provided at all suspension points to:

Either prevent birds from perching in positions where there are liable to cause such nuisance.

or

Ensure that if they do perch, droppings shall fall clear of the insulators strings. It shall conform to RDSO Drg. No.ETI/OHE/SK/101. Drawings showing the design of the bird guard proposed to be used shall be furnished.

2.2.10 INSULATOR ATTACHMENTS AND GROUND WIRE CLAMPS:

For attachment of the suspension strings a U-bolt or a suitable swinging hanger shall be provided on the cross-arm of the tower. For attachment of a tension string a tension plate of suitable dimensions shall be provided on the underside of the cross-arm. For ground wire, suitable U-bolt shall be provided to accommodate the suspension assembly on "A" type towers and for angle towers a strain plate shall be provided on the tower peak to accommodate the tension assembly. Full details of the attachments shall be given in the contractor's drawings.

2.2.11 PROTECTION AGAINST RUST:

(a) Galvanising

After fabrication all tower members, components, special structures and fittings shall be hot dip galvanized according to RDSO specification No.RE/OHE/13(4/84). Threads of bolts and nuts shall be so made that after galvanizing the nuts shall have a neat fit and can be turned with fingers throughout the length of the thread of the bolt and shall be capable of developing the full strength of the bolt. After galvanizing the surfaces shall be free from all sharp edges and metal nodules. If nuts are re-tapped after galvanizing, the threads shall be greased and assembled thereafter.

(b) Rectification at site

If minor modification to steel work which would damage the galvanizing, become necessary at site, these shall be carried out with the approval of the employer and in a manner specified by him.

2.2.12 TEMPLATES:

The required number of suitable templates for setting the stubs of various types of towers shall be arranged by the contractor. Templates shall be rigid but of simple construction. Templates to be handed over as spares shall be painted type complete with bolts and nuts. These templates shall be suitable for normal towers and tower with extensions.

2.2.13 WORKMANSHIP:

Workmanship and finish of steel work shall correspond to the best modern transmission line practice. No rough edges shall be permitted anywhere throughout the work. All burns left by drill or punch shall be completely removed. All similar parts shall be strictly interchangeable.

2.2.14 CHECK ASSEMBLY AND TESTING:

- (a) Before proceeding with the bulk fabrication of any type of tower, the contractor shall fabricate and assemble in his works for inspection by the employer, one tower of each type as finally approved by the employer for the purpose of checking the accuracy of fabrication and workmanship. The check assembly shall be done in a horizontal position, the bolts and nuts being not more than finger tight.
- (b) After the first lot of towers has been fabricated, the contractor may be called upon to fully assemble one tower of each type with piece selected at random from lots of similar members. The tower shall then be set on a foundation under conditions similar to those in the field. Any errors due to workmanship shall be rectified by the contractor at his own expense.
- (c) No extra charges for tests referred to in (a) and (b) above shall be permissible.

2.2.15 MARKING:

- (a) All structural members shall be distinctly marked with erection marks, as given on the drawings. The markings shall be made with a steel punch and shall be indented sufficiently with figures 12mm x 18mm size so that these are clearly visible after galvanizing. These erection marks shall be stamped near one end and in the same relative position on each member.
- (b) The erection marks referred to in (a) above shall be prefixed with letters A, B, C or D to distinguish the members belonging to the tangent, small angle, medium angle and terminal towers respectively. Similarly, identification marks of extension of any other special structures shall be prefixed with letters to be previously approved by the employer.

The erection marks shall also be stenciled in large size letters with paint to facilitate easier identification.

2.2.16 PACKING :

- (a) Towers may be dispatched entirely knocked down or built in sections for bolting together at site. Light members shall be wire bundled and heavy members may be sent loose.
- (b) Bolts nuts and washers: Bolts nuts and washers may be packed in heavy burlap or gunny bags accurately tagged to indicate the contents.

2.2.17 WEIGHT OF STRUCTURE:

The weight of structure shall be calculated on the basis of structural weight of steel calculated from section blocks with holes and skew cuts being ignored and no addition for galvanization of bolts, nuts and washers etc will be taken.

2.2.18 FORM BOXES AND TEMPLATES:

Form boxes and stub setting template shall be arranged by the contractor as per the drawings approved by the employer.

PART II
CHAPTER III
FOUNDATIONS

<u>PARA NO.</u>	<u>SUBJECT</u>
2.3.1	Scope
2.3.2	General
2.3.3	Design of Foundations
2.3.4	Type of Foundations
2.3.5	Concrete

2.3 FOUNDATIONS

2.3.1 SCOPE:

Following type tested Foundation drawings of North Central Railway shall be provided to the contractor.

SN	Description	Drawing No.
1	Foundation drawing for 'A' type tower (PS)	PRJ/69/DA/PS
2	Foundation drawing for 'A' type tower (FS)	PRJ/69/DA/FS
3	Foundation drawing for 'B' type tower (Dry)	PRJ/69/F/DB/NDS
4	Foundation drawing for 'B' type tower (PS)	PRJ/68/DB/PS-1/R1
5	Foundation drawing for 'B' type tower (FS)	PRJ/68/F/DB/FS-S/R1
6	Foundation drawing for 'C' type tower (PS)	PRJ/69/DC/PS
7	Foundation drawing for 'D' type tower (dry)	PRJ/69/DD/Dry
8	Foundation drawing for 'D' type tower (PS)	PRJ/69/DD/PS
9	Foundation drawing for 'D' type tower (FS)	PRJ/69/DD/FS
10	Foundation drawing for 'D' type tower (12m, 8m&25 m)	PRJ/69/DD/25 m/PS-1

These drawings may be used by the contractor for this work. However, in case any other design of foundation is to be used for the work not covered above, then following principle of foundation designing shall be followed by the contractor.

This Chapter deals with the design of foundations for towers. It also deals with specifications for concrete.

2.3.2 GENERAL:

The cement concrete used for foundation shall be of grade M-20 (irrespective of any grade mentioned on the drawing(s)). The design (conforming to IS standards) shall be done prior to start of work, as per specifications, and got approved from the Employer.

2.3.3 CLASSIFICATION OF FOUNDATIONS:

- a) Three types of foundations shall be employed, and the selection of foundation for any particular location will depend on the type of soil, its bearing capacity, depth of sub-soil water table and the presence or otherwise of surface water.

b)

Type of Foundation	Ultimate Bearing Pressure Kgf / m ²	Angle of repose in degree	Effective weight in KG. Per Cum.	Depth of Water table
1. Dry type	27500	15-Upto 1m from G.L. 30- below 1 m from G.L.	1440	Below foundation base.
2. Partially submerged	13750	15 for submerged proportion 30 for dry portion	940 for submerged portion 1440 for dry portion	Below .75 m from G.L.
3. Fully submerged	13750	15	940	Less than .75 m from G.L.

- a) FS type of foundation shall also be employed in black cotton soil and locations which are in surface water for long period with water penetration not exceeding one metre below the ground line.
- c) The design of foundation shall/generally conform to the criteria laid down in IS:4091-1979 latest version.
- d) The weight of cement concrete for design may be taken as 2300 and 1500 Kg per cubic metre for type 1 and types 2 to 3 foundations respectively.
- e) Bearing pressure of soil The contractor shall determine the bearing pressure of soil at one location in each 1.5 km section for determining the types of foundations required. The soil investigation shall be carried in additional location, if there is abrupt change of type of soil or in the sub-soil water condition in the same 1.5 km section. The investigation shall generally be done as per IS:1498(1970), IS:1888 (1982), IS:2720 (Pt.IV, V & VI).
- f) Full particulars of the foundations proposed to be adopted shall be furnished

2.3.4 TYPE OF FOUNDATIONS

- a) In accordance with the standard practice the foundation shall consist of two portions, viz. (i) Pyramid (ii) Chimney

- b) In the chimney portion the thickness of the concrete shall be not less than 100 mm for any part of the stub angle to the nearest outer surface the minimum section of the chimney being limited to 300mm square.
- c) The pyramid portion shall be designed according to the nature of the sub-soil met with the designed depth.

2.3.5 Concrete

- a) The concrete used for both the chimney and pyramid portion of the foundations and other special type of foundations shall be of M20 grade obtained by nominal mix of 1 (cement):1.5 (fine aggregate): 3 (coarse aggregate) by volume.
- b) Cement
In judging the acceptability of the materials, quality of concrete and the method of work, the Employer will generally observe the provisions of the Indian Code of Practice for plain and reinforce concrete for general building construction – IS:456-1978 or latest revision as also the provision of various publications of the Indian Standards, Institutions referred to in the said Code IS:456. Particular attention is drawn to IS: 383-1970 which gives the specification for coarse and fine aggregate from natural resources for concrete.
- c) Size and Grading of Aggregates:
Size and Grading of Aggregates will be as per relevant codal provisions.
- d) The coarse and fine aggregates, shall both be approved by the Engineer at the Contractor's depot or at any other convenient location as approved by the Engineer. The cube strength of sample concrete cubes shall be as per relevant IS provisions .
- e) Notes:
 - (a) Tests specimen of works tests shall be taken at the site of work from the mixture of concrete ready for pouring into the foundation hole. All tests shall be carried out in accordance with IS:516-1959 or its latest version. The sample of concrete from which test specimens are made shall be representative of the entire batch.
 - (b) Age is reckoned from the day of casting.

PART II

CHAPTER IV

2.4 POWER CONDUCTOR AND ACCESSORIES

<u>PARA No.</u>	<u>SUBJECT</u>
2.4.1	Scope
2.4.2	Size
2.4.3	Conductor Accessories
2.4.4	Jumper Connection at Angle & Terminal Towers

CHAPTER IV**2.4 POWER CONDUCTOR & ACCESSORIES****2.4.1 SCOPE:**

This Chapter deals with the manufacture, testing and supply of steel-cored aluminium conductor complete joints, clamps and other accessories.

2.4.2 SIZE:

- a) The conductor shall be 130 Sq.mm (0.20 Sq.in) nominal copper equivalent ACSR comprising 30/3.00 mm wire of aluminium and 7/2.59 mm wire of steel (PANTHER)
- b) The conductor shall comply in all respects with the latest edition of IS:398(Pt.-II)-1996 . Wires and finished conductor shall be subjected to tests as specified in IS:398(Pt.-II) -1996 before despatch from the Wires and test certificate submitted to the Employer.
- c) The standard single length of conductor or each reel will conform to IS:1778-1980.:

The vibration dampers to be provided at all suspension and tension points of the conductor shall be of suitable stock-bridge type.

2.4.3 CONDUCTOR ACCESSORIES:

All conductor accessories shall conform to IS:2121-1981. Joints in conductor shall be of the compression type and shall have the same conductivity as the conductor and mechanical strength shall be not less than 95% of the conductor. The Aluminum used for compression sleeves shall conform to IS: 1285-1975. With minimum 99.5% Aluminium purity. The steel used for steel compression sleeves shall conform to IS:1570-1978. Galvanisation of ferrous parts shall conform to RDSO/CORE Specification ETI/OHE/13(4/84). Full particulars and drawings of the joints, repairs sleeves and PG clamps proposed to be used shall be furnished. Preformed armour rod shall be used at suspension points as per modern transmission line practices.

2.4.4 JUMPER CONNECTIONS AT ANGLE AND TERMINAL TOWERS:

Parallel groove or other suitable clamps conforming to IS:5561 shall be used for making jumper connections at angle and terminal tower connections. Two such clamps shall be used for each jumper connections Drawings and particulars of the clamps proposed to be used shall be furnished .

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PART II

CHAPTER V

2.5 GROUND WIRE AND ACCESSORIES

<u>PARA NO.</u>	<u>SUBJECT</u>
2.5.1	Scope
2.5.2	Size and quality
2.5.3	Joints and Jointing Tools
2.5.4	Suspension and tension clamps

PART –II**CHAPTER V****2.5 GROUND WIRE & ACCESSORIES****2.5.1 SCOPE:**

This Chapter deals with the manufacture, testing and supply of ground wire and accessories.

2.5.2 SIZE & QUALITY:

a) The ground wire shall consist of standard galvanized steel wire of size 7/3.15mm and of 60 ton quality, generally conforming to grade 3 of IS:2141 and shall comply with the following requirements:-

1. Ultimate tensile strength	5710 Kgs.
2. Size	7/3.15mm
3. Diameter of single strand	3.15mm
4. Overall diameter	9.45 mm
5. Weight of one Km of Conductor wire	428 Kgs.
6. Modulus of elasticity	$1.933 \times 10^6 \text{ Kg/cm}^2$
7. Coefficient of linear expansion	$11.5 \times 10^{-6} / \text{Deg.C}$

b) Suitable number of samples of individual strands and finished wire shall be subjected to test specified to relevant IS/BS before despatch.

c) Packing: The ground wire shall supply in Manufacturer's standard lengths varying from 1000 metres to 1500 metres.

2.5.3 JOINTS AND JOINTING TOOLS:

The joints may be of compression type. The strength of the joints shall be not less than 95% of that of the wire itself. Steel for sleeve of the joint shall conform to IS:1570-1978.

2.5.4 SUSPENSION AND TENSIONS CLAMPS:

At all suspension towers the ground wire shall be suspended by the suitable suspension clamps and shall be efficiently bonded to the tower steel work. by means of a flexible copper bond of not less than 30 sq.mm in area. Suspension clamps shall conform to IS:2486. The slipping strength of suspension clamps shall be not less than 24% of the ultimate tensile strength of the ground wire. On tension towers, terminal clamps shall be provided at the top of the tower and the ground wire shall be bonded to the

tower by means of a suitable lug/bond. Malleable cast iron fitting shall conform to Grade A of IS:2108-1977. Galvanising of ferrous parts shall conform to RE/OHE/13: (4/84).

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PART II
CHAPTER VI

2.6 INSULATORS AND FITTINGS

<u>PARA NO.</u>	<u>SUBJECT</u>
2.6.1	Scope
2.6.2	Insulators
2.6.3	Insulator and Fittings
2.6.4	Electrical Characteristics
2.6.5	Tests
2.6.6	Inter-Changeability
2.6.7	Packing

CHAPTER VI

2.6 INSULATORS AND FITTINGS**2.6.1 SCOPE:**

This section deals with the manufacture, testing and supply of insulators and accessories required for the transmission line.

2.6.2 INSULATORS:

- a) The suspension and the tension strings shall consists of standard 280mm dia CD 430mm(min.) disc insulators of the ball and socket type with 145 mm centres.
- b) The insulators shall conform to IS:731-1971 and IS:3188-1980. The insulator disc to be used for suspension and tension will be alike having electric mechanical strength of not less than 7000 Kgf and 12000 Kgf respectively.
- c) Suspension strings shall be used for deviations upto 2 deg. and tension strings for deviations above 2 deg.

2.6.3 INSULATORS AND FITTINGS:

- a) Fittings hardware for insulator strings shall be complete in all respects. The suspension string of insulator from a cross arm carry line conductor at its lower end. This assembly shall comprise the following:
 - i) **Suspension Top Fitting:**
A hook or other fitting for flexibly suspending the suspension insulator string from the cross arm through a hanger.
 - ii) **Suspension clamp Adopter:**
This is for flexibly connecting the conductor suspension clamp to the suspension insulator string.
 - iii) **Conductor Suspension Clamp:**
A fitting holding the conductor and flexibly suspended from the clamp adopter.
 - iv) **Yoke Plate:**
This will be required only for duplicate insulator strings.

v) Arcing fitting:

Suitable arching fitting of the adjustable type will be required for different type of suspension strings upto a distance of 1.5 km on either side of the sub-station.

The tension string shall be suitable for flexibly attaching the insulator string to the cross arm on one end and to secure in tension the power conductor on the other end. This assembly shall comprise the following :

i) Tension End Fitting:

A fitting for flexibly holding the tension insulator string to the cross arm through a tension plate.

ii) Tension Clamp Adoptor:

A fitting for flexibly connecting the conductor tension clamp to the tension insulator string.

iii) Conductor tension clamp:

A fitting for holding the conductor in tension position and flexibly connecting the clamp adopter.

iv) Yoke plate:

This will be required only for duplicate tension strings

v) Arching Fitting:

All tension strings shall be fitted with metal fittings attached to both ends of the insulator string and arranged to prevent damage to the insulator string by a power arc. These arching fitting shall be of adjustable type upto a distance of 1.5 km on either side of the sub-station.

- b) The fittings and clamps may be made of mild steel, forged steel or malleable iron and shall be hot dip-galvanised after all machining has been completed. The aluminum sleeve for compression type dead end clamp shall be made of aluminum conforming to IS:617-1975, Grade AO. The steel for dead and steel sleeve shall conform to IS:1570-1978.
- c) The fittings shall conform in all respects to IS:2486 (Part I)-1971 and IS 2486 (Part-II)-1989 and shall be tested accordingly. All bolts and nuts shall have hexagonal heads and shall conform to RDSO/CORE Specification No.RE/OHE/18: (3/84). The screw threads shall be to metric standard. The nuts shall be provided with locking device to prevent loosening during service. It shall, however, be ensured that the threaded portion of bolts are not subjected to shear stresses.

d) **Slipping strength**

The slipping strength of the suspension clamp shall be not less than 25% of the breaking strength of the conductor. The slipping strength of the bolted type as well as the compression type tension clamp shall be not less than 90% of the conductor. The breaking strength of both the suspension and the tension clamps shall be not less than 7000 Kgf and 12000 Kgf respectively.

2.6.4 **ELECTRICAL CHARACTERISTICS:**

Full guaranteed particulars including wet and dry withstand and flash over voltages, puncture and impulse with-stand and flashover voltage, corona formation voltage, creepage length, distribution of voltage on strings, etc. shall be furnished .

2.6.5 **TESTS:**

Suitable number of fittings duly assembled shall be subjected to tests to determine:

- a) mechanical failing load
- b) the slipping strength of the clamps.

2.6.6 **INTER-CHANGEABILITY**

The fittings shall be of standard design and fully inter-changeable with similar standard types.

2.6.7 **PACKING**

Insulators shall be packed in wooden crates and the fittings shall be packed in suitable wooden boxes to withstand transportation and handling hazards.

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PART II**CHPATER-VII****2.7 CHECK SURVEY- DESIGN AND DRAWING**

<u>Para No.</u>	<u>SUBJECT</u>
2.7.1	Scope
2.7.2	Survey
2.7.3	Survey plans
2.7.4	Approval of designs and drawings
2.7.5	standard for drawings
2.7.6	Basic designs
2.7.7	Instructions for preparation of drawings
2.7.8	Schedule of quantities
2.7.9	Submission of designs and drawings
2.7.10	Completion drawings and schedule

PART II**CHAPTER VII****2.7 CHECK SURVEY DESIGNS AND DRAWINGS****2.7.1. SCOPE:**

This chapter deals with check survey of the route of the transmission line and preparation of all designs and drawings required in connecting with erection of the transmission line. It also deals with the procedure for approval of designs and drawings(as applicable).

2.7.2. SURVEY

The successful Tenderer shall, after award of the Contracts, conduct a check survey of the route of all the transmission line Crossings (132 kV) as detailed in Annexure- 2A for required Modification work for DFC alignment in Allahabad Division of North Central Railway. The alignment and tower location shall be decided in consultation with the employer's representative.

Due consideration shall be given to the following in the choice of the route alignment.

- i) The route shall be as close to the Railway track as possible
- ii) The route shall be short and straight as possible.
- iii) Modification work should involve minimum disturbance to the existing transmission line and should require minimum possible shut down/power block of the existing transmission line/OHE. Shut down/power block will be limited to connecting diverted route only.
- iv) The route shall avoid as far as possibly borrow pits along the railway track, water logged areas and uneven terrain, gardens and public & privates buildings.

2.7.3 SURVEY PLANS:

- (a) After check survey, if it is found that the location of tower (s)/route needs to be modified, the contractor shall obtain the approval of Employer to these proposed changes. Thus, after check survey and approval of the route by the Employer, the Contractor shall prepare updated plan showing the route of the line and profile along the longitudinal axis of the transmission line. The plans shall show the location and type of each tower, lengths and spans and type of insulator required for each location. The profile shall also show the minimum ground clearances. At all tension points the angle shall be marked in degrees. All power and telecommunication lines, kutchra and

metalled roads, canals, rivers, trees, structures, pond and other obstructions, etc., within 50 m on either side of the route of the line shall be clearly indicated in the plans. Highest water level shall be indicated in water logged areas as ascertainable from nearest land marks. The distance of the alignment from the Railway track shall be indicated in the plans as far as possible.

- (b) The survey plans shall be prepared in convenient working lengths preferably to the following scale:-

Horizontal	20m to 1 cm
Vertical	2 m to 1 cm

2.7.4 APPROVAL OF DESIGNS AND DRAWINGS:

- (a) After the check survey the detailed plans and all other designs and drawing (as applicable) prepared by the contractor in connection with the erection of the transmission line shall be submitted to the employer for approval.
- (b) It is to be clearly understood that all original designs and drawings shall be based on a thorough study. General designs and dimensions shall be such that the Contractor is satisfied about the suitability of the designs for the purpose. The Employer's approval will be based on these considerations and notwithstanding the employer's acceptance; the ultimate responsibility for the correct design and execution of the work shall rest with the contractor in terms of the conditions of contract. This shall be applicable for such designs which may be or have been prepared, developed issued by the Employer, or any of contractor's consultants, his sub contractors and/or his qualified personnel/persons or cause to have been prepared, developed or issued directly or indirectly by the contractor.

2.7.5 STANDARD FOR DRAWING

All designs, legends, notes on drawings and schedules of materials shall be in English and shall be prepared in the metric system. All drawings shall be of folded size A-4 or its multiples as given in table 1.1 of IS-695-1986 and the proforma details shall be approved by Employer.

2.7.6 BASIC DESIGNS

The contractor shall prepare and submit the drawings and designs to the employer wherever , the drawings have not been supplied by Employer.

I TOWERS

- a) Detailed design calculations of each type of tower and special structure accompanied by stress diagram.
- b) Structural drawings of each type of tower and special structure.
- c) Clearance diagram for each type of tower and special structure.
- d) Table of weights for each type of tower and special structure showing weights of components, bolts, nuts and washer.
- e) Tower employment schedules.
- f) Detailed fabrication drawing of components of each type of tower and special structure.

II FOUNDATIONS

- a) Design calculations for foundations of various types of towers and special structures in different type of soils.
- b) Foundation layouts and excavation details of each type of towers and special structures.
- c) Drawings of form boxes, templates or stub setting and arrangement for shoring of pits and details of reinforcement.

III Detailed dimensioned drawings of conductor accessories such as compression joints, repair sleeve, vibration dampers etc.

IV Detailed dimensioned drawings of insulators and insulator fittings including assembly drawings of tension and strain string.

V. Detailed dimension drawings of ground wire accessories such as suspension clamps, tension clamps, mid span compression joints, flexible earth bond etc.

VI. Detailed dimensioned drawings of bird guards, anticlimbing devices, Number, Danger, Phase and Circuit plates.

VII. Drawings showing the earthing arrangements for towers including earth electrodes and counterpoise earths along with the details of connections to each type of tower.

VIII. Sag and tension charts for conductors and ground wire.

2.7.7. INSTRUCTIONS FOR PREPARATION OF DRAWINGS:

The drawings to be submitted by the Contractor for approval shall be in accordance with the following instructions:-

(a) The types of designs shall be as few as possible to cover the largest field of application consistent with economic considerations.

(b) Tower drawings

The structural drawings of towers shall include an elevation view of the steel frame work assembly, a transverse view and a plan view. In the assembly each component member shall be marked with its reference number. A schedule of component, members along with drawing reference of various members shall be incorporated in each drawing or furnished separately. The weight of the component members shall be indicated in the table of weights.

Separate drawings shall be prepared for the structural components. These drawings shall include all fixing bolts, nuts and washers whose sizes shall be mentioned in the drawings. Unit weight of the component shall also be given in the drawing.

(c) Foundation layout drawings.

The Foundation layout and cross-section drawings for each type of tower and for various soil conditions shall be prepared indicating the layout of the foundations in plan and longitudinal and transverse cross-section of the foundations through the centre line of the tower. The volume of concrete for each foundation block shall be indicated on the drawing.

(d) Earthing drawing-

The earthing drawings shall indicate the location of earth electrodes in typical cases, marking the run of earthing leads and connections to the tower footings. All components of the earth electrodes and earth connections shall be marked with reference numbers. A schedule of components shall be made out in the drawing giving drawing references of components, if any.

2.7.8 SCHEDULE OF QUANTITIES

After detailed upto date plan (prepared after check survey) have been approved, the Contractor shall submit, complete detailed list of all items to be supplied by him. Simultaneously he shall also prepare an assessment of quantities of various items of works included in Schedule 1 and submit schedule 1 (Assessment) to the employer for approval. This assessment should be revised by the contractor at intervals as required by the employer and shall submit the same for the approval

of the employer. Sizes and length of conductors, etc. shall also be indicated in the schedules.

2.7.9 SUBMISSION OF DESIGNS AND DRAWINGS:

(a) Designs and drawings for approval.

The submission of designs and drawings(as applicable) for approval shall be done in the manner indicated below:-

In every case the contractor shall send all correspondence, calculations, explanatory notes and other documents, in duplicate, to the Employer's Engineer. Two copies of all drawings shall be submitted for approval to the employer. Employer will return one copy each of the drawings either with approval, subject to modification where necessary, or with comments. The employer shall endeavor to return this copy within a period of 15 days from date of receipt and shall normally return the copy within a month. Where drawings are returned with comments or approved subject to modifications, the contractor shall submit to the employer within 15 days of receipt of such advice, revised drawings for approval taking into account the comments or modifications. Also the contractor shall, as far as possible avoid correspondence on such comments and shall endeavor to settle any difference of opinion on the comments by discussions with the employers Engineer. No drawings shall be re-submitted without incorporating the modifications required by the comments of the employer, unless the employer has agreed to the deletion of such comments.

(b) Distribution copies

On receipt of employer's unqualified approval to the contractor's drawings(as applicable) and schedule of quantities, the contractor shall submit original tracings of these drawings and schedules for the signature of the employer in token of approval. Within 7 days of the receipt of approval. On receipt of these tracing from the employer, the contractor shall submit 7 copies for distribution to field officers and other departments within 7 days of receipt of approval tracings.

In all the above cases, the contractor has the option to supply only five copies of the approved drawings provided one of the them is a transparent paper print.

(c) Drawings approved by the employer shall not be modified without prior consent in writing from the employer, Drawings incorporating approved modifications shall be resubmitted for formal approval of the employer in the same manner as original drawings.

2.7.10 COMPLETION DRAWINGS AND SCHEDULES

After completion of works, all drawings and schedules of quantities as well as calculations of tower, design submitted by the contractor and approved by the employer shall be made up-to-date incorporating actual supply and erection particulars. Such drawings and schedules shall then be verified and corrected, if necessary, by the contractor jointly with the employer's representatives. The verified and corrected drawings shall be supplied in four sets, two of which shall be transparencies (one on tracing and the other on any other durable material approved by the Engineer).

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PART II

CHAPTER VIII

2.8 ERECTION OF THE TRANSMISSION LINE

<u>PARA NO.</u>	<u>SUBJECT</u>
2.8.1	Scope
2.8.2	Compliance with regulations.
2.8.3	Inspection
2.8.4	Measurements
2.8.5	Foundations
2.8.6	Towers
2.8.7	Stringing of conductors and ground wire.
2.8.8	Way-leave and site clearance.

**PART II
CHAPTER VIII**

2.8 ERECTION OF THE TRANSMISSION LINE

2.8.1 SCOPE:

This chapter deals with the erection of transmission line.

2.8.2 COMPLIANCE WITH REGULATIONS:

The work shall be done in accordance with the latest standard acceptable methods of transmission line erection, IS:5613 (Part 2, Sec 2) - 1985 and shall comply with Indian Electricity Act 2003, Indian Electricity Rules 1956 or revisions thereof which may be issued during currency of the contract and with the requirements of any other regulations and Act in India to which the Employer may be subject.

2.8.3 INSPECTION:

All erection and installation work shall be subject to inspection by the employer or his representative to ensure that the work is done in accordance with specifications, approved designs and drawings and is of the best quality suitable for the purpose.

2.8.4 MEASUREMENTS:

All measurements for location of structures and layout of foundations shall be done with the aid of steel tapes. The cross country measurements of spans may, however, be done by surveyor's chain duly calibrated by a steel tape.

2.8.5 FOUNDATIONS:

(a) Tower locations

The tower locations shall be correctly set out in accordance with the approved drawings in the presence of the employer's representative. Pegs shall be driven to mark the centre line of tangent locations and a permanent object on a small concrete block of 150 mm dia shall be provided at every angle or terminal location. Additional four pegs shall also be driven to mark the longitudinal and transverse axis of the towers in an approved manner. Tower locations shall be so selected that during construction stage of towers no shut down is required of the existing transmission line.

(b) Foundation layout

The foundations shall be laid out accurately so that the tangent towers are square to the direction of the line and the angle towers bisect the angle of deviation. The dead end towers shall be square to the direction of line.

(c) Soil sampling

The soil pressure tests, shall be carried in accordance with methods approved by the employer to determine permissible bearing pressure of various representative types of soils in the presence of the employer's representative during pegging out for site inspection of selection of a foundation. Suitable records shall be maintained in the form of site register to record the approval of the employer's Engineer for the classifications suggested by the contractor.

(d) The stubs shall be set in proper position, level and at proper inclination with the help of stub setting templates. The diagonals at the top of the templates shall be measured at commencement of concreting. The stub setting templates shall be opened only after completion of back filling. After the templates have been removed the diagonals across stubs shall be rechecked to ensure correct setting of stubs. Templates shall be frequently checked to ensure that these have not been deformed in transport from location to location.

(e) Treatment of stub angle.

The stub angle shall be cleaned thoroughly painted with cement paste made of 1 part of cement and $\frac{3}{4}$ part of water (cement slurry) to a thickness of 4mm before the concrete is laid against it. Painting with cement slurry shall be done in stages in which the concrete is to be laid to avoid drying out of the cement wash.

(f) All concreting shall be done in accordance with para 2.3.5 with aggregate graded for the purpose as specified in 2.3.5. Suitable form work adequately braced to retain proper shape while concreting should be used for the chimney and the pyramid portions. The form work should be made water-tight so that cement does not come out leaving only sand and aggregate, resulting in the formation of honey-combing in the concrete

(g) The concreting for coating (muffing) shall be done after erection of tower and fixing of earthing flats.

(h) Concreting shall be done preferably on all four legs at the same time but in any case the diagonal legs shall be concreted simultaneously and without any appreciable break in operations so that the subsequent concrete layers are laid

before the initial setting of the bottom layer begins, each foundation block being completed at a stretch.

(i) The chimney top or muffing shall be at least 300 mm above ground level. The extended (higher) muffs/revetment shall be used in water logged areas for protection of tower members from coming in direct contact with water.

(j) The steel flat for earthing shall be bolted to the stub angle and laid in position before concreting is completed if so required. If this is not possible in some cases due to reasons beyond the control of the contractor, a slit shall be left in the concrete into which the steel flat can be laid subsequently and grouted in position.

(k) After it is 24 hours old, the concrete shall be cured by keeping it wet continuously as per relevant IS provisions . The template should remain in position of 24 hours after concreting has been completed. The pits shall not be back-filled until the concreting has set and in no case before the lapse of 24 hours after the concreting is laid. The back-filling shall be done with excavated earth sprinkled with necessary amount of water and well consolidated in layers not exceeding 100mm of consolidated thickness. Thereafter both the exposed top and the fill shall be kept wet for the remainder of the prescribed time of curing by providing gunny bags wrapped round concreting, the exposed chimney portion and by impounding water in the vicinity thereof.

(l) In wet locations, the site must be kept completely de-watered both before placing of the concrete and for 24 hours after completion.

(m) In ordinary ground the tower base shall be finished level with excavated earth in uneven terrain or water-logged areas suitable brick masonry revetments shall be provided.

(n) The contractor shall arrange to provide concrete testing samples for tests as and when required by the employer to determine the crushing strength after 28 days curing. Testing shall be arranged by the employer at his own cost.

(o) The employer's Engineers will have the right to call upon the contractor to uncover any foundation for examination and if one or more foundations per km are found faulty. The contractor shall uncover all the foundations 1.5 km on either side for examination and rectification as required, at his own cost.

2.8.6 TOWERS :

(a) The contractor shall be responsible for correct setting of towers on the approved alignment. If the towers after erection, are found to be out of approved alignment the contractor shall dismantle and re-erect them correctly at his own

cost and without extension of time. Tolerance of 150mm will be permissible in alignment.

(b) **Erection of towers:**

Towers shall be erected by piece-meal method on foundations, not less than 14 days after concreting and after such time that the concrete has acquired its full strength. The towers shall be erected in workman like manner and its members shall not be strained or bent during the course of erection. Care shall be taken to see that the jointing surfaces are clean and free from dirt or grit. The tower erection shall be done in strict accordance of the approved drawings.

(c) The towers must be truly vertical after erection and no straining will be permitted to bring them so. The tolerance allowed for verticality shall be $1/360^{\text{th}}$ of the height of the tower.

(d) All bolts, nuts, washers and springs washers shall be properly tightened and secured. No bolt may project more than 10 mm beyond the nut after full tightening. After the final tightening of bolts and nuts, the thread shall be centre-punched, to prevent loosening of the bolts under temperature changes or vibrations. The nuts and bolts up to 3 m height above tower base shall be welded after final tightening.

(e) **Damage to galvanising.**

In leading, transport and erection, all galvanised materials shall be handled with care to avoid damage to galvanising. If galvanising is damaged inspite of all care taken the damaged part of component shall be put up for inspection, to obtain permission from the employer to carry out repairs in a manner to be specified by him.

2.8.7 STRINGING OF CONDUCTORS :

(a) The ground wire shall be strung and securely clamped to the towers before the conductors are drawn up. The conductors shall be strung on approved stringing (snatch) blocks which shall be suspended from each insulator support in such a position that the conductor in passing over the sheaves, shall be at approximately the elevation at which it will finally be held by the conductor clamp. The stringing blocks shall have roller bearing smooth groove metal sheaves and shall be finished so as to prevent injury to the conductors. The stringing blocks shall be inspected daily to ensure satisfactory working conditions.

(b) In pulling out the conductors, the conductor drums shall be maintained on suitable stands and secured against displacement. The drums shall be spotted in locations such that it will not be necessary to back reel any

conductor from the drums. The drums shall be equipped with suitable braking devices. Particular care shall be taken at all times to prevent the conductors being nicked bent, twisted, abraded Birdcaged or damaged in any manner. The contractor shall be responsible for any damage caused to the conductors during the work.

- (c) More than one joint in the conductor in any span shall not be permitted. No joint shall be less than 15m from a tower. There shall be no joints in sections between tension points of less than 3 spans. There shall also be no joints in spans over DFCCIL/Railway tracks, canals, navigable rivers nor shall there be any joint in a span adjacent to the span crossing these obstacles if the crossing span is not terminated at the support.
- (d) Dynamometers or sag boards shall be used for checking the tension in the conductors and ground wire. The sag shall also be checked at a few locations when the conductors have been drawn up and transferred from the stringing blocks to the insulators clamps. The suspension insulator strings shall be made to hang vertically before the clamps are tightened up. Pre-stressing of conductors is not required, instead the conductors shall be strung to a sag of a 1 mm per 12 mm less than the sag shown on the final sag charts approved by the employer.

The contractor shall, however, ensure that:

- i) Clearance to ground from the conductors is maintained at the correct value at the time of handing over.
- ii) Any departure from the correct sag in any span does not exceed 4% and
- iii) sag of any conductor does not depart by more than 3% from the mean sag of the conductors in the same span.
- (e) The conductors and the clamps shall be cleaned thoroughly before assembly. Proper care shall be taken while tightening the conductor in the suspension clamps to avoid damage to the conductor and recommended torque shall be applied to the U-bolts. While making jumper connections, the contact surfaces of the parallel groove and the conductors shall be cleaned vigorously with a dry coarse emery cloth for a wire brush and smeared with a suitable joint compound containing chromes, approved by the employer and shall be brushed by hand under the joint compound to prevent re-formation of the oxide film. A final light application of joint compound shall be made, if necessary, and the joint closed up as soon as possible thereafter.
- (f) The conductor joints and clamps shall be erected in such a manner that no bird caging, over-tensioning of individual wires or layers or other deformation or damage to the conductors occurs.

- (g) Extreme care shall be exercised in making joints. To ensure good conductivity in joints it is essential that the conductor ends and bore of the jointing sleeves are thoroughly clean and free from oxide film before assembly. It is also important that joints are protected from progressive oxidation in service. The hydraulic compressor shall be checked to make sure that it is in good working order before work on joint is taken up. Due care shall be taken to ensure that the inner sleeve on the steel wires and the outer sleeve on the aluminium wires are concentric when the joint is made. The employer's Engineer shall be at liberty to select at random a complete joint and cut in across to see the quality of work. The conductivity of a few typical joints will be checked for milli-volt drop test, using a Ductor instrument.
- (h) Great care shall be exercised to see that the conductors are not over-tensioned. An extra sag of 250 mm will be allowed at important tension points like Railway/DFCCIL track and river crossings.
- (i) The contractor shall be responsible for any damage caused to the towers through over-stretching during stringing.
- (j) Vibration dampers shall be fitted immediately after final tensioning of the conductor without any appreciable lapse of time.

2.8.8 WAY LEAVE AND SITE CLEARANCE:

The following conditions may be noted by the contractor with regard to way leave, right of way, access, tree-cutting, compensation for damage to crops/trees, properties etc.

- i) The access roads to the work site shall be arranged by the contractor at his own cost. Any compensation, if needed to be paid for this purpose will be at contractor's account and will not be paid by DFCCIL separately.
- ii) The contractor shall have to co-ordinate with concerned State/Local Government authority for issue of gazette notifications for right of way and DOT/Other Government agencies for PTCC clearance on behalf of DFCCIL. Further it shall be contractor's responsibility to ensure that all statutory clearances/permissions are obtained timely from various Central/State/Local Government/other agencies on behalf of DFCCIL(if required). DFCCIL shall however issue necessary certificates/declarations required under the law. The contractor will be required to furnish drafts of such certificates/declarations for approval/signatures of employer as per rules and regulations. All payment (on this account) if any, will be borne by contractor.

iii) (a) **Damage to railway /State Forest department/other Govt. department trees/corps/properties.**

Where it becomes necessary to cut/trim tree/crops belonging to Railway/Forest department/ any other local/State/Central Govt. department, the contractor shall furnish full details of type, dimensions, location, identification number, if any, for each, such tree/property to DFCCIL for submitting to the owner. The contractor will be required to co-ordinate/liaison with owner for obtaining such clearances/permission on behalf of DFCCIL. However, if any compensation is to be paid to the concerned State/Central/Forest department, the same shall be paid directly by the employer. The tree cutting/trimming of such identified trees will have to be done by the contractor, who shall hand over such cut trees/crops to employer/owner (as decided) at the same location.

iii) (b) **Damage to private trees/crops/property.**

Where cutting/damage to any tree/crops/property belonging to private party becomes necessary for construction of transmission line, the contractor will have to directly negotiate with the concerned party for way leave and pay all compensations. The tree cutting/trimming and all related activities will be done by the contractor. The disposal of such trees/crops/damaged property shall be responsibility of the contractor.

- iv) It shall be the responsibility of contractor to ensure that required clearances as per relevant clauses IS:5613 (latest edition) are available.
- v) During the process of erection, if any obstruction is encountered from the villagers/outsider/any other Govt./Semi Govt./Private agency, the contractor shall resolve the same at his own cost.
- vi) No compensation whatsoever (i.e. idle charges, rate escalation, loss or profit or any other losses) will be granted to the contractor on ground of non availability of right of way including approval from the Railway, P&T Deptt., Forest Deptt. and consequent delays. Further non availability of right of way alone will not become a sufficient ground for extension of completion period unless contractor proves that all formalities at his end have been completed and he has made all efforts timely for securing right of way.

The compensation for trees, crops etc. (except government forest), if required to be paid to execute erection of the line and for getting clearance as per relevant clause of IS:5613 (Pt.II/Sec.2) - 1976 shall be reimbursed by the Employer supported by the receipt in original granted by the owner of the trees/crops and duly certified by BDO/SDO or Engineer-in-charge and any local authorities (Govt.).

The rate for compensation for trees which may be required to be felled down as indicated above will be paid as per prevalent rate of the concerned DFO. However, the rate for crop compensation will be paid as per the rate fixed by the local BDO/SDO or local Govt. authorities. However, the felling down of above trees/crops etc. is the responsibility of Contractor and has to be done by him at his own cost for which no extra payment will be made. The Contractor shall take all responsible steps to minimise damage to standing crops as far as practicable.

In event of any Govt. Forest unavoidably falling along the route alignment, negotiation with Forest Department of State Govt. will be done by DFCCIL and if any compensation is to be paid for getting the requisite clearance, it is to be paid by DFCCIL directly to the Forest Department. Felling down of the trees will be done by the Contractor at his own cost. Contractor shall hand over such cut trees to employer/owner (as decided) at the same location.

- vii) If any claim from any private/Govt. party for damage to tree/crop/property, right of way, way leaves, access to sites, etc. arises against DFCCIL during erection of transmission line or even later after construction upto a period of 18 months after issue of PAC, the same shall be simply passed over to the contractor for disposal. The contractor shall be responsible for settling the issue as per law and assuring that DFCCIL is not put to any in convenience.

However, if due to any statutory rules/regulations/obligations, court ruling, the DFCCIL is required to make any payment to anybody (other than a Govt. department) the same shall have to be reimbursed by the contractor within 30 days of making such a claim (date of issue).

In event of non-payment of same by the contractor within 30 days of date of issue of such a claim, the employer may take action to recover the amount from any Securities/guarantees/payments of the contractor available with employer. This is without prejudice to other remedies available to the employer under the law.

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PART II
CHAPTER IX

2.9 INSPECTION AND TESTING

<u>PARA NO.</u>	<u>SUBJECT</u>
2.9.1	Scope
2.9.2	Final Checking
2.9.3	Proforma for Tests

PART II**CHAPTER IX****2.9 INSPECTION AND TESTING****2.9.1 Scope:**

- a) This Chapter deals with the inspection and testing of completely erected transmission line as provided in Part I.

b) **Responsibility:**

The general tests of overall performance stipulated in Para 2.9.2 below are only supplementary to other tests on structures, foundations, conductors, insulators and fittings as specified in Chapter II, III, IV, V and VI or in standard specifications to be complied with. Any testing and acceptance by the Employer of overall performance shall be subject to general terms of guarantee which shall continue to be valid as provided for in Part I Chap.II.

2.9.2 FINAL CHECKING:

- a) As soon as a section of the transmission line crossing is ready for inspection and testing, the contractor shall advise the Employer in writing. On receipt of the written advice of the contractor, joint checking of the line will be taken up by the Contractor along with Employer's representative to ensure the following points:-
- i) That the base of the tower is level and that the back filled earth has not subsided. Any subsidence shall be made good.
 - ii) That concrete chimneys and their coping are in good and finally shaped condition.
 - iii) That all tower members have been correctly fitted according to the approved drawings and are free from any defect or damage.
 - iv) That all bolts and nuts are fully tightened and they have been properly punched.
 - v) That adequate ground clearance are available at all points.
 - vi) That there is no un-attended damage to the conductors, ground-wire or insulators.

vii) To check any other point as considered necessary.

b) **Visual Inspection**

After the final checking the line will be tested by the Employer jointly with the Contractor. This shall include test and the contractor shall take full responsibility for these tests inter alia his other responsibilities.

c) **Insulation**

The strength of insulation of all the power conductors shall be tested with a 5000/500V megger as required.

d) **Earthing**

The earth resistance shall be measured and recorded for each tower before the ground wire is connected to the tower. After the erection of the line has been completed the earth resistance shall again be measured and recorded for each tower.

e) The continuity of each power conductor as well as ground wire shall be checked in an approved manner.

The contractor shall arrange all testing equipments required for carrying out the above tests.

2.9.3 PROFORMA FOR TESTS:

The contractor shall submit the results of tests in quadruplicate in the proforma, which will be furnished by the Employer.

PART III
PARTICULAR SPECIFICATION

<u>PARA NO.</u>	<u>SUBJECT</u>
3.1	Introduction
3.2	Transmission Line
3.3	Topography & Physical Feature of Section
3.4	Climatic Data
3.5	Deleted
3.6	Labour And Material
3.7	Contractor's Office
3.8	Contractor's Depot
3.9	Addresses
3.10	Quantities

PART III**PARTICULAR SPECIFICATION****3.1 INTRODUCTION:**

- a) This part of the Specification is complementary to Part-II.
- b) This part includes the particular specifications and general information about modification in 132 KV, 3 Phase double circuit transmission line Crossings work over ALD Division of N.C. Railway infringing DFC alignment.

3.2 TRANSMISSION LINE:

- a) The existing transmission line of North Central Railway is passing mostly through private land. along the Railway track. However in case of infringement with DFCCIL alignment and other obstructions it is to be diverted away from the railway track.

3.3 TOPOGRAPHICAL AND PHYSICAL FEATURE OF THE SECTION:

The topography of the area at Transmission Line Crossing locations consists of cultivated and undulated land

3.4 CLIMATIC DATA:**a) Temperature**

Temperature in this region varies from 5 deg.C to 48 deg.C. The mean temperature should be taken at 32 deg.C. The minimum temperature shall be taken as 0 deg. C and maximum temperature for conductor shall be taken as 65 deg.C and for ground wire it shall be taken as 53 deg.C for the purpose of design of transmission line.

b) Rainfall

Rains occur from June to September. The average rainfall during monsoon season is 95 cm (approx.).

c) Snowfall Ice Loading

No ice loading is to be considered.

d) Humidity

The humidity rises upto 83% during the monsoon period.

e) Thunder Storms

The region is subjected to storms and thunder and rain fall during monsoon from June to September.

f) Wind Pressure

This section falls in the medium wind pressure zone as per table 1 & 2 of IS: 802 (Pt.I)-1977/1995.

3.5 - DELETED -

3.6 LABOUR AND MATERIALS

Unskilled labour is available almost all over the Section, while skilled labour would be available mainly in the main towns in the Section.

3.7 CONTRACTOR'S OFFICE

The contractor shall establish an office headed by a competent engineer for planning, designs, coordination and progressing the works and for finalisation of designs and drawings. The office should be headed by a qualified engineer whose credentials shall be approved by the Engineer. The Contractor would have to establish field construction offices at convenient and approved location for coordination and progressing of field work.

3.8 CONTRACTOR'S DEPOTS

The contractor shall set up a main depot at a convenient place with the approval of the employer.

3.9 ADDRESS:

The list of addresses to which correspondence and documents relating to the Contract should be sent is as under:-

i) For all policy, contractual & commercial matters:

a) Prior to the award of contract

**Office of General Manager/Electrical/EC
Dedicated Freight Corridor Corporation of India Limited,
4th Floor, Pragati Maidan Metro Station Building Complex, New
Delhi -110001, India.**

b) After the award of Contract

**Chief Project Manager
Dedicated Freight Corridor Corporation of India Limited,
E-775,3rd Floor, Near State Bank of India
Kamla Nagar
AGRA-282005**

3.10 QUANTITIES:

The approximate quantities of various items of work are given in Annexure 2 Part – IV.

PART IV

ANNEXURE

ANNEX. NO.

SUBJECT

- 1 List of standard specification and drawings
- 2 Schedule of Quantities and details of Transmission Line Crossings.
- 2A. Location of Transmission line crossings infringing DFC alignment.
- 3 Deleted
- 4 Deleted
- 5 Deleted
- 6 Deleted
- 7 Deleted

PART – IV**ANNEXURE -1****LIST OF STANDARD SPECIFICATION AND DRAWINGS**

<u>SNo.</u>	<u>Description</u>	
1.	Specification for Hot dip zinc (galvanization of steel structure etc).	: ETI/OHE/13(4/84) With A&C slip 1 to 3
2.	Specification for Steel, stainless steel, bolts, nuts & washers.	: ETI/OHE/18(4/84) With A&C slip 1 to 3
3.	Specification for Enamelling for Steel Plate	: ETI/OHE/33(7/88)
4.	Bird Guard.	: ETI/OHE/SK/101
5.	Number Plate.	: ETI/OHE/SK/102
6.	Phase Plate	: ETI/OHE/SK/103
7	Danger Notice Plate	: ETI/OHE/SK/104
8	Circuit Plate	: ETI/OHE/SK/105
9	Anti Climbing Device	: ETI/OHE/SK/106
10	Earthing Detail	: ETI/OHE/SK/107

Note: The above mentioned specifications and drawings may be purchased on cash payment from the office of CEE/CORE/Allahabad.

ANNEXURE –2**Indicative Schedule of Quantities of Transmission Line Crossings**

The approximate quantities of towers and foundation are as under :

Item No.	Description	Nos.
2(a)	Erection of foundations:	
i)	Dry type for A type tower.	49
ii)	Partially submerged for A type tower.	6
iii)	Fully submerged for A type tower.	6
iv)	Dry type for B type tower.	13
v)	Partially submerged for B type tower.	2
vi)	Fully submerged for B type tower	2
vii)	Dry type for C type tower.	24
viii)	Partially submerged for C type tower.	3
ix)	Fully submerged for C type tower	3
x)	Dry type for D type tower.	53
xi)	Partially submerged for D type tower..	6
xii)	Fully submerged for D type tower.	7
3	Fabrication, supply and erection of A type tower.	61
a)	Super structure	61
b)	Stubs (set)	61
4	Fabrication, supply and erection of B type tower.	17
a)	Super structure	17
b)	Stubs (set)	17
5	Fabrication, supply and erection of C type tower.	30
a)	Super structure	30
b)	Stubs (set)	30
6	Fabrication, supply & erection of D type tower	66
a)	Super structure	66
b)	Stubs (set)	66

- NOTE:-1. The above schedule of quantities is only indicative. The work shall be done as per final approved drawings and payment shall be made as per executed quantities.
2. The work shall include design also wherever drgs are not available

PART IV

ANNEXURE -2A

**TENTATIVE LOCATIONS OF 132 KV TRANSMISSION LINE CROSSINGS
INFRINGING DFC ALIGNMENT**

SN	Chainage of crossing location	Nearby area/village
1	16315	Kanpur Area
2	12000	“
3	11126	“
4	2450	Bhaupur Detour
5	5470	“
6	1088/27	Achlada detour
7	1116/1-3	“
8	3540	“
9	1122/18-20	Bhartana Detour
10	1122/23-25	“
11	1123/5-7	“
12	1251.86	“
13	9266.66	“
14	1146/23-25	Etawah Detour
15	268	“
16	2326	“
17	500	Firozabad Detour
18	1800	“
19	2220	“
20	6000	“
21	7220	“
22	11500	“
23	1877	Tundla Detour
24	3985	“
25	4125	“
26	938	Barahan Detour
27	2430	“
28	580	Hathrus
29	9100	“
30	700	Aligarh
31	5600	Fatehpur Detour
32	1100	Varanasi Detour
33	2625	“

PART – IV

ANNEXURE -3

REQUIREMENT OF SPARES

“NIL”

PART-IV

ANNEXURE-4

**LIST OF ITEMS TO BE SUPPLIED BY EMPLOYER
TO THE CONTRACTOR**

NIL

PART-IV

ANNEXURE – 5 : Deleted

ANNEXURE---6 : Deleted

ANNEXURE---7 : Deleted

PART-V
TENDER FORMS

<u>FORM No.</u>	<u>SUBJECT</u>
Form No.1	Offer Letter
Form No.2	Tenderer's Credentials
Form No.3	Deleted
Form No.4	Summary of Prices
Form No.5	Schedule of Prices and Total Prices
Form No.6	Deleted
Form No.7	Deleted
Form No.8	Deleted
Form No.9	Deleted
Form No.10	Contract Agreement
Form No.11	Performance Guarantee Bond
Form No.12	Standing indemnity bond for on account payment.
Form No.13	Deleted
Form No.14	Deleted
Form No.15	Deleted
Form No.16	Electronic clearing service
Form No.17	Draft MOU for Joint Venture Participation
Form No.18	Draft Agreement for JV
Form No.19	Pro-forma of Participation from each partner of JV
Form No.20	Deleted
Form No.21	Power of Attorney for authorized signatory of JV Partners
Form No.22	Power of Attorney to lead partner of JV

OFFER LETTER

Tender No.

Name of work

To
The Managing Director
DFCCIL,
New Delhi

We, the undersigned, declare that:

- (a) We have examined and have no reservations to the Bidding Documents, including Addenda.;
- (b) We offer to execute the Works in conformity with the Bidding Documents;
- (c) Our bid shall be valid for a period of days from the date fixed for the bid submission deadline in accordance with the Bidding Documents, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
- (d) We have not been blacklisted/banned in accordance with para.1.1.12(ii)(v)(a)
- (e) We are neither Bankrupt/Insolvent nor is in the process of winding-up nor there is a case of pending before any Court on deadline of submission of the Bid in accordance with para. 1.1.12(ii)(v)(b))
- (f) If our bid is accepted, we commit to obtain a Performance Guarantee in accordance with the Bidding Documents;
- (g) If our bid is accepted, we commit to deploy key equipment and key personnel consistent with the requirements of the work.
- (h) We understand that this bid, together with your written acceptance thereof included in your notification of award/Letter of Acceptance (LOA), shall constitute a binding contract between us, until a formal contract is prepared and executed; and
- (i) All information, statements and description in this bid are in all respect true, correct and complete to the best of our knowledge and belief and we have not made any tampering or changes in the bidding documents on which the bid is being submitted and if any tampering or changes/incorrect information are detected at any stage, we understand the bid will invite summary rejection and forfeiture of bid

security, the contract will be liable to be terminated along with forfeiture of performance security, even if LOA has been issued.

- (j) We understand that you are not bound to accept the lowest bid or any other bid that you may receive.

Name

In the capacity of

Signed

Duly authorized to sign the Bid for and on behalf of

Date

TENDERER'S CREDENTIALS

S.No	Description
1.	For technical experience/competence, give details of similar completed works during the last three financial years (i.e current Financial year and three previous Financial Years in the proforma given in Form-2A
2.	For financial capacity and organizational resources, give details of contractual payments received for the last three financial years (i.e current Financial year and three previous financial years) as per audited balance sheet certified by Chartered Accountant in the proforma given in Form-2B
3.	Give constitution of your firm. Attach certified copies of legal documents in support thereof. Form-2C

Technical Eligibility Criteria Details

DETAILS OF THE SIMILAR WORKS COMPLETED (as per Para 1.1.12(i) of Preamble and General Instructions to Tenderers)

Similar Contract No.				
Contract Identification				
Award date				
Completion date				
Role in Contract	Prime Contract or <input type="checkbox"/>	Member in JV <input type="checkbox"/>	Management Contractor <input type="checkbox"/>	Sub- contractor <input type="checkbox"/>
Total Contract Amount (Rs.)				
If member in a JV , specify participation in total Contract amount	<i>[insert a percentage amount]</i>	<i>Total contract amount in Rs.</i>		
Employer's Name: Address: Telephone/fax number E-mail:				
Description of the similarity in accordance with Criteria 1.1.12(i)(A)				

The bidder shall attach copies of Certificate of Completion issued by the Employer.

Signature of the
Tenderer with Seal

Financial Eligibility Criteria Details

Each Bidder or each member of JV must fill in this form separately.

Name of Bidder/JV Partner

Details of contractual payments(Construction only) received during the last three financial years and current financial year

Contractual payments received(Construction only)	
Year	Value of payment received in Rs. (Contract Receipts)
Current Year(2012-2013)	
2011-2012	
2010-2011	
2009-2010	
Total Contractual Payment	

Note: The details should be extracted from the audited balance sheet Certified by the Chartered Accountant or form 16-A issued by the Employer as per 1.1.12.

Signature of the
Tenderer with Seal

Applicant's Party Information Form

Applicant name: <i>[insert full name]</i>
Applicant's Party name: <i>[insert full name of Applicant's Party]</i>
Applicant's Party country of registration: <i>[indicate country of registration]</i>
Applicant Party's year of constitution: <i>[indicate year of constitution]</i>
Applicant Party's legal address in country of constitution: <i>[insert street/ number/ town or city/ country]</i>
Applicant Party's authorized representative information Name: <i>[insert full name]</i> Address: <i>[insert street/ number/ town or city/ country]</i> Telephone/Fax numbers: <i>[insert telephone/fax numbers, including country and city codes]</i> E-mail address: <i>[indicate e-mail address]</i>
1. Attached are copies of original documents of <input type="checkbox"/> Articles of Incorporation (or equivalent documents of constitution or association), and/or registration documents of the legal entity named above. <input type="checkbox"/> In case of a Government-owned enterprise or institution, documents establishing legal and financial autonomy, operation in accordance with commercial law, and absence of dependent status. 2. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership.

Signature of the
Tenderer with Seal

-Deleted-

SUMMARY OF PRICES

From: _____

To,
The Managing Director/ DFCCIL,
DFCCIL
NEW DELHI

Dear Sir,

SUB.:- Tender for the work of Design, supply, erection, testing and commissioning of 132 KV 3 Phase double circuit Transmission Line Crossings Modification work for DFC alignment in Allahabad Division. of N. C. Railway

I/We the undersigned hereby offer the summary of prices for the subject work as under: -

S.No.	Item	Total Prices (Rs)	%age above / par / below on Total Prices to be quoted by tenderers	
			In Figure	In Words
1	Total of Schedule of Prices	20,23,31,588/-		
TOTAL				

Notes:

- i) The above prices are inclusive of all taxes, duties including Excise duty, Sales Tax, Octroi, Local levies, Sales tax on work contract etc.
- ii) The tenderer should quote single percentage above / par / below for all items.
- iii) If the uniform percentage quoted by the Tenderer does not clearly indicate whether the rates are above/at par/below the estimated rates then through sign conversion it will be considered to be on plus side.

Signature of the Tenderer (s) with Seal

SCHEDULE-1

SUB.:- Tender for the work of Design, supply, erection, testing and commissioning of 132 KV 3 Phase double circuit Transmission Line Crossings Modification work for DFC alignment in Allahabad Division of N. C. Railway

SCHEDULE OF PRICES AND TOTAL PRICES

This schedule shall be read in conjunction with its explanatory notes in Part-1 Chapter-IV for detailed description for various items included there in:

(All prices in Rupees)

SOQ & R for the work of Design, supply, erection, testing and commissioning of 132 KV 3 Phase double circuit Transmission Line crossings Modification work for DFC alignment in Allahabad Division of N. C. Railway								
Item No	Brief Description of work	Unit of Measurement	Qty	Unit Rate (Rs)		Amount (Rs)		Total amount (Rs)
				supply	Erection/execution	Total Supply price	Total erection /execution price	
1	2	3	4	5	6	7	8	9
1	Designs & drawings including verification of check survey as a complete job	Km of line	52.272	13288 for complete activity		694590 for complete activity		694590
2(a)	Design (wherever applicable), Execution of all types of foundations for all types of towers with all contractors material, labour,	Cum.	2666.7	0	8891	0	23709630	23709630

	tools and plants , lead and lift , dewatering , as a complete job as per specifications and as directed by Employer's engineer							
2(b)	Extra for supply and erection(including design wherever applicable) of reinforcement for all types of foundations . with all contractors material, labour, tools and plants , lead and lift , as a complete job as per specifications and as directed by Employer's engineer	To nn e	42.595	0	53287	0	2269760	2269760
2(c)	Supply and erection of brick masonry revitment. for all types of foundations . with all contractors material, labour, tools and plants lead and lift , as a complete job as per specifications and as directed by Employer's engineer	Cu m.	2000	0	2779	0	5558000	5558000
3	Design(wherever applicable) , fabrication,	To nn e	1034.17	90834	4496	93937798	4649628	98587426

	supply and erection of super structures, stubs and extensions of all types of towers . with all contractors material, labour, tools and plants , lead and lift , as a complete job as per specifications and as directed by Employer's engineer							
4(a)(i)	Supply and erection of single earth electrode. with all contractors material, labour, tools and plants , lead and lift , dewatering , as a complete job as per specifications and as directed by Employer's engineer	Each	174	4263	725	741762	126150	867912
4(a)(ii)	Extra for additional earth electrode with all contractors material, labour, tools and plants , lead and lift , dewatering , as a complete job as per specifications and as directed by Employer's engineer.	Each	50	2664	664	133200	33200	166400
5(a)	Supply and erection of number plate with	Each	348	177	61	61596	21228	82824

	all contractors material, labour, tools and plants , lead and lift , as a complete job as per specifications and as directed by Employer's engineer.							
b)	Supply & erection of danger plate with all contractors material, labour, tools and plants , lead and lift , as a complete job as per specifications and as directed by Employer's engineer.	Each	348	311	61	108228	21228	129456
c)	Supply & erection of phase plate with all contractors material, labour, tools and plants , lead and lift , as a complete job as per specifications and as directed by Employer's engineer.	Set	684	267	108	182628	73872	256500
d)	Supply & erection of circuit plate with all contractors material, labour, tools and plants , lead and lift , as a complete job as per specifications and as directed by Employer's engineer.	Each	348	355	72	123540	25056	148596

6(a)	Supply and erection of anticlimbing device for all types of towers with all contractors material, labour, tools and plants , lead and lift , as a complete job as per specifications and as directed by Employer's engineer	Each	165	5328	604	879120	99660	978780
6(b)	Supply and erection of anticlimbing device for Special structure with all contractors material, labour, tools and plants , lead and lift as a complete job as per specifications and as directed by Employer's engineer	Each Tower	9	5595	664	50355	5976	56331
7	Supply & erection of bird guard with all contractors material, labour, tools and plants , lead and lift as a complete job as per specifications and as directed by Employer's engineer	Each	366	808	33	295728	12078	307806
8(a)	Supply and erection of 9-unit single	Each	366	4892	1268	1790472	464088	2254560

	suspension string with all contractors material, labour, tools and plants , lead and lift , as a complete job as per specifications and as directed by Employer's engineer							
8(b)	Supply and erection of 9-unit duplicate suspension string with all contractors material, labour, tools and plants , lead and lift , , as a complete job as per specifications and as directed by Employer's engineer.	Each	0	9966	2356	0	0	0
9(a)	Supply and erection of a 10 unit single tension string. with all contractors material, labour, tools and plants , lead and lift , as a complete job as per specifications and as directed by Employer's engineer	Each	582	6040	1450	3515280	843900	4359180
9b	Supply and erection of a 10 unit duplicate tension string. with all contractors	Each	102	12322	2718	1256844	277236	1534080

	material, labour, tools and plants , lead and lift , , as a complete job as per specifications and as directed by Employer's engineer							
10 (a)	Supply and erection of Panther ACSR conductor for 3 phase double circuit transmission line. with all contractors material, labour, tools and plants , lead and lift , , as a complete job as per specifications and as directed by Employer's engineer	Km of line	53.06	846428	42281	44911470	2243430	47154900
10 (b)	Supply & erection of Panther conductor accessories for 3 Phase double circuit transmission line. with all contractors material, labour, tools and plants , lead and lift , , as a complete job as per specifications and as directed by Employer's engineer	Km of line	53.06	24161	484	1281983	25681	1307664
11 (a)	Supply and erection of ground wire. with	Km of line	53.06	36412	4228	1932021	224338	2156359

	all contractors material, labour, tools and plants , lead and lift , as a complete job as per specifications and as directed by Employer's engineer							
11 (b)	Supply and erection of ground wire accessories. with all contractors material, labour, tools and plants , lead and lift as a complete job as per specifications and as directed by Employer's engineer	Km of line	53.06	10658	664	565513	35232	600745
12	Supply and erection of 132 KV solid core support insulator for jumper connection a with all contractors material, labour, tools and plants , lead and lift , as a complete job as per specifications and as directed by Employer's engineer t gantries.	Each	96	18120	3020	1739520	289920	2029440
13	Dismantling of 132 KV old TR Line towers. with all contractors material, labour, tools and plants , lead and lift , , as	Tonne	319.372	4496 for complete activity		1435897 for complete activity		1435897

	a complete job as per specifications and as directed by Employer's engineer					
14	Transportation of released material from site to Railway stores at Jhansi with all contractors material, labour, tools and plants , lead and lift , as a complete job as per specifications and as directed by Employer's engineer .	Tonn e Km .	300000	16 for complete activity	4800000 for complete activity	4800000
15	Shifting of conductors and earth wire of existing Tr. Line to new Towers for connecting conductors and earth wire of newly erected Tr. Line to existing Tr. Line and their with all contractors material, labour, tools and plants , lead and lift , as a complete job as per specifications and as directed by Employer's engineer adjustments	Spans	44	20108 for complete activity	884752 for complete activity	884752
	GRAND TOTAL					202331588

DFCC

132 kV-TRL

- Note:-
1. Wherever rate for supply is not given, separate payment for supply shall not be made.
 2. Wherever rate of supply has been mentioned , 70% of item price will be made for supply on receipt of material at site after successful inspection and duly certified by Engineer. Balance shall be paid after Erection/Execution.

Signature of Tenderer with seal

SCHEDULE -2

**LIST OF IMPORTED SPECIAL TOOLS PLANTS EQUIPMENT AND
MATERIALS
FOR CONSTRUCTION**

-Deleted-

SCHEDULE - 3

-Deleted-

ALTERNATIVE PROPOSALS OF THE TENDERERS

-Deleted-

FORM -8

TENDERER'S SCHEME OF WORK AND TIME SCHEDULE

-Deleted-

**NAME OF MANUFACTURER/S PLACE/S OF
MANUFACTURE AND INSPECTION OF SUPPLIES
(CORE/RDSO APPROVED SOURCES)**

-Deleted-

AGREEMENT

CONTRACT AGREEMENT

THIS AGREEMENT ("Agreement") is made at New Delhi on the _____ day of _____, _____,

BETWEEN

(1) Dedicated Freight Corridor Corporation of India Limited, incorporated under the laws of India and having its principal place of business at 5th Floor, Pragati Maidan Metro Station Building Complex, New Delhi, India – 110001 (hereinafter called **'the Employer'**), and _____, a company/corporation/JV incorporated under the laws of -----having its principal place of business at ----- (hereinafter called **"the Contractor"**).

WHEREAS in reference to a call for Tender for supply, erection, testing and commissioning of 132 kV Transmission Line crossing modification work covering Allahabad Division of the North Central Railway as per Tender paper No HQ/EL/132 kV TRL-XING/EC-01 at Annexure "A" hereto, the Contractor has submitted a Tender hereto and whereas the said Tender of the contractor has been accepted for supply, erection, testing and commissioning of 132 kV Transmission Line crossing modification work for Allahabad Division of North Central Railway as per copy of the Letter of Acceptance of Tender No----- dated____ complete with enclosure at the accepted rates and at an estimated contract value of Rs.__(Rupees _only). Now the agreement with witnesseth to that in consideration of the premises and the payment to be made by the Employer to the Contractor provided for herein below the Contractor shall supply all equipments and materials and execute and perform all works for which the said Tender of the Contractor has been accepted, strictly according to the various provisions in Annexure 'A' and 'B' hereto and upon such supply, execution and performance to the satisfaction of the Purchaser, the Purchaser shall pay to the contractor at the several rates accepted as per the said Annexure 'B' and in terms of the provisions therein.

IN WITNESS WHEREOF the parties hereto have caused their respective Common Seals to be hereunto affixed/ (or have hereunto set their respective

DFCC

132 kV-TRL

hands and seals) the day and year first above written.

For and on behalf of the Contractor

For and on behalf of the Employer

Signature of the authorized official
Name of the official

Signature of the authorized official
Name of the official

Stamp/seal of the Contractor

Stamp/Seal of the Employer

SIGNED, SEALED AND DELIVERED

By the said

By the said

_____ Name

_____ Na

me

on behalf of the Contractor in the
presence of:

Witness _____

Name _____

Address _____

on behalf of the Employer in the
presence of:

Witness _____

Name _____

Address _____

Enclosures:-

1. Annexure 'A' - Tender Papers No.
2. Annexure 'B' - Letter of Acceptance of Tender No. _____ Dated _____
along with Summary of Prices

Name of the Bank _____

Managing Director/ DFCCIL _____ Bank Guarantee Bond No. _____
 Acting through _____ (Designation _____ Dated _____
 and address of contract signing authority)

PERFORMANCE GUARANTEE BOND

In consideration of the Managing Director/ DFCCIL acting through _____
 (Designation & Address of Contract Signing Authority), Dedicated Freight Corridor
 Corporation of India Limited, New Delhi (hereinafter called "DFCCIL") having
 agreed under the terms and conditions of agreement/Contract Acceptance letter
 No. _____ Dated
 _____ made between _____ (Designation & address of
 contract signing Authority) and _____ (hereinafter called "the said
 contractor(s)" for the work _____

_____ (hereinafter called "the said agreement") having agreed for submission of a
 irrevocable Bank Guarantee Bond for Rs. _____ (Rs.
 _____ only) as a performance security
 Guarantee Bond from the contractor(s) for compliance of his obligations in
 accordance with the terms & conditions in the said agreement.

1. We _____ (indicate the name of the Bank) hereinafter referred
 to as the Bank, undertake to pay to the Government an amount not
 exceeding Rs. _____ (Rs. _____ only) on demand by the
 Government.
2. We _____ (indicate the name of the bank, further agree that (and
 promise) to pay the amounts due and payable under this guarantee without
 any demur merely on a demand from the Government through the GROUP
 GENERAL MANAGER/ FINANCE Dedicated Freight Corridor Corporation
 of India Limited, New Delhi or _____ (Designation &
 Address of contract signing authority) DFCCIL, stating that the amount
 claimed is due by way of loss or damage caused to or would be caused or
 suffered by the Government by reason of any breach by the said contractor
 of any of the terms or conditions contained in the said agreement or by
 reason of the contractor 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. _____
 (Rs. _____ only)
- 3 (a) We, _____ (indicate the name of Bank) further undertake to pay
 to the Government any money so demanded notwithstanding any dispute or

- dispute raised by the contractor (s) in any suit or proceeding pending before any court or Tribunal relating to liability under this present being absolute and unequivocal.
- (b) The payment so made by us under this bond shall be valid discharge of our liability for payment there under and the contractor(s) shall have no claim against us for making such payment.
4. We, _____ (indicate the name of bank) to 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 Government under or by virtue of the said agreement have been fully paid and its claims satisfied or discharged by _____ (Designation & Address of contract signing authority) on behalf of the Government, certify 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.
5. (a) Notwithstanding any thing to the contrary contained herein the liability of the bank under this guarantee will remain in force and effect until such time as this guarantee is discharged in writing by the Government or until (date of validity/extended validity) which ever is earlier and no claim shall be valid under this guarantee unless notice in writing thereof is given by the Government within validity / extended period of validity of guarantee from the date aforesaid.
- (b) Provided always that we _____ (indicate the name of the Bank) unconditionally undertakes to renew this guarantee to extend the period of guarantee form year to year before the expiry of the period or the extended period of the guarantee, as the case may be on being called upon to do so by the Government. If the guarantee is not renewed or the period extended on demand, we _____ (indicate the name of the Bank) shall pay the Government the full amount guarantee on demand and without demur.
6. We, _____ (indicate the name of Bank) further agree with the Government that the Government shall have the fullest liberty without our consent and without effecting in any manner out of obligations hereunder to vary any of the terms and conditions of the said contract from time to time or to postpone for any time or from time to time any to the powers exercisable by the Government against the said contractor (s) and to forbear or enforce any of the terms and conditions of the said agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said contractor (s) or for any bearance act or omission on the part of the Government or any indulgence by the Government to the said contractor (s) or by any such matter or thing whatsoever which under the law relating to sureties for the said reservation would relive us from the liability.
7. This guarantee will not be discharged by any change in the constitution of the Bank or the Contractor (s).
-

8. We, _____ (indicate the name of the Bank) lastly undertake not to revoke this guarantee except with the previous consent of the Government in writing.
9. This guarantee shall be valid upto _____ (Date of completion plus 60 days beyond that). Unless extended on demand by Government. Notwithstanding anything to the contrary contained herein before, our liability under this guarantee is restricted to Rs. _____ (Rs. _____ only) unless a demand under this guarantee is made on us in writing on or before _____ we, shall be discharged from our liabilities under this guarantee thereafter.

Dated _____ the day of _____ for
_____ (indicate the name of bank)

Signature of Bank Authorize official
(Name):
Designation:
Full Address.

Witness:

1. _____

2. _____

STANDING INDEMNITY BOND FOR “ON ACCOUNT” PAYMENTS**(On paper of requisite stamp value)**

We, M/s _____ hereby undertake that we hold at our stores Depot/s at _____ for and on behalf of the Managing Director/DFCCIL acting in the premises through the Chief Project Manager/DFCCIL/Agra or his successor(hereinafter referred to as “The Employer”) all materials for which “On Account” payments have been made to us against the Contract for supply and erection of (_____) on the section _____ DFCCIL also referred to as Group/s _____ vide letter of Acceptance of Tender _____ dated _____ and material handed over to us by the employer for the purpose of execution of the said contract, until such time the materials are duly erected or otherwise handed over to him.

We shall be entirely responsible for the safe custody and protection of the said materials against all risk till they are duly delivered as erected equipment to the employer or as he may direct otherwise and shall indemnify the employer against any loss /damage or deterioration whatsoever in respect of the said material while in our possession and against disposal of surplus materials. The said materials shall at all times be open to inspection by any officer authorized by the Chief Project Manager/DFCCIL/Tundla incharge of Dedicated Freight Corridor Corporation of India Limited (Whose address will be intimated in due course).

Should any loss, damage or deterioration of materials occur or surplus material disposed off and refund becomes due, the Employer shall be entitled to recover from us the 85% of supply portion of Sch. 1 Sec.2 to the Contract (as applicable) and in respect of other material as indicated in Part I, Chapter – IV, section I and also compensation for such loss or damage if any long with the amount to be refunded without prejudice to any other remedies available to him by deduction from any sum due or any sum which at any time hereafter becomes due to us under the said or any other Contract.

Dated this day _____ day of _____ 200
for and on behalf of

M/s _____(Contractor)

Signature of witness

Name of witness in Block letter.

Address.

-Deleted-

FORM-14

**EXTENSION OF PERIOD OF COMPLETION OF WORK ON
CONTRACTOR'S ACCOUNT**

-Deleted-

EXTENSION OF PERIOD OF COMPLETION OF WORK

-Deleted-

Electronic Clearing Service (Credit Clearing)

Mandate Form

(Investor/customer's option to receive payments through Credit Clearing Mechanism)

Name of the Scheme and the periodicity of payment

- 1) Investor/customer's name
- 2) Particulars of Bank account

- A Name of the Bank
- B Name of the branch

Address

- C Telephone No.
- C 9-Ddigit-code number of the bank and branch appearing on the MICR cheque issued by the bank.
- D Type of the account (S.B/. Current or Cash Credit) with code (10/11/13)
- E Ledger and Ledger folio number.
- F Account number (as appearing on the cheque book)
(In lieu of the bank certificate to be obtained as under, please attach a blank cancelled cheque or photo copy of a cheque or front page of your savings bank passbook issued by your bank for verification of the above particulars)

3. Date of effect:

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

(_____)

Signature of the Investor/Customer

Date

Certified that the particulars furnished above are correct as per our records
Bank's Stamp.

**DRAFT MEMORANDUM OF UNDERSTANDING (MOU) For
JOINT VENTURE PARTICIPATION
BETWEEN**

M/s having its registered office at (hereinafter referred to as) acting as the Lead Partner of the first part,

and

M/shaving its registered office at (hereinafter referred to as `.....') in the capacity of a Joint Partner of the other part.

and

M/shaving its registered office at (hereinafter referred to as `.....') in the capacity of a Joint Partner of the other part.

The expressions of and shall wherever the context admits, mean and include their respective legal representatives, successors-in-interest and assigns and shall collectively be referred to as “the Parties” and individually as “ the Party”

WHEREAS:

Dedicated Freight Corridor Corporation of India Limited (DFCCIL) [hereinafter referred to as “Client”] has invited bids for ... “[Insert name of work].....”

NOW, THEREFORE, THE PARTIES AGREE AS FOLLOWS:

1. The following documents shall be deemed to form and be read and construed as an integral part of this MOU.

- i) Notice for Bid, and
- ii) Bidding document
- iii) Any Addendum/Corrigendum issued by Dedicated Freight Corridor Corporation of India Limited
- iv) The bid submitted on our behalf jointly by the Lead Partner.

2. The `Parties' have studied the documents and have agreed to participate in submitting a `bid' jointly.

3. M/sshall be the lead member of the JV for all intents and purpose and shall represent the Joint Venture in its dealing with the Client. For the purpose of submission of bid proposals, the parties agree to nominate as the leader duly authorized to sign and submit all documents and subsequent clarifications, if any, to the Client. However M/s shall not submit any such proposals, clarifications or commitments before securing the written clearance of the other partner which shall be expeditiously given by M/s.....to M/s.....

4. The `Parties' have resolved that the distribution of responsibilities and their proportionate share in the Joint Venture is as under:

- (a) Lead Partner;
 - (i)
 - (ii)
 - (iii)
- (b) Joint Venture Partner
 - (i)
 - (ii)
 - (iii)

[Similar details to be given for each partner]

5. JOINT AND SEVERAL RESPONSIBILITY

The Parties undertake that they shall be jointly and severally liable to the Client in the discharge of all the obligations and liabilities as per the contract with the Client and for the performance of contract awarded to their JV.

6. ASSIGNMENT AND THIRD PARTIES

The parties shall co-operate throughout the entire period of this MOU on the basis of exclusivity and neither of the Parties shall make arrangement or enter into agreement either directly or indirectly with any other party or group of parties on matters relating to the Project except with prior written consent of the other party.

7. EXECUTIVE AUTHORITY

The said Joint Venture through its authorized representative shall receive instructions, payments from the Client. The management structure for the project shall be prepared by mutual consultations to enable completion of project to quality requirements within permitted cost and time.

8. BID SECURITIES

Till the award of the work, JV firm/Lead Partner of JV firm shall furnish Bid Security to the Client on behalf of the joint venture which shall be legally binding on all the members of the Joint Venture.

9. BID SUBMISSION

Each Party shall bear its own cost and expenses for preparation and submission of the bid and all costs until conclusion of a contract with the Client for the Project. Common expenses shall be shared by all the parties in the ratio of their actual participation.

10. INDEMNITY

Each party hereto agrees to indemnify the other party against its respective parts in case of breach/default of the respective party of the contract works of any liabilities sustained by the Joint Venture.

11. For the execution of the respective portions of works, the parties shall make their own arrangements to bring the required finance, plants and equipment, materials, manpower and other resources.

12. DOCUMENTS & CONFIDENTIALITY

Each Party shall maintain in confidence and not use for any purpose related to the Project all commercial and technical information received or generated in the course of preparation and submission of the bid.

13. ARBITRATION

Any dispute, controversy or claim arising out of or relating to this agreement shall be settled in the first instance amicably between the parties. If an amicable settlement cannot be reached as above, it will be settled by arbitration in accordance with the Indian Arbitration and Conciliation Act 1996 or any amendments thereof. The venue of the arbitration shall be Delhi.

14. VALIDITY

This Agreement shall remain in force till the occurrence of the earliest to occur of the following, unless by mutual consent, the Parties agree in writing to extend the validity for a further period.

- a. The bid submitted by the Joint Venture is declared unsuccessful, or
- b. Cancellation/ shelving of the Project by the client for any reasons prior to award of work
- c. Execution of detailed JV agreement by the parties, setting out detailed terms after award of work by the Client.

15. This MOU is drawn in number of copies with equal legal strength and status. One copy is held by M/s and the other by M/s.....&M/s and a copy submitted with the proposal.

16. This MOU shall be construed under the laws of India.

17. NOTICES

Notices shall be given in writing by fax confirmed by registered mail or commercial courier to the following fax numbers and addresses:

Lead Partner

Other Partner(s)

.....

.....

(Name & Address)

(Name & Address)

IN WITNESS WHEREOF THE PARTIES, have executed this MOU the day, month and year first before written.

M/s.....

M/s.....

DFCC

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.....
(Seal)

.....
(Seal)

Witness

1.....(Name & Address)

2..... (Name & Address)

Notes: (1) In case of existing joint venture, the certified copy of JV Agreement may be furnished.

DRAFT FORMAT OF JOINT VENTURE AGREEMENT

To be executed on non-judicial stamp paper of appropriate value in accordance with relevant Stamp Act and to be registered with appropriate authority under Registration Act.

The JV agreement shall be structured generally as per contents list given below:

A. CONDITIONS AND TERMS OF JV AGREEMENT

1. Definitions and Interpretation
2. Joint Venture – Include Equity of members, transferability of shareholding of equity of a partner leaving during the subsistence of the contract.
3. Proposal Submission
4. Performance – To indicate scope of responsibility of each member
5. Language and Law
6. Exclusively
7. Executive Authority
8. Documents
9. Personnel
10. Assignment and Third Parties
11. Severability
12. Member in Default
13. Duration of the Agreement
14. Liability and sharing of risks
15. Insurance
16. Sharing of Promotion and Project Costs, Profits, Losses and Remuneration
17. Financial Administration and Accounting
18. Guarantees and Bonds
19. Arbitration
20. Notices
21. Sole Agreement and Variation

B. SCHEDULES

1. Project and Agreement Particulars
2. Financial Administration Services
3. Allocation of the obligations
4. Financial Policy and Remuneration

PRO-FORMA LETTER OF PARTICIPATION FROM EACH PARTNER OF JOINT VENTURE (JV)

(To be executed on non-judicial stamp paper of appropriate value in accordance with relevant Stamp Act and to be registered with appropriate authority under Registration Act.)

No....

Dated

From:

.....
.....

To,
The Managing Director,
Dedicated Freight Corridor Corporation of India Limited
5th Floor, Pragati Maidan Metro Stn. Building Complex.,
New Delhi 110001.

Gentlemen,

Re: ...“*[Insert name of work]*.....”.

Ref: Your notice for Invitation for Bid (IFB) No. HQ/EN/EC/Track/NKWD-DGO dated

1. We wish to confirm that our company/firm has formed a Joint Venture with(i)..... & ii)..... for the purposes associated with IFB referred to above.

(Members who are not the lead partner of the JV should add the following paragraph).*

2. ‘The JV is led by ... whom we hereby authorise to act on our behalf for the purposes of submission of Bid for and authorise to incur liabilities and receive instructions for and on behalf of any and all the partners or constituents of the Joint Venture.’

OR

*(Member(s) being the lead member of the group should add the following paragraph)**

2. 'In this group we act as leader and, for the purposes of applying for Bid, represent the Joint Venture:

3. In the event of our JV being awarded the contract, we agree to be jointly with i) & ii) (names of other members of our JV) and severally liable to the Dedicated Freight Corridor Corporation of India Limited, its successors and assigns for all obligations, duties and responsibilities arising from or imposed by the contract subsequently entered into between Dedicated Freight Corridor Corporation of India Limited and our JV.

4. ***I/We, further agree that entire execution of the contract shall be carried out exclusively through the lead partner.**

Yours faithfully,

(Signature)

(Name of Signatory).....

(Capacity of Signatory).....

Company Seal * Delete as applicable

Note : In case of existing joint venture, the certified copy of JV Agreement may be furnished.

-Deleted-

**FORMAT FOR POWER OF ATTORNEY FOR AUTHORISED SIGNATORY OF
JOINT VENTURE (JV) PARTNERS**

POWER OF ATTORNEY*

(To be executed on non-judicial stamp paper of the appropriate value in accordance with relevant stamp Act. The stamp paper to be in the name of the company who is issuing the power of Attorney)

Know all men by these presents, we ... do hereby constitute, appoint and authorise Mr/Ms. who is presently employed with us and holding the position ofas our attorney, to do in our name and on our behalf, all such acts, deeds and things necessary in connection with or incidental to our bid for the work of ...Including signing and submission of all documents and providing information/responses to Dedicated Freight Corridor Corporation of India Limited , representing us in all matters, dealing with Dedicated Freight Corridor Corporation of India Limited in all matters in connection with our bid for the said project. We hereby agree to ratify all acts, deeds and things lawfully done by our said attorney pursuant to this Power of Attorney and that all acts, deeds and things done by our aforesaid attorney shall and shall always be deemed to have been done by us.

Dated this the day of 200..

(Signature of authorised Signatory)

Signature of Lead Partner

Signature of JV Partner(s)

.....
(Signature and Name in Block letters of Signatory)
Seal of Company

Witness

Witness 1:

Name:

Address:

Occupation:

Witness 2:

Name:

Address:

Occupation:

**Notes:*

- i) To be executed by all the partners jointly, in case of a Joint Venture.

**FORMAT FOR POWER OF ATTORNEY TO
LEAD PARTNER OF JOINT VENTURE (JV)**

(To be executed on non-judicial stamp paper of the appropriate value in accordance with relevant stamp Act. The stamp paper to be in the name of the company who is issuing the power of Attorney)

POWER OF ATTORNEY*

Whereas Dedicated Freight Corridor Corporation of India Limited has invited Bids for the work of “ **Design, supply, erection, testing and commissioning of 132 KV, 3 phase double circuits Transmission Line Crossing Modification work over Allahabad Division of North Central Railway.**”

Whereas, the members of the Joint Venture comprising of M/s., M/s., M/s., and M/s. are interested in submission of bid for the work of ...*[Insert name of work]*... in accordance with the terms and conditions contained in the bidding documents.

Whereas, it is necessary for the members of the Joint Venture to designate one of them as the Lead Partner, with all necessary power and authority to do, for and on behalf of the Joint Venture, all acts, deeds and things as may be necessary in connection with the Joint Venture's bid for the project, as may be necessary in connection the Joint Venture's bid for the project.

NOW THIS POWER OF ATTORNEY WITNESSETH THAT:

We, M/s., hereby designate M/s., being one of the partners of the Joint Venture, as the lead partner of the Joint Venture, to do on behalf of the Joint Venture, all or any of the acts, deeds or things necessary or incidental to the Joint Venture's bid for the contract, including submission of bid, participating in conferences, responding to queries, submission of information/ documents and generally to represent the Joint Venture in all its dealings with the Railway or any other Government Agency or any person, in connection with the Bid/contract for the said work until culmination of the process of bidding till the contract agreement if successful, is entered into with the Dedicated Freight Corridor Corporation of India Limited and thereafter till the expiry of the contract agreement.

**To be executed by all the members of the JV except the lead member.*

The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and when it is so required the same should be under common seal affixed in accordance with the required procedure.

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We hereby agree to ratify all acts, deeds and things lawfully done by lead member, our said attorney, pursuant to this power of attorney and that all acts deeds and things done by our aforesaid attorney shall and shall always be deemed to have been done by us/ Joint Venture.

Dated this the Day of 200

.....
(Signature)

.....
(Name in Block letters of Executants)

Seal of Company

Witness 1: Name: Address: Occupation:	Witness 2: Name: Address: Occupation:
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