

CENTRAL RAILWAY



**TENDER NO
BB/LD/585/W/899/CONT**

25 KV AC OHE modification work in connection with proposed construction of four lane Road over bridge (ROB) for Sewari to Worli elevated connector on Prabhadevi/Parel station of Mumbai division central railway.



**OFFICE OF THE
Sr. Divisional Electrical Engineer (Traction
Distribution),**

No.



CONTENTS

Part No.	Chapter No.	Subject	Ref No.	Page No.
		Tender Check List		3 -4
		Tender Notice		5
		Preamble		6-17
Part-I	Chapter I	Instruction to Tenderer and Condition or Tendering.	1.1	18 - 36
	Chapter II	Conditions of Contract.	1.2	37 - 97
	Chapter III	Price and Payment	1.3	98 - 121
	Chapter IV	Explanatory Notes of Schedule-1, Schedule of Prices.	1.4	122- 147
Part-II	Chapter I	General specification	2.1	148- 159
	Chapter II	Foundation	2.2	160 - 165
	Chapter III	Structures	2.3	166-172
	Chapter IV	Equipments, Components and materials	2.4	173-185
	Chapter V	Design And drawings	2.5	186-195
	Chapter VI	Erection & Installation of Equipments.	2.6	196-205
	Chapter VII	Inspection and Testing.	2.7	206-210
Part -III		Particular Specification	3	211-216
Part-IV		Annexures.	--	217-238
Part-V		Forms for Tender etc.	--	239-273

CHECK LIST

CHECK LIST FOR DOCUMENTS TO BE SUBMITTED BY THE TENDERER ALONG WITH THE TENDER. TENDERS WITHOUT THESE DOCUMENTS WILL BE SUMMARILY REJECTED: -

SN	MANDATORY DOCUMENTS
1	GST Registration Certificate
2	BID SECURITY as per clause 3 of Preamble of this Tender Document. (As per Clause No 5 of uploaded GCC April 2022 and advance correction slip No 5)
3	Certificate as per Annexure-V (2 pages) of this Tender Document. (As per Annexure-V of GCC April 2022 advance correction slip No1,2,3 and 4). Certificate as per Annexure V (A) of this tender document if applicable shall also be submitted (As per annexure V (A) of advance correction slip No.2 of GCC April 2022)
4	The tenderer shall clearly specify whether the tender is submitted on his own (Proprietary Firm) or on behalf of a Partnership Firm / Company / Registered Society / Registered Trust / Hindu Undivided Family (HUF) / Limited Liability Partnership (LLP) etc. The tenderer(s) shall enclose the attested copies of the constitution of their concern as applicable mentioned below:
a	Sole Proprietor – An undertaking on suitable stamp paper to this effect clearly mentioning PAN number.
b	HUF: (i) A copy of notarized affidavit on Stamp Paper declaring that he who is submitting the tender on behalf of HUF is in the position of 'Karta' of Hindu Undivided Family (HUF) and he has the authority, power and consent given by other members to act on behalf of HUF.
c	Participation of Partnership Firms in works tenders: (i) A notarized copy of the Partnership Deed or a copy of the Partnership deed registered with the Registrar. (ii) A notarized or registered copy of Power of Attorney in favour of the individual to tender for the work, sign the agreement etc. and create liability against the firm. (iii) An undertaking by all partners of the partnership firm that they are not blacklisted or debarred by Railways or any other Ministry / Department of the Govt. of India from participation in tenders / contracts as on the date of submission of bids, either in their individual capacity or in any firm/LLP in which they were / are partners/members. Any Concealment / wrong information in regard to above shall make the bid ineligible or the contract shall be determined under Clause 62 of the Standard General Conditions of Contract.
d	Company registered under Companies Act 2013 (i) The copies of MOA (Memorandum of Association) / AOA (Articles of Association) of the company. (ii) A copy of Certificate of Incorporation (iii) A copy of Authorization/Power of Attorney issued by the Company (backed by the resolution of Board of Directors) in favour of the individual to sign the tender on behalf of the company and create liability against the company.
e	LLP (Limited Liability Partnership): If the tender is submitted on behalf of a LLP registered under LLP Act-2008, the tenderer shall submit along with the tender: (i) A copy of LLP Agreement (ii) A copy of Certificate of Incorporation (iii) A copy of Power of Attorney/Authorization issued by the LLP in favour of the individual to sign the tender on behalf of the LLP and create liability

	<p>against the LLP</p> <p>(iv) An undertaking by all partners of the LLP that they are not blacklisted or debarred by Railways or any other Ministry / Department of the Govt. of India from participation in tenders / contracts as on the date of submission of bids, either in their individual capacity or in any firm/LLP or JV in which they were / are partners/members. Concealment / wrong information in regard to above shall make the contract liable for determination under Clause 62 of the Standard General Conditions of Contract.</p>
f	<p>Registered Society & Registered Trust:</p> <p>(i) A copy of the Certificate of Registration</p> <p>(ii) A copy of Memorandum of Association of Society/Trust Deed</p> <p>(iii) A copy of Power of Attorney in favour of the individual to sign the tender documents and create liability against the Society/Trust.</p> <p>(iv) A copy of Rules & Regulations of the Society</p>
5	<p>Valid Electrical Contractor License as per Clause 14.2 of Preamble of this tender document.</p>
6	<p>Work completion certificates for Technical Eligibility Criteria as per clause 13 of Preamble of this tender document. (As per Clause 10.1 of GCC April 2022)</p>
7	<p>Annexure VI B along with Audited Balance sheets certified by chartered accountant for last three/four financial years for Financial Eligibility Criteria as per clause 13 of preamble of this tender document. (As per Clause 10.2 of GCC April 2022)</p>
<p>The above mentioned documents are mandatory and are to be submitted along with the tender. Tenders without these documents will be summarily rejected.</p>	

CENTRAL RAILWAY
TENDER NOTICE
Office of the Sr DEE (TD) CSMT Mumbai

Open e-tender notice No.- BB.LD.585.W.899.Cont

Senior Divisional Electrical Engineer (Traction Distribution), Mumbai Division, Central Railway, Annex building, 2nd floor, Mumbai CST- 400001, for and on behalf of the President of India, invites open **e-tenders** through website **www.ireps.gov.in** from the reputed contractors. The time, date and submission is 11.00 hrs. on **14-07-2026** & will be opened after 11.00 hrs.

S. N.	Name of work	Approx Value ₹	Bid Security ₹	Cost of Tender Form ₹	Completion period	Validity of offer
1	Tender No: BB.LD.585.W.899.Cont for 25 KV AC OHE modification work in connection with proposed construction of four lane Road over bridge (ROB) for Sewari to Worli elevated connector on Prabhadevi/Parel station of Mumbai division central railway.	2,63,97,247.67 /-	5,28,000/-	0/-	12 Months	60 Days

I) Tender closing date & time of aforesaid tender: Upto 11.00 hrs. of **14-07-2026** and will be opened after 11.00 hrs.

II) The prospective tenderers are requested to visit the website www.ireps.gov.in for details of tenders & corrigendum, if any.

III) Tenderer may participate in above e-tender electronically through website www.ireps.gov.in only & submission of manual offers against e-tender are not allowed. Manually, if submitted shall neither be opened nor considered.

IV) Bid security should be paid as per details given in tender document.

V) For further enquiry, may contact: Senior Divisional Electrical Engineer (Traction Distribution), Mumbai Division, Central Railway, Annex building, 2nd floor, Mumbai CSMT- 400001 on phone- 022-22612355.

Complete details of tenders are available at the website "**www.ireps.gov.in**". The complete details of tenders are also available in the "Notice Board" of the Senior Divisional Electrical Engineer (Traction Distribution), Mumbai CSMT- 400001.

Sr DEE (TD) BB

PREAMBLE

TENDER PAPERS NO. BB.LD.585.W.899.Cont

1.0 NAME OF WORK:

25 KV AC OHE modification work in connection with proposed construction of four lane Road over bridge (ROB) for Sewari to Worli elevated connector on Prabhadevi/Parel station of Mumbai division central railway.

SCOPE OF WORK

25 KV AC OHE modification work in connection with proposed construction of four lane Road over bridge (ROB) for Sewari to Worli elevated connector on Prabhadevi/Parel station of Mumbai division central railway..

APPROXIMATE COST OF THE WORK :- **2,63,97,247.67/-**

TENDER CLOSING DATE & TIME OF AFORESAID TENDER: **Upto 11.00 hours of 14-07-2026 and will be opened after 11.00 hrs.**

COMPLETION PERIOD :- Twelve months including monsoon.

VALIDITY OF OFFER :- 60 days.

BID SECURITY DEPOSIT :- **₹ 5,28,000/-**

2. FOREIGN EXCHANGE

No foreign exchange and /or import license will be released/provided to the Contractor in connection with this, contract.

3. BID SECURITY (See Para 1.1.5)

- (1) (a) The tenderer shall be required to submit the Bid Security with the tender for the due performance with the stipulation to keep the offer open till such date as specified in the tender, under the conditions of tender. The Bid Security shall be as under:

Value of the Work	Bid Security
For all works	2% of the estimated cost of the work

Note:

- (i) The Bid Security shall be rounded off to the nearest ₹100. This Bid Security shall be applicable for all modes of tendering.
- (ii) Any firm recognized by Department of Industrial Policy and Promotion (DIPP) as 'Startups' shall be exempted from payment of Bid Security detailed above.
- (iii) Labour Cooperative Societies shall submit only 50% of above Bid Security detailed above.
- (b) It shall be understood that the tender documents have been 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 Engineer. Should the tenderer fail to observe or comply with the said stipulation, the aforesaid amount shall be liable to be forfeited to the Railway.

- (c) If his tender is accepted, this Bid Security mentioned in sub para (a) above will be retained as part security for the due and faithful fulfillment of the contract in terms of Clause 16 of the Standard General Conditions of Contract. The Bid Security of other Tenderers shall, save as herein before provided, be returned to them, but the Railway shall not be responsible for any loss or depreciation that may happen thereto while in their possession, nor be liable to pay interest thereon.
- (2) The Bid Security shall be deposited either in cash through e-payment gateway or submitted as Bank Guarantee bond from a scheduled commercial bank of India or as mentioned in tender documents. The Bank Guarantee bond shall be as per **Annexure-VIA** and shall be valid for a period of 90days beyond the bid validity period.
- (3) **In case, submission of Bid Security in the form of Bank Guarantee, following shall be ensured:**

- i. A scanned copy of the Bank Guarantee shall be uploaded on e-Procurement Portal (IREPS) while applying to the tender.
- ii. **The original Bank Guarantee should be delivered in person to the official nominated as indicated in the tender document before closing date for submission of bids (i.e. excluding the last date of submission of bids).**
- iii. Non submission of scanned copy of Bank Guarantee with the bid on e-tendering portal (IREPS) and/or non submission of original Bank Guarantee within the specified period shall lead to summary rejection of bid.
- iv. The Tender Security shall remain valid for a period of 90 days beyond the validity period for the Tender.
- v. The details of the BG, physically submitted should match with the details available in the scanned copy and the data entered during bid submission time, failing which the bid will be rejected.
- vi. The Bank Guarantee shall be placed in an envelope, which shall be sealed. The envelope shall clearly bear the identification “**Bid for the ***** Project**” and shall clearly indicate the name and address of the Bidder. In addition, the Bid Due Date should be indicated on the right hand top corner of the envelope.
- vii. The envelope shall be addressed to the officer and address as mentioned in the tender document.
- viii. If the envelope is not sealed and marked as instructed above, the Authority assumes no responsibility for the misplacement or premature opening of the contents of the Bid submitted and consequent losses, if any, suffered by the Bidder.

Note:- The original Bank Guarantee for bid security in favor of Sr.DFM/BB CR should be delivered in the office of Senior Divisional Electrical Engineer (Traction Distribution), Mumbai Division, Central Railway, Annex building, 2nd floor, Mumbai CST- 400001 before closing date for submission of bids(i.e. excluding the last date of submission of bids).

4. **SECURITY DEPOSIT**

See para 1.2.17

5. **PERFORMANCE GUARANTEE:-**

See para 1.2.17A

6. **DEVIATIONS**

All the tenderers may please note that the offers seeking modified terms and conditions by way of deviations mentioned under either Memorandum or Deviation schedule for instance, sectioning mobilization advance, or any modification in respect of mobilization advance, progress payment, recovery rate, insurance warranty, extension in completion, facilities to be provided by the Purchaser or any reimbursement of taxes etc. are liable to be rejected without assigning any reason thereto and the decision of the Railway Administration in this regard will be binding on all the tenderers. It should be specifically noted that the prices shall be **FIRM** inclusive of all taxes and duties including Sales Tax on works contract and no deviation should be sought for.

7. **SUPPLY OF MATERIALS BY THE PURCHASER**

The Tenderer's special attention is invited to Annexure-4 wherein the materials which would be supplied by the Purchaser to the Contractor for erection are listed. The Tenderer shall ensure that the cost of supply of materials as listed in Annexure-4, is not included in the prices quoted against various items of work in schedule-1.

8. **BOOSTER TRANSFORMERS-** Deleted

9. **DESIGN SPEED** [See para 2.1.10 (b)]

It is proposed that the traction overhead equipment for main line is made suitable for a maximum speed of 110 km/h.

10. **TYPE OF OHE TO BE PROVIDED**

The existing 2 wire 25KV AC OHE is unregulated type which comprises of 242 sq.mm main copper catenary wire and 193 sq.mm grooved HD contact wire on main line and 125,129 or 242 sq.mm main catenary and 193 sq.mm contact wire on loop lines /Cross overs/Turnouts. Scope of work includes erection of new OHE with 25 KV AC clearances as per scheme approved by purchaser. There will not be any change in composition of OHE (i.e. conductors not to be changed). Reprofiling of OHE to suit new insulations arrangement will be done including extension/modification of conductor run of OHE at overlaps/Turnouts/Crossovers.

11. **PERIOD OF COMPLETION**

All works relating to supply and erection of fixed electrical installations in each section covered under para-1 shall be completed within a period of **12 (Twelve) months** from the date of issue of the "Letter of Acceptance of Tender".

12. **TENDER BID**

The Tender BID shall be submitted original in a sealed covers:

13. TENDERER'S CREDENTIALS AND MINIMUM ELIGIBILITY CRITERIA.

GCC 10. Eligibility Criteria:

10.1 Technical Eligibility Criteria:

(a) The tenderer must have successfully completed or substantially completed any one of the following categories of work(s) during last 07 (seven) years, ending last day of month previous to the one in which tender is invited:

- (i) Three similar works each costing not less than the amount equal to 30% of advertised value of the tender, or
- (ii) Two similar works each costing not less than the amount equal to 40% of advertised value of the tender, or
- (iii) One similar work costing not less than the amount equal to 60% of advertised value of the tender.

(b) (1) In case of tenders for composite works (e.g. works involving more than one distinct component, such as Civil Engineering works, S&T works, Electrical works, OHE works etc. and in the case of major bridges – substructure, superstructure etc.), tenderer must have successfully completed or substantially completed any one of the following categories of work(s) during last 07 (seven) years, ending last day of month previous to the one in which tender is invited:

- (i) Three similar works each costing not less than the amount equal to 30% of advertised value of each component of tender, or
- (ii) Two similar works each costing not less than the amount equal to 40% of advertised value of each component of tender, or
- (iii) One similar work each costing not less than the amount equal to 60% of advertised value of each component of tender.

Note for b(1): Separate completed works of minimum required values shall also be considered for fulfillment of technical eligibility criteria for different components.

(b)(2) In such cases, what constitutes a component in a composite work shall be clearly pre-defined with estimated tender cost of it, as part of the tender documents without any ambiguity.

(b) (3) To evaluate the technical eligibility of tenderer, only components of work as stipulated in tender documents for evaluation of technical eligibility, shall be considered. The scope of work covered in other remaining components shall be either executed by tenderer himself if he has work experience as mentioned in clause 7 of the Standard General Conditions of Contractor through subcontractor fulfilling the requirements as per clause 7 of the Standard General Conditions of Contract or jointly i.e., partly himself and remaining through subcontractor, with prior approval of Chief Engineer in writing.

However, if required in tender documents by way of Special Conditions, a formal agreement duly notarised, legally enforceable in the court of law, shall be executed by the main contractor with the subcontractor for the component(s) of work proposed to be executed by the subcontractor(s), and shall be submitted along with the offer for considering subletting of that scope of work towards fulfilment of technical eligibility. Such subcontractor must fulfill technical eligibility criteria as follows:

The subcontractor shall have successfully completed at least one work similar to work proposed for subcontract, costing not less than 35% value of work to be subletted, in last 5 years, ending last day of month previous to the one in which tender is invited through a works contract.

Note: for subletting of work costing up to Rs 50 lakh, no previous work experience of subcontractor shall be asked for by the Railway.

In case after award of contract or during execution of work it becomes necessary for contractor to change subcontractor, the same shall be done with subcontractor(s) fulfilling the requirements as per clause 7 of the Standard General Conditions of Contract, with prior approval of Chief Engineer in writing.

Note for Item 10.1:

Work experience certificate from private individual shall not be considered. However, in addition to work experience certificates issued by any Govt. Organisation, work experience certificate issued by Public listed company having average annual turnover of Rs 500 crore and above in last 3 financial years excluding the current financial year, listed on National Stock Exchange or Bombay Stock Exchange, incorporated/registered at least 5 years prior to the date of closing of tender, shall also be considered provided the work experience certificate has been issued by a person authorized by the Public listed company to issue such certificates.

In case tenderer submits work experience certificate issued by public listed company, the tenderer shall also submit along with work experience certificate, the relevant copy of work order, bill of quantities, bill wise details of payment received duly certified by Chartered Accountant, TDS certificates for all payments received and copy of final/last bill paid by company in support of above work experience certificate.

10.2. Financial Eligibility Criteria:

The tenderer must have minimum average annual contractual turnover of V/N or 'V' whichever is less; where

V= Advertised value of the tender in crores of Rupees

N= Number of years prescribed for completion of work for which bids have been invited.

The average annual contractual turnover shall be calculated as an average of "total contractual payments" in the previous three financial years, as per the audited balance sheet. However, in case balance sheet of the previous year is yet to be prepared/ audited, the audited balance sheet of the fourth previous year shall be considered for calculating average annual contractual turnover.

The tenderers shall submit requisite information as per Annexure-VIB, along with copies of Audited Balance Sheets duly certified by the Chartered Accountant/ Certificate from Chartered Accountant duly supported by Audited Balance Sheet.

10.3 Bid Capacity: The tender/technical bid will be evaluated based on bid capacity formula detailed as Annexure-VI.

10.4 No Technical and Financial credentials are required for tenders having advertised value up to Rs 50 lakh.

10.5 Credentials if submitted in foreign currency shall be converted into Indian currency i.e., Indian Rupee as under:

The conversion rate of US Dollars into Rupees shall be the daily representative exchange rates published by the Reserve Bank of India or entity authorized by RBI to do so for the relevant date or immediately previous date for which rates have been published. Where, relevant date shall be as on the last day of month previous to the

one in which tender is invited. In case of any other currency, the same shall first be converted to US Dollars as on the last day of month previous to the one in which tender is invited, and the amount so derived in US Dollars shall be converted into Rupees at the aforesaid rate. The conversion rate of such currencies shall be the daily representative exchange rates published by the International Monetary Fund for the relevant date or immediately previous date for which rates have been published.

[Explanation for Para 10 of the Tender Form (Second Sheet) including Para 10.1 to 10.5 - Eligibility Criteria:

- 1. Substantially Completed Work means an ongoing work in which payment equal to or more than 90% of the present contract value (excluding the payment made for adjustment of Price variation (PVC), if any) has been made to the contractor in that ongoing contract and no proceedings of termination of contract on Contractor's default has been initiated. The credential certificate in this regard should have been issued not prior to 60 days of date of invitation of present tender.*
- 2. In case a work is started prior to 07 (seven) years, ending last day of month previous to the one in which tender is invited, but completed in last 07 (seven) years, ending last day of month previous to the one in which tender is invited, the completed work shall be considered for fulfillment of credentials.*
- 3. If a work is physically completed and completion certificate to this extent is issued by the concerned organization but final bill is pending, such work shall be considered for fulfillment of credentials*
- 4. In case of completed work, the value of final bill (gross amount) including the PVC amount (if paid) shall be considered as the completion cost of work. In case final bill is pending, only the total gross amount already paid including the PVC amount (if paid) shall be considered as the completion cost of work.*

In case of substantially completed work, the total gross amount already paid including the PVC amount (if paid), as mentioned in the certificate, shall be considered as the cost of substantially completed work.

- 5. If a bidder has successfully completed a work as subcontractor and the work experience certificate has been issued for such work to the subcontractor by a Govt. Organization or public listed company as defined in Note for Item 10.1 Para 10 of the Tender Form (Second Sheet), the same shall be considered for the purpose of fulfillment of credentials.*
- 6. In case a work is considered similar in nature for fulfillment of technical credentials, the overall cost including the PVC amount (if paid) of that completed work or substantially completed work, shall be considered and no separate evaluation for each component of that work shall be made to decide eligibility.*
- 7. In case of newly formed partnership firm, the credentials of individual partners from previous propriety firm(s) or dissolved previous partnership firm(s) or split previous partnership firm(s), shall be considered only to the extent of their share in previous entity on the date of dissolution / split and their share in newly formed partnership firm. For example, a partner A had 30% share in previous entity and his share in present partnership firm is 20%. In the present tender under consideration, the credentials of partner A will be considered to the extent of $0.3 \times 0.2 \times \text{value of the work done in the previous entity}$. For this purpose, the tenderer shall submit along with his bid all the relevant documents which include copy of previous partnership deed(s), dissolution deed(s) and proof of surrender of PAN No.(s) in case of dissolution of partnership firm(s) etc.*
- 8. In case of existing partnership firm, if any one or more partners quit the partnership firm, the credentials of remaining partnership firm shall be re-worked out i.e., the*

quitting partner(s) shall take away his credentials to the extent of his share on the date of quitting the partnership firm(e.g. in a partnership firm of partners A, B & C having share 30%, 30% & 40% respectively and credentials of Rs 10 crore; in case partner C quits the firm, the credentials of this partnership firm shall remain as Rs 6 crore). For this purpose, the tenderer shall submit along with his bid all the relevant documents which include copy of previous partnership deed(s), dissolution deed(s) and proof of surrender of PAN No.(s) in case of dissolution of partnership firm(s) etc.

9. In case of existing partnership firm if any new partner(s) joins the firm without any modification in the name and PAN/TAN no. of the firm, the credentials of partnership firm shall get enhanced to the extent of credentials of newly added partner(s) on the same principles as mentioned in item 6 above. For this purpose, the tenderer shall submit along with his bid all the relevant documents which include copy of previous partnership deeds, dissolution/splitting deeds and proof of surrender of PAN No.(s) in case of dissolution of partnership firm etc.
10. Any partner in a partnership firm cannot use or claim his credentials in any other firm without leaving the partnership firm i.e., In a partnership firm of A&B partners, A or B partner cannot use credentials of partnership firm of A&B partners in any other partnership firm or propriety firm without leaving partnership firm of A&B partners.
11. In case a partner in a partnership firm is replaced due to succession as per succession law, the proportion of credentials of the previous partner will be passed on to the successor.
12. If the percentage share among partners of a partnership firm is changed, but the partners remain the same, the credentials of the firm before such modification in the share will continue to be considered for the firm as it is without any change in their value. Further, in case a partner of partnership firm retires without taking away any credentials from the firm, the credentials of partnership firm shall remain the same as it is without any change in their value.
13. In a partnership firm "AB" of A&B partners, in case A also works as propriety firm "P" or partner in some other partnership firm "AX", credentials of A in propriety firm "P" or in other partnership firm "AX" earned after the date of becoming a partner of the firm AB shall not be added in partnership firm AB.
14. In case a tenderer is LLP, the credentials of tenderer shall be worked out on above lines similar to a partnership firm.
15. In case company A is merged with company B, then company B would get the credentials of company A also.]

11. Tenderer Credentials:

Documents testifying tenderer previous experience and financial status should be produced along with the tender.

Tenderer(s) who is / are not borne on the approved list of the Contractors of _____ Railway shall submit along with his / their tender:

- (i) Certificates and testimonials regarding contracting experience for the type of job for which tender is invited with list of works carried out in the past.
- (ii) Audited Balance Sheet duly certified by the Chartered Accountant regarding contractual payments received in the past.
- (iii) The list of personnel / organization on hand and proposed to be engaged for the tendered work. Similarly list of Plant & Machinery available on hand and proposed to be inducted and hired for the tendered work.

- (iv) **A copy of certificate stating that they are not liable to be disqualified and all their statements/documents submitted along with bid are true and factual. Standard format of the certificate to be submitted by the bidder is enclosed as Annexure-V. In addition to annexure -V, in case of other than Company/Proprietary firm, Annexure-V(A) shall also be submitted by the each member of a Partnership firm/joint Venture (JV)/Hindu Undivided Family (HUF)/Limited Liability Partnership (LLP) etc as the case may be. Non submission of above certificate(s) by the bidder shall result in summarily rejection of his/their bid. It shall be mandatorily incumbent upon the tenderer to identify, state and submit the supporting documents duly self-attested / digitally signed by which they/he are/is qualifying the Qualifying Criteria mentioned in the Tender Document.**
- (v) The Railway reserves the right to verify all statements, information and documents submitted by the bidder in his tender offer, and the bidder shall, when so required by the Railway, make available all such information, evidence and documents as may be necessary for such verification. Any such verification or lack of such verification, by the Railway shall not relieve the bidder of its obligations or liabilities hereunder nor will it affect any rights of the Railway there under.
- (vi) (a) In case of any information submitted by tenderer is found to be false, forged or incorrect at any time during process for evaluation of tenders, it shall lead to forfeiture of the tender Bid Security besides banning of business for a period of upto **two** years.
- (b) In case of any information submitted by tenderer is found to be false, forged or incorrect after the award of contract, the contract shall be terminated. Bid Security, Performance Guarantee and Security Deposit available with the railway shall be forfeited. In addition, other dues of the contractor, if any, under this contract shall be forfeited and agency shall be banned for doing business for a period of upto **two** years.

Non-compliance with any of the conditions set forth therein above is liable to result in the tender being rejected.

Note: Criterion

1. For Financial Eligibility Criteria, The tenderers shall submit requisite information as per Annexure-VIB, along with copies of Audited Balance Sheets duly certified by the Chartered Accountant/ Certificate from Chartered Accountant duly supported by Audited Balance Sheet.
2. For **Technical Eligibility Criteria**, Tenderer should submit completion certificate issued by the concerned executive.

Similar work: “Execution of any 25 KV AC OHE work”

14 DOCUMENTS TO BE UPLOADED ALONG WITH TENDER :

The following documents are required to be uploaded along with tender.

- a) **List of personnel**, Organisation available on hand and proposed to be engaged for the subject work.
- b) **List of Plant & Machinery**, available on hand (own) and proposed to be inducted (own & hired to be given separately) for the subject work.

- c) **List of works completed** , in the qualifying period giving description of work, organisation for whom executed, approximate value of contract at the time of award , date of award & date of scheduled completion of work, date of actual start, actual completion and final value of contract should also be given.
- d) **List of works on hand** indicating description of work, contract value, approximate value of balanced work yet to be done & date of award.

Note : 1) In case of item (c) & (d) above, supportive documents/ certificates from the organisation with whom they worked/ are working should be enclosed.
2) Certificates from the private individuals for whom such works are executed/being executed will not be accepted.

14.2 **ELECTRICAL CONTRACTORS LICENSE:-** The contractor shall fulfill valid Electrical Contractor License requirement as per IE Rule 1956 clause no-45. Electrical Contractors license shall be submitted along with the offer, failing which the offer will be summarily be rejected.

15. **LAST DATE FOR SUBMISSION OF TENDERS**

The tender must be accompanied with Bid Security deposited through net banking or payment gateway only as provided in **www.ireps.gov.in** website failing which the tender will be summarily rejected. The tenderer shall hold the offer open till such date as may be specified in the tender. **The tenderer should submit the tender and other required documents through online only within stipulated period. Manually submitted offer shall neither be opened nor be considered.** Tender closing date & time of aforesaid tender: **Upto 11.00 hours of 14-07-2026 and will be opened after 11.00 hrs.**

16. **DATE OF OPENING OF TENDERS.**

- 1. Tender closing date & time of aforesaid tender: **Upto 11.00 hours of 14-07-2026 and will be opened after 11.00 hrs.**
- 2. The prospective tenderers are requested to visit the website **www.ireps.gov.in** for details of tenders & corrigendum, if any.
- 3. Tenderer may participate in above e-tender electronically through website **www.ireps.gov.in** only & submission of manual offers against e-tender are not allowed. Manually, if submitted shall neither be opened nor considered.
- 4. For further enquiry, may contact: **Senior Divisional Electrical Engineer (Traction Distribution), Annex Bldg., 2nd floor, Central Railway, Mumbai CST** on phone- 022-22612355.
- 6. Complete details of tenders are available at the website "**www.ireps.gov.in**". The complete details of tenders are also available in the "Notice Board" of the Sr. DEE (TD)Office, Mumbai CST.

17. **ADDRESSES**

Relevant Addresses for various purposes connected with the tender are given in para 3.19.

18 **GENERAL CONDITION OF CONTRACT :**

(a) Unless otherwise stated in the tender papers, contract shall be governed by "**General Condition of Contract April 2022**" along with all correction slips, copy of which is attached with e-tender on **www.ireps.gov.in**. For block working in Mumbai division, rules/procedure stipulated in PDSR (Power Distribution & Subsidiary Rules) and G&SR (General & Subsidiary Rules) as applicable for Mumbai division shall be followed. Successful tenderer shall ensure himself & his staff for getting acquaintance of these rules.

18. SPECIAL CONDITIONS OF CONTRACT:-

- 18.1 It should be specifically noted that some of the detailed drawings may not have finalized by the Railway and will, therefore, be supplied to the contractor as and when they are finalized on demand. No compensation whatsoever on this account shall be payable by the Railway Administration.
- 18.2 No claim whatsoever will be entertained by the Railway on account of any delay or hold up of the work(s) arising out of delay in approval of drawings, changes, modifications, alterations, additions, omission and site lay out plan or detailed drawings and design and or late supply of such materials as are required to be arranged by the Railway or due to any other factor on Railway account.
- 18.3 No claim for idle labour and or idle machinery etc. on any account will be entertained. Similarly no claims shall be entertained for business loss or any such loss.
- 18.4 Procedure order for safety related issues at Electrical work sites received from CEE CR office vide letter No:L.574.TRD.safety dated 19.03.2010 is attached as annexure 11 and same should be followed during execution of work.

19. Care in Submission of Tenders:

(a) (i) 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 rates he enters in the tender forms are adequate and all inclusive to accord with the provisions in Clause-37 of the Standard General Conditions of Contract for the completion of works to the entire satisfaction of the Engineer.

(a)(ii) Tenderers will examine the various provisions of The Central Goods and Services Tax Act, 2017(CGST)/ Integrated Goods and Services Tax Act, 2017(IGST)/ Union Territory Goods and Services Tax Act, 2017(UTGST)/ respective state's State Goods and Services Tax Act (SGST) also, as notified by Central/State Govt.& as amended from time to time and applicable taxes before bidding. Tenderers will ensure that full benefit of Input Tax Credit (ITC) likely to be availed by them is duly considered while quoting rates.

(a)(iii) The successful tenderer who is liable to be registered under CGST/IGST/UTGST/SGST Act shall submit GSTIN along with other details required under CGST/IGST/UTGST/SGST Act to railway immediately after the award of contract, without which no payment shall be released to the Contractor. The Contractor shall be responsible for deposition of applicable GST to the concerned authority.

(a)(iv) In case the successful tenderer is not liable to be registered under CGST/IGST/UTGST/ SGST Act, the railway shall deduct the applicable GST from his/their bills under reverse charge mechanism (RCM) and deposit the same to the concerned authority.

(b) When work is tendered for by a firm or company, the tender shall be signed by the individual legally authorized to enter into commitments on their behalf.

(c) The Railway will not be bound by any power of attorney granted by the tenderer or by changes in the composition of the firm made subsequent to the execution of the contract. It may, however, recognize such power of attorney and changes after obtaining proper legal advice, the cost of which will be chargeable to the Contractor.

(a)(v) Contractor shall be liable to pay/refund the amount collected as GST to the Indian Railways along with interest and penalties, if any imposed by the authorities, in case GST input tax credit of Indian Railways is denied/rejected by the tax authorities due to reasons mentioned below but not limited to:

Wrong/incorrect invoices issued by Contractor;
No-filing of GST returns;
Non-payment of GST collected from Indian Railways to the authorities;
Any other non-compliance done by Contractor;

General Indemnity: Contractor hereby agrees to indemnify and hold harmless the Indian Railways from and against any and all losses, including loss on account of Input Tax Credit and all losses incurred by the Indian Railways relating to or arising out of or in connection with any actual or threatened claim, legal action, proceedings, prosecution or inquiry by or against the Indian Railways arising out, directly or indirectly, of failure by the contractor to comply with the provisions of GST and related laws, or based upon or arising from any failure by the Contractor.

Retention Money: Any payment liable to be paid by Indian Railways to contractor against the goods or services or both supplied by such contractor to Indian Railways shall be kept on hold in case supplier makes any non-compliance of any of the GST law provisions including non-reporting of invoices in GST returns. Such payment shall be released after proper verification of records and availability of ITC to Indian Railways as per provisions of GST Law.

19.1 The tenderers shall submit a copy of certificate stating that all their statements/documents submitted alongwith bid are true and factual. Standard format of certificate to be submitted by the bidder is enclosed as Annexure-V. In addition to annexure -V, in case of other than Company/Proprietary firm, Annexure-V(A) shall also be submitted by the each member of a Partnership firm/joint Venture (JV)/Hindu Undivided Family (HUF)/Limited Liability Partnership (LLP) etc as the case may be. Non submission of above certificate by the bidder shall result in summarily rejection of his/their bid. It shall be mandatorily incumbent upon the tenderer to identify, state and submit the supporting documents duly self attested/digitally signed by which they/he is qualifying the Qualifying Criteria mentioned in the Tender Document.

20. Right of Railway to Deal with Tenders: The Railway reserves the right of not to invite tenders for any of Railway work or works or to invite open or limited tenders and when tenders 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. In case if tender is accepted in part by Railway administration, Letter of Acceptance shall be issued as counter offer to the Tenderer, which shall be subject to acceptance by the Tenderer.

21 Make in India Policy: Provisions of Make in India Policy 2017 issued by Govt. of India, as amended from time to time, shall be followed for consideration of tenders.

22 Permission to Bid for a bidder from a country which shares Land boundary with India: Any bidder from the countries sharing a land border with India will be eligible to bid in any procurement of works (including turnkey projects) only if the bidder is registered with the Competent Authority. The Competent Authority for registration will be the Registration Committee constituted by the Department for Promotion of Industry and Internal Trade (DPIIT), Government of India. For interpretation of this para, Department of Expenditure, Ministry of Finance, Government of India letter F.No.6/18/2019-PPD dated 23/07/2020 shall be referred.

23. Clarification of Bids: To assist in the examination, evaluation & comparison and pre-qualification of the Tender, the Railway may, at its discretion, ask any Bidder for a clarification of its Bid. Any clarification submitted by a Bidder that is not in response to a request by the Railway shall not be entertained or considered. The Railway request for clarification and the response of the bidder in this regard shall be in writing. However, if a Bidder does not provide clarification of its bid by the date and

time communicated in the Railway request for clarification, the bid shall be evaluated as per the documents submitted along with the bid.

24. Execution of Contract Document: The Tenderer whose tender is accepted shall be required to appear in person at the office of General Manager/General Manager (Construction), Chief Administrative Officer (Construction), Divisional Railway Manager or concerned Engineer, as the case may be, or if tenderer is a firm or corporation, a duly authorized representative shall appear (there would be no need for appear in person if agreement is signed digitally) and execute the contract agreement within seven days of notice from Railways that the Contract Agreement is ready. Failure to do so shall constitute a breach of the agreement affected by the acceptance of the tender. The Contract Agreement shall be entered into by Railway only after submission of valid Performance Guarantee by the Contractor. In such cases the Railway may determine that such tenderer has abandoned the contract and there upon his tender and acceptance thereof shall be treated as cancelled and the Railway shall be entitled to forfeit the full amount of the Bid Security and other dues payable to the Contractor under this contract. The failed Contractor shall be debarred from participating in the re-tender for that work.

25. Form of Contract Document: Every contract shall be complete in respect of the document it shall so constitute. Not less than 2 copies of the contract document shall be signed by the competent authority and the Contractor and one copy given to the Contractor (there would be no need of signing two copies if agreement is signed digitally).

(a) For Zone Contracts, awarded on the basis of the percentage above or below the applicable chapter(s) of Standard Schedule of Rates (SSOR) for the whole or part of financial year, the contract agreement required to be executed by the tenderer whose tender is accepted shall be as per specimen form, Annexure-II. During the currency of the Zone Contract, work orders as per specimen form Annexures-III, for works not exceeding ₹ 5,00,000 each, shall be issued by the Divisional Railway Manager / Executive Engineer under the agreement for Zone Contract.

(b) For contracts for specific works, the contract document required to be executed by the tenderer whose tender is accepted shall be an agreement as per specimen form Annexure- IV.

* * * * *

PART-I
CHAPTER-I

***INSTRUCTION TO TENDERER AND CONDITIONS
OF TENDERING***

1. **PART-I**
1.1 **CHAPTER-I**
INSTRUCTIONS TO TENDERERS & CONDITIONS OF TENDERING

Para No.		Subject
1.1.1	..	Tender papers.
1.1.2	..	Interpretations.
1.1.3	..	General.
1.1.4	..	Clarifications.
1.1.5	..	BID SECURITY .
1.1.6	..	Income Tax Clearance Certificate.
1.1.7	..	Forms of Tender.
1.1.8	..	Prices.
1.1.9	..	Deleted.
1.1.10	..	Specifications and Drawings.
1.1.11	..	Schedule of Work.
1.1.12	..	Signing of Tenders.
1.1.13	..	Tenderer's Address.
1.1.14	..	Erasure or alteration.
1.1.15	..	Result of Tender.
1.1.16	..	Purchaser not bound to accept any Tender.
1.1.17	..	Tender an Agreement.
1.1.18	..	Tenders Confidential.
1.1.19	..	Canvassing and Bribery.
1.1.20	..	Indian Labour and Material.
1.1.21	..	Tenderer's credentials.
1.1.22	..	Submission of Tender.
1.1.23	..	Opening of Tender.
1.1.24	..	Miscellaneous.
1.1.25	..	Guidelines for Joint venture firms
1.1.26	..	Documents to be Submitted Along with Tender
1.1.27	..	Employment/Partnership etc. of Retired Railway Employees

---****---

PART I

CHAPTER - I

INSTRUCTIONS TO TENDERERS & CONDITIONS OF TENDERING.

TENDER PAPERS : 1.1.1

The instructions to Tenderers and conditions of Tendering, Conditions of Contract, Prices, Payment and Explanatory Notes, specifications and forms for Tenders, included in part-I to V shall, hereafter, be collectively referred to as the Tender papers.

The intending Tenderer is advised to study the Tender Papers carefully. The Tenderer shall also acquaint himself with the local conditions, means of access to the site of work, nature of work and all other matters pertaining thereto.

The submission of Tender shall be deemed to have been done after careful study and examination of the Tender papers with a full understanding of the implications thereof.

INTERPRETATIONS : 1.1.2

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

"CONTRACT"

"Contract" shall mean and include the Agreement of Work Order, the accepted Schedule of Rates or the Schedule or Rates of Railway modified by the tender percentage for items of works quantified, or not quantified, the Standard General Conditions of Contract, the Special Conditions of Contracts, if any; the Drawing, the Specifications, the Special Specifications, if any and Tender Forms, if any.

"CONTRACTOR"

"Contractor" shall mean the Person/Firm/Co-operative Society or Company whether incorporated or not who enters into the contract with the Railway and shall include their executors, administrators, successors and permitted assigns.

"CONTRACTOR'S AGENT"

Shall mean the person or persons authorised under a duly executed power of Attorney to take all actions relating to the work, as could be taken by the Contractor himself. In the case of a firm of Contractors, the Agent shall have the same powers as that of the Managing Director of the firm.

"CONTRACTOR'S REPRESENTATIVE"

Shall mean a person in supervisory capacity who shall be so declared by the Contractor and who shall be authorised under duly executed power of Attorney to receive materials issued by the Purchaser to the Contractor for the works. He shall be responsible for proper execution of works at each or all places and shall take orders from Purchaser's Engineers and carry out the same.

“ENGINEER”

“Engineer” shall mean the Divisional Electrical Engineer, in executive charge of the works and shall include the superior officers of Electrical Traction Department, i.e. the Senior Divisional Electrical Engineer and shall mean & include the Engineers of the Successors Railway.

"EQUIPMENT"

Means all or any equipment considered necessary by the Purchaser's Engineers for the satisfactory operation, as a whole, of the Installations, including structures, foundations etc.

"GENERAL MANAGER"

“General Manager” shall mean the Officer-in-Charge of the general superintendence and control of the Zonal Railway/Production Units and shall also include Addl. General Manager, the General Manager (Construction) and shall mean and include their successors, of the Successor Railway.

"MONTH"-

Means any consecutive period of thirty days.

"MATERIALS"

Means all equipment's components, fittings and other materials including raw materials required to complete the work.

"PURCHASER"

Means the President of India acting through his accredited officers or any one of them. The General Manager, In-charge of the Central Railway (whose address will be intimated in due course) shall be deemed to be one of such accredited officers.

"PURCHASER'S ENGINEERS"

Means the Engineers appointed by the Purchaser, as indicated in Part-III of the Tender Papers who will decide all matters relating to design, manufacture, installation and commissioning of the plant and equipment at site.

"RAILWAY"

Means the Railway(s) in whose territorial jurisdiction the work is to be carried out and includes the Government of India, Ministry of Railways (Railway Board) and/or General Manager of the Railway concerned.

"SUB-CONTRACTOR"

Means an individual or a firm of Contractor or a company registered under Indian Company Act or an approved supplier of materials to whom the Contractor sublets portions of the contract after obtaining specific prior approval of the Purchaser in writing to sub-letting of contract.

"SITE"

Means the areas to be taken up by the permanent works, together with any other area or areas as shall be determined by the Purchaser's Engineers, which may be placed at the disposal of the Contractor for the purpose of the contract and also such area or areas used for store yards, works yards or workshop in proximity of the works as the Purchaser' Engineers may have authorised as an extension of the site, irrespective of the terms and conditions under which they are occupied by the Contractor.

"TENDERER"

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

"WORK OR WORKS"

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

"WRITING"

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

GENERAL : 1.1.3

(a) All documents to be submitted in connection with this Tender SHALL BE WRITTEN IN ENGLISH AND IN INK.

(b) All prices shall also be expressed in words wherever indicated.

(c) **METRIC**

Dimensions, weights etc. SHALL BE QUOTED IN METRIC system. The term "tonne" =1,000 kg. shall be used to indicate a metric tonne(M.T)

CLARIFICATIONS : 1.1.4

Any clarification required by the Tenderer may be obtained from **Sr. Divisional Electrical Engineer (Traction Distribution), Central Railway, Mumbai CST-400001.** or his successor/nominee (whose address will be intimated in due course).

BID SECURITY : 1.1.5

(a) Subject to exemptions provided under para 5(1) (a) of Part-1 (ITT) of this document, the tender must be accompanied by a Bid Security as mentioned in tender documents, failing which the tender shall be summarily rejected.

(b) The Tenderer(s) shall keep the offer open for a minimum period of 60 days (in case of two packet system of tendering 90days) from the date of closing of the Tender. It is understood that the tender documents have been issued to the Tenderer(s) and the Tenderer(s), is / are permitted to tender in consideration of the stipulation on his / their part that after submitting his / their tender subject to the period being extended further, if required by mutual agreement from time to time, he will not resile from his offer or modify the terms and conditions thereof in a manner not acceptable to _____ Railway. Should the tenderer fail to observe or comply with the foregoing stipulation, the amount deposited or Bank guarantee bond submitted as Bid Security for the due performance of the above stipulation, shall be forfeited to the Railway.

(c) If his tender is accepted,

(i) the Bid Security mentioned in sub para(a) above deposited in cash through e-payment gateway will be retained as part security for the due and faithful fulfillment of the contract in terms of Clause 16 of the Standard General Conditions of Contract;

- (ii) the Bid Security mentioned in sub para(a) above submitted as Bank guarantee bond, will be encashed as part security for the due and faithful fulfillment of the contract in terms of Clause 16 of the Standard General Conditions of Contract.

The Bid Security of other Tenderers shall, save as herein before provided, be returned to them, but the Railway shall not be responsible for any loss or depreciation to the Bid Security that may happen thereto while in their possession, nor be liable to pay interest thereon.

- (d) In case Contractor submits the Term Deposit Receipt/Bank Guarantee Bond towards either the Full Security Depositor the Part Security Deposit equal to or more than Bid Security, the Railway shall return the Bid Security so retained as per sub para(c) above, to the Contractor.

INCOME TAX CLEARANCE CERTIFICATE : 1.1.6

The Tenderer shall enclose with the Tender Photostat/ Xerox copy of the valid Indian Income Tax Clearance Certificate duly attested by Notary Public. The Tenderer will, however, submit the original Income Tax Clearance Certificate whenever asked for by the Purchaser for verification or tenderer should submit audited balance sheet duly certified by Chartered Accountant.

FORM OF TENDER : 1.1.7

- (b) **Documents to be enclosed :**

Each copy of the tender shall consist of the following :

- | | |
|--|------------------|
| (1) Offer letter | Form-1 |
| (2) Summary of prices | Form-4 |
| (3) Schedule- 1, Section 1 | Form-5 |
| (4) Schedule-1, Section 2 | Deleted |
| (5) Schedule-4 | Deleted |
| (6) Schedule – 5 | Deleted |
| (7) Complete Technical data and particulars of the equipment offered, as specified in the Tender papers together with descriptive literature, leaflets, etc. | Form-3 |
| | Form-7(b) |
| (8) Drawings, if any, complete with list | |
| (9) Tenderers scheme of work and Time schedule
(See Para 1.1.11) | Form-8 |
| (10) Name of manufacturers, place of manufacture, and inspection of supplies. | Form- 9A&9B
- |
| (11) Receipt of Bid Security | - |
| (12) Audited balance sheet certified by Chartered Accountant. | - |

(d) **Alternative proposals**

-----Deleted---

PRICE : 1.1.8

This is a works Contract. The prices to be paid for supply and erection of various items of work or for materials and other amount payable, shall be in accordance with accepted schedules or prices or rates as governed by the terms and conditions of payment included in part-I, Chapter-III-prices and Payment.

1.1.9 -Deleted-

SPECIFICATIONS AND DRAWINGS : 1.1.10

(a) The Tenderer shall follow the latest standard general arrangement drawings and other drawings and specification relating to the equipment, components and fittings specified in the Tender paper. A copy of standard drawings and specifications are available for inspection in the drawing office of the **Sr. Divisional Electrical Engineer (Traction Distribution), Mumbai. CST** or his successor/ nominee (whose address will be intimated in due course).

(b) **Meaning and intent of specifications and drawings -**

If any ambiguity arises as to the meaning and intent of any portion of the specifications and drawings or as to execution of quality of any work or material or as to the measurements of the works, the decision of the Engineer In-charge shall be final subject to appeal (within seven days of decision being intimated to the Contractor) to the **Sr. Divisional Electrical Engineer (Traction Distribution), Mumbai. CST** who shall have the power to correct any errors, omission or discrepancies in the specifications, drawings, classification of work or materials, and whose decision in the matter in dispute or doubt shall be final and conclusive.

SCHEDULE OF WORK : 1.1.11

(a) The Tenderer shall indicate the period in months within which he would complete the work in the offer letter of Tender assuming that the Letter of Acceptance of the Tender is issued to him in month Zero.

(b) The Tenderer shall enclose with his offer the scheme of work and realistic time schedule (See Form 8 Part V) on graph paper showing the period of time that he will take for the various items of work listed therein . The tenderer shall indicate in the form of notes to the schedule the assumptions and the basis adopted for the preparation of the time schedule. Detailed time schedule as required under para 1.2.18 shall be based on this time schedule. Any reduction offered by the tenderer in the period allowed for completion of works will be taken into account while examining the offers.

SIGNING OF TENDERS : 1.1.12

(a) Any individual or individuals signing the Tender or other documents connected therewith should specify whether he is signing

- (i) As a sole proprietor of the concern or his attorney or
- (ii) As a partner or partners of the firm or,
- (iii) For the firm per procreation, or

(iv) As a Director, Manager or Secretary in the case of a limited Company.

(b) In the case of firm not registered under the Indian Partnership act, all the partners or the Attorney duly authorised by all of them should sign the Tender and all other connected documents. A copy of the document empowering the individual or individuals to sign should also be sent with the Tender. In any case, the Tenderer should disclose his constitution fully and copies of all necessary legal documents in support thereof should be submitted with the Tender and originals thereof should be produced as and when called for.

(c) Should the Contractor be a partnership firm and in the event of the Contract becoming inoperable due to the death of its partner or partners, the Purchaser shall have the right to enter into a separate Agreement with the surviving partner or partners of the firm to continue the execution of the work under the terms and conditions of this agreement.

TENDERER'S ADDRESS : 1.1.13

Every Tenderer shall state in the Tender his postal address fully and clearly. Any communication sent to the Tenderer by post at his address shall be deemed to have reached the Tenderer duly and in time notwithstanding the fact that the communication did not reach the Tenderer at all or in time for whatever reason. Important documents shall be sent by Registered Post.

ERASURE OR ALTERATION : 1.1.14

No erasure or alteration in the text of the Tender Papers is permitted and any such erasure and /or alteration will either be disregarded or render the whole Tender void at the option of the Purchaser. Any correction made in rate for work shall be initialed by the Tenderer in ink and dated.

RESULT OF TENDER : 1.1.15

The successful tenderers will be advised by letter. No tender shall be deemed to have been accepted unless such acceptance has been notified in writing to the successful Tenderer by the Purchaser.

PURCHASER NOT BOUND TO ACCEPT ANY TENDER : 1.1.16

The Purchaser 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 work load on tenderers shall only be considered at this stage. The Purchaser 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 sub-divide the work among different Tenderers 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 Central Public Sector undertakings is upto 10% higher than the lowest acceptable tender of private sector tenderer, subject to cost of tender being in excess of one crore, the Railway reserves the right to give purchase preference to the tender of such Central Public Sector undertakings ignoring the lowest. However, such public enterprises which shall avail benefit of the purchase preference would be subjected to adequate penalties for cost over-runs etc.

TENDER AN AGREEMENT : 1.1.17

The fact of the submission to the Purchaser of a Tender shall be deemed to constitute an Agreement between the Tenderer and the Purchaser whereby such Tender shall remain open for acceptance either in part or in full, or as may be modified by negotiation, by the Purchaser for a period of **Four months** from the date on which Tenders are opened, during which period the Tenderer shall not withdraw his offer nor amend, impair or derogate there from. The Bid Security deposited in accordance with Para 1.1.5 above shall be forfeited if the Tenderer unilaterally withdraws, amends, impairs or derogates from the Tender in any respect within the said period of **Four months**. The Tenderer shall be deemed to have agreed as aforesaid in consideration of his Tender being considered by the Purchaser in terms hereof provided the same has been duly submitted and is otherwise in order. When the successful Tenderer is notified in writing at his address given in the Tender within the said period of **Four months** that his Tender has been accepted by the Purchaser either in whole or in part, he shall be bound by the terms of agreement constituted by Purchaser until a formal Contract has been executed between him and the Purchaser in replacement of such Agreement as provided for in para 1.2.16.

TENDERS CONFIDENTIAL : 1.1.18

The Tenderer (whether his tender be accepted or not) shall treat the contents of his tender as private and confidential. He shall treat the prices quoted by him as strictly confidential till the tenders are opened (See Para 1.1.23).

CANVASSING AND BRIBERY : 1.1.19

- (a) No Tenderer shall canvass any Government official or the Purchaser's Engineers in respect of this or any other Tender. Contravention of this condition will involve rejection of the Tender. This clause shall not be deemed to prevent the Tenderer from supplying the Purchaser any information asked for by him.
- (b) Any bribe, commission, gift or advantage given, promised or offered by the Tenderer, or his partner, Agent or servant or any one on his or their behalf, to any officer, servant, representative or Agent of the Purchaser or any person on his or their behalf, in relation to the obtaining of this or any other contract with the Purchaser, shall, in addition to the criminal liability he may incur under the Prevention of Corruption Act (1908), subject the Tenderer to the cancellation of this and all other Tenders. Any question or dispute as to the commission of any offence under the present clause shall be decided by the Purchaser, in such manner and on such evidence or information as may be thought fit and sufficient, and his decision shall be final and conclusive in the matter.

INDIAN LABOUR AND MATERIALS : 1.1.20

- (a) The Tenderer shall utilise Indian labour including supervisory staff, for the execution of this contract to the maximum possible extent.
- (b) The Tender shall be prepared on the basis that all the materials required to complete the works including those indicated in schedule 3 are procured from indigenous sources in full.

TENDERER'S CREDENTIALS : 1.1.21

Please refer clause no. 12 of preamble.

SUBMISSION OF TENDER : 1.1.22

The tender must be accompanied with Bid Security deposited through net banking or payment gateway only as provided in **www.ireps.gov.in** website failing which the tender will be summarily rejected. The tenderer shall hold the offer open till such date as may be specified in the tender. **The tenderer should submit the tender and other required documents through online only within stipulated period. Manually submitted offer shall neither be opened nor be considered.**

OPENING OF TENDER : 1.1.23

1. Tender closing date & time of aforesaid tender: **Upto 11.00 hours of 14-07-2026 and will be opened after 11.00 hrs.**
2. The prospective tenderers are requested to visit the website **www.ireps.gov.in** for details of tenders & corrigendum, if any.
3. Tenderer may participate in above e-tender electronically through website **www.ireps.gov.in** only & submission of manual offers against e-tender are not allowed. Manually, if submitted shall neither be opened nor considered.
4. For further enquiry, may contact: **Senior Divisional Electrical Engineer (Traction Distribution), Annex Bldg., 2nd floor, Central Railway, Mumbai CST** on phone- 022-22612355.
5. Complete details of tenders are available at the website "**www.ireps.gov.in**". The complete details of tenders are also available in the "Notice Board" of the Sr. DEE (TD) Office, Mumbai CST.

MISCELLANEOUS : 1.1.24

Tender documents are not transferable.

GUIDELINES FOR PARTICIPATION OF JOINT VENTURE FIRMS IN

WORKS TENDER : 1.1.25

-Deleted-

DOCUMENTS TO BE SUBMITTED ALONG WITH TENDER 1.1.26

GCC para 14.

- (i) The tenderer shall clearly specify whether the tender is submitted on his own (Proprietary Firm) or on behalf of a Partnership Firm / Company / Joint Venture (JV) / Registered Society / Registered Trust / Hindu Undivided Family (HUF) / Limited Liability Partnership (LLP) etc. The tenderer(s) shall enclose the attested copies of the constitution of their concern, and copy of PAN Card along with their tender. Tender Documents in such cases are to be signed by such persons as may be legally competent to sign them on behalf of the firm, company, association, trust or society, as the case may be.
- (ii) Following documents shall be submitted by the tenderer:
 - (a) **Sole Proprietorship Firm:**
 - (i) All documents in terms of Para 10 of the Tender Form (Second Sheet) above.
 - (b) **HUF:**
 - (i) A copy of notarized affidavit on Stamp Paper declaring that he who is submitting the tender on behalf of HUF is in the position of 'Karta' of Hindu Undivided Family (HUF) and he has the authority, power and consent given by other members to act on behalf of HUF.

- (ii) All other documents in terms of Para 10 of the Tender Form (Second Sheet) above.
- (c) **Partnership Firm:**
 - (i) All documents as mentioned in para 18 of the Tender Form (Second Sheet).
- (d) **Joint Venture (JV):** All documents as mentioned in para 17 of the Tender Form (Second Sheet).
- (e) **Company registered under Companies Act 2013:**
 - (i) The copies of **MOA (Memorandum of Association) / AOA (Articles of Association)** of the company
 - (ii) A copy of Certificate of Incorporation
 - (iii) A copy of Authorization/Power of Attorney issued by the Company (backed by the resolution of Board of Directors) in favour of the individual to sign the tender on behalf of the company and create liability against the company.
 - (iv) All other documents in terms Para 10 of the Tender Form (Second Sheet) above.
- (f) **LLP (Limited Liability Partnership):**
 - (i) A copy of LLP Agreement
 - (ii) A copy of Certificate of Incorporation
 - (iii) A copy of Power of Attorney/Authorization issued by the LLP in favour of the individual to sign the tender on behalf of the LLP and create liability against the LLP.
 - (iv) An undertaking by all partners of the LLP that they are not blacklisted or debarred by Railways or any other Ministry / Department of the Govt. of India from participation in tenders / contracts as on the date of submission of bids, either in their individual capacity or in any firm/LLP or JV in which they were / are partners/members. Concealment / wrong information in regard to above shall make the contract liable for determination under Clause 62 of the Standard General Conditions of Contract.
 - (v) All other documents in terms of Para 10 of the Tender Form (Second Sheet).
- (g) **Registered Society & Registered Trust:**
 - (i) A copy of Certificate of Registration
 - (ii) A copy of Memorandum of Association of Society/Trust Deed
 - (iii) A copy of Power of Attorney in favour of the individual to sign the tender documents and create liability against the Society/Trust.
 - (iv) A copy of Rules & Regulations of the Society
 - (v) All other documents in terms of Para 10 of the Tender Form (Second Sheet) above.
- (iii) If it is NOT mentioned in the submitted tender that tender is being submitted on behalf of a Sole Proprietorship firm / Partnership firm / Joint Venture / Registered Company etc., then the tender shall be treated as having been submitted by the individual who has signed the tender.
- (iv) After opening of the tender, any document pertaining to the constitution of Sole Proprietorship Firm / Partnership Firm / Registered Company/ Registered Trust / Registered Society / HUF/LLP etc. shall be neither asked nor considered, if submitted. Further, no suo moto cognizance of any document available in public domain (i.e., on internet etc.) or in Railway's record/office files etc. will be taken

for consideration of the tender, if no such mention is available in tender offer submitted.

- (v) A tender from JV shall be considered only where permissible as per the tender conditions.
- (vi) The Railway will not be bound by any change of power of attorney or in the composition of the firm made subsequent to the submission of tender. Railway may, however, recognize such power of attorney and changes after obtaining proper legal advice, the cost of which will be chargeable to the Contractor.

GCC para 15. The tenderer whether sole proprietor / a company or a **partnership firm / registered society** / registered trust / HUF / LLP etc if they want to act through agent or individual partner(s), should submit along with the tender, a copy of power of attorney duly stamped and authenticated by a Notary Public or by Magistrate in favour of the specific person whether he/they be partner(s) of the firm or any other person, specifically authorizing him/them to sign the tender, submit the tender and further to deal with the Tender/ Contract up to the stage of signing the agreement except in case where such specific person is authorized for above **purposes through a provision made in the partnership deed / Memorandum of Understanding / Article of Association / Board resolution, failing which tender shall be summarily rejected.**

A separate power of attorney duly stamped and authenticated by a Notary Public or by Magistrate in favour of the specific person whether he/they be partner(s) of the firm or any other person, shall be submitted after award of work, specifically authorizing him/them to deal with all other contractual activities subsequent to signing of agreement, if required.

Note: A Power of Attorney executed and issued overseas, the document will also have to be legalized by the Indian Embassy and notarized in the jurisdiction where the Power of Attorney is being issued. However, the Power of Attorney provided by Bidders from countries that have signed the Hague Legislation Convention 1961 are not required to be legalized by the Indian Embassy if it carries a conforming Appostille certificate.

GCC para 16. Employment/Partnership etc. of Retired Railway Employees:

- (a) Should a tenderer
 - i) be a retired Engineer of the gazetted rank or any other gazetted officer working before his retirement, whether in the executive or administrative capacity or whether holding a pensionable post or not, in the Engineering or any other department of any of the railways owned and administered by the President of India for the time being, OR
 - ii) being partnership firm / joint venture (JV) / registered society / registered trust etc have as one of its partners/members a retired Engineer of the gazetted rank or any other gazetted officer working before his retirement, OR
 - iii) being an incorporated company have any such retired Engineer of the gazetted rank or any other gazetted officer working before his retirement as one of its directors

AND

in case where such Engineer or officer had not retired from government service at least 1 year prior to the date of submission of the tender

THEN

the tenderer will give full information as to the date of retirement of such Engineer or gazetted officer from the said service and as to whether permission

for taking such contract, or if the Contractor be a partnership firm or an incorporated company, to become a partner or director as the case may be, has been obtained by the tenderer or the Engineer or officer, as the case may be from the President of India or any officer, duly authorized by him in this behalf, shall be clearly stated in writing at the time of submitting the tender.

- b) In case, upon successful award of contract, should a tenderer depute for execution of the works under or to deal matters related with this contract, any retired Engineer of gazette rank or retired gazetted officer working before his retirement in the Engineering or any other department of any of the railways owned and administered by the President of India for the time being, and now in his employment, then the tenderer will ensure that retired Engineer or retired gazetted officer had retired from government service at least 1 year prior to the date of his employment with tenderer and in case he had retired from service within a year then he possesses the requisite permission from the President of India or any officer, duly authorized by him in this behalf, to get associated with the tenderer.
- c) Should a tenderer or Contractor being an individual, have member(s) of his family or in the case of partnership firm/ company / joint venture (JV) / registered society / registered trust etc. one or more of his partner(s)/shareholder(s) or member(s) of the family of partner(s)/shareholder(s) having share of more than 1% in the tendering entity employed in gazetted capacity in the Engineering or any other department of the railway, then the tenderer at the time of submission of tender, will inform the authority inviting tenders the details of such persons.

Note: -If information as required as per 16.a), b), c) above has not been furnished, contract is liable to be dealt in accordance with provision of clause 62 of the Standard General Condition of contract.

JOINT VENTURE (JV) IN WORKS TENDERS

GCC para 17. Participation of Joint Venture (JV) in Works Tender: This para shall be applicable for works tenders wherein tender documents provide for the same.

17.1 Separate identity/name shall be given to the Joint Venture.

17.2 Number of members in a JV shall not be more than three, if the work involves only one department (say Civil or S&T or Electrical or Mechanical) and shall not be more than five, if the work involves more than one Department. One of the members of the JV shall be its Lead Member who shall have a majority (at least 51%) share of interest in the JV. The other members shall have a share of not less than 20% each in case of JV with upto three members and not less than 10% each in case of JV with more than three members. In case of JV with foreign member(s), the Lead Member has to be an Indian firm/company with a minimum share of 51%.

17.3 A member of JV shall not be permitted to participate either in individual capacity or as a member of another JV in the same tender.

17.4 The tender form shall be purchased and submitted only in the name of the JV and not in the name of any constituent member. The tender form can however be submitted by JV or any of its constituent member or any person authorized by JV through Power of Attorney to submit tender.

17.5 Bid Security shall be submitted by JV or authorized person of JV either as :

- (i) Cash through e-payment gateway or as mentioned in tender document, or
- (ii) Bank Guarantee bond either in the name of JV, or in the name of all members of JV as per MOU irrespective of their share in the JV if the JV has not been constituted legally till the date of submission of tender.

17.6 A copy of Memorandum of Understanding (MoU) duly executed by the JV members on a stamp paper, shall be submitted by the JV alongwith the tender. The complete details of the members of the JV, their share and responsibility in the JV etc. particularly with reference to financial, technical and other obligations shall be furnished in the MoU.

17.7 Once the tender is submitted, the MoU shall not normally be modified / altered / terminated during the validity of the tender. In case the tenderer fails to observe/comply with this stipulation, the full Bid Security shall be liable to be forfeited.

17.8 Approval for change of constitution of JV shall be at the sole discretion of the Railway. The constitution of the JV shall not normally be allowed to be modified after submission of the bid by the JV, except when modification becomes inevitable due to succession laws etc., provided further that there is no change in qualification of minimum eligibility criteria by JV after change of composition. However, the Lead Member shall continue to be the Lead Member of the JV. Failure to observe this requirement would render the offer invalid.

17.9 Similarly, after the contract is awarded, the constitution of JV shall not be normally allowed to be altered during the currency of contract except when modification become inevitable due to succession laws etc. and minimum eligibility criteria should not get vitiated. Failure to observe this stipulation shall be deemed to be breach of contract with all consequential penal action as per contract conditions.

17.10 On award of contract to a JV, a single Performance Guarantee shall be submitted by the JV 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 and no splitting of guarantees amongst the members of the JV shall be permitted.

17.11 On issue of LOA (Letter of Acceptance), the JV entity to whom the work has been awarded, with the same shareholding pattern as was declared in the MOU/JV Agreement submitted alongwith the tender, shall be got registered before the Registrar of the Companies under 'The Companies Act -2013' (in case JV entity is to be registered as Company) or before the Registrar/Sub-Registrar under the 'The Indian Partnership Act, 1932' (in case JV entity is to be registered as Partnership Firm) or under 'The LLP Act 2008' (in case JV entity is to be registered as LLP). A separate PAN shall be obtained for this entity. The documents pertaining to this entity including its PAN shall be furnished to the Railways before signing the contract agreement for the work. In case the tenderer fails to observe/comply with this stipulation within 60 days of issue of LOA, contract is liable to be terminated. In case contract is terminated railway shall be entitled to forfeit the full amount of the Bid Security and other dues payable to the Contractor under this contract. The entity so registered, in the registered documents, shall have, inter-alia, following Clauses:

17.11.1 Joint and Several Liability - Members of the entity to which the contract is awarded, shall be jointly and severally liable to the Railway for execution of the project in accordance with General and Special Conditions of Contract. The members of the entity shall also be liable jointly and severally for the loss, damages caused to the Railways during the course of execution of the contract or due to non-execution of the contract or part thereof.

17.11.2 Duration of the Registered Entity - 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.

17.11.3 Governing Laws - The Registered Entity shall in all respect be governed by and interpreted in accordance with Indian Laws.

17.12 Authorized Member - Joint Venture members in the JV MoU shall authorize Lead member on behalf of the Joint Venture to deal with the **contract**, 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.

17.13 No member of the Joint Venture 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 Railway in respect of the said tender/contract.

17.14 Documents to be enclosed by the JV alongwith the tender:

17.14.1 In case one or more of the members of the JV is/are partnership firm(s), following documents shall be submitted:

- (i) A notarized copy of the Partnership Deed or a copy of the Partnership deed registered with the Registrar.
- (ii) A copy of consent of all the partners or individual authorized by partnership firm, to enter into the Joint Venture Agreement on a stamp paper,
- (iii) A notarized or registered copy of Power of Attorney in favour of the individual to sign the MOU/JV Agreement on behalf of the partnership firm and create liability against the firm.
- (iv) An undertaking by all partners of the partnership firm that they are not blacklisted or debarred by Railways or any other Ministry / Department of the Govt. of India from participation in tenders / contracts as on the date of submission of bids, either in their individual capacity or in any firm/LLP in which they were / are partners/members. Any Concealment / wrong information in regard to above shall make the bid ineligible or the contract shall be determined under Clause 62 of the Standard General Conditions of Contract.

17.14.2 In case one or more members is/are Proprietary Firm or HUF, the following documents shall be enclosed:

- (i) A copy of notarized affidavit on Stamp Paper declaring that his Concern is a proprietary Concern and he is sole proprietor of the Concern OR he who is signing the affidavit on behalf of HUF is in the position of 'Karta' of Hindu Undivided Family (HUF) and he has the authority, power and consent given by other members to act on behalf of HUF.

17.14.3 In case one or more members of the JV is/are companies, the following documents shall be submitted:

- (i) A copy of resolutions of the Directors of the Company, permitting the company to enter into a JV agreement,
- (ii) The copies of MOA (Memorandum of Association) / AOA (Articles of Association) of the company
- (iii) A copy of Certificate of Incorporation
- (iv) A copy of Authorization/copy of Power of Attorney issued by the Company (backed by the resolution of Board of Directors) in favour of the individual, to sign the tender, sign MOU/JV Agreement on behalf of the company and create liability against the company

17.14.4 In case one or more members of the JV is/are LLP firm/s, the following documents shall be submitted:

- (i) A copy of LLP Agreement
- (ii) A copy of Certificate of Incorporation of LLP
- (iii) A copy of resolution passed by partners of LLP firm, permitting the Firm to enter into a JV agreement
- (iv) A copy of Authorization /copy of Power of Attorney issued by the LLP firm (backed by resolution passed by the Partners) in favour of the individual, to sign the tender and/or sign the MOU/ JV agreement on behalf of the LLP and create liability against the LLP.
- (v) An undertaking by all partners of the LLP that they are not blacklisted or debarred by Railways or any other Ministry / Department of the Govt. of India from participation in tenders / contracts as on the date of submission of bids, either in their individual capacity or in any firm/LLP or JV in which they were / are partners/members. Any Concealment / wrong information in regard to above shall make the contract liable for determination under Clause 62 of the Standard General Conditions of Contract.

17.14.5 In case one or more members of the JV is/are Society/s or Trust/s, the following documents shall be submitted:

- (i) A copy of Certificate of Registration
- (ii) A copy of Memorandum of Association of Society/Trust Deed
- (iii) A copy of Rules & Regulations of the Society
- (iv) A copy of Power of Attorney, in favour of the individual to sign the tender documents and create liability against the Society/Trust.

17.14.6 All other documents in terms of Para 10 of the Tender Form (Second Sheet) above.

17.14.7 A power of attorney executed and issued overseas, the document will also have to be legalized by the Indian Embassy and notarized in the jurisdiction where the power of attorney is being issued. However, the Power of Attorney provided by Bidders from countries that have signed the Hague legislation convention 1961 are not required to be legalized by the Indian Embassy if it carries a conforming Appostille certificate.

17.15 Credentials & Qualifying Criteria: Technical, financial eligibility and Bid capacity of the JV shall be adjudged based on satisfactory fulfillment of the following criteria:

17.15.1 Technical Eligibility Criteria ('a' or 'b' mentioned hereunder):

(a) For Works without composite components

The technical eligibility for the work as per para 10.1 above, shall be satisfied by either the 'JV in its own name & style' or 'Lead member of the JV'.

Each other (non-lead) member(s) of JV, who is/ are not satisfying the technical eligibility for the work as per para 10.1 above, shall have technical capacity of minimum 10% of the cost of work i.e., each non-lead member of JV member must have satisfactorily completed or substantially completed during the last 07 (seven) years, ending last day of month previous to the one in which tender is invited, one similar single work for a minimum of 10% of advertised value of the tender.

(b) For works with composite components

The technical eligibility for major component of work as per para 10.1 above, shall be satisfied by either the 'JV in its own name & style' or 'Lead member of the JV' and technical eligibility for other component(s) of work as per para 10.1 above, shall be satisfied by either the 'JV in its own name & style' or 'any member of the JV'.

Each other (non-lead)member(s) of JV, who is/ are not satisfying the technical eligibility for any component of the work as per para 10.1 above, shall have technical capacity of minimum 10% of the cost of any component of work mentioned in technical eligibility criteria. i.e., each other (non-lead) member of must have satisfactorily completed or substantially completed during the last 07 (seven) years, ending last day of month previous to the one in which tender is invited, one similar single work for a minimum of 10% of cost of any component of work mentioned in technical eligibility criteria.

Note for Para 17.15.1:

a) The *Major component of the work for this purpose shall be the component of work having highest value. In cases where value of two or more component of work is same, any one work can be classified as Major component of work.*

b) *Value of a completed work done by a Member in an earlier JV shall be reckoned only to the extent of the concerned member's share in that JV for the purpose of satisfying his/her compliance to the above mentioned technical eligibility criteria in the tender under consideration.*

17.15.2 Financial Eligibility Criteria

The JV shall satisfy the requirement of "Financial Eligibility" mentioned at para 10.2 above. The "financial capacity" of the lead member of JV shall not be less than 51% of the financial eligibility criteria mentioned at para 10.2 above.

The arithmetic sum of individual "financial capacity" of all the members shall be taken as JV's "financial capacity" to satisfy this requirement.

Note: Contractual payment received by a Member in an earlier JV shall be reckoned only to the extent of the concerned member's share in that JV for the purpose of satisfying compliance of the above mentioned financial eligibility criteria in the tender under consideration.

17.15.3 Bid Capacity

The JV shall satisfy the requirement of "Bid Capacity" requirement mentioned at para 10.3 above. The arithmetic sum of individual "Bid capacity" of all the members shall be taken as JV's "Bid capacity" to satisfy this requirement.

GCC para 18. Participation of Partnership Firms in works tenders:

18.1 The Partnership Firms participating in the tender should be legally valid under the provisions of the Indian Partnership Act.

18.2 The partnership firm should have been in existence or should have been formed prior to submission of tender. Partnership firm should have either been registered with the Registrar or the partnership deed should have been notarized as per the Indian Partnership Act, prior to submission of tender.

18.3 Separate identity / name should be given to the partnership firm. The partnership firm should have PAN / TAN number in its own name and PAN / TAN number in the name of any of the constituent partners shall not be considered. The valid constituents of the firm shall be called partners.

18.4 Once the tender has been submitted, the constitution of the firm shall not normally be allowed to be modified / altered / terminated during the validity of the tender as well as the currency of the contract except when modification becomes inevitable due to succession laws etc., in which case prior permission should be taken from Railway and in any case the minimum eligibility criteria should not get vitiated. The re-constitution of firm in such cases should be followed by a notary certified

Supplementary Deed. The approval for change of constitution of the firm, in any case, shall be at the sole discretion of the Railways and the tenderer shall have no claims what-so-ever. Any change in the constitution of Partnership firm after submission of tender shall be with the consent of all partners and with the signatures of all partners as that in the Partnership Deed. Failure to observe this requirement shall render the offer invalid and full Bid Security shall be forfeited.

If any Partner/s withdraws from the firm after submission of the tender and before the award of the contract, the offer shall be rejected and Bid Security of the tenderer will be forfeited. If any new partner joins the firm after submission of tender but prior to award of contract, his / her credentials shall not qualify for consideration towards eligibility criteria either individually or in proportion to his share in the previous firm. In case the tenderer fails to inform Railway beforehand about any such changes / modification in the constitution which is inevitable due to succession laws etc. and the contract is awarded to such firm, then it will be considered a breach of the contract conditions liable for determination of the contract under Clause 62 of the Standard General Conditions of Contract.

18.5 A partner of the firm shall not be permitted to participate either in his individual capacity or as a partner of any other firm in the same tender.

18.6 The tender form shall be submitted only in the name of partnership firm. The Bid Security shall be submitted by partnership firm. The Bid Security submitted in the name of any individual partner or in the name of authorized partner (s) shall not be considered.

18.7 On issue of Letter of Acceptance (LOA) to the partnership firm, all the guarantees like Performance Guarantee, Guarantee for various Advances to the Contractor shall be submitted only in the name of the partnership firm and no splitting of guarantees among the partners shall be acceptable.

18.8 On issue of Letter of Acceptance (LOA), contract agreement with partnership firm shall be executed in the name of the firm only and not in the name of any individual partner.

18.9 In case the Letter of Acceptance (LOA) is issued to a partnership firm, the following undertakings shall be furnished by all the partners through a notarized affidavit, before signing of contract agreement.

(a) Joint and several liabilities:

The partners of the firm to which the Letter of Acceptance (LOA) is issued, shall be jointly and severally liable to the Railway for execution of the contract in accordance with General and Special Conditions of the Contract. The partners shall also be liable jointly and severally for the loss, damages caused to the Railway during the course of execution of the contract or due to non-execution of the contract or part thereof.

(b) Duration of the partnership deed and partnership firm agreement:

The partnership deed/partnership firm agreement shall normally not be modified/altered/ terminated during the currency of contract and the maintenance period after the work is completed as contemplated in the conditions of the contract. Any change carried out by partners in the constitution of the firm without permission of Railway, shall constitute a breach of the contract, liable for determination of the contract under Clause 62 of the Standard General Conditions of Contract.

(c) Governing laws: The partnership firm agreement shall in all respect be governed by and interpreted in accordance with the Indian laws.

(d) No partner of the firm shall have the right to assign or transfer the interest right or liability in the contract without the written consent of the other partner/s and that of the Railway.

18.10 The tenderer shall clearly specify that the tender is submitted on behalf of a partnership firm. The following documents shall be submitted by the partnership firm, with the tender:

- (i) A notarized copy of the Partnership Deed or a copy of the Partnership deed registered with the Registrar.

- (ii) A notarized or registered copy of Power of Attorney in favour of the individual to tender for the work, sign the agreement etc. and create liability against the firm.
- (iii) An undertaking by all partners of the partnership firm that they are not blacklisted or debarred by Railways or any other Ministry / Department of the Govt. of India from participation in tenders / contracts as on the date of submission of bids, either in their individual capacity or in any firm/LLP in which they were / are partners/members. Any Concealment / wrong information in regard to above shall make the bid ineligible or the contract shall be determined under Clause 62 of the Standard General Conditions of Contract.
- (iv) All other documents in terms of Para 10 of the Tender Form (Second Sheet) above.

GCC Para 18.11 Evaluation of eligibility of a partnership firm:

Technical and financial eligibility of the firm shall be adjudged based on satisfactory fulfillment of the eligibility criteria laid down in Para 10 of the Tender Form (Second Sheet) above.

GCC para 19.0 Advances to Contractor –

If specifically provided in Tender Documents of tender having advertised value more than Rs 50 Crores, Railway shall make payment, as an Interest bearing advances, as per Contractor's request. These advances shall carry a simple interest _____ as indicated in the Tender documents. The payment and recovery of such advances shall be made as per manners prescribed in Clause 46.4 of the Standard General Conditions of Contract.

.---*****---

PART-I
CHAPTER-II

CONDITIONS OF CONTRACT

1.

PART-I

1.2

CHAPTER -II

CONDITIONS OF CONTRACT

PARA No.		SUBJECT
1.2.1	...	Scope.
1.2.2	...	Conditions of Contract.
1.2.3	...	Purchaser's Representative.
1.2.4	...	Contractor's Representative.
1.2.5	...	Contractor's Office & Address.
1.2.6	...	Purchaser's Address.
1.2.7	...	Assignment or Subletting of Contract
1.2.8	...	Taxes.
1.2.9	...	Illegal gratification.
1.2.10	...	Railway Pass.
1.2.11	...	Laws of India.
1.2.12	...	Force Majure.
1.2.13	...	Notice under local laws.
1.2.14	...	Determination of Contract.
1.2.15	...	Loss in transit.
1.2.16	...	Agreement.
1.2.17	...	Security Deposit.
1.2.17A	...	Performance Guarantee
1.2.18	...	Scheme of work.
1.2.19	...	Quality of Materials & erection.
1.2.20	...	Specified Railway Stores.
1.2.21	...	Other Railway Stores.
1.2.22	...	Contractor's Organisation.
1.2.23	...	Contractor's drawings etc.
1.2.24	...	Sub-Contractors.
1.2.25	...	Quality Assurance.
1.2.26	...	Cranes.
1.2.27	...	Work Trains.
1.2.28	...	Traffic blocks.
1.2.29	...	Default and delay.
1.2.30	...	Loss sustained due to default and delay.
1.2.31	...	Correctness of work & Materials.
1.2.32	...	Contractor's responsibility for discrepancy.
1.2.33	...	Additions and alterations to erected equipment.
1.2.34	...	Quantum of work and supplies.
1.2.35	...	Competent Supervisors.
1.2.36	...	Training of Purchaser's staff.
1.2.37	...	Work by other Agencies
1.2.38	...	Access to work site.
1.2.39	...	Infringement of patents.

1.2.40	...	Insurance.
1.2.41	...	Accidents.
1.2.42	...	Contractor's liability for costs damages.
1.2.43	...	Safety measures.
1.2.44	...	Recovery for delay in completion.
1.2.45	...	Extension of time.
1.2.46	...	Provisional acceptance.
1.2.47	...	Defective equipments to be changed.
1.2.48	...	Use of rejected equipment.
1.2.49	...	Guarantee.
1.2.50	...	Final acceptance.
1.2.51	...	Payment.
1.2.52	...	Site clearance.
1.2.53	...	Components and materials received for work.
1.2.54	...	Arbitration.
1.2.55	...	Payment during Arbitration.
1.2.56	...	Refund of security deposit.
1.2.57	...	Contract labour act central rules.
1.2.58	...	Provision of apprentices act.
1.2.59	...	Provisions of payment of wages Act.
1.2.60	...	Provisions of Workmen's Compensation Act.
1.2.61	...	Provisions of Mines Acts.
1.2.62	...	Monthly statement of claims.
1.2.63.1	...	Disaster Management.
1.2.64	...	Withholding and Lien in Respect of Sums Claimed
1.2.65	...	A Lien in Respect of Claims in other Contracts
1.2.66	...	Signature on Receipts for
	Amounts	

---***---****---

PART - I
CHAPTER - II

SCOPE : 1.2.1

This chapter deals with the conditions of Contract under which the various works coming under the purview of this contract are to be executed by the Contractor.

CONDITION OF CONTRACT : 1.2.2

If the Tender submitted by a Tenderer is accepted and the contract awarded to The Tenderer, the various works coming under the purview of the contract shall be governed by the terms and conditions included in the Tender papers covering the following :

- (i) Preamble to the Tender Papers.
- (ii) Instructions to Tenderers and conditions of Tendering, as included in Part-I, Chapter-I.
- (iii) Conditions of contract, as included in this chapter.
- (iv) Prices and Payments, as included in Part-I Chapter-III.
- (v) Explanatory notes of Schedule 1, Schedule of prices, Part-I, Chapter-IV.
- (vi) General specifications, as included or referred to in Part-II and
- (vii) Particular specifications, as included or referred to in Part-III, and
- (viii) Annexures under Part-IV and Forms under Part-V and as modified or amended by the letter of acceptance of the tender.

PURCHASER'S REPRESENTATIVE : 1.2.3

Subject as otherwise provided in this contract, all notices to be given on behalf of the Purchaser and all other action to be taken on his behalf may be given or taken, as the case may be, on his behalf by the General Manager or his successor.

CONTRACTOR'S REPRESENTATIVE : 1.2.4

The Contractor's representative shall be a person as defined in Para 1.1.2.

CONTRACTOR'S OFFICE & ADDRESS : 1.2.5

The Contractor shall within a month of issue of letter of acceptance of Tender, establish an office at a convenient place indicated in Part-III, for progressing designs and drawings and field works, expeditiously, in consultation and with approval of the Purchaser. He shall intimate the Purchaser the address thereof in which all correspondence shall be sent. Any communication sent to the Contractor by post at his said address shall be deemed to have reached the Contractor duly and in time. Important documents shall be sent by Registered post.

PURCHASER'S ADDRESS : 1.2.6

The list of addresses to which correspondence and documents relating to the contract should be sent, is included in Part-III.

1.2.7 - GCC Para- 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 in any manner whatsoever without the special permission in writing of the Chief Engineer, save as provided below. 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.

In case Contractor intends to subcontract part of work, he shall submit a proposal in writing seeking permission of Chief Engineer for the same. While submitting the proposal to railway, Contractor shall ensure the following:

(a) (i) The Contractor shall not sub- contract the Works comprising more than 40% (forty per cent) of the Contract Price and shall carry out Works for at least 60% (sixty per cent) of the total Contract Price directly under its own supervision and through its own personnel. The Parties expressly agree that for the purposes of computing the value of sub-contracts under this Clause 3.2.1, the Contract Price shall exclude any sub-contract for the procurement of goods and equipment like [rails, sleepers and track fittings, signaling and telecommunication & Power supply equipment]. The Parties agree that all obligations and liabilities under this Agreement for the entire Railway Project shall at all time remain with the Contractor. {The Parties agree that works equal to at least 30% (thirty per cent) of the Contract Price shall be discharged solely by the Lead Member.}

\$ Procurement of material, hire of equipment or engagement of labour by prime contractor or procuring entity will not mean sub-contracting.

\$ May be deleted if the Contractor is not a Consortium/Joint Venture.

(ii) The subcontractor shall have successfully completed at least one work similar to work proposed for subcontract in last 5 years, ending date of submission of proposal by Contractor to Railway, costing not less than 35% value of work to be subletted, through a works contract. For fulfilment of above, Work Experience Certificate issued by a Govt. Department/Organisation shall be considered. Further, Work Experience Certificate issued by a Public listed company shall be considered provided the company is having average annual turnover of Rs 500 crore and above in last 3 financial years excluding the current financial year, listed on National Stock Exchange or Bombay Stock Exchange, registered at least 5 years back from the date of submission of proposal by Contractor to Railway and work experience certificate issued by a person authorised by the Public Listed Company to issue such certificates.

Note: for subletting of work costing up to Rs 50 lakh no previous work experience shall be asked for by the Railway.

In case contractor submits subcontractor's work experience certificate issued by public listed company, the contractor shall also submit along with work experience certificate, the relevant copy of work order, bill of quantities, bill wise details of payment received duly certified by Chartered Accountant, TDS certificates for all payments received and copy of final/last bill paid by company in support of above work experience certificate.

(iii) There is no banning of business with the sub-contractor in force over IR.

(b) The Contractor shall provide to the Engineer a copy of the agreement to be entered into by Contractor with subcontractor. No subcontractor shall be permitted without a formal agreement between Contractor and subcontractor. This agreement shall clearly define the scope of work to be carried out by subcontractor and the terms of payment in clear & unambiguous manner.

(c) On receipt of approval from Chief Engineer, Contractor shall enter into a formal agreement legally enforceable in Court of Law with subcontractor and submit a copy of the same to the Engineer.

(d) The Contractor shall intimate to the Engineer not less than 7 days in advance, the intended date of commencement of subcontractor's work.

(e) Once having entered into above arrangement, Contractor shall discontinue such arrangement, if he intends to do so at his own or on the instructions of Railway, with prior intimation to Chief Engineer.

(f) The Contractor shall indemnify railway against any claim of subcontractor.

(g) The Contractor shall release payment to the Sub-contractor(s) promptly and shall endeavour to resolve all issues amicably and speedily with the Sub-contractor(s), so that the execution of work is not affected in any manner whatsoever.

(h) In addition to issuance of work experience certificate to Contractor, the Engineer, when, based on documents, is satisfied that subcontracted work has been carried out by subcontractor, shall issue work experience certificate to the subcontractor also for the portion of work subcontracted and successfully completed by the sub-contractor.

Note: Work Experience Certificate to the subcontractor shall be issued only when the contractor's work is complete and contractor is entitled for the issuance of Work Experience Certificate. However, in the same contract, when the Chief Engineer, based on documents, is satisfied that the subcontractor has successfully carried out subletted work; without issuance of work experience certificate to subcontractor at this stage, the Chief Engineer can, only once, consider the successfully completed subletted work for the fulfilment of eligibility for further subletting of work to the subcontractor in the same contract. When the contractor's work is complete and contractor is entitled for the issuance of work experience certificate, the subcontractor shall be issued one Work Experience Certificate for the total scope of work executed by the subcontractor in the contract.

(i) The responsibility of successful completion of work by subcontractor shall lie with Contractor. Subcontracting will in no way relieve the Contractor to execute the work as per terms of the Contract.

(j) Further, in case Engineer is of the view that subcontractor's performance is not satisfactory, he may instruct the Contractor to remove the subcontractor from the work and Contractor has to comply with the above instructions with due promptness. Contractor shall intimate the actual date of discontinuation of subcontract to Engineer. No claim of Contractor whatsoever on this account shall be entertained by the Railway and this shall be deemed as 'excepted matter' (matter not arbitrable).

(k) The permitted subcontracting 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.

TAXES : 1.2.8

(a) The Contractor and all personnel employed by him shall pay such taxes like income tax as are payable under statutory laws of India and the Purchaser will not accept any liability for the same.

(b) Deduction of income tax at source as per provision of finance act and income tax act in force may be made from the Contractor/sub-Contractor and the amount so deducted may be credited to the Central Government.

ILLEGAL GRATIFICATION : 1.2.9

Para 18. (1) of Part – II of GCC'22

Illegal Gratification:

Procuring authorities as well as bidders, contractors and consultants should observe the highest standard of ethics and should not indulge in the following prohibited practices, either directly or indirectly, at any stage during the procurement process or during execution of resultant contracts:

i) "Corrupt practice": making offers, solicitation or acceptance of bribe, rewards or gifts or any material benefit, in exchange for an unfair advantage in the procurement process or to otherwise influence the procurement process or contract execution;

ii) "Fraudulent practice": any omission or misrepresentation that may mislead or attempt to mislead so that financial or other benefits may be obtained or an obligation avoided. This includes making false declaration or providing false information for participation in a tender process or to secure a contract or in execution of the contract;

iii) "Anti-competitive practice": any collusion, bid rigging or anti-competitive arrangement, or any other practice coming under the purview of The Competition Act, 2002, between two or more bidders, with or without the knowledge of the procuring entity, that may impair the transparency, fairness and the progress of the procurement process or to establish bid prices at artificial, non-competitive levels;

iv) "Coercive practice": any coercion or any threat to impair or harm, directly or indirectly, any party or its property to influence the procurement process or affect the execution of a contract;

- v) "Conflict of interest" (COI): any personal, financial, or business relationship between the bidder and any personnel of the procuring entity who are directly or indirectly related to the procurement or execution process of the contract, which can affect the decision of the procuring entity directly or indirectly;
- vi) "Undue Advantage": improper use of information obtained by the bidder from the procuring entity with an intent to gain an unfair advantage in the procurement process or for personal gain. This also includes if the bidder (or his allied firm) provided services for the need assessment/procurement planning of the tender process in which he is participating;
- vii) "Obstructive practice": materially impede the procuring entity's investigation of a procurement process either by deliberately destroying, falsifying, altering; or by concealing of evidence material to the investigation; or by making false statements or by threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to such investigation or from pursuing the investigation; or by impeding the procuring entity's rights of audit or access to information;

Para **18. (2)** Of Part – II of GCC'22

Punitive Provisions:

Without prejudice to and in addition to the rights of the procuring entity to other penal provisions as per the bid documents or contract, if the procuring entity comes to a conclusion that a (prospective) bidder/ contractor directly or through an agent, has violated this code of integrity in competing for the contract or in executing a contract, the procuring entity may take appropriate measures including one or more of the following:

- i) If his bids are under consideration in any procurement
 - a) Forfeiture or encashment of bid security;
 - b) Calling off of any pre-contract negotiations; and
 - c) Rejection and exclusion of the bidder from the procurement process
- ii) If a contract has already been awarded
 - a) Cancellation of the relevant contract and recovery of compensation for loss incurred by the procuring entity;
 - b) Forfeiture or encashment of any other security or bond relating to the procurement;
 - c) Recovery of payments including advance payments, if any, made by the procuring entity along with interest thereon at the prevailing rate;
- iii) Provisions in addition to above:
 - a) Removal from the list of enlisted contractors and banning/ debarment of the bidder from participation in future procurements of the procuring entity for a period not less than one year;
 - b) In case of anti-competitive practices, information for further processing may be filed under a signature of the Joint Secretary level officer, with the Competition Commission of India;
 - c) Initiation of suitable disciplinary or criminal proceedings against any individual or staff found responsible.

Any question or dispute as to the commission of 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 & sufficient and his decision shall be final & conclusive.

RAILWAY PASS : 1.2.10

No Railway pass for the conveyance of the Contractor or his agents or his labour and/or stores will be granted. The Contractor may, however, carry free of charge but at his own risk such labour, supervisory staff and stores as far as necessary for the execution of work by work trains between the Contractor's depot/s (See para 1.2.22 and 1.2.27) and site of work.

LAWS OF INDIA : 1.2.11

This contract shall be governed by the laws for the time being in force in the Republic of India.

FORCE MAJEURE : 1.2.12

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/pandemics, strikes, lockouts or acts 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.

NOTICE UNDER LOCAL LAWS : 1.2.13

The Purchaser shall, throughout the continuance of the Contract, and in respect of all matters arising out of the Contract, serve all notices and obtain all consents and way leaves, approvals and permissions required to be taken by the Purchaser under any regulations and by-laws of the local or other authority, which shall be applicable to the works.

DETERMINATION OF CONTRACT : 1.2.14

(a) Notwithstanding the provisions under para 1.2.12 the Purchaser may, at any time, by a notice in writing, summarily determine the contract without liability to pay any compensation to the contractor in respect thereof in any of the following events.

(i) INSOLVENCY

If the Contractor being an individual, or if a firm, any partner in the Contractor's firm, shall at any time be adjudged insolvent or shall have a receiving order or orders from administration of his estate made against him or shall take any proceedings or liquidation or compensation under any law relating to insolvency for the time being in force or make any conveyance or assignment of his assets or enter into any arrangement or composition with his creditors or suspend payment, or if the firm be dissolved under the partnership Act,

Or

(ii) LIQUIDATION

If the Contractor being a company shall pass a resolution or the court shall make an order for the liquidation of its affairs or a receiver or manager on behalf of the debenture holders shall be appointed or circumstances shall have arisen which entitled the court or debenture holders to appoint a receiver or Manager,

Or

(iii) BREACH OF CONTRACT

If the Contractor commits any breach of this contract not herein specifically provided for, provided always that such determination shall not prejudice any right of action or remedy which shall have occurred or shall accrue thereafter to the Purchaser and provided also that the Contractor shall be liable to pay the Purchaser any extra expenditure which the Purchaser is thereby put to, but shall not be entitled to any gain or repurchase. In the event of such determination, without prejudice to the other rights and remedies of the Purchaser including the rights of forfeiting the security Deposits, the Purchaser shall be entitled to have the work of remainder thereof performed, executed and/or carried out by any other agency at the cost and the risk of the Contractor and hold the Contractor liable for reimbursement in the event of any loss on this account.

Or

(iv) If, at any time after the submission of the Tender the Tenderer/Contractor being a partnership firm admits as one of his partners or employees under it, or being an incorporated company, elects or nominates or allows to act as one of its Directors or employees under it in any capacity whatsoever any retired engineer of the gazetted rank or any other retired gazetted officer working before his retirement, whether in the executive or administrative capacity, whether holding any pensionable post or not, in any Department of any 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 authorised by him in this behalf to become a partner or a Director or to take employment under the Contractor, as the case may be, Or

(v) If the Contractor fails to give at the time of submitting the said tender :

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

The correct information as to such engineers or officers obtaining permission to take employment under the Contractor, Or

Being a partnership firm, the correct information as to whether any of its partners was such a retired engineer or a retired officer, Or

Being an incorporated company, correct information as to whether, any of the Directors was such a retired engineer or retired officer, Or

(vi) (a) If the Contractor having such a retired engineer or retired officer suppresses and not discloses at the time of submitting the said Tender the fact of his being such a retired engineer or a retired officer, or makes 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 to seek employment under the Contract.

(b) EXCEPTIONS : Termination of contract will not arise in case of voluntary liquidation meant for amalgamation or re-organisation, provided the newly formed company takes over the full responsibilities and liabilities of the liquidated firm and it is acceptable to the Purchaser.

(c) Termination of Contract under this para and 1.2.29 will not arise in case of breaches or defects of a minor nature. The General Manager or his successor shall be the sole authority to decide whether breaches and defects are of minor nature.

(d) (i) RIGHT OF RAILWAY TO DETERMINE CONTRACT : The purchaser shall be entitled to determine and terminate the contract at any time should in the purchaser'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 rates specified in the contract. Notice in writing from the purchaser of such determination and the reason there for shall be conclusive evidence thereof.

(ii) PAYMENT ON DETERMINATION OF CONTRACT : Should the contract be determined under sub-clause (i) above and the contractor claims payment for expenditure incurred by him in the expectation of completing the whole of the work, the purchaser shall admit and consider such claims as are deemed reasonable and are supported by vouchers to the satisfaction for compensation or otherwise whatsoever 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 the contract. The Railways decision on the necessity and propriety of such expenditure shall be final and conclusive.

LOSS IN TRANSIT : 1.2.15

If loss or damage occurs to the stores or any part thereof during transit by rail, the Contractor shall have only such remedy as is available to the public against the carrier under the Indian Railways (Amendment) Act 1961, No. 39 of 1961.

AGREEMENT : 1.2.16

The Tenderer whose tender is accepted shall be required to appear in person at the office of General Manager/General Manager (Construction), Chief Administrative Officer (Construction), Divisional Railway Manager or concerned Engineer, as the case may be, or if tenderer is a firm or corporation, a duly authorized representative shall appear (there would be no need for appear in person if agreement is signed digitally) and execute the contract agreement within seven days of notice from Railways that the Contract Agreement is ready. Failure to do so shall constitute a breach of the agreement affected by the acceptance of the tender. The Contract Agreement shall be entered into by Railway only after submission of valid Performance Guarantee by the Contractor. In such cases the Railway may determine that such tenderer has abandoned the contract and there upon his tender and acceptance thereof shall be treated as cancelled and the Railway shall be entitled to forfeit the full amount of the Bid Security and other dues payable to the Contractor under this contract. The failed Contractor shall be debarred from participating in the re-tender for that work.

SECURITY DEPOSIT 1.2.17

GCC16.(1) Security Deposit: The Security Deposit shall be 5% of the contract value. The Bid Security submitted by the Contractor with his tender will be retained/encashed by the Railways as part of security for the due and faithful fulfillment of the contract by the Contractor. Provided further that, if Contractor submits the Cash or Term Deposit Receipt issued from a Scheduled commercial bank of India or irrevocable Bank Guarantee Bond from a Scheduled commercial bank of India, either towards the Full Security Depositor the Part Security Deposit equal to or more than Bid Security, the Railway shall return the Bid Security, to the Contractor.

Balance of Security Deposit may be deposited by the Contractor in cash or Term Deposit Receipt issued from Scheduled commercial bank of India or irrevocable Bank Guarantee bond issued from Scheduled commercial bank of India, or may be recovered at the rate of 6% of the bill amount till the full Security Deposit is recovered. 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 (including amount guaranteed through Performance Guarantee) may not exceed 10% of the total value of the contract.

The Irrevocable Bank Guarantee submitted towards Security deposit shall be initially valid up to the stipulated date of Maintenance period plus 60 days and shall be extended from time to time, depending upon extension of contract granted in terms of Clause 17A and 17B of the Standard General Conditions of Contract.

Note: Security Deposit deposited in cash by the Contractor or recovered from the running bills of a Contractor or submitted by contractor as Term Deposit Receipt(s) can be refunded/returned to the contractor, in lieu of irrevocable Bank Guarantee bond issued from scheduled commercial bank of India, to be submitted by him, for an amount equal to or more than the already available Security Deposit, provided however that, in a contract of value less than Rs. 50 Crore, such refund/ return of the already available Security Deposit is permitted up to two times and in a contract of value equal to or more than Rs. 50 Crore, such refund / return of the already available Security Deposit is permitted up to three times.

16.(2)(i) Refund of Security Deposit: Security Deposit mentioned in sub clause (1) above shall be returned to the Contractor along with or after, the following:

- (a) Final Payment of the Contract as per clause 51.(1) **and**
- (b) Execution of Final Supplementary Agreement or Certification by Engineer that Railway has No Claim on Contractor **and**
- (c) Maintenance Certificate issued, on expiry of the maintenance period as per clause 50.(1), in case applicable.

16. (2) (ii) Forfeiture of Security Deposit: Whenever the contract is rescinded as a whole under clause 62 (1) of these conditions, the Security Deposit already with railways under the contract shall be forfeited. However, in case the contract is rescinded in part or parts under clause 62 (1) of these conditions, the Security Deposit shall not be forfeited.

16.(3) No interest shall be payable upon the Bid Security and Security Deposit or amounts payable to the Contractor under the Contract, but Government Securities deposited in terms of Sub-Clause 16.(4)(b) of this clause will be payable with interest accrued thereon.

PERFORMANCE GUARANTEE: 1.2.17A

16.(4) Performance Guarantee

The procedure for obtaining Performance Guarantee is outlined below:

- (a) The successful bidder shall have to submit a Performance Guarantee (PG) within 21 (Twenty one) days from the date of issue of Letter of Acceptance (LOA). Extension of time for submission of PG beyond 21 (Twenty one) days and upto 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 12% per annum shall be charged for the delay beyond 21(Twenty one) days, i.e. from 22nd day after the date of issue of LOA. Further, if the 60th day happens to be a declared holiday in the concerned office of the Railway, submission of PG can be accepted on the next working day.

In all other cases, if the Contractor fails to submit the requisite PG even after 60 days from the date of issue of LOA, the contract is liable to be terminated. In case contract is terminated railway shall be entitled to forfeit Bid Security and other dues payable to the contractor against that particular contract, subject to maximum of PG amount. In case a tenderer has not submitted Bid Security on the strength of their registration as a Startup recognized by Department of Industrial Policy and Promotion (DIPP) under Ministry of Commerce and Industry, DIPP shall be informed to this effect.

The failed Contractor shall be debarred from participating in re-tender for that work.

- (b) The successful bidder shall submit the Performance Guarantee (PG) amounting to 5% of the original contract value and Additional Performance Guarantee as per clause 16(4)(h) in any of the following forms:-
 - (i) A deposit of Cash;
 - (ii) Irrevocable Bank Guarantee;
 - (iii) Insurance Surety Bond as per Annexure-XVII.

Note:

In case of extension of Date of Completion, selected bidder needs to submit extended Insurance Surety Bond/Fresh Insurance Surety Bond/fresh Performance Security, in any form as given above, before expiry of existing Insurance Surety Bond.

- (iv) Government Securities including State Loan Bonds at 5% below the market value;
 - (v) Pay Orders and Demand Drafts tendered by any Scheduled Commercial Bank of India;
 - (vi) Guarantee Bonds executed or Deposits Receipts tendered by any Scheduled Commercial Bank of India;
 - (vii) Deposit in the Post Office Saving Bank;
 - (viii) Deposit in the National Savings Certificates;
 - (ix) Twelve years National Defence Certificates;
 - (x) Ten years Defence Deposits;
 - (xi) National Defence Bonds and
 - (xii) Unit Trust Certificates at 5% below market value or at the face value whichever is less. Also, FDR in favour of FA&CAO (free from any encumbrance) may be accepted.
- (c) The Performance Guarantee shall be submitted by the successful bidder after the Letter of Acceptance (LOA) has been issued, but before signing of the contract agreement. This P.G. shall be initially valid upto 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 P.G. extended to cover such extended time for completion of work plus 60 days.

(d) The value of PG to be submitted by the Contractor is based on original contract value and shall not change due to subsequent variation(s) in the original contract value.

(e) The Performance Guarantee (PG) shall be released after physical completion of the work based on 'Completion Certificate' issued by the competent authority stating that the Contractor has completed the work in all respects satisfactorily.

(f) Whenever the contract is rescinded, the Performance Guarantee already submitted for the contract shall be encashed.

(g) 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 (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 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 notice to this effect by Engineer.

(ii) The Contract being determined or rescinded under clause 62 of these conditions.

(h) If a tender is accepted on the quoted rates of bidder which is below the advertised tender value, an additional performance security shall be submitted by the bidder as below:

(i)

Bid quoted in % of advertised cost	Additional Performan Guarantee(%)
Below 0 – 5% (inclusive)	Nil
Below 5%	5%

SCHEME OF WORK : 1.2.18

(a) Within a period of 90 days beginning from the date of issue of Letter of Acceptance of Tender, the Contractor shall submit to the Senior Divisional Electrical Engineer, Traction Distribution, CST Mumbai -400010 the following documents (see para 1.1.11).

(i) Detailed time schedule for design and submission of various documents enumerated in Part-II Chapter-V. Designs and Drawings to be supplied by the Purchaser shall also include in the time schedule to make it comprehensive. The comprehensive schedule shall be planned in a manner such that the entire basic designs and drawings for the work/s is/are accepted by the Purchaser within a period not exceeding one third of the total period allowed for and working drawings, within a period not exceeding two third of the total period allowed for completing the work. This period shall be reckoned from the date of issue of the letter of Acceptance of Tender. The schedule shall take into account the time required for study by the Purchaser who reserves for this purpose 30 days for verifying the designs and drawings.

(ii) A detailed time schedule shall be in form of a PERT network consisting of adequate numbers of activities covering key phases of work for each section. The network shall indicate the interface facilities and materials to be supplied by the Purchaser and dates by which those are required .The planning for each stage of work shall be done in the order of priority as given by the Purchaser and should be such as to complete the entire work within the stipulated period.

(b) WORKS TO BE DONE AS APPROVED

The planning shall be finalised in consultation with the Purchaser and approved by the latter in writing before commencement of the work and the Contractor shall be held responsible for the execution of the work in full compliance with approved design and drawings. Designs and drawings modified at site by the Purchaser's Engineers shall be treated as approved. However , such modifications shall be incorporated in the designs and drawings and resubmitted for formal approval.

(c) MONTHLY PROGRESS REPORT

The Contractor shall furnish to the Senior Divisional Electrical Engineer, Traction Distribution, CST Mumbai -400010, or his successor / nominee (whose address will be advised in due course) during the first week of every calendar month, a progress report showing progress of finalisation of designs and drawings, materials and equipment received at site and the works carried out during the preceding month and up-to-date progress of these items along with the total quantum of designs and drawings, materials and equipments and the works required for the contract.

(d) For finalising the scheme for work out-line in above sub-paras, the Contractor shall make use of the latest network analysis techniques like CPM technique, PERT chart etc.

QUALITY ASSURANCE PROGRAMME IN SUPPLY AND ERECTION : 1.2.19

(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 sources approved by Research, Design & Standards Organisation(RDSO)/Central Organisation for Railway Electrification(CORE)/CEE CR. In case of material supplied from sources listed in RDSO's master list of approved vendors, the 100% quantity to be procured from sources given in part-I (Regular), however if contractor wishes to procure material

from source given in part-II (Developmental) quantity should not be more than 20% of the quantity required in the contract.. 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 at his own cost in a Testing Laboratory approved by the Purchaser. Only tested quality steel shall be used. The contractor shall ensure that the Purchaser'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 ERECTIONS

All erection work carried out shall also be of the best quality acceptable to the Purchaser.

SPECIFIED RAILWAY STORES : 1.2.20

(a) The Purchaser shall supply to the contractor at Railway depot all items that are indicated in Annexure-4. The materials will be loaded, transported and unloaded & stacked by the contractor at the appropriate place in the presence of Purchaser's representative. The steel work which are to be supplied by the Purchaser to the contractor will be made available as described above sufficiently in advance of the planned dates of erection. The contractor may return to the Purchaser any steel work found defective or damaged on account of manufacturing defects. After completion of the works, any undamaged surplus steel work left over with the contractor shall be returned to the Purchaser. For the purpose of final reconciliation, the procedure laid down in para 1.4.6 will be followed.

(b) EQUIPMENTS, COMPONENTS, FITTINGS AND OTHER MATERIALS

The various materials which will be supplied to the contractor by the Purchaser free on rail or free on lorry upto the Railway depot/contractor's depot, are listed in Annexure-4. The prices in Schedule-1 shall be exclusive of the cost of supply of these items. For the purpose of final reconciliation, the procedure laid down in para 1.4.6 will be followed. The shortage, if any, shall be recovered from the contractor by the Purchaser at the prices specified in note at the end of para **1.4.6**

(f) In addition the material/items specified in Annexure-4, some of the items which are normally in the contractor's scope of supply may also be supplied by the Railways either in part or in full, to meet the requirement of tendered work. The recovery of such items will be made in terms of Clause **1.3.2** and **1.3.10**.

Further, the Purchaser reserves the right to supply any equipments, components or materials, indigenous or imported, from his own resources in quantities which may fulfill the contract either in whole or in part upto a maximum of 10% of the total value of the contract free on rail or free on lorry upto the store/contractor's depot. The same shall be accepted by the Contractor provided that the Purchaser shall at the time of issue of letter of Acceptance of the tender to the Contractor, indicate to the contractor the list of materials and quantities thereof which will be supplied by the Purchaser free on rail or free on lorry upto the store/ contractor's depot sufficiently in advance of the planned dates of erection. Such materials shall be tested by the contractor at his own cost before use to the extent that the specifications require tests at site prior to installation but the contractor shall not be responsible for any defects in the material or component and the contractor may

return to the Purchaser any materials which are found defective or damaged on account of manufacturing defects. Any damaged surplus materials left out with the contractor on completion of works should also be returned to the Purchaser for which necessary adjustments would be made. The cost of materials supplied by the Purchaser to the contractor in terms of the above sub-para would be recovered from the contractor as indicated in para 1.3.10

(c) Should it be impossible for the Contractor to obtain any of the items included in schedule - 3 indigenously for any reason accepted as adequate by the Purchaser, the Purchaser, will arrange to import such items at his own cost and supply them to the Contractor in accordance with para 1.2.20(b). The cost of such supplies shall be recovered in accordance with para 1.3.10.

(d) The various equipments, components and materials supplied by the Purchaser to the Contractor will be handed over to the Contractor, as far as possible in a stage ready for installation. In the event of the failure of any item supplied by the Purchaser due to inherent defects/deficiencies in the item, the Contractor shall not be responsible. Should the defects be repairable at site without requiring the dismantlement of the equipment, the repair shall be done by the Contractor, free of cost, for which the necessary replacement parts will be supplied by the Purchaser, free of cost, to the Contractor. If the defect cannot be rectified at site and the replacement of the equipment is required, then the Purchaser shall replace the defective equipment, alternatively the Contractor may be required to dismantle the defective equipment and re-erect the required equipment for which he shall be paid separately at original schedule-1 rates as applicable, if available or at rates to be mutually agreed to between the Purchaser and the Contractor prior to undertaking the work.

(e) In case damage to the stores handed over to the Contractor, is caused by faulty test or careless handling by the Contractor as distinct from damage due to inherent manufacturing defect, the cost of repairs to replacement of the damaged equipment shall be borne by the Contractor.

NOTE : (1) Empty drums, wooden crates, and other packing materials including gunny bags used for supply of Purchaser's materials to the contractor shall be the property of the Contractor. The Tenderer should take note of this while quoting rates.

(f) SUPPLY OF CEMENT -D E L E T E D-

OTHER RAILWAY STORES : 1.2.21

If any material other than those specified in Para 1.2.20 is supplied by the Purchaser either at the Contractor's request or suo motto in order to prevent any possible delay in the execution of the works likely to occur due to the Contractor's inability to make adequate arrangements for supply thereof or otherwise, recovery will be made from Contractor's bill at the issue rate or market rate prevailing at the time of supply, whichever is higher, plus 5% on account of initial freight and 2% on account of incidental charges together with supervision charges at 12.5% of the total cost inclusive of material, freight and incidental charges or Schedule-3 rate, whichever is higher, freight between the Purchaser's source of supply and the Contractor's depot or Railway siding shall be to the Contractor's account. If, however, the material required by the Contractor is not available in Purchaser's stock or the Purchaser decides not to supply the same, be that for whatever reason, the Purchaser shall not be bound to arrange for the supply at cost quoted above or at any other cost nor will this fact be accepted as an excuse for delay in execution of works.

NOTE : *If the Contractor runs short of materials and such materials are available in Purchaser's stock, the material may be supplied by the Purchaser on loan to the contractor who will return these on receipt of supplies or within two months whichever is earlier. The value of the loaned material would be computed by the Purchaser based on Schedule 3 rates and equivalent amount would be withheld from the subsequent progress payments due to the contractors. In case the Contractor fails to return the material within the stipulated two months period from the date of loaning of material, the material loaned earlier would be treated as sold. The recovery of the value of the sold material would be on the basis of the issue rate or market rate prevailing at the time of supply or market rate at the end of two months' period, whichever is higher, plus 5% freight charges and 2% incidental charges together with supervision charges at 12.5% of the total cost inclusive of material, freight and incidental charges or schedule 3 rates whichever is higher. This recovery would be made from any bill submitted by the Contractor subsequently duly adjusting the above referred withheld amount, if any on account of loaning material. However, in case the loaned material is returned within the stipulated **six months** or earlier, the withheld amount from the progress would be released.*

CONTRACTOR'S ORGANISATION : 1.2.22

(a) In addition to the establishment of an office as per Para 1.2.5, the Contractor shall set up at least one main depot with DOT communication facility for receiving and storing steel work and other materials and establish a workshop for small fabrication and assembly work. If he and the Purchaser deem it necessary, sub-depots may be set up to ease operation of work trains and distribution of materials. The location of Contractor's depot and sub-depots will be mutually agreed upon by the Purchaser and the Contractor. For the main and sub-depots, the Purchaser shall offer open space reasonably leveled and workable and suitable for storage of materials free of charge inside Railway premises which will be convenient from the point of view of operation. The depot/s shall as far as possible be located such as to be accessible by road..

(b) -----Deleted-----

(c) The depots will be located at any stations of the section. The proposed location/s of depots to be given by the Tenderer for scrutiny and approval by the Purchaser.

(d) -----Deleted-----

(e) The contractor shall hand over the depot, sub-depot area within a period of one year from completion of the work, cleaned of all Contractor's stores or refuse unless otherwise agreed to by the Purchaser.

(f) The Contractor will be responsible for transfer of materials from source of supply to the main or sub depots, between depot/s and workshops .

(g) Electricity may be supplied at places where spare capacity is available for running of machinery and for lighting. The Contractor shall provide his own distribution system in consultation and with the approval of the Purchaser. The cost of providing connections and of energy consumed shall be paid by the Contractor to the Purchaser in accordance with relevant rules and prevailing rates of the Railway.

(h) At places where piped water supply is available the Purchaser may supply water to the Contractor at convenient points for his office, workshops and stores if necessary in connection with the work. The Contractor shall arrange to lay his own pipe lines for distribution in consultation and with the approval of the Purchaser.

The Contractor shall be charged for consumption by the Railways at the admissible rate. The Contractor shall arrange water at the work site at his own cost.

(j) The Contractor shall arrange at his own cost all tools, plants and facilities as necessary for erection and testing of the equipments, in compliance with the Specification.

(k) No conservancy cess charges will be recovered from the Contractor. The Tenderer should take note of this while quoting rates.

CONTRACTOR'S DRAWINGS ETC. : 1.2.23

Any calculations, designs, drawings, schedules, information, data, progress charts etc. required by the Purchaser's Engineer in connection with the contract shall be furnished by the Contractor at his own expenses. The Contractor is required to furnish all drawings, designs and calculations etc. or basic designs and employment schedules. For new developments in designs, comments on Research Designs and Standards Organization (hereinafter called R.D.S.O.'s) and decision of Purchaser to implement the same basic drawings/designs/ employment schedules will also be submitted by the contractor to the Purchaser. In the event of Contractor suggesting any alteration/deviation in standard drawings, he shall submit the retraced drawings with full calculations and justification of the change to the Purchaser. The Purchaser if convinced of the need of the alteration, shall approach RDSO/CEE CR for necessary approval. In case of any ambiguity in the interpretation of design and drawing, the decision of the purchaser shall be final and conclusive.

SUB- CONTRACTORS : 1.2.24

- (a) The Contractor may sub-let a part of the works under this contract and enter into contract with suppliers for supply of materials.
- (b) The names of all sub-Contractors proposed to be employed for execution of work or any part thereof including manufacture of components and fittings shall be submitted by the Contractor to the Purchaser and got approved by him before the Contractor enters into an agreement with the Sub-Contractor for the purpose.
- (c) The Contractor shall arrange for effective supervision of Sub-Contractor's work and remain solely responsible for materials supplied and for works carried out on his behalf by the sub-contractor/s.

QUALITY ASSURANCE MATERIALS : 1.2.25

(a) All the equipments, materials, fittings and components will be subject to quality control programme of the manufacturer, being part of the quality Assurance programme of the Contractor. The materials may also be inspected by the Purchaser or his representative either at the manufacturer works or at the Contractor's depot. The Purchaser or his representative shall have the right to be present during all the stages of manufacture and shall be accorded 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 Purchaser's prescribed quality Assurance Standards.

(b) ERECTION

All erection work will also be subjected to the **Quality Assurance Programme** including inspection by the Purchaser or his representative to ensure that the work is done in accordance with the specifications and approved drawings and designs and Purchaser's prescribed Quality Assurance Standards.

(c) EXPENSES OF PURCHASER'S REPRESENTATIVE

All the expenses of Purchaser's representative shall be borne by the Purchaser whether the inspected material is finally utilised in work or not.

(d) The decision of the General Manager or his successor shall be final in respect of acceptability or otherwise of any material, fittings, components or equipments 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 specification and the erection is 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 Purchaser's Prescribed Quality Assurance Standards. This programme of the Contractor shall generally cover the following :-

1. The organisation to manage and implement the Quality Assurance programme.
2. The documentation control system :-
 - i) Basic control system.
 - ii) Adopted at manufacturer's works.
 - iii) Adopted at the Contractor's Depot and work site.
3. Procedure adopted for :-
 - i) Source Inspection.
 - ii) Incoming raw material inspection.
 - iii) Verification of materials purchased.
 - iv) Fabrication controls.
 - v) Site erection controls.
4. Inspection and Test Procedure for :-
 - i) Manufacture and quality control procedure.
 - ii) Field activities.
5. System of handling and storage.
6. System of quality audit.
7. System of maintenance of records.
8. For the purpose of obtaining Supply Payment ' (See para 1.3.9), the Contractor shall submit along with the invoice, the documents indicated in the Prescribed

Quality Assurance Standard 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 Purchaser's representative if any.

CRANES : 1.2.26

One crane of adequate capacity with a jib of requisite length will be provided by the Purchaser, for use in a work-train for Boom erection by the Contractor, free of all charges including pay and allowances of the crew and all running expenditure will be borne by the Purchaser except the cost of supply and filling of fuel and coal for steam crane and diesel oil & lubricant for diesel cranes and supply and filling of water for steam crane which shall be borne by the contractor. Extra cranes required may be provided to suit the needs of the progress of work if considered necessary by the Purchaser. Road crane for handling heavy materials at the contractor's depot will be arranged by the contractor who will also arrange his own crew for its operation and maintenance. All charges including pay and allowances of the crew and all running expenditure will be borne by the contractor.

WORK TRAINS : 1.2.27

(a) To the extent possible work of conversion shall be done by the contractor by using sufficient number of insulated fibre glass Ladder/ Ladder trolleys. No aluminium/metallic ladder/ladder trollies shall be used. The Purchaser will provide crane/work trains to the Contractor for erection of portal boom structures and stringing of conductors (if more than 200 meters) only. For distribution of foundation materials enroute, no work train will be provided and, therefore, the Contractor shall have to make his own arrangement for carrying such materials by road transport. However, in case of locations inaccessible by road, if work trains are required by the Contractor, for transporting the concreting material/shifting of excavated earth and transportation of heavy material to work site, released structures from site, the same will be made available free of cost.

Purchaser shall provide free of cost Tower wagon for OHE wiring/ OHE adjustment work at overlaps/Crossovers and other critical locations. The wiring train shall be provided for OHE work inside tunnel.

(b) COMPOSITION OF WORK TRAINS AND EQUIPMENTS TO BE INSTALLED

The composition of the wiring train will be mutually decided. In case of disagreement Railway's decision will be final.

(c) CHARGES FOR THE WORK TRAINS

The work trains provided by the Purchaser, shall be free of all operating costs/charges to the contractor inclusive of pay and allowances of loco and trains crew, running expenses for fuel, water, oil etc. and maintenance of loco and wagon

underframes and running gear, upto the limit indicated in sub-para (d) below. The Purchaser will not entertain complaints regarding non-availability of work trains, but such non-availability will be reasonable ground for extension of time.

(d) EXTENT TO WHICH PERMITTED AND LIABILITY FOR EXTRA REQUIREMENTS

Work trains will be made available to the Contractor on the need basis for completing the work. The block hours for work trains shall be reckoned from the time the track is placed at the Contractor's disposal, at the site of work for use of the train, for any purpose permitted in sub-para (a) above, to the time it is cleared by the Contractor.

(e) INTENSIVE USE OF WORK TRAINS

The work trains provided by the Purchaser shall be intensively used, shall not be misused, under loaded or run unnecessarily. The Contractor shall fully co-operate with the Purchaser to see that the volume of work done by the work trains is commensurate with the expenses incurred on the work trains. Work trains shall be used to progress the work without gaps to the maximum extent possible. Work trains shall be moved out of block sections immediately after the materials to be distributed are unloaded or the work completed even though the block period granted for the purpose is not over. Violation of these principles will entail withdrawal of the facility of work trains and Contractor shall not be entitled to any claim on this account.

(f) CONTINUOUS USE OF WORK TRAINS - Deleted-

(g) PROGRAMME OF THE WORK TRAINS

The Contractor shall submit a chart showing the tentative programme of work for the working of work train for entire work within three months from the date of LOA.

(h) -----Deleted-----

(i) MONTHLY PROGRAMME OF WORK

The Contractor shall also submit detailed monthly programme of work indicating the different sections in which the work trains would be required to work at least 10 days in advance of the month for which the programme has been submitted. In order to avoid unnecessary blocking of tracks, the Contractor shall make out the monthly programme of work considering the actual work expected to be done and his block requirements on any particular day/s which may be less than the average foreseen in para 3.18(a)

(j) LADDER TROLLEYS / LADDERS

In addition to work trains, the Contractor may use insulated fibre glass light ladder trolleys on tracks and ladders for carrying out installation of droppers and adjustments of traction overhead equipment. The ladder trolleys shall not weigh more than 200 kg. and should be capable of being removed from the track easily and quickly. The detailed drawings of these should be submitted within 3 months from the date of issue of Letter of Intent/Acceptance of Tender to enable the Purchaser to obtain approval from the competent authorities for the use of such trolleys on tracks, if required.

(k) In order to minimise blocking the track for work material trains the tenderer shall consider the working conditions on the sections and assess use of alternative methods of construction on a part or whole of the work. He should submit clear proposals along with financial implications if any to the Purchaser for such special methods of saving of blocks that could be obtained along with reduction/redundancy of the facilities being provided by the Railway in terms of Clauses 1.2.26, 1.2.27 and 1.2.28.

(l) In order to utilise traffic and power block fully, the contractor shall use powered Wrenches/ Torque wrenches and other suitable mechanised machinery/ tools.

TRAFFIC BLOCKS : 1.2.28

(a) The Purchaser will make arrangements to obtain traffic and power blocks (hereinafter referred to as blocks) necessary for the running and operation of work trains and light ladder trolleys and track lorries for works to be carried out along or adjacent to the track (See 1.2.27 a). The Contractor shall, however, carry out maximum amount of work possible without block. Works such as grouting of traction masts, mucking shall invariably be done without blocks. Installation of droppers and adjustment of traction over-head equipment may also be permitted to be carried out with light ladder trolleys protected by banner flags in accordance with General and Subsidiary Rules of Indian Railway or on live line using insulated ladders taking all necessary precautions as per Power Distribution Subsidiary Rules(PDSR) in presence of Purchaser's representative.

(b) Blocks will normally be granted any time during day or night to suit convenience of traffic operations. The Contractor shall equip himself to carry out all construction during night block/inside tunnel efficiently by deploying suitable lighting arrangement.

(c) Block periods shall be counted from the time the track is placed at the Contractor's disposal at the work spot till it is cleared by the Contractor. All blocks asked for and granted shall be reckoned in accordance with Part 1.2.27. If by the contract completion date the total reckoned period of block works out to less than the specified number of block hours per kilometer of single track to be equipped as indicated in Part-III, the Contractor shall be eligible for corresponding extension of time for completion of the work.

(d) Blocks will normally be granted for work trains or for carrying out other work in one block section except, when the work overlaps two adjacent block sections, when blocks will be granted over both the blocks sections. The contractor shall organise the various works so as to use fully the blocks granted to him. He shall ensure that none of the equipment obstructs at any time at any track for which he has not been granted a block. The blocks granted ordinarily be on one track/multi track at one time over a distance covered by one or two consecutive block sections. For effective utilization of power/traffic block the contractor shall provide group mobile communication facility/walkie-talkie from one party to other covering all the gangs working at a time and a portable communication from site to control room and to controlling officer of the purchaser without extra cost to the purchaser. In addition contractor shall also provide two numbers mobile communication to Railway for communication from work site to divisional control room and officers.

(e) The contractor shall in consultation with the Purchaser submit a weekly block programme for works or for work trains 7 days in advance of the week for which the programme has been submitted. At the end of each week a comparison shall be made between the block periods asked for by the Contractor and that availed of by the Contractor, fractions of an hour in the total being ignored.

(f) Blocks will be subject to normal operating conditions and rules of the Railway. All formalities of exchanging private numbers etc. with the traffic control/ Traction power controller will be carried out by the Purchaser's staff and for this purpose the Purchaser will depute representative for erection gang, who will be responsible for imposing traffic & power blocks 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 the Purchaser's representative in case of works involving safety of running tracks. Contractor shall also provide adequate numbers of line testing equipments, discharge rod, height and stagger gauge along with competent person to use the same under the guidance of Railway supervisors at site with all gangs.

The protection/safety required for block working i.e. flagmen, flags etc. shall be provided by the contractor. Competency for the above shall, however, be given by the Railway authorities.

(g) Blocks required for carrying out works necessitated by the thefts, pilferage, accidents or such other incidents, shall be granted by the Purchaser over and above the normal requirements of block and shall not be counted for the purpose of para 1.2.27 (d) or 1.2.28 (c).

(h) - Deleted-

DEFAULT AND DELAY : 1.2.29

The contractor shall execute the work with due diligence and expedition keeping to the approved time schedule. Should he refuse or neglect to comply with any responsible orders given to him in writing by the Purchaser's Engineer in connection with the work or contravene the provision of the contract or the progress of works lags persistently behind the time schedule due to his neglect, the Purchaser shall be at liberty to give seven day's notice in writing to contractor requiring him to make good the neglect or contravention complained of and should the contractor fail to comply with the requisitions made in the notice within seven days from the receipt thereof, the purchaser shall be entitled after giving 48 hours notice in writing under the hand of the Contractor's Engineer (to rescind the contract as a whole or in part or parts as may be specified in such notice) and adopt either or both of the following courses:-

(a) to carry out the whole or part of the work from which the contractor has been removed by the employment of the required labour and materials, the costs of which shall include lead, lift, freight, supervision and all incidental charges.

(b) to measure up the whole or part of the work from which the contractor has been removed and to get it completed by another contractor, the manner and method in which such work is completed, shall be in the entire discretion of the Purchaser whose decision shall be final.

And in both the cases (a) and (b) mentioned above, the Purchaser shall be entitled (i) to forfeit the whole or such portion of the security deposit as it may consider fit, and (ii) to recover from the Contractor the cost of carrying out the work in excess of the sum which would have been payable according to the certificate of the Engineer to the Contractor if the works had been carried out by the Contractor under the terms of the contract, such certificate being final and binding upon the Contractor. Provided, however, that such recovery shall be made only when the cost incurred in excess is more than the security deposit proposed to be forfeited and shall be limited to the amount by which the cost incurred in excess exceeds the

security deposit proposed to be forfeited. The amounts thus to be forfeited or recovered may be deducted from any moneys then due or which at any time thereafter may become due to the contractor by the Railway under this or any other contract or otherwise.

Provided always that in any case in which any of the powers conferred upon the Railway Electrification Clause 1.2.14 and 1.2.29 hereof shall have become exercisable and the same shall not be exercised, the non-exercise, thereof shall not constitute a waiver of any of the conditions thereof and such powers shall not withstanding the exercisable in the event of any future case of default by the Contractor for which his liability for past and future shall remain unaffected.

It shall be lawful for the Purchaser to take the work wholly or in part out of the contractor's hands without any further reference and get the work or any part thereof, as the case may be, completed by other agencies at the expense of the contractor without prejudice to any other right or remedy of the Purchaser.

LOSS SUSTAINED DUE TO DEFAULT AND DELAY : 1.2.30

(a) In the event of any loss to the Purchaser on account of execution and/or completion of the work or any part thereof by agencies other than the contractor, in terms of para 1.2.29, the contractor shall be liable to reimburse the loss to the Purchaser without prejudice to the other rights and remedies of the Purchaser, and the reimbursement in full or in part as the case may be, shall be met at the option of the Purchaser from out of all or any of the following sources, viz:

(i) Any amount due and payable to the contractor by the Purchaser on any account whatsoever,

(ii) The Contractor's Security Deposit in the hands of the Purchaser as far as available; and

(iii) Any other assets whatsoever of the Contractor.

(b) In the event of reimbursement from out of sources (i) and/or (ii) above-mentioned the Purchaser shall have the right of appropriation suo moto.

NOTE : *The above para should be read in conjunction with para 1.2.42.*

CORRECTNESS OF WORK AND MATERIALS : 1.2.31

(a) The contractor shall be solely responsible for the correctness of the position, levels and dimensions of the works according to approved drawings, notwithstanding that he may have been assisted by the Purchaser or his men in setting out the same.

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

CONTRACTOR'S RESPONSIBILITY FOR DISCREPANCY : 1.2.32

(a) 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 Purchaser's approval will be based on these considerations, notwithstanding the approval communicated by the Purchaser, during the progress

of the contract for designs and drawings, prototype samples of components, materials and equipment after inspection of materials, after erection and adjustments to installations, the ultimate responsibility for correct design and execution of work shall rest with the contractor unless the Purchaser insists on adoption of his own designs in spite of the contractor not being agreeable to it.

(b) The contractor shall be responsible for and shall bear and pay the costs for any alteration of 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 Purchaser or not.

ADDITIONS AND ALTERATIONS TO ERECTED EQUIPMENT : 1.2.33

The Purchaser may require **ADDITIONAL INSTALLATIONS OR MODIFICATIONS OR REPLACEMENTS** as per new designs as evolved or decided during the currency of the contract to be carried out on the works he deems necessary, either during the execution or after a part or whole of the installations coming within the purview of the contract has been put into commercial service. Further it may be necessary and expedient to energise overhead equipment which has been completed and finally adjusted in portions in yards. This will necessitate erection of new equipment in the vicinity or joining energised equipment. In case the prices for such additional works or modifications or replacements are not covered by the schedule of prices and are such that either party considers additional prices for such works justified, such additional works or modifications shall be carried out by the Contractor. Any additional prices for such work items would be mutually settled between the purchaser and the contractor, based on proper rate analysis and with reference to the current prevalent market rates or the rates available with the Rly constn Administration in that or nearby area/s. In case additional installations or modifications or replacements are required to be carried out under this Para, the Purchaser shall grant a reasonable extension of time, should it be necessary.

QUANTUM OF WORK AND MATERIALS : 1.2.34

41. Modification to Contract to be in Writing: In the event of any of the provisions of the contract required 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.

42.(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 upto 25% of the quantity originally contracted, except in case of foundation work (in which no variation limit shall apply). However, the rates for the increased quantities shall be as per sub- para (iii) below.

(ii) 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 upto the limit of 25% variation in quantity of individual item of works.

(iii) In case an increase in quantity of an individual item by more than 25% of the agreement quantity is considered unavoidable, then same shall be executed at following rates

- a. 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;
- b. 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;
- c. Variation in quantities of individual items beyond 150% will be avoided and would be permitted only in exceptional unavoidable circumstances and shall be paid at 96% of the rate awarded for that item in that particular tender.
- d. Variation to quantities of Minor Value Item:
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 contract value.
 - d.(i) Quantities operated upto and including 100% of the agreement quantity of the concerned minor value item, shall be paid at the rate awarded for that item in that particular tender;
 - d.(ii) Quantities operated in excess of 100% but upto 200% of the agreement quantity of the concerned minor value item, shall be paid at 98% of the rate awarded for that item in that particular tender;
 - d.(iii) Variation in quantities of individual minor value item beyond 200% will be avoided and would be permitted only in exceptional unavoidable circumstances and shall be paid at 96% of the rate awarded for that item in that particular tender.

(iv) In case of earthwork items, the variation limit of 25% shall apply to the gross quantity of earthwork items and variation in the quantities of individual classifications of soil shall not be subject to this limit.

(v) As far as Standard Schedule of Rates (SSOR) items are concerned, the variation limit of 25% would apply to the value of SSOR schedule(s) as a whole and not on individual SSOR items. However, in case of Non Standard Schedule of Rates (SSOR) items, the limit of 25% would apply on the individual items irrespective of the manner of quoting the rate (single percentage rate or individual item rate).

42.(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 expressively included and provided for in the Specifications and Drawings and the amounts to be paid therefor shall be calculated in accordance with the accepted Bill(s) of Quantities. Any extra item(s)/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.

COMPETENT SUPERVISORS : 1.2.35

(a) The erections of all equipment according to the specifications will be done by the Contractor at his cost. For this purpose, the Contractor shall employ competent representatives to supervise the erections of the equipment and the carrying out of the works at all stages. The said representatives shall be present at site during working hours and any written orders or instructions which the Purchaser's Engineers may give to the said representatives of the Contractor shall be deemed to have been duly given or communicated to the Contractor.

(b) The Contractor or his representative will accompany the Purchaser's Engineers on Inspection or proceed to their offices whenever called upon to do so.

(c) The Contractor's representative shall give the necessary direction to his workmen and ensure that they execute their work in sound and proper manner. He shall employ only such supervisors, workmen and labour for the execution of any of the works as are careful and skilled in their respective trades and callings. If and whenever required by the Purchaser's Engineer the Contractor shall submit a correct return showing the names of all personnel employed by him for the contract. In the event of the Purchaser's Engineer being of the opinion that the Contractor is not employing a sufficient number of the competent staff as is necessary for the proper execution of the works within the time prescribed, the Contractor shall forthwith on receiving intimation to this effect take on the additional number of staff as advised by the Purchaser's Engineer.

TRAINING OF PURCHASER'S STAFF : 1.2.36

The Contractor shall train, free of charge, in a manner mutually agreed between the Purchaser and Contractor, such staff of the Purchaser as may be deputed by him and the wages and allowances and all other associated expenses of such staff shall be paid by the Purchaser.

WORK BY OTHER AGENCIES : 1.2.37

(a) Any other works undertaken at the same time by the Purchaser or the Railway direct or through some other agencies 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 Purchaser 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 Purchaser in order to permit simultaneous execution of his own works and those undertaken by other Contractors or the Railway without being entitled on this account to 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 etc. but the Purchaser shall grant a reasonable extension of time to the Contractor.

(c) The Contractor shall take note that owing to works being carried out by the Purchaser and others, there may be breaks in the Continuity of the locations for work owing to works such as track remodeling being undertaken. But the Contractor shall not be entitled to claim any extra payment on account of such breaks. However, such breaks in the continuity of work would be reasonable ground for extension of completion date/s for the work.

(d) If the Purchaser is unable to supply materials to the Contractor as specified in the contract, in time, the Contractor shall not be entitled to any extra payment on

account of such delay in supply. However, such delays in supply will be reasonable ground for extension of completion date/s for the work.

(e) In cases where the lines to be electrified are not in their final position, the Purchaser will furnish the remodeling plans for such lines to the Contractor and/or peg out the altered or remodeled position of the tracks to be electrified to enable preparation of designs and assessment of quantities of components required for the work. However, the Contractor may not undertake field work on such track till they are in final position. The Contractor shall not be entitled to any compensation in case of delay in such remodeling work, but the Purchaser will grant a reasonable extension of the time for completion.

(f) Chopping/trimming of tree branches required for erection of Overhead equipment shall be done by the contractor. At least four meters clearance shall be made available before 25KV charging between the nearest 25KV live parts and the tree branches. Also to ensure that there are no loose tree branches nearby or overhead which are likely to fall on the live OHE.

(g) -----Deleted-----

ACCESS TO WORK SITE : 1.2.38

(a) Access to the site for the purpose of this contract shall be accorded to the Contractor by the Purchaser at all times. In the execution of the work no person other than the Contractor or his duly appointed representative or approved sub-contractor and bonafide workmen shall have access to the site. Access to the site of work at all times shall be allowed by the Contractor to officials or approved representatives of the Purchaser or to Railway staff for purpose of maintenance.

(b) The Purchaser or his authorised representative shall have the right to refuse admission to the work site of any person employed by the Contractor whom the Purchaser or his Engineer may consider undesirable.

(c) The Purchaser or his Engineer shall be at liberty to object to the employment of any person as Contractor's Agent/ Representative, approved Sub-contractor's supervisors, workmen or labourer for execution of this contract on the ground of misconduct, incompetence or negligence. The Contractor on receipt of notice of such objection in writing from the Purchaser or his Engineer shall forthwith remove the person so objected to and provide in his place any other competent person and shall not allow the persons so objected to, to enter the site of work subsequently or remain in the execution of the contract. The Purchaser will not be liable to pay any cost or damage on this account.

INFRINGEMENT OF PATENTS : 1.2.39

(a) The Contractor is for Tender den to use any patents or registered drawings, processes or patterns in fulfilling his contract without the previous consent in writing of the owner of such patents, drawings, patterns or trade marks, except where these are specified by the Purchaser 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 Purchaser of any proprietary rights that may exist on such processes, drawings or patterns which he may use of his own accord.

(b) In the case of patents taken out by the Contractor of the drawings or patterns registered by him, or of those patents, drawings or patterns for which he holds a license, the signing of the contract automatically gives the Purchaser 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 Purchaser, 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 Purchaser for infringement of letters 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 method of using or working by the Purchaser of such equipment, machine, plant, work or thing, the Contractor shall indemnify the Purchaser 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 Purchaser shall notify the Contractor immediately after any claim is made and that the Contractor shall be at liberty, if he so desires with the assistance of the Purchaser if required but at the Contractor's expense, to conduct all negotiations for the settlement of the same or any litigations that may arise therefrom and PROVIDED THAT no such equipment, machine, plant, work or thing, shall be used by the Purchaser for any purpose or in any manner other than that for which they have been supplied by the Contractor and specified under this contract.

INSURANCE : 1.2.40

(a) The Contractor shall take out and keep in force a policy or policies of insurance against all liabilities of the Contractor or the Purchaser at common law or under any statute in respect of accidents to persons who shall be employed by the Contractor in or about the site of the Contractor's Offices 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 recognised risks to their offices and depots. Such insurance shall in all respects be to the approval of the Purchaser and if he so requires in his name.

(b) INSURANCE OF MATERIALS AND INSTALLATIONS

The Contractor shall take out and keep in force a policy or policies of insurance for all materials in storage and traction installations excluding foundations under erection and/or erected until such materials and installations are provisionally handed over to the Purchaser. For this purpose, the traction installations in a section (See para 1.2.46) shall be deemed to have been provisionally handed over, when a Provisional Acceptance Certificate is issued for the section or the traction installations in the section are commissioned or on the expiry of three months after installations are given ready in all respect for handing over as per Para 1.2.46(a), whichever is earlier, for commercial use. The Contractor shall not be liable for losses, damages to equipments erected in the course of erection or in store at the Contractor's depot, in consequence of mutiny or other similar cause over which the Contractor has no control and which cannot be insured. Such losses or damages shall be the liability of the Purchaser and if required by the Purchaser, be made good by the Contractor, at the cost of Purchaser.

Note: *It may be noted that the beneficiary of the insurance policy should be Rlys or the policies should be pledged in favour of Railways. The contractor shall keep the policy/policies current till the installations are provisionally handed over to the purchaser. It may also be noted that in the event of contractor's failure to keep the policy current and alive, renewal of the policy will be done by the purchaser, for which the cost of the premium will be recovered from the contractor as per the procedure laid down in clause 1.3.10 Pt.I Chapter-III.*

(c) The Contractor should, however, insure the stores brought to site, against risks in consequence of war and invasion, as required under the Emergency Risk (goods) Insurance Act in force from time to time.

NOTE : *Deleted.*

(d) The Contractor shall take out all insurance covers in connection with this contract with the General Insurance Corporation of India.

(e) Deleted.

(f) For purpose of enabling the Contractor to take the insurance cover in connection with this contract, the Purchaser will advise the approximate price of all the Railway supply materials two months before the same are handed over to the Contractor at his depot. However, the recovery in case of shortages of such materials will be made in accordance with provisions specified in Note at the end of Para 1.4.6.(f)

ACCIDENTS : 1.2.41

(a) The Contractor shall, in respect of all staff engaged by him or by his sub-contractor, indemnify and keep the Purchaser at all times indemnified and protected against all claims made and liabilities incurred under Workmen's Compensations Act, the Factories Act and the Payment of Wages Act and rules made there under 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 Purchaser indemnified and harmless against all actions, suits, claims demands, costs, charges or expenses arising in connection with any death or injury sustained by any person or persons within the Railway premises and any loss or damage to Railway property sustained due to the acts or omission of the Contractor, his Sub-contractors, his agents or his staff during the execution of this contract irrespective of whether such liability arises under the Workmen'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. 25 lacks 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 minimise or to avoid traffic detentions, in a section until the installations are provisionally handed over to the Purchaser (See para 1.2.46).

(e) CLEARING DAMAGED INSTALLATIONS

The Contractor shall at his cost arrange for expeditious clearing of the railway track/s of traction installations obstructing or fouling the track/s when they are damaged as a result of railway accident or any other cause, upon the oral/telephonic/written instructions from the Purchaser's representative, until installations are provisionally handed over to the Purchaser. If the Contractor fails to clear the tracks expeditiously and within reasonable time, the Purchaser will arrange to clear the track/s or the damaged installations and recover the expenses incurred from the Contractor, If during such clearance operations further damage is caused to the installations, the Purchaser is not liable to reimburse the Contractor the cost of such further damage in the installations.

(f) The Contractor shall arrange for temporary slewing of overhead equipment for crane operation for derailment of rolling stock due to accidents for which the Contractor is not responsible, if required by the Railway or the Purchaser, at the cost of the Purchaser (Item 31 of Schedule 1) until the installations are provisionally handed over to the Purchaser. If the Contractor fails to slew the overhead equipment within reasonable time the Purchaser will arrange to slew the equipment and recover the extra expenses, if any incurred from the Contractor. After the crane operations are completed, the Contractor shall restore the overhead equipment to its normal positions.

NOTE for sub-para (d) & (e) :

For the works mentioned in (d) and (e) above the Contractor will be granted blocks and work train/s will be made available to him over and above the normal requirements of block and work train(s) which shall not be counted for the purpose of Para 1.2.27(d) or 1.2.28(c) [See para 1.2.28 (g)].

CONTRACTOR'S LIABILITY FOR COSTS AND DAMAGES : 1.2.42

(a) 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 Purchaser shall be entitled to withhold and also have 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 Purchaser shall be entitled to withhold the said cash security deposit or the security if any, furnished as the case may be and also have lien over the same pending finalisation 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 Purchaser shall be entitled to withhold and have lien to retain to the extent of such claim amount or amounts referred to supra, from any sum or sums found payable or which at anytime thereafter may become payable to the Contractor under the same contract or any other Department of the Central Government pending finalisation 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 by the Purchaser till the claim arising out of or under the contract is determined by the Arbitrator (if the contract is 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 or any account in respect of such withholding or retention under the lien referred to supra and duly notified as such to the Contractor. If the Contractor is a partnership firm or a limited company, the Purchaser shall be entitled to withhold and also have 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.

(b) LIEN IN RESPECT OF OTHER CONTRACTS .

Any sum or sums 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 Purchaser against any claim of this or any other Railway or any other Department of the Central Government in respect of payment of a sum of money arising out of or under any other contract made by the contractor with this or any other Railway or any other department of the Central Government.

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

SAFETY MEASURES : 1.2.43

(a) The Contractor shall take all precautionary measures in order to ensure the protection of his own personnel moving or working on the Railway premises, but shall then conform to the rules and regulations of the Railway. 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 Railway siding and premises, the Contractor shall provide necessary protection i.e. Flagmen, Flag etc. required in block working. Competency for the above shall, however, be given by the Railway authorities. The Purchaser 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 rock for foundation work shall be done only after due notice is given to the Purchaser and time/s and date/s for blasting operations agreed to by the Purchaser. Blasting, if required to be done in the vicinity of the track, shall not be undertaken until the flagmen on duty take necessary steps to protect trains and the track is adequately protected by the Contractor against damage by blasted rock. The Contractor shall follow detailed instructions regarding blasting operations in the vicinity of tracks. The flagmen for protection of trains and the Track in such cases will be appointed by the contractor.

(c) During stringing operations every care shall be taken to prevent conductors hanging low over tracks on which traffic block has not been given. All conductors shall be pulled out before traffic block is cleared so that such conductors do not infringe with moving traffic.

(d) Ladder trolleys shall be used with caution. They shall not be put on tracks until the flagmen are on duty to protect the trolleys and the Purchaser's representative authorizes in writing for the trolleys to be put on the tracks. Ladder trolleys shall be promptly removed on instructions from the Purchaser's representative and well in advance of trains. No claims shall rest on the Purchaser in the event of a ladder trolley being run over by train. The flagmen for the above job will be provided by the contractor.

- (e) 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 the Para.
- (f) While working within station limits, specially on passenger platforms, the Contractor shall ensure that at all times sufficient space is left for free movement of passenger traffic. He must cover and/or barricade the excavations carried out in such areas and continue to maintain these till the work is completed, with a view to avoid any accident to public or to Railway staff.
- (g) 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 or damage any Railway equipment, structure or rolling stock except as agreed to by the Purchaser, provided that all damage and disfiguration caused by the Contractor to any Railway property must be made good by the Contractor at his own cost failing which cost of such repairs shall be recovered from the Contractor.
- (h) 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 Purchaser shall, after giving due notice to the Contractor in writing, take necessary steps and recover the costs from the Contractor.
- (j) Moreover, if any time the works to be carried out directly concern the safety of trains, the Contractor's staff must comply fully with the Railway regulations given to him by the authorised Railway staff. The Contractor's employees and workers may for no reason operate an installation concerning train safety or train movement. They shall notify the authorised representative of the Purchaser who will take all necessary steps in this regard.
- (k) The Contractor shall be responsible for safe custody of all equipments till provisional acceptance.
- (l) 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. 25 lacks for any one accident.
- (m) The Contractor shall ensure that unauthorised, careless or inadvertent operation of switchgear, which may result in accident to staff and/or damage to equipment, does not occur.
- (n) The Contractor shall abide by all instructions issued by the Purchaser from time to time in connection with protection/safety of track/Railway installations/personnel as well as quality control. The Contractor should not leave the excavated pits unfilled overnight. Due to any reason if it become necessary to leave the pit unfilled overnight, it should be filled back effectively with sand bags to the satisfaction of the Purchaser's representative.

RECOVERY FOR DELAY IN COMPLETION : 1.2.44

If the Contractor fails to execute and complete the work within the time specified in the Agreement or within the period of extension granted under para 1.2.45 except, in so far as the delay is on the Purchaser's account, the contractor shall accept reduction in the total amount payable to him by the Purchaser upto the maximum rate of Rs.4,000/- per day for the actual delay occasioned beyond the appointed time by which the work shall have been completed under the contract. Such reduction shall be accepted by the Purchaser in full satisfaction of the Contractor's liability arising from delay only. This recovery for delay in completion will be applicable separately for each stage of completion of overhead equipment, switching stations or booster transformer stations when two or more stages of completion are specified in the contract. The General Manager or his successor shall at his sole discretion specify a time limit within which the unfinished portion of the work shall be completed after serving on contractor a notice of the Purchaser's intention to effect the said recovery in the form 17 (Part- IV). In the event of failure of the Contractor, the Purchaser shall be at liberty to take action in accordance with provisions in Para 1.2.29 and 1.2.30.

NOTE : *As per Railway Board's letter No.2007/CE.1/CT/18, dtd. 28.09.2007, the Purchaser 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.*

EXTENSION OF TIME : 1.2.45

GCC 17A Extension of Time in Contracts: Subject to any requirement in the contract as to completion of any portion 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) **Extension due to Modification:** 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.
- (ii) **Extension for Delay not due to Railway or Contractor:** 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 reason 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 event 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.

- (iii) **Extension for Delay due to Railways:** 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 therefor, but in any such case, the Railway may grant such extension or extensions of the completion date as may be considered reasonable.

The Contractor shall indicate the period for which the work is likely to be delayed and shall seek extension of time as may be considered necessary under clause 17A(i) or/and 17A(ii) or/ and 17A(iii) above, as soon as the cause thereof shall arise and, in any case, not less than 15 days before the expiry of the date fixed for completion of the works. The Engineer shall consider the same and shall grant and communicate 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.

The non-submission of request for extension or submission of request within less than 15 days before the expiry of the date fixed for completion of the works, shall make him ineligible for extension under these sub clauses, subject to final decision of Engineer.

17B Extension of Time with Liquidated Damages (LD) 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 17A, 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 (Proforma at Annexure-VII) 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 for each week or part of the week, **a sum calculated at the rate of Liquidated Damages as decided by Engineer, between 0.05% to 0.30 % of 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 5% of the contract 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.

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.

NOTE:

In a contract, where extension(s) of time have been allowed once under clause 17B, further request(s) for extension of time under clause 17A can also be considered under exceptional circumstances. Such extension(s) of time under clause 17A shall be without any Liquidated damages, but the Liquidated damages already recovered during extension(s) of time granted previously under clause 17B shall not be waived. However, Price variation during such extension(s) shall be dealt as applicable for extension(s) of time under clause 17B.

17C Bonus for Early Completion of Work: In open tenders having advertised value more than Rs.50 crore and original period of completion 16 Months or more, when there is no reduction in original scope of work by more than 10%, and no extension granted on either railway or Contractor's account, Contractor shall be entitled for a bonus of 1% for each 30 days early completion of work. The period of less than 30 days shall be ignored while working out bonus. The maximum bonus shall be limited to 5% of original contract value. The completion date shall be reckoned as the date of issuance of completion certificate by Engineer.

PROVISIONAL ACCEPTANCE : 1.2.46

(a) Immediately after completion of entire works of overhead equipment, the Contractor shall certify and advise the Purchaser in writing that the section are (i) Complete (ii) ready for energisation on 25 KV AC and (iii) ready to be handed over. He will also place at the disposal of the Purchaser the required staff for checking it and putting it into operation on 25KV AC.

(b) The test or tests as stipulated in part - II, Chapter VII of the specification excluding power collection tests which would be carried out subsequently in connection with the taking over by the Purchaser of the equipment and installations shall be carried out jointly by the Purchaser and the Contractor within a month after the receipt of the Contractor's notifications, as stated in sub-para above.

(c) After inspection and satisfactory conclusion of tests and when the Purchaser 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 or energisation of section on 25 KV AC for which contractor is not responsible.

(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 Purchaser. Fresh inspection and tests will then be carried out after the Contractor has attended to the defects and deficiencies. If these tests are also not satisfactory, the Purchaser 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 Purchaser 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 sections are not completely erected. The Purchaser will give to the Contractor for this purpose seven days previous notice. The Contractor shall then take at his own expense 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 section/ Sub-group will be issued immediately after all tests (excluding power collection tests) are completed to the satisfaction of the Purchaser. Should the Purchaser 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 under para 1.2.46(a) has been given. The power collection tests shall normally be carried out for the entire group/s within three months of the date of energisation of the last section in the group/s.*

(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.*

DEFECTIVE EQUIPMENTS TO BE CHANGED : 1.2.47

(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 Railway due to faulty material, design or workmanship, or otherwise fails to fulfill the requirement of the Contract and/or its purpose, the Purchaser 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 Purchaser'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 Purchaser 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 Purchaser 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 Purchaser 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 Purchaser to the Contractor in respect of such defective equipment. Should the Purchaser 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 Purchaser 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.

USE OF REJECTED EQUIPMENT : 1.2.48

In the event of such rejection as aforesaid, the Purchaser 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 (1.2.14) until such rejected equipment is rectified and/or replaced, but the Purchaser shall not be entitled to claim any damages arising out of rejected equipment in respect of such period..

GUARANTEE : 1.2.49

(a) The Contractor shall guarantee satisfactory working of the installations erected by him for a period of **eighteen months** from the date of commercial operation or from the date of provisional Acceptance of each section (1.2.46) by the Purchaser whichever is **later**. The guarantee for spares should be coincident with the guarantee for erected equipment.

(b) During the period of guarantee the Contractor shall keep available an experienced engineer 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/Chief Electrical Engineer/Sr Divisional Electrical Engineer (Traction Distribution) CSTM 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 Purchaser at site. In such a case, the Contractor shall be informed in advance of the works propose to be carried out by the Purchaser.

(d) If it becomes necessary for the Contractor to replace or renew any defective portion of the equipment under the para aforesaid then the provisions of the said para shall also apply to the portions of the equipment so replaced or renewed until the expiration of six months from the date of such replacement or renewal or until the end of the above mentioned period (see sub-para 1.2.49(a)) whichever is later. Such extension shall not apply in case of defects of a minor nature, the decision of the General Manager or his successor/nominee being final in the matter. If any defect be not remedied within a reasonable time during the aforesaid period the Purchaser may proceed to do work at the Contractor's risk and expense, but without prejudice to any other rights and remedies which the Purchaser may have against the Contractor in respect of such defects or faults.

(e) The repaired or renewed parts shall be delivered and erected on site free of charge to the Purchaser.

(f) Any materials, fittings, components or equipments supplied under 1.2.34 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 1.2.34. Such resupply 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 overhead equipment of the section covered by the contract.

(g) In the case of materials, components, fittings and equipments supplied by the Purchaser under 1.2.20 (b), no liability will rest on the Contractor for failures on account of defective materials or workmanship and for any consequential damages. Such defective materials, if not yet erected on line, will be returned by the Contractor to the Purchaser and such quantities will be considered for the purpose of final reconciliation over and above allowance as per part-I, Chapter IV.

FINAL ACCEPTANCE : 1.2.50

(a) The final acceptance of the entire equipment installed in the section shall take effect from the date of expiry of the period of guarantee as defined in paragraph 1.2.49 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 1.2.49 in respect of each section of the Group, provided also that the attention has been paid by way of maintenance by the Purchaser.

(b) If on the other hand the contractor has not so complied with his obligation under para 1.2.49 in respect of any section, the Purchaser 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 Purchaser 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 Purchaser.

(c) The Purchaser 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 Purchaser (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.

PAYMENT : 1.2.51

Payments will be governed by the terms specified in part-I, Chapter III and in accordance with accepted Schedule of Prices, read with relevant paras of the other parts and Chapters of the Tender Papers. The Purchaser 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 Purchaser 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 any-wise 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 Purchaser 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 Purchaser, 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 Purchaser 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 Purchaser for subletting whole and/or part of the work to any sub-contractor.

(iii) The obligations imposed by sub-clauses (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 Purchaser reserves to itself 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 overpayment 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.

SITE CLEARANCE : 1.2.52

(a) At the end of each spell or work and on completion of the work, the Contractor shall, as a part of his contractual obligation, leave the tracks, and their approaches, store yards etc. cleared of rubbish and obstruction of all kinds according to the instructions of the Purchaser's Representatives. Besides, he shall take all necessary steps in the course of the execution of the works to avoid the presence of loose earth and ballast on platforms, in drainage on the track formation and pathways in the vicinity. If within a fortnight of completion of the particular item of site work the refuse is not cleared, the Purchaser will arrange to get them removed at the cost of the Contractor. However, before the Purchaser actually gets the site cleared he shall send an intimation in writing to the Contractor expressing his intention.

(b) The storage of equipment, tools and machinery used by the Contractor shall be done in an orderly manner and anything used by the Contractor for execution of the works shall in no way constitute a danger or hindrance to the working of the Railway or to the movement of its staff or passengers.

EQUIPMENTS, COMPONENTS AND MATERIALS RECEIVED FOR WORK : 1.2.53

The Contractor shall utilise all equipments, components or materials, procured specifically for the purpose of execution of the work, in the work or other requirements. Any surplus materials left over at the end of the work shall not be disposed off without prior approval of the Purchaser in writing. The Purchaser may

within a period of six months from the date of provisional Acceptance of the last section, switching/Booster station notify the Contractor of the Purchaser's interest in any or all of the surplus materials and shall have the right to take over the materials at Schedule 3 prices. The materials so notified by the Purchaser shall be taken over by the Purchaser and paid for in full. The Contractor may use in any manner deemed fit, only such surplus materials which are not covered by the Purchaser's notification after getting the approval of the Purchaser in writing.

ARBITRATION : 1.2.54

GCC Para 61.(1) Right of Railway to 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 therefor shall be conclusive evidence thereof.

61.(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.

61.(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 for 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 Execute the contract documents in terms of Para 8 of the Instructions to Tenderers.
- (x) Fail to submit the documents pertaining to identity of JV and PAN in terms of Para 17.11 of Tender Form (Second Sheet) of Annexure I available in the Instructions to Tenderers.
- (xi) 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

- (xii) Fail to take steps to employ competent or additional staff and labour as required under Clause 26 of these Conditions, or
- (xiii) Fail to afford the Engineer or Engineer's representative proper facilities for inspecting the works or any part thereof as required under Clause 28 of these Conditions, or
- (xiv) 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.
- (xv) Fail to adhere to the provisions of Para 16 of Tender Form (Second Sheet) of Annexure I of the Instructions to Tenderers, or provision Clause 59(9) of these Conditions.
- (xvi) Submits copy of fake documents / certificates in support of credentials, submitted by the tenderer

Then and in any of the **said Clause**, the Engineer on behalf of the Railway may serve the Contractor with a notice (Proforma at Annexure-IX) 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 (Proforma at Annexure-X or XII, as the case may be) 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 (Proforma at Annexure-XI or XIII, as the case may be) should be issued.

Note: Engineer at his discretion may resort to the part termination of contract with notices (Proforma at Annexure- IX, XII and XIII), only in cases where progress of work is more than or equal to 80% of the original scope of work.

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 this 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) In the contract which has been rescinded as a whole, the Security Deposit already with railways under the contract shall be encashed/ forfeited and the Performance Guarantee already submitted for the contract shall be encashed. The balance work shall be got done independently without risk & 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 in his/her individual capacity or as a partner of any other JV /partnership firm.

Further the authorized representative of failed Contractor cannot be accepted as authorized representative in new contract.

(c) In the contract rescinded in part or parts,

(i) The full Performance Guarantee available for the contract shall be recovered. No additional Performance Guarantee shall be required for balance of work being executed through the part terminated contract. The contract value of part terminated contract stands reduced to the balance value of work under the contract.

- (ii) The Security Deposit of part terminated contract shall be dealt as per clause 16(2) of these Conditions.
- (iii) The defaulting Contractor shall not be issued any completion certificate for the contract.
- (iv) The balance work shall be got done independently without risk & 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 in his/her individual capacity or as a partner of any other JV /partnership firm.
- (v) Further the authorized representative of failed Contractor will not be accepted as authorized representative in new contract.
- (d) 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.
- (e) 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 plant 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.

SETTLEMENT OF DISPUTES - INDIAN RAILWAY ARBITRATION AND CONCILIATION RULES

The provisions of clause 63 and 64 of GCC will be applicable only for settlement of claims of disputes between the Railways and contractor of a value less than or equal or 20% of the original contract value, so as to bring the claim within the scope of Arbiter ability.

63. Conciliation of Disputes:

- (i) This clause is applicable in the tender having advertised value less than or equal to Rs 50 Crore.
- (ii) 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 "Chief Engineer" or "Divisional Railway Manager" through "Notice of Dispute" provided that no such notice shall be served later than 30 days after the date of issue of Completion Certificate by the Engineer. Chief Engineer or Divisional Railway Manager shall, within 30 days after receipt of the Contractor's "Notice of Dispute", notify the name of conciliator(s) to the Contractor.
- (iii) The Conciliator(s) shall assist the parties to reach an amicable settlement in an independent and impartial manner within the terms of contract.
- (iv) If the parties reach agreement on a settlement of the dispute, they shall draw up and sign a written settlement agreement duly signed by

Engineer In-charge, Contractor and conciliator(s). When the parties sign the settlement agreement, it shall be final and binding on the parties.

(v) The parties shall not initiate, during the conciliation proceedings, any arbitral or judicial proceedings in respect of a dispute that is the subject matter of the conciliation proceedings.

(vi) The conciliation proceedings shall be terminated as per Section 76 of The Arbitration and Conciliation Act, 1996.

63.1 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 GM and the GM 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 matters for which provision has been made in Clauses 7(j), 8, 18, 22(5), 39.1, 39.2, 40A, 43(2), 45(i)(a), 55, 55-A(5), 57, 57A, 61(1), 61(2), 62(1), 63(iv) and 63.2.11 of the Standard General Conditions of Contract or in any Clause (stated as excepted matter) of the Special 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 Dispute Adjudication Board (DAB) and Arbitration.

63.2 Dispute Adjudication Board (DAB): This clause is applicable in the tender having advertised value more than Rs 50 Crore.

63.2.1 Any dispute/s if not settled with the Engineer, shall be referred to DAB.

The DAB shall consist of a panel of three Retired Railway Officers, retired not below senior administrative grade (SAG). The DAB shall be formed within 90 days of signing of Contract Agreement. For this purpose, a panel of DAB members shall be maintained in the General Manager's office. The complete panel, which shall not be less than five members, shall be sent by Chief Engineer to the Contractor to nominate one member of the DAB from the panel as Contractor's nominee within two weeks of receipt of the panel. On receipt of Contractor's nominee, the Chief Engineer shall nominate one member from the same panel as Railway nominee for the DAB. Both above nominees shall jointly select presiding member of the DAB from the same panel.

63.2.2 The appointment of DAB shall be effectuated by way of a tri-partite agreement among the Railway, Contractor and the respective DAB members. The terms of the remuneration of each member shall be as fixed by Ministry of Railways from time to time. Each party shall be responsible for paying one-half of this remuneration.

63.2.3 If one or more of the members appointed refuses to act as DAB member, or is unable or unwilling to perform his functions as DAB member for any reason whatsoever or dies or in the opinion of the Chief Engineer fails to act without undue delay, the parties shall terminate the mandate of such DAB member and thereupon new DAB member shall be appointed in the same manner, as the outgoing DAB member had been appointed.

63.2.4 The appointment of any member may be terminated by mutual agreement of both Parties, but not by the Railway or the Contractor acting alone. Unless otherwise agreed by both the Parties, the appointment of the DAB (including each member) shall expire upon expiry of this Contract Agreement.

63.2.5 Before start of DAB proceedings, each DAB member shall give the following certificate to the Railway and the Contractor:

“I have no any past or present relationship in relation to the subject matter in dispute, whether financial, business, professional or other kind. Further, I have no any past or present relationship with or interest in any of the parties whether financial, business, professional or other kind, which is likely to give rise to justifiable doubts as to my independence or impartiality.”

63.2.6 DAB proceedings shall be conducted as decided by the DAB. The DAB shall give its decision within 90 days of a Dispute referred to it by any of the Parties, duly recording the reasons before arriving at the decision. The DAB shall decide the issue within terms and conditions of the contract. This time limit shall be extendable subject to the Parties mutual agreement.

63.2.7 The DAB decision shall not be binding on both the Parties. In case any party is not satisfied by the decision of DAB, then the aggrieved party may approach Arbitral Tribunal for arbitration proceedings.

63.2.8 No dispute shall be referred to Arbitral Tribunal unless the same has been referred to DAB for adjudication. However, in case DAB is not formed due to any reason, the disputes can be directly referred to Arbitral Tribunal to adjudicate the dispute.

63.2.9 In the specific cases of any misconduct by any of the members of the DAB, the parties shall have the right to specifically bring it to the notice of the DAB such conduct, through a statement filed with necessary documents in proof of such misconduct and the DAB, after taking NOTICE of such conduct initiate the replacement of the member concerned, in the same manner the member to be replaced was appointed.

63.2.10 Once the decision is given by DAB, DAB cannot review the decision at its own or on the request of one party, unless both parties agree for review of decision by DAB.

63.2.11 In case DAB decision is not challenged by either party within 180 days of receipt of decision of DAB, the decision shall be considered as final and parties would be barred for referring the same to Arbitral Tribunal for adjudication.

63.2.12 The obligation of the Railway and the Contractor shall not be altered by reasons of issue being or under reference to DAB.

63.2.13 The DAB shall conduct the proceedings at any convenient venue which shall be decided by DAB in consultations with parties.

63.2.14 It is a term of this contract that the Parties shall not approach any Court of Law for settlement of such disputes or differences unless an attempt has first been

made by the parties to settle such disputes or differences through DAB and Arbitral Tribunal.

64.(1) : Demand for Arbitration:

64.(1)(i)(a): 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 63.1 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)(i)(b): Arbitration as a method of dispute resolution should not be routinely or automatically included in procurement contracts/tenders, especially in large contracts.

64.(1)(i)(c): As a norm, arbitration as a method of dispute resolution may be restricted to disputes with a value less than Rs. 10 crore. This figure is with reference to the value of the dispute (not the value of the contract, which may be much higher).

64.(1)(i)(d): Inclusion of arbitration clauses covering disputes with a value exceeding Rs. 10 crore, should be based on careful application of mind and recording of reasons and with the approval of an officer not below the rank of Senior Grade (SAG) or the Accepting Authority of the tender whichever is higher.

64.(1)(ii)(a): 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 or difference, 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)(b): The parties may waive off the applicability of Sub-Section 12(5) of Arbitration and Conciliation (Amendment) Act 2015, if they agree for such waiver in writing, after dispute having arisen between them, in the format given under Annexure XV of these conditions.

64.(1)(iii)(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.

64.(1)(iii)(b): The claimant shall submit his claims stating the facts supporting the claims alongwith 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.

64.(1)(iii)(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, unless otherwise extension has been granted by Tribunal.

64.(1)(iii)(d): Place of Arbitration: The place of arbitration would be within the geographical limits of the Division of the Railway where the cause of action

arose or the Headquarters of the concerned Railway or any other place with the written consent of both the parties.

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

64.(1)(v): 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 and decide whether or not such work should continue during arbitration proceedings.

64.(3) : Appointment of Arbitrator:

64.(3)(a) : The Arbitral Tribunal shall consist of a panel of three arbitrators. General Manager/Additional General Manager will appoint two arbitrators, one railway nominee and other from among the contractor's nominee. Contractor can recommend his nominee either from approved panel of Railways or from approved panel of Indian Council of Arbitration (ICA) within 30 days from the date of dispatch of approval of written and valid acceptance of demand for arbitration by the General Manager/Additional General Manager.

64.(3)(a)(i): If contractor wants to choose his nominee from Railway panel, the Railway will send a panel of at least four (4) names of retired Railway Officers empanelled to work as Arbitrator within 30 days from the day when a written and valid demand for arbitration is received by the General Manager/Additional General Manager. Contractor will be asked to suggest to General Manager/Additional General Manager 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. The General Manager/Additional General Manager shall appoint at least one out of them as the Contractor's nominee within 30 days from the receipt of the names of Contractor's nominees. The railway panel shall be provided free of cost to the contractor.

64.(3)(a)(ii): If contractor wants to choose his nominee from Indian Council of Arbitration panel, Contractor will send at least 2 names of Arbitrators from the ICA panel for appointment as Contractor's nominee within 30 days from the date of dispatch of the request by Railway. The General Manager/Additional General Manager shall appoint at least one out of them as the contractor's nominee within 30 days from the receipt of the names of Contractor's nominees. Nomination and appointment of arbitrators from ICA panel shall be as per the ICA Rules for Domestic Commercial Arbitration and amended from time to time.

Some general guidelines of ICA Rules for Domestic Commercial Arbitration are as under:-

- i. Contractor may access the ICA's panel of arbitration through ICA's official webpage: <https://icaindia.co.in/pdfEngineers.pdf>.
- ii. A formal request for nomination shall be submitted to ICA, accompanied by:-

- a. A brief Statement of Claim outlining the nature and quantum of the disputes.
 - b. A copy of the relevant contract and any supporting documents.
 - c. A copy of the notice intimating the other party of the initiation of arbitration proceedings, with proof of delivery (if any).
- iii. Ad-hoc appointment fees for the nomination and appointment of arbitrators shall be as per the ICA Rules for Domestic Commercial Arbitration and revised from time to time and shall be submitted along with the request.

64.(3)(b): Two selected arbitrators are free to select presiding arbitrator (3rd arbitrator) within thirty (30) days from the date of their appointment. The presiding arbitrator may be selected from approved panel of Railways or approved panel of Indian Council of Arbitration (as per mutual agreement), which will be approved by General Manager/Additional General Manager. General Manager/Additional General Manager shall complete this exercise of appointing the Arbitral Tribunal within 30 days from the receipt of the names of all the three arbitrators.

64.(3)(c)(i): 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 General Manager/Additional General Manager fails to act without undue delay, the General Manager/Additional General Manager 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) (c) (ii): (a) 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 proceedings shall normally be conducted on the basis of documents and written statements.

(b) Before proceeding into the merits of any dispute, the Arbitral Tribunal shall first decide and pass its orders over any plea submitted/objections raised by any party, if any, regarding appointment of Arbitral Tribunal, validity of arbitration agreement, jurisdiction and scope of the Tribunal to deal with the dispute (s) submitted to arbitration, applicability of time 'limitation' to any dispute, any violation of agreed procedure regarding conduct of the arbitral proceedings or plea for interim measures of protection and record its orders in day to day proceedings. A copy of the proceedings duly signed by all the members of tribunal should be provided to both the parties.

64.3(c)(iii): (i) Qualification of Railway Empanelled Arbitrator (s):

- a. Retired Railway Officers not below SA Grade level, one year after his date of retirement.
- b. Age of arbitrator at the time of appointment shall be below 70 years.
- c. Persons not involved in any current vigilance/CBI cases or against whom disciplinary or prosecution proceedings are not in process.

- d. Persons who had not been imposed a major penalty or two or more minor penalties or against whom administrative action has not been taken three times or more or
- e. Persons who have not been imposed one minor Penalty and against whom two administrative actions have not been taken as a result of vigilance/CBI action while in service on Railways.

(ii) An may be appointed notwithstanding the total number of arbitration cases in which he has been appointed in the past.

(iii) While appointing arbitrator(s) under Sub-Clause 64.(3)(a), 64.(3)(a)(i), 64.(3)(a)(ii) & 64.(3)(b) 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. A certification to this effect as per annexure-XVI shall be taken from Arbitrators also. 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)(d)(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 therefrom.

64.(3)(d)(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)(d)(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): 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. If all the three arbitrators are selected from the Railway Panel, the fee of the arbitrators shall be determined as per the rates fixed/revised by Railway Board from time to time and the fee shall be borne equally by both the parties, provided parties sign an agreement in the format given at Annexure XV to these conditions after/while referring these disputes to Arbitration. However, if any of the three arbitrators is selected from the Panel of Indian Council of Arbitration (ICA), the fee of the arbitrators shall be determined as per the rates fixed/revised by the Indian Council of Arbitration from time to time and the fee shall be borne equally by both the parties, provided parties sign an agreement in the format

given at Annexure XV to these conditions after/while referring these disputes to Arbitration.

64.(7) Subject to the provisions of the aforesaid Arbitration and Conciliation Act 1996 and the rules thereunder and relevant para of the Standard General Conditions of Contract and any statutory modifications thereof shall apply to the appointment of arbitrators and arbitration proceedings under this Clause.

64.(8) In case arbitration award is challenged by a party in the Court of Law, 75% of award amount, pending adjudication by Court of Law, shall be made by party to other party. In case payment is to be made by Railway to Contractor, the terms & conditions as incorporated in the Ministry of Railways letter No. 2016/CE(I)/CT/ARB/3(NITI Aayog)/Pt. dated 08th Mar,2017 as amended from time to time, shall be followed. In case Contractor has to pay to the Railway, then 75% of the award amount shall be deducted by the Railway from the Contractor's bills, Performance Guarantee/ Security Deposit or any other dues of Contractor with the Government of India.

PAYMENT DURING ARBITRATION : 1.2.55

Work under the contract shall, unless otherwise directed by the Purchaser, continue during the Arbitration proceedings and no payment due to or payable by the Purchaser shall be withheld on account of such proceedings. Notwithstanding anything contained herein, the Arbitrators/ Umpire, as the case may be, shall have full authority to direct withholding of any payment if such action is considered fit and proper at any time.

REFUND OF SECURITY DEPOSIT : 1.2.56

As given in para 1.2.17, Part I, Chap II.

PROVISIONS OF CONTRACT LABOUR REGULATION AND ABOLITION ACT: 1.2.57

(i) The Contractor shall comply with the provisions 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 Purchaser from and against any claims under the aforesaid Act and the rules.

(ii) 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 this requirement shall attract the penal provisions of the contract arising out of resultant non-execution of the work.

(iii) The Contractor shall pay to labour employed by him, directly or through Sub-contractors, the wages as per provisions of the aforesaid Act and the rules, wherever applicable. The Contractor shall, notwithstanding the provisions of the contract, cause to be paid the wages to labour indirectly engaged on the work including any engaged by his sub-contractors in connection with the said work, as if the labour has been immediately employed by him.

(iv) 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 the rules wherever applicable.

(v) In every case in which, by virtue of the provisions of the aforesaid Act or the rules, the Purchaser 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 to incur any expenditure in providing welfare and health amenities required to be provided under the aforesaid Act and the rules or to incur any expenditure on account of the contingent liability of the Purchaser due to the Contractor's failure to fulfill his statutory obligations under the aforesaid Act or the Rules, the Purchaser 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 Purchaser under Section 20 Sub-section (2) and Section 21 Sub-section (4) of the aforesaid Act, the Purchaser 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 Purchaser to the Contractor whether under the contract or otherwise. The Purchaser 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 the full security for all costs for which the Purchaser might become liable in contesting such claim. The decision of the Purchaser regarding the amount actually recoverable from the Contractor as stated above, shall be final and binding on the Contractor.

PROVISIONS OF APPRENTICES ACT, 1961 : 1.2.58

(a) The Contractor shall be responsible to ensure compliance with the provisions of the Apprentices Act, 1961 and the rules and order issued thereunder from time to time in respect of Apprentices directly or through petty Contractors or Sub-Contractor's employed by him for the purpose of carrying out the Contract. If the Contractor directly or through petty Contractor's or sub-Contractors fails to do so, his failures 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/or the cost of work is Rs. one lakh or more.*

(b) EMPLOYMENT UNDER ENGINEERING WORKS CONTRACTS

Under this scheme it is proposed to get employment to un-employed Engg. graduates/diploma holders with the Railway Contractors. Fresh Engg. Graduates without any experience of any kind will be taken under training by the Contractor on stipend specified by the competent authority. Engg. graduates/diploma holders who have gained experience and have completed a period of 6 months will be paid at rate specified from time to time by the competent authority.

Under the above proviso, the Contractor is required to employ such Engineers/Diploma holders at the rates specified above and in the ratio for such Employment as indicated below:

Contract Value	No. of Engineer/Diploma holders to be employed	Duration
Rs. 10 lakhs and above.	2 Engg. Degree holders and 2 Engg. Diploma holders	Duration of the contract

Under the above scheme it would be obligatory for the Contractor to give a declaration alongwith his tender to the effect that the Graduate Engineers/Diploma holders having been employed by him under the particular work for which tender is submitted, are in accordance with the rates and ratios specified above and none of them is related to him (Contractor), failing which the tender may be disqualified. In case of wrong information having been given by the Contractor which comes to light subsequently, the contract may be rescinded and action taken in accordance with para 1.2.14 of Tender Papers.

1.2.59 - PROVISIONS OF PAYMENTS OF WAGES ACT

The contractor shall comply with the provisions of the payment of wages Act 1936 and the rules made thereunder 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 or sub-contractors shall supply any labour to be used wholly or partly under the direct order and control of the Engineer whether in connection with the works to be executed hereunder or otherwise for the purpose of the Engineer such labour shall nevertheless, 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 on failure of the contractor to repay such moneys to the Railway deduct the same from any moneys 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 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.

1.2.60 - PROVISION OF WORKMEN'S COMPENSATION ACT

In every case in which by virtue of the provision 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 Contractors or sub-Contractors 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 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, sub-section (i) 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.

1.2.61 : PROVISION OF MINES ACT

The Contractor shall observe and perform all the provisions of the Mines Act, 1952 or any statutory modifications of reenactment thereof for the time being enforce and any rules regulations made there under in respect of all the persons directly or through petty contractors or sub-contractors employed by him under this contract and shall indemnify the Railway from and against any claim under the Mines Act. or the rules and regulations framed there under, by or on behalf of any persons employed by him or otherwise.

1.2.62 : MONTHLY STATEMENT OF CLAIMS

(i) 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 expense which the contractor may consider himself entitled 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 any such work will be considered which has not been included in such particulars.

(ii) Signing of "No claim" certificate - The contractor shall not be entitled to make any claim whatsoever against the Railway under or by virtue to 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 Central Railway in such form as shall be required by the Railway, 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 reference to arbitration in respect thereof.

1.2.63 : DISASTER MANAGEMENT

Vehicles and equipments of contractors working with railways can be provided/ asked to be deployed by Railway administration at its discretion in case of accidents/natural calamities involving human lives. In case it is seen that the contractors have shunned their responsibilities in case of disaster involving human lives, they may be levied penalties as decided by Railway administration or their contract can be rescinded as the requirement of Railway administration in such cases are for larger public interest.

1.2.64 GCC PARA 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 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 / company, as the case may be whether in his individual capacity or otherwise.

1.2.65 GCC PARA 52-A Lien in Respect of Claims in other Contracts:

(i) 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 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.

(ii) However, recovery of claims of Railway in regard to terminated contracts may be made from the Final Bill, Security Deposits and Performance Guarantees of other contract or contracts, executed by the Contractor. The Performance Guarantees submitted by the Contractor against other contracts, if required, may be withheld and encashed. In addition, 10% of each subsequent 'on-account bill' may be withheld, if required, for recovery of Railway's dues against the terminated contract.

(iii) 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.

1.2.66 GCC PARA 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 and 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.

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 thereunder in respect of any employees directly or through petty Contractors or sub-contractors employed by him 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 Railways 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 payable to the Railway by the Contractor and on failure by the Contractor to repay the Railway any 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 from Contractor's bills/Security Deposit or any other dues of Contractor with the Government of India.

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 thereunder 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.

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 thereunder in respect of all employees employed by him either directly or through petty Contractors or sub-contractors in the works. If in compliance with the terms of the contract, the Contractor directly or through petty Contractors or sub-contractors shall supply any labour to be used wholly or partly under the direct orders and control of the Engineer whether in connection with the works to be executed hereunder or otherwise for the purpose of the Engineer, such labour shall nevertheless 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 on failure of the Contractor to repay such money to the Railways deduct the same from any moneys due to the Contractor in terms of the contract. The Railway shall be entitled to recover the same from Contractor's bills/Security Deposit or any other dues of Contractor with the Government of India all moneys paid or payable by the Railway by 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. Provisions of Contract Labour (Regulation and Abolition) Act, 1970:

55-A.(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.

55-A.(2) The Contractor shall obtain a valid license under the aforesaid Act as modified from time to time before the commencement of the work and continue to have a valid license until the completion of the work. Any failure to fulfill the requirement shall attract the penal provision of the Act.

55-A.(3) The Contractor shall pay to the labour employed by him directly or through sub-contractors 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 sub-contractors in connection with the said work, as if the labour had been immediately employed by him.

55-A.(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.

55-A.(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 to 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 from Contractor's bills/Security Deposit or any other dues of Contractor with the Government of India. 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 Chief Engineer regarding the amount actually recoverable from the Contractor as stated above shall be final and binding on the Contractor.

55-B.Provisions 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.

55-C (i) Contractor is to abide by the provisions of various labour laws in terms of above clause 54, 55, 55-A and 55-B of the Standard General Conditions of Contract. In order to ensure the same, an application has been developed and hosted on website 'www.shramikkalyan.indianrailways.gov.in'. Contractor shall register his firm/company etc. and upload requisite details of labour and their payment in this portal. These details shall be available in public domain. The registration/ updation in Portal shall be done as under:

(a) Contractor shall apply for onetime registration of his company/firm etc. in the Shramikkalyan portal with requisite details subsequent to issue of Letter of Acceptance. Engineer shall approve the contractor's registration in the portal within 7 days of receipt of such request.

(b) Contractor once approved by any Engineer, can create password with login ID (PAN No.) for subsequent use of portal for all Letter of Acceptances (LoAs) issued in his favour.

- (c) The contractor once registered on the portal, shall provide details of his Letter of Acceptances (LoAs) / Contract Agreements on shramikkalyan portal within 15 days of issue of any LoA for approval of concerned Engineer. Engineer shall update (if required) and approve the details of LoA filled by contractor within 7 days of receipt of such request.
- (d) After approval of LoA by Engineer, contractor shall fill the salient details of contract labours engaged in the contract and ensure updating of each wage payment to them on shramikkalyan portal on monthly basis.
- (e) It shall be mandatory upon the contractor to ensure correct and prompt uploading of all salient details of engaged contractual labour & payments made thereof after each wage period.

(ii) While processing payment of any 'On Account Bill' or 'Final Bill' or release of 'Advances' or 'Performance Guarantee / Security Deposit', contractor shall submit a certificate to the Engineer or Engineer's representatives that "I have uploaded the correct details of contract labours engaged in connection with this contract and payments made to them during the wage period in Railway's Shramikkalyan portal at 'www.shramikkalyan.indianrailways.gov.in' till ____Month, ____Year."

55-D. Provisions of "The Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996" and "The Building and Other Construction Workers' Welfare Cess Act, 1996":

The tenderers, for carrying out any construction work, shall get themselves registered with the Registering Officer under Section-7 of the Building and Other Construction Workers Act, 1996 and Rules made thereto by the concerned State Govt., and submit Certificate of Registration issued by Registering Officer of the concerned State Govt. (Labour Dept.). The Cess shall be deducted from contractor's bills as per provisions of the Act.

56. Reporting of Accidents: 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 make every arrangement 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 sub-contractor 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 from Contractor's bills/Security Deposit or any other dues of Contractor with the Government of India. Railway shall not be bound to contest any claim made against it under Section 12 Sub-Section (1) of the said Act except on the written request of the Contractor 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 thereunder 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 thereunder, 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. In exceptional cases where accommodation is provided to the Contractor at the Railway's discretion, recoveries shall be made at such rates as may be fixed by the Railway for the full rent of the buildings and equipments therein as well as charges for electric current, water supply and conservancy.

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 creche (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.

59.(2) Compliance to Rules for Employment of Labour: The Contractor(s) shall conform to all laws, bye-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.

59.(3) Preservation of Peace: The Contractor shall take requisite precautions and use his best endeavours to

(i) 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

(ii) 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.

59.(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 or 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 thereof recovered from the Contractor.

59.(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 huts, beddings, clothes and other belongings of or used by the infected parties and promptly erect new huts on healthy 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 thereof recovered from the Contractor.

59.(6) Treatment of Contractor's Staff in Railway Hospitals: The Contractor and his staff, other than labourers and their families requiring medical aid from the railway hospital and dispensaries will be treated as private patients and charged accordingly. The Contractors' labourers and their Families will be granted free treatment in railway hospitals and dispensaries where no other hospitals or dispensaries are available provided the Contractor pays the cost of medicines, dressing and diet money according to the normal scale and additional charges for special examinations such as pathological and bacteriological examination, X-Ray, etc. and for surgical operation.

59. (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.

59. (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.

59.(9) Restrictions on the Employment of Retired Engineers of Railway Services Within One Year of their Retirement: The Contractor shall not, if he is a retired Government Engineer of Gazetted rank, himself engage in or employ or associate a retired Government Engineer of Gazetted rank, who has not completed one year 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 and forfeit his Performance Guarantee as well as Security Deposit.

60.(1) Non-Employment of Labourers below the age of 15: The Contractor shall not employ children below the age of 15 as labourers directly or through petty Contractors or sub-contractors for the execution of work.

60.(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 (Proforma at Annexure-VIII) 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.

60.(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 of it, is no 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.

60.(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 this 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 is fit to work in the capacity stated in the certificate.

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.

---*****---

PART-I
CHAPTER-III

PRICE & PAYMENTS

1. **PART - I**

2. **CHAPTER - III**

PRICES AND PAYMENT

PARA NO.		SUBJECT
1.3.1	...	Scope.
1.3.2	...	Schedule of prices.
1.3.3	...	Prices of equipments, component and materials.
1.3.4	...	Prices of spares ,spare components and fittings and additional supplies.
1.3.4 A	...	Other Price adjustment.
1.3.5	...	Payment and Recoveries.
1.3.6	...	Invoicing procedure.
1.3.7	...	Payments for designs.
1.3.8	...	Advance payments for foundations.
1.3.9	...	'On Account' Payments.
1.3.10	...	Recoveries from the Contractor.
1.3.11	...	Progress Payments for supply and erection.
1.3.12	...	Payments for additional supplies.
1.3.13	...	Excise Duty and Sales Tax.
1.3.14	...	Payments on provisional acceptance of each sub-group.
1.3.15	...	Payments for surplus materials
1.3.16	...	Final settlement.
1.3.17	...	Measurements.
1.3.18	...	Mobilisation Advance.

PART - I

1.3

CHAPTER - III

PRICES AND PAYMENT

SCOPE : 1.3.1

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 schedules 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 condition of the Contract.

SCHEDULE OF RATES : 1.3.2

(a) SCHEDULE ITEMS

The rates given against various items of work in Schedule-1 section-1 (SOR and Non SOR items) of the tender papers under Form-5 are the standard schedule of rates (S.O.R.) The tenderers are required to quote uniform percentage below/at par/above against the S.O.R items while quoting the summary of prices. The actual payment to be made against any item of Schedule shall be derived after loading the SOR prices with the tenderer's quoted percentage.

(b) UNIT PRICES FOR MATERIALS.

The unit prices indicated in column 5 of Schedule-1 Section-1(SOR and Non SOR items), are inclusive of the prices of materials including all incidental charges for transport, loading/ unloading and handling of materials, commission for arranging dispatch by rail direct from manufacturer's factory and completing all necessary formalities in this respect, such as submission of forwarding notes, arranging placement of wagon, collection of railway receipts, all insurance premia, bankers charges for bank guarantee, indemnity bonds inclusive of cost of stamps etc. as also siding or shunting charges, if any, levied by the Railway.

The prices are inclusive of all taxes, duties and levies including Work Contract Tax/VAT 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 Organisation in that state. Necessary Sales Tax concessional form A/D and Octroi exemption certificate will be issued by Railway on written request of the contractor wherever applicable. However Railway is not responsible if the same is not honored by Government authorities. It is clarified that required forms applicable for this purpose will be supplied to the contractor as applicable in the state where the contract is being executed.

The price are inclusive of provision for losses and wastages in transit and erection.

FOR ERECTION

The unit prices indicated in column-6 of Schedule -1, Section-1(SOR and Non SOR items), are inclusive of cost of erection and material 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, banker's charges for guarantees, cost of stamps, cost of storage, loading and 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 are inclusive of cost of works and adjustments necessary to be done by the Contractor during or after the tests carried out by the Purchaser as per Part II, Chapter VII.

(c) **COPPER FOR COMPONENTS & FITTINGS** - DELETED -

(d) **OTHER PRICE ADJUSTMENTS**

The price adjustment of unit prices of fittings, materials, equipments or components on all amount of prices fluctuations on raw materials will be permitted as per para 1.3.4 B I. No adjustment on all amount of various in insurance freight charges (road or rail) will be permitted. Price variation on erection will be permitted as per para 1.3.4.B II.

(g) **QUANTITIES**

The approximate estimated quantities of various items of work are included in Schedule-1 section-1.

(h) - Deleted -

(i) **EXPLANATORY NOTES**

Explanatory notes for various items of work included in schedule-1,section-1(SOR and Non SOR items) are given in part-I, Chapter IV.

(j) **NEW ITEMS OF WORK**

i) 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, Section-1(**SOR & Non SOR items**), the Contractor shall execute such works at such prices as may be mutually agreed upon with the Purchaser before commencement and these will be based on the rate analysis as per the current market / prevalent rates of such or similar items available with the Railway Administration in that or nearby areas.

ii) Provided that if the Contractor commence work or incurs any expenditure in regard thereto before the rates are determined and agreed upon as lastly hereon-to-fore mentioned, then and in such a case the Contractor shall only entitled to be paid in respect of the work carried out or expenditure incurred by him prior to the date of determination of the rates as aforesaid according to the rates as shall be by the Purchaser. However, if the contractor is not satisfied with the decision of the Purchaser in this respect he may appeal to Sr Divisional Electrical Engineer (Traction distribution) CSTM within 30 days of getting the decision of the Purchaser, supported by analysis of the rates claimed. The Sr Divisional Electrical Engineer (Traction distribution) CSTM decision after hearing both the parties in the matter would be final and binding on the contractor and the Railway.

1.3.3

-----D E L E T E D-----

PRICE OF ADDITIONAL SUPPLIES : 1.3.4

The additional supplies will be taken over from the Contractor at the prices indicated in Schedule 3 (para 1.2.34 (c) and 1.3.12).

OTHER PRICE ADJUSTMENT : 1.3.4A

No adjustment on account of variation in insurance and freight charges(road or rail) will be permitted.

PRICE VARIATION CLAUSE : 1.3.4 B

GCC para 46A. Price Variation Clause (PVC):

46A.1 Applicability: Price Variation Clause (PVC) shall be applicable only in tender having advertised value above Rs. 2 Crores. Provided further that, in a contract where PVC is applicable, following shall be outside the purview of price adjustments (i.e. shall be excluded from the gross value of the work for the purpose of price variation):

- a) Materials supplied by Railway to the Contractors, either free or at fixed rate;**
- b) Any extra item(s) included in subsequent variation falling outside the purview of the Bill(s) of Quantities of tender, under clause 39. (l)(b) of these Standard General Conditions, unless applicability of PVC and 'Base Month' has been specially agreed, while fixing the rates of such extra item(s).**

46A.2 Base Month: The Base Month for 'Price Variation Clause' shall be taken as the one month prior to closing of tender, unless otherwise stated elsewhere. The quarter for applicability of PVC shall commence from the month following the Base month. The Price Variation shall be based on the average Price Index of the quarter under consideration.

46A.3 Validity:

Rates accepted by Railway Administration shall hold good till completion of work and no additional individual claim shall be admissible except:

- (a)** Payment/recovery for increase/decrease in GST on works contract or imposition/removal of any tax/cess on Works Contract as per Clause 37,
- (b)** Payment/recovery for overall market situation as per Price Variation Clause given hereunder.

46A.4 Components of various items in a contract on which variation in prices be admissible, shall be steel, cement, ferrous material, non-ferrous material, insulators, zinc and other materials, labour, plant & machinery, fuel, explosives, detonators etc. Adjustment for variation in prices of these items shall be determined in the manner prescribed.

46A.5No price variation shall be admissible for fixed components.

46A.6 The percentages of various components in various type of works shall be as specified for all item (s)/ Bill(s) of Quantities in tender document and the same shall be fixed as per table & classifications given below:

(I). For Civil Engineering Works

S N	Classification		1A, 2 & 3A	4A	5A	6A	7	8A	9A	1B, 3B, 4B, 5B, 6B, 8B & 9B	1C, 3C, 4C, 5C, 6C, 8C & 9C	3D, 4D, 5D, 6D, 8D & 9D	3E, 4E, 5E, 6E, 8E & 9E
	Components												
1	Fixed	*	15	15	15	15	15	15	15	15	15	15	15
2	Labour	L _c	20	25	30	20	50	20	20	0	0	10	25
3	Steel	S _c	0	0	0	0	0	0	0	85	0	50	0
4	Cement	C _c	0	0	15	0	0	0	0	0	85	0	0
5	Plant Machinery & Spares	PM _c	30	15	5	20	15	20	30	0	0	10	30
6	Fuel & Lubricants	F _c	25	15	5	15	15	20	15	0	0	10	20
7	Other materials	M _c	10	15	30	30	5	25	20	0	0	5	10
8	Detonators & Explosive	E _c	0	15	0	0	0	0	0	0	0	0	0
	Total		100	100	100	100	100	100	100	100	100	100	100

* It shall not be considered for any price variation.

The classification mentioned in the table above represents following type of item(s) in the work(s) –

1 Earthwork in Formation

1A All Item(s) excluding 1B or/and 1C

1B Item(s) for supply of Steel

1C Item(s) for supply of Cement

2 Ballast Supply Works

3 Tunnelling Works (Without Explosives)

3A All Item(s) excluding 3B or/and 3C or/and 3D or/and 3E

3B Item(s) for supply of Steel

3C Item(s) for supply of Cement or/and Grout

3D Item(s) for Fabrication & Erection of Structures including supply of Steel

3E Item(s) for Fabrication & Erection of Structures excluding supply of Steel.

4 Tunnelling Works (With explosives)

4A All Item(s) excluding 4B or/and 4C or/and 4D or/and 4E

4B Item(s) for supply of Steel

4C Item(s) for supply of Cement or/and Grout

4D Item(s) for Fabrication & Erection of Structures including supply of Steel

4E Item(s) for Fabrication & Erection of Structures excluding supply of Steel.

5 Building Works

- 5A All Item(s) excluding 5B or/and 5C or/and 5D or/and 5E
- 5B Item(s) for supply of Steel
- 5C Item(s) for supply of Cement
- 5D Item(s) for Fabrication & Erection of Structures including supply of Steel
- 5E Item(s) for Fabrication & Erection of Structures excluding supply of Steel.

6 Bridges & Protection work

- 6A All Item(s) excluding 6B or/and 6C or/and 6D or/and 6E
- 6B Item(s) for supply of Steel
- 6C Item(s) for supply of Cement
- 6D Item(s) for Fabrication, Assembly, Erection & Launching of Girders including supply of Steel
- 6E Item(s) for Fabrication, Assembly, Erection & Launching of Girders excluding supply of Steel

7 Permanent Way linking

8 Platform, Passenger Amenities

- 8A All Item(s) excluding 8B or/and 8C or/and 8D or/and 8E
- 8B Item(s) for supply of Steel item/fittings
- 8C Item(s) for supply of Cement Item
- 8D Item(s) for Fabrication & Erection of Structures including supply of Steel
- 8E Item(s) for Fabrication & Erection of Structures excluding supply of Steel

9 Any Other Works not covered in Classification 1 to 8

- 9A All Item(s) excluding 9B or/and 9C or/and 9D or/and 9E
- 9B Item(s) for supply of Steel
- 9C Item(s) for supply of Cement or/and Grout
- 9D Item(s) for Fabrication & Erection of Structures including supply of Steel
- 9E Item(s) for Fabrication & Erection of Structures excluding supply of Steel

46A.7 Formulae: The Amount of variation in prices in various components (labour, material etc.) shall be worked out by the following formulae:

- (i)
$$L = \frac{(W \text{ or } W_{SF} \text{ or } W_F \text{ or } W_{SFL} \text{ or } W_{FL}) \times (L_Q - L_B) \times L_C}{L_B \times 100}$$
- (ii)
$$M = \frac{(W \text{ or } W_{SF} \text{ or } W_F \text{ or } W_{SFL} \text{ or } W_{FL}) \times (M_Q - M_B) \times M_C}{M_B \times 100}$$
- (iii)
$$F = \frac{(W \text{ or } W_{SF} \text{ or } W_F \text{ or } W_{SFL} \text{ or } W_{FL}) \times (F_Q - F_B) \times F_C}{F_B \times 100}$$
- (iv)
$$E = \frac{(W) \times (E_Q - E_B) \times E_C}{E_B \times 100}$$
- (v)
$$PM = \frac{(W \text{ or } W_{SF} \text{ or } W_F \text{ or } W_{SFL} \text{ or } W_{FL}) \times (PM_Q - PM_B) \times PM_C}{PM_B \times 100}$$
- (vi)
$$S = \frac{(W \text{ or } W_S \text{ or } W_{SF}) \times (S_Q - S_B) \times S_C}{S_B \times 100}$$
- (vii)
$$C = \frac{(W \text{ or } W_C) \times (C_Q - C_B) \times C_C}{C_B \times 100}$$

(II) For Railway Electrification Works:

- (viii) $T = [0.4136x(C_Q - C_B) / C_B] \times 85$
 (ix) $R = [0.94x(R_T - R_O) / R_O + 0.06x(Z_T - Z_O) / Z_O] \times 85$
 (x) $N = [(P_T - P_O) / P_O] \times 85$
 (xi) $I = [(I_T - I_O) / I_O] \times 85$
 (xii) $G = [(M_Q - M_B) / M_B] \times 85$
 (xiii) $E_r = [(L_Q - L_B) / L_B] \times 85$

Where,

L	Amount of price variation in Labour
M	Amount of price variation in Materials
F	Amount of price variation in Fuel
E	Amount of price variation in Explosives
PM	Amount of price variation in Plant, Machinery and Spares
S	Amount of price variation in Steel Supply Item
C	Amount of price variation in Cement Supply Item
T	Percentage variation payable on the gross value of bill of Concreting (Bill(s) of Quantities for concrete items)
R	Percentage variation payable on the gross value of bill of Ferrous Items (Bill(s) of Quantities for ferrous items)
N	Percentage variation payable on the gross value of bill of Non-Ferrous Items (Bill(s) of Quantities for non-ferrous items)
I	Percentage variation payable on the gross value of bill of Insulator (Bill(s) of Quantities for Insulator items)
G	Percentage variation payable on the gross value of bill of General Works (Bill(s) of Quantities for General items)
Er	Percentage variation payable on the gross value of erection (Bill(s) of Quantities for Erection Item)
L _C	% of Labour Component in the item(s)
M _C	% of Material Component in the item(s)
F _C	% of Fuel Component in the item(s)
E _C	% of Explosive Component in the item(s)
PM _C	% of Plant, Machinery and Spares Component in the item(s)
S _C	% of Steel Supply item Component in the item(s)
C _C	% of Cement Supply item Component in the item(s)
W	Gross value of work done by Contractor as per on-account bill(s) excluding the Gross value of work under W _S or/and W _C or/and W _{SF} or/and W _F or/and W _{SFL} or/and W _{FL} and cost of materials supplied by Railway either free or at fixed rate,
W _S	Gross value of work done by Contractor for item(s) of supply of steel.
W _C	Gross value of work done by Contractor for item(s) of supply of cement and /or supply of grout material.

W _{SF}	Gross value of work done by Contractor for item(s) of Fabrication & Erection of Structures including supply of Steel.
W _F	Gross value of work done by Contractor for Fabrication & Erection of Structures excluding supply of Steel.
W _{SFL}	Gross value of work done by Contractor for item(s) of Fabrication, Assembly, Erection / Launching of Girders including supply of Steel.
W _{FL}	Gross value of work done by Contractor for item(s) of Fabrication, Assembly, Erection / Launching of Girders excluding supply of Steel.
L _B	Consumer Price Index for Industrial Workers - All India: Published in R.B.I. Bulletin for the base period
L _Q	Consumer Price Index for Industrial Workers - All India: Published in R.B.I. Bulletin for the average price index of the 3 months of the quarter under consideration
M _B	Wholesale Price Index: All commodities – as published in the R.B.I. Bulletin for the base period
M _Q	Wholesale Price Index: All commodities – as published in the R.B.I. Bulletin for the average price index of the 3 months of the quarter under consideration
F _B	The average of official prices of Diesel available on the official website of 'Petroleum Planning and Analysis cell' under Ministry of Petroleum and Natural Gas for Delhi, Kolkata, Mumbai & Chennai, for the base period
F _Q	The average of official prices of Diesel available on the official website of 'Petroleum Planning and Analysis cell' under Ministry of Petroleum and Natural Gas for Delhi, Kolkata, Mumbai & Chennai, for the 3 months of the quarter under consideration
E _B	Index number of Monthly Whole Sale Price Index for the category 'Explosive' of (g). Manufacture of other chemical products under (J) MANUFACTURE OF CHEMICALS AND CHEMICAL PRODUCTS, published by Office of Economic Adviser, Govt. of India, Ministry of Commerce & Industry, Department of Industrial Policy & Promotion (DIPP), for the base period.
E _Q	Index number of Monthly Whole Sale Price Index for the category 'Explosive' of (g). Manufacture of other chemical products under (J) MANUFACTURE OF CHEMICALS AND CHEMICAL PRODUCTS, published by Office of Economic Adviser, Govt. of India, Govt. of India, Ministry of Commerce & Industry, Department of Industrial Policy & Promotion (DIPP), for the average price index of 3 months of the quarter under consideration.
PM _B	Index Number of Wholesale Prices in India by Groups and Sub Groups (Averages) for 'Manufacture of machinery for mining, quarrying and construction'– published in RBI (Reserve Bank of India) Bulletin, for the base period.
PM _Q	Index Number of Wholesale Prices in India by Groups and Sub Groups (Averages) for 'Manufacture of machinery for mining, quarrying and construction'– published in RBI (Reserve Bank of India) Bulletin, for the average price index of 3 months of the quarter under consideration.
S _B	The average rate provided by the Joint Plant Committee for the relevant category of steel item as mentioned in Clause 46A.9; for the base period.

S _Q	The average rate provided by the Joint Plant Committee for the relevant category of steel item as mentioned in Clause 46A.9; for the 3 months of the quarter under consideration.
C _B	Index No. of Wholesale Price Index of sub-group Cement, Lime & Plaster as published in RBI Bulletin for the base period
C _Q	No. of Wholesale Price Index of sub-group Cement, Lime & Plaster as published in RBI Bulletin for the average price index of the 3 months of the quarter under consideration
R _T	IEEMA price index for Steel Blooms (size 150mmx150mm) for the month which is two months prior to date of inspection of material.
R _O	IEEMA price index for Steel Blooms (size 150mmx150mm) for the month which is one month prior to date of opening of tender.
P _T	IEEMA price index for Copper wire rods for the month which is two months prior to date of inspection of material.
P _O	IEEMA price index for Copper wire rods for the month which is one month prior to date of opening of tender.
Z _T	IEEMA price index for Zinc for the month which is two months prior to date of inspection of material
Z _O	IEEMA price index for Zinc for the month which is one month prior to date of opening of tender
I _T	RBI wholesale price index for the sub-group "Insulators" for the month which is two months prior to date of inspection of material
I _O	RBI wholesale price index for the sub-group "Insulators" for the month which is one month prior to date of opening of tender

(III) SIGNALING & TELECOMMUNICATION WORKS:

- (a) The following expressions and meanings are assigned to the value of the work done for signalling and telecommunication works:

SIGWK = Value of signalling works for a stage payment of the item signalling works;

INVSIG = Value of inventory for signalling works for a stage payment of the item inventory for signalling works;

INTGTESTSIG = Value of integrated testing and commission for signalling works of the Railway Project;

COMWK= Value of telecommunication works for a stage payment of the item telecommunication works;

INVCOM = Value of inventory for telecommunication works for a stage payment of the item inventory for telecommunication works; and

INTGTESTCOM = Value of integrated testing and commission for telecommunication works of the Railway Project.

- (b) Price adjustment for changes in cost of signalling works and telecommunication works shall be paid in accordance with the following formula:

$$(i) \quad V_{SIGWK} = 0.85 \text{ SIGWK} \times [PELEX \times (ELEX_i - ELEX_o) / ELEX_o + POFC \times (OFC_i - OFC_o) / OFC_o + PLB \times (LBI - LBo) / LBo + POTH \times (OTH_i - OTH_o) / OTH_o + S30C \times (P30C_i - P30C_o) / P30C_o + S24C \times (P24C_i -$$

$$\begin{aligned} & P24C_o) / P24C_o + S19C \times (P19C_i - P19C_o) / P19C_o + S12C \times (P12C_i - \\ & P12C_o) / P120C_o + S9C \times (P9C_i - P9C_o) / P9C_o + S6C \times (P6C_i - P6C_o) / P6C_o \\ & + S4C \times (P4C_i - P4C_o) / P4C_o + S2C \times (P2C_i - P2C_o) / P2C_o + S12C2.5 \times \\ & (P12C2.5_i - P12C2.5_o) / P12C2.5_o + S2C2.5 \times (P2C2.5_i - P2C2.5_o) / \\ & P2C2.5_o + S2C25 \times (P2C25_i - P2C25_o) / P2C25_o + QC \times (PQC_i - PQC_o) / \\ & PQC_o; \end{aligned}$$

- (ii) $VINVSIG = 0.85 \text{ SIGWK} \times [\text{PELEX} \times (\text{ELEX}_i - \text{ELEX}_o) / \text{ELEX}_o + \text{POTH} \times (\text{OTH}_i - \text{OTH}_o) / \text{OTH}_o];$
- (iii) $VINTGTESTSIG = 0.85 \text{ INTGTESTSIG} \times [\text{PLB} \times (\text{LB}_i - \text{LB}_o) / \text{LB}_o + \text{POTH} \times (\text{OTH}_i - \text{OTH}_o) / \text{OTH}_o];$
- (iv) $VCOMWK = 0.85 \text{ COMWK} \times [\text{PELEX} \times (\text{ELEX}_i - \text{ELEX}_o) / \text{ELEX}_o + \text{POFC} \times (\text{OFC}_i - \text{OFC}_o) / \text{OFC}_o + \text{PLB} \times (\text{LB}_i - \text{LB}_o) / \text{LB}_o + \text{POTH} \times (\text{OTH}_i - \text{OTH}_o) / \text{OTH}_o + S30C \times (P30C_i - P30C_o) / P30C_o + S24C \times (P24C_i - P24C_o) / P24C_o + S19C \times (P19C_i - P19C_o) / P19C_o + S12C \times (P12C_i - P12C_o) / P120C_o + S9C \times (P9C_i - P9C_o) / P9C_o + S6C \times (P6C_i - P6C_o) / P6C_o + S4C \times (P4C_i - P4C_o) / P4C_o + S2C \times (P2C_i - P2C_o) / P2C_o + S12C2.5 \times (P12C2.5_i - P12C2.5_o) / P12C2.5_o + S2C2.5 \times (P2C2.5_i - P2C2.5_o) / P2C2.5_o + S2C25 \times (P2C25_i - P2C25_o) / P2C25_o + QC \times (PQC_i - PQC_o) / PQC_o + \text{PCEQP} \times (\text{CEQP}_i - \text{CEQP}_o) / \text{CEQP}_o];$
- (v) $VINVCOM = 0.85 \text{ SIGWK} \times [\text{PELEX} \times (\text{ELEX}_i - \text{ELEX}_o) / \text{ELEX}_o + \text{PCEQP} \times (\text{CEQP}_i - \text{CEQP}_o) / \text{CEQP}_o + \text{POTH} \times (\text{OTH}_i - \text{OTH}_o) / \text{OTH}_o];$ and
- (vi) $VINTGTESTCOM = 0.85 \text{ INTGTESTCOM} \times [\text{PLB} \times (\text{LB}_i - \text{LB}_o) / \text{LB}_o + \text{POTH} \times (\text{OTH}_i - \text{OTH}_o) / \text{OTH}_o].$

Where

VISIGWK = Increase or decrease in the cost of signalling works during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (h);

VINVSIG = Increase or decrease in the cost of inventory for signalling during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (h);

VINTGTESTSIG = Increase or decrease in the cost of integrated testing and commissioning of signalling works of the Railway Project during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (h);

VCOMWK = Increase or decrease in the cost of communication works during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (h);

VINVCOM = Increase or decrease in the cost of inventory for telecommunications works during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (h);

VINTGTESTCOM = Increase or decrease in the cost of integrated testing and commissioning of telecommunication works of the Railway Project during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (h);

PCEQP, PELEX, PIC, PLB, POFC, and POTH are the percentages of communication equipment, electronics, PVC insulated cables, labour, optical fibre cables, and other materials respectively;

CEQP_o = The wholesale price index as published by the Ministry of Commerce and Industry, Government of India (hereinafter called “**WPI**”) for communication equipment for the month of the Base Month;

CEQP_i = The WPI for communication equipment for the average price index of the 3 months of the quarter under consideration;

ELEX_o = The WPI for electronics for the month of the Base Month;

ELEX_i = The WPI for electronics for the average price index of the 3 months of the quarter under consideration;

P30C_i = Price payable per Km as adjusted in accordance with price variation Clause for size 30C x 1.5 sq mm signalling cable

P30C_o = Price per Km of cable as per purchase order/ Contract agreement.

S30C = Percentage of size 30C x 1.5 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

P24C_i = Price payable per Km as adjusted in accordance with price variation Clause for size 24C x 1.5 sq mm signalling cable

P24C_o = Price per Km of cable as per purchase order/ Contract agreement.

S24C = Percentage of size 24C x 1.5 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

P19C_i = Price payable per Km as adjusted in accordance with price variation Clause for size 19C x 1.5 sq mm signalling cable

P19C_o = Price per Km of cable as per purchase order/ Contract agreement.

S19C = Percentage of size 19C x 1.5 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

P12C_i = Price payable per Km as adjusted in accordance with price variation Clause for size 12C x 1.5 sq mm signalling cable

P12C_o = Price per Km of cable as per purchase order/ Contract agreement.

S12C = Percentage of size 12C x 1.5 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

P9C_i = Price payable per Km as adjusted in accordance with price variation Clause for size 9C x 1.5 sq mm signalling cable

P9C_o = Price per Km of cable as per purchase order/ Contract agreement.

S9C = Percentage of size 9C x 1.5 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

P6C_i = Price payable per Km as adjusted in accordance with price variation Clause for size 6C x 1.5 sq mm signalling cable

P6C_o = Price per Km of cable as per purchase order/ Contract agreement.

S6C = Percentage of size 6C x 1.5 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

$P4C_i$ = Price payable per Km as adjusted in accordance with price variation Clause for size 4C x 1.5 sq mm signalling cable

$P4C_o$ = Price per Km of cable as per purchase order/ Contract agreement.

$S4C$ = Percentage of size 4C x 1.5 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

$P2C_i$ = Price payable per Km as adjusted in accordance with price variation Clause for size 2C x 1.5 sq mm signalling cable

$P2C_o$ = Price per Km of cable as per purchase order/ Contract agreement.

$S2C$ = Percentage of size 2C x 1.5 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

$P12C2.5_i$ = Price payable per Km as adjusted in accordance with price variation Clause for size 12C x 2.5 sq mm signalling cable

$P12C2.5_o$ = Price per Km of cable as per purchase order/ Contract agreement.

$S12C2.5$ = Percentage of size 12C x 2.5 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

$P2C2.5_i$ = Price payable per Km as adjusted in accordance with price variation Clause for size 2C x 2.5 sq mm signalling cable

$P2C2.5_o$ = Price per Km of cable as per purchase order/ Contract agreement.

$S2C2.5$ = Percentage of size 2C x 2.5 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

$P2C25_i$ = Price payable per Km as adjusted in accordance with price variation Clause for size 2C x 25 sq mm signalling cable

$P2C25_o$ = Price per Km of cable as per purchase order/ Contract agreement.

$S2C25$ = Percentage of size 2C x 25 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

PQC_i = Price payable per Km as adjusted in accordance with price variation Clause for size 0.9mm dia, 6 Quad cable.

PQC_o = Price per Km of cable as per purchase order/ Contract agreement.

QC = Percentage of size 0.9mm dia, 6 Quad cable shall govern the price.

LBo = The consumer price index for industrial workers – All India, published by Labour Bureau, Ministry of Labour, Government of India, (hereinafter called “**CPI**”) for the month of the Base Month;

LBi = The CPI for industrial workers – All India for the average price index of the 3 months of the quarter under consideration;

OFC_o = The WPI for fibre cables for the month of the Base Month;

OFC_i = The WPI for fibre cables for the average price index of the 3 months of the quarter under consideration;

OTH_o = The WPI for all commodities for the month of the Base Month; and

OTH_i = The WPI for all commodities for the average price index of the 3 months of the quarter under consideration.

- (c) The following percentages shall govern the price adjustment of the Contract Price for signalling and telecommunication works:

<div>Works</div> <div>Component</div>	Signalling			Telecommunication		
	Signalling Works	Signalling inventory	Integrated testing and Commissioning	Telecommunication Works	Telecomm inventory	Integrated testing and Commissioning
Electronics (PELEX)	***0%	***0%	—	***0%	***0%	—
Communication Equipment (PCEQP)	—	—	—	***0%	***0%	—
Optical Fibre Cable (POFC)	***0%	—	—	***0%	—	—
30C x 1.5 sq mm signalling cable(S30C)	***0%	—	—	***0%	—	—
24C x 1.5 sq mm signalling cable (S24C)	***0%	—	—	***0%	—	—
19Cx 1.5 sq mm signalling cable (S19C)	***0%	—	—	***0%	—	—
12C x 1.5 sq mm signalling cable (S12C)	***0%	—	—	***0%	—	—
9C x 1.5 sq mm signalling cable (S9C)	***0%	—	—	***0%	—	—
6C x 1.5 sq mm signalling cable (S6C)	***0%	—	—	***0%	—	—
4C x 1.5 sq mm signalling cable (S4C)	***0%	—	—	***0%	—	—
2C x 1.5 sq mm signalling cable (S2C)	***0%	—	—	***0%	—	—
12C x 2.5 sq mm signalling cable (S12C2.5)	***0%	—	—	***0%	—	—
2C x 2.5 sq mm signalling cable (S2C2.5)	***0%	—	—	***0%	—	—
2C x 25 sq mm signalling cable (S2C25)	***0%	—	—	***0%	—	—
0.9 mm dia, 6Quad cable (QC)	***0%	—	—	***0%	—	—
Labour (PLB)	***0%	—	***0%	***0%	***0%	***0%
Other materials	***0%	***0%	***0%	***0%	***0%	***0%
Total	100%	100%	100%	100%	100%	100%

(Note- the percentages may be finalized by tendering authority depending on BOQ)

FORMULAE FOR SIGNALING & TELECOM CABLE

The price payable for signalling cables is variable as per Price Variation Formula given below:

For Signalling Copper Cables:

$$P_i = P_o + CuF (Cu - C_{uo}) + CCF_{cu}(CC - C_{Co}) + FeF (Fe - Fe_o)$$

For Telecom Copper Cables For Jelly Filled, 0.9 mm dia, 6 quad cable

$$P_i = P_o + CuF (Cu - C_{uo}) + AlF_{cu}(Al - A_{lo}) + CCF_{cu} (CC - C_{Co}) + FeF (Fe - Fe_o)$$

For Aluminium Power Cables:

$$P_i = P_o + AlF (Al - A_{lo}) + CCFAI(CC - C_{Co}) + FeF (Fe - Fe_o)$$

Where,

P_i = Price payable per KM as adjusted in accordance with Price variation clause.

P_o = Price per KM of cable as per Purchase order.

CuF = Variation factor for Copper

C_{uo} = Price of copper Rod in Rs. Per MT

CCF_{Cu} = Variation factor for PVC Compound for Copper Signalling & Telecom cable

C_{Co} = Price of PVC Compound in Rs. Per MT

AlF = Variation factor for Aluminium

A_{lo} = Price of EC grade LME Aluminium rods (Properzi rods) in Rs. Per MT.

$CCFAI$ = Variation factor for PVC Compound for Aluminium power cable

FeF = Variation factor for Steel

Fe_o = Price of Steel for Armour (Flat strip 4 mm. x 0.8mm/ Round 1.4mm dia) in Rs. Per MT

(Prices per MT for C_{uo} , C_{Co} , Fe_o , A_{lo} as applicable on the 1st working day of the month, one month prior to the deadline for submission of bids. The above prices and indices are as published by IEEMA vide circular reference no. IEEMA (PVC) /CABLE --/--/-- one month prior to the deadline for submission of bids.)

Cu = Price of Copper Rod in Rs. Per MT.

C_c = Price of PVC Compound in Rs. Per MT.

Fe = Price of Steel for Armouring (Flat strip 4mm x 0.8 mm/ Round 1.4mm dia) in Rs. Per MT.

Al = Price of EC grade LME Aluminium rods (Properzi rods) in Rs. Per MT.

(Prices per MT for Cu , CC , Fe , Al as prevailing on 1st working day of the calendar month covering the date One month prior to the date of inspection call letter will be applicable for the calculation of updated price. The above prices and indices are as published by IEEMA vide

circular reference no. IEEMA (PVC) /CABLE --/--/-- one month prior to the date of inspection.)

The value of variation factors for copper, steel and PVC Compound are different for different sizes of signalling cables. Accordingly, the PVC formula for some of the types of signalling cable is as given under:-

Underground Railway Signalling Cable unscreened and armoured copper conductor

- (i) Size 30 C x 1.5 sq.mm.

$$P30C_i = P30C_o + 0.391(Cu - C_{uo}) + 0.557(CC - CC_o) + 0.425(Fe - Fe_o)$$

For armouring, price of steel flat strip of size 4mmx0.8mm is to be taken into consideration.

- (ii) Size 24C x 1.5 sq.mm

$$P24C_i = P24C_o + 0.313(Cu - C_{uo}) + 0.481(CC - CC_o) + 0.398(Fe - Fe_o)$$

For armouring, value of steel flat strip of size 4mmx0.8mm is to be taken into consideration.

- (iii) Size 19C x 1.5 sq.mm

$$P19C_i = P19C_o + 0.248(Cu - C_{uo}) + 0.395(CC - CC_o) + 0.343(Fe - Fe_o)$$

For armouring, value of steel flat strip of size 4mmx0.8mm is to be taken into consideration.

- (iv) Size 12C x 1.5 sq.mm

$$P12C_i = P12C_o + 0.157(Cu - C_{uo}) + 0.277(CC - CC_o) + 0.289(Fe - Fe_o)$$

For armouring, value of steel wire size 1.4mm dia is to be taken into consideration.

- (v) Size 9C x 1.5 sq.mm

$$P9C_i = P9C_o + 0.117(Cu - C_{uo}) + 0.241(CC - CC_o) + 0.383(Fe - Fe_o)$$

For armouring, value of steel wire size 1.4mm dia is to be taken into consideration.

- (vi) Size 6Cx 1.5 sq.mm

$$P6C_i = P6C_o + 0.078(Cu - C_{uo}) + 0.199(CC - CC_o) + 0.329(Fe - Fe_o)$$

For armouring, value of steel wire size 1.4mm dia is to be taken into consideration.

- (vii) Size 4Cx1.5 sq.mm

$$P4C_i = P4C_o + 0.052(Cu - C_{uo}) + 0.152(CC - CC_o) + 0.277(Fe - Fe_o)$$

For armouring, value of steel wire size 1.4mm dia is to be taken into consideration.

- (viii) Size 2C x 4 sq.mm(multistrand)

$$P2C_i = P2C_o + 0.073(Cu - C_{uo}) + 0.156(CC - CC_o) + 0.3(Fe - Fe_o)$$

For armouring, value of steel wire size 1.4mm dia is to be taken into consideration.

- (ix) Size 12C x 2.5 sq.mm

$$P12C2.5_i = P12C2.5_o + 0.282 (\text{Cu-Cu}_o) + 0.371 (\text{CC-CC}_o) + 0.342 (\text{Fe-Fe}_o)$$

For armouring, value of steel flat strip of size 4mmx0.8mm is to be taken into consideration.

- (x) Size 2C x 2.5 sq.mm

$$P2C2.5_i = P2C2.5_o + 0.047 (\text{Cu-Cu}_o) + 0.139 (\text{CC-CC}_o) + 0.277 (\text{Fe-Fe}_o)$$

For armouring, value of steel wire size 1.4mm dia is to be taken into consideration.

- (xi) Size 2C x 25 sq.mm PVC insulated, armoured, Aluminium power cable

$$P2C25_i = P2C25_o + 0.146 (\text{Al-Al}_o) + 0.303 (\text{CC-CC}_o) + 0.306 (\text{Fe-Fe}_o)$$

For armouring, value of steel flat strip of size 4mmx0.8mm is to be taken into consideration.

- (xii) For Jelly filled, 0.9mm dia, 6 quad cable

$$PQC_i = PQC_o + 0.135 (\text{Al-Al}_o) + 0.139 (\text{Cu-Cu}_o) + 0.515 (\text{CC-CC}_o) + 0.693 (\text{Fe-Fe}_o)$$

For PVC Compound Grade CW-22, is to be taken into consideration.

46A.8 The demands for escalation of cost shall be allowed on the basis of provisional indices as mentioned above in Clause 46A.7. Any adjustment needed to be done based on the finally published indices shall be made as and when they become available.

46A.9: (1) Relevant categories of steel for the purpose of operating Price Variation formula as mentioned in this Clause shall be as under:

SL	Classification	Rates to be used for calculating S_Q or S_B
1.	Reinforcement bars and other rounds	Average of per tonne rates of 10mm dia TMT & 25mm dia TMT; confirming IS1786; Fe 500
2.	All types and sizes of angles, channels and joists	Average of per tonne rates of 'Angle 75x75x6mm, Mild Steel Plate 10mm thickness and Channel 150x75mm; confirming IS2062, E250 Gr "A"
3.	All types and sizes of plates	Average of per tonne rates of 'MS Plates 10mm thickness and 25mm thickness; confirming IS2062, E250 Gr "A"
4.	Any other section of steel not covered in the above categories	Average of price for the 3 categories covered under SL 1, 2 & 3 in this table.

(2). Relevant city for referring "JPC (Joint Plant Committee)" rates of steel items (S_Q / S_B) in different Zonal Railways shall be as under :

SL	City	Railway
1.	Delhi	Northern , North Central, North Eastern, North Western
2.	Kolkata	Eastern, East Central, East Coast, Northeast Frontier, South Eastern, Southeast Central
3.	Mumbai	Central, Western, West Central
4.	Chennai	Southern, South Central&South Western

46A.10 Price Variation during Extended Period of Contract

The price adjustment as worked out above, i.e. either increase or decrease shall be applicable upto the stipulated date of completion of work including the extended period of completion where such extension has been granted under Clause 17A of the Standard General Conditions of Contract. However, where extension of time has been granted due to Contractor's failure under Clause 17B of the Standard General Conditions of Contract, price adjustment shall be done as follows:

- a. In case the indices increase above the indices applicable to the last month of original completion period or the extended period under Clause 17A, the price adjustment for the period of extension granted under Clause 17B shall be limited to the amount payable as per the Indices applicable to the last month of the original completion period or the extended period under Clause 17A of the Standard General Conditions of Contract; as the case may be.

In case the indices fall below the indices applicable to the last month of original/ extended period of completion under Clause 17A, as the case may be; then the lower indices shall be adopted for the price adjustment for the period of extension under Clause 17B of the Standard General Conditions of Contract.

PAYMENTS AND RECOVERIES : 1.3.5

Subject to any deduction or recoveries which the Purchaser may be entitled to make under the contract, the Contractor shall, unless otherwise agreed to, be entitled to get the following payments subject to the conditions stipulated in subsequent paragraphs :

Payment for designs.
Payments for foundations.
`On Account' payments.
Progress payments for supply and erection.
Payments for additional supplies.
Payment for provisional acceptance .
Payment for surplus materials taken over.
Payment for maintenance spares.
Final settlement.

INVOICING PROCEDURE : 1.3.6 - DELETED-

PAYMENTS FOR DESIGNS : 1.3.7

50 % payment of total prices shall be made on submission and approval of all drawings to complete the tendered work including HW & SW. Balance 50% shall be payable on submission of as erected drawings and on submission of one copy of RTF of complete set of drawing and one complete set of electronic copy on Compact Disc as stipulated in **Part II chapter V**.

ADVANCE PAYMENTS FOR FOUNDATIONS : 1.3.8

- (a) - Deleted -
(b) - Deleted -

`ON ACCOUNT' PAYMENTS : 1.3.9

1.3.9.1 For SOR items

(a) `On Account' payment will be made for materials required for erection of only for schedule item No. 3(i),3(ii), 3(iii),4(c), 6(a)(i), 6(a)(ii), 6(b)(i), 6(b)(ii),6(c), 6(d)(i), 6(d)(ii), 6(d)(iii),6(e)(i), 6(e)(ii), 7(i), 7(ii), 7(iii), 7(iv), 8(a)(i), 8(a)(ii), 8(a)(iii), 8(b), 9(i), 9(ii), 9(iii), 9(iv), 12(i), 12(ii), 12(iii), 12(iv), 12(v), 12(vi), 12(vii), 15(b)(ii), 15(b)(iii), 16(a), 17(i), 17(ii), 17(iii), 17(iv), 18, 18(a), 19, 20(a), 20(b), 20(c), 20(d), 21(a), 21(b), 21(c), 21(d), 21(e), 21(f), 21(g), 21(h), 21(i), 21(j), 21(k), 21(l), 21(m), 21(n), 21(o), 21(p), 21(q), 21(r), 21(s) & 21(t) of schedule -1.

(b)"On Account" payment for equipments, components, and materials required for execution of the work and additional supplies will be made to the Contractor on receipt of the same at Contractor's depot . The `On' account payment for supply for item at para 1.3.9.1(a) shall be made at the rate of 80% of the rates of supply column

of respective item of schedule-1, section-1 except for item No. 6(a)(i), 6(a)(ii), 6(b)(i), 6(b)(ii), 6(c), 6(d)(i), 6(d)(ii), 6(d)(iii), 6(e)(i), 6(e)(ii), 7(i), 7(ii), 7(iii), 7(iv), 8(a)(i), 8(a)(ii), 8(a)(iii), 12(i), 12(ii), 12(iii), 12(iv), 12(v), 12(vi), 12(vii) for which ONA payment shall be made as under :

(i) For item No. 6(a)(i), 6(a)(ii), 6(b)(i), 6(b)(ii), 6(c) –ONA payment only for supply of insulators shall be made on receipt of one number each of 9 tonne & bracket insulator for one assembly at the rate of Rs. 4260/-. For other component of this item no ONA payment will be admissible.

(ii) For item 6(d)(i), 6(d)(ii), 6(d)(iii), 6(e)(i), 6(e)(ii) and 7(i), 7(ii), 7(iii), 7(iv), 8(a)(i), (8a)(ii), and 8(a)(iii) - ONA payment only for supply of 9 tonne insulator shall be made on receipt of one number 9 tonne insulator per assembly of respective item of schedule-1 at the rate of Rs.2130/-. For other components no ONA payment shall be admissible.

(iii) For item No. 12(i), 12(ii), 12(iii), 12(iv) & 12(v), 12(vi), 12(vii), ONA payment only for supply of a set of PG clamps shall be made on receipt of one set of PG clamp of respective assembly at 40 % of the rates of supply column of respective schedule item of schedule-1 section-1. For other components no ONA payment shall be admissible.

1.3.9.2 For Non SOR items.

The on account, progress and final payment for Non SOR items shall be made as per payment schedule at annexure 10 .

All the invoices/Bills shall be accompanied by the following :-

1. Supplier's Challans.
2. Inspection certificate granted by the Purchaser's representative.
3. Certificate of receipt of materials at Contractor's depot/s duly accepted by the Purchaser's Engineers.
4. Certificate that the stores have been insured.
5. Quality assurance documents {see para 1.2.25(c)}.

(c) The Contractor should furnish a Bank Guarantee for 10% of the amount claimed under sub-para(a) (For SOR and Non SOR items) above alongwith invoices. The Bank Guarantee shall be in the prescribed form from State Bank of India or from any Scheduled Bank/Nationalised Bank duly conforming to the requirements specified in Para-1.1.5 (d) and valid for 4 months beyond the date of completion of installation and testing to the satisfaction of Engineer-in-Charge. In the event of extension to the time of completion, the Contractor shall extend the validity of the Bank Guarantee. In case the Contractor is unable to furnish the Bank Guarantee, equivalent cash would be held by the Purchaser from the payments due to the Contractor.

The above mentioned Bank Guarantee may be released after complete adjustment of the above amount from the progress payments in terms of para 1.3.11 & after obtaining specific approval of Sr DEE(TD) CSTM, In-Charge of the project.

(d) LIMIT FOR "ON ACCOUNT" PAYMENTS

The total "On Account" payment shall not exceed 85% of the value of the materials required to complete the work for this purpose, the total value of the materials required to complete the work should be total of item 2 to 31 of column 5 of

Schedule-1,Section-1 (SOR and Non SOR items) and supply rate of Non SOR items as per the latest approved assessment of quantities(Para- 2.5.9).

(e) 'On Account' payments will commence only when Schedule 1, Section 1 (SOR and Non SOR items) is approved by the Purchaser.

(f) The contractor's supply items will be reissued to the contractor for erection purpose. Materials will be issued in stages in such a way that at no point of time cost of material in contractor's custody is more than the value of B.G. made available by the contractor while claiming the ONA/stage payment.

If the amount of B.G. found to be inadequate to cover the cost of materials required to be issued to the contractor to achieve the required progress of work to meet the completion period, contractor will be required to furnish additional B.G., In case if contractor is not in a position to furnish additional B.G., equivalent cash would be withheld by the purchaser from payments due to the contractor. Additional B.G. or cash withheld will be returned/refunded soon after same is not required i.e. additional material issued to improve the progress work is erected. After completion of work, surplus materials if any and not required by purchaser will be returned to contractor. B.G. will be returned if no material is out standing after material reconciliation is done and all 'On account payments' are adjusted through progress payment as per para 1.3.12.

B.G. will have to be furnished by the contractor at least 15 days in advance of the date of issue of material as decided by the purchaser's representative. Proforma for B.G. for issue of contractor's supply of materials to contractor for execution of work is given in Form-19 to undertake erection of work.

RECOVERIES FROM THE CONTRACTOR : 1.3.10

(a) All the recoveries for materials supplied and services rendered by the Purchaser to the Contractor and other refunds due from the Contractor shall, unless otherwise specified, ordinarily be made by deductions from payments due to the Contractor covering the value of supply and erection in the progress payment for erection (see para 1.3.11) and from payment on provisional Acceptance (see para 1.3.14).

(b) The cost of materials supplied by the Purchaser under the second sub-para of 1.2.20(b) will be recovered in full by the Purchaser at relevant price in schedule 3 or book rate or last purchase rate whichever is higher, to the extent of requirement of such materials for each sub-group, from the payments to be made under paras 1.3.11 and 1.3.14.

(c) The cost of materials if supplied under para 1.2.21. will be recovered in the manner indicated in sub-para(a) above.

(d) The materials supplied under paras 1.2.20 & 1.2.21 shall be covered by the standing indemnity bond (see Form No 16,part-V).

(d) The security deposit shall be as per item 4 of the Preamble and as per Clause No.1.2.17 .

PROGRESS PAYMENTS FOR SUPPLY AND ERECTION GENERAL : 1.3.11

On completion of erection/installation in all respect of items included in Schedule-1, Section-1(SOR and Non SOR items), the contractor shall receive payment to the extent of 95% of erection prices and 15% of balance cost of supply of material as per summary of payment schedule, annexure-10.

(b) **FOUNDATIONS**

- (i) Payment will be made on casting of foundation blocks, with or without Core holes, to the extent of 70% of the Prices for **NS-1, NS-2 and NS-3 of Part B Non SOR items** and on the total volume of foundation blocks inclusive of muffs, as included in the approved cross-section drawings or as installed at site with permission of the Purchaser's representative.
- (ii) On completion of erection of Mast/Portal/Boom and their grouting the Contractor shall receive payments to the **extent of 25%** against item **NS-1, NS-2 and NS-3 of Part B Non SOR items**, less payments made under Para-1.3.11(b)(i).
- (iii) - Deleted -

(c) **MAST AND PORTALS**

- (i) On completion of erection of masts and portals of each agreed sub-section, the Contractor shall receive payments to the extent of 95% of the prices for erection of masts and portals under item No.4 of SOR items and 15% of supply rate under respective item No.3.
- (ii) -DELETED-

TAXES : 1.3.13

- (a) **The quoted rates shall be inclusive of all taxes, duties, freight and other incidental charges including GST.**
- (b) Deleted.
- (c) Deleted.
- (d) Wherever the law makes it statutory for the Purchaser to deduct any amount towards Sales tax on works contract, the same will be deducted and remitted to the concerned authority.
- (e) Deleted-

PAYMENTS OF PROVISIONAL ACCEPTANCE : 1.3.14

On issue of Provisional Acceptance Certificate and on fulfillment of para 2.5.11, the Contractor shall receive payment of :

- (a) Balance 5% of the price for supply and/or erection for SOR and non SOR items, for the quantities for which progress payments under para 1.3.11 have already been made against a Bank Guarantee for the 5% amount claimed.
- (ii) 5% Bank Guarantee required under sub-para (i) above shall be from the State Bank of India or any Nationalised Bank and shall be valid for 2 months beyond the stipulated guarantee period as provided in para 1.2.49 and shall be extended as directed by the Purchaser's Engineer till they are released.

Note for clause no. 1.3.7, 1.3.9, 1.3.10, 1.3.11, 1.3.14 :- The summary of payment schedule as detailed in clause 1.3.7, 1.3.9, 1.3.10, 1.3.11, 1.3.14 shall be as indicated in **Annexure- 10**.

PAYMENTS FOR SURPLUS MATERIALS : 1.3.15 -DELETED-

FINAL SETTLEMENT : 1.3.16

On expiry of the guarantee period and issue of the certificate of final acceptance of the entire installations (see para 1.2.50), the security deposit will be refunded or Bank Guarantee released to the Contractor after adjustment of any dues payable by the Contractor.

MEASUREMENTS : 1.3.17

(a) Payments for field work shall be made in accordance with approved designs and drawings and measured in relevant units except where provided or 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).

(c) It shall be open to the Contractor and the Railway to take specific objection to any recorded measurement or classification on any ground within seven days of the date of such measurements. Any re-measurements 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 measurement.

MOBILISATION ADVANCE : 1.3.18 -DELETED-

Special conditions for letter of credit as mode of payment 1.3.19

- (i) For all the tenders having advertised cost of Rs10 lakh or above, the contractor shall have the option to take payment from Railways through a letter of credit (LC) arrangement.
- (ii) This option of taking payment through LC arrangement has to be exercised in IREPS (Indian Railway Electronic Procurement System -the e-application on which tenders are called by Railways) by the tenderer at the time of bidding itself, and the tenderer shall affirm having read over and agreed to the terms and conditions of the LC option.
- (iii) The option so exercised, shall be an integral part of the bidder's offer.
- (iv) The above option of taking payment through LC arrangement, once exercised by tenderer at the time of bidding, shall be final and no change shall be permitted, thereafter, during execution of contract.

- (v) In case tenderer opts for payment through LC, following shall be the procedure to deal release of payment through LC:
- (a) The LC shall be a sight LC.
 - (b) The contractor shall select his Advising/Negotiating bank for LC. The incidental cost towards issue of LC and its operation thereof shall be borne by the contractor.
 - (c) SBI, New Delhi, Main Branch will be the nodal branch for issue of LCs based on online requests received from Railway Accounts Units for tenders opened in financial year 2018-19. SBI branches where the respective Railway Accounts Office has its Account (local SBI branch) will be the issuance/reimbursing branch for LC issued under this arrangement. The Bank shall remain same for this tender till completion of contract. The incidental cost @0.15% per annum of LC value, towards issue of LC and operation thereof shall be borne by the contractor and shall be recovered from his bills.
 - (d) The LC shall be opened initially for duration of 180 to 365 days in consultation with contractor. The LC shall be extended time to time as per the progress of the contract, on the request of the contractor. The value of LC to be opened initially as well as extended thereafter shall be finalised by the engineer in consultation with the contractor on the basis of expected progress of work.
 - (e) The LC terms and conditions shall inter-alia indemnify and save harmless the Railway from and against all losses, 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 relation to the Letter of Credit (LC). All sums payable/borne by Railways on this account shall be considered as reasonable compensation and paid by contractor.
 - (f) The LC terms and conditions shall inter-alia provide that Railways will issue a Document of Authorisation (format enclosed as Annexure 13) after passing the bill for completed work, to enable contractor to claim the authorized amount from their bank.
 - (g) The acceptable, agreed upon document for payments to be released under the LC shall be the Document of Authorisation.
 - (h) The Document of Authorisation shall be issued by Railway Accounts Office against each bill passed by Railways.
 - (i) On issuance of Document of Authorisation, a copy of Document of Authorisation shall be posted on IREPS for download by the contractor. A digitally signed copy of Document of Authorisation shall also be sent by Railway Accounts Office to Railway's bank (Local SBI Branch).
 - (j) The contractor shall take print out of the Document of Authorisation available on IREPS and present his claim to his bank (advising Bank) for necessary payments as per LC terms and conditions. The claim shall comprise of copy of Document of Authorisation, Bill of Exchange and Bill.
 - (k) The payment against LC shall be subject to verification from Railway's Bank (Local SBI Branch).
 - (l) The contractor's bank (advising bank) shall submit the documents to the Railway's Bank (Local SBI Branch).

- (m) The railway's bank (issuing bank) shall, after verifying the claim so received w.r.t. the digitally signed Document of Authorisation received from Railway Accounts Office, release the payment to contractor's bank (advising bank) for crediting the same to contractor's account.
- (n) Any number of bills can be dealt within one LC, provided the sum total of payments to contractor is within the amount for which LC has been opened.

The LC shall be closed after the release of final payment including PVC amount, if any, to the contractor.

- (p) The release of performance guarantee or security deposit shall be dealt directly by railway with the contractor i.e., not through LC.
3. For opening of LC, executive department shall make a request letter to concerned Accounts Department on a format, placed as Annexure - 12.
 4. Necessary changes in IREPS and IPAS e-applications have already been carried out, for having option for payment to contractors through LC.

PART-I
CHAPTER-IV

EXPLANATORY NOTES OF
SCHEDULE-1 SECTION-1,
SCHEDULE OF PRICE

EXPLANATORY NOTES
OF SCHEDULE-I
SCHEDULE OF PRICES

SECTION - 1 - GENERAL

1.4.1 Explanatory notes for various items of work in Schedule-1, Section-1 are given below :

1.4.2 The basic quantities of components and materials required to make up a unit of work for selected items, are indicated for guidance only. There may be minor variations to suit erection but no adjustment in prices of Schedule 1 shall be made on that account. In estimating the prices for various items of work, provision for loss and wastage in transit and erection should be provided for over and above the basic quantities of components and materials required to make up a unit of work, indicated herein, except where otherwise specified for materials supplied by the Purchaser.

1.4.3 In the explanatory notes given in Section-2 of this Chapter, the term 'Small parts steel work' is meant to cover fabricated steel work made from rolled steel sections, complete with bolts and nuts and washers where required for fastening the small parts steel work to any structural member. The term "attachment" wherever used is intended to cover castings, forgings, machined or welded components or fittings, which are attached directly to a structural member, or mounted on small parts steel work and shall include bolts and nuts for fastening the attachment to the structural member or small parts steel work.

1.4.4 In the explanatory notes given in Section 2 of this chapter, the term "bimetallic connection" is meant to cover any connection between a copper conductor and an aluminium conductor. The clamps used for such connections shall be made of a suitable aluminium alloy or copper alloy and the copper/aluminium conductor shall be wrapped with a bimetallic (aluminium copper) strip to prevent direct contact between aluminium and copper.

1.4.5 Special notes for measurements are included in section 2 of this chapter under various items, where necessary.

1.4.6 Reconciliation of materials supplied by the Purchaser (see para 1.2.20)

(a) The following procedure shall be adopted for the final reconciliation of the various equipments, materials, fittings and conductors supplied by the Purchaser in terms of para 1.2.20 (see Annexure 4).

(b) All the materials supplied by the Purchaser shall be correctly accounted for and quantities reconciled on completion of the work by the Contractor. On completion of work, all surplus materials supplied by the Purchaser together with the ones found defective or that have become defective or broken on account of defective materials and/or workmanship shall be returned to him by the Contractor.

(c) DELETED

(d) DELETED

(e) (i) DELETED

(e) (ii) **SUPPLY OF STEEL BY RAILWAYS-** DELETED

(e) (iii) **SUPPLY OF COPPER CONDUCTORS BY RAILWAYS-** DELETED

(e) (iv) **SUPPLY OF ATs & INTERRUPTERS BY RAILWAYS -** DELETED

(f) **OTHER EQUIPMENTS, FITTINGS AND COMPONENTS**

The Purchaser will supply the requirement of the various other equipments, components or fittings listed in **Annexure-4**. If there are any shortages during final reconciliation, their cost will be recovered by the Purchaser from the Contractor at the prices inclusive of all charges as specified in note below:-

NOTE : (1) *If there are any shortages during final reconciliation, their cost will be recovered by the Purchaser from the Contractor at the book rate or the last purchase rate or the prevailing market rate, whichever is higher, plus 5% on account of initial freight, 2% on account of incidental charges together with supervision charges at 12.5% of the total cost inclusive of material freight and incidental charges. Freight between the Purchaser's source of supply and the Contractor's depot or Railway siding shall be to the Contractor's account.*

(2) *No recovery/reconciliation shall however, be made as per the preceding paras if the items stated under clause 1.4.6 are made contractor supply by including the respective optional items in the contract.*

(3) For SOR and Non SOR items, all insulators shall be of porcelain type only. The porcelain insulators used shall be for polluted zone as per RDSO's specification no. TI/SPC/OHE/INS/0071 or latest and shall be procured only from RDSO/CORE approved suppliers.

□□□□□

SECTION -2 : PARTICULAR

(1) Notwithstanding anything to the contrary in this section, the entire requirement of the equipments components and fittings for the work, listed in Annexure 4 will be supplied by the Purchaser to the Contractor (see para 1.2.20(b)). The prices in Schedule-1, Section-1 SOR & Non SOR items shall be exclusive of cost of supply of these items mentioned in Annexure-4, Part-IV.

(2) In the case of wires, conductors, etc., the prices for erection shall include any assembly work to be done in the Contractor's depot prior to erection at site, such as fabrication of droppers etc to shapes and sizes required.

Part-A SOR

ITEM No.1

Preparation of designs and drawings for overhead equipment and verification of purchasers pegging plans.

The price shall cover on TKM basis, preparation of all drawings and designs required to be finalized by the Contractor after detailed survey. The price shall include the following:-

- (i) Submission of overhead equipment layout plans as per 25 KV AC standard, including stagger, location of cut in insulators etc indicating present and proposed dimensions. Also indicating the existing structure numbers and proposed AC structures number scheme as per ACTM.
- (ii) Preparation of cross section drawings for newly erected structure and structure erection drawings for each structure locations [see para 2.5.6(f)].
- (iii) For the new structure to be erected choice of type and size of foundations to suit soil and loading conditions, except for the ones which are considered as "Works under other Agencies" (see para 1.2.37).
- (iv) Preparation of long section drawings of overhead equipment where such drawings are required including detailed study of over line structures such as foot over bridges, road over bridges arrangement inside tunnels and power line crossing etc. for maintaining the specified height of contact wire and requisite clearances.
- (v) Preparation of other designs and drawings including drawings of small parts steel work (other than those for which RDSO standard drawings are available) developments of clamps/fittings arrangement for 2 wire system of OHE to suit 25 KV standard and detailed designs for LT. Supply Transformer stations (see para 1.2.23). The standard RDSO drawings referred in design to be arranged by contractor.

Supply of requisite no. of copies of all drawings, including completion drawings specified in part – II, Chapter V to the Purchaser. Drawings shall be developed in Auto-CAD and compact disc containing all such as erected drawings/calculations shall be submitted to the purchaser alongwith 1 set of “Branded HW & SW with preloaded Operating System, HP/Dell/Lenova all in one with core i-3, 1 TB + 256 SSD, 8 GB RAM or similar

configuration, Operating System: Microsoft windows 11 or latest, Printer HP Laserjet ProMFP M128fn or similar model in Canon/Brother” (Item No1- SOR items)”.

- (vi) Supply of requisite number of copies of Bonding Plan drawings.

NOTES FOR MEASUREMENTS : *For the purpose of payment against this item, the length of track shall be measured as under :-*

1. **General :** *By the difference in the chainages of the length under consideration, as incorporated in the layout plans.*
2. **Turnouts :** *The track taking off shall be deemed as starting from the toe of the switch of the Turnout.*
3. **Cross-overs :** *The length of track shall be taken as the difference in the chainages of the toes of switches of the two turnouts constituting the crossover.*
4. **Diamond crossing with or without slips :** *The two tracks crossing each other shall be measured independently as per note 1 above as though there were no crossing. No extra shall be provided for slip points.*
5. **Dead ends and tops of loops :** *The lengths for payment under this item shall be upto the chainage of anchor mast of the terminating OHE.*

6. Feeders and return feeders from grid sub-station to feeding station/feeder from TSS/SP/SSP to insulated overlaps

This item will also be applicable independently in case of feeders/return feeders/ conductors from grid sub-station to overhead equipment feeding stations or in a case of feeders/conductors running on independent structures (not supporting OHE) along or across tracks.

In such a case the length of line to be considered for purpose of item (a) shall be measured by the distance between the center of gantries of the grid sub-station and feeding stations in case of feeder/return feeders/conductors line from grid sub-station, or by the distance between the center line of the two structures to which the feeders/return feeders/conductors are anchored in case of feeders running along the track if such feeder/return feeders/conductors are running completely on independent structures or by the distance between the center of the two structures supporting the OHE on either side of the first and last independent structure in case of feeders/return feeders/conductors running along the track supporting OHE.

ITEM No. 3

Supply only of fabricated and galvanized steel structures

- (i) Fabrication, galvanization and supply only of K-series, B-series, T-series, G-series, S-series mast/portals- Uprights.**

The price shall cover the cost of supply of finished traction mast duly drilled as per RDSO's Specification No. ETI/OHE/C/00144 Mod-B or latest as galvanised as per Specification No. ETI/OHE/13 (4/84) with A&C Slip No.1 to 3 or latest with zinc coating of 1000 gms/sq.meter. The length of mast will be normally 10.5 meter, in exceptional cases 10.0 meter mast may be accepted.. The steel shall be conforming to IS-2062/1992 (or latest) Gr 'A' SK Zinc conforming to IS-209/1992 (or latest). Price shall also cover supply of all type of hot dip galvanized nut bolts/washers as per drawing. Price shall also include cost of loading, unloading, transportation of material from fabricator's works to contractor's main depot and from contractor's main depot to site as required including all incidental charges.

ITEM No. 3(ii) :

Fabrication, galvanization and supply only of portal booms/portal uprights made up of angle steel members and also complete anchor structure.

Same as item no. 3(i) except that the structure supplied shall be different members of portal boom/Portal upright fabricated made up of angle members and anchor structures upright made up of angle/channels as per approved drawing including supply of hot dip galvanized nuts/bolts/washers as required

ITEM No. 3(iii) :

Supply only of small part steel

Same as item no. 3(i) except that the material supplied shall be different members of fabricated small part steel (SPS) work such as DA, dwarf mast, cross arms, other steel works etc including fasteners as per approved drawing. MS fittings, SPS shall be of RDSO/CORE/CEE approved sources. Only forged fittings shall be used.

Note for Item 3(i), 3(ii) and 3(iii) :

- 1) For the purpose of payment, the weights of individual traction mast and masts of head span shall be determined for each type on the basis of the payable weights per metre length shown below in **Table-1** for standard types or as per unit weight shown in **Table-2**, or Weight Schedule duly approved by the purchaser. For special types, the payable weight per metre length will be indicated by the Purchaser at the time of approval of designs.

PAYABLE UNIT WEIGHTS FOR STANDARD MASTS

TABLE -1

SL.No.	TYPES OF MASTS	Unit in Kg. Per Mtr. Including galvanisation
1	2	3
1.	6"x6"x25.15 BFB	38.03
2.	162x154x27.1 BFB	38.00
3.	200x200x49.9 BFB	51.20
4.	8"x6"x35 RSJ	53.39
6.	S 1	53.30
7.	S 3	76.40
8.	S 4	53.39
9.	S 5	111.53
10.	S 6	53.39
11.	S 7	76.40
12.	S 8	111.53
13.	K 100	23.70

14.	K 125	30.30
15.	K 150	38.18
16.	K 175	43.72
17.	K 225	57.50
18.	B 100	27.71
19.	B 125	32.47
20.	B 150	39.07
21.	B 175	44.61
22.	B 200	50.76
23.	B 225	61.50
24.	B 250	70.72
25.	S 100	23.72
26.	S 101	19.98

TABLE -2

PAYABLE UNIT WEIGHTS FOR STANDARD MASTS/STRUCTURES OF DC OHE:

Sr.No.	Type of structure	Unit weights
1.	K 200 cantilever mast	540.14 kg
2.	K250 mast	781.38 kg
3.	K300 mast	816.46 kg
4.	K400 Mast	1078.50 Kg
5.	Cross arm with knee bracing K200	193.14 kg
6.	Cross arm with knee bracing K250	193.4 kg
7.	DE1(Knee bracing included)	736.46 kg
8.	DE II (knee bracing included)	781.53 kg
9.	Bent arm	108.36 kg
10.	Centre piece 4.85 Mtrs.	380.71 kg
11.	Centre piece 1.85 Mtrs.	179.37 kg
12.	CP 3.35 Mtrs.	283.31 kg
13.	CP 6.35 Mtrs.	478.11 kg
14.	Splice & cover angle	10.12 kg

- 2) **For Feeder Work:-** All the steel structures like gantries/ portals, other supporting members, small part steel work etc. shall be galvanised after fabrication with a minimum value of average mass of zinc coating being not less than 1000gm/M². The galvanisation of steel structures shall conform to RDSO Specification No. ETI/OHE/13 (04/84) or latest. Tests shall be conducted on the structures to ensure the minimum value of zinc coating.

All designs for steelwork shall be submitted for approval of the Purchaser. Generally all designs unless otherwise provided shall comply with latest BIS specifications viz. IS: 875 & BIS 800 –1984 “Code of Practice for General Construction in Steel”.

For purposes of design, all possible loads that may occur in the worst possible combination shall be considered.

For calculation of wind load on structures, conductors and equipment, the basic wind pressure shall be taken as 112.5 Kg/sq.m.

Notwithstanding the provisions contained in B.I.S. and other regulations referred, the following should apply in regard to permissible deflection and torsional rotation.

- i) The deflection at the top of the mast or structure shall be limited to 1/80th (one eightieth) of its height above foundation.

- ii) The torsional rotation of the mast due to permanent loads shall not exceed 0.1 radian.
The design of the structure shall be with a factor of safety of 4 (four).
- 3) Steel conforming to BIS : 2062 – 1999 shall be used for all fabricated steel work. Steel should be to designation ST : 42-S.

Note:- Steel structures supplied under the works executed by divisions are all RITES inspected. As per the system improvement suggested by railway board in order to improve the quality (as per RB letter no.2019/RE/161/5 dated 12.02.2019), sample weighment of RITES inspected steel structures (OHE mast/portal) by consignee to prevent underweight/ substandard materials shall be carried out. For this, 2% of each item (minimum one number) of each type of steel structure(OHE mast/portal) received in a lot has to be weighed and recorded by consignee as sampling.

Item no.-4. Erection of Steel work

(a) (i) Erection of K/B/G/T/S-Series cantilever mast, mast of head span/uprights of D/G type Portals – manually

The price shall cover cost of erection, alignment and setting before grouting of individual traction masts and masts of head span, uprights of D/G type portals whether rolled or fabricated by contractor 's own manual labour and necessary tools. Price shall also include the cost of painting /Re-painting if required, the setting distance of mast /structures and rail level on mast /structures and other parameters as directed by purchaser. Erection also includes transfer of 2.2KV/22kv existing transmission line terminations, switches & cables with all accessories on new masts including supply of insulator, PVC sleeve etc. The SPS required for load transfer of 2.2KV transmission line will be paid in item no. 3(iii).

Item no. 4(b)(i) Erection of portal booms/ Angle fabricated portal boom upright/anchor structure boom/upright by purchaser's rail crane

Same as item No. 4 (a)(ii) except that the steel erected will be portal booms/fabricated portal upright/anchor structure boom/upright. Price shall also includes modifications to existing 2.2 KV /22 KV. Overhead circuit including supply of all fittings/ components to facilitate erection of upright/ booms including erection of supermast/cross arm, supply of which will be paid under item No. 3(iii).

Item no. 4(b)(ii)

Erection of small part steel work:

The price shall cover cost of erection, alignment and setting of drop arms, standard super masts and of steel work suspension brackets for feeders and return conductors, dwarf masts or stub masts , strut mast for anchoring, complete with anchor plates drilled and welded in position, cross arm, for single cantilever, multiple cantilever cross arm, chairs, adopters for bracket assemblies and all other small part steel works, the erection of which is carried out by the contractor irrespective of whether they are supplied by the purchaser or the contractor. The prices shall also include erection of galvanized bolts, nuts washers etc, wherever required as per approved designs and drawings.

Notes for items- 4 (a) & 4 (b)

1. For the purpose of payment of erection of standard mast/portals under item No. 4 (a) (i), 4(a) (ii) & 4(b)(i) weight schedule at table 1& 2 or Weight Schedule approved by purchasers of item No.3 shall be applicable.

2. For the purpose of payment against items 4 (b) weight of structures of fabricated steel work will be calculated according to the weight of black steel given in section books for the lengths of various members shown in the approved drawings and approved bill of material. There will be no addition for increased weight due to galvanising or painting of weld material or reduction for holes or skew cuts

ITEM No. 4 (c)

Supply and erection of a guy rod assembly.

The price shall cover supply and erection of guy rod assembly of various lengths for traction masts, feeder line towers or supports complete with mast guy rod fittings, guy rod with adjustments and part/s be grouted in the anchor block. The price shall not include the cost of supply and erection of a dwarf or stub mast with anchor plates drilled and welded in position, where required, for anchorage, and small parts steel work, complete with bolts and nuts etc., if any for attaching the mast guy rod fittings to the mast/structure which shall be paid for separately under the relevant item. Prices indicated against all other items should be exclusive of the price of supply and erection of guy rod, if any which will be paid for under this item. The price shall also cover supply & erection of any other material required for the successful completion of work.

Item No. 6

Supply and erection of 25 KV insulation with modified bracket assembly.

(a)(i) Deleted

(a) (ii) Deleted

(b)(i) For two wire OHE with 129/242sq.mm catenary and 193 sq.mm contact wire on structures.(Open route)

The price shall cover on a flat rate basis any modified bracket assembly (which includes main catenary suspension by 9 tonne insulator assembly polluted zone & registration of contact wire, aux. Wire with the use of large bracket tube with bracket insulator polluted zone) on a traction mast or support on drop arm and shall include those on high/low level platform, in the vicinity of turnouts, over bridges or over-laps and at locations with reduced encumbrance or terminating wires generally as per CEE/CR approved drawings. The price shall include the cost of supply of all components including dropper wires, galvanised steel tube including solid core 9 tonne bracket insulators but excluding the cost of small parts steel work complete with bolts and nuts etc., if any which will be paid relevant item. The price shall cover erection of all components including solid core insulators and dropper wires, but excluding small parts steel work, if any. Price also shall includes dismantling of existing bracket assembly wherever required and handling over same to purchaser's nominated depot. The price shall also include the cost of painting the setting distance, rail level and other OHE parameters as directed by purchaser on mast/ structure wherever required. The price shall also cover supply & erection of any other material required for the successful completion of work. The payment for re-droppering between main catenary and 193 sq.mm. contact wire required for reprofiling of OHE will be made in item **No.11 (ii)**.

Note:- (1) All insulators shall be of porcelain type only. The porcelain insulators used shall be for polluted zone as per RDSO's specification no.TI/SPC/OHE/INS/0071 or latest and shall be procured only from RDSO/CORE approved suppliers.

(2) Released insulators, fittings and conductors shall be the property of Railway, which shall be returned by contractor at Railway's nominated depot.

(b) (ii) For two wire OHE with 129/242 sq.mm. catenary, 193 sq.mm. contact wire inside tunnel

Same as item No. 6 (b)(i) except that the work is to be done under restricted clearance inside tunnel. The payment for redropping between main catenary and 193 sq.mm. contact wire required for reprofiling of OHE will be made in item **No.11 (iii)**. The price shall also cover supply & erection of any other material required for the successful completion of work.

(c) Supply and erection of tramway type a single bracket assembly at overlaps:-

The price shall cover on a flat rate basis any bracket assembly, on a traction mast or support on drop arm, fabricated extension arrangement to existing overlap structure and at locations with reduced encumbrance or terminating wires. The price shall include the cost of supply of all components including galvanised steel tubes including polluted zone solid core insulators, (Id.No. 6000-1 and 6030-1)-polluted zone type, dropper wires and small parts steel work complete with bolts and nuts etc., if any. The price shall cover erection of all components including solid core insulator, and dropper wires, but excluding small part steel work, if any. The price shall also cover supply & erection of any other material required for the successful completion of work.

Note :- 1. Price shall include any other item required to complete the work.

2. This item will be operated for providing stagger to contact wire at existing overlaps on outside of overlap.

(d) (i) Supply and erection of suspension arrangement with 9 tonne insulator for 323 sq.mm single catenary/feeder/jumper wire.

D E L E T E D

(d)(ii) Supply and erection of suspension arrangement with 9 tonne insulator for 129 sq.mm single catenary/feeder/jumper wire.

The price shall cover supply of 9 tonne suspension insulator (Polluted zone type) assembly for suspension of 129 sq.mm. conductor. The price shall cover supply of all components required for suspension assembly including suitable suspension clamp. The price shall cover erection of all components including 9 tonne insulator assembly. The price excludes the supply and erection of required SPS which shall be paid under relevant item. The price shall also cover supply & erection of any other material required for the successful completion of work.

(d) (iii) Supply and erection of suspension arrangement with 9 tonne insulator for 242 sq.mm single catenary/feeder/jumper wire.

Same as item No. 6 (d)(ii) except that the conductor supported would be 242 sq.mm. Stranded catenary conductor and fittings shall be used for conductor

used. The price shall also cover supply & erection of any other material required for the successful completion of work.

Item No. 7

Supply and erection of materials for termination of OHE

(i) For 323 sq.mm main catenary/feeder wire

DELETED

(ii) For 129 sq.mm main aux. Catenary/feeder wire.

The price shall cover supply of all material necessary for termination of 129 sq.mm. catenary conductors on a traction mast or structure, including appropriate mast anchor fitting, cleaves assembly, adjusters, ending clamps for catenary, anchor assembly and 9 tonne insulator assembly including terminating wire, if any. The price shall cover erection of all materials including the 9 tonne insulator assembly and retensioning of OHE and adjustment of droppers as per standard. The price shall also cover supply & erection of any other material required for the successful completion of work.

(iii) (a) & (b) For 242 sq.mm catenary/feeder wire.

The price shall cover supply of all material necessary for termination of 242 sq.mm. catenary/feeder conductors on a traction mast or structure, including appropriate mast anchor fitting, cleaves assembly, adjusters, ending clamps for catenary, anchor assembly and 9 tonne insulator assembly including terminating wire, if any. The price shall cover erection of all materials including the 9 tonne insulator assembly and retensioning of OHE and adjustment of droppers as per standard. The price shall also cover supply & erection of any other material required for the successful completion of work.

(iv) For 193 sq.mm contact wire.

The price shall cover supply of all material necessary for termination of 193 sq.mm. contact wire on a traction mast or structure, including appropriate mast anchor fitting, cleaves assembly, adjusters, ending clamps for catenary, anchor assembly and 9 tonne insulator assembly including terminating wire, if any. The price shall cover erection of all materials including the 9 tonne insulator assembly and retensioning of OHE and adjustment of droppers as per standard. The price shall also cover supply & erection of any other material required for the successful completion of work.

Note for item No.7 :- Price shall also include the cost of dismantling of all existing/redundant fittings.

Item No. 8

8(a) Supply and erection of 9 tonne cut in insulator.

(i) For 193 sq.mm contact wire.

The price is applicable to the provision of an additional 9 tonne cut-in-insulator on a flat rate basis such as in a headspan, cross-span or in span wire or an overhead equipment conductor at an insulated overlap, anti-creep and not provided for in other items. The price shall cover supply of all components required for the cut-in-

insulators assembly, including appropriate terminal fittings for the conductors and the 9 tonne insulator assembly. This price shall cover erection of all components, including the 9 tonne insulator. The price shall also cover supply & erection of any other material required for the successful completion of work.

(i) D E L T E D

(ii) &(iii) For 129 sq.mm/242 sq.mm. Catenary/feeder wire.

The price is applicable to the provision of an additional 9 tonne cut-in-insulator for **129 /242 sq.mm** catenary/feeder wire on a flat rate basis such as in a headspan, cross-span or in span wire or an overhead equipment conductor at an insulated overlap, anti-creep and not provided for in other items. The price shall cover supply of all components required for the cut-in- insulators assembly, including appropriate terminal fittings for the conductors and the 9 tonne insulator assembly. This price shall cover erection of all components, including the 9 tonne insulator. The price shall also cover supply & erection of any other material required for the successful completion of work.

8(b) (i) & (ii) Supply and erection of 25 KV post insulators.

The price is applicable to the provision of 25KV post insulator to support copper or aluminium jumper/busbars. The price shall cover supply of all components and fittings/ angle iron(outrigger) to support the jumpers, supply of post insulator but excluding small parts steel works with bolts and nuts etc., if any. The price shall cover erection of all components required for the assembly, including post insulator, but excluding small parts steel work with bolts and nuts etc. if any . The price shall also cover supply & erection of any other material required for the successful completion of work.

Item No. 9: Supply and erection of 25 KV section insulator suitable for 193 sq.mm contact wire

(ii) For OHE system on turnouts/loop line (242/129/125 sq.mm. main catenary and 193 sq.mm contact wire) with single core insulator.

*The price shall cover supply, of all components required for a standard section insulator assembly with **single core** (serving both the overhead equipment conductors) including special droppers for supporting the equipment, **Stiffners with PG's** and all terminal fittings for conductors and the section insulator assembly and the 9 tonne insulator assembly on the catenary but excluding dropper wires of OHE as required. The price shall cover erection and adjustment of all components including section insulator assembly, 9 tonne insulator on the catenary and droppers.*

The price shall cover supply, erection, testing and commissioning of section insulator with 9 tonne insulator confirming to specification No. ETI/OHE/27/(8/84) with AC slip 1 of 10/92 or latest and C.Rly drg. No CR/OHE/ DC-AC/105 with latest modification. Section insulator shall be suitable for 193 sq.mm contact wire and **242/129/125 sq.mm** catenary wire.

Note for item no.6, 7,8 & 9 :- All insulators shall be of porcelain type only. The porcelain insulators used shall be for polluted zone as per RDSO's specification

no.TI/SPC/OHE/INS/0071 or latest and shall be procured only from RDSO/CORE approved suppliers.

Item No. 10: Erection of PTFE type neutral section

(i) For main line OHE system.(323 + 193) - DELETED.

(ii) For loop line OHE system.(242/129 + 193)

The price shall cover erection and adjustment of PTFE type short neutral sections conforming to RDSO's specifications. The price would cover fittings for contact and catenary wire as necessary including supply of required dropper wire /end clamp as required.

Item No. 11 : Supply and erection of dropper and dropper adjustment

(i) For AC insulation on old structure (i.e. new droppers on either side of suspension)

Price shall cover on flat rate basis adjustment of complete dropper span after replacing existing insulator by new insulator on the existing structures. The price also includes the supply of additional droppers required for reprofiling of OHE near support point between main catenary & aux. Catenary , aux. Catenary to contact wire and also the supply of aux. Catenary support clamp including all components/ fittings etc. as per Railway's approved drawings

(ii)For AC insulation on newly erected structure (All new droppers/ fittings in one span)

Price shall cover on flat rate basis adjustment of complete dropper span so as to take OHE load on newly/old erected structure, price shall cover supply of all the droppers, clamps, fittings etc. for a given span required for re-profiling of OHE.

The dropper wire shall be as per IS:282-1982 or latest, the dropper clip for contact wire shall be as per Drg No: CW/TD/DC-AC/P/013 sheet 1/1 or latest, 242 Sq.mm catenary clip shall be as per Drg. No. CW/TD/DC-AC/P/014 sheet 1/1 or latest(with stainless steel nuts and bolts to be used), the dropper clip for 129 sq.mm catenary wire shall be as per Drg No: FM/DC-AC/10 or latest, the dropper clip for 323 sq.mm catenary wire shall be as per Drg No: FM/DC-AC/34 or latest, & the dropper clip for 65 sq.mm catenary wire shall be as per Drg No: ETI/OHE/P/1192 or latest

Price shall also cover for supply of all the droppers, clamps, fittings etc. for a given span required for **323/242/129/125/65 Sqmm catenary wire** and 193 sqmm contact wire as per Railways approved drawings and specifications.

METHOD OF ERECTION OF DROPPER

Height of contact wire:-

The height of contact wire shall be recorded before and after the replacement of the dropper wire in the prescribed proforma. It should be ensured that height is adjusted as per standards to maintain OHE profile and necessary direction will be given by the site representative in this regards.

The height of contact and catenary, stagger & SED parameters of OHE of each structure, overlaps, crossings, turnouts & crossovers terminations etc. should be jointly measured before & after execution of each work and both should be to satisfaction of purchaser. If any alternation in height/stagger is required, it should be done with the approval of the supervisor/Site in-charge.

OHE re-profiling including re-tensioning of Contact wire and catenary wire should be carried out by the contractor to the satisfaction of purchaser to maintain encumbrance and tension of OHE as per required parameters.

Gradient of contact wire:-

Any change in the height of contact wire shall be made gradually and the maximum slope shall not exceed 3mm per meter.

Dip of contact wire at brackets to be maintained between 28cms to 30cms and adjustment of mast bracket fitting, 7 mm inclined dropper needs to be done by contractors. (7 mm dropper wire will be supplied by Railways if required during adjustment).

Supplementary instructions:-

Further working instructions will be issued if considered necessary by the Purchaser, if standard of work of the Contractor requires to be improved.

(iii) Dropper & reprofiling inside tunnel.

The price shall cover supply of new droppers between main catenary of size 323 sq.mm and 193 sq.mm. contact wire after suspending/lifting 129 sq.mm Auxiliary catenary from the present position inside tunnel. Price also cover supply of all components such as dropper etc. required for dropper work. Price also includes erection of all components/ droppers and adjustment of OHE inside tunnel.

Note :- Payment for dropper for new OHE shall not be paid as per item no. 11(i), 11(ii), and 11(iii). Price for dropper of new OHE is included in item no. 5.

Item No :12 - Supply and erection of jumpers:

(i) DELETED

12(ii) 105 sq. mm. IOL/ in-span jumper for 2 wire system :

The price shall cover supply of approximately 2 Mtr. Length or as required quantity of jumper wire size 105 sq.mm. (19/7/1.02 sq.mm) made of annealed stranded 100% pure copper conductor as per RDSO Specification No. **ETI/OHE/3 (2/94)** with A&C slip No.1 or latest and on flat rate basis supply of all components and fittings required for providing flexible copper jumper connection required at insulated/un insulated overlap/in span between **242/129/125** sq.mm. catenary and 193 sq.mm contact wire including supply of PG clamps (Two P.G. clamps at each joint), bi-metallic and Al-Cu strips wherever required.

The price shall also cover the erection of complete jumper assembly including jumper wire, PG clamps & other fittings. The price shall also cover supply & erection of any other material required for the successful completion of work.

12(iii) 105 'G' Jumper :

Same as Item No. 12 (i) except that the jumper wire with approx. 4.5 mtr. Length or as required quantity will be provided on overlaps/turnouts involving 2 OHEs with **242/129/125** sq.mm. catenary and 193sq.mm. contact wire including supply of PG clamps (**Two P.G. clamps at each joint**). This item shall be operated for any combination between feeders, lightning arrestors etc. The price shall also cover supply & erection of any other material required for the successful completion of work.

12 (vi) 242 jumper for isolator.

Price shall cover for erection of approx. 6 mtr. Length of jumper wire and PG clamps for Isolator. The jumper wire and PG clamps shall be supplied by Railways.

Item no. 14

Adjustment of OHE

(i) Formation of new (IOL) at SP/SSP/TSS /Neutral section.

The price shall cover splicing of terminated overhead equipment or cutting and splicing overhead equipment consisting of 323/242/129/65 sq.mm. main catenary and 193 sq.mm. contact wire , extend the same to form **3/4** span overlap on newly erected structures at SP/SSP/TSS/Overlap/Neutral section. The price shall include supply of all the materials of droppering, clamps/ fittings etc.

Price shall include erection of all the materials of droppering, contact & catenary wire and for adjustment of overlap.

(ii) Turnouts/cross overs(at newly erected structures & bracket assemblies) .

The price shall include supply of dropper wires with all material required for adjustment/reprofiling of OHE with proper stagger and height of contact wire / wires at turnouts/cross overs (**at newly erected structures & bracket assemblies**), for taking load of OHE on AC insulation provided on obligatory structures. The price shall also include erection of all the droppering material, adjustment of position of two OHE/ contact wire relative to each other at turnout/ Cross over for smooth passage of pantograph. The price shall also cover supply & erection of any other material required for the successful completion of work.

Item no. 15

Bonding with 50x6 mm M.S. flat

15 (a)(i) : Supply and erection of a structure bond

The price shall cover supply of all materials including mild steel flat required to provide a structure bond connecting a traction mast or structures to the nearest non-track circuited rail, or earth electrode, including all fasteners at both ends. The price shall include shaping and drilling of the bond and erection of all materials including the bond. The price shall also include provision of heat shrinkable PVC tube for structure bond under track circuited rail. This would also cover connection or earthing terminals of equipments like L.T. Transformers with structure and then to rails as per relevant drawings. Bond connection on Rail and mast to be done with copper revit/nut bolt as per RDSO/CEE approved drawing, payment of which will be made in item 15(b)(i) for copper revits & item 3(iii) for nut bolts.

The price shall cover provision of buried rail to running rail as per RDSO drawing No.ETI/OHE/G/05306 or latest and shall include supply, fabrication and erection of all connections (including drilling at both ends) and refilling of buried rail pit. The digging up of 1 m deep pit for the purpose of buried rail shall also be done by the contractor.

15(a)(ii) : Supply and erection of longitudinal bond

The price shall cover the supply of all materials including mild steel flats, fasteners etc. required to provide longitudinal bond connecting two rails at the rail joint at the locations to be specified by the Purchaser. The price shall include shaping and drilling of the bond and erection of all materials including the bonds. Bond connection on Rail and mast to be done with copper revit/nut bolt as per RDSO/CEE approved drawing, payment of which will be made in item 15(b)(i) for copper revits & item 3(iii) for nut bolts.

15(a)(iii) : Supply and erection of transverse and special bond

The price shall cover supply of all materials including mild steel Flats, fasteners etc. required to provide transverse bond connecting rails of the same/ adjacent tracks at the locations to be specified by the Purchaser. The price shall also cover the supply of all materials including mild steel flat **to provide special bonds at a level crossing, foot over/road over bridge/protective screen etc.** for which the location will be specified by the Purchaser. The price shall include shaping and drilling of the bond and erection of all materials including the bond. Bond connection on Rail and mast to be done with copper revit/nut bolt as per RDSO/CEE approved drawing, payment of which will be made in item 15(b)(i) for copper revits & item 3(iii) for nut bolts.

ITEM No. 16(a) : Supply and erection of single earth electrode

The price shall cover supply and erection of an earthing station with a single pipe embedded into the ground by driving or otherwise complete with protective concrete box and lugs suitable for directly connecting two mild steel flats of minimum size 50 mm x 6 mm.

ITEM No. 16(b) : Extra for special embodiment of earth electrode

The price shall be payable as extra on item 16 (a) where an earth electrode is embedded by driving or otherwise in an earth pit filled with charcoal and salt. The price shall cover supply and erection of all additional materials required for embedding the earth pipe.

ITEM No. 16(c) : Supply and erection of earth bus

The price shall cover the supply of all materials including 50 mm x 6 mm mild steel flats for providing earth bus. The price shall also cover erection of earth bus either buried at a depth of 300mm below ground level painted with 2 coats of red oxide zinc chromate primer and 2 finishing coats of bitumen as per the particulars specified in para 2.1.49 or fixed on wooden gutties on walls. It shall include connecting the earth bus to earth electrodes and to various floor-or-wall-mounted equipments or structures to be earthed and also connections to non-track-circuited rails, wherever required it shall also cover the cost of making recesses in concrete foundation blocks or floor or cubicles and covering them up. The connection of earth strips to each other shall be made either by riveting or by welding. The connection of earth strips to various equipment, structures or fencing post shall be made with G.I. bolts and nuts and spring washer/ lock-nuts.

ITEM No. 16(d) : Supply and erection of 50x6 GI strips for equipment earthing

The price shall cover supply and erection of 50x6 GI strip of approx. 10 mtrs. length to connect the earth terminals of L.T. supply transformers to the main masts of the gantries on which they are mounted. The price shall cover all fastenings required for fixing the GI strips along any structure member of the gantry.

ITEM No. 19 : Supply and Erection of copper bus bar, 18 mm solid bar

The price shall cover supply and erection of solid copper busbar 18mm including bending and shaping.

The price shall also cover supply and erection of solid copper bus-bar junctions and connectors of various types specified, including bolts, nuts, etc, required at junctions or terminations of solid copper bus-bars.

ITEM No. 20 :

(a)(i) Supply and erection of 25 KV, 3150 amps, single pole Isolators without earth contact assembly.

The prices shall cover supply and erection of dual voltage single pole isolator switches 3150 Amps. capacity conforming to specification no. ETI/OHE/16(1/94) or latest & Drg. No. pi/Drg/PSI/25-3150 Amp/ISOL/TE/30574/00 or latest of approved make, complete with arcing horns, operating rods, earth shunts, operating rod guides, mounting base including cost of supply of 25 KV Solid Core Post and Operating rod insulator.

The price shall also cover supply and erection of an enameled number plate of approved design & painting of isolator No. & provision of pad lock on each isolator including ON – OFF position switches on the operating devices necessary to indicate the status in control room and terminal connectors. The price shall not include supply and erection of small parts steel work complete with bolts and nuts etc. for support of isolators and for support of operating rods on gantries/ masts, and insulator to support jumper and jumper connectors.

(b) Supply and erection of 25 KV, 1600 amps, single pole Isolators without earth contact assembly.

Same as item no. 20(a)(i)- except that dual voltage switch shall be of 1600 amps. capacity.

ITEM No. 20(c)(i) & (ii) :

Extra for supply and erection of an earth contact assembly in an isolator.

The price shall be payable as extra for supply and erection of an earth contact assembly in any isolator.

The price shall cover the cost of supply and erection of 3x25 mm copper connections between the earth contact assembly and the structures.

ITEM No. 20(d) : Extra on item 20(a) or (b) for an inter-locking device.

The price shall cover supply and erection of an inter locking mechanism on an isolator to permit working of two or more isolators or an isolator and an interrupter/circuit breaker in a desired sequence. This item shall be applicable individually for each isolator or interrupter.

Item no. 21. Supply and erection of 25KV Caution Boards/Plates

The price shall cover price of material including caution boards, sps items, nuts, bolts etc. As required and erection charges Caution Boards shall be of two types.

(i) General Caution Notice at entrance to Railway station (Hindi & English). No. ETI/OHE/G/7 551 Mod-C.

(ii) Caution Plate 25000 V. No. ETI/OHE/G/7531 Mod-C.

Boards shall required to be installed on a steel structure/Rail post/wall of a building therefore mode of erection shall be as per requirement of the site.

Price shall be quoted for each type of following caution boards and plates (Retro-reflective type) :

- (a) Danger Board/block section limit board.
- (b) Warning board/block section board.
- (c) General caution notice board at Rly station.
- (d) General caution notice board for staff.
- (e) Dead section caution board for electric engine stop.
- (f) Dead section caution board for unwired turnouts.
- (g) Man working board for equipment.
- (h) Caution board for gangman.
- (i) Caution board for special location on restricted clearances.
- (j) Coasting board.
- (k) Brake test board.
- (l) 500 m board.
- (m) 250 m board.
- (n) Panto lower board for Loco/EMU.
- (o) Panto up board for Loco/EMU.
- (p) DJ'off' board.
- (q) DJ 'ON' board.
- (r) AC section board.
- (s) DC section board.

Item no. 22.

(a) Dismantling of cross span, suspension insulator.

Price shall cover cost of dismantling of cross span/ suspension insulator including dismantling of components and SPS. Price shall include cost of handing over of material to railway at nominated depot. The price shall also cover supply & erection of any other material required for the successful completion of work.

Note: 1. At location where old insulation is replaced by new AC insulation. No. separate payment under the item will be made for dismantling of insulator.

2. This item will be operated only at the locations where there is no change in insulation and no dismantling of catenary/feeder conductor and where only assets have to be dismantled.

3. Payment for the dismantling of existing suspension, termination insulators etc will be made under item no. 22(e).

(b) Dismantling and stacking of structures:

(i) Dismantling/cutting and stacking of old released CTL/POM/single mast .

Price shall cover the lumpsum cost of dismantling of released structures including upright/masts/boom and SPS cutting them in to pieces and stacking at site away from running track. The structure location normally not approachable by road, such structure be loaded in BFR and unloaded at Railway's nominated place and stacked, these price shall also include cost of labour required for loading / unloading etc. for such movement. Price shall also include breaking of abandoned foundation, leveling of ground level and clearing of debris of foundation material of released structure from site. Price shall also cover transportation of stacked released structures from site/depot to Hazibunder/ Railway's nominated depot in contractor's own truck including cost of weigh bridge of consignment at two points. The price shall also cover supply & erection of any other material required for the successful completion of work.

Note : - 1) Dismantling of structure shall be taken up only after satisfactory completion of transfer of load to newly erected structure to the satisfaction of the purchaser.

2)Weight of the structures disposed off shall be taken as per weight recorded by Hazibunder depot/Railway's nominated depot.

(ii) Dismantling /cutting and stacking of released two track steel structure:

Same as item 22 (b)(i) above except that the released structure is two track structure.

(iii) Dismantling /cutting and stacking of released three/four track steel structure:

Same as item 22 (b)(i) above except that the released structure is three/four track structure.

(iv) Dismantling/cutting and stacking of released five/six track steel structure:

Same as item 22 (b)(i) above except that the released structure is five/six track structure.

(v) Dismantling/cutting and stacking of released two/three anchor structure

Same as item 22 (b)(i) above except that the released structure is two/three anchor structure.

(vi) Dismantling/cutting and stacking of released head span tower.

DELETED

Note : 1) Dismantling of structure shall be taken up only after satisfactory completion of transfer of old mast to newly erected structure to the satisfaction of the purchaser.

(c) D E L E T E D

(d) D E L E T E D

(e) Dismantling of catenary/feeder conductor

The price shall cover dismantling & transportation of existing 65/129/242/323 sq mm copper conductor catenary wire along with droppers, jumpers, suspension & termination insulators, terminations, associated SPS (small parts of steel) & other accessories. Price shall also include reeling of conductors/wires (65/129/242/323 sq mm catenary wire & handing over all the released materials to Railways nominated depot/ Hazibunder/Parel. The price shall also cover supply & erection of any other material required for the successful completion of work.

(f) Dismantling of DC/AC section insulator

Price shall include dismantling of DC/AC section insulator assembly. Price also include splicing of all conductor including supply of splicing materials. Price also includes handing over of relevant materials to Railway's nominated depots.

(g) Dismantling of post insulator

Price shall cover cost of dismantling of pedestal insulator including dismantling of jumper connections if any and associated SPS. Price shall include cost of handing over of material to Railway at nominated depot. The price shall also cover supply & erection of any other material required for the successful completion of work.

(h) D E L E T E D

Item no. 23

Splicing and extension of OHE

Price shall cover per span basis splicing of terminated overhead equipments consisting of 323/242/129/65 sq.mm catenary wire and 193 sq.mm contact wire, extend the same to adjust the existing cross over/turnout/overlaps/insulated/uninsulated overlaps as per 25KV AC standard. Price also include supply and erection of materials for dropper, dropper clips for contact and catenary wire for extended and modified portion of OHE. Price shall exclude the supply of catenary and contact wire which shall be supplied by purchaser. Price excludes supply and erection of termination, modified bracket assembly which shall be paid under relevant item. The price shall also cover supply & erection of any other material required for the successful completion of work.

Item no. 24

Slewing of OHE

The price shall cover per span basis temporary slewing or lowering of erected OHE (adjusted and/or unadjusted) to ground or shifting of structures for special works at the request of the purchaser and restoration and readjustment of the equipment after completion of special work. The price shall be per span or part thereof including anchoring spans.

Item no. 30

Supply and erection of enameled number plate.

Price shall cover supply and erection of enameled number plate conforming to specification no. ETI/OHE/33(7/88) or latest and drawing no. RE/33/P/7551 or latest. Price shall also include cost of supply and erection of SPS, hardware, nut bolts etc. required for fixing of number plates.

EXPLANATORY NOTES OF NON SOR ITEMS

Part B- Non - SOR items-

Foundation (M-20 Concrete).

NS-1. Concrete for foundation and plinth in hard soil.

NS-2. Concrete for foundation and plinth in rocky soil.

The price shall cover excavation, supply and handling of all materials and accessories, temporary arrangements for excavation in hard soil and concrete/masonry drains/walls requiring use of chisel and hammer NS-1 or requiring blasting NS-2 Shoring where necessary, casting concrete including frame work where necessary, tamping of concrete, grouting of masts and finishing the top of concrete foundation or anchor blocks. The price also includes dismantling of all connected temporary arrangements, back filling with earth and compacting the same to the required height and width as per drawing to ensure safety of foundation, confining the exposed height of foundation block to within 10 cm., and removal of spoil. The price shall also cover the cost of diversion of masonry/earth drain wherever necessary for casting of foundation. Price shall also cover clearing the debris of earth from site and levelling of earth. Price shall also cover excavation of cutting etc to make room for foundation (if required).

The Purchaser's Engineer shall certify where use of chisel and hammer or blasting has been necessary. The contractor shall arrange for supply of explosives and all tools and plants for blasting operations at his own cost. If half or more of the depth or width of excavation is in hard soil/concrete/masonry drains/walls or in rock, the entire foundations shall be paid for under item NS-1 or NS-2 as the case may be. If half of the depth or width of the excavation is in hard soil/concrete/masonry drains/walls and the other half is in rock, the entire foundation shall be paid under item NS-2. The price shall include the cost of cement. The blasting would be permitted in exceptional cases. To the extent possible rocky bed to be removed by pneumatic chisels only.

Notes for measurement for items (NS-1, NS-2& NS-3).

1. The payable volume of the foundations under item NS-1 & NS-2 shall be the designed one as shown in the drawings for which the hole has been blasted, irrespective of the actual configuration assumed by the latter due to the blasting.
2. The depth of the excavation shall be measured from the formation level to the maximum excavated point.
3. Concrete for foundation shall be nominal mix of grades as per IS 456- of latest version.

NS-3. Concrete for foundation and plinth in other than hard & rocky soil.

The price shall cover excavation, supply and handling of all materials and accessories, temporary arrangements for excavation in all type soil except hard soil, concrete / masonry drains/ walls and rock requiring use of chisel and hammer or requiring blasting. Shoring where necessary, casting concrete as per IS:456 (Latest) and relevant RDSO drawing for foundation including frame work where necessary, tamping the concrete, grouting of masts with concrete as per relevant RDSO drawing

and finishing the top of concrete foundation or anchor blocks. The price also include dismantling of all related temporary arrangements, back filling with earth and compacting the same to the required height and width as per drawing to ensure safety of foundation, confining the exposed height of foundation block to within 10 cm., and removal of soil to safe place. The price shall also include the cost of cement. The price shall include all works required in all classes of soil except hard soil, concrete or masonry drains and walls and rock. Concrete for foundation shall be nominal mix of grades as per IS 456- of latest version.

NOTE: Nominal reinforcement will be necessary in black cotton soil foundations. Such nominally reinforced foundations in black cotton soil will be payable under item NS-3. The steel for nominal reinforcement will be arranged by the Contractor and the concrete mixture, in such a case shall be as per IS-456 or latest (see para 2.2.4).

Notes for items NS1 to NS-3

1. The prices under item NS1 to NS-3 shall be same for any shape or size of concrete blocks. In calculating the individual volume of concrete, fraction of a cubic metre beyond the third decimal shall be rounded off to the next nearest third decimal.
2. The prices under items NS1 to NS-3 shall apply for concreting of all foundations for mast, gantries, portals, anchor blocks for guy rods, and fencing uprights.
3. For purposes of computation of volume of concrete under item NS1 to NS-3, the volume of steel work embedded in the foundation block shall be ignored.
4. Cost of all concrete will be paid for only under item NS1 to NS-3 and the prices of other items shall not include cost of concrete.
5. For purpose of computation of volume of concrete under item NS1 to NS-3. the volume of concrete shall include the volume of sand and bitumen in sand cored foundation. However, for the purpose of computation of quantity of cement utilised in sand core foundations, the volume of the sand and bitumen used in core hole should be deducted from the total volume of the foundation.
6. For purposes of computation of volume of concrete, the volume of each muff for all masts shall be taken as 0.02 cu.m. except for masts with balance weights and for each column of portal, each head span mast, 2 or 3 track cantilever masts, and special fabricated masts for which the volume of muff shall be taken as 0.08 cu.m. irrespective of the size and shape of muff, on a flat basis.
7. The prices under items NS1 to NS-3 shall also include the cost of concrete cable trenches and trench covers at the switching stations as well as embodiment of drain pipes, where required.
8. The prices under items NS1 to NS-3 shall also cover the cost of diversion of masonry/earth drain wherever necessary for casting of foundations.
9. Method of test for aggregates for concrete (Cube) should be carried out as per the specification given in tender documents and test report of aggregates for concrete (Cube) to be submitted at the time of claiming the bill for foundation work.

NS-4 Dismantling of OHE structures by cutting and transporting to railway depot including loading and unloading.

Price shall cover the cost of dismantling of released structures including upright/masts/boom and SPS cutting them in to pieces and stacking at site away from running track. The structure location normally not approachable by road, such structure be loaded in BFR and unloaded at Railway's nominated place and stacked, these price shall also include cost of labour required for loading / un-loading etc. for such movement. Price shall also include breaking of abandoned foundation, leveling of ground level and clearing of debris of foundation material of released structure from site. Price shall also cover transportation of stacked released structures from

site/depot to Hazibunder/ Railway's nominated depot in contractor's own truck including cost of weigh bridge of consignment at two points.

The payment shall be made on the basis of Metric Ton of steel recorded at Hazibunder/Railways nominated depot.

NS-5 Supply and Erection of Single Bracket /Cantilever assembly with high (long) creepage distance suitable for polluted zone type ST & BT insulators. The insulator shall be of porcelain type only.

Price shall cover for the Supply and Erection of Single Bracket /Cantilever assembly with polluted zone type ST & BT insulators (Porcelain type insulators only) suitable for 25 KV AC OHE with all fittings/components including 25 KV stay and bracket insulators as per RDSO drawing No: ETI/OHE/G/02106, sheet-3, mod-C or latest drawing and latest RDSO specification. **The price shall also cover for dismantling of old Bracket assembly required during execution of this work.**

The price shall also include the cost of painting the setting distance, rail level and other OHE parameters as directed by purchaser on mast/ structure wherever required. The price shall also cover supply & erection of any other material required for the successful completion of work.

Note:- (1) **All insulators shall be of porcelain type only. The porcelain insulators used shall be for polluted zone as per RDSO's specification no. TI/SPC/OHE/INS/0071 or latest and shall be procured only from RDSO/CORE approved suppliers.**

NS-6 Supply and erection of retro reflective number plate.

The prices shall cover for supply of Retro-Reflective type Number plates for fixing on OHE mast / structures as per RDSO's specification No. ETI/OHE/33A/(12/97) Rev-8 and Drg No. ETI/OHE/P/7503 Rev E or latest from approved manufacturers of RDSO/CORE. **The base plate of the number plate shall be made of steel sheet confirming to clause No 6 of RDSO specification No: ETI/OHE/33(8/85).**

The price shall also cover erection of number plate and fixing arrangement including studs, fasteners etc complete. Tenderer shall note that in Mumbai division different design structure have been erected, hence fixing arrangement for different structures will be different. The SPS used for fixing arrangement shall be galvanised as per Specification No. ETI/OHE/13 (4/84) with A&C Slip No.1,2 & 3 or latest with zinc coating suitable for polluted zone. SPS on structure and with number plates shall be suitable size of SS bolts nuts as per RDSO drawings No ETI/C/0073 Rev C or latest and washer & locknuts. The number plate fixing shall be done atleast 4 (four) Mtrs above the foundation level.

Locking arrangement by providing special washer shall be done so that once the nut bolts are tightened, it is not possible to open them without cutting the bolt.

Price shall also include painting of structure Km number as per number plate by lemon yellow paint (make Asian/Shalimar/Tractor or similar) for back ground and black paint (make Asian/Shalimar/Tractor or similar) for Km number.

The price shall also cover for dismantling of old corroded/damaged number plates available on the structure and the same shall be handed over to Railway at nominated store/depot.

NS-7 Breaking of foundation up to 200mm below track formation

The price shall cover for breaking of cement concrete foundations upto 200mm below track formation for dismantling of steel structures or otherwise and clearing the site as per the instruction of consignee.

NS-8 Dismantling of foundation base

The price shall cover for breaking of cement concrete foundations for dismantling of steel structures or otherwise and clearing the site as per the instruction of consignee.

NS-9 Cement Concrete 1:2:4 with 20 mm graded stone aggregate for OHE structures.(muffing)

The price shall cover for following activities;

1. Breaking of old cracked muffing/foundation as per site condition, supply and handling of all materials and accessories, temporary arrangements for breaking of hard concrete using required chisel and hammer. Casting concrete including frame work wherever necessary, tampering of concrete of masts foundation and finishing the top of concrete foundation or anchor blocks. The price also includes dismantling of all connected temporary arrangement, back filling with earth up to a height of 10 cm below top of the foundation block and compacting the same all around the foundation to ensure safety of foundation. Price shall also cover clearing the debris of earth from site and leveling of earth. Price shall also cover excavation, cutting etc., to make room for casting foundation (if required).
2. Scratching and removal of rust and scale deposit on mast by hard metal brush upto foundation level.
3. Providing 2 coats of red oxide paint up to 1 meter from foundation level.
4. Providing black Japan paint up to 1 meter from foundation level. Re-casting damaged muffing/foundation by Cement Concrete 1:2:4 with 20mm graded stone aggregate up to appropriate level. All material will be supplied by contractor with 53 grade cement for muffing and foundations.

NS-10 Casting of cement concrete foundation type M-25

The price shall cover providing RCC M25 grade with 20 mm size graded machine crushed stone aggregate in all positions with form work of approved quality and material, shuttering, staging, scaffolding, mechanical mixing, dewatering, placing, compaction, finishing the surface and curing of concrete etc. with all contractor's tools, plants, labours and materials of approved quality including all taxes, royalty, all lead and lift etc. complete as per specifications and direction of Engineer-incharge

- Note:-
1. Rate is inclusive of chloride free admixture such as super plasticizer.
 2. No cold joint shall be allowed only construction joint shall be permitted.
 3. Framework shall be approved by Engineer before use.
 4. The contractor shall use RMC only with suitable pumping arrangement where ever required. In case due to yard conditions RMC is not possible, the contractor can be allowed to install mini batching plant at suitable location.

NS-11 Supply and erection of steel for M-25 foundation

The price shall cover providing and placing in position high yield strength deformed TMT bar procured from primary manufacturer such as SAIL, TISCO, RINL, JINDAL or ESSAR confirming to IS 1786/IS 1785 of all diameters in R.C.C items. The rates includes supply, loading, unloading, transporting to site, cutting, bending, hooking, placing and fixing in position with contractor's galvanized binding wire, labour, tools

& Plants all lead and lift etc. as per the approved drawings as directed by the Engineer.

Note :

- i) This item will be paid only for quantities used actually.
- ii) The wastage, cut pieces shall be taken away by the contractor and the same will not be paid.
- iii) The design overlaps/embedment length only will be paid and other overlaps will not be paid.

NS-12 Supply & Erection of "caution clearance to OHE nearby restricted" size 400X270X2 mm as per RDSO specification No. ETI/OHE/33(8/85) or latest & drawing No. RE/33/436, Rev-C or latest

The price shall cover for Supply & Erection of "caution clearance to OHE nearby restricted" size 400X270X2 mm as per RDSO specification No. ETI/OHE/33(8/85) or latest & drawing No. RE/33/436, Rev-C or latest.

NS-13 Supply & Erection of Staff caution board in Hindi, English, Marathi as per RDSO specification RE/33P/7561 or latest.

The price shall cover for Supply & Erection of Staff caution board in Hindi, English, Marathi as per RDSO specification RE/33P/7561 or latest.

NS-14 Supply & Erection of general public caution board in Hindi, English & Marathi as per RDSO specification RE/33P/7560 or latest.

The price shall cover for Supply & Erection of general public caution board in Hindi, English & Marathi as per RDSO specification RE/33P/7560 or latest.

NS-15 Supply, erection, testing and commissioning of maintenance free earth using copper coated steel rods, compression couplers as per RDSO specification no. RDSO/PE/SPEC/PS/0109-2008(REV'0') with approved earth enhancing compound and exothermic welding.

The price shall cover cost of maintenance free earth using copper coated steel rods, compression couplers as per RDSO specification no. RDSO/PE/SPEC/PS/0109-2008(REV'0') or latest with approved earth enhancing compound and exothermic welding and connection by 25 mm x 6 mm copper strip to DB, MDB, earthing pit and cover the concreting of broken ground.

NS-16 Supply, drilling, fixing and testing of GI strip of size 50 x 6 mm for various types of bonds.

The price shall cover supply, of GI Flat of size 50 x 6 mm strips of various lengths required to provide a Structure bond and various type of bonds like longitudinal bond, transverse bond and special bond like Z jumper, cross jumper, long jumper, and continuity bond of various length.

The price shall cover drilling and chamfering of holes in rail and structures, fixing and testing of GI Flat of size 50 x 6 mm strips of various lengths required to provide a Structure bond and various type of bonds like longitudinal bond, transverse bond and special bond like Z jumper, cross jumper, long jumper, continuity bond of various length for connecting a traction mast or structures to the nearest non-track circuited rail, connecting to rail joint of same rail / adjacent track, Foot over/Road over Bridge/Protective screens including all fasteners for the location as specified by purchaser. The price shall include shaping and drilling of the bond and erection of all

materials including the bond. The price shall also include provision of heat shrinkable PVC tube for structure bond under track circuited rail. Bond connection on Rail and mast to be done with Nut bolts as per RDSO/CEE approved drawing payment of which will be made in schedule item NS-20.

Price shall also include cost of transportation of all materials to the site, dismantling and transportation of old 50mm x 6mm MS trips back to Rly's store depot and then disposal of scraps in Hazibunder store or any Rly's nominated store.

NS-17 Supply and erection of GI Nut Bolt 16 x 50 x 38mm

The price shall cover supply of GI nut bolt M-16x50x38mm, Punched washer A-18, spring washer B-16 with check/lock nut as per Specification No. ETI/OHE/18, for various type of bond/ structure. The price shall cover drilling and chamfering of holes in rail, structure & flat, fixing of GI Nut Bolt 16 x 50 x 38mm along with washer and lock nut with various type of bond/ structure.

NS-18 Supply and Erection of copper bus bar, 18 mm solid bar

The price shall cover supply and erection of solid copper busbar 18mm including bending and shaping.

The price shall also cover supply and erection of solid copper bus-bar junctions and connectors of various types specified, including bolts, nuts, etc, required at junctions or terminations of solid copper bus-bars.

NS-19 Lifting of bracket fitting.

The price shall cover for Lifting of existing bracket assembly/cantilever assembly to increase height of contact wire as per the instructions of consignee.

Note:

- 1. All the released materials shall be handed over by the contractor to Railway at Railways nominated store depot.**
 - 2. The inspection of materials shall be done by RITES or purchasers representative as decided by the Railway authority.**
-

PART-II
CHAPTER-I

GENERAL SPECIFICATION

PART - II

CHAPTER - I

GENERAL SPECIFICATIONS

	PARA No	SUBJECT.
SECTION-1 :	GENERAL	
	2.1.1 ...	Introduction.
	2.1.2 ...	Climatic Data.
	2.1.3 ...	Wind pressure.
	2.1.4 ...	System particulars.
	2.1.5 ...	Rolling stock
	2.1.6 ...	Power supply
SECTION -2 :	OVERHEAD EQUIPMENT	
	2.1.10 ...	Track.
	2.1.11 ...	Sectioning.
	2.1.12 ...	Pantographs.
	2.1.13 ...	Description of overhead equipment.
	2.1.14 ...	Types of equipments.
	2.1.15 ...	Plane of contact.
	2.1.16 ...	Tensions.
	2.1.17 ...	Clearances.
	2.1.18 ...	Height of contact wire
	2.1.19 ...	Stagger.
	2.1.20 ...	Termination.
	2.1.21 ...	Type of structures.
	2.1.22 ...	Cantilever assembly
	2.1.23 ...	Overlaps.
	2.1.24 ...	Points and crossings.
	2.1.25 ...	Section insulators.
	2.1.26 ...	Isolators.
	2.1.27 ...	Return conductors.
	2.1.28 ...	Bridges and tunnels.
	2.1.29 ...	Bonding and earthing.
	2.1.30 ...	L.T.supply transformer stations.
	2.1.31 ...	Lightning Arrestors.
	2.1.32 ...	Ceramic beaded glass fiber type short neutral section assembly.
	2.1.33 To 2.1.39 ...	Deleted.

PART - II

CHAPTER - I GENERAL SPECIFICATIONS SECTION - I GENERAL

INTRODUCTION : 2.1.1

This part of Tender paper's Chapters contain general, technical and other specifications for design and erection of complete 25 kV A.C. 50 Hz single phase traction overhead equipment. This part also gives reference to technical specifications of materials and components, procedure for submission of designs and drawings of basic arrangements, components and fittings designs and other typical designs relating to overhead equipment. A list of the standard drawings is included in Annexure-I, Part-IV.

SCOPE OF WORK

The sections of the Indian Railways to be equipped with traction overhead equipment in accordance with this specification are detailed in part-III where in the particular features of the sections to be electrified and their special requirements are indicated.

CLIMATIC DATA : 2.1.2

The data pertaining to section are given in Part - III.

WIND PRESSURE : 2.1.3

For design of layout of overhead equipment maximum span etc. Wind pressure shall be taken as specified in part-III. Structures, and foundations of overhead equipment and L.T. supply transformer stations shall be designed for the wind pressure indicated in part-III.

SYSTEM PARTICULARS : 2.1.4

The nominal voltage of the overhead equipment will be 25 kV A.C. 50 Hz, single phase. The supply voltage may, however, rise upto 27.5 kV. One terminal of the 25 kV system will be solidly earthed at the traction sub-station and also connected to the running rails. The other terminal will be connected to the overhead equipment through switchgear provided at the traction sub-station and at the feeding station.

ROLLING STOCK : 2.1.5

(a) LOCOMOTIVES

The electric locomotives will generally be equipped with DC motors fed through rectifiers installed on the locomotives.

(b) OVERSIZE CONSIGNMENTS

The specific requirement in regard to movement of steam locomotives and over size consignments for each section are indicated in part-III.

POWER SUPPLY : 2.1.6

(a) SUB-STATIONS

Electric power will be supplied at 25 kV A.C. 50 Hz. single phase from traction sub-stations to feeding stations suitably spaced along the track.

(b) SWITCHING STATIONS

Power supply will be controlled to the different sections of traction overhead equipment by switching stations. At these stations the switching will be effected by means of "Interrupters/CBs" which are single pole, capable of repeatedly interrupting normal full load current. There are three types of switching stations :-

- (1) Feeding stations;
- (2) Sectioning stations, and
- (3) Sub-sectioning stations.

(c) FEEDING STATIONS

Supply will be effected to the overhead equipment through switchgear installed at feeding stations. All feeding stations will be located normally near the track.

(d) SECTIONING STATIONS

A neutral section of overhead equipment with insulated overlaps on either side will be provided approximately midway between two consecutive feeding stations.

(e) SUB-SECTIONING STATIONS

In order to facilitate maintenance of overhead equipment and to permit isolation of faulty sections and expeditious restoration of power supply in healthy sections, sub-sectioning stations with insulated overlaps will be provided between the feeding stations and the sectioning stations.

(f) RETURN CONDUCTORS

-----Deleted-----

(g) BOOSTER STATIONS

-----Deleted-----

(h)

-----Deleted-----

SECTION - 2

OVERHEAD EQUIPMENT

TRACK : 2.1.10

(a) GAUGE AND TRACK CENTERS

The track gauge is 1676 mm (5'-6"). In multiple track zones, the normal distance between track centers varies between 4270 mm (14'.ft) and 4420 mm (14'-6").

(b) SPEED

It is proposed that the traction overhead equipment for main line is made suitable for a maximum speed of 110 km/h.

(c) CURVES

The overhead equipment to suit existing lay out.

(d) SUPER ELEVATION

The maximum super elevation is 165 mm (6.5"). On curves, the minimum setting of structures shall be decided on the basis of maximum super elevation (see para 2.3.10). For purposes of design and erection of overhead equipment, the actual super elevation as existing at site or as indicated to the contractor shall be adopted.

(e) LOW JOINTS

For low or loosely packed rail joints a difference of 25mm (1") in the level of opposite rails may be taken as the basis for estimating the displacement of the pantograph with respect to its normal position.

(f) FORMATION

Generally sections with more than one track have common formation. In certain lengths, however the formation for different tracks may be separate (see relevant drawing listed in Annexure-I, part-IV).

(g) DISPLACEMENT

The general design of overhead equipment shall permit a displacement of ± 100 mm of tracks without difficulty and any adjustment of the overhead equipment on this account shall be of such a nature as could be done conveniently without changing any component of the overhead equipment.

SECTIONING : 2.1.11

(a) INSULATED OVERLAPS

Insulated overlaps are provided for facility of isolation. Some of the overlaps may be provided with manually operated isolators switches.

(b) YARD SUPPLY

The sectioning diagram/s also indicate the tracks in stations yards and siding whose equipments is electrically independent from those of other tracks.

The overhead equipment in yards and sidings may be fed through isolator switch or interruptor/Circuit Breakers in accordance with arrangement indicated in the sectioning diagram/s.

(c) SECTION INSULATORS

Section insulators shall be provided as indicated in the sectioning diagrams, or cross-over between main tracks and to isolate sections of overhead equipment in yards and sidings. Section insulators may also be used to form neutral sections at special locations as indicated in the approved drawings.

(d) Deleted

(e) FEEDERS 25 KV ALONG TRACK FEEDERS

25 KV along track feeders may connect sections of overhead equipment to a switching station or an isolator switch or gantry. Such feeders will be run usually on traction structures and sometimes on independent masts. A single 242/323 sq.mm. hard drawn stranded copper conductor shall be used for such feeders.

(f) RETURN CONDUCTOR

-----Deleted-----

(g) SCHEMATIC ARRANGEMENTS

The different arrangements of feeders and 25 KV along track feeders to be designed by the contractor.

(h) SECTIONING DIAGRAM

The provisional sectioning diagram/s of the sections to be converted and charged on 25KV AC to be designed and submitted by the contractor..

PANTOGRAPHS : 2.1.12

(a) The outline of the pantograph, its dimensions and its current collecting area are shown in a drawing listed in Annexure-I (Part-IV).

(b) NUMBER AND PRESSURE

Each locomotive will be equipped with two pantographs, but only one pantograph generally the trailing one will be in use at a time. The working pressure of the pantograph on the contact wire may vary between 5 and 15 kg.

(c) SPACING IN MULTIPLE HEADED TRAINS

The distance between adjacent running pantographs in the case of multiple heading would normally be 20 metre. This distance may, however, be reduced to 7.9 metre between two pantographs in very exceptional cases.

(d) INSULATION CLEARANCE

The electrical clearances for the pantograph on tangent tracks and on curves for design and erection of overhead equipment shall be based on the schedule of Dimensions 1676mm. Gauge, 1939 printed in 1973 in metric units, issued by the Ministry of Railways (Railway Board), Government of India and any other orders that may be issued by the Railway Board from time to time.

OVERHEAD EQUIPMENT : 2.1.13

(a) BRIEF DESCRIPTION

Essentially the traction overhead equipment shall consist of a 242/129 sq.mm main catenary from which a grooved contact wire of 193 sq.mm cross section is suitably suspended by means of droppers. OHE is unregulated type.

(b) CATENARY

The catenary wire shall be Cadmium copper of 242/125/129/65 sq.mm.

(c) CONTACT WIRE

The contact wire shall be grooved and made of hard drawn copper having 193 sq.mm cross section.

(d) DROPPERS

Droppers for supporting bracket tube from suspension clamp shall be 7 mm dia hard drawn copper. New droppers used for reprofiling OHE at support point between Catenary & contact shall be 5 mm dia. Hard drawn along with suitable dropper clip. The details of dropper clips has been given at item No 11 of Part I, Chapter IV.

(e) ENCUMBRANCE

As a general rule, the nominal "encumbrance" i.e. the center distance between the catenary and the contact wire at the support shall be 1.9 m. Deviation from this figure will be permitted in special cases (e.g spans near over-bridges, structures with more than one cantilever etc.).

(f) JUMPERS

All jumpers connected to OHE conductors shall be of copper only. The in-span jumpers potential equaliser jumpers at insulated overlaps and neutral section, shall be of 105 mm sq. nominal, 19/7/1.02 mm size. Flexible jumpers of nominal section 105mmsq., 19/7/1.06 mm size shall be used at overlaps, turnouts, crossings etc.

(g) BRIDLE WIRE - Deleted -

(h) ANTI THEFT JUMPER

-----Deleted-----

TYPE OF EQUIPMENT : 2.1.14

The overhead equipment to be converted is unregulated type.

(a) REGULATED - Deleted -

(b) UNREGULATED

The unregulated type of overhead equipment has no provision for automatic regulation of tension of either the catenary or the contact wire.

(c) TRAMWAY TYPE EQUIPMENT REGULATED CONTACT WIRE ONLY

- Deleted -

(d) The section in which different types of equipment should be provided are indicated in part-III.

PLANE OF CONTACT : 2.1.15

(a) REGULATED - Deleted -

(b) UNREGULATED

Tension in contact wire to be maintained as per Tension Chart.(During execution of work). Chart will be supplied by Railway.

(c) TRAMWAY TYPE - Deleted -

(d) DROPPER

Dropper schedule is indicated in drawing No. GIP RLYS. 21010-7

TENSIONS : 2.1.16

(a) REGULATED - Deleted -

(b) UNREGULATED

In unregulated equipment the tension in the catenary and in the contact wire at 35 degree C without wind shall be as per Tension Chart.

(c) TRAMWAY TYPE - Deleted -

CLEARANCE : 2.1.17

(a) GENERAL

The distance between live parts and parts at earth potential (for parts likely to be earthed) shall be as large as possible. In all cases the values given in schedule of Dimensions, 2004 shall be observed alongwith any other supplementary rules, that may be issued by the Railway Board and advised to the Contractor.

(b) OVER BRIDGES & TUNNELS

The clearances which are to be made available at overbridges, signal, gantries and other overline structures shall be based on the above rules.

(c) PLATFORM SHEDS AND OTHER STRUCTURES

In the course of checking the overhead equipment, the Contractor shall prepare a list of platform sheds and other structures in the vicinity of track to be converted. The

clearances to these structures shall be in accordance with those shown in the relevant drawings listed in Annexure-I, Part.IV. If these clearances are not available, the Contractor shall advise the Purchaser in time and take up necessary modifications.

HEIGHT OF CONTACT WIRE : 2.1.18

(a) Normally, the minimum height of contact wire above rail level shall be 5.50 m at mid span under the worst temperature conditions. This height may be reduced under bridges and in tunnels to the extent permitted by the purchaser. The minimum height shall be 4.80 m. In electric locomotive sheds and over electric locomotive inspection pits, the minimum height shall be 5.80 m. At level, crossings the minimum height shall be 5.50 m. Specific approval will be given by purchaser for adopting restricted height of OHE at critical section and while approving LOP.

(b) GRADIENT OF CONTACT WIRE

Any change in the height of the contact wire should be made gradually and the slope should not normally exceed 3 mm/m on main lines and 10 mm/m on sidings. In no case shall the relative gradient of the contact wire in two adjacent spans be greater than 1.5 mm/m on main lines and 5 mm/m on sidings.

Specific approval for relaxation of this provision will be given by purchaser. Where the provision is not possible to be implemented due to existing layout of OHE.

STAGGER : 2.1.19

To ensure uniform wear of contact strips of pantographs, the contact wire shall normally be staggered in a manner as per ACTM.

TERMINATION : 2.1.20

(a) GENERAL

Traction overhead lines shall be terminated using components specified to Chapter 2.4. The termination may be carried forward by one or two spans if anchoring facilities so require.

(b) Terminating wires shall be electrically connected to the conductors with which they are likely to approach closely or come into contact under normal conditions.

(c) SUPPLEMENTARY INSULATION

If a terminating wire passes a live conductor to which it should not be connected, i.e. in a different elementary section, the portion of the terminating wire close to the live conductor shall be separated by means of insulators. The insulators swept shall be located in such a manner as to clear the zone of the pantograph under the worst conditions and as far away as is possible from live conductors.

TYPES OF STRUCTURES : 2.1.21

(a) The overhead equipment of main tracks in case of multiple tracks section shall be electrically and mechanically independent of the one another by provision of independent cantilever masts to the maximum extent possible (see Annexure-I for general arrangement drawings).

(b) HEADSPANS

- Deleted-

(c) PORTALS

In cases where the tracks in a multiple track section do not permit location of independent masts, rigid portals may be used. Also in the vicinity of points and crossings, portals may be used, provided it is not possible to have prescribed setting with independent cantilever masts. These structures shall be equipped with modified bracket assemblies for supporting individual equipment of different tracks. A single portal shall normally not cover more than five tracks (See also 2.3.7).

(d) FOUNDATIONS

Foundations for all structures shall be designed in an economical manner by following the methods of design and RDSO drawings.

CANTILEVER ASSEMBLY : 2.1.22

The bracket assembly provided for registration of contact wire shall be of the swivelling type. The assembly shall be such that the tubes adopted will permit easy adjustment of the whole equipment after erection to cater for displacement of the track during maintenance upto the extent of 100 mm on either side except as otherwise relaxed by the Purchaser (see Para 2.1.10 g). In special locations, pull-off arrangements may be used with the approval of the Purchaser (See Annexure-I for drawings of the bracket assembly and components).

OVERLAPS : 2.1.23

Overlaps shall be provided at suitable intervals as decided by the purchaser.

(a) GENERAL

The two contact wires at the overlapping zone shall be parallel to each other in a plane parallel to the track and run separated from each other .

(b) INSULATED

In the case of insulated overlaps, the separation between the two contact and the two catenary wires shall be 0.5m .

POINTS & CROSSINGS : 2.1.24

Arrangements of overhead equipment at points and crossings shall be in accordance with the standard drawings .

SECTION INSULATORS : 2.1.25 (See also Para 2.1.11(c))

(a) BRIEF DESCRIPTION

The section insulators shall provide effective electrical isolation of two elementary electrical sections of overhead equipment and permit smooth passage of the pantograph in either direction. The outline of a section insulator is shown in a drawing listed in Annexure-I. The section insulators shall be modified to suit 193 sq.mm contact wire.

(b) SIZE AND WEIGHT

The section insulator assembly shall be such that it should be possible to install the insulator in the overhead equipment provided the axial distance between the catenary and the contact wire with section insulator in position is not less than 450 mm. The weight of the complete assembly shall not be more than 45 kg for single wire type excluding the weight of the catenary insulator and the catenary ending clamps.

ISOLATORS : 2.1.26

Manually operated isolators single or double pole type, with or without earth contact assembly may be required to bridge certain section insulators or insulated overlaps (See para 2.1.11.). In certain large yards, isolators controlling different lines may be grouped together on a gantry . These isolators should be suitable for AC/DC developed for Mumbai division.

RETURN CONDUCTORS : 2.1.27

-----Deleted-----

BRIDGES AND TUNNELS : 2.1.28

(a) OVERBRIDGES

The complete overhead equipment (i.e catenary and the contact wires) shall normally pass under over-line structures. Additional intermediate suspension points shall be provided, if necessary, to ensure the specified minimum height of contact wire being maintained. In special cases catenary may be anchored on either side of the overline structure and the contact wire carried underneath.

(b) TUNNELS AND CUTTINGS

The arrangements proposed for the equipment in tunnels and cuttings shall take into account the special features of each location and shall be in accordance with standard general design .

(c) SAFETY SCREENS

On over-bridges, metallic protective screens shall be provided in order to prevent any person from coming into contact with the live overhead equipment. Such screens shall be properly earthed.

(d) HEIGHT GAUGES AT LEVEL CROSSINGS

(d) Height gauges will be provided by purchaser at all level crossings in accordance with the general arrangement drawings listed in Annexure-I

BONDING AND EARTHING : 2.1.29

(a) Bonding and earthing shall be done in accordance with the code for bonding and earthing.

(b) LONGITUDINAL AND TRANSVERSE BONDING

Longitudinal and transverse bonding of tracks, bonding of structures including traction structures to rails and associated earths shall be provided in accordance with the above code modified for Mumbai division for adoption of AFTC track circuiting.

(c) TRACTION STRUCTURE BONDING

Every traction mast or structure shall be bonded to a non-track circuited rail unless it is provided with a continuous earth wire or it is individually earthed by means of an earthing station. For general arrangement drawings, see Annexure-I.

(d)-----Deleted-----

PART-II
CHAPTER-II

FOUNDATION

PART-II

CHAPTER -II

FOUNDATIONS

PARA NO	...	SUBJECT
2.2.1	...	SCOPE.
2.2.2	...	DESIGN OF FOUNDATION.
2.2.3	...	BEARING PRESSURE.
2.2.4	...	CONCRETE.
2.2.5	...	SIZE AND GRADING OF AGGREGATES.
2.2.6	...	SAND CORED FOUNDATIONS.
2.2.7	...	SINKING OF CONCRETE SHELLS.
2.2.8	...	TYPES OF FOUNDATION IN BLACK COTTON SOIL.
2.2.9	...	CEMENT

CHAPTER-II

FOUNDATIONS

SCOPE : 2.2.1

This chapter deals with the design of foundations and anchor blocks for traction structures carrying overhead equipment (including those on bridges) and other concrete work. It also deals with the specification for concrete.

DESIGN OF FOUNDATION : 2.2.2

(a) SOIL PRESSURE

For design of foundations for traction structures carrying overhead equipment, the Contractor shall determine the type and allowable bearing pressure of soil at suitable intervals and adopt the type and size of foundations, suitable for particular locations with the help of the approved employment schedules. In cases of particularly weak soil, the bearing pressure may have to be determined for each location where so advised by the Purchaser. Soil bearing pressure, using SPT(falling weight equipment) should be determined generally for every 5 kilometer interval or less wherever change of soil is encountered. In general IS code of practice (IS 6403:1981) should be followed. In addition, at every 250 m the soil bearing pressure should be determined by dial gauge type penetrometers. Dial gauge type penetrometers shall also be made available by the Contractor at each foundation site so as to facilitate cross check at each individual location.

For design of foundation for masts and gantries, the Contractor shall determine the type and allowable bearing pressure of soil at the locations of such stations and shall prepare designs for the foundations suitable for each location to suit the bearing pressure of the soil in consultation with the Purchaser.

(b) STRUCTURES CARRYING OVER-HEAD EQUIPMENT

Foundations for traction structures carrying overhead equipment shall be either of the side bearing side gravity or new pure gravity type according to their location, formation of the sub-grade and bearing pressure of the soil. In new filled up soil or cinder formation, pure gravity sand-filled core foundations, or foundations with cast-in-site reinforced concrete piles, or cantilever types foundation with counter-weights or guyed foundations may be adopted.

(c) ON BRIDGE PIERS

Complete design of foundations for traction structure on bridges to suit different locations and local conditions will be furnished by the contractor.

(d) MASTS & FABRICATED STRUCTURES AT SWITCHING STATIONS

Foundations for the masts of gantries at switching stations shall be of the pure gravity type, the base of which shall rest on consolidated soil.

(e) FENCING POSTS -Deleted-

(f) TYPICAL DESIGN

Typical design and drawings of side bearing and new pure gravity and side gravity type foundations are included in the drawings listed in Annexure-I. Employment schedules for standard foundations for traction structures for various locations and types are also included in the drawings listed in Annexure-I, Part IV.

(g) SPECIAL FOUNDATIONS

In the case of foundations at locations not covered by the employment schedules furnished by the Purchaser, the Contractor shall prepare special designs and furnish full design calculations justifying the choice of the type of foundations for such locations. In black cotton soil especially pile foundations of under reamed type as per RDSO'S standard designs (Reference RDSO'S Drawings No.ETI/C/0062 MOD."A") or any other approved design may have to be cast at limited locations for trial purpose. The tenderer may furnish the technical details of alternative design, construction methods proposed to be adopted and their previous background/experience if any. The decision of the Purchaser with regard to feasibility and suitability of adoption of the alternative design for each type of foundation will be final.

(h) EQUIPMENT PEDESTALS -Deleted-

(j) CABLE TRENCHES -

-Deleted-

BEARING PRESSURE : 2.2.3

(a) GUIDING INFORMATION

Subject to Para 2.2.2 (a) above, the following allowable bearing pressures may generally be expected for various kinds of soil. The information is given for general guidance only.

- (i) Average good soil in banks and cutting ... 11,000 kg/sq.m.
- (ii) Moorum soil in cutting ... 22,000 kg/sq.m
- (iii) New banks & bad soils in banks and cutting ... 5,500 kg/sq.m.

(iv) Black cotton soil-pure gravity foundation shall normally be adopted. However, under reamed pile foundations may be adopted at the option of the Purchaser in limited locations for trial purpose. In the case of dry black cotton soil, the soil should be subjected to a bearing pressure as close as possible but not exceeding 16,500 kg/sq.m. the depth of the foundation block being not less than 2.8m. In the case of wet black cotton soil, the soil should be subjected to a bearing pressure as close as possible but not exceeding 8,000 kg/sq.m.

CONCRETE : 2.2.4

Concrete for foundation shall be nominal mix of grade **M20** obtained by mixing cement, coarse aggregate, fine aggregate & water in accordance with proportions given vide table 3 of IS 456:1978 reproduced below. For grouting, maffing embedding of structures in foundations and for cable trenches at switches stations, nominal mix concrete **M20** obtained by mixing materials sin proportion as indicated in table-3 of IS:456.2000 or latest shall be used volume batching may be adopted vide clause 9.2.2 of IS:456. 2000 or latest reproduced below.

IS : 456-1978

IS : 456-2000

TABLE - 3 : PROPORTIONS FOR NOMINAL MIX CONCRETE
(Clause 8.3, 8.3.1 and 8.3.2)

Grade of	Total quantity of dry aggregate by mass per 50 kg. of cement,	Proportion of fine aggregate of coarse	Quantity of water
----------	---	--	-------------------

concrete, cement	to be taken as the sum of the individual masses of the fine and coarse aggregates max..	aggregate (by mass) per 50 kg of max.
1	2	3
M 5	KG. 800	Generally 1:2 but subject to an upper limit of 1 : 1.5 and a lower limit of
M 7.5	625	
M 10	480	
M 15	350	
M 20	250	

NOTE : The proportions of the fine to coarse aggregates should be adjusted from upper limit to lower limit progressively as the grading of the fine aggregates becomes finer and the maximum size of coarse aggregate becomes larger. Graded coarse aggregate shall be used.

Example :

For an average grading of the fine aggregate (that is zone II of Table 4 of IS : 383-1970*) the proportions shall be 1:1.5, and 1:2 and 1:2.5 for maximum size of aggregate 10mm, 20 mm and 40 mm respectively.

* Specification for coarse and fine aggregates from natural sources for concrete (second revision).

"In case uniformity in the materials used for concrete making has been established over a period of time, the proportioning may be done by volume batching, provided periodic checks are made on mass/volume relationships of the materials, where weigh-batching is not practicable, the quantities of fine and coarse aggregate (not cement) may be determined by volume. If the fine aggregate is moist and volume batching is adopted, allowance shall be made for bulking in accordance with IS:2386 (Part-III)-1963".*

*Method of test for aggregates for concrete part-III specific gravity, density, voids, absorption and bulking.

In judging the acceptability of the materials, quality of concrete and the method of work, the Purchaser will generally observe the provisions of the "Indian Standard code of Practice for Plain and Reinforced Concrete, IS:456-2000. The crushing strength of concrete shall not be less than the limits given below :-

Crushing strength of 15cm cubes by works test.

Concrete.	At 7 days age.	At 28 days age.
(a) M. 10	70 kg/cm ²	100 kg/cm ²
(b) M. 15	100 kg/cm ²	150 kg/cm ²

NOTE : (a) Test specimen of works test shall be taken at the site of work from mixture of concrete ready for pouring in to the foundation hole. All tests shall be carried out in accordance with IS: 516-1959 or its latest version **at govt. recognized institutions/labs. In case, the contractor is having his own testing facilities,**

the testing shall be done in the presence of Rly's authorized representative.
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.

SIZE AND GRADING OF AGGREGATES : 2.2.5

The graded coarse aggregate 40 mm nominal size (table 2 of IS: 383-1970) shall be used for foundation. A coarse aggregate for grouting muffs and embedding shall be of 20 mm graded nominal size as per table 2 of IS: 383-1970 (specification for coarse and fine aggregate from natural sources for concrete).

Fine aggregate shall be graded from 10 mm downwards. The maximum size of aggregate for under reamed pile foundation shall be 20 mm graded nominal size.

SAND CORED FOUNDATIONS : 2.2.6

After erection of masts in sand-cored foundations, the core hole of the foundation blocks shall be filled with dried sand and covered with a layer of bitumen of 80 mm thickness below 30 mm from top level of the block. A hemispherical shaped muff shall be provided on such foundations in lieu of standard type.

SINKING OF CONCRETE SHELLS : 2.2.7

Where the water-table is high, one or more sections of reinforced concrete shells may have to be sunk before casting concrete. The size of each of shell shall be 1,200 mm outside dia x 50 mm thick x 600mm high reinforced with 6 mm (1/4") dia rods spaced 150 mm apart, both longitudinally and circumferentially, the concrete shall be of grade M.15 as per provisions of para 2.2.4.

TYPE OF FOUNDATION IN BLACK COTTON SOIL : 2.2.8

Types of foundations in black cotton soil. The foundations in dry black cotton soil should be of type BC or NBC or any other type as approved by the Purchaser.

CEMENT: 2.2.9

The cement to be used in the construction of RCC structures should be of ordinary Portland cement to IS : 269-1976.

---****---

PART-II
CHAPTER-III

STRUCTURES

PART - II

CHAPTER - III

STRUCTURES

Para No.	...	Subjects
2.3.1	...	Scope.
2.3.2	...	Types.
2.3.3	...	Design.
2.3.4	...	Cantilever masts.
2.3.5	...	Anchor masts.
2.3.6	...	Head-Spans.
2.3.7	...	Portals.
2.3.8	...	Structures on bridges.
2.3.9	...	Special structures.
2.3.10	...	Setting of structures.
2.3.11	...	Numbering of structures.
2.3.12	...	Steel work for switching stations and gantries.
2.3.13	...	Steel

PART - II

CHAPTER - III

STRUCTURES

Structures of OHE :

SCOPE : 2.3.1

This chapter deals with the design of steel structures and steel work for overhead equipment and L.T. supply transformer stations and the specification for steel and prestressed concrete trial mast.

TYPES : 2.3.2

Structures and gantries may consist of any or more of the following types :-

- (i) Broad flange beams.
- (ii) Rolled steel joists (I section).
- (iii) Fabricated steel Structures (welded/bolted).

Structure/uprights shall generally be embedded in concrete foundation blocks in special cases Structures may be secured by means of holding down bolts. Limited quantity (approx. 700 nos.) of circular spun prestressed concrete masts may also be used at the sole discretion of the Purchaser.

DESIGN : 2.3.3

(a) STEEL STRUCTURES

Designs for steel Structures shall, except where otherwise Provided, comply with the Indian standard code of practice for use of structural steel in General Building Construction-IS: 800-1984. The thickness of smallest steel sections used shall be 5 mm for galvanised members.

(b) All the steel Structures and small part steel for carrying overhead equipment are to be fully galvanised after drilling and fabrication as per specification ETI/OHE/13 (4/84) with A & C slip number 1 of 5/86, 2 of 4/90, 3 of 4/90 and no painted structures are to be used. Galvanizing coating shall be 1000 gm/sq.m.

CANTILEVER MASTS : 2.3.4

(a) LOAD

For purposes of design the worst possible combination of all loads that may occur shall be considered.

The load shall include the following (weights to be assumed for design of Structures are shown against important items).

- (i) Weight of overhead equipment (5.915 kg/metre for for 3-wire OHE on main line and 2 .925 kg/metre for 2 wire OHE on loop line).
- (ii) Weight of bracket supporting the overhead equipment (60 kg/normal bracket)
- (iii) Weight of a man (60 kg)

- (iv) Weight of an earth wire (0.32 kg/metre).
- (v) Weight of feeder, return conductor or other special equipment wherever they occur.
- (vi) The effect of eccentricity of vertical and horizontal loads on the bracket due to variation in temperature.
- (vii) Wind loads perpendicular and parallel to the track. The wind pressure adopted shall be taken as that indicated in part-III.
- (viii) Radial forces on the mast, due to stagger, curvature, anchorage etc.
- (ix) Weight of the mast itself.
- (x) Any other load or loads that may occur due to special location of the Structures.

(b) DEFLECTION

Notwithstanding the provisions contained in IS:800-1984 referred to in para 2.3.3 above regarding permissible deflection, the following shall apply.

- (i) The deflection at the top of the mast due to permanent loads shall not exceed 8 cm and the mast shall be so erected that it becomes reasonably vertical after application of permanent loads.
- (ii) The additional deflection under maximum wind pressure shall not exceed 8 cm at the level of the contact wire.

(c) TORSION

The torsional rotation of the mast due to permanent loads shall not exceed 0.1 radian.

(d) TYPICAL DESIGN

The typical design of a traction mast is included in the set of standard drawings listed in Annexure-1, part-IV. Employment schedules for standard masts for various locations and types are included in the standard drawings listed in Annexure-1, part IV, to enable selection of suitable type for different locations and local conditions.

ANCHOR MASTS : 2.3.5

- (a) Masts at which overhead equipment will be anchored shall also normally be of the same type as those in other locations. Anchor masts shall normally be provided with suitable guys but struts may be permitted in special cases.

(b) DWARF MASTS

At certain locations where due to local conditions it is not feasible to anchor the guy rod on a foundation block in the ground, a dwarf mast shall be used in accordance with approved designs.

HEAD SPANS : 2.3.6 (See paras 2.1.21 and 2.4.19)

- Deleted-

PORTALS : 2.3.7 (See 2.1.21)

(a) GENERAL

Portals shall be of fabricated steel of standard types of purchaser's designs.

(b) LOAD

The load shall be as detailed in para 2.3.4 (a) as applicable.

STRUCTURES ON BRIDGES : 2.3.8

(a) The structure may be either cantilever masts or portals (hinged or fixed at base) depending on the type and condition of bridge pier capping. As far as possible cantilever masts grouted in foundations blocks on pier will be used. Where this is not possible cantilever masts with holding down bolts or suitable portals (hinged or fixed at the base) may be adopted.

(b) Designs of structures on bridges to suit different locations and local conditions will be furnished by the contractor.

SPECIAL STRUCTURES : 2.3.9

In the case of structures at locations not covered by the employment schedules furnished by the Purchaser, the contractor shall furnish complete design calculations justifying the choice of the type of structures for such locations.

SETTING OF STRUCTURES : 2.3.10

(a) The setting is the distance from the Central line of the track, on straight or curve to the face of the mast/structure of fitting located on the mast.

(b) On straight and outside of curve, the standard setting shall be as per the relevant drawing included in Annexure-I, Part IV. Minimum setting of structures shall be 2.5 m plus curve allowance as required. Whenever this distance can not be provided, specific approval of Purchaser shall be obtained before erection. Setting of portal upright overlap/ turn-out structures, anchoring structures and other masts carrying more than one OHE will be 3.0 m wherever possible.

Note: This provision will be applicable for the new structure to be erected in this contract.

(c) EXTRA CLEARANCE ON CURVES

The minimum setting of structures on curves shall be determined by adding to the above minimum figures an extra clearance indicated in the table included in the set of standard drawings listed in Annexure-I, Part-IV.

(d) STRUCTURES WITH COUNTER WEIGHTS - Deleted -

(e) STRUCTURES ON PLATFORM -

The setting of structures on platform shall be not less than 4.75m.

(f) STRUCTURES NEAR SIGNALS

In the vicinity of signals, structures shall be located in a manner which shall ensure good visibility where necessary, the setting shall be increased as per the relevant drawing included in Annexure- I, Part-IV.

(g) SETTING OF STRUCTURES

The value of setting of masts/structures shall be painted on each mast/ structure. The figure shall be 25 mm in size in black on a yellow background. In addition, the track level shall also be marked on the mast/structure by a horizontal red painted stroke.

NUMBERING OF STRUCTURES CARRYING OVERHEAD EQUIPMENT : 2.3.11

All new structures shall be numbered in accordance with the numbering given in the approved overhead equipment layout plans. Enameled number plate shall be provided on each mast or structure as per approved designs (See Annexure-I,Part-IV).

STEEL WORK FOR SWITCHING STATIONS AND GANTRIES : 2.3.12

(a) HORIZONTAL MEMBERS OF GANTRY

Horizontal member of main as well as auxiliary gantry carrying isolator switches, insulators, potential transformers etc. shall be made from steel sections viz. channels, angles and small joists, single or fabricated. They shall preferably be attached to masts by means of clamps to avoid drilling of masts sections.

(b) For purpose of design, all possible loads which may occur in the worst combination shall be considered. The loads shall include the followings:-

- (i) Weight of insulators, instrument transformers, isolator switches, busbars, and their accessories.
- (ii) Loads caused by feeders, along and across tracks, return feeders etc.
- (iii) Loads caused by anchorage due to guying of anchored masts (where applicable).
- (iv) Pull or Push on the structures due to anchorage and radial tension (where applicable).
- (v) Wind load on the different structures, conductors and equipment. The wind pressure shall be taken as that indicated in part-III.
- (vi) Weight of men working on the structures.
- (vii) Weight of structure itself.
- (viii) Erection loads.
- (ix) Any other load or loads which may occur due to special equipment wherever they occur.

(c) TENSION OF CONDUCTORS

For purpose of designs, the maximum tension of different conductors, without wind load, shall normally be as under:-

- (i) -----Deleted-----

(ii) -----Deleted-----

(iii) Maximum tension in longitudinal feeders running parallel to the track under worst conditions. 1,50 kgf.

(iv) -----Deleted-----

(d) DEFLECTION OF GANTRY MASTS

Deflection under the permanent loads (at an average temperature of 35°C without wind) at the top of the fabricated structures of mast shall be limited to one eightieth (1/80) of its height above foundation.

(e) Masts of the gantry at which feeder or overhead equipment anchored shall normally be provided with suitable guys.

(f) CHAIRS AND BRACKETS

Chairs, brackets and supporting steel work carrying potential transformers, lighting arrestors, insulators, etc, shall be made of fabricated steel and be mounted on the main auxiliary gantry preferably by means of clamps to avoid drilling of mast sections.

(g) UPRIGHTS AND FENCING

Uprights carrying operating handles of isolators and fencing posts shall be made from steel sections, viz. channels, angles or small joists, either single or fabricated.

STEEL 2.3.13

Steel conforming to IS:2062-1992 shall be used for all fabricated steel work.

PART-II
CHAPTER-IV

EQUIPMENTS, COMPONENTS
AND MATERIALS

PART-II

CHAPTER-IV

EQUIPMENTS,COMPONENTS AND MATERIALS

PARA NO.	SUBJECT
2.4.1.	... General.
2.4.2	... Compliance with standard specification.
2.4.3	... Quality assurance.
2.4.4	... Prototype test.
2.4.5	... Inspection and tests.
2.4.6	... Test certificates.
2.4.7	... Bulk manufacture.
2.4.8	... Inter-changeability.
2.4.9	... Technical specifications.
2.4.10	... Nomenclature and marking.
2.4.11	... Steel work and protection against rust.
2.4.12	... Bracket assembly components.
2.4.13	... Droppers.
2.4.14	... Insulators.
2.4.15	... Ending fittings and splices.
2.4.16	... Electrical connections for overhead equipment.
2.4.17	... Terminal connection for other equipments.
2.4.18	... Regulating equipment.
2.4.19	... Head span construction.
2.4.20	... Isolator.
2.4.21	... Insulation level.
2.4.22	... Bus-bars(at switching stations,

booster stations and Gantries.)

2.4.23 ... Cabling.

2.2.24 ... Literature for equipment.

PART-II

CHAPTER-IV

EQUIPMENTS, COMPONENTS AND MATERIALS

GENERAL : 2.4.1

This chapter deals with the details and specifications of the equipment, components and materials to be used for traction overhead equipment and L.T. supply transformer stations. This chapter does not cover structures and foundations, which are dealt with in Part-II, Chapter-II and III. In general based on the specifications issued by various bodies, such as Bureau of Indian Standards, British Standard Institution etc. Specifications have been issued by the Purchaser. Such specification may be bought separately from the office of the Purchaser. All these specifications are included in the set of drawings and specifications referred to in Para 1.1.10.

COMPLIANCE WITH STANDARD SPECIFICATION : 2.4.2

In the technical specifications of equipments, components and materials, references are made to the following standard specifications:

- (i) International Electro Technical Commission (abbreviated as IEC) publications.
- (ii) British Standards (abbreviated as BS)
- (iii) Bureau of Indian Standards (abbreviated as IS)

Tenderers may, however, offer equipment in accordance with the appropriate national standard specifications of the country of manufacture, but such offers will be treated as deviations and should be quoted for in the manner specified in Para 1.1.7 (d) English rendering of the text and illustrations of the national standard specifications and explanatory notes on the specific deviations from IEC, British or Bureau of Indian Standards in question, shall also be submitted in Form-3. In case of doubt, the Purchaser shall decide the clause and specification applicable and the contents of the specification and standard mentioned above shall guide such decisions.

QUALITY ASSURANCE : 2.4.3

The provisions of part-I for quality assurance will apply, including facilities to be provided by the manufacturer (See para 1.2.25)

PROTO TYPE TESTS : 2.4.4

(a) FITTINGS, COMPONENTS AND MATERIALS

All the fittings, components and materials to be supplied by the contractor, in terms of this contract, the requisite number of prototypes of components shall be supplied free of cost to the Purchaser for tests and approval. The tests will be conducted in a laboratory selected by the Purchaser.

(b) EQUIPMENTS

This comprises inspection and tests conducted on the first equipment of a specified manufacturer, which the Purchaser considers sufficient to prove that the design is in conformity with the specification at the manufacturer's factory. The type tests shall be conducted on each equipments as indicated in the individual specifications referred to in para 2.4.1 above, in the presence of the Purchaser's representative. The contractor shall arrange to get these tests conducted at his own cost.

(c) RESPONSIBILITY

Any testing and approval by the Purchaser of prototype shall in no way absolve the contractor of his responsibility under the terms of the contract for the equipment supplied and erected.

(d) EXEMPTION FROM PROTOTYPE TESTS

If prototype samples of equipments, components or fittings of any manufacturer have already been approved in connection with the electrification of other sections of Indian Railways, on the 25 KV 50 HZ single phase A.C. system prototype samples of such equipments, components or fittings will be exempted from the tests. Supply of bulk quantities shall, however, be effected only after the Purchaser's prior approval is obtained in writing.

(e) The results of prototype tests will be communicated to the Contractor as expeditiously as possible. Any delay in this respect will be ground for extension of time for completion under para 1.2.45.

INSPECTION AND TESTS : 2.4.5

These comprise inspection and tests conducted at the manufacturer's factory for ensuring quality of manufactured items as part of the quality Assurance Programme.

TEST CERTIFICATES : 2.4.6

Three copies of the test certificates of successful prototype tests carried out at the manufacturer's factory on all equipments shall be furnished to the Purchaser within a month after completion of the prototype tests. Three copies of the routine tests carried out on each equipment shall also be furnished, after the equipment is passed by the Purchaser's representative for inspection (See para 1.2.25).

2.4.7

-----Deleted-----

INTER CHANGEABILITY : 2.4.8

All equipments, components and fittings shall be inter-changeable and supplies shall be in accordance with the Purchaser's designs unless otherwise specifically approved by him. Components such as fuses, indication lamps etc. should be replaceable with substitutes available indigenously, as far as possible. Important components and fittings and their drawings have been listed in Schedule 3.

TECHNICAL SPECIFICATIONS : 2.4.9

The following specifications (as per version available as on date issue of LOA) will govern the supply and testing of important materials, components and equipments:-

Structural Steel	IS:2062-1992 IS:800-1984 IS:808-1989
Tensile Testing	IS:1731-1971 IS:2004-1991 IS:1608-1972 For steel products etc.
Welding	IS:816-1969
Disc.Insulator	IS:731-1971 IS:3188-1980
Dropper Wire	IS:282-1982
Annealed Copper Jumper Wire	IS:9968(PT.2):1981.
Al. Jumper wire	IS:694:1990
All Aluminum conductor	IS:398(PT.I)-1976
Material for Aluminum tubular busbar.	IS:5082-1981
Dimensions for Aluminum Tubular Busbar.	IS:2673-1979
Galvanised stay strand	IS:2141-1992
PVC insulated cables	IS:1554(Part-I) 1988
Tin bronze castings	IS:306-1983
Aluminum bronze castings	IS:3091-1965
Malleable iron castings	IS:2108-1977
Gray iron castings	IS:210-1978
Aluminum castings	IS:617-1975
Copper strip for formed fittings	IS:1897-1983
Cadmium copper conductor for overhead Rly.Traction	ETI/OHE/50(6/97) With A&C slip NO.1 of (6/97).
Contact wire	ETI/OHE/42(6/97)
Annealed stranded copper conductors for jumper wire	ETI/OHE/3(2/94) with A&C slip No 1. of (4/95).
Copper Busbar	RE/30/OHE/5(11/60)
Steel tubes	ETI/OHE/11(5/89)

Hot dip galvanisation of steel masts (Rolled and fabricated) tubes and fittings used on 25 kV A.C. OHE.	ETI/OHE/13(4/84) with A&C slip No.1 of (5/86). 2 of (4/90) & 3 of (4/90).
Stainless steel wire ropes incorporated	ETI/OHE/14/(9/94) with A&C slip No.1 of (9/95) & 2 of (1/97), 3 of (8/99), 4 of (12/99)& 5 of (10/2001)
25 kV solid core insulator including those for polluted zones	ETI/OHE/15 (9/91) with A&C Slip No.1 to 4 or latest. OR composite type as per RDSO specification no. TI/SPC/OHE / INSCOM/0990.
25 kV single pole isolator.	ETI/OHE/16 (1/94).modified to DC OHE as per drawing No.PI/DRG/PSI /25-3150A/Isol/TE/30574/00 governing Sp. No. ETI/OHE/16(1/94) .
25 kV double pole isolator.	ETI/OHE/16 (1/94).modified to DC OHE as per drawing No.PI/DRG/PSI /25-3150A/Isol/TE/30577/00 governing Sp. No. ETI/OHE/16(1/94) .
Steel and stainless steel Bolts, Nuts and Washers	ETI/OHE/18(4/84) WITH A&C slip No.1of Nov. 1984 2 of (6/87) & 3 of (9/87).
Aluminum Alloy Section and tube.	ETI/OHE/21 (9/74)
Standards for drawings for Traction.	RE/OHE/25 (3/66)
Section Insulator assembly without Section (8/84) with A&C slip insulator No.1(10/92) modified to suit DC OHE	ETI/OHE/27 Central Railway drawing no. FM283(M)
Enameled steel plates	ETI/OHE/33 (7/88)
Galvanised steel wire	ETI/OHE/36 (12/73) with A&C Slip No.1 of (5/98)
Fittings for 25 KV 50 Hz AC traction equipment	ETI/OHE/49 (9/95) with A&C slip No.1of (6/97) and 2 of (4/2000)-CORE-1
7.5 kV lighting Arrestor	ETI/PSI/3(8/75) with A&C slip No. 1 of (2/91)

25 kV ac 50 Hz Single pole out door SF6 Interrupter	ETI/PSI/160(12/94) with A&C 1 of (3/95)
25 kV ac 50 Hz Single pole out door Vacuum Interrupter	ETI/PSI/161(12/94)
25 kV Potential Transformer.	ETI/PSI/8(10/92)with A&C slip 4 of (6/97).
25 kV Booster Transformer (100/150 KVA) filled type)	ETI/PSI/98(8/92) with A&C slip of (Oil No.1 (9/92) & 2 of (1/94)
25 kV Drop out fuse switch & operating pole No.1	ETI/PSI/14(1/86) with A&C slip of (4/87).
for use with 10 KVA ,25 KVA,50 KVA & 100 KVA, 25 KV/230V LT supply transformer.	
25 kV/240V, 10KVA,50KVA.&100KVA LT supply Transformer.	ETI/PSI/15(11/92)with A&C slip No.1 of May/93 and No.2 -March 2000
25 KVA ,LT supply Transformer. above	Under development in line with specification.
Metal Oxide Gapless type Lightning Arrestor with A&C for use on 25kV side. of 9/90,3 (2/91), 12/91 & 5 of (8/94)	ETI/PSI/71 Rev.1 (1/87) slip No.1 of 3/87, 2 4 of
110 V Lead Acid Battery 400AH. No.1	ETI/PSI/21(6/81) with A&C slip of 7/81
Winch type Regulating equipment (5:1)	ETI/OHE/48 (7/84) with A&C slip no.1 of 9/87
3-pulley type Regulating equipment (3:1) 8/99.	ETI/OHE/48A(9/85) with A&C slip No.1of 11/87and No.2 of
Ceramic beaded short Neutral section Assembly. (2/94)	ETI/OHE/63 (5/91) with A&C slip Nos.1 of (10/92) & 2 of
110 V 40 AH battery charger	ETI/PSI/1 (6/81)
Aluminum alloy stranded	ETI/OHE/54(2/85) with
65 sq.mm catenary wire 19/2.79 mm and 2 of	A.C. slip No.1 of (11/89) (10/92).
323 sq.mm catenary wire ,0.5 sq.inch/37/132	Item No. M49,Specn. No. D-89
129 sq.mm catenary wire,(0.2 sq.inch/19/.116) D-89	Item No. M50,Specn. No.
Bimetallic (Al-Cu) strip	ETI/OHE/55(4/90).

NOMENCLATURE AND MARKING : 2.4.10

(a) All components and fittings supplied by the Contractor's shall bear the respective identification number and a mark to identify the source of supply except in the case of galvanised tubes, bolts and nuts and/or any other fittings as may be agreed to by the Purchaser.

(b) In case of insulators, galvanised steel tubes, stainless steel wire rope and conductors, name of manufacturer shall be specified in "As Erected" drawings for identification.

STEEL WORK AND PROTECTION AGAINST RUST : 2.4.11

(a) GALVANISING

All ferrous materials and fittings shall be hot dip galvanised according to the specification ETI/OHE/13 (4/84) with A&C slip no.1 of (5/86), No.2 of (4/90) & No.3 of (4/90). Galvanising coating shall be 1000 gms/square meter.

(b) PAINTING

Some components or parts may, with the approval of the Purchaser, be protected only by paint and parts so protected shall be given two coats of composite Aluminium primer and two coats of Aluminium paints. The second coat of Aluminium paint shall be applied after erection.

(c) RECTIFICATION AT SITE

In case of modifications which would damage the protective coat, repairs to such damage would be allowed only in exceptional circumstances. The part damaged shall be protected in accordance with the method indicated in specification ETI/OHE/13 (4/84) with A&C slip no.1 of 5/86, 2 of 4/90 & 3 of 4/90 or any other method approved by the Purchaser. The Contractor shall in all such cases obtain prior permission from the Purchaser before carrying out repairs.

BRACKET ASSEMBLY COMPONENTS : 2.4.12 (see para 2.1.22)

(a) ARRANGEMENT FOR NORMAL OHE

The arrangement of the different fittings and structural components of bracket assemblies are shown in drawings listed in Annexure-1, Part-IV. The employment schedule of bracket will be furnished by the Contractor.

(b) BRACKET

Bracket tubes shall be of seamless cold drawn or electric resistance weld steel complying with ETI/OHE/11 (5/89) with an insulator near the support. The length of the tubes shall be such that it facilitates adjustment during track maintenance(see para 2.6.10 (b)).

(c) TUBULAR STAY ARM

Steel tubes with adjustable steel rods shall be used for tubular stay arm of all bracket assemblies.

(d) REGISTER ARM

(e) STEADY ARM

Steady arm shall normally be fitted in all assemblies for overhead equipment in running. The steady arm shall be of light alloy BFB section arranged to work always in tension in accordance with ETI/OHE/21(9/74). Steady arms of secondary tracks may be of solid galvanised steel rodding. The contact wire shall be fixed by a simple swivel clip without threaded parts. Steady arms shall normally be 1.0 m long but for special locations such as turnouts, diamond crossing etc. Steady arms shall be longer as indicated in the relevant drawings listed in Annexure-1, part- IV.

Bent steady arms of aluminum alloy tube conforming to Spec.ETI/OHE/21 (9/74) shall be used for neutral section overlap and in the central mast of a 4 span insulated overlap.

DROPPERS : 2.4.13 (see para 2.1.13)

(a) GENERAL DESIGNS

The first dropper between aux. catenary & contact wire suspension point shall generally be designed as shown in standard drawings and made of copper wire about 5 mm diameter conforming to IS:282:1982 and shall be attached to aux. catenary wire by a copper dropper clip. In span dropper between aux. catenary & contact wire shall be 'U' type dropper(RI No. 105/104) 5 mm dia dropper shall be used for providing additional dropper between main catenary & aux. catenary for lifting aux. catenary above register arm on either side of suspension points. 7 mm dia dropper shall be used for inclined dropper between suspension point and register arm. The contact wire shall be held by a clip of aluminum bronze as shown in the standard drawings. The distribution of dropper shall be in accordance with standard designs.

(b) LOADING

The droppers shall be able to withstand a vertical load of 200 kg at the point of attachment to the contact wire and the clip shall not slide under a horizontal load of 120 Kgf.

(c) The permissible tolerance in the overall length of a dropper will be +/-5 mm.

INSULATORS : 2.4.14

(a) All insulators except those on return conductors and earth wires shall be of the solid core type suitable for polluted area. Disc insulators shall be used on return conductors and earth wires or other locations as desired by the Purchaser. All solid core insulators shall conform to ETI/OHE/15 (9/91) with A&C Slip No.1 to 4 **OR** composite type as per RDSO specification no. TI/SPC/OHE / INSCOM/0990.

(b) INTER-CHANGEABILITY

For free inter-changeability only the following types of insulators shall be used. While the shapes of the insulators may vary slightly from those shown in the drawings, the essential dimension of the galvanised malleable cast iron caps as given in standard drawings shall be adopted.

(i) **Stay arm Insulators .**

(ii) **Bracket Insulators .**

- (iii) **9-Tonne Insulators..**
- (iv) **Solid core post insulators**
- (v) **11 kV post insulators.**

ENDING FITTINGS AND SPLICES : 2.4.15

(a) GENERAL DESIGNS

Terminating or ending fittings and splices on copper conductor shall be of the cone type clamping on both the inner and outer strands of conductor except for contact wire ending clamps which may be of wedge type. The arrangement shall be easy to install and also be such as would apply the clamping pressure gradually without shock (See ETI/ OHE/49(9/95)) with A.C. slip No.1 of (3/97). For Aluminum Alloy/conductor, the end fittings shall be either cone type, strain clamp type or any other type as approved by the Purchaser.

(b) LOADING

All the parts shall be capable of withstanding without damage, a load greater than the ultimate strength of the wires to which they are fitted. In the case of thread no damage shall occur when they are subjected to a load equal to two third of the ultimate strength of the wires.

(c) RESTRICTED USE OF SPLICES

The use of splices shall generally be avoided and their use shall be restricted to the minimum necessary. Over main tracks, there shall be no splice in the contact wire on first erection. Elsewhere, not more than one splice be used in any tension length (i.e. anchor to anchor) for which prior approval shall be taken from the Purchaser. Additional splices may, however, be provided to enable retention of conductors which are found defective during and/or after erection. Splices may also be permitted for repair of damage due to thefts or Railway accidents.

(d) STRENGTH OF ASSEMBLED FITTINGS

The strength of fittings assembled with appropriate conductors or wires shall be not less than that of the conductor or wire itself.

(e) ADDITIONAL TERMINATING WIRES

Cadmium copper stranded wire of 65 sq. mm nominal section or 37/2.1 mm or 129 sq.mm. copper catenary wire or 323 sq.mm copper catenary wire or 242 sq.mm copper catenary wire (as used in head span construction). may be used as additional terminating wires for extending single and double conductors respectively, if termination at the nearest structure is not feasible .

ELECTRICAL CONNECTIONS FOR OHE : 2.4.16

(a) GENERAL DESIGNS

All electrical connections between conductors shall be made by parallel clamps. The general arrangements of connections are shown in the standard drawings, listed in Annexure-1.

(b) JUMPERS

Copper jumpers shall be of any of the followings:

- (i) Large jumpers of annealed copper in accordance with specification ETI/OHE/3(2/94) with A and C slip no 1 of (4/95). Modified to suit DC current carrying capacity.
- (ii) Small jumper of annealed copper in accordance with the specification IS:9968(PT.2)-1981 modified to suit DC current carrying capacity.

(c) BUS-BARS

Bus-bars or rigid jumpers of copper where used shall be of 18 mm dia copper rod in accordance with RE/30/OHE/5 (11/60). Aluminum bus-bars wherever used shall be of 36/28 mm tubing (See 2.4.22). The tolerance on diameter and thickness shall be as per class I, IS: 2673-1979.

(d) FEEDERS

Feeders shall be of standard copper conductor of size 129 sq.mm or 242 sq.mm or 323 sq.mm.

(e) RETURN CONDUCTOR

-----Deleted-----

TERMINAL CONNECTORS FOR EQUIPMENTS : 2.4.17

L.T. supply Transformer shall be supplied by the Contractor along with the terminal connectors suitable for taking jumper/bus-bar as required including ALCU strips for bimetallic connections wherever required. The ALCU strips required for the connection of Booster Transformers shall also be provided by the Contractor.

REGULATING EQUIPMENT : 2.4.18

(a) GENERAL -Deleted-

(b) COUNTER WEIGHT -Deleted-

(c) REDUCTION RATIO -Deleted-

HEADSPAN CONSTRUCTION : 2.4.19 (See para 2.1.21.and 2.3.6.)

-----Deleted-----

ISOLATORS : 2.4.20

25 kV Isolator switches shall comply with specifications as indicated in para 2.4.9.

INSULATION LEVEL : 2.4.21

Equipments shall be suitable for insulation levels indicated in the relevant specifications.

BUSBARS : 2.4.22

(a) No splicing will normally be allowed in the tubular bus-bars unless the length of the bus-bar exceeds 6m.

(b) GENERAL

The bus-bar shall be clean, smooth, mechanically sound and free from surface and other defects. Provision shall be made where necessary to allow for expansion and contraction of bus-bars caused by temperature variation. The open ends of bus-bars shall be covered by suitable tube caps, wherever the tubular bus-bars are required to be bent, the radius of the bend shall be not less than 200 mm .

JOINTS

(c) The joints in bus-bars shall be mechanically and electrically sound so that the temperature rise under normal working condition does not exceed 40 degree C for an ambient temperature of 65 degree C.

(d) All Aluminum joints shall be thoroughly cleaned and smeared with suitable oxidation inhibiting joint compound before and after assembling the joint. Similar procedure shall be followed for connecting the equipment terminals to the Aluminum bus-bars with bi-metallic connectors.

CABLING : 2.4.23

(a) CABLE FOR L.T. SUPPLY

240V A.C. supply from L.T. supply transformer at switching stations shall be brought and terminated on the L.T.A.C. distribution board by purchaser in the remote control cubicles at the switching stations by 1100 Volt aluminum two-core PVC insulated PVC sheathed and steel armoured heavy duty cable conforming to IS:1554(part-I): 1988.

(b) CONTROL AND INDICATIONS CIRCUITS - Deleted--

(c) SPECIFICATION

-----Deleted-----

LITERATURE FOR EQUIPMENT : 2.4.24

The Contractor shall within six months of issue of Letter of Acceptance of Tender, supply 25 copies of detailed schedule, catalogues and drawings of all parts of the equipment.

---*****---

PART-II
CHAPTER-V

DESIGN AND DRAWINGS

PART-II

CHAPTER -V

DESIGNS AND DRAWINGS

PARA NO.	...	SUBJECT
2.5.1	...	General
2.5.2	...	Contractor's Drawings
2.5.3	...	Standards for Drawings
2.5.4	...	Basic Designs
2.5.5	...	Special Designs
2.5.6	...	Particular Designs and working drawings for OHE
2.5.7	... working	Particular Designs and drawings for SWS & BT Stations
2.5.8	...	Booster and L.T. supply Transformer Stations drawing.
2.5.9	...	Schedule of Quantities
2.5.10	...	Submission of Drawings and schedules.
2.5.11	...	Completion drawings and schedules.
2.5.12	...	Addresses.

--*****--

DESIGNS AND DRAWINGS

GENERAL : 2.5.1

- (a) This chapter deals with the procedure for approval of designs and drawings.
- (b) The type designs shall be as few as possible to cover the largest field of application consistent with economic consideration.
- (c) In all drawings as far as possible only such symbols as are in international use, shall be used.

CONTRACTOR'S DRAWINGS : 2.5.2

- (a) The Contractor shall submit to the Purchaser for approval except where otherwise specified below, all detailed designs and drawings which are necessary to ensure correct supply of equipments, components and materials and to enable correct and complete erection of overhead equipment and L.T. Supply transformer stations in an expeditious and economic manner.

(b) RESPONSIBILITY

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 Purchaser's approval will be based on these considerations and notwithstanding the Purchaser'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.

STANDARDS FOR DRAWINGS : 2.5.3

All designs, legends notes on drawings and schedules of materials shall be in English and shall be prepared in the metric system. All designs and drawings shall conform to specification RE/OHE/25(3/66) and shall be prepared on 'Auto Cad'.

BASIC DESIGNS : 2.5.4

(a) STANDARD DESIGNS

Where the Contractor adopts designs and drawings conforming to the standard designs, drawings, and specifications of the Research, Designs and Standards Organisation. Manak Nagar, Lucknow-226 011 (RDSO) for basic arrangements, equipments, components and fittings of traction overhead equipment and LT supply transformer stations and adopts employment schedules furnished by the Purchaser, he shall verify such designs, drawings and employment schedules and satisfy himself that these are correct before use. Within two months of the issue of letter of Acceptance of Tender the contractor shall indicate to the Purchaser, the list of

standard basic arrangements, components and fittings drawings and employment schedules , which he will adopt for the purpose of the work. The procedure outlined in para 1.2.23 shall be followed for approval of basic designs. The contractor for his use and reference shall obtain reproducible transparent film (50 microns) each of such standard basic arrangement, component and fittings drawings and employment schedules from Chief Electrical Engineer, Railway Electrification, Allahabad 211001 on payment as per the prescribed rates.

(b) DEVIATIONS

Normally deviations from the standard drawings of the Purchaser will not be accepted. However, in exceptional cases where the Contractor desires to suggest improvements as a results of his experience or other development, he shall justify his proposals with supporting explanatory notes.

(c) STANDARD DRAWINGS EMPLOYMENT SCHEDULES ETC. DELETED.

SPECIAL DESIGNS : 2.5.5

(a) In cases where standard designs, drawings or employment schedules do not cover requirement of special locations or site conditions, the Contractor shall submit his own designs or drawings along with supporting calculations and notes for scrutiny and approval of the Purchaser .

(b) Such special designs shall generally by in conformity with basic designs furnished by the Purchaser and in accordance with the specifications. If the Contractor wishes to adopt special designs which do not conform to the general basic designs of the Purchaser, he shall submit alternative designs and drawings justifying his proposals.

PARTICULAR DESIGNS & WORKING DRAWINGS FOR OHE : 2.5.6

(a) PEGGING PLANS

-----Deleted-----

(b) CONTRACTOR'S PEGGING PLANS

If the Contractor is called upon to carryout survey and prepare overhead equipment pegging plans, he shall submit such plans for approval after checking their feasibility at site.

(a) PRINCIPLES OF LAYOUT

The Contractor shall in all cases ensure that the final pegging plans are in conformity with the latest 'Principles of preparation and checking of OHE layout plans and sectioning diagram' issued by RDSO/C. Rly.

(d) PROVISIONAL LAYOUT PLANS

The Contractor shall prepare and submit overhead equipment layout plans incorporating the following informations :-

- (i) The run of wires in different thickness or colour in special cases and termination.
- (ii) The run of wires for future wiring indicated to the Contractor , in dotted lines.
- (iii) Exact position of all cut-in-insulators, including section insulators.

- (iv) Direction and value of stagger height at each traction structure location as existing as proposed.
- (v) Clearance of live conductors to Structures in the vicinity including bridges, signals gantries etc.
- (vi) Layout of feeders.
- (vii) Jumper connections and connection to switches and switching stations.
- (viii) List of infringements.
- (ix) Kilometer numbers and type of Structures.
- (x) Location and numbers of switches.
- (xi) Schematic sectioning diagram drawn to convenient scale showing section insulator, number of switches, elementary sections and connections to switches and switching stations.
- (xii) Table giving references of approved profile drawings, feeder layout plans and other relevant drawings.

(e) OHE PROFILE DRAWINGS

After completion of the overhead equipment layout plans, the Contractor shall prepare an overhead equipment profile drawings showing the actual height of the contact wire under each overline Structure the gradient and height of the contact wire on either side of the Structure and the encumbrances at Structures until normal height of contact wire and encumbrances are restored.

(f) CROSS SECTION DRAWINGS

While the layout plans are being finalised, the Contractor shall submit for approval, in-so-far as yards between outer most points and crossing are concerned, cross-section drawings for each Structure showing guy rods, if any, indicating the cross-section of the formation, height and nature of soil, type of foundation block, structure proposed, reverse deflection of the Structure and all necessary particulars for erection of the foundation and the Structures. In the preparation of drawings, care shall be taken to show all obstructions such as signal wires, points rods and their correct location in references to track/tracks as well as underground obstructions like pipes cables, etc. after collecting such information from the site.

In open line sections, cross-sections shall be submitted in the following proforma, separately for each Railway line for special foundation drawings with all necessary details shall be submitted to the Purchaser. In case of side bearing foundation with extra depth, formation details at such location and necessary details of anchor foundation will be submitted.

CROSS SECTION FOR THE OPEN ROUTE SECTION -----
----- to -----

Km. --

SI.No.	1 2 3 4 5 6 7 8 10 11 12 13 14 15
LOCATION No.	

After all the cross section drawings in a section covered by the layout plan are finalised and foundations are cast, the Contractor shall revise the layout plans to take into account any modifications to the locations of Structures during the process of casting of foundations.

The Contractors shall then submit Structure erection drawings for each structure incorporating all the details included in the cross section drawing for the structure and as erected at site and the details of the bracket assembly, mast extensions, isolator mounting frame and anchorage of overhead equipment, feeder or return conductors proposed for each structure together with all particulars necessary for the correct erection of overhead equipment at the structure. For structure with isolators, the details of electrical connections shall also be incorporated. In open line sections the Contractor shall submit structure erection particulars in the typical proforma as given below separately for each main line track in addition to particular details as indicated in the proforma for cross-section drawings. Modification to this proforma if found necessary will be finalised at time of structure erection drawings.

SI.No.	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
LOCATION No.	
CHAINAGE	
1. ENCUMBRANCE	
2. CONTACT WIRE HEIGHT.	

3. STAGGER i) CATENARY ii) CONTACT	
4. STAY ARM i) (a) ii) CODE	
5. BRACKET i) (b) M ii) CODE	
6. REGISTER : i) C/D (M) ii) CODE	
7. STD/BENT CODE	
8. IDENTIFICATION MARK (SEE PARA 2.5.11)	
OTHER REFERENCES/CODES FOR MISC. ITEMS LIKE STEEL WORK FOR STAY/BRACKET ATTACHMENT MISC. SINGLE/DOUBLE CAT. ETC. WILL BE INDICATED. ITEMS :-	

(j) SUB-STATION FEEDER DRAWINGS - Deleted.

NOTE: *The proforma for SED at individual locations shall be as per standard proforma already circulated and to be adopted in consultation with Purchasers.*

PARTICULAR DESIGNS & WORKING DRAWINGS FOR L.T. SUPPLY TRANSFORMER STATIONS : 2.5.7 - DELETED -

L.T.SUPPLY TRANSFORMER STATIONS DRAWINGS : 2.5.8

The Contractor shall submit for approval to the purchaser drawings for booster transformer stations and L.T. supply transformer stations, similar to those detailed for switching stations in 2.5.7(b). The following drawings may, however, be combined together :-

- (i) Cross-section and foundation layout drawings;
- (ii) General arrangement, structural and earthing layout drawings.

SCHEDULE OF QUANTITIES : 2.5.9

(a) Within two months of issue of Letter of Acceptance of Tender, the Contractor shall assess the quantity/ies of various items of work including various components and fittings as covered in Schedule-1, Section-1 (Assess.1) for approval of the Purchaser. Such an assessment shall be revised at suitable intervals after the first assessment is approved till the work is completed. Such re-assessments denominated as Schedule 1, Section-1 (Assess. 2) (Assess. 3) etc., shall also be submitted for approval of the purchaser.

On receipt of approval of each final layout plan from the Purchaser, the followings Schedules of quantities relating to each layout plan shall be submitted within a fortnight.

- i) Schedules of number of masts, types, weight of different masts and total weight of masts;
- ii) Schedules of number of foundation, types, volume of different foundations and total volume;
- iii) Schedule of quantities of various items of work other than masts and foundation under Schedule-1
- iv) Schedule of net tension lengths of contact, catenary and feeder wires and lengths required to be ordered;
- v) Schedule of lengths of other wires and conductors required to be ordered;
- and
- vi) Schedules of small parts steel work to be supplied; either by the Contractor or the Purchaser.

(b) SWITCHING/BOOSTER STATIONS

-----Deleted-----

SUBMISSION OF DRAWINGS & SCHEDULES : 2.5.10

(a) The submission of designs and drawings for approval shall be done in the manner indicated (See also para 1.2.23) . In case Contractor wish to deviate from standard drawings he should submit to the purchaser revised drawings with full details of deviation sought explaining the necessity of deviation, calculations and other supporting documents. The purchaser, if satisfy about the necessity and adequacy of deviations, shall refer the matter to RDSO for necessary approval. In case of deviations on working drawings, decision shall be communicated by the purchaser to the Contractor. The number of copies of drawings which shall be submitted are indicated in the following sub-paras. The purchaser will return one copy of the drawings either with approval subject to modification where necessary or with comments. The purchaser shall endeavor to return this copy within a period of fifteen days from the date of receipt and shall normally return the copy within a month. Where drawings are returned with comments or approval subject to modifications, the Contractor shall submit to the purchaser within fifteen 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 purchaser's Engineers. No drawings shall be resubmitted without incorporating the modifications required by

the comments of the purchaser, unless the purchaser has agreed to the deletion of such comments.

(b) DEVIATION FROM STANDARD DESIGN

In case of deviation from standard designs and drawings, copies of correspondence and drawings shall be sent in duplicate to the Chief Electrical Engineer, Railway Electrification, Allahabad-211001/CEE Central Railway or his successor/nominee (whose address will be intimated in due course). In the particular case of deviations in the design of fittings the drawings submitted by the Contractor shall be actual manufacturing drawings complete with tolerances and full specifications of the materials used. In addition, four samples of the modified fittings shall also be submitted, after the drawings are approved (see para 1.2.23).

(c) SPECIAL DESIGNS

Special designs to meet the requirement of particular locations and local conditions shall be submitted in due time in duplicate for approval.

(d) PURCHASER'S PEGGING PLANS

-----Deleted-----

(e) CONTRACTOR'S PEGGING PLANS

When the Contractor is called upon to survey and prepare pegging Plans, he shall send three copies of such plans, while submitting them for approval.

(f) CROSS-SECTION DRAWINGS

Cross-section drawings shall be submitted for approval in two copies for a convenient section at a time separately for sections within station limits and section outside station limits. Such drawings shall be submitted progressively and as far as possible without gaps (see para 2.5.6).

(g) OHE LAYOUT PLANS AND PROFILE DRAWINGS

Overhead equipment layout plans, provisional and final and profile drawings shall be submitted for approval in three copies (See para 2.5.6).

(h) STRUCTURE ERECTION DRAWINGS

Structure erection drawings shall be submitted for approval in two copies for a section at a time separately for sections within station limits and sections outside station limits, progressively and without gaps.

(j) SCHEDULE OF QUANTITIES

Schedules of quantities for each approved layout plan/switching station shall be submitted for approval in two copies.

(k) SUB-SECTION FEEDER DRAWINGS - Deleted.

(l) All drawings for L. T. supply transformer stations shall be submitted for approval in three copies.

(m) DISTRIBUTION COPIES

On receipt of purchaser's unqualified approval to the Contractor's Drawings, Schedule of quantities, the Contractor shall submit original tracings of those drawings and schedules for the signature of the purchaser in token of approval within seven days of the receipt of approval and the purchaser shall as far as possible return the same to the Contractor within 7 working days thereafter. On receipt of these tracings from the purchaser, the Contractor shall submit copies for distribution to field officers and other departments as indicated below within 7 days of receipt of approved tracings :

- | | |
|---|--------------|
| i) Standard designs including fittings drawings as per para 2.5.10(b) | ...8 copies |
| ii) Special designs | ...8 copies |
| iii) Final peggings plans | ...8 copies |
| iv) Structure Cross-section drawings | ...6 copies |
| v) OHE layout plans | ..14 copies |
| vi) OHE profile drawings | ... 8 copies |
| vii) Structure erection drawings | ...8 copies |
| viii) Deleted | |
| ix) Schedule of quantities | ...6 copies |
| x) Drawings for L.T. transformer stations. | ...9 copies |

In all the above cases, the Contractor has also to supply one copy of drawings on transparent paper print and one set of ' Electronic copy' in the form of Floppy/ Compact Disc.

COMPLETION DRAWINGS & SCHEDULES : 2.5.11

After completion of works, all drawings and designs submitted by the Contractor and approved by the purchaser shall be made upto date incorporation actual supply and erection particulars including the name and make of insulators, galvanised steel tubes. The mark of conductors shall be specified in the "As erected" OHE layout plans, SED and other relevant drawings for identification. Such drawings and schedules shall then be verified and corrected, if necessary, by the Contractor jointly with the purchaser's representatives. The verified and corrected drawings shall be supplied in four sets, one of which shall be transparencies of linen or film reproduction or any other durable material approved by the purchaser and also on a CD in Auto CAD of latest version.

ADDRESSES : 2.5.12

Addresses to which designs and drawings should be submitted are indicated in part-III.

--*****--

PART-II
CHAPTER-VI

ERECTION & INSTALLATION OF EQUIPMENTS

PART - II

CHAPTER - VI

ERECTION AND INSTALLATION OF EQUIPMENT

Section-1 : PRINCIPLES

PARA No .	SUBJECT
2.6.1 	Scope
2.6.2 	Method of erection
2.6.3 	Sectioning
2.6.4 	Inspection
2.6.5 	Measurements
2.6.6 	Bolts, nuts etc.
2.6.7 	Damage to galvanising, painting
2.6.8 	Foundations
2.6.9 	Masts and Structures
2.6.10 	Overhead equipments
2.6.11 	Isolators
2.6.12 	Busbars and connections
2.6.13 	Earthing
2.6.14 	Tolerances
2.6.15 	Supplementary Instructions

Section -2 : WIRING PROCEDURE

PARA No .	SUBJECT
2.6.20	..... Wiring procedure
2.6.21	..... General
2.6.22	..... Erection of brackets
2.6.23	..... Anti-creep
2.6.24	..... Locking the regulating equipment.
2.6.25	..... Temporary arrangement
2.6.26	..... Stringing catenary
2.6.27	..... Tensioning of catenary
2.6.28	..... Clamping the catenary
2.6.29	..... Droppering
2.6.30	..... Stringing contact wire
2.6.31	..... Tensioning of contact wire
2.6.32	..... Regulating equipment in action.
2.6.33	..... Final adjustment
2.6.34	..... Concluding remarks
.....	Notes

PART - II

CHAPTER - VI

ERECTION AND INSTALLATION OF EQUIPMENT

SECTION - 1 : PRINCIPLES

SCOPE : 2.6.1

This chapter deals with the methods of erection and installation of traction equipment, including casting of foundations and erection of structures.

METHODS OF ERECTION : 2.6.2

All work shall be done in accordance with methods of erection and installation of equipment approved by the Purchaser. In the case of L.T. supply transformer stations, standard methods adopted for erection and installation of electrical equipment shall be adopted.

SECTIONING : 2.6.3

The entire equipment shall be erected in accordance with the finally adopted sectioning diagram and in such a way so as to facilitate sectioning which may be required in future and which will be indicated by the purchaser.

INSPECTION : 2.6.4

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

MEASUREMENTS : 2.6.5

All measurements for location of structures and foundations shall be made with the aid of PVC tapes. On curves, these measurements shall be taken on the outer rail of the middle track in the case of odd number of tracks and on the inner rail of the first outer track from the center of the formation in the case of an even number of tracks, structures on curves shall be located in the radial offset of the location as determined.

BOLTS, NUTS ETC . : 2.6.6

All bolts, nuts, locknuts, screws, locking plates & split cotter pins etc. shall be properly tightened and secured and the Contractor shall carry out systematic inspection of this aspect of work after all adjustments to overhead equipment are completed and prior to offering completed sections of equipment to the purchaser for inspection and testing.

DAMAGE TO GALVANISING PAINTING : 2.6.7

In loading, transport and erection, all galvanised painted materials shall be handled with care to avoid damage to galvanising/painting. If galvanising/painting is damaged inspite of all care taken, the damaged part of

component shall be put up for inspection, to obtain permission from the purchaser to carry out repairs as per para 2.4.11(c).

FOUNDATIONS : 2.6.8

(a) The Contractor shall carry out soil pressure tests in accordance with methods approved by the purchaser to determine permissible bearing pressure of various representative types of soils in the presence of the purchaser's representative during the pegging out of site inspection. He shall adopt only those values as accepted by the purchaser for the design of foundations.

(b) LOCATION

The location of each foundation or anchor block shall be set out correctly in accordance with approved structure cross-section drawings or foundations layout drawings, as the case may be, in the presence of the Purchaser's representative.

(c) METHOD OF INSTALLATION

The Contractor shall adopt mechanised method (Concrete mixer) for installation of foundation in the station areas with five track lines or more. The Contractor may adopt either manual or mechanised method for installation of foundations in the other areas. He may erect traction masts or structures in the same operation as casting of foundations or erect them subsequently in cored holes left in foundation blocks and grout them separately. In any case, the method of casting of foundation blocks and erection of masts or structures shall be subject to the approval of the purchaser.

(d) EXCAVATION

Normally, excavation of soil for foundations or anchor blocks along side the tracks may be done upto length of 1 to 1.2 m and depth of 0.8 to 1 m without shoring, provided the excavated hole is concreted immediately and not left overnight. Shoring shall otherwise be done unless the hole is re-filled with soil and tamped. In case the length of excavation is 1 to 1.2 m and depth of excavation for foundations and anchor blocks alongside the tracks is more than 0.8 to 1 m, the excavation may be undertaken only after certification by the purchaser's representative to be safe and concrete is cast on the same day. Shoring shall be done to the satisfaction of the purchaser's representative, if the excavated hole is left overnight. All waterlogged locations will come under the purview of this para. In poor soil or ash banks, no excavation shall be done without adequate shoring and piling. For large foundations and water logged locations shoring shall be done in accordance with drawings submitted by the Contractor and approved by the purchaser. Shoring/ shuttering of the pits should be provided effectively to the satisfaction of the purchaser. Core hole covers should be provided promptly on casting of foundation (within 48 hours) and their edges cemented to the foundation blocks. Prior to doing so, water should be filled in the core hole so as to assist in curing. The date of casting should be inscribed on the foundation block. In case of platform areas and Level crossings, the core holes should be filled with sand before provision of core hole covers so as to prevent any injury to rail users even if the core hole cover gets damaged or is displaced. The track ballast should be restored to its original form promptly after casting of the foundation block. The excavated earth should be removed well clear of the area so as to avoid any mixing up with the track ballast or any obstruction to the track drains. In case of cuttings, the earth should be thrown well away from the shoulders so that there is no risk of its flowing back to the drain during the rains.

(e) CONCRETING

All concreting or grouting shall be done in accordance with para 2.2.4 with ballast graded for the purpose specified in para 2.2.5. The concrete shall be poured and temped properly in accordance with the method approved by the purchaser. The Contractor shall arrange to provide concrete testing samples for tests once every week or as and when required by the Purchaser, to determine curing strength after 7 days or 28 days curing as required. Testing shall be arranged by the Purchaser at his own cost.

(f) MUFFS

All anchor blocks and foundations of structures carrying overhead equipment shall be provided with concrete muffs. The top of these muffs shall be above the level of ground of the track formation and of adequate height of not less than 15 cm to afford reasonable protection during rainy weather. Muffs may be installed at the same time masts are grouted or after the mast/structure is loaded with equipment. The foundations of structures for switching stations need not, however, be provided with muffs. The top of such foundations shall be given a slope of 1 in 50 towards the edge to ensure that water does not collect at the base of the structure of the framework of the equipment.

(g) Suitable grooves or niches shall be provided in the foundation blocks, wherever required, at the time of casting, to enable embedment of earth strips etc. to avoid the necessity of chipping of concrete.

(h) Conduits for cables should be embedded in the foundation blocks, wherever required, to avoid subsequent chipping off and breaking of the foundation blocks.

MASTS AND STRUCTURES : 2.6.9.

(a) ERECTION

In case traction masts or structures are erected in cored foundations, till such time they are grouted, they shall be properly wedged to prevent them leaning towards the track and endanger safety of moving vehicles. In case traction masts or structures are erected simultaneously with the casting of the foundations, the Contractor shall provide suitable temporary supports approved by the Purchaser. The masts shall be embedded in the foundation blocks for the correct length specified in approved drawings.

NOTE: *Mast/uprights should be grouted on the same day they are dropped in the foundations.*

(b) REVERSE DEFLECTION

All traction masts and structures shall be erected with the correct reverse deflection so that they become reasonably vertical after they are loaded. The method of erection of masts with the correct reverse deflection shall be submitted to the Purchaser for approval.

(c) INFRINGEMENT TO STANDARD DIMENSIONS

In erection, care shall be taken to ensure that no part of the traction mast, structure or any fitting located on such mast or structure infringe the Schedule of Dimensions 1676 gauge printed in metric units in 1973.

(d) ALINGMENT OF MAST AT GANTRIES

The main masts of gantries shall be carefully aligned to enable easy and good assembly of fabricated steel work.

OVERHEAD EQUIPMENT : 2.6.10

(a) A suggested method for erection of traction overhead equipment which would ensure good speed and quality erection, is included in section 2 of this chapter. The Contractor may, however, follow other methods which they consider would speed up and ensure good quality work, subject to the approval of the Purchaser. Any wiring method should take into consideration appreciable stretch of the catenary and contact wires in the initial days after they are strung and put under tension.

(b) BRACKET TUBES

In the erection of bracket assemblies, it shall be ensured that the free length of the bracket tube should be sufficient to facilitate adjustment during maintenance.

(c) STAY ARMS

The choice of stay arms shall be such that their adjuster are capable of adjustments of minimum of 90 mm in either direction except as otherwise relaxed.

(d) INSULATORS

Before insulators are used in bracket assemblies or dispatched to work site for erection from Contractor's Stores Depot, they shall be tested as specified for routine mechanical test. NO chipped or cracked insulators shall be installed. All insulators shall be cleaned before offering complete sections of equipment for inspection and testing.

(e) STRINGING CATENARY

Care shall be taken to avoid kinking or bird caging of the catenary wire in stringing and subsequent operations. While stringing the wire shall be suspended from pulley blocks hung from the suspension clamp eye of bracket assemblies. The pulleys shall be fitted with ball bearing and shall be of the swivelling type to permit free movement in all directions to prevent damage to the strands of the wire. The design shall also be such that it will prevent slipping off of the wire during stringing operations. The designs of the pulley shall be submitted to the Purchaser for approval. After initial stringing of the catenary, it shall be maintained at the 'no load tension' (see section 2 of this chapter) for a minimum duration of 48 hours before the pulley blocks are removed and the catenary is clamped to suspension clamps of bracket assemblies. Shorter periods may, however, be allowed by the Purchaser.

(f) STRINGING CONTACT WIRE

Care shall be taken to avoid formation of kinks, twists and damage to contact wire in stringing and subsequent operations. While stringing the contact wire, it shall be suspended from pulleys hung from droppers fitted to the catenary in their final position. In curves, the contact wire shall be run in pulleys located at traction masts or supports, corresponding to the approximate final position of the wire.

(g) LOCATION OF DROPPERS

Droppers shall be correctly positioned in each span to ensure correct level of contact wire as per dropper chart applicable to the span.

(h) CLIPPING DROPPERS

(i) ~~Deleted~~
-NIL-

(j) AUTO TENSIONING DEVICE

~~Deleted~~

(k) CUT-IN-INSULATORS

All insulators in out of run shall be so positioned that they are away from the swept zone of the pantographs and will not foul with them. The live parts of these insulators shall also be so located that they are at least 2 m away from Structures other than those supporting traction overhead equipment.

(l) SECTION INSULATORS

All section, insulators shall be so located that they are beyond the swept zone of the pantograph running on adjacent tracks and there is no unusual sag due to the same. Where section insulators are installed, the contact plane of the runners of the insulators as well as those of overhead equipment connected to it shall be parallel to the track plane.

(m) ANTI -WIND CLAMP

Anti-wind clamp shall be provided as shown in drawing (Annexure-1).

(n) CONNECTIONS

All jumper connections including anti-theft jumpers shall be made properly with parallel clamps and finished neatly without any loose wire or cables. The length of flexible jumpers shall be adequate to avoid any disturbance to overhead equipment or restraint in the relative movement of conductors, but the jumpers should not be excessively long. The ends of jumpers shall be tinned, including the portion inside the first parallel clamp.

(o) SEPARATION BETWEEN OHE

In erection, the physical separation required between overhead equipments and bracket assemblies on the same Structure at insulated overlaps shall be ensured.

(p) GRADIENT OF CONTACT WIRE

The gradient of the contact wire on either side of overline Structures with restricted clearances shall be correctly adjusted and adequate clearance maintained between the overline Structure and live equipment.

(q) ADJUSTMENT AT TURNOUTS ETC

Careful adjustment of equipment shall be made on equipments at Turnouts, cross overs, diamond crossings, overlaps and special Locations, for position of bracket assemblies, stay arms and height of contact wire to ensure that pantographs of electric rolling stock on the run will not foul with any parts of the bracket assemblies and changeover of the contact wire is effected smoothly.

(r) For wiring in large Yards, the Contractor shall, prior to the execution of works, submit to the Purchaser's Engineer for the approval the sequence of stringing of catenary and contact wires to arrange for proper crossing of wires. Endeavor will be made to arrange for traffic blocks to suit approved sequence of wiring.

ISOLATORS : 2.6.11

Isolator switches shall normally be so mounted that when the switches are operated, the operator faces the directions of the motion of trains. The operating handles and contact blades shall be correctly aligned for easy operation.

BUS BARS AND CONNECTIONS : 2.6.12

Busbars and connections shall be neatly shaped and bent to give a good appearance.

EARTHING : 2.6.13

The copper earth strips or MS flats used for earthing shall be bent and shaped neatly before connection to the structure or frame work of equipment. The connection of MS flats to steel work shall be made at a height not exceeding 15 cm from the datum level of a switching station. Before making earth connections the ends shall be cleaned thoroughly and tinned for copper strips. All junctions shall be properly secured to avoid loose contact. Portions of copper earth strips which remain visible above the ground level should be painted with suitable paint to make them inconspicuous.

TOLERANCE : 2.6.14

The permissible tolerance in dimensions for erections from those included in the appropriate drawings or schedules for different items are given below :-

(a) MEASUREMENTS

The span length shall not vary more than ± 50 mm as measured along the appropriate rail (see para 2.6.5).

The cumulative error of measurement of all spans in a kilometer shall be not more than 1000 mm.

(b) SETTING OF STRUCTURES

The setting of structures shall be not less than that included in the appropriate cross section drawings, specially those with the minimum setting of 2.36m. A tolerance of ± 20 mm will be permitted subject to minimum specified value, if the structure is not located in between tracks.

(c) HEIGHT OF CONTACT WIRE

± 20 mm will be permitted on the height of contact wire at points of supports as shown in the relevant structure erection drawings, except under over line structures where no tolerance will be permitted.

- (d) **STAGGER** : Generally ± 200 mm will be permitted for stagger.
- (e) **DROPPER LENGTHS** : ± 5 mm will be permitted for dropper lengths.
- (f) **DROPPER LOCATION** : ± 100 mm will be permitted for dropper locations.

SUPPLEMENTARY INSTRUCTIONS : 2.6.15

Further working instructions will be issued if considered necessary by the Purchaser, should be considered that the standard of work of the Contractor requires to be improved.

--****--

PART-II
CHAPTER-VII

INSPECTION AND TESTING

CHAPTER - VII

INSPECTION AND TESTING

PARA NO.		Subject
2.7.1	...	Scope
2.7.2	...	Overall performance.
2.7.3	...	Responsibility.
2.7.4	...	Tests on overhead equipment.
2.7.5	...	Inspection and testing of switching stations etc.
2.7.6	...	Earthing.
2.7.7	...	Detailed procedure for tests.

---*****---

PART - II

CHAPTER - VII

INSPECTIONS AND TESTING

SCOPE : 2.7.1

This chapter deals with the inspection and testing of completely erected overhead equipment and L.T. supply transformer stations, as provided in Part -I.

OVERALL PERFORMANCE : 2.7.2

The overall performance of the overhead equipment should be such as would permit collection of current by electric rolling stock with full load at speeds, upto and including the maximum specified for the design of overhead equipment, smoothly, without mechanical shocks or prejudicial sparks (See para 2.1.10) and without undue heating in the case of other equipments.

RESPONSIBILITY : 2.7.3

The general tests of overall performance stipulated below are only supplementary to other tests on structures, foundations, equipment, components and fittings as specified in Part - II, Chapter - II, III and IV. Any testing and acceptance by the Purchaser of overall performance shall be subject to the general terms of guarantee which shall continue to be valid as provided for in Part - I, Chapter - II.

TESTS OF OHE : 2.7.4

(a) GENERAL

As soon as a section is ready for inspection and testing, the Contractor shall advise the Purchaser in writing. Tests to be carried out by the Purchaser will be done in the presence of the Contractor's representative and shall include the following apart from other reasonable tests that the Purchaser may like to conduct with a view to ensure, himself of the soundness of the equipments and their erection in strict compliance with the specifications.

(b) INSULATION

The strength of the insulation and the dielectric strength of the entire equipment as installed shall be tested with a 2500V Megger.

(c) CONTINUITY

The electrical continuity of the line and the existence of bad Contacts, if any, will be tested with a Megger.

(d) ELECTRICAL INDEPENDENCE

The electrical independence of individual elementary sections in relation to one another shall also be tested with a Megger.

(e) SWITCHES

All isolators shall be tested for smooth and trouble free operation.

(f) TENSION DEVICES

-----Deleted-----

(g) STAGGER AND HEIGHT

The stagger and height of contact wire over the entire section of completed overhead equipment and the clearances available shall be measured and the measurement shall be checked against approved drawings. These measurements shall be carried out at low speed with a vehicle or device to be arranged by the Purchaser, the movement of which will follow the track levels as closely as possible. Tolerance that will be permitted on the dimensions indicated in the approved drawings are shown in Part - II, Chapter - VI.

The actual position of the two contact wires, relative to each other, at overlaps and turnouts shall also be checked. Special attention shall be paid to a smooth movement of Pantographs over section insulators, particularly those which are likely to be frequently traversed.

For measurement of stagger and height of contact wire, insulated tape should be used. Un-insulated tape like steel tape or metallic tape or tape with woven metal reinforcement should not be used.

(h) MECHANICAL BEHAVIOR

The mechanical behavior of the entire equipment shall be tested at various speeds under normal pantographs pressure without energising the overhead equipment.

(i) ENERGISING

If the overhead equipment, after being subjected to the above tests in an un-energised condition, is found to be satisfactory, it will be energised with the normal 25 KV A.C. supply.

(j) Tests shall then be conducted to check if the power collection performance of the overhead equipment is satisfactory after ensuring that the contact wire is adequately clean. The behavior of the overhead equipment will be watched at various speeds. Power collection shall be considered unsatisfactory if a long blue flash is observed, indicating that the contact between the contact wire and the pantograph is not continuous.

INSPECTION AND TESTING OF L.T. TRANSFORMER STATIONS ETC. : 2.7.5

(a) GENERAL

As soon as a LT supply transformer station is ready for inspection and testing, the Contractor shall advise the Purchaser in writing. Testing will be carried out by the Purchaser at his cost jointly with the Contractor. These shall include the tests which the Purchaser may like to conduct with a view to assure himself of the soundness of the equipments and their erection in compliance with these specification.

However, testing equipments such as those indicated below and staff required for the tests shall be provided by the Contractor free of charge.

- (i) Oil testing equipment.
- (ii) 2500 V & 500 V meggers.
- (iii) Earth megger and accessories.
- (iv) Continuity test apparatus.
- (v) Avometer;

The Contractor shall take full responsibility for these tests inter-alia his other responsibilities.

(b) VISUAL INSPECTION

Visual inspection which shall include check for satisfactory workmanship shall cover all connections, Painting, Plastering, Cleanliness of all insulators etc. and compliance with Indian Electricity Rules.

(c) OPERATIONS TEST

-----Deleted-----

(d) INSULATION

The strength of insulation of the various items of equipment and of the entire installation as a whole shall be tested with a 2500 V/500 V megger, as required.

(e) DI-ELECTRIC STRENGTH OF OIL

The di-electric strength of the oil of the Booster transformer & LT supply transformer, at each station shall be tested before commissioning in accordance with IS:335-1983 should this be found not correct, the Contractor shall arrange at his own expenses to have it rectified.

(f) ISOLATORS

-----Deleted-----.

(g) INTERRUPTORS

-----Deleted-----

EARTHING : 2.7.6

Earth resistance shall be measured separately for each earth electrode. In the case of interconnected earth electrodes, the nett resistance of the inter-connected electrodes shall also be measured.

DETAILS PROCEDURE FOR TESTS : 2.7.7

The detailed procedure for inspection and testing will be furnished to the contractor. The contractor shall submit the results of tests in the proforma which will be furnished by the Purchaser, in quadruplicate.

PART-III

PARTICULAR SPECIFICATIONS

PART - III

PARTICULAR SPECIFICATIONS

Para No.	Subject
3.1 ...	Introduction.
3.2 ...	Location.
3.3 ...	Tracks to be equipped.
3.4 ...	General particulars.
3.5 ...	Climatic data.
3.6 ...	Rolling stock.
3.7 ...	Over dimensional consignments.
3.8 ...	Power supply.
3.9 ...	L.T. Supply Transformer Stations.
3.10 ...	Type of OHE.
3.11 ...	Return Conductors.
3.12 ...	Pegging plans.
3.13 ...	Traction Sub-Stations feeders.
3.14 ...	Track circuits.
3.15 ...	Labour and materials.
3.16 ...	Contractor's office.
3.17 ...	Contractor's depot and work trains.
3.18 ...	Duration of traffic blocks.
3.19 ...	Addresses.
3.20 ...	Quantities.

PART - III

PARTICULAR SPECIFICATIONS

INTRODUCTION : 3.1

- (a) This part of the specification is complementary to Part-II of tender papers.

LOCATION : 3.2

This section is located in Maharashtra State and is a four line section.

TRACKS TO BE WIRED : 3.3

Deleted

- (a) The area consists of rocky/ hard soil. The actual bearing capacity, shall however, be determined in accordance with Part-II.

(b) ACCESS TO ROAD

Most of the above section are approachable by metalled roads.

(C) FOOT OVER BRIDGES AND ROAD OVER BRIDGES / TUNNEL

Carnac ROB

(d) STATIONS

Deleted-

(e) BRIDGES

Carnac ROB

CLIMATIC CONDITIONS : 3.5

(a) TEMPERATURE

For the overhead equipment which will be in open space a minimum temperature of 10 degree C and a maximum temperature of 45 °C are to be considered. The mean temperature shall be taken as 35 °C.

(b) RAINFALL

Rains occur generally from June to November. Rainfall during the monsoon season is approx. 625 cm annually.

(c) HUMIDITY

The maximum relative humidity is nearly 50% to 100%.

(d) THUNDER STORMS

The region is subject to thunderstorms during monsoon from June to October.

(e) WIND PRESSURE

This section falls in the Yellow wind pressure zone (IS:875). Accordingly, the basic wind pressure 150 kgf/sq.m in terms of IS:875:87, Amendment-1, is to be adopted. Increased wind pressure is also to be adopted on embankments more than 20 m i.e. 250 Kgf/sqm. This conforms with the wind pressure adopted by State Electricity Boards for the design of their EHT transmission lines.

ROLLING STOCK : 3.6

Electric locomotives with height not exceeding 4.165m with their pantographs in the locked down position and diesel locomotive 4.42m (14 ft.6 inch) high would run on this section.

OVER DIMENSIONAL CONSIGNMENTS : 3.7 -DELETED-

POWER SUPPLY : 3.8

(a) Electric power will be supplied to the Overhead Equipment through Traction sub-station tentatively located at SION, TNA .

L.T.SUPPLY TRANSFORMER STATIONS : 3.9

Auxiliary transformers will be installed for giving power supply to colour light signalling, repeater stations, switching stations and traction sub-stations. In single line sections 1 No. auxiliary transformer will be provided at each station and in double line section, at important stations, 2Nos ATs will be provided at each station to be fed from two different elementary sections.

TYPE OF OHE : 3.10

The overhead equipment provided is of unregulated conventional type with composition of 242/129 sq.mm. main catenary and 193 sq.mm. contact wire.

RETURN CONDUCTORS : 3.11 - DELETED-

PEGGING PLANS : 3.12

-----Deleted-----

TRACTION SUB-STATION FEEDERS : 3.13

25 KV feeders from traction sub-stations to feeding posts will be provided at **TSS/SP/SSP**

TRACK CIRCUITS : 3.14

No double rail track circuit are envisaged at present.

LABOUR & MATERIALS : 3.15

Unskilled labour is available almost all over the section while skilled labour would be available generally at the main towns in the section i.e. MSD, BY, DR etc.

CONTRACTOR'S OFFICE : 3.16

The contractor will have to establish field construction offices at convenient and approved locations within the section for co-ordination and progressing of field works.

CONTRACTOR'S DEPOT : 3.17

Suitable space shall be made available for the contractor to set up one main depot in the section.

DURATION OF TRAFFIC/ POWER BLOCKS : 3.18

(a) Blocks may be granted at any time during day or night to suit convenience of traffic operations and will ordinarily be granted on one track at a time over a distance covered by one or two consecutive block sections. Normally the total durations of block on any section will be max. of 2 to 4 hours in a day for all the tracks in the section taken together, the total of blocks on any track being limited to 1 or 2 hours in a day. Block provided may be utilised for one or more ladder trolleys to suit convenience of work.

ADDRESSES : 3.19

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

(i) For all policy, Contractual and Commercial matters :-

(a) Prior to the award of Contract :-

**Sr. Divisional Electrical Engineer
(Traction Distribution), Central Railway
DRM's office ,Mumbai CST-400001.**

or his successor/nominee (whose address will be intimated in due course)

(b) After the award of Contract :-

**Sr. Divisional Electrical Engineer
(Traction Distribution), Central Railway
DRM's office ,Mumbai CST-400001.**

.

(ii) For Security Deposit :

**Sr. Divisional Finance Manager,
Central Railway
Mumbai CST-400001.**

or his successor/nominee (whose address will be intimated in due course)

(iii) For matters relating to particular design and working drawing:-

**Sr. Divisional Electrical Engineer
(Traction Distribution), Central Railway
DRM's office ,Mumbai CST-400001.**

(iv) For matters relating to basic design and drawings for fittings, components equipments and prototype tests :-

The Director General (TI)
Research Designs & Standard Organisation
Manak Nagar, Lucknow - 226001.

(v) Matters relating to progressing of field work, scheduling of quantities and submission of bills :-

Address will be intimated in due course.

QUANTITIES APPROXIMATE : 3.20

Annexure-2 Part-IV gives the approximate quantities for various items of OHE work mentioned in Schedule-I.

PART-IV

ANNEXURES

ANNEXURES

ANNEXURE No.	SUBJECT
1.	.. List of Standard drawings and specification.
1.1	.. Provision of forged OHE fittings.
2.	.. Schedule of Quantities.
3.	.. Requirement of spares.
4.	.. List of materials to be supplied by the purchaser to the Contractor
5.	.. List of tools and plant for maintenance.
6.	.. Unit quantities of finished wires and conductors for various items of work.
7.	.. List of bridges on which traction structures will be located.
8.	List of materials to be supplied by purchaser. (Other than Annexure-4)
9.	Location list of new OHE structures to be provided.
10.	Summery of payment schedule.
11	Procedure order for safety related issues
12	Request letter from Executive branch to Accounts Office for opening of LC
13	Document of Authorisation for LC.

ANNEXURE - 1

LIST OF STANDARD DRAWINGS AND SPECIFICATIONS

This Annexure contains reference to drawing numbers, charts, Schedules Specifications and other data referred to in various paragraphs of this Tender Paper.

All references to drawings, charts, schedules or specifications given in this Annexure shall be taken to be the latest version of such drawings, charts and schedules of specifications.

For drawings for fittings See Form-6: Part V.

(A) LIST OF STANDARD DRAWINGS

Sl. No	Brief Description	Drawing		Mod. No.
		Series	Number	
1	2	3	4	5
1.	Extra allowance for setting of structures on curves (1676 mm Broad gauge)	ETI/OHE/G	00111 Sh-1	B
2.	Standard setting of structures in the vicinity of signals (broad gauge)	-do-	00112	C
3.	Typical design of bearing foundation.	-do-	00131	-
4.	- Deleted -			
5.	Typical design of cantilever mast.	RE/33/G	00141 Sh.3	-
6.	Schematic arrangement of uninsulated overlap (3 & 4 sapn overlaps)	-do	02121 Sh.4	A
7.	Schematic arrangement of insulated overlap	ETI/OHE/G	02131 Sh.3	A
9.	Outline of Pantograph (Broad gauge and metre gauge).	RE/33/G	00181	A
10	Standard anchor arrangement	-do-	01401	E
11	Anchor arrangement with dwarf mast.	ETI/OHE/G	01402	B
12	Schedule of anchor block for B.G. track.	-do-	01403 Sh.1	D
13	Double guy rod arrangement with anchor block for B.G. track.	-do-	01403 Sh.2	C
14	Schedule of anchor block for B.G. track (Black cotton soil)	-do-	01403 Sh.3	B
15.	Arrangement of 3KV & 25 KV	-do-	01601	-

	Pedestal insulator supports on OHE masts and portals.			
Annexure – I				
Sheet – 2				
16	Standard arrangements for mounting of number plate on OHE Structures.	ETI/OHE/G	01701	A
17	Mast on platforms (1676 mm gauge).	ETI/OHE/G	02104 Sh.2	A
18	Details of bracket arrangement on tangent and curved tracks	-do-	02106 Sh.1	A
19	Box type cantilever Arrangement.	ETI/OHE/G	02108	A
20	Schematic arrangement of uninsulated over Lap (type-I) 3 & 4 Span overlaps.	RE/33/G	02121 Sh.1	F
21	Schematic arrangement of insulated overlap.	ETI/OHE/G	02131 Sh.1	
22	General arrangement of regulated OHE at turn-outs (overlap & crossed type).	ETI/OHE/G	02141	C
23	Arrangement of neutral section	-do-	02161Sh.1 of 2	C
24	Arrangement of neutral section assembly (PTFE Type) at SWS.	-do	02162	-
25	Arrangement of short neutral section.	-do	02161Sh.2 of 2	-
26	Schematic arrangement of unregulated overhead equipment.	-do	03101	-
27	General arrangement of pull off	-do	03201	A
28	In span jumper connection between catenary & contact wire.	-do-	05101	-
29	Continuity jumper connection at un-insulated overlap	-do	05102	C
30	Arrangement of anti- theft jumper	. -do	05107	A
31	Connection at turnouts	-do	05103	B
32	Potential equalizer connection at insulated overlap and neutral section	. -do-	05104	-
33	Termination of feeder, return conductor & return feeder(copper & aluminum).	70RE/33/ G	05145-1	
34	Assembly of section insulators		05181	C

35	Arrangement of transverse bonds	ETI/OHE/G	05251	A
36	Mounting of 25kv Isolators on OHE Structures (General arrangement)	ETI/OHE/G	05513 Sh.1	A
Annexure – I Sheet - 3				
37	Details of small part steel work for supporting 25kv Isolator on new TTC boom	-do-	05513 Sh.2	A
38	Connection from isolator to OHE	-do-	05516	A
39	Arrangement of mounting 25 KV/240, 10 KVA LT supply transformer	ETI/OHE/G	05522	-
40	Volume chart and equivalent chart of foundation.	-do-	0058 Sh.1	E
41	-do new pure gravity	-do-	0058 Sh.2A	C
42	-do Dry black cotton soil (NBC type) A	ETI/C	0058 Sh.3 A	-
43	-do New pure gravity (500m, exposed)	-do-	0058 Sh.4	A
44	Protective screen at foot-over bridge and road over-bridge.	-do-	0068	F
45	Chart for portal foundation	-do-	0005/68	
46	Muff for OHE structures	-do-	0007/68	D
47	Structures muff for sand core foundations	-do-	0012/69	D
48	Details of OHE foundation in soft rock (bearing capacity 45,000 Kgf/sq.m).	-do-	0059	A
49	Typical design of new pure gravity foundation.	ETI/SK/C	131	-
50	Typical design of side gravity foundation	-do-	142	-
51	Rock Anchor for B.G.Track. –	ETI/SK/C	208	-
52	Multiple cantilever cross arm assembly.	RE/33/P	3120	H
53	Anchor fitting assembly on rolled sections	ETI/OHE/P	3230	C
54	Anchor fitting assembly on 'K' series, TTC masts and 'P' type portal upright.	-do-	3240	D
55	Anchor assembly on 'N' and 'O' type portal upright	-do-	3250	D
56	Structure bonds	-do-	7000	E
57	Earthing station	-do-	7020	B
58	Longitudinal rail bond	-do-	7030	F

59	Compensating plate	-do-	5191-1/2	D
60	Typical number plate for auxiliary transformer	ETI/PSI/P	7525	-
61	Bolted base connection for portals located in drains	ETI/C	0010	C
62	Details of base plate for mast on drains in station yards	-do-	0002/68	A
63	Protective screen at FOB/ROBs	ETI/C	0068	F
Annexure - I Sheet - 4				
64	Proposed height gauges at level crossings upto 7.30m spans	RE/Civl/92-84	R2	-
65	General caution notice at entrance to Railway Station (Hindi and English)	RE/33/P	7551	C
66	Caution plate 25000 Volts AC	-do-	7531	C
67	Protective screen at FOB and ROB	ETI/C	0068	E
68	Anti-theft Jumper	ETI/OHE/G	468	A
69	Typical arrangement OHE with insulated copper catenary under over line structures	ETI/OHE/SK	570	-
70	Arrangement of false catenary under Over Line structure	ETI/OHE/SK	446	-
71	Special arrangement of OHE under Over Line structure	ETI/OHE/SK	529	-

**Annexure - I
Sheet - 5**

**(B) LIST OF DRAWING/SPECIFICATION FOR MODIFIED OHE FITTINGS
SUITABLE FOR DC CONDUCTOR .**

SR. NO.	DESCRIPTION OF ITEM	C.RLY. DRG. NO.
1	Section insulator assembly for 193 Sq.mm contact wire	CR/OHE/DC-AC/105
2	Suspension clamp for 242 & 323 Sq.mm catenary	CW/TD/DC-AC/P/003
3	Contact wire swivel clip suitable for 193 Sq.mm contact wire	CW/TD/DC-AC/P/008A
4	Suspension clamp for copper catenary (129 Sq.mm) & 150 Sq.mm copper feeder conductor	FM/DC-AC/18
5	Ending clamp for 242 Sq.mm catenary A) Joint socket for 242 Sq.mm catenary B) Joint cone for 129 Sq.mm catenary C) Ending clamp body for 242 Sq.mm catenary	CW/TD/DC-AC/P/001A
6	Ending clamp for 129 Sq.mm catenary A) Ending clamp body for 129 Sq.mm catenary B) Joint cone for 129 Sq.mm catenary C) Joint socket for 129 Sq.mm catenary	FM/DC-AC-2 FM/DC-AC-2/1 FM/DC-AC-2/2 FM/DC-AC-2/3
7	Splice for 242 Sq.mm catenary	CW/TD/DC-AC/P/009
8	Splice for 129 Sq.mm catenary	FM/DC-AC/4
9	Splicing clamp assembly for 193 Sq.mm contact wire A) Details of splice clamp (Crocodile type)	CW/TD/DC-AC/P/004
10	Auxiliary support clamp for 129 catenary with 38 mm	FM/DC-AC/6

	bracket tube	
11	Parallel clamp for 242 Sq.mm catenary to 129 Sq.mm catenary or 105 Sq.mm jumper or 150 Sq.mm jumper	CW/TD/DC-AC/P/010
12	Parallel clamp for 323 Sq.mm catenary to 129 Sq.mm catenary or 105 Sq.mm jumper or 150 Sq.mm jumper	FM/DC-AC/8
13	Dropper clip for 193 sq.mm contact wire (antifalling type)	CW/TD/DC-AC/P/013
14	Dropper clip for 129 sq.mm catenary with copper nut bolts.	FM/DC-AC/10
15	Dropper clip for 242 sq.mm catenary with copper nut bolts.	CW/TD/DC-AC/P/014
16	Ending clamp for 193 sq.mm contact wire	CW/TD/DC-AC/P/002
17	Parallel clamp for 50 Sq.mm jumper or 65 Sq.mm catenary to 193 Sq.mm contact or 129 sq.mm catenary.	FM/DC-AC/13
18	a) Modified single span insulated overlap for 25 KV. b) Isometric view of overlap	CR/CONV/OHE/DC-AC/ SP/03-1 CEE/TD-AC/OHE/ GENERAL/ SK-08/2003
19	Revised dropper profile for a)OHE span view. b) Inclined dropper arrangement.	CR/CONV/OHE/DC- AC/SP/02-Sh.1/2 Sh.2/2
20	Typical arrangement of modified single bracket assembly.	CR/CONV/OHE/DC- AC/SP/01
21	Parallel clamp for 50 Sq.mm jumper or 65 Sq.mm catenary to 242 Sq.mm catenary.	CW/TD/DC-AC/P/011
22	Parallel clamp for 193 Sq.mm contacts to 129 sq.mm catenary or 105 Sq.mm jumper to 150 Sq.mm feeder.	FM/DC-AC/15

Annexure - I
Sheet - 6

23	Turn buckle	FM/DC-AC/16
24	Sequence of operation while carrying out conversion work.	DC-AC/CONV/THK 1/(6/02)
25	Ending clamp for 323 sq.mm catenary wire	FM/DC-AC/20
26	P.G.Clamp for 160 sq.mm/ 193 sq.mm contact wire or Catenary 129 sq.mm	FM/DC-AC/21
27	P.G.Clamp for 129sq.mm catenary/ 105 sq.mm jumper/150 sq.mm to 129 sq.mm catenary/105 sq.mm jumper/150 sq.mm	FM/DC-AC/22
28	P.G.Clamp for 193sq.mm contact wire	FM/DC-AC/23
29	P.G.Clamp for 323sq.mm catenary to 160 sq.mm jumper	FM/DC-AC/24
30	P.G.Clamp for 323sq.mm catenary to 323 sq.mm jumper	FM/DC-AC/25
31	Feeder clip assembly for 193 sq.mm contact wire and 5mm stranded dropper	FM/DC-AC/26
32	Feeder clip assembly for 129 sq.mm contact wire and 5mm stranded dropper	FM/DC-AC/27
33	Feeder clip assembly for 323sq.mm contact wire and 5mm stranded dropper	FM/DC-AC/28 (Rev-1)
34	Copper sleeve	FM/DC-AC/29

35	Rigid through connector to 50 O/D Al tube and 160 sq.mm jumper	FM/DC-AC/30
36	TEE connector to 50 O/D Al tube and 160 sq.mm jumper	FM/DC-AC/31
37	Dropper clip assembly for 193 sq.mm contact wire	FM/DC-AC/32

(C) LIST OF STANDARD SPECIFICATIONS .

SI.NO.	TITLE OF SPECIFICATION	SPECIFICATION NO.
1	2	3
1.	Annealed stranded copper conductor for jumper wire.	ETI/OHE/3(2/94) with A&C slip No.1 of 4/95.
2.	Copper busbar	RE/30/OHE/5(11/60)
3.	Structural Steel tubes.	ETI/OHE/11 (5/89)
4.	Hot dip galvanisation of steel mast (Rolled and Fabricated) tube and fittings used on 25 KV AC OHE.	ETI/OHE/13(4/84) with A&C slip NO. 1. of 5/86,2 of 4/90 and 3 of 4/90.
5	Solid core porcelain/composite insulators for 25 KV 50 Hz over head lines	TI/SPC/OHE/INS/0071 with latest amendments OR composite type as per RDSO specification no. TI/SPC/OHE/ INSCOM/ 1070 with latest amendments.
6	25 KV single and double pole isolators.	ETI/OHE/16(1/94)
7	Bolts nuts and washers	ETI/OHE/18(4/84) with A&C slip NO.1 of NOV. 84, 2 of 6/87 and 3 of 9/87.

Annexure – I

Sheet – 7

8	Aluminum alloy section and tubes	ETI/OHE/21(9/74)
9	Standard for drawings for Traction Overhead equipment	RE/OHE/25(3/66)
10	Section Insulators assembly.	ETI/OHE/27(8/84) with A&C slip No. 1 of 10/92.
11	Enamelled steel plates	ETI/OHE/33(7/88)
12	Fitting for 25 KV 50 HZ AC Overhead Traction equipment.	ETI/OHE/49(9/95) with A&C Slip No. 1 of (6/97),No.2 of (4/2000)-CORE-1.
13	Cadmium copper conductor for overhead Rly.Traction.	ETI/OHE/50 (6/97) with A&C slip No.1 of 6/97.
14	Principle of OHE layout plan and sectioning diagrams for 25 KV AC traction.	ETI/OHE/53(6/88)with A&C slip no.4 of 8/92
15	Code for bonding and earthing for 25KV single phase, 50 Hz AC traction system.	ETI/OHE/71(11/90)with A&C slip no. 2 of 3/93.

16	25 KV Dropout fuse switch & operating pole for use with 10 KVA and 100 KVA.25 KV 230 V LT. Supply transformer.	ETI/PSI/14(1/86) with A&C slip No.1 of4/87.
17	25 KV/240V,10 KVA L.T. supply Transformer.	ETI/PSI/15(11/92) with A&C slip No.1 of May'93.

(D) DRAWINGS FOR OHE GENERAL ARRANGEMENT

SR. NO.	DESCRIPTION OF ITEM	C.RLY. DRG. NO.
1	OHE termination at standard/non standard height on K-200 mast (Conductor separately terminated)	CEE/TD-AC/OHE/GENERAL /SK-01/2003(Sheet No. 1)
2	OHE termination at standard/non standard height on K-250 mast (Conductor separately terminated)	CEE/TD-AC/OHE/GENERAL /SK-01/2003(Sheet No. 2)
3	OHE termination at standard/non standard height on K-300 mast (Conductor separately terminated)	CEE/TD-AC/OHE/GENERAL /SK-01/2003(Sheet No. 3)
4	Cut-in insulator on 129 sq.mm Catenary wire	CEE/TD-AC/OHE/GENERAL /SK-02/2003(Sheet No. 1)
5	Cut-in insulator on 193 sq.mm Contact wire	CEE/TD-AC/OHE/GENERAL /SK-02/2003(Sheet No. 2)
6	Cut-in insulator on 242 sq.mm Catenary wire	CEE/TD-AC/OHE/GENERAL /SK-02/2003(Sheet No. 3)
7	Cut-in insulator in yard OHE(193 contact & 129 catenary)	CEE/TD-AC/OHE/GENERAL /SK-02/2003(Sheet No. 4)
8	Cut-in insulator in yard OHE (193 contact & 242 catenary)	CEE/TD-AC/OHE/GENERAL /SK-02/2003(Sheet No. 5)

**Annexure – I
Sheet – 8**

9	Fixed termination of 129 sq.mm catenary wire	CEE/TD-AC/OHE/GENERAL /SK-03/2003(Sheet No. 1)
10	Fixed termination of 193 sq.mm catenary wire	CEE/TD-AC/OHE/GENERAL /SK-03/2003(Sheet No. 2)
11	Fixed termination of 242 sq.mm catenary wire	CEE/TD-AC/OHE/GENERAL /SK-03/2003(Sheet No. 3)
12	Connection from isolator to OHE	CEE/TD-AC/OHE/GENERAL /SK-04/2003(Sheet No. 1)

13	Connection from isolator to OHE	CEE/TD- AC/OHE/GENERAL /SK- 04/2003(Sheet No. 2)
14	Connection from isolator to OHE	CEE/TD- AC/OHE/GENERAL /SK- 04/2003(Sheet No. 3)
15	Connection from isolator to OHE	CEE/TD- AC/OHE/GENERAL /SK- 04/2003(Sheet No. 4)
16	Schedule of jumper connections	CEE/TD- AC/OHE/GENERAL /SK- 05/2003(Sheet No. 1)
17	Schedule of jumper connections	CEE/TD- AC/OHE/GENERAL /SK- 05/2003(Sheet No. 2)
18	Schedule of jumper connections	CEE/TD- AC/OHE/GENERAL /SK- 05/2003(Sheet No. 3)
19	Proposed three span overlap arrangement	CEE/TD- AC/OHE/GENERAL /SK- 06/2003(Sheet No. 1)
20	Compound catenary system for 193/129, 323 sq.mm contact/catenary(on 2 track portal 180x180)	CEE/TD- AC/OHE/GENERAL /SK- 07/2003(Sheet No. 1)
21	Compound catenary system for 193/129, 323 sq.mm contact/catenary(on 2 track portal 180x180) with DA	CEE/TD- AC/OHE/GENERAL /SK- 07/2003(Sheet No. 2)
22	Compound catenary system for 193/129, 323 sq.mm contact/catenary(on K/B- 200 mast)	CEE/TD- AC/OHE/GENERAL /SK- 07/2003(Sheet No. 3)
23	Compound catenary system for 193/129, 323 sq.mm contact/catenary(on K/B- 250 mast)	CEE/TD- AC/OHE/GENERAL /SK- 07/2003(Sheet No. 4)
24	Bracket arrangement at turnouts and cross overs for 193/129, 323 sq.mm contact/catenary (on K/B-250 mast)	CEE/TD- AC/OHE/GENERAL /SK- 07/2003(Sheet No. 5)
25	Compound catenary system for 193/129, 323 sq.mm contact/catenary(on D portal with K-300 upright)	CEE/TD- AC/OHE/GENERAL /SK- 07/2003(Sheet No. 6)
26	Compound catenary system for 193/129, 323 sq.mm contact/catenary (on D portal with DA)	CEE/TD- AC/OHE/GENERAL /SK- 07/2003(Sheet No. 7)
27	Compound catenary system for 193/129, 323 sq.mm contact/catenary (on D portal with short DA)	CEE/TD- AC/OHE/GENERAL /SK- 07/2003(Sheet No. 8)
28	Bracket arrangement at turnouts and cross overs for 193/129, 323 sq.mm contact/catenary (on K/B-250 mast)	CEE/TD- AC/OHE/GENERAL /SK- 07/2003(Sheet No. 9)
29	Bracket arrangement at turnouts and cross overs for 193/129, 323 sq.mm contact/catenary (on K/B-300 mast)	CEE/TD- AC/OHE/GENERAL /SK- 07/2003(Sheet No. 10)

Annexure – I
Sheet – 9

30	Compound catenary system for 193/129, 323 sq.mm contact/catenary(on D portal with K-300 upright)	CEE/TD-AC/OHE/GENERAL /SK-07/2003(Sheet No. 11)
31	Bracket arrangement for in run and out of run OHE for 193/129, 323 sq.mm contact/catenary (on K/B-250 mast)	CEE/TD-AC/OHE/GENERAL /SK-07/2003(Sheet No. 12)
32	Bracket arrangement for in run and out of run OHE for 193/129, 323 sq.mm contact/catenary (on K/B-300 mast)	CEE/TD-AC/OHE/GENERAL /SK-07/2003(Sheet No. 13)
33	Bracket arrangement for in run and out of run OHE for 193&129/242 & 323 sq.mm contact/catenary (on D portal with K-300 upright)	CEE/TD-AC/OHE/GENERAL /SK-07/2003(Sheet No. 14)
34	Suspension support angle(8014-SPL)	CEE/TD-AC/OHE/GENERAL /SK-07/2003 Part no. 1
35	OHE general arrangement inside tunnel	CEE/TD-AC/OHE/GENERAL /SK-08/2004 Sheet no. 1
36	Details of plates for bottom fittings to hold bracket tubes in tunnels.	CEE/TD-AC/OHE/GENERAL /SK-08/2004 Sheet no. 2
37	Rag bolt for bracket assembly inside the tunnel.	CEE/TD-AC/OHE/GENERAL /SK-08/2004 Sheet no. 3
38	Catenary support suspension inside the tunnel.	CEE/TD-AC/OHE/GENERAL /SK-08/2004 Sheet no. 4
39	Mast fitting for 9 T insulator Suspension (8014-SPL-A)	CEE/TD-AC/OHE/GENERAL /SK-09/2003

ANNEXURE 1.1

As per RDSO's letter No: TI/OHE/FTGFE/12 dated 03.09.2013, the following forged steel fittings should be supplied for this work.

Sr. No.	Name of Component /Fitting	Railway Identification No. for MCI Fittings	Railway Identification No. for forged steel fittings	RDSO Drawing No. for Forged steel Fittings
1.	Register Arm Hook Top (Forged)	2151-1	2151-2	TI/DRG/OHE/FTGFE/RDSO/00008/10/0
2.	Register Arm Hook Bottom (Forged)	2152-1	2152-2	TI/DRG/OHE/FTGFE/RDSO/00009/10/0
3.	Large Register Arm Hook Top (Forged)	2161-1	2161-2	TI/DRG/OHE/FTGFE/RDSO/00011/10/0

				0
4.	Large Register Arm Hook Bottom (Forged)	2162-1	2162-2	TI/DRG/OHE/FTGFE/RDSO/00012/10/0
5.	25 mm Drop Bracket Assembly (Forged)	2361	2361-1	TI/DRG/OHE/FTGFE/RDSO/00016/10/0
6.	Steady Arm Hook (BFB) (Forged)	2391	2391-1	TI/DRG/OHE/FTGFE/RDSO/00003/00/0
7.	Tabular Stay sleeve (Forged)	2403-1	2403-2	TI/DRG/OHE/FTGFE/RDSO/00004/03/0
8.	Register Arm Eye Piece (25 mm Forged)	2422-1	2422-2	TI/DRG/OHE/FTGFE/RDSO/00002/00/0
9.	25 mm Steady Arm Clamp (Forged)	2491-1	2491-2	TI/DRG/OHE/FTGFE/RDSO/00015/10/0
10.	Mast Fitting For Hook Insulator (Forged)	3021	3021-1	TI/DRG/OHE/FTGFE/RDSO/00005/04/0
11.	9 Tonne Turn Buckle	-	5021	ETI/OHE/P/5021, Rev-A
12.	9 Tonne Eye Bolt left	-	5022	ETI/OHE/P/5022, Rev-B
13.	9 Tonne Eye Bolt Right	-	5023	ETI/OHE/P/5023, Rev-B
14.	9 Tonne Clevis Bolt Left	-	5024	ETI/OHE/P/5024
15.	9 Tonne Clevis Bolt Right	-	5025	ETI/OHE/P/5025
16.	18 mm single Clevis Assembly (modified)	5041	5041-1	TI/DRG/OHE/FTGFE/RDSO/00001/00/0
17.	Clevis & Eye (Forged)	5322	5322-1	TI/DRG/OHE/FTGFE/RDSO/00005/02/0

Annexure-2

Sheet - 1

Schedule of Quantity

{ See schedule-I)

ANNEXURE 4

LIST OF ITEMS TO BE SUPPLIED BY PURCHASER TO THE CONTRACTOR
EQUIPMENTS, FITTINGS AND FINISHED MATERIAL.

Sr No	Item	Qty
1	Nil	Nil

NOTES :-

- 1. The prices against various items of Schedule-1 shall be exclusive of the cost of supply of the above.*
 - 2. All galvanised bolts, nuts, lock nuts and washers required for assembly and fastening of steel work mentioned against item 1 and mounting of the above equipments shall be supplied by the Contractor and appropriate item of Schedule-1 should include the cost thereof.*
 - 3. All the fasteners whether stainless steel or otherwise required for fittings and components shall be supplied by the contractor.*
-

SUMMARY OF PAYMENT SCHEDULE
ANNEXURE-10

For part A - SOR items

Sheet - 1

Schedule item No.	On account/stage payment		Progress payment		Final payment	
	Supply	Erection	Supply	Erection/ Dismantling	Supply	Erection/ Dismantling
1	---	50%	---	---	---	50%
2(a)(i)	---	70%	---	25%	---	5%
2(a)(ii)	---	70%	---	25%	---	5%
2 (b)	---	70%	---	25%	---	5%
2(c)	---	70%	---	25%	---	5%
3 (i)	80%	---	15%	---	5%	---
3(ii)	80%	---	15%	---	5%	---
3(iii)	80%	---	15%	---	5%	---
4(a)(i)	---	---	---	95%	---	5%
4(a)(ii)	---	---	---	95%	---	5%
4(b)(i)	---	---	---	95%	---	5%
4(b)(ii)	---	---	---	95%	---	5%
4(c)(i) & (ii)	80%	---	15%	95%	5%	5%
5	---	---	95%	95%	5%	5%
6(a)(i)	Rs.4260/-	---	95% less Rs. 4260/-	95%	5%	5%
6(a)(ii)	Rs.4260/-	---	95% less Rs. 4260/-	95%	5%	5%
6(b)(i)	Rs.4260/-	---	95% less Rs. 4260/-	95%	5%	5%
6(b)(ii)	Rs.4260/-	---	95% less Rs. 4260/-	95%	5%	5%
6(c)	Rs.4260/-	---	95% less Rs. 4260/-	95%	5%	5%
6(d)(i)	Rs.2130/-	---	95% less Rs. 2130/-	95%	5%	5%
6(d)(ii)	Rs.2130/-	---	95% less Rs. 2130/-	95%	5%	5%
6(d)(iii) (a) & (b)	Rs.2130/-	---	95% less Rs. 2130/-	95%	5%	5%
6(e)(i)	Rs.2130/-	---	95% less Rs. 2130/-	95%	5%	5%
6(e)(ii)	Rs.2130/-	---	95% less Rs. 2130/-	95%	5%	5%
7(i)	Rs.2130/-	---	95% less Rs. 2130/-	95%	5%	5%
7(ii)	Rs.2130/-	---	95% less Rs. 2130/-	95%	5%	5%
7(iii) (a) & (b)	Rs.2130/-	---	95% less Rs. 2130/-	95%	5%	5%
7(iv)	Rs.2130/-	---	95% less Rs. 2130/-	95%	5%	5%

Schedule item No.	On account/stage payment		Progress payment		Final payment	
	Supply	Erection	Supply	Erection/ Dismantling	Supply	Erection/ Dismantling
8(a)(i)	Rs.2130/-	---	95% less Rs. 2130/-	95%	5%	5%
8(a)(ii)	Rs.2130/-	---	95% less Rs. 2130/-	95%	5%	5%
8(a)(iii) (a) & (b)	Rs.2130/-	---	95% less Rs. 2130/-	95%	5%	5%
8(b)(i) & (ii)	80%	---	15%	95%	5%	5%
9(ii)	80%	---	15%	95%	5%	5%
9(iv)	80%	---	15%	95%	5%	5%
9(vi)	-	---	-	95%	-	5%
10(i)	---	---	95%	95%	5%	5%
10(ii)	---	---	95%	95%	5%	5%
11(i)	---	---	95%	95%	5%	5%
11(ii)	---	---	95%	95%	5%	5%
11(iii)	---	---	95%	95%	5%	5%
12(i)	40%	---	55%	95%	5%	5%
12(ii)	40%	---	55%	95%	5%	5%
12(iii)	40%	---	55%	95%	5%	5%
12(iv)	40%	---	55%	95%	5%	5%
12(v)	40%	---	55%	95%	5%	5%
12(vi)	40%	---	55%	95%	5%	5%
12(vii)	40%	---	55%	95%	5%	5%
13	---	---	95%	95%	5%	5%
14(i)	---	---	95%	95%	5%	5%
14(ii)	---	---	95%	95%	5%	5%
14(iii)	---	---	95%	95%	5%	5%
14(iv)	---	---	95%	95%	5%	5%
15(a)(i)	---	---	95%	95%	5%	5%
15(a)(ii)	---	---	95%	95%	5%	5%
15(a)(iii)	---	---	95%	95%	5%	5%
15(a)(iv)	---	---	95%	95%	5%	5%
15(b)(i)	---	---	95%	95%	5%	5%
15(b)(ii)	80%	---	15%	95%	5%	5%
15(b)(iii)	80%	---	15%	95%	5%	5%
16(a)(i) & (ii)	80%	---	15%	95%	5%	5%
16(b)	---	---	95%	95%	5%	5%
16(c)	---	---	95%	95%	5%	5%
16(d)	---	---	95%	95%	5%	5%
17(i) (a) & (b)	80%	---	15%	95%	5%	5%
17(ii)	80%	---	15%	95%	5%	5%
17(iii)	80%	---	15%	95%	5%	5%
17(iv) (a) & (b)	80%	---	15%	95%	5%	5%
18	80%	---	15%	95%	5%	5%
18(a) & (b)	80%	---	15%	95%	5%	5%
19	80%	---	15%	95%	5%	5%

Schedule item No.	On account/stage payment		Progress payment		Final payment	
	Supply	Erection	Supply	Erection/ Dismantling	Supply	Erection/ Dismantling
20(a)(i)	80%	---	15%	95%	5%	5%
20(b)(i) & (ii)	80%	---	15%	95%	5%	5%
20(c) (i) & (ii)	80%	---	15%	95%	5%	5%
20(d)	80%	---	15%	95%	5%	5%
21(a)(i) & (ii)	80%	---	15%	95%	5%	5%
21(b) (i) & (ii)	80%	---	15%	95%	5%	5%
21(c) (i) & (ii)	80%	---	15%	95%	5%	5%
21(d) (i) & (ii)	80%	---	15%	95%	5%	5%
21(e)	80%	---	15%	95%	5%	5%
21(f)	80%	---	15%	95%	5%	5%
21(g)	80%	---	15%	95%	5%	5%
21(h)	80%	---	15%	95%	5%	5%
21(i)	80%	---	15%	95%	5%	5%
21(j)	80%	---	15%	95%	5%	5%
21(k)	80%	---	15%	95%	5%	5%
21(l)	80%	---	15%	95%	5%	5%
21(m)	80%	---	15%	95%	5%	5%
21(n)	80%	---	15%	95%	5%	5%
21(o)	80%	---	15%	95%	5%	5%
21(p)	80%	---	15%	95%	5%	5%
21(q)	80%	---	15%	95%	5%	5%
21(r)	80%	---	15%	95%	5%	5%
21(s)	80%	---	15%	95%	5%	5%
21(t)	80%	---	15%	95%	5%	5%
22(a)	---	----	----	95%	---	5%
22(b)(i)	---	----	----	95%	---	5%
22(b)(ii)	---	----	----	95%	---	5%
22(b)(iii)	---	----	----	95%	---	5%
22(b)(iv)	---	----	----	95%	---	5%
22(b)(v)	---	----	----	95%	---	5%
22(b)(vi)	---	----	----	95%	---	5%
22(c)	---	----	----	95%	---	5%
22(d)	---	----	----	95%	---	5%
22(e)	---	----	----	95%	---	5%
22(f)	---	----	----	95%	---	5%
22(g)	---	----	----	95%	---	5%
23	---	---	95%	95%	5%	5%
24	---	----	----	95%	---	5%
25(a)	---	----	----	95%	---	5%
25(b)	---	----	----	95%	---	5%
26	DELETED					
27	---	----	95%	95%	5%	5%
28(i)	---	----	95%	95%	5%	5%
28(ii)			95%	95%	5%	5%

Schedule item No.	On account/stage payment		Progress payment		Final payment	
	Supply	Erection	Supply	Erection/ Dismantling	Supply	Erection/ Dismantling
29(i)	-	---	-	95%	-	5%
29(ii)	-	---	-	95%	-	5%
29(iii)	-	---	-	95%	-	5%
30	---	----	95%	95%	5%	5%
30(a)	---	----	95%	95%	5%	5%
31	---	----	----	----	----	100%

SUMMARY OF PAYMENT SCHEDULE

ANNEXURE-10

FOR PART B Non SOR items-OHE

Schedule item No. Part B-	On account/stage payment		Progress payment		Final payment	
	Supply	Erection /labour	Supply	Erection/l abour	Supply	Erection/ labour
NS-1	---	70%	---	25%	---	5%
NS-2	---	70%	---	25%	---	5%
NS-3	---	70%	---	25%	---	5%
NS-4	--	--	--	95%	--	5%
NS-5	80%	--	15%	95%	5%	5%
NS-6	80%	--	15%	95%	5%	5%
NS-7	--	--	--	95%	--	5%
NS-8	--	--	--	95%	--	5%
NS-9	--	--	--	95%	--	5%
NS-10	---	70%	--	25%	---	5%
NS-11	80%	--	15%	95%	5%	5%
NS-12	--	--	--	95%	--	5%
NS-13	--	--	--	95%	--	5%
NS-14	--	--	--	95%	--	5%
NS-15	80%	--	15%	95%	5%	5%
NS-16	80%	--	15%	95%	5%	5%
NS-17	80%	--	15%	95%	5%	5%
NS-18	80%	--	15%	95%	5%	5%
NS-19	--	--	--	95%	--	5%

PROCEDURE ORDER ON SAFETY RELATED ISSUES AT ELECTRICAL WORK SITES.

In case of projects like Electrification of main line, siding, yards, remodeling of yards and other electrical works. Joint inspections as required to be conducted at various levels before handing over/taking over need not be kept pending till completion of last activity in the project. Joint inspection can be conducted on completion of individual activities of all Electrical works.

In case joint inspection is not done commensurate with the progress of various assets, the same might take weeks if not months when commenced after completion of last activity of the project, this will unnecessarily delay the CRS inspection and commissioning of projects.

Safety measures must be strictly observed by contractors which are to be ensured by Railway administration through positive act of confirmation within the broad frame work of the guidelines enumerated below.

To achieve the above objectives, the following instructions are issued:

- (i) Power supply arrangement, sectioning diagrams, locations plan, cable route plan equipment layout plan SED be approved by open line HQ before execution of the work. Approval of drawing, design. Specifications of material having deviation from RDSO/CORE drawing/design/specification be approved from open line HQ.
- (ii) Joint discussion of Construction/Conversion activities with drawing, LOP, SED, sectioning diagram one day in advance by Conversion/Construction and Open line supervisors and recording the methodology to execute the work in a register which will have Joint signatures of all the Sr. Supervisors. No execution of the work without following the above procedure.
- (iii) Filling up of check sheets at work site and Joint signature by Construction & Open line TRD supervisors duly recording the defects and deficiencies in check sheets attending such defects and deficiencies and balance work on the same day or at the first available block. Further work will only progress on completion of these defects.
- (iv) Monitoring of movement of EMU and Mail/Express trains minimum 2 Nos. each after completion of work and repeating the details to the TPC which in turn will maintain a register for verification.
- (v) Modification of overlap, cross over/turnouts, section insulator by tower wagon duly supervised by Open line SSE/SE and certified as per check sheet for operation of traffic.
- (vi) Scrutiny and certification of competency certificate issued by contractors for his employees on safety and technical skill by Railway so that failure due to inadequate technical knowledge and non-observance of safety norms is avoided.
- (vii) Contractor shall ensure that no staff is working on line/trackside without proper permission by Railway. Work shall be commenced only after obtaining necessary traffic and power block required and in the presence of authorized Railway's representative.

- (viii) Only eligible and competent staff shall be employed by contractors and they must wear identity card while working on line no person without identity card should be allowed.
- (ix) Contractor's site in charge must keep 2 red flags & 1 green flag during day time multi coloured lamp/torch light (having red & green colour) during night time and a whistle. Contractor must make adequate light arrangement at work site.
- (x) Site in charge of the contractor must ensure proper discharging of line and grounding /earthing of required lines on both side of the work place, while using metallic ladders in multiple line section staff must be careful as the OHE of the adjoining line is alive so that accidental touching should not lead to fatal accidents.
- (xi) While unloading/stacking/loading, released or new material along the tracks, the contractor must ensure that the material is not infringing the schedule of dimensions and keep them safely away. Also care shall be taken to keep the material in such a way that due to vibration or slight movement, it should not come near the track and infringe the movement of the train and stacked as per the specified height & distance from Railway track.
- (xii) Where the road vehicles and /or machinery are required to work in the close vicinity of Railway line, the work shall be carried out that there is no infringement to the Railway's schedule of dimension even for a short period. For this purpose, the area where road vehicles and/or machinery are required to ply shall be demarcated and acknowledged by the contractor. Special care shall be taken for turning /reversal of road vehicle/machinery without infringing the running tracks. Barricading shall be provided wherever justified in feasible as per site conditions.
- (xiii) Strict adherence to the relevant provisions of the 'General Conditions' of Contract and the 'Special Conditions' of Contract pertaining to safety of both men and material not only of the Contractor but also of the Railways.
- (xiv) All staff must wear required safety gadgets such as helmets, phosphorescent jackets, identify badges, safety belts & shoes as required.
- (xv) Power traffic block must be restored in time after completion of work and after ensuring safety.
- (xvi) Contractor must keep First Aid Box at work place for emergency.
- (xvii) In no case manual shifting/transportation of structures, bulky material and fittings be done without proper power and traffic block and in the presence of authorized Railway representative.
- (xviii) Material at site shall be got transported on same day by Contractor. If material is stored at site in advance a watchman must be kept. Also unused/released material, if any, should be moved away from site on the same day. No material is kept at site and un-attended/unclaimed.
- (xix) Proper arrangement of mobile communication with TPC should be provided by Contractor as per the contract.

- (xx) During emergency, block must be cleared in minimum possible time. Adequate communication, preferably over walkie-talkie, should be available within the gang at work site.
- (xxi) Necessary safety equipment and tools to be used by Contractor's staff must be checked & tested periodically as per norms. Record to be maintained for this purpose.
- (xxii) Contractor shall give necessary training to their Supervisors and staff and ensure that they know about the safety norms to be followed for working in Railway premises and in the vicinity of Railway track in electrified territories.
- (xxiii) Proper care shall be taken in storing inflammable substances to avoid any fire.
- (xxiv) Supplementary site specific instructions, whenever considered necessary shall be issued by the Supervisor in charge as applicable.
- (xxv) Above instructions shall be included as special conditions, in all Electrical contracts, involving works near running tracks.

Request letter from Executive branch to Accounts Office for opening of LC

Office of Sr DEE/TD/CSMT
Central Railway

No. _____

Dated _____

The PFA/ Sr.DFM/ Dy. FA
HQ/Division/Workshop/ Cost

Sub: Opening of LC
Ref: Supply Order/ Contract Agreement No .

It is requested to open a sight LC against the above referred Order/ Agreement in favour of

_____. The details of beneficiary are as under:

- (i) Name of Contractor/Supplier
- (ii) Vendor Code
- (iii) Address
- (iv) Tender No.
- (v) Contract Agreement No.
- (vi) Description of Goods/ Service
- (vii) Value of Contract
- (viii) Stages of payment
- (ix) Expected payment within 6 months (LC Amount)
- (x) Beneficiary bank details:
 - a) Bank name
 - b) Address
 - c) Account No.
 - d) IFSC code

It is certified that the supplier/ contractor has exercised the option of taking payment due against the tender, through LC arrangement in IREPS portal at the time of bidding itself and the option has been flagged in the IREPS. This has the approval of _

(xi) Validity/period for which LC is to be opened.

(Signature)
Name: _____

Designation: _____
(Official Seal)

Annexure-13
LCDA No (18DIGIT IPAS GENERATED NO.)
Dated: _____

DOCUMENT OF AUTHORIZATION

Reference: (i) Works Contract/Supply Contract NoDated.....
(ii) Inland Letter of Credit No..... Dated.....

This document is issued against contract No. _____(FROM IREPS) _____
dated _____for supply/ work of ---
(DESCRIPTION OF GOODS/WORK FROM IREPS) _____

The beneficiary of the aforementioned Letter of Credit M/s(NAME AND
VENDOR CODE:) ... (Vendor Code as per IREPS.....) is entitled to receive payment
aggregating INR\$\$\$ (FROM ABSTRACT OF BILL PASSED) out of a total
LC amount of INR (FROM MASTER TABLE OF LC OPENED)..... against the
first/second* commercial Invoice No. (FROM IPAS).....dated.....FROM
IPAS.....for INR(FROM IPAS)----- raised against the above contract from State
Bank of India----(branch-FROM LC MASTER TABLE)--- _ on the strength of this
Certificate.

The details of payments already made to the beneficiary under this Letter of Credit are
as follows:

S.No	Invoice No	Invoice date	Invoice amount(IN R)	LCDA No	LCDA date	Amount paid (INR)
Total Paid						

THIS PAYMENT: -..... \$\$\$

LC BALANCE AFTER THIS PAYMENT:.....

(Signature of authorised Railway authority)

Name

Designation

Official Seal

PART-V

FORMS OF TENDERS ETC.

PART - V

FORMS OF TENDERS ETC.

FORM NO:	
1	Offer letter
2	Tenderer's credentials
3	Complete technical data and particulars of the equipments offered, as specified in the Tender papers together with descriptive literature, leaflets etc.
4	Summary of Prices
5 Schedule-1	Deleted
Schedule-1 Section-1	Schedule of prices
Schedule-1 Section-2	Deleted
Schedule-2	Deleted
6 Schedule-3	Deleted
6(a) Schedule-4	Deleted
6(b) Schedule-5	Deleted
7(a)	Alternative proposals of the Tenderer
7(b)	Drawings, if any, complete with list
8	Tenderer's scheme of work and time schedule.
9(A)	Names of manufacturer/s, places of manufacture and inspection of supplies (CORE/RDSO/C.Rly approved sources)
9(B)	Names of manufacturer/s, places of manufacture and inspection of supplies(other than CORE/RDSO/C.Rly. approved sources)
10	-
11	-
12	-
13	-
14	Agreement
15	Guarantee Bond for security Deposit
16	Standing Indemnity Bond for "ON ACCOUNT" payments
17	Extension of period of completion of work on contractor's account
18	Extension of period of completion of work on purchaser's account
19	Guarantee bond against "On Account" payments
20	Guarantee bond against Mobilisation Advance
21	Guarantee bond against Provisional Acceptance Payments
22	Format for affidavit to be uploaded by tenderer alongwith the tender documents.
23	Tenderer's Credentials (Bid Capacity)

TENDER FORM

CENTRAL RAILWAY TENDER FORM (First Sheet)

Tender No. BB.LD.585.W.899.Cont

Name of Work. 25 KV AC OHE modification work in connection with proposed construction of four lane Road over bridge (ROB) for Sewari to Worli elevated connector on Prabhadevi/Parel station of Mumbai division central railway..

To

The President of India

Acting through the **Sr. Divisional Electrical Engineer,(Traction Divisional)**
Central Railway

I/We _____ have read the various conditions to tender attached hereto and agree to abide by the said conditions. I/We also agree to keep this offer open for acceptance for a period of **60** days from the date fixed for closing of the tender and in default thereof, I/We will be liable for forfeiture of my/our "Bid Security". I/We offer to do the work for **Central Railway**, at the rates quoted in the attached bill(s) of quantities and hereby bind myself/ourselves to complete the work in all respects within **12** months from the date of issue of letter of acceptance of the tender.

2. I/We also hereby agree to abide by the Indian Railways Standard General Conditions of Contract, with all correction slips up-to-date and to carry out the work according to the Special Conditions of Contract and Specifications of materials and works as laid down by Railway in the annexed Special Conditions/Specifications, Standard Schedule of Rates (SSOR) with all correction slips up-to-date for the present contract.

3. A Bid Security of ₹ /-has already been deposited online/ submitted as Bank Guarantee bond. Full value of the Bid Security shall stand forfeited without prejudice to any other right or remedies in case my/our Tender is accepted and if:

- (a) I/We do not submit the Performance Guarantee within the time specified in the Tender document;
- (b) I/We do not execute the contract documents within seven days after receipt of notice issued by the Railway that such documents are ready; and
- (c) I/We do not commence the work within fifteen days after receipt of orders to that effect.

4. (a) I/We am/are a Startup firm registered by Department of Industrial Policy and Promotion (DIPP) and my registration number is valid upto (Copy enclosed) and hence exempted from submission of Bid Security.

5. We are a Labour Cooperative Society and our Registration No. is withand hence required to deposit only 50% of Bid Security.

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

Signature of Tenderer(s)

Date _____

Address of the Tenderer(s)

FORM - 2

(TO BE SUBMITTED WITH SECTION-I)

TENDERER'S CREDENTIALS

1. Give details of your previous experience on installation of similar equipment and the details of present work load and in the proforma given below:-
 - a. Type of work :
 - b. Purchaser :
 - c. Section/ Group :
 - d. TKM/No of TSS :
 - e. Cost of work :
 - f. Date of award of contract :
 - g. Stipulated date of completion of contract :
 - h. Actual date of completion of contract for works already executed. :
 - i. Whether completion reports/performance reports attached Attach other relevant documents for the works executed. :
 - j. Present status of work under execution and performance repots, if any. :
2. Give the financial turnover for the past five years of your firm with audited balance sheet, names of your Bankers. Solvency Certificate with Banker's assessment of the solvency and documentary evidence in support of financial standing together with limits of overdraft and Bank Guarantee.
3. Details of Engineering organisation, Technical Capabilities, Design and Drawing Capabilities.
4. Details of Technical Collaboration with any consultant for assistance, in any.
5. Details of construction, machinery, Tools and plants, Vehicles etc.
6. Solvency Certificate indicating the amount of Solvency. BG limit and cash credit limit from a Nationalised/ Scheduled Bank.
7. Latest Income Tax clearance certificate.
8. Audited Balance sheet and Income-Statement of the last five years.
9. Constitution of firm alongwith certified copies of legal documents in support thereof and power of attorney.
10. In past how many contracts the tenderer has handled simultaneously and details of the same.
11. Copy of electrical contractor's license

FORM No.3

COMPLETE TECHNICAL DATA AND PARTICULARS OF THE EQUIPMENTS OFFERED AS SPECIFIED IN THE TENDER PAPERS TOGETHER WITH DESCRIPTIVE LITERATURE, LEAFLETS ETC.

SNo	Name of Equipments	System voltage	Manufacturer's name
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
--			
--			
--			
--			

Note: (i) The details of equipment/item having unit cost more than Rs.10,000.00 shall only be detailed in above proforma.

(ii) Necessary literature/ leaflets shall also be enclosed.

□□□□□

FORM - 4

SUMMARY OF PRICES

From -----

To,
The President of India,
Acting through the General Manager,
or his successor,
Office of the Sr. Divisional Electrical Engineer,
(Traction Divisional)
Central Railway,
DRM office,
Mumbai CST-400001.

Dear Sir,

Sub: Tender No BB.LD.585.W.899.Cont for 25 KV AC OHE modification work in connection with proposed construction of four lane Road over bridge (ROB) for Sewari to Worli elevated connector on Prabhadevi/Parel station of Mumbai division central railway..

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

(All figures in Rupees)

Item		Total Cost
A	SOR items	
	Total for SOR item	Figures:-
	(a) In figures	Words:-
	(b) In words	
B	Non SOR items	
	Total for Non SOR item	Figures:-
	(a) In figures	Words:-
	(b) In words	
	TOTAL A+B	

GRAND TOTAL

IN FIGURES RS. -----

IN WORDS RUPEE -----

NOTES:

(i) Figures rounded off to the nearest Rupee.

(ii) The quoted rates shall be inclusive of all taxes, duties, freight and other incidental charges including GST.

Yours Faithfully,

Seal of the Tenderer

Signature/s of the Tenderer

Place:

Date: the

Witnessed by: 1. Signature
 Name in Block Letters
 Address
 2. Signature
 Name in Block Letters
 Address

*Tenderer's full name and address

SCHEDULE - 1 : SCHEDULE OF PRICES
SUB-SECTION - 1 : GENERAL

This schedule shall be read in conjunction with its explanatory notes in Part-I Chapter- IV for detailed description for various items included therein.

This schedule shall be read in conjunction with its explanatory notes in Part-1 Chapter-IV for detailed description for various items included therein. The rates given below of items are inclusive of all taxes including work contract.

Schedule I, section I

(All prices in Rs.)

NAME OF WORK : Tender No BB.LD.585.W.899.Cont for 25 KV AC OHE modification work in connection with proposed construction of four lane Road over bridge (ROB) for Sewari to Worli elevated connector on Prabhadevi/Parel station of Mumbai division central railway.

Item No	Discription	Rate				Total Cost		
		Unit	Qty	Supply	Erection	Supply	Erection	Total
a)	Part A for OHE SOR item							
1	Preparation of designs and drawings for overhead equipment and verification of Purchaser's pegging plans.	TKM	4	0	7776	0	31104	31104
3	supply only of fabricated and galvanised steel structures					0	0	0
(i)	Fabrication,galvanization and supply only of K-series, B-series, T-series, G-series, S-series mast/portals-Uprights.	MT.	40	39798	0	1591920	0	1591920
(ii)	Fabrication, galvanization and supply only of portal booms/portal uprights made up of angle steel members	MT.	30	39821	0	1194630	0	1194630
(iii)	Supply only of small part steel .	MT.	10	38203	0	382030	0	382030
4	Erection of Steel work					0	0	0
(a) (i)	Erection of K/B/G/T/ S-Series cantilever mast, mast of head span/uprights of D/G type Portals – manually	MT.	40	0	5316	0	212640	212640
(b) (i)	Erection of portal booms/ Angle fabricated poratal boom upright by purchaser's rail crane	MT.	30	0	5067	0	152010	152010
(ii)	Erection of small part steel work	MT.	10	0	5533	0	55330	55330
(c)	Supply & erection of single guy rod assembly	Each	10	3326	898	33260	8980	42240
6	Supply and erection of 25 KV insulation with modified bracket assembly.	---				0	0	0
(b) (l)	For two wire OHE with 129/242 sq.mm catenary and 193 sq.mm contact wire on structures.(Open route)	Each	100	8985	1379	898500	137900	1036400

(iii)	Supply and erection of suspension arrangement with 9 tonne insulator for 242 sq.mm single catenary/feeder/jumper wire	Each	20	3450	506	69000	10120	79120
7	Supply and erection of materials for termination of OHE.	---				0	0	0
(ii)	For 129 sq.mm main aux.catenary/feeder wire	Each	10	5414	893	54140	8930	63070
(iii)	For 242 sq.mm catenary/feeder wire	Each	10	5414	893	54140	8930	63070
(iv)	For 193 sq.mm contact wire	Each	20	5414	888	108280	17760	126040
8 (a)	Supply & erection of 9 tonne cut in insulator					0	0	0
(I)	For 193 sq.mm contact wire	Each	20	3304	508	66080	10160	76240
(iii)	For 129 sq.mm/242 sq.mm. Catenary/feeder wire	Each	20	3312	508	66240	10160	76400
9	Supply & erection of 25 kv section insulator suitable for 193 sq. mm contact wire					0	0	0
(ii)	For OHE system on turnouts/loop line (242/129 sq.mm. main catenary and 193 sq.mm contact wire)	Each	2	27255	4026	54510	8052	62562
11	Supply & erection of dropper and dropper adjustment	---				0	0	0
(ii)	For AC insulation on newly erected structure (All new droppers/ fittings in one span)	Span	120	5800	1500	696000	180000	876000
12	Supply & erection of jumpers	---				0	0	0
(ii)	105 IOL in-span jumper for 2 wire system	Each	20	2146	122	42920	2440	45360
(iii)	105 'G' Jumper	Each	10	7659	1459	76590	14590	91180
14	Adjustment of OHE	---				0	0	0
(I)	Formation of new (IOL) at SP/SSP/TSS /Neutral section.	Each	4	14704	4962	58816	19848	78664
(ii)	Turnouts/cross overs	Each	4	9833	2869	39332	11476	50808
16 (a)	Supply and erection of single earth electrode	Each	4	1214	839	4856	3356	8212
(b)	Extra for special embodiment of earth electrode	Each	4	625	785	2500	3140	5640
(d)	Supply and erection of 50x6 GI strips for equipment earthing	Each	4	642	650	2568	2600	5168
20(b)	Supply and erection of 25 KV, 1600 amps, single pole Isolators without earth contact assembly.	Each	4	32407	2179	129628	8716	138344
21	Supply and erection of 25KV Caution Boards/Plates	---				0	0	0
(a)	Danger Board.	Each	10	746	56	7460	560	8020
(b)	Warning board.	Each	10	311	60	3110	600	3710
(c)	General caution notice board at Rly station.	Each	10	256	68	2560	680	3240

(d)	General caution notice board for staff.	Each	10	256	68	2560	680	3240
23	Splicing & extension of OHE.	Span	30	5261	7457	157830	223710	381540
24	Slewing of OHE.	span	50	0	1957	0	97850	97850
	Total					5799460	1242322	7041782
	Below/ Atpar/above the SOR	180.26 % above the SOR				10454107	2239410	12693516
	Total of Part A for OHE SOR item					16253567	3481732	19735298
b)	Part B for OHE Non SOR items							
	Foundation and Plinth (M-20)					0	0	0
NS-1	(i) Concrete in hard soil	Cu. M	50	0	9801.00	0	490050	490050
NS-2	(ii) Concrete in rocky soil	Cu. M	50	0	10442.00	0	522100	522100
NS-3	Concrete in other than hard and rocky soil	Cu. M	300	0	9246.00	0	2773800	2773800
NS-4	Dismantling of OHE structures by cutting and transporting to railway depot including loading and unloading	MT	80	0	6849.6	0	547968	547968
NS-5	Supply & Erection of Single Bracket / Cantilever assembly with high (long) creepage distance suitable for polluted zone type ST & BT insulators., The insulators shall be of Porcelain type only	Each	40	21306	1420	852240	56800	909040
NS-6	Supply and erection of retroreflective number plate.	No	80	781.2	99.4	62496	7952	70448
NS-7	Breaking of foundation upto 200mm below track formation	CuM	40	0	3903.90	0	156156	156156
NS-8	Dismantling of foundation base	Each	20	0	1740.00	0	34800	34800
NS-9	Cement Concrete 1:2:4with 20mm graded stone aggregate for OHE Str (Muffing)	CuM	20	0	4682	0	93640	93640
NS-10	Casting of cement concrete foundation type M-25	CuM	50	0	10235	0	511750	511750
NS-11	Supply & erection of steel for RCC foundation	MT	2	74520	8280	149040	16560	165600
NS-12	Supply & Erection of "caution clearance to OHE nearby restricted" size 400*270*2 mm as per RDSO specification No. ETI/OHE/33(8/85) or latest & drawing No. RE/33/436, Rev-C or latest as per scope of work and explanatory note.	Nos	20	893.4	0	17868	0	17868
NS-13	Supply & Erection of Staff caution board in Hindi,English, Marathi as per RDSO specification RE/33P/7561 or latest as per scope of work and explanatory note	Nos	20	768	0	15360	0	15360

[illegible]

TENDERER'S SCHEME OF WORK AND TIME SCHEDULE

I. OVERHEAD EQUIPMENT

Issue of preliminary layouts and site allocations:
Submission of layout plans for walk-outs and approvals:
Approval of layout plans:
Preparation and submission of Drawings for approval:
Approval of Drawings:
Ordering of steel work on the Purchaser:
Bulk order for materials.
Detailed ordering of materials.
Foundation installation:
Delivery of steel work.
Steel work erection.
Delivery of materials
Insulation replacement
Guarantee period.

MONTHS

FORM - 9(A)

NAME OF MANUFACTURER/S, PLACES OF MANUFACTURE & INSPECTION OF SUPPLIES
(CORE/RDSO/C.Rly. APPROVED SOURCES)

Item No.	Description of item	Name & address of Manufacturer/s	Place of Manufacture	Place of Inspection
-------------	------------------------	-------------------------------------	-------------------------	------------------------

Declaration by the Tenderer

We hereby confirm that all the equipments, components and materials which will be supplied by us would conform to technical and other particulars as detailed in Part-II chapter-IV and would comply with the RDSO's/CORE/C.Rly specifications listed in Annexure-I with their latest version as specified in Part-IV of tender paper. We further confirm that the equipments, components and materials except those listed below would be procured from the approved sources/suppliers approved by RDSO's/CORE/C.Rly as the case may be.

FORM - 9(B)

NAME OF MANUFACTURER/S, PLACES OF MANUFACTURE & INSPECTION OF SUPPLIES (OTHER THAN CORE/RDSO APPROVED SOURCES)

Following particulars should be furnished as under :-

1. Item No.
2. Description of item
3. Name and address of manufacturer
4. Place of manufacturer
5. Place of inspection
6. Whether permitted to use ISI Standard mark (Wherever applicable)
7. Approx. turnover of this item in last 3 years (Enclose list of orders executed)

Declaration by the Tenderer :

We hereby confirm that -

- (i) the design approval/prototype approval of the above items will be obtained from CORE/RDSO/C.Rly. All cost on this account will be borne by us.
- (ii) In case of delay in prototype approval, we shall arrange the procurement of above listed items from the CORE/RDSO/C.Rly approved sources.
- (iii) We also clearly understand that delay on account of prototype approval shall not be claimed by us as reasonable ground for extension of completion period.

Signature of Tenderer

□□□□□

ANNEXURE - IV

RAILWAY

CONTRACT AGREEMENT OF WORKS

CONTRACT AGREEMENT NO. _____ DATED _____

ARTICLES OF AGREEMENT made this _____ day of _____ 20____ between President of India acting through the Railway Administration hereafter called the "Railway" of the one part and _____ herein after called the "Contractor" of other part.

WHEREAS the Contractor has agreed with the Railway for performance of the works _____ set forth in the Bill(s) of Quantities hereto annexed upon the Standard General Conditions of Contract, updated with correction slips issued up to date of inviting tender or as otherwise specified in the tender documents and the Specifications of _____ updated with correction slips issued up to date of inviting tender or as otherwise specified in the tender documents and the applicable Standard Schedule of Rates (SSOR) of _____ updated with correction slips issued up to date of inviting tender or as otherwise specified in the tender documents and the Special Conditions and Special Specifications, if any and in conformity with the drawings here-into annexed AND WHEREAS the performance of the said works is an act in which the public are interested.

NOW THIS INDENTURE WITNESSETH that in consideration to the payments to be made by the Railways, the Contractors will duly perform the said works in the said Bill(s) of Quantities set forth and shall execute the same with great promptness, care and accuracy in a workman like manner to the satisfaction of the Railway and will complete the same in accordance with the said specifications and said drawings and said conditions of contract on or before the _____ day of _____ 20____ and will maintain the said works for a period of _____ Calendar months from the certified date of their completion and will observe, fulfill and keep all the conditions therein mentioned (which shall be deemed and taken to be part of this contract, as if the same have been fully set forth herein), AND the Railway, both hereby agree that if the Contractor shall duly perform the said works in the manner aforesaid and observe and keep the said terms and conditions, the Railway will pay or cause to be paid to the Contractor for the said works on the final completion thereof the amount due in respect thereof at the rates specified in the Bill(s) of Quantities hereto annexed.

Contractor _____ (Signature) Railway: Designation _____

Address _____ (For President of India)

Date _____ Date _____

Signature of **Witnesses** (to Signature of Contractor) with address:

Witnesses:

(On Stamp Paper of Requisite Value)

GUARANTEE BOND FOR SECURITY DEPOSIT

(TO BE USED BY APPROVED SCHEDULE BANKS/NATIONALISED BANKS)

- DELETED -

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 President of India acting in the premises through the General Manager or his successor..... Railway.....(hereinafter referred to as "The Purchaser") all materials for which 'On Account' payments have been made to us against the Contract for vide letter of Acceptance of Tender No..... dated..... and materials handed over to us by the purchaser 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 purchaser or as he may direct otherwise and shall indemnify the purchaser against any loss damage or deterioration whatsoever in respect of the said materials while in our possession and against disposal of surplus materials. The said materials shall at all times be open to inspection by any officer authorised by the General Manager incharge of Railway Electrification (whose address will be intimated in due course).

Should any loss, damage or deterioration of materials occur or surplus materials disposed off and refund becomes due, the Purchaser shall be entitled to recover from us the full cost as per prices included in Schedule 3 to the Contract (as applicable) and in respect of other materials as indicated in part I, Chapter- IV, section 1 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..... 20

for and on behalf of

M/s.....

...(Contractor)

Signature of witness

Name of witness in Block Letters

Address.

* Strike out whichever is not applicable

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

To.

(Registered with Ack. Due)

.....
.....

Sub: (i)(Name of work)
(ii) Acceptance Letter No. date....
(iii) Understanding/Agreement No.....

Ref: (Quote specific application of the Contractor for extension to the date If received).

Dear Sir,

The stipulated date for completion of the work mentioned above is..... :
From the progress made so far and the present rate of progress it is unlikely that the work will be completed by the above date (or however, the work was not completed on this date).

Expecting that you may be able to complete the work if some time is given the
(insert there the contracting party on behalf of the President of India) although not bound to do so hereby extends the time for completion from.....to.....

Please note that an amount of Rs.....per day subject to a maximum of 10% of the contract value as recovery for delay in completion of the work after the expiry of
(give here the stipulated date for completion without any penalty fixed earlier) will be recovered from you as mentioned in Para 1.2.44 of the Conditions of Contract for the extended period notwithstanding the grant of this extension. You may proceed with the work accordingly.

The above extension of the completion date will also be subject to the further condition that no increase in rates on any account will be payable to you.

Please intimate within a week of the receipt of this letter your acceptance of the extension on the conditions stated above.

Please note that in the event of your declining to accept the extension on the above said conditions or in the event of your failure after accepting or acting upto this extension to complete the work by(here mention the extended date), further action will be taken in terms of paras 1.2.29 and 1.2.30 of the conditions of contract.

Yours faithfully,

for and on behalf of
the
President of India.

**EXTENSION OF PERIOD OF COMPLETION OF WORK ON PURCHASER'S
ACCOUNT
(Registered with Ack. Due)**

No.....

Dated.....

To,

.....
.....

Dear Sirs,

Sub : (i).....(Name of work)
(ii) Acceptance Letter No.....
(iii) Understanding/Agreement No.....

Ref:(Quote specific application of the Contractor for extension to
the date if received.)

The stipulated date for completion of the work under the above contract was..... In consideration of the Contractor's Letter No..... of..... The General Manager or his successor on behalf of the President of India, is pleased to grant extension of the time for completion of works in accordance with Note 1 and/ or Notes 2 under Para 1.2.45 of the Contract, as mentioned below :-

It may be noted that unless repugnant to the context all the terms and conditions of the Contract will remain unaltered during the extended period from..... to..... also, and further, no increased/additional rates and claims or recoveries which have not been already envisaged in terms of the conditions of the Contract will be leviable either by you or by the Purchaser in respect of this extended period.

Yours faithfully,

For & on behalf of the President of India.

(On Stamp Paper of Requisite Value)

**GUARANTEE BOND AGAINST "ON ACCOUNT" PAYMENTS OR ISSUE OF
MATERIAL
(TO BE USED BY APPROVED SCHEDULE BANKS/NATIONALISED BANKS)**

In consideration of the President of India " hereinafter called "the Government") having agreed to exempt.....(hereinafter called "the said Contractor (s)") from the demand, under the terms and conditions of an Agreement dated.....made between.... and for (hereinafter called "the said Agreement") of "On- Account" Payments for the due fulfillment by the said Contractor (s) of the terms and conditions contented in the said Agreement, on production of a Bank guarantee for Rs.....(Rupees.....only).

We,..... (indicate the name of Bank)hereinafter referred to as "the Bank" at the request of (Contractor(s)) do hereby undertake to pay to the Government an amount not exceeding Rs..... against any loss or damage caused to or suffered or would be caused to or suffered by the Government by reason of any breach by the said Contractor (s) of any of the terms or conditions contained in the said Agreement.

2. We..... do hereby undertake to Pay (indicate the name of the Bank) the amount due and payable under this guarantee without any demur, merely on a demand from the Government stating that the amount claimed is due by way of loss or damage caused to or would be caused to or suffered by the Government by reason of breach by the said Contractor (s) of any of the terms or conditions contained in the said Agreement or by reason of the Contractor (s) failure to perform the said Agreement. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding.....

3. We undertake to pay to the Government any money so demanded notwithstanding any dispute or disputes raised by the Contractor (s)/ supplier (s) in any suit for proceeding pending before any court or Tribunal relating thereto our liability under this present contract being absolute and unequivocal.

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

4. We..... (indicate the name of Bank) further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Agreement and that it shall continue to be enforceable till all the dues of the Government under or by virtue of the said Agreement have been fully paid and its claims satisfied or discharged or till..... office/ Department Ministry of.....certifies that the terms and conditions of the said Agreement have been fully and properly carried out by the said contractor (s) and accordingly discharges this guarantee. Unless a Demand or claim under this guarantee is made on us in writing on or before the (b) we shall be discharged from all liability under this guarantee thereafter.

5. We..... (indicate the name of Bank) further agree with the Government that the Government shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary

any of the terms and conditions of the said Agreement or to extend time of performance by the said Contractor (s) from time to time or to postpone for any time or from time to time any of the powers exercisable by the Government against the said Contractor (s) and to forbear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Contractor (s) or for any forbearance, 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 would, but for this provision, have effect of so relieving us.

6. This guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor (s)/ Supplier (s).

7. We..... (indicate the name of Bank) lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Government in writing.

Dated : the day of 19
for.....
(indicate the name of Bank)

(a) See para 1.3.9. Part-I, Chapter-III

(b) The guarantee shall be valid for a period of two months after the completion of installation and testing to the satisfaction of Engineer-in-Charge under para 1.3.9 and 1.3.8 referred above.

□□□□□

FORM-20

-----DELETED-----

(On Stamp Paper of Requisite Value)

GUARANTEE BOND AGAINST PROVISIONAL ACCEPTANCE PAYMENTS

(TO BE USED BY APPROVED SCHEDULE BANKS/NATIONALISED BANKS)

In consideration of the President of India " hereinafter called "the Government" having agreed to exempt.....(hereinafter called "the said Contractor (s)" from the demand, under the terms and conditions of an Agreement dated.....made between.... and for (hereinafter called "the said Agreement") of Provisional Acceptance Payments for the due fulfillment by the said Contractor (s) of the terms and conditions contented in the said Agreement, on production of a Bank guarantee for Rs.....(Rupees.....only). We,..... hereinafter referred to as "the Bank" (indicate the name of Bank) at the request of (Contractor(s) do hereby undertake to pay to the Government an amount not exceeding Rs..... against any loss or damage caused to or suffered or would be caused to or suffered by the Government by reason of any breach by the said Contractor (s) of any of the terms or conditions contained in the said Agreement.

2. We..... (indicate the name of the Bank) do hereby undertake to Pay the amount due and payable under this guarantee without any demur, merely on a demand from the Government stating that the amount claimed is due by way of loss or damage caused to or would be caused to or suffered by the Government by reason of breach by the said Contractor (s) of any of the terms or conditions contained in the said Agreement or by reason of the Contractor (s) failure to perform the said Agreement. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding.....

3. We undertake to pay to the Government any money so demanded notwithstanding any dispute or disputes raised by the Contractor (s), supplier (s) in any suit for proceeding pending before any court or Tribunal relating thereto our liability under this present contract being absolute and unequivocal.

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

4. We..... (indicate the name of the Bank) further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Agreement and that it shall continue to be enforceable till all the dues of the Government under or by virtue of the said Agreement have been fully paid and its claims satisfied or discharged or till..... office/Department Ministry of.....certifies that the terms and conditions of the said Agreement have been fully and properly carried out by the said contractor (s) and accordingly discharges this guarantee. Unless a Demand or claim under this guarantee is made on us in writing on or before the (b) we shall be discharged from all liability under this guarantee thereafter.

5. We..... (indicate the name of the Bank) further agree with the Government that the Government shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Agreement or to extend time of performance by the

said Contractor(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by the Government against the said Contractor (s) and to forbear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation or extension being granted to the said Contractor (s) or for any forbearance, 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 would but for this provision, have effect of so relieving us.

6. This guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor (s)/ Supplier (s).

7. We..... (indicate the name of the Bank) lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Government in writing.

Dated : the day of 200....
for.....
(indicate the name of Bank)

-
- (a) See para 1.3.14 of Part-I, Chapter III
- (b) The guarantee shall be valid for a period of two months after the completion of work under para 1.3.14 and 1.3.13 referred above.

Annexure-V

Reference -Para 6. I of ITT

**FORMAT FOR CERTIFICATE TO BE SUBMITTED / UPLOADED BY TENDERER
ALONGWITH THE TENDER DOCUMENTS**

I.....(Name and designation)** appointed as the attorney/authorized signatory of the tenderer, M/s.....(hereinafter called the tenderer) for the purpose of the Tender documents for the work of as per the tender No. of(Railway)**, do hereby solemnly affirm and state on behalf of the tenderer including its constituents as under.

1. I/we the tenderer (s) am/are signing this document after carefully reading the contents.
2. I/We the tenderer(s) also accept all the conditions of the tender and have signed all the pages in confirmation thereof.
3. I/we hereby declare that I/we have downloaded the tender documents from Indian Railway website www.ireps.gov.in . I/we have verified the content of the document from the website and there is no addition, no deletion or no alteration to the content of the tender document. In case of any discrepancy noticed at any stage i.e. evaluation of tenders, execution of work or final payment of the contract, the master copy available with the railway Administration shall be final and binding upon me/us.
4. I/we declare and certify that I/we have not made any misleading or false representation in the forms, statements and attachments in proof of the qualification requirements.
5. **I/We also understand that my/our offer will be evaluated based on the documents/credentials submitted along with the offer and same shall be binding upon me/us.**
6. **I/We declare that the information and documents submitted along with the tender by me/us are correct and I/we are fully responsible for the correctness of the information and documents, submitted by us.**
7. I/we certify that I/we the tenderer(s) is/are not blacklisted or debarred by Railways or any other Ministry / Department of Govt. of India from participation in tender on the date of submission of bids, either in individual capacity or as a HUF/ member of the partnership firm/LLP/JV/Society/Trust.
8. I/we understand that if the contents of the certificate submitted by us are found to be forged/false at any time during process for evaluation of tenders, it shall lead to forfeiture of the Bid Security and may also lead to any other action provided in the contract including banning of business for a period of upto **two** year. Further, I/we (insert name of the tenderer)** and all my/our constituents understand that my/our offer shall be summarily rejected.
9. I/we also understand that if the contents of the certificate submitted by us are found to be false/forged at any time after the award of the contract, it will lead to termination of the contract, along with forfeiture of Bid Security/Security Deposit and Performance guarantee and may also lead to

any other action provided in the contract including banning of business for a period of upto **two** year.

10. I/We have read the clause regarding restriction on procurement from a bidder of a country which shares a land border with India and certify that I am/We are not from such a country or, if from such a country, have been registered with the competent Authority. I/We hereby certify that I/we fulfil all the requirements in this regard and am/are eligible to be considered (evidence of valid registration by the competent authority is enclosed)

**SEAL AND
SIGNATURE
OF THE TENDERER**

Place:

Dated:

****The contents in Italics are only for guidance purpose. Details as appropriate are to be filled in suitably by tenderer.**

New Annexure V (A) , Part I of GCC shall be read as under.

Annexure –V(A)

Reference -Para 6. I of ITT

(This certificate is to be given by attorney/authorized signatory/each member of Partnership firm/Joint Venture/ Hindu Undivided Family (HUF) /Limited Liability Partnership (LLP) etc.)

I/We.....(Name), attorney/authorized signatory of the.....(constituent firm/constituent partner) and member/partner of the.....(tendering firm) hereby solemnly affirm and state as under:

1. I/we certify that..... (constituent firm/constituent partner) is/are not blacklisted or debarred by Railways or any other Ministry / Department of Govt. of India from participation in tender on the date of submission of bids, either in individual capacity or as a HUF/ member of the partnership firm/LLP/JV/Society/Trust.

2. I/We have read the clause regarding restriction on procurement from a bidder of a country which shares a land border with India and certify that I am/We are not from such a country or, if from such a country, have been registered with the competent Authority. I/We hereby certify that I/we fulfil all the requirements in this regard and am/are eligible to be considered (evidence of valid registration by the competent authority is enclosed),

SEAL AND SIGNATURE
OF THE CONSTITUENT FIRM/CONSTITUENT PARTNER

Place:

Dated:

ANNEXURE-VI

Reference -Para 10.3 & 17.15.3 of Tender Form (Second Sheet) of Annexure I of ITT

TENDERER'S CREDENTIALS (BID CAPACITY)

.....RAILWAY

For tenders having advertised value more than Rs 10 crore wherein eligibility criteria includes bid capacity also, the tenderer will be qualified only if its available bid capacity is equal to or more than the total value Of the present tender.

The available bid capacity shall be calculated as under:

$$\text{Available Bid Capacity} = [A \times N \times 2] - 0.33 \times N \times B$$

Where,

A = Maximum value of construction works executed and payment received in any one of the previous three financial years or the current financial year (up to date of inviting tender), taking into account the completed as well as works in progress.

N= Number of years prescribed for completion of work for which bids has been invited.

B= Existing commitments and balance amount of ongoing works with tenderer as per the prescribed proforma of Railway for statement of all works in progress and also the works which are awarded to tenderer but yet not started upto the date of inviting of tender.

Note:

(a) The Tenderer(s) shall furnish the details of-

- (i) Maximum value of construction works executed and payment received in any one of the previous three financial years or the current financial year (up to date of inviting tender) for calculating A, and
- (ii) Existing commitments and balance amount of ongoing works with tenderer as per the prescribed proforma of Railway for statement of all works in progress and also the works which are awarded to tenderer but yet not started upto the date of inviting of tender for calculating B. In case of no works in hand, a 'NIL' statement should be furnished.

The submitted details for (i) and (ii) above should be duly verified by Chartered Accountant.

(b) In case if a bidder is JV, the tenderer(s) must furnish the details of

- (i) Maximum value of construction works executed and payment received in any one of the previous three financial years or the current financial year (up to date of inviting tender) by each member of JV for calculating A, and
- (ii) Existing commitments and balance amount of ongoing works with each member of JV either in individual capacity or as a member of other JV as per the prescribed proforma of Railway for statement of all works in progress and also the works which are awarded to each member of JV either in individual capacity or as a member of other JV but yet not started upto the date of inviting of tender for calculating B. In case of no works in hand, a 'NIL' statement should be furnished.

The submitted details for (i) and (ii) above should be duly verified by Chartered Accountant.

- (c) Value of a completed work/work in progress/work awarded but yet not started for a Member in an earlier JV shall be reckoned only to the extent of the concerned member's share in that JV for the purpose of satisfying his/her compliance to the above mentioned bid capacity in the tender under consideration.
- (d) The arithmetic sum of individual "bid capacity" of all the members shall be taken as JV's "bid capacity" .
- (e) In case, the tenderer/s failed to submit the above statement along with offer, their/his offer shall be considered as incomplete and will be rejected **summarily**.
- (f) The available bid capacity of tenderer shall be assessed based on the details submitted by the tenderer. In case, the available bid capacity is lesser than estimated cost of work put to tender, his offer shall not be considered even if he has been found eligible in other eligibility criteria/tender requirement.

Annexure –VIA

Para 5 of the Instructions to Tenderers

(Bid Security)

Bank Guarantee Bond from any scheduled commercial bank of India

(On non-judicial stamp paper, which should be in the name of the Executing Bank).

Name of the Bank: -----

President of India,

Acting through,

..... Railway,

Beneficiary: Sr.DFM/BB Central Railway

Date:.....

Bank Guarantee Bond No.:

Date:-----

In consideration of the President of India acting through----- **(Designation & address of Contract Signing Authority)**, Railway,, (hereinafter called "The Railway") having invited the bid for_____through Notice inviting tender (NIT) No.,_____, We have been informed that **[Insert name of the Bidder]**/..... **(hereinafter called "the Bidder")** intends to submit its bid (hereinafter called "the Bid") .

WHEREAS, the Bidder is required to furnish Bid Security for the sum of **[Insert required Value of Bid Security]**, in the form of Bank Guarantee, according to conditions of Bid.

AND

WHEREAS,**[Insert Name of the Bank]**, with its Branch**[Insert Address]** having its Headquarters office at..... **[Insert Address]**, hereinafter called the **Bank**, acting through**[Insert Name and Designation of the authorised persons of the Bank]**, have, at the request of the Bidder, agreed to give guarantee for Bid Security as hereinafter contained, in favour of the Railway:

1. KNOW ALL MEN that by these present that I/We the undersigned **[Insert name(s) of authorized representatives of the Bank]**, being fully authorized to sign and incur obligations for and on behalf of the Bank, confirm that the Bank, hereby, unconditionally and irrevocably guarantee to pay to the Railway full amount in the sum of **[Insert required Value of Bid Security]** as above stated.
2. The Bank undertakes to immediately pay on presentation of demand by the Railway any amount up to and including aforementioned full amount without any demur, reservation or recourse. Any such demand made by the Railway on the Bank shall be final, conclusive and binding, absolute and unequivocal on the Bank notwithstanding any disputes raised/ pending before any Court, Tribunal, Arbitration or any Authority or any threatened litigation by the Bidder or Bank.
3. The Bank shall pay the amount as demanded immediately on presentation of the demand by Railway without any reference to the Bidder and without the Railway being required to show grounds or give reasons for its demand of the amount so demanded.
4. The guarantee hereinbefore shall not be affected by any change in the constitution of the Bank or in the constitution of the Bidder.
5. The Bank agrees that no change, addition, modifications to the terms of the Bid document or to any documents, which have been or may be made between the Railway and the Bidder, will in any way absolve the Bank from the liability under this guarantee; and the Bank, hereby, waives any requirement for notice of any such change, addition or modification made by Railway at any time.

6. This guarantee will remain valid and effective from.....***[insert date of issue]***till***[insert date, which should be minimum 90 days beyond the expiry of validity of Bid]***. Any demand in respect of this Guarantee should reach the Bank within the validity period of Bid Security.
7. The Bank Guarantee is unconditional and irrevocable.
8. The expressions Bank and Railway herein before used shall include their respective successors and assigns.
9. The Bank hereby undertakes not to revoke the guarantee during its currency, except with the previous consent in writing of the Railway. This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No.758.
10. The Bank hereby confirms that it is on the SFMS (Structured Financial Messaging System) and shall invariably send the advice of this Bank Guarantee to the following bank details –

IFSC CODE	SBIN000RAIL
IFSC TYPE	BRANCH
BANK NAME	STATE BANK OF INDIA
BRANCH NAME	RAIL
CITY NAME	NAVI MUMBAI
ADDRESS	SECTOR-11, CBD BELAPUR, NAVI MUMBAI
DISTRICT	NAVI MUMBAI
STATE	MAHARASHTRA
BG ENABLED	YES

11. The Guarantee shall be valid in addition to and without prejudice to any other security Guarantee(s) of Bidder in favour of the Railway. The Bank, under this Guarantee, shall be deemed as Principal Debtor of the Railway.

Date

Place.....

.....

Bank's Seal and authorized signature(s)

[Name in Block letters]

[Designation with Code]

No.]/.....

[P/Attorney] No.

Witness:

1 Signature, Name & Address & Seal

2 Signature, Name& address & Seal

Bank's Seal

*[P/Attorney]*No.

Note: All italicized text is for guidance on how to prepare this bank guarantee and shall be deleted from the final document.

Annexure –VIB

Reference -Para 10.2 & 17.15.2 of Tender Form (Second Sheet) of Annexure I of ITT

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

NAME OF BIDDER/JV PARTNER:

Annual Contractual Turnover Data for the Previous 3/4 Years (Contractual Payment only)			
Year	Amount Currency	Exchange Rate	Indian National Rupees Equivalent
Average Annual Contractual Turnover for last 3 years			

1. The average annual contractual turnover shall be calculated as an average of “total contractual payments” in the previous three financial years. However, in case balance sheet of the previous year is yet to be prepared/ audited, the audited balance sheet of the fourth previous year shall be considered for calculating average annual contractual turnover.
2. The information supplied shall be substantiated by data in the audited balance sheets and profit and loss accounts for the relevant years in respect of the bidder or all members constituting the bidder.
3. Contents of this form should be certified by a Chartered Accountant duly supported by Audited Balance Sheet duly certified by the Chartered Accountant.

SEAL AND SIGNATURE OF THE BIDDER

Certified that all figures and facts submitted in this form have been furnished after full consideration of all observations/notes in Auditor’s reports. _____

(Signature of Chartered Accountant)

Name of CA: _____

Registration No: _____

(Seal)

Proforma 'C'

DECLARATION FORMAT

As per GCC April 2022, Clause No 16 Employment/Partnership etc. of Retired Railway Employees

Clause	CONDITIONS	WRITE YES/NO WHICH IS APPLICABLE
16 (a)	(i) Should a tenderer be a retired Engineer of the gazetted rank or any other gazetted officer working before his retirement, whether in the executive or administrative capacity or whether holding a pensionable post or not, in the Engineering or any other department of any of the railways owned and administered by the President of India for the time being, OR	YES / NO In case where such Engineer or officer had not retired from government service at least 1 year prior to the date of submission of the Tender.
	(ii) Should a tenderer being partnership firm / joint venture (JV) / registered society / registered trust etc. have as one of its partners/members a retired Engineer of the gazetted rank or any other gazetted officer working before his retirement, OR	THEN The tenderer will give full information as to the date of retirement of such Engineer or gazetted officer from the said service and as to whether permission for taking such contract, or if the Contractor be a partnership firm or an incorporated company, to become a partner or director as the case may be, has been obtained by the tenderer or the Engineer or officer, as the case may be from the President of India or any officer, duly authorized by him in this behalf, shall be clearly stated in writing at the time of submitting the tender.
	(iii) Should a tenderer being an incorporated company have any such retired Engineer of the gazetted rank or any other gazetted officer working before his retirement as one of its directors	
16 (b)	In case, upon successful award of contract, should a tenderer depute for execution of the works under or to deal matters related with this contract, any retired Engineer of gazette rank or retired gazetted officer working before his retirement in the Engineering or any other department of any of the railways owned and administered by the President of India for the time being, and now in his employment.	YES/NO If yes then the tenderer will ensure that retired Engineer or retired gazetted officer had retired from government service at least 1 year prior to the date of his employment with tenderer and in case he had retired from service within a year then he possesses the requisite permission from the President of India or any officer, duly authorized by him in this behalf, to get associated with the tenderer.
16 (c)	Should a tenderer or Contractor being an individual, have member(s) of his family or in the case of partnership firm/ company / joint venture (JV) / registered society / registered trust etc. one or more of his partner(s) /	YES/NO If yes then the tenderer at the time of submission of tender, will inform

	shareholder(s) or member(s) of the family of partner(s)/shareholder(s)having share of more than 1% in the tendering entity employed in gazetted capacity in the Engineering or any other department of the railway	the Authority inviting tenders the details of such persons.
Note: - If information as required as per 16. a), b), c) above has not been furnished; contract is liable to be dealt in accordance with provision of clause 62 of Standard General Condition of contract.		

Date:
Signature

Place:

(Name of contractor/firm)

Annexure-XVII
Reference Para 16.(4)

Insurance Surety Bond for Performance Security

Name of the issuer of surety bond:

President of
India, Acting
through.....,
.....
Railway.

Date:.....
.....

Surety Bond No: _____
Amount of Bond: . _____

Issue
Date:.....
Expiry
Date:.....

WHEREAS, In consideration of the President of India acting through.....(Designation address contract signing authority),.....Railway,....., (hereinafter called "The Railway") having accepted the bid of M/S XXXXXXXX hereinafter called the contractor, for the work of XXX' under invitation for bids No XXXX Dated XXXXX, Vide Letter of Acceptance No.....

AND

WHEREAS, the contractor is required to furnish Performance Security for the sum of ₹.XXXX (Rupees XXXX Only), in the form of Surety Bond, being a condition precedent to the signing of the contract agreement.

WHEREAS, we,....., (Name of insurance company) hereinafter called the Surety, acting through [Designation(s) of the authorised person of the Surety], have, at the request of the M/S. contractor, agreed to give Bond for performance security/ additional performance security as hereinafter contained:

1. KNOW ALL MEN by these present that I/We, the undersigned [Insert name(s) of authorized representatives of the Surety], being fully authorized to sign and incur obligations for and on behalf of the Surety, confirm that the Surety, hereby, unconditionally and irrevocably Bond to pay the Railway the full amount in the sum of (Rupees XXXXX Only) as above stated.
2. The Surety undertakes to immediately pay on presentation of demand by the Railway any amount up to and including aforementioned full amount

without any demur, reservation or recourse. Any such demand made by the Railway on the Surety shall be final, conclusive and binding, absolute and unequivocal notwithstanding any disputes raised/pending before any Court, tribunal, arbitration or any authority or any threatened litigation by the Bidder or Bank.

3. On payment of any amount less than aforementioned full amount, as per demand of the Railway, the Bond shall remain valid for the balance amount i.e. the aforementioned full amount less the payment made to the Railway.
4. The Surety shall pay the amount as demanded immediately on presentation of the demand by Railway without any reference to the contractor and without the Railway being required to show grounds or give reasons for its demand or the amount demanded.
5. The Surety Bond shall be unconditional and irrevocable.
6. The Bond hereinbefore shall not be affected by any change in the constitution of the Surety or in the constitution of the Contractor.
7. The Surety agrees that no change, addition, modifications to the terms of the Contract Agreement or to any documents, which have been or may be made between the Railway and the Contractor, will in any way release us from the liability under this Bond; and the Surety, hereby, waives any requirement for notice of any such change, addition or modification to the Surety.
8. This Bond is valid and effective from the date of its issue, which is [insert date of issue]. The Bond and our obligations under it will expire on XXXX (Expiry Date). All demands for payment under the Bond must be received by us on or before that date.
9. The Surety agrees that the Railways right to demand payment of aforementioned full amount in one instance or demand payments in parts totalling up to the aforementioned full amount in several instances will be valid until either the aforementioned full amount is paid to the Railway or the Bond is released by Railway before the Expiry date.
10. The Surety agrees that its obligation to pay any amount demanded by the Railway before the expiry of this Bond will continue until the amount demanded has been paid in full.
11. The expressions Surety and Railway hereinbefore used shall include their respective successors, administrators and assigns.
12. The Surety hereby undertakes not to revoke the Bond during its currency, except with the previous consent in writing of the Railway. This Bond is subject to the Uniform Rules for Demand Bonds, ICC Publication No. 758.
13. We, the Surety Insurer, further agree that the Authority shall be the sole judge to decide as to whether the Bidder is in default of due and faithful fulfilment and compliance with the terms and conditions contained in the Bidding Documents including, inter alia, the failure of the Bidder to keep its Bid open during the Bid validity period set forth in the said Documents, and the decision of the Authority that the Bidder is in default as aforesaid shall be final and binding on us, notwithstanding any differences between the Authority and the Bidder or any dispute pending before any Court, tribunal, arbitrator or any other authority.
14. The Bond shall be in addition to and without prejudice to any other security Bond (s) of the contractor in favour of the Railway available with

the Railway. The Surety, under this Bond, shall be deemed as Principal Debtor of the Railway.

Notwithstanding anything to the contrary contained in these presents,

- a. Our liability under this Surety Bond shall not exceed **XXXX (Rupees XXXXXX only)**.
- b. This surety Bond shall be valid up to XXXX (being the date of expiry);
- c. Unless the bank is served a written claim or demand on or before XXXX[date of expiry] all right under this bond shall be forfeited and the surety shall be relieved and discharged from all liabilities under this Bond irrespective of wheather or not the original Suety bond is returned to the Surety.

Dated _____ the day of 2024

15. The Insurance Surety Bond shall be verified by sending mail to [customer.care@sbigeneral.in].

Place.....

Bank's Seal and authorized signature(s)

[Name in Block letter].....

[Designation with Code
No.].....

[P/Attorney] No.

Witness

- 1.
- 2.

[Note: All italicized texts are for guidance on how to prepare this Insurance Surety Bond and shall be deleted from the final document]

END OF TENDER BOOKLET